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Meridian SuperNode

Meridian SL-100

Digital Line Module Reference Manual

MSL04 Standard 07.02 October 1995



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This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the FCC Rules, and the radio interference regulations of the Canadian Department of Communications. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at the user's own expense. Allowing this equipment to be operated in such a manner as to not provide for proper answer supervision is a violation of Part 68 of FCC Rules, Docket No. 89-114, 55FR46066

The SL-100 system is certified by the Canadian Standards Association (CSA) with the Nationally Recognized Testing Laboratory (NRTL).

This equipment is capable of providing users with access to interstate providers of operator services through the use of equal access codes. Modifications by aggregators to alter these capabilities is a violation of the Telephone Operator Consumer Service Improvement Act of 1990 and Part 68 of the FCC Rules

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Publication history

October 1995

Release 07.02 reissued during MSL04 to add information to the Service Order chapter about assigning ring types to primary and secondary MADN appearances.

September 1995

Release 07.01 reissued during MSL04 release to remove feature package references, and add new MSL04 feature AD7674, Auto Recovery DLM/IPEs, and update per latest standards, as necessary.

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June 1992

Release 05.01 was reissued during Batch Change Supplement (BCS) 34 to include the Broadcast Loading feature. This feature provides rapid DLM peripheral recovery following a major crisis, such as a complete PBX power loss. BSY ALL, LOADPM ALL, OFFL ALL, and RST ALL commands are supported, allowing a user to execute a single command to perform a maintenance operation on many PMs of the same type and set.

October 1990

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About this document

When to use this document

Use this manual to obtain a brief description of the Integrated Voice and Data (IVD) feature and a more detailed description of the Digital Line Module (DLM) that supports the IVD feature.

How to check the version and issue of this document

The version and issue of the document are indicated by numbers, for example, 01.01.

The first two digits indicate the version. The version number increases each time the document is updated to support a new software release. For example, the first release of a document is 01.01. In the *next* software release cycle, the first release of the same document is 02.01.

The second two digits indicate the issue. The issue number increases each time the document is revised but rereleased in the *same* software release cycle. For example, the second release of a document in the same software release cycle is 01.02.

To determine which version of this document applies to the software in your office and how documentation for your product is organized, check the release information in the *Defense Switched Network Master Index of Publications*, 555-4021-001 or the *Commercial Systems Master Index of Publications*, 555-4031-001.

References in this document

The following documents are referred to in this document:

- *Meridian SL-100 Cabinetized General Description*, 555-4001-103
- *Meridian SL-100 Remote Peripherals General Description*, 555-4001-104
- *Meridian SL-100 M2000 Digital Telephones Reference Manual*, 555-4001-110
- *Meridian SL-100 M3000 Touchphone Reference Manual*, 555-4001-112
- *Commercial Systems Recovery Procedures*, 555-4031-545

- *Commercial Systems Feature Description Manual, 555-4031-801*
- *Commercial Systems Service Order Reference Manual, 555-4031-808*
- *Commercial Systems Office Measurements Reference Manual, 555-4031-814*
- *Commercial Systems Log Report Reference Manual, 555-4031-840*
- *Commercial Systems Customer Data Schema, 555-4031-851*
- *Commercial Systems Office Parameters Reference Manual, 555-4031-855*
- *Defense Switched Network Recovery Procedures, 555-4021-545*
- *Defense Switched Network Feature Description Manual, 555-4021-801*
- *Defense Switched Network Service Order Reference Manual, 555-4021-808*
- *Defense Switched Network Office Measurements Reference Manual, 555-4021-814*
- *Defense Switched Network Log Report Reference Manual, 555-4021-840*
- *Defense Switched Network Customer Data Schema, 555-4021-851*
- *Defense Switched Network Office Parameters Reference Manual, 555-4021-855*
- *DMS-100 Family Basic Administration Procedures, 297-1001-300*
- *DMS-100 Family Service Problem Analysis Administration Guide, 297-1001-318*
- *DMS-100 Family Basic Translations Tools Guide, 297-1001-360*
- *DMS-100 Family Line Maintenance Guide, 297-1001-594*

What precautionary messages mean

The types of precautionary messages used in NT documents include attention boxes and danger, warning, and caution messages.

An attention box identifies information that is necessary for the proper performance of a procedure or task or the correct interpretation of information or data. Danger, warning, and caution messages indicate possible risks.

Examples of the precautionary messages follow.

ATTENTION Information needed to perform a task

ATTENTION

If the unused DS-3 ports are not deprovisioned before a DS-1/VT Mapper is installed, the DS-1 traffic will not be carried through the DS-1/VT Mapper, even though the DS-1/VT Mapper is properly provisioned.

DANGER Possibility of personal injury

**DANGER****Risk of electrocution**

Do not open the front panel of the inverter unless fuses F1, F2, and F3 have been removed. The inverter contains high-voltage lines. Until the fuses are removed, the high-voltage lines are active, and you risk being electrocuted.

WARNING Possibility of equipment damage

**WARNING****Damage to the backplane connector pins**

Align the card before seating it, to avoid bending the backplane connector pins. Use light thumb pressure to align the card with the connectors. Next, use the levers on the card to seat the card into the connectors.

CAUTION Possibility of service interruption or degradation

**CAUTION****Possible loss of service**

Before continuing, confirm that you are removing the card from the inactive unit of the peripheral module. Subscriber service will be lost if you remove a card from the active unit.

How commands, parameters, and responses are represented

Commands, parameters, and responses in this document conform to the following conventions.

Input prompt (>)

An input prompt (>) indicates that the information that follows is a command:

>BSY

Commands and fixed parameters

Commands and fixed parameters that are entered at a MAP terminal are shown in uppercase letters:

>BSY CTRL

Variables

Variables are shown in lowercase letters:

>BSY CTRL ctrl_no

The letters or numbers that the variable represents must be entered. Each variable is explained in a list that follows the command string.

Responses

Responses correspond to the MAP display and are shown in a different type:

```
FP 3 Busy CTRL 0: Command request has been submitted.  
FP 3 Busy CTRL 0: Command passed.
```

The following excerpt from a procedure shows the command syntax used in this document:

- 1 Manually busy the CTRL on the inactive plane by typing

>BSY CTRL ctrl_no
and pressing the Enter key.

where

ctrl_no is the number of the CTRL (0 or 1)

Example of a MAP response:

```
FP 3 Busy CTRL 0: Command request has been submitted.  
FP 3 Busy CTRL 0: Command passed.
```

Introduction

This section briefly describes the Integrated Voice and Data (IVD) feature and describes in detail the Digital Line Module (DLM) that supports the IVD feature.

For information on the housing of the DLMs in the Meridian Cabinet Digital Module (MCDM), see Section 2. For more information on IVD, see the list of related documentation in the “About this document” section.

DLM auto recovery

Description

The Auto Recovery DLM/IPE feature implements the conversion of the DLM to use the System Recovery Controller (SRC) in order to coordinate automatic recovery activities.

The SRC is software that acts as a high-level intelligence to coordinate the work and optimize the system resources necessary for automatic recovery following system restarts and degradations. For more information, refer to the *Defense Switched Network Recovery Procedure*, 555-4021-545 or the *Commercial Systems Recovery Procedure*, 555-4031-545.

The most visible functionality with respect to the DLM gained from this feature is the ability to automatically broadcast-load groups of DLM peripherals. Before this feature, broadcast-loading was only possible by use of manual commands.

A DLM node consists of two units and interacts with the SRC as both a node and two individual units. System recovery for DLMs occurs for both the entire DLM node and the two individual units.

DLM units are grouped with other DLM units for broadcast-loading by the following criteria:

- load-file name
- C-side Extended Peripheral Module (XPM) node type
 - Remote Cluster Controller (RCC), Remote Cluster Controller 2 (RCC2)
 - Line Group Controller (LGC), ISDN Line Group Controller (LGCI), Line Trunk Controller (LTC), and ISDN Line Trunk Controller (LTCI)

The system maintains these static groups automatically over time as datafill changes. The SRC builds dynamic groups (subgroups) of these static groups as needed during recovery activities.

As an example of static grouping, the system puts two DLMs that have the same load-file name, but subtend different C-side XPM node types into different groups.

For detailed information on DLM characteristics, refer to the *Defense Switched Network Feature Description Manual*, 555-4021-801 or the *Commercial Systems Feature Description Manual*, 555-4031-801.

User-machine interface

Accessing the main directory

To access the top level Peripheral Module (PM) directory, the user enters the following command:

MAPCI;MTC;PM;

Accessing directories for specific peripherals

To access the directory for the DLM directory, the user enters the following command: **MAPCI;MTC;PM;POST DLM ALL**

At this point, the DLMDIR is accessed. In addition, NPMDIR is also accessed.

A system recovery progress indicator appears where regular maintenance messages appear for a posted PM. The text that displays on the MAP screen is "System Recovery". This implies that the posted PM is under control of some SRC-related activity. Specifically, this indicates that the peripheral is waiting for another group member to initiate a load request. A system-busy (SYSB) DLM may be under the control of the SRC when this particular progress indicator does not display.

Return to CI

To return to the CI level, the user enters the following command:

QUIT MAPCI

Command description

The POST command at the PM level of the MAP allows a PM or a set of PMs to be selected.

The Abort Task (ABTK) command provides the user with the ability to abort any maintenance activity on a peripheral unit. If any unit of the peripheral posted on the MAP terminal is involved in system recovery, the system notifies and prompts the user to continue. The prompt allows the user to stop the abort attempt after noting that system recovery is in progress.

The busy (BSY) command allows the user to place a peripheral or a unit of a peripheral which is posted on the MAP terminal and involved in system recovery, in the MANB state. Without the FORCE option, any maintenance activities running on the peripheral, which is to be busied, are executed. That is, no state change occurs. The FORCE option aborts maintenance activities and changes the state of the peripheral to MANB.

For both the ABTK and BSY (with FORCE option) commands, the actual system action to interrupt the recovery activity executes only after the user receives a prompt and chooses to proceed.

Note 1: If “System Recovery” displays next to a posted DLM and either the ABTK or BSY (with FORCE option) is issued and a user decides to continue, then only that peripheral is affected.

Note 2: If System Recovery appears next to a posted DLM and either the ABTK or BSY (with FORCE option) is issued and a user decides to continue with the process of loading, then every (unit) peripheral involved in the loading activity is affected. That is, the load is aborted for every peripheral in the group being loaded. In this case, the system’s auditing process attempts another load against those peripherals still in need of recovery when it next audits the peripherals.

Note 3: Once a DLM node or unit is in the MANB state, the unit or peripheral no longer gets audited for recovery purposes.

Note 4: If the user attempts to intervene with recovery activities using either ABTK or BSY with the FORCE option, a prompt issues allowing the user to stop the abort attempt. This prompt in no way suspends the recovery activities on which the prompt is based. If the user does not reply to the prompt, the recovery activities continue to completion. Since recovery activities continue while the prompt displays, the recovery activities which may be affected depend on what recovery activities are running at the moment when the user responds to continue.

Housing for Digital Line Module (DLM)

This module briefly describes and illustrates the hardware that houses the DLM. Inside each type of housing, the DLM is the same as described in this book in chapter, “Digital Line Module (DLM)”.

The housing for the DLM is the Meridian Cabinet Digital Module (MCDM), NTNX50AA. It is described in the following paragraphs.

For more information on the cabinet module, refer to *Meridian SL-100 Cabinetized General Description*, 555-4001-103.

Meridian Cabinet Digital Module

The Meridian Cabinet Digital Module (MCDM) is housed in a 6-foot (180-cm) Meridian cabinet. The MCDM provides the capability of supporting 640 digital telephones. Each digital telephone can contain a MADDO or TADO.

The MCDM consists of the following components:

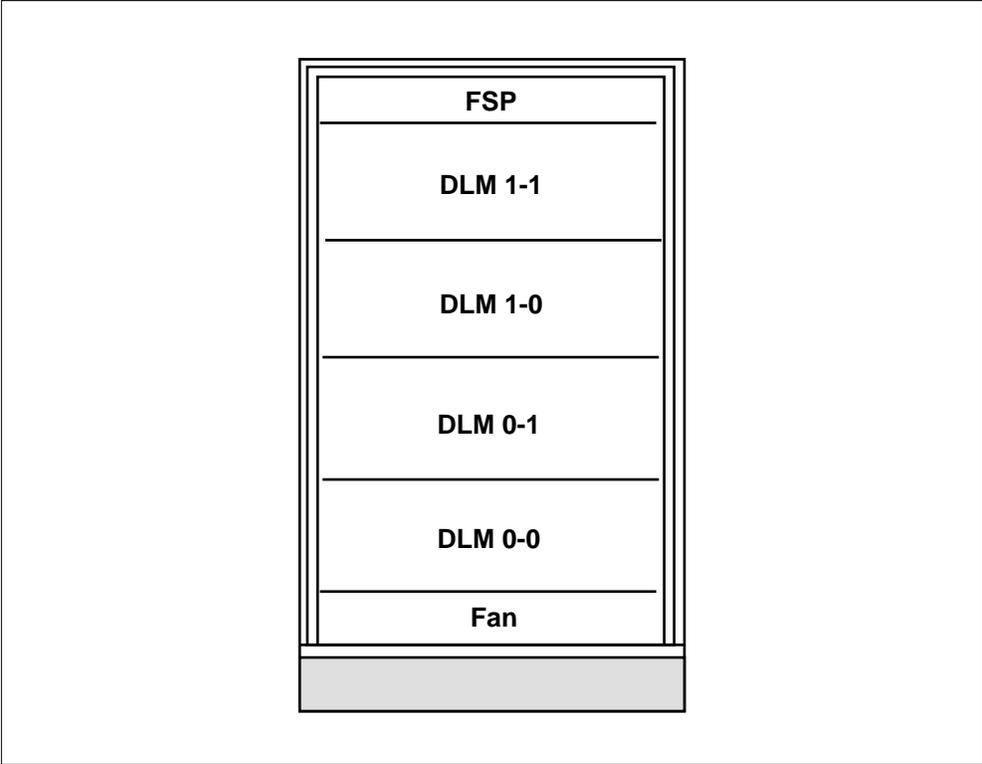
- Frame Supervisory Panel (FSP), 7X34EA
- up to four DLM shelves
- fan unit, NX27CA

One MCDM contains four complete DLMs. Each MCDM represents a physical cabinet containing two logical frames. This logical frame number (0-99) is used along with the shelf number for a unique designation for each DLM. Each logical frame contains one DLM on Shelf 0 and another DLM on Shelf 1.

Figure 3-1 shows the location of the four DLMs and the FSP in the MCDM.

Figure 3-1xxx
Meridian Cabinetized Digital Module (MCDM)

FW-xxxxx



Environmental specifications

This module provides the technical and environmental requirements for the Meridian Cabinet Digital Module (MCDM) and associated hardware.

The following sections give the specifications in the same order as this list:

- temperature and humidity
- power consumption
- heat dissipation
- grounding
- weight and dimensions

For additional system-related information concerning environmental requirements for the MCDM, refer to *Meridian SL-100 Cabinetized General Description*, 555-4001-103.

Temperature

The temperature requirements follow:

- minimum 41° F (5° C)
- maximum 120° F (49° C)

Note: The recommended temperature range is 50 to 86° F (10 to 30° C).

Relative humidity

The humidity requirements follow:

- minimum 20%
- maximum 80%

Note: The recommended humidity range is 20 to 55%.

Power consumption

A fully configured DLM shelf consumes 428.15 Watts.

A fully configured MCDM consumes 18 Amps at 48 Volts.

Weight and dimensions

The following list shows the dimensions of a fully configured MCDM:

- Width-28.5 inches (72.4 cm)
- Height-72.0 inches (180.0 cm)
- Depth-28.0 inches (71.1 cm)

Feature implementation

Integrated voice and data feature implementation

To implement the Integrated Voice and Data (IVD) feature tables associated with both the digital telephone and the Digital Line Module (DLM), the user must datafill the tables listed in Table 5-1. This section describes these tables and datafill examples for both the digital telephones and the DLM. Digital telephones and their respective data options, MADO and TADO, can also be added through service orders that automatically update the data tables. See “Service orders” chapter.

Only the datafill required for the Meridian Cabinet Digital Module (MCDM), Meridian Cabinet Digital Remote (MCDR), and the Meridian Cabinet Remote Module-Digital Line Module (MCRMS-DLM) are in this section. For more information on the MCDR and MCRMS-DLM, refer to *Meridian SL-100 Remote Peripherals General Description*, 555-4001-104.

To implement the IVD feature, log on to the MAP workstation and use the Table Editor to datafill the tables associated with IVD. The user must datafill the Meridian SL-100 tables in the order listed in Table 5-1.

Table 5-1xxx
Order for datafilling tables when implementing IVD

Table name	Comments
DLMINV	
LNINV	
IVDINV	
KSETLINE	
RMMINV	for MCDR only
DPROFILE	for profile information on MADO
-continued-	

Table 5-1xxx
Order for datafilling tables when implementing IVD (continued)

Table name	Comments
IVDTRBL KSETFEAT	datafilled only for defective EDPC ports
-end-	

The following pages describe the DLMINV, RMMINV, LNINV, IVDINV, DPROFILE, IVDTRBL, KSETLINE, and KSETFEAT tables, in that order.

Note: The datafill examples in this section are for illustrative purposes and represent typical field entries. Actual datafill entry is dependent on switch configuration and other variables.

Table DLMINV description

This table assigns location characteristics associated with a DLM. For more information, refer to *Defense Switched Network Customer Data Schema*, 555-4021-851, or *Commercial Systems Customer Data Schema*, 555-4031-851.

Table 5-2 describes the fields of Table DLMINV.

Table 5-2xx
DLMINV field descriptions

Field	Subfield or refinement	Entry	Explanation and action
DLMNM		Alphanumeric value	DLM name. This field consists of subfields SITE, FRAME, and SHELF.
	SITE	Alphanumeric value	This assigns the site name to the remote location. If left blank, the default value is HOST.
	FRAME	0-99	The DLM frame number. This frame number refers to the logical frame number of the DLM, not the physical frame number. Each physical frame is divided into two logical frames.
	SHELF	0-99	The DLM shelf number (numbered from the bottom). This number, in combination with the FRAME entry, produces a unique designation.
-continued-			

Table 5-2xx
DLMINV field descriptions

Field	Subfield or refinement	Entry	Explanation and action
ROW		A-H, J-N, P-Z, AA-HH, JJ-NN or PP-RR	The row on the floor where the PM frame is located.
SHELF		0-99	The DLM shelf number (numbered from the bottom). This number, in combination with the FRAME entry, produces a unique designation.
FRTYPE		DLE or MCDM	The frame type on which the Peripheral Module (PM) is mounted.
SHPOS		04, 18, 38, or 52	The shelf position on which the PM equipment is mounted (indicates inches above the floor)
FLOOR		0-99	The floor on which the PM frame is located.
ROW		A-H, J-N, P-Z, AA-HH, JJ-NN or PP-RR	The row on the floor where the PM frame is located.
FRPOS		0-99	The bay position in the row of the PM frame.
EQPEC		7X4901 ESAPL ESAPLXAA or 7X4901	The Product Engineering code (PEC) of the PM. Enter 7X49AA for MCDR.
LOAD		Alpha- numeric value	The load name given to the issue of PM software.
DPMC		Y or N	Enter Y if the DLM is equipped with a Digital Port Maintenance Card (DPMC). Enter N if the DLM is not equipped with a DPMC.
PRCRNG		Y or N	Enter Y if precedence ringing is available for the DLM. Enter N if it is not available.
CSPMNO		Alphanumeric value	This field specifies the C-side PM number. It consists of subfields PMTYPE and PMNO, where:
	PMTYPE	LGC, LTC, RCC, or RCC2	The type of PM to which the DLM/RDLM is attached.
-continued-			

5-4 Feature implementation

Table 5-2xx
DLMINV field descriptions

Field	Subfield or refinement	Entry	Explanation and action
DLMINFO	PMNO	0-63	The PM number to which this DLM/RDLM is attached.
		Alphanumeric value	DLM information. This field consists of subfields DLMSEL and LKINFO, where:
	DLMSEL	HDLM or RDLM	This defines the host or remote DLM selector.
	LKINFO	0-19	(This appears if DLMSEL = HDLM.) The LGC/LTC links (0-19) on which a host DLM is assigned. The first link is the message link to DLM unit 0 and the second link is the message link to DLM unit 1. Up to six entries can be made. Enter \$ to end data entry for this table.
INTRASW	LKMAP	0-19	(Appears if DLMSEL = RDLM.) The LTC comprises the links (0-19) on which a RDLM is assigned. Up to six entries can be made.
		Y or N	(Appears if DLMSEL = RDLM.) If the RDLM supports intraswitching, enter Y. If the RDLM does not support intraswitching, enter N.
ESA		Y or N	(Appears if DLMSEL = RDLM.) If the RDLM supports Emergency StandAlone (ESA), enter Y. If the RDLM does not support ESA, enter N.
-end-			

Table DLMINV datafill example

Table 5-3 is example of a datafill entry for the DLMINV.

