NT0H65AM 323-1701-542

Nortel

Optical Metro 5100/5200

Trouble Clearing and Alarm Reference Guide, Part 2 of 4

Standard Release 8.0 Issue 1 April 2005

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NORTEL

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About this document

ATTENTION

This document is presented in four parts: Part 1, Part 2, Part 3, and Part 4. Each part has its own table of contents. The table of contents in Part 1 contains topics found in Part 1 only. The table of contents in Part 2 contains topics found in Part 2 only. The table of contents in Part 3 contains topics found in Part 3 only. The table of contents in Part 4 contains topics found in Part 4 only.

You are reading Part 2 of the *Trouble Clearing and Alarm Reference Guide* 323-1701-542.

This document provides general information about alarms, as well as procedures for clearing alarms on the Nortel Optical Metro 5100/5200 (identified prior to Release 7 as Nortel Networks OPTera Metro 5000-series Multiservice Platform).

Audience for this document

This document is intended for the following audience:

- provisioners
- installers
- transmission standards engineers
- field maintenance engineers
- system line-up and testing (SLAT) personnel
- maintenance technicians
- network administrators

Optical Metro 5100/5200 library

The Optical Metro 5100/5200 library consists of the *Nortel Optical Metro 5100/5200 Technical Publications*, NT0H65AM.

Technical Publications

The *Optical Metro 5100/5200 Technical Publications* (NTP) consist of descriptive information and procedures.

Descriptive information

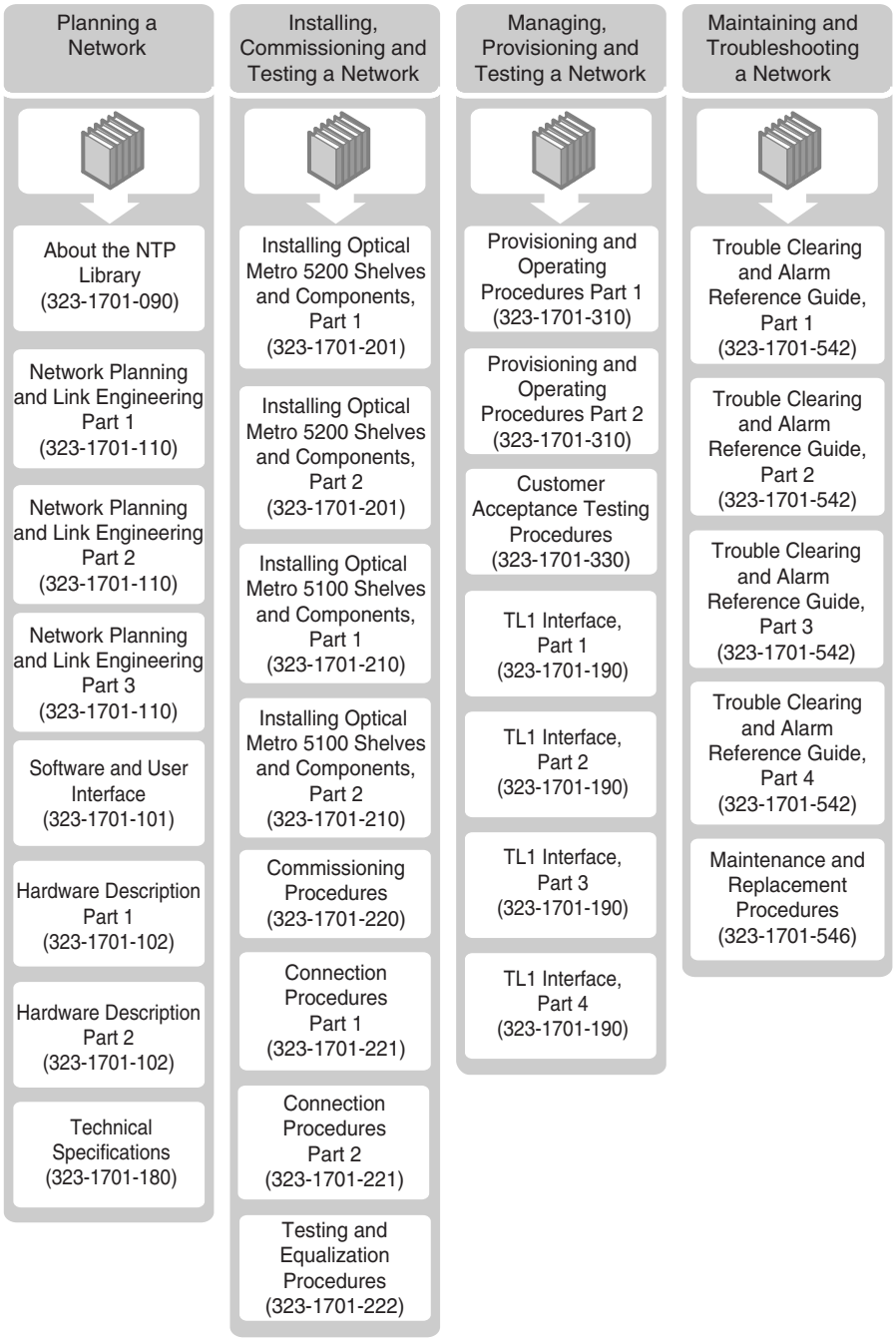
These NTPs provide detailed descriptive information about the Optical Metro 5100/5200, including system software and hardware descriptions, technical specifications, ordering information, and TL1 user information.

Procedures

These NTPs contain all procedures required to install, provision, and maintain the Optical Metro 5100/5200.

The following roadmap lists the documents in the Optical Metro 5100/5200 library.

OM2805p



Technical assistance service telephone numbers

For technical support and information from Nortel Networks, refer to the following table.

Technical Assistance Service	
For service-affecting problems: For 24-hour emergency recovery or software upgrade support, that is, for: • restoration of service for equipment that has been carrying traffic and is out of service • issues that prevent traffic protection switching • issues that prevent completion of software upgrades	**North America:** 1-800-4NORTEL (1-800-466-7835) **International:** 001-919-992-8300
For non-service-affecting problems: For 24-hour support on issues requiring immediate support or for 14-hour support (8 a.m. to 10 p.m. EST) on upgrade notification and non-urgent issues.	**North America:** 1-800-4NORTEL (1-800-466-7835) ***Note:*** You require an express routing code (ERC). To determine the ERC, see our corporate Web site at www.nortel.com. Click on the Express Routing Codes link. **International:** Varies according to country. For a list of telephone numbers, see our corporate Web site at www.nortel.com. Click on the Contact Us link.
Global software upgrade support:	**North America:** 1-800-4NORTEL (1-800-466-7835) **International:** Varies according to country. For a list of telephone numbers, see our corporate Web site at www.nortel.com. Click on the Contact Us link.

Clearing OCLD alarms

Use the procedures in this chapter to clear OCLD alarms. Perform the steps in each procedure in the order that they appear. After you clear the alarm, stop the procedure. If the alarm does not clear, contact your next level of technical support.

For a list of OCLD circuit pack types, see the "OCLD circuit packs" section in *Hardware Description*, 323-1701-102.

Table 8-1 lists the indicator lamps on the faceplate of the OCLD.

Table 8-1
OCLD indicator lamps

Indicator lamp	Color	State	Meaning
LOS	yellow	on	The OCLD is not receiving the signal.
		off	The OCLD is receiving the signal.
ACTIVE	green	on	There is a channel assignment between an OCI and the OCLD, and the OCLD facility is in-service.
		off	There is a channel assignment between an OCI and the OCLD, and the OCLD facility is out-of-service, **OR** there is no channel assignment between an OCI and the OCLD (the OCLD facility is either in-service or out-of-service).
STATUS	green/ red	green	The OCLD inventory is in-service. (See Note 1.)
		red	The OCLD has failed.
		off	The OCLD inventory is out-of-service.
		flashing	The circuit pack is the active database-carrying circuit pack during a database copy operation. (See Note 2.)

Note 1: A green STATUS lamp does not indicate the presence of traffic.

Note 2: Do not remove the active database-carrying circuit pack during the database copy to the standby circuit pack.

Before you begin

Read "Troubleshooting the Optical Metro 5100/5200" chapter in this book for detailed information on how to respond to alarm indicators (audible alarms and lamps). The "Alarm description" chapter in this book explains events, warnings and error messages.

Requirements

Check the minimum and maximum Rx/Tx power levels. For minimum and maximum Rx/Tx power levels, refer to Table 2-23 in *Technical Specifications*, 323-1701-180.

CAUTION
Risk of electrostatic discharge
Observe all antistatic precautions when handling the circuit packs.

Exposed circuit packs can be damaged by electrostatic discharge. When handling circuit packs always wear a wrist strap that is grounded to the shelf maintenance panel, and shoe straps if necessary. For more information, refer to the "Handling circuit packs" section of "Isolating faults that do not generate alarms" in this book.

ATTENTION
When you clear this alarm on Optical Metro 5100 shelves, at all times the SP, and at least one non-SP circuit pack that is carrying the database, must be seated in the shelf. The System Manager shows database-carrying circuit packs in bold text. You can also use the Optical Metro Inventory dialog box to locate the standby database.

CAUTION
Risk of recovery procedures affecting traffic
Some of the alarms in this chapter may not be service-affecting, however the recovery action can be service-affecting.

CAUTION
Risk of laser radiation
The Optical Metro 5100/5200 operates up to a Hazard Level of k x 3A (IEC 60825-2:2000) or 1M (IEC 60825-2:2004). Use only viewing instruments with proper optical attenuation.

CAUTION
Risk of affecting network reliability
Make sure that all connectors are cleaned before you make the connections (or re-connections) described in this procedure. For cleaning information, see the chapter "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components*, 323-1701-201.

Procedure list

The OCLD alarms are listed alphabetically.

Table 8-2 lists the procedures in this chapter and indicates whether or not the alarm is masked if the equipment or facility that raises the alarm is out-of-service.

Table 8-2
Procedures for clearing OCLD alarms

Procedure	Page	Alarm is masked if equipment or facility is OOS
8-1 OCLD—Alarm Indication Signal	8-5	Facility
8-2 OCLD—Autoprovisioning Mismatch, Circuit Pack Mismatch	8-7	Equipment
8-3 OCLD—Backplane Loss of Activity	8-12	Equipment
8-4 OCLD—Bit Disparity	8-18	Facility
8-5 OCLD—Circuit Pack Failed	8-23	Equipment
8-6 OCLD- Circuit Pack Minor Mismatch	8-25	Equipment
8-7 OCLD—Circuit Pack Missing	8-26	Equipment
8-8 OCLD—Facility Loopback, Terminal Loopback	8-29	Not applicable
8-9 OCLD—Far End Circuit Pack Mismatch	8-30	Not applicable
8-10 OCLD—Fiber Mismatch	8-32	Not applicable
8-11 OCLD—High Optical Power	8-33	Facility
8-12 OCLD—High Optical Power Warning	8-41	Facility
8-13 OCLD—Incompatible Optical System Identifier	8-49	Equipment
8-14 OCLD—Incomplete Provisioning	8-53	Equipment
8-15 OCLD—Inter-card Communication Failure	8-55	Equipment
8-16 OCLD—Invalid Provisioning	8-58	Equipment

Table 8-2 (continued)
Procedures for clearing OCLD alarms

Procedure	Page	Alarm is masked if equipment or facility is OOS
8-17 OCLD—Invalid Signal (backplane)	8-60	Equipment
8-18 OCLD—Invalid Signal (optical receiver)	8-67	Facility
8-19 OCLD—Loss of Frame	8-78	Facility
8-20 OCLD—Loss of Overhead Synchronization, Overhead Link Failure	8-88	Facility
8-21 OCLD—Low Optical Power Warning	8-99	Equipment
8-22 OCLD—Optical Receiver Overload	8-108	Equipment
8-23 OCLD—Optical System Identifier Mismatch	8-117	Equipment
8-24 OCLD—Performance Monitoring Timer Failed	8-118	Equipment
8-25 OCLD—Protection Mate Circuit Pack Not Available	8-121	Facility
8-26 OCLD—Surrogate Alarm Indication Signal	8-122	Facility
8-27 OCLD—TCA - Optical Power Rx High	8-123	Facility
8-28 OCLD—TCA - Optical Power Rx Low	8-131	Facility
8-29 OCLD—TCA - Optical Power Tx High	8-140	Facility
8-30 OCLD—TCA - Optical Power Tx Low	8-144	Facility
8-31 OCLD—Remote Automatic Laser Shutdown	8-148	Facility
8-32 OCLD—Remote Defect Indication	8-151	Facility
8-33 OCLD—Rx Loss of Signal	8-155	Facility
8-34 OCLD—Transceiver Degrade	8-166	Equipment
8-35 OCLD—Unassigned Optical System Identifier	8-168	Equipment
8-36 OCLD—Unknown Circuit Pack	8-170	Equipment

Procedure 8-1
OCLD—Alarm Indication Signal

Probable cause

This alarm becomes active when local equipment is receiving an alarm indication signal from upstream equipment. One of the following conditions exists:

- upstream facility failure, out-of-service, or missing
- upstream equipment failure, out-of-service, or missing
- not completely provisioned connection

Impact

Warning, non-service-affecting.

Precautions

CAUTION
Risk of recovery procedures affecting traffic
This alarm is not service-affecting, however a service-affecting condition exists upstream and the recovery action can be service-affecting.

CAUTION
Risk of affecting network reliability
Make sure that all connectors are cleaned before you make the connections (or re-connections) described in this procedure. For cleaning information, see the chapter "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components*, 323-1701-201.

Action

Step	Action
1	Use a network topology diagram to determine the upstream network elements and pass-through shelves.
2	Using the Fault—Active Alarms window in System Manger, identify all the alarms related to this alarm.

—continued—

Procedure 8-1 (continued)
OCLD—Alarm Indication Signal

Step	Action	
3	Make sure the subtending equipment is functioning correctly and properly connected.	
4	Make sure that there are no facility or equipment alarms at the upstream NE.	
5	**If**	**Then**
	there are facility alarms	follow the steps to clear them and then go to the next step
	otherwise	go to step 7
6	**If**	**Then**
	the alarm clears	you have completed the procedure
	the alarm remains	go to the next step
7	Make sure that none of the facilities at the far-end NE are out-of-service. If a facility if OOS, place the facility in-service. Follow Procedure 3-10 “Putting a circuit pack or SFP facility in-service” in *Provisioning and Operating Procedures*, 323-1701-310. Go to the next step.	
8	**If**	**Then**
	the alarm clears	you have completed the procedure
	the alarm remains	go to the next step
9	Use the System Manager to verify that the upstream and pass-though channel assignments are completely provisioned.	
	If	**Then**
	the channel assignments are not completely provisioned	follow Procedure 3-3 “Making or modifying channel assignments” in *Provisioning and Operating Procedures*, 323-1701-310. Go to the next step.
	otherwise	contact your next level of support
10	**If**	**Then**
	the alarm clears	you have completed the procedure
	the alarm remains	contact your next level of support

—end—

Procedure 8-2
OCLD—Autoprovisioning Mismatch, Circuit Pack Mismatch

Probable cause

The Autoprovisioning Mismatch alarm becomes active if an OCLD is seated in an OFA shelf. OCLD circuit packs are supported in WDM shelves only.

The Circuit Pack Mismatch alarm becomes active when the wrong type of OCLD, or a circuit pack other than an OCLD is seated in a provisioned OCLD slot.

Impact

Table 8-3 lists the impact that these alarms have under different conditions.

Table 8-3
OCLD Autoprovisioning Mismatch and Circuit Pack Mismatch alarm impact

Alarm	Conditions	Severity	Impact
Autoprovisioning Mismatch	N/A	Major	Non-service-affecting
Circuit Pack Mismatch	If any of the following conditions exist: • the path assigned to the OCLD is unprotected • the path assigned to the OCLD is protected and the matching OCLD has an alarm condition • the OCLD is used in a pass-through connection	Critical	Service-affecting
	If any of the following conditions exist: • there is no channel assignment • the path assigned is protected and the matching OCLD is operating correctly	Major	Non-service-affecting

—continued—

Procedure 8-2 (continued)
OCLD—Autoprovisioning Mismatch, Circuit Pack Mismatch

Precautions

ATTENTION
When you clear this alarm on Optical Metro 5100 shelves, at all times the SP, and at least one non-SP circuit pack that is carrying the database, must be seated in the shelf.

CAUTION
Risk of recovery procedures affecting traffic
This alarm may not be service-affecting, however the recovery action can be service-affecting if the path is not protected.

CAUTION
Risk of affecting network reliability
Make sure that all connectors are cleaned before you make the connections (or re-connections) described in this procedure. For cleaning information, see the chapter "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components*, 323-1701-201.

Action

Step	Action
1	Determine the shelf type: OADM, Terminal, or OFA. On the Configuration-Communications screen of the System Manager, look in the "Shelf Type" column.

—continued—

Procedure 8-2 (continued)
OCLD—Autoprovisioning Mismatch, Circuit Pack Mismatch

Step	Action	
2	**If** the shelf type is	**Then**
	an OFA shelf and should be an OFA shelf	remove any circuit packs other than OFAs or APBEs that are seated in slots 1-8 or 11-18. Go to step 3.
	an OFA shelf but should be an OADM or terminal shelf	follow Procedure 4-1 “Decommissioning a shelf” in *Provisioning and Operating Procedures*, 323-1701-310, and Chapter 3 “Commissioning a shelf” in *Commissioning Procedures*, 323-1701-220. Go to step 4.
	the shelf type is an OADM or terminal shelf	go to step 4
3	**If**	**Then**
	the alarm clears	you have completed this procedure
	the alarm remains	contact your next level of support
4	Make sure the circuit pack in the slot is a circuit pack of • the correct type • the correct bit rate • the correct wavelength	
5	**If**	**Then**
	the path is protected	switch traffic off of the OCLD. Follow Procedure 3-48 “Forcing traffic to one path on a protected channel” in *Provisioning and Operating Procedures*, 323-1701-310.
	the path is unprotected	go to the next step. Performing the next step may affect traffic.
6	Make sure the slot is provisioned correctly for the circuit pack type. Do this by double-clicking on the OCLD in the Equipment-Inventory list. Under “Provisioning Data” check to see that the “Circuit Pack Type” and “Max Bit Rate” correctly correspond to the actual circuit pack seated in the slot.	
	If the slot is	**Then** go to
	incorrectly provisioned	the next step
	correctly provisioned	step 12

—continued—

Procedure 8-2 (continued)
OCLD—Autoprovisioning Mismatch, Circuit Pack Mismatch

Step	Action	
7	Take the OCLD OOS, follow Procedure 3-21 “Taking a circuit pack facility or SFP facility out-of-service” (if applicable) and then Procedure 3-8 “Taking a circuit pack or SFP out-of-service” in *Provisioning and Operating Procedures*, 323-1701-310.	
8	If there are facilities associated with the OCLD, delete them. Follow Procedure 3-14 “Deleting a circuit pack or SFP facility” in *Provisioning and Operating Procedures*, 323-1701-310.	
9	Delete the OCLD equipment. Follow Procedure 3-9 “Deleting a circuit pack or SFP from the inventory” in *Provisioning and Operating Procedures*, 323-1701-310.	
10	**If**	**Then**
	you need to manually pre-provision the slot	follow Procedure 3-2 “Manually provisioning a circuit pack or SFP” procedures in *Provisioning and Operating Procedures*, 323-1701-310
	you do not need to manually pre-provision the slot	insert the correct OCLD and it auto-provisions. Follow Procedure 7-1 “Inserting circuit packs” in *Installing Optical Metro 5200 Shelves and Components* 323-1701-201 OR Procedure 7-1 “Inserting circuit packs in an Optical Metro 5100 shelf” in *Installing Optical Metro 5100 Shelves and Components* 323-1701-210.
11	**If**	**Then**
	the alarm clears	you have completed this procedure
	the alarm remains	go to the next step

—continued—

Procedure 8-2 (continued)
OCLD—Autoprovisioning Mismatch, Circuit Pack Mismatch

Step	Action
12	Reseat the OCLD. Follow Procedure 3-68 "Reseating a circuit pack" in *Provisioning and Operating Procedures,* 323-1701-310.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	go to the next step

Step	Action
13	Replace the OCLD. Follow Procedure 3-2 "Replacing an OCLD circuit pack" in *Maintenance and Replacement Procedures*, 323-1701-546.

If	Then
the alarm clears	the removed circuit pack has faults. You have completed this procedure.
the alarm remains	the circuit pack is not the problem. Reseat the original circuit pack. Contact your next level of support.

ATTENTION
If you set a forced switch on the path, make sure you remove the switch when the procedure is completed. Follow Procedure 3-49 "Removing a manual, force, or lockout switch from a protection path" in *Provisioning and Operating Procedures*, 323-1701-310.

—end—

Procedure 8-3
OCLD—Backplane Loss of Activity

To clear the alarm on an Optical Metro 5200 shelf, perform steps 1 to 8 only.

To clear the alarm on an Optical Metro 5100 shelf, perform steps 9 to 13 only.

Probable cause

Optical Metro 5200
This alarm becomes active when the OCLD circuit pack does not detect activity from the OCM in slot 9, or slot 10.

Optical Metro 5100
This alarm becomes active when the OCLD circuit pack does not detect activity from the OCLD in slot 1, 2, 3, or 4.

> ***Note:*** OCIs can only be seated in slot 1 or slot 3, but in a pass-through shelf you do not need OCIs. In this case, you could have OCLDs in slots 1 and 3, as well as in slots 2 and 4.

Impact

Table 8-4
OCLD Loss of Activity (Optical Metro 5200) alarm impact

Alarm	Conditions	Severity	Impact
Loss of Activity	If any of the following conditions exist: • the other OCM is unable to protect the failed backplane connection and the assigned connection is not protected • the OCLD circuit pack is used in a pass-through connection • the OCLD is un protected • the opposite OCLD in a protection scenario is unable to carry traffic (i.e. in an alarm or OOS)	Critical	Service-affecting
	If the path assigned is protected and the matching OCLD is operating correctly.	Minor	Non-service-affecting

—continued—

Procedure 8-3 (continued)
OCLD—Backplane Loss of Activity

Table 8-5
Loss of Activity (Optical Metro 5100) Impact

Alarm	Conditions	Severity	Impact
Loss of Activity	If any of the following conditions exist: • the OCLD circuit pack is used in a pass-through connection • the OCLD is un protected • the opposite OCLD in a protection scenario is unable to carry traffic (i.e. in an alarm or OOS)	Critical	Service-affecting
	If the path assigned is protected and the matching OCLD is operating correctly.	Minor	Non-service-affecting

Precautions

CAUTION
Risk of recovery procedures affecting traffic
This alarm may not be service-affecting, however the recovery action can be service-affecting if the path is not protected.

CAUTION
Risk of affecting network reliability
Make sure that all connectors are cleaned before you make the connections (or re-connections) described in this procedure. For cleaning information, see the chapter "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components*, 323-1701-201.

ATTENTION
At all times the SP, and at least one non-SP circuit pack that is carrying the database, must be seated in the shelf.

—continued—

Procedure 8-3 (continued)
OCLD—Backplane Loss of Activity

Action

Step	Action

Clearing the alarm on an Optical Metro 5200 shelf

1

If	Then
the OCLD raises the alarm against both OCMs	complete steps 2 through 4 only. If the alarm does not clear, contact your next level of support.
the OCLD raises the alarm against one OCM	go to the next step and complete all the steps in this procedure

Note: New alarms may be raised when you reseat or replace an OCM. Ignore any new alarms until you have completed this procedure.

2

If	Then
the path is protected	switch traffic off of the OCLD. Follow Procedure 3-48 “Forcing traffic to one path on a protected channel” in *Provisioning and Operating Procedures*, 323-1701-310.
the path is unprotected	go to the next step. Performing the next step can affect traffic.

3 Reseat the OCLD. Follow Procedure 3-68 “Reseating a circuit pack” in *Provisioning and Operating Procedures,* 323-1701-310.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	go to the next step

4 Replace the OCLD. Follow Procedure 3-2 “Replacing an OCLD circuit pack” in *Maintenance and Replacement Procedures,* 323-1701-546.

If	Then
the alarm clears	the removed circuit pack has faults. You have completed this procedure.
the alarm remains	the circuit pack is not the problem. Reseat the original circuit pack. Go to the next step.

—continued—

Procedure 8-3 (continued)
OCLD—Backplane Loss of Activity

Step	Action	
5	**If**	**Then**
	the OCLD raised the alarm against both OCMs	contact your next level of support
	the OCLD raised the alarm against one OCM	go to the next step
6	Force traffic off of the indicated OCM (9 or 10). Follow Procedure 3-55 "Force switching on OCM circuit packs" *Provisioning and Operating Procedures*, 323-1701-310.	
7	Reseat the OCM indicated by the alarm (9 or 10). Follow Procedure 3-68 "Reseating a circuit pack" in *Provisioning and Operating Procedures,* 323-1701-310.	
	If	**Then**
	the alarm clears	you have completed this procedure
	the alarm remains	go to the next step
8	Replace the OCM indicated by the alarm. Refer to Procedure 3-8 "Replacing an OCM circuit pack" in *Maintenance and Replacement Procedures* 323-1701-546.	
	If	**Then**
	the alarm clears	the removed circuit pack has faults. Remove the force switch on the OCM. You have completed this procedure.
	the alarm remains	the circuit pack is not the problem. Reseat the original circuit pack. Contact your next level of support.

ATTENTION
If you set a forced switch on the path, make sure you remove the switch when the procedure is completed. Follow Procedure 3-49 "Removing a manual, force, or lockout switch from a protection path" in *Provisioning and Operating Procedures*, 323-1701-310.

—continued—

Procedure 8-3 (continued)
OCLD—Backplane Loss of Activity

Step	Action

Clearing the alarm on an Optical Metro 5100 shelf

9

If	Then
the path is protected	switch traffic off of the OCLD. Follow Procedure 3-48 “Forcing traffic to one path on a protected channel” in *Provisioning and Operating Procedures*, 323-1701-310.
the path is unprotected	go to the next step. Performing the next step may affect traffic.

10 Reseat the OCLD. Follow Procedure 3-68 “Reseating a circuit pack” in *Provisioning and Operating Procedures,* 323-1701-310.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	go to the next step

11 Replace the OCLD. Follow Procedure 3-2 “Replacing an OCLD circuit pack” in *Maintenance and Replacement Procedures,* 323-1701-546.

If	Then
the alarm clears	the removed circuit pack has faults. You have completed this procedure.
the alarm remains	the circuit pack is not the problem. Reseat the original circuit pack. Go to the next step.

12

CAUTION
Risk of loss of traffic
Reseating the OCI drops traffic. If possible, re-route the traffic to another system to avoid losing traffic.

Reseat the OCI. Follow Procedure 3-68 “Reseating a circuit pack” in *Provisioning and Operating Procedures,* 323-1701-310.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	go to the next step

—continued—

Procedure 8-3 (continued)
OCLD—Backplane Loss of Activity

Step	Action
13	Replace the OCI. Follow Procedure 3-1 "Replacing an OCI circuit pack" in *Maintenance And Replacement Procedures,* 323-1701-546.

If	Then
the alarm clears	the removed circuit pack has faults. You have completed this procedure.
the alarm remains	the circuit pack is not the problem. Reseat the original circuit pack. Contact your next level of support.

ATTENTION

If you set a forced switch on the path, make sure you remove the switch when the procedure is completed. Follow Procedure 3-49 "Removing a manual, force, or lockout switch from a protection path" in *Provisioning and Operating Procedures*, 323-1701-310.

—end—

Procedure 8-4
OCLD—Bit Disparity

To clear the alarm on an Optical Metro 5200 shelf, perform steps 1 to 5 only.

To clear the alarm on an Optical Metro 5100 shelf, perform steps 6 to 10 only.

Probable cause

This alarm becomes active when the input signal from the client side does not meet the protocol requirements of 50% bit disparity.

Impact

Warning, non-service-affecting.

Precautions

CAUTION
Risk of recovery procedures affecting traffic
This alarm is not service-affecting, however the recovery action can be service-affecting if the path is not protected.

CAUTION
Risk of affecting network reliability
Make sure that all connectors are cleaned before you make the connections (or re-connections) described in this procedure. For cleaning information, see the chapter "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components*, 323-1701-201.

—continued—

Procedure 8-4 (continued)
OCLD—Bit Disparity

Action

Step	Action

Clearing the alarm on an Optical Metro 5200 shelf

1

If	Then
the path is protected	switch traffic off of the OCLD. Follow Procedure 3-48 “Forcing traffic to one path on a protected channel” in *Provisioning and Operating Procedures*, 323-1701-310. Go to the next step.
the path is unprotected	go to the next step. Performing the next step may affect traffic.

2 Reseat the OCLD. Follow Procedure 3-68 “Reseating a circuit pack” in *Provisioning and Operating Procedures,* 323-1701-310.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	go to the next step

3 Replace the OCLD. Follow Procedure 3-2 “Replacing an OCLD circuit pack” in *Maintenance and Replacement Procedures*, 323-1701-546.

If	Then
the alarm clears	the removed circuit pack has faults. You have completed this procedure.
the alarm remains	the circuit pack is not the problem. Reseat the original circuit pack. Go to the next step.

—continued—

Procedure 8-4 (continued)
OCLD—Bit Disparity

Step	Action

4

CAUTION
Risk of loss of traffic
Reseating the OCI drops traffic. If possible, re-route the traffic to another system to avoid losing traffic.

Reseat the OCI associated with the connection. Follow Procedure 3-68 "Reseating a circuit pack" in *Provisioning and Operating Procedures,* 323-1701-310.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	go to the next step

5 Replace the OCI associated with the connection. Refer to Procedure 3-1 "Replacing an OCI circuit pack" in *Maintenance and replacement Procedures,* 323-1701-546.

If	Then
the alarm clears	the removed circuit pack has faults. You have completed this procedure.
the alarm remains	the circuit pack is not the problem. Reseat the original circuit pack. Contact your next level of support.

ATTENTION
If you set a forced switch on the path, make sure you remove the switch when the procedure is completed. Follow Procedure 3-49 "Removing a manual, force, or lockout switch from a protection path" in *Provisioning and Operating Procedures*, 323-1701-310.

—continued—

Procedure 8-4 (continued)
OCLD—Bit Disparity

Step	Action

Clearing the alarm on an Optical Metro 5100 shelf

6

If	Then
the path is protected	switch traffic off of the OCLD. Follow Procedure 3-48 “Forcing traffic to one path on a protected channel” in *Provisioning and Operating Procedures*, 323-1701-310.
the path is unprotected	go to the next step. Performing the next step may affect traffic.

7 Reseat the OCLD. Follow Procedure 3-68 “Reseating a circuit pack” in *Provisioning and Operating Procedures,* 323-1701-310.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	go to the next step

8 Replace the OCLD. Follow Procedure 3-2 “Replacing an OCLD circuit pack” in *Maintenance and Replacement Procedures*, 323-1701-546.

If	Then
the alarm clears	the removed circuit pack has faults. You have completed this procedure.
the alarm remains	the circuit pack is not the problem. Reseat the original circuit pack.

—continued—

Procedure 8-4 (continued)
OCLD—Bit Disparity

Step	Action

9

CAUTION
Risk of loss of traffic
Reseating the OCI drops traffic. If possible, re-route the traffic to another system to avoid losing traffic.

Reseat the OCI associated with the connection. Follow Procedure 3-68 "Reseating a circuit pack" in *Provisioning and Operating Procedures,* 323-1701-310.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	go to the next step

10 Replace the OCI. Follow Procedure 3-1 "Replacing an OCI circuit pack" in *Maintenance And Replacement Procedures,* 323-1701-546.

If	Then
the alarm clears	the removed circuit pack has faults. You have completed this procedure.
the alarm remains	the circuit pack is not the problem. Reseat the original circuit pack. Contact your next level of support.

ATTENTION
If you set a forced switch on the path, make sure you remove the switch when the procedure is completed. Follow Procedure 3-49 "Removing a manual, force, or lockout switch from a protection path" in *Provisioning and Operating Procedures*, 323-1701-310.

—end—

Procedure 8-5
OCLD—Circuit Pack Failed

Probable cause

This alarm becomes active when the circuit pack detects an equipment failure.

Impact

Table 8-6 lists the impact that this alarm has under different conditions.

Table 8-6
OCLD Circuit Pack Failed alarm impact

Alarm	Conditions	Severity	Impact
Circuit Pack Failed	If any of the following conditions exist: • the path assigned to the OCLD circuit pack is unprotected • the path assigned to the OCLD circuit pack is protected and the matching OCLD has an alarm condition • the OCLD circuit pack is used in a pass-through connection	Critical	Service-affecting
	If any of the following conditions exist: • there is no channel assignment • the path assigned is protected and the matching OCLD is operating correctly	Major	Non-service-affecting

—continued—

Procedure 8-5 (continued)
OCLD—Circuit Pack Failed

Precautions

ATTENTION
When you clear this alarm on Optical Metro 5100 shelves, at all times the SP, and at least one non-SP circuit pack that is carrying the database, must be seated in the shelf.

CAUTION
Risk of recovery procedures affecting traffic
This alarm may not be service-affecting, however the recovery action can be service-affecting if the path is not protected.

CAUTION
Risk of affecting network reliability
Make sure that all connectors are cleaned before you make the connections (or re-connections) described in this procedure. For cleaning information, see the chapter "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components*, 323-1701-201.

Action

Step	Action
1	Reseat the OCLD. Follow Procedure 3-68 "Reseating a circuit pack" in *Provisioning and Operating Procedures,* 323-1701-310.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	go to the next step

Step	Action
2	Replace the OCLD. Follow Procedure 3-2 "Replacing an OCLD circuit pack" in *Maintenance and Replacement Procedures*, 323-1701-546.

If	Then
the alarm clears	the removed circuit pack has faults. You have completed this procedure.
the alarm remains	the circuit pack is not the problem. Reseat the original circuit pack. Contact your next level of support.

—end—

Procedure 8-6
OCLD- Circuit Pack Minor Mismatch

Probable cause

This alarm becomes active when a Universal circuit pack is inserted in a slot that has been provisioned as a Flex circuit pack. The same applies when a Flex circuit pack is inserted in a slot that has been provisioned as a Universal Circuit pack.

Impact

Minor, non-service-affecting.

Action

Step	Action
1	Use System Manager to locate the slot that is indicating the circuit pack minor mismatch.
2	

If	Then
the slot provisioning is correct and the circuit pack inserted needs to be replaced	go to step 3
The slot provisioning is incorrect and the right circuit pack is inserted	go to step 4

3	Follow Procedure 3-2 “Replacing an OCLD circuit pack” in *Maintenance and Replacement Procedures*, 323-1701-546.
4	In the Equipment—Inventory window in System Manager, right click on the row displaying the slot number identified in step 1.
5	Click on Modify. *An Optical Inventory window opens*
6	

If the inserted circuit pack type is	**Then** go to
Universal	step 7
Flex	step 8

7	In the Flex Type field, select Universal and click **OK**. Go to **step 9.**
8	In the Flex Type field, select Flex and click on **OK**. Go to **step 9.**
9	

If	Then
the alarm clears	you have completed this procedure
the alarm remains	call your next level of support

—end—

Procedure 8-7
OCLD—Circuit Pack Missing

Probable cause

This alarm becomes active when the provisioned slot does not contain an OCLD circuit pack or the OCLD is not correctly seated in the slot.

Impact

Table 8-7 lists the impact that this alarm has under different conditions.

Table 8-7
OCLD Circuit Pack Missing alarm impact

Alarm	Conditions	Severity	Impact
Circuit Pack Missing	If any of the following conditions exist: • the path assigned to the OCLD circuit pack is unprotected • the path assigned to the OCLD circuit pack is protected and the matching OCLD has an alarm condition • the OCLD circuit pack is used in a pass-through connection	Critical	Service-affecting
	If any of the following conditions exist: • there is no channel assignment • the path assigned is protected and the matching OCLD is operating correctly	Major	Non-service-affecting

—continued—

Procedure 8-7 (continued)
OCLD—Circuit Pack Missing

Precautions

ATTENTION
When you clear this alarm on Optical Metro 5100 shelves, at all times the SP, and at least one non-SP circuit pack that is carrying the database, must be seated in the shelf.

CAUTION
Risk of recovery procedures affecting traffic
This warning is not service-affecting, however the recovery action can be service-affecting if the path is not protected.

CAUTION
Risk of affecting network reliability
Make sure that all connectors are cleaned before you make the connections (or re-connections) described in this procedure. For cleaning information, see the chapter "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components*, 323-1701-201.

Action

Step	Action	
1	Use System Manager to locate the slot that is indicating the missing circuit pack.	
2	Make sure that the slot contains an OCLD circuit pack.	
	If	**Then**
	the slot should contain an OCLD	insert and seat an OCLD in the slot. Follow Procedure 7-1 "Inserting circuit packs" in *Installing Optical Metro 5200 Shelves and Components* 323-1701-201 OR Procedure 7-1 "Inserting circuit packs in an Optical Metro 5100 shelf" in *Installing Optical Metro 5100 Shelves and Components* 323-1701-210. Go to step 3.
	the slot is intentionally left empty	go to step 4
	the slot contains an OCLD	go to step 6

—continued—

Procedure 8-7 (continued)
OCLD—Circuit Pack Missing

Step	Action

3

If	Then
the alarm clears	you have completed this procedure
the alarm remains	go to step 6

4 To clear the alarm if the slot is not used, follow these steps:

a. Take the OCLD OOS. Follow Procedure 3-13 “Taking a circuit pack facility or SFP facility out-of-service” (if applicable), and then Procedure 3-8 “Taking a circuit pack or SFP out-of-service” in *Provisioning and Operating Procedures*, 323-1701-310.

b. If there are facilities associated with the OCLD, delete them. Follow Procedure 3-14 “Deleting a circuit pack or SFP facility” in *Provisioning and Operating Procedures*, 323-1701-310.

Note: If this OCLD is a part of a connection, you will have to delete the connection first. Follow Procedure 3-4 “Deleting channel assignments”.

c. Delete the OCLD equipment. Follow Procedure 3-9 “Deleting a circuit pack or SFP from the inventory” in *Provisioning and Operating Procedures*, 323-1701-310.

5

If	Then
the alarm clears	you have completed this procedure
the alarm remains	contact your next level of support

6 Reseat the OCLD. Follow Procedure 3-68 “Reseating a circuit pack” in *Provisioning and Operating Procedures,* 323-1701-310.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	go to the next step

7 Replace the OCLD. Follow Procedure 3-2 “Replacing an OCLD circuit pack” in *Maintenance and Replacement Procedures*, 323-1701-546.

If	Then
the alarm clears	the removed circuit pack has faults. You have completed this procedure.
the alarm remains	the circuit pack is not the problem. Reseat the original circuit pack. Contact your next level of support.

—end—

Procedure 8-8
OCLD—Facility Loopback, Terminal Loopback

A Facility Loopback alarm means the optical signal received at the OCLD Rx input is being looped back to the Tx output without continuing through the circuit pack.

A Terminal Loopback alarm means the signal being received at the backplane receiver is being looped back to the backplane transmitter without continuing through the circuit pack.

Probable cause

This alarm becomes active when you perform a loopback and the loopback is active.

Note: This alarm is a normal indication when the loopback is on for testing and maintenance purposes. Loopback is only allowed when the facility is out-of-service.

Impact

Minor, non-service-affecting.

Action

Step	Action	
1	Determine if a facility or terminal loopback is active for testing or maintenance purposes.	
2	**If** the loopback is	**Then**
	necessary for testing or maintenance activities	you have completed this procedure
	not necessary	go to the next step
3	Release the loopback if it is not necessary. Refer to Procedure 3-60 "Removing a loopback using the System Manager" in *Provisioning and Operating Procedures*, 323-1701-310.	
4	**If**	**Then**
	the alarm clears	you have completed this procedure
	the alarm remains	contact your next level of support

—end—

Procedure 8-9
OCLD—Far End Circuit Pack Mismatch

Probable cause

This alarm becomes active when the OCLD or the far end OTR or OCLD at the opposite end of the line-side are not the same circuit pack type. For example, if the OCLD is a Universal circuit pack type and the far end OTR or OCLD is Flex circuit pack, this alarm will be raised at both ends of the link.

Impact

Minor, non-service-affecting.

Precautions

CAUTION
Risk of affecting network reliability
Make sure that all connectors are cleaned before you make the connections (or re-connections) described in this procedure. For cleaning information, see the chapter "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components*, 323-1701-201.

Action

Step	Action
1	**If** the alarm is raised when — **Then** go to: you are in the process of converting a circuit pack from Flex to Universal. — step 2 you have replaced a circuit pack with a circuit pack type not matching the original circuit pack — step 4 otherwise — step 5
2	Continue to execute procedure Procedure 3-4, "Replacing Flex with Universal circuit packs or Universal with Flex circuit packs" in *Maintenance and Replacement Procedures*, 323-1701-546. Ensure that this procedure is run at both ends of the link. Go to step 6
3	Follow procedure Procedure 3-2, "Replacing an OCLD circuit pack" in *Maintenance and Replacement Procedures*, 323-1701-546 so that the circuit pack matches what was originally provisioned. Go to step 6
4	Determine which circuit pack from both ends needs replacement.

—continued—

Procedure 8-9 (continued)
OCLD—Far End Circuit Pack Mismatch

Step	Action
5	Determine which end of the link is not provisioned with the correct circuit pack type. At the end of the link that has the wrong circuit pack type, execute procedure Procedure 3-4 “Replacing Flex with Universal circuit packs or Universal with Flex circuit packs” in *Maintenance and Replacement Procedures,* 323-1701-546.
6	You have completed this procedure

—end—

Procedure 8-10
OCLD—Fiber Mismatch

Probable cause

This alarm becomes active when the OCLD circuit pack detects an incorrect fiber connection.

This alarm is also raised if the line-side Rx connectors are reversed for two circuit packs of different bands or channels in the same shelf. For example, the Rx connector for B1C1 is connected to the Rx port of the B1C2 circuit pack.

The near OCLD must be connected to a remote OCLD with the same band number and channel number.

Impact

Major, non-service-affecting.

Incorrect OCLD fiber connection will inhibit the ability of the OCLD circuit pack to correctly report Shelf Input Failure alarms.

Precautions

CAUTION
Risk of affecting network reliability
Make sure that all connectors are cleaned before you make the connections (or re-connections) described in this procedure. For cleaning information, see the chapter "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components*, 323-1701-201.

Action

Step	Action	
1	Verify that the corresponding OCLDs at the near-end site and the far-end site have the same band number and channel number. Use a network topology diagram to determine where the far-end site is located.	
2	Verify that there is an appropriate fiber connection between the OCLD and the OMX.	
3	**If**	**Then**
	the alarm clears	you have completed this procedure
	the alarm remains	contact your next level of support

—end—

Procedure 8-11
OCLD—High Optical Power

Probable cause

This alarm becomes active when the optical power level at the optical receiver has exceeded the Rx Fail Threshold of the Rx Power High parameter. The majority of OCLD Rx High Optical Power alarms are caused by poor equalization. If there are OFAs in the network, check the equalization and contact your next level of support immediately. One of the following conditions exists:

- the transmitting circuit pack is defective
- the receiving OCLD circuit pack is defective
- there are amplifiers on the ring and the system is not properly equalized
- an upstream OFA, APBE, or ECT has failed or the ring is not equalized properly

Impact

Table 8-8 lists the impact that this alarm has under different conditions.

Table 8-8
OCLD Rx High Optical Power alarm impact

Alarm	Conditions	Severity	Impact
Rx High Optical Power	If any of the following conditions exist: • the path assigned to the OCLD circuit pack is unprotected • the path assigned to the OCLD circuit pack is protected and the matching OCLD has an alarm condition • the OCLD circuit pack is used in a pass-through connection	Critical	Service-affecting
	If any of the following conditions exist: • there is no channel assignment • the path assigned is protected and the matching OCLD is operating correctly	Major	Non-service-affecting

—continued—

Procedure 8-11 (continued)
OCLD—High Optical Power

Precautions

ATTENTION
When you clear this alarm on Optical Metro 5100 shelves, at all times the SP, and at least one non-SP circuit pack that is carrying the database, must be seated in the shelf.

CAUTION
Risk of recovery procedures affecting traffic
This alarm may not be service-affecting, however the recovery action can be service-affecting if the path is not protected.

CAUTION
Risk of affecting network reliability
Make sure that all connectors are cleaned before you make the connections (or re-connections) described in this procedure. For cleaning information, see the chapter "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components*, 323-1701-201.

Action

Step	Action
1	Check the corresponding upstream OCLD or, if applicable, Optical Fiber Amplifiers (OFA) for failures or alarms. Use a network topology diagram to determine the upstream OCLDs and OFAs. Troubleshoot these alarms/failures before proceeding. ***Note 1:*** A common cause of this alarm is problems with amplifier equalization. If this network uses OFAs, it is strongly recommended that you contact your next level of support to re-equalize the amplifiers. ***Note 2:*** If the transmitting power on the upstream OCLD is too high, you might see an OCLD Transceiver Degrade alarm on the upstream shelf. Clear this alarm first by following Procedure 8-34 "OCLD—Transceiver Degrade". **—continued—**

Procedure 8-11 (continued)
OCLD—High Optical Power

Step	Action
2	If Automatic Laser Shutdown (ALS) is enabled, disable ALS for both the near-end and far-end shelves which contain the alarming OCLD and its corresponding upstream OCLD. Use a network topology diagram and channel listing to determine the near-end and far-end sites. If you do not know if ALS is enabled or not, assume it is enabled. Follow Procedure 1-43 "Enabling or disabling automatic laser shutdown" in *Provisioning and Operating Procedures*, 323-1701-310 to disable ALS.
3	At the downstream shelf, use the System Manager to check if you are receiving OCLD High Optical Power Warnings on all OCLDs in the same east/west plane, or on a single OCLD.

If the Rx power level is too high	**Then** go to
on the only OCLD in the east/west plane	step 4
on all OCLDs in the same east/west plane	step 6
on one of multiple OCLDs in the same east/west plane	step 8

Step	**If**	**Then**
4	there are amplifiers between the upstream and downstream OCLD	there may be a problem at the amplifier site, the ring requires re-equalization, or both. Contact your next level of support to troubleshoot. If troubleshooting does not clear the alarm, go to step 8.
	there are no amplifiers between the upstream and downstream OCLD	Go to the next step.

—continued—

Procedure 8-11 (continued)
OCLD—High Optical Power

Step	Action

5 Reduce the input power of the band by performing the following steps:

CAUTION
Risk of loss of traffic across multiple wavelengths in the band
Adding fixed pads to the front of the Band drop/Band Rx junction affects traffic on the band/direction. If the traffic is protected, follow Procedure 3-48 "Forcing traffic to one path on a protected channel" in *Provisioning and Operating Procedures*, 323-1701-310, to switch traffic for the OCLD in the east/west plane before proceeding.

a. Add a fixed pad attenuator to the front of the Band Drop/Band Rx junction of the corresponding OMX. The fixed pad attenuates the entire band and reduces the power on the OCLD drop port. To determine the amount of attenuation, choose a fixed-pad with a value that is sufficient to lower the OCLD Rx power to within its operational threshold. Refer to Table 2-23 in *Technical Specifications*, 323-1701-180 for minimum and maximum Tx power levels. The alarm should clear.

b. if any optical alarms remain on the OCLD, contact the alarm clearing procedure in this book, for that circuit pack

Note: This condition indicates a discrepancy between the Network Modeling Tool (NMT) and the actual system. Contact your next level of support for the NMT attenuator values.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	go step 8

6

If	Then
there are amplifiers between the upstream and downstream OCLDs	there is problem at the amplifier site, the ring requires re-equalization, or both. Contact your next level of support.
there are no amplifiers between the upstream and downstream OCLDs	Go to the next step.

—continued—

Procedure 8-11 (continued)
OCLD—High Optical Power

Step	Action

7 Reduce the input power of the band by performing the following steps:

CAUTION
Risk of loss of traffic across multiple wavelengths in the band
Adding fixed pads to the front of the Band drop/Band Rx junction affects traffic on the entire band/direction. If the traffic is protected, follow Procedure 3-48 "Forcing traffic to one path on a protected channel" in *Provisioning and Operating Procedures*, 323-1701-310, to switch traffic for every OCLD in the east/west plane before proceeding.

a. Add a fixed pad attenuator to the front of the Band Drop/Band Rx junction of the corresponding OMX. The fixed pad attenuates the entire band and reduces the power on all four OCLD drop ports. To determine the amount of attenuation, choose a fixed-pad with a value that is sufficient to lower the OCLD Rx power to within its operational threshold. Refer to Table 2-23 in *Technical Specifications*, 323-1701-180 for minimum and maximum Tx power levels. The alarm should clear.

b. Using the System Manager, under Equipment-Facilities, check the Rx powers of all OCLDs at the downstream site and verify they are at the correct operational threshold. All OCLDs in the band should have the same approximate Rx power. If any OCLDs have lower Rx powers, clean the pigtail (or both ends of the patch-cord) going into the respective OCLD Rx port. For information on cleaning, see Chapter 9 "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components,* 323-1701-201.

c. if any optical alarms remain on any of the OCLDs, contact the alarm clearing procedure in this book, for that circuit pack

Note: This condition indicates a discrepancy between the Network Modeling Tool (NMT) and the actual system. Contact your next level of support for the NMT attenuator values.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	contact your next level of support

—continued—

Procedure 8-11 (continued)
OCLD—High Optical Power

Step	Action

8

If	Then
the path is protected	switch traffic off of the OCLD. Follow Procedure 3-48 "Forcing traffic to one path on a protected channel" in *Provisioning and Operating Procedures*, 323-1701-310.
the path is unprotected	go to the next step. Performing the next step can affect traffic.

9 Make sure the optical fiber is connected correctly on the OCLD Rx port at the near-end site and on the OCLD Tx port at the far-end site. If you are using the OMX 4CH + Fiber Manager, check both ends of the patch-cord between the OMX and OCLD.

Note: Use a network topology diagram to determine the near-end (downstream) and far-end (upstream) sites.

If	Then
the alarm clears	you have completed the procedure
the alarm remains	go to the next step

10 Use the System Manager to check the received power level on the Rx port of the alarming downstream OCLD. Write down the value. Refer to Table 2-23 in *Technical Specifications*, 323-1701-180 for minimum and maximum Rx/Tx power levels.

Note: You can record the power level from the Equipment—Facility window in the System Manager.

If the power level is	**Then**
above the operational threshold	go to step 13
within the operational threshold	the problem is with the OCLD. Go to the next step.

11 Reseat the downstream OCLD. Follow Procedure 3-68 "Reseating a circuit pack" in *Provisioning and Operating Procedures,* 323-1701-310.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	go to the next step

—continued—

Procedure 8-11 (continued)
OCLD—High Optical Power

Step	Action

12 Replace the downstream OCLD. Follow Procedure 3-2 "Replacing an OCLD circuit pack" in *Maintenance and Replacement Procedures*, 323-1701-546.

If	Then
the alarm clears	the removed circuit pack has faults. You have completed this procedure.
the alarm remains	the circuit pack is not the problem. Reseat the original circuit pack. Contact your next level of support.

13 Use the System Manager to check the transmitting power of the corresponding upstream OCLD. Make sure that the transmit power level is within the operational threshold.

Note 1: You can record the power level from the Equipment—Facility window in the System Manager.

Note 2: The "upstream" OCLD is the OCLD that is originating the signal which the alarming "downstream" OCLD is receiving. Use a network topology map to determine the "upstream" OCLD.

Note 3: Refer to Table 2-23 in *Technical Specifications*, 323-1701-180, for minimum and maximum Tx power levels.

If the transmit power level is	**Then** go to
not within the operational threshold	the next step
within the operational threshold	step 16

14 Reseat the upstream OCLD. Follow Procedure 3-68 "Reseating a circuit pack" in *Provisioning and Operating Procedures,* 323-1701-310.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	go to the next step

15 Replace the upstream OCLD. Follow Procedure 3-2 "Replacing an OCLD circuit pack" in *Maintenance and Replacement Procedures*, 323-1701-546.

If	Then
the alarm clears	the removed circuit pack has faults. You have completed this procedure.
the alarm remains	make sure that the Tx port of the new circuit pack is within the operational threshold and go to the next step.

—continued—

Procedure 8-11 (continued)
OCLD—High Optical Power

Step	Action
16	Reseat the downstream OCLD. Follow Procedure 3-68 "Reseating a circuit pack" in *Provisioning and Operating Procedures,* 323-1701-310.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	go to the next step

Step	Action
17	Replace the downstream OCLD. Follow Procedure 3-2 "Replacing an OCLD circuit pack" in *Maintenance and Replacement Procedures*, 323-1701-546.

