

# PRELIMINARY

**Bell System Voice Communications  
TECHNICAL REFERENCE**

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**Direct Output Data  
Formats for Station  
Message Detail  
Recording Feature  
on Dimension <sup>®</sup>  
PBXs**

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**April 1977**

**ENGINEERING DIRECTOR – CUSTOMER EQUIPMENT SYSTEMS**



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## TECHNICAL REFERENCE

### DIRECT OUTPUT DATA FORMATS FOR STATION MESSAGE DETAIL RECORDING FEATURE ON DIMENSION<sup>®</sup> PBXS

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DIRECT OUTPUT DATA FORMATS FOR STATION MESSAGE  
DETAIL RECORDING FEATURE ON DIMENSION<sup>®</sup> PBXS

1. INTRODUCTION

1.1 Scope

The purpose of this document is to provide a technical description of the call detail data formats supplied to the serial interface of the direct output version of the Station Message Detail Recording (SMDR) feature in the Bell System Dimension family of customer switching systems. In addition, the interface to customer-provided terminal equipment is described. The call detail data can be used by non-Bell System firms to produce periodic reports for Dimension subscribers of their telephone usage.

The call detail data available at the interface can be used to produce immediate hard-copy call detail reports, or the data can be stored in low-capacity storage media (e.g., paper tape or magnetic tape cartridge) for later use in off-line processing and creation of periodic reports on telephone usage. This document is based upon the best data and engineering judgment available at this time and is subject to change when circuit or software improvements are introduced.

Section 2 of this document provides information on the data stream available at the serial data interface for each call record. Section 3 provides a mechanical description of the equipment provided for the interface. Section 4 describes the various responsibilities of those involved with the SMDR feature. Section 5 describes requirements regarding maintenance of service.

## 1.2 System Description

The SMDR feature produces a record for customer use of many types of incoming and outgoing calls handled by the associated Dimension PBX. The feature is implemented by an auxiliary processor that receives call information from the Dimension PBX via a data channel. The processor assembles the call information and provides it as output on one of several optional terminal devices. This technical reference contains information on the call data format provided through an EIA RS232C Serial interface. An alternative system stores data on a nine-track magnetic tape. The data format for the nine-track tape is described in Technical Reference PUB 42705. The amount of call data produced which depends upon the traffic handled by the Dimension PBX should influence the type of equipment selected to be connected to the serial data interface. The Telephone Company should be contacted for information relating to data capacity of the interface and terminals.

The specific list of call types for which call detail information is to be supplied is under control of the PBX attendant and may be modified by the attendant at any time. A trunk access code or attendant identification code, which is part of the record for each call, identifies the type of circuit used for the call. Since these codes are flexible and may differ from one installation to another, the customer should be contacted for detailed code information. If the record processing is to include estimates of the charges for the calls, rate information, if desired, should be supplied to the customer by the Telephone Company. Note, however, that because the SMDR feature cannot exclude unanswered or busy calls, the output is not a billing record.

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2. FEATURE DESCRIPTION

2.1 Serial Data Stream

The SMDR feature provides a comprehensive call record for all outgoing central office, tie trunk, CCSA and WATS calls and all incoming WATS, CCSA, DID and tie trunk calls. The call detail data is encoded into a 7-bit ASCII serial data stream. The data stream is then made available at a connecting interface. The feature may be equipped with a printer or paper tape punch furnished by the Telephone Company or a terminal device provided by the customer.

Each character of the call detail information is transmitted by a universal asynchronous receiver transmitter through a standard EIA RS232C serial data driver. Each data character consists of 10-bits; the data bits are transmitted in the following order: 1 start bit, 7 data bits (7-bit ASCII), 1 parity bit for even parity, and 1 stop bit. The data is transmitted at a 300-baud data rate. The EIA driver operates between +12 and -12 volts dc and meets the requirements of EIA standard RS232C. The typical data format is shown in Table 1.

The call detail data sequences made available at the serial interface consist of call records, monitor code records and date records. Details of these sequences will be described next.

2.2 Call Record

The elements of a call record are illustrated in Figure 1. The call record provides all of the detailed information about the call. Examples of the various data items are shown in Table 2. All of the entries are generated in a binary-coded decimal format, except for the

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items otherwise noted below, and translated into standard ASCII codes for serial transmission:

- (a) The entries for hour and minute time-of-day for the end of a call are each two-digit items.
- (b) The call duration entries comprise a total of four digits, representing hour, minutes and tenths of minutes.
- (c) The condition code is a single character which categorizes the information represented in the call records. The following codes have been assigned:

<u>Condition Code</u>	<u>Description</u>
A	Attendant handled call.
B	Following an attendant-initiated change of the list of trunk access codes or attendant identification codes which are to be monitored for call details, a call record with this condition code is produced. This call record lists the trunk codes or attendant identification codes which are then being monitored. The list includes any newly initiated codes as well as all those previously active codes which have not been cancelled.
C	Following an attendant-initiated change of the list of trunk access codes or attendant identification codes which are to be monitored for call details, a call record with this condition code is also produced. This call record lists

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the trunk codes or attendant identification codes which are no longer being monitored.

- D A call record is produced for a call with a duration of 10 hours and continuing. On such an extremely long call, a standard call record, but with maximum duration entry and with this condition code, is produced after the first 10-hour period; a similar call record with this condition code is produced after each succeeding 10-hour period. When the call does terminate, a final call record is produced showing the duration beyond the 10-hour segments.
- E System maintenance check. This call record should be ignored in call data compilation.
- F System maintenance check. This call record should be ignored in call data compilation.
- G This condition code is used to identify calls served by the Automatic Route Selection (ARS) feature.
- H This condition code is used to identify calls which have been served on a delayed basis via the Outgoing Trunk Queuing feature.
- I Incoming call.
- Blank Outgoing call.
- L Six-way conference call. A separate call record with this condition code is produced for each outgoing call portion of a conference connection.

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- (d) Two 3-digit access codes are provided. These access code entries are used only on outgoing calls; therefore, access code entries for an incoming call contains blank characters, which are each represented by the space character, binary 0100000. On an outgoing call, the first access code entry contains the access code number which the user dialed. The second access code entry contains the code of the trunk actually used for the call if different from the user-dialed access code; otherwise the entry contains blank characters. The second code, therefore, identifies if route advance has taken place on the call. Access code entries are right-justified.
- (e) The dialed number can contain up to 15 digits total. The dialed number is right-justified. The space character, binary 0100000, is transmitted for a blank character.
- (f) The calling number entry contains the station number on outgoing calls, the attendant identification code on incoming calls that use one-way incoming trunks, and the trunk access code on incoming calls that use two-way trunks. The calling number entry contains up to four digits, which are left-justified, with any blanks represented by the space character, binary 0100000.

2.3 Annotated Examples of Call Records

In order to further clarify the format of the various data items within a call record, a series of specific call record examples has

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been provided (Figures 2 through 10). These examples illustrate a variety of different call situations along with the call detail data as it would be presented in the serial data stream.

Figure 11 provides a summary listing of the example call details.

Whenever a change is made to the list of trunk group access codes or attendant identification codes for which call details are being recorded, a pair of call records are produced which document the new status: One call record (Condition Code = B) lists those codes now being monitored, and the second call record (Condition Code = C) lists those codes not being monitored. Figure 12 illustrates the format for listing access codes in a call record. A call record can accommodate up to eight trunk group access codes or attendant identification codes; if more codes need to be listed, additional call records are used.

Figures 13 and 14 provide specific examples of call records produced after an attendant-initiated change of the list of codes to be monitored.

### 2.4 Sample Data Paper Punch Tape

A sample punched paper tape which contains call information as generated by the SMDR equipment is available from the Telephone Company. Figure 15 shows a printout of the call information contained on the sample tape. This can be used by the customer to verify that the off-line data processing is working correctly.

### 2.5 Date Record

The elements of a date record are illustrated in Figure 16. The date record provides data on the month and day on which the call records

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that follow in the serial data stream were produced. A date record is automatically generated at the beginning of every new day (i.e., every 24 hours); a date record may also be initiated manually via a push-button switch on the clock display, which is mounted in the front door of the cabinet. The date is generated in a binary-coded decimal format and translated into standard ASCII codes for serial transmission.

Examples of the various data items are provided in Table 3. The month and day entries are each two-digit items.

3. EQUIPMENT INTERFACE

Three interface connectors are provided on the SMDR for interfacing the serial data channel to a customer-provided output terminal device. The three connectors are designated options SX01, SX02 and SX03, and are defined in Table 4. The customer shall select the proper connector option to be used with the terminal device, and the Telephone Company will provide the required cable between the SMDR equipment and the customer-provided terminal device. The cable is equipped with an EIA RS232C type connector (DB-25-S) for interfacing the customer-provided terminal device. This customer-provided terminal option is ordered as USOC 2DW or 2XW, Dimension 400 and Dimension 2000 PBXs, respectively.

