



Metropolis[®] Enhanced Optical Networking (EON) (OLS 40G/80G)

Release 8.2

Alarm Messages and Trouble Clearing Guide (AMTCG)

365-575-560 R8.2

Issue 3

March 2002

Lucent Technologies - Proprietary (Restricted)
Solely for authorized persons having a need to know
pursuant to Company instructions



Copyright © 2002 Lucent Technologies. All Rights Reserved.

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

For permission to reproduce or distribute, please contact the following: your Account Executive

Notice

The information in this document is subject to change without notice. Although every effort has been made to make this document as accurate, complete, and clear as possible, Lucent Technologies and its predecessors assume no responsibility for any errors that may appear in this document.

Mandatory customer information

Federal Communications Commission (FCC) Notification and Repair Information

This equipment is designed to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. 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 instructions manual, may cause interference to radio communications. Operation of this equipment in a residence is likely to cause harmful interference, in which case, the user will be required to correct the interference at his own expense.

Security

In rare instances, unauthorized individuals make connections to the telecommunications network. In such an event, applicable tariffs require that the customer pay all network charges for traffic. Lucent Technologies and its predecessors cannot be responsible for such charges and will not make any allowance or give any credit for charges that result from unauthorized access.

Trademarks

3Com is a registered trademark of 3Com Corporation.

5ESS, LGX, Metropolis, SLC, ST, and WaveStar are registered trademarks of Lucent Technologies, Inc.

Adobe and Acrobat are registered trademarks of Adobe Systems, Inc.

CLEI, CLLI, CLCI, and CLFI are trademarks of Telcordia Technologies, Inc.

COMMON LANGUAGE is a registered trademark of Telcordia Technologies, Inc.

CSA is a registered trademark of Canadian Standards Association.

Ethernet is a trademark of Xerox Corporation USA.

IBM is a registered trademark of International Business Machines Corporation.

Intel and Pentium are registered trademarks of Intel Corporation.

Navis is a trademark of Lucent Technologies, Inc.

Reader (Adobe Acrobat Reader) is a trademark of Adobe Systems, Inc.

UL is a registered trademark of Underwriters Laboratories Inc.

Windows, Windows NT, MS-DOS, and Microsoft are registered trademarks of Microsoft Corporation.

Ordering information

To order more copies of this document or other Lucent documents, please contact the Customer Information Center (CIC) at www.lucentdocs.com

Support

Technical support

For SONET technical assistance, call 1-866-LUCENT8 (866-582-3688), prompt 1. The Lucent Technologies North American Regional Technical Assistance Center (NARTAC) provides a technical assistance telephone number that is monitored 24 hours a day.

For SDH technical assistance, call Technical Support Services (TSS) at +1-630-224-4672: Prompt 2.

Information product support

You can also call these telephone numbers to provide comments on ASOS or to suggest enhancements

This document was developed by the Lucent Learning Organization (LLO).

Lucent Technologies values your comments!

Lucent Technologies
Bell Labs Innovations



Metropolis® Enhanced Optical Networking (EON), (OLS 40G/80G)

365-575-560 R8.2 Issue 3 Date: March 2002

Lucent Technologies welcomes your comments on this information product. Your opinion is of great value and helps us to improve.

1. Was the information product:

	Yes	No	Not applicable
In the language of your choice?	☐	☐	☐
In the desired media (paper, CD-ROM, etc.)?	☐	☐	☐
Available when you needed it?	☐	☐	☐

Please provide any additional comments:

2. Please rate the effectiveness of this information product:

	Excellent	More than satisfactory	Satisfactory	Less than satisfactory	Unsatisfactory	Not applicable
Ease of use	☐	☐	☐	☐	☐	☐
Level of detail	☐	☐	☐	☐	☐	☐
Readability and clarity	☐	☐	☐	☐	☐	☐
Organization	☐	☐	☐	☐	☐	☐
Completeness	☐	☐	☐	☐	☐	☐
Technical accuracy	☐	☐	☐	☐	☐	☐
Quality of translation	☐	☐	☐	☐	☐	☐
Appearance	☐	☐	☐	☐	☐	☐

If your response to any of the above questions is "Less than satisfactory" or "Unsatisfactory," please explain your rating.

3. If you could change one thing about this information product, what would it be?

4. Please write any other comments about this information product:

Please complete the following if we may contact you for clarification or to address your concerns:

Name: _____ Date: _____

Company/organization: _____ Telephone number: _____

Address: _____

Email address: _____ Job function: _____

If you choose to complete this form online, go to <http://www.lucent-info.com/comments>

Otherwise fax to 407 767 2760 (U.S.) or +1 407 767 2760 (outside the U.S.) or email comments to ctiphotline@lucent.com





Contents

About this information product

1 Safety

General notes on safety	<u>1-2</u>
Laser safety	<u>1-5</u>
Laser product classification	<u>1-8</u>
Automatic Power Shutdown and Restart (APSD)	<u>1-10</u>
Electrostatic discharge	<u>1-15</u>
Important safety instructions	<u>1-16</u>

2 Alarm Messages

Maintenance Signals	<u>2-3</u>
Fault Detection and Isolation	<u>2-6</u>
Fault Reporting	<u>2-8</u>
Alarm Reporting on CenterLink	<u>2-12</u>
About Alarm Messages	<u>2-14</u>
APSD-active-FE	<u>2-17</u>
APSD-active-NE	<u>2-18</u>
BC LAN 1 failure	<u>2-19</u>
BC LAN 2 failure	<u>2-20</u>

companion NE not reachable	<u>2-21</u>
CP reset in progress	<u>2-22</u>
CP (unknown type) failure	<u>2-23</u>
CP (unknown type) removed	<u>2-24</u>
CPYPGM:IP tid	<u>2-25</u>
CT login	<u>2-26</u>
CT logout/logout remote link down/logout timeout/login:deny	<u>2-27</u>
DCC startup in progress	<u>2-28</u>
DCM input LOS	<u>2-29</u>
different OA types in side	<u>2-30</u>
DSNE not reachable	<u>2-31</u>
duplicate TID defined	<u>2-32</u>
equipage/prov mode inconsistent	<u>2-33</u>
fuse/power failure A	<u>2-34</u>
fuse/power failure B	<u>2-35</u>
fuse/power failure A and B	<u>2-36</u>
incoming CMS LOF	<u>2-37</u>
incoming CMS LOS	<u>2-38</u>
incoming CMS SD	<u>2-39</u>
incoming CMS SF	<u>2-40</u>
incoming ESCON LOS	<u>2-41</u>
incoming FC-100 LOS	<u>2-42</u>
incoming FICON LOS	<u>2-43</u>
inc. (from Supr) DCC failure	<u>2-44</u>

Incoming GbE-1 failure	<u>2-45</u>
incoming GbE-1 LOS	<u>2-46</u>
incoming ISC_CF LOS	<u>2-47</u>
incoming LAN link failure	<u>2-48</u>
incoming loss of packet delineation	<u>2-49</u>
incoming LSBB failure	<u>2-50</u>
incoming OC3 failure	<u>2-51</u>
incoming OC3 signal degrade	<u>2-52</u>
incoming OC12 failure	<u>2-53</u>
incoming OC12 signal degrade	<u>2-54</u>
incoming OC48 failure	<u>2-55</u>
incoming OC48 signal degrade	<u>2-56</u>
incoming OC-192 failure	<u>2-57</u>
incoming OCH10G failure	<u>2-58</u>
Incoming optical channel LOS	<u>2-59</u>
incoming optical line LOS	<u>2-60</u>
incoming OUPSR AIN LOS	<u>2-61</u>
incoming OUPSR BIN LOS	<u>2-62</u>
incoming OUPSR CIN LOS	<u>2-63</u>
incoming payload type mismatch	<u>2-64</u>
incoming STM1 failure	<u>2-65</u>
incoming STM1 signal degrade	<u>2-66</u>
incoming STM4 failure	<u>2-67</u>
incoming STM4 signal degrade	<u>2-68</u>

incoming STM16 failure	<u>2-69</u>
incoming STM16 signal degrade	<u>2-70</u>
incoming STM64 failure	<u>2-71</u>
incoming supr chnl fail	<u>2-72</u>
incoming supr chnl SD	<u>2-73</u>
incoming supr chnl SF	<u>2-74</u>
incoming UBB data rate mismatch	<u>2-75</u>
incoming UBB failure	<u>2-76</u>
incoming UBB signal degrade	<u>2-77</u>
incoming UNKNOWN LOS	<u>2-78</u>
inconsistent OTPM association	<u>2-79</u>
inconsistent OTU association	<u>2-80</u>
inhibit alarms-Lan/office/X.25	<u>2-81</u>
inhibit alarms-parallel telem	<u>2-82</u>
INITSWD:IP	<u>2-83</u>
invalid pass through route	<u>2-84</u>
J0 mismatch	<u>2-85</u>
J1 mismatch	<u>2-86</u>
LI failure	<u>2-87</u>
LI removed	<u>2-88</u>
logins inhibited	<u>2-89</u>
Loss of internal channel	<u>2-90</u>
Loss of internal tributary	<u>2-91</u>
Loss of Q2-communications	<u>2-92</u>

MIB lock in progress	<u>2-93</u>
module/prov mode inconsistent	<u>2-94</u>
multiple DS-NEs defined	<u>2-95</u>
NE status comm failure	<u>2-96</u>
OA failure	<u>2-97</u>
OA high input power	<u>2-98</u>
OA LAN failure	<u>2-99</u>
OA output disabled	<u>2-100</u>
OA removed	<u>2-101</u>
OA/TLM mismatch	<u>2-102</u>
OMON failure	<u>2-103</u>
OMON removed	<u>2-104</u>
OMU/ODU mismatch or missing	<u>2-105</u>
OMU/ODU warmup in progress	<u>2-106</u>
opr/prov mode inconsistent	<u>2-107</u>
optical line ID mismatch	<u>2-108</u>
optical line reset in progress	<u>2-109</u>
OTCTL failure	<u>2-110</u>
OTCTL removed	<u>2-111</u>
OTPM duplicate	<u>2-112</u>
OTPM failure	<u>2-113</u>
OTPM removed	<u>2-114</u>
OTPM unknown	<u>2-115</u>
OTU duplicate	<u>2-116</u>

OTU failure	<u>2-117</u>
OTU removed	<u>2-118</u>
OUPSR auto switch on SD to Path A	<u>2-119</u>
OUPSR auto switch on SD to Path B	<u>2-120</u>
OUPSR auto switch to Path A	<u>2-121</u>
OUPSR auto switch to Path B	<u>2-122</u>
OUPSR failure	<u>2-123</u>
OUPSR forced switch to Path A	<u>2-124</u>
OUPSR forced switch to Path B	<u>2-125</u>
OUPSR inhibit	<u>2-126</u>
OUPSR manual switch to Path A	<u>2-127</u>
OUPSR manual switch to Path B	<u>2-128</u>
OUPSR removed	<u>2-129</u>
pluggable module removed	<u>2-130</u>
provisionedenvironmentalpt	<u>2-131</u>
QOTU failure	<u>2-132</u>
QOTU removed	<u>2-133</u>
reset in progress	<u>2-134</u>
SER TLM 1 port failure	<u>2-135</u>
SID mismatch	<u>2-136</u>
Software download in progress	<u>2-137</u>
Software transfer failed	<u>2-138</u>
SYSCTL failure	<u>2-139</u>
SYSMEM failure	<u>2-140</u>

SYSMEM removed	<u>2-141</u>
SYSMEM unrecognizable code	<u>2-142</u>
SYSMEM/SYSCTL code mismatch	<u>2-143</u>
system incomplete	<u>2-144</u>
system startup in progress	<u>2-145</u>
test alarm in progress	<u>2-146</u>
test auto turnup in progress	<u>2-147</u>
test telemetry in progress	<u>2-148</u>
test loopback in progress	<u>2-149</u>
TID address map full	<u>2-150</u>
TLM failure	<u>2-151</u>
TLM removed	<u>2-152</u>
TOHCTL failure	<u>2-153</u>
TOHCTL removed	<u>2-154</u>
unexpected CP type	<u>2-155</u>
unexpected OTPM type	<u>2-156</u>
Optical Translator Fault Reporting (Using the Miscellaneous Discrete Interface)	<u>2-157</u>
Protection Switching	<u>2-162</u>
Reports	<u>2-167</u>

3 Trouble Clearing

Technical Assistance

Trouble Analysis Procedures	<u>3-3</u>

Procedures

TAP-101: Clear NE ACTY/INFO-N and/or FE ACTY/INFO-F (Regardless of Alarm Level)	<u>3-12</u>
TAP-102: Clear Trouble Using Craft Interface Terminal (CIT)	<u>3-16</u>
TAP-103: Clear 'DCC APS Data Error'	<u>3-28</u>
TAP-104: Clear Trouble Report	<u>3-30</u>
TAP-105: Clear 'OMU/ODU Mismatch or Missing'	<u>3-35</u>
TAP-106: Address 'Incoming LAN link failure', or 'Incoming LAN failure'	<u>3-38</u>
TAP-107: Address Environmental Input and/or Control Output Condition	<u>3-41</u>
TAP-108: Address Missing or Incorrect Response	<u>3-43</u>
TAP-109: Clear 'Optical Line ID Mismatch'	<u>3-46</u>
TAP-110: Address Incoming Signal Failure	<u>3-49</u>
TAP-111: Clear 'Circuit Pack Failure'	<u>3-56</u>
TAP-112: Clear 'Circuit Pack Removed'	<u>3-64</u>
TAP-113: Clear 'SYSMEM Failure' or 'SYSCTL Failure'	<u>3-68</u>
TAP-114: Clear Condition When 'ABN' and/or 'NE ACTY/INFO-N' LED is Lighted	<u>3-72</u>
TAP-116: Clear Unsuccessful Circuit Pack Replacement	<u>3-75</u>
TAP-117: Clear 'CPYPGM:IP (tid)'	<u>3-79</u>
TAP-118: Clear 'NE Status Comm Failure'	<u>3-80</u>
TAP-119: Clear 'Fuse/Power Failure (A/B)'	<u>3-85</u>
TAP-120: Clear 'Incoming (From Supr) DCC Failure'	<u>3-90</u>
TAP-121: Address 'CP Reset In Progress'	<u>3-95</u>
TAP-122: Clear 'CP (Unknown Type) Removed'	<u>3-96</u>
TAP-123: Clear 'CP (Unknown Type) Failure' or	

‘OTPM Unknown’	<u>3-99</u>
TAP-124: Address ‘Reset in Progress’	<u>3-101</u>
TAP-125: Clear ‘SYSMEM Unrecognizable Code’	<u>3-103</u>
TAP-126: Clear ‘SYSMEM/SYSCTL Code Mismatch’	<u>3-106</u>
TAP-127: Clear ‘Unexpected CP Type’ or ‘Unexpected OTPM Type’	<u>3-109</u>
TAP-128: Clear Trouble In CIT (CIT Does Not Respond to Commands)	<u>3-112</u>
TAP-129: Clear ‘DCC Startup In Progress’	<u>3-114</u>
TAP-130: Restore Network Element Operation After Power Loss	<u>3-115</u>
TAP-131: Clear ‘Software Download in Progress’	<u>3-117</u>
TAP-132: Clear ‘System Startup In Progress’	<u>3-118</u>
TAP-133: Clear ‘SYSMEM Removed’	<u>3-119</u>
TAP-134: Clear ‘System Incomplete’	<u>3-120</u>
TAP-135: Clear ‘Multiple DS-NEs Defined’	<u>3-122</u>
TAP-136: Clear Alarm When ‘NE ACTY/INFO-N’ and ‘FE ACTY/INFO-F’ LEDs Are Off or Restore System With No Alarms and NE is Not Responding	<u>3-125</u>
TAP-137: Clear ‘DS-NE Not Reachable’	<u>3-132</u>
TAP-138: Clear ‘Duplicate TID Defined’	<u>3-135</u>
TAP-139: Clear ‘SER TLM 1 Port Failure’	<u>3-136</u>
TAP-140: Clear ‘different OA types in side’	<u>3-138</u>
TAP-141: Clear ‘equipage/prov mode inconsistent’	<u>3-140</u>
TAP-142: Clear ‘opr/prov mode inconsistent’	<u>3-144</u>
TAP-143: Clear ‘incoming optical line LOS’ for a Single OA Network Element without LIRCV	<u>3-149</u>
TAP-144: Clear ‘OMU/ODU warmup in progress’	<u>3-156</u>

TAP-145: Clear 'optical line reset in progress'	<u>3-157</u>
TAP-148: Clear 'inconsistent OTPM association' or 'inconsistent OTU association'	<u>3-158</u>
TAP-149: Address OT Incoming Signal Failure	<u>3-161</u>
TAP-150: Clear 'APSD active - FE'	<u>3-166</u>
TAP-151: Clear 'APSD active - NE'	<u>3-168</u>
TAP-153: Clear 'j0 and j1 mismatch'	<u>3-170</u>
TAP-154: Clear 'OA output disabled'	<u>3-173</u>
TAP-156: Address 'TID Address Map Full'	<u>3-175</u>
TAP-158: Address 'MIB lock in progress'	<u>3-177</u>
TAP-161: Address 'INITSWD:IP'	<u>3-178</u>
TAP-162: Clear Combination 'TLM Failure' and 'OA Failure'	<u>3-179</u>
TAP-163: Clear 'OA/TLM mismatch'	<u>3-181</u>
TAP-164: Clear 'BC LAN1 failure'	<u>3-184</u>
TAP-165: Clear 'BC LAN2 failure'	<u>3-187</u>
TAP-166: Clear 'Invalid pass through route'	<u>3-190</u>
TAP-167: Clear 'OA LAN Failure'	<u>3-192</u>
TAP-168: Clear 'OTU duplicate' or 'OTPM duplicate'	<u>3-195</u>
TAP-169: Clear 'OUPSR auto switch to Path A', 'OUPSR auto switch to Path B', 'OUPSR auto switch on SD to Path A', or 'OUPSR auto switch on SD to Path B'	<u>3-196</u>
TAP-170: Clear 'SID Mismatch'	<u>3-199</u>
TAP-171: Address OLINe TOPR Threshold Crossing Alerts	<u>3-201</u>
TAP-172: Address OUPSR Incoming Signal Failure	<u>3-206</u>
TAP-173: Address "Incoming UBB Data Rate Mismatch" or "Incoming Payload Type Mismatch" Alarms	<u>3-208</u>

TAP-174: Address "Incoming Signal Degrade" Alarm	3-211
TAP-175: Clear "DCM input LOS" Alarm	3-222
TAP-176: Clear "incoming OUPSR CIN LOS" Alarm	3-236
TAP-177: Clear "OA high input power" Alarm	3-249
TAP-178: Clear "companion NE not reachable" Alarm	3-251
TAP-179: Clear "incoming loss of packet delineation" Alarm	3-258
TAP-180: Clear "pluggable module removed" Alarm	3-259
TAP-181: Clear "test loopback in progress" Alarm	3-262
TAP-182: Clear 'module/prov mode inconsistent'	3-263

4 Supporting Tasks

DLP-500: Select LBOs between Add OT OUT and Drop OT IN	4-4
DLP-501: Connect and Condition Craft Interface Terminal (CIT)	4-12
DLP-502: Test LED Indicators on Front Panel and Circuit Packs	4-14
DLP-503: Locate Circuit Pack/Fiber Connections	4-16
DLP-504: Test Office Alarm Operation	4-30
DLP-505: Perform Provisioning	4-32
DLP-506: Verify Network Elements Are Connected	4-34
DLP-507: Identify Source of Incoming Signal	4-36
DLP-508: Test Parallel Telemetry	4-39
DLP-509: Install/Remove Apparatus (Circuit Pack) Blank	4-40
DLP-510: Inspect and Clean Optical Fiber Connectors	4-42
DLP-511: Open/Close Cabinet Doors or Install/Remove Shelf Cover	4-49
DLP-512: Install/Remove Lightguide Buildout	4-52
DLP-513: Test Miscellaneous Discrete Telemetry	4-58

DLP-514: Install/Remove Circuit Pack	<u>4-61</u>
DLP-515: Replace Fuse in Power Distribution and Fuse Panel or User Panel	<u>4-79</u>
DLP-517: Inspect (Repair) Optical Fiber(s)	<u>4-81</u>
DLP-518: Login/Logout to a Network Element Using CenterLink	<u>4-82</u>
DLP-519: Change, Delete, or Enter a User Login	<u>4-86</u>
DLP-520: Establish Modem Network Access	<u>4-90</u>
DLP-521: Install an OMU or ODU	<u>4-98</u>
DLP-522: Replace Power Line Filter	<u>4-101</u>
DLP-523: Replace OT Power Line Filter	<u>4-104</u>
DLP-524: Select an LBO at the Add OTU/OTPM IN	<u>4-107</u>
DLP-525: Connect/Disconnect Optical Fibers at OTU/OTPM	<u>4-114</u>
DLP-526: Change a DSNE	<u>4-117</u>
DLP-527: Create a DSNE	<u>4-120</u>
DLP-528: Delete a DSNE	<u>4-122</u>
DLP-529: Set an OLINE Baseline	<u>4-124</u>
DLP-530: Set an OLINE Threshold	<u>4-126</u>
DLP-531: Update the System	<u>4-128</u>
DLP-532: Install or Remove an SFP Module	<u>4-129</u>
DLP-533: Set the Client Mode and Wavelength for the 2:1 Multiplexing OTU (CW2DM25)	<u>4-134</u>
Metral Tool Kit Descriptions	<u>A-2</u>
Pin Designations	<u>A-3</u>
Metropolis® EON Circuit Pack and Equipment Location	<u>A-4</u>

OT Circuit Pack and Equipment Location	A-5
Procedures for Pin Replacement	A-7
Introduction	B-2
State Names for Customer Maintenance Signal Ports	B-3
State Names for Optical Channels	B-4
State Names for OA, TLM, and OTU Circuit Pack Slots	B-5
State Names for Optical Lines	B-6
State Names for Optical Translator Port Signals	B-7
State Names for Supervisory Channels	B-8
Diagrams	C-2
Support for Signal Types	10
GL Glossary	GL-1
IN Index	IN-1



About this information product

Purpose	The <i>Alarm Messages and Trouble Clearing Guide</i> (AMTCG) provides information on the alarm messages which can be generated by the network elements. Furthermore, it provides procedures for routine maintenance, troubleshooting, diagnostics, and component replacement.
Reason for reissue	This is the third issue of the <i>Metropolis[®] Enhanced Optical Networking (EON), Alarm Messages and Trouble Clearing Guide, 365-575-560 R8.2</i> .
Safety labels	Please refer to Chapter 1, "Safety".
Intended audience	The intended audience of this <i>Alarm Messages and Trouble Clearing Guide</i> primarily consists of people who are responsible for the maintenance of network elements and for the supervision of transmission operation.

This information product assumes that readers have the following required skills.

- Basic principles of telecommunication transmission
- Common telecommunication and system terminology (a glossary is provided in this manual to assist you)

- Test sets and tools used in the telecommunication industry
- Local operations and functional procedures of your company
- Personal computer (PC) operation, common PC terminology, and navigational tasks in a windows-style user interface.

Training of personnel

Working on the complex equipment and systems described in this guide requires special training of the personnel. For more information, please also read Chapter 1, “Safety”.

How to use this information product

Each chapter of this manual treats a specific aspect of the system and can be regarded as an independent description. This ensures that the reader can inform himself according to his special needs. This also means that the manual provides more information than needed by many of the readers. Before you start reading the manual, it is therefore necessary to assess which aspects or chapters will cover the individual area of interest.

The following table briefly describes the type of information found in each chapter.

Chapter	Title	Description
Preface	About this information product	The preface • describes the guide’s purpose, intended audience, and organization, • lists related documentation, • explains how to comment on this document.
1	Safety	contains a series of very important safety instructions concerning the handling of network elements.
2	Alarm messages	contains descriptions of the alarms which can be generated by the network elements.
3	Trouble clearing	describes the measures to be taken for localizing and clearing faults on the network elements. It is based on the network element alarms that can be generated.
4	Supporting procedures	describes tasks and procedures that are often referred to during trouble clearing or maintenance activities.

Chapter	Title	Description
5	Glossary	defines telecommunication terms and expands common telecommunication abbreviations and acronyms.
6	Index	lists specific subjects and their corresponding page numbers.

Conventions used The following conventions are used throughout this:

Numbering

The chapters of this document are numbered consecutively. The page numbering restarts at “1” in each chapter. To facilitate identifying pages in different chapters, the page numbers are prefixed with the chapter number. For example, page 2-3 is the third page in chapter 2.

Cross references

Cross reference conventions are identical with those used for numbering, i.e. the first number in a reference to a particular page refers to the corresponding chapter.

Keyword blocks

This document contains so-called keyword blocks to facilitate the location of specific text passages. The keyword blocks are placed to the left of the main text and indicate the contents of a paragraph or group of paragraphs.

Typographical conventions

Special typographical conventions apply to elements of the graphical user interface (GUI), filenames and system path information, keyboard entries, alarm messages etc.

- Elements of the graphical user interface (GUI)

These are examples of text that appears on a graphical user interface (GUI), such as menu options, window titles or pushbuttons:

- ***Provision..., Delete, Apply, Close, OK*** (pushbuttons)
- ***Provision Timing/Sync*** (window title)
- ***View Equipment Details...*** (menu option)
- ***Administration → Security → User Provisioning...*** (path for invoking a window)

- Filenames and system path information
These are examples of filenames and system path information:
 - *setup.exe*
 - *C:\Program Files\Lucent Technologies*
- Keyboard entries
These are examples of keyboard entries:
 - **F1, Esc X, Alt-F, Ctrl-D, Ctrl-Alt-Del** (simple keyboard entries)
A hyphen between two keys means that both keys have to be pressed simultaneously. Otherwise, a single key has to be pressed, or several keys have to be pressed in sequence.
 - `copy abc xyz` (command)
A complete command has to be entered.
- Alarms and error messages
These are examples of alarms and error messages:
 - incoming OC3 failure
 - HPUNEQ, MSAIS, STMLOS, STMLOF
 - Not enough disk space available

Abbreviations

Abbreviations used in this document can be found in the “Glossary” unless it can be assumed that the reader is familiar with the abbreviation.

Related documentation

This section briefly describes the documents that are included in the Metropolis® EON documentation set.

- The *Metropolis® Enhanced Optical Networking (EON), Applications and Planning Guide, 365-575-558 R8.2* is for use by network planners, analysts and managers. It is also for use by the Lucent Account Team. It presents a detailed overview of the system, describes its applications, gives planning requirements, engineering rules, ordering information, and technical specifications.
- The *Metropolis® Enhanced Optical Networking (EON), User Operations Guide, 365-575-559 R8.2* provides step-by-step information for use in daily system operations. The User Operations Guide (UOG) demonstrates how to perform system provisioning, operations, and administrative tasks by use of CIT.

- *Metropolis® Enhanced Optical Networking (EON), Alarm Messages and Trouble Clearing Guide, 365-575-560 R8.2* gives detailed information on each possible alarm message. Furthermore, it provides procedures for routine maintenance, troubleshooting, diagnostics, and component replacement.
- *The Metropolis® Enhanced Optical Networking (EON), Operations Systems Engineering Guide, 365-575-561 R8.2* gives detailed information on each TL1 command. Furthermore, it includes information on the Operations Interfaces.
- *The Metropolis® Enhanced Optical Networking (EON), Installation Guide, 365-575-562 R8.2* is a step-by-step guide to system installation and setup. It also includes information needed for pre-installation site planning and post-installation acceptance testing.
- *The Metropolis® Enhanced Optical Networking (EON), Software Release Description (SRD), 365-575-563 R8.2* is a description of procedural information required to upgrade the software to Release 8.0. It also includes a listing of Release 8.0 features, problems fixed, known problems, and other helpful information.
- *The Metropolis® Enhanced Optical Networking (EON), Provisioning Job Aid, 365-575-564 R8.2* is a set of laminated job aid cards, containing detailed provisioning information, that are used for quick reference.
- *The Metropolis® Enhanced Optical Networking (EON), Threshold Crossing Alert (TCA) Parameters Provisioning Job Aid, 365-575-565 R8.2* is a set of laminated job aid cards, containing detailed TCA parameter provisioning information, that are used for quick reference.

The following additional documents can be helpful for planning and ordering:

- *Toll Systems OLS Intercabinet Cables, ED7G028-22.*
- *Toll Systems Cable Assemblies OT Cabinet Framework, ED7G045-20.*
- *Toll Systems OT System Ordering and Installation Information for OT Cabinet, J69000-C-1.*

Lucent Technologies offers a formal training curriculum to complement your product needs.

Registering for a course

To review the available courses or to enroll in a training course at one of Lucent's corporate training centers,

- Within the United States,
 - Visit <https://www.lucent-product-training.com>
 - Call **1-888-LUCENT8** (888-582-3688): **Prompt 2.**
- Outside the continental United States,
 - Visit <https://www.lucent-product-training.com>
 - Contact your in-country training representative
 - Call: **+1-407-767-2798**
 - Fax: **+1-407-767-2677**

Suitcasing

To arrange for a suitcase session at your facility,

- Within the United States, call **1-888-LUCENT8** (888-582-3688): **Prompt 2.**
- Outside the continental United States,
 - Contact your in-country training representative
 - Call: **+1-407-767-2798**
 - Fax: **+1-407-767-2677**

How to comment Customer comments on Metropolis® EON documents are welcome. A comment form can be found at the beginning of this document. The comment form can be faxed to **1.407.767.2760**.

How to order Metropolis® EON documents can be ordered as individual paper copies or as a set on CD-ROM from the Customer Information Center (CIC).

To order documents, specify the document or CD-ROM you need. Order by contacting your account executive or by using a contact listed below.

RBOC and BOC customers should process orders through their company documentation coordinator.

Standard Mail Address

Lucent Technologies Inc.
Customer Information Center
Attn: Order Entry Section

2855 N. Franklin Road
P. O. Box 19901
Indianapolis, IN 46219

Internet Address

www.lucentdocs.com

Telephone/Fax Numbers

From U.S.A.:

Telephone: 1-888-LUCENT8

Fax: 1-800-566-9568

From North American Region

Telephone: 1-317-322-6619

Fax: 1-317-322-6359

From Asia/Pacific Region and Caribbean and Latin America Region

Telephone: 1-317-322-6411

Fax: 1-317-322-6699

From Europe, Middle East, and Africa

Telephone: 1-317-322-6416

Fax: 1-317-322-6699





1 Safety

Overview

Purpose This chapter provides important safety instructions for the Metropolis[®] EON.

Contents This chapter contains the following sections.

General notes on safety	1-2
Laser safety	1-5
Laser product classification	1-8
Automatic Power Shutdown and Restart (APSD)	1-10
Electrostatic discharge	1-15
Important safety instructions	1-16



General notes on safety

Overview The present chapter on safety **must** be read by the responsible technical personnel before carrying out relevant work on the system. The valid version of this document must always be kept close to the equipment.

Not only must the general instructions in this chapter on safety be observed, but also the specific safety instructions in the individual chapters.

The Metropolis® EON equipment has been developed in line with the present state-of-the-art and fulfils the current national and international safety requirements. It is provided with a high degree of operational safety resulting from many years of development experience and continuous stringent quality checks in our company.

Potential sources of danger The equipment is safe in normal operation. There are, however, some potential sources of danger that cannot be completely eliminated. In particular, these arise during the

- opening of housings or equipment covers,
- manipulation of any kind within the equipment, even if it has been disconnected from the power supply,
- disconnection of optical or electrical connections,

through possible contact with:

- live parts,
- laser light,
- hot surfaces,
- sharp edges, or
- components sensitive to electrostatic discharge.

Structure of safety instructions All safety instructions include a **warning symbol** and a **signal word** that classify the danger and a **text block** that contains descriptions of the type and cause of the danger, the consequences of ignoring the safety instruction and the measures that can be taken to minimize the danger.

Example:**DANGER**

Arcing on removing or inserting a live power supply plug.

Arcing can cause serious burns to the hands and damage to the eyes.

Ensure that the line circuit-breaker on the Rack Connection Panel (RCP) is in the “OFF” position before removing or inserting the power supply plug.

Danger classification

There are three classes of safety instructions: ***Danger***, ***Warning*** and ***Caution***. The class depends on the consequences of ignoring the safety instruction.

DANGER Death or serious injury is definite or likely.

WARNING Death or serious injury is possible.

CAUTION Minor injury is definite, likely or possible, or material damage to the product or in the product environment is definite or likely.

Special safety instructions

The aspects of ***laser safety*** and ***handling of components sensitive to electrostatic discharge (ESD)*** are of vital importance for the equipment. Therefore, the key safety instructions for these subjects are summarized in the sections “Laser safety” (1-5) and “Electrostatic discharge” (1-15).

General safety requirements

In order to keep the technically unavoidable residual risk to a minimum, it is imperative to observe the following rules.

- Transport, storage and operation of the unit/system must be under the ***permissible conditions only***.
See accompanying documentation and information on the unit/system.
- Installation, configuration and disassembly must be carried out only by ***expert personnel*** and ***with reference to the respective documentation***.

Due to the complexity of the unit/system, the personnel requires ***special training***.

- The unit/system must be operated by **expert and authorized users only**.

The user must operate the unit/system only after having **read and understood** the chapter on safety and the parts of the documentation relevant to operation. For complex systems, additional training is recommended. Any obligatory training for operating and service personnel must be carried out and documented.

- The unit/system must not be operated unless it is in perfect working order.

Any faults and errors that might affect safety must be reported **immediately** by the user to a person in responsibility.

- The unit/system must be operated only with the connections and under the environmental conditions as described in the documentation.
- Any conversions or changes to the system or parts of the system (including the software) must be carried out by qualified Lucent Technologies personnel or by expert personnel authorized by Lucent Technologies.

All changes carried out by other persons lead to a **complete exemption from liability**.

No components/spare parts must be used other than those recommended by the manufacturer and those listed in the procurement documents.

- The removal or disabling of safety facilities, the clearing of faults and errors, and the maintenance of the equipment must be carried out by **specially qualified personnel only**.

The respective parts of the documentation must be strictly observed. The documentation must also be consulted during the selection of measuring and test equipment.

- Calibrations, special tests after repairs and regular safety checks must be carried out, documented and archived.
- Non-system software is used at one's **own risk**. The use/installation of non-system software can adversely affect the normal functioning of the unit/system.



Laser safety

System design The Lucent Technologies system complies with FDA/CDRH 21 CFR 1040.10 and 1040.11 as a Class I and with IEC 60825-1 as a Class 1 Optical Fiber Telecommunication laser product. The system has been designed to ensure that the operating personnel is not endangered by laser radiation during normal system operation. The safety measures specified in the Food and Drug Administration's Center for Devices and Radiological Health (FDA/CDRH) regulations and the international standards IEC-60825 or DIN/EN 60825 are met. Please also refer to "Laser product classification" (1-8).

Potential sources of danger Beware of the following potential sources of danger which will remain despite all safety measures taken.

- Laser radiation can cause damage to the skin and eyes.
- Laser radiation from optical transmission systems is in a wavelength range that is invisible to the human eye.

Laser classes The maximum output power of laser radiation depends on the type of laser diode used. The international standards IEC-60825 or DIN/EN 60825 define the maximum output power of laser radiation for each laser class in accordance with the wavelength.

Laser class	Wavelength	Maximum output power of laser radiation
1	1310 nm	8.85 mW
	1550 nm	10 mW
3A	1310 nm	24 mW
	1550 nm	50 mW
3B	1310 nm	0.5 W
	1550 nm	0.5 W

Laser warning labels The laser warning labels indicate either only the laser class or both the laser class and the maximum output power of laser radiation.

The following figure shows different types of laser warning labels and their characteristics.

①



②



③



Legend

Legend to the different types of laser warning labels.

1. Laser warning symbol.
2. This laser warning label is mounted on the front cover outside. It always refers to normal operation.
3. This laser warning label is affixed inside the subrack.

Laser safety instructions

Observe the following instructions to avoid exposing yourself and others to risk.

- Read the relevant descriptions in the manuals before taking equipment into operation or carrying out any installation and maintenance work on the optical port units, and follow the instructions. Ignoring the instructions can result in exposure to dangerous radiation.

- Do not view directly into the laser beam with optical instruments such as a fiber microscope, because viewing of laser emission in excess of Class 1 limits significantly increases the risk of eye damage.
- Never look into the end of an exposed fiber or an open connector as long as the optical source is still switched on.
- Ensure that the optical source is switched off before disconnecting optical fiber connectors.
- In the event of doubt, check that the optical source is switched off by measuring with an optical power meter.



Laser product classification

Standards compliance The Metropolis® EON product complies with both IEC standards and the Food and Drug Administration's Center for Devices and Radiological Health (FDA/CDRH) regulations.

FDA/CDRH regulations Laser products are classified in accordance with the FDA/CDRH - 21 CFR 1010 and 1040. The classification scheme is based on the ability of the laser emission to cause injury to eye or skin during normal operating conditions.

In the United States, lasers and laser systems in the infrared wavelength range (greater than 700 nm) are assigned to one of the following classes.

- Class I,
- Class IIb, or
- Class IV.

Laser classification is dependent upon operating wavelength, output power and fiber modefield diameter (core diameter).

IEC requirements The International Electro-Technical Commission (IEC) establishes standards for the electrical and electronic industries. IEC-60825 has been established for the worldwide safety of laser products.

According to the IEC classification, lasers and laser systems in the infrared wavelength range (greater than 700 nm) are assigned to one of the following classes.

- Class 1,
- Class 3A,
- Class 3B, or
- Class 4.

There are some major differences between the FDA/CDRH regulations and IEC.

1. The Accessible Emission Limits (AEL) are different.
2. Class 3A applies to all wavelengths.
3. Class 3B requires strict engineering controls.
4. Classification is under single fault conditions.

Hazard level assignment

Hazard level refers to the potential hazard from laser emission at any location in an end-to-end optical fiber communication system that may be accessible during service or in the event of a failure. The assignment of hazard level uses the AELs for the classes.

Hazard levels for optical transmission equipment are assigned in either of the following two ways.

- actual output power from the connector or fiber cut.
- if automatic power reduction is used, output power at the connector or fiber cut at one second after automatic power reduction takes place provided that maximum output and restart conditions are met.

Classification of optical telecommunication equipment

Optical telecommunication equipment is generally classified as IEC Class 1 or FDA/CDRH Class I, because under normal operating conditions, the transmitter ports terminate on optical fiber connectors. These are covered by a front panel to ensure protection against emissions from any energized, unterminated transmitter.

The circuit packs themselves, however, may be IEC Class 1 or 3A or FDA/CDRH Class I or IIIb.



Automatic Power Shutdown and Restart (APSD)

Overview Metropolis® EON utilizes APSD as an equipment safety mechanism. The APSD feature protects against optical surges and possible human exposure to powerful Metropolis® EON output by reducing power to Hazard Level 1 on the optical line between adjacent offices.

Timing requirements APSD timing requirements are as follows:

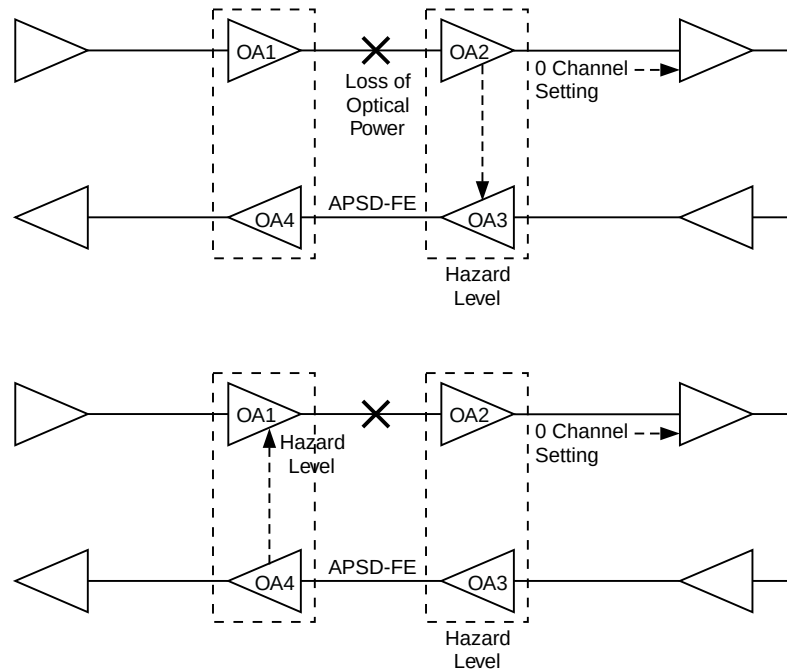
- Shutdown = < 3 seconds
- Restart = < 5 seconds.

Important! The link between an OA and the ODU at the receive-end OA should be protected as well. In this case, an LBO needs to be installed during system installation to ensure that power levels never exceed IEC Class 3A).

Two-OA operation The following information describes various network reliability scenarios in which the APSD feature can be used for two-OA operation.

Scenario 1 (Shutdown): Protection on an optical line link between Metropolis® EON terminals.

In the following figure, if a fiber cut occurs in a span between two Metropolis® EON End Terminals or Repeaters, “OA2” in the downstream Metropolis® EON detects a loss of optical power and starts operating in a 0 channel setting. The downstream Metropolis® EON sends an APSD-FE message to the upstream terminal to inform it of the condition. Upon detecting the message, the upstream terminal powers down “OA1” below 10 dBm. Powering down of “OA1” and “OA3” to Class 1 levels is completed within 3 seconds of the fiber cut.

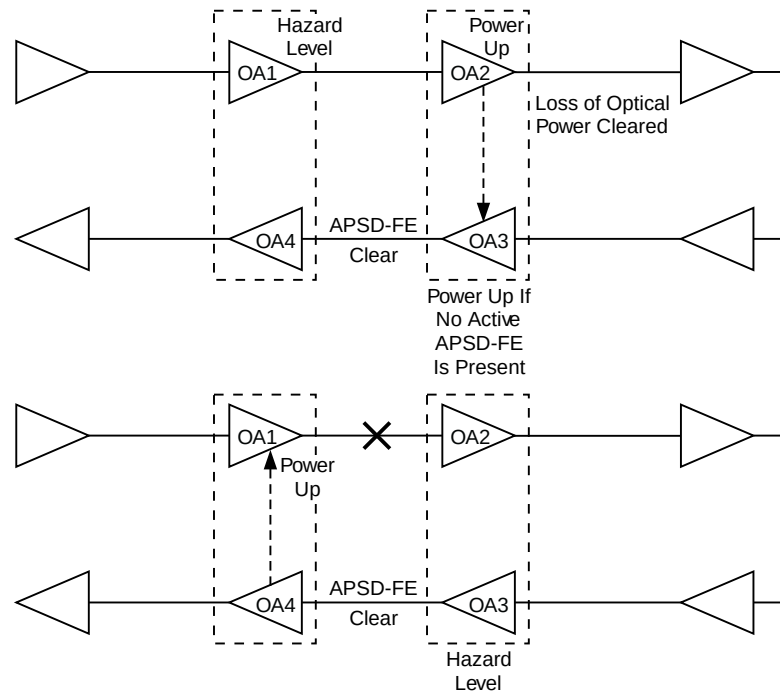
Figure 1-1 APSD for Optical Line Failure Between Terminals (Two-OA)

NC-OLS80G069

Loss of optical power is declared when the OA detects a loss of all channels (including the telemetry channel) and the telemetry circuit pack detects an incoming SUPR LOS. The OAs downstream from “OA2” also experience channel loss. These amplifiers operate in 0 channel power configuration within one second of a fiber cut occurring. The OAs downstream from “OA4” experience a decrease in incoming power and may or may not declare loss of channels. Simultaneously, the OAs upstream from “OA1” and “OA3” continue to operate in normal mode.

Scenario 2: Restarting on an optical line link between terminals.

In the following figure, when the link between “OA1” and “OA2” is restored, the downstream Metropolis® EON clears the power loss condition and then notifies the upstream terminal of the correction. The upstream terminal then reverts “OA1” back to normal power. Provided there are no failures upstream, the downstream terminal also turns “OA3” back up. “OA1” and “OA3” adjust to normal power within one second of start-up.

Figure 1-2 Restart on an Optical Line Link Between Terminals (Two-OA)

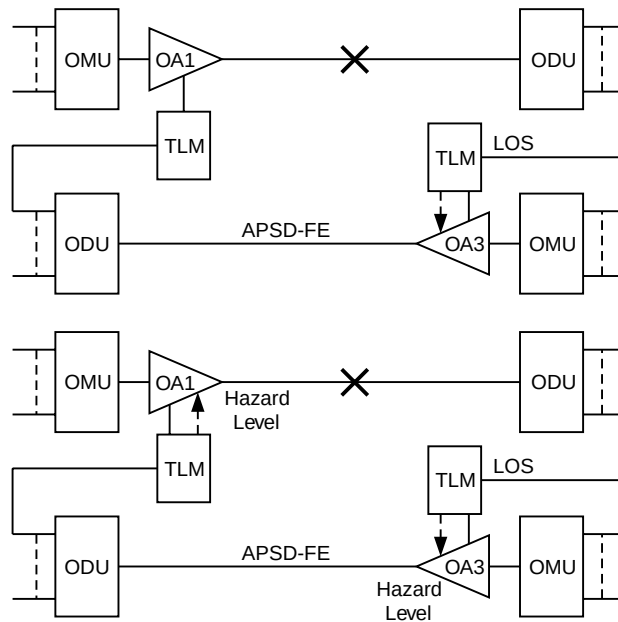
NC-OLS80G070

Single-OA operation

The following information describes various network reliability scenarios in which the APSD feature can be used for single-OA operation.

Scenario 1: Protection on an optical line link between terminals

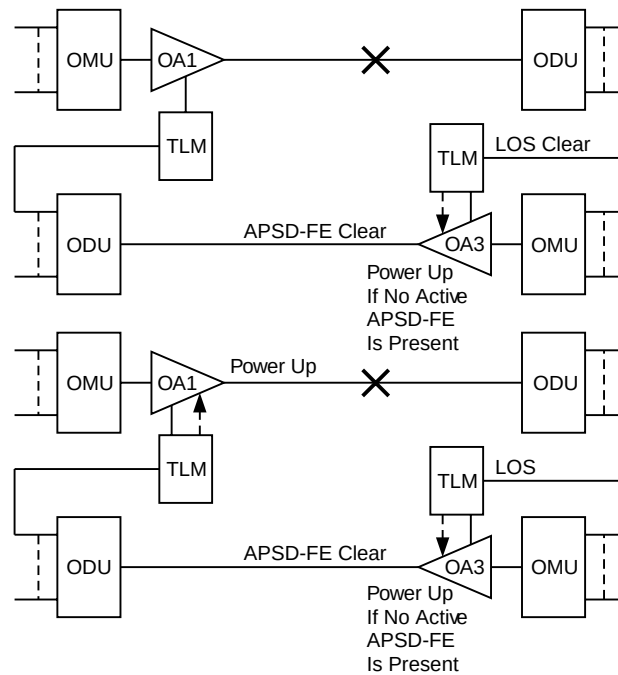
The following figure shows protection on an optical line link between terminals in a single-OA configuration. Here, optical line LOS stems from supervisory LOS detected by the TLM circuit pack. This could result in false APSD triggers due to failures in the upstream TLM. However, these false triggers do not adversely affect overall network reliability.

Figure 1-3 APSD from Optical Line Failure (Single-OA)

NC-OLS80G071

Scenario 2: Restarting on an optical line link between terminals.

The restart procedure for single-OA configuration is almost identical to Scenario 3. When the link between “OA1” and the ODU is restored, the telemetry circuit pack clears the LOS condition. It also clears the APSD-FE message on the supervisory output. The upstream Metropolis® EON detects the clearing of the message and instructs “OA1” to power up. Provided there is no active APSD-FE message from upstream, the downstream terminal powers up “OA3.” The following figure illustrates restarting in a single-OA configuration.

Figure 1-4 Restarting on an Optical Link Between Terminals (Single-OA)

NC-OLS80G072

Double failure contingencies

The following double failure contingencies exist with the APSD feature:

- If an incoming supervisory channel failure exists at an upstream Metropolis® EON, APSD cannot be activated.
- If an incoming supervisory channel with an active RDI condition fails, APSD cannot resume normal operation when it is activated. However, manual resumption of normal operation is possible.



Electrostatic discharge

Overview Electrostatic discharge (ESD) (for example, caused by touching with the hand) can destroy semiconductor components. The correct operation of the complete system is then no longer assured.

All semiconductor components are basically sensitive to electrostatic discharge. The electrostatic discharge can also affect the components indirectly using contacts or conductor tracks.

Barred-hand symbol Circuit packs containing components that are especially sensitive to electrostatic discharge are identified by warning labels bearing the barred-hand symbol.



ESD instructions Observe the following ESD instructions to avoid damage to electrostatic-sensitive components.

- Wear working garment made of 100% cotton to avoid electrostatic discharge.
- Touch the circuit packs at the edges or the insertion and removal facilities only.
- Ensure that the rack is grounded.
- Wear conductively connected wrist straps and connect them to the rack ESD bonding point.
- Work in an area which is protected against electrostatic discharge. Use conducting floor and bench mats which are conductively connected to the rack ESD bonding point.
- Conductively connect all test equipment and trolleys to the rack ESD bonding point.
- Store and ship circuit packs and components in their shipping packing. Circuit packs and components must be packed and unpacked only at workplaces suitably protected against build-up of charge.



Important safety instructions

Instructions Especially observe the following safety instructions, they are of particular importance for Metropolis® EON systems.

Invisible laser radiation



DANGER

Injury to eyes caused by invisible laser radiation.

*Metropolis® EON operates with invisible laser radiation.
Laser radiation can cause considerable injuries to the eyes.*

*Never look into the end of an exposed fiber or plug-in optical connectors as long as the optical source is switched on.
Always observe the laser warning instructions (cf. "Laser safety" (1-5)).*

Power supply plug



DANGER

Arcing on removing or inserting a live power supply plug.

Arcing can cause serious burns to the hands and damage to the eyes.

Shielded 10BaseT LAN cables



DANGER

Risk of electrical shock and/or serious injury

There is a risk of electrical shock and/or serious injury if shielded 10BaseT LAN cables are used, and the applicable national safety requirements have not been met.

*The usage of **shielded** 10BaseT LAN cables is only allowed if the applicable national safety requirements have been met by*

the user. Otherwise, there is a risk of electrical shock and/or serious injury.

Electrostatic discharge (ESD)



CAUTION

Destruction of components by electrostatic discharge.

Electronic components can be destroyed by electrostatic discharge.

Plug-in units must therefore always be kept in antistatic covers. Use the original packaging if possible. Always observe the ESD instructions (cf. “Electrostatic discharge” (1-15)).





2 Alarm Messages

Overview

Purpose This chapter provides information about various aspects of alarm messages.

Maintenance philosophy The Metropolis[®] EON allows operation and maintenance of network elements in a network from a centralized location. The Metropolis[®] EON continuously monitors the equipment and incoming signals, and reports any current or potential troubles. This enables the user to take the appropriate corrective action. The Metropolis[®] EON supports proactive and reactive maintenance.

Proactive maintenance

Proactive maintenance refers to the process of detecting degrading conditions not severe enough to initiate protection switching or alarming, but indicative of an impending hard or soft failure. Proactive maintenance consists of monitoring performance parameters associated with the optical lines, optical channels, supervisory signals, and optical translator signals (Release 3 and later).

Reactive maintenance

Reactive maintenance occurs after a failure. The LEDs on the indicator strip/user panel and circuit pack faceplates report internal troubles. Most troubles can be detected and corrected at this level. The craft interface terminal (CIT) may be used to retrieve detailed reports about

performance monitoring, alarm and status, and configurations for network elements in a network.

Contents

Maintenance Signals	2-3
Fault Detection and Isolation	2-6
Fault Reporting	2-8
Optical Translator Fault Reporting (Using the Miscellaneous Discrete Interface)	2-157
Protection Switching	2-162
Reports	2-167



Maintenance Signals

Overview The Metropolis® EON uses several maintenance related signals and messages to aid locating faults.

Description The Metropolis® EON is an optically amplified line system and has no access to the digital data in the optical line signal. Therefore, the Metropolis® EON cannot insert alarm indications signals (AIS), upstream failure indication signals (for example, remote defect indicator signals), and path unequipped signals at any of the SONET layers. However, the Metropolis® EON uses the following signals to support maintenance.

Tone signal The tone signal is a low frequency signal that is amplitude modulated on a drop side signal. Each drop side signal wavelength is assigned a tone signal with a unique frequency. The Telemetry Controller (TLM) circuit pack amplitude modulates a tone signal on the supervisory signal. The Optical Amplifier (OA) circuit packs use the tone signals to detect the presence of a signal.

The Metropolis® EON also uses the tone signal to derive the signal power of the drop side signal. The power of the tone signal is proportional to the power of the drop side signal. For detailed information about wavelengths and the approximate associated tone signal frequencies, refer to Chapter 10, “Technical Specifications” of the *Applications and Planning Guide, 365-575-558 R8.2*.

Supervisory signal The supervisory signal is a 155.52-Mb/s signal that is transmitted between Metropolis® EON network elements. The supervisory signal is transported in the supervisory channel of the optical line signal. The supervisory signal consists of the supervisory overhead (SONET overhead portion) and the customer maintenance payload (SONET payload portion). The supervisory overhead carries the data communications channel for communications between network elements.

Optical line ID The optical line ID is a value (0-4) used to uniquely identify each optical line. The TLM circuit pack inserts the optical line ID in the three least significant bits of the K2 byte of the supervisory overhead. The optical line ID is verified by the downstream TLM

circuit pack. The optical line ID is used to identify any fiber misconnections between Metropolis® EON network elements.

Section trace signal The system reads the section (J0) byte in the section overhead of an OC-48/STM16 signal, OC-192/STM64 signal. The OC-48/STM16 or OC-192/STM64 section trace signals are transmitted by a SONET OC-48/SDH STM16 or SONET OC-192/STM64 lightwave terminal repetitively to verify the continuity of the OC-48/STM16 or OC-192/STM64 section. The value of the expected incoming section trace signals is provisionable. The value of the provisionable expected incoming section trace signal is compared to the actual incoming signal to verify OC-48/STM16 or OC-192/STM64 section continuity.

The following circuit packs are capable of reading the section trace bytes:

- 41H_A and 41H_C OC-192/STM64 Optical Translator Unit (OTU) circuit packs
- 41A_C41C_C OC-48/STM16 Optical Translator Unit (OTU) circuit packs
- 46A Optical Translator Port Module (OTPM25) circuit packs

For more information about the

CONFIGURATION.Enter.Section_Trace and

CONFIGURATION.Retrieve.Section_Trace commands and provisioning section trace, refer to the on-line help available with the CenterLink Management Console or *Operations Systems Engineering Guide, 365-575-561 R8.2*.

Path trace signal The system reads the trace (J1) byte in the path overhead of a 2:1 Data Multiplexing OTU (2DM25) signal. The 2:1 Data Multiplexing OTU (2DM25) signal is transmitted and received by path trace fields (J1 byte) of a SONET path terminating signal. The 41M circuit pack is the only circuit pack capable of reading the path trace byte.

For more information about the **CONFIGURATION.Enter.Path_Trace** and **CONFIGURATION.Retrieve.Path_Trace** commands and provisioning path trace, refer to the on-line help available with the CenterLink Management Console or *Operations Systems Engineering Guide, 365-575-561 R8.2*.

Performance Monitoring for Data Signals

Starting with Release R8.2, enhanced performance monitoring (PM) for data signals will be based on new software and the new OTPM

UBB and 2:1 Data Multiplexing OTU (2DM25). The 8-bit/10-bit encoding scheme is accessed to identify loss of frame (LOF) in Gigabit Ethernet, FICON, Fiber Channel, ESCON, and other signals using 8B/10B encoding. Potential failures are identified before a Loss of Signal (LOS) on reporting signal degrade alarms to maintenance personnel.

**Data communications
channel**

The data communications channel of the supervisory signal carries the following out-of-band alarm indication messages to suppress downstream alarms.

Optical channel alarm indication message The optical channel alarm indication message notifies downstream equipment when an incoming optical channel loss of signal defect is declared at an OA circuit pack.

Optical line alarm indication message The optical line alarm indication message notifies downstream equipment when an incoming optical line loss of signal or an OA circuit pack defect is declared.

Important! The Optical Translator Unit (OTU) circuit packs and Optical Translator Port Modules (OTPMs) signal downstream transmission equipment by disabling the circuit pack output optical signal. The OTU circuit packs and OTPMs disable the output optical signal for incoming loss of signal, incoming loss of frame, incoming line AIS, and circuit pack failures. The OTU circuit packs and OTPMs do not insert line alarm indication signals or other SONET/SDH maintenance signals.

In Release 3 and later releases, users can provision the association of an Optical Translator port to an optical channel. This association is used for correlating alarms. For more information about correlating alarms, refer to Chapter 18, “Administration and Provisioning Concepts” in the *User Operations Guide, 365-575-599 R8.2*.



Fault Detection and Isolation

Description The Metropolis® EON continuously monitors its internal condition and incoming signals according to the state of the circuit pack slots, customer maintenance signal (CMS) ports, Optical Translator ports (Release 3 and later), optical channels, and optical lines. (For information about circuit pack slot, port, optical channels, and optical line states and transitions, refer to Chapter 18 "Administration and Provisioning Concepts" of the *User Operations Guide, 365-575-599 R8.2*. If a circuit pack slot is in the EQ state, the Metropolis® EON monitors the circuit pack and activates the appropriate indicators when a failure occurs.

Incoming signals and monitored condition The following table shows the incoming signals and the associated conditions monitored by the Metropolis® EON.

Incoming Signal Level (Note)	Monitored Conditions
Optical Line ¹	Loss of Signal (LOS)
Optical Channel ¹	Loss of Signal (LOS)
Supervisory Channel ¹	Failure Signal Degrade (SD) Signal Fail (SF)
Customer Maintenance Signal ²	Loss of Frame (LOF) Loss of Signal (LOS) Signal Degrade (SD) Signal Fail (SF)
Optical Translator Port Signal	Failure

Notes:

1. If the OA and OTU slots are in the EQ state, the associated incoming optical line signal is also monitored and alarmed
2. If the TLM slots are in the EQ state, the incoming supervisory signals are monitored and alarmed.

When a trouble condition is detected, the Metropolis® EON employs automatic diagnostics to isolate the failed circuit pack or signal. Most faults are isolated to a maximum of two circuit packs, but some faults may be isolated to more than two circuit packs. Failures are reported to

the local technician and operations systems so that repair decisions can be made. If desired, operations system personnel and the local technician can use the CIT to gain more detailed information on the trouble condition.



Fault Reporting

Overview All trouble conditions detected and isolated by the Metropolis® EON are stored and made available to be reported, on demand, through the CIT. In addition, a history of the past 500 alarm and status conditions and CIT events is maintained and available for on-demand reporting.

Description The CIT events include condition starting events, condition clearing events, autonomous actions by the system, and user actions. Each event is date and time stamped. The alarm level associated with each condition is the alarm level of the system at the time the condition is recorded. The Metropolis® EON also automatically reports all detected alarm and status conditions and CIT events through indicators that are subject to the provisionable incoming signal alarm delay and through indicators that are **not** subject to incoming signal alarm delay.

A history log of past alarm and status conditions and CIT events can be obtained by running the CenterLink command **FAULT.Retrieve.Log**. This log reports the past 500 alarm and status conditions and CIT events since the last initialization of the Network Element.

The following table lists and describes the SONET user panel indicators.

Table 2-1 User Panel Indicators for Metropolis® EON in SONET Applications

Indicator Name	Abbrev.	Type	Color	Description
Critical	CR	LED	Red	Indicates critical active alarm level
Major	MJ	LED	RED	Indicates major active alarm level
Minor	MN	LED	Yellow	Indicates minor active alarm level
Alarm Cut-off	ACO	SW/LED	Green	When depressed, silences active audible alarms
Abnormal	ABN	LED	Yellow	Indicates abnormal alarm condition

Indicator Name	Abbrev.	Type	Color	Description
Near End Activity	NE ACTY	LED	Yellow	Indicates alarm or status conditions at the local equipment
Far End Activity	FE ACTY	LED	Yellow	Indicates alarm or status conditions at the remote equipment

The following table lists and describes the SDH user panel indicators.

Table 2-2 User Panel Indicators for Metropolis® EON in SDH Applications

Indicator Name	Abbrev.	Type	Color	Description
Critical	CR	LED	Red	Indicates critical active alarm level
Prompt	PROMPT	LED	RED	Indicates prompt active alarm level
Deferred	DEFR	LED	Yellow	Indicates deferred active alarm level
Suppress	SUPPRESS	SW/LED	Green	When depressed, silences active audible alarms
Abnormal	ABN	LED	Yellow	Indicates abnormal alarm condition
Info-N	INFO-N	LED	Yellow	Indicates alarm or status conditions at the local equipment
Info-F	INFO-F	LED	Yellow	Indicates alarm or status conditions at the remote equipment

Incoming signal alarm

The following indicators are subject to incoming signal alarm delay.

- Audible and visible office alarm outputs
- Parallel telemetry outputs

- TL1 autonomous messages. TL1 autonomous messages for alarm and status conditions are only available on X.25 virtual circuits when the value of the OS Type parameter is provisioned "maintenance" or "other" using the **SECURITY-Enter_Channel Identifier-Security** command.
- For SONET alarms: Critical (CR), major (MJ), and minor (MN) LEDs on the indicator strip/user panel.
For SDH alarms: Critical (CR), Prompt, and Deferred (DEFR) on the indicator strip/user panel.

The following indicators are **not** subject to incoming signal alarm delay.

- FAULT LEDs on the circuit packs
- All CIT reports
- TL1 command response messages
- For SONET alarms: Abnormal (ABN), near-end activity (NE ACTY), far-end activity (FE ACTY), alarm cutoff (ACO), and POWER ON (PWR ON) LEDs on the indicator strip/user panel.
For SDH alarms: Abnormal (ABN), Suppress (SUPPRESS), Info-N (INFO-N), Info-F (INFO-F) and POWER ON (PWR ON) LEDs on the indicator strip/user panel.

The incoming signal alarm delay only applies to autonomous indications of the following incoming signal conditions.

- Incoming CMS LOF
- Incoming CMS LOS
- Incoming CMS SD
- Incoming CMS SF
- Incoming LSBB failure
- Incoming OC12 failure
- Incoming OC3 failure
- Incoming OC48 failure
- Incoming OC-192 failure
- Incoming OCH10G failure
- Incoming optical channel LOS
- Incoming optical channel SNR
- Incoming optical line LOS

- Incoming STM1 failure
- Incoming STM16 failure
- Incoming STM4 failure
- Incoming STM64 failure
- Incoming supr chnl fail
- Incoming supr chnl SD
- Incoming supr chnl SF
- Incoming UBB failure

Condition descriptions

Important! TL1 autonomous messages for alarm and status conditions are only available when the value of the OS Type parameter is provisioned using the **SECURITY-Enter_Channel Identifier-Security** command.

Note that autonomous messages cannot be viewed either via CenterLink or via the NE server.



Alarm Reporting on CenterLink

Purpose	The comments below show how alarms are reported on the CenterLink (local craft interface) application. The alarm tables in the next section show the comments for the CenterLink application.
Definition of a Condition reported on CenterLink	With CenterLink it is possible to retrieve all conditions in an NE. A condition is a process running at a specific moment. An alarm is also a process (interrupt) or a condition. Select FAULT.Retrieve.Condition.All to retrieve the conditions of an NE with the CenterLink application.
Conditions reported only on Centerlink	There are some conditions that are only reported on CenterLink; they are: • DCC APS data error: An error has been detected in the DCC APS byte. • inconsistent OTPM association: An association between an OTPM and an optical channel is inconsistent with the side configuration. • inconsistent OTU association: An association between an OTU and an optical channel is inconsistent with the side configuration. • INITSWD:IP: Initiate software download in progress. • logins inhibited: Logins are disabled. • MIB lock in progress: An operations system is uploading the network element management information base. • NE status comm failure: The NE is not associated with an AGNE or the AGNE can not establish associations with all of the NEs in the alarm group. If the AGNE loses power, all NEs in the alarm group will report this condition; however, the condition may not be reported for several minutes. • System incomplete: The designated Directory Server Network Element (DS-NE) is unable to create a complete ring because of a controller or transmission failure in the network. • System startup in progress: This is normally a transient condition that indicates the network is starting up. • test alarm in progress: An office alarm test is in progress. • test auto turnup in progress: An auto turnup test is in progress.

- test telemetry in progress: A telemetry test is in progress.
- TL-1 link failure: An incoming TL-1 link failure has been detected.

The Threshold Crossing Alerts (TCAs) are not reported as alarms on CenterLink. Select

PERFORMANCE.Retrieve.Performance_Monitoring to retrieve the TCAs of a specific parameter.



About Alarm Messages

Format of alarm descriptions

Each alarm message is accompanied by a table describing the following information.

Alarm Data	What It Means
Message	Refers to the actual alarm message displayed on CenterLink.
Information	Describes the fault and gives additional information about the function of the equipment involved.
Severity	Describes the severity of the alarm message. An alarm message can have the following severities: • CRITICAL, for service-affecting alarm (SDH and SONET). • PROMPT, for prompt maintenance alarm (SDH) or MAJOR (SONET). • DEFERRED, for deferred maintenance alarm (SDH) or MINOR (SONET). • INFORMATION, for maintenance event information. • INDETERMINATE, for an instantaneous alarm which does not have a concept of severity attached to it. The PROMPT/MAJOR, DEFERRED/MINOR, and INFORMATION severities can either be default, which means it can be changed by a user command, or fixed, which means it cannot be changed.

Alarm Data	What It Means
Category	Describes the type of alarm, to help locate the origin: • EQUIPMENT messages refer to unit failures. Most of the time replacement of the indicated unit will solve the problem. Most of the units have their own processor, perform self tests, and draw conclusions. • TRANSMISSION messages refer to a failure of communications to the network element, or between the network element and the subscriber. Most of the time further investigation on the origin of the problem is required. • ENVIRONMENT messages relate to equipment that does not directly relate to the EMS, for example, the housing, the air conditioning. • PROCESSING messages relate to processing of non-payload data in the STM link. • QUALITY OF SERVICE messages relate to alarms raised when the network element Performance Monitoring thresholds have been exceeded. • CONFIGURATION ERROR messages relate to alarms raised when the system has been incorrectly configured by the user.
On-site Indications	Describes the visual and audible alarm indicators generated at location of the network element location. This information describes what the Maintenance Technician should check before performing any corrective actions. Depending on the severity of the reported alarm one of the following LEDs on the User Panel is on: For SDH: CRITICAL, PROMPT, DEFERRED or INFO-N or INFO-F LED. For SONET: CRITICAL, MAJOR, MINOR, or NE ACTY or FE ACTY. The LED information that is given with each separate alarm message is depending on the default severity; If the default severity is changed then this information is not valid anymore. Station Alarm Interface information is not given on each individual alarm message. How the Station Alarm Interface is used depends on the settings and configuration of each customer.

Alarm Data	What It Means
Probable Cause	Provides more information about the reason why the message is generated. It gives more details on the origin of the fault to assist in diagnosing and solving the problem.
Actions	Refers to a specific identifier or task known as TAPs (for example TAP-101) that contains numbered steps, referred to as a procedure, for clearing this alarm. Alarms which are transient in nature and that do not require any external human intervention to clear will not have a procedure specified.
Note	Describes possible secondary impact of the alarm, and alerts the Maintenance Technician to special conditions encountered when correcting faults.
Navis TM Optical EMS Description	Shows the Navis TM Optical EMS fault identifier.



APSD-active-FE

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	APSD-active-FE
Information	An automatic optical amplifier power shut down is active due to a incoming loss of signal at the far end network element. The optical amplifiers are powered down to Class 1 levels for protection against possible exposure and optical surges.
Severity	INFORMATION (SDH)/FE ACTY (SONET)
Category	PROCESSING
On-site Indications	The INFO-F LED (SDH) or FE ACTY LED (SONET) on the user panel is illuminated.
Probable Cause	The network element received a telemetry remote defect indicator (TLM-RDI) which caused the activation of an automatic optical amplifier power shutdown. The TLM-RDI is sent out by the upstream adjacent network element. This upstream network element has detected a incoming loss of signal caused by: • a fiber cut, or • removed connectors, or • equipment failures.
Actions	See TAP 150
Note	After the problems are solved an automatic optical amplifier power restart is initiated. Within a second of the restart procedure the optical amplifiers adjust to their normal power levels.
Navis TM Optical EMS Description	APSDA



APSD-active-NE

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	APSD-active-NE - Reported as a condition on the CenterLink
Information	An automatic optical amplifier power shut down is active due to the detection of incoming loss of signal at the local network element.
Severity	INFORMATION (SDH)/NE ACTY (SONET)
Category	PROCESSING
On-site Indications	The observable signals are: • The INFO-N-LED (SDH) or NE ACTY LED (SONET) on the user panel is illuminated. • The FAULT LED on the optical amplifier is flashing. • In the downstream direction, a telemetry remote defect indicator (TLM-RDI) is activated.
Probable Cause	There is a problem with one or more of the following: • dirty connectors, or • removed connectors, or • a fiber cut, or • equipment failures.
Actions	See TAP-151
Note	After the problems are solved, an automatic optical amplifier power restart will be initiated. Within a second of the restart procedure the optical amplifiers adjust to their normal power levels.
Navis TM Optical EMS Description	APSDA



BC LAN 1 failure

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	BC LAN 1 failure - Reported as a condition on CenterLink.
Information	Control bus 1 of the duplicated BCLAN fails or is not available. The BCLAN transports control information between the Optical Translator Controller (OTCTL) and the Optical Translator Units (OTU and Quad OTU).
Severity	PROMPT (SDH)/MAJOR (SONET)
Category	EQUIPMENT
On-site Indications	The observable signals are: • If caused by a defect of one or more of the above mentioned units the FAULT LED on the faulty unit is illuminated. • The PROMPT/MAJOR LED on the user panel is illuminated. • A protective switch to the other control bus is initiated and, depending on the availability of that bus, the switch over is effectuated.
Probable Cause	Possibly one of the connecting units (OTCTL, OTU or Quad OTU) hangs up this bus.
Actions	See TAP 164
Note	Corrective action could affect the transmission services provided by the system.
Navis TM Optical EMS Description	BC-LAN-1-FAIL



BC LAN 2 failure

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	BC LAN 2 failure - Reported as a condition on CenterLink.
Information	The board controller circuitry on the circuit pack fails or is not available. BCLAN2 transports controller information between circuit packs installed in metroEON shelf and the SYSCTL/SYSMEM controller complex.
Severity	PROMPT (SDH)/MAJOR (SONET)
Category	EQUIPMENT
On-site Indications	The observable signals are: • If caused by a defect of one or more of the above mentioned units the FAULT LED on the faulty unit is illuminated. • The PROMPT/MAJOR LED on the user panel is illuminated. • A protective switch to the other control bus is initiated and, depending on the availability of that bus, the switch over is effectuated.
Probable Cause	One of the following has occurred: • The board controller circuitry on the circuit pack has failed and has caused the bus to hang up. • There is a problem with the BCLAN located on the OLS shelf.
Actions	See TAP 165
Note	Corrective action could affect the transmission services provided by the system.
Navis TM Optical EMS Description	BC-LAN-2-FAIL



companion NE not reachable

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	companion NE not reachable
Information	The west facing end terminal cannot communicate with the east facing end terminal
Severity	DEFERRED (SDH)/MINOR (SONET)
Category	PROCESSING
On-site Indications	
Probable Cause	There is a problem with one or more of the following: • The COMPANION_TID(s) • The LAN cable(s) • The connector/crossover adaptor • The LAN pack(s) • The Hub
Actions	See TAP 178
Note	
Navis TM Optical EMS Description	CPNENR



CP reset in progress

Alarm meaning The table below gives the meaning of the alarm.

Alarm Data	What It Means
Message	CP reset in progress - Reported as a condition on CenterLink. The Maintenance Log file can be retrieved by selecting the command FAULT.Retrieve.Log in CenterLink.
Information	A circuit pack has been installed and the necessary software is being downloaded to the circuit pack.
Severity	INFORMATION (SDH)/NE ACTY (SONET)
Category	EQUIPMENT
On-site Indications	The INFO-N LED (SDH) or NE ACTY LED (SONET) on the user panel is illuminated.
Probable Cause	A software download to a circuit pack is still in progress.
Actions	See TAP 121
Note	A software download takes: • 15 minutes for SYSCTL and SYSMEM, or • 10 minutes for OTCTL and TOHCTL, or • 1 minute for all other circuit packs.
Navis TM Optical EMS Description	CONTR - Note that Navis TM Optical EMS does not report "CP reset". The system displays "CP failure" until the download is complete.



CP (unknown type) failure

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	CP (unknown type) failure
Information	The circuit pack in the indicated slot has failed, but its type is unknown.
Severity	PROMPT (SDH)/MAJOR (SONET)
Category	EQUIPMENT
On-site Indications	The observable signals are: • The PROMPT/MAJOR LED on the user panel is illuminated. • The LED on the corresponding unit (circuit pack) is illuminated.
Probable Cause	Insertion of wrong unit type or circuit pack has failed.
Actions	See TAP 123
Note	
Navis TM Optical EMS Description	PRCDRERR



CP (unknown type) removed

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	CP (unknown type) removed
Information	The circuit pack in the indicated slot has been removed, but its type is unknown.
Severity	PROMPT (SDH)/MAJOR (SONET)
Category	EQUIPMENT
On-site Indications	The PROMPT/MAJOR LED on the user panel is illuminated.
Probable Cause	Circuit pack removed.
Actions	See TAP 122
Note	
Navis TM Optical EMS Description	IMPROPRMVL



CPYPGM:IP tid

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	CPYPGM:IP
Information	Copy program in progress.
Severity	INFORMATION (SDH)/NE ACTY (SONET)
Category	Equipment
On-site Indications	The LED on the user panel is illuminated.
Probable Cause	Copy program is still in progress.
Actions	See TAP 117
Note	Copying the program to the local network element takes approximately 15 minutes.
Navis TM Optical EMS Description	IP-CPY-SW-PRGM



CT login

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	CT login - This alarm is not reported as an alarm on the CenterLink. In the Maintenance Log file, a record is kept of all logins and logouts of the NE. The Maintenance Log file can be retrieved by selecting the command Fault->Retrieve->log in CenterLink.
Information	A user is logged in via a Craft Interface Terminal (CIT) to the indicated network element.
Severity	INDETERMINATE
Category	PROCESSING
On-site Indications	None.
Probable Cause	CIT user is locally logged into the network element.
Actions	If you have the highest priority to make changes to the MIB of this network element, you can change the "Lock-out state".
Note	You must have Supervisor privileges to make changes to the "Edit CIT Access Control Information" window.
SNMS Description	MAN



CT logout/logout remote link down/logout timeout/login:deny

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	CT logout - This alarm is not reported as an alarm on CenterLink. In the Maintenance Log file, a record is kept of all logins and logouts of the NE.
Information	A user is logging out via a Craft Interface Terminal (CIT) from the has indicated network element, has specified an invalid password or user privileges, or the system has timed out.
Severity	INDETERMINATE
Category	PROCESSING
On-site Indications	None.
Probable Cause	CIT user is logging out of the network element, has specified an invalid password or user privileges, or the system has timed out.
Actions	None, wait 15 minutes to let the CIT user log out if you want to make changes to the network element.
Note	
Navis™ Optical EMS Description	MAN



DCC startup in progress

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What it means
Message	DCC startup in progress - Reported as a condition on CenterLink.
Information	The Data Communication Channel (DCC) is starting up.
Severity	PROMPT (SDH)/MAJOR (SONET)
Category	PROCESSING
On-site Indications	The INFO-N LED (SDH) or NE ACTY LED (SONET) on the user panel is illuminated.
Probable Cause	DCC is starting up due restoration of the management link.
Actions	See TAP 103
Note	The interaction between the network elements takes from 10 to 15 minutes. Communication with other network elements may result in DCC failure.
Navis TM Optical EMS Description	None



DCM input LOS

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	DCM input LOS
Information	A loss of signal (LOS) condition is detected at the DCM IN port of an OA.
Severity	DEFERRED (SDH)/MINOR (SONET) (provisionable)
Category	TRANSMISSION
On-site Indications	The observable signals are: • The FAULT LED on the reporting circuit pack is flashing. • The DEFERRED/MINOR LED on the user panel is illuminated.
Probable Cause	There is a problem with one or more of the following: • The fiber or connections between DCM IN on the OA and OUT on the DCM • The fiber between DCMs, if two DCMs are being used • The fiber or connections between DCM OUT on the OA and IN on the DCM • The OA • The DCM
Actions	See TAP 175
Note	
Navis TM Optical EMS Description	LOS



different OA types in side

Alarm meaning

Alarm Data	What It Means
Message	different OA types in side - Further information about the side is reported in the alarm description.
Information	There are two different types of Optical Amplifier (OA) circuit packs detected on the same side of an end terminal network element. The OA circuit packs on the same side of the end terminal network element must be of the same type.
Severity	DEFERRED (SDH)/MINOR (SONET)
Category	PROCESSING
On-site Indications	The observable signals are: • The FAULT LED on the OA is illuminated. • The DEFERRED/MINOR LED on the user panel is illuminated.
Probable Cause	An incorrect Optical Amplifier type is inserted.
Actions	See TAP 140
Note	Dual facing terminals are capable of supporting OAs of different types on each side of the terminal. The OAs in optical line pair 1A and 2A and line pair 1B and 2B could be of different types. But the OAs in a side (side1 or side 2) must be of the same type. Since (non-dual) end terminals and repeater network elements have only 1 side, all OAs in this network element must be of the same type. The only exception is that the LEA7 and LEA7B OAs can be combined on the same side in any node.
Navis TM Optical EMS Description	None - Causes loss of communication with NE



DSNE not reachable

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	DS-NE not reachable - Reported as a condition on CenterLink.
Information	Network routing information may not be up to date because the DSNE (Directory Service Network Element) is not reachable.
Severity	INFORMATION (SDH)/NE ACTY (SONET) (provisionable via CenterLink)
Category	PROCESSING
On-site Indications	The INFO-N LED (SDH) or NE ACTY LED (SONET) on the user panel is illuminated.
Probable Cause	There is a problem with one or more of the following: • The local network element has lost contact with the DSNE-node. • The local network element has not identified the DSNE-node in the network.
Actions	See TAP 137
Note	Remote alarming and remote login are not available if this condition arises within five minutes after start up (and will not be fully available if it rises after this period) due to missing routing information.
Navis TM Optical EMS Description	DSNE-NR



duplicate TID defined

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	duplicate TID defined
Information	The node name for this network element is not unique in the network, so network maintenance is not available for this node.
Severity	DEFERRED (SDH)/MINOR (SONET)
Category	CONFIGURATION ERROR
On-site Indications	The DEFERRED/MINOR LED on the user panel is illuminated.
Probable Cause	The DSNE-node refuses to register the local network element because another node with the same node name has already been registered.
Actions	See TAP 138
Note	
Navis TM Optical EMS Description	DUPL-TID



equipage/prov mode inconsistent

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	equipage/prov mode inconsistent
Information	The equipped Optical Amplifier (OA) circuit pack is not compatible with the provisioned terminal configuration mode.
Severity	DEFERRED (SDH)/MINOR (SONET)
Category	PROCESSING
On-site Indications	The observable signals are: • The FAULT LED on the OA circuit pack is illuminated. • The DEFERRED/MINOR LED on the user panel is illuminated.
Probable Cause	There is a problem with one or more of the following: • A wrong or faulty OA circuit pack is inserted, or • The OA circuit pack is not compatible with the terminal type (dirn) and/or side types provisioned in CenterLink, or • The network element has not been provisioned correctly.
Actions	See TAP 141
Note	
Navis TM Optical EMS Description	OAPMMM



fuse/power failure A

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	fuse/power failure A - Further information about the shelf is reported in the alarm description.
Information	A blown fuse, a defective filter, or power failure in feeder A of OT or metroEON shelf is detected.
Severity	PROMPT (SDH)/MAJOR (SONET)
Category	EQUIPMENT
On-site Indications	In case the user panel is not affected by the fuse/power failure the PROMPT/MAJOR LED on the user panel is illuminated.
Probable Cause	The network element has: • a blown fuse or power failure in feeder A, or • a power failure in OT or metroEON shelf, or • a defective filter board.
Actions	See TAP 119
Note	
Navis TM Optical EMS Description	PWR



fuse/power failure B

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	fuse/power failure B - Further information is reported in the alarm description.
Information	A blown fuse, a defective filter, or power failure in feeder B of OT or metroEON shelf is detected.
Severity	PROMPT (SDH)/MAJOR (SONET)
Category	EQUIPMENT
On-site Indications	In case the user panel is not affected by the fuse/power failure the PROMPT/MAJOR LED on the user panel is illuminated.
Probable Cause	The network element has: • a blown fuse or a power failure in feeder B, or • a power failure in OT or metroEON shelf, or • a defective filter board.
Actions	See TAP 119
Note	
Navis TM Optical EMS Description	PWR



fuse/power failure A and B

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	fuse/power failure A and B - Further information is reported in the alarm description.
Information	A blown fuse, a defective filter, or power failure in feeders A and B of OT or metroEON shelf is detected.
Severity	PROMPT (SDH)/MAJOR (SONET)
Category	EQUIPMENT
On-site Indications	In case the user panel is not affected by the fuse/power failure the PROMPT/MAJOR LED on the user panel is illuminated.
Probable Cause	The network element has: • a blown fuse or power failure in feeders A and B, or • a power failure in OT or metroEON shelf, or • a defective filter board.
Actions	See TAP 119
Note	
Navis TM Optical EMS Description	PWR



incoming CMS LOF

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	incoming CMS LOF
Information	Alignment to the frame structure of the received STM-1 CMS signal is not possible. Therefore MS overhead and payload data cannot be extracted
Severity	DEFERRED (SDH)/MINOR (SONET)
Category	TRANSMISSION
On-site Indications	The observable signals are: • The FAULT LED on the unit flashes. • The DEFERRED/MINOR LED on the user panel is illuminated.
Probable Cause	The likely causes of this alarm are: • Equipment faults in the upstream network element. • Local station erroneous routing of intermediate cabling.
Actions	See TAP 110
Note	In the upstream direction, “MS Remote Defect Indicator” is activated.
Navis TM Optical EMS Description	LOF



incoming CMS LOS

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	incoming CMS LOS
Information	STM-1 CMS Loss Of Signal: The power level of the received signal is below a defined level and Loss Of Frame alignment (LOF) is detected.
Severity	PROMPT (SDH)/MAJOR (SONET)
Category	TRANSMISSION
On-site Indications	The observable signals are: • The FAULT LED on the unit flashes. • The PROMPT/MAJOR LED on the user panel is illuminated.
Probable Cause	There is a problem with one or more of the following: • Cable rupture. • Dirty optical connector(s). • Equipment fault(s) in the upstream far end station of the node that reported the alarm.
Actions	See TAP 110
Note	
Navis TM Optical EMS Description	LOS



incoming CMS SD

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	incoming CMS SD
Information	The Equivalent Bit Error Rate (EBER) of the incoming STM-1 signal exceeds the Signal Degrade threshold. This EBER is determined by counting BIP24 errors. The Signal Degrade threshold can be provisioned via the management system.
Severity	DEFERRED (SDH)/MINOR (SONET)
Category	TRANSMISSION
On-site Indications	The observable signals are: • The FAULT LED on the unit flashes. • The DEFERRED/MINOR LED on the user panel is illuminated.
Probable Cause	Fault(s) in upstream external cabling or equipment.
Actions	See TAP 110
Note	
Navis TM Optical EMS Description	T-BERL



incoming CMS SF

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	incoming CMS SF
Information	The Equivalent Bit Error Rate (EBER) of the incoming STM-1 CMS signal exceeds an excessive error threshold (10EXP-3). This EBER is determined by counting BIP24 errors.
Severity	DEFERRED (SDH)/MINOR (SONET)
Category	TRANSMISSION
On-site Indications	The observable signals are: • The LED on the unit flashes. • The DEFERRED/MINOR LED on the user panel is illuminated. If “invoke AIS on Excessive Errors on Section” is true: • In the upstream direction, “MS Remote Defect Indicator” is activated. • In the downstream direction, AIS is inserted into the next function.
Probable Cause	There is a problem with one or more of the following: • Equipment fault(s) in unit in adjacent upstream station. • Faults in external cabling.
Actions	See TAP 110
Note	
Navis TM Optical EMS Description	T-BERL



incoming ESCON LOS

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What it means
Message	incoming ESCON LOS (or "failure")
Information	A failure in the incoming ESCON signal.
Severity	DEFERRED (SDH)/MINOR (SONET) (provisionable)
Category	TRANSMISSION
On-site Indications	The observable signals are: • The FAULT LED on the OTU is flashing. • The DEFERRED (SDH)/MINOR (SONET) LED on the user panel is illuminated.
Probable Cause	There is a problem with one or more of the following: • The fiber connected to the OTU/OTPM input is dirty. • The fiber connected to the OTU/OTPM input is not securely connected. • There is a problem with the OTU/OTPM. • There is a problem with upstream equipment.
Actions	See TAP-149
Note	
Navis™ Optical EMS Description	LOS



incoming FC-100 LOS

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What it means
Message	incoming FC-100 LOS (or "failure")
Information	A failure in the incoming FC-100 signal.
Severity	DEFERRED(SDH)/MINOR (SONET)(provisionable)
Category	TRANSMISSION
On-site Indications	The observable signals are: • The FAULT LED on the OTU is flashing. • The DEFERRED (SDH)/MINOR (SONET) LED on the user panel is illuminated.
Probable Cause	There is a problem with one or more of the following: • The fiber connected to the OTU/OTPM input is dirty. • The fiber connected to the OTU/OTPM input is not securely connected. • There is a problem with the OTU/OTPM. • There is a problem with upstream equipment.
Actions	See TAP-149
Note	
Navis TM Optical EMS Description	LOS



incoming FICON LOS

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What it means
Message	incoming FICON LOS (or "failure")
Information	A failure in the incoming FICON signal.
Severity	DEFERRED(SDH)/MINOR(SONET)(provisionable)
Category	TRANSMISSION
On-site Indications	The observable signals are: • The FAULT LED on the OTU is flashing. • The DEFERRED (SDH)/MINOR (SONET) LED on the user panel is illuminated.
Probable Cause	There is a problem with one or more of the following: • The fiber connected to the OTU/OTPM input is dirty. • The fiber connected to the OTU/OTPM input is not securely connected. • There is a problem with the OTU/OTPM. • There is a problem with upstream equipment.
Actions	See TAP-149
Note	
Navis TM Optical EMS Description	LOS



inc. (from Supr) DCC failure

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	inc. (from Supr) DCC failure
Information	The local network element cannot communicate through the supervisory signal data communications channel (DCC).
Severity	PROMPT (SDH)/MAJOR (SONET) (provisionable via CenterLink)
Category	PROCESSING
On-site Indications	The DEFERRED/MINOR LED on the user panel is illuminated.
Probable Cause	There is a problem with one or more of the following: • NE and/or upstream NE uses telemetry feed-through but has LAN enabled. • The Overhead Controller - Tributary (TOHCTL) is starting up. • Failure in the upstream network element. • Failure of the Overhead Controller - Tributary (TOHCTL). • Hardware failures at the source of the incoming supervisory signal.
Actions	See TAP 120
Note	
Navis TM Optical EMS Description	EOC



