



# **4ESS<sup>TM</sup>-2000 Switch 4E22 Generic Transition Document**

234-090-050  
Issue 1.0  
March 1997

Lucent Technologies - Proprietary  
See notice on the following page

234-090-050  
4ESS™-2000 Switch 4E22 Generic Transition Document

Issue 1.0

March 1997

Developed by  
Lucent Technologies  
Network Systems/TS R&D Information Development

Lucent Product Training 1-888-LUCENT8 (582-3688)  
Prompt 2

**LUCENT TECHNOLOGIES PROPRIETARY**

This document contains proprietary information of Lucent Technologies and is not to be disclosed or used except in accordance with applicable agreements.

Copyright© 1997 Lucent Technologies. All Rights Reserved.

This material is protected by the copyright laws of the United States and other countries. It may not be reproduced, distributed, or altered in any fashion by any entity (either internal or external to Lucent Technologies), except in accordance with applicable agreements, contracts or licensing, without the express written consent of the TS R&D Information Development Organization and the business management owner of the material.





**234-090-050****4ESS™-2000 Switch 4E22 Generic Transition Document****Table of Contents**


---

	<b>TAB</b>
Introduction—How to Use This Document	
<b>Primary Features.....</b>	<b>A</b>
Number Portability (Feature 450) .....	1
Carrier Identification Parameter Trunk Subgroup Increase (Feature 480).....	2
Served Numbering Plan Area Expansion and Home Numbering Plan Area Improvements (Feature 4839) .....	3
LEC Office Data Assembler Manager (ODAMANager) (Feature 482).....	4
<b>XTSI Features.....</b>	<b>B</b>
Introduction .....	B
XTSI Trunk Appearance Number (TAN) Job Aid.....	B
XTSI DS1 Performance Monitoring on DS3 Facilities (Feature 452) .....	5
XTSI Checksum Macro (Feature 473) .....	6
XTSI Static A/B Bit Option (2-Wire) (Feature 487).....	7
XTSI Input/Output Message Specification (Feature 5111).....	8
XTSI Software Update Tool (Feature 5113).....	9
XTSI Service Control After Two DS3s Fail (Feature 5131).....	10
XTSI Rapid Restore (Feature 5505).....	11
<b>SCS Features.....</b>	<b>C</b>
Service Circuit System Automatic Speech Recognition Phase 2 (Feature 4801) .....	12
Service Circuit Systems Software Update Tool (Feature 5563) .....	13
<b>1B Features .....</b>	<b>D</b>
MUP Firmware Upgrade (Feature 469) .....	14
LEC Master Control Console Alarm Enhancement (Feature 474) .....	15
Program Store Expansion (Feature 3333) .....	16
1B Processor Tape Unit Elimination (Feature 5013) .....	17

*Continued on next page*

## Table of Contents, Continued

---

	<b>TAB</b>
<b>CNI Features.....</b>	<b>E</b>
Direct Link Node Integrated Ring Node No. 2 Upgrade (Feature 4694) .....	18
Attached Processor Interface Capacity Improvements (Feature 5003) .....	19
<b>Miscellaneous Features .....</b>	<b>F</b>
Call Register Restructure (Feature 444) .....	20
Extended Address Complete Message (ACM) Timer for Signaling System 7 (SS7) (Feature 461) .....	21
Grow Trunk Subgroup Block (Feature 466) .....	22
<b>Answers for Self Checks .....</b>	<b>G</b>

## Introduction—How To Use This Document

---

**Who Will Benefit From Reading This Document**

This document is designed for circuit provisioning personnel, network administrators, network planners, equipment engineers, and maintenance engineers. By reading this document, these individuals will be able to identify the new generic:

- hardware and software impact.
  - Recent Change (RC)/Office Data Assembler (ODA) impact.
  - feature implications.
  - feature dependencies
- 

**Background**

With each year's release of a new generic, TS R&D Information Development prepares and presents a seminar to teach customers what new features are available and how to use those features. Customers asked that instead of preparing a seminar TS R&D Information Development provide a document. This is that document. This document can be used in place of the seminar. It contains 22 chapters. Each chapter describes a new feature for the 4E22 Generic. Each chapter contains these ten sections:

- Introduction
- In This Chapter
- Advantages/Benefits
- Background
- Feature Description
- Call Flow
- Provisioning
- Feature Implementation
- Acronyms and Abbreviations
- Self Check

The sections that follow describe each chapter section in greater detail.

---

**Introduction**

This "Introduction" section provides a high level overview of the feature. By reading the introduction, the reader can determine if he or she wants more information about this feature. If that is the case, he or she can read the remainder of the chapter. If that is not the case, the reader can skip to the next chapter.

---

*Continued on next page*

## Introduction—How To Use This Document, Continued

---

### In This Chapter

The “In This Chapter” section provides a table of contents showing the name of each topic and the page in the chapter where that topic begins. By looking at the table, the reader can turn to the section he or she wants to reference without having to search through the whole chapter.

This chapter contains the following topics:

Topic	See Page
Who Will Benefit From Reading This Document	1
Background	1
Introduction	1
In This Chapter	2
Advantages/Benefits	2
Background	2
Feature Description	2
Call Flow	3
Provisioning	3
Feature Implementation	3
Acronyms and Abbreviations	3
Self-Check	3

### Advantages/ Benefits

The “Advantages/Benefits” topic provides a list of the key reasons that this feature is of interest. This section includes a list of advantages and benefits the reader can use to decide if this feature is useful in his or her situation.

### Background

The “Background” topic describes how the work performed by this new feature was done previously. This section provides the reader with a context to understand why the new feature is better or different.

### Feature Description

The “Feature Description” section describes how the feature works. By reviewing this section the reader can learn what the feature does and how the feature does it.

*Continued on next page*

## Introduction—How To Use This Document, Continued

---

<b>Call Flow</b>	The “Call Flow” section describes how the feature impacts call flow. The section includes both words and pictures wherever possible to provide both a “visual” and a “verbal” description of call flow. Reviewing this section helps the reader understand how the feature impacts call flow. If this feature does not impact call flow, a simple statement will say so.
<b>Provisioning</b>	The “Provisioning” section describes the provisioning necessary to add the new feature. Included in this section are any retrofit rules used in implementing the feature. By reviewing this section the reader can determine what provisioning to do to implement a new feature.
<b>Feature Implementation</b>	The “Feature Implementation” section lists any documents that are referenced while implementing the feature. Reading this section helps determine what documents need to be referenced as one prepares to implement the feature.
<b>Acronyms and Abbreviations</b>	The “Acronyms and Abbreviations” section includes a table that shows each term used in this chapter and a definition for that term. The reader can quickly learn the meaning of any term that is unfamiliar by referring to this section.
<b>Self Check</b>	The “Self-Check” section includes questions about key information included in the chapter. By correctly answering the self-check questions, the reader can confirm his or her understanding of key point about the feature. If one answers incorrectly, reviewing the self check answer and reference provided can help learn the information or correct a misunderstanding.

---





# **A Primary Features**

## **4ESS<sup>TM</sup>-2000 Switch 4E22 Generic Transition Document**

234-090-050  
Issue 1.0  
March 1997

Lucent Technologies - Proprietary  
See notice on the following page

234-090-050  
4ESS™-2000 Switch 4E22 Generic Transition Document

Issue 1.0

March 1997

Developed by  
Lucent Technologies  
Network Systems/TS R&D Information Development

Lucent Product Training 1-888-LUCENT8 (582-3688)  
Prompt 2

### **LUCENT TECHNOLOGIES PROPRIETARY**

This document contains proprietary information of Lucent Technologies and is not to be disclosed or used except in accordance with applicable agreements.

Copyright© 1997 Lucent Technologies. All Rights Reserved.

This material is protected by the copyright laws of the United States and other countries. It may not be reproduced, distributed, or altered in any fashion by any entity (either internal or external to Lucent Technologies), except in accordance with applicable agreements, contracts or licensing, without the express written consent of the TS R&D Information Development Organization and the business management owner of the material.

## 234-090-050

# 4ESS™-2000 Switch 4E22 Generic Transition Document

## Table of Contents

---

	<b>TAB</b>
<b>Primary Features.....</b>	<b>A</b>
Number Portability (Feature 450) .....	1
Carrier Identification Parameter Trunk Subgroup Increase (Feature 480) .....	2
Served Numbering Plan Area Expansion and Home Numbering Plan Area Improvements (Feature 4839) .....	3
LEC Office Data Assembler Manager (ODAMANager) (Feature 482).....	4

---





# **1 Number Portability**

## **Feature 450**

4ESS<sup>TM</sup>-2000 Switch 4E22 Generic  
Transition Document

234-090-050  
Issue 1.0  
March 1997

Lucent Technologies - Proprietary  
See notice on the following page

234-090-050  
4ESS™-2000 Switch 4E22 Generic Transition Document

Issue 1.0

March 1997

Developed by  
Lucent Technologies  
Network Systems/TS R&D Information Development

Lucent Product Training 1-888-LUCENT8 (582-3688)  
Prompt 2

### **LUCENT TECHNOLOGIES PROPRIETARY**

This document contains proprietary information of Lucent Technologies and is not to be disclosed or used except in accordance with applicable agreements.

Copyright© 1997 Lucent Technologies. All Rights Reserved.

This material is protected by the copyright laws of the United States and other countries. It may not be reproduced, distributed, or altered in any fashion by any entity (either internal or external to Lucent Technologies), except in accordance with applicable agreements, contracts or licensing, without the express written consent of the TS R&D Information Development Organization and the business management owner of the material.

## Chapter 1

### Number Portability - Feature 450

---

**Introduction**      The Number Portability (NP) feature allows the end user the capability of moving their original directory number from one central office to another central office.

---

**In This Chapter**      This chapter contains the following topics:

Topic	See Page
Introduction	1-1
In This Chapter	1-1
Advantages/Benefits	1-2
Definitions	1-2
Background	1-4
AIN Existing Capabilities	1-4
Feature Description	1-5
NP Called Number Trigger (CNT)	1-5
ISUP and TCAP Messages	1-5
NP Queries	1-5
Call Flow (Intermediate 4ESS Switch Performs NP Query)	1-6
Call Flow (Originating and Terminating Exchanges Both NP-Capable)	1-8
Call Flow (Intermediate NP Hub for Non-NP Capable Terminating EO)	1-10
Provisioning	1-13
Recent Change Forms Impacted	1-13
RC 100 Series Trunk Subgroup Group	1-14
RC 500 Series Routing Data Blocks	1-16
RC 617 Far End Network	1-18
RC 345 AIN Trigger	1-20
Verify Forms/Messages Affected	1-24
Global Title Translation	1-25
Form RC 626	1-26
Feature Implementation	1-27
AMA	1-27
Measurements	1-27
Acronyms and Abbreviations	1-28

*Continued on next page*

## Number Portability - Feature 450, Continued

### Advantages/ Benefits

This feature is a necessary capability in order for local loop competition to take place. Local loop competition is a requirement for the Regional Bell Operating Companies (RBOCs) to enter new markets like long distance and video.

### Definitions

The following are definitions of terms used throughout this document:

Terms	Definitions
Advanced Intelligent Network (AIN) Called Number Trigger (CNT)	This is an existing capability which utilizes switch logic and network data bases to provide enhanced features for specific called numbers.
Dialed Number (DN)	A dialed number may consist of a prefix plus address digits or an access code.
Geographic Portability	Allows the end-user to retain his/her dialed number after changing physical locations.
Incumbent Exchange	The switch the dialed number was initially ported from, also referred to as the "donor switch."
Intra-LATA Portability	Providing number portability within a Local Area Transport Access (LATA).
LATA	Defined geographic area.
Location Routing Number (LRN)	A 10-digit number used to route calls to a switch that serves ported numbers. The Numbering Plan Area-Central Office Code (NPA-NXX) portion of the LRN is used to uniquely identify the switch (end office within the switch) and the last four digits of the LRN corresponds to an unassigned line number within that NPA-NXX. LRN is also known as Network Routing Address (NRA).

*Continued on next page*

## Number Portability - Feature 450, Continued

### Definitions (Continued)

Terms	Definitions
Non-involved Switch	A switch that does not have any numbers ported to/from it.
Non-NP Capable Switch	A switch that does not have NP capability but may still have numbers ported to/from it.
Portable NPA-NXX	NPA-NXX which has at least one number ported from it.
Ported Number	A dialed number that has been moved from one exchange to another exchange or from one rate center to another on the same switch.
Rate Center	The division of an exchange into zones for billing purposes.
Service Portability	Allows an end-user to retain his/her dialed number after changing services, e.g., Plain Old Telephone Service (POTS) to Integrated Services Digital Network (ISDN).
Service Provider Portability	Allows an end-user to retain his/her dialed number after changing service providers.
Serving Exchange	The switch the dialed number is ported to (also referred to as the "recipient" switch) or the switch providing NP capability for an old-technology switch the dialed number is ported to.
Signal Ported Number	Outgoing Trunk Subgroup (TSG) indicator which tells if the destination switch supports Number Portability. The population of this indicator is: Y if destination switch is not NP capable so only ported number is signaled, blank or N if destination switch is NP capable so LRN is signaled.

*Continued on next page*

## Number Portability - Feature 450, Continued

---

### **Background**

Number Portability utilizes two existing facets of the network: Advanced Intelligent Network (AIN) capabilities and the Signaling System 7 (SS7) capabilities. So the triggering (determining that an NPA-NXX requires a database query), querying of a database and receiving a response from a database operate with AIN functionality. The signaling network facilities, i.e., the signaling links, Signal Transfer Points (STPs), Service Control Points (SCPs), and System Management System (SMS) provide the mechanism to accomplish the querying and response processes.

SS7 signaling links must be engineered to handle the additional load of Number Portability queries and SS7 call legs needed to route calls to ported customers from a switch.

### **AIN Existing Capabilities**

Advanced Intelligent Network (AIN) capabilities are utilized by this feature. These capabilities allow the LEC 4ESS Switch, referred to as the Service Switching Point (SSP), to recognize calls that require advance call treatment and to obtain instructions for processing the call from a centralized database, known as a Service Control Point (SCP), instead of from logic contained in the switch. The SCP database is connected via data links to a Signal Transfer Point (STP) as well as the SSP office. The interface with the SCP database uses SS7 Transaction Application Part (TCAP) protocol. The STP provides routing of the TCAP messages sent between the SSP and the SCP. The process of identifying calls that require AIN processing is known as “triggering” since a particular characteristic of the call “triggers” the switch into providing AIN treatment. Once a trigger occurs, the SSP temporarily suspends the call processing and sends a query message to the SCP requesting instructions. Based on information contained in the query message, the SCP determines which service is being requested and provides appropriate information, such as routing and billing instructions, that the SSP then executes to complete the call.

---

*Continued on next page*

## Number Portability - Feature 450, Continued

---

### Feature Description

This feature allows the 4ESS™ Switch Access Tandem (AT) to act as an NP capable tandem exchange in local networks which supports number portability. The methodology uses a 10-digit Local Routing Number (LRN) (also referred to as a Network Routing Address) to route to the switch serving the ported number. Only intra-Local Area Transport Access (intra-LATA) geographic portability is supported at this time.

### NP Called Number Trigger (CNT)

This feature introduces a new AIN CNT, termed an NP CNT. When an NPA-NXX is defined as portable, an NP CNT is assigned to that number in the switch so that a query to the SCP is made. SCP service logic is defined to return a Local Routing Number (LRN) of the serving switch for the dialed numbers within the NPA-NXX that have been ported. When the SSP receives the LRN from the SCP, the LRN is used to route the call to its correct destination.

### ISUP and TCAP Messages

The LRN is forwarded in the ISDN User Part (ISUP) Initial Address Message (IAM) in the Called Party Number parameter. The actual called party number will be carried in the Generic Address Parameter (GAP). The Forward Call Indicator (FCI) parameter in the IAM is used to indicate whether an NP query has been performed. This is used to prevent more than one NP query from being launched on a call.

Non-ported dialed numbers in portable NPA-NXXs result in the SCP sending an Analyze Route with the actual called number and no LRN.

AIN Default routing may be applied if the SCP cannot be accessed due to abnormal circumstances. If AIN Default routing has not been purchased or has not been provisioned, the call receives final handling.

### NP Queries

NP Queries are made by the network "owning" the call. For calls routed to an Interexchange Carrier (IEC) network, the Local Exchange Carrier (LEC) forwards the call without making an NP query, and the carrier performs the NP query. Calls routed entirely within the LEC network have the NP query performed by the first NP-capable switch handling the call, typically the originating end office. If the switch serving the calling subscriber does not have NP capability, the call is routed to a tandem switch which is NP-capable, and the tandem launches the query to determine routing.

---

*Continued on next page*

## Number Portability - Feature 450, Continued

### Call Flow (Intermediate 4ESS Switch Performs NP Query)

The steps below describe the performance of the NP query for calls from non-NP capable originating end offices:

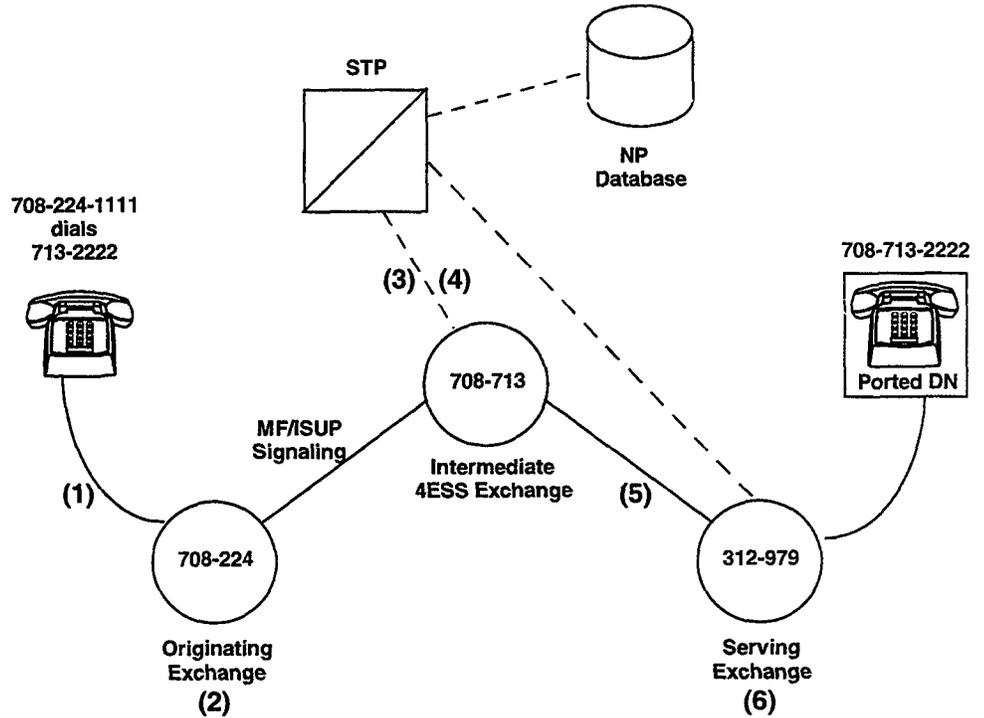


Figure 1. Intermediate 4ESS Switch Performs NP Query

*Continued on next page*

## Number Portability - Feature 450, Continued

**Call Flow**  
**(Intermediate**  
**4ESS Switch**  
**Performs NP**  
**Query)**  
**(Continued)**

Task	Description
1	Line A (708-224-1111) dials Line B (708-713-2222).
2	The Originating Exchange (non-NP-capable) performs digit analysis on the called number and routes the call to the 4ESS Intermediate Exchange.
3	The 4ESS Intermediate Exchange translates the called number and encounters an NP CNT. The switch sends a query to the NP-SCP.
4	The SCP response contains the LRN of the Serving Exchange.
5	The 4ESS translates the LRN and determines an ISUP route out of the office. The "signal ported number" option is NO for the outgoing TSG, so the LRN is forwarded in the Called Party Number (CdPN) parameter and the called party number received from the Originating Exchange is forwarded in the Generic Address Parameter (GAP). The 4ESS sets the Forward Call Indicator (FCI) Translated Called Number Indicator to indicate that an NP query has been performed (i.e., set to 1).
6	The Serving Exchange receives and processes the Initial Address Message (IAM). It recognizes the LRN as its own, so it uses the called party digits stored in the GAP parameter to complete the call to the subscriber.

The following are the implications of the above call flow as pertains to the different network entries involved:

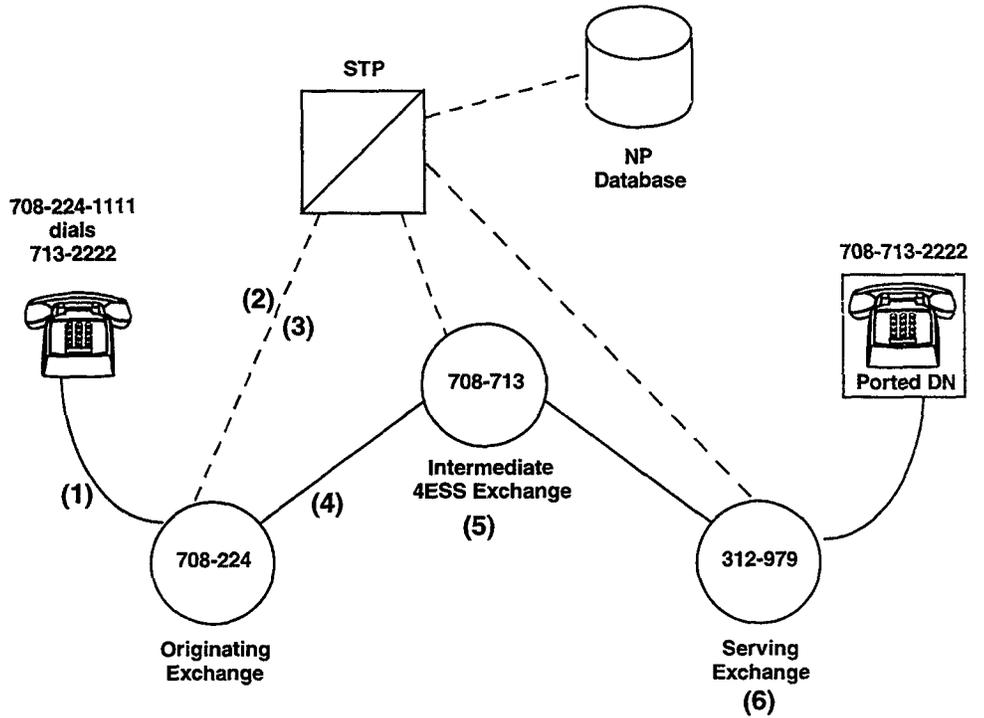
1. The NP data base must be provisioned with ported numbers.
2. STP pairs must be specified, i.e., subsystem numbers assigned for Global Title Translation (GTT).
3. RC 345 form must be defined for each NPA-NXX used for porting and used as triggering mechanism between 4E/STP/data base.
4. Each LEC must determine how many digits to be used for populating RC 345 form, i.e., which switch makes the query.
5. Data base responds with LRN (**remember**, routing must be defined for LRN).

*Continued on next page*

## Number Portability - Feature 450, Continued

### Call Flow (Originating and Terminating Exchanges Both NP- Capable)

The steps below describe the origination and termination exchanges both NP-capable:



**Figure 2. Originating and Terminating Exchanges Both NP-Capable**

*Continued on next page*

## Number Portability - Feature 450, Continued

**Call Flow  
(Originating  
and  
Terminating  
Exchanges  
Both NP-  
Capable)  
(Continued)**

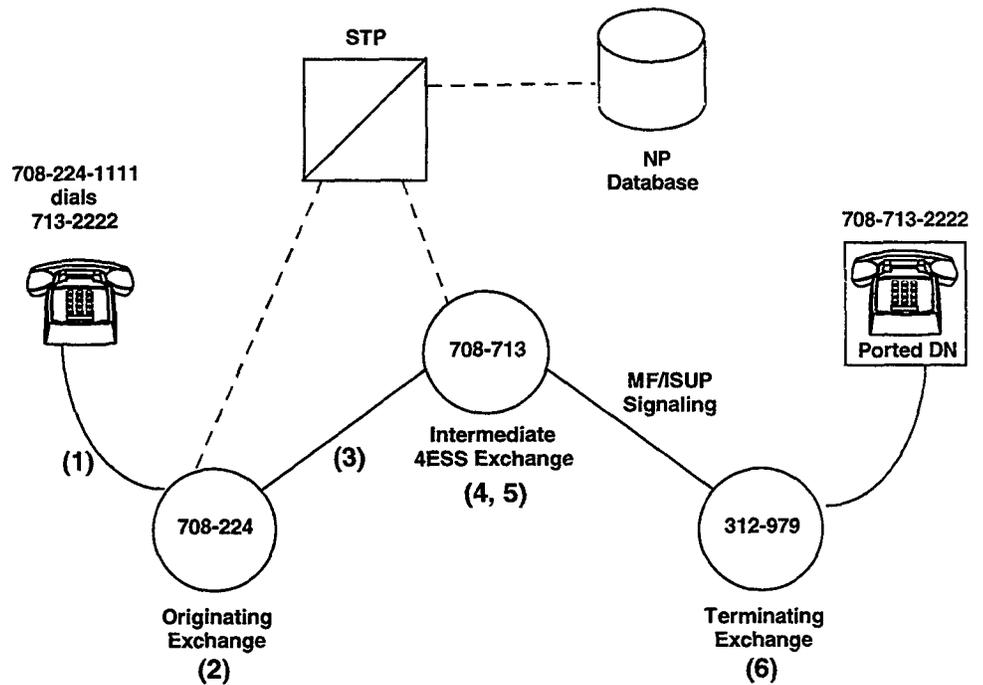
Task	Description
1	Line A (708-224-1111) dials Line B (708-713-2222).
2	The originating exchange encounters an NP trigger on 708-713 and queries the NP-SCP.
3	The SCP response contains the LRN of the Serving Exchange.
4	The originating exchange translates the LRN and routes the call to the 4ESS intermediate exchange. The LRN is forwarded in the CdPN parameter, the called party number is forwarded in the GAP, and the FCI Translated Called Number Indicator is set to indicate an NP query has already been performed (i.e., set to 1).
5	The 4ESS Intermediate Exchange receives and processes the IAM. The outgoing route is chosen based on translation of the LRN. The outgoing TSG is marked to outpulse the LRN ("signal ported number," option set to NO), so the LRN (contained in the CdPN), the GAP, and FCI are forwarded to the Serving Exchange.
6	The Serving Exchange receives and processes the contents of the IAM. It recognizes the LRN as its own, so it uses the called party digits contained in the GAP parameter to complete the call to the subscriber.

*Continued on next page*

## Number Portability - Feature 450, Continued

**Call Flow  
(Intermediate  
NP Hub for  
Non-NP  
Capable  
Terminating  
EO)**

The steps below describe the intermediate NP hub for non-NP capable terminating End Office (EO):



**Figure 3. Intermediate NP Hub for Non-NP Capable Terminating EO**

*Continued on next page*

## Number Portability - Feature 450, Continued

**Call Flow  
(Intermediate  
NP Hub for  
Non-NP  
Capable  
Terminating  
EO)  
(Continued)**

Task	Description
1	Line A (708-224-1111) dials Line B (708-713-2222).
2	The originating exchange encounters an NP trigger on 708-713 and queries the NP-SCP.
3	The SCP response contains the LRN of the Serving Exchange. The originating exchange translates the LRN and routes the call to the 4ESS intermediate exchange. The LRN is forwarded to the CdPN parameter, the called party number is forwarded in the GAP, and the FCI Translated Called Number Indicator is set to indicate an NP query has already been performed (i.e., set to 1).
4	The 4ESS Intermediate Exchange receives and processes the IAM. The outgoing route is chosen based on translation of the LRN. The outgoing ISUP TSG's "signal ported number" option is marked YES (outpulse the called party number rather than the LRN) so the 4ESS is acting as an NP Hub for a non-NP capable end office.
5	Because of the TSG marking (ISUP) or in-band signaling (MF), the 4ESS replaces the LRN with the called party number digits contained in the ported number GAP parameter to signal to the non-NP capable exchange.

*Continued on next page*

## Number Portability - Feature 450, Continued

---

This page is left blank on purpose.

---

*Continued on next page*

## Number Portability - Feature 450, Continued

---

### Provisioning

#### Recent Change (RC) Forms Impacted

The following is a summary of the data administration requirements:

- Two new code group Called Number Trigger indicators for AIN & NP (RC345)
  - Code group Type of Service item for NP (RC345)
  - Routing Data Block indicator, revised population rules (RC500)
  - TSG (outgoing) Signal Ported Number, new field (RC100)
  - TSG (incoming) 10 digit Location Routing Number, new field (RC100)
  - TSG (incoming) 10 digit Connecting Network Access Billing Number Option, new field (RC100)
  - TSG (incoming) Connecting Network Billing Number, new field (RC100)
  - TSG FENCLASS revised population rules (RC617)
- 

*Continued on next page*



## Number Portability - Feature 450, Continued

### Provisioning (Continued)

### RC 100 Series Trunk Subgroup Group (Continued)

New Trunk Subgroup (TSG) characteristics are added on the RC100 Series forms. Four new fields are added for this feature:

CBN -	Incoming trunk connecting network access billing number option. Valid entries: "blank" - no special Automatic Message Accounting(AMA) recording options (the default), "N" - Non-Feature group-D signaled calls, and "L" - Number Portability Non-Feature group-D signaled calls."
CBN DIGS -	Incoming Trunk TSG connecting network access billing number digits. Valid entry: 10-digit number.
LRN -	Local Routing Number. Valid entry: 10-digit number identifying a Local Service Provider (LSP) End Office. LRN is used to provide Jurisdiction Information Parameter (JIP) if not present in initial ISUP IAM or Incoming Trunk (ICT) is Multifrequency (MF). Will use first six digits of LRN.  NOTE: The translation domain for LRN must be in the POTS domain. The exception would be for data calling which must be translated in the data domain.
SPN -	Signal Ported Number (SPN) outgoing TSG indicator. Valid entries: Y, N, blank (if "Y," the destination switch is not considered NP-capable and only the Ported Number will be signaled, not the LRN. SPN is used if destination switch is not NP capable.

Whether to bill call, used for Competitive Local Exchange Carrier (CLEC). Always get bill for interlata calls.

CBN	CBN Digits	
N	10D	Intralata calls billed NP & others
L	10D	NP (queried)

*Continued on next page*



## Number Portability - Feature 450, Continued

---

Provisioning  
(Continued)

### RC 500 Series Routing Data Blocks (Continued)

Population rules for this form are impacted as a result of this feature.

DNHRTYPE -	Dynamic Non-Hierarchical Routing Type. Valid entry: "ID". This entry specifies that delete and prefix are ignored for NP calls routed on a LRN where signaling is done on the ported number.
------------	--

*Continued on next page*

## Number Portability - Feature 450, Continued

---

### Provisioning RC 617 Far End Network (Continued)

```

INPUT:                                VERIFY #16m
VER:FEN:CLASS a[,FID b]!(EOT)
OUTPUT:                                VERIFY 6s
VER:FEN:                                CLASS -----, FID -----,
AFA --,
RECORDING SCREENING AND QUERY TREATMENT
UNSP -, ATAP -, CUSP -, CARP -, CANP -, HAWP -, NWZ1 -, INW -,
DSD -, DLT -, TC -, DA -, IOP -, TST -, RSYS -, MSC1 -,
MSC2 -, MSC3 -, MSC4 -, INCN -, ALAP -, CUTP -, INCO -, EASC -,
ICIN -, SC1 -, SC2 -, SC3 -, SC4 -, SC5 -, SC6 -, SC7 -,
SC8 -, SC9 -, SC10 -, SC11 -, SC12 -, SC13 -, SC14 -, SC15 -,
SC16 -, SC17 -, SC18 -, SC19 -, SC20 -, SC21 -, SC22 -, SC23 -,
SC24 -, SC25 -, SC26 -, SC27 -, SC28 -, SC29 -, SC30 -, SC31 -,
SC32 -, SC33 -, SC34 -, SC35 -, SC36 -, SDN -, LDA -, SSP -,
SPDI -, MULT -, MCPP -, INET -, SDND -, QTM -,
SCREENING TREATMENT
DEF1 -, DEF2 -, DEF3 -, DEF4 -, DFHT ----,
ODA INPUT SOURCE - FORM ESS 406L
RECENT CHANGE INPUT SOURCE - FORM # 617/618

```

---

*Continued on next page*

## Number Portability - Feature 450, Continued

Provisioning  
(Continued)

### RC 617 Far End Network (Continued)

CLASS -	Far End Network Classification. The population rules that allow a <b>FENCLASS</b> to be <b>OEO</b> are modified to allow (LEC) NP feature Connecting Network Access (CNA) recording.
---------	--

*Continued on next page*

# Number Portability - Feature 450, Continued

**Provisioning  
(Continued)**

## RC 345 AIN Trigger

# FORM 345 SET/RESET AIN TRIGGER  
4E22R2>

RC:AIN;OPT(LIST), \_\_\_\_:

ORNU \_\_\_\_\_, ACTION \_\_,

DOM AC ABC DEF GHI J  
\_\_\_\_, \_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_,

TTYPE	LTOS	TOS	FH	SCSANN	DRCC	DFRN
____,	____,	____,	____,	____,	____,	____,

REMARKS \_\_\_\_\_!

ASSOCIATED VERIFY MESSAGES

INPUT-13t-VER:AIN:LIST

OUTPUT-3aj-VER:AIN;OPT(LIST)

*Continued on next page*

## Number Portability - Feature 450, Continued

### Provisioning (Continued)

### RC 345 AIN Trigger (Continued)

Triggers are added or deleted one at a time using the RC345 Form. Two new fields (TTYTYPE and LTOS) are being added to accommodate this feature. These new fields are required to differentiate an AIN trigger from an NP trigger, allowing a trigger to be assigned as either NP, AIN, or both. Also, the population rules for the existing TOS requires updating to have it relate to the new Trigger Type indicators for both AIN and NP.

TTYTYPE -	Trigger Type. Valid entries can be either AIN (A), NP (L), or Both (B).
LTOS -	Number portability Type of Service. Valid entries: 0 to 31 or blank.
TOS -	Call Type - Type of Service. Valid entries: 0 to 31, blank.

<b>Valid form entries - TTYTYPE versus LTOS &amp; TOS</b>		
if the LTOS/TOS "must be" conditions are not met reject RC Form 345		
<b>Valid Entries</b>	<b>LTOS must be</b>	<b>TOS must be</b>
TTYTYPE is "A"	blank	0 - 31
TTYTYPE is "L"	0 - 31	blank
TTYTYPE is "B"	0 - 31	0 - 31

*Continued on next page*

# Number Portability - Feature 450, Continued

**Provisioning  
(Continued)**

## RC 345 AIN Trigger (Continued)

# FORM 345 SET/RESET AIN TRIGGER  
4E22R2>

RC:AIN;OPT(LIST), \_\_\_\_:

ORNU \_\_\_\_\_, ACTION \_\_,

DOM AC ABC DEF GHI J  
POTS, Y, 708, 713, \_\_, \_\_,

TTYPE LTOS TOS FH SCSANN DRCC DFRN  
L, 2, \_\_, \_\_, \_\_\_\_\_, \_\_, \_\_\_\_\_,

REMARKS \_\_\_\_\_!

ASSOCIATED VERIFY MESSAGES

INPUT-13t-VER:AIN:LIST

OUTPUT-3aj-VER:AIN;OPT(LIST)

*Continued on next page*

## Number Portability - Feature 450, Continued

### Provisioning (Continued)

### RC 345 AIN Trigger (Continued)

```
# FORM 345 SET/RESET AIN TRIGGER
4E22R2>
```

```
RC:AIN;OPT(LIST), _____:
```

```
ORNU _____, ACTION __,
```

```
DOM AC ABC DEF GHI J
POTS, N, 713, __, __, __,
```

```
TTYPE LTOS TOS FH SCSANN DRCC DFRN
L, 2, __, __, _____, __, _____,
```

```
REMARKS _____!
```

ASSOCIATED VERIFY MESSAGES

INPUT-13t-VER:AIN:LIST

OUTPUT-3aj-VER:AIN;OPT(LIST)

- Assumes 708 Home Numbering Plan Area (HNPA).
- Also TOS 2 is AIN TOS or may be a unique NP TOS.
- Note that NP uses AIN Sub System Number (SSN).
- If unique TT for NP, need RC 626 and GTTRAN.
- Need RC 626 and GTTRAN if using AIN for first time.
- For FH → DFRN, same rules for AIN default routing.

*Continued on next page*

## Number Portability - Feature 450, Continued

---

**Provisioning  
(Continued)**

**Verify Forms/Messages Affected**

Verify AIN output form - 3aj

Verify CODEGRP output forms - 3a, 3c, 3e, 3v

Verify Routing Data Block (RDB) output forms - 5a & 5f

Verify TSG forms - Incoming TSG 1a & 1b

Verify VER:TSGLIST input message - 11d

---

*Continued on next page*

## Number Portability- Feature 450, Continued

Provisioning  
(Continued)

### Global Title Translation

**Table 10. Global Title Translation (gttran) Data Items**

GTTRAN DATA ITEMS	DATA TYPE	RANGE
ITEM NUMBER	numeric	001 to 999
TRANSLATION TYPE	numeric	0 to 256
EVEN STP PC	numeric	9 characters
ODD STP PC	numeric	9 characters

**Figure 14. Global Title Translator (gttran) - (chg) Page Example**

```

***** CNI DATA MANAGEMENT SYSTEM ***** DATE: 04/23/86  TIME: 13:42 *****
FUNCTION: gttran ACTION: chg ORDER: 06Y00055500  OFFICE: NPVLILIH2MD

      GLOBAL TITLE TRANSLATIONS

      ITEM:                001

      TRANSLATION TYPE:    241
      EVEN STP PC:        250007000
      ODD STP PC:         250007000

```

If adding new TOS, need to populate CNI.

*Continued on next page*

## Number Portability - Feature 450, Continued

---

### Provisioning (Continued)

### Form RC 626

# FORM 626 TYPE OF SERVICE TO DIALED CODE MAPPING  
4E21R3>

RC:TOS;CHG;\_\_\_:

ORNU \_\_\_\_\_,

TOS 2, TT 241, SSN 248\*, OLD CODE 000, NEW CODE 199, AIN TFREE \_,

REMARKS If Adding a New TOS for NP. \_\_\_\_\_!

EQUIVALENT ODA INPUT FORM - ESS 406R

ASSOCIATED VERIFY MESSAGES

INPUT-16v-VER:TOS

OUTPUT-6ac-VER:MISC,OPT(TOS)

\*This entry is a required field but is not currently being used in software.  
Recommend putting the previously provisioned AIN SSN here for  
consistency.

---

*Continued on next page*

## Number Portability - Feature 450, Continued

**Feature Implementation** An On/Off purchased bit must be assigned to activate this feature. Refer to the NP-LRN Feature User Guide (234-090-020) for implementation of this feature.

### AMA

A flexible new NP AMA module (720) is appended to existing AMA records for calls encountering the NP trigger which result in querying the NP SCP.

The Module 720 appears as follows:

Information	Table Number	# of Characters
Module Code	88	4
Party Identifier	730	4
LRN	731	12
Service Provider Identity	732	10
Location	733	16
Supporting Info	734	8

In addition, a new AMA call code is defined to support "Connecting Network Access" charge recording for calls which cross local network boundaries but for which existing access charge recording does not apply. This new "Connecting Network Access" call code is used in conjunction with existing AMA structure code.

### Measurements

Three new counts are added to the existing set of AIN measurements for this feature.

These counts are:

- NP queries sent
- NP queries successful
- NP Ported Number calls

*Continued on next page*

## Number Portability - Feature 450, Continued

**Acronyms and Abbreviations** The following are acronyms and abbreviations of terms used throughout this document:

Terms	Definitions
AIN	Advanced Intelligent Network
AMA	Automatic Message Accounting
AT	Access Tandem
CBN	Connecting Billing Number
CdPN	Called Party Number
CLEC	Competitive Local Exchange Carrier
CNA	Connecting Network Access
CNT	Called Number Trigger
DN	Dialed Number
DNHRTYPE	Dynamic Non-Hierarchical Routing Type
EO	End Office
FCI	Forward Call Indicator
GAP	Generic Address Parameter
GTTRAN	Global Title Translation
HNPA	Home Number Plan Area
IAM	Initial Address Message
ICT	Incoming Trunk
ISDN	Integrated Services Digital Network
ISUP	ISDN User Part
JIP	Jurisdiction Information Parameter
LATA	Local Area Transport Access
LEC	Local Exchange Carrier
LRN	Location Routing Number
LSP	Local Service Provider
MF	Multifrequency
NP	Number Portability
NRA	Network Routing Address
POTS	Plain Old Telephone Service
RBOC	Regional Bell Operating Company
RDB	Routing Data Block
RC	Recent Change
SCP	Service Control Point
SMS	System Management System

*Continued on next page*

---

## Number Portability - Feature 450, Continued, Continued

---

### Acronyms and Abbreviations (Continued)

Terms	Definitions
SSN	Sub System Number
SPN	Signal Ported Number
SS7	Signal System 7
SSP	Service Switching Point
STP	Signal Transfer Point
TCAP	Transaction Application Part
TOS	Type of Service
TSG	Trunk Subgroup

---



# **SELF CHECK**

## **Chapter 1**

### **Number Portability - Feature 450**

1. List an advantage of the Number Portability (NP) feature:

---

2. List and define the four new fields on the RC 100 form associated with this feature:

---

---

---

---

3. What happens to a call if the switch serving the calling subscriber does not have the NP capability?

- a. The call does not complete.
- b. The call is routed to a tandem switch which is NP capable.
- c. The call is routed to a recorded announcement.

4. List three Recent Change (RC) forms required for call processing:

---

---

---

5. Which Recent Change form is required to add a new Type of Service (TOS) for this feature?

---

6. Which database must be provisioned with the signal ported numbers?

---

7. What is the name of the new trigger for NP?

---





# **2 Carrier Identification Parameter Trunk Subgroup Increase Feature 480**

4ESS<sup>TM</sup>-2000 Switch 4E22 Generic  
Transition Document

234-090-050  
Issue 1.0  
March 1997

234-090-050  
4ESS™-2000 Switch 4E22 Generic Transition Document

Issue 1.0

March 1997

Developed by  
Lucent Technologies  
Network Systems/TS R&D Information Development

Lucent Product Training 1-888-LUCENT8 (582-3688)  
Prompt 2

### **LUCENT TECHNOLOGIES PROPRIETARY**

This document contains proprietary information of Lucent Technologies and is not to be disclosed or used except in accordance with applicable agreements.

Copyright© 1997 Lucent Technologies. All Rights Reserved.

This material is protected by the copyright laws of the United States and other countries. It may not be reproduced, distributed, or altered in any fashion by any entity (either internal or external to Lucent Technologies), except in accordance with applicable agreements, contracts or licensing, without the express written consent of the TS R&D Information Development Organization and the business management owner of the material.

## Chapter 2

### Carrier Identification Parameter (CIP) Trunk Subgroup Increase - Feature 480

#### Introduction

Due to the changes in the regulatory environment and the expected growth of Interexchange Carrier (IXC) network resale to other switchless carriers, the number of carriers whose calls are being routed to the same number of IXC networks is increasing. Therefore, the current capability of passing 16 unique increasing Carrier Identification Codes (CICs) values is not sufficient and CIC values to 63 supports the additional growth needs.

#### In This Chapter

This chapter contains the following topics:

Topic	See Page
Introduction	2-1
In This Chapter	2-1
Advantages/Benefits	2-2
Background	2-2
Feature Description	2-2
Call Flow	2-2
Provisioning	2-3
RC Form 113	2-3
Verify Form 16az	2-4
Verify Form 1i	2-4
Feature Implementation	2-4
Acronyms and Abbreviations	2-4

*Continued on next page*

## Carrier Identification Parameter (CIP) Trunk Subgroup Increase - Feature 480, Continued

---

### Advantages/ Benefits

The CIP Trunk Subgroup (TSG) increase feature provides more efficient use of the Local Exchange Carriers (LEC) to IXC trunking by increasing the CICs to 63 per TSG. LEC switches directly connected to IXC TSGs have the following benefits:

- include the Carrier Identification Parameter (CIP) in outgoing Initial Address Messages (IAM) per TSG
  - per CIC value
  - on an IXC subscription basis
  - allows independent control of each CIC value for each TSG
- 

### Background

The Carrier Identification Parameter feature (406) provided the capability to consolidate trunk groups from the LEC end offices or Access Tandems (ATs) to IXCs. This delivered CIC information associated with individual calls to the IXC via the Signaling System 7 (SS7) CIP. The CIC associated with each call is carried by the CIP in the IAM during call setup. The CIP is delivered to the IXC in a forward direction to indicate the originator's CIC. LEC switches using directly connected IXC trunk groups include the CIP in an outgoing IAM on a per trunk group, per CIC value, IXC subscription basis. The number of unique CIC values which passed to an IXC for a given TSG was 16.

---

### Feature Description

The CIP TSG Increase feature allows the customer to specify 63 unique CICs per TSG. The overall capacity of the CIP translator does not change and the CICs can be provisioned with up to 64K of memory.

---

### Call Flow

Call Flow is not impacted by this feature.

---

*Continued on next page*

# Carrier Identification Parameter (CIP) Trunk Subgroup Increase - Feature 480, Continued

**Provisioning**

An ON/OFF purchased bit must be assigned before the office can support 63 CICs per TSG. If this indicator is not purchased, only 16 CICs will be allowed for each TSG.

**RC Form 113**

# FORM 113 REPLACE CARRIER IDENTIFICATION CODE LIST  
4E18 R4>

RC:TSG;CHG;OPT(CICS),---: BTFN TOWN ST BL FBS  
NBS

ORNU \_\_\_\_\_, TSG \_\_\_\_\_  
\_\_\_\_,

OLDFTFN	CIC	CIC	CIC	CIC
	----	----	----	----
	----	----	----	----
	----	----	----	----
	----	----	----	----

REMARKS \_\_\_\_\_!

Each TSG between AT and the IXC must be provisioned to indicate which CICs can be sent in the CIP to the IXC. Provisioning CICs per TSG is done using RC Form 113. When new CIC data is entered on this form, the original CIC data on RC Form 113 defined for a specific TSG is replaced. The TSG name and a maximum of 63 4-digit CICs can be entered for that TSG. The TSG name must already be defined using RC 100 series forms. The same provisioning requirements specified for use with Office Data Assembler (ODA) Form 401J are required to make RC Form 113 valid. If these requirements are not met, RC Form 113 will fail. To delete a CIC list for a TSG, enter RC Form 113 with all the CIC fields blank.

The CIC fields on RC Form 113 are 4-digit CICs (0000-9999) or blanks. Only 4-digit CICs are valid on this form. If a 3-digit CIC is used, it must be entered as 0xxx on this form. If only one CIC for a TSG needs to be deleted, re-enter RC Form 113 with all CICs except the one to be deleted.

*Continued on next page*

## Carrier Identification Parameter (CIP) Trunk Subgroup Increase - Feature 480, Continued

---

### Provisioning (Continued)

#### Verify Form 16az

To verify the output list of assigned CICs enter the following command:

```
TSG VER:MISC CIP:CIN A!
```

#### Verify Form 1i

This messages verifies all CICs assigned to the TSG specified on the input message:

```
VER:TSG;OPT(CICS)
```

---

### Feature Implementation

This is an expansion to the original Carrier Identification Parameter Feature (406). This feature must also be purchased and turned ON for CIP TSG Increase to be fully functional.

---

### Acronyms and Abbreviations

The following are acronyms and abbreviations of terms used throughout this document:

Terms	Definitions
AT	Access Tandems
CIC	Carrier Identification Code
CIP	Carrier Identification Parameter
IAM	Initial Address Message
IXC	Interexchange Carriers
LEC	Local Exchange Carriers
ODA	Office Data Assembler
RC	Recent Change
SS7	Signaling System 7
TSG	Trunk Subgroup

---

## **SELF CHECK**

### **Chapter 2**

#### **Carrier Identification Parameter Trunk Subgroup Increase Feature 480**

1. List the advantage of this feature:

---

2. Which Recent Change (RC) form is used to enter the Carrier Identification Code (CIC) data?

---

3. Does this feature require that a purchase bit be assigned for each office?

---





# **3 Served Numbering Plan Area Expansion and Home Numbering Plan Area Improvements Feature 4839**

4ESS<sup>TM</sup>-2000 Switch 4E22 Generic  
Transition Document

234-090-050  
Issue 1.0  
March 1997

234-090-050  
4ESS™-2000 Switch 4E22 Generic Transition Document

Issue 1.0

March 1997

Developed by  
Lucent Technologies  
Network Systems/TS R&D Information Development

Lucent Product Training 1-888-LUCENT8 (582-3688)  
Prompt 2

### **LUCENT TECHNOLOGIES PROPRIETARY**

This document contains proprietary information of Lucent Technologies and is not to be disclosed or used except in accordance with applicable agreements.

Copyright© 1997 Lucent Technologies. All Rights Reserved.

This material is protected by the copyright laws of the United States and other countries. It may not be reproduced, distributed, or altered in any fashion by any entity (either internal or external to Lucent Technologies), except in accordance with applicable agreements, contracts or licensing, without the express written consent of the TS R&D Information Development Organization and the business management owner of the material.

## Chapter 3

# Served Numbering Plan Area Expansion and Home Numbering Plan Area Improvements - Feature 4839

---

**Introduction**      The Served Numbering Plan Area (SNPA) Expansion and Home Numbering Plan Area (HNPA) Improvements feature will increase the number of domains in the switch.

---

**In This Chapter**      This chapter contains the following topics:

Topic	See Page
Introduction	3-1
In This Chapter	3-1
Advantages/Benefits	3-2
Background	3-2
Feature Description	3-2
Call Flow	3-3
Provisioning	3-3
Feature Implementation	3-3
Acronyms and Abbreviations	3-3

*Continued on next page*

# Served Numbering Plan Area Expansion and Home Numbering Plan Area Improvements - Feature 4839, Continued

**Advantages/  
Benefits**

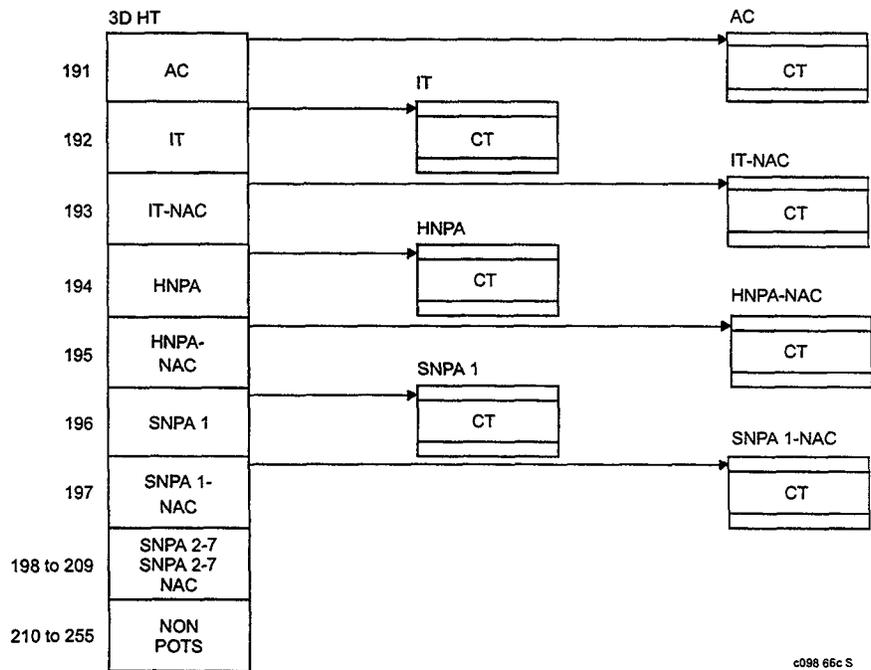
- Doubles the number of domains in the switch
- Moves and reorders the Plain Old Telephone Service (POTS) subdomains from locations 1 through 19 to locations 191 and greater in preparation for future features.

