Perform Node Acceptance Tests

This chapter provides test procedures to verify that the cards installed in the ONS 15454 are performing correctly. The procedures are optional.

Note Unless otherwise specified, "ONS 15454" refers to both ANSI (SONET) and ETSI (SDH) shelf assemblies.

Note This chapter does not test the TXP or MXP card installation. TXP and MXP card installation and verification is performed in Chapter 5, "Provision Transponder and Muxponder Cards."

Before You Begin

This section lists the non-trouble procedures (NTPs) that you need to complete to validate a dense wavelength division multiplexing (DWDM) node. Turn to a procedure for applicable detailed level procedures (DLPs).

1. NTP-G41 Perform the Terminal or Hub Node with 32MUX-O and 32DMX-O Cards Acceptance Test, page 4-3—Complete this procedure to test terminal and hub nodes with 32MUX-O and 32DMX-O cards installed.

2. NTP-G42 Perform the Terminal Node with 32WSS and 32DMX Cards Acceptance Test, page 4-9—Complete this procedure to test terminal nodes with 32WSS and 32DMX cards installed.

3. NTP-G153 Perform the Terminal Node with 32WSS-L and 32DMX-L Cards Acceptance Test, page 4-14—Complete this procedure to test terminal nodes with 32WSS-L and 32DMX-L cards installed.

4. NTP-G43 Perform the ROADM Node with 32WSS and 32DMX Cards Acceptance Test, page 4-21—Complete this procedure to test reconfigurable optical add/drop multiplexing (ROADM) nodes with 32WSS and 32DMX cards installed.

5. NTP-G154 Perform the ROADM Node with 32WSS-L and 32DMX-L Cards Acceptance Test, page 4-43—Complete this procedure to test reconfigurable optical add/drop multiplexing (ROADM) nodes with 32WSS-L and 32DMX-L cards installed.

6. NTP-G44 Perform the Anti-ASE Hub Node Acceptance Test, page 4-66—Complete this procedure to test anti-amplified spontaneous emission (anti-ASE) hub nodes.

7. NTP-G45 Perform the C-Band Line Amplifier Node with OSCM Cards Acceptance Test, page 4-69—Complete this procedure to test C-band line amplifier nodes with OSCM cards installed on both the east and west sides of the shelf.

8. NTP-G155 Perform the L-Band Line Amplifier Node with OSCM Cards Acceptance Test, page 4-73—Complete this procedure to test L-band line amplifier nodes with OSCM cards installed on both the east and west sides of the shelf.

9. NTP-G46 Perform the C-Band Line Amplifier Node with OSC-CSM Cards Acceptance Test, page 4-77—Complete this procedure to test C-band line amplifier nodes with OSC-CSM cards installed on both the east and west sides of the shelf.

10. NTP-G156 Perform the L-Band Line Amplifier Node with OSC-CSM Cards Acceptance Test, page 4-81—Complete this procedure to test L-band line amplifier nodes with OSC-CSM cards installed on both the east and west sides of the shelf.

11. NTP-G47 Perform the C-Band Line Amplifier Node with OSCM and OSC-CSM Cards Acceptance Test, page 4-85—Complete this procedure to test C-band line amplifier nodes with OSCM and OSC-CSM cards installed.

12. NTP-G157 Perform the L-Band Line Amplifier Node with OSCM and OSC-CSM Cards Acceptance Test, page 4-89—Complete this procedure to test L-band line amplifier nodes with OSCM and OSC-CSM cards installed.

13. NTP-G48 Perform the OADM Node Acceptance Test on a Symmetric Node with OSCM Cards, page 4-93—Complete this procedure to test optical add/drop multiplexing (OADM) nodes with OSCM cards installed on both the east and west sides of the shelf.

14. NTP-G49 Perform the OADM Active Node Acceptance Test on a Symmetric Node with OSC-CSM Cards, page 4-105—Complete this procedure to test OADM nodes with OSC-CSM and OPT-BST or OPT-BST-E cards installed on both the east and west sides of the shelf.

15. NTP-G50 Perform the OADM Passive Node Acceptance Test on a Symmetric Node with OSC-CSM Cards, page 4-111—Complete this procedure to test OADM nodes with OSC-CSM cards installed on both the east and west sides of the shelf and no OPT-BST or OPT-BST-E cards.

NTP-G41 Perform the Terminal or Hub Node with 32MUX-O and 32DMX-O Cards Acceptance Test

Purpose	This procedure tests a DWDM terminal or hub node provisioned for C-band wavelengths with 32MUX-O and 32DMX-O cards installed.
Tools/Equipment	One of the following:
	• A tunable laser
	• TXP_MR_10E_C
	An optical power meter or optical spectrum analyzer
	2 bulk attenuators (10 dB) with LC connectors
Prerequisite Procedures	Chapter 3, "Turn Up a Node"
Required/As Needed	Required
Onsite/Remote	Onsite
Security Level	Superuser

Note This procedure tests the west side of hub nodes first, then the east side. If you are testing a terminal node, apply instructions for the west side of the hub node to the terminal side (east or west) of the terminal node.

Note Optical power measurements require either a tunable laser or a multirate transponder to generate the proper optical wavelength. If multirate transponders were installed during completion of Chapter 3, "Turn Up a Node," they can be used for this procedure. No additional cabling changes are needed.

Step 1 Complete the "DLP-G46 Log into CTC" task on page 2-27 at the hub or terminal node that you want to test. If you are already logged in, continue with Step 2.

Step 2 From the View menu, choose **Go to Network View**.

Step 3 Click the **Alarms** tab.

   a. Verify that the alarm filter is not on. See the "DLP-G128 Disable Alarm Filtering" task on page 9-29 as necessary.

   b. Verify that no equipment alarms appear indicating equipment failure or other hardware problems. (Equipment alarms are indicated by an EQPT in the Alarms tab Cond column.) If equipment failure alarms appear, investigate and resolve them before continuing. Refer to the *Cisco ONS 15454 DWDM Troubleshooting Guide* for procedures.

      Note If optical service channel (OSC) terminations are created, there will be two alarms, one for low power on the OPT-BST or OPT-BST-E card, and the other an OSC channel alarm.

Step 4 In node view (single-shelf mode) or multishelf view (multishelf mode), click the **Provisioning > WDM-ANS > Port Status** tabs. Verify that all statuses under Link Status are listed as Success - Changed, Success - Unchanged, or Not Applicable. If any are not, complete the "NTP-G37 Run Automatic Node Setup" procedure on page 3-85.

Step 5   Create a physical loopback on the west (or terminal) OPT-BST or OPT-BST-E amplifier by using a patchcord with 10-dB bulk attenuators to connect the LINE TX port to the LINE RX port.

> **Note**   On ANSI shelves, an EOC DCC Termination Failure alarm will appear due to the OSC signal loopback.

Step 6   Verify that the OSC link becomes active on the west OSCM or OSC-CSM card. (The OSC termination must already be provisioned. If not, complete the "NTP-G38 Provision OSC Terminations" procedure on page 3-86.)

Step 7   Set the tunable laser or the TXP_MR_10E_C card to the first wavelength of the 100-GHz ITU-T C-band grid (1530.33 nm). Refer to the tunable laser manufacturer's documentation or the "DLP-G268 Provision TXP_MR_10E_C Cards for Acceptance Testing" task on page 4-5.

Step 8   Connect the tunable laser transmitter or TXP_MR_10E_C card DWDM TX port to the CHAN RX 01 port on the west (or terminal) 32MUX-O card using the available patch panel.

Step 9   Display the west (or terminal) 32MUX-O card in card view.

Step 10   Click the **Provisioning > Optical Chn > Parameters** tabs.

Step 11   Change the Port 1 administrative state to **OOS,MT** (ANSI) or **Locked,maintenance** (ETSI).

Step 12   Verify that the Port 1 power level reaches the provisioned VOA Power Ref setpoint.

> **Note**   The tunable laser minimum output optical power (Pout) must be 6 dBm. If the output power is lower than the specified value, the 32MUX-O card might not reach the provisioned setpoint.

Step 13   If an OPT-BST OR OPT-BST-E card is installed, complete the "DLP-G79 Verify the OPT-BST, OPT-BST-E, or OPT-BST-L Amplifier Laser and Power" task on page 4-6 on the west (or terminal) OPT-BST, OPT-BST-E or OPT-BST-L o ensure that the amplifier is working properly.

Step 14   Complete the "DLP-G80 Verify the OPT-PRE Amplifier Laser and Power" task on page 4-6 on the west (or terminal) OPT-PRE card to ensure that the amplifier is working properly.

Step 15   Complete the "DLP-G78 Verify the 32MUX-O Card Power" task on page 4-7 to verify that the 32MUX-O is powered correctly.

Step 16   Complete the "DLP-G269 Verify the 32DMX-O Card Power" task on page 4-8 to verify that the 32DMX-O card is powered correctly.

Step 17   Restore the default IS,AINS (ANSI) or Unlocked,automaticInService (ETSI) administrative state to the 32MUX-O port that was changed to **OOS,MT** (ANSI) or **Locked,maintenance** (ETSI) in Step 11.

Step 18   Repeat Steps 7 through 17 for the remaining 31 wavelengths of the 100-GHz grid to verify the correct behavior of all variable optical attenuators (VOAs) inside the 32MUX-O card.

Step 19   Remove the loopback created in Step 5.

Step 20   If the node is a hub node, repeat Steps 5 through 19 for the east side cards.

Step 21   Complete the "NTP-G37 Run Automatic Node Setup" procedure on page 3-85 to restore the original configuration.

Step 22   Click the **Alarms** tab.

    a.   Verify that the alarm filter is not on. See the "DLP-G128 Disable Alarm Filtering" task on page 9-29 as necessary.

b. Verify that no equipment alarms appear indicating equipment failure or other hardware problems. (Equipment alarms are indicated by an EQPT in the Alarms tab Cond column.) If equipment failure alarms appear, investigate and resolve them before continuing. Refer to the *Cisco ONS 15454 DWDM Troubleshooting Guide* for procedures.

Stop. **You have completed this procedure**.

DLP-G268 Provision TXP_MR_10E_C Cards for Acceptance Testing

Purpose	This procedure provisions a TXP_MR_10E_C card for acceptance testing when a tunable laser is not available.
Tools/Equipment	TXP_MR_10E_C
Prerequisite Procedures	NTP-G32 Install the Transponder and Muxponder Cards, page 3-51
	NTP-G34 Install Fiber-Optic Cables on DWDM Cards and DCUs, page 3-57
Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	Superuser

Step 1 If you have installed and verified the TXP_MR_10E_C card, continue with Step 2. If not, install the TXP card using the "NTP-G32 Install the Transponder and Muxponder Cards" procedure on page 3-51.

Step 2 Display the TXP_MR_10E_C in card view.

Step 3 Click the **Provisioning > Line > SONET** (ANSI) or **SDH** (ETSI) tabs.

Step 4 Click the **Admin State** column for the trunk port and choose **OOS,DSBLD** (ANSI) or **Locked,disabled** (ETSI) from the drop-down list.

Step 5 Click **Apply**, then click **Yes**.

Step 6 Click the **Provisioning > Line > Wavelength Trunk Settings** tabs.

Step 7 In the Wavelength field, choose the first wavelength required by the acceptance test.

Step 8 Click **Apply**.

Step 9 Click the **Provisioning > Line > SONET** (ANSI) or **SDH** (ETSI) tabs.

Step 10 Click the **Admin State** column for the trunk port and choose **OOS,MT** (ANSI) or **Locked,maintenance** (ETSI) from the drop-down list.

Step 11 Click **Apply**.

Step 12 Connect a power meter to the DWDM TX port. Verify that the output power falls within 4.5 dBm and + or – 1 dBm. If it does not fall within this range, replace the card or contact your next level of support.

Step 13 Return to your originating procedure (NTP).

DLP-G79 Verify the OPT-BST, OPT-BST-E, or OPT-BST-L Amplifier Laser and Power

Purpose	This task verifies that the OPT-BST, OPT-BST-E, or OPT-BST-L amplifier laser is on and provisioned to the correct power.
Tools/Equipment	None
Prerequisite Procedures	DLP-G46 Log into CTC, page 2-27
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Superuser

Step 1 In node view (single-shelf mode) or shelf view (multishelf mode), double-click the OPT-BST, OPT-BST-E, or OPT-BST-L amplifier to display the card view.

Step 2 Click the **Maintenance > ALS** tabs. If the value in the Currently Shutdown field is NO, continue with Step 3. If not, complete the following steps:

    a. Check the optical safety remote interlock (OSRI) setting. If it is set to On, change it to **Off**. If the OSRI setting is set to Off and the Currently Shutdown field is Yes, contact your next level of support.

    b. Click **Apply**, then click **Yes**.

    c. Check the Currently Shutdown field. If it changes to NO, continue with Step 3. If not, contact your next level of support. The amplifier might need to be replaced.

Step 3 Click the **Provisioning > Opt Ampli Line > Parameters** tabs.

Step 4 Click **Reset**.

Step 5 Scroll to the right and locate the Signal Output Power parameter for Port 6 (LINE-TX). Verify that the Signal Output Power value is greater than or equal to 1.5 dBm.

    If the Signal Output Power is not greater than or equal to 1.5 dBm, do not continue. Begin troubleshooting or contact your next level of support.

Step 6 Return to your originating procedure (NTP).

DLP-G80 Verify the OPT-PRE Amplifier Laser and Power

Purpose	This task verifies that the OPT-PRE amplifier laser is on and provisioned to the correct power.
Tools/Equipment	None
Prerequisite Procedures	DLP-G46 Log into CTC, page 2-27
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Superuser

Step 1 In node view (single-shelf view) or shelf view (multishelf view), double-click the OPT-PRE amplifier to display the card view.

Step 2   Click the **Maintenance > ALS** tabs.

Step 3   If the value shown in the Currently Shutdown field is NO, continue with Step 4. If the OSRI value is set to On, change it to **Off**. If the OSRI setting is set to Off and the Currently Shutdown field is Yes, contact your next level of support.If not, complete the following steps:

    a.   If the OSRI setting is set to ON, click the table cell and choose **OFF** from the drop-down list.

    b.   Click **Apply**, then click **Yes**.

    c.   Check the Currently Shutdown field. If it changes to NO, continue with Step 4. If not, contact your next level of support. The amplifier might need to be replaced.

Step 4   Click the **Provisioning > Opt Ampli Line > Parameters** tabs.

Step 5   Locate the Signal Output Power parameter for Port 2 (COM-TX). Verify that the Signal Output Power value is greater than or equal to 1.5 dBm. If the Signal Output Power is greater than or equal to 1.5 dBm, continue with Step 6. If the Signal Output Power is less than 1.5 dBm, check your connections and clean the fibers using the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26. If this does not change the power value, consult your next level of support.

Step 6   Scroll to the right to locate the DCU Insertion Loss parameter. Verify that the DCU Insertion Loss value is less than or equal to 10 dB.

If the DCU Insertion Loss is greater than 10 dB, do not continue. Begin troubleshooting or contact your next level of support.

Step 7   Return to your originating procedure (NTP).

DLP-G78 Verify the 32MUX-O Card Power

Purpose	This task verifies 32MUX-O card power.
Tools/Equipment	None
Prerequisite Procedures	DLP-G46 Log into CTC, page 2-27
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Superuser

Step 1   Display the 32MUX-O card in card view.

Step 2   Click the **Provisioning > Optical Chn > Parameters** tabs.

Step 3   Change the administrative state of the corresponding port to **OOS,MT** (ANSI) or **Locked,maintenance** (ETSI).

Step 4   Click **Apply**, then click **Yes**.

Step 5   Check that the value in the Power column for the port reaches the value shown in the VOA Power Ref column.

Step 6   Return to your originating procedure (NTP).

DLP-G269 Verify the 32DMX-O Card Power

Purpose	This task verifies that the 32DMX-O card is provisioned to the correct power.
Tools/Equipment	None
Prerequisite Procedures	DLP-G46 Log into CTC, page 2-27
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Superuser

Step 1 Display the 32DMX-O card in card view.

Step 2 Click the **Provisioning > Optical Chn > Parameters** tabs.

Step 3 Change the administrative state for the appropriate port to **OOS,DSBLD** (ANSI) or **Locked,disabled** (ETSI).

Step 4 Click **Apply**, then click **Yes**.

Step 5 Verify that the value in the Power table cell is the same as the VOA Power Ref table cell value for the port under test.

Step 6 Connect a power meter to the CHAN TX 01 port through the patch panel. Verify that the physical optical power value coming from drop Port 1 on the west 32DMX-O card is consistent with the value read (the maximum allowed error is +/– 0.5 dBm).

Step 7 Return to your originating procedure (NTP).

NTP-G42 Perform the Terminal Node with 32WSS and 32DMX Cards Acceptance Test

Purpose	This acceptance test verifies that a terminal node provisioned for C-band wavelengths is operating properly before you connect it to the network. The test verifies that each add/drop and pass-through port on the 32WSS and 32DMX cards operates properly and verifies the operation of the amplifiers. The test also checks the power levels at each transmit and receive port to ensure that power loss in the cabling is within tolerance. If MMU cards are installed, the test verifies that the MMU insertion loss doesn't impact add, drop, or pass-through circuits.
Tools/Equipment	One of the following:

- A tunable laser
- TXP_MR_10E_C

An optical power meter or optical spectrum analyzer

1 bulk attenuator (10 dB) with LC connectors

Prerequisite Procedures	Chapter 3, "Turn Up a Node"
Required/As Needed	Required
Onsite/Remote	Onsite
Security Level	Superuser

Note This procedure creates an optical loopback on the OPT-BST or OPT-BST-E line. An optical signal is sent from the 32WSS input (add) to the OPT-BST or OPT-BST-E common receive (RX) and back out the OPT-BST or OPT-BST-E transmit (TX) line. The OPT-BST or OPT-BST-E line receives the looped signal from the OPT-BST or OPT-BST-E TX. It then passes the signal to the OPT-BST or OPT-BST-E common TX and into the OPT-PRE common RX. The OPT-PRE sends the signal to the 32DMX. The optical signal from the tunable laser or TXP_MR_10E_C must pass successfully through the 32WSS and out the 32DMX.

Note Optical power measurements require either a tunable laser or a multirate transponder to generate the proper optical wavelength. If multirate transponders were installed during completion of Chapter 3, "Turn Up a Node," they can be used for this procedure. No additional cabling changes are needed.

Step 1 Complete the "DLP-G46 Log into CTC" task on page 2-27 at the terminal node that you want to test. If you are already logged in, continue with Step 2.

Step 2 Display the terminal node in node view (single-shelf mode) or multishelf view (multishelf mode).

Step 3 Click the **Alarms** tab.

    a. Verify that the alarm filter is not on. See the "DLP-G128 Disable Alarm Filtering" task on page 9-29 as necessary.

    b. Verify that no equipment alarms (indicated by EQPT in the Cond column) appear indicating equipment failure or other hardware problems. If equipment failure alarms appear, investigate and resolve them before continuing. Refer to the *Cisco ONS 15454 DWDM Troubleshooting Guide* for procedures.

✎

Note   If OSC terminations are created, an OSC channel alarm will appear.

Step 4   In node view (single-shelf mode) or multishelf view (multishelf mode), click the **Provisioning** > **WDM-ANS** > **Port Status** tabs. Verify that all statuses under Link Status are listed as Success - Changed, Success - Unchanged, or Not Applicable. If any are not, or if errors (indicated in red) appear, delete the OSC channels and complete the "NTP-G37 Run Automatic Node Setup" procedure on page 3-85. Provision the OSC channels when complete.

Step 5   Create a physical loopback on the OPT-BST, OPT-BST-E, or OSC-CSM card by using a patchcord with 10-dB bulk attenuators to connect the LINE TX port to the LINE RX port.

✎

Note   On ANSI shelves, an EOC DCC Termination Failure alarm will appear due to the OSC signal loopback. This is observed as an alarm on Port 1 of the OSCM or OSC-CSM card.

Step 6   Wait approximately two minutes, then verify that the OSC link is active on the west OSCM or OSC-CSM card by observing whether or not the loss of signal (LOS) alarm on the OSCM or OSC-CSM (and the OPT-BST or OPT-BST-E card, if present) clears. (The OSC termination must already be provisioned. If not, complete the "NTP-G38 Provision OSC Terminations" procedure on page 3-86.)

Step 7   If you are using a tunable laser, follow the manufacturer's instructions to complete the following steps. If you are using a TXP_MR_10E_C card, continue with Step 8.

    a.   Set the output power to a nominal value, such as –3 dBm.

    b.   Set the tuner to the wavelength you will test, then continue with Step 9.

Step 8   If you are using a TXP_MR_10E_C card, complete the "DLP-G268 Provision TXP_MR_10E_C Cards for Acceptance Testing" task on page 4-5 for the TXP containing the wavelength you will test. Refer to Table 4-1, if needed.

Step 9   Connect the tunable laser transmitter or the TXP_MR_10E_C card DWDM TX port to the CHAN RX 01 port on the 32WSS card using the available patch panel.

✎

Note   The tunable laser minimum output optical power (Pout) must be –6 dBm. If the output power is lower than –6 dBm, the 32WSS card might not reach the provisioned setpoint.

Step 10   Display the 32WSS card in card view.

Step 11   Click the **Provisioning** > **Optical Chn Optical Connector***n* > **Parameters** tabs, where *n* = the optical connector number that carries the wavelengths you will test. Refer to Table 4-1 on page 4-22, if needed.

Step 12   Click the **Admin State** table cell for the add (CHAN-RX) port carrying the tested wavelength, then choose **OOS,MT** (ANSI) or **Locked,maintenance** (ETSI) from the drop-down list. For example, if the tested wavelength is 1530.33 nm (shown as 1530.3), you would click the Port 1 (CHAN-RX) Admin State field and choose OOS,MT or Locked,maintenance from the drop-down list.

Step 13   Change the administrative state of the pass-through port corresponding to the port in Step 9 to **OOS,MT** (ANSI) or **Locked,maintenance** (ETSI). For example, if the tested wavelength is 1530.33 nm (shown as 1530.3), you would click the Port 33 (PASS-THROUGH) Admin State field and choose OOS,MT or Locked,maintenance from the drop-down list. Refer to Table 4-1 on page 4-22, if needed.

Step 14   Click **Apply**, then click **Yes**.

Step 15   Click the **Maintenance** tab.

Step 16   For Channel #1, change Operating Mode to **Add Drop**.

Step 17   Click **Apply**, then click **Yes**.

Step 18   Click the **Provisioning > Optical Chn Optical Connector***n* **> Parameters** tabs, where *n* = the optical connector number that carries the wavelength under test.

Step 19   Verify that the actual power coming from the tunable laser or TXP_MR_10E_C card shown under the Power column is equal to the specified VOA Power Ref power (+/– 0.2dB) shown in the same row.

Step 20   Click the **Optical Line** tab.

Step 21   Verify that the power value from Step 19 reaches the Shelf i Slot i (32WSS or 32DMX).Port COM-TX.Power set point +/– 1.0 dBm. To view this set point:

   a.   In node view (single-shelf mode) or multishelf view (multishelf mode), click the **Provisioning > WDM-ANS > Provisioning** tabs.

   b.   In the Selector window on the left, expand the 32WSS or 32DMX card.

   c.   Expand the Port COM-TX category.

   d.   Select Power.

   e.   View the value of the Shelf i Slot i (32WSS or 32DMX).Port COM-TX.Power parameter on the right pane.

   f.   If the power value does not match the value recorded in Step 19 (+/– 0.5 dB), contact your next level of support.

Step 22   If an OPT-BST or OPT-BST-E card is installed, complete the "DLP-G79 Verify the OPT-BST, OPT-BST-E, or OPT-BST-L Amplifier Laser and Power" task on page 4-6 on the OPT-BST or OPT-BST-E to ensure that the amplifier is working properly.

Step 23   If an OSC- CSM is installed, continue with Step 25. If an OPT-BST is installed, verify the connection between Port 67 (COM-TX) on the 32WSS and Port 1 (COM-RX) on the OPT-BST or OPT-BST-E cards:

   a.   Display the 32WSS card in card view.

   b.   Click the **Provisioning > Optical Line** tabs.

   c.   Record the value in the Power table cell for Port 67 (COM-TX).

   d.   Display the OPT-BST or OPT-BST-E card in card view.

   e.   Click the **Provisioning > Optical Line > Parameters** tabs.

   f.   Verify that the value in the Power table cell for Port 1 (COM-RX) is equal to the value recorded in Step c, +/- 1.0 dB. If not, use the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26 to clean the fiber connection between the OPT-BST or OPT-BST-E and 32WSS cards. Check the values again. If they still do not match, contact your next level of support.

Step 24   If an OPT-BST, OPT-BST-E, or OPT-BST-L card is installed on the west or terminal side, complete the "DLP-G79 Verify the OPT-BST, OPT-BST-E, or OPT-BST-L Amplifier Laser and Power" task on page 4-6 to ensure the amplifier is working properly.

Step 25   Complete the following steps to verify the connection between Port 67 (COM-TX) on the 32WSS and the Port 2 (COM-RX) on the OSC-CSM card:

   a.   Display the 32WSS card in card view.

   b.   Click the **Provisioning > Optical Line** tabs.

   c.   Record the value in Power table cell for Port 67 (COM-TX).

   d.   Display the OSC-CSM card in card view.

   e.   Click the **Provisioning > Optical Line > Parameters** tabs.

    f. Verify that the value in the Power table cell for Port 2 (COM-RX) is equal to the value recorded in Step c, +/- 1.0 dB. If not, use the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26 to clean the fiber connection between the OSC-CSM and 32WSS cards. Check the values again. If they still do not match, contact your next level of support.

Step 26   Complete the following steps to verify the connection between Port 2 (COM-TX) on the OPT-PRE card and Port 33(COM-RX) on the 32DMX card:

    a. Display the OPT-PRE card in card view.

    b. Click the **Provisioning > OptAmpliLine > Parameters** tabs.

    c. Record the value in Power table cell for Port 2 (COM-TX).

    d. Display the 32DMX card in card view.

    e. Click the **Provisioning > Optical Line > Parameters** tabs.

    f. Verify that the value in the Power table cell for Port33 (COM-RX) is equal to the value recorded in Step c, +/- 1.0 dB. If not, use the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26 to clean the fiber connection between the OPT-PRE and 32DMX cards. Check the values again. If they still do not match, contact your next level of support.

Step 27   Complete the "DLP-G80 Verify the OPT-PRE Amplifier Laser and Power" task on page 4-6 on the OPT-PRE to ensure that the amplifier is working properly.

Step 28   Complete the "DLP-G270 Verify the 32DMX Power" task on page 4-13 to verify that the 32DMX card is powered correctly.

Step 29   Display the 32WSS in card view.

Step 30   Click the **Maintenance** tab.

Step 31   For the circuit (channel) under test, click the **Operating Mode** table cell and choose **Not Assigned** from the drop-down list.

Step 32   Click **Apply**, then **Yes**.

Step 33   Click the **Provisioning > Optical Chn Optical Connector***n* **> Parameters** tabs, where *n* = the optical connector number that carries the wavelength under test.

Step 34   Click the **Admin State** table cell. Choose **IS,AINS** (ANSI) or **Unlocked,automaticInService** (ETSI) from the drop-down list for all ports that were changed to OOS,MT or Locked,maintenance.

Step 35   Repeat Steps 7 through 34 for the remaining 31 wavelengths of the 100-Ghz grid to verify the correct behavior of all VOAs inside the 32WSS card.

Step 36   Disconnect the TXP card or tunable laser from the 32WSS card.

Step 37   Remove the loopback created in Step 5.

Step 38   Complete the "NTP-G37 Run Automatic Node Setup" procedure on page 3-85 to restore the original configuration.

Step 39   Click the **Alarms** tab.

    a. Verify that the alarm filter is not on. See the "DLP-G128 Disable Alarm Filtering" task on page 9-29 as necessary.

    b. Verify that no equipment alarms appear indicating equipment failure or other hardware problems. (Equipment alarms are indicated by an EQPT in the Alarms tab Cond column.) If equipment failure alarms appear, investigate and resolve them before continuing. Refer to the *Cisco ONS 15454 DWDM Troubleshooting Guide* for procedures.

Stop. **You have completed this procedure**.

DLP-G270 Verify the 32DMX Power

Purpose	This task verifies that the 32DMX card is provisioned to the correct power.
Tools/Equipment	None
Prerequisite Procedures	DLP-G46 Log into CTC, page 2-27
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Superuser

Step 1   Display the 32DMX card in card view.

Step 2   Click the **Provisioning > Optical Line > Parameters** tabs.

Step 3   Change the administrative state for Port 33 (COM TX) to **OOS,MT** (ANSI) or **Locked,maintenance** (ETSI)

Step 4   Verify that the value shown in the VOA Power Ref column reaches the provisioned setpoint.

Step 5   Connect a power meter to the CHAN TX 01 port through the patch panel. Verify that the physical optical power value coming from the 32DMX drop Port 1 is consistent with the Power value on the Parameters tab, +/– 1 dBm.

Step 6   Change the administrative state for Port 1 to **OOS,DSBLD** (ANSI) or **Locked,disabled** (ETSI).

Step 7   Return to your originating procedure (NTP).

NTP-G153 Perform the Terminal Node with 32WSS-L and 32DMX-L Cards Acceptance Test

Purpose	This acceptance test verifies that a terminal node provisioned for L-band wavelengths is operating properly before you connect it to the network. The test verifies that each add/drop and pass-through port on the 32WSS-L and 32DMX-L cards operates properly and verifies the operation of the amplifiers. The test also checks the power levels at each transmit and receive port to ensure that power loss in the cabling is within tolerance. If MMU cards are installed, the test verifies that the MMU insertion loss doesn't impact add, drop, or pass-through circuits.
Tools/Equipment	One of the following:
	• A tunable laser
	• TXP_MR_10E_L
	An optical power meter or optical spectrum analyzer
	1 bulk attenuator (10 dB) with LC connectors
Prerequisite Procedures	Chapter 3, "Turn Up a Node"
Required/As Needed	Required
Onsite/Remote	Onsite
Security Level	Superuser

Note Optical power measurements require either a tunable laser or a multirate transponder to generate the proper optical wavelength. If multirate transponders were installed during completion of Chapter 3, "Turn Up a Node," they can be used for this procedure. No additional cabling changes are needed.

Note This procedure creates an optical loopback on the OPT-BST-L line. An optical signal is sent from the 32WSS-L input (add) to the OPT-BST-L common RX and back out the OPT-BST-L TX line. The OPT-BST-L line receives the looped signal from the OPT-BST-L TX. It then passes the signal to the OPT-BST-L common TX and into the OPT-AMP-L (when provisioned in OPT-PRE mode) common RX. The OPT-AMP-L card sends the signal to the 32DMX-L card. The optical signal from the tunable laser or TXP_MR_10E_L card must pass successfully through the 32WSS-L card and out the 32DMX-L card.

Step 1 Complete the "DLP-G46 Log into CTC" task on page 2-27 at the hub or terminal node that you want to test. If you are already logged in, continue with Step 2.

Step 2 Display the terminal node in node view (single-shelf mode) or multishelf view (multishelf mode).

Step 3 Click the **Alarms** tab.

    a. Verify that the alarm filter is not on. See the "DLP-G128 Disable Alarm Filtering" task on page 9-29 as necessary.

    b. Verify that no equipment alarms appear indicating equipment failure or other hardware problems. (Equipment alarms are indicated by an EQPT in the Alarms tab Cond column.) If equipment failure alarms appear, investigate and resolve them before continuing. Refer to the *Cisco ONS 15454 DWDM Troubleshooting Guide* for procedures.

✎

Note   If OSC terminations are created, an OSC channel alarm will appear.

Step 4   In node view (single-shelf mode) or multishelf view (multishelf mode), click the **Provisioning >
WDM-ANS > Port Status** tabs. Verify that all statuses under Link Status are listed as Success -
Changed, Success - Unchanged, or Not Applicable. If any are not, or if errors (indicated in red) appear,
delete the OSC channels and complete the "NTP-G37 Run Automatic Node Setup" procedure on
page 3-85. Provision the OSC channels when complete.

Step 5   Create a physical loopback on the OPT-BST-L, OCSM, or OSC-CSM card by using a patchcord with
10-dB bulk attenuators to connect the LINE TX port to the LINE RX port.

✎

Note   On ANSI shelves, an EOC DCC Termination Failure alarm will appear due to the OSC signal
loopback. This is observed as an alarm on Port 1 of the OSCM or OSC-CSM card.

Step 6   Wait approximately two minutes, then verify that the OSC link is active on the west OSCM or OSC-CSM
card by observing whether or not the LOS alarm on the OSCM or OSC-CSM card (and the OPT-BST-L
card, if present) clears. (The OSC termination must already be provisioned. If not, complete the
"NTP-G38 Provision OSC Terminations" procedure on page 3-86.)

Step 7   If you are using a tunable laser, follow the manufacturer's instructions to complete the following steps.
If you are using a TXP_MR_10E_L card, continue with Step 8.

    a.   Set the output power to a nominal value, such as –3 dBm.

    b.   Set the tuner to the wavelength you will test, then continue with Step 9.

Step 8   If you are using a TXP_MR_10E_L card, complete the "DLP-G358 Provision TXP_MR_10E_L Card
for Acceptance Testing" task on page 4-18 for the TXP containing the wavelength you will test.

Step 9   Connect the tunable laser transmitter or the TXP_MR_10E_L card DWDM TX port to the CHAN RX 01
port on the 32WSS-L card using the available patch panel.

✎

Note   The tunable laser minimum Pout must be –6 dBm. If the output power is lower than –6 dBm, the
32WSS-L card might not reach the provisioned setpoint.

Step 10   Display the 32WSS-L card in card view.

Step 11   Click the **Provisioning > Optical Chn Optical Connector***n* **> Parameters** tabs, where *n* = the optical
connector number that carries the wavelengths you will test. Refer to Table 4-2 on page 4-45, if needed.

Step 12   Click the **Admin State** table cell for the add (CHAN-RX) port carrying the tested wavelength, then
choose **OOS,MT** (ANSI) or **Locked,maintenance** (ETSI) from the drop-down list. For example, if the
tested wavelength is 1577.86 nm (shown as 1577.8), you would click the Port 1 (CHAN-RX) Admin
State field and choose OOS,MT or Locked,maintenance from the drop-down list.

Step 13   Change the administrative state of the pass-through port corresponding to the port in Step 9 to **OOS,MT**
(ANSI) or **Locked,maintenance** (ETSI). For example, if the tested wavelength is 1577.86 nm (shown
as 1577.86), you would click the Port 33 (PASS-THROUGH) Admin State field and choose OOS,MT or
Locked,maintenance from the drop-down list. Refer to Table 4-2 on page 4-45, if needed.

Step 14   Click the **Provisioning > Optical Chn Optical Connector***n* **> Parameters** tabs, where *n* = the optical
connector number that carries the wavelength under test.

Step 15   Click **Apply**, then click **Yes**.

Step 16   Click the **Maintenance** tab.

Step 17 For Channel #1, change Operating Mode to **Add Drop**.

Step 18 Click **Apply**, then click **Yes**.

Step 19 Click the **Provisioning > Optical Chn > Parameters** *n* tabs where *n* = the optical connector number that carries the wavelength under test.

Step 20 Verify that the actual power coming from the tunable laser or TXP_MR_10E_L card shown under the Power column is equal to the specified VOA Power Ref power (+/– 0.2 dB) shown in the same row.

Step 21 Click the **Optical Line** tab.