4. SERVICE RESPONSIBILITIES

4.1 Responsibility of the Customer

For systems requiring off-line processing of data, the customer is responsible for the following:

- (a) Supplying all information used for the generation of telephone activity reports such as trunk access codes and billing rates to be used.

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- (b) Obtaining desired information from the Telephone Company for the use of the data processing supplier.
- (c) Informing the Telephone Company of any failures associated with the SMDR feature.
- (d) All maintenance and service of customer-provided equipment.
- (e) Routine upkeep of terminal provided by the Telephone Company. For the paper tape punch, this includes obtaining replacement tape, labeling tapes sent to the software supplier, periodic cleaning of the tape punch, removing overflow from the chaff collection box, and changing paper tape as necessary.

In systems producing hard-copy reports, the customer is responsible for the following:

- (a) All maintenance and service of customer-provided equipment.
- (b) Routine upkeep of terminals provided by the Telephone Company. For the printer, this includes obtaining replacement paper, periodic cleaning of the printer, and changing paper as necessary.

4.2 Responsibility of Telephone Company

- (a) Provide information to customer upon request such as trunk access code assignments and billing rates which may be needed by the customer for use with SMDR service.
- (b) Maintain and repair all equipment which has been provided by the Telephone Company to provide the SMDR feature.
- (c) Provide the connector-ended cable to interface the customer-provided terminal device and the SMDR equipment.

4.3 Responsibility of the Software Supplier

For systems requiring off-line processing, the supplier of data processing software or periodic customer reports based on this software is responsible for the following:

- (a) Reaching an agreement with the customer on the format of periodic reports to be provided by the supplier based on paper tapes provided by the customer.
- (b) Providing operating instructions to the customer if software is supplied directly to the customer for use by the customer in generating his own reports.
- (c) Maintaining a record of and proper labeling of paper tapes being handled for a customer to insure accurate reporting of each customer's telephone activity.
- (d) All liabilities arising out of the use, offering and distribution of periodic telephone activity reports by supplier.

5. MAINTENANCE OF SERVICE

Except for items shown under paragraph 4.1, all maintenance of all equipment supplied by the Telephone Company shall be done only by the Telephone Company.

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APPENDIX A

GLOSSARY

ASCII - American Standard Code for Information Interchange

ATTENDANT - The telephone subscriber employee who is responsible for operation of the PBX console.

ATTENDANT IDENTIFICATION CODE - A one-, two-, or three-digit number used by the Dimension PBX to identify a trunk group which is dial-accessible by the attendant but not by the PBX stations.

AUTOMATIC ROUTE SELECTION - A feature of the Dimension PBX which provides automatic routing of outgoing calls over alternative facilities based on the dialed number.

DIMENSION PBXS - A family of Bell System private branch exchanges which employ time-division switching under stored program control.

EIA - Electronic Industries Association

OUTGOING TRUNK QUEUING - A feature of the Dimension PBX which permits a station user to dial a busy outgoing trunk group, be automatically placed in a queue, and be called back when a trunk in the group is available.

ROUTE ADVANCE - A feature of the Dimension PBX which permits a call to be handled via an alternate trunk group if the trunk group associated with the dialed trunk access code were found with no idle circuits.

TRUNK ACCESS CODE - A one-, two-, or three-digit number dialed by PBX station users to gain access to a group of outgoing trunks.

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APPENDIX B

REFERENCES

- \*1. AT&T Technical Reference PUB 42705, Recorded Magnetic Tape Data Formats for Station Message Detail Recording Feature on Dimension PBXs.
2. EIA Standard RS232C, Interface Between Data Terminal Equipment and Data Communication Equipment Employing Serial Binary Data Interchange, Engineering Department, Electronic Industries Association, August 1969.

\* This reference can be purchased by writing:

American Telephone and Telegraph Company  
Supervisor - Information Distribution Center  
60 Kingsbridge Road  
Piscataway, New Jersey 08854

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CHARACTER	7	BIT	1
00		SPACE	
01		SPACE	
02		SPACE	
03		SPACE	
04		TIME-HOUR TENS	
05		TIME-HOUR UNITS	
06		COLON	
07		TIME-MINUTE TENS	
08		TIME-MINUTE UNITS	
09		SPACE	
10		DURATION-HOUR	
11		COLON	
12		DURATION-MINUTE TENS	
13		DURATION-MINUTE UNITS	
14		PERIOD	
15		DURATION-MINUTE TENTHS	
16		SPACE	
17		CONDITION CODE	
18		SPACE	
19		ACCESS CODE #1 -1	
20		ACCESS CODE #1 -2	
21		ACCESS CODE #1 -3	
22		SPACE	
23		ACCESS CODE #2 -1	
24		ACCESS CODE #2 -2	
25		ACCESS CODE #2 -3	
26		SPACE	
27		DIALED NUMBER -1	
28		DIALED NUMBER -2	
29		DIALED NUMBER -3	
30		DIALED NUMBER -4	
31		DIALED NUMBER -5	
32		HYPHEN	
33		DIALED NUMBER -6	
34		DIALED NUMBER -7	
35		DIALED NUMBER -8	
36		HYPHEN	
37		DIALED NUMBER -9	
38		DIALED NUMBER -10	
39		DIALED NUMBER -11	
40		HYPHEN	
41		DIALED NUMBER -12	
42		DIALED NUMBER -13	
43		DIALED NUMBER -14	
44		DIALED NUMBER -15	
45		SPACE	
46		SPACE	
47		SPACE	
48		CALLING NUMBER -1	
49		CALLING NUMBER -2	
50		CALLING NUMBER -3	
51		CALLING NUMBER -4	
52		SPACE	
53		SPACE	
54		ACCOUNT CODE -1	
55		ACCOUNT CODE -2	
56		ACCOUNT CODE -3	
57		ACCOUNT CODE -4	
58		ACCOUNT CODE -5	
59		CARRIAGE RETURN	
60		LINE FEED	
61		NULL	
62		NULL	
63		NULL	

↑  
SERIAL  
DATA  
STREAM

FIGURE 1. Call Record Format

CHARACTER	BIT		
	7	5	4
00	SPACE		
01	SPACE		
02	SPACE		
03	SPACE		
04	TIME-HOUR TENS		
05	TIME-HOUR UNITS		
06	COLON		
07	TIME-MINUTE TENS		
08	TIME-MINUTE UNITS		
09	SPACE		
10	DURATION-HOUR		
11	COLON		
12	DURATION-MINUTE TENS		
13	DURATION-MINUTE UNITS		
14	PERIOD		
15	DURATION-MINUTE TENTHS		
16	SPACE		
17	CONDITION CODE		
18	SPACE		
19	ACCESS CODE #1 -1		
20	ACCESS CODE #1 -2		
21	ACCESS CODE #1 -3		
22	SPACE		
23	ACCESS CODE #2 -1		
24	ACCESS CODE #2 -2		
25	ACCESS CODE #2 -3		
26	SPACE		
27	DIALED NUMBER -1		
28	DIALED NUMBER -2		
29	DIALED NUMBER -3		
30	DIALED NUMBER -4		
31	DIALED NUMBER -5		
32	HYPHEN		
33	DIALED NUMBER -6		
34	DIALED NUMBER -7		
35	DIALED NUMBER -8		
36	HYPHEN		
37	DIALED NUMBER -9		
38	DIALED NUMBER -10		
39	DIALED NUMBER -11		
40	HYPHEN		
41	DIALED NUMBER -12		
42	DIALED NUMBER -13		
43	DIALED NUMBER -14		
44	DIALED NUMBER -15		
45	SPACE		
46	SPACE		
47	SPACE		
48	CALLING NUMBER -1		
49	CALLING NUMBER -2		
50	CALLING NUMBER -3		
51	CALLING NUMBER -4		
52	SPACE		
53	SPACE		
54	ACCOUNT CODE -1		
55	ACCOUNT CODE -2		
56	ACCOUNT CODE -3		
57	ACCOUNT CODE -4		
58	ACCOUNT CODE -5		
59	CARRIAGE RETURN		
60	LINE FEED		
61	NULL		
62	NULL		
63	NULL		