If	Then
the alarm clears	the removed circuit pack has faults. You have completed this procedure.
the alarm remains	the circuit pack is not the problem. Reseat the original circuit pack. Contact your next level of support.

ATTENTION

If you set a forced switch on the path, make sure you remove the switch when the procedure is completed. Follow Procedure 3-49 "Removing a manual, force, or lockout switch from a protection path" in *Provisioning and Operating Procedures*, 323-1701-310.

If you are using ALS and disabled it during this procedure, re-enable it for each site. Follow Procedure 1-43 "Enabling or disabling automatic laser shutdown" in *Provisioning and Operating Procedures*, 323-1701-310.

—end—

Procedure 8-12
OCLD—High Optical Power Warning

Probable cause

This alarm becomes active when the optical power level at the optical receiver has exceeded the Rx Degrade Threshold of the Rx Power High parameter.

The majority of OCLD High Optical Power Warnings are caused by poor equalization. If there are OFAs in the network, check the equalization and contact your next level of support immediately.

Impact

Major, non-service-affecting.

Precautions

ATTENTION

When you clear this alarm on Optical Metro 5100 shelves, at all times the SP, and at least one non-SP circuit pack that is carrying the database, must be seated in the shelf.

CAUTION

Risk of recovery procedures affecting traffic

This warning is not service-affecting, however the recovery action can be service-affecting if the path is not protected.

CAUTION

Risk of affecting network reliability

Make sure that all connectors are cleaned before you make the connections (or re-connections) described in this procedure. For cleaning information, see the chapter "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components*, 323-1701-201.

—continued—

Procedure 8-12 (continued)
OCLD—High Optical Power Warning

Action

Step	Action
1	Check the corresponding upstream OCLD or, if applicable, Optical Fiber Amplifiers (OFA) for failures or alarms. Use a network topology diagram to determine the upstream OCLDs and OFAs. Troubleshoot these alarms and failures before proceeding. ***Note 1:*** A common cause of this alarm is problems with amplifier equalization. If this network uses OFAs, it is strongly recommended that you contact your next level of support to re-equalize the amplifiers. ***Note 2:*** If the transmitting power on the upstream OCLD is too high, you might see an OCLD Transceiver Degrade alarm on the upstream shelf. Clear this alarm first by following Procedure 8-34 "OCLD—Transceiver Degrade".
2	If Automatic Laser Shutdown (ALS) is enabled, disable ALS for both the near-end and far-end shelves which contain the alarming OCLD and its corresponding upstream OCLD. Use a network topology diagram and channel listing to determine the near-end and far-end sites. If you do not know if ALS is enabled or not, assume it is enabled. Follow Procedure 1-43 "Enabling or disabling automatic laser shutdown" in *Provisioning and Operating Procedures*, 323-1701-310 to disable ALS.
3	At the downstream shelf, use the System Manager to check if you are receiving OCLD High Optical Power Warnings on all (or most) OCLDs in the same east/west plane, or just on a single OCLD. ***Note 1:*** You can record the power level from the Equipment—Facility window in the System Manager. ***Note 2:*** Because OCLD—High Optical Power Warning is a threshold warning, it may not appear on all OCLDs. Check and see if the power levels on all OCLDs are relatively high. Refer to Table 2-23 in *Technical Specifications*, 323-1701-180 for the OCLD receive overload specifications. ***Note 3:*** On the Optical Metro 5200 shelf, the east plane is defined as slots 11-18, the west plane is defined as slots 1-8. On the Optical Metro 5100 shelf, the east plane is defined as slots 3 and 4, while the west plane is defined as slots 1 and 2. **If** the Rx power level is too high — **Then** go to on the only OCLD in the east/west plane — step 4 on all (or most) OCLDs in the same east/west plane — step 7 on one of multiple OCLDs in the same east/west plane — step 13

—continued—

Procedure 8-12 (continued)
OCLD—High Optical Power Warning

Step	Action

4

If	Then
there are amplifiers between the upstream and downstream OCLD	there may be a problem at the amplifier site, the ring requires re-equalization, or both. Contact your next level of support to troubleshoot. If troubleshooting does not clear the alarm, go to step 13.
there are no amplifiers between the upstream and downstream OCLD	Go to the next step.

CAUTION
Risk of loss of traffic across multiple wavelengths in the band
Adding fixed pads to the front of the Band drop/Band Rx junction affects traffic on the entire band/direction. Follow Procedure 3-48 "Forcing traffic to one path on a protected channel" in *Provisioning and Operating Procedures*, 323-1701-310 to switch traffic for every OCLD in the east/west plane before proceeding.

5 Add a fixed pad attenuator to the front of the Band Drop/Band Rx junction of the corresponding OMX. The fixed pad attenuates the entire band and reduces the power at the OCLD drop port. To determine the amount of attenuation, choose a fixed-pad with a value that is sufficient to lower the OCLD Rx power to within its operational threshold. Refer to Table 2-23 in *Technical Specifications*, 323-1701-180 for minimum and maximum Tx power levels.

If any optical alarms remain on the OCLD, contact the alarm clearing procedure in this book, for that circuit pack

Note: This condition can indicate a discrepancy between the Network Modeling Tool (NMT) and the actual system. Contact your next level of support for the NMT attenuator values.

6

If	Then
the alarm clears	you have completed this procedure
the alarm remains	go to step 13

—continued—

Procedure 8-12 (continued)
OCLD—High Optical Power Warning

Step	Action

7

If	Then
there are amplifiers between the upstream and downstream OCLDs	there is a problem at the amplifier site or the ring requires re-equalization. Contact your next level of support.
there are no amplifiers between the upstream and downstream OCLDs	Go to the next step.

CAUTION
Risk of loss of traffic across multiple wavelengths in the band
Adding fixed pads to the front of the Band drop/Band Rx junction affects traffic on the entire band/direction. Follow Procedure 3-48 "Forcing traffic to one path on a protected channel" in *Provisioning and Operating Procedures*, 323-1701-310 to switch traffic for every OCLD in the east/west plane before proceeding.

8 Add a fixed pad attenuator to the front of the Band Drop/Band Rx junction of the corresponding OMX. The fixed pad attenuates the entire band and reduces the power on all four OCLD drop ports. To determine the amount of attenuation, choose a fixed-pad with a value that is sufficient to lower the OCLD Rx power to within its operational threshold. Refer to Table 2-23 in *Technical Specifications*, 323-1701-180 for minimum and maximum Tx power levels.

9

If	Then
the alarm clears	you have completed this procedure
the alarm remains	go to the next step

10 Using the System Manager, under Equipment-Facilities, check the Rx powers of all OCLDs at the downstream site and verify they are at the correct operational threshold. All OCLDs in the band should have the same approximate Rx power.

—continued—

Procedure 8-12 (continued)
OCLD—High Optical Power Warning

Step	Action

11

If	Then
any OCLDs have lower Rx powers	clean the pigtail (or both ends of the patch-cord) going into the respective OCLD Rx port. For information on cleaning, see Chapter 9 “Cleaning connectors” in *Installing Optical Metro 5200 Shelves and Components,* 323-1701-201. Go to the next step
otherwise	go to the next step

12 If any optical alarms remain on any of the OCLDs, consult the alarm clearing procedure in this book, for that circuit pack

Note: This condition indicates a discrepancy between the Network Modeling Tool (NMT) and the actual system. Contact your next level of support for the NMT attenuator values.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	contact your next level of support

13

If	Then
the path is protected	switch traffic off of the OCLD. Follow Procedure 3-48 “Forcing traffic to one path on a protected channel” in *Provisioning and Operating Procedures*, 323-1701-310.
the path is unprotected	go to the next step. Performing the next step can affect traffic.

14 Make sure the optical fiber is connected correctly on the OCLD Rx port at the near-end site and on the OCLD Tx port at the far-end site. If you are using the OMX 4CH + Fiber Manager, check both ends of the patch-cord between the OMX and OCLD.

Note: Use a network topology diagram to determine the near-end and far-end sites.

If	Then
the alarm clears	you have completed the procedure
the alarm remains	go to the next step

—continued—

Procedure 8-12 (continued)
OCLD—High Optical Power Warning

Step	Action
15	Use the System Manager to check the received power level on the Rx port of the OCLD. Refer to Table 2-23 in *Technical Specifications*, 323-1701-180 for minimum and maximum Rx/Tx power levels. ***Note:*** You can record the power level from the Equipment—Facility window in the System Manager.

If the power level is	**Then**
above the operational threshold	go to step 18
within the operational threshold	the problem is with the OCLD. Go to the next step.

Step	Action
16	Reseat the OCLD. Follow Procedure 3-68 “Reseating a circuit pack” in *Provisioning and Operating Procedures,* 323-1701-310.

If	**Then**
the alarm clears	you have completed this procedure
the alarm remains	go to the next step

Step	Action
17	Replace the OCLD. Follow Procedure 3-2 “Replacing an OCLD circuit pack” in *Maintenance and Replacement Procedures*, 323-1701-546.

If	**Then**
the alarm clears	the removed circuit pack has faults. You have completed this procedure.
the alarm remains	the circuit pack is not the problem. Reseat the original circuit pack. Contact your next level of support.

—continued—

Procedure 8-12 (continued)
OCLD—High Optical Power Warning

Step	Action
18	Use the System Manager to check the transmitting power of the corresponding upstream OCLD. Make sure that the transmit power level is within the operational threshold. ***Note 1:*** You can record the power level from the Equipment—Facility window in the System Manager. ***Note 2:*** The "upstream" OCLD is the OCLD that is originating the signal which the alarming "downstream" OCLD is receiving. Use a network topology map to determine the "upstream" OCLD. ***Note 3:*** Refer to Table 2-23 in *Technical Specifications*, 323-1701-180 for minimum and maximum Tx power levels.

If the transmit power level is	**Then** go to
not within the operational threshold	step 19
within the operational threshold	step 21

Step	Action
19	Reseat the upstream OCLD. Follow Procedure 3-68 "Reseating a circuit pack" in *Provisioning and Operating Procedures,* 323-1701-310.

If	**Then**
the alarm clears	you have completed this procedure
the alarm remains	go to the next step

—continued—

Procedure 8-12 (continued)
OCLD—High Optical Power Warning

Step	Action
20	Replace the upstream OCLD. Follow Procedure 3-2 "Replacing an OCLD circuit pack" in *Maintenance and Replacement Procedures*, 323-1701-546.

If	Then
the alarm clears	the removed circuit pack has faults. You have completed this procedure.
the alarm remains	make sure the new card's Tx port is within the operational threshold and go to the next step.

Step	Action
21	Reseat the downstream OCLD. Follow Procedure 3-68 "Reseating a circuit pack" in *Provisioning and Operating Procedures,* 323-1701-310.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	go to the next step

Step	Action
22	Replace the downstream OCLD. Follow Procedure 3-2 "Replacing an OCLD circuit pack" in *Maintenance and Replacement Procedures,* 323-1701-546.

If	Then
the alarm clears	the removed circuit pack has faults. You have completed this procedure.
the alarm remains	the circuit pack is not the problem. Reseat the original circuit pack. Contact your next level of support.

ATTENTION

If you set a forced switch on the path, make sure you remove the switch when the procedure is completed. Follow Procedure 3-49 "Removing a manual, force, or lockout switch from a protection path" in *Provisioning and Operating Procedures*, 323-1701-310.

If you are using ALS and disabled it during this procedure, re-enable it for each site. Follow Procedure 1-43 "Enabling or disabling automatic laser shutdown" in *Provisioning and Operating Procedures*, 323-1701-310.

—end—

Procedure 8-13
OCLD—Incompatible Optical System Identifier

The Incompatible Optical System Identifier alarm is a shelf-level alarm that is raised on two OCLDs in the same Optical Metro 5100/5200 shelf. The alarm can be raised on pairs of OCLDs in protected and pass-through connections.

Probable cause

This alarm becomes active

- in a protected connection if the optical system identifier (OSID) of the paired OCLDs are different from each other
- in a pass-through connection if the OSID of the OCLDs are the same number, but the wavelengths of the OCLDs are different from each other

Impact

Warning, non-service-affecting.

Requirements

Before you begin this procedure you must

- know the correct provisioning for the shelf and OCLDs that raised the alarm
- have knowledge of your OSIDs and how they are deployed in the network

—continued—

Procedure 8-13 (continued)
OCLD—Incompatible Optical System Identifier

Precautions

CAUTION
Risk of interfering with alarm reporting
It is essential that the OSID for all line-facing equipment is provisioned correctly for bridge sites, for hub and spoke rings, and for rings with intrasite fault sectionalization (IFS). Refer to the "Rules for provisioning OSIDs" in *Provisioning and Operating Procedures*, 323-1701-310.

Know the network topology and exercise caution when provisioning OSIDs. Incorrect OSID provisioning can generate unnecessary alarms and can cause the IFS feature to operate incorrectly.

CAUTION
Risk of affecting network reliability
Make sure that all connectors are cleaned before you make the connections (or re-connections) described in this procedure. For cleaning information, see the chapter "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components*, 323-1701-201.

—continued—

Procedure 8-13 (continued)
OCLD—Incompatible Optical System Identifier

Action

Step	Action
1	In the Connections—Channel Assignments window in System Manager, determine the channel assignment mode for the OCLDs that are raising the alarms.

2	**If**	**Then** go to
	this is a protected connection	step 3
	this is a pass-through connection	step 6

Protected connection

3	In the Equipment—Inventory window in System Manager, verify that the OCLDs share the same OSID value in the OSID column.

4	**If**	**Then**
	the OSID values are the same	contact your next level of support
	the OSID values are different	follow Procedure 3-36 "Provisioning the optical system identifier (OSID)" in *Provisioning and Operating Procedures,* 323-1701-310 to change the OSID. Go to the next step.

5	**If**	**Then**
	the alarm clears	you have completed this procedure
	the alarm remains	contact your next level of support

—continued—

Procedure 8-13 (continued)
OCLD—Incompatible Optical System Identifier

Step	Action

Pass-through connection

6 In the Equipment—Inventory window in System Manager, verify that the OCLDs share the same OSID value in the OSID column.

7

If	Then
the OSID values are the same	go to step 9
the OSID values are different	follow Procedure 3-36 "Provisioning the optical system identifier (OSID)" in *Provisioning and Operating Procedures,* 323-1701-310 to change the OSID. Go to the next step.

8

If	Then
the alarm clears	you have completed this procedure
the alarm remains	contact your next level of support

9 Verify the provisioning data for the OCLDs that are raising the alarm and make sure the wavelength values are the same.

10

If	Then
the wavelength values are the same	contact your next level of support
the wavelength values are different	replace the OCLD. Follow Procedure 3-2 "Replacing an OCLD circuit pack" in *Maintenance and Replacement Procedures,* 323-1701-546. Go to the next step.

11

If	Then
the alarm clears	you have completed this procedure
the alarm remains	contact your next level of support

—end—

Procedure 8-14
OCLD—Incomplete Provisioning

Probable cause

This alarm becomes active when

- the intrasite fault sectionalization (IFS) feature is enabled and the optical system identifier (OSID) for the OCLD is unassigned
- at least one line-facing circuit pack (OCLD, OTR, MOTR or OSC) on the shelf is assigned an OSID and the OSID of the OCLD is unassigned

Impact

Minor, non-service-affecting.

Precautions

CAUTION
Risk of interfering with alarm reporting
It is essential that the OSID for all line-facing equipment is provisioned correctly for bridge sites, for hub and spoke rings, and for rings with intrasite fault sectionalization (IFS). Refer to the "Rules for provisioning OSIDs" in *Provisioning and Operating Procedures*, 323-1701-310.

Know the network topology and exercise caution when provisioning OSIDs. Incorrect OSID provisioning can generate unnecessary alarms and can cause the IFS feature to operate incorrectly.

Action

Step	Action
1	Refer to the "Rules for provisioning OSIDs" and the associated Precautions in Procedure 3-36 "Provisioning the optical system identifier (OSID)" in *Provisioning and Operating Procedures*, 323-1701-310.

—continued—

Procedure 8-14 (continued)
OCLD—Incomplete Provisioning

Step	Action	
2	**If**	**Then**
	IFS is enabled and the OSID for the OCLD is unassigned	either assign an OSID to the OCLD circuit pack (follow Procedure 3-36 "Provisioning the optical system identifier (OSID)" in *Provisioning and Operating Procedures*, 323-1701-310) or disable IFS (follow Procedure 3-39 "Disabling intrasite fault sectionalization (IFS)" in *Provisioning and Operating Procedures*, 323-1701-310). Go to the next step.
	at least one line-facing circuit pack on the shelf is assigned an OSID and the OSID of the OCLD is unassigned	either unassign the OSID for the circuit pack that has an assigned OSID, or assign an OSID for all line-facing circuit packs. Follow Procedure 3-36 "Provisioning the optical system identifier (OSID)" in *Provisioning and Operating Procedures*, 323-1701-310. Go to the next step.
3	**If**	**Then**
	the alarm clears	you have completed this procedure
	the alarm remains	contact your next level of support

—end—

Procedure 8-15
OCLD—Inter-card Communication Failure

Probable cause

This alarm becomes active when the SP circuit pack cannot communicate with the specified circuit pack.

Impact

Major, non-service-affecting.

Precautions

ATTENTION

When you clear this alarm on Optical Metro 5100 shelves, at all times the SP, and at least one non-SP circuit pack that is carrying the database must be seated in the shelf.

CAUTION

Risk of recovery procedures affecting traffic

This alarm is not service-affecting; however, the recovery action can be service-affecting if the path is not protected.

CAUTION

Risk of affecting network reliability

Make sure that all connectors are cleaned before you make the connections (or re-connections) described in this procedure. For cleaning information, see the chapter "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components*, 323-1701-201.

—continued—

Procedure 8-15 (continued)
OCLD—Inter-card Communication Failure

Action

Step	Action	
1	Using the Fault—Active Alarms window in System Manger, check to see if the Inter-card Communication Failure alarm is raised by more than one circuit pack in the shelf.	
	If	**Then** go to
	the alarm is raised by only this circuit pack	the next step
	the alarm is raised on multiple circuit packs	step 6
2	**If**	**Then**
	the path is protected	switch traffic off of the OCLD. Follow Procedure 3-48 “Forcing traffic to one path on a protected channel” in *Provisioning and Operating Procedures*, 323-1701-310.
	the path is unprotected	go to the next step. Performing the next step may affect traffic.
3	Reseat the OCLD. Follow Procedure 3-68 “Reseating a circuit pack” in *Provisioning and Operating Procedures,* 323-1701-310.	
	If	**Then**
	the alarm clears	you have completed this procedure
	the alarm remains	go to the next step
4	Reseat the SP. Follow Procedure 3-68 “Reseating a circuit pack” in *Provisioning and Operating Procedures,* 323-1701-310.	
	If	**Then**
	the alarm clears	you have completed this procedure
	the alarm remains	go to the next step

—continued—

Procedure 8-15 (continued)
OCLD—Inter-card Communication Failure

Step	Action
5	Replace the OCLD. Follow Procedure 3-2 “Replacing an OCLD circuit pack” in *Maintenance and Replacement Procedures,* 323-1701-546.

If	Then
the alarm clears	the removed circuit pack has faults. You have completed this procedure.
the alarm remains	the circuit pack is not the problem. Reseat the original circuit pack. Go to step 7.

Step	Action
6	Reseat the SP. Follow Procedure 3-68 “Reseating a circuit pack” in *Provisioning and Operating Procedures,* 323-1701-310.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	go to the next step

Step	Action
7	Replace the SP. Follow Procedure 3-13 “Replacing an SP circuit pack” in *Maintenance and Replacement Procedures* 323-1701-546.

If	Then
the alarm clears	the removed circuit pack has faults. You have completed this procedure.
the alarm remains	the circuit pack is not the problem. Reseat the original circuit pack. Contact your next level of support.

ATTENTION
If you set a forced switch on the path, make sure you remove the switch when the procedure is completed. Follow Procedure 3-49 “Removing a manual, force, or lockout switch from a protection path” in *Provisioning and Operating Procedures*, 323-1701-310.

—end—

Procedure 8-16
OCLD—Invalid Provisioning

Probable cause

This alarm becomes active when two or more line facing circuit packs (OCLD/OTR/MOTR) on different shelves at the same site are in the same plane and have identical band, channel and OSID.

This alarm only becomes active when the site contains an OSC circuit pack with the same OSID as this circuit pack and all shelves at the site are connected together via the Ethernet-2 LAN.

Impact

Minor, non-service-affecting.

CAUTION
Risk of interfering with alarm reporting
It is essential that the OSID for all line-facing equipment is provisioned correctly for bridge sites, for hub and spoke rings, and for rings with intrasite fault sectionalization (IFS). Refer to the "Rules for provisioning OSIDs" in *Provisioning and Operating Procedures*, 323-1701-310.

Know the network topology and exercise caution when provisioning OSIDs. Incorrect OSID provisioning can generate unnecessary Incomplete Provisioning alarms, and can cause the IFS feature to operate incorrectly.

Action

Step	Action
1	In the System Manager, query the circuit pack inventory. Double-click on the alarmed OCLD circuit pack. *The Optical Metro Inventory window opens.*
2	In the Provisioning Data section of the Optical Metro Inventory window, determine if the OCLD band, channel and OSID fields are provisioned.

If	**Then** go to
the band, the channel and the OSID fields are duplicate and the circuit pack is required	step 3
the circuit pack is not required	step 5

—continued—

Procedure 8-16 (continued)
OCLD—Invalid Provisioning

Step	Action	
3	Fix the provisioning problem. Follow Procedure 3-2 “Manually provisioning a circuit pack or SFP” and Procedure 3-36 “Provisioning the optical system identifier (OSID)” in *Provisioning and Operating Procedures*, 323-1701-310.	
4	Go to step 8.	
5	Delete the facility of the circuit pack. Follow Procedure 3-14 “Deleting a circuit pack or SFP facility” in *Provisioning and Operating Procedures*, 323-1701-310.	
6	Delete the equipment of the circuit pack. Follow Procedure 3-9 “Deleting a circuit pack or SFP from the inventory” in *Provisioning and Operating Procedures*, 323-1701-310.	
7	Unseat the circuit pack from the shelf.	
8	**If**	**Then**
	the alarm clears	you have completed the procedure.
	the alarm remains	contact your next level of support.
		—end—

Procedure 8-17
OCLD—Invalid Signal (backplane)

To clear the alarm on an Optical Metro 5200 shelf, perform steps 2 to 7 only.

To clear the alarm on an Optical Metro 5100 shelf, perform steps 8 to 12 only.

Probable cause

Note: The slot number of the affected OCM is shown in the Port column on the Active Alarms window in System Manager.

Optical Metro 5200
This alarm becomes active when there is a problem with data communication between the OCLD, the OCI, and the OCM in slot 9, or slot 10.

Optical Metro 5100
This alarm becomes active when the OCLD receives an invalid signal from the OCI in slot 1, or slot 3.

When the alarm is raised by the OCLD in slot 2, (9) indicates that the OCLD is receiving an invalid signal from the OCI in slot 1, and (10) indicates that the OCLD is receiving an invalid signal from the OCI in slot 3.

When the alarm is raised by the OCLD in slot 4, (9) indicates that the OCLD is receiving an invalid signal from the OCI in slot 3, and (10) indicates that the OCLD is receiving an invalid signal from the OCI in slot 1.

—continued—

Procedure 8-17 (continued)
OCLD—Invalid Signal (backplane)

Impact

Table 8-9 lists the impact that this alarm has under different conditions.

Table 8-9
OCLD Backplane Invalid Signal alarm impact

Alarm	Conditions	Severity	Impact
Backplane Invalid Signal	If any of the following conditions exist: • the path assigned to the OCLD circuit pack is unprotected • the path assigned to the OCLD circuit pack is protected and the matching OCLD has an alarm condition • the OCLD circuit pack is used in a pass-through connection	Critical	Service-affecting
	If the path assigned is protected and the matching OCLD is operating correctly.	Minor	Non-service-affecting

—continued—

Procedure 8-17 (continued)
OCLD—Invalid Signal (backplane)

Precautions

ATTENTION
When you clear this alarm on Optical Metro 5100 shelves, at all times the SP, and at least one non-SP circuit pack that is carrying the database, must be seated in the shelf.

CAUTION
Risk of recovery procedures affecting traffic
This alarm is not service-affecting, however the recovery action can be service-affecting if the path is not protected.

CAUTION
Risk of affecting network reliability
Make sure that all connectors are cleaned before you make the connections (or re-connections) described in this procedure. For cleaning information, see the chapter "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components*, 323-1701-201.

Action

Step	Action

Clearing the alarm on an Optical Metro 5200 shelf

1

If	Then
the path is protected	switch traffic off of the OCLD. Follow Procedure 3-48 "Forcing traffic to one path on a protected channel" in *Provisioning and Operating Procedures*, 323-1701-310. Go to the next step.
the path is unprotected	go to the next step. Performing the next step may affect traffic.

2 Reseat the OCLD. Follow Procedure 3-68 "Reseating a circuit pack" in *Provisioning and Operating Procedures,* 323-1701-310.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	go to the next step

—continued—

Procedure 8-17 (continued)
OCLD—Invalid Signal (backplane)

Step	Action
3	Replace the OCLD. Follow Procedure 3-2 “Replacing an OCLD circuit pack” in *Maintenance and Replacement Procedures*, 323-1701-546.

If	Then
the alarm clears	the removed circuit pack has faults. You have completed this procedure.
the alarm remains	the circuit pack is not the problem. Reseat the original circuit pack. Go to the next step.

Step	Action
4	Reseat the OCM indicated by the alarm (either 9 or 10). Follow Procedure 3-68 “Reseating a circuit pack” in *Provisioning and Operating Procedures,* 323-1701-310.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	go to the next step

Step	Action
5	Replace the OCM indicated by the alarm (either 9 or 10). Refer to Procedure 3-8 “Replacing an OCM circuit pack” in *Maintenance and replacement Procedures,* 323-1701-546.

If	Then
the alarm clears	the removed circuit pack has faults. You have completed this procedure.
the alarm remains	the circuit pack is not the problem. Reseat the original circuit pack. Go to the next step.

—continued—

Procedure 8-17 (continued)
OCLD—Invalid Signal (backplane)

Step	Action

6

CAUTION
Risk of loss of traffic
Reseating the OCI drops traffic. If possible, re-route the traffic to another system to avoid losing traffic.

Reseat the OCI associated with the connection. Follow Procedure 3-68 "Reseating a circuit pack" in *Provisioning and Operating Procedures,* 323-1701-310.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	go to the next step

7 Replace the OCI associated with the connection. Refer to Procedure 3-1 "Replacing an OCI circuit pack" in *Maintenance and replacement Procedures,* 323-1701-546.

If	Then
the alarm clears	the removed circuit pack has faults. You have completed this procedure.
the alarm remains	the circuit pack is not the problem. Reseat the original circuit pack. Contact your next level of support.

ATTENTION
If you set a forced switch on the path, make sure you remove the switch when the procedure is completed. Follow Procedure 3-49 "Removing a manual, force, or lockout switch from a protection path" in *Provisioning and Operating Procedures*, 323-1701-310.

Clearing the alarm on an Optical Metro 5100 shelf

When the alarm is raised by the OCLD in slot 2, (9) indicates that the OCLD is receiving an invalid signal from the OCI in slot 1, and (10) indicates that the OCLD is receiving an invalid signal from the OCI in slot 3.

When the alarm is raised by the OCLD in slot 4, (9) indicates that the OCLD is receiving an invalid signal from the OCI in slot 3, and (10) indicates that the OCLD is receiving an invalid signal from the OCI in slot 1.

—continued—

Procedure 8-17 (continued)
OCLD—Invalid Signal (backplane)

Step	Action

8

If	Then
the path is protected	switch traffic off of the OCLD. Follow Procedure 3-48 “Forcing traffic to one path on a protected channel” in *Provisioning and Operating Procedures*, 323-1701-310. Go to the next step.
the path is unprotected	go to the next step. Performing the next step may affect traffic.

9 Reseat the OCLD. Follow Procedure 3-68 “Reseating a circuit pack” in *Provisioning and Operating Procedures,* 323-1701-310.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	go to the next step

10 Replace the OCLD. Follow Procedure 3-2 “Replacing an OCLD circuit pack” in *Maintenance and Replacement Procedures*, 323-1701-546.

If	Then
the alarm clears	the removed circuit pack has faults. You have completed this procedure.
the alarm remains	the circuit pack is not the problem. Reseat the original circuit pack. Go to the next step.

11

CAUTION
Risk of loss of traffic
Reseating the OCI drops traffic. If possible, re-route the traffic to another system to avoid losing traffic.

Reseat the OCI associated with the connection. Follow Procedure 3-68 “Reseating a circuit pack” in *Provisioning and Operating Procedures,* 323-1701-310.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	go to the next step

—continued—

Procedure 8-17 (continued)
OCLD—Invalid Signal (backplane)

Step	Action
12	Replace the OCI. Follow Procedure 3-1 “Replacing an OCI circuit pack” in *Maintenance And Replacement Procedures,* 323-1701-546.

If	Then
the alarm clears	the removed circuit pack has faults. You have completed this procedure.
the alarm remains	the circuit pack is not the problem. Reseat the original circuit pack. Contact your next level of support.

ATTENTION

If you set a forced switch on the path, make sure you remove the switch when the procedure is completed. Follow Procedure 3-49 “Removing a manual, force, or lockout switch from a protection path” in *Provisioning and Operating Procedures*, 323-1701-310.

—end—

Procedure 8-18
OCLD—Invalid Signal (optical receiver)

Probable cause

This alarm becomes active when the optical signal received has faults or is invalid. One of the following conditions exists:

- channel assignments for the entire connection have not been created, or have been deleted
- an optical fiber connection is degraded
- the optical fiber from the OCLD is connected to a channel that has not been provisioned
- the connector is dirty at the receiving OCLD or at the corresponding upstream OCLD
- the receiving OCLD is defective or the transmitting OCLD is defective
- the connection provisioning is inconsistent along the path
- there is an amplifier problem or poor equalization
- an upstream OFA, APBE, or ECT has failed or the ring is not equalized properly

—continued—

Procedure 8-18 (continued)
OCLD—Invalid Signal (optical receiver)

Impact

Table 8-10 lists the impact that this alarm has under different conditions.

Table 8-10
OCLD Rx Invalid Signal alarm impact

Alarm	Conditions	Severity	Impact
Rx Invalid Signal	If any of the following conditions exist: • the path assigned to the OCLD is unprotected • the path assigned to the OCLD is protected and the matching OCLD has an alarm condition • the OCLD is used in a pass-through connection	Critical	Service-affecting
	If any of the following conditions exist: • there is no channel assignment, but the facility of the OCLD is in-service, and the OCLD is carrying an invalid signal • the path assigned is protected and the matching OCLD is operating correctly	Minor	Non-service-affecting

—continued—

Procedure 8-18 (continued)
OCLD—Invalid Signal (optical receiver)

Precautions

ATTENTION
When you clear this alarm on Optical Metro 5100 shelves, at all times the SP, and at least one non-SP circuit pack that is carrying the database, must be seated in the shelf.

CAUTION
Risk of recovery procedures affecting traffic
This alarm may not be service-affecting, however the recovery action can be service-affecting if the path is not protected.

CAUTION
Risk of affecting network reliability
Make sure that all connectors are cleaned before you make the connections (or re-connections) described in this procedure. For cleaning information, see the chapter "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components*, 323-1701-201.

Action

Step	Action
1	Check alarms to make sure the corresponding upstream OCLD has not failed or is missing. If applicable, check for Optical Fiber Amplifier (OFA) alarms or warnings in the ring. Use a network topology diagram to determine the upstream OCLDs or OFAs. Troubleshoot these problems before proceeding.
2	Make sure that the connection provisioning data is complete, consistent and correct for the entire path.

—continued—

Procedure 8-18 (continued)
OCLD—Invalid Signal (optical receiver)

Step	Action
3	At the downstream shelf, use the System Manager to check if you are receiving OCLD—Invalid Signal (optical receiver) alarms on all (or most) OCLDs in the same east/west plane, or just on a single OCLD. ***Note 1:*** On the Optical Metro 5200 shelf, the east plane is defined as slots 11-18, the west plane is defined as slots 1-8. On the Optical Metro 5100 shelf, the east plane is defined as slots 3 and 4, while the west plane is defined as slots 1 and 2. ***Note 2:*** If there is only one OCLD in the east/west plane, go to step 8. If this fails to clear the alarm, then go to step 6.

If the alarm appears	**Then** go to
on the only OCLD in the east/west plane	step 4
on all or most OCLDs in the same east/west plane	step 6
on one of multiple OCLDs in the same east/west plane	step 8

4	**If**	**Then**
	there are amplifiers between the upstream and downstream OCLD	there is problem at the amplifier site, the ring requires re-equalization, or both. Contact your next level of support to troubleshoot. If troubleshooting does not clear the alarm, go to step 8.
	there are no amplifiers between the upstream and downstream OCLD	there is a problem with the line fiber between the sites. Go to the next step.

—continued—

Procedure 8-18 (continued)
OCLD—Invalid Signal (optical receiver)

Step	Action
5	The line fiber between the upstream OCLD and the downstream OCLD must be investigated for loss or degrade.

CAUTION
Risk of loss of traffic across multiple wavelengths in the band
Disturbing the line fiber affects traffic on the entire band/direction. If the traffic is protected, follow Procedure 3-48 "Forcing traffic to one path on a protected channel" in *Provisioning and Operating Procedures*, 323-1701-310, to switch traffic for the OCLD in the east/west plane before proceeding. If the traffic is not protected, you will drop traffic.

CAUTION
DISABLE AUTOMATIC LASER SHUTDOWN
If Automatic Laser Shutdown (ALS) is enabled, disable ALS for all shelves that will be affected by this maintenance activity. Use a network topology diagram and channel listing to determine the upstream and downstream sites that will be affected when the ring is opened. If you do not know if ALS is enabled or not, assume it is enabled. Follow Procedure 1-43 "Enabling or disabling automatic laser shutdown" in *Provisioning and Operating Procedures*, 323-1701-310 to disable ALS.

—continued—

Procedure 8-18 (continued)
OCLD—Invalid Signal (optical receiver)

Step	Action

- Using a power meter, a cleaning kit, and a network topology diagram, start at the upstream site and clean every connector on the path until you reach the downstream site. Measure the power with the power meter after each cleaning to check for improvements in the line power. For information on cleaning, see Chapter 9 “Cleaning connectors” in *Installing Optical Metro 5200 Shelves and Components,* 323-1701-201.
- Also, check for damaged, kinked, tightly-bent fiber, or anything else that might impede the optical signal. This includes optical filters such as OMXs or C/L Splitter/Couplers. Replace any damaged fibers or filters. To replace a faulty component or filter, see Chapter 2 “Replacing shelf components” in *Maintenance and Replacement Procedures*, 323-1701-546.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	go to step 8

6

If	Then
there are amplifiers between the upstream and downstream OCLDs	there is problem at the amplifier site, the ring requires re-equalization, or both. Contact your next level of support.
there are no amplifiers between the upstream and downstream OCLDs	there is a problem with the line fiber between the sites. Go to the next step.

—continued—

Procedure 8-18 (continued)
OCLD—Invalid Signal (optical receiver)

Step	Action
7	The line fiber between the upstream OCLDs and the downstream OCLDs must be investigated for loss or degrade.

CAUTION
Risk of loss of traffic across multiple wavelengths in the band
Disturbing the line fiber affects traffic on the entire band/direction. If the traffic is protected, follow Procedure 3-48 "Forcing traffic to one path on a protected channel" in *Provisioning and Operating Procedures*, 323-1701-310, to switch traffic for every OCLD in the east/west plane before proceeding. If the traffic is not protected, you will drop traffic.

CAUTION
DISABLE AUTOMATIC LASER SHUTDOWN
If Automatic Laser Shutdown (ALS) is enabled, disable ALS for all shelves that will be affected by this maintenance activity. Use a network topology diagram and channel listing to determine the upstream and downstream sites that will be affected when the ring is opened. If you do not know if ALS is enabled or not, assume it is enabled. Follow Procedure 1-43 "Enabling or disabling automatic laser shutdown" in *Provisioning and Operating Procedures*, 323-1701-310 to disable ALS.

—continued—

Procedure 8-18 (continued)
OCLD—Invalid Signal (optical receiver)

Step	Action

- Using a power meter, a cleaning kit, and a network topology diagram, start at the upstream site and clean every connector on the path until you reach the downstream site. Measure the power with the power meter after each cleaning to check for improvements in the line power. For information on cleaning, see Chapter 9 “Cleaning connectors” in *Installing Optical Metro 5200 Shelves and Components,* 323-1701-201.
- Also, check for damaged, kinked, tightly-bent fiber, or anything else that might impede the optical signal. This includes optical filters such as OMXs or C/L Splitter/Couplers. Replace any damaged fibers or filters. To replace a faulty component or filter, see Chapter 2 “Replacing shelf components” in *Maintenance and Replacement Procedures*, 323-1701-546.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	contact your next level of support

8

If	Then
the path is protected	switch traffic off of the OCLD. Follow Procedure 3-48 “Forcing traffic to one path on a protected channel” in *Provisioning and Operating Procedures*, 323-1701-310.
the path is unprotected	go to the next step. Performing the next step may affect traffic.

9 If Automatic Laser Shutdown (ALS) is enabled, disable ALS for both the near-end and far-end shelves which contain the alarming OCLD and its corresponding upstream OCLD. Use a network topology diagram and channel listing to determine the near-end and far-end sites. If you do not know if ALS is enabled or not, assume it is enabled. Follow Procedure 1-43 “Enabling or disabling automatic laser shutdown” in *Provisioning and Operating Procedures*, 323-1701-310 to disable ALS.

10 Make sure the optical fiber from the OMX is connected to the correct OCLD channel. If misfibered, fiber to the correct OCLD or OMX.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	go to the next step

—continued—

Procedure 8-18 (continued)
OCLD—Invalid Signal (optical receiver)

Step	Action
11	Use the System Manager to measure the transmitted power level on the corresponding upstream OCLD circuit pack. Make sure that the transmitted power level is within the operational threshold. Refer to Table 2-23 in *Technical Specifications,* 323-1701-180 for the correct Tx power. ***Note 1:*** You can record the power level from the Equipment—Facility window in the System Manager ***Note 2:*** Use a network topology diagram to determine the upstream and downstream OCLDs

If	**Then** go to
the transmitted power is not within the operational threshold	the next step
the transmitted power is within the operational threshold	step 14

Step	Action
12	Reseat the upstream OCLD. Follow Procedure 3-68 "Reseating a circuit pack" in *Provisioning and Operating Procedures,* 323-1701-310.

If	**Then**
the alarm clears	you have completed this procedure.
the alarm remains	go to the next step.

Step	Action
13	Replace the upstream OCLD. Follow Procedure 3-2 "Replacing an OCLD circuit pack" in *Maintenance and Replacement Procedures,* 323-1701-546.

If	**Then**
the alarm clears	you have completed the procedure
the alarm does not clear	make sure the Tx port on the new circuit pack is within the operational threshold and go to the next step.

Step	Action
14	Use the System Manager to measure the received power level on the Rx port of the near-end OCLD. Write down the measurement. Make sure that the power level is within the operational threshold. Refer to Table 2-23 in *Technical Specifications,* 323-1701-180 for the correct Rx operational threshold. ***Note:*** You can record the power level from the Equipment—Facility window in the System Manager.

—continued—

Procedure 8-18 (continued)
OCLD—Invalid Signal (optical receiver)

Step	Action

15 Use the proper cleaning kit to clean all the connectors attached to the receiving (near-end) OCLD Rx port and to the Tx Port on the transmitting (far-end) OCLD. For information on cleaning, see Chapter 9 “Cleaning connectors” in *Installing Optical Metro 5200 Shelves and Components,* 323-1701-201. Use a network topology diagram to determine the transmitting (far-end) OCLD.

Note: If you are using the OMX 4CH + Fiber Manager, clean both ends of the patch-cord between the OMX and the OCLD.

— Clean each connector separately.

— Record the operating power level after you clean each connector and compare it to the value you wrote down in step 14, this allows you to see if there is any improvement to the Rx power.

CAUTION
Risk of loss of traffic across multiple bands
Do not clean any optical fibers on the optical fiber plant, or on connections to the OMX. This affects traffic over multiple bands. Clean only the fiber connections on the specified OCLD.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	go to the next step

16 Reseat the receiving OCLD. Follow Procedure 3-68 “Reseating a circuit pack” in *Provisioning and Operating Procedures,* 323-1701-310.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	go to the next step

—continued—

Procedure 8-18 (continued)
OCLD—Invalid Signal (optical receiver)

Step	Action
17	Replace the receiving (near end) OCLD. Follow Procedure 3-2 "Replacing an OCLD circuit pack" in *Maintenance and Replacement Procedures,* 323-1701-546.

If	Then
the alarm clears	the removed circuit pack has faults. You have completed this procedure.
the alarm remains	the circuit pack is not the problem. Reseat the original circuit pack. Go to the next step.

Step	Action
18	Repeat steps 16 to 17, for the transmitting (far end) OCLD. If the alarm remains, contact your next level of support.

ATTENTION

If you set a forced switch on the path, make sure you remove the switch when the procedure is completed. Follow Procedure 3-49 "Removing a manual, force, or lockout switch from a protection path" in *Provisioning and Operating Procedures*, 323-1701-310.

If you are using ALS and disabled it during this procedure, re-enable it for each site. Follow Procedure 1-43 "Enabling or disabling automatic laser shutdown" in *Provisioning and Operating Procedures*, 323-1701-310.

—end—

Procedure 8-19
OCLD—Loss of Frame

Probable cause

This alarm becomes active when the OCLD 2.5 Gbit/s Flex circuit pack is unable to detect the SONET Frame in the signal from the far-end OCI/OCLD equipment.

Impact

Table 8-11 lists the impact that the alarm has under different conditions.

Table 8-11
OCLD Loss of Frame alarm impact

Alarm	Conditions	Severity	Impact
Loss of Frame	The alarm is critical under the following conditions: • there are channel assignments on the circuit pack, and the circuit pack is in-service • the path assigned to the circuit pack is unprotected or the path assigned to the circuit pack is protected and the matching OCI/OCLD has an alarm condition	Critical	Service-affecting
	The alarm reported is minor under the following conditions: • the circuit pack is in-service • if the path assigned is protected and the inactive OCI/OCLD is operating correctly	Minor	Non-service-affecting

—continued—

Procedure 8-19 (continued)
OCLD—Loss of Frame

Precautions

ATTENTION
When you clear this alarm on Optical Metro 5100 shelves, at all times the SP, and at least one non-SP circuit pack that is carrying the database, must be seated in the shelf.

CAUTION
Risk of recovery procedures affecting traffic
This alarm may not be service-affecting, however the recovery action can be service-affecting if the path is not protected.

CAUTION
Risk of affecting network reliability
Make sure that all connectors are cleaned before you make the connections (or re-connections) described in this procedure. For cleaning information, see the chapter "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components*, 323-1701-201.

—continued—

Procedure 8-19 (continued)
OCLD—Loss of Frame

Action

Step	Action	
1	Check the corresponding upstream OCLD or, if applicable, Optical Fiber Amplifiers (OFAs) for failures or alarms. Use a network topology diagram to determine the upstream OCLDs and OFAs. Troubleshoot these alarms or failures before proceeding.	
2	At the downstream shelf, use the System Manager to check if you are receiving OCLD—Loss of Frame alarms on all (or most) OCLDs in the same east/west plane, or just on a single OCLD. ***Note:*** On the Optical Metro 5200 shelf, the east plane is defined as slots 11-18, and the west plane is defined as slots 1-8. On the Optical Metro 5100 shelf, the east plane is defined as slots 3 and 4, while the west plane is defined as slots 1 and 2.	
3	**If** the alarm appears	**Then** go to
	on the only OCLD in the east/west plane	step 4
	on all or most OCLDs in the same east/west plane	step 6
	on one of multiple OCLDs in the same east/west plane	step 8
4	**If**	**Then**
	there are amplifiers between the upstream and downstream OCLD	there is problem at the amplifier site, the ring requires re-equalization, or both. Contact your next level of support to troubleshoot. If troubleshooting does not clear the alarm, go to step 8.
	there are no amplifiers between the upstream and downstream OCLD	there is a problem with the line fiber between the sites, go to the next step.

—continued—

Procedure 8-19 (continued)
OCLD—Loss of Frame

Step	Action
5	Investigate the line fiber between the upstream OCLD and the downstream OCLD for loss or degrade.

CAUTION
Risk of loss of traffic across multiple wavelengths in the band
Disturbing the line fiber affects traffic on the entire band/direction. If the traffic is protected, follow Procedure 3-48 "Forcing traffic to one path on a protected channel" in *Provisioning and Operating Procedures*, 323-1701-310 to switch traffic for the OCLD in the east/west plane before proceeding. If the traffic is not protected, you will drop traffic.

CAUTION
DISABLE AUTOMATIC LASER SHUTDOWN
If Automatic Laser Shutdown (ALS) is enabled, disable ALS for all shelves that will be affected by this maintenance activity. Use a network topology diagram and channel listing to determine the upstream and downstream sites that will be affected when the ring is opened. If you do not know if ALS is enabled or not, assume it is enabled. Follow Procedure 1-43 "Enabling or disabling automatic laser shutdown" in *Provisioning and Operating Procedures*, 323-1701-310 to disable ALS.

- Using a power meter, a cleaning kit, and a network topology diagram, start at the upstream site and clean every connector on the path until you reach the downstream site. Measure the power with the power meter after each cleaning to check for improvements in the line power. For information on cleaning, see Chapter 9 "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components,* 323-1701-201.

—continued—

Procedure 8-19 (continued)
OCLD—Loss of Frame

Step	Action
	• Check for damaged, kinked, tightly-bent fiber, or anything else that might impede the optical signal. This includes optical filters such as OMXs or C&L Splitter/Couplers. Replace any damaged fibers or filters. If you find a faulty component or filter refer to Chapter 2 "Replacing shelf components" in *Maintenance and Replacement Procedures* in 323-1701-546.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	go to step 8

6	If	Then
	there are amplifiers between the upstream and downstream OCLDs	there is problem at the amplifier site, the ring requires re-equalization, or both. Contact your next level of support.
	there are no amplifiers between the upstream and downstream OCLDs	there is a problem with the line fiber between the sites, go to the next step.

—continued—

Procedure 8-19 (continued)
OCLD—Loss of Frame

Step	Action
7	Investigate the line fiber between the upstream OCLDs and the downstream OCLDs for loss or degrade.

CAUTION
Risk of loss of traffic across multiple wavelengths in the band
Disturbing the line fiber affects traffic on the entire band/direction. If the traffic is protected, follow Procedure 3-48 "Forcing traffic to one path on a protected channel" in *Provisioning and Operating Procedures*, 323-1701-310 to switch traffic for every OCLD in the east/west plane before proceeding. If the traffic is not protected, you will drop traffic.

CAUTION
DISABLE AUTOMATIC LASER SHUTDOWN
If Automatic Laser Shutdown (ALS) is enabled, disable ALS for all shelves that will be affected by this maintenance activity. Use a network topology diagram and channel listing to determine the upstream and downstream sites that will be affected when the ring is opened. If you do not know if ALS is enabled or not, assume it is enabled. Follow Procedure 1-43 "Enabling or disabling automatic laser shutdown" in *Provisioning and Operating Procedures*, 323-1701-310 to disable ALS.

- Using a power meter, a cleaning kit, and a network topology diagram, start at the upstream site and clean every connector on the path until you reach the downstream site. Measure the power with the power meter after each cleaning to check for improvements in the line power. For information on cleaning, see Chapter 9 "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components,* 323-1701-201.

—continued—

Procedure 8-19 (continued)
OCLD—Loss of Frame

Step	Action

- Check for damaged, kinked, tightly-bent fiber, or anything else that might impede the optical signal. This includes optical filters such as OMXs or C&L Splitter/Couplers. Replace any damaged fibers or filters. If you find a faulty component or filter refer to Chapter 2 “Replacing shelf components” in *Maintenance and Replacement Procedures* in 323-1701-546.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	contact your next level of support

8

If	Then
the path is protected	switch traffic off of the OCLD. Follow Procedure 3-48 “Forcing traffic to one path on a protected channel” in *Provisioning and Operating Procedures*, 323-1701-310.
the path is unprotected	go to the next step. Performing the next step may affect traffic.

9 If Automatic Laser Shutdown (ALS) is enabled, disable ALS for both the near-end and far-end shelves which contain the alarming OCLD and its corresponding upstream OCLD. Use a network topology diagram and channel listing to determine the near-end and far-end sites. If you do not know if ALS is enabled or not, assume it is enabled. Follow Procedure 1-43 “Enabling or disabling automatic laser shutdown” in *Provisioning and Operating Procedures*, 323-1701-310 to disable ALS.

10 Make sure the optical fiber is connected correctly on the OCLD Rx port at the near-end site and on the OCLD Tx port at the far-end site. If you are using the OMX 4CH + Fiber Manager, check both ends of the patch-cords between the OMX, LC-to-SC patch panel, and the OCLD.

Note: Use a network topology diagram to determine the near-end and far-end sites.

If	Then
the alarm clears	you have completed the procedure
the alarm remains	go to the next step

—continued—

Procedure 8-19 (continued)
OCLD—Loss of Frame

Step	Action
11	Check to see if the OCLD Rx power level is within the operational threshold and write down the value. Refer to Table 2-23 in *Technical Specifications*, 323-1701-180 for minimum and maximum Rx/Tx power levels. ***Note:*** Record the received power level on the OCLD. You can record the power level from the Equipment—Facility window in the System Manager.
12	Check the transmitted power level on the corresponding upstream OCLD. Check to see if the transmitted power level is within the operational threshold. Refer to Table 2-23 in *Technical Specifications*, 323-1701-180 for minimum and maximum Rx/Tx power levels. ***Note 1:*** You can record the power level from the Equipment—Facility window in the System Manager. ***Note 2:*** Use a network topology diagram to determine the upstream OCLD. **If** the transmit power level is — **Then** go to not within the operational threshold — the next step within the operational threshold — step 16
13	Reseat the upstream OCLD. Follow Procedure 3-68 “Reseating a circuit pack” in *Provisioning and Operating Procedures,* 323-1701-310. **If** — **Then** the alarm clears — you have completed this procedure the alarm remains — go to the next step
14	Replace the upstream OCLD. Follow Procedure 3-2 “Replacing an OCLD circuit pack” in *Maintenance and Replacement Procedures,* 323-1701-546. **If** — **Then** the alarm clears — the removed circuit pack has faults. You have completed this procedure. the alarm remains (and the new OCLD is within operational specifications) — the circuit pack is not the entire problem. Go to the next step.
15	Reseat the near-end OCLD. Follow Procedure 3-68 “Reseating a circuit pack” in *Provisioning and Operating Procedures,* 323-1701-310. **If** — **Then** the alarm clears — you have completed this procedure the alarm remains — go to the next step

—continued—

Procedure 8-19 (continued)
OCLD—Loss of Frame

Step	Action
16	Use the proper cleaning kit to clean all the connectors attached to the receiving (near-end) OCLD Rx port and to the corresponding Tx port on the transmitting (far-end) OCLD. For information on cleaning, see Chapter 9 "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components,* 323-1701-201. Use a network topology diagram to determine the transmitting (far-end) OCLD. ***Note 1:*** If you are using the OMX 4CH + Fiber Manager, clean both ends of the patch-cord between the OMX and the OCLD port. ***Note 2:*** Clean between the OCLD, the SC-to-LC patch panel, and the OMX — Clean each connector separately. — Record the operating power level after you clean each connector and compare it to the value you wrote down in step 11, this will allow you to see if there is any improvement to the Rx power.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	go to the next step

CAUTION
Risk of loss of traffic across multiple bands
Do not clean any optical fibers on the optical fiber plant, or on connections to the OMX. This affects traffic over multiple bands. Clean only the connections at the specified OCLD circuit packs.

17 Replace the near-end OCLD. Follow Procedure 3-2 "Replacing an OCLD circuit pack" in *Maintenance and Replacement Procedures,* 323-1701-546.

If	Then
the alarm clears	the removed circuit pack has faults. You have completed this procedure.
the alarm remains	the circuit pack is not the problem. Reseat the original circuit pack. Contact your next level of support.

—continued—

Procedure 8-19 (continued)
OCLD—Loss of Frame

Step	Action

ATTENTION

If you set a forced switch on the path, make sure you remove the switch when the procedure is completed. Follow Procedure 3-49 "Removing a manual, force, or lockout switch from a protection path" in *Provisioning and Operating Procedures*, 323-1701-310.