Step 22 Verify that the power value from Step 20 reaches the Shelf i Slot i (32WSS-L or 32DMX-L).Port COM-TX.Power set point +/– 1.0 dBm. To view this set point:

   a. In node view (single-shelf mode) or multishelf view (multishelf mode), click the **Provisioning > WDM-ANS > Provisioning** tabs.

   b. In the Selector window on the left, expand the 32WSS-L or 32DMX-L card.

   c. Expand the Port COM-TX category.

   d. Select Power.

   e. View the value of the Shelf i Slot i (32WSS-L or 32DMX-L).Port COM-TX.Power parameter on the right pane.

   f. If the power value does not match the value recorded in Step 20 (+/– 0.5 dB), contact your next level of support.

Step 23 If an OPT-BST-L card is installed, complete the "DLP-G359 Verify the OPT-BST-L or OPT-AMP-L (OPT-Line Mode) Amplifier Laser and Power" task on page 4-19 on the OPT-BST-L to ensure that the amplifier is working properly.

Step 24 If an OSC- CSM is installed, continue with Step 25. If an OPT-BST-L is installed, verify the connection between Port 67 (COM-TX) on the 32WSS-L and Port 1 (COM-RX) on the OPT-BST-L cards:

   a. Display the 32WSS-L card in card view.

   b. Click the **Provisioning > Optical Line** tabs.

   c. Record the value in the Power table cell for Port 67 (COM-TX).

   d. Display the OPT-BST-L card in card view.

   e. Click the **Provisioning > Optical Line > Parameters** tabs.

   f. Verify that the value in the Power table cell for Port 1 (COM-RX) is equal to the value recorded in Step c, +/- 1.0 dB. If not, use the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26 to clean the fiber connection between the OPT-BST-L and 32WSS-L cards. Check the values again. If they still do not match, contact your next level of support.

Step 25 If an OPT-BST-L card is installed on the west or terminal side, complete the "DLP-G79 Verify the OPT-BST, OPT-BST-E, or OPT-BST-L Amplifier Laser and Power" task on page 4-6 to ensure the amplifier is working properly.

Step 26 Complete the following steps to verify the connection between Port 67 (COM-TX) on the 32WSS-L and the Port 2 (COM-RX) on the OSC-CSM card:

   a. Display the 32WSS-L card in card view.

   b. Click the **Provisioning > Optical Line** tabs.

   c. Record the value in Power table cell for Port 67 (COM-TX).

   d. Display the OSC-CSM card in card view.

   e. Click the **Provisioning > Optical Line > Parameters** tabs.

    f. Verify that the value in the Power table cell for Port 2 (COM-RX) is equal to the value recorded in Step c, +/- 1.0 dB. If not, use the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26 to clean the fiber connection between the OSC-CSM and 32WSS-L cards. Check the values again. If they still do not match, contact your next level of support.

Step 27 Complete the following steps to verify the connection between Port 2 (COM-TX) on the OPT-AMP-L card provisioned in OPT-PRE mode and Port 33(COM-RX) on the 32DMX-L card:

    a. Display the OPT-AMP-L card in card view.

    b. Click the **Provisioning > OptAmpliLine > Parameters** tabs.

    c. Record the value in Power table cell for Port 2 (COM-TX).

    d. Display the 32DMX-L card in card view.

    e. Click the **Provisioning > Optical Line > Parameters** tabs.

    f. Verify that the value in the Power table cell for Port33 (COM-RX) is equal to the value recorded in Step c, +/- 1.0 dB. If not, use the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26 to clean the fiber connection between the OPT-AMP-L and 32DMX-L cards. Check the values again. If they still do not match, contact your next level of support.

Step 28 Complete the "DLP-G360 Verify the OPT-AMP-L (OPT-PRE Mode) Amplifier Laser and Power" task on page 4-19 on the OPT-PRE to ensure that the amplifier is working properly.

Step 29 Complete the "DLP-G361 Verify the 32DMX-L Power" task on page 4-20 to verify that the 32DMX card is powered correctly.

Step 30 Display the 32WSS-L in card view.

Step 31 Click the **Maintenance** tab.

Step 32 For the circuit (channel) under test, click the **Operating Mode** table cell and choose **Not Assigned** from the drop-down list.

Step 33 Click **Apply**, then **Yes**.

Step 34 Click the **Provisioning > Optical Chn Optical Connector***n* **> Parameters** tabs, where *n* = the optical connector number that carries the wavelength under test.

Step 35 Click the **Admin State** table cell. Choose **IS,AINS** (ANSI) or **Unlocked,automaticInService** (ETSI) from the drop-down list for all ports that were changed to OOS,MT or Locked,maintenance.

Step 36 Repeat Steps 7 through 35 for the remaining 31 wavelengths of the 100-Ghz grid to verify the correct behavior of all VOAs inside the 32WSS-L card.

Step 37 Disconnect the TXP card or tunable laser from the 32WSS-L card.

Step 38 Remove the loopback created in Step 5.

Step 39 Complete the "NTP-G37 Run Automatic Node Setup" procedure on page 3-85 to restore the original configuration.

Step 40 Click the **Alarms** tab.

    a. Verify that the alarm filter is not on. See the "DLP-G128 Disable Alarm Filtering" task on page 9-29 as necessary.

    b. Verify that no equipment alarms appear indicating equipment failure or other hardware problems. (Equipment alarms are indicated by an EQPT in the Alarms tab Cond column.) If equipment failure alarms appear, investigate and resolve them before continuing. Refer to the *Cisco ONS 15454 DWDM Troubleshooting Guide* for procedures.

Stop. **You have completed this procedure**.

DLP-G358 Provision TXP_MR_10E_L Card for Acceptance Testing

Purpose	This procedure provisions a TXP_MR_10E_L card for acceptance testing when a tunable laser is not available.
Tools/Equipment	TXP_MR_10E_L
Prerequisite Procedures	NTP-G32 Install the Transponder and Muxponder Cards, page 3-51
	NTP-G34 Install Fiber-Optic Cables on DWDM Cards and DCUs, page 3-57
Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	Superuser

Step 1 If you have installed and verified the TXP_MR_10E_L card, continue with Step 2. If you have not installed it, install the card using the "NTP-G32 Install the Transponder and Muxponder Cards" procedure on page 3-51.

Step 2 Display the TXP_MR_10E_L card in card view.

Step 3 Click the **Provisioning > Line >** *Service-Type* tabs.

Step 4 Click the **Admin State** table cell for the trunk port and choose **OOS,DSBLD** (ANSI) or **Locked,disabled** (ETSI) from the drop-down list.

Step 5 Click **Apply**, then click **Yes**.

Step 6 Click the **Provisioning > Card** tabs.

Step 7 In the Wavelength field, choose the first wavelength required by the acceptance test.

Step 8 Click **Apply**.

Step 9 Click the **Provisioning > Line >** *Service-Type* tabs.

Step 10 Click the **Admin State** table cell for the trunk port and choose **OOS,MT** (ANSI) or **Locked,maintenance** (ETSI) from the drop-down list.

Step 11 Click **Apply**, then click **Yes**.

Step 12 Connect a power meter to the DWDM TX port. Verify that the output power falls within –4.5 dBm and 1 dBm. If it does not fall within this range, replace the card or contact your next level of support.

Step 13 Repeat Steps 3 through 12 for all the installed TXP cards.

Step 14 Return to your originating procedure (NTP).

DLP-G359 Verify the OPT-BST-L or OPT-AMP-L (OPT-Line Mode) Amplifier Laser and Power

Purpose	This task verifies that the OPT-BST-L or OPT-AMP-L (when provisioned in OPT-Line mode) amplifier laser is on and provisioned to the correct power.
Tools/Equipment	None
Prerequisite Procedures	DLP-G46 Log into CTC, page 2-27
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Superuser

Step 1   In node view (single-shelf mode) or shelf view (multishelf mode), double-click the OPT-BST-L or OPT-AMP-L amplifier to display the card view.

Step 2   Click the **Maintenance > ALS** tabs. If the value in the Currently Shutdown field is NO, continue with Step 3. If not, complete the following steps:

    a.   Check the OSRI setting. If it is set to On, change it to **Off** and click **Apply**.

    b.   Check the Currently Shutdown field. If it changes to NO, continue with Step 3. If not, contact your next level of support. The amplifier might need to be replaced.

Step 3   Click the **Provisioning > Opt Ampli Line > Parameters** tabs.

Step 4   Click **Reset**.

Step 5   Scroll to the right and locate the Signal Output Power parameter for Port 6. Verify that the Signal Output Power value is greater than or equal to 1.5 dBm.

    If the Signal Output Power is not greater than or equal to 1.5 dBm, do not continue. Begin troubleshooting or contact your next level of support.

Step 6   Return to your originating procedure (NTP).

DLP-G360 Verify the OPT-AMP-L (OPT-PRE Mode) Amplifier Laser and Power

Purpose	This task verifies that the OPT-AMP-L (when provisioned in OPT-PRE mode) amplifier laser is on and provisioned to the correct power.
Tools/Equipment	None
Prerequisite Procedures	DLP-G46 Log into CTC, page 2-27
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Superuser

Step 1   In node view (single-shelf view) or shelf view (multishelf view), double-click the OPT-AMP-L amplifier to display the card view.

Step 2   Click the **Maintenance > ALS** tabs.

Step 3 If the value shown in the Currently Shutdown field is NO, continue with Step 4. If not, complete the following steps:

    a. If the OSRI setting is set to ON, click the table cell and choose **OFF** from the drop-down list.

    b. Click **Apply**.

    c. Check the Currently Shutdown field. If it changes to NO, continue with Step 4. If not, contact your next level of support.

Step 4 Click the **Provisioning > Opt Ampli Line > Parameters** tabs.

Step 5 Locate the Signal Output Power parameter for Port 2. Verify that the Signal Output Power value is greater than or equal to 1.5 dBm. If the optical power is greater than or equal to 1.5 dBm, continue with Step 6. If the optical power is less than 1.5 dBm, check your connections and clean the fibers using the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26. If this does not change the power value, consult your next level of support.

Step 6 Scroll to the right to locate the DCU Insertion Loss parameter. Verify that the DCU Insertion Loss value is less than or equal to 10 dB.

    If the optical power is not greater than or equal to 10 dB, do not continue. Begin troubleshooting or contact your next level of support.

Step 7 Return to your originating procedure (NTP).

DLP-G361 Verify the 32DMX-L Power

Purpose	This task verifies that the 32DMX-L card is provisioned to the correct power.
Tools/Equipment	None
Prerequisite Procedures	DLP-G46 Log into CTC, page 2-27
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Superuser

Step 1 Display the 32DMX-L card in card view.

Step 2 Click the **Provisioning > Optical Chn > Parameters** tabs.

Step 3 Change the administrative state for Port 33 to **OOS,MT** (ANSI) or **Locked,maintenance** (ETSI)

Step 4 Verify that the VOA Power Ref reaches the provisioned setpoint.

Step 5 Connect a power meter to the CHAN TX 01 port through the patch panel. Verify that the physical optical power value coming from drop Port 1 on the west 32DMX card is consistent with the value read (the maximum allowed error is +/– 1 dBm).

Step 6 Change the administrative state for Port 1 to **OOS,DSBLD** (ANSI) or **Locked,disabled** (ETSI).

Step 7 Return to your originating procedure (NTP).

NTP-G43 Perform the ROADM Node with 32WSS and 32DMX Cards Acceptance Test

Purpose	This acceptance test verifies that a ROADM node provisioned for C-band wavelengths is operating properly before you connect it to the network. The test verifies that each add/drop and pass-through port on the 32WSS and 32DMX cards operates properly and verifies the operation of the amplifiers. The test also checks the power levels at each transmit and receive port to ensure that power loss in the cabling is within tolerance. If MMU cards are installed, the test verifies that the MMU insertion loss doesn't impact add, drop, or pass through circuits.
Tools/Equipment	One of the following:

- A tunable laser
- TXP_MR_10E_C

An optical power meter or optical spectrum analyzer

2 bulk attenuators (10 dB) with LC connectors

Prerequisite Procedures	Chapter 3, "Turn Up a Node"
Required/As Needed	Required
Onsite/Remote	Onsite
Security Level	Superuser

Note Optical power measurements require either a tunable laser or a multirate transponder to generate the proper optical wavelength. If multirate transponders were installed during completion of Chapter 3, "Turn Up a Node," they can be used for this procedure. No additional cabling changes are needed.

Note Because the node is isolated and no line-side fibers are connected during the test, the power levels going into the line-side cards will not be the same as the levels after the node is connected to the network. Therefore, if the ROADM shelf does not contain OPT-BST or OPT-BST-E and OPT-PRE amplifiers on both the east and west sides, you must lower the OPT-PRE power thresholds so that it turns on properly. At the end of the test, you will run automatic node setup (ANS) to configure the node with the correct parameters for the network acceptance test.

Note Throughout this procedure, west refers to Slots 1 through 8, and east refers to Slots 10 through 17.

Step 1 Make a copy of Table 4-1 on page 4-22 and place it in a convenient location for reference throughout this procedure. The table shows the 32WSS ports and the wavelengths assigned to them. The 32 wavelengths are divided among four physical multi-fiber push on (MPO) connectors on the 32WSS card. Each MPO connector is assigned eight wavelengths. In CTC, the MPO connector appears in the card view Provisioning > Optical Connector tab. Each Optical Connector subtab represents an MPO connector. Ports 1 through 32 are the RX (add) ports; Ports 33 through 64 are the pass-through ports.

Table 4-1   32WSS Ports and Wavelengths Test Checklist

32WSS Provisioning Subtab	Port #	Wavelength	Tested: Pass-Through	Tested: Add/Drop West	Tested: Add/Drop East
Optical Chn:	RX 1, PT 33	1530.33			
Optical Connector 1	RX 2, PT 34	1531.12			
	RX 3, PT 35	1531.90			
	RX 4, PT 36	1532.68			
	RX 5, PT 37	1534.25			
	RX 6, PT 38	1535.04			
	RX 7, PT 39	1535.82			
	RX 8, PT 40	1536.61			
Optical Chn:	RX 9, PT 41	1538.19			
Optical Connector 2	RX 10, PT 42	1538.98			
	RX 11, PT 43	1539.77			
	RX 12, PT 44	1540.56			
	RX 13, PT 45	1542.14			
	RX 14, PT 46	1542.94			
	RX 15, PT 47	1543.73			
	RX 16, PT 48	1544.53			
Optical Chn:	RX 17, PT 49	1546.12			
Optical Connector 3	RX 18, PT 50	1546.92			
	RX 19, PT 51	1547.72			
	RX 20, PT 52	1548.51			
	RX 21, PT 53	1550.12			
	RX 22, PT 54	1550.92			
	RX 23, PT 55	1551.72			
	RX 24, PT 56	1552.52			
Optical Chn:	RX 25, PT 57	1554.13			
Optical Connector 4	RX 26, PT 58	1554.94			
	RX 27, PT 59	1555.75			
	RX 28, PT 60	1556.55			
	RX 29, PT 61	1558.17			
	RX 30, PT 62	1558.98			
	RX 31, PT 63	1559.79			
	RX 32, PT 64	1560.61			

Step 2   Complete the "DLP-G46 Log into CTC" task on page 2-27 at the ROADM node that you want to test. If you are already logged in, continue with Step 3.

Step 3 Display the ROADM node in node view (single-shelf mode) or multishelf view (multishelf mode).

Step 4 Click the **Alarms** tab.

    a. Verify that the alarm filter is not on. See the "DLP-G128 Disable Alarm Filtering" task on page 9-29 as necessary.

    b. Verify that no equipment alarms appear indicating equipment failure or other hardware problems. (Equipment alarms are indicated by an EQPT in the Alarms tab Cond column.) If equipment failure alarms appear, investigate and resolve them before continuing. Refer to the *Cisco ONS 15454 DWDM Troubleshooting Guide* for procedures.

> **Note** The OSC terminations created during node turn-up will generate two alarms for each side of the shelf: one an LOS alarm on the OPT-BST or OPT-BST-E card, and the other an LOS alarm on the OSC-CSM or OSCM card. If OSCM cards are installed on ANSI shelves, an EOC DCC Termination Failure alarms will appear.

Step 5 In node view (single-shelf mode) or multishelf view (multishelf mode), click the **Provisioning > WDM-ANS > Port Status** tabs. Verify that all statuses under Link Status are either Success - Changed, Success - Unchanged, or Not Applicable. If any are not, complete the following steps:

    a. Delete the two OSC channels using the "DLP-G186 Delete an OSC Termination" task on page 10-45.

    b. Complete the "NTP-G37 Run Automatic Node Setup" procedure on page 3-85.

    c. Create the OSC channels using the "NTP-G38 Provision OSC Terminations" procedure on page 3-86.

Step 6 If MMU cards are installed, complete the following steps. If not, continue with Step 7.

    a. Display the east MMU in card view.

    b. Click the **Provisioning > Optical Line > Parameters** tabs.

    c. Click the **Admin State** table cell for the COM RX, COM TX, EXP RX, and EXP TX ports and choose **OOS,MT** (ANSI) or **Locked,maintenance** (ETSI) from the drop-down list.

    d. Click **Apply**, then click **Yes** to confirm.

    e. Display the west MMU in card view.

    f. Click the **Provisioning > Optical Line > Parameters** tabs.

    g. Click the **Admin State** table cell for the COM RX, COM TX, EXP RX, and EXP TX ports and choose **OOS,MT** (ANSI) or **Locked,maintenance** (ETSI) from the drop-down list.

Step 7 Display the east 32WSS in card view.

Step 8 Click the **Provisioning > Optical Chn Optical Connector***n* **> Parameters** tabs, where *n* = the optical connector number that carries the wavelengths you will test. Refer to Table 4-1 on page 4-22, if needed.

Step 9 Click the **Admin State** table cell for the add port carrying the tested wavelength, then choose **OOS,MT** (ANSI) or **Locked,maintenance** (ETSI) from the drop-down list. For example, if the tested wavelength is 1530.33 nm (shown as 1530.3), you would click the Port 1 (CHAN-RX) Admin State field and choose OOS,MT or Locked,maintenance from the drop-down list.

Step 10 Change the administrative state of the pass-through port corresponding to the port in Step 9 to **OOS,MT** (ANSI) or **Locked,maintenance** (ETSI). For example, if the tested wavelength is 1530.33 nm (shown as 1530.3), you would click the Port 33 (PASS-THROUGH) Admin State field and choose OOS,MT or Locked,maintenance from the drop-down list. Refer to Table 4-1 on page 4-22, if needed.

Step 11 Click **Apply**, then click **Yes** to confirm.

Step 12 Repeat Steps 8 through 11 for all wavelengths that you will test.

Step 13 Display the west 32WSS in card view.

Step 14 Repeat Steps 8 through 12 for the west 32WSS card.

Step 15 Display the east 32DMX card in card view and complete the following steps:

a. Choose the **Provisioning > Optical Line > Parameters** tabs.

b. For Port 33 (COM-RX), click the **Admin State** table cell and choose **OOS,MT** (ANSI) or **Locked,maintenance** (ETSI) from the drop-down list.

c. Click **Apply**, then click **Yes** to confirm.

Step 16 Repeat Step 15 for the west 32DMX card.

Step 17 Complete the "DLP-G310 Verify ROADM Node C-Band Pass-Through Channels" task on page 4-25.

Step 18 Complete the following tasks for channels that will be added or dropped on the node.

- DLP-G311 Verify the East ROADM C-Band Add/Drop Channels, page 4-33
- DLP-G312 Verify the West ROADM C-Band Add/Drop Channels, page 4-38

Step 19 If MMU cards are installed, complete the following steps. If not, continue with Step 20.

a. Display the east MMU in card view.

b. Click the **Provisioning > Optical Line > Parameters** tabs.

c. Click **Admin State** for the COM RX, COM TX, EXP RX, and EXP TX ports and choose **IS,AINS** (ANSI) or **Unlocked,automaticInService** (ETSI) from the drop-down list.

d. Click **Apply**, then click **Yes** to confirm.

e. Display the west MMU in card view.

f. Click the **Provisioning > Optical Line > Parameters** tabs.

g. Click **Admin State** for the COM RX, COM TX, EXP RX, and EXP TX ports and choose **IS,AINS** (ANSI) or **Unlocked,automaticInService** (ETSI) from the drop-down list.

Step 20 Display the east 32WSS in card view.

Step 21 Click the **Provisioning > Optical Chn Optical Connector**n **> Parameters** tabs, where n = the optical connector number that carries the wavelengths you tested.

Step 22 Click the **Admin State** table cell then choose **IS,AINS** (ANSI) or **Unlocked,automaticInService** (ETSI) from the drop-down list for all ports that were changed to OOS,MT or Locked,Maintenance in Steps 9 and 10.

Step 23 Click **Apply**.

Step 24 Repeat Steps 21 through 23 for all the ports that are in OOS,MT or Locked,maintenance state on the east 32WSS card.

Step 25 Display the west 32WSS in card view.

Step 26 Repeat Steps 21 through 23 for all ports on the west 32WSS card.

Step 27 Display the east 32DMX in card view.

Step 28 Choose the **Provisioning > Optical Line > Parameters** tabs.

Step 29 For Port 33, click the **Admin State** table cell and choose **IS,AINS** (ANSI) or **Unlocked,automaticInService** (ETSI) from the drop-down list.

Step 30 Click **Apply**.

Step 31 Display the west 32DMX card in card view.

Step 32   Repeat Steps 28 through 30 for the west 32DMX card.

Step 33   Delete both OSC channels using the "DLP-G186 Delete an OSC Termination" task on page 10-45.

Step 34   Complete the "NTP-G37 Run Automatic Node Setup" procedure on page 3-85.

Step 35   Create the two OSC channels using the "NTP-G38 Provision OSC Terminations" procedure on page 3-86.

Step 36   Click the **Alarms** tab.

    a. Verify that the alarm filter is not on. See the "DLP-G128 Disable Alarm Filtering" task on page 9-29 as necessary.

    b. Verify that no equipment failure alarms appear on the node. If alarms appear, investigate and resolve them before continuing. Refer to the *Cisco ONS 15454 DWDM Troubleshooting Guide* for procedures.

    Stop. **You have completed this procedure**.

DLP-G310 Verify ROADM Node C-Band Pass-Through Channels

Purpose	This task verifies the signal flow through a ROADM node for C-band pass-through channels. Pass-through channels pass through both 32WSS cards. The channels pass through the first 32WSS from the COM-RX port to the EXP-TX port. In the second 32WSS, the channel goes from the EXP-RX port to the COM-TX port. The channel is not terminated inside the node. If MMU cards are installed, the channel passes through the MMU COM-RX and EXP-TX ports to the 32WSS COM-RX and EXP-TX ports on one side. On the other side, the channel goes from the 32WSS EXP-RX and COM-TX ports to the MMU EXP-RX and COM-TX ports.

Tools/Equipment	One of the following:
	  • A tunable laser
	  • TXP_MR_10E_C
	An optical power meter or optical spectrum analyzer
	2 bulk attenuators (10 dB) with LC connectors

Prerequisite Procedures	"DLP-G46 Log into CTC" task on page 2-27
Required/As Needed	Required
Onsite/Remote	Onsite
Security Level	Superuser

Note   Throughout this task, west refers to Slots 1 through 8, and east refers to Slots 10 through 17.

Note   This task assumes OSC terminations were created. If not, complete the"NTP-G38 Provision OSC Terminations" procedure on page 3-86 before continuing.

Step 1   Create a physical loopback on the west OPT-BST, OPT-BST-E, or OSC-CSM card by connecting the LINE TX port to its LINE RX port. For OPT-BST or OPT-BST-E cards, connect a 10-dB bulk attenuator to the fiber. (OSC-CSM cards do not require attenuation.)

⚠️
Caution   Failure to use proper attenuation might damage equipment.

Step 2   If an OPT-PRE amplifier is installed on the west side (where the physical loopback was created), perform the following steps. If not, continue with Step 3.

    a.   Display the OPT-PRE card in card view, then click the **Provisioning > Optical Line > Optics Thresholds** tabs.

    b.   Under Types, click **Alarm**, then click **Refresh**. The alarm thresholds for the OPT-PRE card will appear.

    c.   Double-click the **Power Failure Low** table cell for Port 1 (COM-RX) and delete the current value.

    d.   Type a new value of **–30.0** and press **Enter** on your computer.

    e.   On the CTC window, click **Apply**, then click **Yes** on the confirmation dialog box.

Step 3   If an OPT-PRE card is installed on the east side, complete the following steps. If an OPT-PRE card is not installed on the east side, continue with Step 4.

    a.   Display the east OPT-PRE card in card view, then click the **Provisioning > Optical Line > Optics Thresholds** tabs.

    b.   Under Types, click **Alarm**, then click **Refresh**. The alarm thresholds for the OPT-PRE card will appear.

    c.   Double-click the **Power Failure Low** table cell for Port 1 (COM-RX) and delete the current value.

    d.   Type a new value of **–30.0** and press **Enter** on your computer.

    e.   On the CTC window, click **Apply**, then click **Yes** on the confirmation dialog box.

Step 4   Wait 2 to 3 minutes, then in node view (single-shelf mode) or multishelf view (multishelf mode) click the **Alarms** tab. Verify that the LOS alarms on the west OSCM or OSC-CSM card and the OPT-BST or OPT-BST-E card have cleared. The clearing of the LOS alarms indicates that the OSC link is active on the west side. If the alarms do not clear, contact your next level of support.

✎
Note   On ANSI shelves, an EOC DCC Termination Failure alarm will continue to appear due to the OSC signal loopback.

Step 5   Display the west 32WSS card in card view.

Step 6   Click the **Maintenance** tab.

Step 7   Click the **Operating Mode** table cell for the wavelength under test and choose **Pass Through** from the drop-down list.

Step 8   Click **Apply**, then click **Yes** to confirm.

Step 9   Display the east 32WSS card in card view.

Step 10   Repeat Steps 6 through 8 for the east 32WSS card.

Step 11   If you are using a tunable laser, follow the manufacturer's instructions to complete the following steps. If you are using a TXP_MR_10E_C card, continue with Step 12.

    a.   Set the output power to a nominal value, such as –3 dBm.

b. Set the tuner to the wavelength you will test, then continue with Step 13.

Step 12 If you are using a TXP_MR_10E_C card, complete the "DLP-G268 Provision TXP_MR_10E_C Cards for Acceptance Testing" task on page 4-5 for the TXP containing the wavelength you will test.

Step 13 Connect the tunable laser transmitter or the TXP_MR_10E_C card DWDM TX port to the east OPT-BST, OPT-BST-E, or OSC-CSM LINE RX port. If an east OPT-PRE is installed, insert a 10-dB attenuator on the fiber coming from the TXP_MR_10E_C card.

⚠

Caution Failure to use proper attenuation might damage equipment.

Step 14 If an OPT-PRE card is installed on the east side, complete the following steps. If not, continue with Step 15.

    a. Display the east OPT-PRE in card view.

    b. Click the **Provisioning > Optical Line > Parameters** tabs.

    c. Locate the Power parameter for Port 1 (COM-RX). Record the value.

    d. Display the east OPT-BST, OPT-BST-E, or OSC-CSM card in card view.

    e. Click the **Provisioning > Optical Line > Parameters** tabs.

    f. Locate the Power value for Port 2 (COM-TX) (OPT-BST or OPT-BST-E) or Port 3 (COM-TX) (OSC-CSM). Verify that the value matches the power recorded in Step c, +/– 2.0 dB. If not, use the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26 to clean the fiber connection between the OPT-PRE card and the OPT-BST, OPT-BST-E, or OSC-CSM card. Check the values again. If they still do not match, contact your next level of support.

    g. For the east OPT-PRE card, complete the "DLP-G80 Verify the OPT-PRE Amplifier Laser and Power" task on page 4-6.

Step 15 If an MMU card is installed on the east side, complete the following steps, then continue with Step 17. If an MMU card is not installed, continue with Step 16.

    a. Display the east MMU card in card view.

    b. Click the **Provisioning > Optical Line > Parameters** tabs.

    c. Locate the Port 3 (COM-RX) power parameter. Record the value.

    d. If an east OPT-PRE card is installed, display it in card view and complete Step e. If not, continue with Step f.

    e. Click the OPT-PRE **Provisioning > Opt.Ampli.Line > Parameters** tabs and read the Total Output Power value for Port 2 (COM-TX), then continue with Step i.

    f. If an east OPT-BST or OPT-BST-E card is installed, display it in card view and complete Step g. If not, continue with Step h.

    g. Click the **Provisioning > Optical Line > Parameters** tabs and read the Power value for Port 2 (COM-TX), then continue with Step i.

    h. Display the east OSC-CSM card in card view, click the **Provisioning > Optical Line > Parameters** tabs and read the Power value for Port 3 (COM-TX), then continue with Step i.

    i. Verify that value in the Step e, g, or h matches the power recorded in Step c, +/– 1.0 dB. If not, use the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26 to clean the fiber connection between the MMU card and the OPT-BST, OPT-BST-E, OPT-PRE, or OSC-CSM cards. Check the values again. If they still do not match, contact your next level of support.

    j. Display the east MMU card in card view.

k. Click the **Provisioning > Optical Line > Parameters** tabs.

l. Record the value in the Power table cell for Port 2(EXP-TX) of the east MMU card.

m. Display the east 32WSS card in card view.

n. Click the **Provisioning > Optical Line > Parameters** tabs.

o. Verify that the value in the Power table cell for Port 68 (COM-RX) is equal to the value recorded in Step l, +/– 1.0 dB. If not, use the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26 to clean the fiber connection between the 32WSS and MMU cards. Check the values again. If they still do not match, contact your next level of support.

p. Continue with Step 17.

Step 16 Verify the east 32WSS to OPT-BST, OPT-PRE, or OSC-CSM cable connection:

a. Display the east 32WSS in card view.

b. Click the **Provisioning > Optical Line > Parameters tabs.**

c. Locate the Port 68 (COM-RX) Power parameter. Record the value.

d. If an east OPT-PRE card is installed, display it in card view and complete Step e. If not, continue with Step f.

e. Click the **Provisioning > Opt.Ampli.Line > Parameters** tabs and read the Total Output Power value for Port 2 (COM-TX), then continue with Step i.

f. If an OPT-BST or OPT-BST-E card is installed on the east side, display it in card view and complete Step g. If not, continue with Step h.

g. Click the **Provisioning > Optical Line > Parameters** tabs and read the Power value for Port 2 (COM-TX), then continue with Step i.

h. Display the east OSC-CSM card in card view, click the **Provisioning > Optical Line > Parameters** tabs and read the Power value for Port 3 (COM-TX), then continue with Step i.

i. Verify that the value in Step e, g, or h matches the power recorded in Step c, +/– 1.5 dB. If not, use the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26 to clean the fiber connection between the 32WSS card and the OPT-PRE, OPT-BST, OPT-BST-E, or OSC-CSM card. Check the values again. If they still do not match, contact your next level of support.

Step 17 Verify the EXPRESS cable connection between the two 32WSS cards:

a. Display the east 32WSS in card view.

b. Click the **Provisioning > Optical Line > Parameters** tabs.

c. Locate the Port 65 (EXP-TX) Power parameter. Record the value.

a. Display the west 32WSS in card view.

b. Click the **Provisioning > Optical Line > Parameters** tabs.

c. Locate the Power value for EXPRESS Port 66 (EXP-RX). Verify that the value matches the power recorded in Step c, +/–1 dB. If not, use the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26 to clean the fiber connection between the 32WSS cards. Check the values again. If they still do not match, contact your next level of support.

Step 18 Display the west 32WSS card in card view.

Step 19 Click the **Provisioning > Optical Chn Optical Connector***n* **> Parameters** tabs, where n = the connector number containing the wavelength you are testing. Refer to Table 4-1 on page 4-22, if needed.

Step 20 Wait 60 to 70 seconds (or click **Reset**), then locate the Power and VOA Power Ref parameters for the tested PASS-THROUGH port. Verify that the Power value is equal to the VOA Power Ref value, +/− 1.5 dBm. If the Power value is not equal to the VOA Power Ref value +/−1.5 dBm, contact your next level of support.

Step 21 If an MMU card is installed on the west side, complete the following steps. If an MMU card is not installed on the west side, continue with Step 22.

   a. Display the west 32WSS card in card view.

   b. Click the **Provisioning > Optical Line > Parameters** tabs.

   c. Record the value in the Power table cell for Port 67(COM-TX).

   d. Display the west MMU card in card view.

   e. Click the **Provisioning > Optical Line > Parameters** tabs.

   f. Verify that the value in the Power table cell for Port 1(EXP-RX) is equal to the value recorded in Step c, +/− 1.0 dB. If not, use the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26 to clean the fiber connection between the 32WSS and MMU cards. Check the values again. If they still do not match, contact your next level of support.

   g. Record the value in the Power table cell for Port 4 (COM-TX).

   h. If a west OPT-BST or OPT-BST-E card is installed, display it in card view and complete Step i. If not, continue with Step j.

   i. Click the **Provisioning > Optical Line > Parameters** tabs and read the Power value for Port 1 (COM-RX), then continue with Step k.

   j. Display the west OSC-CSM card in card view, click the **Provisioning > Optical Line > Parameters** tabs and read the Power value for Port 2 (COM-RX), then continue with Step k.

   k. Verify that the value in Step i or j matches the power recorded in Step g, +/− 1.5 dB. If not, use the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26 to clean the fiber connection between the OPT-BST, OPT-BST-E, or OSC-CSM and MMU cards. Check the values again. If they still do not match, contact your next level of support.

   l. Continue with Step 23.

Step 22 If an OPT-BST, OPT-BST-E, or OSC-CSM card is installed on the west side, complete the following steps. If not, continue with Step 23.

   a. Display the west OPT-BST, OPT-BST-E, or OSC-CSM in card view.

   b. Click the **Provisioning > Optical Line > Parameters** tabs.

   c. Locate the Port 1 (COM-RX) Power parameter (OPT-BST or OPT-BST-E cards) or the Port 2 (COM-RX) Power parameter (OSC-CSM cards). Record the value.

   d. Display the west 32WSS in card view.

   e. Click the **Provisioning > Optical Line > Parameters** tabs.

   f. Locate the Power value for Port 67 (COM-TX). Verify that the value matches the power recorded in Step c, +/−1 dB. If not, use the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26 to clean the fiber connection between the OPT-BST, OPT-BST-E, or OSC-CSM card and the 32WSS card. Check the values again. If they still do not match, contact your next level of support.

   g. For the west OPT-BST or OPT-BST-E card, complete the "DLP-G79 Verify the OPT-BST, OPT-BST-E, or OPT-BST-L Amplifier Laser and Power" task on page 4-6.

Step 23   If a OPT-PRE card is installed on the west side, complete the following steps. If not, continue with Step 24.

   a.   Display the west OPT-PRE in card view.

   b.   Click the **Provisioning > Optical Line > Parameters** tabs.

   c.   Locate the Port 1 (COM-RX) Power parameter. Record the value.

   d.   Display the west OPT-BST, OPT-BST-E, or OSC-CSM card in card view.

   e.   Click the **Provisioning > Optical Line > Parameters** tabs.

   f.   Locate the Power value for Port 2 (COM-TX) (OPT-BST or OPT-BST-E) or Port 3 (COM-TX) (OSC-CSM). Verify that the value matches the power recorded in Step c, +/– 2.0 dB. If not, use the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26 to clean the fiber connection between the OPT-PRE card and the OPT-BST, OPT-BST-E, or OSC-CSM card. Check the values again. If they still do not match, contact your next level of support.

   g.   For the west OPT-PRE, complete the "DLP-G80 Verify the OPT-PRE Amplifier Laser and Power" task on page 4-6.