↑  
SERIAL  
DATA  
STREAM

CHARACTER	BIT			PRINTED CHARACTER
	7	5	4	
00	010	0000		
01	010	0000		
02	010	0000		
03	010	0000		
04	011	0001		1
05	011	0000		0
06	011	1010		:
07	011	0100		4
08	011	0011		3
09	010	0000		
10	011	0000		0
11	011	1010		:
12	011	0000		0
13	011	1001		9
14	010	1110		.
15	011	1001		9
16	010	0000		
17	010	0000		
18	010	0000		
19	010	0000		
20	010	0000		
21	011	1001		9
22	010	0000		
23	010	0000		
24	010	0000		
25	010	0000		
26	010	0000		
27	010	0000		
28	010	0000		
29	010	0000		
30	010	0000		
31	011	0001		1
32	010	1101		-
33	011	0011		3
34	011	0001		1
35	011	0111		7
36	010	1101		-
37	011	0010		2
38	011	0101		6
39	011	0101		5
40	010	1101		-
41	011	0111		7
42	011	1000		8
43	011	1001		9
44	011	0100		4
45	010	0000		
46	010	0000		
47	010	0000		
48	011	0110		6
49	011	0001		1
50	011	0001		1
51	011	0011		3
52	010	0000		
53	010	0000		
54	010	0000		
55	010	0000		
56	010	0000		
57	010	0000		
58	010	0000		
59	000	1101		
60	000	1010		
61	000	0000		
62	000	0000		
63	000	0000		

Call Type: Station-to-Outgoing Trunk  
 Time of Day: 10:43 a.m.  
 Call Duration: 9.9 Minutes  
 Condition Code: Blank  
 Trunk Group Access Code: 9 (No Route Advance)  
 Dialed Number: 1-317-265-7894  
 Calling Station Number: 6113  
 Account Code: None

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CALL RECORD FORMAT

FIGURE 2. Call Record Sample of Station-to-Outgoing Trunk

CHARACTER	7	BIT	1
00		SPACE	
01		SPACE	
02		SPACE	
03		SPACE	
04		TIME-HOUR TENS	
05		TIME-HOUR UNITS	
06		COLON	
07		TIME-MINUTE TENS	
08		TIME-MINUTE UNITS	
09		SPACE	
10		DURATION-HOUR	
11		COLON	
12		DURATION-MINUTE TENS	
13		DURATION-MINUTE UNITS	
14		PERIOD	
15		DURATION-MINUTE TENTHS	
16		SPACE	
17		CONDITION CODE	
18		SPACE	
19		ACCESS CODE #1 -1	
20		ACCESS CODE #1 -2	
21		ACCESS CODE #1 -3	
22		SPACE	
23		ACCESS CODE #2 -1	
24		ACCESS CODE #2 -2	
25		ACCESS CODE #2 -3	
26		SPACE	
27		DIALED NUMBER -1	
28		DIALED NUMBER -2	
29		DIALED NUMBER -3	
30		DIALED NUMBER -4	
31		DIALED NUMBER -5	
32		HYPHEN	
33		DIALED NUMBER -6	
34		DIALED NUMBER -7	
35		DIALED NUMBER -8	
36		HYPHEN	
37		DIALED NUMBER -9	
38		DIALED NUMBER -10	
39		DIALED NUMBER -11	
40		HYPHEN	
41		DIALED NUMBER -12	
42		DIALED NUMBER -13	
43		DIALED NUMBER -14	
44		DIALED NUMBER -15	
45		SPACE	
46		SPACE	
47		SPACE	
48		CALLING NUMBER -1	
49		CALLING NUMBER -2	
50		CALLING NUMBER -3	
51		CALLING NUMBER -4	
52		SPACE	
53		SPACE	
54		ACCOUNT CODE -1	
55		ACCOUNT CODE -2	
56		ACCOUNT CODE -3	
57		ACCOUNT CODE -4	
58		ACCOUNT CODE -5	
59		CARRIAGE RETURN	
60		LINE FEED	
61		NULL	
62		NULL	
63		NULL	

↑  
SERIAL  
DATA  
STREAM

CHARACTER	7	BIT	5	4	1	PRINTED CHARACTER
00		010			0000	
01		010			0000	
02		010			0000	
03		010			0000	
04		011			0001	1
05		011			0000	0
06		011			1010	:
07		011			0100	4
08		011			0100	4
09		010			0000	
10		011			0000	0
11		011			1010	:
12		011			0000	0
13		011			0101	5
14		010			1110	-
15		011			0001	1
16		010			0000	
17		010			0000	
18		010			0000	
19		010			0000	
20		011			1000	8
21		011			0001	1
22		010			0000	
23		010			0000	
24		011			1000	8
25		011			0010	2
26		010			0000	
27		010			0000	
28		010			0000	
29		010			0000	
30		010			0000	
31		011			0001	1
32		010			1101	-
33		011			0011	3
34		011			0001	1
35		011			0111	7
36		010			1101	-
37		011			0011	3
38		011			0101	5
39		011			0111	7
40		010			1101	-
41		011			0111	7
42		011			0001	1
43		011			1001	9
44		011			0010	2
45		010			0000	
46		010			0000	
47		010			0000	
48		011			0110	6
49		011			0001	1
50		011			1000	8
51		011			0001	1
52		010			0000	
53		010			0000	
54		010			0000	
55		010			0000	
56		010			0000	
57		010			0000	
58		010			0000	
59		000			1101	
60		000			1010	
61		000			0000	
62		000			0000	
63		000			0000	

Call Type: Station-to-Outgoing Trunk With Route Advance  
 Time of Day: 10:44 a.m.  
 Call Duration: 5.1 Minutes  
 Condition Code: Blank  
 Trunk Group Access Code: 81  
 Route Advance to Trunk Group Access Code: 82  
 Dialed Number: 1-317-357-7192  
 Station Number: 6181  
 Account Code: None

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CALL RECORD FORMAT

FIGURE 3. Call Record Example of Station-to-Outgoing Trunk With Route Advance

CHARACTER	BIT	
	7	1
00	SPACE	
01	SPACE	
02	SPACE	
03	SPACE	
04	TIME-HOUR TENS	
05	TIME-HOUR UNITS	
06	COLON	
07	TIME-MINUTE TENS	
08	TIME-MINUTE UNITS	
09	SPACE	
10	DURATION-HOUR	
11	COLON	
12	DURATION-MINUTE TENS	
13	DURATION-MINUTE UNITS	
14	PERIOD	
15	DURATION-MINUTE TENTHS	
16	SPACE	
17	CONDITION CODE	
18	SPACE	
19	ACCESS CODE #1 -1	
20	ACCESS CODE #1 -2	
21	ACCESS CODE #1 -3	
22	SPACE	
23	ACCESS CODE #2 -1	
24	ACCESS CODE #2 -2	
25	ACCESS CODE #2 -3	
26	SPACE	
27	DIALED NUMBER -1	
28	DIALED NUMBER -2	
29	DIALED NUMBER -3	
30	DIALED NUMBER -4	
31	DIALED NUMBER -5	
32	HYPHEN	
33	DIALED NUMBER -6	
34	DIALED NUMBER -7	
35	DIALED NUMBER -8	
36	HYPHEN	
37	DIALED NUMBER -9	
38	DIALED NUMBER -10	
39	DIALED NUMBER -11	
40	HYPHEN	
41	DIALED NUMBER -12	
42	DIALED NUMBER -13	
43	DIALED NUMBER -14	
44	DIALED NUMBER -15	
45	SPACE	
46	SPACE	
47	SPACE	
48	CALLING NUMBER -1	
49	CALLING NUMBER -2	
50	CALLING NUMBER -3	
51	CALLING NUMBER -4	
52	SPACE	
53	SPACE	
54	ACCOUNT CODE -1	
55	ACCOUNT CODE -2	
56	ACCOUNT CODE -3	
57	ACCOUNT CODE -4	
58	ACCOUNT CODE -5	
59	CARRIAGE RETURN	
60	LINE FEED	
61	NULL	
62	NULL	
63	NULL	