If you are using ALS and disabled it during this procedure, re-enable it for each site. Follow Procedure 1-43 "Enabling or disabling automatic laser shutdown" in *Provisioning and Operating Procedures*, 323-1701-310.

—end—

Procedure 8-20
OCLD—Loss of Overhead Synchronization, Overhead Link Failure

The Overhead Link Failure alarm is raised when the Point-to-Point Protocol (PPP) is unable to link to the other side (for example if there are echo request failures). Loss of Overhead Synchronization happens due to carrier detect (link state of the overhead channel) on the Rx port. The two alarms require the same resolutions.

Probable cause

This alarm becomes active when one of the following conditions exists:

- the Tx Out fiber is connected to the Rx In port of the same OCLD
- the specified overhead channel link has lost synchronization
- the overhead channel has degraded
- there is a low signal power
- the optical fiber or connectors are dirty
- the optical fiber is bent or coiled too much
- the receiving OCLD circuit pack is defective
- the transmitting OCLD circuit pack at the far end is defective
- there are amplifier problems or poor equalization

The Loss of Overhead Synchronization alarm is not raised when the shelf is re-started. This alarm is only generated by the hardware when there is a state transition. When a shelf is re-started, the software does not raise a Loss of Overhead Synchronization alarm because there has not been a state transition.

Impact

Table 8-12 lists the impact of these alarms.

Table 8-12
OCLD Loss of Overhead Synchronization and Overhead Link Failure alarm impact

Alarm	Severity	Impact
Loss of Overhead Synchronization	Minor	Non-service-affecting
Overhead Link Failure	Minor	Non-service-affecting

—continued—

Procedure 8-20 (continued)
OCLD—Loss of Overhead Synchronization, Overhead Link Failure

Precautions

ATTENTION
When you clear this alarm on Optical Metro 5100 shelves, at all times the SP, and at least one non-SP circuit pack that is carrying the database, must be seated in the shelf.

CAUTION
Risk of recovery procedures affecting traffic
This alarm may not be service-affecting, however the recovery action can be service-affecting if the path is not protected.

CAUTION
Risk of affecting network reliability
Make sure that all connectors are cleaned before you make the connections (or re-connections) described in this procedure. For cleaning information, see the chapter "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components*, 323-1701-201.

Action

Step	Action
1	Check alarms to make sure that the corresponding upstream OCLD has not failed or is missing. If applicable, check for Optical Fiber Amplifier (OFA) alarms or warnings in the ring. Use a network topology diagram to determine the upstream OCLDs or OFAs. Troubleshoot these problems before proceeding.

—continued—

Procedure 8-20 (continued)
OCLD—Loss of Overhead Synchronization, Overhead Link Failure

Step	Action
2	At the downstream shelf, use the System Manager to check if you are receiving OCLD—Loss of Overhead Synchronization, Overhead Link Failure alarms on all (or most) OCLDs in the same east/west plane, or just on a single OCLD. ***Note:*** On the Optical Metro 5200 shelf, the east plane is defined as slots 11-18, the west plane is defined as slots 1-8. On the Optical Metro 5100 shelf, the east plane is defined as slots 3 and 4, while the west plane is defined as slots 1 and 2.

If the alarm appears	**Then** go to
on the only OCLD in the east/west plane	step 3
on all or most OCLDs in the same east/west plane	step 5
on one of multiple OCLDs in the same east/west plane	step 7

3	**If**	**Then**
	there are amplifiers between the upstream and downstream OCLD	there is problem at the amplifier site, the ring requires re-equalization, or both. Contact your next level of support to troubleshoot. If troubleshooting does not clear the alarm, go to step 7.
	there are no amplifiers between the upstream and downstream OCLD	there is a problem with the line fiber between the sites. Go to the next step.

—continued—

Procedure 8-20 (continued)
OCLD—Loss of Overhead Synchronization, Overhead Link Failure

Step	Action
4	Investigate the line fiber between the upstream OCLD and the downstream OCLD for loss or degrade.

CAUTION
Risk of loss of traffic across multiple wavelengths in the band
Disturbing the line fiber affects traffic on the entire band/direction. If the traffic is protected, follow Procedure 3-48 "Forcing traffic to one path on a protected channel" in *Provisioning and Operating Procedures*, 323-1701-310 to switch traffic for the OCLD in the east/west plane before proceeding. If the traffic is not protected, you will drop traffic.

CAUTION
DISABLE AUTOMATIC LASER SHUTDOWN
If Automatic Laser Shutdown (ALS) is enabled, disable ALS for all shelves that will be affected by this maintenance activity. Use a network topology diagram and channel listing to determine the upstream and downstream sites that will be affected when the ring is opened. If you do not know if ALS is enabled, assume it is enabled. Follow Procedure 1-43 "Enabling or disabling automatic laser shutdown" in *Provisioning and Operating Procedures*, 323-1701-310 to disable ALS.

- Using a power meter, a cleaning kit, and a network topology diagram, start at the upstream site and clean every connector on the path until you reach the downstream site. Measure the power with the power meter after each cleaning to check for improvements in the line power. For information on cleaning, see Chapter 9 "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components,* 323-1701-201.

—continued—

Procedure 8-20 (continued)

Step	Action
	• Check for damaged, kinked, tightly bent fiber, or anything else that might impede the optical signal. This includes optical filters such as OMXs or C&L Splitter/Couplers. Replace any damaged fibers or filters. If you find a faulty component or filter, refer to Chapter 2 "Replacing shelf components" in *Maintenance and Replacement Procedures*, 323-1701-546, to replace the component.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	go to step 7

5	If	Then
	there are amplifiers between the upstream and downstream OCLDs	there is problem at the amplifier site, the ring requires re-equalization, or both. Contact your next level of support.
	there are no amplifiers between the upstream and downstream OCLDs	there is a problem with the line fiber between the sites. Go to the next step.

—continued—

Procedure 8-20 (continued)
OCLD—Loss of Overhead Synchronization, Overhead Link Failure

Step	Action
6	Investigate the line fiber between the upstream OCLDs and the downstream OCLDs for loss or degrade.

CAUTION
Risk of loss of traffic across multiple wavelengths in the band
Disturbing the line fiber affects traffic on the entire band/direction. If the traffic is protected, follow Procedure 3-48 "Forcing traffic to one path on a protected channel" in *Provisioning and Operating Procedures*, 323-1701-310 to switch traffic for every OCLD in the east/west plane before proceeding. If the traffic is not protected, you will drop traffic.

CAUTION
DISABLE AUTOMATIC LASER SHUTDOWN
If Automatic Laser Shutdown (ALS) is enabled, disable ALS for all shelves that will be affected by this maintenance activity. Use a network topology diagram and channel listing to determine the upstream and downstream sites that will be affected when the ring is opened. If you do not know if ALS is enabled, assume it is enabled. Follow Procedure 1-43 "Enabling or disabling automatic laser shutdown" in *Provisioning and Operating Procedures*, 323-1701-310 to disable ALS.

—continued—

Procedure 8-20 (continued)
OCLD—Loss of Overhead Synchronization, Overhead Link Failure

Step	Action

- Using a power meter, a cleaning kit, and a network topology diagram, start at the upstream site and clean every connector on the path until you reach the downstream site. Measure the power with the power meter after each cleaning to check for improvements in the line power. For information on cleaning, see Chapter 9 “Cleaning connectors” in *Installing Optical Metro 5200 Shelves and Components,* 323-1701-201.
- Check for damaged, kinked, tightly bent fiber, or anything else that might impede the optical signal. This includes optical filters such as OMXs or C&L Splitter/Couplers. Replace any damaged fibers or filters. If you find t a faulty component or filter, refer to Chapter 2 “Replacing shelf components” in *Maintenance and Replacement Procedures*, 323-1701-546, to replace the component.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	contact your next level of support

7

If	Then
the path is protected	switch traffic off of the OCLD. Follow Procedure 3-48 “Forcing traffic to one path on a protected channel” in *Provisioning and Operating Procedures*, 323-1701-310.
the path is unprotected	go to the next step. Performing the next step may affect traffic.

8 If Automatic Laser Shutdown (ALS) is enabled, disable ALS for both the near-end and far-end shelves which contain the alarming OCLD and its corresponding upstream OCLD. Use a network topology diagram and channel listing to determine the near-end and far-end sites. If you do not know if ALS is enabled or not, assume it is enabled. Follow Procedure 1-43 “Enabling or disabling automatic laser shutdown” in *Provisioning and Operating Procedures*, 323-1701-310, to disable ALS.

—continued—

Procedure 8-20 (continued)
OCLD—Loss of Overhead Synchronization, Overhead Link Failure

Step	Action
9	Make sure the optical fiber is connected correctly on the OCLD Rx port at the near-end site and on the OCLD Tx port at the far-end site. If you are using the OMX 4CH + Fiber Manager, check both ends of the patch-cord between the OMX and OCLD. Also, make sure there is not a physical loopback on the far-end OCLD ***Note:*** Use a network topology diagram to determine the near-end and far-end sites. **If** — **Then** the alarm clears — you have completed the procedure the alarm remains — go to the next step
10	Use the System Manager to measure the transmitted power level on the corresponding upstream OCLD circuit pack. Make sure that the transmitted power level is within the operational threshold. Refer to Table 2-23 in *Technical Specifications,* 323-1701-180 for the correct Tx power values. ***Note 1:*** You can record the power level from the Equipment—Facility window in the System Manager ***Note 2:*** Use a network topology diagram to determine the upstream and downstream OCLDs **If** — **Then** go to the transmitted power is not within the operational threshold — the next step the transmitted power is within the operational threshold — step 12

—continued—

Procedure 8-20 (continued)
OCLD—Loss of Overhead Synchronization, Overhead Link Failure

Step	Action

11 Replace the upstream OCLD. Follow Procedure 3-2 "Replacing an OCLD circuit pack" in *Maintenance and Replacement Procedures,* 323-1701-546.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	make sure Tx port of the new circuit pack is within the operational threshold and go to the next step

12 Use the System Manager to measure the received power level on the Rx port of the near-end OCLD. Write down the measurement. Make sure that the power level is within the operational threshold. Refer to the Table 2-23 in *Technical Specifications,* 323-1701-180 for the correct operational threshold.

Note: You can record the power level from the Equipment—Facility window in the System Manager.

13 Use the proper cleaning kit to clean all the connectors attached to the receiving (near-end) OCLD Rx port and to the Tx Port on the transmitting (far-end) OCLD. For information on cleaning, see Chapter 9 "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components,* 323-1701-201. Use a network topology diagram to determine the transmitting (far-end) OCLD.

Note: If you are using the OMX 4CH + Fiber Manager, clean both ends of the patch-cord between the OMX and the OCLD.

- — Clean each connector separately.
- — Record the operating power level after you clean each connector and compare it to the value you wrote down in step 12, this will allow you to see if there is any improvement to the Rx power.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	go to the next step

CAUTION
Risk of loss of traffic across multiple bands
Do not clean any optical fibers on the optical fiber plant, or on connections to the OMX. This affects traffic over multiple bands. Clean only the connections at the specified OCLD circuit packs.

—continued—

Procedure 8-20 (continued)
OCLD—Loss of Overhead Synchronization, Overhead Link Failure

Step	Action
14	Reseat the receiving OCLD that is raising the alarm. Follow Procedure 3-68 "Reseating a circuit pack" in *Provisioning and Operating Procedures,* 323-1701-310.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	go to the next step

Step	Action
15	Replace the receiving OCLD that is raising the alarm. Follow Procedure 3-2 "Replacing an OCLD circuit pack" in *Maintenance and Replacement Procedures,* 323-1701-546.

If	Then
the alarm clears	the removed circuit pack has faults. You have completed this procedure.
the alarm remains	the is not the problem. Reseat the original circuit pack. Go to the next step.

Step	Action
16	Reseat the transmitting OCLD. Follow Procedure 3-68 "Reseating a circuit pack" in *Provisioning and Operating Procedures,* 323-1701-310

If	Then
the alarm clears	you have completed this procedure
the alarm remains	go to the next step

Step	Action
17	Replace the transmitting OCLD. Follow Procedure 3-2 "Replacing an OCLD circuit pack" in *Maintenance and Replacement Procedures,* 323-1701-546.

If	Then
the alarm clears	the removed circuit pack has faults. You have completed this procedure.
the alarm remains	the circuit pack is not the problem. Reseat the original circuit pack. Contact your next level of support.

—continued—

Procedure 8-20 (continued)
OCLD—Loss of Overhead Synchronization, Overhead Link Failure

ATTENTION

If you set a forced switch on the path, make sure you remove the switch when the procedure is completed. Follow Procedure 3-49 "Removing a manual, force, or lockout switch from a protection path" in *Provisioning and Operating Procedures*, 323-1701-310.

If you are using ALS and disabled it during this procedure, re-enable it for each site. Follow Procedure 1-43 "Enabling or disabling automatic laser shutdown" in *Provisioning and Operating Procedures*, 323-1701-310.

—end—

Procedure 8-21
OCLD—Low Optical Power Warning

Probable cause

This alarm becomes active when the optical power level at the optical receiver is lower than the Rx Degrade Threshold of the Rx Power Low parameter. One of the following conditions exists:

- an optical fiber connection is degraded
- the optical fiber is bent or coiled too tightly
- the connector is dirty at the receiving OCLD circuit pack or at the launching OCLD circuit pack
- the receiving OCLD circuit pack is defective
- the transmitting OCLD circuit pack is defective
- an upstream OFA, APBE, or ECT has failed or the ring is not equalized properly

Impact

Major, non-service-affecting.

Precautions

ATTENTION

When you clear this alarm on Optical Metro 5100 shelves, at all times the SP, and at least one non-SP circuit pack that is carrying the database must be seated in the shelf.

—continued—

Procedure 8-21 (continued)
OCLD—Low Optical Power Warning

CAUTION
Risk of recovery procedures affecting traffic
This alarm is not service-affecting, however the recovery action can be service-affecting if the path is not protected.

CAUTION
Risk of affecting network reliability
Make sure that all connectors are cleaned before you make the connections (or re-connections) described in this procedure. For cleaning information, see the chapter "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components*, 323-1701-201.

Action

Step	Action
1	Check alarms to make sure that the corresponding upstream OCLD(s), OFA(s), or APBE(s) have not failed or are missing. If there are alarms, clear these alarms before proceeding. Use a network diagram to determine the upstream components.
2	Use the System Manager to check if you are receiving OCLD—Low Optical Power Warning on more than one OCLD in the same east/west plane, or just on a single OCLD. ***Note 1:*** You can record the power level from the Equipment—Facility window in the System Manager. ***Note 2:*** On the Optical Metro 5200 shelf, the east plane is defined as slots 11-18, the west plane is defined as slots 1-8. On the Optical Metro 5100 shelf, the east plane is defined as slots 3 and 4, while the west plane is defined as slots 1 and 2.

—continued—

Procedure 8-21 (continued)
OCLD—Low Optical Power Warning

Step	Action

Note 3: Because OCLD—Low Optical Power Warning is a threshold alarm, it may not appear on all OCLDs. Check and see if the Rx power on all OCLDs in the same east/west plane are relatively low. Refer to Table 2-23 in *Technical Specifications*, 323-1701-180 for the minimum Rx sensitivity of the OCLD.

If there is OCLD—Low Optical Power Warning	**Then** go to
on more than one OCLD in the same east/west plane (or all OCLDs Rx ports are relatively low)	the next step
on the only OCLD in the east/west plane	the next step
on one of multiple OCLDs in the same east/west plane	step 11

3 Using a network topology diagram and the System Manager alarms, make note of which shelves, which sites, and which directions have an OCLD—Low Optical Power Warning. Write down on the diagram where the LOSs are located. This should help pinpoint exactly where the fault is. Below are some examples:

- For example, if there are three bands at Site X (B1, B2, and B3), and only the east side of B2 has Low Optical Power Warning, then the problem is located somewhere in the vicinity of the east B2 OMX or the west side of the far-end B2 OMX. Check for a bent patch-cord, a faulty attenuator, a faulty OMX, or if there are amplifiers, check the APBE, or the B2 VOA on the PBE.
- Using the same Site X as an example, if the west side of most every band/shelf at Site X has a Low Optical Power Warning, then the problem probably lies on the west-side line fiber. The line fiber may be dirty, one of the OMXs connected to the outside fiber-plant may be faulty, an OSC coupler tray may be broken, or an upstream amplifier/APBE/ECT/PBE may be to blame.

Note: If intrasite fault sectionalization (IFS) is enabled, there will be indicators to help pinpoint the fault. See Chapter 2 “Troubleshooting fault sectionalization and System Level Equalization Control”.

4

If	**Then** go to
you find the fault location in step 3	the next step
you cannot find the fault location	step 8

—continued—

Procedure 8-21 (continued)
OCLD—Low Optical Power Warning

Step	Action	
5	**If**	**Then**
	the path is protected	Once you have pinpointed where the fault is, switch traffic off of the affected fiber(s). Follow Procedure 3-48 "Forcing traffic to one path on a protected channel" in *Provisioning and Operating Procedures*, 323-1701-310, for every OCLD that uses the fiber. Refer to a network topology diagram and the list of Channel Assignments in the System Manager to determine the impacted OCLDs.
	the path is unprotected	go to the next step. Performing the next step can affect traffic.
6	Once you have located where the fault is, use an optical power meter to find the exact cause of the fault. Start at a point on the fiber where there is light, and follow the signal path, making power measurements at each connector, until the cause of the fault is found. Use a site fibering diagram to follow the signal flow. Look for a fiber, fiber connector, or optical filter with exceeding amounts of loss. ***Note:*** See Chapter 7 "Link engineering rules" in *Network Planning and Link Engineering*, 323-1701-110 for signal path and component loss values.	

CAUTION
DISABLE AUTOMATIC LASER SHUTDOWN FIRST
If Automatic Laser Shutdown (ALS) is enabled, disable ALS for all shelves that will be affected by this maintenance activity. Use a network topology diagram and channel listing to determine the upstream and downstream sites that will be affected when the ring is opened. If you do not know if ALS is enabled or not, assume it is enabled. Follow Procedure 1-43 "Enabling or disabling automatic laser shutdown" in *Provisioning and Operating Procedures*, 323-1701-310 to disable ALS.

—continued—

Procedure 8-21 (continued)
OCLD—Low Optical Power Warning

Step	Action
7	Fix the problem found in step 6. • if it is a damaged, bent, or kinked fiber, then replace it. • if it is a dirty connector refer to Chapter 9 “Cleaning connectors” in *Installing Optical Metro 5200 Shelves and Components,* 323-1701-201 • if it is a faulty component or filter refer to Chapter 2 “Replacing shelf components” in *Maintenance and Replacement Procedures*, 323-1701-546.

If	**Then**
the alarm remains	go to the next step
the alarm clears	you have completed the procedure

8	**If** there is OCLD—Low Optical Power Warning	**Then** go to
	on the only OCLD in the east/west plane	step 9
	otherwise	step 10

9	**If**	**Then**
	there are amplifiers between the upstream and downstream OCLD	there is problem at the amplifier site, the ring requires re-equalization, or both. Contact your next level of support to troubleshoot. If troubleshooting does not clear the alarm, go to step 11.
	there are no amplifiers between the upstream and downstream OCLD	go to step 11

10	**If**	**Then**
	there are amplifiers between the upstream and downstream OCLDs	there is problem at the amplifier site, the ring requires re-equalization, or both. Contact your next level of support.
	there are no amplifiers between the upstream and downstream OCLDs	Contact your next level of support

—continued—

Procedure 8-21 (continued)
OCLD—Low Optical Power Warning

Step	Action

11

If	Then
the path is protected	switch traffic off of the OCLD. Follow Procedure 3-48 "Forcing traffic to one path on a protected channel" in *Provisioning and Operating Procedures*, 323-1701-310.
the path is unprotected	go to the next step. Performing the next step may affect traffic.

12 If Automatic Laser Shutdown (ALS) is enabled, disable ALS for both the near-end and far-end shelves which contain the alarming OCLD and its corresponding upstream OCLD. Use a network topology diagram and channel listing to determine the near-end and far-end sites. If you do not know if ALS is enabled or not, assume it is enabled. Follow Procedure 1-43 "Enabling or disabling automatic laser shutdown" in *Provisioning and Operating Procedures*, 323-1701-310 to disable ALS.

13 Make sure the optical fiber is connected correctly on the OCLD Rx port at the near-end site and on the OCLD Tx port at the far-end site. If you are using the OMX 4CH + Fiber Manager, check both ends of the patch-cord between the OMX and OCLD.

Note: Use a network topology diagram to determine the near-end and far-end sites.

If	Then
the alarm clears	you have completed the procedure
the alarm remains	go to the next step

—continued—

Procedure 8-21 (continued)
OCLD—Low Optical Power Warning

Step	Action
14	Using the System Manager, record the received power level on the OCLD circuit pack. Make sure that the receiving power level is within the operational threshold as defined below. Refer to Table 2-23 in *Technical Specifications*, 323-1701-180 for the minimum Rx sensitivity of the OCLD. ***Note:*** You can record the power level from the Equipment—Facility window in the System Manager.

If	Then
the receive power is greater than (0.5 dB + minimum Rx sensitivity) and less than the receiver overload	the problem is with the OCLD. Go to the next step.
the received power is equal to or less than (0.5 dB + minimum Rx sensitivity)	go to step 17

Step	Action
15	Reseat the OCLD. Follow Procedure 3-68 “Reseating a circuit pack” in *Provisioning and Operating Procedures,* 323-1701-310

If	Then
the alarm clears	you have completed this procedure
the alarm remains	go to the next step

Step	Action
16	Replace the OCLD. Follow Procedure 3-2 “Replacing an OCLD circuit pack” in *Maintenance and Replacement Procedures*, 323-1701-546.

If	Then
the alarm clears	the removed circuit pack has faults. You have completed this procedure.
the alarm remains	contact your next level of support

—continued—

Procedure 8-21 (continued)
OCLD—Low Optical Power Warning

Step	Action
17	Use the System Manager to check the transmitting power of the corresponding upstream OCLD. Make sure that the transmit power level is within the operational threshold. ***Note 1:*** You can record the power level from the Equipment—Facility window in the System Manager. ***Note 2:*** The "upstream" OCLD is the OCLD that is originating the signal which the alarming "downstream" OCLD is receiving. Use a network topology map to determine the "upstream" OCLD. ***Note 3:*** Refer to Table 2-23 in *Technical Specifications*, 323-1701-180 for minimum and maximum Tx power levels.

If the transmit power level is	**Then** go to
not within the operational threshold	the next step
within the operational threshold	step 20

Step	Action
18	Reseat the upstream OCLD. Follow Procedure 3-68 "Reseating a circuit pack" in *Provisioning and Operating Procedures,* 323-1701-310

If	**Then**
the alarm clears	you have completed this procedure
the alarm remains	go to the next step

Step	Action
19	Replace the upstream OCLD. Follow Procedure 3-2 "Replacing an OCLD circuit pack" in *Maintenance and Replacement Procedures*, 323-1701-546.

If	**Then**
the alarm clears	the removed circuit pack has faults. You have completed this procedure.
the alarm remains	make sure the new OCLD Tx port is within the operational threshold and go to the next step.

—continued—

Procedure 8-21 (continued)
OCLD—Low Optical Power Warning

Step	Action
20	Use the proper cleaning kit to clean all the connectors attached to the receiving (near-end) OCLD Rx port and to the Tx Port on the transmitting (far-end) OCLD. For information on cleaning, see Chapter 9 "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components,* 323-1701-201. Use a network topology diagram to determine the transmitting (far-end) OCLD. ***Note:*** If you are using the OMX 4CH + Fiber Manager, clean both ends of the patch-cord between the OMX and the OCLD. — Clean each connector separately. — Record the operating power level after you clean each connector and compare it to the value you wrote down in step 14. This allows you to see if there is any improvement to the Rx power.

CAUTION
Risk of loss of traffic across multiple bands
Do not clean any optical fibers on the optical fiber plant, or on connections to the OMX. This affects traffic over multiple bands. Clean only the pigtail connections at the specified OCLD circuit packs.

If	Then
the alarm clears	you have completed the procedure
the alarm remains	it is possible that the patch cord that connects the OCLD to the OMX at the near-end or far-end is broken damaged or bent. Try replacing the patch cord.

ATTENTION
If you set a forced switch on the path, make sure you remove the switch when the procedure is completed. Follow Procedure 3-49 "Removing a manual, force, or lockout switch from a protection path" in *Provisioning and Operating Procedures*, 323-1701-310.

If you are using ALS and disabled it during this procedure, re-enable it for each site. Follow Procedure 1-43 "Enabling or disabling automatic laser shutdown" in *Provisioning and Operating Procedures*, 323-1701-310.

—end—

Procedure 8-22
OCLD—Optical Receiver Overload

Probable cause

This alarm is raised when the OCLD circuit pack is receiving an abnormally high optical input signal. One of the following conditions exists:

- the receiving OCLD circuit pack is defective
- the transmitting OCLD circuit pack is defective
- the network contains amplifiers that are not equalized properly. If there is a miniature VOA on the fiber to attenuate the signal, it may not be operating correctly.

Impact

Table 8-13 lists the impact that the alarm has under different conditions.

Table 8-13
OCLD Optical Receiver Overload alarm impact

Conditions	Severity	Impact
If any of the following conditions exist: • the path assigned to the OCLD circuit pack is unprotected • the path assigned to the OCLD circuit pack is protected and the matching OCLD has an alarm condition • the OCLD circuit pack is used in a pass-through connection	Critical	Service-affecting
If any of the following conditions exist: • there is no channel assignment and the facility of the circuit pack is in-service • the path assigned is protected and the matching OCLD is operating correctly	Major	Non-service-affecting

—continued—

Procedure 8-22 (continued)
OCLD—Optical Receiver Overload

Precautions

CAUTION
Risk of affecting network reliability
Make sure that all connectors are cleaned before you make the connections (or re-connections) described in this procedure. For cleaning information, see the chapter "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components*, 323-1701-201.

Action

Step	Action
1	Check the corresponding upstream OCLD or, if applicable, Optical Fiber Amplifiers (OFA) for failures or alarms. Use a network topology diagram to determine the upstream OCLDs and OFAs. Troubleshoot these alarms/failures before proceeding. ***Note 1:*** A common cause of this alarm is problems with amplifier equalization. If this network uses OFAs, it is strongly recommended that you contact your next level of support to re-equalize the amplifiers. ***Note 2:*** If the transmitting power on the upstream OCLD is too high, you might see an OCLD Transceiver Degrade alarm on the upstream shelf. Clear this alarm first by following Procedure 8-34 "OCLD—Transceiver Degrade". **—continued—**

Procedure 8-22 (continued)
OCLD—Optical Receiver Overload

Step	Action
2	If Automatic Laser Shutdown (ALS) is enabled, disable ALS for both the near-end and far-end shelves which contain the alarming OCLD and its corresponding upstream OCLD. Use a network topology diagram and channel listing to determine the near-end and far-end sites. If you do not know if ALS is enabled or not, assume it is enabled. Follow Procedure 1-43 "Enabling or disabling automatic laser shutdown" in *Provisioning and Operating Procedures*, 323-1701-310 to disable ALS.
3	At the downstream shelf, use the System Manager to check if you are receiving OCLD High Optical Power Warnings on all OCLDs in the same east/west plane, or just on one OCLD.

If the Rx power level is too high	**Then** go to
on the only OCLD in the east/west plane	step 4
on all OCLDs in the same east/west plane	step 6
on one of multiple OCLDs in the same east/west plane	step 8

4	**If**	**Then**
	there are amplifiers between the upstream and downstream OCLD	there is problem at the amplifier site, the ring requires re-equalization, or both. Contact your next level of support to troubleshoot. If troubleshooting does not clear the alarm, go to step 8.
	there are no amplifiers between the upstream and downstream OCLD	there is a problem with the line fiber between the sites. Go to the next step.

—continued—

Procedure 8-22 (continued)
OCLD—Optical Receiver Overload

Step	Action

5 Reduce the input power of the band by performing the following steps:

CAUTION
Risk of loss of traffic across multiple wavelengths in the band
Adding fixed pads to the front of the Band drop/Band Rx junction affects traffic on the band/direction. If the traffic is protected, follow Procedure 3-48 "Forcing traffic to one path on a protected channel" in *Provisioning and Operating Procedures*, 323-1701-310 to switch traffic for the OCLD in the east/west plane before proceeding.

a. Add a fixed pad attenuator to the front of the Band Drop/Band Rx junction of the corresponding OMX. The fixed pad attenuates the entire band and reduces the power on the OCLD drop port. To determine the amount of attenuation, choose a fixed-pad with a value that is sufficient to lower the OCLD Rx power to within its operational threshold. Refer to Table 2-23 in *Technical Specifications*, 323-1701-180 for minimum and maximum Tx power levels. The alarm should clear.

b. if any optical alarms remain on the OCLD, contact the alarm clearing procedure in this book, for that circuit pack

Note: This condition indicates a discrepancy between the Network Modeling Tool (NMT) and the actual system. Contact your next level of support for the NMT attenuator values.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	go to step 8

—continued—

Procedure 8-22 (continued)
OCLD—Optical Receiver Overload

Step	Action	
6	**If**	**Then**
	there are amplifiers between the upstream and downstream OCLDs	there is problem at the amplifier site, the ring requires re-equalization, or both. Contact your next level of support.
	there are no amplifiers between the upstream and downstream OCLDs	there is a problem with the line fiber between the sites. Go to the next step.

—continued—

Procedure 8-22 (continued)
OCLD—Optical Receiver Overload

Step	Action

7 Reduce the input power of the band by performing the following steps:

CAUTION
Risk of loss of traffic across multiple wavelengths in the band
Adding fixed pads to the front of the Band drop/Band Rx junction affects traffic on the entire band/direction. If the traffic is protected, follow Procedure 3-48 "Forcing traffic to one path on a protected channel" in Provisioning and Operating Procedures, 323-1701-310 to switch traffic for every OCLD in the east/west plane before proceeding.

a. Add a fixed pad attenuator to the front of the Band Drop/Band Rx junction of the corresponding OMX. The fixed pad attenuates the entire band and reduces the power on all four OCLD drop ports. To determine the amount of attenuation, choose a fixed-pad with a value that is sufficient to lower the OCLD Rx power to within its operational threshold. Refer to Table 2-23 in *Technical Specifications*, 323-1701-180 for minimum and maximum Tx power levels. The alarm should clear.

b. Using the System Manager, under Equipment-Facilities, check the Rx powers of all OCLDs at the downstream site and verify they are at the correct operational threshold. All OCLDs in the band should have the same approximate Rx power. If any OCLDs have lower Rx powers, clean the pigtail (or both ends of the patch-cord) going into the respective OCLD Rx port. For information on cleaning, see Chapter 9 "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components,* 323-1701-201.

c. if any optical alarms remain on any of the OCLDs, contact the alarm clearing procedure in this book, for that circuit pack

Note: This condition indicates a discrepancy between the Network Modeling Tool (NMT) and the actual system. Contact your next level of support for the NMT attenuator values.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	contact your next level of support

—continued—

Procedure 8-22 (continued)
OCLD—Optical Receiver Overload

Step	Action

8 **If** / **Then**

If	Then
the path is protected	switch traffic off of the OCLD. Follow Procedure 3-48 "Forcing traffic to one path on a protected channel" in *Provisioning and Operating Procedures*, 323-1701-310. Go to the next step.
the path is unprotected	go to the next step. Performing the next step may affect traffic.

9 Make sure the optical fiber is connected correctly on the OCLD line-side Rx port at the near-end site and on the OCLD line-side Tx port at the far-end site. If you are using the OMX 4CH + Fiber Manager, check both ends of the patchcords between the OMX, LC-to-SC patch panel, and the OCLD.

Note: Use a network topology diagram to determine the near-end (downstream) and far-end (upstream) sites.

If	Then
the alarm clears	you have completed the procedure
the alarm remains	go to the next step

10 Use the System Manager to check the received power level on the line-side Rx port of the near-end OCLD. Write down the value. Refer to Table 2-23 in *Technical Specifications*, 323-1701-180 for minimum and maximum Rx/Tx power levels.

Note: You can record the power level from the Equipment—Facility window in the System Manager.

If the power level is	**Then**
above the operational threshold	go to step 13
within the operational threshold	the problem is with the OCLD. Go to the next step.

—continued—

Procedure 8-22 (continued)
OCLD—Optical Receiver Overload

Step	Action

11 Reseat the near-end OCLD. Follow Procedure 3-7 “Putting a circuit pack or SFP in-service” in *Provisioning and Operating Procedures,* 323-1701-310.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	go to the next step

12 Replace the near-end OCLD. Follow Procedure 3-2 “Replacing an OCLD circuit pack” in *Maintenance and Replacement Procedures*, 323-1701-546.

If	Then
the alarm clears	the removed circuit pack has faults. You have completed this procedure.
the alarm remains	the circuit pack is not the problem. Reseat the original circuit pack. Contact your next level of support.

13 Use the System Manager to check the transmitting power of the corresponding upstream OCLD. Refer to Table 2-23 in *Technical Specifications*, 323-1701-180 for minimum and maximum Rx/Tx power levels. Make sure that the transmit power level is within the operational threshold.

Note 1: You can record the power level from the Equipment—Facility window in the System Manager.

Note 2: The “upstream” OCLD is the OCLD that is originating the signal which the alarming “downstream” OCLD is receiving. Use a network topology map to determine the “upstream” OCLD.

Note 3: Refer to Table 2-23 in *Technical Specifications*, 323-1701-180 for minimum and maximum Tx power levels.

If the transmit power level is	**Then** go to
not within the operational threshold	the next step
within the operational threshold	step 16

14 Reseat the upstream OCLD. Follow Procedure 3-7 “Putting a circuit pack or SFP in-service” in *Provisioning and Operating Procedures,* 323-1701-310.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	go to the next step

—continued—

Procedure 8-22 (continued)
OCLD—Optical Receiver Overload

Step	Action
15	Replace the upstream OCLD. Follow Procedure 3-2 "Replacing an OCLD circuit pack" in *Maintenance and Replacement Procedures*, 323-1701-546.

If	Then
the alarm clears	the removed circuit pack has faults. You have completed this procedure.
the alarm remains	make sure the new circuit pack's line-side Tx port is within the operational threshold and go to the next step.

Step	Action
16	Reseat the downstream OCLD. Follow Procedure 3-7 "Putting a circuit pack or SFP in-service" in *Provisioning and Operating Procedures,* 323-1701-310.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	go to the next step

Step	Action
17	Replace the downstream OCLD. Follow Procedure 3-2 "Replacing an OCLD circuit pack" in *Maintenance and Replacement Procedures,* 323-1701-546.

If	Then
the alarm clears	the removed circuit pack has faults. You have completed this procedure.
the alarm remains	the circuit pack is not the problem. Reseat the original circuit pack. Contact your next level of support.

ATTENTION

If you set a forced switch on the path, make sure you remove the switch when the procedure is completed. Follow Procedure 3-49 "Removing a manual, force, or lockout switch from a protection path" in *Provisioning and Operating Procedures*, 323-1701-310.

If you are using ALS and disabled it during this procedure, re-enable it for each site. Follow Procedure 1-43 "Enabling or disabling automatic laser shutdown" in *Provisioning and Operating Procedures*, 323-1701-310.

—end—

Procedure 8-23
OCLD—Optical System Identifier Mismatch

Probable cause

This alarm becomes active when the OCLD at one site has a different optical system identifier (OSID) from the OCLD to which it is optically connected. This alarm is raised on the OCLD circuit packs at both ends.

Impact

Minor, non-service-affecting.

Precautions

CAUTION
Risk of interfering with alarm reporting
It is essential that the OSID for all line-facing equipment is provisioned correctly for bridge sites, for hub and spoke rings, and for rings with intrasite fault sectionalization (IFS). Refer to the "Rules for provisioning OSIDs" in *Provisioning and Operating Procedures*, 323-1701-310.

Know the network topology and exercise caution when provisioning OSIDs. Incorrect OSID provisioning can generate unnecessary Incomplete Provisioning alarms, and can cause the IFS feature to operate incorrectly.

Action

Step	Action
1	Refer to the "Rules for provisioning OSIDs" and the associated Precautions in Procedure 3-36 "Provisioning the optical system identifier (OSID)" in *Provisioning and Operating Procedures*, 323-1701-310.
2	Provision the correct OSID for the OCLD circuit pack. The Optical System Identifier has to be the same on both ends. Assign an OSID that matches the other equipment in the same ring. Follow Procedure 3-36 "Provisioning the optical system identifier (OSID)" in *Provisioning and Operating Procedures*, 323-1701-310.

—end—

Procedure 8-24
OCLD—Performance Monitoring Timer Failed

Probable cause

This alarm becomes active when the OCLD circuit pack is not detecting performance monitoring data from the SP circuit pack.

Impact

Major, non-service-affecting.

Precautions

ATTENTION

When you clear this alarm on Optical Metro 5100 shelves, at all times the SP, and at least one non-SP circuit pack that is carrying the database, must be seated in the shelf.

CAUTION

Risk of recovery procedures affecting traffic

This alarm is not service-affecting, however the recovery action can be service-affecting if the path is not protected.

CAUTION

Risk of affecting network reliability

Make sure that all connectors are cleaned before you make the connections (or re-connections) described in this procedure. For cleaning information, see the chapter "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components*, 323-1701-201.

—continued—

Procedure 8-24 (continued)
OCLD—Performance Monitoring Timer Failed

Action

Step	Action
1	Using the Fault—Active Alarms window in System Manger, check to see if the Performance Monitoring Timer Failed alarm is raised by more than one circuit pack in the shelf.

If	Then go to
the alarm is raised by only this circuit pack	the next step
the alarm is raised on multiple circuit packs	step 5

2	If	Then
	the path is protected	switch traffic off of the OCLD. Follow Procedure 3-48 “Forcing traffic to one path on a protected channel” in *Provisioning and Operating Procedures*, 323-1701-310.
	the path is unprotected	go to the next step. Performing the next step can affect traffic.

3	Reseat the OCLD. Follow Procedure 3-68 “Reseating a circuit pack” in *Provisioning and Operating Procedures,* 323-1701-310.	
	If	**Then**
	the alarm clears	you have completed this procedure
	the alarm remains	go to the next step

—continued—

Procedure 8-24 (continued)
OCLD—Performance Monitoring Timer Failed

Step	Action

4 Replace the OCLD. Follow Procedure 3-2 “Replacing an OCLD circuit pack” in *Maintenance and Replacement Procedures,* 323-1701-546.

If	Then
the alarm clears	the removed circuit pack has faults. You have completed this procedure.
the alarm remains	the circuit pack is not the problem. Reseat the original circuit pack. Go to the next step.

5 Reseat the SP. Follow Procedure 3-68 “Reseating a circuit pack” in *Provisioning and Operating Procedures,* 323-1701-310.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	go to the next step

6 Replace the SP. Follow Procedure 3-13 “Replacing an SP circuit pack” in *Maintenance and Replacement Procedures* 323-1701-546.

If	Then
the alarm clears	the removed circuit pack has faults. You have completed this procedure.
the alarm remains	the circuit pack is not the problem. Reseat the original circuit pack. Contact your next level of support.

ATTENTION
If you set a forced switch on the path, make sure you remove the switch when the procedure is completed. Follow Procedure 3-49 “Removing a manual, force, or lockout switch from a protection path” in *Provisioning and Operating Procedures*, 323-1701-310.

—end—

Procedure 8-25
OCLD—Protection Mate Circuit Pack Not Available

This alarm is raised on the OCLD when the protection mate OCLD in a shelf goes out-of-service (OOS). OCLD circuit packs will have a protection mate OCLD circuit pack when they are involved in a protected channel assignment. To clear the alarm you must put the protection mate OCLD circuit pack In-Service (IS).

Probable cause

This alarm becomes active when the protection mate OCLD in the shelf is in an out-of-service (OOS) state.

Impact

Major, non-service-affecting.

Note: Traffic is lost if the remaining OCLD fails or is taken out-of-service before the OCLD it is paired with is returned to service.

Requirements

You must be logged into the System Manager to perform this procedure. To log into the network, follow Procedure 1-1, "Logging into the network" in *Provisioning and Operating Procedures*, 323-1701-310.

Action

Step	Action
1	In the System Manager, select the shelf with the OCLD that raised the alarm.
2	Put the protection mate OCLD circuit pack In-Service. Follow Procedure 3-7 "Putting a circuit pack or SFP in-service" in *Provisioning and Operating Procedures*, 323-1701-310.

—end—

Procedure 8-26
OCLD—Surrogate Alarm Indication Signal

Probable cause

This alarm becomes active on the line-side when it detects a Surrogate Payload Signal fault. When raised against the line facility, this alarm indicates that there is a problem at the far- end OCLD.

Impact

Warning, non-service-affecting.

Action

Step	Action
1	Check the entry in the Port column on the Fault–Active Alarms window to determine where the alarm is raised.
2	Make sure that **a.** both the line facility and client facility on the far-end OTR are in-service. Refer to Procedure 3-10 “Putting a circuit pack or SFP facility in-service” in *Provisioning and Operating Procedures*, 323-1701-310. Use a network topology diagram to determine the far-end site. **b.** there is channel assignment on the far-end OTR. Follow Procedure 3-3 “Making or modifying channel assignments” in *Provisioning and Operating Procedures*, 323-1701-310. **c.** there is no Loss of Frame on the far-end OCLD. Follow Procedure 8-19, OCLD—Loss of Frame.

3	If	Then
	the alarm clears	you have completed this procedure
	the alarm remains	contact your next level of support

—end—

Procedure 8-27
OCLD—TCA - Optical Power Rx High

Probable cause

This alarm becomes active when the power of the optical signal received is exceeding the user-defined threshold of the Rx Power High parameter. The alarm can also be raised if the user-defined threshold value is not correct.

If the user-defined threshold of the Rx Power High parameter is set to the correct value, then the majority of OCLD Optical Power Receive High alarms are caused by poor equalization. If there are OFAs in the network, check the equalization and contact your next level of support immediately

Impact

Minor, non-service-affecting.

Precautions

ATTENTION

When you clear this alarm on Optical Metro 5100 shelves, at all times the SP, and at least one non-SP circuit pack that is carrying the database, must be seated in the shelf.

ATTENTION

Power fluctuating around user-defined TCAs and alarm toggling

This alarm may toggle on the System Manager if the receive optical power reading fluctuates around the user defined TCA threshold. To clear the behavior of alarm toggling, move the user defined TCA threshold away from the power range around which the optical power reading fluctuates, or adjust the power level to the acceptable range so that the alarm is cleared.

—continued—

Procedure 8-27 (continued)
OCLD—TCA - Optical Power Rx High

CAUTION
Risk of recovery procedures affecting traffic
This warning is not service-affecting, however the recovery action can be service-affecting if the path is not protected.

CAUTION
Risk of affecting network reliability
Make sure that all connectors are cleaned before you make the connections (or re-connections) described in this procedure. For cleaning information, see the chapter "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components*, 323-1701-201.

Action

Step	Action

1 Make sure that the user-defined threshold value is correct. If the value is set too low, adjust it to the desired value. Follow Procedure 7-7 "Adjusting PM threshold values" in *Provisioning and Operating Procedures*, 323-1701-310.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	go to the next step

2 Check the corresponding upstream OCLD or, if applicable, Optical Fiber Amplifiers (OFA) for failures or alarms. Use a network topology diagram to determine the upstream OCLDs and OFAs. Troubleshoot these alarms/failures before proceeding.

Note 1: A common cause of this alarm is problems with amplifier equalization. If this network uses OFAs, it is strongly recommended that you contact your next level of support to re-equalize the amplifiers.

Note 2: If the transmitting power on the upstream OCLD is too high, you might see an OCLD Transceiver Degrade alarm on the upstream shelf. Clear this alarm first by following Procedure 8-34 "OCLD—Transceiver Degrade".

—continued—

Procedure 8-27 (continued)
OCLD—TCA - Optical Power Rx High

Step	Action
3	If Automatic Laser Shutdown (ALS) is enabled, disable ALS for both the near-end and far-end shelves which contain the alarming OCLD and its corresponding upstream OCLD. Use a network topology diagram and channel listing to determine the near-end and far-end sites. If you do not know if ALS is enabled or not, assume it is enabled. Follow Procedure 1-43 "Enabling or disabling automatic laser shutdown" in *Provisioning and Operating Procedures*, 323-1701-310 to disable ALS.
4	At the downstream shelf, use the System Manager to check if you are receiving OCLD High Optical Power Warnings on all OCLDs in the same east/west plane, or on a single OCLD..

If the Rx power level is too high	**Then** go to
on the only OCLD in the east/west plane	step 5
on all OCLDs in the same east/west plane	step 7
on one of multiple OCLDs in the same east/west plane	step 9

5	**If**	**Then**
	there are amplifiers between the upstream and downstream OCLD	there is problem at the amplifier site, the ring requires re-equalization, or both. Contact your next level of support to troubleshoot. If troubleshooting does not clear the alarm, go to step 9.
	there are no amplifiers between the upstream and downstream OCLD	there is a problem with the line fiber between the sites. Go to the next step.

—continued—

Procedure 8-27 (continued)
OCLD—TCA - Optical Power Rx High

Step	Action

6 Reduce the input power of the band by performing the following steps:

CAUTION
Risk of loss of traffic across multiple wavelengths in the band
Adding fixed pads to the front of the Band drop/Band Rx junction affects traffic on the band/direction. If the traffic is protected, follow Procedure 3-48 "Forcing traffic to one path on a protected channel" in *Provisioning and Operating Procedures*, 323-1701-310 to switch traffic for the OCLD in the east/west plane before proceeding.

a. Add a fixed pad attenuator to the front of the Band Drop/Band Rx junction of the corresponding OMX. The fixed pad attenuates the entire band and reduces the power on the OCLD drop port. To determine the amount of attenuation, choose a fixed-pad with a value that is sufficient to lower the OCLD Rx power to within its operational threshold. Refer to Table 2-23 in *Technical Specifications*, 323-1701-180 for minimum and maximum Tx power levels. The alarm should clear.

b. if any optical alarms remain on the OCLD, contact the alarm clearing procedure in this book, for that circuit pack

Note: This condition indicates a discrepancy between the Network Modeling Tool (NMT) and the actual system. Contact your next level of support for the NMT attenuator values.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	go to step 9

7

If	Then
there are amplifiers between the upstream and downstream OCLDs	there is problem at the amplifier site, the ring requires re-equalization, or both. Contact your next level of support.
there are no amplifiers between the upstream and downstream OCLDs	there is a problem with the line fiber between the sites. Go to the next step.

—continued—

Procedure 8-27 (continued)
OCLD—TCA - Optical Power Rx High

Step	Action

8 Reduce the input power of the band by performing the following steps:

CAUTION
Risk of loss of traffic across multiple wavelengths in the band
Adding fixed pads to the front of the Band drop/Band Rx junction affects traffic on the entire band/direction. If the traffic is protected, follow Procedure 3-48 "Forcing traffic to one path on a protected channel" in *Provisioning and Operating Procedures*, 323-1701-310 to switch traffic for every OCLD in the east/west plane before proceeding.

a. Add a fixed pad attenuator to the front of the Band Drop/Band Rx junction of the corresponding OMX. The fixed pad attenuates the entire band and reduces the power on all four OCLD drop ports. To determine the amount of attenuation, choose a fixed-pad with a value that is sufficient to lower the OCLD Rx power to within its operational threshold. Refer to Table 2-23 in *Technical Specifications*, 323-1701-180 for minimum and maximum Tx power levels. The alarm should clear.

b. Using the System Manager, under Equipment-Facilities, check the Rx powers of all OCLDs at the downstream site and verify they are at the correct operational threshold. All OCLDs in the band should have the same approximate Rx power. If any OCLDs have lower Rx powers, clean the pigtail (or both ends of the patch-cord) going into the respective OCLD Rx port. For information on cleaning, see Chapter 9 "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components,* 323-1701-201.

c. if any optical alarms remain on any of the OCLDs, contact the alarm clearing procedure in this book, for that circuit pack

Note: This condition indicates a discrepancy between the Network Modeling Tool (NMT) and the actual system. Contact your next level of support for the NMT attenuator values.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	contact your next level of support

—continued—

Procedure 8-27 (continued)
OCLD—TCA - Optical Power Rx High

Step	Action

9

If	Then
the path is protected	switch traffic off of the OCLD. Follow Procedure 3-48 “Forcing traffic to one path on a protected channel” in *Provisioning and Operating Procedures*, 323-1701-310.
the path is unprotected	go to the next step. Performing the next step may affect traffic.

10 Make sure the optical fiber is connected correctly on the OCLD Rx port at the near-end site and on the OCLD Tx port at the far-end site. If you are using the OMX 4CH + Fiber Manager, check both ends of the patch-cord between the OMX and OCLD.

Note: Use a network topology diagram to determine the near-end (downstream) and far-end (upstream) sites.

If	Then
the alarm clears	you have completed the procedure
the alarm remains	go to the next step

11 Use the System Manager to check the received power level on the Rx port of the alarming downstream OCLD. Write down the value. Refer to Table 2-23 in *Technical Specifications*, 323-1701-180 for minimum and maximum Rx/Tx power levels.

Note: You can record the power level from the Equipment—Facility window in the System Manager.

If the power level is	**Then**
above the operational threshold	go to step 14
within the operational threshold	the problem is with the OCLD. Go to the next step.

12 Reseat the downstream OCLD. Follow Procedure 3-68 “Reseating a circuit pack” in *Provisioning and Operating Procedures,* 323-1701-310.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	go to the next step

—continued—

Procedure 8-27 (continued)
OCLD—TCA - Optical Power Rx High

Step	Action
13	Replace the downstream OCLD. Follow Procedure 3-2 "Replacing an OCLD circuit pack" in *Maintenance and Replacement Procedures*, 323-1701-546.

If	Then
the alarm clears	the removed circuit pack has faults. You have completed this procedure.
the alarm remains	the circuit pack is not the problem. Reseat the original circuit pack. Contact your next level of support.

14 Use the System Manager to check the transmitting power of the corresponding upstream OCLD. Make sure that the transmit power level is within the operational threshold.

Note 1: You can record the power level from the Equipment—Facility window in the System Manager.

Note 2: The "upstream" OCLD is the OCLD that is originating the signal which the alarming "downstream" OCLD is receiving. Use a network topology map to determine the "upstream" OCLD.

Note 3: Refer to Table 2-23 in *Technical Specifications*, 323-1701-180 for minimum and maximum Tx power levels.

If the transmit power level is	**Then** go to
not within the operational threshold	step 15
within the operational threshold	step 17

15 Reseat the upstream OCLD. Follow Procedure 3-68 "Reseating a circuit pack" in *Provisioning and Operating Procedures,* 323-1701-310.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	go to the next step

16 Replace the upstream OCLD. Follow Procedure 3-2 "Replacing an OCLD circuit pack" in *Maintenance and Replacement Procedures*, 323-1701-546.

If	Then
the alarm clears	the removed circuit pack has faults. You have completed this procedure.
the alarm remains	make sure the new card's Tx port is within the operational threshold and go to the next step.

—continued—

Procedure 8-27 (continued)
OCLD—TCA - Optical Power Rx High

Step	Action
17	Reseat the downstream OCLD. Follow Procedure 3-68 "Reseating a circuit pack" in *Provisioning and Operating Procedures,* 323-1701-310.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	go to the next step

Step	Action
18	Replace the downstream OCLD. Follow Procedure 3-2 "Replacing an OCLD circuit pack" in *Maintenance and Replacement Procedures*, 323-1701-546.

If	Then
the alarm clears	the removed circuit pack has faults. You have completed this procedure.
the alarm remains	the circuit pack is not the problem. Reseat the original circuit pack. Contact your next level of support.

ATTENTION

If you set a forced switch on the path, make sure you remove the switch when the procedure is completed. Follow Procedure 3-49 "Removing a manual, force, or lockout switch from a protection path" in *Provisioning and Operating Procedures*, 323-1701-310.

If you are using ALS and disabled it during this procedure, re-enable it for each site. Follow Procedure 1-43 "Enabling or disabling automatic laser shutdown" in *Provisioning and Operating Procedures*, 323-1701-310.

—end—

Procedure 8-28
OCLD—TCA - Optical Power Rx Low

Probable cause

This alarm becomes active when the power of the optical signal received is lower than the user-defined threshold of the Rx Power Low parameter. One of the following conditions exists:

- an optical fiber connection is degraded
- the optical fiber is bent or coiled too tightly
- the connector is dirty at the receiving OCLD circuit pack or at the launching OCLD circuit pack
- the receiving OCLD circuit pack is defective
- the transmitting OCLD circuit pack is defective
- the user-defined threshold value is not correct
- an upstream OFA, APBE, or ECT has failed or the ring is not equalized properly

Impact

Minor, non-service-affecting.