**Background**

The increase demand for new domains has placed demands on the existing domain structures.

**Feature  
Description**

DIAGRAM OF 3D HT SUBTRANSLATORS (LEC NETWORK)



This feature expands the capacity of code grouping translations by increasing the number of domains in a switch. The POTS subdomains are being positioned in preparation for future features.

*Continued on next page*

## Served Numbering Plan Area Expansion and Home Numbering Plan Area Improvements - Feature 4839,

Continued

---

**Call Flow**                      The code group translations will be redirected in software to the new POTS sub-domain locations.

---

**Provisioning**                      The data structures in the Recent Change (RC), Verify and the Office Data Assembler (ODA) programs will be updated to support the new POTS sub-domain locations.

---

**Feature Implementation**                      This feature is turned on automatically with the deployment of the 4E22 generic.

---

**Acronyms and Abbreviations**                      The following are meanings of acronyms and abbreviations used throughout this document:

Terms	Meanings
HNPA	Home Numbering Plan Area
ODA	Office Data Assembler
POTS	Plain Old Telephone Service
RC	Recent Change
SNPA	Served Numbering Plan Area

---



## **SELF CHECK**

### **Chapter 3**

#### **Served Numbering Plan Area Expansion and Home Numbering Plan Area Improvements - Feature 4839**

1. List the two advantages of this feature:

---

---

2. What is the new numeric domain for the Served Numbering Plan Area (NPA) 1?

---

3. Will the data structures affected by this feature automatically be converted at retrofit time?

---





# **4 LEC Office Data Assembler Manager (ODAMANager) Feature 482**

4ESS<sup>TM</sup>-2000 Switch 4E22 Generic  
Transition Document

234-090-050  
Issue 1.0  
March 1997

Lucent Technologies - Proprietary  
See notice on the following page

234-090-050  
4ESS™-2000 Switch 4E22 Generic Transition Document

Issue 1.0

March 1997

Developed by  
Lucent Technologies  
Network Systems/TS R&D Information Development

Lucent Product Training 1-888-LUCENT8 (582-3688)  
Prompt 2

**LUCENT TECHNOLOGIES PROPRIETARY**

This document contains proprietary information of Lucent Technologies and is not to be disclosed or used except in accordance with applicable agreements.

Copyright© 1997 Lucent Technologies. All Rights Reserved.

This material is protected by the copyright laws of the United States and other countries. It may not be reproduced, distributed, or altered in any fashion by any entity (either internal or external to Lucent Technologies), except in accordance with applicable agreements, contracts or licensing, without the express written consent of the TS R&D Information Development Organization and the business management owner of the material.

## Chapter 4

# Local Exchange Carrier (LEC) Office Data Assembler Manager (ODAMANager) - Feature 482

### Introduction

A new process called Office Data Assembler Manager (ODAMANager) sends and retrieves data to and from the 4ESS™ Switch, streamlining the Office Data Assembler (ODA) deployment process. The ODAMANager is a SUN-based Platform that provides:

- Data Linking
- Data Collector
- 1Bfile Archival
- 1Bfile Data Validation

### In This Chapter

This chapter contains the following topics:

Topic	See Page
Introduction	4-1
In This Chapter	4-1
Advantages/Benefits	4-2
Background	4-2
Feature Description	4-3
Call Flow	4-3
Provisioning	4-3
Feature Implementation	4-4
Customer Responsibilities – Hardware/ Software Dependencies	4-4
4ESS Switch Requirements	4-4
DataKit Requirements	4-4
Cable Requirements	4-5
SUN Workstation	4-5
Lucent Responsibilities – Hardware/ Software Dependencies	4-6
SUN Workstation	4-6
Acronyms and Abbreviations	4-6

*Continued on next page*

## Local Exchange Carrier (LEC) Office Data Assembler Manager (ODAMANager) - Feature 482, Continued

---

### Advantages/ Benefits

The ODAMANager streamlines the ODA deployment process, utilizes the ODA Data-Linking (ODAD) application and supports the Data Viewer application. Additional key benefits are:

- electronic 1Bfile transfer
- electronic Traffic Data Acquisition System (TDAS) file transfer
- quiet time and retrofit interval reduction by 1 week
- centralized storage of 1Bfiles
- 1Bfile backup in case of 1Bfile corruption
- reduction in operational costs
- in case of lost data-link tape drive will be used as backup
- electronic transfer of Circuit Assignment Record Transfer System (CARTS) data for Connect VU to ODAMANager

In future generics, a Lucent Technologies ODA platform will be used to apply big Generic Utility Programs/ Service Control Points (GULPs/SCPs) for a given generic prior to the delivery of the generic. The ODAMANager platform can be used as a transport vehicle to transfer the generic from Lucent Technologies to a given 4ESS Switch, therefore, reducing the retrofit processing time.

---

### Background

An ODA retrofit includes both new equipment requirements for service provisioning and office profile changes required for the next generic. The ODA is the foundation on which to grow the 4ESS Switch. The LEC 4ESS Switches take a "snap-shot" 3 weeks prior to the actual ODA load via a tape from the 4ESS Switch office. This snap-shot begins the start of the quiet period.

All updates performed during the quiet period must be added back into the ODA. This causes a service affecting condition on the night of the retrofit. In addition, sometimes this data must be restructured for compatibility to the new generic being loaded. Therefore, it is important to limit the input activity during the quiet period.

---

*Continued on next page*

## Local Exchange Carrier (LEC) Office Data Assembler Manager (ODAMANager) - Feature 482, Continued

---

**Feature Description**

The ODAMANager is an Office Data Management System (ODMS)-based standalone application used to streamline the ODA deployment process. It resides on a SUN workstation and can be located in the Connect VU central site or another customer site. It connects to the 4ESS Switch 3B Processor Input/Output (I/O) port through the DataKit network. A Transmission Control Protocol/Internet Protocol (TCP/IP) dial-up connection is utilized for communications between the ODAMANager and the NG-ODA machine for ODA processing and the customer-provided mainframe for Traffic Data Acquisition System (TDAS) processing. The quiet period can be reduced by one week as a result of the TCP/IP connection between the ODAMANager and the NG-ODA machine.

The files for the ODA/1Bfile can be loaded on the ODAMANager platform and the Dataview product can be used to view ODA data in a 1Bfile template.

---

**Call Flow**

Call Flow is not impacted by this feature.

---

**Provisioning**

No Recent Change (RC) or Office Data Assembler (ODA) forms are impacted by this feature.

---

*Continued on next page*

## Local Exchange Carrier (LEC) Office Data Assembler Manager (ODAMANager) - Feature 482, Continued

---

### Feature Implementation

This feature is dependent upon the following features:

- Office Data Assembler Datalinking - Phase 1 (Feature 4053)
- ODA Datalinking Software Tool Enhancements (Feature 5704)

The 4ESS office must be at 4E22 Release 2 generic or later for this feature to work.

### Customer Responsibilities – Hardware/Software Dependencies

The following outlines the customer's responsibilities regarding the hardware and software dependencies of this feature.

### 4ESS Switch Requirements

- TN82B Board - One per 4ESS Switch Site  
(ComCode (CC) MC4C052A1E or ED4C473-35,G115B)
- VIR Modem Eliminator (ME)  
One set of the following:
  - 48V DC Rack w/Pigtail Connector (CC 407437557)
  - 23 in. Rack Extender (CC 407526250)
  - 2 - DB25-V.35 Cable Converter (CC 407279082)
  - ME 48V DC - Model MOD35R/232-V5 (CC 407279199)
- 4ESS Switch Software Release  
4E22-R2/4AP15-R2 or later 4ESS Switch generic is required

### DataKit Requirements

- TSM-T1 DataKit Module
  - One TSM-T1 at ODAMANager site (ED5P100-30,G184)
  - One TSM-T1 per 4ESS Switch DataKit site (ED5P100-30,G184)
- DKAP Module Board
  - One DKAP at ODAMANager site (ED5P100-30,G75)
- DKAP TT-Splicer Software
  - One DKAP at ODAMANager site
- TY Module Card
  - One TY12 at ODAMANager site (ED5P100-30,G149)

---

*Continued on next page*

## Local Exchange Carrier (LEC) Office Data Assembler Manager (ODAMANager) - Feature 482, Continued

---

### Feature Implementation (Continued)

#### Cable Requirements

- Cable to connect TSM-T1 (Two 4ESS Switch connectivity)
  - One HD-2V.35-M, 50-pin-M cable at ODAMANager DataKit site (ED5P055-31,G222)
  - Two HD-2V.35-M, 50-pin-M cables; one at each 4ESS Switch site (ED5P055-31,G222)
  - Two V.35, 34-pin-M cables at ODAMANager DataKit site (ED5P100-31,G170)
  - Two V.35, 34-pin-M cables; one at each 4ESS Switch site (ED5P100-31,G170)
  
- Cable from ME to 3B
  - One cable per 4ESS Switch site (ED4A104-30,G156)
  
- Cable for TY12 to Sparc20
  - One Modular TTY cable at ODAMANager site

The local DataKit Administration people will install DataKit equipment. During the installation, all DataKit assignments must be coordinated with Lucent Technologies ODAMANager Development Group.

#### SUN Workstation

- SPARCstation 20 (Minimum)
- 64 Meg RAM (Minimum)
- 2 Gig Mass Storage (Minimum)
- 2 Processors (Minimum)
- Solaris 5.5.1 Operating System
- 4MM Tape Drive Unit

---

*Continued on next page*

## Local Exchange Carrier (LEC) Office Data Assembler Manager (ODAMANager) - Feature 482, Continued

### Feature Implementation (Continued)

### Lucent Technologies Responsibilities – Hardware/Software Dependencies

#### SUN Workstation

- ODAMANager Software package
- Newbridge T1 MUX/DEMUX Equipment
- Newbridge T1 Sbus Card
- Empty DataKit Cabinet to Install Newbridge Equipment

**Note:** The customer will ship the SPARC20 to Lucent Technologies for ODAMANager configuration. In case of a server, Lucent ODAMANager Developer will come on-site for ODAMANager configuration.

### Acronyms and Abbreviations

The following are acronyms and abbreviations of terms used throughout this document:

Terms	Definitions
CARTS	Circuit Assignment Record Transfer System
CC	ComCode
GULP	Generic Utility Program
I/O	Input/Output
IP	Internet Protocol
LEC	Local Exchange Carrier
ME	Modem Eliminator
NG-ODA	Next Generation ODA
ODA	Office Data Assembler
ODAD	Office Data Assembler Data-Linking
ODAMANager	Office Data Assembler Manager
ODMS	Office Data Management System
RC	Recent Change
SCP	Service Control Point
TCP	Transmission Control Protocol
TDAS	Traffic Data Acquisition System

# SELF CHECK

## Chapter 4

### LEC Office Data Assembler Manager (ODAMANager) - Feature 482

1. List three advantages of this feature:

---

---

---

2. What are the two feature dependencies associated with this feature?

---

---

3. Is the VIR Modem Eliminator (ME) supplied by the customer or Lucent Technologies?

---

4. Are there any Recent Change (RC) or Office Data Assembler (ODA) forms impacted by this feature?

---

5. How much time is streamlined in the quiet period?

---





# **B XTSI Features**

## **4ESS<sup>TM</sup>-2000 Switch 4E22 Generic Transition Document**

234-090-050  
Issue 1.0  
March 1997

Lucent Technologies - Proprietary  
See notice on the following page

234-090-050  
4ESS™-2000 Switch 4E22 Generic Transition Document

Issue 1.0

March 1997

Developed by  
Lucent Technologies  
Network Systems/TS R&D Information Development

Lucent Product Training 1-888-LUCENT8 (582-3688)  
Prompt 2

### **LUCENT TECHNOLOGIES PROPRIETARY**

This document contains proprietary information of Lucent Technologies and is not to be disclosed or used except in accordance with applicable agreements.

Copyright© 1997 Lucent Technologies. All Rights Reserved.

This material is protected by the copyright laws of the United States and other countries. It may not be reproduced, distributed, or altered in any fashion by any entity (either internal or external to Lucent Technologies), except in accordance with applicable agreements, contracts or licensing, without the express written consent of the TS R&D Information Development Organization and the business management owner of the material.

# 234-090-050

## 4ESS™-2000 Switch 4E22 Generic Transition Document

### Table of Contents

---

	<b>TAB</b>
<b>XTSI Features.....</b>	<b>B</b>
Introduction .....	B
XTSI Trunk Appearance Number (TAN) Job Aid.....	B
XTSI DS1 Performance Monitoring on DS3 Facilities (Feature 452) .....	5
XTSI Checksum Macro (Feature 473) .....	6
XTSI Static A/B Bit Option (2-Wire) (Feature 487).....	7
XTSI Input/Output Message Specification (Feature 5111).....	8
XTSI Software Update Tool (Feature 5113).....	9
XTSI Service Control After Two DS3s Fail (Feature 5131).....	10
XTSI Rapid Restore (Feature 5505).....	11

---





# **B XTSI Features**

## **Introduction**

4ESS<sup>TM</sup>-2000 Switch 4E22 Generic  
Transition Document

234-090-050  
Issue 1.0  
March 1997

Lucent Technologies - Proprietary  
See notice on the following page

234-090-050  
4ESS™-2000 Switch 4E22 Generic Transition Document

Issue 1.0

March 1997

Developed by  
Lucent Technologies  
Network Systems/TS R&D Information Development

Lucent Product Training 1-888-LUCENT8 (582-3688)  
Prompt 2

### **LUCENT TECHNOLOGIES PROPRIETARY**

This document contains proprietary information of Lucent Technologies and is not to be disclosed or used except in accordance with applicable agreements.

Copyright© 1997 Lucent Technologies. All Rights Reserved.

This material is protected by the copyright laws of the United States and other countries. It may not be reproduced, distributed, or altered in any fashion by any entity (either internal or external to Lucent Technologies), except in accordance with applicable agreements, contracts or licensing, without the express written consent of the TS R&D Information Development Organization and the business management owner of the material.

## Tab B

### Expanded Time Slot Interchange (XTSI) Release 2 Features

---

#### **XTSI Category Introduction**

The XTSI Release 1 feature, available in the 4E21 Generic, provided a DS3 interface.

The XTSI Release 1 feature does not support in-band signaling (Multifrequency [MF], Dual Tone Multifrequency [DTMF], or Dial Pulse Signaling [DPS]). The only type of trunks supported in this release was out-of-band 64 kbps Clear Channel Signaling and Signaling System 7 (SS7) trunks.

The XTSI frame is designed to be used for growth and can exist with the Digital Interface Frame (DIF) and the Time Slot Interchange-B (TSI-B) frame. A single XTSI frame will terminate up to six DS3s carrying 4,032 channels. The XTSI performs time-division switching over the 4,032 channels replacing the TSI-B frame and its Switching and Permuting Circuits (SPCs) and will interface 32 A-links to the Time Multiplex Switch (TMS) grid. The XTSI is fully compatible with the present TMS.

A fully equipped 4ESS Switch with XTSI frames can terminate up to 129,024 trunks. Each XTSI has two TSI member numbers associated with it, just as the TSI-B does. The conventions defined for the TSI-B, for dealing with odd and even member numbers, are applied to the XTSI.

The XTSI Release 2 feature, available in the 4E22 Generic, provides modifications to the existing RC 704 and RC 705 forms. An explanation of these changes is provided on pages B-4 and B-5.

With this generic, seven new features are provided which enhance the usability, reliability, capabilities, and maintainability of the XTSI.

Feature 452 - XTSI DS1 Performance Monitoring on DS3 Facilities (Chapter 5)

Feature 473 - XTSI Checksum Macro (Chapter 6)

Feature 487 - XTSI Static A/B Bit Option (2-Wire) (Chapter 7)

Feature 5111 - XTSI Input/Output Message Specification (Chapter 8)

Feature 5113 - XTSI Software Update Tool (Chapter 9)

Feature 5131 - XTSI Service Control After Two DS3s Fail (Chapter 10)

Feature 5505 - XTSI Rapid Restore (Chapter 11)

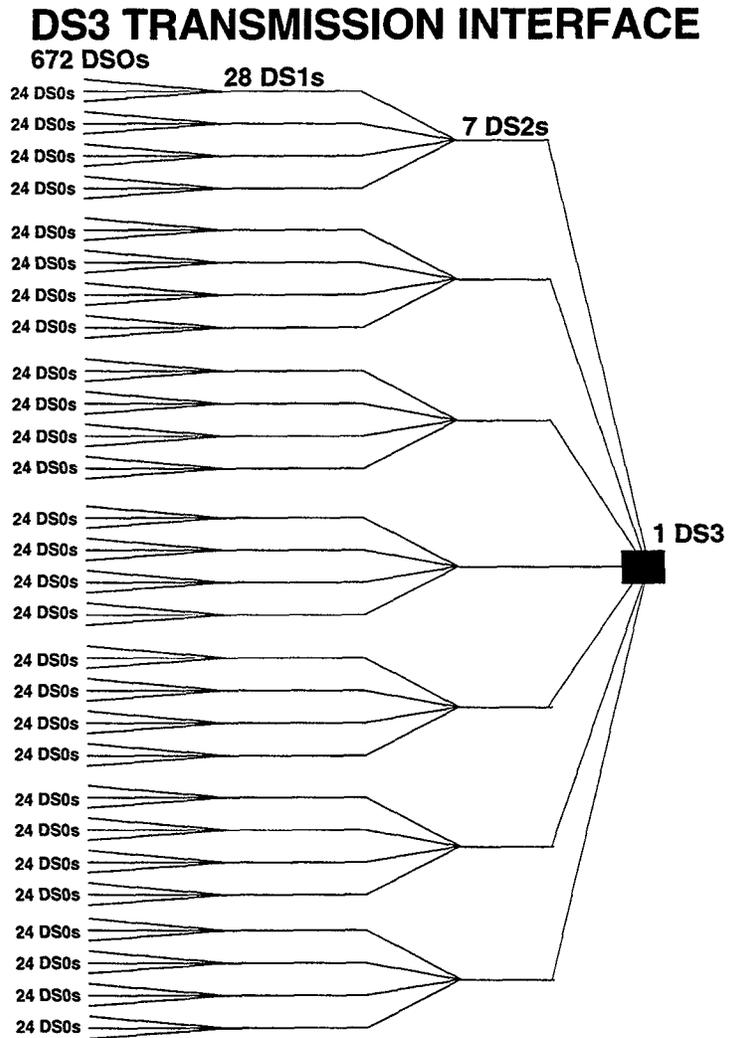
In addition, an XTSI Trunk Appearance Number (TAN) job aid is included in this tab. This job aid breaks down the TANs to individual channel numbers.

---

*Continued on next page*

## Expanded Time Slot Interchange (XTSI) Release 2 Features, Continued

### DS3 Transmission Interface



The XTSI is compatible with the DS3 transmission interface with a DS0 TSI.

A DS3 interface can be broken down as follows:

- 672 DS0s
- 28 DS1s
- 7 DS2s

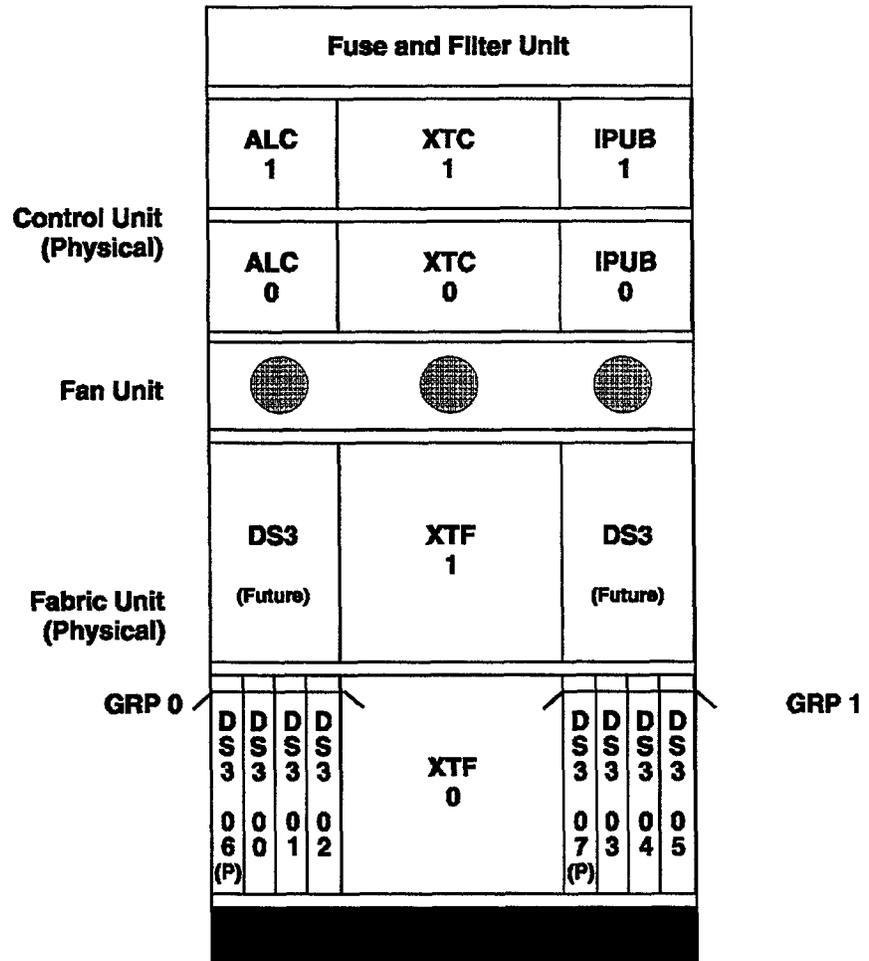
A DS3 facility terminates 672 trunks.

*Continued on next page*

# Expanded Time Slot Interchange (XTSI) Release 2 Features, Continued

DS3  
Transmission  
Interface  
(Continued)

## XTSI CABINET



(P) = Protection Switch Board

c098.488c S

ALC      A-Link Control Interface  
 IPUB     Peripheral Unit Bus Interface  
 XTC      Expanded Time Slot Controller  
 XTF      Expanded Time Slot Facility

*Continued on next page*

# Expanded Time Slot Interchange (XTSI) Release 2 Features, Continued

**DS3  
Transmission  
Interface  
(Continued)**

The RC 704 form is used to equip a DS3 on an XTSI frame/member number including all required DS1 data. For implementation, refer to Lucent Technologies *TOP 234-353-035*.

```
# FORM 704          DS3 UNIT TYPE EQUIPMENT DATA
4E22>
RC:UTYPE;CHG;OPT(D3U),___:      XTSI MEMN __, D3UN __,
ORNU _____,
REM ALARM __, MAX LBO __, DS3 APPL __,
          DS1 INFO
EQP01 __, FRMF01 __,          EQP02 __, FRMF02 __,
EQP03 __, FRMF03 __,          EQP04 __, FRMF04 __,
EQP05 __, FRMF05 __,          EQP06 __, FRMF06 __,
EQP07 __, FRMF07 __,          EQP08 __, FRMF08 __,
EQP09 __, FRMF09 __,          EQP10 __, FRMF10 __,
EQP11 __, FRMF11 __,          EQP12 __, FRMF12 __,
EQP13 __, FRMF13 __,          EQP14 __, FRMF14 __,
EQP15 __, FRMF15 __,          EQP16 __, FRMF16 __,
EQP17 __, FRMF17 __,          EQP18 __, FRMF18 __,
EQP19 __, FRMF19 __,          EQP20 __, FRMF20 __,
EQP21 __, FRMF21 __,          EQP22 __, FRMF22 __,
EQP23 __, FRMF23 __,          EQP24 __, FRMF24 __,
EQP25 __, FRMF25 __,          EQP26 __, FRMF26 __,
EQP27 __, FRMF27 __,          EQP28 __, FRMF28 __,
REMARKS _____!
```

EQUIVALENT ODA INPUT FORM - ESS 407Z  
ASSOCIATED VERIFY MESSAGES - 16ba and 7g

Field Entry	Field Name	Valid Entry
D3UN	D3U Number	0 to 7
DS3 APPL	DS3 Application	Blank, CBP, or M23
EQP01 through EQP28	Equipage for the 1st through the 28th DS1 for this D3U	Blank, F (for Future), or P (for present/provisioned)
FRMF01 through FRMF28	Frame Format for the 1st through the 28th DS1 for this D3U	Blank, E (for Extended Superframe), or S (for Superframe)
MAX LBO	Maximum Line Build Out for cable length	Blank, 225 (for 0 to 225), or 450 (for 225 to 450)
ORNU	Order Number	1 to 999999
REM ALARM	Remote Alarm Indication	Blank, STD (for Standard), INV (for Inverted), or IGN (for Ignore)
XTSI MEMN	TSI Member Number of an Expanded Time Slot Interchange (XTSI) (4E22>)	2 to 62 - even numbers only

*Continued on next page*

# Expanded Time Slot Interchange (XTSI) Release 2 Features, Continued

**DS3  
Transmission  
Interface  
(Continued)**

The RC 705 form is used to set the XTSI Controller Software Version, XTSI Controller Hardware Version, and D3U Hardware Version. For implementation, refer to Lucent Technologies *TOP 234-160-201*.

```
# FORM 705          SUB-UNIT XTSI TYPE DATA
4E22>

RC: UTYPE; CHG; OPT (SUXTSI), ___:      XTSI MEMN __,
ORNU _____,
XTCN  0, 1
XTCHV  _,-
XTCSV  _,-

DS3UN  0 1 2 3 4 5      6 7
D3UEQ  _,-,-,-,-,-,-,  _,-,
D3UHV  _,-,-,-,-,-,-,  _,-,
D3USV  _,-,-,-,-,-,-,  _,-,

SPUN   0 1 2 3 4 5 6 7 8 9   10 11
SPUEQ  _,-,-,-,-,-,-,-,-,-,  _,-,
SPUHV  _,-,-,-,-,-,-,-,-,-,  _,-,
SPUSV  _,-,-,-,-,-,-,-,-,-,  _,-,

REMARKS _____!
```



ASSOCIATED VERIFY MESSAGES - 16ba and 7h

Field Entry	Field Name	Valid Entry
D3UEQ	D3U Unit Equipage (4E22>)	U (Unequipped), G (Grow), S (Special Grow), or O (Operational)
D3UHV	D3U Hardware Version (4E22>)	Blank, or 0 to 7
D3UN	D3U Number	Pre-printed with 0 to 7. 6 is the Spare D3U Number for D3U Numbers 0, 1 and 2. 7 is the Spare D3U Number for D3U Numbers 3, 4 and 5
D3USV	D3U Software Version	Blank, or 0 to 7
ORNU	Order Number	1 to 999999
XTCHV	XTSI Controller Hardware Version (4E22>)	Blank, or 0 to 7
XTCN	XTSI Controller Number (4E22>)	Pre-printed with 0 to 1
XTCSV	XTSI Controller Software Version (4E22>)	Blank, or 0 to 7
XTSI :MEMN	TSI Member Number of an Expanded Time Slot Interchange (XTSI) (4E22>)	2 to 62 - even numbers only

*Continued on next page*

## Expanded Time Slot Interchange (XTSI) Release 2 Features, Continued

---

### Acronyms and Abbreviations

The following are meanings of acronyms and abbreviations used throughout this document:

<b>Terms</b>	<b>Meanings</b>
DTMF	Dual Tone Multi-Frequency
MF	Multi-Frequency
SPCs	Switching and Permuting Circuits
SS7	Signaling System 7
TMS	Time Multiplexed Switch
TSI	Time Slot Interchange
TSI-B	Version B Frame
XTSI	Expanded Time Slot Interchange

---



# **B XTSI Features**

## **Trunk Appearance Number (TAN) Job Aid**

4ESS<sup>TM</sup>-2000 Switch 4E22 Generic  
Transition Document

234-090-050  
Issue 1.0  
March 1997

Lucent Technologies - Proprietary  
See notice on the following page

234-090-050  
4ESS™-2000 Switch 4E22 Generic Transition Document

Issue 1.0

March 1997

Developed by  
Lucent Technologies  
Network Systems/TS R&D Information Development

Lucent Product Training 1-888-LUCENT8 (582-3688)  
Prompt 2

### **LUCENT TECHNOLOGIES PROPRIETARY**

This document contains proprietary information of Lucent Technologies and is not to be disclosed or used except in accordance with applicable agreements.

Copyright© 1997 Lucent Technologies. All Rights Reserved.

This material is protected by the copyright laws of the United States and other countries. It may not be reproduced, distributed, or altered in any fashion by any entity (either internal or external to Lucent Technologies), except in accordance with applicable agreements, contracts or licensing, without the express written consent of the TS R&D Information Development Organization and the business management owner of the material.

<u>Channel</u>	<u>D3U</u>			<u>TSI</u>	<u>TAN</u>			<u>Channel</u>	<u>D3U</u>			<u>TSI</u>	<u>TAN</u>		
	<u>TSI</u>	<u>D3</u>	<u>DG</u>		<u>S</u>	<u>L</u>	<u>TS</u>		<u>TSI</u>	<u>D3</u>	<u>DG</u>		<u>S</u>	<u>L</u>	<u>TS</u>
1	0	0	1	00	0	0	001	1	0	0	3	00	0	0	049
2	0	0	1	00	0	0	002	2	0	0	3	00	0	0	050
3	0	0	1	00	0	0	003	3	0	0	3	00	0	0	051
4	0	0	1	00	0	0	004	4	0	0	3	00	0	0	052
5	0	0	1	00	0	0	005	5	0	0	3	00	0	0	053
6	0	0	1	00	0	0	006	6	0	0	3	00	0	0	054
7	0	0	1	00	0	0	007	7	0	0	3	00	0	0	055
8	0	0	1	00	0	0	008	8	0	0	3	00	0	0	056
9	0	0	1	00	0	0	009	9	0	0	3	00	0	0	057
10	0	0	1	00	0	0	010	10	0	0	3	00	0	0	058
11	0	0	1	00	0	0	011	11	0	0	3	00	0	0	059
12	0	0	1	00	0	0	012	12	0	0	3	00	0	0	060
13	0	0	1	00	0	0	013	13	0	0	3	00	0	0	061
14	0	0	1	00	0	0	014	14	0	0	3	00	0	0	062
15	0	0	1	00	0	0	015	15	0	0	3	00	0	0	063
16	0	0	1	00	0	0	016	16	0	0	3	00	0	0	064
17	0	0	1	00	0	0	017	17	0	0	3	00	0	0	065
18	0	0	1	00	0	0	018	18	0	0	3	00	0	0	066
19	0	0	1	00	0	0	019	19	0	0	3	00	0	0	067
20	0	0	1	00	0	0	020	20	0	0	3	00	0	0	068
21	0	0	1	00	0	0	021	21	0	0	3	00	0	0	069
22	0	0	1	00	0	0	022	22	0	0	3	00	0	0	070
23	0	0	1	00	0	0	023	23	0	0	3	00	0	0	071
24	0	0	1	00	0	0	024	24	0	0	3	00	0	0	072
1	0	0	2	00	0	0	025	1	0	0	4	00	0	0	073
2	0	0	2	00	0	0	026	2	0	0	4	00	0	0	074
3	0	0	2	00	0	0	027	3	0	0	4	00	0	0	075
4	0	0	2	00	0	0	028	4	0	0	4	00	0	0	076
5	0	0	2	00	0	0	029	5	0	0	4	00	0	0	077
6	0	0	2	00	0	0	030	6	0	0	4	00	0	0	078
7	0	0	2	00	0	0	031	7	0	0	4	00	0	0	079
8	0	0	2	00	0	0	032	8	0	0	4	00	0	0	080
9	0	0	2	00	0	0	033	9	0	0	4	00	0	0	081
10	0	0	2	00	0	0	034	10	0	0	4	00	0	0	082
11	0	0	2	00	0	0	035	11	0	0	4	00	0	0	083
12	0	0	2	00	0	0	036	12	0	0	4	00	0	0	084
13	0	0	2	00	0	0	037	13	0	0	4	00	0	0	085
14	0	0	2	00	0	0	038	14	0	0	4	00	0	0	086
15	0	0	2	00	0	0	039	15	0	0	4	00	0	0	087
16	0	0	2	00	0	0	040	16	0	0	4	00	0	0	088
17	0	0	2	00	0	0	041	17	0	0	4	00	0	0	089
18	0	0	2	00	0	0	042	18	0	0	4	00	0	0	090
19	0	0	2	00	0	0	043	19	0	0	4	00	0	0	091
20	0	0	2	00	0	0	044	20	0	0	4	00	0	0	092
21	0	0	2	00	0	0	045	21	0	0	4	00	0	0	093
22	0	0	2	00	0	0	046	22	0	0	4	00	0	0	094
23	0	0	2	00	0	0	047	23	0	0	4	00	0	0	095
24	0	0	2	00	0	0	048	24	0	0	4	00	0	0	096

Channel	D3U			TSI	TAN			TS	Channel	D3U			TSI	TAN			TS
	TSI	D3	DG		S	L	TS			TSI	D3	DG		S	L	TS	
1	0	0	5	00	0	0	097	1	0	0	7	00	0	1	017		
2	0	0	5	00	0	0	098	2	0	0	7	00	0	1	018		
3	0	0	5	00	0	0	099	3	0	0	7	00	0	1	019		
4	0	0	5	00	0	0	100	4	0	0	7	00	0	1	020		
5	0	0	5	00	0	0	101	5	0	0	7	00	0	1	021		
6	0	0	5	00	0	0	102	6	0	0	7	00	0	1	022		
7	0	0	5	00	0	0	103	7	0	0	7	00	0	1	023		
8	0	0	5	00	0	0	104	8	0	0	7	00	0	1	024		
9	0	0	5	00	0	0	105	9	0	0	7	00	0	1	025		
10	0	0	5	00	0	0	106	10	0	0	7	00	0	1	026		
11	0	0	5	00	0	0	107	11	0	0	7	00	0	1	027		
12	0	0	5	00	0	0	108	12	0	0	7	00	0	1	028		
13	0	0	5	00	0	0	109	13	0	0	7	00	0	1	029		
14	0	0	5	00	0	0	110	14	0	0	7	00	0	1	030		
15	0	0	5	00	0	0	111	15	0	0	7	00	0	1	031		
16	0	0	5	00	0	0	112	16	0	0	7	00	0	1	032		
17	0	0	5	00	0	0	113	17	0	0	7	00	0	1	033		
18	0	0	5	00	0	0	114	18	0	0	7	00	0	1	034		
19	0	0	5	00	0	0	115	19	0	0	7	00	0	1	035		
20	0	0	5	00	0	0	116	20	0	0	7	00	0	1	036		
21	0	0	5	00	0	0	117	21	0	0	7	00	0	1	037		
22	0	0	5	00	0	0	118	22	0	0	7	00	0	1	038		
23	0	0	5	00	0	0	119	23	0	0	7	00	0	1	039		
24	0	0	5	00	0	0	120	24	0	0	7	00	0	1	040		
1	0	0	6	00	0	0	121	1	0	0	8	00	0	1	041		
2	0	0	6	00	0	0	122	2	0	0	8	00	0	1	042		
3	0	0	6	00	0	0	123	3	0	0	8	00	0	1	043		
4	0	0	6	00	0	0	124	4	0	0	8	00	0	1	044		
5	0	0	6	00	0	0	125	5	0	0	8	00	0	1	045		
6	0	0	6	00	0	0	126	6	0	0	8	00	0	1	046		
7	0	0	6	00	0	0	127	7	0	0	8	00	0	1	047		
8	0	0	6	00	0	0	000	8	0	0	8	00	0	1	048		
9	0	0	6	00	0	0	001	9	0	0	8	00	0	1	049		
10	0	0	6	00	0	0	002	10	0	0	8	00	0	1	050		
11	0	0	6	00	0	0	003	11	0	0	8	00	0	1	051		
12	0	0	6	00	0	0	004	12	0	0	8	00	0	1	052		
13	0	0	6	00	0	0	005	13	0	0	8	00	0	1	053		
14	0	0	6	00	0	0	006	14	0	0	8	00	0	1	054		
15	0	0	6	00	0	0	007	15	0	0	8	00	0	1	055		
16	0	0	6	00	0	0	008	16	0	0	8	00	0	1	056		
17	0	0	6	00	0	0	009	17	0	0	8	00	0	1	057		
18	0	0	6	00	0	0	010	18	0	0	8	00	0	1	058		
19	0	0	6	00	0	0	011	19	0	0	8	00	0	1	059		
20	0	0	6	00	0	0	012	20	0	0	8	00	0	1	060		
21	0	0	6	00	0	0	013	21	0	0	8	00	0	1	061		
22	0	0	6	00	0	0	014	22	0	0	8	00	0	1	062		
23	0	0	6	00	0	0	015	23	0	0	8	00	0	1	063		
24	0	0	6	00	0	0	016	24	0	0	8	00	0	1	064		

<u>Channel</u>	<u>D3U</u>			<u>TSI</u>	<u>TAN</u>			<u>Channel</u>	<u>D3U</u>			<u>TSI</u>	<u>TAN</u>		
	<u>TSI</u>	<u>D3</u>	<u>DG</u>		<u>S</u>	<u>L</u>	<u>TS</u>		<u>TSI</u>	<u>D3</u>	<u>DG</u>		<u>S</u>	<u>L</u>	<u>TS</u>
1	0	0	9	00	0	1	065	1	0	0	11	00	0	1	113
2	0	0	9	00	0	1	066	2	0	0	11	00	0	1	114
3	0	0	9	00	0	1	067	3	0	0	11	00	0	1	115
4	0	0	9	00	0	1	068	4	0	0	11	00	0	1	116
5	0	0	9	00	0	1	069	5	0	0	11	00	0	1	117
6	0	0	9	00	0	1	070	6	0	0	11	00	0	1	118
7	0	0	9	00	0	1	071	7	0	0	11	00	0	1	119
8	0	0	9	00	0	1	072	8	0	0	11	00	0	1	120
9	0	0	9	00	0	1	073	9	0	0	11	00	0	1	121
10	0	0	9	00	0	1	074	10	0	0	11	00	0	1	122
11	0	0	9	00	0	1	075	11	0	0	11	00	0	1	123
12	0	0	9	00	0	1	076	12	0	0	11	00	0	1	124
13	0	0	9	00	0	1	077	13	0	0	11	00	0	1	125
14	0	0	9	00	0	1	078	14	0	0	11	00	0	1	126
15	0	0	9	00	0	1	079	15	0	0	11	00	0	1	127
16	0	0	9	00	0	1	080	16	0	0	11	00	0	2	000
17	0	0	9	00	0	1	081	17	0	0	11	00	0	2	001
18	0	0	9	00	0	1	082	18	0	0	11	00	0	2	002
19	0	0	9	00	0	1	083	19	0	0	11	00	0	2	003
20	0	0	9	00	0	1	084	20	0	0	11	00	0	2	004
21	0	0	9	00	0	1	085	21	0	0	11	00	0	2	005
22	0	0	9	00	0	1	086	22	0	0	11	00	0	2	006
23	0	0	9	00	0	1	087	23	0	0	11	00	0	2	007
24	0	0	9	00	0	1	088	24	0	0	11	00	0	2	008
1	0	0	10	00	0	1	089	1	0	0	12	00	0	2	009
2	0	0	10	00	0	1	090	2	0	0	12	00	0	2	010
3	0	0	10	00	0	1	091	3	0	0	12	00	0	2	011
4	0	0	10	00	0	1	092	4	0	0	12	00	0	2	012
5	0	0	10	00	0	1	093	5	0	0	12	00	0	2	013
6	0	0	10	00	0	1	094	6	0	0	12	00	0	2	014
7	0	0	10	00	0	1	095	7	0	0	12	00	0	2	015
8	0	0	10	00	0	1	096	8	0	0	12	00	0	2	016
9	0	0	10	00	0	1	097	9	0	0	12	00	0	2	017
10	0	0	10	00	0	1	098	10	0	0	12	00	0	2	018
11	0	0	10	00	0	1	099	11	0	0	12	00	0	2	019
12	0	0	10	00	0	1	100	12	0	0	12	00	0	2	020
13	0	0	10	00	0	1	101	13	0	0	12	00	0	2	021
14	0	0	10	00	0	1	102	14	0	0	12	00	0	2	022
15	0	0	10	00	0	1	103	15	0	0	12	00	0	2	023
16	0	0	10	00	0	1	104	16	0	0	12	00	0	2	024
17	0	0	10	00	0	1	105	17	0	0	12	00	0	2	025
18	0	0	10	00	0	1	106	18	0	0	12	00	0	2	026
19	0	0	10	00	0	1	107	19	0	0	12	00	0	2	027
20	0	0	10	00	0	1	108	20	0	0	12	00	0	2	028
21	0	0	10	00	0	1	109	21	0	0	12	00	0	2	029
22	0	0	10	00	0	1	110	22	0	0	12	00	0	2	030
23	0	0	10	00	0	1	111	23	0	0	12	00	0	2	031
24	0	0	10	00	0	1	112	24	0	0	12	00	0	2	032

<u>Channel</u>	<u>D3U</u>			<u>TSI</u>	<u>TAN</u>			<u>Channel</u>	<u>D3U</u>			<u>TSI</u>	<u>TAN</u>		
	<u>TSI</u>	<u>D3</u>	<u>DG</u>		<u>S</u>	<u>L</u>	<u>TS</u>		<u>TSI</u>	<u>D3</u>	<u>DG</u>		<u>S</u>	<u>L</u>	<u>TS</u>
1	0	0	13	00	0	2	033	1	0	0	15	00	1	0	001
2	0	0	13	00	0	2	034	2	0	0	15	00	1	0	002
3	0	0	13	00	0	2	035	3	0	0	15	00	1	0	003
4	0	0	13	00	0	2	036	4	0	0	15	00	1	0	004
5	0	0	13	00	0	2	037	5	0	0	15	00	1	0	005
6	0	0	13	00	0	2	038	6	0	0	15	00	1	0	006
7	0	0	13	00	0	2	039	7	0	0	15	00	1	0	007
8	0	0	13	00	0	2	040	8	0	0	15	00	1	0	008
9	0	0	13	00	0	2	041	9	0	0	15	00	1	0	009
10	0	0	13	00	0	2	042	10	0	0	15	00	1	0	010
11	0	0	13	00	0	2	043	11	0	0	15	00	1	0	011
12	0	0	13	00	0	2	044	12	0	0	15	00	1	0	012
13	0	0	13	00	0	2	045	13	0	0	15	00	1	0	013
14	0	0	13	00	0	2	046	14	0	0	15	00	1	0	014
15	0	0	13	00	0	2	047	15	0	0	15	00	1	0	015
16	0	0	13	00	0	2	048	16	0	0	15	00	1	0	016
17	0	0	13	00	0	2	049	17	0	0	15	00	1	0	017
18	0	0	13	00	0	2	050	18	0	0	15	00	1	0	018
19	0	0	13	00	0	2	051	19	0	0	15	00	1	0	019
20	0	0	13	00	0	2	052	20	0	0	15	00	1	0	020
21	0	0	13	00	0	2	053	21	0	0	15	00	1	0	021
22	0	0	13	00	0	2	054	22	0	0	15	00	1	0	022
23	0	0	13	00	0	2	055	23	0	0	15	00	1	0	023
24	0	0	13	00	0	2	056	24	0	0	15	00	1	0	024
1	0	0	14	00	0	2	057	1	0	0	16	00	1	0	025
2	0	0	14	00	0	2	058	2	0	0	16	00	1	0	026
3	0	0	14	00	0	2	059	3	0	0	16	00	1	0	027
4	0	0	14	00	0	2	060	4	0	0	16	00	1	0	028
5	0	0	14	00	0	2	061	5	0	0	16	00	1	0	029
6	0	0	14	00	0	2	062	6	0	0	16	00	1	0	030
7	0	0	14	00	0	2	063	7	0	0	16	00	1	0	031
8	0	0	14	00	0	2	064	8	0	0	16	00	1	0	032
9	0	0	14	00	0	2	065	9	0	0	16	00	1	0	033
10	0	0	14	00	0	2	066	10	0	0	16	00	1	0	034
11	0	0	14	00	0	2	067	11	0	0	16	00	1	0	035
12	0	0	14	00	0	2	068	12	0	0	16	00	1	0	036
13	0	0	14	00	0	2	069	13	0	0	16	00	1	0	037
14	0	0	14	00	0	2	070	14	0	0	16	00	1	0	038
15	0	0	14	00	0	2	071	15	0	0	16	00	1	0	039
16	0	0	14	00	0	2	072	16	0	0	16	00	1	0	040
17	0	0	14	00	0	2	073	17	0	0	16	00	1	0	041
18	0	0	14	00	0	2	074	18	0	0	16	00	1	0	042
19	0	0	14	00	0	2	075	19	0	0	16	00	1	0	043
20	0	0	14	00	0	2	076	20	0	0	16	00	1	0	044
21	0	0	14	00	0	2	077	21	0	0	16	00	1	0	045
22	0	0	14	00	0	2	078	22	0	0	16	00	1	0	046
23	0	0	14	00	0	2	079	23	0	0	16	00	1	0	047
24	0	0	14	00	0	2	080	24	0	0	16	00	1	0	048

Channel	D3U			TSI	TAN			Channel	D3U			TSI	TAN		
	TSI	D3	DG		TSI	S	L		TS	TSI	D3		DG	TSI	S
1	0	0	17	00	1	0	049	1	0	0	19	00	1	0	097
2	0	0	17	00	1	0	050	2	0	0	19	00	1	0	098
3	0	0	17	00	1	0	051	3	0	0	19	00	1	0	099
4	0	0	17	00	1	0	052	4	0	0	19	00	1	0	100
5	0	0	17	00	1	0	053	5	0	0	19	00	1	0	101
6	0	0	17	00	1	0	054	6	0	0	19	00	1	0	102
7	0	0	17	00	1	0	055	7	0	0	19	00	1	0	103
8	0	0	17	00	1	0	056	8	0	0	19	00	1	0	104
9	0	0	17	00	1	0	057	9	0	0	19	00	1	0	105
10	0	0	17	00	1	0	058	10	0	0	19	00	1	0	106
11	0	0	17	00	1	0	059	11	0	0	19	00	1	0	107
12	0	0	17	00	1	0	060	12	0	0	19	00	1	0	108
13	0	0	17	00	1	0	061	13	0	0	19	00	1	0	109
14	0	0	17	00	1	0	062	14	0	0	19	00	1	0	110
15	0	0	17	00	1	0	063	15	0	0	19	00	1	0	111
16	0	0	17	00	1	0	064	16	0	0	19	00	1	0	112
17	0	0	17	00	1	0	065	17	0	0	19	00	1	0	113
18	0	0	17	00	1	0	066	18	0	0	19	00	1	0	114
19	0	0	17	00	1	0	067	19	0	0	19	00	1	0	115
20	0	0	17	00	1	0	068	20	0	0	19	00	1	0	116
21	0	0	17	00	1	0	069	21	0	0	19	00	1	0	117
22	0	0	17	00	1	0	070	22	0	0	19	00	1	0	118
23	0	0	17	00	1	0	071	23	0	0	19	00	1	0	119
24	0	0	17	00	1	0	072	24	0	0	19	00	1	0	120
1	0	0	18	00	1	0	073	1	0	0	20	00	1	0	121
2	0	0	18	00	1	0	074	2	0	0	20	00	1	0	122
3	0	0	18	00	1	0	075	3	0	0	20	00	1	0	123
4	0	0	18	00	1	0	076	4	0	0	20	00	1	0	124
5	0	0	18	00	1	0	077	5	0	0	20	00	1	0	125
6	0	0	18	00	1	0	078	6	0	0	20	00	1	0	126
7	0	0	18	00	1	0	079	7	0	0	20	00	1	0	127
8	0	0	18	00	1	0	080	8	0	0	20	00	1	1	000
9	0	0	18	00	1	0	081	9	0	0	20	00	1	1	001
10	0	0	18	00	1	0	082	10	0	0	20	00	1	1	002
11	0	0	18	00	1	0	083	11	0	0	20	00	1	1	003
12	0	0	18	00	1	0	084	12	0	0	20	00	1	1	004
13	0	0	18	00	1	0	085	13	0	0	20	00	1	1	005
14	0	0	18	00	1	0	086	14	0	0	20	00	1	1	006
15	0	0	18	00	1	0	087	15	0	0	20	00	1	1	007
16	0	0	18	00	1	0	088	16	0	0	20	00	1	1	008
17	0	0	18	00	1	0	089	17	0	0	20	00	1	1	009
18	0	0	18	00	1	0	090	18	0	0	20	00	1	1	010
19	0	0	18	00	1	0	091	19	0	0	20	00	1	1	011
20	0	0	18	00	1	0	092	20	0	0	20	00	1	1	012
21	0	0	18	00	1	0	093	21	0	0	20	00	1	1	013
22	0	0	18	00	1	0	094	22	0	0	20	00	1	1	014
23	0	0	18	00	1	0	095	23	0	0	20	00	1	1	015
24	0	0	18	00	1	0	096	24	0	0	20	00	1	1	016

Channel	D3U			TSI	TAN			Channel	D3U			TSI	TAN		
	TSI	D3	DG		S	L	TS		TSI	D3	DG		S	L	TS
1	0	0	21	00	1	1	017	1	0	0	23	00	1	1	065
2	0	0	21	00	1	1	018	2	0	0	23	00	1	1	066
3	0	0	21	00	1	1	019	3	0	0	23	00	1	1	067
4	0	0	21	00	1	1	020	4	0	0	23	00	1	1	068
5	0	0	21	00	1	1	021	5	0	0	23	00	1	1	069
6	0	0	21	00	1	1	022	6	0	0	23	00	1	1	070
7	0	0	21	00	1	1	023	7	0	0	23	00	1	1	071
8	0	0	21	00	1	1	024	8	0	0	23	00	1	1	072
9	0	0	21	00	1	1	025	9	0	0	23	00	1	1	073
10	0	0	21	00	1	1	026	10	0	0	23	00	1	1	074
11	0	0	21	00	1	1	027	11	0	0	23	00	1	1	075
12	0	0	21	00	1	1	028	12	0	0	23	00	1	1	076
13	0	0	21	00	1	1	029	13	0	0	23	00	1	1	077
14	0	0	21	00	1	1	030	14	0	0	23	00	1	1	078
15	0	0	21	00	1	1	031	15	0	0	23	00	1	1	079
16	0	0	21	00	1	1	032	16	0	0	23	00	1	1	080
17	0	0	21	00	1	1	033	17	0	0	23	00	1	1	081
18	0	0	21	00	1	1	034	18	0	0	23	00	1	1	082
19	0	0	21	00	1	1	035	19	0	0	23	00	1	1	083
20	0	0	21	00	1	1	036	20	0	0	23	00	1	1	084
21	0	0	21	00	1	1	037	21	0	0	23	00	1	1	085
22	0	0	21	00	1	1	038	22	0	0	23	00	1	1	086
23	0	0	21	00	1	1	039	23	0	0	23	00	1	1	087
24	0	0	21	00	1	1	040	24	0	0	23	00	1	1	088
1	0	0	22	00	1	1	041	1	0	0	24	00	1	1	089
2	0	0	22	00	1	1	042	2	0	0	24	00	1	1	090
3	0	0	22	00	1	1	043	3	0	0	24	00	1	1	091
4	0	0	22	00	1	1	044	4	0	0	24	00	1	1	092
5	0	0	22	00	1	1	045	5	0	0	24	00	1	1	093
6	0	0	22	00	1	1	046	6	0	0	24	00	1	1	094
7	0	0	22	00	1	1	047	7	0	0	24	00	1	1	095
8	0	0	22	00	1	1	048	8	0	0	24	00	1	1	096
9	0	0	22	00	1	1	049	9	0	0	24	00	1	1	097
10	0	0	22	00	1	1	050	10	0	0	24	00	1	1	098
11	0	0	22	00	1	1	051	11	0	0	24	00	1	1	099
12	0	0	22	00	1	1	052	12	0	0	24	00	1	1	100
13	0	0	22	00	1	1	053	13	0	0	24	00	1	1	101
14	0	0	22	00	1	1	054	14	0	0	24	00	1	1	102
15	0	0	22	00	1	1	055	15	0	0	24	00	1	1	103
16	0	0	22	00	1	1	056	16	0	0	24	00	1	1	104
17	0	0	22	00	1	1	057	17	0	0	24	00	1	1	105
18	0	0	22	00	1	1	058	18	0	0	24	00	1	1	106
19	0	0	22	00	1	1	059	19	0	0	24	00	1	1	107
20	0	0	22	00	1	1	060	20	0	0	24	00	1	1	108
21	0	0	22	00	1	1	061	21	0	0	24	00	1	1	109
22	0	0	22	00	1	1	062	22	0	0	24	00	1	1	110
23	0	0	22	00	1	1	063	23	0	0	24	00	1	1	111
24	0	0	22	00	1	1	064	24	0	0	24	00	1	1	112