↑  
SERIAL  
DATA  
STREAM

CHARACTER	BIT		PRINTED CHARACTER
	7	5 4 1	
00	0 1 0	0 0 0 0	
01	0 1 0	0 0 0 0	
02	0 1 0	0 0 0 0	
03	0 1 0	0 0 0 0	
04	0 1 1	0 0 0 1	1
05	0 1 1	0 0 0 0	0
06	0 1 1	1 0 1 0	:
07	0 1 1	0 1 0 0	4
08	0 1 1	0 1 0 0	4
09	0 1 0	0 0 0 0	
10	0 1 1	0 0 0 0	0
11	0 1 1	1 0 1 0	:
12	0 1 1	0 0 0 1	1
13	0 1 1	0 0 0 1	1
14	0 1 0	1 1 1 0	.
15	0 1 1	0 1 0 1	5
16	0 1 0	0 0 0 0	
17	1 0 0	0 0 0 1	A
18	0 1 0	0 0 0 0	
19	0 1 0	0 0 0 0	
20	0 1 1	1 0 0 0	8
21	0 1 1	0 0 1 0	2
22	0 1 0	0 0 0 0	
23	0 1 0	0 0 0 0	
24	0 1 0	0 0 0 0	
25	0 1 0	0 0 0 0	
26	0 1 0	0 0 0 0	
27	0 1 0	0 0 0 0	
28	0 1 0	0 0 0 0	
29	0 1 0	0 0 0 0	
30	0 1 0	0 0 0 0	
31	0 1 0	0 0 0 0	
32	0 1 0	0 0 0 0	
33	0 1 1	0 0 1 1	3
34	0 1 1	0 0 0 0	0
35	0 1 1	0 0 1 1	3
36	0 1 0	1 1 0 1	-
37	0 1 1	0 1 0 0	4
38	0 1 1	0 1 0 1	5
39	0 1 1	0 0 0 1	1
40	0 1 0	1 1 0 1	-
41	0 1 1	0 0 0 1	1
42	0 1 1	1 0 0 0	8
43	0 1 1	0 1 0 1	5
44	0 1 1	0 1 1 1	7
45	0 1 0	0 0 0 0	
46	0 1 0	0 0 0 0	
47	0 1 0	0 0 0 0	
48	0 1 1	0 1 1 0	6
49	0 1 1	0 0 1 1	3
50	0 1 1	0 1 1 1	7
51	0 1 1	0 1 0 0	4
52	0 1 0	0 0 0 0	
53	0 1 0	0 0 0 0	
54	0 1 1	0 0 0 1	1
55	0 1 1	0 1 1 0	6
56	0 1 1	0 0 0 1	1
57	0 1 1	0 0 0 1	1
58	0 1 1	0 0 1 1	3
59	0 0 0	1 1 0 1	
60	0 0 0	1 0 1 0	
61	0 0 0	0 0 0 0	
62	0 0 0	0 0 0 0	
63	0 0 0	0 0 0 0	

Call Type: Outgoing Call Placed By Attendant and Charged to Account Code  
 Time of Day: 10:44 a.m.  
 Call Duration: 11.5 Minutes  
 Condition Code: A  
 Trunk Group Access Code: 82 (No Route Advance)  
 Dialed Number: 303-451-1857  
 Calling Station Number: 6374  
 Account Code: 16113

CALL RECORD FORMAT

FIGURE 4. Call Record Example of Outgoing Call Placed by Attendant and Charged to Account Code

PRELIMINARY

CHARACTER	BIT	
	7	1
00	SPACE	
01	SPACE	
02	SPACE	
03	SPACE	
04	TIME-HOUR TENS	
05	TIME-HOUR UNITS	
06	COLON	
07	TIME-MINUTE TENS	
08	TIME-MINUTE UNITS	
09	SPACE	
10	DURATION-HOUR	
11	COLON	
12	DURATION-MINUTE TENS	
13	DURATION-MINUTE UNITS	
14	PERIOD	
15	DURATION-MINUTE TENTHS	
16	SPACE	
17	CONDITION CODE	
18	SPACE	
19	ACCESS CODE #1 -1	
20	ACCESS CODE #1 -2	
21	ACCESS CODE #1 -3	
22	SPACE	
23	ACCESS CODE #2 -1	
24	ACCESS CODE #2 -2	
25	ACCESS CODE #2 -3	
26	SPACE	
27	DIALED NUMBER -1	
28	DIALED NUMBER -2	
29	DIALED NUMBER -3	
30	DIALED NUMBER -4	
31	DIALED NUMBER -5	
32	HYPHEN	
33	DIALED NUMBER -6	
34	DIALED NUMBER -7	
35	DIALED NUMBER -8	
36	HYPHEN	
37	DIALED NUMBER -9	
38	DIALED NUMBER -10	
39	DIALED NUMBER -11	
40	HYPHEN	
41	DIALED NUMBER -12	
42	DIALED NUMBER -13	
43	DIALED NUMBER -14	
44	DIALED NUMBER -15	
45	SPACE	
46	SPACE	
47	SPACE	
48	CALLING NUMBER -1	
49	CALLING NUMBER -2	
50	CALLING NUMBER -3	
51	CALLING NUMBER -4	
52	SPACE	
53	SPACE	
54	ACCOUNT CODE -1	
55	ACCOUNT CODE -2	
56	ACCOUNT CODE -3	
57	ACCOUNT CODE -4	
58	ACCOUNT CODE -5	
59	CARRIAGE RETURN	
60	LINE FEED	
61	NULL	
62	NULL	
63	NULL	

↑  
SERIAL  
DATA  
STREAM

CHARACTER	BIT		PRINTED CHARACTER
	7	5 4	
00	010	0000	
01	010	0000	
02	010	0000	
03	010	0000	
04	011	0001	1
05	011	0000	0
06	011	1010	:
07	011	0101	5
08	011	0100	4
09	010	0000	
10	011	0000	0
11	011	1010	:
12	011	0001	1
13	011	0101	5
14	010	1110	
15	011	0110	6
16	010	0000	
17	010	0000	
18	010	0000	
19	011	0000	
20	011	0000	
21	011	1001	9
22	010	0000	
23	010	0000	
24	010	0000	
25	010	0000	
26	010	0000	
27	010	0000	
28	010	0000	
29	010	0000	
30	010	0000	
31	010	0000	
32	010	0000	
33	010	0000	
34	010	0000	
35	010	0000	
36	010	0000	
37	011	0111	7
38	011	0110	6
39	011	0101	5
40	010	1101	-
41	011	0101	5
42	011	0111	7
43	011	0101	5
44	011	0001	1
45	010	0000	
46	010	0000	
47	010	0000	
48	011	0011	3
49	011	0111	7
50	011	0001	1
51	011	0001	1
52	010	0000	
53	010	0000	
54	010	0000	
55	010	0000	
56	010	0000	
57	010	0000	
58	010	0000	
59	000	1101	
60	000	1010	
61	000	0000	
62	000	0000	
63	000	0000	

Call Type: Station-to-Outgoing Trunk — Local Call  
 Time of Day: 10:54 a.m.  
 Call Duration: 15.6 Minutes  
 Condition Code: Blank  
 Trunk Group Access Code: 9 (No Route Advance)  
 Dialed Number: 765-5751  
 Calling Station Number: 3711  
 Account Code: None

CALL RECORD FORMAT

FIGURE 5. Call Record Example of Station-to-Outgoing Trunk — Local Call

PRELIMINARY

CHARACTER	BIT	
	7	1
00	SPACE	
01	SPACE	
02	SPACE	
03	SPACE	
04	TIME-HOUR TENS	
05	TIME-HOUR UNITS	
06	COLON	
07	TIME-MINUTE TENS	
08	TIME-MINUTE UNITS	
09	SPACE	
10	DURATION-HOUR	
11	COLON	
12	DURATION-MINUTE TENS	
13	DURATION-MINUTE UNITS	
14	PERIOD	
15	DURATION-MINUTE TENTHS	
16	SPACE	
17	CONDITION CODE	
18	SPACE	
19	ACCESS CODE #1 -1	
20	ACCESS CODE #1 -2	
21	ACCESS CODE #1 -3	
22	SPACE	
23	ACCESS CODE #2 -1	
24	ACCESS CODE #2 -2	
25	ACCESS CODE #2 -3	
26	SPACE	
27	DIALED NUMBER -1	
28	DIALED NUMBER -2	
29	DIALED NUMBER -3	
30	DIALED NUMBER -4	
31	DIALED NUMBER -5	
32	HYPHEN	
33	DIALED NUMBER -6	
34	DIALED NUMBER -7	
35	DIALED NUMBER -8	
36	HYPHEN	
37	DIALED NUMBER -9	
38	DIALED NUMBER -10	
39	DIALED NUMBER -11	
40	HYPHEN	
41	DIALED NUMBER -12	
42	DIALED NUMBER -13	
43	DIALED NUMBER -14	
44	DIALED NUMBER -15	
45	SPACE	
46	SPACE	
47	SPACE	
48	CALLING NUMBER -1	
49	CALLING NUMBER -2	
50	CALLING NUMBER -3	
51	CALLING NUMBER -4	
52	SPACE	
53	SPACE	
54	ACCOUNT CODE -1	
55	ACCOUNT CODE -2	
56	ACCOUNT CODE -3	
57	ACCOUNT CODE -4	
58	ACCOUNT CODE -5	
59	CARRIAGE RETURN	
60	LINE FEED	
61	NULL	
62	NULL	
63	NULL	