Incoming GbE-1 failure

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	GbE-1 LOS
Information	A failure in the incoming GbE-1 signal.
Severity	DEFERRED (SDH)/MINOR (SONET) - default
Category	TRANSMISSION
On-site Indications	The observable signals are: • The FAULT LED on the reporting circuit pack is flashing. • The DEFERRED/MINOR LED on the user panel is illuminated.
Probable Cause	There is a problem with one or more of the following: • A failure of the GbE-1 circuit pack. • Equipment fault(s) in the local station. • A fault in an upstream network element • Dirty optical connectors.
Actions	See TAP 149
Note	
Navis™ Optical EMS Description	FAIL



incoming GbE-1 LOS

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What it means
Message	incoming GbE-1 (or "failure")
Information	A failure in the incoming GbE-1 signal.
Severity	DEFERRED(SDH)/MINOR (SONET)(provisionable)
Category	TRANSMISSION
On-site Indications	The observable signals are: • The FAULT LED on the OTU is flashing. • The DEFERRED (SDH)/MINOR (SONET) LED on the user panel is illuminated.
Probable Cause	There is a problem with one or more of the following: • The fiber connected to the OTU/OTPM input is dirty. • The fiber connected to the OTU/OTPM input is not securely connected. • There is a problem with the OTU/OTPM. • There is a problem with upstream equipment.
Actions	See TAP-149
Note	
Navis TM Optical EMS Description	LOS



incoming ISC_CF LOS

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What it means
Message	incoming ISC_CF LOS (or "failure")
Information	A failure in the incoming ISC_CF signal.
Severity	DEFERRED(SDH)/MINOR(SONET)(provisionable)
Category	TRANSMISSION
On-site Indications	The observable signals are: • The FAULT LED on the OTU is flashing. • The DEFERRED (SDH)/MINOR (SONET) LED on the user panel is illuminated.
Probable Cause	There is a problem with one or more of the following: • The fiber connected to the OTU/OTPM input is dirty. • The fiber connected to the OTU/OTPM input is not securely connected. • There is a problem with the OTU/OTPM. • There is a problem with upstream equipment.
Actions	See TAP-149
Note	
Navis™ Optical EMS Description	LOS



incoming LAN link failure

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	incoming LAN link failure
Information	The incoming LAN bus fails or is unavailable.
Severity	DEFERRED (SDH)/MINOR (SONET)
Category	EQUIPMENT
On-site Indications	The observable signals are: • The FAULT LED on the reporting unit is illuminated. • The DEFERRED/MINOR LED on the user panel is illuminated.
Probable Cause	There is a problem with one or more of the following: • The on board self-test circuitry indicates that a essential function of the reporting unit has failed. • LAN has been enabled but LAN card is not installed. • Network connection has been lost or is unavailable.
Actions	See TAP 106
Note	The replacing action could effect the transmission services provided by the system.
Navis TM Optical EMS Description	EOC



incoming loss of packet delineation

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What it means
Message	incoming loss of packet delineation
Information	The input signal to the OTU has valid optical power but invalid content.
Severity	DEFERRED (SDH)/MINOR (SONET)
Category	TRANSMISSION
On-site Indications	The observable signals are: • The FAULT LED on the OTU is flashing. • The DEFERRED (SDH)/MINOR (SONET) LED is illuminated.
Probable Cause	There is a problem with the upstream equipment that is sending the signal or there is a problem with the OTU.
Actions	See TAP 179
Note	
Navis TM Optical EMS Description	LOS



incoming LSBB failure

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	incoming LSBB failure
Information	A loss of low speed broadband signal on an incoming low speed broadband port has been detected.
Severity	DEFERRED (SDH)/MINOR (SONET)
Category	TRANSMISSION
On-site Indications	The observable signals are: • The FAULT LED on the reporting circuit pack is flashing. • The DEFERRED/MINOR LED on the user panel is illuminated.
Probable Cause	There is a problem with one or more of the following: • A failure of the low speed broadband circuit pack. • A loss-of-signal (LOS) failure in the incoming upstream low speed broadband line (receive fiber). • Dirty optical connectors. • Equipment fault in the local station. • Fault in an upstream network element. • Failure of equipment sending LSBB signal.
Actions	See TAP 149
Note	
Navis TM Optical EMS Description	LOS



incoming OC3 failure

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	incoming OC3 failure
Information	A failure in the incoming OC3 signal.
Severity	MINOR - default
Category	TRANSMISSION
On-site Indications	The observable signals are: • The FAULT LED on the unit flashes. • The MINOR LED on the user panel is illuminated.
Probable Cause	There is a problem with one or more of the following: • Fault in an upstream network element. • Equipment fault(s) in the local station. • Dirty optical connectors. • A failure of the OC3 circuit pack. • Failure of equipment sending OC3 signal. • A loss-of-signal (LOS) failure in the incoming upstream OC3 line (receive fiber).
Actions	See TAP 149
Note	
Navis TM Optical EMS Description	LOS



incoming OC3 signal degrade

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	incoming OC3 signal degrade
Information	A signal degrade in the incoming signal.
Severity	MINOR - default
Category	TRANSMISSION
On-site Indications	The MINOR LED on the user panel is illuminated.
Probable Cause	There is a problem with one or more of the following: • Incoming signal has exceeded the preset level of 10^{-6}. • Defective pack. • Damaged fiber. • Dirty optical connectors. • Signal degrade upstream where signal is added or passed through.
Actions	See TAP 174
Note	
Navis TM Optical EMS Description	FAIL



incoming OC12 failure

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	incoming OC12 failure
Information	A failure has been detected on the incoming OC12 signal.
Severity	MINOR - default
Category	TRANSMISSION
On-site Indications	The observable signals are: • The FAULT LED on the unit flashes. • The MINOR LED on the user panel is illuminated.
Probable Cause	There is a problem with one or more of the following: • Fault in an upstream network element. • Equipment fault(s) in the local station. • Dirty optical connectors. • A failure of the OC12 circuit pack. • Failure of equipment sending OC12 signal. • A loss-of-signal (LOS) failure in the incoming upstream OC12 line (receive fiber).
Actions	See TAP 149
Note	
Navis TM Optical EMS Description	LOS



incoming OC12 signal degrade

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	incoming OC12 signal degrade
Information	A signal degrade in the incoming signal.
Severity	MINOR - default
Category	TRANSMISSION
On-site Indications	The MINOR LED on the user panel is illuminated.
Probable Cause	There is a problem with one or more of the following: • Incoming signal has exceeded the preset level of 10^{-6}. • Defective pack. • Damaged fiber. • Dirty optical connectors. • Signal degrade upstream where signal is added or passed through.
Actions	See TAP 174
Note	
Navis TM Optical EMS Description	FAIL



incoming OC48 failure

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	incoming OC48 failure
Information	A failure in the incoming OC48 signal.
Severity	MINOR - default
Category	TRANSMISSION
On-site Indications	The observable signals are: • The FAULT LED on the unit flashes. • The MINOR LED on the user panel is illuminated.
Probable Cause	There is a problem with one or more of the following: • Fault in an upstream network element. • Equipment fault(s) in the local station. • Dirty optical connectors. • A failure of the OC48 circuit pack. • Failure of equipment sending OC48 signal. • A loss-of-signal (LOS) failure in the incoming upstream OC48 line (receive fiber).
Actions	See TAP 149
Note	
Navis TM Optical EMS Description	LOS



incoming OC48 signal degrade

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	incoming OC48 signal degrade
Information	A signal degrade in the incoming signal.
Severity	MINOR - default
Category	TRANSMISSION
On-site Indications	The MINOR LED on the user panel is illuminated.
Probable Cause	There is a problem with one or more of the following: • Incoming signal has exceeded the preset level of 10^{-6}. • Defective pack. • Damaged fiber. • Dirty optical connectors. • Signal degrade upstream where signal is added or passed through.
Actions	See TAP 174
Note	
Navis TM Optical EMS Description	FAIL



incoming OC-192 failure

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What it means
Message	incoming OC-192 failure
Information	A failure in the incoming OC-192 signal.
Severity	DEFERRED(SDH)/MINOR(SONET)(provisionable)
Category	TRANSMISSION
On-site Indications	The observable signals are: • The FAULT LED on the OTU is flashing. • The DEFERRED (SDH)/MINOR (SONET) LED on the user panel is illuminated.
Probable Cause	There is a problem with one or more of the following: • The fiber connected to the OTU input is dirty. • The fiber connected to the OTU input is not securely connected. • Equipment fault(s) in the local station. • There is a problem with the OTU. • There is a problem with upstream equipment.
Actions	See TAP-149
Note	
Navis TM Optical EMS Description	LOS



incoming OCH10G failure

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What it means
Message	incoming OCH10G failure
Information	A failure in the incoming OCH10G signal.
Severity	DEFERRED(SDH)/MINOR (SONET)(provisionable)
Category	TRANSMISSION
On-site Indications	The observable signals are: • The FAULT LED on the OTU is flashing. • The DEFERRED (SDH)/MINOR (SONET) LED on the user panel is illuminated.
Probable Cause	There is a problem with one or more of the following: • The fiber connected to the OTU input is dirty. • Equipment fault(s) in the local station. • The fiber connected to the OTU input is not securely connected. • There is a problem with the OTU. • There is a problem with upstream equipment.
Actions	See TAP-149
Note	
Navis TM Optical EMS Description	LOS



Incoming optical channel LOS

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	incoming optical channel LOS
Information	An optical channel loss-of-signal (LOS) condition has been detected on an incoming optical channel.
Severity	PROMPT (SDH)/MAJOR (SONET) (provisionable via CenterLink)
Category	TRANSMISSION
On-site Indications	The observable signals are: • The FAULT LED on the reporting circuit pack is flashing. • The PROMPT/MAJOR LED on the user panel is illuminated.
Probable Cause	For the receive direction: • Optical line power levels are marginal. For the transmit direction: • OMU failures. • Fiber jumper or connector failures between the OMU and the OA circuit pack. • Upstream failure conditions have been changed to not monitored. • Dirty optical connectors. • OTU/OTPM failure • Problem with equipment sending channel signal to EON system.
Actions	See TAP 110
Note	
Navis TM Optical EMS Description	LOS



incoming optical line LOS

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	incoming optical line LOS
Information	An optical line loss of signal (LOS) condition is detected on an incoming optical line. This alarm is provisionable by the user.
Severity	DEFERRED (SDH)/MINOR (SONET) (provisionable)
Category	TRANSMISSION
On-site Indications	The observable signals are: • The FAULT LED on the reporting circuit pack is flashing. • The DEFERRED/MINOR LED on the user panel is illuminated.
Probable Cause	For the receive direction: • Optical line power levels are marginal • Dirty optical connectors • .Fiber jumper or connector failures between the upstream NE and the OA or LIRCV circuit pack For the transmit direction: • Dirty optical connectors • Fiber cut on an incoming line. • OA/OMU failures. • Fiber jumper or connector failures between the OMU and the OA circuit pack.
Actions	See TAP 110
Note	
Navis TM Optical EMS Description	LOS



incoming OUPSR AIN LOS

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	incoming OUPSR AIN LOS
Information	An OUPSR loss-of-signal (LOS) condition has been detected at port A input of an OUPSR circuit pack.
Severity	DEFERRED (SDH)/MINOR (SONET)
Category	EQUIPMENT
On-site Indications	The observable signals are: • The red FAULT LED on the reporting circuit pack is flashing. • The A STATUS LED on the OUPSR circuit pack has changed from green to red. • The DEFERRED/MINOR LED on the user panel is illuminated.
Probable Cause	This alarm is caused by: • Dirty optical connectors • Failure at upstream equipment providing optical signal to the AIN port. • High loss or open optical fiber connection to the AIN.
Actions	See TAP 172
Note	
Navis TM Optical EMS Description	LOS



incoming OUPSR BIN LOS

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	incoming OUPSR BIN LOS
Information	An OUPSR loss-of-signal (LOS) condition has been detected at port B input of an OUPSR circuit pack.
Severity	DEFERRED (SDH)/MINOR (SONET)
Category	EQUIPMENT
On-site Indications	The observable signals are: • The red FAULT LED on the reporting circuit pack is flashing. • The B STATUS LED on the OUPSR circuit pack has changed from green to red. • The DEFERRED/MINOR LED on the user panel is illuminated.
Probable Cause	This alarm is caused by: • Dirty optical connectors • Failure at upstream equipment providing optical signal to the BIN port. • High loss or open optical fiber connection to the BIN port.
Actions	See TAP 172
Note	
Navis™ Optical EMS Description	LOS



incoming OUPSR CIN LOS

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	incoming OUPSR CIN LOS
Information	A loss of signal (LOS) condition is detected at the CIN port of an OUPSR.
Severity	DEFERRED (SDH)/MINOR (SONET)
Category	TRANSMISSION
On-site Indications	The observable signals are: • The FAULT LED on the reporting circuit pack is flashing. • The DEFERRED/MINOR LED on the user panel is illuminated.
Probable Cause	There is a problem with one or more of the following: • The OUPSR • The fiber or connections between CIN and the client signal (could be direct or through an OTU) • The OTU, if one is used • The connections at the cross-connect panel where the client fiber comes in • The client fiber • The client signal
Actions	See TAP 176
Note	
Navis TM Optical EMS Description	LOS



incoming payload type mismatch

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	incoming payload type mismatch
Information	Provisioned payload type differs from the detected rate. The payload type of the 2:1 Data Multiplexing OTU (2DM25) client side signal is different from the provisioned payload type.
Severity	DEFERRED (SDH)/MINOR (SONET) - default
Category	TRANSMISSION
On-site Indications	The observable signals are: • The FAULT LED is illuminated when a loss of signal occurs. • The DEFERRED/MINOR LED on the user panel is illuminated.
Probable Cause	There is a problem with one or more of the following: • Client is sending a signal of a different type than is authorized • Payload type has been provisioned incorrectly.
Actions	See TAP-173
Note	
Navis TM Optical EMS Description	LOS



incoming STM1 failure

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	incoming STM1 failure
Information	A failure in the incoming STM-1 (OTPM) signal.
Severity	DEFERRED (SDH)/MINOR (SONET) - default
Category	TRANSMISSION
On-site Indications	The observable signals are: • The FAULT LED on the unit flashes. • The DEFERRED/MINOR LED on the user panel is illuminated.
Probable Cause	There is a problem with one or more of the following: • Fault in an upstream network element. • Equipment fault(s) in the local station. • Dirty optical connectors • A failure of the STM1 circuit pack • Failure of equipment sending STM1 signal • A loss-of-signal (LOS) failure in the incoming upstream STM1 line (receive fiber).
Actions	See TAP 149
Note	
Navis TM Optical EMS Description	LOS



incoming STM1 signal degrade

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	incoming STM1 signal degrade
Information	A signal degrade in the incoming signal.
Severity	MINOR - default
Category	TRANSMISSION
On-site Indications	The MINOR LED on the user panel is illuminated.
Probable Cause	There is a problem with one or more of the following: • Incoming signal has exceeded the preset level of 10^{-6}. • Defective pack. • Damaged fiber. • Dirty optical connectors • Signal degrade upstream where signal is added or passed through.
Actions	See TAP 174
Note	
Navis TM Optical EMS Description	FAIL



incoming STM4 failure

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	incoming STM4 failure
Information	A failure in the incoming STM-4 (OTPM) signal.
Severity	DEFERRED (SDH)/MINOR (SONET) - default
Category	TRANSMISSION
On-site Indications	The observable signals are: • The FAULT LED on the unit flashes. • The DEFERRED/MINOR LED on the user panel is illuminated.
Probable Cause	There is a problem with one or more of the following: • Fault in an upstream network element. • Equipment fault(s) in the local station • Dirty optical connectors • A failure of the STM4 circuit pack • Failure of equipment sending STM4 signal • A loss-of-signal (LOS) failure in the incoming upstream STM4 line (receive fiber).
Actions	See TAP 149
Note	
Navis TM Optical EMS Description	LOS



incoming STM4 signal degrade

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	incoming STM4 signal degrade
Information	A signal degrade in the incoming signal.
Severity	MINOR - default
Category	TRANSMISSION
On-site Indications	The MINOR LED on the user panel is illuminated.
Probable Cause	There is a problem with one or more of the following: • Incoming signal has exceeded the preset level of 10^{-6}. • Defective pack. • Damaged fiber • Dirty optical connectors • Signal degrade upstream where signal is added or passed through.
Actions	See TAP 174
Note	
Navis TM Optical EMS Description	FAIL



incoming STM16 failure

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	incoming STM16 failure
Information	A failure in the incoming STM-16 (OTPM) signal.
Severity	DEFERRED (SDH)/MINOR (SONET) - default
Category	TRANSMISSION
On-site Indications	The observable signals are: • The FAULT LED on the unit flashes. • The DEFERRED/MINOR LED on the user panel is illuminated.
Probable Cause	There is a problem with one or more of the following: • Fault in an upstream network element. • Equipment fault(s) in the local station • Dirty optical connectors • A failure of the STM16 circuit pack • Failure of equipment sending STM16 signal • A loss-of-signal (LOS) failure in the incoming upstream STM16 line (receive fiber).
Actions	See TAP 149
Note	
Navis TM Optical EMS Description	LOS



incoming STM16 signal degrade

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	incoming STM16 signal degrade
Information	A signal degrade in the incoming signal.
Severity	MINOR - default
Category	TRANSMISSION
On-site Indications	The MINOR LED on the user panel is illuminated.
Probable Cause	There is a problem with one or more of the following: • Incoming signal has exceeded the preset level of 10^{-6}. • Defective pack. • Damaged fiber • Dirty optical connectors • Signal degrade upstream where signal is added or passed through.
Actions	See TAP 174
Note	
Navis TM Optical EMS Description	FAIL



incoming STM64 failure

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What it means
Message	incoming STM64 failure
Information	A failure in the incoming STM64 signal.
Severity	DEFERRED(SDH)/MINOR(SONET)(provisionable)
Category	TRANSMISSION
On-site Indications	The observable signals are: • The FAULT LED on the OTU is flashing. • The DEFERRED (SDH)/MINOR (SONET) LED on the user panel is illuminated.
Probable Cause	There is a problem with one or more of the following: • The fiber connected to the OTU input is dirty. • The fiber connected to the OTU input is not securely connected. • Equipment fault(s) in the local station. • There is a problem with the OTU. • There is a problem with upstream equipment.
Actions	See TAP-149
Note	
Navis TM Optical EMS Description	LOS



incoming supr chnl fail

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	incoming supr chnl fail
Information	Alignment to the frame structure of the received Supervisory signal is not possible.
Severity	DEFERRED (SDH)/MINOR (SONET) (provisionable via CenterLink)
Category	TRANSMISSION
On-site Indications	The observable signals are: • The FAULT LED on the unit flashes. • The DEFERRED/MINOR LED on the user panel is illuminated.
Probable Cause	There is a problem with one or more of the following: • Equipment faults in the upstream network element. • Local station erroneously routing intermediate cabling • Dirty optical connectors • Low signal power input to telemetry circuit pack.
Actions	See TAP 110
Note	
Navis TM Optical EMS Description	T-UASL



incoming supr chnl SD

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	incoming supr chnl SD
Information	The Equivalent Bit Error Rate (EBER) of the incoming signal exceeds the Signal Degrade threshold. This EBER is determined by counting BIP24 errors.
Severity	DEFERRED (SDH)/MINOR (SONET) - default
Category	PROCESSING
On-site Indications	The observable signals are: • The FAULT LED on the unit flashes. • The DEFERRED/MINOR LED on the user panel is illuminated.
Probable Cause	Fault(s) in upstream external cabling or equipment.
Actions	See TAP 110
Note	
Navis™ Optical EMS Description	T-BERL



incoming supr chnl SF

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	incoming supr chnl SF
Information	The Equivalent Bit Error Rate (EBER) of a supervisory signal exceeds an excessive error threshold.
Severity	DEFERRED (SDH)/MINOR (SONET) - default
Category	PROCESSING
On-site Indications	The DEFERRED/MINOR LED on the user panel is illuminated.
Probable Cause	There is a problem with one or more of the following: • Dirty optical connector(s). • Equipment fault(s) in the upstream station.
Actions	See TAP 110
Note	
Navis TM Optical EMS Description	T-BERL



incoming UBB data rate mismatch

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	incoming UBB data rate mismatch
Information	Provisioned data rate differs from the detected rate. The measured data rate of the incoming signal is different from the provisioned data rate.
Severity	DEFERRED (SDH)/MINOR (SONET) - default
Category	TRANSMISSION
On-site Indications	The observable signals are: • The FAULT LED is illuminated when a loss of signal occurs. • The DEFERRED/MINOR LED on the user panel is illuminated.
Probable Cause	There is a problem with one or more of the following: • Client is sending a signal of greater bandwidth than authorized • UBB signal type has been provisioned incorrectly.
Actions	See TAP-173
Note	
Navis TM Optical EMS Description	LOS



incoming UBB failure

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	incoming UBB failure
Information	A failure in the incoming UBB signal.
Severity	DEFERRED (SDH)/MINOR (SONET) - default
Category	TRANSMISSION
On-site Indications	The observable signals are: • The FAULT LED on the reporting circuit pack is flashing. • The DEFERRED/MINOR LED on the user panel is illuminated.
Probable Cause	There is a problem with one or more of the following: • A failure of the UBB circuit pack. • Equipment fault(s) in the local station. • A fault in an upstream network element • Dirty optical connectors • A failure of the UBB circuit pack • Failure of equipment sending UBB signal • A loss-of-signal (LOS) failure in the incoming upstream universal broadband line (receive fiber).
Actions	See TAP 149
Note	
Navis TM Optical EMS Description	LOS



incoming UBB signal degrade

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	incoming UBB signal degrade
Information	A signal degrade in the incoming signal.
Severity	MINOR - default
Category	TRANSMISSION
On-site Indications	The observable signals are: • The FAULT LED on the OTU/OTPM is illuminated when a loss of signal occurs • The MINOR LED on the user panel is illuminated.
Probable Cause	There is a problem with one or more of the following: • Incoming signal has exceeded the preset level of 10-6. • Defective pack • Damaged fiber • Dirty optical connectors • Signal degrade upstream where signal is added or passed through.
Actions	See TAP 174
Note	
Navis TM Optical EMS Description	FAIL



incoming UNKNOWN LOS

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What it means
Message	incoming UNKNOWN LOS (or "failure")
Information	A failure in the incoming UNKNOWN signal.
Severity	DEFERRED(SDH)/MINOR (SONET)(provisionable)
Category	TRANSMISSION
On-site Indications	The observable signals are: • The FAULT LED on the OTU is flashing. • The DEFERRED (SDH)/MINOR (SONET) LED on the user panel is illuminated.
Probable Cause	There is a problem with one or more of the following: • The fiber connected to the OTU/OTPM input is dirty. • The fiber connected to the OTU/OTPM input is not securely connected. • There is a problem with the OTU/OTPM. • There is a problem with upstream equipment.
Actions	See TAP-149
Note	
Navis TM Optical EMS Description	LOS



inconsistent OTPM association

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	inconsistent OTPM association
Information	An association between an OTPM and an optical channel is inconsistent with the side configuration
Severity	PROMPT (SDH)/MAJOR (SONET)
Category	CONFIGURATION ERROR
On-site Indications	
Probable Cause	An incorrect association has been entered by the user
Actions	See TAP 148
Note	
Navis TM Optical EMS Description	INCASSOC



inconsistent OTU association

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	inconsistent OTU association
Information	An association between an OTU and an optical channel is inconsistent with the side configuration
Severity	PROMPT (SDH)/MAJOR (SONET)
Category	CONFIGURATION ERROR
On-site Indications	
Probable Cause	An incorrect association has been entered by the user
Actions	See TAP 148
Note	
Navis TM Optical EMS Description	INCASSOC



inhibit alarms-Lan/office/X.25

Alarm meaning The table below gives the meaning of the alarm.

Alarm Data	What It Means
Message	inhibit alarms-Lan/office/X.25
Information	In one of the regenerators of the span the station alarms are inhibited.
Severity	INFORMATION (SDH)/NE ACTY (SONET)
Category	PROCESSING
On-site Indications	The observable signals are: • The INFO-N LED (SDH) or NE ACTY LED (SONET) on the user panel is illuminated. • The station alarm in the local station are switched off (if available).
Probable Cause	The station alarms were disabled via the management system.
Actions	See TAP 114
Note	The indicated condition was initiated by a user command. You must determine, by consulting with the appropriate maintenance personnel, whether the need for the user-initiated condition still exists.
Navis TM Optical EMS Description	INHMSG



inhibit alarms-parallel telem

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	inhibit alarms-parallel telem - Reported as a condition.
Information	Alarm reporting via the parallel telemetry interface is disabled.
Severity	INFORMATION (SDH)/NE ACTY (SONET)
Category	PROCESSING
On-site Indications	The INFO-N LED (SDH) or NE ACTY LED (SONET) on the user panel is illuminated.
Probable Cause	The alarm reporting was disabled on the management system.
Actions	See TAP 114
Note	The indicated condition was initiated by a user command. You must determine, by consulting with the appropriate maintenance personnel, whether the need for the user-initiated condition still exists.
Navis TM Optical EMS Description	INHAPTEL



INITSWD:IP

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	INITSWD:IP
Information	Initiate software download in progress
Severity	INFORMATION (SDH)/NE ACTY (SONET)
Category	EQUIPMENT
On-site Indications	The LED on the user panel is illuminated.
Probable Cause	A software download is still in progress.
Actions	See TAP 161
Note	A software download to the local network element takes approximately 15 minutes
Navis TM Optical EMS Description	IP-INIT-SWD



invalid pass through route

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	invalid pass through route
Information	Indicates that there are two or more repeaters between two NEs in a system where the pass-through feature is provisioned to YES. Only zero or one repeater is allowed between dual facing terminals or dual end terminals in a ring.
Severity	PROMPT (SDH)/MAJOR (SONET)
Category	CONFIGURATION ERROR
On-site Indications	LED on the user panel is illuminated.
Probable Cause	System is configured with more than one repeater between two dual facing terminals or dual end terminals in a ring.
Actions	See TAP 166
Note	
Navis TM Optical EMS Description	INVD-PASS



J0 mismatch

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	J0 mismatch - Reported as a condition on CenterLink.
Information	The received RS (Regenerator Section) trace identifier, used to verify the continued connection to the intended regenerator, does not match the provisioned value.
Severity	INFORMATION (SDH)/NE ACTY (SONET) (provisionable via CenterLink)
Category	TRANMISSION
On-site Indications	The observable signals are: • The INFO-N LED (SDH) or NE ACTY LED (SONET) on the user panel is illuminated. • In the downstream direction, AIS is inserted into the next function.
Probable Cause	Wrong routing somewhere in the network due to: • Wrong connected fibers. • Wrong Expected Trace Identifier filled in via the management system for the network element that reported the alarm.
Actions	See TAP 153
Note	
Navis TM Optical EMS Description	J0MISMATCH



J1 mismatch

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	J1 mismatch - Reported as a condition on CenterLink.
Information	The received STS Path Trace byte (SONET) or VC Path Trace byte (SDH) used to verify connectivity does not match the provisioned value.
Severity	INFORMATION (SDH)/NE ACTY (SONET) (provisionable via CenterLink)
Category	TRANMISSION
On-site Indications	The observable signals are: • The INFO-N LED (SDH) or NE ACTY LED (SONET) on the user panel is illuminated. • In the downstream direction, AIS is inserted into the next function.
Probable Cause	Wrong routing somewhere in the network due to: • Wrong connected fibers. • Wrong Expected Trace Identifier filled in via the management system for the network element that reported the alarm.
Actions	See TAP 153
Note	
Navis TM Optical EMS Description	J1MISMATCH



LI failure

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	LI failure
Information	LI (Line Interface Pack) failure detected.
Severity	PROMPT (SDH)/MAJOR (SONET)
Category	EQUIPMENT
On-site Indications	The observable signals are: • The FAULT LED on the unit is illuminated. • The PROMPT/MAJOR LED on the user panel is illuminated.
Probable Cause	There is a problem with one or more of the following: • A hardware failure of the unit is detected. • The unit is starting up.
Actions	See TAP 111
Note	
Navis TM Optical EMS Description	CONTR



LI removed

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	LI removed
Information	An LI (Line Interface Pack) has been removed from its slot.
Severity	PROMPT (SDH)/MAJOR (SONET)
Category	EQUIPMENT
On-site Indications	The PROMPT/MAJOR LED on the user panel is illuminated.
Probable Cause	The LI (Line Interface Pack) is no longer installed but is still detected in the equipment list.
Actions	See TAP 112
Note	
Navis TM Optical EMS Description	IMPROPRMVL



logins inhibited

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	logins inhibited
Information	Logins are disabled
Severity	INFORMATION (SDH)/NE ACTY (SONET)
Category	PROCESSING
On-site Indications	The NE ACTY LED on the user panel is illuminated
Probable Cause	The administrator has restricted access to the system.
Actions	See TAP 114
Note	The indicated condition was initiated by a user command. You must determine, by consulting with the appropriate maintenance personnel, whether the need for the user-initiated condition still exists.
Navis TM Optical EMS Description	CONTR



Loss of internal channel

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	Loss of internal channel - This alarm is related with channel association (downstream). It is only reported on the SC in the next situation.
Information	A loss of internal channel on the network element is detected.
Severity	DEFERRED (SDH)/MINOR (SONET)
Category	EQUIPMENT
On-site Indications	The observable signals are: • The FAULT LED on the reporting circuit pack is illuminated. • The DEFERRED/MINOR LED on the user panel is illuminated.
Probable Cause	When a downstream association is established between the Optical Channel and OTU/OTPM, and the signal into the OMU is lost.
Actions	Replace the circuit pack that reports the fault.
Note	
Navis TM Optical EMS Description	



Loss of internal tributary

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	Loss of internal tributary -This alarm is related with channel association (upstream). It is only reported on the SC in the next situation.
Information	A loss of internal tributary on the network element is detected.
Severity	DEFERRED (SDH)/MINOR (SONET) - default
Category	EQUIPMENT
On-site Indications	The observable signals are: • The FAULT LED on the reporting circuit pack is illuminated. • The DEFERRED/MINOR LED on the user panel is illuminated.
Probable Cause	When the upstream association is established between the Optical Channel and OTU/OTPM, and the signal into the OTU/OTPM is lost.
Actions	Replace the circuit pack that is reporting the fault.
Note	
Navis TM Optical EMS Description	



Loss of Q2-communications

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	Loss of Q2-communications
Information	No Communication between EMS and the transmission system network element. The EMS system communicates via the QLAN with the local node.
Severity	INFORMATION (SDH)/NE ACTY (SONET)
Category	PROCESSING
On-site Indications	The FAULT LED on the SYSCTL is flashing. The INFO-N LED (SDH) or NE ACTY LED (SONET) on the user panel is illuminated.
Probable Cause	There is a problem with one or more of the following: • Addresses incorrect following card replacement, this can occur during provisioning. • Breakages of physical connection (coaxial cable). • Ethernet (QLAN) connections failure. • Ethernet termination impedances removed or incorrect, causing data reflections on the QLAN. • Hardware/interface failure of the connected SYSCTL.
Actions	If this alarm message is reported during provisioning, then check addressing, refer to the Provisioning Operator. Check the cabling. Check the interface connections. Check QLAN termination. Check the SYSCTL in the indicated network element.
Note	
Navis TM Optical EMS Description	



MIB lock in progress

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	MIB lock in progress
Information	An operations system is uploading the network element management information base.
Severity	INFORMATION
Category	PROCESSING
On-site Indications	
Probable Cause	User is performing an operation which may change the network element status while an MIB upload is in progress.
Actions	See TAP 158
Note	Alarm automatically clears when the MIB upload is complete
Navis TM Optical EMS Description	IP-MIB-LOCK



module/prov mode inconsistent

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	module/prov mode inconsistent
Information	The fiber mode or input client wavelength of the 2:1 Data Multiplexing OTU (2DM25) is not compatible with the provisioned mode or wavelength.
Severity	DEFERRED (SDH)/MINOR (SONET)
Category	EQUIPMENT
On-site Indications	The observable signals are: • The FAULT LED on the unit is illuminated. • The DEFERRED/MINOR LED on the user panel is illuminated.
Probable Cause	This alarm occurs when the fiber mode or input client wavelength is incorrectly provisioned.
Actions	See TAP 182
Note	
Navis TM Optical EMS Description	MUXCNFGMM



multiple DS-NEs defined

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	multiple DS-NEs defined
Information	More than one network element is defined as DSNE (Directory Service Network Element), so that network maintenance is not available.
Severity	DEFERRED (SDH)/MINOR (SONET)
Category	CONFIGURATION ERROR
On-site Indications	The DEFERRED/MINOR LED on the user panel is illuminated.
Probable Cause	An DSNE network element (facilitating remote alarming and remote login) has identified another DSNE network element in the network, which is a condition of failure, as only one network element in the network is allowed to be the DSNE network element.
Actions	See TAP 135
Note	
Navis TM Optical EMS Description	MULT-DSNE



NE status comm failure

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	NE status comm failure
Information	The NE is not associated with an AGNE or the AGNE can not establish associations with all of the NEs in the alarm group
Severity	PROMPT (SDH)/MAJOR (SONET)
Category	TRANSMISSION
On-site Indications	
Probable Cause	There is a problem with one or more of the following: - the Directory Service Network Element (DSNE) is not reachable - one or more nodes are not reachable because of a supervisory channel failure - an alarm gateway network element (AGNE) was not provisioned for the alarm group
Actions	See TAP 118
Note	If the AGNE loses power, all NEs in the alarm group will report this condition; however, the condition may not be reported for several minutes
Navis TM Optical EMS Description	AGNE-COMF



OA failure

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	OA failure
Information	OA (optical amplifier) failure.
Severity	PROMPT (SDH)/MAJOR (SONET)
Category	EQUIPMENT
On-site Indications	The observable signals are: • The FAULT LED on the unit is illuminated. • The PROMPT/MAJOR LED on the user panel is illuminated.
Probable Cause	There is a problem with one or more of the following: • A hardware failure of the unit is detected. • The unit is starting up.
Actions	See TAP 111
Note	
Navis™ Optical EMS Description	CONTR



OA high input power

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What it means
Message	OA high input power
Information	The optical power is too high on the optical line connected to an OA3.
Severity	DEFERRED (SDH)/MINOR (SONET) (provisionable)
Category	TRANSMISSION
On-site Indications	The observable signals are: • The FAULT LED on the OA is flashing. • The DEFERRED (SDH)/MINOR (SONET) LED is illuminated.
Probable Cause	The LBO on the OA input is not high enough to attenuate the optical power down to an acceptable level.
Actions	See TAP 177
Note	
Navis TM Optical EMS Description	LOS



OA LAN failure

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	OA LAN failure
Information	The internal Overhead Access (OA) LAN bus fails or is unavailable.
Severity	PROMPT (SDH)/MAJOR (SONET)
Category	EQUIPMENT
On-site Indications	The observable signals are: • The FAULT LED on the reporting unit is illuminated. • The PROMPT/MAJOR LED on the user panel is illuminated.
Probable Cause	The on board self-test circuitry indicates that a essential function of the reporting unit has failed.
Actions	See TAP 167
Note	The replacing action could effect the transmission services provided by the system.
Navis TM Optical EMS Description	CONTR



OA output disabled

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	OA output disabled - Reported as a condition on CenterLink.
Information	The output of the specified Optical Amplifier (OA) circuit pack has been shutdown because of a problem with the Optical Demultiplexer Unit (ODU) at the downstream network element.
Severity	INFORMATION (SDH)/NE ACTY (SONET)
Category	PROCESSING
On-site Indications	The INFO-N LED (SDH) or NE ACTY LED (SONET) on the user panel is illuminated.
Probable Cause	A failure of the ODU of the downstream network element has caused a shutdown of the output of the OA.
Actions	See TAP 154
Note	
Navis TM Optical EMS Description	OADIS



OA removed

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	OA removed
Information	An Optical Amplifier (OA) has been removed from its slot.
Severity	PROMPT (SDH)/MAJOR (SONET)
Category	EQUIPMENT
On-site Indications	The PROMPT/MAJOR LED on the user panel is illuminated.
Probable Cause	The OA (Optical Amplifier) is no longer installed but is still detected in the equipment list.
Actions	See TAP 112
Note	
Navis TM Optical EMS Description	IMPROPRMVL



OA/TLM mismatch

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	OA/TLM mismatch
Information	When replacing an LDA1 TLM with an LDA4 TLM, if one or both OAs are LEA7B, then the optical line must be taken out of service to upgrade to LEA7Bs. In a network, an LDA1 TLM signal being sent out must be received by an LDA1 TLM pack in the next NE. The same is true for the LDA4 pack. An LDA4 TLM signal being sent out must be received by an LDA4 TLM pack in the next NE. A dual facing shelf can receive a signal from an LDA1 or an LDA4 TLM pack and can then send out the opposite telemetry type as long as the NE receiving the signal matches the sender. Rules for matching up TLM type and OA type must still be followed.
Severity	PROMPT (SDH)/MAJOR (SONET)
Category	TRANSMISSION
On-site Indications	Fault is reported on the TLM packs.
Probable Cause	Invalid OA/TLM configuration.
Actions	See TAP 163
Note	The LDA4 telemetry pack works with the following OAs: LEA7B, LEA107B, and LEA207B. The LEA7B and LEA107B OAs can work with either the LDA1 or LDA4 telemetry packs. Note, however, that the LEA207B OA can only be used with the LDA4 telemetry pack.
Navis TM Optical EMS Description	Navis TM Optical EMS does not display this alarm as it causes a loss of communication with the NE.



OMON failure

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	OMON failure
Information	OMON failure detected.
Severity	PROMPT (SDH)/MAJOR (SONET)
Category	EQUIPMENT
On-site Indications	The observable signals are: • The FAULT LED on the unit is illuminated. • The PROMPT/MAJOR LED on the user panel is illuminated.
Probable Cause	There is a problem with one or more of the following: • A hardware failure of the unit is detected. • The unit is starting up.
Actions	See TAP 111
Note	
Navis TM Optical EMS Description	CONTR



OMON removed

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	OMON removed
Information	An OMON has been removed from its slot.
Severity	PROMPT (SDH)/MAJOR (SONET)
Category	EQUIPMENT
On-site Indications	The PROMPT/MAJOR LED on the user panel is illuminated.
Probable Cause	The OMON is not present.
Actions	See TAP 112
Note	
Navis TM Optical EMS Description	IMPROPRMVL



OMU/ODU mismatch or missing

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	OMU/ODU mismatch or missing
Information	An OMU (Optical Multiplexer Unit) or ODU (Optical Demultiplexer Unit) mismatch is detected or an OMU/ODU is missing.
Severity	PROMPT (SDH)/MAJOR (SONET)
Category	EQUIPMENT
On-site Indications	The PROMPT/MAJOR LED on the user panel is illuminated.
Probable Cause	There is a problem with one or more of the following: • Incorrect provisioned end terminal • Incorrect fiber connection at end terminal • OMU/ODU not installed • Incorrect OMU/ODU types installed for provisioned configuration.
Actions	See TAP 105
Note	
Navis TM Optical EMS Description	OMUMISMTCH



OMU/ODU warmup in progress

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	OMU/ODU warmup in progress - Reported as a condition on CenterLink.
Information	An Optical Multiplexer Unit (OMU) or an Optical Demultiplexer Unit (ODU) is warming up to a stable operating temperature.
Severity	INFORMATION (SDH)/NE ACTY (SONET)
Category	EQUIPMENT
On-site Indications	The INFO-N LED (SDH) or NE ACTY LED (SONET) on the user panel is illuminated.
Probable Cause	The ODU or OMU (507A and 507B) is installed and a stable operating temperature is not yet reached.
Actions	See TAP 144
Note	
Navis TM Optical EMS Description	ODUWRMUP



opr/prov mode inconsistent

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	opr/prov mode inconsistent - Further information about this is reported in the alarm description
Information	The received Optical Amplifier (OA) mode does not match the provisioned OA mode
Severity	PROMPT (SDH)/MAJOR (SONET)
Category	PROCESSING
On-site Indications	The observable signals are: • The FAULT LED on the unit is illuminated. • The PROMPT/MAJOR LED on the user panel is illuminated.
Probable Cause	There is a problem with one or more of the following: • Provisioned values for OA not correct • Wrong OA inserted in slot.
Actions	See TAP 142
Note	
Navis TM Optical EMS Description	OATYPMM



optical line ID mismatch

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	optical line ID mismatch
Information	A fiber misconnection is detected between network elements.
Severity	PROMPT (SDH)/MAJOR (SONET)
Category	PROCESSING
On-site Indications	The PROMPT/MAJOR LED on the user panel is illuminated.
Probable Cause	There is a problem with one or more of the following: • The optical connectors are not connected. • The optical connectors are interchanged
Actions	See TAP 109
Note	
Navis TM Optical EMS Description	OLINEIDMM



optical line reset in progress

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	optical line reset in progress - Reported as a condition on CenterLink.
Information	An optical line reset is in progress.
Severity	INFORMATION (SDH)/NE ACTY (SONET)
Category	PROCESSING
On-site Indications	The INFO-N LED (SDH) or NE ACTY LED (SONET) on the user panel is illuminated.
Probable Cause	There is a problem with one or more of the following: • An optical line is transitioned from the AUTO state to the IN-SERVICE state. • The Optical Amplifier (OA) configuration is changed from the single OA configuration to a Dual OA configuration with missing circuit packs.
Actions	See TAP 145
Note	
Navis™ Optical EMS Description	AUTORESET



OTCTL failure

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	OTCTL failure
Information	An OTCTL (Optical Translator Controller) failure is detected.
Severity	PROMPT (SDH)/MAJOR (SONET)
Category	EQUIPMENT
On-site Indications	The observable signals are: • The FAULT LED on the unit is illuminated. • The PROMPT/MAJOR LED on the user panel is illuminated.
Probable Cause	There is a problem with one or more of the following: • A hardware failure of the OTCTL is detected. • The OTCTL is starting up.
Actions	See TAP 111
Note	
Navis TM Optical EMS Description	CONTR



OTCTL removed

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	OTCTL removed
Information	The OTCTL (Optical Translator Controller) is removed.
Severity	PROMPT (SDH)/MAJOR (SONET)
Category	EQUIPMENT
On-site Indications	The PROMPT/MAJOR LED on the user panel is illuminated.
Probable Cause	The OTCTL (Optical Translator Controller) is no longer installed but is still detected in the equipment list.
Actions	See TAP 112
Note	
Navis TM Optical EMS Description	IMPROPRMVL



OTPM duplicate

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	OTPM duplicate
Information	Duplicate OTPM circuit packs are detected.
Severity	PROMPT (SDH)/MAJOR (SONET)
Category	CONFIGURATION ERROR
On-site Indications	The observable signals are: • The PROMPT/MAJOR LED on the user panel is illuminated • Loss of signal (LOS) on OTPM circuit pack.
Probable Cause	Two OTPM circuit packs of the same wavelength are installed.
Actions	Remove one of the OTPM circuit packs then update the system.
Note	See TAP 168
Navis TM Optical EMS Description	DUPL-OT



OTPM failure

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	OTPM failure
Information	An OTPM (Optical Translator Port Module) failure is detected.
Severity	PROMPT (SDH)/MAJOR (SONET)
Category	EQUIPMENT
On-site Indications	The observable signals are: • The FAULT LED on the unit is illuminated. • The PROMPT/MAJOR LED on the user panel is illuminated.
Probable Cause	There is a problem with one or more of the following: • A hardware failure of the OTPM is detected. • The OTPM is starting up.
Actions	See TAP 111
Note	
Navis™ Optical EMS Description	CONTR



OTPM removed

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	OTPM removed
Information	The OTPM (Optical Translator Port Module) is removed.
Severity	PROMPT (SDH)/MAJOR (SONET)
Category	EQUIPMENT
On-site Indications	The PROMPT/MAJOR LED on the user panel is illuminated.
Probable Cause	The OTPM (Optical Translator Port Module) is no longer installed but is still detected in the equipment list.
Actions	See TAP 112
Note	
Navis TM Optical EMS Description	IMPROPRMVL



OTPM unknown

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	OTPM unknown
Information	The OTPM (Optical Translator Port Module) in the indicated slot is unrecognizable.
Severity	PROMPT (SDH)/MAJOR (SONET)
Category	EQUIPMENT
On-site Indications	The observable signals are: • The FAULT LED on the unit is illuminated. • The PROMPT/MAJOR LED on the user panel is illuminated.
Probable Cause	The OTPM installed is not recognized by the system because of some internal failure of the OTPM.
Actions	See TAP 123
Note	
Navis TM Optical EMS Description	PRCDRERR



OTU duplicate

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	OTU duplicate
Information	Duplicate OTU circuit packs are detected.
Severity	PROMPT (SDH)/MAJOR (SONET)
Category	CONFIGURATION ERROR
On-site Indications	The observable signals are: • The PROMPT/MAJOR LED on the user panel is illuminated • Loss of signal (LOS) on OTU circuit pack.
Probable Cause	Two OTU circuit packs of the same wavelength are installed.
Actions	Remove one of the OTU circuit packs then update the system.
Note	See TAP 168
Navis TM Optical EMS Description	DUPL-OT



OTU failure

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	OTU failure
Information	An OTU (Optical Translator Unit) failure is detected.
Severity	PROMPT (SDH)/MAJOR (SONET)
Category	EQUIPMENT
On-site Indications	The observable signals are: • The FAULT LED on the unit is illuminated. • The PROMPT/MAJOR LED on the user panel is illuminated.
Probable Cause	There is a problem with one or more of the following: • A hardware failure of the OTU is detected. • The OTU is starting up.
Actions	See TAP 111
Note	
Navis TM Optical EMS Description	CONTR



OTU removed

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	OTU removed
Information	The OTU (Optical Translator Unit) is removed.
Severity	PROMPT (SDH)/MAJOR (SONET)
Category	EQUIPMENT
On-site Indications	The PROMPT/MAJOR LED on the user panel is illuminated.
Probable Cause	The OTU (Optical Translator Unit) is no longer installed but is still detected in the equipment list.
Actions	See TAP 112
Note	
Navis TM Optical EMS Description	IMPROPRMVL



OUPSR auto switch on SD to Path A

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	OUPSR auto switch on SD to Path A
Information	An automatic OUPSR switch to Path A is active.
Severity	INFORMATION (SDH)/NE ACTY (SONET)
Category	PROCESSING
On-site Indications	The INFO-N LED (SDH) or NE ACTY LED (SONET) on the user panel is illuminated.
Probable Cause	A signal degrade or deterioration of the channel signal was detected on the Path B channel line, which at that time was the active channel, and caused an automatic switch to the Path A channel line.
Actions	See TAP 169
Note	
Navis TM Optical EMS Description	WKSWPR



OUPSR auto switch on SD to Path B

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	OUPSR auto switch on SD to Path B
Information	An automatic OUPSR switch to Path B is active.
Severity	INFORMATION (SDH)/NE ACTY (SONET)
Category	PROCESSING
On-site Indications	The INFO-N LED (SDH) or NE ACTY LED (SONET) on the user panel is illuminated.
Probable Cause	A signal degrade or deterioration of the channel signal was detected on the Path A channel line, which at that time was the active channel, and caused an automatic switch to the Path B channel line.
Actions	See TAP 169
Note	
Navis TM Optical EMS Description	WKSWPR



OUPSR auto switch to Path A

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	OUPSR auto switch to Path A
Information	An automatic OUPSR switch to Path A is active.
Severity	INFORMATION (SDH)/NE ACTY (SONET)
Category	PROCESSING
On-site Indications	The INFO-N LED (SDH) or NE ACTY LED (SONET) on the user panel is illuminated.
Probable Cause	A loss of signal was detected on the Path B channel line, which at that time was the active channel, and caused an automatic switch to the Path A channel line.
Actions	See TAP 169
Note	
Navis TM Optical EMS Description	WKSWPR



OUPSR auto switch to Path B

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	OUPSR auto switch to Path B
Information	An automatic OUPSR switch to Path B is active.
Severity	INFORMATION (SDH)/NE ACTY (SONET)
Category	PROCESSING
On-site Indications	The INFO-N LED (SDH) or NE ACTY LED (SONET) on the user panel is illuminated.
Probable Cause	A loss of signal was detected on the Path A channel line, which at that time was the active channel, and caused an automatic switch to the Path B channel line.
Actions	See TAP 169
Note	
Navis TM Optical EMS Description	WKSWPR



OUPSR failure

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	OUPSR failure
Information	A failure of an OUPSR circuit pack is detected.
Severity	PROMPT (SDH)/MAJOR (SONET)
Category	EQUIPMENT
On-site Indications	The observable signals are: • The FAULT LED on the reporting circuit pack is continuously illuminated. • The PROMPT/MAJOR LED on the user panel is illuminated.
Probable Cause	There is a problem with one or more of the following: • A hardware failure of the circuit pack. • The circuit pack is starting up.
Actions	See TAP 111
Note	
Navis TM Optical EMS Description	CONTR



OUPSR forced switch to Path A

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	OUPSR forced switch to Path A
Information	A forced OUPSR switch to Path A is active.
Severity	INFORMATION
Category	PROCESSING
On-site Indications	
Probable Cause	The indicated OUPSR circuit pack has been forced to switched to the Path A input
Actions	See TAP 114
Note	The indicated condition was initiated by a user command. You must determine, by consulting with the appropriate maintenance personnel, whether the need for the user-initiated condition still exists.
Navis TM Optical EMS Description	WKSWPR



OUPSR forced switch to Path B

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	OUPSR forced switch to Path B
Information	A forced OUPSR switch to Path B is active.
Severity	INFORMATION
Category	PROCESSING
On-site Indications	
Probable Cause	The indicated OUPSR circuit pack has been forced to switch to the Path B input.
Actions	See TAP 114
Note	The indicated condition was initiated by a user command. You must determine, by consulting with the appropriate maintenance personnel, whether the need for the user-initiated condition still exists.
Navis TM Optical EMS Description	WKSWPR



OUPSR inhibit

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	OUPSR inhibit
Information	A lockout of protection is active.
Severity	INFORMATION (SDH)/NE ACTY (SONET)
Category	PROCESSING
On-site Indications	The INFO-N LED (SDH) or NE ACTY LED (SONET) on the user panel is illuminated.
Probable Cause	A lockout command for the OUPSR protection has been executed.
Actions	See TAP 114
Note	
Navis TM Optical EMS Description	INHSWPR



OUPSR manual switch to Path A

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	OUPSR manual switch to Path A
Information	A manual OUPSR switch to Path A is active.
Severity	INFORMATION
Category	PROCESSING
On-site Indications	
Probable Cause	The indicated OUPSR circuit pack has been manually switched to the Path A input.
Actions	See TAP 114
Note	The indicated condition was initiated by a user command. You must determine, by consulting with the appropriate maintenance personnel, whether the need for the user-initiated condition still exists.
Navis™ Optical EMS Description	WKSWPR



OUPSR manual switch to Path B

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	OUPSR manual switch to Path B
Information	A manual OUPSR switch to Path B is active.
Severity	INFORMATION
Category	PROCESSING
On-site Indications	
Probable Cause	The indicated OUPSR circuit pack has been manually switched to the Path B input.
Actions	See TAP 114
Note	The indicated condition was initiated by a user command. You must determine, by consulting with the appropriate maintenance personnel, whether the need for the user-initiated condition still exists.
Navis TM Optical EMS Description	WKSWPR



OUPSR removed

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	OUPSR removed
Information	An OUPSR circuit pack is missing from its slot.
Severity	PROMPT (SDH)/MAJOR (SONET)
Category	EQUIPMENT
On-site Indications	The PROMPT/MAJOR LED on the user panel is illuminated.
Probable Cause	The OUPSR (Optical Unidirectional Path Switched Ring circuit pack) is no longer installed but is still detected in the equipment list.
Actions	See TAP 112
Note	
Navis TM Optical EMS Description	IMPROPRMVL



pluggable module removed

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What it means
Message	Pluggable module removed
Information	The pluggable transceiver module has been removed from, or is not plugged securely into the multiplexing OTU. The multiplexing OTU needs this module to function.
Severity	PROMPT (SDH)/MAJOR (SONET)
Category	EQUIPMENT
On-site Indications	The observable signals are: • The FAULT LED on the OTU is flashing. • The PROMPT (SDH)/MAJOR (SONET) LED is illuminated.
Probable Cause	The pluggable transceiver module has been removed from, or is not securely plugged into a multiplexing OTU.
Actions	See TAP 180
Note	
Navis TM Optical EMS Description	IMPROPRMVL



provisionedenvironmentalpt

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	provisionedenvironmentalpt
Information	This entry represents all external environment alarms: the Miscellaneous Discrete Inputs (MDI). For each MDI alarm the name is provisionable by the user. It is assumed one of the MDI-alarms is active.
Severity	DEFERRED (SDH)/MINOR (SONET) - default
Category	ENVIRONMENT
On-site Indications	The DEFERRED/MINOR LED on the user panel is illuminated.
Probable Cause	User defined external event.
Actions	See TAP 107
Note	XXX = any number ranging from 1 to 144. Miscellaneous discrete inputs are user provisionable and can be used to scan the status of external, user definable, alarm points.
Navis™ Optical EMS Description	MISC



QOTU failure

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	QOTU failure
Information	An Quad OTU (Optical Translator Unit) failure is detected.
Severity	PROMPT (SDH)/MAJOR (SONET)
Category	EQUIPMENT
On-site Indications	The observable signals are: • The FAULT LED on the unit is illuminated. • The PROMPT/MAJOR LED on the user panel is illuminated.
Probable Cause	There is a problem with one or more of the following: • A hardware failure of the unit is detected. • The unit is starting up.
Actions	See TAP 111
Note	
Navis TM Optical EMS Description	CONTR



QOTU removed

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	QOTU removed
Information	The Quad OTU (Optical Translator Unit) is removed.
Severity	PROMPT (SDH)/MAJOR (SONET)
Category	EQUIPMENT
On-site Indications	The PROMPT/MAJOR LED on the user panel is illuminated.
Probable Cause	The QOTU (Qaud Optical Translator Unit) is no longer installed but is still detected in the equipment list.
Actions	See TAP 112
Note	
Navis TM Optical EMS Description	IMPROPRMVL



reset in progress

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	reset in progress
Information	Boot in progress due to user actions or automatic recovery.
Severity	PROMPT (SDH)/MAJOR (SONET)
Category	PROCESSING
On-site Indications	The PROMPT/MAJOR LED on the user panel is illuminated.
Probable Cause	There is a problem with one or more of the following: • A user action was initiated on the management system, or • the system is powering up.
Actions	See TAP 124
Note	
Navis TM Optical EMS Description	None



SER TLM 1 port failure

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	SER TLM 1 port failure
Information	A failure on the incoming serial telemetry port 1 link is detected.
Severity	DEFERRED (SDH)/MINOR (SONET)
Category	EQUIPMENT
On-site Indications	The DEFERRED/MINOR LED on the user panel is illuminated.
Probable Cause	There is a problem with one or more of the following: • A failure of the TOHCTL or SYSCTL. • Missing link.
Actions	See TAP 139
Note	
Navis TM Optical EMS Description	SER-TLM1-FAIL



SID mismatch

Alarm meaning

Important! Changes to the SID could result in serious network problems, if not exercised with extremely careful planning. Customers are required to assume full responsibility for proper network operation when making any such changes. Metropolis metroEON allows for the provisioning of the NSAP System ID. The original value is a unique number that is assigned at the factory by Lucent Technologies.

The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	SID mismatch
Information	The provisioned SID is not in agreement with the SID programmed in the SYSCTL EEPROM.
Severity	
Category	CONFIGURATION ERROR
On-site Indications	
Probable Cause	System has not been initialized after a change in the System ID and/or the SYSCTL circuit pack.
Actions	See TAP 170
Note	
Navis TM Optical EMS Description	FLT-ENT-OSI



Software download in progress

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	software download in progress - Reported as a condition on CenterLink.
Information	A software download from the management system to the SYSMEM is currently in progress.
Severity	INFORMATION (SDH)/NE ACTY (SONET)
Category	PROCESSING
On-site Indications	The INFO-N LED (SDH) or NE ACTY LED (SONET) on the user panel is illuminated.
Probable Cause	A software download was initiated on the management system.
Actions	See TAP 131
Note	A software download can take as long as 2 hours at 9600 baud (less time at a higher baud rate).
Navis TM Optical EMS Description	CONTR



Software transfer failed

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	software transfer failed - This event is only reported in the log file.
Information	A software transfer to SYSMEM of the NE failed to complete.
Severity	INFORMATION (SDH)/NE ACTY (SONET)
Category	PROCESSING
On-site Indications	The INFO-N LED (SDH) or NE ACTY LED (SONET) on the user panel is illuminated.
Probable Cause	There is a problem with one or more of the following: • LAN communication failure. • Software generic has been modified. • Software generic data packet has been corrupted during the transmission.
Actions	To correct the problem, do one or all of the following: • Check the LAN communication cable/port. • Discard the modified software generic. • Retry the software download.
Note	
Navis TM Optical EMS Description	SWTRANSFER



SYSCTL failure

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	SYSCTL failure
Information	SYSCTL (system controller) failure or failure of the SYSMEM (system memory).
Severity	PROMPT (SDH)/MAJOR (SONET)
Category	EQUIPMENT
On-site Indications	The observable signals are: • The FAULT LED on the unit is illuminated. • The PROMPT/MAJOR LED on the user panel is illuminated.
Probable Cause	There is a problem with one or more of the following: • A hardware failure of the unit is detected. • the unit is starting up.
Actions	See TAP 113
Note	The installation of a replacement SYSMEM circuit pack may generate certain unexpected alarm conditions. Ignore these indications until this condition has been cleared, then clear any remaining condition(s).
Navis TM Optical EMS Description	CONTR



SYSMEM failure

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	SYSMEM failure
Information	Failure of the SYSMEM (system memory).
Severity	PROMPT (SDH)/MAJOR (SONET)
Category	EQUIPMENT
On-site Indications	The observable signals are: • The FAULT LED on the unit is illuminated. • The PROMPT/MAJOR LED on the user panel is illuminated.
Probable Cause	There is a problem with one or more of the following: • A hardware failure of the SYSMEM unit is detected, or • the SYSMEM is starting up.
Actions	See TAP 113
Note	The installation of a replacement SYSMEM circuit pack may generate certain unexpected alarm conditions. Ignore these indications until this condition has been cleared, then clear any remaining condition(s).
Navis TM Optical EMS Description	CONTR



SYSMEM removed

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	SYSMEM removed
Information	An SYSMEM (system memory) is missing from its slot.
Severity	PROMPT (SDH)/MAJOR (SONET)
Category	EQUIPMENT
On-site Indications	The PROMPT/MAJOR LED on the user panel is illuminated.
Probable Cause	The SYSMEM circuit has been removed from the network element.
Actions	See TAP 133
Note	
Navis TM Optical EMS Description	IMPROPRMVL



SYSMEM unrecognizable code

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	SYSMEM unrecognizable code
Information	Code in nonvolatile memory of the SYSMEM (system memory) is invalid.
Severity	PROMPT (SDH)/MAJOR (SONET)
Category	PROCESSING
On-site Indications	The PROMPT/MAJOR LED on the user panel is illuminated.
Probable Cause	System download procedure was broken off (nonvolatile memory is erased and left invalid).
Actions	See TAP 125
Note	
Navis TM Optical EMS Description	CONTR



SYSMEM/SYSCTL code mismatch

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	SYSMEM/SYSCTL code mismatch
Information	Volatile/nonvolatile software identification mismatch.
Severity	PROMPT (SDH)/MAJOR (SONET)
Category	PROCESSING
On-site Indications	The observable signals are: • The FAULT LED on the unit is illuminated. • The PROMPT/MAJOR LED on the user panel is illuminated.
Probable Cause	System download procedure was executed. The software version of the current software in SYSCTL is not equal to the downloaded software in the nonvolatile memory in SYSMEM.
Actions	See TAP 126
Note	
Navis TM Optical EMS Description	CONTR



system incomplete

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	system incomplete
Information	The designated Directory Server Network Element (DS-NE) is unable to create a complete ring map.
Severity	
Category	TRANSMISSION
On-site Indications	Alarms are visible on all elements.
Probable Cause	A controller or telemetry transmission has failure in the network.
Actions	See TAP 134
Note	
Navis TM Optical EMS Description	RNG-INC



system startup in progress

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	system startup in progress
Information	This is normally a transient condition that indicates the network is starting up.
Severity	INFORMATION (SDH)/NE ACTY (SONET)
Category	PROCESSING
On-site Indications	The INFO-N LED (SDH) or NE ACTY LED (SONET) on the user panel is illuminated.
Probable Cause	Initialization in progress
Actions	See TAP 132
Note	
Navis TM Optical EMS Description	RNG-INITC



test alarm in progress

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	test alarm in progress
Information	An office alarm test is in progress
Severity	INFORMATION (SDH)/NE ACTY (SONET)
Category	PROCESSING
On-site Indications	The NE ACTY LED on the user panel is illuminated.
Probable Cause	User has initiated a test.
Actions	See TAP 114
Note	The indicated condition was initiated by a user command. You must determine, by consulting with the appropriate maintenance personnel, whether the need for the user-initiated condition still exists.
Navis TM Optical EMS Description	IO-ACT - Event reported only in the log file.



test auto turnup in progress

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	test auto turnup in progress
Information	An auto turnup test is in progress
Severity	INFORMATION (SDH)/NE ACTY (SONET)
Category	PROCESSING
On-site Indications	The NE ACTY LED on the user panel is illuminated.
Probable Cause	User has initiated a test.
Actions	See TAP 114
Note	The indicated condition was initiated by a user command. You must determine, by consulting with the appropriate maintenance personnel, whether the need for the user-initiated condition still exists.
Navis TM Optical EMS Description	IO-ACT - Event reported only in the log file.



test telemetry in progress

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	test telemetry in progress
Information	
Severity	INFORMATION (SDH)/NE ACTY (SONET)
Category	PROCESSING
On-site Indications	The NE ACTY LED on the user panel is illuminated.
Probable Cause	User has initiated a test.
Actions	See TAP 114
Note	The indicated condition was initiated by a user command. You must determine, by consulting with the appropriate maintenance personnel, whether the need for the user-initiated condition still exists.
Navis TM Optical EMS Description	IO-ACT - Event reported only in the log file.



test loopback in progress

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What it means
Message	test loopback in progress
Information	A user has provisioned the multiplexing OTU (2DM25) to be in test loopback mode. The pack cannot transmit normally in this mode.
Severity	No Report
Category	TRANSMISSION
On-site Indications	The observable signals are: • The FAULT LED on the OTU is flashing? Maybe not.
Probable Cause	The pack is in test loopback mode and must be provisioned for normal transmission mode.
Actions	See TAP 181
Note	
Navis TM Optical EMS Description	None



TID address map full

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	TID address map full
Information	The local subnetwork has exceeded the maximum number of network elements.
Severity	PROMPT (SDH)/MAJOR (SONET)
Category	PROCESSING
On-site Indications	The PROMPT/MAJOR LED on the user panel is illuminated.
Probable Cause	You have added a network element to the local subnetwork while the number of network elements was at its maximum.
Actions	See TAP 156
Note	
Navis TM Optical EMS Description	ADMPFL



TLM failure

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	TLM failure
Information	An TLM (Telemetry controller) failure is detected.
Severity	PROMPT (SDH)/MAJOR (SONET)
Category	EQUIPMENT
On-site Indications	The observable signals are: • The FAULT LED on the unit is illuminated. • The PROMPT/MAJOR LED on the user panel is illuminated.
Probable Cause	There is a problem with one or more of the following: • A hardware failure of the unit is detected. • The unit is starting up.
Actions	See TAP 111
Note	
Navis TM Optical EMS Description	CONTR



TLM removed

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	TLM removed
Information	An TLM (Telemetry controller) is missing from its slot.
Severity	PROMPT (SDH)/MAJOR (SONET)
Category	EQUIPMENT
On-site Indications	The PROMPT/MAJOR LED on the user panel is illuminated.
Probable Cause	A telemetry circuit pack is no longer installed but is still detected in the equipment list.
Actions	See TAP 112
Note	
Navis TM Optical EMS Description	IMPROPRMVL



TOHCTL failure

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	TOHCTL failure
Information	An TOHCTL (Overhead Controller - Tributary) failure is detected.
Severity	PROMPT (SDH)/MAJOR (SONET)
Category	EQUIPMENT
On-site Indications	The observable signals are: • The FAULT LED on the unit is illuminated. • The PROMPT/MAJOR LED on the user panel is illuminated.
Probable Cause	The TOHCTL (Tributary Overhead Controller) has been removed from the network element.
Actions	See TAP 111
Note	No remote login possible (no overhead bytes available).
Navis TM Optical EMS Description	Navis TM Optical EMS does not display this alarm as it causes a loss of communication with the NE.



TOHCTL removed

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	TOHCTL removed
Information	An TOHCTL (Overhead Controller - Tributary) is missing from its slot.
Severity	PROMPT (SDH)/MAJOR (SONET)
Category	EQUIPMENT
On-site Indications	The PROMPT/MAJOR LED on the user panel is illuminated.
Probable Cause	The unit is not present.
Actions	See TAP 112
Note	No remote login possible (no overhead bytes available).
Navis TM Optical EMS Description	Navis TM Optical EMS does not display this alarm as it causes a loss of communication with the NE.



unexpected CP type

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	unexpected CP type
Information	Unexpected unit type inserted or unexpected port type selected by hardware strap setting.
Severity	PROMPT (SDH)/MAJOR (SONET)
Category	EQUIPMENT
On-site Indications	The observable signals are: • The FAULT LED on the unit is illuminated. • The PROMPT/MAJOR LED on the user panel is illuminated.
Probable Cause	A unit has been installed which is different than what is currently in the equipment list.
Actions	See TAP 127
Note	
Navis TM Optical EMS Description	PRCDERR



unexpected OTPM type

Alarm meaning The table below gives the meaning of the alarm:

Alarm Data	What It Means
Message	unexpected OTPM type
Information	Unexpected unit type inserted or unexpected port type selected by hardware strap setting.
Severity	PROMPT (SDH)/MAJOR (SONET)
Category	EQUIPMENT
On-site Indications	The observable signals are: • The FAULT LED on the unit is illuminated. • The PROMPT/MAJOR LED on the user panel is illuminated.
Probable Cause	A unit has been installed which is different than what is currently in the equipment list.
Actions	See TAP 127
Note	
Navis TM Optical EMS Description	PRCDERR



Optical Translator Fault Reporting (Using the Miscellaneous Discrete Interface)

Description

Important! In Release 3 and later releases, the Metropolis[®] EON monitors OTU circuit packs, QUAD OTU circuit packs, and OTPMs via the overhead access local area network (OALAN) and Optical Translator Controller (OTCTL) circuit pack. The miscellaneous discrete interface is no longer needed and should not be used to avoid redundant alarms. Instead of using the miscellaneous discrete interface, more detailed information is available from the CIT.

The OTU and QUAD OTU circuit packs continuously monitor their internal condition and incoming signals. The QUAD OTU circuit pack also continuously monitors the internal condition of the equipped OTPMs and the incoming signals. When a trouble condition is detected, the OTU and QUAD OTU circuit packs employ automatic diagnostics to isolate the fault. Failures are reported to the local technician using the circuit pack FAULT LED and the miscellaneous discrete outputs so that repair decisions can be made.

Table 2-3, “QUAD OTU Circuit Pack and OTPM Fault Reporting (Using Miscellaneous Discrete Interface)” (2-157) shows the trouble conditions detected and reported by the OTU circuit pack, and Table 2-3, “QUAD OTU Circuit Pack and OTPM Fault Reporting (Using Miscellaneous Discrete Interface)” (2-159) shows the trouble conditions detected and reported by the QUAD OTU circuit pack.

Condition	FAULT LED ¹	Miscellaneous Discretes 1 and 2 ²	Laser
No failure conditions	Off	1 and 2 Off	On
Incoming OC48 Loss of Signal (LOS)	Flashing	2 On	Off
Incoming OC48 Loss of Frame (LOF)	Flashing	2 On	Off
Incoming OC48 B1 Parity Error	Flashing	2 On	On
Laser Bias Current (LBC) Out of Range (OOR) ³	On	1 On	Off

Condition	FAULT LED ¹	Miscellaneous Discretes 1 and 2 ²	Laser
Optical Power Transmit (OPT) Out of Range (OOR) ³	On	1 On	Off

Condition	FAULT LED ¹	Miscellaneous Discretes 1 and 2 ²	Laser
OTU Circuit Pack Internal Defect	On	1 On	Off
OTU Circuit Pack Power Converter/Fuse Failure	On ⁴	1 On	Off
OTU Circuit Pack Insertion	On	1 On	Off ⁵
OTU Circuit Pack Reset/Initialization	On	1 On	On
Single Fuse Failure on -48 V Feeders ⁶	Off	1 On	On

Notes:

1. The FAULT LED will be active for the period of "defect duration + alarm clear delay."
2. Multiple failures may cause both miscellaneous discretes 1 and 2 to be active.
3. Downstream errors may not be detected/reported with this condition; however, the OTU circuit pack can be replaced, if desired.
4. The FAULT LED may not be lighted for some power converter or fuse failures on the OTU circuit pack.
5. When the OTU circuit pack is inserted in a slot, the laser is turned on after the firmware is initialized.
6. For a single fuse failure of a -48 V feeder at the shelf cabinet, all OTU circuit packs in the shelf cabinet will report this condition.

When multiple failures occur, the OTU circuit pack may activate miscellaneous discretes 1 and 2 simultaneously. When this occurs, observe the following priorities: (1) OTU/QUAD OTU/OTPM circuit pack defects, (2) incoming LOS/LOF, (3) incoming B1 parity error, (4) LBC/OPT OOR conditions and single fuse failures on -48 V feeders.

Table 2-3 QUAD OTU Circuit Pack and OTPM Fault Reporting (Using Miscellaneous Discrete Interface)

Condition	OTPM FAULT LED (Note 1)	QUAD OTU FAULT LED ¹	Miscellaneous Discretes 1 and 2 ²	Laser
No failure conditions	Off	Off	1 and 2 Off	On
Incoming OC3/OC12 Loss of Signal (LOS)	Flashing	Off	2 On	Off

Condition	OTPM FAULT LED (Note 1)	QUAD OTU FAULT LED ¹	Miscellaneous Discretes 1 and 2 (²)	Laser
Incoming OC3/OC12 Loss of Frame (LOF)	Flashing	Off	2 On	Off
Incoming 100-750 Mb/s Loss of Signal (LOS)	Flashing	Off	2 On	Off
Incoming OC3/OC12 B1 Parity Error	Flashing	Off	2 On	On
Laser Bias Current (LBC) Out of Range (OOR) ³	On	Off	1 On	Off
Optical Power Transmit (OPT) Out of Range (OOR) ³	On	Off	1 On	Off
OTPM Internal Defect	On	Off	1 On	Off
QUAD OTU Circuit Pack Power Converter Failure	Off	On ⁴	1 On	Off
QUAD OTU Fuse Failure	Off	On	1 On	Off ⁵
OTPM Fuse Failure	On†	Off	1 On	Off
Single Fuse Failure on -48 V Feeders ⁶	Off	Off	1 On	On
QUAD OTU Circuit Pack Reset	On	On	1 On	On
QUAD OTU Circuit Pack Insertion	On	On	1 On	Off ⁵
QUAD OTU Circuit Pack In Wrong Slot	On	On	1 On	Off
OTPM Insertion	On	Off	1 On	Off ⁷

Notes:

1. The FAULT LED will be active for the period of "defect duration + alarm clear delay."
2. Multiple failures may cause both miscellaneous discretes 1 and 2 to be active.
3. Downstream errors may not be detected/reported with this condition; however, the OTPM can be replaced, if desired.
4. The FAULT LED may not be lighted for some power converter or fuse failures on the OTU circuit pack.
5. All OTPM lasers in the QUAD OTU circuit pack will be turned off.

6. For a single fuse failure of a -48 V feeder at the shelf/cabinet, all OTU circuit packs in the shelf/cabinet will report this condition
7. When the OTPM is inserted in a slot, the laser is turned on after the firmware is initialized.

Important! The miscellaneous discretes outputs from the OTU and QUAD OTU circuit packs are monitored by the colocated Optical Line System End Terminal using an external miscellaneous discrete unit.



Protection Switching

Overview In releases prior to Release 3.1, the system did not provide protection switching to maintain transmission; however, the product did perform supervisory signal data communications channel (DCC) protection switching. If a transmission-affecting failure occurs, the system raised a minor (MN) non-service affecting condition. The lightwave terminals (for example, FT-2000 OC-48 Large Capacity Terminal) independently detected the failure and protected transmission by switching traffic to the protection line.

In Release 3.1 and later releases, the product also provided optical line protection switching to maintain transmission in 2-fiber applications with two optical amplifiers.

In Release 8.0 and later releases, Metropolis® EON offers optical unidirectional protection switching capabilities for a single wavelength.

Optical unidirectional protection

Important! OUPSR applications require associations to ensure proper protection switching. See the *User Operations Guide*, 365-575-559 for details.

The Optical Unidirectional Path Switched Ring (OUPSR) circuit pack provides nonrevertive optical unidirectional protection switching. The OUPSR circuit pack performs the transmit bridge and receive switch operation for a single wavelength routed over diverse paths. On the transmitting side, the OUPSR splits an unprotected signal into two signals and transmits the signals through the east side and west side of a Metropolis® EON system. On the receiving side, the OUPSR unit receives two separate signals and determines the “best signal” to drop depending on signal integrity. The switching is based on the following priorities:

1. Release
2. Inhibit
3. Forced Switching
4. Automatic Switching (Signal Fail)
5. Automatic Switching (Signal Degrade)
6. Manual Switching

“Best Signal”

The drop OTU circuit pack does not differentiate different levels of signal degrade. For instance, a BER of 10^{-5} is treated the same way as a BER of 10^{-6} and both will be declared as signal degrade condition. If the active channel detects a loss of signal (LOS) or loss of frame (LOF) condition and the standby channel has an existing signal degrade (SD) condition, then switching will occur; however, if a SD condition is detected on the active channel instead of LOS, then switching will not occur. In other words, switching will only occur if the active signal is running at a clearly discernible quality lower than the standby signal.

OTU options

OTUs can be used with OUPSRs in the following ways:

- ***Protected OTUs (four OTUs per office)***

This option supports switching on signal degrade (SD), alarm indication signal (AIS), and loss of frame (LOF). It also protects against a single OTU failure for both the add and drop signals.

- ***Protected Drop OTUs (three OTUs per office)***

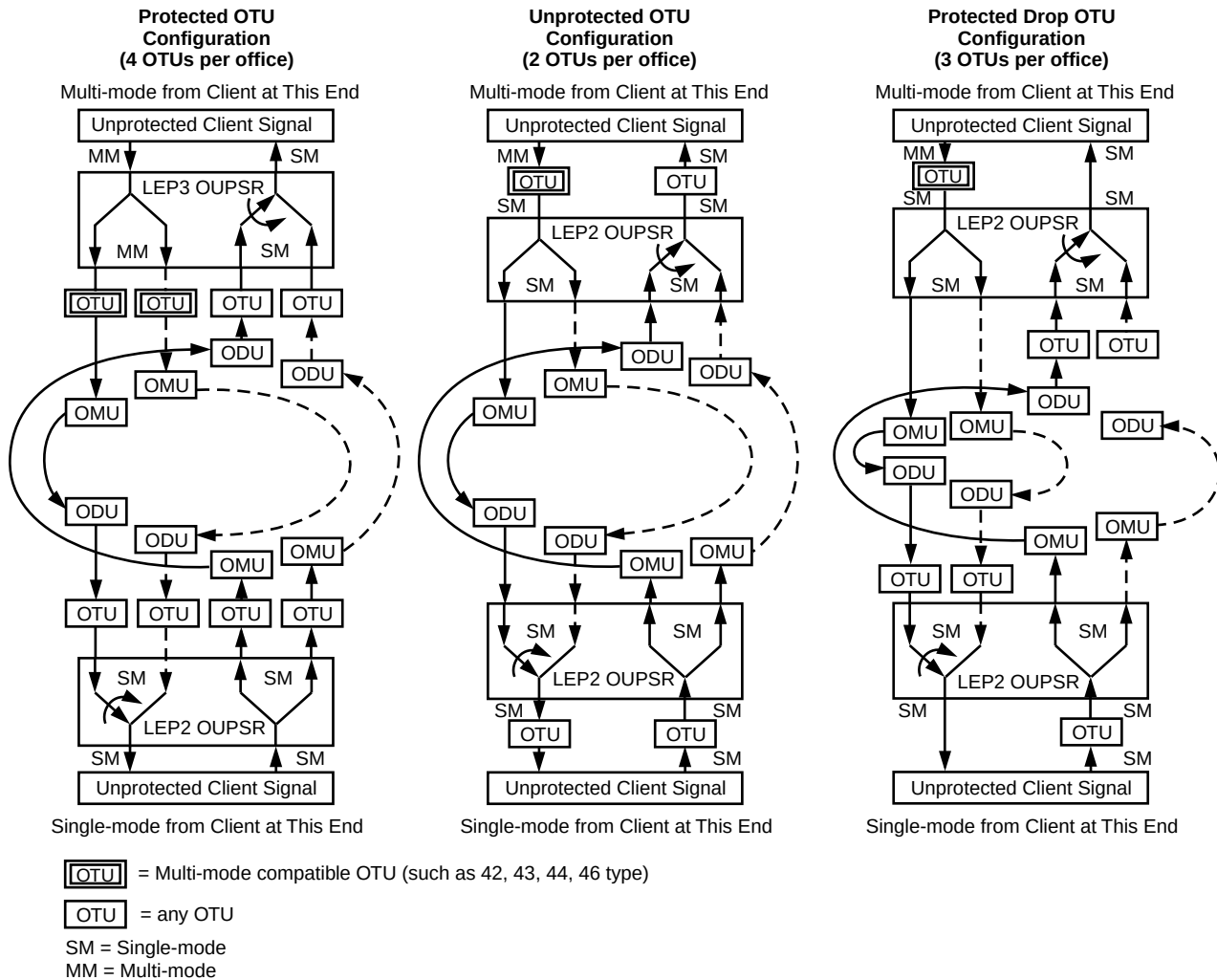
This option supports switching on signal degrade (SD), alarm indication signal (AIS), and loss of frame (LOF). It also protects against a single OTU failure for the drop signal but not for the add signal.

- ***Unprotected OTUs (two OTUs per office)***

This option is not supported when using older OAs (OAs with an LEA number lower than 200). This option does not support switching on signal degrade (SD), alarm indication signal (AIS), or loss of frame (LOF). It also does not protect against an OTU failure. When using this option, associations between OUPSR ports and OTPM/OTUs are required to provide an OTU laser shutoff delay to avoid outages during protection switches.

OTU options illustrated

The following figure illustrates the three OTU options. Note that a real application would probably have single mode on both ends or multimode on both ends. For simplicity, both the single mode and multimode connections are included in each configuration in the illustrations below. Note also that a LEP3 OUPSR circuit pack must have a multimode client input and a LEP2 must have all single mode inputs.

Figure 2-1 Four, Three, or Two OTUs per Office

nc-metro-168

Configurations supported

The new OUPSR circuit pack supports the following configurations:

- 2-Fiber Ring Dual End Terminal
- 2-Fiber Ring Dual Facing Shelf

The OUPSR circuit pack has an unpowered-default transmission path, which enables the OUPSR to continue operation without power. The unpowered-default path is designated as Path A. Therefore, when separate east and west bays are installed, it is recommended that the OUPSR be installed in the east bay and the unpowered-default path (Path A) be connected to the west bay. This protects traffic if power fails in the east bay. When a power failure occurs on the east bay, the OUPSR switches to the signal that comes from the west bay.

Unpowered-Default

The unpowered-default only applies to the unpowered state. Normally, the OUPSR works in non-revertive mode, which means the first side with a non-LOS signal will become the active side and will stay active until it fails or a user initiates a switch to the other side.

OUPSR switch on signal failure

There are power detectors at the input ports (AIN, BIN), so that if the power drops below -21.5 (+/- 2) dBm, the protection switch occurs. This switching operation is dependent on the upstream drop OTUs to turn off its output laser as soon as loss of signal (LOS), loss of frame (LOF), or alarm indication signal (AIS) is detected at the drop OTU inputs. Associations between OUPSR ports and OTPM/OTUs are required to provide signal degrade detection and protection switching for signal degrade conditions.

To guarantee optimal protection switching time for protected OTU OUPSR applications, the TX_OTU_DELAY needs to be disabled for the following OTU types:

- all add OTUs
- ELSBB drop OTUs
- LSBB drop OTUs
- UBB drop OTUs

TX_OTU_DELAY can be disabled through the TL1 command ENT - SYS or the CenterLink command **SECURITY.Enter.System**.

OUPSR switch on signal degrade

The OUPSR supports switch on signal degrade conditions in R8.2 and later releases when using four OTUs per NE. In R8.2, OUPSR adds additional switch initiation criteria based on signal degrade conditions from the Universal Broad Band (UBB) circuit pack, and the SONET OC-3, OC-12 and OC-48 OTU circuit packs. The Signal Degrade threshold is not provisionable in R8.2. It is fixed at 10^{-6} . This feature requires the two drop OTUs in front of the OUPSR AIN and BIN. If a drop OTU and the OUPSR associated with it reside in different network elements (for example, if the drop OTU is in the west NE and the OUPSR is in the east NE), then system controller and OT controller interactions are also required for this feature. If the drop OTU in the west NE detects a signal degrade condition, it will report such conditions to the OT controller, and the OT controller will forward this information to the system controller. The system controller will communicate through DCC to the system controller of the east NE, and

the system controller of the east NE will inform the OUPSR to switch through its OT controller.

OUPSR switch by user

In addition to the auto switch functions, the CIT also supports user-initiated switching commands, such as forced switching, manual switching, inhibit switching, or release switching. For more details, see the `opr-protnsw-oupsr` command in the *Operations Systems Engineering Guide, 365-575-561 R8.2*.



Reports

Description	Everytime topology is changed in an OLS network, a CONFIGURATION.Initialize.System (level 3) command must be executed for all nodes in order for the correct information to be displayed in the CONFIGURATION.Retrieve.Map.Network and CONFIGURATION.Retrieve.Map.Ring reports.
Active alarms and status	The Metropolis® EON provides a report that shows all the local active alarm and status conditions. Refer to the examples of the following reports in Chapter 16 of the <i>User Operations Guide, 365-575-599 R8.2</i> <pre> 0001 FAULT-Retrieve-Condition-All 0002 FAULT-Retrieve-Condition-Customer Maintenance Signal 0003 FAULT-Retrieve-Condition-Common 0004 FAULT-Retrieve-Condition-Equipment 0005 FAULT-Retrieve-Condition-Optical Channel 0006 FAULT-Retrieve-Condition-Optical Line 0007 FAULT-Retrieve-Condition-Optical Protection Switch (Release 3.1 and later) 0008 FAULT-Retrieve-Condition-Supervisory 0009 FAULT-Retrieve-Condition-OT Port Signal (Release 3 and later) </pre> For detailed information, refer to the on-line help available with the CenterLink Management Console or <i>Operations Systems Engineering Guide, 365-575-561 R8.2</i>.
Active alarms (Release 2.1 and Later)	The Metropolis® EON provides reports that show all the local active alarm conditions. The Metropolis® EON also provides a report that shows the active alarm level at each network element with active alarm conditions. Refer to the examples of the following reports in Chapter 16 of the <i>User Operations Guide, 365-575-599 R8.2</i> <pre> FAULT-Retrieve-Alarm-All FAULT-Retrieve-Alarm-Common FAULT-Retrieve-Alarm-Customer Maintenance Signal FAULT-Retrieve-Alarm-Environment FAULT-Retrieve-Alarm-Equipment FAULT-Retrieve-Alarm-Network FAULT-Retrieve-Alarm-Optical Channel FAULT-Retrieve-Alarm-Optical Line FAULT-Retrieve-Alarm-Optical Protection Switch (Release 3.1 and later) FAULT-Retrieve-Alarm-Supervisory FAULT-Retrieve-Alarm-OT Port Signal (Release 3 and later) </pre>

For detailed information, refer to the on-line help available with the CenterLink Management Console or *Operations Systems Engineering Guide*, 365-575-561 R8.2

Active Alarms and Status

The Optical Line System provides a report that shows all the local active alarm and status conditions. The Optical Line System also provides a report that shows the active alarm level at each network element with active alarm and status conditions.

The local active alarms and status report is automatically displayed on the CIT immediately after a user logs in.

For SONET, the report shows the following alarm levels for each active condition:

- Critical (CR)
- Major (MJ)
- Minor (MN)
- Abnormal (ABN)
- Near-end activity (NE ACTY)

For SDH, the report shows the following alarm levels for each active condition:

- Critical
- Prompt
- Deferred
- Abnormal
- Info-N

The alarm level of each active condition is reported to allow multiple active conditions to be prioritized.

The source address and description of the alarm condition (for example, controller failure, incoming optical signal failure, etc.) are included in the report, along with the date and time detected. The report also shows if the condition affects service. The option to display specified subsets of conditions by alarm level is also provided.

If no LEDs are lighted on the indicator strip/user panel (no active conditions), the report states "There are no active alarms or status conditions."

The network alarms report includes the highest active alarm level at each network element.

For SONET, the network alarms report shows the following alarm levels:

- Critical (CR)
- Major (MJ)
- Minor (MN)
- Abnormal (ABN)
- Near-end activity (NE ACTY).

For SDH, the network alarms report shows the following alarm levels:

- Critical
- Prompt
- Deferred
- Abnormal (ABN)
- Info-N

If there are no active system alarm conditions, the report states "There are no active alarms or status conditions."

If the **NE ACTY LED** is lighted at the local network element, use the local active alarm and status report. If the **FE ACTY LED** is lighted at the local network element, use the network alarms report. If the **NE ACTY** and **FE ACTY LEDs** are both lighted, use the network alarms report. For more information, refer to the FAULT-Retrieve-Alarm (and Status) and FAULT-Retrieve-Network Alarms inputs in Chapter 16, "Using the Craft Interface Terminal" of the *User Operations Guide, 365-575-599 R8.2*.

6-Hour autonomous TL1 report

The Metropolis[®] EON generates **REPT-COND** messages periodically and autonomously to report active status conditions to a remote operations system. The **REPT-COND** messages are generated every 6 hours (that is, 6:00 AM, 12:00 noon, 6:00 PM, and 12:00 midnight).

Provisioning reports

Provisioning reports list the current state of all provisionable options in the Metropolis[®] EON. For examples of the following reports within the **CONFIGURATION** category, refer to Chapter 16, "Using the Craft Interface Terminal" of the *User Operations Guide, 365-575-599 R8.2*.

0001 Retrieve-All (Release 2.1 and later)

0002 Retrieve-Attribute-All (Release 2.1 and later)

0003 Retrieve-Attribute-Alarm
 0004 Retrieve-Attribute-Control
 0005 Retrieve-Attribute-Environment
 0006 Retrieve-Attribute-Supervisory (Release 2.1 and later)
 0007 Retrieve-Customer Maintenance Signal (Release 2.1 and later)
 0008 Retrieve-Date
 0009 Retrieve-Equipment
 0010 Retrieve-Optical Channel (Release 2.1 and later)
 0011 Retrieve-Optical Line (Release 2.1 and later)
 0012 Retrieve-Optical Protection Switch (Release 3.1 and later)
 0013 Retrieve-Supervisory (Release 2.1 and later)
 0014 Retrieve-Association-OT Port Signal (Release 3 and later)
 0015 Retrieve-OT Port Signal (Release 3 and later)
 0016 Retrieve-Section Trace (Release 3 and later).

Also refer to the examples of the following reports within the **SECURITY** category in Chapter 16, “Using the Craft Interface Terminal” of the *User Operations Guide, 365-575-599 R8.2*.

0001 Retrieve-Channel Identifier-Security (Release 2.1 and later)
 0002 Retrieve-Far End Communications
 0003 Retrieve-Login (Releases 1 and 2)
 0004 Retrieve-Network Element (Releases 1 and 2)
 0003 Retrieve-Network Element-Security (Release 2.1 and later)
 0004 Retrieve-OSI (Release 4 and later)
 0007 Retrieve-Security-Network Element (Releases 1 and 2)
 0008 Retrieve-Security-Port (Releases 1 and 2)
 0005 Retrieve-System (Release 2.1 and later)
 0006 Retrieve-User-Security (Release 2.1 and later)

Also refer to the example of the **FAULT.Retrieve.State** report in Chapter 16 of the *User Operations Guide, 365-575-599 R8.2*

For detailed information, refer to the on-line help available with the CenterLink Management Console or *Operations Systems Engineering Guide, 365-575-561 R8.2*

Performance monitoring

The Metropolis® EON provides reports that contain a snapshot of all the performance-monitoring registers at the time the report is requested. The time each register was last reinitialized is also included. The reports contain a summary of all requested performance parameters that have crossed their 15-minute and 1-day threshold within the last 24 hours.

For examples of the **PERFORMANCE.Retrieve.Performance Monitoring.All**, **PERFORMANCE.Retrieve.Performance Monitoring.Optical_Line**, **PERFORMANCE.Retrieve.Performance Monitoring.Optical_Channel**, **PERFORMANCE.Retrieve.Performance Monitoring.Supervisory** and **PERFORMANCE.Retrieve.Performance Monitoring.OT_Port_Signal** reports, refer to Chapter 16 of the *User Operations Guide*, 365-575-599 R8.2

For detailed information, refer to the on-line help available with the CenterLink Management Console or *Operations Systems Engineering Guide*, 365-575-561 R8.2

State An on-demand report displays the state of each addressed slot, optical line, optical channel, supervisory channel, and customer maintenance signal port. For examples of the **FAULT.Retrieve.State** report, refer to Chapter 16 of the *User Operations Guide*, 365-575-599 R8.2. For detailed information, refer to the on-line help available with the CenterLink Management Console or *Operations Systems Engineering Guide*, 365-575-561 R8.2

Version/equipment list The version/equipment list report is an on-demand report that lists the circuit pack version and the software release (if applicable) for the Metropolis[®] EON. This report also lists all the circuit packs that are present. For examples of the **CONFIGURATION.Retrieve.Equipment** report, refer to Chapter 16 of the *User Operations Guide*, 365-575-599 R8.2 For detailed information, refer to the on-line help available with the CenterLink Management Console or *Operations Systems Engineering Guide*, 365-575-561 R8.2





3 Trouble Clearing

Overview

Purpose This chapter includes step by step procedures that enable the user to repair troubles outlined in Chapter 2, “Alarm Messages”.

Contents This chapter is divided into two sections.

Technical Assistance	3-2
Procedures	3-6



Technical Assistance

Overview

Purpose Technical assistance is built on gathering system information. A local visual inspection of the equipment may be made, but most internal hardware problems are detected and corrected using the craft interface terminal (CIT). A CIT is used to obtain detailed information on the Metropolis[®] EON. The CIT retrieves detailed reports about performance monitoring, alarms and status, and configurations for the local and remote network elements.

Contents This section includes one part.

Trouble Analysis Procedures	3-3



Trouble Analysis Procedures

Overview The trouble analysis procedures in this document involve replacing faulty circuit packs and obtaining performance reports and/or alarm and status reports for analysis to determine the status of system. If a trouble cannot be corrected, the procedures direct the technician to obtain help. This means that the trouble is of a nature that requires local maintenance engineering or a higher level technical assistance.

CTAM assistance The technician must make the decision regarding trouble analysis, corrective action, and obtaining assistance. The technician and the local technical support staff may choose to continue trouble analysis based on their knowledge or experience with the product or they may elect to obtain assistance by calling the Customer Technical Assistance Manager **1-800-225-4672** in accordance with local procedures.

Global technical support information platform The Global Technical Support Information Platform (GTSIP) is used to record customer requests for various MetropolisTM products. Customers, utilizing several web-based applications, can search for and request data. Customers must contact the Customer Technical Assistance Management/Virtual Call Center at 1-800-225-4672 to obtain a Web Access login.

The following customer applications are web-based.

Bulletin board

The Bulletin board is used to display and search entries for information and notifications for Metropolis[®] EON products. A search can be initiated using various fields such as: Bulletin Board Number, product, created date, subject, and text.

Diagnostic Dictionary

The Diagnostic Dictionary is used to display and search for known problems and solutions for Metropolis[®] EON products. A search can be initiated using various fields such as: Diagnostic Dictionary Number, product, created date, description, or solution. This data may be useful in diagnosing, correcting, or avoiding Metropolis[®] EON problem.

