

NEC

CCIS Trace 2000 IVS² / IPS



About This Manual

This manual has been created in order to provide a single manual for referencing how to activate and interpret CCIS Trace in the different versions of the NEAX 2000 IPS line of PBXs. This may also be used as a reference for the breakout and interpretation of the various trace messages.

This manual is designed specifically for use by NEC America's National Technical Assistance Center and is not for public release.

The manual is broken up into sections for each individual message with sub sections for each message portion. Some of the messages contain common components that will be duplicated in each section. Not all CCIS messages will be broken out in this document, only some of the most common ones.

CCIS Messaging Overview

CCIS signaling is carried out by the use of out of band signaling. This means that the messaging for setting up and tearing down calls is handled by a separate data or D channel that the voice path. CCIS is a proprietary protocol based on the Q931 standard like ISDN and SS7, so call control also takes place at layer 3. Because it is a proprietary protocol, it can only be used to connect PBX systems manufactured by NEC.

Because of its proprietary nature CCIS is used to provide a number of features that other methods of connecting (such as Qsig) do not offer. Some of the features that are available are centralized SMDR, centralized voicemail integration, name display, and many others.

CCIS can utilize multiple D channels for redundancy as well as providing an extremely flexible method for programming voice, also known as B channels. It is very easy to set up either a fractionalized T span, or CCIS links across multiple T spans.

Figure 1-1 gives an example of a CCIS message flow for a station to station call.

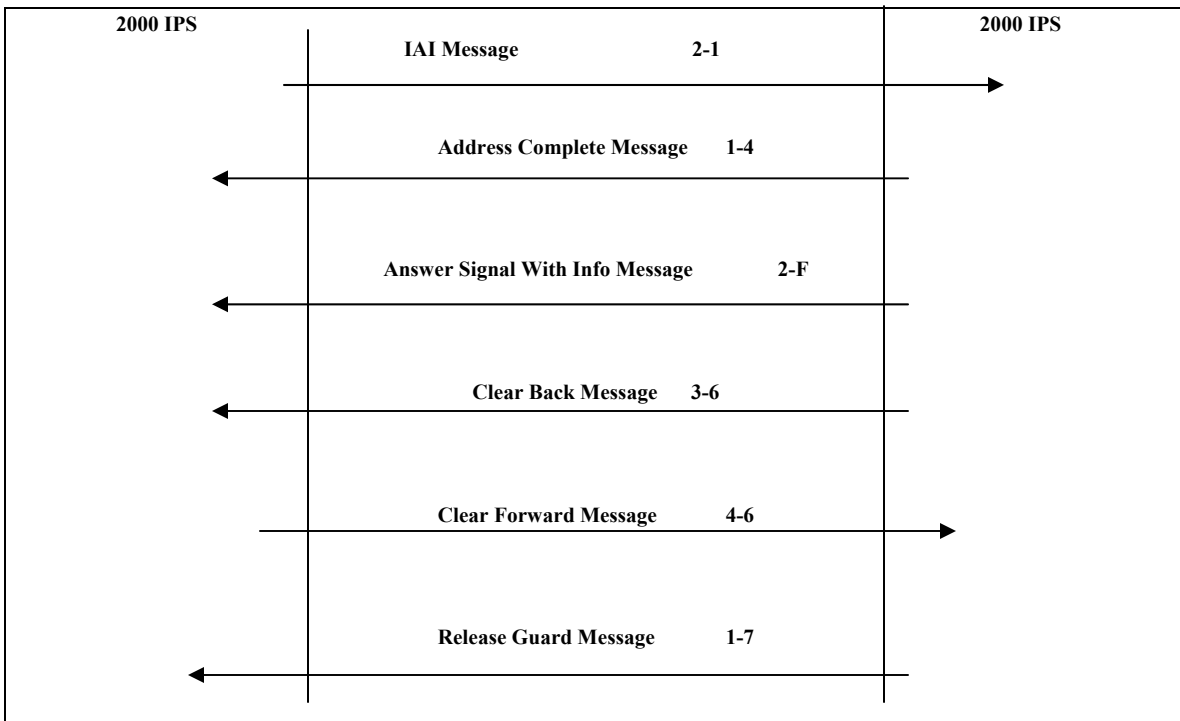


Figure 1-1

Example Message Definitions

IAI Message – Initial Address Message **2-1**
– Originates the call. Contains information on the type of call, CIC number, calling party, called party, originating and destination point codes, SFC and RSC classes etc...

ACM Message - Address Complete Message **1-4**
- Contains information on the idle status of the called party and CIC number. Also contains name display information.

TRM Message -Transfer Message **4-F** (Included on TRF call)
- Contains information such as CIC, originating point code, destination point code , CIC, RSC and SFC of the transferred call. Additional information such as Caller ID and name display information may be included in this message also.

AND Message - Answer Signal With Info Message **2-F**
- Signals that the call has been answered. Contains information on the station that answered the call such as name display, CIC information, originating and destination point codes, RSC, SFC etc...

CBK Message - Clear Back Message **3-6**
- Used to signal a disconnect. This message is sent from the far side when disconnecting. Also signals to drop the CCIS B channel from the disconnecting end.

CLF Message - Clear Forward Message **4-6**
- Used to acknowledge a disconnect. This message is sent from the near side when disconnecting or following a 36 message from the far side. Acknowledges dropping the CCIS B channel.

RLG Message - Release Guard Message **1-7**
- Used to acknowledge the disconnect completion. Upon receipt of this message the B channel is ready to accept another call.

CBM Message - Centralized Billing Message **2-D**
-Used for sending SMDR to the centralized site.

MSG Message – Message Control **C-E**
-Used for message waiting lamping across CCIS, and call forwarding.

Activating CCIS Trace

The following information will outline how to activate CCIS trace information provided on the NEAX 2000IVS2/IPS. This trace can be very helpful when troubleshooting CCIS applications. Trace should **not** be turned on at times when the PBX is busy (takes processing power on the CPU & could crash the switch). Trace should only be run with the assistance of NTAC engineers. Trace can be captured to a log file using Procomm, Hyperterm, or MATWorX .

Turning on trace:

CMF62>00>3A (this is the command for CCIS trace) default is "none"

CMF62>01>sense wheel of CCH, or 24CCTA card

CMF62>03>0 (this turns on AP > MP trace & the MP > AP trace; need both to see incoming & outgoing messages) default is "3"

CMF62>04>0 default is a "1"

CM4000>RS port you are connected to >19 (turns on trace in the PBX; do command 62 first)

Set sense wheel on the MP card to a "4" DO NOT RESET! (with sense wheel on "0" not all of the trace will be displayed, * will be displayed instead)

Example:

24CCTA card (CCH 0) is set to a sense wheel of "6"

CCH (SC00 / CCH 1) is set to "B"

Monitor incoming & outgoing calls on CCH 1

CMF62>00>3A (set to 3A for CCIS trace)

CMF62>01>11 (sense wheel of the SC00 card for CCH 1)

CMF62>03>0

CMF62>04>0

CM4000>0>19 (locally connected on port 0)

Set sense wheel on the MP to "4"

CCIS Trace Example

o>06:3A-4C-01-00-00-3F-84-0B-80-02-30-00-21-00-00-40-12-00-7C-01-00-F1-A2-AA-
00-00-0A-00-80-01-00-F1-A2-AA-00-00-0A-00-80-FC-FE-FC-FE-FC-FE-FC-FE-FC-
FE-00-00-00-80-00-02-00-00-00-00-00-00-00-00-00-00-00-00-00-00-00-00-
00-00-FF/

I<06:3A-CE-00-00-00-08-84-0A-C0-02-30-00-14-06-FF/

06:3A-61-00-00-00-1B-84-0A-C0-02-30-00-2F-01-00-F1-12-AA-00-00-0B-00-80-01-
00-F1-12-AA-00-00-0B-00-00-FF/

o>06:3A-CD-00-00-00-07-84-0B-80-02-30-00-46-FF/

I<06:3A-CD-00-00-00-07-84-0A-C0-02-30-00-17-FF/

I< = incoming message

o> = outgoing message

06 = CCH card no. (SC00 or 24CCTA)

3A = CCIS message trace

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H1	H0	MSG	Message Description	Group	Page
1	1	IAM	Initial Address Message	FAM	
1	2	CLI	Calling Line Identity Message	FSM	
1	3	CIR	Calling Line Identity Request Message	BSM	
1	4	ACM	Address Complete Message	SBM	
1	5	SEC	Switch Equipment Congestion Signal Message	UBM	
1	6	ANC	Answer Signal Charge Message	CSM	
1	7	RLG	Release Guard Signal Message	CCM	
1	8	MGB	Maintenance Oriented Group Blocking Msg.	GRM	
1	13 (D)	CMM	Centralized Management Message (Fault Data)	CLM	
1	14 (E)	CBC	Call Back Cancel Message	FSC	
1	15 (F)	SSI	Subscriber Idle Message	BSC	
2	1	IAI	Initial Address Message with Additional Info	FAM	
2	2	CLU	Calling Line Identity Unavailable Message	FSM	
2	3	N/A	Not Used		
2	4	CHG	Charging Message	SBM	
2	5	CGC	Circuit Group Congestion Signal Message	UBM	
2	6	ANN	Answer Signal With no Charge Message	CSM	
2	7	BLO	Blocking Signal Message	CCM	
2	8	MBA	Maintenance Oriented Group Blocking – ACK	GRM	
2	13 (D)	CBM	Centralized Billing Message	CLM	
2	14 (E)	SSIA	SSI Acknowledgement Message	FSC	
2	15 (F)	AND	Answer Signal with Information Message	BSC	
3	1	SAM	Subsequent Address Message	FAM	
3	2	COT	Continuity Signal Message	FSM	
3	3	N/A	Not Used		
3	4	N/A	Not Used		
3	5	NNC	National Network Congestion Signal Message	UBM	
3	6	CBK	Clear Back Signal Message	CSM	
3	7	BLA	Blocking Acknowledge Signal Message	CCM	
3	8	N/A	Not Used		
3	13 (D)	DNM	Day / Night Change Message	CLM	
3	14 (E)	ACP	Attendant Camp – On Message	FSC	
3	15 (F)	SSM	Service Set Message	BSC	
4	1	SAO	Subsequent Address Message With One Signal	FAM	
4	2	CCF	Continuity Failure Signal	FSM	
4	3	N/A	Not Used		
4	4	N/A	Not Used		
4	5	ADI	Address Incomplete Signal Message	UBM	
4	6	CLF	Clear Forward Signal Message	CSM	
4	7	UBL	Unblocking Signal Message	CCM	
4	8	N/A	Not Used		
4	13 (D)	PSSM	Power Status Message	CLM	
4	14 (E)	LCM	Link Reconnect Requirement Message	FSC	
4	15 (F)	TRM	Transfer Message	BSC	

H1	H0	MSG	Message Description	Group	Page
5	1				
5	2				
5	3				
5	4				
5	5	CFL	Call Failure Signal Message	UBM	
5	6	RAN	Re-Answer Signal Message	CSM	
5	7	UBA	Unblocking Acknowledgement Signal Msg.	CCM	
5	8	N/A	Not Used		
5	13 (D)		X-FCCS- Mat Function to IVS 2000		
5	14 (E)	CBA	Call Back Abnormal Message	FSC	
5	15 (F)	CBCB	Call Back Cancel Message	BSC	
6	1				
6	2				
6	3				
6	4				
6	5	SSB	Subscriber Busy Signal Message	UBM	
6	6	FOT	Forward Transfer Signal Message	CSM	
6	7	CCR	Continuity Check Request Signal Message	CCM	
6	8	N/A	Not Used		
6	13 (D)	N/A	Not Used		
6	14 (E)	CDM	CLD Message	FSC	
6	15 (F)	CBAB	Call Back Abnormal Message	BSC	
7	1				
7	2				
7	3				
7	4				
7	5	UNN	Un-Allocated Number Signal Message	UBM	
7	6				
7	7	RSC	Reset Circuit Signal Message	CCM	
7	8				
7	13 (D)				
7	14 (E)	SCM	Serial Call Message	FSC	
7	15 (F)	CAM	Call Accepted Message	BSC	
8	1				
8	2				
8	3				
8	4				
8	5	LOS	Line Out of Service Message	UBM	
8	6				
8	7				
8	8				
8	13 (D)				
8	14 (E)	OQCM	O/G Queuing Cancel Message	FSC	
8	15 (F)	CRM	Call Rejected Message	BSC	

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H1	H0	MSG	Message Description	Group	Page
9	1				
9	2				
9	3				
9	4				
9	5	SST	Send Special Information Tone Signal Msg.	UBM	
9	6				
9	7				
9	8	GRS	Circuit Group Reset Message	GRM	
9	13 (D)				
9	14 (E)	OQSM	O/G Queuing Set Message	FSC	
9	15 (F)	SANM	Service Answer Message	BSC	
10 (A)	1				
10 (A)	2				
10 (A)	3				
10 (A)	4				
10 (A)	5	IDS	Incompatible Destination Signal	UBM	
10 (A)	6				
10 (A)	7				
10 (A)	8	GRA	Circuit Group Reset – Acknowledge Msg.	GRM	
10 (A)	13 (D)				
10 (A)	14 (E)	OQRM	O/G Queuing NAK Message	FSC	
10 (A)	15 (F)	HFMB	Hotel Function Message B	BSC	
11 (B)	1				
11 (B)	2				
11 (B)	3				
11 (B)	4				
11 (B)	5				
11 (B)	6				
11 (B)	7				
11 (B)	8				
11 (B)	13 (D)				
11 (B)	14 (E)	OQNM	O/G Queuing NAK Message	FSC	
11 (B)	15 (F)				
12 (C)	1				
12 (C)	2				
12 (C)	3				
12 (C)	4				
12 (C)	5				
12 (C)	6				
12 (C)	7				
12 (C)	8				
12 (C)	13 (D)				
12 (C)	14 (E)	MSG	Message Control Message	FSC	
12 (C)	15 (F)				

H1	H0	MSG	Message Description	Group	Page
9	1				
9	2				
9	3				
9	4				
9	5	SST	Send Special Information Tone Signal Msg.	UBM	
9	6				
9	7				
9	8	GRS	Circuit Group Reset Message	GRM	
9	13 (D)				
9	14 (E)	OQSM	O/G Queuing Set Message	FSC	
9	15 (F)	SANM	Service Answer Message	BSC	
10 (A)	1				
10 (A)	2				
10 (A)	3				
10 (A)	4				
10 (A)	5	IDS	Incompatible Destination Signal	UBM	
10 (A)	6				
10 (A)	7				
10 (A)	8	GRA	Circuit Group Reset – Acknowledge Msg.	GRM	
10 (A)	13 (D)				
10 (A)	14 (E)	OQRM	O/G Queuing NAK Message	FSC	
10 (A)	15 (F)	HFMB	Hotel Function Message B	BSC	
11 (B)	1				
11 (B)	2				
11 (B)	3				
11 (B)	4				
11 (B)	5				
11 (B)	6				
11 (B)	7				
11 (B)	8				
11 (B)	13 (D)				
11 (B)	14 (E)	OQNM	O/G Queuing NAK Message	FSC	
11 (B)	15 (F)				
12 (C)	1				
12 (C)	2				
12 (C)	3				
12 (C)	4				
12 (C)	5				
12 (C)	6				
12 (C)	7				
12 (C)	8				
12 (C)	13 (D)				
12 (C)	14 (E)	MSG	Message Control Message	FSC	
12 (C)	15 (F)				

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H1	H0	MSG	Message Description	Group	Page
13 (D)	1				
13 (D)	2				
13 (D)	3				
13 (D)	4				
13 (D)	5	CAI	Calling Party Ans. Signal W Additional Info.	CSM	
13 (D)	6	EAM	Extended Answer Indication Message	CSM	
13 (D)	7				
13 (D)	8				
13 (D)	13 (D)				
13 (D)	14 (E)	VCM	Voice Call Message		
13 (D)	15 (F)				
14 (E)	1				
14 (E)	2				
14 (E)	3				
14 (E)	4				
14 (E)	5				
14 (E)	6	CAI	Calling Party Ans. Signal W Additional Info.		
14 (E)	7				
14 (E)	8				
14 (E)	13 (D)				
14 (E)	14 (E)	SSC	Service Status Check Message	FSC	
14 (E)	15 (F)				
15 (F)	1				
15 (F)	2				
15 (F)	3				
15 (F)	4				
15 (F)	5	EUM	Extended Unsuccessful Backward Setup Information Message Indication	UBM	
15 (F)	6				
15 (F)	7				
15 (F)	8				
15 (F)	13 (D)				
15 (F)	14 (E)				
15 (F)	15 (F)				

MSG	Message Group Meaning
FAM	Forward Address Message
FSM	Forward Setup Message
BSM	Backward Setup Message
SBM	Successful Backward Setup Information Message
CSM	Call Supervision Message
CCM	Circuit Supervision Message
GRM	Circuit Group Supervision Message
CLM	Centralized Control Message
FSC	Forward Service Condition Check Message
BSC	Backward Service Condition Check Message

Section 1

IAI CCIS Trace Message

Below is an Example of an IAI CCIS Trace Message.

o>06:3A-4C-01-00-00-3F-84-0B-80-02-40-00-21-00-00-40-12-00-7C-01-00-F1-A2-AA-00-00-0A-00-80-01-00-F1-A2-AA-00-00-0A-00-80-FC-FE-FC-FE-FC-FE-FC-FE-FC-FE-00-00-00-80-00-02-00-FF/

o> = outgoing message

06 = CCH card no. (SC00 or 24CCTA)

3A = CCIS message trace

4C = entire message length (76)

Data Length							
0	1	0	0	1	1	0	0

The first 5 bytes of info are considered the trace header & should be discarded when reading the trace.

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2 - 1 IAI Message Example			
Byte	Value	Byte Description	Detail Information
0	3F	LI - Data Length Indication	Header Section 1-0
1	84	SIO - Service Information Octet	
2	0B	Point Code and CIC Information	
3	80		
4	02		
5	40		
6	00		
7	21	Heading Code	
8	00	Calling Party Category	Address Information Section 1-1
9	00	Message Indicator	
10	40	Number of Address Signal	
11	12	Address Signal	
12	00		
13	7C	First Indicator Octet	
14	01	Tenant	Calling Line Identity Section 1-2
15	00		
16	F1	SFC / RSC	
17	A2	Station Number	
18	AA		
19	00		
20	00		
21	0A	Originating Point Code	
22	00		
23	80	CAL / CPI	
24	01	Tenant	Original Address Section 1-3
25	00		
26	F1	SFC / RSC	
27	A2	Station Number	
28	AA		
29	00		
30	00		
31	01	Originating Point Code	
32	00		
33	80	CAL / CPI	
34	FC	Account Code	Charging Information Section 1-4
35	FE		
36	FC		
37	FE		
38	FC		
39	FE		
40	FC		
41	FE		
42	FC		
43	FE		
44	00	Office Code	Section 1-5
45	00		
46	00		
47	80	CAL / CPI	Service Information Section 1-6
48	00	Call Type	
49	02		
50	00		
51	00		
52	00		
53	00		
54	00		
55	00		
56	00		
57	00		
58	00		
59	00		
60	00		
63	00		

Section 1-0 Message Header Information

CCIS Header information contains the initial information about the setup of the rest of the message. Included will be the message length, destination point code, originating point code, CIC and heading code (this tells what kind of message it is).

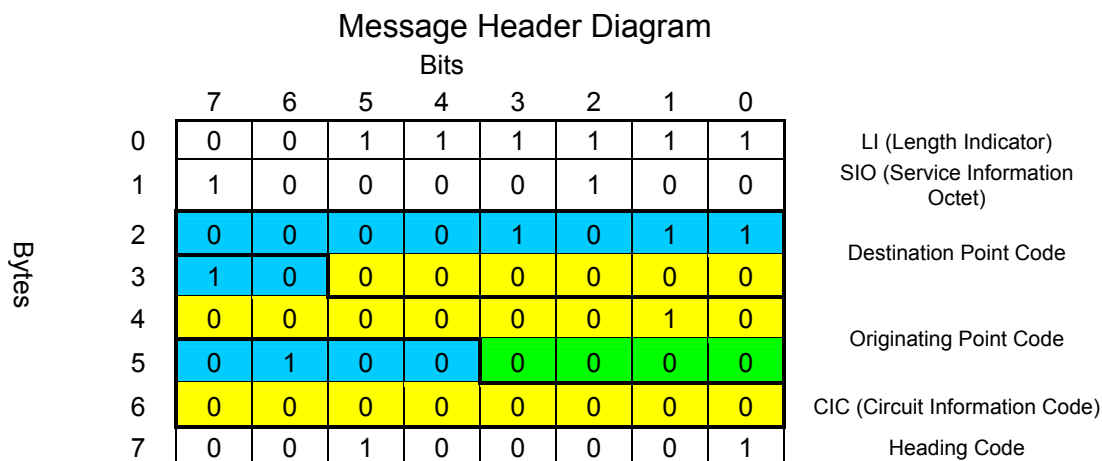
The header is contained in the first 8 bytes of the message. Regardless of the message type the header will break out the same.