CHARACTER	BIT		PRINTED CHARACTER
	7	5 4	
00	010	0000	
01	010	0000	
02	010	0000	
03	010	0000	
04	011	0001	1
05	011	0000	0
06	011	1010	:
07	011	0101	5
08	011	1000	8
09	010	0000	
10	011	0000	0
11	011	1010	:
12	011	0000	0
13	011	0101	5
14	010	1110	
15	011	0011	3
16	010	0000	
17	010	0000	
18	010	0000	
19	010	0000	
20	011	1000	8
21	011	0011	3
22	010	0000	
23	010	0000	
24	010	0000	
25	010	0000	
26	010	0000	
27	010	0000	
28	010	0000	
29	010	0000	
30	010	0000	
31	010	0000	
32	010	0000	
33	010	0000	
34	010	0000	
35	010	0000	
36	010	0000	
37	010	0000	
38	010	0000	
39	010	0000	
40	010	0000	
41	010	0000	
42	011	0011	3
43	011	0001	1
44	011	1001	9
45	010	0000	
46	010	0000	
47	010	0000	
48	011	0110	6
49	011	0001	1
50	011	0001	1
51	011	0011	3
52	010	0000	
53	010	0000	
54	010	0000	
55	010	0000	
56	010	0000	
57	010	0000	
58	010	0000	
59	000	1101	
60	000	1010	
61	000	0000	
62	000	0000	
63	000	0000	

Call Type: Outgoing Tie Trunk Call Requiring 3-Digit Dialing of Station at Distant End  
 Time of Day: 10:58 a.m.  
 Call Duration: 5.3 Minutes  
 Condition Code: Blank  
 Trunk Group Access Code: 83 (No route advance)  
 Dialed Number: 319  
 Calling Station Number: 6113  
 Account Code: None

PRELIMINARY

CALL RECORD FORMAT

FIGURE 6. Call Record Example of Outgoing Tie Trunk Call

CHARACTER	BIT	
	7	1
00	SPACE	
01	SPACE	
02	SPACE	
03	SPACE	
04	TIME-HOUR TENS	
05	TIME-HOUR UNITS	
06	COLON	
07	TIME-MINUTE TENS	
08	TIME-MINUTE UNITS	
09	SPACE	
10	DURATION-HOUR	
11	COLON	
12	DURATION-MINUTE TENS	
13	DURATION-MINUTE UNITS	
14	PERIOD	
15	DURATION-MINUTE TENTHS	
16	SPACE	
17	CONDITION CODE	
18	SPACE	
19	ACCESS CODE #1 -1	
20	ACCESS CODE #1 -2	
21	ACCESS CODE #1 -3	
22	SPACE	
23	ACCESS CODE #2 -1	
24	ACCESS CODE #2 -2	
25	ACCESS CODE #2 -3	
26	SPACE	
27	DIALED NUMBER -1	
28	DIALED NUMBER -2	
29	DIALED NUMBER -3	
30	DIALED NUMBER -4	
31	DIALED NUMBER -5	
32	HYPHEN	
33	DIALED NUMBER -6	
34	DIALED NUMBER -7	
35	DIALED NUMBER -8	
36	HYPHEN	
37	DIALED NUMBER -9	
38	DIALED NUMBER -10	
39	DIALED NUMBER -11	
40	HYPHEN	
41	DIALED NUMBER -12	
42	DIALED NUMBER -13	
43	DIALED NUMBER -14	
44	DIALED NUMBER -15	
45	SPACE	
46	SPACE	
47	SPACE	
48	CALLING NUMBER -1	
49	CALLING NUMBER -2	
50	CALLING NUMBER -3	
51	CALLING NUMBER -4	
52	SPACE	
53	SPACE	
54	ACCOUNT CODE -1	
55	ACCOUNT CODE -2	
56	ACCOUNT CODE -3	
57	ACCOUNT CODE -4	
58	ACCOUNT CODE -5	
59	CARRIAGE RETURN	
60	LINE FEED	
61	NULL	
62	NULL	
63	NULL	

↑  
SERIAL  
DATA  
STREAM

CALL RECORD FORMAT

CHARACTER	BIT		PRINTED CHARACTER
	7	5 4	
00	0 1 0	0 0 0 0	
01	0 1 0	0 0 0 0	
02	0 1 0	0 0 0 0	
03	0 1 0	0 0 0 0	
04	0 1 1	0 0 0 1	1
05	0 1 1	0 0 0 1	1
06	0 1 1	1 0 1 0	:
07	0 1 1	0 0 0 0	0
08	0 1 1	0 1 0 1	5
09	0 1 0	0 0 0 0	
10	0 1 1	0 0 0 0	0
11	0 1 1	1 0 1 0	:
12	0 1 1	0 0 0 0	0
13	0 1 1	0 0 1 0	2
14	0 1 0	1 1 1 0	.
15	0 1 1	0 1 0 0	4
16	0 1 0	0 0 0 0	
17	1 0 0	1 0 0 1	1
18	0 1 0	0 0 0 0	
19	0 1 0	0 0 0 0	
20	0 1 0	0 0 0 0	
21	0 1 0	0 0 0 0	
22	0 1 0	0 0 0 0	
23	0 1 0	0 0 0 0	
24	0 1 0	0 0 0 0	
25	0 1 0	0 0 0 0	
26	0 1 0	0 0 0 0	
27	0 1 0	0 0 0 0	
28	0 1 0	0 0 0 0	
29	0 1 0	0 0 0 0	
30	0 1 0	0 0 0 0	
31	0 1 0	0 0 0 0	
32	0 1 0	0 0 0 0	
33	0 1 0	0 0 0 0	
34	0 1 0	0 0 0 0	
35	0 1 0	0 0 0 0	
36	0 1 0	0 0 0 0	
37	0 1 0	0 0 0 0	
38	0 1 0	0 0 0 0	
39	0 1 0	0 0 0 0	
40	0 1 0	0 0 0 0	
41	0 1 1	0 1 0 0	4
42	0 1 1	0 0 1 0	2
43	0 1 1	0 1 0 1	5
44	0 1 1	1 0 0 1	9
45	0 1 0	0 0 0 0	
46	0 1 0	0 0 0 0	
47	0 1 0	0 0 0 0	
48	0 1 1	0 1 1 1	7
49	0 1 0	0 0 0 0	
50	0 1 0	0 0 0 0	
51	0 1 0	0 0 0 0	
52	0 1 0	0 0 0 0	
53	0 1 0	0 0 0 0	
54	0 1 0	0 0 0 0	
55	0 1 0	0 0 0 0	
56	0 1 0	0 0 0 0	
57	0 1 0	0 0 0 0	
58	0 1 0	0 0 0 0	
59	0 0 0	1 1 0 1	
60	0 0 0	1 0 1 0	
61	0 0 0	0 0 0 0	
62	0 0 0	0 0 0 0	
63	0 0 0	0 0 0 0	

Call Type: Incoming Call Completed To Station  
 Time Of Day: 11.05 a.m.  
 Call Duration: 2.4 Minutes  
 Condition Code: 1 (Incoming Call)  
 Trunk Group Access Codes: None  
 Dialed Number: 4259  
 Attendant Identification Code: 7  
 Account Code: None

PRELIMINARY

FIGURE 7. Call Record Example of Incoming Call Completed to Station

CHARACTER	BIT		
	7	5	4
00	SPACE		
01	SPACE		
02	SPACE		
03	SPACE		
04	TIME-HOUR TENS		
05	TIME-HOUR UNITS		
06	COLON		
07	TIME-MINUTE TENS		
08	TIME-MINUTE UNITS		
09	SPACE		
10	DURATION-HOUR		
11	COLON		
12	DURATION-MINUTE TENS		
13	DURATION-MINUTE UNITS		
14	PERIOD		
15	DURATION-MINUTE TENTHS		
16	SPACE		
17	CONDITION CODE		
18	SPACE		
19	ACCESS CODE #1 -1		
20	ACCESS CODE #1 -2		
21	ACCESS CODE #1 -3		
22	SPACE		
23	ACCESS CODE #2 -1		
24	ACCESS CODE #2 -2		
25	ACCESS CODE #2 -3		
26	SPACE		
27	DIALED NUMBER -1		
28	DIALED NUMBER -2		
29	DIALED NUMBER -3		
30	DIALED NUMBER -4		
31	DIALED NUMBER -5		
32	HYPHEN		
33	DIALED NUMBER -6		
34	DIALED NUMBER -7		
35	DIALED NUMBER -8		
36	HYPHEN		
37	DIALED NUMBER -9		
38	DIALED NUMBER -10		
39	DIALED NUMBER -11		
40	HYPHEN		
41	DIALED NUMBER -12		
42	DIALED NUMBER -13		
43	DIALED NUMBER -14		
44	DIALED NUMBER -15		
45	SPACE		
46	SPACE		
47	SPACE		
48	CALLING NUMBER -1		
49	CALLING NUMBER -2		
50	CALLING NUMBER -3		
51	CALLING NUMBER -4		
52	SPACE		
53	SPACE		
54	ACCOUNT CODE -1		
55	ACCOUNT CODE -2		
56	ACCOUNT CODE -3		
57	ACCOUNT CODE -4		
58	ACCOUNT CODE -5		
59	CARRIAGE RETURN		
60	LINE FEED		
61	NULL		
62	NULL		
63	NULL		