Table 5-3xxx
DLMINV datafill example

Prompt	Response
>	TABLE DLMINV
Table DLMINV:	ADD
-continued-	

Table 5-3xxx
DLMINV datafill example (continued)

Prompt	Response
DLNMN	HOST 02 0
FRTYPE:	
>	MCDR
SHPOS:	
>	04
FLOOR:	
>	03
ROW:	
>	B
FRPOS:	
>	02
EQPEC:	
>	7X49AA
LOAD:	
>	DLMLOAD1
DPMC:	
>	Y
PRCRNG:	
>	Y
CSPMNO:	
>	LTC
DLMSEL:	
>	HDLM
LKINFO:	
	1
LKINFO:	
>	2
-continued-	

Table 5-3xxx
DLMINV datafill example (continued)

Prompt	Response
LKINFO: >	\$
	-end-

Table RMMINV description

The Remote Maintenance Module (RMM) in the Remote Digital Line Module (RDLM) of a MCDR performs the functions similar to a Maintenance Trunk Module (MTM) like scanning of the service circuits, dial pulse collection, testing trunks, and alarm circuit packs. For more information, refer to *Defense Switched Network Customer Data Schema*, 555-4021-851 or *Commercial Systems Customer Data Schema*, 555-4031-851.

Table RMMINV datafill field descriptions

Table 5-4 gives descriptions of RMMINV fields.

Table 5-4xxx
RMMINV field descriptions

Field	Subfield or refinement	Entry	Explanation and action
RMMNAME		See subfields	This field consists of subfields SITENM, PMTYPE, and RMMNO as follows:
	SITENM	Alphabetic value	Site name assigned to the remote location. This name should also appear in Tables DLMINV/RCCINV/OPMINV and SITE.
	PMTYPE	RMM	Enter RMM for the PM type.
	RMMNO	0-254	Enter the RMM number assigned to this RMM. This number is unique by office and not unique by site.
-continued-			

Table 5-4xxx
RMMINV field descriptions (continued)

Field	Subfield or refinement	Entry	Explanation and action
FRTYPE		RLCM, RCE, RCME, MCRM, or DLE	Enter RLCM when RMM is used in the Remote Line Concentrating Module (RLCM), RCE when used in the Remote Switching Center (or in the MCRMS), RCME when used in the Convertible RLCM configurations, MCRM when used in the cabinetized Meridian SL-100, or DLE when RMM is used in the RDLM.
FRNO		0-511	Frame number on which this RMM is equipped.
SHPOS		5, 21, 38, 55, 56	Shelf position on which the RMM is located.
FLOOR		0-99	Floor on which the PM is located.
ROW		A-H, J-N, P-Z, AA-HH, JJ-NN	Row on floor in which the RMM is located.
FRPOS		0-99	Bay position in row of the PM equipment frame.
EQPEC		6X13AA6X, 13BA6X13D A 6X1301 or 7X53AA	Enter 6X13AA for a regular RMM configuration, 6X12BA, for RMM-Caribbean, 6X13DA for RMM-Turkey, 6X13DA 6X1301 for a cabinetized Meridian SL-100, or for RMM in the RDLM.
LOAD		Alphanumeric value	Name given to the issue of the PM software.
EXEC		Alphanumeric value	Exec lineup to be used for the RMM.
CSPMINFO		See subfields	This field comprises subfields RMMSELETOR, CSIDEPM, and CSIDPORT where:
	RMMSELETOR	RMMLCM, RMMRCC, RMMLTCRM, MILCM, RMMDLM, or RMMLTCI	Type of module where the RMM is located. Note: If RMMSELECTOR entry is RMMRCC, RMMLTC, or RMMLTCI, enter subfield CSIDPORT.
	CSIDEPM	Alphanumeric value	This field is made up of subfields PTM and EXTPMNO, where:
-continued-			

Table 5-4xxx
RMMINV field descriptions (continued)

Field	Subfield or refinement	Entry	Explanation and action
	PMT	LCM, RCC, LTC, ILCM, or LTCI	Enter LCM when the entry for RMMSELECTOR is RMMLCM
	PMT	LCM, RCC, LTC, LTCI, RMM, or LCM	Enter either RCC or LTC when the entry for RMMSELECTOR is RMMRCC. Enter ILCM when entry for RMMSELECTOR is RMM. Enter DLM when the entry for RMMSELECTOR is RMMDLM. Enter DLM when the entry for RMMSELECTOR is RMMDLM. Enter DLM when entry for RMMSELECTOR is RMMLTCI.
	EXTPMNO	0-63	Enter the external PM number to which the RMM is attached. This number should also appear in Table DLMINV.
CSIDPORT		0-1	Enter the C-side port connected to the RMM. (See NOTE: under field RMMSELECTOR.)
-end-			

Table RMMINV datafill example

Table 5-5 shows an example of a datafill entry for table RMMINV.

Table 5-5xxx
RMMINV datafill example

Prompt	Response
>	TABLE RMMINV
TABLE: RMMINV	
>	ADD
SITENM:	
>	REM2
PMTYPE:	
>	RMM
RMMNO:	
-continued-	

Table 5-5xxx
RMMINV datafill example (continued)

Prompt	Response
>	41
FRTYPE:	
>	DLE
FRNO:	
>	56
SHPOS::	
>	2
FLOOR:	
>	A
ROW:	
>	4
EQPEC:	
>	6X13AA
LOAD:	
>	RMMLOAD
EXEC:	
>	RSMEX
RMMSELECTOR:	
>	RMMDLM
PMT:	
>	DLM
EXTPMNO:	
>	2
-end-	

Table LNINV description

Table LNINV lists the data for each line card slot associated with a DLM. For more information, refer to *Defense Switched Network Customer Data Schema*, 555-4021-851 or *Commercial Systems Customer Data Schema*, 555-4031-851.

Table 5-6 lists the data for each line card slot associated with a DLM.

Table 5-6xxx
LNINV field descriptions

Field	Subfield or refinement	Entry	Explanation and action
LEN	SITE	See subfields Alphanumeric value	<p>This field consists of subfields SITE, FRAME, UNIT, DRAWER or LSG, and CIRCUIT.</p> <p>This assigns the site name to the remote location. If parameter USINGSITE in Table OFCOPT and parameter UNIQUE_BY_SITE_NUMBERING in Table OFCENG are both equal to Y (yes) and if the line is remote from the host, enter the site name assigned to the remote location; otherwise, if the line is located at the host, leave the field blank and SITE id is default filled with HOST.</p> <p>The first character of the entry for the site name must be alphabetic. Where parameter USINGSITE is equal to N, leave field SITE blank.</p> <p>Note: If parameter USINGSITE is Y and parameter UNIQUE_BY_SITE_NUMBERING is equal to N (no), the entry in field SITE is not default filled and is not checked against one of the tables to which lines are assigned.</p>
-continued-			

Table 5-6xxx
LNINV field descriptions (continued)

Field	Subfield or refinement	Entry	Explanation and action
	FRAME	0-99	<p>Enter the frame number of one of the following frames on which the line card is assigned:</p> <ul style="list-style-type: none"> • Line Module (LM) • Remote Concentrator Terminal (RCT) • Remote Concentrator SLC-96 (RCS) • Remote Carrier Urban (RCU) • DLM, Enhanced Line Concentrating Module (ELCM) • Integrated Services Line Module (ISLM) • Enhanced Line Concentrating Module with Integrated Services Digital Network (LCME) <p>Note: For DLMs, the frame number refers to the logical frame number of the DLM, not the physical frame. Each physical frame is divided into two logical frames.</p>
	UNIT	0-9	<p>Enter the unit number from one of the following on which the line card is assigned: LM, Line Concentrating Module (LCM), RCT, RCS, RCU, DLM, ELCM, ISLM, or LCME.</p> <p>Note: Enter the unit number from one of the following from which the line card is assigned: If parameter USINGSITE is equal to Y and parameter UNIQUE_BY_SITE_NUMBERING is equal to N (no), the entry in field SITE it is not default filled and is not checked against one of the tables to which lines are assigned.</p>
	DRAWER	0-19	Number of the Enhanced Digital Port Card (EDPC) to which the line is assigned.
	CIRCUIT	0-31	Circuit number on the EDPC.
CARD CODE		08X47AA	PEC of the line card.
-continued-			

Table 5-6xxx
LNINV field descriptions (continued)

Field	Subfield or refinement	Entry	Explanation and action
PADGRP		NPDGP	Pad group assigned to the line circuit in the Pad Data Table. For the DLM, it must be No Pad Group (NPDGP).
STATUS		HASU or RESERVED	This is the Line Inventory Availability Status. For the DLM, it must be Hardware Assigned/ Software Unequipped (HASU) or RESERVED.
GND		N	This field refers to the ground. The line is a loop start for the DLM.
BNV		NL	The Balanced Network Value (BNV). Enter Non-Loaded (NL) network for the DLM.
MNO		Y	The manual override. For the DLM, enter YES for the on-hook balance network test to be prevented from updated field BNV in this table.
-end-			

Table LNINV datafill example

Table 5-7 is a datafill entry example for the LNINV table.

Table 5-7xxx
LNINV datafill example

Prompt	Response
>	TABLE LNINV
TABLE: LNINV	
>	ADD
LEN:	
>	HOST 02 0 1 4
CARDCODE:	
>	8X47AA
PADGRP:	
>	NPDGP
-continued-	

Table 5-7xxx
LNINV datafill example (continued)

Prompt	Response
STATUS:	
>	HASU
GND:	
>	N
BNV:	
>	NL
MNO:	
>	Y
-end-	

Table IVDINV description

This table contains digital telephone configuration information. This table can be datafilled at any time after Table LNINV contains datafill. For more information, refer to *Defense Switched Network Customer Data Schema*, 555-4021-851 or *Commercial Systems Customer Data Schema*, 555-4031-851.

Table 5-8 describes fields for Table IVDINV.

Table 5-8xxx
IVDINV field descriptions

Field	Subfield or refinement	Entry	Explanation and action
IVDLEN		Alphanumeric value	This field contains the Line Equipment Number (LEN), with the same format as a LEN entered in Table IBNLINES, field LEN.
SET_TYPE		M2009, M2112, M2018, M3000, or MADO	The digital telephone model being datafilled. The entry determines whether or not entry in fields HANDSFREE and HEADSET is required.
RING_TYPE		FH, FL, SH, or SL	Type of ringing desired: Fast High, Fast Low, Slow High or Slow Low.
-continued-			

5-14 Feature implementation

Field	Subfield or refinement	Entry	Explanation and action
HANDSFREE		Y or N	This field indicates whether or not the set is equipped with handsfree (M2112) or the add-on Handsfree module is present (M2018). This field is not required for the M2009 model.
HEADSET		Y or N	This field indicates whether or not the add-on dual headset module is present. This field is not required for the M2009 or M2112 models.
OPTION		CDC	This field determines whether or not Customer Data Change (owner identity) is to be entered in alphanumerical order in a subsequent field, OWNER.
>		\$	Enter \$ to end data entry for this table.
-end-			

Table IVDINV datafill example

Table 5-9 gives an example of datafill for the IVDINV table. For more information, refer to *Defense Switched Network Customer Data Schema*, 555-4021-851 or *Commercial Systems Customer Data Schema*, 555-4031-851.

**Table 5-9xxx
IVDINV datafill example**

Prompt	Response
>	TABLE IVDINV
TABLE: IVDINV	
>	ADD
IVDLEN:	
<p>Note 1: The LEN entry for this table is the same format as used in Table IBNLINES.</p> <p>Note 2: This field does not appear for the M3000 Touchphone.</p> <p>Note 3: This field does not appear for the M2009 set or the M3000 Touchphone.</p> <p>Note 4: This field does not appear for the M2009 or M2112 set or the M3000 Touchphone.</p>	
-continued-	

Table 5-9xxx
IVDINV datafill example (continued)

Prompt	Response
> SET_TYPE:	2 0 1 2 (See Note 1.)
> RING_TYPE:	M2018
> HANDSFREE:	FL (See Note 2.)
> HEADSET:	N (See Note 3.)
> OPTION:	N (See Note 4.)
	\$
<p>Note 1: The LEN entry for this table is the same format as used in Table IBNLINES.</p> <p>Note 2: This field does not appear for the M3000 Touchphone.</p> <p>Note 3: This field does not appear for the M2009 set or the M3000 Touchphone.</p> <p>Note 4: This field does not appear for the M2009 or M2112 set or the M3000 Touchphone.</p>	
-end-	

Table DPROFILE description

This table contains profile information for data devices. It is applicable to digital telephones equipped with a MADO.

This table is only required if a profile is desired. An M2000 equipped with MADO does not require a profile to function.

This table is be datafilled after Table IVDINV. Entries to this table must be deleted before the corresponding entry can be deleted from Table IVDINV.

For more information, refer to *Defense Switched Network Customer Data Schema*, 555-4021-851 or *Commercial Systems Customer Data Schema*, 555-4031-851.

Table 5-10 describes the Table DPROFILE fields.

Table 5-10xxx
Table DPROFILE field descriptions

Field	Subfield or refinement	Entry	Explanation and action
DPKEY		Alphanumeric value	This field contains the data device LEN.
CLASSDU		OPEN, LS, HS, MP, CCU, TCU, AILC, DAVLC, LSEXT, HSEXT, or MADO	This field specifies the class of data device. Enter MADO for the Meridian Asynchronous Data Option.
DOWNLOAD		Y or N	This field specifies whether downloading profile information to data devices is desired, yes or no. N is default.
DATARATE		110, 150, 300, 600, 1200, 2400, 4800, 9600, 19200	This field specifies the transmit and receive speed in bits per second.
CHARLEN		5-8	This field specifies the character length, in bits, exchanged between the DTE and the data device.
PARITY		O, E, M, S, or N	This field specifies the parity treatment applied to data exchanged between the DTE and data device.
AUTOMODEM		Y or N	This field determines whether automatic modem insertion is required, yes or no.
KBDTYPE		SYMB, HAYES, SL1	This field indicates the type of keyboard dialing required, symbolic, Hayes compatible or SL-1 compatible.
-continued-			

Table 5-10xxx
Table DPROFILE field descriptions

Field	Subfield or refinement	Entry	Explanation and action
PROMPTS		Y or N	This field determines whether call progress prompts are required at the DTE terminating a call, yes or no. This field is applicable only when symbolic keyboard dialing is required.
DPOPTS		ASERTDTR, ASERTRTS, AUTOANS, AUTOORIG, ADAPTPRO, AUTOBAUD SPEEDRES, DISCTO	This field specifies DTE settings and options. Enter \$ to end data entry for this table.
-end-			

Table DPROFILE datafill example

Table 5-11 shows example entries for the DPROFILE table.

Table 5-11xxx
DPROFILE datafill example

Prompt	Response
>	TABLE DPROFILE
TABLE: DPROFILE	
>	ADD
DPKEY:	
>	HOST 2 0 1 3 (See Note.)
CLASSDU:	
>	MADO
DOWNLOAD:	
Note: The LEN entry for this table is the same format as used in Table IBNLINES.	
-end-	

Table 5-11xxx
DPROFILE datafill example (continued)

Prompt	Response
>	Y
DATARATE:	
>	19200
CHARLEN:	
>	8
PARITY:	
>	N
AUTOMODEM:	
>	N
KBDTYP:	
>	S YMB
PROMPTS:	
>	N
DPOPTS:	
>	AUTOBAUD
DPOPTS:	
>	\$
Note: The LEN entry for this table is the same format as used in Table IBNLINES.	
-end-	

Note: This entry is the LEN associated with the data device.

Table IVDTRBL description

Table 5-12 contains LEN of faulty IVD ports. Entry of a LEN in this table flags the port and prevents both this LEN and its mate LEN from being reassigned, until the port card is replaced. A LEN pair consists of the voice line and data line LEN.

This table can be datafilled at any time after Table LNINV is datafilled. Maintenance personnel must delete the port's entries for both the voice and data loops from Table IVDINV, preceded by the corresponding entries from

Tables KSETFEAT, KSETLINE, and DPROFILE. The Service Order (SERVORD) command, OUT, can be used to remove the port's entries in all the data tables. For more information, refer to *Defense Switched Network Customer Data Schema, 555-4021-851* or *Commercial Systems Customer Data Schema, 555-4031-851*.

Table 5-12 describes the fields in Table IVDTRBL.

Table 5-12xxx
Table IVDTRBL field descriptions

Field	Subfield or refinement	Entry	Explanation and action
LEN		Alphanumeric value	This field contains the LEN for faulty IVD ports. Enter \$ to end data entry for this table.
-end-			

Table IVDTRBL datafill example

Table 5-13 shows an example of a datafill entry for the IVDTRBL table.

Table 5-13xxx
IVDTRBL datafill example

Prompt	Response
>	TABLE IVDTRBL
TABLE: IVDTRBL	
>	ADD
LEN:	
>	2 0 1 2 (See Note.)
Note: The LEN entry for this table is the same format as used in Table IBNLINES.	
-end-	

Table KSETLINE description

This table contains data of Directory Number (DN) appearances. One entry is required for each directory number related key on a business set and data unit. For the M3000 Touchphone, directory numbers can only be assigned to keys 1 to 6.

For more information, refer to *Defense Switched Network Customer Data Schema*, 555-4021-851 or *Commercial Systems Customer Data Schema*, 555-4031-851.

Table KSETFEAT description

This table lists the line features assigned to the digital telephone sets listed in Table KSETLINE.

The features assigned to the M3000 Touchphone must be assigned to the key specified in Table 5-14.

Table 5-14xxx
M3000 feature keys

Key	Feature
7	Call Pickup
8	Message Waiting
9	Speed Calling
10	Call Forwarding
11	Conference 6
12	Call Waiting
13	Call Transfer
14	Ring Again
15	Privacy Release
16	Make Set Busy
17	Call Park
18	Executive Busy Override
19	Automatic Answerback
-end-	

For more information, refer to *Defense Switched Network Customer Data Schema*, 555-4021-851, or *Commercial Systems Customer Data Schema*, 555-4031-851.

Automatic Set Relocation

The Automatic Set Relocation (ASR) is a three stage task:

- First, the user performs the ASR out process to remove the current telephone set from service.
- Next, the user unplugs the telephone set, takes it to the new location and plugs it into the jack.
- Finally, the user must perform the ASR in process to move the data from the old location to the new location.

To perform the ASR in process, the user must move the set to a LEN location that is only datafilled up through Table LNINV. Information on the type of set and directory numbers may not be associated with the new LEN. If datafill exists for the new LEN, the user is not allowed to perform the ASR in process at that location. This prevents all the information on the old LEN from overwriting the new LEN's data when the user tries to execute the ASR in process. If there is any datafill associated with the new LEN, it is deleted.

When the user plugs the set into the new LEN, the ASR process attempts to add temporary datafill to the switch and allow the user to receive dial tone and perform the ASR in process. If the user plugs into a LEN that is already datafilled, the ASR process does not attempt to create temporary datafill and the user is not allowed to perform the ASR in process.

If the ASR process successfully adds the temporary datafill to the switch, the datafill is marked as being created by the ASR process. After the datafill is created and marked as ASR datafill, the user may perform the ASR in process. Therefore, when the ASR process moves the data from the old LEN to the new LEN, the ASR datafill at the new LEN can be deleted safely.

For detailed information on ASR, refer to the following documents:

- *M2000 Digital Telephones Reference Manual*, 555-4001-110
- *M3000 Touchphone Reference Manual*, 555-4001-112

MCRMS-DLM feature implementation

There are two possible configurations for the DLM associated with a Remote Cluster Cluster Controller (RCC) or a Meridian Cabinet Remote Module-Second series (MCRMS): a DLM can be located with an RCC (or MCRMS), or it can be remote from the RCC (or MCRMS).

Table DLMINV description

To datafill an MCRMS switching center-Digital Line Module (MCRMS-DLM), Table DLMINV must contain RCC (or MCRMS) for the C-side PM.