Header Information

Bytes							
0	1	2	3	4	5	6	7
3F	84	0B	80	02	40	00	21

3F-84-0B-80-02-40-00-21-00-00-40-12-00-7C-01-00-F1-A2-AA-00-00-0A-00-80-01-00-F1-A2-AA-00-00-0A-00-80-FC-FE-FC-FE-FC-FE-FC-FE-FC-FE-00-00-00-80-00-02-00-FF/

The Message header breaks out as follows.



Section 1-0 Message Header Information (Continued)

Length Indicator

Shows the length of the message in bytes. This value should be converted to decimal. The decimal value shows the number of bytes in the message.

Hex
Value

3F

Binary Value

7	6	5	4	3	2	1	0
0	0	1	1	1	1	1	1

Decimal
Value

63

The total length of the message is 63 bytes.

Section 1-0

Message Header Information (Continued)

Destination Point Code / Originating Point Code / CIC

The chart below explains how to extract the Destination Point Code, Originating Point Code and CIC information from bytes 2 through 6.

		Bits							
		7	6	5	4	3	2	1	0
Bytes	0	0	0	1	1	1	1	1	1
	1	1	0	0	0	0	0	1	0
	2	0	0	0	0	1	0	1	1
	3	1	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	1	0
	5	0	1	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0
	7	0	0	1	0	0	0	0	1

LI (Length Indicator)

SIO (Service Information Octet)

Destination Point Code

Originating Point Code

CIC (Circuit Information Code)

Heading Code

Destination Point Code

0 0 0 0 0 0 0 0 0 0 1 0 1 1 Point Code = 11

Originating Point Code

0 0 0 0 0 0 0 0 0 0 1 0 1 0 Point Code = 10

Circuit Identification Code

0 0 0 0 0 0 0 0 0 0 0 1 0 0 CIC = 4

Section 1-0 Message Header Information (Continued)

Heading Code

Heading Code contains the information on the type of message this is. Refer to the chart on page 3 for breakout information on the different types of messages. Use the reference using the HEX value.

Hex
Value

21

Binary Value

7	6	5	4	3	2	1	0
0	0	1	0	0	0	0	1

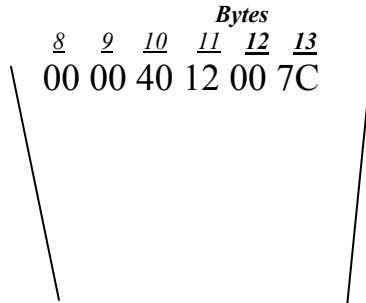
2-1 Message = IAI – Initial Address Message with additional info.

Section 1-1 Address Information

The address information field contains information on the type of call the message is describing as well as the destination of the message.

The Address Information begins at byte 8 of the message. The message length is variable depending on the data contained in the field. The Address Information Field will be a variable length field depending on the data included.

Address Information



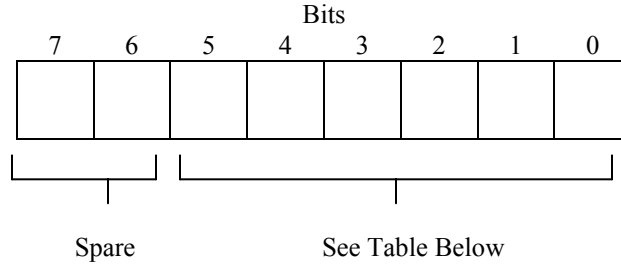
3F-84-0B-80-02-40-00-21-00-00-40-12-00-7C-01-00-F1-A2-AA-00-00-0A-00-80-01-00-F1-A2-AA-00-00-0A-00-80-FC-FE-FC-FE-FC-FE-FC-FE-FC-FE-00-00-00-80-00-02-00-FF/

		Bits								
		7	6	5	4	3	2	1	0	
Bytes	8	0	0	0	0	0	0	0	0	Calling Party Category
	9	0	0	0	0	0	0	0	0	Message Indicator
	10	0	1	0	0	0	0	0	0	Number of Address Signal / Message Indicator
	11	0	0	0	1	0	0	1	0	Address Signal (Variable Length)
	12	0	0	0	0	0	0	0	0	
	13	0	1	1	1	1	1	0	0	FIO (First Indicator Octet)

Section 1-1 Address Information (Continued)

Calling Party Category Indicator

The Calling Party Category Indicator provides information on the type of call that the message is describing.



Bits								Hex Value	Description of Values
7	6	5	4	3	2	1	0		
X	X	0	0	0	0	0	0	00	Spare
X	X	0	0	0	0	0	1	01	Operator, Language French
X	X	0	0	0	0	1	0	02	Operator, Language English
X	X	0	0	0	0	1	1	03	Operator, Language German
X	X	0	0	0	1	0	0	04	Operator, Language Russian
X	X	0	0	0	1	0	1	05	Operator, Language Spanish
X	X	0	0	1	0	0	1	09	TRK
X	X	0	0	1	0	1	0	0A	Ordinary Calling Subscriber
X	X	0	0	1	0	1	1	0B	Calling Subscriber with Priority
X	X	0	0	1	1	0	0	0C	Data Call
X	X	0	0	1	1	0	1	0D	Test Call

Section 1-1 Address Information (Continued)

Message Indicator

The message indicator contains additional information on the call being described in this message.

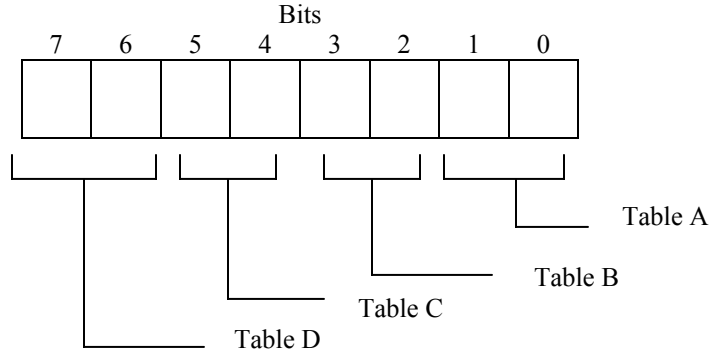


Table A

Bits		Description of Values
1	0	
0	0	Subscriber Number
0	1	Spare
1	0	National Number
1	1	International Number

Table B

Bits		Description of Values
3	2	
0	0	No Satellite Circuit in the Connection
0	1	One Satellite Circuit in the Connection
1	0	Spare
1	1	Spare

Table C

Bits		Description of Values
5	4	
0	0	Continuity Check Not Required
0	1	Continuity Check Required on this circuit
1	0	Continuity check performed on a previous Circuit
1	1	Spare

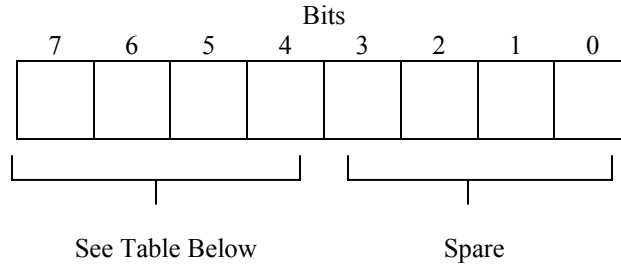
Table D

Bits		Description of Values
7	6	
X	0	Outgoing Half Echo Suppressor not Included
X	1	Outgoing Half Echo Suppressor Included

Section 1-1 Address Information (Continued)

Number of Address Signal

The Number of Address Signal contains the information pertaining to the length of the Address Signal. The number of digits specified in this byte indicates the number of digits in the Address Signal.



Bits								Hex Value	Description of Values
7	6	5	4	3	2	1	0		
0	0	0	0					00	Digit Length 0
0	0	0	1					10	Digit Length 1
0	0	1	0					20	Digit Length 2
0	0	1	1					30	Digit Length 3
0	1	0	0					40	Digit Length 4
0	1	0	1					50	Digit Length 5
0	1	1	0					60	Digit Length 6
0	1	1	1					70	Digit Length 7
1	0	0	0					80	Digit Length 8
1	0	0	1					90	Digit Length 9
1	0	1	0					A0	Spare
1	0	1	1					B0	Code 11
1	1	0	0					C0	Code 12
1	1	0	1					D0	Spare
1	1	1	0					E0	Spare
1	1	1	1					F0	ST

Section 1-1 **Address Information** **(Continued)**

Address Signal

The Address Signal contains the information on the destination. It contains the number that the message should be routed to. The data should be read from each byte in order from least significant bit to most significant bit. The information is a hex representation of the decimal value. The Address Signal length is specified by the Number of Address Signal value in the preceding byte.

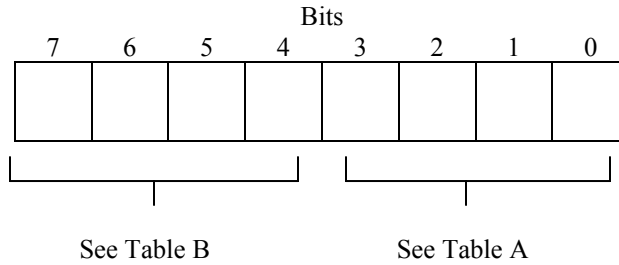
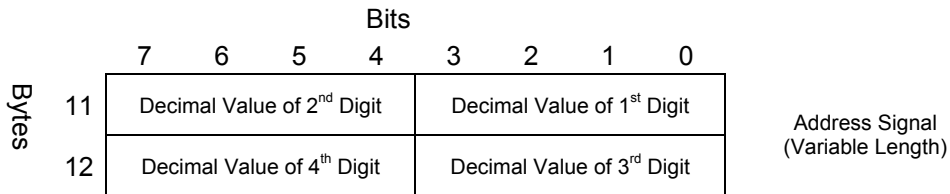


Table A

Bits								Hex Value	Description of Values
7	6	5	4	3	2	1	0		
0	0	0	0	0	0	0	0	X0	Digit 0
0	0	0	0	0	0	0	1	X1	Digit 1
0	0	0	0	0	1	0	0	X2	Digit 2
0	0	0	0	0	1	1	0	X3	Digit 3
0	0	0	0	1	0	0	0	X4	Digit 4
0	0	0	1	0	0	1	0	X5	Digit 5
0	0	1	0	0	0	0	0	X6	Digit 6
0	1	0	0	0	0	0	0	X7	Digit 7
0	1	1	0	0	0	0	0	X8	Digit 8
1	0	0	0	0	0	0	0	X9	Digit 9

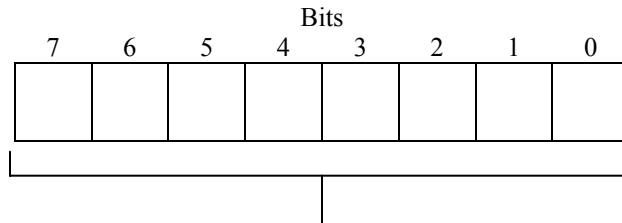
Table B

Bits								Hex Value	Description of Values
7	6	5	4	3	2	1	0		
0	0	0	0	X	X	X	X	0X	Digit 0
0	0	0	1	X	X	X	X	1X	Digit 1
0	0	1	0	X	X	X	X	2X	Digit 2
0	0	1	1	X	X	X	X	3X	Digit 3
0	1	0	0	X	X	X	X	4X	Digit 4
0	1	0	1	X	X	X	X	5X	Digit 5
0	1	1	0	X	X	X	X	6X	Digit 6
0	1	1	1	X	X	X	X	7X	Digit 7
1	0	0	0	X	X	X	X	8X	Digit 8
1	0	0	1	X	X	X	X	9X	Digit 9

Section 1-1 Address Information (Continued)

First Indicator Octet

The First Indicator Octet specifies the remaining fields that will be included in the rest of the message.



See Table Below

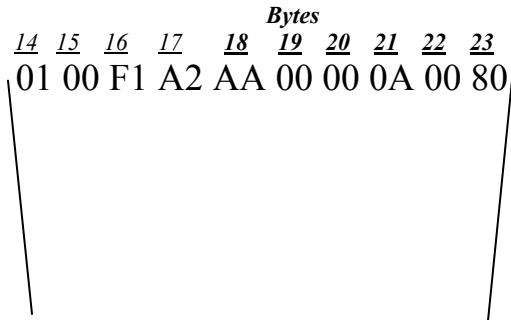
Bits	Value	Description of Values
		Additional Calling Party Information (ACPI)
0	0	ACPI is not effective
	1	ACPI is effective
		Additional Routing Information (ARI)
1	0	ARI is not effective
	1	ARI is effective
		Calling Line Identify (CLI)
2	0	CLI is not effective
	1	CLI is effective
		Original Address (OA)
3	0	OA is not active
	1	OA is active
		Charging Information (CI)
4	0	CI is not active
	1	CI is active
		Service Information (SI)
5	0	SI is not active
	1	SI is active
		Calling Party Attribution Data (CPAD)
6	0	CPAD is not active
	1	CPAD is active
		Second Indicator Octet (SIO)
7	0	SIO is not active
	1	SIO is active

Section 1-2 Calling Line Identity

The Calling Line Identity field contains information on the calling party such as Tenant, RSC, SFC, Station Number, Originating Point Code and CAL / CPI.

The Calling Line Identity Field begins after the Address Signal Field. The starting byte may be in a different location, but the format of the field will always be the same. For this reason in the example below the sample data will be used, but the byte numbers will not be specified.

Calling Line Identity



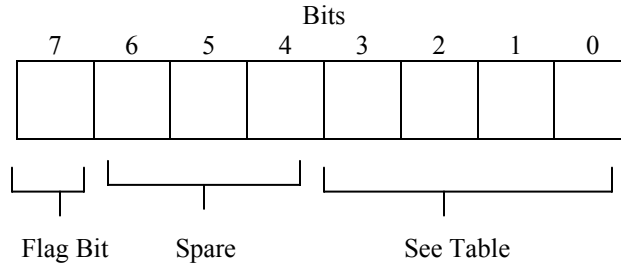
3F-84-0B-80-02-40-00-21-00-00-40-12-00-7C-**01-00-F1-A2-AA-00-00-0A-00-80-**
 01-00-F1-A2-AA-00-00-0A-00-80-FC-FE-FC-FE-FC-FE-FC-FE-FC-FE-00-00-
 00-80-00-02-00-00-00-00-00-00-00-00-00-00-00-00-00-00-00-00-00-FF/

		Bits								
		7	6	5	4	3	2	1	0	
Bytes	0	0	0	0	0	0	0	0	1	Tenant
	0	0	0	0	0	0	0	0	0	OP Tenant
	1	1	1	1	0	0	0	0	1	SFC / RSC
	1	0	1	0	0	0	1	0	0	Calling Party Number
	1	0	1	0	1	0	1	0	0	
	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	
	0	0	0	0	1	0	1	0	0	Originating Point Code
	0	0	0	0	0	0	0	0	0	
	1	0	0	0	0	0	0	0	0	CAL / CPI

Section 1-2 Calling Line Identity (Continued)

Tenant

The Tenant field contains information on the Tenant of the Calling Party. The Tenant is the Decimal value of the Hex data.



Bits								Hex Value	Description of Values
7	6	5	4	3	2	1	0		
X	X	X	X	0	0	0	0	X0	Tenant 0
X	X	X	X	0	0	0	1	X1	Tenant 1
X	X	X	X	0	0	1	0	X2	Tenant 2
X	X	X	X	0	0	1	1	X3	Tenant 3
X	X	X	X	0	1	0	0	X4	Tenant 4
X	X	X	X	0	1	0	1	X5	Tenant 5
X	X	X	X	0	1	1	0	X6	Tenant 6
X	X	X	X	0	1	1	1	X7	Tenant 7
X	X	X	X	1	0	0	0	X8	Tenant 8
X	X	X	X	1	0	0	1	X9	Tenant 9
X	X	X	X	1	0	1	0	XA	Tenant 10
X	X	X	X	1	0	1	1	XB	Tenant 11
X	X	X	X	1	1	0	0	XC	Tenant 12
X	X	X	X	1	1	0	1	XD	Tenant 13
X	X	X	X	1	1	1	0	XE	Tenant 14
X	X	X	X	1	1	1	1	XF	Tenant 15

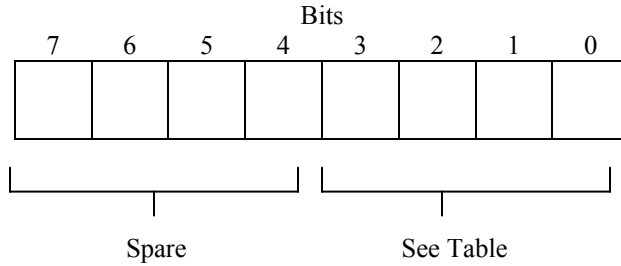


Flag Bit	
Value	Description of Value
0	OP Tenant is not counted
1	OP Tenant is Counted

Section 1-2 Calling Line Identity (Continued)

OP Tenant

The OP Tenant field contains information on the Tenant of the Calling Party. The Tenant is the Decimal value of the Hex data.



Bits								Hex Value	Description of Values
7	6	5	4	3	2	1	0		
X	X	X	X	0	0	0	0	X0	OP Tenant 0
X	X	X	X	0	0	0	1	X1	OP Tenant 1
X	X	X	X	0	0	1	0	X2	OP Tenant 2
X	X	X	X	0	0	1	1	X3	OP Tenant 3
X	X	X	X	0	1	0	0	X4	OP Tenant 4
X	X	X	X	0	1	0	1	X5	OP Tenant 5
X	X	X	X	0	1	1	0	X6	OP Tenant 6
X	X	X	X	0	1	1	1	X7	OP Tenant 7
X	X	X	X	1	0	0	0	X8	OP Tenant 8
X	X	X	X	1	0	0	1	X9	OP Tenant 9
X	X	X	X	1	0	1	0	XA	OP Tenant 10
X	X	X	X	1	0	1	1	XB	OP Tenant 11
X	X	X	X	1	1	0	0	XC	OP Tenant 12
X	X	X	X	1	1	0	1	XD	OP Tenant 13
X	X	X	X	1	1	1	0	XE	OP Tenant 14
X	X	X	X	1	1	1	1	XF	OP Tenant 15

Section 1-2 Calling Line Identity (Continued)

SFC / RSC

SFC / RSC is a one byte field that contains the Service Feature Class and Restriction Class of the Calling Party.

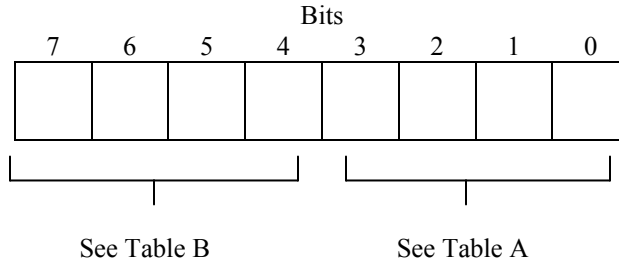


Table A

Bits								Hex Value	Description of Values
7	6	5	4	3	2	1	0		
X	X	X	X	0	0	0	0	X0	Digit 0
X	X	X	X	0	0	0	1	X1	Digit 1
X	X	X	X	0	0	1	0	X2	Digit 2
X	X	X	X	0	0	1	1	X3	Digit 3
X	X	X	X	0	1	0	0	X4	Digit 4
X	X	X	X	0	1	0	1	X5	Digit 5
X	X	X	X	0	1	1	0	X6	Digit 6
X	X	X	X	0	1	1	1	X7	Digit 7
X	X	X	X	1	0	0	0	X8	Digit 8
X	X	X	X	1	0	0	1	X9	Digit 9

Table B

Bits								Hex Value	Description of Values
7	6	5	4	3	2	1	0		
0	0	0	0	X	X	X	X	0X	Digit 0
0	0	0	1	X	X	X	X	1X	Digit 1
0	0	1	0	X	X	X	X	2X	Digit 2
0	0	1	1	X	X	X	X	3X	Digit 3
0	1	0	0	X	X	X	X	4X	Digit 4
0	1	0	1	X	X	X	X	5X	Digit 5
0	1	1	0	X	X	X	X	6X	Digit 6
0	1	1	1	X	X	X	X	7X	Digit 7
1	0	0	0	X	X	X	X	8X	Digit 8
1	0	0	1	X	X	X	X	9X	Digit 9

Section 1-2 **Calling Line Identity** **(Continued)**

Calling Party Number

The Calling Party Number is a four-byte field that contains the number of the Calling Party.

