Performing Node Acceptance Tests

This chapter provides test procedures to verify that installed cards are operating correctly in a NCS 2002 and NCS 2006 node. The procedures are optional.

Note The procedures and tasks described in this chapter are applicable to the Cisco NCS 2002 and Cisco NCS 2006 platforms, unless noted otherwise.

Note This chapter does not test the transponder (TXP), muxponder (MXP), GE_XP, 10GE_XP, GE_XPE, and 10GE_XPE, or ADM-10G card installation. Installation and verification for those cards is performed in Chapter 11, “Provision Transponder and Muxponder Cards.”

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

Purpose	This procedure tests a DWDM terminal or hub node 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 Two bulk attenuators (10 dB) with LC connectors
Prerequisite Procedures	DLP-G46 Log into CTC Turn Up a Node
Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	Superuser only

Note

- Throughout this procedure, Side A refers to Slots 1 through 6, and Side B refers to Slots 12 through 17.
- This procedure tests Side A of hub nodes first, then Side B. If you are testing a terminal node, apply instructions for Side A of the hub node to the terminal side (Side B or Side A) of the terminal node.
- 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 the Turn Up a Node they can be used for this procedure. No additional cabling changes are needed.

Procedure

Step 1 From the View menu, choose **Go to Network View**.

Step 2 Click the **Alarms** tab.

a) Verify that the alarm filter is not on. Complete the "DLP-G128 Disable Alarm Filtering" task 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 the Cisco NCS 2002 and NCS 2006 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 one for the OSC channel.

Step 3 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 or Success - Unchanged. If a different status appears, complete the NTP-G37 Running Automatic Node Setup task.

Step 4 Create a physical loopback on the Side A (or terminal) OSC-CSM, 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 For ANSI shelves, an EOC DCC Termination Failure alarm will appear due to the OSC signal loopback.

Step 5 Wait approximately two minutes, then verify that the OSC link is active on the Side A OSCM or OSC-CSM card by observing whether or not the 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 Provisioning OSC Terminations task.

Note If the LOS alarm does not clear on the OSC-CSM card, verify that the opwrMin (dBm) Optic Thresholds setting for the OSC-RX port is not higher than the port's Optical Line power value. In the OSC-CSM card view, click the **Provisioning** > **Optical Line** > **Optic Thresholds** tabs and record the opwrMin (dBm) setting and compare it to the value found in the Power column for the OSC-RX port in the **Provisioning** > **Optical Line** > **Parameters** tabs. Reduce the Optic Thresholds setting for the opwrMin (dBm) value temporarily until the loopback test has been completed to clear the LOS alarm. Reset the Optic Thresholds setting to its original value after clearing the physical loopback.

Step 6 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-G358 Provisioning TXP_MR_10E_L and TXP_MR_10E_C Cards for Acceptance Testing task.

Step 7 Connect the tunable laser transmitter or TXP_MR_10E_C card DWDM TX port to the CHAN RX 01 port on the Side A (or terminal) 32MUX-O card using the available patch panel.

Step 8 Display the Side A (or terminal) 32MUX-O card in card view.

Step 9 Click the **Provisioning** > **Optical Chn** > **Parameters** tabs.

Step 10 Change the Port 1 administrative state to **OOS,MT** (ANSI) or **Locked,maintenance** (ETSI).

Step 11 Verify that the Port 1 power level reaches the provisioned VOA Power Ref set point.

Note The tunable laser minimum optical output 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 set point.

Step 12 If an OPT-BST, OPT-BST-E, or OPT-BST-L card is installed, complete the DLP-G79 Verifying the OPT-BST, OPT-BST-E, or OPT-BST-L Amplifier Laser and Power task on the Side A (or terminal) OPT-BST, OPT-BST-E, or OPT-BST-L to ensure that the amplifier is working properly. If an OSC-CSM card is installed, go to step 14.

Step 13 Complete the DLP-G80 Verifying the OPT-PRE Amplifier Laser and Power task on the Side A (or terminal) OPT-PRE card to ensure that the amplifier is working properly.

Step 14 Complete the DLP-G78 Verifying the 32MUX-O or 40-MUX-C Card Power task to verify that the 32MUX-O is powered correctly.

Step 15 Complete the DLP-G269 Verifying the 32DMX-O or 40-DMX-C Card Power task to verify that the 32DMX-O card is powered correctly.

Step 16 Restore the default IS,AINS (ANSI) or Unlocked,automaticInService (ETSI) administrative state to the 32MUX-O card port that was changed to OOS,MT (ANSI) or Locked,maintenance (ETSI) in step 10.

Step 17 Repeat steps 6 through 16 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 18 Remove the loopback created in step 4.

Step 19 If the node is a hub node, repeat steps 4 through 18 for the Side B cards.

Step 20 Complete the NTP-G37 Running Automatic Node Setup task to restore the original configuration.

Step 21 Click the **Alarms** tab.

a) Verify that the alarm filter is not on. Complete the "DLP-G128 Disable Alarm Filtering" task 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 the Cisco NCS 2002 and NCS 2006 Troubleshooting Guide for procedures.

Stop. You have completed this procedure.

DLP-G79 Verifying 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"
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Superuser only

Procedure

Step 1 In the 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.

Note The Currently Shutdown field will not change to NO until an active channel is flowing through the OPT-BST, OPT-BST-E, or OPT-BST-L amplifier.

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 the Channel Power Ref.

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 Verifying 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"
Required/As Needed	As needed
Onsite/Remote	Onsite or remote

Security Level	Superuser only

Procedure

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 not, complete the following steps:

a) Check the OSRI setting. If it is set to ON, click the table cell and chose **OFF** from the drop-down list. 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 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 the Channel Power Ref. If the Signal Output Power is greater than or equal to the Channel Power Ref, continue with step 6. If the Signal Output Power is less than the Channel Power Ref, check your connections and clean the fibers using the NTP-L22 Cleaning Fiber Connectors task. 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 Verifying the 32MUX-O or 40-MUX-C Card Power

Purpose	This task verifies 32MUX-O or 40-MUX-C card power.
Tools/Equipment	None
Prerequisite Procedures	DLP-G46 Log into CTC
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Superuser only

Procedure

Step 1 Display the 32MUX-O or 40-MUX-C 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 Verifying the 32DMX-O or 40-DMX-C Card Power

Purpose	This task verifies that the 32DMX-O or 40-DMX-C card is provisioned to the correct power.
Tools/Equipment	None
Prerequisite Procedures	DLP-G46 Log into CTC
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Superuser only

Procedure

Step 1 Display the 32DMX-O or 40-DMX-C 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 Side A 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-G168 Performing the Terminal or Hub Node with 40-MUX-C and 40-DMX-C Cards Acceptance Test

Purpose	This procedure tests a DWDM terminal or hub node with 40-MUX-C and 40-DMX-C cards installed.
Tools/Equipment	One of the following: • A tunable laser • TXP_MR_10E_C An optical power meter or optical spectrum analyzer Two bulk attenuators (10 dB) with LC connectors
Prerequisite Procedures	DLP-G46 Log into CTC Turn Up a Node
Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	Superuser only

Note

- Throughout this procedure, Side A refers to Slots 1 through 6, and Side B refers to Slots 12 through 17.
- This procedure tests Side A of hub nodes first, then Side B. If you are testing a terminal node, apply instructions for Side A of the hub node to the terminal side (Side B or Side A) of the terminal node.
- 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 Turn Up a Node chapter they can be used for this procedure. No additional cabling changes are needed.

Procedure

Step 1 From the View menu, choose **Go to Network View**.

Step 2 Click the **Alarms** tab.

a) Verify that the alarm filter is not on. Complete the "DLP-G128 Disable Alarm Filtering" task 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 the *Cisco NCS 2000 Series Troubleshooting Guide* for procedures.

Note If 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 3 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 or Success - Unchanged. If a different status appears, complete the NTP-G37 Running Automatic Node Setup task.

Step 4 Create a physical loopback on the Side A (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 For ANSI shelves, an EOC DCC Termination Failure alarm will appear due to the OSC signal loopback.

Step 5 Verify that the OSC link becomes active on the Side A OSCM or OSC-CSM card. (The OSC termination must already be provisioned. If not, complete the NTP-G38 Provisioning OSC Terminations task.

Step 6 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-G358 Provisioning TXP_MR_10E_L and TXP_MR_10E_C Cards for Acceptance Testing task.

Step 7 Connect the tunable laser transmitter or TXP_MR_10E_C card DWDM TX port to the CHAN RX 01 port on the Side A (or terminal) 40-MUX-C card using the available patch panel.

Step 8 Display the Side A (or terminal) 40-MUX-C card in card view.

Step 9 Click the **Provisioning** > **Optical Chn** > **Parameters** tabs.

Step 10 Change the Port 1 administrative state to **OOS,MT** (ANSI) or **Locked,maintenance** (ETSI).

Step 11 Verify that the Port 1 power level reaches the provisioned VOA Power Ref set point.

Note The tunable laser minimum optical output power (Pout) must be 6 dBm. If the output power is lower than the specified value, the 40-MUX-C card might not reach the provisioned set point.

Step 12 If an OPT-BST, OPT-BST-E, or OPT-BST-L card is installed, complete the DLP-G79 Verifying the OPT-BST, OPT-BST-E, or OPT-BST-L Amplifier Laser and Power task on the Side A (or terminal) OPT-BST, OPT-BST-E, or OPT-BST-L to ensure that the amplifier is working properly.

Step 13 Complete the DLP-G80 Verifying the OPT-PRE Amplifier Laser and Power task on the Side A (or terminal) OPT-PRE card to ensure that the amplifier is working properly.

Step 14 Complete the DLP-G78 Verifying the 32MUX-O or 40-MUX-C Card Power, on page 6 task to verify that the 40-MUX-C card is powered correctly.

Step 15 Complete the DLP-G269 Verifying the 32DMX-O or 40-DMX-C Card Power, on page 7 task to verify that the 40-DMX-C card is powered correctly.

Step 16 Restore the default IS,AINS (ANSI) or Unlocked,automaticInService (ETSI) administrative state to the 40-MUX-C port that was changed to OOS,MT (ANSI) or Locked,maintenance (ETSI) in step 10.

Step 17 Repeat steps 6 through 16 for the remaining 31 wavelengths of the 100-GHz grid to verify the correct behavior of all variable optical attenuators (VOAs) inside the 40-MUX-C card.

Step 18 Remove the loopback created in step 4.

Step 19 If the node is a hub node, repeat steps 4 through 18 for the Side B cards.

Step 20 Complete the NTP-G37 Running Automatic Node Setup task to restore the original configuration.

Step 21 Click the **Alarms** tab.

a) Verify that the alarm filter is not on. Complete the "DLP-G128 Disable Alarm Filtering" task 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 the *Cisco NCS 2000 Series Troubleshooting Guide* for procedures.

Stop. You have completed this procedure.

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

Purpose	This acceptance test verifies that a terminal node with 32WSS and 32DMX cards installed is operating properly before you connect it to the network. The test verifies the operation of the amplifiers and also verifies that each 32WSS and 32DMX add/drop and pass-through port operates properly. 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 does not 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	DLP-G46 Log into CTC Complete Chapter 14, "Turn Up a Node"
Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	Superuser only

Note

- Throughout this procedure, Side A refers to Slots 1 through 6, and Side B refers to Slots 12 through 17.
- 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) port 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 port. It then passes the signal to the OPT-BST or OPT-BST-E common TX port and into the OPT-PRE common RX line. The OPT-PRE sends the signal to the 32DMX card. The optical signal from the tunable laser or TXP_MR_10E_C card must pass successfully through the 32WSS card and out the 32DMX card.
- 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 14, "Turn Up a Node" they can be used for this procedure. No additional cabling changes are needed.

Procedure

Step 1 Display the terminal node in node view (single-shelf mode) or multishelf view (multishelf mode).

Step 2 Click the **Alarms** tab.

a) Verify that the alarm filter is not on. Complete the "DLP-G128 Disable Alarm Filtering" task 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 the *Cisco NCS 2000 Series Troubleshooting Guide* for procedures.

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

Step 3 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 or Success - Unchanged. If a different status appears, or if errors (indicated in red) appear, delete the OSC channels and complete the "NTP-G37 Run Automatic Node Setup" procedure in "Manage the Shelf" chapter. Provision the OSC channels when automatic node setup (ANS) is complete.

Step 4 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 For 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 5 Wait approximately two minutes, then verify that the OSC link is active on the Side A 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 in "Manage the Shelf" chapter.)

Note If the LOS alarm does not clear on the OSC-CSM card, verify that the opwrMin (dBm) Optic Thresholds setting for the OSC-RX port is not higher than the port's Optical Line power value. In the OSC-CSM card view, click the **Provisioning** > **Optical Line** > **Optic Thresholds** tabs and record the opwrMin (dBm) setting and compare it to the value found in the Power column for the OSC-RX port in the **Provisioning** > **Optical Line** > **Parameters** tabs. Reduce the Optic Thresholds setting for the opwrMin (dBm) value temporarily until the loopback test has been completed to clear the LOS alarm. Reset the Optic Thresholds setting to its original value after clearing the physical loopback.

Step 6 If you are using a tunable laser, follow the manufacturer's instructions to complete the following substeps. If you are using a TXP_MR_10E_C card, continue with Step 7.

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 8.

Step 7 If you are using a TXP_MR_10E_C card, complete the DLP-G358 Provisioning TXP_MR_10E_L and TXP_MR_10E_C Cards for Acceptance Testing for the TXP containing the wavelength you will test. Refer to Table 1: 32WSS-L Ports and Wavelengths Test Checklist, if needed.

Step 8 Using the available patch panel, 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.

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

Step 9 Display the 32WSS card in card view.

Step 10 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 1: 32WSS-L Ports and Wavelengths Test Checklist, if needed.

Step 11 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 12 Change the administrative state of the pass-through port corresponding to the port in Step 8 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 1: 32WSS-L Ports and Wavelengths Test Checklist, if needed.

Step 13 Click **Apply**, then click **Yes**.

Step 14 Click the **Maintenance** tab.

Step 15 For Channel #1, change the Operating Mode to **Add Drop**.

Step 16 Click **Apply**, then click **Yes**.

Step 17 Click the **Provisioning> Optical Chn Optical Connector***n***> Parameters** tabs, where *n* = the optical connector number that carries the wavelength under test.

Step 18 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 (+/– 0.2 dB) shown in the same row.

Step 19 Click the **Optical Line** tab.

Step 20 Verify that the Port 83 (COM-TX) Power column value is the same as the VOA Power Ref set point in Step 18 (+/– 0.5 dB). This verifies that the optical signal is traveling correctly through the 32WSS card.

Step 21 If an OPT-BST or OPT-BST-E card is installed, complete the DLP-G79 Verifying the OPT-BST, OPT-BST-E, or OPT-BST-L Amplifier Laser and Power on the OPT-BST or OPT-BST-E to ensure that the amplifier is working properly.

Step 22 If an OSC-CSM is installed, continue with Step 24. 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 83 (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-L22 Cleaning Fiber Connectors" procedure in the *Cisco NCS 2000 Series Hardware Installation Guide* to clean the fiber connection between the OPT-BST or OPT-BST-E card and the 32WSS cards. Check the values again. If they still do not match, contact your next level of support.

Step 23 If an OPT-BST, OPT-BST-E, or OPT-BST-L card is installed on the Side A or terminal side, complete the DLP-G79 Verifying the OPT-BST, OPT-BST-E, or OPT-BST-L Amplifier Laser and Power to ensure that the amplifier is working properly.

Step 24 Complete the following steps to verify the connection between Port 67 (COM-TX) on the 32WSS and 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-L22 Cleaning Fiber Connectors" procedure in the *Cisco NCS 2000 Series Hardware Installation Guide* 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 25 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 Port 33 (COM-RX) is equal to the value recorded in Step c, +/– 1.0 dB. If not, use the "NTP-L22 Cleaning Fiber Connectors" procedure in the *Cisco NCS 2000 Series Hardware Installation Guide* 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 26 Complete the DLP-G80 Verifying the OPT-PRE Amplifier Laser and Power on the OPT-PRE to ensure that the amplifier is working properly.

Step 27 Complete the DLP-G270 Verifying the 32DMX or 40-DMX-C Power, on page 14 to verify that the 32DMX card is powered correctly.

Step 28 Display the 32WSS in card view.

Step 29 Click the **Maintenance** tab.

Step 30 For the circuit (channel) under test, click the **Operating Mode** table cell and choose **Not Assigned** from the drop-down list.

Step 31 Click **Apply**, then **Yes**.

Step 32 Click the **Provisioning** > **Optical Chn Optical Connector*n*** > **Parameters** tabs, where *n* = the optical connector number that carries the wavelength under test.

Step 33 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 34 Click **Apply**, then **Yes**.

Step 35 Repeat Steps 6 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 4.

Step 38 Complete the "NTP-G37 Run Automatic Node Setup" procedure in "Manage the Shelf" chapter to restore the original configuration.

Step 39 Click the **Alarms** tab.

a) Verify that the alarm filter is not on. Complete the "DLP-G128 Disable Alarm Filtering" task 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 the *Cisco NCS 2000 Series Troubleshooting Guide* for procedures.

Stop. You have completed this procedure.

DLP-G270 Verifying the 32DMX or 40-DMX-C Power

Purpose	This task verifies that the 32DMX or 40-DMX-C card is provisioned to the correct power.
Tools/Equipment	None
Prerequisite Procedures	DLP-G46 Log into CTC
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Superuser only

Procedure

Step 1 Display the 32DMX or 40-DMX-C card in card view.

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

Step 3 Change the administrative state for the COM TX (Port 33 for the 32DMX or Port 41 for the 40-DMX-C) to **OOS,MT** (ANSI) or **Locked,maintenance** (ETSI)

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

Step 5 Verify that the value shown in the power column is equal to the specified VOA Power Ref column (+/- 0.2dB).

Step 6 (Optional) 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 or 40-DMX-C drop Port 1 is consistent with the Power value on the Parameters tab, +/– 1.0 dBm.

Step 7 Change the administrative state for the COM TX port to **IS,AINS** (ANSI) or **Unlocked,automaticInService** (ETSI).

Step 8 Return to your originating procedure (NTP).

NTP-G167 Performing the Terminal Node with 40-WSS-C and 40-DMX-C Cards Acceptance Test

Purpose	This acceptance test verifies that a terminal node with 40-WSS-C and 40-DMX-C cards installed is operating properly before you connect it to the network. The test verifies the operation of the amplifiers and also verifies that each 40-WSS-C and 40-DMX-C add/drop and pass-through port operates properly. 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 does not 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	DLP-G46 Log into CTC Turn Up a Node
Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	Superuser only

Note

- Throughout this procedure, Side A refers to Slots 1 through 6, and Side B refers to Slots 12 through 17.
- This procedure creates an optical loopback on the OPT-BST or OPT-BST-E line. An optical signal is sent from the 40-WSS-C input (add) to the OPT-BST or OPT-BST-E common receive (RX) port 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 port. It then passes the signal to the OPT-BST or OPT-BST-E common TX port and into the OPT-PRE common RX line. The OPT-PRE sends the signal to the 40-DMX-C. The optical signal from the tunable laser or TXP_MR_10E_C must pass successfully through the 40-WSS-C and out the 40-DMX-C.
- If the shelf is equipped with an OSC-CSM, this procedure creates an optical loopback on the OSC-CSM line. An optical signal is sent from the 40-WSS-C input (add) to the OSC-CSM common receive (RX) port and back out the OSC-CSM transmit (TX) line. The OSC-CSM line receives the looped signal from the OSC-CSM-TX port. It then passes the signal to the OSC-CSM common TX port and sends the signal to the 40DMX-C. The optical signal from the tunable lase or TXP_MR_!)E_C must pass successfully through the 40-WSS-C and out the 40DMX-C.
- 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 Turn Up a Node chapter, they can be used for this procedure. No additional cabling changes are needed.

Warning The OSC-RX port opwrMin (dBm) Optic Thresholds setting provisioned by CTP can be set too high and generate LOS and Power Fail alarms for this port while performing an optical loopback on the OSC-CSM card. CTP provisions the opwrMin (dBm) Optic Thresholds value higher than the power received during the loopback test, because CTP calculates the thresholds based on the incoming amplified signal from an adjacent node instead of a loopbacked signal from the OSC-CSM card. To clear the alarms, reduce the Optic Thresholds setting for the opwrMin (dBm) value temporarily until the loopback test has been completed. Reset the Optic Thresholds setting to its original value after clearing the physical loopback.

Procedure

Step 1 Display the terminal node in node view (single-shelf mode) or multishelf view (multishelf mode).

Step 2 Click the **Alarms** tab.

a) Verify that the alarm filter is not on. Complete the "DLP-G128 Disable Alarm Filtering" task 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 the *Cisco NCS 2000 Series Troubleshooting Guide* for procedures.

Note The OSC terminations created during node turn-up will generate LOS alarms on the OPT-BST, OPT-BST-E, or OPT-AMP-17-C cards, and on the OSC-CSM and OSCM cards. If OSCM cards are installed in ANSI shelves, EOC SDCC Termination Failure alarms will appear.

Step 3 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 or Success -

Unchanged. If other statuses appear, or if errors (indicated in red) appear, delete the OSC channels and complete the NTP-G37 Running Automatic Node Setup task. Provision the OSC channels when ANS is complete.

Step 4 If no OSC terminations are present, complete the NTP-G38 Provisioning OSC Terminations task.

Step 5 Create a physical loopback on the OPT-BST, OPT-BST-E, OPT-AMP-17, or OSC-CSM card by connecting a fiber optic jumper between the LINE TX and RX ports. For OPT-BST or OPT-BST-E cards, connect a 10 dB bulk attenuator to each end of the jumper. The OSC-CSM card does not require attenuation.

Note For ANSI shelves, an EOC SDCC 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 Provision OSC terminations. Complete the NTP-G38 Provisioning OSC Terminations task.

Step 7 Wait approximately two minutes, then verify that the OSC link is active on the Side A OSCM or OSC-CSM card by observing whether or not the 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 Provisioning OSC Terminations task.

Note If the LOS alarm does not clear on the OSC-CSM card, verify that the opwrMin (dBm) Optic Thresholds setting for the OSC-RX port is not higher than the port's Optical Line power value. In the OSC-CSM card view, click the **Provisioning** > **Optical Line** > **Optic Thresholds** tabs and record the opwrMin (dBm) setting and compare it to the value found in the Power column for the OSC-RX port in the **Provisioning** > **Optical Line** > **Parameters** tabs. Reduce the Optic Thresholds setting for the opwrMin (dBm) value temporarily until the loopback test has been completed to clear the LOS alarm. Reset the Optic Thresholds setting to its original value after clearing the physical loopback.

Step 8 If you are using a tunable laser, follow the manufacturer's instructions to complete the following substeps. 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 you will test, then continue with step 10.

Step 9 If you are using a TXP_MR_10E_C card, complete the DLP-G358 Provisioning TXP_MR_10E_L and TXP_MR_10E_C Cards for Acceptance Testing task for the TXP containing the wavelength you will test. Refer to Table 1: 32WSS-L Ports and Wavelengths Test Checklist, if needed.

Step 10 Using the available patch panel, connect the tunable laser transmitter or the TXP_MR_10E_C card DWDM TX port to the correct CHAN RX port on the 40-WSS-C card for the wavelength that you want to test. Refer to Table 4-1 on page 4-28, if needed. For example, if the tested wavelength is 1530.33 nm (shown as 1530.3), then connect the TXP_MR_10E_C card DWDM TX port to the Optical Connector 1, CHAN RX 01 port on the 40-WSS-C card.

Note The tunable laser minimum Pout must be –6 dBm. If the output power is lower than –6 dBm, the 40-WSS-C card might not reach the provisioned set point.

Step 11 Display the 40-WSS-C card in card view.

Step 12 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 1: 32WSS-L Ports and Wavelengths Test Checklist, if needed.

Step 13 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 14 Change the administrative state of the pass-through port corresponding to the port in step 10 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 41 (PASS-THROUGH) Admin State field and choose OOS,MT or Locked,maintenance from the drop-down list. Refer to Table 1: 32WSS-L Ports and Wavelengths Test Checklist, if needed.

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 Optical Connector*n*** > **Parameters** 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_C 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 Port 83 (COM-TX) Power column value is the same as the VOA Power Ref set point in Step 20 (+/– 0.5 dB). This verifies that the optical signal is traveling correctly through the 40-WSS-C card.

Step 23 If an OPT-BST, OPT-BST-E, or OPT-BST-L card is installed, complete the DLP-G79 Verifying the OPT-BST, OPT-BST-E, or OPT-BST-L Amplifier Laser and Power, on page 4 on the OPT-BST or OPT-BST-E to ensure that the amplifier is working properly. If an OSC-CSM is installed, complete the DLP-G84 Verifying the OSC-CSM Incoming Power, on page 109 task.

Step 24 If an OSC-CSM is installed, continue with Step 26. If an OPT-BST is installed, verify the connection between Port 83 (COM-TX) on the 40-WSS-C and Port 1 (COM-RX) on the OPT-BST or OPT-BST-E cards:

a) Display the 40-WSS-C card in card view.
b) Click the **Provisioning** > **Optical Line** tabs.
c) Record the value in the Power column for Port 83 (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 column for Port 1 (COM-RX) is equal to the value recorded in step c, +/– 1.0 dB. If not, use the NTP-L22 Cleaning Fiber Connectors task to clean the fiber connection between the OPT-BST or OPT-BST-E card and the 40-WSS-C cards. Check the values again. If they still do not match, contact your next level of support.

Step 25 If an OPT-BST, OPT-BST-E, or OPT-BST-L card is installed on the Side A or terminal side, complete the DLP-G79 Verifying the OPT-BST, OPT-BST-E, or OPT-BST-L Amplifier Laser and Power, on page 4 to ensure that the amplifier is working properly. Continue with step 28.

Step 26 Complete the following steps to verify the connection between Port 83 (COM-TX) on the 40-WSS-C and the Port 2 (COM-RX) on the OSC-CSM card:

a) Display the 40-WSS-C card in card view.
b) Click the **Provisioning** > **Optical Line** tabs.
c) Record the value in Power table cell for Port 83 (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-L22 Cleaning Fiber Connectors task to clean the fiber connection between the OSC-CSM and 40-WSS-C 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-PRE card and Port 41 (COM-RX) on the 40-DMX-C card:

a) Display the OPT-PRE card in card view.
b) Click the **Provisioning** > **OptAmpliLine** > **Parameters** tabs.
c) Record the total output power in Power column for Port 2 (COM-TX).
d) Display the 40-DMX-C card in card view.
e) Click the **Provisioning** > **Optical Line** > **Parameters** tabs.
f) Verify that the value in the Power column for Port 41 (COM-RX) is equal to the value recorded in Step c, +/– 1.0 dB. If not, use the NTP-L22 Cleaning Fiber Connectors task to clean the fiber connection between the OPT-PRE and 40-DMX-C cards. Check the values again. If they still do not match, contact your next level of support.

Step 28 If an OPT-PRE card is installed on the Side A or terminal side, complete the DLP-G80 Verifying the OPT-PRE Amplifier Laser and Power task on the OPT-PRE card to ensure that the amplifier is working properly. If OSC-CSM cards are installed, complete the DLP-G84 Verifying the OSC-CSM Incoming Power task.

Step 29 Complete the DLP-G270 Verifying the 32DMX or 40-DMX-C Power to verify that the 40-DMX-C card is powered correctly.

Step 30 Display the 40-WSS-C card 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 click **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 in steps 12 and 13 of this procedure. For example, if the tested wavelength is 1430-33 nm (shown as 1530.3), you would click the Admin State field and choose IS,ANSI (ANSI) or Unlocked,AutomaticInService (ETSI) from the drop-down list for both Port 1 (CHAN-RX) and Port 41 (PASS-THROUGH).

Step 36 Repeat steps 8 through 35 for the remaining 39 wavelengths of the 100-Ghz grid to verify the correct behavior of all VOAs inside the 40-WSS-C card.

Step 37 Disconnect the TXP card or tunable laser from the 40-WSS-C card.

Step 38 Remove the loopback created in Step 5.

Step 39 Complete the NTP-G37 Running Automatic Node Setup to restore the original configuration.

Step 40 Click the **Alarms** tab.

a) Verify that the alarm filter is not on. Complete the "DLP-G128 Disable Alarm Filtering" task 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 *Cisco NCS 2000 Series Troubleshooting Guide* for procedures.

Stop. You have completed this procedure.

NTP-G153 Performing 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 the operation of the amplifiers and also verifies that each add/drop and pass-through port on the 32WSS-L and 32DMX-L cards operates properly. 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 does not 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	DLP-G46 Log into CTC Turn Up a Node
Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	Superuser only

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 Turn Up a Node chapter they can be used for this procedure. No additional cabling changes are needed.
- 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 port and back out the OPT-BST-L TX line. The OPT-BST-L line receives the looped signal from the OPT-BST-L TX port. It then passes the signal to the OPT-BST-L common TX port and into the OPT-AMP-L (when provisioned in OPT-PRE mode) common RX port. 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.