Step 24   If an MMU card is installed on the west side, complete the following steps, then continue with Step 26. If an MMU card is not installed on the west side, continue with Step 25.

   a.   Display the west MMU card in card view.

   b.   Click the **Provisioning > Optical Line > Parameters** tabs.

   c.   Locate the Port 3 (COM-RX) power parameter. Record the value.

   d.   If an west OPT-PRE card is installed, display it in card view and complete Step e. If not, continue with Step f.

   e.   Click the OPT-PRE **Provisioning > Opt.Ampli.Line > Parameters** tabs and read the Total Output Power value for Port 2 (COM-TX), then continue with Step i.

   f.   If an west OPT-BST or OPT-BST-E card is installed, display it in card view and complete Step g. If not, continue with Step h.

   g.   Click the **Provisioning > Optical Line > Parameters** tabs and read the Power value for Port 2 (COM-TX), then continue with Step i.

   h.   Display the west OSC-CSM card in card view, click the **Provisioning > Optical Line > Parameters** tabs and read the Power value for Port 3 (COM-TX), then continue with Step i.

   i.   Verify that value in the Step e, g, or h matches the power recorded in Step c, +/– 1.0 dB. If not, use the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26 to clean the fiber connection between the MMU card and the OPT-BST, OPT-BST-E, OPT-PRE, or OSC-CSM cards. Check the values again. If they still do not match, contact your next level of support.

   j.   Display the east MMU card in card view.

   k.   Click the **Provisioning > Optical Line > Parameters** tabs.

   l.   Record the value in the Power table cell for Port 2(EXP-TX) of the west MMU card.

   m.   Display the west 32WSS card in card view.

   n.   Click the **Provisioning > Optical Line > Parameters** tabs.

   o.   Verify that the value in the Power table cell for Port 68 (COM-RX) is equal to the value recorded in Step l, +/– 1.0 dB. If not, use the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26 to clean the fiber connection between the 32WSS and cards and the MMU cards. Check the values again. If they still do not match, contact your next level of support.

   p.   Continue with Step 26.

Step 25 Verify the west 32WSS card to OPT-BST, OPT-BST-E, OPT-PRE, or OSC-CSM card cable connection:

  a. Display the west 32WSS in card view.

  b. Click the **Provisioning > Optical Line > Parameters tabs.**

  c. Locate the Port 68 (COM-RX) Power parameter. Record the value.

  d. If a west OPT-PRE card is installed, display it in card view and complete Step e. If not, continue with Step f.

  e. Click the **Provisioning > Opt.Ampli.Line > Parameters** tabs and read the Total Output Power value for Port 2 (COM-TX), then continue with Step i.

  f. If an west OPT-BST or OPT-BST-E card is installed, display it in card view and complete Step g. If not, continue with Step h.

  g. Click the **Provisioning > Optical Line > Parameters** tabs and read the Power value for Port 2 (COM-TX), then continue with Step i.

  h. Display the west OSC-CSM card in card view, click the **Provisioning > Optical Line > Parameters** tabs and read the Power value for Port 3 (COM-TX), then continue with Step i.

  i. Verify that the value in Step e, g, or h matches the power recorded in Step c, +/– 1.5 dB. If not, use the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26 to clean the fiber connection between the 32WSS card and the OPT-PRE, OPT-BST, OPT-BST-E, or OSC-CSM card. Check the values again. If they still do not match, contact your next level of support.

Step 26 Verify the EXPRESS cable connection between the two 32WSS cards:

  a. Display the west 32WSS card in card view.

  b. Click the **Provisioning > Optical Line > Parameters** tabs.

  c. Locate the Port 65 (EXP-TX) Power parameter. Record the value.

  a. Display the east 32WSS card in card view.

  b. Click the **Provisioning > Optical Line > Parameters** tabs.

  c. Locate the Power value for Port 66 (EXP-RX). Verify that the value matches the power recorded in Step c, +/– 1 dB. If not, use the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26 to clean the fiber connection between the 32WSS cards. Check the values again. If they still do not match, contact your next level of support.

Step 27 Display the east 32WSS card in card view.

Step 28 Click the **Provisioning > Optical Chn Optical Connector**n **> Parameters** tabs, where n = the connector number containing the wavelength you are testing. Refer to Table 4-1 on page 4-22, if needed.

Step 29 Wait 60 to 70 seconds (or click **Reset**), then locate the Power and VOA Power Ref parameters for the tested PASS-THROUGH port. Verify that the Power value is equal to the VOA Power Ref value, +/– 1.5 dBm. If the Power value is not equal to the VOA Power Ref value +/– 1.5 dBm, consult your next level of support.

Step 30 If an MMU card is installed on the east side, complete the following steps. If an MMU card is not installed on the east side, continue with Step 31.

  a. Display the east 32WSS card in card view.

  b. Click the **Provisioning > Optical Line > Parameters** tabs.

  c. Record the value in the Power table cell for Port 67(COM-TX).

  d. Display the east MMU card in card view.

  e. Click the **Provisioning > Optical Line > Parameters** tabs.

f. Verify that the value in the Power table cell for Port 1(EXP-RX) is equal to the value recorded in Step c, +/– 1.0 dB. If not, use the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26 to clean the fiber connection between the 32WSS and MMU cards. Check the values again. If they still do not match, contact your next level of support.

g. Record the value in the Power table cell for Port 4 (COM-TX).

h. If a east OPT-BST or OPT-BST-E card is installed, display it in card view and complete Step i. If not, continue with Step j.

i. Click the **Provisioning > Optical Line > Parameters** tabs and read the Power value for Port 1 (COM-RX), then continue with Step k.

j. Display the east OSC-CSM card in card view, click the **Provisioning > Optical Line > Parameters** tabs and read the Power value for Port 2 (COM-RX), then continue with Step k.

k. Verify that the value in Step i or j matches the power recorded in Step g, +/– 1.5 dB. If not, use the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26 to clean the fiber connection between the OPT-BST, OPT-BST-E, or OSC-CSM and MMU cards. Check the values again. If they still do not match, contact your next level of support.

l. Continue with Step 32.

Step 31 If an OPT-BST, OPT-BST-E, or OSC-CSM card is installed on the east side, complete the following steps. If not, continue with Step 32.

a. Display the east OPT-BST, OPT-BST-E, or OSC-CSM card in card view.

b. Click the **Provisioning > Optical Line > Parameters** tabs.

c. Locate the Port 1 (COM-RX) Power parameter (OPT-BST or OPT-BST-E cards) or the Port 2 (COM-RX) Power parameter (OSC-CSM cards). Record the value.

d. Display the east 32WSS card in card view.

e. Click the **Provisioning > Optical Line > Parameters** tabs.

f. Locate the Power value for Port 67 (COM-TX). Verify that the value matches the power recorded in Step c, +/–1 dB. If not, use the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26 to clean the fiber connection between the OPT-BST, OPT-BST-E, or OSC-CSM and 32WSS cards. Check the values again. If they still do not match, contact your next level of support.

g. For the east OPT-BST or OPT-BST-E card, complete the "DLP-G79 Verify the OPT-BST, OPT-BST-E, or OPT-BST-L Amplifier Laser and Power" task on page 4-6.

Step 32 Complete Steps 18, 19, 27, and 28 for the additional wavelengths that you want to test. If you have tested all the wavelengths, continue with Step 33.

Step 33 Display the east 32WSS card in card view.

Step 34 Click the **Maintenance** tab.

Step 35 Under Operating Mode, click the table cell and choose **Not Assigned** from the drop-down list for all wavelengths.

Step 36 Click **Apply**, then click **Yes** to confirm.

Step 37 Display the west 32WSS card in card view.

Step 38 Repeat Steps 34 through 36 for the west 32WSS card.

Step 39 Disconnect the TXP or tunable laser from the east OPT-BST, OPT-BST-E, or OSC-CSM line side RX ports.

Step 40 Remove the loopback fiber from the line RX and TX in the west OPT-BST, OPT-BST-E, or OSC-CSM card.

Step 41   Return to your originating procedure (NTP).

DLP-G311 Verify the East ROADM C-Band Add/Drop Channels

Purpose	This procedure verifies the signal flow through the east side of a ROADM node for C-band add/drop channels.
Tools/Equipment	One of the following: • A tunable laser • TXP_MR_10E_C An optical power meter or optical spectrum analyzer 2 bulk attenuators (10 dB) with LC connectors
Prerequisite Procedures	DLP-G46 Log into CTC, page 2-27
Required/As Needed	Required
Onsite/Remote	Onsite
Security Level	Superuser

Note   Throughout this task, west refers to Slots 1 through 8, and east refers to Slots 10 through 17.

Step 1   In node view (single-shelf mode) or multishelf view (multishelf mode), display the Alarms tab.

Step 2   Create a physical loopback on the east OPT-BST, OPT-BST-E, or OSC-CSM card by connecting the LINE TX port to its LINE RX port. For OPT-BST or OPT-BST-E cards, connect a 10-dB bulk attenuator to the fiber. (OSC-CSM cards do not require attenuation.)

Caution   Failure to use proper attenuation might damage equipment.

Step 3   Wait 2 to 3 minutes, then click the **Alarms** tab. Verify that the LOS alarms on the east OSCM or OSC-CSM card and the OPT-BST or OPT-BST-E card have cleared. The clearing of the LOS alarms indicates that the OSC link is active on the east side.

Note   On ANSI shelves, an EOC DCC Termination Failure alarm will continue to appear due to the OSC signal loopback.

Step 4   If you are using a tunable laser, follow the manufacturer's instructions to complete the following steps. If you are using a TXP_MR_10E_C card, continue with Step 5.

a.   Set the output power to a nominal value, such as –3 dBm.

b.   Set the tuner to the wavelength you are testing, then continue with Step 7.

Step 5   If you are using a TXP_MR_10E_C card, complete the "DLP-G268 Provision TXP_MR_10E_C Cards for Acceptance Testing" task on page 4-5 for the TXP containing the wavelength you will test. Refer to Table 4-1 on page 4-22, if needed.

Step 6   If you are using a TXP_MR_10E_C card, complete the following steps. If you are using a tunable laser continue with Step 7.

    a.   Display the TXP_MR_10E_C in card view.

    b.   Click the **Performance > Optics PM > Current Values** tabs.

    c.   Locate the Port 2 (Trunk) table cell for the TX Optical Pwr parameter. Record the value.

Step 7   Connect the tunable laser transmitter or the TXP_MR_10E_C card DWDM TX port to the east side fiber patch panel MUX port that is connected to the east 32WSS card CHAN RX port carrying the tested wavelength. (If the TXP_MR_10E_C card was installed during Chapter 3, "Turn Up a Node," simply verify the cable connection.)

Step 8   Connect the TXP_MR_10E_C DWDM RX port or the power meter RX port to the east side fiber patch panel DMX port that is connected with the east 32DMX card CHAN-TX port carrying the tested wavelength. (If the TXP_MR_10E_C card was installed during Chapter 3, "Turn Up a Node," simply verify the cable connection.)

Step 9   Display the 32WSS card in card view.

Step 10   Click the **Maintenance** tab.

Step 11   For each wavelength that you will test, click the table cell under Operating Mode and choose **Add Drop** from the drop-down list.

Step 12   Click **Apply** and then **Yes**, to confirm.

Step 13   Click the **Provisioning > Optical Chn Optical Connector***n* **> Parameters** tabs, where *n* = the optical connector number that carries the wavelengths you will test. Refer to Table 4-1 on page 4-22, if needed.

Step 14   Find the tested wavelength CHAN RX port, then scroll to the right until you see the Power Add parameter. Verify that the Power Add value for the tested port CHAN RX is equal to the output power level of the tunable laser or the TXP_MR_10E_C card measured in Step 6 +/– 1 dBm.

Step 15   Click the **Provisioning > Optical Line > Parameters** tabs and record the value in the Power table cell for Port 67 (COM-TX) for the wavelength under test.

Step 16   Verify that the power value from Step 15 reaches the EastSide.Tx.Power.Add&Drop - Output Power setpoint +/– 1 dBm. To view this setpoint:

    a.   In node view (single-shelf mode) or multishelf view (multishelf mode), click the **Provisioning > WDM-ANS > Provisioning** tabs.

    b.   In the Selector window on the left, expand the **East Side** parameters tree view.

    c.   Expand the **TX** category.

    d.   Expand the **Power** category, then highlight **Add&Drop - Output Power**.

    e.   View the EastSide.TxPower.Add&Drop - Output Power parameter on the right pane.

    f.   If the power value does not match the value recorded in Step 15, +/– 2dBm, contact your next level of support.

Step 17   If an MMU card is installed on the east side, complete the following steps. If an MMU card is not installed on the east side, continue with Step 18.

    a.   Display the east 32WSS card in card view.

    b.   Click the **Provisioning > Optical Line > Parameters** tabs.

    c.   Record the value in the Power table cell for Port 67 (COM-TX).

    d.   Display the east MMU card in card view.

    e.   Click the **Provisioning > Optical Line > Parameters** tabs.

f. Verify that the value in the Power table cell for Port 1(EXP-RX) is equal to the value recorded in Step c, +/- 1.0 dB. If not, use the "NTP-G115 Clean Fiber Connectors" procedure on page 13-25 to clean the fiber connection between the 32WSS and MMU cards. Check the values again. If they still do not match, contact your next level of support.

g. Record the value in the Power table cell for Port 4 (COM-TX).

h. If a east OPT-BST or OPT-BST-E card is installed, display it in card view and complete Step i. If not, continue with Step j.

i. Click the Provisioning > Optical Line > Parameters tabs and read the Power value for Port 1 (COM-RX), then continue with Step k.

j. Display the east OSC-CSM card in card view, click the **Provisioning > Optical Line > Parameters** tabs and read the Power value for Port 2 (COM-RX), then continue with Step k.

k. Verify that the value in Step i or j matches the power recorded in Step g, +/- 1.5 dB. If not, use the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26 to clean the fiber connection between the OPT-BST, OPT-BST-E, or OSC-CSM and MMU cards. Check the values again. If they still do not match, contact your next level of support.

l. Continue with Step 19.

Step 18 Verify the connection between the 32WSS and OPT-BST, OPT-BST-E or OSC_CSM cards:

a. Display the east 32WSS card in card view.

b. Click the **Provisioning > Optical Line > Parameters** tabs.

c. Record the value in the Power table cell for Port 67 (COM-TX).

d. If a OPT-BST or OPT-BST-E card is installed on the east side, display it in card view and complete Step e. If not, continue with Step f.

e. Click the **Provisioning > Optical Line > Parameters** tabs and read the Power value for Port 1 (COM-RX), then continue with Step g.

f. Display the east OSC-CSM card in card view, click the **Provisioning > Optical Line > Parameters** tabs and read the Power value for Port 2 (COM-RX), then continue with Step g.

g. Verify that the value in Step e or f matches the power recorded in Step c, +/- 1.0 dB. If so, continue with Step 19. If not, use the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26 to clean the fiber connection between the OPT-BST, OPT-BST-E, or OSC-CSM and 32WSS cards. Check the values again. If they still do not match, contact your next level of support.

Step 19 If an OPT-PRE card is installed on the east side, complete the following steps. If not, continue with Step 20.

a. Display the east OPT-PRE in card view.

b. Click the **Provisioning > Optical Line > Parameters** tabs.

c. Locate the Power parameter for Port 1 (COM-RX). Record the value.

d. Display the east OPT-BST, OPT-BST-E, or OSC-CSM card in card view.

e. Click the **Provisioning > Optical Line > Parameters** tabs.

f. Locate the Port 2 (COM-TX) Power value (for OPT-BST or OPT-BST-E cards) or Port 3 (COM-TX) Power value (for OSC-CSM card). Verify that the value matches the power recorded in Step c, +/- 1.5 dB. If not, use the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26 to clean the fiber connection between the OPT-PRE card and the OPT-BST, OPT-BST-E, or OSC-CSM card. Check the values again. If they still do not match, contact your next level of support.

g. For the east OPT-PRE card, complete the "DLP-G80 Verify the OPT-PRE Amplifier Laser and Power" task on page 4-6.

Step 20 If an MMU card is installed on the east side, complete the following steps. If an MMU card is not installed on the east side, continue with Step 21.

- **a.** Display the east MMU card in card view.

- **b.** Click the **Provisioning > Optical Line > Parameters** tabs.

- **c.** Locate the Port 68 (COM-RX) Power parameter. Record the value.

- **d.** If an OPT-PRE card is installed on the east side, display it in card view and complete Step e. If not, continue with Step f.

- **e.** Click the OPT-PRE **Provisioning > Opt.Ampli.Line > Parameters** tabs. Record the Total Output Power value for Port 2 (COM-TX), then continue with Step i.

- **f.** If an east OPT-BST or OPT-BST-E card is installed, display it in card view and complete Step g. If not, continue with Step h.

- **g.** Click the Provisioning > Optical Line > Parameters tabs and read the Power value for Port 2 (COM-TX), then continue with Step i.

- **h.** Display the east OSC-CSM card in card view, click the Provisioning > Optical Line > Parameters tabs and read the Power value for Port 3 (COM-TX), then continue with Step i.

- **i.** Verify that value in the Step e, g, or h matches the power recorded in Step c, +/– 1.0 dB. If not, use the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26 to clean the fiber connection between the MMU card and the OPT-BST, OPT-BST-E, or OSC-CSM cards. Check the values again. If they still do not match, contact your next level of support.

- **j.** Display the east MMU card in card view.

- **k.** Click the **Provisioning > Optical Line > Parameters** tabs.

- **l.** Record the value in the Power table cell for Port 2 (EXP-TX).

- **m.** Display the east 32WSS card in card view.

- **n.** Click the **Provisioning > Optical Line > Parameters** tabs.

- **o.** Verify that the value in the Power table cell for Port 68 (COM-RX) is equal to the value recorded in Step l, +/– 1.0 dB. If not, use the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26 to clean the fiber connection between the 32WSS and MMU cards. Check the values again. If they still do not match, contact your next level of support.

- **p.** Continue with Step 22.

Step 21 Verify the connection between the east 32WSS card and the OPT-BST, OPT-BST-E, OPT-PRE, or OSC-CSM card:

- **a.** Display the east 32WSS in card view.

- **b.** Click the **Provisioning > Optical Line > Parameters** tabs.

- **c.** Locate the Port 68 (COM-RX) Power parameter. Record the value.

- **d.** If an east OPT-PRE card is installed, display it in card view and complete Step e. If not, continue with Step f.

- **e.** Click the **Provisioning > Opt.Ampli.Line > Parameters** tabs and read the Total Output Power value for Port 2 (COM-TX), then continue with Step i.

- **f.** If an east OPT-BST or OPT-BST-E card is installed, display it in card view and complete Step g. If not, continue with Step h.

- **g.** Click the **Provisioning > Optical Line > Parameters** tabs and read the Power value for Port 2 (COM-TX), then continue with Step i.

       h.   Display the east OSC-CSM card in card view. Click the **Provisioning > Optical Line > Parameters** tabs and read the Power value for Port 3 (COM-TX), then continue with Step i.

       i.   Verify that the value in Step e, g, or h matches the power recorded in Step c, +/– 1.5 dB. If not, use the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26 to clean the fiber connection between the 32WSS card and the OPT-PRE, OPT-BST, or OSC-CSM card.

Step 22   Verify the east 32WSS and 32DMX connection:

       a.   Display the east 32WSS card in card view.

       b.   Click the **Provisioning > Optical Line > Parameters** tabs, and record the value in the Power table cell for Port 69 (DROP-TX).

       c.   Display the east 32DMX card in card view.

       d.   Click the **Provisioning > Optical Line > Parameters** tabs. Record the value in the Port 33 (COM-RX) table cell. Verify that the value is equal to the value recorded in b., +/– 1 dBm. If not, use the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26 to clean the fiber connection between the 32WSS and 32DMX cards. Check the values again. If they still do not match, contact your next level of support.

Step 23   Display the east 32DMX card in card view.

Step 24   Click the **Provisioning > Optical Chn > Parameters** tab. Record the CHAN-TX port value under the Power parameter for the wavelength under test.

Step 25   Verify that the power value from Step 24 reaches the EastSide.Rx.Power.Add&Drop - Drop Power setpoint +/– 2 dBm. To view this setpoint:

       a.   Go to node view (single-shelf mode) or multishelf view (multishelf mode) and click the **Provisioning > WDM-ANS > Provisioning** tabs.

       b.   In the Selector window on the left, expand the **East Side** parameters tree view.

       c.   Expand the **RX** category.

       d.   Expand the **Power** category, then highlight **Add&Drop - Drop Power**.

       e.   View the EastSide.Rx.Power.Add&Drop - Drop Power parameter on the right pane.

       f.   If the power value does not match the value recorded in Step 24 (+/– 2 dBm), contact your next level of support.

Step 26   If you are using a TXP_MR_10E_C card, display it in card view. If not, read the values called for in Step 28 on the optical test set or tunable laser you are using.

Step 27   Click the **Performance > Optics PM > Current Values** tabs.

Step 28   In the Port 2 (Trunk) column, locate the RX Optical Power value. Verify that the value matches the power in Step 24, +/– 2 dBm. If the power values do not match (+/– 2 dBm), complete the following steps:

       a.   Remove, clean, and replace the cable connecting the TXP_MR_10E_C RX port to the east fiber patch panel DMX port for the tested wavelength. See the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26.

       b.   Repeat this step. If the power values still do not match (+/– 2 dBm) contact your next level of support.

Step 29   Repeat Steps 4 through 28 for the remaining wavelengths.

Step 30   Display the east 32WSS card in card view.

Step 31   Click the **Maintenance** tab.

Step 32   Click the table cell under Operating Mode and choose **Not Assigned** from the drop-down list for all wavelengths.

Step 33   Click **Apply**, then click **Yes** to confirm.

Step 34   Disconnect the TXP or tunable laser from the east side patch panel.

Step 35   Unplug the physical loopback fiber from the line TX and RX in the OPT-BST, OPT-BST-E, or OSC-CSM card.

Step 36   Return to your originating procedure (NTP).

DLP-G312 Verify the West ROADM C-Band Add/Drop Channels

Purpose	This procedure verifies the signal flow through the west side of an ROADM node for C-band add/drop channels.
Tools/Equipment	One of the following:
	• A tunable laser
	• TXP_MR_10E_C
	An optical power meter or optical spectrum analyzer
	2 bulk attenuators (10 dB) with LC connectors
Prerequisite Procedures	"DLP-G46 Log into CTC" task on page 2-27
Required/As Needed	Required
Onsite/Remote	Onsite
Security Level	Superuser

Note   Throughout this task, west refers to Slots 1 through 8, and east refers to Slots 10 through 17.

Step 1   In node view (single-shelf mode) or multishelf view (multishelf mode), display the Alarms tab.

Step 2   Create a physical loopback on the west OPT-BST, OPT-BST-E, or OSC-CSM card by connecting the LINE TX port to its LINE RX port. For OPT-BST or OPT-BST-E cards, connect a 10-dB bulk attenuator to the fiber. (OSC-CSM cards do not require attenuation.)

Caution   Failure to use proper attenuation might damage equipment.

Step 3   Wait 2 to 3 minutes, then click the **Alarms** tab. Verify that the LOS alarms on the west OSCM or OSC-CSM card and the OPT-BST or OPT-BST-E card have cleared. The clearing of the LOS alarms indicates that the OSC link is active on the west side.

Note   On ANSI shelves, an EOC DCC Termination Failure alarm will continue to appear due to the OSC signal loopback.

Step 4   If you are using a tunable laser, follow the manufacturer's instructions to complete the following steps. If you are using a TXP_MR_10E_C card, continue with Step 5.

    a.   Set the output power to a nominal value, such as –3 dBm.

    b.   Set the tuner to the wavelength you are testing, then continue with Step 7.

Step 5   If you are using a TXP_MR_10E_C card, complete the "DLP-G268 Provision TXP_MR_10E_C Cards for Acceptance Testing" task on page 4-5 for the TXP containing the wavelength you will test. Refer to Table 4-1 on page 4-22, if needed.

Step 6   If you are using a TXP_MR_10E_C card, complete the following steps. If you are using a tunable laser continue with Step 7.

    a.   Display the TXP_MR_10E_C in card view.

    b.   Click the **Performance > Optics PM > Current Values** tabs.

    c.   Locate the Port 2 (Trunk) table cell for the TX Optical Pwr parameter. Record the value.

Step 7   Connect the tunable laser transmitter or the TXP_MR_10E_C card DWDM TX port to the west side fiber patch panel MUX port that is connected to the west 32WSS card CHAN RX port carrying the tested wavelength. (If the TXP_MR_10E_C card was installed during Chapter 3, "Turn Up a Node," simply verify the cable connection.)

Step 8   Connect the TXP_MR_10E_C DWDM RX port or the power meter RX port to the west side fiber patch panel DMX port that is connected with the west 32DMX card CHAN-TX port carrying the tested wavelength. (If the TXP_MR_10E_C card was installed during Chapter 3, "Turn Up a Node," simply verify the cable connection.)

Step 9   Display the 32WSS card in card view.

Step 10   Click the **Maintenance** tab.

Step 11   For each wavelength that you will test, click the table cell under Operating Mode and choose **Add Drop** from the drop-down list.

Step 12   Click **Apply** and then **Yes**, to confirm.

Step 13   Click the **Provisioning** > **Optical Chn Optical Connector***n* > **Parameters** tabs, where *n* = the optical connector number that carries the wavelengths you will test. Refer to Table 4-1 on page 4-22, if needed.

Step 14   Find the tested wavelength CHAN RX port, then scroll to the right until you see the Power Add parameter. Verify that the Power Add value for the tested port CHAN RX is equal to the output power level of the tunable laser or the TXP_MR_10E_C card measured in Step 6 +/– 1 dBm.

Step 15   Click the **Provisioning > Optical Line > Parameters** tabs and record the value in the Power table cell for Port 67 (COM-TX) for the wavelength under test.

Step 16   Verify that the power value from Step 15 reaches the WestSide.Tx.Power.Add&Drop - Output Power setpoint +/– 1 dBm. To view this setpoint:

    a.   In node view (single-shelf mode) or multishelf view (multishelf mode), click the **Provisioning > WDM-ANS > Provisioning** tabs.

    b.   In the Selector window on the left, expand the **West Side** parameters tree view.

    c.   Expand the **TX** category.

    d.   Expand the **Power** category, then highlight **Add&Drop - Output Power**.

    e.   View the WestSide.TxPower.Add&Drop - Output Power parameter on the right pane.

    f.   If the power value does not match the value recorded in Step 15, +/– 2dBm, contact your next level of support.

Step 17   If an MMU card is installed on the west side, complete the following steps. If an MMU card is not installed on the west side, continue with Step 18.

    a.   Display the west 32WSS card in card view.

    b.   Click the **Provisioning > Optical Line > Parameters** tabs.

    c.   Record the value in the Power table cell for Port 67 (COM-TX).

     d. Display the west MMU card in card view.

     e. Click the **Provisioning > Optical Line > Parameters** tabs.

     f. Verify that the value in the Power table cell for Port 1(EXP-RX) is equal to the value recorded in Step c, +/- 1.0 dB. If not, use the "NTP-G115 Clean Fiber Connectors" procedure on page 13-25 to clean the fiber connection between the 32WSS and MMU cards. Check the values again. If they still do not match, contact your next level of support.

     g. Record the value in the Power table cell for Port 4 (COM-TX).

     h. If a west OPT-BST or OPT-BST-E card is installed, display it in card view and complete Step i. If not, continue with Step j.

     i. Click the Provisioning > Optical Line > Parameters tabs and read the Power value for Port 1 (COM-RX), then continue with Step k.

     j. Display the west OSC-CSM card in card view, click the **Provisioning > Optical Line > Parameters** tabs and read the Power value for Port 2 (COM-RX), then continue with Step k.

     k. Verify that the value in Step i or j matches the power recorded in Step g, +/- 1.5 dB. If not, use the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26 to clean the fiber connection between the OPT-BST, OPT-BST-E, or OSC-CSM and MMU cards. Check the values again. If they still do not match, contact your next level of support.

     l. Continue with Step 19.

Step 18 Verify the connection between the 32WSS and OPT-BST, OPT-BST-E or OSC_CSM cards:

     a. Display the west 32WSS card in card view.

     b. Click the **Provisioning > Optical Line > Parameters** tabs.

     c. Record the value in the Power table cell for Port 67 (COM-TX).

     d. If a OPT-BST or OPT-BST-E card is installed on the west side, display it in card view and complete Step e. If not, continue with Step f.

     e. Click the **Provisioning > Optical Line >   Parameters** tabs and read the Power value for Port 1 (COM-RX), then continue with Step g.

     f. Display the west OSC-CSM card in card view, click the **Provisioning > Optical Line > Parameters** tabs and read the Power value for Port 2 (COM-RX), then continue with Step g.

     g. Verify that the value in Step e or f matches the power recorded in Step c, +/- 1.0 dB. If so, continue with Step 19. If not, use the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26 to clean the fiber connection between the OPT-BST, OPT-BST-E, or OSC-CSM and 32WSS cards. Check the values again. If they still do not match, contact your next level of support.

Step 19 If an OPT-PRE card is installed on the west side, complete the following steps. If not, continue with Step 20.

     a. Display the west OPT-PRE in card view.

     b. Click the **Provisioning > Optical Line > Parameters** tabs.

     c. Locate the Power parameter for Port 1 (COM-RX). Record the value.

     d. Display the west OPT-BST, OPT-BST-E, or OSC-CSM card in card view.

     e. Click the **Provisioning > Optical Line > Parameters** tabs.

      f. Locate the Port 2 (COM-TX) Power value (for OPT-BST or OPT-BST-E cards) or Port 3 (COM-TX) Power value (for OSC-CSM card). Verify that the value matches the power recorded in Step c, +/- 1.5 dB. If not, use the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26 to clean the fiber connection between the OPT-PRE card and the OPT-BST, OPT-BST-E, or OSC-CSM card. Check the values again. If they still do not match, contact your next level of support.

      g. For the west OPT-PRE card, complete the "DLP-G80 Verify the OPT-PRE Amplifier Laser and Power" task on page 4-6.

Step 20 If an MMU card is installed on the west side, complete the following steps. If an MMU card is not installed on the west side, continue with Step 21.

      a. Display the west MMU card in card view.

      b. Click the **Provisioning > Optical Line > Parameters** tabs.

      c. Locate the Port 68 (COM-RX) Power parameter. Record the value.

      d. If an OPT-PRE card is installed on the west side, display it in card view and complete Step e. If not, continue with Step f.

      e. Click the OPT-PRE **Provisioning > Opt.Ampli.Line > Parameters** tabs. Record the Total Output Power value for Port 2 (COM-TX), then continue with Step i.

      f. If an west OPT-BST or OPT-BST-E card is installed, display it in card view and complete Step g. If not, continue with Step h.

      g. Click the Provisioning > Optical Line > Parameters tabs and read the Power value for Port 2 (COM-TX), then continue with Step i.

      h. Display the west OSC-CSM card in card view, click the Provisioning > Optical Line > Parameters tabs and read the Power value for Port 3 (COM-TX), then continue with Step i.

      i. Verify that value in the Step e, g, or h matches the power recorded in Step c, +/– 1.0 dB. If not, use the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26 to clean the fiber connection between the MMU card and the OPT-BST, OPT-BST-E, or OSC-CSM cards. Check the values again. If they still do not match, contact your next level of support.

      j. Display the west MMU card in card view.

      k. Click the **Provisioning > Optical Line > Parameters** tabs.

      l. Record the value in the Power table cell for Port 2 (EXP-TX).

      m. Display the west 32WSS card in card view.

      n. Click the **Provisioning > Optical Line > Parameters** tabs.

      o. Verify that the value in the Power table cell for Port 68 (COM-RX) is equal to the value recorded in Step l, +/– 1.0 dB. If not, use the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26 to clean the fiber connection between the 32WSS and MMU cards. Check the values again. If they still do not match, contact your next level of support.

      p. Continue with Step 22.

Step 21 Verify the connection between the west 32WSS card and the OPT-BST, OPT-BST-E, OPT-PRE, or OSC-CSM card:

      a. Display the west 32WSS in card view.

      b. Click the **Provisioning > Optical Line > Parameters** tabs.

      c. Locate the Port 68 (COM-RX) Power parameter. Record the value.

      d. If a west OPT-PRE card is installed, display it in card view and complete Step e. If not, continue with Step f.

      e. Click the **Provisioning > Opt.Ampli.Line > Parameters** tabs and read the Total Output Power value for Port 2 (COM-TX), then continue with Step i.

      f. If an west OPT-BST or OPT-BST-E card is installed, display it in card view and complete Step g. If not, continue with Step h.

      g. Click the **Provisioning > Optical Line > Parameters** tabs and read the Power value for Port 2 (COM-TX), then continue with Step i.

      h. Display the west OSC-CSM card in card view. Click the **Provisioning > Optical Line > Parameters** tabs and read the Power value for Port 3 (COM-TX), then continue with Step i.

      i. Verify that the value in Step e, g, or h matches the power recorded in Step c, +/– 1.5 dB. If not, use the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26 to clean the fiber connection between the 32WSS card and the OPT-PRE, OPT-BST, or OSC-CSM card.

Step 22 Verify the west 32WSS and 32DMX connection:

      a. Display the west 32WSS card in card view.

      b. Click the **Provisioning > Optical Line > Parameters** tabs, and record the value in the Power table cell for Port 69 (DROP-TX).

      c. Display the west 32DMX card in card view.

      d. Click the **Provisioning > Optical Line > Parameters** tabs. Record the value in the Port 2 (COM-RX) table cell. Verify that the value is equal to the value recorded in b, +/– 1 dBm. If not, use the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26 to clean the fiber connection between the 32WSS and 32DMX cards. Check the values again. If they still do not match, contact your next level of support.

Step 23 Display the west 32DMX card in card view.

Step 24 Click the **Provisioning > Optical Chn > Parameters** tab. Record the CHAN-TX port value under the Power parameter for the wavelength under test.

Step 25 Verify that the power value from Step 24 reaches the WestSide.Rx.Power.Add&Drop - Drop Power setpoint +/– 2 dBm. To view this setpoint:

      a. Go to node view (single-shelf mode) or multishelf view (multishelf mode) and click the **Provisioning > WDM-ANS > Provisioning** tabs.

      b. In the Selector window on the left, expand the **West Side** parameters tree view.

      c. Expand the **RX** category.

      d. Expand the **Power** category, then highlight **Add&Drop - Drop Power**.

      e. View the WestSide.Rx.Power.Add&Drop - Drop Power parameter on the right pane.

      f. If the power value does not match the value recorded in Step 24 (+/– 2 dBm), contact your next level of support.

Step 26 Display the TXP_MR_10E_C card in card view.

Step 27 Click the **Performance > Optics PM > Current Values** tabs.

Step 28 In the Port 2 (Trunk) column, locate the RX Optical Power value. Verify that the value matches the power in Step 24, +/– 2 dBm. If the power values do not match (+/– 2 dBm), complete the following steps:

      a. Remove, clean, and replace the cable connecting the TXP_MR_10E_C RX port to the west fiber patch panel DMX port for the tested wavelength. See the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26.

      b. Repeat this step. If the power values still do not match (+/– 2 dBm) contact your next level of support.

Step 29 Repeat Steps 4 through 28 for the remaining wavelengths.

Step 30 Display the west 32WSS card in card view.

Step 31 Click the **Maintenance** tab.

Step 32 Click the table cell under Operating Mode and choose **Not Assigned** from the drop-down list for all wavelengths.

Step 33 Click **Apply**, then click **Yes** to confirm.

Step 34 Disconnect the TXP or tunable laser from the west side patch panel.

Step 35 Unplug the physical loopback fiber from the line TX and RX in the OPT-BST, OPT-BST-E, or OSC-CSM card.