—continued—

Procedure 8-28 (continued)
OCLD—TCA - Optical Power Rx Low

Precautions

ATTENTION
When you clear this alarm on Optical Metro 5100 shelves, at all times the SP, and at least one non-SP circuit pack that is carrying the database, must be seated in the shelf.

ATTENTION
Power fluctuating around user defined TCAs and alarm toggling
This alarm may toggle on the System Manager if the receive optical power reading fluctuates around the user defined TCA threshold. To clear the behavior of alarm toggling, move the user defined TCA threshold away from the power range around which the optical power reading fluctuates, or adjust the power level to the acceptable range so that the alarm is cleared.

CAUTION
Risk of affecting network reliability
Make sure that all connectors are cleaned before you make the connections (or re-connections) described in this procedure. For cleaning information, see the chapter "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components*, 323-1701-201.

CAUTION
Risk of recovery procedures affecting traffic
This alarm is not service-affecting, however the recovery action can be service-affecting if the path is not protected.

—continued—

Procedure 8-28 (continued)
OCLD—TCA - Optical Power Rx Low

Action

Step	Action
1	Make sure that the user-defined threshold value is correct. If the value is set too high, adjust it to the appropriate value.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	go to the next step

2	Check the corresponding upstream OCLD or, if applicable, Optical Fiber Amplifiers (OFAs) for failures or alarms. Use a network topology diagram to determine the upstream OCLDs and OFAs. Troubleshoot these alarms or failures before proceeding.
3	At the downstream shelf, use the System Manager to check if you are receiving OCLD—Optical Power Receive Low alarms on all (or most) OCLDs in the same east/west plane, or just on a single OCLD. ***Note:*** On the Optical Metro 5100/5200 shelf, the east plane is defined as slots 11-18, and the west plane is defined as slots 1-8.

If the alarm appears	**Then** go to
on the only OCLD in the east/west plane	step 4
on all (or most) OCLDs in the same east/west plane	step 6
on one of multiple OCLDs in the same east/west plane	step 8

4	**If**	**Then**
	there are amplifiers between the upstream and downstream OCLD	there may be a problem at the amplifier site or the ring requires re-equalization. Contact your next level of support to troubleshoot. If troubleshooting does not clear the alarm, go to step 8.
	there are no amplifiers between the upstream and downstream OCLD	there may be a problem with the line fiber between the sites. Go to the next step.

—continued—

Procedure 8-28 (continued)
OCLD—TCA - Optical Power Rx Low

Step	Action
5	Investigate the line fiber between the upstream OCLD and the downstream OCLD for loss or degrade.

CAUTION
Risk of loss of traffic across multiple wavelengths in the band
Disturbing the line fiber affects traffic on the entire band/direction. If the traffic is protected, follow Procedure 3-48 "Forcing traffic to one path on a protected channel" in *Provisioning and Operating Procedures*, 323-1701-310 to switch traffic for every OCLD in the east/west plane before proceeding. If the traffic is not protected, you will drop traffic.

CAUTION
DISABLE AUTOMATIC LASER SHUTDOWN
If Automatic Laser Shutdown (ALS) is enabled, disable ALS for all shelves that will be affected by this maintenance activity. Use a network topology diagram and channel listing to determine the upstream and downstream sites that will be affected when the ring is opened. If you do not know if ALS is enabled or not, assume it is enabled. Follow Procedure 1-43 "Enabling or disabling automatic laser shutdown" in *Provisioning and Operating Procedures*, 323-1701-310 to disable ALS.

- Using a power meter, a cleaning kit, and a network topology diagram, start at the upstream site and clean every connector on the path until you reach the downstream site. Measure the power with the power meter after each cleaning to check for improvements in the line power. For information on cleaning, see Chapter 9 "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components,* 323-1701-201

—continued—

Procedure 8-28 (continued)
OCLD—TCA - Optical Power Rx Low

Step	Action

- Check for damaged, kinked, tightly-bent fiber, or anything else that might impede the optical signal. This includes optical filters such as OMXs or C&L Splitter/Couplers. Replace any damaged fibers or filters. If you find a faulty component or filter refer to Chapter 2 “Replacing shelf components” in *Maintenance and Replacement Procedures* in 323-1701-546.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	go to step 8

6	If	Then
	there are amplifiers between the upstream and downstream OCLDs	there is problem at the amplifier site, the ring requires re-equalization, or both. Contact your next level of support.
	there are no amplifiers between the upstream and downstream OCLDs	there is a problem with the line fiber between the sites. Go to the next step.

—continued—

Procedure 8-28 (continued)
OCLD—TCA - Optical Power Rx Low

Step	Action
7	Investigate the line fiber between the upstream OCLDs and the downstream OCLDs for loss or degrade.

CAUTION
Risk of loss of traffic across multiple wavelengths in the band
Disturbing the line fiber affects traffic on the entire band/direction. If the traffic is protected, follow Procedure 3-48 "Forcing traffic to one path on a protected channel" in *Provisioning and Operating Procedures*, 323-1701-310 to switch traffic for every OCLD in the east/west plane before proceeding. If the traffic is not protected, you will drop traffic.

CAUTION
DISABLE AUTOMATIC LASER SHUTDOWN
If Automatic Laser Shutdown (ALS) is enabled, disable ALS for all shelves that will be affected by this maintenance activity. Use a network topology diagram and channel listing to determine the upstream and downstream sites that will be affected when the ring is opened. If you do not know if ALS is enabled or not, assume it is enabled. Follow Procedure 1-43 "Enabling or disabling automatic laser shutdown" in *Provisioning and Operating Procedures*, 323-1701-310 to disable ALS.

- Using a power meter, a cleaning kit, and a network topology diagram, start at the upstream site and clean every connector on the path until you reach the downstream site. Measure the power with the power meter after each cleaning to check for improvements in the line power. For information on cleaning, see Chapter 9 "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components,* 323-1701-201

—continued—

Procedure 8-28 (continued)
OCLD—TCA - Optical Power Rx Low

Step	Action

- Check for damaged, kinked, tightly-bent fiber, or anything else that might impede the optical signal. This includes optical filters such as OMXs or C&L Splitter/Couplers. Replace any damaged fibers or filters. If you find a faulty component or filter refer to Chapter 2 "Replacing shelf components" in *Maintenance and Replacement Procedures* in 323-1701-546.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	contact your next level of support

8

If	Then
the path is protected	switch traffic off of the OCLD. Follow Procedure 3-48 "Forcing traffic to one path on a protected channel" in *Provisioning and Operating Procedures*, 323-1701-310.
the path is unprotected	go to the next step. Performing the next step may affect traffic.

9 If Automatic Laser Shutdown (ALS) is enabled, disable ALS for both the near-end and far-end shelves which contain the alarming OCLD and its corresponding upstream OCLD. Use a network topology diagram and channel listing to determine the near-end and far-end sites. If you do not know if ALS is enabled or not, assume it is enabled. Follow Procedure 1-43 "Enabling or disabling automatic laser shutdown" in *Provisioning and Operating Procedures*, 323-1701-310 to disable ALS.

10 Make sure the optical fiber is connected correctly on the OCLD Rx port at the near-end site and on the OCLD Tx port at the far-end site. If you are using the OMX 4CH + Fiber Manager, check both ends of the patch-cords between the OMX, LC-to-SC patch panel, and the OCLD.

Note: Use a network topology diagram to determine the near-end and far-end sites.

If	Then
the alarm clears	you have completed the procedure
the alarm remains	go to the next step

—continued—

Procedure 8-28 (continued)
OCLD—TCA - Optical Power Rx Low

Step	Action
11	Check to see if the OCLD Rx power level is within the operational threshold and write down the value. Refer to Table 2-23 in *Technical Specifications*, 323-1701-180 for minimum and maximum Rx/Tx power levels. ***Note:*** Record the received power level on the OCLD. You can record the power level from the Equipment—Facility window in the System Manager.
12	Check the transmitted power level on the corresponding upstream OCLD. Check to see if the transmitted power level is within the operational threshold. Refer to Table 2-23 in *Technical Specifications*, 323-1701-180 for minimum and maximum Rx/Tx power levels. ***Note 1:*** You can record the power level from the Equipment—Facility window in the System Manager. ***Note 2:*** Use a network topology diagram to determine the upstream OCLD.

If the transmit power level is	**Then** go to
not within the operational threshold	the next step
within the operational threshold	step 16

Step	Action
13	Reseat the upstream OCLD. Follow Procedure 3-68 “Reseating a circuit pack” in *Provisioning and Operating Procedures,* 323-1701-310.

If	**Then**
the alarm clears	you have completed this procedure
the alarm remains	go to the next step

Step	Action
14	Replace the upstream OCLD. Follow Procedure 3-2 “Replacing an OCLD circuit pack” in *Maintenance and Replacement Procedures,* 323-1701-546.

If	**Then**
the alarm clears	the removed circuit pack has faults. You have completed this procedure.
the alarm remains (and the new OCLD is within operational specifications)	the circuit pack is not the entire problem. Go to the next step.

Step	Action
15	Reseat the near-end OCLD. Follow Procedure 3-68 “Reseating a circuit pack” in *Provisioning and Operating Procedures,* 323-1701-310.

If	**Then**
the alarm clears	you have completed this procedure
the alarm remains	go to the next step

—continued—

Procedure 8-28 (continued)
OCLD—TCA - Optical Power Rx Low

Step	Action
16	Use the proper cleaning kit to clean all the connectors attached to the receiving (near-end) OCLD Rx port and to the corresponding Tx port on the transmitting (far-end) OCLD. For information on cleaning, see Chapter 9 "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components,* 323-1701-201. Use a network topology diagram to determine the transmitting (far-end) OCLD. ***Note 1:*** If you are using the OMX 4CH + Fiber Manager, clean both ends of the patch-cord between the OMX and the OCLD port. ***Note 2:*** Clean between the OCLD, the SC-to-LC patch panel, and the OMX — Clean each connector separately. — Record the operating power level after you clean each connector and compare it to the value you wrote down in step 11, which allows you to see if there is any improvement to the Rx power.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	it is possible that the patch cord that connects the OCLD to the OMX at the near-end or far-end is broken damaged or bent. Try replacing the patch cord.

CAUTION
Risk of loss of traffic across multiple bands
Do not clean any optical fibers on the optical fiber plant, or on connections to the OMX. This affects traffic over multiple bands. Clean only the connections at the specified OCLD circuit packs.

ATTENTION
If you set a forced switch on the path, make sure you remove the switch when the procedure is completed. Follow Procedure 3-49 "Removing a manual, force, or lockout switch from a protection path" in *Provisioning and Operating Procedures*, 323-1701-310.

If you are using ALS and disabled it during this procedure, re-enable it for each site. Follow Procedure 1-43 "Enabling or disabling automatic laser shutdown" in *Provisioning and Operating Procedures*, 323-1701-310.

—end—

Procedure 8-29
OCLD—TCA - Optical Power Tx High

Probable cause

This alarm becomes active when the laser is operating within an acceptable performance range, but output power level is exceeding the user-defined threshold of the TxPowerHigh parameter. The alarm can also be raised if the user threshold value is not correct.

Properties of the laser change as the circuit pack ages. When these properties approach unacceptable levels the Optical Power Transmit High alarm is raised.

Impact

Minor, non-service-affecting.

—continued—

Procedure 8-29 (continued)
OCLD—TCA - Optical Power Tx High

Precautions

ATTENTION
When you clear this alarm on Optical Metro 5100 shelves, at all times the SP, and at least one non-SP circuit pack that is carrying the database must be seated in the shelf.

ATTENTION
Power fluctuating around user defined TCAs and alarm toggling
This alarm may toggle on the System Manager if the receive optical power reading fluctuates around the user defined TCA threshold. To clear the behavior of alarm toggling, move the user defined TCA threshold away from the power range around which the optical power reading fluctuates, or adjust the power level to the acceptable range so that the alarm is cleared.

CAUTION
Risk of affecting network reliability
Make sure that all connectors are cleaned before you make the connections (or re-connections) described in this procedure. For cleaning information, see the chapter "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components*, 323-1701-201.

CAUTION
Risk of recovery procedures affecting traffic
This alarm is not service-affecting, however the recovery action can be service-affecting if the path is not protected.

—continued—

Procedure 8-29 (continued)
OCLD—TCA - Optical Power Tx High

Action

Step	Action

1 Make sure that the user threshold value is what you really want. If the value is set too high, adjust it to the desired value.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	go to the next step

2

If	Then
the path is protected	switch traffic off of the OCLD. Follow Procedure 3-42 “Removing traffic from an OCLD circuit pack” in *Provisioning and Operating Procedures*, 323-1701-310.
the path is unprotected	go to the next step. Performing the next step can affect traffic.

3 Using the System Manager, take the facilities and the OCLD out-of-service. Follow Procedure 3-13 “Taking a circuit pack facility or SFP facility out-of-service” and Procedure 3-8 “Taking a circuit pack or SFP out-of-service” in *Provisioning and Operating Procedures,* 323-1701-310.

4 Reseat the OCLD. Follow Procedure 3-68 “Reseating a circuit pack” in *Provisioning and Operating Procedures,* 323-1701-310.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	go to the next step

—continued—

Procedure 8-29 (continued)
OCLD—TCA - Optical Power Tx High

Step	Action
5	Replace the OCLD. Follow Procedure 3-2 “Replacing an OCLD circuit pack” in *Maintenance and Replacement Procedures,* 323-1701-546.

If	Then
the alarm clears	the removed circuit pack has faults. You have completed this procedure.
the alarm remains	the circuit pack is not the problem. Reseat the original circuit pack. Contact your next level of support.

ATTENTION
If you set a forced switch on the path, make sure you remove the switch when the procedure is completed. Follow Procedure 3-49 “Removing a manual, force, or lockout switch from a protection path” in *Provisioning and Operating Procedures*, 323-1701-310.

—end—

Procedure 8-30
OCLD—TCA - Optical Power Tx Low

Probable cause

This alarm becomes active when the laser is operating within an acceptable performance range, but output power level is exceeding the user-defined threshold of the TxPowerLow parameter. The alarm can also be raised if the user-defined threshold value is not correct.

Properties of the laser change as the circuit pack ages. When these properties approach unacceptable levels the Optical Power Transmit Low alarm is raised.

This alarm can also be raised when there is the Automatic Laser Shutdown alarm.

Impact

Minor, non-service-affecting.

—continued—

Procedure 8-30 (continued)
OCLD—TCA - Optical Power Tx Low

Precautions

ATTENTION
When you clear this alarm on Optical Metro 5100 shelves, at all times the SP, and at least one non-SP circuit pack that is carrying the database, must be seated in the shelf.

ATTENTION
Power fluctuating around user defined TCAs and alarm toggling
This alarm may toggle on the System Manager if the receive optical power reading fluctuates around the user defined TCA threshold. To clear the behavior of alarm toggling, move the user defined TCA threshold away from the power range around which the optical power reading fluctuates, or adjust the power level to the acceptable range so that the alarm is cleared.

CAUTION
Risk of affecting network reliability
Make sure that all connectors are cleaned before you make the connections (or re-connections) described in this procedure. For cleaning information, see the chapter "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components*, 323-1701-201.

CAUTION
Risk of recovery procedures affecting traffic
This alarm is not service-affecting, however the recovery action can be service-affecting if the path is not protected.

—continued—

Procedure 8-30 (continued)
OCLD—TCA - Optical Power Tx Low

Action

Step	Action

1 Use the System Manager to determine if an Automatic Laser Shutdown alarm is raised.

If	Then
an ALS alarm is raised	follow to Procedure 8-33 “OCLD—Rx Loss of Signal” to clear the alarm. If the alarm clears you have completed this procedure.
an ALS alarm is not raised	go to the next step

2 Make sure that the user-defined threshold value is correct. If the value is set too high, adjust it to the desired value. Follow Procedure 7-7 “Adjusting PM threshold values” in *Provisioning and Operating Procedures*, 323-1701-310.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	go to the next step

3

If	Then
the path is protected	switch traffic off of the OCLD. Follow Procedure 3-42 “Removing traffic from an OCLD circuit pack” in *Provisioning and Operating Procedures*, 323-1701-310.
the path is unprotected	go to the next step. Performing the next step may affect traffic.

4 Reseat the OCLD. Follow Procedure 3-68 “Reseating a circuit pack” in *Provisioning and Operating Procedures,* 323-1701-310.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	go to the next step

—continued—

Procedure 8-30 (continued)
OCLD—TCA - Optical Power Tx Low

Step	Action
5	Replace the OCLD. Follow Procedure 3-2 “Replacing an OCLD circuit pack” in *Maintenance and Replacement Procedures,* 323-1701-546.

If	Then
the alarm clears	the removed circuit pack has faults. You have completed this procedure.
the alarm remains	the circuit pack is not the problem. Reseat the original circuit pack. Contact your next level of support.

ATTENTION
If you set a forced switch on the path, make sure you remove the switch when the procedure is completed. Follow Procedure 3-49 “Removing a manual, force, or lockout switch from a protection path” in *Provisioning and Operating Procedures*, 323-1701-310.

—end—

Procedure 8-31
OCLD—Remote Automatic Laser Shutdown

ATTENTION

If a fiber break occurs and is being repaired when automatic laser shutdown (ALS) or automatic laser recovery (ALR) is active on a fiber, there are impacts on the behavior of the alarms in the system. If you use light to test the broken fiber (with a light source or an optical time domain reflectometer [OTDR]), you clear the ALS alarms. This is because the shelf detects light and clears the Loss of Signal (LOS) condition. As a result, the shelf and the remote shelf power up the laser (depending on whether both Tx and Rx fibers are cut or only one of them is cut). If a Remote Automatic Laser Shutdown alarm is raised on the shelf when the light is removed, the alarm is replaced by an LOS alarm.

If all the channels impacted by the fiber break detect light when the laser is powered up, the Automatic Laser Shutdown alarm is cleared This is an expected behavior because a shelf cannot distinguish between a light source from an optical test set or a light source from a remote shelf.

Probable cause

This circuit pack-level alarm becomes active when a laser is shut down after a fiber break. The alarm is raised on the Rx port of the OCLD of the remote shelf that sends out the signal. Clearing the alarm requires first physically repairing the broken fiber and then restoring traffic through the System Manager. To restore traffic, you can either issue a manual laser activation command or enable automatic laser recovery. Follow this procedure to clear the alarm.

Note 1: If you are using two OCLD circuit packs with different Product Engineering Codes (PECs), a Loss of Signal alarm may be displayed instead of the Remote Automatic Laser Shutdown alarm. The situation may occur if you are using one OCLD from Column 1 and another from Column 2, as shown in Table 8-14.

—continued—

Procedure 8-31 (continued)
OCLD—Remote Automatic Laser Shutdown

Table 8-14
OCLD 1.25 Gbit/s PECs

Column 1	Column 2
NT0H01NA-NH	NT0H01AA-AH
NT0H01PA-PH	NT0H01BA-BH
NT0H01QA-QH	NT0H01CA-CH
NT0H01RA-RH	NT0H01DA-DH
NT0H01SA-SH	NT0H01JA-JH
NT0H01TA-TH	NT0H01KA-KH
NT0H01UA-UH	NT0H01LA-LH
NT0H01VA-VH	NT0H01MA-MH

Impact

Warning, non-service-affecting.

Requirements

You must be logged into the System Manager as an Admin or Operator level user.

The manual laser activation command only needs to be issued at one end of a span that is in ALS mode.

Automatic laser recovery can be enabled only after automatic laser shutdown is enabled.

When a network is in ALS mode, you cannot rely on the light in the fiber to locate a fiber cut. Nortel Networks recommends that you use an OTDR to project light in the fiber when a Loss of Signal alarm is detected. The OTDR device provides information about the location of the fiber cut. You can also use a light source device to generate an optical signal into the fiber. In this case, you troubleshoot the fiber cut in the same way as when the ALS feature is disabled.

After ALS recovery from any major fiber plant disturbance (fiber cut/splice, fiber replacement, adding or removing bands or channels) the optical signal should be re-equalized. Follow the appropriate procedure in *Testing and Equalization Procedures*, 323-1701-222.

—continued—

Procedure 8-31 (continued)
OCLD—Remote Automatic Laser Shutdown

Action

Step	Action	
1	Repair the broken fiber in the field.	
2	**If** you want	**Then**
	manual laser recovery	see Procedure 1-45, "Enabling manual laser recovery" in *Provisioning and Operating Procedures*, 323-1701-310
	automatic laser recovery	see Procedure 1-44, "Enabling or disabling automatic laser recovery" in *Provisioning and Operating Procedures*, 323-1701-310
3	**If**	**Then**
	the alarm clears	you have completed this procedure
	the alarm remains	contact your next level of support

—end—

Procedure 8-32
OCLD—Remote Defect Indication

Probable cause

This alarm becomes active when the following conditions exist:

- when a fault occurs in the signal that is transmitted between the OCLDs. This causes the OCI laser to shut down and a loss of signal alarm to be raised on the subtending equipment. If capable, the subtending equipment transmits a remote defect indication (RDI) signal back to the OCI. When the near-end OCLD receives the RDI signal, an RDI warning, nsa alarm is raised on the Rx port. See Figure 8-1.

  Note: Figure 8-1 shows an example using an external line-terminating equipment to generate the RDI signal. If the OCI is an OCI circuit pack that terminates the line (e.g. OCI SRM GbE/FC) then the OCI will generate the RDI signal.

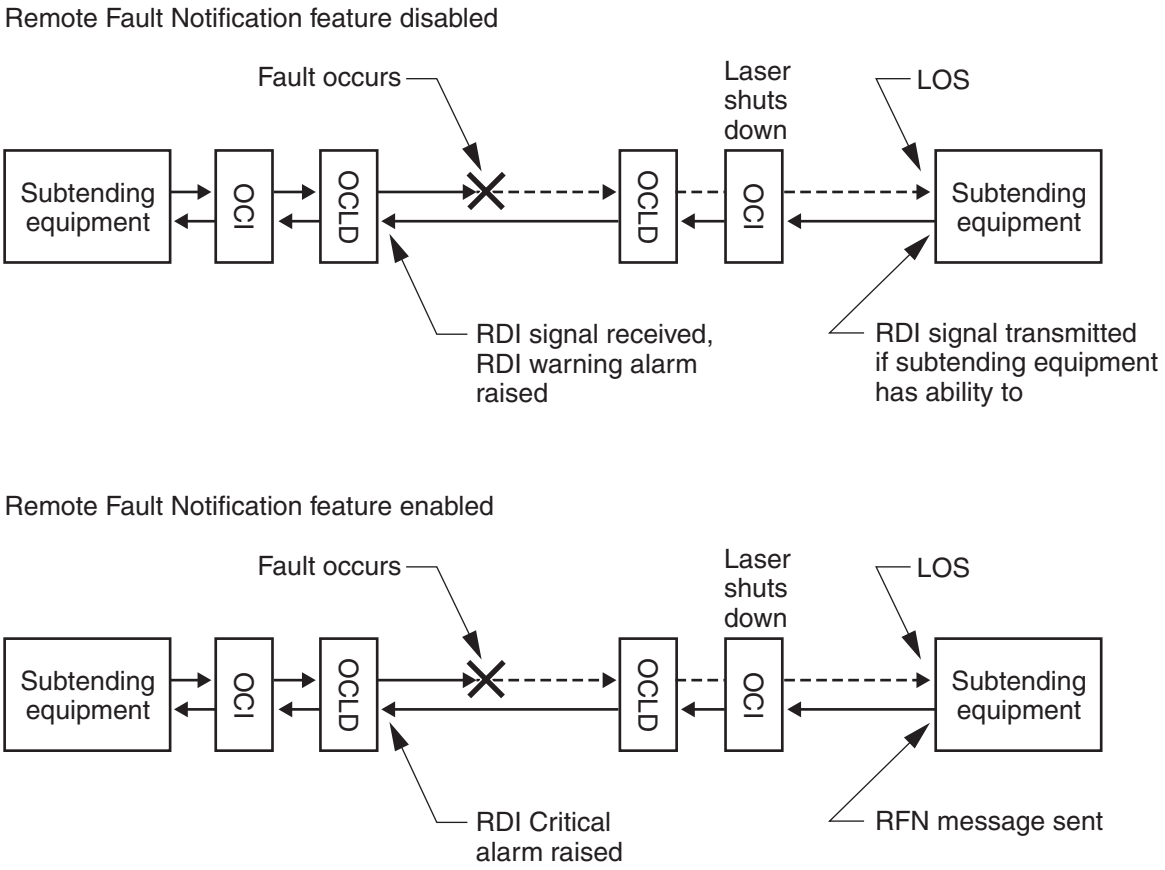
- when a fault occurs in the signal that is transmitted between the OCLDs and the Remote Fault Notification is enabled (For more information on RFN, see "Fault sectionalization" in *Software and User Interface*, 323-1701-101). In this case, the OCLD detecting the fault sends a remote fault notification message in the overhead channel back to the near-end OCLD. When the near-end OCLD receives this remote fault notification message, an RDI Critical, SA alarm is raised on the Rx port. See Figure 8-1.

—continued—

Procedure 8-32 (continued)
OCLD—Remote Defect Indication

Figure 8-1
OCLD–Remote Defect Indication alarm

OM2836p



Note: If you are using two OCLD circuit packs with different Product Engineering Codes (PECs), a Loss of Signal alarm may be raised instead of the Remote Defect Indication alarm. The situation may occur if you are using an OCLD from Column 1 with an OCLD from Column 2, as shown in Table 8-15 on page 8-153.

—continued—

Procedure 8-32 (continued)
OCLD—Remote Defect Indication

Table 8-15
OCLD 1.25 Gbit/s PECs

Column 1	Column 2
NT0H01NA-NH	NT0H01AA-AH
NT0H01PA-PH	NT0H01BA-BH
NT0H01QA-QH	NT0H01CA-CH
NT0H01RA-RH	NT0H01DA-DH
NT0H01SA-SH	NT0H01JA-JH
NT0H01TA-TH	NT0H01KA-KH
NT0H01UA-UH	NT0H01LA-LH
NT0H01VA-VH	NT0H01MA-MH

Impact

Warning, non-service-affecting.

Critical, service-affecting (if Remote Fault Notification is enabled). For more information on RFN, see "Fault sectionalization" in *Software and User Interface*, 323-1701-101.

Requirements

To clear this alarm, use the System Manager to examine the alarms raised by the OCLDs, or other equipment in the signal path, to isolate the cause.

—continued—

Procedure 8-32 (continued)
OCLD—Remote Defect Indication

Action

Step	Action
1	In System Manager, open the Fault–Active Alarms window.
2	Examine the alarms that are raised on the far-end OCLD to determine the cause of the problem. Follow the procedure associated with the problem to clear the alarms.

If	Then
the RDI alarm clears	you have completed this procedure
the RDI alarm remains	contact your next level of support

—end—

Procedure 8-33
OCLD—Rx Loss of Signal

Probable cause

This alarm becomes active when the OCLD circuit pack is not detecting an input signal. One of the following conditions exists:

- an optical fiber is cut, bent, or coiled too tightly
- the received optical power is below the Rx Fail Threshold of the Rx Power Low parameter
- low optical power
- complete loss of optical power
- detection of a SONET loss of signal
- the connector is dirty at the receiving OCLD circuit pack or at the corresponding upstream circuit pack
- the receiving OCLD circuit pack is defective
- the transmitting OCLD circuit pack is defective or missing
- the automatic laser shutdown (ALS) feature is active on the remote shelf where the corresponding OCLD resides
- an upstream OFA/APBE has failed and/or is in alarm
- the amplified network requires re-equalization
- an upstream OFA, APBE, or ECT has failed or the ring is not equalized properly

—continued—

Procedure 8-33 (continued)
OCLD—Rx Loss of Signal

Impact

Table 8-16 lists the impact that this alarm has under different conditions.

Table 8-16
OCLD Rx Loss of Signal alarm impact

Alarm	Conditions	Severity	Impact
Rx Loss of Signal	If any of the following conditions exist: • the path assigned to the OCLD circuit pack is unprotected • the path assigned to the OCLD circuit pack is protected and the matching OCLD has an alarm condition • the OCLD circuit pack is used in a pass-through connection	Critical	Service-affecting
	If any of the following conditions exist: • there is no channel assignment and the facility of the circuit pack is in-service • the path assigned is protected and the matching OCLD is operating correctly	Major	Non-service-affecting

—continued—

Procedure 8-33 (continued)
OCLD—Rx Loss of Signal

Precautions

ATTENTION
When you clear this alarm on Optical Metro 5100 shelves, at all times the SP, and at least one non-SP circuit pack that is carrying the database, must be seated in the shelf.

CAUTION
Risk of recovery procedures affecting traffic
This alarm may not be service-affecting, however the recovery action can be service-affecting if the path is not protected.

ATTENTION
If a fiber break occurs and is being repaired when automatic laser shutdown (ALS) or automatic laser recovery (ALR) is active on a fiber, there are impacts on the behavior of the alarms in the system. If you use light to test the broken fiber (with a light source or an optical time domain reflectometer [OTDR]), you clear the ALS alarms. This is because the shelf detects light and clears the Loss of Signal (LOS) condition. As a result, the shelf and the remote shelf power up the laser (depending on whether both Tx and Rx fibers are cut or only one of them is cut). If a Remote Automatic Laser Shutdown alarm is raised on the shelf when the light is removed, the alarm is replaced by an LOS alarm.

If all the channels impacted by the fiber break detect light when the laser is powered up, the Automatic Laser Shutdown alarm is cleared This is an expected behavior because a shelf cannot distinguish between a light source from an optical test set or a light source from a remote shelf.

CAUTION
Risk of affecting network reliability
Make sure that all connectors are cleaned before you make the connections (or re-connections) described in this procedure. For cleaning information, see the chapter "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components*, 323-1701-201.

—continued—

Procedure 8-33 (continued)
OCLD—Rx Loss of Signal

Action

Step	Action
1	If Automatic Laser Shutdown (ALS) is enabled and active, the lasers must be re-activated before proceeding. Look for ALS alarms on the span. To clear, refer to Procedure 8-31 "OCLD—Remote Automatic Laser Shutdown" in this book. Use a network topology diagram to determine the upstream shelf.
2	Check alarms to make sure the corresponding upstream OCLD(s), OFA(s), or APBE(s) have not failed or are missing. If there are alarms, clear these alarms before proceeding. Use a network diagram to determine the upstream components.
3	Use the System Manager to check if you are receiving OCLD—Rx Loss of Signal on all OCLDs in the same east/west plane, or just on one OCLD. ***Note 1:*** You can record the power level from the Equipment—Facility window in the System Manager. ***Note 2:*** On the Optical Metro 5200 shelf, the east plane is defined as slots 11-18, the west plane is defined as slots 1-8. On the Optical Metro 5100 shelf, the east plane is defined as slots 3 and 4, while the west plane is defined as slots 1 and 2.

If there is LOS	**Then** go to
on all OCLDs of the same band, the same OSID #, and in the same east or west plane	the next step
on the only OCLD in the east/west plane	the next step
on one of multiple OCLDs in the same east/west plane	step 12

—continued—

Procedure 8-33 (continued)
OCLD—Rx Loss of Signal

Step	Action
4	Using a network topology diagram and the System Manager alarms, make note of which shelves, which sites, and which directions have a LOS. Write down on the diagram where the LOSs are located. This should help pinpoint exactly where the fault is. Below are some examples: • For example, if there are three bands at Site X (B1, B2, and B3), and only the east side of B2 has LOS, then the problem is located somewhere in the vicinity of the east B2 OMX or the west side of the far-end B2 OMX. Check for a broken patch-cord, a faulty attenuator, a failed OMX, or if there are amplifiers, check the APBE, or the B2 VOA on the PBE. • Using the same Site X as an example, If the west side of EVERY band/shelf at Site X has an LOS, then the problem lies on the west-side line fiber. The line fiber may be broken, one of the OMXs connected to the outside fiber-plant may be faulty, an OSC coupler tray may be broken, or an upstream amplifier/APBE/ECT/PBE may be to blame. • If a line fiber is completely broken, then you should expect LOS on ALL bands at ALL sites that are originating/terminating a wavelength that passes through the broken fiber. ***Note:*** If intrasite fault sectionalization (IFS) is enabled, there will be indicators to help pinpoint the fault. See Chapter 2 "Troubleshooting fault sectionalization and System Level Equalization Control".
5	**If** / **Then** go to you find the fault location in step 4 — the next step you can find no fault location — step 9
6	**If** / **Then** the path is protected — Once you have pinpointed where the fault is, switch traffic off of the affected fiber(s). Follow Procedure 3-48 "Forcing traffic to one path on a protected channel" in *Provisioning and Operating Procedures*, 323-1701-310 for every OCLD that uses the fiber. Refer to a network topology diagram and the list of Channel Assignments in the System Manager to determine the impacted OCLDs. Go to the next step. the path is unprotected — go to the next step. Performing the next step may affect traffic.

—continued—

Procedure 8-33 (continued)
OCLD—Rx Loss of Signal

Step	Action
7	Once you have located where the fault is, use an optical power meter to find the exact cause of the fault. Start at a point on the fiber where there is light, and follow the signal path, making power measurements at each connector, until the cause of the fault is found. Use a site-fibering diagram to follow the signal flow. Look for a fiber, fiber connector, or optical filter with exceeding amounts of loss. ***Note:*** Look in Chapter 6 "Link engineering components" in *Network Planning and Link Engineering* 323-1701-110 for signal path and component loss values.

CAUTION
DISABLE AUTOMATIC LASER SHUTDOWN FIRST
If Automatic Laser Shutdown (ALS) is enabled, disable ALS for all shelves that will be affected by this maintenance activity. Use a network topology diagram and channel listing to determine the upstream and downstream sites that will be affected when the ring is opened. If you do not know if ALS is enabled or not, assume it is enabled. Follow Procedure 1-43 "Enabling or disabling automatic laser shutdown" in *Provisioning and Operating Procedures*, 323-1701-310 to disable ALS.

8 Fix the problem found in step 7.

If	Then
a fiber is broken, damaged, or bent	replace the fiber
a connector is dirty	refer to Chapter 9 "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components*, 323-1701-201
a component or optical filter is faulty	refer to Chapter 2 "Replacing shelf components" in *Maintenance and Replacement Procedures* in 323-1701-546

If	Then
the alarm remains	go to the next step
the alarm clears	you have completed the procedure

—continued—

Procedure 8-33 (continued)
OCLD—Rx Loss of Signal

Step	Action	
9	**If** there is OCLD—Rx Loss of Signal	**Then** go to
	on the only OCLD in the east/west plane	step 10
	otherwise	step 11

10	**If**	**Then**
	there are amplifiers between the upstream and downstream OCLD	there is problem at the amplifier site, the ring requires re-equalization, or both. Contact your next level of support to troubleshoot. If troubleshooting does not clear the alarm, go to step 12.
	there are no amplifiers between the upstream and downstream OCLD	go to step 12

11	**If**	**Then**
	there are amplifiers between the upstream and downstream OCLDs	there is problem at the amplifier site, the ring requires re-equalization, or both. Contact your next level of support.
	there are no amplifiers between the upstream and downstream OCLDs	Contact your next level of support

12	**If**	**Then**
	the path is protected	switch traffic off of the OCLD. Follow Procedure 3-48 “Forcing traffic to one path on a protected channel” in *Provisioning and Operating Procedures*, 323-1701-310. Go to the next step.
	the path is unprotected	go to the next step. Performing the next step may affect traffic.

—continued—

Procedure 8-33 (continued)
OCLD—Rx Loss of Signal

Step	Action
13	If Automatic Laser Shutdown (ALS) is enabled, disable ALS for both the near-end and far-end shelves which contain the alarming OCLD and its corresponding upstream OCLD. Use a network topology diagram and channel listing to determine the near-end and far-end sites. If you do not know if ALS is enabled or not, assume it is enabled. Follow Procedure 1-43 "Enabling or disabling automatic laser shutdown" in *Provisioning and Operating Procedures*, 323-1701-310 to disable ALS.
14	Make sure the optical fiber is connected correctly on the OCLD Rx port at the near-end site and on the OCLD Tx port at the far-end site. If you are using the OMX 4CH + Fiber Manager, check both ends of the patch-cord between the OMX and OCLD. ***Note:*** Use a network topology diagram to determine the near-end and far-end sites.

If	Then
the alarm clears	you have completed the procedure
the alarm remains	go to the next step

Step	Action
15	Using the System Manager, record the receive power level on the OCLD circuit pack. Write down the power level. Make sure that the receive power level is within the operational threshold. Refer to Table 2-23 in *Technical Specifications*, 323-1701-180 for the correct Rx power threshold. ***Note:*** You can record the power level from the Equipment—Facility window in the System Manager.

If	Then
the received power is within the operational threshold	the problem is with the OCLD. Go to the next step.
the received power is not within the operational threshold	go to step 18

Step	Action
16	Reseat the OCLD. Follow Procedure 3-68 "Reseating a circuit pack" in *Provisioning and Operating Procedures,* 323-1701-310.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	go to the next step

Step	Action
17	Replace the OCLD. Follow Procedure 3-2 "Replacing an OCLD circuit pack" in *Maintenance and Replacement Procedures*, 323-1701-546.

If	Then
the alarm clears	you have completed the procedure
the alarm remains	contact your next level of support

—continued—

Procedure 8-33 (continued)
OCLD—Rx Loss of Signal

Step	Action
18	Use the System Manager to check the transmitting power of the corresponding upstream OCLD. Make sure that the transmit power level is within the operational threshold. ***Note 1:*** You can record the power level from the Equipment—Facility window in the System Manager. ***Note 2:*** The "upstream" OCLD is the OCLD that is originating the signal which the alarming "downstream" OCLD is receiving. Use a network topology map to determine the "upstream" OCLD. ***Note 3:*** Refer to Table 2-23 in *Technical Specifications*, 323-1701-180 for minimum and maximum Tx power levels.

If the transmit power level is	**Then** go to
not within the operational threshold	the next step
within the operational threshold	step 20

—continued—

Procedure 8-33 (continued)
OCLD—Rx Loss of Signal

Step	Action
19	Replace the upstream OCLD. Follow Procedure 3-2 "Replacing an OCLD circuit pack" in *Maintenance and Replacement Procedures*, 323-1701-546.

If	Then
the alarm clears	the removed circuit pack has faults. You have completed this procedure.
the alarm remains	make sure the Tx port of the new circuit pack is within the operational threshold and go to the next step.

20 Use the proper cleaning kit to clean all the connectors attached to the receiving (near-end) OCLD Rx port and to the Tx Port on the transmitting (far-end) OCLD. For information on cleaning, see Chapter 9 "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components,* 323-1701-201. Use a network topology diagram to determine the transmitting (far-end) OCLD.

Note: If you are using the OMX 4CH + Fiber Manager, clean both ends of the patch-cord between the OMX and the OCLD.

— Clean each connector separately.

— Record the operating power level after you clean each connector and compare it to the value you wrote down in step 15, this will allow you to see if there is any improvement to the Rx power.

CAUTION
Risk of loss of traffic across multiple bands
Do not clean any optical fibers on the optical fiber plant, or on connections to the OMX. This affects traffic over multiple bands. Clean only the pigtail connections at the specified OCLD circuit packs.

If	Then
the alarm clears	you have completed the procedure
the alarm remains	it is possible that the patch cord that connects the OCLD to the OMX at the near-end or far-end is broken damaged or bent. Try replacing the patch cord.

—continued—

Procedure 8-33 (continued)
OCLD—Rx Loss of Signal

Step	Action

ATTENTION

If you set a forced switch on the path, make sure you remove the switch when the procedure is completed. Follow Procedure 3-49 "Removing a manual, force, or lockout switch from a protection path" in *Provisioning and Operating Procedures*, 323-1701-310.

If you are using ALS and disabled it during this procedure, re-enable it for each site. Follow Procedure 1-43 "Enabling or disabling automatic laser shutdown" in *Provisioning and Operating Procedures*, 323-1701-310.

—end—

Procedure 8-34
OCLD—Transceiver Degrade

Probable cause

This alarm becomes active when the laser is operating within an acceptable performance range, but the laser module on the circuit pack is reporting that the output power is beginning to degrade.

Properties of the laser change as the circuit pack ages. When these properties approach unacceptable levels the Transceiver Degrade alarm is raised.

Impact

Minor, non-service-affecting.

Precautions

ATTENTION

When you clear this alarm on Optical Metro 5100 shelves, at all times the SP, and at least one non-SP circuit pack that is carrying the database, must be seated in the shelf.

CAUTION

Risk of recovery procedures affecting traffic

This alarm is not service-affecting, however the recovery action can be service-affecting if the path is not protected.

CAUTION

Risk of affecting network reliability

Make sure that all connectors are cleaned before you make the connections (or re-connections) described in this procedure. For cleaning information, see the chapter "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components*, 323-1701-201.

—continued—

Procedure 8-34 (continued)
OCLD—Transceiver Degrade

Action

Step	Action	
1	**If**	**Then**
	the path is protected	switch traffic off of the OCLD. Follow Procedure 3-48 "Forcing traffic to one path on a protected channel" in *Provisioning and Operating Procedures*, 323-1701-310. Then go to the next step.
	the path is unprotected	go to the next step. Performing the next step may affect traffic.
2	Reseat the OCLD. Follow Procedure 3-68 "Reseating a circuit pack" in *Provisioning and Operating Procedures,* 323-1701-310.	
	If	**Then**
	the alarm clears	you have completed this procedure
	the alarm remains	go to the next step
3	Replace the OCLD. Follow Procedure 3-2 "Replacing an OCLD circuit pack" in *Maintenance and Replacement Procedures,* 323-1701-546.	
	If	**Then**
	the alarm clears	the removed circuit pack has faults. You have completed this procedure.
	the alarm remains	the circuit pack is not the problem. Reseat the original circuit pack. Contact your next level of support.

ATTENTION
If you set a forced switch on the path, make sure you remove the switch when the procedure is completed. Follow Procedure 3-49 "Removing a manual, force, or lockout switch from a protection path" in *Provisioning and Operating Procedures*, 323-1701-310.

—end—

Procedure 8-35
OCLD—Unassigned Optical System Identifier

Probable cause

This alarm becomes active when an OCLD is seated in the same shelf, in the same direction (east or west plane) with another OCLD, OTR or MOTR, and both circuit packs are of the same band and channel, and the OSID of the first circuit is unassigned.

For example

- An OTR (band 1, channel 1) is seated in the west plane of shelf in an unprovisioned slot. When the system autoprovisions the OTR, the OSID is not assigned (the field is left blank).
- An OCLD (band 1, channel 1) is seated in the west plane of the same shelf, in an unprovisioned slot. When the system autoprovisions the OCLD, an Unassigned OSID alarm is raised on the OCLD.

  Note 1: The OSID is unassigned when circuit packs autoprovision, so this alarm is raised when circuit packs are first seated in a shelf, in an unprovisioned slot.

  Note 2: This alarm is also raised when slots are manually pre-provisioned with no OSID value, and then the circuit packs are seated in these slots and the Inventory Admin state is set to in-service.

Impact

Table 8-17
OCLD Unassigned OSID alarm severity and impact

Condition	Severity	Impact
If any of the following conditions exist: • the path assigned to the OCLD is unprotected • the path assigned to the OCLD is protected and the matching OCLD has an alarm condition • the OCLD circuit pack is used in a pass-through connection	Critical	Service-affecting
If any of the following conditions exist: • there is no channel assignment • the path assigned is protected and the matching OCLD is operating correctly	Minor	Non-service-affecting

—continued—

Procedure 8-35 (continued)
OCLD—Unassigned Optical System Identifier

Precautions

CAUTION
Risk of interfering with alarm reporting
It is essential that the OSID for all line-facing equipment is provisioned correctly for bridge sites, for hub and spoke rings, and for rings with intrasite fault sectionalization (IFS). Refer to the "Rules for provisioning OSIDs" in *Provisioning and Operating Procedures*, 323-1701-310.

Know the network topology and exercise caution when provisioning OSIDs. Incorrect OSID provisioning can generate unnecessary alarms and can cause the IFS feature to operate incorrectly.

Action

Step	Action	
1	Refer to the "Rules for provisioning OSIDs" and the associated Precautions in Procedure 3-36 "Provisioning the optical system identifier (OSID)" in *Provisioning and Operating Procedures*, 323-1701-310.	
2	Provision the correct OSID for the circuit pack. Follow Procedure 3-36 "Provisioning the optical system identifier (OSID)" in *Provisioning and Operating Procedures*, 323-1701-310.	
3	**If**	**Then**
	the alarm clears	you have completed this procedure
	the alarm remains	contact your next level of support

—end—

Procedure 8-36
OCLD—Unknown Circuit Pack

Probable cause

This alarm becomes active when

- the SP circuit pack fails to retrieve the manufacturing data on the circuit pack (data may be missing or may be incorrect)
- the circuit pack type cannot be recognized by the software (the Release version of the circuit pack is not supported by the Release version of the shelf)

If the slot is provisioned for an OCLD, the System Manager displays OCLD in the Card column of the Fault–Active Alarms window.

Impact

Major, non-service-affecting.

Precautions

CAUTION
Risk of recovery procedures affecting traffic
This alarm may not be service-affecting, however the recovery action can be service-affecting if the path is not protected.

CAUTION
Risk of affecting network reliability
Make sure that all connectors are cleaned before you make the connections (or re-connections) described in this procedure. For cleaning information, see the chapter "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components*, 323-1701-201.

—continued—

Procedure 8-36 (continued)
OCLD—Unknown Circuit Pack

Action

Step	Action
1	Read the latest Baseline Report to see if the circuit pack is compatible with the Release version of the shelf. ***Note:*** Baseline Reports are available through Nortel Networks. Refer to the "Technical assistance service telephone numbers" section in the "About this document" chapter in this book.

If the circuit pack	**Then**
is compatible	go to step 3
is incompatible	replace it with a compatible circuit pack. Follow Procedure 3-2 "Replacing an OCLD circuit pack" in *Maintenance and Replacement Procedures,* 323-1701-546. Then go to the next step.

2	**If**	**Then**
	the alarm clears	you have completed this procedure
	the alarm remains	go to the next step

3	**If**	**Then**
	the path is protected	switch traffic off of the OCLD. Follow Procedure 3-48 "Forcing traffic to one path on a protected channel" in *Provisioning and Operating Procedures*, 323-1701-310.
	the path is unprotected	go to the next step. Performing the next step may affect traffic.

4 Reseat the OCLD. Follow Procedure 3-68 "Reseating a circuit pack" in *Provisioning and Operating Procedures*, 323-1701-310.

If	**Then**
the alarm clears	you have completed this procedure
the alarm remains	go to the next step

—continued—

Procedure 8-36 (continued)
OCLD—Unknown Circuit Pack

Step	Action
5	Replace the OCLD. Follow Procedure 3-2 "Replacing an OCLD circuit pack" in *Maintenance and Replacement Procedures,* 323-1701-546.

If	Then
the alarm clears	the removed circuit pack has faults. You have completed this procedure.
the alarm remains	the circuit pack is not the problem. Reseat the original circuit pack. Contact your next level of support.

ATTENTION

If you set a forced switch on the path, make sure you remove the switch when the procedure is completed. Follow Procedure 3-49 "Removing a manual, force, or lockout switch from a protection path" in *Provisioning and Operating Procedures*, 323-1701-310.

—end—

Clearing OMX alarms

Use the procedures in this chapter to clear OMX alarms. Perform the steps in each procedure in the order that they appear. After you clear the alarm, stop the procedure. If the alarm does not clear, contact your next level of technical support.

For a list of OMX types, see the "OMX modules" chapter in *Hardware Description*, 323-170-102.

Before you begin

Read "Troubleshooting the Optical Metro 5100/5200" chapter in this book for detailed information on how to respond to alarm indicators (audible alarms and lamps). The "Alarm description" chapter in this book explains events, warnings, and error messages.

Requirements

Exposed circuit packs can be damaged by electrostatic discharge. When handling circuit packs always wear a wrist strap that is grounded to the shelf maintenance panel, and shoe straps if necessary. For more information, refer to the "Handling circuit packs" section of "Isolating faults that do not generate alarms" in this book.

Precautions

CAUTION
Risk of laser radiation
The Optical Metro 5100/5200 operates up to a Hazard Level of k x 3A (IEC 60825-2:2000) or 1M (IEC 60825-2:2004). Use only viewing instruments with proper optical attenuation.

CAUTION
Risk of affecting network reliability
Make sure that all connectors are cleaned before you make the connections (or re-connections) described in this procedure. For cleaning information, see the chapter "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components*, 323-1701-201.

Procedure list

Table 9-1 lists the procedures in this chapter and indicates whether or not the alarm is masked if the equipment or facility that raises the alarm is out-of-service.

Table 9-1
Procedures for clearing OMX alarms

Procedure	Page	Alarm is masked if equipment or facility is OOS
9-1 OMX—Autoprovisioning Mismatch, Optical Tray Mismatch	9-3	Equipment
9-2 OMX—Band Alarm Indication Signal	9-6	Facility
9-3 OMX—Band (1–9) Input Failure (East) or (West)	9-8	Not applicable
9-4 OMX—Optical Signal Failure (Tx) or (Rx)	9-10	Not applicable
9-5 OMX—Optical Tray Missing	9-15	Equipment
9-6 OMX—Unassigned Optical System Identifier	9-17	Equipment
9-7 OMX—Unknown Circuit Pack	9-19	Equipment

Procedure 9-1
OMX—Autoprovisioning Mismatch, Optical Tray Mismatch

Probable cause

The Autoprovisioning Mismatch alarm becomes active when

- the type of OMX connected to the shelf is not supported by the current release

The Optical Tray Mismatch alarm becomes active when

- the type of OMX connected to the shelf is different from the type of OMX that the shelf is provisioned for
- a component other than an OMX (Standard) is installed in the drawer that is provisioned for the OMX (for example, an ECT)

Impact

Table 9-2 lists the impact that these alarms have under different conditions.

Table 9-2
OMX Autoprovisioning Mismatch and Optical Tray Mismatch alarm impact

Alarm	Conditions	Severity	Impact
Autoprovisioning Mismatch	—	Major	Non-service-affecting
Optical Tray Mismatch	—	Minor	Non-service-affecting

Precautions

CAUTION
Risk of recovery procedures affecting traffic
This alarm is not service-affecting, however the recovery action can be service-affecting if the path is not protected.

CAUTION
Risk of affecting network reliability
Make sure that all connectors are cleaned before you make the connections (or re-connections) described in this procedure. For cleaning information, see the chapter "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components*, 323-1701-201.

—continued—

Procedure 9-1 (continued)
OMX—Autoprovisioning Mismatch, Optical Tray Mismatch

Action

Step	Action

1 Make sure the OMX provisioning data in the System Manager matches the OMX connected to the shelf and that the OMX connected to the shelf is the correct one for that shelf. Do this in System Manager under Equipment-Inventory, and double-click on the slot with the OMX indicating the alarm. In the window that opens, under "Provisioning Data", verify that the "Circuit Pack Type", "WDM Type", "Band", and "# of Channels" fields all correspond to the OMX connected to the shelf.

Note 1: "WDM Type" and "# of Channels" are included to distinguish between a DWDM OMX, a CWDM OMX, and an ITU CWDM OMX. There are two types of CWDM OMX, single channel and quad-channel.

Note 2: Make sure that the OMX connected to the shelf is the correct OMX for the shelf. Refer to a site inventory to determine if it is the correct OMX. The band of the OCLDs/OTRs/MOTRs must correlate with the band of the OMX(s). Optical Metro 5100 shelves use CWDM OMXs, while Optical Metro 5200 shelves can use either DWDM or CWDM OMXs, depending on the application.

If	**Then** go to
both the connected OMX and the System Manager provisioning data are correct	step 3
the System Manager provisioning data is correct, but the connected OMX is wrong	the next step
the System Manager provisioning data is wrong, but the connected OMX is correct	step 3
both the connected OMX and the System Manager provisioning data are wrong.	the next step

2 Replace the OMX with the correct one. Follow the procedure appropriate for the type of OMX you are replacing in the "Replacing shelf components" chapter of *Maintenance and Replacement Procedures*, 323-1701-546.

If	**Then**
the alarm clears	you have completed the procedure
the alarm remains	go to the next step

—continued—

Procedure 9-1 (continued)
OMX—Autoprovisioning Mismatch, Optical Tray Mismatch

Step	Action
3	Put the OMX out of service. See Procedure 3-8 "Taking a circuit pack or SFP out-of-service" in *Provisioning and Operating Procedures*, 323-1701-310.
4	In the System Manager Equipment-Inventory screen, right-click on the OMX you just took OOS, and choose the "Delete" option from the pop-up menu. *A confirmation window appears. Click "Yes".*
5	Manually provision the OMX with the correct OMX type and Band type. Follow Procedure 3-27 "Manually provisioning an OMX" in *Provisioning and Operating Procedures*, 323-1701-310.

