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500 SERIES

OPERATIONS

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1. GENERAL

1.01 This section provides procedures for operating Symmetricom's Digital Clock Distributor (DCD) 500 System when equipped with an MIS card with a part number of 090-44018-05 or 090-45018-05. The language used for the commands in this section is Transaction Language 1 (TL1).

1.02 This section has been reissued to add a caution to the SET-DA-EQPT command concerning the <holdoff> parameter. The caution has been marked with a change bar.

1.03 All product names, service marks, trademarks, and registered trademarks used in this document are the property of their respective owners.

1.04 The following abbreviations are used in this section:

ACI	Analog Clock Input
CI	Clock Input
DCIM	Dual Clock Input Messaging
EA10	E1 Analog 10 Outputs
EA10M	E1 Analog 10 Outputs Messaging
EA20	E1 Analog 20 Outputs
EA20M	E1 Analog 20 Outputs Messaging
CI-EA	Clock Input - E1 Analog
ECI	E1 Clock Input
GPS	Global Positioning System
GTI	GPS Timing Interface
GTR	GPS Timing Antenna/Receiver
LNC	Local Node Clock
MCA-5	Matrix Controller Automatic-5
MIS	Maintenance Interface, System
MRC	Multi-Reference Controller
PRS	Primary Reference Source
PSM	Precision Synchronization Monitor
TNC	Transit Node Clock
TNC-E	Transit Node Clock Enhanced
TO	Timing output
ST2	Stratum-2 Clock
ST2E	Stratum-2 Clock Enhanced
ST3	Stratum-3 Clock
ST3E	Stratum-3 Clock Enhanced
TOAA	Timing Output Analog Automatic
TOCA	Timing Output Composite Clock Automatic
TOEA	Timing Output E1 Automatic
TO-EA	Timing Output E1 Analog
TOGA	Timing Output G.703 Automatic
TOLA	Timing Output Logic Level Automatic
TOTA	Timing Output T1 Automatic
TOTA-5	Timing Output T1 Automatic
TOTA-M	Timing Output T1 Automatic Messaging
TOTL	Timing Output T1 with LBO Automatic

2. TASKS

2.01 Table A lists the tasks for operating the DCD-500 System and the charts that show how to perform the tasks.

Table A. Tasks

TASK	CHART NUMBER	CHART TITLE
• Logon • Logoff	1	Logon & Logoff
• Silence alarms • Display all current alarms in a shelf • Display current alarms of specified equipment • Display current conditions of all equipment in a shelf • Display current conditions of specified equipment • Display current alarms of specified ports • Display current conditions of specified ports • Display message log • Clear message log	2	Alarms & Status
• Display access level of a single user • Display access level of all users • Assign user • Change password • Change user name, password & access level • Delete user	3	Security
• Display communication parameters • Change communication parameters • Display communication connections • Connect communication port • Disconnect communication port • Drop DTR signal for 5 seconds	4	Communication Ports
• Display date and time • Change date and time • Display memory bank being used for MIS card program • Change to alternate MIS card program • Delete card database in MIS card • Reset MIS card • Completely reset MIS card to factory settings • Display system name • Change system name • Display equipment	5	System Configuration
• Enter and restore clock card • Enter and restore DCIM card • Enter and restore GTI card • Enter and restore LTI card • Enter and restore MRC card and ports • Enter and restore PSM card and ports • Enter and restore timing output card and ports • Enter and restore MCA card	6	Enter into the Database and Put In Service a Version 5 Card
• Restore clock card • Restore DCIM card • Restore GTI card • Restore LTI card • Restore MRC card • Restore PSM card • Restore timing output card • Restore MCA card	7	Put a Version 5 Card in Service

Table A. Tasks (Contd)

TASK	CHART NUMBER	CHART TITLE
• Remove clock card • Remove DCIM card • Remove GTI card • Remove LTI card • Remove MRC card • Remove PSM card • Remove timing output card • Remove MCA card	8	Take a Version 5 Card Out of Service
• Delete clock card • Delete DCIM card • Delete GTI card • Delete LTI card • Delete MRC card • Delete PSM card • Delete timing output card • Delete MCA card	9	Delete a Version 5 Card from Database
• Enter clock card • Enter input card • Enter output card • Enter protection card • Enter PRS card	10	Enter a Non-Version 5 Card in Database
• Edit clock card • Edit input card • Edit output card • Edit protection card • Edit PRS card	11	Edit Non-Version 5 Card Information
• Delete clock card • Delete input card • Delete output card • Delete protection card • Delete PRS card	12	Delete a Non-Version 5 Card from Database
• Display parameters for all cards • Display clock quality level • Change clock quality level • Display DCIM card type • Display GTI card parameters • Change GTI card parameters • Display MRC card parameters • Change MRC card parameters • Display timing output card parameters • Change timing output card parameters • Display MCA card parameters • Change MCA card parameters	13	Version 5 Card Configuration

Table A. Tasks (Contd)

TASK	CHART NUMBER	CHART TITLE
• Enter DCIM card input port • Enter MRC card input port • Restore input port • Display performance monitoring data • Clear performance monitoring data • Clear performance monitoring data for DCIM, MRC, & PSM cards • Display framing, priority, signal type, & reference condition of DCIM cards • Change framing, priority, signal type, & reference condition of DCIM cards • Display framing, priority, reference type, & signal type of MRC cards • Change framing, priority, reference type, & signal type of MRC cards • Display threshold • Change threshold • Display alarm severity • Change alarm severity • Display message type for autonomous port alarms • Set message type for autonomous port alarms • Remove port • Delete port	14	Reference Input Ports
• Enter port • Restore port • Display performance monitoring data • Clear performance monitoring data • Display framing & signal type • Change framing & signal type • Display threshold • Change threshold • Display alarm severity • Change alarm severity • Display message type for autonomous port alarms • Set message type for autonomous port alarms • Remove port • Delete port	15	Monitor Input Ports
• Enter port • Restore port • Display signal type • Change signal type • Display message type for autonomous port alarms • Set message type for autonomous port alarms • Remove port • Delete port	16	Timing Output Ports
• Display source mode for timing output cards • Change source mode for timing output cards • Select source for timing output cards • Release source for timing output cards	17	Synchronization Source for Timing Output Cards
• Display output protection type for timing output cards • Change output protection type for timing output cards • Switch to protection timing output card • Release protection timing output card	18	Output Protection for Version 5 Timing Output Cards

Table A. Tasks (Contd)

TASK	CHART NUMBER	CHART TITLE
• Display DCIM card protection mode • Change DCIM card protection mode • Force a single DCIM input port to be used • Release a DCIM input port	19	DCIM Protection Control
• Display SSM mode of shelf • Change SSM mode of shelf • Display quality level assigned to outputs of cards • Change quality level assigned to outputs of cards • Display quality level assigned to outputs of cards for specific conditions • Change quality level assigned to outputs of cards for specific conditions • Display quality level assigned to inputs of DCIM cards • Change quality level assigned to inputs of DCIM cards • Display message being sent out of cards • Display message on DCIM card input	20	SSM Control
• Display persistence delay for DCIM cards • Change persistence delay for DCIM cards • Display transmission-impairment delay for DCIM cards • Change transmission-impairment delay for DCIM cards • Display nonswitching-message delay, switching-message delay, and holdover delay for shelf • Change nonswitching-message delay, switching-message delay, and holdover delay for shelf	21	Delay Control
• Copy card database from MIS card to other cards • Copy card database from other cards to MIS card • Copy MIS card program from external source to MIS card	22	Copy Program and Database for Version 5 Cards
• Copy program from external source to MIS card	23	Copy Program from External Source to MIS Card
• Display GPS statistics	24	GPS Information

3. COMMAND CONVENTIONS

3.01 For a more complete description of the TL1 language syntax and language structure, refer to the User's Guide section of this manual.

3.02 The following conventions are used in the input and response messages:

< >	enclose a parameter
[ ]	enclose an optional parameter
{ }	enclose multiple parameters, one of which must be selected (or in a response, one of which will appear)
|	separate parameters enclosed by the { } symbols
" "	enclose a report of an alarm, event, AID or log
/* */	enclose response text; may include spaces, carriage returns, line feeds and other characters and symbols which, as pertains to the TL1 language, are to be ignored
:	separates parameter blocks
,	separates parameters within a block
&	indicates "and" (1&9 means 1 and 9)
&&	indicate a range (1&&9 means 1 through 9)
. . .	indicates the line may repeat one or more times
;	terminates a command and causes execution
>	indicates a message continuation (message blocks are limited to 4096 bytes)

Note: When listing parameter values that can be used in a command, a range of numbers is shown as a–b, where any number a, b, or any number between a and b can be entered. (Example: 1–12 indicates any number from 1 through 12 inclusive.)

4. SHELF ADDRESSING

4.01 A particular shelf in a particular system is addressed through the <aid> or the <tid>, depending on the software version of the MIS card. All commands are directed to the master shelf of the system unless an expansion or remote shelf identifier is added to the <aid> or <tid>. In a response, the <aid> or <tid> identifies the shelf that is responding.

Note: There are a few commands which have a <shelf> field which must be entered to direct a command at a particular shelf. This is in addition to the <aid> or <tid>.

4.02 The shelf types are defined as follows:

Master: The shelf that is the communications interface for the system and contains the highest-quality clocks in the system.

Expansion: A shelf that has no input cards, no clock cards, and is timed from the master shelf via a ribbon cable (generally collocated with the master shelf).

Remote: A shelf that contains timing input cards that use composite clock timing signals from the master or an expansion shelf (generally located distant from the master shelf).

4.03 When directing a command to a shelf in a system without remote shelves (which can have up to three expansion shelves), modify the aid (if necessary) as follows:

<aid>	= Master shelf and/or LPR shelf
E1-<aid>	= Expansion shelf #1
E2-<aid>	= Expansion shelf #2
E3-<aid>	= Expansion shelf #3

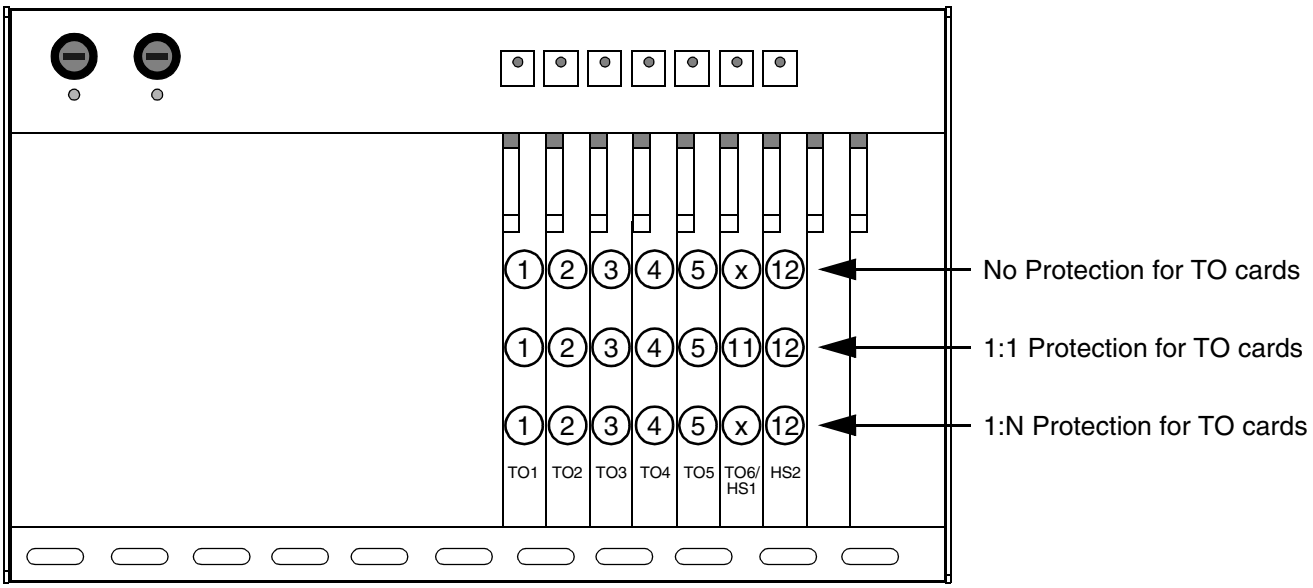
4.04 If the system includes a remote shelf, a maximum of two expansion shelves can be collocated with the master shelf, and no expansion shelves can be timed from the remote shelf. Therefore, modify the aid (if necessary) as follows:

<aid>	= Master shelf and/or LPR shelf
E1-<aid>	= Expansion shelf #1
E2-<aid>	= Expansion shelf #2
E3-<aid>	= Remote shelf

Note: In a system with a remote shelf, E3 is used to identify the remote shelf even if there are no expansion shelves.

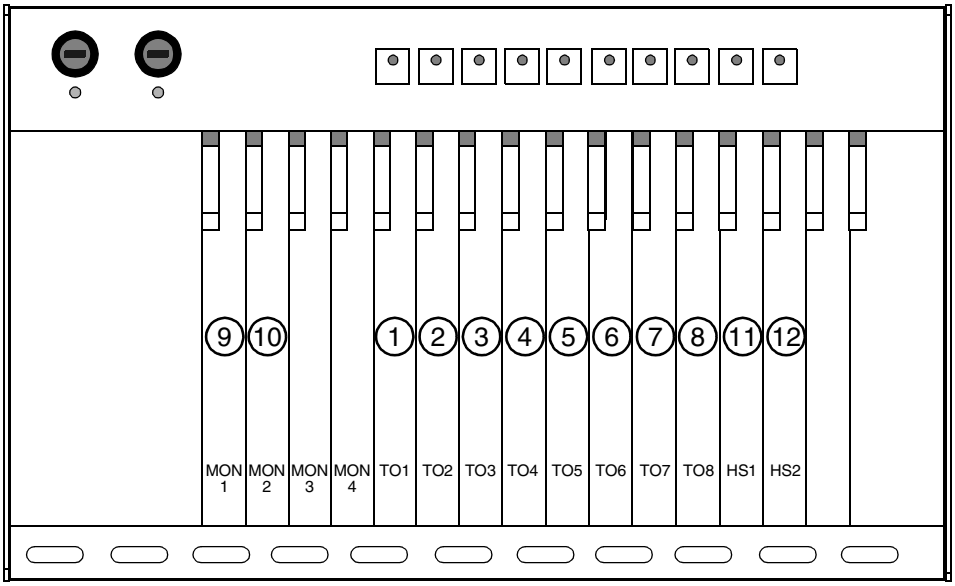
5. TO AND PSM CARD ADDRESSING

5.01 How TO and PSM cards are addressed depends on the shelf model, protection type, and other factors. Refer to Figures 1 through 5 for addressing information. The notes in each figure provide important addressing details.



Notes:
1. The circled numbers are the addresses of the TO cards.
2. TO slots 1 through 3 may not be accessible depending on the clock type installed.
3. TO cards in TO slots 1 through 5 are addressed as the TO slot where installed (TO1, TO2, etc).
4. The TO card in slot HS2 is addressed as TO12.
5. With no TO card protection, the TO card in the TO6/HS1 slot is addressed as TO6 (SW6 and SW7 on the shelf backplane set to 6:1) or as TO11 (SW6 and SW7 set to 5:2).
6. With 1:1 or 1+1 TO card protection, the TO card in the TO6/HS1 slot is addressed as TO11 (SW6 and SW7 on the shelf backplane must be set to 5:2).
7. With 1:N TO card protection, the TO card in the TO6/HS1 slot is addressed as TO6 (one hot spare TO card and SW6 and SW7 on the shelf backplane are set to 6:1) or as TO11 (two hot spare TO cards and SW6 and SW7 are set to 5:2).
8. With 1:1 or 1+1 TO card protection, the TO card pairs are as follows: 2 and 3, 4 and 5, 11 and 12
9. Notes 1 through 7 also apply to PSM cards with the following exceptions:
   - Use PSM1 instead of TO1, etc.
   - PSM cards are double-wide cards, and therefore cannot be installed in adjacent slots.
   - PSM cards are not allowed in the TO6/HS1 slot when 1:N protection is used.
   - PSM cards are not allowed in the TO3 or HS2 slot.

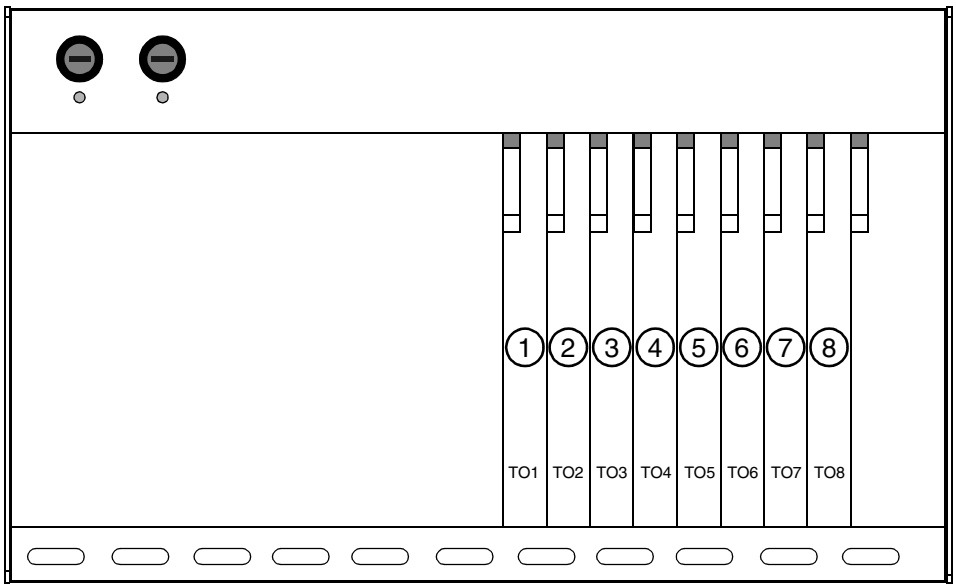
Figure 1. TO and PSM Card Addressing in a DCD-519 Master Shelf



TO Card Notes:
1. The circled numbers are the addresses of TO cards (except 9 and 10).
2. TO cards in slots 1 through 8 are addressed by the TO slot where installed (TO1, TO2, etc).
3. A TO card in slot HS1 is addressed by TO11, and a TO card in slot HS2 is addressed by TO12.
4. TO cards are not allowed in slots MON1 and MON2.
5. For 1:1 and 1+1 TO card protection, the TO card pairs are as follows: 1 and 2, 3 and 4, 5 and 6, 7 and 8, 9 and 10, 11 and 12.

PSM Card Notes:
1. The circled numbers are the addresses of PSM cards (except 12).
2. PSM cards are double-wide cards, and therefore cannot be installed in adjacent slots.
3 PSM cards in slots 1 through 8 are addressed by the TO slot where installed (a PSM card in slot TO1 is PSM1, a PSM card in slot TO2 is PSM2, etc).
4. A PSM card in slot MON1 is addressed by PSM9, and a PSM card in slot MON2 is addressed by PSM10.
5. PSM cards are not allowed in slot MON3, MON4, TO6, or HS2.
6. PSM cards are not allowed in slot HS1 with 1:N protection.
7. A PSM card in slot HS1 is addressed by PSM11.

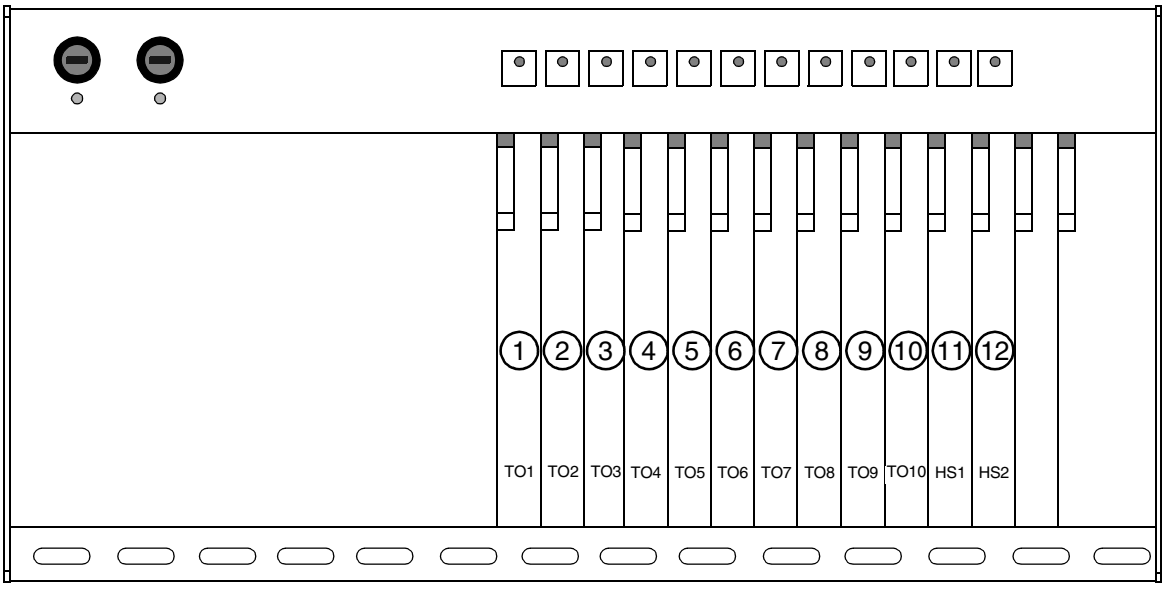
Figure 2. TO and PSM Card Addressing in a DCD-519 Expansion Shelf



TO Card Notes:
1. The circled numbers are the addresses of TO cards.
2. TO slots 1 through 3 may not be accessible depending on the clock type installed.
3. TO cards in slots 1 through 8 are addressed by the TO slot where installed (TO1, TO2, etc).
4. For 1:1 and 1+1 TO card protection, the TO card pairs are as follows: 1 and 2, 3 and 4, 5 and 6, 7 and 8.

PSM Card Notes:
1. PSM cards in slots 1, 2, 4, 5, 6, or 7 are addressed by the TO slot where installed (a PSM card in slot TO1 is PSM1, a PSM card in slot TO2 is PSM2, etc).
2. PSM cards are double-wide cards, and therefore cannot be installed in adjacent slots.
3. Due to a shelf support between slots TO3 and TO4, a PSM card (double wide) cannot be installed in the TO3 slot.
4. A PSM card (double wide) cannot be installed in the TO7 slot if equipped with an MIS card.

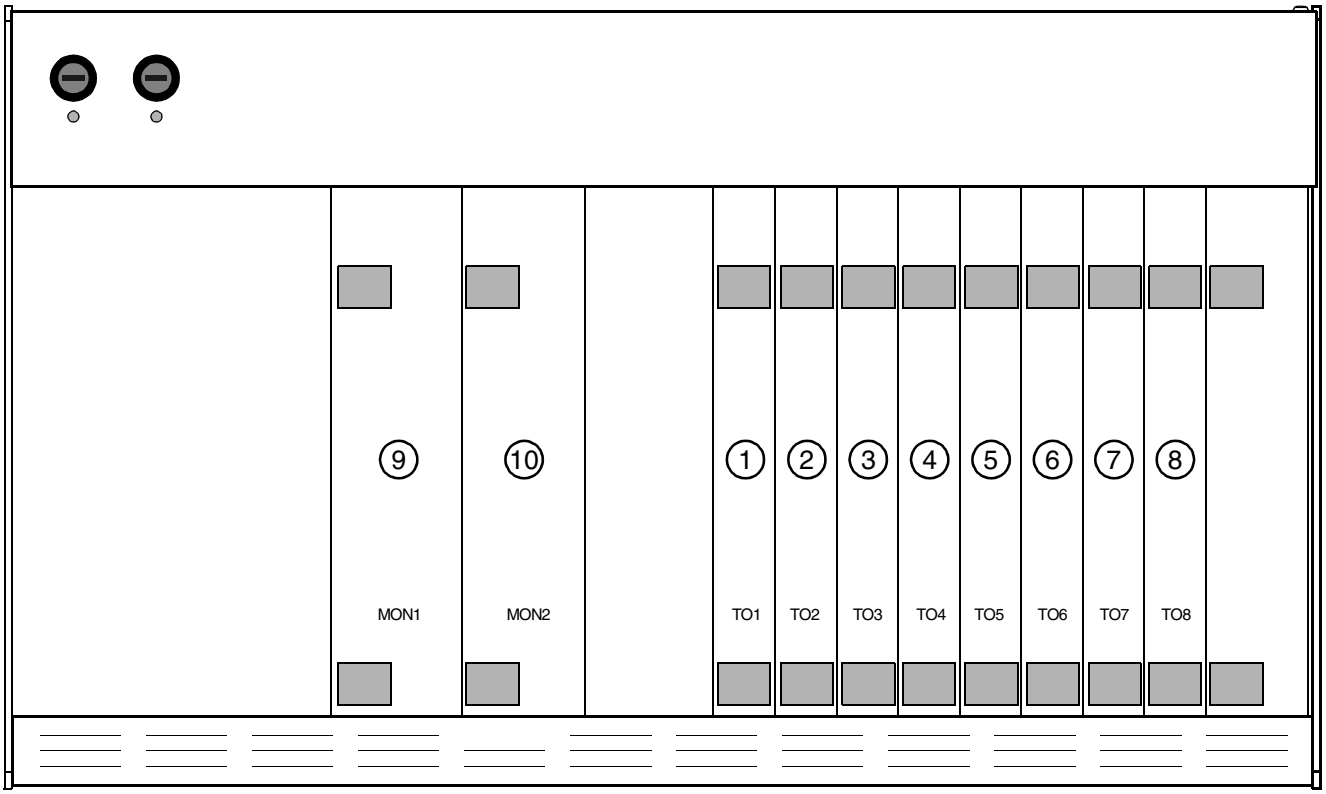
Figure 3. TO and PSM Card Addressing in a DCD-519 High Density Shelf



TO Card Notes:
1. The circled numbers are the addresses of TO cards.
2. TO cards in slots 1 through 10 are addressed by the TO slot where installed (TO1, TO2, etc).
3. Only TO-EA cards can be addressed in the HS1 and HS2 slots. A TO-EA card in slot HS1 is addressed by TO11, and a TO-EA card in slot HS2 is addressed by TO12.
4. For 1:1 and 1+1 TO card protection, the TO card pairs are as follows: 1 and 2, 3 and 4, 5 and 6, 7 and 8, 9 and 10, 11 and 12.

PSM Card Notes:
1. The circled numbers are the addresses of PSM cards (except 12).
2. PSM cards are double-wide cards, and therefore cannot be installed in adjacent slots.
3. PSM cards in slots 1 through 10 are addressed by the TO slot where installed (a PSM card in slot TO1 is PSM1, a PSM card in slot TO2 is PSM2, etc).
4. PSM cards are not allowed in slot HS1 with 1:N protection.
5. PSM cards are not allowed in the TO3 or HS2 slot.