Step 36 Return to your originating procedure.

NTP-G154 Perform the ROADM Node with 32WSS-L and 32DMX-L Cards Acceptance Test

Purpose	This acceptance test verifies that a ROADM node provisioned for L-band wavelengths is operating properly before you connect it to the network. The test verifies that each add/drop and pass-through port on the 32WSS-L and 32DMX-L card operates properly and verifies the operation of the amplifiers. The test also checks the power levels at each transmit and receive port to ensure that power loss in the cabling is within tolerance. If MMU cards are installed, the test verifies that the MMU insertion loss doesn't impact add, drop, or pass through traffic.
Tools/Equipment	One of the following: • A tunable laser • TXP_MR_10E_L An optical power meter or optical spectrum analyzer 2 bulk attenuators (10 dB) with LC connectors
Prerequisite Procedures	Chapter 3, "Turn Up a Node"
Required/As Needed	Required
Onsite/Remote	Onsite
Security Level	Superuser

Note Optical power measurements require either a tunable laser or a multirate transponder to generate the proper optical wavelength. If multirate transponders were installed during completion of Chapter 3, "Turn Up a Node," they can be used for this procedure. No additional cabling changes are needed.

Note Because the node is isolated and no line-side fibers are connected during the test, the power levels going into the line-side components will not be the same as they would be in a real network setup. Therefore, if the ROADM shelf does not contain OPT-BST-L and OPT-AMP-L (provisioned in OPT-PRE mode)

amplifiers on both the east and west sides, you must lower the OPT-AMP-L power thresholds so that it turns on properly. At the end of the test, you will run ANS to configure the node with the correct parameters for the network acceptance test.

Step 1 Make a copy of Table 4-2 on page 4-45 and place it in a convenient location for reference throughout this procedure. The table shows the 32WSS-L ports and the wavelengths assigned to them. The 32 wavelengths are divided among four physical multi-fiber push on (MPO) connectors on the 32WSS-L card. Each MPO connector is assigned eight wavelengths. In CTC, the MPO connector appears in the card view Provisioning > Optical Connector tab. Each Optical Connector subtab represents an MPO connector. Ports 1 through 32 are the channel RX (add) ports; Ports 33 through 64 are the Pass-Through ports.

Table 4-2   32WSS-L Ports and Wavelengths Test Checklist

32WSS-L Provisioning Subtab	Port #	Wavelength	Tested: Pass-Through	Tested: Add/Drop West	Tested: Add/Drop East
Optical Chn: **Optical Connector 1**	RX 1, PT 33	1577.86			
	RX 2, PT 34	1578.69			
	RX 3, PT 35	1579.52			
	RX 4, PT 36	1580.35			
	RX 5, PT 37	1581.18			
	RX 6, PT 38	1582.02			
	RX 7, PT 39	1582.85			
	RX 8, PT 40	1583.69			
Optical Chn: **Optical Connector 2**	RX 9, PT 41	1584.53			
	RX 10, PT 42	1585.36			
	RX 11, PT 43	1586.20			
	RX 12, PT 44	1587.04			
	RX 13, PT 45	1587.88			
	RX 14, PT 46	1588.73			
	RX 15, PT 47	1589.57			
	RX 16, PT 48	1590.41			
Optical Chn: **Optical Connector 3**	RX 17, PT 49	1591.26			
	RX 18, PT 50	1592.10			
	RX 19, PT 51	1592.95			
	RX 20, PT 52	1593.79			
	RX 21, PT 53	1594.64			
	RX 22, PT 54	1595.49			
	RX 23, PT 55	1596.34			
	RX 24, PT 56	1597.19			
Optical Chn: **Optical Connector 4**	RX 25, PT 57	1598.04			
	RX 26, PT 58	1598.89			
	RX 27, PT 59	1599.75			
	RX 28, PT 60	1600.60			
	RX 29, PT 61	1601.46			
	RX 30, PT 62	1602.31			
	RX 31, PT 63	1603.17			
	RX 32, PT 64	1604.03			

Step 2   Complete the "DLP-G46 Log into CTC" task on page 2-27 at the ROADM node that you want to test. If you are already logged in, continue with Step 3.

Step 3   Display the ROADM node in node view (single-shelf mode) or multishelf view (multishelf mode).

Step 4   Click the **Alarms** tab.

    a.   Verify that the alarm filter is not on. See the "DLP-G128 Disable Alarm Filtering" task on page 9-29 as necessary.

    b.   Verify that no equipment alarms appear indicating equipment failure or other hardware problems. (Equipment alarms are indicated by an EQPT in the Alarms tab Cond column.) If equipment failure alarms appear, investigate and resolve them before continuing. Refer to the *Cisco ONS 15454 DWDM Troubleshooting Guide* for procedures.

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>
> **Note**   The OSC terminations created during node turn-up will generate two alarms for each side of the shelf, one for an LOS on the OPT-BST-L card, and the other for an LOS on the OSC-CSM or OSCM card. If OSCM cards are installed on ANSI shelves, EOC DCC Termination Failure alarms will appear.

Step 5   In node view (single-shelf mode) or multishelf view (multishelf mode), click the **Provisioning > WDM-ANS > Port Status** tabs. Verify that all statuses under Link Status are listed as Success - Changed, Success - Unchanged, or Not Applicable. If any are not, complete the following steps:

    a.   Delete the two OSC channels using the "DLP-G186 Delete an OSC Termination" task on page 10-45.

    b.   Complete the "NTP-G37 Run Automatic Node Setup" procedure on page 3-85.

    c.   Create the OSC channels using the "NTP-G38 Provision OSC Terminations" procedure on page 3-86.

Step 6   If MMU cards are installed, complete the following steps. If not, continue with Step 7.

    a.   Display the east MMU card in card view.

    b.   Click the **Provisioning > Optical Line > Parameters** tabs.

    c.   Click the **Admin State** table cell for the COM RX, COM TX, EXP RX, and EXP TX ports and choose **OOS,MT** (ANSI) or **Locked,maintenance** (ETSI) from the drop-down list.

    d.   Click **Apply**, then click **Yes** to confirm.

    e.   Display the west MMU card in card view.

    f.   Click the **Provisioning > Optical Line > Parameters** tabs.

    g.   Click the **Admin State** table cell for the COM RX, COM TX, EXP RX, and EXP TX ports and choose **OOS,MT** (ANSI) or **Locked,maintenance** (ETSI) from the drop-down list.

Step 7   Display the east 32WSS-L in card view.

Step 8   Click the **Provisioning** > **Optical Chn Optical Connector**n > **Parameters** tabs, where n = the optical connector number that carries the wavelengths you will test. Refer to Table 4-2 on page 4-45, if needed.

Step 9   Click the **Admin State** table cell for the add port carrying the tested wavelength, then choose **OOS,MT** (ANSI) or **Locked,maintenance** (ETSI) from the drop-down list. For example, if the tested wavelength is 1530.33 nm (shown as 1530.3), you would click the Port 1 (CHAN-RX) Admin State field and choose OOS,MT or Locked,maintenance from the drop-down list.

Step 10   Change the administrative state of the pass-through port corresponding to the port in Step 9 to **OOS,MT** (ANSI) or **Locked,maintenance** (ETSI). For example, if the tested wavelength is 1577.86 nm (shown as 1577.8), you would click the Port 33 (PASS-THROUGH) Admin State field and choose OOS,MT or Locked,maintenance from the drop-down list. Refer to Table 4-2 on page 4-45, if needed.

Step 11   Click **Apply**, then click **Yes** to confirm.

Step 12   Repeat Steps 8 through 11 for all wavelengths that you will test.

Step 13   Display the west 32WSS-L in card view.

Step 14   Repeat Steps 8 through 12 for the west 32WSS-L card.

Step 15   Display the east 32DMX-L in card view and complete the following steps:

    a.   Choose the **Provisioning > Optical Line > Parameters** tabs.

    b.   For Port 33 (COM-RX), click the **Admin State** table cell and choose **OOS,MT** (ANSI) or **Locked,maintenance** (ETSI) from the drop-down list.

    c.   Click **Apply**, then click **Yes** to confirm.

Step 16   Repeat Step 15 for the west 32DMX-L card.

Step 17   Complete the "DLP-G362 Verify ROADM Node L-Band Pass-Through Channels" task on page 4-48.

Step 18   Complete the following tasks for channels that will be added or dropped on the node.

    • DLP-G363 Verify the East ROADM L-Band Add/Drop Channels, page 4-56

    • DLP-G364 Verify the West ROADM L-Band Add/Drop Channels, page 4-61

Step 19   If MMU cards are installed, complete the following steps. If not, continue with Step 20.

    a.   Display the east MMU card in card view.

    b.   Click the **Provisioning > Optical Line > Parameters** tabs.

    c.   Click the **Admin State** table cell for the COM RX, COM TX, EXP RX, and EXP TX ports and choose **IS,AINS** (ANSI) or **Unlocked,automaticInService** (ETSI) from the drop-down list.

    d.   Click **Apply**, then click **Yes** to confirm.

    e.   Display the west MMU card in card view.

    f.   Click the **Provisioning > Optical Line > Parameters** tabs.

    g.   Click the **Admin State** table cell for the COM RX, COM TX, EXP RX, and EXP TX ports and choose **IS,AINS** (ANSI) or **Unlocked,automaticInService** (ETSI) from the drop-down list.

Step 20   Display the east 32WSS-L in card view.

Step 21   Click the **Provisioning > Optical Chn Optical Connector***n* **> Parameters** tabs, where *n* = the optical connector number that carries the wavelengths you tested.

Step 22   Click the **Admin State** table cell then choose **IS,AINS** (ANSI) or **Unlocked,automaticInService** (ETSI) from the drop-down list for all ports that were changed to OOS,MT or Locked,Maintenance.

Step 23   Click **Apply**.

Step 24   Repeat Steps 21 through 23 for all the ports that are **OOS,MT** or **Locked,maintenance** on the east 32WSS-L card.

Step 25   Display the west 32WSS-L in card view.

Step 26   Repeat Steps 21 through 24 for all ports on the west 32WSS-L card.

Step 27   Display the east 32DMX-L in card view.

Step 28   Choose the **Provisioning > Optical Line > Parameters** tabs.

Step 29   For Port 33, click the **Admin State** table cell and choose **IS,AINS** (ANSI) or **Unlocked,automaticInService** (ETSI) from the drop-down list.

Step 30   Click **Apply**.

Step 31   Display the west 32DMX-L card in card view.

Step 32   Repeat Steps 28 through 30 for the west 32DMX-L card.

Step 33 Delete both OSC channels using the "DLP-G186 Delete an OSC Termination" task on page 10-45.

Step 34 Complete the "NTP-G37 Run Automatic Node Setup" procedure on page 3-85.

Step 35 Create the two OSC channels using the "NTP-G38 Provision OSC Terminations" procedure on page 3-86.

Step 36 Click the **Alarms** tab.

    a. Verify that the alarm filter is not on. See the "DLP-G128 Disable Alarm Filtering" task on page 9-29 as necessary.

    b. Verify that no equipment failure alarms appear on the node. If alarms appear, investigate and resolve them before continuing. Refer to the *Cisco ONS 15454 DWDM Troubleshooting Guide* for procedures.

    Stop. **You have completed this procedure**.

DLP-G362 Verify ROADM Node L-Band Pass-Through Channels

Purpose	This task verifies the signal flow through a ROADM node for L-band pass-through channels. Configuring a channel pass-through mode means that the channel passes through both 32WSS-L cards. The channel passes through the first 32WSS-L from the COM RX port to the EXP TX port. In the second 32WSS-L, the channel goes from the EXP RX port to the COM TX port. The channel is not terminated inside the node. If MMU cards are installed, the channel passes through the MMU COM RX and EXP TX ports to the 32WSS-L COM RX and EXP TX ports on one side. On the other side, the channel goes from the 32WSS-L EXP RX and 32WSS-L COM TX ports to the MMU EXP RX and COM TX.
Tools/Equipment	One of the following: • A tunable laser • TXP_MR_10E_L An optical power meter or optical spectrum analyzer 2 bulk attenuators (10 dB) with LC connectors
Prerequisite Procedures	"DLP-G46 Log into CTC" task on page 2-27
Required/As Needed	Required
Onsite/Remote	Onsite
Security Level	Superuser

Note Throughout this task, west refers to Slots 1 through 8, and east refers to Slots 10 through 17.

Step 1 Create a physical loopback on the west OPT-BST-L or OSC-CSM card by connecting the LINE TX port to its LINE RX port. For OPT-BST-L cards, connect a 10-dB bulk attenuator to the fiber. (OSC-CSM cards do not require attenuation.)

Caution Failure to use proper attenuation might damage equipment.

Step 2 If an OPT-AMP-L (provisioned in OPT-PRE mode) amplifier is installed on the west side (where the physical loopback was created), perform the following steps. If not, continue with Step 3.

    a. Display the OPT-AMP-L card in card view, then click the **Provisioning > Optical Line > Optics Thresholds** tabs.

    b. Under Types, click **Alarm**, then click **Refresh**. The alarm thresholds for the OPT-AMP-L will appear.

    c. Double-click the Power Failure Low table cell for Port 1 (1-Line-2-1 RX) and delete the current value.

    d. Type a new value of **–30**. Press **Enter** on your computer,

    e. On the CTC window, click **Apply**, then click **Yes** on the confirmation dialog box.

Step 3 If an OPT-AMP-L (provisioned in OPT-PRE mode) amplifier is installed on the east side (where the physical loopback was created), perform the following steps. If not, continue with Step 4.

    a. Display the OPT-AMP-L card in card view, then click the **Provisioning > Optical Line > Optics Thresholds** tabs.

    b. Under Types, click **Alarm**, then click **Refresh**. The alarm thresholds for the OPT-AMP-L will appear.

    c. Double-click the Power Failure Low table cell for Port 1 (1-Line-2-1 RX) and delete the current value.

    d. Type a new value of **–30**. Press **Enter** on your computer,

    e. On the CTC window, click **Apply**, then click **Yes** on the confirmation dialog box.

Step 4 Wait 2 to 3 minutes, then in node view (single-shelf mode) or multishelf view (multishelf mode) click the **Alarms** tab. Verify that the LOS alarms on the west OSCM or OSC-CSM card and the OPT-BST-L card have cleared. The clearing of the LOS alarms indicates that the OSC link is active on the west side. If the alarms do not clear, contact your next level of support.

> **Note** On ANSI shelves, an EOC DCC Termination Failure alarm will continue to appear due to the OSC signal loopback.

Step 5 Display the west 32WSS-L card in card view.

Step 6 Click the **Maintenance** tab.

Step 7 Click the Operating Mode table cell and choose **Pass Through** from the drop-down list.

Step 8 Click **Apply**, then click **Yes** to confirm.

Step 9 Display the east 32WSS-L card in card view.

Step 10 Repeat Steps 6 through 8 for the east 32WSS-L card.

Step 11 If you are using a tunable laser, follow the manufacturer's instructions to complete the following steps. If you are using a TXP_MR_10E_L card, continue with Step 12.

    a. Set the output power to a nominal value, such as –3 dBm.

    b. Set the tuner to the wavelength you will test, then continue with Step 13.

Step 12 If you are using a TXP_MR_10E_L card, complete the "DLP-G358 Provision TXP_MR_10E_L Card for Acceptance Testing" task on page 4-18 for the TXP containing the wavelength you will test.

Step 13 Connect the tunable laser transmitter or the TXP_MR_10E_L card DWDM TX port to the east OPT-BST-L or OSC-CSM LINE RX port. If an east OPT-AMP-L card is installed, insert a 10-dB attenuator on the fiber coming from the TXP_MR_10E_L card.

⚠

Caution   Failure to use proper attenuation might damage equipment.

Step 14   If an OPT-AMP-L card configured as an OPT-PRE is installed on the east side, complete the following steps. If not, continue with Step 15.

    a. Display the east OPT-AMP-L card in card view.

    b. Click the **Provisioning > Optical Line > Parameters** tabs.

    c. Locate the Power parameter for Port 1. Record the value.

    d. Display the east OPT-BST-L or OSC-CSM card in card view.

    e. Click the **Provisioning > Optical Line > Parameters** tabs.

    f. Locate the Power value for Port 2 (if an OPT-BST-L card) or Port 3 (if an OSC-CSM card). Verify that the value matches the power recorded in Step c, +/– 1.5 dB. If not, use the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26 to clean the fiber connection between the OPT-AMP-L card and the OPT-BST-L or OSC-CSM card. Check the values again. If they still do not match, contact your next level of support.

    g. Complete the "DLP-G360 Verify the OPT-AMP-L (OPT-PRE Mode) Amplifier Laser and Power" task on page 4-19.

Step 15   If MMU cards are installed complete the following steps. If an MMU cards are not installed, continue with Step 16.

    a. Display the east MMU card in card view.

    b. Click the **Provisioning > Optical Line > Parameters** tabs.

    c. Locate the Port 3 (COM-RX) power parameter. Record the value.

    d. If an east OPT-AMP-L card provisioned as an OPT-PRE is installed, display it in card view and complete Step e. If not, continue with Step f.

    e. Click the OPT-AMP-L **Provisioning > Opt.Ampli.Line > Parameters** tabs and read the Total Output Power value for Port 2 (COM-TX), then continue with Step i.

    f. If an east OPT-BST-L card is installed, display it in card view and complete Step g. If not, continue with Step h.

    g. Click the **Provisioning > Optical Line > Parameters** tabs and read the Power value for Port 2 (COM-TX), then continue with Step i.

    h. Display the east OSC-CSM card in card view, click the **Provisioning > Optical Line > Parameters** tabs and read the Power value for Port 3 (COM-TX), then continue with Step i.

    i. Verify that value in Step e, g, or h matches the power recorded in Step c, +/– 1.0 dB. If not, use the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26 to clean the fiber connection between the MMU card and the OPT-BST-L, OPT-AMP-L, or OSC-CSM cards. Check the values again. If they still do not match, contact your next level of support.

    j. Display the east MMU card in card view.

    k. Click the **Provisioning > Optical Line > Parameters** tabs.

    l. Record the value in the Power table cell for Port 2(EXP-TX) of the east MMU card.

    m. Display the east 32WSS-L card in card view.

    n. Click the **Provisioning > Optical Line > Parameters** tabs.

    o. Verify that the value in the Power table cell for Port 68 (COM-RX) is equal to the value recorded in Step l, +/– 1.0 dB. If not, use the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26 to clean the fiber connection between the 32WSS and MMU cards. Check the values again. If they still do not match, contact your next level of support.

    p. Continue with Step 17.

Step 16 Verify the east 32WSS-L to OPT-BST-L, OPT-AMP-L, or OSC-CSM card cable connection:

    a. Display the east 32WSS-L card in card view.

    b. Click the **Provisioning > Optical Line > Parameters** tabs.

    c. Locate the Port 68 Power parameter. Record the value.

    d. If an east OPT-AMP-L card provisioned as an OPT-PRE is installed, display it in card view and complete Step e. If not, continue with Step f.

    e. Click the **Provisioning > Opt.Ampli.Line > Parameters** tabs and read the Total Output Power value for Port 2, then continue with Step i.

    f. If an east OPT-BST-L card is installed, display it in card view and complete Step g. If not, continue with Step h.

    g. Click the **Provisioning > Opt.Ampli.Line > Parameters** tabs and read the Power value for Port 3, then continue with Step i.

    h. Display the east OSC-CSM card in card view, click the **Provisioning > Optical Line > Parameters** tabs and read the Power value for Port 2, then continue with Step i.

    i. Verify that the value in Step e, g, or h matches the power recorded in Step c, +/– 1.5 dB. If not, use the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26 to clean the fiber connection between the 32WSS-L card and the OPT-AMP-L, OPT-BST-L, or OSC-CSM card. Check the values again. If they still do not match, contact your next level of support.

Step 17 Verify the EXPRESS cable connection between the two 32WSS-L cards:

    a. Display the east 32WSS-L card in card view.

    b. Click the **Provisioning > Optical Line > Parameters** tabs.

    c. Locate the Port 65 (EXP-TX) Power parameter. Record the value.

    a. Display the west 32WSS-L card in card view.

    b. Click the **Provisioning > Optical Line > Parameters** tabs.

    c. Locate the Power value for Port 66 (EXP-RX). Verify that the value matches the power recorded in Step c, +/–1 dB. If not, use the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26 to clean the fiber connection between the 32WSS-L cards. Check the values again. If they still do not match, contact your next level of support.

Step 18 Display the west 32WSS-L card in card view.

Step 19 Click the **Provisioning > Optical Chn Optical Connector**n **> Parameters** tabs, where n = the connector number containing the wavelength you are testing. Refer to Table 4-2 on page 4-45, if needed.

Step 20 Wait 60 to 70 seconds, then locate the Power and VOA Power Ref parameters for the tested PASS-THROUGH port. Verify that the Power value is equal to the VOA Power Ref value, +/– 1.5 dBm. If the Power value is not equal to the VOA Power Ref value, +/– 1.5 dBm, contact your next level of support.

Step 21 If an MMU card is installed on the west side, complete the following steps. If an MMU card is not installed on the west side, continue with Step 22.

    a. Display the west 32WSS-L card in card view.

b. Click the **Provisioning > Optical Line > Parameters** tabs.

c. Record the value in the Power table cell for Port 67(COM-TX).

d. Display the west MMU card in card view.

e. Click the **Provisioning > Optical Line > Parameters** tabs.

f. Verify that the value in the Power table cell for Port 1(EXP-RX) is equal to the value recorded in Step c, +/– 1.0 dB. If not, use the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26 to clean the fiber connection between the 32WSS and MMU cards. Check the values again. If they still do not match, contact your next level of support.

g. Record the value in the Power table cell for Port 4 (COM-TX).

h. If an OPT-BST-L card is installed on the west side, display it in card view and complete Step i. If not, continue with Step j.

i. Click the **Provisioning > Optical Line > Parameters** tabs and read the Power value for Port 1 (COM-RX), then continue with Step k.

j. Display the west OSC-CSM card in card view, click the **Provisioning > Optical Line > Parameters** tabs and read the Power value for Port 2 (COM-RX), then continue with Step k.

k. Verify that the value in Step i or j matches the power recorded in Step g, +/– 1.5 dB. If not, use the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26 to clean the fiber connection between the OPT-BST-L or OSC-CSM card and the MMU cards. Check the values again. If they still do not match, contact your next level of support.

l. Continue with Step 23.

Step 22 If an OPT-BST-L card is installed on the east side, complete the following steps. If not, continue with Step 23.

a. Display the east OPT-BST-L card in card view.

b. Click the **Provisioning > Optical Line > Parameters** tabs.

c. Locate the Port 1 Power parameter. Record the value.

d. Display the east 32WSS-L card in card view.

e. Click the **Provisioning > Optical Line > Parameters** tabs.

f. Locate the Power value for Port 67. Verify that the value matches the power recorded in Step c, +/–1 dB. If not, use the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26 to clean the fiber connection between the OPT-BST-L and 32WSS-L cards. Check the values again. If they still do not match, contact your next level of support.

g. Complete the "DLP-G79 Verify the OPT-BST, OPT-BST-E, or OPT-BST-L Amplifier Laser and Power" task on page 4-6.

Step 23 If a west OPT-AMP-L card provisioned as an OPT-PRE is installed, complete the following steps. If not, continue with Step 24.

a. Display the west OPT-AMP-L card in card view.

b. Click the **Provisioning > Optical Line > Parameters** tabs.

c. Locate the Power parameter for Port 1 (COM-RX). Record the value.

d. Display the west OPT-BST-L or OSC-CSM card in card view.

e. Click the **Provisioning > Optical Line > Parameters** tabs.

      f. Locate the Power value for Port 2 (COM-TX) (OPT-BST-L) or Port 3 (COM-TX) (OSC-CSM). Verify that the value matches the power recorded in Step c, +/– 2.0 dB. If not, use the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26 to clean the fiber connection between the OPT-AMP-L card and the OPT-BST-L or OSC-CSM card. Check the values again. If they still do not match, contact your next level of support.

      g. For the west OPT-AMP-L card provisioned as an OPT-PRE, complete the "DLP-G360 Verify the OPT-AMP-L (OPT-PRE Mode) Amplifier Laser and Power" task on page 4-19.

Step 24 If an MMU card is installed on the west side, complete the following steps, then continue with Step 26. If an MMU card is not installed on the west side, continue with Step 25.

      a. Display the west MMU card in card view.

      b. Click the **Provisioning > Optical Line > Parameters** tabs.

      c. Locate the Port 3 (COM-RX) power parameter. Record the value.

      d. If an west OPT-AMP-L card provisioned in OPT-PRE mode is installed, display it in card view and complete Step e. If not, continue with Step f.

      e. Click the OPT-AMP-L **Provisioning > Opt.Ampli.Line > Parameters** tabs and read the Total Output Power value for Port 2 (COM-TX), then continue with Step i.

      f. If an OPT-BST-L card is installed on the west side, display it in card view and complete Step g. If not, continue with Step h.

      g. Click the **Provisioning > Optical Line > Parameters** tabs and read the Power value for Port 2 (COM-TX), then continue with Step i.

      h. Display the west OSC-CSM card in card view, click the **Provisioning > Optical Line > Parameters** tabs and read the Power value for Port 3 (COM-TX), then continue with Step i.

      i. Verify that value in the Step e, g, or h matches the power recorded in Step c, +/– 1.0 dB. If not, use the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26 to clean the fiber connection between the MMU card and the OPT-BST-L, OPT-AMP-L, or OSC-CSM cards. Check the values again. If they still do not match, contact your next level of support.

      j. Display the east MMU card in card view.

      k. Click the **Provisioning > Optical Line > Parameters** tabs.

      l. Record the value in the Power table cell for Port 2(EXP-TX) of the west MMU card.

      m. Display the west 32WSS-L card in card view.

      n. Click the **Provisioning > Optical Line > Parameters** tabs.

      o. Verify that the value in the Power table cell for Port 68 (COM-RX) is equal to the value recorded in Step l, +/– 1.0 dB. If not, use the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26 to clean the fiber connection between the 32WSS and cards and the MMU cards. Check the values again. If they still do not match, contact your next level of support.

      p. Continue with Step 26.

Step 25 Verify the west 32WSS-L card to OPT-BST-L, OPT-AMP-L, or OSC-CSM card cable connection:

      a. Display the west 32WSS-L card in card view.

      b. Click the **Provisioning > Optical Line > Parameters** tabs.

      c. Locate the Port 68 (COM-RX) Power parameter. Record the value.

      d. If a west OPT-AMP-L card is installed, display it in card view, and complete Step e. If not, continue with Step f.

e. Click the **Provisioning > Opt.Ampli.Line > Parameters** tabs and read the Total Output Power value for Port 2 (COM-TX), then continue with Step i.

f. If a west OPT-BST-L card is installed, display it in card view, and complete Step g. If not, continue with Step h.

g. Click the **Provisioning > Opt.Ampli.Line > Parameters** tabs and read the Power value for Port 2 (COM-TX), then continue with Step i.

h. Display the west OSC-CSM card in card view, click the **Provisioning > Opt.Ampli.Line > Parameters** tabs and read the Power value for Port 3 (COM-TX), then continue with Step i.

i. Verify that the value in Step e, g, or h matches the power recorded in Step c, +/–1.5 dB. If not, use the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26 to clean the fiber connection between the 32WSS-L card and the OPT-AMP-L, OPT-BST-L, or OSC-CSM card. Check the values again. If they still do not match, contact your next level of support.

Step 26 Verify the EXPRESS cable connection between the two 32WSS-L cards:

a. Display the west 32WSS-L card in card view.

b. Click the **Provisioning > Optical Line > Parameters** tabs.

c. Locate the Port 65 (EXP-TX) Power parameter. Record the value.

a. Display the east 32WSS-L card in card view.

b. Click the **Provisioning > Optical Line > Parameters** tabs.

c. Locate the Power value for Port 66 (EXP-RX). Verify that the value matches the power recorded in Step c, +/– 1 dB. If not, use the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26 to clean the fiber connection between the 32WSS-L cards. Check the values again. If they still do not match, contact your next level of support.

Step 27 Display the east 32WSS-L card in card view.

Step 28 Click the **Provisioning** > **Optical Chn Optical Connector***n* > **Parameters** tabs, where *n* = the connector number containing the wavelength you are testing. Refer to Table 4-1 on page 4-22, if needed.

Step 29 Wait 60 to 70 seconds (or click **Reset**), then locate the Power and VOA Power Ref parameters for the tested PASS-THROUGH port. Verify that the Power value is equal to the VOA Power Ref value, +/–1.5 dBm. If the Power value is not equal to the VOA Power Ref value +/–1.5 dBm, consult your next level of support.

Step 30 If an MMU card is installed on the east side, complete the following steps. If an MMU card is not installed on the east side, continue with Step 31.

a. Display the east 32WSS-L card in card view.

b. Click the **Provisioning > Optical Line > Parameters** tabs.

c. Record the value in the Power table cell for Port 67(COM-TX).

d. Display the east MMU card in card view.

e. Click the **Provisioning > Optical Line > Parameters** tabs.

f. Verify that the value in the Power table cell for Port 1(EXP-RX) is equal to the value recorded in Step c, +/– 1.0 dB. If not, use the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26 to clean the fiber connection between the 32WSS-L and MMU cards. Check the values again. If they still do not match, contact your next level of support.

g. Record the value in the Power table cell for Port 4 (COM-TX).

h. If a east OPT-BST-L card is installed, display it in card view and complete Step i. If not, continue with Step j.

i. Click the **Provisioning > Optical Line > Parameters** tabs and read the Power value for Port 1 (COM-RX), then continue with Step k.

j. Display the east OSC-CSM card in card view, click the **Provisioning > Optical Line > Parameters** tabs and read the Power value for Port 2 (COM-RX), then continue with Step k.

k. Verify that the value in Step i or j matches the power recorded in Step g, +/– 1.5 dB. If not, use the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26 to clean the fiber connection between the OPT-BST-L, or OSC-CSM and MMU cards. Check the values again. If they still do not match, contact your next level of support.

l. Continue with Step 32.

Step 31   If an OPT-BST-L or OSC-CSM card is installed on the east side, complete the following steps. If not, continue with Step 32.

a. Display the east OPT-BST-L or OSC-CSM card in card view.

b. Click the **Provisioning > Optical Line > Parameters** tabs.

c. Locate the Port 1 (COM-RX) Power parameter (OPT-BST-L card) or the Port 2 (COM-RX) Power parameter (OSC-CSM card). Record the value.

d. Display the east 32WSS-L card in card view.

e. Click the **Provisioning > Optical Line > Parameters** tabs.

f. Locate the Power value for Port 67 (COM-TX). Verify that the value matches the power recorded in Step c, +/–1 dB. If not, use the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26 to clean the fiber connection between the OPT-BST-L and OSC-CSM or 32WSS-L cards. Check the values again. If they still do not match, contact your next level of support.

g. Complete the "DLP-G79 Verify the OPT-BST, OPT-BST-E, or OPT-BST-L Amplifier Laser and Power" task on page 4-6.

Step 32   Repeat Steps 18 through 20 and 27 through 29 for the remaining wavelengths to be tested. If you have tested all the wavelengths, continue with Step 33.

Step 33   Display the east 32WSS-L card in card view.

Step 34   Click the **Maintenance** tab.

Step 35   Under Operating Mode, click the table cell and choose **Not Assigned** from the drop-down list for all wavelengths.

Step 36   Click **Apply**, then click **Yes** to confirm.

Step 37   Display the west 32WSS-L in card view.

Step 38   Repeat Steps 34 through 36 for the west 32WSS-L card.

Step 39   Remove the TXP or tunable laser from the east OPT-BST-L or OSC-CSM line side TX and RX ports.

Step 40   Remove the loopback fiber from the line RX and TX in the west OPT-BST-L or OSC-CSM card.

Step 41   Return to your originating procedure (NTP).

DLP-G363 Verify the East ROADM L-Band Add/Drop Channels

Purpose	This procedure verifies the signal flow through the east side of a ROADM node for L-band add/drop channels.
Tools/Equipment	One of the following:
	• A tunable laser
	• TXP_MR_10E_L
	An optical power meter or optical spectrum analyzer
	2 bulk attenuators (10 dB) with LC connectors
Prerequisite Procedures	"DLP-G46 Log into CTC" task on page 2-27
Required/As Needed	Required
Onsite/Remote	Onsite
Security Level	Superuser

✎ **Note**   Throughout this task, west refers to Slots 1 through 8, and east refers to Slots 10 through 17.

Step 1   In node view (single-shelf mode) or multishelf view (multishelf mode), display the Alarms tab.

Step 2   Create a physical loopback on the east OPT-BST-L or OSC-CSM card by connecting the LINE TX port to its LINE RX port. For OPT-BST-L cards, connect a 10-dB bulk attenuator to the fiber. (OSC-CSM cards do not require attenuation.)

⚠ **Caution**   Failure to use proper attenuation might damage equipment.

Step 3   Wait 2 to 3 minutes, then click the **Alarms** tab. Verify that the LOS alarms on the east OSCM or OSC-CSM card and the OPT-BST-L card have cleared. The clearing of the LOS alarms indicates that the OSC link is active on the east side.

✎ **Note**   On ANSI shelves, an EOC DCC Termination Failure alarm will continue to appear due to the OSC signal loopback.

Step 4   If you are using a tunable laser, follow the manufacturer's instructions to complete the following steps. If you are using a TXP_MR_10E_L card, continue with Step 5.

  a.   Set the output power to a nominal value, such as –3 dBm.

  b.   Set the tuner to the wavelength you are testing, then continue with Step 7.

Step 5   If you are using a TXP_MR_10E_L card, complete the "DLP-G358 Provision TXP_MR_10E_L Card for Acceptance Testing" task on page 4-18 for the TXP containing the wavelength you will test. Refer to "Table 4-232WSS-L Ports and Wavelengths Test Checklist" task on page 4-45, if needed.

Step 6   If you are using a TXP_MR_10E_L card, complete the following steps. If you are using a tunable laser, continue with Step 7.

  a.   Display the TXP_MR_10E_L in card view.

  b.   Click the **Performance > Optics PM > Current Values** tabs.

  c.   Locate the Port 2 (Trunk) table cell for the TX Optical Pwr parameter. Record the value.

Step 7 Connect the tunable laser transmitter or the TXP_MR_10E_L card DWDM TX port to the east side fiber patch panel MUX port that corresponds to the east 32WSS-L card port carrying the tested wavelength.

Step 8 Connect the TXP_MR_10E_L DWDM RX port or the power meter RX port to the east side fiber patch panel DMX port that is connected with the east 32DMX-L card CHAN-TX port carrying the tested wavelength. (If the TXP_MR_10E_L card was installed during Chapter 3, "Turn Up a Node," simply verify the cable connection.)

Step 9 Display the 32WSS-L card in card view.

Step 10 Click the **Maintenance** tab.

Step 11 For each wavelength that you will test, click the table cell under Operating Mode and choose **Add Drop** from the drop-down list.

Step 12 Click **Apply** and then **Yes**, to confirm.

Step 13 Click the **Provisioning > Optical Chn Optical Connector***n* **> Parameters** tabs, where *n* = the optical connector number that carries the wavelengths you will test. Refer to Table 4-2 on page 4-45, if needed.

Step 14 Find the tested wavelength CHAN RX port, then scroll to the right until you see the Power Add parameter. Verify that the Power Add value for the tested port CHAN RX is equal to the output power level of the tunable laser or the TXP_MR_10E_L card measured in Step 6 +/− 1 dBm.

Step 15 Click the **Provisioning > Optical Line > Parameters** tabs and record the value in the Power table cell for Port 67 (COM-TX) for the wavelength under test.