Urgent Problem Notification

The Urgent Problem Notification (UPN) application is used to display and search for information regarding MetropolisTM products that have a

critical issue that requires immediate availability to customers. A detailed description of the critical issue, with current status, and final resolution, is provided. A search can be initiated using various fields such as: UPN Number, product, created date, subject, or description.

Circuit pack failures

Circuit pack failures are identified by LEDs and reported by Metropolis® EON network alarms and reports.

Before replacing a circuit pack, look for and replace any damaged fiber and/or LBO connectors. Circuit packs are replaced in a specified sequence, but only one circuit pack is replaced at a time. If trouble is not cleared after replacing a circuit pack, the original circuit pack should be reinstalled. This reduces the chances of returning nondefective circuit packs for repair.

Electrostatic discharge (ESD) considerations

Any integrated circuit on a circuit pack can be damaged by static electricity that builds up within a work area, particularly in areas with low relative humidity. This static buildup on work surfaces and on personnel and their clothing is produced by the various charging effects of even simple movements and by contact between various objects.

As a rule, the greatest potential for electrostatic damage occurs in areas with the lowest relative humidity. But, because such damage can occur anywhere, all personnel handling circuit packs should take the following precautions.

- Since materials such as food wrappers, plastics, and Styrofoam containers tend to generate static electricity, keep them away from all circuit packs.
- Be sure to read all warning labels on bags and cartons before opening any packaging.
- If possible, open all circuit packs at a static-safe work position using properly grounded wrist straps and table mats that can dissipate static electricity.
- Whenever possible, wait to remove circuit packs from their protective antistatic packaging until it is time to insert them into a shelf.
- Never touch a circuit pack's components, conductors, or connector pins. Handle all circuit packs only by the faceplate or latch or by the top and bottom outermost edges.

- When handling circuit packs (storing, installing, removing, etc.) or when working on backplanes, always wear a grounded wrist strap or wear a heel strap and stand on a grounded, static-dissipating floor mat.
- Always store and transport circuit packs in static-safe packages. (Shielding is not required unless specified.)
- When removing a circuit pack from the shelf, immediately put it into a static-safe package.
- Try to keep relative humidity above 20 percent.
- Metropolis[®] EON network elements are equipped with grounding jacks for connecting the static ground wrist strap. The jacks are located on the user panel and on the filter panel.
- Keep the electromagnetic interference (EMI)/ESD protective front shelf covers closed at all times. Close the cover immediately after a maintenance procedure such as replacing a circuit pack.



Procedures

Overview

Purpose This section includes trouble analysis procedures that enable the user to repair troubles outlined in Chapter 2, “Alarm Messages”.

Where do I start? Use the following trouble analysis procedures (TAPs) as an entry to repair troubles.

Find your job in the list below	Then go to
Clear alarm when NE ACTY(SONET)/INFO-N (SDH) and FE ACTY(SONET)/INFO-F (SDH) LED indicators are not lighted	“TAP-136: Clear Alarm When ‘NE ACTY/INFO-N’ and ‘FE ACTY/INFO-F’ LEDs Are Off or Restore System With No Alarms and NE is Not Responding” (3-125)
Clear NE ACTY (SONET)/INFO-N (SDH) and/or FE ACTY (SONET)/INFO-F (SDH) LED indicators (regardless of alarm level)	“TAP-101: Clear NE ACTY/ INFO-N and/or FE ACTY/ INFO-F (Regardless of Alarm Level)” (3-12)
Clear trouble in CIT (CIT does not respond to commands)	“TAP-128: Clear Trouble In CIT (CIT Does Not Respond to Commands)” (3-112)
Clear trouble report	“TAP-104: Clear Trouble Report” (3-30)

Find your job in the list below	Then go to
Restore network element operation after power loss	“TAP-130: Restore Network Element Operation After Power Loss” (3-115)

Contents This section contains the following procedures.

TAP-101: Clear NE ACTY/INFO-N and/or FE ACTY/INFO-F (Regardless of Alarm Level)	<u>3-12</u>
TAP-102: Clear Trouble Using Craft Interface Terminal (CIT)	<u>3-16</u>
TAP-103: Clear ‘DCC APS Data Error’	<u>3-28</u>
TAP-104: Clear Trouble Report	<u>3-30</u>
TAP-105: Clear ‘OMU/ODU Mismatch or Missing’	<u>3-35</u>
TAP-106: Address ‘Incoming LAN link failure’, or ‘Incoming LAN failure’	<u>3-38</u>
TAP-107: Address Environmental Input and/or Control Output Condition	<u>3-41</u>
TAP-108: Address Missing or Incorrect Response	<u>3-43</u>
TAP-109: Clear ‘Optical Line ID Mismatch’	<u>3-46</u>
TAP-110: Address Incoming Signal Failure	<u>3-49</u>
TAP-111: Clear ‘Circuit Pack Failure’	<u>3-56</u>
TAP-112: Clear ‘Circuit Pack Removed’	<u>3-64</u>
TAP-113: Clear ‘SYSMEM Failure’ or ‘SYSCTL Failure’	<u>3-68</u>
TAP-114: Clear Condition When ‘ABN’ and/or ‘NE ACTY/INFO-N’ LED is Lighted	<u>3-72</u>
TAP-116: Clear Unsuccessful Circuit Pack Replacement	<u>3-75</u>
TAP-117: Clear ‘CPYPGM:IP (tid)’	<u>3-79</u>
TAP-118: Clear ‘NE Status Comm Failure’	<u>3-80</u>
TAP-119: Clear ‘Fuse/Power Failure (A/B)’	<u>3-85</u>

TAP-120: Clear 'Incoming (From Supr) DCC Failure'	3-90
TAP-121: Address 'CP Reset In Progress'	3-95
TAP-122: Clear 'CP (Unknown Type) Removed'	3-96
TAP-123: Clear 'CP (Unknown Type) Failure' or 'OTPM Unknown'	3-99
TAP-124: Address 'Reset in Progress'	3-101
TAP-125: Clear 'SYSMEM Unrecognizable Code'	3-103
TAP-126: Clear 'SYSMEM/SYSCTL Code Mismatch'	3-106
TAP-127: Clear 'Unexpected CP Type' or 'Unexpected OTPM Type'	3-109
TAP-128: Clear Trouble In CIT (CIT Does Not Respond to Commands)	3-112
TAP-129: Clear 'DCC Startup In Progress'	3-114
TAP-130: Restore Network Element Operation After Power Loss	3-115
TAP-131: Clear 'Software Download in Progress'	3-117
TAP-132: Clear 'System Startup In Progress'	3-118
TAP-133: Clear 'SYSMEM Removed'	3-119
TAP-134: Clear 'System Incomplete'	3-120
TAP-135: Clear 'Multiple DS-NEs Defined'	3-122
TAP-136: Clear Alarm When 'NE ACTY/INFO-N' and 'FE ACTY/INFO-F' LEDs Are Off or Restore System With No Alarms and NE is Not Responding	3-125
TAP-137: Clear 'DS-NE Not Reachable'	3-132
TAP-138: Clear 'Duplicate TID Defined'	3-135
TAP-139: Clear 'SER TLM 1 Port Failure'	3-136
TAP-140: Clear 'different OA types in side'	3-138
TAP-141: Clear 'equpage/prov mode inconsistent'	3-140
TAP-142: Clear 'opr/prov mode inconsistent'	3-144
TAP-143: Clear 'incoming optical line LOS' for a Single OA Network Element without LIRCV	3-149

TAP-144: Clear 'OMU/ODU warmup in progress'	3-156
TAP-145: Clear 'optical line reset in progress'	3-157
TAP-148: Clear 'inconsistent OTPM association' or 'inconsistent OTU association'	3-158
TAP-149: Address OT Incoming Signal Failure	3-161
TAP-150: Clear 'APSD active - FE'	3-166
TAP-151: Clear 'APSD active - NE'	3-168
TAP-153: Clear 'j0 and j1 mismatch'	3-170
TAP-154: Clear 'OA output disabled'	3-173
TAP-156: Address 'TID Address Map Full'	3-175
TAP-158: Address 'MIB lock in progress'	3-177
TAP-161: Address 'INITSWD:IP'	3-178
TAP-162: Clear Combination 'TLM Failure' and 'OA Failure'	3-179
TAP-163: Clear 'OA/TLM mismatch'	3-181
TAP-164: Clear 'BC LAN1 failure'	3-184
TAP-165: Clear 'BC LAN2 failure'	3-187
TAP-166: Clear 'Invalid pass through route'	3-190
TAP-167: Clear 'OA LAN Failure'	3-192
TAP-168: Clear 'OTU duplicate' or 'OTPM duplicate'	3-195
TAP-169: Clear 'OUPSR auto switch to Path A', 'OUPSR auto switch to Path B', 'OUPSR auto switch on SD to Path A', or 'OUPSR auto switch on SD to Path B'	3-196
TAP-170: Clear 'SID Mismatch'	3-199
TAP-171: Address OLIN TOPR Threshold Crossing Alerts	3-201
TAP-172: Address OUPSR Incoming Signal Failure	3-206
TAP-173: Address "Incoming UBB Data Rate Mismatch" or "Incoming Payload Type Mismatch" Alarms	3-208
TAP-174: Address "Incoming Signal Degrade" Alarm	3-211
TAP-175: Clear "DCM input LOS" Alarm	3-222

TAP-176: Clear "incoming OUPSR CIN LOS" Alarm	3-236
TAP-177: Clear "OA high input power" Alarm	3-249
TAP-178: Clear "companion NE not reachable" Alarm	3-251
TAP-179: Clear "incoming loss of packet delineation" Alarm	3-258
TAP-180: Clear "pluggable module removed" Alarm	3-259
TAP-181: Clear "test loopback in progress" Alarm	3-262
TAP-182: Clear 'module/prov mode inconsistent'	3-263

TAP-101: Clear NE ACTY/INFO-N and/or FE ACTY/INFO-F (Regardless of Alarm Level)

Purpose This task directs the technician to either the local network element or to a remote network element based on one or more conditions indicated by a lighted **NE ACTY (SONET)/INFO-N (SDH)** and/or **FE ACTY (SONET)/INFO-F (SDH) LED** indicator(s) at the indicator strip (or user panel). (These conditions may or may not be accompanied by an alarm.)

Task

- 1** Are both **NE ACTY/INFO-N** and **FE ACTY/INFO-F LED** indicators lighted at the local indicator strip (or user panel)?

If	Then
YES	Continue with Step 4
NO	Continue with Step 2.

- 2** Is the **NE ACTY /INFO-N LED** indicator lighted on the user panel?

If	Then
YES	Go to “TAP-102: Clear Trouble Using Craft Interface Terminal (CIT)” (3-16) (the trouble to be cleared is at the local network element).
NO	Continue with Step 10.

- 3** STOP! YOU HAVE COMPLETED THIS TASK.
-

- 4** Is the CIT conditioned and connected to the local network element?

If	Then
YES	Continue with Step 5.

If	Then
NO	Complete “DLP-501: Connect and Condition Craft Interface Terminal (CIT)” (4-12) and return to this procedure.

- 5 Using the CIT, select the command **FAULT.Retrieve.Condition.All** to obtain a report.

- 6 Are there any local failures?

If	Then
NO	Continue with Step 7.
YES	Go to “TAP-102: Clear Trouble Using Craft Interface Terminal (CIT)” (3-16).

- 7 At the CIT, select **FAULT.Retrieve.Alarm.Network** to obtain a report.

- 8 Is the local network element (TID) in the group with the highest alarm level?

If	Then
YES	Go to “TAP-102: Clear Trouble Using Craft Interface Terminal (CIT)” (3-16) (the trouble to be cleared is at the local network element).
NO	Important! If the local TID appears in the report and is among the group of entries with the highest alarm level, the trouble condition is first cleared at the local network element before proceeding with trouble clearing at another network element Continue with Step 10

- 9 STOP! YOU HAVE COMPLETED THIS TASK.

- 10 Are you responsible for maintaining the remote network element as well as the local network element?

If	Then
YES	Continue with Step 14.
NO	Continue with Step 11.

- 11 At the CIT, select **FAULT.Retrieve.Alarm.Network** to obtain a report.

Important! The condition to be cleared is at a remote network element.

- 12 Referring to the topmost entry in the report, issue a Trouble Report to the remote network element by using the TID in the TID column.

- 13 STOP! YOU HAVE COMPLETED THIS TASK.

Important! The trouble clearing process begins at a remote network element. Remember, when the following procedures refer to the local CIT, that it is really logged in to a remote network element and that any corrective action will apply to the remote network element.

- 14 Initiate a login session with the remote network element.

- 15 Were you able to log in to the remote network element?

If	Then
YES	Continue with Step 16.
NO	Continue with Step 18.

Important! You may require assistance at the remote network element to replace a circuit pack(s) or to observe LEDs. Trouble clearing begins with the topmost entry in the report.

- 16** Clear the particular condition at the remote network element.

Reference: “TAP-102: Clear Trouble Using Craft Interface Terminal (CIT)” (3-16).

-
- 17** STOP! YOU HAVE COMPLETED THIS TASK.

-
- 18** You must travel to the remote network element location or obtain assistance at the remote network element location to clear the trouble.

END OF STEPS



TAP-102: Clear Trouble Using Craft Interface Terminal (CIT)

Purpose This task is used to clear the conditions listed in the **FAULT.Retrieve.Condition.All <Active Alarms and Status>** report in the order listed, from top to bottom, regardless of the indicated alarm severity, date, or time.

Trouble conditions The following table lists the trouble conditions listed in the **CONDDESCR** report generated by the command, **FAULT.Retrieve.Condition.All**.

If	Then continue with
<i>APSD active - FE</i>	“TAP-150: Clear ‘APSD active - FE’” (3-166)
<i>APSD active - NE</i>	“TAP-151: Clear ‘APSD active - NE’” (3-168)
<i>BC LAN1 failure</i>	“TAP-164: Clear ‘BC LAN1 failure’” (3-184)
<i>BC LAN2 failure</i>	“TAP-165: Clear ‘BC LAN2 failure’” (3-187)
<i>companion NE not reachable</i>	“TAP-178: Clear “companion NE not reachable” Alarm” (3-251)
<i>CP reset in progress</i>	“TAP-121: Address ‘CP Reset In Progress’” (3-95)
<i>CP (unknown type) failure</i>	“TAP-123: Clear ‘CP (Unknown Type) Failure’ or ‘OTPM Unknown’” (3-99)
<i>CP (unknown type) removed</i>	“TAP-122: Clear ‘CP (Unknown Type) Removed’” (3-96)
<i>CPYPGM:IP tid</i>	“TAP-117: Clear ‘CPYPGM:IP (tid)’” (3-79)
CT login	
<i>CT logout/logout remote link down/ logout timeout/login:deny</i>	
<i>DCC startup in progress</i>	“TAP-129: Clear ‘DCC Startup In Progress’” (3-114)
<i>DCM input LOS</i>	“TAP-175: Clear “DCM input LOS” Alarm” (3-222)
<i>different OA types in side</i>	“TAP-140: Clear ‘different OA types in side’” (3-138)
<i>DSNE not reachable</i>	“TAP-137: Clear ‘DS-NE Not Reachable’” (3-132)
<i>duplicate TID defined</i>	“TAP-138: Clear ‘Duplicate TID Defined’” (3-135)

If	Then continue with
<i>equipage/prov mode inconsistent</i>	“TAP-141: Clear ‘equipage/prov mode inconsistent’” (3-140)
<i>fuse/power failure A</i>	“TAP-119: Clear ‘Fuse/Power Failure (A/B)’” (3-85)
<i>fuse/power/failure B</i>	“TAP-119: Clear ‘Fuse/Power Failure (A/B)’” (3-85)
<i>fuse/power failure A and B</i>	“TAP-119: Clear ‘Fuse/Power Failure (A/B)’” (3-85)
<i>incoming CMS LOF</i>	“TAP-110: Address Incoming Signal Failure” (3-49)
<i>incoming CMS LOS</i>	“TAP-110: Address Incoming Signal Failure” (3-49)
<i>incoming CMS SD</i>	“TAP-110: Address Incoming Signal Failure” (3-49)
<i>incoming CMS SF</i>	“TAP-110: Address Incoming Signal Failure” (3-49)
<i>incoming ESCON LOS</i>	“TAP-149: Address OT Incoming Signal Failure” (3-161)
incoming FC-100 LOS	“TAP-149: Address OT Incoming Signal Failure” (3-161)
<i>incoming FICON LOS</i>	“TAP-149: Address OT Incoming Signal Failure” (3-161)
<i>inc. (from Supr) DCC failure</i>	“TAP-120: Clear ‘Incoming (From Supr) DCC Failure’” (3-90)
<i>incoming GbE-1 failure</i>	“TAP-149: Address OT Incoming Signal Failure” (3-161)
<i>incoming GbE-1 LOS</i>	“TAP-149: Address OT Incoming Signal Failure” (3-161)
<i>incoming ISC_CF LOS</i>	“TAP-149: Address OT Incoming Signal Failure” (3-161)
<i>incoming LAN link failure</i>	“TAP-106: Address ‘Incoming LAN link failure’, or ‘Incoming LAN failure’” (3-38)

If	Then continue with
<i>incoming loss of packet delineation</i>	“TAP-179: Clear "incoming loss of packet delineation" Alarm” (3-258)
<i>incoming LSBB failure</i>	“TAP-149: Address OT Incoming Signal Failure” (3-161)
<i>incoming OC3 failure</i>	“TAP-149: Address OT Incoming Signal Failure” (3-161)
<i>incoming OC3 signal degrade</i>	“TAP-174: Address "Incoming Signal Degrade" Alarm” (3-211)
<i>incoming OC12 failure</i>	“TAP-149: Address OT Incoming Signal Failure” (3-161)
<i>incoming OC12 signal degrade</i>	“TAP-174: Address "Incoming Signal Degrade" Alarm” (3-211)
<i>incoming OC-48 failure</i>	“TAP-149: Address OT Incoming Signal Failure” (3-161)
<i>incoming OC48 signal degrade</i>	“TAP-174: Address "Incoming Signal Degrade" Alarm” (3-211)
<i>incoming OC-192 failure</i>	“TAP-149: Address OT Incoming Signal Failure” (3-161)
<i>incoming OCH10G failure</i>	“TAP-149: Address OT Incoming Signal Failure” (3-161)
<i>incoming optical channel LOS</i>	“TAP-110: Address Incoming Signal Failure” (3-49)
<i>incoming optical line LOS</i>	“TAP-110: Address Incoming Signal Failure” (3-49)
<i>incoming OUPSR AIN LOS</i>	“TAP-172: Address OUPSR Incoming Signal Failure” (3-206)
<i>incoming OUPSR BIN LOS</i>	“TAP-172: Address OUPSR Incoming Signal Failure” (3-206)
<i>incoming OUPSR CIN LOS</i>	“TAP-176: Clear "incoming OUPSR CIN LOS" Alarm” (3-236)

If	Then continue with
<i>incoming payload type mismatch</i>	“TAP-173: Address "Incoming UBB Data Rate Mismatch" or "Incoming Payload Type Mismatch" Alarms” (3-208)
<i>incoming STM1 failure</i>	“TAP-149: Address OT Incoming Signal Failure” (3-161)
<i>incoming STM1 signal degrade</i>	“TAP-174: Address "Incoming Signal Degrade" Alarm” (3-211)
<i>incoming STM4 failure</i>	“TAP-149: Address OT Incoming Signal Failure” (3-161)
<i>incoming STM4 signal degrade</i>	“TAP-174: Address "Incoming Signal Degrade" Alarm” (3-211)
<i>incoming STM16 failure</i>	“TAP-149: Address OT Incoming Signal Failure” (3-161)
<i>incoming STM16 signal degrade</i>	“TAP-174: Address "Incoming Signal Degrade" Alarm” (3-211)
<i>incoming STM64 failure</i>	“TAP-149: Address OT Incoming Signal Failure” (3-161)
<i>incoming supr chnl fail</i>	“TAP-110: Address Incoming Signal Failure” (3-49)
<i>incoming supr chnl SD</i>	“TAP-110: Address Incoming Signal Failure” (3-49)
<i>incoming supr chnl SF</i>	“TAP-110: Address Incoming Signal Failure” (3-49)
<i>incoming UBB data rate mismatch</i>	“TAP-173: Address "Incoming UBB Data Rate Mismatch" or "Incoming Payload Type Mismatch" Alarms” (3-208)
<i>incoming UBB failure</i>	“TAP-149: Address OT Incoming Signal Failure” (3-161)
<i>incoming UBB signal degrade</i>	“TAP-174: Address "Incoming Signal Degrade" Alarm” (3-211)
<i>incoming UNKNOWN LOS</i>	“TAP-149: Address OT Incoming Signal Failure” (3-161)

If	Then continue with
<i>inconsistent OTPM association</i>	“TAP-148: Clear ‘inconsistent OTPM association’ or ‘inconsistent OTU association’” (3-158)
<i>inconsistent OTU association</i>	“TAP-148: Clear ‘inconsistent OTPM association’ or ‘inconsistent OTU association’” (3-158)
<i>inhibit alarms-LAN/office/X.25</i>	“TAP-114: Clear Condition When ‘ABN’ and/or ‘NE ACTY/ INFO-N’ LED is Lighted” (3-72)
<i>inhibit alarms-parallel telem</i>	“TAP-114: Clear Condition When ‘ABN’ and/or ‘NE ACTY/ INFO-N’ LED is Lighted” (3-72)
<i>INITSWD:IP</i>	“TAP-161: Address ‘INITSWD:IP’” (3-178)
<i>invalid pass through route</i>	“TAP-166: Clear ‘Invalid pass through route’” (3-190)
<i>j0 mismatch</i>	“TAP-153: Clear ‘j0 and j1 mismatch’” (3-170)
<i>j1 mismatch</i>	“TAP-153: Clear ‘j0 and j1 mismatch’” (3-170)
<i>LI failure</i>	“TAP-111: Clear ‘Circuit Pack Failure’” (3-56)
<i>LI removed</i>	“TAP-112: Clear ‘Circuit Pack Removed’” (3-64)
<i>logins inhibited</i>	“TAP-114: Clear Condition When ‘ABN’ and/or ‘NE ACTY/ INFO-N’ LED is Lighted” (3-72)
<i>Loss of internal channel</i>	
<i>Loss of internal tributary</i>	
<i>Loss of Q2-communications</i>	
<i>Loss of tributary</i>	
<i>MIB lock in progress</i>	“TAP-158: Address ‘MIB lock in progress’” (3-177)

If	Then continue with
<i>module/prov mode inconsistent</i>	“TAP-182: Clear ‘module/prov mode inconsistent’” (3-263)
<i>multiple DS-NEs defined</i>	“TAP-135: Clear ‘Multiple DS-NEs Defined’” (3-122)
<i>NE status comm failure</i>	“TAP-118: Clear ‘NE Status Comm Failure’” (3-80)
<i>OA failure</i>	“TAP-111: Clear ‘Circuit Pack Failure’” (3-56)
<i>OA high input power</i>	“TAP-177: Clear "OA high input power" Alarm” (3-249)
<i>OA LAN failure</i>	“TAP-167: Clear ‘OA LAN Failure’” (3-192)
<i>OA output disabled</i>	“TAP-154: Clear ‘OA output disabled’” (3-173)
<i>OA removed</i>	“TAP-112: Clear ‘Circuit Pack Removed’” (3-64)
<i>OA/TLM mismatch</i>	“TAP-163: Clear ‘OA/TLM mismatch’” (3-181)
<i>OMON failure</i>	“TAP-111: Clear ‘Circuit Pack Failure’” (3-56)
<i>OMON removed</i>	“TAP-112: Clear ‘Circuit Pack Removed’” (3-64)
<i>OMU/ODU mismatch or missing</i>	“TAP-105: Clear ‘OMU/ODU Mismatch or Missing’” (3-35)
<i>OMU/ODU warmup in progress</i>	“TAP-144: Clear ‘OMU/ODU warmup in progress’” (3-156)
<i>opr/prov mode inconsistent</i>	“TAP-142: Clear ‘opr/prov mode inconsistent’” (3-144)
<i>optical line ID mismatch</i>	“TAP-109: Clear ‘Optical Line ID Mismatch’” (3-46)
<i>optical line reset in progress</i>	“TAP-145: Clear ‘optical line reset in progress’” (3-157)
<i>OTCTL failure</i>	“TAP-111: Clear ‘Circuit Pack Failure’” (3-56)

If	Then continue with
<i>OTCTL removed</i>	“TAP-112: Clear ‘Circuit Pack Removed’” (3-64)
<i>OTPM duplicate</i>	“TAP-168: Clear ‘OTU duplicate’ or ‘OTPM duplicate’” (3-195)
<i>OTPM failure</i>	“TAP-111: Clear ‘Circuit Pack Failure’” (3-56)
<i>OTPM removed</i>	“TAP-112: Clear ‘Circuit Pack Removed’” (3-64)
<i>OTPM unknown</i>	“TAP-123: Clear ‘CP (Unknown Type) Failure’ or ‘OTPM Unknown’” (3-99)
<i>OTU duplicate</i>	“TAP-168: Clear ‘OTU duplicate’ or ‘OTPM duplicate’” (3-195)
<i>OTU failure</i>	“TAP-111: Clear ‘Circuit Pack Failure’” (3-56)
<i>OTU removed</i>	“TAP-112: Clear ‘Circuit Pack Removed’” (3-64)
<i>OUPSR auto switch on SD to Path A</i>	“TAP-169: Clear ‘OUPSR auto switch to Path A’, ‘OUPSR auto switch to Path B’, ‘OUPSR auto switch on SD to Path A’, or ‘OUPSR auto switch on SD to Path B’” (3-196)
<i>OUPSR auto switch on SD to Path B</i>	“TAP-169: Clear ‘OUPSR auto switch to Path A’, ‘OUPSR auto switch to Path B’, ‘OUPSR auto switch on SD to Path A’, or ‘OUPSR auto switch on SD to Path B’” (3-196)
<i>OUPSR auto switch to Path A</i>	“TAP-169: Clear ‘OUPSR auto switch to Path A’, ‘OUPSR auto switch to Path B’, ‘OUPSR auto switch on SD to Path A’, or ‘OUPSR auto switch on SD to Path B’” (3-196)

If	Then continue with
<i>OUPSR auto switch to Path B</i>	“TAP-169: Clear ‘OUPSR auto switch to Path A’, ‘OUPSR auto switch to Path B’, ‘OUPSR auto switch on SD to Path A’, or ‘OUPSR auto switch on SD to Path B’” (3-196)
<i>OUPSR failure</i>	“TAP-111: Clear ‘Circuit Pack Failure’” (3-56)
<i>OUPSR forced switch to Path A</i>	“TAP-114: Clear Condition When ‘ABN’ and/or ‘NE ACTY/ INFO-N’ LED is Lighted” (3-72)
<i>OUPSR forced switch to Path B</i>	“TAP-114: Clear Condition When ‘ABN’ and/or ‘NE ACTY/ INFO-N’ LED is Lighted” (3-72)
<i>OUPSR inhibit</i>	“TAP-114: Clear Condition When ‘ABN’ and/or ‘NE ACTY/ INFO-N’ LED is Lighted” (3-72)
<i>OUPSR manual switch to Path A</i>	“TAP-114: Clear Condition When ‘ABN’ and/or ‘NE ACTY/ INFO-N’ LED is Lighted” (3-72)
<i>OUPSR manual switch to Path B</i>	“TAP-114: Clear Condition When ‘ABN’ and/or ‘NE ACTY/ INFO-N’ LED is Lighted” (3-72)
<i>OUPSR removed</i>	“TAP-112: Clear ‘Circuit Pack Removed’” (3-64)
<i>pluggable module removed</i>	“TAP-180: Clear "pluggable module removed" Alarm” (3-259)
<i>provisionedenvironmentalpt</i>	“TAP-107: Address Environmental Input and/or Control Output Condition” (3-41)
<i>QOTU failure</i>	“TAP-111: Clear ‘Circuit Pack Failure’” (3-56)
<i>QOTU removed</i>	“TAP-112: Clear ‘Circuit Pack Removed’” (3-64)
<i>reset in progress</i>	“TAP-124: Address ‘Reset in Progress’” (3-101)

If	Then continue with
<i>SER TLM 1 port failure</i>	“TAP-139: Clear ‘SER TLM 1 Port Failure’” (3-136)
<i>SID mismatch</i>	“TAP-170: Clear ‘SID Mismatch’” (3-199)
<i>software download in progress</i>	“TAP-131: Clear ‘Software Download in Progress’” (3-117)
<i>software transfer failed</i>	
<i>SYSCTL failure</i>	“TAP-113: Clear ‘SYSMEM Failure’ or ‘SYSCTL Failure’” (3-68)
<i>SYSMEM failure</i>	“TAP-113: Clear ‘SYSMEM Failure’ or ‘SYSCTL Failure’” (3-68)
<i>SYSMEM removed</i>	“TAP-133: Clear ‘SYSMEM Removed’” (3-119)
<i>SYSMEM unrecognizable code</i>	“TAP-125: Clear ‘SYSMEM Unrecognizable Code’” (3-103)
<i>SYSMEM/SYSCTL code mismatch</i>	“TAP-126: Clear ‘SYSMEM/ SYSCTL Code Mismatch’” (3-106)
<i>system incomplete</i>	“TAP-134: Clear ‘System Incomplete’” (3-120)
<i>system startup in progress</i>	“TAP-132: Clear ‘System Startup In Progress’” (3-118)
<i>test alarm in progress</i>	“TAP-114: Clear Condition When ‘ABN’ and/or ‘NE ACTY/ INFO-N’ LED is Lighted” (3-72)
<i>test auto turnup in progress</i>	“TAP-114: Clear Condition When ‘ABN’ and/or ‘NE ACTY/ INFO-N’ LED is Lighted” (3-72)
<i>test loopback in progress</i>	“TAP-149: Address OT Incoming Signal Failure” (3-161)
<i>test telemetry in progress</i>	“TAP-114: Clear Condition When ‘ABN’ and/or ‘NE ACTY/ INFO-N’ LED is Lighted” (3-72)

If	Then continue with
<i>TID address map full</i>	“TAP-156: Address ‘TID Address Map Full’” (3-175)
<i>TLM failure</i>	“TAP-111: Clear ‘Circuit Pack Failure’” (3-56)
<i>TLM removed</i>	“TAP-112: Clear ‘Circuit Pack Removed’” (3-64)
<i>TOHCTL failure</i>	“TAP-111: Clear ‘Circuit Pack Failure’” (3-56)
<i>TOHCTL removed</i>	“TAP-111: Clear ‘Circuit Pack Failure’” (3-56)
<i>unexpected CP type</i>	“TAP-127: Clear ‘Unexpected CP Type’ or ‘Unexpected OTPM Type’” (3-109)
<i>unexpected OTPM type</i>	“TAP-127: Clear ‘Unexpected CP Type’ or ‘Unexpected OTPM Type’” (3-109)

Task **Important!** If at any time during the following task you observe that the PWR ON LED indicator on the addressed shelf is not lighted, go to “TAP-119: Clear ‘Fuse/Power Failure (A/B)’” (3-85) to restore power to the shelf.

1 Is the CIT conditioned and connected to the network element?

If	Then
YES	Continue with Step 2.
NO	Complete “DLP-501: Connect and Condition Craft Interface Terminal (CIT)” (4-12) and return to this procedure.

2 At the CIT, select **FAULT.Retrieve.Condition.All** to obtain a report.

3 Record the information in the **AID** *<Source Address>* and the **CONDDESCR** *<Description>* columns for the topmost entry in the

report. The following example shows only one entry. There may be several entries in an actual report.

Figure 3-1 Active Alarms and Status Report



- 4 Was *env-(1-144)* or *cont-(1-36)*, the AID **<Source Address>** recorded in Step 3?

If	Then
YES	Go to “TAP-107: Address Environmental Input and/or Control Output Condition” (3-41).
NO	Continue with Step 5.

- 5 Find the recorded **CONDDDESCR** **<Description>** information (a result of the **FAULT.Retrieve.Condition.All** report) in “Trouble conditions” (3-17) and go to the referenced trouble analysis procedure (TAP).

END OF STEPS



TAP-103: Clear ‘DCC APS Data Error’

Purpose This task is used to clear the DCC APS data error.

Task **Important!** This condition applies only to the supervisory channel of optical line 2. The APS channel (K1 and K2) on the optical line 2 supervisory overhead will be used to control the DCC protection switching. The DCC protection switching is revertive, bidirectional 1X1 switching.

- 1 Determine the location of the transmit TLM circuit pack for optical line.

Reference: “DLP-503: Locate Circuit Pack/Fiber Connections” (4-16)

- 2 Replace the transmit TLM circuit pack.

Reference: “DLP-514: Install/Remove Circuit Pack” (4-61)

- 3 Wait 5 minutes for the NEs diagnostics to stabilize. After this time, the DCC APS data error condition should be cleared.
-

- 4 Enter the command **FAULT.Retrieve.Condition.All**. Has the condition cleared?

If	Then
NO	Continue with Step 5.
YES	STOP! YOU HAVE COMPLETED THIS TASK.

Important! Assistance may be required at the receive end of optical line 2 or travel to that location.

- 5 Repeat Step 1 through Step 3 except for the receive TLM circuit pack.

-
- 6** Enter the command **FAULT.Retrieve.Condition.All**. Has the condition cleared?

If	Then
NO	Call for technical assistance in the next level of trouble clearing.
YES	STOP! YOU HAVE COMPLETED THIS TASK.

END OF STEPS



TAP-104: Clear Trouble Report

Purpose This task is used to clear a Trouble Report that was received from a remote location. The remote location is receiving a bad signal or other condition from this local network element.

Failures, addresses, and associated slot

The following table lists failures, addresses, and associated slots.

Failure Condition (Note)	Source Address	Associated Slot
incoming optical line LOS incoming optical channel LOS	oline-{1a-2b} ochan-{1a-2b}-{1-16}	OA 1A, 1B, 2A, 2B
incoming CMS LOF incoming CMS LOS incoming CMS SD incoming CMS SF	cms-{1a,2a} for ET or cms-{1a-2b} for Repeater	End Terminal: TLM 1A, 1B, 2A, 2B
incoming supr channel fail incoming supr channel SD incoming supr channel SF	supr-{1a,2a} for ET or supr-{1a-2b} for Repeater	Repeater: TLM 1A/B, 1B/A, 2A/B, 2B/A

Notes:

- For example, an **incoming CMS LOF** condition with a source address of **cms-2a** is associated with slot TLM 2A.

Task

- Is the NE ACTY//INFO-N LED lighted on the user panel?

If	Then
YES	Continue with Step 4.
NO	Continue with Step 2.

- Test the LED indicators at the local user panel or indicator strip using the CIT command, **FAULT.Test.Led:All**.

3 Did all the LED indicators light?

If	Then
YES	Continue with Step 4.
NO	Go to “TAP-108: Address Missing or Incorrect Response” (3-43).

4 At the CIT, select **FAULT.Retrieve.Condition.All** and obtain a report.

5 Are any alarm or status conditions indicated on the report?

If	Then
YES	Go to “TAP-102: Clear Trouble Using Craft Interface Terminal (CIT)” (3-16)
NO	Continue with Step 6.

6 Does the Trouble Report (received) relate to more than one of the NEs outputs?

If	Then
YES	Continue with Step 7.
NO	Continue with Step 9.

Important! The trouble is less likely to be in the outgoing cables than in the internal cable between the receive OA and the ODU.

7 Make a visual inspection of the cable between the receive OA and the ODU, and correct any problem(s) found.

Reference: “DLP-517: Inspect (Repair) Optical Fiber(s)” (4-81)

8 Was a problem found with the cable?

If	Then
YES	Continue with Step 19.
NO	Continue with Step 9.

9 Make a visual inspection of ALL outgoing cable(s) and connection(s) and correct any problem(s) found.

Reference: “DLP-517: Inspect (Repair) Optical Fiber(s)” (4-81)

10 Was a problem(s) found with the outgoing cable(s) or connection(s).

If	Then
YES	Continue with Step 19.
NO	Continue with Step 11.

11 Replace the local transmit circuit pack as indicated from the Trouble Report and Failures, addresses, and associated slot (3-30).

Reference: “DLP-514: Install/Remove Circuit Pack” (4-61)

12 Contact office that issued Trouble Report and determine if the trouble has cleared?

If	Then
YES	STOP! YOU HAVE COMPLETED THIS TASK.
NO	Continue with Step 13.

13 Remove the replacement circuit pack (installed in Step 11) and reinstall the original circuit pack.

Reference: “DLP-514: Install/Remove Circuit Pack” (4-61)

- 14 Was the condition that sent you here an **incoming optical channel LOS** condition at the tail-end OA?

If	Then
YES	Continue with Step 15.
NO	Important! There is a remote possibility that an incoming optical channel LOS condition at the tail-end OA can be associated with an unreported drop in the level of the incoming optical channel at the head-end OA. Continue with Step 17.

- 15 Use “TAP-110: Address Incoming Signal Failure” (3-49) to trouble shoot the head-end OA as if there were an active **incoming optical channel LOS** condition at that NE.

Example: When task “TAP-110: Address Incoming Signal Failure” (3-49) asks if the **incoming optical channel LOS** condition has cleared you will check to see if that condition has cleared at the tail-end OA.

- 16 STOP! YOU HAVE COMPLETED THIS PROCEDURE.

Important! OC-48/STM16 and/or OC-3/STM1 optical lines can be tested by using optical line meters and/or optical time domain reflectometers (OTDR) to help locate a fiber bend or cut. Refer to local operating procedures for further guidance in addressing this condition.

- 17 Return a NO TROUBLE FOUND conclusion to the report (no active local alarms or visual problems).

- 18 STOP! YOU HAVE COMPLETED THIS TASK.

-
- 19** Contact office that issued Trouble Report and notify them that a cable problem was found and corrected.

E N D O F S T E P S



TAP-105: Clear ‘OMU/ODU Mismatch or Missing’

Purpose This condition implies that there is incorrect provisioning, incorrect equipment, or an incorrect fiber connection at a Metropolis® EON end terminal. It is very probable the DCC is not functioning between end terminals.

Task **Important!** Assistance is required at the end terminal having the condition if you are not already physically located there.

1 Log in to the Metropolis® EON end terminal with the OMU/ODU mismatch or missing condition.

2 At the CIT, select the command **SECURITY.Retrieve.System** and execute to obtain a report.

3 From the report, is the **DIRN** parameter provisioned per the office records?

If	Then
NO	Continue with Step 4.
YES	Continue with Step 8.

4 At the CIT, select the command **SECURITY.Enter.System** and provision **DIRN** to the correct parameter per the office records.

5 Wait 1 minute for the system to stabilize.

6 At the CIT, select **FAULT.Retrieve.Condition.All** command to obtain a report.

7 Has the **OMU/ODU mismatch or missing** condition been cleared?

If	Then
NO	Continue with Step 8.
YES	STOP! YOU HAVE COMPLETED THIS TASK.

8 Open the cabinet door or remove the shelf cover to gain access to the fibers on the front of the circuit packs.

Reference: "DLP-511: Open/Close Cabinet Doors or Install/Remove Shelf Cover" (4-49)

9 Locate the circuit packs associated with the optical line having the OMU/ODU mismatch or missing condition.

Reference: "DLP-503: Locate Circuit Pack/Fiber Connections" (4-16)

10 Is this end terminal provisioned as the 1A-TX (transmit) or 1A-RCV (receive)?

If	Then
Transmit	Continue with Step 11.
Receive	Continue with Step 14.

11 Verify the ODU is in the correct physical slot.

Reference: "DLP-503: Locate Circuit Pack/Fiber Connections" (4-16)

12 Check the fiber connections between the OA and TLM circuit packs and make the necessary corrections.

Reference: "DLP-503: Locate Circuit Pack/Fiber Connections" (4-16)

13 Has the **OMU/ODU mismatch or missing** condition been cleared?

If	Then
YES	STOP! YOU HAVE COMPLETED THIS TASK.
NO	Call for technical assistance in the next level of trouble clearing

14 Verify the OMU is in the correct physical slot.

Reference: "DLP-503: Locate Circuit Pack/Fiber Connections" (4-16)

15 Check the fiber connections between the OA and TLM circuit packs and make the necessary corrections.

Reference: "DLP-503: Locate Circuit Pack/Fiber Connections" (4-16)

16 Has the **OMU/ODU mismatch or missing** condition been cleared?

If	Then
YES	STOP! YOU HAVE COMPLETED THIS TASK.
NO	Call for technical assistance in the next level of trouble clearing.

END OF STEPS



TAP-106: Address ‘Incoming LAN link failure’, or ‘Incoming LAN failure’

Purpose These conditions can occur when LAN is enabled and one or more of the following is true:

- The IAOLRP circuit pack is physically unseated
(The circuit pack for IAOLAN is labeled **IAOLRP**, for **Intraoffice LAN Relay Pack**.)
- The IAOLRP circuit pack is not in the TLM 1B slot
- The IAOLRP circuit pack has failed
- The LAN cable is missing or not connected properly
- The LAN cable is connected but not functioning
- There is a TOHCTL or SYSCTL failure.

It is also possible that LAN is not meant to be enabled on this NE. In that case you can disable LAN by selecting the command **SECURITY.Enter.Channel_Identifier** and select **LAN** for the **AID** parameter and **DISABLE** for the **PORTACC** parameter.

Task **Important!** Occasionally, a spontaneous TOHCTL circuit pack will reset itself which takes about 20 minutes. The FAULT LED indicator may go off for a couple of minutes and then light again. This event is an expected system behavior. The end of reset (and re-establishment of DCC) is determined by obtaining a **FAULT.Retrieve.Condition.ALL** report.

-
- 1** Does the **FAULT.Retrieve.Condition.All** report show a controller circuit pack failure (**TOHCTL failure** or **SYSCTL failure**)?

If	Then
YES	Go to “TAP-102: Clear Trouble Using Craft Interface Terminal (CIT)” (3-16)
NO	Continue with Step 2

-
- 2** Make sure that there is an IAOLRP circuit pack in the TLM 1B slot.

Reference: "DLP-503: Locate Circuit Pack/Fiber Connections" (4-16)

- 3** Make sure that the IAOLRP circuit pack is seated properly.

Reference: "DLP-514: Install/Remove Circuit Pack" (4-61)

- 4** Make sure that there is a LAN cable securely connected at one end to J13 on the interconnection panel and at the other end securely connected either to J13 on an interconnection panel on another NE or to a hub.
-

- 5** Select the command **FAULT.Retrieve.Condition.All**.
-

- 6** Is there still an *incoming LAN link failure* or *incoming LAN failure* condition?

If	Then
YES	Continue with Step 7.
NO	<i>STOP! YOU HAVE COMPLETED THIS PROCEDURE.</i>

- 7** Try using a different LAN cable.
-

- 8** Is there still an *incoming LAN link failure* or *incoming LAN failure* condition?

If	Then
YES	Continue with Step 9
NO	<i>STOP! YOU HAVE COMPLETED THIS PROCEDURE.</i>

- 9** Try using a different IAOLRP circuit pack.
-

-
- 10** Is there still an *incoming LAN link failure* or *incoming LAN failure* condition?

If	Then
YES	Continue with Step 11.
NO	STOP! YOU HAVE COMPLETED THIS PROCEDURE.

-
- 11** Initiate a Trouble Report to the responsible Operations Center stating an *incoming LAN link failure* or *incoming LAN failure* condition has been detected on this network.

END OF STEPS



TAP-107: Address Environmental Input and/or Control Output Condition

Overview If either condition appears in the **FAULT.Retrieve.Condition.All** report, it indicates that the condition is active. These conditions are provisioned by the customer (user enters the text string). There are 144 environmental (input) points and 36 control (output) points.

Procedure

- 1 Which condition are you to address?

If	Then
Environmental	Continue with Step 2.
Control	Continue with Step 4.

Important! The environmental condition is external to the network element.

- 2 At the CIT, select the command **CONFIGURATION.Retrieve.Attribute.Environment** and execute to obtain a list of the environmental inputs.

Consult and follow the local maintenance procedures to clear the indicated environmental condition. This condition may be cleared by something as simple as closing a door and completing a contact closure or the resetting of a relay switch, thus clearing the condition.

-
- 3 STOP! YOU HAVE COMPLETED THIS TASK.
-

- 4 At the CIT, select the command **CONFIGURATION.Retrieve.Attribute.Control** and execute to obtain a list of the control outputs.
-

- 5 Consult and follow the local maintenance procedures to clear the indicated control condition. The control condition is external to the
-

network element and can be (if required) released by a manual command at the CIT.

Reference: “TAP-114: Clear Condition When ‘ABN’ and/or ‘NE ACTY/INFO-N’ LED is Lighted” (3-72).

E N D O F S T E P S



TAP-108: Address Missing or Incorrect Response

Purpose You were sent here from another procedure because the Network Element responded in an unexpected manner. This unexpected response was a missing or incorrect LED indication or CIT message.

Task

1 Review, and remember, the unexpected response that sent you to this task.

2 Was the unexpected response from an LED indicator or from the CIT?

If	Then
from an LED indicator	Continue with Step 3.
from the CIT	Continue with Step 9

3 At the CIT, select the command **FAULT.Test.LED:All** and execute.

Result: All LED indicators are lighted for 10 seconds, off for 10 seconds, and then return to their normal condition.

4 Did the LED(s) of interest operate as indicated above?

If	Then
YES	Continue with Step 5.
NO	Continue with Step 10.

5 Is the same unexpected response still observed?

If	Then
NO	STOP! YOU HAVE COMPLETED THIS TASK.

If	Then
YES	Important! The LED indicator operation appears to be normal. Continue with Step 6

.....

Important! The CIT will disconnect from the network element when the **CONFIGURATION.Initialize.System** command is executed.

- 6** At the CIT, select **CONFIGURATION.Initialize.System:TID:AID(All):PH(3)** command and execute.

-
- 7** Wait 10 minutes for the **reset** to complete. During this time the lighting of LED indicators and clicking of relays will be observed.

-
- 8** Return to the procedure that sent you here. If the same unexpected response is observed again, contact the appropriate maintenance support organization for further technical assistance.

-
- 9** STOP! YOU HAVE COMPLETED THIS TASK.

-
- 10** Replace the circuit pack, indicator strip, user panel, or filter panel containing the LED indicator(s) that did not operate as indicated in Step 4.

Reference:

- Circuit packs, “TAP-114: Clear Condition When ‘ABN’ and/or ‘NE ACTY/INFO-N’ LED is Lighted” (3-72)
- User the filter panels or *Installation Manual*, 365-575-562
- Indicator strip or *Installation Manual*, 365-575-562

-
- 11** Return to the task that sent you here. If the same unexpected response is observed again, contact the appropriate maintenance support organization for further technical assistance.

END OF STEPS



TAP-109: Clear ‘Optical Line ID Mismatch’

Purpose The three least significant bits of the K2 byte on the supervisory overhead channel carry the optical line ID. The optical line ID is added via the TLM circuit pack at the transmit end and read at the next receive TLM circuit pack in the optical section. This condition indicates that optical fiber connections in the optical section are incorrect.

Task

- 1 Check the fiber connections between the TLM and OA circuit packs at the **local** network element and correct if necessary.

Reference: “DLP-503: Locate Circuit Pack/Fiber Connections” (4-16)

- 2 Were any fibers incorrectly connected?

If	Then
NO	Continue with Step 5
YES	Continue with Step 3

- 3 At the CIT, select **CONFIGURATION.Update.System**, which will update the condition report.
-

- 4 At the CIT, select **FAULT.Retrieve.Condition.All** to obtain a report.
-

- 5 Has the **optical line ID mismatch** condition been cleared?

If	Then
YES	STOP! YOU HAVE COMPLETED THIS TASK.
NO	Continue with Step 6

- 6 Check the fiber connections between the outside plant fibers and the OA circuit packs at the **local** network element and compare with office records, and correct if necessary.

Reference: "DLP-503: Locate Circuit Pack/Fiber Connections" (4-16)

- 7 Were any fibers incorrectly connected?

If	Then
NO	Continue with Step 11.
YES	Continue with Step 8.

- 8 At the CIT, select **CONFIGURATION.Update.System**, which will update the condition report.

- 9 At the CIT, select **FAULT.Retrieve.Condition.All** to obtain a report.

- 10 Has the **optical line ID mismatch** condition been cleared?

If	Then
YES	STOP! YOU HAVE COMPLETED THIS TASK.
NO	Continue with Step 11.

- 11 Repeat Step 1 through Step 10 for the **remote** network element.

- 12 Replace the TLM circuit packs at the **local** network element.

Reference: "DLP-514: Install/Remove Circuit Pack" (4-61)

- 13 At the CIT, select **CONFIGURATION.Update.System**, which will update the condition report.

-
- 14** At the CIT, select the command **FAULT.Retrieve.Condition.All** to obtain a report.
-

- 15** Has the *optical line ID mismatch* condition been cleared?

If	Then
YES	STOP! YOU HAVE COMPLETED THIS TASK.
NO	Continue with Step 16.

-
- 16** Repeat Step 12 through Step 15 at the *remote* network element.
-

- 17** At the CIT, select **CONFIGURATION.Update.System**, which will update the condition report.
-

- 18** At the CIT, select the command **FAULT.Retrieve.Condition.All** to obtain a report.
-

- 19** Has the *optical line ID mismatch* condition been cleared?

If	Then
YES	STOP! YOU HAVE COMPLETED THIS TASK.
NO	Call for technical assistance in the next level of trouble clearing.

END OF STEPS



TAP-110: Address Incoming Signal Failure

Purpose This task is used to address one of the following incoming signal failures that was detected.

- Incoming CMS LOF (loss of frame)
- Incoming CMS LOS (loss of signal)
- Incoming CMS SD (signal degrade)
- Incoming CMS SF (signal failure)
- Incoming optical channel LOS (loss of signal)
- Incoming optical line LOS (loss of signal)
- Incoming supr chnl fail
- Incoming supr chnl SD (signal degrade)
- Incoming supr chnl SF (signal failure)
- Incoming supr chnl LOF
- Incoming supr chnl LOS

Failures, addresses, and associated slot

The following table lists failures, addresses, and associated slots.

Failure Condition (Note)	Source Address	Associated Slot
incoming optical line LOS	oline-{1a-2b}	OA 1A, 1B, 2A, 2B
incoming optical channel LOS	ochan-{1a-2b}-{1-32}	
incoming CMS LOF incoming CMS LOS incoming CMS SD incoming CMS SF	cms-{1a,2a,3a,2a} for ET or cms-{1a-2b} for Repeater	End Terminal: TLM 1A, 1B, 2A, 2B
incoming supr channel fail incoming supr channel SD incoming supr channel SF incoming supr channel LOF incoming supr channel LOS	supr-{1a,2a} for ET or supr-{1a-2b} for Repeater	Repeater: TLM 1A/B, 1B/A, 2A/B, 2B/A

Notes:

1. For example, an incoming CMS LOF condition with a source address of cms-2a is associated with slot TLM 2A.

- Task** **Important!** Multiple incoming optical channel LOS failure conditions can be caused by:
- (for the receive direction) optical line power levels that are marginal.
 - (for the transmit direction) OMU failures, fiber jumper or connector failures between the OMU and OA circuit pack.

- 1** Refer to the **FAULT.Retrieve.Condition.All** report and determine the type of incoming signal failure.

- 2** Is this condition an incoming optical line LOS (loss of signal)?

If	Then
YES	Continue with Step 3.
NO	Continue with Step 4.

- 3** Is this network element configured for single OA operation which does not use a LIRCV line interface pack?

If	Then
YES	Go to “TAP-143: Clear ‘incoming optical line LOS’ for a Single OA Network Element without LIRCV” (3-149)
NO	Continue with Step 4.

- 4** Open the cabinet door or remove the shelf cover. All connections can be accessed from the front.

Reference: “DLP-511: Open/Close Cabinet Doors or Install/Remove Shelf Cover” (4-49)

Important! The circuit pack associated with the indicated failure condition and indicated **AID** is indicated in the Table in “Failures, addresses, and associated slot” (3-49).

- 5** Make a visual inspection of the incoming signal cable(s) and

connection(s) and correct any problems found.

Reference: “DLP-517: Inspect (Repair) Optical Fiber(s)” (4-81)

6 Did the visual inspection result in correcting any problems?

If	Then
YES	STOP! YOU HAVE COMPLETED THIS TASK.
NO	Continue with Step 7.

7 Was an OA circuit pack associated with the incoming failure?

If	Then
NO	Continue with Step 9.
YES	Continue with Step 8.



CAUTION

Signal Loss

Failure to follow instructions in this step could result in service interruptions.

8 Notify the person that is responsible for the service or protection signals assigned to this OA,

1. to manually switch the service line to a protection line,
2. ensure that all protection lines that are assigned to this OA are not being used for service.

9 If a visual inspection did not reveal any problems, make an optical measurement on the appropriate incoming fiber.

Reference: “DLP-500: Select LBOs between Add OT OUT and Drop OT IN” (4-4).

10 Was the optical power measurement correct?

If	Then
NO	Continue with Step 23
YES	Continue with Step 11

11 Clean and reconnect the incoming fiber.

Reference: “DLP-510: Inspect and Clean Optical Fiber Connectors” (4-42)

12 At the CIT, select **FAULT.Retrieve.Condition.All** command and execute to obtain the report.

13 Referring to the report obtained in Step 12, is the same incoming signal failure still listed?

If	Then
YES	Continue with Step 14
NO	STOP! YOU HAVE COMPLETED THIS TASK.

14 Replace the receive circuit pack as indicated in the **AID** column of the report from Step 12 and the Table in “Failures, addresses, and associated slot” (3-49).

Reference: “DLP-514: Install/Remove Circuit Pack” (4-61)

15 Obtain another report, as in Step 12. Is the same incoming signal failure still listed?

If	Then
YES	Continue with Step 21
NO	Continue with Step 16

16 Did you replace an OA circuit pack in Step 14?

If	Then
NO	STOP! YOU HAVE COMPLETED THIS PROCEDURE.
YES	Continue with Step 17

17 Did you replace a receive end terminal OA circuit pack in Step 14?

If	Then
NO	Continue with Step 18
YES	Continue with Step 27

18 At the CIT, select **PERFORMANCE.Initialize.Optics** command and execute to baseline certain optical parameters on the replacement OA circuit pack.

19 Notify the person that is responsible for the service or protection signals assigned to this OA that this Optical Line can now be returned to service.

20 STOP! YOU HAVE COMPLETED THIS TASK.

21 Remove the replacement circuit pack installed in Step 14 and reinstall the original circuit pack.

Reference: “DLP-514: Install/Remove Circuit Pack” (4-61)

22 Is the incoming signal failure in the receive line direction or transmit line direction?

If	Then
Receive direction	Continue with Step 23
Transmit direction	Continue with Step 25

Important! At this point, it appears that the local network element is operating correctly.

- 23** Initiate a Trouble Report to the source of the failed incoming signal indicating the type of failure. If the source of the failed incoming signal returns a Trouble Report indicating ***no trouble found***, then contact the appropriate maintenance support organization for further technical assistance before following the prescribed operating procedures to fault isolate the cable/fiber carrying the failed incoming signal.

Reference: “DLP-507: Identify Source of Incoming Signal” (4-36)

- 24** STOP! YOU HAVE COMPLETED THIS TASK.
-

Important! At this point, it appears the trouble is in the local network element.

- 25** Visually check and note any problems at the OMU fiber connections including the fiber jumper between the OMU and the transmit OA circuit pack. Contact the appropriate maintenance support organization for further technical assistance before correcting any problems.
-

- 26** STOP! YOU HAVE COMPLETED THIS TASK.
-

- 27** Monitor all signals connected to this NE to verify an error free operation for at least one quarter hour interval (15 minutes) by using the command **PERFORMANCE.Retrieve.Performance_Monitoring.Optical_Line**.
-

- 28** Were any errors detected?

If	Then
NO	Continue with Step 32
YES	Continue with Step 29

-
- 29** Measure the receive power for each optical channel and install LBOs (new values as required) at the OTU/OTPM **IN** and ODU **OUT** connectors.

Reference: “DLP-500: Select LBOs between Add OT OUT and Drop OT IN” (4-4)

-
- 30** Clean the optical fiber(s) and connector(s).

Reference: “DLP-510: Inspect and Clean Optical Fiber Connectors” (4-42)

-
- 31** Connect the optical fibers to the LBOs on the ODU **OCHAN() OUT** and OTU/OTPM **IN** port.

-
- 32** At the CIT, select **PERFORMANCE.Initialize.Optics** command and execute to baseline certain optical parameters on the replacement OA circuit pack.

-
- 33** Notify the person that is responsible for all affected service or protection signals assigned to this OA that this optical line can now be returned to service.

END OF STEPS



TAP-111: Clear ‘Circuit Pack Failure’

Purpose This task is used to replace a circuit pack with a lighted **FAULT** LED indicator in response to one of these indicated failures:

- LI failure
- OA failure
- OMON failure
- OTPM failure
- OTCTL failure
- OTU failure
- OUPSR failure
- QOTU failure
- TOHCTL failure
- TLM failure

Task **Important!** A *silent* failure of the TOHCTL circuit pack is possible at the network element sending a failed DCC or at the network element detecting it.

If you are unable to login to the network element, go to “TAP-128: Clear Trouble In CIT (CIT Does Not Respond to Commands)” (3-112). If still unable to login after completing “TAP-128: Clear Trouble In CIT (CIT Does Not Respond to Commands)” (3-112), contact your next level of technical support as indicated by “TAP-128: Clear Trouble In CIT (CIT Does Not Respond to Commands)” (3-112).

An OTCTL failure condition will prevent the retrieval of any OTU/OTPM performance monitoring data, but the retrieve command/report completes.

Strongly suggest replacing the LBO if the trouble remains after power checks and replacing circuits packs failed to correct the problems.

-
- 1** At the CIT, select the command **FAULT.Retrieve.Condition.All** and execute to obtain a report.

- 2 The ***SYSMEM/SYSCTL code mismatch*** or ***SYSMEM unrecognizable code*** condition may not be listed as the top condition. Is the ***SYSMEM/SYSCTL code mismatch*** or ***SYSMEM unrecognizable code*** condition listed in the report?

If	Then
NO	Continue with Step 3.
YES	Important! The <i>SYSMEM/SYSCTL code mismatch</i> or <i>SYSMEM unrecognizable code</i> condition may not be listed as the top condition. Go to "TAP-102: Clear Trouble Using Craft Interface Terminal (CIT)" (3-16) for that condition and clear it first before returning to this procedure.

- 3 Are ***both*** failures indicated (combination TLM and OA failure)?

If	Then
NO	Continue with Step 4
YES	Go to "TAP-162: Clear Combination 'TLM Failure' and 'OA Failure'" (3-179)

- 4 Identify the appropriate shelf associated with the ***circuit pack failure*** condition.

Reference: "DLP-503: Locate Circuit Pack/Fiber Connections" (4-16)

- 5 Open the cabinet doors or remove shelf cover. All connections can be accessed from the front.

Reference: "DLP-511: Open/Close Cabinet Doors or Install/Remove Shelf Cover" (4-49)

-
- 6** At the OT bay/cabinet, are all OTU FAULT LED indicators lighted on the shelves?

If	Then
NO	Continue with Step 7.
YES	Continue with Step 29.

-
- 7** Is the FAULT LED indicator lighted on the circuit pack identified in the AID (source address) column of the report from Step 1?

If	Then
YES	Continue with Step 8.
NO	Go to "TAP-108: Address Missing or Incorrect Response" (3-43).

-
- 8** Is the circuit pack an OTCTL circuit pack?

If	Then
NO	Continue with Step 11.
YES	Continue with Step 9.

-
- 9** Locate the green PWR ON LED indicator at the user/fuse panel for the OT controller shelf housing the failed OTCTL circuit pack.

-
- 10** Is the PWR ON LED indicator lighted?

If	Then
YES	Continue with Step 13.
NO	Continue with "TAP-119: Clear 'Fuse/Power Failure (A/B)'" (3-85).

-
- 11** Is the circuit pack with the lighted **FAULT** LED indicator a TOHCTL or TLM circuit pack?

If	Then
NO	Continue with Step 12.
YES	Continue with Step 13.



CAUTION

Signal Loss

Failure to follow instructions in this step could result in service interruptions.

- 12** Notify the person that is responsible for the service or protection signals assigned to this circuit pack,
1. to manually switch the service line to a protection line, and
 2. ensure that all protection lines that are assigned to this circuit pack are not being used for service, or restore service on a different Metropolis[®] EON or route.
-

Important! A series number **S1:2** is the same series number as **S1:4**. The 2 and 4 refer to minor changes within series 1. Look for and replace any damaged fiber and/or LBO before replacing the circuit pack. Occasionally, a spontaneous TOHCTL circuit pack will reset itself which takes about 20 minutes. The **FAULT** LED indicator may go off for a couple of minutes and then come on again. This event is an expected system behavior. The end of reset (and re-establishment of DCC) is determined by obtaining a **FAULT.Retrieve.Condition.All** report showing no conditions.

- 13** Obtain a replacement circuit pack with the same or a higher series number and install it in place of the circuit pack with the lighted **FAULT** LED indicator. As required, make the appropriate optical connections on the OA/TLM/OTPM/OTU/ circuit pack(s).

Reference: "DLP-514: Install/Remove Circuit Pack" (4-61)

- 14** Wait for the time indicated in the following table.

LI	1 minute
OA	1 minute
OMON	1 minute
OTCTL	10 minutes
OTPM	1 minute
OTU	1 minute
OUPSR	1 minute
QOTU	1 minute
TLM	1 minute
TOHCTL	10 minutes

- 15** Is the FAULT LED indicator lighted on the replacement circuit pack?

If	Then
YES	Continue with Step 16.
NO	Continue with Step 20.

- 16** Was the circuit pack replaced a TLM circuit pack?

If	Then
NO	Go to "TAP-116: Clear Unsuccessful Circuit Pack Replacement" (3-75).
YES	Continue with Step 17.

- 17** Are the fiber jumpers between the TLM OUT of the OA circuit pack and the IN of the TLM circuit pack properly connected and conditioned?

If	Then
NO	Connect or replace the fiber jumper and continue with Step 19.

If	Then
YES	Continue with Step 18.

- 18 Contact the upstream node and have them replace the associated TLM circuit pack on that line and wait 1 minute.

- 19 At the local node, is the FAULT LED indicator extinguished on the replacement circuit pack?

If	Then
YES	STOP! YOU HAVE COMPLETED THIS PROCEDURE.
NO	Go to "TAP-116: Clear Unsuccessful Circuit Pack Replacement" (3-75).

- 20 Was an OA circuit pack just replaced (Step 13)?

If	Then
NO	Continue with Step 27.
YES	Continue with Step 21.

- 21 Was the circuit pack replaced an end terminal receive OA circuit pack?

If	Then
NO	Continue with Step 25.
YES	Continue with Step 22.

- 22 Use the **PERFORMANCE.Retrieve.Performance_Monitoring.Optical_Channel** command to monitor all OTU/OTPMs connected to this Metropolis® EON to verify an error free operation for at least one quarter hour interval (15 minutes).

23 Were any errors detected?

If	Then
NO	Continue with Step 25.
YES	Continue with Step 24.

24 Measure optical power and determine correct LBO values for the OTU/OTPM IN and ODU OCHAN() OUT ports.

Reference: "DLP-500: Select LBOs between Add OT OUT and Drop OT IN" (4-4)

25 At the CIT, select the command **PERFORMANCE.Initialize.Register.Optical_Line** and execute to baseline certain optical parameters on the replacement OA circuit pack.

26 Notify the person that is responsible for all affected service or protection signals assigned to this OA that this Optical Line can now be returned to service.

27 Close the cabinet doors or replace the shelf cover.

Reference: "DLP-511: Open/Close Cabinet Doors or Install/Remove Shelf Cover" (4-49)

28 STOP! YOU HAVE COMPLETED THIS PROCEDURE.

Important! Multiple OTU failures may be caused by a defective OTCTL circuit pack (All the OTU circuit packs have their FAULT LED indicator lighted.)

29 Obtain a replacement OTCTL circuit pack with the same or a higher series number and replace the existing circuit pack (note the **FAULT** LED indicator is not lighted.)

.....

30 Wait 10 minutes for the OTCTL circuit pack to become operational.

.....

31 Are ALL the OTU FAULT LED indicators not lighted?

If	Then
NO	Contact the next level of technical support.
YES	STOP! YOU HAVE COMPLETED THIS PROCEDURE.

E N D O F S T E P S



TAP-112: Clear ‘Circuit Pack Removed’

Purpose This task is used to clear one of the following conditions by installing the missing circuit pack or updating the SYSMEM circuit pack to reflect the current equpage.

- LI removed
- OA removed
- OMON removed
- OTCTL removed
- OTPM removed
- OTU removed
- OUPSR removed
- QOTU removed
- TOHCTL removed
- TLM removed.

Task

- 1** Identify the appropriate shelf associated with the removed circuit pack by using the command **FAULT.Retrieve.Condition.All**.

Reference: “DLP-503: Locate Circuit Pack/Fiber Connections” (4-16)

- 2** Open the cabinet door or remove the shelf cover. All connections can be accessed from the front.

Reference: “DLP-511: Open/Close Cabinet Doors or Install/Remove Shelf Cover” (4-49)

- 3** Is the indicated slot empty or is the circuit pack unseated?

If	Then
YES	Continue with Step 4.
NO	Go to “TAP-108: Address Missing or Incorrect Response” (3-43).

4 Do the office records show that the slot should contain a circuit pack?

If	Then
YES	Continue with Step 8.
NO	Continue with Step 5.

5 At the CIT, select the command **CONFIGURATION.Update.System** and execute (records the current hardware arrangement in SYSMEM circuit pack).

6 Close the cabinet door or replace the shelf cover.

Reference: "DLP-511: Open/Close Cabinet Doors or Install/Remove Shelf Cover" (4-49)

7 STOP! YOU HAVE COMPLETED THIS TASK.

8 Obtain the missing circuit pack and install it into the appropriate slot. As required, make the appropriate optical connections on the TLM and OA circuit pack(s).

Reference: "DLP-514: Install/Remove Circuit Pack" (4-61)

9 Wait for the time indicated in the following table.

OTCTL	10 minutes
SYSCTL	15 minutes
SYSMEM	15 minutes
TOHCTL	10 minutes
All others	1 minute

-
- 10** Is the FAULT LED indicator lighted on the replacement circuit pack?

If	Then
YES	Go to "Trouble Analysis Procedures" (3-3)
NO	Continue with Step 11.

-
- 11** Was the circuit pack replaced an end terminal receive OA circuit pack?

If	Then
YES	Continue with Step 12
NO	Continue with Step 14

-
- 12** Measure optical power and determine correct LBO value at the OTU/OTPM IN.

Reference: "DLP-500: Select LBOs between Add OT OUT and Drop OT IN" (4-4)

-
- 13** Install correct LBOs at appropriate OTU/OTPM IN port and ODU OCHAN() OUT port.

Reference: "DLP-512: Install/Remove Lightguide Buildout" (4-52)

-
- 14** Close the cabinet door or replace shelf cover.

Reference: "DLP-511: Open/Close Cabinet Doors or Install/Remove Shelf Cover" (4-49)

15 Is the NE ACTY/INFO-N LED indicator lighted at the user panel?

If	Then
YES	Go to "Trouble Analysis Procedures" (3-3)
NO	STOP! YOU HAVE COMPLETED THIS TASK.

E N D O F S T E P S



TAP-113: Clear ‘SYSMEM Failure’ or ‘SYSCTL Failure’

Purpose This task clears the report of a SYSMEM or SYSCTL failure. This task begins with the replacement of the SYSMEM circuit pack even though the SYSCTL circuit pack FAULT LED indicator may be lighted. This task requires SYSMEM/SYSCTL circuit packs be removed and installed several times. Therefore, at each time, the technician should logout, remove and install the SYSMEM/SYSCTL, and then log back in to the network element.

Task



CAUTION

Data Loss

Do not remove the SYSCTL circuit pack unless instructed to do so by this procedure. If removed, provisioning data (current values) could be lost.

Important! The installation of a replacement SYSMEM circuit pack may generate certain unexpected alarm conditions. Ignore these indications until the code mismatch condition has been cleared, then clear any remaining condition(s).

- 1** Remove the SYSMEM circuit pack and label it for later identification. Then, install a replacement SYSMEM circuit pack having the same or a higher series number. For example, an LEA2 with series number S1:2 is the same series number as S1:4. The 2 and 4 refer to minor changes within series 1.

Reference: “DLP-514: Install/Remove Circuit Pack” (4-61)

- 2** Wait 15 minutes or until the **MJ/PROMPT** LED indicator is off at the user panel, whichever comes first.
- 3** At the CIT, select the command **CONFIGURATION.Retrieve.Equipment** and enter **SYSCTL** to obtain a report.

-
- 4 Refer to the report and compare the software release (VSRN=) in the **sysmem** and **sysctl** line entries.
-

- 5 Are software release and/or platforms identical?

If	Then
YES	Continue with Step 7.
NO	Continue with Step 6.

- 6 Install identical software into the SYSMEM circuit pack that is running in the system.

Reference: For more information, refer to the Software Release Description.

Important! The CIT will disconnect from the network element when the **CONFIGURATION.Initialize.System:TID(All):PH(3)** command is executed.

- 7 At the CIT, select the command **CONFIGURATION.Initialize.System:TID(All):PH(3)** and execute.
-

- 8 Wait 15 minutes or until the MJ/PROMPT LED indicator is not lighted at the user panel, whichever comes first. Reset takes approximately 15 minutes but some user panel LED indicators flash and relays click in about a minute indicating that reset has started. If the network element is equipped with OTPMs, wait an additional 5 minutes.
-

- 9 At the CIT, select the command **FAULT.Retrieve.Condition.All** and execute to obtain a report.

- 10 Does the ***SYSCTL failure*** or ***SYSMEM failure*** appear under the **CONDSECR** column of the report?

If	Then
YES	Continue with Step 11.
NO	Continue with Step 16

- 11 Reinstall the SYSMEM circuit pack that was removed in Step 1.

Reference: "DLP-514: Install/Remove Circuit Pack" (4-61)

Important! Ensure circuit pack and software compatibility.

- 12 Remove the SYSCTL circuit pack and install a replacement circuit pack having the same or a higher series number. For example, an LEA1 with series number S1:2 is the same series number as S1:4. The 2 and 4 refer to minor changes within series 1.

Reference: "DLP-514: Install/Remove Circuit Pack" (4-61)

- 13 Wait 15 minutes or until the ***MJ/PROMPT*** LED indicator is off at the user panel, whichever comes first.

- 14 At the CIT, select **FAULT.Retrieve.Condition.All** command and execute to obtain a report.

- 15 Does a ***SYSCTL failure*** or ***SYSMEM failure*** appear under the **CONDDESCR** column of the report?

If	Then
YES	Go to "TAP-116: Clear Unsuccessful Circuit Pack Replacement" (3-75)
NO	Continue with Step 16

16 Is the NE ACTY/INFO-N LED indicator off at the user panel?

If	Then
YES	STOP! YOU HAVE COMPLETED THIS PROCEDURE.
NO	Go to "TAP-101: Clear NE ACTY/INFO-N and/or FE ACTY/INFO-F (Regardless of Alarm Level)" (3-12).

END OF STEPS



TAP-114: Clear Condition When 'ABN' and/or 'NE ACTY/INFO-N' LED is Lighted

Purpose This task is used to clear one or more of the following conditions.

- The ABN LED indicator is lighted
 - (control pointstring)
 - inhibit alarms-LAN
 - OUPSR inhibit switch to Path A
 - OUPSR inhibit switch to Path B
 - OUPSR manual switch to Path A
 - OUPSR manual switch to Path B
 - OUPSR forced switch to Path A
 - OUPSR forced switch to Path B
- The NE ACTY/INFO-N LED indicator is lighted
 - inhibit alarms-office alarms
 - inhibit alarms-parallel telem
 - inhibit alarms-X.25
 - logins inhibited
 - test alarm in progress
 - test auto turnup in progress
 - test telemetry in progress.

Determine command for condition

The following table lists the conditions and the function to clear the condition.

Condition to be Cleared	Perform Function
(control point string)	FAULT.Release.External.Control
inhibit alarms-LAN inhibit alarms-office alarms inhibit alarms-parallel telem inhibit alarms-X.25	SECURITY.Allow.Message.Equipment:All
logins inhibited	SECURITY.Enter.Network_Element. Security:ALW_UID:Yes
OUPSR inhibit switch to Path A OUPSR inhibit switch to Path B	FAULT.Operate.Protection_Switch. OUPSR
test alarm in progress test auto turnup in progress test telemetry in progress	Wait for the test to complete.

Task

Important! The indicated condition was initiated by a user command.

- 1 Determine, by consulting with the appropriate maintenance personnel, whether the need for the user-initiated condition still exists before proceeding.

If	Then
YES	Continue with Step 2.
NO	Continue with Step 3.

-
- 2** Referring to the **FAULT.Retrieve.Condition.All** report on the CIT screen, are any other conditions indicated?

If	Then
YES	Go to "TAP-102: Clear Trouble Using Craft Interface Terminal (CIT)" (3-16) to clear the remaining condition(s), ignoring the condition that sent you here.
NO	STOP! YOU HAVE COMPLETED THIS TASK.

-
- 3** Use the CIT to clear the indicated condition by performing the function listed in the table in "Determine command for condition" (3-73).

E N D O F S T E P S



TAP-116: Clear Unsuccessful Circuit Pack Replacement

Overview Only use this procedure in the unlikely event that you were sent here by another procedure (for example, “TAP-123: Clear ‘CP (Unknown Type) Failure’ or ‘OTPM Unknown’” (3-99)) because a circuit pack replacement did not clear the associated failure indicator(s). This procedure is used to replace other circuit packs that could possibly cause such a failure indication(s).

Important! The report generated by the **CONFIGURATION.Retrieve.Equipment** command indicates an alternative CP to be used when replacing the circuit pack identified in the **FAULT.Retrieve.Condition.All** report failed to clear the trouble indication.

- 1 At the CIT, select **CONFIGURATION.Retrieve.Equipment** command and execute to obtain a report.
-

Important! A series number **S1:2** is the same series number as **S1:4**. The 2 and 4 refer to minor changes within series 1.

In this procedure, the circuit pack that first indicated *failed* is called the **original circuit pack**. The replacement circuit pack that did not clear the failure is called the **original replacement circuit pack** (same type of circuit pack). If the failure still exists, then one or more circuit packs which are called **alternative replacement circuit packs** are substituted.

- 2 Referring to the entry in the report for the circuit pack just replaced, note the type and slot address of the alternative circuit pack (shown as **alternative CP** in the report).

Important! If there is no alternative CP given, do the following:

- you should contact the appropriate maintenance support organization for technical assistance before proceeding with other trouble clearing procedures.
- If multiple TLM circuit packs have been changed and the trouble is still present, suggest replacing the TOHCTL circuit pack at the local node.

-
- 3** Obtain a circuit pack of the type identified in Step 2 and install it in the slot address identified in Step 2.

Reference: “DLP-514: Install/Remove Circuit Pack” (4-61)

- 4** Wait for the time indicated in the table: Table (3-78)
-

- 5** Is the **FAULT** LED on the **original replacement circuit pack** lighted?

If	Then
YES	then continue with Step 6.
NO	then continue with Step 13.

- 6** Remove the **alternative replacement circuit pack** and reinstall the circuit pack that was removed in Step 3.
-

- 7** Wait for the time indicated in the table: Table (3-78).
-

- 8** Is the **FAULT** LED still lighted on the **original replacement circuit pack** (that sent you to this procedure)?

If	Then
YES	then continue with Step 9.
NO	STOP! YOU HAVE COMPLETED THIS PROCEDURE.

- 9** Remove the **original replacement circuit pack** and carefully examine its backplane connector for a broken backplane pin. In the same way, examine the backplane connectors on the **alternative replacement circuit pack** and the **original circuit pack**.

Important! The failure could possibly be due to a broken or bent backplane pin.

- 10 Was a broken pin found in the connector of any of the three circuit packs examined in Step 9?

If	Then
YES	then continue with Step 16.
NO	then continue with Step 11.

- 11 Obtain a suitable light source and examine the backplane behind the circuit pack removed in Step 9.

- 12 Is there a broken or bent pin in the backplane?

If	Then
YES	 CAUTION <i>Do not put the original circuit pack back into the NE.</i> then continue with Step 16.
NO	then reinstall the original replacement circuit pack that was removed in Step 9 and go to "TAP-108: Address Missing or Incorrect Response" (3-43)

- 13 Reinstall the **original circuit pack** (that sent you to this procedure).

Important! The remaining steps help prevent returning nondefective circuit packs for repair.

- 14 Wait for the time indicated in the table: Table (3-78).

15 Is the **FAULT** LED still lighted on the **original circuit pack**?

If	Then
YES	then go to “TAP-108: Address Missing or Incorrect Response” (3-43)
NO	then STOP! YOU HAVE COMPLETED THIS PROCEDURE.

16 The trouble is most likely due to the broken or bent backplane pin(s). Repair the broken or bent pin(s) per the instructions in Appendix A, “Pin Repair” of this document, or refer the trouble to the next level of technical support for assistance.

END OF STEPS

The following table lists the Mini Reset Waiting Times

Mini Reset Waiting Times

CP Inserted	Waiting Time
OTCTL	10 minutes
SYSCTL	15 minutes
SYSTEMEM	15 minutes
TOHCTL	10 minutes
All Others	1 minute

Notes:

- LED may extinguish before warmup is complete.

TAP-117: Clear 'CPYPGM:IP (tid)'

Important! This condition means that software is being copied from this network element to the network element whose target identification (TID) appears in the message.

The software download is performed in the background (about 10 minutes) and is from one SYSMEM circuit pack to another SYSMEM circuit pack. Up to three downloads can occur simultaneously.

You ***cannot cancel*** the background download ***once it is initiated***.

Important! If an error message appears on the screen during the background download, reinitiate the software download.

For more information, refer to the Software Release Description.

- 1** If desired, you may perform other activities during this time, for example, checking the status of the download.

END OF STEPS



TAP-118: Clear 'NE Status Comm Failure'

Overview This condition could arise from situations such as (1) the Directory Service Network Element (DSNE) is not reachable, (2) one or more nodes are not reachable because of a supervisory channel failure, or (3) an alarm gateway network element (AGNE) was not provisioned for the alarm group. Remember, that for this procedure, a network element (NE) and a node are interchangeable.

Important! This procedure assumes that you are logged into the NE with the NE status comm failure condition.

This condition is complicated because it may be caused by other trouble conditions; therefore, these other conditions must be cleared first. If you obtain any reports, one or all may be inaccurate (not up-to-date).

Important!

- 1 At the CIT, select **FAULT.Retrieve.Condition.All** command and execute to obtain a report.
-
- 2 Is the ***SYSMEM/SYSCTL code mismatch*** or ***SYSMEM unrecognizable code*** condition listed in the report?

If	Then
NO	Continue with Step 3.
YES	Go to "TAP-102: Clear Trouble Using Craft Interface Terminal (CIT)" (3-16) for that condition and clear it first before returning to this procedure. Important! The <i>SYSMEM/SYSCTL code mismatch</i> or <i>SYSMEM unrecognizable code</i> condition may not be listed as the top condition.

3 Is an **OMU/ODU mismatch or missing** condition shown on the report?

If	Then
YES	Go to "TAP-105: Clear 'OMU/ODU Mismatch or Missing'" (3-35), clear the condition, and return to this procedure.
NO	Continue with Step 4.

4 Is an **optical line ID mismatch** condition shown on the report?

If	Then
YES	Go to "TAP-109: Clear 'Optical Line ID Mismatch'" (3-46), clear the condition, and return to this procedure.
NO	Continue with Step 5.

5 Is a **TOHCTL failure** condition shown on the report?

If	Then
YES	Go to "TAP-111: Clear 'Circuit Pack Failure'" (3-56), clear the condition, and return to this procedure.
NO	Continue with Step 6.

6 Is a **DS-NE not reachable** condition shown on the report?

If	Then
NO	Continue with Step 7.
YES	Clear this condition first (refer to "TAP-137: Clear 'DS-NE Not Reachable'" (3-132). Wait 5 minutes for the condition to stabilize, and return to this procedure.

7 Wait 5 minutes for condition to stabilize.

- 8 Obtain another **FAULT.Retrieve.Condition.All** report. Is the *NE status comm failure* condition still shown?

If	Then
<i>NO</i>	STOP! YOU HAVE COMPLETED THIS PROCEDURE.
<i>YES</i>	Continue with Step 9.

- 9 At the CIT, select **CONFIGURATION.Retrieve.Map** command and execute to obtain a Network Map Report.

- 10 From the report in Step 9 determine the alarm group value for this NE (the NE with the *NE status comm failure* condition.)

Important! Each NE has a provisionable alarm group value (default value is 255).

- 11 Determine from office records which NE is designated as the AGNE for the alarm group.

- 12 Log in to the node that should be the AGNE, if required. If a remote login is required and you need additional help, refer to "DLP-518: Login/Logout to a Network Element Using CenterLink" (4-82)

- 13 At the CIT, select **SECURITY.Retrieve.System** command and execute to obtain a report.

- 14 From the report in Step 13 determine the value of the *Alarm Group*.

- 15 Does the alarm group value match the value in the office records?

If	Then
<i>NO</i>	Continue with Step 16.

If	Then
YES	Continue with Step 18.

.....

16 At the CIT, select **SECURITY.Enter.System** command to provision the **Alarm Group** to the correct value.

.....

17 Wait 2 minutes for the system to stabilize (condition will clear).

.....

18 From the report (Step 13) determine if this node is provisioned to Yes for the **Alarm Gateway NE**.

.....

19 Is the **Alarm Gateway NE** from the report (Step 13) match that in the office records?

If	Then
NO	Continue with Step 20.
YES	Continue with Step 23.

.....

20 At the CIT, select **SECURITY.Enter.System** command to provision the **Alarm Gateway** to **Yes**.

.....

21 Wait 2 minutes for the system to stabilize (condition will clear).

.....

22 If you wish to verify the provisioning, obtain another System Provisioning Report (use **SECURITY.Retrieve.System**).

.....

23 At the CIT, select **FAULT.Retrieve.Condition.All** command and execute to obtain a report.

24 Is a trouble condition listed in the **CONDDSCR** column of the report?

If	Then
NO	<i>STOP! YOU HAVE COMPLETED THIS PROCEDURE.</i>
YES	Call for technical assistance in the next level of trouble clearing.

TAP-119: Clear ‘Fuse/Power Failure (A/B)’

Overview This procedure is used to clear a fuse/power failure by replacing a blown fuse (lighted) at the Fuse Panel or User Panel on the shelf associated with the fuse or power failure, by clearing a voltage supply problem at the battery distribution and fuse bay (BDFB), or by replacing a failed power filter on a shelf.



CAUTION Power Loss

Do not press non-lighted fuses. This may cause momentary power failure on that fuse’s power feed.

Important! Contact the maintenance support organization before proceeding if a failure of both fuses (A and B) or both power feeders (A and B) to a bay exists.

If bay is equipped with the low-voltage cutoff feature, additional information is available in Chapter 4 “Product Description” of the *Applications and Planning Guide*, 365-575-558 R8.2.

-
- 1** Is a fuse lighted (blown) at the Fuse Panel or User Panel on the shelf associated with the fuse or power failure?

If	Then
YES	Continue with Step 2.
NO	Continue with Step 4.

-
- 2** Replace the lighted fuse with a new fuse (Comcode 405749920).

Important! The fuse cap lamp is a fuse status indicator (Comcode 407411719). The cap lamp works correctly when it is fully engaged and the fuse retainer is locked in place. If the lamp lights in any other position, it may incorrectly indicate a bad fuse.

Reference: “DLP-515: Replace Fuse in Power Distribution and Fuse Panel or User Panel” (4-79)

3 Did the fuse blow (light) again?

If	Then
YES	Go to Step 11.
NO	<i>STOP! YOU HAVE COMPLETED THIS PROCEDURE.</i>

4 Are ALL top of the bay indicator strip, Fuse Panel or User Panel LEDs extinguished (including PWR ON LED)?

If	Then
YES	Go to Step 6.
NO	Continue with Step 5.

5 Is the ***MJ/PROMPT*** LED on?

If	Then
YES	Go to Step 8.
NO	Go to Step 11.

6 Check at the BDFB or equivalent and correct the voltage supply problem.

Important! Both power feeder cables are NOT supplying voltage to the bay that has its PWR LEDs off.

7 ***STOP! YOU HAVE COMPLETED THIS PROCEDURE.***

8 At the CIT, select **FAULT.Retrieve.Condition.All** and execute to obtain a report.

Important! One power feeder cable is NOT supplying voltage to a bay.

-
- 9** Determine from the report, which power feeder cable is dead and correct the voltage supply problem at the BDFB or equivalent.
-

- 10** ***STOP! YOU HAVE COMPLETED THIS PROCEDURE.***
-

Important! Step 11 through Step 13 require a voltage measurement at the power filter. The filter associated with feeder A is located above the filter associated with feeder B for a cabinet mounted shelf. The filters for a miscellaneous mounted shelf are located on the left (feeder A) and right (feeder B) sides of the shelf.

- 11** Remove the faceplate to the User Panel or Fuse Panel on the shelf associated with the lighted fuse or power failure. Notice that the -48 V filter associated with the A feeder has red/black power cable connections and is above the power filter associated with the B feeder on the shelf which has gray/slate power cable connections.
-

- 12** Measure the voltage at the rear of the appropriate fuse.
-

- 13** Does the voltage measure between -42.75 and -60 volts?

If	Then
YES	Go to Step 16.
NO	Continue with Step 14.

.....

- 14** Visually check within the bay for a loose connection or a shorted power cable between the power distribution panel and the shelf with the failure.
-

- 15** Was a problem found?

If	Then
YES	Correct the problem and notify Technical Support.

.....

If	Then
NO	Continue with Step 16.



CAUTION

Power Loss

Step 16 through to the end of this procedure require replacement of a power filter. Replacing the wrong power filter will interrupt power to the shelf that is providing service.

- 16** Contact Technical Support and indicate that you are about to start replacing a power filter on a shelf.

- 17** Replace the appropriate filter on the appropriate shelf. For example, if fuse A is blown on a shelf, replace the top filter on the shelf.

Important! Location of the A and B filters in the OT bays are different than in the Metropolis® EON bays.

Reference: "DLP-522: Replace Power Line Filter" (4-101) or "DLP-523: Replace OT Power Line Filter" (4-104)

- 18** Did the ***fuse/power failure ()*** clear?

If	Then
YES	STOP! YOU HAVE COMPLETED THIS PROCEDURE.
NO	Continue with Step 19.

- 19** Contact Technical Support that you are checking and may replace a panel attributing to other potential shelf troubles as shown in Step 20 through Step 22.

-
- 20** If the shelf has power but the **PWR ON** LED is off, then replace the User Panel or Fuse Panel.

Reference: *Drawing ED-7G027-30, G1* Metropolis® EON User/Fuse Panel Reference:

Drawing ED-7G028-30, G1 Metropolis® EON Shelf Assembly Reference:

Drawing ED-7G045-30 Metropolis® EON Shelf Assembly Reference:

Drawing ED-7G047-30 OT User/Fuse Panel.

-
- 21** If the User Panel or Fuse Panel has any other defective LEDs, replace that panel.

Reference: *Drawing ED-7G027-30, G1* Metropolis® EON User/Fuse Panel. Reference:

Drawing ED-7G028-30, G1 Metropolis® EON Shelf Assembly

-
- 22** If the User Panel on the Switch Fabric shelf No. 1 has any other defective LEDs, replace that panel.

Reference: *Drawing ED-7G045-30* OT Shelf Assembly

Drawing ED-7G047-30 OT User/Fuse Panel.

END OF STEPS

TAP-120: Clear ‘Incoming (From Supr) DCC Failure’

Overview Failure of the incoming data communications channel (DCC) is usually associated with the following situations:

- LAN enabled on NE(s) and/or upstream NE(s) using telemetry feed-through
 - Hardware failure(s) at the source of the incoming supervisory signal or other problems involving the incoming supervisory signal from that source
 - Local station erroneously routing intermediate cabling
-

- 1** Is NE and/or upstream NE a telemetry feed-through? If unsure, select **SECURITY.Retrieve.System.dirn=1A-RCV-THRU** or **1A-TX-THRU** or **1A-TX-THRU-32** or **1A-RCV-THRU-32**.

If	Then
YES	continue with Step 2.
NO	continue with Step 5.

- 2** Disable LAN at the NE you are currently logged into by doing one of the following:

- In CenterLink, select **SECURITY.ENTER.CHANNEL_Identifier.Security**. Select **LAN** from the **AID** drop-down, and **DISABLE** from the **PROTACC** drop-down. Click **Enter**.
 - In TL1, use the **ENT.CID.SECU** command, example **ENT.CID.SECU:EON.01:LAN:::PROTACC=disable;**
-

- 3** Consult your office records or follow the physical TLM connections to determine what NEs are connected by telemetry feed-through to the one you are logged into.

-
- 4 Make sure all of these NEs have LAN disabled. Note that someone will have to connect to these NEs directly because the telemetry problem will prevent you from logging in through the local NE.
-

- 5 At the CIT, select **FAULT.Retrieve.Alarm.All** command and execute to obtain a report.
-

- 6 Referring to the report obtained in Step 5, are there any alarms?

If	Then
YES	continue with Step 7.
NO	STOP! YOU HAVE COMPLETED THIS PROCEDURE.

- 7 Referring to the report obtained in Step 5, identify the topmost alarm other than the ***incoming (from Supr) DCC failure***.
-

- 8 Find the alarm identified in Trouble conditions (3-17) of "TAP-102: Clear Trouble Using Craft Interface Terminal (CIT)" (3-16) and go to the indicated TAP to clear that alarm [ignoring the ***incoming (from Supr) DCC failure*** alarm throughout the remainder of the trouble clearing procedure].
-

- 9 At the CIT, select **FAULT.Retrieve.Condition.All**.
-

- 10 Is the incoming (from Supr) DCC failure alarm still reported at the network element where it was initially detected?