Procedure

Step 1 Display the terminal node in node view (single-shelf mode) or multishelf view (multishelf mode).

Step 2 Click the **Alarms** tab.

a) Verify that the alarm filter is not on. Complete the "DLP-G128 Disable Alarm Filtering" task 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 the Cisco NCS 2002 and NCS 2006 Troubleshooting Guide for procedures.

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

Step 3 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, or Success - Unchanged. If a different status appears, or if errors (indicated in red) appear, delete the OSC channels and complete the NTP-G37 Running Automatic Node Setup task. Provision the OSC channels when ANS is complete.

Step 4 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 For 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 5 Wait approximately two minutes, then verify that the OSC link is active on the Side A 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 Provisioning OSC Terminations task.

Step 6 If you are using a tunable laser, follow the manufacturer's instructions to complete the following substeps. If you are using a TXP_MR_10E_L card, continue with step 7.

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 8.

Step 7 If you are using a TXP_MR_10E_L card, complete the DLP-G358 Provisioning TXP_MR_10E_L and TXP_MR_10E_C Cards for Acceptance Testing task for the TXP containing the wavelength you will test.

Step 8 Using the available patch panel, 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.

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 set point.

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

Step 10 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 1: 32WSS-L Ports and Wavelengths Test Checklist, if needed.

Step 11 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 12 Change the administrative state of the pass-through port corresponding to the port in step 8 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 1: 32WSS-L Ports and Wavelengths Test Checklist, if needed.

Step 13 Click **Apply**, then click **Yes**.

Step 14 Click the **Maintenance** tab.

Step 15 For channel under test, change Operating Mode to **Add Drop**.

Step 16 Click **Apply**, then click **Yes**.

Step 17 Click the **Provisioning** > **Optical Chn** > **Parameters** tabs where *n* = the optical connector number that carries the wavelength under test.

Step 18 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 19 Click the **Optical Line** tab.

Step 20 Verify that the Port 67 (TX COM) has the same Power column value as the VOA Power Ref set point (+/– 0.5 dB) in step 18. This verifies that the optical signal is traveling correctly through the 32WSS-L card.

Step 21 If an OPT-BST-L card is installed, complete the DLP-G359 Verifying the OPT-BST-L or OPT-AMP-L (OPT-Line Mode) Amplifier Laser and Power, on page 24 on the OPT-BST-L card to ensure that the amplifier is working properly.

Step 22 If an OSC-CSM is installed, continue with step 23. If an OPT-BST-L card 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-L22 Cleaning Fiber Connectors 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 23 If an OPT-BST-L card is installed on the Side A or terminal side, complete the DLP-G79 Verifying the OPT-BST, OPT-BST-E, or OPT-BST-L Amplifier Laser and Power task to ensure the amplifier is working properly.

Step 24 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-L22 Cleaning Fiber Connectors task 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 25 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 Port 33 (COM-RX) is equal to the value recorded in step c, +/– 1.0 dB. If not, use the NTP-L22 Cleaning Fiber Connectors task 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 26 Complete the DLP-G360 Verifying the OPT-AMP-L (OPT-PRE Mode) Amplifier Laser and Power task on the OPT-PRE card to ensure that the amplifier is working properly.

Step 27 Complete the DLP-G361 Verifying the 32DMX-L Power task to verify that the 32DMX card is powered correctly.

Step 28 Display the 32WSS-L in card view.

Step 29 Click the **Maintenance** tab.

Step 30 For the circuit (channel) under test, click the **Operating Mode** table cell and choose **Not Assigned** from the drop-down list.

Step 31 Click **Apply**, then Yes.

Step 32 Click the **Provisioning** > **Optical Chn Optical Connector*n*** > **Parameters** tabs, where *n* = the optical connector number that carries the wavelength under test.

Step 33 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 34 Repeat steps 6 through 33 for the remaining wavelengths of the 100-Ghz grid to verify the correct behavior of all VOAs inside the 32WSS-L card.

Step 35 Disconnect the TXP card or tunable laser from the 32WSS-L card.

Step 36 Remove the loopback created in step 4.

Step 37 Complete the NTP-G37 Running Automatic Node Setup task to restore the original configuration.

Step 38 Click the **Alarms** tab.

a) Verify that the alarm filter is not on. Complete the "DLP-G128 Disable Alarm Filtering" task 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 the Cisco NCS 2002 and NCS 2006 Troubleshooting Guide for procedures.

Stop. You have completed this procedure.

DLP-G358 Provisioning TXP_MR_10E_L and TXP_MR_10E_C Cards for Acceptance Testing

Purpose	This procedure provisions a TXP_MR_10E_L and TXP_MR_10E_C cards for acceptance testing when a tunable laser is not available.

Tools/Equipment	TXP_MR_10E_L and TXP_MR_10E_C
Prerequisite Procedures	NTP-G179 Installing the Transponder and Muxponder Cards NTP-G34 Installing Fiber-Optic Cables on DWDM Cards and DCUs DLP-G46 Log into CTC
Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	Superuser only

Procedure

Step 1 If you have installed and verified the TXP_MR_10E_L or TXP_MR_10E_C card, continue with Step 2. If you have not installed it, install the cards using the NTP-G179 Installing the Transponder and Muxponder Cards task.

Step 2 In Cisco Transport Controller (CTC), display the TXP_MR_10E_L or TXP_MR_10E_C 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 1.0 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-G359 Verifying 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

Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Superuser only

Procedure

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 Verifying 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
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Superuser only

Procedure

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-L22 Cleaning Fiber Connectors. 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 Verifying 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
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Superuser only

Procedure

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 set point.

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 Side A 32DMX card is consistent with the value read (the maximum allowed error is +/– 1.0 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 Performing 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 the operation of the amplifiers and also verifies that each add/drop and pass-through port on the 32WSS and 32DMX cards operates properly. 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 does not 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 Two bulk attenuators (10 dB) with LC connectors
Prerequisite Procedures	DLP-G46 Log into CTC Turn Up a Node
Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	Superuser only

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 Turn Up a Node chapter they can be used for this procedure. No additional cabling changes are needed.
- 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 either OPT-BST or OPT-BST-E amplifiers, and OPT-PRE amplifiers on both Side B and Side A, lower the OPT-PRE 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.
- Throughout this procedure, Side A refers to Slots 1 through 8, and Side B refers to Slots 10 through 17.

Procedure

Step 1 Display the ROADM node in node view (single-shelf mode) or multishelf view (multishelf mode).

Step 2 Import the Xml file to fully configure node: layout, patchcords, parameters. See the NTP-G143 Importing the Cisco Transport Planner NE Update Configuration File as necessary.

Step 3 Install the cards and fiber up the node according with the xml file settings.

Step 4 Run the ANS at node level and verify no errors are present. See NTP-G37 Running Automatic Node Setup task as necessary. 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**, or **Success - Unchanged**. If any are not, complete the following step: NTP-G37 Running Automatic Node Setup task.

Step 5 Create the OSC channels using the NTP-G38 Provisioning OSC Terminations task chapter.

Step 6 Click the **Alarms** tab.

a) Verify that the alarm filter is not on. Complete the "DLP-G128 Disable Alarm Filtering" task 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 the *Cisco NCS 2000 Series Troubleshooting Guide* task

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 in ANSI shelves, EOC DCC Termination Failure alarms will appear.

Step 7 Complete the DLP-G310 Verifying ROADM Node C-Band Pass-Through Channels with 32WSS and 40-WSS-C Cards task.

Step 8 Complete the DLP-G311 Verifying the Side A or Side B ROADM C-Band Add/Drop Channels with 32WSS and 40-WSS-C Cards tasks for channels that will be added or dropped on the node.

Step 9 Delete both OSC channels using the "DLP-G186 Delete an OSC Termination" task.

Step 10 Complete the NTP-G37 Running Automatic Node Setup task.

Step 11 Create the two OSC channels using the NTP-G38 Provisioning OSC Terminations task.

Step 12 Click the **Alarms** tab.

a) Verify that the alarm filter is not on. Complete the "DLP-G128 Disable Alarm Filtering" task as necessary.
b) Verify that no equipment failure alarms appear on the node. If alarms appear, investigate and resolve them before continuing.

Refer the *Cisco NCS 2000 Series Troubleshooting Guide* task.

Stop. You have completed this procedure.

DLP-G310 Verifying ROADM Node C-Band Pass-Through Channels with 32WSS and 40-WSS-C Cards

Note Throughout this task, Side A refers to Slots 1 through 8, and Side B refers to Slots 10 through 17.

Procedure

Step 1 Create a physical loopback on the Side A 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 the equipment.

Step 2 If an OPT-PRE amplifier or OSC-CSM card is installed on Side A (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) In the Types area, 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 the **Enter** key.
e) In the CTC window, click **Apply**, then click **Yes** in the confirmation dialog box.

Step 3 If an OPT-PRE or OSC-CSM card is installed on Side B, complete the following steps. If not, continue with step 4.

a) Display the Side B OPT-PRE card in card view, then click the **Provisioning** > **Optical Line** > **Optics Thresholds** tabs.
b) In the Types area, 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 the **Enter** key.
e) In the CTC window, click **Apply**, then click **Yes** in 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 Side A 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 Side A. If the alarms do not clear, contact your next level of support.

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

Step 5 Create an OCH-DCN circuit for channel 1 on side A related to EXP path. The circuit is bidirectional and goes from LINE-RX port of the OPT-BST (or OSC-CSM) side B to the LINE-TX port of the OPT-BST (or OSC-CSM) on the opposite side A.

Step 6 Connect the tunable laser transmitter or the TXP_MR_10E_C card TRUNK-TX port to the Side B OPT-BST, OPT-BST-E, or OSC-CSM LINE RX port. If a Side B 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 the equipment.

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-G358 Provisioning TXP_MR_10E_L and TXP_MR_10E_C Cards for Acceptance Testing, on page 23 task for the TXP transmitting the wavelength you will test.

Step 9 If an OPT-PRE card is installed on Side B, complete the following steps. If not, continue with step 10.

a) Display the Side B 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 Side B 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-L22 Cleaning Fiber Connectors 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 Side B OPT-PRE card, complete the DLP-G80 Verifying the OPT-PRE Amplifier Laser and Power, on page 5 task.

Step 10 If an MMU card is installed on Side B, complete the following steps, then continue with step 12. If an MMU card is not installed, continue with step 11.

a) Display the Side B 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 a Side B 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 a Side B 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 Side B 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, NTP-L22 Cleaning Fiber Connectors 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 Side B 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 Side B MMU card.

m) Display the Side B 32WSS or 40-WSS-C 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-L22 Cleaning Fiber Connectors to clean the fiber connection between the 40-WSS-C and MMU cards. Check the values again. If they still do not match, contact your next level of support.

p) Continue with step 12.

Step 11 Verify the Side B 32WSS or 40-WSS-C card to OPT-BST, OPT-PRE, or OSC-CSM card cable connection:

a) Display the Side B 32WSS or 40-WSS-C in card view.

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

c) Locate the Port 68 (COM-RX) (for 32WSS card) or Port 84 (COM-RX) (for 40-WSS-C card) Power parameter. Record the value.

d) If a Side B 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 Side B, display it in card view and complete Step g. If not, continue with Step g.

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 Side B 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-L22 Cleaning Fiber Connectors to clean the fiber connection between the 32WSS or 40-WSS-C 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 12 Verify the EXPRESS cable connection between the two 32WSS or two 40-WSS-C cards:

a) Display the Side B 32WSS or 40-WSS-C in card view.

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

c) Locate the Port 65 (EXP-TX) (for 32WSS card) or Port 81 (EXP-TX) (for 40-WSS-C card) Power parameter. Record the value.

d) Display the Side A 32WSS or 40-WSS-C in card view.

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

f) Locate the Power value for EXPRESS Port 66 (EXP-RX) (for 32WSS card) or Port 82 (EXP-RX) (for 40-WSS-C card). Verify that the value matches the power recorded in Step c, +/–1 dB. If not, use the NTP-L22 Cleaning Fiber Connectors to clean the fiber connection between the 32WSS or 40-WSS-C cards. Check the values again. If they still do not match, contact your next level of support.

Step 13 Display the Side A 32WSS or 40-WSS-C card in card view. Click the **Provisioning** > **Optical Chn Optical Connector*n*** > **Parameters** tabs, where *n* = the connector number containing the wavelength you are testing. Refer to Table 3: 40-WSS-C Ports and Wavelengths Test Checklist , if needed. 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 14 If an MMU card is installed on Side A, complete the following steps. If an MMU card is not installed on Side A, continue with step 15.

a) Display the Side A 32WSS or 40-WSS-C 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) (for 32WSS card) or Port 83 (COM-TX) (for 40-WSS-C card).
d) Display the Side A 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-L22 Cleaning Fiber Connectors task to clean the fiber connection between the 32WSS or 40-WSS-C 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 Side A 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 Side A 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-L22 Cleaning Fiber Connectors to clean the fiber connection between the OPT-BST, OPT-BST-E, 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 18.

Step 15 For OPT-BST, OPT-BST-E, or OSC-CSM card is installed on Side A, complete the following steps.

a) Display the Side A 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 Side A 32WSS or 40-WSS-C in card view.
e) Click the **Provisioning** > **Optical Line** > **Parameters** tabs.
f) Locate the Power value for Port 67 (COM-TX) (for 32WSS card) or Port 83 (COM-TX) (for 40-WSS-C card). Verify that the value matches the power recorded in Step c, +/–1 dB. If not, use the NTP-L22 Cleaning Fiber Connectors to clean the fiber connection between the OPT-BST, OPT-BST-E, or OSC-CSM card and the 40-WSS-C card. Check the values again. If they still do not match, contact your next level of support.

Step 16 If on Side A an OPT-BST or OPT-BST-E card is installed, complete the DLP-G79 Verifying the OPT-BST, OPT-BST-E, or OPT-BST-L Amplifier Laser and Power, on page 4 task. If instead an OSC-CSM is installed, no action is needed.

Step 17 Repeat steps from 9 to 16 for the same wavelength running on opposite direction (side A-> side B).

Step 18 Complete step 13 for the additional wavelengths that you want to test. If you have tested all the wavelengths, continue with step 19.

Step 19 Delete the OCH-DCN circuit created on step 5.

Step 20 If you used a tunable laser or an installed TXP_MR_10E_C card for this test, disconnect it from the Side A OPT-BST, OPT-BST-E, or OSC-CSM line side RX ports.

Step 21 Remove the loopback fiber from the line RX and TX in the Side A OPT-BST, OPT-BST-E, or OSC-CSM card.

Step 22 Return to your originating procedure (NTP).

DLP-G311 Verifying the Side A or Side B ROADM C-Band Add/Drop Channels with 32WSS and 40-WSS-C Cards

Purpose	This task verifies the signal flow through Side A or Side B 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 Two bulk attenuators (10 dB) with LC connectors
Prerequisite Procedures	DLP-G46 Log into CTC
Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	Superuser only

Note
- Throughout this task Side X refers to side you want to test (Side A or Side B) and Side Y refers to the opposite side.

  Throughout this task, Side A refers to Slots 1 through 8, and Side B refers to Slots 10 through 17.

Procedure

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 Side X 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 the equipment.

Step 3 Wait 2 to 3 minutes, then click the **Alarms** tab. Verify that the LOS alarms on the Side X 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 Side X.

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

Step 4 Create an OCH-DCN circuit for channel 1 on Side X related to ADD/DROP path. The circuit is bidirectional and goes from CHAN-RX port (Add) of the 32WSS or 40-WSS-C Side X to the LINE-TX port of the OPT-BST (or OSC-CSM) on the same side and backward from LINE-RX port of the OPT-BST (or OSC-CSM) on Side Y to the CHAN-TX port (Drop) of the 32DMX or 40-WSS-C card belonging to Side X.

Step 5 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 .

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 8.

Step 6 If you are using a TXP_MR_10E_C card, complete the DLP-G358 Provisioning TXP_MR_10E_L and TXP_MR_10E_C Cards for Acceptance Testing, on page 23 task for the TXP transmitting the wavelength you will test. Refer to the table 42 10G Data Muxponder Card Settings in "Provision Transponder and Muxponder Cards" chapter, if needed.

Step 7 If you are using a TXP_MR_10E_C card, complete the following steps. If you are using a tunable laser continue with step 8.

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 8 Connect the tunable laser transmitter or the TXP_MR_10E_C card DWDM TX port to the Side X fiber patch panel MUX port that is connected to the Side X 32WSS or 40-WSS-C card CHAN RX port carrying the tested wavelength. (If the TXP_MR_10E_C card was installed during Turn Up a Node chapter, simply verify the cable connection.)

Step 9 Connect the TXP_MR_10E_C DWDM RX port or the power meter RX port to the Side X fiber patch panel DMX port that is connected with the Side X 32DMX or 40-DMX-C card CHAN-TX port carrying the tested wavelength. (If the TXP_MR_10E_C card was installed during Turn Up a Node chapter, simply verify the cable connection.)

Step 10 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 42 10G Data Muxponder Card Settings in "Provision Transponder and Muxponder Cards" chapter, if needed.

Step 11 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 7, +/– 1.0 dBm.

Step 12 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 13 Verify that the power value from step 12 reaches the Shelf *i* Slot *i* (32WSS or 40-WSS-C).Port COM-TX. Power set point +/– 1.0 dBm on Side X. 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 40-WSS-C card on Side X.

c) Expand the Port COM-TX category.
d) Select **Power**.
e) i View the value of the Shelf*i* Slot*i* (32WSS or 40-WSS-C).Port COM-TX. Power parameter on the right pane.
f) If the power value does not match the value recorded in step 12 (+/– 2.0 dBm), contact your next level of support.

Step 14 If an MMU card is installed on Side X, complete the following steps. If an MMU card is not installed on Side X, continue with step 15.

a) Display the Side X 32WSS or 40-WSS-C 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 Side X 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-L22 Cleaning Fiber Connectors task to clean the fiber connection between the 32WSS or 40-WSS-C 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 Side X 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 Side X 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-L22 Cleaning Fiber Connectors task to clean the fiber connection between the OPT-BST, OPT-BST-E, 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 16.

Step 15 Verify the connection between the 32WSS or 40-WSS-C card and the OPT-BST, OPT-BST-E or OSC-CSM cards:

a) Display the Side X 32WSS or 40-WSS-C 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 Side X, 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 Side X 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 16. If not, use the NTP-L22 Cleaning Fiber Connectors task to clean the fiber connection between the OPT-BST, OPT-BST-E, or OSC-CSM card and the 32WSS or 40-WSS-C cards. Check the values again. If they still do not match, contact your next level of support.

Step 16 If an OPT-PRE card is installed on Side X, complete the following steps. If not, continue with step 17.

a) Display the Side X 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 Side X 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 cards). Verify that the value matches the power recorded in Step c, +/– 1.5 dB. If not, use the NTP-L22 Cleaning Fiber Connectors task 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 Side X OPT-PRE card, complete the DLP-G80 Verifying the OPT-PRE Amplifier Laser and Power, on page 5 task.

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

a) Display the Side X 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 Side X, 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 j.
f) If a Side X 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 j.
h) Display a Side X 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-L22 Cleaning Fiber Connectors task 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 Side X 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 Side X 32WSS or 40-WSS-C 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-L22 Cleaning Fiber Connectors task to clean the fiber connection between the 32WSS or 40-WSS-C and MMU cards. Check the values again. If they still do not match, contact your next level of support.
p) Continue with 19.

Step 18 Verify the connection between the Side X 32WSS or 40-WSS-C card and the OPT-BST, OPT-BST-E, OPT-PRE, or OSC-CSM card:

a) Display the Side X 32WSS or 40-WSS-C 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 Side X 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 a Side X 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 Side X 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-L22 Cleaning Fiber Connectors task to clean the fiber connection between the 32WSS or 40-WSS-C card and the OPT-PRE, OPT-BST, or OSC-CSM card.

Step 19 Verify the Side X 32WSS or 40-WSS-C and 32DMX or 40-DMX-C connection:
a) Display the Side X 32WSS or 40-WSS-C 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 Side X 32DMX or 40-DMX-C card in card view.
d) Click the **Provisioning** > **Optical Line** > **Parameters** tabs. Record the value in the Port 2 for Side A and Port 33 for Side B for a 32DMX or 40-DMX-C card.
e) (COM-RX) table cell. Verify that the value is equal to the value recorded in b, +/– 1.0 dBm. If not, use the NTP-L22 Cleaning Fiber Connectors task 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 20 Display the Side X 32DMX or 40-DMX-C card in card view.

Step 21 Click the **Provisioning** > **Optical Chn** > **Parameters** tab. Record the CHAN-TX port value under the Power parameter for the wavelength under test.

Step 22 Verify that the power value from step 21 reaches the Shelf *i* Slot *i* (32DMX or 40-DMX-C).Port CHAN-TX.Power set point +/– 2 dBm on Side X. To view this set point:
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 32DMX or 40-DMX-C card on Side X.
c) Expand the Port CHAN-TX category.
d) Select **Power**.
e) View the value of the Shelf *i* Slot *i* (32DMX or 40-DMX-C).Port CHAN-TX.Power parameter on the right pane.
f) If the power value does not match the value recorded in Step 21 (+/– 2 dBm), contact your next level of support.

Step 23 If you are using a TXP_MR_10E_C card, display it in card view. If not, read the values called for in Step 25 from the optical test set or tunable laser you are using.

Step 24 Click the **Performance** > **Optics PM** > **Current Values** tabs.

Step 25 In the Port 2 (Trunk) column, locate the RX Optical Power value. Verify that the value matches the power recorded in Step 21, +/– 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 Side X fiber patch panel DMX port for the tested wavelength. See the NTP-L22 Cleaning Fiber Connectors task.
b) Repeat this step. If the power values still do not match (+/– 2 dBm) contact your next level of support.

Step 26 Repeat Steps 5 through 25 for the remaining wavelengths.

Step 27 Delete the OCH-DCN circuit created on Step 4.

Step 28 If you used a tunable laser or installed a TXP_MR_10E_C card for this test, disconnect it from the Side X patch panel.

Step 29 Unplug the physical loopback fiber from the line TX and RX in the OPT-BST, OPT-BST-E, or OSC-CSM card.

Step 30 Return to your originating procedure (NTP).

NTP-G154 Performing 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 the operation of the amplifiers and also verifies that each add/drop and pass-through port on the 32WSS-L and 32DMX-L cards operates properly. 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 does not 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 Two bulk attenuators (10 dB) with LC connectors
Prerequisite Procedures	DLP-G46 Log into CTC Turn Up a Node chapter
Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	Superuser only

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 Turn Up a Nodechapter, they can be used for this procedure. No additional cabling changes are needed.
- 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 Side B and Side A, 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.

Procedure

Step 1 Make a copy of Table 1: 32WSS-L Ports and Wavelengths Test Checklist 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 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 1: 32WSS-L Ports and Wavelengths Test Checklist

32WSS-L Provisioning Subtab	Port #	Wavelength	Tested: Pass-Through	Tested: Add/Drop Side A	Tested: Add/Drop Side B
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			

32WSS-L Provisioning Subtab	Port #	Wavelength	Tested: Pass-Through	Tested: Add/Drop Side A	Tested: Add/Drop Side B
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 Display the ROADM 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. Complete the "DLP-G128 Disable Alarm Filtering" task 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 the Cisco NCS 2002 and NCS 2006 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 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 or Success - Unchanged. If any are not, complete the following steps:

a) Delete the two OSC channels using the "DLP-G186 Delete an OSC Termination" task.
b) Complete the NTP-G37 Running Automatic Node Setup task.
c) Create the OSC channels using the NTP-G38 Provisioning OSC Terminations task.

Step 5 If MMU cards are installed, complete the following steps. If not, continue with step 6.

a) Display the Side B MMU card in card view.
b) Click the **Provisioning** > **Optical Line** > **Port Status** 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 Side A 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 6 Display the Side B 32WSS-L in card view.

Step 7 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 1: 32WSS-L Ports and Wavelengths Test Checklist, if needed.

Step 8 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 9 Change the administrative state of the pass-through port corresponding to the port in step 8 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 1: 32WSS-L Ports and Wavelengths Test Checklist, if needed.

Step 10 Click **Apply**, then click **Yes** to confirm.

Step 11 Repeat Steps 7 through 10 for all wavelengths that you will test.

Step 12 Display the Side A 32WSS-L in card view.

Step 13 Repeat Steps 7 through 11 for the Side A 32WSS-L card.

Step 14 Display the Side B 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 15 Repeat Step 14 for the Side A 32DMX-L card.

Step 16 Complete the DLP-G362 Verifying ROADM Node L-Band Pass-Through Channels task.

Step 17 Complete the following tasks for channels that will be added or dropped on the node.

- DLP-G363 Verifying the Side B ROADM L-Band Add/Drop Channels
- DLP-G364 Verifying the Side A ROADM L-Band Add/Drop Channels

Step 18 If MMU cards are installed, complete the following steps. If not, continue with Step 19.

a) Display the Side B 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 Side A 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 19 Display the Side B 32WSS-L card in card view.

Step 20 Click the **Provisioning** > **Optical Chn Optical Connector*n*** > **Parameters** tabs, where *n* = the optical connector number that carries the wavelengths you tested.

Step 21 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 22 Click **Apply**.

Step 23 Repeat Steps 20 through 22 for all the ports that are **OOS,MT** or **Locked,maintenance** on the Side B 32WSS-L card.

Step 24 Display the Side A 32WSS-L card in card view.

Step 25 Repeat Steps 20 through 23 for all ports on the Side A 32WSS-L card.

Step 26 Display the Side B 32DMX-L card in card view.

Step 27 Choose the **Provisioning** > **Optical Line** > **Parameters** tabs.

Step 28 For Port 33, click the **Admin State** table cell and choose **IS,AINS** (ANSI) or **Unlocked,automaticInService** (ETSI) from the drop-down list.

Step 29 Click **Apply**.

Step 30 Display the Side A 32DMX-L card in card view.

Step 31 Repeat Steps 27 through 29 for the Side A 32DMX-L card.

Step 32 Delete both OSC channels using the "DLP-G186 Delete an OSC Termination" task.

Step 33 Complete the NTP-G37 Running Automatic Node Setup task.

Step 34 Create the two OSC channels using the NTP-G38 Provisioning OSC Terminations task.

Step 35 Click the **Alarms** tab.

a) Verify that the alarm filter is not on. Complete the "DLP-G128 Disable Alarm Filtering" task as necessary.
b) Verify that no equipment failure alarms appear on the node. If alarms appear, investigate and resolve them before continuing.

Refer the Cisco NCS 2002 and NCS 2006 Troubleshooting Guide for procedures.

Stop. You have completed this procedure.

DLP-G362 Verifying 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 card from the COM RX port to the EXP TX port. In the second 32WSS-L card, 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 Two bulk attenuators (10 dB) with LC connectors
Prerequisite Procedures	DLP-G46 Log into CTC
Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	Superuser only

Note Throughout this task, Side A refers to Slots 1 through 8, and Side B refers to Slots 10 through 17.

Procedure

Step 1 Create a physical loopback on the Side A 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 the equipment.

Step 2 If an OPT-AMP-L amplifier (provisioned in OPT-PRE mode) is installed on Side A (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) In the Types area, click **Alarm**, then click **Refresh**. The alarm thresholds for the OPT-AMP-L card 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 the **Enter** key.
e) In the CTC window, click **Apply**, then click **Yes** in the confirmation dialog box.

Step 3 If an OPT-AMP-L amplifier (provisioned in OPT-PRE mode) is installed on Side B (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) In the Types area, click **Alarm**, then click **Refresh**. The alarm thresholds for the OPT-AMP-L card 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 the **Enter** key.
e) In the CTC window, click **Apply**, then click **Yes** in 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 Side A 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 Side A. If the alarms do not clear, contact your next level of support.

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

Step 5 Display the Side A 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 Side B 32WSS-L card in card view.

Step 10 Repeat Steps 6 through 8 for the Side B 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 Provisioning TXP_MR_10E_L and TXP_MR_10E_C Cards for Acceptance Testing, on page 23 task 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 Side B OPT-BST-L or OSC-CSM LINE RX port. If a Side B 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 the equipment.

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

32WSS-L Provisioning Subtab	Port #	Wavelength	Tested: Pass-Through	Tested: Add/Drop Side A	Tested: Add/Drop Side B
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			

32WSS-L Provisioning Subtab	Port #	Wavelength	Tested: Pass-Through	Tested: Add/Drop Side A	Tested: Add/Drop Side B
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			

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 the operation of the amplifiers and also verifies that each add/drop and pass-through port on the 32WSS-L and 32DMX-L cards operates properly. 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 does not 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 Two bulk attenuators (10 dB) with LC connectors
Prerequisite Procedures	DLP-G46 Log into CTC Turn Up a Node chapter
Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	Superuser only

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

a) Display the Side B 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 Side B 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-L22 Cleaning Fiber Connectors 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 Verifying the OPT-AMP-L (OPT-PRE Mode) Amplifier Laser and Power, on page 25 task.