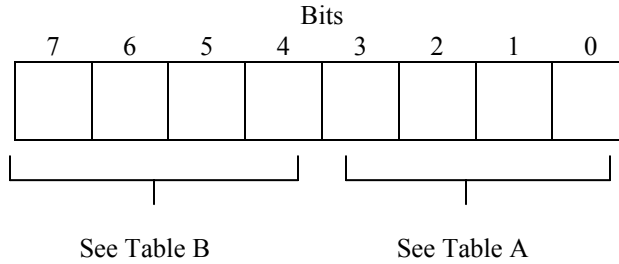
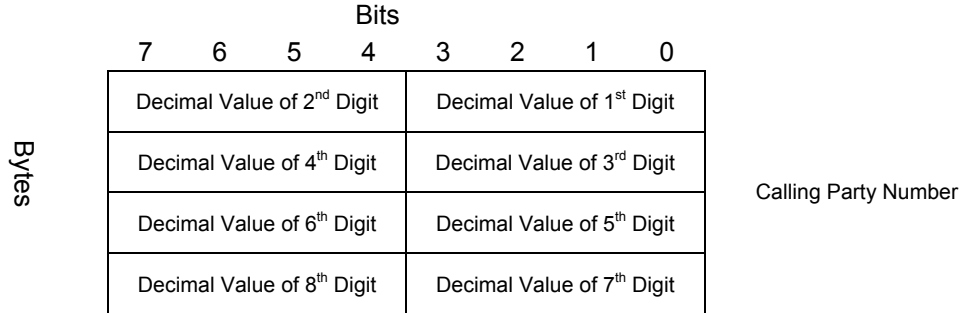


Table A

Bits								Hex Value	Description of Values
7	6	5	4	3	2	1	0		
X	X	X	X	0	0	0	0	X0	-
X	X	X	X	0	0	0	1	X1	Digit 1
X	X	X	X	0	0	1	0	X2	Digit 2
X	X	X	X	0	0	1	1	X3	Digit 3
X	X	X	X	0	1	0	0	X4	Digit 4
X	X	X	X	0	1	0	1	X5	Digit 5
X	X	X	X	0	1	1	0	X6	Digit 6
X	X	X	X	0	1	1	1	X7	Digit 7
X	X	X	X	1	0	0	0	X8	Digit 8
X	X	X	X	1	0	0	1	X9	Digit 9
X	X	X	X	1	0	1	0	XA	Digit 0

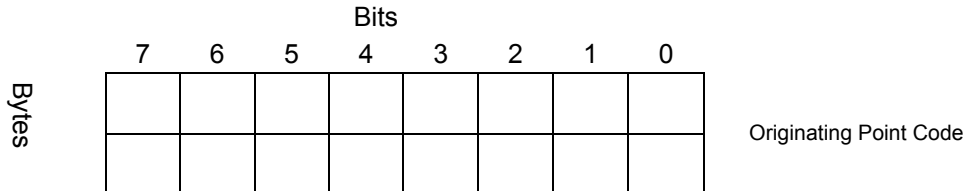
Table B

Bits								Hex Value	Description of Values
7	6	5	4	3	2	1	0		
0	0	0	0	X	X	X	X	0X	-
0	0	0	1	X	X	X	X	1X	Digit 1
0	0	1	0	X	X	X	X	2X	Digit 2
0	0	1	1	X	X	X	X	3X	Digit 3
0	1	0	0	X	X	X	X	4X	Digit 4
0	1	0	1	X	X	X	X	5X	Digit 5
0	1	1	0	X	X	X	X	6X	Digit 6
0	1	1	1	X	X	X	X	7X	Digit 7
1	0	0	0	X	X	X	X	8X	Digit 8
1	0	0	1	X	X	X	X	9X	Digit 9
1	0	1	0	X	X	X	X	AX	Digit 0

Section 1-2 Calling Line Identity (Continued)

Originating Point Code

The Originating Point Code is a two byte field that contains the point code of the Calling Party. The point code is a decimal value of the HEX data. It is figured using all 16 bits working from least significant bit to most significant bit.



Example Hex Value

0A
00

Binary Value

Bits

	7	6	5	4	3	2	1	0	
	0	0	0	0	1	0	1	0	
	0	0	0	0	0	0	0	0	

Decimal Value

10

The Decimal Value of the HEX data is equal to the Originating Point Code. In this case the Originating Point Code is 10.

Section 1-2 **Calling Line Identity** **(Continued)**

CAL / CPI

This Byte contains CAL and CPI information of the Calling Party.

Message Indicator

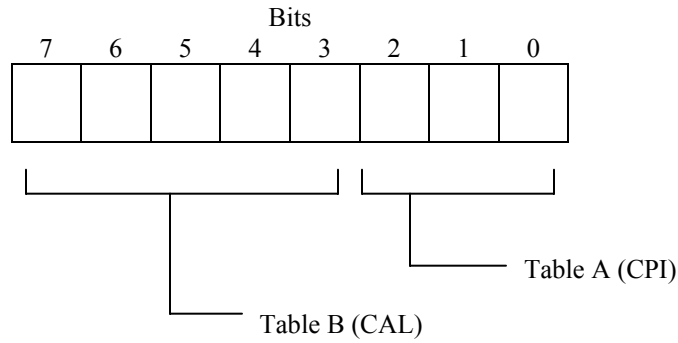


Table A (CPI)

Bits			Description of Values
2	1	0	
0	0	0	Station Call
0	0	1	Attendant Call
0	1	0	Trunk Call
0	1	1	Spare
1	0	0	Spare
1	0	1	Spare
1	1	0	Spare
1	1	1	Spare

Section 1-2 Calling Line Identity (Continued)

Table B (CAL)

Bits					Description of Values
7	6	5	4	3	
0	0	0	0	1	-DDD Trunk
0	0	0	1	0	-
0	0	0	1	1	-
0	0	1	0	0	-TIE Trunk
0	0	1	0	1	-CCSA Trunk
0	0	1	1	0	-
0	0	1	1	1	-
0	1	0	0	0	-
0	1	0	0	1	-
0	1	0	1	0	-
0	1	0	1	1	-
0	1	1	0	0	-
0	1	1	0	1	-
0	1	1	1	0	-
0	1	1	1	1	-
1	0	0	0	0	-Station
1	0	0	0	1	-
1	0	0	1	0	-
1	0	0	1	1	-
1	0	1	0	0	-
1	0	1	0	1	-
1	0	1	1	0	-
1	0	1	1	1	-
1	1	0	0	0	-
1	1	0	0	1	-
1	1	0	1	0	-
1	1	0	1	1	-
1	1	1	0	0	-
1	1	1	0	1	-
1	1	1	1	1	-

Section 1-3 Original Address

The Original Address field contains information on the originating party such as Tenant, RSC, SFC, Station Number, Originating Point Code and CAL / CPI.

The starting byte of the Original Address field may be in a different location, but the format of the field will always be the same. For this reason in the example below the sample data will be used, but the byte numbers will not be specified.

Original Address

<i>Bytes</i>									
<u>24</u>	<u>25</u>	<u>26</u>	<u>27</u>	<u>28</u>	<u>29</u>	<u>30</u>	<u>31</u>	<u>32</u>	<u>33</u>
01	00	F1	A2	AA	00	00	0A	00	80

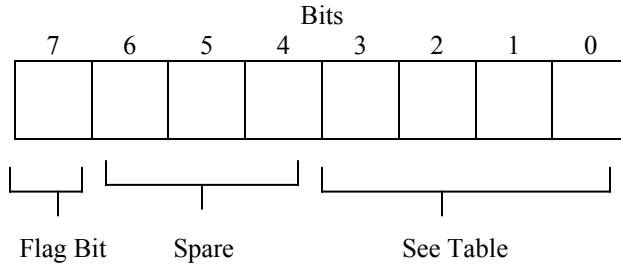
3F-84-0B-80-02-40-00-21-00-00-40-12-00-7C-01-00-F1-A2-AA-00-00-0A-00-80-
01-00-F1-A2-AA-00-00-0A-00-80-FC-FE-FC-FE-FC-FE-FC-FE-FC-FE-00-00-
 00-80-00-02-00-00-00-00-00-00-00-00-00-00-00-00-00-00-00-00-00-00-FF/

		Bits								
		7	6	5	4	3	2	1	0	
Bytes	0	0	0	0	0	0	0	0	1	Tenant
	0	0	0	0	0	0	0	0	0	OP Tenant
	1	1	1	1	0	0	0	0	1	SFC / RSC
	1	0	1	0	0	0	1	0	0	
	1	0	1	0	1	0	1	0	0	Original Address
	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	
	0	0	0	0	1	0	1	0	0	Originating Point Code
	0	0	0	0	0	0	0	0	0	
	1	0	0	0	0	0	0	0	0	CAL / CPI

Section 1-3 Original Address (Continued)

Tenant

The Tenant field contains information on the Tenant of the Original Address. The Tenant is the Decimal value of the Hex data.



Bits								Hex Value	Description of Values
7	6	5	4	3	2	1	0		
				0	0	0	0	X0	Tenant 0
				0	0	0	1	X1	Tenant 1
				0	0	1	0	X2	Tenant 2
				0	0	1	1	X3	Tenant 3
				0	1	0	0	X4	Tenant 4
				0	1	0	1	X5	Tenant 5
				0	1	1	0	X6	Tenant 6
				0	1	1	1	X7	Tenant 7
				1	0	0	0	X8	Tenant 8
				1	0	0	1	X9	Tenant 9
				1	0	1	0	XA	Tenant 10
				1	0	1	1	XB	Tenant 11
				1	1	0	0	XC	Tenant 12
				1	1	0	1	XD	Tenant 13
				1	1	1	0	XE	Tenant 14
				1	1	1	1	XF	Tenant 15

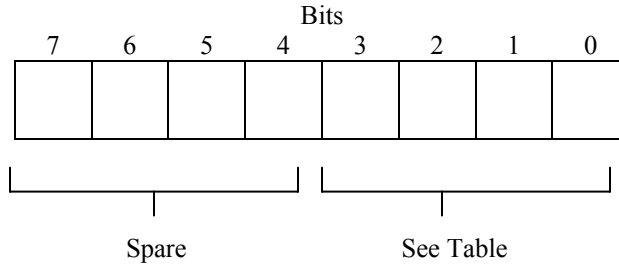


Flag Bit	
Value	Description of Value
0	OP Tenant is not counted
1	OP Tenant is Counted

Section 1-3 Original Address (Continued)

OP Tenant

The OP Tenant field contains information on the Tenant of the Original Address. The Tenant is the Decimal value of the Hex data.



Bits								Hex Value	Description of Values
7	6	5	4	3	2	1	0		
X	X	X	X	0	0	0	0	X0	OP Tenant 0
X	X	X	X	0	0	0	1	X1	OP Tenant 1
X	X	X	X	0	0	1	0	X2	OP Tenant 2
X	X	X	X	0	0	1	1	X3	OP Tenant 3
X	X	X	X	0	1	0	0	X4	OP Tenant 4
X	X	X	X	0	1	0	1	X5	OP Tenant 5
X	X	X	X	0	1	1	0	X6	OP Tenant 6
X	X	X	X	0	1	1	1	X7	OP Tenant 7
X	X	X	X	1	0	0	0	X8	OP Tenant 8
X	X	X	X	1	0	0	1	X9	OP Tenant 9
X	X	X	X	1	0	1	0	XA	OP Tenant 10
X	X	X	X	1	0	1	1	XB	OP Tenant 11
X	X	X	X	1	1	0	0	XC	OP Tenant 12
X	X	X	X	1	1	0	1	XD	OP Tenant 13
X	X	X	X	1	1	1	0	XE	OP Tenant 14
X	X	X	X	1	1	1	1	XF	OP Tenant 15

Section 1-3 Original Address (Continued)

SFC / RSC

SFC / RSC is a one byte field that contains the Service Feature Class and Restriction Class of the Original Address.

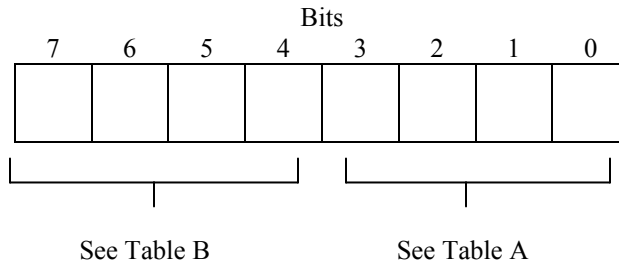


Table A

Bits								Hex Value	Description of Values
7	6	5	4	3	2	1	0		
X	X	X	X	0	0	0	0	X0	Digit 0
X	X	X	X	0	0	0	1	X1	Digit 1
X	X	X	X	0	0	1	0	X2	Digit 2
X	X	X	X	0	0	1	1	X3	Digit 3
X	X	X	X	0	1	0	0	X4	Digit 4
X	X	X	X	0	1	0	1	X5	Digit 5
X	X	X	X	0	1	1	0	X6	Digit 6
X	X	X	X	0	1	1	1	X7	Digit 7
X	X	X	X	1	0	0	0	X8	Digit 8
X	X	X	X	1	0	0	1	X9	Digit 9

Table B

Bits								Hex Value	Description of Values
7	6	5	4	3	2	1	0		
0	0	0	0	X	X	X	X	0X	Digit 0
0	0	0	1	X	X	X	X	1X	Digit 1
0	0	1	0	X	X	X	X	2X	Digit 2
0	0	1	1	X	X	X	X	3X	Digit 3
0	1	0	0	X	X	X	X	4X	Digit 4
0	1	0	1	X	X	X	X	5X	Digit 5
0	1	1	0	X	X	X	X	6X	Digit 6
0	1	1	1	X	X	X	X	7X	Digit 7
1	0	0	0	X	X	X	X	8X	Digit 8
1	0	0	1	X	X	X	X	9X	Digit 9

Section 1-3

Original Address (Continued)

Calling Party Number

The Calling Party Number is a four-byte field that contains the number of the Original Address.

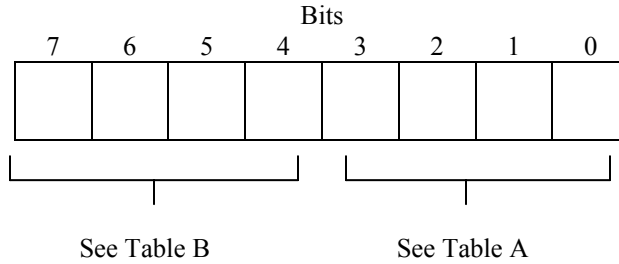
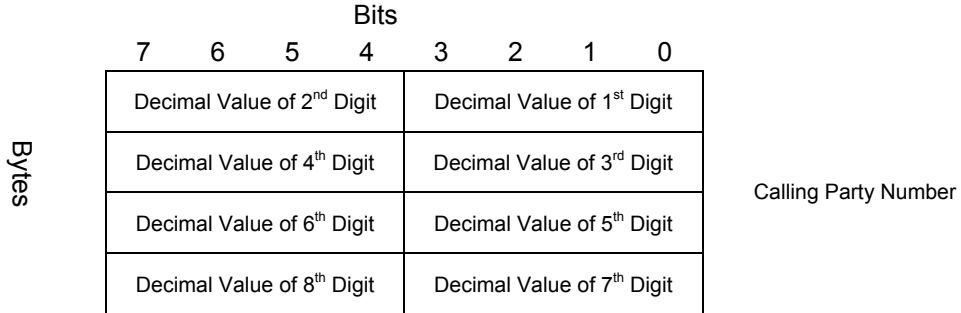


Table A

Bits								Hex Value	Description of Values
7	6	5	4	3	2	1	0		
X	X	X	X	0	0	0	0	X0	-
X	X	X	X	0	0	0	1	X1	Digit 1
X	X	X	X	0	0	1	0	X2	Digit 2
X	X	X	X	0	0	1	1	X3	Digit 3
X	X	X	X	0	1	0	0	X4	Digit 4
X	X	X	X	0	1	0	1	X5	Digit 5
X	X	X	X	0	1	1	0	X6	Digit 6
X	X	X	X	0	1	1	1	X7	Digit 7
X	X	X	X	1	0	0	0	X8	Digit 8
X	X	X	X	1	0	0	1	X9	Digit 9
X	X	X	X	1	0	1	0	XA	Digit 0

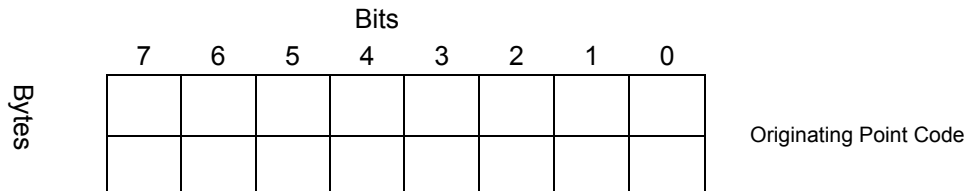
Table B

Bits								Hex Value	Description of Values
7	6	5	4	3	2	1	0		
0	0	0	0	X	X	X	X	0X	-
0	0	0	1	X	X	X	X	1X	Digit 1
0	0	1	0	X	X	X	X	2X	Digit 2
0	0	1	1	X	X	X	X	3X	Digit 3
0	1	0	0	X	X	X	X	4X	Digit 4
0	1	0	1	X	X	X	X	5X	Digit 5
0	1	1	0	X	X	X	X	6X	Digit 6
0	1	1	1	X	X	X	X	7X	Digit 7
1	0	0	0	X	X	X	X	8X	Digit 8
1	0	0	1	X	X	X	X	9X	Digit 9
1	0	1	0	X	X	X	X	AX	Digit 0

Section 1-3 Original Address (Continued)

Originating Point Code

The Originating Point Code is a two-byte field that contains the point code of the Original Address. The point code is a decimal value of the HEX data. It is figured using all 16 bits working from least significant bit to most significant bit.



Example Hex Value

0A
00

Binary Value

Bits

	7	6	5	4	3	2	1	0	
	0	0	0	0	1	0	1	0	
	0	0	0	0	0	0	0	0	

Decimal Value

10

The Decimal Value of the HEX data is equal to the Originating Point Code. In this case the Originating Point Code is 10.

Section 1-3 Original Address (Continued)

CAL / CPI

This Byte contains CAL and CPI information for the Original Address.

Message Indicator

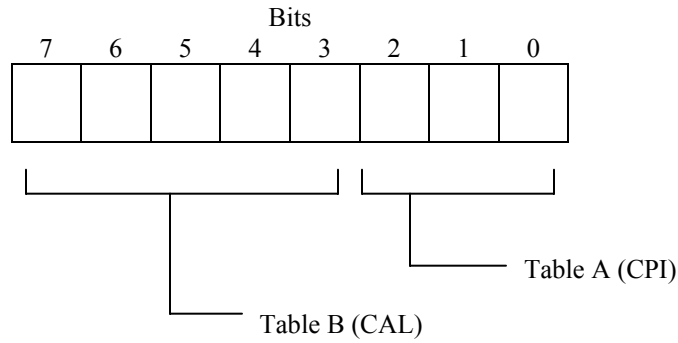


Table A (CPI)

Bits			Description of Values
2	1	0	
0	0	0	Station Call
0	0	1	Attendant Call
0	1	0	Trunk Call
0	1	1	Spare
1	0	0	Spare
1	0	1	Spare
1	1	0	Spare
1	1	1	Spare

Section 1-3

Original Address (Continued)

Table B (CAL)

Bits					Description of Values
7	6	5	4	3	
0	0	0	0	1	-DDD Trunk
0	0	0	1	0	-
0	0	0	1	1	-
0	0	1	0	0	-TIE Trunk
0	0	1	0	1	-CCSA Trunk
0	0	1	1	0	-
0	0	1	1	1	-
0	1	0	0	0	-
0	1	0	0	1	-
0	1	0	1	0	-
0	1	0	1	1	-
0	1	1	0	0	-
0	1	1	0	1	-
0	1	1	1	0	-
0	1	1	1	1	-
1	0	0	0	0	-Station
1	0	0	0	1	-
1	0	0	1	0	-
1	0	0	1	1	-
1	0	1	0	0	-
1	0	1	0	1	-
1	0	1	1	0	-
1	0	1	1	1	-
1	1	0	0	0	-
1	1	0	0	1	-
1	1	0	1	0	-
1	1	0	1	1	-
1	1	1	0	0	-
1	1	1	0	1	-
1	1	1	1	1	-

Section 1-4 Charging Information

The Charging Information Field has information about the Account Code used in the call.