If	Then
the alarm clears	you have completed the procedure
the alarm remains	go to the next step

Step	Action
6	Replace the OMX with another OMX of the same type. Follow the procedure appropriate to the type of OMX you are replacing in the "Replacing shelf components" chapter of *Maintenance and Replacement Procedures*, 323-1701-546.

If	Then
the alarm clears	the removed OMX has faults. You have completed this procedure.
the alarm remains	the OMX is not the problem. Replace the original OMX. Contact your next level of support.

—end—

Procedure 9-2
OMX—Band Alarm Indication Signal

Probable cause

If the intrasite fault sectionalization feature (IFS) is enabled, Band Input Failure alarms downstream from the intersite fiber break are replaced by a Band Alarm Indication Signal alarm. This alarm becomes active when all provisioned OCLD, OTR, or MOTR circuit packs associated with the OMX have similar input failures, and the IFS feature has identified (through Optical Signal Failure Tx/Rx alarms of Shelf/Site Input Failure alarms) a failed fiber span as the cause of the failure.

In order to clear this alarm, the trouble that caused the Shelf Input Failure, Site Input Failure, or Optical Signal Failure alarms must be resolved, and those alarms must be cleared.

This alarm is raised on the OTS Rx port.

Impact

Warning, non service-affecting.

Action

Step	Action	
1	Use the System Manager to determine if OSC–Shelf Input Failure, OSC–Site Input Failure, and OMX–Optical Signal Failure alarms are raised.	
2	**If**	**Then**
	OSC–Shelf Input Failure is raised	follow Procedure 15-22 “OSC—Shelf Input Failure”. Go to step 3.
	OSC–Site Input Failure is raised	follow Procedure 15-23 “OSC—Site Input Failure”. Go to step 3.

—continued—

Procedure 9-2 (continued)
OMX—Band Alarm Indication Signal

Step	Action	
3	**If**	**Then**
	the alarm clears	you have completed this procedure
	the alarm remains	go to the next step
4	**If**	**Then**
	OMX–Optical Signal Failure is raised	follow Procedure 9-4 “OMX—Optical Signal Failure (Tx) or (Rx)”. Go to the next step.
	OMX–Optical Signal Failure is not raised	contact your next level of support.
5	**If**	**Then**
	the alarm clears	you have completed this procedure
	the alarm remains	contact your next level of support

—end—

Procedure 9-3
OMX—Band (1–9) Input Failure (East) or (West)

Probable cause

This alarm becomes active when all provisioned OCLD, OTR, or MOTR circuit packs associated with the OMX or connected to a CPL system have an optical input failure (Rx Loss of Signal) or are receiving an Rx Invalid Signal alarm.

A Band Input Failure alarm is only raised when there is more than one channel in the band. If there is a single-channel band, only an Rx Loss of Signal alarm is raised. If a Band Input Failure alarm is active, the most likely cause is due to a broken intrasite fiber.

If an Rx Loss of Signal alarm is raised, the most likely cause is due to a broken pigtail or patch cord.

When multiple bands in a network are affected by a Band Input Failure alarm, the most likely cause is the backbone fiber (degradation or broken fiber).

Impact

Critical, service-affecting.

Precautions

CAUTION
Risk of affecting network reliability
Make sure that all connectors are cleaned before you make the connections (or re-connections) described in this procedure. For cleaning information, see the chapter "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components*, 323-1701-201.

Action

Step	Action
1	Use a network topology diagram to determine where the first Band Input Failure is raised.

—continued—

Procedure 9-3 (continued)
OMX—Band (1–9) Input Failure (East) or (West)

Step	Action
2	Check alarms to make sure the corresponding upstream circuit pack has not failed or is missing.
3	For all line facing circuit packs (OCLDs, OTRs, MOTRs), record the received power level on the circuit pack. You can record the power level from the Equipment—Facility window in the System Manager. Make sure that the receiving power level is within the operational threshold. Refer to tables in *Technical Specifications*, 323-1701-180, for the operational power levels that are acceptable for the type of equipment being measured.
4	Record the transmitted power level on the corresponding upstream circuit pack. You can record the power level from the Equipment—Facility window in the System Manager. Make sure that the transmitted power level is within the operational threshold.

CAUTION
Risk of loss of traffic across multiple bands
Do not disconnect or clean any optical fibers on the optical fiber plant, or on connections to the OMX if the Band Input Failure does not affect all bands. Ensure traffic is routed on a different path before disconnecting any fiber.

5 To reliably trace the cause of a Band Input Failure, a network topology diagram is required.

a. Use the network topology diagram to locate where the first Band Input Failure is raised.

b. On the diagram, determine from which node the signal level dropped, to determine the origin of the Band Input Failure.

c. Mark the fiber span between the originating point and alarm point as suspect.

d. Repeat step 5a to 5c for each Band Input Failure alarm.

Note: If a span is marked as suspect for all Band Input Failure alarms, that span is the most likely to be the root cause of the alarms.

6 Perform the appropriate actions to resolve the problem on the suspect span.

7

If	Then
the alarm clears	you have completed this procedure
the alarm remains	contact your next level of support

—end—

Procedure 9-4
OMX—Optical Signal Failure (Tx) or (Rx)

An Optical Signal Failure alarm is raised against the equipment at both ends of the suspect fiber span. The beginning of the suspect span is identified by an Optical Signal Failure Tx alarm, while the end of the suspect span is identified by a corresponding Optical Signal Failure Rx alarm.

Depending on the network and site topology, several Optical Signal Failure alarms are possible. The IFS feature raises Optical Signal Failure alarms at all the sites where a broken fiber would cause the observed service failures.

Probable cause

This alarm becomes active when the IFS feature identifies a failed WDM fiber at an OMX. This alarm indicates that there is a failed fiber between this OMX and a connected component to the east or to the west. The alarm is raised against the Thru (Rx or Tx) or OTS (Rx or Tx) ports of either the east or west OMX (band 1 to 8).

Impact

Critical, service-affecting.

Requirements

If an Intrasite Communication Failure alarm is active anywhere in the ring, clear this alarm before performing this procedure. Follow Procedure 15-10 "OSC—Intrasite Communication Failure" or Procedure 13-21 "SP—Intrasite Communication Failure".

After clearing the Intrasite Communication Failure alarm, the IFS alarms may change. Follow the appropriate procedure for the identified optical signal failures.

Perform the following steps at each site where an Optical Signal Failure alarm is raised until all Optical Signal Failure alarms are cleared.

—continued—

Procedure 9-4 (continued)
OMX—Optical Signal Failure (Tx) or (Rx)

Precautions

CAUTION
Risk of affecting network reliability
Make sure that all connectors are cleaned before you make the connections (or re-connections) described in this procedure. For cleaning information, see the chapter "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components*, 323-1701-201.

Action

Step	Action

1 In the Active Alarms window, determine if the OSC—Intrasite Communication Failure or SP—Intrasite Communication Failure alarm is present on the network.

If this alarms is	**Then** go to
present on the network	step 2
not present on the network	step 4

2 Clear the Intrasite Communication Failure alarm. Follow "OSC—Intrasite Communication Failure" on page 15-25 or "SP—Intrasite Communication Failure" on page 13-41.

Note: It takes a minimum of 10 seconds for the alarms to clear.

If the Intrasite Communication Failure alarm	**Then**
clears	you have completed this procedure
does not clear	go to the next step

3 Clearing the Intrasite Communication Failure alarm can change the Optical Signal Failure alarms.

If clearing the Intrasite Communication alarm	**Then**
cleared all the optical signal failure alarms in the system	you have completed this procedure
otherwise	go to the next step

—continued—

Procedure 9-4 (continued)
OMX—Optical Signal Failure (Tx) or (Rx)

Step	Action
4	Make sure that both ends of the optical fiber are physically connected to the equipment. This includes checking the Band Add, Band Drop, OTS IN, OTS OUT, THRU-IN, and THRU-OUT of the alarming OMX. Refer to the appropriate procedures in Chapter 3, "Connecting components" in *Connection Procedures*, 323-1701-221.
5	Disconnect the fiber at the Tx equipment and use an optical power meter and a patch cord to measure the optical power coming from the equipment. Refer to tables in *Technical Specifications,* 323-1701-180, for the operational power levels that are acceptable for the type of equipment being measured.
6	**If** the optical power — **Then** go to is above the operational threshold — the next step is below the operational threshold — step 9
7	Disconnect the fiber at the Rx equipment and use an optical power meter to measure the optical power coming from the Tx equipment. Refer to tables in *Technical Specifications,* 323-1701-180, for the operational power levels that are acceptable for the type of equipment being measured.
8	**If** the optical power — **Then** go to is above the operational threshold — step 12 is below the operational threshold — step 15
9	Use the proper cleaning kit to clean the connectors. For information on cleaning, see "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components,* 323-1701-201. — Clean each connector. — Record the operating power level after you clean each connector and compare it to the value you wrote down, this will allow you to see if there is any improvement to the power levels.
10	Reconnect the fiber that was disconnected in step 5. Go to the next step.
11	**If** — **Then** the alarm clears — you have completed the procedure the alarm remains — go to step 20

—continued—

Procedure 9-4 (continued)
OMX—Optical Signal Failure (Tx) or (Rx)

Step	Action
12	Use the proper cleaning kit to clean the connectors. For information on cleaning, see "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components,* 323-1701-201. — Clean each connector. — Record the operating power level after you clean each connector and compare it to the value you wrote down, this will allow you to see if there is any improvement to the power levels.
13	Reconnect the fiber that was disconnected in step 7. Go to the next step.
14	**If** / **Then** the alarm clears — you have completed the procedure the alarm remains — go to step 18
15	Replace the fiber. Clean the new fiber and the optical connectors on the equipment. For information on cleaning, see "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components,* 323-1701-201. ***Note:*** It will take at least 10 seconds for the alarms to clear after the problem is resolved.
16	**If** / **Then** the alarm clears — you have completed the procedure the alarm remains — clean all the optical connectors for the Tx and Rx equipment again. Go to the next step. For information on cleaning, see "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components,* 323-1701-201.
17	**If** / **Then** the alarm clears — you have completed the procedure the alarm remains — go to the next step
18	Check for an optical signal failure at a downstream site. Go to the next step.
19	**If** at a downstream site / **Then** there is an optical signal failure — repeat this procedure, beginning with step 4, at the downstream site otherwise — go to step 20

—continued—

Procedure 9-4 (continued)
OMX—Optical Signal Failure (Tx) or (Rx)

Step	Action	
20	Check for an optical signal failure at an upstream site. Go to the next step.	
21	**If** at an upstream site	**Then**
	there is an optical signal failure	repeat this procedure, beginning with step 4, at the upstream site
	otherwise	contact your next level of support
		—end—

Procedure 9-5
OMX—Optical Tray Missing

Probable cause

This alarm becomes active when the OMX is not present or defective, or the RJ45 cable is defective or is not correctly connected to the OMXI port in the maintenance panel or to the monitor port on the OMX.

This alarm is also active when the OMX is not connected to the port in the equipment inventory unit (EIU).

Impact

Minor, non-service-affecting.

If the OMX is actually removed from the shelf, the Loss of Signal or Band Input Failure alarms will be raised to reflect the loss of traffic. If only the RJ45 cable is disconnected, traffic is not affected.

Precautions

CAUTION
Risk of affecting network reliability
Make sure that all connectors are cleaned before you make the connections (or re-connections) described in this procedure. For cleaning information, see the chapter "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components*, 323-1701-201.

Action

Step	Action
1	Determine if OMX1 or OMX2 raised the alarm.
2	Disconnect the OMX cable from the OMX port in the maintenance panel.
3	Wait five minutes and then reconnect the cable.

—continued—

Procedure 9-5 (continued)
OMX—Optical Tray Missing

Step	Action	
4	**If**	**Then**
	the alarm clears	you have completed this procedure
	the alarm remains	go to the next step
5	Disconnect the OMX cable from the port on the OMX.	
6	Wait one minute and then reconnect the cable.	
7	**If**	**Then**
	the alarm clears	you have completed this procedure
	the alarm remains	go to the next step
8	Replace the OMX cable.	
9	**If**	**Then**
	the alarm clears	you have completed this procedure
	the alarm remains	go to the next step
10	Replace the OMX. Follow the procedure appropriate to the type of OMX you are replacing in the "Replacing shelf components" chapter in *Maintenance and Replacement Procedures,* 323-1701-546.	
11	**If**	**Then**
	the alarm clears	you have completed this procedure
	the alarm remains	contact your next level of support

—end—

Procedure 9-6
OMX—Unassigned Optical System Identifier

Probable cause

This alarm becomes active when an OMX is connected to a shelf, in the same direction (see Note) with another OMX, and the following conditions exist:

- both OMXs are of the same type (CDWM or DWDM) and band (1 to 8 C-band or L-band)
- or one OMX is Quad-C and the band of the other OMX is between 1 and 4
- or one OMX is a Quad-L and the band of the other OMX is between 5 and and 8
- the first OMX has an unassigned optical system identifier (OSID)

Note: The four OMX interface ports in the shelf maintenance panel do specify a direction, two for east and two for west.

Impact

Minor, non-service-affecting.

Precautions

CAUTION
Risk of interfering with alarm reporting
It is essential that the OSID for all line-facing equipment is provisioned correctly for bridge sites, for hub and spoke rings, and for rings with intrasite fault sectionalization (IFS). Refer to the "Rules for provisioning OSIDs" in *Provisioning and Operating Procedures*, 323-1701-310.

Know the network topology and exercise caution when provisioning OSIDs. Incorrect OSID provisioning can generate unnecessary alarms and can cause the IFS feature to operate incorrectly.

—continued—

Procedure 9-6 (continued)
OMX—Unassigned Optical System Identifier

Action

Step	Action
1	Refer to the "Rules for provisioning OSIDs" and the associated Precautions in Procedure 3-36 "Provisioning the optical system identifier (OSID)" in *Provisioning and Operating Procedures*, 323-1701-310.
2	Provision the correct OSID for the circuit pack. Follow Procedure 3-36 "Provisioning the optical system identifier (OSID)" in *Provisioning and Operating Procedures*, 323-1701-310.

—end—

Procedure 9-7
OMX—Unknown Circuit Pack

Probable cause

This alarm becomes active when the SP circuit pack fails to retrieve the manufacturing data from the OMX (the data may be missing or may be incorrect).

Impact

Major, non-service-affecting.

Precautions

CAUTION
Risk of affecting network reliability
Make sure that all connectors are cleaned before you make the connections (or re-connections) described in this procedure. For cleaning information, see the chapter "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components*, 323-1701-201.

Actions

Step	Action

1 Replace the OMX. Follow the procedure appropriate to the type of OMX you are replacing in the chapter "Replacing shelf components" in *Maintenance and Replacement Procedures*, 323-1701-546.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	contact your next level of support

—end—

Clearing ECT/PBE alarms

Use the procedures in this chapter to clear alarms raised by an equalizer coupler tray (ECT) or per-band equalizer (PBE) module. Perform the steps in each procedure in the order that they appear. After you clear the alarm, stop the procedure. If the alarm does not clear, contact your next level of technical support.

For a list of ECT module types, see the "ECT" chapter in *Hardware Description*, 323-1701-102. For a list of PBE types, see the "Per Band Equalizer" chapter in *Hardware Description*, 323-170-102.

Before you begin

Read "Troubleshooting the Optical Metro 5100/5200" chapter in Part 1 of the *Trouble Clearing and Alarms Reference Guide*, for detailed information on how to respond to alarm indicators (audible alarms and lamps). The "Alarm description" chapter in Part 1 of the *Trouble Clearing and Alarms Reference Guide* explains events, warnings, and error messages.

Precautions

CAUTION
Risk of laser radiation
The Optical Metro 5100/5200 operates up to a Hazard Level of k x 3A (IEC 60825-2:2000) or 1M (IEC 60825-2:2004). Use only viewing instruments with proper optical attenuation.

CAUTION
Risk of equipment damage
Wear a grounded antistatic wrist strap connected to the shelf maintenance panel or antistatic shoe straps when you handle equipment. Make sure you know how to handle electronic components correctly before you begin trouble clearing procedures. You can damage static-sensitive components if you handle them incorrectly.

CAUTION
Risk of shelf malfunction
Avoid using a cellular phone at any Optical Metro 5100/5200 site. You can cause the Optical Metro 5100/5200 equipment to malfunction if you use a cellular phone in proximity to the shelf.

CAUTION
Risk of affecting network reliability
Make sure that all connectors are cleaned before you make the connections (or re-connections) described in this procedure. For cleaning information, see the chapter "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components*, 323-1701-201.

Procedure list

Table 10-1 lists the procedures in this chapter and indicates whether or not the alarm is masked if the equipment or facility that raises the alarm is out-of-service.

Table 10-1
Procedures for clearing ECT or PBE alarms

Procedure	Page	Alarm is masked if equipment or facility is OOS
10-1 ECT/PBE—Autoprovisioning Mismatch, Optical Tray Mismatch	10-4	Equipment
10-2 ECT/PBE—Circuit Pack Unknown	10-6	Equipment
10-3 ECT/PBE—Optical Tray Missing	10-8	Equipment

Procedure 10-1
ECT/PBE—Autoprovisioning Mismatch, Optical Tray Mismatch

Probable cause

The Autoprovisioning mismatch alarm becomes active when the type of ECT/PBE connected to the shelf is not supported by the current release.

The Optical Tray Mismatch alarm becomes active when one of the two following conditions is met:

- the type of ECT (or PBE) installed in the shelf is different from the type of ECT (or PBE) that is provisioned for the slot
- a component other than an ECT is installed in a drawer that is provisioned for an ECT (for example, an OMX Standard)

Impact

Table 10-2 lists the impact that these alarms have under different conditions.

Table 10-2
ECT/PBE Autoprovisioning Mismatch and Optical Tray Mismatch alarm impact

Alarm	Conditions	Severity	Impact
Autoprovisioning Mismatch	N/A	Major	Non-service-affecting
Optical Tray Mismatch	N/A	Minor	Non-service-affecting

Requirements

You must be logged into the System Manager to perform this procedure. To log into the network, see Procedure 1-1, "Logging into the network" in *Provisioning and Operating Procedures*, 323-1701-310. To view alarms, click on the Fault tab and then click on the Active Alarms tab.

—continued—

Procedure 10-1 (continued)
ECT/PBE—Autoprovisioning Mismatch, Optical Tray Mismatch

Precautions

CAUTION
Risk of affecting network reliability
Make sure that all connectors are cleaned before you make the connections (or re-connections) described in this procedure. For cleaning information, see the chapter "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components*, 323-1701-201.

Action

Step	Action
1	In System Manager, query the Equipment Inventory. Double-click on the ECT or PBE module that has an alarm. You can view the inventory details for the ECT or PBE module in the Optical Metro inventory window that appears.
2	Verify that • the component in the ECT drawer is the correct type (C-band, L-band, or C&L-band) • the PBE is the correct type (C-band, L-band, or C&L-band) • the ECT or PBE is connected to an OFA shelf

3	If	Then
	the ECT module is the incorrect type	replace the alarmed ECT with the correct type of ECT and go to the next step
	the PBE module is the incorrect type	replace the alarmed PBE with the correct type of PBE and go to the next step
	the ECT or PBE is not connected to an OFA shelf	remove the ECT or PBE from the shelf and go to the next step
	otherwise	contact your next level of support

4	If	Then
	the alarm clears	you have completed this procedure
	the alarm remains	contact your next level of support

—end—

Procedure 10-2
ECT/PBE—Circuit Pack Unknown

Probable cause

This alarm becomes active when the shelf processor (SP) circuit pack fails to retrieve the manufacturing data from the ECT or PBE module. The information that the SP circuit pack retrieves can be missing or incorrect.

Impact

Table 10-3 lists the impact that these alarms have under different conditions.

Table 10-3
ECT/PBE—Circuit Pack Unknown alarm impact

Alarm	Conditions	Severity	Impact
Circuit Pack Unknown	N/A	Major	Non-service-affecting

Requirements

You must be logged into the System Manager to perform this procedure. To log into the network, see Procedure 1-1, "Logging into the network" in *Provisioning and Operating Procedures*, 323-1701-310. To view alarms, click on the Fault tab and then click on the Active Alarms tab.

Precautions

CAUTION
Risk of affecting network reliability
Make sure that all connectors are cleaned before you make the connections (or re-connections) described in this procedure. For cleaning information, see the chapter "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components*, 323-1701-201.

—continued—

Procedure 10-2 (continued)
ECT/PBE—Circuit Pack Unknown

Action

Step	Action	
1	Replace the ECT or PBE module. Refer to the procedures for replacing ECT and PBE modules in Chapter 2 of *Maintenance and Replacement Procedures,* 323-1701-546.	
2	**If**	**Then**
	the alarm clears	you have completed this procedure
	the alarm remains	contact your next level of support

—end—

Procedure 10-3
ECT/PBE—Optical Tray Missing

Probable cause

This alarm becomes active when one of the following conditions occurs:

- the ECT or PBE is not present in the OFA shelf but it is provisioned in the slot
- the ECT or PBE cable is not connected to the ECT or PBE module
- the ECT or PBE cable is not connected to the port in the maintenance panel
- the ECT or PBE cable is not connected to the port in the equipment inventory unit (EIU)

Impact

Table 10-4 lists the impact that these alarms have under different conditions.

Table 10-4
ECT/PBE—Optical Tray Missing alarm impact

Alarm	Conditions	Severity	Impact
Optical Tray Missing	N/A	Minor	Non-service-affecting
Note: If the ECT or PBE module is physically removed from the shelf, downstream facility alarms, such as Loss of Signal or Band Input Failure, indicate that traffic is affected. Traffic is not affected if the data communications cable is disconnected.			

Requirements

You must be logged into the System Manager to perform this procedure. To log into the network, see Procedure 1-1, "Logging into the network" in *Provisioning and Operating Procedures*, 323-1701-310. To view alarms, click on the Fault tab and then click on the Active Alarms tab.

—continued—

Procedure 10-3 (continued)
ECT/PBE—Optical Tray Missing

Precautions

CAUTION
Risk of affecting network reliability
Make sure that all connectors are cleaned before you make the connections (or re-connections) described in this procedure. For cleaning information, see the chapter "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components*, 323-1701-201.

Action

Step	Action	
1	Make sure the Ethernet cable connecting the ECT or PBE to the maintenance panel or the EIU is installed in the correct port and is connected properly. Check for loose Ethernet connections.	
2	**If**	**Then**
	the alarm clears	you have completed this procedure
	the alarm remains	go to the next step
3	Disconnect the cable from the maintenance panel or EIU and the ECT or PBE, wait one minute, and then reconnect the cable.	
4	**If**	**Then**
	the alarm clears	you have completed this procedure
	the alarm remains	go to the next step
5	Replace the ECT or PBE cable.	
6	**If**	**Then**
	the alarm clears	you have completed this procedure
	the alarm remains	go to the next step
7	Replace the ECT or PBE module. Refer to the procedures on replacing ECT or PBE modules in *Maintenance and Replacement Procedures*, 323-1701-546.	
8	**If**	**Then**
	the alarm clears	you have completed this procedure
	the alarm remains	contact your next level of support

—end—

Clearing OFA alarms

Use the procedures in this chapter to clear Optical Fiber Amplifier (OFA) alarms. Perform the steps in each procedure in the order that they appear. After you clear the alarm, stop the procedure. If the alarm remains, contact your next level of technical support.

For a list of OFA circuit pack types, see the "OFA circuit packs" section in *Hardware Description*, 323-1701-102.

Overview

Measuring OFA output power

Amplified spontaneous emission (ASE) is present at the output of all OFA circuit packs. ASE is broadband noise that is a product of unused power in the amplifier. The ASE power is greater for low input signal powers than for high signal powers. The presence of ASE can be seen on an optical spectrum analyser (OSA), where the signals are represented as peaks above a "floor" of ASE. This floor of ASE explains the differences that are seen between the aggregate power readings taken with a bulk power meter when compared with the summation of all the signal powers as measured by an OSA.

The function of an OFA is to amplify signal power. The Optical Metro 5100/5200 OFA gives a signal power gain by compensating for the amount of ASE that is present, based on the strength of the input signal. The compensated value is the one that appears in the System Manager and explains why there are differences between the System Manager value and one taken on the OFA Tx port using a power meter. The System Manager value is always lower than that taken using a bulk power meter. it is recommended that you use an OSA to measure the signal power of OFAs. When using an OSA, only count the signal peaks to determine the power of the signal.

Using the monitoring port

The High Input Power (HIP) OFA circuit pack and the Variable Gain Amplifier (VGA) circuit pack have an optical signal monitoring port on the faceplate, labeled Optical Input Monitor (OIM). The OIM provides an optical tap to allow you to connect an OSA to the OFA to determine the optical wavelengths and the signal power that is received by the OFA, without interrupting the signal flow.

The OIM taps only a small percentage of the total input signal; therefore you must use the proper correction factor to obtain the correct input power level. A label with the calibration factor (dB value) is attached to the faceplate, below the OIM port. To determine the true power level, add the calibration factor value to the OIM values reported by the OSA. For example, if the calibration value is 17.0 dB and the power reported by the OIM for one signal is –36 dBm, the true value will be –19 dBm (–36 dBm + 17.0 dB = –19 dBm).

ATTENTION
Do not use the optical input monitor port to measure the optical signal-to-noise ratio (OSNR).

Do not use the OIM to determine the OSNR for the following reasons.

- The OIM taps the signal that is received by the OFA, not transmitted. As a result it does not measure noise contribution of the HIP OFA.
- The OIM taps such a small percentage of the signal that the OSA may not be sensitive enough for an accurate measurement. For example, if the OSA signal reading is –36 dBm, with an OSNR of 24 dB, the ASE floor is approximately –60 dBm, which may be the sensitivity limit of the OSA.
- Potentially there can be a false reading, where the noise floor of the OSA can mask the ASE level, resulting is a measured OSNR that is lower than the actual level.

Minimum readings on the Tx port

In situations where an OFA circuit pack is not producing any output (a loss of signal [LOS] condition or the facility is out of service [OOS]) the System Manager can report that low power (in the range of –15 dBm) is present on the Tx port. This is because of the limitation of the output power monitor. Because of the dynamic range that is required for the detector, the output monitor cannot read a level lower than –15 dBm; there is essentially no light. You can confirm this by looking for Loss of Signal alarms reported on downstream equipment.

Safety circuit operation and the effect on downstream equipment

The Optical Metro 5100/5200 OFA circuit packs have a safety circuit to limit the amount of optical power a person is exposed to. For the standard and the high input power OFAs, whenever the optical power exceeds the threshold safety level, the safety circuit executes a mode where the signal is cut for several seconds, and then re-established for several seconds, to determine if the output power threshold has dropped to acceptable levels. Under this condition, Rx Loss of Signal alarms are raised and cleared on the downstream equipment.

Note: High input power causes the output power to increase, which can trigger the safety circuit. High Input Power alarms are raised when the input power exceeds its threshold.

As for the OFA VGA, whenever the optical power exceeds the threshold safety level, the output power saturate. The threshold is set to ensure that the card will be compliant to safety standards. Two different behaviors will inform the user that the module could be in saturation. The system raises a "Power out of range high" alarm asking the user to re-equalize the card, so that the gain will readjust to meet the output target power. Another "Power out of Range Low" alarm will be raised when the input power is so high that even at minimum gain so that the target power can't be reduced to clear the alarm.

Before you begin

Read the Chapter 1, "Troubleshooting the Optical Metro 5100/5200" in Part 1 of the *Trouble Clearing and Alarms Reference Guide*, 323-1701-542 for detailed information on how to respond to alarm indicators (audible alarms and lamps). Chapter 3, "Alarm description" in Part 1 of the *Trouble Clearing and Alarms Reference Guide*, 323-1701-542 explains events, warnings, and error messages. Table 11-1 lists the meaning of the indicator lamps on the OFA.

Table 11-1
Indicator lamps on OFA circuit packs

Indicator lamp	Color	State	Meaning
LOS	yellow	on	The OFA is receiving a very low or very high signal. On the VGA LOS LED is also ON when the gain setting is too low for the input power
		off	The OFA is receiving a signal.
ACTIVE	green	on	The OFA facility is in-service.
		off	The OFA facility is out-of-service.
STATUS	green/red	green	The OFA is functioning normally and the inventory is in-service.
		red	The OFA has failed.
		off	The OFA is functioning normally and the inventory is out of service (OOS).

Precautions

CAUTION
Risk of equipment damage
Wear a grounded antistatic wrist strap connected to the shelf maintenance panel or antistatic shoe straps when you handle equipment. Make sure you know how to handle electronic components correctly before you begin trouble clearing procedures. You can damage static-sensitive components if you handle them incorrectly.

CAUTION
Risk of shelf malfunction
Avoid using a cellular phone at any Optical Metro 5100/5200 site. You can cause the Optical Metro 5100/5200 equipment to malfunction if you use a cellular phone in proximity to the shelf.

CAUTION
Risk of affecting network reliability
Make sure that all connectors are cleaned before you make the connections (or re-connections) described in this procedure. For cleaning information, see the chapter "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components*, 323-1701-201.

Procedure list

Table 11-2 lists the procedures in this chapter and indicates whether or not the alarm is masked if the equipment or facility that raises the alarm is out-of-service.

Table 11-2
Procedures for clearing OFA alarms

Procedure	Page	Alarm is masked if equipment or facility is OOS
11-1 OFA—Autoprovisioning Mismatch, Circuit Pack Mismatch	11-6	Equipment
11-2 OFA—Band Alarm Indication Signal	11-12	Facility
11-3 OFA—Circuit Pack Failed	11-14	Equipment
11-4 OFA—Circuit Pack Failed warning	11-17	Equipment
11-5 OFA—Circuit Pack Missing	11-20	Equipment
11-6 OFA—Facility Out of Service—Optical Signal Failure	11-23	Not applicable
11-7 OFA—High Optical Power	11-26	Facility
11-8 OFA—High Optical Power Warning	11-32	Facility
11-9 OFA—Incomplete Provisioning	11-38	Not applicable
11-10 OFA—Inter-card Communication Failure	11-42	Equipment
11-11 OFA—Invalid Provisioning	11-46	Equipment
11-12 OFA—Loss of Signal	11-48	Facility
11-13 OFA—Low Optical Power Warning	11-55	Facility

Table 11-2 (continued)
Procedures for clearing OFA alarms

Procedure	Page	Alarm is masked if equipment or facility is OOS
11-14 OFA—Optical Signal Failure (Rx) or (Tx)	11-62	Not applicable
11-15 OFA—Performance Monitoring Timer Failed	11-68	Equipment
11-16 OFA—Power Out of Range High	11-71	Facility
11-17 OFA—Power Out of Range Low	11-75	Facility
11-18 OFA—TCA - Optical Power Rx High	11-79	Facility
11-19 OFA—TCA - Optical Power Rx Low	11-86	Facility
11-20 OFA—TCA - Optical Power Tx High	11-94	Facility
11-21 OFA—TCA - Optical Power Tx Low	11-98	Facility
11-22 OFA—Temperature Out of Range	11-102	Equipment
11-23 OFA—Unknown Circuit Pack	11-106	Equipment

Procedure 11-1
OFA—Autoprovisioning Mismatch, Circuit Pack Mismatch

Probable cause

The Autoprovisioning Mismatch alarm becomes active when an OFA circuit pack is seated in a shelf of type OADM or Terminal. OFA circuit packs are supported in shelves of type OFA or Mixed.

The Circuit Pack Mismatch alarm becomes active when one of the following conditions is met:

- a circuit pack other than an OFA circuit pack is seated in a slot provisioned for an OFA circuit pack
- a C-band OFA circuit pack is seated in a slot provisioned for an L-band OFA circuit pack
- an L-band OFA circuit pack is seated in a slot provisioned for a C-band OFA circuit pack
- an OFA is seated in a slot provisioned for a different type of OFA circuit pack. For example: a High Input Power (HIP) OFA circuit pack is seated in a slot provisioned for a standard OFA circuit pack or a standard OFA circuit pack is seated in a slot provisioned for a VGA OFA circuit pack

Impact

Autoprovisioning Mismatch, major, non-service-affecting.

Circuit Pack Mismatch, critical, service-affecting.

Requirements

You must be logged in to the System Manager to perform this procedure. To log in to the network, follow Procedure 1-1, "Logging into the network" in *Provisioning and Operating Procedures*, 323-1701-310. To view alarms, click on the Fault tab and then click on the Active Alarms tab.

You must have a network topology diagram and a list of the channel assignments provisioned in your network.

—continued—

Procedure 11-1 (continued)
OFA—Autoprovisioning Mismatch, Circuit Pack Mismatch

Precautions

CAUTION
Risk of service interruption in an unprotected network
The recovery action detailed in this procedure can affect service if the network is unprotected. To verify if you can add path protection to you network, refer to Chapter 3, "Supported configurations" in *Network Planning and Link Engineering*, 323-1701-110. To add path protection to an unprotected network, see Procedure 3-47, "Adding path protection to an unprotected path" in *Provisioning and Operating Procedures*, 323-1701-310.

CAUTION
Risk of affecting network reliability
Make sure that all connectors are cleaned before you make the connections (or re-connections) described in this procedure. For cleaning information, see the chapter "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components*, 323-1701-201.

Action

Step	Action	
1	**If** the alarm you want to clear	**Then** go to
	is Autoprovisioning Mismatch	step 5
	is Circuit Pack Mismatch	step 2
2	In the System Manager, select the entire network and click on the Connections tab. Then click on the Channel Assignments tab.	
3	**If** the path is	**Then**
	protected	go to step 4
	not protected	see the precautionary message in step 4

—continued—

Procedure 11-1 (continued)
OFA—Autoprovisioning Mismatch, Circuit Pack Mismatch

Step	Action
4	**CAUTION** **Risk of traffic loss** If the system is unprotected, traffic cannot be switched and traffic can be lost during this procedure. Advise the network administrator of a possible loss of traffic before you continue to the next step. Switch traffic off the span where the alarmed OFA circuit pack is located. Follow Procedure 4-7, "Switching traffic off a span in a path-protected network" in *Provisioning and Operating Procedures*, 323-1701-310.
5	In System Manager, select the Configuration tab and then the Communications tab. Look at the Shelf Type field and verify that the shelf is commissioned as an OFA shelf.
6	**If** the shelf — **Then** go to is not commissioned as an OFA shelf and you want to recommission the shelf — step 7 is not commissioned as an OFA shelf and you do not want to recommission the shelf — step 8 is commissioned as an OFA shelf — step 9
7	Complete Procedure 4-1, "Decommissioning a shelf" in *Provisioning and Operating Procedures*, 323-1701-310. See also Chapter 2, "Preparing a shelf for commissioning" in *Commissioning Procedures,* 323-1701-220. Then go to step 19.
8	Remove the OFA circuit pack from the shelf. ***Note:*** The OFA circuit pack is only supported in an OFA shelf. The alarm clears. Go to step 22.
9	In the System Manager, query the Equipment Inventory.

—continued—

Procedure 11-1 (continued)
OFA—Autoprovisioning Mismatch, Circuit Pack Mismatch

Step	Action	
10	Make sure the circuit pack in the slot is an OFA circuit pack of the correct type.	
11	**If** the OFA circuit pack is	**Then**
	not of the correct type	insert the correct type of OFA circuit pack. Follow Procedure 7-1 "Inserting circuit packs" in *Installing Optical Metro 5200 Shelves and Components*, 323-1701-201. Go to step 19.
	the correct type	go to step 12
12	Make sure the slot is provisioned correctly for the circuit pack type. Double-click on the OFA circuit pack in the Inventory list. In the Provisioning Data section of the Optical Metro Inventory window check that the Circuit Pack Type, Band Type, and Amp Type information matches the OFA circuit pack that is physically seated in the slot.	
13	**If** the provisioned information	**Then** go to
	does not match the OFA circuit pack that is physically seated in the shelf	step 14
	does match the OFA circuit pack that is physically seated in the shelf	step 20
14	Put the OFA circuit pack facility out-of-service. Follow Procedure 3-13 "Taking a circuit pack facility or SFP facility out-of-service" in *Provisioning and Operating Procedures*, 323-1701-310.	
15	Put the OFA circuit pack out-of-service. Follow Procedure 3-8 "Taking a circuit pack or SFP out-of-service" in *Provisioning and Operating Procedures*, 323-1701-310.	
16	If there are facilities associated with the OFA, delete them. Follow Procedure 3-14 "Deleting a circuit pack or SFP facility" in *Provisioning and Operating Procedures*, 323-1701-310.	

—continued—

Procedure 11-1 (continued)
OFA—Autoprovisioning Mismatch, Circuit Pack Mismatch

Step	Action	
17	Delete the OFA equipment. Follow Procedure 3-9 “Deleting a circuit pack or SFP from the inventory” in *Provisioning and Operating Procedures*, 323-1701-310.	
18	**If**	**Then**
	you want to manually provision the slot	follow Procedure 3-2 “Manually provisioning a circuit pack or SFP” in *Provisioning and Operating Procedures*, 323-1701-310. Go to the next step.
	otherwise	insert the correct OFA circuit pack and it will auto-provision. Follow Procedure 7-1 “Inserting circuit packs” in *Installing Optical Metro 5200 Shelves and Components* 323-1701-201. Go to the next step.
19	**If**	**Then** go to
	the alarm clears	step 22
	the alarm remains	step 20
20	Reseat the OFA circuit pack. Follow Procedure 3-68 “Reseating a circuit pack” in *Provisioning and Operating Procedures,* 323-1701-310.	
	If	**Then** go to
	the alarm clears	step 22
	the alarm remains	step 21
21	Replace the OFA circuit pack. Follow Procedure 3-10 “Replacing an OFA circuit pack” in *Maintenance and Replacement Procedures*, 323-1701-546.	
	If	**Then**
	the alarm clears	go to the next step
	the alarm remains	the circuit pack is not the problem. Reseat the original circuit pack. Contact your next level of support.

—continued—

Procedure 11-1 (continued)
OFA—Autoprovisioning Mismatch, Circuit Pack Mismatch

Step	Action	
22	**If**	**Then**
	in step 5, you completed Procedure 4-7, "Switching traffic off a span in a path-protected network" in *Provisioning and Operating Procedures*, 323-1701-310	re-route traffic to the original path. Follow Procedure 3-49, "Removing a manual, force, or lockout switch from a protection path" in *Provisioning and Operating Procedures*, 323-1701-310.
		You have completed this procedure.
	otherwise	you have completed this procedure

—end—

Procedure 11-2
OFA—Band Alarm Indication Signal

Probable cause

This alarm is raised on the Rx (IN) port on the OFA circuit pack.

This alarm becomes active when the following conditions occur:

- the OFA circuit pack is not detecting an input signal
- the intrasite fault sectionalization (IFS) feature has identified a failed fiber span causing an input failure at this OFA Rx port

  Note: Refer to "Fault sectionalization" in *Software and User Interface*, 323-1701-101, for detailed information about intrasite fault sectionalization.

This alarm can be raised along with the OSC—Shelf Input failure alarm, the OSC—Site Input failure alarm, or the Optical Signal Failure Rx/Tx alarm. To clear the OFA—Band Alarm Indication Signal alarm, the trouble that caused the OSC—Shelf Input Failure alarm, Site Input Failure alarm, or Optical Signal Failure alarm must be resolved.

Impact

Warning, non-service-affecting.

Requirements

You must be logged into the System Manager to perform this procedure. To log into the network, follow Procedure 1-1, "Logging into the network" in *Provisioning and Operating Procedures*, 323-1701-310. To view alarms, click on the Fault tab and then click on the Active Alarms tab.

—continued—

Procedure 11-2 (continued)
OFA—Band Alarm Indication Signal

Action

Step	Action
1	In the Active Alarms window, determine if the OSC–Shelf Input Failure or OSC–Site Input Failure alarms are raised.

If the OSC–Shelf Input Failure or OSC–Site Input Failure alarms are	**Then** go to
raised in your network	step 2
not raised in your network	step 3

2	Clear the OSC–Shelf Input Failure and OSC–Site Input Failure alarms. Follow Procedure 15-22 “OSC—Shelf Input Failure” on page 15-62 or Procedure 15-23 “OSC—Site Input Failure” on page 15-65 in this book.

If the OFA Band Alarm Indication Signal alarm	**Then**
clears	you have completed this procedure
remains	go to step 3

3	In the Active Alarms window, determine if Optical Signal Failure Rx and Tx alarms are raised.

If the alarms are	**Then**
raised in your network	go to step 4
not raised in your network	contact your next level of support

4	Clear the Optical Signal Failure Rx and Tx alarms. Follow the appropriate alarm clearing procedure in this book.

If	**Then**
the alarm clears	you have completed this procedure
the alarm remains	contact your next level of support

—end—

Procedure 11-3
OFA—Circuit Pack Failed

Probable cause

This alarm becomes active when the OFA circuit pack detects an internal equipment failure that is service-affecting.

Impact

Critical, service-affecting.

Requirements

You must be logged into the System Manager to perform this procedure. To log into the network, follow Procedure 1-1, "Logging into the network" in *Provisioning and Operating Procedures*, 323-1701-310. To view alarms, click on the Fault tab and then click on the Active Alarms tab.

You must have a network topology diagram and a list of the channel assignments provisioned in your network.

—continued—

Procedure 11-3 (continued)
OFA—Circuit Pack Failed

Precautions

CAUTION
Risk of service interruption in an unprotected network
The recovery action detailed in this procedure can affect service if the network is unprotected. To verify if you can add path protection to you network, refer to Chapter 3, "Supported configurations" in *Network Planning and Link Engineering*, 323-1701-110. To add path protection to an unprotected network, see Procedure 3-47, "Adding path protection to an unprotected path" in *Provisioning and Operating Procedures*, 323-1701-310.

CAUTION
Risk of affecting network reliability
Make sure that all connectors are cleaned before you make the connections (or re-connections) described in this procedure. For cleaning information, see the chapter "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components*, 323-1701-201.

Action

Step	Action
1	In the System Manager, select the entire network. Click on the Connections tab and then click on the Channel Assignments tab.
2	**If** the path is / **Then** protected — go to step 3 unprotected — see the precautionary message in step 3
3	**CAUTION** **Risk of traffic loss** If the system is unprotected, traffic cannot be switched and traffic can be lost. Advise the network administrator of a possible loss of traffic before you continue to the next step. Switch traffic off the span where the alarmed OFA circuit pack is located. Follow Procedure 4-7, "Switching traffic off a span in a path-protected network" in *Provisioning and Operating Procedures*, 323-1701-310.

—continued—

Procedure 11-3 (continued)
OFA—Circuit Pack Failed

Step	Action
4	Reseat the OFA circuit pack. Follow Procedure 3-68 "Reseating a circuit pack" in *Provisioning and Operating Procedures,* 323-1701-310.

If	**Then** go to
the alarm clears	step 6
the alarm remains	step 5

Step	Action
5	Replace the OFA circuit pack. Follow Procedure 3-10 "Replacing an OFA circuit pack" in *Maintenance and Replacement Procedures*, 323-1701-546.

If	**Then**
the alarm clears	go to the next step
the alarm remains	the circuit pack is not the problem. Reseat the original circuit pack. Contact your next level of support.

Step	**If**	**Then**
6	in step 3, you completed Procedure 4-7, "Switching traffic off a span in a path-protected network" in *Provisioning and Operating Procedures*, 323-1701-310	re-route traffic to the original path. Follow Procedure 3-49, "Removing a manual, force, or lockout switch from a protection path" in *Provisioning and Operating Procedures*, 323-1701-310. You have completed this procedure.
	otherwise	you have completed this procedure

—end—

Procedure 11-4
OFA—Circuit Pack Failed warning

Probable cause

This alarm becomes active when the OFA circuit pack detects an internal equipment failure that does not affect service.

Impact

Major, non-service-affecting.

Requirements

You must be logged into the System Manager to perform this procedure. To log into the network, follow Procedure 1-1, "Logging into the network" in *Provisioning and Operating Procedures*, 323-1701-310. To view alarms, click on the Fault tab and then click on the Active Alarms tab.

You must have a network topology diagram and a list of the channel assignments provisioned in your network.

—continued—

Procedure 11-4 (continued)
OFA—Circuit Pack Failed warning

Precautions

CAUTION
Risk of service interruption in an unprotected network
The recovery action detailed in this procedure can affect service if the network is unprotected. To verify if you can add path protection to you network, refer to Chapter 3, "Supported configurations" in *Network Planning and Link Engineering*, 323-1701-110. To add path protection to an unprotected network, see Procedure 3-47, "Adding path protection to an unprotected path" in *Provisioning and Operating Procedures*, 323-1701-310.

CAUTION
Risk of affecting network reliability
Make sure that all connectors are cleaned before you make the connections (or re-connections) described in this procedure. For cleaning information, see the chapter "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components*, 323-1701-201.

Action

Step	Action	
1	In the System Manager, select the entire network. Click on the Connections Tab and then click on the Channel Assignments tab.	
2	**If** the path is	**Then**
	protected	go to step 3
	unprotected	see the precautionary message in step 3

—continued—

Procedure 11-4 (continued)
OFA—Circuit Pack Failed warning

Step	Action

3

CAUTION
Risk of traffic loss
If the system is unprotected, traffic cannot be switched and traffic can be lost. Advise the network administrator of a possible loss of traffic before you continue to the next step.

Switch traffic off the span where the alarmed OFA circuit pack is located. Follow Procedure 4-7, "Switching traffic off a span in a path-protected network" in *Provisioning and Operating Procedures*, 323-1701-310.

4 Reseat the OFA circuit pack. Follow Procedure 3-68 "Reseating a circuit pack" in *Provisioning and Operating Procedures,* 323-1701-310.

If	**Then** go to
the alarm clears	step 6
the alarm remains	step 5

5 Replace the OFA circuit pack. Follow Procedure 3-10 "Replacing an OFA circuit pack" in *Maintenance and Replacement Procedures*, 323-1701-546.

If	**Then**
the alarm clears	go to the next step
the alarm remains	the circuit pack is not the problem. Reseat the original circuit pack. Contact your next level of support.

6

If	**Then**
in step 3, you completed Procedure 4-7, "Switching traffic off a span in a path-protected network" in *Provisioning and Operating Procedures*, 323-1701-310	re-route traffic to the original path. Follow Procedure 3-49, "Removing a manual, force, or lockout switch from a protection path" in *Provisioning and Operating Procedures*, 323-1701-310. You have completed this procedure.
otherwise	you have completed this procedure

—end—

Procedure 11-5
OFA—Circuit Pack Missing

Probable cause

This alarm becomes active when the provisioned slot does not contain an OFA circuit pack or the OFA is not correctly seated in the slot.

Impact

Critical, service-affecting

Requirements

You must be logged into the System Manager to perform this procedure. To log into the network, follow Procedure 1-1, "Logging into the network" in *Provisioning and Operating Procedures*, 323-1701-310. To view alarms, click on the Fault tab and then click on the Active Alarms tab.

You must have a network topology diagram and a list of the channel assignments provisioned in your network.

Precautions

CAUTION
Risk of service interruption in an unprotected network
The recovery action detailed in this procedure can affect service if the network is unprotected. To verify if you can add path protection to you network, refer to Chapter 3, "Supported configurations" in *Network Planning and Link Engineering*, 323-1701-110. To add path protection to an unprotected network, see Procedure 3-47, "Adding path protection to an unprotected path" in *Provisioning and Operating Procedures*, 323-1701-310.

CAUTION
Risk of affecting network reliability
Make sure that all connectors are cleaned before you make the connections (or re-connections) described in this procedure. For cleaning information, see the chapter "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components*, 323-1701-201.

—continued—

Procedure 11-5 (continued)
OFA—Circuit Pack Missing

Action

Step	Action
1	In the System Manager, select the entire network. Click on the Connections Tab and then click on the Channel Assignments tab.
2	**If** the path is: **Then** protected: go to step 3 unprotected: see the precautionary message in step 3
3	**CAUTION** **Risk of traffic loss** If the system is unprotected, traffic cannot be switched and traffic can be lost. Advise the network administrator of a possible loss of traffic before you continue to the next step. Switch traffic off the span where the alarmed OFA circuit pack is located. Follow Procedure 4-7, "Switching traffic off a span in a path-protected network" in *Provisioning and Operating Procedures*, 323-1701-310.
4	In the System Manager, query the Equipment Inventory.
5	Verify that the slot for which the alarm is raised contains an OFA circuit pack. **If** the slot is: **Then** go to empty, but should contain an OFA circuit pack: step 6 intentionally left empty: step 7 not empty: step 11
6	Insert the correct OFA circuit pack in the empty slot. Follow Procedure 7-1, "Inserting circuit packs" in *Installing Optical Metro 5200 Shelves and Components*, 323-1701-201. **If**: **Then** go to the alarm clears: step 13 the alarm remains: step 11
7	Put the OFA circuit pack facility out-of-service. Follow Procedure 3-13 "Taking a circuit pack facility or SFP facility out-of-service" in *Provisioning and Operating Procedures,* 323-1701-310.
8	Put the OFA circuit pack out-of-service. Follow Procedure 3-8 "Taking a circuit pack or SFP out-of-service" in *Provisioning and Operating Procedures,* 323-1701-310.

—continued—

Procedure 11-5 (continued)
OFA—Circuit Pack Missing

Step	Action
9	Delete the OFA circuit pack facility. Follow Procedure 3-14 "Deleting a circuit pack or SFP facility" in *Provisioning and Operating Procedures,* 323-1701-310.
10	Delete the OFA circuit pack from the inventory. Follow Procedure 3-9 "Deleting a circuit pack or SFP from the inventory" in *Provisioning and Operating Procedures,* 323-1701-310.

If	**Then** go to
the alarm clears	step 13
the alarm remains	step 11

11 Reseat the OFA. Follow Procedure 3-68 "Reseating a circuit pack" in *Provisioning and Operating Procedures,* 323-1701-310.

If	**Then** go to
the alarm clears	step 13
the alarm remains	step 12

12 Replace the OFA circuit pack. Follow Procedure 3-10 "Replacing an OFA circuit pack" in *Maintenance and Replacement Procedures*, 323-1701-546.

If	**Then**
the alarm clears	go to step 13
the alarm remains	the circuit pack is not the problem. Reseat the original circuit pack. Contact your next level of support.

13

If	**Then**
in step 3, you completed Procedure 4-7, "Switching traffic off a span in a path-protected network" in *Provisioning and Operating Procedures*, 323-1701-310	reroute traffic to the original path. Follow Procedure 3-49, "Removing a manual, force, or lockout switch from a protection path" in *Provisioning and Operating Procedures*, 323-1701-310. You have completed this procedure.
otherwise	you have completed this procedure

—end—

Procedure 11-6
OFA—Facility Out of Service—Optical Signal Failure

Probable Cause

This alarm becomes active when the following conditions occur:

- the intrasite fault sectionalization (IFS) feature is enabled on the network

  Note: See "Fault sectionalization" in Software and User Interface, 323-1701-101, for detailed information about the intrasite fault sectionalization (IFS) feature.

- all bands passing through the OFA circuit pack are affected downstream
- the OFA circuit pack facility is out of service
- there is no Loss of Signal alarm raised on the OFA circuit pack

While their facilities are provisioned, line equipment, such as OCLD, OTR or MOTR circuit packs, continue to transmit and receive optical signals from each other, even if no traffic is being sent between the circuit packs. If you place an intermediate line-side facility (OFA or APBE facilities) out of service, the signal is broken between the transmitter and the receiver. This causes a loss of signal at the downstream equipment. If the IFS feature is enabled on the network, the downstream optical signal failures are correlated to this alarm.

Do not take an OFA facility out of service while there is any line equipment (downstream or upstream) relying on the facility.

Impact

Critical, service-affecting.

Requirements

You must be logged into the System Manager to perform this procedure. To log into the network, follow Procedure 1-1, "Logging into the network" in *Provisioning and Operating Procedures*, 323-1701-310. To view alarms, click on the Fault tab and then click on the Active Alarms tab.

You must have a network topology diagram and a list of the channel assignments provisioned in your network.

—continued—

Procedure 11-6 (continued)
OFA—Facility Out of Service—Optical Signal Failure

Action

Step	Action

1

If	**Then** go to
the OFA circuit pack facility is incorrectly out-of-service	step 2
the IFS feature is incorrectly enabled	step 3
the upstream and downstream OCLDs, OTRs or MOTRs are no longer required and this OFA facility will remain out-of-service	step 4

2 Put the OFA circuit pack facility back in service. Follow Procedure 3-10 "Putting a circuit pack or SFP facility in-service" in *Provisioning and Operating Procedures,* 323-1701-310.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	contact your next level of support

3 Disable the IFS feature. Follow Procedure 3-39 "Disabling intrasite fault sectionalization (IFS)" in *Provisioning and Operating Procedures,* 323-1701-310.