Figure 4. TO and PSM Card Addressing in a DCD-523 Shelf



TO Card Notes:
1. The circled numbers are the addresses of TO cards.
2. TO slots 1 through 3 may not be accessible depending on the clock type installed.
3. TO cards in slots 1 through 8 are addressed by the TO slot where installed (TO1, TO2, etc).
4. TO cards are not allowed in the MON1 and MON2 slots.
5. For 1:1 and 1+1 TO card protection, the TO card pairs are as follows: 1 and 2, 3 and 4, 5 and 6, 7 and 8.

PSM Card Notes:
1. The circled numbers are the addresses of PSM cards (except TO8 where a PSM card cannot fit when an MIS card is installed).
2. PSM cards are double-wide cards, and therefore cannot be installed in adjacent slots (except MON1 and MON2).
3. PSM cards in slots 1 through 7 are addressed by the TO slot where installed (a PSM card in slot TO1 is PSM1, a PSM card in slot TO2 is PSM2, etc).
4. A PSM card in slot MON1 is addressed as PSM9, and a PSM card in slot MON2 is addressed as PSM10.

Figure 5. TO and PSM Card Addressing in a DCD-521/C or DCD-521/C High Density Shelf

6. VERSION 5 VS. NON-VERSION 5 CARDS

6.01 Version 5 cards are those cards which can do the following:

- Report configuration information and be configured via commands
- Report status information
- Report inventory information

6.02 Table B lists the Version 5 cards; all other cards are non-Version 5 cards. Non-Version 5 cards do not contain inventory information and must be manually entered using the ENT-INVENTORY command.

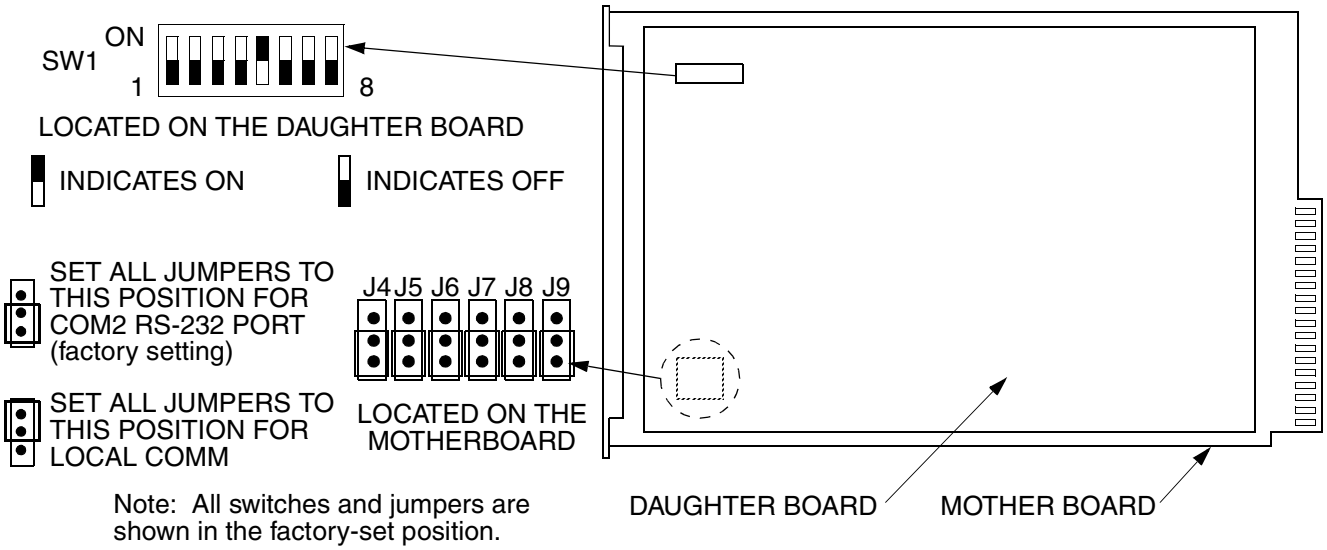
6.03 Some non-Version 5 cards are incompatible with Version 5 cards. Refer to the manual that came with the equipment.

Table B. Version 5 Cards

CARD	PART NUMBER
INPUT CARDS	
DCIM-EA	090-45010-59
DCIM-EA/C	090-44010-59
DCIM-T	090-45010-50
MRC-EA	090-45010-56 090-45010-57
MRC-EA/C	090-44010-56 090-44010-57
MRC-T	090-45010-53 090-45010-58
MRC-T/C	090-44010-58
MONITOR CARDS	
PSM-E	090-45025-52
PSM-E/C	090-44025-52
PSM-EA	090-45025-54
PSM-EA/C	090-44025-54
PSM-T	090-45025-51

Table B. Version 5 Cards (Contd)

CARD	PART NUMBER
TIMING OUTPUT CARDS	
EA10	090-45029-52
EA10/C	090-44029-52
EA10M	090-45029-54
EA10M/C	090-44029-54
EA20	090-45029-53
EA20/C	090-44029-53
EA20M	090-45029-54
EA20M/C	090-44029-54
TO-EA5	090-45029-51
TO-EA5/C	090-44029-51
TO-EAN	090-45029-56
TOTA-5	090-45012-52
TOTA-M	090-45012-53
PROTECTION CARDS	
MCA-5M	090-45015-55
LPR SHELF CARDS	
GTI	090-42140-13, software revision E or higher 090-42140-14, software revision E or higher 090-42140-15, software revision B or higher 090-42140-16 090-42140-17 090-42140-18 090-44140-14, software revision E or higher 090-44140-16 090-44140-18

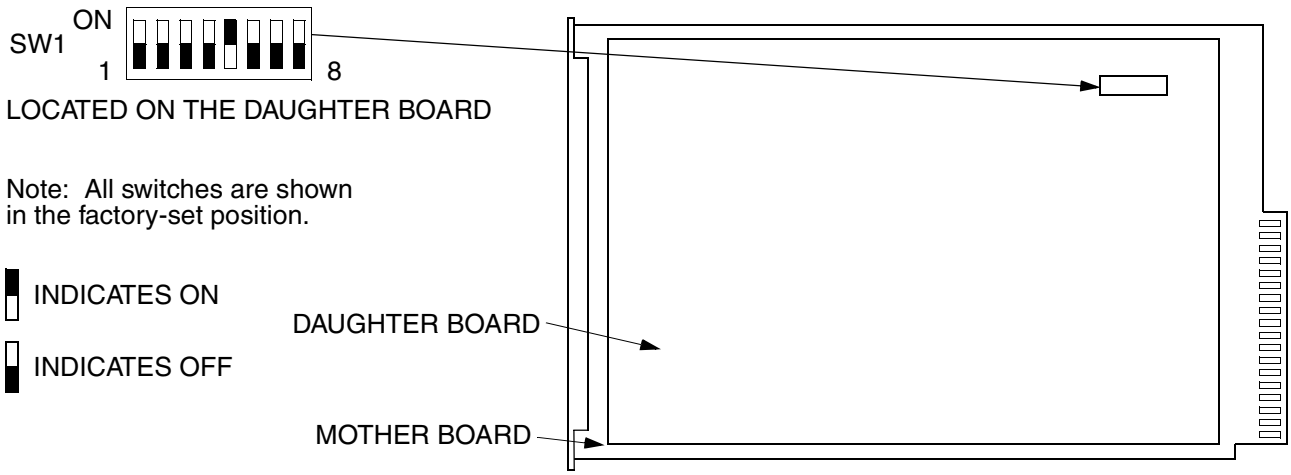


SW1 Switch Settings

Sw1 Section	Position	Description	Factory Setting
1 (Note 1)	On	1200 Baud	—
	Off	9600 Baud	X
2 and 3 (Note 1)	2=on, 3=any	Odd Parity	—
	2=off, 3=on	Even Parity	—
	2=off, 3=off	No Parity	X
4	On	Password protection enabled	—
	Off	Password protection disabled	X
5	On	When power is applied (or recycled), the MIS card downloads its configuration database to the Version 5 cards in the shelf. Only those Version 5 cards in the same slot and with the same serial number as the configuration database receive the download.	X
	Off	The MIS card does not download its configuration database (not recommended).	—
6	Off	Factory set. Do not change.	X
7 (Note 2)	On	Installed in a remote system or expansion shelf	—
	Off	Installed in a master shelf	X
8	Off	Factory set. Do not change.	X

Notes:
1. Sections 1, 2, and 3 set the RS-232 baud rate and parity for COM2 and the LOCAL COMM port only.
2. To transfer information between an MIS card in a Master System and an MIS card in a Remote System, connect the COM 3 ports between the two master shelves.

Figure 6. MIS Card (090-45018-05) Switch and Jumpers



SW1 Switch Settings

Sw1 Section	Position	Description	Factory Setting
1 (Note 1)	On	1200 Baud	—
	Off	9600 Baud	X
2 and 3 (Note 1)	2=on, 3=any	Odd Parity	—
	2=off, 3=on	Even Parity	—
	2=off, 3=off	No Parity	X
4	On	Password protection enabled	—
	Off	Password protection disabled	X
5	On	When power is applied (or recycled), the MIS/C card downloads its configuration database to the Version 5 cards in the shelf. Only those Version 5 cards in the same slot and with the same serial number as the configuration database receive the download.	X
	Off	The MIS/C card does not download its configuration database (not recommended).	—
6	Off	Factory set. Do not change.	X
7 (Note 2)	On	Installed in a remote system or expansion shelf	—
	Off	Installed in a master shelf	X
8	Off	Factory set. Do not change.	X

Notes:
1. Sections 1, 2, and 3 set the RS-232 baud rate and parity for COM2 only.
2. To transfer information between an MIS/C card in a master system and an MIS/C card in a remote system, connect the COM 3 ports between the two master shelves.

Figure 7. MIS/C Card (090-44018-05) Switch

6.04 Version 5 cards and ports can be entered in the database using the complete TL1 command sequence or an abbreviated method can be used.

Complete Command Sequence

Card installed: when the card is first installed, all outputs are enabled and the card and ports perform their prescribed function (if enabled by card switches). In this state, the card cannot communicate with the MIS card; therefore, card information and alarm reporting is not supported by the MIS card.

Card entered: after the card is entered with the ENT-EQPT command (including the card parameters), the card information and configuration is copied to the system database in the MIS card where it is stored in nonvolatile memory; outputs may be squelched (depending on the card configuration status) and alarms are not reported.

Port entered: (applies only to input cards, monitor cards, and timing output cards) after the port is entered with the ENT-PORT command, the entered port configuration is copied to the system database in the MIS card and stored in nonvolatile memory; outputs may be squelched (depending on the card configuration status) and alarms are not reported.

Card restored: after the card is restored with the RST-EQPT command, the card performs all its prescribed equipment-related functions. The timing input and output ports of the cards remain out of service. Port-related status and alarm reporting is inhibited.

Port restored: (applies only to input cards, monitor cards, and timing output cards) after the port is restored via the RST-PORT command, the card and all provisioned inputs and outputs are in service.

Port removed: (applies only to input cards, monitor cards, and timing output cards) after the port is removed via the RMV-PORT command, the card performs all its prescribed functions except that the removed port is squelched and port-related alarms are not reported.

Card removed: after the card is removed via the RMV-EQPT command, the card no longer performs its prescribed functions; outputs are squelched and equipment and port alarms are not reported.

Port deleted: (applies only to input cards, monitor cards, and timing output cards) after the port is deleted via the DLT-PORT command, the card performs all its prescribed functions except that the deleted port is removed from the system database; outputs are squelched and alarms are not reported.

Card deleted: after the card is deleted via the DLT-EQPT command, the card is erased from the system database; outputs are squelched and alarms are not reported.

Abbreviated Command Sequence

6.05 To use the abbreviated sequence, the ENT-EQPT command for the desired Version 5 card is entered without any parameters as follows:

```
ENT-EQPT:[<tid>]:<aid>:<ctag>;
```

6.06 The ENT-EQPT command without parameters is the same as using the following commands: ENT-EQPT, ENT-PORT, RST-EQPT, and RST-PORT. The card will be in-service, and ports will be in or out of service as determined by card switch settings.

A. Non-Version 5 Cards

6.07 Non-Version 5 cards are fully functional when plugged into the shelf. To enter information about a non-Version 5 card into the database, use the ENT-INVENTORY command.

7. SECURITY

7.01 Security is controlled by a combination of a switch on the MIS card and by assigning users with passwords and particular access levels. To enable security, the switch must be set correctly and all users must have non-null passwords. Once security is enabled, access to commands is controlled by assigning levels to users.

A. Switch Setting

7.02 To enable security, section 4 of SW1 on the MIS card must be set to the ON position. From the factory, the switch is set for no security (section 4 is in the OFF position). While in this configuration, all commands can be accessed without logging onto the system. For all the switch settings on the MIS card, refer to the manual that came with the shelf where the card is installed.

B. Command Levels

7.03 Security consists of restricting access to commands. Restriction is accomplished by requiring a particular access level for each command. The access level is listed with each command. The access levels are from 1 (lowest) to 5 (highest). Each user is assigned an access level allowing access to all commands at that level and below. A user with level 5 can access all commands.

7.04 As shipped from the factory, one user is assigned with a user name of "super", a password of "sparky", and an access level of 5. Up to 16 additional users can be assigned (for a total of 17 users) with any access levels.

8. DATABASE DOWNLOAD

8.01 Database downloading is the process of copying card configuration information from the nonvolatile memory in the MIS card to the Version 5 cards. Database downloading is used to automatically configure Version 5 cards, which do not have nonvolatile memory, following a power cycle of the card or the shelf (if the cards were previously entered in the system).

8.02 Section 5 of switch SW1 on the MIS card controls whether the card database configuration is downloaded from the MIS card to the Version 5 cards. To enable downloading, section 5 must be set to ON. When enabled, the database download will occur when the MIS card is pulled out, then reinstalled in the shelf, or when the shelf is power cycled (does not require a craft terminal). If the MIS database does not match the card database, a database mismatch will occur and must be resolved. (The CPY-MEM command must be used to copy the card databases to the MIS card, or to copy the MIS card database to the cards.)

8.03 If section 5 of SW1 is set to OFF, the card operation will be based on card switch settings or previously provisioned options.

8.04 If a Version 5 card is replaced, the new card will automatically be entered in the system database.

9. PROVISIONING SEQUENCE

9.01 Use the steps in Table C to put a system in service. If equipment must be removed, user the steps in Table D. Table E lists the steps for adding and removing ports.

Caution: Using an EDIT command on an in-service input or output card will cause a service interruption. The interruption will occur because the transmission operating parameters are redefined and reinitialized.

10. FACTORY SETTINGS

10.01 For a list of factory settings, refer to Table H.

Table C. Steps to Put Equipment into Service and into Database

STEP	PROCEDURE	COMMAND
1	Insert cards into shelf	N/A
2	Log on	ACT-USER
3	Set communication parameters (Note 1)	ED-COM
4	Enter current date and time (Note 2)	ED-DAT
5	Enter system/shelf identification	SET-SID
6	Assign users	ENT-USER-SECU
7	Enter card into system database (Version 5 cards only) (enters and restores the card, enters and restores all ports on the card)	ENT-EQPT
8	Change card parameters (if required)	ED-EQPT
9	Change port parameters (if required)	ED-PORT
10	Enter non-Version 5 cards into the database	ENT-INVENTORY
11	Set source mode (TO cards only)	SET-ATTR-CONT
12	Set output protection type (TO cards only)	SET-ATTR-CONT
13	Set notification codes for port events (DCIM, MRC, and PSM cards)	SET-ATTR-PORT
14	Set threshold level for monitored parameters (DCIM, MRC, and PSM cards)	SET-TH-PORT
15	Log off	CANC-USER

Notes:
1. If any communication parameters are changed which causes loss of communication, set the terminal parameters to match the set parameters, then restart the terminal and wait 30 seconds.
2. Failure to use the ED-DAT command to set the current date and time on initial power-up will result in erroneous time stamps on alarms and events reported by the MIS card.

Table D. Steps to Delete Equipment from Service and from Database

STEP	PROCEDURE	COMMAND
1	Log on	ACT-USER
2	Take ports out of service (MRC, PSM, and TO cards only)	RMV-PORT
3	Take cards out of service (Version 5 cards only)	RMV-EQPT
4	Delete ports from system database (Version 5 MRC, PSM, and TO cards only)	DLT-PORT
5	Delete cards from system database (Version 5 cards only)	DLT-EQPT
6	Pull card out of shelf	(None)
7	Log off	CANC-USER

Table E. Steps for Ports Only

STEP	PROCEDURE	COMMAND
1	Enter port into database	ENT-PORT
2	Put port in service	RST-PORT
3	Take port out of service	RMV-PORT
4	Delete port from database	DLT-PORT

Table F. Steps to Activate SSM

STEP	PROCEDURE	COMMAND
1	Enter clocks into database	ENT-EQPT
2	Enter quality levels of clocks	ED-EQPT
3	Set the SSM mode for MIS card	SET-ATTR-CONT
4	Set protection mode for DCIM cards	SET-ATTR-CONT

Table G. Steps to Deactivate SSM

STEP	PROCEDURE	COMMAND
1	Set the SSM mode for MIS card to OFF	SET-ATTR-CONT

Table H. Factory Settings

COMMAND	ITEM	PARAMETER	FACTORY SETTING
SECURITY			
ED-USER-SECU	User name	<uid>	super (has an access level of 5)
	Password	<pid>	sparky
SET-SID	Source identifier	<sid>	TELECOM
MONITORING THRESHOLDS			
SET-TH-PORT	BPV	<thlev>	16
	CRC		16
	OOF		1
	MTIE 1 s		300 ns
	MTIE 4 s		300 ns
	MTIE 16 s		350 ns
	MTIE 64 s		450 ns
	MTIE 128 s		650 ns
	MTIE 512 s		1000 ns
	MTIE 900 s		1000 ns
	TDEV 1 s		100 ns
	TDEV 4 s		100 ns
	TDEV 16 s		125 ns
	TDEV 64 s		255 ns
	TDEV 128 s		360 ns
SHELF FUNCTION			
SET-ATTR-CONT	Shelf function	<conttype>	RVRT
DCIM CARD FUNCTION			
SET-ATTR-CONT	Card function	<conttype>	Stand-alone
NOTIFICATION CODE FOR EVENT			
SET-ATTR-PORT	Notification code	<conttype>	NA (all cards, all <condtype>)

Table H. Factory Settings (Contd)

COMMAND	ITEM	PARAMETER	FACTORY SETTING
SYNCHRONIZATION STATUS MESSAGING			
SET-ATTR-CONT	SSM Support	<conttype>	OFF
ED-SSM-EQPT and ED-SSM-PORT	Message	<ssmmsg)	QL-NORM
	Sa4 bit usage	<ssmsa4>	ALW
	Sa5 bit usage	<ssmsa5>	ALW
	Sa6 bit usage	<ssmsa6>	ALW
	Sa7 bit usage	<ssmsa7>	ALW
	Sa8 bit usage	<ssmsa8>	ALW
ED-SSM-EQPT	Trouble code	<ssmtc>	QL-NORM
ED-SSM-MSG	Message	<ssmmsg)	QL-NORM
DELAYS			
SET-DA-EQPT	Holdoff delay	<holdoff>	100 ms
	Restore delay	<rstdur>	0 min
SET-TH-MSG	Persistence delay	<durmsg>	0 ms
	Nonswitching message delay	<nswmsg>	0 ms
	Switching message delay	<swmsg>	0 ms
	Holdover message delay	<hldovrmsg>	0 s
MESSAGE TYPE FOR PORT ALARMS			
SET-REPTMODE-PORT	Message type	<modetype>	Reported as REPT-ALM-PORT messages

Table H. Factory Settings (Contd)

COMMAND	ITEM	PARAMETER	FACTORY SETTING
COMMUNICATIONS			
ED-COM (Notes 1 & 2)	Baud rate	<baud>	Port 1: 9600 Port 2: 9600 Port 3: 9600
	Monitoring mode	<monmsg>	Port 1: inhibited from viewing messages associated with other ports Port 2: inhibited from viewing messages associated with other ports Port 3: inhibited from viewing messages associated with other ports
	Keep alive	<keepalive>	Port 1: inhibited from sending out a COMPLD message Port 2: inhibited from sending out a COMPLD message Port 3: inhibited from sending out a COMPLD message
	Communication type	<comtype>	Port 1: terminal 2 Port 2: terminal 1 Port 3: terminal 2
	End-of-text character	<endoftext>	Port 1: 00 (no end-of-text character) Port 2: 00 (no end-of-text character) Port 3: 00 (no end-of-text character)
	Echo	<echo>	Port 1: echo inhibited Port 2: echo inhibited Port 3: echo inhibited
	Communication priority	<compri>	Port 1: ALW1 (autonomous messages are always sent out this port) Port 2: ALW1 (autonomous messages are always sent out this port) Port 3: ALW1 (autonomous messages are always sent out this port)
	Hardware flow	<hwcontrol>	External equipment is inhibited from starting and stopping output messages by manipulating the clear-to-send (CTS) lead
	Software flow	<swcontrol>	User is inhibited from starting and stopping output messages by using Control-s and Control-q key sequences
	Duration	<dur>	Port 1: 15 minutes Port 2: 15 minutes Port 3: 15 minutes

Notes:
1. The baud rate for port 2 can only be changed by strap settings on the MIS card.
2. Communication parameters which cannot be changed are: character bits = 8 and start bits = 1.

Chart 1. Logon & Logoff

TASK	PROCEDURE
This chart provides the steps for logging on and logging off the System. The user name and password must have been assigned using the ENT-SECU-USER command unless the factory-supplied user name (super) and password (sparky) are being used. After a period of inactivity (set in the ED-COM command), the user is automatically logged off. Note: The user name and password are case (uppercase/lowercase) sensitive and must be entered exactly as assigned.	

Logon	Access level 1 is required to use this command. Enter:
	
	`ACT-USER:[<tid>]:<uid>:<ctag>::<pid>;`
	
	Response:
	
	`   <sid> <date> <time>`
	`M  <ctag> COMPLD`

Logoff	Access level 1 is required to use this command. Enter:
	
	`CANC-USER:[<tid>]:<uid>:<ctag>;`
	
	Response:
	
	`   <sid> <date> <time>`
	`M  <ctag> COMPLD`

Chart 2. Alarms & Status

TASK	PROCEDURE
This chart provides the steps for silencing audible alarms, and for displaying alarms, conditions, and messages.	

Silence Alarms	Access level 1 is required to use this command. Enter:
	
	`OPR-ACO-ALL:[<tid>]:[<shelf>]:<ctag>;`
	
	shelf = shelf to which the command is directed:
	(null) = master shelf
	E1 = expansion shelf 1
	E2 = expansion shelf 2
	E3 = expansion shelf 3 (or remote shelf if equipped with a remote shelf instead of an expansion shelf 3)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Display All Current Alarms in a Shelf	Access level 1 is required to use this command. Enter:
	
	`RTRV-ALM-ALL:[<tid>]:<aid>:<ctag>;`
	
	aid = SHELF
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`
	`<aid>:<ntfcncde>,<condtype>,<service effecting>,`
	`<date>,<time>,,:<conddescr>," ...`
	
	aid = see Table J
	ntfcncde = notification code:
	CR = critical alarm
	MJ = major alarm
	MN = minor alarm
	NA = not alarmed
	NR = not reported
	condtype = see Table J
	service effecting = the effect on service:
	SA = service effecting
	NSA = not service effecting
	date = date of the alarm
	time = time of the alarm
	conddescr = see Table J

Chart 2. Alarms & Status (Contd)

TASK	PROCEDURE

Display Current Alarms of Specified Equipment	Access level 1 is required to use this command. Enter:
	
	`RTRV-ALM-EQPT:[<tid>]:<aid>:<ctag>;`
	
	aid = equipment:
	CLK-a = clock card (a = 1–2)
	DCIM-a = DCIM card (a = 1–2)
	GTI-a = GTI card (a = 1–2)
	LTI-a = LTI card (a = 1–2)
	MCA = MCA card
	MRC-a = MRC card (a = 1–2)
	PSM-a = PSM card (a = 1–11)
	SHELF = shelf (master shelf includes GTI and LTI)
	TO-a = TO card (a = 1–12) (1–10 for TOTA-5 & TOTA-M)
	
	Response:
	
	If there are no alarms in the specified card, the format is:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`
	
	If there is at least one alarm to report in the specified card, the format is:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`
	`<aid>:<ntfcncde>,<condtype>,<service effecting>,`
	`<date>,<time>,,:<conddescr>," ...`
	
	aid = see Table J
	ntfcncde = notification code:
	CR = critical alarm
	MJ = major alarm
	MN = minor alarm
	NA = not alarmed
	NR = not reported
	condtype = see typerep in Table J
	service effecting = the effect on service:
	SA = service effecting
	NSA = not service effecting
	date = date of the alarm
	time = time of the alarm
	conddescr = see Table J

Chart 2. Alarms & Status (Contd)

TASK	PROCEDURE

Display Current Conditions of All Equipment in a Shelf	Access level 1 is required to use this command. Enter:
	
	`RTRV-COND-EQPT:[<tid>]:<aid>:<ctag>;`
	
	aid = SHELF (master shelf includes GTI and LTI)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`
	`<aid>:<ntfcncde>,<typerep>,<service effecting>,`
	`<conddescr>," ...`
	
	aid = see Table J
	ntfcncde = notification code:
	CR = critical alarm
	MJ = major alarm
	MN = minor alarm
	NA = not alarmed
	NR = not reported
	typerep = see Table A in the Input/Output Reference Guide section of this manual, and also see condtype in Table J
	service effecting = the effect on service:
	SA = service effecting
	NSA = not service effecting
	conddescr = see Table J

Chart 2. Alarms & Status (Contd)

TASK	PROCEDURE

Display Current Conditions of Specified Equipment	Access level 1 is required to use this command. Enter:
	
	`RTRV-COND-EQPT:[<tid>]:<aid>:<ctag>;`
	
	aid = equipment:
	CLK-a = clock card (a = 1–2)
	DCIM-a = DCIM card (a = 1–2)
	GTI-a = GTI card (a = 1–2)
	LTI-a = LTI card (a = 1–2)
	MCA = MCA card
	MRC-a = MRC card (a = 1–2)
	PSM-a = PSM card (a = 1–11)
	TO-a = TO card (a = 1–12) (1–10 for TOTA-5 & TOTA-M)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`
	`<aid>:<ntfcncde>,<typerep>,<service effecting>,<conddescr>," ...`
	
	aid = see Table J
	ntfcncde = notification code:
	CR = critical alarm
	MJ = major alarm
	MN = minor alarm
	NA = not alarmed
	NR = not reported
	typerep = see Table A in the Input/Output Reference Guide section of this manual, and also see condtype in Table J
	service effecting = the effect on service:
	SA = service effecting
	NSA = not service effecting
	conddescr = see Table J

Chart 2. Alarms & Status (Contd)

TASK	PROCEDURE

Display Current Alarms of Specified Ports	Access level 1 is required to use this command. Enter:
	