The Charging Information Field is a five or ten-byte field. The starting byte of the field may be in a different location, but the format will always be the same. For this reason in the example below the sample data will be used, but the byte numbers will not be specified.

Charging Information

Bytes
34 35 36 37 38 39 40 41 42 43
 FC FE FC FE FC FE FC FE FC FE

3F-84-0B-80-02-40-00-21-00-00-40-12-00-7C-01-00-F1-A2-AA-00-00-0A-00-80-01-00-F1-A2-AA-00-00-0A-00-80-FC-FE-FC-FE-FC-FE-FC-FE-FC-FE-00-00-00-80-00-02-00-00-00-00-00-00-00-00-00-00-00-00-00-00-00-00-00-00-FF/

		Bits							
		7	6	5	4	3	2	1	0
Bytes	1	1	1	1	1	1	1	0	0
	1	1	1	1	1	1	1	1	1
	1	1	1	1	1	1	1	0	0
	1	1	1	1	1	1	1	1	0
	1	1	1	1	1	1	1	0	0
	1	1	1	1	1	1	1	1	1
	1	1	1	1	1	1	1	0	0
	1	1	1	1	1	1	1	1	0
	1	1	1	1	1	1	1	0	0
	1	1	1	1	1	1	1	1	0

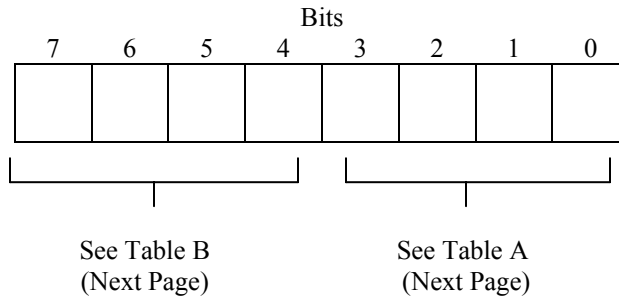
Account Code

Section 1-4 Charging Information (Continued)

Account Code

The Account Code is a five-byte field that contains the Account Code used in the call. The Account code is the Decimal Value of the HEX data.

		Bits									
		7	6	5	4	3	2	1	0		
Bytes		Decimal Value of 2 nd Digit				Decimal Value of 1 st Digit					
		Decimal Value of 4 th Digit				Decimal Value of 3 rd Digit					
		Decimal Value of 6 th Digit				Decimal Value of 5 th Digit				Account Code	
		Decimal Value of 8 th Digit				Decimal Value of 7 th Digit					
		Decimal Value of 10 th Digit				Decimal Value of 9 th Digit					



Section 1-4 Charging Information (Continued)

Table A

Bits								Hex Value	Description of Values
7	6	5	4	3	2	1	0		
X	X	X	X	0	0	0	0	X0	Digit 0
X	X	X	X	0	0	0	1	X1	Digit 1
X	X	X	X	0	0	1	0	X2	Digit 2
X	X	X	X	0	0	1	1	X3	Digit 3
X	X	X	X	0	1	0	0	X4	Digit 4
X	X	X	X	0	1	0	1	X5	Digit 5
X	X	X	X	0	1	1	0	X6	Digit 6
X	X	X	X	0	1	1	1	X7	Digit 7
X	X	X	X	1	0	0	0	X8	Digit 8
X	X	X	X	1	0	0	1	X9	Digit 9
X	X	X	X	1	1	1	1	XF	No Data

Table B

Bits								Hex Value	Description of Values
7	6	5	4	3	2	1	0		
0	0	0	0	X	X	X	X	0X	Digit 0
0	0	0	1	X	X	X	X	1X	Digit 1
0	0	1	0	X	X	X	X	2X	Digit 2
0	0	1	1	X	X	X	X	3X	Digit 3
0	1	0	0	X	X	X	X	4X	Digit 4
0	1	0	1	X	X	X	X	5X	Digit 5
0	1	1	0	X	X	X	X	6X	Digit 6
0	1	1	1	X	X	X	X	7X	Digit 7
1	0	0	0	X	X	X	X	8X	Digit 8
1	0	0	1	X	X	X	X	9X	Digit 9
1	1	1	1	X	X	X	X	FX	No Data

Section 1-5 Office Code

The Office Code Field contains the office code if it is used on the call.

The Office Code is composed of two-bytes that will contain the office code of the Calling Party if used.
The Office Code is the Decimal Value of the HEX data.

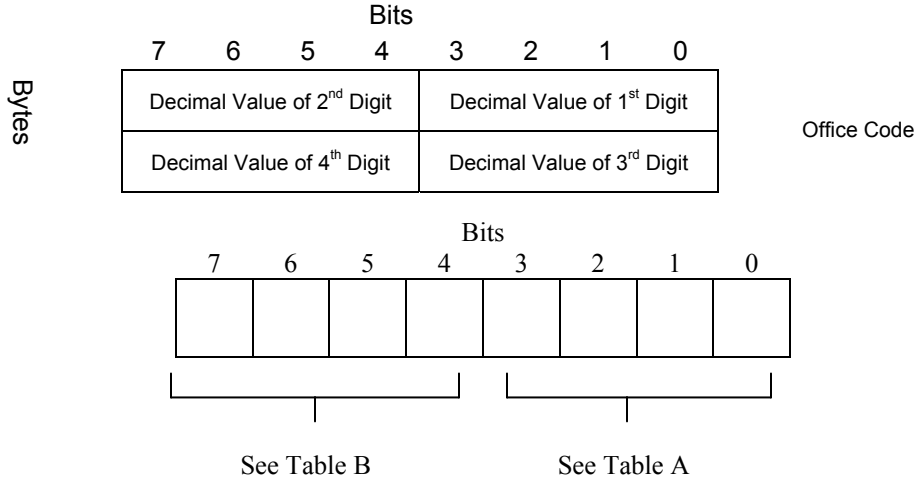


Table A

Bits								Hex Value	Description of Values
7	6	5	4	3	2	1	0		
X	X	X	X	0	0	0	0	X0	-
X	X	X	X	0	0	0	1	X1	Digit 1
X	X	X	X	0	0	1	0	X2	Digit 2
X	X	X	X	0	0	1	1	X3	Digit 3
X	X	X	X	0	1	0	0	X4	Digit 4
X	X	X	X	0	1	0	1	X5	Digit 5
X	X	X	X	0	1	1	0	X6	Digit 6
X	X	X	X	0	1	1	1	X7	Digit 7
X	X	X	X	1	0	0	0	X8	Digit 8
X	X	X	X	1	0	0	1	X9	Digit 9
X	X	X	X	1	0	1	0	XA	Digit 0

Table B

Bits								Hex Value	Description of Values
7	6	5	4	3	2	1	0		
0	0	0	0	X	X	X	X	0X	-
0	0	0	1	X	X	X	X	1X	Digit 1
0	0	1	0	X	X	X	X	2X	Digit 2
0	0	1	1	X	X	X	X	3X	Digit 3
0	1	0	0	X	X	X	X	4X	Digit 4
0	1	0	1	X	X	X	X	5X	Digit 5
0	1	1	0	X	X	X	X	6X	Digit 6
0	1	1	1	X	X	X	X	7X	Digit 7
1	0	0	0	X	X	X	X	8X	Digit 8
1	0	0	1	X	X	X	X	9X	Digit 9
1	0	1	0	X	X	X	X	AX	Digit 0

Section 1-6 Service Information (Continued)

CAL / CPI

This byte contains CAL and CPI information for the overall type of call the message is describing.

Message Indicator

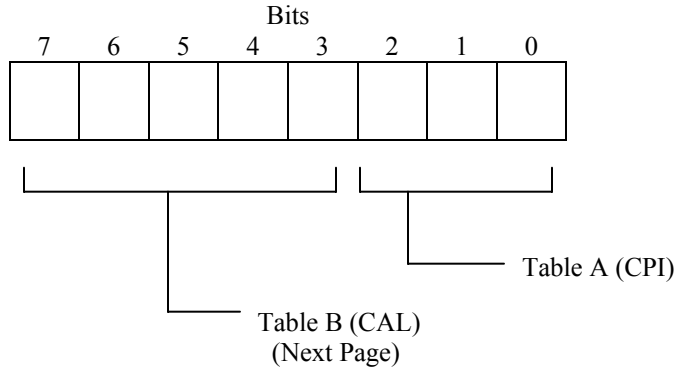


Table A (CPI)

Bits			Description of Values
2	1	0	
0	0	0	Station Call
0	0	1	Attendant Call
0	1	0	Trunk Call
0	1	1	Spare
1	0	0	Spare
1	0	1	Spare
1	1	0	Spare
1	1	1	Spare

Section 1-6

Service Information

(Continued)

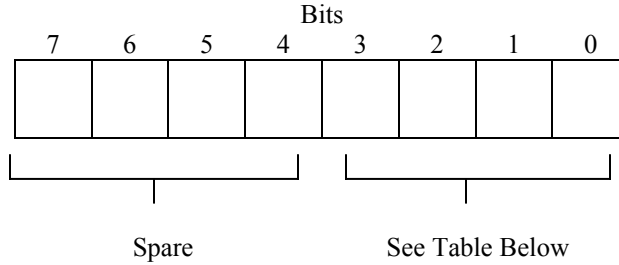
Table B (CAL)

Bits					Description of Values
7	6	5	4	3	
0	0	0	0	1	-DDD Trunk
0	0	0	1	0	-
0	0	0	1	1	-
0	0	1	0	0	-TIE Trunk
0	0	1	0	1	-CCSA Trunk
0	0	1	1	0	-
0	0	1	1	1	-
0	1	0	0	0	-
0	1	0	0	1	-
0	1	0	1	0	-
0	1	0	1	1	-
0	1	1	0	0	-
0	1	1	0	1	-
0	1	1	1	0	-
0	1	1	1	1	-
1	0	0	0	0	-Station
1	0	0	0	1	-
1	0	0	1	0	-
1	0	0	1	1	-
1	0	1	0	0	-
1	0	1	0	1	-
1	0	1	1	0	-
1	0	1	1	1	-
1	1	0	0	0	-
1	1	0	0	1	-
1	1	0	1	0	-
1	1	0	1	1	-
1	1	1	0	0	-
1	1	1	0	1	-
1	1	1	1	1	-

Section 1-6 Service Information (Continued)

Call Type

The Call Type is composed of a single byte. It contains information on the overall type of the call.



Bits								Hex Value	Description of Values
7	6	5	4	3	2	1	0		
X	X	X	X	0	0	0	0	00	Voice
X	X	X	X	0	0	0	1	01	Call Back
X	X	X	X	0	0	1	0	02	EROW
X	X	X	X	0	0	1	1	03	Call Back Re-Ring
X	X	X	X	0	1	0	0	04	ATT Camp On
X	X	X	X	0	1	0	1	05	ATT Busy Verification
X	X	X	X	0	1	1	0	06	Call Forwarding TRF
X	X	X	X	0	1	1	1	07	OG Queuing Re-Ring
X	X	X	X	1	0	0	0	08	Call Forward All
X	X	X	X	1	0	0	1	09	Call Forward Busy
X	X	X	X	1	0	1	0	0A	Call Forward D/A
X	X	X	X	1	0	1	1	0B	Call Forward Other Office Set
X	X	X	X	1	1	0	0	0C	Call Forward Other Office RS
X	X	X	X	1	1	0	1	0D	Camp On Execute
X	X	X	X	1	1	1	0	0E	Call Waiting
X	X	X	X	1	1	1	1	0F	Call Forward Incoming Call Incomplete

Section 2 ACM CCIS Trace Message

Below is an Example of an ACM CCIS Trace Message.

I<06:3A-5E-00-00-00-3F-84-0A-C0-02-40-00-14-0E-20-20-20-20-20-20-20-20-20-20-20-20-20-20-50-41-54-FF/

I> = incoming message

06 = CCH card no. (SC00 or 24CCTA)

3A = CCIS message trace

5E = entire message length (30, hex 1E)

X	Data Length						
0	0	0	1	1	1	1	0

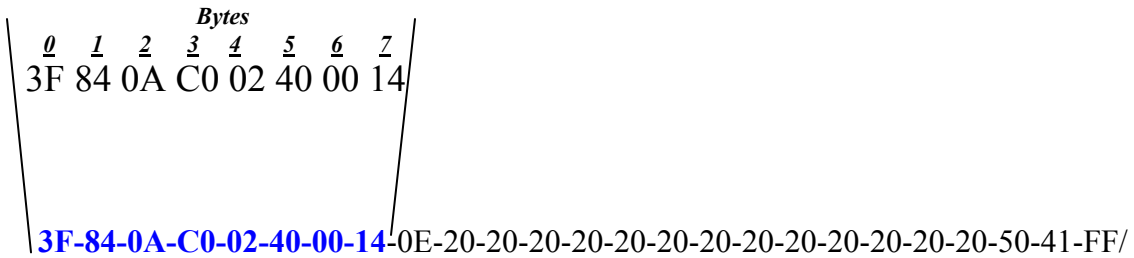
1 - 4 ACM Message Example			
Byte	Value	Byte Description	Detail Information
0	3F	LI - Data Length Indication	Header Information Section 2-0
1	84	SIO - Service Information Octet	
2	0A	Point Code and CIC Information	
3	C0		
4	02		
5	40		
6	00		
7	14	Heading Code	
8	0E	Message Indicators	Message Indicators Section 2-1
9	20	Called Name Section 2-2	
10	20		
11	20		
12	20		
13	20		
14	20		
15	20		
16	20		
17	20		
18	20		
19	20		
20	20		
21	20		
22	50		
23	41		
24	54		
25	00		
26	00		
27	00		
28	00		
29	00		
30	00		
31	00		
32	00		
33	00		
34	00		
35	00		
36	00		
37	00		
38	00		
39	00		
40	00		
41	00		
42	00		
43	00		
44	00		
45	00		
46	00		
47	00		
48	00		
49	00		
50	00		
51	00		
52	00		
53	80		
54	04		
55	08		
56	00		

Section 2-0 Message Header Information

CCIS Header information contains the initial information about the setup of the rest of the message. Included will be the message length, destination point code, originating point code, CIC and heading code (this tells what kind of message it is).

The header is contained in the first 8 bytes of the message. Regardless of the message type the header will break out the same.

Header Information in a 16-Z format



The Message header breaks out as follows.

Message Header Diagram

		Bits								
		7	6	5	4	3	2	1	0	
Bytes	0	0	0	1	1	1	1	1	1	LI (Length Indicator)
	1	1	0	0	0	0	1	0	0	SIO (Service Information Octet)
	2	0	0	0	0	1	0	1	0	Destination Point Code
	3	1	1	0	0	0	0	0	0	Originating Point Code
	4	0	0	0	0	0	0	1	0	CIC (Circuit Information Code)
	5	0	1	0	0	0	0	0	0	Heading Code
	6	0	0	0	0	0	0	0	0	
	7	0	0	0	1	0	1	0	0	

Section 2-0

Message Header Information (Continued)

Length Indicator

Shows the length of the message in bytes. This value should be converted to decimal. The decimal value shows the number of bytes in the message.

Hex
Value

3F

Binary Value

7	6	5	4	3	2	1	0
0	0	1	1	1	1	1	1

Decimal
Value

63

The total length of the message is 63 bytes.

Section 2-0

Message Header Information (Continued)

Destination Point Code / Originating Point Code / CIC

The chart below explains how to extract the Destination Point Code, Originating Point Code and CIC information from bytes 2 through 6.

		Bits							
		7	6	5	4	3	2	1	0
Bytes	0	0	0	1	1	1	1	1	1
	1	1	0	0	0	0	1	0	0
	2	0	0	0	0	1	0	1	0
	3	1	1	0	0	0	0	0	0
	4	0	0	0	0	0	0	1	0
	5	0	1	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0
	7	0	0	0	1	0	1	0	0

LI (Length Indicator)
SIO (Service Information Octet)
Destination Point Code
Originating Point Code
CIC (Circuit Information Code)
Heading Code

Destination Point Code

0 0 0 0 0 0 0 0 0 0 1 0 1 0 Point Code = 10

Originating Point Code

0 0 0 0 0 0 0 0 0 0 1 0 1 1 Point Code = 11

Circuit Identification Code

0 0 0 0 0 0 0 0 0 1 0 0 CIC = 04

Section 2-0

Message Header Information (Continued)

Heading Code

Heading Code contains the information on the type of message this is. Refer to the chart on page 3 for breakout information on the different types of messages. Use the reference using the HEX value.

Hex
Value

14

Binary Value

7	6	5	4	3	2	1	0
0	0	0	1	0	1	0	0

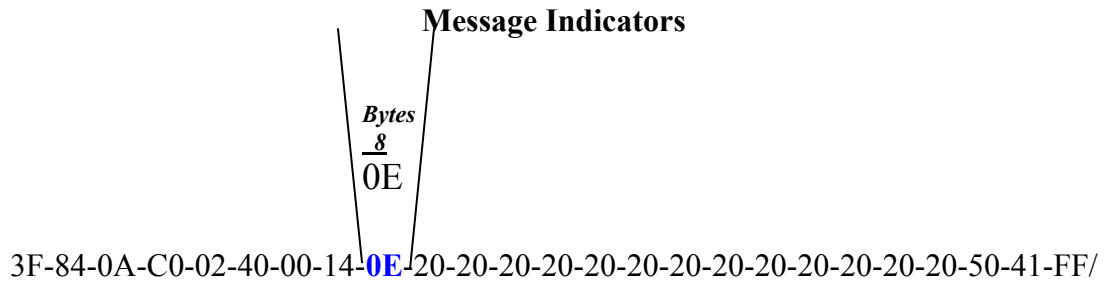
1-4 Message Address Complete Message.

Section 2-1

Message Indicators

Message Indicators

The Message Indicators Field Contains information on what fields are included in the following message.



Section 2-1

Message Indicators

(Continued)

Bit Description for Message Indicators.

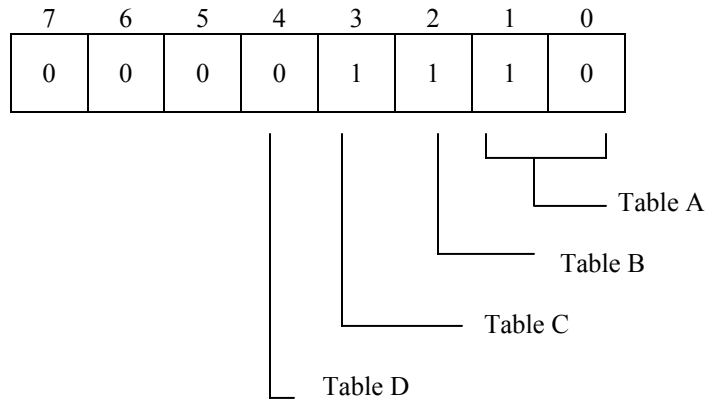


Table A

Bits		Description of Values
1	0	
0	0	Address Complete Signal
0	1	Address Complete Signal Charge
1	0	Address Complete Signal No Charge
1	1	Address Complete Signal Coin Box

Table B

Value	Description of Value
0	Subscriber Free Not Included
1	Subscriber Free

Table C

Value	Description of Value
0	Called Name Not Included
1	Called Name

Table D

Value	Description of Value
0	Called Address 2 Not Included
1	Called Address 2

Section 2-2 Called Name

Called Name

The Called Name Field is a 16-byte field that contains information on the name display information of the called party. The name display information contains the HEX values of the ASCII characters. The Example below shows the HEX value as well as the ASCII value for the example message. The Chart on the following page explains how to convert from HEX value to ASCII.

Called Name in a 16-Z format

Bytes
9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
 20 20 20 20 20 20 20 20 20 20 20 20 20 50 41 54

3F-84-0A-C0-02-40-00-14-0E-~~20-20-20-20-20-20-20-20-20-20-20-20-20-50-41-54~~-FF/

HEX to ASCII Conversion for Called Name.