Table DLMINV datafill example (DLM located with RCC)

In this configuration, the DLMSEL field has the value HDLM because the DLM is located at the same site as the RCC (its C-side peripheral), and the DLM C-side links are DS-30A links.

The DLM in this example is datafilled as being attached to RCC 4 through links 5, 6 and 7 on the P-side of the RCC. The the first two links (5 and 6) are for both messaging and speech purposes. Link 7 is a non-primary link, used only for speech transmission.

Table 5-15 is an example of a datafilled DLMINV entry for a DLM located with the RCC.

**Table 5-15xxx
DLMINV datafill example**

Prompt	Response
>	TABLE DLMINV
TABLE: DLMINV	
>	ADD
DLMNM:	
>	REM1 05 0
FRTYPE:	
>	MCDR
SHPOS:	
>	04
FLOOR:	
>	03
ROW:	
>	B
FRPOS:	
-continued-	

Table 5-15xxx
DLMINV datafill example (continued)

Prompt	Response
>	02
EQPEC:	
>	7X49AA
LOAD:	
>	DLMLOAD1
DPMC:	
>	Y
PRCRNG:	
>	Y
CSPMNO:	
>	RCC4
DLMSEL:	
>	HCLM
LKINFO:	
>	5
LKINFO:	
>	6
LKINFO:	
>	7
LKINFO:	
>	\$
-end-	

Table DLMINV datafill example (DLM remote from RCC)

When a DLM is remote from the RCC (or MCRMS), the DLMSELECTOR field is RDLM because the DLM is remote to the RCC (its C-side peripheral), and the DLM C-side links are DS-1 links.

Table 5-16 is an example of datafilled DLMINV entry for a DLM remote from the RCC (or MCRMS).

Table 5-16xxx
DLMINV datafill example

Prompt	Response
>	TABLE DLMINV
TABLE: DLMINV	
>	ADD
DLMNM:	
>	REM2 06 0
FRTYPE:	
>	MCDR
SHPOS:	
>	04
FLOOR:	
>	03
ROW:	
>	B
FRPOS:	
>	03
EQPEC:	
>	7X49AA
LOAD:	
>	DLMLOAD
DPMC:	
>	Y
PRCRNG:	
>	Y
CSPMNO:	
>	RCC4
DLMSELECTOR:	
>	RDLM
LKINFO:	
-continued-	

Table 5-16xxx
DLMINV datafill example (continued)

Prompt	Response
> LKINFO	8
> LKINFO	9
> LKINFO	10
> LKINFO	11
> INTRASW:	\$
> ESA:	Y
>	N
-end-	

Table RCCPSINV description

The types of links attached to the P-side of an RCC are specified in Table RCCPSINV. When the DLMSELECTOR field of Table DLMINV is set to HDLM, the DLM C-side links must be DS-30A links, and if the field is set to RDLM, the links must be DS-1. For more information, refer to *Defense Switched Network Customer Data Schema, 555-4021-851* or *Commercial Systems Customer Data Schema, 555-4031-851*.

Table 5-17 gives an example of the fields in Table RCCPSINV.

Table 5-17xxx
Table RCCPSINV field descriptions

Field	Subfield or refinement	Entry	Explanation and action
RCCNAME		See subfields	This field consists of subfields: SITE, PMTYPE and RCCNO, where:
	SITE	Alphabetic value	Site name assigned to the remote location. This entry should also appear in Table SITE.
	PMTYPE	RCC	Type of PM.
	RCCNO	0-63	PM number.
	PSLNKTAB	0-20	This field consists of subfields PSLINK, DATA, and CARRIDX where:
	PSLNK	0-19	The P-side port number of the RCC.
	DATA	DS-1, DS30A	Enter DS-1 for links to "remotes off a remote," DS30A for links to RMMs and DLMs, NILTYPE for unassigned links.
CARRIDX		Alphanumeric value	Name to index into table CARRMTC for maintenance information of the carrier. This field is only required if entry to field DATA is DS1.
CONTMARK		+ or \$	The + indicates the vector is continued on the next line. The \$ indicates end of vector.
-end-			

Table RCCPSINV datafill example

Table 5-18 is an example of a datafill entry for the RCCPSINV table.

Table 5-18xxx
RCCPSINV datafill example

Prompt	Response
>	TABLE RCCPINV
TABLE: RCCPSINV	
>	ADD
RCCNAME:	
-end-	

Table 5-18xxx
RCCPSINV datafill example (continued)

Prompt	Response
>	REM2 RCC 04
PSLNKTAB:	
>	8 DS1 CARMAN
PSLNKTAB:	
>	9 DS1 CARMAN
PSLNKTAB:	
>	10 DS1 CARMAN
PSLNKTAB:	
>	11 DS1 CARMAN
PSLNKTAB:	
>	12 DS1 CARMAN
PSLNKTAB:	
>	13 DS1 CARMAN
PSLNKTAB:	
>	14 DS1 CARMAN
PSLNKTAB:	
>	15 DS1 CARMAN
PSLNKTAB:	
>	16 DS1 CARMAN
PSLNKTAB:	
>	16 DS1 CARMAN
>	\$
-end-	

Emergency Standalone feature implementation

The MCDR contains an RDLM that can be equipped with the Emergency Stand Alone (ESA) option.

The ESA option in Table DLMINV must be Y (yes).

The ESA option for the RDLM requires additional datafill. The following Meridian SL-100 tables should be datafilled, in the this order, for the ESA option:

- XESAINV
- ESAPXLA
- CUSTHEAD

Table XESAINV description

This table is used for identifying ESA for the new peripherals. Because the ESA is an optional part of the RDLM package, it is first necessary to indicate if the option is available in the table DLMINV. The ESA can then be added to the inventory of the Meridian SL-100 by entering the appropriate data in the Table XESAINV.

Table XESAINV fields are described in Table 5-19.

Table 5-19xxx
XESAINV datafill example

Field	Subfield or refinement	Entry	Explanation and action
ESANAME		See subfields	This field consists of subfields ESASITE, ESAPMTYPE and ESANO.
	ESASITE	Alphanumeric value	Site name.
	ESAPMTYPE	ESA	Type of PM.
	ESANO	0-127	ESA number.
FRAME		DLE	Type of frame on which the unit is found.
FRNO		0-511	Frame number of the ESA.
SHPOS		0-77	Shelf position for the ESA.
FLOOR		0-99	Floor on which the ESA is found.
ROW		0-RR	Row on which the ESA is found.
FRPOS		0-99	Frame position within the office.
LOAD		Alphanumeric value	Load file to be used to load the ESA unit.
-continued-			

Table 5-19xxx
XESAINV datafill example

Field	Subfield or refinement	Entry	Explanation and action
EXECTAB		See subfields	This field consists of subfields TRMTYPE and EXEC, where:
	TRMTYPE	Alphanumeric value	Type of terminal.
	EXEC	Alphanumeric value	Exec lineup.
CSPM		See subfields	This field consists of subfields PMTYPE and LCMNO, where:
	PMTYPE	DLM	Remote PM type to which the ESA is being added.
	LCMNO	0-63	DLM number.
FIRMWARE		0-15	The PEC6X45 firmware release number.
-end-			

Table XESAINV datafill example

An example of a datafill entry for the XESAINV table is given in Table 5-20.

Table 5-20xxx
XESAINV datafill example

Prompt	Response
>	TABLE XESAINV
TABLE XESAINV	
>	ADD
ESASITE:	
>	REM1
ESAPMTYPE:	
>	ESA
ESANO:	
-end-	

Table 5-20xxx
XESAINV datafill example (continued)

Prompt	Response
>	0
FRTYPE:	
>	MCDR
FRNO:	
>	0
SHPOS:	
>	9
FLOOR:	
>	0
ROW:	
>	C
FRPOS:	
>	0
LOAD:	
>	ESACA01
TERMTYPE:	
>	ESA_LINES
EXEC:	
>	ESAEX
CSPM:	
>	DLM
FIRMWARE:	
>	6X45AF
-end-	

Table ESAPXLA description

This table contains special prefix translation data used for Plain Old Telephone Service (POTS) and Integrated Business Network (IBN) customer groups. During regular operation of the RDLM, if the RDLM enters ESA mode, this table is used in the prefix translations. For more information, refer to *Defense Switched Network Customer Data Schema*, 555-4021-851 or *Commercial Systems Customer Data Schema*, 555-4031-851.

Table 5-21 describes fields to be entered for ESA in the RDLM for Table ESAPXLA.

Table 5-21xxx
Table ESAPXLA field descriptions

Field	Subfield or refinement	Entry	Explanation and action
PXLKEY		See subfields	This key identifies a set of prefix and is made up of the subfields XLANAME, NODE, and PREFIX, where:
	XLANAME	Alphanumeric value	If this translation is to be performed for any POTS line on the remote, enter ESAPOTS. If it is to be performed for a particular IBN customer group, enter any name up to eight characters and relate this name to a customer group in table CUSTHEAD.
	NODE	Alphanumeric value	Type of node.
	PREFIX	Alphanumeric value	One to 8 characters.
SITE		Alphanumeric value	Site name assigned to the location of the RDLM.
PMTYPE		RDLM	Identifies the peripheral node as a RDLM.
LCMNO		Alphanumeric value	This field specifies the RDLM to which this translator is to apply. It consists of the following subfields: SITE, FRAME and UNIT.
	SITE	Alphanumeric value	Site name assigned to the location of the RDLM.
-continued-			

Table 5-21xxx
Table ESAPXLA field descriptions

Field	Subfield or refinement	Entry	Explanation and action
	FRAME	0-99	Frame number of the RDLM at the site specified in field SITE. If the RDLM has an RMM, then the range is 0-63. This is the logical frame number, not the physical frame number. There are two logical frames for every physical frame.
	UNIT	0-1	Shelf number of the RDLM. The lower shelf is 0 and the upper shelf is 1.
RCCNO		0-63	PM number of the RMM.
PREFIX		Numeric; maximum 15 digits	This is the 1- to 15-digit prefix with which the translation is to be associated.
RESULT		Alphanumeric value	This field defines the action to be taken when the previously defined prefix digits are dialed on the remote.
-end-			

Table ESAPXLA datafill example

Table 5-22 is an example of a datafill entry for the ESAPXLA table.

Table 5-22xxx
ESAPXLA datafill example

Prompt	Response
>	TABLE ESAPXLA
TABLE ESAPXLA	
>	ADD
XLANAME:	
>	ESAPOTS
NODE	
	RDLM
PMTYPE:	
-end-	

Table 5-22xxx
ESAPXLA datafill example

Prompt	Response
>	DLM
LCMNO	
>	1
SITE:	
>	RSTE
FRAME:	
>	33
UNIT:	
>	0
PREFIX:	
>	123
RESULT:	
>	
-end-	

Table CUSTHEAD description

This table links a customer group to the prefix translation table name identified in Table ESAPXLA. For more information, refer to *Defense Switched Network Customer Data Schema, 555-4021-851* or *Commercial Systems Customer Data Schema, 555-4031-851*.

Table CUSTHEAD fields are described in Table 5-23.

Table 5-23xxx
Table CUSTHEAD field descriptions

Field	Subfield or refinement	Entry	Explanation and action
CUSTNAME		Alphanumeric value	Enter the 1 to 16 character name assigned to the customer group.
CUSTXLA		Alphanumeric value	Enter the 1 to 8 character name assigned to the customer translator in the Table IBNXLA.

Table 5-23xxx
Table CUSTHEAD field descriptions (continued)

Field	Subfield or refinement	Entry	Explanation and action
DIGCOLNM		Alphanumeric value	Enter the 1 to 8 character name assigned to the block of data in Table DIGCOL.
OPTION		ESAPXLA	Enter the option ESAPXLA.
XLANAME		Alphanumeric value	Enter the 1 to 8 characters assigned to the Prefix Translator in Table ESAPXLA.
-end-			

Table CUSTHEAD datafill example

An example of a datafill entry for the CUSTHEAD table is given in Table 5-24.

Table 5-24xxx
CUSTHEAD datafill example

Prompt	Response
>	TABLE CUSTHEAD
TABLE: CUSTHEAD	
>	ADD
CUSTNAME:	
>	CGROUP2
CUSTXLA:	
>	CTN4
DIGCOLNM:	
>	DCN4
OPTION:	
>	ESAPLXA
XLANAME:	
>	XLA1
-continued-	

Table 5-24xxx
CUSTHEAD datafill example (continued)

Prompt	Response
OPTION: >	\$
	-end-

Service orders

Options for integrated voice and data telephones

Service orders are used for adding a digital telephone or Meridian Asynchronous Data Option/Touch Asynchronous Data Option (MADO/TADO), or for adding, changing, or deleting the features assigned to them. Service orders enter the Table Editor to fill the customer tables as if entries were made directly into the tables.

To open a service order, log on to the MAP workstation and enter the SERVORD system. For instructions on how to log on to the MAP workstation and begin a service order for an explanation of general service order commands, refer to *Defense Switched Network Service Order Reference Manual*, 555-4021-808 or *Commercial Systems Service Order Reference Manual*, 555-4031-808.

Available line class codes

These line class codes distinguish M2000 Digital Telephones and MADO from other types of service:

- M2009-for M2009 sets
- M2112-for M2112 sets
- M2018-for M2018 sets
- M2317-for M2317 sets
- M3000-for M3000 Touchphone
- MADO-for Meridian Asynchronous Data Options. A data unit class (classdu) type, MADO, is added for Meridian Digital Telephones.

Available ring types

These ring types are available:

- FH-Fast High
- FL-Fast Low

- SH-Slow High
- SL-Slow Low

The M3000 Touchphone does not prompt for ring type.

Feature interactions

The features available to the M2000 Digital Telephone users and their operations are consistent with those available on Electronic Telephone Sets (ETS) and Data Units (DU), with the following exceptions:

- EXT-Extension is not offered.
- QTD-Query Time and Date is not offered.
- ACD-Automatic Call Distribution is not offered.
- DISP-Display is not offered.
- RINGTYPE-Ring type is offered for M2009, M2018, and M2112.

Feature restrictions

The user is restricted to entering only 0 to 9 in the drawer (or line subgroup) position of the Line Equipment Number (LEN) in a Digital Line Module (DLM).

A voice line of a digital telephone can only be added to an even-numbered LEN. For example, the voice line can be added to LEN 2 0 1 4, but not to LEN 2 0 1 5.

Conversely, the MADDO can only be added to an odd-numbered LEN. For example, a MADDO can be added to LEN 2 0 1 9 but not to 2 0 1 8.

The reason for these restrictions is due to how the voice line and MADDO are paired. The even LEN is for a digital telephone's voice loop, and the odd LEN, one above the even LEN numerically, is for that M2000 Digital Telephone's MADDO.

Key 12 cannot be assigned for a M2112. This key is reserved for handsfree usage. When establishing a digital telephone in the system, handsfree is automatically assigned to the twelfth key of an M2112.

Features that must be assigned to specific keys for the M3000 Touchphone as shown in Table 6-1.

Table 6-1xxx
M3000 feature keys

Key	Feature
7	Call Pickup
8	Message Waiting
9	Speed Calling
10	Call Forwarding
11	Conference 6
12	Call Waiting
13	Call Transfer
14	Ring Again
15	Privacy Release
16	Make Set Busy
17	Call Park
18	Executive Busy Override
19	Automatic Answerback
-end-	

For more information, refer to *Defense Switched Network Data Schema*, 555-4021-851 or *Commercial Systems Data Schema*, 555-4031-851.

Service order commands

All service orders applicable to ETS and DU are applicable to digital telephones and the MADO. However, the following commands appear differently to the user when working with digital telephones and MADO:

- NEW
- EST
- ADD
- ADO
- DEO
- CHF

These commands are described on the following pages, in the order listed.

NEW command (adding a digital telephone or MADO)

The service order user specifies the Line Class Code (LCC) as M2009, M2112, M2018, M3000, or MADO to create a new digital telephone or MADO loop. When the user enters one of the line class codes for a digital telephone or MADO, further items are then prompted. The prompts are the same as for an ETS with the addition of a prompt for the type of ringing associated with the digital telephone.

Adding new digital telephone service

The procedure to add a new digital telephone service with DN 722-1000 and LEN 2 0 0 0 is shown in Table 6-2. The loop is associated with Key 1 having ringing ability. It is assigned Special Billing Option and special billing DN 221-0048.

Table 6-2xxx
Procedure to add a new digital telephone service

Prompt	Response
>	SERVORD
SO:	
>	NEW
SO_NUMBER: NOW 85 7 8 PM	
>	<i>(press RETURN)</i>
DN:	
>	7221000
LCC:	
>	M2009
RINGTYPE:	
>	FH
GROUP:	
>	CUSGROUP1
SUBGRP:	
>	4
-continued-	

Table 6-2xxx
Procedure to add a new digital telephone service (continued)

Prompt	Response
NCOS:	
>	10
SNPA:	
>	613
KEY:	
>	1
RINGING:	
>	Y
LEN:	
>	2 0 0 0
OPTKEY:	
>	1
OPTION:	
>	SPB
SPBDN:	
>	2210048
OPTKEY:	
>	\$
-end-	

The same service is added in no-prompt mode as follows:

```
new $ 7221000 m2009 fh cusgroup1 4 10 613 1 y 2 0 0 0 1 spb 2210048 $
```

Adding new MADO service

The prompts for the MADO are the same prompts as for the DU. No additional prompts are needed for the MADO.

For example, the procedure to introduce a new MADO service with DN 722-1001 and LEN 02 0 01 01 is shown in Table 6-3. The loop is associated with Key 1 having ringing ability. It is assigned option AUL.

Table 6-3xxx
Procedure to add a new digital telephone service

Prompt	Response
>	SERVORD
SO:	
>	NEW
SO_NUMBER: NOW 85 7 8 PM	
>	<i>(press RETURN)</i>
DN:	
>	7221000
LCC:	
	5
GROUP:	
>	CUSGROUP1
SUBGRP:	
>	4
NCOS:	
>	10
SNPA:	
>	613
KEY:	
>	1
RINGING:	
>	Y
CLASSDU:	
>	MADO
DATARATE:	
>	19200
CHARLEN:	
-continued-	

Table 6-3xxx
Procedure to add a new digital telephone service (continued)

Prompt	Response
>	8
PARITY:	
>	NONE
STOPBIT:	
>	1
KBDTYP:	
>	SYMB
PROMPTS	
>	N
DPOPTS:	
>	AUTOBAUD
DPOPTS:	
>	\$
LEN:	
>	02 0 01 01
OPTION:	
>	AUL
AULDN:	
>	9876
OPTION:	
>	\$
-end-	

The same service is added in no-prompt mode as follows:

new \$ 7221001 mado cusgroup1 4 10 613 y mado 19200 + (CR)

8 none 1 symb n autobaud \$ 2 0 1 1 aul 9876 \$

Establishing a hunt group (EST) command

The EST command establishes a hunt group of digital telephones or MADO. When prompted for LCC, the user must specify the LCC that corresponds to the type of digital telephone involved (M2009, M2112, MC018, M3000 or MADO). To establish Multiline Hunt (MLH)/ Distributed Line Hunt (DLH), the user can use the same LCC.

To add each subsequent hunt group member, a KEY, a DN, and a LEN must be specified by the user. If only the DN and LEN are specified for a digital telephone DNH hunt member, an error message generates with an explanation.

The EST command creates a pilot and up to 20 hunt members, but the pilot and these members must stay within the same customer group. If the user needs to add more than 20 loops in a hunt group, the ADD command is used.

If the member listed is a M2000 Digital Telephone, the system prompts for the LCC and the ring type of the digital telephone. This only occurs for MLH, DLH, and Directory Number Hunt (DNH) groups.

If the member listed is a different data type than the pilot of a data hunt group, the system prompts for the LCC and data profile information. This only occurs for MLH, DLH, and DNH hunt groups.

For example, when the pilot is a DU system, it prompts for the LCC and the profile information. If the member is a MADO and the pilot is a MADO, the profile information for the pilot is copied and used for the member.

Data and voice loops cannot be mixed in hunt groups. If the pilot is voice, all members must be voice. If the pilot is data, all members must be data. This only occurs for MLH, DLH, and DNH hunt groups.

Establishing a DNH hunt group

The procedure to establish a DNH group with pilot DN 722-1001, pilot LEN 2 0 0 2, and a Meridian voice set as a DNH hunt member with DN 722-4000 on Key 1 and LEN 2 0 0 4 is shown in Table 6-4.