	`RTRV-ALM-PORT:[<tid>]:<aid>:<ctag>;`
	
	aid = port:
	DCIM-a-b:
	a = DCIM card (a = 1–2)
	b = port (b = 1–2 or ALL)
	MRC-a-b[&&-c]:
	a = MRC card (a = 1–2)
	b = port (b = 1–4 or ALL)
	c = ending port (2–4 with c > b)
	PSM-a-b[&&-c]:
	a = PSM card (a = 1–11)
	b = port (b = 1–4 or ALL)
	c = ending port (2–4 with c > b)
	TO-a-b[&&-c]:
	a = TO card (a = 1–12) (1–10 for TOTA-5 & TOTA-M)
	b = port (1–10 [1–20 for EA20] or ALL)
	c = ending port in a range (2–10 [2–20 for EA20] with c > b)
	
	Response:
	
	If there are no port alarms on the specified card, the format is:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`
	
	If there is at least one port alarm on the specified card, the format is:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`
	`"<aid>:<ntfcncde>,<condtype>,<service effecting>,`
	`<date>,<time>,,/*<conddescr>*/" ...`
	
	aid = see Table J
	ntfcncde = notification code:
	CR = critical alarm
	MJ = major alarm
	MN = minor alarm
	NA = not alarmed
	NR = not reported
	condtype = see typerep in Table J
	service effecting = the effect on service:
	SA = service effecting
	NSA = not service effecting
	date = date of the alarm
	time = time of the alarm
	conddescr = see Table J

Chart 2. Alarms & Status (Contd)

TASK	PROCEDURE

Display Current Conditions of Specified Ports	Access level 1 is required to use this command. Enter:
	
	`RTRV-COND-PORT:[<tid>]:<aid>:<ctag>;`
	
	aid = port:
	DCIM-a-b:
	a = DCIM card (a = 1–2)
	b = port (b = 1–2 or ALL)
	MRC-a-b[&&-c]:
	a = MRC card (a = 1–2)
	b = port (b = 1–4 or ALL)
	c = ending port (2–4 with c > b)
	PSM-a-b[&&-c]:
	a = PSM card (a = 1–11)
	b = port (b = 1–4 or ALL)
	c = ending port (2–4 with c > b)
	TO-a-b[&&-c]:
	a = TO card (a = 1–12) (1–10 for TOTA-5 & TOTA-M)
	b = port (1–10 [1–20 for EA20] or ALL)
	c = ending port in a range (2–10 [2–20 for EA20] with c > b)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`
	`<aid>:<ntfcncde>,<typerep>,<service effecting>,<conddescr>," ...`
	
	aid = see Table J
	ntfcncde = notification code:
	CR = critical alarm
	MJ = major alarm
	MN = minor alarm
	NA = not alarmed
	NR = not reported
	typerep = see Table A in the Input/Output Reference Guide section of this manual, and also see condtype in Table J
	service effecting = the effect on service:
	SA = service effecting
	NSA = not service effecting
	conddescr = see Table J

Chart 2. Alarms & Status (Contd)

TASK	PROCEDURE

Display Message Log	Access level 1 is required to use this command. This command retrieves up to 256 alarms and events, but does not clear the message log. Enter:
	
	`RTRV-LOG:[<tid>]:[<shelf>]:<ctag>::LOG;`
	
	shelf = shelf from which log will be displayed:
	(null) = master shelf
	E1 = expansion shelf 1
	E2 = expansion shelf 2
	E3 = expansion shelf 3 (or remote shelf if equipped with a remote shelf instead of an expansion shelf 3)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`
	`"LOG"`
	`/*`
	`"<sid>:<ocrdat> <ocrtm> <aid>:<ntfcncde>,<condtype>,`
	`<srveff>:/* <conddescr> */" ...`
	`"<sid>:<ocrdat> <ocrtm> <aid>:<condtype>,<condeff>:`
	`/* <conddescr> */" ...`
	`*/`
	
	Notes:
	1. The line shown as "<date> <time> " in the response format will show an arbitrary date and time when the RTRV-LOG command is used without having ever used the INIT-LOG command. After the INIT-LOG command has been used, that line will appear as follows:
	
	`"<date> <time> INIT-LOG:::<ctag>::LOG"`
	
	where the date and time shown are the date and time when the INIT-LOG command was entered.
	2. The next-to-the-last line in the response format (begins with "<sid>) is the format for an alarm in the log.
	3. The last line in the response format (also begins with "<sid>) is the format for an event in the log.

Chart 2. Alarms & Status (Contd)

TASK	PROCEDURE

Clear Message Log	Access level 3 is required to use this command. Enter:
	
	`INIT-LOG:[<tid>]:[<shelf>]:<ctag>::LOG;`
	
	shelf = shelf where log will be initialized:
	(null) = master shelf
	E1 = expansion shelf 1
	E2 = expansion shelf 2
	E3 = expansion shelf 3 (or remote shelf if equipped with a remote shelf instead of an expansion shelf 3)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Chart 3. Security

TASK	PROCEDURE
This chart provides the steps for displaying and changing security parameters. As shipped from the factory, there is one user named "super" with a password of "sparky" and an access level of 5. For password protection to be enabled, section 4 of switch SW1 on the MIS card must be set to the ON position. ***Note:*** The user name and password are case (uppercase/lowercase) sensitive and must be entered exactly as assigned.	

Display Access Level of a Single User	Access level 5 is required to use this command. This command is directed to the master shelf only. Enter:
	
	`RTRV-USER-SECU:[<tid>]:<uid>:<ctag>;`
	
	Response:
	
	`   <sid> <date> <time>`
	`M  <ctag> COMLPD`
	`   <uid>:,<access level>`

Display Access Level of All Users	Access level 5 is required to use this command. This command is directed to the master shelf only. Enter:
	
	`RTRV-USER-SECU:[<tid>]:ALL:<ctag>;`
	
	Response:
	
	`   <sid> <date> <time>`
	`M  <ctag> COMLPD`
	`   <uid>:,<access level> ...`

Assign User	Access level 5 is required to use this command. This command is directed to the master shelf only. This command enters a new user into the system. A maximum of 16 users can be assigned. Enter:
	
	`ENT-USER-SECU:[<tid>]:<uid>:<ctag>::<password>,,`
	`<access level>;`
	
	uid = name of new user (up to 10 alpha-numeric characters)
	password = password for new user (see note below)
	access level = access level of new user (1–5 with 5 the highest)
	
	Note: The password can have a minimum of 1 character and a maximum of 10 characters. At least one alpha character must be used. Alpha characters can be uppercase, lowercase, or a mixture of both. Any printable character can be used except: comma (,), colon (:), semicolon (;), null (), space ( ), ampersand (&), and equal sign (=).
	
	Response:
	
	`   <sid> <date> <time>`
	`M  <ctag> COMPLD`

Chart 3. Security (Contd)

TASK	PROCEDURE

Change Password	Access level 1 is required to use this command. This command is directed to the master shelf only. This command changes a user's password. Enter:
	
	`ED-PID:[<tid>]:<uid>:<ctag>::<pid>,<new pid>;`
	
	uid = name of user whose password is being changed
	pid = existing password
	new pid = new password (see note below)
	
	Note: The password can have a minimum of 1 character and a maximum of 10 characters. At least one alpha character must be used. Alpha characters can be uppercase, lowercase, or a mixture of both. Any printable character can be used except: comma (,), colon (:), semicolon (;), null (), space ( ), ampersand (&), and equal sign (=). Also, the following key words cannot be used: "E1", "E2", "E3", or "NO".
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Change User Name, Password, & Access Level	Access level 5 is required to use this command. This command is directed to the master shelf only. Enter:
	
	`ED-USER-SECU:[<tid>]:<uid>:<ctag>::<new uid>,<new pid>,,<uap>;`
	
	uid = name of user whose name, password, and/or access level is being changed
	new uid = new user name (up to 10 alpha-numeric characters)
	new pid = new password (see note below)
	uap = new access level (1–5 with 5 the highest)
	
	Note: The password can have a minimum of 1 character and a maximum of 10 characters. At least one alpha character must be used. Alpha characters can be uppercase, lowercase, or a mixture of both. Any printable character can be used except: comma (,), colon (:), semicolon (;), null (), space ( ), ampersand (&), and equal sign (=). Also, the following key words cannot be used: "E1", "E2", "E3", or "NO".
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Chart 3. Security (Contd)

TASK	PROCEDURE

Delete User	Access level 5 is required to use this command. This command is directed to the master shelf only. Enter:
	
	`DLT-USER-SECU:[<tid>]:<uid>:<ctag>;`
	
	uid = name of user being deleted
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Chart 4. Communication Ports

TASK	PROCEDURE
This chart provides the steps for displaying and changing the communication parameters.	

Display Communication Parameters	Access level 1 is required to use this command. Enter:
	
	`RTRV-COM:[<tid>]:<aid>:<ctag>;`
	
	aid = communication port (COM-1, COM-2, COM-3, or COM-ALL)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`
	`"<aid>" ...`
	`/*BAUD= <value>, MONMSG= <value>, KEEPALIVE= <value>, COMTYPE= <value>, ENDOFTEXT= <value>, ECHO=<value> , COMPRI= <value>, HWCONTROL= <value> , SWCONTROL= <value>, DUR= <value> , DN= <value>...*/`
	
	baud = data rate (baud rate) for this communication port:
	9600 = 9600 baud
	1200 = 1200 baud
	monmsg = specifies whether this communication port is allowed to view communication messages associated with other ports:
	ALW = allowed
	INH = inhibited
	keepalive = specifies whether this communication port is allowed to autonomously output a COMPL messages every 15 to 20 minutes:
	ALW = allowed
	INH = inhibited
	comtype = communication type for this communication port:
	X25 = PAD
	MODEM = modem (Hayes compatible with autodial)
	TERM1 = dumb terminal (VT100 with no DSR/DTR support and message buffering disabled)
	TERM2 = dumb terminal (VT100 with DSR/DTR support and message buffering enabled)
	REMOTE = remote shelf
	endoftext = specifies an additional end-of-text character for this communication port:
	00 = no additional end-of-text character
	x = the additional end-of-text character which is a hexadecimal number (x = 1–9F)
	echo = specifies whether this communication port allows local echo:
	ALW = allowed
	INH = inhibited

Chart 4. Communication Ports (Contd)

TASK	PROCEDURE
Display Communication Parameters (Contd)	compri = specifies whether alarm and event messages are allowed to be transmitted from this communication port: INH = communication through a port with this designation is inhibited (INH is not allowed on COM2) ALW0 = allows normal communication; autonomous messages are not sent out a port with this priority ALW1 = allows normal communication; autonomous messages are always sent out this port regardless of the priorities of the other ports (this is the highest port priority) ALW2 = allows normal communication; autonomous messages are sent out this port only if there are no ports with a priority level of ALW1 (this is the second-highest port priority) ALW3 = allows normal communication; autonomous messages are sent out this port only if there are no ports with a priority level of ALW1 or ALW2 (this is the lowest port priority) hwcontrol = specifies whether external equipment is allowed to stop the DCD system from sending messages by setting the clear to send (CTS) lead low, or continue messages by setting the CTS lead high on this communication port: ALW = allowed INH = inhibited swcontrol = specifies whether user is allowed to use a Control-s key combination to stop the DCD system from sending messages or use a Control-q key combination to cause the DCD system to continue sending messages via this communication port: ALW = allowed INH = inhibited dur = the amount of time (1–45 minutes) after which the user is logged off if there is no activity. dn = the remote PAD address (up to 32 numeric characters)

Chart 4. Communication Ports (Contd)

TASK	PROCEDURE
Change Communication Parameters	Access level 3 is required to use this command. If a parameter is omitted, that parameter is not changed. Enter: `ED-COM:[<tid>]:<aid>:<ctag>::[<baud>],[<monmsg>],[<keepalive>],[<comtype>],[<endoftext>],[<echo>],[<compri>],[<hwcontrol>],[<swcontrol>][,[<dur>],[<dn>]];` ***Notes:*** 1. Any parameter left blank causes no change to that parameter. 2. Before changing the <comtype>, the cable on the communication port specified in the <aid> must be disconnected. If the cable is not disconnected and an attempt is made to change only the <comtype> parameter, an SROF error message will be returned. If the cable is not disconnected and an attempt is made to change <comtype> plus other parameters, a completed response will be returned to show that all parameters other than <comtype> were changed. aid = communication port number (COM-1, COM-2, COM-3) baud = data rate (baud rate) for this communication port (baud rate for port 2 can only be changed by a switch on the MIS card): 9600 = 9600 baud 1200 = 1200 baud monmsg = specifies whether this communication port is allowed to view communication messages associated with other ports: ALW = allowed INH = inhibited keepalive = specifies whether this communication port is allowed to autonomously output a COMPL messages every 15 to 20 minutes: ALW = allowed INH = inhibited

Chart 4. Communication Ports (Contd)

TASK	PROCEDURE
Change Communication Parameters (Contd)	comtype = communication type for this communication port: X25 = for use with X.25 PAD (sets configuration for Black Box Corporation's X.25 PAD-8 only with the following settings: a. drops call if idle time is greater than 1 minute b. fixed destination id ***Note:*** If the <comtype> is set to X25 and TimeScan NMS or TMN is used, refer to the PAD manual and the X.3 Standard to set the following parameters in the PAD Profile: disable ECHO, enable MESSAGES, and disable SERVICE SIGNALS. MODEM = modem (Hayes compatible with autodial) TERM1 = dumb terminal (VT100 with no DSR/DTR support and message buffering disabled) (the autologoff feature will not function on a port with a comtype of TERM1) TERM2 = dumb terminal (VT100 with DSR/DTR support and message buffering enabled) REMOTE = remote shelf endoftext = specifies an additional end-of-text character for this communication port: 00 = no additional end-of-text character x = the additional end-of-text character which is a hexadecimal number (0-9F) echo = specifies whether this communication port allows local echo: ALW = allowed INH = inhibited compri = specifies whether alarm and event messages are allowed to be transmitted from this communication port: INH = communication through a port with this designation is inhibited (INH is not allowed on COM2) ALW0 = allows normal communication; autonomous messages are not sent out a port with this priority level ALW1 = allows normal communication; autonomous messages are always sent out this port regardless of the priorities of the other ports (this is the highest port priority) ALW2 = allows normal communication; autonomous messages are sent out this port only if there are no ports with a priority level of ALW1 (this is the second-highest port priority) ALW3 = allows normal communication; autonomous messages are sent out this port only if there are no ports with a priority level of ALW1 or ALW2 (this is the lowest port priority)

Chart 4. Communication Ports (Contd)

TASK	PROCEDURE

Change Communication Parameters (Contd)	hwcontrol = specifies whether external equipment is allowed to stop the DCD system from sending messages by setting the clear to send (CTS) lead low, or continue messages by setting the CTS lead high:
	ALW = allowed
	INH = inhibited
	swcontrol = specifies whether user is allowed to use a Control-s key combination to stop the DCD system from sending messages, or usOPe a Control-q key combination to cause the DCD system to continue sending messages via this communication port:
	ALW = allowed
	INH = inhibited
	Note: If the <comtype> is set to X25 and TimeScan NMS or TMN is used: set <swcontrol> to ALW, and also enable software flow control in the PAD.
	dur = the amount of time (1–45 minutes) after which the user is logged off if there is no activity (the autologoff feature will not function on a port with a comtype of TERM1)
	dn = the remote PAD address (up to 32 numeric characters)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Chart 4. Communication Ports (Contd)

TASK	PROCEDURE

Display Communication Connections	Access level 1 is required to use this command. Enter:
	
	`RTRV-COM-CONN:[<tid>]:<aid>:<ctag>;`
	
	aid = SHELF
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`
	`"<aid>" ...`
	`/*`
	`COM-1=<value>[,ACT-USER=<uid>],`
	`COM-2=<value>[,ACT-USER=<uid>],`
	`COM-3=<value>[,ACT-USER=<uid>]`
	`*/`
	
	value = status of communication port (ACTIVE or INACTIVE)
	uid = user id (as set by the ENT-USER-SECU command) of the user logged onto the port
	
	Notes:
	1. The ",ACT-USER= <uid>" part of the response appears only if the communication port is active and security is enabled by section 4 of switch SW1 on the MIS card.
	2. A status of INACTIVE (even if the port is active) will be reported for any communication port that is using a 3-wire connection or has been set for a comtype of TERM1 with the ED-COM command.

Connect Communication Port	Access level 4 is required to use this command. Enter:
	
	`CONN-COM:[<tid>]:<aid>:<ctag>::[<comtype>];`
	
	aid = communication port:
	COM-1 = communication port 1
	COM-2 = communication port 2
	COM-3 = communication port 3
	comtype = communication device type:
	X25 = PAD
	MODEM = modem (Hayes compatible with autodial)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Chart 4. Communication Ports (Contd)

TASK	PROCEDURE

Disconnect Communication Port	Access level 4 is required to use this command. Enter:
	
	`DISC-COM:[<tid>]:<aid>:<ctag>;`
	
	aid = communication port:
	COM-1 = communication port 1
	COM-2 = communication port 2
	COM-3 = communication port 3
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Drop DTR Signal for 5 Seconds	Access level 3 is required to use this command. If a port is provision for TERM1 (no DSR/DTR support), the command will indicate completed but no action will occur. Enter:
	
	`INIT-COM:[<tid>]:<aid>:<ctag>;`
	
	aid = communication port number (COM-1, COM-2, COM-3, or COM-ALL)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Chart 5. System Configuration

TASK	PROCEDURE
This chart provides the steps for displaying the date & time and changing the date & time. Steps are included for displaying and changing the system name, and how to reset the system database. Also included is a step for displaying the MIS card software revision. The system name is set at the factory to TELECOM. The system name is entered (optional) as the target identifier (tid) and is included with every response from the system as the source identifier (sid). Refer to Part 4, Shelf Addressing, for expansion or remote shelf addressing details.	

Display Date & Time	Access level 1 is required to use this command. This command is directed to the master shelf only. Enter:
	
	`RTRV-HDR:[<tid>]::<ctag>;`
	
	Response:
	
	`    <sid> <date> <time>`
	`M  <ctag> COMPLD`

Change Date & Time	Access level 4 is required to use this command. This command is directed to the master shelf only. If connected to a GTI card, the system will adjust the minutes and seconds to coincide with UTC time. The current hour (entered with <time>) will be used so that local time is displayed. Enter:
	
	`ED-DAT:[<tid>]::<ctag>::{<date>,<time>};`
	
	date = date in the format yyyy-mm-dd:
	yyyy = year (1997–2096)
	mm = month (01–12)
	dd = day (01–31)
	time = time in the format hh-mm-ss:
	hh = hour (00–23)
	mm = minute (00–59)
	ss = second (00–59)
	
	Response:
	
	`    <sid> <date> <time>`
	`M  <ctag> COMPLD`

Chart 5. System Configuration (Contd)

TASK	PROCEDURE

Display Memory Bank Being Used for MIS Card Program	Access level 2 is required to use this command. This command displays the MIS card inventory and the program memory bank (low bank or hi bank) in use. Enter:
	
	`RTRV-INVENTORY:[<tid>]:<aid>:<ctag>;`
	
	aid = ADMIN
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`
	`"<aid>"`
	`/*`
	`CARD=<value>,`
	`TYPE=<value>,`
	`PART=<value>,`
	`CLEI=<value>,`
	`SERIAL=<value>,`
	`HARDREV=<value>,`
	`LOW_BANK_SW=<value>:`
	`SOFTREV=<value>,`
	`SOFTVER=<value>,`
	`HI_BANK_SW=<value>:`
	`SOFTREV=<value>,`
	`SOFTVER=<value>`
	`*/`
	
	Note: The word (ACTIVE or INACTIVE) following the LOW_BANK_SW= and the HI_BANK_SW= fields indicate which memory bank is in use (ACTIVE = in use, INACTIVE = not in use).

Chart 5. System Configuration (Contd)

TASK	PROCEDURE

Change to Alternate MIS Card Program	***Caution: If section 5 of SW1 on the MIS card is set to ON, the following command will retain the card database in the MIS card and this card database will be downloaded from the MIS card to all other cards. If section 5 of SW1 on the MIS card is set to OFF, the following command will retain the card database in the MIS card, but this card database will <u>not</u> be downloaded from the MIS card to all other cards.***
	
	Access level 5 is required to use this command. This command causes the MIS card to use the alternate MIS card program (if one is available) which may take up to 5 minutes. This command does not affect the SID, security, or communication port parameters. Enter:
	
	`INIT-SYS:[<tid>]:<aid>:<ctag>::5;`
	
	aid = MIS
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Delete Card Database in MIS Card	***Caution: The following command will delete the card database in the MIS card.***
	
	Access level 5 is required to use this command. This command deletes the card database in the MIS card. This command does not affect the SID, security, or communication port parameters. Enter:
	
	`INIT-SYS:[<tid>]:<aid>:<ctag>::3;`
	
	aid = MIS
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Chart 5. System Configuration (Contd)

TASK	PROCEDURE

Reset MIS Card	***Caution: If section 5 of SW1 on the MIS card is set to ON, the following command will retain the card database in the MIS card and this card database will be downloaded from the MIS card to all other cards. If section 5 of SW1 on the MIS card is set to OFF, the following command will retain the card database in the MIS card, but this card database will <u>not</u> be downloaded from the MIS card to all other cards.***
	
	Access level 5 is required to use this command. This command causes the MIS card to perform a soft reset. This command does not affect the SID, security, or communication port parameters. Enter:
	
	`INIT-SYS:[<tid>]:<aid>:<ctag>::4;`
	
	aid = MIS
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Completely Reset MIS Card to Factory Settings	***Caution: The following command will delete the card database in the MIS card and reset all SID, security, and communication port parameters to the factory settings.***
	
	Access level 5 is required to use this command. This command deletes all card information (no cards will be entered in the database); resets all security information and the source ID (SID) to the factory settings (there will be only one user named “super” with a password of “sparky”, and the DCD system SID will be TELECOM); and resets all communication parameters to factory settings. Enter:
	
	`INIT-SYS:[<tid>]:<aid>:<ctag>::9;`
	
	aid = MIS
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Display System Name	Access level 1 is required to use this command. This command is directed to the master shelf only. Enter:
	
	`RTRV-HDR:[<tid>]::<ctag>;`
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Chart 5. System Configuration (Contd)

TASK	PROCEDURE

Change System Name	Access level 4 is required to use this command. This command is directed to the master shelf only. This command changes the source identifier for a system. Enter:
	
	`SET-SID:<tid>::<ctag>::<sid>;`
	
	tid = old source identifier of the system
	sid = new source identifier of the system (20 characters max using letters, numbers, and hyphens; the source identifier must begin with a letter; the target's CLLI code [if available] is recommended as the source identifier, or the office name can be used)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Chart 5. System Configuration (Contd)

TASK	PROCEDURE

Display Equipment	Access level 2 is required to use this command. This command displays equipped cards. Non-Version 5 cards must have been entered with the ENT-INVENTORY command (cards not entered will show blank fields). Version 5 cards are automatically entered in the database with the ENT-EQPT command. Enter:
	
	`RTRV-INVENTORY:<tid>:<aid>:<ctag>;`
	
	aid = specific equipment locations:
	ADMIN = MIS card slot
	CLOCK-a = clock slot (a = 1–2)
	INPUT-a = input slot (a = 1–2)
	OUTPUT-a = output slot (used for timing output cards, monitoring cards, and clock insertion cards) (a = 1–12)
	PROT = protection controller slot
	PRS-a = LPR shelf (a = 1–2)
	SHELF = all equipment locations (PRS included with master shelf)
	
	Response:
	
	For MIS card:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`
	`"<aid>"`
	`/*`
	`CARD=<value>,`
	`TYPE=<value>,`
	`PART=<value>,`
	`CLEI=<value>,`
	`SERIAL=<value>,`
	`HARDREV=<value>,`
	`LOW_BANK_SW=<value>:`
	`SOFTREV=<value>,`
	`SOFTVER=<value>,`
	`HI_BANK_SW=<value>:`
	`SOFTREV=<value>,`
	`SOFTVER=<value>`
	`*/...`
	
	Note: Information about the ADMIN slot shows information for the high-bank and low-bank program memory locations. One of these locations will be active and the other will be inactive.

Chart 5. System Configuration (Contd)

TASK	PROCEDURE

Display Equipment (Contd)	Response (Contd):
	
	For cards other than MIS:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`
	`"<aid>"`
	`/*`
	`CARD=<value>,`
	`TYPE=<value>,`
	`PART=<value>,`
	`CLEI=<value>,`
	`SERIAL=<value>,`
	`HARDREV=<value>,`
	`SOFTREV=<value>,`
	`SOFTVER=<value>`
	`*/...`

Chart 6. Enter into the Database and Put In Service a Version 5 Card

TASK	PROCEDURE
This chart provides the steps for entering Version 5 cards into the system database. The card will be put in service according to the switch settings on the card. ***Note:*** For EA10, EA10M, EA20, EA20M, TO-EA5, TOTA-5, and TOTA-M cards, if section 8 of switch SW1 is ON: • The outputs are disabled upon power-up. • The ENT-PORT, RST-EQPT, and RST-PORT commands must be used to enable the outputs.	

Enter and Restore Clock Card	Access level 4 is required to use this command. Enter:
	
	`ENT-EQPT:[<tid>]:<aid>:<ctag>;`
	
	aid = clock card slot (CLK-1 or CLK-2)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Enter and Restore DCIM Card	Access level 4 is required to use this command. Enter:
	
	`ENT-EQPT:[<tid>]:<aid>:<ctag>;`
	
	aid = DCIM card slot (DCIM-1 or DCIM-2)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Enter and Restore GTI Card	Access level 4 is required to use this command. Enter:
	
	`ENT-EQPT:[<tid>]:<aid>:<ctag>;`
	
	aid = GTI card slot (GTI-1 or GTI-2)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Chart 6. Enter into the Database and Put In Service a Version 5 Card (Contd)

TASK	PROCEDURE

Enter and Restore LTI Card	Access level 4 is required to use this command. Enter:
	
	`ENT-EQPT:[<tid>]:<aid>:<ctag>;`
	
	aid = LTI card slot (LTI-1 or LTI-2)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Enter and Restore MRC Card and Ports	Access level 4 is required to use this command. Enter:
	
	`ENT-EQPT:[<tid>]:<aid>:<ctag>;`
	
	aid = MRC card slot (MRC-1 or MRC-2)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Enter and Restore PSM Card and Ports	Access level 4 is required to use this command. Enter:
	
	`ENT-EQPT:[<tid>]:<aid>:<ctag>;`
	
	aid = PSM card slot (PSM-x, where x = 1–11)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Enter and Restore Timing Output Card and Ports	Access level 4 is required to use this command. Enter:
	
	`ENT-EQPT:[<tid>]:<aid>:<ctag>;`
	
	aid = TO card slot (TO-x, where x = 1–12 [1–10 for TOTA-5 & TOTA-M])
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Chart 6. Enter into the Database and Put In Service a Version 5 Card (Contd)

TASK	PROCEDURE

Enter and Restore MCA Card	Access level 4 is required to use this command. Enter:
	
	`ENT-EQPT:[<tid>]:<aid>:<ctag>;`
	
	aid = MCA card (MCA)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Chart 7. Put Version 5 Card In Service

TASK	PROCEDURE
This chart provides the steps for putting Version 5 cards into service. Once in service, cards can report alarm and conditions.	