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 Side B 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 a Side B 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 a Side B 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 Side B 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-L22 Cleaning Fiber Connectors 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 Side B 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 Side B MMU card.
m) Display the Side B 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-L22 Cleaning Fiber Connectors 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 Side B 32WSS-L to OPT-BST-L, OPT-AMP-L, or OSC-CSM card cable connection:

a) Display the Side B 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 a Side B 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 a Side B 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) **D**isplay the Side B 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-L22 Cleaning Fiber Connectors 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 Side B 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.

d) Display the Side A 32WSS-L card in card view.

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

f) 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-L22 Cleaning Fiber Connectors 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 Side A 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 #unique_180 unique_180_Connect_42_ID2542, on page 38, 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 Side A, complete the following steps. If an MMU card is not installed on Side A, continue with Step 22.

a) Display the Side A 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 Side A 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-L22 Cleaning Fiber Connectors 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 Side A, 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 Side A 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-L22 Cleaning Fiber Connectors to clean the fiber connection between the OPT-BST-L or OSC-CSM card, and the MMU card. 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 Side B, complete the following steps. If not, continue with Step 23.

a) Display the Side B 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 Side B 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-L22 Cleaning Fiber Connectors 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 Verifying the OPT-BST, OPT-BST-E, or OPT-BST-L Amplifier Laser and Power, on page 4 task.

Step 23 If a Side A OPT-AMP-L card provisioned as an OPT-PRE is installed, complete the following steps. If not, continue with Step 24.

a) Display the Side A 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 Side A 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-L22 Cleaning Fiber Connectors 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 Side A OPT-AMP-L card provisioned as an OPT-PRE, complete the DLP-G360 Verifying the OPT-AMP-L (OPT-PRE Mode) Amplifier Laser and Power, on page 25 task.

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

a) Display the Side A 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 a Side A 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 Side A, 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 Side A 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-L22 Cleaning Fiber Connectors 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 Side B 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 Side A MMU card.
m) Display the Side A 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-L22 Cleaning Fiber Connectors 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 Side A 32WSS-L card to OPT-BST-L, OPT-AMP-L, or OSC-CSM card cable connection:

a) Display the Side A 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 Side A 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 Side A 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 Side A 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-L22 Cleaning Fiber Connectors 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 Side A 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.

d) Display the Side B 32WSS-L card in card view.

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

f) 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-L22 Cleaning Fiber Connectors 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 Side B 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 1: 32WSS-L Ports and Wavelengths Test Checklist, 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 Side B, complete the following steps. If an MMU card is not installed on Side B, continue with Step 31.

a) Display the Side B 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 Side B 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-L22 Cleaning Fiber Connectors 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 Side B 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 Side B 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-L22 Cleaning Fiber Connectors 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 32.

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

a) Display the Side B 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 Side B 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-L22 Cleaning Fiber Connectors to clean the fiber connection between the OPT-BST-L card and the OSC-CSM or 32WSS-L card. Check the values again. If they still do not match, contact your next level of support.
g) Complete the DLP-G79 Verifying the OPT-BST, OPT-BST-E, or OPT-BST-L Amplifier Laser and Power, on page 4 task.

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 Side B 32WSS-L card in card view.

Step 34 Click the **Maintenance** tab.

Step 35 In the 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 Side A 32WSS-L in card view.

Step 38 Repeat Steps 34 through 36 for the Side A 32WSS-L card.

Step 39 Remove the TXP or tunable laser from the Side B 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 Side A OPT-BST-L or OSC-CSM card.

Step 41 Return to your originating procedure (NTP).

DLP-G363 Verifying the Side B ROADM L-Band Add/Drop Channels

Purpose	This procedure verifies the signal flow through Side B 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 Two bulk attenuators (10 dB) with LC connectors
Prerequisite Procedures	DLP-G46 Log into CTC
Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	Superuser only

Note Throughout this task, Side A refers to Slots 1 through 8, and Side B refers to Slots 10 through 17.

Procedure

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 Side B 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 the equipment.

Step 3 Wait 2 to 3 minutes, then click the **Alarms** tab. Verify that the LOS alarms on the Side B 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 Side B.

Note For ANSI shelves, 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 Provisioning TXP_MR_10E_L and TXP_MR_10E_C Cards for Acceptance Testing, on page 23 task for the TXP containing the wavelength you will test. See Table 1: 32WSS-L Ports and Wavelengths Test Checklist, 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 Side B fiber patch panel MUX port that corresponds to the Side B 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 Side B fiber patch panel DMX port that is connected with the Side B 32DMX-L card CHAN-TX port carrying the tested wavelength. (If the TXP_MR_10E_L card was installed during "Turn Up a Node" chapter, 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 in the Operating Mode column 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 1: 32WSS-L Ports and Wavelengths Test Checklist, 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, +/– 1.0 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 Shelf i Slot i (32WSS-L).Port COM-TX.Power set +/– 1.0 dBm on Side B. 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 card on Side B.
c) Expand the COM-TX category.
d) Select **Power**.
e) View the value of the Shelf *i* Slot *i* (32WSS-L).Port COM-TX.Power parameter on the right pane.
f) If the power value does not match the value recorded in Step 15 (+/– 2.0 dBm), contact your next level of support.

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

a) Display the Side B 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 Side B 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-L22 Cleaning Fiber Connectors 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 Side B 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 Side B 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-L22 Cleaning Fiber Connectors 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 19.

Step 18 Verify the connection between the 32WSS-L card and the OPT-BST-L or OSC-CSM cards:

a) Display the Side B 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 Side B, 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 Side B 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-L22 Cleaning Fiber Connectors to clean the fiber connection between the OPT-BST-L or OSC-CSM card and the 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 Side B, complete the following steps. If not, continue with Step 20.

a) Display the Side B 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 Side B 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 cards). Verify that the value matches the power recorded in Step c, +/– 1.5 dB. If not, use the NTP-L22 Cleaning Fiber Connectors 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 Side B OPT-AMP-L card, complete the DLP-G80 Verifying the OPT-PRE Amplifier Laser and Power, on page 5.

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

a) Display the Side B 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 Side B, 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 a Side B 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 Side B 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-L22 Cleaning Fiber Connectors 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 Side B 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 Side B 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-L22 Cleaning Fiber Connectors 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 Side B 32WSS-L card and the OPT-BST-L, OPT-AMP-L (in OPT-PRE mode), or OSC-CSM card:

a) Display the Side B 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 a Side B 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 a Side B 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 Side B 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-L22 Cleaning Fiber Connectors 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 Side B 32WSS-L and 32DMX-L connection:

a) Display the Side B 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 Side B 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, +/– 1.0 dBm. If not, use the NTP-L22

Cleaning Fiber Connectors 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 Side B 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 Shelf *i* Slot *i* (32DMX-L).Port CHAN-TX.Power set point +/– 2 dBm on Side B. To view this set point:

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 32DMX-L card.
c) Expand the CHAN-TX category.
d) Select **Power**.
e) View the value of the Side B Shelf *i* Slot *i* (32DMX-L).Port CHAN-TX.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 Side B fiber patch panel DMX port for the tested wavelength. See the NTP-L22 Cleaning Fiber Connectors.
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 Side B 32WSS-L card in card view.

Step 31 Click the **Maintenance** tab.

Step 32 Click the table cell in the Operating Mode column 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 Side B 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 Verifying the Side A ROADM L-Band Add/Drop Channels

Purpose	This procedure verifies the signal flow through Side A 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 Two bulk attenuators (10 dB) with LC connectors
Prerequisite Procedures	DLP-G46 Log into CTC
Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	Superuser only

Note Throughout this task, Side A refers to Slots 1 through 8, and Side B refers to Slots 10 through 17.

Procedure

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 Side A 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 the equipment.

Step 3 Wait 2 to 3 minutes, then click the **Alarms** tab. Verify that the LOS alarms on the Side A 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 Side A.

Note For 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 Provisioning TXP_MR_10E_L and TXP_MR_10E_C Cards for Acceptance Testing, on page 23 task for the TXP containing the wavelength you will test. Refer to Table 1: 32WSS-L Ports and Wavelengths Test Checklist, 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 Side A fiber patch panel MUX port that corresponds to the Side A 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 Side A fiber patch panel DMX port that is connected with the Side A 32DMX-L card CHAN-TX port carrying the tested wavelength. (If the TXP_MR_10E_L card was installed during "Turn Up a Node" chapter 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 in the Operating Mode column 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 1: 32WSS-L Ports and Wavelengths Test Checklist, 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, +/– 1.0 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 Shelf i Slot i (32WSS-L).Port COM-TX.Power +/– 1.0 dBm on Side A. 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 card on Side A.
c) Expand the Port COM-TX category.
d) Select **Power**.
e) View the Shelf *i* Slot *i* (32WSS-L).Port COM-TX.Power parameter on the right pane.
f) If the power value does not match the value recorded in Step 15 (+/– 2.0 dBm), contact your next level of support.

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

a) Display the Side A 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 Side A 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-L22 Cleaning Fiber Connectors 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 Side A 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 Side A 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-L22 Cleaning Fiber Connectors 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 19.

Step 18 Verify the connection between the 32WSS-L card and the OPT-BST-L or OSC-CSM cards:

a) Display the Side A 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 Side A, 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 Side A 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-L22 Cleaning Fiber Connectors to clean the fiber connection between the OPT-BST-L or OSC-CSM card and the 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 Side A, complete the following steps. If not, continue with Step 20.

a) Display the Side A 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 Side A 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 cards). Verify that the value matches the power recorded in Step c, +/– 1.5 dB. If not, use the NTP-L22 Cleaning Fiber Connectors 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 Side A OPT-AMP-L card, complete the DLP-G80 Verifying the OPT-PRE Amplifier Laser and Power, on page 5.

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

a) Display the Side A 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 Side A, display it in card view and complete Step e. If not, continue with Step f.

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

f) If a Side A 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 Side A 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-L22 Cleaning Fiber Connectors 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 Side A 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 Side A 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. 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 Side A 32WSS-L card and the OPT-BST-L, OPT-AMP-L (in OPT-PRE mode), or OSC-CSM card:

a) Display the Side A 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 a Side A 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 a Side A 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 Side A 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-L22 Cleaning Fiber Connectors 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 Side A 32WSS-L and 32DMX-L connection:

a) Display the Side A 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 Side A 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, +/– 1.0 dBm. If not, 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 Side A 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 Shelf *i* Slot *i* (32DMX-L). Port CHAN-TX.Power set point +/– 2 dBm on Side A. To view this set point:

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 32DMX-L card on Side A.
c) Expand the Port CHAN-TX category.
d) Select **Power**.
e) View the value of the Shelf *i* Slot *i* (32DMX-L).Port CHAN-TX.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 Side A fiber patch panel DMX port for the tested wavelength.

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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 Side A 32WSS-L card in card view.

Step 31 Click the **Maintenance** tab.

Step 32 Click the table cell in the Operating Mode column 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 Side A 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-G180 Performing the ROADM Node with 40-WSS-C and 40-DMX-C 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 the operation of the amplifiers and also verifies that each add/drop and pass-through port on the 40-WSS-C and 40-DMX-C cards operates properly. 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 does not 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 Two bulk attenuators (10 dB) with LC connectors
Prerequisite Procedures	DLP-G46 Log into CTC Turn Up a Node
Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	Superuser only

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 Turn Up a Node chapter, they can be used for this procedure. No additional cabling changes are needed.
- 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 either OPT-BST or OPT-BST-E amplifiers, and OPT-PRE amplifiers on both the Side B and Side A sides, lower the OPT-PRE power thresholds so that the ROADM shelf 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.
- Throughout this procedure, Side A refers to Slots 1 through 8, and Side B refers to Slots 10 through 17.

Procedure

Step 1 Make a copy of Table 3: 40-WSS-C Ports and Wavelengths Test Checklist and place it in a convenient location for reference throughout this procedure. The table shows the 40-WSS-C ports and the wavelengths assigned to them. The 40 wavelengths are divided among five physical multi-fiber push on (MPO) connectors on the 40-WSS-C card. Each MPO connector is assigned eight wavelengths. In Cisco Transport controller (CTC), the MPO connector appears in the card view Provisioning > Optical Chn:Optical Connector tab. Each Optical Connector subtab represents an MPO connector. Ports 1 through 40 are the channel (CHAN) RX (add) ports; Ports 41 through 80 are the pass-through ports.

Step 2 Display the ROADM 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. Complete the "DLP-G128 Disable Alarm Filtering" task 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 the *Cisco NCS 2000 Series Troubleshooting Guide* for procedures.

Note The OSC terminations created during node turn-up will generate LOS alarms on the OPT-BST, OPT-BST-E, or OPT-AMP-C cards, and on the OSC-CSM and OSCM cards. If OSCM cards are installed in ANSI shelves, EOC SDCC Termination Failure alarms will also 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 either Success - Changed or Success - Unchanged. If any are not, complete the following steps:

a) Delete the two OSC channels using the "DLP-G186 Delete an OSC Termination" task.
b) Complete the NTP-G37 Running Automatic Node Setup task.
c) Create the OSC channels using the task.

Note The OSC terminations created will generate LOS alarms on the OPT-BST, OPT-BST-E, OPT-AMP-C cards and on the OSC-CSM and OSCM cards. If OSCM cards are installed in ANSI shelves, EOC DCC Termination Failure alarms will also appear.

Step 5 If MMU cards are installed, complete the following steps. If not, continue with Step 6.

a) Display the Side B 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 Side A 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 6 Display the Side B 40-WSS-C in card view.

Step 7 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 3: 40-WSS-C Ports and Wavelengths Test Checklist , if needed.

Step 8 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 9 Change the administrative state of the pass-through port corresponding to the port in Step 8 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 3: 40-WSS-C Ports and Wavelengths Test Checklist , if needed.

Table 3: 40-WSS-C Ports and Wavelengths Test Checklist

40-WSS-C Provisioning Subtab	Port #	Wavelength	Tested: Pass-Through	Tested: Add/Drop Side A	Tested: Add/Drop Side B
Optical Chn: Optical Connector 1	RX 1, PT 41	1530.33			
	RX 2, PT 42	1531.12			
	RX 3, PT 43	1531.90			
	RX 4, PT 44	1532.68			
	RX 5, PT 45	1533.47			
	RX 6, PT 46	1533.47			
	RX 7, PT 47	1535.04			
	RX 8, PT 48	1535.82			
Optical Chn: Optical Connector 2	RX 9, PT 49	1536.81			
	RX 10, PT 50	1537.40			
	RX 11, PT 51	1538.19			
	RX 12, PT 52	1538.98			
	RX 13, PT 53	1539.77			
	RX 14, PT 54	1540.56			
	RX 15, PT 55	1541.35			
	RX 16, PT 56	1542.14			
Optical Chn: Optical Connector 3	RX 17, PT 57	1542.19			
	RX 18, PT 58	1543.73			
	RX 19, PT 59	1544.53			
	RX 20, PT 60	1545.32			
	RX 21, PT 61	1546.12			
	RX 22, PT 62	1546.92			
	RX 23, PT 63	1547.72			
	RX 24, PT 64	1548.51			

40-WSS-C Provisioning Subtab	Port #	Wavelength	Tested: Pass-Through	Tested: Add/Drop Side A	Tested: Add/Drop Side B
Optical Chn: Optical Connector 4	RX 25, PT 65	1549.32			
	RX 26, PT 66	1550.12			
	RX 27, PT 67	1550.92			
	RX 28, PT 68	1551.72			
	RX 29, PT 69	1552.52			
	RX 30, PT 70	1553.33			
	RX 31, PT 71	1554.13			
	RX 32, PT 72	1554.94			
Optical Chn: Optical Connector 5	RX 33, PT 73	1555.75			
	RX 34, PT 74	1556.55			
	RX 35, PT 75	1557.36			
	RX 36, PT 76	1558.17			
	RX 37, PT 77	1558.98			
	RX 38, PT 78	1559.71			
	RX 39, PT 79	1560.61			
	RX 40, PT 80	1561.42			

Step 10 Click **Apply**, then click **Yes** to confirm.

Step 11 Repeat Steps 7 through 10 for each wavelength that you will test.

Step 12 Display the Side A 40-WSS-C in card view.

Step 13 Repeat Steps 7 through 11 for the Side A 40-WSS-C card.

Step 14 Display the Side B 40-DMX-C card in card view and complete the following steps:

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

b) For Port 41 (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 15 Repeat Step 14 for the Side A 40-DMX-C card.

Step 16 Complete the DLP-G310 Verifying ROADM Node C-Band Pass-Through Channels with 32WSS and 40-WSS-C Cards task.

Step 17 Complete the following tasks for channels that will be added or dropped on the node. DLP-G311 Verifying the Side A or Side B ROADM C-Band Add/Drop Channels with 32WSS and 40-WSS-C Cards task.

Step 18 If MMU cards are installed, complete the following steps. If not, continue with Step 19.

a) Display the Side B 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 Side A 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 19 Display the Side B 40-WSS-C in card view.

Step 20 Click the **Provisioning** > **Optical Chn Optical Connector*n*** > **Parameters** tabs, where *n* = the optical connector number that carries the wavelengths you tested.

Step 21 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 8 and 9.

Step 22 Click **Apply**.

Step 23 Repeat Steps 20 through 22 for all the ports that are in OOS,MT or Locked,maintenance state on the Side B 40-WSS-C card.

Step 24 Display the Side A 40-WSS-C in card view.

Step 25 Repeat Steps 20 through 22 for all ports on the Side A 40-WSS-C card.

Step 26 Display the Side B 40-DMX-C in card view.

Step 27 Choose the **Provisioning** > **Optical Line** > **Parameters** tabs.

Step 28 For Port 33, click the **Admin State** table cell and choose **IS,AINS** (ANSI) or **Unlocked,automaticInService** (ETSI) from the drop-down list.

Step 29 Click **Apply**.

Step 30 Display the Side A 40-DMX-C card in card view.

Step 31 Repeat Steps 27 through 29 for the Side A 40-DMX-C card.

Step 32 Delete both OSC channels using the "DLP-G186 Delete an OSC Termination" task.

Step 33 Complete the NTP-G37 Running Automatic Node Setup task.

Step 34 Create the two OSC channels using the task.

Step 35 Click the **Alarms** tab.

a) Verify that the alarm filter is not on. Complete the "DLP-G128 Disable Alarm Filtering" task as necessary.
b) Verify that no equipment failure alarms appear on the node. If alarms appear, investigate and resolve them before continuing.

   Refer the *Cisco NCS 2000 Series Troubleshooting Guide* for procedures.

Stop. You have completed this procedure.

NTP-G276 Performing the 80-Channel n-degree ROADM Node Acceptance Tests

Purpose	This procedure checks the power values and the optical connections for an 80 channel n-degree ROADM node. Use this test for both existing and new installations of 80 channel ROADM nodes. Use this procedure to also test the installation of a new side to a node. This procedure cannot be performed on the node on which the OPT-RAMP-C or OPT-RAMP-CE card is installed.
Tools/Equipment	• Fully C-band tunable transponder or tunable laser source with an LC patchcord • 1 LC-LC adapter • 15dB optical attenuator • Optical power meter
Prerequisite Procedures	• All sides must be completely fibered (including mesh patch panels); for more information, seeTurn Up a Node chapter. • NTP-G186 Performing the Four-Degree and Eight-Degree Mesh Patch Panel Acceptance Test (optional) • NTP-G37 Running Automatic Node Setup • DLP-G46 Log into CTC
Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	Superuser only

Note Identify the sides that are already carrying traffic and the sides that are going to be tested.

Procedure

Step 1 From the View menu, choose **Go to Network View**.

Step 2 Click the **Alarms** tab.

a) Verify that the alarm filter is not on. Complete the "DLP-G128 Disable Alarm Filtering" task as necessary.

b) Verify that no equipment alarms appear indicating equipment failure or other hardware problems. (An equipment alarm is indicated in the Alarms tab, Cond column as EQPT.) If equipment failure alarms are present, investigate and resolve them before continuing. For information on how to clear an alarm, see *Cisco NCS 2000 Series Troubleshooting Guide* for procedures.

Step 3 Insert a full C-band tunable transponder into an available slot on the side that you want to test.

Note In this procedure Side A through H is referred as Side *x*.

Step 4 Connect the TX port of the transponder to the EAD *i* (where *i*=1) port of the 80-WXC-C card on the side to be tested.

Step 5 Select a wavelength that is not already used by a side carrying traffic. Select 1530.33 nm for a new installation. Set the transponder wavelength to the selected wavelength *yyyy.yy* by completing the DLP-G432 Setting the Transponder Wavelength task.

Step 6 Place the trunk port of the transponder in the In-Service (IS) state.

Step 7 In node view, click the **Provisioning** > **WDM-ANS** > **Provisioning** tabs and record the Power value of the COM port of the 80-WXC-C card for the side you are verifying.

Step 8 On Side *x*, go to the card view of the 80-WXC-C card and complete the following steps:

a) Click the **Provisioning** > **WXC Line** > **Parameters** tabs and record the Power value of the EAD *i* port.

b) Click the **Maintenance** > **OCHNC** tabs.

- Set the Target Power to the value recorded in step 7.

  Note The target power is not set if the power value recorded in step 7 is higher than the channel power that is allocated and equalized.

- From the Port pull-down menu, select EAD*i* and from the Wavelength pull-down menu, select *yyyy.yy*

  1. Click **Refresh** and verify that the target power is reached.
  2. Place the trunk port of the transponder in OutofService (OOS) state.

Step 9 To check the wavelengths for the EAD1 port, repeat from step 5 and step 8d for the remaining 79 wavelengths.

Note It is not mandatory to test the 80 wavelengths for all the ports (EAD *i* where *i* = 1 to 8).

Step 10 Disconnect the transponder from EAD *i* port and restore the fiber connection to the EAD *i* port.

Step 11 Repeat step 4 through step 10 for the remaining EAD *i* ports where *i* = 2 to 8.

Step 12 Plug a 15-dB LC attenuator into the trunk TX port of the transponder card.

Step 13 Select a wavelength that is not already used by a side carrying traffic. Select 1530.33 nm for a new installation. Set the transponder wavelength to the selected wavelength *yyyy.yy* by completing the DLP-G432 Setting the Transponder Wavelength.

Step 14 Connect the optical power meter to the trunk TX port of the transponder card.

Step 15 Complete the DLP-G433 Recordinging Transponder Optical Power task.

Step 16 Disconnect the optical power meter from the TX port of the transponder card.

Step 17 In card view, display the OPT-AMP-C card configured as LINE for Side *x* (slot 1 or 17) and complete the following steps:

a) Click the **Maintenance** > **ALS** tabs and from the OSRI pull-down menu, select **OFF**.

b) Connect the optical power meter to the LINE-TX port of the booster amplifier (OPT-AMP-C configured as LINE in slot 1 or 17) on Side *x*.

c) From the ALS Mode pull-down menu, select **Disable**.

Step 18 Make the following connections:

a) Connect the transponder output port (with the 15-dB attenuator) to the Line RX port of the booster amplifier (OPT-AMP-C configured as LINE in slot 1 or 17) on Side *x*.
b) Connect the optical power meter to the LINE-TX port of the booster amplifier (OPT-AMP-C configured as LINE in slot 1 or 17) on Side *x*.
c) Use a fiber jumper to connect the DROP-TX port to the AD port of the 80-WXC-C card for Side *x*.

Step 19 Create an OCHNC DCN circuit for wavelength *yyyy.yy* from LINE amplifier of Side *x* to local add/drop ports of the 80-WXC-C card of Side *x* using the DLP-G105 Provisioning Optical Channel Network Connections task and wait till all the alarms clear.

Step 20 In card view, display the booster amplifier card for Side *x*. Click the **Inventory** > **Info** tabs and record the IL02 (LINE RX->COM TX) insertion loss value.

Step 21 In card view, display the transponder card and click the **Provisioning** > **Line** tabs. For the trunk port, choose **OOS,MT** (ANSI) or **Locked,maintenance** (ETSI) from the Admin State drop-down list and click **Apply**.

Step 22 In card view, display the booster amplifier card for Side *x*, and complete the following steps:

a) Click the **Provisioning** > **Optical Line** > **Parameters** tabs and record the Power value of the COM-TX port.
b) Verify the power value of the COM-TX port = (Optical power meter value in step 15) – (LINE RX->COM TX insertion loss value read in step 20) (+\– 1 dB).

Step 23 In card view, display the preamplifier card (OPT-AMP-C configured as PRE in slot 2 or 16) for Side *x* and complete the following steps:

a) Click the **Provisioning** > **Optical Line** > **Parameters** tabs and record the Power value of the COM-RX port.
b) Verify that the COM-RX power value matches the value in step 22 b(+\– 1 dB).
c) Click the **Provisioning** > **Opt. Ampli. Line** > **Parameters** tabs and record the Total Output Power value of the LINE-TX port.

Step 24 In card view, display the 80-WXC-C card for Side *x* and complete the following steps:

a) Click the **Provisioning** > **Optical Line** > **Parameters** tabs and record the Power value of the COM-RX port.
b) Verify that the value matches the LINE-TX port power value in step 23c (+/- 1dB).
c) Click the **Inventory** > **Info** tabs and record the COM-RX -> EXP-TX insertion loss.
d) Record the COM-RX -> DROP-TX insertion loss.
e) Click the **Provisioning** > **Optical Line** > **Parameters** tabs and record the Power value of the EXP-TX port.
f) Record the Power value of the DROP-TX port.
g) Verify that the EXP-TX Power value in step 24e = (COM-RX value in step 24a) – (COM-RX -> EXP-TX value in step 24c) (+\– 1 dB).
h) Click the **Provisioning** > **WXC Line** > **Parameters** tabs and record the Power value of the AD port.
i) Verify that the value matches the DROP-TX port power value in step 24f (+/- 1dB).
j) Click the **Provisioning** > **WXC Line** > **Parameters** tabs and record the Power value of the COM port.
k) Verify that the power value in step 24j matches the COM port power value in the node view **Provisioning** > **WDM-ANS** > **Provisioning** tabs for the 80-WXC-C card under test.

Step 25 In card view, display the 80-WXC-C card for a side different from Side *x* and complete the following steps:

This step must be performed for a single wavelength *yyyy.yy* only that is not used on any of the installed sides.

a) Click the **Maintenance** > **Wavelength Power** tabs and select PORT EAD *i*, where *i* depends on the value of *x*. (*x*, *i*) = (A,1) (B,2) (C,3) (D,4) (E,5) (F,6) (G,7) (H,8)
b) Record the power value for wavelength *yyyy.yy*.

c) Verify if the power value in step 25b is equal to the (power value recorded in step 24e - 8dB) if a PP-MESH-4 is used or is equal to the (power value recorded in step 24e - 12dB) if a PP-MESH-8 is used.

Step 26 In card view, display the booster amplifier card for Side *x*, and complete the following:

a) Click the **Provisioning** > **Optical Line** > **Parameters** tabs and record the Power value of the COM-RX port.
b) Verify COM-RX Power value matches the COM Power value in step 24j (+\– 1 dB).
c) Click the **Provisioning** > **Opt. Ampli. Line** > **Parameters** tabs and record the Power value of the LINE-TX port.
d) Verify that the LINE-TX value matches the power on the LINE-TX port power value in node view **Provisioning** > **WDM-ANS** > **Provisioning** tabs (+\– 2 dB).
e) Record the optical power meter value.
f) Verify that the optical power meter value matches the LINE-TX value in step 26c (+\– 1 dB).

Step 27 Delete the OCHNC DCN circuit on wavelength *yyyy.yy* from LINE amplifier of Side *x* to local add/drop ports of the 80-WXC-C card of Side *x* using the DLP-G106 Deleting Optical Channel Network Connections task.

Step 28 In card view, display the transponder card and click the **Provisioning** > **Line** tabs. For the trunk port, choose **OOS,DSBLD** (ANSI) or **Locked,disabled** (ETSI) from the Admin State drop-down list and click **Apply**.

Step 29 To test all wavelengths, repeat step 5 through step 28 for each wavelength. In step 5, set the wavelength to the next wavelength.

Step 30 Remove the fiber jumper connected between the DROP-TX port and the AD port in the 80-WXC-C card on Side *x*.

Step 31 Restore the original connections between the AD and DROP-TX ports of the 80-WXC-C card and the respective ports of the 15216 40 or 48-channel mux/demux patch panel according to the Cisco Transport Planner Internal Connections Report.