If	Then
YES	Continue with Step 11
NO	STOP! YOU HAVE COMPLETED THIS PROCEDURE

-
- 11** From office records, determine which network element is upstream of the failed DCC input.

Important! The source of the failed DCC input may be the upstream network element.

- 12** At the source of the failed DCC input, use the CIT to obtain a **FAULT.Retrieve.Alarm.All** report.

Important! You may not be able to remotely log in to the network element sending the failed DCC input. If you cannot log in to that network element, you will need assistance there to continue with this procedure.

- 13** Referring to the report obtained in Step 12, are there any alarms other than *incoming (from Supr) DCC failure* listed?

If	Then
YES	continue with Step 14.
NO	continue with Step 18. Important! It is possible that an <i>incoming (from Supr) DCC failure</i> will also be observed at this network element. If so, you MUST ignore the <i>incoming (from Supr) DCC failure</i> alarm in the FAULT.Retrieve.Alarm.All report.

- 14** Referring to the report obtained in Step 11, identify the topmost alarm other than the *incoming (from Supr) DCC failure* alarm.
-

- 15** Find the alarm identified in Trouble conditions (3-17) of "TAP-102: Clear Trouble Using Craft Interface Terminal (CIT)" (3-16) and go to the indicated TAP to clear that alarm [ignoring the *incoming (from Supr) DCC failure* alarm throughout the remainder of the trouble clearing procedure].
-

16 At the CIT, select **FAULT.Retrieve.Condition.All**.

17 Is the *incoming (from Supr) DCC failure* alarm still reported at the network element where it was initially detected?

If	Then
YES	Continue with Step 22
NO	STOP! YOU HAVE COMPLETED THIS PROCEDURE.

18 At the CIT, select **CONFIGURATION.Retrieve.Equipment:TOHCTL** command and execute for the upstream node identified in Step 10.

Important! The *incoming (from Supr) DCC failure* is possibly due to a “silent” failure of the TOHCTL circuit pack at the network element sending the failed DCC input or at the network element detecting it.

19 From the report, replace the TOHCTL circuit pack for the line associated with the failed DCC output.

Reference: “DLP-514: Install/Remove Circuit Pack” (4-61)

20 Wait 10 minutes for the TOHCTL circuit pack to reboot.

21 Is the *incoming (from Supr) DCC failure* alarm still reported at the network element where it was initially detected?

If	Then
YES	continue with Step 22.
NO	STOP! YOU HAVE COMPLETED THIS PROCEDURE.

- 22 At the network element that originally reported the ***incoming (from Supr) DCC failure*** alarm, replace the TOHCTL circuit pack for the line associated with the failed DCC output.

- 23 Wait 10 minutes for the circuit pack to reboot.

- 24 Is the ***incoming (from Supr) DCC failure*** alarm still reported at the network element where it was initially detected?

If	Then
YES	continue with Step 26.
NO	continue with Step 25.

- 25 At the network element identified in Step 10, return the original TOHCTL circuit pack to service by removing the replacement circuit pack and installing the original TOHCTL.

- 26 Wait 10 minutes for the TOHCTL circuit pack to reboot.

- 27 Is the ***incoming (from Supr) DCC failure*** alarm still reported at the network element where it was initially detected?

If	Then
YES	continue with Step 28.
NO	<i>STOP! YOU HAVE COMPLETED THIS PROCEDURE.</i>

- 28 Consult the appropriate maintenance support organization for further technical assistance.

- 29 ***STOP! YOU HAVE COMPLETED THIS PROCEDURE.***

TAP-121: Address ‘CP Reset In Progress’

Overview When a circuit pack is installed, it is downloaded with the necessary software. While this is occurring, the **CP reset in progress** condition will be active.

- 1 Find the circuit pack with the **CP reset in progress** condition in the following table and wait for the indicated time.

Mini Reset Waiting Times

CP Inserted	Waiting Time
OTCTL	10 minute
SYSCTL	15 minutes
SYSTEMEM	15 minutes
TOHCTL	10 minutes
All Others	1 minute

- 2 At the CIT, select the **FAULT.Retrieve.Condition.All** command and execute to obtain another report.
-

- 3 Is the **CP reset in progress** condition still indicated for the same circuit pack?

If	Then
YES	go to “TAP-108: Address Missing or Incorrect Response” (3-43).
NO	STOP! YOU HAVE COMPLETED THIS PROCEDURE.

TAP-122: Clear ‘CP (Unknown Type) Removed’

Overview This alarm indicates that the system has detected that a circuit pack has been removed but the system is unable to detect what type of circuit pack it is. The **unknown type** alarm is usually caused by a faulty pack.

- 1 At the CIT, select the **FAULT.Retrieve.Condition.All** command to identify the appropriate shelf associated with the removed circuit pack. The AID of the removed circuit pack is shown in the report.

Reference: “DLP-503: Locate Circuit Pack/Fiber Connections” (4-16)

- 2 Open the cabinet doors or remove the shelf cover. All connections can be accessed from the front.

Reference: “DLP-511: Open/Close Cabinet Doors or Install/Remove Shelf Cover” (4-49)

- 3 Do office records show that the slot should contain a circuit pack?

If	Then
YES	continue with Step 8.
NO	continue with Step 4.

- 4 At the CIT, select **CONFIGURATION.Update.System** (records the current hardware arrangement in SYSMEM circuit pack).
-

- 5 Close the cabinet doors or replace the shelf cover.

Reference: “DLP-514: Install/Remove Circuit Pack” (4-61)

- 6 **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

-
- 7** Obtain the type of circuit pack determined from office records and install it in the appropriate slot. As required, make the appropriate optical connections on the OA or TLM circuit pack(s).

Reference: "DLP-514: Install/Remove Circuit Pack" (4-61)

- 8** Wait for the circuit pack to reset, according to the time indicated below.

If the CP is this type	Then wait this long
OTCTL	10 minutes
SYSCTL	15 minutes
SYSMEM	15 minutes
TOHCTL	10 minutes
All Others	1 minute

- 9** Is the **FAULT** LED lighted on the replacement circuit pack?

If	Then
YES	replace shelf cover and go to "TAP-101: Clear NE ACTY/INFO-N and/or FE ACTY/INFO-F (Regardless of Alarm Level)" (3-12)
NO	continue with Step 10.

- 10** Close the cabinet doors or replace the shelf cover.

Reference: "DLP-511: Open/Close Cabinet Doors or Install/Remove Shelf Cover" (4-49)

11 Is the *NE ACTY/INFO-N* LED lighted at the user panel.

If	Then
YES	go to "TAP-101: Clear NE ACTY/INFO-N and/or FE ACTY/INFO-F (Regardless of Alarm Level)" (3-12).
NO	<i>STOP! YOU HAVE COMPLETED THIS PROCEDURE.</i>

E N D O F S T E P S



TAP-123: Clear ‘CP (Unknown Type) Failure’ or ‘OTPM Unknown’

Overview This alarm indicates that the system has detected that a circuit pack or OTPM has failed but the system is unable to detect what type of circuit pack it is. The **unknown type** alarm is usually caused by a faulty pack.

1 If the affected circuit pack was just installed, wait for the time indicated in the above table to allow the software in the affected circuit pack to start up.

2 Consult office records to determine the type of circuit pack to be installed in the slot.

Important! The circuit pack in the indicated slot has failed, but its type is unknown to the software. The type or code appears on the circuit pack faceplate.

Chapter 4 “Product Description” in the *Applications and Planning Guide*, 365-575-558 R8.2 lists the circuit pack codes that are supported by the slot for a particular shelf. Also listed is the compatible software for the particular circuit pack code.

3 Obtain and install a replacement circuit pack determined in Step 2. As required, make the appropriate optical connections on the OA or TLM circuit pack(s).

Reference: “DLP-514: Install/Remove Circuit Pack” (4-61)

4 Wait for the circuit pack to reset, according to the time indicated below.

If the CP is this type	Then wait this long
OTCTL	10 minutes
SYSCTL	15 minutes
SYSTEM	15 minutes
TOHCTL	10 minutes

If the CP is this type	Then wait this long
All Others	1 minute

5 Did the **FAULT** LED on the replacement circuit pack go off?

If	Then
YES	continue with Step 6.
NO	go to "TAP-116: Clear Unsuccessful Circuit Pack Replacement" (3-75).

6 Is the **NE ACTY/INFO-N** LED lighted?

If	Then
YES	go to "TAP-101: Clear NE ACTY/INFO-N and/or FE ACTY/INFO-F (Regardless of Alarm Level)" (3-12).
NO	STOP! YOU HAVE COMPLETED THIS PROCEDURE.

TAP-124: Address ‘Reset in Progress’

Overview A software reset is in progress. This involves downloading software from SYSMEM to SYSCTL, and to TOHCTLs, OTCTLs, and to board controllers on all other circuit packs. This can take as long as 10 minutes. During this time, the miscellaneous discrete control points are deactivated.

1 Is the ***MJ/PROMPT*** LED lighted?

If	Then
YES	wait 10 minutes before proceeding with Step 2.
NO	continue with Step 5.

2 At the CIT, select **FAULT.Retrieve.Condition.All** command and execute to obtain an updated report.

3 Is ***reset in progress*** still reported?

If	Then
YES	continue with Step 4.
NO	continue with Step 7.

4 Wait 10 minutes or until the ***MJ/PROMPT*** LED is off at the user panel.

5 At the CIT, select **FAULT.Retrieve.Condition.All** command and execute to obtain an updated report.

6 Is *reset in progress* still reported?

If	Then
YES	go to "TAP-108: Address Missing or Incorrect Response" (3-43).
NO	continue with Step 7.

7 Is the *NE ACTY/INFO-N* LED lighted?

If	Then
YES	go to "TAP-101: Clear NE ACTY/INFO-N and/or FE ACTY/INFO-F (Regardless of Alarm Level)" (3-12).
NO	<i>STOP! YOU HAVE COMPLETED THIS PROCEDURE.</i>

TAP-125: Clear ‘SYSMEM Unrecognizable Code’

Overview The software code stored in the nonvolatile memory of the SYSMEM circuit pack is corrupted or its version is not recognized by the SYSCTL circuit pack. The recommended way to clear this condition is to download new software code from the CIT to the SYSMEM circuit pack. Another way to clear this condition is to install a replacement SYSMEM circuit pack loaded with the correct code.

1 At the CIT, select **CONFIGURATION.Retrieve.Equipment** command and enter **sysctl** to obtain a report.

2 Refer to the report and record the software release information (VRSN=) from the **sysctl** line entry. For example, **RELEASE 8.0.0**. This software release is now running in the SYSCTL circuit pack.

3 Do you want to download new software or replace the SYSMEM circuit pack?

To **download new software**, refer to the Software Release Description.

To **replace the SYSMEM circuit pack**, continue with Step 4.

4 Open the cabinet door or remove the shelf cover. All connections can be accessed from the front.

Reference: “DLP-511: Open/Close Cabinet Doors or Install/Remove Shelf Cover” (4-49)

5 Is the **FAULT** LED flashing at the SYSMEM circuit pack?

If	Then
YES	continue with Step 6.
NO	go to “TAP-108: Address Missing or Incorrect Response” (3-43).

-
- 6** Obtain a replacement SYSMEM circuit pack containing an exact copy of the software identified in Step 2.
-

- 7** Remove the SYSMEM circuit pack and install the replacement SYSMEM circuit pack.

Important! The installation of a replacement SYSMEM circuit pack may generate certain unexpected alarm conditions. Ignore these indications until the **code mismatch** condition has been cleared, then clear any remaining condition(s).

Reference: "DLP-514: Install/Remove Circuit Pack" (4-61)

- 8** Wait several minutes for the system to stabilize (indicated by the **FAULT** LED on the SYSMEM circuit pack being continuously lighted, flashing, or off.)
-

- 9** Is the **FAULT** LED continuously lighted on the SYSMEM circuit pack?

If	Then
YES	continue with Step 10.
NO	continue with Step 12.

- 10** Is a second replacement SYSMEM circuit pack available?

If	Then
YES	continue with Step 11.
NO	continue with Step 13.

- 11** Replace the SYSMEM circuit pack with the second replacement SYSMEM circuit pack (loaded with an exact copy of the software identified in Step 2.)

Reference: "DLP-514: Install/Remove Circuit Pack" (4-61)

12 Is the **FAULT** LED flashing on the SYSMEM circuit pack?

If	Then
YES	go to "TAP-108: Address Missing or Incorrect Response" (3-43)
NO	continue with Step 15.

13 Reinstall the original SYSMEM circuit pack.

Reference: "DLP-514: Install/Remove Circuit Pack" (4-61)

14 Install new software (same release as currently running in the SYSCTL circuit pack).

Reference: For more information, refer to the Software Release Description.

15 Close the cabinet door or replace the shelf cover.

Reference: "DLP-511: Open/Close Cabinet Doors or Install/Remove Shelf Cover" (4-49)

16 Is the **NE ACTY/INFO-N** LED lighted at the user panel?

If	Then
YES	go to "TAP-101: Clear NE ACTY/INFO-N and/or FE ACTY/INFO-F (Regardless of Alarm Level)" (3-12).
NO	STOP! YOU HAVE COMPLETED THIS PROCEDURE.

TAP-126: Clear 'SYSMEM/SYSCTL Code Mismatch'

Overview The software code stored in the nonvolatile memory of the SYSMEM circuit pack is different from the current code running in the SYSCTL circuit pack. The network element is currently functioning from the code running in the SYSCTL circuit pack. The 'SYSMEM/SYSCTL code mismatch' condition will be cleared by one of the following actions:

- by executing **CONFIGURATION.Initialize.System:TID:AID(All):PH(3)** that causes the SYSMEM circuit pack to download code to the SYSCTL circuit pack.
- by downloading the code from CD-ROM via the CIT to the SYSMEM circuit pack.
- by performing a remote (DCC) download procedure that will copy code from another network element.

Important! During the duration of the code mismatch, a major indication will exist at the control panel. Ignore this indication until the code mismatch condition has been cleared, then clear any remaining trouble conditions.

-
- 1** At the CIT, select **CONFIGURATION.Retrieve.Equipment** and enter `sysctl` to obtain a report.
-
- 2** Refer to the report and record the software release information (VRSN=) from the **sysctl** line entry; for example, **RELEASE 8.0.0**. This software release is now running in the SYSCTL circuit pack.
-
- 3** Refer to the report and record the software release information (VRSN=) from the **sysmem** line entry; for example, **RELEASE 4.0.0**. This software release is stored in the nonvolatile memory of the SYSMEM circuit pack.

- 4 Are the software releases and/or platforms recorded in Step 2 and Step 3 different from each other?

If	Then
YES	continue with Step 5.
NO	go to "TAP-108: Address Missing or Incorrect Response" (3-43).

- 5 Refer to the office records to determine which of the two software releases is supposed to be running in the network element.

- 6 Is the software release running in the SYSCTL (software release recorded in Step 2) supposed to be running in this network element?

If	Then
YES	continue with Step 11.
NO	continue with Step 7.

- 7 Is the software release running in the SYSMEM (software release recorded in Step 3) supposed to be running in this network element?

If	Then
YES	continue with Step 8.
NO	continue with Step 11.

- 8 At the CIT, select **CONFIGURATION.Initialize.System:TID:AID(All):PH(3)** and execute. During the reset time, the miscellaneous discrete control points will be deactivated.

Important! The CIT will disconnect from the network element when the **CONFIGURATION.Initialize.System** command is executed.

-
- 9** Wait 15 minutes or until the ***MJ/PROMPT*** LED is off at the user panel, whichever comes first. Reset takes approximately 15 minutes, but some panel LEDs flash and relays click in about a minute, indicating that reset has started. If the network element is equipped with OTPMs, wait an additional 5 minutes.
-

10 ***STOP! YOU HAVE COMPLETED THIS PROCEDURE.***

- 11** Is the correct software release running in a remote network element and is the DCC connection good to that network element?

If	Then
YES	Refer to the Software Release Description to copy software.
NO	Refer to the Software Release Description to install software.

E N D O F S T E P S



TAP-127: Clear ‘Unexpected CP Type’ or ‘Unexpected OTPM Type’

Overview The condition is issued whenever the Metropolis® EON software detects a difference between what it expects in a circuit pack (CP) slot and which CP is actually in the slot. This condition is normally cleared by correcting the difference (wrong CP type or incomplete records).

Important! Do not remove any additional circuit packs from the shelf until the unexpected CP type or unexpected OTPM type condition has been cleared.

-
- 1 At the CIT, select **CONFIGURATION.Retrieve.Equipment:All** command and execute to obtain a report.

 - 2 Determine from office records the correct CP/OTPM type for the slot in question.

 - 3 Compare the report with the office records and determine which indicates the correct CP/OTPM type.

 - 4 Is the correct CP/OTPM actually plugged into the slot?

If	Then
YES	continue with Step 5.
NO	continue with Step 11.

 - 5 At the CIT, select **CONFIGURATION.Update.System** command and execute to update the network element.

- 6 Did all **unexpected CP type** or **unexpected OTPM type** conditions clear?

If	Then
YES	STOP! YOU HAVE COMPLETED THIS PROCEDURE.
NO	continue with Step 7.

- 7 Disengage all new OTU circuit packs that have recently been installed.

- 8 At the CIT, select **CONFIGURATION.Update.System** command and execute to update the network element.

- 9 Engage all new OTU circuit packs that were disengaged in Step 7.

- 10 **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

- 11 Obtain the correct CP/OTPM type according to office records.

- 12 If required, open the cabinet doors or remove the shelf cover. All connections can be accessed from the front.

Reference: "DLP-511: Open/Close Cabinet Doors or Install/Remove Shelf Cover" (4-49)

- 13 Remove the incorrect CP/OTPM type from the slot and insert the correct CP/OTPM type.

Reference: "DLP-514: Install/Remove Circuit Pack" (4-61)

- 14 Close the cabinet doors or replace the shelf cover.

Reference: "DLP-511: Open/Close Cabinet Doors or Install/Remove Shelf Cover" (4-49)

15 *STOP! YOU HAVE COMPLETED THIS PROCEDURE.*

TAP-128: Clear Trouble In CIT (CIT Does Not Respond to Commands)

Overview This procedure is used to clear trouble within the Craft Interface Terminal (CIT) such as a software hang-up or a malfunction.

1 Are you using CenterLink?

If	Then
YES	continue with Step 2.
NO	continue with Step 9. Important! The DCE/DTE port must be provisioned for TL1 operation.

2 Is the mouse operational?

If	Then
YES	click on Help and on Troubleshooting or ask for technical assistance from your administrator.
NO	continue with Step 3.

3 Perform a hard boot on the PC by pressing the RESET switch or by turning the power switch off and then on again.

4 Did the PC reboot?

If	Then
YES	continue with Step 5.
NO	refer to the Software Release Description to reload the software and/or replace the PC.

5 Did the CenterLink software load?

If	Then
YES	continue with Step 6. Important! The browser and the NE server software are considered parts of the CenterLink software.
NO	refer to the Software Release Description.

6 Log in to the network element.

Reference: “DLP-501: Connect and Condition Craft Interface Terminal (CIT)” (4-12)

7 Were you able to log in to the NE?

If	Then
YES	<i>STOP! YOU HAVE COMPLETED THIS PROCEDURE.</i>
NO	continue with Step 8.

8 First try solving your problem by going to Troubleshooting under Help at the main CenterLink screen. If additional help is required, contact technical support.

9 ***STOP! YOU HAVE COMPLETED THIS PROCEDURE.***

TAP-129: Clear ‘DCC Startup In Progress’

Overview The data communication channel (DCC) is starting up. This interaction between the network elements takes from 10 to 15 minutes.

- 1 Wait 15 minutes or until the NE ACTY (SONET)/INFO-N (SDH) LED goes off.
-

- 2 Did the *DCC startup in progress* condition clear?

If	Then
YES	continue with Step 3.
NO	go to “TAP-108: Address Missing or Incorrect Response” (3-43).

- 3 Is the *NE ACTY/INFO-N* LED lighted?

If	Then
YES	, then go to “TAP-101: Clear NE ACTY/ INFO-N and/or FE ACTY/INFO-F (Regardless of Alarm Level)” (3-12).
NO	STOP! YOU HAVE COMPLETED THIS PROCEDURE.

TAP-130: Restore Network Element Operation After Power Loss

Overview The network element has had its power restored and one or more circuit packs have an **unexpected** or **unrecognized** failure.

- 1 Is the green **POWER ON** LED on the user panel lighted?

If	Then
YES	go to "TAP-119: Clear 'Fuse/Power Failure (A/B)'" (3-85).
NO	continue with Step 2.

- 2 Wait 15 minutes for all circuit packs to reset.

Important! If one or more **FAULT** LEDs is lighted during the reset process, it should be ignored during this procedure.

- 3 At the CIT, select **FAULT.Retrieve.Condition.All** command and execute to obtain a report.

- 4 Are any conditions listed in the **CONDDSCR** column of the report?

If	Then
NO	STOP! YOU HAVE COMPLETED THIS PROCEDURE.
YES	continue with Step 5.

- 5 At the CIT, select **CONFIGURATION.Initialize.System:TID:AID (All):PH(3)** command and execute to reset the network element.

Important! The CIT will disconnect from the network element when the **CONFIGURATION.Initialize.System** command is executed.

-
- 6** Wait 15 minutes or until the MJ/PROMPT LED is off at the user panel, whichever comes first. Reset takes approximately 15 minutes, but some user panel LEDs flash and relays click in about a minute, indicating that reset has started. If the network element is equipped with OTPMs, wait an additional 5 minutes.
-

- 7** At the CIT, select **FAULT.Retrieve.Condition.All** command and execute to reset the network element.
-

- 8** Are any conditions listed in the **CONDDSCR** column of the report?

If	Then
NO	<i>STOP! YOU HAVE COMPLETED THIS PROCEDURE.</i>
YES	go to “TAP-102: Clear Trouble Using Craft Interface Terminal (CIT)” (3-16).

TAP-131: Clear ‘Software Download in Progress’

Overview Overview: A software download can take as long as 2 hours at 9600 baud (less time at the higher baud rate of 19,200 or 38,400).

1 Wait for the download to be completed.

2 Did the *software download in progress* condition clear?

If	Then
YES	<i>STOP! YOU HAVE COMPLETED THIS PROCEDURE.</i>
NO	refer the trouble to the people doing the software download.

TAP-132: Clear ‘System Startup In Progress’

Important! This condition is normally a transient condition.

An event can occur that will cause a node to default to the original date/time (70-01-01 00:00:00). Then as part of the system startup process, the node will acquire the date and time from the DSNE node (or neighboring node) once the system startup has successfully completed.

-
- 1** Wait 5 minutes or until the **NE ACTY/INFO-N** LED on the user panel goes off.

-
- 2** At the CIT, select **FAULT.Retrieve.Condition.All** command and execute to obtain a report.

-
- 3** Has the **system startup in progress** condition cleared?

If	Then
YES	STOP! YOU HAVE COMPLETED THIS PROCEDURE.
NO	go to “TAP-108: Address Missing or Incorrect Response” (3-43) to clear the unexpected response.

TAP-133: Clear ‘SYSMEM Removed’

Overview This alarm indicates that the SYSMEM circuit pack has been removed from the network element.



CAUTION Data Loss

Do not remove the SYSCTL circuit pack. If removed, provisioning data (current values) will be lost.

Important! A series number **S1:2** is the same series number as **S1:4**. The 2 and 4 refer to minor changes within series 1.

-
- 1** Obtain a replacement SYSMEM circuit pack having the same or a higher series number.
-

- 2** Install the replacement SYSMEM circuit pack.

Reference: “DLP-514: Install/Remove Circuit Pack” (4-61)

- 3** Wait 10 minutes or until the **MJ/PROMPT** LED goes off.
-

- 4** Is the **NE ACTY/INFO-N** LED off?

If	Then
YES	<i>STOP! YOU HAVE COMPLETED THIS PROCEDURE.</i>
NO	go to “TAP-101: Clear NE ACTY/INFO-N and/or FE ACTY/INFO-F (Regardless of Alarm Level)” (3-12)

TAP-134: Clear ‘System Incomplete’

Overview This condition indicates that the designated DS-NE network element is unable to create a complete system map because of a controller or transmission failure in the network or an NE reset.

-
- 1 At the CIT, select **FAULT.Retrieve.Condition.All** command and execute to obtain a report.
-
- 2 Does a controller circuit pack (SYSCTL, SYSMEM, or TOHCTL) condition or an incoming optical line condition appear in the Active Alarms and Status Reports?

If	Then
YES	go to “TAP-102: Clear Trouble Using Craft Interface Terminal (CIT)” (3-16) to clear the indicated condition(s).
NO	continue with Step 3.

-
- 3 Consult office records to determine the Target Identifiers (TIDs) of the other nodes in the network.

Important! You cannot obtain a valid Ring Map Report or Network Map Report while this condition exists.

The optical line may not be configured per office records. Select **CONFIGURATION.Retrieve.Map** command and execute to verify all the network elements.

-
- 4 Initiate a login to any one of the other network elements identified in Step 3. If you need help with the remote login, refer to **DLP-518**.

Important! When the network is in this state, you will probably not be able to initiate login to one or more of the other nodes. If a remote login is possible and if you need additional help, refer to DLP-518. Otherwise, local CIT assistance will be required at those nodes.

- 5 At the CIT, select **FAULT.Retrieve.Condition.All** command and execute to obtain a report for that network element.

- 6 Does a controller circuit pack (SYSCTL, SYSMEM, or TOHCTL) condition or an incoming optical line condition appear in the Active Alarms and Status Reports?

If	Then
YES	go to "TAP-102: Clear Trouble Using Craft Interface Terminal (CIT)" (3-16) to clear the indicated condition(s).
NO	continue with Step 7.

- 7 Repeat Step 4 through Step 6 for each of the remaining network elements identified in Step 3.

- 8 Is the **ring incomplete** condition still active at the original network element?

If	Then
YES	continue with Step 9.
NO	STOP! YOU HAVE COMPLETED THIS PROCEDURE.

- 9 Consult the appropriate maintenance support organization for further technical assistance.

- 10 **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

TAP-135: Clear ‘Multiple DS-NEs Defined’

Overview This condition means that two or more network elements in a network have their **Directory Service (DSNE)** parameter provisioned to **YES**. There must be one and only one DS-NE in the network.

- 1 At the CIT, select **CONFIGURATION.Retrieve.Map** command and execute to obtain a report. The topmost entry shows the TID of the local node, which is where the report is requested followed by all remaining nodes.
-

- 2 At the CIT, select **SECURITY.Enter.System** command and provision the **DSNE** parameter to **NO**.

Important! To clear the **multiple DS-NEs defined** condition, all nodes in the network must first be provisioned to **No**, then only the designated node is provisioned to **Yes**.

- 3 Ask for assistance at the next node on the report or travel to that location and condition and connect the CIT to the network element.

Important! When the network is in this state, you will probably not be able to initiate login to one or more of the other nodes. If a remote login is possible and if you need additional help, refer to DLP-518. Otherwise, local CIT assistance will be required at those nodes.

The TOHCTL takes up to 20 minutes to stabilize after provisioning the **DSNE** parameter. It may be necessary to wait an additional 30 to 50 minutes because the more nodes in a network, the longer it takes for them to be updated and to stabilize.

Reference: “DLP-501: Connect and Condition Craft Interface Terminal (CIT)” (4-12)

- 4 After you are logged in to that node, repeat Step 2.
-

-
5 Log off of the network element.
.....
- 6** Repeat Step 3, Step 4, and Step 5 for each of the remaining nodes in the network.
.....
- 7** Determine from office records which network element is to be the DS-NE.
.....
- 8** Log in to that network element (the designated DS-NE). If a remote login is possible and you need additional help, refer to “DLP-518: Login/Logout to a Network Element Using CenterLink” (4-82).
.....
- 9** At the CIT, select **SECURITY.Enter.System** command and provision the **DSNE** parameter to **YES**.
.....
- 10** Ask for assistance at the next node on the report or travel to that location and condition and connect the CIT to the network element.

Important! The TOHCTL takes up to 20 minutes to stabilize after provisioning the **DSNE** parameter. It may be necessary to wait an additional 30 to 50 minutes because the more nodes in a network, the longer it takes for them to be updated and to stabilize.

Reference: “DLP-501: Connect and Condition Craft Interface Terminal (CIT)” (4-12)
.....
- 11** At the CIT, select **CONFIGURATION.Retrieve.Map.Network** command and execute to obtain a report.
.....
- 12** Verify from the report that **one and only one node** is provisioned as the DS-NE.
.....
- 13** Log off of the network element.
.....

14 *STOP! YOU HAVE COMPLETED THIS PROCEDURE.*

TAP-136: Clear Alarm When 'NE ACTY/INFO-N' and 'FE ACTY/INFO-F' LEDs Are Off or Restore System With No Alarms and NE is Not Responding

Overview This procedure is used to clear trouble in a system when (1) an active office alarm originating at a network element (NE) when both the NE ACTY (SONET)/INFO-N (SDH) and the FE ACTY (SONET)/INFO-F (SDH) LEDs on the user panel are off or (2) you need to restore the system when an NE is not responding to CIT or OS commands and no alarm activity is present.

- 1 Is the green **POWER ON** LED on the user panel lighted?

If	Then
YES	continue with Step 2.
NO	go to "TAP-119: Clear 'Fuse/Power Failure (A/B)'" (3-85).

- 2 Open the cabinet doors or remove the shelf cover. All connections can be accessed from the front.

Reference: "DLP-511: Open/Close Cabinet Doors or Install/Remove Shelf Cover" (4-49)

- 3 Is the CIT conditioned and connected to the network element?

If	Then
YES	continue with Step 4.
NO	complete "DLP-501: Connect and Condition Craft Interface Terminal (CIT)" (4-12) and return to this procedure.

- 4 At the CIT, select **FAULT.Retrieve.Condition.All** command and execute to obtain a report.
-

Important! It is unlikely that the CIT will be able to communicate with the network element under these conditions.

- 5 Were you able to communicate with the network element (and obtain a report)?

If	Then
YES	continue with Step 6.
NO	continue with Step 7.

- 6 Make a note that the office alarm outputs and/or the **NE ACTY/INFO-N** and **FE ACTY/INFO-F** LEDs on the user panel are not operating properly and go to "TAP-108: Address Missing or Incorrect Response" (3-43).

- 7 Remove the shelf cover from the shelf housing the circuit pack.

Important! The SYSCTL and/or the SYSMEM circuit pack has either failed or been removed.

- 8 Are SYSCTL and SYSMEM circuit packs installed?

If	Then
YES	continue with Step 9.
NO	continue with Step 19. Reference: "DLP-503: Locate Circuit Pack/Fiber Connections" (4-16)

- 9 Remove the SYSMEM circuit pack and label it for later identification. Then, install a replacement SYSMEM circuit pack having the same or a higher series number. For example, a series number **S1:2** is the same series number as **S1:4**. The 2 and 4 refer to minor changes within series 1.

Important! The installation of a replacement SYSMEM circuit pack may generate certain unexpected alarm conditions. Ignore

these indications until the **code mismatch** condition has been cleared. Then clear any remaining condition(s).

This procedure begins with the replacement of the SYSMEM circuit pack even though the SYSCTL circuit pack **FAULT** LED may be lighted.

Reference: "DLP-514: Install/Remove Circuit Pack" (4-61)

-
- 10** Wait 15 minutes. (If a **FAULT.Retrieve.Condition.All** report is obtained during this time and the CONDDSCR Column shows a **reset in progress** condition, don't worry because this is a normal software download operation.)
-

- 11** Is the **NE ACTY/INFO-N** and/or **FE ACTY/INFO-F** LED lighted?

If	Then
YES	continue with Step 23.
NO	continue with Step 12.

- 12** Are visual and/or audible office alarms off?

If	Then
YES	continue with Step 23.
NO	continue with Step 13.

- 13** Remove the replacement SYSMEM circuit pack installed in Step 9 and leave the SYSMEM slot empty.
-



CAUTION
Data Loss

At this time the SYSMEM slot must be empty. If it is not empty, provisioned data may be lost or corrupted.

- 14** Remove the SYSCTL circuit pack and install a replacement SYSCTL

circuit pack having the same or a higher series number. For example, a series number **S1:2** is the same series number as **S1:4**. The 2 and 4 refer to minor changes within series 1.

Reference: "DLP-514: Install/Remove Circuit Pack" (4-61)

- 15** Install the previously labeled original SYSMEM circuit pack, not the replacement SYSMEM circuit pack, into the SYSMEM slot.

Reference: "DLP-514: Install/Remove Circuit Pack" (4-61)

- 16** Wait 15 minutes.

- 17** Is the **NE ACTY/INFO-N** and/or **FE ACTY/INFO-F** LED lighted?

If	Then
YES	continue with Step 23.
NO	continue with Step 18.

- 18** Are visual and/or audible office alarms off?

If	Then
YES	STOP! YOU HAVE COMPLETED THIS PROCEDURE.
NO	contact your local maintenance support group for a higher level of technical assistance and STOP! YOU HAVE COMPLETED THIS PROCEDURE. Remember, if the SYSCTL and SYSMEM circuit pack are both replaced, the NE database (provisioned data) must be reconstructed. Reference: "DLP-514: Install/Remove Circuit Pack" (4-61)

- 19** Install a replacement SYSMEM and/or SYSCTL circuit pack in the appropriate slot(s). Remember, if the SYSCTL and SYSMEM circuit

pack are both replaced, the NE database (provisioned data) must be reconstructed.

Reference: "DLP-514: Install/Remove Circuit Pack" (4-61)

- 20 Wait 15 minutes, or until the **NE ACTY/INFO-N** or **FE ACTY/INFO-F** LED is on, or until the office alarm(s) is off, whichever comes first.

- 21 Is the **NE ACTY/INFO-N** and/or **FE ACTY/INFO-F** LED lighted?

If	Then
YES	continue with Step 23.
NO	continue with Step 22.

- 22 Are visual and/or audible office alarms off?

If	Then
YES	STOP! YOU HAVE COMPLETED THIS PROCEDURE.
NO	contact your local maintenance support group for a higher level of technical assistance and STOP! YOU HAVE COMPLETED THIS PROCEDURE. Remember, if the SYSCTL and SYSMEM circuit pack are both replaced, the NE database (provisioned data) must be reconstructed. Reference: "DLP-514: Install/Remove Circuit Pack" (4-61)

- 23 Log into the network element.

Reference: "DLP-501: Connect and Condition Craft Interface Terminal (CIT)" (4-12)

- 24 At the CIT, select **CONFIGURATION.Retrieve.Equipment** and enter SYSCTL and execute to obtain a report.

- 25 Refer to the report and compare the software version stored in the SYSMEM (shown under the **sysmem** entry in the report) and the software version running in the network element (shown under the **sysctl** entry in the report) with office records. If office records are not available, log in remotely to another network element and obtain a report to determine what software version is running in the network.

- 26 Is the correct software version stored in the SYSMEM and running in the network element?

If	Then
YES	continue with Step 28.
NO	continue with Step 27.

- 27 Is the correct software release running in a remote network element and is the DCC connection good to that network element?

If	Then
NO	refer to the Software Release Description for directions to install software.
YES	refer to the Software Release Description to copy software.

- 28 At the CIT, select **CONFIGURATION.Initialize.System:TID: AID(All): PH(3)** command and execute.

Important! The CIT will disconnect from the network element when the **CONFIGURATION.Initialize.System** command is executed.

- 29 Wait 15 minutes or until the **MJ/PROMPT** LED is off at the user panel, whichever comes first. Reset takes approximately 15 minutes, but some user panel LEDs flash and relays click in about a minute, indicating that reset has started. If the network element is equipped with OTPMs, wait an additional 5 minutes.

-
- 30** Close the cabinet doors or replace the shelf cover.

Reference: "DLP-511: Open/Close Cabinet Doors or Install/Remove Shelf Cover" (4-49)

- 31** Is the *NE ACTY/INFO-N* LED off?

If	Then
YES	<i>STOP! YOU HAVE COMPLETED THIS PROCEDURE.</i>
NO	go to the "TAP-101: Clear NE ACTY/INFO-N and/or FE ACTY/INFO-F (Regardless of Alarm Level)" (3-12).

TAP-137: Clear 'DS-NE Not Reachable'

Overview This condition indicates that one of the network elements (nodes) in the network has not been provisioned **DS-NE** or more likely that the DCC has failed and is being reset.

- 1 Determine from office records which node is designated the **Directory Service NE** (DS-NE) in the network.
-

- 2 Is there a **TOHCTL failure** condition at the far end (FE)?

If	Then
YES	go to "TAP-111: Clear 'Circuit Pack Failure'" (3-56), clear the TOHCTL failure condition, and return to this procedure.
NO	continue with Step 3. Important! A TOHCTL failure condition must be cleared before a DS-NE not reachable condition.

- 3 Ask for assistance at the DS-NE location or travel to that location and condition and connect the CIT to the network element.

Important! When the network is in this state, you will probably not be able to initiate login to one or more of the other nodes. If a remote login is possible and if you need additional help, refer to DLP-518. Otherwise, local CIT assistance will be required at those nodes.

Reference: "DLP-501: Connect and Condition Craft Interface Terminal (CIT)" (4-12)

- 4 Select **SECURITY.Retrieve.System** to see if the **DSNE** parameter is set to **YES**. If it is not, select **SECURITY.Enter.System** and set the **DSNE**
-

parameter to **YES**. Every other NE in the ring or linear configuration must have its **DSNE** parameter set to **NO**.

-
- 5** Wait between 10 to 45 minutes for the system's diagnostics to stabilize. A longer time means more nodes in a network. After this time, the **DS-NE not reachable** condition should be cleared.

Comment: You can verify that only one node is provisioned as the DS-NE by obtaining a Ring Map Report (at the CIT, select **CONFIGURATION.Retrieve.Ring**).

-
- 6** Did the **DS-NE not reachable** condition clear?

If	Then
YES	continue with Step 7.
NO	call for technical assistance in the next level of trouble clearing.

-
- 7** Log off of the network element.

-
- 8** **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

-
- 9** The DCC has failed because of some alarm condition at one of the NEs in the ring or linear configuration. Each of the NEs will have to be checked for alarms. Send a trouble report to each NE or travel to the location of each NE to check for alarm condition.

Clear each alarm present at each network element using "TAP-102: Clear Trouble Using Craft Interface Terminal (CIT)" (3-16)

-
- 10** Is the ***DS-NE Not Reachable*** alarm still present at the original NE reporting it?.

If	Then
<i>YES</i>	Consult the appropriate maintenance support organization for further technical assistance.
<i>NO</i>	<i>STOP! YOU HAVE COMPLETED THIS PROCEDURE.</i>

TAP-138: Clear 'Duplicate TID Defined'

Overview A recently entered target identifier (TID) value is a duplicate of another network element in the system.

1 Determine from office records the correct TID for the network elements showing the duplicate values.

2 Log in to the network element that is in error. If a remote login is required and you need additional help, refer to:

Reference: "DLP-518: Login/Logout to a Network Element Using CenterLink" (4-82)

3 At the CIT, select **SECURITY.Enter.System** command and enter the correct TID for that network element.

Important! If unsupported characters are entered into the TID, for example, the user may need to reset and reprovision the system.

4 Log off of the network element, as required.

5 ***STOP! YOU HAVE COMPLETED THIS PROCEDURE.***

TAP-139: Clear ‘SER TLM 1 Port Failure’

Overview The external miscellaneous discrete unit (EMDU) has failed to respond to polling by the local network element. The network element is connected to the EMDU via the SER TLM 1 port. The communication is based on a telemetry byte-oriented serial (TBOS) protocol, with the network element functioning as master. The network element polls the EMDU at an interval of every 10 to 13 seconds. This alarm condition indicates that the EMDU is not responding to the poll.

- 1** Open the cabinet doors or remove shelf cover. All connections can be accessed from the front.

Reference: “DLP-511: Open/Close Cabinet Doors or Install/Remove Shelf Cover” (4-49)

- 2** Make an inspection of the serial telemetry cable connected to the **P19 SER TLM 1** connector at the interconnect panel. (Verify cable is properly seated in the connector.)
-

- 3** At the CIT, select **FAULT.Retrieve.Condition.All** command and execute to obtain a report.
-

- 4** Referring to the report obtained in Step 3, is the **SER TLM 1 port failure** still listed?

If	Then
YES	continue with Step 5.
NO	STOP! YOU HAVE COMPLETED THIS PROCEDURE.

-
- 5** Use the appropriate vendor maintenance documents to determine if the EMDU is operating properly.

If	Then
<i>operating properly</i>	continue with Step 6.
<i>not operating properly</i>	clear trouble using vendor supplied maintenance documents.

-
- 6** Contact the appropriate maintenance support organization for further technical assistance.
-

- 7** ***STOP! YOU HAVE COMPLETED THIS PROCEDURE.***

TAP-140: Clear ‘different OA types in side’

Overview This condition indicates that the network element is operating with OAs that have different apparatus (APP) codes.

Dual facing terminals are capable of supporting OAs of different types on each side of the terminal. The OAs in optical line pair 1A and 2A and line pair 1B and 2B could be of different types. But the OAs in a side (side 1 or side 2) must be of the same type. Since (non-dual) end terminals and repeater network elements have only 1 side, all OAs in this network element must be of the same type.

The only exception is that the LEA7 and LEA7B OAs can be combined on the same side in any node.

-
- 1** At the CIT, select **CONFIGURATION.Retrieve.Equipment** command and execute to obtain a report.

 - 2** Scan the **APP=** entry of the report and determine which OA has a different apparatus code than the other equipped OAs in the network element.

 - 3** From office records, determine the correct apparatus code for the OA slot identified as having a different apparatus code in Step 2.

 - 4** Obtain the correct OA type according to office records.

 - 5** If required, open the cabinet doors and remove the shelf cover.

Reference: “DLP-511: Open/Close Cabinet Doors or Install/Remove Shelf Cover” (4-49)

-
- 6** Remove the incorrect OA type from the slot and insert the correct OA type.

Reference: "DLP-514: Install/Remove Circuit Pack" (4-61)

- 7** If required, replace the shelf cover and close the cabinet doors.

Reference: "DLP-511: Open/Close Cabinet Doors or Install/Remove Shelf Cover" (4-49)

- 8** At the CIT, select **CONFIGURATION.Update.System** to update the network element equipment list.
-

- 9** ***STOP! YOU HAVE COMPLETED THIS PROCEDURE.***

TAP-141: Clear ‘equipage/prov mode inconsistent’

Overview This condition indicates that the network element is equipped with the wrong type OA(s) based on the provisioned system type or the system is provisioned as the wrong system type. The network element must be equipped with certain OA apparatus (APP) codes depending on the various possible system types that can be provisioned.

1 At the CIT, select **SECURITY.Retrieve.System** command and execute to obtain a report.

2 From office records, determine the correct **side_sys=** or **side2_sys=** for this network element. For example, **side1_sys=C** or **side2_sys=B**.

3 Compare the network element **sys=** listed in the report obtained in Step 1 with the office records.

4 Is the **sys=** information in the report and office records the same?

If...	Then...
YES	Continue with Step 5.
NO	Continue with Step 14.

5 At the CIT, select **CONFIGURATION.Retrieve.Equipment:OA.ALL** command and execute to obtain a report.

6 Using OA Types with Specific System Types (3-142), determine the correct OA APP Code for the provisioned **sys=** determined in Step 3 for this network element.

- 7 From the report obtained in Step 5, scan the OA rows for the APP= to determine which OA has the incorrect apparatus code for the provisioned sys=.
- 8 Obtain the correct OA type according to office records and OA Types with Specific System Types (3-142)
- 9 If required, open the cabinet door or remove the shelf cover.
Reference: "DLP-511: Open/Close Cabinet Doors or Install/Remove Shelf Cover" (4-49)
- 10 Remove the incorrect OA type from the slot and insert the correct OA type.
Reference: "DLP-514: Install/Remove Circuit Pack" (4-61)
- 11 Close the cabinet doors or replace the shelf cover.
Reference: "DLP-511: Open/Close Cabinet Doors or Install/Remove Shelf Cover" (4-49)
- 12 At the CIT, select **CONFIGURATION.Update.System** to update the network element equipment list.
- 13 **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**
- 14 At the CIT, select **SECURITY.Enter.System** command and execute.
- 15 Enter the correct sys= for this network element and execute.
- 16 **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

OA Types with Specific System Types

The following table shows OA types with specific system types.

OA APP Code	Side Config	Number of Spans	Span loss (dB)		Max No. of Wavelengths	Bit rates
			min	max		
LEA207	A	1		26	32	<=2.5Gb/s
		2		25		
		3		23		
		4		21		
		5		20		
		6		19		
		7		17		
		8		15		
		1	19	23	32	<=10Gb/s
		2	18	22		
		3	17	20		
	1_OA	1	0	15/17 ¹		<=2.5Gb/s
		1	0	9/11 ¹		<=10Gb/s
LEA307	A	1	22	33	32	<=10Gb/s
		2	22	32		
		3	22	30		
		4	22	28		
		5	21	26		
		6	21	25		
		7	17	24		
		8	17	22		
		1	22	33	16	
		2	22	33		
		3	22	33		
		4	22	31		
		5	21	27		
	1_OA	1	0	17/19 ¹	32	<=2.5Gb/s
		1	0	14/16 ¹		<=10Gb/s

OA APP Code	Side Config	Number of Spans	Span loss (dB)		Max No. of Wavelengths	Bit rates
			min	max		
LEA7 or LEA7B	A	1	22	33	16	OC48/12/3
		2	22	30		
		3	22	28		
	B	4	22	27		
		5	21	26		
	C	6	21	26		
		7	17	22		
		8	17	22		
LEA105	1_OA	1	0	12		
	A	1	14	18	16	OC48/12/3
		1	0	12		
		1	0	13		
		1	0	16		
		1	0	13		
		1	0	16		
		1	0	20		
LEA104 or LEA107B	A	1	22	35	16	OC48/12/3
		2	22	34		
		3	22	33		
	B	4	26	31		
		5	23	27		
LEA6	A	1	22	35	8	OC48/12/3
		2	22	34		
		3	22	33		
	B	4	26	31		
		5	26	30		
	A	1	22	33	16	

Notes:

1. Using 8dB/5.5dB ODU

TAP-142: Clear ‘opr/prov mode inconsistent’

Overview This condition indicates that the network element provisioned to operate 1_OA configuration is actual operating in the 2_OA mode. For dual facing end terminals the operating mode is defined by the OA in side 1. For non-dual facing end terminals and for repeaters the operating mode is defined by the OA in Optical Line 1.

When a LIRCV is not used, the 1_OA mode requires that an LEA105, LEA7, or LEA7B OA be equipped in OA slot 1A if the ODU is in ODU slot 1A, and OA slot 1B if the ODU is in ODU slot 1B.

The operating mode for side 2 of a dual facing terminal is defined by the OA in Optical Line 2. For side 2, the 1_OA mode requires that an LEA105, LEA7, or LEA7B OA be equipped in OA slot 2A if the ODU is in ODU slot 2A, and OA slot 2B if the ODU is in ODU slot 2B.

1 At the CIT, select **SECURITY.Retrieve.System** command and execute to obtain a report.

2 From the report, determine if the network element is provisioned for **dirn=DUAL**.

3 Is this network element provisioned as **DUAL**?

If...	Then...
YES	Continue with Step 4.
NO	Go to Step 6.

4 At the CIT, select **SECURITY.Retrieve.System** command and execute to obtain a report.

-
- 5** Using the data in the **sys=** column, determine which side is operating in 2_OA mode?

If...	Then...
side 1	Continue with Step 6.
side 2	Go to Step 23.

-
- 6** Is the ODU in ODU slot 1B or 1A?

If...	Then...
1A	Continue with Step 7.
1B	Go to Step 15.

-
- 7** At the CIT, select **CONFIGURATION.Retrieve.Equipment** command and enter OA-ALL, and then execute to obtain a report.

-
- 8** Scan the APP column and determine the OA type in OA slot 1A.

-
- 9** From office records, determine the correct apparatus code for OA slot 1A.

-
- 10** Obtain the correct OA type according to office records.

-
- 11** If required, open the cabinet door and/or remove the shelf cover.

Reference: "DLP-511: Open/Close Cabinet Doors or Install/Remove Shelf Cover" (4-49)

-
- 12** Remove the incorrect OA type from the slot and insert the correct OA type.

Reference: "DLP-514: Install/Remove Circuit Pack" (4-61)

-
- 13** If required, replace the shelf cover and/or close the cabinet doors.
- Reference:** "DLP-511: Open/Close Cabinet Doors or Install/Remove Shelf Cover" (4-49)
-
- 14** ***STOP! YOU HAVE COMPLETED THIS PROCEDURE.***
-
- 15** At the CIT, select **CONFIGURATION.Retrieve.Equipment** command and enter OA-ALL, and then execute to obtain a report.
-
- 16** Scan the **APP=** column and determine the OA type in OA slot 1B.
-
- 17** From office records, determine the correct apparatus code for OA slot 1B.
-
- 18** Obtain the correct OA type according to office records.
-
- 19** If required, open the cabinet doors and/or remove the shelf cover.
- Reference:** "DLP-511: Open/Close Cabinet Doors or Install/Remove Shelf Cover" (4-49)
-
- 20** Remove the incorrect OA type from the slot and insert the correct OA type.
- Reference:** "DLP-514: Install/Remove Circuit Pack" (4-61)
-
- 21** If required, replace the shelf cover and/or close the cabinet doors.
- Reference:** "DLP-511: Open/Close Cabinet Doors or Install/Remove Shelf Cover" (4-49)
-
- 22** ***STOP! YOU HAVE COMPLETED THIS PROCEDURE.***
-

.....

23 Is the ODU in ODU slot 2B or 2A?

If...	Then...
2B	Continue with Step 24.
2A	Continue with Step 32.

.....

24 At the CIT, select **CONFIGURATION.Retrieve** command and enter OA-ALL, and then execute to obtain a report.

.....

25 Scan the **APP=** column and determine the type OA in OA slot 2B.

.....

26 From office records, determine the correct apparatus code for OA slot 2B.

.....

27 Obtain the correct CP type according to office records.

.....

28 If required, open the cabinet doors and/or remove the shelf cover.

Reference: "DLP-511: Open/Close Cabinet Doors or Install/Remove Shelf Cover" (4-49)

.....

29 Remove the incorrect OA type from the slot and insert the correct OA type.

Reference: "DLP-514: Install/Remove Circuit Pack" (4-61)

.....

30 If required, replace the shelf cover and/or close the cabinet doors.

Reference: "DLP-511: Open/Close Cabinet Doors or Install/Remove Shelf Cover" (4-49)

.....

31 **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

-
- 32** At the CIT select, **CONFIGURATION.Retrieve.Equipment** command and enter OA-ALL, and then execute to obtain a report.
-
- 33** Scan the **APP=** column and determine the OA type in OA slot 2A.
-
- 34** From office records, determine the correct apparatus code for OA slot 2A.
-
- 35** Obtain the correct OA type according to office records.
-
- 36** If required, open the cabinet doors and/or remove the shelf cover.
- Reference:** "DLP-511: Open/Close Cabinet Doors or Install/Remove Shelf Cover" (4-49)
-
- 37** Remove the incorrect OA type from the slot and insert the correct OA type.
- Reference:** "DLP-514: Install/Remove Circuit Pack" (4-61)
-
- 38** If required, replace the shelf cover and/or close the cabinet doors.
- Reference:** "DLP-511: Open/Close Cabinet Doors or Install/Remove Shelf Cover" (4-49)
-
- 39** ***STOP! YOU HAVE COMPLETED THIS PROCEDURE.***

TAP-143: Clear ‘incoming optical line LOS’ for a Single OA Network Element without LIRCV

Overview This network element has detected a loss of the supervisor channel tone. The single OA configuration does not have a receive OA, so the individual optical channel tones cannot be detected. Therefore, the autonomous fault locating process did not determine the scope of this failure. This procedure provides a process to determine if this condition is an optical line loss or a supervisory channel loss and then proceeds to clear the trouble.

- 1 Open the cabinet door or remove the shelf cover. All connections can be accessed from the front.

Reference: “DLP-511: Open/Close Cabinet Doors or Install/Remove Shelf Cover” (4-49)

- 2 Is this incoming signal failure in the receive or transmit line direction?

If...	Then...
<i>receive line direction,</i>	continue with Step 3.
<i>transmit line direction</i>	go to Step 30. Reference: “DLP-503: Locate Circuit Pack/Fiber Connections” (4-16)

- 3 Make a visual inspection of the incoming signal cable(s) and connection(s) and correct any problems found.

Reference: “DLP-517: Inspect (Repair) Optical Fiber(s)” (4-81)

- 4 Contact the person that is responsible for all service or protection signals assigned to this Optical Line and determine if any of the assigned OTU/OTPMs indicate line failures.

5 Did the OTU/OTPMs indicate any line failures?

If...	Then...
YES	Continue with Step 6.
NO	Go to Step 20.



CAUTION

Signal Loss

Failure to follow instructions in this step could result in service interruptions.

6 Because an OTU/OTPM incoming line failure was indicated, the trouble clearing emphasis is on an incoming optical line LOS. Notify the person that is responsible for the service or protection signals assigned to this OA;

1. to manually switch the service line to a protection line, and
2. ensure that all protection lines that are assigned to this OA are not being used for service.

7 Make an optical power measurement on the incoming fiber that is connected to the ODU input port

Reference: "DLP-500: Select LBOs between Add OT OUT and Drop OT IN" (4-4)

8 Was the optical power measurement within the limits?

If...	Then...
YES	Continue with Step 9.
NO	Go to Step 18.

-
- 9** Clean and reconnect the incoming fiber.

Reference: "DLP-510: Inspect and Clean Optical Fiber Connectors" (4-42)

- 10** At the CIT, select **FAULT.Retrieve.Condition.All** command and execute to obtain the report.
-

- 11** Referring to the report, is the same incoming signal failure still listed?

If...	Then...
YES	Go to Step 14.
NO	Continue with Step 12.

- 12** Notify the person that is responsible for all affected service or protection signals assigned to this OA that this optical line can now be returned to service.
-

- 13** ***STOP YOU HAVE COMPLETED THIS PROCEDURE.***
-

- 14** Replace the ODU unit associated with this optical line.

Reference: "DLP-521: Install an OMU or ODU" (4-98)

- 15** Wait 15 minutes or until the ***OMU/ODU warmup in progress*** condition to clear.
-

- 16** Measure the receive power for each optical channel and install LBOs (new values as required) at the OTU/OTPM IN and ODU OUT connectors.

Reference: "DLP-500: Select LBOs between Add OT OUT and Drop OT IN" (4-4)

- 17 Obtain another report (as in Step 10). Is the same incoming signal failure still listed?

If...	Then...
YES	Continue with Step 18.
NO	STOP! YOU HAVE COMPLETED THIS PROCEDURE.

Important! At this point, it appears that the local network element is operating correctly.

- 18 Initiate a Trouble Report to the source of the failed incoming signal indicating the type of failure. If the source of the failed incoming signal returns a Trouble Report indicating **no trouble found**, then contact the appropriate maintenance support organization for further technical assistance before following the prescribed operating procedures to fault isolate the cable/fiber carrying the failed incoming signal.

Reference: "DLP-507: Identify Source of Incoming Signal" (4-36)

- 19 **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**

Important! Because an OTU/OTPM incoming line failure was NOT indicated, the trouble clearing emphasis is on an incoming supervisory channel LOS.

- 20 Make an optical power measurement on incoming supervisory channel.

Reference: "DLP-500: Select LBOs between Add OT OUT and Drop OT IN" (4-4)

- 21 Was the optical power measurement correct?

If...	Then...
YES	Continue with Step 22.

If...	Then...
NO	Go to Step 28.

-
- 22** Clean and reconnect the incoming fiber.

Reference: "DLP-510: Inspect and Clean Optical Fiber Connectors" (4-42)

.....

- 23** At the CIT, select **FAULT.Retrieve.Condition.All** command and execute to obtain the report.
-

- 24** Referring to the report obtained in Step 23, is the same incoming signal failure still listed?

If...	Then...
YES	Continue with Step 25.
NO	STOP! YOU HAVE COMPLETED THIS PROCEDURE.

.....

Important! The circuit pack associated with the indicated failure condition and indicated **AID** is shown in table: Condition, AID, and Associated Slot (Note) (3-155)

- 25** Replace the Telemetry circuit pack as indicated in the **AID** column of the report from the table: Step 23 and Condition, AID, and Associated Slot (Note) (3-155).

Reference: "DLP-514: Install/Remove Circuit Pack" (4-61)

.....

- 26** Obtain another report (as in Step 23). Is the same incoming signal failure still listed?

If...	Then...
YES	Continue with Step 27
NO	STOP! YOU HAVE COMPLETED THIS PROCEDURE.

-
- 27** Remove the replacement circuit pack (installed in Step 25) and reinstall the original circuit pack.

Reference: "DLP-514: Install/Remove Circuit Pack" (4-61)

Important! At this point, it appears that the local network element is operating correctly.

- 28** Initiate a Trouble Report to the source of the failed incoming signal indicating the type of failure. If the source of the failed incoming signal returns a Trouble Report indicating ***no trouble found***, then contact the appropriate maintenance support organization for further technical assistance before following the prescribed operating procedures to fault isolate the cable/fiber carrying the failed incoming signal.

Reference: "DLP-507: Identify Source of Incoming Signal" (4-36)

-
- 29** ***STOP! YOU HAVE COMPLETED THIS PROCEDURE.***

Important! At this point, it appears the trouble is in the local network element.

- 30** Visually check and repair any problems at the OMU fiber connections including the fiber jumper between the OMU and the transmit OA circuit pack. Contact the appropriate maintenance support organization for further technical assistance before correcting any problems.

-
- 31** ***STOP! YOU HAVE COMPLETED THIS PROCEDURE.***

Condition, AID, and Associated Slot (Note)

The following table lists the Condition, AID, and Associated Slot

CONDDESCR	AID	Associated Slot
incoming optical line LOS	oline-{1a-2b}	End Terminal: 1A,1B,2A,2B
incoming optical channel LOS	ochan-{1a-2b}-{1-16}	
incoming CMS LOF	cms-{1a,2a}	
incoming CMS LOS		
incoming CMS SD		
incoming CMS SF		

Notes:

1. For example, an **incoming optical line LOS** condition with an AID of **oline-2a** is associated with slot TLM 2A.

TAP-144: Clear ‘OMU/ODU warmup in progress’

Overview This condition indicates that the optical filters in the OMU or ODU are below their correct operating temperature and the heater is in the process of correcting the filter temperature. This condition is normally caused by maintenance functions that require the replacement of OA, OMU, or ODU circuit pack.

Note that the new OMUs (507A and 507B) require warming up to reach the correct operating temperature.

-
- 1** Wait 30 minutes or until the condition clears.
-

- 2** Did the *OMU/ODU warmup in progress* clear?

If...	Then...
YES	Continue with Step 3.
NO	go to “TAP-108: Address Missing or Incorrect Response” (3-43)

- 3** Is the NE ACTY/INFO-N LED lighted?

If...	Then...
YES	go to “TAP-101: Clear NE ACTY/INFO-N and/or FE ACTY/INFO-F (Regardless of Alarm Level)” (3-12).
NO	STOP! YOU HAVE COMPLETED THIS PROCEDURE.

TAP-145: Clear ‘optical line reset in progress’

Overview The processors that monitor and control the optical line are being reset. This condition will be present when an optical line transitions from the auto (OOS-MA-AS) state to an in-service (IS) state or when the system configuration is changed from 1_OA operation to 2_OA operation.

- 1 Wait 15 minutes.
- 2 At the CIT, select **FAULT.Retrieve.Condition.All** command and execute to obtain a report.
- 3 Is the ***optical line reset in progress*** condition still indicated for the same optical line?

If...	Then...
YES	go to “TAP-108: Address Missing or Incorrect Response” (3-43)
NO	<i>STOP! YOU HAVE COMPLETED THIS PROCEDURE</i>

TAP-148: Clear ‘inconsistent OTPM association’ or ‘inconsistent OTU association’

- Overview** To help isolate fault conditions and prevent reporting of multiple alarms for the same failure, the network element provides a mechanism for provisioning associations between OTU/OTPM IN/OUT ports and the Ochan () IN/OUT ports. This condition indicates that an incorrect association has been entered by the user. The network element allows two distinct associations for each OTU/OTPM:
- An upstream association is established between an OTU/OTPM IN port and the Ochan () OU port.
 - A downstream association is established between an OTU/OTPM OUT and the Ochan () IN port.

-
- 1** Is an **OMU/ODU mismatch** or **missing condition** listed in the report?

If...	Then...
YES	Go to “TAP-105: Clear ‘OMU/ODU Mismatch or Missing’” (3-35) (and clear the condition before proceeding.)
NO	Continue with Step 2.

-
- 2** At the CIT, select **SECURITY.Retrieve.System** command and execute to obtain a report.

-
- 3** From the report, is the **DIRN** parameter provisioned per the office records?

If...	Then...
YES	Continue with Step 7.
NO	Continue with Step 4.

-
- 4 At the CIT, select the **SECURITY.Enter.System** command and provision **DIRN (Direction)** to the correct parameter per the office records.
-

- 5 Wait 1 minute for the system to stabilize.
-

- 6 Did the ***inconsistent OTPM association*** or the ***inconsistent OTU association*** condition clear?

If...	Then...
YES	STOP! YOU HAVE COMPLETED THIS PROCEDURE.
NO	Continue with Step 7.

Important! The most likely discrepancy is that an association is incorrect but the office direction is correct.

- 7 At the CIT, select **CONFIGURATION.Retrieve.Association.OT_Port_Signal** command and execute to obtain a report.
-

- 8 Compare the associations of the report and office records; Are they correct (the same)?

If...	Then...
YES	Go to "TAP-108: Address Missing or Incorrect Response" (3-43)
NO	Continue with Step 9.

Important! The states of the OTU/OTPM and the associated optical channel **MUST BE PROVISIONED THE SAME**, for example, AUTO, IS, or NMON. If the states are different, multiple

trouble conditions may be reported for the ***incoming optical
channel LOS*** condition.

- 9 At the CIT, select **CONFIGURATION.Enter.Association.
OT_Port_Signal** command and correct the discrepancy.

.....
E N D O F S T E P S

TAP-149: Address OT Incoming Signal Failure

Overview This procedure addresses alarms in the format *incoming {signal type} LOS* or *incoming {OTU/OTPM type} failure*, including the following.

Multiplexing OTUs	Broadband, 10G, GbE OTUs	SONET/SDH OTUs
incoming ESCON LOS	incoming UBB failure	incoming OC48 failure
incoming FICON LOS	incoming LSBB failure	incoming OC12 failure
incoming ISC_CF LOS	incoming OC-192 failure	incoming OC3 failure
incoming FC-100 LOS	incoming STM64 failure	incoming STM16 failure
incoming UNKNOWN LOS	incoming OCH10G failure	incoming STM4 failure
incoming GBE-1 LOS	incoming GBE-1 failure	incoming STM1 failure

Important! An optical translator unit (OTU) is hereafter referred to as unit and an optical translator port module (OTPM) is hereafter referred to as module.

- 1 Refer to the AID column of the **FAULT.Retrieve.Condition.All** report and determine the bay location of the unit/module with the incoming failure.

Reference: “DLP-503: Locate Circuit Pack/Fiber Connections” (4-16)

- 2 Open the cabinet door or remove the shelf cover. All connections can be accessed from the front.

Reference: “DLP-511: Open/Close Cabinet Doors or Install/Remove Shelf Cover” (4-49)

- 3 Make a visual inspection of the incoming signal fiber(s) and connections and correct any problems found.

Reference: “DLP-517: Inspect (Repair) Optical Fiber(s)” (4-81)

4 Did a visual inspection reveal any problems?

If...	Then...
YES	<i>STOP! YOU HAVE COMPLETED THIS PROCEDURE.</i>
NO	Continue with Step 5.

5 Make an optical power measurement on the incoming optical jumper at the unit/module.

Reference: “DLP-524: Select an LBO at the Add OTU/OTPM IN” (4-107)

6 Was the optical power measurement within the limits?

If...	Then...
YES	Continue with Step 7.
NO	Continue with Step 11.

7 Clean the incoming fiber jumper.

Reference: “DLP-510: Inspect and Clean Optical Fiber Connectors” (4-42)

8 Connect the incoming fiber jumper to the unit/module.

Reference: “DLP-510: Inspect and Clean Optical Fiber Connectors” (4-42)

9 At the CIT, select the command **CONFIGURATION.Update.System**, which will update the condition report.

10 At the CIT, select the command **FAULT.Retrieve.Condition.All** to obtain a report.

11 Has the *OT Incoming Signal Failure* condition been cleared?

If	Then
YES	<i>STOP! YOU HAVE COMPLETED THIS PROCEDURE.</i>
NO	Continue with Step 12

Important! At this point, it appears that the local unit/module is operating correctly. The trouble appears to be in the optical fiber jumper, optical line, or in the far-end network element.

12 Initiate a Trouble Report to the source of the failed incoming signal indicating the type of failure. If the source of the failed incoming signal returns a Trouble Report indicating “no trouble found,” then contact the appropriate maintenance support organization for further technical assistance before following the prescribed operating procedures to fault isolate the fiber jumper carrying the failed incoming signal.

Reference: “DLP-507: Identify Source of Incoming Signal” (4-36)

13 STOP! YOU HAVE COMPLETED THIS PROCEDURE.

14 Remove the unit/module indicating the incoming failure from the shelf.

Reference: “DLP-514: Install/Remove Circuit Pack” (4-61)

Important! The replacement unit/module must have the same circuit pack code.

15 Obtain and install the replacement unit/module.

Reference: “DLP-514: Install/Remove Circuit Pack” (4-61)

16 At the CIT, select the command **CONFIGURATION.Update.System**, which will update the condition report.

- 17 At the CIT, enter **FAULT.Retrieve.Condition.All** and obtain a report.

- 18 Did the *incoming failure* clear?

If...	Then...
YES	Continue with Step 27.
NO	Continue with Step 19.

- 19 Remove the optical jumper, clean again, and reconnect to the unit/module.

Reference: “DLP-510: Inspect and Clean Optical Fiber Connectors” (4-42)

- 20 At the CIT, select the command **CONFIGURATION.Update.System**, which will update the condition report.

- 21 At the CIT, enter **FAULT.Retrieve.Condition.All** and obtain a report.

- 22 Did the *incoming failure* clear?

If...	Then...
YES	Continue with Step 27.
NO	Continue with Step 23.

- 23 As required, check for bent or broken pins and replace using the BERG MT370 pin kit for the METRAL pins. Refer to Appendix A, “Pin Repair”

- 24 Reinstall the original unit/module that was removed in Step 11.

Reference: “DLP-514: Install/Remove Circuit Pack” (4-61)

-
- 25** Connect the optical fibers to the original unit/module.

Reference: “DLP-510: Inspect and Clean Optical Fiber Connectors” (4-42)

- 26** Initiate a Trouble Report to the source of the failed incoming signal indicating the type of failure. If the source of the failed incoming signal returns a Trouble Report indicating “no trouble found,” then contact the appropriate maintenance support organization for further technical assistance before following the prescribed operating procedures to fault isolate the fiber jumper carrying the failed incoming signal.

Reference: “DLP-507: Identify Source of Incoming Signal” (4-36)

- 27** Close the cabinet door or install the shelf cover.

Reference: “DLP-511: Open/Close Cabinet Doors or Install/Remove Shelf Cover” (4-49)

END OF STEPS

TAP-150: Clear ‘APSD active - FE’

Overview This procedure is used to clear the **APSD active - FE** condition. The system reduces the OA circuit pack output power to safe levels if an incoming loss of signal is detected. The **APSD active - FE** indicates that the upstream (transmit direction) network element has detected an incoming signal failure. The incoming loss of signal is caused by a fiber cut, removed connectors, or equipment failures. When the incoming loss of signal condition at the upstream is repaired the system will resume normal operation and the **APSD active - FE** condition will clear.

Important! Conditions are shown in the **CONDDESCR** column of the **FAULT.Retrieve. Condition.All** report.

- 1 Is there one or more other conditions with the same line AID in the report?

If...	Then...
YES	Continue with Step 2.
NO	Continue with Step 3.

Important! While following the instructions in the procedure(s) to which you will now be sent, you **MUST** ignore the **APSD active - FE** condition in the **FAULT.Retrieve.Condition.All** report.

- 2 Find the condition(s) identified in Step 1 in “TAP-102: Clear Trouble Using Craft Interface Terminal (CIT)” (3-16) and go to the indicated TAP(s) to clear the condition(s) (ignoring the **APSD active - FE** condition throughout the remainder of the trouble clearing procedure). When all conditions are cleared continue with Step 3.
-

- 3 Wait 1 minute.

-
- 4 At the CIT, select **FAULT.Retrieve.Condition.All** command and execute to obtain an updated report.
-

- 5 Is the **APSD active - FE** condition still listed?

If...	Then...
YES	Continue with Step 6.
NO	STOP! YOU HAVE COMPLETED THIS PROCEDURE.

Important! At this point, it appears that the local network element is operating correctly.

- 6 Initiate a Trouble Report to the upstream network element of the line indicating the **APSD active - NE** condition.

END OF STEPS

TAP-151: Clear ‘APSD active - NE’

Overview This procedure is used to clear the **APSD active - NE** condition. The system reduces the OA circuit pack output power to safe levels if an incoming loss of signal is detected. The **APSD active - NE** indicates that the upstream (transmit direction) network element has detected an incoming signal failure. The incoming loss of signal is caused by a fiber cut, removed connectors, or equipment failures. When the incoming loss of signal condition at the upstream is repaired the system will resume normal operation and the **APSD active - NE** condition will clear.

Important! Conditions are shown in the **CONDDESCR** column of the **FAULT.Retrieve. Condition.All** report.

- 1 Is there one or more other conditions with the same AID line in the report?

If...	Then...
YES	Continue with Step 2.
NO	Continue with Step 3.

Important! While following the instructions in the procedure(s) to which you will now be sent, you **MUST** ignore the **APSD active - NE** condition in the **FAULT.Retrieve.Condition.All** report.

- 2 Find the condition(s) identified in Step 1 in “TAP-102: Clear Trouble Using Craft Interface Terminal (CIT)” (3-16) and go to the indicated TAP(s) to clear the condition(s) (ignoring the **APSD active - NE** condition throughout the remainder of the trouble clearing procedure). When all conditions are cleared continue with Step 3.
-

- 3 Wait 1 minute.

-
- 4** At the CIT, select **FAULT.Retrieve.Condition.All** command and execute to obtain an updated report.
-

- 5** Is the **APSD active - NE** condition still listed?

If...	Then...
YES	Go to "TAP-108: Address Missing or Incorrect Response" (3-43).
NO	Step 6

Important! At this point, it appears that the local network element is operating correctly.

- 6** Initiate a Trouble Report to the downstream network element of the line indicating the **APSD active - NE** condition.

TAP-153: Clear 'j0 and j1 mismatch'

Overview This procedure is used to clear **j0 and j1 mismatch** conditions.

Section trace signal: The system reads the section (J0) byte in the section overhead of an OC-48/STM16 signal, OC-192/STM64 signal. The OC-48/STM16 or OC-192/STM64 section trace signals are transmitted by a SONET OC-48/SDH STM16 or SONET OC-192/STM64 lightwave terminal repetitively to verify the continuity of the OC-48/STM16 or OC-192/STM64 section. The value of the expected incoming section trace signals is provisionable. The value of the provisionable expected incoming section trace signal is compared to the actual incoming signal to verify OC-48/STM16 or OC-192/STM64 section continuity.

The following circuit packs are capable of reading the section trace bytes:

- 41H_A and 41H_C OC-192/STM64 Optical Translator Unit (OTU) circuit packs
- 41A_C41C_C OC-48/STM16 Optical Translator Unit (OTU) circuit packs
- 46A Optical Translator Port Module (OTPM25) circuit packs

Path trace signal: The system reads the trace (J1) byte in the path overhead of a 2:1 Data Multiplexing OTU (2DM25) signal. The 2:1 Data Multiplexing OTU (2DM25) signal is transmitted and received by path trace fields (J1 byte) of a SONET path terminating signal. The 41M circuit pack is the only circuit pack capable of reading the path trace byte.

The j0 and j1 conditions indicate that the incoming section or path trace does not match the expected incoming section or path trace.

Important! Conditions are shown in the **CONDDESCR** column of the **FAULT.Retrieve. Condition.All** report.

- 1** At the CIT, select **CONFIGURATION.Retrieve.Section Trace** command if J0 condition and **CONFIGURATION.Retrieve.Path Trace** command if J1 condition and execute to obtain a report.

-
- 2** From local office records, determine correct expected incoming section/path trace for this OC-48/STM16.
-

- 3** Do the office records for the expected incoming section/path trace match the data in the EXPSECTRC column in the report from Step 1.?

If...	Then...
YES	continue with Step 4.
NO	continue with Step 10.

- 4** At the CIT, select **CONFIGURATION.Retrieve.Section Trace** command if J0 condition and **CONFIGURATION.Retrieve.Path Trace** command if J1 condition and execute to obtain a report.
-

- 5** Trace the fiber jumper connected to the IN port of the OTU, identified in the AID column, back to the source.
-

- 6** Do office records indicate that the fiber jumper is connected to the correct source?

If...	Then...
YES	continue with Step 13.
NO	Continue with Step 7.

- 7** Using local procedures, connect the fiber jumper to the correct source.
-

- 8** At the CIT, select **CONFIGURATION.Retrieve.Section Trace** command if J0 condition and **CONFIGURATION.Retrieve.Path Trace** command if J1 condition and execute to obtain a report.

9 Is the **mismatch** condition still present?

If...	Then...
YES	Continue with Step 13.
NO	<i>STOP! YOU HAVE COMPLETED THIS PROCEDURE.</i>

10 At the CIT, select **CONFIGURATION.Retrieve.Section Trace** command if J0 condition and **CONFIGURATION.Retrieve.Path Trace** command if J1 condition and enter the correct expected incoming section/path trace.

11 At the CIT, select **CONFIGURATION.Retrieve.Section Trace** command if J0 condition and **CONFIGURATION.Retrieve.Path Trace** command if J1 condition and execute to obtain an updated report.

12 Is the **mismatch** condition still present?

If...	Then...
YES	Continue with Step 13.
NO	<i>STOP! YOU HAVE COMPLETED THIS PROCEDURE.</i>

Important! At this point, it appears that the local network element is operating/connected correctly.

13 Initiate a Trouble Report to the downstream network element of the line indicating the **j0 or j1 mismatch** condition.

END OF STEPS

TAP-154: Clear ‘OA output disabled’

Overview This procedure is used to clear the **OA output disabled** condition. The system reduces the OA circuit pack output power to safe levels if an incoming loss of signal is detected. The **OA output disabled** indicates that the upstream (transmit direction) network element has detected an incoming signal failure. The incoming loss of signal is caused by a fiber cut, removed connectors, or equipment failures. When the incoming loss of signal condition at the upstream is repaired, the system will resume normal operation and the **OA output disabled** condition will clear. This condition is unique to single Optical Amplifier configurations.

Important! Conditions are shown in the **CONDDESCR** column of the **FAULT.Retrieve. Condition.All** report.

- 1 Is there one or more other conditions with the same line AID in the report?

If...	Then...
YES	Continue with Step 2.
NO	Continue with Step 3.

Important! While following the instructions in the procedure(s) to which you will now be sent, you **MUST** ignore the OA output disabled condition in the **FAULT.Retrieve.Condition.All** report.

- 2 Find the condition(s) identified in Step 1 in of “TAP-102: Clear Trouble Using Craft Interface Terminal (CIT)” (3-16) and go to the indicated TAP(s) to clear the condition(s) (ignoring the **OA output disabled** condition throughout the remainder of the trouble clearing procedure). When all conditions are cleared continue with Step 3.
-

- 3 Wait 1 minute.

-
- 4 At the CIT, select **FAULT.Retrieve.Condition.All** command and execute to obtain an updated report.
-

- 5 Is the **OA output disabled** condition still listed?

If...	Then...
YES	Continue with Step 6.
NO	STOP! YOU HAVE COMPLETED THIS PROCEDURE.

Important! At this point, it appears that the local network element is operating/connected correctly.

- 6 Initiate a Trouble Report to the upstream network element of the line indicating the **OA output disabled** condition.

END OF STEPS

TAP-156: Address 'TID Address Map Full'

Overview The network has exceeded the maximum number of 50 NEs per network.

- 1** Determine from office records why another node is being engineered for the network that exceeds the 50 NE maximum.

- 2** At the CIT, select the **CONFIGURATION.Retrieve.Map.Network** command and execute to obtain a report.

- 3** Does the TID information from the office records and the TID assignment in the report agree?

If...	Then...
NO	Continue with Step 4.
YES	Continue with Step 7.

Important! The extra TID(s) that appears on the report must be removed.

- 4** At the CIT, select **CONFIGURATION.Delete.Target_Identifier_Address_Map** command and execute to remove the extra TID(s).

- 5** At the CIT, select **FAULT.Retrieve.Condition.All** command and execute to obtain a report.

- 6** Is the **TID address map full** condition still present?

If...	Then...
NO	<i>STOP! YOU HAVE COMPLETED THIS PROCEDURE.</i>
YES	Continue with Step 7.

Important! This step is performed only if there is no extra TID(s).

- 7 Notify the network administrator of the continued ***TID address map full*** condition after all extra TID(s) have been removed. Nothing else can be done locally to clear the trouble.

END OF STEPS

TAP-158: Address 'MIB lock in progress'

Overview This condition is caused by an MIB (Management Information Base) upload initiated by the Operations Support Center. During the MIB upload, any operation which may change the network element status is prohibitive. After the MIB upload has completed, this alarm will clear automatically.

- 1** Initiate a Trouble Report to the responsible Operations Support Center stating an ***MIB lock in progress*** has been detected on this network element.

END OF STEPS

TAP-161: Address 'INITSWD:IP'

Overview A software download will take approximately 15 minutes to the local network element. The download will be executed in the background and at which time you may log off of the CIT.

1 Wait 15 minutes for the download to complete.

2 At the CIT, select **FAULT.Retrieve.Condition.All** command and execute to obtain a report.

3 Did the **INITSWD:IP** condition clear?

If...	Then...
YES	<i>STOP! YOU HAVE COMPLETED THIS PROCEDURE.</i>
NO	Go to "TAP-102: Clear Trouble Using Craft Interface Terminal (CIT)" (3-16) to clear other conditions.

TAP-162: Clear Combination ‘TLM Failure’ and ‘OA Failure’

Overview This procedure is used to clear a trouble that is characterized by a series of circuit pack failures, first the TLM and OA circuit packs, then approximately 90 minutes later, the TOHCTL and SYSCTL circuit packs fail with the SYSCTL locking up.

Important! The CIT will disconnect from the network element when the **CONFIGURATION.Initialize.System** command is executed.

- 1** At the CIT, select **CONFIGURATION.Initialize.System:TID(All):PH(3)** command and execute.
-

- 2** Did the network element respond to the CIT?

If...	Then...
NO	Continue with Step 3.
YES	Continue with Step 4.

- 3** This indicates the SYSCTL circuit pack is locked up.

Go to Step 7 ONLY AFTER VERIFYING from an alternate maintenance history log (if available) that a combination TLM failure and OA failure occurred. If unable to verify, contact your next level of technical support.

- 4** Wait 15 minutes or until the **MJ/PROMPT** LED is off at the user panel, whichever comes first. Reset takes approximately 15 minutes but some user panel LEDs flash and relays click in about a minute indicating that reset has started. If the network element is equipped with OTPMs, wait an additional 5 minutes.
-

- 5** At the CIT, select **FAULT.Retrieve.Condition.All** command and execute to obtain a report.
-

- 6 Have BOTH failures cleared (combination ***TLM failure*** and ***OA failure***)?

If...	Then...
<i>NO</i>	Continue with Step 7.
<i>YES</i>	<i>STOP! YOU HAVE COMPLETED THIS PROCEDURE.</i>

- 7 For circuit pack and software compatibility, refer to Chapter 4, Circuit Pack Descriptions” in the *Applications and Planning Guide*, 365-575-558 R8.2.

Remove the SYSCTL circuit pack and install a replacement circuit pack having the same or a higher series number. For example, an LEA1 with series number ***S1:2*** is the same series number as ***S1:4***. The 2 and 4 refer to minor changes within series 1.

Important! If this step does not clear the combination ***TLM failure*** and ***OA failure***, contact your next level of technical support.

Reference: “DLP-514: Install/Remove Circuit Pack” (4-61)

- 8 Return the SYSCTL circuit pack for repair.

END OF STEPS

TAP-163: Clear ‘OA/TLM mismatch’

Overview This procedure is used to clear the discrepancy between the codes of the OA circuit packs and/or the TLM circuit packs. The LEA7B, LEA107B, and LEA207 OA circuit packs can be used with LDA4 TLM circuit pack. In a network, an LDA1 TLM signal being sent out must be received by an LDA1 TLM pack in the next NE. The same is true for the LDA4 pack. An LDA4 TLM signal being sent out must be received by an LDA4 TLM pack in the next NE. A dual facing shelf can receive a signal from an LDA1 or an LDA4 TLM pack and can then send out the opposite telemetry type as long as the NE receiving the signal matches the sender. Rules for matching up TLM type and OA type must still be followed.

Important! Conditions are shown in the **CONDDESCR** column of the **FAULT.Retrieve.Condition.All** report.

- 1** Login to the network element with the **OA/TLM mismatch** condition.

Reference: “DLP-518: Login/Logout to a Network Element Using CenterLink” (4-82)

- 2** At the CIT, select **CONFIGURATION.Retrieve.Equipment** command and execute to obtain a report.
-

- 3** From local office records, determine the correct circuit pack codes to be used. Remember to check both the OA and TLM circuit packs.
-

- 4** Do the office records match the information in the report?

If...	Then...
YES	Continue with Step 5.
NO	Continue with Step 7.

Important! At this point, it appears that the local network element is equipped correctly.

- 5** Initiate a Trouble Report to the other network element on this span of the line indicating an ***OA/TLM mismatch*** condition.
-

- 6** ***STOP! YOU HAVE COMPLETED THIS PROCEDURE.***
-

- 7** From the report, determine the shelf and slot location of the incorrect circuit pack code from the ***AID*** column of the report.
-

- 8** Replace the OA or TLM circuit pack with the correct code.

Reference: "DLP-514: Install/Remove Circuit Pack" (4-61)

- 9** At the CIT, select **CONFIGURATION.Update.System** command and execute.
-

- 10** At the CIT, select **FAULT.Retrieve.Condition.All** command and execute to obtain an updated report.
-

- 11** Is the ***OA/TLM mismatch*** condition still present?

If...	Then...
YES	Continue with Step 12.
NO	<i>STOP! YOU HAVE COMPLETED THIS PROCEDURE.</i>

Important! At this point, it appears that the local network element is equipped correctly.

12 Contact your next level of technical support.

END OF STEPS

TAP-164: Clear 'BC LAN1 failure'

Overview There is a Board Controller Local Area Network (BCLAN1) which transports controller information between the Optical Translator Controller (OTCTL) and the Optical Translator Units (OTU and QUAD OTU). This alarm occurs if the board controller circuitry on a circuit pack fails and hangs up the bus or there may be a problem with the BCLAN located on the OT shelf.

- 1 Open the cabinet doors or remove shelf covers from the OT shelf. All connectors can be accessed from the front.

Reference: "DLP-511: Open/Close Cabinet Doors or Install/Remove Shelf Cover" (4-49)

- 2 Is there a solid LED light on an OTU, the OTCTL or a QUAD OTU?

If	Then
YES	continue with Step 3.
NO	continue with Step 6.

- 3 Remove the circuit pack with the solid LED lit and replace it with another circuit pack of the same type.

Reference: "DLP-514: Install/Remove Circuit Pack" (4-61)

- 4 At the CIT, select **FAULT.Retrieve.Condition.All** and execute.
-

- 5 Is the alarm no longer in the alarm list on the report and the alarm clear?

If	Then
YES	<i>STOP! YOU HAVE COMPLETED THIS PROCEDURE.</i>
NO	continue with Step 6.

- 6 Replace the QUOD OTU circuit pack.

Reference: "DLP-514: Install/Remove Circuit Pack" (4-61)

- 7 At the CIT, select **FAULT.Retrieve.Condition.All** and execute.

- 8 Has the **BC LAN1 failure** alarm cleared?

If	Then
YES	STOP! YOU HAVE COMPLETED THIS PROCEDURE.
NO	continue with Step 9.

- 9 Replace the OTU circuit pack.

Reference: "DLP-514: Install/Remove Circuit Pack" (4-61)

- 10 At the CIT, select **FAULT.Retrieve.Condition.All** and execute.

- 11 Has the **BC LAN1 failure** alarm cleared?

If	Then
YES	STOP! YOU HAVE COMPLETED THIS PROCEDURE.
NO	continue with Step 12.

- 12 Replace the OTCTL circuit pack.

Reference: "DLP-514: Install/Remove Circuit Pack" (4-61)

- 13 At the CIT, select **FAULT.Retrieve.Condition.All** and execute.

14 Has the *BC LAN1 failure* alarm cleared?

If	Then
YES	<i>STOP! YOU HAVE COMPLETED THIS PROCEDURE.</i>
NO	contact your local maintenance support group for a higher level of technical assistance. There may be a problem with the BCLAN located on the shelf.

15 ***STOP! YOU HAVE COMPLETED THIS PROCEDURE.***

TAP-165: Clear 'BC LAN2 failure'

Overview There is a Board Controller Local Area Network (BCLAN2) which transports controller information between the circuit packs installed in the Metropolis® EON shelf and the SYSCTL/SYSMEM controller complex. This alarm occurs if the board controller circuitry on a circuit pack fails and hangs up the bus or there may be a problem with the BCLAN located on the Metropolis® EON shelf.

- 1 Open the cabinet doors or remove shelf covers from the Metropolis® EON shelf. All connectors can be accessed from the front.

Reference: "DLP-514: Install/Remove Circuit Pack" (4-61)

- 2 Is there a solid LED light on any of the circuit packs located in the Metropolis® EON shelf?

If	Then
YES	continue with Step 3.
NO	continue with Step 6.

- 3 Remove the circuit pack with the solid LED lit and replace it with another circuit pack of the same type.

Reference: "DLP-514: Install/Remove Circuit Pack" (4-61)

- 4 At the CIT, select **FAULT.Retrieve.Condition.All** and execute.
-

- 5 Is the alarm no longer in the alarm list on the report and the **BCLAN2 failure** alarm clear?

If	Then
YES	STOP! YOU HAVE COMPLETED THIS PROCEDURE.
NO	continue with Step 6.

-
- 6** Replace the SYSCTL circuit pack.

Reference: "DLP-514: Install/Remove Circuit Pack" (4-61)

- 7** At the CIT, select **FAULT.Retrieve.Condition.All** and execute.
-

- 8** Has the *BC LAN2 failure* alarm cleared?

If	Then
YES	<i>STOP! YOU HAVE COMPLETED THIS PROCEDURE.</i>
NO	continue with Step 9.

- 9** Replace the SYSMEM circuit pack.

Reference: "DLP-514: Install/Remove Circuit Pack" (4-61)

- 10** At the CIT, select **FAULT.Retrieve.Condition.All** and execute.
-

- 11** Has the *BC LAN2 failure* alarm cleared?

If	Then
YES	<i>STOP! YOU HAVE COMPLETED THIS PROCEDURE.</i>
NO	continue with Step 12.

- 12** Replace the TOHCTL circuit pack.

Reference: "DLP-514: Install/Remove Circuit Pack" (4-61)

- 13** At the CIT, select **FAULT.Retrieve.Condition.All** and execute.
-

14 Has the **BC LAN2 failure** alarm cleared?

If	Then
YES	<i>STOP! YOU HAVE COMPLETED THIS PROCEDURE.</i>
NO	continue replacing the following types of circuit packs on the shelf one at a time: • OAs • TLMs • Line Interface Cards • OMUs • ODU_s

15 After replacing all of the circuit packs, has the **BC LAN2 failure** alarm cleared?

If	Then
YES	<i>STOP! YOU HAVE COMPLETED THIS PROCEDURE.</i>
NO	contact your local maintenance support group for a higher level of technical assistance. There may be a problem with the BCLAN located on the shelf.

16 ***STOP! YOU HAVE COMPLETED THIS PROCEDURE.***

TAP-166: Clear 'Invalid pass through route'

Overview In a ring configuration using pass through channels, the engineering rules state that there are only 0 or 1 repeaters allowed between modes in the ring. If there is more than 1 repeater between nodes configured into the network, this alarm will occur. Network configuration will have to be redesigned to meet this engineering rule.

- 1 Is the pass through feature intended to be set at each node in this network configuration?

If	Then
YES	continue with Step 5.
NO	continue with Step 3.

- 2 At the CIT, select **Security.Retrieve.System** and execute at each node to see if the pass through feature is set to **yes** (pass_thru=yes). Record which nodes are set to **yes**.
-

- 3 At the CIT, select **Security.Enter.System** and execute. Set the **PASS_THRU** parameter to **NO** at each node you have listed from Step 2.

Result: The **MJ/PROMPT** fault light will clear at each Network Element.

- 4 **STOP! YOU HAVE COMPLETED THIS PROCEDURE.**
-

- 5 You have a network configuration which does not follow the pass through ring engineering rules. You have added two or more repeaters between nodes when only 0 or 1 is allowed. Remove the extra repeaters from your network and reconfigure and refiber the ring. Refer to the Installation Manual for network setup.

Result: The **MJ/PROMPT** alarm will clear when the configuration is changed.

6 *STOP! YOU HAVE COMPLETED THIS PROCEDURE.*

TAP-167: Clear ‘OA LAN Failure’

Overview The Overhead Access Local Area Network (OALAN) is the internal local area network that the OT Controller (OTCTL) and the Tributary Overhead Controller (TOHCTL) use to communicate with the System Controller (SYSCTL). When this alarm occurs, the local area network circuitry on a circuit pack has failed in such a way as to affect the Overhead Access LAN (OALAN).

- 1 Open the cabinet doors or remove the shelf cover. All connectors can be accessed from the front.