<u>Channel</u>	<u>D3U</u>			<u>TSI</u>	<u>TAN</u>			<u>Channel</u>	<u>D3U</u>			<u>TSI</u>	<u>TAN</u>		
	<u>TSI</u>	<u>D3</u>	<u>DG</u>		<u>S</u>	<u>L</u>	<u>TS</u>		<u>TSI</u>	<u>D3</u>	<u>DG</u>		<u>S</u>	<u>L</u>	<u>TS</u>
1	0	0	25	00	1	1	113	1	0	0	27	00	1	2	033
2	0	0	25	00	1	1	114	2	0	0	27	00	1	2	034
3	0	0	25	00	1	1	115	3	0	0	27	00	1	2	035
4	0	0	25	00	1	1	116	4	0	0	27	00	1	2	036
5	0	0	25	00	1	1	117	5	0	0	27	00	1	2	037
6	0	0	25	00	1	1	118	6	0	0	27	00	1	2	038
7	0	0	25	00	1	1	119	7	0	0	27	00	1	2	039
8	0	0	25	00	1	1	120	8	0	0	27	00	1	2	040
9	0	0	25	00	1	1	121	9	0	0	27	00	1	2	041
10	0	0	25	00	1	1	122	10	0	0	27	00	1	2	042
11	0	0	25	00	1	1	123	11	0	0	27	00	1	2	043
12	0	0	25	00	1	1	124	12	0	0	27	00	1	2	044
13	0	0	25	00	1	1	125	13	0	0	27	00	1	2	045
14	0	0	25	00	1	1	126	14	0	0	27	00	1	2	046
15	0	0	25	00	1	1	127	15	0	0	27	00	1	2	047
16	0	0	25	00	1	2	000	16	0	0	27	00	1	2	048
17	0	0	25	00	1	2	001	17	0	0	27	00	1	2	049
18	0	0	25	00	1	2	002	18	0	0	27	00	1	2	050
19	0	0	25	00	1	2	003	19	0	0	27	00	1	2	051
20	0	0	25	00	1	2	004	20	0	0	27	00	1	2	052
21	0	0	25	00	1	2	005	21	0	0	27	00	1	2	053
22	0	0	25	00	1	2	006	22	0	0	27	00	1	2	054
23	0	0	25	00	1	2	007	23	0	0	27	00	1	2	055
24	0	0	25	00	1	2	008	24	0	0	27	00	1	2	056
1	0	0	26	00	1	2	009	1	0	0	28	00	1	2	057
2	0	0	26	00	1	2	010	2	0	0	28	00	1	2	058
3	0	0	26	00	1	2	011	3	0	0	28	00	1	2	059
4	0	0	26	00	1	2	012	4	0	0	28	00	1	2	060
5	0	0	26	00	1	2	013	5	0	0	28	00	1	2	061
6	0	0	26	00	1	2	014	6	0	0	28	00	1	2	062
7	0	0	26	00	1	2	015	7	0	0	28	00	1	2	063
8	0	0	26	00	1	2	016	8	0	0	28	00	1	2	064
9	0	0	26	00	1	2	017	9	0	0	28	00	1	2	065
10	0	0	26	00	1	2	018	10	0	0	28	00	1	2	066
11	0	0	26	00	1	2	019	11	0	0	28	00	1	2	067
12	0	0	26	00	1	2	020	12	0	0	28	00	1	2	068
13	0	0	26	00	1	2	021	13	0	0	28	00	1	2	069
14	0	0	26	00	1	2	022	14	0	0	28	00	1	2	070
15	0	0	26	00	1	2	023	15	0	0	28	00	1	2	071
16	0	0	26	00	1	2	024	16	0	0	28	00	1	2	072
17	0	0	26	00	1	2	025	17	0	0	28	00	1	2	073
18	0	0	26	00	1	2	026	18	0	0	28	00	1	2	074
19	0	0	26	00	1	2	027	19	0	0	28	00	1	2	075
20	0	0	26	00	1	2	028	20	0	0	28	00	1	2	076
21	0	0	26	00	1	2	029	21	0	0	28	00	1	2	077
22	0	0	26	00	1	2	030	22	0	0	28	00	1	2	078
23	0	0	26	00	1	2	031	23	0	0	28	00	1	2	079
24	0	0	26	00	1	2	032	24	0	0	28	00	1	2	080

Channel	D3U			TSI	TAN			TS	Channel	D3U			TSI	TAN			TS
	TSI	D3	DG		S	L	TS			TSI	D3	DG		S	L	TS	
1	0	1	1	00	0	2	081	1	0	1	3	00	0	3	001		
2	0	1	1	00	0	2	082	2	0	1	3	00	0	3	002		
3	0	1	1	00	0	2	083	3	0	1	3	00	0	3	003		
4	0	1	1	00	0	2	084	4	0	1	3	00	0	3	004		
5	0	1	1	00	0	2	085	5	0	1	3	00	0	3	005		
6	0	1	1	00	0	2	086	6	0	1	3	00	0	3	006		
7	0	1	1	00	0	2	087	7	0	1	3	00	0	3	007		
8	0	1	1	00	0	2	088	8	0	1	3	00	0	3	008		
9	0	1	1	00	0	2	089	9	0	1	3	00	0	3	009		
10	0	1	1	00	0	2	090	10	0	1	3	00	0	3	010		
11	0	1	1	00	0	2	091	11	0	1	3	00	0	3	011		
12	0	1	1	00	0	2	092	12	0	1	3	00	0	3	012		
13	0	1	1	00	0	2	093	13	0	1	3	00	0	3	013		
14	0	1	1	00	0	2	094	14	0	1	3	00	0	3	014		
15	0	1	1	00	0	2	095	15	0	1	3	00	0	3	015		
16	0	1	1	00	0	2	096	16	0	1	3	00	0	3	016		
17	0	1	1	00	0	2	097	17	0	1	3	00	0	3	017		
18	0	1	1	00	0	2	098	18	0	1	3	00	0	3	018		
19	0	1	1	00	0	2	099	19	0	1	3	00	0	3	019		
20	0	1	1	00	0	2	100	20	0	1	3	00	0	3	020		
21	0	1	1	00	0	2	101	21	0	1	3	00	0	3	021		
22	0	1	1	00	0	2	102	22	0	1	3	00	0	3	022		
23	0	1	1	00	0	2	103	23	0	1	3	00	0	3	023		
24	0	1	1	00	0	2	104	24	0	1	3	00	0	3	024		
1	0	1	2	00	0	2	105	1	0	1	4	00	0	3	025		
2	0	1	2	00	0	2	106	2	0	1	4	00	0	3	026		
3	0	1	2	00	0	2	107	3	0	1	4	00	0	3	027		
4	0	1	2	00	0	2	108	4	0	1	4	00	0	3	028		
5	0	1	2	00	0	2	109	5	0	1	4	00	0	3	029		
6	0	1	2	00	0	2	110	6	0	1	4	00	0	3	030		
7	0	1	2	00	0	2	111	7	0	1	4	00	0	3	031		
8	0	1	2	00	0	2	112	8	0	1	4	00	0	3	032		
9	0	1	2	00	0	2	113	9	0	1	4	00	0	3	033		
10	0	1	2	00	0	2	114	10	0	1	4	00	0	3	034		
11	0	1	2	00	0	2	115	11	0	1	4	00	0	3	035		
12	0	1	2	00	0	2	116	12	0	1	4	00	0	3	036		
13	0	1	2	00	0	2	117	13	0	1	4	00	0	3	037		
14	0	1	2	00	0	2	118	14	0	1	4	00	0	3	038		
15	0	1	2	00	0	2	119	15	0	1	4	00	0	3	039		
16	0	1	2	00	0	2	120	16	0	1	4	00	0	3	040		
17	0	1	2	00	0	2	121	17	0	1	4	00	0	3	041		
18	0	1	2	00	0	2	122	18	0	1	4	00	0	3	042		
19	0	1	2	00	0	2	123	19	0	1	4	00	0	3	043		
20	0	1	2	00	0	2	124	20	0	1	4	00	0	3	044		
21	0	1	2	00	0	2	125	21	0	1	4	00	0	3	045		
22	0	1	2	00	0	2	126	22	0	1	4	00	0	3	046		
23	0	1	2	00	0	2	127	23	0	1	4	00	0	3	047		
24	0	1	2	00	0	3	000	24	0	1	4	00	0	3	048		

D3U				TAN				D3U				TAN			
<u>Channel</u>	<u>TSI</u>	<u>D3</u>	<u>DG</u>	<u>TSI</u>	<u>S</u>	<u>L</u>	<u>TS</u>	<u>Channel</u>	<u>TSI</u>	<u>D3</u>	<u>DG</u>	<u>TSI</u>	<u>S</u>	<u>L</u>	<u>TS</u>
1	0	1	5	00	0	3	049	1	0	1	7	00	0	3	097
2	0	1	5	00	0	3	050	2	0	1	7	00	0	3	098
3	0	1	5	00	0	3	051	3	0	1	7	00	0	3	099
4	0	1	5	00	0	3	052	4	0	1	7	00	0	3	100
5	0	1	5	00	0	3	053	5	0	1	7	00	0	3	101
6	0	1	5	00	0	3	054	6	0	1	7	00	0	3	102
7	0	1	5	00	0	3	055	7	0	1	7	00	0	3	103
8	0	1	5	00	0	3	056	8	0	1	7	00	0	3	104
9	0	1	5	00	0	3	057	9	0	1	7	00	0	3	105
10	0	1	5	00	0	3	058	10	0	1	7	00	0	3	106
11	0	1	5	00	0	3	059	11	0	1	7	00	0	3	107
12	0	1	5	00	0	3	060	12	0	1	7	00	0	3	108
13	0	1	5	00	0	3	061	13	0	1	7	00	0	3	109
14	0	1	5	00	0	3	062	14	0	1	7	00	0	3	110
15	0	1	5	00	0	3	063	15	0	1	7	00	0	3	111
16	0	1	5	00	0	3	064	16	0	1	7	00	0	3	112
17	0	1	5	00	0	3	065	17	0	1	7	00	0	3	113
18	0	1	5	00	0	3	066	18	0	1	7	00	0	3	114
19	0	1	5	00	0	3	067	19	0	1	7	00	0	3	115
20	0	1	5	00	0	3	068	20	0	1	7	00	0	3	116
21	0	1	5	00	0	3	069	21	0	1	7	00	0	3	117
22	0	1	5	00	0	3	070	22	0	1	7	00	0	3	118
23	0	1	5	00	0	3	071	23	0	1	7	00	0	3	119
24	0	1	5	00	0	3	072	24	0	1	7	00	0	3	120
1	0	1	6	00	0	3	073	1	0	1	8	00	0	3	121
2	0	1	6	00	0	3	074	2	0	1	8	00	0	3	122
3	0	1	6	00	0	3	075	3	0	1	8	00	0	3	123
4	0	1	6	00	0	3	076	4	0	1	8	00	0	3	124
5	0	1	6	00	0	3	077	5	0	1	8	00	0	3	125
6	0	1	6	00	0	3	078	6	0	1	8	00	0	3	126
7	0	1	6	00	0	3	079	7	0	1	8	00	0	3	127
8	0	1	6	00	0	3	080	8	0	1	8	00	0	4	000
9	0	1	6	00	0	3	081	9	0	1	8	00	0	4	001
10	0	1	6	00	0	3	082	10	0	1	8	00	0	4	002
11	0	1	6	00	0	3	083	11	0	1	8	00	0	4	003
12	0	1	6	00	0	3	084	12	0	1	8	00	0	4	004
13	0	1	6	00	0	3	085	13	0	1	8	00	0	4	005
14	0	1	6	00	0	3	086	14	0	1	8	00	0	4	006
15	0	1	6	00	0	3	087	15	0	1	8	00	0	4	007
16	0	1	6	00	0	3	088	16	0	1	8	00	0	4	008
17	0	1	6	00	0	3	089	17	0	1	8	00	0	4	009
18	0	1	6	00	0	3	090	18	0	1	8	00	0	4	010
19	0	1	6	00	0	3	091	19	0	1	8	00	0	4	011
20	0	1	6	00	0	3	092	20	0	1	8	00	0	4	012
21	0	1	6	00	0	3	093	21	0	1	8	00	0	4	013
22	0	1	6	00	0	3	094	22	0	1	8	00	0	4	014
23	0	1	6	00	0	3	095	23	0	1	8	00	0	4	015
24	0	1	6	00	0	3	096	24	0	1	8	00	0	4	016

<u>Channel</u>	<u>D3U</u>			<u>TSI</u>	<u>TAN</u>			<u>Channel</u>	<u>D3U</u>			<u>TSI</u>	<u>TAN</u>		
	<u>TSI</u>	<u>D3</u>	<u>DG</u>		<u>S</u>	<u>L</u>	<u>TS</u>		<u>TSI</u>	<u>D3</u>	<u>DG</u>		<u>S</u>	<u>L</u>	<u>TS</u>
1	0	1	9	00	0	4	017	1	0	1	11	00	0	4	065
2	0	1	9	00	0	4	018	2	0	1	11	00	0	4	066
3	0	1	9	00	0	4	019	3	0	1	11	00	0	4	067
4	0	1	9	00	0	4	020	4	0	1	11	00	0	4	068
5	0	1	9	00	0	4	021	5	0	1	11	00	0	4	069
6	0	1	9	00	0	4	022	6	0	1	11	00	0	4	070
7	0	1	9	00	0	4	023	7	0	1	11	00	0	4	071
8	0	1	9	00	0	4	024	8	0	1	11	00	0	4	072
9	0	1	9	00	0	4	025	9	0	1	11	00	0	4	073
10	0	1	9	00	0	4	026	10	0	1	11	00	0	4	074
11	0	1	9	00	0	4	027	11	0	1	11	00	0	4	075
12	0	1	9	00	0	4	028	12	0	1	11	00	0	4	076
13	0	1	9	00	0	4	029	13	0	1	11	00	0	4	077
14	0	1	9	00	0	4	030	14	0	1	11	00	0	4	078
15	0	1	9	00	0	4	031	15	0	1	11	00	0	4	079
16	0	1	9	00	0	4	032	16	0	1	11	00	0	4	080
17	0	1	9	00	0	4	033	17	0	1	11	00	0	4	081
18	0	1	9	00	0	4	034	18	0	1	11	00	0	4	082
19	0	1	9	00	0	4	035	19	0	1	11	00	0	4	083
20	0	1	9	00	0	4	036	20	0	1	11	00	0	4	084
21	0	1	9	00	0	4	037	21	0	1	11	00	0	4	085
22	0	1	9	00	0	4	038	22	0	1	11	00	0	4	086
23	0	1	9	00	0	4	039	23	0	1	11	00	0	4	087
24	0	1	9	00	0	4	040	24	0	1	11	00	0	4	088
1	0	1	10	00	0	4	041	1	0	1	12	00	0	4	089
2	0	1	10	00	0	4	042	2	0	1	12	00	0	4	090
3	0	1	10	00	0	4	043	3	0	1	12	00	0	4	091
4	0	1	10	00	0	4	044	4	0	1	12	00	0	4	092
5	0	1	10	00	0	4	045	5	0	1	12	00	0	4	093
6	0	1	10	00	0	4	046	6	0	1	12	00	0	4	094
7	0	1	10	00	0	4	047	7	0	1	12	00	0	4	095
8	0	1	10	00	0	4	048	8	0	1	12	00	0	4	096
9	0	1	10	00	0	4	049	9	0	1	12	00	0	4	097
10	0	1	10	00	0	4	050	10	0	1	12	00	0	4	098
11	0	1	10	00	0	4	051	11	0	1	12	00	0	4	099
12	0	1	10	00	0	4	052	12	0	1	12	00	0	4	100
13	0	1	10	00	0	4	053	13	0	1	12	00	0	4	101
14	0	1	10	00	0	4	054	14	0	1	12	00	0	4	102
15	0	1	10	00	0	4	055	15	0	1	12	00	0	4	103
16	0	1	10	00	0	4	056	16	0	1	12	00	0	4	104
17	0	1	10	00	0	4	057	17	0	1	12	00	0	4	105
18	0	1	10	00	0	4	058	18	0	1	12	00	0	4	106
19	0	1	10	00	0	4	059	19	0	1	12	00	0	4	107
20	0	1	10	00	0	4	060	20	0	1	12	00	0	4	108
21	0	1	10	00	0	4	061	21	0	1	12	00	0	4	109
22	0	1	10	00	0	4	062	22	0	1	12	00	0	4	110
23	0	1	10	00	0	4	063	23	0	1	12	00	0	4	111
24	0	1	10	00	0	4	064	24	0	1	12	00	0	4	112

Channel	D3U			TSI	TAN		
	TSI	D3	DG		S	L	TS
1	0	1	13	00	0	4	113
2	0	1	13	00	0	4	114
3	0	1	13	00	0	4	115
4	0	1	13	00	0	4	116
5	0	1	13	00	0	4	117
6	0	1	13	00	0	4	118
7	0	1	13	00	0	4	119
8	0	1	13	00	0	4	120
9	0	1	13	00	0	4	121
10	0	1	13	00	0	4	122
11	0	1	13	00	0	4	123
12	0	1	13	00	0	4	124
13	0	1	13	00	0	4	125
14	0	1	13	00	0	4	126
15	0	1	13	00	0	4	127
16	0	1	13	00	0	5	000
17	0	1	13	00	0	5	001
18	0	1	13	00	0	5	002
19	0	1	13	00	0	5	003
20	0	1	13	00	0	5	004
21	0	1	13	00	0	5	005
22	0	1	13	00	0	5	006
23	0	1	13	00	0	5	007
24	0	1	13	00	0	5	008
1	0	1	14	00	0	5	009
2	0	1	14	00	0	5	010
3	0	1	14	00	0	5	011
4	0	1	14	00	0	5	012
5	0	1	14	00	0	5	013
6	0	1	14	00	0	5	014
7	0	1	14	00	0	5	015
8	0	1	14	00	0	5	016
9	0	1	14	00	0	5	017
10	0	1	14	00	0	5	018
11	0	1	14	00	0	5	019
12	0	1	14	00	0	5	020
13	0	1	14	00	0	5	021
14	0	1	14	00	0	5	022
15	0	1	14	00	0	5	023
16	0	1	14	00	0	5	024
17	0	1	14	00	0	5	025
18	0	1	14	00	0	5	026
19	0	1	14	00	0	5	027
20	0	1	14	00	0	5	028
21	0	1	14	00	0	5	029
22	0	1	14	00	0	5	030
23	0	1	14	00	0	5	031
24	0	1	14	00	0	5	032

Channel	D3U			TSI	TAN		
	TSI	D3	DG		S	L	TS
1	0	1	15	00	1	2	081
2	0	1	15	00	1	2	082
3	0	1	15	00	1	2	083
4	0	1	15	00	1	2	084
5	0	1	15	00	1	2	085
6	0	1	15	00	1	2	086
7	0	1	15	00	1	2	087
8	0	1	15	00	1	2	088
9	0	1	15	00	1	2	089
10	0	1	15	00	1	2	090
11	0	1	15	00	1	2	091
12	0	1	15	00	1	2	092
13	0	1	15	00	1	2	093
14	0	1	15	00	1	2	094
15	0	1	15	00	1	2	095
16	0	1	15	00	1	2	096
17	0	1	15	00	1	2	097
18	0	1	15	00	1	2	098
19	0	1	15	00	1	2	099
20	0	1	15	00	1	2	100
21	0	1	15	00	1	2	101
22	0	1	15	00	1	2	102
23	0	1	15	00	1	2	103
24	0	1	15	00	1	2	104
1	0	1	16	00	1	2	105
2	0	1	16	00	1	2	106
3	0	1	16	00	1	2	107
4	0	1	16	00	1	2	108
5	0	1	16	00	1	2	109
6	0	1	16	00	1	2	110
7	0	1	16	00	1	2	111
8	0	1	16	00	1	2	112
9	0	1	16	00	1	2	113
10	0	1	16	00	1	2	114
11	0	1	16	00	1	2	115
12	0	1	16	00	1	2	116
13	0	1	16	00	1	2	117
14	0	1	16	00	1	2	118
15	0	1	16	00	1	2	119
16	0	1	16	00	1	2	120
17	0	1	16	00	1	2	121
18	0	1	16	00	1	2	122
19	0	1	16	00	1	2	123
20	0	1	16	00	1	2	124
21	0	1	16	00	1	2	125
22	0	1	16	00	1	2	126
23	0	1	16	00	1	2	127
24	0	1	16	00	1	3	000

Channel	D3U			TSI	TAN			Channel	D3U			TSI	TAN		
	TSI	D3	DG		S	L	TS		TSI	D3	DG		S	L	TS
1	0	1	17	00	1	3	001	1	0	1	19	00	1	3	049
2	0	1	17	00	1	3	002	2	0	1	19	00	1	3	050
3	0	1	17	00	1	3	003	3	0	1	19	00	1	3	051
4	0	1	17	00	1	3	004	4	0	1	19	00	1	3	052
5	0	1	17	00	1	3	005	5	0	1	19	00	1	3	053
6	0	1	17	00	1	3	006	6	0	1	19	00	1	3	054
7	0	1	17	00	1	3	007	7	0	1	19	00	1	3	055
8	0	1	17	00	1	3	008	8	0	1	19	00	1	3	056
9	0	1	17	00	1	3	009	9	0	1	19	00	1	3	057
10	0	1	17	00	1	3	010	10	0	1	19	00	1	3	058
11	0	1	17	00	1	3	011	11	0	1	19	00	1	3	059
12	0	1	17	00	1	3	012	12	0	1	19	00	1	3	060
13	0	1	17	00	1	3	013	13	0	1	19	00	1	3	061
14	0	1	17	00	1	3	014	14	0	1	19	00	1	3	062
15	0	1	17	00	1	3	015	15	0	1	19	00	1	3	063
16	0	1	17	00	1	3	016	16	0	1	19	00	1	3	064
17	0	1	17	00	1	3	017	17	0	1	19	00	1	3	065
18	0	1	17	00	1	3	018	18	0	1	19	00	1	3	066
19	0	1	17	00	1	3	019	19	0	1	19	00	1	3	067
20	0	1	17	00	1	3	020	20	0	1	19	00	1	3	068
21	0	1	17	00	1	3	021	21	0	1	19	00	1	3	069
22	0	1	17	00	1	3	022	22	0	1	19	00	1	3	070
23	0	1	17	00	1	3	023	23	0	1	19	00	1	3	071
24	0	1	17	00	1	3	024	24	0	1	19	00	1	3	072
1	0	1	18	00	1	3	025	1	0	1	20	00	1	3	073
2	0	1	18	00	1	3	026	2	0	1	20	00	1	3	074
3	0	1	18	00	1	3	027	3	0	1	20	00	1	3	075
4	0	1	18	00	1	3	028	4	0	1	20	00	1	3	076
5	0	1	18	00	1	3	029	5	0	1	20	00	1	3	077
6	0	1	18	00	1	3	030	6	0	1	20	00	1	3	078
7	0	1	18	00	1	3	031	7	0	1	20	00	1	3	079
8	0	1	18	00	1	3	032	8	0	1	20	00	1	3	080
9	0	1	18	00	1	3	033	9	0	1	20	00	1	3	081
10	0	1	18	00	1	3	034	10	0	1	20	00	1	3	082
11	0	1	18	00	1	3	035	11	0	1	20	00	1	3	083
12	0	1	18	00	1	3	036	12	0	1	20	00	1	3	084
13	0	1	18	00	1	3	037	13	0	1	20	00	1	3	085
14	0	1	18	00	1	3	038	14	0	1	20	00	1	3	086
15	0	1	18	00	1	3	039	15	0	1	20	00	1	3	087
16	0	1	18	00	1	3	040	16	0	1	20	00	1	3	088
17	0	1	18	00	1	3	041	17	0	1	20	00	1	3	089
18	0	1	18	00	1	3	042	18	0	1	20	00	1	3	090
19	0	1	18	00	1	3	043	19	0	1	20	00	1	3	091
20	0	1	18	00	1	3	044	20	0	1	20	00	1	3	092
21	0	1	18	00	1	3	045	21	0	1	20	00	1	3	093
22	0	1	18	00	1	3	046	22	0	1	20	00	1	3	094
23	0	1	18	00	1	3	047	23	0	1	20	00	1	3	095
24	0	1	18	00	1	3	048	24	0	1	20	00	1	3	096

<u>Channel</u>	<u>D3U</u>			<u>TSI</u>	<u>TAN</u>			<u>Channel</u>	<u>D3U</u>			<u>TSI</u>	<u>TAN</u>		
	<u>TSI</u>	<u>D3</u>	<u>DG</u>		<u>TSI</u>	<u>S</u>	<u>L</u>		<u>TS</u>	<u>TSI</u>	<u>D3</u>		<u>DG</u>	<u>TSI</u>	<u>S</u>
1	0	1	21	00	1	3	097	1	0	1	23	00	1	4	017
2	0	1	21	00	1	3	098	2	0	1	23	00	1	4	018
3	0	1	21	00	1	3	099	3	0	1	23	00	1	4	019
4	0	1	21	00	1	3	100	4	0	1	23	00	1	4	020
5	0	1	21	00	1	3	101	5	0	1	23	00	1	4	021
6	0	1	21	00	1	3	102	6	0	1	23	00	1	4	022
7	0	1	21	00	1	3	103	7	0	1	23	00	1	4	023
8	0	1	21	00	1	3	104	8	0	1	23	00	1	4	024
9	0	1	21	00	1	3	105	9	0	1	23	00	1	4	025
10	0	1	21	00	1	3	106	10	0	1	23	00	1	4	026
11	0	1	21	00	1	3	107	11	0	1	23	00	1	4	027
12	0	1	21	00	1	3	108	12	0	1	23	00	1	4	028
13	0	1	21	00	1	3	109	13	0	1	23	00	1	4	029
14	0	1	21	00	1	3	110	14	0	1	23	00	1	4	030
15	0	1	21	00	1	3	111	15	0	1	23	00	1	4	031
16	0	1	21	00	1	3	112	16	0	1	23	00	1	4	032
17	0	1	21	00	1	3	113	17	0	1	23	00	1	4	033
18	0	1	21	00	1	3	114	18	0	1	23	00	1	4	034
19	0	1	21	00	1	3	115	19	0	1	23	00	1	4	035
20	0	1	21	00	1	3	116	20	0	1	23	00	1	4	036
21	0	1	21	00	1	3	117	21	0	1	23	00	1	4	037
22	0	1	21	00	1	3	118	22	0	1	23	00	1	4	038
23	0	1	21	00	1	3	119	23	0	1	23	00	1	4	039
24	0	1	21	00	1	3	120	24	0	1	23	00	1	4	040
1	0	1	22	00	1	3	121	1	0	1	24	00	1	4	041
2	0	1	22	00	1	3	122	2	0	1	24	00	1	4	042
3	0	1	22	00	1	3	123	3	0	1	24	00	1	4	043
4	0	1	22	00	1	3	124	4	0	1	24	00	1	4	044
5	0	1	22	00	1	3	125	5	0	1	24	00	1	4	045
6	0	1	22	00	1	3	126	6	0	1	24	00	1	4	046
7	0	1	22	00	1	4	127	7	0	1	24	00	1	4	047
8	0	1	22	00	1	4	000	8	0	1	24	00	1	4	048
9	0	1	22	00	1	4	001	9	0	1	24	00	1	4	049
10	0	1	22	00	1	4	002	10	0	1	24	00	1	4	050
11	0	1	22	00	1	4	003	11	0	1	24	00	1	4	051
12	0	1	22	00	1	4	004	12	0	1	24	00	1	4	052
13	0	1	22	00	1	4	005	13	0	1	24	00	1	4	053
14	0	1	22	00	1	4	006	14	0	1	24	00	1	4	054
15	0	1	22	00	1	4	007	15	0	1	24	00	1	4	055
16	0	1	22	00	1	4	008	16	0	1	24	00	1	4	056
17	0	1	22	00	1	4	009	17	0	1	24	00	1	4	057
18	0	1	22	00	1	4	010	18	0	1	24	00	1	4	058
19	0	1	22	00	1	4	011	19	0	1	24	00	1	4	059
20	0	1	22	00	1	4	012	20	0	1	24	00	1	4	060
21	0	1	22	00	1	4	013	21	0	1	24	00	1	4	061
22	0	1	22	00	1	4	014	22	0	1	24	00	1	4	062
23	0	1	22	00	1	4	015	23	0	1	24	00	1	4	063
24	0	1	22	00	1	4	016	24	0	1	24	00	1	4	064

Channel	D3U			TSI	TAN			Channel	D3U			TSI	TAN		
	TSI	D3	DG		S	L	TS		TSI	D3	DG		S	L	TS
1	0	1	25	00	1	4	065	1	0	1	27	00	1	4	113
2	0	1	25	00	1	4	066	2	0	1	27	00	1	4	114
3	0	1	25	00	1	4	067	3	0	1	27	00	1	4	115
4	0	1	25	00	1	4	068	4	0	1	27	00	1	4	116
5	0	1	25	00	1	4	069	5	0	1	27	00	1	4	117
6	0	1	25	00	1	4	070	6	0	1	27	00	1	4	118
7	0	1	25	00	1	4	071	7	0	1	27	00	1	4	119
8	0	1	25	00	1	4	072	8	0	1	27	00	1	4	120
9	0	1	25	00	1	4	073	9	0	1	27	00	1	4	121
10	0	1	25	00	1	4	074	10	0	1	27	00	1	4	122
11	0	1	25	00	1	4	075	11	0	1	27	00	1	4	123
12	0	1	25	00	1	4	076	12	0	1	27	00	1	4	124
13	0	1	25	00	1	4	077	13	0	1	27	00	1	4	125
14	0	1	25	00	1	4	078	14	0	1	27	00	1	4	126
15	0	1	25	00	1	4	079	15	0	1	27	00	1	4	127
16	0	1	25	00	1	4	080	16	0	1	27	00	1	5	000
17	0	1	25	00	1	4	081	17	0	1	27	00	1	5	001
18	0	1	25	00	1	4	082	18	0	1	27	00	1	5	002
19	0	1	25	00	1	4	083	19	0	1	27	00	1	5	003
20	0	1	25	00	1	4	084	20	0	1	27	00	1	5	004
21	0	1	25	00	1	4	085	21	0	1	27	00	1	5	005
22	0	1	25	00	1	4	086	22	0	1	27	00	1	5	006
23	0	1	25	00	1	4	087	23	0	1	27	00	1	5	007
24	0	1	25	00	1	4	088	24	0	1	27	00	1	5	008
1	0	1	26	00	1	4	089	1	0	1	28	00	1	5	009
2	0	1	22	00	1	4	090	2	0	1	28	00	1	5	010
3	0	1	22	00	1	4	091	3	0	1	28	00	1	5	011
4	0	1	22	00	1	4	092	4	0	1	28	00	1	5	012
5	0	1	22	00	1	4	093	5	0	1	28	00	1	5	013
6	0	1	22	00	1	4	094	6	0	1	28	00	1	5	014
7	0	1	22	00	1	4	095	7	0	1	28	00	1	5	015
8	0	1	22	00	1	4	096	8	0	1	28	00	1	5	016
9	0	1	22	00	1	4	097	9	0	1	28	00	1	5	017
10	0	1	22	00	1	4	098	10	0	1	28	00	1	5	018
11	0	1	22	00	1	4	099	11	0	1	28	00	1	5	019
12	0	1	22	00	1	4	100	12	0	1	28	00	1	5	020
13	0	1	22	00	1	4	101	13	0	1	28	00	1	5	021
14	0	1	22	00	1	4	102	14	0	1	28	00	1	5	022
15	0	1	22	00	1	4	103	15	0	1	28	00	1	5	023
16	0	1	22	00	1	4	104	16	0	1	28	00	1	5	024
17	0	1	22	00	1	4	105	17	0	1	28	00	1	5	025
18	0	1	22	00	1	4	106	18	0	1	28	00	1	5	026
19	0	1	22	00	1	4	107	19	0	1	28	00	1	5	027
20	0	1	22	00	1	4	108	20	0	1	28	00	1	5	028
21	0	1	22	00	1	4	109	21	0	1	28	00	1	5	029
22	0	1	22	00	1	4	110	22	0	1	28	00	1	5	030
23	0	1	22	00	1	4	111	23	0	1	28	00	1	5	031
24	0	1	22	00	1	4	112	24	0	1	28	00	1	5	032

Channel	D3U			TSI	TAN			Channel	D3U			TSI	TAN		
	TSI	D3	DG		S	L	TS		TSI	D3	DG		S	L	TS
1	0	2	1	00	0	5	033	1	0	2	3	00	0	5	081
2	0	2	1	00	0	5	034	2	0	2	3	00	0	5	082
3	0	2	1	00	0	5	035	3	0	2	3	00	0	5	083
4	0	2	1	00	0	5	036	4	0	2	3	00	0	5	084
5	0	2	1	00	0	5	037	5	0	2	3	00	0	5	085
6	0	2	1	00	0	5	038	6	0	2	3	00	0	5	086
7	0	2	1	00	0	5	039	7	0	2	3	00	0	5	087
8	0	2	1	00	0	5	040	8	0	2	3	00	0	5	088
9	0	2	1	00	0	5	041	9	0	2	3	00	0	5	089
10	0	2	1	00	0	5	042	10	0	2	3	00	0	5	090
11	0	2	1	00	0	5	043	11	0	2	3	00	0	5	091
12	0	2	1	00	0	5	044	12	0	2	3	00	0	5	092
13	0	2	1	00	0	5	045	13	0	2	3	00	0	5	093
14	0	2	1	00	0	5	046	14	0	2	3	00	0	5	094
15	0	2	1	00	0	5	047	15	0	2	3	00	0	5	095
16	0	2	1	00	0	5	048	16	0	2	3	00	0	5	096
17	0	2	1	00	0	5	049	17	0	2	3	00	0	5	097
18	0	2	1	00	0	5	050	18	0	2	3	00	0	5	098
19	0	2	1	00	0	5	051	19	0	2	3	00	0	5	099
20	0	2	1	00	0	5	052	20	0	2	3	00	0	5	100
21	0	2	1	00	0	5	053	21	0	2	3	00	0	5	101
22	0	2	1	00	0	5	054	22	0	2	3	00	0	5	102
23	0	2	1	00	0	5	055	23	0	2	3	00	0	5	103
24	0	2	1	00	0	5	056	24	0	2	3	00	0	5	104
1	0	2	2	00	0	5	057	1	0	2	4	00	0	5	105
2	0	2	2	00	0	5	058	2	0	2	4	00	0	5	106
3	0	2	2	00	0	5	059	3	0	2	4	00	0	5	107
4	0	2	2	00	0	5	060	4	0	2	4	00	0	5	108
5	0	2	2	00	0	5	061	5	0	2	4	00	0	5	109
6	0	2	2	00	0	5	062	6	0	2	4	00	0	5	110
7	0	2	2	00	0	5	063	7	0	2	4	00	0	5	111
8	0	2	2	00	0	5	064	8	0	2	4	00	0	5	112
9	0	2	2	00	0	5	065	9	0	2	4	00	0	5	113
10	0	2	2	00	0	5	066	10	0	2	4	00	0	5	114
11	0	2	2	00	0	5	067	11	0	2	4	00	0	5	115
12	0	2	2	00	0	5	068	12	0	2	4	00	0	5	116
13	0	2	2	00	0	5	069	13	0	2	4	00	0	5	117
14	0	2	2	00	0	5	070	14	0	2	4	00	0	5	118
15	0	2	2	00	0	5	071	15	0	2	4	00	0	5	119
16	0	2	2	00	0	5	072	16	0	2	4	00	0	5	120
17	0	2	2	00	0	5	073	17	0	2	4	00	0	5	121
18	0	2	2	00	0	5	074	18	0	2	4	00	0	5	122
19	0	2	2	00	0	5	075	19	0	2	4	00	0	5	123
20	0	2	2	00	0	5	076	20	0	2	4	00	0	5	124
21	0	2	2	00	0	5	077	21	0	2	4	00	0	5	125
22	0	2	2	00	0	5	078	22	0	2	4	00	0	5	126
23	0	2	2	00	0	5	079	23	0	2	4	00	0	5	127
24	0	2	2	00	0	5	080	24	0	2	4	00	0	6	000

<u>Channel</u>	<u>D3U</u>			<u>TSI</u>	<u>TAN</u>			<u>Channel</u>	<u>D3U</u>			<u>TSI</u>	<u>TAN</u>		
	<u>TSI</u>	<u>D3</u>	<u>DG</u>		<u>S</u>	<u>L</u>	<u>TS</u>		<u>TSI</u>	<u>D3</u>	<u>DG</u>		<u>S</u>	<u>L</u>	<u>TS</u>
1	0	2	5	00	0	6	001	1	0	2	7	00	0	6	049
2	0	2	5	00	0	6	002	2	0	2	7	00	0	6	050
3	0	2	5	00	0	6	003	3	0	2	7	00	0	6	051
4	0	2	5	00	0	6	004	4	0	2	7	00	0	6	052
5	0	2	5	00	0	6	005	5	0	2	7	00	0	6	053
6	0	2	5	00	0	6	006	6	0	2	7	00	0	6	054
7	0	2	5	00	0	6	007	7	0	2	7	00	0	6	055
8	0	2	5	00	0	6	008	8	0	2	7	00	0	6	056
9	0	2	5	00	0	6	009	9	0	2	7	00	0	6	057
10	0	2	5	00	0	6	010	10	0	2	7	00	0	6	058
11	0	2	5	00	0	6	011	11	0	2	7	00	0	6	059
12	0	2	5	00	0	6	012	12	0	2	7	00	0	6	060
13	0	2	5	00	0	6	013	13	0	2	7	00	0	6	061
14	0	2	5	00	0	6	014	14	0	2	7	00	0	6	062
15	0	2	5	00	0	6	015	15	0	2	7	00	0	6	063
16	0	2	5	00	0	6	016	16	0	2	7	00	0	6	064
17	0	2	5	00	0	6	017	17	0	2	7	00	0	6	065
18	0	2	5	00	0	6	018	18	0	2	7	00	0	6	066
19	0	2	5	00	0	6	019	19	0	2	7	00	0	6	067
20	0	2	5	00	0	6	020	20	0	2	7	00	0	6	068
21	0	2	5	00	0	6	021	21	0	2	7	00	0	6	069
22	0	2	5	00	0	6	022	22	0	2	7	00	0	6	070
23	0	2	5	00	0	6	023	23	0	2	7	00	0	6	071
24	0	2	5	00	0	6	024	24	0	2	7	00	0	6	072
1	0	2	6	00	0	6	025	1	0	2	8	00	0	6	073
2	0	2	6	00	0	6	026	2	0	2	8	00	0	6	074
3	0	2	6	00	0	6	027	3	0	2	8	00	0	6	075
4	0	2	6	00	0	6	028	4	0	2	8	00	0	6	076
5	0	2	6	00	0	6	029	5	0	2	8	00	0	6	077
6	0	2	6	00	0	6	030	6	0	2	8	00	0	6	078
7	0	2	6	00	0	6	031	7	0	2	8	00	0	6	079
8	0	2	6	00	0	6	032	8	0	2	8	00	0	6	080
9	0	2	6	00	0	6	033	9	0	2	8	00	0	6	081
10	0	2	6	00	0	6	034	10	0	2	8	00	0	6	082
11	0	2	6	00	0	6	035	11	0	2	8	00	0	6	083
12	0	2	6	00	0	6	036	12	0	2	8	00	0	6	084
13	0	2	6	00	0	6	037	13	0	2	8	00	0	6	085
14	0	2	6	00	0	6	038	14	0	2	8	00	0	6	086
15	0	2	6	00	0	6	039	15	0	2	8	00	0	6	087
16	0	2	6	00	0	6	040	16	0	2	8	00	0	6	088
17	0	2	6	00	0	6	041	17	0	2	8	00	0	6	089
18	0	2	6	00	0	6	042	18	0	2	8	00	0	6	090
19	0	2	6	00	0	6	043	19	0	2	8	00	0	6	091
20	0	2	6	00	0	6	044	20	0	2	8	00	0	6	092
21	0	2	6	00	0	6	045	21	0	2	8	00	0	6	093
22	0	2	6	00	0	6	046	22	0	2	8	00	0	6	094
23	0	2	6	00	0	6	047	23	0	2	8	00	0	6	095
24	0	2	6	00	0	6	048	24	0	2	8	00	0	6	096

<u>Channel</u>	<u>D3U</u>			<u>TSI</u>	<u>TAN</u>			<u>Channel</u>	<u>D3U</u>			<u>TSI</u>	<u>TAN</u>		
	<u>TSI</u>	<u>D3</u>	<u>DG</u>		<u>S</u>	<u>L</u>	<u>TS</u>		<u>TSI</u>	<u>D3</u>	<u>DG</u>		<u>S</u>	<u>L</u>	<u>TS</u>
1	0	2	9	00	0	6	097	1	0	2	11	00	0	7	017
2	0	2	9	00	0	6	098	2	0	2	11	00	0	7	018
3	0	2	9	00	0	6	099	3	0	2	11	00	0	7	019
4	0	2	9	00	0	6	100	4	0	2	11	00	0	7	020
5	0	2	9	00	0	6	101	5	0	2	11	00	0	7	021
6	0	2	9	00	0	6	102	6	0	2	11	00	0	7	022
7	0	2	9	00	0	6	103	7	0	2	11	00	0	7	023
8	0	2	9	00	0	6	104	8	0	2	11	00	0	7	024
9	0	2	9	00	0	6	105	9	0	2	11	00	0	7	025
10	0	2	9	00	0	6	106	10	0	2	11	00	0	7	026
11	0	2	9	00	0	6	107	11	0	2	11	00	0	7	027
12	0	2	9	00	0	6	108	12	0	2	11	00	0	7	028
13	0	2	9	00	0	6	109	13	0	2	11	00	0	7	029
14	0	2	9	00	0	6	110	14	0	2	11	00	0	7	030
15	0	2	9	00	0	6	111	15	0	2	11	00	0	7	031
16	0	2	9	00	0	6	112	16	0	2	11	00	0	7	032
17	0	2	9	00	0	6	113	17	0	2	11	00	0	7	033
18	0	2	9	00	0	6	114	18	0	2	11	00	0	7	034
19	0	2	9	00	0	6	115	19	0	2	11	00	0	7	035
20	0	2	9	00	0	6	116	20	0	2	11	00	0	7	036
21	0	2	9	00	0	6	117	21	0	2	11	00	0	7	037
22	0	2	9	00	0	6	118	22	0	2	11	00	0	7	038
23	0	2	9	00	0	6	119	23	0	2	11	00	0	7	039
24	0	2	9	00	0	6	120	24	0	2	11	00	0	7	040
1	0	2	10	00	0	6	121	1	0	2	12	00	0	7	041
2	0	2	10	00	0	6	122	2	0	2	12	00	0	7	042
3	0	2	10	00	0	6	123	3	0	2	12	00	0	7	043
4	0	2	10	00	0	6	124	4	0	2	12	00	0	7	044
5	0	2	10	00	0	6	125	5	0	2	12	00	0	7	045
6	0	2	10	00	0	6	126	6	0	2	12	00	0	7	046
7	0	2	10	00	0	6	127	7	0	2	12	00	0	7	047
8	0	2	10	00	0	7	000	8	0	2	12	00	0	7	048
9	0	2	10	00	0	7	001	9	0	2	12	00	0	7	049
10	0	2	10	00	0	7	002	10	0	2	12	00	0	7	050
11	0	2	10	00	0	7	003	11	0	2	12	00	0	7	051
12	0	2	10	00	0	7	004	12	0	2	12	00	0	7	052
13	0	2	10	00	0	7	005	13	0	2	12	00	0	7	053
14	0	2	10	00	0	7	006	14	0	2	12	00	0	7	054
15	0	2	10	00	0	7	007	15	0	2	12	00	0	7	055
16	0	2	10	00	0	7	008	16	0	2	12	00	0	7	056
17	0	2	10	00	0	7	009	17	0	2	12	00	0	7	057
18	0	2	10	00	0	7	010	18	0	2	12	00	0	7	058
19	0	2	10	00	0	7	011	19	0	2	12	00	0	7	059
20	0	2	10	00	0	7	012	20	0	2	12	00	0	7	060
21	0	2	10	00	0	7	013	21	0	2	12	00	0	7	061
22	0	2	10	00	0	7	014	22	0	2	12	00	0	7	062
23	0	2	10	00	0	7	015	23	0	2	12	00	0	7	063
24	0	2	10	00	0	7	016	24	0	2	12	00	0	7	064

<u>Channel</u>	<u>D3U</u>			<u>TSI</u>	<u>TAN</u>			<u>Channel</u>	<u>D3U</u>			<u>TSI</u>	<u>TAN</u>		
	<u>TSI</u>	<u>D3</u>	<u>DG</u>		<u>S</u>	<u>L</u>	<u>TS</u>		<u>TSI</u>	<u>D3</u>	<u>DG</u>		<u>S</u>	<u>L</u>	<u>TS</u>
1	0	2	13	00	0	7	065	1	0	2	15	00	1	5	033
2	0	2	13	00	0	7	066	2	0	2	15	00	1	5	034
3	0	2	13	00	0	7	067	3	0	2	15	00	1	5	035
4	0	2	13	00	0	7	068	4	0	2	15	00	1	5	036
5	0	2	13	00	0	7	069	5	0	2	15	00	1	5	037
6	0	2	13	00	0	7	070	6	0	2	15	00	1	5	038
7	0	2	13	00	0	7	071	7	0	2	15	00	1	5	039
8	0	2	13	00	0	7	072	8	0	2	15	00	1	5	040
9	0	2	13	00	0	7	073	9	0	2	15	00	1	5	041
10	0	2	13	00	0	7	074	10	0	2	15	00	1	5	042
11	0	2	13	00	0	7	075	11	0	2	15	00	1	5	043
12	0	2	13	00	0	7	076	12	0	2	15	00	1	5	044
13	0	2	13	00	0	7	077	13	0	2	15	00	1	5	045
14	0	2	13	00	0	7	078	14	0	2	15	00	1	5	046
15	0	2	13	00	0	7	079	15	0	2	15	00	1	5	047
16	0	2	13	00	0	7	080	16	0	2	15	00	1	5	048
17	0	2	13	00	0	7	081	17	0	2	15	00	1	5	049
18	0	2	13	00	0	7	082	18	0	2	15	00	1	5	050
19	0	2	13	00	0	7	083	19	0	2	15	00	1	5	051
20	0	2	13	00	0	7	084	20	0	2	15	00	1	5	052
21	0	2	13	00	0	7	085	21	0	2	15	00	1	5	053
22	0	2	13	00	0	7	086	22	0	2	15	00	1	5	054
23	0	2	13	00	0	7	087	23	0	2	15	00	1	5	055
24	0	2	13	00	0	7	088	24	0	2	15	00	1	5	056
1	0	2	14	00	0	7	089	1	0	2	16	00	1	5	057
2	0	2	14	00	0	7	090	2	0	2	16	00	1	5	058
3	0	2	14	00	0	7	091	3	0	2	16	00	1	5	059
4	0	2	14	00	0	7	092	4	0	2	16	00	1	5	060
5	0	2	14	00	0	7	093	5	0	2	16	00	1	5	061
6	0	2	14	00	0	7	094	6	0	2	16	00	1	5	062
7	0	2	14	00	0	7	095	7	0	2	16	00	1	5	063
8	0	2	14	00	0	7	096	8	0	2	16	00	1	5	064
9	0	2	14	00	0	7	097	9	0	2	16	00	1	5	065
10	0	2	14	00	0	7	098	10	0	2	16	00	1	5	066
11	0	2	14	00	0	7	099	11	0	2	16	00	1	5	067
12	0	2	14	00	0	7	100	12	0	2	16	00	1	5	068
13	0	2	14	00	0	7	101	13	0	2	16	00	1	5	069
14	0	2	14	00	0	7	102	14	0	2	16	00	1	5	070
15	0	2	14	00	0	7	103	15	0	2	16	00	1	5	071
16	0	2	14	00	0	7	104	16	0	2	16	00	1	5	072
17	0	2	14	00	0	7	105	17	0	2	16	00	1	5	073
18	0	2	14	00	0	7	106	18	0	2	16	00	1	5	074
19	0	2	14	00	0	7	107	19	0	2	16	00	1	5	075
20	0	2	14	00	0	7	108	20	0	2	16	00	1	5	076
21	0	2	14	00	0	7	109	21	0	2	16	00	1	5	077
22	0	2	14	00	0	7	110	22	0	2	16	00	1	5	078
23	0	2	14	00	0	7	111	23	0	2	16	00	1	5	079
24	0	2	14	00	0	7	112	24	0	2	16	00	1	5	080

<u>Channel</u>	<u>D3U</u>			<u>TSI</u>	<u>TAN</u>			<u>Channel</u>	<u>D3U</u>			<u>TSI</u>	<u>TAN</u>		
	<u>TSI</u>	<u>D3</u>	<u>DG</u>		<u>S</u>	<u>L</u>	<u>TS</u>		<u>TSI</u>	<u>D3</u>	<u>DG</u>		<u>S</u>	<u>L</u>	<u>TS</u>
1	0	2	17	00	1	5	081	1	0	2	19	00	1	6	001
2	0	2	17	00	1	5	082	2	0	2	19	00	1	6	002
3	0	2	17	00	1	5	083	3	0	2	19	00	1	6	003
4	0	2	17	00	1	5	084	4	0	2	19	00	1	6	004
5	0	2	17	00	1	5	085	5	0	2	19	00	1	6	005
6	0	2	17	00	1	5	086	6	0	2	19	00	1	6	006
7	0	2	17	00	1	5	087	7	0	2	19	00	1	6	007
8	0	2	17	00	1	5	088	8	0	2	19	00	1	6	008
9	0	2	17	00	1	5	089	9	0	2	19	00	1	6	009
10	0	2	17	00	1	5	090	10	0	2	19	00	1	6	010
11	0	2	17	00	1	5	091	11	0	2	19	00	1	6	011
12	0	2	17	00	1	5	092	12	0	2	19	00	1	6	012
13	0	2	17	00	1	5	093	13	0	2	19	00	1	6	013
14	0	2	17	00	1	5	094	14	0	2	19	00	1	6	014
15	0	2	17	00	1	5	095	15	0	2	19	00	1	6	015
16	0	2	17	00	1	5	096	16	0	2	19	00	1	6	016
17	0	2	17	00	1	5	097	17	0	2	19	00	1	6	017
18	0	2	17	00	1	5	098	18	0	2	19	00	1	6	018
19	0	2	17	00	1	5	099	19	0	2	19	00	1	6	019
20	0	2	17	00	1	5	100	20	0	2	19	00	1	6	020
21	0	2	17	00	1	5	101	21	0	2	19	00	1	6	021
22	0	2	17	00	1	5	102	22	0	2	19	00	1	6	022
23	0	2	17	00	1	5	103	23	0	2	19	00	1	6	023
24	0	2	17	00	1	5	104	24	0	2	19	00	1	6	024
1	0	2	18	00	1	5	105	1	0	2	20	00	1	6	025
2	0	2	18	00	1	5	106	2	0	2	20	00	1	6	026
3	0	2	18	00	1	5	107	3	0	2	20	00	1	6	027
4	0	2	18	00	1	5	108	4	0	2	20	00	1	6	028
5	0	2	18	00	1	5	109	5	0	2	20	00	1	6	029
6	0	2	18	00	1	5	110	6	0	2	20	00	1	6	030
7	0	2	18	00	1	5	111	7	0	2	20	00	1	6	031
8	0	2	18	00	1	5	112	8	0	2	20	00	1	6	032
9	0	2	18	00	1	5	113	9	0	2	20	00	1	6	033
10	0	2	18	00	1	5	114	10	0	2	20	00	1	6	034
11	0	2	18	00	1	5	115	11	0	2	20	00	1	6	035
12	0	2	18	00	1	5	116	12	0	2	20	00	1	6	036
13	0	2	18	00	1	5	117	13	0	2	20	00	1	6	037
14	0	2	18	00	1	5	118	14	0	2	20	00	1	6	038
15	0	2	18	00	1	5	119	15	0	2	20	00	1	6	039
16	0	2	18	00	1	5	120	16	0	2	20	00	1	6	040
17	0	2	18	00	1	5	121	17	0	2	20	00	1	6	041
18	0	2	18	00	1	5	122	18	0	2	20	00	1	6	042
19	0	2	18	00	1	5	123	19	0	2	20	00	1	6	043
20	0	2	18	00	1	5	124	20	0	2	20	00	1	6	044
21	0	2	18	00	1	5	125	21	0	2	20	00	1	6	045
22	0	2	18	00	1	5	126	22	0	2	20	00	1	6	046
23	0	2	18	00	1	5	127	23	0	2	20	00	1	6	047
24	0	2	18	00	1	6	000	24	0	2	20	00	1	6	048