Note: Disable IFS at all sites on the ring.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	contact your next level of support

4 Put the upstream and downstream circuit pack facilities out-of-service. Follow Procedure 3-13 "Taking a circuit pack facility or SFP facility out-of-service" in *Provisioning and Operating Procedures*, 323-1701-310, for each upstream and downstream circuit pack.

5 Put the upstream and downstream circuit packs out-of-service. Follow Procedure 3-8 "Taking a circuit pack or SFP out-of-service" in *Provisioning and Operating Procedures*, 323-1701-310, for each upstream and downstream circuit pack.

6 Delete the facilities associated with the upstream and downstream circuit packs. Follow Procedure 3-14 "Deleting a circuit pack or SFP facility" in *Provisioning and Operating Procedures*, 323-1701-310, for each upstream and downstream circuit pack.

—continued—

Procedure 11-6 (continued)
OFA—Facility Out of Service—Optical Signal Failure

Step	Action	
7	Delete the upstream and downstream circuit packs from the inventory. Follow Procedure 3-9 “Deleting a circuit pack or SFP from the inventory” in *Provisioning and Operating Procedures*, 323-1701-310.	
8	**If**	**Then**
	the alarm clears	you have completed this procedure
	the alarm remains	contact your next level of support

—end—

Procedure 11-7
OFA—High Optical Power

Probable cause

This alarm is raised against the Rx (IN) port of the OFA circuit pack. This alarm becomes active when the optical power level at the optical receiver has exceeded the Rx Fail Threshold of the Rx Power High parameter. The Fail High threshold for all OFA circuit packs are specified in Table 2-49 of the *Technical Specifications*, 323-1701-180.

This alarm is raised when one of the following conditions exists:

- the manually operated variable optical attenuator (VOA) in the Equalizer Coupler Tray (ECT) or the Per Band Equalizer (PBE) is not operating correctly or needs adjusting
- the electronic variable optical attenuator (eVOA) in the APBE circuit pack is not operating correctly, or the power target for that band needs adjusting
- one or more of the transmitting OCLD, OTR or MOTR circuit packs are defective
- the receiving OFA circuit pack is defective
- the miniature variable optical attenuator (mVOA) on the optical fiber is not adjusted correctly
- the network is not properly equalized
- the fiber plant characteristics have changed

Impact

Critical, service-affecting.

—continued—

Procedure 11-7 (continued)
OFA—High Optical Power

Requirements

You must be logged into the System Manager to perform this procedure. To log into the network, follow Procedure 1-1, "Logging into the network" in *Provisioning and Operating Procedures*, 323-1701-310. To view alarms, click on the Fault tab and then click on the Active Alarms tab.

You must have a network topology diagram and a list of the channel assignments provisioned in your network

If your system can run SLEC and Continuous SLEC is not enabled, run one-time SLEC to try to clear the alarm.

ATTENTION
You must turn off the automatic laser shutdown (ALS) on all shelves that originate or terminate channels that pass through the alarmed OFA circuit pack.

Precautions

CAUTION
Risk of service interruption in an unprotected network
The recovery action detailed in this procedure can affect service if the network is unprotected. To verify if you can add path protection to you network, refer to Chapter 3, "Supported configurations" in *Network Planning and Link Engineering*, 323-1701-110. To add path protection to an unprotected network, see Procedure 3-47, "Adding path protection to an unprotected path" in *Provisioning and Operating Procedures*, 323-1701-310.

CAUTION
Risk of laser radiation
The Optical Metro 5100/5200 operates up to a Hazard Level of k x 3A (IEC 60825-2:2000) or 1M (IEC 60825-2:2004). Use only viewing instruments with proper optical attenuation.

CAUTION
Risk of affecting network reliability
Fiber connectors should always be cleaned prior to making connections to ensure network reliability.

—continued—

Procedure 11-7 (continued)
OFA—High Optical Power

CAUTION
Possible risk of damage to equipment and fiber
Make sure that the bulkhead connectors are lowered and snapped into place before closing the drawer. Failure to do so could cause damage to the connector unit, the fibers attached to the connector unit, or both.

Observe the minimum bend radius of 1.18-inches (30-mm) for the patch cords. Always use the fiber management components in the drawer to route the fiber.

Allow for sufficient slack in the fibers entering and exiting the drawer. If sufficient slack is not left, the fibers can become stretched and damaged when the drawer is opened.

CAUTION
Risk of affecting network reliability
Make sure that all connectors are cleaned before you make the connections (or re-connections) described in this procedure. For cleaning information, see the chapter "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components*, 323-1701-201.

Action

Step	Action
1	Using a network diagram, identify all the OCLD, OTR, MOTR and OFA circuit packs located upstream from the alarmed OFA circuit pack. In the System Manager, determine if there are any alarms raised against the upstream circuit packs.

If alarms are	**Then**
raised against the upstream circuit packs	use the procedures in this book to clear the alarms before you go to step 2
not raised against the upstream circuit packs	go to step 2

—continued—

Procedure 11-7 (continued)
OFA—High Optical Power

Step	Action
2	In the System Manager, select the entire network. Click on the Connections tab and then click on the Channel Assignments tab.
3	**If** the path is / **Then** protected — go to step 4 unprotected — see the precautionary message in step 4
4	**CAUTION** **Risk of traffic loss** If the system is unprotected, traffic cannot be switched and traffic can be lost. Advise the network administrator of a possible loss of traffic before you continue to the next step. Switch traffic off the span where the alarmed OFA circuit pack is located. Follow Procedure 4-7, "Switching traffic off a span in a path-protected network" in *Provisioning and Operating Procedures*, 323-1701-310.
5	If the automatic laser shutoff (ALS) feature is enabled on the network then disable the feature on all shelves that originate or terminate channels that pass through this OFA circuit pack. Refer to the network topology diagram and the channel list to identify these shelves. Follow Procedure 1-43, "Enabling or disabling automatic laser shutdown" in *Provisioning and Operating Procedures*, 323-1701-310. ***Note:*** Bands 1 to 4 make up the C-band and Bands 5 to 8 make up the L-band. A C-band amplifier requires ALS to be disabled on any Band 1 to Band 4 shelf that has channels passing through the amplifier.
6	Disconnect the optical fiber connected to the OFA IN port and measure the received power using an optical power meter. Make sure the received power is within the total Rx power minimum and maximum range, as specified in Table 2-49 in *Technical Specifications*, 323-1701-180. **If** the received power is / **Then** go to within the total Rx power minimum and maximum range — step 12 not within the total Rx power minimum and maximum range — step 7

—continued—

Procedure 11-7 (continued)
OFA—High Optical Power

Step	Action
7	This might be a result of the following conditions: • upstream components are not properly equalized • Link engineering is incorrect Verify that the optical output power levels conform to NMT report.

If	**Then**
the optical output power levels conform to NMT	go to step 9
otherwise	go to the next step

8 Refer to the equalization procedures in *Testing and Equalizing Procedures,* 323-1701-222.

If	**Then**
the alarm clears	you have completed this procedure
the alarm remains	call your next level of support

9

If the OFA type	**Then** go to
VGA	step 10
otherwise	call your next level of support

10 Re-equalize the OFA VGA circuit pack. Follow Procedure 2-17 "Re-equalizing optical power of a band using a VGA OFA" in *Testing and Equalizing Procedures*, 323-1701-222.

11

If	**Then**
the alarm clears	you have completed this procedure
the alarm remains	call your next level of support

12 Reconnect the optical fiber to the IN port of the OFA circuit pack. Make sure that the optical fiber is properly cleaned before you reconnect it. For information on cleaning, see "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components,* 323-1701-201.

If	**Then** go to
the alarm clears	step 16
the alarm remains	step 13

—continued—

Procedure 11-7 (continued)
OFA—High Optical Power

Step	Action

13 **If** the OFA type **Then** go to

VGA	step 14
otherwise	step 15

14 Re-equalize the OFA VGA circuit pack. Follow Procedure 2-17 "Re-equalizing optical power of a band using a VGA OFA" in *Testing and Equalizing Procedures,* 323-1701-222.

If the alarm	**Then**
clears	you have completed the procedure
remains	go to the next step

15 Replace the OFA circuit pack. Follow Procedure 3-10, "Replacing an OFA circuit pack" in *Maintenance and Replacement Procedures*, 323-1701-546.

If the alarm	**Then**
clears	go to the next step
remains	the circuit pack is not the problem. Reseat the original circuit pack. Contact your next level of support.

16

If	**Then**
in step 3, you completed Procedure 4-7, "Switching traffic off a span in a path-protected network" in *Provisioning and Operating Procedures*, 323-1701-310	re-route traffic to the original path. Follow Procedure 3-49, "Removing a manual, force, or lockout switch from a protection path" in *Provisioning and Operating Procedures*, 323-1701-310. Go to the next step.
otherwise	go to the next step

17 If in step 5 you disabled the automatic laser shutoff (ALS) feature, then enable the feature on all shelves that originate or terminate channels that pass through this OFA circuit pack. Refer to the network topology diagram and the channel list to identify these shelves. Follow Procedure 1-43, "Enabling or disabling automatic laser shutdown" in *Provisioning and Operating Procedures*, 323-1701-310.

Note: Bands 1 to 4 make up the C-band and Bands 5 to 8 make up the L-band. A C-band amplifier requires ALS to be disabled on any Band 1 to Band 4 shelf that has channels passing through the amplifier.

You have completed this procedure.

—end—

Procedure 11-8
OFA—High Optical Power Warning

Probable cause

This alarm is raised against the Rx (IN) port of the OFA circuit pack. This alarm becomes active when the optical power level at the optical receiver has exceeded the Rx Degrade Threshold of the Rx Power High parameter. The degrade high thresholds for all OFA circuit packs are specified in Table 2-49 of the *Technical Specifications*, 323-1701-180.

This alarm is raised when one of the following conditions exists:

- the manually operated variable optical attenuator (VOA) in the Equalizer Coupler Tray (ECT) or the Per Band Equalizer (PBE) module is not operating correctly or needs adjusting
- the electronic variable optical attenuator (eVOA) in the APBE circuit pack is not operating correctly, or the power target for that band may need adjusting
- one or more of the transmitting OCLD, OTR or MOTR circuit packs are defective
- the receiving OFA circuit pack is defective
- the miniature variable optical attenuator (mVOA) on the optical fiber is not adjusted correctly
- the network is not properly equalized
- the fiber plant characteristics have changed

Impact

Major, non-service-affecting.

—continued—

Procedure 11-8 (continued)
OFA—High Optical Power Warning

Requirements

You must be logged into the System Manager to perform this procedure. To log into the network, follow Procedure 1-1, "Logging into the network" in *Provisioning and Operating Procedures*, 323-1701-310. To view alarms, click on the Fault tab and then click on the Active Alarms tab.

You must have a network topology diagram and a list of the channel assignments provisioned in your network.

If your system can run SLEC and Continuous SLEC is not enabled, run one-time SLEC to try to clear the alarm.

ATTENTION
You must turn off the automatic laser shutdown (ALS) on all shelves that originate or terminate channels that pass through the alarmed OFA circuit pack.

Precautions

CAUTION
Risk of service interruption in an unprotected network
The recovery action detailed in this procedure can affect service if the network is unprotected. To verify if you can add path protection to you network, refer to Chapter 3, "Supported configurations" in *Network Planning and Link Engineering*, 323-1701-110. To add path protection to an unprotected network, see Procedure 3-47, "Adding path protection to an unprotected path" in *Provisioning and Operating Procedures*, 323-1701-310.

CAUTION
Risk of laser radiation
The Optical Metro 5100/5200 operates up to a Hazard Level of k x 3A (IEC 60825-2:2000) or 1M (IEC 60825-2:2004). Use only viewing instruments with proper optical attenuation.

—continued—

Procedure 11-8 (continued)
OFA—High Optical Power Warning

CAUTION
Possible risk of damage to equipment and fiber
Make sure that the bulkhead connectors are lowered and snapped into place before closing the drawer. Failure to do so could cause damage to the connector unit, the fibers attached to the connector unit, or both.

Observe the minimum bend radius of 1.18-inches (30-mm) for the patch cords. Always use the fiber management components in the drawer to route the fiber.

Allow for sufficient slack in the fibers entering and exiting the drawer. If you do not leave sufficient slack, you can stretch and damage the fibers when the drawer is opened.

CAUTION
Risk of affecting network reliability
Make sure that all connectors are cleaned before you make the connections (or re-connections) described in this procedure. For cleaning information, see the chapter "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components*, 323-1701-201.

Action

Step	Action
1	Using a network diagram, identify all the OCLD, OTR, MOTR, and OFA circuit packs located upstream from the alarmed OFA circuit pack. In the System Manager, determine if there are any alarms raised against the upstream circuit packs.

If alarms are	**Then**
raised against the upstream circuit packs	use the procedures in this book to clear the alarms before you go to step 2
not raised against the upstream circuit packs	go to step 2

—continued—

Procedure 11-8 (continued)
OFA—High Optical Power Warning

Step	Action
2	In the System Manager, select the entire network. Click on the Connections tab and then click on the Channel Assignments tab.
3	**If** the path is / **Then** protected — go to step 4 unprotected — see the precautionary message in step 4
4	**CAUTION** **Risk of traffic loss** If the system is unprotected, traffic cannot be switched and traffic can be lost during this procedure. Advise the network administrator of a possible loss of traffic before you continue to the next step. Switch traffic off the span where the alarmed OFA circuit pack is located. Follow Procedure 4-7, "Switching traffic off a span in a path-protected network" in *Provisioning and Operating Procedures*, 323-1701-310.
5	If the automatic laser shutoff (ALS) feature is enabled on the network then disable the feature on all shelves that originate or terminate channels that pass through this OFA circuit pack. Refer to the network topology diagram and the channel list to identify these shelves. Follow Procedure 1-43, "Enabling or disabling automatic laser shutdown" in *Provisioning and Operating Procedures*, 323-1701-310. ***Note:*** Bands 1 to 4 make up the C-band and Bands 5 to 8 make up the L-band. A C-band amplifier requires ALS to be disabled on any Band 1 to Band 4 shelf that has channels passing through the amplifier.
6	Disconnect the optical fiber connected to the OFA IN port and measure the received power using an optical power meter. Make sure the received power is within the total Rx power minimum and maximum range, as specified in Table 2-49 in *Technical Specifications*, 323-1701-180. **If** the received power is / **Then** go to within the total Rx power minimum and maximum range — step 11 not within the total Rx power minimum and maximum range — step 8

—continued—

Procedure 11-8 (continued)
OFA—High Optical Power Warning

Step	Action
7	This might be a result of the following conditions: • upstream components are not properly equalized • Link engineering is incorrect Verify that the optical output power levels conform to NMT report.

If	Then
the optical output power levels conform to NMT	go to step 9
otherwise	go to the next step

8 Refer to the equalization procedures in *Testing and Equalizing Procedures,* 323-1701-222.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	call your next level of support

9

If the OFA type	Then go to
VGA	step 10
otherwise	call your next level of support

10 Re-equalize the OFA VGA circuit pack. Follow Procedure 2-17 "Re-equalizing optical power of a band using a VGA OFA" in *Testing and Equalizing Procedures,* 323-1701-222.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	call your next level of support

11 Reconnect the optical fiber to the IN port of the OFA circuit pack. Make sure that the optical fiber is properly cleaned before you reconnect it. For information on cleaning, see "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components,* 323-1701-201.

If	Then go to
the alarm clears	step 16
the alarm remains	step 12

—continued—

Procedure 11-8 (continued)
OFA—High Optical Power Warning

Step	Action

12 **If** the OFA type **Then** go to

VGA	step 13
otherwise	step 15

13 Re-equalize the OFA VGA circuit pack. Follow Procedure 2-17 "Re-equalizing optical power of a band using a VGA OFA" in *Testing and Equalizing Procedures,* 323-1701-222.

14

If	Then
the alarm clears	go to step 16
the alarm remains	go to step 15

15 Replace the OFA circuit pack. Follow Procedure 3-10, "Replacing an OFA circuit pack" in *Maintenance and Replacement Procedures*, 323-1701-546.

If	Then
the alarm clears	go to the next step
the alarm remains	the circuit pack is not the problem. Reseat the original circuit pack. Contact your next level of support.

16

If	Then
in step 3, you completed Procedure 4-7, "Switching traffic off a span in a path-protected network" in *Provisioning and Operating Procedures*, 323-1701-310	re-route traffic to the original path. Follow Procedure 3-49, "Removing a manual, force, or lockout switch from a protection path" in *Provisioning and Operating Procedures*, 323-1701-310. Go to the next step.
otherwise	go to the next step

17 If in step 5 you disabled the automatic laser shutoff (ALS) feature, then enable the feature on all shelves that originate or terminate channels that pass through this OFA circuit pack. Refer to the network topology diagram and the channel list to identify these shelves. Follow Procedure 1-43, "Enabling or disabling automatic laser shutdown" in *Provisioning and Operating Procedures*, 323-1701-310.

Note: Bands 1 to 4 make up the C-band and Bands 5 to 8 make up the L-band. A C-band amplifier requires ALS to be disabled on any Band 1 to Band 4 shelf that has channels passing through the amplifier.

You have completed this procedure.

—end—

Procedure 11-9
OFA—Incomplete Provisioning

Probable cause

This alarm becomes active when one of the following conditions exists:

- the Direction (Eastbound or Westbound) or the Location (Pre, Post, or Thru) parameters are not provisioned

  Note: This situation always occurs after an upgrade from a release prior to Release 4.1.

- the intrasite fault sectionalization (IFS) feature is enabled and the optical system identifier (OSID) of the OFA circuit pack is unassigned
- a circuit pack on the shelf is assigned an OSID and the OSID of the OFA circuit pack is unassigned

Impact

Minor, non-service-affecting.

Requirements

You must be logged into the System Manager to perform this procedure. To log into the network, follow Procedure 1-1, "Logging into the network" in Provisioning and Operating Procedures, 323-1701-310. To view alarms, click on the Fault tab and then click on the Active Alarms tab.

—continued—

Procedure 11-9 (continued)
OFA—Incomplete Provisioning

Precautions

ATTENTION
To change the OSID for a piece of equipment that currently has the same OSID as the OSC circuit pack, you must first disable IFS at the site, if it is enabled. Follow Procedure 3-39, "Disabling intrasite fault sectionalization (IFS)" in *Provisioning and Operating Procedures*, 323-1702-310.

CAUTION
Risk of interfering with alarm reporting
You must correctly provision the OSID for all line-facing equipment for bridge sites, for hub and spoke sites, and for sites with intrasite fault sectionalization (IFS). Refer to the "Rules for provisioning OSIDs" in *Provisioning and Operating Procedures*, 323-1702-310.

Incorrect OSID provisioning can generate unnecessary alarms.

If you incorrectly provision the OSID, the IFS feature may operate incorrectly.

Action

Step	Action
1	In the System Manager, query the circuit pack inventory. Double-click on the alarmed OFA circuit pack. *The Optical Metro Inventory window opens.*
2	In the Provisioning Data section of the Optical Metro Inventory window, determine if the Direction (Eastbound or Westbound), the Location (Post, Pre, or Thru), or the OSID fields are provisioned.

If	**Then** go to
the Location field is not provisioned	step 3
the Direction field is not provisioned	step 4
both the Location field and the Direction field are unprovisioned	step 3 and then to step 4
otherwise	step 7

3	In the Location field, open the drop-down list and select a location.
4	In the Direction field, open the drop-down list and select a direction.
5	Click on the **Apply** button.

—continued—

Procedure 11-9 (continued)
OFA—Incomplete Provisioning

Step	Action
6	Click on the **OK** button.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	go to step 7

7	**If**	**Then**
	the OSID field is not provisioned	go to step 8
	otherwise	contact your next level of support

8	**If** the intrasite fault sectionalization (IFS) feature	**Then** go to
	is enabled on the network	step 9
	is not enabled on the network	step 10

Note: To determine if the IFS feature is enabled, follow Procedure 3-38, "Enabling intrasite fault sectionalization (IFS)" in *Provisioning and Operating Procedures*, 323-1701-310. You must have an optical service channel (OSC) circuit pack in slot 20 of the shelf to enable the IFS feature.

9 Either assign the OFA circuit pack an OSID (follow Procedure 3-36 "Provisioning the optical system identifier (OSID)" in *Provisioning and Operating Procedures*, 323-1701-310) or disable the IFS feature in the network (follow Procedure 3-39 "Disabling intrasite fault sectionalization (IFS)" in *Provisioning and Operating Procedures*, 323-1701-310).

If	Then
the alarm clears	you have completed this procedure
the alarm remains	go to step 10

10	**If**	**Then**
	a circuit pack on the shelf is assigned an OSID and the OSID of the OFA circuit pack is unassigned	go to step 11
	all other circuit packs on the shelf are not assigned an OSID	contact your next level of support

—continued—

Procedure 11-9 (continued)
OFA—Incomplete Provisioning

Step	Action
11	Either unassign the OSID for the circuit pack with the assigned OSID, or assign the OSID of the OFA circuit. Follow Procedure 3-36 “Provisioning the optical system identifier (OSID)” in *Provisioning and Operating Procedures*, 323-1701-310.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	contact your next level of support

—end—

Procedure 11-10
OFA—Inter-card Communication Failure

Probable cause

This alarm becomes active when the Shelf Processor (SP) circuit pack cannot communicate with the OFA circuit pack.

Impact

Major, non-service-affecting.

Requirements

You must be logged in to the System Manager to perform this procedure. To log in to the network, follow Procedure 1-1, "Logging into the network" in Provisioning and Operating Procedures, 323-1701-310. To view alarms, click on the Fault tab and then click on the Active Alarms tab.

You must have a network topology diagram and a list of the channel assignments provisioned in your network.

Precautions

CAUTION
Risk of service interruption in an unprotected network
The recovery action detailed in this procedure can affect service if the network is unprotected. To verify if you can add path protection to you network, refer to Chapter 3, "Supported configurations" in *Network Planning and Link Engineering*, 323-1701-110. To add path protection to an unprotected network, see Procedure 3-47, "Adding path protection to an unprotected path" in *Provisioning and Operating Procedures*, 323-1701-310.

CAUTION
Risk of affecting network reliability
Make sure that all connectors are cleaned before you make the connections (or re-connections) described in this procedure. For cleaning information, see the chapter "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components*, 323-1701-201.

—continued—

Procedure 11-10 (continued)
OFA—Inter-card Communication Failure

Action

Step	Action
1	Using the Fault—Active Alarms window in System Manager, check to see if the Intercard Communication Failure alarm is raised by more than one circuit pack in the shelf.

If the alarm is raised	**Then** go to
by only this circuit pack	step 2
on multiple circuit packs	step 8

Step	Action
2	In the System Manager, select the entire network. Click on the Connections tab and then click on the Channel Assignments tab.

3	**If** the path is	**Then**
	protected	go to step 4
	unprotected	see the precautionary message in step 4

4

CAUTION
Risk of traffic loss
If the system is unprotected, traffic cannot be switched and traffic can be lost during this procedure. Advise the network administrator of a possible loss of traffic before you continue to the next step.

Switch traffic off the span where the alarmed OFA circuit pack is located. Follow Procedure 4-7, "Switching traffic off a span in a path-protected network" in *Provisioning and Operating Procedures*, 323-1701-310.

—continued—

Procedure 11-10 (continued)
OFA—Inter-card Communication Failure

Step	Action
5	Reseat the OFA circuit pack. Follow Procedure 3-68 "Reseating a circuit pack" in *Provisioning and Operating Procedures,* 323-1701-310.

If	**Then** go to
the alarm clears	step 10
the alarm remains	the next step

Step	Action
6	Reseat the SP circuit pack. Follow Procedure 3-68 "Reseating a circuit pack" in *Provisioning and Operating Procedures,* 323-1701-310.

If	**Then** go to
the alarm clears	step 10
the alarm remains	step 9

Step	Action
7	Replace the OFA circuit pack. Follow Procedure 3-10 "Replacing an OFA circuit pack" in *Maintenance and Replacement Procedures* 323-1701-546.

If	**Then**
the alarm clears	go to step 10
the alarm remains	the circuit pack is not the problem. Reseat the original circuit pack. Go to step 9.

Step	Action
8	Reseat the SP circuit pack. Follow Procedure 3-68 "Reseating a circuit pack" in *Provisioning and Operating Procedures,* 323-1701-310.

If	**Then** go to
the alarm clears	step 10
the alarm remains	step 9

—continued—

Procedure 11-10 (continued)
OFA—Inter-card Communication Failure

Step	Action
9	Replace the SP circuit pack. Follow Procedure 3-13 "Replacing an SP circuit pack" in *Maintenance and Replacement Procedures*, 323-1701-546.

If	Then
the alarm clears	go to step 10
the alarm remains	the circuit pack is not the problem. Reseat the original circuit pack. Contact your next level of support.

Step	If	Then
10	in step 4, you completed Procedure 4-7, "Switching traffic off a span in a path-protected network" in *Provisioning and Operating Procedures*, 323-1701-310	re-route traffic to the original path. Follow Procedure 3-49, "Removing a manual, force, or lockout switch from a protection path" in *Provisioning and Operating Procedures*, 323-1701-310. You have completed this procedure.
	otherwise	you have completed this procedure

—end—

Procedure 11-11
OFA—Invalid Provisioning

Probable cause

This alarm becomes active when two or more OFA circuit packs in different shelves at the same site have identical band, OSID, location and direction parameters

This alarm only becomes active when the site contains an OSC circuit pack with the same OSID as this circuit pack and all shelves at the site are connected together via the Ethernet-2 LAN.

Impact

Minor, non-service-affecting.

Requirements

You must be logged into the System Manager to perform this procedure. To log into the network, follow Procedure 1-1, "Logging into the network" in Provisioning and Operating Procedures, 323-1701-310. To view alarms, click on the Fault tab and then click on the Active Alarms tab.

Precautions

CAUTION
Risk of interfering with alarm reporting
You must correctly provision the OSID for all line-facing equipment for bridge sites, for hub and spoke sites, and for sites with intrasite fault sectionalization (IFS). Refer to the "Rules for provisioning OSIDs" in *Provisioning and Operating Procedures*, 323-1702-310.

Incorrect OSID provisioning can generate unnecessary alarms.

—continued—

Procedure 11-11 (continued)
OFA—Invalid Provisioning

Action

Step	Action
1	In the System Manager, query the circuit pack inventory. Double-click on the alarmed OFA circuit pack. *The Optical Metro Inventory window opens.*
2	In the Provisioning Data section of the Optical Metro Inventory window, determine if the Direction (Eastbound or Westbound), the Location (Post, Pre, or Thru), band (C or L) or the OSID fields are provisioned.

If	**Then** go to
the Location, direction, band and OSID fields are duplicate and the circuit pack is required	step 3
the circuit pack is not required	step 5

3	Fix the provisioning problem. Follow Procedure 3-34 “Provisioning OFA direction and location” and Procedure 3-36 “Provisioning the optical system identifier (OSID)” in *Provisioning and Operating Procedures*, 323-1701-310.
4	Go to step 8.
5	Delete the facility of the circuit pack. Follow Procedure 3-14 “Deleting a circuit pack or SFP facility” in *Provisioning and Operating Procedures*, 323-1701-310.
6	Delete the equipment of the circuit pack. Follow Procedure 3-9 “Deleting a circuit pack or SFP from the inventory” in *Provisioning and Operating Procedures*, 323-1701-310.
7	Unseat the circuit pack from the shelf.

8	**If**	**Then**
	the alarm clears	you have completed the procedure.
	the alarm remains	contact your next level of support.

—end—

Procedure 11-12
OFA—Loss of Signal

Probable cause

This alarm is raised against the Rx (IN) port of the OFA circuit pack. This alarm becomes active when the OFA circuit pack does not detect any input signal or the input signal is lower than Rx Fail Threshold of the Rx Power Low parameter. The Fail Low threshold values for all OFA circuit packs are specified in Table 2-49 in *Technical Specifications,* 323-1701-180.

This alarm is raised when one of the following conditions exists:

- an optical fiber is cut
- the connector is dirty at the receiving OFA circuit pack or at the transmitting circuit pack
- the manually operated variable optical attenuator (VOA) in the Equalizer Coupler Tray (ECT) or the Per Band Equalizer (PBE) module is not operating correctly or needs adjusting
- the electronic variable optical attenuator (eVOA) in the APBE is not operating correctly or needs adjusting
- the APBE facilities are out of service
- an optical cable is damaged
- one or more of the transmitting OCLD, OTR or MOTR circuit packs are defective
- the miniature variable optical attenuator (mVOA) on the fiber is not adjusted correctly
- the network is not properly equalized
- The input power to an OFA VGA is too low for the gain setting.
- the fiber plant characteristics have changed

Note 1: The OFA circuit pack makes no distinction between complete loss of signal and an input power level below the Fail Low threshold value.

Note 2: Even when there is an OFA—Loss of Signal alarm raised against an OFA circuit pack, the transmit output power levels can continue to reach a maximum of -3 dBm for C-band traffic and a maximum of 0.5 dBm for L-band traffic. These power levels do not put you at risk.

Impact

Critical, service-affecting.

—continued—

Procedure 11-12 (continued)
OFA—Loss of Signal

Requirements

You must be logged into the System Manager to perform this procedure. To log into the network, follow Procedure 1-1, "Logging into the network" in *Provisioning and Operating Procedures*, 323-1701-310. To view alarms, click on the Fault tab and then click on the Active Alarms tab.

You must have a network topology diagram and a list of the channel assignments provisioned in your network.

ATTENTION
You must turn off the automatic laser shutdown (ALS) on all shelves that originate or terminate channels that pass through the alarmed OFA circuit pack.

Precautions

CAUTION
Risk of service interruption in an unprotected network
The recovery action detailed in this procedure can affect service if the network is unprotected. To verify if you can add path protection to you network, refer to Chapter 3, "Supported configurations" in *Network Planning and Link Engineering*, 323-1701-110. To add path protection to an unprotected network, see Procedure 3-47, "Adding path protection to an unprotected path" in *Provisioning and Operating Procedures*, 323-1701-310.

CAUTION
Risk of laser radiation
The Optical Metro 5100/5200 operates up to a Hazard Level of k x 3A (IEC 60825-2:2000) or 1M (IEC 60825-2:2004). Use only viewing instruments with proper optical attenuation.

—continued—

Procedure 11-12 (continued)
OFA—Loss of Signal

CAUTION
Risk of affecting network reliability
Make sure that all connectors are cleaned before you make the connections (or re-connections) described in this procedure. For cleaning information, see the chapter "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components*, 323-1701-201.

CAUTION
Possible risk of damage to equipment and fiber
Make sure that the bulkhead connectors are lowered and snapped into place before closing the drawer. Failure to do so could cause damage to the connector unit, the fibers attached to the connector unit, or both.

Observe the minimum bend radius of 1.18-inches (30-mm) for the patch cords. Always use the fiber management components in the drawer to route the fiber.

Allow for sufficient slack in the fibers entering and exiting the drawer. If sufficient slack is not left, the fibers can become stretched and damaged when the drawer is opened.

Action

Step	Action	
1	Check the Automatic Laser Shutdown (ALS) Automatic Laser Recovery (ALR) status.	
2	**If**	**Then** go to
	If Automatic Laser Shutdown (ALS) is enabled and active on the network and the Automatic Laser Recovery (ALR) is disabled,	step 3
	otherwise	step 4

—continued—

Procedure 11-12 (continued)
OFA—Loss of Signal

Step	Action
3	Make sure that the lasers at the OADMs or Terminals (both upstream and downstream of the OFA) are re-activated before you proceed. Clear any ALS alarms on the span. Refer to Procedure 8-31 "OCLD—Remote Automatic Laser Shutdown", Procedure 16-33 "OTR—Remote Automatic Laser Shutdown", or Procedure 17-34 "MOTR—Remote Automatic Laser Shutdown" in *Trouble Clearing and Alarm Reference Guide,* 323-1701-542. Use a network topology diagram to determine the upstream and downstream shelves.

If	Then
the alarm clears	you have completed the procedure
the alarm remains	go to step 4

Step	Action
4	Use the network topology diagram to identify all OCLD, OTR, MOTR, OMX, APBE, and OFA circuit packs located upstream from the alarmed OFA circuit pack. In the System Manager, verify if there are any alarms raised against the upstream circuit packs. ***Note:*** Also verify if there are any OFA or APBE circuit pack facilities out of service. They should be in service. If some facilities are out of service, follow procedure Procedure 3-10 "Putting a circuit pack or SFP facility in-service" in *Provisioning and Operating Procedures,* 323-1701-310.

If	Then
there are alarms raised against the upstream circuit packs	use the appropriate procedures in this book to clear the alarms before you go to step 5
there are no alarms raised against the upstream circuit packs	go to step 5

Step	Action
5	In the System Manager, select the entire network. Click on the Connections tab and then click on the Channel Assignments tab.
6	**If** the path is … **Then**

If the path is	Then
protected	go to step 7
unprotected	see the precautionary message in step 7

—continued—

Procedure 11-12 (continued)
OFA—Loss of Signal

Step	Action

7

CAUTION
Risk of traffic loss
If the system is unprotected, traffic cannot be switched and traffic can be lost during this procedure. Advise the network administrator of a possible loss of traffic before you continue to the next step.

Switch traffic off the span where the alarmed OFA circuit pack is located. Follow Procedure 4-7, "Switching traffic off a span in a path-protected network" in *Provisioning and Operating Procedures*, 323-1701-310.

8 If the automatic laser shutdown (ALS) feature is enabled on the network, disable the feature on all shelves that originate or terminate channels that pass through this OFA circuit pack. Refer to the network topology diagram and the channel list to identify these shelves. Follow Procedure 1-43, "Enabling or disabling automatic laser shutdown" in *Provisioning and Operating Procedures*, 323-1701-310.

Note: Bands 1 to 4 make up the C-band and Bands 5 to 8 make up the L-band. A C-band amplifier requires ALS to be disabled on any Band 1 to Band 4 shelf that has channels passing through the amplifier.

9 Disconnect the optical patch cord connected to the OFA IN port and measure the received power level using an Optical Spectrum Analyzer (OSA). Compare the OSA output with the NMT values.

If the OSA output	**Then** go to
is equal to the NMT values	step 12
otherwise	step 10

10 This might be a result of the following conditions:

- a fiber plant characteristics have changed
- a broken, pinched or dirty optical patch cord used to interconnect the optical components located before the OFA
- a defective optical component located before the OFA

It is recommended to measure power levels using an OSA at each segment connecting two optical components moving upstream from the alarmed OFA to help identify the cause of the power difference.

11 After all the above conditions have been verified, Refer to the Testing and Equalization book 323-1701-222 to equalize such that the OFA input power meets the NMT values.

—continued—

Procedure 11-12 (continued)
OFA—Loss of Signal

Step	Action

12 **If** the OFA type is — **Then** go to

VGA	step 13
otherwise	step 15

13 Re-equalize the OFA VGA. Follow Procedure 2-17 "Re-equalizing optical power of a band using a VGA OFA" in *Testing and Equalizing Procedures,* 323-1701-222.

14

If	Then go to
the alarm clears	you have completed the procedure
the alarm remains	step 15

15 Reseat the OFA circuit pack. Follow Procedure 3-68, "Reseating a circuit pack" in *Provisioning and Operating Procedures,* 323-1701-310.

If	Then go to
the alarm clears	step 17
the alarm remains	step 16

16 Replace the OFA circuit pack. Follow Procedure 3-10, "Replacing an OFA circuit pack" in *Maintenance and Replacement Procedures*, 323-1701-546.

If	Then
the alarm clears	go to step 17
the alarm remains	the circuit pack is not the problem. Reseat the original circuit pack. Contact your next level of support.

17

If	Then
in step 7, you completed Procedure 4-7, "Switching traffic off a span in a path-protected network" in *Provisioning and Operating Procedures*, 323-1701-310	re-route traffic to the original path. Follow Procedure 3-49, "Removing a manual, force, or lockout switch from a protection path" in *Provisioning and Operating Procedures*, 323-1701-310. Go to the next step.
otherwise	go to the next step

—continued—

Procedure 11-12 (continued)
OFA—Loss of Signal

Step	Action
18	If in step 8 you disabled the automatic laser shutoff (ALS) feature, then enable the feature on all shelves that originate or terminate channels that pass through this OFA circuit pack. Refer to the network topology diagram and the channel list to identify these shelves. Follow Procedure 1-43, "Enabling or disabling automatic laser shutdown" in *Provisioning and Operating Procedures*, 323-1701-310. ***Note:*** Bands 1 to 4 make up the C-band and Bands 5 to 8 make up the L-band. A C-band amplifier requires ALS to be disabled on any Band 1 to Band 4 shelf that has channels passing through the amplifier. You have completed this procedure. **—end—**

Procedure 11-13
OFA—Low Optical Power Warning

Probable cause

This alarm is raised against the Rx (IN) port of the OFA circuit pack. This alarm becomes active when the optical power level at the optical receiver is lower than the Rx Degrade Threshold of the Rx Power Low parameter. The degrade low thresholds for all OFA circuit packs are specified in Table 2-49 of the *Technical Specifications*, 323-1701-180.

This alarm is raised when one of the following conditions exists:

- the connector is dirty at the receiving OFA circuit pack or at the transmitting circuit pack
- one or more of the transmitting OCLD, OTR or MOTR circuit packs is defective
- the manually operated variable optical attenuator (VOA) in the Equalizer Coupler Tray (ECT) or the Per Band Equalizer (PBE) module is not operating correctly or needs adjusting
- the electronic variable optical attenuator (eVOA) in the APBE circuit pack is not operating correctly or the power target for that bands needs adjusting
- an optical cable is damaged
- the receiving OFA circuit pack is defective
- the miniature variable optical attenuator (mVOA) on the optical fiber is not adjusted correctly
- The input power to a OFA VGA is too low for the gain setting.
- the network is not properly equalized
- the fiber plant characteristics have changed

Impact

Major, non-service-affecting.

—continued—

Procedure 11-13 (continued)
OFA—Low Optical Power Warning

Requirements

You must be logged into the System Manager to perform this procedure. To log into the network, follow Procedure 1-1, "Logging into the network" in *Provisioning and Operating Procedures*, 323-1701-310. To view alarms, click on the Fault tab and then click on the Active Alarms tab.

You must have a network topology diagram and a list of the channel assignments provisioned in your network.

ATTENTION
You must turn off the automatic laser shutdown (ALS) on all shelves that originate or terminate channels that pass through the alarmed OFA circuit pack.

Precautions

CAUTION
Risk of service interruption in an unprotected network
The recovery action detailed in this procedure can affect service if the network is unprotected. To verify if you can add path protection to you network, refer to Chapter 3, "Supported configurations" in *Network Planning and Link Engineering*, 323-1701-110. To add path protection to an unprotected network, see Procedure 3-47, "Adding path protection to an unprotected path" in *Provisioning and Operating Procedures*, 323-1701-310.

CAUTION
Risk of laser radiation
The Optical Metro 5100/5200 operates up to a Hazard Level of k x 3A (IEC 60825-2:2000) or 1M (IEC 60825-2:2004). Use only viewing instruments with proper optical attenuation.

—continued—

Procedure 11-13 (continued)
OFA—Low Optical Power Warning

CAUTION
Possible risk of damage to equipment and fiber
Make sure that the bulkhead connectors are lowered and snapped into place before closing the drawer. Failure to do so could cause damage to the connector unit, the fibers attached to the connector unit, or both.

Observe the minimum bend radius of 1.18-inches (30-mm) for the patch cords. Always use the fiber management components in the drawer to route the fiber.

Allow for sufficient slack in the fibers entering and exiting the drawer. If sufficient slack is not left, the fibers can become stretched and damaged when the drawer is opened.

CAUTION
Risk of affecting network reliability
Make sure that all connectors are cleaned before you make the connections (or re-connections) described in this procedure. For cleaning information, see the chapter "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components*, 323-1701-201.

Action

Step	Action	
1	Check the Automatic Laser Shutdown (ALS) Automatic Laser Recovery (ALR) status.	
2	**If**	**Then** go to
	If Automatic Laser Shutdown (ALS) is enabled and active on the network and the Automatic Laser Recovery (ALR) is disabled,	step 3
	otherwise	step 4

—continued—

Procedure 11-13 (continued)
OFA—Low Optical Power Warning

Step	Action
3	Make sure that the lasers at the OADMs or Terminals (both upstream and downstream of the OFA) are re-activated before you proceed. Clear any ALS alarms on the span. Refer to Procedure 8-31 "OCLD—Remote Automatic Laser Shutdown", Procedure 16-33 "OTR—Remote Automatic Laser Shutdown", or Procedure 17-34 "MOTR—Remote Automatic Laser Shutdown" in *Trouble Clearing and Alarm Reference Guide,* 323-1701-542. Use a network topology diagram to determine the upstream and downstream shelves.

If	Then
the alarm clears	you have completed the procedure
the alarm remains	go to step 4

Step	Action
4	Use the network topology diagram to identify all OCLD, OTR, MOTR, OMX, APBE, and OFA circuit packs located upstream from the alarmed OFA circuit pack. In the System Manager, verify if there are any alarms raised against the upstream circuit packs. ***Note:*** Also verify if there are any OFA or APBE circuit pack facilities out of service. They should be in service. If some facilities are out of service, follow procedure Procedure 3-10 "Putting a circuit pack or SFP facility in-service" in *Provisioning and Operating Procedures,* 323-1701-310.

If	Then
there are alarms raised against the upstream circuit packs	use the appropriate procedures in this book to clear the alarms before you go to step 5
there are no alarms raised against the upstream circuit packs	go to step 5

Step	Action
5	In the System Manager, select the entire network. Click on the Connections tab and then click on the Channel Assignments tab.

Step	**If** the path is	**Then**
6	protected	go to step 7
	unprotected	see the precautionary message in step 7

—continued—

Procedure 11-13 (continued)
OFA—Low Optical Power Warning

Step	Action

7

CAUTION
Risk of traffic loss
If the system is unprotected, traffic cannot be switched and traffic can be lost during this procedure. Advise the network administrator of a possible loss of traffic before you continue to the next step.

Switch traffic off the span where the alarmed OFA circuit pack is located. Follow Procedure 4-7, "Switching traffic off a span in a path-protected network" in *Provisioning and Operating Procedures*, 323-1701-310.

8 If the automatic laser shutdown (ALS) feature is enabled on the network, disable the feature on all shelves that originate or terminate channels that pass through this OFA circuit pack. Refer to the network topology diagram and the channel list to identify these shelves. Follow Procedure 1-43, "Enabling or disabling automatic laser shutdown" in *Provisioning and Operating Procedures*, 323-1701-310.

Note: Bands 1 to 4 make up the C-band and Bands 5 to 8 make up the L-band. A C-band amplifier requires ALS to be disabled on any Band 1 to Band 4 shelf that has channels passing through the amplifier.

9 Disconnect the optical patch cord connected to the OFA IN port and measure the received power level using an Optical Spectrum Analyzer (OSA). Compare the OSA output with the NMT values.

If the OSA output	**Then** go to
is equal to the NMT values	step 12
otherwise	step 10

10 This might be a result of the following conditions:

- a fiber plant characteristics have changed
- a broken, pinched or dirty optical patch cord used to interconnect the optical components located before the OFA
- a defective optical component located before the OFA

It is recommended to measure power levels using an OSA at each segment connecting two optical components moving upstream from the alarmed OFA to help identify the cause of the power difference.

11 After all the above conditions have been verified, Refer to *Testing and Equalizing Procedures*, 323-1701-222 to equalize such that the OFA input power meets the NMT values.

—continued—

Procedure 11-13 (continued)
OFA—Low Optical Power Warning

Step	Action

12 **If** the OFA type is — **Then** go to

VGA	step 13
otherwise	step 15

13 Re-equalize the OFA VGA. Follow Procedure 2-17 "Re-equalizing optical power of a band using a VGA OFA" in *Testing and Equalizing Procedures,* 323-1701-222.

14

If	Then go to
the alarm clears	you have completed the procedure
the alarm remains	step 15

15 Reseat the OFA circuit pack. Follow Procedure 3-68, "Reseating a circuit pack" in *Provisioning and Operating Procedures,* 323-1701-310.

If	Then go to
the alarm clears	step 17
the alarm remains	step 16

16 Replace the OFA circuit pack. Follow Procedure 3-10, "Replacing an OFA circuit pack" in *Maintenance and Replacement Procedures*, 323-1701-546.

If	Then
the alarm clears	go to step 17
the alarm remains	the circuit pack is not the problem. Reseat the original circuit pack. Contact your next level of support.

17

If	Then
in step 7, you completed Procedure 4-7, "Switching traffic off a span in a path-protected network" in *Provisioning and Operating Procedures*, 323-1701-310	re-route traffic to the original path. Follow Procedure 3-49, "Removing a manual, force, or lockout switch from a protection path" in *Provisioning and Operating Procedures*, 323-1701-310. Go to the next step.
otherwise	go to the next step

—continued—

Procedure 11-13 (continued)
OFA—Low Optical Power Warning

Step	Action
18	If in step 8 you disabled the automatic laser shutoff (ALS) feature, then enable the feature on all shelves that originate or terminate channels that pass through this OFA circuit pack. Refer to the network topology diagram and the channel list to identify these shelves. Follow Procedure 1-43, "Enabling or disabling automatic laser shutdown" in *Provisioning and Operating Procedures*, 323-1701-310. ***Note:*** Bands 1 to 4 make up the C-band and Bands 5 to 8 make up the L-band. A C-band amplifier requires ALS to be disabled on any Band 1 to Band 4 shelf that has channels passing through the amplifier. You have completed this procedure. **—end—**

Procedure 11-14
OFA—Optical Signal Failure (Rx) or (Tx)

An Optical Signal Failure alarm is raised against the equipment at both ends of the suspect fiber span. The beginning of the suspect span is identified by an Optical Signal Failure Tx alarm, while the end of the suspect span is identified by a corresponding Optical Signal Failure Rx alarm.

Depending on the network and site topology, several Optical Signal Failure alarms are possible. The Intrasite Fault Sectionalization (IFS) feature raises Optical Signal Failure alarms at all the sites where a broken fiber would cause the observed service failures.

Probable cause

This alarm becomes active when the intrasite fault sectionalization (IFS) feature identifies a failed WDM fiber at an OFA circuit pack. This alarm indicates that there is a failed fiber between this OFA circuit pack and a connected component to the east or west.

> ***Note:*** Refer to Chapter 2, "Fault sectionalization" in *Software and User Interface*, 323-1701-101.

Impact

Critical, service-affecting.

Requirements

If an Intrasite Communication Failure alarm is active anywhere in the ring, clear this alarm before performing this procedure. Follow Procedure 15-10 "OSC—Intrasite Communication Failure" or Procedure 13-21 "SP—Intrasite Communication Failure".

After clearing the Intrasite Communication Failure alarm, the IFS alarms may change. Follow the appropriate procedure for the identified optical signal failures.

Perform the following steps at each site where an Optical Signal Failure alarm is raised until all Optical Signal Failure alarms are cleared.

—continued—

Procedure 11-14 (continued)
OFA—Optical Signal Failure (Rx) or (Tx)

You must be logged into the System Manager to perform this procedure. To log into the network, follow Procedure 1-1, "Logging into the network" in *Provisioning and Operating Procedures*, 323-1701-310. To view alarms, click on the Fault tab and then click on the Active Alarms tab.

You must have a network topology diagram and a list of the channel assignments provisioned in your network.

Precautions

CAUTION
Risk of service interruption in an unprotected network
The recovery action detailed in this procedure can affect service if the network is unprotected. To verify if you can add path protection to you network, refer to Chapter 3, "Supported configurations" in *Network Planning and Link Engineering*, 323-1701-110. To add path protection to an unprotected network, see Procedure 3-47, "Adding path protection to an unprotected path" in *Provisioning and Operating Procedures*, 323-1701-310.

CAUTION
Risk of laser radiation
The Optical Metro 5100/5200 operates up to a Hazard Level of k x 3A (IEC 60825-2:2000) or 1M (IEC 60825-2:2004). Use only viewing instruments with proper optical attenuation.

—continued—

Procedure 11-14 (continued)
OFA—Optical Signal Failure (Rx) or (Tx)

CAUTION
Possible risk of damage to equipment and fiber
Make sure that the bulkhead connectors are lowered and snapped into place before closing the drawer. Failure to do so could cause damage to the connector unit, the fibers attached to the connector unit, or both.

Observe the minimum bend radius of 1.18-inches (30-mm) for the patch cords. Always use the fiber management components in the drawer to route the fiber.

Allow for sufficient slack in the fibers entering and exiting the drawer. If sufficient slack is not left, the fibers can become stretched and damaged when the drawer is opened.

CAUTION
Risk of affecting network reliability
Make sure that all connectors are cleaned before you make the connections (or re-connections) described in this procedure. For cleaning information, see the chapter "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components*, 323-1701-201.

Action

Step	Action

1 In the Active Alarms window, determine if the OSC—Intrasite Communication Failure or SP—Intrasite Communication Failure alarm is present on the network.

If this alarm is	**Then** go to
present on the network	step 2
not present on the network	step 4

—continued—

Procedure 11-14 (continued)
OFA—Optical Signal Failure (Rx) or (Tx)

Step	Action
2	Clear the Intrasite Communication Failure alarm. Follow "OSC—Intrasite Communication Failure" on page 15-25 or "SP—Intrasite Communication Failure" on page 13-41. ***Note:*** It takes a minimum of 10 seconds for the alarms to clear. **If** the Intrasite Communication Failure alarm — **Then** clears — go to the next step remains — contact your next level of support
3	Clearing the Intrasite Communication Failure alarm can change the Optical Signal Failure alarms. **If** clearing the Intrasite Communication alarm — **Then** cleared all the optical signal failure alarms in the system — you have completed this procedure otherwise — go to the next step
4	Make sure that both ends of the optical fiber are physically connected to the equipment. Refer to the appropriate procedures in Chapter 3, "Connecting components" in *Connection Procedures*, 323-1701-221.
5	Disconnect the fiber at the Tx equipment and use an optical power meter and a patch cord to measure the optical power coming from the equipment. Refer to tables in *Technical Specifications,* 323-1701-180, for the operational power levels that are acceptable for the type of equipment being measured.
6	**If** the optical power — **Then** go to is above the operational threshold — the next step is below the operational threshold — step 9
7	Disconnect the fiber at the Rx equipment and use an optical power meter to measure the optical power coming from the Tx equipment. Refer to tables in *Technical Specifications,* 323-1701-180, for the operational power levels that are acceptable for the type of equipment being measured.
8	**If** the optical power — **Then** go to is above the operational threshold — step 12 is below the operational threshold — step 15

—continued—

Procedure 11-14 (continued)
OFA—Optical Signal Failure (Rx) or (Tx)

Step	Action
9	Use the proper cleaning kit to clean the connectors. For information on cleaning, see "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components,* 323-1701-201. — Clean each connector. — Record the operating power level after you clean each connector and compare it to the value you wrote down, this will allow you to see if there is any improvement to the power levels.
10	Reconnect the fiber that was disconnected in step 5. Go to the next step.
11	**If** / **Then** the alarm clears — you have completed the procedure the alarm remains — go to step 20
12	Use the proper cleaning kit to clean the connectors. For information on cleaning, see "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components,* 323-1701-201. — Clean each connector. — Record the operating power level after you clean each connector and compare it to the value you wrote down, this will allow you to see if there is any improvement to the power levels.
13	Reconnect the fiber that was disconnected in step 7. Go to the next step.
14	**If** / **Then** the alarm clears — you have completed the procedure the alarm remains — go to step 18
15	Replace the fiber. Clean the new fiber and the optical connectors on the equipment. For information on cleaning, see "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components,* 323-1701-201. ***Note:*** It will take at least 10 seconds for the alarms to clear after the problem is resolved.
16	**If** / **Then** the alarm clears — you have completed the procedure the alarm remains — clean all the optical connectors for the Tx and Rx equipment again. Go to the next step. For information on cleaning, see "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components,* 323-1701-201. Go to the next step.

—continued—

Procedure 11-14 (continued)
OFA—Optical Signal Failure (Rx) or (Tx)

Step	Action	
17	**If**	**Then**
	the alarm clears	you have completed the procedure
	the alarm remains	go to the next step
18	Check for an optical signal failure at a downstream site. Go to the next step.	
19	**If** at a downstream site	**Then**
	there is an optical signal failure	repeat this procedure, beginning with step 4, at that site
	otherwise	go to step 20
20	Check for an optical signal failure at an upstream site. Go to the next step.	
21	**If** at an upstream site	**Then**
	there is an optical signal failure	repeat this procedure, beginning with step 4, at that site
	otherwise	contact your next level of support
		—end—

Procedure 11-15
OFA—Performance Monitoring Timer Failed

Probable cause

This alarm becomes active when the OFA circuit pack is not receiving performance monitoring data from the SP.