Reference: “DLP-511: Open/Close Cabinet Doors or Install/Remove Shelf Cover” (4-49)

- 2 Is there a solid LED light on the SYSCTL, TOHCTL, or OTCTL circuit pack?

If	Then
YES	continue with Step 3.
NO	continue with Step 6.

- 3 Remove the circuit pack with the solid LED lit and replace it with another circuit pack of the same type.

Reference: “DLP-514: Install/Remove Circuit Pack” (4-61)

- 4 At the CIT, select **FAULT.Retrieve.Condition.All** and execute.
-

- 5 Is the OA Failure alarm no longer in the alarm list and the alarm cleared?

If	Then
YES	<i>STOP! YOU HAVE COMPLETED THIS PROCEDURE.</i>
NO	continue with Step 6.

- 6 Remove the SYSCTL circuit pack and replace it with another. Wait for the circuit pack to reboot and software to be copied from SYSMEM.

- 7 At the CIT, select **FAULT.Retrieve.Condition.All** and execute.

- 8 Is the OA Failure alarm no longer in the alarm list and the alarm cleared?

If	Then
YES	<i>STOP! YOU HAVE COMPLETED THIS PROCEDURE.</i>
NO	continue with Step 9.

- 9 Remove the TOHCTL circuit pack and replace it with another. Wait for the circuit pack to reboot.

Reference: "DLP-514: Install/Remove Circuit Pack" (4-61)

- 10 At the CIT, select **FAULT.Retrieve.Condition.All** and execute.

- 11 Is the OA Failure alarm no longer in the alarm list and the alarm cleared?

If	Then
YES	<i>STOP! YOU HAVE COMPLETED THIS PROCEDURE.</i>
NO	continue with Step 12.

- 12 Remove the OTCTL circuit pack and replace it with another. Wait for the circuit pack to reboot.

Reference: "DLP-514: Install/Remove Circuit Pack" (4-61)

- 13 At the CIT, select **FAULT.Retrieve.Condition.All** and execute.

14 Is the OA Failure alarm no longer in the alarm list and the alarm cleared?

If	Then
YES	<i>STOP! YOU HAVE COMPLETED THIS PROCEDURE.</i>
NO	contact your local maintenance support group for a higher level of technical assistance. There may be a problem with the BCLAN located on the shelf.

15 ***STOP! YOU HAVE COMPLETED THIS PROCEDURE.***

TAP-168: Clear 'OTU duplicate' or 'OTPM duplicate'

Overview Only *one* OTU/OTPM of each wavelength is allowed to be sent in one direction on an optical line from a Network Element. If two or more of the same wavelength are added to the optical line, this alarm will occur. If there is a wavelength already carrying traffic, it will not go out of service but system will go into alarm until the duplicate wavelength is removed.

- 1** Open the cabinet doors or remove the shelf covers from the OT shelf. All connectors can be accessed from the front.

Reference: "DLP-511: Open/Close Cabinet Doors or Install/Remove Shelf Cover" (4-49)

- 2** At the CIT, select **FAULT.Retrieve.Condition.All** and execute to obtain a report. Determine which OTU/OTPM slot the duplicate wavelength error is referring to.
-

- 3** Remove the duplicate OTU/OTPM circuit pack.

Reference: "DLP-514: Install/Remove Circuit Pack" (4-61)

- 4** At the CIT, select **CONFIGURATION.Update.System** and execute to activate the circuit pack removal.

Result: The *MJ/PROMPT* alarm will clear.

- 5** ***STOP! YOU HAVE COMPLETED THIS PROCEDURE.***

TAP-169: Clear ‘OUPSR auto switch to Path A’, ‘OUPSR auto switch to Path B’, ‘OUPSR auto switch on SD to Path A’, or ‘OUPSR auto switch on SD to Path B’

Overview This procedure is used to clear the OUPSR auto switch condition. The OUPSR circuit pack performs a per wavelength switch function. The OUPSR circuit pack is capable of making path selection decisions based upon LOS or signal degrade received from incoming tributaries. The switch is non-revertive, which means that if the auto switch is activated it will not switch back to the original signal once the defect is repaired. The line must be switched manually or the switched line can be left as the active signal.

- 1 At the network element in alarm, select **FAULT.Retrieve.Condition.All** at the CIT to obtain a report.

Result: Conditions are shown in the CONDDDESCR column of the report.

- 2 Is there one or more other conditions with the same line AID in the report?

If	Then
YES	continue with Step 3.
NO	continue with Step 5.

Important! While following the instructions in the procedures you will now be sent to, if you are asked whether there are any alarm or status conditions listed and the only condition shown in the report is ***OUPSR auto switch to Path A*** or ***OUPSR auto switch to Path B***, the answer is ***NO***.

- 3 Locate the condition identified in the previous step in the table in “TAP-102: Clear Trouble Using Craft Interface Terminal (CIT)” (3-16) and go to the indicated TAP to clear that condition (ignoring the ***OUPSR***
-

auto switch to Path A or OUPSR auto switch to Path B). Continue the trouble clearing procedure for each alarm at the network element that initially reported the auto switch condition.

4 STOP! YOU HAVE COMPLETED THIS PROCEDURE.

Important! The ***OUPSR auto switch to Path A*** or ***OUPSR auto switch to Path B*** alarm may be associated with a condition at another Metropolis® EON network element in the indicated direction of a ring network.

- 5** From the office records, determine which network element is at the other end of the switched line.

Important! You may not be able to log into the other network element. If you cannot log into that network element, you will need assistance to continue with this procedure.

- 6** At the network element identified in the previous step, select **FAULT.Retrieve.Condition.All** at the CIT to obtain a report.

Important! It is possible that an ***OUPSR auto switch to Path A*** or ***OUPSR auto switch to Path B*** will also be observed at this network element. If so, you must ignore the auto switch condition in the **FAULT.Retrieve.Condition.All** report.

- 7** Referring to the report obtained in the previous step, are there any conditions other than ***OUPSR auto switch to Path A*** or ***OUPSR auto switch to Path B*** listed?

If	Then
YES	continue with Step 8.
NO	<i>STOP! YOU HAVE COMPLETED THIS PROCEDURE.</i>

-
- 8** Referring to the report obtained in step 6, identify the topmost condition other than ***OUPSR auto switch to Path A*** or ***OUPSR auto switch to Path B***.
-

Important! While following the instructions in the procedures you will now be sent to, if you are asked whether there are any alarm or status conditions listed and the only condition shown in the report is ***OUPSR auto switch to Path A*** or ***OUPSR auto switch to Path B***, the answer is ***NO***.

- 9** Locate the condition identified in the previous step in the table in "TAP-102: Clear Trouble Using Craft Interface Terminal (CIT)" (3-16) and go to the indicated TAP to clear that condition (ignoring the ***OUPSR auto switch to Path A*** or ***OUPSR auto switch to Path B***). Continue the trouble clearing procedure for each alarm at the network element that initially reported the auto switch condition.
-

- 10** ***STOP! YOU HAVE COMPLETED THIS PROCEDURE.***

TAP-170: Clear ‘SID Mismatch’

Overview Metropolis® EON allows for the provisioning of the NSAP System ID. The original value is a unique number that is assigned at the factory by Lucent Technologies to ensure that no SYSCTL manufactured has the same value. This alarm will occur if the SID has just been changed and an initialization of the network element has not been performed or if the SYSCTL circuit pack has been replaced on a network element where the SID had been provisioned and an initialization has not been performed.



CAUTION

Communication Loss

Changes to the SID could result in serious network problems, if not exercised with extremely careful planning. Customers are required to assume full responsibility for proper network operation when making any such changes.

-
- 1 Have you just provisioned the System Identifier by using the **SECURITY.Enter.OSI** command to change the **prov_sid** parameter?

If	Then
YES	continue with Step 2.
NO	continue with Step 5.

-
- 2 At the CIT, select **CONFIGURATION.Initialize.System:TID:AID(ALL):PH(3)** and execute.

Result: Some panel LEDs will flash and relays will click after about a minute to indicate that reset has started.

-
- 3 Wait approximately 15 minutes for the reset to finish.

4 STOP! YOU HAVE COMPLETED THIS PROCEDURE.

- 5** Has the SYSCTL control pack been replaced since the last initialization of the network element and the SID *prov_sid* parameter been changed earlier on this network element?
(If you are not sure if the SID *prov_sid* parameter has been changed, select **SECURITY.Retrieve.OSI** at the CIT. If you see a value other than all zeroes for the *prov_sid* parameter, then the System Identifier has been changed.)

If	Then
YES	continue with Step 6.
NO	continue with Step 9.

-
- 6** At the CIT, select **CONFIGURATION.Initialize.System:TID:AID(ALL):PH(3)** and execute.

Result: Some panel LEDs will flash and relays will click after about a minute to indicate that reset has started.

- 7** Wait approximately 15 minutes for the reset to finish.
-

8 STOP! YOU HAVE COMPLETED THIS PROCEDURE.

- 9** Contact your local maintenance support group for a higher level of technical assistance.

TAP-171: Address OLINE TOPR Threshold Crossing Alerts

Overview A threshold crossing alert (TCA) is a performance monitoring message that alerts you to performance that has deteriorated somewhat, but not enough to create an alarm. One such TCA that can appear is for the total power received (TOPR) for an optical line (OLINE). The **threshold** is the amount above or below the baseline that the value can move to before a TCA appears. You set the **baseline** to match the current value when you know it is at, or very close to, the target level as determined by the SmartManual for the OA type, system type and current channel loading factor (CLF).

A TCA for OLINE TOPR could appear because there is a genuine deterioration of performance, because the threshold is inappropriate, or because someone failed to set the baseline as part of one of the following procedures:

1. deleting an optical channel
2. replacing an lightguide buildout (LBO)
3. replacing an optical amplifier

During normal operations, channels are often added and rarely deleted. For this reason the system was designed to automatically set the baseline every time a channel is added, but not when one is deleted. However, when service providers first install a system, they often add all available channels to test them, but then delete the channels that will not be used for service immediately. Any time a channel is deleted, the baseline should be set and the system should be updated.

Task summary The following steps summarize this task.

1. Determine whether someone failed to set the baseline during one of the procedures listed (1, 2, 3) above.
2. If the answer to Step 1 is **yes** and you are sure that the current TOPR is close to the SmartManual target level, then set the baseline and update the system now and see if the TCA disappears.
3. If the answer to Step 1 is **no** and you are sure that the current TOPR is SmartManual target level, then determine whether the threshold range is inappropriately narrow, and if so set a new threshold and update the system.

4. If the steps above fail to eliminate the TCA, then call Technical Support.

Task details Follow the steps below to perform this task.

-
- 1 Consult your office records to determine what was the most recent action that should have included setting the baseline TOPR for the optical line in question.

The following actions should include setting the baseline:

- deleting an optical channel
- replacing a lightguide buildout (LBO)
- replacing an optical amplifier

-
- 2 Determine what was the most recent reason for setting the baseline by selecting the CenterLink command
PERFORMANCE.Retrieve.Baseline.

Result: A report appears showing every baseline setting since the system was initialized, including the reason for each.

-
- 3 Does the most recent reason for setting the baseline match the most recent action determined in Step 1?

If	Then
YES	continue with Step 7.
NO	continue with Step 4.

-
- 4 Is the TOPR at, or very close to, the target level as determined by the SmartManual for the OA type, system type and current channel loading factor (CLF) for this optical line?

If	Then
YES	Set the baseline and update the system with the commands PERFORMANCE.Initialize. Register.Optical_Line and CONFIGURATION.Update.System then continue with the next step. Reference: DLP: 529 and DLP: 531
NO	Update the system with the command CONFIGURATION.Update.System . If the TOPR is still not close to the target, escalate to your next higher level of technical support. STOP! YOU HAVE COMPLETED THIS PROCEDURE.
DON'T KNOW	Escalate to your next higher level of technical support. STOP! YOU HAVE COMPLETED THIS PROCEDURE.

-
- 5 Use the **PERFORMANCE.Retrieve.Performance_Monitoring.Optical_Line** command to view TCAs.
-

- 6 Has the TCA for this optical line TOPR disappeared?

If	Then
YES	STOP! YOU HAVE COMPLETED THIS PROCEDURE.
NO	continue with Step 7.

-
- 7 Is the threshold appropriate? (The **PERFORMANCE.Retrieve.Baseline** report includes the threshold settings.)

If	Then
YES	You may have a genuine deterioration of TOPR. Escalate to your next higher level of technical support. STOP! YOU HAVE COMPLETED THIS PROCEDURE.
NO	Set the baseline and update the system with the commands PERFORMANCE.Initialize.Register.Optical_Line and CONFIGURATION.Update.System then continue with the next step. Reference: DLP: 529 and DLP: 531
DON'T KNOW	Escalate to your next higher level of technical support. STOP! YOU HAVE COMPLETED THIS PROCEDURE.

-
- 8 Use the **PERFORMANCE.Retrieve.Performance_Monitoring.Optical_Line** command to view TCAs.

9 Has the TCA for this optical line TOPR disappeared?

If	Then
YES	STOP! YOU HAVE COMPLETED THIS PROCEDURE.
NO	Update the system with the command CONFIGURATION.Update.System . If the TCA does not disappear, escalate to your next higher level of technical support. STOP! YOU HAVE COMPLETED THIS PROCEDURE.

E N D O F S T E P S



TAP-172: Address OUPSR Incoming Signal Failure

Important! One of the following incoming signal failures was detected:

Incoming OUPSR AIN LOS

Incoming OUPSR BIN LOS.

-
- 1** At the CIT, select **FAULT.Retrieve.Condition.All** command and execute to obtain a report.

Important! An LOS condition is reported after the switch to the standby occurs.

-
- 2** Does ***Incoming OUPSR AIN LOS*** or ***Incoming OUPSR BIN LOS*** appear under the **CONDDESCR** column of the report?

If...	Then...
YES	Continue with Step 3.
NO	<i>STOP! YOU HAVE COMPLETED THIS PROCEDURE.</i>

-
- 3** At the CIT, select **FAULT.Retrieve.Alarm.Network** command and execute to obtain a report.

-
- 4** Are any network alarms identified for an upstream office?

If...	Then...
YES	Continue with Step 5.
NO	Continue with Step 7.

Important! Possible trouble conditions at an upstream office may include incoming optical line LOS and OA failure.

At this point, it appears that the local network element is operating correctly.

- 5 Log into the upstream office, identify the trouble condition and initiate a Trouble Report. If the source of the failed condition returns a Trouble Report indicating “no trouble found,” then contact the appropriate maintenance support organization for further technical assistance.

Reference: “DLP-507: Identify Source of Incoming Signal” (4-36)

-
- 6 ***STOP! YOU HAVE COMPLETED THIS PROCEDURE.***
-

- 7 At the CIT, select **FAULT.Retrieve.Condition.All** command and execute to obtain a report.
-

- 8 Refer to the AID column of the report and determine the bay/shelf/slot location of the circuit pack with the incoming failure.

Reference: “DLP-503: Locate Circuit Pack/Fiber Connections” (4-16)

-
- 9 Is incoming failure on OTU/OTPM connected to OUPSR (either A OUT or B OUT)?

If...	Then...
YES	Measure output power of the A OUT or B OUT. If no power, replace OUPSR pack. See “DLP-514: Install/Remove Circuit Pack” (4-61)
NO	See “TAP-111: Clear ‘Circuit Pack Failure’” (3-56).

END OF STEPS

TAP-173: Address "Incoming UBB Data Rate Mismatch" or "Incoming Payload Type Mismatch" Alarms

Overview The incoming signal's expected data bit rate of the Universal Broad Band (UBB) OTPM and the payload type of the 2:1 Data Multiplexing OTU (2DM25) client side signal rate are provisionable through Centerlink. The "Incoming UBB data rate mismatch" alarm will occur if the received data bit rate of the incoming signal is of a different bandwidth than that provisioned. Similarly, the "Incoming payload type mismatch" alarm will occur if the received payload type of the incoming signal is of a different type than that provisioned.

- 1 At the CIT, select **FAULT.Retrieve.Condition.All** to obtain a fault report. Should the expected data bit rate/payload type be provisioned to something other than "UNKNOWN" or "UNEQPT" for the AID indicated in the fault report?

If...	Then...
YES	Continue with Step 5.
NO	Continue with Step 2.

- 2 At the CIT, select **CONFIGURATION.Enter.OTPS**. Enter AID from the report. Change the **UBBRATE** or **CEXP2DM25** to "UNKNOWN" or "UNEQPT" setting to change the expected data bit rate/payload type to non-provisioned.
-

- 3 At the CIT, select **CONFIGURATION.Retrieve.OTPS** to check that the provisioned expected data rate or payload type has been changed.
-

- 4 Has the expected data bit rate/payload type value been changed to "UNKNOWN" or "UNEQPT" indicating that it is not provisioned?

If	Then
YES	Continue with Step 12.
NO	Continue with Step 14.

5 At the CIT, select **FAULT.Retrieve.Condition.All** to obtain fault report.

6 At the CIT, select **CONFIGURATION.Retrieve.OTPS** to obtain the provisioned expected data bit rate/payload type for the alarmed port?

7 Consult office records to determine what the provisioned data bit rate/payload type should be for the alarmed port.

8 Does the provisioned expected data bit rate/payload type shown in the report from step 6, match the office records?

If	Then
NO	Continue with Step 9
YES	STOP! INCOMING SIGNAL IS BEING SENT AT AN UNAUTHORIZED RATE. NOTIFY CENTRAL OFFICE MANAGEMENT.

9 At the CIT, select **CONFIGURATION.Enter.OTPS**. Change the **UBB RATE /CEXP2DM25** for the alarmed port to the rate found in the office records.

10 At the CIT, select **CONFIGURATION.Retrieve.OTPS** to check that the provisioned expected data bit rate/payload type has been changed.

11 Has the data bit rate/payload type been changed to the value found in the office records?

If	Then
YES	Continue with Step 12.
NO	Continue with Step 14.

-
- 12** At the CIT, select FAULT.Retrieve.Condition.All to obtain a fault report.
-

- 13** Has the alarm cleared?

If	Then
YES	STOP! YOU HAVE COMPLETED THIS PROCEDURE.
NO	Continue with Step 14.

-
- 14** Contact appropriate maintenance support organization for further technical assistance.

E N D O F S T E P S



TAP-174: Address "Incoming Signal Degrade" Alarm

Overview The incoming signal degrade alarm will occur at the OTU/OTPM if the incoming signal has a bit error rate of 10^{-6} or higher. If an OUPSR (Optical Unidirectional Path Switched Ring) circuit pack is used and a signal degrade is detected at one of the drop packs used as input to the OUPSR, the OUPSR will switch to the signal path without the signal degrade. The following procedure will help the user clear the Incoming Signal Degrade alarm.

Important! The incoming signal degrade alarms that will be reported are:

- "incoming UBB signal degrade"
- "incoming OC3 signal degrade"
- "incoming OC12 signal degrade"
- "incoming OC48 signal degrade"
- "incoming STM1 signal degrade"
- "incoming STM4 signal degrade"
- "incoming STM16 signal degrade"

-
- 1** At the CIT, select **FAULT.Retrieve.Condition.All** to obtain an alarm and condition report.
-

- 2** Is the signal degrade alarm occurring at an OTU/OTPM where the signal is being dropped?

If	Then
YES	Continue with Step 3.
NO	Continue with Step 28.

- 3** If the Signal Degrade alarm on the report from step 1 is coming from a drop pack, the problem may be originating from the input signal where

that channel is being added at another NE (Network Element). Check office records to see where the signal originates.

-
- 4** Initiate a trouble report at the office where the signal is being added to see if the degrade alarm is occurring at the NE where the signal is being added.

-
- 5** Did the office where the incoming signal is being added return a Trouble Report indicating "No Trouble Found"?

If	Then
NO	Continue with Step 6.
YES	Continue with Step 9.

-
- 6** The trouble report has indicated that the source of the degraded signal alarm is coming from the add OTU/OTPM at an element upstream. The problem will have to be cleared at the upstream element in order to clear the alarm at the NE you are monitoring.

-
- 7** Request that the upstream office notify you when the signal degrade has been cleared so that you can check if the alarm has cleared on the NE that you are monitoring.

-
- 8** After adequate time for alarm clear notification, follow one of three choices below:

If	Then
You have been informed that the alarm is cleared at NE where the signal is added and the alarm has cleared at the NE you are monitoring.	Continue with Step 23.
You have been informed that the alarm is cleared at NE where the signal is added but degrade alarm has not cleared at the NE you are monitoring.	Continue with Step 9.

If	Then
You have not been informed that the alarm is cleared at NE where the signal is added.	STOP! Contact the area where the incoming signal is added and inquire about the progress of clearing the problem. Come back to this step when you have been informed that the problem is cleared.

- 9 Open the cabinet door or remove the shelf cover. All connections can be accessed from the front.

Reference: "DLP-511: Open/Close Cabinet Doors or Install/Remove Shelf Cover" (4-49)



CAUTION
Signal Loss

If this signal is not protected using an OUPSR channel protection circuit pack, the signal will be lost until the fiber is reconnected.

- 10 Clean the fiber at the input of the drop OTU/OTPM which is indicating the signal degrade and reconnect the fiber.

Reference: "DLP-510: Inspect and Clean Optical Fiber Connectors" (4-42)

- 11 At the CIT, select **FAULT.Retrieve.Condition.All** to obtain alarm and condition report.

- 12 Has the Signal Degrade alarm cleared?

If	Then
YES	Continue with Step 23.
NO	Continue with Step 13.

-
- 13** Replace the fiber from the ODU out port for the channel with the signal degrade to the input of the OTU/OTPM indicating the Signal Degrade alarm, with a new fiber.
-

- 14** At the CIT, select **FAULT.Retrieve.Condition.All** to obtain alarm and condition report.
-

- 15** Has the Signal Degrade alarm cleared?

If	Then
YES	Continue with Step 23.
NO	Continue with Step 16.



CAUTION

Signal Loss

If this signal is not protected using an OUPSR channel protection circuit pack, the signal will be lost until the circuit pack has booted and been refibered.

- 16** The fibers inside the drop OTU/OTPM may be causing the degraded signal. Remove the drop OTU/OTPM indicating the Signal Degrade alarm and replace it with one of the same type.

Reference: "DLP-514: Install/Remove Circuit Pack" (4-61)

- 17** At the CIT, select **FAULT.Retrieve.Condition.All** to obtain alarm and condition report.
-

- 18** Has the Signal Degrade alarm cleared?

If	Then
YES	Continue with Step 23.
NO	Continue with Step 19.

-
- 19** Refer to office records to check the path of this signal through the network. Is this signal passed through any nodes before it reaches the drop pack?

If	Then
YES	Continue with Step 20.
NO	STOP! CONTACT YOUR NEXT LEVEL OF SUPPORT.



CAUTION
Signal Loss

If this signal is not protected using an OUPSR channel protection circuit pack, the signal will be lost until fibers have been reconnected.

- 20** The signal degrade may be caused by one of the pass through fibers in the path of the signal through the network. The pass through fiber should first be cleaned. If that does not help, it should be replaced. Start by sending a trouble report to the location of the NE which is sending the signal to the NE displaying the signal degrade alarm. If signal degrade alarm does not clear, send a trouble report to the NE preceding this one. Continue retracing the signal path until the alarm is cleared or all NE's with pass throughs have been tried.

-
- 21** At the CIT, select FAULT.Retrieve.Condition.All to obtain alarm and condition report.

-
- 22** Has the Signal degrade alarm cleared?

If	Then
YES	STOP! YOU HAVE COMPLETED THIS PROCEDURE.
NO	STOP! CONTACT YOUR NEXT LEVEL OF SUPPORT.

-
- 23** Is an OUPSR pack being used at the NE for the drop pack that signaled the Signal Degrade alarm?

If	Then
NO	STOP! YOU HAVE COMPLETED THIS PROCEDURE.
YES	Continue with Step 24.

-
- 24** At the CIT, select command **FAULT.Retrieve.State OUPSR** to find out what signal path the OUPSR is using.

-
- 25** Does the report indicate that the OUPSR is using the signal that you want to be in service?

If	Then
YES	STOP! YOU HAVE COMPLETED THIS PROCEDURE.
NO	Continue with Step 26.

-
- 26** At the CIT, select **FAULT.Operate.Protection_Switch OUPSR** to force switch back to the signal path you want to be used as the output signal.

-
- 27** STOP! YOU HAVE COMPLETED THIS PROCEDURE.

-
- 28** Is the incoming signal to the OTU/OTPM coming from equipment located in the same area as the EON shelves?

If	Then
NO	Continue with Step 29.
YES	Continue with Step 32.

-
- 29** Initiate a trouble report to the source of the incoming signal indicating that a signal degrade alarm has occurred and request a notification of signal degrade clear if problem is found.
-

- 30** Did the source of the incoming signal return a Trouble Report indicating "NO TROUBLE FOUND"?

If	Then
NO	Continue with Step 31.
YES	Continue with Step 39.

- 31** After adequate time for alarm clear notification, follow one of three choices below:

If	Then
You have been informed that the problem has been cleared at the source of the incoming signal and the alarm has cleared at the NE you are monitoring.	Continue with Step 45.
You have been informed that the problem has been cleared at the source of the incoming signal but degrade alarm has not cleared at the NE you are monitoring.	Continue with Step 39.
You have not been informed that the alarm is cleared at NE where the signal is added.	STOP! Contact the area of the source of the incoming signal to inquire about the progress of clearing the problem. Come back to this step when you have been informed that the problem is cleared.

- 32** Open the cabinet door or remove the shelf cover. All connections can be accessed for the front.

Reference: "DLP-511: Open/Close Cabinet Doors or Install/
Remove Shelf Cover" (4-49)



CAUTION

Signal Loss

If this signal is not protected using an OUPSR channel protection circuit pack, the signal will be lost until fibers have been reconnected.

- 33** Clean the fiber at the input of the drop OTU/OTPM which is indicating the signal degrade and reconnect the fiber.

Reference: "DLP-510: Inspect and Clean Optical Fiber Connectors" (4-42)

-
- 34** At the CIT, select **FAULT.Retrieve.Condition.All** to obtain alarm and condition report.

-
- 35** Has the Signal Degrade alarm cleared?

If	Then
YES	Continue with Step 45.
NO	Continue with Step 36.



CAUTION

Signal Loss

If this signal is not protected using an OUPSR channel protection circuit pack, the signal will be lost until the fiber is reconnected.

- 36** Replace the fiber from the source of the incoming signal to the input of the OTU/OTPM indicating the Signal Degrade alarm with a new fiber.

-
- 37** At the CIT, select **FAULT.Retrieve.Condition.All** to obtain alarm and condition report.

38 Has the Signal Degrade alarm cleared?

If	Then
YES	Continue with Step 45.
NO	Continue with Step 42.



CAUTION
Signal Loss

If this signal is not protected using an OUPSR channel protection circuit pack, the signal will be lost until the fiber is reconnected.

39 Clean the fiber at the input of the drop OTU/OTPM which is indicating the signal degrade and reconnect the fiber.

Reference: "DLP-510: Inspect and Clean Optical Fiber Connectors" (4-42)

40 At the CIT, select **FAULT.Retrieve.Condition.All** to obtain alarm and condition report.

41 Has the Signal Degrade alarm cleared?

If	Then
YES	Continue with Step 45.
NO	Continue with Step 42.



CAUTION

Signal Loss

If this signal is not protected using an OUPSR channel protection circuit pack, the signal will be lost until the circuit pack has been booted and been refibered.

- 42** The fibers inside the add OTU/OTPM may be causing the degraded signal. Remove the add OTU/OTPM indicating the Signal Degrade alarm and replace it with one of the same type.

Reference: "DLP-514: Install/Remove Circuit Pack" (4-61)

-
- 43** At the CIT, select **FAULT.Retrieve.Condition.All** to obtain alarm and condition report.

-
- 44** Has the Signal Degrade alarm cleared?

If	Then
YES	Continue with Step 45.
NO	STOP! CONTACT YOUR NEXT LEVEL OF SUPPORT.

-
- 45** Is an OUPSR pack being used at this NE for the add pack that signaled the Signal Degrade alarm?

If	Then
YES	Continue with Step 46.
NO	STOP! YOU HAVE COMPLETED THIS PROCEDURE.

-
- 46** At the CIT, select **FAULT.Retrieve.State OUPSR** to find out what signal the OUPSR is using.

-
- 47** Does the report indicate that the OUPSR is using the signal path that you want to be in service?

If	Then
YES	STOP! YOU HAVE COMPLETED THIS PROCEDURE.
NO	Continue with Step 48.

-
- 48** At the CIT, select **FAULT.Operate.Protection_Switch OUPSR** to force a switch back to the signal path that you want to be in service?
-

- 49** STOP! YOU HAVE COMPLETED THIS PROCEDURE.

E N D O F S T E P S



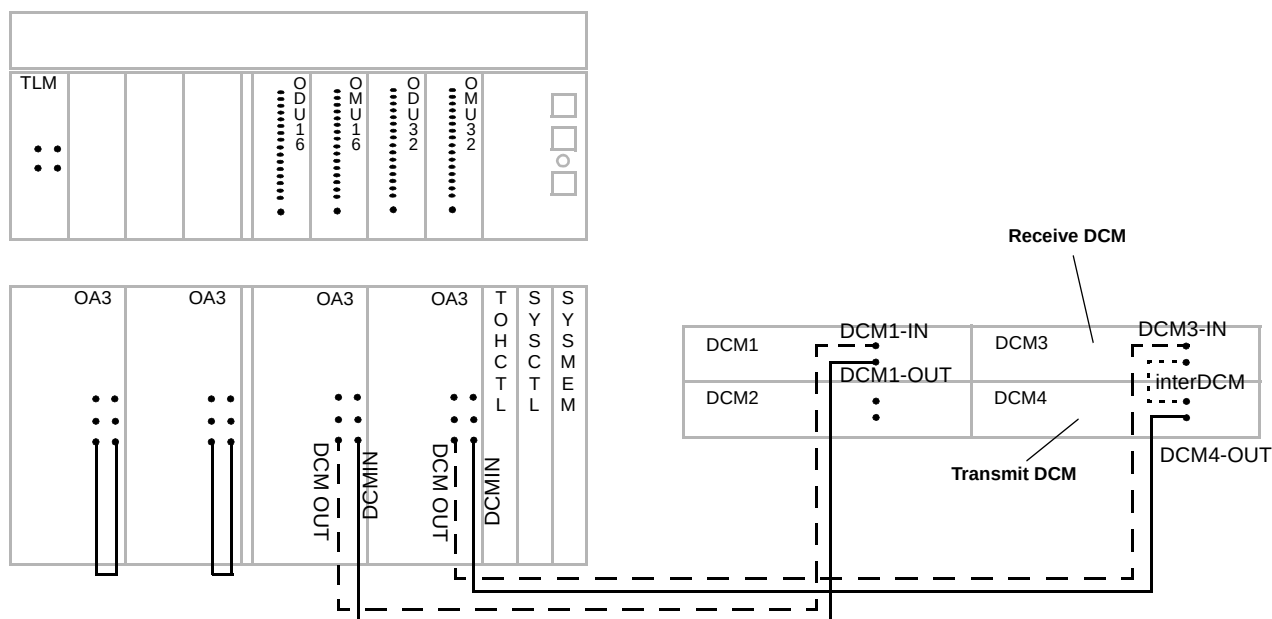
TAP-175: Clear "DCM input LOS" Alarm

Overview A **DCM input LOS** alarm occurs when there is a loss of signal to the DCM IN port of an OA. This alarm occurs only when the optical line signal into the IN port of the OA is good. Therefore the problem must be with one or more of the following:

- The fiber or connections between DCM IN on the OA and OUT on the DCM
- The fiber between DCMs, if two DCMs are being used (This fiber is called "interDCM" in this procedure.)
- The fiber or connections between DCM OUT on the OA and IN on the DCM
- The OA
- The DCM

The basic idea of this procedure is to work your way upstream from the DCM IN port of the OA until you find the source (or at least one source) of the problem.

Possible DCM Usage The OA3 can be used with zero, one, or two DCMs, as shown below.



Part 1: Check DCMIN Fiber

In this part of the procedure you check for problems with the fiber or connections between the DCM IN port on the OA and the OUT port on the DCM.

-
- 1** Refer to the AID column of the **FAULT.Retrieve.Condition.All** report and determine the bay location of the OA with the incoming failure.

Reference: "DLP-503: Locate Circuit Pack/Fiber Connections" (4-16)

-
- 2** Open the cabinet door or remove the shelf cover. All connections can be accessed from the front.

Reference: "DLP-511: Open/Close Cabinet Doors or Install/Remove Shelf Cover" (4-49)

**WARNING****Eye Damage**

Unterminated optical connectors may emit invisible laser radiation that could damage your eyes. Do not view the beam directly or with optical instruments.

- 3** Make a visual inspection of the DCM IN signal fiber and connection and correct any problems found.

Reference: "DLP-517: Inspect (Repair) Optical Fiber(s)" (4-81)

-
- 4** Did a visual inspection reveal any problems?

If...	Then...
YES	At the CIT, select the command CONFIGURATION.Update.System , which will update the condition report, then select the command FAULT.Retrieve.Condition.All to obtain a report.
NO	Continue with Step 6.

5 Did the **DCM input LOS** alarm clear?

If	Then
YES	STOP! YOU HAVE COMPLETED THIS PROCEDURE.
NO	Continue with Step 6.

**WARNING****Eye Damage**

Unterminated optical connectors may emit invisible laser radiation that could damage your eyes. Do not view the beam directly or with optical instruments.

6 Disconnect the fiber connected to the DCM IN port of the OA and take an optical power measurement.

Reference: "OA Output Targets" (3-235).

7 Did the power fall within the prescribed range?

If	Then
YES	There appears to be a problem at the OA. Continue with "Part 5: Check the OA" (3-233).
NO	There could a problem with the fiber or the connection at the OUT port on the DCM. Continue with Step 8.

8 Clean the fiber and take a new power measurement. Does the power fall within the prescribed range?

If	Then
YES	Continue with Step 10.

If	Then
NO	There could be a problem with the fiber jumper. Continue with Step 9.

- 9 Clean and connect a new fiber jumper to the OUT port on the DCM and take another power measurement. Does the power fall within the prescribed range?

If	Then
YES	Continue with Step 10.
NO	It seems that optical power is not reaching the OUT port on the DCM. If the OA is connected to two DCMs, continue with "Part 2: Check InterDCM Fiber" (3-226) If the OA is connected to only one DCM, continue with "Part 3: Check DCM OUT Fiber" (3-229).

- 10 Reconnect the fiber to DCM IN.

- 11 At the CIT, select the command **CONFIGURATION.Update.System**, which will update the condition report.

- 12 At the CIT, select the command **FAULT.Retrieve.Condition.All** to obtain a report.

13 Has the **DCM input LOS** condition been cleared?

If	Then
YES	<i>STOP! YOU HAVE COMPLETED THIS PROCEDURE.</i>
NO	The power coming out of the fiber is good, but there is still an alarm. Therefore the problem seems to be in the OA. Continue with "Part 5: Check the OA" (3-233).

 END OF STEPS

**Part 2: Check InterDCM
Fiber**

In this part of the procedure you check for problems with the fiber or connections between DCMs, if two are being used. In this procedure the DCM that receives the signal from the OA is called the "receive DCM" and the DCM that transmits the signal to the OA is called the "transmit DCM".


WARNING
Eye Damage

Unterminated optical connectors may emit invisible laser radiation that could damage your eyes. Do not view the beam directly or with optical instruments.

- 1 Make a visual inspection of the fiber and connections between DCMs and correct any problems found.

Reference: "DLP-517: Inspect (Repair) Optical Fiber(s)" (4-81)

2 Did a visual inspection reveal any problems?

If...	Then...
YES	At the CIT, select the command CONFIGURATION.Update.System , which will update the condition report, then select the command FAULT.Retrieve.Condition.All to obtain a report.
NO	Continue with Step 4.

3 Did the *DCM input LOS* alarm clear?

If	Then
YES	STOP! YOU HAVE COMPLETED THIS PROCEDURE.
NO	Continue with Step 6.

**WARNING****Eye Damage**

Unterminated optical connectors may emit invisible laser radiation that could damage your eyes. Do not view the beam directly or with optical instruments.

4 Disconnect the fiber from the IN port of the transmit DCM and take an optical power measurement.

Reference: "OA Output Targets" (3-235).

5 Did the power fall within the prescribed range?

If	Then
YES	There appears to be a problem at the transmit DCM. Continue with "Part 4: Check the DCM" (3-232).
NO	There could a problem with the fiber or the connection at the OUT port on the receive DCM. Continue with Step 6.

6 Clean the fiber and take a new power measurement. Does the power fall within the prescribed range?

If	Then
YES	Continue with Step 8.
NO	Continue with Step 7.

7 Clean and connect a new fiber jumper to the OUT port on the receive DCM and take another power measurement. Does the power fall within the prescribed range?

If	Then
YES	Continue with Step 8.
NO	It seems that optical power is not reaching the OUT port on the receive DCM. Continue with "Part 4: Check the DCM" (3-232).

8 Reconnect the fiber to the IN port on the transmit DCM.

9 At the CIT, select the command **CONFIGURATION.Update.System**, which will update the condition report.

-
- 10** At the CIT, select the command **FAULT.Retrieve.Condition.All** to obtain a report.
-

- 11** Has the **DCM input LOS** condition been cleared?

If	Then
YES	<i>STOP! YOU HAVE COMPLETED THIS PROCEDURE.</i>
NO	The power coming out of the fiber is good, but there is still an alarm. Therefore the could be in the DCM OUT fiber. Continue with "Part 3: Check DCM OUT Fiber" (3-229).

Part 3: Check DCM OUT Fiber

In this part of the procedure you check for problems with the fiber or connections between the DCM OUT port on the OA and the IN port on the DCM.



WARNING

Eye Damage

Unterminated optical connectors may emit invisible laser radiation that could damage your eyes. Do not view the beam directly or with optical instruments.

- 1** Make a visual inspection of fiber and connection at the IN port on the DCM and correct any problems found.

Reference: "DLP-517: Inspect (Repair) Optical Fiber(s)" (4-81)

2 Did a visual inspection reveal any problems?

If...	Then...
YES	At the CIT, select the command CONFIGURATION.Update.System , which will update the condition report, then select the command FAULT.Retrieve.Condition.All to obtain a report.
NO	Continue with Step 4.

3 Did the *DCM input LOS* alarm clear?

If	Then
YES	<i>STOP! YOU HAVE COMPLETED THIS PROCEDURE.</i>
NO	Continue with Step 6.

**WARNING****Eye Damage**

Unterminated optical connectors may emit invisible laser radiation that could damage your eyes. Do not view the beam directly or with optical instruments.

4 Disconnect the fiber connected to the IN port of the DCM and take an optical power measurement.

Reference: "OA Output Targets" (3-235).

5 Did the power fall within the prescribed range?

If	Then
YES	There appears to be a problem at the DCM. Continue with "Part 4: Check the DCM" (3-232).

If	Then
NO	There could a problem with the fiber or the connection at the DCM OUT port on the OA. Continue with Step 6.

- 6 Clean the fiber and take a new power measurement. Does the power fall within the prescribed range?

If	Then
YES	Continue with Step 8.
NO	Continue with Step 7.

- 7 Clean and connect a new fiber jumper to the DCM OUT port on the OA and take another power measurement. Does the power fall within the prescribed range?

If	Then
YES	Continue with Step 8.
NO	It seems that optical power is not reaching the DCM OUT port on the OA. Continue with "Part 5: Check the OA" (3-233).

- 8 Reconnect the fiber to the IN port on the DCM.

- 9 At the CIT, select the command **CONFIGURATION.Update.System**, which will update the condition report.

- 10 At the CIT, select the command **FAULT.Retrieve.Condition.All** to obtain a report.

11 Has the **DCM input LOS** condition been cleared?

If	Then
YES	STOP! YOU HAVE COMPLETED THIS PROCEDURE.
NO	The power coming out of the fiber is good, but there is still an alarm. Therefore the problem seems to be in the DCM. Continue with "Part 4: Check the DCM" (3-232).

Part 4: Check the DCM

You reach this part of the procedure when you have connected a fiber with a valid signal into the DCM but are not detecting a valid signal coming out of the DCM. This indicates that the problem is inside the DCM.

1 Is a replacement DCM available?

If...	Then...
YES	Continue with Step 2.
NO	Contact your next higher level of technical support. STOP! YOU HAVE COMPLETED THIS PROCEDURE.

**WARNING****Eye Damage**

Unterminated optical connectors may emit invisible laser radiation that could damage your eyes. Do not view the beam directly or with optical instruments.

2 Install and connect the new DCM.

Reference: "DLP-509: Install/Remove Apparatus (Circuit Pack) Blank" (4-40)

-
- 3** At the CIT, select the command **CONFIGURATION.Update.System**, which will update the condition report.
-
- 4** At the CIT, select the command **FAULT.Retrieve.Condition.All** to obtain a report.
-
- 5** Has the **DCM input LOS** condition been cleared?

If	Then
YES	<i>STOP! YOU HAVE COMPLETED THIS PROCEDURE.</i>
NO	Contact your next higher level of technical support. <i>STOP! YOU HAVE COMPLETED THIS PROCEDURE.</i>

END OF STEPS

Part 5: Check the OA

You reach this part of the procedure when you either have determined that there is an alarm despite a valid signal on the fiber connected to DCM IN or that there is not a valid signal coming out of DCM OUT.

- 1** Is a replacement OA available?

If...	Then...
YES	Continue with Step 2.
NO	Contact your next higher level of technical support. <i>STOP! YOU HAVE COMPLETED THIS PROCEDURE.</i>

**WARNING****Eye Damage**

Unterminated optical connectors may emit invisible laser radiation that could damage your eyes. Do not view the beam directly or with optical instruments.

- 2 Install and connect the new OA.

Reference: "DLP-514: Install/Remove Circuit Pack" (4-61)

- 3 At the CIT, select the command **CONFIGURATION.Update.System**, which will update the condition report.

- 4 At the CIT, select the command **FAULT.Retrieve.Condition.All** to obtain a report.

- 5 Has the **DCM input LOS** condition been cleared?

If	Then
YES	<i>STOP! YOU HAVE COMPLETED THIS PROCEDURE.</i>
NO	Contact your next higher level of technical support. <i>STOP! YOU HAVE COMPLETED THIS PROCEDURE.</i>

END OF STEPS

OA Output Targets

# Channels Equipped	Target OA Output	# Channels Equipped	Target OA Output
1	3.1	17	13.5
2	5.2	18	13.7
3	6.6	19	13.9
4	7.7	20	14.1
5	8.5	21	14.4
6	9.2	22	14.5
7	9.8	23	14.7
8	10.4	24	14.9
9	10.8	25	15.1
10	11.3	26	15.3
11	11.7	27	15.4
12	12.0	28	15.6
13	12.3	29	15.7
14	12.7	30	15.9
15	12.9	31	16.0
16	13.2	32	16.1

E N D O F S T E P S



TAP-176: Clear "incoming OUPSR CIN LOS" Alarm

Overview **Note:** The port may be labeled "SIG IN" on the circuit pack itself.

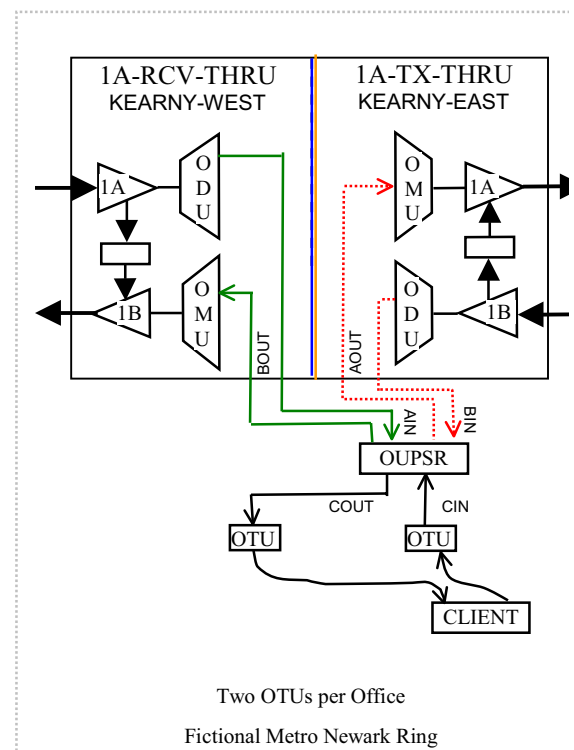
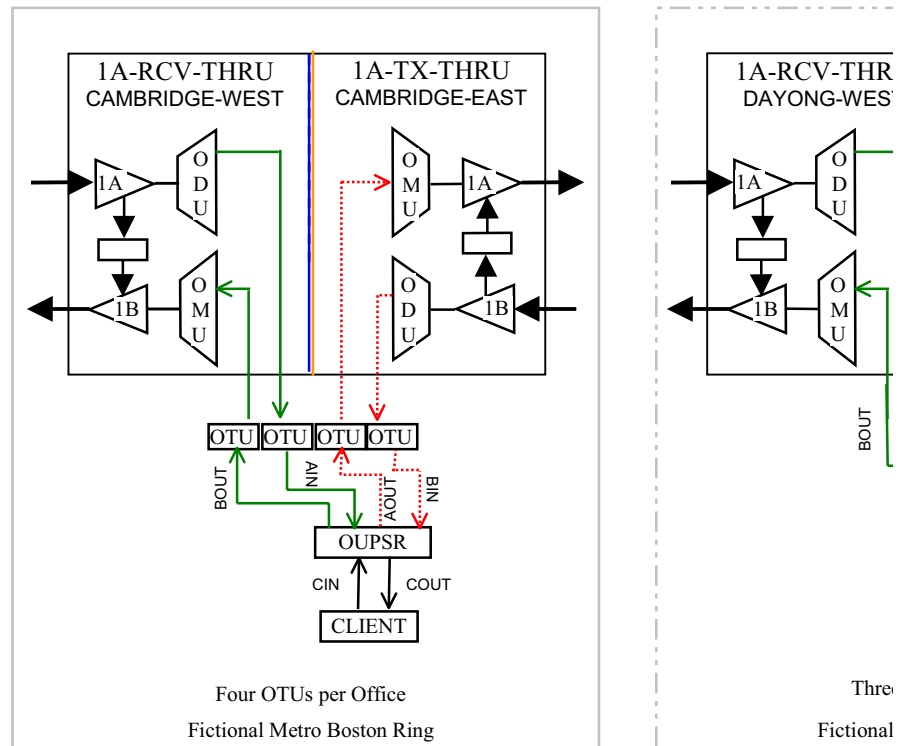
A **incoming OUPSR CIN LOS** alarm occurs when there is a loss of signal to the CIN port of an OUPSR. This alarm is treated differently than an incoming **OUPSR AIN LOS** or an incoming **OUPSR BIN LOS** because whereas the sources of AIN and BIN are on the Metropolis[®] EON Shelf, the source of CIN is a client signal, either directly or through an OTU.

Probable causes of **incoming OUPSR CIN LOS** are:

- The OUPSR
- The fiber or connections between CIN and the client signal (could be direct or through an OTU)
- The OTU, if one is used
- The connections at the cross-connect panel where the client fiber comes in
- The client fiber
- The client signal

The basic idea of this procedure is to work your way upstream from the CIN port of the OUPSR until you find the source (or at least one source) of the problem.

OUPSR Configurations There are three possible OUPSR configurations, as shown below:



Part 1: Check CIN Fiber

In this part of the procedure you check for problems with the fiber or connections between the CIN port on the OUPSR and the OUT port on the OTU or client.

-
- 1 Refer to the AID column of the **FAULT.Retrieve.Condition.All** report and determine the bay location of the OUPSR with the incoming failure.

Reference: "DLP-503: Locate Circuit Pack/Fiber Connections" (4-16)

-
- 2 Open the cabinet door or remove the shelf cover. All connections can be accessed from the front.

Reference: "DLP-511: Open/Close Cabinet Doors or Install/Remove Shelf Cover" (4-49)



WARNING

Eye Damage

Unterminated optical connectors may emit invisible laser radiation that could damage your eyes. Do not view the beam directly or with optical instruments.

- 3 Disconnect the input fiber then make a visual inspection of the CIN signal fiber (labeled "SIG IN") connection and correct any problems found.

Reference: "DLP-517: Inspect (Repair) Optical Fiber(s)" (4-81)

-
- 4 Did a visual inspection reveal any problems?

If...	Then...
YES	At the CIT, select the command FAULT.Retrieve.Condition.All to obtain a report. Continue with Step 5.
NO	Continue with Step 6.

5 Did the *incoming OUPSR CIN LOS* alarm clear?

If	Then
YES	<i>STOP! YOU HAVE COMPLETED THIS PROCEDURE.</i>
NO	Continue with Step 6.



WARNING

Eye Damage

Unterminated optical connectors may emit invisible laser radiation that could damage your eyes. Do not view the beam directly or with optical instruments.

6 Disconnect the fiber connected to the CIN port of the OUPSR and take an optical power measurement. The optical power measurement into CIN should be greater than or equal to -21 dBm.

7 Did the power fall within the prescribed range?

If	Then
YES	There appears to be a problem at the OUPSR. Continue with "Part 5: Check the OUPSR" (3-247).
NO	There could a problem with the fiber or the connection at the OUT port on the OTU or the client port on the cross-connect panel. Continue with Step 8.

8 Clean the fiber and take a new power measurement. Does the power fall within the prescribed range?

If	Then
YES	Continue with Step 10.

If	Then
NO	There could be a problem with the fiber jumper. Continue with Step 9.

-
- 9** Clean and connect a new fiber jumper to the OUT port on the OTU or the client port on the cross-connect panel and take another power measurement. Does the power fall within the prescribed range?

If	Then
YES	Continue with Step 10.
NO	It seems that optical power is not reaching the OUT port on the OTU or client. If there is an OTU between the OUPSR and the client signal, continue with "Part 2: Check OTU-to-Client Fiber" (3-241) If the client is connected directly with the OUPSR, continue with "Part 3: Check Outside Plant Fiber" (3-244).

-
- 10** Reconnect the fiber to CIN.
-

- 11** At the CIT, select the command **FAULT.Retrieve.Condition.All** to obtain a report.

12 Has the *incoming OUPSR CIN LOS* condition been cleared?

If	Then
YES	<i>STOP! YOU HAVE COMPLETED THIS PROCEDURE.</i>
NO	The power coming out of the fiber is good, but there is still an alarm. Therefore the problem seems to be in the OUPSR. Continue with "Part 5: Check the OUPSR" (3-247).

END OF STEPS

**Part 2: Check OTU-to-Client
Fiber**

In this part of the procedure you check for problems with the fiber or connections between the OTU and the client port on the cross-connect panel, if an OTU is used.



WARNING

Eye Damage

Unterminated optical connectors may emit invisible laser radiation that could damage your eyes. Do not view the beam directly or with optical instruments.

- 1** Make a visual inspection of the fiber and connections between the OTU and the client port on the cross-connect panel and correct any problems found.

Reference: "DLP-517: Inspect (Repair) Optical Fiber(s)" (4-81)

- 2** Did a visual inspection reveal any problems?

If...	Then...
YES	At the CIT, select the command FAULT.Retrieve.Condition.All to obtain a report. Continue with Step 3.

If...	Then...
NO	Continue with Step 4.

3 Did the *incoming OUPSR CIN LOS* alarm clear?

If	Then
YES	<i>STOP! YOU HAVE COMPLETED THIS PROCEDURE.</i>
NO	Continue with Step 4.



WARNING

Eye Damage

Unterminated optical connectors may emit invisible laser radiation that could damage your eyes. Do not view the beam directly or with optical instruments.

4 Disconnect the fiber from the IN port of the OTU and take an optical power measurement. The optical power measurement into CIN should be greater than or equal to -21 dBm.

5 Did the power fall within the prescribed range?

If	Then
YES	There appears to be a problem at the OTU. Continue with "Part 4: Check the OTU" (3-246).
NO	There could a problem with the fiber or the connection at the client port on the cross-connect panel. Continue with Step 6.

- 6 Clean the fiber and take a new power measurement. Does the power fall within the prescribed range?

If	Then
YES	Continue with Step 8.
NO	Continue with Step 7.

- 7 Clean and connect a new fiber jumper to the client port on the cross-connect panel and take another power measurement. Does the power fall within the prescribed range?

If	Then
YES	Continue with Step 8.
NO	It seems that optical power is not reaching the client port on the cross-connect panel. Continue with "Part 3: Check Outside Plant Fiber" (3-244).

- 8 Reconnect the fiber to the IN port on the OTU.

- 9 At the CIT, select the command **FAULT.Retrieve.Condition.All** to obtain a report.

- 10 Has the *incoming OUPSR CIN LOS* condition been cleared?

If	Then
YES	<i>STOP! YOU HAVE COMPLETED THIS PROCEDURE.</i>
NO	The power coming out of the fiber is good, but there is still an alarm. Therefore the could be in the client fiber coming into the cross-connect panel. Continue with "Part 3: Check Outside Plant Fiber" (3-244).

Part 3: Check Outside Plant Fiber

In this part of the procedure you check for problems with the outside plant fiber or its connection to the cross-connect panel.



WARNING

Eye Damage

Unterminated optical connectors may emit invisible laser radiation that could damage your eyes. Do not view the beam directly or with optical instruments.

- 1 Make a visual inspection of fiber and connection at the client port on the cross-connect panel and correct any problems found.

Reference: "DLP-517: Inspect (Repair) Optical Fiber(s)" (4-81)

-
- 2 Did a visual inspection reveal any problems?

If...	Then...
YES	At the CIT, select the command FAULT.Retrieve.Condition.All to obtain a report. Continue with Step 3
NO	Continue with Step 4.

-
- 3 Did the *incoming OUPSR CIN LOS* alarm clear?

If	Then
YES	<i>STOP! YOU HAVE COMPLETED THIS PROCEDURE.</i>
NO	Continue with Step 6.



WARNING

Eye Damage

Unterminated optical connectors may emit invisible laser radiation that could damage your eyes. Do not view the beam directly or with optical instruments.

- 4** Disconnect the fiber connected to the client port on the cross-connect panel and take an optical power measurement. The optical power measurement into CIN should be greater than or equal to -21 dBm.

-
- 5** Did the power fall within the prescribed range?

If	Then
YES	There appears to be a problem at the cross-connect panel. Continue with Step 9.
NO	There could a problem with the outside plant fiber. Continue with Step 6.

-
- 6** Clean the fiber and take a new power measurement. Does the power fall within the prescribed range?

If	Then
YES	Continue with Step 10.
NO	Continue with Step 7.

-
- 7** Reconnect the fiber to the cross-connect panel and notify the office that is the source of the client signal. The problem appears to be there.

-
- 8** ***STOP! YOU HAVE COMPLETED THIS PROCEDURE.***

-
- 9** Adjust or replace the connectors on the cross-connect panel.
-

- 10** At the CIT, select the command **FAULT.Retrieve.Condition.All** to obtain a report.
-

- 11** Has the *incoming OUPSR CIN LOS* condition been cleared?

If	Then
YES	<i>STOP! YOU HAVE COMPLETED THIS PROCEDURE.</i>
NO	Contact your next higher level of technical support.

Part 4: Check the OTU

You reach this part of the procedure when you have connected a fiber with a valid signal into the OTU but are not detecting a valid signal coming out of the OTU. This indicates that the problem is inside the OTU.

- 1** Is a replacement OTU available?

If...	Then...
YES	Continue with Step 2.
NO	Contact your next higher level of technical support. <i>STOP! YOU HAVE COMPLETED THIS PROCEDURE.</i>



WARNING

Eye Damage

Unterminated optical connectors may emit invisible laser radiation that could damage your eyes. Do not view the beam directly or with optical instruments.

- 2 Install and connect the new OTU.

Reference: "DLP-514: Install/Remove Circuit Pack" (4-61)

- 3 At the CIT, select the command **FAULT.Retrieve.Condition.All** to obtain a report.

- 4 Has the *incoming OUPSR CIN LOS* condition been cleared?

If	Then
YES	<i>STOP! YOU HAVE COMPLETED THIS PROCEDURE.</i>
NO	Contact your next higher level of technical support. <i>STOP! YOU HAVE COMPLETED THIS PROCEDURE.</i>

END OF STEPS

Part 5: Check the OUPSR

You reach this part of the procedure when you have determined that there is an alarm despite a valid signal on the fiber connected to CIN.

- 1 Is a replacement OUPSR available?

If...	Then...
YES	Continue with Step 2.

If...	Then...
NO	Contact your next higher level of technical support. <i>STOP! YOU HAVE COMPLETED THIS PROCEDURE.</i>



WARNING

Eye Damage

Unterminated optical connectors may emit invisible laser radiation that could damage your eyes. Do not view the beam directly or with optical instruments.

- 2 Install and connect the new OUPSR.

Reference: "DLP-514: Install/Remove Circuit Pack" (4-61)

-
- 3 At the CIT, select the command **FAULT.Retrieve.Condition.All** to obtain a report.

-
- 4 Has the ***incoming OUPSR CIN LOS*** condition been cleared?

If	Then
YES	<i>STOP! YOU HAVE COMPLETED THIS PROCEDURE.</i>
NO	Contact your next higher level of technical support. <i>STOP! YOU HAVE COMPLETED THIS PROCEDURE.</i>

END OF STEPS

TAP-177: Clear "OA high input power" Alarm

Overview The OA high input power alarm will occur at an OA3 if it is receiving too much optical power at its input port. This alarm can be cleared by installing an LBO that is high enough to attenuate the power down to an acceptable level.

- 1 Refer to the AID column of the **FAULT.Retrieve.Condition.All** report and determine the bay location of the alarmed OA.

Reference: "DLP-514: Install/Remove Circuit Pack" (4-61)



WARNING

Eye Damage

Unterminated optical connectors may emit invisible laser radiation that could damage your eyes. Do not view the beam directly or with optical instruments.

- 2 Remove the fiber from the IN port of the OA and measure the optical power.

Reference:

- 3 Subtract the target value from the measured value. This result is the value of LBO you need.
-

- 4 Install an LBO with a value equal to the one from Step 3.
-

- 5 Select the CenterLink command **FAULT.Retrieve.Condition.All** to obtain a report.

6 Did the OA high input power alarm clear?

If...	Then...
YES	<i>STOP! YOU HAVE COMPLETED THIS PROCEDURE.</i>
NO	Try the next higher value LBO and return to Step 5. If you cannot clear the alarm by increasing the attenuation, contact your next higher level of technical support.

TAP-178: Clear "companion NE not reachable" Alarm

Overview A **companion NE not reachable** alarm occurs when there is no communication between one NE (east facing end terminal) and its companion (west facing end terminal). This alarm occurs when two NEs are provisioned to communicate via the LAN but are not communicating. Therefore the problem must be with one or more of the following:

- The COMPANION_TID(s)
- The LAN cable(s)
- The connector/crossover adaptor
- The LAN pack(s)
- The Hub

The basic idea of this procedure is to check each of the above probable causes until the problem is cleared.

In the following procedures one NE is called the east-facing end terminal and its companion is called the west facing end terminal.

Part 1: Check TID(s) The TID specified in the **COMPANION_TID** field for the east facing end terminal and/or the west facing end terminal may be incorrect. In this part of the procedure, you check the TID(s).

-
- 1** At the CIT, select **SECURITY.Retrieve.System** and check the TID for the east facing end terminal in the **COMPANION_TID** field.
-

- 2** Is the TID incorrect?

If...	Then...
YES	Enter the correct TID then continue with Step 3.

If...	Then...
NO	If NEs are connected with crossover adapter, then continue with "Part 2: Check Crossover Adaptor (if applicable)" (3-253). If NEs are connected through a hub or with crossover cable, then continue with "Part 3: Check Cables and Connections" (3-253).

-
- 3** At the CIT, select the command **FAULT.Retrieve.Condition.All** to obtain a report.
-

- 4** Did the companion NE not reachable alarm clear?

If...	Then...
YES	STOP! YOU HAVE COMPLETED THIS PROCEDURE.
NO	Repeat Steps 1 through Step 4 above for the west facing end terminal.

-
- 5** Did the companion NE not reachable alarm clear?

If...	Then...
YES	STOP! YOU HAVE COMPLETED THIS PROCEDURE.
NO	If NEs are connected with crossover adapter, then continue with "Part 2: Check Crossover Adaptor (if applicable)" (3-253). If NEs are connected through a hub or with crossover cable, then continue with "Part 3: Check Cables and Connections" (3-253).

END OF STEPS

**Part 2: Check Crossover
Adaptor (if applicable)**

Use this part of the procedure if the two NEs are connected using a crossover adaptor. In this part of the procedure, you change the adaptor.

- 1 Connect the LAN cable with a new crossover adaptor.
- 2 At the CIT, select the command **FAULT.Retrieve.Condition.All** to obtain a report.
- 3 Did the **companion NE not reachable** alarm clear?

If...	Then...
YES	<i>STOP! YOU HAVE COMPLETED THIS PROCEDURE.</i>
NO	Continue with "Part 3: Check Cables and Connections" (3-253).

END OF STEPS

**Part 3: Check Cables and
Connections**

In this part of the procedure you check for problems with the cables or connections between the two NEs.

- 1 Make a visual inspection of the cable and connections between the two NEs and correct any problems found.

Reference: "DLP-517: Inspect (Repair) Optical Fiber(s)" (4-81)

- 2 Did a visual inspection reveal any problems?

If...	Then...
YES	At the CIT, select the command FAULT.Retrieve.Condition.All to obtain a report.
NO	Continue with Step 3.

3 Did the *companion NE not reachable* alarm clear?

If	Then
YES	<i>STOP! YOU HAVE COMPLETED THIS PROCEDURE.</i>
NO	Continue with Step 4.

4 Replace the crossover cable or replace one of the two LAN cables.

5 At the CIT, select the command **FAULT.Retrieve.Condition.All** to obtain a report.

6 Did the companion NE not reachable alarm clear?

If...	Then...
YES	<i>STOP! YOU HAVE COMPLETED THIS PROCEDURE.</i>
NO	If using a crossover cable, continue with "Part 4: Check LAN pack(s) in the east/west facing end terminals" (3-255). If using two LAN cables continue with Step 7.

7 Replace the other LAN cable.

8 Did the *companion NE not reachable* alarm clear?

If	Then
YES	<i>STOP! YOU HAVE COMPLETED THIS PROCEDURE.</i>
NO	Continue with "Part 4: Check LAN pack(s) in the east/west facing end terminals" (3-255).

**Part 4: Check LAN pack(s)
in the east/west facing end
terminals**

In this part of the procedure you check for problems with the LAN pack in the NEs.

- 1 Is a replacement LAN pack available?

If...	Then...
YES	Continue with Step 2.
NO	Contact your next higher level of technical support. <i>STOP! YOU HAVE COMPLETED THIS PROCEDURE.</i>

- 2 Install and connect the new LAN pack in the east facing end terminal.

Reference: "DLP-514: Install/Remove Circuit Pack" (4-61)

- 3 At the CIT, select the command **CONFIGURATION.Update.System**, which will update the report.

- 4 Has the companion NE not reachable alarm been cleared?

If	Then
YES	<i>STOP! YOU HAVE COMPLETED THIS PROCEDURE.</i>
NO	If using a hub, continue with "Part 5: Check the Hub (if applicable)" (3-255). If not, contact your next higher level of technical support.

END OF STEPS

**Part 5: Check the Hub (if
applicable)**

You reach this part of the procedure when you have determined that there is an alarm in spite of a good cable or connection between the NEs. In this procedure, you check the Hub (if applicable) for problems.

- 1 Connect the LAN cable(s) to different port(s) on the hub, if possible.

-
- 2** At the CIT, select the command **FAULT.Retrieve.Condition.All** to obtain a report.
-

- 3** Has the **companion NE not reachable** alarm cleared?

If	Then
YES	STOP! YOU HAVE COMPLETED THIS PROCEDURE.
NO	Continue with Step 4.

-
- 4** Are there other ports available on the hub?

If...	Then...
YES	Try the other ports then at the CIT, select the command FAULT.Retrieve.Condition.All to obtain a report.
NO	Continue with Step 6.

-
- 5** Has the **companion NE not reachable** alarm cleared?

If	Then
YES	STOP! YOU HAVE COMPLETED THIS PROCEDURE.
NO	Continue with Step 6.

-
- 6** Is there a different hub available?

If	Then
YES	Connect a different hub then continue with Step 7.
NO	Contact your next higher level of technical support. STOP! YOU HAVE COMPLETED THIS PROCEDURE.

-
- 7** At the CIT, select the command **FAULT.Retrieve.Condition.All** to obtain a report.
-

- 8** Has the *companion NE not reachable* alarm been cleared?

If	Then
YES	<i>STOP! YOU HAVE COMPLETED THIS PROCEDURE.</i>
NO	Contact your next higher level of technical support. <i>STOP! YOU HAVE COMPLETED THIS PROCEDURE.</i>

END OF STEPS

TAP-179: Clear "incoming loss of packet delineation" Alarm

Overview The incoming loss of packet delineation alarm will occur at a multiplexing OTU (2DM25) if the signal's optical power is valid but the content is corrupted. The cause of this alarm is most likely at the equipment sending the signal.

- 1 Refer to the AID column of the **FAULT.Retrieve.Condition.All** report and determine the bay location of the unit/module with the incoming failure.

Reference: "DLP-514: Install/Remove Circuit Pack" (4-61)

- 2 Use this information and your office records to determine which office is sending the signal.

- 3 Contact the office that is sending the signal to resolve the problem.

- 4 Were you able to resolve the problem?

If...	Then...
YES	<i>STOP! YOU HAVE COMPLETED THIS PROCEDURE.</i>
NO	Contact your next higher level of technical support.

END OF STEPS



TAP-180: Clear "pluggable module removed" Alarm

Overview The pluggable module removed alarm will occur at a multiplexing OTU if its pluggable transceiver has been removed or is not securely plugged in.

Part 1: Check that the pluggable transceiver is plugged in In this part of the procedure you check that the pluggable transceiver is plugged into the OTU.

- 1 Make a visual inspection of the circuit pack to determine if the pluggable transceiver is plugged in.
-

- 2 Is the pluggable transceiver plugged in?

If...	Then...
YES	Continue with "Part 2: Remove and replace pluggable module" (3-260).
NO	Plug in the transceiver.

- 3 At the CIT, select the command **CONFIGURATION.Update.System**, which will update the report.
-

- 4 At the CIT, select the command **FAULT.Retrieve.Condition.All** to obtain a report.
-

- 5 Did the pluggable module removed alarm clear?

If	Then
YES	<i>STOP! YOU HAVE COMPLETED THIS PROCEDURE.</i>
NO	Continue with "Part 2: Remove and replace pluggable module" (3-260).

END OF STEPS

Part 2: Remove and replace pluggable module

In this section you reseal the pluggable transceiver.

- 1 Remove the pluggable transceiver then replace it, making sure it is securely seated.
- 2 At the CIT, select the command **CONFIGURATION.Update.System**, which will update the report.
- 3 At the CIT, select the command **FAULT.Retrieve.Condition.All** to obtain a report.

- 4 Did the **pluggable module removed** alarm clear?

If	Then
YES	<i>STOP! YOU HAVE COMPLETED THIS PROCEDURE.</i>
NO	Continue with Step 5.

- 5 Replace the pluggable transceiver with a different one, making sure it is securely seated.
- 6 At the CIT, select the command **FAULT.Retrieve.Condition.All** to obtain a report.
- 7 Did the **pluggable module removed** alarm clear?

If	Then
YES	<i>STOP! YOU HAVE COMPLETED THIS PROCEDURE.</i>
NO	Continue with "Part 3: Remove and replace the circuit pack" (3-261).

END OF STEPS

**Part 3: Remove and
replace the circuit pack**

In this section you replace the circuit pack.

-
- 1** Refer to the AID column of the **FAULT.Retrieve.Condition.All** report and determine the bay location of the unit/module with the incoming failure.

Reference: "DLP-503: Locate Circuit Pack/Fiber Connections" (4-16)

- 2** Remove the OTU.

Reference: "DLP-514: Install/Remove Circuit Pack" (4-61)

- 3** Is there is a replacement OTU available?

If...	Then...
YES	Install the replacement. Reference: "DLP-514: Install/Remove Circuit Pack" (4-61)
NO	Contact your next higher level of technical support.

E N D O F S T E P S



TAP-181: Clear "test loopback in progress" Alarm

Overview A user has provisioned the multiplexing OTU (2DM25) to be in test loopback mode. The pack cannot transmit normally in this mode. The pack must be provisioned to normal transmission mode to carry traffic.

Task

- 1** Refer to the AID column of the **FAULT.Retrieve.Condition.All** report and determine the AID of the alarmed 2DM25.
.....
- 2** Select the CenterLink command **FAULT.Test.Loopback** and enter the AID from the report in Step 1.
.....
- 3** For the MODE parameter, select the value NORMAL and click on the Enter button to execute.
.....
- 4** Select the CenterLink command **CONFIGURATION.Update.System** to update the condition report.
.....
- 5** Select the CenterLink command **FAULT.Retrieve.Condition.All** to obtain a new report.

Result: The *test loopback in progress* alarm should be cleared.

TAP-182: Clear 'module/prov mode inconsistent'

Overview The mode/wavelength for a client port on the 2:1 Data Multiplexing OTU (2DM25) is provisioned with the parameter **CW2DM25**. The 'module/prov mode inconsistent' alarm indicates that CW2DM25 is inconsistent with the module plugged into that port.

- 1** At the CIT, select **FAULT.Retrieve.Condition.All** and execute to obtain a report. Note the AID for the alarmed port.

- 2** At the CIT, select **CONFIGURATION.Retrieve.OT_Port_Signal** command and execute to obtain a report.

- 3** Enter the AID for the alarmed port obtained in Step 1.

- 4** From the report, determine the value for CW2DM25 for this port.

- 5** Make a visual inspection of the port and compare it against the information in the report.

- 6** Does the port configuration match the module type specified in the report?

If...	Then...
YES	Contact your next higher level of technical support. <i>STOP! YOU HAVE COMPLETED THIS PROCEDURE.</i>
NO	Determine whether CW2DM25 is incorrect or the module type is incorrect. Continue with Step 7.

7 Is CW2DM25 incorrect?

If...	Then...
YES	At the CIT, provision the system for the correct mode and wavelength. STOP! YOU HAVE COMPLETED THIS PROCEDURE. Reference: "DLP-533: Set the Client Mode and Wavelength for the 2:1 Multiplexing OTU (CW2DM25)" (4-134)
NO	Plug in a module of the correct type and continue with Step 8. Reference: "DLP-532: Install or Remove an SFP Module" (4-129)

8 At the CIT, select **FAULT.Retrieve.Condition.All** command and execute to obtain a report.

9 Did the alarm **module/prov mode inconsistent** alarm clear?

If...	Then...
YES	STOP! YOU HAVE COMPLETED THIS PROCEDURE.
NO	Contact your next higher level of technical support. STOP! YOU HAVE COMPLETED THIS PROCEDURE.

END OF STEPS



4 Supporting Tasks

Overview

Purpose This chapter contains supporting tasks, also known as Detailed Level Procedures (DLPs). These tasks are often referenced in other tasks as a way to provide details for those who need them while keeping the other tasks shorter for those who do not need the details.

Contents

This section includes the following tasks.

DLP-500: Select LBOs between Add OT OUT and Drop OT IN	4-4
DLP-501: Connect and Condition Craft Interface Terminal (CIT)	4-12
DLP-502: Test LED Indicators on Front Panel and Circuit Packs	4-14
DLP-503: Locate Circuit Pack/Fiber Connections	4-16
DLP-504: Test Office Alarm Operation	4-30
DLP-505: Perform Provisioning	4-32
DLP-506: Verify Network Elements Are Connected	4-34
DLP-507: Identify Source of Incoming Signal	4-36
DLP-508: Test Parallel Telemetry	4-39
DLP-509: Install/Remove Apparatus (Circuit Pack) Blank	4-40
DLP-510: Inspect and Clean Optical Fiber Connectors	4-42
DLP-511: Open/Close Cabinet Doors or Install/Remove Shelf Cover	4-49
DLP-512: Install/Remove Lightguide Buildout	4-52
DLP-513: Test Miscellaneous Discrete Telemetry	4-58
DLP-514: Install/Remove Circuit Pack	4-61
DLP-515: Replace Fuse in Power Distribution and Fuse Panel or User Panel	4-79
DLP-517: Inspect (Repair) Optical Fiber(s)	4-81
DLP-518: Login/Logout to a Network Element Using CenterLink	4-82
DLP-519: Change, Delete, or Enter a User Login	4-86
DLP-520: Establish Modem Network Access	4-90
DLP-521: Install an OMU or ODU	4-98
DLP-522: Replace Power Line Filter	4-101
DLP-523: Replace OT Power Line Filter	4-104
DLP-524: Select an LBO at the Add OTU/OTPM IN	4-107

DLP-525: Connect/Disconnect Optical Fibers at OTU/OTPM	4-114
DLP-526: Change a DSNE	4-117
DLP-527: Create a DSNE	4-120
DLP-528: Delete a DSNE	4-122
DLP-529: Set an OLINE Baseline	4-124
DLP-530: Set an OLINE Threshold	4-126
DLP-531: Update the System	4-128



DLP-500: Select LBOs between Add OT OUT and Drop OT IN

Purpose This task allows you to select the correct LBO for one of the following situations:

- an optical channel fiber connection between the add OTU/OTPM output and the drop OTU/OTPM input
- an optical line fiber connection at an OA

To select an LBO at the add OTU/OTPM input, see DLP-524.

Required equipment You will need the following required test equipment.

- Craft interface terminal (CIT)
- Wrist strap
- Optical power meter

Supporting tasks This task refers to the following supporting tasks.

- “DLP-510: Inspect and Clean Optical Fiber Connectors” (4-42)
- “DLP-512: Install/Remove Lightguide Buildout” (4-52)
- “DLP-503: Locate Circuit Pack/Fiber Connections” (4-16)
- “DLP-511: Open/Close Cabinet Doors or Install/Remove Shelf Cover” (4-49)

Task



DANGER
Eye Damage

Unterminated optical connectors may emit invisible laser radiation that could damage your eyes. Do not view the beam directly or with optical instruments.



CAUTION
Electrostatic Discharge

Use a static ground wrist strap whenever handling circuit packs or working on a network element to prevent electrostatic discharge damage to sensitive components.

-
- 1** If necessary, open the cabinet doors or remove the shelf cover. All connections can be accessed from the front.

Reference: “DLP-511: Open/Close Cabinet Doors or Install/Remove Shelf Cover” (4-49).

-
- 2** Are you adding or trouble clearing an optical line, optical channel, supervisory channel, customer maintenance (CM) signal, or replacing an end terminal OA?

If	Then
Optical line	continue with Step 3.
Optical channel	continue with Step 9.
Replacing end terminal receive OA	continue with Step 3.
Supervisory channel	continue with Step 20.



DANGER

Eye Damage

Always unseat an OA before disconnecting the output fiber.



CAUTION

Optical Amplifier Damage

Before connecting to the OUT port on the OA3 (LEA307), always clean the OUT port connector on the OA3 and the fiber you are about to connect. See DLP-510 for details. When disconnecting an output fiber from an OA3, always place dust covers on the fiber and in the OUT port connector.

- 3 Remove the protector caps and clean the receive optical fiber.

Reference: “DLP-510: Inspect and Clean Optical Fiber Connectors” (4-42).

-
- 4 Connect the receive optical fiber to an optical power meter and obtain an optical power measurement.
-

- 5 Using the power level measurement obtained in Step 4 and the SmartManual, determine the LBO value for the receive OA circuit pack.

Use the SmartManual to determine the LBO value by:

1. Open NE SmartManual Manager from the CenterLink launch console screen.
2. Use the Standard option unless instructed otherwise. Select the task, **Select Line Build Out for OA input**.
3. Enter parameters as requested.

-
- 6** Clean the IN connector of the receive OA circuit pack, clean the LBO and install the LBO.

Reference: “DLP-512: Install/Remove Lightguide Buildout” (4-52).

- 7** Close the cabinet door or install the shelf cover.

Reference: “DLP-511: Open/Close Cabinet Doors or Install/Remove Shelf Cover” (4-49).

- 8** STOP! YOU HAVE COMPLETED THIS TASK.
-

- 9** Are you making connections to an OMU or ODU?

If	Then
OMU	continue with Step 10.
ODU	continue with Step 16.

- 10** Remove the protector cap and clean the fiber coming from the OTU/OTPM circuit pack or compatible optics transmitter for the channel being added.

Reference: “DLP-510: Inspect and Clean Optical Fiber Connectors” (4-42).

- 11** Connect the optical power meter to the fiber coming from the OTU/OTPM circuit pack or compatible optics transmitter for the channel being added and obtain an optical power measurement.
-

- 12** Compare the optical power measurement obtained in Step 11 with the requirement listed in the table in “Add OT output/OMU Input” (4-10) for the channel being added.

13 Can you adjust the LBO to meet the requirements?

If	Then
NO	continue with Step 14.
YES	Replace the LBO on the OMU IN port. STOP! YOU HAVE COMPLETED THIS TASK.

14 Measure at the OTU/OTPM or compatible optics transmitter out connector (for that channel) and compare the results with the table in “Add OT output/OMU Input” (4-10). If in specification, investigate fiber and connections between OTU/OTPM or compatible optics and OMU. If out of specification, replace the OTU/OTPM or compatible optics circuit pack.

15 STOP! YOU HAVE COMPLETED THIS TASK.

16 At the OTU/OTPM or compatible optics, if required, remove the protector cap at the IN connector and clean the fiber coming from the ODU for the channel being dropped or passed through at this NE.

Reference: “DLP-510: Inspect and Clean Optical Fiber Connectors” (4-42).

17 At the OTU/OTPM or compatible optics, connect the optical power meter to the fiber coming from the ODU and obtain an optical power measurement.

18 Determine the LBO value.

1. Open the NE SmartManual Manager from the CenterLink launch console.
2. Use the Standard option unless instructed otherwise. Select the task, **Select Line Build Out (LBO) for RCVR input**.
3. Complete the task by following the steps displayed on the screen.

19 STOP! YOU HAVE COMPLETED THIS TASK.

20 Remove fiber from the IN connector of the TLM circuit pack being tested.

21 Connect the optical power meter to the TLM OUT fiber and obtain an optical power measurement.

Reference: “DLP-503: Locate Circuit Pack/Fiber Connections” (4-16).

22 Using the power level reading obtained in Step 27 and the table in “TLM circuit pack input power” (4-9), determine if the power level was correct.

END OF STEPS

**TLM circuit pack input
power**

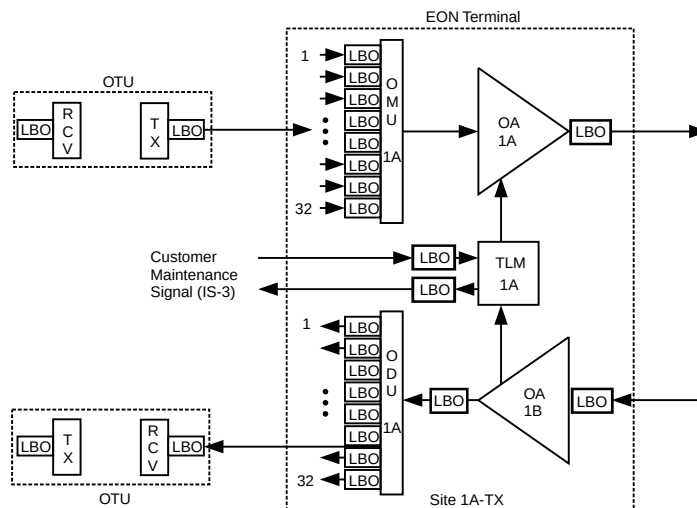
The following table lists input power for the TLM circuit pack.

Maximum Power (dBm)	Minimum Power (dBm)
–10.5	–30.0

LBO Information

The following figure provides a depiction of LBO usage in an End Terminal.

Figure 4-1 LBO Location in an End Terminal



Note: LBO type depends on configuration and dB loss requirements.

nc-metro-002

Add OT output/OMU Input

The targets you should use depend on whether you have a 16-channel or 32-channel optical amplifier.

32-Channel Systems

If the network element has a 32-channel OA (LEA207 or higher), then you should use the targets in the table below.

Table 4-1 32-Channel Add OT Output/OMU Input Targets

OMU Input Targets (+/- 1dBm) with 32-Channel OA, for Signal Rate = R			
OMU Insertion Loss	R >= 1Gb/s	500 Mb/s <= R < 1 Gb/s	R < 500 Mb/s
5.5 dBm (507B)	-15.5	-18.5	-21.5
8 dBm (506B/ 507A/508A)	-13	-16	-19

16-Channel Systems

If the network element has a 16-channel OA (model number below LEA207), then you should use the targets in the table below. (This assumes you will be using an 506A OMU, with insertion loss of 14 dBm. If you are using a 506B subtract 6 dBm from the target in the table.)

Table 4-2 16-Channel OMU Input Targets

OMU Input Targets (± 1.0 dBm) with 32-Channel OA, for Signal Rate = R				
Channel	Wavelength (nm)	R >= 1Gb/s	500 Mb/s <= R < 1 Gb/s	R < 500 Mb/s
1	1549.32	-4.0	-7.0	-10.0
2	1550.92	-5.3	-8.3	-11.3
3	1552.52	-6.5	-9.5	-12.5
4	1554.13	-7.2	-10.2	-13.2
5	1555.75	-7.7	-10.7	-13.7
6	1557.37	-8.2	-11.2	-14.2
7	1558.98	-8.0	-11.0	-14.0
8	1560.61	-6.5	-9.5	-12.5
9	1548.52	-2.0	-5.0	-8.0
10	1550.12	-4.6	-7.6	-10.6
11	1551.72	-5.8	-8.8	-11.8
12	1553.33	-6.8	-9.8	-12.8
13	1554.94	-7.4	-10.4	-13.4
14	1556.56	-7.9	-10.9	-13.9
15	1558.17	-8.1	-11.1	-14.1
16	1559.79	-7.2	-10.2	-13.2

DLP-501: Connect and Condition Craft Interface Terminal (CIT)

Purpose This task provides instructions to verify proper connections between a network element and a personal computer (PC). The PC will be running CenterLink software or CIT-PC software.

Supporting tasks This task refers to the following supporting task.

- “DLP-520: Establish Modem Network Access” (4-90)

Task **Important!** The PC must meet the minimum requirements.

1 Verify the PC is safely positioned on a cart or table.

2 Verify the cable connections at the PC.

To summarize, check the following.

- The appropriate 9- or 25-pin cable or equivalent interface cable is connected between the CIT (DCE) female connector on the user panel and a serial male connector on the PC.
- If required, a printer with the appropriate printer cable is connected to the PC per the instructions provided with the printer.
- If required, a modem (internal or external) is connected per the instructions provided with the modem. Many modem configurations exist and operate over the public switched network or a data communications network (*Datakit*® network).

Reference: “DLP-520: Establish Modem Network Access” (4-90) and *Installation Guide, 365-575-562 R8.2*

Important! The browser and NE server software are considered parts of the CenterLink software.

3 Turn the PC power switch to ON, if necessary.

Important! The CenterLink software has been loaded on the PC and Microsoft *Windows95*™, *Windows2000*™, *WindowsNT*™, or

Windows98™ is running on the PC. If you encounter difficulty in the following steps, a CIT tutorial is available in Chapter 11, “Craft Interface Terminal Usage.”

- 4 At the PC desktop screen, double click on the **CenterLink** icon.
.....
- 5 NE Server will automatically start up, along with the CenterLink Launch Console screen.
.....
- 6 Select **NE Command Manager** to advance to the next screen.
.....
- 7 Select TID to be logged into from the drop down menu or type in the NE TID and then click **Submit**.
.....
- 8 Complete the **Network Element Login** window and enter your previously obtained UID (user identifier) and PID (private identifier), then select **Enter** to log in to a network element.

Result: A *Completed* message is displayed.

END OF STEPS



DLP-502: Test LED Indicators on Front Panel and Circuit Packs

Purpose Use this task to test the LED indicators on the front panel and circuit packs for normal operation.

Supporting tasks This task refers to the following supporting task.

- “DLP-511: Open/Close Cabinet Doors or Install/Remove Shelf Cover” (4-49)

Task ---

- 1 Open the cabinet doors or remove shelf cover. All LED indicators are visible from the front.

Reference: “DLP-511: Open/Close Cabinet Doors or Install/Remove Shelf Cover” (4-49)

- 2 Using the CIT select the command, **FAULT.Test.LED.All** and execute.

Result: All LED indicators are lighted for 10 seconds, off for 10 seconds, and then return to their normal condition.

- 3 Did the LED indicator(s) of interest operate as required?

If	Then
YES	Continue with Step 4.
NO	Continue with Step 6.

Important! The LED indicator(s) appear to operate normal.

- 4 Close the cabinet doors or install the shelf cover.

Reference: “DLP-511: Open/Close Cabinet Doors or Install/Remove Shelf Cover” (4-49)

- 5 STOP! YOU HAVE COMPLETED THIS TASK.

-
- 6** Notify the installation personnel to correct the LED indicator trouble before returning to this task.
-

- 7** Close the cabinet doors or install the shelf cover.

Reference: “DLP-511: Open/Close Cabinet Doors or Install/
Remove Shelf Cover” (4-49)

END OF STEPS



DLP-503: Locate Circuit Pack/Fiber Connections

Purpose This task shows the physical location of the circuit packs and fiber connections in a Metropolis® EON network element. More detailed information on fiber connections is presented in the *Installation Guide*, 365-575-562.

Task



CAUTION

Electrostatic Discharge

Use a static ground wrist strap whenever handling circuit packs or working on a network element to prevent electrostatic discharge damage to sensitive components.

-
- 1 Select the CenterLink command **SECURITY.Retrieve.System**.

Result: The *dirn* field tells you the direction of transmission and whether there is telemetry feed-through.

Important! For a repeater the value displayed in the *dirn* field is a “-”.

- 2 Use the value of the *dirn* field to find the diagram under “Metropolis® EON shelf types” (4-17) that corresponds to your network element.

-
- 3 If you know the AID for the circuit pack, it may also help to refer to “AIDs and shelves” (4-26).

-
- 4 Locate the circuit pack, using the information from the previous steps and the following hints:

- Each network element contains only one SYSCTL, one SYSMEM, and one TOHCTL.
- If you are responding to an alarm, the circuit pack you are looking for may be displaying a red LED.

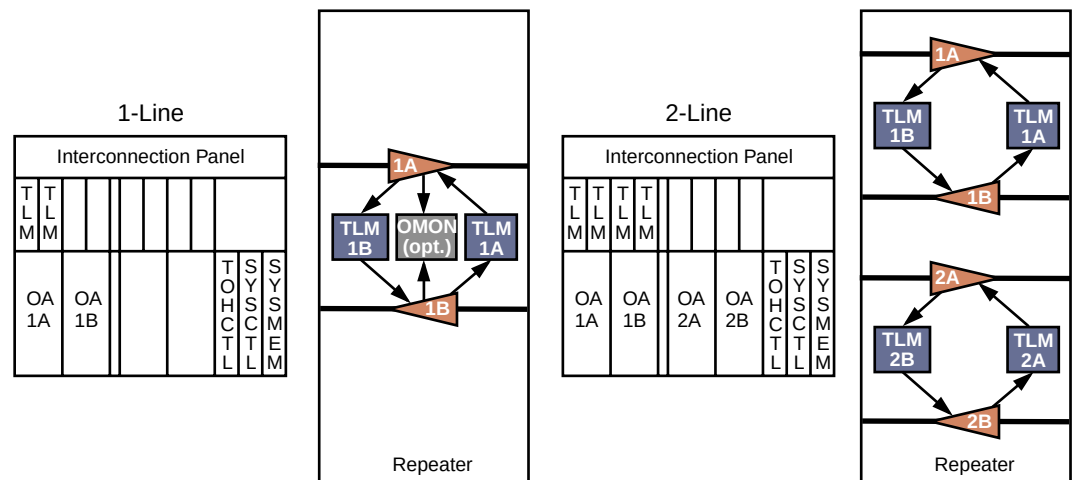
- Circuit packs are labeled with the type, such as OMU, OA, OTU, or OTPM (QOTUs are labeled “OTU”).
- Circuit packs are also labeled with a code that can tell you more about the pack, such as what type of signal an OT pack can carry. For a list of these codes see “Circuit Pack, Carrier, and DCM codes” (4-28).