CALL RECORD FORMAT

CHARACTER	BIT			PRINTED CHARACTER
	7	5	4	
00	010	000	0	
01	010	000	0	
02	010	000	0	
03	010	000	0	
04	011	000	1	1
05	011	000	1	1
06	011	101	0	:
07	011	000	1	1
08	011	010	1	5
09	010	000	0	
10	011	000	0	0
11	011	101	0	:
12	011	000	1	1
13	011	010	4	4
14	010	111	0	.
15	011	011	7	7
16	010	000	0	
17	100	100	1	1
18	010	000	0	
19	010	000	0	
20	011	000	8	8
21	011	011	3	3
22	010	000	0	
23	010	000	0	
24	010	000	0	
25	010	000	0	
26	010	000	0	
27	010	000	0	
28	010	000	0	
29	010	000	0	
30	010	000	0	
31	011	000	1	1
32	010	110	-	-
33	011	011	3	3
34	011	000	1	1
35	011	011	7	7
36	010	110	-	-
37	011	011	3	3
38	011	010	5	5
39	011	011	7	7
40	010	110	-	-
41	011	011	7	7
42	011	000	1	1
43	011	100	9	9
44	011	000	2	2
45	010	000	0	
46	010	000	0	
47	010	000	0	
48	011	011	7	7
49	010	000	0	
50	010	000	0	
51	010	000	0	
52	010	000	0	
53	010	000	0	
54	010	000	0	
55	010	000	0	
56	010	000	0	
57	010	000	0	
58	010	000	0	
59	000	110		
60	000	101		
61	000	000		
62	000	000		
63	000	000		

Call Type: Incoming Call Completed To Outgoing Trunk  
 Time Of Day: 11:15 a.m.  
 Call Duration: 14.7 Minutes  
 Condition Code: 1 (Incoming Call)  
 Trunk Group Access Code: 83 (No Route Advance)  
 Dialed Number: 1-317-357-7192  
 Attendant Identification Code: 7  
 Account Code: None

PRELIMINARY

FIGURE 8. Call Record of Incoming Call Completed to Outgoing Trunk

CHARACTER	BIT	
	7	1
00	SPACE	
01	SPACE	
02	SPACE	
03	SPACE	
04	TIME-HOUR TENS	
05	TIME-HOUR UNITS	
06	COLON	
07	TIME-MINUTE TENS	
08	TIME-MINUTE UNITS	
09	SPACE	
10	DURATION-HOUR	
11	COLON	
12	DURATION-MINUTE TENS	
13	DURATION-MINUTE UNITS	
14	PERIOD	
15	DURATION-MINUTE TENTHS	
16	SPACE	
17	CONDITION CODE	
18	SPACE	
19	ACCESS CODE #1 -1	
20	ACCESS CODE #1 -2	
21	ACCESS CODE #1 -3	
22	SPACE	
23	ACCESS CODE #2 -1	
24	ACCESS CODE #2 -2	
25	ACCESS CODE #2 -3	
26	SPACE	
27	DIALED NUMBER -1	
28	DIALED NUMBER -2	
29	DIALED NUMBER -3	
30	DIALED NUMBER -4	
31	DIALED NUMBER -5	
32	HYPHEN	
33	DIALED NUMBER -6	
34	DIALED NUMBER -7	
35	DIALED NUMBER -8	
36	HYPHEN	
37	DIALED NUMBER -9	
38	DIALED NUMBER -10	
39	DIALED NUMBER -11	
40	HYPHEN	
41	DIALED NUMBER -12	
42	DIALED NUMBER -13	
43	DIALED NUMBER -14	
44	DIALED NUMBER -15	
45	SPACE	
46	SPACE	
47	SPACE	
48	CALLING NUMBER -1	
49	CALLING NUMBER -2	
50	CALLING NUMBER -3	
51	CALLING NUMBER -4	
52	SPACE	
53	SPACE	
54	ACCOUNT CODE -1	
55	ACCOUNT CODE -2	
56	ACCOUNT CODE -3	
57	ACCOUNT CODE -4	
58	ACCOUNT CODE -5	
59	CARRIAGE RETURN	
60	LINE FEED	
61	NULL	
62	NULL	
63	NULL	

↑  
SERIAL  
DATA  
STREAM

CHARACTER	BIT		PRINTED CHARACTER
	7	5 4	
00	010	0000	
01	010	0000	
02	010	0000	
03	010	0000	
04	011	0001	1
05	011	0001	1
06	011	1010	:
07	011	0011	3
08	011	0000	0
09	010	0000	
10	011	0000	0
11	011	1010	:
12	011	0000	0
13	011	0110	6
14	010	1110	.
15	011	0101	5
16	010	0000	
17	100	1000	H
18	010	0000	
19	010	0000	
20	010	0000	
21	011	1001	9
22	010	0000	
23	010	0000	
24	010	0000	
25	010	0000	
26	010	0000	
27	010	0000	
28	010	0000	
29	010	0000	
30	010	0000	
31	011	0001	1
32	010	1101	-
33	011	0010	2
34	011	0001	1
35	011	0011	3
36	010	1101	-
37	011	0011	3
38	011	0101	5
39	011	0111	7
40	010	1101	-
41	011	0001	1
42	011	0010	2
43	011	0001	1
44	011	0010	2
45	010	0000	
46	010	0000	
47	010	0000	
48	011	0100	4
49	011	0100	4
50	011	0101	5
51	011	0110	6
52	010	0000	
53	010	0000	
54	010	0000	
55	010	0000	
56	010	0000	
57	010	0000	
58	010	0000	
59	000	1101	
60	000	1010	
61	000	0000	
62	000	0000	
63	000	0000	

Call Type: Station-to-Outgoing Trunk  
 Time of Day: 11:30 a.m.  
 Call Duration: 6.5 Minutes  
 Condition Code: H (Outgoing Trunk Queueing)  
 Trunk Group Access Code: 9 (No Route Advance)  
 Dialed Number: 1-213-357-1212  
 Calling Station Number: 4456  
 Account Code: None

PRELIMINARY

CALL RECORD FORMAT

FIGURE 9. Call Record Example of Outgoing Call Served by Outgoing Trunk Queueing Feature

CHARACTER	BIT	
	7	1
00	SPACE	
01	SPACE	
02	SPACE	
03	SPACE	
04	TIME-HOUR TENS	
05	TIME-HOUR UNITS	
06	COLON	
07	TIME-MINUTE TENS	
08	TIME-MINUTE UNITS	
09	SPACE	
10	DURATION-HOUR	
11	COLON	
12	DURATION-MINUTE TENS	
13	DURATION-MINUTE UNITS	
14	PERIOD	
15	DURATION-MINUTE TENTHS	
16	SPACE	
17	CONDITION CODE	
18	SPACE	
19	ACCESS CODE #1 -1	
20	ACCESS CODE #1 -2	
21	ACCESS CODE #1 -3	
22	SPACE	
23	ACCESS CODE #2 -1	
24	ACCESS CODE #2 -2	
25	ACCESS CODE #2 -3	
26	SPACE	
27	DIALED NUMBER -1	
28	DIALED NUMBER -2	
29	DIALED NUMBER -3	
30	DIALED NUMBER -4	
31	DIALED NUMBER -5	
32	HYPHEN	
33	DIALED NUMBER -6	
34	DIALED NUMBER -7	
35	DIALED NUMBER -8	
36	HYPHEN	
37	DIALED NUMBER -9	
38	DIALED NUMBER -10	
39	DIALED NUMBER -11	
40	HYPHEN	
41	DIALED NUMBER -12	
42	DIALED NUMBER -13	
43	DIALED NUMBER -14	
44	DIALED NUMBER -15	
45	SPACE	
46	SPACE	
47	SPACE	
48	CALLING NUMBER -1	
49	CALLING NUMBER -2	
50	CALLING NUMBER -3	
51	CALLING NUMBER -4	
52	SPACE	
53	SPACE	
54	ACCOUNT CODE -1	
55	ACCOUNT CODE -2	
56	ACCOUNT CODE -3	
57	ACCOUNT CODE -4	
58	ACCOUNT CODE -5	
59	CARRIAGE RETURN	
60	LINE FEED	
61	NULL	
62	NULL	
63	NULL	

↑  
SERIAL  
DATA  
STREAM

CHARACTER	BIT		PRINTED CHARACTER
	7	5 4	
00	010	0000	
01	010	0000	
02	010	0000	
03	010	0000	
04	011	0001	1
05	011	0010	2
06	011	1010	:
07	011	0001	1
08	011	0001	1
09	010	0000	
10	011	1001	9
11	011	1010	:
12	011	0101	5
13	011	1001	9
14	010	1110	-
15	011	1001	9
16	010	0000	
17	100	0100	D
18	010	0000	
19	010	0000	
20	010	0000	
21	011	1001	9
22	010	0000	
23	010	0000	
24	010	0000	
25	010	0000	
26	010	0000	
27	010	0000	
28	010	0000	
29	010	0000	
30	010	0000	
31	011	0001	1
32	010	1101	-
33	011	0011	3
34	011	0000	0
35	011	0011	3
36	010	1101	-
37	011	0100	4
38	011	0101	5
39	011	0010	2
40	010	1101	-
41	011	0011	3
42	011	0000	0
43	011	0101	5
44	011	0111	7
45	010	0000	
46	010	0000	
47	010	0000	
48	011	0011	3
49	011	0101	5
50	011	0110	6
51	010	0000	
52	010	0000	
53	010	0000	
54	010	0000	
55	010	0000	
56	011	0001	1
57	011	0101	5
58	011	0010	2
59	000	1101	
60	000	1010	
61	000	0000	
62	000	0000	
63	000	0000	

Call Type: Station-to-Outgoing Trunk-Long Duration

Time Of Day: 12:11 p.m.