Step 16 Verify that the power value from Step 15 reaches the EastSide.Tx.Power.Add&Drop - Output Power set +/− 1 dBm. To view this setpoint:

    a. In node view (single-shelf mode) or multishelf view (multishelf mode), click the **Provisioning > WDM-ANS > Provisioning** tabs.

    b. In the Selector window on the left, expand the **East Side** parameters tree view.

    c. Expand the **TX** category.

    d. Expand the **Power** category, then highlight **Add&Drop - Output Power**.

    e. View the EastSide.TxPower.Add&Drop - Output Power parameter on the right pane.

    f. If the power value does not match the value recorded in Step 15, +/− 2dBm, contact your next level of support.

Step 17 If an MMU card is installed on the east side, complete the following steps. If an MMU card is not installed on the east side, continue with Step 18.

    a. Display the east 32WSS-L card in card view.

    b. Click the **Provisioning > Optical Line > Parameters** tabs.

    c. Record the value in the Power table cell for Port 67 (COM-TX).

    d. Display the east MMU card in card view.

    e. Click the **Provisioning > Optical Line > Parameters** tabs.

    f. Verify that the value in the Power table cell for Port 1(EXP-RX) is equal to the value recorded in Step c, +/- 1.0 dB. If not, use the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26 to clean the fiber connection between the 32WSS-L and MMU cards. Check the values again. If they still do not match, contact your next level of support.

    g. Record the value in the Power table cell for Port 4 (COM-TX).

    h. If a east OPT-BST-L card is installed, display it in card view and complete Step i. If not, continue with Step j.

i. Click the Provisioning > Optical Line > Parameters tabs and read the Power value for Port 1 (COM-RX), then continue with Step k.

j. Display the east OSC-CSM card in card view, click the **Provisioning > Optical Line > Parameters** tabs and read the Power value for Port 2 (COM-RX), then continue with Step k.

k. Verify that the value in Step i or j matches the power recorded in Step g, +/- 1.5 dB. If not, use the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26 to clean the fiber connection between the OPT-BST-L or OSC-CSM and MMU cards. Check the values again. If they still do not match, contact your next level of support.

l. Continue with Step 19.

Step 18 Verify the connection between the 32WSS-L and OPT-BST-L or OSC_CSM cards:

a. Display the east 32WSS-L card in card view.

b. Click the **Provisioning > Optical Line > Parameters** tabs.

c. Record the value in the Power table cell for Port 67 (COM-TX).

d. If a OPT-BST-L card is installed on the east side, display it in card view and complete Step e. If not, continue with Step f.

e. Click the **Provisioning > Optical Line >   Parameters** tabs and read the Power value for Port 1 (COM-RX), then continue with Step g.

f. Display the east OSC-CSM card in card view, click the **Provisioning > Optical Line > Parameters** tabs and read the Power value for Port 2 (COM-RX), then continue with Step g.

g. Verify that the value in Step e or f matches the power recorded in Step c, +/- 1.0 dB. If so, continue with Step 19. If not, use the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26 to clean the fiber connection between the OPT-BST-L or OSC-CSM and 32WSS-L cards. Check the values again. If they still do not match, contact your next level of support.

Step 19 If an OPT-AMP-L card provisioned in OPT-PRE mode is installed on the east side, complete the following steps. If not, continue with Step 20.

a. Display the east OPT-AMP-L card in card view.

b. Click the **Provisioning > Optical Line > Parameters** tabs.

c. Locate the Power parameter for Port 1 (COM-RX). Record the value.

d. Display the east OPT-BST-L or OSC-CSM card in card view.

e. Click the **Provisioning > Optical Line > Parameters** tabs.

f. Locate the Port 2 (COM-TX) Power value (for OPT-BST-L cards) or Port 3 (COM-TX) Power value (for OSC-CSM card). Verify that the value matches the power recorded in Step c, +/- 1.5 dB. If not, use the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26 to clean the fiber connection between the OPT-AMP-L card and the OPT-BST-L or OSC-CSM card. Check the values again. If they still do not match, contact your next level of support.

g. For the east OPT-AMP-L card, complete the "DLP-G80 Verify the OPT-PRE Amplifier Laser and Power" task on page 4-6.

Step 20 If an MMU card is installed on the east side, complete the following steps. If an MMU card is not installed on the east side, continue with Step 21.

a. Display the east MMU card in card view.

b. Click the **Provisioning > Optical Line > Parameters** tabs.

c. Locate the Port 68 (COM-RX) Power parameter. Record the value.

d. If an OPT-AMP-L card provisioned in OPT-PRE mode is installed on the east side, display it in card view and complete Step e. If not, continue with Step f.

e. Click the OPT-PRE **Provisioning > Opt.Ampli.Line > Parameters** tabs. Record the Total Output Power value for Port 2 (COM-TX), then continue with Step i.

f. If an east OPT-BST-L card is installed, display it in card view and complete Step g. If not, continue with Step h.

g. Click the Provisioning > Optical Line > Parameters tabs and read the Power value for Port 2 (COM-TX), then continue with Step i.

h. Display the east OSC-CSM card in card view, click the Provisioning > Optical Line > Parameters tabs and read the Power value for Port 3 (COM-TX), then continue with Step i.

i. Verify that value in the Step e, g, or h matches the power recorded in Step c, +/– 1.0 dB. If not, use the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26 to clean the fiber connection between the MMU card and the OPT-BST-L or OSC-CSM cards. Check the values again. If they still do not match, contact your next level of support.

j. Display the east MMU card in card view.

k. Click the **Provisioning > Optical Line > Parameters** tabs.

l. Record the value in the Power table cell for Port 2 (EXP-TX).

m. Display the east 32WSS-L card in card view.

n. Click the **Provisioning > Optical Line > Parameters** tabs.

o. Verify that the value in the Power table cell for Port 68 (COM-RX) is equal to the value recorded in Step l, +/– 1.0 dB. If not, use the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26 to clean the fiber connection between the 32WSS-L and MMU cards. Check the values again. If they still do not match, contact your next level of support.

p. Continue with Step 22.

Step 21 Verify the connection between the east 32WSS-L card and the OPT-BST-L, OPT-AMP-L (in OPT-PRE mode), or OSC-CSM card:

a. Display the east 32WSS-L in card view.

b. Click the **Provisioning > Optical Line > Parameters** tabs.

c. Locate the Port 68 (COM-RX) Power parameter. Record the value.

d. If an east OPT-AMP-L card provisioned in OPT-PRE mode is installed, display it in card view and complete Step e. If not, continue with Step f.

e. Click the **Provisioning > Opt.Ampli.Line > Parameters** tabs and read the Total Output Power value for Port 2 (COM-TX), then continue with Step i.

f. If an east OPT-BST-L card is installed, display it in card view and complete Step g. If not, continue with Step h.

g. Click the **Provisioning > Optical Line > Parameters** tabs and read the Power value for Port 2 (COM-TX), then continue with Step i.

h. Display the east OSC-CSM card in card view. Click the **Provisioning > Optical Line > Parameters** tabs and read the Power value for Port 3 (COM-TX), then continue with Step i.

i. Verify that the value in Step e, g, or h matches the power recorded in Step c, +/– 1.5 dB. If not, use the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26 to clean the fiber connection between the 32WSS-L card and the OPT-AMP-L, OPT-BST-L, or OSC-CSM card.

Step 22 Verify the east 32WSS-L and 32DMX-L connection:

    a. Display the east 32WSS-L card in card view.

    b. Click the **Provisioning > Optical Line > Parameters** tabs, and record the value in the Power table cell for Port 69 (DROP-TX).

    c. Display the east 32DMX-L card in card view.

    d. Click the **Provisioning > Optical Line > Parameters** tabs. Record the value in the Port 2 (COM-RX) table cell. Verify that the value is equal to the value recorded in b., +/– 1 dBm. If not, use the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26 to clean the fiber connection between the 32WSS-L and 32DMX-L cards. Check the values again. If they still do not match, contact your next level of support.

Step 23 Display the east 32DMX-L card in card view.

Step 24 Click the **Provisioning > Optical Chn > Parameters** tab. Record the CHAN-TX port value under the Power parameter for the wavelength under test.

Step 25 Verify that the power value from Step 24 reaches the EastSide.Rx.Power.Add&Drop - Drop Power setpoint +/– 2 dBm. To view this setpoint:

    a. Go to node view (single-shelf mode) or multishelf view (multishelf mode) and click the **Provisioning > WDM-ANS > Provisioning** tabs.

    b. In the Selector window on the left, expand the **East Side** parameters tree view.

    c. Expand the **RX** category.

    d. Expand the **Power** category, then highlight **Add&Drop - Drop Power**.

    e. View the EastSide.Rx.Power.Add&Drop - Drop Power parameter on the right pane.

    f. If the power value does not match the value recorded in Step 24 (+/– 2 dBm), contact your next level of support.

Step 26 Display the TXP_MR_10E_L card in card view.

Step 27 Click the **Performance > Optics PM > Current Values** tabs.

Step 28 In the Port 2 (Trunk) column, locate the RX Optical Power value. Verify that the value matches the power in Step 24, +/– 2 dBm. If the power values do not match (+/– 2 dBm), complete the following steps:

    a. Remove, clean, and replace the cable connecting the TXP_MR_10E_C RX port to the east fiber patch panel DMX port for the tested wavelength. See the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26.

    b. Repeat this step. If the power values still do not match (+/– 2 dBm) contact your next level of support.

Step 29 Repeat Steps 4 through 28 for the remaining wavelengths.

Step 30 Display the east 32WSS-L card in card view.

Step 31 Click the **Maintenance** tab.

Step 32 Click the table cell under Operating Mode and choose **Not Assigned** from the drop-down list for all wavelengths.

Step 33 Click **Apply**, then click **Yes** to confirm.

Step 34 Disconnect the TXP or tunable laser from the east side patch panel.

Step 35 Unplug the physical loopback fiber from the line TX and RX in the OPT-BST-L or OSC-CSM card.

Step 36   Return to your originating procedure (NTP).

DLP-G364 Verify the West ROADM L-Band Add/Drop Channels

Purpose	This procedure verifies the signal flow through the west side of a ROADM node for L-band add/drop channels.
Tools/Equipment	One of the following:
	• A tunable laser
	• TXP_MR_10E_L
	An optical power meter or optical spectrum analyzer
	2 bulk attenuators (10 dB) with LC connectors
Prerequisite Procedures	"DLP-G46 Log into CTC" task on page 2-27
Required/As Needed	Required
Onsite/Remote	Onsite
Security Level	Superuser

✎
Note   Throughout this task, west refers to Slots 1 through 8, and east refers to Slots 10 through 17.

Step 1   In node view (single-shelf mode) or multishelf view (multishelf mode), display the Alarms tab.

Step 2   Create a physical loopback on the west OPT-BST-L or OSC-CSM card by connecting the LINE TX port to its LINE RX port. For OPT-BST-L cards, connect a 10-dB bulk attenuator to the fiber. (OSC-CSM cards do not require attenuation.)

⚠
Caution   Failure to use proper attenuation might damage equipment.

Step 3   Wait 2 to 3 minutes, then click the **Alarms** tab. Verify that the LOS alarms on the west OSCM or OSC-CSM card and the OPT-BST-L card have cleared. The clearing of the LOS alarms indicates that the OSC link is active on the west side.

✎
Note   On ANSI shelves, an EOC DCC Termination Failure alarm will continue to appear due to the OSC signal loopback.

Step 4   If you are using a tunable laser, follow the manufacturer's instructions to complete the following steps. If you are using a TXP_MR_10E_L card, continue with Step 5.

   a.   Set the output power to a nominal value, such as –3 dBm.

   b.   Set the tuner to the wavelength you are testing, then continue with Step 7.

Step 5   If you are using a TXP_MR_10E_L card, complete the "DLP-G358 Provision TXP_MR_10E_L Card for Acceptance Testing" task on page 4-18 for the TXP containing the wavelength you will test. Refer to "Table 4-232WSS-L Ports and Wavelengths Test Checklist" task on page 4-45, if needed.

Step 6   If you are using a TXP_MR_10E_L card, complete the following steps. If you are using a tunable laser, continue with Step 7.

    a.   Display the TXP_MR_10E_L in card view.

    b.   Click the **Performance > Optics PM > Current Values** tabs.

    c.   Locate the Port 2 (Trunk) table cell for the TX Optical Pwr parameter. Record the value.

Step 7   Connect the tunable laser transmitter or the TXP_MR_10E_L card DWDM TX port to the west side fiber patch panel MUX port that corresponds to the west 32WSS-L card port carrying the tested wavelength.

Step 8   Connect the TXP_MR_10E_L DWDM RX port or the power meter RX port to the west side fiber patch panel DMX port that is connected with the west 32DMX-L card CHAN-TX port carrying the tested wavelength. (If the TXP_MR_10E_L card was installed during Chapter 3, "Turn Up a Node," simply verify the cable connection.)

Step 9   Display the 32WSS-L card in card view.

Step 10   Click the **Maintenance** tab.

Step 11   For each wavelength that you will test, click the table cell under Operating Mode and choose **Add Drop** from the drop-down list.

Step 12   Click **Apply** and then **Yes**, to confirm.

Step 13   Click the **Provisioning > Optical Chn Optical Connector***n* **> Parameters** tabs, where *n* = the optical connector number that carries the wavelengths you will test. Refer to Table 4-2 on page 4-45, if needed.

Step 14   Find the tested wavelength CHAN RX port, then scroll to the right until you see the Power Add parameter. Verify that the Power Add value for the tested port CHAN RX is equal to the output power level of the tunable laser or the TXP_MR_10E_L card measured in Step 6 +/– 1 dBm.

Step 15   Click the **Provisioning > Optical Line > Parameters** tabs and record the value in the Power table cell for Port 67 (COM-TX) for the wavelength under test.

Step 16   Verify that the power value from Step 15 reaches the WestSide.Tx.Power.Add&Drop - Output Power setpoint +/– 1 dBm. To view this setpoint:

    a.   In node view (single-shelf mode) or multishelf view (multishelf mode), click the **Provisioning > WDM-ANS > Provisioning** tabs.

    b.   In the Selector window on the left, expand the **West Side** parameters tree view.

    c.   Expand the **TX** category.

    d.   Expand the **Power** category, then highlight **Add&Drop - Output Power**.

    e.   View the WestSide.TxPower.Add&Drop - Output Power parameter on the right pane.

    f.   If the power value does not match the value recorded in Step 15, +/– 2dBm, contact your next level of support.

Step 17   If an MMU card is installed on the west side, complete the following steps. If an MMU card is not installed on the west side, continue with Step 18.

    a.   Display the west 32WSS-L card in card view.

    b.   Click the **Provisioning > Optical Line > Parameters** tabs.

    c.   Record the value in the Power table cell for Port 67 (COM-TX).

    d.   Display the west MMU card in card view.

    e.   Click the **Provisioning > Optical Line > Parameters** tabs.

    f. Verify that the value in the Power table cell for Port 1(EXP-RX) is equal to the value recorded in Step c, +/- 1.0 dB. If not, use the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26 to clean the fiber connection between the 32WSS-L and MMU cards. Check the values again. If they still do not match, contact your next level of support.

    g. Record the value in the Power table cell for Port 4 (COM-TX).

    h. If a west OPT-BST-L card is installed, display it in card view and complete Step i. If not, continue with Step j.

    i. Click the Provisioning > Optical Line > Parameters tabs and read the Power value for Port 1 (COM-RX), then continue with Step k.

    j. Display the west OSC-CSM card in card view, click the **Provisioning > Optical Line > Parameters** tabs and read the Power value for Port 2 (COM-RX), then continue with Step k.

    k. Verify that the value in Step i or j matches the power recorded in Step g, +/- 1.5 dB. If not, use the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26 to clean the fiber connection between the OPT-BST-L or OSC-CSM and MMU cards. Check the values again. If they still do not match, contact your next level of support.

    l. Continue with Step 19.

Step 18   Verify the connection between the 32WSS-L and OPT-BST-L or OSC_CSM cards:

    a. Display the west 32WSS-L card in card view.

    b. Click the **Provisioning > Optical Line > Parameters** tabs.

    c. Record the value in the Power table cell for Port 67 (COM-TX).

    d. If a OPT-BST-L card is installed on the west side, display it in card view and complete Step e. If not, continue with Step f.

    e. Click the **Provisioning > Optical Line >   Parameters** tabs and read the Power value for Port 1 (COM-RX), then continue with Step g.

    f. Display the west OSC-CSM card in card view, click the **Provisioning > Optical Line > Parameters** tabs and read the Power value for Port 2 (COM-RX), then continue with Step g.

    g. Verify that the value in Step e or f matches the power recorded in Step c, +/- 1.0 dB. If so, continue with Step 19. If not, use the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26 to clean the fiber connection between the OPT-BST-L or OSC-CSM and 32WSS-L cards. Check the values again. If they still do not match, contact your next level of support.

Step 19   If an OPT-AMP-L card provisioned in OPT-PRE mode is installed on the west side, complete the following steps. If not, continue with Step 20.

    a. Display the west OPT-AMP-L card in card view.

    b. Click the **Provisioning > Optical Line > Parameters** tabs.

    c. Locate the Power parameter for Port 1 (COM-RX). Record the value.

    d. Display the west OPT-BST-L or OSC-CSM card in card view.

    e. Click the **Provisioning > Optical Line > Parameters** tabs.

    f. Locate the Port 2 (COM-TX) Power value (for OPT-BST-L cards) or Port 3 (COM-TX) Power value (for OSC-CSM card). Verify that the value matches the power recorded in Step c, +/- 1.5 dB. If not, use the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26 to clean the fiber connection between the OPT-AMP-L card and the OPT-BST-L or OSC-CSM card. Check the values again. If they still do not match, contact your next level of support.

    g. For the west OPT-AMP-L card, complete the "DLP-G80 Verify the OPT-PRE Amplifier Laser and Power" task on page 4-6.

Step 20 If an MMU card is installed on the west side, complete the following steps. If an MMU card is not installed on the west side, continue with Step 21.

    a. Display the west MMU card in card view.

    b. Click the **Provisioning > Optical Line > Parameters** tabs.

    c. Locate the Port 68 (COM-RX) Power parameter. Record the value.

    d. If an OPT-AMP-L card provisioned in OPT-PRE mode is installed on the west side, display it in card view and complete Step e. If not, continue with Step f.

    e. Click the OPT-PRE **Provisioning > Opt.Ampli.Line > Parameters** tabs. Record the Total Output Power value for Port 2 (COM-TX), then continue with Step i.

    f. If an west OPT-BST-L card is installed, display it in card view and complete Step g. If not, continue with Step h.

    g. Click the Provisioning > Optical Line > Parameters tabs and read the Power value for Port 2 (COM-TX), then continue with Step i.

    h. Display the west OSC-CSM card in card view, click the Provisioning > Optical Line > Parameters tabs and read the Power value for Port 3 (COM-TX), then continue with Step i.

    i. Verify that value in the Step e, g, or h matches the power recorded in Step c, +/– 1.0 dB. If not, use the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26 to clean the fiber connection between the MMU card and the OPT-BST-L or OSC-CSM cards. Check the values again. If they still do not match, contact your next level of support.

    j. Display the west MMU card in card view.

    k. Click the **Provisioning > Optical Line > Parameters** tabs.

    l. Record the value in the Power table cell for Port 2 (EXP-TX).

    m. Display the west 32WSS-L card in card view.

    n. Click the **Provisioning > Optical Line > Parameters** tabs.

    o. Verify that the value in the Power table cell for Port 68 (COM-RX) is equal to the value recorded in Step l, +/– 1.0 dB. If not, use the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26 to clean the fiber connection between the 32WSS-L and MMU cards. Check the values again. If they still do not match, contact your next level of support.

    p. Continue with Step 22.

Step 21 Verify the connection between the west 32WSS-L card and the OPT-BST-L, OPT-AMP-L (in OPT-PRE mode), or OSC-CSM card:

    a. Display the west 32WSS-L in card view.

    b. Click the **Provisioning > Optical Line > Parameters** tabs.

    c. Locate the Port 68 (COM-RX) Power parameter. Record the value.

    d. If an west OPT-AMP-L card provisioned in OPT-PRE mode is installed, display it in card view and complete Step e. If not, continue with Step f.

    e. Click the **Provisioning > Opt.Ampli.Line > Parameters** tabs and read the Total Output Power value for Port 2 (COM-TX), then continue with Step i.

    f. If an west OPT-BST-L card is installed, display it in card view and complete Step g. If not, continue with Step h.

    g. Click the **Provisioning > Optical Line > Parameters** tabs and read the Power value for Port 2 (COM-TX), then continue with Step i.

h. Display the west OSC-CSM card in card view. Click the **Provisioning > Optical Line > Parameters** tabs and read the Power value for Port 3 (COM-TX), then continue with Step i.

i. Verify that the value in Step e, g, or h matches the power recorded in Step c, +/– 1.5 dB. If not, use the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26 to clean the fiber connection between the 32WSS-L card and the OPT-AMP-L, OPT-BST-L, or OSC-CSM card.

Step 22 Verify the west 32WSS-L and 32DMX-L connection:

a. Display the west 32WSS-L card in card view.

b. Click the **Provisioning > Optical Line > Parameters** tabs, and record the value in the Power table cell for Port 69 (DROP-TX).

c. Display the west 32DMX-L card in card view.

d. Click the **Provisioning > Optical Line > Parameters** tabs. Record the value in the Port 2 (COM-RX) table cell. Verify that the value is equal to the value recorded in b., +/– 1 dBm. If not, use the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26 to clean the fiber connection between the 32WSS-L and 32DMX-L cards. Check the values again. If they still do not match, contact your next level of support.

Step 23 Display the west 32DMX-L card in card view.

Step 24 Click the **Provisioning > Optical Chn > Parameters** tab. Record the CHAN-TX port value under the Power parameter for the wavelength under test.

Step 25 Verify that the power value from Step 24 reaches the WestSide.Rx.Power.Add&Drop - Drop Power setpoint +/– 2 dBm. To view this setpoint:

a. Go to node view (single-shelf mode) or multishelf view (multishelf mode) and click the **Provisioning > WDM-ANS > Provisioning** tabs.

b. In the Selector window on the left, expand the **West Side** parameters tree view.

c. Expand the **RX** category.

d. Expand the **Power** category, then highlight **Add&Drop - Drop Power**.

e. View the WestSide.Rx.Power.Add&Drop - Drop Power parameter on the right pane.

f. If the power value does not match the value recorded in Step 24 (+/– 2 dBm), contact your next level of support.

Step 26 Display the TXP_MR_10E_L card in card view.

Step 27 Click the **Performance > Optics PM > Current Values** tabs.

Step 28 In the Port 2 (Trunk) column, locate the RX Optical Power value. Verify that the value matches the power in Step 24, +/– 2 dBm. If the power values do not match (+/– 2 dBm), complete the following steps:

a. Remove, clean, and replace the cable connecting the TXP_MR_10E_L RX port to the west fiber patch panel DMX port for the tested wavelength. See the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26.

b. Repeat this step. If the power values still do not match (+/– 2 dBm) contact your next level of support.

Step 29 Repeat Steps 4 through 28 for the remaining wavelengths.

Step 30 Display the west 32WSS-L card in card view.

Step 31 Click the **Maintenance** tab.

Step 32 Click the table cell under Operating Mode and choose **Not Assigned** from the drop-down list for all wavelengths.

Step 33 Click **Apply**, then click **Yes** to confirm.

Step 34 Disconnect the TXP or tunable laser from the west side patch panel.

Step 35 Unplug the physical loopback fiber from the line TX and RX in the OPT-BST-L or OSC-CSM card.

Step 36 Return to your originating procedure (NTP).

NTP-G44 Perform the Anti-ASE Hub Node Acceptance Test

Purpose	This procedure tests an anti-ASE hub node.
Tools/Equipment	A tunable laser or a TXP_MR_10E_C card
	An optical power meter or optical spectrum analyzer
	2 bulk attenuators (10 dB) with LC connectors
Prerequisite Procedures	Chapter 3, "Turn Up a Node"
Required/As Needed	Required
Onsite/Remote	Onsite
Security Level	Superuser

Note Optical power measurements require either a tunable laser or a multirate transponder to generate the proper optical wavelength. If multirate transponders were installed during completion of Chapter 3, "Turn Up a Node," they can be used for this procedure. No additional cabling changes are needed.

Step 1 Complete the "DLP-G46 Log into CTC" task on page 2-27 at the node where you want to perform the acceptance test. If you are already logged in, continue with Step 2.

Step 2 From the View menu, choose **Go to Network View**.

Step 3 Click the **Alarms** tab.

    a. Verify that the alarm filter is not on. See the "DLP-G128 Disable Alarm Filtering" task on page 9-29 as necessary.

    b. Verify that no equipment alarms appear indicating equipment failure or other hardware problems. (Equipment alarms are indicated by an EQPT in the Alarms tab Cond column.) If alarms appear, investigate and resolve them before continuing. Refer to the *Cisco ONS 15454 DWDM Troubleshooting Guide* for procedures.

    Note The OSC terminations created during node turn-up will generate two alarms for each side of the shelf: one for LOS on the OPT-BST or OPT-BST-E card, and the other for LOS on the OSC_CSM or OSCM card.

Step 4 In node view (single-shelf mode) or multishelf view (multishelf mode), click the **Provisioning > WDM-ANS > Port Status** tabs. Verify that all statuses under Link Status are Success - Changed, Success - Unchanged, or Not Applicable. If any are not, complete the following steps:

    a. Delete the two OSC channels using the "DLP-G186 Delete an OSC Termination" task on page 10-45.

    b. Complete the "NTP-G37 Run Automatic Node Setup" procedure on page 3-85.

     c. Create the OSC channels using the "NTP-G38 Provision OSC Terminations" procedure on page 3-86.

Step 5   From your Cisco MetroPlanner site configuration file, identify the dropped and added channels that are configured in pass-through mode in both directions.

> ✎
> **Note**   Configuring a channel pass-through mode means that the channel is dropped along one direction by a 32DMX-O or 32DMX (15xx.xx TX port) located on one side (west or east) of the shelf, and then added by a 32MUX-O/32DMX (1522.22 RX port) on the opposite side of the shelf but in the same direction. The channel is not terminated inside the site.

Step 6   Create a loopback on the west OPT-BST or OPT-BST-E amplifier by connecting a patchcord from the LINE TX port to the LINE RX port with a 10-dB bulk attenuator.

Step 7   Verify that the OSC link becomes active on the west OSCM or OSC-CSM card. (The OSC Termination must already be provisioned. If not, complete the "NTP-G38 Provision OSC Terminations" procedure on page 3-86.)

Step 8   For pass-through channels, continue with Step 9. For add and drop channels, continue with Step 18.

Step 9   Verify the first channel connection configured in pass-through mode in both directions:

    a. If you are using a tunable laser, set the output power to a nominal value, such as –3 dBm. If you are using a TXP_MR_10E_C card, continue with Step b.

    b. Set the tunable laser or TXP_MR_10E_C card to a corresponding wavelength on the 100-GHz ITU-T grid. Refer to the tunable laser manufacturer's documentation or the "DLP-G268 Provision TXP_MR_10E_C Cards for Acceptance Testing" task on page 4-5.

    c. Connect the tunable laser transmitter or the TXP_MR_10E_C card DWDM TX port to the LINE RX port of the east OPT-BST or OPT-BST-E using a 10-dB bulk attenuator.

Step 10   Complete the "DLP-G80 Verify the OPT-PRE Amplifier Laser and Power" task on page 4-6 for the east OPT-PRE amplifier.

Step 11   Complete the "DLP-G269 Verify the 32DMX-O Card Power" task on page 4-8 for the west 32MUX-O and 32DMX-O/32DMX cards.

Step 12   Complete the "DLP-G79 Verify the OPT-BST, OPT-BST-E, or OPT-BST-L Amplifier Laser and Power" task on page 4-6 for the west OPT-BST or OPT-BST-E amplifier.

Step 13   Complete the "DLP-G80 Verify the OPT-PRE Amplifier Laser and Power" task on page 4-6 for the west OPT-PRE amplifier.

Step 14   Complete the "DLP-G269 Verify the 32DMX-O Card Power" task on page 4-8 for the west 32MUX-O and 32DMX-O.32DMX cards.

Step 15   Complete the "DLP-G79 Verify the OPT-BST, OPT-BST-E, or OPT-BST-L Amplifier Laser and Power" task on page 4-6 for the east OPT-BST or OPT-BST-E amplifier.

Step 16   Repeat Steps 9 through 15 for the remaining wavelengths on the 100-GHz grid that are pass-through wavelengths.

Step 17   If you have add and drop channels, continue with Step 18 to verify the channels. If not, continue with Step 30.

Step 18   Set the tunable laser or TXP_MR_10E_C card to the first wavelength of the 100-GHz ITU-T grid that is not a pass-through wavelength. Refer to the tunable laser manufacturer's documentation or the "DLP-G268 Provision TXP_MR_10E_C Cards for Acceptance Testing" task on page 4-5.

Step 19   Connect the tunable laser or TXP_MR_10E_C card to the CHAN RX *nn* port on the west 32MUX-O card, where *nn* is the first add or drop channel.

Step 20   Display the west 32MUX-O in card view.

Step 21   Click the **Provisioning > Optical Chn > Parameter**s tabs.

Step 22   Change the administrative state of Port *nn* to **OOS,MT** (ANSI) or **Locked,maintenance** (ETSI).

Step 23   Check that the power value on Port *nn* reaches the provisioned setpoint (VOA Power Ref).

Step 24   Display the west 32DMX-O card in card view.

Step 25   Click the **Provisioning > Optical Chn > Parameter**s tabs.

Step 26   Change the administrative state of Port *nn* to **OOS,MT** (ANSI) or **Locked,maintenance** (ETSI).

Step 27   Check that the power value on Port *nn* reaches the provisioned setpoint (VOA Power Ref).

Step 28   Connect a power meter to the CHAN TX *nn* port through the patch panel and verify that the physical optical power coming out of drop Port *nn* on the west 32DMX-O/32DMX card is consistent with the value read on the meter within 0.5 dB.

Step 29   Repeat Steps 18 through 28 for the remaining wavelengths on the 100-GHz grid that are not pass-through wavelengths.

Step 30   Remove the loopback connection on the west OPT-BST or OPT-BST-E card.

Step 31   Complete the "NTP-G37 Run Automatic Node Setup" procedure on page 3-85 to restore the original configuration.

Step 32   Create a loopback on the east OPT-BST or OPT-BST-E amplifier by connecting a patchcord from the LINE TX port to the LINE RX port with 10-dB bulk attenuator.

Step 33   Verify that the OSC link becomes active on the east OSCM card. (The OSC termination must be already provisioned. If not, complete the "NTP-G38 Provision OSC Terminations" procedure on page 3-86.)

Step 34   Repeat 18 through 31 for the east side add and drop cards.

Step 35   Remove the loopback on the east OPT-BST or OPT-BST-E card.

Step 36   Restore the default administrative state (IS,AINS/Unlocked,automaticInService) on all the ports previously set to **OOS,MT** (ANSI) or **Locked,maintenance** (ETSI).

Stop. You have completed this procedure.

NTP-G45 Perform the C-Band Line Amplifier Node with OSCM Cards Acceptance Test

Purpose	This procedure tests a C-band line amplifier node with OSCM cards installed on both the east and west sides of the shelf by looping a single wavelength through the shelf.
Tools/Equipment	One of the following:
	• A tunable laser
	• TXP_MR_10E_C
	An optical power meter or optical spectrum analyzer
	2 bulk attenuators (10 dB) with LC connectors
Prerequisite Procedures	Chapter 3, "Turn Up a Node"
Required/As Needed	Required
Onsite/Remote	Onsite
Security Level	Superuser

Note Optical power measurements require either a tunable laser or a multirate transponder to generate the proper optical wavelength. If multirate transponders were installed during completion of Chapter 3, "Turn Up a Node," they can be used for this procedure. No additional cabling changes are needed.

Step 1 Complete the "DLP-G46 Log into CTC" task on page 2-27 at the node where you want to perform the acceptance test. If you are already logged in, continue with Step 3.

Step 2 If you are using TXP_MR_10E_C cards, complete the "DLP-G268 Provision TXP_MR_10E_C Cards for Acceptance Testing" task on page 4-5. If not, continue with Step 3.

Step 3 From the View menu, choose **Go to Home View**.

Step 4 Click the **Alarms** tab.

    a. Verify that the alarm filter is not on. See the "DLP-G128 Disable Alarm Filtering" task on page 9-29 as necessary.

    b. Verify that no equipment alarms appear indicating equipment failure or other hardware problems. (Equipment alarms are indicated by an EQPT in the Alarms tab Cond column.) If alarms appear, investigate and resolve them before continuing. Refer to the *Cisco ONS 15454 DWDM Troubleshooting Guide* for procedures.

Note The OSC terminations created during node turn-up will generate two alarms for each side of the shelf, one for LOS on the OPT-BST or OPT-BST-E card, and the other for LOS on the OSCM card.

Step 5 In node view (single-shelf mode) or multishelf view (multishelf mode), click the **Provisioning > WDM-ANS > Port Status** tabs. Verify that all statuses under Link Status are listed as Success - Changed, Success - Unchanged, or Not Applicable. If any are not, complete the following steps:

    a. Delete the two OSC channels using the "DLP-G186 Delete an OSC Termination" task on page 10-45.

     b. Complete the "NTP-G37 Run Automatic Node Setup" procedure on page 3-85.

     c. Create the OSC channels using the "NTP-G38 Provision OSC Terminations" procedure on page 3-86.

Step 6 Create a loopback on the west OPT-BST or OPT-BST-E card by using a fiber with a 10-dB bulk attenuator to connect the LINE TX port to the LINE RX port.

Step 7 If you are using a tunable laser, follow the manufacturer's instructions to complete the following steps. If you are using a TXP_MR_10E_C card, continue with Step 8.

     a. Set the output power to a nominal value, such as –3 dBm.

     b. Set the tuner to the wavelength under test, then continue with Step 9.

Step 8 If you are using a TXP_MR_10E_C card, complete the "DLP-G268 Provision TXP_MR_10E_C Cards for Acceptance Testing" task on page 4-5 for the TXP containing the wavelength you will test. Refer to Table 4-1 on page 4-22, if needed.

Step 9 Connect the tunable laser transmitter or the TXP_MR_10E_C card DWDM TX port to the LINE RX port of the east OPT-BST or OPT-BST-E card using a 10-dB bulk attenuator.

⚠️

Caution Failure to use proper attenuation might damage equipment.

Step 10 Wait 90 to 100 seconds, then in node view (single-shelf mode) or multishelf view (multishelf mode) click the **Alarms** tab. Verify that the LOS alarms on the west OPT-BST or OPT-BST-E and OSCM cards have cleared. The clearing of the LOS alarms indicates that the OSC link is active on the west side.

✎

Note On ANSI shelves, an EOC DCC Termination Failure alarm will continue to appear due to the OSC signal loopback. An LOS-O alarm appears on the east OPT-BST or OPT-BST-E card, and an LOS alarm appears on the east OCSM card.