Restore Clock Card	Access level 4 is required to use this command. Enter:
	
	`RST-EQPT:[<tid>]:<aid>:<ctag>;`
	
	aid = clock card slot (CLK-1 or CLK-2)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Restore DCIM Card	Access level 4 is required to use this command. Enter:
	
	`RST-EQPT:[<tid>]:<aid>:<ctag>;`
	
	aid = DCIM card slot (DCIM-1 or DCIM-2)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Restore GTI Card	Access level 4 is required to use this command. Enter:
	
	`RST-EQPT:[<tid>]:<aid>:<ctag>;`
	
	aid = GTI card slot (GTI-1 or GTI-2)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Restore LTI Card	Access level 4 is required to use this command. Enter:
	
	`RST-EQPT:[<tid>]:<aid>:<ctag>::,,,,,;`
	
	aid = LTI card slot (LTI-1 or LTI-2)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Chart 7. Put Version 5 Card In Service (Contd)

TASK	PROCEDURE

Restore MRC Card	Access level 4 is required to use this command. Enter:
	
	`RST-EQPT:[<tid>]:<aid>:<ctag>;`
	
	aid = MRC card slot (MRC-1 or MRC-2)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Restore PSM Card	Access level 4 is required to use this command. Enter:
	
	`RST-EQPT:[<tid>]:<aid>:<ctag>;`
	
	aid = PSM card slot (PSM-x, where x = 1–11)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Restore Timing Output Card	Access level 4 is required to use this command. When a timing output card is restored (put in service), its outputs are enabled. Enter:
	
	`RST-EQPT:[<tid>]:<aid>:<ctag>;`
	
	aid = TO card slot (TO-x, where x = 1–12 [1–10 for TOTA-5 & TOTA-M])
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Restore MCA Card	Access level 4 is required to use this command. Enter:
	
	`RST-EQPT:[<tid>]:<aid>:<ctag>;`
	
	aid = MCA card (MCA)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Chart 8. Take a Version 5 Card Out of Service

TASK	PROCEDURE
This chart provides the steps for taking Version 5 cards out of service. When out of service, cards can no longer report alarms and conditions. ***Prerequisite:*** Before MRC, PSM, or timing output cards can be taken out of service, all the ports associated with the card must be taken out of service. Refer to Chart 14 (Reference Input Ports), Chart 15 (Monitor Input Ports), or Chart 16 (Timing Output Ports) for the procedure to take ports out of service.	

Remove Clock Card	Access level 4 is required to use this command. Enter:
	
	`RMV-EQPT:[<tid>]:<aid>:<ctag>;`
	
	aid = clock card slot (CLK-1 or CLK-2)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Remove DCIM Card	Access level 4 is required to use this command. Enter:
	
	`RMV-EQPT:[<tid>]:<aid>:<ctag>;`
	
	aid = DCIM card slot (DCIM-1 or DCIM-2)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Remove GTI Card	Access level 4 is required to use this command. Enter:
	
	`RMV-EQPT:[<tid>]:<aid>:<ctag>;`
	
	aid = GTI card slot (GTI-1 or GTI-2)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Remove LTI Card	Access level 4 is required to use this command. Enter:
	
	`RMV-EQPT:[<tid>]:<aid>:<ctag>;`
	
	aid = LTI card slot (LTI-1 or LTI-2)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Chart 8. Take a Version 5 Card Out of Service (Contd)

TASK	PROCEDURE

Remove MRC Card	Access level 4 is required to use this command. Enter:
	
	`RMV-EQPT:[<tid>]:<aid>:<ctag>;`
	
	aid = MRC card slot (MRC-1 or MRC-2)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Remove PSM Card	Access level 4 is required to use this command. Enter:
	
	`RMV-EQPT:[<tid>]:<aid>:<ctag>;`
	
	aid = PSM card slot (PSM-x, where x = 1–11)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Remove Timing Output Card	Access level 4 is required to use this command. When a timing output card is removed (taken out of service), its outputs are disabled. Enter:
	
	`RMV-EQPT:[<tid>]:<aid>:<ctag>;`
	
	aid = TO card slot (TO-x, where x = 1–12 [1–10 for TOTA-5 & TOTA-M])
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Remove MCA Card	Access level 4 is required to use this command. Enter:
	
	`RMV-EQPT:[<tid>]:<aid>:<ctag>;`
	
	aid = MCA card (MCA)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Chart 9. Delete a Version 5 Card from Database

TASK	PROCEDURE
This chart provides the steps for deleting Version 5 cards from the system database. ***Prerequisite:*** Before DCIM, MRC, PSM, or timing output cards can be deleted from the database, all the ports associated with the card must be deleted from the database. Refer to Chart 14 (Reference Input Ports), Chart 15 (Monitor Input Ports), or Chart 16 (Timing Output Ports) for the procedure to delete ports from the database.	

Delete Clock Card	Access level 4 is required to use this command. Enter:
	
	`DLT-EQPT:[<tid>]:<aid>:<ctag>;`
	
	aid = clock card slot (CLK-1 or CLK-2)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Delete DCIM Card	Access level 4 is required to use this command. Enter:
	
	`DLT-EQPT:[<tid>]:<aid>:<ctag>;`
	
	aid = DCIM card slot (DCIM-1 or DCIM-2)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Delete GTI Card	Access level 4 is required to use this command. Enter:
	
	`DLT-EQPT:[<tid>]:<aid>:<ctag>;`
	
	aid = GTI card slot (GTI-1 or GTI-2)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Delete LTI Card	Access level 4 is required to use this command. Enter:
	
	`DLT-EQPT:[<tid>]:<aid>:<ctag>;`
	
	aid = LTI card slot (LTI-1 or LTI-2)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Chart 9. Delete a Version 5 Card from Database (Contd)

TASK	PROCEDURE

Delete MRC Card	Access level 4 is required to use this command. Enter:
	
	`DLT-EQPT:[<tid>]:<aid>:<ctag>;`
	
	aid = MRC card slot (MRC-1 or MRC-2)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Delete PSM Card	Access level 4 is required to use this command. Enter:
	
	`DLT-EQPT:[<tid>]:<aid>:<ctag>;`
	
	aid = PSM card slot (PSM-x, where x = 1–11)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Delete Timing Output Card	Access level 4 is required to use this command. Enter:
	
	`DLT-EQPT:[<tid>]:<aid>:<ctag>;`
	
	aid = TO card slot (TO-x, where x = 1–12 [1–10 for TOTA-5 & TOTA-M])
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Delete MCA Card	Access level 4 is required to use this command. Enter:
	
	`DLT-EQPT:[<tid>]:<aid>:<ctag>;`
	
	aid = MCA card (MCA)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Chart 10. Enter a Non-Version 5 Card in Database

TASK	PROCEDURE
This chart provides the steps for entering non-Version 5 cards and Version 5 cards without a database (ST2, ST2E, ST3, ST3E, TNC, TNC-E, and LNC) into the system database. Obtain information about the card from the front panel of the card. If information is not available, leave the associated field in the command empty.	

Enter Clock Card	Access level 3 is required to use this command. Enter:
	
	`ENT-INVENTORY:[<tid>]:<aid>:<ctag>::[<card>],[<part>],[<clei>],[<serial>],[<hardware_revision>],[<software_revision>];`
	
	aid = clock card slot (CLOCK-1 or CLOCK-2)
	card = card (LNC, TNC, TNC-E, ST2, ST2E, ST3, or ST3E)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Enter Input Card	Access level 3 is required to use this command. Enter:
	
	`ENT-INVENTORY:[<tid>]:<aid>:<ctag>::[<card>],[<part>],[<clei>],[<serial>],[<hardware_revision>],[<software_revision>];`
	
	aid = input card slot (INPUT-1 or INPUT-2)
	card = card (ACI, CI, CI-EA, or ECI)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Enter Output Card	Access level 3 is required to use this command. Enter:
	
	`ENT-INVENTORY:[<tid>]:<aid>:<ctag>::[<card>],[<part>],[<clei>],[<serial>],[<hardware_revision>],[<software_revision>];`
	
	aid = output card slot (OUTPUT-x, where x = 1–12)
	card = card (TOAA, TOCA, TOEA, TO-EA, TOGA, TOLA, TOTA, TOTL,SCIU, or ESCIU)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Chart 10. Enter a Non-Version 5 Card in Database (Contd)

TASK	PROCEDURE

Enter Protection Card	Access level 3 is required to use this command. Enter:
	
	`ENT-INVENTORY:[<tid>]:<aid>:<ctag>::MCA-5,[<part>],`
	`[<clei>],[<serial>],[<hardware_revision>],`
	`[<software_revision>];`
	
	aid = protection card slot (PROT)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Enter PRS Card	Access level 3 is required to use this command. Enter:
	
	`ENT-INVENTORY:[<tid>]:<aid>:<ctag>::[<card>],[<part>],`
	`[<clei>],[<serial>],[<hardware_revision>],`
	`[<software_revision>];`
	
	aid = PRS card slot (PRS-1 or PRS-2)
	card = LOU-1, LOU-2, or LTI
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Chart 11. Edit Non-Version 5 Card Information

TASK	PROCEDURE
This chart provides the steps for editing the information for non-Version 5 cards and Version 5 cards without a database (ST2, ST2E, ST3, ST3E, TNC, TNC-E, and LNC). Omit those parameters not being changed.	

Edit Clock Card	Access level 3 is required to use this command. Enter:
	
	`ED-INVENTORY:[<tid>]:<aid>:<ctag>::[<card>],[<part>],`
	`[<clei>],[<serial>],[<hardware_revision>],`
	`[<software_revision>];`
	
	aid = clock card slot (CLOCK-1 or CLOCK-2)
	card = card (LNC, TNC, TNC-E, ST2, ST2E, ST3, or ST3E)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Edit Input Card	Access level 3 is required to use this command. Enter:
	
	`ED-INVENTORY:[<tid>]:<aid>:<ctag>::[<card>],[<part>],`
	`[<clei>],[<serial>],[<hardware_revision>],`
	`[<software_revision>];`
	
	aid = input card slot (INPUT-1 or INPUT-2)
	card = card (ACI, CI, CI-EA, or ECI)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Edit Output Card	Access level 3 is required to use this command. Enter:
	
	`ED-INVENTORY:[<tid>]:<aid>:<ctag>::[<card>],[<part>],`
	`[<clei>],[<serial>],[<hardware_revision>],`
	`[<software_revision>];`
	
	aid = output card slot (OUTPUT-x, where x = 1–12)
	card = card (TOAA, TOCA, TOEA, TO-EA, TOGA, TOLA, TOTA, TOTL,SCIU, or ESCIU)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Chart 11. Edit Non-Version 5 Card Information (Contd)

TASK	PROCEDURE

Edit Protection Card	Access level 3 is required to use this command. Enter:
	
	`ED-INVENTORY:[<tid>]:<aid>:<ctag>::MCA-5,[<part>],`
	`[<clei>],[<serial>],[<hardware_revision>],`
	`[<software_revision>];`
	
	aid = protection card slot (PROT)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Edit PRS Card	Access level 3 is required to use this command. Enter:
	
	`ED-INVENTORY:[<tid>]:<aid>:<ctag>::[<card>],[<part>],`
	`[<clei>],[<serial>],[<hardware_revision>],`
	`[<software_revision>];`
	
	aid = PRS card slot (PRS-1 or PRS-2)
	card = LOU-1, LOU-2, or LTI
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Chart 12. Delete a Non-Version 5 Card from Database

TASK	PROCEDURE
This chart provides the steps for deleting non-Version 5 cards from the system database.	

Delete Clock Card	Access level 4 is required to use this command. Enter:
	
	`DLT-INVENTORY:[<tid>]:<aid>:<ctag>;`
	
	aid = clock card slot (CLOCK-1 or CLOCK-2)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Delete Input Card	Access level 4 is required to use this command. Enter:
	
	`DLT-INVENTORY:[<tid>]:<aid>:<ctag>;`
	
	aid = input card slot (INPUT-1 or INPUT-2)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Delete Output Card	Access level 4 is required to use this command. Enter:
	
	`DLT-INVENTORY:[<tid>]:<aid>:<ctag>;`
	
	aid = output card slot (OUTPUT-x, where x = 1–12)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Delete Protection Card	Access level 4 is required to use this command. Enter:
	
	`DLT-INVENTORY:[<tid>]:<aid>:<ctag>;`
	
	aid = protection card slot (PROT)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Chart 12. Delete a Non-Version 5 Card from Database (Contd)

TASK	PROCEDURE

Delete PRS Card	Access level 4 is required to use this command. Enter:
	
	`DLT-INVENTORY:[<tid>]:<aid>:<ctag>;`
	
	aid = PRS card slot (PRS-1 or PRS-2)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Chart 13. Version 5 Card Configuration

TASK	PROCEDURE
This chart provides the steps for displaying and changing parameters on the GTI, MRC, timing output, and MCA cards. ***Note:*** No information is returned for clock cards, PSM cards, or LTI cards; therefore, individual commands for these cards have not been included in this chart.	

Display Parameters for All Cards	Access level 2 is required to use this command. Enter:
	
	`RTRV-EQPT:[<tid>]:<aid>:<ctag>;`
	
	aid = SHELF (GTI card included with master shelf)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`
	`"<aid>:[<framing>],[<troublecode>],[<portseverity>]`
	`,[<osc1>],[<osc2>],[<integration>],[<clklevel>]`
	`,[<alarmlead>],[<signaltype>]" ...`
	
	framing = framing type:
	CAS = channel associated signaling
	CAS4 = channel associated signaling with cyclic redundancy check 4
	CRC4 = common channel signaling with cyclic redundancy check 4
	D4 = D4 framing
	ESF = ESF framing
	FAS = common channel signaling
	troublecode = output signals when card has major alarm:
	ALW = AIS is sent on all outputs
	INH = all outputs are squelched
	portseverity = alarm type caused by port failure:
	MJ = major
	MN = minor
	osc1 = clock type on oscillator 1 (OSC A) input:
	RB = rubidium
	QTZ = quartz
	NONE = oscillator 1 is not equipped
	osc2 = clock type on oscillator 2 (OSC B) input:
	RB = rubidium
	QTZ = quartz
	NONE = oscillator 2 is not equipped
	integration = integration time until an alarm is declared:
	1 = see Table I
	2 = see Table I
	3 = see Table I
	4 = see Table I

Chart 13. Version 5 Card Configuration (Contd)

TASK	PROCEDURE
Display Parameters for All Cards (Contd)	clklevel = clock type in the shelf: ST2 = the clock is an ST2 ST2E = the clock is an ST2E ST3 = the clock is an ST3 ST3E = the clock is an ST3E TNC = the clock is a TNC TNCE = the clock is a TNCE alarmlead = shelf alarm lead activation during protection switch: ALW = a protection switch activates the shelf alarm lead INH = a protection switch does not activate the shelf alarm lead signaltype = type of output signal: ANALOG= analog DIGITAL= digital

Display Clock Quality Level	Access level 2 is required to use this command. Enter:
	`RTRV-EQPT:[<tid>]:<aid>:<ctag>;`
	aid = clock card slot (CLK-1, CLK-2, or CLK-ALL)
	Response:
	`<sid> <date> <time>`
	`M <ctag> COMPLD`
	`"<aid>:,,,,,,<clklevel>"`
	clklevel = clock type in the shelf:
	ST2 = the clock is an ST2
	ST2E = the clock is an ST2E
	ST3 = the clock is an ST3
	ST3E = the clock is an ST3E
	TNC = the clock is a TNC
	TNCE = the clock is a TNCE

Chart 13. Version 5 Card Configuration (Contd)

TASK	PROCEDURE

Change Clock Quality Level	Access level 2 is required to use this command. Enter:
	
	`ED-EQPT:[<tid>]:<aid>:<ctag>::,,,,,,,<clklevel>,,;`
	
	aid = clock card slot (CLK-1 or CLK-2)
	clklevel = clock type in the shelf:
	ST2 = the clock is an ST2
	ST2E = the clock is an ST2E
	ST3 = the clock is an ST3
	ST3E = the clock is an ST3E
	TNC = the clock is a TNC
	TNCE = the clock is a TNCE
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Display DCIM Card Type	Access level 2 is required to use this command. Enter:
	
	`RTRV-EQPT:[<tid>]:<aid>:<ctag>;`
	
	aid = DCIM card slot (DCIM-1, DCIM-2, or DCIM-ALL)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`
	`"<aid>:,,,,,,,,"`

Chart 13. Version 5 Card Configuration (Contd)

TASK	PROCEDURE

Display GTI Card Parameters	Access level 2 is required to use this command. Enter:
	
	`RTRV-EQPT:[<tid>]:<aid>:<ctag>;`
	
	aid = GTI card slot (GTI-1, GTI-2, or GTI-ALL)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`
	`"<aid>:<framing>,<troublecode>,,<osc1>,<osc2>`
	`,<integration>,,,<signaltype>" ...`
	
	framing = framing type:
	CAS = channel associated signaling
	CAS4 = channel associated signaling with cyclic redundancy check 4
	CRC4 = common channel signaling with cyclic redundancy check 4
	D4 = D4 framing
	ESF = ESF framing
	FAS = common channel signaling
	troublecode = output signals when card has major alarm:
	ALW = AIS is sent on all outputs
	INH = all outputs are squelched
	osc1 = clock type on oscillator 1 (OSC A) input:
	RB = rubidium
	QTZ = quartz
	osc2 = clock type on oscillator 2 (OSC B) input:
	RB = rubidium
	QTZ = quartz
	integration = integration time until an alarm is declared:
	1 = see Table I
	2 = see Table I
	3 = see Table I
	4 = see Table I
	signaltype = type of output signal:
	ANALOG= analog
	DIGITAL= digital

Chart 13. Version 5 Card Configuration (Contd)

TASK	PROCEDURE

Change GTI Card Parameters	Access level 3 is required to use this command. Enter:
	
	`ED-EQPT:[<tid>]:<aid>:<ctag>::[<framing>],`
	`[<troublecode>],,[<osc1>],[<osc2>],[<integration>]`
	`[,,,[<signaltype]]>;`
	
	aid = GTI card slot (GTI-1 or GTI-2)
	framing = framing type:
	CAS = channel associated signaling
	CAS4 = channel associated signaling with cyclic redundancy check 4
	CRC4 = common channel signaling with cyclic redundancy check 4
	D4 = D4 framing
	ESF = ESF framing
	FAS = common channel signaling
	troublecode = output signals when card has major alarm:
	ALW = AIS is sent on all outputs
	INH = all outputs are squelched
	osc1 = clock type on oscillator 1 (OSC A) input:
	RB = rubidium
	QTZ = quartz
	osc2 = clock type on oscillator 2 (OSC B) input:
	RB = rubidium
	QTZ = quartz
	integration = integration time until an alarm is declared:
	1 = see Table I
	2 = see Table I
	3 = see Table I
	4 = see Table I
	signaltype = type of output signal:
	ANALOG= analog
	DIGITAL= digital
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Chart 13. Version 5 Card Configuration (Contd)

TASK	PROCEDURE

Display MRC Card Parameters	Access level 2 is required to use this command. Enter:
	
	`RTRV-EQPT:[<tid>]:<aid>:<ctag>;`
	
	aid = MRC card slot (MRC-1, MRC-2, or MRC-ALL)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`
	`"<aid>:,,,<osc1>,<osc2>,,,," ...`
	
	osc1 = clock type on oscillator 1 (OSC A) input:
	RB = rubidium
	QTZ = quartz
	NONE = oscillator 1 is not equipped
	osc2 = clock type on oscillator 2 (OSC B) input:
	RB = rubidium
	QTZ = quartz
	NONE = oscillator 2 is not equipped

Change MRC Card Parameters	Access level 2 is required to use this command. Enter:
	
	`ED-EQPT:[<tid>]:<aid>:<ctag>::,,,<osc1>,<osc2>,;`
	
	aid = MRC card slot (MRC-1 or MRC-2)
	osc1 = clock type on oscillator 1 (OSC A) input:
	RB = rubidium
	QTZ = quartz
	NONE = oscillator 1 is not equipped
	osc2 = clock type on oscillator 2 (OSC B) input:
	RB = rubidium
	QTZ = quartz
	NONE = oscillator 2 is not equipped
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Chart 13. Version 5 Card Configuration (Contd)

TASK	PROCEDURE

Display Timing Output Card Parameters	Access level 2 is required to use this command. Enter:
	
	`RTRV-EQPT:[<tid>]:<aid>:<ctag>`
	
	aid = TO card slot (TO-x, where x = 1–12 [1–10 for TOTA-5 & TOTA-M] or TO-ALL)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`
	`"<aid>:<framing>,<troublecode>,<portseverity>`
	`,,,,,,"  ...`
	
	framing = framing type:
	CAS = channel associated signaling
	CAS4 = channel associated signaling with cyclic redundancy check 4
	CRC4 = common channel signaling with cyclic redundancy check 4
	D4 = D4 framing
	ESF = ESF framing
	FAS = common channel signaling
	troublecode = output signals when card fails:
	ALW = AIS is sent on all outputs
	INH = all outputs are squelched
	Note: If any port on the TO card is set for ANALOG, the troublecode must be set to INH.
	portseverity = alarm type caused by port failure:
	MJ = major
	MN = minor

Chart 13. Version 5 Card Configuration (Contd)

TASK	PROCEDURE

Change Timing Output Card Parameters	Access level 3 is required to use this command. Enter:
	
	`ED-EQPT:[<tid>]:<aid>:<ctag>::[<framing>],`
	`[<troublecode>],[<portseverity>],,,;`
	
	aid = TO card slot (TO-x, where x = 1–12 [1–10 for TOTA-5 & TOTA-M])
	framing = framing type:
	CAS = channel associated signaling
	CAS4 = channel associated signaling with cyclic redundancy check 4
	CRC4 = common channel signaling with cyclic redundancy check 4
	D4 = D4 framing
	ESF = ESF framing
	FAS = common channel signaling
	troublecode = output signals when card fails:
	ALW = AIS is sent on all outputs
	INH = all outputs are squelched
	Note: If any port on the TO card is set for ANALOG, the troublecode must be set to INH.
	portseverity = alarm type caused by port failure:
	MJ = major
	MN = minor
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Chart 13. Version 5 Card Configuration (Contd)

TASK	PROCEDURE

Display MCA Card Parameters	Access level 2 is required to use this command. Enter:
	
	`RTRV-EQPT:[<tid>]:<aid>:<ctag>;`
	
	aid = MCA card slot
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`
	`"<aid>:,,<portseverity>,,,,,<alarmlead>,<signaltype>" ...`
	
	portseverity = alarm type caused by port failure:
	MJ = major
	MN = minor
	alarmlead = shelf alarm lead activation during protection switch:
	ALW = a protection switch activates the shelf alarm lead
	INH = a protection switch does not activate the shelf alarm lead
	signaltype = type of output signal:
	ANALOG= analog
	DIGITAL= digital

Change MCA Card Parameters	Access level 2 is required to use this command. Enter:
	
	`ED-EQPT:[<tid>]:<aid>:<ctag>::,,<portseverity>,,,,,<alarmlead>,<signaltype>;`
	
	aid = MCA card slot
	portseverity = alarm type caused by port failure:
	MJ = major
	MN = minor
	alarmlead = shelf alarm lead activation during protection switch:
	ALW = a protection switch activates the shelf alarm lead
	INH = a protection switch does not activate the shelf alarm lead
	signaltype = type of output signal:
	ANALOG= analog
	DIGITAL= digital
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Table I. GTI Card Alarm Integration Times

INTEGRATION PARAMETER SETTING	GTI CARD TYPE	ALARM INTEGRATION TIME (SIGNAL DEFECT ONLY)	
		MINOR ALARM	MAJOR ALARM
1	GTI -13 & -14	4 hours	24 hours
	GTI -15, -16, -17, & -18	Rubidium ref: 4 hours	Rubidium ref: 24 hours
		Quartz ref: 3/4 hour	Quartz ref: 6 hours
2	GTI -13 & -14	3 hours	18 hours
	GTI -15, -16, -17, & -18	Rubidium ref: 8 hours	Rubidium ref: 48 hours
		Quartz ref: no minor alarm	Quartz ref: 6 hours
3	GTI -13 & -14	1 hour	6 hours
	GTI -15, -16, -17, & -18	Rubidium ref: no minor alarm	Rubidium ref: 24 hours
		Quartz ref: no minor alarm	Quartz ref: 1 hour
4	GTI -13 & -14	10 minutes	1 hour
	GTI -15, -16, -17, & -18	Rubidium ref: 1/2 hour	Rubidium ref: 1 hour
		Quartz ref: 1/2 hour	Quartz ref: 1 hour

Notes:

1. The GTI types are as follows:

type	part #
GTI -13	090-42140-13
GTI -14	090-42140-14 & 090-44140-14
GTI -15	090-42140-15
GTI -16	090-42140-16 & 090-44140-16
GTI -17	090-42140-17
GTI -18	090-42140-18 & 090-44140-18

2. The times listed are from when a SIGNAL DEFECT occurs until a minor or major alarm is declared.

Chart 14. Reference Input Ports

TASK	PROCEDURE
This chart provides the steps for controlling reference input ports including: entering ports into the system database, putting ports into service, displaying port parameters, changing port parameters, taking ports out of service, and deleting ports from the system database.	