Table 6-4xxx
Procedure to establish a DNH hunt group

Prompt	Response
SO:	
>	EST
SO_NUMBER: NOW 85 7 8 PM	
>	<i>(press RETURN)</i>
GROUPTYPE:	
>	DNH
PILOT_DN:	
>	7221004
LCC:	
>	M20184
RINGTYPE:	
>	FL
GROUP:	
>	CUSGROUP2
SUBGRP:	
>	0
NCOS:	
>	0
SNPA:	
>	613
KEY:	
>	1
RINGING:	
>	Y
PILOT_LEN:	
>	2 0 0 2
DN_LEN:	
-continued-	

Table 6-4xxx
Procedure to establish a DNH hunt group (continued)

Prompt	Response
>	72240002
LEN:	
>	2 0 0 4
KEY:	
>	12 0 0 24
LINE_CLASS:	
>	M2112
RINGTYPE:	
>	SH
DN_LEN:	
>	\$
OPTION:	
>	\$
GROUPSIZE:	
>	10
-end-	

The same service is added in no-prompt mode as follows:

```
est $ dnh 7221001 m2018 fl cusgroup 2 0 0 613 1 + (CR)
```

```
y 2 0 0 2 7224000 2 0 0 4 1 m2112 sh $ $ 10
```

Establishing a MLH hunt group

The procedure to establish an MLH data hunt group with pilot DN 722-1001, pilot LEN 4 0 0 1, and an MLH MADDO member LEN 2 0 0 3 is shown in Table 6-5.

Table 6-5xxx
Procedure to establish a MLH hunt group

Prompt	Response
SO:	
>	EST
SO_NUMBER: NOW 85 7 8 PM	
>	<i>(press RETURN)</i>
GROUPTYPE:	
>	MLH
PILOT_DN:	
>	7221001
LCC:	
>	DATA
GROUP:	
>	CUSGROUP 2
SUBGRP:	
>	0
NCOS:	
>	10
SNPA:	
>	416
KEY:	
>	1
RINGING:	
>	Y
CLASSDU:	
>	OPEN
PILOT_LEN:	
>	4 0 0 1
MEM_LEN:	
-continued-	

Table 6-5xxx
Procedure to establish a MLH hunt group (continued)

Prompt	Response
>	2 0 0 3
LINE_CLASS:	
>	MADO
CLASSDU:	
>	MADO
DATARATE:	
>	19200
CHARLEN:	
>	18
PARITY:	
>	NONE
STOPBIT:	
>	1
KBDTYP:	
>	SYMB
PROMPTS:	
>	N
DPOPTS:	
>	AUTOBAUD
DPOPTS:	
>	\$
MEM_LEN:	
>	\$
OPTION:	
>	\$
-continued-	

Table 6-5xxx
Procedure to establish a MLH hunt group (continued)

Prompt	Response
GROUPSIZE:	
>	10
	-end-

The same service is added in no-prompt mode as follows:

```
est $ mlh 7221001 data cusgroup 2 0 10 + (CR)
```

```
416 1 y open 4 0 0 1 2 0 0 3 mado mado 19200 + (CR)
```

```
8 none 1 symb n autobaud $ $ $ 10
```

ADD (adding members to a hunt group) command

The ADD command adds members to a hunt group. If the member added is a M2000 Digital Telephone, the system prompts for the LCC and the ring type of the digital telephone. This occurs for MLH, DLH, and DNH hunt groups.

When dealing with data hunt groups, if the member listed is a different data type than the pilot, the system prompts for the LCC and data profile information. This occurs for MLH, DLH, and DNH hunt groups.

For example, when the pilot is a DU and the member is a MADO, the system prompts for the LCC and the profile information. If the member is a MADO and the pilot is a MADO, the profile information for the pilot is copied and used for the member.

Data and voice loops cannot be mixed in hunt groups. If the pilot is voice, all members must be voice. If the pilot is data, all members must be data. This only occurs for MLH, DLH, and DNH hunt groups.

Adding a Meridian voice member to a hunt group

The procedure to add a Meridian voice member to a hunt group with pilot LEN 2 0 0 6 and a member LEN 2 0 0 10 is shown in Table 6-6.

Table 6-6xxx
Procedure to add a Meridian voice member to a hunt group

Prompt	Response
SO:	
>	ADD
SO_NUMBER: NOW 85 7 8 PM	
>	<i>(press RETURN)</i>
GROUPTYPE:	
>	MLH
LINK_LEN:	
>	2 0 0 6
KEY:	
>	1
LCC:	
>	DATA
MEM_LEN	
>	2 0 0 10
KEY:	
>	1
LINE_CLASS:	
>	M2112
RINGTYPE:	
>	SL
MEM_LEN:	
>	\$
OPTION:	
>	\$
-continued-	

Table 6-6xxx
Procedure to add a Meridian voice member to a hunt group (continued)

Prompt	Response
GROUPSIZE: >	10
-end-	

The same service is added in no-prompt mode as follows:

```
add $ mlh 2 0 0 6 1 2 0 0 10 1 m2112 sl $ $ 10
```

Adding an Option (ADO) command

The ADO command is used to add features to feature keys of digital telephones or MADO.

Even though the MADO has no keys because all MADO features are activated through keyboard dialing, key numbers are required for table control to associate features with the MADO. The keys are predefined to allow feature assignment. However, the user enters only the feature desired, and the service order system assigns the feature to the appropriate key.

The keys and their reserved features for MADO are shown with their associated feature in Table 6-7.

Table 6-7xxx
Procedure to add a new digital telephone service

Key	Feature
1	Directory Number
2	Network Resource (allows use of Modem Pooling)
3	Autodial
4	Speed Calling
5	Volume up
-continued-	

Table 6-7xxx
Procedure to add a new digital telephone service (continued)

Key	Feature
6	Volume down
7	Ring Again
-end-	

For example, to add the Ring Again option to a MAD0 that is already in service, follow the prompts as shown in Table 6-8.

Table 6-8xxx
Procedure to add a ring again to a MAD0

Prompt	Response
>	SERVORD
SO:	
>	ADO
SO_NUMBER: NOW 85 7 9 PM	
>	<i>(press RETURN)</i>
DN_OR_LEN:	
>	234532
OPTION:	
>	RAG
OPTION:	
>	\$
-end-	

The same service is added in no-prompt mode as follows:

```
ado $ 2345432 rag $
```

Deleting an Option (DEO) command

The DEO command is the opposite of the ADO command. It deletes features from keys on a digital telephone or MADO. The LEN, KEY, and OPTION to be deleted must be specified when deleting from a M2000 Digital Telephone. No key is prompted for when deleting a feature from a MADO.

Changing the ring type (CHF) command

The CHF command changes the ring type of an M2000 Digital Telephone. This allows the ring type of the M2000 Digital Telephone to be changed without having to enter Table IVDINV.

The RINGTYPE option can only be used on an M2000 Digital Telephone voice line, and it must be associated with key 1 of the set. The RINGTYPE option does not have to be datafilled in the tables.

Note: The RINGTYPE option can be changed for the primary Multiple Appearance Directory Number (MADN) appearance; however, the secondary MADN appearance always uses the default ring type.

The CHF command is not used with the M3000 Touchphone.

Table 6-9 shows the procedure to change the ring type.

Table 6-9xxx
Procedure to change a ring type

Prompt	Response
>	SERVORD
SO:	
>	CHF
SO_NUMBER: NOW 85 7 9 PM	
>	<i>(press RETURN)</i>
DN_OR_LEN:	
>	2345432
OPTKEY:	
>	1
OPTION:	
>	RINGTYPE
-continued-	

Table 6-9xxx
Procedure to change a ring type (continued)

Prompt	Response
RING_TYPE:	
>	FL
OPTION:	
>	\$
	-end-

The same service is added in no-prompt mode as follows:

```
chf $ 2345432 1 ringtype fl $
```

Log reports

This section is divided into two subsections:

- Logs for Digital Line Module (DLM)
- Logs for Remote Digital Line Module (RDLM) equipped with Emergency StandAlone (ESA)

There are 5 logs relating to the DLM: LINE101, LINE114, PM179, PM181 and ALT101.

There are eight ESA logs for RDLM equipped with ESA: ESA101, ESA102, ESA103, ESA104, ESA105, ESA106, ESDA107, and ESA108. Two other logs, PM171 and PM181, contain RDLM ESA information.

Note: The logs described in this section can be generated for similar events or errors relating to other peripherals. Within the text of the log, the peripheral that generates the log is named. For further description of these logs, refer to *Defense Switched Network Log Report Reference Manual*, 555-4021-840, or the *Commercial Systems Log Report Manual*, 555-4031-840.

Logs for DLM

The logs for this subsection are described on following pages in the following order:

- LINE101 (several pages of LINE101 log examples are given)
- LINE114
- PM179
- PM181
- ALT101

LINE101

Log report LINE101 generates when a diagnostic test of line equipment fails. The test is performed either as a result of a manual request from the Line Test Position (LTP) MAP level or by a system request in response to encountered trouble. A system initiated diagnostic test is preceded by a

report with an event type of either trouble (TBL), fault (FLT), or information (INFO).

Example of the LINE101 log report format:

LINE101 APR01 12:00:21 2112 FAIL LN_DIAG

DIAGNOSTIC RESULT diagtxt

LEN HOST 03 0 14 24 DN 7811999

ACTION REQUIRED acttxt

CARD TYPE pec

where

len is the LEN number

dn is the directory number

diagtxt is the diagnostic text description

acttxt is the action text (action to be done)

pec is the Product Engineering Code

Note: The system initiates diagnostic testing for some of the system troubles reported in log LINE113. Log LINE101 generates if the diagnostic test fails.

There are 46 example LINE101 log reports on the following pages. These are divided into two groups, those for DLMs datafilled with Digital Port Maintenance Card (DPMC) and those for DLMs datafilled with NO DPMC.

LINE101 log reports if DLM datafilled for DPMC

The log reports shown on the next few pages are only applicable if the DLM is datafilled for a DPMC. The log reports applicable if the DLM is datafilled for NO DPMC are described later in this section.

LINE101 example 1

This example indicates no response was received from the Line Trunk Controller (LTC) or Line Group Controller (LGC) for a message sent by the diagnostic process.

LINE101 APR01 12:00:21 2112 FAIL LN_DIAG

LEN HOST 03 0 14 24 DN 7811999

DIAGNOSTIC RESULT No Response from LTC

ACTION REQUIRED Chk periphls

CARD TYPE 8X47

Action: Check the LTC/LGC and the DLM.

LINE101 example 2

This example indicates the Meridian Asynchronous Data Option (MADO) acknowledged its presence and passed signaling and Pulse Code Modulation (PCM) test. However, the microprocessor in the MADO is failing its self-test.

LINE101 APR01 12:00:21 2112 FAIL LN_DIAG

LEN HOST03 0 14 24 DN 7811999

DIAGNOSTIC RESULT MADO reset error

ACTION REQUIRED Chk facility

CARD TYPE 8X47

Action: Check the MADO and verify all cables are connected properly. If the connections are in order, the MADO is faulty and should be replaced.

LINE101 example 3

This example indicates the MADO failed to perform its reset function.

LINE101 APR01 12:00:21 2112 FAIL LN_DIAG

LEN HOST 03 0 14 24 DN 7811999

DIAGNOSTIC RESULT MADO reset error

ACTION REQUIRED Chk facility

CARD TYPE 8X47

Action: Check the MADO and verify all connections. If the connections are in order, the MADO is faulty and should be replaced.

LINE101 example 4

This example indicates the MADO has not acknowledged its presence and is failing signaling tests. The voice set, however, acknowledged its presence

and passed signaling tests. Therefore, either no MADO is present or the MADO is faulty.

LINE101 APR01 12:00:21 2112 FAIL LN_DIAG

LEN HOST 03 0 14 24 DN 7811999

DIAGNOSTIC RESULT No MADO or signaling failure in MADO

ACTION REQUIRED Chk facility
CARD TYPE 8X47

Action: Verify the MADO is properly installed and all cables are connected properly. If all the connections are in order, replace the MADO.

LINE101 example 5

This example indicates the MADO acknowledged its presence but failed signaling tests. The voice set also acknowledged its presence and passed signaling tests. Therefore, either the MADO is faulty or the connections are faulty.

LINE101 APR01 12:00:21 2112 FAIL LN_DIAG

LEN HOST 03 0 14 24 DN 7811999

DIAGNOSTIC RESULT Signaling failure in MADO
ACTION REQUIRED Chk facility

CARD TYPE 8X47

Action: Verify the MADO is properly installed and all cables are connected properly. If all the connections are in order, replace the MADO.

LINE101 example 6

This example indicates it was necessary to perform tests on the Data Packet Controller (DPC), but the DPMC was not available.

LINE101 APR01 12:00:21 2112 FAIL LN_DIAG

LEN HOST 03 0 14 24 DN 7811999

DIAGNOSTIC RESULT DPMC in use by another line on the DLM

ACTION REQUIRED Try again

CARD TYPE 8X47

Action: Repeat the test. If the condition persists, execute the LOOPBK QUERY ALL command to verify no MADDO is left with a DPC loopback active. If a MADDO has a DPC loopback active, the DPMC remains in use by that MADDO.

LINE101 example 7

This example indicates the set acknowledged its presence but failed signaling tests. However, the DPMC facility sensors detected a set present on the line.

LINE101 APR01 12:00:21 2112 FAIL LN_DIAG

LEN HOST 03 0 14 24 DN 7811999

DIAGNOSTIC RESULT Fault is set - - set not responding

ACTION REQUIRED Chk facility

CARD TYPE 8X47

Action: Verify all the cables are connected properly. If all the connections are in order, the set should be replaced.

LINE101 example 8

This example indicates the Digital Set Interface Processor (DSIP) did not detect the presence of the DPMC (8X55) in the DLM.

LINE101 APR01 12:00:21 2112 FAIL LN_DIAG

LEN HOST 03 0 14 24 DN 7811999

DIAGNOSTIC RESULT DSIP failed to connect DPMC

ACTION REQUIRED Chk periphls should be replaced.

Action: Verify the 8X55 card is installed in the DLM in the proper location. If the 8X55 is in the proper location, remove the card and reseal the card. Repeat the test. If the problem continues, the DPMC is faulty and should be replaced.

LINE101 example 9

This example indicates there is a fault in the DPMC control logic.

LINE101 APR01 12:00:21 2112 FAIL LN_DIAG

LEN HOST 03 0 14 24 DN 7811999

DIAGNOSTIC RESULT DPMC control logic fault

ACTION REQUIRED Replace card

LINE101 example 7

This example indicates the set acknowledged its presence but failed signaling tests. However, the DPMC facility sensors detected a set present on the line.

LINE101 APR01 12:00:21 2112 FAIL LN_DIAG

LEN HOST 03 0 14 24 DN 7811999

DIAGNOSTIC RESULT Fault is set - - set not responding

CARD TYPE 8X47

Action: Verify all the cables are connected properly. If all the connections are in order, the set should be replaced.

LINE101 example 8

This example indicates the Digital Set Interface Processor (DSIP) did not detect the presence of the DPMC (8X55) in the DLM.

LINE101 APR01 12:00:21 2112 FAIL LN_DIAG

LEN HOST 03 0 14 24 DN 7811999

DIAGNOSTIC RESULT DSIP failed to connect DPMC

ACTION REQUIRED Chk periphls should be replaced.

CARD TYPE 8X55

Action: Verify the 8X55 card is installed in the DLM in the proper location. If the 8X55 is in the proper location, remove the card and reseal the card. Repeat the test. If the problem continues, the DPMC is faulty and should be replaced.

LINE101 example 9

This example indicates there is a fault in the DPMC control logic.

LINE101 APR01 12:00:21 2112 FAIL LN_DIAG

LEN HOST 03 0 14 24 DN 7811999

DIAGNOSTIC RESULT DPMC control logic fault

ACTION REQUIRED Replace card

CARD TYPE 8X55

Action: The DPMC is faulty and should be replaced.

LINE101 example 10

This example indicates there is a fault in the DPMC relay drivers or the relays of the DPC.

LINE101 APR01 12:00:21 2112 FAIL LN_DIAG

LEN HOST 03 0 14 24 DN 7811999

DIAGNOSTIC RESULT Defective relay drivers on DPMC

ACTION REQUIRED Replace card

CARD TYPE 8X55

Action: Verify the PEC code of the DPC (8X47). If the card is an 8X47AA, replace the card with an 8X47BA version. If the card is an 8X47BA, replace the DPMC card. If, and only if, the condition continues, replace the corresponding DPC.

LINE101 example 11

This example indicates there is a fault in the DPMC facility sensors.

LINE101 APR01 12:00:21 2112 FAIL LN_DIAG

LEN HOST 03 0 14 24 DN 7811999

DIAGNOSTIC RESULT Defective facility sensors on DPMC

ACTION REQUIRED Replace card

CARD TYPE 8X55

Action: The DPMC is faulty and should be replaced.

LINE101 example 12

This example indicates there is a fault in the DPMC 30 volt measurement circuit.

LINE101 APR01 12:00:21 2112 FAIL LN_DIAG

LEN HOST 03 0 14 24 DN 7811999

DIAGNOSTIC RESULT Defective 30V meas. circuit on DPMC

ACTION REQUIRED Replace card

CARD TYPE 8X55

Action: The DPMC is faulty and should be replaced.

LINE101 example 13

This example indicates there is a fault in the DPMC 30 volt power source.

LINE101 APR01 12:00:21 2112 FAIL LN_DIAG

LEN HOST 03 0 14 24 DN 7811999

DIAGNOSTIC RESULT Defective 30V power source on DPMC

ACTION REQUIRED Replace card

CARD TYPE 8X55

Action: The DPMC is faulty and should be replaced.

LINE101 example 14

This example indicates there is a fault in one of the Digital Set Interface Chips (DSIC)s on the DPMC.

LINE101 APR01 12:00:21 2112 FAIL LN_DIAG

LEN HOST 03 0 14 24 DN 7811999

DIAGNOSTIC RESULT Defective DSIC circuit on DPMC

ACTION REQUIRED Replace card

CARD TYPE 8X55

Action: The DPMC is faulty and should be replaced.

LINE101 example 15

This example indicates there is a fault in the prime 10 volt regulator on the DPMC.

LINE101 APR01 12:00:21 2112 FAIL LN_DIAG

LEN HOST 03 0 14 24 DN 7811999

ACTION REQUIRED Replace card

CARD TYPE 8X55

Action: The DPMC is faulty and should be replaced.

LINE101 example 16

This example indicates there is a fault in the mate 10 volt regulator on the DPMC.

LINE101 APR01 12:00:21 2112 FAIL LN_DIAG

LEN HOST 03 0 14 24 DN 7811999

DIAGNOSTIC RESULT Defective mate 10V regulator on DPMC

ACTION REQUIRED Replace card

CARD TYPE 8X55

Action: The DPMC is faulty and should be replaced.

LINE101 example 17

This example indicates a voltage in excess of 10 volts was measured on the loop.

LINE101 APR01 12:00:21 2112 FAIL LN_DIAG

LEN HOST 03 0 14 24 DN 7811999

LEN HOST 03 0 14 24 DN 7811999

DIAGNOSTIC RESULT Excessive voltage (>10V) on loop

ACTION REQUIRED Chk facility

CARD TYPE 8X47

Action: Check the Main Distribution Frame (MDF) and jack panel and verify no external voltages are being applied to the line.

LINE101 example 18

This example indicates it was necessary to use the DPMC, but the DSIP did not execute the DPMC test that precedes each use of the DPMC.

LINE101 APR01 12:00:21 2112 FAIL LN_DIAG

LEN HOST 03 0 14 24 DN 7811999

DIAGNOSTIC RESULT DISP failed to perform DPMC test

ACTION REQUIRED Chk periphls

CARD TYPE 8X49

Action: Verify the versions of the DSIP firmware and the DLM software load.

LINE101 example 19

This example indicates the DLM received an invalid DPMC command.

LINE101 APR01 12:00:21 2112 FAIL LN_DIAG

LEN HOST 03 0 14 24 DN 7811999

DIAGNOSTIC RESULT Invalid DPMC request sent to DLM

ACTION REQUIRED Chk periphls

Action: Verify the versions of the DLM and LTC/LGC software loads.

LINE101 example 20

This example indicates the DPMC was used to test the DPC and the 30 volt DPC power source was defective.

LINE101 APR01 12:00:21 2112 FAIL LN_DIAG

LINE101 APR01 12:00:21 2112 FAIL LN_DIAG

LEN HOST 03 0 14 24 DN 7811999

DIAGNOSTIC RESULT 30V DPC power source failure

ACTION REQUIRED Replace card

CARD TYPE 8X47

Action: The DPC should be replaced.