Call Duration: 9 Hours, 59.9 Minutes And Continuing

Condition Code: D (10 Hour Plus Call)

Trunk Group Access Code: 9 (No Route Advance)

Dialed Number: 1-303-452-3057

Calling Station Number: 356

Account Code: 152

PRELIMINARY

CALL RECORD FORMAT

FIGURE 10. Call Record Example of Continuing, Long-Duration Call



PRELIMINARY

CHARACTER	7	BIT	1
00			SPACE
01			SPACE
02			SPACE
03			SPACE
04			TIME-HOUR TENS
05			TIME-HOUR UNITS
06			COLON
07			TIME-MINUTE TENS
08			TIME-MINUTE UNITS
09			SPACE
10			SPACE
11			COLON
12			SPACE
13			SPACE
14			PERIOD
15			SPACE
16			SPACE
17			CONDITION CODE
18			SPACE
19			ACCESS CODE #1 -1
20			ACCESS CODE #1 -2
21			ACCESS CODE #1 -3
22			SPACE
23			ACCESS CODE #2 -1
24			ACCESS CODE #2 -2
25			ACCESS CODE #2 -3
26			SPACE
27			SPACE
28			SPACE
29			ACCESS CODE #3 -1
30			ACCESS CODE #3 -2
31			ACCESS CODE #3 -3
32			HYPHEN
33			ACCESS CODE #4 -1
34			ACCESS CODE #4 -2
35			ACCESS CODE #4 -3
36			HYPHEN
37			ACCESS CODE #5 -1
38			ACCESS CODE #5 -2
39			ACCESS CODE #5 -3
40			HYPHEN
41			SPACE
42			ACCESS CODE #6 -1
43			ACCESS CODE #6 -2
44			ACCESS CODE #6 -3
45			SPACE
46			SPACE
47			ACCESS CODE #7 -1
48			ACCESS CODE #7 -2
49			ACCESS CODE #7 -3
50			SPACE
51			SPACE
52			SPACE
53			SPACE
54			ACCESS CODE #8 -1
55			ACCESS CODE #8 -2
56			ACCESS CODE #8 -3
57			SPACE
58			SPACE
59			CARRIAGE RETURN
60			LINE FEED
61			NULL
62			NULL
63			NULL

↑  
SERIAL  
DATA  
STREAM

FIGURE 12. Monitor Code Call Record Format

CHARACTER	BIT	
	7	1
00	SPACE	
01	SPACE	
02	SPACE	
03	SPACE	
04	TIME-HOUR TENS	
05	TIME-HOUR UNITS	
06	COLON	
07	TIME-MINUTE TENS	
08	TIME-MINUTE UNITS	
09	SPACE	
10	SPACE	
11	COLON	
12	SPACE	
13	SPACE	
14	PERIOD	
15	SPACE	
16	SPACE	
17	CONDITION CODE	
18	SPACE	
19	ACCESS CODE #1 -1	
20	ACCESS CODE #1 -2	
21	ACCESS CODE #1 -3	
22	SPACE	
23	ACCESS CODE #2 -1	
24	ACCESS CODE #2 -2	
25	ACCESS CODE #2 -3	
26	SPACE	
27	SPACE	
28	SPACE	
29	ACCESS CODE #3 -1	
30	ACCESS CODE #3 -2	
31	ACCESS CODE #3 -3	
32	HYPHEN	
33	ACCESS CODE #4 -1	
34	ACCESS CODE #4 -2	
35	ACCESS CODE #4 -3	
36	HYPHEN	
37	ACCESS CODE #5 -1	
38	ACCESS CODE #5 -2	
39	ACCESS CODE #5 -3	
40	HYPHEN	
41	SPACE	
42	ACCESS CODE #6 -1	
43	ACCESS CODE #6 -2	
44	ACCESS CODE #6 -3	
45	SPACE	
46	SPACE	
47	ACCESS CODE #7 -1	
48	ACCESS CODE #7 -2	
49	ACCESS CODE #7 -3	
50	SPACE	
51	SPACE	
52	SPACE	
53	SPACE	
54	ACCESS CODE #8 -1	
55	ACCESS CODE #8 -2	
56	ACCESS CODE #8 -3	
57	SPACE	
58	SPACE	
59	CARRIAGE RETURN	
60	LINE FEED	
61	NULL	
62	NULL	
63	NULL	

↑  
SERIAL  
DATA  
STREAM

CHARACTER	BIT		PRINTED CHARACTER
	7	5 4 1	
00	010	0000	
01	010	0000	
02	010	0000	
03	010	0000	
04	011	0001	1
05	011	0101	5
06	011	1010	:
07	011	0000	0
08	011	1001	9
09	010	0000	
10	010	0000	
11	011	1010	:
12	010	0000	
13	010	0000	
14	010	1110	.
15	010	0000	
16	010	0000	
17	100	0010	B
18	010	0000	
19	010	0000	
20	011	1000	8
21	011	0001	1
22	010	0000	
23	010	0000	
24	011	1000	8
25	011	0011	3
26	010	0000	
27	010	0000	
28	010	0000	
29	010	0000	
30	010	0000	
31	011	0111	7
32	010	1101	-
33	010	0000	
34	010	0000	
35	010	0000	
36	010	0000	
37	010	0000	
38	010	0000	
39	010	0000	
40	010	0000	
41	010	0000	
42	010	0000	
43	010	0000	
44	010	0000	
45	010	0000	
46	010	0000	
47	010	0000	
48	010	0000	
49	010	0000	
50	010	0000	
51	010	0000	
52	010	0000	
53	010	0000	
54	010	0000	
55	010	0000	
56	010	0000	
57	010	0000	
58	010	0000	
59	000	1101	
60	000	1010	
61	000	0000	
62	000	0000	
63	000	0000	

Situation: Begin Or Continue Monitoring Specified Trunk Group  
 Time Of Day: 15:09 p.m.  
 Condition Code: B  
 Begun Or Continued Monitoring On Trunk Group Access Codes  
 Or Attendant Identification Codes: 81, 83, 7

PRELIMINARY

MONITOR CODE CALL RECORD FORMAT

FIGURE 13. Call Record Example of List of Specific Trunk Groups To Be Monitored

CHARACTER	BIT	
	7	1
00	SPACE	
01	SPACE	
02	SPACE	
03	SPACE	
04	TIME-HOUR TENS	
05	TIME-HOUR UNITS	
06	COLON	
07	TIME-MINUTE TENS	
08	TIME-MINUTE UNITS	
09	SPACE	
10	SPACE	
11	COLON	
12	SPACE	
13	SPACE	
14	PERIOD	
15	SPACE	
16	SPACE	
17	CONDITION CODE	
18	SPACE	
19	ACCESS CODE #1 -1	
20	ACCESS CODE #1 -2	
21	ACCESS CODE #1 -3	
22	SPACE	
23	ACCESS CODE #2 -1	
24	ACCESS CODE #2 -2	
25	ACCESS CODE #2 -3	
26	SPACE	
27	SPACE	
28	SPACE	
29	ACCESS CODE #3 -1	
30	ACCESS CODE #3 -2	
31	ACCESS CODE #3 -3	
32	HYPHEN	
33	ACCESS CODE #4 -1	
34	ACCESS CODE #4 -2	
35	ACCESS CODE #4 -3	
36	HYPHEN	
37	ACCESS CODE #5 -1	
38	ACCESS CODE #5 -2	
39	ACCESS CODE #5 -3	
40	HYPHEN	
41	SPACE	
42	ACCESS CODE #6 -1	
43	ACCESS CODE #6 -2	
44	ACCESS CODE #6 -3	
45	SPACE	
46	SPACE	
47	ACCESS CODE #7 -1	
48	ACCESS CODE #7 -2	
49	ACCESS CODE #7 -3	
50	SPACE	
51	SPACE	
52	SPACE	
53	SPACE	
54	ACCESS CODE #8 -1	
55	ACCESS CODE #8 -2	
56	ACCESS CODE #8 -3	
57	SPACE	
58	SPACE	
59	CARRIAGE RETURN	
60	LINE FEED	
61	NULL	
62	NULL	
63	NULL	