Enter DCIM Card Input Port	Access level 4 is required to use this command. If a parameter is left blank, the switch settings for that parameter will be used. Enter:
	
	`ENT-PORT:[<tid>]:<aid>:<ctag>::[<framing>],`
	`[<priority>],,[<signal type>]`
	`[,[<reference condition>]];`
	
	aid = DCIM card port (DCIM-a-b):
	a = DCIM card slot (1–2)
	b = port (1–2 or ALL)
	framing = type of framing:
	CAS = channel associated signaling
	CAS4 = channel associated signaling with cyclic redundancy check 4
	CRC4 = common channel signaling with cyclic redundancy check 4
	D4 = D4 framing
	ESF = ESF framing
	FAS = common channel signaling
	priority = priority of the reference on this port (1–4 for 1+1 mode, 1–2 for 1:1 mode [1 is highest priority])
	signal type = type of signal:
	ANALOG = analog
	DIGITAL = digital
	reference condition = reference can be used:
	ALW = this input reference can be used
	INH = this input reference cannot be used (but can be IS-NR)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Chart 14. Reference Input Ports (Contd)

TASK	PROCEDURE

Enter MRC Card Input Port	Access level 4 is required to use this command. If a parameter is left blank, the switch settings for that parameter will be used. Enter:
	
	`ENT-PORT:[<tid>]:<aid>:<ctag>::[<framing>],`
	`[<priority>],[<reference type>],[<signal type>];`
	
	aid = MRC card port (MRC-a-b[&&-c]):
	a = MRC card slot (1–2)
	b = port (1–4 or ALL)
	c = ending port in a range (2–4 with c > b)
	framing = type of framing:
	CAS = channel associated signaling
	CAS4 = channel associated signaling with cyclic redundancy check 4
	CRC4 = common channel signaling with cyclic redundancy check 4
	D4 = D4 framing
	ESF = ESF framing
	FAS = common channel signaling
	priority = priority of the reference on this port (1–4 with 1 the highest)
	reference type = type of reference:
	CESIUM = cesium
	GPS = global positioning system
	LORAN = LORAN
	NETWORK = network
	signal type = type of signal:
	ANALOG = analog
	DIGITAL = digital
	
	Note: If all the reference ports of an MRC card are configured for the same priority, the references will be selected based on the numerical order of the ports. The same numerical order will be listed if the settings are retrieved.
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Chart 14. Reference Input Ports (Contd)

TASK	PROCEDURE

Restore Input Port	Access level 3 is required to use this command. Enter:
	
	`RST-PORT:[<tid>]:<aid>:<ctag>;`
	
	aid = port:
	DCIM card port (DCIM-a-b):
	a = DCIM card slot (1–2)
	b = port (1–2 or ALL)
	MRC card port (MRC-a-b[&&-c]):
	a = MRC card slot (1–2)
	b = port (1–4 or ALL)
	c = ending port in a range (2–4 with c > b)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Display Performance Monitoring Data	Access level 2 is required to use this command. Enter:
	
	`RTRV-PM-PORT:[<tid>]:<aid>:<ctag>::`
	`<monitor type>,,,,,,;`
	
	aid = port:
	DCIM card port (DCIM-a-b):
	a = DCIM card slot (1–2)
	b = port (1–2 or ALL)
	MRC card port (MRC-a-b[&&-c]):
	a = MRC card slot (1–2)
	b = port (1–4 or ALL)
	c = ending port in a range (2–4 with c > b)
	monitor type = the monitored parameter:
	ALL = all monitor types
	BPV = bipolar violations
	CRC = cyclic redundancy check
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`
	`"<aid>:<monitor type>,<monitor value>,<vldty>,,,,`
	`<monitor date>,<monitor time>" ...`
	
	monitor value = value retrieved for the monitor type
	monitor date = current date
	monitor time = current time

Chart 14. Reference Input Ports (Contd)

TASK	PROCEDURE

Clear Performance Monitoring Data	Access level 3 is required to use this command. Enter:
	
	`INIT-REG:[<tid>]:<aid>:<ctag>::<monitor type>;`
	
	aid = port:
	DCIM card port (DCIM-a-b):
	a = DCIM card slot (1–2)
	b = port (1–2 or ALL)
	MRC card port (MRC-a-b[&&-c]):
	a = MRC card slot (1–2)
	b = port (1–4 or ALL)
	c = ending port in a range (2–4 with c > b)
	monitor type = the monitored parameter:
	ALL = all monitor registers
	BPV = bipolar violations register
	CRC = cyclic redundancy check register
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Clear Performance Monitoring Data for DCIM, MRC, & PSM Cards	Access level 3 is required to use this command. Enter:
	
	`INIT-REG:[<tid>]:<aid>:<ctag>::<monitor type>;`
	
	aid = all spans of all DCIM, MRC, & PSM cards (ALL)
	montype = the monitored parameter:
	ALL = all register types
	BPV = bipolar violations register
	CRC = cyclic redundancy check register
	MTIE = MTIE register (PSM only)
	PHASE1M = phase 1-minute register (PSM only)
	SLIPS = slips register (PSM only)
	TDEV = TDEV register (PSM only)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Chart 14. Reference Input Ports (Contd)

TASK	PROCEDURE

Display Framing, Priority, Signal Type, & Reference Condition of DCIM Cards	Access level 1 is required to use this command. Enter:
	
	`RTRV-PORT:[<tid>]:<aid>:<ctag>;`
	
	aid = DCIM card port (DCIM-a-b):
	a = DCIM card slot (1–2)
	b = port (1–2 or ALL)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`
	`"<aid>:<ctag>::<framing>,<priority>,,`
	`<signal type>,<reference condition>" ...`
	
	framing = type of framing:
	AUTO = (see note below)
	CAS = channel associated signaling
	CAS4 = channel associated signaling with cyclic redundancy check 4
	CRC4 = common channel signaling with cyclic redundancy check 4
	D4 = D4 framing
	ESF = ESF framing
	FAS = common channel signaling
	priority = priority of the reference on this port (1–4 with 1 the highest)
	signal type = type of signal:
	ANALOG = analog
	DIGITAL = digital
	reference condition = reference use:
	ALW = use reference
	INH = do not use reference
	
	Note: If the framing type has never been set for a port on an MRC card, the retrieved framing type for that port will indicate AUTO. If this occurs, use the ENT-PORT command (if the port has not been entered) or the ED-PORT command (if the port has been entered) to set the framing type for the specified port.

Chart 14. Reference Input Ports (Contd)

TASK	PROCEDURE

Change Framing, Priority, Signal Type, & Reference Condition of DCIM Cards	Access level 3 is required to use this command. Enter:
	
	`ED-PORT:[<tid>]:<aid>:<ctag>::[<framing>],[<priority>]`
	`,,[<signal type>][,[<reference condition>]];`
	
	aid = DCIM card port (DCIM-a-b):
	a = DCIM card slot (1–2)
	b = port (1–2 or ALL)
	framing = type of framing:
	CAS = channel associated signaling
	CAS4 = channel associated signaling with cyclic redundancy check 4
	CRC4 = common channel signaling with cyclic redundancy check 4
	D4 = D4 framing
	ESF = ESF framing
	FAS = common channel signaling
	priority = priority of the reference on this port (1–4 with 1 the highest)
	signal type = type of signal:
	ANALOG = analog
	DIGITAL = digital
	reference condition = reference use:
	ALW = use reference
	INH = do not use reference
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Display DCIM Card Protection Mode	Access level 2 is required to use this command. Enter:
	
	`RTRV-ATTR-CONT:[<tid>]:<aid>:<ctag>;`
	
	aid = DCIM cards (DCIM-ALL)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`
	`"<aid>:<protection mode>" ...`
	
	protection mode = protection mode for DCIM cards:
	NO = no 1-plus-1 protection: each DCIM card is stand-alone with 2 inputs
	1+1 = 1-plus-1 protection: the 2 DCIM cards operate as 1 card with 4 inputs

Chart 14. Reference Input Ports (Contd)

TASK	PROCEDURE

Change DCIM Card Protection Mode	Access level 3 is required to use this command. Enter:
	
	`SET-ATTR-CONT:[<tid>]:<aid>:<ctag>::<protection mode>;`
	
	aid = DCIM-ALL
	protection mode = protection mode for DCIM cards:
	NO = no 1-plus-1 protection: each DCIM card is stand-alone with 2 inputs
	1+1 = 1-plus-1 protection: the 2 DCIM cards operate as 1 card with 4 inputs
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Chart 14. Reference Input Ports (Contd)

TASK	PROCEDURE

Display Framing, Priority, Reference Type, & Signal Type of MRC Card	Access level 1 is required to use this command. Enter:
	
	`RTRV-PORT:[<tid>]:<aid>:<ctag>;`
	
	aid = MRC card port (MRC-a-b[&&-c]):
	a = MRC card slot (1–2)
	b = port (1–4 or ALL)
	c = ending port in a range (2–4 with c > b)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`
	`"<aid>:<ctag>::<framing>,<priority>,`
	`<reference type>,<signal type>," ...`
	
	framing = type of framing:
	AUTO = (see note below)
	CAS = channel associated signaling
	CAS4 = channel associated signaling with cyclic redundancy check 4
	CRC4 = common channel signaling with cyclic redundancy check 4
	D4 = D4 framing
	ESF = ESF framing
	FAS = common channel signaling
	priority = priority of the reference on this port (1–4 with 1 the highest)
	reference type = type of reference:
	CESIUM = cesium
	GPS = global positioning system
	LORAN = LORAN
	NETWORK = network
	signal type = type of signal:
	ANALOG = analog
	DIGITAL = digital
	
	Note: If the framing type has never been set for a port on an MRC card, the retrieved framing type for that port will indicate AUTO. If this occurs, use the ENT-PORT command (if the port has not been entered) or the ED-PORT command (if the port has been entered) to set the framing type for the specified port.

Chart 14. Reference Input Ports (Contd)

TASK	PROCEDURE

Change Framing, Priority, Reference Type, & Signal Type of MRC Card	Access level 3 is required to use this command. Enter:
	
	`ED-PORT:[<tid>]:<aid>:<ctag>::[<framing>]`
	`,[<priority>],[<reference type>],[<signal type>];`
	
	aid = MRC card port (MRC-a-b[&&-c]):
	a = MRC card slot (1–2)
	b = port (1–4 or ALL)
	c = ending port in a range (2–4 with c > b)
	framing = type of framing:
	CAS = channel associated signaling
	CAS4 = channel associated signaling with cyclic redundancy check 4
	CRC4 = common channel signaling with cyclic redundancy check 4
	D4 = D4 framing
	ESF = ESF framing
	FAS = common channel signaling
	priority = priority of the reference on this port (1–4 with 1 the highest)
	reference type = type of reference:
	CESIUM = cesium
	GPS = global positioning system
	LORAN = LORAN
	NETWORK = network
	signal type = type of signal:
	ANALOG = analog
	DIGITAL = digital
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Chart 14. Reference Input Ports (Contd)

TASK	PROCEDURE

Display Threshold	Access level 1 is required to use this command. Enter:
	
	`RTRV-TH-PORT:[<tid>]:<aid>:<ctag>::<monitor type>;`
	
	aid = port:
	DCIM card port (DCIM-a-b):
	a = DCIM card slot (1–2)
	b = port (1–2 or ALL)
	MRC card port (MRC-a-b[&&-c]):
	a = MRC card slot (1–2)
	b = port (1–4 or ALL)
	c = ending port in a range (2–4 with c > b)
	monitor type = the monitored parameter:
	ALL = bipolar violations and cyclic redundancy check
	BPV = bipolar violations
	CRC = cyclic redundancy check
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`
	`"<aid>:<monitor type>,,,<threshold>" ...`
	
	threshold = threshold level in decimal numerals
	
	Note for BPV and CRC: Only in-service (restored) ports are sampled; therefore, the BPV or CRC counts displayed correspond to a particular error rate depending on the number of in-service ports. Find the BPV count in one of the tables below that is closest to the displayed BPV or CRC count and in the column which represents the number of ports in service, then follow across to the corresponding error rate. Because the ports are sampled in turn, there is some amount of settling time for the framing circuit. This settling time causes an error of ±4% in the specified error rate. The observation interval is 15 minutes. If an MRC or PSM card has only one port active, no sampling occurs.

Error Rate	BPV or CRC counts for a T1 signal			
	1 port in service	2 ports in service	3 ports in service	4 ports in service
1×10^{-8}	14	7	5	4
1×10^{-7}	139	70	46	35
1×10^{-6}	1390	695	464	348
1×10^{-5}	13896	6948	4632	3474
2.35×10^{-5}	32767	16384	10922	8192

Chart 14. Reference Input Ports (Contd)

<table>
<tr><th>TASK</th><th>PROCEDURE</th></tr>
<tr><td>Display Threshold (Contd)</td><td>
<table>
<tr><th rowspan="2">Error Rate</th><th colspan="4">BPV or CRC counts for an E1 signal</th></tr>
<tr><th>1 port in service</th><th>2 ports in service</th><th>3 ports in service</th><th>4 ports in service</th></tr>
<tr><td>1×10^{-8}</td><td>18</td><td>9</td><td>6</td><td>4</td></tr>
<tr><td>1×10^{-7}</td><td>184</td><td>92</td><td>61</td><td>46</td></tr>
<tr><td>1×10^{-6}</td><td>1843</td><td>922</td><td>614</td><td>461</td></tr>
<tr><td>1×10^{-5}</td><td>18432</td><td>9216</td><td>6144</td><td>4608</td></tr>
<tr><td>2.35×10^{-5}</td><td>32767</td><td>16384</td><td>10922</td><td>8192</td></tr>
</table>
</td></tr>
</table>

Chart 14. Reference Input Ports (Contd)

TASK	PROCEDURE
Change Threshold	Access level 3 is required to use this command. Enter: `SET-TH-PORT:[<tid>]:<aid>:<ctag>::<monitor type>,<threshold>;` aid = port: DCIM card port (DCIM-a-b): a = DCIM card slot (1–2) b = port (1–2 or ALL) MRC card port (MRC-a-b[&&-c]): a = MRC card slot (1–2) b = port (1–4 or ALL) c = ending port in a range (2–4 with c > b) monitor type = the monitored parameter: BPV = bipolar violations CRC = cyclic redundancy check threshold = 1–32767 ***Note:*** Only in-service (restored) ports are sampled; therefore, the BPV or CRC counts entered to obtain a desired error rate depends on the number of in-service ports. Enter a BPV or CRC count from the table below based on the desired error rate and the number of ports in service as the <thlev> parameter in the command.

Error Rate	BPV or CRC counts for a T1 signal			
	1 port in service	2 ports in service	3 ports in service	4 ports in service
1×10^{-8}	14	7	5	4
1×10^{-7}	139	70	46	35
1×10^{-6}	1390	695	464	348
1×10^{-5}	13896	6948	4632	3474
2.35×10^{-5}	32767	16384	10922	8192

Chart 14. Reference Input Ports (Contd)

TASK	PROCEDURE
Change Threshold (Contd)	

Error Rate	BPV or CRC counts for an E1 signal			
	1 port in service	2 ports in service	3 ports in service	4 ports in service
1×10^{-8}	18	9	6	4
1×10^{-7}	184	92	61	46
1×10^{-6}	1843	922	614	461
1×10^{-5}	18432	9216	6144	4608
2.35×10^{-5}	32767	16384	10922	8192

Because the ports are sampled in turn, there is some amount of settling time for the framing circuit. This settling time causes an error of ±4% in the specified error rate. The observation interval is 15 minutes. If an MRC or PSM card has only one port active, no sampling occurs.

Response:

```
    <sid> <date> <time>
M   <ctag> COMPLD
```

Chart 14. Reference Input Ports (Contd)

TASK	PROCEDURE

Display Alarm Severity	Access level 1 is required to use this command. Enter:
	
	`RTRV-ATTR-PORT:[<tid>]:<aid>:<ctag>;`
	
	aid = port:
	DCIM card port (DCIM-a-b):
	a = DCIM card slot (1–2)
	b = port (1–2 or ALL)
	MRC card port (MRC-a-b[&&-c]):
	a = MRC card slot (1–2)
	b = port (1–4 or ALL)
	c = ending port in a range (2–4 with c > b)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`
	`"<aid>:<severity>,<condition>" ...`
	
	severity = severity set for the condition:
	CR = critical alarm
	MJ = major alarm
	MN = minor alarm
	NA = not alarmed
	NR = not reported
	CL = cleared
	condition = port condition:
	AIS = alarm indication signal
	ALL = all monitor types
	BPV = bipolar violations
	CRC = cyclic redundancy check
	FFREQ = fractional frequency (MRC only)
	LOS = loss of signal
	OOF = out-of-fame errors

Chart 14. Reference Input Ports (Contd)

TASK	PROCEDURE

Change Alarm Severity	Access level 4 is required to use this command. Enter:
	
	`SET-ATTR-PORT:[<tid>]:<aid>:<ctag>::<severity>,<condition>;`
	
	aid = port:
	DCIM card port (DCIM-a-b):
	a = DCIM card slot (1–2)
	b = port (1–2 or ALL)
	MRC card port (MRC-a-b[&&-c]):
	a = MRC card slot (1–2)
	b = port (1–4 or ALL)
	c = ending port in a range (2–4 with c > b)
	severity = severity set for the condition:
	CR = critical alarm
	MJ = major alarm
	MN = minor alarm
	NA = not alarmed
	NR = not reported
	condition = port condition:
	AIS = alarm indication signal
	ALL = all monitor types
	BPV = bipolar violations
	CRC = cyclic redundancy check
	FFREQ = fractional frequency (MRC only)
	LOS = loss of signal
	OOF = out-of-fame errors
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Display Message Type for Autonomous Port Alarms	Access level 4 is required to use this command. Enter:
	
	`RTRV-REPTMODE-PORT:[<tid>]::<ctag>;`
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`
	`"REPTMODE: <modetype>"`
	
	modetype = type of message used for autonomous port alarms:
	ALW = REPT-ALM-PORT message
	INH = REPT-ALM-EQPT message

Chart 14. Reference Input Ports (Contd)

TASK	PROCEDURE

Set Message Type for Autonomous Port Alarms	Access level 4 is required to use this command. Enter:
	
	`SET-REPTMODE-PORT:[<tid>]::<ctag>::<modetype>;`
	
	modetype = type of message used for autonomous port alarms:
	ALW = REPT-ALM-PORT message
	INH = REPT-ALM-EQPT message
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Remove Port	Access level 3 is required to use this command. Enter:
	
	`RMV-PORT:[<tid>]:<aid>:<ctag>;`
	
	aid = port:
	DCIM card port (DCIM-a-b):
	a = DCIM card slot (1–2)
	b = port (1–2 or ALL)
	MRC card port (MRC-a-b[&&-c]):
	a = MRC card slot (1–2)
	b = port (1–4 or ALL)
	c = ending port in a range (2–4 with c > b)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Delete Port	Access level 4 is required to use this command. Enter:
	
	`DLT-PORT:[<tid>]:<aid>:<ctag>;`
	
	aid = port:
	DCIM card port (DCIM-a-b):
	a = DCIM card slot (1–2)
	b = port (1–2 or ALL)
	MRC card port (MRC-a-b[&&-c]):
	a = MRC card slot (1–2)
	b = port (1–4 or ALL)
	c = ending port in a range (2–4 with c > b)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Chart 15. Monitor Input Ports

<table>
<tr><th>TASK</th><th>PROCEDURE</th></tr>
<tr><td colspan="2">This chart provides the steps for controlling monitor input ports including: entering ports into the system database, putting ports into service, displaying port parameters, changing port parameters, taking ports out of service, and deleting ports from the system database.</td></tr>
<tr><td>Enter Port</td><td>Access level 4 is required to use this command. Enter:

<pre>ENT-PORT:[<tid>]:<aid>:<ctag>::<framing>,,,
                                        <signal type>;</pre>
aid = PSM card port (PSM-a-b[&&-c]):
a = PSM card slot (1–11)
b = port (1–4 or ALL)
c = ending port in a range (2–4 with c > b)
framing = type of framing:
CAS = channel associated signaling
CAS4 = channel associated signaling with cyclic redundancy check 4
CRC4 = common channel signaling with cyclic redundancy check 4
D4 = D4 framing
ESF = ESF framing
FAS = common channel signaling
signal type = type of signal:
ANALOG = analog signal
DIGITAL = digital signal

Response:

<pre>   <sid> <date> <time>
M <ctag> COMPLD</pre></td></tr>
<tr><td>Restore Port</td><td>Access level 3 is required to use this command. Enter:

<pre>RST-PORT:[<tid>]:<aid>:<ctag>;</pre>
aid = PSM card port (PSM-a-b[&&-c]):
a = PSM card slot (1–11)
b = port (1–4 or ALL)
c = ending port in a range (2–4 with c > b)

Response:

<pre>   <sid> <date> <time>
M <ctag> COMPLD</pre></td></tr>
</table>

Chart 15. Monitor Input Ports (Contd)

TASK	PROCEDURE

Display Performance Monitoring Data	Access level 2 is required to use this command. Enter:
	
	`RTRV-PM-PORT:[<tid>]:<aid>:<ctag>::<montype>,,,,,`
	`[<mondat>],[,<montm1>|,<montm2>];`
	
	aid = PSM card port (PSM-a-b):
	a = PSM card slot (1–11)
	b = port (1–4)
	montype = the monitored parameter:
	SLIPS = number of slips since the previous midnight (monitor date and monitor time = null)
	BPV = 15-minute bipolar violation counts (used with monitor time 2)
	CRC = 15-minute cyclic redundancy check error counts (used with monitor time 2)
	MTIE = 900-second MTIE accumulated between monitor time 2 and 1 hour after monitor time 2 (in nanoseconds)
	TDEV = 128-second TDEV accumulated between monitor time 2 and 1 hour after monitor time 2 (in nanoseconds)
	PHASE1M = 1-minute average phase accumulated between monitor time 2 and 1 hour after monitor time 2 (in nanoseconds)
	mondat = date:
	mm-dd = mm = month, dd = day
	(null) = current day
	montm1 = current time (null)
	montm2 = start time of a 15-minute period:
	hh-00 = hour of the day (hh = 00–23)
	hh-15 = 15 minutes past hour hh
	hh-30 = 30 minutes past hour hh
	hh-45 = 45 minutes past hour hh
	
	Notes:
	1. BPVs and CRCs are reported in 15-minute bins and can be retrieved for the past 24 hours. Each 15-minute bin is reinitialized to zero counts at the start of each 15-minute bin.
	2. The time specified in montm2 is the start of a 15-minute period.
	3. If the start time to the present time is less than 1 hour, only full 15-minute periods will be displayed.

Chart 15. Monitor Input Ports (Contd)

TASK	PROCEDURE

Display Performance Monitoring Data (Contd)	Response:
	
	For SLIPS and PHASE1M:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`
	`"<aid>:<montype>,<monval>,,,,,<mondat>,<montm>"...`
	
	monval = value retrieved for the monitor type
	mondat = current date
	montm = current time
	
	For BPV and CRC:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`
	`"<aid>:<montype>,<monval>,<vldty>,,,,<mondat>,`
	`<montm>"...`
	
	vldty = indicates whether the information collected represents a complete monitoring interval:
	(null) = complete
	NA = not available
	P = partial
	
	For MTIE and TDEV:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`
	`"<aid>:<montype>,<monval-1>,<vldty-1>,`
	`<monval-2>,<vldty-2>,<monval-3>,<vldty-3>,<monval-4>,`
	`<vldty-4>,,,,<mondat>,<montm>”...`
	
	Note: Each line displays one hour of data. The four monvals and corresponding four vldtys are for the four 15-minute periods following the montm shown at the end of each line. The –1, –2, –3, and –4 indicate the first, second, third, and fourth 15-minute period after the montm shown at the end of the line.

Chart 15. Monitor Input Ports (Contd)

TASK	PROCEDURE

Clear Performance Monitoring Data	Access level 3 is required to use this command. Enter:
	
	`INIT-REG:[<tid>]:<aid>:<ctag>::<montype>;`
	
	aid = PSM card port (PSM-a-b[&&-c]):
	a = PSM card slot (1–11)
	b = port (1–4 or ALL)
	c = ending port in a range (2–4 with c > b)
	montype = the monitored parameter:
	ALL = all register types
	BPV = bipolar violations register
	CRC = cyclic redundancy check register
	MTIE = MTIE register
	PHASE1M = phase 1-minute register
	SLIPS = slips register
	TDEV = TDEV register
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Clear Performance Monitoring Data for DCIM, MRC, & PSM Cards	Access level 3 is required to use this command. Enter:
	
	`INIT-REG:[<tid>]:<aid>:<ctag>::<monitor type>;`
	
	aid = all spans of all DCIM, MRC, & PSM cards (ALL)
	montype = the monitored parameter:
	ALL = all register types
	BPV = bipolar violations register
	CRC = cyclic redundancy check register
	MTIE = MTIE register (PSM only)
	PHASE1M = phase 1-minute register (PSM only)
	SLIPS = slips register (PSM only)
	TDEV = TDEV register (PSM only)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Chart 15. Monitor Input Ports (Contd)

TASK	PROCEDURE

Display Framing & Signal Type	Access level 1 is required to use this command. Enter:
	
	`RTRV-PORT:[<tid>]:<aid>:<ctag>;`
	
	aid = PSM card port (PSM-a-b[&&-c]):
	a = PSM card slot (1–11)
	b = port (1–4 or ALL)
	c = ending port in a range (2–4 with c > b)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`
	`"<aid>:<ctag>::<framing>,,,<signal type>," ...`
	
	framing = type of framing:
	AUTO = (see note below)
	CAS = channel associated signaling
	CAS4 = channel associated signaling with cyclic redundancy check 4
	CRC4 = common channel signaling with cyclic redundancy check 4
	D4 = D4 framing
	ESF = ESF framing
	FAS = common channel signaling
	signal type = type of signal:
	ANALOG = analog signal
	DIGITAL = digital signal
	
	Note: If the framing type has never been set for a port on a PSM card, the retrieved framing type for that port will indicate AUTO. If this occurs, use the ENT-PORT command (if the port has not been entered) or the ED-PORT command (if the port has been entered) to set the framing type for the specified port.

Chart 15. Monitor Input Ports (Contd)

TASK	PROCEDURE

Change Framing & Signal Type	Access level 1 is required to use this command. Enter:
	
	`ED-PORT:[<tid>]:<aid>:<ctag>::[<framing>]`
	`,,,[<signal type>];`
	
	aid = PSM card port (PSM-a-b[&&-c]):
	a = PSM card slot (1–11)
	b = port (1–4 or ALL)
	c = ending port in a range (2–4 with c > b)
	framing = type of framing:
	AUTO = (see note below)
	CAS = channel associated signaling
	CAS4 = channel associated signaling with cyclic redundancy check 4
	CRC4 = common channel signaling with cyclic redundancy check 4
	D4 = D4 framing
	ESF = ESF framing
	FAS = common channel signaling
	signal type = type of signal:
	ANALOG = analog signal
	DIGITAL = digital signal
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Chart 15. Monitor Input Ports (Contd)

TASK	PROCEDURE

Display Threshold	Access level 1 is required to use this command. Enter:
	
	`RTRV-TH-PORT:[<tid>]:<aid>:<ctag>::<monitor type>;`
	
	aid = PSM card port (PSM-a-b[&&-c]):
	a = PSM card slot (1–11)
	b = port (1–4 or ALL)
	c = ending port in a range (2–4 with c > b)
	monitor type = the monitored parameter:
	ALL = all monitor types
	BPV = bipolar violations
	CRC = cyclic redundancy check
	MTIEx = MTIE x-second threshold (x = 1, 4, 16, 64, 128, 512, 900)
	TDEVx = TDEV x-second threshold (x = 1, 4, 16, 64, 128)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`
	`"<aid>:<monitor type>,,,<threshold>" ...`
	
	threshold = threshold level in decimal numerals

Chart 15. Monitor Input Ports (Contd)

TASK	PROCEDURE
Display Threshold (Contd)	***Note for BPV and CRC:*** Only in-service (restored) ports are sampled; therefore, the BPV or CRC counts displayed correspond to a particular error rate depending on the number of in-service ports. Find the BPV count in one of the tables below that is closest to the displayed BPV or CRC count and in the column which represents the number of ports in service, then follow across to the corresponding error rate. Because the ports are sampled in turn, there is some amount of settling time for the framing circuit. This settling time causes an error of ±4% in the specified error rate. The observation interval is 15 minutes. If an MRC or PSM card has only one port active, no sampling occurs.