If the alarms clear, continue with Step 11. If not, perform the following steps:

     a. Display the west OPT-BST or OPT-BST-E card in card view.

     b. Click the **Provisioning > Optical Line > Optics Thresholds** tabs.

     c. Under Types, click **Alarms**, then click **Refresh**.

     d. Locate the Port 2 Power Failure Low parameter. Double-click the table cell and change the value to –30 dBm.

     e. Locate the Port 4 Power Failure Low parameter. Double-click the table cell and change the value to –40 dBm.

     f. Click **Apply**, and then **Yes**.

     g. Wait 90 to 100 seconds, then in node view (single-shelf mode) or multishelf view (multishelf mode) click the **Alarms** tab. Verify that the LOS alarm on the west OPT-BST or OPT-BST-E card has cleared. If so, continue with Step 11. If not, disconnect the OSCM card from the OPT-BST.

     h. Create a loopback on the OSCM card by connecting a patch cable from the OSC TX port to the OSC RX port using a 10-dB bulk attenuator.

     i. Wait 90 to 100 seconds, then in node view (single-shelf mode) or multishelf view (multishelf mode) click the **Alarms** tab. Verify that the LOS alarm on the west OSCM card has cleared. If so, replace the OPT-BST or OPT-BST-E card. If not, replace the OSCM card. See the"NTP-G30 Install the DWDM Cards" procedure on page 3-46.

Step 11   If an OPT-PRE card is installed on the east side, complete the "DLP-G80 Verify the OPT-PRE Amplifier Laser and Power" task on page 4-6. If not, continue with Step 12.

Step 12   Complete the "DLP-G79 Verify the OPT-BST, OPT-BST-E, or OPT-BST-L Amplifier Laser and Power" task on page 4-6 for the west OPT-BST or OPT-BST-E amplifier.

Step 13   If an OPT-PRE amplifier is installed on the west side, complete the "DLP-G80 Verify the OPT-PRE Amplifier Laser and Power" task on page 4-6. It not, continue with continue with Step 14.

Step 14   Complete the "DLP-G79 Verify the OPT-BST, OPT-BST-E, or OPT-BST-L Amplifier Laser and Power" task on page 4-6 for the east OPT-BST or OPT-BST-E amplifier.

Step 15   Disconnect the TXP or tunable laser from the east OPT-BST or OPT-BST-E card.

Step 16   Remove the loopback on the west OPT-BST or OPT-BST-E card created in Step 6.

Step 17   Create a loopback on the east OPT-BST or OPT-BST-E card by connecting a patchcord from the LINE TX port to the LINE RX port with a 10-dB bulk attenuator.

Step 18   If you are using a tunable laser, follow the manufacturer's instructions to complete the following steps. If you are using a TXP_MR_10E_C card, continue with Step 19.

   a.   Set the output power to a nominal value, such as –3 dBm.

   b.   Set the tuner to the wavelength under test, then continue with Step 20.

Step 19   If you are using a TXP_MR_10E_C card, complete the "DLP-G268 Provision TXP_MR_10E_C Cards for Acceptance Testing" task on page 4-5 for the TXP containing the wavelength you will test. Refer to Table 4-1 on page 4-22, if needed.

Step 20   Connect the tunable laser transmitter or the TXP_MR_10E_C card DWDM TX port to the LINE RX port of the west OPT-BST or OPT-BST-E card using a 10-dB bulk attenuator.

⚠

Caution   Failure to use proper attenuation might damage equipment.

Step 21   Wait 90 to 100 seconds, then in node view (single-shelf mode) or multishelf view (multishelf mode) click the **Alarms** tab. Verify that the LOS alarms on the east OPT-BST or OPT-BST-E and OSCM cards have cleared. The clearing of the LOS alarms indicates that the OSC link is active on the east side.

✎

Note   On ANSI shelves, an EOC DCC Termination Failure alarm will continue to appear due to the OSC signal loopback. An LOS-O alarm appears on the west OPT-BST or OPT-BST-E card, and an LOS alarm appears on the west OCSM card.

If the alarms clear, continue with Step 22. If not, perform the following steps:

   a.   Display the east OPT-BST or OPT-BST-E card in card view.

   b.   Click the **Provisioning > Optical Line > Optics Thresholds** tabs.

   c.   Under Types, click **Alarms**, then click **Refresh**.

   d.   Locate the Port 2 Power Failure Low parameter. Double-click the table cell and change the value to –30 dBm.

   e.   Locate the Port 4 Power Failure Low parameter. Double-click the table cell and change the value to –40 dBm.

   f.   Click **Apply**, and then **Yes**.

g. Wait 90 to 100 seconds, then in node view (single-shelf mode) or multishelf view (multishelf mode) click the **Alarms** tab. Verify that the LOS alarms on the east OPT-BST or OPT-BST-E card has cleared. If so, continue with Step 22. If not, disconnect the OSCM card from the OPT-BST or OPT-BST-E card.

h. Create a loopback on the OSCM card by connecting a patch cable from the OSC TX port to the OSC RX port using a 10-dB bulk attenuator.

i. Wait 90 to 100 seconds, then in node view (single-shelf mode) or multishelf view (multishelf mode) click the **Alarms** tab. Verify that the LOS alarms on the east OSCM card has cleared. If so, replace the OPT-BST or OPT-BST-E card. If not, replace the OSCM card. See the"NTP-G30 Install the DWDM Cards" procedure on page 3-46.

Step 22 If an OPT-PRE card is installed on the west side, complete the "DLP-G80 Verify the OPT-PRE Amplifier Laser and Power" task on page 4-6. If not, continue with Step 23.

Step 23 Complete the "DLP-G79 Verify the OPT-BST, OPT-BST-E, or OPT-BST-L Amplifier Laser and Power" task on page 4-6 for the east OPT-BST or OPT-BST-E amplifier.

Step 24 If an OPT-PRE amplifier is installed on the east side, complete the "DLP-G80 Verify the OPT-PRE Amplifier Laser and Power" task on page 4-6. It not, continue with continue with Step 25.

Step 25 Complete the "DLP-G79 Verify the OPT-BST, OPT-BST-E, or OPT-BST-L Amplifier Laser and Power" task on page 4-6 for the west OPT-BST or OPT-BST-E amplifier.

Step 26 Disconnect the TXP or tunable laser from the west OPT-BST or OPT-BST-E card.

Step 27 Remove the loopback on the east OPT-BST or OPT-BST-E amplifier created in Step 17.

Step 28 Delete both OSC channels using the "DLP-G186 Delete an OSC Termination" task on page 10-45.

Step 29 Complete the "NTP-G37 Run Automatic Node Setup" procedure on page 3-85 to restore the original configuration.

Step 30 Create the two OSC channels using the "NTP-G38 Provision OSC Terminations" procedure on page 3-86.

Stop. **You have completed this procedure**.

NTP-G155 Perform the L-Band Line Amplifier Node with OSCM Cards Acceptance Test

Purpose	This procedure tests a L-band line amplifier node with OSCM cards installed on both the east and west sides of the shelf by looping a single wavelength through the shelf.
Tools/Equipment	One of the following:
	• A tunable laser
	• TXP_MR_10E_L
	An optical power meter or optical spectrum analyzer
	2 bulk attenuators (10 dB) with LC connectors
Prerequisite Procedures	Chapter 3, "Turn Up a Node"
Required/As Needed	Required
Onsite/Remote	Onsite
Security Level	Superuser

Note Optical power measurements require either a tunable laser or a multirate transponder to generate the proper optical wavelength. If multirate transponders were installed during completion of Chapter 3, "Turn Up a Node," they can be used for this procedure. No additional cabling changes are needed.

Step 1 Complete the "DLP-G46 Log into CTC" task on page 2-27 at the node where you want to perform the acceptance test. If you are already logged in, continue with Step 2.

Step 2 If you are using TXP_MR_10E_L cards, complete the "DLP-G358 Provision TXP_MR_10E_L Card for Acceptance Testing" task on page 4-18. If not, continue with Step 3.

Step 3 From the View menu, choose **Go to Home View**.

Step 4 Click the **Alarms** tab.

   a. Verify that the alarm filter is not on. See the "DLP-G128 Disable Alarm Filtering" task on page 9-29 as necessary.

   b. Verify that no equipment alarms appear indicating equipment failure or other hardware problems. (Equipment alarms are indicated by an EQPT in the Alarms tab Cond column.) If alarms appear, investigate and resolve them before continuing. Refer to the *Cisco ONS 15454 DWDM Troubleshooting Guide* for procedures.

Note The OSC terminations created during node turn-up will generate two alarms for each side of the shelf, one for an LOS on the OPT-BST-L card, and the other for an LOS on the OSCM card.

Step 5 In node view (single-shelf mode) or multishelf view (multishelf mode), click the **Provisioning > WDM-ANS > Port Status** tabs. Verify that all statuses under Link Status are listed as Success - Changed, Success - Unchanged, or Not Applicable. If any are not, complete the following steps:

   a. Delete the two OSC channels using the "DLP-G186 Delete an OSC Termination" task on page 10-45.

   b. Complete the "NTP-G37 Run Automatic Node Setup" procedure on page 3-85.

    c. Create the OSC channels using the "NTP-G38 Provision OSC Terminations" procedure on page 3-86.

Step 6 Create a loopback on the west OPT-BST-L card by using a fiber with a 10-dB bulk attenuator to connect the LINE TX port to the LINE RX port.

Step 7 If you are using a tunable laser, follow the manufacturer's instructions to complete the following steps. If you are using a TXP_MR_10E_L card, continue with Step 8.

    a. Set the output power to a nominal value, such as –3 dBm.

    b. Set the tuner to the wavelength under test, then continue with Step 9.

Step 8 If you are using a TXP_MR_10E_L card, complete the "DLP-G358 Provision TXP_MR_10E_L Card for Acceptance Testing" task on page 4-18 for the wavelength you will test.

Step 9 Connect the tunable laser transmitter or the TXP_MR_10E_L card DWDM TX port to the LINE RX port of the east OPT-BST-L card using a 10-dB bulk attenuator.

⚠️ **Caution** Failure to use proper attenuation might damage equipment.

Step 10 Wait 90 to 100 seconds, then in node view (single-shelf mode) or multishelf view (multishelf mode) click the **Alarms** tab. Verify that the LOS alarms on the west OPT-BST-L and OSCM cards have cleared. The clearing of the LOS alarms indicates that the OSC link is active on the west side.

Note On ANSI shelves, an EOC DCC Termination Failure alarm will continue to appear due to the OSC signal loopback. An LOS-O alarm appears on the east OPT-BST-L card, and an LOS alarm appears on the east OCSM card.

If the alarms clear, continue with Step 11. If not, perform the following steps:

    a. Display the west OPT-BST-L card in card view.

    b. Click the **Provisioning > Optical Line > Optics Thresholds** tabs.

    c. Under Types, click **Alarms**, then click **Refresh**.

    d. Locate the Port 2 Power Failure Low parameter. Double-click the table cell and change the value to –30 dBm.

    e. Locate the Port 4 Power Failure Low parameter. Double-click the table cell and change the value to –40 dBm.

    f. Click **Apply**, and then **Yes**.

    g. Wait 90 to 100 seconds, then in node view (single-shelf mode) or multishelf view (multishelf mode) click the **Alarms** tab. Verify that the LOS alarm on the west OPT-BST-L card has cleared. If so, continue with Step 11. If not, disconnect the OSCM card from the OPT-BST-L card.

    h. Create a loopback on the OSCM card by connecting a patch cable from the OSC TX port to the OSC RX port using a 10-dB bulk attenuator.

    i. Wait 90 to 100 seconds, then in node view (single-shelf mode) or multishelf view (multishelf mode) click the **Alarms** tab. Verify that the LOS alarm on the west OSCM card has cleared. If so, replace the OPT-BST-L card. If not, replace the OSCM card. See the "NTP-G30 Install the DWDM Cards" procedure on page 3-46.

Step 11 If an OPT-AMP-L card (provisioned as an OPT-PRE) is installed on the east side, complete the "DLP-G360 Verify the OPT-AMP-L (OPT-PRE Mode) Amplifier Laser and Power" task on page 4-19. If not, continue with Step 12.

Step 12   Complete the "DLP-G359 Verify the OPT-BST-L or OPT-AMP-L (OPT-Line Mode) Amplifier Laser and Power" task on page 4-19 for the west OPT-BST-L amplifier.

Step 13   If an OPT-AMP-L card (provisioned as an OPT-PRE) is installed on the west side, complete the "DLP-G360 Verify the OPT-AMP-L (OPT-PRE Mode) Amplifier Laser and Power" task on page 4-19. It not, continue with continue with Step 14.

Step 14   Complete the "DLP-G359 Verify the OPT-BST-L or OPT-AMP-L (OPT-Line Mode) Amplifier Laser and Power" task on page 4-19 for the east OPT-BST-L amplifier.

Step 15   Disconnect the TXP card or tunable laser from the east OPT-BST-L card.

Step 16   Remove the loopback on the west OPT-BST-L created in Step 6.

Step 17   Create a loopback on the east OPT-BST-L card by connecting a patchcord from the LINE TX port to the LINE RX port with a 10-dB bulk attenuator.

Step 18   If you are using a tunable laser, follow the manufacturer's instructions to complete the following steps. If you are using a TXP_MR_10E_L card, continue with Step 19.

    a. Set the output power to a nominal value, such as –3 dBm.

    b. Set the tuner to the wavelength under test, then continue with Step 20.

Step 19   If you are using a TXP_MR_10E_L card, complete the "DLP-G358 Provision TXP_MR_10E_L Card for Acceptance Testing" task on page 4-18 for the wavelength you will test.

Step 20   Connect the tunable laser transmitter or the TXP_MR_10E_L card DWDM TX port to the LINE RX port of the west OPT-BST-L card using a 10-dB bulk attenuator.

⚠

Caution   Failure to use proper attenuation might damage equipment.

Step 21   Wait 90 to 100 seconds, then in node view (single-shelf mode) or multishelf view (multishelf mode) click the **Alarms** tab. Verify that the LOS alarms on the east OPT-BST-L and OSCM cards have cleared. The clearing of the LOS alarms indicates that the OSC link is active on the east side.

✎

Note   On ANSI shelves, an EOC DCC Termination Failure alarm will continue to appear due to the OSC signal loopback. An LOS-O alarm appears on the west OPT-BST-L card, and an LOS alarm appears on the west OCSM card.

If the alarms clear, continue with Step 22. If not, perform the following steps:

    a. Display the east OPT-BST-L card in card view.

    b. Click the **Provisioning > Optical Line > Optics Thresholds** tabs.

    c. Under Types, click **Alarms**, then click **Refresh**.

    d. Locate the Port 2 Power Failure Low parameter. Double-click the table cell and change the value to –30 dBm.

    e. Locate the Port 4 Power Failure Low parameter. Double-click the table cell and change the value to –40 dBm.

    f. Click **Apply**, and then **Yes**.

    g. Wait 90 to 100 seconds, then in node view (single-shelf mode) or multishelf view (multishelf mode) click the **Alarms** tab. Verify that the LOS alarms on the east OPT-BST-L card has cleared. If so, continue with Step 22. If not, disconnect the OSCM card from the OPT-BST-L card.

      h. Create a loopback on the OSCM card by connecting a patch cable from the OSC TX port to the OSC RX port using a 10-dB bulk attenuator.

      i. Wait 90 to 100 seconds, then in node view (single-shelf mode) or multishelf view (multishelf mode) click the **Alarms** tab. Verify that the LOS alarms on the east OSCM card has cleared. If so, replace the OPT-BST-L card. If not, replace the OSCM card. See the "NTP-G30 Install the DWDM Cards" procedure on page 3-46.

Step 22 If an OPT-AMP-L (provisioned in OPT-PRE mode) card is installed on the west side, complete the "DLP-G80 Verify the OPT-PRE Amplifier Laser and Power" task on page 4-6. If not, continue with Step 23.

Step 23 Complete the "DLP-G359 Verify the OPT-BST-L or OPT-AMP-L (OPT-Line Mode) Amplifier Laser and Power" task on page 4-19 for the east OPT-BST-L amplifier.

Step 24 If an OPT-AMP-L (provisioned in OPT-PRE mode) card is installed on the east side, complete the "DLP-G360 Verify the OPT-AMP-L (OPT-PRE Mode) Amplifier Laser and Power" task on page 4-19. It not, continue with continue with Step 25.

Step 25 Complete the "DLP-G359 Verify the OPT-BST-L or OPT-AMP-L (OPT-Line Mode) Amplifier Laser and Power" task on page 4-19 for the west OPT-BST-L amplifier.

Step 26 Disconnect the TXP card or tunable laser from the west OPT-BST-L card.

Step 27 Remove the loopback on the east OPT-BST-L amplifier created in Step 17.

Step 28 Delete both OSC channels using the "DLP-G186 Delete an OSC Termination" task on page 10-45.

Step 29 Complete the "NTP-G37 Run Automatic Node Setup" procedure on page 3-85 to restore the original configuration.

Step 30 Create the two OSC channels using the "NTP-G38 Provision OSC Terminations" procedure on page 3-86.

Stop. **You have completed this procedure**.

NTP-G46 Perform the C-Band Line Amplifier Node with OSC-CSM Cards Acceptance Test

Purpose	This procedure tests a C-band line amplifier node with OSC-CSM cards installed on both the east and west sides of the shelf by looping a single wavelength through the shelf.
Tools/Equipment	One of the following: • A tunable laser • TXP_MR_10E_C card An optical power meter or optical spectrum analyzer 2 bulk attenuators (10 dB) with LC connectors
Prerequisite Procedures	Chapter 3, "Turn Up a Node"
Required/As Needed	Required
Onsite/Remote	Onsite
Security Level	Superuser

Note Optical power measurements require either a tunable laser or a multirate transponder to generate the proper optical wavelength. If multirate transponders were installed during completion of Chapter 3, "Turn Up a Node," they can be used for this procedure. No additional cabling changes are needed.

Step 1 Complete the "DLP-G46 Log into CTC" task on page 2-27 at the node where you want to perform the acceptance test. If you are already logged in, continue with Step 2.

Step 2 If you are using TXP_MR_10E_C cards, complete the "DLP-G268 Provision TXP_MR_10E_C Cards for Acceptance Testing" task on page 4-5. If not, continue with Step 3.

Step 3 From the View menu, choose **Go to Home View**.

Step 4 Click the **Alarms** tab.

   a. Verify that the alarm filter is not on. See the "DLP-G128 Disable Alarm Filtering" task on page 9-29 as necessary.

   b. Verify that no equipment alarms appear indicating equipment failure or other hardware problems. (Equipment alarms are indicated by an EQPT in the Alarms tab Cond column.) If alarms appear, investigate and resolve them before continuing. Refer to the *Cisco ONS 15454 DWDM Troubleshooting Guide* for procedures.

Note The OSC terminations created during node turn-up will generate an LOS alarm on the OSC-CSM card.

Step 5 In node view (single-shelf mode) or multishelf view (multishelf mode), click the **Provisioning > WDM-ANS > Port Status** tabs. Verify that all statuses under Link Status are listed as Success - Changed, Success - Unchanged, or Not Applicable. If any are not, complete the following:

   a. Delete the two OSC channels using the "DLP-G186 Delete an OSC Termination" task on page 10-45.

   b. Complete the "NTP-G37 Run Automatic Node Setup" procedure on page 3-85.

c. Create the OSC channels using the "NTP-G38 Provision OSC Terminations" procedure on page 3-86.

Step 6 Create a physical loopback on the west OSC-CSM card by connecting the LINE TX port to the LINE RX port with a fiber and 10-dB bulk attenuator.

> **Caution** Failure to use proper attenuation might damage equipment.

Step 7 Wait 90 to 100 seconds, then in node view (single-shelf mode) or multishelf view (multishelf mode) click the **Alarms** tab. Verify that the LOS alarm on the west OSC-CSM card has cleared. The clearing of the LOS alarm indicates that the OSC link is active on the west side.

> **Note** On ANSI shelves, an EOC DCC Termination Failure alarm will continue to appear due to the OSC signal loopback, and an LOS alarm will appear for the east OSC-CSM, Port 1 (OSC).

If the alarm clears, continue with Step 8. If not, perform the following steps:

a. Remove the 10-dB bulk attenuator on the OSC-CSM LINE TX and LINE RX ports and reconnect using only the patchcord.

b. In node view (single-shelf mode) or multishelf view (multishelf mode), click the **Alarms** tab. If the LOS alarm on the west OSC-CSM card clears, continue with Step 8. If not, continue with Step c.

c. Display the OSC-CSM card in card view.

d. Click the **Provisioning > Optical Line > Optics Thresholds** tabs.

e. Under Types, click **Alarm**, then click **Refresh.**

f. Locate the Port 3 Power Failure Low parameter. Double-click the table cell and change the value to –30 dBm.

g. Locate the Port 6 Power Failure Low parameter. Double-click the table cell and change the value to –40 dBm.

h. Click **Apply**, and then **Yes**.

i. In node view (single-shelf mode) or multishelf view (multishelf mode), click the **Alarms** tab. If the LOS alarm on the west OSC-CSM card clears, continue with Step 8. If not, replace the OSC-CSM card.

Step 8 If you are using a tunable laser, follow the manufacturer's instructions to complete the following steps. If you are using a TXP_MR_10E_C card, continue with Step 9.

a. Set the output power to a nominal value, such as –3 dBm.

b. Set the tuner to the wavelength under test, then continue with Step 10.

Step 9 If you are using a TXP_MR_10E_C card, complete the "DLP-G268 Provision TXP_MR_10E_C Cards for Acceptance Testing" task on page 4-5 for the TXP containing the wavelength you will test. Refer to Table 4-1 on page 4-22, if needed.

Step 10 Connect the tunable laser transmitter or the TXP_MR_10E_C card DWDM TX port to the east OSC-CSM LINE RX port using a 10-dB bulk attenuator.

> **Caution** Failure to use proper attenuation might damage equipment.

Step 11 If an OPT-PRE card is installed on the east side, complete the "DLP-G80 Verify the OPT-PRE Amplifier Laser and Power" task on page 4-6. If not, continue with Step 12.

Step 12 Display the west OSC-CSM card in card view.

Step 13 Click the **Provisioning > Optical Line > Parameters** tabs. Locate the Port 3 Power value. Verify that the value is higher than –30 dBm. If the power value is not higher than –30 dBm, check your connections and clean the fibers using the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26. If this does not change the power value, consult your next level of support.

Step 14 If an OPT-PRE card is installed on the west side of the shelf, complete the "DLP-G80 Verify the OPT-PRE Amplifier Laser and Power" task on page 4-6. If not, continue with Step 15.

Step 15 Display the east OSC-CSM card in card view.

Step 16 Click the **Provisioning > Optical Line > Parameters** tabs. Locate the Port 2 Power value. Verify that the value is higher than –30 dBm. If the power value is not higher than –30 dBm, check your connections and clean the fibers using the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26. If this does not change the power value, consult your next level of support.

Step 17 Disconnect the TXP or tunable laser from the east OSC-CSM card.

Step 18 Remove the physical loopback created on the west OSC-CSM card in Step 6.

Step 19 Create a loopback on the east OSC-CSM card by connecting the LINE TX port with LINE RX port using a patchcord and 10-dB bulk attenuator.

⚠

Caution   Failure to use proper attenuation might damage equipment.

Step 20 Wait 90 to 100 seconds, then in node view (single-shelf mode) or multishelf view (multishelf mode) click the **Alarms** tab. Verify that the LOS alarm on the east OSC-CSM card has cleared. The clearing of the LOS alarm indicates that the OSC link is active on the east side.

✎

Note   On ANSI shelves, an EOC DCC Termination Failure alarm will continue to appear due to the OSC signal loopback, and an LOS alarm will appear for the west OSC-CSM, Port 1 (OSC).

If the alarm clears, continue with Step 21. If not, perform the following steps:

a. Remove the 10-dB bulk attenuator on the OSC-CSM LINE TX and LINE RX ports and reconnect using only the patchcord.

b. Wait 90 to 100 seconds then, in node view (single-shelf mode) or multishelf view (multishelf mode), click the **Alarms** tab. If the LOS alarm on the east OSC-CSM card clears, continue with Step 21. If not, continue with Step c.

c. Display the OSC-CSM card in card view.

d. Click the **Provisioning > Optical Line > Optics Thresholds** tabs.

e. Under Types, click **Alarm**, then click **Refresh**.

f. Locate the Port 3 Power Failure Low parameter. Double-click the table cell and change the value to –30 dBm.

g. Locate the Port 6 Power Failure Low parameter. Double-click the table cell and change the value to –40 dBm.

h. Click **Apply**, and then **Yes**.

    i. In node view (single-shelf mode) or multishelf view (multishelf mode), click the **Alarms** tab. If the LOS alarm on the east OSC-CSM card clears, continue with Step 21. If not, replace the OSC-CSM card.

Step 21 If you are using a tunable laser, follow the manufacturer's instructions to complete the following steps. If you are using a TXP_MR_10E_C card, continue with Step 22.

    a. Set the output power to a nominal value, such as –3 dBm.

    b. Set the tuner to the wavelength under test, then continue with Step 23.

Step 22 If you are using a TXP_MR_10E_C card, complete the "DLP-G268 Provision TXP_MR_10E_C Cards for Acceptance Testing" task on page 4-5 for the TXP containing the wavelength you will test. Refer to Table 4-1 on page 4-22, if needed.

Step 23 Connect the tunable laser transmitter or the TXP_MR_10E_C card DWDM TX port to the west OSC-CSM LINE RX port using a 10-dB bulk attenuator.

    ⚠

Caution   Failure to use proper attenuation might damage equipment.

Step 24 If an OPT-PRE card is installed on the west side, complete the "DLP-G80 Verify the OPT-PRE Amplifier Laser and Power" task on page 4-6. If not, continue with Step 25.

Step 25 Display the east OSC-CSM card in card view.

Step 26 Click the **Provisioning > Optical Line > Parameters** tabs. Locate the Port 3 Power value. Verify that the value is higher than –30 dBm. If the power value is not higher than –30 dBm, check your connections and clean the fibers using the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26. If this does not change the power value, consult your next level of support.

Step 27 If an OPT-PRE is installed on the east side of the shelf, complete the "DLP-G80 Verify the OPT-PRE Amplifier Laser and Power" task on page 4-6 for the east OPT-PRE amplifier. If not, continue with Step 28.

Step 28 Display the west OSC-CSM card in card view.

Step 29 Click the **Provisioning > Optical Line > Parameters** tabs and locate the Power value for Port 2. Verify that the value is higher than –30 dBm. If the power value is not higher than –30 dBm, check your connections and clean the fibers using the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26. If this does not change the power value, consult your next level of support.

Step 30 Disconnect the TXP card or tunable laser from the west OSC-CSM card.

Step 31 Remove the loopback created on the east OSC-CSM card in Step 19.

Step 32 Delete both OSC channels. See the "DLP-G186 Delete an OSC Termination" task on page 10-45.

Step 33 Complete the "NTP-G37 Run Automatic Node Setup" procedure on page 3-85 to restore the original configuration.

Step 34 Create the OSC channels using the "NTP-G38 Provision OSC Terminations" procedure on page 3-86.

Stop. **You have completed this procedure**.

NTP-G156 Perform the L-Band Line Amplifier Node with OSC-CSM Cards Acceptance Test

Purpose	This procedure tests a L-band line amplifier node with OSC-CSM cards installed on both the east and west sides of the shelf by looping a single wavelength through the shelf.
Tools/Equipment	One of the following:
	• A tunable laser
	• TXP_MR_10E_L card
	An optical power meter or optical spectrum analyzer
	2 bulk attenuators (10 dB) with LC connectors
Prerequisite Procedures	Chapter 3, "Turn Up a Node"
Required/As Needed	Required
Onsite/Remote	Onsite
Security Level	Superuser

Note   Optical power measurements require either a tunable laser or a multirate transponder to generate the proper optical wavelength. If multirate transponders were installed during completion of Chapter 3, "Turn Up a Node," they can be used for this procedure. No additional cabling changes are needed.

Step 1   Complete the "DLP-G46 Log into CTC" task on page 2-27 at the node where you want to perform the acceptance test. If you are already logged in, continue with Step 2.

Step 2   If you are using TXP_MR_10E_L cards, complete the "DLP-G358 Provision TXP_MR_10E_L Card for Acceptance Testing" task on page 4-18. If not, continue with Step 3.

Step 3   From the View menu, choose **Go to Home View**.

Step 4   Click the **Alarms** tab.

a.   Verify that the alarm filter is not on. See the "DLP-G128 Disable Alarm Filtering" task on page 9-29 as necessary.

b.   Verify that no equipment alarms appear indicating equipment failure or other hardware problems. (Equipment alarms are indicated by an EQPT in the Alarms tab Cond column.) If alarms appear, investigate and resolve them before continuing. Refer to the *Cisco ONS 15454 DWDM Troubleshooting Guide* for procedures.

Note   The OSC terminations created during node turn-up will generate an LOS alarm on the OSC-CSM card.

Step 5   In node view (single-shelf mode) or multishelf view (multishelf mode), click the **Provisioning > WDM-ANS > Port Status** tabs. Verify that all statuses under Link Status are listed as Success - Changed, Success - Unchanged, or Not Applicable. If any are not, complete the following:

a.   Delete the two OSC channels using the "DLP-G186 Delete an OSC Termination" task on page 10-45.

b.   Complete the "NTP-G37 Run Automatic Node Setup" procedure on page 3-85.

      c. Create the OSC channels using the "NTP-G38 Provision OSC Terminations" procedure on page 3-86.

Step 6 Create a physical loopback on the west OSC-CSM by connecting the LINE TX port to the LINE RX port with a fiber and 10-dB bulk attenuator.

⚠️

Caution Failure to use proper attenuation might damage equipment.

Step 7 Wait 90 to 100 seconds, then in node view (single-shelf mode) or multishelf view (multishelf mode) click the **Alarms** tab. Verify that the LOS alarm on the west OSC-CSM card has cleared. The clearing of the LOS alarm indicates that the OSC link is active on the west side.

✎

Note On ANSI shelves, an EOC DCC Termination Failure alarm will continue to appear due to the OSC signal loopback, and an LOS alarm will appear for the east OSC-CSM, Port 1 (OSC).

If the alarm clears, continue with Step 8. If not, perform the following steps:

    a. Remove the 10-dB bulk attenuator on the OSC-CSM LINE TX and LINE RX ports and reconnect using only the patchcord.

    b. In node view (single-shelf mode) or multishelf view (multishelf mode), click the **Alarms** tab. If the LOS alarm on the west OSC-CSM card clears, continue with Step 8. If not, continue with Step c.

    c. Display the OSC-CSM card in card view.

    d. Click the **Provisioning > Optical Line > Optics Thresholds** tabs.

    e. Under Types, click **Alarm**, then click **Refresh.**

    f. Locate the Port 3 Power Failure Low parameter. Double-click the table cell and change the value to –30 dBm.

    g. Locate the Port 6 Power Failure Low parameter. Double-click the table cell and change the value to –40 dBm.

    h. Click **Apply**, and then **Yes**.

    i. In node view (single-shelf mode) or multishelf view (multishelf mode), click the **Alarms** tab. If the LOS alarm on the west OSC-CSM card clears, continue with Step 8. If not, replace the OSC-CSM card.

Step 8 If you are using a tunable laser, follow the manufacturer's instructions to complete the following steps. If you are using a TXP_MR_10E_L card, continue with Step 9.

    a. Set the output power to a nominal value, such as –3 dBm.

    b. Set the tuner to the wavelength under test, then continue with Step 10.

Step 9 If you are using a TXP_MR_10E_L card, complete the "DLP-G358 Provision TXP_MR_10E_L Card for Acceptance Testing" task on page 4-18 for the wavelength you will test.

Step 10 Connect the tunable laser transmitter or the TXP_MR_10E_L card DWDM TX port to the east OSC-CSM LINE RX port using a 10-dB bulk attenuator.

⚠️

Caution Failure to use proper attenuation might damage equipment.

Step 11 If an OPT-AMP-L card (provisioned in OPT-PRE mode) is installed on the east side, complete the "DLP-G360 Verify the OPT-AMP-L (OPT-PRE Mode) Amplifier Laser and Power" task on page 4-19. If not, continue with Step 12.

Step 12 Display the west OSC-CSM card in card view.

Step 13 Click the **Provisioning > Optical Line > Parameters** tabs. Locate the Port 3 Power value. Verify that the value is higher than –30 dBm. If the power value is not higher than –30 dBm, check your connections and clean the fibers using the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26. If this does not change the power value, consult your next level of support.

Step 14 If an OPT-AMP-L card (provisioned in OPT-PRE mode) is installed on the west side of the shelf, complete the "DLP-G360 Verify the OPT-AMP-L (OPT-PRE Mode) Amplifier Laser and Power" task on page 4-19. If not, continue with Step 15.

Step 15 Display the east OSC-CSM card in card view.

Step 16 Click the **Provisioning > Optical Line > Parameters** tabs. Locate the Port 2 Power value. Verify that the value is higher than –30 dBm. If the power value is not higher than –30 dBm, check your connections and clean the fibers using the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26. If this does not change the power value, consult your next level of support.

Step 17 Disconnect the TXP card or tunable laser from the east OSC-CSM card.

Step 18 Remove the physical loopback created on the west OSC-CSM card in Step 6.

Step 19 Create a loopback on the east OSC-CSM by connecting the LINE TX port with LINE RX port using a patchcord and 10-dB bulk attenuator.

Caution Failure to use proper attenuation might damage equipment.

Step 20 Wait 90 to 100 seconds, then in node view (single-shelf mode) or multishelf view (multishelf mode) click the **Alarms** tab. Verify that the LOS alarm on the east OSC-CSM card has cleared. The clearing of the LOS alarm indicates that the OSC link is active on the east side.

Note On ANSI shelves, an EOC DCC Termination Failure alarm will continue to appear due to the OSC signal loopback, and an LOS alarm will appear for the west OSC-CSM, Port 1 (OSC).

If the alarm clears, continue with Step 21. If not, perform the following steps:

a. Remove the 10-dB bulk attenuator on the OSC-CSM LINE TX and LINE RX ports and reconnect using only the patchcord.

b. Wait 90 to 100 seconds then, in node view (single-shelf mode) or multishelf view (multishelf mode), click the **Alarms** tab. If the LOS alarm on the east OSC-CSM card clears, continue with Step 21. If not, continue with Step c.

c. Display the OSC-CSM card in card view.

d. Click the **Provisioning > Optical Line > Optics Thresholds** tabs.

e. Under Types, click **Alarm**, then click **Refresh**.

f. Locate the Port 3 Power Failure Low parameter. Double-click the table cell and change the value to –30 dBm.

g. Locate the Port 6 Power Failure Low parameter. Double-click the table cell and change the value to –40 dBm.

h. Click **Apply**, and then **Yes**.

    i. In node view (single-shelf mode) or multishelf view (multishelf mode), click the **Alarms** tab. If the LOS alarm on the east OSC-CSM card clears, continue with Step 21. If not, replace the OSC-CSM card.

Step 21 If you are using a tunable laser, follow the manufacturer's instructions to complete the following steps. If you are using a TXP_MR_10E_L card, continue with Step 22.

    a. Set the output power to a nominal value, such as –3 dBm.

    b. Set the tuner to the wavelength under test, then continue with Step 23.

Step 22 If you are using a TXP_MR_10E_L card, complete the "DLP-G358 Provision TXP_MR_10E_L Card for Acceptance Testing" task on page 4-18 for the wavelength you will test.

Step 23 Connect the tunable laser transmitter or the TXP_MR_10E_L card DWDM TX port to the west OSC-CSM LINE RX port using a 10-dB bulk attenuator.

Caution Failure to use proper attenuation might damage equipment.

Step 24 If an OPT-AMP-L card (provisioned in OPT-PRE mode) is installed on the west side, complete the "DLP-G360 Verify the OPT-AMP-L (OPT-PRE Mode) Amplifier Laser and Power" task on page 4-19. If not, continue with Step 25.

Step 25 Display the east OSC-CSM card in card view.