Impact

Major, non-service-affecting.

Requirements

You must be logged in to the System Manager to perform this procedure. To log in to the network, follow Procedure 1-1, "Logging into the network" in Provisioning and Operating Procedures, 323-1701-310. To view alarms, click on the Fault tab and then click on the Active Alarms tab.

You must have a network topology diagram and a list of the channel assignments provisioned in your network.

Precautions

CAUTION
Risk of service interruption in an unprotected network
The recovery action detailed in this procedure can affect service if the network is unprotected. To verify if you can add path protection to you network, refer to Chapter 3, "Supported configurations" in *Network Planning and Link Engineering*, 323-1701-110. To add path protection to an unprotected network, see Procedure 3-47, "Adding path protection to an unprotected path" in *Provisioning and Operating Procedures*, 323-1701-310.

CAUTION
Risk of affecting network reliability
Make sure that all connectors are cleaned before you make the connections (or re-connections) described in this procedure. For cleaning information, see the chapter "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components*, 323-1701-201.

—continued—

Procedure 11-15 (continued)
OFA—Performance Monitoring Timer Failed

Action

Step	Action
1	Using the Fault—Active Alarms window in System Manager, check to see if the Performance Monitoring Timer Failed alarm is raised by more than one circuit pack in the shelf.

If the alarm is raised	**Then** go to
by only this circuit pack	step 2
on multiple circuit packs	step 4

2	Reseat the OFA circuit pack. Follow Procedure 3-68 “Reseating a circuit pack” in *Provisioning and Operating Procedures,* 323-1701-310.

If the alarm	**Then**
clears	you have completed this procedure
remains	go to the next step

3	Replace the OFA circuit pack. Follow Procedure 3-10 “Replacing an OFA circuit pack” in *Maintenance and Replacement Procedures* 323-1701-546.

If the alarm	**Then**
clears	the removed circuit pack has faults. You have completed this procedure.
remains	the circuit pack is not the problem. Reseat the original circuit pack. Go to step 4.

—continued—

Procedure 11-15 (continued)
OFA—Performance Monitoring Timer Failed

Step	Action
4	Reseat the SP circuit pack. Follow Procedure 3-68 “Reseating a circuit pack” in *Provisioning and Operating Procedures,* 323-1701-310

If the alarm	**Then**
clears	you have completed this procedure
remains	go to step 5

Step	Action
5	Replace the SP circuit pack. Follow Procedure 3-13 “Replacing an SP circuit pack” in *Maintenance and Replacement Procedures*, 323-1701-546.

If the alarm	**Then**
clears	the removed circuit pack has faults. You have completed this procedure.
remains	the circuit pack is not the problem. Reseat the original circuit pack. Contact your next level of support.

—end—

Procedure 11-16
OFA—Power Out of Range High

Probable cause

This alarm is raised when one of the following conditions exists:

- the OFA VGA has been equalized and the actual input power has been increased by more than 2.1 dB
- if after a failed OFA VGA equalization the output power is more than 1.1 dB above the output power target. This can happen because the input power is too high and the amplifier can not have a gain small enough to reach the target power.
- The OFA VGA has been equalized and the actual output power is more than 16.2 dBm

Impact

Minor, non-service affecting.

Action

Step	Action
1	Check to see if a change has occurred in the optical power of the in-coming signal.
2	In the System Manager, select the entire network. Click on the Connections tab and then click on the Channel Assignments tab.
3	**If** the path is / **Then** protected — go to step 4 unprotected — see the precautionary message in step 4
4	**CAUTION** **Risk of traffic loss** If the system is unprotected, traffic cannot be switched and traffic can be lost. Advise the network administrator of a possible loss of traffic before you continue to the next step.

—continued—

Procedure 11-16 (continued)
OFA—Power Out of Range High

Step	Action
5	Switch traffic off the span where the alarmed OFA circuit pack is located. Follow Procedure 4-7, "Switching traffic off a span in a path-protected network" in *Provisioning and Operating Procedures*, 323-1701-310.If the automatic laser shutoff (ALS) feature is enabled on the network then disable the feature on all shelves that originate or terminate channels that pass through this OFA circuit pack. Refer to the network topology diagram and the channel list to identify these shelves. Follow Procedure 1-43, "Enabling or disabling automatic laser shutdown" in *Provisioning and Operating Procedures*, 323-1701-310. ***Note:*** Bands 1 to 4 make up the C-band and Bands 5 to 8 make up the L-band. A C-band amplifier requires ALS to be disabled on any Band 1 to Band 4 shelf that has channels passing through the amplifier.
6	Use the System Manager to verify that the power targets that are set for the the OFA reflect the power targets provided by the Network Modeling Tool. **If** / **Then** go to there is a difference — the next step the power targets are the same — step 9
7	Adjust the OFA target power. Follow the procedure Procedure 2-15, "Provisioning target power on the OFA VGA circuit pack when using SLEC" in *Testing and Equalization Procedures*, 323-1701-222.
8	Re-equalize the network. Follow procedures in the "Equalizing amplified systems" chapter of *Testing and Equalization Procedures*, 323-1701-222. **If** / **Then** the alarm clears — go to step 13 the alarm remains — go to the next step
9	Make sure there are no equipment changes being made in the upstream direction. **If** / **Then** there are equipment changes in progress upstream — wait until the changes are completed before going to the next step. the are no equipment changes in progress upstream — go to the next step

—continued—

Procedure 11-16 (continued)
OFA—Power Out of Range High

Step	Action
10	Re-equalize the OFA VGA. Follow Procedure 2-17 "Re-equalizing optical power of a band using a VGA OFA" in *Testing and Equalization Procedures,* 323-1701-222.

If	Then
the alarm clears	go to step 13
the alarm remains	go to the next step

Step	Action
11	This might be a result of the following conditions: • upstream components are not properly equalized • Link engineering is incorrect Verify that the optical output power levels conform to NMT report.

If	Then
the optical output power levels conform to NMT	go to step 13
otherwise	go to the next step

Step	Action
12	Refer to the equalization procedures in *Testing and Equalizing Procedures,* 323-1701-222.

If	Then
the alarm clears	go to step 13
the alarm remains	call your next level of support

Step	If	Then
13	in step 7, you completed Procedure 4-7, "Switching traffic off a span in a path-protected network" in *Provisioning and Operating Procedures*, 323-1701-310	re-route traffic to the original path. Follow Procedure 3-49, "Removing a manual, force, or lockout switch from a protection path" in *Provisioning and Operating Procedures*, 323-1701-310. Go to the next step.
	otherwise	go to the next step

—continued—

Procedure 11-16 (continued)
OFA—Power Out of Range High

Step	Action
14	If in step 8 you disabled the automatic laser shutoff (ALS) feature, then enable the feature on all shelves that originate or terminate channels that pass through this OFA circuit pack. Refer to the network topology diagram and the channel list to identify these shelves. Follow Procedure 1-43, "Enabling or disabling automatic laser shutdown" in *Provisioning and Operating Procedures*, 323-1701-310. ***Note:*** Bands 1 to 4 make up the C-band and Bands 5 to 8 make up the L-band. A C-band amplifier requires ALS to be disabled on any Band 1 to Band 4 shelf that has channels passing through the amplifier. You have completed this procedure. **—end—**

Procedure 11-17
OFA—Power Out of Range Low

Probable cause

This alarm is raised when one of the following conditions exists:

- the VGA amp has been equalized and the actual input power has been decreased with more than 2.1 dB
- if after a failed OFA VGA equalization the output power is more than 1.1 dB below the output power target. This can happen because the input power is too low and the amplifier can not have a gain big enough to reach the target power.

This alarm becomes active when the VGA OFA has been equalized and the actual power is less than 2.1 dBm above the target power.

Impact

Minor, non-service affecting.

Action

Step	Action
1	Check to see if a change has occurred in the optical power of the in-coming signal.
2	In the System Manager, select the entire network. Click on the Connections tab and then click on the Channel Assignments tab.
3	**If** the path is / **Then** protected — go to step 4 unprotected — see the precautionary message in step 4
4	**CAUTION** **Risk of traffic loss** If the system is unprotected, traffic cannot be switched and traffic can be lost. Advise the network administrator of a possible loss of traffic before you continue to the next step.

—continued—

Procedure 11-17 (continued)
OFA—Power Out of Range Low

Step	Action
5	Switch traffic off the span where the alarmed OFA circuit pack is located. Follow Procedure 4-7, "Switching traffic off a span in a path-protected network" in *Provisioning and Operating Procedures*, 323-1701-310.If the automatic laser shutoff (ALS) feature is enabled on the network then disable the feature on all shelves that originate or terminate channels that pass through this OFA circuit pack. Refer to the network topology diagram and the channel list to identify these shelves. Follow Procedure 1-43, "Enabling or disabling automatic laser shutdown" in *Provisioning and Operating Procedures*, 323-1701-310. ***Note:*** Bands 1 to 4 make up the C-band and Bands 5 to 8 make up the L-band. A C-band amplifier requires ALS to be disabled on any Band 1 to Band 4 shelf that has channels passing through the amplifier.
6	Use the System Manager to verify that the power targets that are received by the OFA reflect the power targets provided by the Network Modeling Tool. **If** — **Then** go to there is a difference — the next step the power targets are the same — step 9
7	Adjust the OFA target power. Follow the procedure Procedure 2-15, "Provisioning target power on the OFA VGA circuit pack when using SLEC" in *Testing and Equalization Procedures*, 323-1701-222.
8	Re-equalize the network. Follow procedures in the "Equalizing amplified systems" chapter of *Testing and Equalization Procedures*, 323-1701-222. **If** — **Then** the alarm clears — go to step 15 the alarm remains — go to the next step
9	Make sure there are no equipment changes being made in the upstream direction. **If** — **Then** there are equipment changes in progress upstream — wait until the changes are completed before going to the next step the are no equipment changes in progress upstream — go to the next step

—continued—

Procedure 11-17 (continued)
OFA—Power Out of Range Low

Step	Action
10	Re-equalize the network. Follow Procedure 2-17 "Re-equalizing optical power of a band using a VGA OFA" in *Testing and Equalization Procedures,* 323-1701-222.

If	Then
the alarm clears	go to step 15
the alarm remains	contact your next level of support

11	This might be a result of the following conditions: • a fiber plant characteristics have changed • a broken, pinched or dirty optical patch cord used to interconnect the optical components located before the OFA • a defective optical component located before the OFA It is recommended to measure power levels using an OSA at each segment connecting two optical components moving upstream from the alarmed OFA to help identify the cause of the problem
12	After all the above conditions have been verified, refer to *Testing and Equalizing Procedures,* 323-1701-222 to equalize such that the OFA input power meets the NMT values
13	Adjust the OFA target power. Follow the procedure Procedure 2-15, "Provisioning target power on the OFA VGA circuit pack when using SLEC" in *Testing and Equalization Procedures*, 323-1701-222.
14	Re-equalize the network. Follow procedures in the "Equalizing amplified systems" chapter of *Testing and Equalization Procedures*, 323-1701-222.

If	Then
the alarm clears	go to step 15
the alarm remains	call your next level of support

15	**If**	**Then**
	in step 7, you completed Procedure 4-7, "Switching traffic off a span in a path-protected network" in *Provisioning and Operating Procedures*, 323-1701-310	re-route traffic to the original path. Follow Procedure 3-49, "Removing a manual, force, or lockout switch from a protection path" in *Provisioning and Operating Procedures*, 323-1701-310. Go to the next step.
	otherwise	go to the next step

—continued—

Procedure 11-17 (continued)
OFA—Power Out of Range Low

Step	Action
16	If in step 8 you disabled the automatic laser shutoff (ALS) feature, then enable the feature on all shelves that originate or terminate channels that pass through this OFA circuit pack. Refer to the network topology diagram and the channel list to identify these shelves. Follow Procedure 1-43, "Enabling or disabling automatic laser shutdown" in *Provisioning and Operating Procedures*, 323-1701-310. ***Note:*** Bands 1 to 4 make up the C-band and Bands 5 to 8 make up the L-band. A C-band amplifier requires ALS to be disabled on any Band 1 to Band 4 shelf that has channels passing through the amplifier. You have completed this procedure. **—end—**

Procedure 11-18
OFA—TCA - Optical Power Rx High

Probable cause

This alarm is raised against the Rx (IN) port of the OFA circuit pack. This alarm becomes active when the power of the optical signal received is exceeding the user-defined threshold of the Rx Power High parameter.

This alarm is raised when one of the following conditions exists:

- the manually operated variable optical attenuator (VOA) in the Equalizer Coupler Tray (ECT) or the Per Band Equalizer (PBE) module is not operating correctly or needs adjusting
- the electronic variable optical attenuator (eVOA) in the APBE circuit pack is not operating correctly, or the power target for that band needs adjusting
- one or more of the transmitting OCLD, OTR or MOTR circuit packs are defective
- the receiving OFA circuit pack is defective
- the miniature variable optical attenuator (mVOA) on the optical fiber is not adjusted correctly
- the user threshold value is incorrect
- the fiber plant characteristics have changed
- the user-defined threshold value is not correct

Impact

Minor, non-service-affecting.

—continued—

Procedure 11-18 (continued)
OFA—TCA - Optical Power Rx High

Requirements

You must be logged into the System Manager to perform this procedure. To log into the network, follow Procedure 1-1, "Logging into the network" in *Provisioning and Operating Procedures*, 323-1701-310. To view alarms, click on the Fault tab and then click on the Active Alarms tab.

You must have a network topology diagram and a list of the channel assignments provisioned in your network.

If your system can run SLEC and Continuous SLEC is not enabled, run one-time SLEC to try to clear the alarm

ATTENTION
You must turn off the automatic laser shutdown (ALS) on all shelves that originate or terminate channels that pass through the alarmed OFA circuit pack.

Precautions

ATTENTION
Power fluctuating around user defined TCAs and alarm toggling
This alarm can toggle on the System Manager if the receive optical power reading fluctuates around the user defined TCA threshold. To clear the behavior of alarm toggling, move the user defined TCA threshold away from the power range around which the optical power reading fluctuates, or adjust the power level to the acceptable range so that the alarm is cleared.

CAUTION
Risk of service interruption in an unprotected network
The recovery action detailed in this procedure can affect service if the network is unprotected. To verify if you can add path protection to you network, refer to Chapter 3, "Supported configurations" in *Network Planning and Link Engineering*, 323-1701-110. To add path protection to an unprotected network, see Procedure 3-47, "Adding path protection to an unprotected path" in *Provisioning and Operating Procedures*, 323-1701-310.

—continued—

Procedure 11-18 (continued)
OFA—TCA - Optical Power Rx High

CAUTION
Risk of laser radiation
The Optical Metro 5100/5200 operates up to a Hazard Level of k x 3A (IEC 60825-2:2000) or 1M (IEC 60825-2:2004). Use only viewing instruments with proper optical attenuation.

CAUTION
Possible risk of damage to equipment and fiber
Make sure that the bulkhead connectors are lowered and snapped into place before closing the drawer. Failure to do so could cause damage to the connector unit, the fibers attached to the connector unit, or both.

Observe the minimum bend radius of 1.18-inches (30-mm) for the patch cords. Always use the fiber management components in the drawer to route the fiber.

Allow for sufficient slack in the fibers entering and exiting the drawer. If sufficient slack is not left, the fibers can become stretched and damaged when the drawer is opened.

CAUTION
Risk of affecting network reliability
Make sure that all connectors are cleaned before you make the connections (or re-connections) described in this procedure. For cleaning information, see the chapter "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components*, 323-1701-201.

Action

Step	Action
1	Make sure that the RxPowerHigh user threshold value is correctly provisioned in the Optical Metro Performance Monitor. To view threshold details, follow Procedure 7-4, "Viewing performance parameter threshold details" in *Provisioning and Operating Procedures*, 323-1701-310.

—continued—

Procedure 11-18 (continued)
OFA—TCA - Optical Power Rx High

Step	Action

2 **If** the RxPowerHigh user threshold value is **Then** go to

set too low for this facility	step 3
not set too low for this facility	step 4

3 Adjust the RxPowerHigh user threshold to the correct value. The RxPowerHigh user threshold must be higher than the current Rx power value to clear the alarm. Follow Procedure 7-7, "Adjusting PM threshold values" in *Provisioning and Operating Procedures*, 323-1701-310.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	go to step 4

4 Using a network diagram, identify all the OCLD, OTR, MOTR and OFA circuit packs located upstream from the alarmed OFA circuit pack. In the System Manager, determine if there are any alarms raised against the upstream circuit packs.

If alarms are	**Then**
raised against the upstream circuit packs	use the procedures in this book to clear the alarms before you go to step 5
not raised against the upstream circuit packs	go to step 5

—continued—

Procedure 11-18 (continued)
OFA—TCA - Optical Power Rx High

Step	Action
5	In the System Manager, select the entire network. Click on the Connections tab and then click on the Channel Assignments tab.
6	**If** the path is / **Then** protected — go to step 7 unprotected — see the precautionary message in step 7
7	**CAUTION** **Risk of traffic loss** If the system is unprotected, traffic cannot be switched and traffic can be lost during this procedure. Advise the network administrator of a possible loss of traffic before you continue to the next step. Switch traffic off the span where the alarmed OFA circuit pack is located. Follow Procedure 4-7, "Switching traffic off a span in a path-protected network" in *Provisioning and Operating Procedures*, 323-1701-310.
8	If the automatic laser shutoff (ALS) feature is enabled on the network then disable the feature on all shelves that originate or terminate channels that pass through this OFA circuit pack. Refer to the network topology diagram and the channel list to identify these shelves. Follow Procedure 1-43, "Enabling or disabling automatic laser shutdown" in *Provisioning and Operating Procedures*, 323-1701-310. ***Note:*** Bands 1 to 4 make up the C-band and Bands 5 to 8 make up the L-band. A C-band amplifier requires ALS to be disabled on any Band 1 to Band 4 shelf that has channels passing through the amplifier.
9	Disconnect the optical fiber connected to the OFA IN port and measure the received power using an optical power meter. Make sure the received power is within the total Rx power minimum and maximum range, as specified in Table 2-49 in *Technical Specifications*, 323-1701-180. **If** the received power is / **Then** go to within the total Rx power minimum and maximum range — step 14 not within the total Rx power minimum and maximum range — step 10

—continued—

Procedure 11-18 (continued)
OFA—TCA - Optical Power Rx High

Step	Action
10	This might be a result of the following conditions: • upstream components are not properly equalized • Link engineering is incorrect Verify that the optical output power levels conform to NMT report.

If	Then
the optical output power levels conform to NMT	go to step 12
otherwise	go to the next step

Step	Action
11	Refer to the equalization procedures in *Testing and Equalizing Procedures,* 323-1701-222.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	call your next level of support

Step	**If** the OFA type	**Then** go to
12	VGA	step 13
	otherwise	call your next level of support

Step	Action
13	Re-equalize the OFA VGA circuit pack. Follow Procedure 2-17 “Re-equalizing optical power of a band using a VGA OFA” in *Testing and Equalizing Procedures,* 323-1701-222.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	call your next level of support

Step	Action
14	Reconnect the optical fiber to the IN port of the OFA circuit pack. Make sure that the optical fiber is properly cleaned before you reconnect it. For information on cleaning, see “Cleaning connectors” in *Installing Optical Metro 5200 Shelves and Components,* 323-1701-201.

If	**Then** go to
the alarm clears	step 19
the alarm remains	step 15

—continued—

Procedure 11-18 (continued)
OFA—TCA - Optical Power Rx High

Step	Action

15 **If** the OFA type **Then** go to

VGA	step 16
otherwise	step 18

16 Re-equalize the OFA VGA circuit pack. Follow Procedure 2-17 "Re-equalizing optical power of a band using a VGA OFA" in *Testing and Equalizing Procedures,* 323-1701-222.

17

If	Then
the alarm clears	go to step 19
the alarm remains	go to step 18

18 Replace the OFA circuit pack. Follow Procedure 3-10, "Replacing an OFA circuit pack" in *Maintenance and Replacement Procedures*, 323-1701-546.

If	Then
the alarm clears	go to the next step
the alarm remains	the circuit pack is not the problem. Reseat the original circuit pack. Contact your next level of support.

19

If	Then
in step 3, you completed Procedure 4-7, "Switching traffic off a span in a path-protected network" in *Provisioning and Operating Procedures*, 323-1701-310	re-route traffic to the original path. Follow Procedure 3-49, "Removing a manual, force, or lockout switch from a protection path" in *Provisioning and Operating Procedures*, 323-1701-310. Go to the next step.
otherwise	go to the next step

20 If in step 5 you disabled the automatic laser shutoff (ALS) feature, then enable the feature on all shelves that originate or terminate channels that pass through this OFA circuit pack. Refer to the network topology diagram and the channel list to identify these shelves. Follow Procedure 1-43, "Enabling or disabling automatic laser shutdown" in *Provisioning and Operating Procedures*, 323-1701-310.

Note: Bands 1 to 4 make up the C-band and Bands 5 to 8 make up the L-band. A C-band amplifier requires ALS to be disabled on any Band 1 to Band 4 shelf that has channels passing through the amplifier.

You have completed this procedure.

—end—

Procedure 11-19
OFA—TCA - Optical Power Rx Low

Probable cause

This alarm is raised against the Rx (IN) port of the OFA circuit pack. This alarm becomes active when the power of the optical signal received is lower than the user-defined threshold of the Rx Power Low parameter.

This alarm is raised when one of the following conditions exists.

- the connector is dirty at the receiving OFA circuit pack or at the transmitting circuit pack
- the manually operated variable optical attenuator (VOA) in the Equalizer Coupler Tray (ECT) or the Per Band Equalizer (PBE) module is not operating correctly or needs adjusting
- the electronic variable optical attenuator (eVOA) in the APBE circuit pack is not operating correctly or the power target for that band needs adjusting
- an optical cable is damaged
- one or more of the transmitting OCLD, OTR or MOTR circuit packs are defective
- the receiving OFA circuit pack is defective
- the miniature variable optical attenuator (mVOA) on the fiber is not adjusted correctly
- the user-defined threshold value is incorrect
- the network is not properly equalized
- the fiber plant characteristics have changed

Impact

Minor, non-service-affecting.

—continued—

Procedure 11-19 (continued)
OFA—TCA - Optical Power Rx Low

Requirements

You must be logged into the System Manager to perform this procedure. To log into the network, follow Procedure 1-1, "Logging into the network" in *Provisioning and Operating Procedures*, 323-1701-310. To view alarms, click on the Fault tab and then click on the Active Alarms tab.

You must have a network topology diagram and a list of the channel assignments provisioned in your network.

If your system can run SLEC and Continuous SLEC is not enabled, run one-time SLEC to try to clear the alarm.

ATTENTION
You must turn off the automatic laser shutdown (ALS) on all shelves that originate or terminate channels that pass through the alarmed OFA circuit pack.

Precautions

ATTENTION
Power fluctuating around user defined TCAs and alarm toggling
This alarm may toggle on the System Manager if the receive optical power reading fluctuates around the user defined TCA threshold. To clear the behavior of alarm toggling, move the user defined TCA threshold away from the power range around which the optical power reading fluctuates, or adjust the power level to the acceptable range so that the alarm is cleared.

CAUTION
Risk of service interruption in an unprotected network
The recovery action detailed in this procedure can affect service if the network is unprotected. To verify if you can add path protection to you network, refer to Chapter 3, "Supported configurations" in *Network Planning and Link Engineering*, 323-1701-110. To add path protection to an unprotected network, see Procedure 3-47, "Adding path protection to an unprotected path" in *Provisioning and Operating Procedures*, 323-1701-310.

—continued—

Procedure 11-19 (continued)
OFA—TCA - Optical Power Rx Low

CAUTION
Risk of laser radiation
The Optical Metro 5100/5200 operates up to a Hazard Level of k x 3A (IEC 60825-2:2000) or 1M (IEC 60825-2:2004). Use only viewing instruments with proper optical attenuation.

CAUTION
Risk of affecting network reliability
Make sure that all connectors are cleaned before you make the connections (or re-connections) described in this procedure. For cleaning information, see the chapter "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components*, 323-1701-201.

CAUTION
Possible risk of damage to equipment and fiber
Make sure that the bulkhead connectors are lowered and snapped into place before closing the drawer. Failure to do so could cause damage to the connector unit, the fibers attached to the connector unit, or both.

Observe the minimum bend radius of 1.18-inches (30-mm) for the patch cords. Always use the fiber management components in the drawer to route the fiber.

Allow for sufficient slack in the fibers entering and exiting the drawer. If sufficient slack is not left, the fibers can become stretched and damaged when the drawer is opened.

Action

Step	Action
1	Make sure that the RxPowerLow user threshold value is correctly provisioned in the Optical Metro Performance Monitor. To view threshold details, follow Procedure 7-4, "Viewing performance parameter threshold details" in *Provisioning and Operating Procedures*, 323-1701-310.

—continued—

Procedure 11-19 (continued)
OFA—TCA - Optical Power Rx Low

Step	Action

2 **If** the RxPowerLow user threshold value is **Then** go to

set too high for this facility	step 3
not set too high for this facility	step 6

3 Adjust the RxPowerLow user threshold to the correct value. The RxPowerLow user threshold must be lower than the current Rx power value to clear the alarm. Follow Procedure 7-7, "Adjusting PM threshold values" in *Provisioning and Operating Procedures*, 323-1701-310.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	go to step 4

4 If the automatic laser shutdown (ALS) feature is enabled and active on the network, you must reactivate the lasers at the OADMs or terminals (both upstream and downstream of the alarmed OFA circuit pack) before you proceed. Follow Procedure 8-31 "OCLD—Remote Automatic Laser Shutdown", Procedure 16-33, "OTR—Remote Automatic Laser Shutdown", or Procedure 17-34 "MOTR—Remote Automatic Laser Shutdown" in *Trouble Clearing and Alarm Reference Guide,* 323-1701-542.

Note: Use the network topology diagram to identify the upstream and downstream shelves.

If the Optical Power Receive Low alarm	**Then**
clears	you have completed this procedure
remains	go to step 5

—continued—

Procedure 11-19 (continued)
OFA—TCA - Optical Power Rx Low

Step	Action
5	Use the network topology diagram to identify all OCLD, OTR, MOTR, OMX, APBE, and OFA circuit packs located upstream from the alarmed OFA circuit pack. In the System Manager, verify if there are any alarms raised against the upstream circuit packs ***Note:*** Also verify if there are any OFA or APBE circuit pack facilities out of service. They should be in service. If some facilities are out of service, follow procedure Procedure 3-10 “Putting a circuit pack or SFP facility in-service” in *Provisioning and Operating Procedures,* 323-1701-310.

If	Then
there are alarms raised against the upstream circuit packs	use the appropriate procedures in this book to clear the alarms before you go to step 6
there are no alarms raised against the upstream circuit packs	go to step 6

—continued—

Procedure 11-19 (continued)
OFA—TCA - Optical Power Rx Low

Step	Action
6	In the System Manager, select the entire network. Click on the Connections tab and then click on the Channel Assignments tab.
7	**If** the path is / **Then** protected — go to step 8 unprotected — see the precautionary message in step 8
8	**CAUTION** **Risk of traffic loss** If the system is unprotected, traffic cannot be switched and traffic can be lost during this procedure. Advise the network administrator of a possible loss of traffic before you continue to the next step. Switch traffic off the span where the alarmed OFA circuit pack is located. Follow Procedure 4-7, "Switching traffic off a span in a path-protected network" in *Provisioning and Operating Procedures*, 323-1701-310.
9	If the automatic laser shutdown (ALS) feature is enabled on the network, disable the feature on all shelves that originate or terminate channels that pass through this OFA circuit pack. Refer to the network topology diagram and the channel list to identify these shelves. Follow Procedure 1-43, "Enabling or disabling automatic laser shutdown" in *Provisioning and Operating Procedures*, 323-1701-310. ***Note:*** Bands 1 to 4 make up the C-band and Bands 5 to 8 make up the L-band. A C-band amplifier requires ALS to be disabled on any Band 1 to Band 4 shelf that has channels passing through the amplifier.
10	Disconnect the optical fiber connected to the OFA IN port and measure the received power level using an optical power meter. Make sure the received power level is higher than the RxPowerLow user threshold. **If** the received power is / **Then** go to higher than the RxPowerLow user threshold — step 13 otherwise — step 11
11	This might be a result of the following conditions: • a fiber plant characteristics have changed • a broken, pinched or dirty optical patch cord used to interconnect the optical components located before the OFA • a defective optical component located before the OFA It is recommended to measure power levels using an Optical power meter at each segment connecting two optical components moving upstream from the alarmed OFA to help identify the cause of the power difference.

—continued—

Procedure 11-19 (continued)
OFA—TCA - Optical Power Rx Low

Step	Action
12	After all the above conditions have been verified, Refer to the Testing and Equalization book 323-1701-222 to equalize such that the OFA input power meets the NMT values.
13	**If** the OFA type is / **Then** go to VGA / step 14 otherwise / step 16
14	Re-equalize the OFA VGA. Follow Procedure 2-17 "Re-equalizing optical power of a band using a VGA OFA" in *Testing and Equalizing Procedures,* 323-1701-222.
15	**If** / **Then** go to the alarm clears / you have completed the procedure the alarm remains / step 16
16	Reseat the OFA circuit pack. Follow Procedure 3-68, "Reseating a circuit pack" in *Provisioning and Operating Procedures,* 323-1701-310. **If** / **Then** go to the alarm clears / step 18 the alarm remains / step 17

—continued—

Procedure 11-19 (continued)
OFA—TCA - Optical Power Rx Low

Step	Action
17	Replace the OFA circuit pack. Follow Procedure 3-10, "Replacing an OFA circuit pack" in *Maintenance and Replacement Procedures*, 323-1701-546.

If	Then
the alarm clears	go to the next step
the alarm remains	Contact your next level of support.

Step	If	Then
18	in step 8, you completed Procedure 4-7, "Switching traffic off a span in a path-protected network" in *Provisioning and Operating Procedures*, 323-1701-310	re-route traffic to the original path. Follow Procedure 3-49, "Removing a manual, force, or lockout switch from a protection path" in *Provisioning and Operating Procedures*, 323-1701-310. Go to the next step.
	otherwise	go to the next step

19 If in step 9 you disabled the automatic laser shutoff (ALS) feature, then enable the feature on all shelves that originate or terminate channels that pass through this OFA circuit pack. Refer to the network topology diagram and the channel list to identify these shelves. Follow Procedure 1-43, "Enabling or disabling automatic laser shutdown" in *Provisioning and Operating Procedures*, 323-1701-310.

Note: Bands 1 to 4 make up the C-band and Bands 5 to 8 make up the L-band. A C-band amplifier requires ALS to be disabled on any Band 1 to Band 4 shelf that has channels passing through the amplifier.

—end—

Procedure 11-20
OFA—TCA - Optical Power Tx High

Probable cause

This alarm is raised against the Tx (OUT) port of the OFA circuit pack. This alarm becomes active when the OFA circuit pack detects an output signal that is higher than the provisioned TxPowerHigh user threshold value.

This alarm becomes active if one of the following conditions exists:

- the received power is too high
- the receiving OFA circuit pack is defective
- the user threshold value is incorrect

Impact

Minor, non-service-affecting.

Requirements

You must be logged into the System Manager to perform this procedure. To log into the network, follow Procedure 1-1, "Logging into the network" in *Provisioning and Operating Procedures*, 323-1701-310. To view alarms, click on the Fault tab and then click on the Active Alarms tab.

You must have a network topology diagram and a list of the channel assignments provisioned in your network.

If the TCA - Optical Power Rx High alarm is raised, refer to Procedure 11-18 "OFA—TCA - Optical Power Rx High" to clear this alarm before continuing with this procedure.

Precautions

ATTENTION

Power fluctuating around user defined TCAs and alarm toggling

This alarm may toggle on the System Manager if the receive optical power reading fluctuates around the user defined TCA threshold. To clear the behavior of alarm toggling, move the user defined TCA threshold away from the power range around which the optical power reading fluctuates, or adjust the power level to the acceptable range so that the alarm is cleared.

—continued—

Procedure 11-20 (continued)
OFA—TCA - Optical Power Tx High

CAUTION
Risk of service interruption in an unprotected network
The recovery action detailed in this procedure can affect service if the network is unprotected. To verify if you can add path protection to you network, refer to Chapter 3, "Supported configurations" in *Network Planning and Link Engineering*, 323-1701-110. To add path protection to an unprotected network, see Procedure 3-47, "Adding path protection to an unprotected path" in *Provisioning and Operating Procedures*, 323-1701-310.

CAUTION
Risk of laser radiation
The Optical Metro 5100/5200 operates up to a Hazard Level of k x 3A (IEC 60825-2:2000) or 1M (IEC 60825-2:2004). Use only viewing instruments with proper optical attenuation.

CAUTION
Risk of affecting network reliability
Make sure that all connectors are cleaned before you make the connections (or re-connections) described in this procedure. For cleaning information, see the chapter "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components*, 323-1701-201.

CAUTION
Possible risk of damage to equipment and fiber
Make sure that the bulkhead connectors are lowered and snapped into place before closing the drawer. Failure to do so could cause damage to the connector unit, the fibers attached to the connector unit, or both.

Observe the minimum bend radius of 1.18-inches (30-mm) for the patch cords. Always use the fiber management components in the drawer to route the fiber.

Allow for sufficient slack in the fibers entering and exiting the drawer. If sufficient slack is not left, the fibers can become stretched and damaged when the drawer is opened.

—continued—

Procedure 11-20 (continued)
OFA—TCA - Optical Power Tx High

Action

Step	Action

1 Make sure that the TxPowerHigh user threshold value is correctly provisioned in the Optical Metro Performance Monitor. To view threshold details, follow Procedure 7-4, "Viewing performance parameter threshold details" in *Provisioning and Operating Procedures*, 323-1701-310.

If the TxPowerHigh user threshold value is	**Then** go to
set too low for this facility	step 2
not set too low for this facility	step 3

2 Adjust the TxPowerHigh user threshold to the correct value. The TxPowerHigh user threshold value must be higher than the current Tx power to clear the alarm. Follow Procedure 7-7, "Adjusting PM threshold values" in *Provisioning and Operating Procedures*, 323-1701-310.

If	**Then**
the alarm clears	you have completed this procedure
the alarm remains	go to step 3

3

If the OFA type is	**Then** go to
VGA	step 4
otherwise	step 6

4 Re-equalize the OFA VGA. Follow Procedure 2-17 "Re-equalizing optical power of a band using a VGA OFA" in *Testing and Equalizing Procedures,* 323-1701-222.

5

If	**Then** go to
the alarm clears	you have completed the procedure
the alarm remains	step 6

6 In the System Manager, select the entire network. Click on the Connections tab and then click on the Channel Assignments tab.

—continued—

Procedure 11-20 (continued)
OFA—TCA - Optical Power Tx High

Step	Action

7

If the path is	**Then**
protected	go to step 8
unprotected	see the precautionary message in step 8

8

CAUTION
Risk of traffic loss
If the system is unprotected, traffic cannot be switched and traffic can be lost during this procedure. Advise the network administrator of a possible loss of traffic before you continue to the next step.

Switch traffic off the span where the alarmed OFA circuit pack is located. Follow Procedure 4-7, "Switching traffic off a span in a path-protected network" in *Provisioning and Operating Procedures*, 323-1701-310.

9 Reseat the OFA circuit pack. Follow Procedure 3-68, "Reseating a circuit pack" in *Provisioning and Operating Procedures,* 323-1701-310.

If	**Then** go to
the alarm clears	step 11
the alarm remains	the next step

10 Replace the OFA circuit pack. Follow Procedure 3-10, "Replacing an OFA circuit pack" in *Maintenance and Replacement Procedures*, 323-1701-546.

If	**Then**
the alarm clears	go to the next step
the alarm remains	Contact your next level of support.

11

If	**Then**
in step 8, you completed Procedure 4-7, "Switching traffic off a span in a path-protected network" in *Provisioning and Operating Procedures*, 323-1701-310	re-route traffic to the original path. Follow Procedure 3-49, "Removing a manual, force, or lockout switch from a protection path" in *Provisioning and Operating Procedures*, 323-1701-310.
	You have completed this procedure.
otherwise	you have completed this procedure.

—end—

Procedure 11-21
OFA—TCA - Optical Power Tx Low

Probable cause

This alarm is raised against the Tx (OUT) port of the OFA circuit pack. This alarm becomes active when the OFA circuit pack detects an output signal that is lower than the provisioned TxPowerLow user threshold value.

This alarm becomes active if one of the following conditions exists:

- the received power is too low
- the receiving OFA circuit pack is defective
- the user threshold value is incorrect

Impact

Minor, non-service-affecting.

Requirements

You must be logged into the System Manager to perform this procedure. To log into the network, follow Procedure 1-1, "Logging into the network" in *Provisioning and Operating Procedures*, 323-1701-310. To view alarms, click on the Fault tab and then click on the Active Alarms tab.

You must have a network topology diagram and a list of the channel assignments provisioned in your network.

If the TCA - Optical Power Rx Low alarm is raised, refer to Procedure 11-19 "OFA—TCA - Optical Power Rx Low" to clear this alarm before continuing with this procedure.

Precautions

ATTENTION

Power fluctuating around user defined TCAs and alarm toggling

This alarm may toggle on the System Manager if the receive optical power reading fluctuates around the user defined TCA threshold. To clear the behavior of alarm toggling, move the user defined TCA threshold away from the power range around which the optical power reading fluctuates, or adjust the power level to the acceptable range so that the alarm is cleared.

—continued—

Procedure 11-21 (continued)
OFA—TCA - Optical Power Tx Low

CAUTION
Risk of service interruption in an unprotected network
The recovery action detailed in this procedure can affect service if the network is unprotected. To verify if you can add path protection to you network, refer to Chapter 3, "Supported configurations" in *Network Planning and Link Engineering*, 323-1701-110. To add path protection to an unprotected network, see Procedure 3-47, "Adding path protection to an unprotected path" in *Provisioning and Operating Procedures*, 323-1701-310.

CAUTION
Risk of laser radiation
The Optical Metro 5100/5200 operates up to a Hazard Level of k x 3A (IEC 60825-2:2000) or 1M (IEC 60825-2:2004). Use only viewing instruments with proper optical attenuation.

CAUTION
Possible risk of damage to equipment and fiber
Make sure that the bulkhead connectors are lowered and snapped into place before closing the drawer. Failure to do so could cause damage to the connector unit, the fibers attached to the connector unit, or both.

Observe the minimum bend radius of 1.18-inches (30-mm) for the patch cords. Always use the fiber management components in the drawer to route the fiber.

Allow for sufficient slack in the fibers entering and exiting the drawer. If sufficient slack is not left, the fibers can become stretched and damaged when the drawer is opened.

CAUTION
Risk of affecting network reliability
Make sure that all connectors are cleaned before you make the connections (or re-connections) described in this procedure. For cleaning information, see the chapter "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components*, 323-1701-201.

—continued—

Procedure 11-21 (continued)
OFA—TCA - Optical Power Tx Low

Action

Step	Action
1	Make sure that the TxPowerLow user threshold value is correctly provisioned in the Optical Metro Performance Monitor. To view threshold details, follow Procedure 7-4, "Viewing performance parameter threshold details" in *Provisioning and Operating Procedures*, 323-1701-310.

If the TxPowerLow user threshold value is	**Then** go to
set too high for this facility	step 2
not set too high for this facility	step 7

2	Adjust the TxPowerLow user threshold to the correct value. The TxPowerLow user threshold value must be lower than the current Tx power to clear the alarm. Follow Procedure 7-7, "Adjusting PM threshold values" in *Provisioning and Operating Procedures*, 323-1701-310.

If	**Then**
the alarm clears	you have completed this procedure
the alarm remains	go to step 3

3	**If** the OFA type is	**Then** go to
	VGA	step 4
	otherwise	step 6

4	Re-equalize the OFA VGA. Follow Procedure 2-17 "Re-equalizing optical power of a band using a VGA OFA" in *Testing and Equalizing Procedures,* 323-1701-222.

5	**If**	**Then** go to
	the alarm clears	you have completed the procedure
	the alarm remains	step 6

6	In the System Manager, select the entire network. Click on the Connections tab and then click on the Channel Assignments tab.

7	**If** the path is	**Then**
	protected	go to step 8
	unprotected	see the precautionary message in step 8

—continued—

Procedure 11-21 (continued)
OFA—TCA - Optical Power Tx Low

Step	Action

8

CAUTION
Risk of traffic loss
If the system is unprotected, traffic cannot be switched and traffic can be lost during this procedure. Advise the network administrator of a possible loss of traffic before you continue to the next step.

Switch traffic off the span where the alarmed OFA circuit pack is located. Follow Procedure 4-7, "Switching traffic off a span in a path-protected network" in *Provisioning and Operating Procedures*, 323-1701-310.

9 Reseat the OFA circuit pack. Follow Procedure 3-68, "Reseating a circuit pack" in *Provisioning and Operating Procedures,* 323-1701-310.

If	**Then** go to
the alarm clears	step 11
the alarm remains	the next step

10 Replace the OFA circuit pack. Follow Procedure 3-10, "Replacing an OFA circuit pack" in *Maintenance and Replacement Procedures*, 323-1701-546.

If	**Then**
the alarm clears	go to step 11
the alarm remains	the circuit pack is not the problem. Reseat the original circuit pack. Contact your next level of support.

11

If	**Then**
in step 8, you completed Procedure 4-7, "Switching traffic off a span in a path-protected network" in *Provisioning and Operating Procedures*, 323-1701-310	re-route traffic to the original path. Follow Procedure 3-49, "Removing a manual, force, or lockout switch from a protection path" in *Provisioning and Operating Procedures*, 323-1701-310.
	You have completed this procedure.
otherwise	you have completed this procedure

—end—

Procedure 11-22
OFA—Temperature Out of Range

Probable cause

This alarm becomes active when the temperature is too high. This alarm is raised when one of the following conditions exists:

- the shelf cooling unit has faults
- the central office temperature is too high
- the OFA circuit pack is defective

Impact

Critical, service-affecting.

Requirements

You must be logged into the System Manager to perform this procedure. To log into the network, follow Procedure 1-1, "Logging into the network" in *Provisioning and Operating Procedures*, 323-1701-310. To view alarms, click on the Fault tab and then click on the Active Alarms tab.

You must have a network topology diagram and a list of the channel assignments provisioned in your network.

You must have a vacuum cleaner to remove the dirt in the air filter.

Precautions

CAUTION
Risk of service interruption in an unprotected network
The recovery action detailed in this procedure can affect service if the network is unprotected. To verify if you can add path protection to you network, refer to Chapter 3, "Supported configurations" in *Network Planning and Link Engineering*, 323-1701-110. To add path protection to an unprotected network, see Procedure 3-47, "Adding path protection to an unprotected path" in *Provisioning and Operating Procedures*, 323-1701-310.

—continued—

Procedure 11-22 (continued)
OFA—Temperature Out of Range

CAUTION
Risk of equipment damage
Do not limit air flow by covering the air inlets on the enclosure. This can cause the temperature inside the unit to rise and exceed the defined limits and result in incorrect operation of the unit or damage to the unit.

CAUTION
Risk of equipment damage
This equipment is designed for operation inside the buildings only. Install the unit in a dry area with enough air circulation to maintain the ambient environment within the defined limits.

ATTENTION
You must replace the air filter for each Optical Metro 5200 shelf every six months to ensure the best cooling of the components.

CAUTION
Risk of affecting network reliability
Make sure that all connectors are cleaned before you make the connections (or re-connections) described in this procedure. For cleaning information, see the chapter "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components*, 323-1701-201.

Action

Step	Action
1	Make sure the central office temperature does not exceed the operating temperature requirements of the equipment. Refer to Table 1-1 in *Technical Specifications,* 323-1701-180 for the operating temperature requirements of the Optical Metro 5100/5200 equipment.

If the office temperature	**Then**
is within the operating temperature limits	go to step 2
is not within the operating temperature limits	bring the office temperature to within operating limits

—continued—

Procedure 11-22 (continued)
OFA—Temperature Out of Range

Step	Action

2

If	Then
the alarm clears	you have completed this procedure
the alarm remains	go to step 3

3 Change the air filter. Follow Procedure 2-1 "Replacing the air filter in an Optical Metro 5200 shelf" in *Maintenance and Replacement Procedures*, 323-1701-546.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	go to step 4

4 If the grill on the fan modules appears dirty, then vacuum it to optimize the cooling of the shelf.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	go to step 5

5 Replace the cooling unit. Follow Procedure 2-3 "Replacing the cooling unit in an Optical Metro 5200 shelf" in *Maintenance and Replacement Procedures*, 323-1701-546.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	go to step 6

6 In the System Manager, select the entire network. Click on the Connections tab and then click on the Channel Assignments tab.

7

If the path is	**Then**
protected	go to step 8
unprotected	see the precautionary message in step 8

8

CAUTION
Risk of traffic loss
If the system is unprotected, traffic cannot be switched and traffic can be lost during this procedure. Advise the network administrator of a possible loss of traffic before you continue to the next step.

Switch traffic off the span where the alarmed OFA circuit pack is located. Follow Procedure 4-7, "Switching traffic off a span in a path-protected network" in *Provisioning and Operating Procedures*, 323-1701-310.

—continued—

Procedure 11-22 (continued)
OFA—Temperature Out of Range

Step	Action
9	Reseat the OFA. Follow Procedure 3-68 "Reseating a circuit pack" in *Provisioning and Operating Procedures,* 323-1701-310.

If	**Then** go to
the alarm clears	step 11
the alarm remains	step 10

Step	Action
10	Replace the OFA circuit pack. Follow Procedure 3-10 "Replacing an OFA circuit pack" in *Maintenance and Replacement Procedures* 323-1701-546.

If	**Then**
the alarm clears	go to step 11
the alarm remains	the circuit pack is not the problem. Reseat the original circuit pack. Contact your next level of support.

Step	**If**	**Then**
11	in step 8, you completed Procedure 4-7, "Switching traffic off a span in a path-protected network" in *Provisioning and Operating Procedures*, 323-1701-310	re-route traffic to the original path. Follow Procedure 3-49, "Removing a manual, force, or lockout switch from a protection path" in *Provisioning and Operating Procedures*, 323-1701-310. You have completed this procedure.
	otherwise	you have completed this procedure

—end—

Procedure 11-23
OFA—Unknown Circuit Pack

Probable cause

This alarm becomes active when one of the following conditions exists:

- the Shelf processor (SP) circuit pack fails to retrieve the manufacturing data from the Equalizer Coupler Tray (ECT) or the Per Band Equalizer (PBE) module; the information retrieved by the SP circuit pack is missing or incorrect
- the circuit pack type is not recognized by the software (the release version of the circuit pack is not supported by the release version of the shelf)

Impact

Major, non-service-affecting.

Requirements

You must be logged into the System Manager to perform this procedure. To log into the network, follow Procedure 1-1, "Logging into the network" in *Provisioning and Operating Procedures*, 323-1701-310. To view alarms, click on the Fault tab and then click on the Active Alarms tab.

You must have a network topology diagram and a list of the channel assignments provisioned in your network.

—continued—

Procedure 11-23 (continued)
OFA—Unknown Circuit Pack

Precautions

CAUTION
Risk of service interruption in an unprotected network
The recovery action detailed in this procedure can affect service if the network is unprotected. To verify if you can add path protection to you network, refer to Chapter 3, "Supported configurations" in *Network Planning and Link Engineering*, 323-1701-110. To add path protection to an unprotected network, see Procedure 3-47, "Adding path protection to an unprotected path" in *Provisioning and Operating Procedures*, 323-1701-310.

CAUTION
Risk of affecting network reliability
Make sure that all connectors are cleaned before you make the connections (or re-connections) described in this procedure. For cleaning information, see the chapter "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components*, 323-1701-201.

Action

Step	Action
1	Read the latest Baseline Report to see if the circuit pack is compatible with the Release version of the shelf. ***Note:*** Baseline Reports are available through Nortel Networks. Refer to the "Technical assistance service telephone numbers" section in "About this document" at the beginning of this book.

If the circuit pack	**Then** go to
is compatible with the latest Baseline Report	step 3
is not compatible with the latest Baseline Report	step 2

—continued—

Procedure 11-23 (continued)
OFA—Unknown Circuit Pack

Step	Action
2	Replace the OFA circuit pack. Follow Procedure 3-10 "Replacing an OFA circuit pack" in *Maintenance and Replacement Procedures*, 323-1701-546.

If	**Then**
the alarm clears	you have completed this procedure
the alarm remains	go to step 3

3	In the System Manager, select the entire network. Click on the Connections tab and then click on the Channel Assignments tab.
4	**If** the path is … **Then**

If the path is	**Then**
protected	go to step 5
unprotected	see the precautionary message in step 5

5

CAUTION
Risk of traffic loss
If the system is unprotected, traffic cannot be switched and traffic can be lost during this procedure. Advise the network administrator of a possible loss of traffic before you continue to the next step.

Switch traffic off the span where the alarmed OFA circuit pack is located. Follow Procedure 4-7, "Switching traffic off a span in a path-protected network" in *Provisioning and Operating Procedures*, 323-1701-310.

6 Reseat the OFA. Follow Procedure 3-68 "Reseating a circuit pack" in *Provisioning and Operating Procedures,* 323-1701-310.

If	**Then** go to
the alarm clears	step 8
the alarm remains	step 7

7 Replace the OFA circuit pack. Follow Procedure 3-10 "Replacing an OFA circuit pack" in *Maintenance and Replacement Procedures*, 323-1701-546.

If	**Then**
the alarm clears	go to step 8
the alarm remains	the circuit pack is not the problem. Reseat the original circuit pack. Contact your next level of support.

—continued—

Procedure 11-23 (continued)
OFA—Unknown Circuit Pack

Step	Action	
8	**If**	**Then**
	in step 5, you completed Procedure 4-7, "Switching traffic off a span in a path-protected network" in *Provisioning and Operating Procedures*, 323-1701-310	re-route traffic to the original path. Follow Procedure 3-49, "Removing a manual, force, or lockout switch from a protection path" in *Provisioning and Operating Procedures*, 323-1701-310. You have completed this procedure.
	otherwise	you have completed this procedure.

—end—

Clearing APBE alarms

Follow the procedures in this chapter to clear APBE circuit pack alarms. Perform the steps in each procedure in the order in which they appear. If the alarm clears during the procedure, stop the procedure. If you complete the procedure and the alarm does not clear, contact your next level of technical support.

For a list of APBE circuit pack types, see the "APBE circuit packs" section in *Hardware Description*, 323-1701-102.

Table 12-1 lists the meaning of APBE indicator lamps.

Table 12-1
APBE indicator lamps

Indicator lamp	Color	State	Meaning
LOS (indicates the state of the signal received by each eVOA)	yellow	on	The band associated with the eVOA is not receiving a signal.
		off	The band associated with the eVOA is receiving a signal. (see Note)
ACTIVE (indicates the line activity of the APBE)	green	on	The band associated with the eVOA is provisioned and the facility is in-service.
		off	The band associated with the eVOA is provisioned and the facility is out-of-service **OR** the band associated with the eVOA is not provisioned.
STATUS (indicates the status of the APBE)	red	on	There is known fault condition in the circuit pack.
	green	on	The APBE is functioning normally and the inventory is in-service.
		off	The APBE is functioning normally and the inventory is out-of-service.
Note: When amplifiers are cascaded, it is possible that the LOS lamps on the APBE downstream from the first OFA may be off (indicating that the APBE is receiving a signal) after the signal is lost. This can occur when the noise output from the upstream OFA exceeds the LOS threshold.			

Before you begin

Read "Troubleshooting the Optical Metro 5100/5200" chapter in Part 1 of the *Trouble Clearing and Alarms Reference Guide*, for detailed information on how to respond to alarm indicators (audible alarms and lamps). The "Alarm description" chapter in Part 1 of the *Trouble Clearing and Alarms Reference Guide* explains events, warnings, and error messages.

Requirements

You must have the output data from the Network Modeling Tool to clear the following alarms:

- Target Power Not Attainable High
- Target Power Not Attainable Low
- Tx High Optical Power
- Tx Loss of Signal
- Tx Power Out of Range

CAUTION
Risk of laser radiation
The Optical Metro 5100/5200 operates up to a Hazard Level of k x 3A (IEC 60825-2:2000) or 1M (IEC 60825-2:2004). Use only viewing instruments with proper optical attenuation.