Channel	D3U			TSI	TAN			Channel	D3U			TSI	TAN		
	TSI	D3	DG		S	L	TS		TSI	D3	DG		S	L	TS
1	0	2	21	00	1	6	049	1	0	2	23	00	1	6	097
2	0	2	21	00	1	6	050	2	0	2	23	00	1	6	098
3	0	2	21	00	1	6	051	3	0	2	23	00	1	6	099
4	0	2	21	00	1	6	052	4	0	2	23	00	1	6	100
5	0	2	21	00	1	6	053	5	0	2	23	00	1	6	101
6	0	2	21	00	1	6	054	6	0	2	23	00	1	6	102
7	0	2	21	00	1	6	055	7	0	2	23	00	1	6	103
8	0	2	21	00	1	6	056	8	0	2	23	00	1	6	104
9	0	2	21	00	1	6	057	9	0	2	23	00	1	6	105
10	0	2	21	00	1	6	058	10	0	2	23	00	1	6	106
11	0	2	21	00	1	6	059	11	0	2	23	00	1	6	107
12	0	2	21	00	1	6	060	12	0	2	23	00	1	6	108
13	0	2	21	00	1	6	061	13	0	2	23	00	1	6	109
14	0	2	21	00	1	6	062	14	0	2	23	00	1	6	110
15	0	2	21	00	1	6	063	15	0	2	23	00	1	6	111
16	0	2	21	00	1	6	064	16	0	2	23	00	1	6	112
17	0	2	21	00	1	6	065	17	0	2	23	00	1	6	113
18	0	2	21	00	1	6	066	18	0	2	23	00	1	6	114
19	0	2	21	00	1	6	067	19	0	2	23	00	1	6	115
20	0	2	21	00	1	6	068	20	0	2	23	00	1	6	116
21	0	2	21	00	1	6	069	21	0	2	23	00	1	6	117
22	0	2	21	00	1	6	070	22	0	2	23	00	1	6	118
23	0	2	21	00	1	6	071	23	0	2	23	00	1	6	119
24	0	2	21	00	1	6	072	24	0	2	23	00	1	6	120
1	0	2	22	00	1	6	073	1	0	2	24	00	1	6	121
2	0	2	22	00	1	6	074	2	0	2	24	00	1	6	122
3	0	2	22	00	1	6	075	3	0	2	24	00	1	6	123
4	0	2	22	00	1	6	076	4	0	2	24	00	1	6	124
5	0	2	22	00	1	6	077	5	0	2	24	00	1	6	125
6	0	2	22	00	1	6	078	6	0	2	24	00	1	6	126
7	0	2	22	00	1	6	079	7	0	2	24	00	1	6	127
8	0	2	22	00	1	6	080	8	0	2	24	00	1	7	000
9	0	2	22	00	1	6	081	9	0	2	24	00	1	7	001
10	0	2	22	00	1	6	082	10	0	2	24	00	1	7	002
11	0	2	22	00	1	6	083	11	0	2	24	00	1	7	003
12	0	2	22	00	1	6	084	12	0	2	24	00	1	7	004
13	0	2	22	00	1	6	085	13	0	2	24	00	1	7	005
14	0	2	22	00	1	6	086	14	0	2	24	00	1	7	006
15	0	2	22	00	1	6	087	15	0	2	24	00	1	7	007
16	0	2	22	00	1	6	088	16	0	2	24	00	1	7	008
17	0	2	22	00	1	6	089	17	0	2	24	00	1	7	009
18	0	2	22	00	1	6	090	18	0	2	24	00	1	7	010
19	0	2	22	00	1	6	091	19	0	2	24	00	1	7	011
20	0	2	22	00	1	6	092	20	0	2	24	00	1	7	012
21	0	2	22	00	1	6	093	21	0	2	24	00	1	7	013
22	0	2	22	00	1	6	094	22	0	2	24	00	1	7	014
23	0	2	22	00	1	6	095	23	0	2	24	00	1	7	015
24	0	2	22	00	1	6	096	24	0	2	24	00	1	7	016

<u>Channel</u>	<u>D3U</u>			<u>TSI</u>	<u>TAN</u>			<u>Channel</u>	<u>D3U</u>			<u>TSI</u>	<u>TAN</u>		
	<u>TSI</u>	<u>D3</u>	<u>DG</u>		<u>S</u>	<u>L</u>	<u>TS</u>		<u>TSI</u>	<u>D3</u>	<u>DG</u>		<u>S</u>	<u>L</u>	<u>TS</u>
1	0	2	25	00	1	7	017	1	0	2	27	00	1	7	065
2	0	2	25	00	1	7	018	2	0	2	27	00	1	7	066
3	0	2	25	00	1	7	019	3	0	2	27	00	1	7	067
4	0	2	25	00	1	7	020	4	0	2	27	00	1	7	068
5	0	2	25	00	1	7	021	5	0	2	27	00	1	7	069
6	0	2	25	00	1	7	022	6	0	2	27	00	1	7	070
7	0	2	25	00	1	7	023	7	0	2	27	00	1	7	071
8	0	2	25	00	1	7	024	8	0	2	27	00	1	7	072
9	0	2	25	00	1	7	025	9	0	2	27	00	1	7	073
10	0	2	25	00	1	7	026	10	0	2	27	00	1	7	074
11	0	2	25	00	1	7	027	11	0	2	27	00	1	7	075
12	0	2	25	00	1	7	028	12	0	2	27	00	1	7	076
13	0	2	25	00	1	7	029	13	0	2	27	00	1	7	077
14	0	2	25	00	1	7	030	14	0	2	27	00	1	7	078
15	0	2	25	00	1	7	031	15	0	2	27	00	1	7	079
16	0	2	25	00	1	7	032	16	0	2	27	00	1	7	080
17	0	2	25	00	1	7	033	17	0	2	27	00	1	7	081
18	0	2	25	00	1	7	034	18	0	2	27	00	1	7	082
19	0	2	25	00	1	7	035	19	0	2	27	00	1	7	083
20	0	2	25	00	1	7	036	20	0	2	27	00	1	7	084
21	0	2	25	00	1	7	037	21	0	2	27	00	1	7	085
22	0	2	25	00	1	7	038	22	0	2	27	00	1	7	086
23	0	2	25	00	1	7	039	23	0	2	27	00	1	7	087
24	0	2	25	00	1	7	040	24	0	2	27	00	1	7	088
1	0	2	26	00	1	7	041	1	0	2	28	00	1	7	089
2	0	2	26	00	1	7	042	2	0	2	28	00	1	7	090
3	0	2	26	00	1	7	043	3	0	2	28	00	1	7	091
4	0	2	26	00	1	7	044	4	0	2	28	00	1	7	092
5	0	2	26	00	1	7	045	5	0	2	28	00	1	7	093
6	0	2	26	00	1	7	046	6	0	2	28	00	1	7	094
7	0	2	26	00	1	7	047	7	0	2	28	00	1	7	095
8	0	2	26	00	1	7	048	8	0	2	28	00	1	7	096
9	0	2	26	00	1	7	049	9	0	2	28	00	1	7	097
10	0	2	26	00	1	7	050	10	0	2	28	00	1	7	098
11	0	2	26	00	1	7	051	11	0	2	28	00	1	7	099
12	0	2	26	00	1	7	052	12	0	2	28	00	1	7	100
13	0	2	26	00	1	7	053	13	0	2	28	00	1	7	101
14	0	2	26	00	1	7	054	14	0	2	28	00	1	7	102
15	0	2	26	00	1	7	055	15	0	2	28	00	1	7	103
16	0	2	26	00	1	7	056	16	0	2	28	00	1	7	104
17	0	2	26	00	1	7	057	17	0	2	28	00	1	7	105
18	0	2	26	00	1	7	058	18	0	2	28	00	1	7	106
19	0	2	26	00	1	7	059	19	0	2	28	00	1	7	107
20	0	2	26	00	1	7	060	20	0	2	28	00	1	7	108
21	0	2	26	00	1	7	061	21	0	2	28	00	1	7	109
22	0	2	26	00	1	7	062	22	0	2	28	00	1	7	110
23	0	2	26	00	1	7	063	23	0	2	28	00	1	7	111
24	0	2	26	00	1	7	064	24	0	2	28	00	1	7	112

Channel	D3U			TSI	TAN			Channel	D3U			TSI	TAN		
	TSI	D3	DG		S	L	TS		TSI	D3	DG		S	L	TS
1	0	3	1	01	0	0	001	1	0	3	3	01	0	0	049
2	0	3	1	01	0	0	002	2	0	3	3	01	0	0	050
3	0	3	1	01	0	0	003	3	0	3	3	01	0	0	051
4	0	3	1	01	0	0	004	4	0	3	3	01	0	0	052
5	0	3	1	01	0	0	005	5	0	3	3	01	0	0	053
6	0	3	1	01	0	0	006	6	0	3	3	01	0	0	054
7	0	3	1	01	0	0	007	7	0	3	3	01	0	0	055
8	0	3	1	01	0	0	008	8	0	3	3	01	0	0	056
9	0	3	1	01	0	0	009	9	0	3	3	01	0	0	057
10	0	3	1	01	0	0	010	10	0	3	3	01	0	0	058
11	0	3	1	01	0	0	011	11	0	3	3	01	0	0	059
12	0	3	1	01	0	0	012	12	0	3	3	01	0	0	060
13	0	3	1	01	0	0	013	13	0	3	3	01	0	0	061
14	0	3	1	01	0	0	014	14	0	3	3	01	0	0	062
15	0	3	1	01	0	0	015	15	0	3	3	01	0	0	063
16	0	3	1	01	0	0	016	16	0	3	3	01	0	0	064
17	0	3	1	01	0	0	017	17	0	3	3	01	0	0	065
18	0	3	1	01	0	0	018	18	0	3	3	01	0	0	066
19	0	3	1	01	0	0	019	19	0	3	3	01	0	0	067
20	0	3	1	01	0	0	020	20	0	3	3	01	0	0	068
21	0	3	1	01	0	0	021	21	0	3	3	01	0	0	069
22	0	3	1	01	0	0	022	22	0	3	3	01	0	0	070
23	0	3	1	01	0	0	023	23	0	3	3	01	0	0	071
24	0	3	1	01	0	0	024	24	0	3	3	01	0	0	072
1	0	3	2	01	0	0	025	1	0	3	4	01	0	0	073
2	0	3	2	01	0	0	026	2	0	3	4	01	0	0	074
3	0	3	2	01	0	0	027	3	0	3	4	01	0	0	075
4	0	3	2	01	0	0	028	4	0	3	4	01	0	0	076
5	0	3	2	01	0	0	029	5	0	3	4	01	0	0	077
6	0	3	2	01	0	0	030	6	0	3	4	01	0	0	078
7	0	3	2	01	0	0	031	7	0	3	4	01	0	0	079
8	0	3	2	01	0	0	032	8	0	3	4	01	0	0	080
9	0	3	2	01	0	0	033	9	0	3	4	01	0	0	081
10	0	3	2	01	0	0	034	10	0	3	4	01	0	0	082
11	0	3	2	01	0	0	035	11	0	3	4	01	0	0	083
12	0	3	2	01	0	0	036	12	0	3	4	01	0	0	084
13	0	3	2	01	0	0	037	13	0	3	4	01	0	0	085
14	0	3	2	01	0	0	038	14	0	3	4	01	0	0	086
15	0	3	2	01	0	0	039	15	0	3	4	01	0	0	087
16	0	3	2	01	0	0	040	16	0	3	4	01	0	0	088
17	0	3	2	01	0	0	041	17	0	3	4	01	0	0	089
18	0	3	2	01	0	0	042	18	0	3	4	01	0	0	090
19	0	3	2	01	0	0	043	19	0	3	4	01	0	0	091
20	0	3	2	01	0	0	044	20	0	3	4	01	0	0	092
21	0	3	2	01	0	0	045	21	0	3	4	01	0	0	093
22	0	3	2	01	0	0	046	22	0	3	4	01	0	0	094
23	0	3	2	01	0	0	047	23	0	3	4	01	0	0	095
24	0	3	2	01	0	0	048	24	0	3	4	01	0	0	096

Channel	D3U			TSI	TAN			TS	Channel	D3U			TSI	TAN			TS
	TSI	D3	DG		S	L	TS			TSI	D3	DG		S	L	TS	
1	0	3	5	01	0	0	097	1	0	3	7	01	0	1	017		
2	0	3	5	01	0	0	098	2	0	3	7	01	0	1	018		
3	0	3	5	01	0	0	099	3	0	3	7	01	0	1	019		
4	0	3	5	01	0	0	100	4	0	3	7	01	0	1	020		
5	0	3	5	01	0	0	101	5	0	3	7	01	0	1	021		
6	0	3	5	01	0	0	102	6	0	3	7	01	0	1	022		
7	0	3	5	01	0	0	103	7	0	3	7	01	0	1	023		
8	0	3	5	01	0	0	104	8	0	3	7	01	0	1	024		
9	0	3	5	01	0	0	105	9	0	3	7	01	0	1	025		
10	0	3	5	01	0	0	106	10	0	3	7	01	0	1	026		
11	0	3	5	01	0	0	107	11	0	3	7	01	0	1	027		
12	0	3	5	01	0	0	108	12	0	3	7	01	0	1	028		
13	0	3	5	01	0	0	109	13	0	3	7	01	0	1	029		
14	0	3	5	01	0	0	110	14	0	3	7	01	0	1	030		
15	0	3	5	01	0	0	111	15	0	3	7	01	0	1	031		
16	0	3	5	01	0	0	112	16	0	3	7	01	0	1	032		
17	0	3	5	01	0	0	113	17	0	3	7	01	0	1	033		
18	0	3	5	01	0	0	114	18	0	3	7	01	0	1	034		
19	0	3	5	01	0	0	115	19	0	3	7	01	0	1	035		
20	0	3	5	01	0	0	116	20	0	3	7	01	0	1	036		
21	0	3	5	01	0	0	117	21	0	3	7	01	0	1	037		
22	0	3	5	01	0	0	118	22	0	3	7	01	0	1	038		
23	0	3	5	01	0	0	119	23	0	3	7	01	0	1	039		
24	0	3	5	01	0	0	120	24	0	3	7	01	0	1	040		
1	0	3	6	01	0	0	121	1	0	3	8	01	0	1	041		
2	0	3	6	01	0	0	122	2	0	3	8	01	0	1	042		
3	0	3	6	01	0	0	123	3	0	3	8	01	0	1	043		
4	0	3	6	01	0	0	124	4	0	3	8	01	0	1	044		
5	0	3	6	01	0	0	125	5	0	3	8	01	0	1	045		
6	0	3	6	01	0	0	126	6	0	3	8	01	0	1	046		
7	0	3	6	01	0	0	127	7	0	3	8	01	0	1	047		
8	0	3	6	01	0	1	000	8	0	3	8	01	0	1	048		
9	0	3	6	01	0	1	001	9	0	3	8	01	0	1	049		
10	0	3	6	01	0	1	002	10	0	3	8	01	0	1	050		
11	0	3	6	01	0	1	003	11	0	3	8	01	0	1	051		
12	0	3	6	01	0	1	004	12	0	3	8	01	0	1	052		
13	0	3	6	01	0	1	005	13	0	3	8	01	0	1	053		
14	0	3	6	01	0	1	006	14	0	3	8	01	0	1	054		
15	0	3	6	01	0	1	007	15	0	3	8	01	0	1	055		
16	0	3	6	01	0	1	008	16	0	3	8	01	0	1	056		
17	0	3	6	01	0	1	009	17	0	3	8	01	0	1	057		
18	0	3	6	01	0	1	010	18	0	3	8	01	0	1	058		
19	0	3	6	01	0	1	011	19	0	3	8	01	0	1	059		
20	0	3	6	01	0	1	012	20	0	3	8	01	0	1	060		
21	0	3	6	01	0	1	013	21	0	3	8	01	0	1	061		
22	0	3	6	01	0	1	014	22	0	3	8	01	0	1	062		
23	0	3	6	01	0	1	015	23	0	3	8	01	0	1	063		
24	0	3	6	01	0	1	016	24	0	3	8	01	0	1	064		

Channel	D3U			TSI	TAN			Channel	D3U			TSI	TAN		
	TSI	D3	DG		S	L	TS		TSI	D3	DG		S	L	TS
1	0	3	9	01	0	1	065	1	0	3	11	01	0	1	113
2	0	3	9	01	0	1	066	2	0	3	11	01	0	1	114
3	0	3	9	01	0	1	067	3	0	3	11	01	0	1	115
4	0	3	9	01	0	1	068	4	0	3	11	01	0	1	116
5	0	3	9	01	0	1	069	5	0	3	11	01	0	1	117
6	0	3	9	01	0	1	070	6	0	3	11	01	0	1	118
7	0	3	9	01	0	1	071	7	0	3	11	01	0	1	119
8	0	3	9	01	0	1	072	8	0	3	11	01	0	1	120
9	0	3	9	01	0	1	073	9	0	3	11	01	0	1	121
10	0	3	9	01	0	1	074	10	0	3	11	01	0	1	122
11	0	3	9	01	0	1	075	11	0	3	11	01	0	1	123
12	0	3	9	01	0	1	076	12	0	3	11	01	0	1	124
13	0	3	9	01	0	1	077	13	0	3	11	01	0	1	125
14	0	3	9	01	0	1	078	14	0	3	11	01	0	1	126
15	0	3	9	01	0	1	079	15	0	3	11	01	0	1	127
16	0	3	9	01	0	1	080	16	0	3	11	01	0	2	000
17	0	3	9	01	0	1	081	17	0	3	11	01	0	2	001
18	0	3	9	01	0	1	082	18	0	3	11	01	0	2	002
19	0	3	9	01	0	1	083	19	0	3	11	01	0	2	003
20	0	3	9	01	0	1	084	20	0	3	11	01	0	2	004
21	0	3	9	01	0	1	085	21	0	3	11	01	0	2	005
22	0	3	9	01	0	1	086	22	0	3	11	01	0	2	006
23	0	3	9	01	0	1	087	23	0	3	11	01	0	2	007
24	0	3	9	01	0	1	088	24	0	3	11	01	0	2	008
1	0	3	10	01	0	1	089	1	0	3	12	01	0	2	009
2	0	3	10	01	0	1	090	2	0	3	12	01	0	2	010
3	0	3	10	01	0	1	091	3	0	3	12	01	0	2	011
4	0	3	10	01	0	1	092	4	0	3	12	01	0	2	012
5	0	3	10	01	0	1	093	5	0	3	12	01	0	2	013
6	0	3	10	01	0	1	094	6	0	3	12	01	0	2	014
7	0	3	10	01	0	1	095	7	0	3	12	01	0	2	015
8	0	3	10	01	0	1	096	8	0	3	12	01	0	2	016
9	0	3	10	01	0	1	097	9	0	3	12	01	0	2	017
10	0	3	10	01	0	1	098	10	0	3	12	01	0	2	018
11	0	3	10	01	0	1	099	11	0	3	12	01	0	2	019
12	0	3	10	01	0	1	100	12	0	3	12	01	0	2	020
13	0	3	10	01	0	1	101	13	0	3	12	01	0	2	021
14	0	3	10	01	0	1	102	14	0	3	12	01	0	2	022
15	0	3	10	01	0	1	103	15	0	3	12	01	0	2	023
16	0	3	10	01	0	1	104	16	0	3	12	01	0	2	024
17	0	3	10	01	0	1	105	17	0	3	12	01	0	2	025
18	0	3	10	01	0	1	106	18	0	3	12	01	0	2	026
19	0	3	10	01	0	1	107	19	0	3	12	01	0	2	027
20	0	3	10	01	0	1	108	20	0	3	12	01	0	2	028
21	0	3	10	01	0	1	109	21	0	3	12	01	0	2	029
22	0	3	10	01	0	1	110	22	0	3	12	01	0	2	030
23	0	3	10	01	0	1	111	23	0	3	12	01	0	2	031
24	0	3	10	01	0	1	112	24	0	3	12	01	0	2	032

<u>Channel</u>	<u>D3U</u>			<u>TSI</u>	<u>TAN</u>			<u>Channel</u>	<u>D3U</u>			<u>TSI</u>	<u>TAN</u>		
	<u>TSI</u>	<u>D3</u>	<u>DG</u>		<u>S</u>	<u>L</u>	<u>TS</u>		<u>TSI</u>	<u>D3</u>	<u>DG</u>		<u>S</u>	<u>L</u>	<u>TS</u>
1	0	3	13	01	0	2	033	1	0	3	15	01	1	0	001
2	0	3	13	01	0	2	034	2	0	3	15	01	1	0	002
3	0	3	13	01	0	2	035	3	0	3	15	01	1	0	003
4	0	3	13	01	0	2	036	4	0	3	15	01	1	0	004
5	0	3	13	01	0	2	037	5	0	3	15	01	1	0	005
6	0	3	13	01	0	2	038	6	0	3	15	01	1	0	006
7	0	3	13	01	0	2	039	7	0	3	15	01	1	0	007
8	0	3	13	01	0	2	040	8	0	3	15	01	1	0	008
9	0	3	13	01	0	2	041	9	0	3	15	01	1	0	009
10	0	3	13	01	0	2	042	10	0	3	15	01	1	0	010
11	0	3	13	01	0	2	043	11	0	3	15	01	1	0	011
12	0	3	13	01	0	2	044	12	0	3	15	01	1	0	012
13	0	3	13	01	0	2	045	13	0	3	15	01	1	0	013
14	0	3	13	01	0	2	046	14	0	3	15	01	1	0	014
15	0	3	13	01	0	2	047	15	0	3	15	01	1	0	015
16	0	3	13	01	0	2	048	16	0	3	15	01	1	0	016
17	0	3	13	01	0	2	049	17	0	3	15	01	1	0	017
18	0	3	13	01	0	2	050	18	0	3	15	01	1	0	018
19	0	3	13	01	0	2	051	19	0	3	15	01	1	0	019
20	0	3	13	01	0	2	052	20	0	3	15	01	1	0	020
21	0	3	13	01	0	2	053	21	0	3	15	01	1	0	021
22	0	3	13	01	0	2	054	22	0	3	15	01	1	0	022
23	0	3	13	01	0	2	055	23	0	3	15	01	1	0	023
24	0	3	13	01	0	2	056	24	0	3	15	01	1	0	024
1	0	3	14	01	0	2	057	1	0	3	16	01	1	0	025
2	0	3	14	01	0	2	058	2	0	3	16	01	1	0	026
3	0	3	14	01	0	2	059	3	0	3	16	01	1	0	027
4	0	3	14	01	0	2	060	4	0	3	16	01	1	0	028
5	0	3	14	01	0	2	061	5	0	3	16	01	1	0	029
6	0	3	14	01	0	2	062	6	0	3	16	01	1	0	030
7	0	3	14	01	0	2	063	7	0	3	16	01	1	0	031
8	0	3	14	01	0	2	064	8	0	3	16	01	1	0	032
9	0	3	14	01	0	2	065	9	0	3	16	01	1	0	033
10	0	3	14	01	0	2	066	10	0	3	16	01	1	0	034
11	0	3	14	01	0	2	067	11	0	3	16	01	1	0	035
12	0	3	14	01	0	2	068	12	0	3	16	01	1	0	036
13	0	3	14	01	0	2	069	13	0	3	16	01	1	0	037
14	0	3	14	01	0	2	070	14	0	3	16	01	1	0	038
15	0	3	14	01	0	2	071	15	0	3	16	01	1	0	039
16	0	3	14	01	0	2	072	16	0	3	16	01	1	0	040
17	0	3	14	01	0	2	073	17	0	3	16	01	1	0	041
18	0	3	14	01	0	2	074	18	0	3	16	01	1	0	042
19	0	3	14	01	0	2	075	19	0	3	16	01	1	0	043
20	0	3	14	01	0	2	076	20	0	3	16	01	1	0	044
21	0	3	14	01	0	2	077	21	0	3	16	01	1	0	045
22	0	3	14	01	0	2	078	22	0	3	16	01	1	0	046
23	0	3	14	01	0	2	079	23	0	3	16	01	1	0	047
24	0	3	14	01	0	2	080	24	0	3	16	01	1	0	048

Channel	D3U			TSI	TAN			Channel	D3U			TSI	TAN		
	TSI	D3	DG		S	L	TS		TSI	D3	DG		S	L	TS
1	0	3	17	01	1	0	049	1	0	3	19	01	1	0	097
2	0	3	17	01	1	0	050	2	0	3	19	01	1	0	098
3	0	3	17	01	1	0	051	3	0	3	19	01	1	0	099
4	0	3	17	01	1	0	052	4	0	3	19	01	1	0	100
5	0	3	17	01	1	0	053	5	0	3	19	01	1	0	101
6	0	3	17	01	1	0	054	6	0	3	19	01	1	0	102
7	0	3	17	01	1	0	055	7	0	3	19	01	1	0	103
8	0	3	17	01	1	0	056	8	0	3	19	01	1	0	104
9	0	3	17	01	1	0	057	9	0	3	19	01	1	0	105
10	0	3	17	01	1	0	058	10	0	3	19	01	1	0	106
11	0	3	17	01	1	0	059	11	0	3	19	01	1	0	107
12	0	3	17	01	1	0	060	12	0	3	19	01	1	0	108
13	0	3	17	01	1	0	061	13	0	3	19	01	1	0	109
14	0	3	17	01	1	0	062	14	0	3	19	01	1	0	110
15	0	3	17	01	1	0	063	15	0	3	19	01	1	0	111
16	0	3	17	01	1	0	064	16	0	3	19	01	1	0	112
17	0	3	17	01	1	0	065	17	0	3	19	01	1	0	113
18	0	3	17	01	1	0	066	18	0	3	19	01	1	0	114
19	0	3	17	01	1	0	067	19	0	3	19	01	1	0	115
20	0	3	17	01	1	0	068	20	0	3	19	01	1	0	116
21	0	3	17	01	1	0	069	21	0	3	19	01	1	0	117
22	0	3	17	01	1	0	070	22	0	3	19	01	1	0	118
23	0	3	17	01	1	0	071	23	0	3	19	01	1	0	119
24	0	3	17	01	1	0	072	24	0	3	19	01	1	0	120
1	0	3	18	01	1	0	073	1	0	3	20	01	1	0	121
2	0	3	18	01	1	0	074	2	0	3	20	01	1	0	122
3	0	3	18	01	1	0	075	3	0	3	20	01	1	0	123
4	0	3	18	01	1	0	076	4	0	3	20	01	1	0	124
5	0	3	18	01	1	0	077	5	0	3	20	01	1	0	125
6	0	3	18	01	1	0	078	6	0	3	20	01	1	0	126
7	0	3	18	01	1	0	079	7	0	3	20	01	1	0	127
8	0	3	18	01	1	0	080	8	0	3	20	01	1	1	000
9	0	3	18	01	1	0	081	9	0	3	20	01	1	1	001
10	0	3	18	01	1	0	082	10	0	3	20	01	1	1	002
11	0	3	18	01	1	0	083	11	0	3	20	01	1	1	003
12	0	3	18	01	1	0	084	12	0	3	20	01	1	1	004
13	0	3	18	01	1	0	085	13	0	3	20	01	1	1	005
14	0	3	18	01	1	0	086	14	0	3	20	01	1	1	006
15	0	3	18	01	1	0	087	15	0	3	20	01	1	1	007
16	0	3	18	01	1	0	088	16	0	3	20	01	1	1	008
17	0	3	18	01	1	0	089	17	0	3	20	01	1	1	009
18	0	3	18	01	1	0	090	18	0	3	20	01	1	1	010
19	0	3	18	01	1	0	091	19	0	3	20	01	1	1	011
20	0	3	18	01	1	0	092	20	0	3	20	01	1	1	012
21	0	3	18	01	1	0	093	21	0	3	20	01	1	1	013
22	0	3	18	01	1	0	094	22	0	3	20	01	1	1	014
23	0	3	18	01	1	0	095	23	0	3	20	01	1	1	015
24	0	3	18	01	1	0	096	24	0	3	20	01	1	1	016

<u>Channel</u>	<u>D3U</u>			<u>TSI</u>	<u>TAN</u>			<u>Channel</u>	<u>D3U</u>			<u>TSI</u>	<u>TAN</u>		
	<u>TSI</u>	<u>D3</u>	<u>DG</u>		<u>S</u>	<u>L</u>	<u>TS</u>		<u>TSI</u>	<u>D3</u>	<u>DG</u>		<u>S</u>	<u>L</u>	<u>TS</u>
1	0	3	21	01	1	1	017	1	0	3	23	01	1	1	065
2	0	3	21	01	1	1	018	2	0	3	23	01	1	1	066
3	0	3	21	01	1	1	019	3	0	3	23	01	1	1	067
4	0	3	21	01	1	1	020	4	0	3	23	01	1	1	068
5	0	3	21	01	1	1	021	5	0	3	23	01	1	1	069
6	0	3	21	01	1	1	022	6	0	3	23	01	1	1	070
7	0	3	21	01	1	1	023	7	0	3	23	01	1	1	071
8	0	3	21	01	1	1	024	8	0	3	23	01	1	1	072
9	0	3	21	01	1	1	025	9	0	3	23	01	1	1	073
10	0	3	21	01	1	1	026	10	0	3	23	01	1	1	074
11	0	3	21	01	1	1	027	11	0	3	23	01	1	1	075
12	0	3	21	01	1	1	028	12	0	3	23	01	1	1	076
13	0	3	21	01	1	1	029	13	0	3	23	01	1	1	077
14	0	3	21	01	1	1	030	14	0	3	23	01	1	1	078
15	0	3	21	01	1	1	031	15	0	3	23	01	1	1	079
16	0	3	21	01	1	1	032	16	0	3	23	01	1	1	080
17	0	3	21	01	1	1	033	17	0	3	23	01	1	1	081
18	0	3	21	01	1	1	034	18	0	3	23	01	1	1	082
19	0	3	21	01	1	1	035	19	0	3	23	01	1	1	083
20	0	3	21	01	1	1	036	20	0	3	23	01	1	1	084
21	0	3	21	01	1	1	037	21	0	3	23	01	1	1	085
22	0	3	21	01	1	1	038	22	0	3	23	01	1	1	086
23	0	3	21	01	1	1	039	23	0	3	23	01	1	1	087
24	0	3	21	01	1	1	040	24	0	3	23	01	1	1	088
1	0	3	22	01	1	1	041	1	0	3	24	01	1	1	089
2	0	3	22	01	1	1	042	2	0	3	24	01	1	1	090
3	0	3	22	01	1	1	043	3	0	3	24	01	1	1	091
4	0	3	22	01	1	1	044	4	0	3	24	01	1	1	092
5	0	3	22	01	1	1	045	5	0	3	24	01	1	1	093
6	0	3	22	01	1	1	046	6	0	3	24	01	1	1	094
7	0	3	22	01	1	1	047	7	0	3	24	01	1	1	095
8	0	3	22	01	1	1	048	8	0	3	24	01	1	1	096
9	0	3	22	01	1	1	049	9	0	3	24	01	1	1	097
10	0	3	22	01	1	1	050	10	0	3	24	01	1	1	098
11	0	3	22	01	1	1	051	11	0	3	24	01	1	1	099
12	0	3	22	01	1	1	052	12	0	3	24	01	1	1	100
13	0	3	22	01	1	1	053	13	0	3	24	01	1	1	101
14	0	3	22	01	1	1	054	14	0	3	24	01	1	1	102
15	0	3	22	01	1	1	055	15	0	3	24	01	1	1	103
16	0	3	22	01	1	1	056	16	0	3	24	01	1	1	104
17	0	3	22	01	1	1	057	17	0	3	24	01	1	1	105
18	0	3	22	01	1	1	058	18	0	3	24	01	1	1	106
19	0	3	22	01	1	1	059	19	0	3	24	01	1	1	107
20	0	3	22	01	1	1	060	20	0	3	24	01	1	1	108
21	0	3	22	01	1	1	061	21	0	3	24	01	1	1	109
22	0	3	22	01	1	1	062	22	0	3	24	01	1	1	110
23	0	3	22	01	1	1	063	23	0	3	24	01	1	1	111
24	0	3	22	01	1	1	064	24	0	3	24	01	1	1	112

Channel	D3U			TSI	TAN			Channel	D3U			TSI	TAN		
	TSI	D3	DG		S	L	TS		TSI	D3	DG		S	L	TS
1	0	3	25	01	1	1	113	1	0	3	27	01	1	2	033
2	0	3	25	01	1	1	114	2	0	3	27	01	1	2	034
3	0	3	25	01	1	1	115	3	0	3	27	01	1	2	035
4	0	3	25	01	1	1	116	4	0	3	27	01	1	2	036
5	0	3	25	01	1	1	117	5	0	3	27	01	1	2	037
6	0	3	25	01	1	1	118	6	0	3	27	01	1	2	038
7	0	3	25	01	1	1	119	7	0	3	27	01	1	2	039
8	0	3	25	01	1	1	120	8	0	3	27	01	1	2	040
9	0	3	25	01	1	1	121	9	0	3	27	01	1	2	041
10	0	3	25	01	1	1	122	10	0	3	27	01	1	2	042
11	0	3	25	01	1	1	123	11	0	3	27	01	1	2	043
12	0	3	25	01	1	1	124	12	0	3	27	01	1	2	044
13	0	3	25	01	1	1	125	13	0	3	27	01	1	2	045
14	0	3	25	01	1	1	126	14	0	3	27	01	1	2	046
15	0	3	25	01	1	1	127	15	0	3	27	01	1	2	047
16	0	3	25	01	1	2	000	16	0	3	27	01	1	2	048
17	0	3	25	01	1	2	001	17	0	3	27	01	1	2	049
18	0	3	25	01	1	2	002	18	0	3	27	01	1	2	050
19	0	3	25	01	1	2	003	19	0	3	27	01	1	2	051
20	0	3	25	01	1	2	004	20	0	3	27	01	1	2	052
21	0	3	25	01	1	2	005	21	0	3	27	01	1	2	053
22	0	3	25	01	1	2	006	22	0	3	27	01	1	2	054
23	0	3	25	01	1	2	007	23	0	3	27	01	1	2	055
24	0	3	25	01	1	2	008	24	0	3	27	01	1	2	056
1	0	3	26	01	1	2	009	1	0	3	28	01	1	2	057
2	0	3	26	01	1	2	010	2	0	3	28	01	1	2	058
3	0	3	26	01	1	2	011	3	0	3	28	01	1	2	059
4	0	3	26	01	1	2	012	4	0	3	28	01	1	2	060
5	0	3	26	01	1	2	013	5	0	3	28	01	1	2	061
6	0	3	26	01	1	2	014	6	0	3	28	01	1	2	062
7	0	3	26	01	1	2	015	7	0	3	28	01	1	2	063
8	0	3	26	01	1	2	016	8	0	3	28	01	1	2	064
9	0	3	26	01	1	2	017	9	0	3	28	01	1	2	065
10	0	3	26	01	1	2	018	10	0	3	28	01	1	2	066
11	0	3	26	01	1	2	019	11	0	3	28	01	1	2	067
12	0	3	26	01	1	2	020	12	0	3	28	01	1	2	068
13	0	3	26	01	1	2	021	13	0	3	28	01	1	2	069
14	0	3	26	01	1	2	022	14	0	3	28	01	1	2	070
15	0	3	26	01	1	2	023	15	0	3	28	01	1	2	071
16	0	3	26	01	1	2	024	16	0	3	28	01	1	2	072
17	0	3	26	01	1	2	025	17	0	3	28	01	1	2	073
18	0	3	26	01	1	2	026	18	0	3	28	01	1	2	074
19	0	3	26	01	1	2	027	19	0	3	28	01	1	2	075
20	0	3	26	01	1	2	028	20	0	3	28	01	1	2	076
21	0	3	26	01	1	2	029	21	0	3	28	01	1	2	077
22	0	3	26	01	1	2	030	22	0	3	28	01	1	2	078
23	0	3	26	01	1	2	031	23	0	3	28	01	1	2	079
24	0	3	26	01	1	2	032	24	0	3	28	01	1	2	080

Channel	D3U			TSI	TAN			Channel	D3U			TSI	TAN		
	TSI	D3	DG		S	L	TS		TSI	D3	DG		S	L	TS
1	0	4	1	01	0	2	081	1	0	4	3	01	0	3	001
2	0	4	1	01	0	2	082	2	0	4	3	01	0	3	002
3	0	4	1	01	0	2	083	3	0	4	3	01	0	3	003
4	0	4	1	01	0	2	084	4	0	4	3	01	0	3	004
5	0	4	1	01	0	2	085	5	0	4	3	01	0	3	005
6	0	4	1	01	0	2	086	6	0	4	3	01	0	3	006
7	0	4	1	01	0	2	087	7	0	4	3	01	0	3	007
8	0	4	1	01	0	2	088	8	0	4	3	01	0	3	008
9	0	4	1	01	0	2	089	9	0	4	3	01	0	3	009
10	0	4	1	01	0	2	090	10	0	4	3	01	0	3	010
11	0	4	1	01	0	2	091	11	0	4	3	01	0	3	011
12	0	4	1	01	0	2	092	12	0	4	3	01	0	3	012
13	0	4	1	01	0	2	093	13	0	4	3	01	0	3	013
14	0	4	1	01	0	2	094	14	0	4	3	01	0	3	014
15	0	4	1	01	0	2	095	15	0	4	3	01	0	3	015
16	0	4	1	01	0	2	096	16	0	4	3	01	0	3	016
17	0	4	1	01	0	2	097	17	0	4	3	01	0	3	017
18	0	4	1	01	0	2	098	18	0	4	3	01	0	3	018
19	0	4	1	01	0	2	099	19	0	4	3	01	0	3	019
20	0	4	1	01	0	2	100	20	0	4	3	01	0	3	020
21	0	4	1	01	0	2	101	21	0	4	3	01	0	3	021
22	0	4	1	01	0	2	102	22	0	4	3	01	0	3	022
23	0	4	1	01	0	2	103	23	0	4	3	01	0	3	023
24	0	4	1	01	0	2	104	24	0	4	3	01	0	3	024
1	0	4	2	01	0	2	105	1	0	4	4	01	0	3	025
2	0	4	2	01	0	2	106	2	0	4	4	01	0	3	026
3	0	4	2	01	0	2	107	3	0	4	4	01	0	3	027
4	0	4	2	01	0	2	108	4	0	4	4	01	0	3	028
5	0	4	2	01	0	2	109	5	0	4	4	01	0	3	029
6	0	4	2	01	0	2	110	6	0	4	4	01	0	3	030
7	0	4	2	01	0	2	111	7	0	4	4	01	0	3	031
8	0	4	2	01	0	2	112	8	0	4	4	01	0	3	032
9	0	4	2	01	0	2	113	9	0	4	4	01	0	3	033
10	0	4	2	01	0	2	114	10	0	4	4	01	0	3	034
11	0	4	2	01	0	2	115	11	0	4	4	01	0	3	035
12	0	4	2	01	0	2	116	12	0	4	4	01	0	3	036
13	0	4	2	01	0	2	117	13	0	4	4	01	0	3	037
14	0	4	2	01	0	2	118	14	0	4	4	01	0	3	038
15	0	4	2	01	0	2	119	15	0	4	4	01	0	3	039
16	0	4	2	01	0	2	120	16	0	4	4	01	0	3	040
17	0	4	2	01	0	2	121	17	0	4	4	01	0	3	041
18	0	4	2	01	0	2	122	18	0	4	4	01	0	3	042
19	0	4	2	01	0	2	123	19	0	4	4	01	0	3	043
20	0	4	2	01	0	2	124	20	0	4	4	01	0	3	044
21	0	4	2	01	0	2	125	21	0	4	4	01	0	3	045
22	0	4	2	01	0	2	126	22	0	4	4	01	0	3	046
23	0	4	2	01	0	2	127	23	0	4	4	01	0	3	047
24	0	4	2	01	0	3	000	24	0	4	4	01	0	3	048

Channel	D3U			TSI	TAN			Channel	D3U			TSI	TAN		
	TSI	D3	DG		S	L	TS		TSI	D3	DG		S	L	TS
1	0	4	5	01	0	3	049	1	0	4	7	01	0	3	097
2	0	4	5	01	0	3	050	2	0	4	7	01	0	3	098
3	0	4	5	01	0	3	051	3	0	4	7	01	0	3	099
4	0	4	5	01	0	3	052	4	0	4	7	01	0	3	100
5	0	4	5	01	0	3	053	5	0	4	7	01	0	3	101
6	0	4	5	01	0	3	054	6	0	4	7	01	0	3	102
7	0	4	5	01	0	3	055	7	0	4	7	01	0	3	103
8	0	4	5	01	0	3	056	8	0	4	7	01	0	3	104
9	0	4	5	01	0	3	057	9	0	4	7	01	0	3	105
10	0	4	5	01	0	3	058	10	0	4	7	01	0	3	106
11	0	4	5	01	0	3	059	11	0	4	7	01	0	3	107
12	0	4	5	01	0	3	060	12	0	4	7	01	0	3	108
13	0	4	5	01	0	3	061	13	0	4	7	01	0	3	109
14	0	4	5	01	0	3	062	14	0	4	7	01	0	3	110
15	0	4	5	01	0	3	063	15	0	4	7	01	0	3	111
16	0	4	5	01	0	3	064	16	0	4	7	01	0	3	112
17	0	4	5	01	0	3	065	17	0	4	7	01	0	3	113
18	0	4	5	01	0	3	066	18	0	4	7	01	0	3	114
19	0	4	5	01	0	3	067	19	0	4	7	01	0	3	115
20	0	4	5	01	0	3	068	20	0	4	7	01	0	3	116
21	0	4	5	01	0	3	069	21	0	4	7	01	0	3	117
22	0	4	5	01	0	3	070	22	0	4	7	01	0	3	118
23	0	4	5	01	0	3	071	23	0	4	7	01	0	3	119
24	0	4	5	01	0	3	072	24	0	4	7	01	0	3	120
1	0	4	6	01	0	3	073	1	0	4	8	01	0	3	121
2	0	4	6	01	0	3	074	2	0	4	8	01	0	3	122
3	0	4	6	01	0	3	075	3	0	4	8	01	0	3	123
4	0	4	6	01	0	3	076	4	0	4	8	01	0	3	124
5	0	4	6	01	0	3	077	5	0	4	8	01	0	3	125
6	0	4	6	01	0	3	078	6	0	4	8	01	0	3	126
7	0	4	6	01	0	3	079	7	0	4	8	01	0	3	127
8	0	4	6	01	0	3	080	8	0	4	8	01	0	4	000
9	0	4	6	01	0	3	081	9	0	4	8	01	0	4	001
10	0	4	6	01	0	3	082	10	0	4	8	01	0	4	002
11	0	4	6	01	0	3	083	11	0	4	8	01	0	4	003
12	0	4	6	01	0	3	084	12	0	4	8	01	0	4	004
13	0	4	6	01	0	3	085	13	0	4	8	01	0	4	005
14	0	4	6	01	0	3	086	14	0	4	8	01	0	4	006
15	0	4	6	01	0	3	087	15	0	4	8	01	0	4	007
16	0	4	6	01	0	3	088	16	0	4	8	01	0	4	008
17	0	4	6	01	0	3	089	17	0	4	8	01	0	4	009
18	0	4	6	01	0	3	090	18	0	4	8	01	0	4	010
19	0	4	6	01	0	3	091	19	0	4	8	01	0	4	011
20	0	4	6	01	0	3	092	20	0	4	8	01	0	4	012
21	0	4	6	01	0	3	093	21	0	4	8	01	0	4	013
22	0	4	6	01	0	3	094	22	0	4	8	01	0	4	014
23	0	4	6	01	0	3	095	23	0	4	8	01	0	4	015
24	0	4	6	01	0	3	096	24	0	4	8	01	0	4	016

<u>Channel</u>	<u>D3U</u>			<u>TSI</u>	<u>TAN</u>			<u>Channel</u>	<u>D3U</u>			<u>TSI</u>	<u>TAN</u>		
	<u>TSI</u>	<u>D3</u>	<u>DG</u>		<u>S</u>	<u>L</u>	<u>TS</u>		<u>TSI</u>	<u>D3</u>	<u>DG</u>		<u>S</u>	<u>L</u>	<u>TS</u>
1	0	4	9	01	0	4	017	1	0	4	11	01	0	4	065
2	0	4	9	01	0	4	018	2	0	4	11	01	0	4	066
3	0	4	9	01	0	4	019	3	0	4	11	01	0	4	067
4	0	4	9	01	0	4	020	4	0	4	11	01	0	4	068
5	0	4	9	01	0	4	021	5	0	4	11	01	0	4	069
6	0	4	9	01	0	4	022	6	0	4	11	01	0	4	070
7	0	4	9	01	0	4	023	7	0	4	11	01	0	4	071
8	0	4	9	01	0	4	024	8	0	4	11	01	0	4	072
9	0	4	9	01	0	4	025	9	0	4	11	01	0	4	073
10	0	4	9	01	0	4	026	10	0	4	11	01	0	4	074
11	0	4	9	01	0	4	027	11	0	4	11	01	0	4	075
12	0	4	9	01	0	4	028	12	0	4	11	01	0	4	076
13	0	4	9	01	0	4	029	13	0	4	11	01	0	4	077
14	0	4	9	01	0	4	030	14	0	4	11	01	0	4	078
15	0	4	9	01	0	4	031	15	0	4	11	01	0	4	079
16	0	4	9	01	0	4	032	16	0	4	11	01	0	4	080
17	0	4	9	01	0	4	033	17	0	4	11	01	0	4	081
18	0	4	9	01	0	4	034	18	0	4	11	01	0	4	082
19	0	4	9	01	0	4	035	19	0	4	11	01	0	4	083
20	0	4	9	01	0	4	036	20	0	4	11	01	0	4	084
21	0	4	9	01	0	4	037	21	0	4	11	01	0	4	085
22	0	4	9	01	0	4	038	22	0	4	11	01	0	4	086
23	0	4	9	01	0	4	039	23	0	4	11	01	0	4	087
24	0	4	9	01	0	4	040	24	0	4	11	01	0	4	088
1	0	4	10	01	0	4	041	1	0	4	12	01	0	4	089
2	0	4	10	01	0	4	042	2	0	4	12	01	0	4	090
3	0	4	10	01	0	4	043	3	0	4	12	01	0	4	091
4	0	4	10	01	0	4	044	4	0	4	12	01	0	4	092
5	0	4	10	01	0	4	045	5	0	4	12	01	0	4	093
6	0	4	10	01	0	4	046	6	0	4	12	01	0	4	094
7	0	4	10	01	0	4	047	7	0	4	12	01	0	4	095
8	0	4	10	01	0	4	048	8	0	4	12	01	0	4	096
9	0	4	10	01	0	4	049	9	0	4	12	01	0	4	097
10	0	4	10	01	0	4	050	10	0	4	12	01	0	4	098
11	0	4	10	01	0	4	051	11	0	4	12	01	0	4	099
12	0	4	10	01	0	4	052	12	0	4	12	01	0	4	100
13	0	4	10	01	0	4	053	13	0	4	12	01	0	4	101
14	0	4	10	01	0	4	054	14	0	4	12	01	0	4	102
15	0	4	10	01	0	4	055	15	0	4	12	01	0	4	103
16	0	4	10	01	0	4	056	16	0	4	12	01	0	4	104
17	0	4	10	01	0	4	057	17	0	4	12	01	0	4	105
18	0	4	10	01	0	4	058	18	0	4	12	01	0	4	106
19	0	4	10	01	0	4	059	19	0	4	12	01	0	4	107
20	0	4	10	01	0	4	060	20	0	4	12	01	0	4	108
21	0	4	10	01	0	4	061	21	0	4	12	01	0	4	109
22	0	4	10	01	0	4	062	22	0	4	12	01	0	4	110
23	0	4	10	01	0	4	063	23	0	4	12	01	0	4	111
24	0	4	10	01	0	4	064	24	0	4	12	01	0	4	112

Channel	D3U			TSI	TAN			Channel	D3U			TSI	TAN		
	TSI	D3	DG		S	L	TS		TSI	D3	DG		S	L	TS
1	0	4	13	01	0	4	113	1	0	4	15	01	1	2	081
2	0	4	13	01	0	4	114	2	0	4	15	01	1	2	082
3	0	4	13	01	0	4	115	3	0	4	15	01	1	2	083
4	0	4	13	01	0	4	116	4	0	4	15	01	1	2	084
5	0	4	13	01	0	4	117	5	0	4	15	01	1	2	085
6	0	4	13	01	0	4	118	6	0	4	15	01	1	2	086
7	0	4	13	01	0	4	119	7	0	4	15	01	1	2	087
8	0	4	13	01	0	4	120	8	0	4	15	01	1	2	088
9	0	4	13	01	0	4	121	9	0	4	15	01	1	2	089
10	0	4	13	01	0	4	122	10	0	4	15	01	1	2	090
11	0	4	13	01	0	4	123	11	0	4	15	01	1	2	091
12	0	4	13	01	0	4	124	12	0	4	15	01	1	2	092
13	0	4	13	01	0	4	125	13	0	4	15	01	1	2	093
14	0	4	13	01	0	4	126	14	0	4	15	01	1	2	094
15	0	4	13	01	0	4	127	15	0	4	15	01	1	2	095
16	0	4	13	01	0	5	000	16	0	4	15	01	1	2	096
17	0	4	13	01	0	5	001	17	0	4	15	01	1	2	097
18	0	4	13	01	0	5	002	18	0	4	15	01	1	2	098
19	0	4	13	01	0	5	003	19	0	4	15	01	1	2	099
20	0	4	13	01	0	5	004	20	0	4	15	01	1	2	100
21	0	4	13	01	0	5	005	21	0	4	15	01	1	2	101
22	0	4	13	01	0	5	006	22	0	4	15	01	1	2	102
23	0	4	13	01	0	5	007	23	0	4	15	01	1	2	103
24	0	4	13	01	0	5	008	24	0	4	15	01	1	2	104
1	0	4	14	01	0	5	009	1	0	4	16	01	1	2	105
2	0	4	14	01	0	5	010	2	0	4	16	01	1	2	106
3	0	4	14	01	0	5	011	3	0	4	16	01	1	2	107
4	0	4	14	01	0	5	012	4	0	4	16	01	1	2	108
5	0	4	14	01	0	5	013	5	0	4	16	01	1	2	109
6	0	4	14	01	0	5	014	6	0	4	16	01	1	2	110
7	0	4	14	01	0	5	015	7	0	4	16	01	1	2	111
8	0	4	14	01	0	5	016	8	0	4	16	01	1	2	112
9	0	4	14	01	0	5	017	9	0	4	16	01	1	2	113
10	0	4	14	01	0	5	018	10	0	4	16	01	1	2	114
11	0	4	14	01	0	5	019	11	0	4	16	01	1	2	115
12	0	4	14	01	0	5	020	12	0	4	16	01	1	2	116
13	0	4	14	01	0	5	021	13	0	4	16	01	1	2	117
14	0	4	14	01	0	5	022	14	0	4	16	01	1	2	118
15	0	4	14	01	0	5	023	15	0	4	16	01	1	2	119
16	0	4	14	01	0	5	024	16	0	4	16	01	1	2	120
17	0	4	14	01	0	5	025	17	0	4	16	01	1	2	121
18	0	4	14	01	0	5	026	18	0	4	16	01	1	2	122
19	0	4	14	01	0	5	027	19	0	4	16	01	1	2	123
20	0	4	14	01	0	5	028	20	0	4	16	01	1	2	124
21	0	4	14	01	0	5	029	21	0	4	16	01	1	2	125
22	0	4	14	01	0	5	030	22	0	4	16	01	1	2	126
23	0	4	14	01	0	5	031	23	0	4	16	01	1	2	127
24	0	4	14	01	0	5	032	24	0	4	16	01	1	3	000