Error Rate	BPV or CRC counts for a T1 signal			
	1 port in service	2 ports in service	3 ports in service	4 ports in service
1×10^{-8}	14	7	5	4
1×10^{-7}	139	70	46	35
1×10^{-6}	1390	695	464	348
1×10^{-5}	13896	6948	4632	3474
2.35×10^{-5}	32767	16384	10922	8192

Error Rate	BPV or CRC counts for an E1 signal			
	1 port in service	2 ports in service	3 ports in service	4 ports in service
1×10^{-8}	18	9	6	4
1×10^{-7}	184	92	61	46
1×10^{-6}	1843	922	614	461
1×10^{-5}	18432	9216	6144	4608
2.35×10^{-5}	32767	16384	10922	8192

Chart 15. Monitor Input Ports (Contd)

TASK	PROCEDURE
Change Threshold	Access level 3 is required to use this command. Enter:

```
SET-TH-PORT:[<tid>]:<aid>:<ctag>::<monitor type>,
                                        <threshold>;
```

aid = PSM card port (PSM-a-b[&&-c]):
- a = PSM card slot (1–11)
- b = port (1–4 or ALL)
- c = ending port in a range (2–4 with c > b)

monitor type = the monitored parameter:
- BPV = bipolar violations
- CRC = cyclic redundancy check
- MTIEx = MTIE x-second threshold (x = 1, 4, 16, 64, 128, 512, 900)
- TDEVx = TDEV x-second threshold (x = 1, 4, 16, 64, 128)

threshold = 1–32767

Note: Only in-service (restored) ports are sampled; therefore, the BPV or CRC counts entered to obtain a desired error rate depends on the number of in-service ports. Enter a BPV or CRC count from one of the tables below based on the desired error rate and the number of ports in service as the <thlev> parameter in the command.

Error Rate	BPV or CRC counts for a T1 signal			
	1 port in service	2 ports in service	3 ports in service	4 ports in service
1×10^{-8}	14	7	5	4
1×10^{-7}	139	70	46	35
1×10^{-6}	1390	695	464	348
1×10^{-5}	13896	6948	4632	3474
2.35×10^{-5}	32767	16384	10922	8192

Error Rate	BPV or CRC counts for an E1 signal			
	1 port in service	2 ports in service	3 ports in service	4 ports in service
1×10^{-8}	18	9	6	4
1×10^{-7}	184	92	61	46
1×10^{-6}	1843	922	614	461
1×10^{-5}	18432	9216	6144	4608
2.35×10^{-5}	32767	16384	10922	8192

Chart 15. Monitor Input Ports (Contd)

TASK	PROCEDURE

Change Threshold (Contd)	Because the ports are sampled in turn, there is some amount of settling time for the framing circuit. This settling time causes an error of ±4% in the specified error rate. The observation interval is 15 minutes. If an MRC or PSM card has only one port active, no sampling occurs.
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Display Alarm Severity	Access level 1 is required to use this command. Enter:
	
	`RTRV-ATTR-PORT::<aid>:<ctag>;`
	
	aid = PSM card port (PSM-a-b[&&-c]):
	a = PSM card slot (1–11)
	b = port (1–4 or ALL)
	c = ending port in a range (2–4 with c > b)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`
	`"<aid>:<severity>,<condition>" ...`
	
	severity = severity set for the condition:
	CR = critical alarm
	MJ = major alarm
	MN = minor alarm
	NA = not alarmed
	NR = not reported
	condition = port condition (refer to Table J)
	ALL = all monitor types
	BPV = bipolar violations
	CRC = cyclic redundancy check
	MTIEx = MTIE x-second threshold (x = 1, 4, 16, 64, 128, 512, 900)
	TDEVx = TDEV x-second threshold (x = 1, 4, 16, 64, 128)

Chart 15. Monitor Input Ports (Contd)

TASK	PROCEDURE

Change Alarm Severity	Access level 4 is required to use this command. Enter:
	
	`SET-ATTR-PORT:[<tid>]:<aid>:<ctag>::<severity>,<condition>;`
	
	aid = PSM card port (PSM-a-b[&&-c]):
	a = PSM card slot (1–11)
	b = port (1–4 or ALL)
	c = ending port in a range (2–4 with c > b)
	severity = severity set for the condition:
	CR = critical alarm
	MJ = major alarm
	MN = minor alarm
	NA = not alarmed
	NR = not reported
	condition = port condition:
	AIS = alarm indication signal
	ALL = all monitor types
	BPV = bipolar violations
	CRC = cyclic redundancy check
	LOS = loss of signal
	MTIEx = MTIE x-second threshold (x = 1, 4, 16, 64, 128, 512, 900)
	TDEVx = TDEV x-second threshold (x = 1, 4, 16, 64, 128)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Display Message Type for Autonomous Port Alarms	Access level 4 is required to use this command. Enter:
	
	`RTRV-REPTMODE-PORT:[<tid>]::<ctag>;`
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`
	`"REPTMODE: <modetype>"`
	
	modetype = type of message used for autonomous port alarms:
	ALW = REPT-ALM-PORT message
	INH = REPT-ALM-EQPT message

Chart 15. Monitor Input Ports (Contd)

TASK	PROCEDURE

Set Message Type for Autonomous Port Alarms	Access level 4 is required to use this command. Enter:
	
	`SET-REPTMODE-PORT:[<tid>]::<ctag>::<modetype>;;`
	
	modetype = type of message used for autonomous port alarms:
	ALW = REPT-ALM-PORT message
	INH = REPT-ALM-EQPT message
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Remove Port	Access level 3 is required to use this command. Enter:
	
	`RMV-PORT:[<tid>]:<aid>:<ctag>;`
	
	aid = PSM card port (PSM-a-b[&&-c]):
	a = PSM card slot (1–11)
	b = port (1–4 or ALL)
	c = ending port in a range (2–4 with c > b)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Delete Port	Access level 4 is required to use this command. Enter:
	
	`DLT-PORT:[<tid>]:<aid>:<ctag>;`
	
	aid = PSM card port (PSM-a-b[&&-c]):
	a = PSM card slot (1–2)
	b = port (1–4 or ALL)
	c = ending port in a range (2–4 with c > b)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Chart 16. Timing Output Ports

TASK	PROCEDURE
This chart provides the steps for controlling timing output ports including: entering ports into the system database, putting ports into service, displaying port parameters, changing port parameters, taking ports out of service, and deleting ports from the system database.	

Enter Port	Access level 4 is required to use this command. Enter:
	
	`ENT-PORT:[<tid>]:<aid>:<ctag>::,,,<signal type>;`
	
	aid = TO card port (TO-a-b[&&-c]):
	a = TO card slot (1–12) (1–10 for TOTA-5 & TOTA-M)
	b = port (1–10 [1–20 for EA20] or ALL)
	c = ending port in a range (2–10 [2–20 for EA20] with c > b)
	signal type = type of signal:
	ANALOG = analog (TO-EA5, EA10, & EA20 only)
	DIGITAL = digital
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Restore Port	Access level 3 is required to use this command. Enter:
	
	`RST-PORT:[<tid>]:<aid>:<ctag>;`
	
	aid = TO card port (TO-a-b[&&-c]):
	a = TO card slot (1–12) (1–10 for TOTA-5 & TOTA-M)
	b = port (1–10 [1–20 for EA20] or ALL)
	c = ending port in a range (2–10 [2–20 for EA20] with c > b)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Chart 16. Timing Output Ports (Contd)

TASK	PROCEDURE

Display Signal Type	Access level 1 is required to use this command. Enter:
	
	`RTRV-PORT:[<tid>]:<aid>:<ctag>;`
	
	aid = TO card port (TO-a-b[&&-c]):
	a = TO card slot (1–12) (1–10 for TOTA-5 & TOTA-M)
	b = port (1–10 [1–20 for EA20] or ALL)
	c = ending port in a range (2–10 [2–20 for EA20] with c > b)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`
	`"<aid>:<ctag>::,,,<signal type>," ...`
	
	signal type = type of signal:
	ANALOG = analog
	DIGITAL = digital

Change Signal Type	Access level 3 is required to use this command. Enter:
	
	`ED-PORT:[<tid>]:<aid>:<ctag>::,,,<signal type>;`
	
	aid = TO card port (TO-a-b[&&-c]):
	a = TO card slot (1–12) (1–10 for TOTA-5 & TOTA-M)
	b = port (1–10 [1–20 for EA20] or ALL)
	c = ending port in a range (2–10 [2–20 for EA20] with c > b)
	signal type = type of signal:
	ANALOG = analog (TO-EA5, EA10, & EA20 only)
	DIGITAL = digital
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Chart 16. Timing Output Ports (Contd)

TASK	PROCEDURE

Display Message Type for Autonomous Port Alarms	Access level 4 is required to use this command. Enter:
	
	`RTRV-REPTMODE-PORT:[<tid>]::<ctag>;`
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`
	`"REPTMODE: <modetype>"`
	
	modetype = type of message used for autonomous port alarms:
	ALW = REPT-ALM-PORT message
	INH = REPT-ALM-EQPT message

Set Message Type for Autonomous Port Alarms	Access level 4 is required to use this command. Enter:
	
	`SET-REPTMODE-PORT:[<tid>]::<ctag>::<modetype>;;`
	
	modetype = type of message used for autonomous port alarms:
	ALW = REPT-ALM-PORT message
	INH = REPT-ALM-EQPT message
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Remove Port	Access level 3 is required to use this command. Enter:
	
	`RMV-PORT:[<tid>]:<aid>:<ctag>;`
	
	aid = TO card port (TO-a-b[&&-c]):
	a = TO card slot (1–12) (1–10 for TOTA-5 & TOTA-M)
	b = port (1–10 [1–20 for EA20] or ALL)
	c = ending port in a range (2–10 [2–20 for EA20] with c > b)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Chart 16. Timing Output Ports (Contd)

TASK	PROCEDURE

Delete Port	Access level 4 is required to use this command. Enter:
	
	`DLT-PORT:[<tid>]:<aid>:<ctag>;`
	
	aid = TO card port (TO-a-b[&&-c]):
	a = TO card slot (1–12) (1–10 for TOTA-5 & TOTA-M)
	b = port (1–10 [1–20 for EA20] or ALL)
	c = ending port in a range (2–10 [2–20 for EA20] with c > b)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Chart 17. Synchronization Source for Timing Output Cards

<table>
<tr><th>TASK</th><th>PROCEDURE</th></tr>
<tr><td colspan="2">This chart provides the steps for displaying and changing the synchronization source mode for the timing output cards, and for selecting and releasing a specific synchronization source for the timing output cards.</td></tr>
<tr><td>Display Source Mode for Timing Output Cards</td><td>Access level 2 is required to use this command. Enter:

RTRV-ATTR-CONT:[<tid>]:<aid>:<ctag>;

aid = SHELF

Response:

<sid> <date> <time>
M <ctag> COMPLD
"<aid>:<source mode>" ...

source mode = source mode for timing output cards:
RVRT = revertive
NRVRT = nonrevertive</td></tr>
<tr><td>Change Source Mode for Timing Output Cards</td><td>Access level 3 is required to use this command. Enter:

SET-ATTR-CONT:[<tid>]:<aid>:<ctag>::<source mode>;

aid = SHELF
source mode = source mode for timing output cards:
RVRT = revertive
NRVRT = nonrevertive

Response:

<sid> <date> <time>
M <ctag> COMPLD</td></tr>
</table>

Chart 17. Synchronization Source for Timing Output Cards (Contd)

TASK	PROCEDURE

Select Source for Timing Output Cards	***Caution: This command should be used for maintenance purposes only. Leaving timing output cards in this mode (a forced synchronization source) will result in timing hits if the selected source fails.***
	
	Access level 4 is required to use this command. Enter:
	
	`OPR-SYNCHNSW:[<tid>]:<aid>:<ctag>::<source>;`
	
	aid = TO-ALL
	source = internal source for timing output cards:
	CLK1 = clock card 1
	CLK2 = clock card 2
	IN1 = system input card 1
	IN2 = system input card 2
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Release Source for Timing Output Cards	Access level 4 is required to use this command. This command cancels the OPR-SYNCNSW command. Enter:
	
	`RLS-SYNCNSW:[<tid>]:<aid>:<ctag>;`
	
	aid = TO-ALL
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Chart 18. Protection Control for Version 5 Timing Output Cards

<table>
<tr><th>TASK</th><th>PROCEDURE</th></tr>
<tr><td colspan="2">This chart provides the steps for displaying and setting the output protection type for timing output cards, and for switching to and releasing from a protection timing output card.</td></tr>
<tr><td>Display Output Protection Type for Timing Output Cards</td><td>
Access level 2 is required to use this command. Enter:

<code>RTRV-ATTR-CONT:[<tid>]:<aid>:<ctag>;</code>

aid = TO-ALL (for TO-EA5, EA10, EA10M, EA20, & EA20M cards using 1-1, 1+1, or no protection)

MCA (for timing output cards other than TO-EA5, EA10, EA10M, EA20, & EA20M using 1:N protection)

Response:

<code><sid> <date> <time>
M <ctag> COMPLD
"<aid>:<conttype>[,<protmode>,<p1>,<p2>,<p3>,<p4>,
<p5>,<p6>,<p7>,<p8>,<p9>,<p10>]" ...</code>

conttype = type of protection:
1-1 = 1-for-1 protection (aid = TO-x only)
1+1 = 1-plus-1 protection (aid = TO-x only)
NO = no protection (aid = TO-x only)
NRVRT = nonrevertive switching when fault clears (aid = MCA only)
RVRT = revertive switching when fault clears (aid = MCA only)
protmode = protection mode (aid = MCA only):
AUTO = automatic protection switching to same card type in HS slot (OPR-PROTNSW command will not function)
MAN = manual protection switching to same card type in HS slot (via OPR-PROTNSW command)
p1–p10 = priority of timing output slots 1 through 10 when using 1:N protection (aid = MCA only):
1–10 = timing output slots are designated by positions in the command: 1 to 10 appears for each timing output slot (p1–p10) protected by the same timing output card type to indicate the priority of the slot
</td></tr>
</table>

Chart 18. Protection Control for Version 5 Timing Output Cards (Contd)

TASK	PROCEDURE

Change Output Protection Type for Timing Output Cards	Access level 3 is required to use this command. (For a more complete definition of the command, refer to the Input/Output Reference Guide section of this manual.) Enter:
	
	`SET-ATTR-CONT:[<tid>]:<aid>:<ctag>::<conttype>`
	`[,<protmode>,<p1>,<p2>,<p3>,<p4>,<p5>,<p6>,<p7>,<p8>,`
	`<p9>,<p10>];`
	
	aid = TO-x (x = 1–12) (for 1-1, 1+1, or no protection only)
	MCA (for 1:N protection only)
	conttype = type of protection:
	1-1 = 1-for-1 protection (aid = TO-x only)
	1+1 = 1-plus-1 protection (aid = TO-x only)
	NO = no protection (aid = TO-x only)
	NRVRT = nonrevertive switching when fault clears (aid = MCA only)
	RVRT = revertive switching when fault clears (aid = MCA only)
	protmode = protection mode (aid = MCA only):
	AUTO = automatic protection switching to same card type in HS slot (OPR-PROTNSW command will not function)
	MAN = manual protection switching to same card type in HS slot (via OPR-PROTNSW command)
	p1–p10 = priority of timing output slots 1 through 10 when using 1:N protection (aid = MCA only):
	1–10 = timing output slots are designated by positions in the command: enter from 1 to 10 for each timing output slot (p1–p10) protected by the same timing output card type to indicate the priority of the slot
	
	Notes:
	1. An aid of TO-x (for 1-1, 1+1, or no protection) can be used for the following timing output cards only: TO-EA, TO-EA5, EA10, EA10M, EA20, & EA20M. An aid of MCA (for 1:N protection) can be used for all timing output cards except: TO-EA, TO-EA5, EA10, EA10M, EA20, & EA20M.
	2. When configuring cards for 1-for-1 or 1-plus-1, both the odd and even slots must be configured identically. The SET-ATTR-CONT command must be issued to each card of the pair, otherwise a database mismatch will occur. The 1-for-1 or 1-plus-1 pairing slots are shelf dependent as follows:
	
	DCD-519 Master: 2 and 3, 4 and 5, 11 and 12
	DCD-519 Expansion: 1 and 2, 3 and 4, 5 and 6, 7 and 8, 9 and 10, 11 and 12
	DCD-519 High Density: 1 and 2, 3 and 4, 5 and 6, 7 and 8
	DCD-521/C Master or Expansion: 1 and 2, 3 and 4, 5 and 6, 7 and 8
	DCD-521/C High Density: 1 and 2, 3 and 4, 5 and 6, 7 and 8
	DCD-523 Master or Expansion: 1 and 2, 3 and 4, 5 and 6, 7 and 8, 9 and 10, 11 and 12

Chart 18. Protection Control for Version 5 Timing Output Cards (Contd)

TASK	PROCEDURE

Change Output Protection Type for Timing Output Cards (Contd)	Response:
	
	`    <sid> <date> <time>`
	`M  <ctag> COMPLD`

Switch to Protection Timing Output Card	Access level 2 is required to use this command. This command forces a protection switch between a normally working timing output card and a protection timing output card. This command will be denied if the protection type has not been entered (SET-ATTR-CONT), or if the protection card is out of service. (For a more complete definition of the command, refer to the Input/Output Reference Guide section of this manual.) Enter:
	
	`OPR-PROTNSW:[<tid>]:<aid>:<ctag>::<switchfrom>;`
	
	aid = working TO card (TO-x, where x = 1–12 with switchfrom = MAN, or x = 1–10 with switchfrom = MCA)
	switchfrom = MAN (used with 1-1 protection, causes a protection switch from the working timing output card in slot TO-x to the mate protection timing output card in the adjacent slot) (used with TO-EA5, EA10, EA10M, EA20, & EA20M cards only)
	MCA (used with 1:N protection, causes a switch from the working timing output card in slot TO-a to the protection timing output card in the HS slot) (used with cards other than TO-EA5, EA10, EA10M, EA20, & EA20M)
	
	Note: If automatic switching was set with the SET-ATTR-CONT command and revertive switching was not set with the SET-ATTR-CONT command and a fault occurred in the working card, then the working card with the fault was replaced, the two commands (OPR-PROTNSW and RLS-PROTNSW) reverse function. That is, the OPR-PROTNSW must be used to return to the working card, and the RLS-PROTNSW must be used to transfer to the protection card.
	
	Response:
	
	`    <sid> <date> <time>`
	`M  <ctag> COMPLD`

Chart 18. Protection Control for Version 5 Timing Output Cards (Contd)

TASK	PROCEDURE

Release Protection Timing Output Card	Access level 2 is required to use this command. This command switches from a protection to a working timing output card. Enter:
	
	`RLS-PROTNSW:[<tid>]:<aid>:<ctag>::<switchfrom>;`
	
	aid = working TO card (TO-x, where x = 1–12 with switchfrom = MAN, or x = 1–10 with switchfrom = MCA)
	switchfrom = MAN (used with 1-1 protection, causes a protection switch from the working timing output card in slot TO-x to the mate protection timing output card in the adjacent slot) (used with TO-EA5, EA10, EA10M, EA20, & EA20M cards only)
	MCA (used with 1:N protection, causes a switch from the working timing output card in slot TO-a to the protection timing output card in the HS slot) (used with cards other than TO-EA5, EA10, EA10M, EA20, & EA20M)
	
	Note: If automatic switching was set with the SET-ATTR-CONT command and revertive switching was not set with the SET-ATTR-CONT command and a fault occurred in the working card, then the working card with the fault was replaced, the two commands (OPR-PROTNSW and RLS-PROTNSW) reverse function. That is, the OPR-PROTNSW must be used to return to the working card, and the RLS-PROTNSW must be used to transfer to the protection card.
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Chart 19. DCIM Protection Control

TASK	PROCEDURE
This chart provides the steps for displaying and setting the output protection mode for DCIM cards, and for forcing a particular input port to be used and releasing the forced use of a particular port.	

Display DCIM Card Protection Mode	Access level 2 is required to use this command. Enter:
	
	`RTRV-ATTR-CONT:[<tid>]:<aid>:<ctag>;`
	
	aid = DCIM cards (DCIM-ALL)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`
	`"<aid>:<protection mode>" ...`
	
	protection mode = protection mode for DCIM cards:
	NO = no 1-plus-1 protection: each DCIM card is stand-alone with 2 inputs
	1+1 = 1-plus-1 protection: the 2 DCIM cards operate as 1 card with 4 inputs

Change DCIM Card Protection Mode	Access level 3 is required to use this command. Enter:
	
	`SET-ATTR-CONT:[<tid>]:<aid>:<ctag>::<protection mode>;`
	
	aid = DCIM-ALL
	protection mode = protection mode for DCIM cards:
	NO = no 1-plus-1 protection: each DCIM card is stand-alone with 2 inputs
	1+1 = 1-plus-1 protection: the 2 DCIM cards operate as 1 card with 4 inputs
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Force a Specified DCIM Input Port to be Used	Access level 3 is required to use this command. This command forces a specified input port on a DCIM card to be used. Enter:
	
	`OPR-SWDX-PORT:[<tid>]:<aid>:<ctag>;`
	
	aid = DCIM port (DCIM-a-b, where a = 1 or 2, b = 1 or 2)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Chart 19. DCIM Protection Control (Contd)

TASK	PROCEDURE

Release DCIM Input Port	Access level 3 is required to use this command. This command releases the forced use of a DCIM card input as set by the OPR-SWDX-PORT command. Enter:
	
	`RLS-SWDX-PORT:[<tid>]:<aid>:<ctag>;`
	
	aid = DCIM port (DCIM-a-b, where a = 1 or 2, b = 1 or 2)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Chart 20. SSM Control

TASK	PROCEDURE
This chart provides the steps for displaying and setting the SSM functions of the shelf and the input and output cards.	

Display SSM Mode of Shelf	Access level 2 is required to use this command. This command displays the shelf SSM mode as set by the SET-ATTR-CONT command. Enter:
	
	`RTRV-ATTR-CONT:[<tid>]:<aid>:<ctag>;`
	
	aid = MIS
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`
	`"<aid>:<ssm mode>" ...`
	
	ssm mode = ssm mode of specified shelf:
	NO = SSM is not supported (idle code is sent out in place of SSM messages)
	SSME = SSM supported for DCIM-EA, EA10-M, and EA20-M cards only
	SSMEC = same as SSME plus the additional quality level of QL-UNK
	SSMT = SSM supported for DCIM-T and TOTA-M cards only

Change SSM Mode of Shelf	Access level 3 is required to use this command. Enter:
	
	`SET-ATTR-CONT:[<tid>]:<aid>:<ctag>::<ssm mode>;`
	
	aid = MIS
	ssm mode = ssm mode of specified shelf:
	NO = SSM is not supported (idle code is sent out in place of SSM messages)
	SSME = SSM supported for DCIM-EA, EA10-M, and EA20-M cards only
	SSMT = SSM supported for DCIM-T and TOTA-M cards only
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Chart 20. SSM Control (Contd)

TASK	PROCEDURE

Display Quality Level Assigned to Outputs of Cards	Access level 1 is required to use this command. This command displays the quality level assigned by the ED-SSM-EQPT command to the output signal of an input card or the output signals of TOTA-M, EA10-M, EA20-M, GTI-17, or GTI-18 cards, or the output signal of a GTI card. Also displayed are the SSM trouble code sent out during clock holdover, and whether the Sa4 through Sa8 bits of an E1 signal are used for SSM messages. Enter:
	
	`RTRV-SSM-EQPT:[<tid>]:<aid>:<ctag>;`
	
	aid = card:
	DCIM-a = DCIM card (a = 1–2 or ALL)
	GTI-a = GTI-17 or GTI-18 card (a = 1–2 or ALL)
	INPUT-a = input card other than DCIM (a = 1–2 or ALL)
	TO-a = TOTA-M, EA10-M, or EA20-M card (a = 1–12 or ALL)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`
	`<aid>:<ssmmsg>[,[<ssmtc>][,<ssmsa4>,<ssmsa5>,<ssmsa6>,<ssmsa7>,<ssmsa8>]]"`
	
	ssmmsg = ssm message:
	QL-DNU = do not use for synchronization
	QL-DUS = do not use for synchronization
	QL-NONE = SSM not used
	QL-NORM = incoming quality level will be used (no override)
	QL-PRC = traceable to a primary reference clock
	QL-PRS = traceable to a primary reference source
	QL-RES = traceable to a user-defined level
	QL-SEC = traceable to SDH equipment clock
	QL-SMC = traceable to SONET minimum clock
	QL-SSUL = traceable to synchronization supply unit local
	QL-SSUT = traceable to synchronization supply unit transit
	QL-ST2 = traceable to stratum 2
	QL-ST3 = traceable to stratum 3
	QL-ST3E = traceable to stratum 3E
	QL-ST4 = traceable to stratum 4
	QL-STU = traceable to unknown stratum level
	QL-TNC = traceable to transit node clock
	QL-UNK = traceable to unknown stratum level

Chart 20. SSM Control (Contd)

TASK	PROCEDURE
Display Quality Level Assigned to Outputs of Cards (Contd)	ssmtc = ssm trouble code (EA10-M, EA20-M, TOTA-M): ALW = AIS siganl is sent out during holdover INH = output is squelched during holdover NORM = SSM is sent out based on messages during holdover <u>For DCIM-T, TOTA-M, T1 input cards:</u> ssmsa4 = Sa4 bit used for SSM (EA10-M, EA20-M): ALW = allows Sa4 to be used for SSM messages INH = inhibits Sa4 from being used for SSM messages ssmsa5 = Sa5 bit used for SSM (EA10-M, EA20-M): ALW = allows Sa5 to be used for SSM messages INH = inhibits Sa5 from being used for SSM messages ssmsa6 = Sa6 bit used for SSM (EA10-M, EA20-M): ALW = allows Sa6 to be used for SSM messages INH = inhibits Sa6 from being used for SSM messages ssmsa7 = Sa7 bit used for SSM (EA10-M, EA20-M): ALW = allows Sa7 to be used for SSM messages INH = inhibits Sa7 from being used for SSM messages ssmsa8 = Sa8 bit used for SSM (EA10-M, EA20-M): ALW = allows Sa8 to be used for SSM messages INH = inhibits Sa8 from being used for SSM messages ***Notes:*** 1. The parameter <ssmtc> appears only for EA10-M, EA20-M, and TOTA-M cards. 2. The parameters <ssmsa4>, <ssmsa5>, <ssmsa6>, <ssmsa7>, and <ssmsa8> appear only for DCIM-EA cards.