↑  
SERIAL  
DATA  
STREAM

CHARACTER	BIT		PRINTED CHARACTER
	7	5 4	
00	0 1 0	0 0 0 0	
01	0 1 0	0 0 0 0	
02	0 1 0	0 0 0 0	
03	0 1 0	0 0 0 0	
04	0 1 1	0 0 0 1	1
05	0 1 1	0 1 0 1	5
06	0 1 1	1 0 1 0	:
07	0 1 1	0 0 0 0	0
08	0 1 1	1 0 0 1	9
09	0 1 0	0 0 0 0	
10	0 1 0	0 0 0 0	
11	0 1 1	1 0 1 0	:
12	0 1 0	0 0 0 0	
13	0 1 0	0 0 0 0	
14	0 1 0	1 1 1 0	.
15	0 1 0	0 0 0 0	
16	0 1 0	0 0 0 0	
17	1 0 0	0 0 1 1	C
18	0 1 0	0 0 0 0	
19	0 1 0	0 0 0 0	
20	0 1 0	0 0 0 0	
21	0 1 1	1 0 0 1	9
22	0 1 0	0 0 0 0	
23	0 1 0	0 0 0 0	
24	0 1 1	0 1 0 0	4
25	0 1 1	0 0 0 1	1
26	0 1 0	0 0 0 0	
27	0 1 0	0 0 0 0	
28	0 1 0	0 0 0 0	
29	0 1 0	0 0 0 0	
30	0 1 1	0 1 0 0	4
31	0 1 1	0 0 1 1	3
32	0 1 0	1 1 0 1	-
33	0 1 0	0 0 0 0	
34	0 1 1	0 1 0 1	5
35	0 1 1	0 1 1 1	7
36	0 1 0	1 1 0 1	-
37	0 1 0	0 0 0 0	
38	0 1 1	0 1 0 1	5
39	0 1 1	1 0 0 0	8
40	0 1 0	1 1 0 1	-
41	0 1 0	0 0 0 0	
42	0 1 0	0 0 0 0	
43	0 1 1	0 1 0 1	5
44	0 1 1	1 0 0 1	9
45	0 1 0	0 0 0 0	
46	0 1 0	0 0 0 0	
47	0 1 0	0 0 0 0	
48	0 1 0	0 0 0 0	
49	0 1 1	0 1 1 1	7
50	0 1 1	0 0 1 1	3
51	0 1 0	0 0 0 0	
52	0 1 0	0 0 0 0	
53	0 1 0	0 0 0 0	
54	0 1 1	0 1 1 1	7
55	0 1 1	0 1 0 0	4
56	0 1 0	0 0 0 0	
57	0 1 0	0 0 0 0	
58	0 1 0	0 0 0 0	
59	0 0 0	1 1 0 1	
60	0 0 0	1 0 1 0	
61	0 0 0	0 0 0 0	
62	0 0 0	0 0 0 0	
63	0 0 0	0 0 0 0	

Situation: Discontinue Monitoring Specified Trunk Groups

Time of Day: 15:09 p.m.

Condition Code: C

Discontinued Monitoring on Trunk Group Access Codes or

Attendant Identification Codes: 9, 41, 43, 57, 58, 59, 73, 74

PRELIMINARY

MONITOR CODE CALL RECORD FORMAT

FIGURE 14. Call Record Example of List of Specific Trunk Groups No Longer Monitored



CHARACTER	BIT	
	7	1
00	SPACE	
01	MONTH	TENS
02	MONTH	UNITS
03	SPACE	
04	DAY	TENS
05	DAY	UNITS
06	CARRIAGE RETURN	
07	LINE FEED	
08	NULL	
09	NULL	
10	NULL	

↑  
SERIAL  
DATA  
STREAM

FIGURE 16. Date Record Format

MODE: 7 BIT CHARACTERS  
1 STOP BIT  
1 PARITY BIT (EVEN)

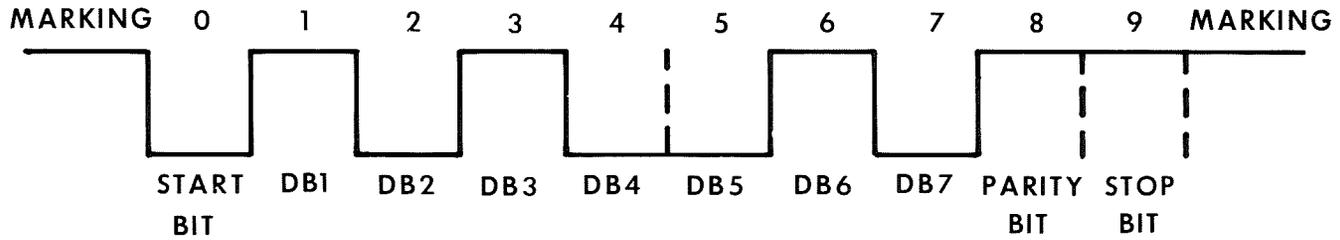


TABLE 1. Typical Data Format

CHARACTER	USE	EXAMPLE	PRELIMINARY BIT			
			7	5	4	1
04	TIME-HOUR (2 DIGITS, 24-HOUR	14	0	1	1	0
	CLOCK)		0	1	1	0
05			0	1	1	0
07	TIME-MINUTE (2 DIGITS)	43	0	1	1	0
08			0	1	1	0
10	DURATION-HOUR (1 DIGIT)	4	0	1	1	0
12	DURATION-MINUTES (2 DIGITS)	14	0	1	1	0
13			0	1	1	0
15	DURATION-TENTHS (1 DIGIT)	5	0	1	1	0
17	CONDITION CODE (1 DIGIT)	A	1	0	0	0
19	ACCESS CODE #1 (3 DIGITS)	9	0	1	0	0
20			0	1	0	0
21			0	1	1	0
23	ACCESS CODE #2 (3 DIGITS)	23	0	1	0	0
24			0	1	1	0
25			0	1	1	0
27	DIALED NUMBER (15 DIGITS)	503-456-1212	0	1	0	0
28			0	1	0	0
29			0	1	0	0
30			0	1	0	0
31			0	1	0	0
33			0	1	1	0
34			0	1	1	0
35			0	1	1	0
37			0	1	1	0
38			0	1	1	0
39			0	1	1	0
41			0	1	1	0
42			0	1	1	0
43			0	1	1	0
44			0	1	1	0
48	CALLING NUMBER (4 DIGITS)	356	0	1	1	0
49			0	1	1	0
50			0	1	1	0
51			0	1	0	0
54	ACCOUNT CODE (5 DIGITS)	98	0	1	1	0
55			0	1	1	0
56			0	1	0	0
57			0	1	0	0
58			0	1	0	0
00,01,02,03, 09,16,18,22, 26,45,46,47, 52,53	SPACE		0	1	0	0
06,11	COLON	:	0	1	1	0
14	PERIOD	.	0	1	0	1
32,36,40	HYPHEN	—	0	1	0	1
59	CARRIAGE RETURN		0	0	0	1
60	LINE FEED		0	0	0	1
61,62,63	NULL		0	0	0	0

TABLE 2. Call Record Data Items

CHARACTER	USE	EXAMPLE	BIT			
			7	5	4	1
{ 01	MONTH (2 DIGITS)	JULY (07)	0	1	1	0 0 0 0
			0	1	1	0 1 1 1
{ 04	DAY (2 DIGITS)	25	0	1	1	0 0 1 0
			0	1	1	0 1 0 1
00, 03	SPACE		0	1	0	0 0 0 0
06	CARRIAGE RETURN		0	0	0	1 1 0 1
07	LINE FEED		0	0	0	1 0 1 0
08, 09, 10	NULL		0	0	0	0 0 0 0

TABLE 3. Date Record Data Items

CONNECTOR OPTION	OUTPUT DATA FROM SMDR	GROUND	TYPICAL PERIPHERAL OUTPUT DEVICE
SX01*	PIN #3	PINS #1 AND #7	TELETYPE 4310 AAC PRINTER
SX02	PIN #3	PIN #7	FACIT-ADD0 4070 PAPER TAPE PUNCH
SX03	PIN #2	PIN #7	TEKTRONIX 4923 MAGNETIC TAPE CARTRIDGE

\*PINS 5, 6, 8, 20 ARE CONNECTED TOGETHER.

TABLE 4. Connector Options