LINE101 example 21

LINE101 APR01 12:00:21 2112 FAIL LN_DIAG

LEN HOST 03 0 14 24 DN 7811999

DIAGNOSTIC RESULT Invalid channel number to DPMC

ACTION REQUIRED Chk periphls

CARD TYPE 8X49

This example indicates the DSIP received a command for which the specified channel was not properly looped/unlooped.

Action: Verify the versions of the DLM and LTC/LGC software and the DSIP firmware.

LINE101 example 22

This example indicates the DSIP did not reply to the RIT. XXXX indicates the point at which the signaling loop-around test was being performed PSTS,

DPC, DSIC or MAD0.

LINE101 APR01 12:00:21 2112 FAIL LN_DIAG

LEN HOST 03 0 14 24 DN 7811999

DIAGNOSTIC RESULT No DSIP RIT reply received (XXXX)

ACTION REQUIRED Replace card

CARD TYPE 8X49

Action: Replace the 8X49 card.

LINE101 example 23

This example indicates the signaling loop-around test at the PSTS failed.

LINE101 APR01 12:00:21 2112 FAIL LN_DIAG

LEN HOST 03 0 14 24 DN 7811999

DIAGNOSTIC RESULT Looped message not received (PSTS)

ACTION REQUIRED Replace card

CARD TYPE 8X46, 8X49

Action: Replace the 8X46 card first and repeat the test. If the condition continues, replace the 8X49 card.

LINE101 example 24

This example indicates the signaling loop-around test at the DPC failed.

LINE101 APR01 12:00:21 2112 FAIL LN_DIAG

LEN HOST 03 0 14 24 DN 7811999

DIAGNOSTIC RESULT Looped message not received (DPC)

ACTION REQUIRED Replace card

CARD TYPE 8X47

Action: Replace the 8X47 card.

LINE101 example 25

LINE101 APR01 12:00:21 2112 FAIL LN_DIAG

LEN HOST 03 0 14 24 DN 7811999

DIAGNOSTIC RESULT Looped message not received (DSIC)

ACTION REQUIRED Chk facility

CARD TYPE 8X47

This example indicates the signaling loop-around test at the DSIC failed.

Action: Check the set and verify all cables are properly connected. If all the connections are in order, replace the set.

LINE101 example 26

This example indicates the signaling loop-around test at the MADO failed.

LINE101 APR01 12:00:21 2112 FAIL LN_DIAG

LEN HOST 03 0 14 24 DN 7811999

DIAGNOSTIC RESULT Looped message not received (MADO)

ACTION REQUIRED Chk facility

CARD TYPE 8X47

Action: Check the MADO and verify all cables are properly connected. If all the connections are in order, replace the MADO.

LINE101 example 27

This example indicates the DSIP reply to the RIT message is invalid. XXXX indicates the point at which the signaling loop-around test is performed, PSTS, DPC, DSIC or MADO.

INE101 APR01 12:00:21 2112 FAIL LN_DIAG

LEN HOST 03 0 14 24 DN 7811999

DIAGNOSTIC RESULT Invalid RIT reply from DSIP (XXXX)

ACTION REQUIRED Replace card

CARD TYPE 8X46, 8X49

Action: Replace the 8X49 card first and repeat the test. If the problem continues, replace the 8X46.

LINE101 example 28

This example indicates the data received from the loop-around test did not match the data sent. The XXXX indicates the point at which the signaling loop-around test was being performed, PSTS, DPC, DSIC or MADO.

LINE101 APR01 12:00:21 2112 FAIL LN_DIAG

LEN HOST 03 0 14 24 DN 7811999

DIAGNOSTIC RESULT Looped data does not match (XXXX)

ACTION REQUIRED Replace card

CARD TYPE 8X46, 8X49

Action: Replace the 8X46 card first and repeat the test. If the problem continues, replace the 8X49.

LINE101 example 29

This example indicates the DSIP failed to turn the PCM loop-around on/off.

LINE101 APR01 12:00:21 2112 FAIL LN_DIAG

LEN HOST 03 0 14 24 DN 7811999

DIAGNOSTIC RESULT DSIP failure on loop around on/off

ACTION REQUIRED Chk periphls

CARD TYPE 8X49, 8X55

Action: Check the DLM and verify the DPMC is installed in the proper slot. Verify the versions of the DSIP firmware and the DLM software load.

LINE101 example 30

This example indicates the PSTS test resources are currently in use by another line on the same DLM unit.

LINE101 APR01 12:00:21 2112 FAIL LN_DIAG

LEN HOST 03 0 14 24 DN 7811999

DIAGNOSTIC RESULT PSTS test resources not available

ACTION REQUIRED Try again

CARD TYPE 8X47

Action: Repeat the test. If the condition continues, use the LOOPBK QUERY ALL command to verify no MADO on the DLM unit is left with a PSTS loopback manually activated.

LINE101 example 31

This example indicates the PCM loop-around could not be activated. The XXXX indicates the point at which the PCM loop-around test was performed, PSTS, DPC, DSIC or MADO.

LINE101 APR01 12:00:21 2112 FAIL LN_DIAG

LEN HOST 03 0 14 24 DN 7811999

DIAGNOSTIC RESULT PCM loop around not activated (XXXX)

ACTION REQUIRED Replace card

CARD TYPE 8X49

Action: Replace the 8X49 card.

LINE101 example 32

This example indicates the PCM loop-around test using the tone generation and tone detection circuitry of the Transmission Test Trunk (TTT) failed at the PSTS loop-around point. The readings taken by the tone detection circuitry indicate the frequency, the level, or both frequency and level, are not within tolerance levels.

LINE101 APR01 12:00:21 2112 FAIL LN_DIAG

LEN HOST 03 0 14 24 DN 7811999

DIAGNOSTIC RESULT PCM loop around test failed at PSTS

ACTION REQUIRED Replace card

CARD TYPE 8X46, 8X49

Action: Replace the 8X46 card and repeat the test. If the problem continues, replace the 8X49 card.

LINE101 example 33

This example indicates the PCM loop-around test using the tone generation and tone detection circuitry of the TTT failed at the DPC loop-around point. The readings taken by the tone detection circuitry indicate the frequency, the level, or both frequency and level, are not within tolerance levels.

LINE101 APR01 12:00:21 2112 FAIL LN_DIAG

LEN HOST 03 0 14 24 DN 7811999

DIAGNOSTIC RESULT PCM loop around test failed at DPC

ACTION REQUIRED Replace card

CARD TYPE 8X47

Action: Replace the DPC (8X47).

LINE101 example 34

This example indicates the PCM loop-around test using the tone generation and tone detection circuitry of the TTT failed at the DPC loop-around point. The readings taken by the tone detection circuitry indicate the frequency, the level, or both frequency and level, are not within tolerance levels. The

XXXXXX indicates the point at which the PCM loop-around test was performed, DSIC, MADO, or CODEC.

LINE101 APR01 12:00:21 2112 FAIL LN_DIAG

LEN HOST 03 0 14 24 DN 7811999

DIAGNOSTIC RESULT PCM loop around test failed at XXXXXX

ACTION REQUIRED Replace card

CARD TYPE 8X47

Action: Check the set and verify all cables are connected properly. If all connections are in order, then the set or MADO is faulty. If XXXXXX is either DSIC or CODEC, replace the set. If XXXXXX is MADO, replace the MADO. If the problem continues, replace the set.

LINE101 example 35

This example indicates the DSIP failed to perform the set presence test.

LINE101 APR01 12:00:21 2112 FAIL LN_DIAG

LEN HOST 03 0 14 24 DN 7811999

DIAGNOSTIC RESULT DSIP failed to perform test

ACTION REQUIRED Replace card

CARD TYPE 8X49

Action: Replace the 8X49 card.

LINE101 example 36

This example indicates the set did not acknowledge its presence.

LINE101 APR01 12:00:21 2112 FAIL LN_DIAG

LEN HOST 03 0 14 24 DN 7811999

DIAGNOSTIC RESULT No set or fault in DPC, loop, or set

ACTION REQUIRED Chk facility

CARD TYPE 8X47

Action: Check the set and verify all cables are connected correctly. If all connections are in order, the fault is in the loop or the Digital Line Interface Chip (DLIC) on the DPC. Check the loop integrity. If the fault is not in the loop, replace the DPC.

LINE101 example 37

This example indicates the DPC for the line subgroup containing the given LEN is not present.

LINE101 APR01 12:00:21 2112 FAIL LN_DIAG

LEN HOST 03 0 14 24 DN 7811999

DIAGNOSTIC RESULT Digital Port Card not present

ACTION REQUIRED Insert card

CARD TYPE 8X47

Action: Insert the 8X47 card in the appropriate slot.

LINE101 example 38

This example indicates the DPMC diagnosed the subscriber loop and detected a short circuit.

LINE101 APR01 12:00:21 2112 FAIL LN_DIAG

LEN HOST 03 0 14 24 DN 7811999

DIAGNOSTIC RESULT Short circuit check subs loop and set

ACTION REQUIRED Chk facility

CARD TYPE 8X47

Action: Check the subscriber loop. If no faults are detected, the short may be internal to the set. Replace the set.

LINE101 example 39

This example indicates the DPMC diagnosed the subscriber loop and detected a foreign voltage.

LINE101 APR01 12:00:21 2112 FAIL LN_DIAG

LEN HOST 03 0 14 24 DN 7811999

DIAGNOSTIC RESULT Foreign voltage on loop check MDF

ACTION REQUIRED Chk facility

CARD TYPE 8X47

Action: Check the subscriber loop.

LINE101 example 40

This example indicates the DPMC diagnosed the subscriber loop and detected an open circuit.

LINE101 APR01 12:00:21 2112 FAIL LN_DIAG

LEN HOST 03 0 14 24 DN 7811999

DIAGNOSTIC RESULT Open circuit check loop (or no set)

ACTION REQUIRED Chk facility

CARD TYPE 8X47

Action: Verify a set is connected on the loop. If a set is present, check the subscriber loop. If no faults are detected, the open circuit may be internal to the set. Replace the set.

LINE101 example 41

This example indicates a software error occurred.

LINE101 APR01 12:00:21 2112 FAIL LN_DIAG

LEN HOST 03 0 14 24 DN 7811999

DIAGNOSTIC RESULT Software error check for SWERR

ACTION REQUIRED Chk logs

CARD TYPE 8X47

Action: Check the logs and retain the SWERR for use by technical personnel.

LINE101 log reports if DLM datafilled for DPMC

The following log reports are only applicable if the DLM contains datafill for NO DPMC.

LINE101 example 42

This example indicates both the set and MADO acknowledged their presence, but signaling loop-around tests failed at both.

LINE101 APR01 12:00:21 2112 FAIL LN_DIAG

LEN HOST 03 0 14 24 DN 7811999

DIAGNOSTIC RESULT Signal failure DPC, loop, or set

ACTION REQUIRED Chk facility

CARD TYPE 8X47

Action: First, try substituting a known good set. If the fault disappears, the original set is bad. If the fault continues, check loop integrity. If the loop proves good, the DPC is faulty and should be replaced.

LINE101 example 43

This example indicates the set acknowledged its presence, but the signaling loop-around test failed.

LINE101 APR01 12:00:21 2112 FAIL LN_DIAG

LEN HOST 03 0 14 24 DN 7811999

DIAGNOSTIC RESULT Signal failure DPC or Meridian set

ACTION REQUIRED Chk facility

CARD TYPE 8X47

Action: First, try substituting a known good set. If the fault disappears, the original set is bad. If the fault continues, check loop integrity. If the loop proves good, the DPC is faulty and should be replaced.

LINE101 example 44

This example indicates the set acknowledged its presence, but the MADO did not. The signaling loop-around tests failed at both.

LINE101 APR01 12:00:21 2112 FAIL LN_DIAG

LEN HOST 03 0 14 24 DN 7811999

DIAGNOSTIC RESULT Signal failure MADO not responding

ACTION REQUIRED Chk facility

CARD TYPE 8X47

Action: First, try substituting a known good set. If the fault disappears, the original set is bad. If the fault continues, check loop integrity. If the loop proves good, the DPC is faulty and should be replaced.

LINE101 example 45

This example indicates the set failed to acknowledge its presence. The signaling loop-around tests failed.

LINE101 APR01 12:00:21 2112 FAIL LN_DIAG

LEN HOST 03 0 14 24 DN 7811999

DIAGNOSTIC RESULT No set or fault in DPC, loop, or set

ACTION REQUIRED Chk facility

CARD TYPE 8X47

Action: First, try substituting a known good set. If the fault disappears, the original set is bad. If the fault continues, check loop integrity. If the loop proves good, the DPC is faulty and should be replaced.

LINE101 example 46

This example indicates the set acknowledged its presence and the signaling loop-around tests passed at the set. The set then passed the PCM loop-around test at the PSTS, but failed the PCM loop-around test at the set.

LINE101 APR01 12:00:21 2112 FAIL LN_DIAG

LEN HOST 03 0 14 24 DN 7811999

DIAGNOSTIC RESULT PCM loop around failure at DSIC in set

or

DIAGNOSTIC RESULT PCM failure at DSIC in set

ACTION REQUIRED Chk facility

CARD TYPE 8X47

Action: First, try substituting a known good set. If the fault disappears, the original set is bad. If the fault continues, check loop integrity. If the loop proves good, the DPC is faulty and should be replaced.

LINE114

Log LINE114 is generated by the Line Maintenance subsystem when, in the course of a diagnostic test of line equipment, it detects the failure of one of the two DSICs. The test is performed either as a result of a manual request from the LTP or Automatic Line Test (ALT) MAP level, or by a system request in response to encountered trouble.

Example of the LINE114 log report format:

LINE114 APR01 12:00:21 7889 INFO DLM 08 0

DEFECTIVE DSIC ON 8X55 DPMC CARD REPLACE CARD

DIAGNOSTIC RESULT diagtxt

ACTION REQUIRED acttxt

CARD TYPE pec

The faulty DSIC decreases the diagnostic capabilities of the Digital Port Maintenance Card (DPMC). The faulty DPMC should be replaced as soon as possible. As long as the other DSIC and its associated circuitry remain fault-free, the DPMC continues to detect and isolate line equipment failure.

PM179

Log PM179 generates when a message goes from the IPE to the CC indicating a hardware exception is detected.

Example of the PM179 log report format:

PM179 MAR12 15:40:27 0078 TBL PM HW EXCEPTION REPORT

IPE HOST 00 3

Exception ID: 02

Text: Bus Error

Status Register: 2009

Program Counter: 00E00876

Special Status Register: 0110

Instruction Pipe Stage C: FDD8

Instruction Pipe Stage B: 4280
Data Cycle Fault Address: 004018C9

Data Output Buffer: 0044D94B

PM181

Log PM181 generates when a diagnostic at the DLM fails, or there is some information about the DLM to be logged.

Example of the PM181 log report format:

PM181 APR01 12:00:21 7443 INFO pmid Unit n

TEXT

When reporting a DPMC fault, the TEXT field appears as follows:

Diag Failed: DPMC Fault - < fault reason >

where <fault reason> can be any of the following:

- Card Not Present
- Loop Voltage Sensor Defective
- Card Not Accessible
- DSIC Emulation Circuit Defective
- Control Logic Defective
- Prime DSIC 10V Measurement Circuit Defective
- Facility Sensors Defective
- Mate DSIC 10V Measurement Circuit Defective
- Relay Drivers Defective
- DSIC 30V Measurement Circuit Defective

When reporting a RCHSLP fault, the TEXT field appears as follows:

Diag Failed: RCHSLP Fault - < fault reason >

where <fault reason> can be any of the following:

- UNIT 0 failed signaling tests. Possible 8X46 fault.
- UNIT 0 failed PCM testing. Possible 8X46 fault.
- UNIT 0 failed PCM & signaling tests. Possible 8X46 fault.
- UNIT 1 failed signaling tests. Possible 8X46 fault.
- UNIT 1 failed PCM testing. Possible 8X46 fault.
- UNIT 1 failed PCM & signaling tests. Possible 8X46 fault.

ALT101

Log ALT101 generates through the ALT subsystem when an extended diagnostic (DIAGN) test of line equipment fails. ALT performs as a result of either a manual request from the ALT MAP level, or according to the ALT schedule. Although ALT can be performed on individual lines, it is usually performed on predefined groups of lines.

Each line that fails the first run on ALT is automatically retested. Each line that fails during the second run is automatically retest. This log generates each time the line, identified in the report by its LEN and DN, fails.

Example of the ALT101 log report format:

ALT101 APR01 12:00:21 2112 FAIL ALT

LEN len DN dn cycle text

TEST TYPE tstnm DIAGNOSTIC RESULT diag txt

ACTION REQUIRED acttxt CARD TYPE pec

Cycle time refers to one of the following cycle test sequences:

- 1st Cycle-This indicates the line equipment failed the specified test the first time the test ran.
- RETEST 1-This indicates the line equipment failed the specified test during automatic retest of ALT 1st CYCLE failures.
- RETEST 2-This indicates the line equipment failed the specified test during automatic retest of ALT RETEST 1 failures.

Logs for RDLM equipped with ESA

There are eight ESA log reports that the ESA processor can generate to indicate errors were detected while collecting ESA static data. These are:

- ESA101
- ESA102
- ESA103
- ESA104
- ESA105
- ESA106
- ESA107
- ESA108

Note: These logs generate for similar events or errors relating to other peripherals. Within the text of the log, the peripheral that generates the log is named. For a general description of these logs, refer to *Log Reports*, 297-1001-840.

Two other log reports contain RDLM ESA information, PM171 and PM181. These are briefly described below.

PM171

PM171 generates when the RDLM exits ESA. The report contains Operational Measurements (OM)s and ESA-ENTRY information.

PM181

PM181 generates to provide information related to the ESA, errors during ESA-EXIT, and ESA static data table downloading failures.

The five types of PM181 log reports containing RDLM ESA information that can generate are listed below.

- manual exit warning
- failed to exit ESA
- failed to download ESA hunt table
- successful download of ESA static data
- failed to download ESA static data

Manual exit warning

If the RDLM is not ManB and the timeout expires, a PM181 report generates to suggest manual exit is required. This is repeated once every minute until a manual EXIT takes place.

An example of this log type is:

```
PM181 MAR14 14:33:54 7534 INFO DLM REM1 1 0
```

```
PM in ESA, Communication restored, ready to RTS
```

Failed to exit ESA

The reason for this log appears in the log report.

An example of this log type is:

```
PM181 Mar1412:33:04 3333 INFO DLM REM1 1 0
```

```
ESA EXIT failed. Reason: No reply from pp.
```

Failed to download ESA hunt table

The log reports give the reason and the table where the load failed.

An example of this log type is:

PM181 JUN17 12:33:04 3333 INFO ESA 3

ISTB (ESA Static Data)

Failed to Load ESA hunt Table (Table id 46)

Successful download of ESA static data

This log generates upon the successful download of ESA static data.

An example of this log type is:

JUN24 12:33:04 3298 INFO ESA 12

INSV (ESA Static Data) Updated

Failed to download ESA static data

The reason for this log is included in the log report.

An example of this log type is:

PM181 JUN19 11:09:33 3333 INFO ESA 3

ISTB (ESA Static Data)

Failed to Load ESA Static Data, Reason: no reply from pm

Software maintenance and diagnostics

The Meridian SL-100 Integrated Voice and Data (IVD) maintenance and diagnostic procedures fall under two distinct categories:

- peripheral maintenance
- facility maintenance

These are described in the first two subsections of this section. Other subsections follow to provide this information pertinent to various levels of maintenance functions:

- Routine EXercising (REX) tests
- DLM maintenance commands
- RMM maintenance commands
- DS-1 links maintenance commands
- lines maintenance
- MCRM-DLM maintenance command (TRNSL)
- ESA maintenance commands

For a list of the commands in above subsections, see the Table of Contents in the front of this document.

Peripheral maintenance

This section describes the maintenance and diagnostic functions available on a Digital Line Module (DLM), the DLM maintenance characteristics, the DLM takeover mode, the DLM maintenance states, and Enhanced Digital Port Card (EDPC) maintenance. Included in the last subsection are EDPC diagnostic tests, logs, alarms, OMs, and port card maintenance when DLM enters ESA.

Maintenance and diagnostic functions on a DLM

Peripheral maintenance diagnostics support the DLM and deal with functions of the Line Concentrating Module (LCM) processor card, the Digroup Control card, the Parallel Space Time Switch (PSTS), DLM

Parallel/Serial Time Switch board and the Digital Set Interface Processor (DSIP).