Chart 20. SSM Control (Contd)

TASK	PROCEDURE

Change Quality Level Assigned to Outputs of Cards	Access level 4 is required to use this command. This command changes the quality level assigned to the output signal of an input card, the output signals of TOTA-M, EA10-M, or EA20-M cards, GTI-17, or GTI-18 cards. Also changed are the SSM trouble code sent out during clock holdover, and whether the Sa4 through Sa8 bits of an E1 signal are used for SSM messages. Parameters left blank are not changed. Enter:
	
	`ED-SSM-EQPT:[<tid>]:<aid>:<ctag>::[<ssmmsg>]`
	`[,[<ssmtc>][,[<ssmsa4>],[<ssmsa5>],[<ssmsa6>],`
	`[<ssmsa7>],[<ssmsa8>]]];`
	
	aid = card:
	DCIM-a = DCIM card (a = 1–2)
	INPUT-a = input card other than DCIM (a = 1–2)
	GTI-a = GTI card (a = 1–2)
	TO-a = TOTA-M, EA10-M, or EA20-M card (a = 1–12)
	ssmmsg = ssm message:
	For GTI-18, DCIM-EA, EA10-M, EA20-M, E1 input cards:
	QL-DNU = do not use for synchronization
	QL-NONE = SSM not used (not allowed or with GTI-EAM or with E1 input cards other than DCIM-EA)
	QL-NORM = incoming quality level will be used (no over-ride) (not allowed with GTI-EAM or with E1 input cards other than DCIM-EA)
	QL-PRC = traceable to a primary reference clock
	QL-SEC = traceable to SDH equipment clock
	QL-SSUL = traceable to synchronization supply unit local
	QL-SSUT = traceable to synchronization supply unit transit
	QL-UNK = traceable to unknown stratum level
	For GTI-17, DCIM-T, TOTA-M, T1 input cards:
	QL-DUS = do not use for synchronization
	QL-NONE = SSM not used (not allowed with GTI-EAM or with T1 input cards other than DCIM-T)
	QL-NORM = incoming quality level will be used (no over-ride) (not allowed with GTI-EAM or with T1 input cards other than DCIM-T)
	QL-PRS = traceable to a primary reference source
	QL-RES = traceable to a user-defined level
	QL-SMC = traceable to SONET minimum clock
	QL-ST2 = traceable to stratum 2
	QL-ST3 = traceable to stratum 3
	QL-ST3E = traceable to stratum 3E
	QL-ST4 = traceable to stratum 4
	QL-STU = traceable to unknown stratum level
	QL-TNC = traceable to transit node clock

Chart 20. SSM Control (Contd)

TASK	PROCEDURE
Change Quality Level Assigned to Outputs of Cards (Contd)	For EA10-M, EA20-M, TOTA-M cards: ssmtc = ssm trouble code: ALW = AIS siganl is sent out during holdover INH = output is squelched during holdover NORM = SSM is sent out based on messages during holdover For EA10-M, EA20-M cards: ssmsa4 = Sa4 bit used for SSM: ALW = allows Sa4 to be used for SSM messages INH = inhibits Sa4 from being used for SSM messages ssmsa5 = Sa5 bit used for SSM: ALW = allows Sa5 to be used for SSM messages INH = inhibits Sa5 from being used for SSM messages ssmsa6 = Sa6 bit used for SSM: ALW = allows Sa6 to be used for SSM messages INH = inhibits Sa6 from being used for SSM messages ssmsa7 = Sa7 bit used for SSM: ALW = allows Sa7 to be used for SSM messages INH = inhibits Sa7 from being used for SSM messages ssmsa8 = Sa8 bit used for SSM: ALW = allows Sa8 to be used for SSM messages INH = inhibits Sa8 from being used for SSM messages Response: <sid> <date> <time> M <ctag> COMPLD

Chart 20. SSM Control (Contd)

TASK	PROCEDURE

Display Quality Level Assigned to Outputs of Cards For Specific Conditions	Access level 1 is required to use this command. This command displays the quality level assigned by the ED-SSM-MSG command to the output of a TOTA-M, EA10-M, EA20-M, GTI-TM, or GTI-18 card. On TOTA-M, EA10-M, and EA20-M cards, the message indicated will be sent only if the TOTA-M, EA10-M, or EA20-MA card loses communicatins with the MIS card for longer than 2 seconds. On GTI-17 and GTI-18 cards, the message indicated will be sent only if the output signal from the GTI-17 or GTI-18 card is not traceable to PRS/PRC and the card signal is still active. Enter:
	
	`RTRV-SSM-MSG:[<tid>]:<aid>:<ctag>;`
	
	aid = card:
	GTI-a = GTI-17 or GTI-18 card (a = 1–2 or ALL)
	TO-a = TOTA-M, EA10-M, or EA20-M card (a = 1–12 or ALL)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`
	`"<aid>:<ssmmsg>"`
	
	ssmmsg = ssm message:
	QL-DNU = do not use for synchronization
	QL-DUS = do not use for synchronization
	QL-HOLDOVER = output quality level based on quality level of the active shelf clock
	QL-PRC = traceable to a primary reference clock
	QL-PRS = traceable to a primary reference source
	QL-RES = traceable to a user-defined level
	QL-SEC = traceable to SDH equipment clock
	QL-SMC = traceable to SONET minimum clock
	QL-SSUL = traceable to synchronization supply unit local
	QL-SSUT = traceable to synchronization supply unit transit
	QL-ST2 = traceable to stratum 2
	QL-ST3 = traceable to stratum 3
	QL-ST3E = traceable to stratum 3E
	QL-ST4 = traceable to stratum 4
	QL-STU = traceable to unknown stratum level
	QL-TNC = traceable to transit node clock
	QL-UNK = traceable to unknown stratum level

Chart 20. SSM Control (Contd)

TASK	PROCEDURE
Change Quality Level Assigned to Outputs of Cards For Specific Conditions	Access level 4 is required to use this command. This command changes the quality level assigned to the output signal of an input card, the output signals of TOTA-M, EA10-M, or EA20-M cards, GTI-17, or GTI-18 cards. On TOTA-M, EA10-M, and EA20-M cards, the assigned message will be sent only if the TOTA-M, EA10-M, or EA20-MA card loses communicatins with the MIS card for longer than 2 seconds. On GTI-17 and GTI-18 cards, the assigned message will be sent only if the output signal from the GTI-17 or GTI-18 card is not traceable to PRS/PRC and the card signal is still active. Parameters left blank are not changed. Enter: `ED-SSM-MSG:[<tid>]:<aid>:<ctag>::<ssmmsg>;` aid = card: GTI-a = GTI card (a = 1–2) TO-a = TOTA-M, EA10-M, or EA20-M card (a = 1–12) ssmmsg = ssm message: <u>For GTI-18, EA10-M, EA20-M cards:</u> QL-DNU = do not use for synchronization QL-HOLDOVER = output quality level is based on quality level of the active shelf clock QL-PRC = traceable to a primary reference clock QL-SEC = traceable to SDH equipment clock QL-SSUL = traceable to synchronization supply unit local QL-SSUT = traceable to synchronization supply unit transit QL-UNK = traceable to unknown stratum level <u>For GTI-17, TOTA-M cards:</u> QL-DUS = do not use for synchronization QL-PRS = traceable to a primary reference source QL-HOLDOVER = output quality level is based on quality level of the active shelf clock QL-RES = traceable to a user-defined level QL-SMC = traceable to SONET minimum clock QL-ST2 = traceable to stratum 2 QL-ST3 = traceable to stratum 3 QL-ST3E = traceable to stratum 3E QL-ST4 = traceable to stratum 4 QL-STU = traceable to unknown stratum level QL-TNC = traceable to transit node clock

Chart 20. SSM Control (Contd)

TASK	PROCEDURE

Display Quality Level Assigned to Inputs of DCIM Cards	Access level 1 is required to use this command. This command displays the quality level assigned by the ED-SSM-PORT command to the input signal of a DCIM card. Also displayed is whether the Sa4 through Sa8 bits of an E1 signal can be used for SSM messages. Enter:
	
	`RTRV-SSM-PORT:[<tid>]:<aid>:<ctag>;`
	
	aid = port:
	DCIM-a-b = DCIM port (a = 1–2, b = 1–2 or ALL)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`
	`"<aid>:<ssmmsg>[,<ssmsa4>,<ssmsa5>,<ssmsa6>,<ssmsa7>,<ssmsa8>]"`
	
	ssmmsg = ssm message:
	QL-DNU = do not use for synchronization
	QL-DUS = do not use for synchronization
	QL-NONE = SSM not used
	QL-NORM = incoming quality level will be used (no override)
	QL-PRC = traceable to a primary reference clock
	QL-PRS = traceable to a primary reference source
	QL-RES = traceable to a user-defined level
	QL-SEC = traceable to SDH equipment clock
	QL-SMC = traceable to SONET minimum clock
	QL-SSUL = traceable to synchronization supply unit local
	QL-SSUT = traceable to synchronization supply unit transit
	QL-ST2 = traceable to stratum 2
	QL-ST3 = traceable to stratum 3
	QL-ST3E = traceable to stratum 3E
	QL-ST4 = traceable to stratum 4
	QL-STU = traceable to unknown stratum level
	QL-TNC = traceable to transit node clock
	QL-UNK = traceable to unknown stratum level

Chart 20. SSM Control (Contd)

TASK	PROCEDURE	
Display Quality Level Assigned to Inputs of DCIM Cards (Contd)	ssmsa4	= Sa4 bit used for SSM: ALW = allows Sa4 to be used for SSM messages INH = inhibits Sa4 from being used for SSM messages
	ssmsa5	= Sa5 bit used for SSM: ALW = allows Sa5 to be used for SSM messages INH = inhibits Sa5 from being used for SSM messages
	ssmsa6	= Sa6 bit used for SSM: ALW = allows Sa6 to be used for SSM messages INH = inhibits Sa6 from being used for SSM messages
	ssmsa7	= Sa7 bit used for SSM: ALW = allows Sa7 to be used for SSM messages INH = inhibits Sa7 from being used for SSM messages
	ssmsa8	= Sa8 bit used for SSM: ALW = allows Sa8 to be used for SSM messages INH = inhibits Sa8 from being used for SSM messages

Chart 20. SSM Control (Contd)

TASK	PROCEDURE

Change Quality Level Assigned to Inputs of DCIM Cards	Access level 3 is required to use this command. This command changes the quality level assigned to the input signal of a DCIM card. Whether the Sa4 through Sa8 bits of an E1 signal can be used for SSM messages can also be changed. Enter:
	
	`ED-SSM-PORT:[<tid>]:<aid>:<ctag>::[<ssmmsg>]`
	`[,[<ssmsa4>],[<ssmsa5>],[<ssmsa6>],[<ssmsa7>],`
	`[<ssmsa8>]];`
	
	aid = port:
	DCIM-a-b = DCIM port (a = 1–2, b = 1–2 or ALL)
	ssmmsg = ssm message:
	For DCIM-EA cards:
	QL-DNU = do not use for synchronization
	QL-NONE = SSM not used (not allowed with E1 input cards other than DCIM-EA)
	QL-NORM = incoming quality level will be used (no override) (not allowed with E1 input cards other than DCIM-EA)
	QL-PRC = traceable to a primary reference clock
	QL-SEC = traceable to SDH equipment clock
	QL-SSUL = traceable to synchronization supply unit local
	QL-SSUT = traceable to synchronization supply unit transit
	QL-UNK = traceable to unknown stratum level
	For DCIM-T cards:
	QL-DUS = do not use for synchronization
	QL-NONE = SSM not used (not allowed with T1 input cards other than DCIM-T)
	QL-NORM = incoming quality level will be used (no override) (not allowed with T1 input cards other than DCIM-T)
	QL-PRS = traceable to a primary reference source
	QL-RES = traceable to a user-defined level
	QL-SMC = traceable to SONET minimum clock
	QL-ST2 = traceable to stratum 2
	QL-ST3 = traceable to stratum 3
	QL-ST3E = traceable to stratum 3E
	QL-ST4 = traceable to stratum 4
	QL-STU = traceable to unknown stratum level
	QL-TNC = traceable to transit node clock

Chart 20. SSM Control (Contd)

TASK	PROCEDURE
Change Quality Level Assigned to Inputs of DCIM Cards (Contd)	For DCIM-EA cards: ssmsa4 = Sa4 bit used for SSM: ALW = allows Sa4 to be used for SSM messages INH = inhibits Sa4 from being used for SSM messages ssmsa5 = Sa5 bit used for SSM: ALW = allows Sa5 to be used for SSM messages INH = inhibits Sa5 from being used for SSM messages ssmsa6 = Sa6 bit used for SSM: ALW = allows Sa6 to be used for SSM messages INH = inhibits Sa6 from being used for SSM messages ssmsa7 = Sa7 bit used for SSM: ALW = allows Sa7 to be used for SSM messages INH = inhibits Sa7 from being used for SSM messages ssmsa8 = Sa8 bit used for SSM: ALW = allows Sa8 to be used for SSM messages INH = inhibits Sa8 from being used for SSM messages

Chart 20. SSM Control (Contd)

TASK	PROCEDURE

Display Message Being Sent Out of Cards	Access level 1 is required to use this command. This command displays the output message of a DCIM, EA10-M, EA20-M, TOTA-M, or GTI card. The quality level displayed may be the result of received messages or may have been set (overridden) by the ED-SSM-EQPT command. If the word OVERRIDE is appended to the <conddescr> parameter in the event messages, the SSM has been set by the ED-SSM-EQPT command. If OVERRIDE is not appended to the <conddescr> parameter in the event messages, the message is the result of incoming messages. Enter:
	
	`RTRV-MSG-EQPT:[<tid>]:<aid>:<ctag>;`
	
	aid = card:
	DCIM-a = DCIM card (a = 1–2 or ALL)
	GTI-a = GTI card (a = 1–2 or ALL)
	TO-a = TOTA-M, EA10-M, or EA20-M card (a = 1–12 or ALL)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`
	`"<aid>:<ssm-state>"`
	
	ssm-state = ssm state:
	QL-ALW = AIS is being sent
	QL-DNU = do not use for synchronization
	QL-DUS = do not use for synchronization
	QL-INH = no output
	QL-NONE = SSM not used
	QL-NORM = incoming quality level will be used (no override)
	QL-PRC = traceable to a primary reference clock
	QL-PRS = traceable to a primary reference source
	QL-RES = traceable to a user-defined level
	QL-SEC = traceable to SDH equipment clock
	QL-SMC = traceable to SONET minimum clock
	QL-SSUL = traceable to synchronization supply unit local
	QL-SSUT = traceable to synchronization supply unit transit
	QL-ST2 = traceable to stratum 2
	QL-ST3 = traceable to stratum 3
	QL-ST3E = traceable to stratum 3E
	QL-ST4 = traceable to stratum 4
	QL-STU = traceable to unknown stratum level
	QL-TNC = traceable to transit node clock
	QL-UNK = traceable to unknown stratum level

Chart 20. SSM Control (Contd)

TASK	PROCEDURE

Display Message on DCIM Card Input	Access level 1 is required to use this command. This command displays the quality level on an input port of a DCIM card. The quality level displayed may be the result of received messages or may have been set (overridden) by the ED-SSM-PORT command. If the word OVERRIDE is appended to the <conddescr> parameter in the event messages, the SSM has been set by the ED-SSM-PORT command. If OVERRIDE is not appended to the <conddescr> parameter in the event messages, the event message is the result of incoming messages. Enter:
	
	`RTRV-MSG-PORT:[<tid>]:<aid>:<ctag>;`
	
	aid = card:
	DCIM-a = DCIM card (a = 1–2 or ALL)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`
	`"<aid>:<ssm-state>"`
	
	ssm-state = ssm state:
	QL-DNU = do not use for synchronization
	QL-DUS = do not use for synchronization
	QL-PRC = traceable to a primary reference clock
	QL-PRS = traceable to a primary reference source
	QL-RES = traceable to a user-defined level
	QL-SEC = traceable to SDH equipment clock
	QL-SMC = traceable to SONET minimum clock
	QL-SSUL = traceable to synchronization supply unit local
	QL-SSUT = traceable to synchronization supply unit transit
	QL-ST2 = traceable to stratum 2
	QL-ST3 = traceable to stratum 3
	QL-ST3E = traceable to stratum 3E
	QL-ST4 = traceable to stratum 4
	QL-STU = traceable to unknown stratum level
	QL-TNC = traceable to transit node clock
	QL-UNK = traceable to unknown stratum level

Chart 20. SSM Control (Contd)

TASK	PROCEDURE

Display SSM Mode of GTI Card	Access level 2 is required to use this command. This command displays the SSM mode of GTI cards as set by the SET-ATTR-CONT command. Enter:
	
	`RTRV-ATTR-CONT:[<tid>]:<aid>:<ctag>;`
	
	aid = GTI-ALL
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`
	`"<aid>:<ssm mode>" ...`
	
	ssm mode = ssm mode of specified card:
	NO = SSM is not supported
	SSME = SSM supported for GTI-18 cards
	SSMEC = same as SSME plus the additional quality level of QL-UNK
	SSMT = SSM supported for GTI-17 cards

Change SSM Mode of GTI Card	Access level 3 is required to use this command. Enter:
	
	`SET-ATTR-CONT:[<tid>]:<aid>:<ctag>::<ssm mode>;`
	
	aid = GTI card (GTI-a, where a = 1 or 2)
	ssm mode = ssm mode of specified card:
	NO = SSM is not supported
	SSME = SSM supported for GTI-18 cards
	SSMEC = same as SSME plus the additional quality level of QL-UNK
	SSMT = SSM supported for GTI-17 cards
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Chart 21. Delay Control

TASK	PROCEDURE
This chart provides the steps for displaying and setting the output protection type for the timing output cards, and for switching to and releasing from a protection timing output card. This chart applies to TO-EA5, EA10, and EA20 cards only.	

Display Persistence Delay for DCIM Cards	Access level 1 is required to use this command. This command displays the persistence delay which is the amount of time from an SSM change at an input until the new SSM is sent to the MIS card. These parameter values apply to both inputs of the specified DCIM card. Enter:
	
	`RTRV-TH-MSG:[<tid>]:<aid>:<ctag>;`
	
	aid = DCIM card (DCIM-a, where a = 1 or 2 or ALL)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`
	`"<aid>:<durmsg>,,,"`
	
	durmsg = persistence delay in ms

Change Persistence Delay for DCIM Cards	Access level 4 is required to use this command. This command changes the persistence delay which is the amount of time from an SSM change at an input until the new SSM is sent to the MIS card. These parameter values apply to both inputs of the specified DCIM card. Enter:
	
	`SET-TH-MSG:[<tid>]:<aid>:<ctag>::<durmsg>,,,;`
	
	aid = DCIM card (DCIM-a, where a = 1 or 2)
	durmsg = persistence delay (1–2000 ms, in 100 ms steps)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Chart 21. Delay Control (Contd)

TASK	PROCEDURE

Display Transmission Impairment Delay for DCIM Cards	Access level 1 is required to use this command. This command displays the following:
	• Holdoff delay: the amount of time from when transmission impairments are detected on an input until the input is disqualified
	• Restore delay: the amount of time from when the input is free of transmission impairments until the input is requalified for use on a DCIM card.
	
	Enter:
	
	`RTRV-DA-EQPT:[<tid>]:<aid>:<ctag>;`
	
	aid = DCIM card (DCIM-a, where a = 1 or 2 or ALL)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`
	`"<aid>:<holdoff>,<rstdur>"`
	
	holdoff = holdoff delay (ms)
	rstdur = restore delay (min)

Change Transmission Impairment Delay for DCIM Cards	Access level 4 is required to use this command. This command changes the following:
	• Holdoff delay: the amount of time from when transmission impairments are detected on an input until the input is disqualified
	• Restore delay: the amount of time from when the input is free of transmission impairments until the input is requalified for use on a DCIM card.
	
	The parameter values apply to both inputs of the specified DCIM card. If a parameter value is not entered, that parameter is not changed. Enter:
	
	`SET-DA-EQPT:[<tid>]:<aid>:<ctag>::[<holdoff>],[<rstdur>];`
	
	aid = DCIM card (DCIM-a, where a = 1 or 2 or ALL)
	holdoff = holdoff delay (0–2000 ms, in 100 ms steps)
	rstdur = restore delay (0–15 min, in 1 min steps)
	
	Caution: If the <holdoff> parameter is set to a value greater than zero and an input is lost, the output phase may shift an amount that exceeds standards for BITS systems.
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Chart 21. Delay Control (Contd)

TASK	PROCEDURE

Display Non-switching, Switching, and Holdover Message Delay for Shelf	Access level 1 is required to use this command. This command displays the following:
	• Nonswitching message delay: amount of time from a signal quality SSM change (following the persistence delay and which does not require a switch or rearrangement) at an input until the new SSM is sent to the timing output cards
	• Switching message delay: amount of time from a signal quality SSM change (following the persistence delay and which requires a switch or rearrangement) at an input until the new SSM is sent to the timing output cards
	• Holdover message delay: amount of time from when the clocks go into holdover until the holdover SSM is sent to the timing output cards
	
	Enter:
	
	`RTRV-TH-MSG:[<tid>]:<aid>:<ctag>;`
	
	aid = SHELF
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`
	`"<aid>:,<nswmsg>,<swmsg>,<hldovrmsg>"`
	
	nswmsg = nonswitching message delay (ms)
	swmsg = switching message delay (ms)
	hldovrmsg = holdover message delay (s)

Chart 21. Delay Control (Contd)

TASK	PROCEDURE

Change Non-switching, Switching, and Holdover Message Delay for Shelf	Access level 4 is required to use this command. This command changes the following:
	• Nonswitching message delay: amount of time from a signal quality SSM change (following the persistence delay and which does not require a switch or rearrangement) at an input until the new SSM is sent to the timing output cards
	• Switching message delay: amount of time from a signal quality SSM change (following the persistence delay and which requires a switch or rearrangement) at an input until the new SSM is sent to the timing output cards
	• Holdover message delay: amount of time from when the clocks go into holdover until the holdover SSM is sent to the timing output cards
	
	If a parameter value is not entered, that parameter is not changed. Enter:
	
	`SET-TH-MSG:[<tid>]:<aid>:<ctag>::,[<nswmsg>],`
	`[<swmsg>],[<hldovrmsg>];`
	
	aid = SHELF
	nswmsg = nonswitching message delay (0–2000 ms, in 100 ms steps)
	swmsg = switching message delay (0–2000 ms, in 100 ms steps)
	hldovrmsg = holdover message delay (0–3600 s, in 1 s steps)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Chart 22. Copy Database of Version 5 Cards

<table>
<tr><th>TASK</th><th>PROCEDURE</th></tr>
<tr><td colspan="2">This chart provides the steps for copying Version 5-card databases to and from the MIS card.</td></tr>
<tr><td>Copy Card Database from MIS Card to Other Cards</td><td>
Access level 4 is required to use this command. Enter:

<code>CPY-MEM:[<tid>]:[<shelf>]:<ctag>::,FROM-MIS,,TO-a
:DATA;</code>

shelf = shelf where copying will occur:
(null) = master shelf
E1 = expansion shelf 1
E2 = expansion shelf 2
E3 = expansion shelf 3 (or remote shelf if equipped with a remote shelf instead of an expansion shelf 3)

a = card:
DCIM-b = DCIM card (b = 1–2 or ALL)
GTI-b = GTI card (b = 1–2 or ALL)
MCA = MCA card
MRC-b = MRC card (b = 1–2 or ALL)
PSM-c = PSM card (c = 1–11 or ALL)
TO-d = TO card (c = 1–12 or ALL)
(1–10 or ALL for TOTA-5 & TOTA-M cards)
ALL = all DCIM, GTI, MRC, PSM, and TO cards

Notes:
1. When copying to the GTI card, the master shelf must be addressed.
2. After copying to the GTI card (or ALL), use the RTRV-COND-EQPT command to ensure that the GTI is in service. If the GTI is not in service, repeat the COPY command.

Response:

<code><sid> <date> <time>
M <ctag> COMPLD</code>
</td></tr>
</table>

Chart 22. Copy Database of Version 5 Cards (Contd)

TASK	PROCEDURE

Copy Card Database from Other Cards to MIS Card	Access level 4 is required to use this command. Enter:
	
	`CPY-MEM:[<tid>]:[<shelf>]:<ctag>::,FROM-a,,TO-MIS:DATA;`
	
	shelf = shelf where copying will occur:
	(null) = master shelf
	E1 = expansion shelf 1
	E2 = expansion shelf 2
	E3 = expansion shelf 3 (or remote shelf if equipped with a remote shelf instead of an expansion shelf 3)
	a = card:
	DCIM-b = DCIM card (b = 1–2 or ALL)
	GTI-b = GTI card (b = 1–2 or ALL)
	MCA = MCA card
	MRC-b = MRC card (b = 1–2 or ALL)
	PSM-c = PSM card (c = 1–11 or ALL)
	TO-d = TO card (c = 1–12 or ALL) (1–10 or ALL for TOTA-5 & TOTA-M cards)
	ALL = all DCIM, GTI, MRC, PSM, and TO cards
	
	Notes:
	1. When copying from the GTI card, the master shelf must be addressed.
	2. When copying from the GTI card (or ALL) to the MIS card, the COPY command may be denied with an error code of SROF. If this occurs, repeat the COPY command.
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Chart 23. Copy Program from External Source to MIS Card

STEP	PROCEDURE
This chart provides the steps for copying an MIS card program from an external source to the MIS card.	
1	Create a directory on the hard drive of the PC, and copy the files from both disks (092-45118-41 and 092-45218-41) to the newly created directory.
2	To determine the setting for echo on the communication port to be used, use the RTRV-COM command (for details, refer to the task Display Communication Parameters in Chart 4, Communication Ports).
3	If the echo parameter is set to INH (inhibited), skip to the next step. If the echo parameter is set to ALW (allowed), use the ED-COM command to change echo to INH (for details, refer to the task Change Communication Parameters in Chart 4, Communication Ports).
4	Use the RTRV-INVENTORY command to determine which program location (HI BANK or LOW BANK) is active in the MIS card (for details, refer to the task Change Communication Parameters in Chart 5, System Configuration).
5	Ensure that a commercial software communication package (such as PROCOMM PLUS®) that supports the KERMIT protocol is running on the PC from which the program file will be downloaded, and that the PC is running in a VT100 terminal mode. PROCOMM PLUS is a registered trademark of Datastorm Technologies, Inc.
6	Ensure that the following KERMIT protocol parameters are set: Control quote: 35 Pad: 0 End of line: 13 8th bit quote: 38 Block start: 1 Maximum packet size: 512 Number of pad characters: 0 File type: Binary Block check type: 3-byte CRC

7	Access level 4 is required to use this command. Enter:
	
	`CPY-MEM:[<tid>]:[<shelf>]:<ctag>::,FROM-EXT,,TO-MIS:PGM;`
	
	shelf = shelf where MIS card resides:
	(null) = master shelf
	E1 = expansion shelf 1
	E2 = expansion shelf 2
	E3 = expansion shelf 3 (or remote shelf if equipped with a remote shelf instead of an expansion shelf 3)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

Chart 23. Copy Program from External Source to MIS Card (Contd)

STEP	PROCEDURE
8	***Caution: If the program download is interrupted before completion, the inactive bank will be empty. Any program residing in this bank will be lost. Do not interrupt the download.*** Transmit one of the following files to the inactive memory bank in the MIS card: If the LOW BANK is active (as determined in Step 4), transmit the xxxxx.hi file. If the HI BANK is active (as determined in Step 4), transmit the xxxxx.low file. where xxxxx represents the particular release of software being installed. Example: 50303 would be for release 5.03.03.
9	Wait until the communication software indicates that the copying has been completed (may take up to 8 minutes).

10	Access level 5 is required to use this command. To switch to the program just copied to the MIS card, enter:
	
	`INIT-SYS:[<tid>]:<aid>:<ctag>::5;`
	
	aid = MIS
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`

11	This procedure is completed.

Chart 24. GPS Information

TASK	PROCEDURE
This chart provides the steps for displaying the GPS operating statistics.	