END OF STEPS

Metropolis® EON shelf types

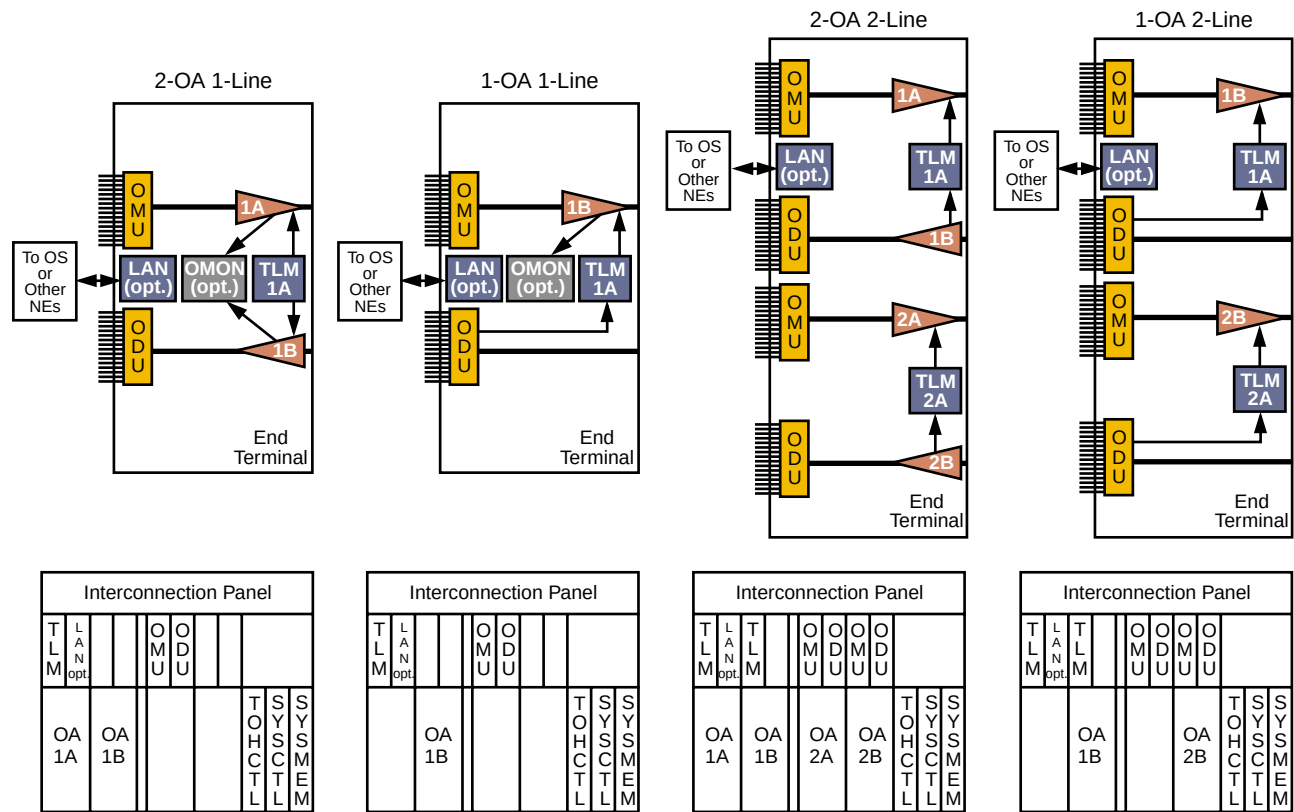
The following figures show the Metropolis® EON shelf types available. Note that OMON will be available in later releases.

Figure 4-2 Repeater



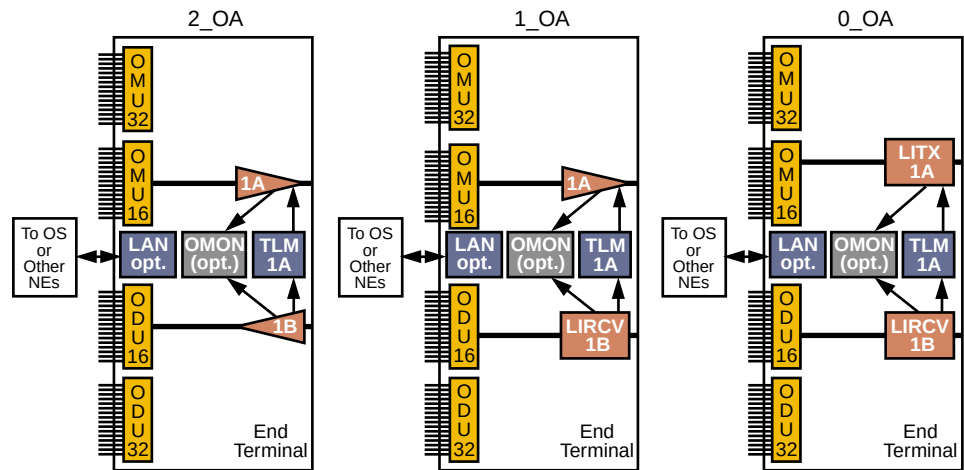
nc-metro-075

Figure 4-3 1A-TX



nc-metro-072

Figure 4-4 1A-TX-32



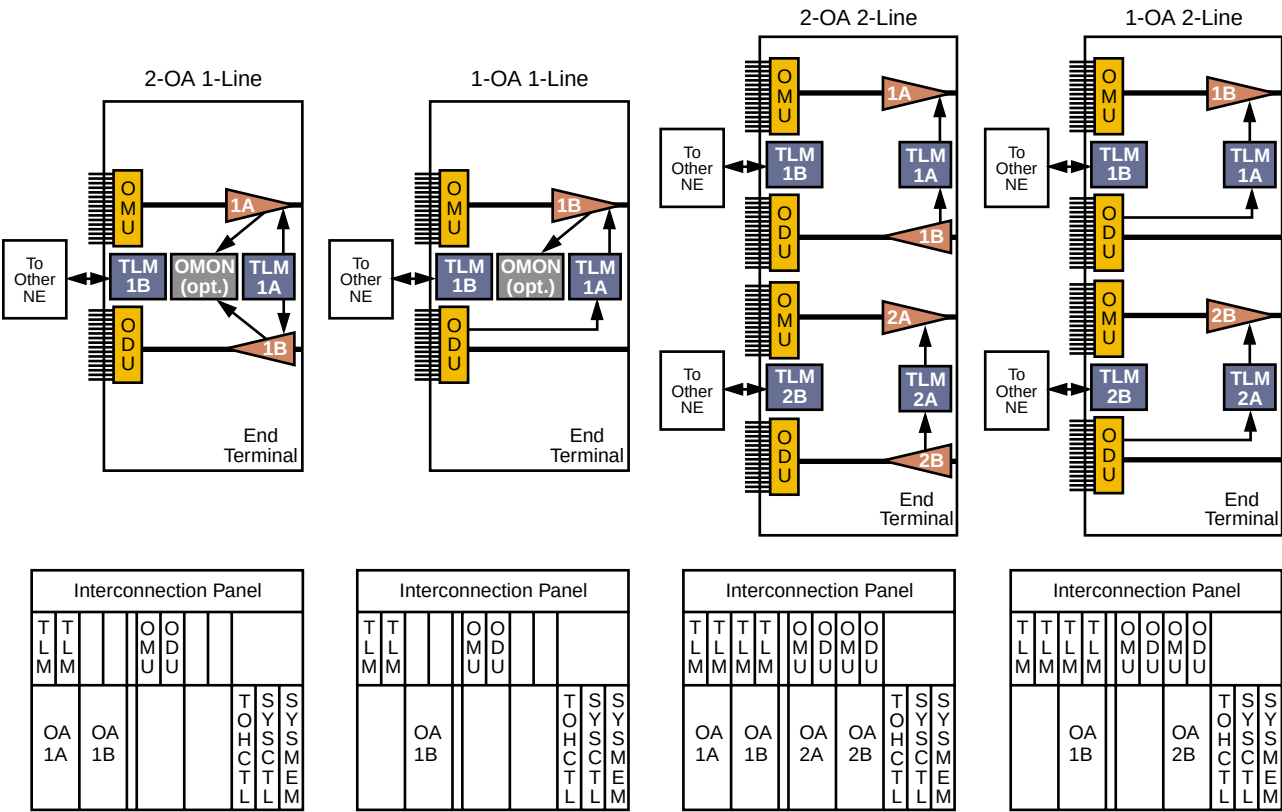
Interconnection Panel									
TLM	LAN opt.		OMU 16	ODU 16	OMU 32	ODU 32			
OA 1A	OA 1B		OMON (opt.) or LIHTR 2A	LIHTR 2B	TOHCTL	SYSTEM			

Interconnection Panel									
TLM	LAN opt.		OMU 16	ODU 16	OMU 32	ODU 32			
OA 1A	LIRCV 1B		OMON (opt.) or LIHTR 2A	LIHTR 2B	TOHCTL	SYSTEM			

Interconnection Panel									
TLM	LAN opt.		OMU 16	ODU 16	OMU 32	ODU 32			
LITX 1A	LIRCV 1B		OMON (opt.) or LIHTR 2A	LIHTR 2B	TOHCTL	SYSTEM			

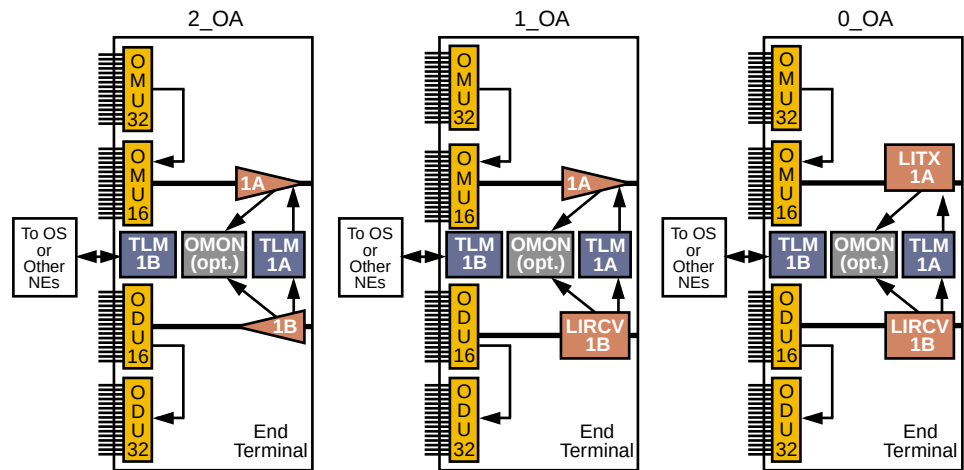
nc-metro-156

Figure 4-5 1A-TX-THRU



nc-metro-073

Figure 4-6 1A-TX-THRU-32



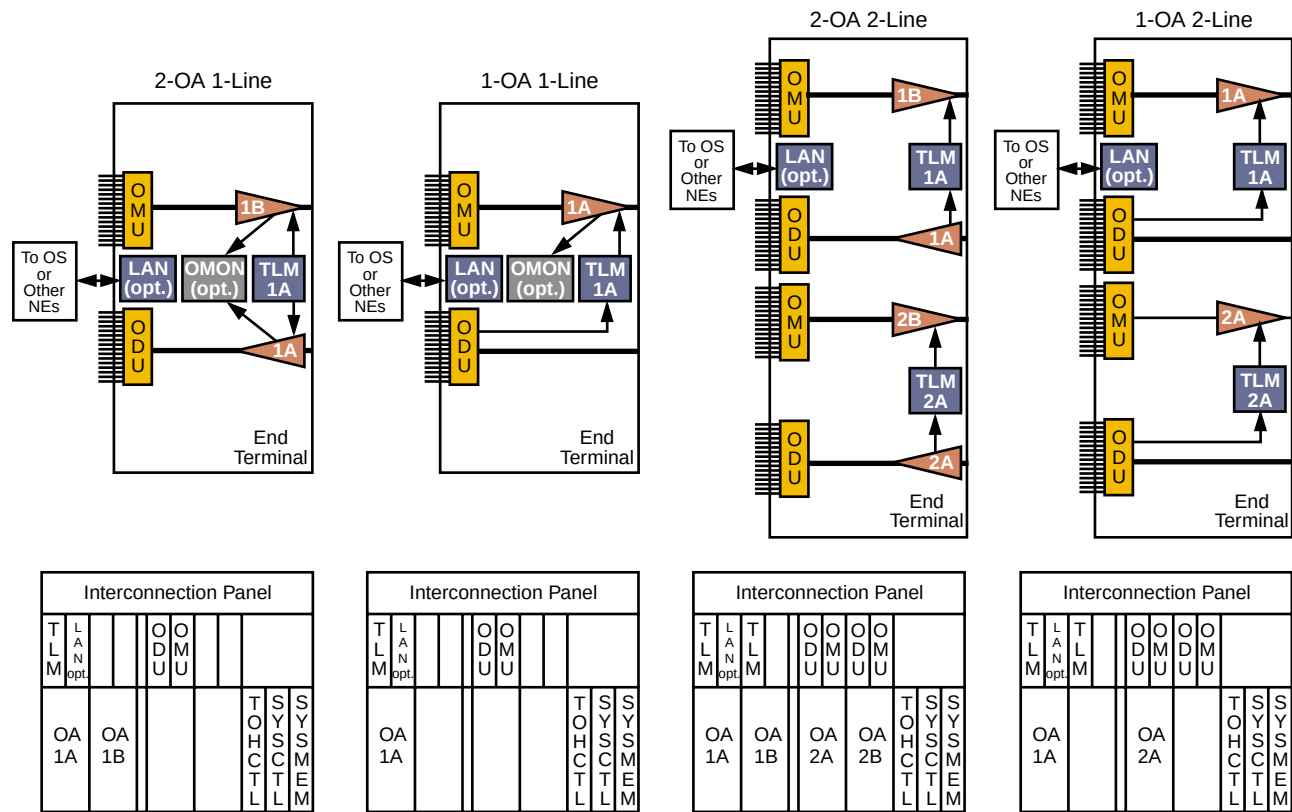
Interconnection Panel									
TLM	TLM			OMU 16	ODU 16	OMU 32	ODU 32		
OA 1A	OA 1B			OMON (opt.) or LIHTR 2A		LIHTR 2B		TOHCTL	SYSTEM

Interconnection Panel									
TLM	TLM			OMU 16	ODU 16	OMU 32	ODU 32		
OA 1A	LIRCV 1B			OMON (opt.) or LIHTR 2A		LIHTR 2B		TOHCTL	SYSTEM

Interconnection Panel									
TLM	TLM			OMU 16	ODU 16	OMU 32	ODU 32		
LITX 1A	LIRCV 1B			OMON (opt.) or LIHTR 2A		LIHTR 2B		TOHCTL	SYSTEM

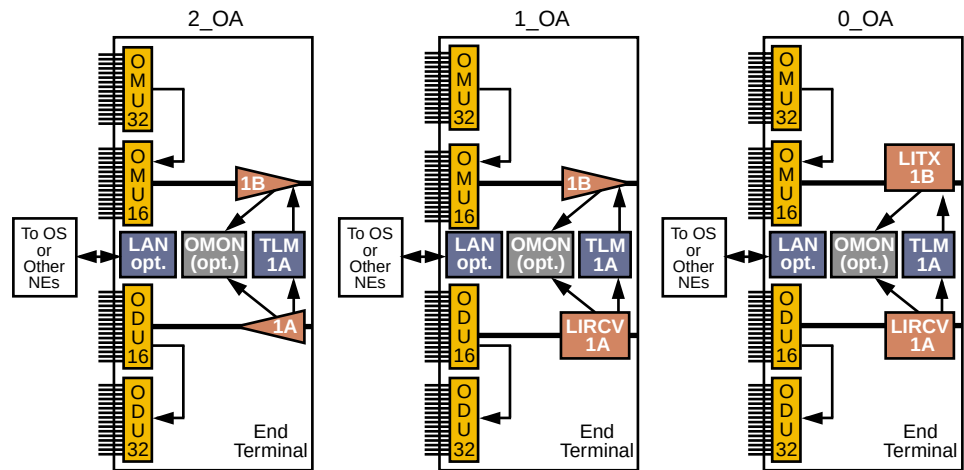
nc-metro-157

Figure 4-7 1A-RCV



nc-metro-070

Figure 4-8 1A-RCV-32



Interconnection Panel									
TLM	LAN opt.		OMU 16	ODU 16	OMU 32	ODU 32			
OA 1A	OA 1B		OMON (opt.) or LIHTR 2A	LIHTR 2B	TOHCTL	SYSTEM			

Interconnection Panel									
TLM	LAN opt.		OMU 16	ODU 16	OMU 32	ODU 32			
LIRCV 1A	OA 1B		OMON (opt.) or LIHTR 2A	LIHTR 2B	TOHCTL	SYSTEM			

Interconnection Panel									
TLM	TLM		OMU 16	ODU 16	OMU 32	ODU 32			
LIRCV 1A	LITX 1B		OMON (opt.) or LIHTR 2A	LIHTR 2B	TOHCTL	SYSTEM			

nc-metro-158

Figure 4-9 1A-RCV-THRU

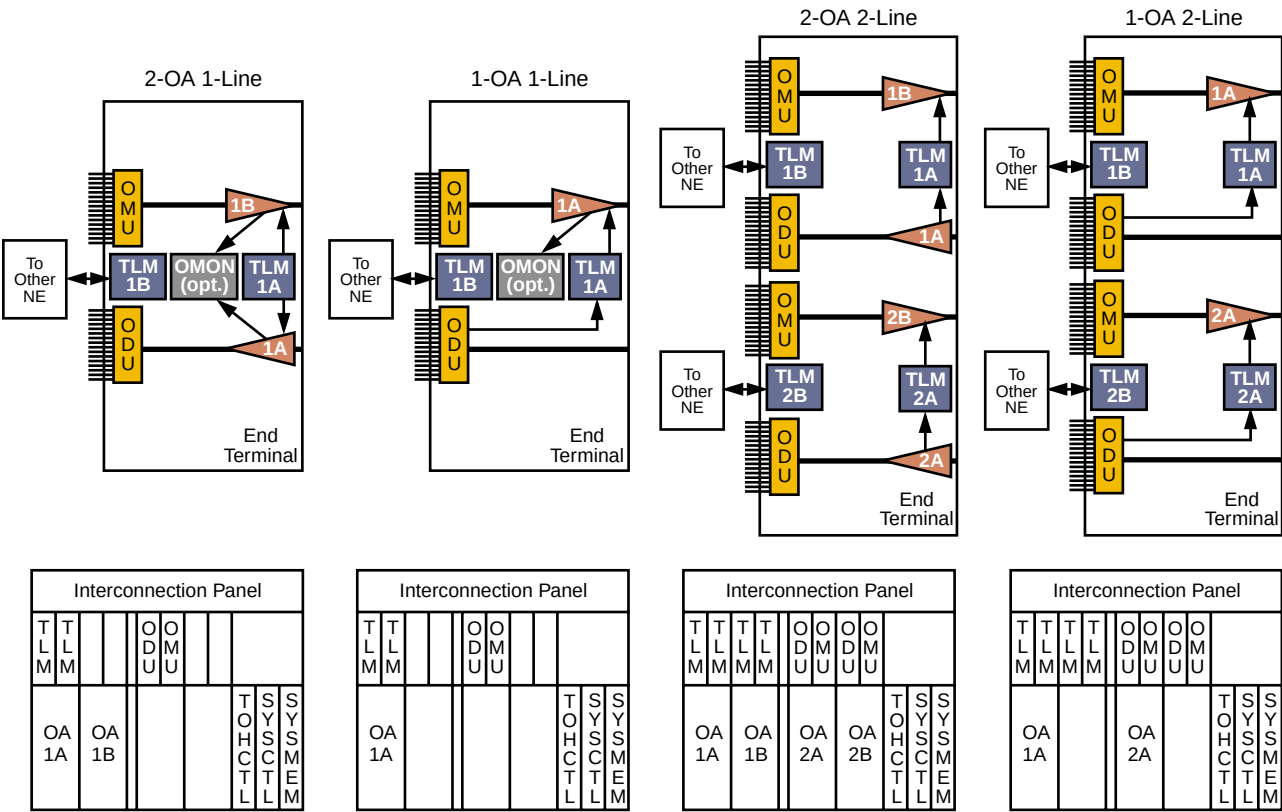
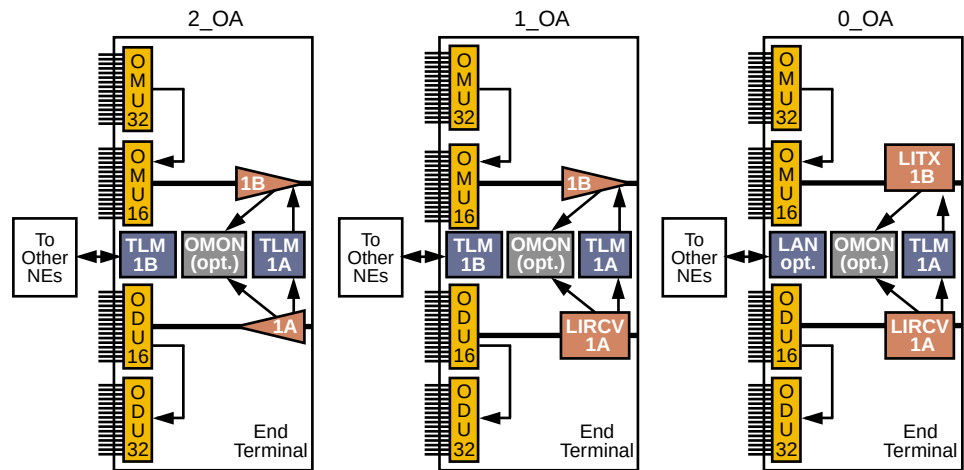


Figure 4-10 1A-RCV-THRU-32



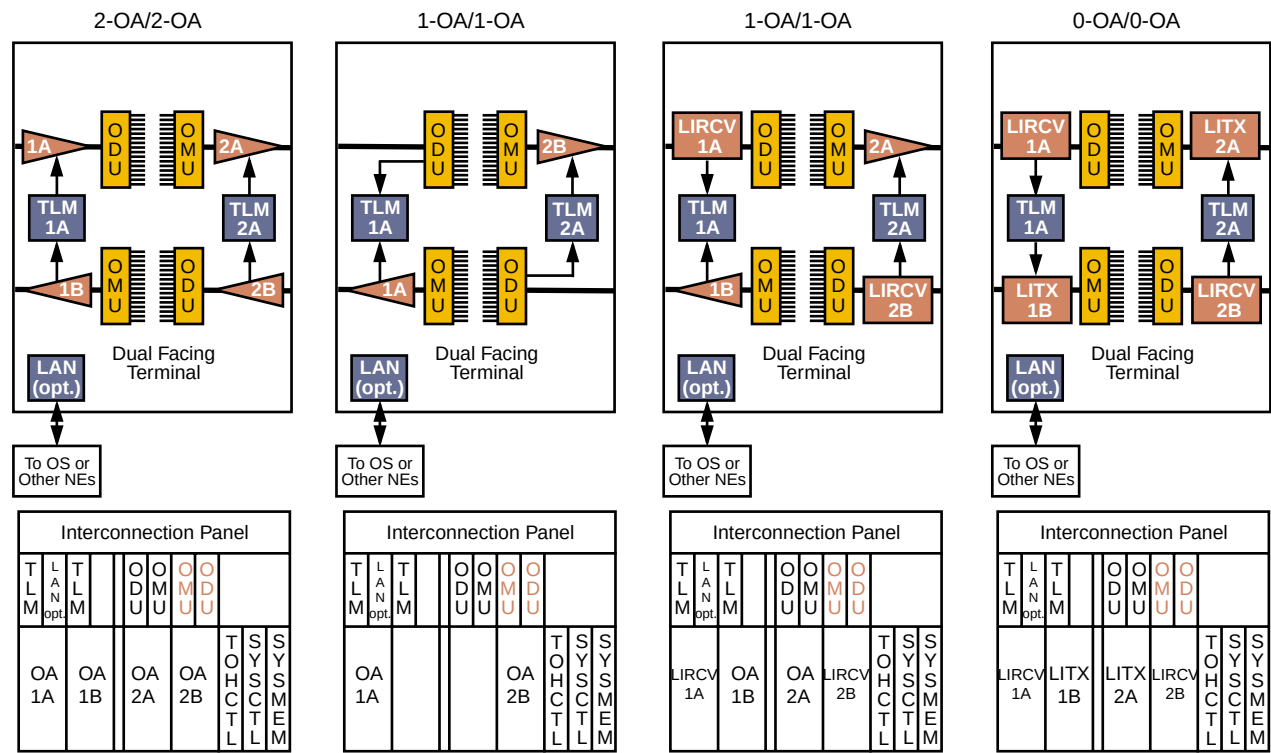
Interconnection Panel									
TLM	TLM			ODU 16	OMU 16	ODU 32	OMU 32		
OA 1A	OA 1B			OMON (opt.) or LIHTR 2A		LIHTR 2B		TOHCTL	SYSTEM

Interconnection Panel									
TLM	TLM			ODU 16	OMU 16	ODU 32	OMU 32		
LIRCV 1A	OA 1B			OMON (opt.) or LIHTR 2A		LIHTR 2B		TOHCTL	SYSTEM

Interconnection Panel									
TLM	TLM			ODU 16	OMU 16	ODU 32	OMU 32		
LIRCV 1A	LITX 1B			OMON (opt.) or LIHTR 2A		LIHTR 2B		TOHCTL	SYSTEM

nc-metro-158

Figure 4-11 DUAL



AIDs and shelves The following table lists circuit pack AIDs in alphabetical order and indicates which shelf or shelves that circuit pack could be in.

AID	Possible Shelf Location(s)			
	EON in End or Ring Terminal	Repeater	OT – 1st Set	OT – 2nd Set
lan	Yes	Yes	No	No
oa-{1a,1b,2a,2b}	Yes	Yes	No	No
otpm-1-{1,3,5,...,31}-{1-4}	No	No	Yes	No
otpm-2-{1,3,5,...,31}-{1-4}	No	No	No	Yes
otu-1-{1-32}-{1-4}	No	No	Yes	No
otu-2-{1-32}-{1-4}	No	No	No	Yes
ou-{1a,1b,2a,2b}	Yes	No	No	No
oupsr-1-{1-32}	No	No	Yes	No
oupsr-2-{1-32}	No	No	No	Yes

AID	Possible Shelf Location(s)			
	EON in End or Ring Terminal	Repeater	OT – 1st Set	OT – 2nd Set
sysctl	Yes	Yes	No	No
sysmem	Yes	Yes	No	No
tlm-{ 1a,1b,2a,2b }	Yes	Yes	No	No
tohctl	Yes	Yes	No	No

Circuit Pack, Carrier, and DCM codes

The following table lists pack types, functions, and codes.

Pack Type	Pack Function	Code Pattern (xx = channel no.) (yy = kilometers)
2DM25	2:1 MUX Add/Drop OTU	41Mxx
DCM	Dispersion Compensation	EONDCMyy
ELSBB	Add OTPM	44Cxx
ELSBB	Drop OTPM	44BC
Gb-E	Add OTU	41Fxx
Gb-E	Drop OTU	41G
LSBB	Add OTPM	44Axx
LSBB	Drop OTPM	44B
OC-12/STM-4	Add OTPM	42Axx
OC-12/STM-4	Drop OTPM	42B
OC-192/STM-64/ OCh10G	Add OTU	41HxxA
OC-192/STM-64/ OCh10G	Through OTU	41HxxC
OC-192/STM-64/ OCh10G	Through OTU	41HB
OC-3/STM-1	Add OTPM	43Axx
OC-3/STM-1	Drop OTPM	43B
OC-48/STM-16	Add OTPM	46Axx
OC-48/STM-16	Add OTU	41AxxC 41CxxC
OC-48/STM-16	Drop OTPM	46B
OC-48/STM-16	Drop OTU	41B
OC-48/STM-16	Drop OTU	41HB
QOTU	carries up to four OC-3, OC-12, LSBB, or ELSBB OTPMs	41S

Pack Type	Pack Function	Code Pattern (xx = channel no.) (yy = kilometers)
QOTU25	carries up to four OC-48/STM-16 OTPMs	41T
QOTUUB	carries up to four UBB OTPMs	41U
UBB	Add OTPM	47Axx
UBB	Drop OTPM	47B
UBB	Through OTPM	47Cxx

DLP-504: Test Office Alarm Operation

Purpose This task is used to test the operation of the office alarm.

Task Follow the steps below to test the alarm.

Important! Each step has a four-second duration.

1 At the CIT, select **FAULT.Test.Alarm** and **Mode:All** with **Repeat:1**.

2 Verify the CR, MJ, and MN visual LED indicators are sequentially **lighted** for four seconds and then remain **off** per the sequence listed in the table in “Sequence chart” (4-30). The NE ACTY LED indicator will be lighted for the duration of the test. The FE ACTY and ABN LED indicators are not lighted during this test. Also, the office audible alarms should be activated during this test.

3 Did the office alarms operate as described?

If	Then
YES	STOP! YOU HAVE COMPLETED THIS TASK.
NO	Refer problem to the group that installed the equipment.

END OF STEPS

Sequence chart **Important!** Each step has a four-second duration.

The following table lists the sequence in which the CR, MJ/PROMPT, and MN/DEFER LED indicators are **lighted** for four seconds and then remain **off**.

Step	Alarm LED Indicators at User Panel					
	CR	MJ/ PROMPT	MN/ DEFER	NE ACTY/ INFO-N	ABN	FE ACTY/ INFO-F
1	Off	Off	Off	Lighted	Off	Off
2	Lighted	Off	Off	Lighted	Off	Off
3	Off	Lighted	Off	Lighted	Off	Off
4	Off	Off	Lighted	Lighted	Off	Off
5	Off	Off	Off	Lighted	Off	Off
6	Off	Off	Off	Off	Off	Off

DLP-505: Perform Provisioning

Purpose This task is used to provision the circuit packs or units.

Task **Important!** The Metropolis[®] EON does not have manual or switch-settable options on its circuit packs or units. Information about Metropolis[®] EON provisioning is provided in Chapter 4, “Equipment provisioning” of the *User Operations Guide*, 365-575-559 R8.2. Other helpful information is the CIT tutorial and command tables (by release), which are located in Chapter 16 of the UOG. The following Job Aids are also available.

- *Metropolis[®] Enhanced Optical Networking (EON) Provisioning Job Aid*, 365-575-564 R8.2
- *Metropolis[®] Enhanced Optical Networking (EON) Threshold Crossing Alert (TCA) Parameters Provisioning Job Aid*, 365-575-565 R8.2

- 1 At the CIT select the category **CONFIGURATION, PERFORMANCE, FAULT, SECURITY, or ADVANCED** and the appropriate inputs [*verb* and *modifier(s)*]. Inputs are also referred to as *commands*.

2 Did the appropriate report show that provisioning has been done?

If	Then
YES	STOP! YOU HAVE COMPLETED THIS TASK.
NO	Important! For example, obtain a report using the command CONFIGURATION.Retrieve.Attribute.Alarm. Another example is obtain a report using the command CONFIGURATION.Retrieve.Supervisory. 1. Refer the problem to the group that did the original provisioning, and/or 2. Compare the report with the original work order and correct the provisioning discrepancy. Provisioning job aids are available; see Step 1 for the specific equipment references.

E N D O F S T E P S



DLP-506: Verify Network Elements Are Connected

Purpose This task is used to verify that all network elements are connected in a system.

Task **Important!** CIT-PC reports are used to verify Metropolis® EON connectivity.

1 At the CIT, select the command **FAULT.Retrieve.Condition.All** to obtain a report. This report indicates if any trouble conditions are present on the local Metropolis® EON network element.

2 Are there any trouble conditions listed in the **CONDDSCR** column of the report?

If	Then
NO	Continue with Step 3.
YES	Refer to TAP-102 to clear indicated conditions and then continue with Step 3

3 At the CIT, select the command **FAULT.Retrieve.Alarm.Network** to obtain a report for the Metropolis® EON. This report indicates if any conditions are present in the Metropolis® EON.

4 Are there any alarms listed in the **NTFCNCDE** column of the report?

If	Then
NO	Continue with Step 5.
YES	Notify personnel at the remote site to correct the trouble condition(s) before proceeding.

5 At the CIT, select the command **CONFIGURATION.Retrieve.Map.Ring** to obtain a report.

-
- 6** Verify the TIDs, DSNE, DCC status, and FBRCONN from the report agree with the engineered documentation.

E N D O F S T E P S



DLP-507: Identify Source of Incoming Signal

Purpose Use this task to identify the signal source associated with an incoming signal condition so that you can issue a Trouble Report to the personnel at that location.

Task

- 1** Find the condition to be reported in the following table and continue with the indicated step.

If this condition	Then go to
Incoming CMS SD (signal degrade)	Step 2
Incoming CMS SF (signal failure)	Step 2
Incoming optical channel LOS (loss of signal)	Step 4
Incoming optical line LOS (loss of signal)	Step 7
Incoming supr chnl fail	Step 7
Incoming supr chnl SD (signal degrade)	Step 7
Incoming supr chnl SF (signal failure)	Step 7
Incoming {signal type} failure	Step 9
Incoming {signal type} LOS	Step 9

.....

Important! The source of the incoming signal condition is at the upstream network element, meaning the transmit location for the incoming signal.

- 2** From office records, determine the location of the customer provided equipment and send a Trouble Report to the personnel responsible for maintaining that site.

-
- 3** STOP! YOU HAVE COMPLETED THIS TASK.

-
- 4 Is this incoming optical channel LOS (loss of signal) in the receive line direction or transmit line direction?

If	Then
Transmit direction	Continue with Step 5.
Receive direction	Continue with Step 7.

Important! The source of the incoming signal condition is the OTU/OTPM or compatible optics.

- 5 From office records, determine the location of the OTU/OTPM or compatible optics associated with this channel and send a Trouble Report to the personnel responsible for maintaining that site.

-
- 6 STOP! YOU HAVE COMPLETED THIS TASK.

Important! The source of the incoming signal condition is the upstream network element in the direction of the incoming signal.

- 7 From office records, determine the location of the upstream network element and send a Trouble Report to the personnel responsible for maintaining that site.

-
- 8 STOP! YOU HAVE COMPLETED THIS TASK.

Important! The source of the incoming signal condition is the upstream network element. Upstream network element meaning the transmit location for the incoming signal.

- 9 From office records, determine the location of the upstream network element associated with this OTU/OTPM and send a Trouble Report to

the personnel responsible for maintaining that site.

E N D O F S T E P S



DLP-508: Test Parallel Telemetry

Purpose This task is used to test all the parallel telemetry points for proper operation. Perform this task during the acceptance of the Metropolis[®] EON network elements when they are out of service and is performed only during this time. For additional information, refer to the "Parallel Telemetry Interface" part in Section 6, "Operations Interfaces."

Task

1 Contact the remote operations center and request their assistance in monitoring the parallel telemetry points during this test.

2 At the remote operations center, disable the alarm threshold level for the telemetry points being tested.

3 At the local CIT, select the command **FAULT.Test.Telemetry.Parallel** and execute.

Result: All parallel telemetry points are simultaneously turned on for 20 seconds, then off for 20 seconds before reverting to normal operation.

4 Does the test pass as monitored from the remote operations center.

If	Then
YES	Continue with Step 5.
NO	Refer to the Installation Guide to correct the problem or contact the group who did the installation.

5 At the remote operations center, enable the alarm threshold level for the points being tested, if disabled in Step 2.

END OF STEPS



DLP-509: Install/Remove Apparatus (Circuit Pack) Blank

Purpose This task is used to install and/or remove the apparatus blank.

Task

- 1** Is an apparatus blank to be installed or removed?

To be	Then
Installed	Continue with Step 2.
Removed	Continue with Step 7.

- 2** Position the apparatus blank vertically with its white painted surface towards you and its two extended protrusions away from you and on the right side.

- 3** Insert the extended protrusion of the bottom of the apparatus blank into the bottom of the circuit pack slot and snap its spring-clip notch over the bottom shelf cross-support channel.

- 4** Carefully bend the apparatus blank so that it is slightly bowed towards you in the middle, insert its top protrusion into the top of the circuit pack slot, and snap its spring-clip notch over the top shelf cross-support channel.

- 5** Push the center of the apparatus blank inwards to fully seat it and to eliminate any residual bowing.

- 6** STOP! YOU HAVE COMPLETED THIS TASK.

- 7** Is there a vacant slot adjacent to the apparatus blank to be removed?

If	Then
YES	Continue with Step 8.

If	Then
NO	Continue with Step 12.

.....

8 Carefully bend the apparatus blank so that it is slightly bowed towards you in the middle, unsnap its spring-clip notch from the top shelf cross-support channel, and remove its top protrusion from the top of the circuit pack slot.

.....

9 Unsnap the spring-clip notch of the apparatus blank from the bottom shelf cross-support channel and remove the bottom extended protrusion from the bottom of the circuit pack slot.

.....

10 Lift the apparatus blank from the slot.

.....

11 STOP! YOU HAVE COMPLETED THIS TASK.

.....

12 Use a flat-bladed screwdriver against the bottom shelf cross-support channel to pry the apparatus blank's bottom edge upward and forward.

.....

13 Lift the apparatus blank from the slot.

END OF STEPS



DLP-510: Inspect and Clean Optical Fiber Connectors

Overview This procedure describes the Lucent recommended method for the cleaning and inspection of optical connectors using specific tools and materials that have been proven to be effective in the assembly and testing of optical transmission equipment. It is critical that the connector endfaces are clean and free from particular contamination to assure proper performance and reliability of lightwave systems. With the modern high speed, high power and wider bandwidth optical transmission systems, clean connectors along the optical path are absolutely essential for successful operation.

Equipment required For proper cleaning, the following equipment and materials are recommended:

Product	Model	Comcode	ITE #	Installation Order #
Optical Fiber Scope	Noyes OFS 300-200X	408197028	ITE-7129	33712900
2.5mm Universal adapter cap	for use with Noyes OFS 300-200X	408197044	ITE-7129D1	33712901
1.25mm Universal adapter cap	for use with Noyes OFS 300-200X	408197069	ITE-7129D2	33712902
SC angled adapter	for use with Noyes OFS 300-200X	408376812	ITE-7129D3	33712903
Individual pre-saturated alcohol wipes	99% pure isopropyl alcohol	901375147	ITE-7136	33713600
CLETOP Cleaning Cassette	Type A Reel	901375154	ITE-7137	33713700
CLETOP Cleaning Cassette Replacement Reel	Type A Reel	901375014	ITE-7137 D1	33713701
Luminex Stick port cleaners	1.25 mm	901375030	ITE-7134	33713400
Luminex Stick port cleaners	2.5 mm	901375022	ITE-7135	33713500

Product	Model	Comcode	ITE #	Installation Order #
Luminex Cloth	5.5" x 5.5"	408201226	R6033	23603300
Video Optical Fiber Inspection Microscope	Noyes VFS-1	408356830	ITE-7146	41714600
FC adapter	for use with Noyes VFS-1	408356863	ITE-7146D3	33714603
1.25 mm adapter	for use with Noyes VFS-1	408356848	ITE-7146D1	33714601
2.5 mm adapter	for use with Noyes VFS-1	408356855	ITE-7146D2	33714602
LC adapter	for use with Noyes VFS-1	408356889	ITE-7146D4	33714604
SC adapter	for use with Noyes VFS-1	408356954	ITE-7146D5	33714605
ST adapter	for use with Noyes VFS-1	408356962	ITE-7146D6	33714606

The equipment and material listed above has been tested and is proven effective when used in conjunction with this procedure. Substitution of equipment or materials is at the discretion of the user and is not recommended by Lucent.

Safety instructions

Never view an energized optical cable with the naked eye or with an optical magnifying instrument. Disconnected or separated optical connectors may emit invisible laser radiation and direct exposure can severely injure the eye. If inspecting the endface of a connector with a fiberscope, be absolutely certain that the system is deactivated.

Alcohol is flammable and is harmful if swallowed, inhaled or absorbed through the skin. Keep alcohol away from heat, sparks, or flame. Avoid contact with eyes, skin and clothing.

Optical fiber connectors

The procedure that follows utilizes the "Wet/Dry" method for connector cleaning. This method first applies a "wet" solvent (high purity alcohol) to the connector endface to dissolve/remove any organic particulate or oily films, followed by a "dry" double clean wipe using the CLETOP cleaning cassette.

This procedure is recommended for connector ferrules 2.5 mm and 1.25 mm in diameter associated with ST, SC, FC, and LC connectors. The ferrule of a fiber optic connector consists of a ceramic or stainless steel cylinder with a hole located longitudinally down the center of its axis, allowing enough tolerance for a fiber to pass through.

All optical connectors should be cleaned prior to connectorization. Keep the protective ferrule dust cap in place on the connector until initiating the cleaning process.

**Clean optical fiber
connectors**

The following cleaning procedure is acceptable for field service/
installation activities.

-
- 1 Remove the dust cap from the connector ferrule exposing the endface of the connector.
-
- 2 Open an individual foil packet of pre-saturated isopropyl alcohol (99% pure) wipe. Grasp the connector housing and place the connector ferrule endface perpendicular to the alcohol wipe. Drag it against the wipe three (3) times in a figure eight pattern. This action applies the alcohol solvent to the endface and initially loosens and scrubs away organic/solid contaminants.



-
- 3** If a CLETOP cassette cleaner is not available, proceed with Step 7. Otherwise, hold the CLETOP cassette cleaner in the palm of your hand with the cassette shutter door facing up. Rotate the cassette lever all the way down with your thumb. Do not release the lever. The lever advances the “dry” Luminex cleaning cloth inside the case and simultaneously opens the shutter. The CLETOP cassette shutter door is now open and ready for cleaning the connector.



-
- 4** Insert and press the connector ferrule endface perpendicular against the cleaning cloth in the first of two slots of the cleaner. Drag it down in the direction indicated by the arrows on the cleaner. Do not release the lever of the cassette.
-
- 5** Lift the connector from the first slot and rotate it 90 degrees and repeat the wiping procedure using the second slot. Be sure the ferrule is pressed snug against the cleaning cloth while dragging the ferrule to assure the proper cleaning action.
-
- 6** Release the cassette lever allowing the shutter door to close to its initial position. Continue with Step 8.

-
- 7 Wrap a Luminex cleaning cloth around the ferrule and rotate the connector housing, cleaning the outside periphery of ferrule. Follow this by folding an unused portion of the cloth over the end of the ferrule endface and then with light pressure from the thumb, slightly drag the cloth from the center of the ferrule to the edge while rotating the connector 360 degrees. If the Luminex cleaning cloth is not available, a lint free cleanroom optic wipe can be used. The Luminex cleaning cloth is washable and can be used multiple times. The optic wipes are single use and disposable.
-
- 8 Inspect the connector for cleanliness. If necessary, repeat the cleaning process.

END OF STEPS

Inspect Connectors

After cleaning the connector, inspect the ferrule endface to ensure that it is free from significant particulate contamination using an optical fiber inspection scope of at least 200X magnification. When using an optical fiber scope (for example, the Noyes OFS 300-200X) exercise extreme caution to assure fiber being examined is de-energized.

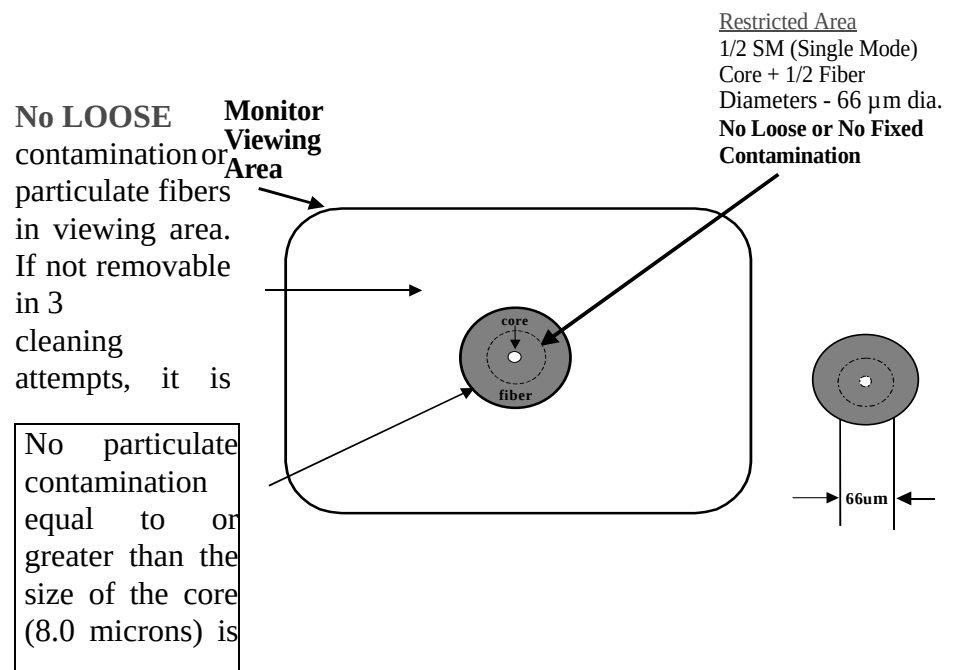
Important! Use an optical power meter to verify the connector and fiber to be cleaned has been de-energized/deactivated before viewing.

- 1 Follow the instructions in the manual provided with the Optical Fiber Scope to view the ferrule endface of the fiber under inspection.
-
- 2 The visual area of the ferrule endface (ferrule and fiber) as observed by the inspection system/scope should be free of any contaminants (see the following figure).

Result: No fixed type of contamination (contaminants which after 3 wet-dry cleaning operations remain at the same location on the connector endface), regardless of size, is allowed in the restricted area of the glass fiber endface as determined after 3 successive wet-dry cleaning attempts. The restricted area is defined as ~66 micron (mm) diameter for both single-mode and multimode fibers. Chips,

cracks, and scratches are not allowed near the core of the glass fiber endface. No large floating (loose) contaminants are allowed on the glass fiber and ceramic ferrule endface. If after 3 successive wet-dry cleaning attempts, particulate that is less than 8 mm in size remains fixed on the ceramic ferrule endface and outside the defined restricted area on the fiber glass endface, it will be acceptable.

Figure 4-12 Acceptability Criteria: Single-Mode and Multimode Fibers



- 3 After the connector has been verified to be cleaned, it should be immediately inserted into the adapter buildout of the optical component. This will assure maximum cleanliness and effectiveness of the connector.
- 4 If the cleaned connector can not be “connectorized” with a corresponding adapter, the connector ferrule must be protected with a connector dust cap. Before placing the cap on the ferrule, make sure the cap is clean. This can be accomplished by inserting a CLETOP stick cleaner (swab) of the same inside diameter as the cap (either 2.5 or 1.25 mm) and rotate the stick 360 degrees three (3) times. Following this

procedure, carefully place the cap over the ferrule. When the cleaned connector is ready for assembly, it should be re-inspected for cleanliness prior to connectorization.

END OF STEPS

**Clean optical fiber adapters
and circuit pack
connectors**

During testing and/or trouble shooting activities it may be necessary to clean the optical buildout adapter and the circuit pack connector. The following procedure is recommended.

Important! Do not attempt to clean ports equipped with yellow lightguide buildout (LBO) attenuators. Attenuators contain a thin glass lens that is extremely fragile and would be damaged by cleaning by a mechanical means. Discard any contaminated LBOs.

- 1** Using the appropriate CLETOP stick cleaner (2.5 mm for SC, ST, and FC connectors, 1.25 mm for LC connectors) dampen the stick cleaner with Ethyl alcohol using the alcohol wipe. Insert the stick cleaner into the adapter rotating the stick 360 degrees while inserting. Push/rotate stick until the stick cleaner makes contact with the ferrule end face. Apply slight pressure upon contact and rotate stick 360 degrees at least three (3) times.
- 2** Remove the stick cleaner rotating it upon removal.
- 3** Using a dry CLETOP stick cleaner of appropriate diameter, repeat the above cleaning procedure. This procedure will clean the sidewalls of the adapter and the endface of the circuit pack connector.

END OF STEPS



DLP-511: Open/Close Cabinet Doors or Install/Remove Shelf Cover

Purpose This task is used to open/close the cabinet doors or to install/remove the shelf cover.

Supporting tasks This task refers to the following supporting task.

- “DLP-503: Locate Circuit Pack/Fiber Connections” (4-16)



CAUTION

Electrostatic Discharge

Use a static ground wrist strap whenever handling circuit packs or working on a network element to prevent electrostatic discharge damage to sensitive components.

Determine cabinet installation

1 Is the network element cabinet installed or miscellaneous mounted?

If	Then
Cabinet installed	Continue with “Open cabinet doors” (4-51).
Miscellaneous mounted	Continue with Step 2.

2 Locate the appropriate shelf cover.

Reference: “DLP-503: Locate Circuit Pack/Fiber Connections” (4-16)

.....

3 Is the cover being installed or removed?

If	Then
Removed	Continue with “Remove cover” (4-50).
Installed	Continue with “Install cover” (4-50).

.....

END OF STEPS

.....

Remove cover

.....

- 1** At the top of each cover, locate a latch at each corner.
-
- 2** Unlatch the cover, swing toward you three inches and lift the cover from the shelf frame.

.....

END OF STEPS

.....

Install cover

.....

- 1** Place the cover bottom into the shelf frame.
-
- 2** Close the cover until both top corners latch.
-
- 3** STOP! YOU HAVE COMPLETED THIS TASK.
-
- 4** Locate the appropriate cabinet.

Reference: “DLP-503: Locate Circuit Pack/Fiber Connections” (4-16)

.....

5 Are the doors being opened or closed?

If	Then
Opened	Continue with “Open cabinet doors” (4-51).
Closed	Continue with “Close cabinet doors” (4-51).

.....

END OF STEPS

.....

Open cabinet doors

.....

- 1** At the center of the right door, locate the latch release push button and press in and release. The latch handle will pop out.
-

- 2** Grasp the latch handle and open the door, now the left-hand door can be opened.
-

END OF STEPS

.....

Close cabinet doors

.....

- 1** Close the left-hand door first.
-
- 2** Close the right-hand door and press down on the latch handle.
-

END OF STEPS



DLP-512: Install/Remove Lightguide Buildout

Purpose This task is used to install and/or remove the lightguide buildout.

Task



CAUTION Electrostatic Discharge

Use a static ground wrist strap whenever handling circuit packs or working on a network element to prevent electrostatic discharge damage to sensitive components.

Important! The table on “LBO types (maximum reflectance = -30 dB)” (4-55) lists the color and values of LBOs. The green LBOs must be used when adding channels because of their finer granularity. If yellow LBOs are already installed, you do not need to go back and replace with green LBOs.

- 1 Is the buildout being installed or removed (see “ST, block, and buildouts” (4-54))?

To	Then
Install	Continue with “Install buildout” (4-52).
Remove	Continue with “Remove buildout” (4-53).

END OF STEPS

Install buildout



WARNING Eye Damage

Unterminated optical connectors may emit invisible laser radiation that could damage your eyes. Do not view the beam directly or with optical instruments.

- 1 Remove the protector caps and plugs (if equipped) from the buildout and buildout block and store them in a clean container.

-
- 2 Align the buildout with the slot in the buildout block, push in, and rotate clockwise until locked into position. Refer to the appropriate figure (“ST, block, and ST buildout” (4-54), “ST, block, and FC buildout” (4-54), “ST, block, and SC buildout” (4-55), or “LC connector” (4-55)) for the specific buildout type.

END OF STEPS

Remove buildout



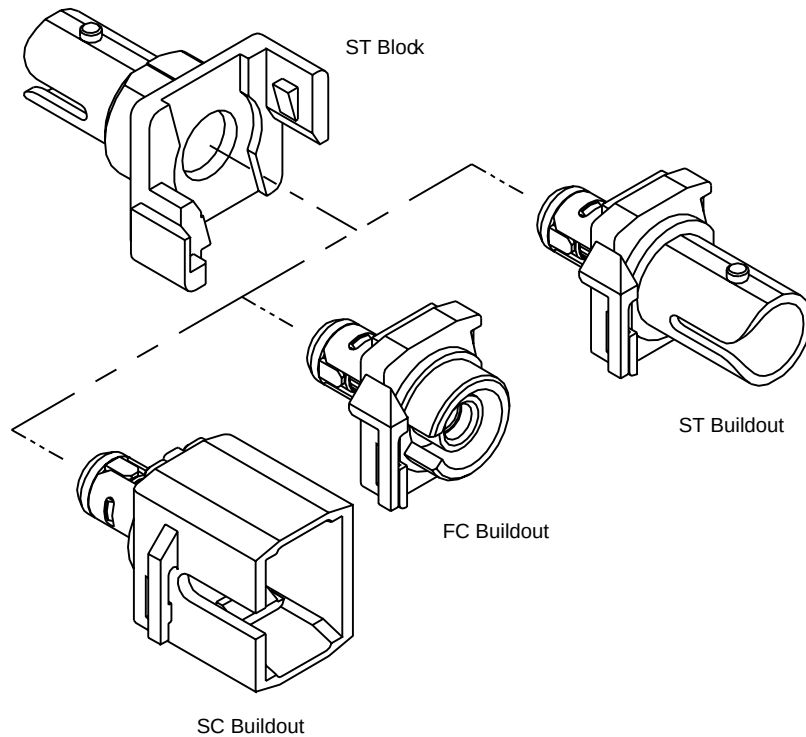
CAUTION

Locking beam must only be pushed along a line perpendicular to buildout body in direction towards the buildout in order to avoid damage to the locking beam.

- 1 Depress the locking beam on the buildout, rotate counterclockwise, and separate from the buildout block by sliding apart. Refer to the appropriate figure (“ST, block, and ST buildout” (4-54), “ST, block, and FC buildout” (4-54), “ST, block, and SC buildout” (4-55), or “LC connector” (4-55)) for the specific buildout type.

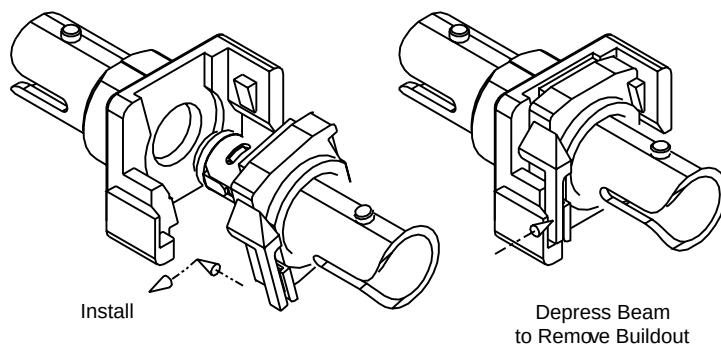
END OF STEPS

ST, block, and buildouts The following figure illustrates the ST, block, and buildouts.



nc-a110394

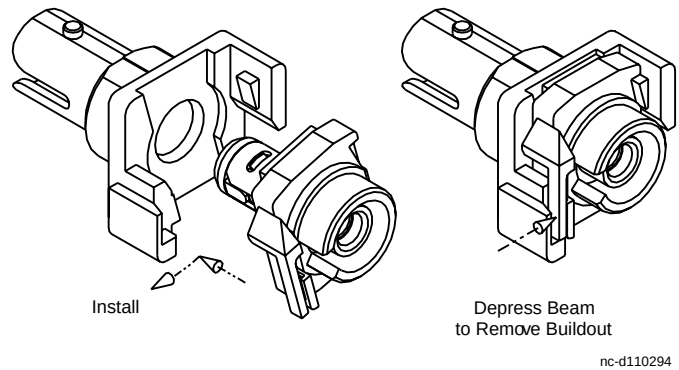
ST, block, and ST buildout The following figure illustrates the ST, block, and ST buildout.



nc-b110794

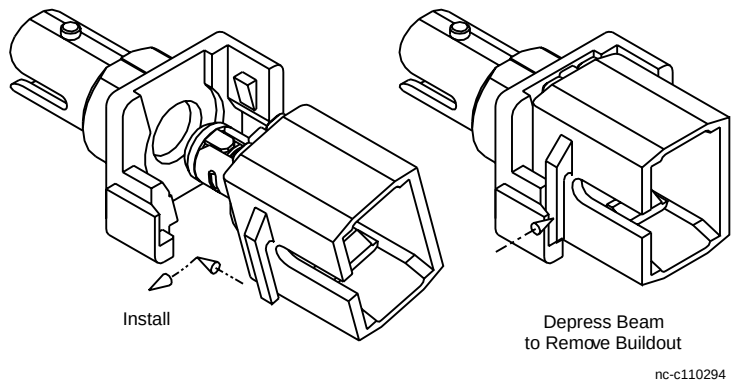
ST, block, and FC buildout

The following figure illustrates the ST, block, and FC buildout.



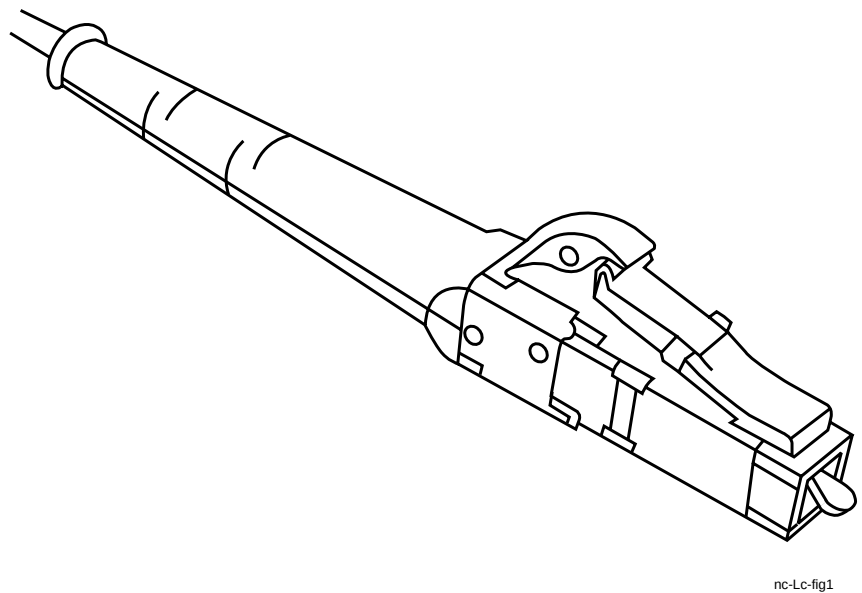
ST, block, and SC buildout

The following figure illustrates the ST, block and SC buildout.



LC connector

The following figure illustrates the LC connector.



LBO types (maximum

reflectance = -30 dB) The following table lists the LBO types and associated parameter values.

LBO Color	Fiber Use ¹	Attenuation Values	Connectors Supported	Wavelength at Nominal Attenuation (nm)	Attenuator Element (dB)	Optical Power Limits (dBm) ²
	SM-SM	0				
	SM-MM		ST and FC	No restriction	—	Connector limited
White	MM-MM					
	MM-MM	5, 10, 15, 17.5	ST	1310	Clear for 5	≤20
					Tinted for 10, 15, 17.5	≤5
	SM-SM					
	SM-MM	0	SC	No restriction	—	Connector limited
Blue	MM-MM					
	MM-MM	5, 10, 15, 17.5	SC	1310	Clear for 5	≤20
					Tinted for 10, 15, 17.5	≤5
Yellow	SM-SM	3, 5, 7, 10, 15, 20	ST, FC, and SC	1310 to 1550 ³	Clear for ≤10	≤20
					Tinted for >15	≤5
Green ⁴	SM-SM	3, 3.5, 4, 4.5, 5, 5.5, 6, 6.5, 7, 7.5, 8, 8.5, 9, 9.5, 10, 10.5, 11, 11.5, 12, 12.5, 13, 13.5, 14, 14.5, 15, 16, 18, 20	ST and FC	1550	Clear	≤20
		3, 3.5, 4, 4.5, 5, 5.5, 6, 6.5, 7, 7.5, 8, 8.5, 9, 9.5, 10	SC	1550	Clear	≤20
Gray ⁵	SM-MM	5, 7, 10, 12, 15, 17, 20	ST and FC	1550	Tinted	≤5

Notes:

1. SM – Single-mode fiber, MM – Multi-mode fiber.
2. These optical power values are conservative estimates.
3. The Yellow LBOs have nominal values appropriate to both 1310 and 1550 nm. Worst case tolerance on attenuation is $\pm 15\%$ of nominal attenuation.
4. Green LBOs are highly recommended for 16 wavelength systems due to their finer granularity. These LBOs have nominal values appropriate to 1550 nm. Tolerance is ± 0.3 dB of nominal attenuation for 3 to 15 dB values, and ± 1 dB for 18 or 20 dB values. Use at the IN and OUT connectors of the OC48/STM16 OTU. Use at the OUT connectors of the transmit OTPMs (toward line).
5. Use at the IN connector of ALL drop-side OTPMs and ALL Lucent OC-3, OC-12, and LSBB receivers that are used directly with Metropolis[®] EON without drop-side OTPMs.



DLP-513: Test Miscellaneous Discrete Telemetry

Purpose This task tests the user settable miscellaneous discrete environmental (input) points and control (output) points of the Metropolis® EON.

Task

- 1 Contact the remote operations center and request their help to observe the environmental points and to activate the control points during this test.
 - 2 At the remote operations center, disable, if desired, the alarm threshold level for the points being tested.
-

Important! When an external device connected to the Metropolis® EON network element causes a contact closure to appear as an environmental input to the network element, a corresponding environmental point is activated at the remote operations center.

- 3 Operate the first external device connected to the Metropolis® EON network element in such a way as to cause a closed contact to appear at the network element's environmental input.
 - 4 Was the corresponding environmental point activated at the remote operations center?
-

If	Then
YES	Continue with Step 5.
NO	Report the trouble to the installation personnel.

- 5 Operate the first external device connected to the Metropolis® EON network element in such a way as to cause an open contact to appear at the network element's environmental input.
-

- 6 Was the corresponding environmental point deactivated at the remote operations center?

If	Then
YES	Continue with Step 7.
NO	Report the trouble to the installation personnel.

- 7 Repeat Step 3 through Step 6 for any remaining environmental points to be tested.

Important! When a control point is activated at the remote operations center, it results in a contact closure at the corresponding control output of the Metropolis® EON network element which, in turn, can operate an external device connected to the network element.

- 8 Ask the personnel at the remote operations center to activate the first control point being tested.

- 9 Was the corresponding external device connected to the network element operated correctly? (For example, was the power turned **On**?)

If	Then
YES	Continue with Step 10.
NO	Report the trouble to the installation personnel.

- 10 Ask the personnel at the remote operations center to deactivate the first control point being tested.

-
- 11** Was the corresponding external device connected to the network element operated correctly? (For example, was the power turned **Off**?)

If	Then
YES	Continue with Step 12.
NO	Report the trouble to the installation personnel.

-
- 12** Repeat Step 8 through Step 11 for any remaining control points to be tested.

-
- 13** At the remote operations center, enable the alarm threshold level for the points being tested, if disabled in Step 2.

END OF STEPS



DLP-514: Install/Remove Circuit Pack

Purpose This task is used to install and/or remove a circuit pack.

Supporting tasks This task refers to the following supporting tasks.

- “DLP-525: Connect/Disconnect Optical Fibers at OTU/OTPM” (4-114)
- “DLP-524: Select an LBO at the Add OTU/OTPM IN” (4-107)
- “DLP-510: Inspect and Clean Optical Fiber Connectors” (4-42)
- “DLP-512: Install/Remove Lightguide Buildout” (4-52)

Task



CAUTION

Electrostatic Discharge

Use a static ground wrist strap whenever handling circuit packs or working on a network element to prevent electrostatic discharge damage to sensitive components.



CAUTION

Data Loss

Do not remove the SYSCCTL circuit pack unless instructed to by the task that sent you here. If the SYSCCTL circuit pack is removed, provisioning data could be lost.

Important! Verify that all fibers are labeled to prevent possible service interruption.

1 Are you to install or remove a circuit pack?

If	Then
Install	continue with Step 2.
Remove	continue with Step 3.

2 What type of circuit pack is being installed?

If	Then continue with
DCM	“Install DCM” (4-71).
IAOLRP circuit pack	“Install IAOLRP, OTCTL, TOHCTL, SYSMEM, or SYSCTL” (4-67).
LIRCV circuit pack	“Install OA, LITX, LIRCV, or LIHTR” (4-67).
LITX circuit pack	“Install OA, LITX, LIRCV, or LIHTR” (4-67).
OA circuit pack	“Install OA, LITX, LIRCV, or LIHTR” (4-67).
OTCTL circuit pack	“Install IAOLRP, OTCTL, TOHCTL, SYSMEM, or SYSCTL” (4-67).
OTPM circuit pack	“Install OTPM” (4-77).
OTU circuit pack	“Install OTU or OUPSR” (4-76).
OUPSR circuit pack	“Install OTU or OUPSR” (4-76).
QOTU circuit pack	“Install QOTU” (4-78).
SYSCTL circuit pack	“Install IAOLRP, OTCTL, TOHCTL, SYSMEM, or SYSCTL” (4-67).
SYSMEM circuit pack	“Install IAOLRP, OTCTL, TOHCTL, SYSMEM, or SYSCTL” (4-67).
TLM circuit pack	“Install TLM” (4-70).
TOHCTL circuit pack	Important! Incomplete retrieve reports will be obtained if sufficient time has not elapsed as indicated in the Mini Reset Waiting Time table of the task that sent you here. “Install IAOLRP, OTCTL, TOHCTL, SYSMEM, or SYSCTL” (4-67).

3 What type of circuit pack is being removed?

If	Then continue with
DCM	“Install DCM” (4-71).
IAOLRP circuit pack	“Remove IAOLRP, OTCTL, TOHCTL, SYSMEM, or SYSCTL” (4-66).
LIRCV circuit pack	“Remove OA, LITX, LIRCV, or LIHTR” (4-63).
LITX circuit pack	“Remove OA, LITX, LIRCV, or LIHTR” (4-63).
OA circuit pack	“Remove OA, LITX, LIRCV, or LIHTR” (4-63).
OTCTL circuit pack	“Remove IAOLRP, OTCTL, TOHCTL, SYSMEM, or SYSCTL” (4-66).
OTPM circuit pack	“Remove OTPM” (4-74).
OTU circuit pack	“Remove OTU or OUPSR” (4-73).
OUPSR circuit pack	“Remove OTU or OUPSR” (4-73).
QOTU circuit pack	“Remove QOTU” (4-75).
SYSCTL circuit pack	“Remove IAOLRP, OTCTL, TOHCTL, SYSMEM, or SYSCTL” (4-66).
SYSMEM circuit pack	“Remove IAOLRP, OTCTL, TOHCTL, SYSMEM, or SYSCTL” (4-66).
TLM circuit pack	“Remove TLM” (4-65).
TOHCTL circuit pack	“Remove IAOLRP, OTCTL, TOHCTL, SYSMEM, or SYSCTL” (4-66).

END OF STEPS

**Remove OA, LITX, LIRCV,
or LIHTR**



CAUTION

Optical Amplifier Damage

The OA3 (LEA307) amplifier can be damaged by a dirty fiber, adapter, or OUT port connector. When disconnecting an

output fiber from an OA3, always place dust covers on the fiber and in the OUT port connector.

-
- 1 Remove any optical fibers from the guide below the shelf for the circuit pack being removed.
-



DANGER

Eye Damage

Unseat the circuit pack from the backplane before removing the output optical connector.

- 2 Disengage the circuit pack from the shelf.
-
- 3 Remove the incoming fiber from the IN optical connector of the circuit pack and install a protector cap on the fiber and a protector plug on the connector.
-
- 4 Remove the outgoing fiber from the OUT optical connector of the OA circuit pack and install a protector cap on the fiber and a protector plug on the connector.
-
- 5 Remove the optical fibers from the TLM IN and/or TLM OUT connectors of the circuit pack and install protector caps on the fibers and protector plugs on the connectors.
-
- 6 If this is an OA3 pack, remove the optical fibers from the DCM IN and DCM OUT connectors of the circuit pack and install protector caps on the fibers and protector plugs on the connectors.
-
- 7 Remove any buildouts from the circuit pack and store for future use.
-

Reference: “DLP-512: Install/Remove Lightguide Buildout” (4-52)

Important! DO NOT ROCK THE CIRCUIT PACK BACK AND FORTH.

- 8** Remove the circuit pack from the shelf by carefully sliding the circuit pack out of the slot guides to remove it from the shelf.
-

- 9** Are you to install another circuit pack in this slot?

If	Then
YES	continue with “Install OA, LITX, LIRCV, or LIHTR” (4-67).
NO	Install an apparatus blank to ensure proper air flow and cooling. Reference: “DLP-509: Install/Remove Apparatus (Circuit Pack) Blank” (4-40)

END OF STEPS

Remove TLM

- 1** Remove the optical fibers from the slot guide on the shelf. This is to prevent damage to the fiber when the circuit pack is removed.
-
- 2** Remove the incoming fiber from the IN optical connector of the TLM circuit pack and install a protector cap on the fiber.
-
- 3** Remove the outgoing fiber from the OUT optical connector of the TLM circuit pack and install a protector cap on the fiber.
-
- 4** Which TLM circuit pack is being removed?

If	Then
LDA1	continue with Step 5.

If	Then
LDA4	Important! The LDA4 Telemetry circuit pack does not have a Customer Maintenance Signal. continue with Step 6.

-
- 5** Remove the optical fibers from the CM IN and CM OUT connectors of the TLM circuit pack and install protector caps on the fibers.
-

- 6** Remove any LBOs from the TLM circuit pack and store for future use.

Reference: “DLP-512: Install/Remove Lightguide Buildout” (4-52)

END OF STEPS

**Remove IAOLRP, OTCTL,
TOHCTL, SYSMEM, or
SYSCTL**

Important! Do not rock the circuit pack back and forth.

- 1** Remove the circuit pack from the shelf.
1. Push up on the locking clips to unlock the circuit pack latches.
 2. Unseat the circuit pack by carefully and continuously pulling out on the circuit pack latches.
 3. Carefully slide the circuit pack out of the slot guides to remove it from the shelf.
-

- 2** Are you to install another circuit pack in this slot?

If	Then
YES	continue with “Install IAOLRP, OTCTL, TOHCTL, SYSMEM, or SYSCTL” (4-67).
NO	STOP! YOU HAVE COMPLETED THIS TASK.

END OF STEPS

**Install IAOLRP, OTCTL,
TOHCTL, SYSMEM, or
SYSCTL**

- 1** Install the circuit pack into the slot.
 1. If necessary, close both latches on the circuit pack.
 2. Place the circuit pack into the slot guides and slowly slide it into the shelf until the latches touch the shelf. **DO NOT ROCK THE CIRCUIT PACK OR UNIT BACK AND FORTH.**
 3. Open the latches and push the circuit pack until it engages the connector pins.
 4. With a thumb on each latch, continue sliding the circuit pack with one firm, continuous motion until the latches are fully engaged (the clips are in the locked position).

END OF STEPS

**Install OA, LITX, LIRCV, or
LIHTR**

Note: An OA3 can be used with zero, one, or two DCMs.

- 1** Is the circuit pack being installed either an end terminal receive circuit pack or a single OA configuration transmit circuit pack?

If	Then
NO	continue with Step 11.
YES	continue with Step 2.



DANGER

Eye Damage

Do not seat the OA until you have connected the output fiber.

- 2** Install the circuit pack into the slot as follows:
 1. If necessary, close both latches on the circuit pack.
 2. Place the circuit pack into the slot guides and slowly slide it into the shelf until the latches touch the shelf, but do not seat the pack.

**CAUTION****Optical Amplifier Damage**

The OA3 (LEA307) amplifier can be damaged by a dirty fiber, connector, or LBO. Before connecting to the OUT port on the OA3, always clean the OUT port connector on the OA3 and the fiber you are about to connect. See DLP-510 for details.

- 3 Clean and connect the outgoing optical fiber to the OUT connector of the circuit pack.
- 4 Clean and connect the TLM IN and/or OUT optical fibers to their proper locations.
- 5 Are you connecting zero, one, or two DCMs to this OA?

If	Then
Zero	If this is an OA3, connect a fiber jumper from DCM OUT to DCM IN on the OA. Otherwise, no action is required.
One	Connect a fiber jumper from the DCM OUT port on the OA to the IN port on the DCM. Then connect a fiber jumper from the OUT port on the DCM to the DCM IN port on the OA. Reference: “Install DCM” (4-71)
Two	Connect a fiber jumper from the DCM OUT port on the OA to the IN port on the first DCM. Then connect a fiber jumper from the OUT port on the first DCM to the IN port on the second DCM. Then connect a fiber jumper from the OUT port on the second DCM to the DCM IN port on the OA. Reference: “Install DCM” (4-71)

**DANGER****Eye Damage**

Keep in mind that as soon as you seat the OA, the other end of the output fiber emits a dangerous level of optical power.

- 6** Seat the circuit pack into the shelf as follows:
1. Open the latches and push the circuit pack until it engages the connector pins.
 2. With a thumb on each latch, continue sliding the circuit pack with one firm, continuous motion until the latches are fully engaged (the clips are in the locked position).

-
- 7** Wait until the **OMU/ODU warmup in progress** condition clears or wait 15 minutes for the ODU temperature to stabilize.

-
- 8** If required, clean and install the lightguide buildout to the IN connector of the receive circuit pack.

Reference: “DLP-512: Install/Remove Lightguide Buildout” (4-52)

-
- 9** Clean the incoming optical line fiber and connector and make the connection to the IN connector.

Reference: “DLP-510: Inspect and Clean Optical Fiber Connectors” (4-42)

-
- 10** STOP! YOU HAVE COMPLETED THIS TASK.

Important! Do not rock the circuit pack back and forth.

- 11** Install the circuit pack into the slot.
1. If necessary, close both latches on the circuit pack.

2. Place the circuit pack into the slot guides and slowly slide it into the shelf until the latches touch the shelf.

-
- 12** If required, install the LBO at the IN and OUT connectors of the circuit pack.

Reference: “DLP-512: Install/Remove Lightguide Buildout” (4-52)

-
- 13** Clean the optical fibers and connectors that will connect to the IN and OUT connectors.

Reference: “DLP-510: Inspect and Clean Optical Fiber Connectors” (4-42)

-
- 14** Connect the optical fibers to the LBOs and/or optical connectors at the circuit pack.

-
- 15** Connect the remaining optical fiber(s) to their proper location(s).

-
- 16** Seat the circuit pack into the shelf.
 1. Open the latches and push the circuit pack until it engages the connector pins.
 2. With a thumb on each latch, continue sliding the circuit pack with one firm, continuous motion until the latches are fully engaged (the clips are in the locked position).

END OF STEPS

Install TLM

- 1** Install the circuit pack.
 1. Open the latch on the circuit pack.
 2. Place the circuit pack into the slot guides and slowly slide it into the shelf until latch engages the shelf.

3. With a thumb on the latch, continue sliding the circuit pack with one firm, continuous motion until latch is fully engaged (locking clip is in locked position.)

2 Which TLM circuit pack are you installing?

If	Then
installing an LDA1	continue with Step 3.
installing an LDA4	Important! The LDA4 Telemetry circuit pack does not have a Customer Maintenance Signal. continue with Step 4

- 3 If required, install LBOs at the CM IN and CM OUT connectors of the TLM circuit pack.

Reference: “DLP-512: Install/Remove Lightguide Buildout” (4-52)

- 4 Clean the optical fibers and connectors.

Reference: “DLP-510: Inspect and Clean Optical Fiber Connectors” (4-42)

- 5 Connect the optical fibers to the LBOs and/or optical connectors at the TLM circuit pack.

- 6 Connect the remaining optical fibers to their proper locations.

END OF STEPS

Install DCM

An OA can be used with zero, one, or two DCMs. If using one DCM, connect DCM OUT on the OA to IN on the DCM, then connect OUT on the DCM to DCM IN on the OA. If using two DCMs, connect DCM OUT on the OA to IN on the first DCM, then connect OUT on the first

DCM to IN on the second DCM, then connect OUT on the second DCM to DCM IN on the OA.

- 1 Orient and insert the new DCM into the shelf tray.
 - 2 Tighten the screws holding the DCM in place by turning the screws clockwise.
-



CAUTION

Optical Amplifier Damage

The OA3 (LEA307) amplifier can be damaged by a dirty fiber, connector, or LBO. Before connecting to any port on the OA3, always clean the part to be inserted (LBO or fiber) and the part accepting the insertion (LBO or connector on the port).

- 3 Clean the optical fibers and connectors.

Reference: “DLP-510: Inspect and Clean Optical Fiber Connectors” (4-42)

- 4 Connect the IN and OUT fibers.

Remove DCM

- 1 Identify the OA to which this DCM is connected

Reference: “DLP-503: Locate Circuit Pack/Fiber Connections” (4-16)

- 2 Locate the correct fiber jumpers to the DCM(s) from the assigned OA. Record on a piece of paper the correct jumper assigned to the DCM IN and OUT connections. Note that an OA can be connected to two DCMs.

-
- 3** Remove the fiber jumpers from the IN and OUT connections of the DCM. Place protective caps on the fiber ends and protective plugs on the DCM connectors.
-
- 4** Drape the removed fibers so as not to interfere with the DCM removal.
-
- 5** Loosen the two screws holding the DCM in place by turning them counterclockwise with a flat bladed screwdriver.
-
- 6** Remove the DCM.

Remove OTU or OUPSR

-
- 1** Remove the optical fibers from the slot guide on the shelf.
-
- 2** Remove the optical fiber(s) from the OUT connector(s) of the circuit pack and install a protector cap on the fiber. (The OUPSR pack has SIG OUT, A OUT, and B OUT connectors.)
-
- 3** Remove the optical fiber(s) from the IN connector(s) of the circuit pack and install a protector cap on the fiber. (The OUPSR pack has SIG IN, A IN, and B IN connectors.)
-
- 4** If required, remove any LBOs from the circuit pack and store for future use.
-

Important! *Do not rock the circuit pack back and forth.* If the circuit pack being removed is in the left- or right-most slot of the self, the gasket material around the shelf may interfere. Remove the pack carefully, and if the gasket material is dislodged, then replace the gasket material after the replacement pack has been inserted.

- 5** Remove the circuit pack from the shelf.
-

1. Push up on the bottom and down on the top metal locking clips to unlock the circuit pack latches.
2. Unseat the circuit pack by carefully and continuously pulling out equally on the top and bottom latches.
3. Carefully slide the circuit pack out of the slot guides to remove it from the shelf.

6 Are you to install another circuit pack in this slot?

If	Then
YES	continue with “Install OTU or OUPSR” (4-76).
NO	STOP! YOU HAVE COMPLETED THIS TASK.

END OF STEPS

Remove OTPM

- 1 Remove the optical fiber from the OUT connector of the OTPM circuit pack and install a protector cap on the fiber.
 - 2 Remove the optical fiber from the IN connector of the OTPM circuit pack and install a protector cap on the fiber.
 - 3 If required, remove any LBOs from the OTPM circuit pack and store for future use.
- Important!** Do not rock the circuit pack back and forth.
- 4 Remove the OTPM circuit pack from the QOTU.
 1. Unscrew both thumb screws on the OTPM to be removed.
 2. Unseat the OTPM by carefully and continuously pulling out equally on the top and bottom thumb screws.
 3. Carefully slide the OTPM out of the slot guides to remove it from the QOTU.

5 Are you to install another OTPM circuit pack in this slot?

If	Then
YES	continue with “Install OTPM” (4-77).
NO	STOP! YOU HAVE COMPLETED THIS TASK.

END OF STEPS

Remove QOTU

- 1 Remove the optical fibers from the slot guide on the shelf.
- 2 Remove the optical fiber from the OUT connectors of each OTPM circuit pack and install a protector cap on the fiber.
- 3 Remove the optical fiber from the IN connectors of each OTPM circuit pack and install a protector cap on the fiber.

Important! Do not rock the circuit pack back and forth.

- 4 Remove the QOTU circuit pack from the shelf.
 1. Push up on the bottom and down on the top metal locking clips to unlock the circuit pack latches.
 2. Unseat the circuit pack by carefully and continuously pulling out equally on the top and bottom latches.
 3. Carefully slide the circuit pack out of the slot guides to remove it from the shelf.

5 Are you to install another QOTU circuit pack in this slot?

If	Then
YES	continue with “Install QOTU” (4-78).
NO	STOP! YOU HAVE COMPLETED THIS TASK.

 END OF STEPS

Install OTU or OUPSR


CAUTION
Signal Loss

The replacement must have the same circuit pack code or traffic could be interrupted.

Important! Do not rock the circuit pack back and forth.

If the circuit pack being installed is in the left-most or right-most slot of the shelf, the gasket material around the shelf may interfere. Install the pack carefully, and if the gasket material is dislodged, then replace the gasket material after the circuit pack has been inserted.

- 1** Install the circuit pack.
 1. If necessary, close both latches on the circuit pack.
 2. Place the circuit pack into the slot guides and slowly slide it into the shelf until the latches touch the shelf.
 3. Open the latches and push the circuit pack until it engages the connector pins.
 4. With a thumb on each latch, continue sliding the circuit pack with one firm, continuous motion until the latches are fully engaged (the metal clips are in the locked position).

-
- 2** If required, determine value of LBO required for the IN connector(s). (The OUPSR has SIG IN, A IN, and B IN connectors.)

Reference: “DLP-524: Select an LBO at the Add OTU/OTPM IN” (4-107)

- 3** Clean optical fibers and connectors.

Reference: “DLP-510: Inspect and Clean Optical Fiber Connectors” (4-42)

- 4** If required, install LBO at the IN and OUT connectors of the circuit pack. (The OUPSR has SIG IN/OUT, A IN/OUT, and B IN/OUT connectors.)

Reference: “DLP-512: Install/Remove Lightguide Buildout” (4-52)

- 5** Connect the optical fiber to the IN and OUT connectors for the OTU circuit pack. (The OUPSR has SIG IN/OUT, A IN/OUT, and B IN/OUT connectors.)

END OF STEPS

Install OTPM



CAUTION **Signal Loss**

The replacement OTU must have the same circuit pack code or traffic could be interrupted.

Important! Do not rock the circuit pack back and forth.

- 1** Install the OTPM.
1. Place the OTPM into the slot guides and slowly slide it into the QOTU until the screws touch the frame.
 2. Tighten the screws until they are snug. Do not over tighten with a screwdriver.
-

-
- 2** If required determine value of LBO required for the IN connector.

Reference: “DLP-524: Select an LBO at the Add OTU/OTPM IN” (4-107)

- 3** Clean optical fibers and connectors.

Reference: “DLP-510: Inspect and Clean Optical Fiber Connectors” (4-42)

- 4** If required, install LBO at the IN and OUT connectors of the OTPM circuit pack.

Reference: “DLP-512: Install/Remove Lightguide Buildout” (4-52)

- 5** Connect the optical fiber to the IN and OUT connectors of the OTPM circuit pack.

Reference: “DLP-525: Connect/Disconnect Optical Fibers at OTU/OTPM” (4-114)

END OF STEPS

Install QOTU

Important! *Do not rock the circuit pack back and forth.*

- 1** Install the QOTU.
1. If necessary, close both latches on the circuit pack.
 2. Place the circuit pack into the slot guides and slowly slide it into the shelf until the latches touch the shelf.
 3. Open the latches and push the circuit pack until it engages the connector pins.
 4. With a thumb on each latch, continue sliding the circuit pack with one firm, continuous motion until the latches are fully engaged (the metal clips are in the locked position).

END OF STEPS

DLP-515: Replace Fuse in Power Distribution and Fuse Panel or User Panel

Purpose This task is used to replace a blown 10A fuse (red lamp is lighted) in the power distribution and fuse panel or in the user panel.

Task

- 1** Obtain a replacement 10A fuse (Comcode 405749920).

- 2** Unsnap and lift the latch (from bottom to top) that is around the red lens cap.

- 3** Push in and down at the top of the red lens cap. Release slowly because the lens cap/fuse should spring forward.

- 4** Remove the lens cap/fuse from the fuse socket.

- 5** Remove the blown 10A fuse from the lens cap/fuse and replace with the replacement 10A fuse.

Important! The fuse cap lamp is a fuse status indicator. The cap lamp works correctly when it is fully engaged and the fuse retainer is locked in place. If the lamp lights in any other position, it may incorrectly indicate a bad fuse.

- 6** Install the lens cap/fuse into the fuse socket by pushing in and up at the bottom of the lens cap.

-
- 7** Lower the latch (from top to bottom) around the red lens cap and snap into place.

E N D O F S T E P S



DLP-517: Inspect (Repair) Optical Fiber(s)

Purpose This task is used to correct an input or output fiber problem such as a damaged or disconnected fiber. This task uses fiber in a general sense to refer to the IS-3 fiber, optical channel fiber jumper, or optical line fiber, as appropriate.

Supporting tasks This task refers to the following supporting task.

- “DLP-511: Open/Close Cabinet Doors or Install/Remove Shelf Cover” (4-49)

Task

1 If required, open the cabinet doors or remove the appropriate shelf cover.

- Interconnection panel cover for low-speed (IS3) fibers.
- Upper shelf cover for IS3 and fiber jumpers
- Lower shelf cover for optical line fibers.

Reference: “DLP-511: Open/Close Cabinet Doors or Install/Remove Shelf Cover” (4-49)

.....

2 Verify the fibers are properly connected.

.....

3 Visually inspect the fiber, starting at the connector on the local network element and going as far as practical (usually to an interconnection bay or to a cross-connect panel).

.....

4 Correct any problems with the fiber, following local procedures.

.....

5 Close the cabinet doors or replace the cover that was removed in Step 1.

END OF STEPS



DLP-518: Login/Logout to a Network Element Using CenterLink

Purpose This task is used to login to or logout from a network element (NE) using CenterLink.

Login

- 1 If required, connect and condition the craft interface terminal (CIT).

Reference: “DLP-501: Connect and Condition Craft Interface Terminal (CIT)” (4-12)

- 2 If you see the Launch Console, as shown below, continue with Step 3.



If you do not see the Launch Console but you do see a taskbar icon like the one below at the bottom of your screen, click on the icon and then continue with Step 3.

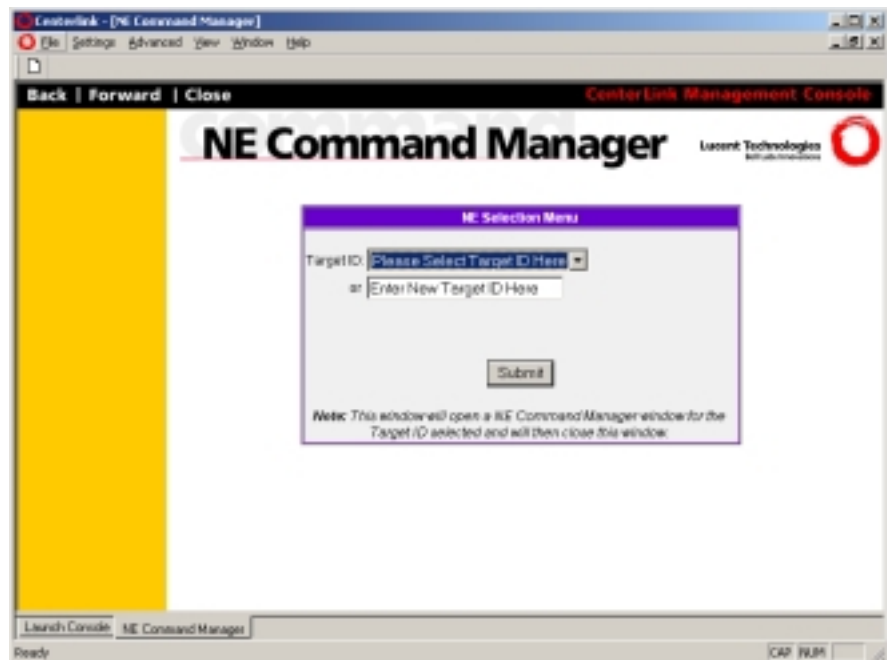


If you do not see either the Launch Console or the taskbar icon, click on the CenterLink shortcut icon shown below and then continue with Step 3.



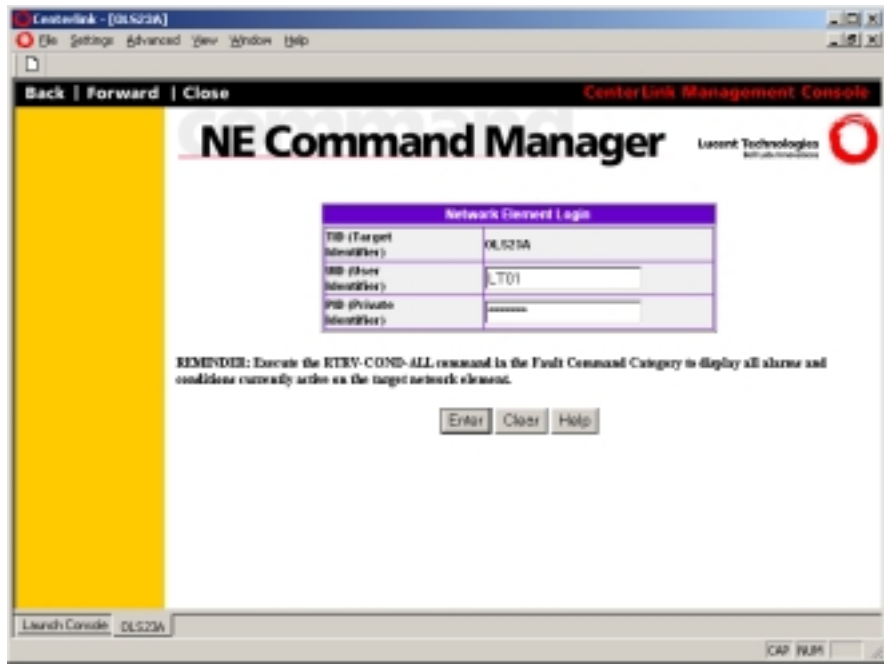
-
- 3 At the CenterLink Launch Console, select **NE Command Manager**.

You see the following screen:



-
- 4 Select a **Target ID** or enter a new Target ID and select **Submit**.

You see the following screen:



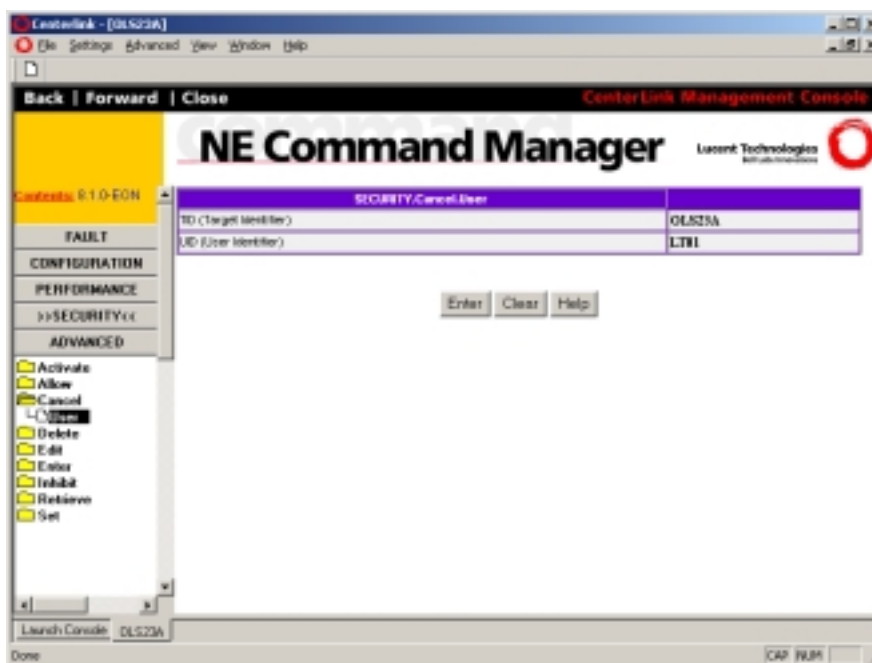
-
- 5 Enter a valid UID and PID, and then select **Enter**.