CAUTION
Risk of electrostatic discharge
Observe all antistatic precautions when handling the circuit packs.

Exposed circuit packs can be damaged by electrostatic discharge. When handling circuit packs always wear a wrist strap that is grounded to the shelf maintenance panel, and shoe straps if necessary. For more information, refer to the "Handling circuit packs" section in "Isolating faults that do not generate alarms" in Part 1 of the *Trouble Clearing and Alarms Reference Guide*.

CAUTION
Risk of affecting network reliability
Make sure that all connectors are cleaned before you make the connections (or re-connections) described in this procedure. For cleaning information, see the chapter "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components*, 323-1701-201.

You must log into the System Manager as an Admin or Operator level user.

Procedures

Table 12-2 lists the alarm clearing procedures in this chapter and indicates whether or not the alarm is masked if the equipment or facility that raises the alarm is out-of-service.

Table 12-2
Procedure for clearing APBE alarms

Procedure	Page	Alarm is masked if equipment or facility is OOS
12-1 APBE—Autoprovisioning Mismatch, Circuit Pack Mismatch	12-5	Equipment
12-2 APBE—Band Alarm Indication Signal	12-10	Facility
12-3 APBE—Circuit Pack Failed	12-12	Equipment
12-4 APBE—Circuit Pack Missing	12-13	Equipment
12-5 APBE—Facility Out of Service–Optical Signal Failure	12-15	Not applicable
12-6 APBE—Incomplete Provisioning	12-17	Not applicable
12-7 APBE—Inter-card Communication Failure	12-19	Equipment
12-8 APBE—Invalid Provisioning	12-21	Equipment
12-9 APBE—Loss of Signal	12-23	Facility
12-10 APBE—Optical Signal Failure	12-25	Not applicable
12-11 APBE—Performance Monitoring Timer Failed	12-30	Equipment
12-12 APBE—Power Out of Range High	12-32	Facility
12-13 APBE—Power Out of Range Low	12-34	Facility
12-14 APBE—Rx Low Optical Power Warning	12-36	Facility
12-15 APBE—Target Power Not Attainable High	12-38	Facility
12-16 APBE—Target Power Not Attainable Low	12-39	Facility
12-17 APBE—TCA - Optical Power Rx Low	12-40	Facility
12-18 APBE—TCA - Optical Power Tx High	12-42	Facility
12-19 APBE—TCA - Optical Power Tx Low	12-45	Facility
12-20 APBE—Tx High Optical Power	12-47	Facility

Table 12-2 (continued)
Procedure for clearing APBE alarms

Procedure	Page	Alarm is masked if equipment or facility is OOS
12-21 APBE—Tx Low Optical Power Warning/Tx Low Optical Power	12-49	Facility
12-22 APBE—Unexpected Input Power Change	12-52	Facility
12-23 APBE—Unknown Circuit Pack	12-54	Equipment

Procedure 12-1
APBE—Autoprovisioning Mismatch, Circuit Pack Mismatch

Probable cause

The Autoprovisioning Mismatch alarm becomes active when an APBE circuit pack is seated in:

- a shelf of type OADM or Terminal
- a slot that does not support it (the right side of the APBE must be seated in an even-numbered slot

APBE circuit packs are supported in shelves of type OFA or Mixed.

The Circuit Pack Mismatch alarm becomes active when a circuit pack other than an APBE is seated in an APBE slot.

For more information about APBE slot assignments, refer to the "Preparing a shelf for commissioning" chapter in *Commissioning Procedures*, 323-1701-220.

Impact

Table 12-3 lists the impact of theses alarms under different conditions.

Table 12-3
Impact of APBE Autoprovisioning Mismatch and Circuit Pack Mismatch alarms

Alarm	Conditions	Severity	Impact
Autoprovisioning Mismatch	—	Major	Non-service-affecting
Circuit Pack Mismatch	—	Major	Service-affecting

—continued—

Procedure 12-1 (continued)
APBE—Autoprovisioning Mismatch, Circuit Pack Mismatch

Precautions

CAUTION
Risk of recovery procedures affecting traffic
This alarm may not be service-affecting, however the recovery action can be service-affecting.

CAUTION
Risk of affecting network reliability
Make sure that all connectors are cleaned before you make the connections (or re-connections) described in this procedure. For cleaning information, see the chapter "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components*, 323-1701-201.

—continued—

Procedure 12-1 (continued)
APBE—Autoprovisioning Mismatch, Circuit Pack Mismatch

Action

Step	Action	
1	Determine the shelf type: OADM, Terminal, or OFA. On the Configuration-Communications screen of the System Manager, look in the "Shelf Type" column.	
2	**If** the shelf type is	**Then**
	an OADM or terminal shelf and should be an OADM or terminal shelf	remove any OFAs or APBEs that are seated in slots 1-8 or 11-18. Go to step 3.
	an OADM or terminal shelf but should be an OFA shelf	follow Procedure 4-1 "Decommissioning a shelf" in *Provisioning and Operating Procedures*, 323-1701-310, and Chapter 3 "Commissioning a shelf" in *Commissioning Procedures*, 323-1701-220. Go to step 4.
	the shelf type is an OFA shelf	go to step 4
3	**If**	**Then**
	the alarm clears	you have completed this procedure
	the alarm remains	contact your next level of support
4	Make sure that the circuit pack in the slot is an APBE of the correct type: C-band or L-band.	
	If	**Then**
	the circuit pack is not an APBE of the correct type	insert and seat an the correct APBE in the slot. Follow Procedure 7-1 "Inserting circuit packs" in *Installing Optical Metro 5200 Shelves and Components* 323-1701-201. If the alarm clears, you have completed this procedure. If the alarm remains, go to the next step.
	the circuit pack is an APBE of the correct type	go to the next step

—continued—

Procedure 12-1 (continued)
APBE—Autoprovisioning Mismatch, Circuit Pack Mismatch

Step	Action	
5	Make sure the slot is provisioned correctly for the APBE type.	
	If the slot is	**Then**
	incorrectly provisioned	reprovision the slot. Follow procedures in *Provisioning and Operating Procedures*, 323-1701-310. If the alarm clears, you have completed this procedure. If the alarm remains, go to the next step.
	correctly provisioned	go to the next step
6	**If**	**Then**
	the path is protected	switch traffic off of the APBE. Follow Procedure 3-48 “Forcing traffic to one path on a protected channel” in *Provisioning and Operating Procedures*, 323-1701-310 for every OCLD, OTR, or MOTR which has a channel passing through the OFA. Use a network topology diagram and the “Channel Assignments” window in the System Manager to determine the affected channels. Go to the next step.
	the path is unprotected	go to the next step. Performing the next step may affect traffic.

—continued—

Procedure 12-1 (continued)
APBE—Autoprovisioning Mismatch, Circuit Pack Mismatch

Step	Action
7	Reseat the APBE. Follow Procedure 3-68 “Reseating a circuit pack” in *Provisioning and Operating Procedures,* 323-1701-310.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	go to the next step

Step	Action
8	Replace the APBE. Follow Procedure 3-12 “Replacing an APBE circuit pack” in *Maintenance and Replacement Procedures*, 323-1701-546.

If	Then
the alarm clears	the circuit pack has faults. You have completed this procedure.
the alarm remains	the circuit pack is not the problem. Reseat the original circuit pack. Contact your next level of support.

—end—

Procedure 12-2
APBE—Band Alarm Indication Signal

This alarm is raised against APBE Rx facilities (1–5).

Probable cause

This alarm becomes active when the APBE is not detecting an input signal on a band facility (1–4) or the aggregate band facility (port 5), and the intrasite fault sectionalization (IFS) feature has identified a failed fiber span (through Optical Signal Failure Tx/Rx alarms) as the cause of the input failure. Refer to "Fault sectionalization" in *Software and User Interface*, 323-1701-101, for detailed information about intrasite fault sectionalization.

In order to clear this alarm, the trouble that caused the Shelf Input Failure, Site Input Failure, and Optical Signal Failure alarms must be resolved, and those alarms must be cleared.

This alarm is raised against each APBE Rx facility if it has a loss of signal, and the IFS feature has identified the cause.

When an APBE is in transition from out-of-service to in-service, the Rx facilities experience a loss of signal and IFS is enabled. This alarm may become active for 45 seconds while IFS allows for the APBE facility to become fully operational, before it attempts to correlate active alarms in the ring. After 45 seconds, this alarm will clear if the Rx Loss Of Signal clears, or if IFS cannot correlate to a root cause.

Impact

Warning, non-service-affecting.

Action

Step	Action
1	Use the System Manager to determine if OSC–Shelf Input Failure, OSC–Site Input Failure, and APBE–Optical Signal Failure alarms are raised.

—continued—

Procedure 12-2 (continued)
APBE—Band Alarm Indication Signal

Step	Action	
2	**If**	**Then**
	OSC–Shelf Input Failure is raised	follow Procedure 15-22 “OSC—Shelf Input Failure”. Go to the next step.
	OSC–Site Input Failure is raised	follow Procedure 15-23 “OSC—Site Input Failure”. Go to the next step.
3	**If**	**Then**
	the alarm clears	you have completed this procedure
	the alarm remains	go to the next step
4	**If**	**Then**
	Optical Signal Failure alarm is raised	follow the appropriate procedure to clear the alarm. Go to the next step.
	Optical Signal Failure alarm is not raised	contact your next level of support
5	**If**	**Then**
	the alarm clears	you have completed this procedure
	the alarm remains	contact your next level of support

—end—

Procedure 12-3
APBE—Circuit Pack Failed

Probable cause

This alarm becomes active when the APBE circuit pack detects a service-affecting equipment failure.

Impact

Critical, service affecting.

Precautions

CAUTION
Risk of affecting network reliability
Make sure that all connectors are cleaned before you make the connections (or re-connections) described in this procedure. For cleaning information, see the chapter "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components*, 323-1701-201.

Action

Step	Action

1 Reseat the APBE. Follow Procedure 3-68 "Reseating a circuit pack" in *Provisioning and Operating Procedures,* 323-1701-310.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	go to the next step

2 Replace the APBE. Follow Procedure 3-12 "Replacing an APBE circuit pack" in *Maintenance and Replacement Procedures*, 323-1701-546.

If	Then
the alarm clears	the circuit pack has faults. You have completed this procedure.
the alarm remains	the circuit pack is not the problem. Reseat the original circuit pack. Contact your next level of support.

—end—

Procedure 12-4
APBE—Circuit Pack Missing

Probable cause

This alarm becomes active when the provisioned slot does not contain an APBE circuit pack, or the APBE is not correctly seated in the slot.

Impact

Critical, service affecting.

Precautions

CAUTION
Risk of affecting network reliability
Make sure that all connectors are cleaned before you make the connections (or re-connections) described in this procedure. For cleaning information, see the chapter "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components*, 323-1701-201.

Action

Step	Action
1	Make sure that the APBE is seated in the correct slots in the shelf. ***Note:*** The APBE occupies two slots, and the right side of the circuit pack must be in an even-numbered slot. Refer to the "Preparing a shelf for commissioning" chapter in *Commissioning Procedures,* 323-1701-220.
2	**If** / **Then** the slot is empty but should contain an APBE — insert and seat an APBE (C-band or L-band). Follow Procedure 7-1 "Inserting circuit packs" in *Installing Optical Metro 5200 Shelves and Components*, 323-1701-201. If the alarm clears, you have completed this procedure. If the alarm remains, go to step 4. the slot is intentionally left empty — go to the next step the slot contains an APBE — go to step 4

—continued—

Procedure 12-4 (continued)
APBE—Circuit Pack Missing

Step	Action
3	To clear the alarm if the slot is not used, follow these steps: **a.** Take the APBE OOS. Follow Procedure 3-13 "Taking a circuit pack facility or SFP facility out-of-service" (if applicable), and then Procedure 3-8 "Taking a circuit pack or SFP out-of-service" in *Provisioning and Operating Procedures*, 323-1701-310. **b.** If there are facilities associated with the APBE, delete them. Follow Procedure 3-14 "Deleting a circuit pack or SFP facility" in *Provisioning and Operating Procedures*, 323-1701-310. **c.** Delete the APBE equipment. Follow Procedure 3-9 "Deleting a circuit pack or SFP from the inventory" in *Provisioning and Operating Procedures*, 323-1701-310.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	contact your next level of support

Step	Action
4	Reseat the APBE. Follow Procedure 3-68 "Reseating a circuit pack" in *Provisioning and Operating Procedures,* 323-1701-310.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	go to the next step

Step	Action
5	Replace the APBE. Follow Procedure 3-12 "Replacing an APBE circuit pack" in *Maintenance and Replacement Procedures,* 323-1701-546.

If	Then
the alarm clears	the removed circuit pack has faults. You have completed this procedure.
the alarm remains	the circuit pack is not the problem. Reseat the original circuit pack. Contact your next level of support.

—end—

Procedure 12-5
APBE—Facility Out of Service–Optical Signal Failure

This alarm can be raised independently against the APBE Tx facilities 1–4, if intrasite fault sectionalization (IFS) is enabled, and a facility is taken out-of-service and the downstream line equipment for that facility is impacted, and the APBE Rx facility does not have a Loss of Signal alarm.

While their facilities are provisioned, line equipment (OCLDs, OTRs, and MOTRs) continues to transmit and receive optical signals from each other, even if no traffic is being sent between the circuit packs. Placing intermediate line-side facilities (OFAs and APBEs) out-of-service breaks the signal between the transmitter and receiver, resulting in a loss of signal at the downstream equipment. If IFS is enabled in the ring, the downstream optical signal failures are correlated into this alarm.

Probable cause

This alarm becomes active when IFS is enabled and an APBE facility is manually taken out-of-service. Taking an APBE facility out-of-service breaks the line-side signal between equipment that is upstream from this APBE, and the matching line equipment that is downstream of a facility.

An APBE facility should never be taken out-of-service while there is any line equipment (upstream or downstream) relying on the facility.

Impact

Critical, service-affecting.

Action

Step	Action
1	To clear the alarm you can **a.** put the APBE facility back in-service, if the service is required **b.** disable IFS, if the feature is not required **c.** take all of the upstream/and or downstream facilities and circuit packs out-of-service if they are not required, and delete the equipment. Refer to "OFA and APBE facility service states" in the "Fault sectionalization" chapter in *Software and User Interface*, 323-1701-101 for more information.

—continued—

Procedure 12-5 (continued)
APBE—Facility Out of Service–Optical Signal Failure

Step	Action	
2	**If**	**Then**
	you want to put the APBE facility back in-service	follow Procedure 3-10 “Putting a circuit pack or SFP facility in-service” in *Provisioning and Operating Procedures,* 323-1701-310. Go to the next step.
	you want to disable IFS	follow Procedure 3-39 “Disabling intrasite fault sectionalization (IFS)” in *Provisioning and Operating Procedures,* 323-1701-310. Go to the next step.
	upstream/and or downstream facilities and circuit packs are not required	for each circuit pack, follow the appropriate procedures in *Provisioning and Operating Procedures,* 323-1701-310. Go to the next step.
3	**If**	**Then**
	the alarm clears	you have completed this procedure
	the alarm remains	contact your next level of support

—end—

Procedure 12-6
APBE—Incomplete Provisioning

Probable cause

This alarm becomes active when:

- one or both of the following APBE circuit pack parameters are not provisioned
  - — the Direction (Eastbound or Westbound)
  - — the Location (Pre, Post, or Thru)

  Note: This situation always occurs after an upgrade from a release prior to release 5.0.
- the intrasite fault sectionalization (IFS) feature is enabled and the optical system identifier (OSID) of the APBE is unassigned
- a circuit pack on the shelf is assigned an OSID and the OSID of the APBE is unassigned

Impact

Minor, non-service-affecting.

Action

Step	Action
1	Refer to the "Rules for provisioning OSIDs" and the associated Precautions in Procedure 3-36 "Provisioning the optical system identifier (OSID)" in *Provisioning and Operating Procedures*, 323-1701-310.

—continued—

Procedure 12-6 (continued)
APBE—Incomplete Provisioning

Step	Action	
2	**If** the cause is	**Then**
	the Direction or Location or both are not provisioned	provision the location and direction. Follow Procedure 3-35 "Provisioning APBE direction, location, and associated equipment" in *Provisioning and Operating Procedures*, 323-1701-310. If the alarm clears, you have completed this procedure. If the alarm remains, contact your next level of support.
	IFS is enabled and the OSID of the APBE is unassigned	either assign an OSID to the APBE (follow Procedure 3-36 "Provisioning the optical system identifier (OSID)" in *Provisioning and Operating Procedures*, 323-1701-310) or disable IFS (follow Procedure 3-39 "Disabling intrasite fault sectionalization (IFS)" in *Provisioning and Operating Procedures*, 323-1701-310). If the alarm clears, you have completed this procedure. If the alarm remains, contact your next level of support.
3	**If**	**Then**
	the alarm clears	you have completed this procedure
	the alarm remains	contact your next level of support

—end—

Procedure 12-7
APBE—Inter-card Communication Failure

Probable cause

This alarm becomes active when the SP circuit pack cannot communicate with the specified circuit pack.

Impact

Major, non-service-affecting.

Precautions

CAUTION
Risk of recovery procedures affecting traffic
This alarm is not service-affecting, however the recovery action can be service-affecting.

CAUTION
Risk of affecting network reliability
Make sure that all connectors are cleaned before you make the connections (or re-connections) described in this procedure. For cleaning information, see the chapter "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components*, 323-1701-201.

Action

Step	Action
1	Using the Fault—Active Alarms window in System Manager, check to see if the Inter-card Communication Failure alarm is raised by more than one circuit pack in the shelf.

If	**Then** go to
the alarm is raised by only this circuit pack	the next step
the alarm is raised on multiple circuit packs	the step 5

—continued—

Procedure 12-7 (continued)
APBE—Inter-card Communication Failure

Step	Action
2	Reseat the APBE. Follow Procedure 3-68 “Reseating a circuit pack” in *Provisioning and Operating Procedures,* 323-1701-310.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	go to the next step

Step	Action
3	Reseat the SP. Follow Procedure 3-68 “Reseating a circuit pack” in *Provisioning and Operating Procedures,* 323-1701-310.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	go to the next step

Step	Action
4	Replace the APBE. Follow Procedure 3-12 “Replacing an APBE circuit pack” in *Maintenance and Replacement Procedures,* 323-1701-546.

If	Then
the alarm clears	the removed circuit pack has faults. You have completed this procedure.
the alarm remains	the circuit pack is not the problem. Reseat the original circuit pack. Go to step 6.

Step	Action
5	Reseat the SP. Follow Procedure 3-68 “Reseating a circuit pack” in *Provisioning and Operating Procedures,* 323-1701-310.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	go to the next step

Step	Action
6	Replace the SP. Follow Procedure 3-13 “Replacing an SP circuit pack” in *Maintenance and Replacement Procedures*, 323-1701-546.

If	Then
the alarm clears	the removed circuit pack has faults. You have completed this procedure.
the alarm remains	the circuit pack is not the problem. Reseat the original circuit pack. Contact your next level of support.

—end—

Procedure 12-8
APBE—Invalid Provisioning

Probable cause

This alarm becomes active when two or more APBE circuit packs in different shelves at the same site have identical band, OSID, location and direction parameters.

This alarm only becomes active when the site contains an OSC circuit pack with the same OSID as this circuit pack and all shelves at the site are connected together via the Ethernet-2 LAN.

Impact

Minor, non-service-affecting.

Action

Step	Action
1	In the System Manager, query the circuit pack inventory. Double-click on the alarmed APBE circuit pack. *The Optical Metro Inventory window opens.*
2	In the Provisioning Data section of the Optical Metro Inventory window, determine if the Direction (Eastbound or Westbound), the Location (Post, Pre, or Thru), the Band(1-4, 5-8), or the OSID fields are provisioned.

If	**Then** go to
the Location, the direction, the band and the OSID fields are duplicate and the circuit pack is required	step 3
the circuit pack is not required	step 5

3	Fix the provisioning problem. Follow Procedure 3-35 “Provisioning APBE direction, location, and associated equipment” and Procedure 3-36 “Provisioning the optical system identifier (OSID)” in *Provisioning and Operating Procedures*, 323-1701-310.
4	Go to step 8.
5	Delete the facility of the circuit pack. Follow Procedure 3-14 “Deleting a circuit pack or SFP facility” in *Provisioning and Operating Procedures*, 323-1701-310.
6	Delete the equipment of the circuit pack. Follow Procedure 3-9 “Deleting a circuit pack or SFP from the inventory” in *Provisioning and Operating Procedures*, 323-1701-310.

—continued—

Procedure 12-8 (continued)
APBE—Invalid Provisioning

Step	Action	
7	Unseat the circuit pack from the shelf.	
8	**If**	**Then**
	the alarm clears	you have completed the procedure.
	the alarm remains	contact your next level of support.
		—end—

Procedure 12-9
APBE—Loss of Signal

When amplifiers are cascaded, it is possible that LOS lamps on the APBE downstream from the first OFA may be off (indicating that the APBE is receiving a signal) and the LOS alarm will not be raised, after the signal is lost. This can occur when the noise output from the upstream OFA exceeds the LOS threshold.

Probable cause

This alarm becomes active when the APBE circuit pack detects a low input signal on an in-service port, or when all the in-service ports raise an Rx Loss of Signal alarm.

One of the following conditions can exist:

- an optical fiber is cut
- the receive optical power is below the threshold
- a connector in the fiber path is dirty
- an optical patch cord is damaged
- the receiving APBE is defective
- an upstream component has failed

Impact

Critical, service affecting.

Precautions

CAUTION
Risk of affecting network reliability
Make sure that all connectors are cleaned before you make the connections (or re-connections) described in this procedure. For cleaning information, see the chapter "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components*, 323-1701-201.

—continued—

Procedure 12-9 (continued)
APBE—Loss of Signal

Action

Step	Action
1	Check to see if a change has occurred in the optical power of the in-coming signal.
2	Make sure that the provisioning data for the APBE reflects the data provided by the Network Modeling Tool.
3	Make sure that the fiber carrying the in-coming optical signal is connected to the IN port on the APBE.
4	Use System Manager to record the received power level. Make sure that the receiving power level is within the operational threshold. ***Note:*** You can record the power level and the thresholds from the Performance Monitoring—Equipment PM window in the System Manager.
5	Use System Manager to record the transmitted power level of the OCLDs, OTRs, or MOTRs transmitting on the band that is raising the alarm. Make sure that the transmitted power level is within the operational threshold. ***Note:*** You can record power levels on the System Manager Equipment—Facility window.
6	Use the proper cleaning kit to clean all the connectors. For information on cleaning, see "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components,* 323-1701-201. — Clean each connector separately. — Record the operating power level after you clean each connector and compare it to the value you noted above, this will allow you to see if there is any improvement to the power.

7

If	Then
the alarm clears	you have completed this procedure
the alarm remains	contact your next level of support

—end—

Procedure 12-10
APBE—Optical Signal Failure

An Optical Signal Failure alarm is raised against the equipment at both ends of the suspect fiber span. The beginning of the suspect span is identified by an Optical Signal Failure Tx alarm, while the end of the suspect span is identified by a corresponding Optical Signal Failure Rx alarm.

Depending on the network and site topology, several Optical Signal Failure alarms are possible. The IFS feature raises Optical Signal Failure alarms at all the sites where a broken fiber would cause the observed service failures.

Probable cause

This alarm becomes active when the intrasite fault sectionalization (IFS) feature identifies a failed WDM fiber at an APBE circuit pack. This alarm indicates that there is failed fiber between this APBE circuit pack and a connected component to the east or west.

This alarm is raised against the aggregate band facility (port 5) only.

Impact

Critical, service-affecting.

Requirements

If an Intrasite Communication Failure alarm is active anywhere in the ring, clear this alarm before performing this procedure. Follow Procedure 15-10 “OSC—Intrasite Communication Failure” or Procedure 13-21 “SP—Intrasite Communication Failure”.

After clearing the Intrasite Communication Failure alarm, the IFS alarms may change. Follow the appropriate procedure for the identified optical signal failures.

Perform the following steps at each site where an Optical Signal Failure alarm is raised until all Optical Signal Failure alarms are cleared.

—continued—

Procedure 12-10 (continued)
APBE—Optical Signal Failure

Precautions

CAUTION
Risk of affecting network reliability
Make sure that all connectors are cleaned before you make the connections (or re-connections) described in this procedure. For cleaning information, see the chapter "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components*, 323-1701-201.

Action

Step	Action

1 In the Active Alarms window, determine if the OSC—Intrasite Communication Failure or SP—Intrasite Communication Failure alarm is present on the network.

If this alarm is	**Then** go to
present on the network	step 2
not present on the network	step 4

2 Clear the Intrasite Communication Failure alarm. Follow "OSC—Intrasite Communication Failure" on page 15-25 or "SP—Intrasite Communication Failure" on page 13-41.

Note: It takes a minimum of 10 seconds for the alarms to clear.

If the Intrasite Communication Failure alarm	**Then**
clears	go to the next step
does not clear	contact your next level of support

3 Clearing the Intrasite Communication Failure alarm can change the Optical Signal Failure alarms.

If clearing the Intrasite Communication alarm	**Then**
cleared all the optical signal failure alarms in the system	you have completed this procedure
otherwise	go to the next step

4 Make sure that both ends of the optical fiber are physically connected to the equipment.Refer to the appropriate procedures in Chapter 3, "Connecting components" in *Connection Procedures*, 323-1701-221.

—continued—

Procedure 12-10 (continued)
APBE—Optical Signal Failure

Step	Action
5	Disconnect the fiber at the Tx equipment and use an optical power meter and a patch cord to measure the optical power coming from the equipment. Refer to tables in *Technical Specifications,* 323-1701-180, for the operational power levels that are acceptable for the type of equipment being measured.
6	**If** the optical power — **Then** go to is above the operational threshold — the next step is below the operational threshold — step 9
7	Disconnect the fiber at the Rx equipment and use an optical power meter to measure the optical power coming from the Tx equipment. Refer to tables in *Technical Specifications,* 323-1701-180, for the operational power levels that are acceptable for the type of equipment being measured.
8	**If** the optical power — **Then** go to is above the operational threshold — step 12 is below the operational threshold — step 15
9	Use the proper cleaning kit to clean the connectors. For information on cleaning, see "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components,* 323-1701-201. — Clean each connector. — Record the operating power level after you clean each connector and compare it to the value you wrote down, this will allow you to see if there is any improvement to the power levels.
10	Reconnect the fiber that was disconnected in step 5. Go to the next step.
11	**If** — **Then** the alarm clears — you have completed the procedure the alarm remains — go to step 20.

—continued—

Procedure 12-10 (continued)
APBE—Optical Signal Failure

Step	Action
12	Use the proper cleaning kit to clean the connectors. For information on cleaning, see "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components,* 323-1701-201. — Clean each connector. — Record the operating power level after you clean each connector and compare it to the value you wrote down, this will allow you to see if there is any improvement to the power levels.
13	Reconnect the fiber that was disconnected in step 7. Go to the next step.

14

If	Then
the alarm clears	you have completed the procedure
the alarm remains	go to step 18

15 Replace the fiber. Clean the new fiber and the optical connectors on the equipment. For information on cleaning, see "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components,* 323-1701-201.

Note: It will take at least 10 seconds for the alarms to clear after the problem is resolved.

16

If	Then
the alarm clears	you have completed the procedure
the alarm remains	clean all the optical connectors for the Tx and Rx equipment again. Go to the next step. For information on cleaning, see "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components,* 323-1701-201.

17

If	Then
the alarm clears	you have completed the procedure
the alarm remains	go to the next step

—continued—

Procedure 12-10 (continued)
APBE—Optical Signal Failure

Step	Action	
18	Check for an optical signal failure at a downstream site. Go to the next step.	
19	**If** at a downstream site	**Then**
	there is an optical signal failure	repeat this procedure, beginning with step 4, at that site
	otherwise	go to step 20
20	Check for an optical signal failure at an upstream site. Go to the next step.	
21	**If** at an upstream site	**Then**
	there is an optical signal failure	repeat this procedure, beginning with step 4, at that site
	otherwise	contact your next level of support
		—end—

Procedure 12-11
APBE—Performance Monitoring Timer Failed

Probable cause

This alarm becomes active when the APBE circuit pack is not receiving performance monitoring data from the SP.

Impact

Major, non-service-affecting.

Precautions

CAUTION
Risk of recovery procedures affecting traffic
This alarm is not service-affecting, however the recovery action can be service-affecting.

CAUTION
Risk of affecting network reliability
Make sure that all connectors are cleaned before you make the connections (or re-connections) described in this procedure. For cleaning information, see the chapter "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components*, 323-1701-201.

Action

Step	Action
1	Using the Fault—Active Alarms window in System Manager, check to see if the Performance Monitoring Timer Failed alarm is raised by more than one circuit pack in the shelf.

If	**Then** go to
the alarm is raised by only this circuit pack	the next step
the alarm is raised on multiple circuit packs	step 4

—continued—

Procedure 12-11 (continued)
APBE—Performance Monitoring Timer Failed

Step	Action
2	Reseat the APBE. Follow Procedure 3-68 “Reseating a circuit pack” in *Provisioning and Operating Procedures,* 323-1701-310.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	go to the next step

Step	Action
3	Replace the APBE. Follow Procedure 3-12 “Replacing an APBE circuit pack” in *Maintenance and Replacement Procedures,* 323-1701-546.

If	Then
the alarm clears	the removed circuit pack has faults. You have completed this procedure.
the alarm remains	the circuit pack is not the problem. Reseat the original circuit pack. Go to the next step.

Step	Action
4	Reseat the SP. Follow Procedure 3-68 “Reseating a circuit pack” in *Provisioning and Operating Procedures,* 323-1701-310.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	go to the next step

Step	Action
5	Replace the SP. Follow Procedure 3-13 “Replacing an SP circuit pack” in *Maintenance and Replacement Procedures*, 323-1701-546.

If	Then
the alarm clears	the removed circuit pack has faults. You have completed this procedure.
the alarm remains	the circuit pack is not the problem. Reseat the original circuit pack. Contact your next level of support.

—end—

Procedure 12-12
APBE—Power Out of Range High

Probable cause

This alarm becomes active when the APBE detects a change in the received power level of a band, for example when a new channel is added.

Impact

Minor, non-service affecting.

Action

Step	Action
1	Check to see if a change has occurred in the optical power of the in-coming signal.
2	Use the System Manager to verify that the power targets that are set for the the APBE reflect the power targets provided by the Network Modeling Tool.

If	**Then** go to
there is a difference	the next step
the power targets are the same	step 4

Step	Action
3	Adjust the APBE provisioning. Follow procedures in the "Equalizing amplified systems" chapter of *Testing and Equalization Procedures*, 323-1701-222.
4	Make sure there are no equipment changes being made in the upstream direction.

If	**Then**
there are equipment changes in progress upstream	wait until the changes are completed before going to the next step.
the are no equipment changes in progress upstream	go to the next step

Step	Action
5	Re-equalize the band. Follow Procedure 2-12 "Re-equalizing optical power of a band" in *Testing and Equalization Procedures,* 323-1701-222. ***Note:*** It can take up to two minutes for the APBE to re-equalize the band power. *After the optical power is equalized, the System Manager adds a "Band Equalization Complete" event in the Event Console.*

—continued—

Procedure 12-12 (continued)
APBE—Power Out of Range High

Step	Action
6	Select the Fault tab, and the Event Console tab to verify that the equalization is finished before proceeding.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	contact your next level of support

—end—

Procedure 12-13
APBE—Power Out of Range Low

Probable cause

This alarm becomes active when the transmit power of a band is less than the threshold. The threshold is based on the requested transmit power level for the band that is obtained when you run the Network Modeling Tool.

Impact

Minor, non-service affecting.

Action

Step	Action
1	Check to see if a change has occurred in the optical power of the in-coming signal.
2	Use the System Manager to verify that the power targets that are set for the APBE reflect the power targets provided by the Network Modeling Tool.

If	**Then** go to
there is a difference	the next step
the power targets are the same	step 4

3	Adjust the APBE provisioning. Follow procedures in the "Equalizing amplified systems" chapter of *Testing and Equalization Procedures*, 323-1701-222.
4	Make sure there are no equipment changes being made in the upstream direction.

If	**Then**
there are equipment changes in progress upstream	wait until the changes are completed before going to the next step
the are no equipment changes in progress upstream	go to the next step

—continued—

Procedure 12-13 (continued)
APBE—Power Out of Range Low

Step	Action
5	Re-equalize the band. Follow Procedure 2-12 "Re-equalizing optical power of a band" in *Testing and Equalization Procedures,* 323-1701-222. ***Note:*** It can take up to two minutes for the APBE to re-equalize the band power. *After the optical power is equalized, the System Manager adds a "Band Equalization Complete" event in the Event Console.*
6	Select the Fault tab, and the Event Console tab to verify that the equalization is finished before proceeding.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	contact your next level of support

—end—

Procedure 12-14
APBE—Rx Low Optical Power Warning

Probable cause

This alarm becomes active when an in-service port on the APBE detects an input signal that is equal to, or less than, the Degrade threshold.

One of the following conditions may exist:

- an optical fiber is cut
- the receive optical power is below the threshold
- a connector in the fiber path is dirty
- an optical patch cord is damaged
- the receiving APBE circuit pack is defective
- an upstream component has failed

Impact

Major, non-service-affecting.

Precautions

CAUTION
Risk of affecting network reliability
Make sure that all connectors are cleaned before you make the connections (or re-connections) described in this procedure. For cleaning information, see the chapter "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components*, 323-1701-201.

—continued—

Procedure 12-14 (continued)
APBE—Rx Low Optical Power Warning

Action

Step	Action
1	Check to see if a change has occurred in the optical power of the in-coming signal.
2	Make sure that the provisioning data for the APBE reflects the data provided by the Network Modeling Tool.
3	Make sure that the fiber carrying the in-coming optical signal is connected to the IN port on the APBE.
4	Use System Manager to record the received power level. Make sure that the receiving power level is within the operational threshold. ***Note:*** You can record the power level and the thresholds from the Performance Monitoring—Equipment PM window in the System Manager.
5	Use System Manager to record the transmitted power level of the OCLDs, OTRs, or MOTRs transmitting on the band that is raising the alarm. Make sure that the transmitted power level is within the operational threshold. ***Note:*** You can record power levels on the System Manager Equipment—Facility window.
6	Use the proper cleaning kit to clean all the connectors. For information on cleaning, see "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components,* 323-1701-201. — Clean each connector separately. — Record the operating power level after you clean each connector and compare it to the value you noted above, this will allow you to see if there is any improvement to the power.
7	**If** — **Then** the alarm clears — you have completed this procedure the alarm remains — contact your next level of support

—end—

Procedure 12-15
APBE—Target Power Not Attainable High

This alarm is raised only during the APBE band equalization process.

Probable cause

This alarm becomes active when the APBE circuit pack does not have enough attenuation range to reach the target output power for a band.

This alarm occurs if the eVOA is at maximum attenuation and the output power target cannot be achieved.

Impact

Major, non-service-affecting.

Action

Step	Action
1	Check to see if a change has occurred in the optical power of the in-coming signal.
2	Use the System Manager to verify that the optical power target parameters for the APBE facilities reflect the data obtained from the Network Modeling Tool. ***Note:*** Make sure that the value of the receive band power is less than the value of the power target plus the APBE maximum insertion loss (Band power < Power target + APBE max. insertion loss).
3	If necessary, adjust the APBE provisioning. Follow procedures in the "Equalizing amplified systems" chapter of *Testing and Equalization Procedures*, 323-1701-222.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	contact your next level of support

—end—

Procedure 12-16
APBE—Target Power Not Attainable Low

This alarm is raised only during the APBE band equalization process.

Probable cause

This alarm becomes active when the APBE circuit pack does not have enough attenuation range to reach the target output power for a band.

This alarm occurs if the eVOA is at minimum attenuation and the output power target cannot be achieved.

Impact

Major, non-service affecting.

Action

Step	Action
1	Check to see if a change has occurred in the optical power of the in-coming signal.
2	Use the System Manager to verify that the optical power target parameters for the APBE facilities reflect the data obtained from the Network Modeling Tool. ***Note:*** Make sure that the value of the receive band power is greater than the value of the power target plus the APBE minimum insertion loss (Band power > Power target + APBE min. insertion loss).
3	Check to see if alarms are raised on any of the in-service ports.
4	If necessary, adjust the APBE provisioning. Follow procedures in the "Equalizing amplified systems" chapter of *Testing and Equalization Procedures*, 323-1701-222.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	contact your next level of support

—end—

Procedure 12-17
APBE—TCA - Optical Power Rx Low

Probable cause

This alarm becomes active when an in-service port on the APBE detects an input signal that is equal to, or less than, the user-defined threshold of the RxPowerLow parameter.

One of the following conditions may exist:

- an optical fiber is cut
- the receive optical power is below the threshold
- a connector in the fiber path is dirty
- an optical patch cord is damaged
- the receiving APBE circuit pack is defective
- an upstream component has failed
- the user-defined threshold value is not correct

Impact

Minor, non-service-affecting.

Precautions

ATTENTION

Power fluctuating around user defined TCAs and alarm toggling

This alarm may toggle on the System Manager if the receive optical power reading fluctuates around the user defined TCA threshold. To clear the behavior of alarm toggling, move the user defined TCA threshold away from the power range around which the optical power reading fluctuates, or adjust the power level to the acceptable range so that the alarm is cleared.

CAUTION

Risk of affecting network reliability

Make sure that all connectors are cleaned before you make the connections (or re-connections) described in this procedure. For cleaning information, see the chapter "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components*, 323-1701-201.

—continued—

Procedure 12-17 (continued)
APBE—TCA - Optical Power Rx Low

Action

Step	Action
1	Make sure that the user-defined threshold value is correct. If the value is set too high, adjust it to the desired value. Follow Procedure 7-7 "Adjusting PM threshold values" in *Provisioning and Operating Procedures*, 323-1701-310.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	go to the next step

2	Check to see if a change has occurred in the optical power of the in-coming signal.
3	Make sure that the provisioning data for the APBE reflects the data provided by the Network Modeling Tool.
4	Make sure that the fiber carrying the in-coming optical signal is connected to the IN port on the APBE.
5	Use System Manager to record the received power level. Make sure that the receiving power level is within the operational threshold. ***Note:*** You can record the power level and the thresholds from the Performance Monitoring—Equipment PM window in the System Manager.
6	Use System Manager to record the transmitted power level of the OCLDs, OTRs, or MOTRs transmitting on the band that is raising the alarm. Make sure that the transmitted power level is within the operational threshold. ***Note:*** You can record power levels on the System Manager Equipment—Facility window.
7	Use the proper cleaning kit to clean all the connectors. For information on cleaning, see "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components,* 323-1701-201. — Clean each connector separately. — Record the operating power level after you clean each connector and compare it to the value you noted above, this will allow you to see if there is any improvement to the power.

8	If	Then
	the alarm clears	you have completed this procedure
	the alarm remains	contact your next level of support

—end—

Procedure 12-18
APBE—TCA - Optical Power Tx High

Probable cause

This alarm becomes active when the transmit power of the aggregate optical signal exceeds the user-defined threshold for the TxPowerHigh parameter.

This alarm can also be raised if the threshold value is not correct.

Impact

Minor, non-service affecting.

Precautions

ATTENTION

Power fluctuating around user defined TCAs and alarm toggling

This alarm may toggle on the System Manager if the receive optical power reading fluctuates around the user defined TCA threshold. To clear the behavior of alarm toggling, move the user defined TCA threshold away from the power range around which the optical power reading fluctuates, or adjust the power level to the acceptable range so that the alarm is cleared.

CAUTION

Risk of affecting network reliability

Make sure that all connectors are cleaned before you make the connections (or re-connections) described in this procedure. For cleaning information, see the chapter "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components*, 323-1701-201.

—continued—

Procedure 12-18 (continued)
APBE—TCA - Optical Power Tx High

Action

Step	Action

1 Make sure that the user-defined threshold value is correct. If the value is set too low, adjust it to the desired value. Follow Procedure 7-7 "Adjusting PM threshold values" in *Provisioning and Operating Procedures*, 323-1701-310.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	go to the next step

2 Check to see if a change has occurred in the optical power of the in-coming signal.

3 Make sure that the provisioning parameters for the APBE reflect the data obtained from the Network Modeling Tool.

4 Check to see if alarms are raised on any of the in-service ports.

5 Equalize the optical signals for any ports that have raised a "Power Out of Range High" alarm. Follow Procedure 2-12 "Re-equalizing optical power of a band" in *Testing and Equalization Procedures,* 323-1701-222.

Note: It can take up to two minutes for the APBE to re-equalize the band power.

a. Wait for the APBE to complete the equalization before you equalize the next band.

After the optical power is equalized, the System Manager displays a "Band Equalization Complete" event in the Event Console.

b. Select the Fault tab, and the Event Console tab to verify that the equalization is finished before proceeding.

If	Then
the alarm clears after re-equalizing the band	you have completed this procedure
the alarm remains	re-equalize the signal on the next port that raised the alarm. Go to the next step.

6 If the alarm does not clear within one minute, repeat step 4 for each in-service port that was not already re-equalized, even if the port did not raise an alarm.

—continued—

Procedure 12-18 (continued)
APBE—TCA - Optical Power Tx High

Step	Action
7	If the alarm does not clear within one minute after re-equalizing all the bands, check the provisioning parameters for the APBE and make sure that they match the data obtained from the Network Modeling Tool.
8	If necessary, adjust the APBE provisioning. Follow procedures in the "Equalizing amplified systems" chapter of *Testing and Equalization Procedures*, 323-1701-222.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	contact your next level of support

—end—

Procedure 12-19
APBE—TCA - Optical Power Tx Low

Probable cause

This alarm becomes active when the transmit power of a band is equal to, or less than, the user-defined threshold of the RxPowerLow parameter.

This alarm also becomes active if the user threshold value is not correct.

Impact

Minor, non-service-affecting.

Precautions

ATTENTION

Power fluctuating around user defined TCAs and alarm toggling

This alarm may toggle on the System Manager if the receive optical power reading fluctuates around the user defined TCA threshold. To clear the behavior of alarm toggling, move the user defined TCA threshold away from the power range around which the optical power reading fluctuates, or adjust the power level to the acceptable range so that the alarm is cleared.

CAUTION

Risk of affecting network reliability

Make sure that all connectors are cleaned before you make the connections (or re-connections) described in this procedure. For cleaning information, see the chapter "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components*, 323-1701-201.

—continued—

Procedure 12-19 (continued)
APBE—TCA - Optical Power Tx Low

Action

Step	Action
1	Make sure that the user-defined threshold value is correct. If the value is set too high, adjust it to the desired value. Follow Procedure 7-7 "Adjusting PM threshold values" in *Provisioning and Operating Procedures*, 323-1701-310.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	go to the next step

2	Check to see if a change has occurred in the optical power of the in-coming signal.
3	Make sure that the provisioning data for the APBE reflects the data provided by the Network Modeling Tool.
4	Starting with port 1, re-equalize the power of the in-service bands. Follow Procedure 2-12 "Re-equalizing optical power of a band" in *Testing and Equalization Procedures,* 323-1701-222.
5	If necessary, adjust the APBE provisioning. Follow procedures in the "Equalizing amplified systems" chapter of *Testing and Equalization Procedures*, 323-1701-222.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	contact your next level of support

—end—

Procedure 12-20
APBE—Tx High Optical Power

Probable cause

This alarm becomes active when the transmit power of the aggregate optical signal exceeds the threshold.

Impact

Critical, service affecting when the optical power is above the Fail threshold.

Minor, non-service affecting when the optical power is above the Degrade threshold.

Action

Step	Action
1	Check to see if a change has occurred in the optical power of the in-coming signal.
2	Make sure that the provisioning parameters for the APBE reflect the data obtained from the Network Modeling Tool.
3	Check to see if alarms are raised on any of the in-service bands.

If	**Then** go to
alarms are raised on some bands	step 4
alarms are raised on all bands	step 6

4	Equalize the optical signals for any ports that have raised a “Power Out of Range High” alarm. Follow Procedure 2-12 “Re-equalizing optical power of a band” in *Testing and Equalization Procedures,* 323-1701-222. ***Note:*** It can take up to two minutes for the APBE to re-equalize the band power. **a.** Wait for the APBE to complete the equalization before you equalize the next band. *After the optical power is equalized, the System Manager displays a “Band Equalization Complete” event in the Event Console.* **b.** Select the Fault tab, and the Event Console tab to verify that the equalization is finished before proceeding.

—continued—

Procedure 12-20 (continued)
APBE—Tx High Optical Power

Step	Action

If	Then
the alarm clears after re-equalizing the band	you have completed this procedure
the alarm remains	re-equalize the signal on the next port that raised the alarm

5 If the alarm does not clear within one minute, repeat step 4 for each in-service band that was not already re-equalized, even if the band did not raise an alarm.

6 If the alarm does not clear within one minute after re-equalizing all the bands, check the provisioning parameters for the APBE and make sure that they match the data obtained from the Network Modeling Tool.

7 If necessary, adjust the APBE provisioning. Follow procedures in the "Equalizing amplified systems" chapter of *Testing and Equalization Procedures*, 323-1701-222.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	contact your next level of support

—end—

Procedure 12-21
APBE—Tx Low Optical Power Warning/Tx Low Optical Power

Probable cause

The Tx Low Optical Power Warning becomes active when the transmit power of a band is equal to, or less than, the Degrade threshold.

The Tx Low Optical Power alarm becomes active when the transmit power of a band is equal to, or less than, the Fail threshold.

One of the following conditions exists:

- an optical fiber connection is degraded
- the connector is dirty at the receiving APBE or on the transmitting subtending equipment
- an optical patch cord is damaged
- the receiving APBE is defective
- the transmitting upstream equipment (OCLD, OTR, MOTR, OFA or APBE) is defective

When the transmit power of all in-service ports has dropped below the fail thresholds, the Tx Low Optical Power alarm is raised against the aggregate port.

Impact

Critical, service-affecting when the output power is below the Fail threshold.

Major, non-service-affecting when the output power is below the Degrade threshold.

—continued—

Procedure 12-21 (continued)
APBE—Tx Low Optical Power Warning/Tx Low Optical Power

Precautions

CAUTION
Risk of recovery procedures affecting traffic
This alarm may not be service-affecting, however the recovery action can be service-affecting.

CAUTION
Risk of affecting network reliability
Make sure that all connectors are cleaned before you make the connections (or re-connections) described in this procedure. For cleaning information, see the chapter "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components*, 323-1701-201.

Action

Step	Action
1	Check the Fault-Active Alarms window to determine which alarm is active.

If	**Then** go to
Tx Low Optical Power Warning alarm is active	step 2
Tx Low Optical Power alarm is active against ports 1, 2, 3, or 4	step 2
Tx Low Optical Power alarm is active against port 5	step 7

2	Repeat step 3 through step 6 for each port that has an active alarm.
3	Check to see if a change has occurred in the optical power of the in-coming signal. Look for fiber changes that would impact only the band reporting the alarm. ***Note:*** You can record the power level from the Equipment-Facility window in the System Manager.
4	Make sure that the provisioning data for the APBE reflects the data provided by the Network Modeling Tool.

—continued—

Procedure 12-21 (continued)
APBE—Tx Low Optical Power Warning/Tx Low Optical Power

Step	Action
5	Re-equalize the power of the in-service band. Follow Procedure 2-12 "Re-equalizing optical power of a band" in *Testing and Equalization Procedures*, 323-1701-222. ***Note:*** It can take up to two minutes for the APBE to re-equalize the band power. Wait for the APBE to complete the equalization before you equalize the next band. *After the optical power is equalized, the System Manager displays a "Band Equalization Complete" event in the Event Console.*
6	If necessary, adjust the APBE provisioning. Follow procedures in the "Equalizing amplified systems" chapter of *Testing and Equalization Procedures*, 323-1701-222.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	contact your next level of support

7	Repeat step 8 through step 11 for each in-service port.
8	Check to see if a change has occurred in the optical power of the in-coming signal. Look for fiber defects that impacts all the bands. ***Note:*** You can record the power level from the Equipment-Facility window in the System Manager.
9	Make sure that the provisioning data for the APBE reflects the data provided by the Network Modeling Tool.
10	Re-equalize the power of all in-service bands. Follow Procedure 2-12 "Re-equalizing optical power of a band" in *Testing and Equalization Procedures*, 323-1701-222. ***Note:*** It can take up to two minutes for the APBE to re-equalize the band power. Wait for the APBE to complete the equalization before you equalize the next band. *After the optical power is equalized, the System Manager displays a "Band Equalization Complete" event in the Event Console.*
11	If necessary, adjust the APBE provisioning. Follow procedures in the "Equalizing amplified systems" chapter of *Testing and Equalization Procedures*, 323-1701-222.

If	Then
the alarm clears	you have completed this procedure
the alarm remains	contact your next level of support

—end—

Procedure 12-22
APBE—Unexpected Input Power Change

Probable cause

This alarm becomes active when

- the APBE is re-equalizing the signal
- the APBE detects a variation in the power of the input signal, which varies by more than the allowable threshold (± 4.2 dB).

Impact

Major, non-service affecting.

Requirements

The optical signal must be present and stable before you perform this procedure.

Action

Step	Action
1	Check to see if a change has occurred in the optical power of the in-coming signal.
2	Use the System Manager to verify that the power targets that are set for the the APBE reflect the power targets provided by the Network Modeling Tool.

If	**Then** go to
there is a difference	the next step
the power targets are the same	step 5

3	Adjust the APBE provisioning. Follow procedures in the "Equalizing amplified systems" chapter of *Testing and Equalization Procedures*, 323-1701-222. ***Note:*** Wait for re-equalization to complete. It can take up to two minutes for the APBE to re-equalize the band power. *After the optical power is equalized, the System Manager adds a "Band Equalization Complete" event in the Event Console.*

—continued—

Procedure 12-22 (continued)
APBE—Unexpected Input Power Change

Step	Action	
4	Select the Fault tab, and the Event Console tab to verify that the equalization is finished before proceeding.	
	If	**Then**
	the alarm does not clear for at least 90 seconds	check to make sure that there are no equipment changes being made at the upstream OCLDs, OTRs, and MOTRs. If the alarm remains, go to the next step.
	the alarm remains	contact your next level of support
5	Make sure there are no equipment changes being made in the upstream direction.	
	If	**Then**
	there are equipment changes in progress upstream	wait until the changes are completed before going to the next step
	the are no equipment changes in progress upstream	contact your next level of support
6	**If**	**Then**
	the alarm clears	you have completed this procedure
	the alarm remains	contact your next level of support

—end—

Procedure 12-23
APBE—Unknown Circuit Pack

Probable cause

This alarm becomes active when one of the following conditions exists:

- the SP circuit pack fails to retrieve the manufacturing data on the circuit pack (data may be missing or may be incorrect)
- the circuit pack type cannot be recognized by the software (the Release version of the circuit pack is not supported by the Release version of the shelf)

If the slot is provisioned for an APBE, the System Manager displays APBE in the Card column of the Fault–Active Alarms window.

Impact

Major, non-service-affecting.

Precautions

CAUTION
Risk of affecting network reliability
Make sure that all connectors are cleaned before you make the connections (or re-connections) described in this procedure. For cleaning information, see the chapter "Cleaning connectors" in *Installing Optical Metro 5200 Shelves and Components*, 323-1701-201.

—continued—

Procedure 12-23 (continued)
APBE—Unknown Circuit Pack

Action

Step	Action
1	Read the latest Baseline Report to see if the circuit pack is compatible with the Release version of the shelf. ***Note:*** Baseline Reports are available through Nortel Networks. Refer to the "Technical assistance service telephone numbers" section in "About this document" at the beginning of this book.

If the circuit pack	**Then** go to
is compatible with the latest Baseline Report	step step 3
is not compatible with the latest Baseline Report	the next step

Step	Action
2	Replace the APBE circuit pack. Follow Procedure 3-12 "Replacing an APBE circuit pack" in *Maintenance and Replacement Procedures*, 323-1701-546.

If	**Then**
the alarm clears	you have completed this procedure
the alarm remains	go to the next step

Step	Action
3	Reseat the APBE. Follow Procedure 3-68 "Reseating a circuit pack" in *Provisioning and Operating Procedures,* 323-1701-310.

If	**Then**
the alarm clears	you have completed this procedure
the alarm remains	go to the next step

Step	Action
4	Replace the APBE. Follow Procedure 3-12 "Replacing an APBE circuit pack" in *Maintenance and Replacement Procedures* 323-1701-546.

If	**Then**
the alarm clears	the removed circuit pack has faults. You have completed this procedure.
the alarm remains	the circuit pack is not the problem. Reseat the original circuit pack. Contact your next level of support.

—end—

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Optical Metro 5100/5200

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