Display GPS Statistics	Access level 2 is required to use this command. Enter:
	
	`RTRV-GPS-STAT:[<tid>]:<aid>:<ctag>;`
	
	aid = GTI card slot (GTI-1 or GTI-2)
	
	Response:
	
	`<sid> <date> <time>`
	`M <ctag> COMPLD`
	`"<aid>"`
	`/*`
	`UTC-TIME=b,`
	`LOCATION=c,`
	`SAT-IN-VIEW=d,`
	`[SAT-e=f], ...`
	`GTIMDEV=g,`
	`OSC1FFREQ=h,`
	`OSC2FFREQ=i`
	`*/`
	
	b = universal coordinated time (hours:minutes:seconds)
	c = format is ddmm.mmm-x-dddmm.mmm-y-aa
	ddmm.mmm-x = latitude:
	dd = degrees
	mm.mmm = minutes
	x = north (N) or south (S)
	dddmm.mmm-y = longitude:
	ddd = degrees
	mm.mmm = minutes
	x = east (E) or west (W)
	aa = altitude in meters (can be negative, error is ±20 meters)
	d = number of satellites in view
	e = satellite number
	f = format is d1-d2-sn:
	d1 = satellite azimuth (degrees relative to true north)
	d2 = satellite elevation (degrees relative from horizontal)
	sn = signal-to-noise ratio (dB)
	g = modified Allen deviation of the GTI card
	h = oscillator 1 fractional frequency
	i = oscillator 2 fractional frequency
	
	Note: The system occasionally returns an SARB error message in response to the RTRV-GPS-STAT command. If this occurs, repeat the command.

Table J. Alarm/Event Summary

<aid>	<condtype>	<conddescr>	Severity	Service Affecting
Notes: 1. The severities in this table are defined as follows: MN = minor alarm SC = standing condition MJ = major alarm TC = transient condition NA = not alarmed 2. The service-affecting states are: service affecting (SA) and nonservice affecting (NSA). 3. Up to 6 minutes may be required to detect and report an unequipped condition (UNEQUIPPED: IMPROPER CARD REMOVAL OR COMM FAILURE) from a GTI or an LTI card. This condition may be caused by card removal, cable removal, or loss of power to the LPR shelf. 4. An asterisk (*) next to a severity indicates the following: • The severity can be changed using the SET-ATTR-PORT command • The severity shown is the factory setting 5. A word enclosed in brackets [ ] may or may not appear as part of the <conddescr>. 6. The IS-NR-STBY condtype for TO cards applies to TO-EA, EA10, EA20, EA10M, EA20M cards only.				
CLK-x (x = 1–2)	ACTIVE	CLOCK IS SUPPLYING SIGNAL	SC	NSA
	DRIFT	INPUT IS DRIFTING	MN	NSA
	FREERUN	CLOCK FREERUNNING	SC	NSA
	HOLDOVER	CLOCK IN HOLDOVER	MN	NSA
	INACTIVE	CLOCK IS NOT SUPPLYING SIGNAL	SC	NSA
	IS-NR-ACT	IN-SERVICE NORMAL-ACTIVE	SC	NSA
	LOCKED	CLOCK CONVERGED ON REFERENCE INPUT	SC	NSA
	NOT-LOCKED	CLOCK NOT CONVERGED ON REFERENCE INPUT	SC	NSA
	OOS-MT	OUT-OF-SERVICE MAINTENANCE	SC	NSA
	OOS-MT-FLT	OUT-OF-SERVICE MAINTENANCE-FAILED	MJ/ MN	SA
	TOLERANCE	SYSTEM INPUT TO CLOCK OUT OF TOLERANCE	MN	NSA
	UNEQUIPPED	IMPROPER CARD REMOVAL	MN	NSA
DCIM-x (x = 1–2)	ACTIVE	CARD IS SUPPLYING A SIGNAL TO THE CLOCK(S)	SC	NSA
	ALL-REF	LOSS OF ALL EXTERNAL INPUT REFERENCES	MJ	SA
	CLOCK-x (x = 1–2)	LOSS OF CLOCK SIGNAL	MN	NSA
	FAIL	CARD FAIL:CLOCK SYNTHESIZER FAILURE	MJ	SA
	FAIL	CARD FAIL: FRAMER FAILURE	MJ	SA
	INACTIVE	CARD IS NOT SUPPLYING A SIGNAL TO THE CLOCK(S)	SC	NSA

Table J. Alarm/Event Summary (Contd)

<aid>	<condtype>	<conddescr>	Severity	Service Affecting
DCIM-x (x = 1–2) (contd)	IS-NR	IN-SERVICE NORMAL	NA	NSA
	IS-NR-ACT	IN-SERVICE NORMAL-ACTIVE	SC	NSA
	MISMATCH	CARD INFORMATION DOES NOT MATCH DATABASE	SC	SA
	OOS-MT	OUT-OF-SERVICE MAINTENANCE	SC	NSA
	OOS-MT-FLT	OUT-OF-SERVICE MAINTENANCE-FAILED	MJ/ MN	SA
	QL-DNU	NOT TO BE USED FOR SYNCHRONIZATION [OVERRIDE]	SC	NSA
	QL-DUS	NOT TO BE USED FOR SYNCHRONIZATION [OVERRIDE]	SC	NSA
	QL-PRC	TRACEABLE TO PRC [OVERRIDE]	SC	NSA
	QL-PRS	TRACEABLE TO PRS/ST1 [OVERRIDE]	SC	NSA
	QL-RES	FORMAT SET BY USER [OVERRIDE]	SC	NSA
	QL-SEC	TRACEABLE TO SEC [OVERRIDE]	SC	NSA
	QL-SMC	TRACEABLE TO SMC [OVERRIDE]	SC	NSA
	QL-SSUL	TRACEABLE TO SSUL [OVERRIDE]	SC	NSA
	QL-SSUT	TRACEABLE TO SSUT [OVERRIDE]	SC	NSA
	QL-ST2	TRACEABLE TO ST2 [OVERRIDE]	SC	NSA
	QL-ST3	TRACEABLE TO ST3 [OVERRIDE]	SC	NSA
	QL-ST3E	TRACEABLE TO ST3E [OVERRIDE]	SC	NSA
	QL-ST4	TRACEABLE TO ST4 [OVERRIDE]	SC	NSA
	QL-STU	TRACEABLE TO UNKNOWN STRATUM LEVEL [OVERRIDE]	SC	NSA
	QL-TNC	TRACEABLE TO TNC [OVERRIDE]	SC	NSA
	QL-UNK	TRACEABLE TO UNKNOWN STRATUM LEVEL [OVERRIDE]	SC	NSA
	UNEQUIPPED	IMPROPER CARD REMOVAL	MN/ SC	SA/ NSA
DCIM-x-y (x = 1–2, y = 1–2)	AIS	ALARM INDICATION SIGNAL RECEIVED	MN*	NSA
	BPV	BPV THRESHOLD EXCEEDED	MN*	NSA
	CRC	CRC THRESHOLD EXCEEDED	MN*	NSA

Table J. Alarm/Event Summary (Contd)

<aid>	<condtype>	<conddescr>	Severity	Service Affecting
DCIM-x-y (x = 1–2, y = 1–2) (contd)	IS-NR	IN-SERVICE NORMAL	NA	NSA
	IS-NR-ACT	IN-SERVICE NORMAL-ACTIVE	SC	NSA
	IS-NR-ACT-LOCK	IN-SERVICE NORMAL-ACTIVE LOCKED	SC	NSA
	LOS	LOSS OF EXTERNAL REFERENCE	MN*	NSA
	OOF	OOF DETECTED	MN*	NSA
	OOS-MT	OUT-OF-SERVICE MAINTENANCE	SC	NSA
	OOS-MT-FLT	OUT-OF-SERVICE MAINTENANCE-FAILED	MJ/ MN	SA
	OOS-MT-FLT-LOCK	OUT-OF-SERVICE MAINTENANCE-FAILED LOCKED	MN/ MJ	SA
	QL-DNU	NOT TO BE USED FOR SYNCHRONIZATION [OVERRIDE]	SC	NSA
	QL-DUS	NOT TO BE USED FOR SYNCHRONIZATION [OVERRIDE]	SC	NSA
	QL-PRC	TRACEABLE TO PRC [OVERRIDE]	SC	NSA
	QL-PRS	TRACEABLE TO PRS/ST1 [OVERRIDE]	SC	NSA
	QL-RES	FORMAT SET BY USER [OVERRIDE]	SC	NSA
	QL-SEC	TRACEABLE TO SEC [OVERRIDE]	SC	NSA
	QL-SMC	TRACEABLE TO SMC [OVERRIDE]	SC	NSA
	QL-SSUL	TRACEABLE TO SSUL [OVERRIDE]	SC	NSA
	QL-SSUT	TRACEABLE TO SSUT [OVERRIDE]	SC	NSA
	QL-ST2	TRACEABLE TO ST2 [OVERRIDE]	SC	NSA
	QL-ST3	TRACEABLE TO ST3 [OVERRIDE]	SC	NSA
	QL-ST3E	TRACEABLE TO ST3E [OVERRIDE]	SC	NSA
	QL-ST4	TRACEABLE TO ST4 [OVERRIDE]	SC	NSA
	QL-STU	TRACEABLE TO UNKNOWN STRATUM LEVEL [OVERRIDE]	SC	NSA
	QL-TNC	TRACEABLE TO TNC [OVERRIDE]	SC	NSA
	QL-UNK	TRACEABLE TO UNKNOWN STRATUM LEVEL [OVERRIDE]	SC	NSA
	SWITCH	CARD NOW USING SPECIFIED INPUT SIGNAL	TC	NSA

Table J. Alarm/Event Summary (Contd)

<aid>	<condtype>	<conddescr>	Severity	Service Affecting
GTI-x (x = 1–2)	ACQUIRED	ACQUIRED AT LEAST ONE SATELLITE	SC	NSA
	COMM-LOSS	COMMUNICATION LOSS	MN	NSA
	CONVERGING	TIMING SIGNAL NOT YET STABLE	SC	NSA
	FAIL	CARD FAULT: REFERENCE PLL OUT OF LOCK	MJ	SA
	FAIL	CARD FAIL: PRIMARY REFERENCE PLL OUT OF LOCK	MJ	SA
	FAIL	CARD FAIL: OSCILLATOR PLL OUT OF LOCK	MJ	SA
	FREQ-TOL	GPS FREQUENCY OUT OF TOLERANCE	MN	NSA
	FUSE-x (x = 1–2)	LPR SHELF FUSE BLOWN OR POWER FAIL	MN	NSA
	GPS-INVALID	GPS INVALID	MJ/ MN/ SC	NSA
	GTI-OUT-FAIL	LOSS OF TIMING OUTPUT SIGNAL	MN	SA
	GTR-COMM-LOS	GTR COMMUNICATIONS FAIL	MN	NSA
	GTR-FAIL	GTR FAIL: ANTENNA CURRENT OUT OF TOLERANCE	MJ	NSA
	GTR-FAIL	GTR FAIL:GTR PLL OUT OF LOCK	MJ	NSA
	GTR-FAIL	GTR FAULT: NOT LOCKED TO UTC TIME - GTR OR SKY PROBLEM	MJ	NSA
	GTR-FAIL	GTR FAIL: FLASH MEMORY FAIL	MJ	NSA
	GTR-FAIL	GTR FAIL: RAM MEMORY FAIL	MJ	NSA
	GTR-GPS-LOS	LOSS OF GPS SIGNAL FROM GTR	MN	NSA
	GTR-LOCKED	GTR IS LOCKED	SC	NSA
	GTR-NOT-LOCKED	GTR IS NOT LOCKED TO GPS SIGNAL	SC	NSA
	GTR-PWR-FLT	GTR POWER FAULT	MN	NSA
	IS-NR-ACT	IN-SERVICE NORMAL-ACTIVE	SC	NSA
	LOCKED	GTI IS LOCKED	SC	NSA
	MISMATCH	CARD INFORMATION DOES NOT MATCH DATABASE	SC	NSA
	NO-INPUTS	LOSS OF OSCILLATORS AND INPUT FROM ANTENNA	MJ	SA
	OOS-MT	OUT-OF-SERVICE MAINTENANCE	SC	NSA

Table J. Alarm/Event Summary (Contd)

<aid>	<condtype>	<conddescr>	Severity	Service Affecting
GTI-x (x = 1–2) (contd)	OOS-MT-FLT	OUT-OF-SERVICE MAINTENANCE-FAILED	MJ/ MN	SA
	OSC-x-LOS (x = 1–2)	LOSS OF EXTERNAL OSCILLATOR	MN	NSA
	OSC-x-TOL (x = 1–2)	EXTERNAL OSCILLATOR OUT OF TOLERANCE	MN	NSA
	SATELLITE	INSUFFICIENT SATELLITES IN VIEW < 3	SC	NSA
	SEARCH	SEARCHING FOR FIRST SATELLITE	SC	NSA
	TOD-INVALID	TOD INVALID	SC/ MN/ MJ	NSA/ SA
	TOD-FAIL	TOD FAIL	MJ	SA
	TRACK	GTI TRACKING	SC	NSA
	UNEQUIPPED	IMPROPER CARD REMOVAL OR COMM FAILURE	MN/ SC	SA/ NSA
LTI-x (x = 1–2)	ACQUIRE	LORAN STATION FOUND	SC	NSA
	ANTENNA	CURRENT TO ANTENNA IS OUT OF TOLERANCE	MJ	SA
	FAIL	FAIL:TRANSFER OSC PLL OUT OF LOCK	MJ	SA
	FAIL	FAIL:SYNTHESIZER PLL OUT OF LOCK	MJ	SA
	FAIL	FAIL:PRIMARY REFERENCE PLL OUT OF LOCK	MJ	SA
	FAIL	FAIL:LOSS OF SIGNAL TO DSP OR DSP FAIL	MJ	SA
	FAIL	FAIL:PROCESSOR FAIL	MJ	SA
	FUSE-x (x = 1–2)	LPR SHELF FUSE BLOWN OR POWER FAIL	MN	NSA
	GRI-LOCKED	LOCKED TO LORAN STATION	SC	NSA
	HOLDOVER	LTI IN HOLDOVER	SC	NSA
	IS-NR-ACT	IN-SERVICE NORMAL-ACTIVE	SC	NSA
	LOCKED	LTI IS LOCKED	SC	NSA
	LOS	LOSS OF TIMING OUTPUT SIGNAL	MN	NSA
	NO-INPUTS	LOSS OF OSCILLATORS AND INPUT FROM ANTENNA	MN	NSA
	OOS-MT	OUT-OF-SERVICE MAINTENANCE	SC	NSA
	OOS-MT-FLT	OUT-OF-SERVICE MAINTENANCE-FAILED	MJ/ MN	SA

Table J. Alarm/Event Summary (Contd)

<aid>	<condtype>	<conddescr>	Severity	Service Affecting
LTI-x (x = 1–2) (contd)	OSC-LOS	LOSS OF BOTH LOCAL OSCILLATOR SIGNALS	MJ	NSA
	OSC-x-LOS (x = 1–2)	LOSS OF EXTERNAL OSCILLATOR	MN	NSA
	SEARCH	SEARCHING FOR LORAN STATION	MN/ SC	NSA
	UNEQUIPPED	IMPROPER CARD REMOVAL OR COMM FAILURE	MN/ SC	SA/ NSA
MCA	COMM	LOSS OF COMMUNICATIONS WITH ALL OUTPUT CARDS	SC	SA
	FAIL	CARD FAILED: WRITE RELAY REGISTER FAULT	MJ	SA
	FAIL	CARD FAILED: COMMON RELAY REGISTER FAULT	MJ	SA
	FAIL	CARD FAILED: OUTPUT RELAY DRIVER FAULT	MJ	SA
	FAIL	CARD FAILED: INTERNAL PROCESSOR FAILURE	MJ	SA
	IS-NR	IN-SERVICE NORMAL	SC	NSA
	IS-NR-FRCD	IN-SERVICE NORMAL COMMAND SWITCHED FORCED	SC	—
	IS-NR-LOCK	IN-SERVICE NORMAL MANUAL SWITCHED LOCKED	SC	—
	IS-NR-STBY	IN-SERVICE NORMAL-STANDBY	SC	NSA
	MISMATCH	CARD INFORMATION DOES NOT MATCH DATABASE	MN	NSA
	OOS-MT	OUT-OF-SERVICE MAINTENANCE	SC	NSA
	OOS-MT-FLT	OUT-OF-SERVICE MAINTENANCE-FAILED	SC	SA
	PORT	EXTERNAL TIMING OUTPUT SHORT DETECTED	MJ	SA
	PROTN	HOT PROTECTION SWITCH PERFORMED TOx WITH HSy (x = 1–10, y = 1–2)	SC	SA
	UNEQUIPPED	IMPROPER CARD REMOVAL	MN/ SC	SA/ NSA
MIS	RESET	MIS HAS RESET	TC	NSA

Table J. Alarm/Event Summary (Contd)

<aid>	<condtype>	<conddescr>	Severity	Service Affecting
MRC-x (x = 1–2)	ACTIVE	CARD IS SUPPLYING A SIGNAL TO THE CLOCK(S)	SC	NSA
	ALL-REF	LOSS OF ALL EXTERNAL INPUT REFERENCES	MJ	SA
	CLOCK-x (x = 1–2)	LOSS OF CLOCK SIGNAL	MN	NSA
	FAIL	CARD FAIL:CLOCK SYNTHESIZER FAILURE	MJ	SA
	FAIL	CARD FAIL: FRAMER FAILURE	MJ	SA
	FFREQ-x (x = 1–2)	CLOCK DISQUALIFIED:FFREQ THRESHOLD EXCEEDED	MN	NSA
	INACTIVE	CARD IS NOT SUPPLYING A SIGNAL TO THE CLOCK(S)	SC	NSA
	IS-NR	IN-SERVICE NORMAL	NA	NSA
	IS-NR-ACT	IN-SERVICE NORMAL-ACTIVE	SC	NSA
	MISMATCH	CARD INFORMATION DOES NOT MATCH DATABASE	SC	SA
	OOS-MT	OUT-OF-SERVICE MAINTENANCE	SC	NSA
	OOS-MT-FLT	OUT-OF-SERVICE MAINTENANCE-FAILED	MJ/ MN	SA
	UNEQUIPPED	IMPROPER CARD REMOVAL	MN/ SC	SA/ NSA
MRC-x-y (x = 1–2, y = 1–4)	AIS	ALARM INDICATION SIGNAL RECEIVED	MN*	NSA
	BPV	BPV THRESHOLD EXCEEDED	MN*	NSA
	CRC	CRC THRESHOLD EXCEEDED	MN*	NSA
	FFREQ	REF INPUT FRACTIONAL FREQ THRESHOLD EXCEEDED	MN*	NSA
	IS-NR	IN-SERVICE NORMAL	NA	NSA
	IS-NR-ACT	IN-SERVICE NORMAL-ACTIVE	SC	NSA
	LOS	LOSS OF EXTERNAL REFERENCE	MN*	NSA
	OOF	OOF DETECTED	MN*	NSA
	OOS-MT	OUT-OF-SERVICE MAINTENANCE	SC	NSA
	OOS-MT-FLT	OUT-OF-SERVICE MAINTENANCE-FAILED	MJ/ MN	SA
	SWITCH	CARD NOW USING SPECIFIED INPUT SIGNAL	TC	NSA

Table J. Alarm/Event Summary (Contd)

<aid>	<condtype>	<conddescr>	Severity	Service Affecting
PSM-x (x = 1–11)	ALL-REF	LOSS OF ALL EXTERNAL INPUT REFERENCES	MJ	SA
	CLOCK-x (x = 1–2)	LOSS OF CLOCK SIGNAL	MN	NSA
	FAIL	CARD FAIL:CLOCK SYNTHESIZER FAILURE	MJ	SA
	FAIL	CARD FAIL: FRAMER FAILURE	MJ	SA
	FFREQ-x (x = 1–2)	CLOCK DISQUALIFIED:FFREQ THRESHOLD EXCEEDED	MN	NSA
	IS-NR-ACT	IN-SERVICE NORMAL-ACTIVE	SC	NSA
	MISMATCH	CARD INFORMATION DOES NOT MATCH DATABASE	SC	SA
	OOS-MT	OUT-OF-SERVICE MAINTENANCE	SC	NSA
	OOS-MT-FLT	OUT-OF-SERVICE MAINTENANCE-FAILED	MJ/ MN	SA
	UNEQUIPPED	IMPROPER CARD REMOVAL	MN/ SC	SA/ NSA
PSM-x-y (x = 1–11, y = 1–4)	AIS	ALARM INDICATION SIGNAL RECEIVED	MN*	NSA
	BPV	BPV THRESHOLD EXCEEDED	MN*	NSA
	CRC	CRC THRESHOLD EXCEEDED	MN*	NSA
	FFREQ	REF INPUT FRACTIONAL FREQ THRESHOLD EXCEEDED	MN*	NSA
	LOS	LOSS OF EXTERNAL REFERENCE	MN*	NSA
	MTIEx (x = 1, 4, 16, 64, 128, 512, 900)	x SECOND THRESHOLD EXCEEDED (x = 1, 4, 16, 64, 128, 512, 900)	MN*	NSA
	OOF	OOF DETECTED	MN*	NSA
	TDEVx (x = 1, 4, 16, 64, 128)	x SECOND THRESHOLD EXCEEDED (x = 1, 4, 16, 64, 128)	MN*	NSA

Table J. Alarm/Event Summary (Contd)

<aid>	<condtype>	<conddescr>	Severity	Service Affecting
SHELF	ACTIVE	Ex EXPANSION SHELF PRESENT (x = 1–3)	SC	NSA
	DLCMP	DOWNLOAD COMPLETED	TC	NSA
	DLIP	DOWNLOAD IN PROGRESS	TC	NSA
	FUSE-x (x = 1–2)	FUSE BLOWN OR POWER FAIL	MN	NSA
	GP	SHELF INPUT ALARM	MN	NSA
	GPMJ	MAJOR GENERAL PURPOSE ALARM ON SHELF	MJ	SA
	GPMN	MINOR GENERAL PURPOSE ALARM ON SHELF	MN	SA
	INACTIVE	Ex EXPANSION SHELF NOT PRESENT (x = 1–3)	SC	NSA
	LOS	LOSS OF ALL INPUT AND CLOCK SIGNALS	CR	SA
	OVERRIDE	TIMING OUTPUT SOURCE SELECTED BY COMMAND	SC	NSA

Table J. Alarm/Event Summary (Contd)

<aid>	<condtype>	<conddescr>	Severity	Service Affecting
TO-x (x = 1–12)	CLOCK-x (x = 1–2)	TIMING SIGNAL FROM CLOCK CARD DISQUALIFIED	SC	NSA
	FAIL	CARD FAIL:A/D FAILURE	MJ	SA
	FAIL	CARD FAIL:INTERNAL FAILURE	MJ	SA
	FAIL	CARD FAIL:REFERENCE VOLTAGE FAILURE	MJ	SA
	FAIL	CARD FAIL:PLL OUT OF LOCK	MJ	SA
	INPUT-x (x = 1–2)	TIMING SIGNAL FROM INPUT CARD DISQUALIFIED	SC	NSA
	IS-NR-ACT	IN-SERVICE NORMAL-ACTIVE	SC	NSA
	IS-NR-STBY	IN-SERVICE NORMAL-STANDBY	SC	NSA
	MISMATCH	CARD INFORMATION DOES NOT MATCH DATABASE	SC	SA
	MISMATCH	PROTECTION CARD CONFIGURATION MISMATCH OR PAIRED CARD MISSING	SC	NSA
	OOS-MT	OUT-OF-SERVICE MAINTENANCE	SC	NSA
	OOS-MT-FLT	OUT-OF-SERVICE MAINTENANCE-FAILED	MJ/ MN	SA
	QL-ALW	OUTPUT TRANSMITTING AIS [OVERRIDE]	SC	NSA
	QL-DNU	NOT TO BE USED FOR SYNCHRONIZATION [OVERRIDE]	SC	NSA
	QL-DUS	NOT TO BE USED FOR SYNCHRONIZATION [OVERRIDE]	SC	NSA
	QL-INH	OUTPUT SQUELCHED [OVERRIDE]	SC	NSA
	QL-PRC	TRACEABLE TO PRC [OVERRIDE]	SC	NSA
	QL-PRS	TRACEABLE TO PRS/ST1 [OVERRIDE]	SC	NSA
	QL-RES	FORMAT SET BY USER [OVERRIDE]	SC	NSA
	QL-SEC	TRACEABLE TO SEC [OVERRIDE]	SC	NSA
	QL-SMC	TRACEABLE TO SMC [OVERRIDE]	SC	NSA
	QL-SSUL	TRACEABLE TO SSUL [OVERRIDE]	SC	NSA
	QL-SSUT	TRACEABLE TO SSUT [OVERRIDE]	SC	NSA
	QL-ST2	TRACEABLE TO ST2 [OVERRIDE]	SC	NSA
	QL-ST3	TRACEABLE TO ST3 [OVERRIDE]	SC	NSA
	QL-ST3E	TRACEABLE TO ST3E [OVERRIDE]	SC	NSA

Table J. Alarm/Event Summary (Contd)

<aid>	<condtype>	<conddescr>	Severity	Service Affecting
TO-x (x = 1–12) (contd)	QL-ST4	TRACEABLE TO ST4 [OVERRIDE]	SC	NSA
	QL-STU	TRACEABLE TO UNKNOWN STRATUM LEVEL [OVERRIDE]	SC	NSA
	QL-TNC	TRACEABLE TO TNC [OVERRIDE]	SC	NSA
	QL-UNK	TRACEABLE TO UNKNOWN STRATUM LEVEL [OVERRIDE]	SC	NSA
	SOURCE-CLK-x (x = 1–2)	OUTPUT CARD IS USING SPECIFIED CLOCK CARD	SC	NSA
	SOURCE-INPUT-x (x = 1–2)	OUTPUT CARD IS USING SPECIFIED INPUT CARD	SC	NSA
	SWITCH	INPUT SWITCHED	TC	NSA
	SWITCH-CLK-x (x = 1–2)	FAILURE TO SWITCH TO CLOCK CARD	SC	NSA
	SWITCH-INPUT-x (x = 1–2)	FAILURE TO SWITCH TO INPUT CARD	SC	NSA
	SWITCH	OUTPUT CARD PROTECTION SWITCH	TC	NSA
	UNEQUIPPED	IMPROPER CARD REMOVAL	MN/ SC	SA/ NSA
TO-x-y (x = 1–12, y = 1–10 [y = 1–20 for EA20])	IS-NR-ACT	IN-SERVICE NORMAL-ACTIVE	SC	NSA
	IS-NR-STBY	IN-SERVICE NORMAL-STANDBY	SC	NSA
	OOS-MT	OUT-OF-SERVICE MAINTENANCE	SC	NSA
	PORT	OUTPUT PORT HAS FAILED	MJ or MN (set by user)	SA