Channel	D3U			TSI	TAN			Channel	D3U			TSI	TAN		
	TSI	D3	DG		S	L	TS		TSI	D3	DG		S	L	TS
1	0	4	17	01	1	3	001	1	0	4	19	01	1	3	049
2	0	4	17	01	1	3	002	2	0	4	19	01	1	3	050
3	0	4	17	01	1	3	003	3	0	4	19	01	1	3	051
4	0	4	17	01	1	3	004	4	0	4	19	01	1	3	052
5	0	4	17	01	1	3	005	5	0	4	19	01	1	3	053
6	0	4	17	01	1	3	006	6	0	4	19	01	1	3	054
7	0	4	17	01	1	3	007	7	0	4	19	01	1	3	055
8	0	4	17	01	1	3	008	8	0	4	19	01	1	3	056
9	0	4	17	01	1	3	009	9	0	4	19	01	1	3	057
10	0	4	17	01	1	3	010	10	0	4	19	01	1	3	058
11	0	4	17	01	1	3	011	11	0	4	19	01	1	3	059
12	0	4	17	01	1	3	012	12	0	4	19	01	1	3	060
13	0	4	17	01	1	3	013	13	0	4	19	01	1	3	061
14	0	4	17	01	1	3	014	14	0	4	19	01	1	3	062
15	0	4	17	01	1	3	015	15	0	4	19	01	1	3	063
16	0	4	17	01	1	3	016	16	0	4	19	01	1	3	064
17	0	4	17	01	1	3	017	17	0	4	19	01	1	3	065
18	0	4	17	01	1	3	018	18	0	4	19	01	1	3	066
19	0	4	17	01	1	3	019	19	0	4	19	01	1	3	067
20	0	4	17	01	1	3	020	20	0	4	19	01	1	3	068
21	0	4	17	01	1	3	021	21	0	4	19	01	1	3	069
22	0	4	17	01	1	3	022	22	0	4	19	01	1	3	070
23	0	4	17	01	1	3	023	23	0	4	19	01	1	3	071
24	0	4	17	01	1	3	024	24	0	4	19	01	1	3	072
1	0	4	18	01	1	3	025	1	0	4	20	01	1	3	073
2	0	4	18	01	1	3	026	2	0	4	20	01	1	3	074
3	0	4	18	01	1	3	027	3	0	4	20	01	1	3	075
4	0	4	18	01	1	3	028	4	0	4	20	01	1	3	076
5	0	4	18	01	1	3	029	5	0	4	20	01	1	3	077
6	0	4	18	01	1	3	030	6	0	4	20	01	1	3	078
7	0	4	18	01	1	3	031	7	0	4	20	01	1	3	079
8	0	4	18	01	1	3	032	8	0	4	20	01	1	3	080
9	0	4	18	01	1	3	033	9	0	4	20	01	1	3	081
10	0	4	18	01	1	3	034	10	0	4	20	01	1	3	082
11	0	4	18	01	1	3	035	11	0	4	20	01	1	3	083
12	0	4	18	01	1	3	036	12	0	4	20	01	1	3	084
13	0	4	18	01	1	3	037	13	0	4	20	01	1	3	085
14	0	4	18	01	1	3	038	14	0	4	20	01	1	3	086
15	0	4	18	01	1	3	039	15	0	4	20	01	1	3	087
16	0	4	18	01	1	3	040	16	0	4	20	01	1	3	088
17	0	4	18	01	1	3	041	17	0	4	20	01	1	3	089
18	0	4	18	01	1	3	042	18	0	4	20	01	1	3	090
19	0	4	18	01	1	3	043	19	0	4	20	01	1	3	091
20	0	4	18	01	1	3	044	20	0	4	20	01	1	3	092
21	0	4	18	01	1	3	045	21	0	4	20	01	1	3	093
22	0	4	18	01	1	3	046	22	0	4	20	01	1	3	094
23	0	4	18	01	1	3	047	23	0	4	20	01	1	3	095
24	0	4	18	01	1	3	048	24	0	4	20	01	1	3	096

Channel	D3U			TSI	TAN			Channel	D3U			TSI	TAN		
	TSI	D3	DG		S	L	TS		TSI	D3	DG		S	L	TS
1	0	4	21	01	1	3	097	1	0	4	23	01	1	4	017
2	0	4	21	01	1	3	098	2	0	4	23	01	1	4	018
3	0	4	21	01	1	3	099	3	0	4	23	01	1	4	019
4	0	4	21	01	1	3	100	4	0	4	23	01	1	4	020
5	0	4	21	01	1	3	101	5	0	4	23	01	1	4	021
6	0	4	21	01	1	3	102	6	0	4	23	01	1	4	022
7	0	4	21	01	1	3	103	7	0	4	23	01	1	4	023
8	0	4	21	01	1	3	104	8	0	4	23	01	1	4	024
9	0	4	21	01	1	3	105	9	0	4	23	01	1	4	025
10	0	4	21	01	1	3	106	10	0	4	23	01	1	4	026
11	0	4	21	01	1	3	107	11	0	4	23	01	1	4	027
12	0	4	21	01	1	3	108	12	0	4	23	01	1	4	028
13	0	4	21	01	1	3	109	13	0	4	23	01	1	4	029
14	0	4	21	01	1	3	110	14	0	4	23	01	1	4	030
15	0	4	21	01	1	3	111	15	0	4	23	01	1	4	031
16	0	4	21	01	1	3	112	16	0	4	23	01	1	4	032
17	0	4	21	01	1	3	113	17	0	4	23	01	1	4	033
18	0	4	21	01	1	3	114	18	0	4	23	01	1	4	034
19	0	4	21	01	1	3	115	19	0	4	23	01	1	4	035
20	0	4	21	01	1	3	116	20	0	4	23	01	1	4	036
21	0	4	21	01	1	3	117	21	0	4	23	01	1	4	037
22	0	4	21	01	1	3	118	22	0	4	23	01	1	4	038
23	0	4	21	01	1	3	119	23	0	4	23	01	1	4	039
24	0	4	21	01	1	3	120	24	0	4	23	01	1	4	040
1	0	4	22	01	1	3	121	1	0	4	24	01	1	4	041
2	0	4	22	01	1	3	122	2	0	4	24	01	1	4	042
3	0	4	22	01	1	3	123	3	0	4	24	01	1	4	043
4	0	4	22	01	1	3	124	4	0	4	24	01	1	4	044
5	0	4	22	01	1	3	125	5	0	4	24	01	1	4	045
6	0	4	22	01	1	3	126	6	0	4	24	01	1	4	046
7	0	4	22	01	1	3	127	7	0	4	24	01	1	4	047
8	0	4	22	01	1	4	000	8	0	4	24	01	1	4	048
9	0	4	22	01	1	4	001	9	0	4	24	01	1	4	049
10	0	4	22	01	1	4	002	10	0	4	24	01	1	4	050
11	0	4	22	01	1	4	003	11	0	4	24	01	1	4	051
12	0	4	22	01	1	4	004	12	0	4	24	01	1	4	052
13	0	4	22	01	1	4	005	13	0	4	24	01	1	4	053
14	0	4	22	01	1	4	006	14	0	4	24	01	1	4	054
15	0	4	22	01	1	4	007	15	0	4	24	01	1	4	055
16	0	4	22	01	1	4	008	16	0	4	24	01	1	4	056
17	0	4	22	01	1	4	009	17	0	4	24	01	1	4	057
18	0	4	22	01	1	4	010	18	0	4	24	01	1	4	058
19	0	4	22	01	1	4	011	19	0	4	24	01	1	4	059
20	0	4	22	01	1	4	012	20	0	4	24	01	1	4	060
21	0	4	22	01	1	4	013	21	0	4	24	01	1	4	061
22	0	4	22	01	1	4	014	22	0	4	24	01	1	4	062
23	0	4	22	01	1	4	015	23	0	4	24	01	1	4	063
24	0	4	22	01	1	4	016	24	0	4	24	01	1	4	064

Channel	D3U			TSI	TAN			Channel	D3U			TSI	TAN		
	TSI	D3	DG		S	L	TS		TSI	D3	DG		S	L	TS
1	0	4	25	01	1	4	065	1	0	4	27	01	1	4	113
2	0	4	25	01	1	4	066	2	0	4	27	01	1	4	114
3	0	4	25	01	1	4	067	3	0	4	27	01	1	4	115
4	0	4	25	01	1	4	068	4	0	4	27	01	1	4	116
5	0	4	25	01	1	4	069	5	0	4	27	01	1	4	117
6	0	4	25	01	1	4	070	6	0	4	27	01	1	4	118
7	0	4	25	01	1	4	071	7	0	4	27	01	1	4	119
8	0	4	25	01	1	4	072	8	0	4	27	01	1	4	120
9	0	4	25	01	1	4	073	9	0	4	27	01	1	4	121
10	0	4	25	01	1	4	074	10	0	4	27	01	1	4	122
11	0	4	25	01	1	4	075	11	0	4	27	01	1	4	123
12	0	4	25	01	1	4	076	12	0	4	27	01	1	4	124
13	0	4	25	01	1	4	077	13	0	4	27	01	1	4	125
14	0	4	25	01	1	4	078	14	0	4	27	01	1	4	126
15	0	4	25	01	1	4	079	15	0	4	27	01	1	4	127
16	0	4	25	01	1	4	080	16	0	4	27	01	1	5	000
17	0	4	25	01	1	4	081	17	0	4	27	01	1	5	001
18	0	4	25	01	1	4	082	18	0	4	27	01	1	5	002
19	0	4	25	01	1	4	083	19	0	4	27	01	1	5	003
20	0	4	25	01	1	4	084	20	0	4	27	01	1	5	004
21	0	4	25	01	1	4	085	21	0	4	27	01	1	5	005
22	0	4	25	01	1	4	086	22	0	4	27	01	1	5	006
23	0	4	25	01	1	4	087	23	0	4	27	01	1	5	007
24	0	4	25	01	1	4	088	24	0	4	27	01	1	5	008
1	0	4	26	01	1	4	089	1	0	4	28	01	1	5	009
2	0	4	26	01	1	4	090	2	0	4	28	01	1	5	010
3	0	4	26	01	1	4	091	3	0	4	28	01	1	5	011
4	0	4	26	01	1	4	092	4	0	4	28	01	1	5	012
5	0	4	26	01	1	4	093	5	0	4	28	01	1	5	013
6	0	4	26	01	1	4	094	6	0	4	28	01	1	5	014
7	0	4	26	01	1	4	095	7	0	4	28	01	1	5	015
8	0	4	26	01	1	4	096	8	0	4	28	01	1	5	016
9	0	4	26	01	1	4	097	9	0	4	28	01	1	5	017
10	0	4	26	01	1	4	098	10	0	4	28	01	1	5	018
11	0	4	26	01	1	4	099	11	0	4	28	01	1	5	019
12	0	4	26	01	1	4	100	12	0	4	28	01	1	5	020
13	0	4	26	01	1	4	101	13	0	4	28	01	1	5	021
14	0	4	26	01	1	4	102	14	0	4	28	01	1	5	022
15	0	4	26	01	1	4	103	15	0	4	28	01	1	5	023
16	0	4	26	01	1	4	104	16	0	4	28	01	1	5	024
17	0	4	26	01	1	4	105	17	0	4	28	01	1	5	025
18	0	4	26	01	1	4	106	18	0	4	28	01	1	5	026
19	0	4	26	01	1	4	107	19	0	4	28	01	1	5	027
20	0	4	26	01	1	4	108	20	0	4	28	01	1	5	028
21	0	4	26	01	1	4	109	21	0	4	28	01	1	5	029
22	0	4	26	01	1	4	110	22	0	4	28	01	1	5	030
23	0	4	26	01	1	4	111	23	0	4	28	01	1	5	031
24	0	4	26	01	1	4	112	24	0	4	28	01	1	5	032

<u>Channel</u>	<u>D3U</u>			<u>TSI</u>	<u>TAN</u>			<u>Channel</u>	<u>D3U</u>			<u>TSI</u>	<u>TAN</u>		
	<u>TSI</u>	<u>D3</u>	<u>DG</u>		<u>S</u>	<u>L</u>	<u>TS</u>		<u>TSI</u>	<u>D3</u>	<u>DG</u>		<u>S</u>	<u>L</u>	<u>TS</u>
1	0	5	1	01	0	5	033	1	0	5	3	01	0	5	081
2	0	5	1	01	0	5	034	2	0	5	3	01	0	5	082
3	0	5	1	01	0	5	035	3	0	5	3	01	0	5	083
4	0	5	1	01	0	5	036	4	0	5	3	01	0	5	084
5	0	5	1	01	0	5	037	5	0	5	3	01	0	5	085
6	0	5	1	01	0	5	038	6	0	5	3	01	0	5	086
7	0	5	1	01	0	5	039	7	0	5	3	01	0	5	087
8	0	5	1	01	0	5	040	8	0	5	3	01	0	5	088
9	0	5	1	01	0	5	041	9	0	5	3	01	0	5	089
10	0	5	1	01	0	5	042	10	0	5	3	01	0	5	090
11	0	5	1	01	0	5	043	11	0	5	3	01	0	5	091
12	0	5	1	01	0	5	044	12	0	5	3	01	0	5	092
13	0	5	1	01	0	5	045	13	0	5	3	01	0	5	093
14	0	5	1	01	0	5	046	14	0	5	3	01	0	5	094
15	0	5	1	01	0	5	047	15	0	5	3	01	0	5	095
16	0	5	1	01	0	5	048	16	0	5	3	01	0	5	096
17	0	5	1	01	0	5	049	17	0	5	3	01	0	5	097
18	0	5	1	01	0	5	050	18	0	5	3	01	0	5	098
19	0	5	1	01	0	5	051	19	0	5	3	01	0	5	099
20	0	5	1	01	0	5	052	20	0	5	3	01	0	5	100
21	0	5	1	01	0	5	053	21	0	5	3	01	0	5	101
22	0	5	1	01	0	5	054	22	0	5	3	01	0	5	102
23	0	5	1	01	0	5	055	23	0	5	3	01	0	5	103
24	0	5	1	01	0	5	056	24	0	5	3	01	0	5	104
1	0	5	2	01	0	5	057	1	0	5	4	01	0	5	105
2	0	5	2	01	0	5	058	2	0	5	4	01	0	5	106
3	0	5	2	01	0	5	059	3	0	5	4	01	0	5	107
4	0	5	2	01	0	5	060	4	0	5	4	01	0	5	108
5	0	5	2	01	0	5	061	5	0	5	4	01	0	5	109
6	0	5	2	01	0	5	062	6	0	5	4	01	0	5	110
7	0	5	2	01	0	5	063	7	0	5	4	01	0	5	111
8	0	5	2	01	0	5	064	8	0	5	4	01	0	5	112
9	0	5	2	01	0	5	065	9	0	5	4	01	0	5	113
10	0	5	2	01	0	5	066	10	0	5	4	01	0	5	114
11	0	5	2	01	0	5	067	11	0	5	4	01	0	5	115
12	0	5	2	01	0	5	068	12	0	5	4	01	0	5	116
13	0	5	2	01	0	5	069	13	0	5	4	01	0	5	117
14	0	5	2	01	0	5	070	14	0	5	4	01	0	5	118
15	0	5	2	01	0	5	071	15	0	5	4	01	0	5	119
16	0	5	2	01	0	5	072	16	0	5	4	01	0	5	120
17	0	5	2	01	0	5	073	17	0	5	4	01	0	5	121
18	0	5	2	01	0	5	074	18	0	5	4	01	0	5	122
19	0	5	2	01	0	5	075	19	0	5	4	01	0	5	123
20	0	5	2	01	0	5	076	20	0	5	4	01	0	5	124
21	0	5	2	01	0	5	077	21	0	5	4	01	0	5	125
22	0	5	2	01	0	5	078	22	0	5	4	01	0	5	126
23	0	5	2	01	0	5	079	23	0	5	4	01	0	5	127
24	0	5	2	01	0	5	080	24	0	5	4	01	0	6	000

<u>Channel</u>	<u>D3U</u>			<u>TSI</u>	<u>TAN</u>			<u>Channel</u>	<u>D3U</u>			<u>TSI</u>	<u>TAN</u>		
	<u>TSI</u>	<u>D3</u>	<u>DG</u>		<u>S</u>	<u>L</u>	<u>TS</u>		<u>TSI</u>	<u>D3</u>	<u>DG</u>		<u>S</u>	<u>L</u>	<u>TS</u>
1	0	5	5	01	0	6	001	1	0	5	7	01	0	6	049
2	0	5	5	01	0	6	002	2	0	5	7	01	0	6	050
3	0	5	5	01	0	6	003	3	0	5	7	01	0	6	051
4	0	5	5	01	0	6	004	4	0	5	7	01	0	6	052
5	0	5	5	01	0	6	005	5	0	5	7	01	0	6	053
6	0	5	5	01	0	6	006	6	0	5	7	01	0	6	054
7	0	5	5	01	0	6	007	7	0	5	7	01	0	6	055
8	0	5	5	01	0	6	008	8	0	5	7	01	0	6	056
9	0	5	5	01	0	6	009	9	0	5	7	01	0	6	057
10	0	5	5	01	0	6	010	10	0	5	7	01	0	6	058
11	0	5	5	01	0	6	011	11	0	5	7	01	0	6	059
12	0	5	5	01	0	6	012	12	0	5	7	01	0	6	060
13	0	5	5	01	0	6	013	13	0	5	7	01	0	6	061
14	0	5	5	01	0	6	014	14	0	5	7	01	0	6	062
15	0	5	5	01	0	6	015	15	0	5	7	01	0	6	063
16	0	5	5	01	0	6	016	16	0	5	7	01	0	6	064
17	0	5	5	01	0	6	017	17	0	5	7	01	0	6	065
18	0	5	5	01	0	6	018	18	0	5	7	01	0	6	066
19	0	5	5	01	0	6	019	19	0	5	7	01	0	6	067
20	0	5	5	01	0	6	020	20	0	5	7	01	0	6	068
21	0	5	5	01	0	6	021	21	0	5	7	01	0	6	069
22	0	5	5	01	0	6	022	22	0	5	7	01	0	6	070
23	0	5	5	01	0	6	023	23	0	5	7	01	0	6	071
24	0	5	5	01	0	6	024	24	0	5	7	01	0	6	072
1	0	5	6	01	0	6	025	1	0	5	8	01	0	6	073
2	0	5	6	01	0	6	026	2	0	5	8	01	0	6	074
3	0	5	6	01	0	6	027	3	0	5	8	01	0	6	075
4	0	5	6	01	0	6	028	4	0	5	8	01	0	6	076
5	0	5	6	01	0	6	029	5	0	5	8	01	0	6	077
6	0	5	6	01	0	6	030	6	0	5	8	01	0	6	078
7	0	5	6	01	0	6	031	7	0	5	8	01	0	6	079
8	0	5	6	01	0	6	032	8	0	5	8	01	0	6	080
9	0	5	6	01	0	6	033	9	0	5	8	01	0	6	081
10	0	5	6	01	0	6	034	10	0	5	8	01	0	6	082
11	0	5	6	01	0	6	035	11	0	5	8	01	0	6	083
12	0	5	6	01	0	6	036	12	0	5	8	01	0	6	084
13	0	5	6	01	0	6	037	13	0	5	8	01	0	6	085
14	0	5	6	01	0	6	038	14	0	5	8	01	0	6	086
15	0	5	6	01	0	6	039	15	0	5	8	01	0	6	087
16	0	5	6	01	0	6	040	16	0	5	8	01	0	6	088
17	0	5	6	01	0	6	041	17	0	5	8	01	0	6	089
18	0	5	6	01	0	6	042	18	0	5	8	01	0	6	090
19	0	5	6	01	0	6	043	19	0	5	8	01	0	6	091
20	0	5	6	01	0	6	044	20	0	5	8	01	0	6	092
21	0	5	6	01	0	6	045	21	0	5	8	01	0	6	093
22	0	5	6	01	0	6	046	22	0	5	8	01	0	6	094
23	0	5	6	01	0	6	047	23	0	5	8	01	0	6	095
24	0	5	6	01	0	6	048	24	0	5	8	01	0	6	096

<u>Channel</u>	<u>D3U</u>			<u>TSI</u>	<u>TAN</u>			<u>Channel</u>	<u>D3U</u>			<u>TSI</u>	<u>TAN</u>		
	<u>TSI</u>	<u>D3</u>	<u>DG</u>		<u>S</u>	<u>L</u>	<u>TS</u>		<u>TSI</u>	<u>D3</u>	<u>DG</u>		<u>S</u>	<u>L</u>	<u>TS</u>
1	0	5	9	01	0	6	097	1	0	5	11	01	0	7	017
2	0	5	9	01	0	6	098	2	0	5	11	01	0	7	018
3	0	5	9	01	0	6	099	3	0	5	11	01	0	7	019
4	0	5	9	01	0	6	100	4	0	5	11	01	0	7	020
5	0	5	9	01	0	6	101	5	0	5	11	01	0	7	021
6	0	5	9	01	0	6	102	6	0	5	11	01	0	7	022
7	0	5	9	01	0	6	103	7	0	5	11	01	0	7	023
8	0	5	9	01	0	6	104	8	0	5	11	01	0	7	024
9	0	5	9	01	0	6	105	9	0	5	11	01	0	7	025
10	0	5	9	01	0	6	106	10	0	5	11	01	0	7	026
11	0	5	9	01	0	6	107	11	0	5	11	01	0	7	027
12	0	5	9	01	0	6	108	12	0	5	11	01	0	7	028
13	0	5	9	01	0	6	109	13	0	5	11	01	0	7	029
14	0	5	9	01	0	6	110	14	0	5	11	01	0	7	030
15	0	5	9	01	0	6	111	15	0	5	11	01	0	7	031
16	0	5	9	01	0	6	112	16	0	5	11	01	0	7	032
17	0	5	9	01	0	6	113	17	0	5	11	01	0	7	033
18	0	5	9	01	0	6	114	18	0	5	11	01	0	7	034
19	0	5	9	01	0	6	115	19	0	5	11	01	0	7	035
20	0	5	9	01	0	6	116	20	0	5	11	01	0	7	036
21	0	5	9	01	0	6	117	21	0	5	11	01	0	7	037
22	0	5	9	01	0	6	118	22	0	5	11	01	0	7	038
23	0	5	9	01	0	6	119	23	0	5	11	01	0	7	039
24	0	5	9	01	0	6	120	24	0	5	11	01	0	7	040
1	0	5	10	01	0	6	121	1	0	5	12	01	0	7	041
2	0	5	10	01	0	6	122	2	0	5	12	01	0	7	042
3	0	5	10	01	0	6	123	3	0	5	12	01	0	7	043
4	0	5	10	01	0	6	124	4	0	5	12	01	0	7	044
5	0	5	10	01	0	6	125	5	0	5	12	01	0	7	045
6	0	5	10	01	0	6	126	6	0	5	12	01	0	7	046
7	0	5	10	01	0	6	127	7	0	5	12	01	0	7	047
8	0	5	10	01	0	7	000	8	0	5	12	01	0	7	048
9	0	5	10	01	0	7	001	9	0	5	12	01	0	7	049
10	0	5	10	01	0	7	002	10	0	5	12	01	0	7	050
11	0	5	10	01	0	7	003	11	0	5	12	01	0	7	051
12	0	5	10	01	0	7	004	12	0	5	12	01	0	7	052
13	0	5	10	01	0	7	005	13	0	5	12	01	0	7	053
14	0	5	10	01	0	7	006	14	0	5	12	01	0	7	054
15	0	5	10	01	0	7	007	15	0	5	12	01	0	7	055
16	0	5	10	01	0	7	008	16	0	5	12	01	0	7	056
17	0	5	10	01	0	7	009	17	0	5	12	01	0	7	057
18	0	5	10	01	0	7	010	18	0	5	12	01	0	7	058
19	0	5	10	01	0	7	011	19	0	5	12	01	0	7	059
20	0	5	10	01	0	7	012	20	0	5	12	01	0	7	060
21	0	5	10	01	0	7	013	21	0	5	12	01	0	7	061
22	0	5	10	01	0	7	014	22	0	5	12	01	0	7	062
23	0	5	10	01	0	7	015	23	0	5	12	01	0	7	063
24	0	5	10	01	0	7	016	24	0	5	12	01	0	7	064

<u>Channel</u>	<u>D3U</u>			<u>TSI</u>	<u>TAN</u>			<u>Channel</u>	<u>D3U</u>			<u>TSI</u>	<u>TAN</u>		
	<u>TSI</u>	<u>D3</u>	<u>DG</u>		<u>S</u>	<u>L</u>	<u>TS</u>		<u>TSI</u>	<u>D3</u>	<u>DG</u>		<u>S</u>	<u>L</u>	<u>TS</u>
1	0	5	13	01	0	7	065	1	0	5	15	01	1	5	033
2	0	5	13	01	0	7	066	2	0	5	15	01	1	5	034
3	0	5	13	01	0	7	067	3	0	5	15	01	1	5	035
4	0	5	13	01	0	7	068	4	0	5	15	01	1	5	036
5	0	5	13	01	0	7	069	5	0	5	15	01	1	5	037
6	0	5	13	01	0	7	070	6	0	5	15	01	1	5	038
7	0	5	13	01	0	7	071	7	0	5	15	01	1	5	039
8	0	5	13	01	0	7	072	8	0	5	15	01	1	5	040
9	0	5	13	01	0	7	073	9	0	5	15	01	1	5	041
10	0	5	13	01	0	7	074	10	0	5	15	01	1	5	042
11	0	5	13	01	0	7	075	11	0	5	15	01	1	5	043
12	0	5	13	01	0	7	076	12	0	5	15	01	1	5	044
13	0	5	13	01	0	7	077	13	0	5	15	01	1	5	045
14	0	5	13	01	0	7	078	14	0	5	15	01	1	5	046
15	0	5	13	01	0	7	079	15	0	5	15	01	1	5	047
16	0	5	13	01	0	7	080	16	0	5	15	01	1	5	048
17	0	5	13	01	0	7	081	17	0	5	15	01	1	5	049
18	0	5	13	01	0	7	082	18	0	5	15	01	1	5	050
19	0	5	13	01	0	7	083	19	0	5	15	01	1	5	051
20	0	5	13	01	0	7	084	20	0	5	15	01	1	5	052
21	0	5	13	01	0	7	085	21	0	5	15	01	1	5	053
22	0	5	13	01	0	7	086	22	0	5	15	01	1	5	054
23	0	5	13	01	0	7	087	23	0	5	15	01	1	5	055
24	0	5	13	01	0	7	088	24	0	5	15	01	1	5	056
1	0	5	14	01	0	7	089	1	0	5	16	01	1	5	057
2	0	5	14	01	0	7	090	2	0	5	16	01	1	5	058
3	0	5	14	01	0	7	091	3	0	5	16	01	1	5	059
4	0	5	14	01	0	7	092	4	0	5	16	01	1	5	060
5	0	5	14	01	0	7	093	5	0	5	16	01	1	5	061
6	0	5	14	01	0	7	094	6	0	5	16	01	1	5	062
7	0	5	14	01	0	7	095	7	0	5	16	01	1	5	063
8	0	5	14	01	0	7	096	8	0	5	16	01	1	5	064
9	0	5	14	01	0	7	097	9	0	5	16	01	1	5	065
10	0	5	14	01	0	7	098	10	0	5	16	01	1	5	066
11	0	5	14	01	0	7	099	11	0	5	16	01	1	5	067
12	0	5	14	01	0	7	100	12	0	5	16	01	1	5	068
13	0	5	14	01	0	7	101	13	0	5	16	01	1	5	069
14	0	5	14	01	0	7	102	14	0	5	16	01	1	5	070
15	0	5	14	01	0	7	103	15	0	5	16	01	1	5	071
16	0	5	14	01	0	7	104	16	0	5	16	01	1	5	072
17	0	5	14	01	0	7	105	17	0	5	16	01	1	5	073
18	0	5	14	01	0	7	106	18	0	5	16	01	1	5	074
19	0	5	14	01	0	7	107	19	0	5	16	01	1	5	075
20	0	5	14	01	0	7	108	20	0	5	16	01	1	5	076
21	0	5	14	01	0	7	109	21	0	5	16	01	1	5	077
22	0	5	14	01	0	7	110	22	0	5	16	01	1	5	078
23	0	5	14	01	0	7	111	23	0	5	16	01	1	5	079
24	0	5	14	01	0	7	112	24	0	5	16	01	1	5	080

Channel	D3U			TSI	TAN			Channel	D3U			TSI	TAN		
	TSI	D3	DG		S	L	TS		TSI	D3	DG		S	L	TS
1	0	5	17	01	1	5	081	1	0	5	19	01	1	6	001
2	0	5	17	01	1	5	082	2	0	5	19	01	1	6	002
3	0	5	17	01	1	5	083	3	0	5	19	01	1	6	003
4	0	5	17	01	1	5	084	4	0	5	19	01	1	6	004
5	0	5	17	01	1	5	085	5	0	5	19	01	1	6	005
6	0	5	17	01	1	5	086	6	0	5	19	01	1	6	006
7	0	5	17	01	1	5	087	7	0	5	19	01	1	6	007
8	0	5	17	01	1	5	088	8	0	5	19	01	1	6	008
9	0	5	17	01	1	5	089	9	0	5	19	01	1	6	009
10	0	5	17	01	1	5	090	10	0	5	19	01	1	6	010
11	0	5	17	01	1	5	091	11	0	5	19	01	1	6	011
12	0	5	17	01	1	5	092	12	0	5	19	01	1	6	012
13	0	5	17	01	1	5	093	13	0	5	19	01	1	6	013
14	0	5	17	01	1	5	094	14	0	5	19	01	1	6	014
15	0	5	17	01	1	5	095	15	0	5	19	01	1	6	015
16	0	5	17	01	1	5	096	16	0	5	19	01	1	6	016
17	0	5	17	01	1	5	097	17	0	5	19	01	1	6	017
18	0	5	17	01	1	5	098	18	0	5	19	01	1	6	018
19	0	5	17	01	1	5	099	19	0	5	19	01	1	6	019
20	0	5	17	01	1	5	100	20	0	5	19	01	1	6	020
21	0	5	17	01	1	5	101	21	0	5	19	01	1	6	021
22	0	5	17	01	1	5	102	22	0	5	19	01	1	6	022
23	0	5	17	01	1	5	103	23	0	5	19	01	1	6	023
24	0	5	17	01	1	5	104	24	0	5	19	01	1	6	024
1	0	5	18	01	1	5	105	1	0	5	20	01	1	6	025
2	0	5	18	01	1	5	106	2	0	5	20	01	1	6	026
3	0	5	18	01	1	5	107	3	0	5	20	01	1	6	027
4	0	5	18	01	1	5	108	4	0	5	20	01	1	6	028
5	0	5	18	01	1	5	109	5	0	5	20	01	1	6	029
6	0	5	18	01	1	5	110	6	0	5	20	01	1	6	030
7	0	5	18	01	1	5	111	7	0	5	20	01	1	6	031
8	0	5	18	01	1	5	112	8	0	5	20	01	1	6	032
9	0	5	18	01	1	5	113	9	0	5	20	01	1	6	033
10	0	5	18	01	1	5	114	10	0	5	20	01	1	6	034
11	0	5	18	01	1	5	115	11	0	5	20	01	1	6	035
12	0	5	18	01	1	5	116	12	0	5	20	01	1	6	036
13	0	5	18	01	1	5	117	13	0	5	20	01	1	6	037
14	0	5	18	01	1	5	118	14	0	5	20	01	1	6	038
15	0	5	18	01	1	5	119	15	0	5	20	01	1	6	039
16	0	5	18	01	1	5	120	16	0	5	20	01	1	6	040
17	0	5	18	01	1	5	121	17	0	5	20	01	1	6	041
18	0	5	18	01	1	5	122	18	0	5	20	01	1	6	042
19	0	5	18	01	1	5	123	19	0	5	20	01	1	6	043
20	0	5	18	01	1	5	124	20	0	5	20	01	1	6	044
21	0	5	18	01	1	5	125	21	0	5	20	01	1	6	045
22	0	5	18	01	1	5	126	22	0	5	20	01	1	6	046
23	0	5	18	01	1	5	127	23	0	5	20	01	1	6	047
24	0	5	18	01	1	6	000	24	0	5	20	01	1	6	048

Channel	D3U			TSI	TAN			Channel	D3U			TSI	TAN		
	TSI	D3	DG		S	L	TS		TSI	D3	DG		S	L	TS
1	0	5	21	01	1	6	049	1	0	5	23	01	1	6	097
2	0	5	21	01	1	6	050	2	0	5	23	01	1	6	098
3	0	5	21	01	1	6	051	3	0	5	23	01	1	6	099
4	0	5	21	01	1	6	052	4	0	5	23	01	1	6	100
5	0	5	21	01	1	6	053	5	0	5	23	01	1	6	101
6	0	5	21	01	1	6	054	6	0	5	23	01	1	6	102
7	0	5	21	01	1	6	055	7	0	5	23	01	1	6	103
8	0	5	21	01	1	6	056	8	0	5	23	01	1	6	104
9	0	5	21	01	1	6	057	9	0	5	23	01	1	6	105
10	0	5	21	01	1	6	058	10	0	5	23	01	1	6	106
11	0	5	21	01	1	6	059	11	0	5	23	01	1	6	107
12	0	5	21	01	1	6	060	12	0	5	23	01	1	6	108
13	0	5	21	01	1	6	061	13	0	5	23	01	1	6	109
14	0	5	21	01	1	6	062	14	0	5	23	01	1	6	110
15	0	5	21	01	1	6	063	15	0	5	23	01	1	6	111
16	0	5	21	01	1	6	064	16	0	5	23	01	1	6	112
17	0	5	21	01	1	6	065	17	0	5	23	01	1	6	113
18	0	5	21	01	1	6	066	18	0	5	23	01	1	6	114
19	0	5	21	01	1	6	067	19	0	5	23	01	1	6	115
20	0	5	21	01	1	6	068	20	0	5	23	01	1	6	116
21	0	5	21	01	1	6	069	21	0	5	23	01	1	6	117
22	0	5	21	01	1	6	070	22	0	5	23	01	1	6	118
23	0	5	21	01	1	6	071	23	0	5	23	01	1	6	119
24	0	5	21	01	1	6	072	24	0	5	23	01	1	6	120
1	0	5	22	01	1	6	073	1	0	5	24	01	1	6	121
2	0	5	22	01	1	6	074	2	0	5	24	01	1	6	122
3	0	5	22	01	1	6	075	3	0	5	24	01	1	6	123
4	0	5	22	01	1	6	076	4	0	5	24	01	1	6	124
5	0	5	22	01	1	6	077	5	0	5	24	01	1	6	125
6	0	5	22	01	1	6	078	6	0	5	24	01	1	6	126
7	0	5	22	01	1	6	079	7	0	5	24	01	1	6	127
8	0	5	22	01	1	6	080	8	0	5	24	01	1	7	000
9	0	5	22	01	1	6	081	9	0	5	24	01	1	7	001
10	0	5	22	01	1	6	082	10	0	5	24	01	1	7	002
11	0	5	22	01	1	6	083	11	0	5	24	01	1	7	003
12	0	5	22	01	1	6	084	12	0	5	24	01	1	7	004
13	0	5	22	01	1	6	085	13	0	5	24	01	1	7	005
14	0	5	22	01	1	6	086	14	0	5	24	01	1	7	006
15	0	5	22	01	1	6	087	15	0	5	24	01	1	7	007
16	0	5	22	01	1	6	088	16	0	5	24	01	1	7	008
17	0	5	22	01	1	6	089	17	0	5	24	01	1	7	009
18	0	5	22	01	1	6	090	18	0	5	24	01	1	7	010
19	0	5	22	01	1	6	091	19	0	5	24	01	1	7	011
20	0	5	22	01	1	6	092	20	0	5	24	01	1	7	012
21	0	5	22	01	1	6	093	21	0	5	24	01	1	7	013
22	0	5	22	01	1	6	094	22	0	5	24	01	1	7	014
23	0	5	22	01	1	6	095	23	0	5	24	01	1	7	015
24	0	5	22	01	1	6	096	24	0	5	24	01	1	7	016

<u>Channel</u>	<u>D3U</u>			<u>TSI</u>	<u>TAN</u>			<u>Channel</u>	<u>D3U</u>			<u>TSI</u>	<u>TAN</u>		
	<u>TSI</u>	<u>D3</u>	<u>DG</u>		<u>S</u>	<u>L</u>	<u>TS</u>		<u>TSI</u>	<u>D3</u>	<u>DG</u>		<u>S</u>	<u>L</u>	<u>TS</u>
1	0	5	25	01	1	7	017	1	0	5	27	01	1	7	065
2	0	5	25	01	1	7	018	2	0	5	27	01	1	7	066
3	0	5	25	01	1	7	019	3	0	5	27	01	1	7	067
4	0	5	25	01	1	7	020	4	0	5	27	01	1	7	068
5	0	5	25	01	1	7	021	5	0	5	27	01	1	7	069
6	0	5	25	01	1	7	022	6	0	5	27	01	1	7	070
7	0	5	25	01	1	7	023	7	0	5	27	01	1	7	071
8	0	5	25	01	1	7	024	8	0	5	27	01	1	7	072
9	0	5	25	01	1	7	025	9	0	5	27	01	1	7	073
10	0	5	25	01	1	7	026	10	0	5	27	01	1	7	074
11	0	5	25	01	1	7	027	11	0	5	27	01	1	7	075
12	0	5	25	01	1	7	028	12	0	5	27	01	1	7	076
13	0	5	25	01	1	7	029	13	0	5	27	01	1	7	077
14	0	5	25	01	1	7	030	14	0	5	27	01	1	7	078
15	0	5	25	01	1	7	031	15	0	5	27	01	1	7	079
16	0	5	25	01	1	7	032	16	0	5	27	01	1	7	080
17	0	5	25	01	1	7	033	17	0	5	27	01	1	7	081
18	0	5	25	01	1	7	034	18	0	5	27	01	1	7	082
19	0	5	25	01	1	7	035	19	0	5	27	01	1	7	083
20	0	5	25	01	1	7	036	20	0	5	27	01	1	7	084
21	0	5	25	01	1	7	037	21	0	5	27	01	1	7	085
22	0	5	25	01	1	7	038	22	0	5	27	01	1	7	086
23	0	5	25	01	1	7	039	23	0	5	27	01	1	7	087
24	0	5	25	01	1	7	040	24	0	5	27	01	1	7	088
1	0	5	26	01	1	7	041	1	0	5	28	01	1	7	089
2	0	5	26	01	1	7	042	2	0	5	28	01	1	7	090
3	0	5	26	01	1	7	043	3	0	5	28	01	1	7	091
4	0	5	26	01	1	7	044	4	0	5	28	01	1	7	092
5	0	5	26	01	1	7	045	5	0	5	28	01	1	7	093
6	0	5	26	01	1	7	046	6	0	5	28	01	1	7	094
7	0	5	26	01	1	7	047	7	0	5	28	01	1	7	095
8	0	5	26	01	1	7	048	8	0	5	28	01	1	7	096
9	0	5	26	01	1	7	049	9	0	5	28	01	1	7	097
10	0	5	26	01	1	7	050	10	0	5	28	01	1	7	098
11	0	5	26	01	1	7	051	11	0	5	28	01	1	7	099
12	0	5	26	01	1	7	052	12	0	5	28	01	1	7	100
13	0	5	26	01	1	7	053	13	0	5	28	01	1	7	101
14	0	5	26	01	1	7	054	14	0	5	28	01	1	7	102
15	0	5	26	01	1	7	055	15	0	5	28	01	1	7	103
16	0	5	26	01	1	7	056	16	0	5	28	01	1	7	104
17	0	5	26	01	1	7	057	17	0	5	28	01	1	7	105
18	0	5	26	01	1	7	058	18	0	5	28	01	1	7	106
19	0	5	26	01	1	7	059	19	0	5	28	01	1	7	107
20	0	5	26	01	1	7	060	20	0	5	28	01	1	7	108
21	0	5	26	01	1	7	061	21	0	5	28	01	1	7	109
22	0	5	26	01	1	7	062	22	0	5	28	01	1	7	110
23	0	5	26	01	1	7	063	23	0	5	28	01	1	7	111
24	0	5	26	01	1	7	064	24	0	5	28	01	1	7	112



# **5 XTSI DS1 Performance Monitoring on DS3 Facilities Feature 452**

**4ESS<sup>TM</sup>-2000 Switch 4E22 Generic  
Transition Document**

234-090-050  
Issue 1.0  
March 1997

Lucent Technologies - Proprietary  
See notice on the following page

234-090-050  
4ESS™-2000 Switch 4E22 Generic Transition Document

Issue 1.0

March 1997

Developed by  
Lucent Technologies  
Network Systems/TS R&D Information Development

Lucent Product Training 1-888-LUCENT8 (582-3688)  
Prompt 2

### **LUCENT TECHNOLOGIES PROPRIETARY**

This document contains proprietary information of Lucent Technologies and is not to be disclosed or used except in accordance with applicable agreements.

Copyright© 1997 Lucent Technologies. All Rights Reserved.

This material is protected by the copyright laws of the United States and other countries. It may not be reproduced, distributed, or altered in any fashion by any entity (either internal or external to Lucent Technologies), except in accordance with applicable agreements, contracts or licensing, without the express written consent of the TS R&D Information Development Organization and the business management owner of the material.

## Chapter 5

### XTSI DS1 Performance Monitoring on DS3 Facilities - Feature 452

---

**Introduction** This feature will enhance the Extended Time Slot Interchange (XTSI) DS3 performance monitoring capabilities.

---

**In This Chapter** This chapter contains the following topics:

Topic	See Page
Introduction	5-1
In This Chapter	5-1
Advantages/Benefits	5-2
Background	5-2
Feature Description	5-3
Call Flow	5-4
Provisioning	5-5
Operating Systems	5-5
Recent Change (RC) Forms Impacted	5-5
RC 664	5-6
RC 809	5-8
Feature Item Field	5-9
ON or OFF	5-9
Feature Implementation	5-9
Acronyms and Abbreviations	5-10

---

*Continued on next page*

## **XTSI DS1 Performance Monitoring on DS3 Facilities - Feature 452, Continued**

---

**Advantages/  
Benefits**

Enhances the monitoring capabilities on DS1 facilities, contained within the DS3 “pipes” terminating on the XTSI.

---

**Background**

The 4ESS Switch collects and reports DS1 slip and DS1 out-of-frame counts for all provisioned DS1s within DS3s terminated on the 4ESS Switch. These measures were reported with the corresponding measures for DS1s terminated on DIFs. XTSI, Release 1, provided only basic DS3 performance monitoring and DS1 performance monitoring equivalent to that provided by the Digital Interface Frame (DIF).

The elastic store slip counts are an indication of excessive differences in timing between the DS1 path and the system clock. The DIF scans the alarm and status bits at about a 384 ms rate. The out-of-frame counts report the total number of received out-of-frames. The framing and Cycles Redundancy Check (CRC) errors are not alarms as such but rather signal degradation indicators.

Presently, these events are reported by the DIF and the XTSI to the trunk maintenance function. The related outputs are achieved via the REPT:OTAN message(s) (see the 4E Input/Output Message Manuals).

---

*Continued on next page*

## XTSI DS1 Performance Monitoring on DS3 Facilities - Feature 452, Continued

### Feature Description

When Release 2 becomes available, the available performance monitoring will be enhanced. The 4ESS Switch will collect DS1 path performance monitoring parameters for every provisioned DS1 within every DS3 terminated on the XTSI.

With the XTSI Release 1, the DS1 performance monitoring consists of the slips and out-of-frame counts. With XTSI Release 2 and Feature 452 **NOT** turned on, the DS1 performance monitoring consists of the slips and out-of-frame counts as in Release 1. With XTSI Release 2 and Feature 452 turned on, the DS1 performance monitoring appears as discussed below.

The DS1 performance monitoring enhancements encompass:

- a definition of error events and provisionable alerting thresholds
- reporting alert threshold crossings and error events history output
- error events history storage and maintenance
- interface for threshold crossing alert and error event history.

The following DS1 performance monitoring parameters are collected:

- DS1 path related failures for both Super Frame (SF) format and Extended Super Frame (ESF) format
- DS1 path related parameters for near end
- DS1 path related parameters for the far end (for ESF format only).

These path related parameters are:

Parameters	SF Format	ESF Format
Coding Violation (CV-P)	YES	YES
Errored Second (ES-P)	YES	YES
Severely Errored Seconds (SES-P)	YES	YES
SES/AIS Second (SAS-P)	YES	YES
AIS Second (AISS-P)	YES	YES
Controlled Slip Second (CSS-P)	YES	YES
Unavailable Second (UAS-P)	YES	YES

Legend:

P = Parameter

SES = Severely Errored Frame

AIS = Alarm Indicator Signal

*Continued on next page*

## XTSI DS1 Performance Monitoring on DS3 Facilities - Feature 452, Continued

---

**Feature  
Description  
(Continued)**

Two sets of DS1 performance monitoring thresholds are needed - one for 15- minute counts, and one for 24-hour counts. A single pair of thresholds per parameter will be applied to all XTSI-based DS1s. The 4ESS Switch will maintain provisionable data specifying both 15-minute and 24-hour performance monitoring thresholds (i.e., two thresholds for each parameter) for all of the near-end DS1 path-related parameters. A single pair of thresholds per parameter will be applied to all XTSI-based DS1s in the switch. The default value for all thresholds are 0.

To output the status of the DS1 performance measurement registers use the OP:PMSTAT input message (see 4E Input/Output Message Manuals).

**CAUTION:**

**Each switch owner must provision their DS1 network performance monitoring needs prior to activating this feature.**

**Activation of this feature prior to provisioning sets the thresholds to zero which will cause all errors to alarm. This alarming will continue until an RC 664 form is input with higher thresholds.**

**NOTE:**

**This feature does not impact existing DS1 performance monitoring on DIF-TSI frames.**

**Once this feature is enabled, it cannot be disabled.**

---

**Call Flow**

Call Flow is not affected for this feature

---

*Continued on next page*

## **XTSI DS1 Performance Monitoring on DS3 Facilities - Feature 452, Continued**

---

### **Provisioning      Operating Systems:**

Connect VU Version 5.1 and Total Network Management (TNM) Version 4.2 are required for this feature to operate correctly.

### **Recent Change (RC) Forms Impacted:**

- Set Threshold Parameters (RC 664)
- Activate the Feature Bit (RC 809)

---

*Continued on next page*

# XTSI DS1 Performance Monitoring on DS3 Facilities - Feature 452, Continued

**Provisioning  
(Continued)**

**RC 664**

#FORM 664 XTSI DS3 UNIT DS1 PERFORMANCE MONITORING THRESHOLDS  
4E22>

RC:MISC;OPT(XTSIPM);\_\_\_\_:

ORNU \_\_\_\_\_,

	BIN	CV P	ES P	SES P	SAS P	AISS P	CSS P	UAS P
B15 MINUTE	_____	____/____	____/____	____/____	____/____	____/____	____/____	____/____
B24 HOUR	_____	____/____	____/____	____/____	____/____	____/____	____/____	____/____

REMARKS \_\_\_\_\_!

EQUIVALENT ODA INPUT FORM - None

ASSOCIATED VERIFY MESSAGE

INPUT-16ab-VER:VFUNC XTSIPM!

OUTPUT-6bm-VER:MISC;OPT(XTSIPM)

*Continued on next page*

## XTSI DS1 Performance Monitoring on DS3 Facilities - Feature 452, Continued

### Provisioning (Continued)

#### RC 664 - XTSI DS3 Unit DS1 Performance Monitoring Thresholds

RC664 form is used to define the XTSI DS3 Unit DS1 15-minute and 24-hour performance monitoring thresholds.

The RC 664 form must be populated before the RC 809.

Field Name	Description
BIN	Reporting Interval Entries: Pre-printed with B15 MINUTE (for the 15 minute interval) or B24 HOUR (for the 24 hour interval).
CV P	Coding Violations Path Entries: blank or 0 to 65535.
ES P	Errored Seconds Path Entries: blank or 0 to 900.
SES P	Severely Errored Seconds Path Entries: blank or 0 to 63.
SAS P	SES/AIS Seconds Path Entries: blank or 0 to 63.
AISS P	Alarm Indication Signal Seconds Path Entries: blank or 0 to 63.
CSS P	Controlled Slip Seconds Path Entries: blank or 0 to 63.
UAS P	Unavailable Seconds Path Entries: blank or 0 to 63.

*Continued on next page*

## XTSI DS1 Performance Monitoring on DS3 Facilities - Feature 452, Continued

### Provisioning (Continued)

### RC 809

# FORM 809 CHANGE FEATURE BITS  
4E18>

RC:FTR;CHG;OPT(BIT),\_\_\_:

ORNU \_\_\_\_\_,

FEATURE ITEM \_\_\_\_\_ ON OR OFF \_\_\_\_,

REMARKS \_\_\_\_\_!

EQUIVALENT ODA INPUT FORM - NONE

ASSOCIATED VERIFY MESSAGES

OUTPUT - 8j VER:MISC;OPT(ONOFF)

INPUT - 16az VER:MISC ONOFF

*Continued on next page*

## XTSI DS1 Performance Monitoring on DS3 Facilities - Feature 452, Continued

---

### Provisioning (Continued)

#### RC 809 Change Feature Bit

Recent Change Form 809 is used to activate this feature. A recent changeable Office Data Assembler (ODA) feature bit will be used to activate/deactivate this feature.

#### **Feature Item Field**

This feature is activated by populating this field with F10 and setting the "ON or OFF" field to either ON or OFF.

#### **ON or OFF**

To activate the feature, set the "ON or OFF" field to ON. The feature is initially defaulted to "OFF".

#### **WARNING:**

**Once this feature is enabled, it cannot be disabled.**

---

### Feature Implementation

This feature is dependent upon the installation of the 4E22 generic.

- *4ESS Switch with 1B Processor XTSI, Release 1 Software Update 234-160-201*
  - *XTSI Software Update Tools User Guide 234-160-202*
  - *ES4560 LEC XTSI Essentials (Multimedia)*
  - *ES4846 4ESS Switch 2000 XTSI Advanced Maintenance for LECs*
- 

*Continued on next page*

## XTSI DS1 Performance Monitoring on DS3 Facilities - Feature 452, Continued

### Acronyms and Abbreviations

The following are meanings of acronyms and abbreviations used throughout this document:

Terms	Meanings
AIS	Alarm Indicator Signal
CRC	Cycles Redundancy Check
CSS	Controlled Slip Second
CV	Coding Violations
DIF	Digital Interface Frame
ES	Errored Second
ESF	Extended Super Frame
LEC	Local Exchange Carrier
ODA	Office Data Assembler
P	Parameter
PM	Performance Monitoring
RC	Recent Change
SES	Severely Errored Frame
SF	Super Frame
TNM	Total Network Management
TSI	Time Slot Interchange
UAS	Unavailable Second
XTSI	Expanded Time Slot Interchange

# **SELF CHECK**

## **Chapter 5**

### **XTSI DS1 Performance Monitoring on DS3 Facilities - Feature 452**

1. List the advantages of this feature:

---

2. What Recent Change (RC) forms are required to activate these features?

---

3. How do you revert back to the old DS1 performance monitoring system?

---

4. Identify the three DS1 performance monitoring parameters:

---

---

---

5. What are the two sets of DS1 performance monitoring thresholds?

---

---

6. What is the reference number for the XTSI Software Update Tools User guide?

---





# **6 XTSI Checksum Macro Feature 473**

4ESS<sup>TM</sup>-2000 Switch 4E22 Generic  
Transition Document

234-090-050  
Issue 1.0  
March 1997

234-090-050  
4ESS™-2000 Switch 4E22 Generic Transition Document

Issue 1.0

March 1997

Developed by  
Lucent Technologies  
Network Systems/TS R&D Information Development

Lucent Product Training 1-888-LUCENT8 (582-3688)  
Prompt 2

### **LUCENT TECHNOLOGIES PROPRIETARY**

This document contains proprietary information of Lucent Technologies and is not to be disclosed or used except in accordance with applicable agreements.