END OF STEPS



Logout

-
- 1 Select the command **SECURITY.Cancel.User** as shown below.



-
- 2 Select **Enter** to execute.

DLP-519: Change, Delete, or Enter a User Login

Purpose These tasks cover login and password aging in addition to changing, deleting, or entering a user login.

Important! These tasks can only be performed by one of two privileged users. Privileged users cannot change their own login. (LT01 and LT02 are the original factory names.)

Supporting tasks This task refers to the following supporting tasks.

- “DLP-501: Connect and Condition Craft Interface Terminal (CIT)” (4-12)

Task

- 1 If required, connect and condition the craft interface terminal (CIT).

Reference: “DLP-501: Connect and Condition Craft Interface Terminal (CIT)” (4-12)

- 2 What do you want to do to a user login?

If	Then
Change a user's login	Continue with “Change login” (4-86).
Delete a user's login	Continue with “Delete login” (4-87).
Enter a new user's login	Continue with “Enter login” (4-87).
Enable/disable login aging	Continue with “Enable/disable login and/or password aging” (4-88).
Enable/disable password aging	Continue with “Enable/disable login and/or password aging” (4-88).
Enter/edit password	Continue with “Enter/edit password” (4-88).

END OF STEPS

Change login The following task changes the login.

- 1 At the CIT, select **SECURITY.Edit.User.Security** for the specified user
-

login to be changed.

-
- 2 Select the appropriate input parameter (**User Identifier, New User Identifier, New Private Identifier, User Access Privilege, Temporary Login Type, Expiration Date**), make the change, and click on **Enter** to make change(s).
-
- 3 At the CIT, select **SECURITY.Retrieve.User.Security** to obtain the **Login Provisioning** report and verify that the user login has been changed.

END OF STEPS

Delete login The following task deletes a login.

-
- 1 At the CIT, select **SECURITY.Delete.User.Security** for the specified user's login to be deleted and click on **Enter** to make change(s).
-
- 2 At the CIT, select **SECURITY.Retrieve.User.Security** to obtain the **Login Provisioning** report and verify that the user login has been deleted.

END OF STEPS

Enter login The following task enters a login.

Important! Each network element may have up to 98 nonprivileged users.

- 1 At the CIT, select **SECURITY.Enter.User.Security** and enter the User Identifier, New User Identifier, New Private Identifier, User Access Privilege, Temporary Login Type, Expiration Date.
-
- 2 When prompted, reenter the initial password to verify your intended password. Passwords are not displayed.

-
- 3 Assign security level 1 through 4 for privileged (4), general (3), basic (2), reports (1) for each management category to the user login. Also, at this time, a visitor's login along with an expiration date may be entered.
-

- 4 Click on **Enter** to execute.
-

- 5 At the CIT, select **SECURITY.Retrieve.User.Security** to obtain the **Login Provisioning** report and verify that the user's login has been entered.
-

- 6 The login and initial password may be given to the person working on the network element.
-

END OF STEPS

Enter/edit password The following task will enter and/or edit a password.

- 1 At the CIT, select **SECURITY.Edit.Private_Identifier**. Make password change(s) as needed.
-

END OF STEPS

Enable/disable login and/or password aging The following task will toggle login and password aging (enable/disable).

- 1 At the CIT, select the command **SECURITY.Enter.Network Element.Security** to gain access to the global security parameters for the system.
-

- 2 Select the appropriate input parameter, enter a value, and click on **Enter** to execute.

Reference: The following values are valid for the respective parameters.

- Allow User Identifier= [Yes, No] If No, all nonPrivileged users will be immediately disconnected.
- Password Aging= [0, 7 through 999] A 0 (zero) will disable.
- Login Aging= [0, 7 through 999] A 0 (zero) will disable.

-
- 3** At the CIT, select **SECURITY.Retrieve.Network_Element.Security** to obtain report and verify the correct parameter value(s).

E N D O F S T E P S



DLP-520: Establish Modem Network Access

Purpose This task is used to access a distant Metropolis® EON network element (NE) from a local craft interface terminal (CIT). Some of the more common CIT access configurations are shown in “Hybrid network configuration” (4-94) and “Null modem internal wiring connections” (4-94). Other configurations exist with access gained through local company procedures. Once access is gained, the Metropolis® EON network element responds to any CIT selections just as if you were physically connected to it.

Quick check for compatible modems (both locations)

Important! Modems at the CIT and Metropolis® EON NE locations must be compatible. Quick check/setup of the modem parameters and connections are given in this procedure for the Metropolis® EON NE location first, then for the CIT location.

The manufacturer’s manuals may be referred to for specific instructions on setting the modem parameters. For example, when using a *Penril*® modem, the speed conversion parameter must be set to off.

Additional information on using a modem for remote access is available in Section 6, "Operations Interface." Also, refer to *Installation Guide, 365-575-562 R8.2*.

CenterLink does not provide any procedures of its own for installing a modem. To install a modem for use by CenterLink, use the *Microsoft*® Windows modem installation procedures. Any modem correctly installed under Windows can be used by CenterLink since CenterLink uses Windows for accessing the modem.

The following task is used to ensure compatible modems at both locations.

- 1 Verify the generic parameters of the modem are set using the following values.
 - Modem baud rate (AT&T 4024 or 2224 CEO modems at 2400, AT&T 2292 modem at 9600) for CIT (DCE) port. This port and the CIT automatically select the highest usable baud rate up to 9600.
 - Full duplex
-

- 8 data bits
- No parity bits
- 1 start bit
- 1 stop bit
- No flow control.

END OF STEPS

Metropolis® EON network element location



CAUTION

Electrostatic Discharge

Use a static ground wrist strap whenever handling circuit packs or working on a network element to prevent electrostatic discharge damage to sensitive components.

Important! It is assumed the PC and AT command compatible modem are powered, and the PC is loaded with communications software.

The following task completes a quick check/setup for the modem at the Metropolis® EON NE location.

1 Set the modem to answer incoming calls.

Example: If you are using an AT&T 2224 CEO modem, do the following to program the modem.

1. Set all front panel switches to DOWN (factory default) for AT command mode.
2. Connect PC serial port to the modem RS-232C port using modem cable (“Pin connections at CIT (DTE) connector” (4-95)) or using a null modem adapter (“Null modem internal wiring connections” (4-94)).
3. Establish communications between the PC and modem using the communications software set for the generic parameters in “Quick check for compatible modems (both locations)” (4-90)
4. At the prompt, enter the AT commands listed in the table in “AT commands” (4-94)

5. Remove the connector at the PC serial port and plug into the CIT (DTE) connector at the interconnection panel (Low Speed Shelf - System Controller) of the Metropolis® EON network element. Dial-up access to the network element using a 2400-baud modem is now ready. See “Hybrid network configuration” (4-94) and “Null modem internal wiring connections” (4-94) for the DTE port connection.

-
- 2 Verify the telephone line is plugged into the modem.
-

- 3 This completes the quick check/setup for the modem at the Metropolis® EON NE location. Continue with “CIT-PC location” (4-92).

E N D O F S T E P S

CIT-PC location

- 1 Is the modem installed internally (card) or a stand-alone (external).

If	Then
Internal modem	Continue with Step 2
External modem	Continue with Step 3

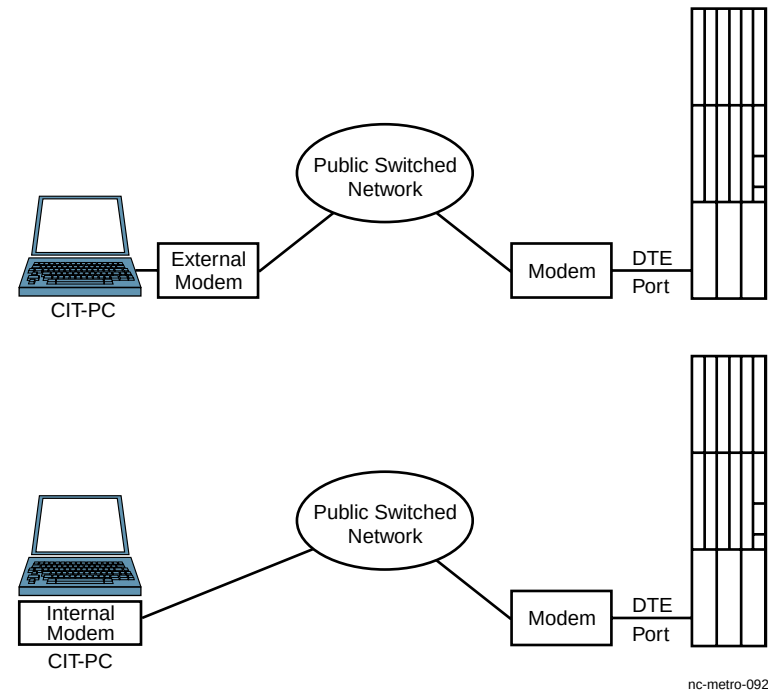
-
- 2 Verify the telephone line is plugged into the internal modem of the CIT-PC and go to Step 5 to continue.
-
- 3 Verify the external modem is connected to the CIT-PC, using the appropriate modem cable. “Pin connections for modem using DB-25 cable” (4-96) and “Pin connections for modem using DB-9 cable” (4-97) list the pins for the DB-25 connector and DB-9 connector, respectively.
-
- 4 Verify the telephone line is plugged into the external modem and the modem is powered.
-

-
- 5** This completes the quick check/setup for the external modem at the CIT-PC location.

END OF STEPS

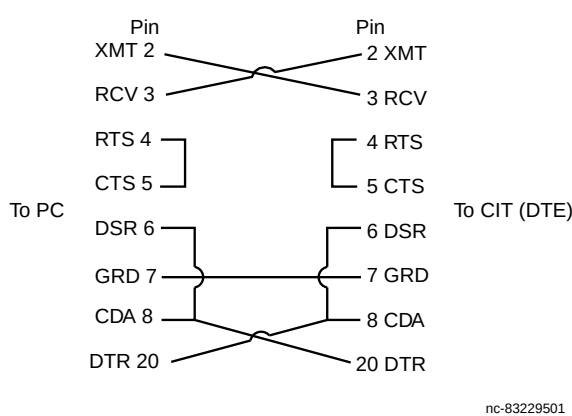
Hybrid network configuration

The following figure illustrates a hybrid network configuration.



Null modem internal wiring connections

The following figure illustrates the internal wiring connections for a null modem.



AT commands

The following table lists the AT commands.

PC	Response	Comment
ATH	OK	#hang-up (on-hook)
AT&F	OK	#resets to factory defaults
AT&C1	OK	#data carrier is present when on
ATS0=2	OK	answer on 2 rings
AT&W	OK	wait for second dial tone

Pin connections at CIT (DTE) connector

The following table lists the pin connections at the CIT (DTE) connector.

CIT (DTE) Connector (Note)	Metropolis® EON Network Element
Pin 1 - Protective Ground	Protective frame ground.
Pin 2 - Transmit Data	Transmits data to the modem.
Pin 3 - Receive Data	Receives data from the modem.
Pin 4 - Request to Send	Metropolis® EON network element notifies the modem that it is ready to send data.
Pin 5 - Clear to Send	Modem notifies the Metropolis® EON network element that it is clear to send its data.
Pin 6 - Data Set Ready	Modem notifies the Metropolis® EON network element that the modem is connected and ready to receive data.
Pin 7 - Signal Ground	Signal ground.
Pin 8 - Receive Line Signal Detected	This modem has detected carrier from the remote modem.
Pin 20 - Data Terminal Ready	Metropolis® EON network element notifies the modem that it is connected.

Notes:

1. All remaining pins are not connected.

**Pin connections for modem
using DB-25 cable**

The following table lists the pin connections for a modem using a DB-25 cable.

PC DB-25 Connector (Note)	CIT
Pin 1 - Protective Ground	Protective frame ground.
Pin 2 - Transmit Data	Transmits data to the modem
Pin 3 - Receive Data	Receives data from modem
Pin 4 - Request to Send	CIT is requesting clearance from the modem so it can send data.
Pin 5 - Clear to Send	Modem notifies the CIT that it is clear to send data.
Pin 6 - Data Set Ready	Modem notifies the CIT that the modem is connected.
Pin 7 - Signal Ground	Signal ground
Pin 8 - Carrier Detect	This modem detects carrier from the remote modem.
Pin 20 - Data Terminal Ready	CIT notifies the modem that it is connected.

Notes:

1. All remaining pins are not connected.

**Pin connections for modem
using DB-9 cable**

The following table lists the pin connections for a modem using a DB-9 cable.

PC DB-9 Connector	CIT
Pin 1 - Carrier Detect	This modem detects carrier from the remote modem.
Pin 2 - Receive Data	Receives data from modem
Pin 3 - Transmit Data	Transmits data to the modem
Pin 4 - Data Terminal Ready	CIT notifies the modem that it is connected
Pin 5 - Signal ground	Signal ground
Pin 6 - Data Set Ready	Modem notifies the CIT that the modem is connected and ready to receive data.
Pin 7 - Request to Send	CIT is requesting clearance from the modem so it can send data.
Pin 8 - Clear to Send	Modem notifies the CIT that it is clear to send.
Pin 9 - Ring indicator	Modem notifies the CIT that ring signal is present when the modem is in an auto-answer mode.

DLP-521: Install an OMU or ODU

Purpose This task is used to install an OMU or ODU.

Supporting tasks This task refers to the following supporting tasks.

- “DLP-510: Inspect and Clean Optical Fiber Connectors” (4-42)
- “DLP-512: Install/Remove Lightguide Buildout” (4-52)

Task



CAUTION
Signal Loss

This task has the potential to affect transmission and should be performed only under the direction of the maintenance support organization.



CAUTION
Electrostatic Discharge

Use a static ground wrist strap whenever handling circuit packs or working on a network element to prevent electrostatic discharge damage to sensitive components.

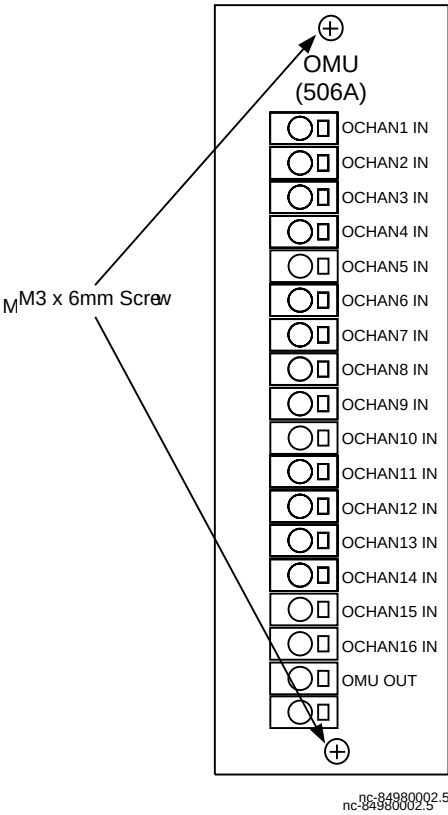
Important! Do not rock the unit back and forth!

- 1** Verify that the top and bottom screws have not been placed back in the shelf, (see “Screw locations” (4-100)).
- 2** Place the OMU/ODU into the slot guides and slowly slide it into the shelf until it meets the rear shelf connectors.
- 3** Continue sliding the OMU/ODU with one firm and continuous motion until the OMU/ODU is fully engaged.

-
- 4** Use a Phillips screwdriver to install the top and bottom OMU/ODU screws to mount the unit to the shelf, (see “Screw locations” (4-100)).
-
- 5** Install any required LBOs at the OMU/ODU connectors.
- Reference:** “DLP-512: Install/Remove Lightguide Buildout” (4-52)
-
- 6** Clean the optical fibers and connectors.
- Reference:** “DLP-510: Inspect and Clean Optical Fiber Connectors” (4-42)
-
- 7** Connect the optical fibers to the LBOs and/or optical connectors at the OMU/ODU.
-
- 8** At the CIT, select the command **CONFIGURATION.Initialize.System:TID:AID(All):PH(3)** and execute so the system will recognize the change.

END OF STEPS

Screw locations The following figure shows the screw locations in a 506A. Other OMUs and ODUs have similar screw locations.



DLP-522: Replace Power Line Filter

Purpose This task is used to the replace the power line filter.

Task



DANGER
Electric Shock

Do not allow the metal portion of the red or gray lead to touch any metal part of the bay. Do not allow the screws to fall into the bay.

-
- 1** Remove the two plastic snap-on fuse guards.
 - 2** Remove the screws from the faceplate of the User Panel or Fuse Panel using a flat-bladed screwdriver.
 - 3** Gently push up and remove the bracket that's for mounting the bottom of the faceplate.
 - 4** Look at the back of the panel and identify the correct power filter to be removed.
 - For Metropolis® EON, the top filter is for feeder A and bottom filter is for feeder B.
 - For OT, the left mounted filter is for feeder A and the right mounted filter is for feeder B.
 - 5** Make a voltage measurement from the rear of the appropriate fuse, if desired.
 - Fuse A — measure between red wire and chassis
 - Fuse B — measure between gray wire and chassis.
-

Result: Voltage between –42.75 and –60 V DC.

- 6 Remove any cabling tie down or slid up out of the way, if required.
- 7 Label and remove the three power leads connected to the power line filter.
- 8 Loosen the screw holding the filter in place.
- 9 Remove the defective filter by gently pulling and sliding out the filter.
- 10 Orient and insert the new filter.
- 11 Tighten the screw holding the filter in place.
- 12 Reconnect the three power leads that were removed in Step 7.
- 13 Attach a cabling tie down on the power leads or slid tie down, if required.
- 14 Gently insert the faceplate bracket and push down into place.
- 15 Screw in the faceplate screws.

END OF STEPS

Filter A power connections

The following table lists the power connections for filter A.

Power Connections for Filter A		
	Red wire	–48A
Black wire		
	Black wire	–48AR

Filter B power connections

The following table lists the power connections for filter B.

Power Connections for Filter B		
	Gray wire	–48B
Black wire		
	Slate wire	–48BR

DLP-523: Replace OT Power Line Filter

Purpose This task is used to replace the OT power line filter.

Task



DANGER
Electric Shock

Do not allow the metal portion of the red or gray lead to touch any metal part of the bay. Do not allow the screws to fall into the bay.

- 1 Remove the two plastic snap-on fuse guards.
-

Important! Access to the A filter does not require removal of the faceplate.

- 2 Remove the screws from the faceplate of the User Panel or Fuse Panel using a flat-bladed screwdriver and remove the faceplate. This will provide access to the B filter.
-

- 3 Look at the bracket holding the filter and identify the correct power filter to be removed (left mounted filter, located in bay, is for feeder A and right mounted filter, located in bay, is for feeder B).
-

- 4 Make a voltage measurement from the rear of the appropriate fuse, if desired.

- Fuse A — measure between red wire and chassis
- Fuse B — measure between gray wire and chassis.

Result: Voltage between –42.75 and –60 V DC.

- 5 Remove any cabling tie down or slide up out of the way, if required.
-

-
6 Label and remove the three power leads connected to the power line filter.
.....
- 7** Loosen the screw holding the filter in place.
.....
- 8** Remove the defective filter by gently pulling and sliding out the filter.
.....
- 9** Orient and insert the new filter.
.....
- 10** Tighten the screw holding the filter in place.
.....
- 11** Reconnect the three power leads that were removed in Step 7
.....
- 12** Attach a cabling tie down on the power leads or slide tie down, if required.
.....
- 13** Gently insert the faceplate bracket and push down into place.
.....
- 14** Screw in the faceplate screws.

.....
E N D O F S T E P S
.....

Filter A power connections The following table lists the power connections for filter A.

Power Connections for Filter A			Left Bay Location
–48VR	Black wire	Black wire	
–48A	Black wire		

Filter B power connections The following table lists the power connections for filter B.

Power Connections for Filter B			Right Bay Location
	Grey wire	–48B	
Black wire			
	Slate wire	–48VR	

DLP-524: Select an LBO at the Add OTU/OTPM IN

Purpose When connecting an input fiber to an OTU or OTPM it is often necessary to install an LBO to bring the signal power down to an acceptable level. This task allows you to select an appropriate LBO, depending on the measured power and the OTU/OTPM type.

Required test equipment This task requires the following test equipment.

- Wrist strap
- Optical power meter

Supporting tasks This task refers to the following supporting tasks.

- “DLP-510: Inspect and Clean Optical Fiber Connectors” (4-42)
- “DLP-512: Install/Remove Lightguide Buildout” (4-52)
- “DLP-511: Open/Close Cabinet Doors or Install/Remove Shelf Cover” (4-49)

Task



WARNING **Eye Damage**

Unterminated optical connectors may emit invisible laser radiation that could damage your eyes. Do not view the beam directly or with optical instruments.



CAUTION **Electrostatic Discharge**

Use a static ground wrist strap whenever handling circuit packs or working on a network element to prevent electrostatic discharge damage to sensitive components.

-
- 1** If necessary, open the cabinet doors or remove the shelf cover. All

connections can be accessed from the front.

Reference: “DLP-511: Open/Close Cabinet Doors or Install/Remove Shelf Cover” (4-49)

- 2 Are you adding or trouble clearing an optical translator unit (OTU) or optical translator port module (OTPM)?

If	Then
Adding	continue with Step 3.
Trouble clearing	continue with Step 14.

- 3 Is the OTU/OTPM input fiber jumper coming from a Metropolis® EON or some other type of equipment?

If	Then
Metropolis® EON	continue with Step 9.
Other	continue with Step 4.

- 4 Remove the protector cap and clean the OTU/OTPM input fiber.

Reference: “DLP-510: Inspect and Clean Optical Fiber Connectors” (4-42)

- 5 Connect the optical power meter to the OTU/OTPM input fiber cleaned in Step 4 and obtain an optical power measurement.

- 6 Using the power level reading obtained in Step 5 and “OTU/OTPM input power and LBO selection” (4-111), determine the correct LBO for the IN connector of the OTPM.

- 7 Install the LBO into the IN connector of the OTU/OTPM.

Reference: “DLP-512: Install/Remove Lightguide Buildout” (4-52)

8 STOP! YOU HAVE COMPLETED THIS TASK.

Important! Each OCHAN (1-16) has a different required power level.

9 Determine the required LBO value for the IN connector of the OTU/OTPM.

10 At the OTU/OTPM, if required, remove the protector caps at the IN connector, and clean the fiber coming from the ODU for the channel being added.

Reference: “DLP-510: Inspect and Clean Optical Fiber Connectors” (4-42)

11 At the OTU/OTPM, connect the optical power meter to the fiber coming from the ODU and obtain an optical power measurement.

12 Determine the LBO value.

1. Open the NE SmartManual Manager from the CenterLink launch console.
 2. Use the Standard option unless instructed otherwise. Select **Select Line Build Out (LBO) for RCVR input** task.
 3. Complete the task by following the steps displayed on the screen.
-

13 STOP! YOU HAVE COMPLETED THIS TASK.



CAUTION

Signal Loss

Make sure the protection tributaries (in 2-fiber) or protection line (in 4-fiber) is available or that the troubled OC-48 on this OT has been manually switched to protection.

Make sure incoming fibers are not carrying service.

- 14** Remove the fiber jumper connected to the IN connector of the OTU or OTPM involved in this trouble.

- 15** Connect the optical power meter to the fiber jumper removed from the IN connector of the OTU/OTPM in the previous step and obtain an optical power measurement.

- 16** Is the input fiber jumper coming from a Metropolis® EON or some other type of equipment?

If	Then
Metropolis® EON	continue with Step 19.
Other	continue with Step 17.

- 17** Using the power level reading obtained in Step 15 and the appropriate row listed in the table of “OTU/OTPM Input” (4-111), determine if the power level is within range.

- 18** STOP! YOU HAVE COMPLETED THIS TASK.

- 19** Determine the LBO value.

1. Open the **NE SmartManual Manager** from the CenterLink launch console.
2. Use the Standard option unless instructed otherwise. Select **Select Line Build Out (LBO) for RCVR input** task.

- Complete the task by following the steps displayed on the screen.

END OF STEPS

**OTU/OTPM input power
and LBO selection**

The following table lists OTPM input power and LBO selection.

Measured Input Power (dBm) (Note)	IN Port LBO
$P < -12 \text{ dBm}$	0
$-12 \text{ dBm} \leq P < -08 \text{ dBm}$	5
$-08 \text{ dBm} \leq P < -04 \text{ dBm}$	10
$-04 \text{ dBm} \leq P < +01 \text{ dBm}$	15
$+01 \text{ dBm} \leq P <$	20

OTU/OTPM Input

The following tables show input power levels for add and drop OTUs/
OTPMs.

Add OTU Input

Bit Rate	Pack Code	Input Fiber Type	Receive Power Range	
			Min.	Max.
2.5G	41[A,C] xx	SM	-27	-11
OC-48/STM-16	46Ax	SM	-28.6	-11
OC-12/STM-4	42Ax	MM	-28	-11
OC-3/STM-1	43Ax	MM	-33	-11
LSBB 16-750Mb/s	44Ax	MM	-28	-11
GbE	41Fxx	SM	-27	-11
UBB 16M-2.5G	47Ax	MM	-25	-11
	47Cx	SM	-28.6	-11
10G	41HxA	SM	-14	-1
	41HxC	SM	-22	-11
2DM25	41Mx	GbE 1310nm SM	-20	-3

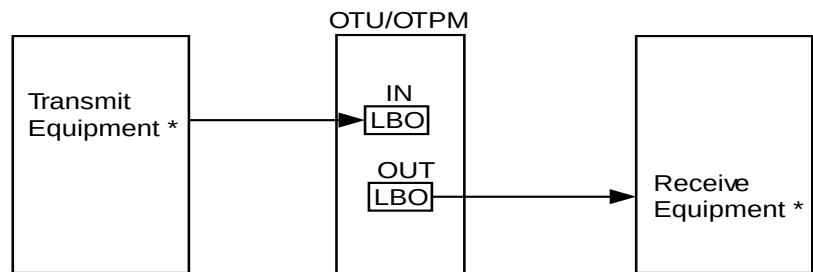
Bit Rate	Pack Code	Input Fiber Type	Receive Power Range	
			Min.	Max.
		GbE 850nm MM	-17	0
		FICON 1310nm SM	-25	-3
		FICON 850nm MM	-13	+1.3
		FibreChannel 1310nm SM	-25	-3
		FibreChannel 850nm MM	-13	1.3
		ESCON 1310nm SM	-29	-14.5
		ESCON 1310nm MM	-28	-3
		ISC-2 1310nm SM	-20	-3
		ISC-2 850nm MM	-15	+1.3

Drop OTU Input

Bit Rate	Pack Code	Receive Power Range		Target Power Range	
		Min.	Max.	Min.	Max.
10G	41HB	-27	-10	-22	-13
2.5G	46B	-28.6	-10	-22	-13
	41BB	-27	-10	-22	-13
OC-12/STM-4	42B	-30.5	-8	-22	-13
OC-3/STM-1	43B	-34	-7	-22	-13
LSBB/ELSBB	44B/44BC	-30.5	-8	-22	-13
GbE	41G	-27	-10	-22	-13
UBB	47B	-28.6	-10	-22	-13
2DM25 (HS IN)	41M(1-32)	-28.6	-10	-22	-13

**Location of LBOs at OTU
(one direction)**

The following figure illustrates the location of LBOs at the OTU (one direction).



DLP-525: Connect/Disconnect Optical Fibers at OTU/OTPM

Purpose This task is used to connect and/or disconnect optical fibers at the OTU/OTPM.

Supporting tasks This task refers to the following supporting tasks.

- “DLP-510: Inspect and Clean Optical Fiber Connectors” (4-42)
- “DLP-512: Install/Remove Lightguide Buildout” (4-52)
- “DLP-524: Select an LBO at the Add OTU/OTPM IN” (4-107)



CAUTION

Electrostatic Discharge

Use a static ground wrist strap whenever handling circuit packs or working on a network element to prevent electrostatic discharge damage to sensitive components.

Task **Important!** Verify that all fibers are labeled to prevent possible service interruption.

1 Are you to connect or disconnect the optical fibers at the OTU/OTPM?

If	Then
Connecting	Continue with Step 8.
Disconnecting	Continue with Step 2.



WARNING

Eye Damage

Unterminated optical connectors may emit invisible laser radiation that could damage your eyes. Do not view the beam directly or with optical instruments.

2 Disconnect the optical fiber(s) from the lightguide buildouts (LBOs) and/or optical connector(s) at the OTU/OTPM circuit pack.

3 If required, place protector caps over the ends of the optical fibers.

4 If required, remove the LBOs from the connector(s) on the OTU/OTPM circuit pack.

Reference: “DLP-512: Install/Remove Lightguide Buildout” (4-52)

5 If required, place plugs in the OTU/OTPM IN/OUT connectors.

6 Remove the optical fiber from the slot guide on the shelf. This is to prevent damage to the fiber when the OTU/OTPM is removed.

7 STOP! YOU HAVE COMPLETED THIS TASK.

8 If required, remove the protective caps and/or plugs from the fibers and LBOs.

9 If required, determine the LBO values for the IN connector for the OTU/OTPM circuit pack.

Reference: “DLP-524: Select an LBO at the Add OTU/OTPM IN” (4-107)

10 Clean the optical fiber(s) and connector(s).

Reference: “DLP-510: Inspect and Clean Optical Fiber Connectors” (4-42)

11 If required, install an LBO in the IN connector.

Reference: “DLP-512: Install/Remove Lightguide Buildout” (4-52)

-
- 12** Connect the optical fiber(s) to the LBOs on the OTU/OTPM circuit pack.

Receive fiber ?	OTU/OTPM (IN connector)
Transmit fiber ?	OTU/OTPM (OUT connector)

-
- 13** Wait 1 minute for the OTU/OTPM circuit pack to accept an incoming signal.

-
- 14** Place the optical fiber in the shelf guide to prevent damaging it when closing the cabinet doors or replacing the shelf cover.

END OF STEPS



DLP-526: Change a DSNE

Purpose Use this task to change which network element (NE) is designated as the Directory Services NE. There must be one and only one DSNE per subnetwork (ring or linear configuration). The DSNE maps the network element names (TIDs) to NSAP addresses for all of the NEs in a subnetwork. This allows you to log into or send commands to an NE using its TID and then the system translates that TID into an NSAP address to find the target NE.

User privilege This task requires a privilege level of “Privileged” or higher.

Supporting tasks This task refers to the following supporting tasks.

- “DLP-501: Connect and Condition Craft Interface Terminal (CIT)” (4-12)
- “DLP-518: Login/Logout to a Network Element Using CenterLink” (4-82)

Task

- 1** If required, connect and condition the craft interface terminal (CIT).

Reference: “DLP-501: Connect and Condition Craft Interface Terminal (CIT)” (4-12)

- 2** Log into a network element.

Reference: “DLP-518: Login/Logout to a Network Element Using CenterLink” (4-82)

- 3** At the CIT, select **FAULT.Retrieve.Condition.All** command and execute for a report.
-

- 4** Is either the DS-NE not reachable or multiple DS-NEs defined condition listed in the report?

If	Then
YES	Start at TAP-102 to clear these conditions before continuing with this procedure.

If	Then
NO	Continue with Step 5.

5 At the CIT, select the command **CONFIGURATION.Retrieve.Map.Ring** (or **CONFIGURATION.Retrieve.Map.Network**) and execute for a report.

6 Verify DCCSTATUS is **good** for all nodes in the area. A failed DCC condition must be cleared before proceeding with this task (start at TAP-102).

7 From the report obtained in Step 5, identify which node (TID) is the current DSNE.

8 If necessary, remote login to the node that is currently the DSNE.

Reference: “DLP-518: Login/Logout to a Network Element Using CenterLink” (4-82)

9 At the CIT, select the command **SECURITY.Enter.System** and execute for an input screen.

10 At the field for DSNE, change **YES** to **NO** and click on **ENTER**.

11 Wait 20 minutes for the TOHCTL circuit pack to reboot. Wait an additional 30 to 50 minutes because the more nodes in a network, the longer it takes for them to be updated. Do not proceed until the system is stabilized.

12 Log into the node to be designated as the new DSNE (you can remote login to that node from any other node except from the node where DSNE was just deleted).

Reference: “DLP-518: Login/Logout to a Network Element Using CenterLink” (4-82)

-
- 13** At the CIT, select the command **SECURITY.Enter.System** and execute for an input screen.
-
- 14** At the field for DSNE, change **NO** to **YES** and click on **Enter**.
-
- 15** Wait 20 minutes for the TOHCTL circuit pack to reboot. Wait an additional 30 to 50 minutes because the more nodes in a network, the longer it takes for them to be updated and to stabilize the network.

E N D O F S T E P S



DLP-527: Create a DSNE

Purpose Use this task to designate a network element (NE) to be the Directory Services NE for the subnetwork. There must be one and only one DSNE per subnetwork (ring or linear configuration). The DSNE maps the network element names (TIDs) to NSAP addresses for all of the NEs in a subnetwork. This allows you to log into or send commands to an NE using its TID and then the system translates that TID into an NSAP address to find the target NE.

User privilege This task requires a privilege level of “Privileged” or higher.

Supporting tasks This task refers to the following supporting tasks.

- “DLP-501: Connect and Condition Craft Interface Terminal (CIT)” (4-12)
- “DLP-518: Login/Logout to a Network Element Using CenterLink” (4-82)

- Task**
- 1** If required, connect and condition the craft interface terminal (CIT).

Reference: “DLP-501: Connect and Condition Craft Interface Terminal (CIT)” (4-12)

 - 2** This procedure can only be performed for a new DSNE. Log into the network element to be designated as the DSNE.

Reference: “DLP-518: Login/Logout to a Network Element Using CenterLink” (4-82)

 - 3** At the CIT, select the command **FAULT.Retrieve.Condition.All** for a report.

 - 4** Do any alarms besides ***DS-NE not reachable*** appear in the report?

If	Then
YES	Start at TAP-102 to clear these conditions before continuing with this procedure.

If	Then
NO	Continue with Step 5.

-
- 5** At the CIT, select the command **SECURITY.Enter.System** and execute for an input screen.
-
- 6** At the field for DSNE, change **NO** to **YES** and click on **Enter**.
-
- 7** Wait 20 minutes for the TOHCTL circuit pack to reboot. Wait an additional 30 to 50 minutes because the more nodes in a network, the longer it takes for them to be updated and to stabilize the network.
-
- 8** At the CIT, select **CONFIGURATION.Retrieve.Map.Ring** command (or **CONFIGURATION.Retrieve.Map.Network**) and execute for a report.
-
- 9** Verify DCCSTATUS is *good* for all nodes in the area. A failed DCC condition must be cleared before proceeding with this task (start at TAP-102).

END OF STEPS



DLP-528: Delete a DSNE

Purpose Use this task to change a network element (NE) so that it is no longer the Directory Services NE for a subnetwork. There must be one and only one DSNE per subnetwork (ring or linear configuration). The DSNE maps the network element names (TIDs) to NSAP addresses for all of the NEs in a subnetwork. This allows you to log into or send commands to an NE using its TID and then the system translates that TID into an NSAP address to find the target NE.

User privilege This task requires a privilege level of “Privileged” or higher.

Supporting tasks This task refers to the following supporting tasks.

- “DLP-501: Connect and Condition Craft Interface Terminal (CIT)” (4-12)
- “DLP-518: Login/Logout to a Network Element Using CenterLink” (4-82)

Task					
1	If required, connect and condition the craft interface terminal (CIT). Reference: “DLP-501: Connect and Condition Craft Interface Terminal (CIT)” (4-12)				
2	Log into a network element. Reference: “DLP-518: Login/Logout to a Network Element Using CenterLink” (4-82)				
3	At the CIT, select the command FAULT.Retrieve.Condition.All and execute for a report.				
4	Is either the DS-NE not reachable or multiple DS-NEs defined condition listed in the report? <table border="1"> <thead> <tr> <th>If</th><th>Then</th></tr> </thead> <tbody> <tr> <td>YES</td><td>Start at TAP-102 to clear these conditions before continuing with this procedure.</td></tr> </tbody> </table>	If	Then	YES	Start at TAP-102 to clear these conditions before continuing with this procedure.
If	Then				
YES	Start at TAP-102 to clear these conditions before continuing with this procedure.				

If	Then
NO	Continue with Step 5.

-
- 5** At the CIT, select the command **CONFIGURATION.Retrieve.Map.Ring** (or **CONFIGURATION.Retrieve.Map.Network**) and execute for a report.
-
- 6** Verify DCCSTATUS is good for all nodes in the area. A failed DCC condition must be cleared before proceeding with this task (start at TAP-102).
-
- 7** From the report obtained in Step 5, identify which node (TID) is the current DSNE.
-
- 8** If necessary, remote login to the node where the DSNE is being deleted.
- Reference:** “DLP-518: Login/Logout to a Network Element Using CenterLink” (4-82)
-
- 9** At the CIT, select the command **SECURITY.Enter.System** and execute for an input screen.
-
- 10** At the field for DSNE, change **YES** to **NO** and click on **Enter**.
-
- 11** Wait 20 minutes for the TOHCTL circuit pack to reboot. Wait an additional 30 to 50 minutes because the more nodes in a network, the longer it takes for them to be updated and to stabilize the network.

END OF STEPS



DLP-529: Set an OLINE Baseline

Purpose Use this task to set the baseline for threshold crossing alerts for one optical line (OLINE) or for all optical lines.

A threshold crossing alert (TCA) is a performance monitoring message that alerts you to performance that has deteriorated somewhat, but not enough to create an alarm. One such TCA that can appear is for the total power received (TOPR) for an optical line (OLINE). The **threshold** is the amount above or below the baseline that the value can move to before a TCA appears. You set the **baseline** to match the current value when you know it is at, or very close to, the target level as determined by the SmartManual for the OA type, system type and current channel loading factor (CLF).

One reason for setting the baseline is that you are performing one of the following actions:

- deleting an optical channel
- replacing an lightguide buildout (LBO)
- replacing an optical amplifier

Task Perform the following steps to complete this task.

-
- 1** Select the CenterLink command **PERFORMANCE.Initialize.Register.Optical_Line**.

 - 2** Select the AID of the optical line(s) for which you want to set the baseline.

 - 3** Select a reason for setting the baseline.

 - 4** If you selected OCHAN_DROPPED as the reason, then select the AID of the dropped channel.

-
- 5** Select **Enter** to execute the command.

END OF STEPS



DLP-530: Set an OLINE Threshold

Purpose Use this task to set the threshold for one optical line (OLINE) or for all optical lines. You set the threshold depending on how much you want to allow the performance to vary from the baseline before a threshold crossing alert appears.

A threshold crossing alert (TCA) is a performance monitoring message that alerts you to performance that has deteriorated somewhat, but not enough to create an alarm. One such TCA that can appear is for the total power received (TOPR) for an optical line (OLINE). The **threshold** is the amount above or below the baseline that the value can move to before a TCA appears. You set the **baseline** to match the current value when you know it is at, or very close to, the target level as determined by the SmartManual for the OA type, system type and current channel loading factor (CLF).

Task Perform the following steps to complete this task.

- 1 Select the CenterLink command
PERFORMANCE.Set.Threshold.Optical_Line.

- 2 Select the AID of the optical line(s) for which you want to set the threshold.

- 3 Select **TOPR-OL** if you want to set the threshold for total power received, or select **TOPT-OL** if you want to set the threshold for total power transmitted.

- 4 Select the threshold level. The numbers in the drop-down menu can be translated into decibel levels as outlined under “Decibel levels” (4-127). For more details, see the SET-TH-OLINE command in the *Operations System Engineering Guide, 365-575-561 R8.2*.

- 5 Select the time period.

-
- 6 Select **ENABLE** if you want TCAs to appear, or **DISABLE** if you do not want TCAs to appear.
-

- 7 Select **Enter** to execute the command.

END OF STEPS

Decibel levels

TOPR-OL Reading	dB variation from factory setting
0	below -28
10	-23 to -35
20	-18 to -30
30	-13 to -24
40	-9 to -19
50	-6.5 to -14
60	-3.5 to -10.5
70	-0.8 to -6.5
80	+3 to -2.5
90	0.8 to 12
100	over +3.5



DLP-531: Update the System

Purpose The update system command updates the network element database to reflect the existing configuration, equipment and incoming signals. For example, use this task after any of the following:

- removing a duplicate OTU/OTPM circuit pack
- changing the type of circuit pack in a slot
- setting an in service channel or optical line without a signal to an out of service state

Task Perform the following steps to complete this task.

1 Select the CenterLink command **CONFIGURATION.Update.System.**

2 Select **Enter** to execute the command.

E N D O F S T E P S



DLP-532: Install or Remove an SFP Module

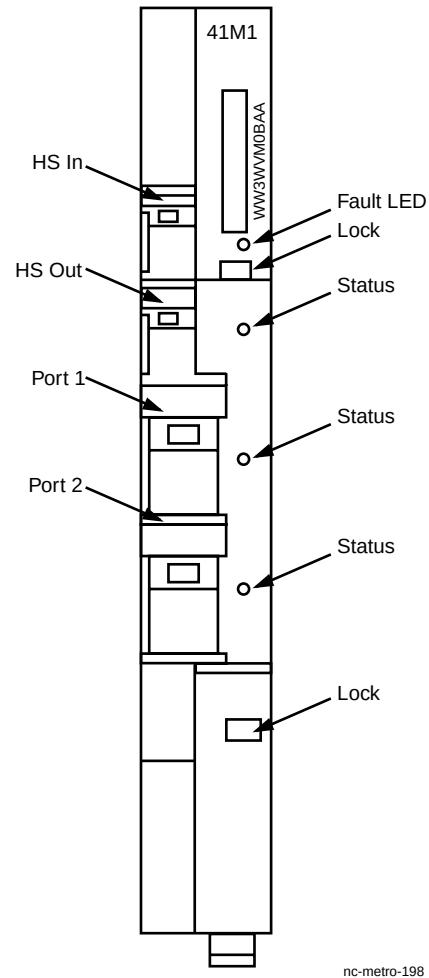
Overview A Small Form Factor Pluggable (SFP) module is a device that plugs into a multiplexing OTU to provide client ports. You can install different types of modules to transmit and receive different client wavelengths/modes. If the module's wavelength/mode does not match the wavelength/mode provisioned for the circuit pack, then a ***module/prov mode inconsistent*** alarm appears.

Supporting tasks This task refers to the following supporting tasks.

- “DLP-503: Locate Circuit Pack/Fiber Connections” (4-16)
- “DLP-511: Open/Close Cabinet Doors or Install/Remove Shelf Cover” (4-49)
- “DLP-533: Set the Client Mode and Wavelength for the 2:1 Multiplexing OTU (CW2DM25)” (4-134)

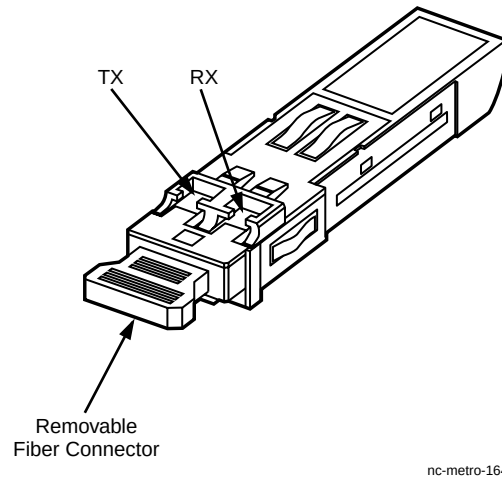
2DM25 faceplate SFP modules plug into the 2DM25 to provide Port 1 and Port 2, as shown in the following figure.

Figure 4-13 2DM25 Circuit Pack Faceplate



SFP module The following figure shows an SFP module.

Figure 4-14 Small Form Factor Pluggable (SFP) Module



Required equipment The following equipment is required to complete this task.

- Wrist Strap

Task



CAUTION

Electrostatic Discharge

Use a static ground wrist strap whenever handling circuit packs or working on a network element to prevent electrostatic discharge damage to sensitive components.

Use the following procedure to remove or install an SFP module.

- 1** If the circuit pack that holds or will hold the SFP module is installed, determine the location of the circuit pack. If you are responding to a module/prov mode inconsistent alarm, the alarm report includes the AID for the pack. Also you may use the procedure referenced below.

Reference: “DLP-503: Locate Circuit Pack/Fiber Connections” (4-16)

-
- 2** Open the cabinet doors or remove the shelf cover. All connections can be accessed from the front.

Reference: “DLP-511: Open/Close Cabinet Doors or Install/Remove Shelf Cover” (4-49)

- 3** Are you removing or installing an SFP module?

If	Then
REMOVING	continue with Step 4.
INSTALLING	continue with Step 8.

- 4** If necessary, disconnect any fibers connected to the SFP module and place dust covers onto both the fiber and port connectors.

Reference: “DLP-525: Connect/Disconnect Optical Fibers at OTU/OTPM” (4-114)

- 5** Depress the black plastic tab beneath the optical port.
-

- 6** Grip the side of the LC ports and pull the module out.
-

- 7** If you are replacing the SFP module, continue. Otherwise you have completed the procedure.
-

- 8** If you have not already done so, determine whether the SFP module you plan to install matches the provisioned client wavelength/mode.

Reference: Use the CenterLink command **CONFIGURATION.Retrieve.OT_Port_Signal** and look for the parameter **CW2DM25**.

- 9** If necessary, provision the correct wavelength/mode.

Reference: “DLP-533: Set the Client Mode and Wavelength for the 2:1 Multiplexing OTU (CW2DM25)” (4-134)

-
- 10** Insert the SFP module, electrical interface first, into the Port 1 or Port 2 slot of the circuit pack.
-

- 11** Close the cabinet doors or install the shelf cover, as required.

Reference: “DLP-511: Open/Close Cabinet Doors or Install/Remove Shelf Cover” (4-49)

END OF STEPS



DLP-533: Set the Client Mode and Wavelength for the 2:1 Multiplexing OTU (CW2DM25)

Purpose The 2:1 multiplexing OTU (2DM25) has two “client” or “low-speed” ports. The client port is identified in the right-most field of the AID as **P1** or **P2**. This task allows you to set the expected input mode and wavelength, **CW2DM25**, for P1 and P2. P1 and P2 can have the same or different settings for CW2DM25. The default setting is **MM850nm**, meaning a multimode fiber carrying an 850 nm signal. If the SFP module for the port carries a mode or wavelength different from its CW2DM25 setting, then a **module/prov mode inconsistent** alarm appears.

User privilege This task requires a privilege level of “General” or higher.

Task

- 1 If required, connect and condition the craft interface terminal (CIT).

Reference: “DLP-501: Connect and Condition Craft Interface Terminal (CIT)” (4-12)

- 2 Log into the network element.

Reference: “DLP-518: Login/Logout to a Network Element Using CenterLink” (4-82)

- 3 At the CIT, select the command **CONFIGURATION.Enter.OT_Port_Signal** and click the **Enter** button to execute.

Result: The corresponding screen appears, and includes the parameter **CW2DM25**.

- 4 Select the AID for the port.

Reference: The AID format is 2DM25-{1,2}-{1-32}-{P1, P2}.

-
- 5 Click on the **CW2DM25** drop-down and select the desired rate.
 - 6 If desired, use this same screen to set the **CEXP2DM25** (2DM25 expected input rate). For more information, click on the **Help** button and look for the **CEXP2DM25** parameter.
 - 7 Click on the **Enter** button to execute.
-

END OF STEPS





Appendix A: Pin Repair

Overview

Purpose This section describes the procedures for terminal repair in METRAL technology using the BERG MT370-01 Tool Kit for the METRAL technology. The tools were designed to remove and replace pins in MLPWB (Multilayer Printed Wiring Board) backplane areas equipped with or without spacer aligners.

Contents

Metral Tool Kit Descriptions	A-2
Pin Designations	A-3
Metropolis® EON Circuit Pack and Equipment Location	A-4
OT Circuit Pack and Equipment Location	A-5
Procedures for Pin Replacement	A-7



Metral Tool Kit Descriptions

METRAL Press-Fit Repair Kit

- Repair Tool Kit: BERG MT370-01
- Individual Pins: See Table A-1, “METRAL Pin Codes” (A-3)



Pin Designations

METRAL Pin Codes

Table A-1 METRAL Pin Codes

PIN ID	Part Number
A	88929-102
C	88929-119
D	88930-101
F	88929-106



Metropolis[®] EON Circuit Pack and Equipment Location

Metropolis[®] EON Equipment Location

Table A-2 Metropolis[®] EON Equipment Location

Circuit Pack	Backplane Location
SYSMEM (LEA2)	20-604
SYSCTL (LEA1)	20-584
TOHCTL (LEA102)	20-554
ALL OAs/ LIRCV/LITX	20-534, 20-434, 20-330,20-230
TLM (LDA1/ LDA4)	52-180, 52-230 52-280, 52-330
ALL OMUs/ ODUs	52-382, 52-430 52-478, 52-526
USER PNL	45-557
PWR A	50-597
PWR B	44-597



OT Circuit Pack and Equipment Location

OT Equipment Location Table A-3 OT Equipment Location

Circuit Pack	Backplane Location	
SYSMEM	20-605	
SYSCTL	20-565	
TOHCTL	20-525	
OTU/ OUPSR (System Shelf)	20-163 20-203 20-243 20-283 20-323 20-363 20-405 20-445 *20-485	*Note: Location 20-485 is not populated with any circuit pack at this time. Its inclusion is for accuracy.
OTU/ OUPSR (Complementary Shelves 1&2)	20-163 20-203 20-243 20-283 20-323 20-363 20-405 20-445 20-485 20-525 20-565 20-605	
PWR A	39-184	
PWR B	39-570	



Procedures for Pin Replacement



CAUTION

This procedure must be done with the shelf out of service and powered down to insure no further damage to the equipment or to the person doing the pin replacement.



CAUTION

Proper ESD precautions must be used.

**Metropolis® EON—Pin Type
Location**

**Figure A-1 Metropolis® EON System —All Shelves Component
Side View**

SYSEM		SYSCTL		TOHCTL		OA	
CCCC CCCC CCCC CCCC CCCC	157	CCCC CCCC CCCC CCCC CCCC	157	CCCC CCCC CCCC CCCC CCCC	157	CCCC CCCC CCCC CCCC CCCC	157
AAAA AAAA AAAA AAAA AAAA	151	EEEE EEEE EEEE EEEE EEEE	151	EEEE EEEE EEEE EEEE EEEE	151	EEEE EEEE EEEE EEEE EEEE	151
AAAA AAAA AAAA AAAA AAAA	145	AAAA AAAA AAAA AAAA AAAA	145		145	AAAA AAAA AAAA AAAA AAAA	145
AAAA AAAA AAAA AAAA AAAA	139	AAAA AAAA AAAA AAAA AAAA	139		139	AAAA AAAA AAAA AAAA AAAA	139
AAAA AAAA AAAA AAAA AAAA	133	AAAA AAAA AAAA AAAA AAAA	133	AAAA AAAA AAAA AAAA AAAA	133	AAAA AAAA AAAA AAAA AAAA	133
AAAA AAAA AAAA AAAA AAAA	127	AAAA AAAA AAAA AAAA AAAA	127	AAAA AAAA AAAA AAAA AAAA	127	AAAA AAAA AAAA AAAA AAAA	127
AAAA AAAA AAAA AAAA AAAA	121		121	AAAA AAAA AAAA AAAA AAAA	121	AAAA AAAA AAAA AAAA AAAA	121
AAAA AAAA AAAA AAAA AAAA	115		115	AAAA AAAA AAAA AAAA AAAA	115		115
AAAA AAAA AAAA AAAA AAAA	109	AAAA AAAA AAAA AAAA AAAA	109		109	AAAA AAAA AAAA AAAA AAAA	109
0 1 2 3		0 1 2 3		0 1 2 3		0 1 2 3	

Figure A-2 Metropolis® EON (Middle) Component Side View

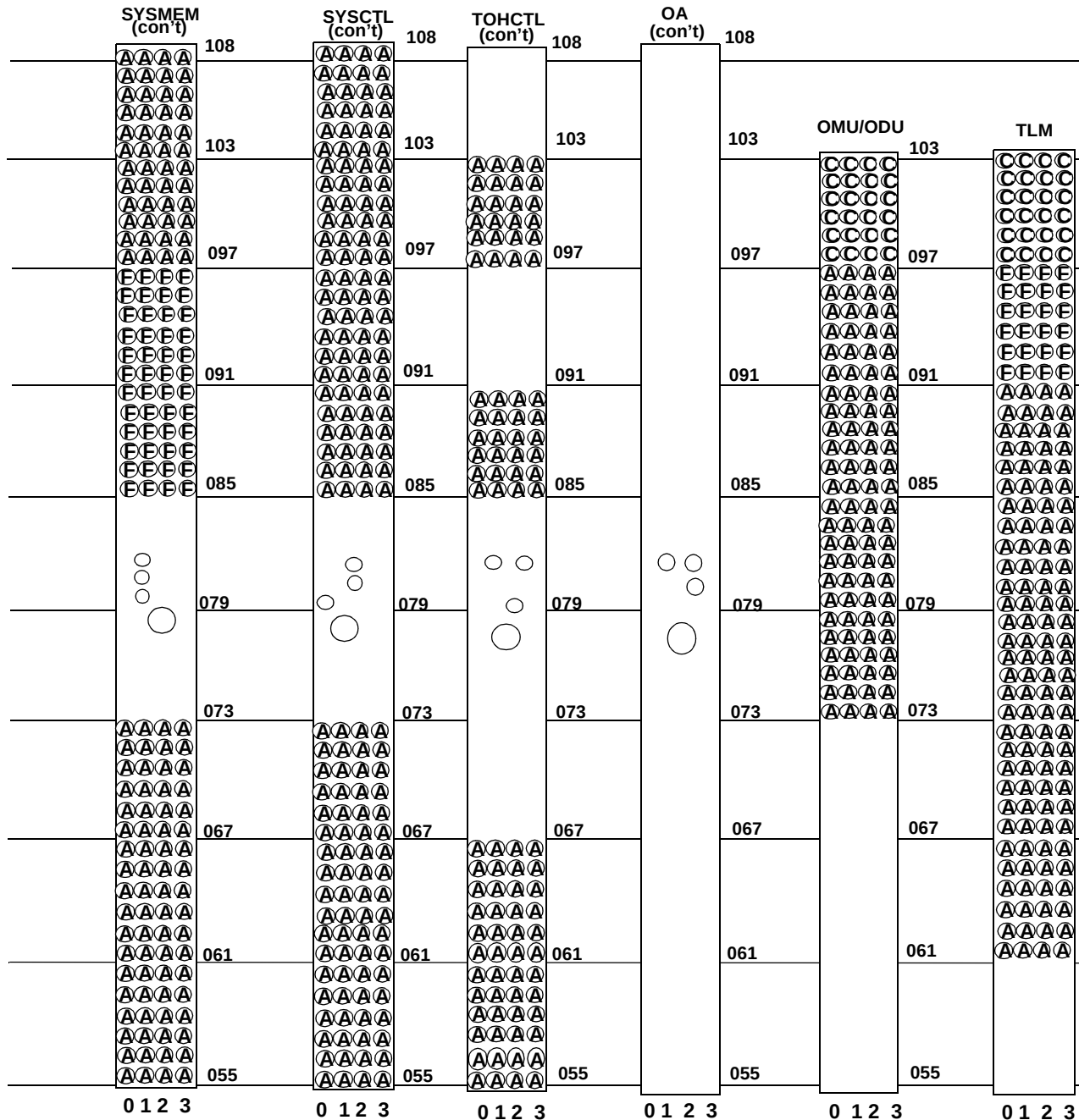


Figure A-3 Metropolis® EON (Lower) Component Side View

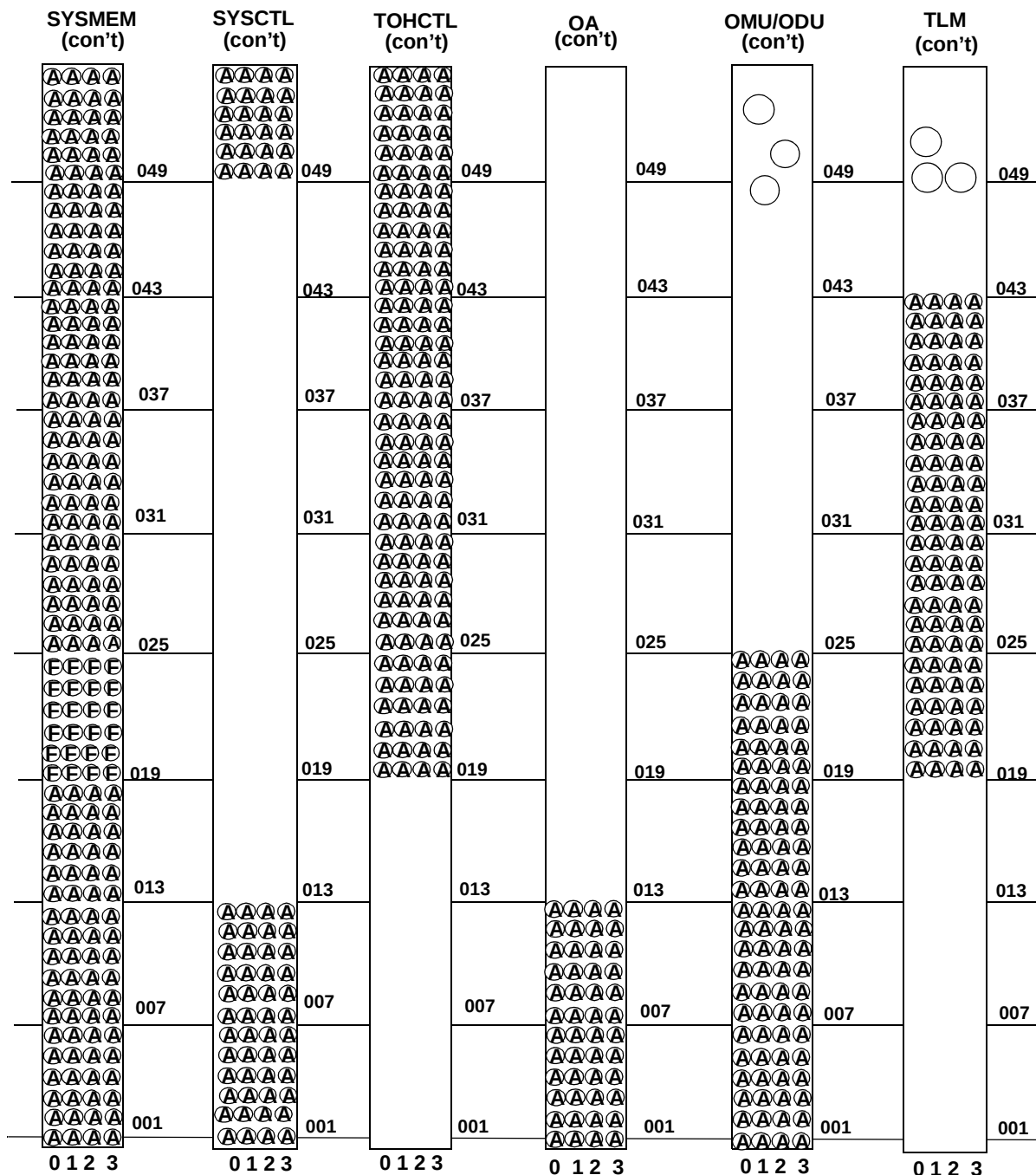
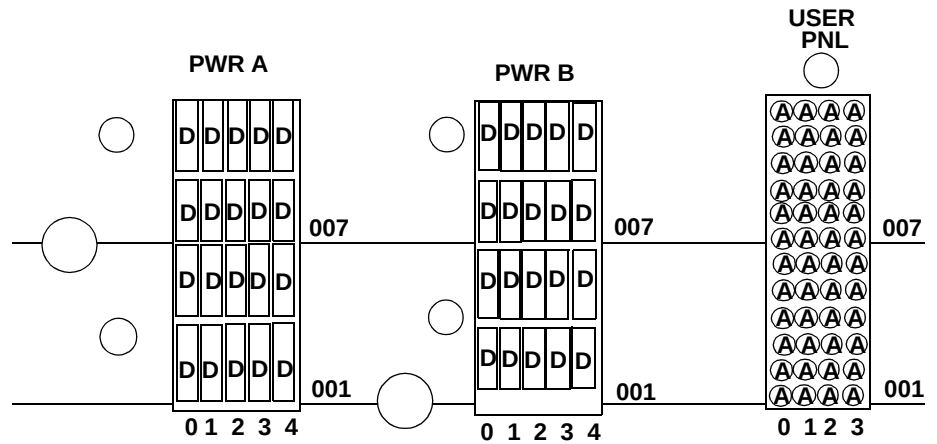


Figure A-4 Metropolis® EON—Power and User Panel Component Side View

Optical Translator (OT) -
Pin Type Location

Figure A-5 Optical Translator (OT)—All Shelves Component Side View

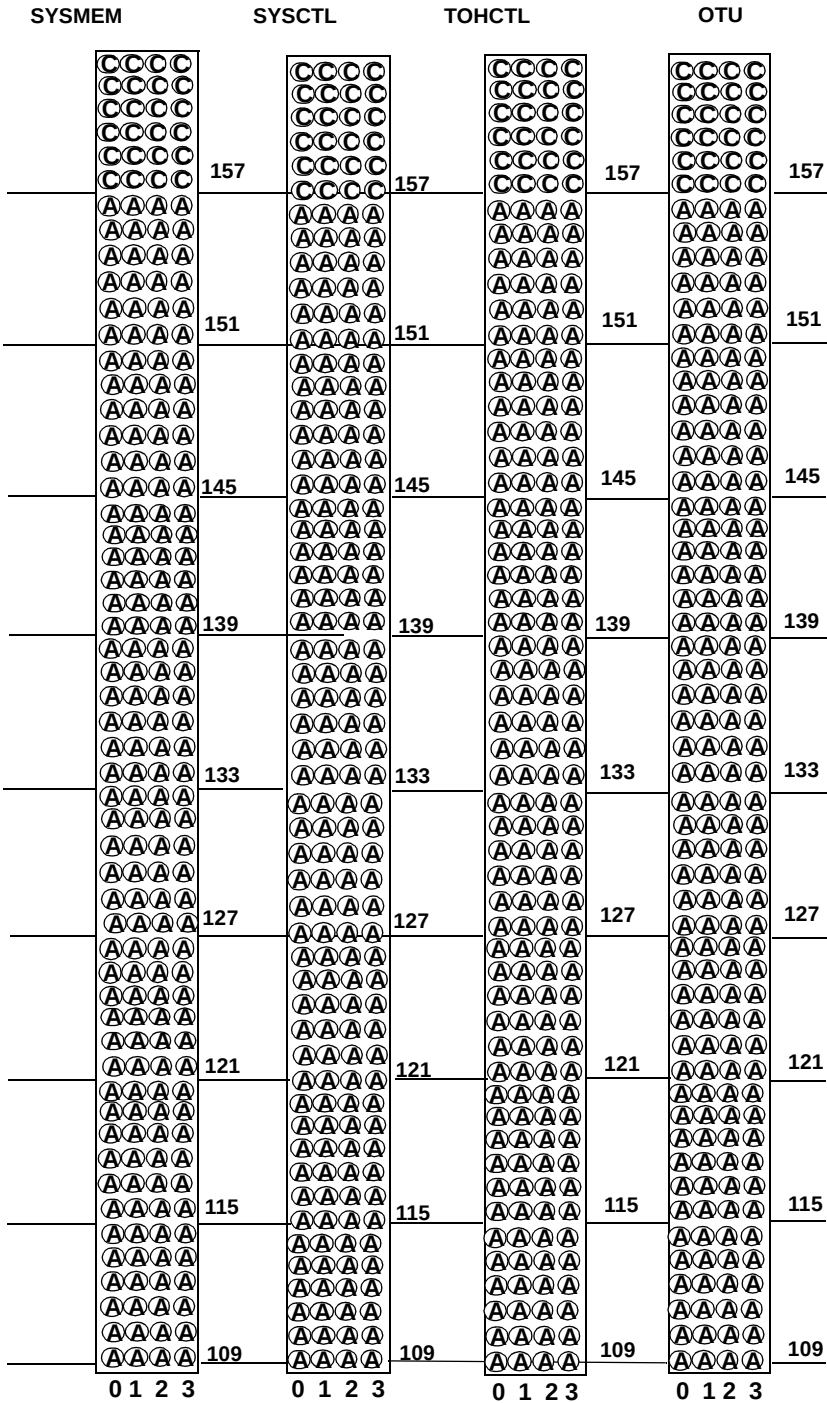


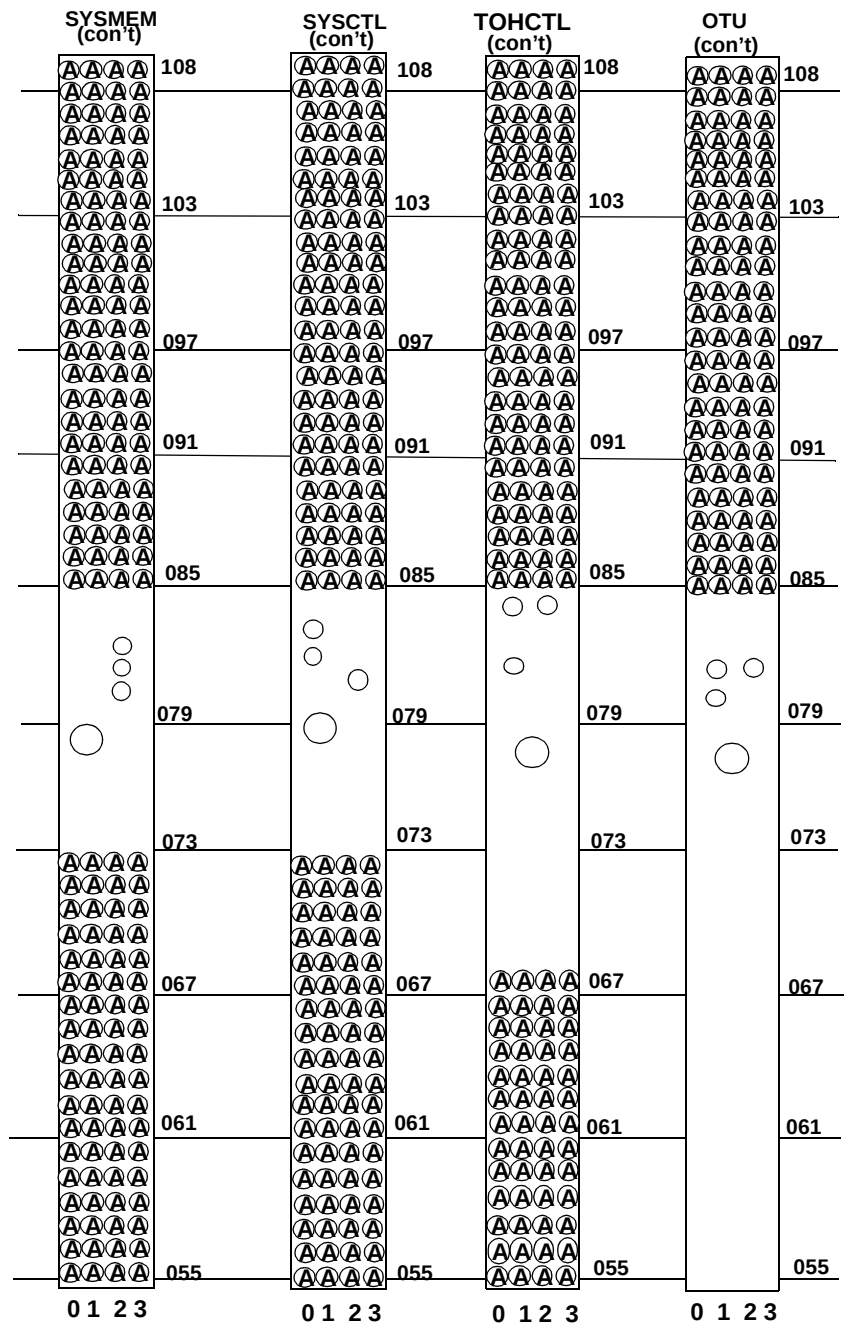
Figure A-6 Optical Translator (Middle) Component Side View

Figure A-7 Optical Translator (Lower) Component Side View

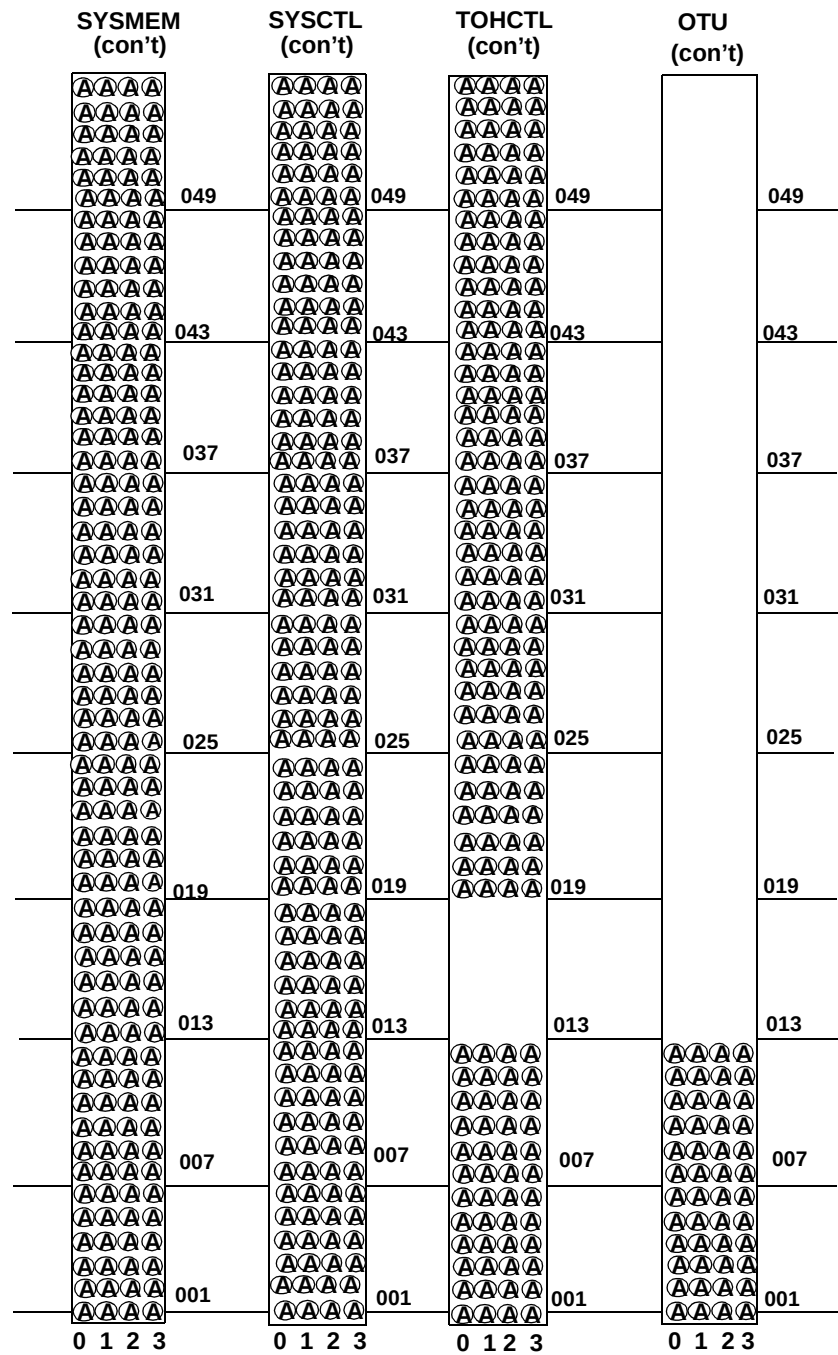
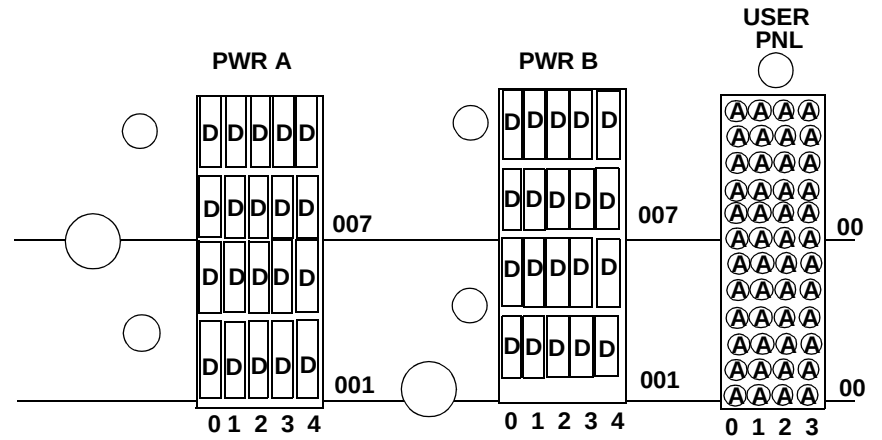


Figure A-8 Optical Translator—Power and User Panel Component Side View



Appendix B: State Names

Overview

Purpose This section describes the state names of a Metropolis[®] EON system.

Contents

Introduction	B-2
State Names for Customer Maintenance Signal Ports	B-3
State Names for Optical Channels	B-4
State Names for OA, TLM, and OTU Circuit Pack Slots	B-5
State Names for Optical Lines	B-6
State Names for Optical Translator Port Signals	B-7
State Names for Supervisory Channels	B-8



Introduction

State name definition A state name describes the state of a Metropolis® EON entity.

Commands related to state names The Transaction Language 1(TL1) commands that can cause a state transition or report on the state of entity types in this appendix are:

ENT-CMS	RTRV-CMS	RTRV-STATE
ENT-OCHAN	RTRV-OCHAN	UPD-SYS
ENT-OTPS	RTRV-OTPS	

Entity types States names are provided for the following entity types:

- Customer maintenance signal ports
- Optical channels
- OA, TLM, and OTU circuit pack slots
- Optical lines
- Optical translator port signals
- Supervisory channels

How to use this appendix This appendix consists of a series of tables, one for each entity type. Each table contains an alphabetized list of the state names that apply to that entity type.

First, find the entity type whose state name you want to find. Then refer to the list to locate the state name and description.

If you want to see how the entity type transitions to and from the states listed in its table, refer to Appendix C, “State Diagrams”. This appendix contains a set of figures that correspond directly to the Metropolis® EON entity tables provided in this appendix.



State Names for Customer Maintenance Signal Ports

Description The following table provides a list of the state names associated with customer maintenance signal ports.

The state diagram illustrating transitions among these states can be found in the corresponding figure of Appendix C, “State Diagrams”.

Table B-1 State Names for Customer Maintenance Signal (CMS) Ports

AUTO	This customer maintenance signal port is available for automatic provisioning.
IS	This customer maintenance signal port is fully monitored and alarmed.
NMON	This customer maintenance signal port is not monitored.



State Names for Optical Channels

Description The following table provides a list of the state names associated with optical channels.

The state diagram illustrating transitions among these states can be found in the corresponding figure of Appendix C, “State Diagrams”.

Table B-2 State Names for Optical Channels

AUTO	This optical channel is available for automatic provisioning.
IS	This optical channel is fully monitored and alarmed.
NMON	This optical channel is not monitored.



State Names for OA, TLM, and OTU Circuit Pack Slots

Description The following table provides a list of the state names associated with OA, TLM, and OTU circuit pack slots.

The state diagram illustrating transitions between these states can be found in the corresponding figure of Appendix C, “State Diagrams”.

Table B-3 State Names for OA, TLM, and OTU Circuit Pack Slots

AUTO	This circuit pack slot is available for automatic provisioning.
EQ	This circuit pack slot is fully monitored and alarmed.



State Names for Optical Lines

Description The following table provides a list of the state names associated with optical lines.

The state diagram illustrating transitions between these states can be found in the corresponding figure of Appendix C, “State Diagrams”.

Table B-4 Table State Names for Optical Lines

AUTO	This optical line is available for automatic provisioning.
IS	This optical line is fully monitored and alarmed.



State Names for Optical Translator Port Signals

Description The following table provides a list of the state names associated with Optical Translator port signals.

The state diagram illustrating transitions between these states can be found in the corresponding figure of the “State Diagrams” appendix.

Table B-5 Table State Names for Optical Translator Port Signals

AUTO	This optical translator port signal is available for automatic provisioning.
IS	This optical translator port signal is fully monitored and alarmed.
NMON	This optical translator port signal is not monitored.



State Names for Supervisory Channels

Description The following table provides a list of the state names associated with supervisory channels.

The state diagram illustrating transitions between these states can be found in the corresponding figure of Appendix C, “State Diagrams”.

Table B-6 State Names for Supervisory Channels

AUTO	This supervisory channel is available for automatic provisioning.
IS	This supervisory channel is fully monitored and alarmed.





Appendix C: State Diagrams

Overview

Purpose This appendix contains the corresponding state diagrams for Metropolis[®] EON entities listed in the tables of Appendix B, “State Names”.

Each state diagram portrays the transition(s) from one state to another for the entity.

The command(s) and/or cause(s) for each state transition are provided by the call-out connected to the arrow showing the direction of the state change.

AUTO is the original state for Metropolis[®] EON entities.



Diagrams

Customer Maintenance Signal (CMS) Port States

Figure C-1 Customer Maintenance Signal (CMS) Port States

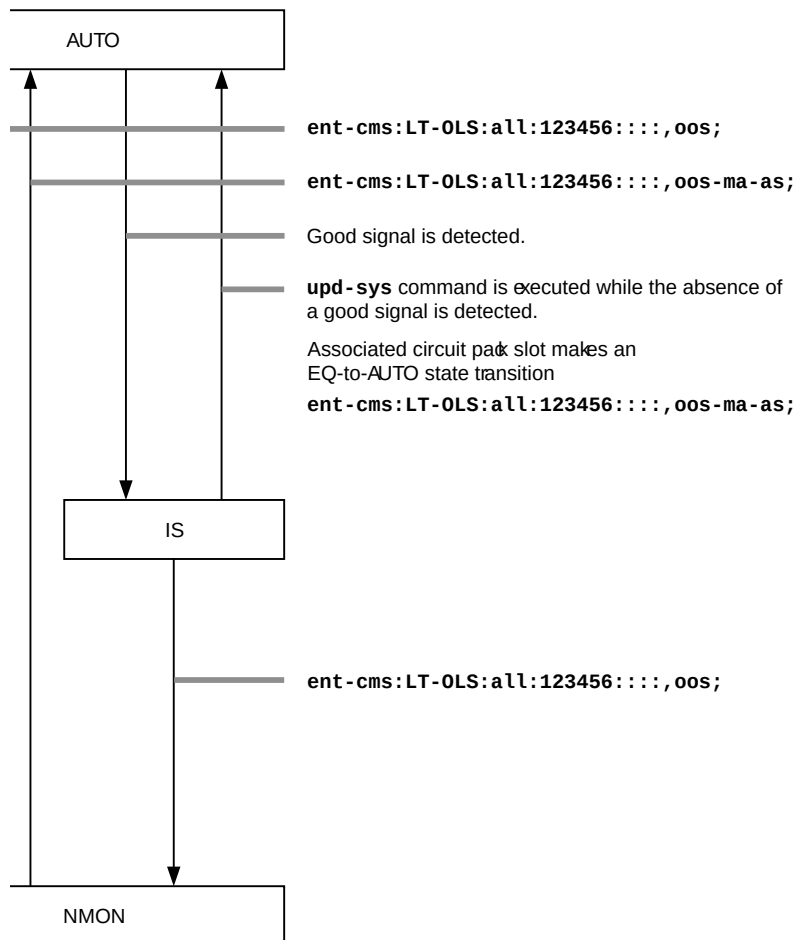


Fig1_1

Optical Channel States

Figure C-2 Optical Channel States

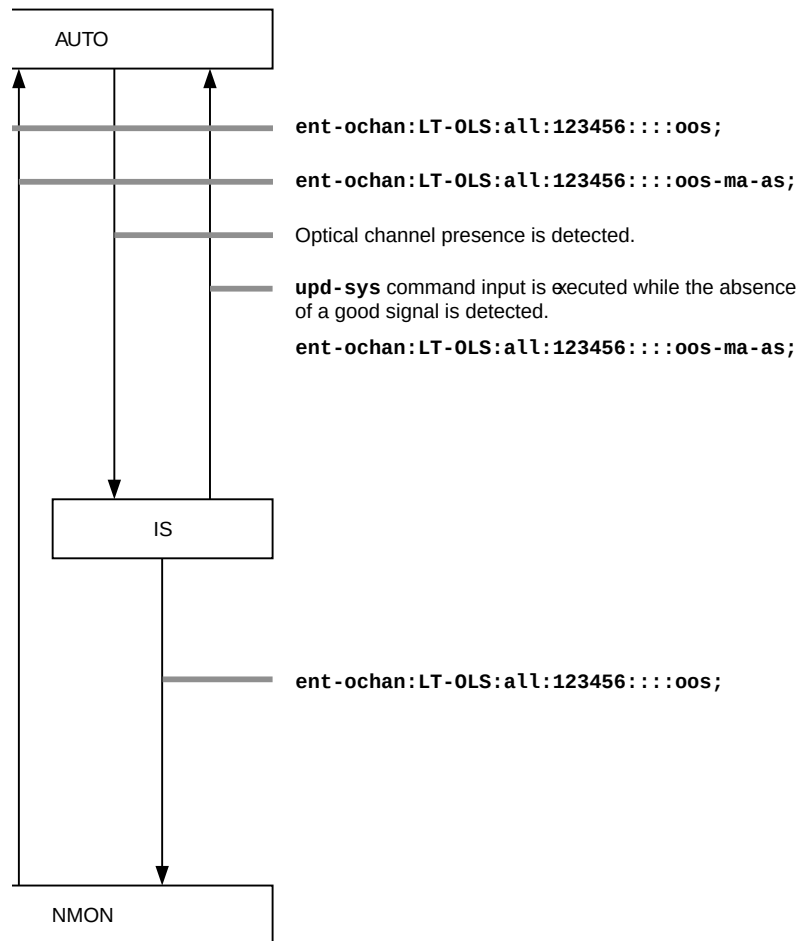
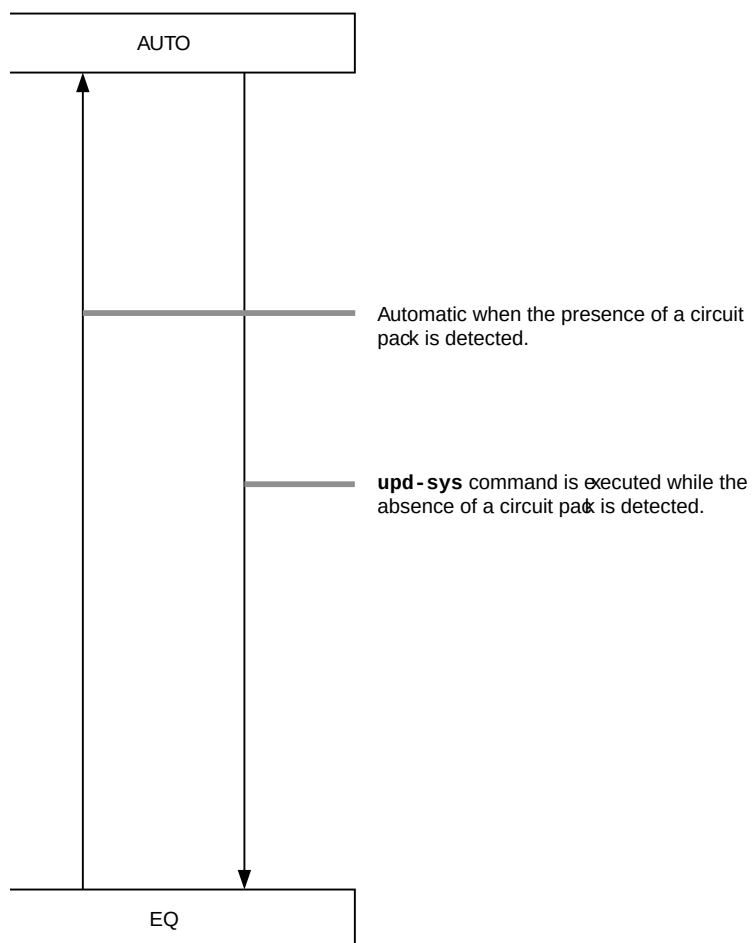
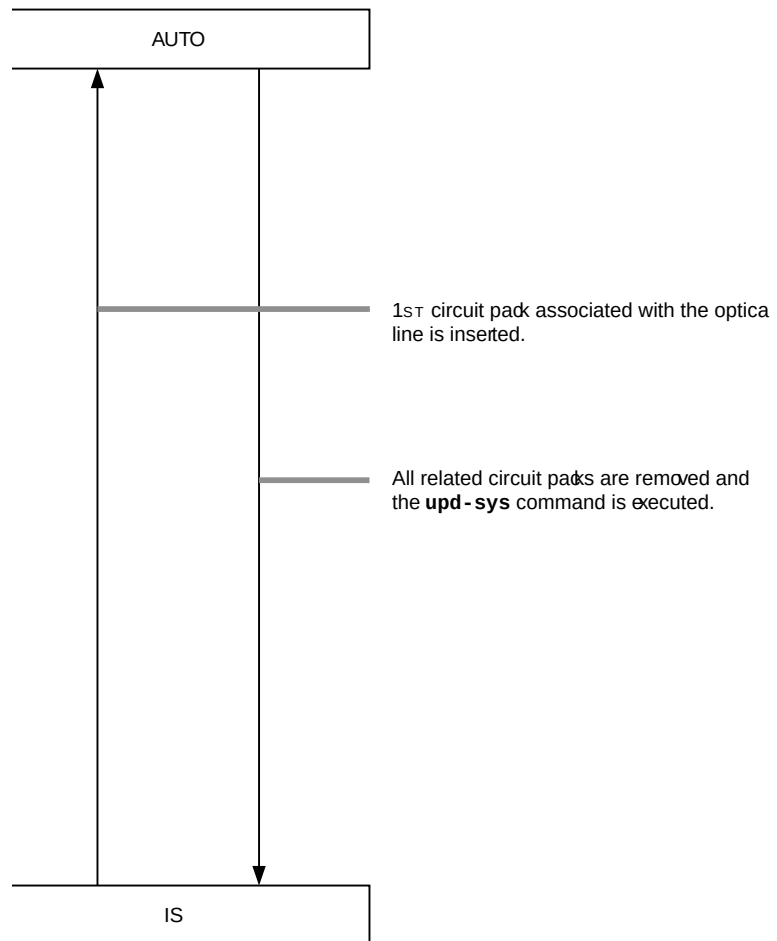


Fig1_2

**OA, TLM, and OTU Circuit
Pack Slot States****Figure C-3 OA, TLM, and OTU Circuit Pack Slot States**

**OA, TLM, and OTU Circuit
Pack Slot States****Figure C-4 OA, TLM, and OTU Circuit Pack Slot States**

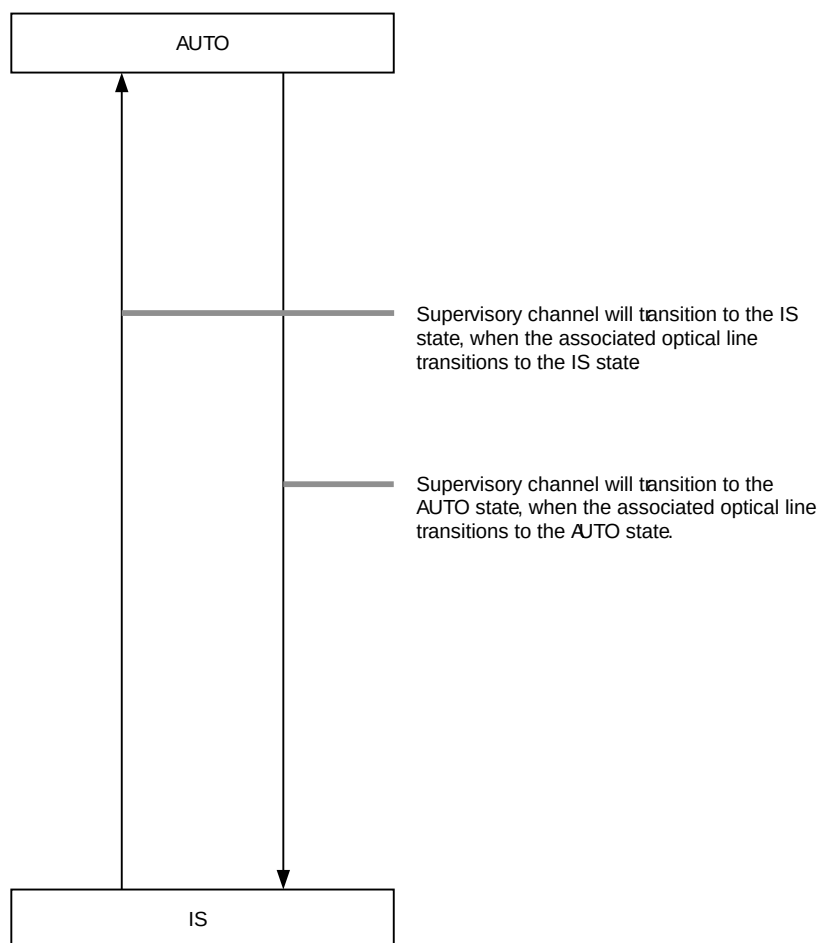
**Optical Translator Port
Signal States****Figure C-5 Optical Translator Port Signal States**

Fig1_6

Supervisory Channel States

Figure C-6 Supervisory Channel States

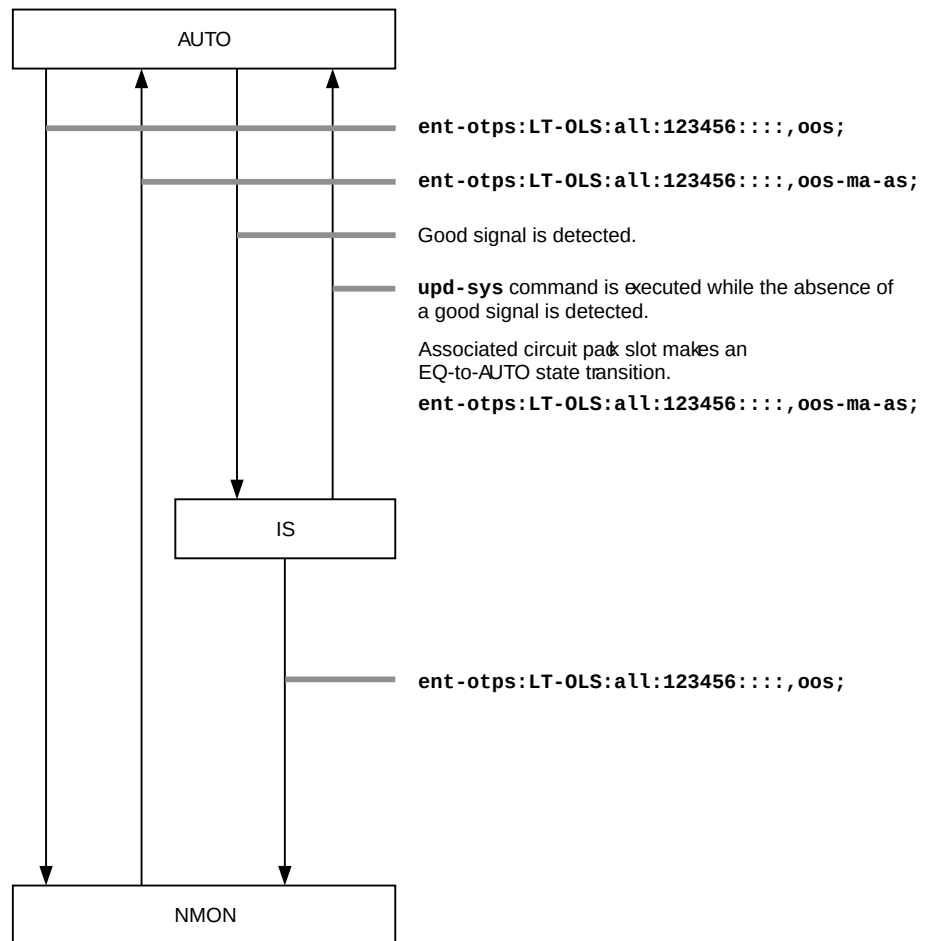


Fig1_5





Appendix D: Support for Signal Types

Overview

Purpose This appendix serves as a reference for the support of various signal types by Metropolis[®] Enhanced Optical Networking (EON).