Step 32 Use a fiber jumper to connect the TX port to the RX port associated to the wavelength *yyyy.yy* to be tested in the 15216-MD-40-ODD, 15216-EF-40-ODD, or 15216-MD-48-ODD or in the 15216-MD-40-EVEN, 15216-EF-40-EVEN, or 15216-MD-48-EVEN unit for Side *x* (depending on which 15216 40 or 48-channel mux/demux patch panel the wavelength *yyyy.yy* is managed).

Step 33 Select a wavelength *yyyy.yy* on the full C band tunable transponder. Complete the DLP-G432 Setting the Transponder Wavelength task to tune the transponder for the selected wavelength yyyy.yy.

Step 34 Create an OCHNC DCN circuit on wavelength *yyyy.yy* from LINE amplifier of side *x* to local add/drop ports of the 80-WXC-C card of Side *x* using the DLP-G105 Provisioning Optical Channel Network Connections task and wait till all the alarms clear on the node.

Step 35 In card view, display the 80-WXC-C card for Side *x* and complete the following steps:

a) Click the **Provisioning** > **Optical Line** > **Parameters** tabs and record the Power value of the DROP-TX port.
b) Click the **Provisioning** > **WXC Line** > **Parameters** tabs and record the Power value of the AD port.
c) Verify that the Power value of the AD port in step 35b is > the Power value of the DROP-TX port in step 35a – 18dB.

Step 36 Delete the OCHNC DCN circuit on wavelength *yyyy.yy* from LINE amplifier of Side *x* to local add/drop ports of the 80-WXC-C card of Side *x* using theDLP-G106 Deleting Optical Channel Network Connections task.

Step 37 In card view, display the transponder card and click the **Provisioning** > **Line** tabs. For the trunk port, choose **OOS,DSBLD** (ANSI) or **Locked,disabled** (ETSI) from the Admin State drop-down list and click **Apply**.

Step 38 Remove the fiber jumper that was connected in step 32 between the TX and RX ports associated to the tested wavelength *yyyy.yy* on the 15216-MD-40-ODD, 15216-EF-40-ODD, or 15216-MD-48-ODD or the 15216-MD-40-EVEN, 15216-EF-40-EVEN, or 15216-MD-48-EVEN unit for Side *x*.

Step 39 To verify all the 40 ports of the 15216-MD-40-ODD, 15216-EF-40-ODD, or 15216-MD-48-ODD unit and the 40 ports of the 15216-MD-40-EVEN, 15216-EF-40-EVEN, or 15216-MD-48-EVEN unit, repeat the previous steps from step 32 through step 37 by changing the wavelength *yyyy.yy* to cover all other 79 available wavelengths.

Step 40 Disconnect the optical power meter from the LINE-TX port of the booster amplifier of the Side *x*.

Step 41 Disconnect the transponder output port (with the 15-dB attenuator) from the LINE-RX port of the booster amplifier of the Side *x*.

Step 42 Repeat step 3 through step 41 for all the others sides that are being installed.

Step 43 In card view, display the OPT-AMP-C card configured as LINE for Side *x* (slot 1 or 17) and complete the following:

a) Click the **Maintenance** > **ALS** tabs and from the OSRI pull-down menu, select **OFF**.

b) From the ALS Mode pull-down menu, select **Auto Restart**.

Stop. You have completed this procedure.

NTP-G44 Performing 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 Two bulk attenuators (10 dB) with LC connectors
Prerequisite Procedures	DLP-G46 Log into CTC Turn Up a Node
Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	Superuser only

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 "Turn Up a Node" chapter, they can be used for this procedure. No additional cabling changes are needed.

Procedure

Step 1 From the View menu, choose **Go to Network View**.

Step 2 Click the **Alarms** tab.

a) Verify that the alarm filter is not on. Complete the "DLP-G128 Disable Alarm Filtering" task 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 the Turn Up a Node 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 3 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 or Success - Unchanged. If any are not, complete the following steps:

a) Delete the two OSC channels using the "DLP-G186 Delete an OSC Termination" task.
b) Complete the NTP-G37 Running Automatic Node Setup task.
c) Create the OSC channels using the NTP-G38 Provisioning OSC Terminations task.

Step 4 From your Cisco TransportPlanner 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/32DMX or 40-DMX-C (15xx.xx TX port) located on one side (Side A or Side B) of the shelf, and then added by a 32MUX-O/40-DMX-C (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 5 Create a loopback on the Side A 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 6 Verify that the OSC link becomes active on the Side A OSCM or OSC-CSM card. (The OSC termination must already be provisioned. If not, complete the NTP-G38 Provisioning OSC Terminations task.)

Step 7 For pass-through channels, continue with Step 8. For add and drop channels, continue with Step 17.

Step 8 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-G358 Provisioning TXP_MR_10E_L and TXP_MR_10E_C Cards for Acceptance Testing.
c) Connect the tunable laser transmitter or the TXP_MR_10E_C card DWDM TX port to the LINE RX port of the Side B OPT-BST or OPT-BST-E using a 10-dB bulk attenuator.

Step 9 Complete the DLP-G80 Verifying the OPT-PRE Amplifier Laser and Power task for the Side B OPT-PRE amplifier.

Step 10 Complete the DLP-G269 Verifying the 32DMX-O or 40-DMX-C Card Power, on page 7 task for the Side A 32MUX-O or 40-MUX-C cards.

Step 11 Complete the DLP-G79 Verifying the OPT-BST, OPT-BST-E, or OPT-BST-L Amplifier Laser and Power task for the Side A OPT-BST or OPT-BST-E amplifier.

Step 12 Complete the DLP-G80 Verifying the OPT-PRE Amplifier Laser and Power task for the Side A OPT-PRE amplifier.

Step 13 Complete the DLP-G269 Verifying the 32DMX-O or 40-DMX-C Card Power, on page 7 task for the Side A 32DMX-O or 40-DMX-C cards.

Step 14 Complete the DLP-G79 Verifying the OPT-BST, OPT-BST-E, or OPT-BST-L Amplifier Laser and Power task for the Side B OPT-BST or OPT-BST-E amplifier.

Step 15 Repeat Steps 8 through 14 for the remaining wavelengths on the 100-GHz grid that are pass-through wavelengths.

Step 16 If you have add and drop channels, continue with Step 17 to verify the channels. If not, continue with Step 29.

Step 17 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-G358 Provisioning TXP_MR_10E_L and TXP_MR_10E_C Cards for Acceptance Testing task.

Step 18 Connect the tunable laser or TXP_MR_10E_C card to the CHAN RX *nn* port on the Side A 32MUX-O card, where *nn* is the first add or drop channel.

Step 19 Display the Side A 32MUX-O or 40-MUX-C card in card view.

Step 20 Click the **Provisioning** > **Optical Chn** > **Parameters** tabs.

Step 21 Change the administrative state of Port *nn* to **OOS,MT** (ANSI) or**Locked,maintenance** (ETSI).

Step 22 Check that the power value on Port *nn* reaches the provisioned set point (VOA Power Ref).

Step 23 Display the Side A 32DMX-O/32DMX OR 40-DMX-C card in card view.

Step 24 Click the **Provisioning** > **Optical Chn** > **Parameters** tabs.

Step 25 Change the administrative state of Port *nn* to **OOS,MT** (ANSI) or**Locked,maintenance** (ETSI).

Step 26 Check that the power value on Port *nn* reaches the provisioned set point (VOA Power Ref).

Step 27 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 Side A 32DMX-O/32DMX or 40-DMX-C card is consistent with the value read on the meter within 0.5 dB.

Step 28 Repeat Steps 17 through 27 for the remaining wavelengths on the 100-GHz grid that are not pass-through wavelengths.

Step 29 Remove the loopback connection on the Side A OPT-BST or OPT-BST-E card.

Step 30 Complete the NTP-G37 Running Automatic Node Setup task to restore the original configuration.

Step 31 Create a loopback on the Side B 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 32 Verify that the OSC link becomes active on the Side B OSCM card. (The OSC termination must be already provisioned. If not, complete the NTP-G38 Provisioning OSC Terminations task.)

Step 33 Repeat 17 through 30 for Side B add and drop cards.

Step 34 Remove the loopback on the Side B OPT-BST or OPT-BST-E card.

Step 35 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 Performing the C-Band and L-Band Line Amplifier Node with OSCM Cards Acceptance Test

Purpose	This procedure tests the C-band and L-band line amplifier node with OSCM cards installed on both the Side B and Side A 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 for C-band testing • TXP_MR_10E_L for L-band testing An optical power meter or optical spectrum analyzer Two bulk attenuators (10 dB) with LC connectors
Prerequisite Procedures	DLP-G46 Log into CTC Turn Up a Node
Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	Superuser only

Note

- To perform L-Band line amplifier node with OSCM cards acceptance test, repeat all the procedures in this NTP by replacing the TXP_MR_10E_C card with TXP_MR_10E_L card and OPT-BST card with the OPT-BST-L.
- 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 Turn Up a Node chapter, they can be used for this procedure. No additional cabling changes are needed.

Procedure

Step 1 If you are using TXP_MR_10E_C cards, complete the DLP-G358 Provisioning TXP_MR_10E_L and TXP_MR_10E_C Cards for Acceptance Testing If not, continue with Step 2.

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

Step 3 Click the **Alarms** tab.

a) Verify that the alarm filter is not on. Complete the "DLP-G128 Disable Alarm Filtering" task 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 the *Cisco NCS 2000 Series 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 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 or Success - Unchanged. If any are not, complete the following steps:

a) Delete the two OSC channels using the "DLP-G186 Delete an OSC Termination" task.
b) Complete the NTP-G37 Running Automatic Node Setup task.
c) Create the OSC channels using the NTP-G38 Provisioning OSC Terminations task.

Step 5 Create a loopback on the Side A 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 6 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 7.

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 8.

Step 7 If you are using a TXP_MR_10E_C card, complete the DLP-G358 Provisioning TXP_MR_10E_L and TXP_MR_10E_C Cards for Acceptance Testing task, for the TXP transmitting the wavelength you will test. Refer to Table11-42 10G Data Muxponder Card Settings in "Provision Transponder and Muxponder Cards" chapter, if needed.

Step 8 Connect the tunable laser transmitter, the TXP_MR_10E_C card, or DWDM TX port to the LINE RX port of the Side B OPT-BST or OPT-BST-E card using a 10-dB bulk attenuator.

Caution Failure to use proper attenuation might damage the equipment.

Step 9 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 Side A 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 Side A.

Note For ANSI shelves, an EOC DCC Termination Failure alarm continues to appear due to the OSC signal loopback. An LOS-O alarm appears on the Side B OPT-BST or OPT-BST-E card, and an LOS alarm appears on the Side B OCSM card.

If the alarms clear, continue with Step 10. If not, perform the following steps:

a) Display the Side A OPT-BST or OPT-BST-E card in card view.
b) Click the **Provisioning** > **Optical Line** > **Optics Thresholds** tabs.
c) In the Types area, 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 Side A OPT-BST or OPT-BST-E card has cleared. If so, continue with Step 10. If not, disconnect the OSCM card from the OPT-BST 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 Side A 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" in "Turn Up a Node" chapter.

Step 10 If an OPT-PRE card or an OPT-AMP-L card (provisioned as an OPT-PRE) is installed on Side B, complete the DLP-G80 Verifying the OPT-PRE Amplifier Laser and Power task. If not, continue with Step 11.

Step 11 Complete the DLP-G79 Verifying the OPT-BST, OPT-BST-E, or OPT-BST-L Amplifier Laser and Power task for the Side A OPT-BST or OPT-BST-E amplifier.

Step 12 If an OPT-PRE amplifier or an OPT-AMP-L amplifier (provisioned as an OPT-PRE) is installed on Side A, complete the DLP-G80 Verifying the OPT-PRE Amplifier Laser and Power task. It not, continue with continue with Step 13.

Step 13 Complete the DLP-G79 Verifying the OPT-BST, OPT-BST-E, or OPT-BST-L Amplifier Laser and Power task for the Side B OPT-BST or OPT-BST-E amplifier.

Step 14 Disconnect the TXP card or tunable laser from the Side B OPT-BST or OPT-BST-E card.

Step 15 Remove the loopback on the Side A OPT-BST or OPT-BST-E card created in Step 5.

Step 16 Create a loopback on the Side B 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 17 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 18.

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 19.

Step 18 If you are using a TXP_MR_10E_C card, complete the DLP-G358 Provisioning TXP_MR_10E_L and TXP_MR_10E_C Cards for Acceptance Testing task, for the TXP transmitting the wavelength you will test. Refer to Table11-42 10G Data Muxponder Card Settings in "Provision Transponder and Muxponder Cards" chapter, if needed.

Step 19 Connect the tunable laser transmitter, the TXP_MR_10E_C card, or DWDM TX port to the LINE RX port of the Side A OPT-BST or OPT-BST-E card using a 10-dB bulk attenuator.

Caution Failure to use proper attenuation might damage the 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 alarms on the Side B OPT-BST or OPT-BST-E card and the Side B OSCM cards have cleared. The clearing of the LOS alarms indicates that the OSC link is active on Side B.

Note For 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 Side A OPT-BST or OPT-BST-E card, and an LOS alarm appears on the Side A OCSM card.

If the alarms clear, continue with Step 21. If not, perform the following steps:

a) Display the Side B OPT-BST or OPT-BST-E card in card view.
b) Click the **Provisioning** > **Optical Line** > **Optics Thresholds** tabs.
c) In the Types area, 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 Side B OPT-BST or OPT-BST-E card has cleared. If so, continue with Step 21. 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 Side B 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 Installing the DWDM Cards task.

Step 21 If an OPT-PRE card or an OPT-AMP-L card (provisioned in OPT-PRE mode) is installed on Side A, complete the DLP-G80 Verifying the OPT-PRE Amplifier Laser and Power task. If not, continue with Step 22.

Step 22 Complete the DLP-G79 Verifying the OPT-BST, OPT-BST-E, or OPT-BST-L Amplifier Laser and Power task for the Side B OPT-BST or OPT-BST-E amplifier.

Step 23 If an OPT-PRE amplifier or an OPT-AMP-L (provisioned in OPT-PRE mode) amplifier is installed on Side B, complete the DLP-G80 Verifying the OPT-PRE Amplifier Laser and Power task. It not, continue with continue with Step 24.

Step 24 Complete the DLP-G79 Verifying the OPT-BST, OPT-BST-E, or OPT-BST-L Amplifier Laser and Power task for the Side A OPT-BST or OPT-BST-E amplifier.

Step 25 Disconnect the TXP or tunable laser from the Side A OPT-BST or OPT-BST-E card.

Step 26 Remove the loopback on the Side B OPT-BST or OPT-BST-E amplifier created in Step 16.

Step 27 Delete both OSC channels using the "DLP-G186 Delete an OSC Termination" task.

Step 28 Complete the NTP-G37 Running Automatic Node Setup task to restore the original configuration.

Step 29 Create the two OSC channels using the NTP-G38 Provisioning OSC Terminations task.

Stop. You have completed this procedure

NTP-G46 Performing 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 Side B and Side A 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 Two bulk attenuators (10 dB) with LC connectors
Prerequisite Procedures	DLP-G46 Log into CTC Turn Up a Node
Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	Superuser only

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 "Turn Up a Node" chapter, they can be used for this procedure. No additional cabling changes are needed.

Procedure

Step 1 If you are using TXP_MR_10E_C cards, complete the DLP-G358 Provisioning TXP_MR_10E_L and TXP_MR_10E_C Cards for Acceptance Testing task. If not, continue with Step 2.

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

Step 3 Click the **Alarms** tab.

a) Verify that the alarm filter is not on. Complete the "DLP-G128 Disable Alarm Filtering" task 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 the *Cisco NCS 2000 Series Troubleshooting Guide* for procedures.

Note The OSC terminations created during node turn-up will generate an LOS alarm on the OSC-CSM 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 listed as Success - Changed or Success - Unchanged. If any are not, complete the following:

a) Delete the two OSC channels using the "DLP-G186 Delete an OSC Termination" task.

b) Complete the NTP-G37 Running Automatic Node Setup task.

c) Create the OSC channels using the NTP-G38 Provisioning OSC Terminations task.

Step 5 Create a physical loopback on the Side A 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 the equipment.

Step 6 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 Side A OSC-CSM card has cleared. The clearing of the LOS alarm indicates that the OSC link is active on Side A.

Note For 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 Side B OSC-CSM card, Port 1 (OSC).

If the alarm clears, continue with Step 7. 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 Side A OSC-CSM card clears, continue with Step 7. If not, continue with Step c.

c) Display the OSC-CSM card in card view.

d) Click the **ProvisioningOptical LineOptics Thresholds**tabs.

e) In the Types area, 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 Side A OSC-CSM card clears, continue with Step 7. If not, replace the OSC-CSM card.

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-G358 Provisioning TXP_MR_10E_L and TXP_MR_10E_C Cards for Acceptance Testing task for the TXP containing the wavelength you will test. Refer to Table 1: 32WSS-L Ports and Wavelengths Test Checklist, if needed.

Step 9 Connect the tunable laser transmitter or the TXP_MR_10E_C card DWDM TX port to the Side B OSC-CSM LINE RX port using a 10-dB bulk attenuator.

Caution Failure to use proper attenuation might damage the equipment.

Step 10 If an OPT-PRE card is installed on Side B, complete the DLP-G80 Verifying the OPT-PRE Amplifier Laser and Power task. If not, continue with Step 11.

Step 11 Display the Side A OSC-CSM card in card view.

Step 12 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-L22 Cleaning Fiber Connectors task. If this does not change the power value, consult your next level of support.

Step 13 If an OPT-PRE card is installed on Side A of the shelf, complete the DLP-G80 Verifying the OPT-PRE Amplifier Laser and Power task. If not, continue with Step 14.

Step 14 Display the Side B OSC-CSM card in card view.

Step 15 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-L22 Cleaning Fiber Connectors task. If this does not change the power value, consult your next level of support.

Step 16 Disconnect the TXP or tunable laser from the Side B OSC-CSM card.

Step 17 Remove the physical loopback created on the Side A OSC-CSM card in Step 5.

Step 18 Create a loopback on the Side B 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 the equipment.

Step 19 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 Side B OSC-CSM card has cleared. The clearing of the LOS alarm indicates that the OSC link is active on Side B.

Note For 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 Side A OSC-CSM card, Port 1 (OSC).

If the alarm clears, continue with Step 20. 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 Side B OSC-CSM card clears, continue with Step 20. 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) In the Types area, 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 Side B OSC-CSM card clears, continue with Step 20. If not, replace the OSC-CSM card.

Step 20 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 21.

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 22.

Step 21 If you are using a TXP_MR_10E_C card, complete the DLP-G358 Provisioning TXP_MR_10E_L and TXP_MR_10E_C Cards for Acceptance Testing task for the TXP containing the wavelength you will test. Refer to Table 1: 32WSS-L Ports and Wavelengths Test Checklist, if needed.

Step 22 Connect the tunable laser transmitter or the TXP_MR_10E_C card DWDM TX port to the Side A OSC-CSM LINE RX port using a 10-dB bulk attenuator.

Caution Failure to use proper attenuation might damage the equipment.

Step 23 If an OPT-PRE card is installed on Side A, complete the DLP-G80 Verifying the OPT-PRE Amplifier Laser and Power task. If not, continue with Step 24.

Step 24 Display the Side B OSC-CSM card in card view.

Step 25 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-L22 Cleaning Fiber Connectors task. If this does not change the power value, consult your next level of support.

Step 26 If an OPT-PRE is installed on Side B of the shelf, complete the DLP-G80 Verifying the OPT-PRE Amplifier Laser and Power task for the Side B OPT-PRE amplifier. If not, continue with Step 27.

Step 27 Display the Side A OSC-CSM card in card view.

Step 28 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-L22 Cleaning Fiber Connectors task. If this does not change the power value, consult your next level of support.

Step 29 Disconnect the TXP card or tunable laser from the Side A OSC-CSM card.

Step 30 Remove the loopback created on the Side B OSC-CSM card in Step 18.

Step 31 Delete both OSC channels. See the "DLP-G186 Delete an OSC Termination" task.

Step 32 Complete the NTP-G37 Running Automatic Node Setup task to restore the original configuration.

Step 33 Create the OSC channels using the NTP-G38 Provisioning OSC Terminations task.

Stop. You have completed this procedure.

NTP-G156 Performing 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 Side B and Side A 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 Two bulk attenuators (10 dB) with LC connectors
Prerequisite Procedures	DLP-G46 Log into CTC Turn Up a Node
Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	Superuser only

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 Turn Up a Node chapter, they can be used for this procedure. No additional cabling changes are needed.

Procedure

Step 1 If you are using TXP_MR_10E_L cards, complete the DLP-G358 Provisioning TXP_MR_10E_L and TXP_MR_10E_C Cards for Acceptance Testing task. If not, continue with Step 2.

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

Step 3 Click the **Alarms** tab.

a) Verify that the alarm filter is not on. Complete the "DLP-G128 Disable Alarm Filtering" task 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 the *Cisco NCS 2000 Series Troubleshooting Guide* for procedures.

Note The OSC terminations created during node turn-up will generate an LOS alarm on the OSC-CSM 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 listed as Success - Changed or Success - Unchanged. If any are not, complete the following:

a) Delete the two OSC channels using the "DLP-G186 Delete an OSC Termination" task.
b) Complete the NTP-G37 Running Automatic Node Setup task.
c) Create the OSC channels using the NTP-G38 Provisioning OSC Terminations task.

Step 5 Create a physical loopback on the Side A 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 the equipment.

Step 6 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 Side A OSC-CSM card has cleared. The clearing of the LOS alarm indicates that the OSC link is active on Side A.

Note For 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 Side B OSC-CSM card, Port 1 (OSC).

If the alarm clears, continue with Step 7. 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 Side A OSC-CSM card clears, continue with Step 7. If not, continue with Step c.
c) Display the OSC-CSM card in card view.
d) Click the **Provisioning** > **Optical Line** > **Parameters** tabs.
e) In the Types area, 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 Side A OSC-CSM card clears, continue with Step 7. If not, replace the OSC-CSM card.

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 Provisioning TXP_MR_10E_L and TXP_MR_10E_C Cards for Acceptance Testing task 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 Side B OSC-CSM LINE RX port using a 10-dB bulk attenuator.

Caution Failure to use proper attenuation might damage the equipment.

Step 10 If an OPT-AMP-L card (provisioned in OPT-PRE mode) is installed on Side B, complete the DLP-G360 Verifying the OPT-AMP-L (OPT-PRE Mode) Amplifier Laser and Power task. If not, continue with Step 11.

Step 11 Display the Side A OSC-CSM card in card view.

Step 12 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 *Cisco NCS 2000 Series Troubleshooting Guide* task. If this does not change the power value, consult your next level of support.

Step 13 If an OPT-AMP-L card (provisioned in OPT-PRE mode) is installed on Side A of the shelf, complete the DLP-G360 Verifying the OPT-AMP-L (OPT-PRE Mode) Amplifier Laser and Power task. If not, continue with Step 14.

Step 14 Display the Side B OSC-CSM card in card view.

Step 15 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 *Cisco NCS 2000 Series Troubleshooting Guide* task. If this does not change the power value, consult your next level of support.

Step 16 Disconnect the TXP card or tunable laser from the Side B OSC-CSM card.

Step 17 Remove the physical loopback created on the Side A OSC-CSM card in Step 5.

Step 18 Create a loopback on the Side B 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 the equipment.

Step 19 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 Side B OSC-CSM card has cleared. The clearing of the LOS alarm indicates that the OSC link is active on Side B.

Note For 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 Side A OSC-CSM card, Port 1 (OSC).

If the alarm clears, continue with Step 20. 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 Side B OSC-CSM card clears, continue with Step 20. 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) In the Types area, 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 Side B OSC-CSM card clears, continue with Step 20. If not, replace the OSC-CSM card.

Step 20 AlarmsIf 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 21.

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 22.

Step 21 If you are using a TXP_MR_10E_L card, complete the DLP-G358 Provisioning TXP_MR_10E_L and TXP_MR_10E_C Cards for Acceptance Testing task for the wavelength you will test.

Step 22 Connect the tunable laser transmitter or the TXP_MR_10E_L card DWDM TX port to the Side A OSC-CSM LINE RX port using a 10-dB bulk attenuator.

Caution Failure to use proper attenuation might damage the equipment.

Step 23 If an OPT-AMP-L card (provisioned in OPT-PRE mode) is installed on Side A, complete the DLP-G360 Verifying the OPT-AMP-L (OPT-PRE Mode) Amplifier Laser and Power task. If not, continue with Step 24.

Step 24 Display the Side B OSC-CSM card in card view.

Step 25 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 *Cisco NCS 2000 Series Troubleshooting Guide* task. If this does not change the power value, consult your next level of support.

Step 26 If an OPT-AMP-L card (provisioned in OPT-PRE mode) is installed on Side B, complete the DLP-G360 Verifying the OPT-AMP-L (OPT-PRE Mode) Amplifier Laser and Power task. If not, continue with Step 27.

Step 27 Display the Side A OSC-CSM card in card view.

Step 28 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 *Cisco NCS 2000 Series Troubleshooting Guide* task. If this does not change the power value, consult your next level of support.

Step 29 Disconnect the TXP card or tunable laser from the Side A OSC-CSM card.

Step 30 Remove the loopback created on the Side B OSC-CSM card in Step 18.

Step 31 Delete both OSC channels. See the "DLP-G186 Delete an OSC Termination" task.

Step 32 Complete the NTP-G37 Running Automatic Node Setup task to restore the original configuration.

Step 33 Create the OSC channels using the NTP-G38 Provisioning OSC Terminations task.

Stop. You have completed this procedure.

NTP-G47 Performing 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 Two bulk attenuators (10 dB) with LC connectors
Prerequisite Procedures	DLP-G46 Log into CTC Turn Up a Node
Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	Superuser only

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 Turn Up a Node chapter, they can be used for this procedure. No additional cabling changes are needed.
- 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 amplifiers and OPT-PRE amplifiers on both Side B and Side A, you must lower the OPT-PRE 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.

Procedure

Step 1 If you are using TXP_MR_10E_C cards, complete the DLP-G358 Provisioning TXP_MR_10E_L and TXP_MR_10E_C Cards for Acceptance Testing task. If not, 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. Complete the "DLP-G128 Disable Alarm Filtering" task 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.

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 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** or **Success - Unchanged**. If any are not, complete the following:

a) Delete the two OSC channels using the "DLP-G186 Delete an OSC Termination" task.

b) Complete the NTP-G37 Running Automatic Node Setup task.

c) Create the OSC channels using the NTP-G38 Provisioning OSC Terminations task.

Step 5 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 the equipment.

Step 6 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 For 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 7. 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 7. 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) In the Types area, 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 7. If not, replace the OSC-CSM card.

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-G358 Provisioning TXP_MR_10E_L and TXP_MR_10E_C Cards for Acceptance Testing task for the TXP containing the wavelength you will test. Refer to Table 1: 32WSS-L Ports and Wavelengths Test Checklist, if needed.

Step 9 Measure the TXP output power by connecting the TXP DWDM TX port to a test meter. Record the results for future reference.

Step 10 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 the equipment.

Step 11 If an OPT-PRE card is installed on the side opposite the OSC-CSM, complete the DLP-G80 Verifying the OPT-PRE Amplifier Laser and Power task. If not, continue with Step 12.

Step 12 Display the OSC-CSM card in card view.

Step 13 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-L22 Cleaning Fiber Connectors task. 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 same Side As the OSC-CSM, complete the DLP-G80 Verifying the OPT-PRE Amplifier Laser and Power task. If not, continue with Step 15.

Step 15 Complete the DLP-G79 Verifying the OPT-BST, OPT-BST-E, or OPT-BST-L Amplifier Laser and Power task for the OPT-BST or OPT-BST-E card.

Step 16 Disconnect the TXP or tunable laser from the OPT-BST or OPT-BST-E card.

Step 17 Remove the loopback fiber on the OSC-CSM card.

Step 18 Delete both OSC channels. See the "DLP-G186 Delete an OSC Termination" task.

Step 19 Complete the NTP-G37 Running Automatic Node Setup task to restore the original configuration.

Step 20 Create the OSC channels using the NTP-G38 Provisioning OSC Terminations task.

Step 21 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 22 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 and the OSCM card have cleared. The clearing of the LOS alarms indicates that the OSC link is active for this side of the shelf.

Note For 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 23. 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) In the Types area, 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 23. 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-L22 Cleaning Fiber Connectors task. If this does not change the power value, consult your next level of support.

Step 23 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 24 If an OPT-PRE is installed on the same side of the shelf as the OSC-CSM, complete the DLP-G80 Verifying the OPT-PRE Amplifier Laser and Power task. If not, continue with Step 25.

Step 25 Complete the DLP-G79 Verifying the OPT-BST, OPT-BST-E, or OPT-BST-L Amplifier Laser and Power task for the OPT-BST or OPT-BST-E card.

Step 26 Display the OSC-CSM card in card view.