Copyright© 1997 Lucent Technologies. All Rights Reserved.

This material is protected by the copyright laws of the United States and other countries. It may not be reproduced, distributed, or altered in any fashion by any entity (either internal or external to Lucent Technologies), except in accordance with applicable agreements, contracts or licensing, without the express written consent of the TS R&D Information Development Organization and the business management owner of the material.

## Chapter 6

### XTSI Checksum Macro Feature - Feature 473

---

**Introduction** Currently the copy commands do not have the capability to verify that the file has been copied correctly. This feature provides the verify capability which ensures that the copy was successful.

---

**In This Chapter**

This chapter contains the following topics:

Topic	See Page
Introduction	6-1
In This Chapter	6-1
Advantages/Benefits	6-2
Background	6-2
Feature Description	6-2
Call Flow	6-2
Provisioning	6-2
Feature Implementation	6-2
Acronyms and Abbreviations	6-3

*Continued on next page*

## XTSI Checksum Macro Feature - Feature 473, Continued

<b>Advantages/ Benefits</b>	The efficiency of new applications which use the copy command is much improved since these applications need not verify the success of the copy process.
<b>Background</b>	<p>Currently the copy commands are:</p> <ul style="list-style-type: none"> <li>• copy:tsifile</li> <li>• copy:xtsi</li> </ul> <p>These commands do not do or provide verification that the file was copied correctly. Other features/processes which use the copy commands must verify that the copy was successful.</p>
<b>Feature Description</b>	This feature adds a checksum verification macro to the copy commands listed above. Both the actual and expected checksum are returned to the 1B processor and matched. If the two sums do not match, an error message is displayed.
<b>Call Flow</b>	The Call Flow is not impacted by this feature.
<b>Provisioning</b>	There are no Recent Change (RC) or Office Data Assembler (ODA) forms impacted by this feature.
<b>Feature Implementation</b>	<p>The new Electronically Programmed Read Only Memory (EPROM) must be installed as firmware in the UN548 circuit pools to effect this feature.</p> <ul style="list-style-type: none"> <li>• <i>4ESS Switch with 1B Processor - XTSI, Release 1 Software Update 234-160-201</i></li> <li>• <i>XTSI Software Update tools User Guide 234-160-202</i></li> <li>• <i>ES4560 LEC XTSI Essentials (Multimedia)</i></li> <li>• <i>ES4846 4ESS Switch 2000 XTSI Advanced Maintenance for LECs</i></li> </ul>

*Continued on next page*

---

## XTSI Checksum Macro Feature - Feature 473, Continued

---

### Acronyms and Abbreviations

The following are acronyms and abbreviations of terms used throughout this document:

<b>Terms</b>	<b>Definitions</b>
EPROM	Electronically Programmed Read Only Memory
ODA	Office Data Assembler
TSI	Time Slot Interchange
XTSI	Expanded Time Slot Interchange

---



# **SELF CHECK**

## **Chapter 6**

### **XTSI Checksum Macro - Feature 473**

1. List the advantage of this feature:

---

2. What type of macro was added to the copy command?

---

3. How do you implement this feature?

---





# **7 XTSI Static A/B Bit Option (2-Wire) Feature 487**

**4ESS<sup>TM</sup>-2000 Switch 4E22 Generic  
Transition Document**

234-090-050  
Issue 1.0  
March 1997

Lucent Technologies - Proprietary  
See notice on the following page

234-090-050  
4ESS™-2000 Switch 4E22 Generic Transition Document

Issue 1.0

March 1997

Developed by  
Lucent Technologies  
Network Systems/TS R&D Information Development

Lucent Product Training 1-888-LUCENT8 (582-3688)  
Prompt 2

### **LUCENT TECHNOLOGIES PROPRIETARY**

This document contains proprietary information of Lucent Technologies and is not to be disclosed or used except in accordance with applicable agreements.

Copyright© 1997 Lucent Technologies. All Rights Reserved.

This material is protected by the copyright laws of the United States and other countries. It may not be reproduced, distributed, or altered in any fashion by any entity (either internal or external to Lucent Technologies), except in accordance with applicable agreements, contracts or licensing, without the express written consent of the TS R&D Information Development Organization and the business management owner of the material.

## Chapter 7

### XTSI Static A/B Bit Option (2-Wire) - Feature 487

---

**Introduction** This feature will allow 2-wire trunks facilities to be compatible with the Expanded Time Slot Interchange (XTSI) frames.

---

**In This Chapter** This chapter contains the following topics:

Topic	See Page
Introduction	7-1
In This Chapter	7-1
Advantages/Benefits	7-2
Background	7-2
Feature Description	7-2
Call Flow	7-2
Provisioning	7-3
Growth and Retrofit	7-3
Recent Change Forms Affected	7-4
RC 707 XTSI DS1 Static A/B Configuration	7-5
Feature Implementation	7-6
Acronyms and Abbreviations	7-6

*Continued on next page*

## XTSI Static A/B Bit Option (2-Wire) - Feature 487, Continued

---

**Advantages/  
Benefits** Desensitizes 2-wire office trunks terminating on the XTSI to A/B bit signaling state.

---

**Background** The XTSI Release 1 feature did not allow for connection to 2-wire offices that provided out-of-band signaling. Therefore, all 2-wire offices with out-of-band signaling had to be terminated into the Digital Interface Frame/Time Slot Interchange-B (DIF/TSI-B) frames. Some 2-wire offices which supported out-of-band supervisory signaling (most notably the 1AESS offices) are highly sensitive to in-band signaling A/B bit state changes. Since the XTSI currently permits A/B bits to vary according to normal voice/data usage, trunks connecting 2-wire offices could not be supported by the XTSI.

---

**Feature  
Description** The static A/B bit option provides 2-wire compatibility on XTSI for facilities utilizing out-of-band supervisory signaling. For trunks identified as connecting 2-wire offices terminating on an XTSI, the A and B supervisory signaling bits are always set to 1 so that 2-wire offices sensitive to in-band signaling state changes on out-of-band facilities will not see any A/B state changes. Prior to this feature, the XTSI permitted the A/B bits to vary according to normal voice/data usage so trunks connecting 2-wire offices could not be supported by the XTSI.

When a DS1 static A/B is set, the signaling bits of the DS1 will be set to a 1. When the bits are not set, the A/B signaling bits of the DS1 are part of the data stream and change according to the data being transmitted.

The A/B bits have to do with Superframe (SF) format. Recall, that a Superframe consists of 12 frames. The signaling information contained in frames six and twelve is referred to as highways A and B respectively. The A/B bits are that signaling information that appears in frames six and twelve.

---

**Call Flow** Call Flow is not affected by this feature.

---

*Continued on next page*

---

## XTSI Static A/B Bit Option (2-Wire) - Feature 487, Continued

---

**Provisioning**

This feature requires installation of program software plus additional Office Data Assembler (ODA) data.

The ODA data encompasses:

1. New Recent Change Form - RC707
2. New Verify output messages 7j and 16ba
3. Add items for DS1 status A/B bit feature in the TSI/XTSI Unit Type Translator.

**Growth and Retrofit**

The XTSI Unit Type translations must exist and specify that the XTSI is being used for D3U applications. In addition, the corresponding D3U equipage can be operational; but if the D3U is active, a fault recovery restore routine needs to be called for the D3U being changed.

---

*Continued on next page*

---

## XTSI Static A/B Bit Option (2-Wire) - Feature 487, Continued

---

**Provisioning  
(Continued)**

**Recent Change Forms Affected**

OP:RCFORM 707! PF

RC:UTYPE;CHG;OPT(XTSIAB),---: XTSI MEMN --, D3UN -, DS1 --,  
ORNU -----, STATIC A/B -,

REMARKS -----!

18 REPT: RC SYSTEM IDLE  
#016

---

*Continued on next page*

## XTSI Static A/B Bit Option (2-Wire) - Feature 487, Continued

Provisioning  
(Continued)

### RC 707 XTSI DS1 Static A/B Configuration

This new form is used to set the static A/B bit per DS1 for an XTSI D3U.

RC FIELD	RC NAME	POPULATION RULES
XTSI MEMN	Member Number of the XTSI Frame	Valid Entries: 2 to 62 (This must be even numbers only)
D3UN	The XTSI D3UN Number	Valid Entries: 0 to 5
DS1	DS1 Number	Valid Entries: 0 to 28
ORNU	Order Number	Valid Entries: 1 to 999999
STATIC A/B	Static A/B/ Enabled	Valid Entries:  Y - (Indicates Static A/B enabled - Required for 56 kbps Restricted trunks) N - (Indicates Static A/B disabled - Required for 64 kbps Clear Channel trunks) (The default for this field is "N".)

*Continued on next page*

## XTSI Static A/B Bit Option (2-Wire) - Feature 487, Continued

---

**Feature Implementation** This feature is implemented by installing the appropriate software program and the 4E22 generic.

- *4ESS Switch with 1B Processor XTSI, Release 1 Software Update 234-160-201*
  - *XTSI Software Update Tools User Guide 234-160-202*
  - *ES4560 LEC XTSI Essentials (Multimedia)*
  - *ES4846 4ESS Switch 2000 XTSI Advanced Maintenance for LECs*
- 

**Acronyms and Abbreviations** The following are meanings of acronyms and abbreviations used throughout this document:

Terms	Meanings
DIF	Digital Interface Frame
LEC	Local Exchange Carrier
ODA	Office Data Assembler
RC	Recent Change
SF	Superframe
TSI	Time Slot Interchange
XTSI	Expanded Time Slot Interchange

---

# **SELF CHECK**

## **Chapter 7**

### **XTSI Static A/B Bit Option (2-Wire) - Feature 487**

1. List the advantage of this feature:

---

2. Which RC form is used to set the A/B bit?

---

3. What are the valid entries for the static A/B field?

---





# **8 XTSI Input/Output Message Specification Feature 5111**

4ESS<sup>TM</sup>-2000 Switch 4E22 Generic  
Transition Document

234-090-050  
Issue 1.0  
March 1997

Lucent Technologies - Proprietary  
See notice on the following page

234-090-050  
4ESS™-2000 Switch 4E22 Generic Transition Document

Issue 1.0

March 1997

Developed by  
Lucent Technologies  
Network Systems/TS R&D Information Development

Lucent Product Training 1-888-LUCENT8 (582-3688)  
Prompt 2

### **LUCENT TECHNOLOGIES PROPRIETARY**

This document contains proprietary information of Lucent Technologies and is not to be disclosed or used except in accordance with applicable agreements.

Copyright© 1997 Lucent Technologies. All Rights Reserved.

This material is protected by the copyright laws of the United States and other countries. It may not be reproduced, distributed, or altered in any fashion by any entity (either internal or external to Lucent Technologies), except in accordance with applicable agreements, contracts or licensing, without the express written consent of the TS R&D Information Development Organization and the business management owner of the material.

## Chapter 8

# XTSI Input/Output Message Specification - Feature 5111

---

**Introduction** This feature clarifies Input/Output (I/O) messages relating to Time Slot Interchange (TSI) and Expanded Time Slot Interchange (XTSI) equipment.

---

**In This Chapter** This chapter contains the following topics:

Topic	See Page
Introduction	8-1
In This Chapter	8-1
Advantages/Benefits	8-2
Background	8-2
Feature Description	8-2
Call Flow	8-2
Provisioning	8-2
Feature Implementation	8-2
Acronyms and Abbreviations	8-3

---

*Continued on next page*

## XTSI Input/Output Message Specification - Feature 5111, Continued

---

**Advantages/  
Benefits**

The advantages of this feature are listed below:

- eliminates any potential confusion between TSI/XTSI I/O messages
  - eliminates any potential confusion between TSI/XTSI warnings and alarms
  - improves quality of service
  - improves productivity in the field.
- 

**Background**

Prior to this feature, the input and the output messages referenced the TSI and the XTSI simply by using "TSI". This impacted service productivity since time and effort are required to sort out which messages belong to which equipment.

---

**Feature  
Description**

This feature provides for the 4ESS Switch to allow the keyword of "XTSI" for the XTSI frames or the keyword "TSI" for TSI frames on manual control input messages. Also, the output messages provided by the 4ESS Switch in response to input messages relating to manual control of the XTSI use the keyword "XTSI". In addition, output messages provided by the 4ESS Switch for autonomous conditions relating to the XTSI (i.e., not in response to input messages) use the keyword "XTSI".

---

**Call Flow**

Call Flow is not affected by this feature.

---

**Provisioning**

There are no Recent Change (RC) or Office Data Assembler (ODA) forms impacted by this feature.

---

**Feature  
Implementation**

This feature requires the installation of the appropriate program software and the 4E22 generic.

- *4ESS Switch with 1B Processor XTSI, Release 1 Software Update 234-160-201*
  - *XTSI Software Update Tools User Guide 234-160-202*
  - *ES4560 LEC XTSI Essentials (Multimedia)*
  - *ES4846 4ESS Switch 2000 XTSI Advanced Maintenance for LECs*
- 

*Continued on next page*

## XTSI Input/Output Message Specification - Feature 5111, Continued

---

### Acronyms and Abbreviations

The following are meanings of acronyms and abbreviations used throughout this document:

Terms	Meanings
I/O	Input/Output
ODA	Office Data Assembler
RC	Recent Change
TSI	Time Slot Interchange
XTSI	Expanded Time Slot Interchange

---



## **SELF CHECK**

### **Chapter 8**

#### **XTSI Input/Output Message Specification - Feature 5111**

1. List two advantages of this feature:

---

---

2. Will this feature impact service productivity?

---

3. What is the course number for the Local Exchange Carrier (LEC) version of the Expanded Time Slot Interchange (XTSI) Advanced Maintenance Course?

---





# **9 XTSI Software Update Tool Feature 5113**

**4ESS<sup>TM</sup>-2000 Switch 4E22 Generic  
Transition Document**

234-090-050  
Issue 1.0  
March 1997

Lucent Technologies - Proprietary  
See notice on the following page

234-090-050  
4ESS™-2000 Switch 4E22 Generic Transition Document

Issue 1.0

March 1997

Developed by  
Lucent Technologies  
Network Systems/TS R&D Information Development

Lucent Product Training 1-888-LUCENT8 (582-3688)  
Prompt 2

### **LUCENT TECHNOLOGIES PROPRIETARY**

This document contains proprietary information of Lucent Technologies and is not to be disclosed or used except in accordance with applicable agreements.

Copyright© 1997 Lucent Technologies. All Rights Reserved.

This material is protected by the copyright laws of the United States and other countries. It may not be reproduced, distributed, or altered in any fashion by any entity (either internal or external to Lucent Technologies), except in accordance with applicable agreements, contracts or licensing, without the express written consent of the TS R&D Information Development Organization and the business management owner of the material.

## Chapter 9

### XTSI Software Update Tool - Feature 5113

---

**Introduction** This feature provides a user friendly way for maintenance personnel to update an Expanded Time Slot Interchange (XTSI) frame.

---

**In This Chapter** This chapter contains the following topics:

Topic	See Page
Introduction	9-1
In This Chapter	9-1
Advantages/Benefits	9-2
Background	9-2
Feature Description	9-2
Call Flow	9-2
Provisioning	9-3
Feature Implementation	9-4
Acronyms and Abbreviations	9-4

---

*Continued on next page*

## XTSI Software Update Tool - Feature 5113, Continued

---

**Advantages /  
Benefits**

This feature provides the following benefits:

- automates the “Software Update Procedures”
  - reduces the risk of installation errors
  - reduces software update time
  - improves productivity
  - requires minor intervention, in most cases, when a problem arises and identifies the point of failure.
- 

**Background**

The current software update method is complicated and has too many steps for use in field maintenance.

---

**Feature  
Description**

With this feature, improved customer interface advancements are achieved. This feature is similar to the current 3B Broadcast Warning Message (BWM) Signal Unit (SU) interface using a menu driven page on the 3B terminal. Maintenance personnel log onto a 1B and a 3B maintenance channel and input one short 3B command to execute any of the eight steps required to update a single 4ESS XTSI frame. The capabilities include automatic verifications and dump analysis, back-ups, perms (i.e., make permanent), etc. If a time out occurs during tool execution, the tool also has the “stop button” capability.

---

**Call Flow**

Call Flow is not affected by this feature.

---

*Continued on next page*

## XTSI Software Update Tool - Feature 5113, Continued

---

### Provisioning

There are no Recent Change (RC) forms or Office Data Assembler (ODA) forms impacted by this feature.

With this tool, the maintenance personnel enters one command from a work center serving a 4ESS specifying the 4ESS office and the XTSI cabinets to be updated. The menu-driven command sequentially executes the necessary 4ESS input messages. The tool also allows the maintenance personnel to manually step through the procedures, providing more control over the update process when necessary.

The main steps of the procedure are as follows:

1. "Backup" the old (proven) files on the XTSI.
2. Use RC Form 801 and 705 to change UTYPE of CONTR and D3Us, setting the pointers from location 0 to location 1. Verify the RCs have been applied successfully.
3. Copy the new files from the 3B20D Attached Processor System (APS) to the XTSI. Verify the files are in the proper location (copy succeeded). The files are compared against the 3B versions, concentrating on verifying the files' XTSI headers.
4. Update some Signal Processing Systems (SPSs) (XTSI Release 2) and verify the updates were successful. At this point, all SPSs are running the new software.
5. Update the remaining SPSs (XTSI Release 2) and verify the updates were successful. At this point, all SPSs are running the new software.
6. Update some D3Us and verify the updates were successful.
7. Update the remaining D3Us and verify the updates were successful. At this point, all D3Us are running the new software.
8. Update the XTSI Controllers and verify the updates were successful. The controllers are now running the new software as well.
9. Use RC Forms 801 and 705 again to reset the UTYPE, setting the pointers from location 1 to location 0.
10. Execute diagnostics on the XTSI frame that was just updated.

---

*Continued on next page*

## XTSI Software Update Tool - Feature 5113, Continued

---

**Feature Implementation** This feature requires the installation of appropriate program software installation and 4E22 generic.

Feature Dependencies - A precondition for this feature is the installation of Feature 473-CHECKSUM MACRO which is a 4E22 generic feature.

- *4ESS Switch with 1B Processor XTSI, Release 1 software Update 234-160-201*
- *XTSI Software Update Tools User Guide 234-160-202*
- *ES4560 LEC XTSI Essentials (Multimedia)*
- *ES4846 4ESS Switch 2000 XTSI Advanced Maintenance for LECs*

---

**Acronyms and Abbreviations**

The following are meanings of acronyms and abbreviations used throughout this document:

Terms	Meanings
APS	Attached Processor System
BWM	Broadcast Warning Message
LEC	Local Exchange Carrier
ODA	Office Data Assembler
RC	Recent Change
SPS	Signal Processing System
SU	Signal Unit
XTSI	Expanded Time Slot Interchange

---

## **SELF CHECK**

### **Chapter 9**

#### **XTSI Software Update Tool - Feature 5113**

1. List two advantages of this feature.

---

---

2. How many commands does the maintenance personnel input to update the XTSI software?

---

3. List the feature dependency associated with this feature:

---





# **10 XTSI Service Control After Two DS3s Fail Feature 5131**

4ESS<sup>TM</sup>-2000 Switch 4E22 Generic  
Transition Document

234-090-050  
Issue 1.0  
March 1997

Lucent Technologies - Proprietary  
See notice on the following page

234-090-050  
4ESS™-2000 Switch 4E22 Generic Transition Document

Issue 1.0

March 1997

Developed by  
Lucent Technologies  
Network Systems/TS R&D Information Development

Lucent Product Training 1-888-LUCENT8 (582-3688)  
Prompt 2

**LUCENT TECHNOLOGIES PROPRIETARY**

This document contains proprietary information of Lucent Technologies and is not to be disclosed or used except in accordance with applicable agreements.

Copyright© 1997 Lucent Technologies. All Rights Reserved.

This material is protected by the copyright laws of the United States and other countries. It may not be reproduced, distributed, or altered in any fashion by any entity (either internal or external to Lucent Technologies), except in accordance with applicable agreements, contracts or licensing, without the express written consent of the TS R&D Information Development Organization and the business management owner of the material.

## Chapter 10

### XTSI Service Control After Two Fail - Feature 5131

---

**Introduction** This feature provides the capability to assign priority in the event of a disruption in service.

---

**In This Chapter** This chapter contains the following topics:

Topic	See Page
Introduction	10-1
In This Chapter	10-1
Advantages/Benefits	10-2
Background	10-2
Feature Description	10-2
Call Flow	10-2
Provisioning	10-2
Feature Implementation	10-3
Acronyms and Abbreviations	10-3

---

*Continued on next page*

## XTSI Service Control After Two Fail - Feature 5131, Continued

---

**Advantages/  
Benefits**

Gives the switch owner the ability to choose which DS3 unit continues providing service via the spare and which DS3 unit is to remain out of service.

---

**Background**

The Expanded Time Slot Interchange (XTSI) provides a high level of reliability via protection switching. Each XTSI provides 2 service groups of 3 DS3 units and an additional DS3 unit to act as a spare (in case of failure) for the service group. That is, when a DS3 unit fails, the 4ESS switch reconnects the affected DS3 line to "spare" equipment so there is no loss in service. However, should a second DS3 unit fail before replacement of the first failed unit in the same service group, service on the second failed unit is lost since protection switching provides but one "spare" per service group. In some cases, however, the switch owner may decide that its business interests are better served by providing service to the customer served by the second DS3 unit rather than those served by the first failed DS3 unit.

---

**Feature  
Description**

With this feature, the switch owner is provided the ability to choose which DS3 unit within a service group is to continue providing service via the spare and which unit is to remain out-of-service. This is referred to as "select for service" capability.

---

**Call Flow**

Call Flow is not affected by this feature

---

**Provisioning**

There are no Recent Change (RC) or Office Data Assembler (ODA) forms impacted by this feature. This feature requires program software installation only.

The "Select for Service" request causes all DS0s currently being served by the spare equipment to be taken out of service and restore service to the customer serviced by the specified ("Selected") DS3 unit.

---

*Continued on next page*

## XTSI Service Control After Two Fail - Feature 5131, Continued

---

**Feature Implementation** This feature requires the installation of the appropriate program software installation and the 4E22 generic.

- *4ESS Switch with 1B Processor XTSI, Release 1 software Update 234-160-201*
  - *XTSI Software Update Tools User Guide 234-160-202*
  - *ES4560 LEC XTSI Essentials (Multimedia)*
  - *ES4846 4ESS Switch 2000 XTSI Advanced Maintenance for LECs*
- 

**Acronyms and Abbreviations** The following are meanings of acronyms and abbreviations used throughout this document:

Terms	Meanings
LEC	Local Exchange Carrier
ODA	Office Data Assembler
RC	Recent Change
SPU	Signal Processing Unit
XTSI	Expanded Time Slot Interchange

---



## **SELF CHECK**

### **Chapter 10**

#### **XTSI Service Control After Two DS3s Fail - Feature 5131**

1. List the advantages of this feature:

---

2. How is this feature activated?

---

3. What is the reference number for XTSI Software Update Tools User guide?

---





# **11 XTSI Rapid Restore**

## **Feature 5505**

4ESS<sup>TM</sup>-2000 Switch 4E22 Generic  
Transition Document

234-090-050  
Issue 1.0  
March 1997

Lucent Technologies - Proprietary  
See notice on the following page

234-090-050  
4ESS™-2000 Switch 4E22 Generic Transition Document

Issue 1.0

March 1997

Developed by  
Lucent Technologies  
Network Systems/TS R&D Information Development

Lucent Product Training 1-888-LUCENT8 (582-3688)  
Prompt 2

**LUCENT TECHNOLOGIES PROPRIETARY**

This document contains proprietary information of Lucent Technologies and is not to be disclosed or used except in accordance with applicable agreements.

Copyright© 1997 Lucent Technologies. All Rights Reserved.

This material is protected by the copyright laws of the United States and other countries. It may not be reproduced, distributed, or altered in any fashion by any entity (either internal or external to Lucent Technologies), except in accordance with applicable agreements, contracts or licensing, without the express written consent of the TS R&D Information Development Organization and the business management owner of the material.

## Chapter 11

### XTSI Rapid Restore - Feature 5505

---

**Introduction** This feature provides maintenance personnel with Rapid Restore capability on Expanded Time Slot Interchange (XTSI) peripherals by providing vital information on out-of-service components.

---

**In This Chapter** This chapter contains the following topics:

Topic	See Page
Introduction	11-1
In This Chapter	11-1
Advantages/Benefits	11-2
Background	11-2
Feature Description	11-2
Call Flow	11-2
Provisioning	11-2
Feature Implementation	11-3
Acronyms and Abbreviations	11-3

---

*Continued on next page*

## XTSI Rapid Restore - Feature 5505, Continued

---

**Advantages/  
Benefits**

Expands the Rapid Restore capability to include the XTSI thereby providing an indication of which XTSI components are "down" and the root cause and provides a simple command to restore all eligible out-of-service components unconditionally.

---

**Background**

Some emergency conditions have caused many 4ESS Switch peripherals to lose sanity at the same time. A feature, Digital Interface Unit Rapid Restore, was implemented in the 1994 time frame to enable maintenance personnel to recover the switch quickly. With the addition of the XTSI as a peripheral, the Rapid Restore capability had to be expanded.

---

**Feature  
Description**

This feature performs the task by telling the maintenance personnel which components are down and provides a command to restore all eligible out-of-service components to service unconditionally.

---

**Call Flow**

Call Flow is not affected by this feature.

---

**Provisioning**

This feature requires program software installation only. There are no Recent Change (RC) forms or Office Data Assembler (ODA) forms impacted by this feature.

This feature provides a new command to rapidly restore XTSI equipment:

```
RST:XTSI x, [ALLD3U \ALLSPU\ALLPSC];UCL!
```

All D3U\SPU\ Protection Switch Client (PSC) will be restored except for the following conditions:

- A. D3Us and Signal Processing Units (SPUs) manually removed via Teletype (TTY)
  - B. D3Us and SPUs out of service and protection switched (i.e., not service degraded)
  - C. D3Us and SPUs within a duplex failed XTSI
  - D. D3Us and SPUs unequipped or in the growth or special growth state.
- 

*Continued on next page*

## XTSI Rapid Restore - Feature 5505, Continued

---

**Feature Implementation** This feature requires the installation of the appropriate program software installation and the 4E22 generic.

- *4ESS Switch with 1B Processor XTSI, Release 1 Software Update 234-160-201*
- *XTSI Software Update Tools User Guide 234-160-202*
- *ES4560 LEC XTSI Essentials (Multimedia)*
- *ES4846 4ESS Switch 2000 XTSI Advanced Maintenance for LECs*

---

**Acronyms and Abbreviations** The following are meanings of acronyms and abbreviations used throughout this document:

Terms	Meanings
LEC	Local Exchange Carrier
ODA	Office Data Assembler
PSC	Protection Switch Client
RC	Recent Change
SPU	Signal Processing Unit
TTY	Teletype
XTSI	Expanded Time Slot Interchange

---



# **SELF CHECK**

## **Chapter 11**

### **XTSI Rapid Restore - Feature 5505**

1. List the advantage of this feature:

---

2. What is the new command to rapidly restore XTSI equipment?

---

3. What is the reference number for the XTSI Software Update Tool Users guide?

---





# **C SCS Features**

## **4ESS<sup>TM</sup>-2000 Switch 4E22 Generic Transition Document**

234-090-050  
Issue 1.0  
March 1997

Lucent Technologies - Proprietary  
See notice on the following page

234-090-050  
4ESS™-2000 Switch 4E22 Generic Transition Document

Issue 1.0

March 1997

Developed by  
Lucent Technologies  
Network Systems/TS R&D Information Development

Lucent Product Training 1-888-LUCENT8 (582-3688)  
Prompt 2

### **LUCENT TECHNOLOGIES PROPRIETARY**

This document contains proprietary information of Lucent Technologies and is not to be disclosed or used except in accordance with applicable agreements.

Copyright© 1997 Lucent Technologies. All Rights Reserved.

This material is protected by the copyright laws of the United States and other countries. It may not be reproduced, distributed, or altered in any fashion by any entity (either internal or external to Lucent Technologies), except in accordance with applicable agreements, contracts or licensing, without the express written consent of the TS R&D Information Development Organization and the business management owner of the material.

# 234-090-050

## 4ESS™-2000 Switch 4E22 Generic Transition Document

### Table of Contents

---

**TAB**

<b>SCS Features.....</b>	<b>C</b>
Service Circuit System Automatic Speech Recognition Phase 2 (Feature 4801) .....	12
Service Circuit Systems Software Update Tool (Feature 5563) .....	13

---





# **12 Service Circuit System Automatic Speech Recognition Phase 2 Feature 4801**

4ESS<sup>TM</sup>-2000 Switch 4E22 Generic  
Transition Document

234-090-050  
Issue 1.0  
March 1997

Lucent Technologies - Proprietary  
See notice on the following page

234-090-050  
4ESS™-2000 Switch 4E22 Generic Transition Document

Issue 1.0

March 1997

Developed by  
Lucent Technologies  
Network Systems/TS R&D Information Development

Lucent Product Training 1-888-LUCENT8 (582-3688)  
Prompt 2

### **LUCENT TECHNOLOGIES PROPRIETARY**

This document contains proprietary information of Lucent Technologies and is not to be disclosed or used except in accordance with applicable agreements.

Copyright© 1997 Lucent Technologies. All Rights Reserved.

This material is protected by the copyright laws of the United States and other countries. It may not be reproduced, distributed, or altered in any fashion by any entity (either internal or external to Lucent Technologies), except in accordance with applicable agreements, contracts or licensing, without the express written consent of the TS R&D Information Development Organization and the business management owner of the material.

## Chapter 12

### 4ESS Service Circuit System Automatic Speech Recognition Phase 2 - Feature 4801

---

#### Introduction

Due to growth in speech recognition services, the original architecture could not support additional capacity without increasing the number of hardware cabinets. Service Circuit System (SCS) Automatic Speech Recognition (ASR) Phase 2 feature supports 12 channels with the same physical cabinets by using a new speech recognition circuit pack and support packs in the Custom Data Service Cabinet (CDSC).

---

#### In This Chapter

This chapter contains the following topics:

Topic	See Page
Introduction	12-1
In This Chapter	12-1
Advantages/Benefits	12-2
Background	12-2
Feature Description	12-2
Call Flow	12-3
Provisioning	12-3
Feature Implementation	12-3
Acronyms and Abbreviations	12-3

---

*Continued on next page*

## 4ESS Service Circuit System Automatic Speech Recognition Phase 2 - Feature 4801, Continued

---

### Advantages/ Benefits

This feature reduces the quantity of equipment necessary to provide speech recognition on the SCS system.

---

### Background

ASR in the 4ESS Switch provided services that relied on Dual Tone Multifrequency (DTMF) detection to accept speech from customers. The original CDSC platform provided two (2) channels SCS complex for existing inbound and outbound services plus future offerings which required speech recognition. Due to increased demand in speech recognition services, the original CDSC platform provided inadequate capacity and could not be increased without deploying increased quantities of CDSCs.

---

### Feature Description

This feature supports 12 channels multiple Service Circuit Unit (SCU) offices with fewer CDSCs. The SCS ASR feature provides 12 channels of same recognition, 5 speech recognition packs, 1 T1 pack, an Echo Cancellation pack and allows for future services. It supports up to 60 channels of recognition per unit.

Additional enhancements associated with this feature are:

- New efficient power supply
- Maximum of two replaceable (one hot-plugged) disk units which provide a maximum of 18 gigabytes of storage per CDSC.
- Pentium Central Processing Unit (CPU) (One standard but can be dual equipped)
- Enhanced backplane which provides expansion capabilities to interface with a variety of transmission mediums.

The following table compares the two cabinets:

	Original CDSC	New CDSC-II
CDSU	5	4
SCUs Supported	1	2
Channels ASR	120	240

NOTE: The table above reflects maximum numbers supported.

---

*Continued on next page*

## 4ESS™ Service Circuit System Automatic Speech Recognition Phase 2 - Feature 4801, Continued

---

**Call Flow** Call Flow is not affected by this feature.

---

**Provisioning** The Recent Change (RC) forms RC200, RC203 and RC703 are impacted by this feature.

---

**Feature Implementation** The architecture used to support software updates is the Announcement System Manager (ASM) Plus.

- *SCS Maintenance – 234-151-077*
  - *SCS ASR Phase 2 ES4515-II*
  - *SCS-ASR Phase 2 Video*
- 

**Acronyms and Abbreviations** The following are acronyms and abbreviations of terms used throughout this document:

Terms	Definitions
AIN	Advanced Intelligent Network
ASM	Announcement System Management
ASR	Automatic Speech Recognition
CDSC	Customer Data Service Cabinet
CDSU	Custom Data Service Unit
CPU	Central Processing Unit
DTMF	Dual Tone Multifrequency
RC	Recent Change
SCS	Service Circuit System
SCU	Service Circuit Unit

---



# **SELF CHECK**

## **Chapter 12**

### **Service Circuit Systems Automatic Speech Recognition Phase 2 - Feature 4801**

1. List the advantages of this feature:

---

2. What is the architecture used to support software updates?

---

3. How many Automatic Speech Recognition (ASR) channels are supported with the new Customer Data Service Cabinet II (CDSC II)?

---

4. What is the reference number for the Service Circuit System (SCS) maintenance documents?

---

5. List the Recent Change (RC) forms impacted by this feature:

---

---

---





# **13 Service Circuit Systems Software Update Tool Feature 5563**

**4ESS<sup>TM</sup>-2000 Switch 4E22 Generic  
Transition Document**

234-090-050  
Issue 1.0  
March 1997

Lucent Technologies - Proprietary  
See notice on the following page

234-090-050  
4ESS™-2000 Switch 4E22 Generic Transition Document

Issue 1.0

March 1997

Developed by  
Lucent Technologies  
Network Systems/TS R&D Information Development

Lucent Product Training 1-888-LUCENT8 (582-3688)  
Prompt 2

### **LUCENT TECHNOLOGIES PROPRIETARY**

This document contains proprietary information of Lucent Technologies and is not to be disclosed or used except in accordance with applicable agreements.

Copyright© 1997 Lucent Technologies. All Rights Reserved.

This material is protected by the copyright laws of the United States and other countries. It may not be reproduced, distributed, or altered in any fashion by any entity (either internal or external to Lucent Technologies), except in accordance with applicable agreements, contracts or licensing, without the express written consent of the TS R&D Information Development Organization and the business management owner of the material.

## Chapter 13

### Service Circuit Systems (SCS) Software Update Tool - Feature 5563

---

**Introduction** In the 4E21 generic, Software Updates (SU) to Service Circuit Systems (SCS) had numerous steps that were performed by field maintenance personnel. These multiple steps left room for possible errors and required substantial intervention when failures occurred. This feature provides an SCS SU tool which is executed from a 3B work center and notifies the executor of failures.

---

**In This  
Chapter**

This chapter contains the following topics:

Topic	See Page
Introduction	13-1
In This Chapter	13-1
Advantages/Benefits	13-2
Background	13-2
Feature Description	13-2
Call Flow	13-2
Provisioning	13-2
1B Verify Messages	13-3
Retrofit Rules	13-3
Feature Implementation	13-4
Acronyms and Abbreviations	13-4

---

*Continued on next page*

## Service Circuit Systems (SCS) Software Update Tool - Feature 5563, Continued

---

**Advantages/  
Benefits**

The SCS SU tool provides the following benefits:

- automated software update procedure
  - reduce the risk of error
  - notify field maintenance personnel of failures
  - include the point of failure
  - require substantial intervention only if a failure occurs.
- 

**Background**

Before 4E22 generic, SU to SCS had many steps that field maintenance personnel had to perform. This tedious process increased the chance of potential errors adding more time to the application process.

---

**Feature  
Description**

This feature provides an SCS SU tool which is executed from a 3B work center. This command provides automatic verifications and dump analysis, back-outs and perms with the input of one single message. Both maintenance channels must be active throughout the tools execution so that all messages, successes, and failures can be viewed.

---

**Call Flow**

Call Flow is not affected by this feature.

---

**Provisioning**

No Recent Change (RC) Forms or Office Data Assembler (ODA) are impacted by this feature.

The tool will be similar to the current 3B Broadcast Warning Message/ Software Update (BWM/SU) interface, using a menu-driven page on the 3B terminal.

---

*Continued on next page*

## Service Circuit Systems (SCS) Software Update Tool - Feature 5563, Continued

---

### Provisioning (Continued)

#### 1B Verify Messages

The verify message VER:VFUNC SCSDATA:FD1 SCSMEMN,DT1 a  
(a = SCS member number)

- SCC (Signal Conversion Circuit) number
- SCC Version
- Service Circuit Unit (SCU) number
- SCU version
- SCU equipage

This data is output to the Receive Only Printer (ROP).

#### Retrofit Rules

The SCS is designed to be activated only while out of service. This is done by protection-switching. The process of activating a file is a multi-step process, due to the fact that the SCS cannot be updated while running, and because of the need to keep ODA data updated. The ODA process is as follows:

1. Update the service group. This is done through a menu-driven display page.
2. Remove the service group.
3. Copy the service groups operational file from the indicated location (i.e., location 0) into the service group's RAM. (This happens automatically when the service group is restored to service.) For the SCS controller, the File Data Transfer (FDT) file must be copied separately.
4. ODA data pointing to either location 0 or 1 will change depending on the previous state (i.e., if location 0 had been standby, it would now be pointed to as active).
5. At maintenance personnel discretion, a soak time is permitted to pass before proceeding to ensure trouble-free operation.

---

*Continued on next page*

## Service Circuit Systems (SCS) Software Update Tool - Feature 5563, Continued

### Feature Implementation

The following documents should be referenced when implementing this feature:

- *Service Circuit Systems (SCS) Growth/Degrowth 4ESS Switch 234-153-060 (Procedure NTP007)*
- *Service Circuit Systems (SCS) Maintenance 4ESS Switch 234-151-077*

### Acronyms and Abbreviations

The following are acronyms and abbreviations of terms used throughout this document:

Terms	Definitions
FDT	File Data Transfer
ODA	Office Data Assembler
ROP	Receive Only Printer
SCC	Signal Conversion Circuit
SCS	Service Circuit Systems
SCU	Service Circuit Unit
SU	Software Updates

# **SELF CHECK**

## **Chapter 13**

### **Service Circuit Systems Software Update Tool - Feature 5563**

1. List the advantages of this feature.

---

---

---

---

---

2. How is the Service Circuit Systems (SCS) Software Update (SU) Tool executed?

---

3. What is the reference number for the SCS Growth/Degrowth document?

---

4. Is the SCS designed to be activated while in service or out-of-service?

---





# **D 1B Features**

## **4ESS<sup>TM</sup>-2000 Switch 4E22 Generic Transition Document**

234-090-050  
Issue 1.0  
March 1997

Lucent Technologies - Proprietary  
See notice on the following page

234-090-050  
4ESS™-2000 Switch 4E22 Generic Transition Document

Issue 1.0

March 1997

Developed by  
Lucent Technologies  
Network Systems/TS R&D Information Development

Lucent Product Training 1-888-LUCENT8 (582-3688)  
Prompt 2

### **LUCENT TECHNOLOGIES PROPRIETARY**

This document contains proprietary information of Lucent Technologies and is not to be disclosed or used except in accordance with applicable agreements.

Copyright© 1997 Lucent Technologies. All Rights Reserved.

This material is protected by the copyright laws of the United States and other countries. It may not be reproduced, distributed, or altered in any fashion by any entity (either internal or external to Lucent Technologies), except in accordance with applicable agreements, contracts or licensing, without the express written consent of the TS R&D Information Development Organization and the business management owner of the material.

# 234-090-050

## 4ESS™-2000 Switch 4E22 Generic Transition Document

### Table of Contents

---

**TAB**

<b>1B Features .....</b>	<b>D</b>
MUP Firmware Upgrade (Feature 469) .....	14
LEC Master Control Console Alarm Enhancement (Feature 474) .....	15
Program Store Expansion (Feature 3333) .....	16
1B Processor Tape Unit Elimination (Feature 5013) .....	17

---





# **14 MUP Firmware Upgrade Feature 469**

**4ESS<sup>TM</sup>-2000 Switch 4E22 Generic  
Transition Document**

234-090-050  
Issue 1.0  
March 1997

Lucent Technologies - Proprietary  
See notice on the following page

234-090-050  
4ESS™-2000 Switch 4E22 Generic Transition Document

Issue 1.0

March 1997

Developed by  
Lucent Technologies  
Network Systems/TS R&D Information Development

Lucent Product Training 1-888-LUCENT8 (582-3688)  
Prompt 2

### **LUCENT TECHNOLOGIES PROPRIETARY**

This document contains proprietary information of Lucent Technologies and is not to be disclosed or used except in accordance with applicable agreements.

Copyright© 1997 Lucent Technologies. All Rights Reserved.

This material is protected by the copyright laws of the United States and other countries. It may not be reproduced, distributed, or altered in any fashion by any entity (either internal or external to Lucent Technologies), except in accordance with applicable agreements, contracts or licensing, without the express written consent of the TS R&D Information Development Organization and the business management owner of the material.

## Chapter 14

### MUP Firmware Upgrade - Feature 469

---

**Introduction** This feature implements a new 1B Master Control Console (MCC) and Utility Processor (MUP) circuit pack (KLW216) in preparation for the 4E23 generic and updates the MCC pages to the current and future switch architecture..

---

**In This Chapter**

This chapter contains the following topics:

Topic	See Page
Introduction	14-1
In This Chapter	14-1
Advantages/ Benefits	14-2
Background	14-2
Feature Description	14-2
Call Flow	14-2
Provisioning	14-2
MCC Critical Indicators	14-3
MCC Old Page 100	14-4
MCC New Page 100	14-5
MCC Old Page 108	14-6
MCC New Page 108	14-6
System Activity Section	14-7
Processor Equipment Status	14-7
Peripheral Equipment Status Section	14-7
MCC New Page 111	14-8
Bus Status Section	14-8
Bus and Client Control Section	14-9
Client Status Section	14-9
MCC Old Page 118	14-10
MCC New Page 118	14-11
Feature Implementation	14-11
Acronyms and Abbreviations	14-12

---

*Continued on next page*

## MUP Firmware Upgrade - Feature 469, Continued

---

<b>Advantages/ Benefits</b>	This feature keeps the MUP display pages up-to-date with current and future switch architecture.
<b>Background</b>	The MUP firmware upgrade feature provides a method of implementing a new KLW216 circuit pack. This upgrade is in preparation of the 4E23 generic.
<b>Feature Description</b>	The MUP Firmware Upgrade feature implements a new KLW216 circuit pack which replaces KLW116 circuit pack. It also updates the MCC pages to current/future architecture.
<b>Call Flow</b>	Call Flow is not affected by this feature.
<b>Provisioning</b>	No Recent Change (RC) or Office Data Assembler (ODA) forms are impacted by this feature.  There are several changes to the 1B Processor - Master Control Console (MCC) pages as a result of this feature.

---

*Continued on next page*

## MUP Firmware Upgrade - Feature 469, Continued

### MCC Critical Indicators

At the top of each MCC page are two rows of critical indicators. The following changes were made to the critical indicators due to the MUP firmware upgrade.

- A new Switch Processing Platform (SPP) indicator is added at the far right of the page and only appears during normal state in 4E22 generic. The SPP indicator shows different states when (if SPP exists) present; otherwise, the state is normal in 4E23 generic.
- The Interface Bus/Auxiliary Units (IF/AU) indicator now includes the Switching Fabric Interface (SFI) when determining its state. In 4E22 generic, the SFI is unequipped and does not affect the IF/AU. In 4E23 generic, the SFI status indicator changes to indicate different states.



tpa 786750/01

*Continued on next page*

## MUP Firmware Upgrade - Feature 469, Continued

MCC Old  
Page 100

```
TOWNSTBLSUB 4E<NN>4B.nn MUP  PORT  PAGE 100 mm/dd/yy hh:mm:ss
CRITICAL MAJOR MINOR SDC PGM CTRL PWR/BLDG MCC SYS NORM
CC PS CS IF/AU PU MISC MCC DPFL SPP
```

CMD:

-4ESS MASTER CONTROL COMPLEX PAGE INDEX-

```
EA DISP - EMERGENCY ACTION DISPLAY
100 - PAGE INDEX
106 - MUP STATUS AND CONTROL
108 - SYSTEM STATUS
109 - PROGRAM STORE STATUS AND CONTROL
110 - CALL STORE STATUS AND CONTROL
118 - 1B PROCESSOR STATUS
119 - DDI KEY OPTIONS
120 - DATA DISPLAY
1990 - DEAD START
```

=DGN IN PROG=

tpa 786423/01

*Continued on next page*

## MUP Firmware Upgrade - Feature 469, Continued

MCC New  
Page 100

```

TOWNSTBLSUB  4E<NN>4B.nn  MUP  PORT   PAGE 100  mm/dd/yy  hh:mm:ss
CRITICAL     MAJOR     MINOR     SDC     PGM CTRL  PWR/BLDG  MCC     SYS NORM
CC           PS         CS        IF/AU   PU        MISC      MCC DFFL  SPP
CMD:
-4ESS MASTER CONTROL COMPLEX PAGE INDEX-

EA DISP - EMERGENCY ACTION DISPLAY
100 - PAGE INDEX
106 - MUP STATUS AND CONTROL
108 - SYSTEM STATUS
109 - PROGRAM STORE STATUS AND CONTROL
110 - CALL STORE STATUS AND CONTROL
111 - IFB CLIENTS STATUS AND CONTROL
118 - 1B PROCESSOR STATUS
119 - DDI KEY OPTIONS
120 - DATA DISPLAY
1990 - DEAD START

=DGN IN PROG=

```

cpa 786423/01

A new line is added to the Index Page referencing the new MCC Page 111 "IFB Clients Status and Control."

*Continued on next page*

# MUP Firmware Upgrade - Feature 469, Continued

MCC Old  
Page 108

TOWNSTBLSUB 4E<NN>4B.nn MUP <input type="checkbox"/> PORT <input type="checkbox"/> PAGE 108 mm/dd/vy hh:mm:ss									
CRITICAL	MAJOR	MINOR	SDC	PGM CTRL	PWR/BLDG	MCC	SYS NORM		
CC	PS	CS	IF/AU	PU	MISC	MCC DPFL			
CMD:									
-SYSTEM ACTIVITY-			-SYSTEM STATUS-			-SYSTEM CONTROLS-			
BASE CYCLE TIME <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> ms			-RC ACTIVITY-			801 - RESTRICT RC			
TRAFFIC INCOMING <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> K			-DGN IN PROG-			802 - INH SUP PRINT			
SWITCH INEF ATMPMT <input type="checkbox"/> <input type="checkbox"/> %			-ALARMS-			803 - INH INT PRINT			
EQUIP INEF ATMPMT <input type="checkbox"/> <input type="checkbox"/> %			-REF STAT- -FREE RUN-			804 - INH AUD PRINT			
NO. CALLS CMLPTD <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> K			-PWR ROOM- -EQUIP PWR-			805 - ELEV AUD PRINT			
INTERRUPTS <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>			810 - SDC			806 - REINIT TTY SYS			
AUDITS <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>			811 - PGM CNTL OFF NORM			807 - REQ TTY AUDIT			
-MCC TIMEOUT-			812 - OVLD CTL IN EFF			808 - CLEAR INTERRUPTS			
-INTERRUPT-			813 - INTRPT INH						
			814 - REFSTAT			899 - OP:OOSUNITS (ALL)			
-PROCESSOR EQUIPMENT STATUS-					-PERIPHERAL EQUIPMENT STATUS-				
820 - CC	826 - IFB	832 - APS	838 - PCD	850 - TMSP	856 - DT	862 - TGR			
821 - PSB	827 - AUI	833 - API	839 - XPWR	851 - TSI	857 - DIF	863 - SLNK			
822 - CSB	828 - SSD	834 - DUS		852 - NCLK	858 - VIF	864 - VFL			
823 - PS	829 - MUP	835 - TUC		853 - NCSU	859 - EST	865 - R&T			
824 - CS	830 - IOUS	836 - AUB		854 - SCLK	860 - SCS	866 - SVC			
825 - FNS	831 - IOUC	837 - PUB		855 - SP	861 - RA	867 -			

tpa 786424/01

MCC New  
Page 108

TOWNSTBLSUB 4E<NN>4B.nn MUP <input type="checkbox"/> PORT <input type="checkbox"/> PAGE 108 mm/dd/vy hh:mm:ss									
CRITICAL	MAJOR	MINOR	SDC	PGM CTRL	PWR/BLDG	MCC	SYS NORM		
CC	PS	CS	IF/AU	PU	MISC	MCC DPFL	SPP		
CMD:									
-SYSTEM ACTIVITY-			-SYSTEM STATUS-			-SYSTEM CONTROLS-			
BASE CYCLE TIME <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> ms			-RC ACTIVITY-			801 - RESTRICT RC			
TRAFFIC INCOMING <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> K			-DGN IN PROG-			802 - INH SUP PRINT			
SWITCH INEF ATMPMT <input type="checkbox"/> <input type="checkbox"/> %			-ALARMS-			803 - INH INT PRINT			
EQUIP INEF ATMPMT <input type="checkbox"/> <input type="checkbox"/> %			-REF STAT- -FREE RUN-			804 - INH AUD PRINT			
NO. CALLS CMLPTD <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> K			-PWR ROOM- -EQUIP PWR-			805 - ELEV AUD PRINT			
INTERRUPTS <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>			-RB CAP- -MEM REC PH-			806 - REINIT TTY SYS			
AUDITS <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>			810 - SDC			807 - REQ TTY AUDIT			
SPP LINK OCCPNCY <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> %			811 - PGM CNTL OFF NORM			808 - CLEAR INTERRUPTS			
SFI FUTURE MEAS			812 - OVLD CTL IN EFF			809 - CLEAR MEM REC PHASE			
-MCC TIMEOUT-			813 - INTRPT INH						
-INTERRUPT-			814 - REFSTAT			899 - OP:OOSUNITS (ALL)			
-PROCESSOR EQUIPMENT STATUS-					-PERIPHERAL EQUIPMENT STATUS-				
820 - CC	826 - IFB	832 - APS	838 - PCD	850 - TMSP	856 - DT	862 - TGR			
821 - PSB	827 - AUI	833 - API	839 - XPWR	851 - TSI	857 - DIF	863 - SLNK			
822 - CSB	828 - SSD	834 -	840 - SFI	852 - NCLK	858 - VIF	864 - VFL			
823 - PS	829 - MUP	835 -	841 -	853 - NCSU	859 - EST	865 - R&T			
824 - CS	830 - IOUS	836 - AUB		854 - SCLK	860 - SCS	866 - SVC			
825 - FNS	831 - IOUC	837 - PUB		855 - SP	861 - RA	867 - XTSTI			

tpa 786424/01

Continued on next page

## MUP Firmware Upgrade - Feature 469, Continued

---

**MCC New  
Page 108  
(Continued)**

The System Status page is modified with the following indicators:

### System Activity Section

The section was modified with the following items:

- A new SPP LINK OCCPNKY indicator is added. This indicator shows the four numeric digits only as "0000" in 4E22 generic. In 4E23 generic, this field will show the numeric digits supplied by the generic.
- A programmable line is added under the SPP LINK OCCPNKY for future use. This line does not appear in 4E22 generic. It is only visible in 4E23 generic when allowed by the generic. If allowed and not programmed, it will only display the four numeric digits as "0000".