Support for Signal Types

Name	Supporting OTUs/ OTPMs	Data Rate	PM Type Supported
IBM® Mainframe Protocols			
ETR (External Timing Request)	ELSBB, UBB	16 Mb/s	none
CLO (Control Link Oscillator)	ELSBB, UBB	16 Mb/s	none
ESCON® (Enterprise System Connection)	2DM25, LSBB, ELSBB, UBB	200 Mb/s	8B/10B ³
ISC (Inter-System Channel)	2DM25, ELSBB	1.062 Gb/s	none
ISC-2	2DM25, ELSBB	1.062 Gb/s	none
ISC-3 at Peer Mode	UBB	2.13 Gb/s	none
FICON™ (Fiber Connection)	2DM25, ELSBB, UBB	1.062 Gb/s	8B/10B ¹
Ethernet			
100Base-FX (also called FX, Fast Ethernet)	LSBB, ELSBB, UBB	125 Mb/s	none
1000Base-LX (also called GbE-1, Gigabit Ethernet)	2DM25, GbE, UBB	1.25 Gb/s	8B/10B ¹
Fiber Distributed Data Interface			
FDDI	LSBB, ELSBB, UBB	125 Mb/s	none
Fibre Channel			
FC-12	LSBB, ELSBB, UBB	133 Mb/s	8B/10B ¹
FC-25	LSBB, ELSBB, UBB	266 Mb/s	8B/10B ¹
FC-50	LSBB, ELSBB, UBB	531 Mb/s	8B/10B ¹
FC-100	2DM25, ELSBB, UBB	1.062 Gb/s	8B/10B ¹
Video			
D1 Video	LSBB, ELSBB, UBB	270 Mb/s	none
DV6000	UBB	2.38 Gb/s	none
<i>continued next page...</i>			

Name	Supporting OTUs/ OTPMs	Data Rate	PM Type Supported
<i>SONET/SDH, DWDM</i>			
OC-3/STM-1	OC-3/STM-1, LSBB, ELSBB, UBB	155.52 Mb/s	SONET/SDH ²
OC-12/STM-4	OC-12/STM-4, LSBB, ELSBB, UBB	622.08 Mb/s	SONET/SDH ²
OC-48/STM-16	2.5G (OTPM25), UBB	2.488 Gb/s	SONET/SDH ²
OC-192/STM-64	10G	9.953 Gb/s	SONET/SDH ²
OCh10G	10G	10.664 Gb/s	OCh

Notes:

1. 8B/10B performance monitoring supported only by UBB and 2DM25.
2. SONET/SDH performance monitoring supported only by OC-3/STM-1, OC-12/STM-4, OC-48/STM-16, 10G, and 2DM25 packs.
3. 8B/10B performance monitoring supported only by 2DM25.



Glossary



100Base-FX (also called FX, Fast Ethernet)

An Ethernet protocol with a signal rate of 125 Mb/s.

1000Base-LX (also called GbE-1, Gigabit Ethernet)

An Ethernet protocol with a signal rate of 1.25 Gb/s.

0x1 Line Operation

An unprotected operation. The connection between network elements has one bidirectional line (no protection line).

1+1 Line Protection

A protection architecture in which the transmitting equipment transmits a valid signal on both the working and protection lines. The receiving equipment monitors both lines. Based on performance criteria and OS control, the receiving equipment chooses one line as the active line and designates the other as the standby line.

1xN Equipment Protection

1xN protection pertains to N number of circuit pack/port units protected by one circuit pack or port unit. When a protection switch occurs, the working signals are routed from the failed pack to the protection pack. When the fault clears, the signals revert to the working port unit.

12NC (12-digit Numerical Code)

Used to uniquely identify an item or product. The first ten digits uniquely identify an item. The eleventh digit is used to specify the particular variant of an item. The twelfth digit is used for the revision issue. Items with the first eleven digits the same, are functionally equal and may be exchanged.

A ABN

Abnormal alarm status

ABS (Absent)

Used to indicate that a given circuit pack is not installed.

AC

Alternating Current

ACO (Alarm Cut-Off)

A button on the user panel used to silence audible alarms.

ACT (Active)

Used to indicate that a circuit pack or module is in-service and currently providing service functions.

ADM (Add/Drop Multiplexer)

The term for a synchronous network element capable of combining signals of different rates and having those signals added to or dropped from the stream.

AEL

Accessible Emission Limits

Agent

Performs operations on managed objects and issues events on behalf of these managed objects. All SDH managed objects will support at least an agent. Control of distant agents is possible via local “Managers”.

AGNE

Alarm Gateway Network Element

AID (Access Identifier)

A technical specification for explicitly naming entities (both physical and logical) of an NE using a grammar comprised of ASCII text, keywords, and grammar rules.

AIS (Alarm Indication Signal)

A code transmitted downstream in a digital network that indicates that an upstream failure has been detected and alarmed if the upstream alarm has not been suppressed.

AIMS

Acknowledged Information Transfer Service: Confirmed mode of operation of the LAPD protocol.

Alarm

Visible or audible signal indicating that an equipment failure or significant event/condition has occurred.

Alarm Correlation

The search for a directly-reported alarm that can account for a given symptomatic

condition.

Alarm Severity

An attribute defining the priority of the alarm message. The way alarms are processed depends on the severity.

Alarm Suppression

Selective removal of alarm messages from being forwarded to the GUI or to network management layer OSs.

Alarm Throttling

A feature that automatically or manually suppresses autonomous messages that are not priority alarms.

Aligning

Indicating the head of a virtual container by means of a pointer, for example, creating an Administrative Unit (AU) or a Tributary Unit (TU).

AMI (Alternate Mark Inversion)

A line code that employs a ternary signal to convert binary digits, in which successive binary ones are represented by signal elements that are normally of alternative positive and negative polarity but equal in amplitude and in which binary zeros are represented by signal elements that have zero amplitude.

Anomaly

A difference between the actual and desired operation of a function.

ANSI

American National Standards Institute

APD

Avalanche Photo Diode

APS (Automatic Protection Switch)

A protection switch that occurs automatically in response to an automatically detected fault condition.

ASCII (American Standard Code for Information Interchange)

A standard 7-bit code that represents letters, numbers, punctuation marks, and special characters in the interchange of data among computing and communications equipment.

ASN.1

Abstract Syntax Notation 1

Assembly

Gathering together of payload data with overhead and pointer information (an indication of the direction of the signal).

Association

A logical connection between manager and agent through which management information can be exchanged.

Asynchronous

The essential characteristic of time-scales or signals such that their corresponding significant instants do not necessarily occur at the same average rate.

ATM (Asynchronous Transfer Mode)

A high-speed transmission technology characterized by high bandwidth and low delay. It utilizes a packet switching and multiplexing technique which allocates bandwidth on demand.

Attribute

Alarm indication level: critical, major, minor, or no alarm.

AU (Administrative Unit)

Carrier for TUs.

AUG

Administrative Unit Group

AU PTR (Administrative Unit Pointer)

Indicates the phase alignment of the VC-N with respect to the STM-N frame. The pointer position is fixed with respect to the STM-N frame.

AUTO (Automatic)

One possible state of a port or slot. When a port is in the AUTO state and a good signal is detected, the port automatically enters the IS (in-service) state. When a slot is in the AUTO state and a circuit pack is detected, the slot automatically enters the EQ (equipped) state.

Autolock

Action taken by the system in the event of circuit pack failure/trouble. System switches to protection and prevents a return to the working circuit pack even if the trouble clears. Multiple protection switches on a circuit pack during a short period of time cause the system to autolock the pack.

Autonomous Message

A message transmitted from the controlled network element to the NavisTM Optical

EMS which was not a response to a NavisTM Optical EMS originated command.

AVAIL

Available

B Bandwidth

The difference in Hz between the highest and lowest frequencies in a transmission channel. The data rate that can be carried by a given communications circuit.

Baud Rate

Transmission rate of data (bits per second) on a network link.

BCLAN (Board Controller Local Area Network)

The internal local area network that provides communications between the line controller circuit pack and board controllers on the circuit packs associated with a high-speed line.

BER (Bit Error Rate)

The ratio of error bits received to the total number of bits transmitted.

Bidirectional Line

A transmission path consisting of two fibers that handle traffic in both the transmit and receive directions.

Bidirectional Ring

A ring in which both directions of traffic between any two nodes travel through the same network elements (although in opposite directions).

Bidirectional Switch

Protection switching performed in both the transmit and receive directions.

BIP-N (Bit Interleaved Parity-N)

A method of error monitoring over a specified number of bits (BIP-3 or BIP-8).

Bit

The smallest unit of information in a computer, with a value of either 0 or 1.

Bit Error Rate Threshold

The point at which an alarm is issued for bit errors.

BLD OUT LG

Build-Out Lightguide

BLSR (Bidirectional Line Switched Ring)

A method of SONET transport in which half of the working network is sent counter-clockwise over one fiber and the other half is sent clockwise over another fiber. BLSR offers bandwidth use advantages for distributed traffic in single-ring architectures.

Bridge Cross-Connection

The setting up of a cross-connection leg with the same input tributary as that of an existing cross-connection leg. Thus, forming a 1:2 bridge from an input tributary to two output tributaries.

Broadband Communications

Voice, data, and/or video communications at greater than 2 Mb/s rates.

Broadband Service Transport

STM-1 concatenation transport over the for ATM applications.

Byte

Refers to a group of eight consecutive binary digits.

C C

Container

CC (Clear Channel)

A digital circuit where no framing or control bits are required, thus making the full bandwidth available for communications.

CC (Cross-Connection)

Path-level connections between input and output tributaries or specific ports within a single NE. Cross-connections are made in a consistent way even though there are various types of ports and various types of port protection. Cross-Connections are reconfigurable interconnections between tributaries of transmission interfaces.

Cell Relay

Fixed length cells. For example, ATM with 53 octets.

CenterLink

A user-friendly, menu-driven web-based browser interface that can be used with the MetropolisTM EON. CenterLink software runs on a Microsoft **Windows95TM**, **Windows98TM**, **Windows2000TM**, **Windows2000TM**, **WindowsNTTM** compatible personal computer (PC).

CEPT

Conférence Européenne des Administrations des Postes et des Télécommunications

Channel

A sub-unit of transmission capacity within a defined higher level of transmission capacity.

Circuit

A set of transmission channels through one or more network elements that provides transmission of signals between two points, to support a single communications path.

CIT or CenterLink (Customer Interface Terminal)

The user interface terminal used by craft personnel to communicate with a network element.

CL

Clear

CLEC (Competitive - or Certified - Local Exchange Carrier)

A term coined for the deregulated, competitive telecommunications environment envisioned by the Telecommunications Act of 1996 (see ELEC).

CLEI

Common Language Equipment Identifier

CLF

Channel Loading Factor

Client

Computer in a computer network that generally offers a user interface to a server.

CLLI

Common Language Location Identifier

CLO (Control Link Oscillator)

An IBM® mainframe protocol with a signal rate of 16 Mb/s.

Closed Ring Network

A network formed of a ring-shaped configuration of network elements. Each network element connects to two others, one on each side.

CM (Configuration Management)

A subsystem that configures the network and processes messages from the network.

CM (Customer Maintenance)

An optical signal

CMI

Coded Mark Inversion

CMIP

Common Management Information Protocol. OSI standard protocol for OAM&P information exchange.

CMISE

Common Management Information Service Element

CO (Central Office)

A building where common carriers terminate customer circuits.

Collocated

System elements that are located in the same location.

Command Group

An administrator-defined group that defines commands to which a user has access.

Concatenation

A procedure whereby multiple virtual containers are associated one with each other resulting in a combined capacity that can be used as a single container across which bit sequence integrity is maintained.

Co-Resident

A hardware configuration where two applications can be active at the same time independently on the same hardware and software platform without interfering with each others functioning.

Correlation

A process where related hard failure alarms are identified.

CP

Circuit Pack

CPE

Customer Premises Equipment

CR (Critical)

An alarm that indicates a severe, service-affecting condition.

CRC

Cyclical Redundancy Check

Cross-Connect Map

Connection map for an SDH Network Element; contains information about how signals are connected between high speed time slots and low speed tributaries.

Crosstalk

An unwanted signal introduced into one transmission line from another.

CSMA/CD

Carrier Sense Multiple Access with Collision Detection

CTS

Customer Technical Support within Lucent Technologies

Current Value

The value currently assigned to a provisionable parameter.

Customer Maintenance Signal

A 155-Mb/s optical signal originating from customer supplied equipment and used for customer maintenance activities. It is carried as part of the supervisory signal.

D D1 Video

A video protocol with a signal rate of 270 Mb/s.

DACS/DCS

Digital Access Cross-Connect System

Data

A collection of system parameters and their associated values.

Database Administrator

A user who administers the database of the application.

dB

Decibels

DC

Direct Current

DCC (Data Communications Channel)

The embedded overhead communications channel in the synchronous line, used for end-to-end communications and maintenance. The DCC carries alarm, control, and status information between network elements in a synchronous network.

DCE (Data Communications Equipment)

The equipment that provides signal conversion and coding between the data terminating equipment (DTE) and the line. The DCE may be separate equipment or an integral part of the DTE or of intermediate equipment. A DCE may perform other functions usually performed at the network end of the line.

DCF

Data Communications Function

DCM (Dispersion Compensation Module)

A module that is fibered to an OA to compensate for dispersion of 10G signals over long distances.

DCN

Data Communications Network

Default

An operation or value that the system or application assumes, unless a user makes an explicit choice.

Default Provisioning

The parameter values that are preprogrammed as shipped from the factory.

Defect

A limited interruption of the ability of an item to perform a required function. It may or may not lead to maintenance action depending on the results of additional analysis.

DEMUX (Demultiplexer)

A device that splits a combined signal into individual signals at the receiver end of transmission.

Demultiplexing

A process applied to a multiplexed signal for recovering signals combined within it and for restoring the distinct individual channels of these signals.

Deprovisioning

The inverse order of provisioning. To manually remove/delete a parameter that has (or parameters that have) previously been provisioned.

Digital Link

A transmission span such as a point-to-point 2 Mb/s, 34 Mb/s, 140 Mb/s, VC12, VC3 or VC4 link between controlled network elements. The channels within a digital link are insignificant.

Digital Multiplexer

Equipment that combines by time-division multiplexing several digital signals into a single composite digital signal.

Digital Section

A transmission span such as an STM-N signal. A digital section may contain multiple digital channels.

Disassembly

Splitting up a signal into its constituents as payload data and overhead (an indication of the direction of a signal).

Dispersion

Time-broadening of a transmitted light pulse.

Dispersion Shifted Optical Fiber

1330/1550 nm minimum dispersion wavelength.

Divergence

When there is unequal amplification of incoming wavelengths, the result is a power divergence between wavelengths.

DMA

Direct Memory Access

DNI (Dual Node Ring Interworking)

A topology in which two rings are interconnected at two nodes on each ring and operate so that inter-ring traffic is not lost in the event of a node or link failure at an interconnecting point.

Doping

The addition of impurities to a substance in order to attain desired properties.

Downstream

At or towards the destination of the considered transmission stream, for example,

looking in the same direction of transmission.

DPLL

Digital Phase Locked Loop

DRAM

Dynamic Random Access Memory

Drop and Continue

A circuit configuration that provides redundant signal appearances at the outputs of two network elements in a ring. Can be used for Dual Node Ring Interworking (DNI) and for video distribution applications.

Drop-Down Menu

A menu that is displayed from a menu bar.

Drop Side Signal

An optical signal suitable for transmission over Metropolis™ EON.

DS3

Digital Signal Level 3 (44.736 Mb/s)

DSNE (Directory Service Network Element)

A designated network element that is responsible for administering a database that maps network element names (TIDs) to NSAP addresses. There must be one and only one DSNE per subnetwork.

DTE (Data Terminating Equipment)

The equipment that originates data for transmission and accepts transmitted data.

DTMF

Dual Tone Multifrequency

Dual

An end terminal configuration that supports east-west transmission.

DUS

Do not Use for Synchronization

DV6000

A video protocol with a signal rate of 2.38 Gb/s.

DWDM (Dense Wavelength Division Multiplexing)

Transmitting two or more signals of different wavelengths simultaneously over a

single fiber.

E EBER (Excessive Bit Error Rate)

The calculated average bit error rate over a data stream.

EC-1 (Electrical Carrier level-1 signal)

An STS-1 signal that has been shaped and encoded for transmission over electrical media.

ECC

Embedded Control Channel

EEPROM

Electrically Erasable Programmable Read-Only Memory

EIA (Electronic Industries Association)

A trade association of the electronic industry that establishes electrical and functional standards.

ELSBB (Enhanced Low-Speed Broadband)

This usually refers to the ELSBB circuit pack, which can transmit and receive signals with various protocols and with speeds between 16 Mb/s and 1.06 Gb/s.

EMC (Electromagnetic Compatibility)

A measure of equipment tolerance to external electromagnetic fields.

EMDU (External Miscellaneous Discrete Unit)

Connected to the serial telemetry interface of Metropolis® EON to provide an additional set of miscellaneous discrete input and output points.

EMI (Electromagnetic Interference)

High-energy, electrically induced magnetic fields that cause data corruption in cables passing through the fields.

EMS

Element Management System

EMS

Element Management System

End Terminal

Metropolis™ EON equipment that terminates optical line signals. It consists of a collocated optical multiplexer unit (OMU) and optical demultiplexer unit (ODU)

for bidirectional transmission, optical amplifiers (OA), and telemetry packs.

Entity Identifier

The name used by the system to refer to a circuit pack, memory device, or communications link.

EPROM

Erasable Programmable Read-Only Memory

EQ (Equipped)

Status of a circuit pack or interface module that is in the system database and physically in the frame, but not yet provisioned.

ES (Errored Seconds)

A performance monitoring parameter. ES “type A” is a second with exactly one error; ES “type B” is a second with more than one and less than the number of errors in a severely errored second for the given signal. ES by itself means the sum of the type A and type B ESs.

ESCON® (Enterprise System Connection)

An IBM® mainframe protocol with a signal rate of 200 Mb/s.

ESD

Electrostatic Discharge

ESP

Electrostatic Protection

ETR (External Timing Request)

An IBM® mainframe protocol with a signal rate of 16 Mb/s.

ETSI

European Telecommunications Standards Institute

Event

A significant change. Events in controlled Network Elements include signal failures, equipment failures, signals exceeding thresholds, and protection switch activity. When an event occurs in a controlled Network Element, the controlled Network Element will generate an alarm or status message and send it to the management system.

Event Driven

A required characteristic of network element software system: NEs are reactive systems, primarily viewed as systems that wait for and then handle events. Events

are provided by the external interface packages, the hardware resource packages, and also by the software itself.

Externally Timed

An operating condition of a clock in which it is locked to an external reference and is using time constants that are altered to quickly bring the local oscillator's frequency into approximate agreement with the synchronization reference frequency.

Extra traffic

Unprotected traffic that is carried over protection channels when their capacity is not used for the protection of working traffic.

F Fault

Term used when a circuit pack has a hard (not temporary) fault and cannot perform its normal function.

Fault Management

Collecting, processing, and forwarding of autonomous messages from network elements.

FC-12

A fibre channel with a signal rate of 133 Mb/s.

FC-25

A fibre channel with a signal rate of 266 Mb/s.

FC-50

A fibre channel with a signal rate of 531 Mb/s.

FC-100

A fibre channel with a signal rate of 1.062 Gb/s.

FCC

Federal Communications Commission

FDA/CDRH

The Food and Drug Administration's Center for Devices and Radiological Health.

FDDI (Fiber Distributed Data Interface)

A fiber interface (having a signal rate of 125 Mb/s) that connects computers and distributes data among them.

FE (Far End)

Any other network element in a maintenance subnetwork other than the one the user is at or working on. Also called remote.

FE ACTY

Far-End Activity.

FEBE (Far-End Block Error)

An indication returned to the transmitting node that an errored block has been detected at the receiving node. A block is a specified grouping of bits.

FEPROM (Flash EPROM)

A technology that combines the nonvolatility of EPROM with the in-circuit reprogrammability of EEPROM (electrically-erasable PROM).

FERF (Far-End Receive Failure)

An indication returned to a transmitting Network Element that the receiving Network Element has detected an incoming section failure. Also known as RDI.

FICON™ (Fiber Connection)

An IBM® mainframe protocol with a signal rate of 1.062 Gb/s.

FIT (Failures in Time)

Circuit pack failure rates per 10⁹ hours as calculated using the method described in Reliability Prediction Procedure for Electronic Equipment, BellCore Method I, Issue 5, September 1995.

Folded Rings

Folded (collapsed) rings are rings without fiber diversity. The terminology derives from the image of folding a ring into a linear segment.

Forced

Term used when a circuit pack (either working or protection) has been locked into a service-providing state by user command.

FR (Frame Relay)

A form of packet switching that relies on high-quality phone lines to minimize errors. It is very good at handling high-speed, bursty data over wide area networks. The frames are variable lengths and error checking is done at the end points.

Frame

The smallest block of digital data being transmitted.

Framework

An assembly of equipment units capable of housing shelves, such as a bay framework.

Free Running

An operating condition of a clock in which its local oscillator is not locked to an internal synchronization reference and is using no storage techniques to sustain its accuracy.

G GB

Gigabytes

Gbit/s

Gigabits per second

GHz

Gigahertz

Global Wait to Restore Time

Corresponds to the time to wait before switching back to the timing reference. It occurs after a timing link failure has cleared. This time applies for all timing sources in a system hence the name global. This can be between 0 and 60 minutes, in increments of one minute.

GNE (Gateway Network Element)

A network element that passes information between other network elements and management systems through a data communication network.

H Hard Failure

An unrecoverable nonsymptomatic (primary) failure that causes signal impairment or interferes with critical network functions, such as DCC operation.

Hazard Level

Output power level of a Metropolis™ EON system or device that poses safety risks to personnel. For 1550-nm wavelengths, hazard levels are defined as follows:
Level 1 £ 10 dBm.

HDB3 (High Density Bipolar 3 Code)

Line code for 2 Mb/s transmission systems.

HDLC (High Level Data Link Control)

OSI reference model datalink layer protocol.

HMI

Human Machine Interface

HML (Human Machine Language)

A standard language developed by the ITU for describing the interaction between humans and dumb terminals.

HO

High Order

Holdover

An operating condition of a clock in which its local oscillator is not locked to an external reference but is using storage techniques to maintain its accuracy with respect to the last known frequency comparison with a synchronization reference.

Hot Standby

A circuit pack ready for fast, automatic placement into operation to replace an active circuit pack. It has the same signal as the service going through it, so that choice is all that is required.

HPA (Higher Order Path Adaptation)

Function that adapts a lower order Virtual Container to a higher order Virtual Container by processing the Tributary Unit pointer which indicates the phase of the lower order Virtual Container Path Overhead relative to the higher order Virtual Container Path Overhead and assembling/disassembling the complete higher order Virtual Container.

HPC (Higher Order Path Connection)

Function that provides for flexible assignment of higher order Virtual Containers within an STM-N signal.

HPT (Higher Order Path Termination)

Function that terminates a higher order path by generating and adding the appropriate Virtual Container Path Overhead to the relevant container at the path source and removing the Virtual Container Path Overhead and reading it at the path sink.

HS

High Speed

HW

Hardware

Hz (Hertz)

A unit of frequency equal to one cycle per second.

I IAO LAN

Intraoffice Local Area Network

IAOLRP

Intraoffice Line Relay Pack

ID

Identifier

IEC

International Electro-Technical Commission

IEEE

Institute of Electrical and Electronics Engineers

ILEC (Incumbent Local Exchange Carrier)

The dominant phone carrier within a geographic area as determined by the FCC (see CLEC).

I/O

Input/Output

IMF

Infant Mortality Factor

Insert

To physically insert a circuit pack into a slot, thus causing a system initiated restoral of an entity into service and/or creation of an entity and associated attributes.

Interface Capacity

The total number of STM-1 equivalents (bidirectional) tributaries in all transmission interfaces with which a given transmission interface shelf can be equipped at one time. The interface capacity varies with equipage.

Intermediate System (IS)

A system which routes/relays management information. An SDH Network Element may be a combined intermediate and end system.

IPC

Inter Processor Communications

IR

Intermediate Reach

IS (In-Service)

A memory administrative state for ports. IS refers to a port that is fully monitored and alarmed.

ISC (Inter-System Channel)

An IBM® mainframe protocol with a signal rate of 1.062 Gb/s.

ISC-2

An IBM® mainframe protocol (a newer version of ISC) with a signal rate of 1.062 Gb/s.

ISC-3 at Peer Mode

An IBM® mainframe protocol with a signal rate of 2.13 Gb/s.

ISDN

Integrated Services Digital Network

IS-IS Routing

The Network Elements in a management network, route packets (data) between each other using an IS-IS level protocol. The size of a network running IS-IS Level 1 is limited, and therefore certain mechanisms are employed to facilitate the management of larger networks.

For STATIC ROUTING, the capability exists for disabling the protocol over the LAN connections, effectively causing the management network to be partitioned into separate IS-IS Level 1 areas. In order for the network management system to communicate with a specific Network Element in one of these areas, the network management system must identify through which so-called Gateway Network Element this specific Network Element is connected to the LAN. All packets to this specific Network Element are routed directly to the Gateway Network Element by the network management system, before being re-routed (if necessary) within the Level 1 area.

For DYNAMIC ROUTING an IS-IS Level 2 routing protocol is used allowing a number of Level 1 areas to interwork. The Network Elements which connect an IS-IS area to another area are set to run the IS-IS Level 2 protocol within the Network Element and on the connection between other Network Elements. Packets can now be routed between IS-IS areas and the network management system does not have to identify the Gateway Network Elements.

ITM

Integrated Transport Management

ITM-NM

Integrated Transport Management Network Module

ITU

International Telecommunications Union

ITU-T

International Telecommunications Union — Telecommunication standardization sector. Formerly known as CCITT: Comité Consultatif International Télégraphique & Téléphonique; International Telegraph and Telephone Consultative Committee.

J Jitter

Short term variations of amplitude and frequency components of a digital signal from their ideal position in time.

K Kbit/s

Kilobits per second

L LAN (Local Area Network)

A communications network that covers a limited geographic area, is privately owned and user administered, is mostly used for internal transfer of information within a business, is normally contained within a single building or adjacent group of buildings, and transmits data at a very rapid speed.

LBC

Laser Bias Current

LBFC

Laser Backface Currents

LBO (Lightguide Build-Out)

An attenuating (signal-reducing) element used to keep an optical output signal strength within desired limits.

LCN

Local Communications Network

LED

Light-Emitting Diode

LGX

Lightguide cross-connect panel

LH

Long Haul

Line

A transmission medium, together with the associated equipment, required to provide the means of transporting information between two consecutive network elements. One network element originates the line signal; the other terminates it.

Line Protection

The optical interfaces can be protected by line protection. Line protection switching protects against failures of line facilities, including the interfaces at both ends of a line, the optical fibers, and any equipment between the two ends. Line protection includes protection of equipment failures.

Line Timing

Refers to a network element that derives its timing from an incoming STM-N signal.

Link

The mapping between in-ports and out-ports. It specifies how components are connected to one another.

LO

Low Order

Location

An identifier for a specific circuit pack, interface module, interface port, or communications link.

Lockout State

The Lockout State shall be defined for each working or protection circuit pack. The two permitted states are: None – meaning no lockout is set for the circuit pack, set meaning the circuit pack has been locked out. The values (None & Set) shall be taken independently for each working or protection circuit pack.

LOF (Loss of Frame)

A failure to synchronize to an incoming signal.

LOM

Loss Of Multiframe

Loopback

Type of diagnostic test used to compare an original transmitted signal with the resulting received signal. A loopback is established when the received optical or electrical external transmission signal is sent from a port or tributary input directly back toward the output.

Loop Timing

A special case of line timing. It applies to network elements that have only one OC-N/STM-N interface. For example, terminating nodes in a linear network are loop timed.

LOP (Loss of Pointer)

A failure to extract good data from a signal payload.

LOS (Loss of Signal)

The complete absence of an incoming signal.

Loss Budget

Loss (in dB) of optical power due to the span transmission medium (includes fiber loss and splice losses).

LIRCV

Line Interface Receive circuit pack

LPA (Lower order Path Adaptation)

Function that adapts a PDH signal to a synchronous network by mapping the signal into or de-mapping the signal out of a synchronous container.

LPC (Lower Order Path Connection)

Function that provides for flexible assignment of lower order VCs in a higher order VC.

LPT (Lower Order Path Termination)

Function that terminates a lower order path by generating and adding the appropriate VC POH to the relevant container at the path source and removing the VC POH and reading it at the path sink.

LS

Low Speed

LSBB

Low-speed broadband. This usually refers to the LSBB circuit pack, which can transmit and receive signals with various protocols and with speeds between 16 and 750 Mb/s.

LTE

Line Terminating Equipment

LWS

Lucent Worldwide Services

M μ
Microns

μm
Micrometer

MAF

Management Application Function

Maintenance Condition

An equipment state in which some normal service functions are suspended, either because of a problem or to perform special functions (copy memory) that can not be performed while normal service is being provided.

Management Connection

Identifies the type of routing used (STATIC or DYNAMIC); selecting STATIC allows the gateway network element to be identified.

Manager

Capable of issuing network management operations and receiving events. The manager communicates with the agent in the controlled network element.

Manual Switch State

A protection group shall enter the Manual Switch State upon the initiation and successful completion of the Manual Switch command. The protection group leaves the Manual Switch state by means of the Clear or Forced Switch commands. While in the Manual Switch state the system may switch the active unit automatically if required for protection switching.

Mapping

The logical association of one set of values, such as addresses on one network, with quantities or values of another set, such as devices or addresses on another network.

MB

Megabytes

Mbit/s

Megabits per second

MCF (Message Communications Function)

Function that provides facilities for the transport and routing of Telecommunications Management Network messages to and from the Network Manager.

MD (Mediation Device)

Allows for exchange of management information between Operations System and Network Elements.

MDI

Miscellaneous Discrete Input

MDO

Miscellaneous Discrete Output

MEC (Manufacturer Executable Code)

Network Element system software in binary format that after being downloaded to one of the stores can be executed by the system controller of the network element.

MEM

Memory

Mid-Span Meet

The capability to interface between two lightwave network elements of different vendors. This applies to high-speed optical interfaces.

MIPS

Millions of Instructions Per Second

Miscellaneous Discrete Interface

Allows an operations system to control and monitor equipment collocated within a set of input and output contact closures.

MJ (Major (alarm))

Indicates a service-affecting failure, main or unit controller failure, or power supply failure.

MMI

Man-Machine Interface

MML

Human-Machine Language

MN (Minor alarm)

Indicates a non-service-affecting failure of equipment or facility.

MO

Managed Object

MS

Multiplexer Section

ms

Millisecond

MsoH (Multiplexer Section OverHead)

Part of the Section Overhead. Is accessible only at line terminals and multiplexers.

MSP (Multiplexer Section Protection)

Provides capability for switching a signal from a working to a protection section.

MS-SPRING (Multiplexer Section Shared Protection Ring)

A protection method used in Add-Drop Multiplexer Network Elements.

MST (Multiplexer Section Termination)

Function that generates the Multiplexer Section OverHead in the transmit direction and terminates the part of the Multiplexer Section overhead that is acceptable in the receive direction.

MTBF

Mean Time Between Failures

MTBMA

Mean Time Between Maintenance Activities

MTIE

Maximum Time Interval Error

MTPI

Multiplexer Timing Physical Interface

MTS (Multiplexer Timing Source)

Function that provides timing reference to the relevant component parts of the multiplex equipment and represents the SDH Network Element clock.

MTTR

Mean Time To Repair

Multiplexer

A device (circuit pack) that combines two or more transmission signals into a combined signal on a shared medium.

Multiplexing

A procedure by which multiple lower order path layer signals are adapted into a higher order path, or the multiple higher order path layer signals are adapted into a multiplex section.

N NA

Not Applicable

NE (Network Element)

A node in a telecommunication network that supports network transport services and is directly manageable by a management system.

NE ACTY

Near-End Activity

NMA

Network Monitoring and Analysis System

NEBS

Network Equipment-Building System

nm

Nanometer (10^{-9} meters)

NMON (Not Monitored)

A provisioning state for equipment that is not monitored or alarmed.

NMS

Network Management System

Node

A network element in a ring or, more generally, in any type of network. In a

network element supporting interfaces to more than one ring, node refers to an interface that is in a particular ring. Node is also defined as all equipment that is controlled by one system controller. A node is not always directly manageable by a management system.

Non-Revertive Switching

In non-revertive switching, an active and stand-by line exist on the network. When a protection switch occurs, the standby line is selected to support traffic, thereby becoming the active line. The original active line then becomes the stand-by line. This status remains in effect even when the fault clears. That is, there is no automatic switch back to the original status.

Non-Synchronous

The essential characteristic of time-scales or signals such that their corresponding significant instants do not necessarily occur at the same average rate.

No Request State

This is the routine-operation quiet state in which no external command activities are occurring.

NORM

Normal

NPI

Null Pointer Indication

NPPA (Non-Preemptible Protection Access)

Non-preemptible protection access increases the available span capacity for traffic which does not require protection by a ring, but which cannot be preempted.

NRZ

Nonreturn to Zero

NSA

Non-Service Affecting

NSAP Address (Network Service Access Point Address)

Used in the OSI network layer 3). An automatically assigned number that uniquely identifies a Network Element for the purposes of routing DCC messages.

NVM (Non-Volatile Memory)

Memory that retains its stored data after power has been removed. An example of NVM would be a hard disk.

O O&M

Operation and Maintenance

OA (Optical Amplifier)

A device that amplifies an optical signal without converting the signal from optical to electrical, then back again to optical energy.

OADM Office (Optical Add/Drop Multiplex Office)

A Metropolis® EON dual terminal shelf or two colocated end terminal shelves with pass-through wavelengths.

OALAN (Overhead Access Local Area Network)

The internal local area network that provides communications between the system controller circuit pack and the overhead controller circuit pack.

OAM&P

Operations, Administration, Maintenance, and Provisioning

OC, OC-n

Optical Carrier

OC-3

Optical Carrier, Level 3 Signal (155 Mbit/s)

OC-12

Optical Carrier, Level 12 Signal (622.08 Mbit/s)

OC-48

Optical Carrier, Level 48 (2488.32 Mb/s) (2.5 Gbit/s)

OC-192

Optical Carrier, Level 192 (9953.28 Mb/s) (10 Gbit/s)

OCh10G

An optical channel for overhead in a DWDM system - signal rate is 10.664 Gb/s.

OCHAN

Optical Channel

ODU (Optical Demultiplexer Unit)

A type of circuit pack that demultiplexes the input optical signal into a maximum of 16 wavelengths.

OI (Operations Interworking)

The capability to access, operate, provision, and administer remote systems through craft interface access from any site in a SDH network or from a centralized operations system.

OLINE

Optical Line

OMU (Optical Multiplexer Unit)

A type of circuit pack that combines up to 16 optical wavelengths into one signal called the optical line signal.

OOF

Out-of-Frame

OOS (Out-of-Service)

The circuit pack is not providing its normal service function (removed from either the working or protection state) either because of a system problem or because the pack has been removed from service.

Open Ring Network

A network formed of a linear chain-shaped configuration of network elements. Each network element connects to two others, one on each side, except for two network elements at the ends which are connected on only one side. A closed ring can be formed by adding a connection between the two end nodes.

Operations Interface

Any interface providing you with information on the system behavior or control. These include the equipment LEDs, user panel, CenterLink CIT, office alarms, and all telemetry interfaces.

Operator

A user of the system with operator-level user privileges.

Optical Line Signal

A multiplexed optical signal containing multiple wavelengths or channels.

Optical Section

See "Span."

Orderwire

A section of the supervisory signal that is used for communication between sites.

Original Value Provisioning

Preprogramming of a system's original values at the factory. These values can be overridden using local or remote provisioning.

OS (Operations System)

A central computer-based system used to provide operations, administration, and maintenance functions.

OSF

Open Software Foundation Operations System Function

OSI (Open Systems Interconnection)

Referring to the OSI reference model, a logical structure for network operations standardized by the International Standards Organization (ISO).

OTU (Optical Translator Unit)

A circuit pack that regenerates an OC-48/STM-16 optical signal by converting the signal from an optical to an electrical format then converting the signal back into an optical signal that is compatible with MetropolisTM EON.

OTPM (Optical Translator Port Module)

Similar to the OTU (see "OTU"), except it is half the size.

OTPS

Optical Translator Port Signal

OUPSR (Optical Unidirectional Path Switched Ring)

A protection scheme where an OUPSR circuit pack (at the entrance of the DWDM ring) splits a single wavelength into two equal signals, sends one in each direction around the DWDM ring, then (at the exit of the DWDM) selects an acceptable signal from the two available.

Outage

A disruption of service that lasts for more than 1 second.

OW (Orderwire)

A dedicated voice-grade line for communications between maintenance and repair personnel.

P Parallel Telemetry

A set of alarms and status information reported to an operations center.

Parameter

A variable that is given a value for a specified application. A constant, variable, or expression that is used to pass values between components.

Parity Check

Tests whether the number of ones (or zeros) in an array of binary bits is odd or even; used to determine that the received signal is the same as the transmitted signal.

Pass-Through

Paths that are cross-connected directly across an intermediate node in a network.

Path

A logical connection between the point at which a standard frame format for the signal at the given rate is assembled, and the point at which the standard frame format for the signal is disassembled.

Path Terminating Equipment

Network elements in which the path overhead is terminated.

PCB

Printed Circuit Board

PCM

Pulse Code Modulation

PDH

Plesiochronous Digital Hierarchy

PI

Physical Interface

Platform

A family of equipment and software configurations designed to support a particular application.

Plesiochronous Network

A network that contains multiple subnetworks, each internally synchronous and all operating at the same nominal frequency, but whose timing may be slightly different at any particular instant.

PM (Performance Monitoring)

Measures the quality of service and identifies degrading or marginally operating systems (before an alarm would be generated).

PMD (Polarization Mode Dispersion)

Output pulse broadening due to random coupling of the two polarization modes in an optical fiber.

POH (Path Overhead)

Informational bytes assigned to, and transported with the payload until the payload is demultiplexed. It provides for integrity of communication between the point of assembly of a virtual container and its point of disassembly.

Pointer

An indicator whose value defines the frame offset of a virtual container with respect to the frame reference of the transport entity on which it is supported.

POP

Point of Presence

Port (also called Line)

The physical interface, consisting of both an input and output, where an electrical or optical transmission interface is connected to the system and may be used to carry traffic between network elements. The words “port” and “line” may often be used synonymously. “Port” emphasizes the physical interface, and “line” emphasizes the interconnection. Either may be used to identify the signal being carried.

Port State Provisioning

A feature that allows a user to suppress alarm reporting and performance monitoring during provisioning by supporting multiple states (automatic, in-service, and not monitored) for low-speed ports.

POTS

Plain Old Telephone Service

PP

Pointer Processing

PRC (Primary Reference Clock)

The main timing clock reference in SDH equipment.

Preprovisioning

The process by which the user specifies parameter values for an entity in advance of some of the equipment being present. These parameters are maintained only in NVM. These modifications are initiated locally or remotely by either a CIT or an OS. Preprovisioning provides for the decoupling of manual intervention tasks (for example, install circuit packs) from those tasks associated with configuring the

node to provide services (for example, specifying the entities to be cross-connected).

PRI

Primary

Proactive Maintenance

Refers to the process of detecting degrading conditions not severe enough to initiate protection switching or alarming, but indicative of an impending signal fail or signal degrade defect.

Protection Access

To provision traffic to be carried by protection tributaries when the port tributaries are not being used to carry the protected working traffic.

Protection Group Configuration

The members of a group and their roles, for example, working protection, line number, etc.

Protection Path

One of two signals entering a path selector used for path protection switching or dual ring interworking. The other is the working path. The designations working and protection are provisioned by the user, whereas the terms active path and standby path indicate the current protection state.

Protection State

When the working unit is currently considered active by the system and that it is carrying traffic. The “active unit state” specifically refers to the receive direction of operation — since protection switching is unidirectional.

Protection Switching

The switching of traffic from a malfunctioning line/channel to one that is working.

PROTN (Protection)

Extra capacity (channels, circuit packs) in transmission equipment that is not intended to be used for service, but rather to serve as backup against equipment failures.

PROV (Provisioned)

Indicating that a circuit pack is ready to perform its intended function. A provisioned circuit pack can be active (ACT), in-service (IS), standby (STBY), provisioned out-of-service (POS), or out-of-service (OOS).

Provisioning

Assigning a value to a system parameter.

PSDN

Public Switched Data Network

PSTN

Public Switched Telephone Network

PTE

Path Terminating Equipment

PVC

Permanent Virtual Circuit

PWR

Power

PWR ON

Power On

Q Q-LAN

Thin Ethernet LAN which connects the manager to Gateway Network Elements so that management information between Network Elements and management systems can be exchanged.

QL (Quality Level)

The quality of the timing signal(s) provided to clock a Network Element. The level is provided by the Synchronization Status Marker which can accompany the timing signal. If the System and Output Timing Quality Level mode is “Enabled”, and if the signal selected for the Station Clock Output has a quality level below the Acceptance Quality Level, the Network Element “squelsches” the Station Clock Output Signal, which means that no signal is forwarded at all.

Possible levels are:

- PRC (Primary Reference Clock)
- SSU_T (Synchronization Supply Unit - Transit)
- SSU_L (Synchronization Supply Unit - Local)
- SEC (SDH Equipment Clock)
- DUS (Do not Use for Synchronization)

QOS

Quality of Service

QOTU

Quad Optical Translator Unit

R RAC

Rack connection panel

RAM

Random Access Memory

RCV

Receive

RDI (Remote Defect Indication)

An indication returned to a transmitting terminal that the receiving terminal has detected an incoming section failure. [Previously called far-end-receive failure (FERF).]

Reactive Maintenance

Refers to detecting defects/failures and clearing them.

Receive-Direction

The direction towards the Network Element.

Regeneration

The process of reconstructing a digital signal to eliminate the effects of noise and distortion.

Regenerator Loop

Loop in a Network Element between the Station Clock Output(s) and one or both Station Clock Inputs, which can be used to dejitterize the selected timing reference in network applications.

Regenerator Section Termination (RST)

Function that generates the Regenerator Section Overhead (RSOH) in the transmit direction and terminates the RSOH in the receive direction.

Reliability

The ability of a software system performing its required functions under stated conditions for a stated period of time. The probability for an equipment to fulfill its function. Some of the ways in which reliability is measured are: MTBF (Mean

Time Between Failures) expressed in hours; Availability = (MTBF)/(MTBF+MTTR)(%) [where MTTR = mean time to restore]; outage in minutes per year; failures per hour; percentage of failures per 1,000 hours.

Remote Network Element

Any Network Element that is connected to the referenced Network Element through either an electrical or optical link. It may be the adjacent node on a ring, or N nodes away from the reference. It also may be at the same physical location but is usually at another (remote) site.

Repeater Terminal

In Metropolis™ EON, a bidirectional terminal consisting of a pair of optical amplifiers and the corresponding telemetry packs.

Restore Timer

Counts down the time (in minutes) during which the switch waits to let the worker line recover before switching back to it. This option can be set to prevent the protection switch continually switching if a line has a continual transient fault. This field is grayed out if the mode is non-revertive.

Revertive

A protection switching mode in which, after a protection switch occurs, the equipment returns to the nominal configuration (that is, the working equipment is active, and the protection equipment is standby) after any failure conditions that caused a protection switch to occur, clear, or after any external switch commands are reset. (See “Non-Revertive”.)

Revertive Switching

In revertive switching, there is a working and protection high-speed line, circuit pack, etc. When a protection switch occurs, the protection line, circuit pack, etc. is selected. When the fault clears, service “reverts” to the working line.

Ring

A configuration of nodes comprised of network elements connected in a circular fashion. Under normal conditions, each node is interconnected with its neighbor and includes capacity for transmission in either direction between adjacent nodes. Path switched rings use a head-end bridge and tail-end switch. Line switched rings actively reroute traffic over the protection capacity.

Route

A series of contiguous digital sections.

Router

An interface between two networks. While routers are like bridges, they work differently. Routers provide more functionality than bridges. For example, they can find the best route between any two networks, even if there are several different networks in between. Routers also provide network management capabilities such as load balancing, partitioning of the network, and trouble-shooting.

RPP

Reliability Prediction Procedure

RSOH

Regenerator Section OverHead; part of SOH

RST

Regenerator Section Termination

RT

Remote Terminal

RTRV

Retrieve

RZ (Return to Zero)

A code form having two information states (termed zero and one) and having a third state or an at-rest condition to which the signal returns during each period.

S SA

Service Affecting

SA

Section Adaptation

SD

Signal Degrade

SDH (Synchronous Digital Hierarchy)

A hierarchical set of digital transport structures, standardized for the transport of suitable adapted payloads over transmission networks.

SDS

Standard Directory Service based on ANSI recommendation T1.245

SEC

Secondary

SEC

SDH Equipment Clock

Section

The portion of a transmission facility, including terminating points, between a terminal network element and a line-terminating network element, or two line-terminating network elements.

Section Adaptation

Function that processes the AU-pointer to indicate the phase of the VC-3/4 POH relative to the STM-N SOH and assembles/disassembles the complete STM-N frame.

Self-Healing

A network's ability to automatically recover from the failure of one or more of its components.

SEMF (Synchronous Equipment Management Function)

Function that converts performance data and implementation specific hardware alarms into object-oriented messages for transmission over the DCC and/or Q-interface. It also converts object-oriented messages related to other management functions for passing across the S reference points.

Server

Computer in a computer network that performs dedicated main tasks which generally require sufficient performance.

Service

The operational mode of a physical entity that indicates that the entity is providing service. This designation will change with each switch action.

SES (Severely Errored Seconds)

This performance monitoring parameter is a second in which a signal failure occurs, or more than a preset amount of coding violations (dependent on the type of signal) occurs.

SH

Short Haul

Short Reach

The capability to concatenate up to three spans between end terminals before

regeneration is required.

Single-Ended Operations

Provides operations support from a single location to remote Network Elements in the same SDH subnetwork. With this capability you can perform operations, administration, maintenance, and provisioning on a centralized basis. The remote Network Elements can be those that are specified for the current release.

Site Address

The unique address for a Network Element.

Slot

A physical position in a shelf designed for holding a circuit pack and connecting it to the backplane. This term is also used loosely to refer to the collection of ports or tributaries connected to a physical circuit pack placed in a slot.

SM (Single-Mode Fiber)

An 8-m diameter low-loss, long-span optical fiber typically operating at either 1310 nm, 1550 nm, or both.

SmartManual

Available from the CenterLink launch console screen, the SmartManual provides assistance in determining LBO values.

SMN

SDH Management Network

SNC/I

SubNetwork Connection (protection) / Inherent monitoring

SNC/N

SubNetwork Connection (protection) / Non-Intrusive Monitoring

SNR (Signal-to-Noise Ratio)

The relative strength of signal compared to noise.

Software Backup

The process of saving an image of the current network element's databases, which are contained in its NVM, to a remote location. The remote location could be the CenterLink CIT or an OS.

Software Download

The process of transferring a generic (full or partial) or provisioned database from a remote entity to the target network element's memory. The remote entity may be

the CenterLink CIT or an OS. The download procedure uses bulk transfer to move an uninterpreted binary file into the network element.

Software ID

Number that provides the software version information for the system.

SOH (Section Overhead)

Capacity added to either an AU-4 or assembly of AU-3s to create an STM-1. Contains always STM-1 framing and optionally maintenance and operational functions. SOH can be subdivided in MSOH (multiplex section overhead) and RSOH (regenerator section overhead).

SONET (Synchronous Optical NETWORK)

The North American standard for the rates and formats that defines optical signals and their constituents.

Span

An uninterrupted bidirectional fiber section between two network elements.

Span Growth

A type of growth in which one wavelength is added to all lines before the next wavelength is added.

Span Loss

Loss (in dB) of optical power due to the span transmission medium (includes fiber loss and splice losses).

SPE

Synchronous Payload Envelope

SPI

SDH Physical Interface

Squelch Map

This map contains information for each cross-connection in a ring and indicates the source and destination nodes for the low-speed circuit that is part of the cross-connection. This information is used to prevent traffic misconnection in rings with isolated nodes or segments.

SSM

Synchronization Status Marker

SSMF

Standard Single-Mode Fiber

SSU_L

Synchronization Supply Unit — Local

SSU_T

Synchronization Supply Unit — Transit

Standby Path

One of two signals entering a constituent path selector, the standby path is the path not currently being selected.

State

The state of a circuit pack indicates whether it is defective or normal (ready for normal use).

Station Clock Input

An external clock may be connected to a Station Clock Input.

Status

The indication of a short-term change in the system.

STBY (Standby)

The circuit pack is in service but is not providing service functions. It is ready to be used to replace a similar circuit pack either by protection or by duplex switching.

STM

Synchronous Transport Module (SDH)

STM-N (Synchronous Transport Module, Level N)

A building block information structure that supports SDH section layer connections, where N represents a multiple of 155.52 Mb/s. Normally N=1, 4, 16, or 64.

STS

Synchronous Transport Signal (SONET)

Subnetwork

A group of interconnected/interrelated Network Elements. The most common connotation is a synchronous network in which the Network Elements have data communications channel (DCC) connectivity.

Supervisor

A user of the application with supervisor user privileges.

Suppression

A process where service-affecting alarms that have been identified as an “effect” are not displayed to a user.

SYNC

Synchronizer

Synchronization Messaging

Synchronization messaging is used to communicate the quality of network timing, internal timing status, and timing states throughout a subnetwork.

Synchronous

The essential characteristic of time scales or signals such that their corresponding significant instances occur at precisely the same average rate, generally traceable to a single Stratum-1 source.

Synchronous Network

The synchronization of transmission systems with synchronous payloads to a master (network) clock that can be traced to a reference clock.

Synchronous Payload

Payloads that can be derived from a network transmission signal by removing integral numbers of bits from every frame. Therefore, no variable bit-stuffing rate adjustments are required to fit the payload in the transmission signal.

SYSCTL

The system controller circuit pack that provides overall administrative control of the terminal.

SYSTEM

The system memory circuit pack that, in conjunction with the SYSCTL circuit pack, maintains a provisioning map of the entire system.

System Administrator

A user of the computer system on which the system’s OS software application can be installed.

T TARP

Target Identifiers Address Resolution Protocol

TBD

To Be Determined

TCA (Threshold-Crossing Alert)

A condition set when a counter exceeds a user-selected high or low threshold. A TCA does not generate an alarm but is available on demand through the CIT.

TDM (Time Division Multiplexing)

A technique for transmitting a number of separate data, voice, and/or video signals simultaneously over one communications medium by interleaving a portion of each signal one after another.

Telemetry Feedthrough

Operations capability for 4-fiber applications which allows the DCC to go from one end terminal (one subnetwork) through to the other collocated end terminal (separate subnetwork), thereby extending Metropolis™ EON operations domain.

Through (or Continue) Cross-Connection

A cross-connection within a ring, where the input and output tributaries have the same tributary number but are in lines opposite each other.

Through Timing

Refers to a network element that derives its transmit timing in the east direction from a received line signal in the east direction and its transmit timing in the west direction from a received line signal in the west direction.

THz

Terrahertz (10^{12} Hz)

TID (Target Identifier)

A provisionable parameter that is used to identify a particular Network Element within a network. It is a character string of up to 20 characters where the characters are letters, digits, or hyphens (-).

TL1 (Transaction Language 1)

A machine-to-machine communications language that is a subset of ITU's human-machine language.

TLM (Telemetry) Circuit Pack

The circuit pack that carries the Supervisory signal.

TMN

Telecommunications Management Network

TOPR

Total Optical Power Received

TR

Technical Requirement

Transmit-Direction

The direction outwards from the Network Element.

Tributary

A signal of a specific rate (2 Mb/s, 34 Mb/s, 140 Mb/s, VC12, VC3, VC4, STM-1 or STM-4) that may be added to or dropped from a line signal.

Tributary

A path-level unit of bandwidth within a port, or the constituent signal(s) being carried in this unit of bandwidth, for example, an STM-1 tributary within an STM-N port.

Tributary Unit Pointer

Indicates the phase alignment of the VC with respect to the TU in which it resides. The pointer position is fixed with respect to the TU frame.

True Wave™ Optical Fiber

Lucent Technologies' fiber generally called non-zero dispersion-shift fiber, with a controlled amount of chromatic dispersion designed for amplified systems in the 1550/1310 nm range.

TSA (Time Slot Assignment)

A capability that allows any tributary in a ring to be cross-connected to any tributary in any lower-rate, non-ring interface or to the same-numbered tributary in the opposite side of the ring.

TSI (Time Slot Interchange)

The ability of the user to assign cross-connections between any tributaries of any lines within a Network Element. Three types of TSI can be defined: Hairpin TSI, Inter-ring TSI (between rings), and Intra-ring TSI (within rings).

TSO

Technical Support Organization

T-TD (TL1 Translation Device)

Technical Support Organization

TTP

Trail Termination Point

TU (Tributary Unit)

An information structure which provides adaptation between the lower order path layer and the higher path layer. Consists of a VC-n plus a tributary unit pointer TU PTR.

TUG

Tributary Unit Group

Two-Way Point-to-Point Cross-Connection

A two-legged interconnection, that supports two-way transmission, between two and only two tributaries.

Two-Way Roll

The operation which moves a two-way cross-connection between tributary i and tributary j to a two-way cross-connection between the same tributary i and a new tributary k with a single user command.

U UAS (Unavailable Seconds)

In performance monitoring, the count of seconds in which a signal is declared failed or in which 10 consecutively severely errored seconds (SES) occurred, until the time when 10 consecutive non-SES occur.

UBB (Universal Broadband)

This usually refers to the UBB circuit pack, which can transmit and receive signals with various protocols and with speeds between 16 Mb/s and 2.5 Gb/s.

UITS

Unacknowledged Information Transfer Service. Unconfirmed mode of LAPD operation.

UNEQ

Path Unequipped

UPSR (Unidirectional Path Switched Ring)

A SONET protection scheme where the original signal is split into two equal signals, one is sent in each direction around the SONET ring, then (at the exit of the ring) an acceptable signal is selected from the two available.

Upstream

At or towards the source of the considered transmission stream, for example, looking in the opposite direction of transmission.

User Privilege

Permissions a user must perform on the computer system on which the system software runs.

UTC (Universal Coordinated Time)

A time-zone independent indication of an event. The local time can be calculated from the Universal Coordinated Time.

V V

Volts

VAC

Volts Alternating Current

Value

A number, text string, or other menu selection associated with a parameter.

Variable

An item of data named by an identifier. Each variable has a type, such as int or Object, and a scope.

VC (Virtual Container)

Container with path overhead.

VDC

Volts Direct Current

VF

Voice frequency

Virtual

Refers to artificial objects created by a computer to help the system control shared resources.

Virtual Circuit

A logical connection through a data communication (for example, X.25) network.

Voice Frequency (VF) Circuit

A 64 kilobit per second digitized signal.

Volatile Memory

Type of memory that is lost if electrical power is interrupted.

W WAD

Wavelength Add/Drop

WAN (Wide Area Network)

A communication network that uses common-carrier provided lines and covers an extended geographical area.

Wander

Long term variations of amplitude frequency components (below 10 Hz) of a digital signal from their ideal position in time possibly resulting in buffer problems at a receiver.

Wavelength Blocking

At a WAD site with branching, if a wavelength goes express between two co-located end terminals, that wavelength can only be added or dropped at the third co-located end terminal. Wavelength interchange permits the wavelength on the their end terminal to be converted into an available wavelength at the other two end terminals.

Wavelength Interchange

The ability to change the wavelength associated with an STM-N signal into another wavelength.

WDCS

Wideband Digital Cross-Connect System

WDM (Wavelength Division Multiplexing)

A means of increasing the information-carrying capacity of an optical fiber by simultaneously transmitting signals at different wavelengths.

Wideband Communications

Voice, data, and/or video communication at digital rates from 64 kb/s to 2 Mb/s.

Working

Label attached to a physical entity. In case of revertive switching the working line or unit is the entity that is carrying service under normal operation. In case of nonrevertive switching the label has no particular meaning.

Working State

The working unit is currently considered active by the system and that it is carrying traffic.

WRT (Wait to Restore Time)

Corresponds to the time to wait before switching back after a failure has cleared, in a revertive protection scheme. This can be between 0 and 15 minutes, in increments of one minute.

WS

Work Station

WTR (Wait to Restore)

Applies to revertive switching operation. The protection group enters the WTR state when all Equipment Fail (EF) conditions are cleared, but the system has not yet reverted back to its working line. The protection group remains in the WTR state until the Wait-to-Restore timer completes the WTR time interval.

X X.25

An ITU standard defining the connection between a terminal and a public packet-switched network

X.25 Interface/Protocol

The ITU packet-switched interface standard for terminal access that specifies three protocol layers: physical, link, and packet for connection to a packet-switched data network.

Z Zero Code Suppression

A technique used to reduce the number of consecutive zeros in a line-coded signal (B3ZS, B8ZS).



Index

10BaseT LAN cables, 1-16	type mismatch alarm, 3-208	alarms
2-to-1 mux OTU (2DM25)	incoming signal degrade alarm, 3-211	external environment, 2-131
wavelength setting, 4-134	incoming signal failure, 3-49 3-161	alarms inhibited
	incoming UBB data rate mismatch alarm, 3-208	Lan, 2-81
	incorrect response, 3-43	office, 2-81
	MIB lock in progress, 3-177	parallel telemetry, 2-82
	missing response, 3-43	X.25, 2-81
	OT incoming signal failure, 3-161	antistatic covers, 1-17
	OUPSR incoming signal failure, 3-206	apparatus blank
	reset in progress, 3-101	installing, 4-40
	TID address map full, 3-175	removing, 4-40
	alarm	APSD, 1-10
	testing office alarm, 2-146	timing, 1-10
	alarm and status report, 2-168	APSD active - FE
	alarm descriptions	clearing, 3-166
	format, 2-14	APSD active - NE
	alarm messages	clearing, 3-168
	about, 2-14	APSD-active-FE, 2-17
	overview, 2-1	APSD-active-NE, 2-18
	alarm reporting	auto switch on SD to Path A
	Centerlink, 2-12	OUPSR, 2-119
		auto switch on SD to Path B
		OUPSR, 2-120
		auto switch to Path A
		OUPSR, 2-121
		auto switch to PathB
		OUPSR, 2-122

auto turnup
 testing, [2-147](#)
automatic
 power shutdown and
 restart, [1-10](#)
automatic diagnostics, [2-157](#)
automatic fault detection and
 isolation, [2-157](#)

B barred-hand symbol, [1-15](#)
 BC LAN 1 failure, [2-19](#)
 BC LAN 2 failure, [2-20](#)
 BC LAN1 failure
 clearing, [3-184](#)
 BC LAN2 failure
 clearing, [3-187](#)

C cabinet doors
 closing, [4-49](#)
 opening, [4-49](#)
 CenterLink
 login to an NE, [4-82](#)
 logout from an NE, [4-82](#)
 reporting conditions on,
 [2-12](#)
 Centerlink
 alarm reporting on, [2-12](#)
 chapter descriptions, [xx](#)
 ciircuit packs
 provisioning, [4-32](#)
 circuit pack
 installing, [4-61](#)
 locating, [4-16](#)
 removing, [4-61](#)
 circuit pack blank
 installing, [4-40](#)
 removing, [4-40](#)
 circuit pack failure

 clearing, [3-56](#)
 circuit pack removed
 clearing, [3-64](#)
 circuit pack replacement
 unsuccessful
 clearing, [3-75](#)
 circuit packs
 OTU/OTPM
 installing/removing
 SFP module, [4-129](#)

CIT
 clearing trouble using,
 [3-16](#)

CIT not responding to
 commands

 clearing, [3-112](#)

classes

 laser, [1-5](#)

clearing

 ABN LED, [3-72](#)

 APSD active - FE, [3-166](#)

 APSD active - NE, [3-168](#)

 BC LAN1 failure, [3-184](#)

 BC LAN2 failure, [3-187](#)

 circuit pack failure, [3-56](#)

 circuit pack removed,
 [3-64](#)

 circuit pack replacement
 unsuccessful, [3-75](#)

CIT not responding to
 commands, [3-112](#)

combination OA failure
 and TLM failure, [3-179](#)

combination TLM failure
 and OA failure, [3-179](#)

companion NE not
 reachable, [3-251](#)

CP (unknown type)
 failure, [3-99](#)

CP (unknown type)
 removed, [3-96](#)

CPYPGM

 IP (tid), [3-79](#)

DCC APS Data Error,
 [3-28](#)

DCC failure, [3-90](#)

DCC startup in progress,
 [3-114](#)

DCM input LOS, [3-222](#)

different OA types in
 side, [3-138](#)

DS-NE not reachable,
 [3-132](#)

duplicate TID defined,
 [3-135](#)

equipage inconsistent,
 [3-140](#)

FE ACTY, [3-12](#)

FE ACTY LED off,
 [3-125](#)

fuse failure (A/B), [3-85](#)

incoming (from supr)
 DCC failure, [3-90](#)

incoming loss of packet
 delineation, [3-258](#)

incoming optical line
 LOS for single OA NE,
 [3-149](#)

incoming OUPSR CIN
 LOS, [3-236](#)

inconsistent OTPM
 association, [3-158](#)

inconsistent OTU
 association, [3-158](#)

INFO-F, [3-12](#)

INFO-N, [3-12](#)

INFO-N LED, [3-72](#)

invalid pass through
 route, [3-190](#)

j0 mismatch, [3-170](#)

j1 mismatch, [3-170](#)

module/prov mode
 inconsistent, [3-263](#)

multiple DS-NEs
defined, [3-122](#)

NE ACTY, [3-12](#)

NE ACTY LED, [3-72](#)

NE ACTY LED off,
[3-125](#)

NE status comm failure,
[3-80](#)

NITSWD
IP, [3-178](#)

OA high output power,
[3-249](#)

OA LAN failure, [3-192](#)

OA mismatch, [3-181](#)

OA output disabled,
[3-173](#)

ODU mismatch, [3-35](#)

ODU missing, [3-35](#)

ODU warmup in
progress, [3-156](#)

OMU mismatch, [3-35](#)

OMU missing, [3-35](#)

OMU warmup in
progress, [3-156](#)

opr mode inconsistent,
[3-144](#)

optical line ID mismatch,
[3-46](#)

optical line reset in
progress, [3-157](#)

OTPM duplicate, [3-195](#)

OTPM unknown, [3-99](#)

OTU duplicate, [3-195](#)

OUPSR auto switch on
SD to Path B, [3-196](#)

OUPSR auto switch to
Path A, [3-196](#)

OUPSR auto switch to
Path B, [3-196](#)

pluggable module
removed, [3-259](#)

power failure (A/B), [3-85](#)

prov mode inconsistent,
[3-140](#) [3-144](#)

prov mode/module
inconsistent, [3-263](#)

SER TLM1 port failure,
[3-136](#)

SID mismatch, [3-199](#)

software download in
progress, [3-117](#)

SYSCTL code mismatch,
[3-106](#)

SYSCTL failure, [3-68](#)

SYSMEM code
mismatch, [3-106](#)

SYSMEM failure, [3-68](#)

SYSMEM removed,
[3-119](#)

SYSMEM
unrecognizable code,
[3-103](#)

system incomplete, [3-120](#)

system startup in
progress, [3-118](#)

test loopback in progress,
[3-262](#)

TLM mismatch, [3-181](#)

trouble in CIT, [3-112](#)

trouble report, [3-30](#)

unexpected CP type,
[3-109](#)

unexpected OTPM type,
[3-109](#)

unsuccessful circuit pack
replacement, [3-75](#)

CMS
LOF, [2-37](#)
LOS, [2-38](#)
SD, [2-39](#)
SF, [2-40](#)
code mismatch

SYSCTL, [2-143](#)

SYSMEM, [2-143](#)

code unrecognizable
SYSMEM, [2-142](#)

combination OA failure and
TLM failure
clearing, [3-179](#)

combination TLM failure
and OA failure
clearing, [3-179](#)

companion NE not
reachable, [2-21](#)
clearing, [3-251](#)

conditions monitored, [2-6](#)

connections in network
elements

verifying, [4-34](#)

control output condition
addressing, [3-41](#)

conventions, [xxi](#)

course registration, [xxiv](#)

CP
unexpected type, [2-155](#)

CP (unknown type) failure,
[2-23](#)
clearing, [3-99](#)

CP (unknown type) removed,
[2-24](#)
clearing, [3-96](#)

CP reset in progress, [2-22](#)
addressing, [3-95](#)

CPYPGM
IP tid, [2-25](#)

Craft Interface Terminal
(CIT)
conditioning the, [4-12](#)
connecting the, [4-12](#)

CT login, [2-26](#)

CT logout, [2-27](#)

-
- D** danger
- potential sources, [1-2](#)
 - potential sources of, [1-5](#)
- danger classification, [1-3](#)
- data rate mismatch
- UBB, [2-75](#)
- Datakit network access
- establishing, [4-90](#)
- DCC APS Data Error
- clearing, [3-28](#)
- DCC failure, [2-44](#)
- clearing, [3-90](#)
- DCC startup, [2-28](#)
- DCC startup in progress
- clearing, [3-114](#)
- DCM input LOS, [2-29](#)
- clearing, [3-222](#)
- Detailed Level Procedures (DLP), [4-1](#)
- different OA types in side, [2-30](#)
- clearing, [3-138](#)
- document conventions, [xxi](#)
- documentation
- numbers, [xxii](#)
 - set, [xxii](#)
- download in progress
- software, [2-137](#)
- DSNE
- changing, [4-117](#)
 - creating, [4-120](#)
 - deleting, [4-122](#)
- DS-NE not reachable
- clearing, [3-132](#)
- DSNE not reachable, [2-31](#)
- duplicate TID, [2-32](#)

duplicate TID defined

clearing, [3-135](#)

duplicate

OTPM, [2-112](#)

OTU, [2-116](#)

-
- E** electrostatic discharge, [1-3](#)
[1-15](#) [1-17](#)
- electrostatic protection, [1-15](#)
- environmental input
- addressing, [3-41](#)
- equipment inconsistent
- clearing, [3-140](#)
- equipment/prov mode inconsistent, [2-33](#)
- ESD
- see Electrostatic discharge
- ESD bonding point, [1-15](#)
- external environment alarms, [2-131](#)

-
- F** failure
- BC LAN 1, [2-19](#)
 - BC LAN 2, [2-20](#)
 - CP (unknown type), [2-23](#)
 - DCC, [2-44](#)
 - fuse/power, [2-34](#) [2-35](#)
[2-36](#)
 - incoming GbE-1, [2-45](#)
 - incoming LAN link, [2-48](#)
 - incoming OC12, [2-53](#)
 - incoming OC192, [2-57](#)
 - incoming OC3, [2-51](#)
 - incoming OC48, [2-55](#)
 - incoming OCH10G, [2-58](#)
 - incoming STM64, [2-71](#)
 - incoming UBB, [2-76](#)

LI, [2-87](#)

LSBB, [2-50](#)

NE status comm, [2-96](#)

OA, [2-97](#)

OA LAN, [2-99](#)

OMON, [2-103](#)

OTCTL, [2-110](#)

OTPM, [2-113](#)

OTU, [2-117](#)

OUPSR, [2-123](#)

QOTU, [2-132](#)

SER TLM 1 port, [2-135](#)

STM1, [2-65](#)

STM16, [2-69](#)

STM4, [2-67](#)

supervisory signal, [2-72](#)

SYSCTL, [2-139](#)

SYSTEMEM, [2-140](#)

TLM, [2-151](#)

TOHCTL, [2-153](#)

fault

- detection, [2-6](#)

- isolation, [2-6](#)

- reporting, [2-8](#)

fault detection, [2-157](#)

fault isolation, [2-157](#)

fault reporting, [2-157](#)

FDA/CDRH Regulations, [1-8](#)

FE ACTY

- clearing, [3-12](#)

FE ACTY LED off

- clearing, [3-125](#)

feedback form, [xxiv](#)

fiber connections

- locating, [4-16](#)

filter

- replacing, [4-101](#) [4-104](#)

forced switch to Path A
OUPSR, [2-124](#)
forced switch to Path B
OUPSR, [2-125](#)
fuse failure (A/B)
clearing, [3-85](#)
fuse in power distribution
replacing, [4-79](#)
fuse in user panel
replacing, [4-79](#)
fuse panel
replacing, [4-79](#)
fuse/power failure A, [2-34](#)
fuse/power failure A and B,
[2-36](#)
fuse/power failure B, [2-35](#)

G GbE-1
failure, [2-45](#)
general notes on safety, [1-2](#)

H hazard level, [1-9](#)
high input power
OA, [2-98](#)

I IEC Requirements, [1-8](#)
inc. (from Supr) DCC failure,
[2-44](#)
incoming (from supr) DCC
failure
clearing, [3-90](#)
incoming CMS LOF, [2-37](#)
incoming CMS LOS, [2-38](#)
incoming CMS SD, [2-39](#)
incoming CMS SF, [2-40](#)
incoming ESCON LOS, [2-41](#)
incoming FC-100 LOS, [2-42](#)

incoming FICON LOS, [2-43](#)
incoming GbE-1 failure,
[2-45](#)
incoming GbE-1 LOS, [2-46](#)
incoming ISC_CF LOS, [2-47](#)
incoming LAN failure
addressing, [3-38](#)
incoming LAN link failure,
[2-48](#)
addressing, [3-38](#)
incoming loss of packet
delineation, [2-49](#)
clearing, [3-258](#)
incoming LSBB failure, [2-50](#)
incoming OC12 failure, [2-53](#)
incoming OC12 signal
degrade, [2-54](#)
incoming OC192 failure,
[2-57](#)
incoming OC3 failure, [2-51](#)
incoming OC3 signal
degrade, [2-52](#)
incoming OC48 failure, [2-55](#)
incoming OC48 signal
degrade, [2-56](#)
incoming OCH10G failure,
[2-58](#)
incoming optical channel
LOS, [2-59](#)
incoming optical line LOS,
[2-60](#)
incoming optical line LOS
for single OA NE
clearing, [3-149](#)
incoming OUPSR AIN LOS,
[2-61](#)
incoming OUPSR BIN LOS,
[2-62](#)
incoming OUPSR CIN LOS,
[2-63](#)
clearing, [3-236](#)

incoming payload type
mismatch, [2-64](#)
incoming payload type
mismatch alarm
addressing, [3-208](#)
incoming signal degrade
alarm
addressing, [3-211](#)
incoming signal failure
addressing, [3-49](#) [3-161](#)
incoming signal source
identifying, [4-36](#)
incoming signals, [2-6](#)
incoming STM1 failure, [2-65](#)
incoming STM1 signal
degrade, [2-66](#)
incoming STM16 failure,
[2-69](#)
incoming STM16 signal
degrade, [2-70](#)
incoming STM4 failure, [2-67](#)
incoming STM4 signal
degrade, [2-68](#)
incoming STM64 failure,
[2-71](#)
incoming supr chnl fail, [2-72](#)
incoming supr chnl SD, [2-73](#)
incoming supr chnl SF, [2-74](#)
incoming UBB data rate
mismatch, [2-75](#)
incoming UBB data rate
mismatch alarm
addressing, [3-208](#)
incoming UBB failure, [2-76](#)
incoming UBB signal
degrade, [2-77](#)
incoming UNKNOWN LOS,
[2-78](#)
incomplete
system, [2-144](#)
inconsistent

opr/prov mode, [2-107](#)
 inconsistent equipage/prov mode, [2-33](#)
 inconsistent module/prov mode, [2-94](#)
 inconsistent OTPM association, [2-79](#)
 clearing, [3-158](#)
 inconsistent OTU association, [2-80](#)
 clearing, [3-158](#)
 incorrect response
 addressing, [3-43](#)
 INFO-F
 clearing, [3-12](#)
 INFO-N
 clearing, [3-12](#)
 INFO-N LED
 clearing, [3-72](#)
 inhibited
 logins, [2-89](#)
 OUPSR, [2-126](#)
 INITSWD
 IP, [2-83](#)
 insertion and removal facilities, [1-15](#)
 internal channel
 loss of, [2-90](#)
 internal tributary
 loss of, [2-91](#)
 invalid pass through route, [2-84](#)
 clearing, [3-190](#)
 invisible laser radiation, [1-16](#)

J J0 mismatch, [2-85](#) [2-86](#)
 j0 mismatch
 clearing, [3-170](#)
 j1 mismatch

clearing, [3-170](#)

L Lan alarms
 inhibited, [2-81](#)
 LAN link
 failure, [2-48](#)
 laser classes, [1-5](#)
 laser products, [1-8](#)
 laser safety, [1-5](#)
 laser safety instructions, [1-6](#)
 laser warning labels, [1-5](#)
 LBO, [4-9](#)
 LBO at add OTU/OTPM IN
 selecting, [4-107](#)
 LBOs
 installing, [4-52](#)
 removing, [4-52](#)
 LBOs between Add OT OUT and Drop OT IN
 selecting, [4-4](#)
 LED indicators on circuit packs
 testing, [4-14](#)
 LED indicators on front panel
 testing, [4-14](#)
 LI failure, [2-87](#)
 LI removed, [2-88](#)
 lightguide buildout
 installing, [4-52](#)
 removing, [4-52](#)
 local alarms and status report, [2-168](#)
 LOF
 incoming CMS, [2-37](#)
 login
 CT, [2-26](#)
 deny, [2-27](#)

 to an NE, [4-82](#)
 user, [4-86](#)
 logins inhibited, [2-89](#)
 logout
 CT, [2-27](#)
 from an NE, [4-82](#)
 remote link down, [2-27](#)
 timeout, [2-27](#)
 logout remote link down, [2-27](#)
 logout timeout, [2-27](#)
 LOS
 DCM input, [2-29](#) [3-222](#)
 incoming CMS, [2-38](#)
 incoming ESCON, [2-41](#)
 incoming FC-100, [2-42](#)
 incoming FICON, [2-43](#)
 incoming GbE-1, [2-46](#)
 incoming ISC_CF, [2-47](#)
 incoming optical line, [2-60](#)
 incoming OUPSR CIN, [2-63](#)
 incoming UNKNOWN, [2-78](#)
 optical channel, [2-59](#)
 OUPSR AIN, [2-61](#)
 OUPSR BIN, [2-62](#)
 loss of internal channel, [2-90](#)
 loss of internal tributary, [2-91](#)
 loss of packet delineation
 incoming, [2-49](#) [3-258](#)
 loss of Q2 communications, [2-92](#)
 LSBB
 failure, [2-50](#)

M maintenance

automatic diagnostics, [2-157](#)
fault detection, [2-6](#)
[2-157](#)
fault isolation, [2-157](#)
fault reporting, [2-157](#)
protection switching, [2-162](#)
remote maintenance philosophy, [2-1](#)
reports, [2-167](#)
maintenance philosophy, [2-1](#)
maintenance signals, [2-3](#)
management information base uploading, [2-93](#)
manual switch to Path A
OUPSR, [2-127](#)
manual switch to Path B
OUPSR, [2-128](#)
manuals, [xxii](#)
MIB lock in progress, [2-93](#)
addressing, [3-177](#)
miscellaneous discrete telemetry
testing, [4-58](#)
mismatch
incoming payload type, [2-64](#)
mismatch
J0, [2-85](#)
J1, [2-86](#)
OA/TLM, [2-102](#)
OMU/ODU, [2-105](#)
optical line ID, [2-108](#)
SID, [2-136](#)
SYSMEM/SYSCTL code, [2-143](#)
TLM/OA, [2-102](#)
missing
OMU/ODU, [2-105](#)

missing response
addressing, [3-43](#)
modem network access
establishing, [4-90](#)
module/prov mode
inconsistent, [2-94](#)
clearing, [3-263](#)
multiple DS-NEs defined, [2-95](#)
clearing, [3-122](#)
mux OTU
installing/removing SFP module, [4-129](#)

N NE ACTY
clearing, [3-12](#)
NE ACTY LED
clearing, [3-72](#)
NE ACTY LED off
clearing, [3-125](#)
NE not responding
restoring, [3-125](#)
NE status comm failure, [2-96](#)
clearing, [3-80](#)
network access
establishing, [4-90](#)
network element connections
verifying, [4-34](#)
Network element operation after power loss
restoring, [3-115](#)
NITSWD
IP
clearing, [3-178](#)
no system alarms
restoring, [3-125](#)
not reachable
companion NE, [2-21](#)

DSNE, [2-31](#)

O OA
different types in side, [2-30](#)
OA failure, [2-97](#)
OA high input power, [2-98](#)
OA high output power
clearing, [3-249](#)
OA LAN failure, [2-99](#)
clearing, [3-192](#)
OA mismatch
clearing, [3-181](#)
OA output disabled, [2-100](#)
clearing, [3-173](#)
OA removed, [2-101](#)
OA/TLM mismatch, [2-102](#)
OC12
failure, [2-53](#)
signal degrade, [2-54](#)
OC192
failure, [2-57](#)
OC3
failure, [2-51](#)
signal degrade, [2-52](#)
OC48
failure, [2-55](#)
signal degrade, [2-56](#)
OCH10G
failure, [2-58](#)
ODU
installing, [4-98](#)
ODU mismatch
clearing, [3-35](#)
ODU missing
clearing, [3-35](#)
ODU warmup in progress
clearing, [3-156](#)

office alarm operation
 testing, [4-30](#)
 office alarms
 inhibited, [2-81](#)
 OLINE baseline
 setting, [4-124](#)
 OLINE threshold
 setting, [4-126](#)
 OMON failure, [2-103](#)
 OMON removed, [2-104](#)
 OMU
 installing, [4-98](#)
 OMU mismatch
 clearing, [3-35](#)
 OMU missing
 clearing, [3-35](#)
 OMU warmup in progress
 clearing, [3-156](#)
 OMU/ODU mismatch,
 [2-105](#)
 OMU/ODU missing, [2-105](#)
 OMU/ODU warmup in
 progress, [2-106](#)
 optical line reset in progress,
 [2-109](#)
 opr mode inconsistent
 clearing, [3-144](#)
 opr/prov mode inconsistent,
 [2-107](#)
 optical channel
 LOS, [2-59](#)
 optical fiber connectors
 cleaning, [4-42](#)
 inspecting, [4-42](#)
 optical fiber(s)
 inspecting, [4-81](#)
 repairing, [4-81](#)
 optical fibers at OTPM
 connecting, [4-114](#)
 disconnecting, [4-114](#)
 optical fibers at OTU
 connecting, [4-114](#)
 disconnecting, [4-114](#)
 optical line
 LOS, [2-60](#)
 optical line ID, [2-3](#)
 optical line ID mismatch,
 [2-108](#)
 clearing, [3-46](#)
 optical line reset in progress
 clearing, [3-157](#)
 Optical Unidirectional Path
 Switched Ring (OUPSR),
 [2-162](#)
 optical unidirectional
 protection, [2-162](#)
 OT incoming signal failure
 addressing, [3-161](#)
 OTCTL failure, [2-110](#)
 OTCTL removed, [2-111](#)
 OTMP duplicate, [2-112](#)
 OTPM
 disconnecting optical
 fibers at, [4-114](#)
 unexpected type, [2-156](#)
 OTPM association
 inconsistent, [2-79](#)
 OTPM duplicate
 clearing, [3-195](#)
 OTPM failure, [2-113](#)
 OTPM removed, [2-114](#)
 OTPM unknown, [2-115](#)
 clearing, [3-99](#)
 OTU
 disconnecting optical
 fibers at, [4-114](#)
 OTU association
 inconsistent, [2-80](#)
 OTU duplicate, [2-116](#)
 clearing, [3-195](#)
 OTU failure, [2-117](#)
 OTU removed, [2-118](#)
 OUPSR AIN
 LOS, [2-61](#)
 OUPSR auto switch on SD to
 Path A, [2-119](#)
 OUPSR auto switch on SD to
 Path B, [2-120](#)
 clearing, [3-196](#)
 OUPSR auto switch to Path
 A, [2-121](#)
 clearing, [3-196](#)
 OUPSR auto switch to Path
 B, [2-122](#)
 clearing, [3-196](#)
 OUPSR BIN
 LOS, [2-62](#)
 OUPSR CIN LOS
 incoming, [3-236](#)
 OUPSR circuit pack, [2-162](#)
 OUPSR failure, [2-123](#)
 OUPSR forced switch to Path
 A, [2-124](#)
 OUPSR forced switch to Path
 B, [2-125](#)
 OUPSR incoming signal
 failure
 addressing, [3-206](#)
 OUPSR inhibit, [2-126](#)
 OUPSR manual switch to
 Path A, [2-127](#)
 OUPSR manual switch to
 Path B, [2-128](#)
 OUPSR removed, [2-129](#)
 output disabled
 OA, [2-100](#)

P packet delineation

incoming loss of, [2-49](#)
parallel telemetry
 testing, [4-39](#)
parallel telemetry alarm
 inhibited, [2-82](#)
pass through route invalid,
[2-84](#)
payload type mismatch
 incoming, [2-64](#)
payload type mismatch
alarm, [3-208](#)
performance status report,
[2-170](#)
pluggable module removed,
[2-130](#)
 clearing, [3-259](#)
PM reports, [2-170](#)
potential sources of danger,
[1-2](#)
power
 OA high input, [2-98](#)
 restart, [1-10](#)
 shutdown, [1-10](#)
power distribution fuse
 replacing, [4-79](#)
power failure (A/B)
 clearing, [3-85](#)
power line filter
 replacing, [4-101](#)
power loss
 restoring network
 element operation,
[3-115](#)
power OT line filter
 replacing, [4-104](#)
product training, [xxiv](#)
products
 laser, [1-8](#)
prov mode inconsistent

clearing, [3-140](#) [3-144](#)
prov mode/module
inconsistent
 clearing, [3-263](#)
provisionedenvironmentalpt,
[2-131](#)
provisioning
 circuit packs, [4-32](#)
 units, [4-32](#)

Q Q2 communications
 loss of, [2-92](#)
QOTU failure, [2-132](#)
QOTU removed, [2-133](#)

R remote maintenance
 philosophy, [2-1](#)
removed
 CP (unknown type), [2-24](#)
 LI, [2-88](#)
 OA, [2-101](#)
 OMON, [2-104](#)
 OTCTL, [2-111](#)
 OTPM, [2-114](#)
 OTU, [2-118](#)
 OUPSR, [2-129](#)
 pluggable module,
[2-130](#) [3-259](#)
 QOTU, [2-133](#)
 SYSMEM, [2-141](#)
 TLM, [2-152](#)
 TOHCTL, [2-154](#)
reports
 6-hour autonomous
 report, [2-169](#)
 active alarms and status
 report, [2-167](#)
 performance monitoring
 reports, [2-170](#)

provisioning reports,
[2-169](#)
state report, [2-171](#)
version/equipment list
report, [2-171](#)
requirements
 APSD timing, [1-10](#)
reset in progress, [2-134](#)
 addressing, [3-101](#)
 CP, [2-22](#)
resetting
 optical line, [2-109](#)
restoring
 NE not responding, [3-125](#)
 Network element
 operation after power
 loss, [3-115](#)
 no system alarms, [3-125](#)

S safety
 general notes on, [1-2](#)
 laser, [1-5](#)
safety instructions
 laser, [1-6](#)
 special, [1-3](#)
 structure, [1-2](#)
safety of laser products, [1-8](#)
safety requirements
 general, [1-3](#)
SER TLM 1 port failure,
[2-135](#)
SER TLM1 port failure
 clearing, [3-136](#)
setting
 OLINE baseline, [4-124](#)
 OLINE threshold, [4-126](#)
SFP module
 installing/removing,
[4-129](#)

shelf cover
installing, [4-49](#)
removing, [4-49](#)
shielded 10BaseT LAN
cables, [1-16](#)
SID
mismatch, [2-136](#)
SID mismatch
clearing, [3-199](#)
signal degrade
OC12, [2-54](#)
OC3, [2-52](#)
OC48, [2-56](#)
STM1, [2-66](#)
STM16, [2-70](#)
STM4, [2-68](#)
UBB, [2-77](#)
signal degrade alarm, [3-211](#)
signals
maintenance, [2-3](#)
software download in
progress, [2-137](#)
clearing, [3-117](#)
software download initiated,
[2-83](#)
software transfer failed,
[2-138](#)
source of incoming signal
identifying, [4-36](#)
standards compliance, [1-8](#)
starting up
system, [2-145](#)
startup
DCC, [2-28](#)
state report, [2-171](#)
STM1
failure, [2-65](#)
signal degrade, [2-66](#)
STM16

failure, [2-69](#)
signal degrade, [2-70](#)
STM4
failure, [2-67](#)
signal degrade, [2-68](#)
STM64
failure, [2-71](#)
suitcasing, [xxiv](#)
supervisory signal, [2-3](#)
supr chnl
SD, [2-73](#)
SF, [2-74](#)
SYSCTL code mismatch,
[2-143](#)
clearing, [3-106](#)
SYSCTL failure, [2-139](#)
clearing, [3-68](#)
SYSMEM code mismatch,
[2-143](#)
clearing, [3-106](#)
SYSMEM failure, [2-140](#)
clearing, [3-68](#)
SYSMEM removed, [2-141](#)
clearing, [3-119](#)
SYSMEM unrecognizable
code, [2-142](#)
clearing, [3-103](#)
system incomplete, [2-144](#)
clearing, [3-120](#)
system resetting, [2-134](#)
system startup in progress,
[2-145](#)
clearing, [3-118](#)

T telemetry
testing, [2-148](#)
test alarm in progress, [2-146](#)
test auto turnup in progress,
[2-147](#)

test loopback in progress,
[2-149](#)
clearing, [3-262](#)
test telemetry in progress,
[2-148](#)
testing
LED indicators on circuit
packs, [4-14](#)
LED indicators on front
panel, [4-14](#)
miscellaneous discrete
telemetry, [4-58](#)
office alarm operation,
[4-30](#)
parallel telemetry, [4-39](#)
TID
duplicate defined, [2-32](#)
TID address map full, [2-150](#)
addressing, [3-175](#)
TLM failure, [2-151](#)
TLM mismatch
clearing, [3-181](#)
TLM removed, [2-152](#)
TOHCTL failure, [2-153](#)
TOHCTL removed, [2-154](#)
tone, [2-3](#)
tone trace, [2-3](#)
transfer failed
software, [2-138](#)
trouble in CIT
clearing, [3-112](#)
trouble report
clearing, [3-30](#)

U UBB
data rate mismatch, [2-75](#)
failure, [2-76](#)
signal degrade, [2-77](#)
UBB data rate mismatch

- alarm, [3-208](#)
- unexpected CP type, [2-155](#)
 - clearing, [3-109](#)
- unexpected OTPM type,
[2-156](#)
 - clearing, [3-109](#)
- units
 - provisioning, [4-32](#)
- unknown
 - OTPM, [2-115](#)
- unrecognizable code
 - SYSMEM, [2-142](#)
- unsuccessful circuit pack replacement
 - clearing, [3-75](#)
- updating the system, [4-128](#)
- user login
 - changing, [4-86](#)
 - deleting, [4-86](#)
 - entering, [4-86](#)
- user pane fuse
 - replacing, [4-79](#)

V version/equipment list
report, [2-171](#)

W warming up

- OMU/ODU, [2-106](#)

warning labels

- laser, [1-5](#)

X X.25 alarms

- inhibited, [2-81](#)