Step 27 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 9) –10 dB, +/– 2 dB. If not, check your connections and clean the fibers using the NTP-L22 Cleaning Fiber Connectors task. If this does not change the power value, consult your next level of support.

Step 28 If an OPT-PRE card is installed on the side opposite the OSC-CSM, complete the DLP-G80 Verifying the OPT-PRE Amplifier Laser and Power task. If not, continue with Step 29.

Step 29 Disconnect the TXP or tunable laser from the OSC-CSM card.

Step 30 Remove the loopback fiber on the OPT-BST or OPT-BST-E amplifier card.

Step 31 Delete both OSC channels. See the "DLP-G186 Delete an OSC Termination" task.

Step 32 Complete the NTP-G37 Running Automatic Node Setup task to restore the original configuration.

Step 33 Create the OSC channels using the NTP-G38 Provisioning OSC Terminations task.

Stop. You have completed this procedure.

NTP-G157 Performing 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 Two bulk attenuators (10 dB) with LC connectors
Prerequisite Procedures	DLP-G46 Log into CTC Turn Up a Node

Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	Superuser only

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 14, Turn Up a Node task they can be used for this procedure. No additional cabling changes are needed.

Procedure

Step 1 If you are using TXP_MR_10E_L cards, complete the DLP-G358 Provisioning TXP_MR_10E_L and TXP_MR_10E_C Cards for Acceptance Testing task. If not, continue with Step 2.

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

Step 3 Click the **Alarms** tab.

a) Verify that the alarm filter is not on. Complete the "DLP-G128 Disable Alarm Filtering" task 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 the *Cisco NCS 2000 Series 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 4 In node view (single-shelf mode) or multishelf view (multishelf mode), click the **Success - ChangedProvisioning** > **WDM-ANS** > **Port Status**tabs. Verify that all statuses under Link Status are listed as **Success - Changed** or **Success - Unchanged**. If any are not, complete the following:

a) Delete the two OSC channels using the "DLP-G186 Delete an OSC Termination" task.

b) Complete the NTP-G37 Running Automatic Node Setup task.

c) Create the OSC channels using the NTP-G38 Provisioning OSC Terminations task.

Step 5 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 the equipment.

Step 6 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 For 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 7. 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 7. 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) In the Types area, 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 7. If not, replace the OSC-CSM card.

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 Provisioning TXP_MR_10E_L and TXP_MR_10E_C Cards for Acceptance Testing task for the wavelength you will test.

Step 9 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 10 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 the equipment.

Step 11 Display the OPT-BST-L card in card view.

Step 12 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 9), +/– 1.0 dBm.

Step 13 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 Verifying the OPT-AMP-L (OPT-PRE Mode) Amplifier Laser and Power task. If not, continue with Step 14.

Step 14 Display the OSC-CSM card in card view.

Step 15 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-L22 Cleaning Fiber Connectors" procedure in the *Cisco NCS 2000 Series Hardware Installation Guide*. If this does not change the power value, consult your next level of support.

Step 16 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 Verifying the OPT-AMP-L (OPT-PRE Mode) Amplifier Laser and Power task. If not, continue with Step 17.

Step 17 Complete the DLP-G359 Verifying the OPT-BST-L or OPT-AMP-L (OPT-Line Mode) Amplifier Laser and Power, on page 24 for the OPT-BST-L card.

Step 18 Disconnect the TXP card or tunable laser from the OPT-BST-L card.

Step 19 Remove the loopback fiber on the OSC-CSM card.

Step 20 Delete both OSC channels. See the "DLP-G186 Delete an OSC Termination" task.

Step 21 Complete the NTP-G37 Running Automatic Node Setup task to restore the original configuration.

Step 22 Create the OSC channels using the NTP-G38 Provisioning OSC Terminations task.

Step 23 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 24 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 For 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 25. 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) In the Types area, 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 25. 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" in "Turn Up a Node" chapter.

Step 25 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 26 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 Verifying the OPT-AMP-L (OPT-PRE Mode) Amplifier Laser and Power task. If not, continue with Step 27.

Step 27 Complete the DLP-G359 Verifying the OPT-BST-L or OPT-AMP-L (OPT-Line Mode) Amplifier Laser and Power, on page 24 for the OPT-BST-L card.

Step 28 Display the OSC-CSM card in card view.

Step 29 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 9), +/– 1.0 dBm.

Step 30 If an OPT-AMP-L card (provisioned in OPT-PRE mode) is installed on the side opposite the OSC-CSM, complete the DLP-G360 Verifying the OPT-AMP-L (OPT-PRE Mode) Amplifier Laser and Power task. If not, continue with step 31.

Step 31 Disconnect the TXP card or tunable laser from the OSC-CSM card.

Step 32 Remove the loopback fiber on the OPT-BST-L amplifier card.

Step 33 Delete both OSC channels. See the "DLP-G186 Delete an OSC Termination" task.

Step 34 Complete the NTP-G37 Running Automatic Node Setup task to restore the original configuration.

Step 35 Create the OSC channels using the NTP-G38 Provisioning OSC Terminations task.

Stop. You have completed this procedure.

NTP-G48 Performing 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 Side B and Side A 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	DLP-G46 Log into CTC Complete the "Turn Up a Node" chapter
Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	Superuser only

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 "Turn Up a Node" chapter, they can be used for this procedure. No additional cabling changes are needed.

Procedure

Step 1 From the View menu, choose **Go to Network View**.

Step 2 Click the **Alarms** tab.

a) Verify that the alarm filter is not on. Complete the "DLP-G128 Disable Alarm Filtering" task 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 the *Cisco NCS 2002 and NCS 2006 Troubleshooting Guide* for procedures.

Step 3 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** or **Success - Unchanged**. If not, complete the "NTP-G37 Run Automatic Node Setup" procedure in "Manage the Shelf" chapter.

Step 4 Check your Cisco TransportPlanner 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 (Side B or Side A) 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 5 If no bands are configured in pass-through mode, continue with Step 6. 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 6 Check the site configuration file from Cisco TransportPlanner 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 (Side B or Side A) 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 7 If no channels are configured in pass-through mode, continue with Step 8. 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 8 Create a loopback on the Side A 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 9 Verify that the OSC link becomes active on the Side A OSCM card. (The OSC termination must be already provisioned. If not, complete the "NTP-G38 Provision OSC Terminations" procedure in "Manage the Shelf" chapter.) If the OSC link becomes active, continue with Step 10. If the OSC link does not turn up, complete the following steps:

a) Modify the OSC Fail Low thresholds. Click the **ProvisioningOptical LineOptics 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 10. 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, an EOC DCC Termination Failure alarm might be raised on ANSI shelves.

Step 10 If the node has express bands or channels, complete the DLP-G85 Verifying Express Channel Connections on an OADM Node with OSCM Cards, on page 94. If the node does not have express bands or channels, continue with Step 11.

Step 11 If connections configured in pass-through mode are present (noted in Steps 5 and 7), complete the DLP-G89 Verifying OADM Node Pass-Through Channel Connections. If not, continue with Step 12.

Step 12 If connections have add/drop connections, complete the DLP-G93 Verifying Add and Drop Connections on an OADM Node with OSCM Cards, on page 106.

Stop. You have completed this procedure.

DLP-G85 Verifying 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
Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	Superuser only

Procedure

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 Side B OPT-BST or OPT-BST-E LINE RX port.

Step 3 Based on the Cisco TransportPlanner site configuration file, tune the tunable laser of the 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 Side B-to-Side A and Side A-to-Side B directions. Refer to the tunable laser manufacturer's documentation or the DLP-G358 Provisioning TXP_MR_10E_L and TXP_MR_10E_C Cards for Acceptance Testing.

Step 4 If an OPT-PRE card is installed on Side B, insert a 10-dB bulk attenuator on the COM RX port and complete the DLP-G80 Verifying the OPT-PRE Amplifier Laser and Power. If an OPT-PRE card is not installed on Side B, continue with Step 5.

Step 5 If AD-xB-xx.x cards are installed on Side B, complete the DLP-G87 Verifying the AD-xB-xx.x Output Express Power for each Side B 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 Side B, complete the DLP-G88 Verifying the AD-xC-xx.x Output Express Power for each Side B card. If not, continue with Step 7.

Step 7 If AD-xC-xx.x cards are installed on Side A, complete the DLP-G271 Verifying the AD-xC-xx.x Output Common Power for each Side A card. If not, continue with Step 8.

Step 8 If AD-xB-xx.x cards are installed on Side A, complete the DLP-G272 Verifying the AD-xB-xx.x Output Common Power for each Side A card. If not, continue with Step 9.

Step 9 Complete the DLP-G79 Verifying the OPT-BST, OPT-BST-E, or OPT-BST-L Amplifier Laser and Power for the OPT-BST or OPT-BST-E card installed on Side B.

Step 10 If an OPT-PRE card is installed on Side A, complete the DLP-G80 Verifying the OPT-PRE Amplifier Laser and Power. 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 Side A-to-Side B direction.

Step 12 Complete the DLP-G79 Verifying the OPT-BST, OPT-BST-E, or OPT-BST-L Amplifier Laser and Power for the OPT-BST or OPT-BST-E card installed on Side A.

Step 13 Return to your originating procedure (NTP).

NTP-G86 Verifying Express Channel Connections on an OADM Node with OSC-CSM Cards

Before you begin

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
Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	Superuser only

Procedure

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 Side B OSC-CSM card.

Step 3 If an OPT-PRE amplifier card is installed on Side B, install a 10-dB bulk attenuator on the COM RX port.

Step 4 Based on the Cisco TransportPlanner 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 Side B-to-Side A and Side A-to-Side B directions. Refer to the tunable laser manufacturer's

documentation or the DLP-G358 Provisioning TXP_MR_10E_L and TXP_MR_10E_C Cards for Acceptance Testing.

Step 5 Complete the DLP-G80 Verifying the OPT-PRE Amplifier Laser and Power for the OPT-PRE amplifier card installed on Side A.

Step 6 If AD-xB-xx.x cards are installed on Side B, complete the DLP-G87 Verifying the AD-xB-xx.x Output Express Power for each Side B card. If not, continue with Step 7.

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 7 If AD-xC-xx.x cards are installed on Side B, complete the DLP-G88 Verifying the AD-xC-xx.x Output Express Power for each Side B card. If not, continue with Step 8.

Step 8 If AD-xC-xx.x cards are installed on Side A, complete the DLP-G271 Verifying the AD-xC-xx.x Output Common Power for each Side A card. If not, continue with Step 9.

Step 9 If AD-xB-xx.x cards are installed on Side A, complete the DLP-G272 Verifying the AD-xB-xx.x Output Common Power for each Side A card. If not, continue with Step 10.

Step 10 Complete the DLP-G83 Verifying the OSC-CSM Power on OADM Nodes for the OSC-CSM card installed on Side A.

Step 11 Complete the DLP-G80 Verifying the OPT-PRE Amplifier Laser and Power for the OPT-PRE card installed on Side B.

Step 12 Repeat Steps 6 through 11 for the AD-xB-xx.x and AD-xC-xx.x cards along the Side A-to-Side B direction.

Step 13 Return to your originating procedure (NTP).

DLP-G87 Verifying 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
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Superuser only

Procedure

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 Verifying 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
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Superuser only

Procedure

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 Verifying 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
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Superuser only

Procedure

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 Verifying 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
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Superuser only

Procedure

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).

NTP-G49 Performing the Active OADM Node Acceptance Test on a Symmetric Node with OSC-CSM Cards

Purpose	This procedure checks the integrity of all the optical connections in an OADM node with OSC-CSM cards and OPT-BST or OPT-BST-E cards installed on both Side B and Side A 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	DLP-G46 Log into CTC Turn Up a Node
Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	Superuser only

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 Turn Up a Node chapter, they can be used for this procedure. No additional cabling changes are needed.

Procedure

Step 1 from the View menu, choose **Go to Network View**.

Step 2 Click the **Alarms** tab.

a) Verify that the alarm filter is not on. Complete the "DLP-G128 Disable Alarm Filtering" task 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 the *Cisco NCS 2000 Series Troubleshooting Guide* for procedures.

Step 3 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 or Success - Unchanged. If not, complete the NTP-G37 Running Automatic Node Setup task.

Step 4 Check the Cisco TransportPlanner 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 (Side B or Side A) 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 5 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 6 Check the site configuration file from Cisco TransportPlanner 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 (Side B or Side A) 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 7 If no channels are configured in pass-through mode, continue with Step 8. 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 8 Create a loopback on the Side A OSC-CSM card by connecting the LINE TX port to the LINE RX port using a patchcord and a 10-dB bulk attenuator.

Step 9 Verify that the OSC link becomes active on the Side A OSC-CSM card. (The OSC termination must be already provisioned. If not, complete the NTP-G38 Provisioning OSC Terminations task.)

Note Due to the OSC signal loopback, an EOC Termination Failure alarm might be raised on ANSI shelves.

Step 10 If the OSC link becomes active, continue with Step 11. 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 11. 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 11. If it does not turn up, replace the OSC-CSM card.

Step 11 If the node has express bands or channels, complete the DLP-G86 Verifying Express Channel Connections on an OADM Node with OSC-CSM Cards, on page 100 task. 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 5 and 7), complete the DLP-G89 Verifying OADM Node Pass-Through Channel Connections. If not, continue with Step 13.

Step 13 If connections have add/drop connections, complete the DLP-G94 Verifying Add and Drop Connections on an OADM Node with OSC-CSM Cards task.

Stop. You have completed this procedure

DLP-G86 Verifying 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
Prerequisite Procedures	DLP-G46 Log into CTC
Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	Superuser only

Procedure

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 Side B OSC-CSM card.

Step 3 If an OPT-PRE amplifier card is installed on Side B, install a 10-dB bulk attenuator on the COM RX port.

Step 4 Based on the Cisco TransportPlanner 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 Side B-to-Side A and Side A-to-Side B directions. Refer to the tunable laser manufacturer's documentation or the DLP-G358 Provisioning TXP_MR_10E_L and TXP_MR_10E_C Cards for Acceptance Testing task.

Step 5 Complete the DLP-G80 Verifying the OPT-PRE Amplifier Laser and Power task for the OPT-PRE amplifier card installed on Side A.

Step 6 If AD-xB-xx.x cards are installed on Side B, complete the DLP-G87 Verifying the AD-xB-xx.x Output Express Power, on page 96 for each Side B card. If not, continue with step 7.

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 7 If AD-xC-xx.x cards are installed on Side B, complete the DLP-G88 Verifying the AD-xC-xx.x Output Express Power, on page 97 task for each Side B card. If not, continue with step 8.

Step 8 If AD-xC-xx.x cards are installed on Side A, complete the DLP-G271 Verifying the AD-xC-xx.x Output Common Power, on page 97 task for each Side A card. If not, continue with step 9.

Step 9 If AD-xB-xx.x cards are installed on Side A, complete the DLP-G272 Verifying the AD-xB-xx.x Output Common Power, on page 98 task for each Side A card. If not, continue with step 10.

Step 10 Complete the DLP-G83 Verifying the OSC-CSM Power on OADM Nodes task for the OSC-CSM card installed on Side A.

Step 11 Complete the DLP-G80 Verifying the OPT-PRE Amplifier Laser and Power task for the OPT-PRE card installed on Side B.

Step 12 Repeat steps 6 through 11 for the AD-xB-xx.x and AD-xC-xx.x cards along the Side A-to-Side B direction.

Step 13 Return to your originating procedure (NTP).

DLP-G89 Verifying 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
Required/As Needed	As needed
Onsite/Remote	Onsite

Security Level	Superuser only

Procedure

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-G358 Provisioning TXP_MR_10E_L and TXP_MR_10E_C Cards for Acceptance Testing, on page 23.

Step 3 Complete the DLP-G90 Verifying an AD-xB-xx.x Pass-Through Connection Power, on page 103 for the first pass-through connection.

Step 4 Complete one of the following:

- If OSCM cards are installed, connect a power meter to the Side B OPT-BST or OPT-BST-E LINE TX port and verify that the Side B amplifier is turned on by the pass-through wavelength.
- If OSC-CSM cards are installed, complete the DLP-G84 Verifying the OSC-CSM Incoming Power, on page 109 for the Side B OSC-CSM card.

Step 5 Complete Steps 2 through 4 for each band connection 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 Verifying an AD-xC-xx.x Pass-Through Connection, on page 103 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 Side B 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 Verifying the OSC-CSM Incoming Power, on page 109 for the Side B OSC-CSM card.

Step 10 If the pass-through connections use a 4MD-xx.x card, 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 Verifying 4MD-xx.x Pass-Through Connection Power, on page 105.

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 Side B 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 Verifying the OSC-CSM Incoming Power, on page 109 for the Side B OSC-CSM card.

Step 15 Return to your originating procedure (NTP).

DLP-G90 Verifying 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
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Superuser only

Procedure

Step 1 Verify the Side B AD-xB-xx.x band TX power:

a) Display the Side B 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 (Side B-to-Side A) 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 Side A AD-xB-xx.x card RX and TX power:

a) Display the Side A 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 (Side B-to-Side A) port is higher than the default no-power value of –30 dBm.
d) Change the administrative state of the BAND TX (Side A-to-Side B) 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 Side B AD-xB-xx.x card:

a) Display the Side B 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 (Side A-to-Side B) port is higher than the default no-power value of –30 dBm.

Step 4 Return to your originating procedure (NTP).

DLP-G91 Verifying 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
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Superuser only

Procedure

Step 1 Verify the Side B AD-xC-xx.x channel TX power:

a) Display the Side B 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 Side A AD-xC-xx.x card:

a) Display the Side A 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 set point (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 Side B AD-xC-xx.x channel RX power:

a) Display the Side B 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 set point (VOA Power Ref).

Step 4 Return to your originating procedure (NTP).

DLP-G92 Verifying 4MD-xx.x Pass-Through Connection Power

Purpose	This task verifies 4MD-xx.x pass-through connection power.
Tools/Equipment	None
Prerequisite Procedures	DLP-G46 Log into CTC
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Superuser only

Procedure

Step 1 Verify the TX band power on the related Side B AD-xB-xx.x card:

a) Display the Side B 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 Side B 4MD-xx.x card (Side B-to-Side A):

a) Display the Side B 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 related Side A AD-xB-xx.x card (Side B-to-Side A):

a) Display the Side A 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 Side A 4MD-xx.x card (Side B-to-Side A):

a) Display the Side A 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 set point (VOA Power Ref).

Step 5 Verify the TX band power on the Side A AD-xB-xx.x card (Side A-to-Side B):

a) Display the Side A 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 Side A 4MD-xx.x card (Side A-to-Side B):

a) Display the Side A 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 Side B 4MD-xx.x card (Side A-to-Side B):
a) Display the Side B 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 set point (VOA Power Ref).

Step 8 Return to your originating procedure (NTP).

DLP-G93 Verifying 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
Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	Superuser only

Note In this task, you will verify add and drop connections in the following order: Side B-to-Side A add and Side A-to-Side B drop, Steps 1 through 15; Side A-to-Side B add and Side B-to-Side A drop, Steps 16 through 17.

Procedure

Step 1 Based on the Cisco TransportPlanner 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 Side A AD-xC-xx.x or Side A 4MD-xx.x card in the Side B-to-Side A direction. Refer to the tunable laser manufacturer's documentation or the DLP-G358 Provisioning TXP_MR_10E_L and TXP_MR_10E_C Cards for Acceptance Testing.

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 Side A AD-xC-xx.x or 4MD-xx.x card.

Step 3 Verify the Side A AD-xC-xx.x or 4MD-xx.x card (Side B-to-Side A):
a) Display the Side A 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 set point (VOA Power Ref).

Step 4 Complete the DLP-G79 Verifying the OPT-BST, OPT-BST-E, or OPT-BST-L Amplifier Laser and Power on the Side A 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 Side A AD-xB-xx.x card:
a) Display the Side A AD-xB-xx.x card in card view.
b) Click the **Provisioning** > **Optical Chn** > **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 Side A AD-xB-xx.x (Side A-to-Side B):
a) Display the Side A 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 Side A 4MD-xx.x card (Side A-to-Side B):
a) Display the Side A 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 Side A AD-xC-xx.x (Side A-to-Side B) card:
a) Display the Side A 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 Side B 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 5 through 11 for all add paths of any Side A AD-xC-xx.x or 4MD-xx.x cards along the Side B-to-Side A direction.

Step 13 Remove the loopback on the Side A OPT-BST or OPT-BST-E amplifier and create a loopback on the Side B OPT-BST or OPT-BST-E amplifier.

Step 14 Verify that the OSC link becomes active on the Side B OSCM card. (The OSC termination must be already provisioned. If not, complete the .) 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 .

Note Due to the OSC signal loopback, an EOC DCC Termination Failure might be raised on ANSI shelves.

Step 15 Based on the Cisco TransportPlanner 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 Side A-to-Side B direction. Refer to the tunable laser manufacturer's documentation or the DLP-G358 Provisioning TXP_MR_10E_L and TXP_MR_10E_C Cards for Acceptance Testing.

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 Side B AD-xC-xx.x or Side B 4MD-xx.x card.

Step 17 Repeat Steps 3 through 15, applying the steps to the Side A-to-Side B 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 to recover the correct node configuration.

Step 20 Return to your originating procedure (NTP).

DLP-G83 Verifying 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
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Superuser only

Procedure

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-G84 Verifying 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
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Superuser only

Procedure

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 for Port 2 is the OPT-PRE card Pout COM TX value. Normally, this 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-G94 Verifying 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
Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	Superuser only

Procedure

Step 1 Based on the Cisco TransportPlanner 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 Side A AD-xC-xx.x or Side A 4MD-xx.x card on the Side B-to-Side A direction. Refer to the tunable laser manufacturer's documentation or the DLP-G358 Provisioning TXP_MR_10E_L and TXP_MR_10E_C Cards for Acceptance Testing task.

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 Side A AD-xC-xx.x or 4MD-xx.x card.

Step 3 Verify the Side A AD-xC-xx.x or 4MD-xx.x card (Side B-to-Side A):

a) Display the Side A 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 set point (VOA Power Ref).

Step 4 Complete the DLP-G80 Verifying the OPT-PRE Amplifier Laser and Power task on the Side A 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 Side A AD-xB-xx.x card:

a) Display the Side A 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 (Side A-to-Side B 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 (Optional) 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 displayed on the Provisioning > Optical Chn > Parameters tab for the proper CHAN TX power value, +/– 0.5 dB.

Step 10 Verify the Side A AD-xC-xx.x (Side A-to-Side B) card:

a) Display the Side A 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 Side B 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 (Optional) 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 Side A AD-xC-xx.x cards along the Side B-to-Side A direction.

Step 13 Remove the loopback on the Side A 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 Side B 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 Side A OSC-CSM card. (The OSC termination must be already provisioned. If not, complete the NTP-G38 Provisioning OSC Terminations task.)

Note Due to the OSC signal loopback, an EOC Termination Failure alarm might be raised on ANSI shelves.

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 TransportPlanner 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 Side A-to-Side B direction.

Step 20 Connect the tunable laser to the corresponding 15xx.x RX port (on the card front panel) of the Side B AD-xC-xx.x or Side B 4MD-xx.x card.

Step 21 Repeat Steps 3 through 20, applying the steps to the Side B-to-Side A 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 Running Automatic Node Setup task to recover the correct node configuration.

Step 24 Return to your originating procedure (NTP).

NTP-G50 Performing the Passive OADM 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 Side B and Side A 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	DLP-G46 Log into CTC Turn Up a Node
Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	Superuser only

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 Turn Up a Node chapter, they can be used for this procedure. No additional cabling changes are needed.

Procedure

Step 1 From the View menu, choose **Go to Network View**.

Step 2 Click the **Alarms** tab.

a) Verify that the alarm filter is not on. Complete the "DLP-G128 Disable Alarm Filtering" task 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 3 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 or Success - Unchanged. If not, complete the NTP-G37 Running Automatic Node Setup task.

Step 4 Check the Cisco TransportPlanner site configuration file to verify the presence of a dropped or added 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 (Side B or Side A) 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 5 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 6 Check the site configuration file from Cisco TransportPlanner 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 (Side B or Side A) 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 7 If no channels are configured in pass-through mode, continue with step 8. 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 8 Create a loopback on the Side A OSC-CSM card by connecting the LINE TX port to the LINE RX port using a patchcord and 10-dB bulk attenuator.

Step 9 Verify that the OSC link becomes active on the Side A OSC-CSM card. (The OSC termination must be already provisioned. If not, complete the NTP-G38 Provisioning OSC Terminations task.)

Note Due to the OSC signal loopback, an EOC Termination Failure alarm might be raised on ANSI shelves.

Step 10 If the OSC link becomes active, continue with step 11. 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 11. 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 11. If it does not turn up, replace the OSC-CSM card.

Step 11 If the node has express bands or channels, complete the DLP-G86 Verifying Express Channel Connections on an OADM Node with OSC-CSM Cards task. 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 5 through 7), complete the DLP-G89 Verifying OADM Node Pass-Through Channel Connections task. If not, continue with step 13.

Step 13 If connections have add/drop connections, complete the DLP-G94 Verifying Add and Drop Connections on an OADM Node with OSC-CSM Cards task.

Stop. You have completed this procedure

NTP-G186 Performing the Four-Degree and Eight-Degree Mesh Patch Panel Acceptance Test

Purpose	This procedure checks the insertion loss for a four-degree or eight-degree patch panel.
Tools/Equipment	1 fully-tunable transponder or tunable laser source with an LC patchcord 1 optical power meter with LC input connector 1 MPO-LC multicable (LC if the optical power meter has LC input)
Prerequisite Procedures	• The mesh patch panel must be installed. • DLP-G46 Log into CTC
Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	Superuser only

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 Turn Up a Node chapter, they can be used for this procedure. No additional cabling changes are needed.

Procedure

Step 1 From the View menu, choose **Go to Network View**.

Step 2 Click the **Alarms** tab.

a) Verify that the alarm filter is not on. Complete the "DLP-G128 Disable Alarm Filtering" task 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 the *Cisco NCS 2000 Series Troubleshooting Guide* for procedures.

Step 3 If you are installing a TXP_MR_10E_C card, complete the DLP-G358 Provisioning TXP_MR_10E_L and TXP_MR_10E_C Cards for Acceptance Testing task.

Step 4 Complete the DLP-G432 Setting the Transponder Wavelength task to tune the transponder to a wavelength not used in any of the sides already carrying traffic (1530.33 nm, for example).

Step 5 Complete the DLP-G433 Recordinging Transponder Optical Power task.

Step 6 In card view for the transponder card, click the **Provisioning** > **Line** tabs and choose **OOS,DSBLD** (ANSI) or **Locked,disabled** (ETSI) from the Admin State drop-down list. Click Apply.

Step 7 Connect the transponder to the COM-RX A port of the four-degree or eight-degree patch panel.

Step 8 In card view for the transponder card, click the **Provisioning** > **Line** tabs and choose **OOS,MT** (ANSI) or **Locked,maintenance** (ETSI) from the Admin State drop-down list. Click **Apply**.

Step 9 Verify the COM-RX port power results for Side A (Table 4: From COM-RX Side A Verification).

Table 4: From COM-RX Side A Verification

Connect MPO Connector to Patch Panel Port	Refer to...
EXP A TX	Table 12: Same Side Verification
EXP B TX	Table 14: Side B Power Verification
EXP C TX	Table 15: Side C Power Verification
EXP D TX	Table 16: Side D Power Verification
EXP E TX (eight-degree patch panel only)	Table 17: Side E Power Verification
EXP F TX (eight-degree patch panel only)	Table 18: Side F Power Verification
EXP G TX (eight-degree patch panel only)	Table 19: Side G Power Verification
EXP H TX (eight-degree patch panel only)	Table 20: Side H Power Verification
TEST ACCESS TX	Table 13: Side A Power Verification

Step 10 In card view for the transponder card, click the **Provisioning** > **Line** tabs and choose **OOS,DSBLD** (ANSI) or **Locked,disabled** (ETSI) from the Admin State drop-down list. Click **Apply**.

Step 11 Connect the transponder to the COM-RX B port of the four-degree or eight-degree patch panel.

Step 12 In card view for the transponder card, click the **Provisioning** > **Line** tabs and choose **IS** (ANSI) or **Unlocked** (ETSI) from the Admin State drop-down list. Click **Apply**.

Step 13 Verify the COM-RX port power results for Side B (Table 5: From COM-RX Side B Verification).

Table 5: From COM-RX Side B Verification

Connect MPO Connector to Patch Panel Port	Refer to...
EXP A TX	Table 13: Side A Power Verification
EXP B TX	Table 12: Same Side Verification
EXP C TX	Table 15: Side C Power Verification
EXP D TX	Table 16: Side D Power Verification
EXP E TX (eight-degree patch panel only)	Table 17: Side E Power Verification
EXP F TX (eight-degree patch panel only)	Table 18: Side F Power Verification
EXP G TX (eight-degree patch panel only)	Table 19: Side G Power Verification
EXP H TX (eight-degree patch panel only)	Table 20: Side H Power Verification
TEST ACCESS TX	Table 14: Side B Power Verification

Step 14 In card view for the transponder card, click the **Provisioning** > **Line** tabs and choose **OOS,DSBLD** (ANSI) or **Locked,disabled** (ETSI) from the Admin State drop-down list. Click **Apply**.