### Processor Equipment Status

The section was modified with the following items:

- Reference to DUS/TUC will be populated if equipped. If unequipped, they will be blank as shown in new MCC Page 108.
- An 840-SFI poke is added and when selected returns a response of No Good (NG) in 4E22 generic. In 4E23 generic, this poke functions fully when selected.
- An 841-SPP poke is added and, when selected, returns a response of NG in 4E22 generic. In 4E23 generic, these poke functions fully when selected.

The status color indicators for pokes 840-SFI and 841-SPP are explained in the following table:

Status	Color
Normal	White on Black
Minor Alarm	Black on Yellow
Major Alarm	White on Red
Critical Alarm	Flashing White on Red

The status of these pokes will be provided by the 1B Processor in 4E23 generic.

### Peripheral Equipment Status Section

This section was modified with the following items:

- The poke 867-XTSI is added and when poked, if not equipped, responds with NG in both 4E22 and 4E23 generics.

---

*Continued on next page*

# MUP Firmware Upgrade - Feature 469, Continued

MCC New  
Page 111

```

TOWNSTBLSUB 4E<NN>4B.nn MUP  PORT  PAGE 111 mm/dd/yy hh:mm:ss
CRITICAL MAJOR MINOR SDC PGM CTRL PWR/BLDG MCC SYS NORM
CC PS CS IF/AU PU MISC MCC DPFL SFP
CMD:
-IFB CLIENTS STATUS AND CONTROL PAGE-
-BUS STATUS-
-CC-
0 1
ARAR
IFB 0 ACT 
IFB 1 ACT 
-DGN IN PROGRESS-
-BUS AND CLIENT CONTROL-
UNIT RMV RST SW DGN OOS STAT UNIT
MUP xx 201,xx 301,xx 401 501,xx 829 726 MUP xx
SFI xx 202,xx 302,xx NA 502,xx 840 727 SFI xx
AUI xx 203,xx 303,xx 403 503,xx 827 NA AUI xx
SSD xx 204,xx 304,xx NA 504,xx 828 NA SSD xx
IFB xx 205,xx 305,xx NA 505,xx 826 728 IFB xx
-CLIENT STATUS-
MUP 00 ACT AFT  SFI 02 ACT ALL  *** ** UNEQ ***
MUP 01 STBY AFT  SFI 03 OOS ALL  *** ** UNEQ ***
MUPP 00 AUI 00 ACT ATT  *** ** UNEQ ***
MUPP 01 AUI 01 ACT ATT  *** ** UNEQ ***
*** ** UNEQ *** *** ** UNEQ *** *** ** UNEQ ***
*** ** UNEQ *** *** ** UNEQ *** *** ** UNEQ ***
SFI 00 ACT ALL  *** ** UNEQ *** SSD 00 ACT
SFI 01 OOS ALL  *** ** UNEQ *** SSD 01 OOS
    
```

tpa 851985/01

This page indicates the Interface Bus (IFB) Client Status and Control.

In 4E22 generic, the Out Of Service (OOS) column is functional in 4E22 generic except for 840 which responds with NG when poked. The SFI row appears in 4E22 generic, but if selected, a NG response is received. In 4E23 generic, all pokes on this page are functional. Each digit is represented in the figure by a (BOX).

## Bus Status Section

The following items appear under the Bus Status Section on this page:

- The CC status conforms to existing requirements and is the same as Pages 109 and 110.
- The IFB status is the same as the IFB indicator on Page 118.
- The =DGN IN PROGRESS= conforms to existing requirements.

*Continued on next page*

## MUP Firmware Upgrade - Feature 469, Continued

MCC New  
Page 111  
(Continued)

### Bus and Client Control Section

This is an information only section and appears as white on black.

### Client Status Section

The following items appear under the Client Status Section on the page:

- The MUP and Auxiliary Unit Interface (AUI) conform to existing requirements and are the same as on Page 118.
- The Scan & Signal Distributor (SSD) conforms to the same requirements as when it was on Page 118.
- The MUPP color corresponds to the MUP it belongs with.

This page is capable of displaying 8 SFIs but will only have 4 displayed (SFI0-SFI3) with the rest being provisional. If there are less than 5 SFIs, then SFI4-7 appear as "\*\*\*\*\*UNEQ\*\*\*" and will not change states. When the SFIs become equipped, their states will appear as shown in the following table:

TEXT	Color/States
"SFI XX UNAV ALL"	Black on Yellow
"SFI XX ACT ALL 100"	Black on Green & LL Black on Red
"SFI XX ACT ALL 101"	Black on Green & LL Black on Red
"SFI XX ACT ALL 110"	Black on Green & LL Black on Red
"SFI XX ACT ALL 111"	Black on Green
"SFI XX INVA ALL"	Black on Cyan
"SFI XX OOS ALL 000"	Black on Red
"SFI XX UNEQ ALL"	White on Black
This does not include "SFI XX UNK ALL" which appears as red on yellow when an "MCC Timeout" occurs.	

For additional information see document *4ESS™ Switch with 1B Processor Master Control Complex (MCC) Description 234-301-004*.

*Continued on next page*



# MUP Firmware Upgrade - Feature 469, Continued

MCC New  
Page 118

TOWNSTBLSUB		4E<NN>4B.nn		MUP	PORT	PAGE 118		mm/dd/yy	hh:mm:ss
CRITICAL	MAJOR	MINOR	SDC	PGM	CTRL	PWR/BLDG	MCC	SYS NORM	
CC	PS	CS	IF/AU	PU	MISC	MCC	DPFL	SFP	
CMD:									
-1B PROCESSOR STATUS-									
-PROCESSOR-		-BUSES-			-IFB BOOT CLIENTS-			-AUXILIARY- -UNITS-	
		-CC-							
		0 1							
PFAMTHD		ARAR			AFT			TT	
CC 0	ACTIVE	PSB 0	ACT	MUP 0	ACT	AUB 0	ACT		
CC 1	STOP	PSB 1	STBY	MUP 1	STBY	AUB 1	ACT		
PC STATE:		CSB 0	ACT	ATT			T		
		CSB 1	STBY	AUI 0	ACT	API 0	ACT		
		PUB 0	ACT	AUI 1	UNK	API 1	STBY		
		PUB 1	STBY	SSD 0	ACT	DUS 0		ACT	
		IFB 0	ACT	SSD 1	OOS	DUS 1		ACT	
		IFB 1	ACT						
=DGN IN PROG=									

tpa 786425/01

This page indicates the 1B Processor Status and has been modified with the deletion of the SSD status indicator. This indicator is moved to the new "IFB Client Status and Control Page" MCC 111. The name IFB Clients is revised to "IFB Boot Clients." In 4E22 generic, the Data Unit Selector (DUS) indicator appears, if equipped. The DUS indicator is provisioned not to appear during base level operations, in 4E23 generic.

**Feature Implementation**

This feature is dependent upon the completion of features:

- 1B Processor Tape Unit Elimination (Feature 5013)
- LEC MCC Alarm Enhancement (Feature 474)
- XTSI Enhancement (Feature 5111)

*Continued on next page*

## MUP Firmware Upgrade - Feature 469, Continued

---

### Acronyms and Abbreviations

The following are acronyms and abbreviations of terms used throughout this document:

Terms	Definitions
AU	Auxiliary Units
AUI	Auxiliary Unit Interface
DUS	Data Unit Selector
IF	Interface Bus
MCC	Maintenance Control Complex
MUP	MCC and Utility Processor
NG	No Good
OOS	Out Of Service
SFI	Switching Fabric Interface
SPP	Switching Processing Platform
SSD	Scan & Signal Distributor

---

# **SELF CHECK**

## **Chapter 14**

### **MUP Firmware Update - Feature 469**

1. List the advantage of this feature:

---

2. What is the number of the new circuit pack replacing the existing KLW116 circuit pack?

---

3. Which Master Control Console (MCC) Pages are impacted by this feature?

---

---

---

---

4. What are the three feature dependencies associated with this feature?

---

---

---

5. What is the name of the new and revised MCC critical indicators?

---

---





# **15 LEC Master Control Console Alarm Enhancement Feature 474**

4ESS<sup>TM</sup>-2000 Switch 4E22 Generic  
Transition Document

234-090-050  
Issue 1.0  
March 1997

Lucent Technologies - Proprietary  
See notice on the following page

234-090-050  
4ESS™-2000 Switch 4E22 Generic Transition Document

Issue 1.0

March 1997

Developed by  
Lucent Technologies  
Network Systems/TS R&D Information Development

Lucent Product Training 1-888-LUCENT8 (582-3688)  
Prompt 2

### **LUCENT TECHNOLOGIES PROPRIETARY**

This document contains proprietary information of Lucent Technologies and is not to be disclosed or used except in accordance with applicable agreements.

Copyright© 1997 Lucent Technologies. All Rights Reserved.

This material is protected by the copyright laws of the United States and other countries. It may not be reproduced, distributed, or altered in any fashion by any entity (either internal or external to Lucent Technologies), except in accordance with applicable agreements, contracts or licensing, without the express written consent of the TS R&D Information Development Organization and the business management owner of the material.

## Chapter 15

### 4ESS Switch LEC Master Control Console (MCC) Alarm Enhancement - Feature 474

---

**Introduction** This feature provides system alarm enhancements to the Master Control Console (MCC).

---

**In This Chapter** This chapter contains the following topics:

Topic	See Page
Introduction	15-1
In This Chapter	15-1
Advantages/Benefits	15-2
Background	15-2
Feature Description	15-2
Call Flow	15-2
Provisioning	15-2
Old MCC Page 108	15-3
New MCC Page 108	15-4
Feature Implementation	15-5
Acronyms and Abbreviations	15-5

---

*Continued on next page*

## 4ESS Switch LEC Master Control Console (MCC) Alarm Enhancement - Feature 474, Continued

---

**Advantages/  
Benefits**

Provide a user friendly way of detecting system problems.

---

**Background**

When the 1B Processor replaced the 1A Processor, the electromechanical MCC was replaced by a video display terminal and keyboard. The new MCC controls the 1B Processor and components display various processor and switch attributes on the video display terminal rather than turning individual lamp indicators off/on. The new MCC video terminal displays processor and switching attributes rather than turning individual lamp indicators on/off like the previous 1A Processor MCC. The new MCC terminal does not provide the equivalent keys and indicators which existed on the 1A Processor MCC.

---

**Feature  
Description**

This feature will provide visual indicators for the following system alarms: Rollback Area Capacity Warning and Memory Recovery Phase. In addition, poke 809 Clear MEM REC PHASE will be added to MCC Page 108.

---

**Call Flow**

Call Flow is not affected by this feature.

---

**Provisioning**

No Recent Change (RC) or Office Data Assembler (ODA) forms are impacted by this feature. There are several changes to the 1B Processor - MCC pages as a result of this feature.

---

*Continued on next page*

# 4ESS Switch LEC Master Control Console (MCC) Alarm Enhancement - Feature 474, Continued

Old MCC  
Page 108

The following view is the MCC Page 108 as it appears in 4E21 generic.

TOWNSTBLSUB		4E<NN>4B.nn		MUP	PORT	PAGE 108		mm/dd/yy	hh:mm:ss
CRITICAL	MAJOR	MINOR	SDC	PGM CTRL	PWR/BLDG	MCC	SYS NORM		
CC	PS	CS	IF/AU	PU	MISC	MCC DPFL			
CMD:									
-SYSTEM ACTIVITY-			-SYSTEM STATUS-			-SYSTEM CONTROLS-			
BASE CYCLE TIME [ ] ms			-RC ACTIVITY-			801 - RESTRICT RC			
TRAFFIC INCOMING [ ] K			-DGN IN PROG-			802 - INH SUP PRINT			
SWITCH INEF ATMP [ ] %			-ALARMS-			803 - INH INT PRINT			
EQUIP INEF ATMP [ ] %			-REF STAT- -FREE RUN-			804 - INH AUD PRINT			
NO. CALLS CMPLTD [ ] K			-PWR ROOM- -EQUIP PWR-			805 - ELEV AUD PRINT			
INTERRUPTS [ ]			810 - SDC			806 - REINIT TTY SYS			
AUDITS [ ]			811 - PGM CNTL OFF NORM			807 - REQ TTY AUDIT			
-MCC TIMEOUT-			812 - OVLD CTL IN EFF			808 - CLEAR INTERRUPTS			
-INTERRUPT-			813 - INTRPT INH						
			814 - REFSTAT			899 - OP:OOSUNITS (ALL)			
-PROCESSOR EQUIPMENT STATUS-					-PERIPHERAL EQUIPMENT STATUS-				
820 - CC	826 - IFB	832 - APS	838 - PCD	850 - TMSP	856 - DT	862 - TGR			
821 - PSB	827 - AUI	833 - API	839 - KPWR	851 - TSI	857 - DIF	863 - SLNK			
822 - CSB	828 - SSD	834 - DUS		852 - NCLK	858 - VIF	864 - VFL			
823 - PS	829 - MUP	835 - TUC		853 - NCSU	859 - EST	865 - R&T			
824 - CS	830 - IOUS	836 - AUB		854 - SCLK	860 - SCS	866 - SVC			
825 - FNS	831 - IOUC	837 - PUB		855 - SP	861 - RA	867 -			

tpa 786424/01

Continued on next page

# 4ESS Switch LEC Master Control Console (MCC) Alarm Enhancement - Feature 474, Continued

New MCC  
Page 108

TOWNSTBLSUB 4E<NN>4E.nn MUP <input type="checkbox"/> PORT <input type="checkbox"/> PAGE 108 mm/dd/yy hh:mm:ss									
CRITICAL	MAJOR	MINOR	SDC	PGM CTRL	PWR/BLDG	MCC	SYS NORM		
CC	PS	CS	IF/AU	FU	MISC	MCC DPFL	SPP		
CMD:									
-SYSTEM ACTIVITY-			-SYSTEM STATUS-			-SYSTEM CONTROLS-			
BASE CYCLE TIME <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> ms			-RC ACTIVITY-			801 - RESTRICT RC			
TRAFFIC INCOMING <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> K			-DGN IN PROG-			802 - INH SUP PRINT			
SWITCH INEF ATMP <input type="checkbox"/> <input type="checkbox"/> %			-ALARMS-			803 - INH INT PRINT			
EQUIP INEF ATMP <input type="checkbox"/> <input type="checkbox"/> %			-REF STAT- -FREE RUN-			804 - INH AUD PRINT			
NO. CALLS CMLTD <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> K			-PWR ROOM- -EQUIP PWR-			805 - ELEV AUD PRINT			
INTERRUPTS <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>			-RB CAP- -MEM REC PH-			806 - REINIT TTY SYS			
AUDITS <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>			810 - SDC			807 - REQ TTY AUDIT			
SPP LINK OCCPNV <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> %			811 - PGM CNTL OFF NORM			808 - CLEAR INTERRUPTS			
SFI FUTURE MEAS			812 - OVLD CTL IN EFF			809 - CLEAR MEM REC PHASE			
-MCC TIMEOUT-			813 - INTRPT INH						
-INTERRUPT-			814 - REFSTAT			899 - OP:OOSUNITS (ALL)			
-PROCESSOR EQUIPMENT STATUS-					-PERIPHERAL EQUIPMENT STATUS-				
820 - CC	826 - IFB	832 - APS	838 - PCD	850 - TMSP	856 - DT	862 - TGR			
821 - PSB	827 - AUI	833 - API	839 - XPWR	851 - TSI	857 - DIF	863 - SLNK			
822 - CSB	828 - SSD	834 -	840 - SFI	852 - NCLK	858 - VIF	864 - VFL			
823 - PS	829 - MUP	835 -	841 -	853 - NCSU	859 - EST	865 - R&T			
824 - CS	830 - IOUS	836 - AUB		854 - SCLK	860 - SCS	866 - SVC			
825 - FNS	831 - IOUC	837 - PUB		855 - SP	861 - RA	867 - XTSTI			

tpa 786424/01

With the 4E22 generic, three new alarms lamps are added to MCC Page 108.

- **=RB CAP=** is present when the RC rollback area is 50 percent full and remains present until the Tape Write/Read Process (TWRP) is performed on the ODA or the buffer usage goes below 50 percent. When lit, this alarm appears as black on yellow but under normal conditions it is not present (lit). Existing warning messages are also received at the Operations Center via the RC Input/Output (I/O) channel.
- **=MEM REC PH=** is present when a memory recovery phase occurs and remains until turned off. When lit, this alarm appears as black on yellow but under normal conditions it is not present (lit).
- **809-CLEAR MEM REC PHASE** appears as white on black and when poked, turns off the MEM REC PH lamp.

Continued on next page

## 4ESS Switch LEC Master Control Console (MCC) Alarm Enhancement - Feature 474, Continued

---

**Feature Implementation** This feature is dependent upon the MCC Utility Processor (MUP) Firmware Upgrade - Feature 469 installation.

---

**Acronyms and Abbreviations** The following are acronyms and abbreviations of terms used throughout this document

<b>Terms</b>	<b>Meanings</b>
I/O	Input/Output
LEC	Local Exchange Carrier
MCC	Master Control Console
MUP	MCC Utility Processor
ODA	Office Data Assembler
RB	Rollback
RC	Recent Change
TWRP	Tape Read/Write Process

---



## **SELF CHECK**

### **Chapter 15**

#### **LEC Master Control Console Alarm Enhancement - Feature 474**

1. List the advantage of this feature: \_\_\_\_\_
  
2. What are the two new Master Control Console (MCC) visual indicators?  
\_\_\_\_\_  
\_\_\_\_\_
  
3. What MCC Page is impacted by this feature?  
\_\_\_\_\_
  
4. What is the feature dependency for this feature?  
\_\_\_\_\_





# **16 Program Store Expansion**

## **Feature 3333**

**4ESS<sup>TM</sup>-2000 Switch 4E22 Generic  
Transition Document**

234-090-050  
Issue 1.0  
March 1997

Lucent Technologies - Proprietary  
See notice on the following page

234-090-050  
4ESS™-2000 Switch 4E22 Generic Transition Document

Issue 1.0

March 1997

Developed by  
Lucent Technologies  
Network Systems/TS R&D Information Development

Lucent Product Training 1-888-LUCENT8 (582-3688)  
Prompt 2

**LUCENT TECHNOLOGIES PROPRIETARY**

This document contains proprietary information of Lucent Technologies and is not to be disclosed or used except in accordance with applicable agreements.

Copyright© 1997 Lucent Technologies. All Rights Reserved.

This material is protected by the copyright laws of the United States and other countries. It may not be reproduced, distributed, or altered in any fashion by any entity (either internal or external to Lucent Technologies), except in accordance with applicable agreements, contracts or licensing, without the express written consent of the TS R&D Information Development Organization and the business management owner of the material.

## Chapter 16

### Program Store Expansion - Feature 3333

---

**Introduction** The Program Store Expansion (PSE) capability reconfigures the switch memory spectrum, thereby providing an increase in memory for the storage of program text.

---

**In This Chapter** This chapter contains the following topics:

Topic	See Page
Introduction	16-1
In This Chapter	16-1
Advantages/Benefits	16-2
Background	16-2
1B Processor	16-3
Program Store	16-3
Call Store	16-4
Feature Description	16-4
Call Flow	16-4
Provisioning	16-4
Feature Implementation	16-5
Central Control (CC) Circuit Pack Modification	16-5
MUP Pack Replacement	16-5
MUP Modification	16-5
Acronyms and Abbreviations	16-6

---

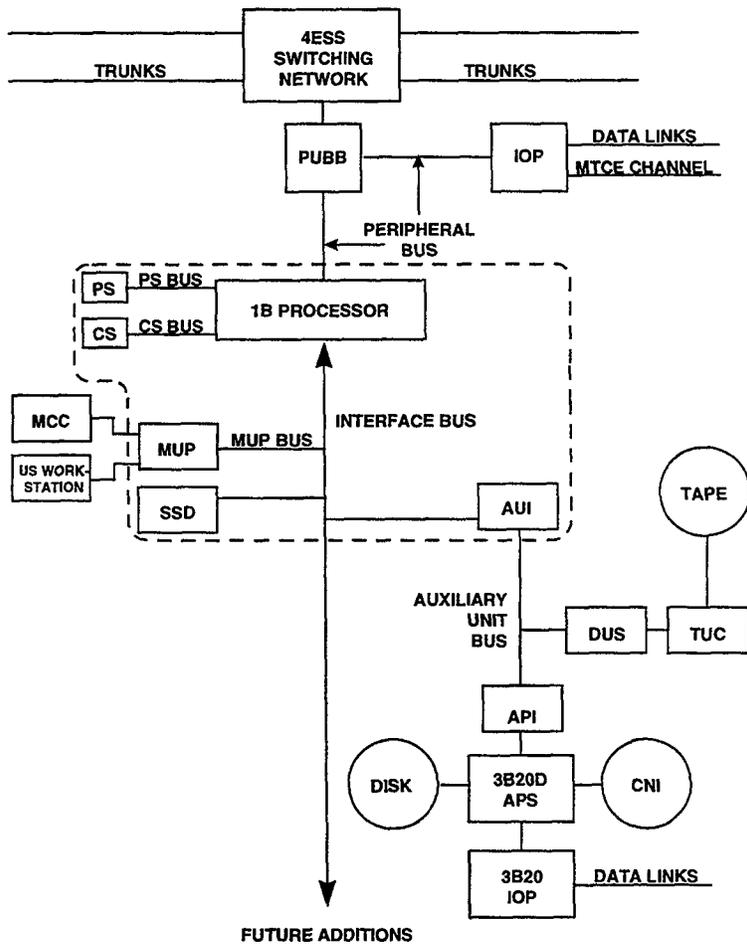
*Continued on next page*

# Program Store Expansion - Feature 3333, Continued

## Advantages/ Benefits

Using Program Store (PS) memory for the storage of program text provides faster execution time. The PS bus width is two-words wide, while the Call Store (CS) bus width is one-word wide. Also, data accesses are done via the CS bus. As a result, program text stored in CS would execute more slowly because of the CS bus width and contention for the CS bus by data accesses. Reconfiguring and using PS memory for the storage of program avoids these drawbacks.

## Background



**ACRONYM LEGEND**

- |                                   |                                    |
|-----------------------------------|------------------------------------|
| PUBB - PERIPHERAL UNIT BUS BRANCH | US - UTILITY SYSTEM WORKSTATION    |
| IOP - INPUT OUTPUT PROCESSOR      | AUI - AUXILIARY UNIT INTERFACE     |
| PS - PROGRAM STORE                | API - ATTACHED PROCESSOR INTERFACE |
| CS - CALL STORE                   | DUS - DATA UNIT SELECTOR           |
| MUCC - MASTER CONTROL COMPLEX     | TUC - TAPE UNIT CONTROLLER         |
| MUP - MCC & UTILITY PROCESSOR     | CNI - COMMON NETWORK INTERFACE     |
| SSD - SCAN & SIGNAL DISTRIBUTOR   |                                    |

*Continued on next page*

## Program Store Expansion - Feature 3333, Continued

---

### **Background (Continued)**

The initial deployment of the 1B Processor was installed and operated in a 24-bit mode to simulate the old 1A Processor. Seven megawords of addressable main memory was configured. Two megawords were allocated for PS and five megawords were allocated for CS. PS memory is primarily used for the storage of the fixed set of software instructions that is updated for each generic. CS is used primarily for the storage of per-call data, as well as office dependent data.

The 4ESS Switch must be able to support a continuous stream of new features for all customers throughout the life of the 4ESS Switch. There must be sufficient memory for the storage of new programs to support these features.

### **1B Processor**

The stored programs and data in the 1B Processor control the switching operations and perform automatic operational checks on the 4ESS Switch on a regular basis. Within the 1B community, PS units and CS units contain the call processing data.

### **Program Store**

PS units contain the fixed set of generic software instructions for all customer features. These software instructions are used by the 1B Processor for proper handling of the call.

With the initial deployment of the 1B Processor, only two megawords were allocated for PS. With the high volume of new customer features being developed, additional memory is required for PS data.

---

*Continued on next page*

## Program Store Expansion - Feature 3333, Continued

---

### Background (Continued)

#### Call Store

The CS units contain the data that is required for call processing such as Trunk Registers and trunking and routing translations.

The CS community is divided into two categories:

- Duplex Call Store (Volatile data - Trunk Registers, Call Registers)
- Simplex Call Store (Translation data - Routing/Trunking Instructions)

With the initial deployment of the 1B Processor, five megawords were allocated for CS. The new customer features being developed do not increase the memory requirements for CS.

---

### Feature Description

The PS memory increase will be obtained by modifying the existing memory boundaries. The PSE feature reconfigures the memory spectrum into three megawords of PS and five megawords of CS. In addition, the migration of PS code to CS provides additional memory for program text.

The PSE capability is expected to provide approximately one megaword of additional PS memory. In addition, at least 0.6 Mwords is possible from the migration of PS code to CS.

The 1B Processor can execute program text in either PS or CS. This allows flexibility in the placement of programs and the design of fault recovery and maintenance systems. However, code executes faster in PS.

---

### Call Flow

Call Flow is not affected by this feature.

---

### Provisioning

The Recent Change (RC) and Office Data Assembler (ODA) impacts will be transparent to the user.

---

*Continued on next page*

## Program Store Expansion - Feature 3333, Continued

---

**Feature Implementation** The PSE installation must start in time to allow an adequate interval to modify, test and soak the new equipment prior to beginning the retrofit schedule for the generic that PSE will be used. This installation must not be disruptive to ongoing office activities.

### **Central Control (CC) Circuit Pack Modification**

This feature requires a change in the way addresses are mapped into transactions on the CS and PS buses.

To use PSE memory, each existing CC unit in an office must be modified with the appropriate circuit packs to support this memory reconfiguration. The circuit pack modifications must be deployed prior to the generic that PSE will be using.

### **Master Control Complex (MCC) and Utility Processor (MUP) Pack Replacement**

Circuit pack replacement may not occur in both MUPs at the same time.

Circuit pack replacement is needed for this feature and the soak period for the first MUP must be completed prior to the MUP pack replacement for the second MUP.

### **MUP Modification**

The MUP based MCC Processor Status Page is enhanced to include full status on all equipped CS and PS. The MUP modification must be deployed prior to the generic that PSE will be using.

The MCC page control is based in the Read-Only Memory (ROM) of the MUP. Any addition or change to the page requires a ROM update. Therefore, the MUP board (i.e., KLW16) on each IFB requires a ROM change to upgrade the firmware.

The ROM replacement is considered a hardware change and must follow the requirements outlined in Installation/Retrofit.

All hardware modifications (i.e., CC packs, MUP packs, PS growth Units) and supporting software installation (e.g., diagnostics) must be completed in the generic prior to the generic that PSE will actually be using.

---

*Continued on next page*

## Program Store Expansion - Feature 3333, Continued

---

### Acronyms and Abbreviations

The following are acronyms and abbreviations of terms used throughout this document:

<b>Terms</b>	<b>Definitions</b>
CC	Central Control (1B Processor)
CS	Call Store
IFB	Interface Bus
MCC	Master Control Complex
MUP	MCC and Utility Processor
ODA	Office Data Assembler
OSS	Operating Support Systems
PS	Program Store
PSE	Program Store Expansion
RC	Recent Change
ROM	Read-Only Memory

---

## **SELF CHECK**

### **Chapter 16**

#### **Program Store Expansion - Feature 3333**

1. List the advantage of this feature:

---

2. What initiated the requirement for additional memory for Program Store (PS) data?

---

3. There are two types of circuit packs impacted as a result of this feature:

---

---

4. Which Master Control Console (MCC) Status Page has been enhanced to accommodate this feature:

---





# **17 1B Processor Tape Unit Elimination Feature 5013**

4ESS<sup>TM</sup>-2000 Switch 4E22 Generic  
Transition Document

234-090-050  
Issue 1.0  
March 1997

Lucent Technologies - Proprietary  
See notice on the following page

234-090-050  
4ESS™-2000 Switch 4E22 Generic Transition Document

Issue 1.0

March 1997

Developed by  
Lucent Technologies  
Network Systems/TS R&D Information Development

Lucent Product Training 1-888-LUCENT8 (582-3688)  
Prompt 2

### **LUCENT TECHNOLOGIES PROPRIETARY**

This document contains proprietary information of Lucent Technologies and is not to be disclosed or used except in accordance with applicable agreements.

Copyright© 1997 Lucent Technologies. All Rights Reserved.

This material is protected by the copyright laws of the United States and other countries. It may not be reproduced, distributed, or altered in any fashion by any entity (either internal or external to Lucent Technologies), except in accordance with applicable agreements, contracts or licensing, without the express written consent of the TS R&D Information Development Organization and the business management owner of the material.

## Chapter 17

### 1B Processor Tape Unit Elimination - Feature 5013

**Introduction** The 1B Data Unit Selector (DUS) Tape Unit Controller (TUC) provided secondary emergency backups, accessed the Trouble Locating Procedures (TLP) database, performed secondary emergency System Reinitialization (SR), secondary emergency diagnostics, miscellaneous tape generations, and system database administration. With the 4E22 generic, the functions provided on the 1B Processor DUS/TUC either moved to the 3B Attached Processor System (APS) or were eliminated completely. This removal is necessary because the tape unit is manufacture discontinued.

**In This Chapter**

This chapter contains the following topics:

Topic	See Page
Introduction	17-1
In This Chapter	17-1
Advantages/Benefits	17-2
Background	17-2
Feature Description	17-2
1B DUS/TUC Functional Replacements	17-3
Call Flow	17-4
Provisioning	17-4
MCC Old EAI Screen	17-4
MCC New EAI Screen	17-5
MCC Old Page 108	17-6
MCC New Page 108	17-7
MCC Old Page 118	17-8
MCC New Page 118	17-9
MCC Old Page 119	17-10
MCC New Page 119	17-11
Input/Output Messages Eliminated	17-12
Feature Implementation	17-12
Acronyms and Abbreviations	17-13

*Continued on next page*

## 1B Processor Tape Unit Elimination - Feature 5013, Continued

---

**Advantages/  
Benefits**

TLP is loaded on disk for faster access and 1600 Bytes Per Inch (BPI).

---

**Background**

These current functions are provided by the 1B Processor tape units:

- Backup Tapes
  - Generic, Office Data Assembler (ODA), Network Management and Traffic and Plant Measurements that are written on the 1B tape unit by the Tape Write Program (TWRP). TWRP reads the data and creates the specified tape. After backups are created, TWRP reinitializes the Recent Change (RC) rollback area. This is usually done once a week.
- SAST Tapes
  - System Audit of Stores is used to detect data corruption and optionally to correct it.
- TLP
  - The TLP contains fault data about the peripheral units which allows 1B programs to list the circuit packs that may be faulty and causing diagnostics to fail.
- Other Tapes
  - Error Analysis Program (ERAP), Generic Utility Program (GULP), Traffic Data Administration System Tape (TDAS), On Site Office Reports (OSOR), Trunk Out of Service List (TOSL) contain data relative to the status and day-to-day management of the switch.

The secondary emergency backup, restoral capabilities, and diagnostics are used only when the primary capabilities on the 3B APS cannot be used.

---

**Feature  
Description**

This feature eliminates the 1B Processor tape units and either moves the functions that resided on the 1B Processor DUS/TUC to the 3B APS or eliminates the functions.

---

*Continued on next page*

## 1B Processor Tape Unit Elimination - Feature 5013, Continued

### 1B DUS/TUC Functional Replacements

The following table shows the movement of the functionality from the 1B Processor DUS/TUC:

1B Tape Unit Functionality	Placement After DUS/TUC Removal
<b>Backup Data (TWRP)</b>	
Generic	3B APS
ODA	3B APS
NWM	3B APS
Traffic & Plant Management	3B APS
Library Programs	3B APS
<b>Tape Generation</b>	
TDAS	3B APS
LTS	3B APS
TOSL	3B APS
ERAP	3B APS
RCLI	Eliminated - No longer used
GULP Copy	Replaced by existing utility system functionality
<b>TLP</b>	
TLP Data Base Access	TLP Data Base has been moved to 3B Disk and access is on 3B APS
<b>1B Emergency Diagnostics</b>	
Tape paged diagnostics	Eliminated - no longer on 1B
<b>1B SR from the 1B Tape Unit</b>	
Generic Access	Eliminated - SR Capability on 3B APS is used
ODA Access	Eliminated - SR Capability on 3B APS is used
NWM Access	Eliminated - SR Capability on 3B APS is used
<b>System Update</b>	
NWM Access	3B tape loaded via SAST functionality
<b>Administration of Data</b>	
SAST	3B APS
RC Rollback	3B APS
Library Programs	Library program access functionality is on 3B APS

*Continued on next page*

# 1B Processor Tape Unit Elimination - Feature 5013, Continued

**Call Flow** Call Flow is not impacted by this feature.

**Provisioning** No RC or ODA forms are impacted by this feature. There are several changes to the 1B Processor-Master Control Console (MCC) pages as a result of this feature.

**MCC Old EAI Screen**

```

TOWNSTBLSUB 4E<NN>4B.nn MUP  PORT  PAGE EAI mm/dd/vy hh:mm:ss
CRITICAL MAJOR MINOR SDC PGM CTRL PWR/BLDG MCC SYS NORM
CC PS CS IF/AU PU MISC MCC DFFL
CMD:
99 - CLEAR ALL REQUESTS 100 - PAGE INDEX
-FORCE FNCT- - MANUAL PROG REQ- -PC SEQUENCER- -REPEATED PC- -PC ATTEMPT-
01 - HARD A 02 - SOFT A 03,xx - SET PC STATE: 
10 - CC 0 51 - PHASE 1 04 - INCREMENT PC -PC PROGRESSION-
11 - CC 1 52 - PHASE 2 70 - DIS AUTO PC CC CS IF AU PS CMPL
20 - PS 0 53 - PHASE 3
21 - PS 1 54 - PHASE 4
22 - PSB 0 81 - CLEAR UTIL 401/400,xx - SET/RESET xx; 402 - RESET ALL
23 - PSB 1 82 - RESTORE I/O CONTENTS: 
30 - CSB 0 83 - INHIBIT INT -EAI FAIL DATA DISPLAY-
31 - CSB 1 84 - MODIFY RECV 86 - CODE: B: 
40 - IFB 0 87 - DATA: B: 
41 - IFB 1 -FILE SELECT- 88 - ADDR: B: 
42 - AUB 0 61 - NORM FILE 89 - CLEAR DISPLAY
43 - AUB 1 62 - UPD FILE -INTF HW ENABLED- -ERRORS ON SR-
-EMER CFG- -SYSTEM REINIT- -INVALID SELECTION-
48 - FULL 63 - NORMAL SR -OVERRIDE IN EFFECT-
49 - MIN 64 - UTILITY SR -UPDATE IN PROG-
 -PHASE IN PROG-
    
```

tpa 786422/01

The Emergency Action Interface (EAI) page indicates the source for an SR. When a 63-NORMAL SR is selected, the SR is read from the 3B APS. If a 63-NORMAL is not displayed, a poke command returns a No Good (NG) response.

The following table explains the EAI status indicators:

Color	Status	Action
White on Black	Normal	Unselected
Purple on White	Poke Accepted	Setup State
Purple on White	SR Selected	Reading 3B

*Continued on next page*

# 1B Processor Tape Unit Elimination - Feature 5013, Continued

MCC New  
EAI Screen

TOWNSTELSUB	4E<NN>4B.nn	MUP	PORT	PAGE EAI	mm/dd/yy	hh:mm:ss	
CRITICAL	MAJOR	MINOR	SDC	PGM CTRL	PWR/BLDG	MCC	SYS NORM
CC	PS	CS	IF/AU	PU	MISC	MCC DPFL	SPP
CMD:							
99 - CLEAR ALL REQUESTS				100 - PAGE INDEX			
-FORCE FNCT-	- MANUAL PROG REQ-		-PC SEQUENCER-		-REPEATED PC- -PC ATTEMPT-		
01 - HARD A	02 - SOFT A		03,xx - SET PC STATE: <input type="checkbox"/>		-PC PROGRESSION-		
10 - CC 0	51 - PHASE 1		04 - INCREMENT PC		70 - DIS AUTO PC CC CS IF AU PS CMLP		
11 - CC 1	52 - PHASE 2						
20 - PS 0	53 - PHASE 3						
21 - PS 1	54 - PHASE 4						
22 - PSB 0	81 - CLEAR UTIL		-DIRECT DATA INSERT-				
23 - PSB 1	82 - RESTORE I/O		401/400,xx - SET/RESET xx; 402 - RESET ALL				
30 - CSB 0	83 - INHIBIT INT		CONTENTS: <input type="checkbox"/>				
31 - CSB 1	84 - MODIFY RECV		-EAI FAIL DATA DISPLAY-				
40 - IFB 0	-FILE SELECT-		86 - CODE: B' <input type="checkbox"/>				
41 - IFB 1	61 - NORM FILE		87 - DATA: B' <input type="checkbox"/>				
42 - AUB 0	62 - UPD FILE		88 - ADDR: B' <input type="checkbox"/>				
43 - AUB 1			89 - CLEAR DISPLAY				
-EMER CFG-	-SYSTEM REINIT-		-INTF HW ENABLED-		-ERRORS ON SR-		
48 - FULL	63 -		-INVALID SELECTION-				
49 - MIN	64 - UTILITY SR		-OVERRIDE IN EFFECT-				
						-UPDATE IN PROG-	
						-PHASE IN PROG-	

tpa 786422/01

Continued on next page

# 1B Processor Tape Unit Elimination - Feature 5013, Continued

MCC Old  
Page 108

TOWNSTELSUB 4E<NN>4B.nn MUP <input type="checkbox"/> PORT <input type="checkbox"/> PAGE 108 mm/dd/yy hh:mm:ss							
CRITICAL	MAJOR	MINOR	SDC	PGM CTRL	PWR/BLDG	MCC	SYS NORM
CC	PS	CS	IF/AU	PU	MISC	MCC DPFL	
CMD:							
-SYSTEM ACTIVITY-		-SYSTEM STATUS-			-SYSTEM CONTROLS-		
BASE CYCLE TIME	████ ms	-RC ACTIVITY-			801 - RESTRICT RC		
TRAFFIC INCOMING	████ K	-DGN IN PROG-			802 - INH SUP PRINT		
SWITCH INEF ATMP	██ %	-ALARMS-			803 - INH INT PRINT		
EQUIP INEF ATMP	██ %	-REF STAT- -FREE RUN-			804 - INH AUD PRINT		
NO. CALLS CMPLTD	████ K	-PWR ROOM- -EQUIP PWR-			805 - ELEV AUD PRINT		
INTERRUPTS	████	810 - SDC			806 - REINIT TTY SYS		
AUDITS	████	811 - PGM CNTL OFF NORM			807 - REQ TTY AUDIT		
-MCC TIMEOUT-		812 - OVLDT CTL IN EFF			808 - CLEAR INTERRUPTS		
-INTERRUPT-		813 - INTRPT INH					
		814 - REFSTAT			899 - OP:OOSUNITS (ALL)		
-PROCESSOR EQUIPMENT STATUS-				-PERIPHERAL EQUIPMENT STATUS-			
820 - CC	826 - IFB	832 - APS	838 - PCD	850 - TMSP	856 - DT	862 - TGR	
821 - PSB	827 - AUI	833 - API	839 - XPWR	851 - TSI	857 - DIF	863 - SLNK	
822 - CSB	828 - SSD	834 - DUS		852 - NCLK	858 - VIF	864 - VFL	
823 - PS	829 - MUP	835 - TUC		853 - NCSU	859 - EST	865 - R&T	
824 - CS	830 - IOUS	836 - AUB		854 - SCLK	860 - SCS	866 - SVC	
825 - FNS	831 - IOUC	837 - PUB		855 - SP	861 - RA	867 -	

tpa 786424/01

Page 108 indicates the status of the DUS/TUC. The status indicators will appear normal after a MUP reset. Once the 1B Processor is running base level, the equpage is used to configure the MUP to display or not display the DUS/TUC.

Once the MUP is configured, the MUP will allow the pokes to function as normal, if the 1B Processor is equipped with a DUS/TUC. If the 1B Processor is not equipped with DUS/TUC, the indicators appear as "834- " and "835- ".

**NOTE:** In 4E23 generic and beyond, after a MUP reset, the indicators are lit but non-functional. After the MUP is configured, the indicators remain non-functional and will appear as "834- " and "835- " white on black.

*Continued on next page*

# 1B Processor Tape Unit Elimination - Feature 5013, Continued

MCC New  
Page 108

TOWNSTBLSUB 4E<NN>4B.nn MUP <input type="checkbox"/> PORT <input type="checkbox"/> PAGE 108 mm/dd/yy hh:mm:ss									
CRITICAL	MAJOR	MINOR	SDC	PGM CTRL	PWR/BLDG	MCC	SYS NORM		
CC	PS	CS	IF/AU	PU	MISC	MCC DPFL	SPP		
CMD:									
-SYSTEM ACTIVITY-			-SYSTEM STATUS-			-SYSTEM CONTROLS-			
BASE CYCLE TIME <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> ms			-RC ACTIVITY-			801 - RESTRICT RC			
TRAFFIC INCOMING <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> K			-DGN IN PROG-			802 - INH SUP PRINT			
SWITCH INEF ATMPMT <input type="checkbox"/> <input type="checkbox"/> %			-ALARMS-			803 - INH INT PRINT			
EQUIP INEF ATMPMT <input type="checkbox"/> <input type="checkbox"/> %			-REF STAT- -FREE RUN-			804 - INH AUD PRINT			
NO. CALLS CMLPTD <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> K			-PWR ROOM- -EQUIP PWR-			805 - ELEV AUD PRINT			
INTERRUPTS <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>			-RB CAP- -MEM REC PH-			806 - REINIT TTY SYS			
AUDITS <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>			810 - SDC			807 - REQ TTY AUDIT			
SPP LINK OCCPNCY <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> %			811 - PGM CNTL OFF NORM			808 - CLEAR INTERRUPTS			
SFI FUTURE MEAS			812 - OVLD CTL IN EFF			809 - CLEAR MEM REC PHASE			
-MCC TIMEOUT-			813 - INTRPT INH						
-INTERRUPT-			814 - REFSTAT			899 - OP:OOSUNITS (ALL)			
-PROCESSOR EQUIPMENT STATUS-									
820 - CC 826 - IFB 832 - APS 838 - PCD			850 - TMSP 856 - DT 862 - TGR						
821 - PSB 827 - AUI 833 - API 839 - XFWR			851 - TSI 857 - DIF 863 - SLNK						
822 - CSB 828 - SSD 834 - 840 - SFI			852 - NCLK 858 - VIF 864 - VFL						
823 - PS 829 - MUP 835 - 841 -			853 - NCSU 859 - EST 865 - R&T						
824 - CS 830 - IOUS 836 - AUB			854 - SCLK 860 - SCS 866 - SVC						
825 - FNS 831 - IOUC 837 - PUB			855 - SP 861 - RA 867 - XTST						

tpa 786424/01

Continued on next page

# 1B Processor Tape Unit Elimination - Feature 5013, Continued

MCC Old  
Page 118

TOWNSTBLSUB 4E<NN>4B.nn MUP <input type="checkbox"/> PORT <input type="checkbox"/> PAGE 118 mm/dd/yy hh:mm:ss							
CRITICAL	MAJOR	MINOR	SDC	PGM CTRL	PWR/BLDG	MCC	SYS NORM
CC	PS	CS	IF/AU	PU	MISC	MCC DPFL	
CMD:							
-1B PROCESSOR STATUS-							
-PROCESSOR-	-BUSES-		-IFB CLIENTS-		-AUXILIARY- -UNITS-		
		-CC-					
		0 1					
	PFAMTHD	ARAR		AFT		TT	
CC 0 ACTIVE	*****	PSB 0 ACT	****	MUP 0 ACT	****	AUB 0 ACT	██
CC 1 STOP	*****	PSB 1 STBY	****	MUP 1 STBY	███	AUB 1 ACT	██
PC STATE: ██		CSB 0 ACT	****		ATT		T
		CSB 1 STBY	****	AUI 0 ACT	****	API 0 ACT	█
		PUB 0 ACT	****	AUI 1 UNK	****	API 1 STBY	█
		PUB 1 STBY	****	SSD 0 ACT		DUS 0 ACT	
		IFB 0 ACT	****	SSD 1 OOS		DUS 1 ACT	
		IFB 1 ACT	****				
						=DGN IN PROG=	

tpa 786425/01

Page 118 indicates the status of the DUSs. The status indicators for DUS 0 and DUS 1 appear and function as normal after a MUP reset. Once the 1B Processor is running base level, the equipage is used to configure the MUP to display or not display the DUSs.

NOTE: In 4E23 generic and beyond, after a MUP reset, the status indicators are displayed and function normally. After the MUP is configured, the DUS is not displayed.

*Continued on next page*

# 1B Processor Tape Unit Elimination - Feature 5013, Continued

MCC New  
Page 118

TOWNSTELSUB 4E<NN>4B.rm MUP <input type="checkbox"/> PORT <input type="checkbox"/> PAGE 118 mm/dd/yy hh:mm:ss												
CRITICAL	MAJOR	MINOR	SDC	PGM CTRL	PWR/BLDG	MCC	SYS NORM					
CC	PS	CS	IF/AU	PU	MISC	MCC DPFL	SPP					
CMD:												
-1B PROCESSOR STATUS-												
-PROCESSOR-		-BUSES-			-IFB BOOT CLIENTS-		-AUXILIARY- -UNITS-					
		-CC- 0 1										
PFAMTHD		ARAR			AFT		TT					
CC 0	ACTIVE	■■■■■■■■		PSB 0	ACT	■■■■	MUP 0	ACT	■■■	AUB 0	ACT	■■
CC 1	STOP	■■■■■■■■		PSB 1	STBY	■■■■	MUP 1	STBY	■■■	AUB 1	ACT	■■
PC STATE:		■■		CSB 0	ACT	■■■■	ATT					
				CSB 1	STBY	■■■■	AUI 0	ACT	■■■	T		
				PUB 0	ACT	■■■■	AUI 1	UNK	■■■	API 0		ACT
				PUB 1	STBY	■■■■			API 1		STBY	■■
				IFB 0	ACT	■■■■	SSD 0		ACT			
				IFB 1	ACT	■■■■	SSD 1		OOS			
										DUS 0		ACT
										DUS 1		ACT
										=DGN IN PROG=		

tpa 786425/01

Continued on next page

# 1B Processor Tape Unit Elimination - Feature 5013, Continued

MCC Old  
Page 119

```

TOWNSTBLSUB 4E<NN>4B.nn MUP  PORT  PAGE 119 mm/dd/yy hh:mm:ss
CRITICAL MAJOR MINOR SDC PGM CTRL PWR/BLDG MCC SYS NORM
CC PS CS IF/AU PU MISC MCC DPFL
CMD:
499 - TOGGLE MRA / INHIBIT INTERRUPT OPTIONS
-MODIFY RECOVERY ACTIONS DDI KEY ASSIGNMENTS-
401,xx,xx,... - SET xx; 400,xx,xx,... - RESET xx; 402 - RESET ALL
00 SET ALL INH 16 ZERO ALL MEMORY
01 RB RC TO TAPE 1 17 SKIP HASHSUM CALCULATION
02 RB RC TO TAPE 2 18 BYPASS CC SANITY TESTS
03 RB RC NO OF ORDRS IN DIS 1 (940) 19 RESERVED
04 RB RC TO ORNU IN DIS 1 (940) 20 INH MAP AUDITS
05 CLEAR SPECIFIC DISK AREAS 21 INH STORE ACCESS TESTS
06 CLEAR NTKM MGMT CONTRLS 22 SPARE
07 INITIALIZE TRK OOS LIST 23 ALW DUPLEX APS FAILURE IN SR
08 RESERVED 24 SKIP MUP RESTART DURING PC/SR
09 RESERVED 25 ALW MUP SUPERVISOR MODE UTIL SR
10 RESERVED 26 INH IFB ACCESS TEST
11 RST DUPLEX FAILED CONTRS 27 INH AUTOMATIC DIAGNOSTICS
12 SPARE 28 SPARE
13 SPARE 29 SPARE
14 ALLOW DUPLEX FAILED PUBB 30 SPARE
15 RESERVED 31 SPARE

```

tpa 786427/01

Page 119 provides the ability to set and clear recovery actions and inhibit interrupt options. The 17-multiple tape SR and 19-Inhibit Interrupt Options (INH) tape error correction functions are displayed and function as normal after a MUP reset. Once the 1B Processor is running base level, the equipage is used to configure the MUP to display or not display the DUS/TUC.

**NOTE:** In 4E23 generic and beyond, after a MUP reset, the status indicator is displayed and functions normally. After the MUP is configured, these functions are disabled and provide “no action.”

*Continued on next page*

# 1B Processor Tape Unit Elimination - Feature 5013, Continued

MCC Page 119  
(Continued)

```

TOWNSTBLSU  4E<NN>4B.n  MUP  PORT  PAGE 119  mm/dd/yy  hh:mm:ss
CRITICAL    MAJOR    MINOR    SDC    PGM CTRL  PWR/BLDG  MCC    SYS NORM
CC          PS       CS       IF/AU   PU        MISC      MCC DPFL  SPP
CMD:
          499 - TOGGLE MRA / INHIBIT INTERRUPT
          -INHIBIT INTERRUPTS DDI KEY
          401,xx,xx,.... - SET xx; 400,xx,xx,... - RESET xx; 402 -
00 J----- 16
01 H----- 17 K LEVEL SOURCE
02----- 18
03----- 19-----
04 F LEVEL AUTONOMOUS PERIPH 20-----
05 F LEVEL PERIPH ORDERS     21-----
06 E LEVEL PGM                22 F LEVEL PERIPH ASW
07 D LEVEL STACK              23 F LEVEL PERIPH ANSWER
08 D LEVEL PROT AREA          24 UNUSED
09 D LEVEL INTERFACE          25
10 D LEVEL CALL                26-----
11 B LEVEL PULSE               27-----
12 A LEVEL                    28-----
13 D LEVEL INVALID             29-----
14 B LEVEL INTERNAL            30-----
15----- 31-----
    
```

tpa 786426/01

*Continued on next page*

## 1B Processor Tape Unit Elimination - Feature 5013, Continued

---

### **Input/Output Messages Eliminated**

The following input/output messages are eliminated with the removal of the 1B Processor DUS/TUC.

- ALW::TUC
  - SET:TUC
  - SAST UPD:GEN UPD:ODA
  - 1B Processor Tape - Writing Messages:
    - Generic COPY:GEN
    - ODA COPY:ODA
    - Network Management COPY:NWM
    - Traffic and Plant Management COPY:TPM
- 

### **Feature Implementation**

- *4ESST<sup>TM</sup> Switch with 1B Processor Maintenance Operations Center 234-351-002*
  - *4ESST<sup>TM</sup> Switch 1B Processor Growth/Degrowth 234-353-010*
  - *4E21 to 4E22 Generic Retrofit and 4E22 ODA Update 234-160-022*
- 

*Continued on next page*

## 1B Processor Tape Unit Elimination - Feature 5013, Continued

### Acronyms and Abbreviations

The following are acronyms and abbreviations of terms used throughout this document:

Terms	Definitions
APS	Attached Processor System
BPI	Bytes Per Inch
DUS	Data Unit Selector
EAI	Emergency Action Interface
ERAP	Error Analysis Program
GEN	Generic
GULP	Generic Utility Program
INH	Inhibit Interrupt Options
LTS	Long Term Storage Tape
MCC	Master Control Console
MUP	MCC Utility Processor
NG	No Good
NWM	Network Management
ODA	Office Data Assembler
OSOR	On Site Office Reports
RC	Recent Change
RCLI	Recent Change Library
SAST	System Audit Of Stores Using Tapes
SR	System Reinitialization
TDAS	Traffic Data Administration System Tape
TLP	Trouble Locating Procedure
TOSL	Trunk Out Of Service List
TPM	Traffic and Plant Management
TWRP	Tape Write Program
TUC	Tape Unit Controller



# SELF CHECK

## Chapter 17

### 1B Processor Tape Unit Elimination - Feature 5013

1. List the advantage of this feature:

---

2. Where are the functions previously performed on the Data Unit Selector/Tape Unit Controller (DUS/TUC) unit being located to?