Step 26 Click the **Provisioning > Optical Line > Parameters** tabs. Locate the Port 3 Power value. Verify that the value is higher than –30 dBm. If the power value is not higher than –30 dBm, check your connections and clean the fibers using the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26. If this does not change the power value, consult your next level of support.

Step 27 If an OPT-AMP-L card (provisioned in OPT-PRE mode) is installed on the east side, complete the "DLP-G360 Verify the OPT-AMP-L (OPT-PRE Mode) Amplifier Laser and Power" task on page 4-19. If not, continue with Step 28.

Step 28 Display the west OSC-CSM card in card view.

Step 29 Click the **Provisioning > Optical Line > Parameters** tabs and locate the Power value for Port 2. Verify that the value is higher than –30 dBm. If the power value is not higher than –30 dBm, check your connections and clean the fibers using the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26. If this does not change the power value, consult your next level of support.

Step 30 Disconnect the TXP card or tunable laser from the west OSC-CSM card.

Step 31 Remove the loopback created on the east OSC-CSM card in Step 19.

Step 32 Delete both OSC channels. See the "DLP-G186 Delete an OSC Termination" task on page 10-45.

Step 33 Complete the "NTP-G37 Run Automatic Node Setup" procedure on page 3-85 to restore the original configuration.

Step 34 Create the OSC channels using the "NTP-G38 Provision OSC Terminations" procedure on page 3-86.

Stop. **You have completed this procedure**.

NTP-G47 Perform the C-Band Line Amplifier Node with OSCM and OSC-CSM Cards Acceptance Test

Purpose	This procedure tests a C-band line amplifier node provisioned with an OSC-CSM card installed on one side of the shelf and an OSCM card installed on the other. This test verifies that a line amplifier node provisioned is operating properly before you connect it to the network. The test verifies the operation of the amplifiers and checks the power levels at each transmit and receive port to ensure that power loss in the cabling is within tolerance.
Tools/Equipment	One of the following: • A tunable laser or • TXP_MR_10E_C card An optical power meter or optical spectrum analyzer 2 bulk attenuators (10 dB) with LC connectors
Prerequisite Procedures	Chapter 3, "Turn Up a Node"
Required/As Needed	Required
Onsite/Remote	Onsite
Security Level	Superuser

Note Optical power measurements require either a tunable laser or a multirate transponder to generate the proper optical wavelength. If multirate transponders were installed during completion of Chapter 3, "Turn Up a Node," they can be used for this procedure. No additional cabling changes are needed.

Note Because the node is isolated and no line-side fibers are connected during the test, the power levels going into the line-side cards will not be the same as the levels when the node is connected to the network. Therefore, if the line amplifier shelf does not contain OPT-BST or OPT-BST-E and OPT-PRE amplifiers on both the east and west sides, you must lower the OPT-PRE power thresholds so that it turns on properly. At the end of the test, you will run automatic node setup (ANS) to configure the node with the correct parameters for the network acceptance test.

Step 1 Complete the "DLP-G46 Log into CTC" task on page 2-27 at the node where you want to perform the acceptance test. If you are already logged in, continue with Step 2.

Step 2 If you are using TXP_MR_10E_C cards, complete the "DLP-G268 Provision TXP_MR_10E_C Cards for Acceptance Testing" task on page 4-5. If not, continue with Step 3.

Step 3 Display the terminal node in node view (single-shelf mode) or multishelf view (multishelf mode).

Step 4 Click the **Alarms** tab.

    a. Verify that the alarm filter is not on. See the "DLP-G128 Disable Alarm Filtering" task on page 9-29 as necessary.

    b. Verify that no equipment alarms appear indicating equipment failure or other hardware problems. (Equipment alarms are indicated by an EQPT in the Alarms tab Cond column.) If alarms appear, investigate and resolve them before continuing. Refer to the *Cisco ONS 15454 DWDM Troubleshooting Guide* for procedures.

> ✎
> **Note**   The OSC terminations created during node turn-up will generate two alarms for each side of the shelf, one for an LOS on the OPT-BST or OPT-BST-E card, and the other for an LOS on the OSC-CSM or OSCM card.

Step 5   In node view (single-shelf mode) or multishelf view (multishelf mode), click the **Provisioning > WDM-ANS > Port Status** tabs. Verify that all statuses under Link Status are listed as Success - Changed, Success - Unchanged, or Not Applicable. If any are not, complete the following:

   a.   Delete the two OSC channels using the "DLP-G186 Delete an OSC Termination" task on page 10-45.

   b.   Complete the "NTP-G37 Run Automatic Node Setup" procedure on page 3-85.

   c.   Create the OSC channels using the "NTP-G38 Provision OSC Terminations" procedure on page 3-86.

Step 6   Create a loopback on the OSC-CSM card by connecting the LINE TX port to the LINE RX port using a patchcord and 10-dB bulk attenuator.

> ⚠
> **Caution**   Failure to use proper attenuation might damage equipment.

Step 7   Wait 90 to 100 seconds, then in node view (single-shelf mode) or multishelf view (multishelf mode) click the **Alarms** tab. Verify that the LOS alarm on the OSC-CSM card has cleared. The clearing of the LOS alarm indicates that the OSC link is active for this side of the shelf.

> ✎
> **Note**   On ANSI shelves, an EOC DCC Termination Failure alarm will continue to appear due to the OSC signal loopback.

If the alarm clears, continue with Step 8. If not, perform the following steps:

   a.   Remove the 10-dB bulk attenuator on the OSC-CSM LINE TX and LINE RX ports and reconnect using only the patchcord.

   b.   In node view (single-shelf mode) or multishelf view (multishelf mode), click the **Alarms** tab. If the LOS alarm on the OSC-CSM card clears, continue with Step 8. If not, continue with Step c.

   c.   Display the OSC-CSM card in card view.

   d.   Click the **Provisioning > Optical Line > Optics Thresholds** tabs.

   e.   Under Types, click **Alarm**, then click **Refresh.**

   f.   Locate the Port 3 Power Failure Low parameter. Double-click the table cell and change the value to –30 dBm.

   g.   Locate the Port 6 Power Failure Low parameter. Double-click the table cell and change the value to –40 dBm.

   h.   Click **Apply**, and then **Yes**.

   i.   In node view (single-shelf mode) or multishelf view (multishelf mode), click the **Alarms** tab. If the LOS alarm on the OSC-CSM card clears, continue with Step 8. If not, replace the OSC-CSM card.

Step 8   If you are using a tunable laser, follow the manufacturer's instructions to complete the following steps. If you are using a TXP_MR_10E_C card, continue with Step 9.

   a.   Set the output power to a nominal value, such as –3 dBm.

    b.   Set the tuner to the wavelength under test, then continue with Step 10.

Step 9   If you are using a TXP_MR_10E_C card, complete the "DLP-G268 Provision TXP_MR_10E_C Cards for Acceptance Testing" task on page 4-5 for the TXP containing the wavelength you will test. Refer to Table 4-1 on page 4-22, if needed.

Step 10   Measure the TXP output power by connecting the TXP DWDM TX port to a test meter. Record the results for future reference.

Step 11   Connect the tunable laser transmitter or the TXP_MR_10E_C card DWDM TX port to the OPT-BST or OPT-BST-E LINE RX port using a fiber patchcord and 10-dB bulk attenuator.

⚠

Caution   Failure to use proper attenuation might damage equipment.

Step 12   If an OPT-PRE card is installed on the side opposite the OSC-CSM, complete the "DLP-G80 Verify the OPT-PRE Amplifier Laser and Power" task on page 4-6. If not, continue with Step 13.

Step 13   Display the OSC-CSM card in card view.

Step 14   Click the **Provisioning > Optical Line > Parameters** tabs and locate the Port 2 (COM-RX) Power value. Verify that the value is higher than –30 dBm. If the power value is not higher than –30 dBm, check your connections and clean the fibers using the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26. If this does not change the power value, consult your next level of support.

Step 15   If an OPT-PRE card is installed on the same side as the OSC-CSM, complete the "DLP-G80 Verify the OPT-PRE Amplifier Laser and Power" task on page 4-6. If not, continue with Step 16.

Step 16   Complete the "DLP-G79 Verify the OPT-BST, OPT-BST-E, or OPT-BST-L Amplifier Laser and Power" task on page 4-6 for the OPT-BST or OPT-BST-E card.

Step 17   Disconnect the TXP or tunable laser from the OPT-BST or OPT-BST-E card.

Step 18   Remove the loopback fiber on the OSC-CSM card.

Step 19   Delete both OSC channels. See the "DLP-G186 Delete an OSC Termination" task on page 10-45.

Step 20   Complete the "NTP-G37 Run Automatic Node Setup" procedure on page 3-85 to restore the original configuration.

Step 21   Create the OSC channels using the "NTP-G38 Provision OSC Terminations" procedure on page 3-86.

Step 22   Create a loopback on the OPT-BST or OPT-BST-E card by connecting the LINE TX port with LINE RX port using a patchcord and 10-dB bulk attenuator.

Step 23   Wait 90 to 100 seconds, then in node view (single-shelf mode) or multishelf view (multishelf mode) click the **Alarms** tab. Verify that the LOS alarms on the OPT-BST or OPT-BST-E and OSCM cards have cleared. The clearing of the LOS alarms indicates that the OSC link is active for this side of the shelf.

✎

Note   On ANSI shelves, an EOC DCC Termination Failure alarm will continue to appear due to the OSC signal loopback.

    If the alarms clear, continue with Step 24. If not, perform the following steps:

    a.   Display the OPT-BST or OPT-BST-E card in card view.

    b.   Click the **Provisioning > Optical Line > Optics Thresholds** tabs.

    c.   Under Types, click **Alarms**, then click **Refresh**.

    d.   Locate the Port 2 (COM-TX) Power Failure Low parameter. Double-click the table cell and change the value to –30 dBm.

    e. Locate the Port 4 (OSC-TX) Power Failure Low parameter. Double-click the table cell and change the value to –40 dBm.

    f. Click **Apply**, and then **Yes**.

    g. Wait 90 to 100 seconds, then in node view (single-shelf mode) or multishelf view (multishelf mode) click the **Alarms** tab. Verify that the LOS alarms on the OPT-BST or OPT-BST-E card has cleared. If so, continue with Step 24. If not, disconnect the OSCM card from the OPT-BST or OPT-BST-E card.

    h. Create a loopback on the OSCM card by connecting a patch cable from the OSC TX port to the OSC RX port using a 10-dB bulk attenuator.

    i. Wait 90 to 100 seconds, then in node view (single-shelf mode) or multishelf view (multishelf mode) click the **Alarms** tab. Verify that the LOS alarm on the OSCM card has cleared. If not, check your connections and clean the fibers using the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26. If this does not change the power value, consult your next level of support.

Step 24 Connect the tunable laser transmitter or the TXP_MR_10E_C card DWDM TX port to the OSC-CSM LINE RX port using a fiber patchcord and 10-dB bulk attenuator.

Step 25 If an OPT-PRE is installed on the same side of the shelf as the OSC-CSM, complete the "DLP-G80 Verify the OPT-PRE Amplifier Laser and Power" task on page 4-6. If not, continue with Step 26.

Step 26 Complete the "DLP-G79 Verify the OPT-BST, OPT-BST-E, or OPT-BST-L Amplifier Laser and Power" task on page 4-6 for the OPT-BST or OPT-BST-E card.

Step 27 Display the OSC-CSM card in card view.

Step 28 Click the **Provisioning > Optical Line > Parameters** tabs. Verify that the power value on Port 3 (COM-TX) is equal to the optical power from the tunable laser or TXP_MR_10E_C card (measured in Step 10) –10dB, +/– 2 dB. If not, check your connections and clean the fibers using the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26. If this does not change the power value, consult your next level of support.

Step 29 If an OPT-PRE card is installed on the side opposite the OSC-CSM, complete the "DLP-G80 Verify the OPT-PRE Amplifier Laser and Power" task on page 4-6. If not, continue with Step 30.

Step 30 Disconnect the TXP or tunable laser from the OSC-CSM card.

Step 31 Remove the loopback fiber on the OPT-BST or OPT-BST-E amplifier card.

Step 32 Delete both OSC channels. See the "DLP-G186 Delete an OSC Termination" task on page 10-45.

Step 33 Complete the "NTP-G37 Run Automatic Node Setup" procedure on page 3-85 to restore the original configuration.

Step 34 Create the OSC channels using the "NTP-G38 Provision OSC Terminations" procedure on page 3-86.

Stop. **You have completed this procedure**.

NTP-G157 Perform the L-Band Line Amplifier Node with OSCM and OSC-CSM Cards Acceptance Test

Purpose	This procedure tests a L-band line amplifier node with an OSC-CSM card installed on one side of the shelf and an OSCM card installed on the other.
Tools/Equipment	One of the following:
	• A tunable laser or
	• TXP_MR_10E_L card
	An optical power meter or optical spectrum analyzer
	2 bulk attenuators (10 dB) with LC connectors
Prerequisite Procedures	Chapter 3, "Turn Up a Node"
Required/As Needed	Required
Onsite/Remote	Onsite
Security Level	Superuser

Note   Optical power measurements require either a tunable laser or a multirate transponder to generate the proper optical wavelength. If multirate transponders were installed during completion of Chapter 3, "Turn Up a Node," they can be used for this procedure. No additional cabling changes are needed.

Step 1   Complete the "DLP-G46 Log into CTC" task on page 2-27 at the node where you want to perform the acceptance test. If you are already logged in, continue with Step 2.

Step 2   If you are using TXP_MR_10E_L cards, complete the "DLP-G358 Provision TXP_MR_10E_L Card for Acceptance Testing" task on page 4-18. If not, continue with Step 3.

Step 3   From the View menu, choose **Go to Home View**.

Step 4   Click the **Alarms** tab.

    a.   Verify that the alarm filter is not on. See the "DLP-G128 Disable Alarm Filtering" task on page 9-29 as necessary.

    b.   Verify that no equipment alarms appear indicating equipment failure or other hardware problems. (Equipment alarms are indicated by an EQPT in the Alarms tab Cond column.) If alarms appear, investigate and resolve them before continuing. Refer to the *Cisco ONS 15454 DWDM Troubleshooting Guide* for procedures.

Note   The OSC terminations created during node turn-up will generate two alarms for each side of the shelf, one for an LOS on the OPT-BST-L card, and the other for an LOS on the OSC-CSM or OSCM card. If OSCM cards are installed on ANSI shelves, EOC DCC Termination Failure alarms will appear.

Step 5   In node view (single-shelf mode) or multishelf view (multishelf mode), click the **Provisioning > WDM-ANS > Port Status** tabs. Verify that all statuses under Link Status are listed as Success - Changed, Success - Unchanged, or Not Applicable. If any are not, complete the following:

    a.   Delete the two OSC channels using the "DLP-G186 Delete an OSC Termination" task on page 10-45.

b. Complete the "NTP-G37 Run Automatic Node Setup" procedure on page 3-85.

c. Create the OSC channels using the "NTP-G38 Provision OSC Terminations" procedure on page 3-86.

Step 6 Create a loopback on the OSC-CSM card by connecting the LINE TX port to the LINE RX port using a fiber patchcord and 10-dB bulk attenuator.

⚠

Caution Failure to use proper attenuation might damage equipment.

Step 7 Wait 90 to 100 seconds, then in node view (single-shelf mode) or multishelf view (multishelf mode) click the **Alarms** tab. Verify that the LOS alarm on the OSC-CSM card has cleared. The clearing of the LOS alarm indicates that the OSC link is active for this side of the shelf.

✎

Note On ANSI shelves, an EOC DCC Termination Failure alarm will continue to appear due to the OSC signal loopback.

If the alarm clears, continue with Step 8. If not, perform the following steps:

a. Remove the 10-dB bulk attenuator on the OSC-CSM LINE TX and LINE RX ports and reconnect using only the patchcord.

b. In node view (single-shelf mode) or multishelf view (multishelf mode), click the **Alarms** tab. If the LOS alarm on the OSC-CSM card clears, continue with Step 8. If not, continue with Step c.

c. Display the OSC-CSM card in card view.

d. Click the **Provisioning > Optical Line > Optics Thresholds** tabs.

e. Under Types, click **Alarm**, then click **Refresh.**

f. Locate the Port 3 Power Failure Low parameter. Double-click the table cell and change the value to –30 dBm.

g. Locate the Port 6 Power Failure Low parameter. Double-click the table cell and change the value to –40 dBm.

h. Click **Apply**, and then **Yes**.

i. In node view (single-shelf mode) or multishelf view (multishelf mode), click the **Alarms** tab. If the LOS alarm on the OSC-CSM card clears, continue with Step 8. If not, replace the OSC-CSM card.

Step 8 If you are using a tunable laser, follow the manufacturer's instructions to complete the following steps. If you are using a TXP_MR_10E_L card, continue with Step 9.

a. Set the output power to a nominal value, such as –3 dBm.

b. Set the tuner to the wavelength under test, then continue with Step 10.

Step 9 If you are using a TXP_MR_10E_L card, complete the "DLP-G358 Provision TXP_MR_10E_L Card for Acceptance Testing" task on page 4-18 for the wavelength you will test.

Step 10 Measure the TXP card output power by connecting the TXP card DWDM TX port to a test meter. Record the results for future reference.

Step 11 Connect the tunable laser transmitter or the TXP_MR_10E_L card DWDM TX port to the OPT-BST-L LINE RX port using a 10-dB bulk attenuator.

⚠

Caution Failure to use proper attenuation might damage equipment.

Step 12   Display the OPT-BST-L card in card view.

Step 13   Click the **Provisioning > Optical Line > Parameters** tabs. Verify that the power value on Port 2 (Out Com) is equal to the optical power from the tunable laser or TXP_MR_10E_L card (measured in Step 10) +/– 1 dBm.

Step 14   If an OPT-AMP-L card (provisioned in OPT-PRE mode) is installed on the side opposite the OSC-CSM card, complete the "DLP-G360 Verify the OPT-AMP-L (OPT-PRE Mode) Amplifier Laser and Power" task on page 4-19. If not, continue with Step 15.

Step 15   Display the OSC-CSM card in card view.

Step 16   Click the **Provisioning > Optical Line > Parameters** tabs and locate the Port 3 Power value. Verify that the value is higher than –30 dBm. If the power value is not higher than –30 dBm, check your connections and clean the fibers using the "NTP-G115 Clean Fiber Connectors" procedure on page 13-26. If this does not change the power value, consult your next level of support.

Step 17   If an OPT-AMP-L card (provisioned in OPT-PRE mode) is installed on the same side as the OSC-CSM, complete the "DLP-G360 Verify the OPT-AMP-L (OPT-PRE Mode) Amplifier Laser and Power" task on page 4-19. If not, continue with Step 18.

Step 18   Complete the "DLP-G359 Verify the OPT-BST-L or OPT-AMP-L (OPT-Line Mode) Amplifier Laser and Power" task on page 4-19 for the OPT-BST-L card.

Step 19   Disconnect the TXP card or tunable laser from the OPT-BST-L card.

Step 20   Remove the loopback fiber on the OSC-CSM card.

Step 21   Delete both OSC channels. See the "DLP-G186 Delete an OSC Termination" task on page 10-45.

Step 22   Complete the "NTP-G37 Run Automatic Node Setup" procedure on page 3-85 to restore the original configuration.

Step 23   Create the OSC channels using the "NTP-G38 Provision OSC Terminations" procedure on page 3-86.

Step 24   Create a loopback on the OPT-BST-L card by connecting the LINE TX port with LINE RX port using a patchcord and 10-dB bulk attenuator.

Step 25   Wait 90 to 100 seconds, then in node view (single-shelf mode) or multishelf view (multishelf mode) click the **Alarms** tab. Verify that the LOS alarms on the OPT-BST-L and OSCM cards have cleared. The clearing of the LOS alarms indicates that the OSC link is active for this side of the shelf.

> **Note**   On ANSI shelves, an EOC DCC Termination Failure alarm will continue to appear due to the OSC signal loopback.

If the alarms clear, continue with Step 26. If not, perform the following steps:

   a.   Display the OPT-BST-L card in card view.

   b.   Click the **Provisioning > Optical Line > Optics Thresholds** tabs.

   c.   Under Types, click **Alarms**, then click **Refresh**.

   d.   Locate the Port 2 Power Failure Low parameter. Double-click the table cell and change the value to –30 dBm.

   e.   Locate the Port 4 Power Failure Low parameter. Double-click the table cell and change the value to –40 dBm.

   f.   Click **Apply**, and then **Yes**.

   g.   Wait 90 to 100 seconds, then in node view (single-shelf mode) or multishelf view (multishelf mode) click the **Alarms** tab. Verify that the LOS alarms on the OPT-BST-L card has cleared. If so, continue with Step 26. If not, disconnect the OSCM card from the OPT-BST-L card.

      h. Create a loopback on the OSCM card by connecting a patch cable from the OSC TX port to the OSC RX port using a 10-dB bulk attenuator.

      i. Wait 90 to 100 seconds, then in node view (single-shelf mode) or multishelf view (multishelf mode) click the **Alarms** tab. Verify that the LOS alarm on the OSCM card has cleared. If so, replace the OPT-BST-L card. If not, replace the OSCM card. See the "NTP-G30 Install the DWDM Cards" procedure on page 3-46.

Step 26 Connect the tunable laser transmitter or the TXP_MR_10E_L card DWDM TX port to the OSC-CSM LINE RX port using a 10-dB bulk attenuator.

Step 27 If an OPT-AMP-L card (provisioned in OPT-PRE mode) is installed on the same side of the shelf as the OSC-CSM, complete the "DLP-G360 Verify the OPT-AMP-L (OPT-PRE Mode) Amplifier Laser and Power" task on page 4-19. If not, continue with Step 28.

Step 28 Complete the "DLP-G359 Verify the OPT-BST-L or OPT-AMP-L (OPT-Line Mode) Amplifier Laser and Power" task on page 4-19 for the OPT-BST-L card.

Step 29 Display the OSC-CSM card in card view.

Step 30 Click the **Provisioning > Optical Line > Parameters** tabs. Verify that the power value on Port 3 (Out Com) is equal to the optical power from the tunable laser or TXP_MR_10E_L card (measured in Step 10) +/– 1 dBm.

Step 31 If an OPT-AMP-L card (provisioned in OPT-PRE mode) is installed on the side opposite the OSC-CSM, complete the "DLP-G360 Verify the OPT-AMP-L (OPT-PRE Mode) Amplifier Laser and Power" task on page 4-19. If not, continue with Step 32.

Step 32 Disconnect the TXP card or tunable laser from the OSC-CSM card.

Step 33 Remove the loopback fiber on the OPT-BST-L amplifier card.

Step 34 Delete both OSC channels. See the "DLP-G186 Delete an OSC Termination" task on page 10-45.

Step 35 Complete the "NTP-G37 Run Automatic Node Setup" procedure on page 3-85 to restore the original configuration.

Step 36 Create the OSC channels using the "NTP-G38 Provision OSC Terminations" procedure on page 3-86.

      Stop. **You have completed this procedure**.

NTP-G48 Perform the OADM Node Acceptance Test on a Symmetric Node with OSCM Cards

Purpose	This procedure checks the integrity of all the optical connections inside an OADM node with OSCM cards installed on both the east and west sides of the shelf. Three connection types are tested:
	• Express
	• Pass-through
	• Add/Drop
Tools/Equipment	A tunable laser or a TXP_MR_10E_C card
	An optical power meter or optical spectrum analyzer
	Two bulk attenuators (10 dB) with LC connectors
Prerequisite Procedures	Chapter 3, "Turn Up a Node."
Required/As Needed	Required
Onsite/Remote	Onsite
Security Level	Superuser

Note   Optical power measurements require either a tunable laser or a multirate transponder to generate the proper optical wavelength. If multirate transponders were installed during completion of Chapter 3, "Turn Up a Node," they can be used for this procedure. No additional cabling changes are needed.

Step 1   Complete the "DLP-G46 Log into CTC" task on page 2-27 at the OADM node where you want to perform the acceptance test. If you are already logged in, continue with Step 2.

Step 2   From the View menu, choose **Go to Network View**.

Step 3   Click the **Alarms** tab.

    a.   Verify that the alarm filter is not on. See the "DLP-G128 Disable Alarm Filtering" task on page 9-29 as necessary.

    b.   Verify that no equipment alarms appear indicating equipment failure or other hardware problems. (Equipment alarms are indicated by an EQPT in the Alarms tab Cond column.) If equipment failure alarms appear, investigate and resolve them before continuing. Refer to the *Cisco ONS 15454 DWDM Troubleshooting Guide* for procedures.

Step 4   In node view (single-shelf mode) or multishelf view (multishelf mode), click the **Provisioning > WDM-ANS > Port Status** tabs. Verify that all statuses under Link Status are Success - Changed, Success - Unchanged, or Not Applicable. If not, complete the "NTP-G37 Run Automatic Node Setup" procedure on page 3-85.

Step 5   Check your Cisco MetroPlanner site configuration file to verify the presence of added and dropped bands (including four channels at 100 GHz) configured in pass-through mode in either direction.

Note   Configuring a band in pass-through mode means that the band is dropped in one direction by an AD-xB-xx.x card on one side (east or west) of the node, then added by another AD-xB-x.xx card on the opposite side in the same direction. The band is not terminated inside the node.

Step 6 If no bands are configured in pass-through mode, continue with Step 7. If a band is configured in pass-through mode, mark it and skip the related optical test for the express, add, and drop sections. Band pass-through connections are verified separately.

Step 7 Check the site configuration file from Cisco MetroPlanner to verify the presence of dropped or added channels configured in pass-through mode in either direction.

> ✎
> **Note** Configuring a channel in pass-through mode means that the channel is dropped in one direction by an AD-xC-xx.x card on one side (east or west) of the node, then added by another AD-xC-x.xx card on the opposite side in the same direction. The channel is not terminated inside the node.

Step 8 If no channels are configured in pass-through mode, continue with Step 9. If a channel is configured in pass-through mode, mark it and skip the related optical test for the express, add, and drop sections. Channel pass-through connections are verified separately.

Step 9 Create a loopback on the west OPT-BST or OPT-BST-E card by connecting the LINE TX port to the LINE RX port using a patchcord and 10-dB bulk attenuator.

Step 10 Verify that the OSC link becomes active on the west OSCM card. (The OSC termination must be already provisioned. If not, complete the "NTP-G38 Provision OSC Terminations" procedure on page 3-86.) If the OSC link becomes active, continue with Step 11. If the OSC link does not turn up, complete the following steps:

- **a.** Modify the OSC Fail Low thresholds. Click the **Provisioning > Optical Line > Optics Thresholds** tabs and change the Port 4 opwrMin (minimum power) to –40 dBm.

- **b.** Modify the COM TX Fail Low Threshold. Change the Port 2 opwrMin (minimum power) to –30 dBm.

- **c.** If the OSC link turns up, continue with Step 11. If the OSC link is still down, disconnect the OSCM card from the OPT-BST or OPT-BST-E card.

- **d.** Create a loopback on the OSCM card by connecting patch cable from the OSC TX port to the OSC RX port using a 10-dB bulk attenuator.

- **e.** If the OSC link turns up, replace the OPT-BST or OPT-BST-E card. If the OSC link does not turn up, replace the OSCM card.

> ✎
> **Note** Due to the OSC signal loopback, on ANSI shelves, an EOC DCC Termination Failure alarm might be raised.

Step 11 If the node has express bands or channels, complete the "DLP-G85 Verify Express Channel Connections on an OADM Node with OSCM Cards" task on page 4-95. If the node does not have express bands or channels, continue with Step 12.

Step 12 If connections configured in pass-through mode are present (noted in Steps 6 and 8), complete the "DLP-G89 Verify OADM Node Pass-Through Channel Connections" task on page 4-98. If not, continue with Step 13.

Step 13 If connections have add/drop connections, complete the "DLP-G93 Verify Add and Drop Connections on an OADM Node with OSCM Cards" task on page 4-101.

Stop. **You have completed this procedure**.

DLP-G85 Verify Express Channel Connections on an OADM Node with OSCM Cards

Purpose	This task verifies the express channel connections during an OADM node acceptance test.
Tools/Equipment	A tunable laser or a TXP_MR_10E_C
Prerequisite Procedures	DLP-G46 Log into CTC, page 2-27
Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	Superuser

Step 1 If you are using a tunable laser, set the output power to a nominal value, such as –3 dBm. If not, continue with Step 2.

Step 2 Connect the tunable laser transmitter or the TXP_MR_10E_C card DWDM TX port to the east OPT-BST or OPT-BST-E LINE RX port.

Step 3 Based on the Cisco MetroPlanner site configuration file, tune the tunable laser of TXP_MR_10E_C card to a wavelength (on the 100-GHz ITU-T grid) that runs on the express path of all AD-xB-xx.x and AD-xC-xx.x cards on the east-to-west and west-to-east directions. Refer to the tunable laser manufacturer's documentation or the "DLP-G268 Provision TXP_MR_10E_C Cards for Acceptance Testing" task on page 4-5.

Step 4 If an OPT-PRE card is installed on the east side, insert a 10-dB bulk attenuator on the COM RX port and complete the "DLP-G80 Verify the OPT-PRE Amplifier Laser and Power" task on page 4-6. If an OPT-PRE card is not installed on the east side, continue with Step 5.

Step 5 If AD-xB-xx.x cards are installed on the east side, complete the "DLP-G87 Verify the AD-xB-xx.x Output Express Power" task on page 4-96 for each east side card. If not, continue with Step 6.

> ✎
> **Note** If AD-xB-xx.x and AD-xC-xx.x cards are both installed in one direction, the received express channels will go into the AD-xB-xx.x cards first, then into the AD-xC-xx.x cards.

Step 6 If AD-xC-xx.x cards are installed on the east side, complete the "DLP-G88 Verify the AD-xC-xx.x Output Express Power" task on page 4-96 for each east side card. If not, continue with Step 7.

Step 7 If AD-xC-xx.x cards are installed on the west side, complete the "DLP-G271 Verify the AD-xC-xx.x Output Common Power" task on page 4-97 for each west side card. If not, continue with Step 8.

Step 8 If AD-xB-xx.x cards are installed on the west side, complete the "DLP-G272 Verify the AD-xB-xx.x Output Common Power" task on page 4-97 for each west side card. If not, continue with Step 9.

Step 9 Complete the "DLP-G79 Verify the OPT-BST, OPT-BST-E, or OPT-BST-L Amplifier Laser and Power" task on page 4-6 for the OPT-BST or OPT-BST-E card installed on the east side.

Step 10 If an OPT-PRE card is installed on the west side, complete the "DLP-G80 Verify the OPT-PRE Amplifier Laser and Power" task on page 4-6. If an OPT-PRE card is not installed, continue with Step 11.

Step 11 Repeat Steps 5 through 8 for the AD-xB-xx.x and AD-xC-xx.x cards along the west-to-east direction.

Step 12   Complete the "DLP-G79 Verify the OPT-BST, OPT-BST-E, or OPT-BST-L Amplifier Laser and Power" task on page 4-6 for the OPT-BST or OPT-BST-E card installed on the west side.

Step 13   Return to the originating procedure (NTP).

DLP-G87 Verify the AD-xB-xx.x Output Express Power

Purpose	This task verifies the output express power of AD-xB-xx.x cards.
Tools/Equipment	None
Prerequisite Procedures	DLP-G46 Log into CTC, page 2-27
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Superuser

Step 1   Display the AD-xB-xx.x card in card view.

Step 2   Click the **Provisioning > Optical Line > Parameters** tabs.

Step 3   Change the Output Express port administrative state to **OOS,MT** (ANSI) or **Locked,maintenance** (ETSI). Click **Apply**.

Step 4   Verify that the Output Express port Power value is greater than the default no-power value of –28 dBm.

Step 5   Return to your originating procedure (NTP).

DLP-G88 Verify the AD-xC-xx.x Output Express Power

Purpose	This task verifies the output express power of the AD-xC-xx.x cards.
Tools/Equipment	None
Prerequisite Procedures	DLP-G46 Log into CTC, page 2-27
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Superuser

Step 1   Display the AD-xC-xx.x card in card view.

Step 2   Click the **Provisioning > Optical Line > Parameters** tabs.

Step 3   Change the Output Express port administrative state to **OOS,MT** (ANSI) or **Locked,maintenance** (ETSI). Click **Apply**.

Step 4   Verify that the Output Express port Power value is greater than the default no-power value of –30 dBm.

Step 5   Return to your originating procedure (NTP).

DLP-G271 Verify the AD-xC-xx.x Output Common Power

Purpose	This task verifies the common power of the AD-xC-xx.x cards.
Tools/Equipment	None
Prerequisite Procedures	DLP-G46 Log into CTC, page 2-27
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Superuser

Step 1   Display the AD-xC-xx.x card in card view.

Step 2   Click the **Provisioning > Optical Line > Parameters** tabs.

Step 3   Verify that the Output Com port Power value is greater than the default no-power value of –30 dBm.

Step 4   Return to your originating procedure (NTP).

DLP-G272 Verify the AD-xB-xx.x Output Common Power

Purpose	This task verifies the output common power of the AD-xB-xx.x cards.
Tools/Equipment	None
Prerequisite Procedures	DLP-G46 Log into CTC, page 2-27
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Superuser

Step 1   Display the AD-xB-xx.x card in card view.

Step 2   Click the **Provisioning > Optical Line > Parameters** tabs.

Step 3   Verify that the Output Com port Power value is greater than the default no-power value of –28 dBm.

Step 4   Return to your originating procedure (NTP).

DLP-G89 Verify OADM Node Pass-Through Channel Connections

Purpose	This task verifies the pass-through channel connections during an OADM node acceptance test.
Tools/Equipment	A tunable laser or a TXP_MR_10E_C
Prerequisite Procedures	DLP-G46 Log into CTC, page 2-27
Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	Superuser

Step 1 Identify the first band connection configured in pass-through mode in both directions.

Step 2 Set the tunable laser or TXP_MR_10E_C card to the wavelength of the band to be tested. Refer to the tunable laser manufacturer's documentation or the "DLP-G268 Provision TXP_MR_10E_C Cards for Acceptance Testing" task on page 4-5.

Step 3 Complete the "DLP-G90 Verify an AD-xB-xx.x Pass-Through Connection Power" task on page 4-99 for the first pass-through connection.

Step 4 Complete one of the following:

- If OSCM cards are installed, connect a power meter to the east OPT-BST or OPT-BST-E LINE TX port and verify that the east amplifier is turned on by the pass-through wavelength.

- If OSC-CSM cards are installed, complete the "DLP-G84 Verify the OSC-CSM Incoming Power" task on page 4-101 for the east OSC-CSM card.

Step 5 Complete Steps 2 through 4 for all band connections configured in pass-through mode in both directions.

Step 6 If channel pass-through connections are not present, continue with Step 15. If channel pass-through connections are present, continue with one of the following steps:

- If the pass-through channel connections use an AD-xC-xx.x card, continue with Step 7.

- If the pass-through channel connections use a 4MD-xx.x card, continue with Step 11.

Step 7 Tune the tunable laser on a wavelength (1 of 4) belonging to the channel to be tested.

Step 8 Complete the "DLP-G91 Verify an AD-xC-xx.x Pass-Through Connection" task on page 4-100 for the first pass-through connection.

Step 9 Complete one of the following:

- If an OSCM card is installed, connect a power meter to LINE TX port on the front-pane and verify that the east OPT-BST or OPT-BST-E amplifier is turned on by the pass-through wavelength.

- If an OSC-CSM card is installed, complete the "DLP-G84 Verify the OSC-CSM Incoming Power" task on page 4-101 for the east OSC-CSM card.

Step 10 If the pass-through connections use a 4MD-xx.x, continue with Step 11. If not, continue with Step 15.

Step 11 Identify the first channel connection that is configured in pass-through mode using the 4MD-xx.x cards in both directions.