Step 15 Connect the transponder to the COM-RX C port of the four-degree or eight-degree patch panel.

Step 16 In card view for the transponder card, click the **Provisioning** > **Line** tabs and choose **IS** (ANSI) or **Unlocked** (ETSI) from the Admin State drop-down list. Click **Apply**.

Step 17 Verify the COM-RX port power results for Side C (Table 6: From COM-RX Side C Verification).

Table 6: From COM-RX Side C Verification

Connect MPO Connector to Patch Panel Port	Refer to...
EXP A TX	Table 13: Side A Power Verification
EXP B TX	Table 14: Side B Power Verification
EXP C TX	Table 12: Same Side Verification
EXP D TX	Table 16: Side D Power Verification
EXP E TX (eight-degree patch panel only)	Table 17: Side E Power Verification
EXP F TX (eight-degree patch panel only)	Table 18: Side F Power Verification
EXP G TX (eight-degree patch panel only)	Table 19: Side G Power Verification
EXP H TX (eight-degree patch panel only)	Table 20: Side H Power Verification
TAP TX	Table 15: Side C Power Verification

Step 18 In card view for the transponder card, click the **Provisioning** > **Line** tabs and choose **OOS,DSBLD** (ANSI) or **Locked,disabled** (ETSI) from the Admin State drop-down list. Click **Apply**.

Step 19 Connect the transponder to the COM-RX D port of the four-degree or eight-degree patch panel.

Step 20 In card view for the transponder card, click the **Provisioning** > **Line** tabs and choose **IS** (ANSI) or **Unlocked** (ETSI) from the Admin State drop-down list. Click **Apply**.

Step 21 Verify the COM-RX port power results for Side D (Table 7: From COM-RX Side D Verification).

Table 7: From COM-RX Side D Verification

Connect MPO Connector to Patch Panel Port	Refer to...
EXP A TX	Table 13: Side A Power Verification
EXP B TX	Table 14: Side B Power Verification
EXP C TX	Table 15: Side C Power Verification
EXP D TX	Table 12: Same Side Verification
EXP E TX (eight-degree patch panel only)	Table 17: Side E Power Verification
EXP F TX (eight-degree patch panel only)	Table 18: Side F Power Verification
EXP G TX (eight-degree patch panel only)	Table 19: Side G Power Verification

Connect MPO Connector to Patch Panel Port	Refer to...
EXP H TX (eight-degree patch panel only)	Table 20: Side H Power Verification
TEST ACCESS TX	Table 16: Side D Power Verification

Step 22 In card view for the transponder card, click the **Provisioning** > **Line** tabs and choose **OOS,DSBLD** (ANSI) or **Locked,disabled** (ETSI) from the Admin State drop-down list. Click **Apply**.

Step 23 If you are testing a four-degree patch panel, continue with Step 76. If you are testing an eight-degree patch panel, continue with Step 24.

Step 24 Connect the transponder to the COM-RX E port of the eight-degree patch panel.

Step 25 In card view for the transponder card, click the **Provisioning** > **Line** tabs and choose **IS** (ANSI) or **Unlocked** (ETSI) from the Admin State drop-down list. Click **Apply**.

Step 26 Verify the COM-RX port power results for Side E (Table 8: From COM-RX Side E Verification).

Table 8: From COM-RX Side E Verification

Connect MPO Connector to Patch Panel Port	Refer to...
EXP A TX	Table 13: Side A Power Verification
EXP B TX	Table 14: Side B Power Verification
EXP C TX	Table 15: Side C Power Verification
EXP D TX	Table 16: Side D Power Verification
EXP E TX (eight-degree patch panel only)	Table 12: Same Side Verification
EXP F TX (eight-degree patch panel only)	Table 18: Side F Power Verification
EXP G TX (eight-degree patch panel only)	Table 19: Side G Power Verification
EXP H TX (eight-degree patch panel only)	Table 20: Side H Power Verification
TEST ACCESS TX	Table 17: Side E Power Verification

Step 27 In card view for the transponder card, click the **Provisioning** > **Line** tabs and choose **OOS,DSBLD** (ANSI) or **Locked,disabled** (ETSI) from the Admin State drop-down list. Click **Apply**.

Step 28 Connect the transponder to the COM-RX F port of the eight-degree patch panel.

Step 29 In card view for the transponder card, click the **Provisioning** > **Line** tabs and choose **IS** (ANSI) or **Unlocked** (ETSI) from the Admin State drop-down list. Click **Apply**.

Step 30 Verify the COM-RX port power results for Side F (Table 9: From COM-RX Side F Verification Table).

Table 9: From COM-RX Side F Verification Table

Connect MPO Connector to Patch Panel Port	Refer to...
EXP A TX	Table 13: Side A Power Verification
EXP B TX	Table 14: Side B Power Verification

Connect MPO Connector to Patch Panel Port	Refer to...
EXP C TX	Table 15: Side C Power Verification
EXP D TX	Table 16: Side D Power Verification
EXP E TX (eight-degree patch panel only)	Table 17: Side E Power Verification
EXP F TX (eight-degree patch panel only)	Table 12: Same Side Verification
EXP G TX (eight-degree patch panel only)	Table 19: Side G Power Verification
EXP H TX (eight-degree patch panel only)	Table 20: Side H Power Verification
TEST ACCESS TX	Table 18: Side F Power Verification

Step 31 In card view for the transponder card, click the **Provisioning** > **Line** tabs and choose **OOS,DSBLD** (ANSI) or **Locked,disabled** (ETSI) from the Admin State drop-down list. Click **Apply**.

Step 32 Connect the transponder to the COM-RX G port of the eight-degree patch panel.

Step 33 In card view for the transponder card, click the **Provisioning** > **Line** tabs and choose **IS** (ANSI) or **Unlocked** (ETSI) from the Admin State drop-down list. Click **Apply**.

Step 34 Verify the COM-RX port power results for Side G (Table 10: From COM-RX Side G Verification).

Table 10: From COM-RX Side G Verification

Connect MPO Connector to Patch Panel Port	Refer to...
EXP A TX	Table 13: Side A Power Verification
EXP B TX	Table 14: Side B Power Verification
EXP C TX	Table 15: Side C Power Verification
EXP D TX	Table 16: Side D Power Verification
EXP E TX (eight-degree patch panel only)	Table 17: Side E Power Verification
EXP F TX (eight-degree patch panel only)	Table 18: Side F Power Verification
EXP G TX (eight-degree patch panel only)	Table 12: Same Side Verification
EXP H TX (eight-degree patch panel only)	Table 20: Side H Power Verification
TEST ACCESS TX	Table 19: Side G Power Verification

Step 35 In card view for the transponder card, click the **Provisioning** > **Line** tabs and choose **OOS,DSBLD** (ANSI) or **Locked,disabled** (ETSI) from the Admin State drop-down list. Click **Apply**.

Step 36 Connect the transponder to the COM-RX H port of the eight-degree patch panel.

Step 37 In card view for the transponder card, click the **Provisioning** > **Line** tabs and choose **IS** (ANSI) or **Unlocked** (ETSI) from the Admin State drop-down list. Click Apply.

Step 38 Verify the COM-RX port power results for Side H (Table 11: From COM-RX Side H Verification).

Table 11: From COM-RX Side H Verification

Connect MPO Connector to Patch Panel Port	Refer to...
EXP A TX	Table 13: Side A Power Verification
EXP B TX	Table 14: Side B Power Verification
EXP C TX	Table 15: Side C Power Verification
EXP D TX	Table 16: Side D Power Verification
EXP E TX (eight-degree patch panel only)	Table 17: Side E Power Verification
EXP F TX (eight-degree patch panel only)	Table 18: Side F Power Verification
EXP G TX (eight-degree patch panel only)	Table 19: Side G Power Verification
EXP H TX (eight-degree patch panel only)	Table 12: Same Side Verification
TEST ACCESS TX	Table 20: Side H Power Verification

Step 39 In card view for the transponder card, click the **Provisioning** > **Line** tabs and choose **OOS,DSBLD** (ANSI) or **Locked,disabled** (ETSI) from the Admin State drop-down list. Click **Apply**.

Step 40 Connect the transponder to the test access RX port of the four- or eight-degree patch panel.

Note There are two local access RX ports on the 8-degree patch panel. Select the left Local Access port for testing.

Step 41 In card view for the transponder card, click the **Provisioning** > **Line** tabs and choose **IS** (ANSI) or **Unlocked** (ETSI) from the Admin State drop-down list. Click **Apply**.

Step 42 Connect the MPO connector of the MPO-LC (FC or SC) multifiber fan-out to EXP A TX port of the four- or eight-degree patch-panel.

Step 43 Connect the optical power meter to the fan-out cable 1.

Step 44 Collect the actual reading from the optical power meter.

Step 45 Verify the IL is less than 11dB for an 8-degree patch panel or less than 8dB for a 4-degree patch panel.

Step 46 Connect the MPO connector of the MPO-LC (FC or SC) multifiber fan-out to EXP B TX port of the four- or eight-degree patch panel.

Step 47 Connect the optical power meter to the fan-out cable 2.

Step 48 Collect the actual reading from the optical power meter.

Step 49 Verify the IL is less than 11dB for an 8-degree patch panel or less than 8dB for a 4-degree patch panel.

Step 50 Connect the MPO connector of the MPO-LC (FC or SC) multifiber fan-out to EXP C TX port of the four- or eight-degree patch panel.

Step 51 Connect the optical power meter to the fan-out cable 3.

Step 52 Collect the actual reading from the optical power meter.

Step 53 Verify the IL is less than 11dB for an 8-degree patch panel or less than 8dB for a 4-degree patch panel.

Step 54 Connect the MPO connector of the MPO-LC (FC or SC) multifiber fan-out to EXP D TX port of the four- or eight-degree patch panel.

Step 55 Connect the optical power meter to the fan-out cable 4.

Step 56 Collect the actual reading from the optical power meter.

Step 57 Verify the IL is less than 11dB for an 8-degree patch panel or less than 8dB for a 4-degree patch panel.

Step 58 Connect the MPO connector of the MPO-LC (FC or SC) multifiber fan-out to EXP E TX port of the four- or eight-degree patch panel.

Step 59 Connect the optical power meter to the fan-out cable 5.

Step 60 Collect the actual reading from the optical power meter.

Step 61 Verify the IL is less than 11dB for an 8-degree patch panel.

Step 62 Connect the MPO connector of the MPO-LC (FC or SC) multifiber fan-out to EXP F TX port of the four- or eight-degree patch panel.

Step 63 Connect the optical power meter to the fan-out cable 6.

Step 64 Collect the actual reading from the optical power meter.

Step 65 Verify the IL is less than 11dB for an 8-degree patch panel.

Step 66 Connect the MPO connector of the MPO-LC (FC or SC) multifiber fan-out to EXP G TX port of the four- or eight-degree patch panel.

Step 67 Connect the optical power meter to the fan-out cable 7.

Step 68 Collect the actual reading from the optical power meter.

Step 69 Verify the IL is less than 11dB for an 8-degree patch panel.

Step 70 Connect the MPO connector of the MPO-LC (FC or SC) multifiber fan-out to EXP H TX port of the four- or eight-degree patch panel.

Step 71 Connect the optical power meter to the fan-out cable 8.

Step 72 Collect the actual reading from the optical power meter.

Step 73 Verify the IL is less than 11dB for an 8-degree patch panel.

Step 74 In card view for the transponder card, click the **Provisioning** > **Line** tabs and choose **OOS,DSBLD** (ANSI) or **Locked,disabled** (ETSI) from the Admin State drop-down list. Click **Apply**.

Step 75 Repeat Steps 40 through 74 for the right side Local Access RX port.

Step 76 Complete the NTP-G188 Performing the Native Mesh Node Acceptance Test task.

The tables below are used for verification in Steps 9 through 38 of this procedure.

Table 12: Same Side Verification

Optical Power Meter Connected to Fan Out	Power Result for Eight-Degree Patch Panel	Power Result for Four-Degree Patch Panel
Cable 1	No power	No power
Cable 2	No power	No power
Cable 3	No power	No power
Cable 4	No power	No power
Cable 5 (eight-degree patch panel only)	No power	—
Cable 6 (eight-degree patch panel only)	No power	—

Optical Power Meter Connected to Fan Out	Power Result for Eight-Degree Patch Panel	Power Result for Four-Degree Patch Panel
Cable 7 (eight-degree patch panel only)	No power	—
Cable 8 (eight-degree patch panel only)	No power	—

Table 13: Side A Power Verification

Optical Power Meter Connected to Fan Out	Power Result for Eight-Degree Patch Panel	Power Result for Four-Degree Patch Panel
Cable 1	IL < 11 dB	IL < 8 dB
Cable 2	No power	No power
Cable 3	No power	No power
Cable 4	No power	No power
Cable 5 (eight-degree patch panel only)	No power	—
Cable 6 (eight-degree patch panel only)	No power	—
Cable 7 (eight-degree patch panel only)	No power	—
Cable 8 (eight-degree patch panel only)	No power	—

Table 14: Side B Power Verification

Optical Power Meter Connected to Fan Out	Power Result for Eight-Degree Patch Panel	Power Result for Four-Degree Patch Panel
Cable 1	No power	No power
Cable 2	IL < 11 dB	IL < 8 dB
Cable 3	No power	No power
Cable 4	No power	No power
Cable 5 (eight-degree patch panel only)	No power	—
Cable 6 (eight-degree patch panel only)	No power	—

Optical Power Meter Connected to Fan Out	Power Result for Eight-Degree Patch Panel	Power Result for Four-Degree Patch Panel
Cable 7 (eight-degree patch panel only)	No power	—
Cable 8 (eight-degree patch panel only)	No power	—

Table 15: Side C Power Verification

Optical Power Meter Connected to Fan Out	Power Result for Eight-Degree Patch Panel	Power Result for Four-Degree Patch Panel
Cable 1	No power	No power
Cable 2	No power	No power
Cable 3	IL < 11 dB	IL < 8 dB
Cable 4	No power	No power
Cable 5 (eight-degree patch panel only)	No power	—
Cable 6 (eight-degree patch panel only)	No power	—
Cable 7 (eight-degree patch panel only)	No power	—
Cable 8 (eight-degree patch panel only)	No power	—

Table 16: Side D Power Verification

Optical Power Meter Connected to Fan Out	Power Result for Eight-Degree Patch Panel	Power Result for Four-Degree Patch Panel
Cable 1	No power	No power
Cable 2	No power	No power
Cable 3	No power	No power
Cable 4	IL < 11 dB	IL < 8 dB
Cable 5 (eight-degree patch panel only)	No power	—
Cable 6 (eight-degree patch panel only)	No power	—

Optical Power Meter Connected to Fan Out	Power Result for Eight-Degree Patch Panel	Power Result for Four-Degree Patch Panel
Cable 7 (eight-degree patch panel only)	No power	—
Cable 8 (eight-degree patch panel only)	No power	—

Table 17: Side E Power Verification

Optical Power Meter Connected to Fan Out	Power Result for Eight-Degree Patch Panel	Power Result for Four-Degree Patch Panel
Cable 1	No power	No power
Cable 2	No power	No power
Cable 3	No power	No power
Cable 4	No power	No power
Cable 5 (eight-degree patch panel only)	IL < 11 dB	—
Cable 6 (eight-degree patch panel only)	No power	—
Cable 7 (eight-degree patch panel only)	No power	—
Cable 8 (eight-degree patch panel only)	No power	—

Table 18: Side F Power Verification

Optical Power Meter Connected to Fan Out	Power Result for Eight-Degree Patch Panel	Power Result for Four-Degree Patch Panel
Cable 1	No power	No power
Cable 2	No power	No power
Cable 3	No power	No power
Cable 4	No power	No power
Cable 5 (eight-degree patch panel only)	No power	—
Cable 6 (eight-degree patch panel only)	IL < 11 dB	—

Optical Power Meter Connected to Fan Out	Power Result for Eight-Degree Patch Panel	Power Result for Four-Degree Patch Panel
Cable 7 (eight-degree patch panel only)	No power	—
Cable 8 (eight-degree patch panel only)	No power	—

Table 19: Side G Power Verification

Optical Power Meter Connected to Fan Out	Power Result for Eight-Degree Patch Panel	Power Result for Four-Degree Patch Panel
Cable 1	No power	No power
Cable 2	No power	No power
Cable 3	No power	No power
Cable 4	No power	No power
Cable 5 (eight-degree patch panel only)	No power	—
Cable 6 (eight-degree patch panel only)	No power	—
Cable 7 (eight-degree patch panel only)	IL < 11 dB	—
Cable 8 (eight-degree patch panel only)	No power	—

Table 20: Side H Power Verification

Optical Power Meter Connected to Fan Out	Power Result for Eight-Degree Patch Panel	Power Result for Four-Degree Patch Panel
Cable 1	No power	No power
Cable 2	No power	No power
Cable 3	No power	No power
Cable 4	No power	No power
Cable 5 (eight-degree patch panel only)	No power	—
Cable 6 (eight-degree patch panel only)	No power	—

Optical Power Meter Connected to Fan Out	Power Result for Eight-Degree Patch Panel	Power Result for Four-Degree Patch Panel
Cable 7 (eight-degree patch panel only)	No power	—
Cable 8 (eight-degree patch panel only)	IL < 11 dB	—

Stop. You have completed this procedure.

DLP-G432 Setting the Transponder Wavelength

Purpose	This task tunes transponder wavelength.
Tools/Equipment	Fully C-band tunable transponder or tunable laser source with an LC patchcord
Prerequisite Procedures	DLP-G46 Log into CTC
Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	Superuser only

Procedure

Step 1 In card view, display the transponder card.

Step 2 Click the **Provisioning** > **Line** > **Wavelength Trunk Settings** tabs.

Step 3 In the Wavelength field, choose the desired wavelength (C-Band, odd) from the drop-down list.

Step 4 Click **Apply**.

Step 5 Click the **Provisioning** > **Pluggable Port Module** > **Pluggable Port Module** tabs and click **Create** to preprovision a pluggable port module (PPM), if necessary.

Step 6 Click **Ok**, then **Apply**.

Step 7 Return to your originating procedure (NTP).

DLP-G433 Recordinging Transponder Optical Power

Purpose	This task checks and records optical power.
Tools/Equipment	Fully C-band tunable transponder or tunable laser source with an LC patchcord Optical power meter

Prerequisite Procedures	DLP-G46 Log into CTC ANS successfully completed All sides completely wired (including patch panels)
Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	Superuser only

Procedure

Step 1 Connect the optical power meter to the transponder output.

Step 2 Display card view for the transponder card.

Step 3 Click the **Provisioning** > **Line** tabs, and choose **OOS,MT** (ANSI) or **Locked,maintenance** (ETSI) from the Admin State drop-down list.

Step 4 Record the optical power meter value.

Step 5 Choose **OOS,DSBLD** (ANSI) or **Locked,disabled** (ETSI) from the Admin State drop-down list.

Step 6 Disconnect the optical power meter from the TX port of the transponder card.

Step 7 Return to your originating procedure (NTP).

NTP-G187 Performing the Multiring Site Acceptance Test

Purpose	This procedure checks the connections and the output power values for a multiring node. A multiring node connects two existing in-service two-sides ROADM nodes with two sides (each equipped with MMU cards).
Tools/Equipment	Fully C-band tunable transponder or tunable laser source 1 15-dB LC attenuator 1 optical power meter with LC input connector 1 MPO-LC multicable (LC if the optical power meter has LC input) 3 LC-LC adapters
Prerequisite Procedures	• All sides must be completely wired (including patch panels), except the connections with the MMU cards in the existing in-service ROADM node; for more information, see Turning up a Node. • NTP-G186 Performing the Four-Degree and Eight-Degree Mesh Patch Panel Acceptance Test task (as needed). • DLP-G46 Log into CTC

Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	Superuser only

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 Turning Up a Node, they can be used for this procedure. No additional cabling changes are needed.

Procedure

Step 1 From the View menu, choose **Go to Network View**.

Step 2 Click the **Alarms** tab.

a) Verify that the alarm filter is not on. Complete the "DLP-G128 Disable Alarm Filtering" task 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 the *Cisco NCS 2000 Series Troubleshooting Guide* for procedures.

Step 3 Insert a full C-band tunable transponder card into an available slot.

Step 4 Plug a 15 dB LC attenuator to the TX port of the transponder card.

Step 5 Complete the DLP-G432 Setting the Transponder Wavelength task to tune the transponder to a wavelength yyyy.yy (1530.33 nm, for example).

Step 6 Complete the DLP-G433 Recording Transponder Optical Power task.

Step 7 Disconnect the optical power meter from the TX port of the transponder card.

Step 8 Make the following connections:

a) Connect the transponder card output port (with the 15 dB attenuator) to the COM-RX port of the 40-WXC-C card on Side A.

b) Connect the optical power meter to the COM-TX port of the 40-WXC-C card on Side A.

c) Connect, using an LC-LC adapter, the patchcord from the COM-TX port to the patchcord in the COM-RX port of the Side B 40-WXC-C card.

d) Connect, using an LC-LC adapter, the patchcord from the COM-TX port to the patchcord in the COM-RX port of the Side C 40-WXC-C card.

e) Connect, using an LC-LC adapter, the patchcord from the COM-TX port to the patchcord in the COM-RX port of the Side D 40-WXC-C card.

Step 9 In node view (single-shelf mode) or multishelf view (multishelf mode), click the **Provisioning** > **WDM-ANS** > **Provisioning** tabs. Complete the following:

a) Record the values of the following parameters:

- Power on the COM-TX port of the preamplifier on Side A
- Power on the COM-RX port of the 40-WXC-C card on Side A

- Power on the COM-TX port of the 40-WXC-C card on Side A
- Power Fail Low Th on the COM-RX port of the preamplifier on Side A
- Power on the COM-TX port of the preamplifier on Side B
- Power on the COM-RX port of the 40-WXC-C card on Side B
- Power on the COM-TX port of the 40-WXC-C card on Side B
- Power Fail Low Th on the COM-RX port of the preamplifier on Side B
- Power on the COM-TX port of the preamplifier on Side C
- Power on the COM-RX port of the 40-WXC-C card on Side C
- Power on the COM-TX port of the 40-WXC-C card on Side C
- Power Fail Low Th on the COM-RX port of the preamplifier on Side C
- Power on the COM-TX port of the preamplifier on Side D
- Power on the COM-RX port of the 40-WXC-C card on Side D
- Power on the COM-TX port of the 40-WXC-C card on Side D
- Power Fail Low Th on the COM-RX port of the preamplifier on Side D

b) Change the values of the parameters as follows:

- Power on the COM-TX port of the preamplifier on Side A = **1 dBm**
- Power on the COM-RX port of the 40-WXC-C card on Side A = **-15 dBm**
- Power on the COM-TX port of the 40-WXC-C card on Side A = **-15 dBm**
- Power Fail Low Th on the COM-RX port of the preamplifier on Side A = **-30 dBm**
- Power on the COM-TX port of the preamplifier on Side B = **1 dBm**
- Power on the COM-RX port of the 40-WXC-C card on Side B = **-15 dBm**
- Power on the COM-TX port of the 40-WXC-C card on Side B = **-15 dBm**
- Power Fail Low Th on the COM-RX port of the preamplifier on Side B = **-30 dBm**
- Power on the COM-TX port of the preamplifier on Side C = **1 dBm**
- Power on the COM-RX port of the 40-WXC-C card on Side C = **-15 dBm**
- Power on the COM-TX port of the 40-WXC-C card on Side C = **-15 dBm**
- Power Fail Low Th on the COM-RX port of the preamplifier on Side C = **-30 dBm**
- Power on the COM-TX port of the preamplifier on Side D = **1 dBm**
- Power on the COM-RX port of the 40-WXC-C card on Side D = **-15 dBm**
- Power on the COM-TX port of the 40-WXC-C card on Side D = **-15 dBm**
- Power Fail Low Th on the COM-RX port of the preamplifier on Side D = **-30 dBm**

Step 10 In card view, display the transponder card and click the **Provisioning** > **Line** tabs. Choose **IS** (ANSI) or **Unlocked** (ETSI) from the Admin State drop-down list.

Step 11 In card view, display the 40-WXC-C card for Side A and complete the following:

a) Click the **Provisioning** > **Optical Line** > **Parameters** tabs. Record the Power value of the COM-RX port.

b) Verify that the COM-RX value matches the transponder card optical power meter value recorded in the DLP-G433 Recordinging Transponder Optical Power task (+\–1dB).

c) Click the **Inventory** > **Info** tabs and record the CRX -> EXP insertion loss.

d) Click the **Provisioning** > **Optical Line** > **Parameters** tabs and record the Power value of the EXP-TX port.

e) Verify that the EXP-TX port power value = (COM-RX port power value in Step a) – (CRX -> EXP insertion loss value in Step d) (+\– 1dB).

Step 12 In card view, display the OPT-AMP-17 card for Side A and complete the DLP-G434 Recording the OPT-AMP-17-C Power Value task.

Step 13 In card view, display the 40-WXC-C card for Side B and complete the following:

a) Complete the DLP-G435 Setting the 40-WXC-C OCHNC Parameters task. Set the Input Port on the **Maintenance** > **OCHNC** > **Insert Value** tabs to 1.

b) Complete the DLP-G436 Recording the 40-WXC-C Power Value task.

Step 14 In card view, display the OPT-AMP-17 card for Side B and complete the DLP-G434 Recording the OPT-AMP-17-C Power Value task.

Step 15 In card view, display the 40-WXC-C card for Side C and complete the following:

a) Complete the DLP-G435 Setting the 40-WXC-C OCHNC Parameters task. Set the Input Port on the **Maintenance** > **OCHNC** > **Insert Value** tabs to 1.

b) Complete the DLP-G436 Recording the 40-WXC-C Power Value task.

Step 16 In card view, display the OPT-AMP-17 card for Side C and complete the DLP-G434 Recording the OPT-AMP-17-C Power Value task.

Step 17 In card view, display the 40-WXC-C card for Side D and complete the following:

a) Complete the DLP-G435 Setting the 40-WXC-C OCHNC Parameters task. Set the Input Port on the **Maintenance** > **OCHNC** > **Insert Value** tabs to 1.

b) Complete the DLP-G436 Recording the 40-WXC-C Power Value task.

Step 18 In card view, display the OPT-AMP-17 card for Side D and complete the DLP-G434 Recording the OPT-AMP-17-C Power Value task.

Step 19 In card view, display the 40-WXC-C card for Side A and complete the DLP-G435 Setting the 40-WXC-C OCHNC Parameters task. Set the Input Port on the **Maintenance** > **OCHNC** > **Insert Value** tabs to 2.

Step 20 In card view, display the OPT-AMP-17 card for Side A and complete the DLP-G434 Recording the OPT-AMP-17-C Power Value task.

Step 21 Record the optical power meter value and verify that the optical power meter value matches the value recorded in the DLP-G433 Recordinging Transponder Optical Power task (+\– 1dB).

Step 22 In card view, display the 40-WXC-C card for Side A. Click the**Maintenance** > **OCHNC** tabs. In the Return Value COM-TX on selected Wavelength area, click **Refresh** and then **Delete**. Repeat for Sides B, C, and D of the 40-WXC-C card.

Step 23 To test all wavelengths, repeat Steps 5, 10, 17, and 19 for all supported wavelengths.

Step 24 In card view, display the transponder card and choose **OOS,DSBLD** (ANSI) or **Locked,disabled** (ETSI) from the Admin State drop-down list.

Step 25 Disconnect the patchcord in the COM-TX port from the patchcord in the COM-RX port for Side B of the 40-WXC-C card.

Step 26 Connect, using an LC-LC adapter, the patchcord from the COM-TX port with the patchcord in the COM-RX port for Side A of the 40-WXC-C card.

Step 27 Complete the DLP-G432 Setting the Transponder Wavelength task to tune the transponder card to the wavelength set in Step 5.

Step 28 Connect the transponder card output port (with the 15-dB-attenuator) to the COM-RX port of the 40-WXC-C card for Side B.

Step 29 In card view, display the transponder card. Click the **Provisioning** > **Line**tabs, and choose **IS** (ANSI) or **Unlocked**(ETSI) from the Admin State drop-down list.

Step 30 Complete the DLP-G435 Setting the 40-WXC-C OCHNC Parameters task for Sides C and D of the 40-WXC-C card. Set the Input Port on the **Maintenance** > **OCHNC** > **Insert Value** tabs to 2.

Step 31 Complete the DLP-G435 Setting the 40-WXC-C OCHNC Parameters task for Side B of the 40-WXC-C card. Set the Input Port on the **Maintenance** > **OCHNC** > **Insert Value** tabs to 3.