The following maintenance and diagnostic functions are available on a DLM to test its hardware components:

- Processor Memory Test
- Interunit Communication Loop-around Test
- Memory Checksum Test
- PSTS loop-around Test
- Sanity Timeout Test
- PSTS Connection Memory Test
- Parity Trap Test
- DSIP Activity Test
- Write Protect Trap Test
- Receive/Transmit Time Switch Connection Memory Test
- Timing Test
- Receive/Transmit Multiplex Connection Memory Test
- Timer Counter Test
- Line Address Connection Memory Test
- Digital Port Card Communication Test
- DCC loop-around Connection Memory Test
- DCC/PSTS loop-around Connection Memory Test
- W72 Loop Tests

Peripheral maintenance diagnostics are invoked from the Peripheral Module (PM) level of the MAP workstation, using the Test (TST) command.

DLM maintenance characteristics

In the duplicated processor configuration, a DLM has the following maintenance characteristics:

- A PM of node type DLM is a dual-unit (1-shelf) module. Displays involving the units of a DLM are identified as Unit 0 and Unit 1. DLM Unit 0 occupies the left half of the shelf and controls 80 digital telephones. DLM Unit 1 occupies the right half of the shelf and controls an additional 80 digital telephones.
- Four dual-unit DLMs are housed in the Meridian Cabinet Digital Module (MCDM).

- DLMs are assigned site names to fully identify them. The assignment of site names is controlled by datafill entries in the SITE table.
- A logical frame is identified by a number ranging from 0 to 99. There are two logical frames in one MCDM. The logical frame number, plus the shelf number (0 to 1) are the parameters used with the POST command. The site name, with the frame and shelf number, are the key to Table DLMINV which defines the characteristics of each DLM.
- A DLM has up to six DS30A (C-side) links to its controlling LGC or RCC. C-side links are numbered from 0 to 5, with even-numbered links (0,2,4) connected to Unit 0, and odd-numbered links (1,3,5) connected to Unit 1. At the associated LGC or RCC (where the links are P-side), the identification ranges from 0 to 19, covering all 20 links to a number of DLMs.
- For maintenance purposes, each of the 320 loop circuits is identified by a line subgroup (or drawer) number from 0 to 9 and by a circuit number ranging from 00 to 31.
- In the RDLM, each Link Control Card (LCC) is associated with one DLM unit and all DS-30A links from that unit. In takeover mode, the DS-1 cards are set to receive only from the LCC that remains active. A failure of an LCC or an entire DLM unit does not affect the traffic on the six DS-1 links.
- PM diagnostics for the DLM test and verify Pulse Code Modulation (PCM) and signalling for the P-side of the DLM Parallel/Serial Time Switch board.
- The PM/line diagnostics (W72 loop tests) require the use of the Digital Port Maintenance Card (DPMC) card in order to fully test the W72 chips. The DPMC must be datafilled in table DLMINV and the DPMC must be installed and working.

All of the DLM characteristics listed above are associated with the Digital Line Module Inventory (DLMINV) table. This table contains the following data for each DLM:

- site name where the DLM is located
- frame type on which the peripheral module mounts
- floor, row on floor, frame position in row, and shelf
- position associated with a DLM frame
- issue name of the peripheral module software
- PM type and number to which the DLM is assigned

DLM takeover mode

A DLM consists of two units that normally share the call processing load. The C-side interface to a DLM is 2 to 6 DS30 ports that, under normal conditions, the two units share. A DLM also interfaces to 320 IVD loops arranged in EDPC. Under normal conditions, each unit handles five EDPC for a total of 160 loops. Each DLM unit is capable of handling all six of the C-side ports and all 320 loops.

The DLM units operate independently of each other when both are in-service. A DLM can manage the loops of both units when only one of the units is in-service (takeover mode). While the DLM is in takeover mode, the in-service unit handles all the work for the DLM, until the other unit is brought back into service. When a DLM unit becomes inactive, control of its loops and C-side ports passes to the mate unit.

The active to inactive transition triggers in one of three ways:

- an unsolicited activity drop that refers to an activity drop forced by the hardware through a sanity timeout
- a solicited activity drop that refers to an activity drop initiated by software.
- both the unsolicited and the solicited activity drops

The takeover software ensures that all stable calls are maintained during any takeover. A stable call refers to any call in the ringing or talking phase.

To preserve calls upon an active switch, the mate unit must have a copy of information pertaining to each loop. To prepare for an unsolicited activity drop, all pertinent information constantly transfers to the mate unit. In the case of a solicited takeover, all pertinent information transfers immediately before the takeover.

DLM maintenance states

DLM maintenance states are basically the same as those defined for LCM. The PM state of the entire DLM displays along with the states of the two individual units.

Table 8-1 shows the relationship between the DLM node state and unit states.

Table 8-1xxx
DLM maintenance states

DLM Node State	UNIT X State	UNIT X State	UNIT Internal State Remarks
SysB	SysB	SysB ManB CBsy	Busy. Unit is inactive and does not have access to C-side links or line drawers. Unit is not call processing.
ManB	ManB	ManB	Busy. Unit is inactive and does not have access to C-side links or line drawers. Unit is not call processing.
OffL	OffL	OffL	Offline. Unit is inactive and does not have access to C-side links or line drawers. Unit is not call processing.
CBsy	CBsy	ManB	Busy. Unit is not call processing.
ISTb	InSv	ISTb	Normal. Unit is currently call processing. Both units active.
		ManB CBsy SysB	Takeover. The InSv unit is servicing the mate unit's loops and has access to all of the mate unit's C-side links.
		InSv ISTb ManB CBsy SysB	Normal or Takeover.
InSv	InSv	InSv	Normal. Unit is currently call processing. Both units active.
-end-			

Table 8-2 shows the mnemonic codes used for the maintenance states that appear in the status displays.

Table 8-2xxx
Maintenance state codes

Code	State	UNIT Internal State Remarks
CBsy	Central Side Busy	PM is unable to communicate with the CM. The links used to carry messages between the PM and the C-side node of the Network are unavailable.
InSv	In Service	PM is in service and available to support call processing.

Table 8-2xxx
Maintenance state codes (continued)

Code	State	UNIT Internal State Remarks
ISTb	In Service Trouble	PM is in service, but flagged by system maintenance for a minor error indication; the PM failed a minor audit test; or the load is not listed in the corresponding data table.
ManB	Manual Busy	PM is manually removed from service temporarily to allow testing and other manual maintenance.
Offl	Offline	PM is manually removed from service temporarily.
SysB	System Busy	PM is automatically removed from service by system maintenance.
-end-		

EDPC maintenance

Port card maintenance allows the EDPC to be maintained separately. This allows:

- enhanced diagnostics to help indicate problems on an EDPC before it is brought into service
- easier correction of problems on an EDPC because of the ability to BSY, RTS, and TST an EDPC separately

Port card maintenance is provided on an individual EDPC basis.

EDPC diagnostic tests

The two diagnostic tests available on EDPC are EDPC presence and signal loop-around at the EDPC.

Only the EDPC presence test is performed if the DLM is not equipped with a DPMC.

The signal loop-around test is limited to an out-of-service test and is only invoked by facility maintenance because the line must be seized. Because signal loop-around failure indicates a fault in a specific port of the EDPC, a signal loop-around should be performed on every port of the EDPC.

EDPC states

A set of states is provided for each EDPC. These states are listed by their MAP workstation symbol in Table 8-3.

Table 8-3xxx
EDPC states

MAP workstation symbol	State	Description
.	In service	The EDPC is in service and able to call process.
I	In service trouble	An EDPC fault is found. The EDPC may still be able to call process on some lines.
S	System busy	Serious EDPC fault found. Call processing is not possible. Maintenance is disabled when an EDPC is SYSb.
M	Man busy	The EDPC has been busied out manually from the MAP workstation. The effect on the EDPC is equivalent to System busy.
O	Offline	The EDPC has been offlined. No system maintenance affects the EDPC, including any restart actions. An EDPC can only be made offline if it is in a Man busy state.
-	Unequipped	The EDPC is unoccupied. No lines are datafilled on that EDPC.
<p>Note: There is no EDPC state equivalent to CSide Busy (CBsy). If an InSv DLM with InSv EDPC is taken out-of-service, the EDPC states in the CC and, thus, the EDPC state display shown at the MAP workstation remain the same.</p>		
-end-		

A MAP workstation facility provided within the DLM level of the MAP screen displays EDPC states and allows manual maintenance on EDPC. The display, located just below the DLM unit state display, shows EDPC states 0 through 9.

RTS, TST, BSY, and OFFL can be performed on any EDPC from the MAP workstation.

EDPC state transitions are described in Table 8-4.

Table 8-4xxx
EDPC state changes

EDPC event	EDPC old state	New state
The first line on an EDPC is datafilled.	-	O
Datafill for last line on EDPC is removed.	O	-
Manually busy an EDPC.	S, O, I, . (period)	M
Offline an EDPC.	M	O
RTS an EDPC: EDPC presence fails.	M or S	M or S
Note: No state change occurs. The RTS command is not valid for an EDPC in the SysB state.		
RTS an EDPC: Signal loop-around fails on any ports (DPMC equipped on DLM.)	M or S	M or S
Note: No state change occurs. The RTS command is not valid for an EDPC in the SysB state.		
RTS an EDPC: All tests pass.	M or S	. (period)
Note: No state change occurs. The RTS command is not valid for an EDPC in the SysB state.		
TST an EDPC: InSv tests: EDPC presence passes.	I or . (period)	I or . (period)
Note: The only ISTb condition for EDPC occurs if more than zero and less than 16 signal loop-around tests at the EDPC fail. InSv tests do not clear the ISTb condition because the signal loop-around test is not invoked.		
TST an EDPC: InSv tests: EDPC presence fails.	or . (period)	S
Note: This occurs because either (1) an audit in the DLM detects the EDPC has been removed (Self test fails), or (2) InSv tests are invoked from the CC which detect the EDPC has been removed (Diag fails).		
TST an EDPC: Out of service tests.	M or S	M or S
Note: A manual test performed on an EDPC when it is out of service does not cause the state to change. A CC audit (occurring approximately every ten minutes) attempts to RTS any EDPC in the S state.		
-continued-		

Table 8-4xxx
EDPC state changes (continued)

EDPC event	EDPC old state	New state
A Diag LC command is executed from the LTP level of the MAP workstation and signal loop-around at the EDPC fails for that port (DPMC is present).	I or . (period)	I
A Diag LC command is executed from the LTP level of the MAP workstation and signal loop-around at the EDPC passes on a line associated with an ISTb EDPC. After this test, there are no more lines associated with the port card that failed the signal loop-around at the EDPC. Within ten minutes, an audit detects this.	I	. (period)
-end-		

Logs, alarms, and OMs

An EDPC state change is indicated by a PM181 log. Any serious EDPC fault causes all 32 lines on that EPDC to be removed from service. This is indicated by the top level PM alarm giving a major alarm. SysB or ISTb EDPC results in a major alarm being raised because call processing is seriously affected. An alarm is set immediately upon the state change of the DLM to SysB or CBSy.

When an EDPC is set to ISTB, MANB, or SYSB, the DLM node state is set ISTB. OM register PMDRFLT in group PM and PMTDRFLT in group PMTYP is pegged if an EDPC makes a state transition to SysB. OM register PMDRERR in group PM and PMTDRERR in group PMTYP is pegged if an EDPC makes a state transition from InSv to ISTb.

Port card maintenance and ESA

When a DLM enters ESA, or goes out of service due to any reason, the EDPC states remain unchanged. It is possible to manually change EDPC states at the MAP workstation while the DLM is in ESA or OOS. However, this has no effect on the DLM until it is returned to service.

Facility maintenance

This section describes the types of facility maintenance tests available, how to invoke facility maintenance, the facility maintenance commands (ALT and DIAG), the Routine Exercising (REX) tests with information on DLM REX tests, ESA REX tests, and bad port maintenance.

This is followed by descriptions on the DLM maintenance commands, a subset of the Command Interpreter (CI) commands including:

- BSY
- DIAGN
- DIAGN LC
- DISP
- LOADPM
- NEXT
- OFFL
- POST
- QUERYPM
- QUIT
- RTS
- TST
- RMM maintenance commands
 - BSY
 - DISP
 - LOADPM
 - NEXT
 - OFFL
 - POST
 - QUERYPM
 - QUIT
 - RTS
 - TRNSL
 - TST
- DS1-links maintenance commands
 - DETAIL
 - DISP
 - POST
- lines maintenance
- MCRM-DLM maintenance (TRNSL)

- ESA level maintenance commands for RDLM equipped with ESA
 - BSY
 - DISP
 - LOADPM
 - NEXT
 - OFFL
 - POST
 - QUERYPM
 - RTS
 - TRNSL
 - TST

Types of maintenance tests

Facility maintenance includes maintenance and diagnostics for the Enhanced Digital Port Card (EDPC), the subscriber loop, and the digital telephone. These tests detect, isolate, and identify facility failures.

Because the digital telephone operates in a Private Branch Exchange (PBX) environment having short loops and digital transmission facilities, traditional testing methods using relays are not used. Instead, maintenance tests are done using loop-around techniques and station tests originating from the digital telephone. This type of maintenance is sufficient to isolate problems down to the card level.

Maintenance tests originating from a digital telephone are described in the *M2000 Digital Telephone Reference Manual*, 555-4001-110, and the *M3000 Touchphone Reference Manual*, 555-4001-112.. The tests have different error detection and error isolation capabilities. The tests also provide differing degrees of service interruption.

Invoking facility maintenance

Facility maintenance diagnostics are invoked using the DIAGNOSE (DIAG) command at the Line Test Position (LTP) level of the MAP workstation. It is also possible to invoke periodic maintenance on the digital telephones at the Automatic Line Test (ALT) level of the MAP workstation.

Facility maintenance actions on digital telephones are invoked manually at the MAP workstation using the following levels of the Lines (LNS) maintenance subsystem:

- Line Test Position (LTP)
- Line Test Position Manual (LTPMAN)

- Line Test Position Line Test Access (LTPLTA)
- Line Test Position Data (LTPDATA)

Note: For more information on line maintenance, consult *Lines Maintenance Guide*, 297-1001-594.

When a maintenance action is initiated on a loop circuit from any of the LTPs, the loop appearing in the control position of this level is selected for maintenance.

Two digital telephone loops are associated with one phone, and vice versa.

Because up to 16 digital telephones appear on a single port card, pulling a port card for maintenance is a severe maintenance action. For this reason, MAP workstation output warns maintenance personnel that the loop under test is on an EDPC. This allows maintenance personnel to busy out all other circuits on the affected port card, before pulling the card. To busy out all other circuits on an EDPC at the LTP level, POST a set of circuits, consisting of all loops on an EDPC, and invoke maintenance actions using the ALL option on the respective command. For example, the BSY ALL command causes all idle circuits on the port card to be busied-out immediately and queues those circuits on the port card that are call processing.

As soon as a circuit in the queued state finishes its existing processing, it is busied-out to join the other busy circuits on the port card. This permits maintenance personnel to perform maintenance on an EDPC.

Facility maintenance commands

Facility maintenance functions support the ALT and DIAG commands at the LTP and ALT levels of the lines maintenance subsystem. These commands are described on following pages.

ALT command

Automatic Lines Testing (ALT) of digital telephones performs under the LNS maintenance subsystem, and includes testing of both port cards and the subscriber loops. Normally, ALT runs on a large group of loops during a low traffic period. Lines that fail the tests are identified by POSTing the failures at the LTP or by reports generated by the ALT log subsystem. The loop failures are manually tested and corrected.

The steps and commands for scheduling an ALT test are:

- DEFINE the test. The parameters are:
 - the test to be run (SDIAG or DIAG, described on following pages),

- the range of loops to test (Start LEN to End LEN, or Start LEN plus count),
- the beginning and ending test times,
- the days the tests are to be run.
- RUN the test. This command runs the test. The only parameter is the test to be run (SDIAG or DIAG).

ALT starts diagnosing loops when the beginning time is reached and ceases diagnosing loops when the end of the range is reached or the ending time is reached, whichever occurs first. If the end of the range is not reached, at the next start time ALT resumes diagnosing where it last stopped.

All failures are recorded through the ALT logs subsystem. The commands, POST DF or POST DF D, can be used to view the failures at the MAP workstation.

DIAG command

With the DPMC, detailed fault detection is available. Specific faults that can be detected are:

- short circuit
- open circuit
- excessive voltage on loop
- EDPC power source defective
- DPMC not present
- DPMC inaccessible
- failure of DPMC circuitry (control logic, relay drivers, facility sensors, current and voltage sensors, DSIC)
- excessive voltage through DPMC

Two types of diagnostic tests are provided:

- Extended Diagnostics (DIAG) are thorough tests of the Meridian hardware using full diagnostic capabilities.
- Short Diagnostics (SDIAG, a subset of Extended Diagnostics) is the basic sanity testing of the hardware, invoking simple messaging functions.

Note: Both the Extended and Short Diagnostic tests described below are also available at the ALT level of the MAP workstation for periodic maintenance action on M2000 Digital Telephones.

Both the Extended and Short Diagnostic tests described below are also available at the ALT level of the MAP workstation for periodic maintenance action on M2000 Digital Telephones.

Extended Diagnostic (DIAG) test

The DIAG is a thorough test of the Meridian hardware. The test checks all hardware paths provided to identify and isolate the problems. Once in the digital telephone, the hardware paths are separate for voice and data circuits.

Procedure 8-1 describes the Extended Diagnostic tests for a voice line.

Procedure 8-1

Extended Diagnostic tests for voice line

- 1 The DIAG interferes with both circuits of a digital telephone. Therefore, checks are made to ensure that both circuits are idle and can be removed from service before starting the diagnostics.
- 2 If the preceding step passes, Signaling loop-around (RIT) tests are performed, including signaling loop-around at the PSTS, a port card presence test, a set presence test, and a signaling TCM loop-around at the DSIC. The DPMC is used to isolate any faults found by RIT test failure.
- 3 If the preceding tests are successful, the PCM loop-around tests are performed, including PCM loop-around at the DSIC, PSTS, and the CODEC. The DPMC is used to isolate any faults found by test failure.
- 4 For extended diagnostics on an M3000 Touchphone, an additional test is run to verify the messaging capability of the M3000 Touchphone microprocessor.

Procedure 8-2 describes the Extended Diagnostic tests for a data line.

Procedure 8-2

Extended Diagnostic tests for data line

- 1 Because the Extended Diagnostic interferes with both circuits of a digital telephone, checks are made to ensure that both circuits can be removed from service before starting the diagnostics.
- 2 If the preceding step passes, set presence, port card presence, and MADO presence tests are performed.
- 3 If all are present, a MADO self-test is run. If the self-test fails, signaling loop-around and RIT tests are run to ensure there was not a signaling failure.
- 4 If the MADO self-test passes, PCM loop-around tests are run.
- 5 If the signaling loop-around and PCM loop-around tests fail, the DPMC isolates any faults found.

Any test failure results in an appropriate indication at the MAP workstation identifying the fault location.

Short diagnostic test

The SDIAG, a subset of the extended diagnostic tests described above, is invoked by adding the optional parameter LC (Line Card only) to the DIAG command at the LTP, LTPLTA and LTPMAN levels, or it can be used at the ALT level.

The SDIAG has a limited test capability up to the port card level. However, there is the following advantages in using this test in some situations:

- It provides a quick way to check the basic sanity of the hardware.
- Therefore, it is used as a periodic maintenance test.
- It is applicable to either a voice or a data circuit.

Procedure 8-3 describes the short diagnostic tests.

Procedure 8-3 Short Diagnostic tests

- 1 A signaling loop-around at the PSTS takes place.
- 2 If the preceding test passes, a port card presence test takes place performed.
- 3 The DPMC verifies the operation of the Digital Line Interface Chip (DLIC) on the EDPC and the 30V power supply of the EDPC.

Routine exercising tests

REX (Routine EXercising) tests for the DLM provide enhanced diagnostic capabilities by performing the following functions:

- periodically running Out-Of-Service (OOS) tests on each DLM unit
- periodically running In-Service (InSv) tests on each DLM unit in both normal and takeover mode
- periodically test and verify PCM and signaling for the P-side of the DLM digital to serial time switch board
- testing the ability of an RDLM to enter and exit ESA mode

REX tests for DLMs can be logically broken down into two areas: DLM REX diagnostics run by the Meridian SL-100 periodically and ESA REX tests related to the capability of an RDLM to successfully enter and exit ESA.