	Bits								Hex Value	ASCII Value	
	7	6	5	4	3	2	1	0			
Bytes	9	0	0	1	0	0	0	0	0	20	<Space>
	10	0	1	0	1	0	0	1	1	20	<Space>
	11	0	1	0	0	0	1	0	1	20	<Space>
	12	0	1	0	0	0	0	1	1	20	<Space>
	13	0	1	0	1	0	1	0	1	20	<Space>
	14	0	1	0	1	0	0	1	0	20	<Space>
	15	0	1	0	0	1	0	0	1	20	<Space>
	16	0	1	0	1	0	1	0	0	20	<Space>
	17	0	1	0	1	1	0	0	1	20	<Space>
	18	0	0	1	0	0	0	0	0	20	<Space>
	19	0	1	0	0	0	1	0	0	20	<Space>
	20	0	1	0	0	0	1	0	1	20	<Space>
	21	0	1	0	0	0	0	1	1	20	<Space>
	22	0	1	0	0	1	0	1	1	50	P
	23	0	0	1	0	0	0	0	0	41	A
	24	0	0	1	1	0	0	1	0	54	T

Section 2-2

Called Name (Continued)

Hex Conversion Table

The HEX conversion chart below contains the ASCII characters of the HEX Values. In order to convert from HEX to ASCII take the first digit of the HEX value, this will correspond with what row you use in the chart. Then take the second digit, this will correspond to what column you will use in the chart. The character that is in the box at the intersection of those two values is the ASCII character.

HEX	X0	X1	X2	X3	X4	X5	X6	X7	X8	X9	XA	XB	XC	XD	XE	XF
0X		☺	☹	♥	♦	♣	♠	•	◼	○	◉	♂	♀	♪	♫	⚙
1X	▶	◀	↕	∥	¶	§	■	↓	↑	↓	→	←	↵	↔	▲	▼
2X		!	"	#	\$	%	&	'	()	*	+	,	-	.	/
3X	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
4X	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
5X	P	Q	R	S	T	U	V	W	X	Y	Z	[\]	^	_
6X	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
7X	p	q	r	s	t	u	v	w	x	y	z	{		}	~	
8X	Ç	ü	é	â	ä	à	ã	ç	ê	ë	è	ï	î	ì	Ä	Å
9X	É	æ	Æ	ô	ö	ò	û	ù	ÿ	Ö	Ü	ç	£	¥	Pts	f
AX	á	í	ó	ú	ñ	Ñ	ª	º	¿	¬	½	¼	¡	«	»	
BX	☒	☑	☐	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑
CX	ℒ	ℒ	ℒ	ℒ	ℒ	ℒ	ℒ	ℒ	ℒ	ℒ	ℒ	ℒ	ℒ	ℒ	ℒ	ℒ
DX	ℒ	ℒ	ℒ	ℒ	ℒ	ℒ	ℒ	ℒ	ℒ	ℒ	ℒ	ℒ	ℒ	ℒ	ℒ	ℒ
EX	α	β	Γ	π	Σ	σ	μ	τ	Φ	Θ	Ω	δ	∞	φ	ε	∩
FX	≡	±	≥	≤			÷	≈	°	.	.	√	n	²	■	

Examples:

54 = T 65 = e 73 = s 74 = t

Section 3 AND CCIS Trace Message

Below is an Example of an AND CCIS Trace Message.

I<**06:3A-F1**-00-00-00-2B-84-0A-C0-02-40-00-2F-01-00-F1-12-AA-00-00-0B-00-80-01-00-F1-12-AA-00-00-0B-00-01-20-20-20-20-20-20-20-20-20-20-50-41-54-FF/

I> = incoming message

06 = CCH card no. (SC00 or 24CCTA)

3A = CCIS message trace

F1 = entire message length (49, hex 31)

X	X	Data Length					
1	1	1	1	1	1	0	0

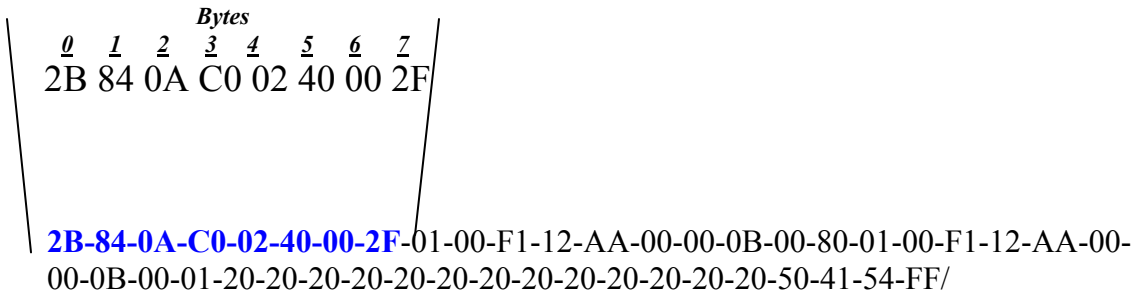
2 - F AND Message Example			
Byte	Value	Byte Description	Detail Information
0	2B	LI - Data Length Indication	Header Information Section 3-0
1	84	SIO - Service Information Octet	
2	0A	Point Code and CIC Information	
3	C0		
4	02		
5	40		
6	00		
7	2F	Heading Code	
8	01	Tenant	Answering Subscriber Section 3-1
9	00	OP Tenant	
10	F1	SFC / RSC	
11	12	Answering Subscriber	
12	AA		
13	00		
14	00	Point Code	
15	0B		
16	00		
17	80	CAL / CPI	
18	01	Tenant	Called Subscriber Section 3-2
19	00	OP Tenant	
20	F1	SFC / RSC	
21	12	Called Subscriber	
22	AA		
23	00		
24	00	Point Code	
25	0B		
26	00		
27	01	First Indicator Octet	
28	20	Called Name	Called Name Section 3-3
29	20		
30	20		
31	20		
32	20		
33	20		
34	20		
35	20		
36	20		
37	20		
38	20		
39	20		
40	20		
41	50		
42	41		
43	54		
44	00		
45	00		
46	00		
47	00		
48	00		
49	00		
50	00		
51	00		
52	00		
53	80		
54	04		
55	08		
56	00		

Section 3-0 Message Header Information

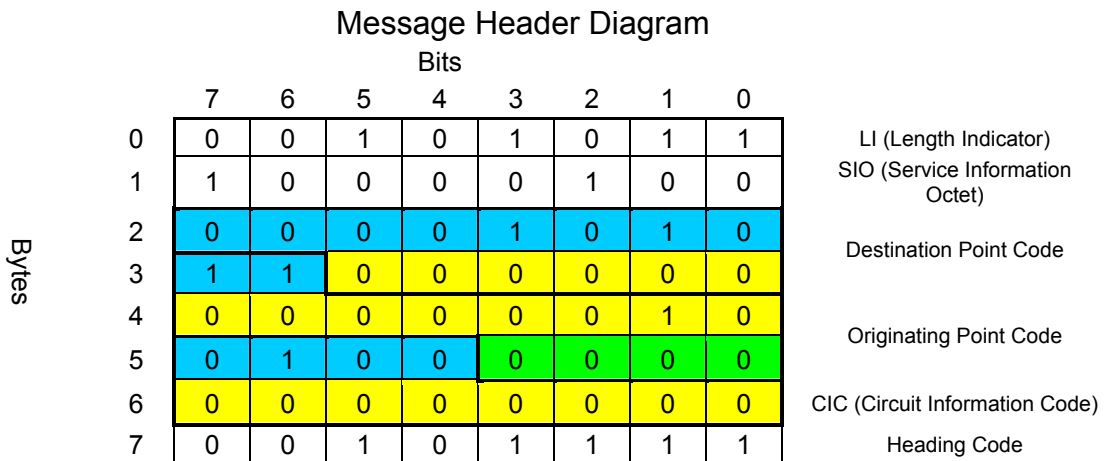
CCIS Header information contains the initial information about the setup of the rest of the message. Included will be the message length, destination point code, originating point code, CIC and heading code (this tells what kind of message it is).

The header is contained in the first 8 bytes of the message. Regardless of the message type the header will break out the same.

Header Information



The Message header breaks out as follows.



Section 3-0

Message Header Information (Continued)

Length Indicator

Shows the length of the message in bytes. This value should be converted to decimal. The decimal value shows the number of bytes in the message.

Hex
Value

2B

Binary Value

7	6	5	4	3	2	1	0
0	0	1	0	1	0	1	1

Decimal
Value

43

The total length of the message is 43 bytes.

Section 3-0

Message Header Information (Continued)

Destination Point Code / Originating Point Code / CIC

The chart below explains how to extract the Destination Point Code, Originating Point Code and CIC information from bytes 2 through 6.

		Bits							
		7	6	5	4	3	2	1	0
Bytes	0	0	0	1	0	1	0	1	1
	1	1	0	0	0	0	1	0	0
	2	0	0	0	0	1	0	1	0
	3	1	1	0	0	0	0	0	0
	4	0	0	0	0	0	0	1	0
	5	0	1	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0
	7	1	0	0	0	0	1	0	0

LI (Length Indicator)
SIO (Service Information Octet)
Destination Point Code
Originating Point Code
CIC (Circuit Information Code)
Heading Code

Destination Point Code

0 0 0 0 0 0 0 0 0 0 1 0 1 0 Point Code = 10

Originating Point Code

0 0 0 0 0 0 0 0 0 0 1 0 1 1 Point Code = 11

Circuit Identification Code

0 0 0 0 0 0 0 0 0 1 0 0 CIC = 04

Section 3-0

Message Header Information (Continued)

Heading Code

Heading Code contains the information on the type of message this is. Refer to the chart on page 3 for breakout information on the different types of messages. Use the reference using the HEX value.

Hex
Value

2F

Binary Value

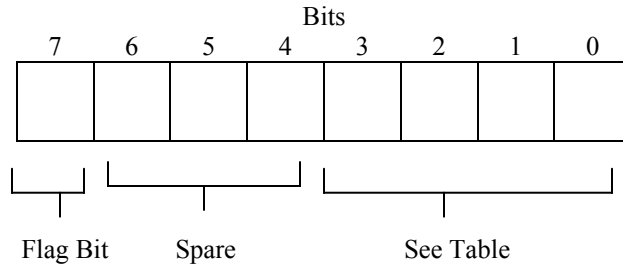
7	6	5	4	3	2	1	0
0	0	0	1	1	1	1	1

2-F Message = AND – Answer Signal with Information Message

Section 3-1 Answering Subscriber (Continued)

Tenant

The Tenant field contains information on the Tenant of the Calling Party. The Tenant is the Decimal value of the Hex data.



Bits								Hex Value	Description of Values
7	6	5	4	3	2	1	0		
				0	0	0	0	X0	Tenant 0
				0	0	0	1	X1	Tenant 1
				0	0	1	0	X2	Tenant 2
				0	0	1	1	X3	Tenant 3
				0	1	0	0	X4	Tenant 4
				0	1	0	1	X5	Tenant 5
				0	1	1	0	X6	Tenant 6
				0	1	1	1	X7	Tenant 7
				1	0	0	0	X8	Tenant 8
				1	0	0	1	X9	Tenant 9
				1	0	1	0	XA	Tenant 10
				1	0	1	1	XB	Tenant 11
				1	1	0	0	XC	Tenant 12
				1	1	0	1	XD	Tenant 13
				1	1	1	0	XE	Tenant 14
				1	1	1	1	XF	Tenant 15

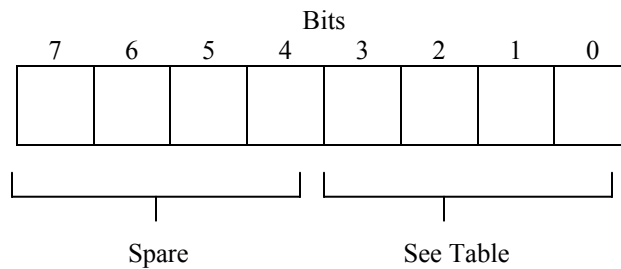


Flag Bit	
Value	Description of Value
0	OP Tenant is not counted
1	OP Tenant is Counted

Section 3-1 Answering Subscriber (Continued)

OP Tenant

The OP Tenant field contains information on the Tenant of the Calling Party. The Tenant is the Decimal value of the Hex data.



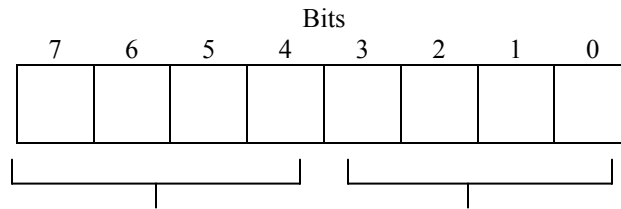
Bits								Hex Value	Description of Values
7	6	5	4	3	2	1	0		
X	X	X	X	0	0	0	0	X0	OP Tenant 0
X	X	X	X	0	0	0	1	X1	OP Tenant 1
X	X	X	X	0	0	1	0	X2	OP Tenant 2
X	X	X	X	0	0	1	1	X3	OP Tenant 3
X	X	X	X	0	1	0	0	X4	OP Tenant 4
X	X	X	X	0	1	0	1	X5	OP Tenant 5
X	X	X	X	0	1	1	0	X6	OP Tenant 6
X	X	X	X	0	1	1	1	X7	OP Tenant 7
X	X	X	X	1	0	0	0	X8	OP Tenant 8
X	X	X	X	1	0	0	1	X9	OP Tenant 9
X	X	X	X	1	0	1	0	XA	OP Tenant 10
X	X	X	X	1	0	1	1	XB	OP Tenant 11
X	X	X	X	1	1	0	0	XC	OP Tenant 12
X	X	X	X	1	1	0	1	XD	OP Tenant 13
X	X	X	X	1	1	1	0	XE	OP Tenant 14
X	X	X	X	1	1	1	1	XF	OP Tenant 15

Section 3-1

Answering Subscriber (Continued)

SFC / RSC

SFC / RSC is a one byte field that contains the Service Feature Class and Restriction Class of the Calling Party.



See Table B

See Table A

Table A

Bits								Hex Value	Description of Values
7	6	5	4	3	2	1	0		
X	X	X	X	0	0	0	0	X0	Digit 0
X	X	X	X	0	0	0	1	X1	Digit 1
X	X	X	X	0	0	1	0	X2	Digit 2
X	X	X	X	0	0	1	1	X3	Digit 3
X	X	X	X	0	1	0	0	X4	Digit 4
X	X	X	X	0	1	0	1	X5	Digit 5
X	X	X	X	0	1	1	0	X6	Digit 6
X	X	X	X	0	1	1	1	X7	Digit 7
X	X	X	X	1	0	0	0	X8	Digit 8
X	X	X	X	1	0	0	1	X9	Digit 9

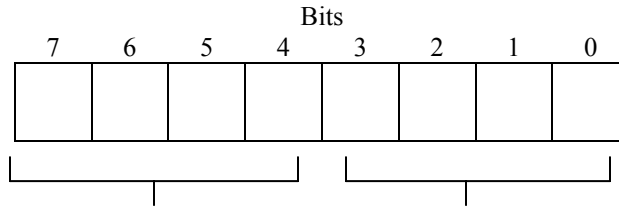
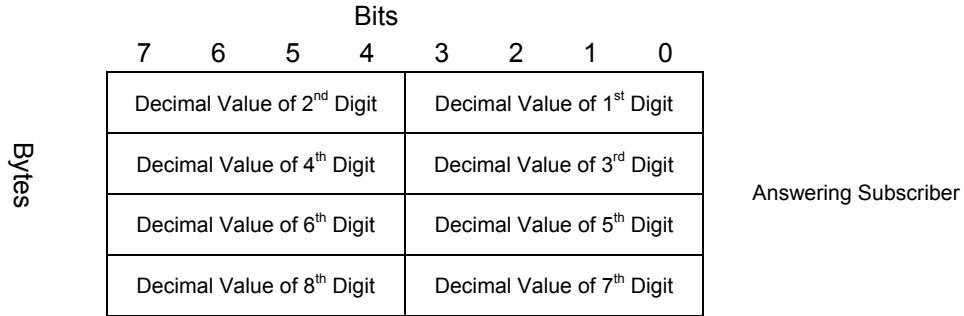
Table B

Bits								Hex Value	Description of Values
7	6	5	4	3	2	1	0		
0	0	0	0	X	X	X	X	0X	Digit 0
0	0	0	1	X	X	X	X	1X	Digit 1
0	0	1	0	X	X	X	X	2X	Digit 2
0	0	1	1	X	X	X	X	3X	Digit 3
0	1	0	0	X	X	X	X	4X	Digit 4
0	1	0	1	X	X	X	X	5X	Digit 5
0	1	1	0	X	X	X	X	6X	Digit 6
0	1	1	1	X	X	X	X	7X	Digit 7
1	0	0	0	X	X	X	X	8X	Digit 8
1	0	0	1	X	X	X	X	9X	Digit 9

Section 3-1 Answering Subscriber (Continued)

Answering Subscriber Number

The Answering Subscriber field is a four-byte field that contains the number of the Calling Party.



See Table B

See Table A

Table A

Bits								Hex Value	Description of Values
7	6	5	4	3	2	1	0		
0	0	0	0	0	0	0	0	X0	-
0	0	0	0	0	0	0	1	X1	Digit 1
0	0	0	0	0	1	0	0	X2	Digit 2
0	0	0	0	0	1	1	0	X3	Digit 3
0	0	0	0	1	0	0	0	X4	Digit 4
0	0	0	0	1	0	1	0	X5	Digit 5
0	0	0	0	1	1	0	0	X6	Digit 6
0	0	0	0	1	1	1	0	X7	Digit 7
0	0	0	1	0	0	0	0	X8	Digit 8
0	0	0	1	0	0	1	0	X9	Digit 9
0	0	0	1	0	1	0	0	XA	Digit 0

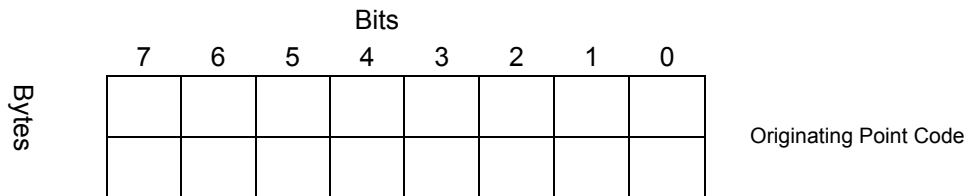
Table B

Bits								Hex Value	Description of Values
7	6	5	4	3	2	1	0		
0	0	0	0	0	0	0	0	0X	-
0	0	0	0	0	1	0	0	1X	Digit 1
0	0	0	1	0	0	0	0	2X	Digit 2
0	0	0	1	1	0	0	0	3X	Digit 3
0	0	1	0	0	0	0	0	4X	Digit 4
0	0	1	0	1	0	0	0	5X	Digit 5
0	0	1	1	0	0	0	0	6X	Digit 6
0	0	1	1	1	0	0	0	7X	Digit 7
0	1	0	0	0	0	0	0	8X	Digit 8
0	1	0	0	1	0	0	0	9X	Digit 9
0	1	0	1	0	0	0	0	AX	Digit 0

Section 3-1 Answering Subscriber (Continued)

Point Code

The Point Code is a two byte field that contains the point code of the Answering Subscriber. The point code is a decimal value of the HEX data. It is figured using all 16 bits working from least significant bit to most significant bit.



Example Hex Value

0B
00

Binary Value

Bits

	7	6	5	4	3	2	1	0	
	0	0	0	0	0	1	0	0	
	0	0	0	0	0	0	0	0	

Decimal Value

11

The Decimal Value of the HEX data is equal to the Originating Point Code. In this case the Originating Point Code is 11.

Section 3-1 Answering Subscriber (Continued)

CAL / CPI

This Byte contains CAL and CPI information of the Answering Subscriber.