Step 12 Tune the tunable laser on the corresponding wavelength.

Step 13 Complete the "DLP-G92 Verify 4MD-xx.x Pass-Through Connection Power" task on page 4-104.

Step 14 Perform one of the following:

- If an OSCM card is installed, connect a power meter to LINE TX port on the card front panel and verify that the east OPT-BST or OPT-BST-E amplifier is turned on by the pass-through wavelength.

- If an OSC-CSM card is installed, complete the "DLP-G84 Verify the OSC-CSM Incoming Power" task on page 4-101 for the east OSC-CSM card.

Step 15 Return to your originating procedure (NTP).

DLP-G90 Verify an AD-xB-xx.x Pass-Through Connection Power

Purpose	This task verifies an AD-xB-xx.x pass-through connection.
Tools/Equipment	None
Prerequisite Procedures	DLP-G46 Log into CTC, page 2-27
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Superuser

Step 1 Verify the east AD-xB-xx.x band TX power:

    a. Display the east AD-xB-xx.x card in card view.

    b. Click the **Provisioning > Optical Band > Parameters** tabs.

    c. Change the administrative state of the BAND TX (east-to-west) port related to the wavelength selected on the tunable laser to **OOS,MT** (ANSI) or **Locked,maintenance** (ETSI). Click **Apply**.

    d. Verify that the BAND TX port Power value is higher than the default no-power value of –30 dBm.

Step 2 Verify the west AD-xB-xx.x card RX and TX power:

    a. Display the west AD-xB-xx.x card in card view.

    b. Click the **Provisioning > Optical Band > Parameters** tabs.

    c. Verify that the Power value of the BAND RX (east-to-west) port is higher than the default no-power value of –30 dBm.

    d. Change the administrative state of the BAND TX (west-to-east) port related to the wavelength selected on the tunable laser to **OOS,MT** (ANSI) or **Locked,maintenance** (ETSI). Click **Apply**.

    e. Verify that the BAND TX port Power value is higher than the default no-power value of –30 dBm.

Step 3 Verify the BAND RX port on the east AD-xB-xx.x card:

    a. Display the east AD-xB-xx.x card in card view.

    b. Click the **Provisioning > Optical Band > Parameters** tabs.

    c. Verify that the Power value of the BAND RX (west-to-east) port is higher than the default no-power value of –30 dBm.

Step 4 Return to your originating procedure (NTP).

DLP-G91 Verify an AD-xC-xx.x Pass-Through Connection

Purpose	This task verifies an AD-xC-xx.x pass-through connection.
Tools/Equipment	None
Prerequisite Procedures	DLP-G46 Log into CTC, page 2-27
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Superuser

Step 1 Verify the east AD-xC-xx.x channel TX power:

    a. Display the east AD-xC-xx.x card in card view.

    b. Click the **Provisioning > Optical Chn > Parameters** tabs.

    c. Verify that the power value for the CHAN TX port is higher than the default no-power value of −35 dBm.

    d. If the AD-xC-xx.x card is an AD-4C-xx.x card, a VOA (applied to all four channels) is installed along the drop path and needs to be activated in Step e.

    e. Change the administrative state of the CHAN TX port related to the wavelength selected on the tunable laser to **OOS,MT** (ANSI) or **Locked,maintenance** (ETSI). Click **Apply**.

    f. Verify that the power value of the CHAN TX port is higher than the default no-power value of −35 dBm.

Step 2 Verify the channel power for the corresponding west AD-xC-xx.x card:

    a. Display the west AD-xC-xx.x card in card view.

    b. Click the **Provisioning > Optical Chn > Parameters** tabs.

    c. Verify that the power value of the CHAN TX port is higher than the default no-power value of −35 dBm.

    d. Verify that the Power value of the CHAN RX port reaches the provisioned setpoint (VOA Power Ref).

    e. Change the administrative state of the CHAN TX port related to the wavelength selected on the tunable laser to **OOS,MT** (ANSI) or **Locked,maintenance** (ETSI). Click **Apply**.

    f. If the AD-xC-xx.x is an AD-4C-W card, a VOA (applying to all four channels) is installed along the drop path and needs to be activated in Step g.

    g. Change the administrative state of the CHAN TX port related to the wavelength selected on the tunable laser to **OOS,MT** (ANSI) or **Locked,maintenance** (ETSI). Click **Apply**.

    h. Verify that the power value of the CHAN TX port is higher than the default no-power value of −35 dBm.

Step 3 Verify the east AD-xC-xx.x channel RX power:

    a. Display the east AD-xC-xx.x card in card view.

    b. Click the **Provisioning > Optical Chn > Parameters** tabs.

    c. Change the administrative state of the CHAN RX port to **OOS,MT** (ANSI) or **Locked,maintenance** (ETSI) for the channel related to the wavelength selected on the tunable laser.

d. Verify that the Power value of the CHAN RX port reaches the provisioned setpoint (VOA Power Ref).

Step 4 Return to your originating procedure (NTP).

DLP-G84 Verify the OSC-CSM Incoming Power

Purpose	This task verifies the OSC-CSM card incoming power.
Tools/Equipment	None
Prerequisite Procedures	DLP-G46 Log into CTC, page 2-27
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Superuser

Step 1 Display the OSC-CSM card in card view.

Step 2 Click the **Provisioning > Optical Line > Parameters** tabs.

Step 3 Verify that the Power value for Port 2 is higher than the default no-power value of –30 dBm. The calculated expected power value for Port 2 is: Pout COM TX of OPT-PRE (this normally is + 2 dBm)

> **Note** Actual output power is affected by many factors. Always consider the calculated expected power to be a general guideline and not a precise value.

Step 4 Return to your originating procedure (NTP).

DLP-G93 Verify Add and Drop Connections on an OADM Node with OSCM Cards

Purpose	This task verifies the add and drop channel connections for an OADM node with OSCM cards installed.
Tools/Equipment	A tunable laser or a TXP_MR_10E_C card
Prerequisite Procedures	DLP-G46 Log into CTC, page 2-27
Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	Superuser

> **Note** In this task, you will verify add and drop connections in the following order: east-to-west add and west-to-east drop, Steps 1 through 15; west-to-east add and east-to-west drop, Steps 16 through 17.

Step 1 Based on the Cisco MetroPlanner site configuration file, tune the tunable laser or TXP_MR_10E_C card to a wavelength (belonging to the 100-GHz ITU-T grid) of the channel running on the first add path of the first west AD-xC-xx.x or west 4MD-xx.x card on the east-to-west direction. Refer to the tunable laser manufacturer's documentation or the "DLP-G268 Provision TXP_MR_10E_C Cards for Acceptance Testing" task on page 4-5.

Step 2 Connect the tunable laser transmitter or the TXP_MR_10E_C card DWDM TX port to the corresponding 15xx.x RX port (on the card front panel) of the west AD-xC-xx.x or 4MD-xx.x card.

Step 3 Verify the west AD-xC-xx.x or 4MD-xx.x (east-to-west):

   a. Display the west AD-xC-xx.x or 4MD-xx.x card in card view.

   b. Click the **Provisioning > Optical Chn > Parameters** tabs.

   c. Change the administrative state of the CHAN RX port to **OOS,MT** (ANSI) or **Locked,maintenance** (ETSI) for the channel related to the wavelength chosen on the tunable laser.

   d. Verify that the Power value of the CHAN RX port reaches the provisioned setpoint (VOA Power Ref).

Step 4 Complete the "DLP-G79 Verify the OPT-BST, OPT-BST-E, or OPT-BST-L Amplifier Laser and Power" task on page 4-6 on the west OPT-BST or OPT-BST-E amplifier to verify that the added wavelength turns on the laser.

Step 5 If the add connection uses a 4MD-xx.x card, continue with Step 6. If the add connection uses an AD-xC-xx.x card, move to Step 10.

Step 6 Verify the RX band port on the west AD-xB-xx.x card:

   a. Display the west AD-xB-xx.x card in card view.

   b. Click the **Provisioning > Optical Band > Parameters** tabs.

Step 7 Verify that the BAND RX Power value is higher than the default no-power value of –30 dBm.

Step 8 Verify the band TX port on the west AD-xB-xx.x (west-to-east):

   a. Display the west AD-xB-xx.x card in card view.

   b. Click the **Provisioning > Optical Band > Parameters** tabs.

   c. Change the administrative state of the BAND TX port to **OOS,MT** (ANSI) or **Locked,maintenance** (ETSI) for the channel related to the wavelength selected on the tunable laser or TXP_MR_10E_C card.

   d. Verify that the Power value of the BAND TX port is higher than the default no-power value of –30 dBm.

Step 9 Verify the west 4MD-xx.x card (west-to-east):

   a. Display the west 4MD-xx.x card in card view.

   b. Click the **Provisioning > Optical Chn > Parameters** tabs.

   c. Verify that the Power value of the CHAN TX port is higher than the default no-power value of –30 dBm.

Step 10 Verify the west AD-xC-xx.x (west-to-east) card:

   a. Display the west AD-xC-xx.x card in card view.

   b. If the AD-xC-xx.x card is an AD-4C-xx.x card, a VOA (applied to all four channels) is installed along the drop path and needs to be activated according to Step g.

   c. Click the **Provisioning > Optical Chn > Parameters** tabs.

    d. Verify that the Power value of the CHAN TX port is higher than the default no-power value of –35 dBm.

    e. Display the east AD-xC-xx.x card in card view.

    f. Click the **Provisioning > Optical Chn > Parameters** tabs.

    g. Change the administrative state of the CHAN TX port related to the wavelength selected on the tunable laser or TXP_MR_10E_C card to **OOS,MT** (ANSI) or **Locked,maintenance** (ETSI). Click **Apply**.

    h. Verify that the power value for the CHAN TX port is higher than the default no-power value of –35 dBm.

    i. Perform the output power check.

Step 11 Connect a power meter to the proper 15xx.x TX port on the front panel (the dual port compared with the port where the tunable laser or TXP_MR_10E_C card is connected). Verify that the physical optical power value from that port is consistent with the value displayed on the Provisioning > Optical Chn > Parameters tab for the proper CHAN TX power value +/– 0.5 dB.

Step 12 Repeat Steps 6 through 11 for all add paths of any west AD-xC-xx.x or 4MD-xx.x cards along the east-to-west direction.

Step 13 Remove the loopback on the west OPT-BST or OPT-BST-E amplifier and create a loopback on the east OPT-BST or OPT-BST-E amplifier.

Step 14 Verify that the OSC link becomes active on the east OSCM card. (The OSC termination must be already provisioned. If not, complete the "NTP-G38 Provision OSC Terminations" procedure on page 3-86.) If the OSC link becomes active, continue with Step 15. If the OSC link does not become active, perform the following steps:

    a. Modify the OSC Fail Low thresholds by clicking the **Provisioning > Optical Line > Optics Thresholds** tabs and changing the Port 2 opwrMin (minimum power) to –40 dBm.

    b. If the OSC link turns up, continue with Step 15. If the OSC link remains down, disconnect the OSCM card from the OPT-BST or OPT-BST-E card.

    c. Create a loopback on the OSCM card by connecting patch cable from the OSC TX port to the OSC RX port using a 10-dB bulk attenuator.

    d. If the OSC link turns up, replace the OPT-BST or OPT-BST-E card. If the OSC link does not turn up, replace the OSCM card. See the "NTP-G30 Install the DWDM Cards" procedure on page 3-46.

✎ **Note** Due to the OSC signal loopback, on ANSI shelves, an EOC DCC Termination Failure alarm might be raised.

Step 15 Based on the Cisco MetroPlanner site configuration file, tune the tunable laser or TXP_MR_10E_C card to a wavelength (belonging to the 100-GHz ITU-T grid) of the channel running on the first add path of the first add path of the first AD-xC-xx.x or 4MD-xx.x card on the west-to-east direction. Refer to the tunable laser manufacturer's documentation or the "DLP-G268 Provision TXP_MR_10E_C Cards for Acceptance Testing" task on page 4-5.

Step 16 Connect the tunable laser transmitter or the TXP_MR_10E_C card DWDM TX port to the correspondent 15xx.x RX port (on the card front panel) of the east AD-xC-xx.x or east 4MD-xx.x card.

Step 17 Repeat Steps 3 through 15, applying the steps to the west-to-east direction.

Step 18 Remove the loopback connection and restore the default administrative state (IS,AINS or Unlocked,automaticInService) on all the ports previously set to OOS,MT (ANSI) or Locked,maintenance (ETSI).

Step 19 Complete the "NTP-G37 Run Automatic Node Setup" procedure on page 3-85 to recover the correct node configuration.

Step 20 Return to your originating procedure (NTP).

DLP-G92 Verify 4MD-xx.x Pass-Through Connection Power

Purpose	This task verifies 4MD-xx.x pass-through connection.
Tools/Equipment	None
Prerequisite Procedures	DLP-G46 Log into CTC, page 2-27
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Superuser

Step 1 Verify the TX band power on the related east AD-xB-xx.x card:

   a. Display the east AD-xB-xx.x card in card view.

   b. Click the **Provisioning > Optical Band > Parameters** tabs.

   c. Change the administrative state of the BAND TX port to **OOS,MT** (ANSI) or **Locked,maintenance** (ETSI) for the channel related to the wavelength selected on the tunable laser.

   d. Verify that the BAND TX Power value is higher than the default no-power value of –30 dBm.

Step 2 Verify the TX power on the related east 4MD-xx.x (east-to-west) card:

   a. Display the east 4MD-xx.x card in card view.

   b. Click the **Provisioning > Optical Chn > Parameters** tabs.

   c. Verify that the Power value on the CHAN TX port is higher than the default no-power value of –35 dBm.

Step 3 Verify the RX band power on the west AD-xB-xx.x card (east-to-west):

   a. Display the west AD-xB-xx.x card in card view.

   b. Click the **Provisioning > Optical Band > Parameters** tabs.

   c. Verify that the BAND RX Power value is higher than the default no-power values of –30 dBm.

Step 4 Verify the west 4MD-xx.x (east-to-west):

   a. Display the west 4MD-xx.x card in card view.

   b. Click the **Provisioning > Optical Chn > Parameters** tabs.

   c. Change the administrative state of the CHAN RX port to **OOS,MT** (ANSI) or **Locked,maintenance** (ETSI) for the channel related to the wavelength selected on the tunable laser.

   d. Verify that the Power value of the CHAN RX port reaches the provisioned setpoint (VOA Power Ref).

Step 5 Verify the TX band power on the west AD-xB-xx.x (west-to-east):

   a. Display the west AD-xB-xx.x card in card view.

   b. Click the **Provisioning > Optical Band > Parameters** tabs.

    c. Change the administrative state of the BAND TX port to **OOS,MT** (ANSI) or **Locked,maintenance** (ETSI) for the channel related to the wavelength selected on the tunable laser.

    d. Verify that the BAND TX Power value is higher than the default no-power value of –30 dBm.

Step 6 Verify the west 4MD-xx.x (west-to-east):

    a. Display the west 4MD-xx.x card in card view.

    b. Click the **Provisioning > Optical Chn > Parameters** tabs.

    c. Verify that the Power value on the CHAN TX port is higher than the default no-power value of –35 dBm.

Step 7 Verify the east 4MD-xx.x (west-to-east):

    a. Display the east 4MD-xx.x card in card view.

    b. Click the **Provisioning > Optical Chn > Parameters** tabs.

    c. Change the administrative state of the CHAN RX port to **OOS,MT** (ANSI) or **Locked,maintenance** (ETSI) for the channel related to the wavelength selected on the tunable laser.

    d. Verify that the Power value of the CHAN RX port reaches the provisioned setpoint (VOA Power Ref).

Step 8 Return to your originating procedure (NTP).

NTP-G49 Perform the OADM Active Node Acceptance Test on a Symmetric Node with OSC-CSM Cards

Purpose	This procedure checks the integrity of all the optical connections inside an OADM node with OSC-CSM and OPT-BST or OPT-BST-E cards installed on both the east and west sides of the shelf. Three connection types are tested:
	• Express
	• Pass-through
	• Add/Drop
Tools/Equipment	A tunable laser or a TXP_MR_10E_C card
	An optical power meter or optical spectrum analyzer
	2 bulk attenuators (10 dB) with LC connectors
Prerequisite Procedures	Chapter 3, "Turn Up a Node"
Required/As Needed	Required
Onsite/Remote	Onsite
Security Level	Superuser

Note Optical power measurements require either a tunable laser or a multirate transponder to generate the proper optical wavelength. If multirate transponders were installed during completion of Chapter 3, "Turn Up a Node," they can be used for this procedure. No additional cabling changes are needed.

Step 1 Complete the "DLP-G46 Log into CTC" task on page 2-27 at the OADM node where you want to perform the acceptance test. If you are already logged in, continue with Step 2.

Step 2 From the View menu, choose **Go to Network View**.

Step 3 Click the **Alarms** tab.

  a. Verify that the alarm filter is not on. See the "DLP-G128 Disable Alarm Filtering" task on page 9-29 as necessary.

  b. Verify that no equipment alarms appear indicating equipment failure or other hardware problems. (Equipment alarms are indicated by an EQPT in the Alarms tab Cond column.) If equipment failure alarms appear, investigate and resolve them before continuing. Refer to the *Cisco ONS 15454 DWDM Troubleshooting Guide* for procedures.

Step 4 In node view (single-shelf mode) or multishelf view (multishelf mode), click the **Provisioning** > **WDM-ANS** > **Port Status** tabs. Verify that all statuses under Link Status are Success - Changed, Success - Unchanged, or Not Applicable. If not, complete the "NTP-G37 Run Automatic Node Setup" procedure on page 3-85.

Step 5 Check the Cisco MetroPlanner site configuration file to verify the presence of added and dropped bands (including 4 channels at 100 GHz) configured in pass-through mode in either direction.

> **Note** Configuring a band in pass-through mode means that the band is dropped in one direction by an AD-xB-xx.x card on one side (east or west) of the node, then added by another AD-xB-x.xx card on the opposite side in the same direction. The band is not terminated inside the node.

Step 6 If no bands are configured in pass-through mode, continue with Step 7. If a band is configured in pass-through mode, mark it and skip the related optical test for the express, add, and drop sections. Band pass-through connections are verified separately.

Step 7 Check the site configuration file from Cisco MetroPlanner to verify the presence of dropped or added channels configured in pass-through mode in either direction.

> **Note** Configuring a channel in pass-through mode means that the channel is dropped in one direction by an AD-xC-xx.x card on one side (east or west) of the node, then added by another AD-xC x.xx card on the opposite side in the same direction. The channel is not terminated inside the node.

Step 8 If no channels are configured in pass-through mode, continue with Step 9. If a channel is configured in pass-through mode, mark it and skip the related optical test for the express, add, and drop sections. Channel pass-through connections are verified separately.

Step 9 Create a loopback on the west OSC-CSM card by connecting the LINE TX port to the LINE RX port using a patchcord and a 10-dB bulk attenuator.

Step 10 Verify that the OSC link becomes active on the west OSC-CSM card. (The OSC termination must be already provisioned. If not, complete the "NTP-G38 Provision OSC Terminations" procedure on page 3-86.)

> **Note** Due to the OSC signal loopback, on ANSI shelves, an EOC DCC Termination Failure alarm might be raised.

Step 11 If the OSC link becomes active, continue with Step 12. If the OSC link does not turn up, perform the following troubleshooting steps:

    a. Remove the 10-dB bulk attenuator between the LINE TX and LINE RX connection. If the OSC link becomes active, continue with Step 12. If not, continue with Step b.

    b. Modify the OSC Fail Low thresholds. Click the **Provisioning > Optical Line > Optics Thresholds** tabs and change the Port 6 opwrMin (minimum power) to –40 dBm.

    c. Modify the COM TX Fail Low Threshold. Change the Port 3 opwrMin (minimum power) to –30 dBm.

    d. If the OSC link turns up, continue with Step 12. If it does not turn up, replace the OSC-CSM card.

Step 12 If the node has express bands or channels, complete the "DLP-G86 Verify Express Channel Connections on an OADM Node with OSC-CSM Cards" task on page 4-107. If the node does not have express bands or channels, continue with Step 13.

Step 13 If connections configured in pass-through mode are present (noted in Steps 6 and 8), complete the "DLP-G89 Verify OADM Node Pass-Through Channel Connections" task on page 4-98. If not, continue with Step 14.

Step 14 If connections have add/drop connections, complete the "DLP-G94 Verify Add and Drop Connections on an OADM Node with OSC-CSM Cards" task on page 4-109.

Stop. **You have completed this procedure**.

DLP-G86 Verify Express Channel Connections on an OADM Node with OSC-CSM Cards

Purpose	This task verifies the express channel connections for an OADM node with OSC-CSM cards during a node acceptance test.
Tools/Equipment	A tunable laser or a TXP_MR_10E_C card
Prerequisite Procedures	DLP-G46 Log into CTC, page 2-27
Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	Superuser

Step 1 If you are using a tunable laser, set the output power to a nominal value, such as –3 dBm. If not, continue with Step 2.

Step 2 Connect the tunable laser transmitter or the TXP_MR_10E_C card DWDM TX port to the LINE RX port of the east OSC-CSM card.

Step 3 If an OPT-PRE amplifier card is installed on the east side, install a 10-dB bulk attenuator on the COM RX port.

Step 4 Based on the Cisco MetroPlanner site configuration file, tune the tunable laser or TXP_MR_10E_C card to a wavelength (on the 100-GHz ITU-T grid) that runs on the express path of all AD-xB-xx.x and AD-xC-xx.x cards on the east-to-west and west-to-east directions. Refer to the tunable laser manufacturer's documentation or the "DLP-G268 Provision TXP_MR_10E_C Cards for Acceptance Testing" task on page 4-5.

Step 5 Complete the "DLP-G80 Verify the OPT-PRE Amplifier Laser and Power" task on page 4-6 for the OPT-PRE amplifier card installed on the west side.

Step 6 If AD-xB-xx.x cards are installed on the east side, complete the "DLP-G87 Verify the AD-xB-xx.x Output Express Power" task on page 4-96 for each east side card. If not, continue with Step 7.

✎ **Note** If AD-xB-xx.xand AD-xC cards are both installed in one direction, the received express channels will go into the AD-xB-xx.x cards first, then into the AD-xC-xx.x cards.

Step 7 If AD-xC-xx.x cards are installed on the east side, complete the "DLP-G88 Verify the AD-xC-xx.x Output Express Power" task on page 4-96 for each east side card. If not, continue with Step 8.

Step 8 If AD-xC-xx.x cards are installed on the west side, complete the "DLP-G271 Verify the AD-xC-xx.x Output Common Power" task on page 4-97 for each west side card. If not, continue with Step 9.

Step 9 If AD-xB-xx.x cards are installed on the west side, complete the "DLP-G272 Verify the AD-xB-xx.x Output Common Power" task on page 4-97 for each west side card. If not, continue with Step 10.

Step 10 Complete the "DLP-G83 Verify the OSC-CSM Power on OADM Nodes" task on page 4-108 for the OSC-CSM card installed on the west side.

Step 11 Complete the "DLP-G80 Verify the OPT-PRE Amplifier Laser and Power" task on page 4-6 for the OPT-PRE card installed on the east side.

Step 12 Repeat Steps 6 through 9 for the AD-xB-xx.x and AD-xC-xx.x cards along the west-to-east direction.

Step 13 Complete the "DLP-G83 Verify the OSC-CSM Power on OADM Nodes" task on page 4-108 for the OSC-CSM card installed on the west side.

Step 14 Return to your originating procedure (NTP).

DLP-G83 Verify the OSC-CSM Power on OADM Nodes

Purpose	This task verifies the OSC-CSM card power on OADM nodes.
Tools/Equipment	None
Prerequisite Procedures	DLP-G46 Log into CTC, page 2-27
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Superuser

Step 1 Display the OSC-CSM card in card view.

Step 2 Click the **Provisioning > Optical Line > Parameters** tabs.

Step 3 Verify that the Power value for Port 3 is higher than the default no-power value of –30 dBm. The calculated expected power value for Port 3 is:

Pout COM TX of last AD-xy-xx.x – IL02 OSC-CSM (COM RX > LINE TX) – 10 dB (bulk attenuator)

Step 4 Double-check the value.

✎

Note   Actual output power is affected by many factors. Always consider the calculated expected power to be a general guideline and not a precise value.

Step 5   Return to your originating procedure (NTP).

DLP-G94 Verify Add and Drop Connections on an OADM Node with OSC-CSM Cards

Purpose	This task verifies the add and drop channel connections for an OADM node with OSC-CSM cards installed.
Tools/Equipment	A tunable laser or a TXP_MR_10E_C card
Prerequisite Procedures	DLP-G46 Log into CTC, page 2-27
Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	Superuser

Step 1   Based on the Cisco MetroPlanner site configuration file, tune the tunable laser or TXP_MR_10E_C card to a wavelength (belonging to the 100-GHz ITU-T grid) of the channel running on the first add path of the first west AD-xC-xx.x or west 4MD-xx.x card on the east-to-west direction. Refer to the tunable laser manufacturer's documentation or the "DLP-G268 Provision TXP_MR_10E_C Cards for Acceptance Testing" task on page 4-5.

Step 2   Connect the tunable laser transmitter or the TXP_MR_10E_C card DWDM TX port to the corresponding 15xx.x RX port (on the card front panel) of the west AD-xC-xx.x or 4MD-xx.x card.

Step 3   Verify the west AD-xC-xx.x or 4MD-xx.x (east-to-west):

   a.   Display the west AD-xC-xx.x or 4MD-xx.x card in card view.

   b.   Click the **Provisioning > Optical Chn > Parameters** tabs.

   c.   Change the administrative state of the CHAN RX port to **OOS,MT** (ANSI) or **Locked,maintenance** (ETSI) for the channel related to the wavelength selected on the tunable laser.

   d.   Verify that the Power value of the CHAN RX port reaches the provisioned setpoint (VOA Power Ref).

Step 4   Complete the "DLP-G80 Verify the OPT-PRE Amplifier Laser and Power" task on page 4-6 on the west OPT-PRE amplifier to verify that the added wavelength turns on the laser.

Step 5   If the add connection uses a 4MD-xx.x card, continue with Step 6. If the add connection uses an AD-xC-xx.x card, move to Step 10.

Step 6   Verify the west AD-xB-xx.x:

   a.   Display the west AD-xB-xx.x card in card view.

   b.   Click the **Provisioning > Optical Band > Parameters** tabs.

   c.   Change the administrative state of the BAND TX port to **OOS,MT** (ANSI) or **Locked,maintenance** (ETSI) for the channel related to the wavelength selected on the tunable laser.

        d. Verify that the Power value of the BAND TX port is higher than the default no-power value of –30 dBm.

Step 7   Display the related AD-xB-xx.x card (west-to-east direction) in card view.

Step 8   Change the administrative state of the drop BAND TX port related to the wavelength selected on the tunable laser to **OOS,MT** (ANSI) or **Locked,maintenance** (ETSI).

Step 9   Connect a power meter to the proper 15xx.xs TX port on the front panel (the dual port compared with the port where the tunable laser is connected). Verify that the physical optical power value from that port is consistent with the value displayed on the Provisioning > Optical Chn > Parameters tab for the proper CHAN TX power value, +/– 0.5 dB.

Step 10   Verify the west AD-xC-xx.x (west-to-east) card:

        a. Display the west AD-xC-xx.x card in card view.

        b. Click the **Provisioning > Optical Chn > Parameters** tabs.

        c. Verify that the Power value of the CHAN TX port is higher than the default no-power value of –35 dBm.

        d. Display the east AD-xC-xx.x card in card view.

        e. Click the **Provisioning > Optical Chn > Parameters** tabs.

        f. Verify that the power value for the CHAN TX port is higher than the default no-power value of –35 dBm.

        g. If the AD-xC-xx.x card is an AD-4C-xx.x card, a VOA (applied to all four channels) is installed along the drop path and needs to be activated in Step h.

        h. Change the administrative state of the CHAN TX port related to the wavelength selected on the tunable laser to **OOS,MT** (ANSI) or **Locked,maintenance** (ETSI). Click **Apply**.

        i. Perform the output power check.

Step 11   Connect a power meter to the proper 15xx.xx TX port on the front panel (the dual port compared with the port where the tunable laser is connected). Verify that the physical optical power value from that port is consistent with the value on Provisioning > Optical Chn > Parameters tab for the proper CHAN TX power value, +/– 0.5 dB.

Step 12   Repeat Steps 10 through 11 for all add paths of any west AD-xC-xx.x cards along the east-to-west direction.

Step 13   Remove the loopback on the west OSC-CSM card.

Step 14   In node view (single-shelf mode) or multishelf view (multishelf mode), click the **Provisioning > WDM-ANS > Port Status** tabs.

Step 15   Click **Launch ANS**.

Step 16   Create a loopback on the east OSC-CSM card by connecting the OSC-CSM LINE RX and LINE TX ports using a patchcord and 10-dB bulk attenuator.

Step 17   Verify that the OSC link becomes active on the west OSC-CSM card. (The OSC termination must be already provisioned. If not, complete the "NTP-G38 Provision OSC Terminations" procedure on page 3-86.)

        ✎

    Note   Due to the OSC signal loopback, on ANSI shelves, an EOC DCC Termination Failure alarm might be raised.

Step 18 If the OSC link becomes active, continue with Step 19. If the OSC link does not turn up, perform the following troubleshooting steps:

    a. Remove the 10-dB bulk attenuator between the LINE TX and LINE RX connection. If the OSC link becomes active, continue with Step 19. If not, continue with Step b.

    b. Modify the OSC Fail Low thresholds. Click the **Provisioning > Optical Line > Optics Thresholds** tabs and change the Port 6 opwrMin (minimum power) to –40 dBm.

    c. Modify the COM TX Fail Low Threshold. Change the Port 3 opwrMin (minimum power) to –30 dBm.

    d. If the OSC link turns up, continue with Step 19. If it does not turn up, replace the OSC-CSM card.

Step 19 Check the site configuration file from Cisco MetroPlanner and identify the wavelength (belonging to the 100 Ghz ITU-T grid) of the channel running on the first add path of the first AD-xC-xx.x or 4MD-xx.x card on the west-to-east direction.

Step 20 Connect the tunable laser to the correspondent 15xx.x RX port (on the card front panel) of the east AD-xC-xx.x or east 4MD-xx.x card.

Step 21 Repeat Steps 3 through 20, applying the steps to the east-to-west direction.

Step 22 Restore the default administrative state (IS,AINS/Unlocked,automaticInService) on all the ports previously set to **OOS,MT** (ANSI) or **Locked,maintenance** (ETSI).

Step 23 Complete the "NTP-G37 Run Automatic Node Setup" procedure on page 3-85 to recover the correct node configuration.

Step 24 Return to your originating procedure (NTP).

NTP-G50 Perform the OADM Passive Node Acceptance Test on a Symmetric Node with OSC-CSM Cards

Purpose	This procedure checks the integrity of all the optical connections inside an OADM node with OSC-CSM cards and no OPT-BST or OPT-BST-E cards installed on the east and west sides of the shelf. Three connection types are tested:
	
	  • Express
	  • Pass-through
	  • Add/Drop

Tools/Equipment	A tunable laser or a TXP_MR_10E_C card An optical power meter or optical spectrum analyzer 2 bulk attenuators (10 dB) with LC connectors
Prerequisite Procedures	Chapter 3, "Turn Up a Node"
Required/As Needed	Required
Onsite/Remote	Onsite
Security Level	Superuser

> **Note** Optical power measurements require either a tunable laser or a multirate transponder to generate the proper optical wavelength. If multirate transponders were installed during completion of Chapter 3, "Turn Up a Node," they can be used for this procedure. No additional cabling changes are needed.

Step 1 Complete the "DLP-G46 Log into CTC" task on page 2-27 at the OADM node where you want to perform the acceptance test. If you are already logged in, continue with Step 2.

Step 2 From the View menu, choose **Go to Network View**.

Step 3 Click the **Alarms** tab.

    a. Verify that the alarm filter is not on. See the "DLP-G128 Disable Alarm Filtering" task on page 9-29 as necessary.

    b. Verify that no equipment alarms appear indicating equipment failure or other hardware problems. (Equipment alarms are indicated by an EQPT in the Alarms tab Cond column.) If equipment failure alarms appear, investigate and resolve them before continuing. Refer to the *Cisco ONS 15454 DWDM Troubleshooting Guide* for procedures.

Step 4 In node view (single-shelf mode) or multishelf view (multishelf mode), click the **Provisioning > WDM-ANS > Port Status** tabs. Verify that all statuses under Link Status are Success - Changed, Success - Unchanged, or Not Applicable. If not, complete the "NTP-G37 Run Automatic Node Setup" procedure on page 3-85.

Step 5 Check the Cisco MetroPlanner site configuration file to verify the presence of a dropped or added bands (including 4 channels at 100 GHz) configured in pass-through mode in either direction.

> **Note** Configuring a band in pass-through mode means that the band is dropped in one direction by an AD-xB-xx.x card on one side (east or west) of the node, then added by another AD-xB x.xx card on the opposite side in the same direction. The band is not terminated inside the node.

Step 6 If no bands are configured in pass-through mode, continue with Step 7. If a band is configured in pass-through mode, mark it and skip the related optical test for the express, add, and drop sections. Band pass-through connections are verified separately.

Step 7 Check the site configuration file from Cisco MetroPlanner to verify the presence of dropped or added channels configured in pass-through mode in either direction.

> **Note** Configuring a channel in pass-through mode means that the channel is dropped in one direction by an AD-xC-xx.x card on one side (east or west) of the node, then added by another AD-xC-x.xx card on the opposite side in the same direction. The channel is not terminated inside the node.

Step 8 If no channels are configured in pass-through mode, continue with Step 9. If a channel is configured in pass-through mode, mark it and skip the related optical test for the express, add, and drop sections. Channel pass-through connections are verified separately.

Step 9 Create a loopback on the west OSC-CSM card by connecting the LINE TX port to the LINE RX port using a patchcord and 10-dB bulk attenuator.

Step 10 Verify that the OSC link becomes active on the west OSC-CSM card. (The OSC termination must be already provisioned. If not, complete the "NTP-G38 Provision OSC Terminations" procedure on page 3-86.)

✎

Note   Due to the OSC signal loopback, on ANSI shelves, an EOC DCC Termination Failure alarm
might be raised.

Step 11   If the OSC link becomes active, continue with Step 12. If the OSC link does not turn up, perform the
following troubleshooting steps:

a.   Remove the 10-dB bulk attenuator between the LINE TX and LINE RX connection. If the OSC link
becomes active, continue with Step 12. If not, continue with Step b.

b.   Modify the OSC Fail Low thresholds. Click the **Provisioning > Optical Line > Optics Thresholds**
tabs and change the Port 6 opwrMin (minimum power) to –40 dBm.

c.   Modify the COM TX Fail Low Threshold. Change the Port 3 opwrMin (minimum power) to
–30 dBm.

d.   If the OSC link turns up, continue with Step 12. If it does not turn up, replace the OSC-CSM card.

Step 12   If the node has express bands or channels, complete the "DLP-G86 Verify Express Channel Connections
on an OADM Node with OSC-CSM Cards" task on page 4-107. If the node does not have express bands
or channels, continue with Step 13.

Step 13   If connections configured in pass-through mode are present (noted in Steps 5 and 7), complete the
"DLP-G89 Verify OADM Node Pass-Through Channel Connections" task on page 4-98. If not, continue
with Step 14.

Step 14   If connections have add/drop connections, complete the "DLP-G94 Verify Add and Drop Connections
on an OADM Node with OSC-CSM Cards" task on page 4-109.

Stop. **You have completed this procedure**.