These are described in the sections that follow.

DLM REX diagnostics

DLM REX tests require both units of the DLM be InSv before the tests can run.

The diagnostics run by DLM REX tests include:

- OOS tests on each DLM unit
- InSv tests run on each DLM unit when mate unit is InSv
- InSv tests run on each DLM unit when mate unit is OOS

REX tests are performed on one DLM at a time, in the order in which they were datafilled. If it is not possible to exercise every DLM during the defined REX interval, REX begins testing in the next interval where it stopped during the previous interval. It takes up to 15 minutes to perform REX on a DLM.

No DLM is exercised more than once during a given REX interval and no more than once in every 24 hours.

The timing parameters of the REX test are controlled by the office parameter LCDREX_CONTROL in table OFCVAR. For more information on office parameters, refer to *Defense Switched Network Office Parameters Reference Manual*, 555-4021-855, or the *Commercial Systems Office Parameters Reference Manual*, 555-4031-855.

ESA REX tests

The ESA REX tests the ability of an RDLM to enter and exit ESA, and the ability to communicate with the ESA processor while in ESA. The ESA REX tests run automatically, but can be activated manually.

The Meridian SL-100 performs REX tests on the ESA module once a week. The tests run following the DLM REX test of an RDLM before the RDLM is returned to service.

The ESA REX test can be manually invoked using a command available at the ESA level of the MAP workstation. The TST command at the ESA level has an optional parameter, REX. If omitted, the system runs the normal InSv or OOS tests depending on the state of ESA. If the REX option is specified, the Meridian SL-100 attempts to run REX tests. Both units of the RDLM must be InSv for REX tests to run, otherwise the test aborts with No Resources as a failure reason. It is important to note that ESA REX tests require that the ESA module be InSv before the tests can be run.

Bad port maintenance

When a defective port is found on a port card, immediate replacement of the card impacts fifteen other telephones, each potentially having both a voice and a data loop assigned. Faulty port maintenance procedures provide a low-impact alternative involving relocating the digital telephone from the faulty port to another available IVD port. This relocation involves changes to both hardware connections and datafill.

The hardware connection changes are made at the Main Distribution Frame (MDF). The subscriber loop disconnects from the faulty port and reconnects to an available IVD port.

Maintenance personnel must delete the port's entries for both the voice loop and the data loop from Table IVDINV. This must be preceded by deleting the corresponding entries from Tables KSETFEAT, KSETLINE, and DPROFILE. The Service Order command OUT can be used to remove the port's entries in all the data tables.

The LEN of either the voice or the data loop or both of the faulty port is added to Table IVDTRBL. This table contains no fields other than the key field, LEN.

If an attempt is made to add a tuple to Table IVDTRBL for a port for which a tuple still exists in Table IVDINV, one of two error messages is issued. If a tuple exists in table IVDINV with the same LEN as that entered, the following error message displays:

```
THIS LEN CANNOT BE ASSIGNED IN IVDTRBL CONTEXT
```

If no tuple for the LEN exists in Table IVDINV, but a tuple with the mate LEN is present in Table IVDINV, the following error message issues:

```
CANNOT ASSIGN THIS LINE--MATE STILL ASSIGNED IN TABLE IVDINV
```

In either situation, the update is rejected. After the faulty EDPC is replaced, the LEN can be removed.

DLM maintenance commands

The DLM level of the MAP workstation performs maintenance operations on a DLM by the using a small set of CI commands. The DLM level is an increment of the PM level of the MAP workstation level. It is also possible to perform maintenance on individual EDPC from the DLM level of the MAP workstation level.

Accessing DLM level with PM MAP workstation commands

The PM level format of the MAP workstation command accesses the DLM MAP workstation level and selects a specific DLM or set of DLMs upon which it performs some maintenance action using PM MAP workstation commands.

To access the DLMDIR directory, use the following command:

MAPCI;MTC;PM;POST pm_type

For details on the POST command, see “POST command for DLM” in the “DLM maintenance commands” section later in this chapter.

Returning to CI level with the QUIT command

To return to the CI level, use:

QUIT ALL

Using the ALL parameter with BSY, LOADPM, OFFL, and RTS

A BSY, LOADPM, OFFL, or RTS maintenance operation can be executed on a set of DLMs by entering a single command with the ALL parameter. The ALL parameter indicates that the operation is executed on a set of DLMs, those DLMs posted on the MAP workstation, rather than just the DLM displayed on the MAP workstation.

For example, a post set is created that contains DLMs and LTCs. A DLM is currently displayed on the MAP workstation, and an RTS command with the ALL parameter is entered at the MAP workstation level. The RTS command is executed only on the DLMs in the post set. The LTCs do not have the RTS executed on them.

Prior to executing a maintenance operation with the ALL parameter, a confirmation of the operation is required. This ensures that the user knows the number of DLMs upon which the operation will be executed.

For example, if three DLMs are to be executed upon, the user is given this prompt:

```
This operation will be executed on 3 DLMs.  
Please Confirm ("YES" or "NO"):
```

An “N” response aborts the operation. A “Y” response allows the operation to proceed.

Any messages that display at the MAP workstation during the normal execution of a maintenance operation on a single DLM is prefixed with an

indication of the DLM to which the message refers. An example message, assuming a reference to DLM HOST 04 0, is:

```
DLM HOST 04 0 - Request Invalid
                Manual Action only valid on MANB PM
```

During the course of executing a maintenance command on a set of DLMs, any messages that would abort the operation in the case of a single DLM, if the ALL parameter is used, removes that DLM from the set of DLMs in the scope of that operation. Other DLMs in the set continue the operation.

For example, if the following message displays, then DLM 0 is removed from the set of DLMs executing the operation.

```
DLM HOST 00 - MTCE in progress on either or both units
```

Table 8-5 shows an example use of the RTS command with the ALL parameter.

Note: Although an RTS operation is shown in the Table 8-5 example, BSY, LOADPM, and OFFL operations work similarly.

Table 8-5xxx
Example using RTS with ALL parameter

Prompts, Commands, and Messages	Notes
> POST DLM HOST 04 0 HOST 08 0 REM1 05 0	A post set of these DLMs is created. Assume HOST 08 0 is shown on the MAP workstation display.
> RTS PM ALL	
This operation will be executed on 3 DLMs. Please Confirm ("YES" or "NO")	A confirmation is requested.
> Y DLM HOST 08 0 Request Invalid Manual action only valid on MANb PM	HOST 08 0 was not MANB. It has been removed from the set.
-continued-	

Table 8-5xxx
Example using RTS with ALL parameter

Prompts, Commands, and Messages	Notes
Y DLM HOST 04 0 RTS passed DLM REM1 05 0 RTS passed	The operation has completed.
-end-	

CI commands for the DLM level maintenance

In the DLM, the following commands are available to the user:

- ABTK
- BSY
- DIAGN
- DIAGN LC
- DISP
- LOADPM
- NEXT
- OFFL
- POST
- QUERYPM
- QUIT
- RTS
- TRNSL
- TST

These commands are described on the following pages. For your easy reference, they are presented in alphabetic order, as listed above.

BSY command for DLM

The BSY (BUSY) command changes the state of a DLM, previously selected by the POST command, to ManB. BSY can apply to one or both units of the posted DLM or a DPC. Or, with the ALL parameter, BSY can apply to all DLMs of the same PM type as the PM displayed on the MAP terminal. Possible node BSY states are {CBSY, ISTB, INSV, SYSB, OFFL, MANB}. Possible DPC BSY are: {., O, I, S}

The BSY command format follows:

```
BSY PM [ALL] [FORCE] [NOWAIT]
BSY UNIT unit_no [FORCE] [NOWAIT]
BSY LINK ps_link [FORCE] [NOWAIT]
BSY DPC dpc_no [FORCE] [NOWAIT]
```

where

PM applies BSY to both units of the posted DLM.

ALL applies BSY to all DLMs in the posted set.

For notes and examples of using the ALL parameter, see “Using the ALL parameter with BSY, LOADPM, OFFL, and RTS” in “DLM maintenance commands” section given earlier in this chapter.

Note: The ALL parameter cannot be used for doing a BSY of links or DPCs.

UNIT unit_no applies BSY to one unit of the posted DLM, where unit_no indicates the number of the unit of the DLM (value 0 or 1).

LINK ps_link busies one of the P-side links (ps_link) to the RMM, where ps_link is 0 to 3.

DPC dpc_no applies BSY to a DPC (dpc_no), where dpc_no is 0 to 9.

Note: The BSY of many links or DPCs by using the ALL parameter is not supported. If the ALL parameter is given with the LINK or DPC parameter, the BSY operation aborts. The user must give a specific link or DPC number to BSY links or DPCs.

FORCE overrides all other maintenance actions in effect on the specified unit. Requires confirmation (**Y** or **N**) before execution.

Note: This override takes place only if the DLM is in service and an outage would result, or if the DLM (or unit) is SYSB and system recovery is in progress.

NOWAIT enables the MAP workstation position to be used for other command entries before the BSY FORCE command is confirmed.

Examples

Examples of the BSY command follow:

- BSY UNIT 0 FORCE
- BSY PM FORCE NOWAIT

- BSY LINK 3
- BSY DPC 1

System responses

The system responses to the BSY command are shown in Table 8-6.

Table 8-6xxx
System responses to BSY command

System message	Cause of message
DLM PAIR WOULD BE REMOVED FROM SERVICE	This message displays when the DLM mate unit is out of service, or if the command would busy-out an in-service pair of DLMs.
ALL OPTION IS NOT SUPPORTED FOR LINK PARAMETER OR DPC PARAMETER	This message displays when the ALL parameter is given with the LINK or DPC parameter. This is not supported. A specific link or DPC number must be given to BSY links or DPCs.
SYSTEM RECOVERY IS IN PROGRESS	This message displays when the DLM is in the process of recovering from a problem that took the system out of service.
CALLS ON UNIT MAY BE AFFECTED	This message displays when the option FORCE is used for the DLM.
DLM REMn nn n WILL BE TAKEN OUT OF SERVICE	This message displays when a command would busy-out an in-service unit. The calls in progress are cancelled. Note: In this circumstance, Yes (Y) or No (N) confirmation is requested with a message prompt.
DLM REMn nn n, LINK n TO RMM BSY PASSED	This message displays when the command would busy-out the link. Note: Log PM105 is output whenever a DLM or associated unit is ManB.
DLM HOST 04 0 DPC 1 BSY PASSED	This message displays when the EPDC is successfully busied-out.
DLM HOST 04 0 DPC 1 ABORTED [reason]	This message displays when the busy action on a DPC aborts.
-end-	

DIAGN command for DLM

The responses to the DIAGN command, shown in Table 8-7, are for digital telephones when the DLM is equipped with the EDPG and DPMC. These responses to the DIAGN command display at the MAP workstation.

Table 8-7xxx
System responses to DIAGN command

System message	Cause of message
WARNING - ATTEMPTING TO SEIZE IVD MATE LINE	This message displays when the diagnosing of an IVD line requires that the mate line be seized because some of the loop-around tests affect the entire TCM stream.
UNABLE TO SEIZE MATE LINE - SIGNALLING TEST AT DPC OMITTED	This message displays when the mate line could not be seized; therefore, the signalling test could not run.
ATTEMPTING TO DIAGNOSE THE LINE CARD ONLY	This message displays to acknowledge the LC (Line Card only) option, as specified on the DIAG command.
LINE CURRENTLY HAS A LOOPBK ACTIVE AT THE xxxxx. PLEASE PERFORM LOOPBK RLS BEFORE REQUESTING A DIAGNOSTIC.	This message displays when the posted MADO line has a manually initiated loopback activated. The loopback must release before a diagnostic can be executed. The xxxxx refers to the loop point at which the MADO is looped (PSTS, DSIC, MADO, REMOTE or DPC).
MATE xxxxxxxxxxxxxxxxxxxx yyyyyyy HAS LOOPBACK ACTIVE AT THE zzzzzz. PLEASE PERFORM LOOPBK RLS BEFORE REQUESTING A DIAGNOSTIC.	This message displays when the mate (MADO) line of the posted IVD voice line has a manually initiated loopback active. The loopback must release before a diagnostic executes. The xxxxxxxxxxxxxxxxxxxx is the Line Equipment Number (LEN), the yyyyyyy is the Directory Number (DN), and the zzzzzz is the loop point at which the MADO loops (PSTS, DSIC, MADO, REMOTE, or DPC).
-end-	

DISP command for DLM

The DISP command displays a list of all DLMs in a specified PM state. The DISP command format follows:

DISP pm_state DLM

where

pm_state is one of the valid PM states (see Tables 8-1 and 8-2).
DLM is the PM node-type for this group of PM.

Example

DISP ManB DLM

LOADPDM command for DLM

The LOADPDM command initiates loading of peripheral program files into the posted DLM. The load file name derives from Table DLMINV. This name also appears on the MAP terminal next to FNAME with the use of the QUERYPM command.

If the ALL parameter is used, all DLMs in the posted set of the same PM as is displaying on the MAP terminal display.



WARNING

Resource intensive operation

Loading of many DLMs is a resource intensive operation. Other maintenance activity may experience delays in executing. This command should only be used when the load on the switch is very light.

The LOADPDM command format follows:

LOADPDM [ALL]

LOADPDM unit_no

LOADPDM [[CC loadname] [NOWAIT] [repl_name]]

LOADPDM [MATE]

where

PM-loads both units of the posted DLMs.

ALL-loads all DLMs in the posted set of the same PM type as the PM displaying on the MAP terminal.

Note: For notes and examples of using the ALL parameter, see “Using the ALL parameter with BSY, LOADPDM, OFFL, and RTS” in “DLM maintenance commands” section given earlier in this chapter.

UNIT unit_no-loads one of the units of the posted DLM, where unit_no (value 0 or 1) specifies which unit to load.

CC loadnm-loads a load file (specified by loadname) other than the one in Table DLMINV. This load file name appears on the MAP screen next to the FNAME when the QUERYPM command is used. The load file name, if not specified with the CC option, derives from table DLMINV.

The load name must be fully datafilled in table PMLOADS.

NOWAIT-enables the MAP position to be used for other command entries before the LOADPM command is confirmed.

repl_name-(replacement name) is used for loading. This parameter is necessary when a load name (loadname) with the ALL parameter is specified. Any DLM in which the replacement name does not match the load file name datafilled in the inventory table (DLMINV) is not loaded.

When the user specifies a load filename in conjunction with the ALL parameter, a replacement filename is necessary.

When a user does not specify a load filename, the replacement filename is not required. The load name is the one in the inventory table. By not specifying the load file with the LOADPM command, it is possible to have more than one load file with the LOADPM command. Each DLM in the scope of the ALL parameter loads with the load file datafilled in table DLMIN.

MATE-the unit being loaded gets the loadfile from its mate.

Note: When using LOADPM to load more than ten units, the load requests are submitted in groups. When an entire group completes, the next group is submitted.

Examples

```
LOADPM UNIT 0  
LOADPM PM MATE  
LOADPM UNIT 0 CC NEWLOAD
```

System responses

The system responses to the LOADPM command are shown in Table 8-8.

Table 8-8xxx
System responses to LOADPM command

System message	Cause of message
LOAD FILE <X> NOT FOUND	This message displays when the load file specified on the command line is not found in the symbol table directory. The LOADPM command aborts. The user should check to see if the load file specified is incorrect, or must list the volume with the load file.
DLM <SITE> nn n REPLACEMENT FILE MISMATCH WITH INVENTORY TABLE	This message displays when the replacement file (repl_name) entered on the command line does not match the load file datafilled in the inventory table for this PM. This particular PM is not loaded. There is no user action at this time. The user may investigate to learn the datafilled load name for this DLM.
DLM <SITE> nn n UNIT X LOAD REQUEST SUBMITTED	This message displays when a request to load this UNIT is submitted to the maintenance system. The usual loading method is used to load the DLM. There is no user action.
DLM <SITE> nn n LOAD FILE X NOT AVAILABLE	This message displays when the DLM request load file X, but the file was previously found by another DLM to be unavailable. This UNIT is not loaded. There is no user action at this time. The user may investigate to learn the datafilled load name for this DLM.
LOAD FILE NOT IN DIRECTORY	This message displays when the Meridian SL-100 software cannot find the load file.
MATE UNIT MUST BE INSERVICE FOR MATE LOAD	This message displays when the mate unit is not in-service and the option MATE is in use.
WAITING FOR RESOURCES TO BECOME AVAILABLE	This message displays when the system submits the maximum number of loading requests and must now wait for some of these requests to finish before submitting further requests. There is no user action.
-end-	

NEXT command for DLM

The NEXT command specifies that the next DLM in the POST set is selected.

The NEXT command format follows:

```
NEXT
```

where there are no parameters.

System response

In response to the NEXT command, the posted DLM number increases to the next number in sequence. Also, any other POST parameters (such as pm_state) change if they are different for the next DLM.

OFFL command for DLM

The OFFLINE (OFFL) command offlines the whole PM, offlines an individual DPC, or offlines all PMs in the posted set of the same PM type as the PM displaying on the MAP terminal.

The DLM units or the DPC must be in the ManB state before being set offline.

The OFFL command format follows:

```
OFFL PM [ALL]  
DPC dpc_no
```

where:

PM-offlines both units of the posted DLM.

ALL-offlines all DLMs in the posted set of the same PM type as the PM currently displaying on the MAP terminal. For notes and examples of using the ALL parameter, see “Using the ALL parameter with BSY, LOADPM, OFFL, and RTS” in “DLM maintenance commands”.

DPC dpc_no-offlines one DPC, where dpc_no (value 0 to 9) specifies the card of the posted DLM to be offlined.

Note: Log PM103 is output when a DLM is offlined. An offline DLM remains offline through all restarts.

POST command for DLM

The POST command selects a specific DLM for some maintenance action by use of other commands. POST must be entered before using the commands ABTK, BSY, LOADPM, OFFL, QUERYPM, RTS, TRNSL, or TST.

The POST command format follows:

```
POST DLM [site] frame shelf
POST DLM 12 0
```

where

site-site of the DLM if it is not a HOST
frame-frame number of the DLM to post is 0 to 99
shelf-shelf identification of the DLM is 0 or 1
ALL-creates a posted set containing all the peripherals of the DLM PM type. Advancing is done using the NEXT command.

Examples

```
POST DLM REM1 32 1
POST DLM 12 0
```

QUERYPM command - DLM directory

The QUERYPM command displays miscellaneous information about a DLM that was previously selected by the POST command.

The QUERYPM command format follows:

```
QUERYPM
QUERYPM FLT
QUERYPM CNTRS [ CLEAR ]
```

where

FLT-selects the fault option, which causes the reasons for fault conditions on the units to display.

CNTRS-queries the DLM link and unit maintenance counters and causes their contents to display.

CLEAR-used optionally with CNTRS, causes the link and unit maintenance counters to set to zero

Examples

```
QUERYPM FLT
QUERYPM CNTRS CLEAR
```

System responses

The system responses vary, depending on these conditions:

- If a DLM unit is in SysB, the QUERYPM FLT command displays the reason the DLM is not in-service. If the DLM fails a self-test or a diagnostic, the QUERYPM FLT command displays the test that failed.

- If a DLM unit is in ISTb, the QUERYPM FLT command displays the test the DLM failed, causing it to go into ISTb.
- If the entire DLM is in ISTb, the ISTb reason displays for the QUERYPM FLT command.
- The QUERYPM CNTRS command displays the unsolicited message counts and limits.
- PSTS PCM and signalling failure may display for the QUERYPM FLT command to notify the user that the fault with the DLM is a PCM and signalling failure with the 8X46 board on the corresponding unit.

QUIT command for DLM

Use the QUIT command to return to the CI level.

The QUIT command format follows:

```
QUIT ALL
```

RTS command for DLM

The RTS (Return To Service) command returns to service the whole PM, one unit, a PSIDE link, or one DPC. The ALL parameter executes RTS on all DLMs in the post set. The unit or card must be in ManB or SysB state.

The RTS command format follows:

```
RTS PM [ALL] [FORCE] [NOWAIT]
RTS UNIT unit_no [FORCE] [NOWAIT]
RTS DPC dpc_no [FORCE] [NOWAIT]
RTS dpc_no [ FORCE [ NOWAIT ] ]
RTS LINK ps_link [FORCE} [NOWAIT]
```

where

PM-returns to service both units of the posted DLMs

UNIT unit_no-returns to service one of the units of the posted DLM, where unit_no specifies which unit (value 0 or 1)

DPC dpc_no-applies RTS to one of the DPCs (specified by dpc_no) of the posted DLM, where dpc_no value is 0 to 9.