Message Indicator

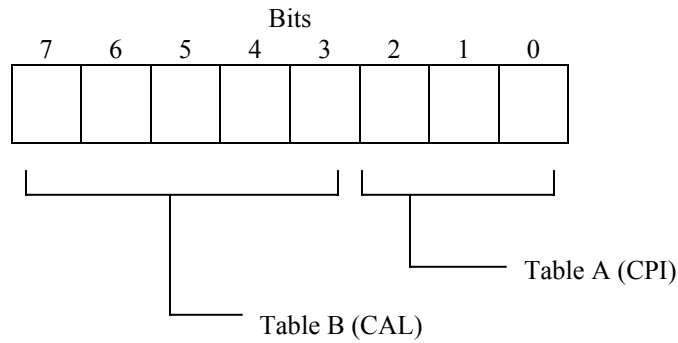


Table A (CPI)

Bits			Description of Values
2	1	0	
0	0	0	Station Call
0	0	1	Attendant Call
0	1	0	Trunk Call
0	1	1	Spare
1	0	0	Spare
1	0	1	Spare
1	1	0	Spare
1	1	1	Spare

Section 3-1

Answering Subscriber (Continued)

Table B (CAL)

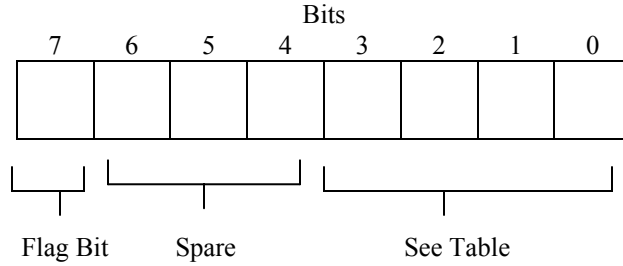
Bits					Description of Values
7	6	5	4	3	
0	0	0	0	1	-DDD Trunk
0	0	0	1	0	-
0	0	0	1	1	-
0	0	1	0	0	-TIE Trunk
0	0	1	0	1	-CCSA Trunk
0	0	1	1	0	-
0	0	1	1	1	-
0	1	0	0	0	-
0	1	0	0	1	-
0	1	0	1	0	-
0	1	0	1	1	-
0	1	1	0	0	-
0	1	1	0	1	-
0	1	1	1	0	-
0	1	1	1	1	-
1	0	0	0	0	-Station
1	0	0	0	1	-
1	0	0	1	0	-
1	0	0	1	1	-
1	0	1	0	0	-
1	0	1	0	1	-
1	0	1	1	0	-
1	0	1	1	1	-
1	1	0	0	0	-
1	1	0	0	1	-
1	1	0	1	0	-
1	1	0	1	1	-
1	1	1	0	0	-
1	1	1	0	1	-
1	1	1	1	0	-
1	1	1	1	1	-

Section 3-2

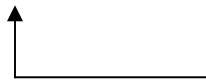
Called Subscriber (Continued)

Tenant

The Tenant field contains information on the Tenant of the Called Subscriber. The Tenant is the Decimal value of the Hex data.



Bits								Hex Value	Description of Values
7	6	5	4	3	2	1	0		
X	X	X	X	0	0	0	0	X0	Tenant 0
X	X	X	X	0	0	0	1	X1	Tenant 1
X	X	X	X	0	0	1	0	X2	Tenant 2
X	X	X	X	0	0	1	1	X3	Tenant 3
X	X	X	X	0	1	0	0	X4	Tenant 4
X	X	X	X	0	1	0	1	X5	Tenant 5
X	X	X	X	0	1	1	0	X6	Tenant 6
X	X	X	X	0	1	1	1	X7	Tenant 7
X	X	X	X	1	0	0	0	X8	Tenant 8
X	X	X	X	1	0	0	1	X9	Tenant 9
X	X	X	X	1	0	1	0	XA	Tenant 10
X	X	X	X	1	0	1	1	XB	Tenant 11
X	X	X	X	1	1	0	0	XC	Tenant 12
X	X	X	X	1	1	0	1	XD	Tenant 13
X	X	X	X	1	1	1	0	XE	Tenant 14
X	X	X	X	1	1	1	1	XF	Tenant 15



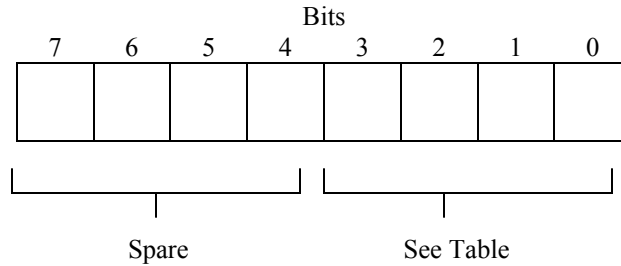
Flag Bit	
Value	Description of Value
0	OP Tenant is not counted
1	OP Tenant is Counted

Section 3-2

Called Subscriber (Continued)

OP Tenant

The OP Tenant field contains information on the Tenant of the Original Address. The Tenant is the Decimal value of the Hex data.



Bits								Hex Value	Description of Values
7	6	5	4	3	2	1	0		
X	X	X	X	0	0	0	0	X0	OP Tenant 0
X	X	X	X	0	0	0	1	X1	OP Tenant 1
X	X	X	X	0	0	1	0	X2	OP Tenant 2
X	X	X	X	0	0	1	1	X3	OP Tenant 3
X	X	X	X	0	1	0	0	X4	OP Tenant 4
X	X	X	X	0	1	0	1	X5	OP Tenant 5
X	X	X	X	0	1	1	0	X6	OP Tenant 6
X	X	X	X	0	1	1	1	X7	OP Tenant 7
X	X	X	X	1	0	0	0	X8	OP Tenant 8
X	X	X	X	1	0	0	1	X9	OP Tenant 9
X	X	X	X	1	0	1	0	XA	OP Tenant 10
X	X	X	X	1	0	1	1	XB	OP Tenant 11
X	X	X	X	1	1	0	0	XC	OP Tenant 12
X	X	X	X	1	1	0	1	XD	OP Tenant 13
X	X	X	X	1	1	1	0	XE	OP Tenant 14
X	X	X	X	1	1	1	1	XF	OP Tenant 15

Section 3-2

Called Subscriber (Continued)

SFC / RSC

SFC / RSC is a one byte field that contains the Service Feature Class and Restriction Class of the Called Subscriber.

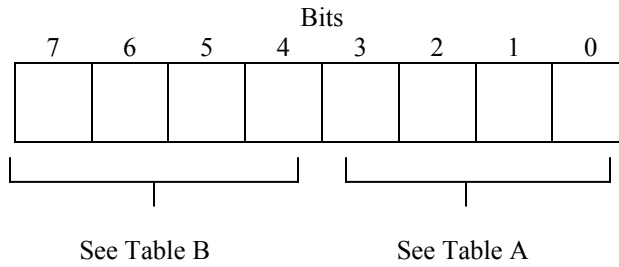


Table A

Bits								Hex Value	Description of Values
7	6	5	4	3	2	1	0		
				0	0	0	0	X0	Digit 0
				0	0	0	1	X1	Digit 1
				0	0	1	0	X2	Digit 2
				0	0	1	1	X3	Digit 3
				0	1	0	0	X4	Digit 4
				0	1	0	1	X5	Digit 5
				0	1	1	0	X6	Digit 6
				0	1	1	1	X7	Digit 7
				1	0	0	0	X8	Digit 8
				1	0	0	1	X9	Digit 9

Table B

Bits								Hex Value	Description of Values
7	6	5	4	3	2	1	0		
0	0	0	0					0X	Digit 0
0	0	0	1					1X	Digit 1
0	0	1	0					2X	Digit 2
0	0	1	1					3X	Digit 3
0	1	0	0					4X	Digit 4
0	1	0	1					5X	Digit 5
0	1	1	0					6X	Digit 6
0	1	1	1					7X	Digit 7
1	0	0	0					8X	Digit 8
1	0	0	1					9X	Digit 9

Section 3-2 **Called Subscriber (Continued)**

Called Subscriber

The Called Subscriber field is a four-byte field that contains the number of the Called Subscriber.

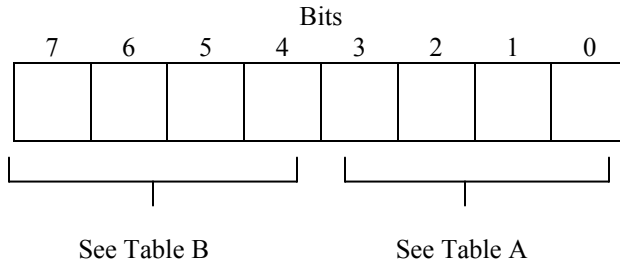
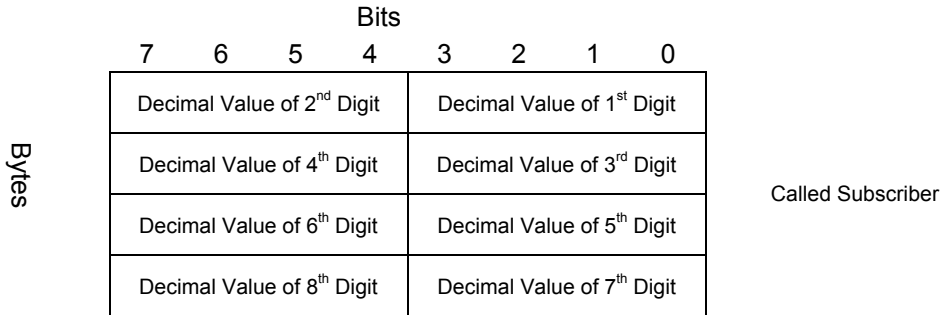


Table A

Bits								Hex Value	Description of Values
7	6	5	4	3	2	1	0		
				0	0	0	0	X0	-
				0	0	0	1	X1	Digit 1
				0	0	1	0	X2	Digit 2
				0	0	1	1	X3	Digit 3
				0	1	0	0	X4	Digit 4
				0	1	0	1	X5	Digit 5
				0	1	1	0	X6	Digit 6
				0	1	1	1	X7	Digit 7
				1	0	0	0	X8	Digit 8
				1	0	0	1	X9	Digit 9
				1	0	1	0	XA	Digit 0

Table B

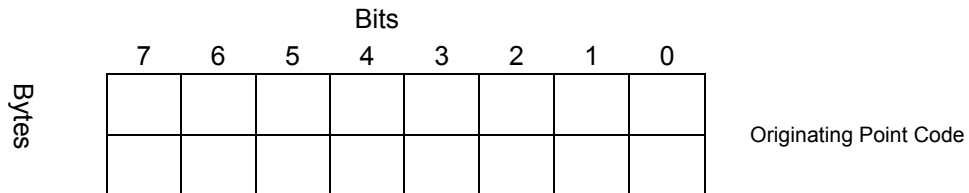
Bits								Hex Value	Description of Values
7	6	5	4	3	2	1	0		
								0X	-
0	0	0	0					1X	Digit 1
0	0	0	1					2X	Digit 2
0	0	1	0					3X	Digit 3
0	0	1	1					4X	Digit 4
0	1	0	0					5X	Digit 5
0	1	0	1					6X	Digit 6
0	1	1	0					7X	Digit 7
0	1	1	1					8X	Digit 8
1	0	0	0					9X	Digit 9
1	0	0	1					AX	Digit 0

Section 3-2

Called Subscriber (Continued)

Point Code

The Originating Point Code is a two-byte field that contains the point code of the Called Subscriber. The point code is a decimal value of the HEX data. It is figured using all 16 bits working from least significant bit to most significant bit.



Example Hex Value

0B
00

Binary Value

Bits

	7	6	5	4	3	2	1	0	
	0	0	0	0	1	0	1	1	
	0	0	0	0	0	0	0	0	

Decimal Value

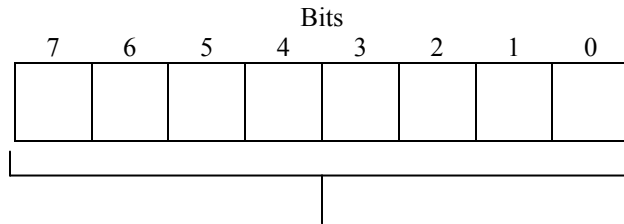
0B

The Decimal Value of the HEX data is equal to the Originating Point Code. In this case the Originating Point Code is 11.

Section 3-2 Called Subscriber (Continued)

First Indicator Octet

The First Indicator Octet specifies the remaining fields that will be included in the rest of the message.



See Table Below

Bits	Value	Description of Values
		Called Name Information
0	0	Called Name is not effective
	1	Called Name is effective
		Answering Address 2 Information
1	0	Answering Address 2 is not effective
	1	Answering Address 2 is effective
		Spare
2	0	
	1	
		Spare
3	0	
	1	
		Spare
4	0	
	1	
		Spare
5	0	
	1	
		Spare
6	0	
	1	
		Spare
7	0	
	1	

Section 3-3 Called Name

Called Name

The Called Name Field is a 16-byte field that contains information on the name display information of the called party. The name display information contains the HEX values of the ASCII characters.

Called Name Information in a 16-Z format

Bytes

28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43

20 20 20 20 20 20 20 20 20 20 20 20 20 50 41 54

2B-84-0A-C0-02-40-00-2F-01-00-F1-12-AA-00-00-0B-00-80-01-00-F1-12-AA-00-00-0B-00-01-**20-20-20-20-20-20-20-20-20-20-20-20-20-50-41-54**-FF/

The Example below shows the HEX value as well as the ASCII value for the example message. The Chart on the following page explains how to convert from HEX value to ASCII.

		Bits								Hex Value	ASCII Value
		7	6	5	4	3	2	1	0		
Bytes	9	0	0	1	0	0	0	0	0	20	<Space>
	10	0	1	0	1	0	0	1	1	20	<Space>
	11	0	1	0	0	0	1	0	1	20	<Space>
	12	0	1	0	0	0	0	1	1	20	<Space>
	13	0	1	0	1	0	1	0	1	20	<Space>
	14	0	1	0	1	0	0	1	0	20	<Space>
	15	0	1	0	0	1	0	0	1	20	<Space>
	16	0	1	0	1	0	1	0	0	20	<Space>
	17	0	1	0	1	1	0	0	1	20	<Space>
	18	0	0	1	0	0	0	0	0	20	<Space>
	19	0	1	0	0	0	1	0	0	20	<Space>
	20	0	1	0	0	0	1	0	1	20	<Space>
	21	0	1	0	0	0	0	1	1	20	<Space>
	22	0	1	0	0	1	0	1	1	50	P
	23	0	0	1	0	0	0	0	0	41	A
	24	0	0	1	1	0	0	1	0	54	T

Section 3-3

Called Name (Continued)

Hex Conversion Table

The HEX conversion chart below contains the ASCII characters of the HEX Values. In order to convert from HEX to ASCII take the first digit of the HEX value, this will correspond with what row you use in the chart. Then take the second digit, this will correspond to what column you will use in the chart. The character that is in the box at the intersection of those two values is the ASCII character.

HEX	X0	X1	X2	X3	X4	X5	X6	X7	X8	X9	XA	XB	XC	XD	XE	XF
0X		☺	☹	♥	♠	♣	♠	•	◼	○	◐	♂	♀	♪	♫	⚙
1X	▶	◀	↕	∥	¶	§	■	↓	↑	↓	→	←	↵	↔	▲	▼
2X		!	"	#	\$	%	&	'	()	*	+	,	-	.	/
3X	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
4X	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
5X	P	Q	R	S	T	U	V	W	X	Y	Z	[\]	^	_
6X	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
7X	p	q	r	s	t	u	v	w	x	y	z	{		}	~	
8X	Ç	ü	é	â	ä	à	ã	ç	ê	ë	è	ï	î	ì	Ä	Å
9X	É	æ	Æ	ô	ö	ò	û	ù	ÿ	Ö	Ü	¢	£	¥	Pts	f
AX	á	í	ó	ú	ñ	Ñ	ª	º	¿	¬	½	¼	¡	«	»	
BX	▒	▒	▒		⌈	⌋	⌌	⌍	⌎	⌏	⌐	⌑	⌒	⌓	⌔	⌕
CX	⌖	⌗	⌘	⌙	⌚	⌛	⌜	⌝	⌞	⌟	⌠	⌡	⌢	⌣	⌤	⌥
DX	⌦	⌧	⌨	〈	〉	⌫	⌬	⌭	⌮	⌯	⌰	⌱	⌲	⌳	⌴	⌵
EX	α	β	Γ	π	Σ	σ	μ	τ	Φ	Θ	Ω	δ	∞	φ	ε	∩
FX	≡	±	≥	≤	∫	∫	÷	≈	°	.	.	√	n	²	■	

Examples:
54 = T 65 = e 73 = s 74 = t

Section 4 **CBK CCIS Trace Message**

Below is an Example of a CBK CCIS Trace Message.

I<06:3A-CD-00-00-00-07-84-0A-C0-02-40-00-36-FF/

I< = incoming message

06 = CCH card no. (SC00 or 24CCTA)

3A = CCIS message trace

CD = entire message length (13, hex 0D)

X	X	Data Length					
1	1	0	0	1	1	0	1

3 - 6 CBK Message Example			
Byte	Value	Byte Description	Detail Information
0	07	LI - Data Length Indication	Header Information Section 4-0
1	84	SIO - Service Information Octet	
2	0A	Point Code and CIC Information	
3	C0		
4	02		
5	40		
6	00	Heading Code	
7	36		
8	00		
9	00		
10	00		
11	00		
12	00		
13	00		
14	00		
15	00		
16	00		
17	00		
18	00		
19	00		
20	00		
21	00		
22	00		
23	00		
24	00		
25	00		
26	00		
27	00		
28	00		
29	00		
30	00		
↓	↓	↓	↓
50	00		
51	00		
52	00		
53	A0		
54	00		
55	00		
56	00		

Section 4-0 Message Header Information

CCIS Header information contains the initial information about the setup of the rest of the message. Included will be the message length, destination point code, originating point code, CIC and heading code (this tells what kind of message it is).

The header is contained in the first 8 bytes of the message. Regardless of the message type the header will break out the same.

Header Information

	<i>Bytes</i>	
<u>0</u>	<u>1</u>	<u>2</u>
<u>3</u>	<u>4</u>	<u>5</u>
<u>6</u>	<u>7</u>	
07	84	0A
C0	02	40
00	36	
07-84-0A-C0-02-40-00-36		
/FF		

The Message header breaks out as follows.

Message Header Diagram

		Bits								
		7	6	5	4	3	2	1	0	
0	0	0	0	0	0	0	1	1	1	LI (Length Indicator)
1	1	0	0	0	0	0	1	0	0	SIO (Service Information Octet)
2	0	0	0	0	1	0	1	0		Destination Point Code
3	1	1	0	0	0	0	0	0	0	
4	0	0	0	0	0	0	1	0		Originating Point Code
5	0	1	0	0	0	0	0	0	0	
6	0	0	0	0	0	0	0	0	0	CIC (Circuit Information Code)
7	0	0	1	1	0	1	1	0		Heading Code

Section 4-0

Message Header Information (Continued)

Length Indicator

Shows the length of the message in bytes. This value should be converted to decimal. The decimal value shows the number of bytes in the message.

Hex
Value

07

Binary Value

7	6	5	4	3	2	1	0
0	0	0	0	0	1	1	1

Decimal
Value

7

The total length of the message is 7 bytes.

Section 4-0

Message Header Information (Continued)

Destination Point Code / Originating Point Code / CIC

The chart below explains how to extract the Destination Point Code, Originating Point Code and CIC information from bytes 2 through 6.

		Bits							
		7	6	5	4	3	2	1	0
Bytes	0	0	0	0	0	0	1	1	1
	1	1	0	0	0	0	1	0	0
	2	0	0	0	0	1	0	1	0
	3	1	1	0	0	0	0	0	0
	4	0	0	0	0	0	0	1	0
	5	0	1	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0
	7	0	0	1	1	0	1	1	0

LI (Length Indicator)
SIO (Service Information Octet)
Destination Point Code
Originating Point Code
CIC (Circuit Information Code)
Heading Code

Destination Point Code

0 0 0 0 0 0 0 0 0 1 0 1 0 Point Code = 10

Originating Point Code

0 0 0 0 0 0 0 0 0 0 1 0 1 1 Point Code = 11

Circuit Identification Code

0 0 0 0 0 0 0 0 0 0 1 0 0 CIC = 04

Section 4-0 Message Header Information (Continued)

Heading Code

Heading Code contains the information on the type of message this is. Refer to the chart on page 3 for breakout information on the different types of messages. Use the reference using the HEX value.