Step 32 In card view, display the 40-WXC-C card for Side B. Click the **Maintenance** > **OCHNC** tabs. In the Return Value COM-TX on selected Wavelength area, click **Refresh** and then **Delete**. Repeat for Sides A, C, and D.

Step 33 To test all wavelengths, repeat Steps 27 through 32 (omit Step 28) for all supported wavelengths.

Step 34 In card view, display the transponder card. Click the **Provisioning** > **Line** tabs, and choose **OOS,DSBLD** (ANSI) or **Locked,disabled** (ETSI) from the Admin State drop-down list.

Step 35 Disconnect the patchcord in the COM-TX port from the patchcord in the COM-RX port of Side C of the 40-WXC-C card.

Step 36 Connect, using an LC-LC adapter, the patchcord from the COM-TX port to the patchcord in the COM-RX port for Side B of the 40-WXC-C card.

Step 37 Complete the DLP-G432 Setting the Transponder Wavelength task to tune the transponder card to the wavelength set in Step 5.

Step 38 Connect the transponder card output port (with the 15-dB attenuator) to the COM-RX port of the 40-WXC-C card for Side C.

Step 39 In card view for the transponder card, click the **Provisioning** > **Line** tabs and choose **IS** (ANSI) or **Unlocked** (ETSI) from the Admin State drop-down list.

Step 40 Complete the DLP-G435 Setting the 40-WXC-C OCHNC Parameters task for Sides A and D of the 40-WXC-C card. Set the Input Port on the **Maintenance** > **OCHNC** > **Insert Value** tabs to 3.

Step 41 Complete the DLP-G435 Setting the 40-WXC-C OCHNC Parameters task for Side C of the 40-WXC-C card. Set the Input Port on the **Maintenance** > **OCHNC** > **Insert Value** tabs to 4.

Step 42 In card view, display the 40-WXC-C card and click the **Maintenance** > **OCHNC** tabs. In the Return Value COM-TX on selected Wavelength area, click **Refresh** and then **Delete**. Repeat for Sides A, B, and D.

Step 43 To test all wavelengths, repeat Steps 37 through 42 (omit Step 38) for all supported wavelengths.

Step 44 Disconnect the patchcord in the COM-TX port from the patchcord in the COM-RX port of Side D of the 40-WXC-C card.

Step 45 Connect, using an LC-LC adapter, the patchcord from the COM-TX port to the patchcord in the COM-RX of Side C of the 40-WXC-C card.

Step 46 Complete the DLP-G432 Setting the Transponder Wavelength task to tune the transponder card to the desired wavelength for testing.

Step 47 Connect the transponder card output port (with the 15-dB attenuator) to the COM-RX port of the 40-WXC-C card of Side D.

Step 48 In card view, display the transponder card. Click the **Provisioning** > **Line** tabs, and choose **IS** (ANSI) or **Unlocked** (ETSI) from the Admin State drop-down list.

Step 49 Complete the DLP-G435 Setting the 40-WXC-C OCHNC Parameters task for Sides A and B of the 40-WXC-C card. Set the Input Port on the **Maintenance** > **OCHNC** > **Insert Value** tabs to 4.

Step 50 Complete the DLP-G435 Setting the 40-WXC-C OCHNC Parameters task for Side C of the 40-WXC-C card. Set the Input Port on the **Maintenance** > **OCHNC** > **Insert Value** tabs to 1.

Step 51 In card view, display the 40-WXC-C card for Side D. Click the **Maintenance** > **OCHNC** tabs. In the Return Value COM-TX on selected Wavelength area, click **Refresh** and then **Delete**. Repeat for Sides A, B, and C of the 40-WXC-C card.

Step 52 To test all wavelengths, repeat Steps 46 through 51 for all supported wavelengths, except Step 47.

Step 53 In node view (single-shelf mode) or multishelf view (multishelf mode), click the **Provisioning** > **WDM-ANS** > **Provisioning** tabs. Restore the values recorded in Step 9a for the following parameters:

- Power on the COM-TX port of the preamplifier on Side A
- Power on the COM-RX port of the 40-WXC-C card on Side A
- Power on the COM-TX port of the 40-WXC-C card on Side A
- Power Fail Low Th on the COM-RX port of the preamplifier on Side B
- Power on the COM-TX port of the preamplifier on Side B
- Power on the COM-RX port of the 40-WXC-C card on Side B
- Power on the COM-TX port of the 40-WXC-C card on Side B
- Power Fail Low Th on the COM-RX port of the preamplifier on Side B
- Power on the COM-TX port of the preamplifier on Side C
- Power on the COM-RX port of the 40-WXC-C card on Side C
- Power on the COM-TX port of the 40-WXC-C card on Side C
- Power Fail Low Th on the COM-RX port of the preamplifier on Side C
- Power on the COM-TX port of the pre-amplifier on Side D
- Power on the COM-RX port of the 40-WXC-C card on Side D
- Power on the COM-TX port of the 40-WXC-C card on Side D
- Power Fail Low Th on the COM-RX port of the preamplifier on Side D

Step 54 In node view (single-shelf mode) or multishelf view (multishelf mode), click the **Provisioning** > **WDM-ANS** > **Port Status** tabs. Click **Launch ANS**.

Step 55 Disconnect the patchcord in the COM-TX port from the patchcord in the COM-RX port of Side A of the 40-WXC-C card.

Step 56 Disconnect the patchcord in the COM-TX port from the patchcord in the COM-RX port of Side B of the 40-WXC-C card.

Step 57 Disconnect the patchcord in the COM-TX port from the patchcord in the COM-RX port of Side C of the 40-WXC-C card.

Step 58 Restore the connections to the MMU cards of the eight sides using the patchcords tested in this procedure:

a) Connect the patchcord from the COM-TX port of the 40-WXC-C card on Side A to the EXP-A-RX port of the MMU in the lowest slot of the upgraded ROADM Node 1.
b) Connect the patchcord from the COM-RX port of the 40-WXC-C card on Side A to the EXP-A-TX port of the MMU in the lowest slot of the upgraded ROADM Node 1.
c) Connect the patchcord from the COM-TX port of the 40-WXC-C card on Side B to the EXP-A-RX port of the MMU in the highest slot of the upgraded ROADM Node 1.
d) Connect the patchcord from the COM-RX port of the 40-WXC-C card on Side B to the EXP-A-TX port of the MMU in the highest slot of the upgraded ROADM Node 1.
e) Connect the patchcord from the COM-TX port of the 40-WXC-C card on Side C to the EXP-A-RX port of the MMU in the lowest slot of the upgraded ROADM Node 2.
f) Connect the patchcord from the COM-RX port of the 40-WXC-C card on Side C to the EXP-A-TX port of the MMU in the lowest slot of the upgraded ROADM Node 2.
g) Connect the patchcord from the COM-TX port of the 40-WXC-C card on Side D to the EXP-A-RX port of the MMU in the highest slot of the upgraded ROADM Node 2.
h) Connect the patchcord from the COM-RX port of the 40-WXC-C card on Side D to the EXP-A-TX port of the MMU in the highest slot of the upgraded ROADM Node 2.

Stop. You have completed this procedure.

DLP-G434 Recording the OPT-AMP-17-C Power Value

Purpose	This task records the power value of the OPT-AMP-17 card.
Tools/Equipment	None
Prerequisite Procedures	DLP-G46 Log into CTC DLP-G436 Recording the 40-WXC-C Power Value ANS successfully completed All sides completely wired (including patch panels)
Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	Superuser only

Procedure

Step 1 In card view for the OPT-AMP-17 card for Side x, complete the following:

a) Click the **Provisioning** > **Optical Line** > **Parameters** tabs and record the Power value of the COM-RX port.
b) Verify the COM-RX port power value matches the value of the EXP-TX port of the 40-WXC-C card in the DLP-G436 Recording the 40-WXC-C Power Value task (+\– 1 dB).
c) Click the **Provisioning** > **Op. Ampli. Line** > **Parameters** tabs and record the Total Output Power value of the COM-TX port.

d) Verify that the value is 1 dBm (+\– 1 dB).

Step 2 Return to your originating procedure (NTP).

DLP-G435 Setting the 40-WXC-C OCHNC Parameters

Purpose	This task sets the OCHNC parameters for the 40-WXC-C card.
Tools/Equipment	None
Prerequisite Procedures	DLP-G46 Log into CTC ANS successfully completed All sides completely wired (including patch panels)
Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	Superuser only

Procedure

Step 1 In the 40-WXC-C card view for Side x, complete the following:

a) Click the **Maintenance** > **OCHNC** > **Insert Value** tabs and set the parameters as follows:

- Target Power (dBm) = `-15.0`

  Note The target power is not set if the power value is higher than the channel power that is allocated and equalized.

- Input Port = x (EXP-RX) (for x, refer to the step in the originating procedure)
- VOA Attenuation (dB) = `13`
- Wavelength = Value set in the originating procedure

b) Click **Apply**.

c) Click **Refresh**. In the Return Value COM-TX on selected Wavelength field, verify that the Actual Power (dBm) is –15 +\– 0.5dB.

Step 2 Return to your originating procedure (NTP).

DLP-G436 Recording the 40-WXC-C Power Value

Purpose	This task records the power value of the 40-WXC-C card for a multiring configuration.

Tools/Equipment	None
Prerequisite Procedures	DLP-G46 Log into CTC DLP-G433 Recordinging Transponder Optical Power DLP-G435 Setting the 40-WXC-C OCHNC Parameters ANS successfully completed All sides completely wired (including patch panels)
Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	Superuser only

Procedure

Step 1 In card view for the 40-WXC-C card for Side x, complete the following:

a) Click the **Provisioning** > **Optical Line** > **Parameters** tabs and record the Power value of the COM-TX port.

b) Verify that the COM-TX port value matches Return Value COM-TX on selected Wavelength value retrieved in the DLP-G435 Setting the 40-WXC-C OCHNC Parameters task (+\– 1 dB).

c) Click the **Provisioning** > **Optical Line** > **Parameters** tabs and record the Power value of the EXP-TX port.

d) Click the **Inventory** > **Info** tabs and record the CRX -> EXP insertion loss value.

e) Verify that the EXP-TX port power value = (COM-TX port power value) – (CRX -> EXP insertion loss value) (+\– 1 dB).

Step 2 Return to your originating procedure (NTP).

NTP-G188 Performing the Native Mesh Node Acceptance Test

Purpose	This procedure checks the power values and the optical connections for a native mesh node. Use this test for both new installations and directional upgrades of native mesh nodes. Use this to also test the installation of a new side *n* to a node.
Tools/Equipment	• Fully C-band tunable transponder or tunable laser source with an LC patchcord • 1 MPO-LC multicable (LC if the optical power meter has LC input) • 1 LC-LC adapter

Prerequisite Procedures	• All sides must be completely fibered (including mesh patch panels); for more information, see Turn Up a Node chapter. • NTP-G186 Performing the Four-Degree and Eight-Degree Mesh Patch Panel Acceptance Test (optional) • DLP-G46 Log into CTC
Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	Superuser only

Procedure

Step 1 Identify the sides that are already carrying traffic and which sides are going to be tested.

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. Complete the "DLP-G128 Disable Alarm Filtering" task as necessary.

b) Verify that no equipment alarms appear indicating equipment failure or other hardware problems. (An equipment alarm is indicated in the Alarms tab, Cond column as EQPT.) If equipment failure alarms appear, investigate and resolve them before continuing.

Refer the *Cisco NCS 2000 Series Troubleshooting Guide* for procedures.

Step 4 Insert a full C-band tunable transponder into an available slot of the side that you want to test (Side A through H, referred to as Side x in this procedure).

Step 5 Plug a 15-dB LC attenuator into the trunk TX port of the transponder card.

Step 6 Select a wavelength that is not used on any of the sides for carrying traffic (or 1530.33 nm if it is a new installation). Complete the DLP-G432 Setting the Transponder Wavelength to tune the transponder for the selected wavelength yyyy.yy.

Step 7 Connect the optical power meter to the trunk TX port of the transponder card.

Step 8 Complete the DLP-G433 Recordinging Transponder Optical Power.

Step 9 Disconnect the optical power meter from the TX port of the transponder card.

Step 10 In card view, display the OSC-CSM or OSCM card for Side x and complete the following:

a) Click the **Maintenance** > **ALS** tabs and from the OSRI pull-down menu, select **OFF**.

b) From the ALS Mode pull-down menu, select **Disable**.

Step 11 Make the following connections:

a) Connect the transponder output port (with the 15-dB attenuator) to the Line RX port of the booster amplifier (OPT-BST, OPT-BST-E, OPT-AMP-C, OPT-AMP-17-C, or OSC-CSM) of Side x.

b) Connect the optical power meter to the LINE-TX port of the booster amplifier (OPT-BST, OPT-BST-E, OPT-AMP-C, OPT-AMP-17-C, or OSC-CSM) of Side x.

c) Use a fiber to connect the 40-DMX-C TX port to the 40-MUX-C RX port for the selected wavelength yyyy.yy in the 15454-PP-80-LC patch panel for Side x.

Step 12 In node view (single-shelf mode) or multishelf view (multishelf mode), click the **Provisioning** > **WDM-ANS** > **Provisioning** tabs. Complete the following:

a) Record the actual values of the following parameters:
   - Power on the COM-TX port of preamplifier on Side X
   - Power on the COM-RX port of the 40-WXC-C card on Side X
   - Power on the COM-TX port of the 40-WXC-C card on Side X
   - Power on the LINE-TX port of the booster amplifier on Side X

b) Set the previous values of the parameters as follows:
   - Power on the COM-TX port of preamplifier on Side X = **+8 dBm**
   - Power on the COM-RX port of the 40-WXC-C card on Side X = **+8 dBm**
   - Power on the COM-TX port of the 40-WXC-C card on Side X = **–18 dBm**
   - Power on the LINE-TX port of the booster amplifier on Side X = **–1 dBm**

c) Click **Apply**.

Step 13 In node view (single-shelf mode) or multishelf view (multishelf mode), click the **Provisioning** > **WDM-ANS** > **Port Status** tabs. Click **Launch ANS**.

Step 14 In card view, display the 40-DMX-C card for Side x and complete the following:
a) Click the **Provisioning** > **Optical Line** > **Parameters** tabs and record the VOA Attenuation Ref. value y.
b) Set the VOA Attenuation Calib. to –y.
c) Choose **OOS,MT** (ANSI) or **Locked,maintenance** (ETSI) from the Admin State drop-down list.
d) Click Apply.

Step 15 In card view, display the 40-MUX-C card for Side x. Click the **Provisioning** > **Optical Line** > **Parameters** tabs, and choose **OOS,MT** (ANSI) or **Locked,maintenance** (ETSI) from the Admin State drop-down list. Click **Apply**.

Step 16 In card view, display the booster amplifier card for Side x. Click the **Inventory** > **Info** tabs and record the IL02 (LINE RX->COM TX) insertion loss value.

Step 17 In card view, display the transponder card and click the **Provisioning** > **Line** tabs. For trunk port, choose **OOS,MT** (ANSI) or **Locked,maintenance** (ETSI) from the Admin State drop-down list and click **Apply**.

Step 18 In card view, display the booster amplifier card for Side x, and complete the following:
a) Click the **Provisioning** > **Optical Line** > **Parameters** tabs and record the Power value of the COM-TX port.
b) Verify the power value of the COM-TX port = (Optical power meter value in Step 8) – (LINE RX->COM TX insertion loss value read in Step 16) (+\– 1 dB).

Step 19 In card view, display the preamplifier card (OPT-PRE, OPT-AMP-C, or OPT-AMP-17C) for Side x and complete the following:
a) Click the **Provisioning** > **Optical Line** > **Parameters** tabs and record the Power value of the COM-RX port.
b) Verify that the COM-RX power value matches the value in Step 18b (+\– 1 dB).
c) Click the **Provisioning** > **Opt. Ampli. Line** > **Parameters** tabs and record the Total Output Power value of the COM-TX port.
d) Verify that the value is +8 dBm (+\– 1 dB).

Step 20 In card view, display the 40-WXC-C card for Side x and complete the following:

a) Click the **Provisioning** > **Optical Line** > **Parameters** tabs and record the Power value of the COM-RX port.
b) Verify that the value matches the COM-TX port power value in Step 19c (+/- 1dB).
c) Click the **Inventory** > **Info tabs** and record the CRX -> EXP insertion loss.
d) Record the CRX -> DROP insertion loss.
e) Click the **Provisioning** > **Optical Line** > **Parameters** tabs and record the Power value of the EXP-TX port.
f) On the same screen, record the Power value of the DROP-TX port.
g) Verify that the EXP-TX Power value in Step 20e = (COM-RX value in Step 20a) – (CRX -> EXP value in Step 20c) (+\– 1 dB).
h) Verify that the DROP-TX value in Step 20f = (COM-RX value in Step 20a) – (CRX -> DROP value in Step 20d) (+\– 1 dB).

Step 21 In card view, display the 40-DMX-C card for Side x and complete the following:

a) Click the **Provisioning** > **Optical Line** > **Parameters** tabs and record the Power value of the COM-RX port.
b) Verify that the COM-RX power value in Step a matches the value in Step 20f (+\– 1 dB).
c) Click the **Inventory** > **Info** tabs and record the 1RX -> xTX insertion loss (where *x* is the channel number associated with *yyyy.yy* wavelength).
d) Click the **Provisioning** > **Optical Chn** > **Parameters** tabs and record the Power value of the CHAN-TX port associated with yyyy.yy wavelength.
e) Verify that the CHAN-TX port Power value = (COM-RX power value in Step 21a) – (1RX -> *x*TX insertion loss value in Step 21c) (+\– 1 dB).

Step 22 In card view, display the 40-MUX-C card for Side x and complete the following:

a) Click the **Provisioning** > **Optical Chn** > **Parameters** tabs and record the Power value of the CHAN-RX port associated with the selected yyyy.yy wavelength.
b) Verify that the CHAN-RX value in Step 22a = (CHAN-TX value in Step 21d) (+\– 1.5 dB).
c) Click the **Inventory** > **Info** tabs and record the xRX -> 1TX insertion loss (where x is the channel number associated with yyyy.yy wavelength).
d) Click the **Provisioning** > **Optical Line** > **Parameters** tabs, record the Power value of the COM-TX port.
e) Verify that the COM-TX Power value = (CHAN-RX value in Step 22a) – (yRX -> 1TX value in Step 22c) (+\– 1 dB).

Step 23 In card view, display the 40-WXC-C card for Side x and complete the following:

a) Click the **Maintenance** > **OCHNC** tabs, and in the Insert Value section, set the available parameters as follows:

- Target Power (dBm) = `-18.0`

  Note The target power is not set if the power value is higher than the channel power that is allocated and equalized.

- Input port = `9` (ADD-RX)
- VOA Attenuation (dB) = `13`
- Wavelength = yyyy.yy (wavelength selected in Step 6)

b) Click **Apply**.

c) In the Return Value COM-TX section on selected Wavelength area, click **Refresh** and verify that the Actual Power (dBm) is the Target Power from Step 23a +\– 0.5 dB. If the channel does not come up, reduce VOA Attenuation by 5dB in Step 23a until the target power is reached.
d) Click the **Provisioning** > **Optical Line** > **Parameters** tabs and record the Power value of the COM-TX port.
e) Verify that the COM-TX Power value matches the Actual Power value in Step 23c (+\– 1 dB).

Step 24 In card view, display the booster amplifier card for Side x, and complete the following:

a) Click the **Provisioning** > **Optical Line** > **Parameters** tabs and record the Power value of the COM-RX port.
b) Verify COM-RX Power value matches the COM-TX Power value in Step 23d (+\– 1 dB).
c) Click the **Provisioning** > **Opt. Ampli. Line** > **Parameters** tabs and record the Power value of the LINE-TX port.
d) Verify that the LINE-TX value matches the power on the LINE-TX port of the booster amplifier on Side **x** recorded in Step 12b (+\– 1 dB).
e) Record the optical power meter value.
f) Verify that the optical power meter value matches the LINE-TX value in Step 24c (+\– 1 dB).

Step 25 Select the 40-WXC-C card on Side **n** where **n** is A, B, C, D, E, F, G, or H but n is not equal to x, go to the card view and complete the following:

a) Click the **Maintenance** > **OCHNC** tabs, and in the Insert Values section, set the available parameters as follows:

- Target Power (dBm) = **-22.0**

Note The target power is not set if the power value is higher than the channel power that is allocated and equalized.

- Input port = x (EXP-RX)
- VOA Attenuation (dB) = **20**
- Wavelength = yyyy.yy (wavelength selected in Step 6)

b) Click **Apply**.
c) In the Return Value COM-TX on selected Wavelength area, click Refresh and verify that the Actual Power (dBm) is Target Power of Step 25a +\– 0.5 dB. If the channel does not come up, reduce VOA Attenuation by 5dB in Step 25a until the target power is reached.
d) Click the **Provisioning** > **Optical Line** > **Parameters** tabs and record the Power value of the COM-TX port.
e) Verify that the value of the COM-TX port matches the Actual Power value in Step 25c (+\– 1 dB).
f) Click the **Maintenance** > **OCHNC** tabs. In the Return Value COM-TX on selected Wavelength area, click **Refresh** and then **Delete**.

Step 26 Repeat Step 25 for all the others of Side n, where n is A, B, C, D, E, F, G, or H but n not equal to x.

Step 27 In card view, display the 40-WXC-C card for Side x and click the Maintenance > OCHNC tabs. In the Return Value COM-TX on selected Wavelength area, click Refresh and then Delete.

Step 28 In card view, display the transponder card and click the **Provisioning** > **Line** tabs. For trunk port, choose **OOS,DSBLD** (ANSI) or **Locked,disabled** (ETSI) from the Admin State drop-down list. Click **Apply**.

Step 29 To test all wavelengths, repeat Step 6 through Step 28 for each wavelength. In Step 6, set the wavelength to the next odd wavelength.

Step 30 Disconnect the optical power meter from the LINE-TX port of the booster amplifier of the Side x.

Step 31 Disconnect the transponder output port (with the 15-dB attenuator) from the LINE-RX port of the booster amplifier of the Side x.

Step 32 In card view, display the 40-DMX-C card for Side x and click the Provisioning > Optical Line > Parameters tabs. Complete the following:

a) Choose IS,AINS (ANSI) or Unlocked,automaticInService (ETSI) from the Admin State drop-down list.
b) Change the VOA Attenuation Calib. from the existing value to 0 (zero).
c) Click **Apply**.

Step 33 In card view, display the 40-MUX-C card for Side x and click the Provisioning > Optical Line > Parameters tabs. Choose IS,AINS (ANSI) or Unlocked,automaticInService (ETSI) from the Admin State drop-down list and click **Apply**.

Step 34 In node view (single-shelf mode) or multishelf view (multishelf mode), click the **Provisioning** > **WDM-ANS** > **Parameters** tabs and restore the values recorded in Step 12a for the following parameters:

- Power on the COM-TX port of preamplifier on Side X
- Power on the COM-RX port of the 40-WXC-C on Side X
- Power on the COM-TX port of the 40-WXC-C on Side X
- Power on the LINE-TX port of the booster amplifier on Side X

Step 35 Repeat Steps 4 through 34 for all the others sides that are being installed.

Step 36 In node view (single-shelf mode) or multishelf view (multishelf mode), click the **Provisioning** > **WDM-ANS** > **Port Status** tabs. Click **Launch ANS**.

Stop. You have completed this procedure.

NTP-G189 Performing the Node Upgrade Acceptance Test

Purpose	This procedure checks the connections and the output power values for a node in an upgraded ring. The upgraded node connects an existing in-service ROADM node with two sides (each equipped with MMU cards) to a native mesh node with two sides.
Tools/Equipment	Fully C-band tunable transponder or tunable laser source with an LC patchcord 1 15-dB LC attenuator 1 optical power meter with LC input connector 2 LC-LC patchcords (or at least one for each native side) 1 LC-LC adapter

Prerequisite Procedures	• Complete the Turn Up a Node chapter • All sides completely wired (including patch panels), except the connections with the MMU cards in the existing in-service ROADM node; for more information, see the Turn Up a Node chapter • NTP-G186 Performing the Four-Degree and Eight-Degree Mesh Patch Panel Acceptance Test • DLP-G46 Log into CTC
Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	Superuser only

Procedure

Step 1 From the View menu, choose **Go to Network View**.

Step 2 Click the **Alarms** tab.

a) Verify that the alarm filter is not on. Complete the "DLP-G128 Disable Alarm Filtering" task 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 the *Cisco NCS 2000 Series Troubleshooting Guide* for procedures.

Step 3 Insert a full C-band tunable transponder into an available slot for the node that you want to test.

Step 4 Plug a 15-dB LC attenuator to the TX port of the transponder.

Step 5 Complete the DLP-G432 Setting the Transponder Wavelength to tune the transponder to a wavelength yyyy.yy that is not used in any of the sides already carrying traffic (or 1530.33 nm if it is a new installation).

Step 6 Complete the DLP-G433 Recordinging Transponder Optical Power.

Step 7 Disconnect the optical power meter from the TX port of the transponder card.

Step 8 Make the following connections:

a) Connect the transponder card output port (with the 15-dB attenuator) to the COM-RX port of the 40-WXC-C card on Side A.

b) Connect the optical power meter to the COM-TX port of the 40-WXC-C card on Side A.

c) Connect, using the LC-LC adapter, the patchcord from the COM-TX port with the patchcord from the COM-RX port of the Side B 40-WXC-C card.

Step 9 In node view (single-shelf mode) or multishelf view (multishelf mode), click the **Provisioning** > **WDM-ANS** > **Provisioning** tabs. Complete the following:

a) Record the values of the following parameters:

- Power on the COM-TX port of the preamplifier on Side A
- Power on the COM-RX port of the 40-WXC-C card on Side A
- Power on the COM-TX port of the 40-WXC-C card on Side A

- Power Fail Low Th on the COM-RX port of the preamplifier on Side A
- Power on the COM-TX port of the preamplifier on Side B
- Power on the COM-RX port of the 40-WXC-C card on Side B
- Power on the COM-TX port of the 40-WXC-C card on Side B
- Power Fail Low Th on the COM-RX port of the preamplifier on Side B

b) Change the values of the parameters as follows:

- Power on the COM-TX port of the preamplifier on Side A = **1 dBm**
- Power on the COM-RX port of the 40-WXC-C card on Side A = **-15 dBm**
- Power on the COM-TX port of the 40-WXC-C card on Side A = **-15 dBm**
- Power Fail Low Th on the COM-RX port of the preamplifier on Side A = **-30 dBm**
- Power on the COM-TX port of the preamplifier on Side B = **1 dBm**
- Power on the COM-RX port of the 40-WXC-C card on Side B = **-15 dBm**
- Power on the COM-TX port of the 40-WXC-C card on Side B = **-15 dBm**
- Power Fail Low Th on the COM-RX port of the preamplifier on Side B = **-30 dBm**

c) Click **Apply**.

d) In node view (single-shelf mode) or multishelf view (multishelf mode), click the **Provisioning** > **WDM-ANS** > **Port Status** tabs. Click **Launch ANS**.

Step 10 Display card view for the OPT-AMP-17 card on Side A and click the **Provisioning** > **Card** tabs. From the Working Card Mode drop-down list, verify that OPT-PRE appears and if not, choose it. Click **Apply**. Repeat for Side B.

Step 11 Display card view for the transponder card and click the **Provisioning** > **Line** tabs. Choose **IS** (ANSI) or **Unlocked**(ETSI) from the Admin State drop-down list and click **Apply**.

Step 12 In card view, display the 40-WXC-C card of Side A and complete the following:

a) Click the **Provisioning** > **Optical Line** > **Parameters** tabs. Record the Power value of the COM-RX port.

b) Verify that the COM-RX value matches the transponder card optical power meter value recorded in Step 6 (+\– 1 dB).

c) Click the **Inventory** > **Info** tabs and record the CRX -> EXP insertion loss.

d) Click the **Provisioning** > **Optical Line** > **Parameters** tabs and record the Power value of the EXP-TX port.

e) Verify that the EXP-TX port power value = (COM-RX port power value in Step a) - (EXP-TX Power value in Step d) (+\– 1 dB).

Step 13 In card view, display the OPT-AMP-17 card for Side A and complete the DLP-G434 Recording the OPT-AMP-17-C Power Value.

Step 14 In card view, display the 40-WXC-C card for Side B and complete the following:

a) Complete the DLP-G435 Setting the 40-WXC-C OCHNC Parameters. Set the Input Port on the **Maintenance** > **OCHNC** > **Insert Value** tabs to 1.

b) Click the **Provisioning** > **Optical Line** > **Parameters** tabs and record the Power value of the COM-TX port.
c) Click the **Provisioning** > **Optical Line** > **Parameters** tabs and record the Power value of the COM-RX port.
d) Verify that the COM-RX Power value matches the COM-TX port Power value in b (+\– 1 dB).
e) Click the **Provisioning** > **Optical Line** > **Parameters** tabs and record the Power value of the EXP-TX port.
f) Click the **Inventory** > **Info** tabs and record the CRX -> EXP insertion loss value.
g) Verify that the EXP-TX port power value = (COM-RX port power value) - (CRX -> EXP insertion loss value) (+\– 1 dB)

Step 15 In card view, display the OPT-AMP-17 card for Side B and complete the DLP-G434 Recording the OPT-AMP-17-C Power Value task.