LINK ps_link-returns to service one of the P-side links (ps_link) of the posted DLM, where ps_link value is 0 to 3.

FORCE-overrides all other commands, and the unit is returned to service unconditionally.

Note: RTS without the FORCE option executes serially on a set of DLMS. RTS with the FORCE option executes in parallel. Use RTS FORCE to quickly bring up a set of DLMS.

NOWAIT-enables the MAP position to be used for other command entries before the RTS FORCE command is confirmed.

ALL-returns to service each DLM in the posted set.

For notes and examples of using the ALL parameter, see “Using the ALL parameter with BSY, LOADPM, OFFL, and RTS” in “DLM maintenance commands” section.

Note: The ALL parameter cannot be used for doing an RTS of links or DPCs.

Examples

```
RTS UNIT 0 FORCE
RTS PM FORCE NOWAIT
RTS LINK 2
RTS DPC 4
```

System responses

The system responses to the RTS command are shown in Table 8-9.

Table 8-9xxx
System responses to RTS command

System message	Cause of message
CALLS ON DLM MAY BE AFFECTED. CONFIRMATION Y OR N IS REQUESTED	This message displays when FORCE is used.
DLM site nn n UNIT n RTS PASSED	This message displays when RTS is confirmed and the DLM is in-service. Note: Log PM106 is output when RTS is executed.
DLM site nn n FAILED [reason]	
ALL option is not supported for LINK or DPC option	This message displays when RTS of links or DPCs by use of the ALL parameter is attempted. Note: The RTS operation aborts. The user must use a specific link number or DPC number to RTS a link or DPC.

TRNSL command for DLM

The TRNSL (TRANSLATE) command identifies the C-side speech and message links of a DLM previously specified by the POST command. (It can also identify the P-side links.) The display includes the status and type of the links.

The TRNSL command formats follows:

```
TRNSL C
or
TRNSL P
```

where

C specifies C-side links selected for display.
P specifies P-side links selected for display.

TST command for DLM

The TST (TEST) command implements diagnostic routines to test the various hardware components of a DLM previously selected by the POST command.

The TST command format follows:

```
TST PM
TEST UNIT unit_no
TST LINK ps_link
TST DPC dpc_no
```

where

UNIT unit_no-the number of the unit of the DLM, where unit_no is 0 or 1

PM-applies BSY to both units of the posted DLM

LINK ps_link-tests one of the P-side links (ps_link) to the RMM, where ps_link is 0 to 3

DPC dpc_no-applies BSY to a DPC (dpc_no), where dpc_no is 0 to 9

Examples

```
TST UNIT 1
TST PM
TST LINK 1
TST DPC 7
```

System responses

The system responses to the TST command are shown in Table 8-10.

Table 8-10xxx
System responses to TST command

System message	Cause of message
REQUEST INVALID: DLM site nn n is <PM STATE>, where <PM STATE> is Offl, ManB, or SysB.	This message displays when the DLM associated with the EDPC is not in service; the tests cannot be performed.
DLM HOST 12 1 DPC 7 TST PASSED	This message displays when the DLM has a working DPMC that is not in use by another maintenance action, and the EDPC is out-of-service.
OSVCE TESTS INITIATED DLM HOST 12 1 DPC 7 TST FAILED: DPC SIGNALING LOOPAROUND PORTS: 3, 4, 12	This message displays when the DLM has a working DPMC that is not in use by another maintenance action and the EDPC is out-of-service, so that signaling loop-around at the EDPC takes place but fails at ports 3, 4, and 12, in this example, on the EPDC.
Note: Each port corresponds to two physical telephone lines, one voice and one data. The circuit numbers associated with the port are the port number multiplied by two (Port_no * 2) and the port number multiplied by two plus one ((Port_no * 2)+1).	
The associated LENS with the failing ports, in this example, are:	
HOST 12 1 7 6 HOST 12 1 7 7 HOST 12 1 7 8 HOST 12 1 7 9 HOST 12 1 7 24 HOST 12 1 7 25	
DLM HOST 12 1 DPC 7 TST PASSED	This message displays when the EDPC is in-service.
-continued-	

Table 8-10xxx
System responses to TST command (continued)

System message	Cause of message
INSVCE TESTS INITIATED DLM site nn n DPC n TST FAILED: DIGITAL PORT CARD NOT PRESENT	This message displays when the EDPC is not present in the DLM.
DLM site l2 nn n DPC n TST ABORTED [reason]	This message displays when the TST action aborts. The abort reason is given.
-end-	

RMM maintenance commands

The RMM level of the MAP workstation performs maintenance operations on the Remote Maintenance Module (RMM) for the Meridian Digital Cabinet Remote (RDCR).

The RMM level is an increment of the PM level of the MAP terminal.

In the RMM, the following commands are available to the user:

- BSY
- DISP
- LOADPM
- NEXT
- OFFL
- POST
- QUERYPM
- QUIT
- RTS
- TRNSL
- TST

These commands are described on the following pages. For your easy reference, they are presented in alphabetic order, as listed above.

BSY command for RMM

The BSY (BUSY) command changes the state of a RMM, previously selected by the POST command, to ManB.

The BSY command format follows:

BSY

where there are no parameters.

DISP command for RMM

The DISP (display) command displays a list of all RMM in a specified PM state.

The DISP command format follows:

DISP
pm_state RMM

where

pm_state-one of the valid PM states

RMM-the PM node-type for this group of PM

Example

DISP ManB RMM

LOADPM command for RMM

The LOADPM command initiates loading of peripheral program files into the selected RMM previously specified by the POST command. The load file name is derived from Table DLMINV. This name also appears on the MAP screen next to FNAME when the QUERYPM command is used.

The LOADPM command format follows:

where

EXEC-selects the load mode to be execs only

NOWAIT-enables the MAP terminal position to be used for other command entries before the LOADPM command is confirmed.

NOTEST-allows LOADPM to be completed with the ROM test

Examples

LOADPM EXEC NOWAIT NOTEST

NEXT command for RMM

The NEXT command specifies that the next RMM in the POST set is to be displayed.

The NEXT command format follows:

```
NEXT
```

where there are no parameters.

System response

In response to the NEXT command, the posted RMM number increases to the next number in sequence. Also, any other POST parameters (such as pm_state) change if they are different for the next RMM.

OFFL command for RMM

The OFFL (OFFLINE) command sets both units of a selected RMM, previously specified by the POST command, to the offline state. The RMM must be in the ManB state before being set OFFL.

The OFFL command format follows:

```
OFFL
```

where there are no parameters.

POST command for RMM

The POST command selects a specific RMM for some maintenance action by use of other commands. POST must be entered before using the commands BSY, LOADPM, OFFL, QUERYPM, RTS, TRNSL, or TST.

The POST command format follows:

```
POST RMM rmm_no  
POST RMM ALL
```

where

RMM rmm_no-specifies the RMM to be posted, where rmm_no is 0 to 254

RMM rmm_no-specifies the RMM to be posted, where rmm_no is 0 to 254

Example

```
POST RMM 33
```

QUERYPM command for RMM

The QUERYPM command displays miscellaneous information about an RMM previously selected by the POST command.

The QUERYPM command format follows:

QUERYPM

where there are no parameters.

QUIT command for RMM

Use the QUIT command to return to the CI level.

The QUIT command format follows:

QUIT ALL

RTS command for RMM

The RTS (Return To Service) command returns to service an RMM, previously specified by the POST command. The unit must be in ManB or SysB state.

The RTS command format follows:

RTS

where there are no parameters.

System response

If the PM is not loaded, the following message appears:

```
RMM n RTS FAILED RELOAD THE PM
```

```
NO ACTION TAKEN
```

TRNSL command for RMM

The TRNSL command format follows:

TRNSL C

where

C-specifies C-side links selected for display

TST command for RMM

The TST (TEST) command implements diagnostic routines to test the various hardware components of an RMM previously selected by the POST command.

The following command sequence is needed to reach this level:

MAPCI; MTC; TRKS; CARRIER

The TST command format follows:

TST

where there are no parameters.

DS-1 links maintenance commands

Maintenance operations on the DS-1 links are performed at the CARRIER level of the MAP workstation. The CARRIER level is an increment of the TRKS level of the MAP workstation. The CARRIER level is useful for gathering information about DS-1 lines.

For more information on the CARRIER level, refer to *Lines Maintenance Guide*, 297-1001-595).

The following commands appear in the CARRIER level menu display, and can be issued from the CARRIER level:

- DETAIL
- DISP
- POST

These commands are described on the following pages, in the order listed above.

DETAIL command for DS-1 links

The DETAIL command gives the following detailed information for a specified carrier link:

- site
- class (trunk, timing, or remote)
- host peripheral to which it is connected
- circuit number
- number of times the carrier has been temporarily put out of service

- direction of the carrier in relation to the host (P-side or C-side)
- status of the host DS-1 interface card (In or Out)

The `DETAIL` command format follows:

```
DETAIL carr_no
```

where

`carr_no`-specifies the carrier number (value 0 to 4) for which details are shown.

DISP command for DS-1 links

The `DISP` (`DISPLAY`) command provides a list of carriers in the specified state.

The `DISP` command format follows:

```
DISP
```

where there are no parameters.

POST command for DS-1 links

The `POST` command allows additional commands to apply to the carriers. The `MAP` screen displays the DMS carriers by class and shows the number of carriers in each class that are in a particular state (system busy, offline, and related states).

Carriers in a specific state can be posted. Applying the `POST` command to a `LGC/LTC` displays a list of associated DS-1 carriers, the class, site, and circuit of the carriers, and associated alarms, slips, frame losses, and states for the carrier.

The `POST` command format follows:

```
POST
```

where

`carr_no`-specifies the carrier number (value 0 to 4) to be posted

`trunk`-specifies the trunk number

Lines maintenance

Line maintenance can be performed by either the Line Test Position (LTP) or Automatic Line Testing (ALT) facilities. Both are found in the LNS level of the MAP workstation. The LTP level provides subscriber loop and line card testing. The ALT level provides similar diagnostics, but the tests are automated.

The following commands are examples necessary for automated tests:

- MAPCI; MTC; LNC; LTP
- MAPCI; MTC; LNC; ALT

For more information on line testing, refer to *Lines Maintenance Guide, 297-1001-594*.

MCRM-DLM maintenance command (TRNSL)

For Meridian Cabinet Remote Module (MCRM)-DLM maintenance, the TRNSL command is used at the DLM and RCC level commands of the Meridian Cabinet Remote Module-Digital Line Module (MCRM-DLM).

The TRNSL command formats follow:

TRNSL C

or

TRNSL P

where

C-specifies C-side links selected for display.

P-specifies P-side links selected for display.

When the user enters the TRNSL C command at the DLM level of the MAP workstation, the name of the RCC displays, along with the link numbers and link states.

When the TRNSL P command is entered at the RCC level of the MAP screen, and the MCRM posted has one or more DLMs attached to it, the name of the DLMs display along with the link numbers and link states.

ESA maintenance commands

Maintenance for RDLM equipped with ESA (Emergency Standalone) is described in this section.

The ESA level of the MAP workstation controls the ESA capabilities. If the ESA processor is in-service, the RDLM can enter ESA. If the ESA processor is ManB, ESA capability is disabled. The ESA level is accessed from the PM level by posting the RDLM with ESA.

The following commands can be issued from the ESA level:

- BSY
- DISP
- LOADPM
- NEXT
- OFFL
- POST
- QUERYPM
- QUIT
- RTS
- TRNSL
- TST

The commands available at the ESA level are described on the following pages in the order listed above.

The BSY (BUSY) command changes the state of an ESA processor previously selected by the POST command to ManB.

The BSY command format is as follows:

```
BSY [FORCE] [ NO WAIT ] ]
```

where

FORCE-overrides all other commands and states in effect on the specified unit. Requires confirmation (**Y** or **N**) before execution.

NOWAIT-enables the MAP workstation to be used for other command entries before BSY is confirmed. Only used with FORCE.

Examples

```
BSY FORCE  
BSY FORCE NOWAIT
```

System responses

The system responses to the BSY command are shown in Table 8-11.

Table 8-11xxx
System responses to BSY command

System message	Cause of message
NO PM POSTED	This message displays when there is no ESA processor posted.
REQUEST INVALID ESA nn IS ManB	This message displays when the ESA processor is ManB.

DISP command for ESA

The DISP (DISPLAY) command displays a list of all the ESA processors in a specified PM state.

The DISP command format is shown below:

```
DISP pm_state ESA
```

where

pm_state-one of the valid PM states

ESA-the PM node-type for this group of PM

Example

```
DISP ManB ESA
```

LOADPM command for ESA

The LOADPM command initiates loading of peripheral program files into the selected RMM, previously specified by the POST command. The load file name is FNAME when the QUERYPM command is used.

The LOADPM command format is shown below:

Examples

```
LOADPM
```

```
LOADPM CC F33 ESADATA NOWAIT
```

System responses

The system responses to the LOADPM command are shown in Table 8-12.

Table 8-12xxx
System responses to LOADPM command

System message	Cause of message
LOAD FILE NOT IN DIRECTORY	This message displays when the Meridian SL-100 cannot find the location of the load file.
ESA LOAD PASSED	This message displays when the ESA static data is downloaded successfully.
ESA nn IS status NO ACTION TAKEN	This message displays when the ESA processor is in the incorrect state for loading.

NEXT command for ESA

The NEXT command specifies that the next ESA processor in the POST set is to be selected.

The NEXT command format is:

NEXT

where there are no parameters.

System response

In response to the NEXT command, the posted ESA processor number increases to the next number in sequence. Also, any other POST parameters (such as pm_state) change if they are different for the next ESA processor.

OFFL command for ESA

The OFFL (OFFLINE) command sets the ESA processor, previously specified by the POST command, to the offline state. The ESA processor must be in the ManB state before being set OFFL.

The OFFL command format follows:

OFFL [ALL]

where

ALL-offlines all ESAs in a posted set.

POST command for ESA

The POST command selects a specific ESA processor for some maintenance action by use of other commands. POST must be entered before using the

commands ABKT, BSY, LOADPM, OFFL, QUERYPM, RTS, TRNSL, or TST.

The POST command format follows:

```
POST ESA frame shelf
POST ESA ALL
```

where

ESA-the PM node type

frame-frame number of the RDLM equipment frame, 0 to 99

shelf-shelf identification of the DLM, 0 or 1

ALL-specifies all ESA processors

Examples

```
POST ESA 3
POST ESA ALL
```

QUERYPM command for ESA

The QUERYPM command displays miscellaneous information about an ESA processor that was previously selected by the POST command.

The QUERYPM command format is shown below:

```
QUERYPM
QUERYPM FLT
QUERYPM CNTRS [ CLEAR ]
```

where

FLT-displays the reasons for In-service Trouble on the ESA processor.

CNTRS-displays the contents of the ESA processor maintenance counters.

CLEAR-used optionally with CNTRS, causes the link and unit maintenance counters to be set to zero.

Examples

```
QUERYPM FLT
QUERYPM CNTRS CLEAR
```

QUIT command for ESA

Use the QUIT command to return to the CI level.

The QUIT command format follows:

QUIT ALL

RTS command for ESA

The RTS command format is shown below:

RTS [FORCE [NOWAIT]]

where

FORCE-suspends RTS test and unconditionally returns ESA processor

NOWAIT-enables the MAP workstation to be used for other command entries before FORCE is confirmed.

Examples

RTS FORCE

RTS FORCE NOWAIT

System responses

The system responses to the RTS command are shown in Table 8-13.

Table 8-13xxx
System responses to RTS command

System message	Cause of message
OSVCE TEST INITIATED	This message displays when the out-of-service testing is being performed.
ESA IS OFFLINE NO ACTION TAKEN	This message displays when the ESA processor is in the OFFL state.
ESA nn IS status NO ACTION TAKEN	This message displays when the ESA processor is CBSY, INSV, or OFFL.
REQUEST INVALID	This message displays when the ESA processor is not in ManB or SysB.
-continued-	

Table 8-13xxx
System responses to RTS command (continued)

System message	Cause of message
RTS FAILED	This message displays when the ESA processor has failed to return to service. Check for possible logs.
TEST FAILED	This message displays when the RTS tests failed.
-end-	

If the ESA option is present in the RDLM, then additional options are available in the DLM level of the MAP workstation.

The RTS command automatically sends the ESA processor the static data from the Meridian SL-100 CC if the ESA processor has no static data or if the ESA processor has corrupted static data. When the RDLM is in ESA and the RTS command is issued, the number of calls at the RDLM display and confirmation is requested. If RTS is confirmed, the RDLM exits ESA and all calls are dropped.

TRNSL command for ESA

The TRNSL (TRANSLATE) command identifies the C-side speech and message links of an ESA processor previously specified by the POST command. The display includes the status and type of the links.

The TRNSL command format follows:

TRNSL C

where

C-specifies C-side links selected for display

TST command for ESA

The TST (test) command implements diagnostic routines to test the various hardware components of an ESA processor previously selected by the POST command.

TST [REX]

where

REX-invokes the Routine Exercises of the ESA hardware.

Examples

TST
TST REX

System responses

The system responses to the RTS command are shown in Table 8-14.

Table 8-14xxx
System responses to TST command

System message	Cause of message
ESA INSV TEST FAILED: failure reason [card list]	This message displays when the service test fails. The results of the test display.
ESA INSVCE TESTS INITIATED. ESA INSV TEST PASSED.	This message displays when the in-service test passes.
ESA OOS TEST FAILED: failure reason [card list]	This message displays when the out-of-service test fails. The test results display.
ESA OSVCE TESTS INITIATED. ESA OOS TEST PASSED	This message displays when the out-of-service test passes.
REX TESTS NOT RUN, SYSTEM RESOURCES NOT AVAILABLE	This message displays when the facilities to run the REX test are unavailable.
NO REPLY FROM PM: [card list]	This message displays when the CC cannot communicate with the ESA processor.
REX FORM OF INSVCE TESTS INITIATED.	This message displays when the REX tests run.
-end-	

If the ESA option is present in the RDLM, then additional options are available in the DLM level of the MAP workstation.

The TST command issues after communications between the RDLM and the Meridian SL-100 resume and before the RDLM exits ESA. The number of calls on the RDLM displays and confirmation is requested from Table IVDTRBL and reassigned.

Operational measurements

Operational Measurement (OM) groups contain information on how the DLM and its loops are performing. The seven OM groups whose values are directly affected by a DLM are described in Table 9-1.

For more detailed information on OMs, refer to *Defense Switched Network Operational Measurements Reference Manual*, 555-4021-814, or the *Commercial Systems Operational Measurements Reference Manual*, 555-4031-814.

Table 9-1xxx
Operational Measurements

OM Group	Description
ENG640M1, TRA125M1, TRA125N2, TRA250M1	Measure Subscriber Line Usage (SLU). Each of these scan a selected set of loops or lines at a selected scan interval. There is a table corresponding to each of these OM, where the loops or lines to be scanned are listed. These tables are: ENG640I1, TRA125I1, TRA125I2, and TRA250I1. An entry in another table (OFCVAR) determines the scan rate for each OM. There is only one tuple for each OM group. These measurements reflect the usage of the set of loops listed in the table corresponding to the OM, scanned at the rate specified in the OFCVAR table.
LMD	One tuple for each loop or line peripheral. The measurements kept are related to call processing.
PM	One tuple for each peripheral module, the measurements kept relate to the performance of the peripheral.
PM2	The measurements kept relate to the performance of the peripheral, used for PM TYPES without a node number
-continued-	

9-2 Operational measurements

Table 9-1xxx
Operational Measurements (continued)

OM Group	Description
PMTYP	One tuple for each peripheral type. The measurements kept relate to the performance of peripherals of a given type, collectively.
RLCDIS	Provides information and measurements about intraswitched calls on the RLCM, DLM and RDLM
RSCIS	Provides traffic measurements on intraswitched calls within an RSC.
-end-	

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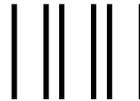
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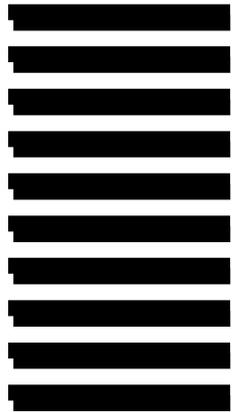


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