---

3. Which page shows the list of the 1B DUS/TUC functional replacement?

---

4. Which Master Control Console (MCC) pages are impacted by this feature?

---

---

---

---

5. What is the reference number for the 4ESS switch 1B Processor Growth/Degrowth document?

---





# **E CNI Features**

## **4ESS™-2000 Switch 4E22 Generic Transition Document**

234-090-050  
Issue 1.0  
March 1997

Lucent Technologies - Proprietary  
See notice on the following page

234-090-050  
4ESS™-2000 Switch 4E22 Generic Transition Document

Issue 1.0

March 1997

Developed by  
Lucent Technologies  
Network Systems/TS R&D Information Development

Lucent Product Training 1-888-LUCENT8 (582-3688)  
Prompt 2

**LUCENT TECHNOLOGIES PROPRIETARY**

This document contains proprietary information of Lucent Technologies and is not to be disclosed or used except in accordance with applicable agreements.

Copyright© 1997 Lucent Technologies. All Rights Reserved.

This material is protected by the copyright laws of the United States and other countries. It may not be reproduced, distributed, or altered in any fashion by any entity (either internal or external to Lucent Technologies), except in accordance with applicable agreements, contracts or licensing, without the express written consent of the TS R&D Information Development Organization and the business management owner of the material.

## 234-090-050

# 4ESS™-2000 Switch 4E22 Generic Transition Document

## Table of Contents

---

CNI Features.....	<b>TAB</b> <b>E</b>
Direct Link Node Integrated Ring Node No. 2 Upgrade (Feature 4694) .....	18
Attached Processor Interface Capacity Improvements (Feature 5003) .....	19

---





# **18 Direct Link Node Integrated Ring Node No. 2 Upgrade Feature 4694**

4ESS<sup>TM</sup>-2000 Switch 4E22 Generic  
Transition Document

234-090-050  
Issue 1.0  
March 1997

Lucent Technologies - Proprietary  
See notice on the following page

234-090-050  
4ESS™-2000 Switch 4E22 Generic Transition Document

Issue 1.0

March 1997

Developed by  
Lucent Technologies  
Network Systems/TS R&D Information Development

Lucent Product Training 1-888-LUCENT8 (582-3688)  
Prompt 2

### **LUCENT TECHNOLOGIES PROPRIETARY**

This document contains proprietary information of Lucent Technologies and is not to be disclosed or used except in accordance with applicable agreements.

Copyright© 1997 Lucent Technologies. All Rights Reserved.

This material is protected by the copyright laws of the United States and other countries. It may not be reproduced, distributed, or altered in any fashion by any entity (either internal or external to Lucent Technologies), except in accordance with applicable agreements, contracts or licensing, without the express written consent of the TS R&D Information Development Organization and the business management owner of the material.

## Chapter 18

### Direct Link Node Integrated Ring Node No. 2 Upgrade - Feature 4694

---

**Introduction** This feature has been developed to increase the capacity of the Direct Link Node (DLN) to support the projected growth in call volume. This feature replaces the DLN Node Processor (DLN-NP), IRNB (Intel 80186) with an IRN2 (Intel 80386) processor.

---

**In This Chapter** This chapter contains the following topics:

Topic	See Page
Introduction	18-1
In This Chapter	18-1
Advantages/Benefits	18-2
Background	18-2
Feature Description	18-2
Call Flow	18-2
Provisioning	18-2
Feature Implementation	18-3
Acronyms and Abbreviations	18-3

---

*Continued on next page*

## Direct Link Node Integrated Ring Node No. 2 Upgrade - Feature 4694, Continued

---

**Advantages/  
Benefits**

This feature will increase the Signaling System 7 (SS7) message handling capacity of the 4E DLN to 1800 messages/sec per DLN. This will also increase the amount of usable memory in the Dual Port RAM (DPM) to 384 Kbytes, which will allow more efficient message/data exchange between the DLN-NP and the DLN-Attached Processor (AP).

---

**Background**

The DLN is a node type on the Common Network Interface (CNI) ring-based switching office architectures. In a switching office, the CNI ring interfaces with the SS7 network. The DLN sends and receives SS7 signaling messages to/from the 4ESS Switch. The IRN2 board will replace the current IRN as the DLN-NP. The IRN2 is a complete redesign of the IRN board and it provides a better performance and higher throughput.

---

**Feature  
Description**

The DLN IRN2 Upgrade feature replaces the DLN-NP IRNB (Intel 80186) with an IRN2 (Intel 80386) processor. The IRN2 increases the real-time capacity of the node processor by approximately 2 ½ times. It also increases the amount of available DPM to about 385 Kbytes.

Currently in the incoming DLN, messages are converted to 1B Processor format in a temporary buffer and then copied into the incoming DMA buffer for transmission. This is done to prevent overflow of the DMA buffer. With the IRN2, the DMA buffers can be made sufficiently large so that the temporary buffer and associated message copy are no longer necessary.

---

**Call Flow**

Call Flow is not affected by this feature.

---

**Provisioning**

No Recent Change (RC) forms or Office Data Assembler (ODA) forms are impacted by this feature.

---

*Continued on next page*

## Direct Link Node Integrated Ring Node No. 2 Upgrade - Feature 4694, Continued

### Feature Implementation

Both the IRN2 and the IRNB DLNs can be in service at the same time.

The IRN2 DLN-NP processors will be grown one at a time, with no interruption of call processing.

Common Network Interface Growth/Degrowth 234-153-005AC

### Acronyms and Abbreviations

The following are acronyms and abbreviations of terms used throughout this document:

Terms	Definitions
CNI	Common Network Interface
DLN	Direct Link Node
DLN-AP	Direct Link Node-Attached Processor
DLN-NP	Direct Link Node-Node Processor
DPM	Dual Port RAM
IRN2	Intel 80386
IRNB	Intel 80186
ODA	Office Data Assembler
RC	Recent Change



## **SELF CHECK**

### **Chapter 18**

#### **Direct Link Note Integrated Ring Note No. 2 Upgrade - Feature 4694**

1. List the advantage of this feature:

---

2. What is the name of the new processor for the Direct Link Node-Node Processor (DLN-NP)?

---

3. Are there any Recent Change (RC) or Office Data Assembler (ODA) forms impacted as a result of this feature?

---

4. How will the new processor be grown into the DLN-NP processors?

---

5. What is the reference number of the Common Network Interface Growth/Degrowth document?

---





# **19 Attached Processor Interface Capacity Improvements Feature 5003**

4ESS<sup>TM</sup>-2000 Switch 4E22 Generic  
Transition Document

234-090-050  
Issue 1.0  
March 1997

234-090-050  
4ESS™-2000 Switch 4E22 Generic Transition Document

Issue 1.0

March 1997

Developed by  
Lucent Technologies  
Network Systems/TS R&D Information Development

Lucent Product Training 1-888-LUCENT8 (582-3688)  
Prompt 2

### **LUCENT TECHNOLOGIES PROPRIETARY**

This document contains proprietary information of Lucent Technologies and is not to be disclosed or used except in accordance with applicable agreements.

Copyright© 1997 Lucent Technologies. All Rights Reserved.

This material is protected by the copyright laws of the United States and other countries. It may not be reproduced, distributed, or altered in any fashion by any entity (either internal or external to Lucent Technologies), except in accordance with applicable agreements, contracts or licensing, without the express written consent of the TS R&D Information Development Organization and the business management owner of the material.

## Chapter 19

# Attached Processor Interface (API) Capacity Improvement - Feature 5003

---

**Introduction** The Attached Processor Interface (API) Capacity Improvement feature reduces the relative impact that Signaling System 7 (SS7) Integrated Services Digital Network (ISDN) User Part (ISUP) messages have on the throughput capacity of the 4ESS Switch's API. Relief is needed in throughput capacity of the API. This feature involves no hardware modifications and requires no change in any operations support system.

---

**In This Chapter** This chapter contains the following topics:

Topic	See Page
Introduction	19-1
In This Chapter	19-1
Advantages/Benefits	19-2
Background	19-2
Common Network Interface (CNI) Ring	19-3
1B Processor	19-3
Attached Processor System (APS)	19-3
Attached Processor Interface (API)	19-3
Feature Description	19-4
Incoming Messages	19-4
Outgoing Messages	19-4
ISUP Message Format	19-4
Call Flow	19-5
Provisioning	19-6
Recent Change Forms Impacted	19-6
RC 809	19-6
RC 809 Change Feature Bit	19-7
Feature Item Field	19-7
ON or OFF	19-7
Verify Forms Impacted	19-8
Feature Implementation	19-9
Acronyms and Abbreviations	19-9

---

*Continued on next page*

## Attached Processor Interface (API) Capacity Improvement - Feature 5003, Continued

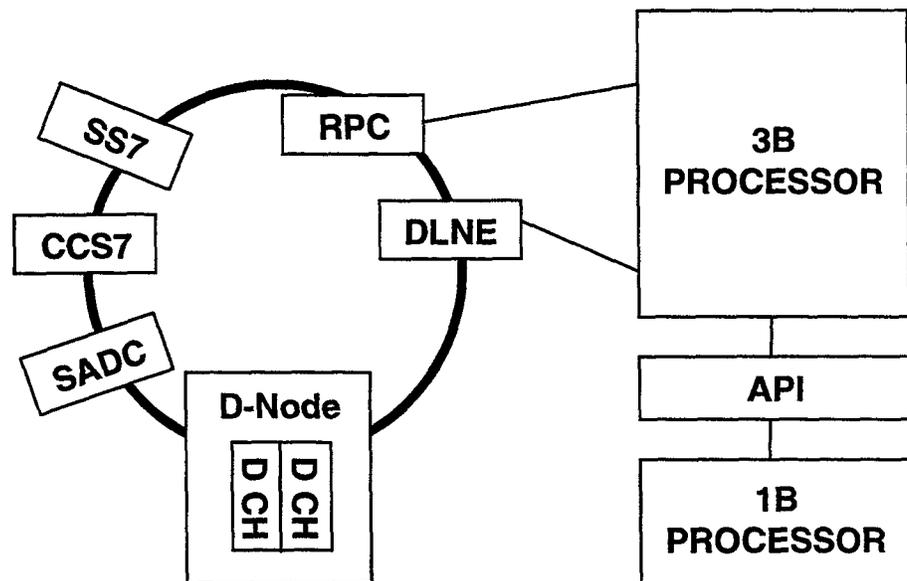
### Advantages/ Benefits

This feature frees up resources so that they then can be reused to support an overall increase in 4ESS Switch call handling capacity.

It reduces the intra-switch, inter-processor length of the impacted domestic ISUP messages without eliminating any message content and without changing anything from an operations perspective. The recovered API bandwidth can then be used to support a larger total number of busy-hour call attempts.

### Background

## COMMON NETWORK INTERFACE (CNI) ARCHITECTURE



*Continued on next page*

## Attached Processor Interface (API) Capacity Improvement - Feature 5003, Continued

---

### Background (Continued)

#### Common Network Interface (CNI) Ring

The CNI ring is the primary interface from the 4ESS Switch to the signaling network. The CNI ring is connected to the 3B20 Attached Processor System (APS) and has an interface to the 1B Processor. The CNI ring consists of a series of nodes that are designed to perform certain functions. The Direct Link Node Enhanced (DLNE) is used for processing ISUP messages.

Incoming messages enter the 4ESS Switch CNI through a Ring Node. They traverse the ring and pass through the DLNE, the 3B Processor, and the API. The API delivers them to the 1B processor for interpretation (i.e., call processing). Outgoing messages transverse the same path but in the opposite direction.

#### 1B Processor

The stored programs and data in the 1B Processor control the switching operations and perform automated operational checks on the 4ESS Switch on a regular basis. Within the 1B Processor community, program store and simplex call store units contain the call processing data. The program store units contain the generic program while the simplex call store units contain the translation data associated with trunking and routing instructions.

The 1B Processor is connected to the 3B Processor via the API.

#### Attached Processor System (APS)

The APS is a 3B20 computer that provides for data storage and backup copies of generic programs and office translation (program and simplex call stores). The APS is the interface to the CNI for ISUP signaling.

The APS is resident on the Auxiliary Unit Bus and operates on a 32-bit word basis.

#### Attached Processor Interface (API)

The API takes the 24 bits of data and adds 8 bits of padding to equal the 32 bits of data required for call processing.

The API connects the 3B to the 1B Processor by the Auxiliary Unit Bus.

---

*Continued on next page*

## Attached Processor Interface (API) Capacity Improvement - Feature 5003, Continued

---

### **Feature Description**

This feature increases the effective throughput of the API. The capacity improvements will be realized by removing eight (8) words of unused header on all ISUP messages sent through the API. Only the internal (1B Processor and DLNE) format of ISUP messages will change. The network format of ISUP messages will not change, making this feature transparent to the network.

### **Incoming Messages**

ISUP messages received from the signaling network pass through the DLNE, APS, and API before they are received by the 1B processor. Under this feature, the DLNE will replace the existing header with a 1-word header. The reduced field will contain data fields for length and the Trunk Scanner Number (TSN). There is no change in functionality or content, other than the message length. The 1B Processor will restore the message-header layout (using default values for all fields not present in the reduced header) so that it corresponds to the format expected by the existing call-processing routines.

### **Outgoing Messages**

Call processing routines in the 1B processor will still construct ISUP messages to be directed to the CNI ring. However, a message handler will replace the (mostly empty) header with a one-word header before it is shipped across the API. The DLNE will expand the format to provide the layout that the CNI-ring design expects to see.

### **ISUP Message Format**

The inbound and outbound ISUP message formatting software in the DLNE will be modified to handle both the original sized ISUP messages and the new short ISUP message formats.

The outbound DLNE will be modified to detect (on a per message basis) which message format is being used and handle it accordingly. The inbound DLNE will choose which ISUP message format to send to the 1B Processor by referencing a new DLNE global variable. This global variable will be set to the contents of the feature bit obtained from the 1B message.

---

*Continued on next page*

## Attached Processor Interface (API) Capacity Improvement - Feature 5003, Continued

---

**Call Flow**

Call Flow is not affected by this feature. The format of ISUP messages will be impacted by this feature.

---

*Continued on next page*

## Attached Processor Interface (API) Capacity Improvement - Feature 5003, Continued

---

### Provisioning      Recent Change Forms Impacted

#### RC 809

# FORM 809    CHANGE FEATURE BITS  
4E18>

RC:FTR;CHG;OPT(BIT),\_\_\_:

ORNU \_\_\_\_\_,

FEATURE ITEM \_\_\_\_\_,      ON OR OFF \_\_\_\_,

REMARKS \_\_\_\_\_!

EQUIVALENT ODA INPUT FORM - NONE

ASSOCIATED VERIFY MESSAGES

OUTPUT - 8j VER:MISC;OPT(ONOFF)

INPUT - 16az VER:MISC ONOFF

---

*Continued on next page*

## Attached Processor Interface (API) Capacity Improvement - Feature 5003, Continued

---

### Provisioning (Continued)

#### RC 809 Change Feature Bit

Recent Change Form 809 is used to activate/deactivate this feature. A recent changeable Office Data Assembler (ODA) feature bit will be used to activate/deactivate this feature.

#### Feature Item Field

The API Capacity Improvement feature is activated/deactivated by populating this field with F14 and setting the "ON or OFF" field to either ON or OFF.

#### ON or OFF

To activate the feature, set the "ON or OFF" field to ON. This will remove the 8 words of unused header in all ISUP messages sent through the API. This in turn will increase the effective throughput of the API. The feature is defaulted to "OFF".

---

*Continued on next page*



## Attached Processor Interface (API) Capacity Improvement - Feature 5003, Continued

### Feature Implementation

The feature cannot be activated until both the 1B Processor and the 3B20 Processor have been retrofitted with the 4E22R1 generic. This feature will reduce the volume of signaling data transported by the API. There will be a slight decrease in call handling capacity for the 1B Processor and negligible impact on the DLNE.

This feature is dependent upon Feature 4694, Integrated Ring Node 2 (IRN2) Upgrade for the DLNE, 4E22, R1.

### Acronyms and Abbreviations

The following are acronyms and abbreviations of terms used throughout this document:

Terms	Meaning
API	Attached Processor Interface
APS	Attached Process System (3B20 Computer)
CNI	Common Network Interface
DLNE	Direct Link Node Enhanced
IRN2	Integrated Ring Node 2
ISDN	Integrated Services Digital Network
ISUP	Integrated Services Digital Network (ISDN) User Part
ODA	Office Data Assembler
SS7	Signaling System 7
TSN	Trunk Scanner Number



## **SELF CHECK**

### **Chapter 19**

#### **Attached Processor Interface Capacity Improvements - Feature 5003**

1. List one of the advantages of this feature:

---

2. Will the ISDN User Part (ISUP) message formatting software in the Direct Link Node Enhanced (DLNE) be modified to handle the original and new short ISUP message formats?

---

3. Which Recent Change (RC) form will be used to activate this feature?

---

4. What is the feature dependency for this feature?

---





# **F Miscellaneous Features**

## **4ESS<sup>TM</sup>-2000 Switch 4E22 Generic Transition Document**

234-090-050  
Issue 1.0  
March 1997

Lucent Technologies - Proprietary  
See notice on the following page

234-090-050  
4ESS™-2000 Switch 4E22 Generic Transition Document

Issue 1.0

March 1997

Developed by  
Lucent Technologies  
Network Systems/TS R&D Information Development

Lucent Product Training 1-888-LUCENT8 (582-3688)  
Prompt 2

### **LUCENT TECHNOLOGIES PROPRIETARY**

This document contains proprietary information of Lucent Technologies and is not to be disclosed or used except in accordance with applicable agreements.

Copyright© 1997 Lucent Technologies. All Rights Reserved.

This material is protected by the copyright laws of the United States and other countries. It may not be reproduced, distributed, or altered in any fashion by any entity (either internal or external to Lucent Technologies), except in accordance with applicable agreements, contracts or licensing, without the express written consent of the TS R&D Information Development Organization and the business management owner of the material.

**234-090-050**

**4ESS™-2000 Switch 4E22 Generic Transition Document**

**Table of Contents**

---

**TAB**

**Miscellaneous Features .....F**

Call Register Restructure (Feature 444) ..... 20

Extended Address Complete Message (ACM) Timer for Signaling System 7 (SS7)  
    (Feature 461) ..... 21

Grow Trunk Subgroup Block (Feature 466) ..... 22

---





# **20 Call Register Restructure Feature 444**

**4ESS<sup>TM</sup>-2000 Switch 4E22 Generic  
Transition Document**

234-090-050  
Issue 1.0  
March 1997

Lucent Technologies - Proprietary  
See notice on the following page

234-090-050  
4ESS™-2000 Switch 4E22 Generic Transition Document

Issue 1.0

March 1997

Developed by  
Lucent Technologies  
Network Systems/TS R&D Information Development

Lucent Product Training 1-888-LUCENT8 (582-3688)  
Prompt 2

### **LUCENT TECHNOLOGIES PROPRIETARY**

This document contains proprietary information of Lucent Technologies and is not to be disclosed or used except in accordance with applicable agreements.

Copyright© 1997 Lucent Technologies. All Rights Reserved.

This material is protected by the copyright laws of the United States and other countries. It may not be reproduced, distributed, or altered in any fashion by any entity (either internal or external to Lucent Technologies), except in accordance with applicable agreements, contracts or licensing, without the express written consent of the TS R&D Information Development Organization and the business management owner of the material.

## Chapter 20

### Call Register Restructure - Feature 444

---

#### Introduction

Currently, the Call Register (CR) is in need of additional space. This feature provides additional space by moving some functions that reside in the CR to new structures and by re-engineering current structures.

---

#### In This Chapter

This chapter contains the following topics:

Topic	See Page
Introduction	20-1
In This Chapter	20-1
Advantages/Benefits	20-2
Background	20-2
Feature Description	20-2
Call Flow	20-2
Provisioning	20-3
TQR Structures	20-3
IR Structures	20-4
Feature Implementation	20-4
Acronyms and Abbreviations	20-5

---

*Continued on next page*

## Call Register Restructure - Feature 444, Continued

---

**Advantages/  
Benefits**

Provide additional memory in the CR for the storage of data required for advanced call processing features.

---

**Background**

CRs reside in duplex call store within the 1B processor. CRs contain volatile call processing data for use in call setup. New advanced features being developed require additional data to be stored in call setup.

Integrated Services Digital Network (ISDN) type of services continue to grow in the network. A high volume of data is to be stored during call setup in the CR ISDN (CRIB) data structure. The CRIB data structures contain the following ISDN parameters:

- User-to-User Information (UUI)
- Access Transport Parameter (ATP) along with unrecognized parameters that need to be passed through the switch.
- Generic Digit Parameters (GDP)
- Generic Address Parameters (GAP)
- Generic Name Parameters (GNP)
- Generic Operations Parameters (GOP)

In addition, there is a high volume of data stored in the CR for Transaction Capabilities Application Part (TCAP) test queries.

---

**Feature  
Description**

This feature provides additional space in the CR by moving the CRIB and TCAP queries to separate data structures. Existing ISDN-related data is moved from the CR to a new ISDN Register (IR) data structure. A new engineered structure, Test Query Register (TQR), is defined to support the data currently stored for TCAP test queries.

---

**Call Flow**

Call Flow is not affected by this feature.

---

*Continued on next page*

## Call Register Restructure - Feature 444, Continued

---

### Provisioning

### TQR Structures

The creation of TQR insures that test query designs are no longer dependent on the layout of the Trunk Maintenance Register (TMR). Previously, test queries were designed so that layouts did not conflict with items in the TMR. Since test queries now use the TQR, the CR items can be used without concern about overlapping with trunk maintenance items. Items are stored in their associated CR and only input buffer bits are stored, each 256 words. This means that the same logic can be used to send test queries and call related queries.

The following applies to the new TQR structure:

- 16 TQRs for each office
- TQRs are allocated immediately following the CRs and before the TMRs
- TQRs are defined in the same memory area as the CR
- TQR is the same size as the CR.

The following areas are affected by TQR and are each 1-word defined, protected, disk-backed, Attached Processor Interface (API) accessible, and Office Data Assembler (ODA) populated memory:

- OD4MINTQR
- OD4NUMTQR
- OD4MAXTQR

The following areas are used to store test query information associated with a call:

- Network Services Complex (NSCX) Area
- Outgoing Trunk Subgroup (TSG) and Outgoing Trunk Block
- Previously Stored Number
- Routing Words

---

*Continued on next page*

---

## Call Register Restructure - Feature 444, Continued

---

### Provisioning (Continued)

#### IR Structure

The creation of an ISDN Register (IR) allows for high volume of call setup data to be stored in a unique data structure. The IR data structure will be linked to CR, Non-called data associated Register (NR) and the new TQR structures.

- The following attributes apply to the new IR structure:
  - An IR for every CR, Non-Call Associated (NCAT) and TQRs
  - Allocated in the same memory area as CRs
  - 96 words long.
  
- The following structures are affected by the IR and are each 1-word defined, protected, disk-backed, API accessible and ODA populated memory:
  - OD4MINIR
  - OD4NUMIR
  - OD4MAXIR
  
- There are no Recent Change (RC) or ODA forms impacted by this feature.

---

### Feature Implementation

The new data structures will be automatically allocated in the ODA. There are no feature dependencies.

---

*Continued on next page*

## Call Register Restructure - Feature 444, Continued

### Acronyms and Abbreviations

The following are acronyms and abbreviations of terms used throughout this document:

<b>Terms</b>	<b>Definitions</b>
API	Attached Processor Interface
ATP	Access Transport Parameter
CR	Call Register
CRIB	Call Register Integrated Services Digital Network
GAP	Generic Address Parameters
GDP	Generic Digit Parameters
GNP	Generic Name Parameters
GOP	Generic Operations Parameters
ISDN	Integrated Services Digital Network
IR	Integrated Services Digital Network Register
NCAT	Non-Call Associated
NR	Non-called data associated Register
NSCX	Network Services Complex
ODA	Office Data Assembler
RC	Recent Change
TCAP	Transaction Capabilities Application Part
TMR	Trunk Maintenance Register
TQR	Test Query Register
TSG	Trunk Subgroup
UII	User-to-User Information



## **SELF CHECK**

### **Chapter 20**

#### **Call Register Restructure - Feature 444**

1. List the advantage of this feature:

---

2. What data is moved from the Call Register (CR) to free up memory?

---

3. What are the two new data structures for this feature?

---





# **21 Extended Address Complete Message (ACM) Timer for Signaling System 7 (SS7) Feature 461**

**4ESS™-2000 Switch 4E22 Generic  
Transition Document**

234-090-050  
Issue 1.0  
March 1997

234-090-050  
4ESS™-2000 Switch 4E22 Generic Transition Document

Issue 1.0

March 1997

Developed by  
Lucent Technologies  
Network Systems/TS R&D Information Development

Lucent Product Training 1-888-LUCENT8 (582-3688)  
Prompt 2

### **LUCENT TECHNOLOGIES PROPRIETARY**

This document contains proprietary information of Lucent Technologies and is not to be disclosed or used except in accordance with applicable agreements.

Copyright© 1997 Lucent Technologies. All Rights Reserved.

This material is protected by the copyright laws of the United States and other countries. It may not be reproduced, distributed, or altered in any fashion by any entity (either internal or external to Lucent Technologies), except in accordance with applicable agreements, contracts or licensing, without the express written consent of the TS R&D Information Development Organization and the business management owner of the material.

## Chapter 21

### Extended Address Complete Message (ACM) Timer for Signaling System (SS7) - Feature 461

#### Introduction

The Integrated Services Digital Network User Part (ISUP) Initial Address Messages (IAMs) reply timer waiting for Address Complete Messages (ACMs) on Signaling System 7 (SS7) was 20 seconds. This shorter ACM time resulted in lost calls, especially calls to cellular networks which required longer setup times. With the 4E22 generic, this time can be set to either 20 or 25 seconds depending on whether the feature is provisioned as off or on for the switch.

#### In This Chapter

This chapter contains the following topics:

Topic	See Page
Introduction	21-1
In This Chapter	21-1
Advantages/Benefits	21-2
Background	21-2
Feature Description	21-4
Call Flow	21-4
Provisioning	21-5
Recent Change Forms Affected	21-5
RC Form 809	21-5
Verify Forms Affected	21-6
Verify Form 16az	21-6
Verify Form 8j	21-6
Feature Implementation	21-6
Acronyms and Abbreviations	21-7

*Continued on next page*

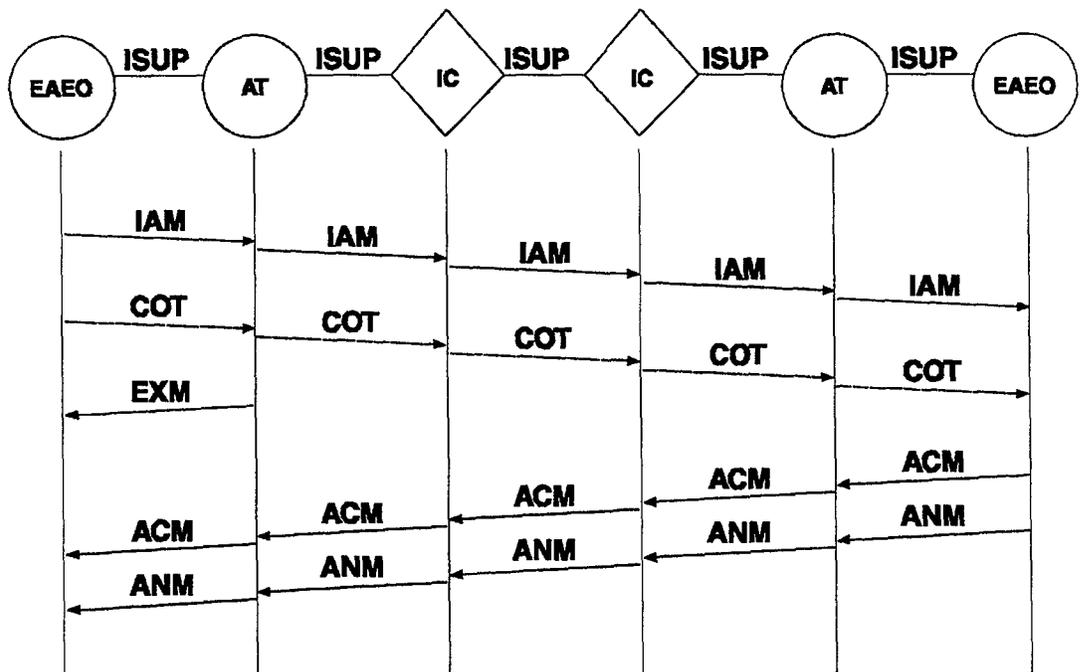
## Extended Address Complete Message (ACM) Timer for Signaling System (SS7) - Feature 461, Continued

**Advantages/  
Benefits**

- Allows the ACM timer to be set to either 20 or 25 seconds
- Allows longer set-up time
- Minimizes lost calls.

**Background**

### ISUP CALL FLOW THROUGH ACCESS TANDEM



a098282c S

*Continued on next page*

## Extended Address Complete Message (ACM) Timer for Signaling System (SS7) - Feature 461, Continued

---

### Background (Continued)

ISUP call flow consists of the following:

- Initial Address Message (IAM) from Equal Access End Office (EAEO) to Access Tandem (AT) identifying the Transit Number Selection (Carrier ID and NX or ZZ digits), Called Party Number (CdPN), and the Calling Party Number (CPN).
- The AT seizes a trunk to the appropriate carrier and sends an IAM. An Exit Message (EXM) is returned to the EAEO in order to start Access Charging.
- The Continuity Check of the facilities may be omitted if the switches and facilities are all digital. The Continuity OK Test (COT) would not be sent in that case. The COT will occur before the EXM.
- The Interexchange Carrier (IC) will route the call to the terminating location.
- If the call is successful, the last ISUP office returns an Address Complete Message (ACM) and connects the Incoming Trunk (ICT) to the Outgoing Trunk (OGT).
- Each preceding office, upon receipt of the ACM, connects the ICT to the OGT and repeats the ACM to the previous office.
- The originating EAEO completes the connection to the originating customer and that customer hears ringing from the terminating EAEO.
- An Answer Message (ANM) is returned when the called party answers.

---

*Continued on next page*

---

## Extended Address Complete Message (ACM) Timer for Signaling System (SS7) - Feature 461, Continued

---

**Feature Description** This feature allows each 4ESS™ Switch office to select a value of either 20 or 25 seconds as the office parameter for the ISUP ACM timer duration. The increase to 25 seconds minimizes lost calls that take more than 20 seconds to setup.

---

**Call Flow** Call Flow is not impacted by this feature.

---

*Continued on next page*

## Extended Address Complete Message (ACM) Timer for Signaling System (SS7) - Feature 461, Continued

---

**Provisioning**      The RC809 form is used to activate this feature.

### Recent Change Forms Affected

#### RC Form 809

# FORM 809    CHANGE FEATURE BITS  
4E18>

RC:FTR;CHG;OPT(BIT), \_\_\_:

ORNU \_\_\_\_\_,

FEATURE ITEM \_\_\_\_\_,            ON OR OFF \_\_\_\_\_,

REMARKS \_\_\_\_\_!

EQUIVALENT ODA INPUT FORM - NONE

ASSOCIATED VERIFY MESSAGES

OUTPUT - 8j VER:MISC;OPT(ONOFF)

INPUT - 16az VER:MISC ONOFF

Population Rules to activate this feature:

- Feature Item:
  - F16 (Extend ACM Timer for SS7 Feature)
- ON or OFF
  - Entries: = OFF    The ACM timing is set to 20 seconds (default)
  - = ON      The ACM timing is set to 25 seconds

---

*Continued on next page*

## Extended Address Complete Message (ACM) Timer for Signaling System (SS7) - Feature 461, Continued

---

### Provisioning (Continued)

#### Verify Forms Affected

#### Verify Form 16az

INPUT - 16az VER:MISC ONOFF

#### Verify Form 8j

OUTPUT:                    VERIFY 8j (4E18R4>)  
                              VER:MISC;OPT(ONOFF):

---

### Feature Implementation

This feature is activated via Recent Change (RC).

---

*Continued on next page*

## Extended Address Complete Message (ACM) Timer for Signaling System (SS7) - Feature 461, Continued

### Acronyms and Abbreviations

The following are acronyms and abbreviations of terms used throughout this document:

Terms	Definitions
ACM	Address Complete Message
ANM	Answer Message
AT	Access Tandem
CdPN	Called Party Number
COT	Continuity OK Test
CPN	Calling Party Number
EAE0	Equal Access End Office
EXM	Exit Message
IAM	Initial Address Message
IC	Interexchange Carrier
ICT	Incoming Trunk
ISUP	Integrated Services Digital Network User Part
OGT	Outgoing Trunk
RC	Recent Change
SS7	Signaling System 7



## **SELF CHECK**

### **Chapter 21**

#### **Extended Address Complete Message (ACM) Timer for Signaling System 7 (SS7) - Feature 461**

1. List the three advantages of this feature:

---

---

---

2. When is the Address Complete Message (ACM) sent?

---

3. Which Recent Change (RC) form is used to activate this feature?

---





# **22 Grow Trunk Subgroup Block Feature 466**

**4ESS™-2000 Switch 4E22 Generic  
Transition Document**

234-090-050  
Issue 1.0  
March 1997

Lucent Technologies - Proprietary  
See notice on the following page

234-090-050  
4ESS™-2000 Switch 4E22 Generic Transition Document

Issue 1.0

March 1997

Developed by  
Lucent Technologies  
Network Systems/TS R&D Information Development

Lucent Product Training 1-888-LUCENT8 (582-3688)  
Prompt 2

**LUCENT TECHNOLOGIES PROPRIETARY**

This document contains proprietary information of Lucent Technologies and is not to be disclosed or used except in accordance with applicable agreements.

Copyright© 1997 Lucent Technologies. All Rights Reserved.

This material is protected by the copyright laws of the United States and other countries. It may not be reproduced, distributed, or altered in any fashion by any entity (either internal or external to Lucent Technologies), except in accordance with applicable agreements, contracts or licensing, without the express written consent of the TS R&D Information Development Organization and the business management owner of the material.

## Chapter 22

### Grow Trunk Subgroup Block - Feature 466

---

**Introduction** The number of words in the Trunk Subgroup (TSG) block translator is increased from 16 to 32 words and increases from 2-bits to 3-bits.

**In This Chapter** This chapter contains the following topics:

Topic	See Page
Introduction	22-1
In This Chapter	22-1
Advantages/Benefits	22-2
Background	22-2
Feature Description	22-2
Call Flow	22-2
Provisioning	22-2
Feature Implementation	22-2
Acronyms and Abbreviations	22-3

---

*Continued on next page*

## Grow Trunk Subgroup Block - Feature 466, Continued

---

**Advantages/  
Benefits**

To allow for new features that require data stored per TSG, the number of words in the TSG translator must be increased from 16 to 32 words. Currently the structure only has a few scattered spare bits.

---

**Background**

The TSG block translator stores call processing data for all TSGs.

---

**Feature  
Description**

This feature will increase the TSG block translator by six words. Six new TSG block words are being defined for call processing. The six new TSG words added will be copied into the Call Register (CR) for Incoming Trunk (ICT) and Outgoing Trunk (OGT). These new words will be placed adjacent to the existing ICT TSG and OGT TSG words, respectively.

---

**Call Flow**

Call Flow is not impacted by this feature.

---

**Provisioning**

There are no Recent Change (RC) or Office Data Assembler (ODA) forms impacted by this feature.

---

**Feature  
Implementation**

For 4E21 to 4E22 retrofits, Office Database Management System (ODMS) should insure that the 4E21 2-bit items map to the correct 4E22 3-bit items to accommodate this feature.

When retrofitting from 4E21 to 4E22, ODMS should insure that the 4E21 16-word TSG Block is copied to the first 16 words of the 4E22 32-word TSG block.

---

*Continued on next page*

---

## Grow Trunk Subgroup Block - Feature 466, Continued

---

**Acronyms and  
Abbreviations**

The following are meanings of acronyms and abbreviations used throughout this document:

<b>Terms</b>	<b>Meanings</b>
CR	Call Register
ICT	Incoming Trunk
ODA	Office Data Assembler
OGT	Outgoing Trunk
ODMS	Office Database Management System
RC	Recent Change
TSG	Trunk Subgroup

---



## **SELF CHECK**

### **Chapter 22**

#### **Grow Trunk Subgroup Block - Feature 466**

1. List the advantage of this feature:

---

2. How many words are increased in the Trunk Subgroup (TSG) translator?

---

3. What data is store in the TSG block translator?

---





# **G Answers for Self Checks**

## **4ESS<sup>TM</sup>-2000 Switch 4E22 Generic Transition Document**

234-090-050  
Issue 1.0  
March 1997

Lucent Technologies - Proprietary  
See notice on the following page

234-090-050  
4ESS™-2000 Switch 4E22 Generic Transition Document

Issue 1.0

March 1997

Developed by  
Lucent Technologies  
Network Systems/TS R&D Information Development

Lucent Product Training 1-888-LUCENT8 (582-3688)  
Prompt 2

### **LUCENT TECHNOLOGIES PROPRIETARY**

This document contains proprietary information of Lucent Technologies and is not to be disclosed or used except in accordance with applicable agreements.

Copyright© 1997 Lucent Technologies. All Rights Reserved.

This material is protected by the copyright laws of the United States and other countries. It may not be reproduced, distributed, or altered in any fashion by any entity (either internal or external to Lucent Technologies), except in accordance with applicable agreements, contracts or licensing, without the express written consent of the TS R&D Information Development Organization and the business management owner of the material.

**234-090-050**

**4ESS™-2000 Switch 4E22 Generic Transition Document**

**Table of Contents**

---

	<b>TAB</b>
<b>Answers for Self Checks .....</b>	<b>G</b>

---



# ANSWERS TO SELF CHECK

## Chapter 1

### Number Portability - Feature 450

1. List an advantage of the Number Portability (NP) feature:

**Local loop competition**

2. List and define the four new fields on the RC 100 form associated with this feature:

**CBN - Incoming trunk connecting network access billing option**

**CBN DIGS - Incoming Trunk TSG connecting network access billing number digits**

**LRN - Local Routing Number which identifies a Local Service Provider (End Office)**

**SPN - Signal Ported Number outgoing TSG indicator which is used when the destination switch is not NP capable**

3. What happens to a call if the switch serving the calling subscriber does not have the NP capability?
  - a. The call does not complete.
  - b. The call is routed to a tandem switch which is NP capable.**
  - c. The call is routed to a recorded announcement.

4. List three Recent Change (RC) forms required for call processing:

**RC 100 - Trunk Subgroup Characteristics**

**RC 500 - Routing Data Block**

**RC 345 - AIN Trigger**

5. Which Recent Change form is required to add a new Type of Service (TOS) for this feature?

**RC 626 - Type of Service to Dialed Code Mapping**

6. Which database must be provisioned with the signal ported numbers?

**The Number Portability Database**

7. What is the name of the new trigger for NP?

**Number Portability (NP) Called Number Trigger (CNT)**

## **ANSWERS TO SELF CHECK**

### **Chapter 2**

#### **Carrier Identification Parameter Trunk Subgroup Increase Feature 480**

1. List the advantage of this feature:

**This feature increases the number of CICs to 63 per each trunk subgroup.**

2. Which Recent Change (RC) form is used to enter the Carrier Identification Code (CIC) data?

**RC 113 - Replace Carrier Identification Code List**

3. Does this feature require that a purchase bit be assigned for each office?

**Yes**

# **ANSWERS TO SELF CHECK**

## **Chapter 3**

### **Served Numbering Plan Area Expansion and Home Numbering Plan Area Improvements - Feature 4839**

1. List the two advantages of this feature:

**Doubles the number of domains in the switch**

**Moves and reorders the Plain Old Telephone Services (POTS) subdomains from locations 1 through 19 to locations 1919 and greater in preparation for future features**

2. What is the new numeric domain for the Served Numbering Plan Area (NPA) 1?

**196**

3. Will the data structures affected by this feature automatically be converted at retrofit time?

**Yes**

## **ANSWERS TO SELF CHECK**

### **Chapter 4**

#### **LEC Office Data Assembler Manager (ODAMANger) - Feature 482**

1. List three advantages of this feature:

**Electronic 1Bfile transfer**

**Electronic Traffic Data Acquisition System (TDAS) file transfer**

**Quiet time and retrofit interval reduction by 1 week**

**Centralized storage of 1Bfiles**

**1Bfile backup in case of 1Bfile corruption**

**Reduction in operational costs**

**In case of lost data-link tape drive will be used as backup**

**Electronic transfer of Circuit Assignment Record Transfer System (CARTS) data for Connect VU to ODAMANger**

2. What are the two feature dependencies associated with this feature?

**Office Data Assembler Datalinking - Phase 1 (Feature 4053)**

**ODA Datalinking Software Tool Enhancements (Feature 5704)**

3. Is the VIR Modem Eliminator (ME) supplied by the customer or Lucent Technologies?

**Customer**

4. Are there any Recent Change (RC) or Office Data Assembler (ODA) forms impacted by this feature?

**No**

5. How much time is streamlined in the quiet period?

**1 week**

# ANSWERS TO SELF CHECK

## Chapter 5

### XTSI DS1 Performance Monitoring on DS3 Facilities - Feature 452

1. List the advantages of this feature.

**Enhances the monitoring capabilities on DS1 facilities, contained within the DS3 “pipes” terminating on the TSI.**

2. What Recent Change (RC) forms are required to activate these features?

**RC 664 form is required to set the threshold parameters**  
**RC 809 form is required to activate the feature bit.**

**(The default setting for the thresholds is zero. Therefore, if you do not assign the threshold setting, the software will use the default. This will result in all failures being reported by the performance monitoring system. By inputting the RC 664 form first, you will alleviate this problem.)**

3. How do you revert back to the old DS1 performance monitoring system?

**Once this feature is activated it cannot be disabled. Therefore, ensure that you need DS3 network performance monitoring before activating this feature.**

4. Identify the three DS1 performance monitoring parameters:

**DS1 path related failures (both SF/ESF)**  
**DS1 path related parameters for near end**  
**DS1 path related parameters for the far end (ESF format only)**

5. What are the two sets of DS1 performance monitoring thresholds?

**15-minute counts**  
**24-hour counts**

6. What is the reference number for the XTSI Software Update Tools User guide?

**234-160-202**

# **ANSWERS TO SELF CHECK**

## **Chapter 6**

### **XTSI Checksum Macro - Feature 473**

1. List the advantage of this feature:

**This feature provides the capability to verify that the file has been copied correctly.**

2. What type of macro was added to the copy command?

**Checksum verification macro.**

3. How do you implement this feature?

**By installing the new Electronically Programmed Read Only Memory (EPROM) in the UN548 circuit pools.**

## **ANSWERS TO SELF CHECK**

### **Chapter 7**

#### **XTSI Static A/B Bit Option (2-Wire) - Feature 487**

1. List the advantage of this feature:

**This feature allows a 2-wire office to be terminated on the XTSI frame.**

2. Which Recent Change (RC) form is used to set the A/B bit?

**RC 707**

3. What are the valid entries for the static A/B field?

**Valid entries are Y and N (N is the default)**

# ANSWERS TO SELF CHECK

## Chapter 8

### XTSI Input/Output Message Specification - Feature 5111

1. List two advantages of this feature:

Eliminates any potential confusion between TSI/XTSI I/O messages

Eliminate any potential confusion between TSI/XTSI warnings and alarms

Improves quality of service

Improves productivity in the field

2. Will this feature impact service productivity?

Yes, this feature will reduce the time and effort to sort out which messages belong to which equipment.

3. What is the course number for the Local Exchange Carrier (LEC) version of the XTSI Advanced Maintenance Course?

ES4846 4ESS Switch 2000 XTSI Advanced Maintenance for LECs.

# ANSWERS TO SELF CHECK

## Chapter 9

### XTSI Software Update Tool Feature - Feature 5113

1. List two advantages of this feature:

Automates the “Software Update Procedures

Reduces the risk of Installation errors

Reduces software update time

Improves productivity

Requires minor intervention, in most cases, when a problem arises and identifies the point of failure.

2. How many commands does the maintenance personnel input to update the XTSI software?

One command is all that is necessary. The menu-driven command sequentially executes the necessary 4ESS input messages.

3. List the feature dependency associated with this feature:

Feature 473 - Checksum Macro

# **ANSWERS TO SELF CHECK**

## **Chapter 10**

### **XTSI Service Control After Two DS3s Fail - Feature 5131**

1. List the advantages of this feature.

**Gives the switch owner the ability to choose which service group continues providing service via the spare and which service group is to remain out of service.**

2. How is this feature activated?

**By using the "Select for Service" option in the XTSI frame.**

3. What is the reference number for XTSI Software Update Tools User guide?

**234-160-202**

# ANSWERS TO SELF CHECK

## Chapter 11

### XTSI Rapid Restore - Feature 5505

1. List the advantage of this feature:

**Expands the Rapid Restore capability to include the XTSI thereby providing an indication of which XTSI components are “down” and the root cause and provide a simple command to restore all eligible out-of-service components unconditionally.**

2. What is the new command to rapidly restore XTSI equipment?

**RST:XTSI x,{ALLD3U\ALLSPU\ALLPSC};UCL!**

3. What is the reference number for the XTSI Software Update Tool Users guide?

**234-160-202**

# **ANSWERS TO SELF CHECK**

## **Chapter 12**

### **Service Circuit Systems Automatic Speech Recognition Phase 2 - Feature 4801**

1. List the advantages of this feature.

**Reduces quantity of equipment necessary to provide speech recognition.**

2. What is the architecture used to support software updates?

**Announcement System Manager (ASM) Plus.**

3. How many Automatic Speech Recognition (ASR) channels are supported with the new Customer Data Service Cabinet II (CDSC II)?

**240**

4. What is the reference number for the Service Circuit System (SCS) maintenance documents?

**234-151-077**

5. List the Recent Change (RC) forms impacted by this feature.

**RC200**

**RC203**

**RC703**

# **ANSWERS TO SELF CHECK**

## **Chapter 13**

### **Service Circuit Systems Software Update Tool - Feature 5563**

1. List the advantages of this feature.

**Auto Software Update Process**

**Reduce the Risk of Errors**

**Notify field maintenance personnel of failures**

**Includes point of failures**

**Require substantial intervention only if a failure occurs**

2. How is the Service Circuit Systems (SCS) Software Update (SU) Tool executed?

**The SCS SU Tool is executed from a 3B work center.**

3. What is the reference number for the SCS Growth/Degrowth document?

**234-153-060 Procedure NTP007**

4. Is the SCS designed to be activated while in service or out-of-service?

**Out-of-service**

# **ANSWERS TO SELF CHECK**

## **Chapter 14**

### **MUP Firmware Update - Feature 469**

1. List the advantage of this feature:

**Updates the MUP display pages.**

2. What is the number of the new circuit pack replacing the existing KLW116 circuit pack?

**KLW216 Circuit Pack**

3. Which Master Control Console (MCC) Pages are impacted by this feature?

**Page 100**

**Page 108**

**New Page 111**

**Page 118**

4. What are the three feature dependencies associated with this feature?

**Feature 5013 1B Tape Unit Elimination**

**Feature 474 MCC Alarm Enhancement**

**Feature 5111 XTSI Enhancement**

5. What is the name of the new and revised MCC critical indicators?

**New - Switch Processing Platform (SPP)**

**Revised - Interface Bus/Auxiliary Unit (IF/AU)**

# **ANSWERS TO SELF CHECK**

## **Chapter 15**

### **LEC Master Control Console Alarm Enhancement - Feature 474**

1. List the advantage of this feature:

**Provides a user friendly way of detecting system problems.**

2. What are the two new Master Control Console (MCC) visual indicators?

**Rollback Area Capacity Warning**  
**Memory Recovery Phase**

3. What MCC Page is impacted by this feature?

**MCC Page 108 will include poke 809 (Clear Memory Phase Recovery)**

4. What is the feature dependency for this feature?

**Feature 469 - MCC Utility Processor (MUP) Firmware Upgrade**

# **ANSWERS TO SELF CHECK**

## **Chapter 16**

### **Program Store Expansion - Feature 3333**

1. List the advantage of this feature:

**The storage of program text (software instruction) program store memory provides for faster execution time.**

2. What initiated the requirement for additional memory for PS data?

**The high volume of new customer features required new additional software instructions.**

3. There are two types of circuit packs impacted as a result of this feature:

**Central Control (CC) circuit pack modification and Master Control Console (MCC) and Utility Processor (MUP) pack replacement.**

4. Which MCC Status Page has been enhanced to accommodate this feature:

**MUP based MCC Processor Status**

# ANSWERS TO SELF CHECK

## Chapter 17

### 1B Processor Tape Unit Elimination - Feature 5013

1. List the advantage of this feature:

**The Trouble Locating Procedure (TLP) database is loaded on disk for faster access.**

2. Where are the functions previously performed on the Data Unit Selector/Tape Unit Controller (DUS/TUC) unit being located to?

**3B Attached Processor System (APS)**

3. Which page shows the list of the 1B DUS/TUC functional replacement?

**Page 15-3**

4. Which Master Control Console (MCC) pages are impacted by this feature?

**EAI Screen**

**Page 108**

**Page 118**

**Page 119**

5. What is the reference number for the 4ESS switch 1B Processor Growth/Degrowth document?

**234-353-010**

# ANSWERS TO SELF CHECK

## Chapter 18

### Direct Link Note Integrated Ring Note No. 2 Upgrade - Feature 4694

1. List the advantage of this feature:

This feature increases the Signaling System 7 (SS7) message handling capacity on the 4E DLN.

2. What is the name of the new processor for the Direct Link Node-Node Processor (DLN-NP)?

IRN2 (Intel 80386) Processor

3. Are there any Recent Change (RC) or Office Data Assembler (ODA) forms impacted as a result of this feature?

No

4. How will the new processor be grown into the DLN-NP processors?

They will be grown one at a time, with no interruption of call processing.

5. What is the reference number of the Common Network Interface Growth/Degrowth document?

234-153-005AC

# **ANSWERS TO SELF CHECK**

## **Chapter 19**

### **Attached Processor Interface Capacity Improvements - Feature 5003**

1. List one of the advantages of this feature:

**Frees up resources so they can be reused to support the increase in call handling capacity.**

2. Will the ISDN User Part (ISUP) message formatting software in the Direct Link Node Enhanced (DLNE) be modified to handle the original and new short ISUP message formats?

**Yes**

3. Which Recent Change (RC) form will be used to activate this feature?

**RC 809-Change Feature Bit**

4. What is the feature dependency for this feature?

**Feature 4694, IRN2 Upgrade for DLNE**

# **ANSWERS TO SELF CHECK**

## **Chapter 20**

### **Call Register Restructure - Feature 444**

1. List the advantage of this feature:

**Provide additional memory for the storage of data required for advanced call processing features.**

2. What data is moved from the Call Register (CR) to free up memory?

**Call Register Integrated Services Digital Network (CRIB) data, Transaction Capabilities Application Part (TCAP) queries**

3. What are the two new data structures for this feature?

**ISDN Register (IR) data structure**  
**Test Query Register (TQR) data structure**

# **ANSWERS TO SELF CHECK**

## **Chapter 21**

### **Extended Address Complete Message (ACM) Timer for Signaling System 7 (SS7) - Feature 461**

1. List the three advantages of this feature:

**Allows ACM timer to be set to either 20 or 25 seconds.**

**Allows longer set-up time**

**Minimizes lost calls**

2. When is the Address Complete Message (ACM) sent?

**If the call is successful, the last ISDN User Part (ISUP) office returns an ACM and connects the Incoming Trunk (ICT) to the Outgoing Trunk (OGT)**

3. Which Recent Change (RC) form is used to activate this feature?

**RC809 - Change Feature Bit**

# **ANSWERS TO SELF CHECK**

## **Chapter 22**

### **Grow Trunk Subgroup Block - Feature 466**

1. List the advantage of this feature:

**The number of words is being increased to allow for new call features.**

2. What data is stored in the Trunk Subgroup (TSG) block translator?

**Call processing data**

3. How many words are increased in the TSG translator?

**The TSG translator is increased from 16 to 32 words.**