Hex
Value

36

Binary Value

7	6	5	4	3	2	1	0
0	0	1	1	0	1	1	0

3-6 Message = CBK – Clear Back Signal

Section 5 CLF CCIS Trace Message

Below is an Example of a CLF CCIS Trace Message.

o>06:3A-CD-00-00-00-07-84-0B-80-02-40-00-46-FF/

o> = outgoing message

06 = CCH card no. (SC00 or 24CCTA)

3A = CCIS message trace

CD = entire message length (13, hex 0D)

X	X	Data Length					
1	1	0	0	1	1	0	1

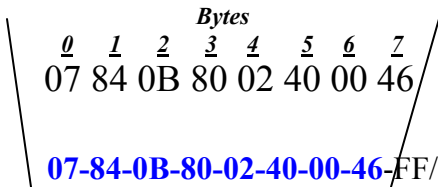
4 - 6 CLF Message Example			
Byte	Value	Byte Description	Detail Information
0	07	LI - Data Length Indication	Header Information Section 5-0
1	84	SIO - Service Information Octet	
2	0B	Point Code and CIC Information	
3	80		
4	02		
5	40		
6	00		
7	46	Heading Code	
8	00		
9	00		
10	00		
11	00		
12	00		
13	00		
14	00		
15	00		
16	00		
17	00		
18	00		
19	00		
20	00		
21	00		
22	00		
23	00		
24	00		
25	00		
26	00		
27	00		
28	00		
29	00		
30	00		
↓	↓	↓	↓
50	00		
51	00		
52	00		
53	A0		
54	00		
55	08		
56	00		

Section 5-0 Message Header Information

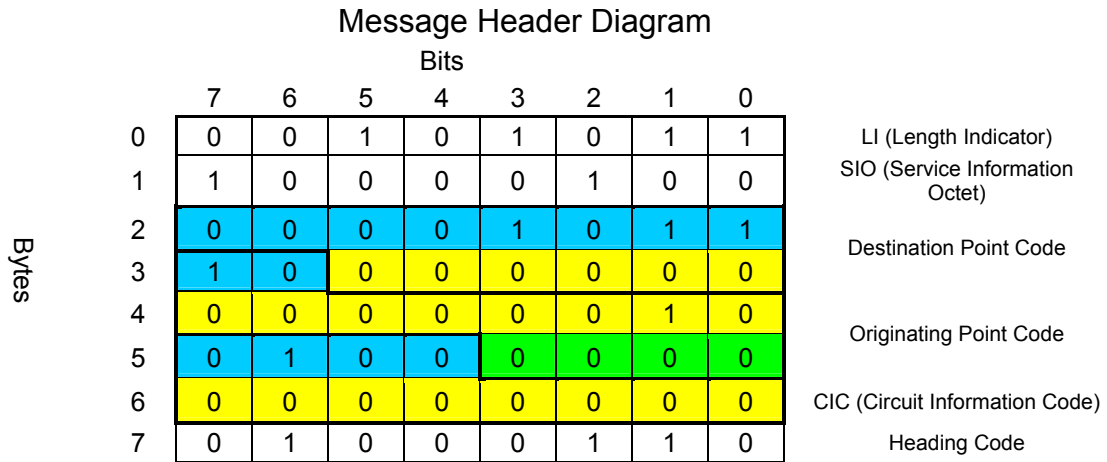
CCIS Header information contains the initial information about the setup of the rest of the message. Included will be the message length, destination point code, originating point code, CIC and heading code (this tells what kind of message it is).

The header is contained in the first 8 bytes of the message. Regardless of the message type the header will break out the same.

Header Information



The Message header breaks out as follows.



Section 5-0

Message Header Information (Continued)

Length Indicator

Shows the length of the message in bytes. This value should be converted to decimal. The decimal value shows the number of bytes in the message.

Hex
Value

07

Binary Value

7	6	5	4	3	2	1	0
0	0	0	0	0	1	1	1

Decimal
Value

7

The total length of the message is 7 bytes.

Section 5-0

Message Header Information (Continued)

Destination Point Code / Originating Point Code / CIC

The chart below explains how to extract the Destination Point Code, Originating Point Code and CIC information from bytes 2 through 6.

		Bits							
		7	6	5	4	3	2	1	0
Bytes	0	0	0	0	0	0	1	1	1
	1	1	0	0	0	0	1	0	0
	2	0	0	0	0	1	0	1	1
	3	1	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	1	0
	5	0	1	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0
	7	0	1	0	0	0	1	1	0

LI (Length Indicator)
SIO (Service Information Octet)
Destination Point Code
Originating Point Code
CIC (Circuit Information Code)
Heading Code

Destination Point Code

0 0 0 0 0 0 0 0 0 0 1 0 1 1 Point Code = 11

Originating Point Code

0 0 0 0 0 0 0 0 0 0 1 0 1 0 Point Code = 10

Circuit Identification Code

0 0 0 0 0 0 0 0 0 0 1 0 0 CIC = 04

Section 5-0 Message Header Information (Continued)

Heading Code

Heading Code contains the information on the type of message this is. Refer to the chart on page 3 for breakout information on the different types of messages. Use the reference using the HEX value.

Hex
Value

36

Binary Value

7	6	5	4	3	2	1	0
0	0	1	1	0	1	1	0

3-6 Message = CBK – Clear Back Signal

Section 6 RLG CCIS Trace Message

Below is an Example of a RLG CCIS Trace Message.

I<06:3A-CD-00-00-00-07-84-0A-C0-02-40-00-17-FF/

I< = incoming message

06 = CCH card no. (SC00 or 24CCTA)

3A = CCIS message trace

CD = entire message length (13, hex 0D)

X	X	Data Length					
1	1	0	0	1	1	0	1

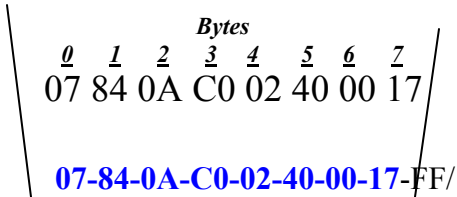
1 - 7 RLG Message Example			
Byte	Value	Byte Description	Detail Information
0	07	LI - Data Length Indication	Header Information Section 5-0
1	84	SIO - Service Information Octet	
2	0A	Point Code and CIC Information	
3	C0		
4	02		
5	40		
6	00	Heading Code	
7	17		
8	00		
9	00		
10	00		
11	00		
12	00		
13	00		
14	00		
15	00		
16	00		
17	00		
18	00		
19	00		
20	00		
21	00		
22	00		
23	00		
24	00		
25	00		
26	00		
27	00		
28	00		
29	00		
30	00		
↓	↓	↓	↓
50	00		
51	00		
52	00		
53	A0		
54	00		
55	00		
56	00		

Section 6-0 Message Header Information

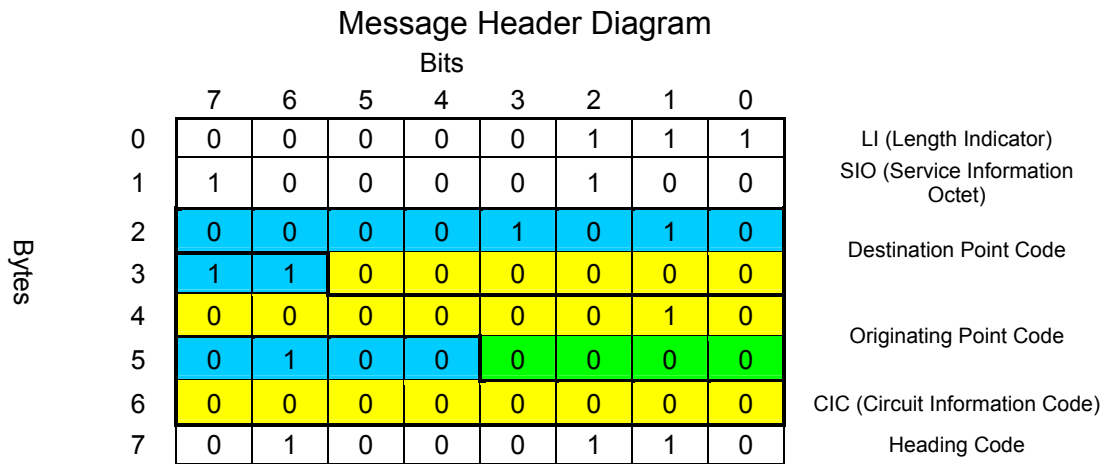
CCIS Header information contains the initial information about the setup of the rest of the message. Included will be the message length, destination point code, originating point code, CIC and heading code (this tells what kind of message it is).

The header is contained in the first 8 bytes of the message. Regardless of the message type the header will break out the same.

Header Information



The Message header breaks out as follows.



Section 6-0

Message Header Information (Continued)

Length Indicator

Shows the length of the message in bytes. This value should be converted to decimal. The decimal value shows the number of bytes in the message.

Hex
Value

07

Binary Value

7	6	5	4	3	2	1	0
0	0	0	0	0	1	1	1

Decimal
Value

7

The total length of the message is 7 bytes.

Section 6-0

Message Header Information (Continued)

Destination Point Code / Originating Point Code / CIC

The chart below explains how to extract the Destination Point Code, Originating Point Code and CIC information from bytes 2 through 6.

		Bits							
		7	6	5	4	3	2	1	0
Bytes	0	0	0	0	0	0	1	1	1
	1	1	0	0	0	0	1	0	0
	2	0	0	0	0	1	0	1	0
	3	1	1	0	0	0	0	0	0
	4	0	0	0	0	0	0	1	0
	5	0	1	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0
	7	0	1	0	0	0	1	1	0

LI (Length Indicator)
SIO (Service Information Octet)
Destination Point Code
Originating Point Code
CIC (Circuit Information Code)
Heading Code

Destination Point Code

0 0 0 0 0 0 0 0 0 0 1 0 1 0 Point Code = 10

Originating Point Code

0 0 0 0 0 0 0 0 0 0 1 0 1 1 Point Code = 11

Circuit Identification Code

0 0 0 0 0 0 0 0 0 1 0 0 CIC = 04

Section 6-0 Message Header Information (Continued)

Heading Code

Heading Code contains the information on the type of message this is. Refer to the chart on page 3 for breakout information on the different types of messages. Use the reference using the HEX value.

Hex
Value

17

Binary Value

7	6	5	4	3	2	1	0
0	0	0	1	0	1	1	1

1-7 Message = RLG – Release Guard Signal

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2 - D CBM Message Example			
Byte	Value	Byte Description	Detail Information
0	3F	LI - Data Length Indication	Header Section 7-0
1	84	SIO - Service Information Octet	
2	0B	Point Code and CIC Information	
3	80		
4	02		
5	00		
6	00		
7	2D	Heading Code	
8	02	STX	
9	00		
10	02		
11	30	Centralized Billing Message SMDR	
12	21		
13	4B		
14	41		
15	30		
16	30		
17	30		
18	30		
19	30		
20	30		
21	30		
22	30		
23	31		
24	32		
25	30		
26	30		
27	30		
28	20		
29	20		
30	30		
31	35		
32	31		
33	35		
34	31		
35	30		
36	31		
37	34		
38	33		
39	38		
40	30		
41	35		
42	31		
43	35		
44	31		
45	30		
46	31		
47	34		
48	34		
49	33		
50	20		
51	20		
52	20		
53	20		
54	20		
55	20		
56	20		
57	20		
58	20		
59	20		
60	20		
61	20		

NEC America Inc.
National Technical Assistance Center

62	20		
63	30		
64	30		
65	30		
66	30		
67	30		
68	30		
69	30		
70	30		
71	30		
72	39		
73	37		
74	32		
75	39		
76	36		
77	36		
78	35		
79	30		
80	30		
81	30		
82	20		
83	20		
84	20		
85	20		
86	20		
87	20		
88	20		
89	20		
90	04	ETX	
91	30		
92	00	BCC	

Section 7-0 Message Header Information

CCIS Header information contains the initial information about the setup of the rest of the message. Included will be the message length, destination point code, originating point code, CIC and heading code (this tells what kind of message it is).

The header is contained in the first 8 bytes of the message. Regardless of the message type the header will break out the same.

Header Information

Bytes							
0	1	2	3	4	5	6	7
3F	84	0B	80	02	00	00	2D

3F-84-0B-80-02-00-00-2D-02-00-02-30-21-4B-41-30-30-30-30-30-30-30-31-32-30-30-30-20-20-30-35-31-35-31-30-31-34-33-38-30-35-31-35-31-30-31-34-34-33-20-20-20-20-20-20-20-20-20-20-20-20-20-20-20-30-30-30-30-30-30-30-30-39-37-32-39-36-36-35-30-30-30-20-20-20-20-20-20-20-20-04-30-00-FF/

The Message header breaks out as follows.

Message Header Diagram

		Bits								
		7	6	5	4	3	2	1	0	
Bytes	0	0	0	1	1	1	1	1	1	LI (Length Indicator)
	1	1	0	0	0	0	1	0	0	SIO (Service Information Octet)
	2	0	0	0	0	1	0	1	1	Destination Point Code
	3	1	0	0	0	0	0	0	0	
	4	0	0	0	0	0	0	1	0	Originating Point Code
	5	0	0	0	0	0	0	0	0	
	6	0	0	0	0	0	0	0	0	CIC (Circuit Information Code)
	7	0	0	1	0	1	1	0	1	Heading Code

Section 7-0

Message Header Information (Continued)

Length Indicator

Shows the length of the message in bytes. This value should be converted to decimal. The decimal value shows the number of bytes in the message.

Hex
Value

3F

Binary Value

7	6	5	4	3	2	1	0
0	0	1	1	1	1	1	1

Decimal
Value

63

The total length of the message is 63 bytes.

Section 7-0

Message Header Information (Continued)

Destination Point Code / Originating Point Code / CIC

The chart below explains how to extract the Destination Point Code, Originating Point Code and CIC information from bytes 2 through 6.

		Bits							
		7	6	5	4	3	2	1	0
Bytes	0	0	0	1	1	1	1	1	1
	1	1	0	0	0	0	1	0	0
	2	0	0	0	0	1	0	1	1
	3	1	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	1	0
	5	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0
	7	0	0	1	0	1	1	0	1

LI (Length Indicator)
SIO (Service Information Octet)
Destination Point Code
Originating Point Code
CIC (Circuit Information Code)
Heading Code

Destination Point Code

0 0 0 0 0 0 0 0 0 0 1 0 1 1 Point Code = 11

Originating Point Code

0 0 0 0 0 0 0 0 0 0 1 0 1 0 Point Code = 10

Circuit Identification Code

0 0 0 0 0 0 0 0 0 0 0 0 0 0 CIC = 00

Section 7-0

Message Header Information (Continued)

Heading Code

Heading Code contains the information on the type of message this is. Refer to the chart on page 3 for breakout information on the different types of messages. Use the reference using the HEX value.

Hex
Value

2D

Binary Value

7	6	5	4	3	2	1	0
0	0	1	0	1	1	0	1

2-D Message = CBM – Centralized Billing Message.

37	34	4
38	33	3
39	38	8
40	30	0
41	35	5
42	31	1
43	35	5
44	31	1
45	30	0
46	31	1
47	34	4
48	34	4
49	33	3
50	20	<Space>
51	20	<Space>
52	20	<Space>
53	20	<Space>
54	20	<Space>
55	20	<Space>
56	20	<Space>
57	20	<Space>
58	20	<Space>
59	20	<Space>
60	20	<Space>
61	20	<Space>
62	20	<Space>
63	30	0
64	30	0
65	30	0
66	30	0
67	30	0
68	30	0
69	30	0
70	30	0
71	30	0
72	39	9
73	37	7
74	32	2
75	39	9
76	36	6
77	36	6
78	35	5
79	30	0
80	30	0
81	30	0
82	20	<Space>
83	20	<Space>
84	20	<Space>
85	20	<Space>
86	20	<Space>
87	20	<Space>
88	20	<Space>
89	20	<Space>

Section 7-1 Centralized Billing Message (Continued)

Hex Conversion Table

The HEX conversion chart below contains the ASCII characters of the HEX Values. In order to convert from HEX to ASCII take the first digit of the HEX value, this will correspond with what row you use in the chart. Then take the second digit, this will correspond to what column you will use in the chart. The character that is in the box at the intersection of those two values is the ASCII character.

HEX	X0	X1	X2	X3	X4	X5	X6	X7	X8	X9	XA	XB	XC	XD	XE	XF
0X		☺	☹	♥	♦	♣	♠	•	◼	○	◐	♂	♀	♪	♫	⚙
1X	▶	◀	↕	∥	↑	§	■	↓	↑	↓	→	←	↵	↔	▲	▼
2X		!	"	#	\$	%	&	'	()	*	+	,	-	.	/
3X	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
4X	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
5X	P	Q	R	S	T	U	V	W	X	Y	Z	[\]	^	_
6X	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
7X	p	q	r	s	t	u	v	w	x	y	z	{		}	~	
8X	Ç	ü	é	â	ä	à	å	ç	ê	ë	è	ï	î	ì	Ä	Å
9X	É	æ	Æ	ô	ö	ò	û	ù	ÿ	Ö	Ü	¢	£	¥	Pts	f
AX	á	í	ó	ú	ñ	Ñ	ª	º	¿	¬	½	¼	¡	«	»	
BX	☐	☐	☐		┌	┐	└	┘	┌	┐	└	┘	┌	┐	└	┘
CX	L	┌	└	┌	┐	└	┘	┌	┐	└	┘	┌	┐	└	┘	┌
DX	┌	┐	└	┘	┌	┐	└	┘	┌	┐	└	┘	┌	┐	└	┘
EX	α	β	Γ	π	Σ	σ	μ	τ	Φ	Θ	Ω	δ	∞	φ	ε	∩
FX	≡	±	≥	≤			÷	≈	°	.	.	√	n	²	■	

Examples:
54 = T 65 = e 73 = s 74 = t

Section 8 MSG CCIS Trace Message

Below is an Example of a MSG CCIS Trace Message.

o>06:3A-E3-00-00-00-1D-84-0B-80-02-00-00-CE-01-00-11-00-00-00-00-0A-00-80-00-00-00-12-AA-00-00-00-00-00-02-01-FF/

o> = incoming message

06 = CCH card no. (SC00 or 24CCTA)

3A = CCIS message trace

E3 = entire message length (35, hex 23)

X	X	Data Length					
1	1	1	0	0	0	1	1

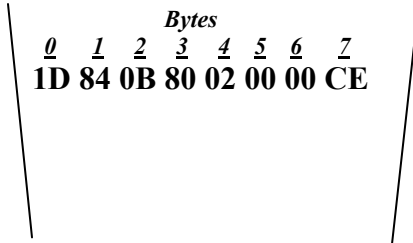
C - E MSG Message Example			
Byte	Value	Byte Description	Detail Information
0	1D	LI - Data Length Indication	Header Information Section 7-0
1	84	SIO - Service Information Octet	
2	0B	Point Code and CIC Information	
3	80		
4	02		
5	00		
6	00		
7	CE	Heading Code	
8	01	Setting Station Identity Section 7-1	
9	00		Tenant
10	11		SFC / RSC
11	00		Setting Station
12	00		
13	00		
14	00		Point Code
15	0A		
16	00		
17	80	CAL / CPI	
18	00	Set Station Identity Section 7-2	
19	00		Tenant
20	00		SFC / RSC
21	12		Set Station
22	AA		
23	00		
24	00		
25	00		
26	00		
27	00		
28	80	FNC	Section 7-3
29	02	Set Subscriber Kind	Section 7-4

Section 8-0 Message Header Information

CCIS Header information contains the initial information about the setup of the rest of the message. Included will be the message length, destination point code, originating point code, CIC and heading code (this tells what kind of message it is).

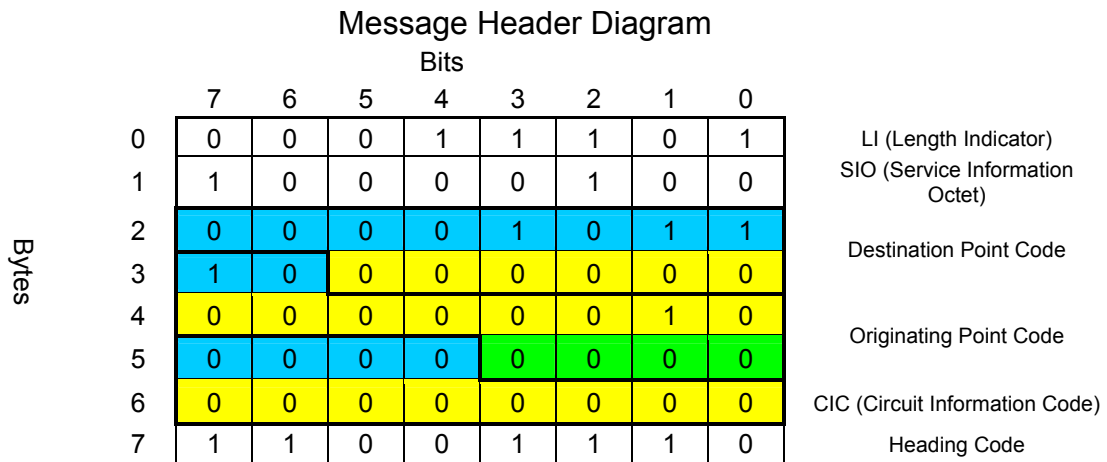
The header is contained in the first 8 bytes of the message. Regardless of the message type the header will break out the same.

Header Information



1D-84-0B-80-02-00-00-CE-01-00-11-00-00-00-00-0A-00-80-00-00-00-12-AA-00-00-00-00-00-02-01-FF/

The Message header breaks out as follows.



Section 8-0

Message Header Information (Continued)

Length Indicator

Shows the length of the message in bytes. This value should be converted to decimal. The decimal value shows the number of bytes in the message.

Hex
Value

1D

Binary Value

7	6	5	4	3	2	1	0
0	0	0	1	1	1	0	1

Decimal
Value

29

The total length of the message is 29 bytes.

Section 8-0

Message Header Information (Continued)

Destination Point Code / Originating Point Code / CIC

The chart below explains how to extract the Destination Point Code, Originating Point Code and CIC information from bytes 2 through 6.

		Bits							
		7	6	5	4	3	2	1	0
Bytes	0	0	0	0	1	1	1	0	1
	1	1	0	0	0	0	1	0	0
	2	0	0	0	0	1	0	1	1
	3	1	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	1	0
	5	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0
	7	1	1	0	0	1	1	1	0

LI (Length Indicator)
SIO (Service Information Octet)
Destination Point Code
Originating Point Code
CIC (Circuit Information Code)
Heading Code

Destination Point Code

0 0 0 0 0 0 0 0 0 0 1 0 1 1 Point Code = 11

Originating Point Code

0 0 0 0 0 0 0 0 0 0 1 0 1 0 Point Code = 10

Circuit Identification Code

0 0 0 0 0 0 0 0 0 0 0 0 0 0 CIC = 00

Section 8-0

Message Header Information (Continued)

Heading Code

Heading Code contains the information on the type of message this is. Refer to the chart on page 3 for breakout information on the different types of messages. Use the reference using the HEX value.

Hex
Value

CE

Binary Value

7	6	5	4	3	2	1	0
1	1	0	0	1	1	1	0

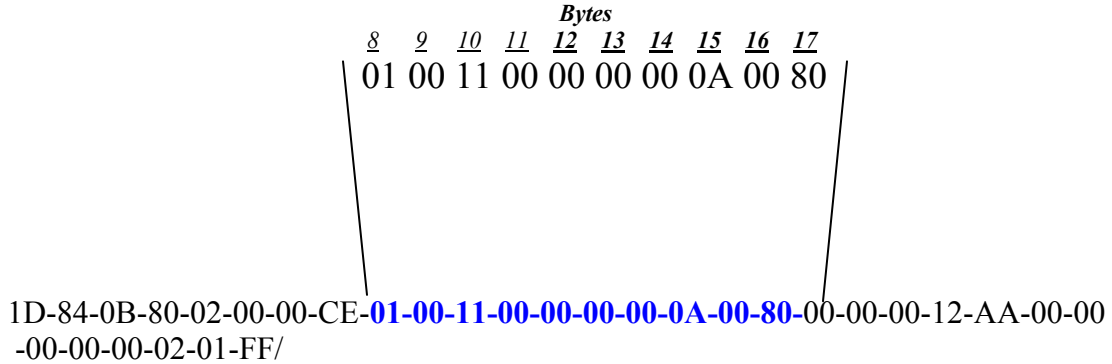
C-E MSG – Message Control Message

Section 8-1 Setting Station Identity

The Setting Station Identity field contains information on the calling party such as Tenant, RSC, SFC, Station Number, Originating Point Code and CAL / CPI.

The Setting Station Identity Field begins after the Message Header Field. The starting byte may be in a different location, but the format of the field will always be the same. For this reason in the example below the sample data will be used, but the byte numbers will not be specified.

Setting Station Identity

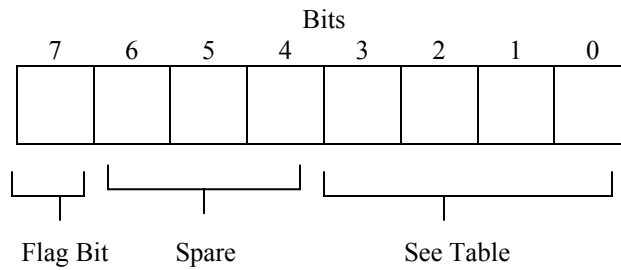


		Bits								
		7	6	5	4	3	2	1	0	
Bytes	0	0	0	0	0	0	0	0	1	Tenant
	0	0	0	0	0	0	0	0	0	OP Tenant
	0	0	0	1	0	0	0	0	1	SFC / RSC
	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	Calling Party Number
	0	0	0	0	0	0	0	0	0	
	0	0	0	0	1	0	1	0	0	Originating Point Code
	0	0	0	0	0	0	0	0	0	
	1	0	0	0	0	0	0	0	0	CAL / CPI

Section 8-1 Setting Station Identity (Continued)

Tenant

The Tenant field contains information on the Tenant of the Setting Party. The Tenant is the Decimal value of the Hex data.



Bits								Hex Value	Description of Values	
7	6	5	4	3	2	1	0			
								0 0 0 0	X0	Tenant 0
								0 0 0 1	X1	Tenant 1
								0 0 1 0	X2	Tenant 2
								0 0 1 1	X3	Tenant 3
								0 1 0 0	X4	Tenant 4
								0 1 0 1	X5	Tenant 5
								0 1 1 0	X6	Tenant 6
								0 1 1 1	X7	Tenant 7
								1 0 0 0	X8	Tenant 8
								1 0 0 1	X9	Tenant 9
								1 0 1 0	XA	Tenant 10
								1 0 1 1	XB	Tenant 11
								1 1 0 0	XC	Tenant 12
								1 1 0 1	XD	Tenant 13
								1 1 1 0	XE	Tenant 14
								1 1 1 1	XF	Tenant 15

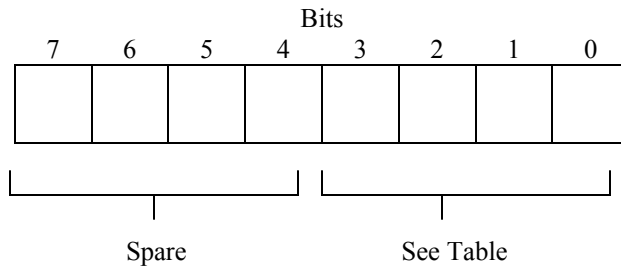


Flag Bit	
Value	Description of Value
0	OP Tenant is not counted
1	OP Tenant is Counted

Section 8-1 **Setting Station Identity (Continued)**

OP Tenant

The OP Tenant field contains information on the Tenant of the Setting Party. The Tenant is the Decimal value of the Hex data.



Bits								Hex Value	Description of Values
7	6	5	4	3	2	1	0		
X	X	X	X	0	0	0	0	X0	OP Tenant 0
X	X	X	X	0	0	0	1	X1	OP Tenant 1
X	X	X	X	0	0	1	0	X2	OP Tenant 2
X	X	X	X	0	0	1	1	X3	OP Tenant 3
X	X	X	X	0	1	0	0	X4	OP Tenant 4
X	X	X	X	0	1	0	1	X5	OP Tenant 5
X	X	X	X	0	1	1	0	X6	OP Tenant 6
X	X	X	X	0	1	1	1	X7	OP Tenant 7
X	X	X	X	1	0	0	0	X8	OP Tenant 8
X	X	X	X	1	0	0	1	X9	OP Tenant 9
X	X	X	X	1	0	1	0	XA	OP Tenant 10
X	X	X	X	1	0	1	1	XB	OP Tenant 11
X	X	X	X	1	1	0	0	XC	OP Tenant 12
X	X	X	X	1	1	0	1	XD	OP Tenant 13
X	X	X	X	1	1	1	0	XE	OP Tenant 14
X	X	X	X	1	1	1	1	XF	OP Tenant 15

Section 8-1 Setting Station Identity (Continued)

SFC / RSC

SFC / RSC is a one byte field that contains the Service Feature Class and Restriction Class of the Setting Party.

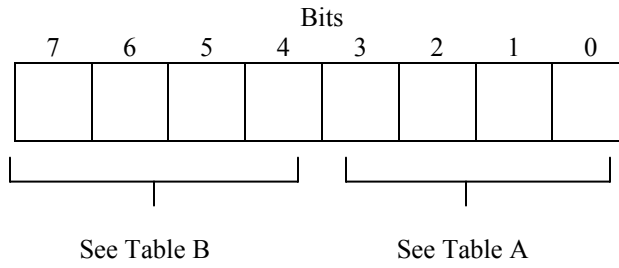


Table A

Bits								Hex Value	Description of Values
7	6	5	4	3	2	1	0		
X	X	X	X	0	0	0	0	X0	Digit 0
X	X	X	X	0	0	0	1	X1	Digit 1
X	X	X	X	0	0	1	0	X2	Digit 2
X	X	X	X	0	0	1	1	X3	Digit 3
X	X	X	X	0	1	0	0	X4	Digit 4
X	X	X	X	0	1	0	1	X5	Digit 5
X	X	X	X	0	1	1	0	X6	Digit 6
X	X	X	X	0	1	1	1	X7	Digit 7
X	X	X	X	1	0	0	0	X8	Digit 8
X	X	X	X	1	0	0	1	X9	Digit 9

Table B

Bits								Hex Value	Description of Values
7	6	5	4	3	2	1	0		
0	0	0	0	X	X	X	X	0X	Digit 0
0	0	0	1	X	X	X	X	1X	Digit 1
0	0	1	0	X	X	X	X	2X	Digit 2
0	0	1	1	X	X	X	X	3X	Digit 3
0	1	0	0	X	X	X	X	4X	Digit 4
0	1	0	1	X	X	X	X	5X	Digit 5
0	1	1	0	X	X	X	X	6X	Digit 6
0	1	1	1	X	X	X	X	7X	Digit 7
1	0	0	0	X	X	X	X	8X	Digit 8
1	0	0	1	X	X	X	X	9X	Digit 9

Section 8-1

Setting Station Identity (Continued)

Setting Party Number

The Setting Party Number is a four-byte field that contains the number of the Setting Party.

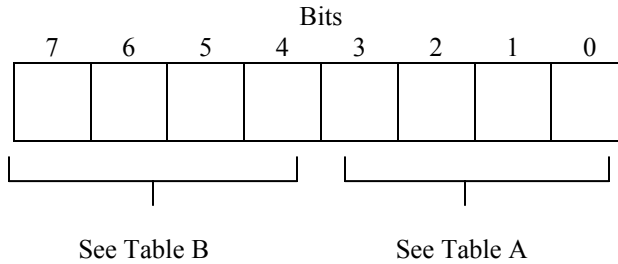
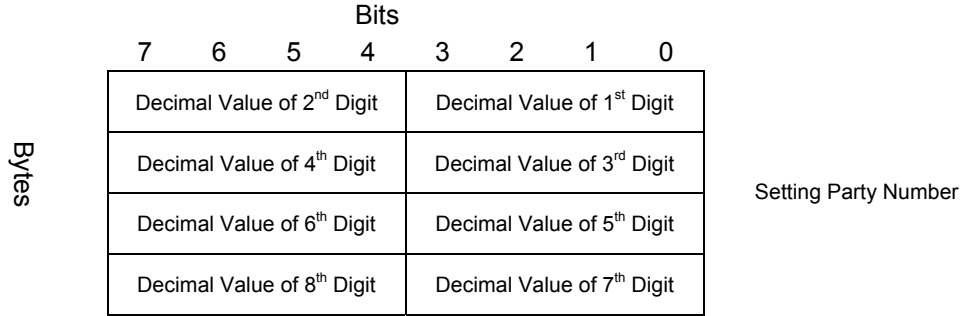


Table A

Bits								Hex Value	Description of Values
7	6	5	4	3	2	1	0		
0	0	0	0	0	0	0	0	X0	-
0	0	0	0	0	0	1	0	X1	Digit 1
0	0	0	1	0	0	0	0	X2	Digit 2
0	0	1	1	0	0	0	0	X3	Digit 3
0	1	0	0	0	0	0	0	X4	Digit 4
0	1	0	1	0	0	0	0	X5	Digit 5
0	1	1	1	0	0	0	0	X6	Digit 6
0	1	1	1	1	0	0	0	X7	Digit 7
1	0	0	0	0	0	0	0	X8	Digit 8
1	0	0	1	0	0	1	0	X9	Digit 9
1	0	1	0	0	1	0	0	XA	Digit 0

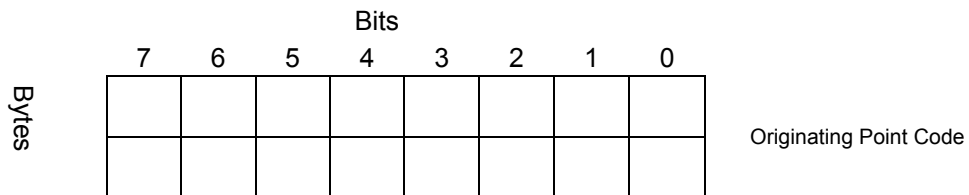
Table B

Bits								Hex Value	Description of Values
7	6	5	4	3	2	1	0		
0	0	0	0	0	0	0	0	0X	-
0	0	0	1	0	0	0	0	1X	Digit 1
0	0	1	0	0	0	0	0	2X	Digit 2
0	0	1	1	0	0	0	0	3X	Digit 3
0	1	0	0	0	0	0	0	4X	Digit 4
0	1	0	1	0	0	0	0	5X	Digit 5
0	1	1	1	0	0	0	0	6X	Digit 6
0	1	1	1	1	0	0	0	7X	Digit 7
1	0	0	0	0	0	0	0	8X	Digit 8
1	0	0	1	0	0	0	0	9X	Digit 9
1	0	1	0	0	0	0	0	AX	Digit 0

Section 8-1 Setting Station Identity (Continued)

Originating Point Code

The Originating Point Code is a two byte field that contains the point code of the Setting Party. The point code is a decimal value of the HEX data. It is figured using all 16 bits working from least significant bit to most significant bit.



Example Hex Value

0A
00

Binary Value

Bits

	7	6	5	4	3	2	1	0	
	0	0	0	0	1	0	1	0	
	0	0	0	0	0	0	0	0	

Decimal Value

10

The Decimal Value of the HEX data is equal to the Originating Point Code. In this case the Originating Point Code is 10.

Section 8-1

Setting Station Identity (Continued)

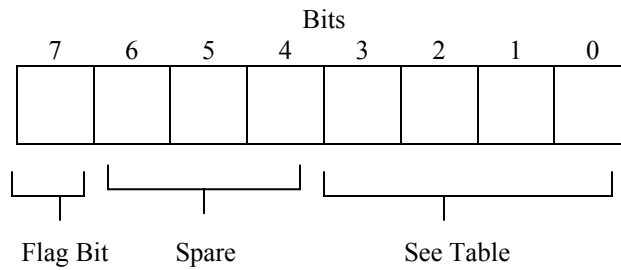
Table B (CAL)

Bits					Description of Values
7	6	5	4	3	
0	0	0	0	1	-DDD Trunk
0	0	0	1	0	-
0	0	0	1	1	-
0	0	1	0	0	-TIE Trunk
0	0	1	0	1	-CCSA Trunk
0	0	1	1	0	-
0	0	1	1	1	-
0	1	0	0	0	-
0	1	0	0	1	-
0	1	0	1	0	-
0	1	0	1	1	-
0	1	1	0	0	-
0	1	1	0	1	-
0	1	1	1	0	-
0	1	1	1	1	-
1	0	0	0	0	-
1	0	0	0	1	-
1	0	0	1	0	-
1	0	0	1	1	-
1	0	1	0	0	-Station
1	0	1	0	1	-
1	0	1	1	0	-
1	0	1	1	1	-
1	1	0	0	0	-
1	1	0	0	1	-
1	1	0	1	0	-
1	1	0	1	1	-
1	1	1	0	0	-
1	1	1	0	1	-
1	1	1	1	0	-
1	1	1	1	1	-

Section 8-2 Set Station Identity (Continued)

Tenant

The Tenant field contains information on the Tenant of the Set Party. The Tenant is the Decimal value of the Hex data.



Bits								Hex Value	Description of Values
7	6	5	4	3	2	1	0		
				0	0	0	0	X0	Tenant 0
				0	0	0	1	X1	Tenant 1
				0	0	1	0	X2	Tenant 2
				0	0	1	1	X3	Tenant 3
				0	1	0	0	X4	Tenant 4
				0	1	0	1	X5	Tenant 5
				0	1	1	0	X6	Tenant 6
				0	1	1	1	X7	Tenant 7
				1	0	0	0	X8	Tenant 8
				1	0	0	1	X9	Tenant 9
				1	0	1	0	XA	Tenant 10
				1	0	1	1	XB	Tenant 11
				1	1	0	0	XC	Tenant 12
				1	1	0	1	XD	Tenant 13
				1	1	1	0	XE	Tenant 14
				1	1	1	1	XF	Tenant 15



Flag Bit	
Value	Description of Value
0	OP Tenant is not counted
1	OP Tenant is Counted

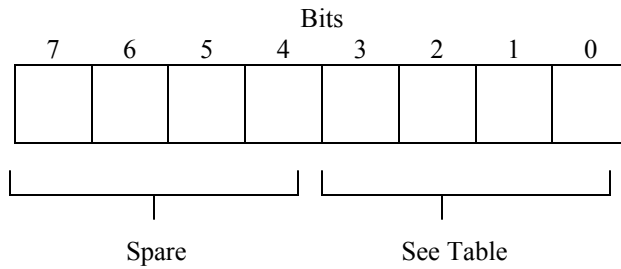
Section 8-2

Set Station Identity

(Continued)

OP Tenant

The OP Tenant field contains information on the Tenant of the Set Party. The Tenant is the Decimal value of the Hex data.



Bits								Hex Value	Description of Values
7	6	5	4	3	2	1	0		
X	X	X	X	0	0	0	0	X0	OP Tenant 0
X	X	X	X	0	0	0	1	X1	OP Tenant 1
X	X	X	X	0	0	1	0	X2	OP Tenant 2
X	X	X	X	0	0	1	1	X3	OP Tenant 3
X	X	X	X	0	1	0	0	X4	OP Tenant 4
X	X	X	X	0	1	0	1	X5	OP Tenant 5
X	X	X	X	0	1	1	0	X6	OP Tenant 6
X	X	X	X	0	1	1	1	X7	OP Tenant 7
X	X	X	X	1	0	0	0	X8	OP Tenant 8
X	X	X	X	1	0	0	1	X9	OP Tenant 9
X	X	X	X	1	0	1	0	XA	OP Tenant 10
X	X	X	X	1	0	1	1	XB	OP Tenant 11
X	X	X	X	1	1	0	0	XC	OP Tenant 12
X	X	X	X	1	1	0	1	XD	OP Tenant 13
X	X	X	X	1	1	1	0	XE	OP Tenant 14
X	X	X	X	1	1	1	1	XF	OP Tenant 15

Section 8-2 Set Station Identity (Continued)

SFC / RSC

SFC / RSC is a one byte field that contains the Service Feature Class and Restriction Class of the Set Party.

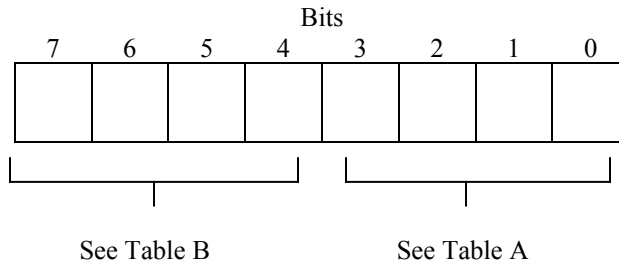


Table A

Bits								Hex Value	Description of Values
7	6	5	4	3	2	1	0		
				0	0	0	0	X0	Digit 0
				0	0	0	1	X1	Digit 1
				0	0	1	0	X2	Digit 2
				0	0	1	1	X3	Digit 3
				0	1	0	0	X4	Digit 4
				0	1	0	1	X5	Digit 5
				0	1	1	0	X6	Digit 6
				0	1	1	1	X7	Digit 7
				1	0	0	0	X8	Digit 8
				1	0	0	1	X9	Digit 9

Table B

Bits								Hex Value	Description of Values
7	6	5	4	3	2	1	0		
0	0	0	0					0X	Digit 0
0	0	0	1					1X	Digit 1
0	0	1	0					2X	Digit 2
0	0	1	1					3X	Digit 3
0	1	0	0					4X	Digit 4
0	1	0	1					5X	Digit 5
0	1	1	0					6X	Digit 6
0	1	1	1					7X	Digit 7
1	0	0	0					8X	Digit 8
1	0	0	1					9X	Digit 9