Step 16 In card view, display the 40-WXC-C for Side A and complete the DLP-G435 Setting the 40-WXC-C OCHNC Parameters task. Set the Input Port on the **Maintenance** > **OCHNC** > **Insert Value** tabs to 2.

Step 17 In card view, display the 40-WXC-C for Side C and complete the DLP-G435 Setting the 40-WXC-C OCHNC Parameters task. Set the Input Port on the **Maintenance** > **OCHNC** > **Insert Value** tabs to 1.

Step 18 In card view, display the 40-WXC-C for Side D and complete the DLP-G435 Setting the 40-WXC-C OCHNC Parameters task. Set the Input Port on the **Maintenance** > **OCHNC** > **Insert Value** tabs to 1.

Step 19 In card view, display the 40-WXC-C for Side A and click the **Maintenance** > **OCHNC** tabs. In the Return Value COM-TX on selected Wavelength area, click **Refresh** and then **Delete**. Repeat for Sides B, C, and D of the 40-WXC-C card.

Step 20 Display card view for the transponder card and choose **OOS,DSBLD** (ANSI) or **Locked,disabled** (ETSI) from the Admin State drop-down list.

Step 21 Disconnect the patchcord in the COM-TX port from the patchcord in the COM-RX port of Side B of the 40-WXC-C card.

Step 22 Connect, using the LC-LC adapter, the patchcord from the COM-TX port with the patchcord in the COM-RX port for Side A of the 40-WXC-C card.

Step 23 Complete the DLP-G432 Setting the Transponder Wavelength task to tune the transponder to the wavelength set in Step 5.

Step 24 Connect the transponder card output port (with the 15-dB attenuator) to the COM-RX port of the 40-WXC-C card on Side B.

Step 25 Display card view for the transponder card. Click the **Provisioning** > **Line** tabs, and choose **IS** (ANSI) or **Unlocked** (ETSI) from the Admin State drop-down list.

Step 26 In card view, display the 40-WXC-C card for Side A and complete the DLP-G435 Setting the 40-WXC-C OCHNC Parameters task. Set the Input Port on the **Maintenance** > **OCHNC** > **Insert Value** tabs to 2.

Step 27 In card view, display the 40-WXC-C for Side B and complete the DLP-G435 Setting the 40-WXC-C OCHNC Parameters task. Set the Input Port on the **Maintenance** > **OCHNC** > **Insert Value** tabs to 1.

Step 28 In card view, display the 40-WXC-C for Side C and complete the DLP-G435 Setting the 40-WXC-C OCHNC Parameters task. Set the Input Port on the **Maintenance** > **OCHNC** > **Insert Value** tabs to 2.

Step 29 In card view, display the 40-WXC-C for Side D and complete the DLP-G435 Setting the 40-WXC-C OCHNC Parameters task. Set the Input Port on the **Maintenance** > **OCHNC** > **Insert Value** tabs to 2.

Step 30 In card view, display the 40-WXC-C for Side B and click the **Maintenance** > **OCHNC** tabs. In the Return Value COM-TX on selected Wavelength area, click **Refresh** and then **Delete**. Repeat for Sides A, C, and D of the 40-WXC-C card.

Step 31 Display the card view for the transponder card. Click the **Provisioning** > **Line**tabs, and choose **OOS,DSBLD** (ANSI) or **Locked,disabled** (ETSI) from the Admin State drop-down list.

Step 32 In node view (single-shelf mode) or multishelf view (multishelf mode), click the **Provisioning** > **WDM-ANS** > **Provisioning**tabs. Restore the values recorded in Step 9a for the following parameters:

- Power on the COM-TX port of the preamplifier on Side A
- Power on the COM-RX port of the 40-WXC-C card on Side A
- Power on the COM-TX port of the 40-WXC-C card on Side A
- Power Fail Low Th on the COM-RX port of the preamplifier on Side A
- Power on the COM-TX port of the preamplifier on Side B
- Power on the COM-RX port of the 40-WXC-C card on Side B
- Power on the COM-TX port of the 40-WXC-C card on Side B
- Power Fail Low Th on the COM-RX port of the preamplifier on Side B

Step 33 In node view (single-shelf mode) or multishelf view (multishelf mode), click the **Provisioning** > **WDM-ANS** > **Port Status** tabs. Click **Launch ANS**.

Step 34 Disconnect the patchcord in the COM-TX port from the patchcord in the COM-RX port of Side A of the 40-WXC-C card.

Step 35 Make the following connections:

a) Connect the transponder output port (with the 15-dB attenuator) to the LINE-RX port of the booster amplifier of Side C.
b) Connect the optical power meter to the LINE-TX port of the booster amplifier of Side C.
c) Connect the client TX of lambda yyyy.yy to the client RX of lambda yyyy.yy on the Side C patch panel.

Step 36 In node view (single-shelf mode) or multishelf view (multishelf mode), click the **Provisioning** > **WDM-ANS** > **Provisioning**tabs and complete the following:

a) Record the actual values of the following parameters:
   - Power on the COM-TX port of the preamplifier on Side X
   - Power on the COM-RX port of the 40-WXC-C card on Side X
   - Power on the COM-TX port of the 40-WXC-C card on Side X
   - Power on the LINE-TX port of the booster amplifier on Side X

b) Set the values of the parameters as follows:
   - Power on the COM-TX port of the preamplifier on Side X = **8 dBm**
   - Power on the COM-RX port of the 40-WXC-C card on Side X = **8 dBm**
   - Power on the COM-TX port of the 40-WXC-C card on Side X = **-18 dBm**
   - Power on the LINE-TX port of the booster amplifier on Side X = **-8 dBm**

c) Click **Apply**.

Step 37 In node view (single-shelf mode) or multishelf view (multishelf mode), click the **Provisioning** > **WDM-ANS** > **Port Status** tabs. Click **Launch ANS**.

Step 38 In card view, display the 40-DMX-C card for Side C and complete the following:

a) Click the **Provisioning** > **Optical Line** > **Parameters** tabs and record the VOA Attenuation Ref. value y.
b) Set the VOA Attenuation Calib. to **-y**.
c) Choose **OOS,MT** (ANSI) or **Locked,maintenance** (ETSI) from the Admin State drop-down list.
d) Click Apply.

Step 39 In card view, display the 40-MUX-C card for Side C and click the **Provisioning** > **Optical Line** > **Parameters**tabs. Choose **OOS,MT** (ANSI) or **Locked,maintenance** (ETSI) from the Admin State drop-down list and click **Apply**.

Step 40 In card view, display the booster amplifier card for Side C. Click the **Inventory** > **Info** tabs and record the LINE-RX -> COM TX insertion loss.

Step 41 Display the transponder card in card view and click the **Provisioning** > **Line** tabs. Choose **IS** (ANSI) or **Unlocked** (ETSI) from the Admin State drop-down list and click **Apply**.

Step 42 In card view, display the booster amplifier card for Side C and complete the following:

a) Click the **Provisioning** > **Optical Line** > **Parameters**tabs and record the Power value of the COM-TX port.
b) Verify the COM-TX Power value = (Optical power meter value) – (LINE RX -> COM TX insertion loss value in Step 40) (+\– 1 dB).

Step 43 In card view, display the preamplifier card for Side C and complete the following:

a) Click the **Provisioning** > **Optical Line** > **Parameters** tabs and record the Power value of the COM-RX port.
b) Verify that the COM-RX Power value matches the COM-TX port Power value in Step 42a (+\– 1 dB).
c) Click the **Provisioning** > **Opt. Ampli. Line** > **Parameters** tabs and record the Total Output Power value of the COM-TX port.
d) Verify that the COM-TX Total Output Power value is 8 dBm (+\– 1 dB).

Step 44 In card view, display the 40-WXC-C card for Side C and complete the following:

a) Click the **Provisioning** > **Optical Line** > **Parameters** tabs and record the Power value of the COM-RX port.
b) Verify that the COM-RX power value matches the Total Output Power value of the COM-TX port value in Step 43c (+\– 1 dB).
c) Click the **Inventory** > **Info** tabs and record the CRX -> EXP insertion loss.
d) Record the CRX -> DROP insertion loss.
e) Click the **Provisioning** > **Optical Line** > **Parameters** tabs and record the Power value of the EXP-TX port.
f) Click the **Provisioning** > **Optical Line** > **Parameters** tabs and record the Power value of the DROP-TX port.
g) Verify that the EXP-TX Power value in Step e = (COM-RX value in Step a) - (CRX -> EXP value in Step c) (+\– 1 dB).
h) Verify that the DROP-TX value in Step f = (COM-RX value in Step a) - (CRX -> DROP value in Step d) (+\– 1 dB).

Step 45 In card view, display the 40-DMX-C card for Side C and complete the following:

a) Click the **Provisioning** > **Optical Line** > **Parameters** tabs and record the Power value of the COM-RX port.
b) Verify that the COM-RX port Power value in Step a matches the COM-TX port Power value in Step 44b (+\– 1 dB).

c) Click the **Inventory** > **Info** tabs and record the 1RX -> yTX insertion loss (where y is the channel number associated with yyyy.yy wavelength).
d) Click the **Provisioning** > **Optical Chn** > **Parameters** tabs and record the Power value of the CHAN-TX port associated with yyyy.yy wavelength.
e) Verify that the CHAN-TX Power value = (COM-RX Power value in Step a) - (1RX -> yTX insertion loss value in Step c) (+\– 1 dB).

Step 46 In card view, display the 40-MUX-C card for Side C and complete the following:
a) Click the **Provisioning** > **Optical Chn** > **Parameters** tabs and record the Power value of the CHAN-RX port associated with yyyy.yy wavelength.
b) Verify that the CHAN-RX value matches the CHAN-TX Power value in Step 45d (+\– 1.5 dB).
c) Click the **Inventory** > **Info** tabs and record the yRX -> 1TX insertion loss (where y is the channel number associated with yyyy.yy wavelength).
d) In the **Provisioning** > **Optical Line** > **Parameters** tabs, record the Power value of the COM-TX port.
e) Verify that the COM-TX Power value = (CHAN-RX Power value in Step a) – (yRX -> 1TX insertion loss value in Step c) (+\– 1 dB).

Step 47 In card view, display the 40-WXC-C card for Side C, and complete the following:
a) Click the **Maintenance** > **OCHNC** > **Insert Value** tabs, and set the available parameters as follows:
- Target Power (dBm) = `-18.0`

Note The target power is not set if the power value is higher than the channel power that is allocated and equalized.

- Input port = `9` (ADD-RX)
- VOA Attenuation (dB) = `13`
- Wavelength = yyyy.yy (value set in Step 5)

b) Click **Apply**.
c) Click the **Maintenance** > **OCHNC** tabs. In the Return Value COM-TX on selected Wavelength area, click Refresh and verify that the Actual Power (dBm) is –18 +\– 0.5 dB.
d) Click the **Provisioning** > **Optical Line** > **Parameters** tabs and record the Power value of the COM-TX port.
e) Verify that the COM-TX Power value matches the Actual Power value in Step c (+\– 1 dB).

Step 48 In card view, display the booster amplifier card for Side C, and complete the following:
a) Click the **Provisioning** > **Optical Line** > **Parameters** tabs and record the Power value of the COM-RX port.
b) Click the **Provisioning** > **Opt. Ampli. Line** > **Parameters** tabs and record the Power value of the LINE-TX port.
c) Verify that the LINE-TX value matches the Side C Tx Amplifier Ch Power recorded in Step 36a (+\– 1 dB).
d) Record the optical power meter value.
e) Verify that the optical power meter value matches the LINE-TX Power value in Step b (+\– 1 dB).

Step 49 In card view, display the 40-WXC-C card for Side C, and click the **Maintenance** > **OCHNC** tabs. In the Return Value COM-TX on selected Wavelength area, click **Refresh** and then **Delete**.

Step 50 Display Side A of the 40-WXC-C card in card view, and complete the following:
a) Click the **Maintenance** > **OCHNC** > **Insert Value** tabs, and set the available parameters as follows:

- Target Power (dBm) = **-18.0**

  Note The target power is not set if the power value is higher than the channel power that is allocated and equalized.

- Input port = **3** (EXP-RX)
- VOA Attenuation (dB) = **13**
- Wavelength = yyyy.yy (value set in Step 5)

b) Click **Apply**.
c) In the Return Value COM-TX on selected Wavelength area, click Refresh and verify that the Actual Power (dBm) is –18 +\– 0.5 dB.
d) Click the **Provisioning** > **Optical Line** > **Parameters** tabs and record the Power value of the COM-TX port.
e) Verify that the value of the COM-TX port matches the Actual Power value in Step c (+\– 1 dB).
f) Click the **Maintenance** > **OCHNC** tabs. In the Return Value COM-TX on selected Wavelength area, click **Refresh** and then **Delete**.

Step 51 Repeat Step 50 for the 40-WXC-C card of Side B.

Step 52 Repeat Step 50 for the 40-WXC-C card of Side D.

Step 53 Display card view for the transponder card and choose **OOS,DSBLD** (ANSI) or **Locked,disabled** (ETSI) from the Admin State drop-down list.

Step 54 Connect the transponder output port (with the 15-dB attenuator) to the Line RX port of the booster amplifier of Side D.

Step 55 Complete the DLP-G432 Setting the Transponder Wavelength task to tune the transponder to the next odd wavelength after yyyy.yy nm.

Step 56 Disconnect the patchcord between the client TX of lambda yyyy.yy from the client RX of lambda yyyy.yy on the Side C patch panel. Use this patchcord to connect the client TX of lambda yyyy.yy to the client RX of lambda yyyy.yy on the Side D patch panel. Note that yyyy.yy was recorded in Step 5.

Step 57 Repeat Steps 36 to 50 for Side D.

Step 58 Display Side A of the 40-WXC-C card in card view, and complete the following:

a) Click the **Maintenance** > **OCHNC** > **Insert Value** tabs, and set the available parameters as follows:

- Target Power (dBm) = **-18.0**

  Note The target power is not set if the power value is higher than the channel power that is allocated and equalized.

- Input port = **4** (EXP-RX)
- VOA Attenuation (dB) = **13**
- Wavelength = yyyy.yy (value set in Step 5)

b) Click **Apply**.
c) In the Return Value COM-TX on selected Wavelength area, click **Refresh** and verify that the Actual Power (dBm) is –18 +\– 0.5 dB.
d) Click the **Provisioning** > **Optical Line** > **Parameters** tabs and record the Power value of the COM-TX port.

e) Verify that the value of the COM-TX port matches the Actual Power value in Step c (+\– 1 dB).
f) Click the **Maintenance** > **OCHNC** tabs. In the Return Value COM-TX on selected Wavelength area, click **Refresh** and then **Delete**.

Step 59 Repeat Step 58 for the 40-WXC-C card of Side B.

Step 60 Repeat Step 58 for the 40-WXC-C card of Side C.

Step 61 Disconnect the optical power meter from the LINE-TX port of the booster amplifier of Side D.

Step 62 Disconnect the transponder output port (with the 15-dB attenuator) from the LINE-RX port of the booster amplifier of the Side x.

Step 63 In card view, display the 40-DMX-C card for Side C, and complete the following:

a) Click the **Provisioning** > **Optical Line** > **Parameters** tabs.
b) Choose **IS,AINS** (ANSI) or **Unlocked,automaticInService** (ETSI) from the Admin State drop-down list.
c) Set the VOA Attenuation Calib to 0 (zero).
d) Click **Apply**.

Step 64 In card view, display the 40-MUX-C card for Side C and click the **Provisioning** > **Optical Line** > **Parameters** tabs. Choose **IS,AINS** (ANSI) or **Unlocked,automaticInService** (ETSI) from the Admin State drop-down list and click **Apply**.

Step 65 Repeat Steps 63 and 64 for Side D.

Step 66 In node view (single-shelf mode) or multishelf view (multishelf mode), click the **Provisioning** > **WDM-ANS** > **Provisioning** tabs and restore the values recorded in Step 36a for the following parameters for Sides C and D:

- Power on the COM-TX port of the preamplifier on Side X
- Power on the COM-RX port of the 40-WXC-C card on Side X
- Power on the COM-TX port of the 40-WXC-C card on Side X

Step 67 In node view (single-shelf mode) or multishelf view (multishelf mode), click the **Provisioning** > **WDM-ANS** > **Port Status** tabs. Click **Launch ANS**.

Step 68 Restore the connections to the MMU cards of the four sides using the patchcords tested in this procedure:

a) Connect the patchcord from the COM-TX port of the 40-WXC-C card on Side A to the EXP-A-RX port of the MMU in the lowest slot of the upgraded ROADM node.
b) Connect the patchcord from the COM-RX port of the 40-WXC-C card on Side A to the EXP-A-TX port of the MMU in the lowest slot of the upgraded ROADM node.
c) Connect the patchcord from the COM-TX port of the 40-WXC-C card on Side B to the EXP-A-RX port of the MMU in the highest slot of the upgraded ROADM node.
d) Connect the patchcord from the COM-RX port of the 40-WXC-C card on Side B to the EXP-A-TX port of the MMU in the highest slot of the upgraded ROADM node.

Stop. You have completed this procedure.

NTP-G243 Performing the Two-Degree ROADM Node with 40-SMR-1-C and OPT-AMP-17-C Cards Acceptance Test

Purpose	This procedure tests a two-degree ROADM node with 40-SMR-1-C and OPT-AMP-17-C cards installed.
Tools/Equipment	One of the following: • A tunable laser • TXP_DME_10E_C An optical power meter or optical spectrum analyzer Two bulk attenuators (10 dB) with LC connectors
Prerequisite Procedures	• NTP-G143 Importing the Cisco Transport Planner NE Update Configuration File • NTP-G30 Installing the DWDM Cards • NTP-G34 Installing Fiber-Optic Cables on DWDM Cards and DCUs • NTP-G37 Running Automatic Node Setup • DLP-G46 Log into CTC
Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	Superuser only

Procedure

Step 1 On the 40-SMR-1-C card on Side A, do the following steps:

a) Remove the LC connectors between the ADD/DROP ports of the 40-SMR-1-C card and the MUX and DMX units.

b) Create a physical loopback by connecting a fiber optic jumper between the ADD and DROP ports.

Step 2 Retrieve the power set point of the DROP-TX port of the 40-SMR-1-C card on Side A. To view this set point, do the following:

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 40-SMR-1-C card on Side A.

c) Expand the Port DROP-TX category.

d) Select Power.

e) Record the value of the Shelf *i* Slot *i* (40-SMR-1-C).Port DROP-TX.Power parameter in the right pane.

f) If the value of the Power set point is greater than -6dBm, continue with Step 3, else edit the Power set point to -6dBm and complete the NTP-G37 Running Automatic Node Setup task.

This will ensure there is enough power to perform the optical validation procedure.

Step 3 Display the OPT-AMP-17-C on Side A in card view, and complete the following steps:

a) Click the **Maintenance** > **ALS** tabs.

b) From the ALS Mode pull-down menu, select **Disable**.

Step 4 Connect a tunable laser or a fully tunable TXP_DME_10E_C card to the LINE RX port of the OPT-AMP-17-C card on Side A. Connect a 10dB bulk attenuator to the fiber or regulate the output power of the tunable laser to -10dBm.

Step 5 Create an OCHNC DCN for channel 1 on Side A related to the ADD-DROP path using the DLP-G105 Provisioning Optical Channel Network Connections task. The circuit must be bidirectional connecting the ADD-RX port of the 40-SMR-1-C card to the LINE-TX port of the OPT-AMP-17-C card and vice-versa (LINE-RX port of the OPT-AMP-17-C card to the DROP-TX port of the 40-SMR-1-C card)

Step 6 Set the tunable laser or the TXP_DME_10E_C card to the first wavelength of the 100-GHz ITU-T C-band grid (1530.33 nm) and place the trunk port of the TXP_DME_10E_C card in the In-Service (IS) state.

Step 7 Verify the power levels of channel 1 by performing the following steps:

a) Check the optical connection between the OPT-AMP-17-C and 40-SMR-1-C cards. The power difference between the COM-TX port of OPT-AMP-17-C and the LINE-RX port of 40-SMR-1-C must not exceed of +/- 1.5dB.

b) Check the following parameters of the RX-amplifier in the 40-SMR-1-C card:

- The Working mode on the EXP-TX port must be the same as the ANS set point value that is set to Gain.
- The total power on the EXP-TX port must be equal to Channel Power Ref. with a tolerance +/-1.5dB.
- The DCU insertion loss must be equal to the power difference between the DC-TX and DC-RX ports and the absolute value of the DCU insertion loss must be less than 11dB.

c) Check the parameters of the drop VOA in the 40-SMR-1-C card. The value of the VOA Attenuation parameter on the DROP-TX port must be equal to the value of the VOA Attenuation Ref. parameter with a tolerance of +/-1.0dB.

d) Check the following parameters of the add VOA in the 40-SMR-1-C card:

- In the card view, click the **Provisioning** > **OCH** > **Parameters** tabs.
- Select the first channel from the Wavelength drop-down list and click **Retrieve**. The optical path from the ADD-RX port to the LINE-TX port is highlighted.
- Verify if the value of the Power To parameter is the same as that of the VOA Power Ref. parameter with a tolerance +/-1.0dB.

e) Check the optical connection between the 40-SMR-1-C and OPT-AMP-17-C card. The power difference between the LINE-TX port of the 40-SMR-1-C card and the COM-RX port of the OPT-AMP-17-C card must not exceed +/- 1.5dB.

f) Check the following parameters of the OPT-AMP-17-C card:

- The Working mode on the LINE-TX port must be the same as the ANS set point value that is set to Gain.

- The value of the Gain parameter must be equal to the Gain set point +/-1.0dB. The gain set point for the OPT-AMP-17-C card is 17dB.

Step 8 Delete the OCHNC DCN circuit for channel 1 on Side A that is related to the ADD-DROP path created in Step 5 using the DLP-G106 Deleting Optical Channel Network Connections task.

Step 9 Create an OCHNC DCN circuit for channel 1 on Side A related to the EXP path using the DLP-G105 Provisioning Optical Channel Network Connections task. The circuit must be bidirectional and connects the LINE-RX port of the OPT-AMP-17-C card on Side A to the LINE-TX port of the OPT-AMP-17-C card on Side B.

Step 10 Verify the power levels of channel 1 by performing the following steps:

a) Check the optical connection between the OPT-AMP-17-C and 40-SMR-1-C card on Side A. The power difference between the COM-TX port of OPT-AMP-17-C and the LINE-RX port of 40-SMR-1-C must not exceed +/- 1.5dB.

b) Check the following parameters of the RX-amplifier in the 40-SMR-1-C card:

- The Working mode on the EXP-TX port must be the same as the ANS set point value that is set to Gain.
- The total power on the EXP-TX port must be equal to Channel Power Ref. with a tolerance +/-1.5dB.
- The DCU insertion loss must be equal to the power difference between the DC-TX and DC-RX ports and the absolute value of the DCU insertion loss must be less than 11dB.

c) Check the optical connection between 40-SMR-1-C on Side A and 40-SMR-1-C on Side B. The power difference between the EXP-TX port and the EXP-RX port must not exceed +/- 1.5dB.

d) Check the parameters of the pass-through VOA in the 40-SMR-1-C card on Side B:

- In the card view, click the **Provisioning** > **OCH** > **Parameters** tabs.
- Select the first channel from the Wavelength drop-down list and click **Retrieve**. The optical path from the EXP-RX port to the LINE-TX port is highlighted.
- Verify if the value of the Power To parameter is the same as the value of the VOA Power Ref. parameter with a tolerance +/-1.0dB.

e) Check the optical connection between the 40-SMR-1-C and OPT-AMP-17-C card on Side B. The power difference between the LINE-TX port of the 40-SMR-1-C card and the COM-RX port of the OPT-AMP-17-C card must not exceed +/- 1.5dB.

f) Check the following parameters of the OPT-AMP-17-C card on Side B:

- The Working mode on the LINE-TX port must be the same as the ANS set point value that is set to Gain.
- The value of the Gain parameter must be equal to the Gain set point +/-1.0dB. The gain set point for the OPT-AMP-17-C card is 17dB.

Step 11 Turn off the laser or place the trunk port of the TXP card in OutofService (OOS) state and delete the OCHNC DCN circuit on Side A related to channel 1 created in Step 9 using the DLP-G106 Deleting Optical Channel Network Connections task.

Step 12 Set the tunable laser or the TXP_DME_10E_C card to the second wavelength of the 100-GHz ITU-T C-band grid and place the trunk port of the TXP_DME_10E_C card in the In-Service (IS) state. Repeat Step 5 through Step 11 for the second wavelength.

Step 13 Repeat Step 12 for the remaining 38 wavelengths on Side A.

Step 14 Delete the OCHNC DCN circuit related to channel 40 using the DLP-G106 Deleting Optical Channel Network Connections task, and turn off the laser or place the trunk port of the TXP_DME_10E_C card in OutofService (OOS) state.

Step 15 On the 40-SMR-1-C card on Side A, do the following steps:

a) Remove the physical loopback between the ADD and DROP ports on the 40-SMR-1-C card created in Step 1.

b) Reconnect the DROP-TX port to the RX port on the DMX side of the 15216-MD-40-ODD, 15216-EF-40-ODD, or 15216-MD-48-ODD patch panel.

Step 16 On the 15216-MD-40-ODD, 15216-EF-40-ODD, or 15216-MD-48-ODD unit on Side A, do the following steps:

a) Create a physical loopback between the MUX and DMX ports on the 15216-MD-40-ODD, 15216-EF-40-ODD, or 15216-MD-48-ODD unit.

b) Connect the TX port on the MUX side of the 15216-MD-40-ODD, 15216-EF-40-ODD, or 15216-MD-48-ODD unit to a power meter. If the power meter is not available, reconnect the TX port of the 15216-MD-40-ODD, 15216-EF-40-ODD, or 15216-MD-48-ODD unit to the ADD-RX port of the 40-SMR-1-C card on Side A.

Step 17 Create an OCHNC DCN for channel 1 on Side A related to the ADD-DROP path as done in Step 5.

Step 18 Set the tunable laser or the TXP_DME_10E_C card to the first wavelength of the 100-GHz ITU-T C-band grid (1530.33 nm) and place the trunk port of the TXP_DME_10E_C card in the In-Service (IS) state.

Step 19 To verify the insertion loss on the optical path of the 15216-MD-40-ODD, 15216-EF-40-ODD, or 15216-MD-48-ODD unit, do the following steps:

a) Retrieve the power value on the DROP-TX port of the 40-SMR-1-C card and record it as Pin.

b) Measure the optical power on the power meter or the ADD-RX port and record it as Pout.

c) Verify that the power difference between the power values obtained in step 21 a.and step 21 b. does not exceed the insertion loss value specified for the 15216-MD-40-ODD, 15216-EF-40-ODD, or 15216-MD-48-ODD unit. (Pin - Pout must be less than 13dB with a tolerance of 1dB).

Step 20 Turn off the laser or place the trunk port of the TXP card in OutofService (OOS) state and delete the OCHNC DCN circuit on Side A related to channel 1 using the DLP-G106 Deleting Optical Channel Network Connections task.

Step 21 Set the tunable laser or the TXP_DME_10E_C card to the next wavelength of the 100-GHz ITU-T C-band grid (1530.33 nm) and place the trunk port of the TXP_DME_10E_C card in the In-Service (IS) state and repeat Step 17 through Step 20 for the new wavelength.

Step 22 Restore the initial configuration after checking all the 40 available wavelengths:

a) Remove the power meter and reconnect the 15216-MD-40-ODD, 15216-EF-40-ODD, or 15216-MD-48-ODD unit to the ADD-RX port of the 40-SMR-1-C card.

b) Remove the physical loopbacks between the MUX and DMX ports on the 15216-MD-40-ODD, 15216-EF-40-ODD, or 15216-MD-48-ODD unit on Side A.

c) Reset the ALS parameter on the 40-SMR-1-C card. Complete the following:

- In card view, display the 40-SMR-1-C card on Side A and click the **Maintenance** > **ALS** tabs.
- From the ALS Mode pull-down menu, select **Auto Restart**.

d) Import the CTP XML file again using the NTP-G143 Importing the Cisco Transport Planner NE Update Configuration File task to overwrite any manual settings.

e) Complete the task and verify that there are no errors.

Step 23 Repeat all the steps from Step 1 through Step 22 related to Side B.

Stop. You have completed this procedure.

NTP-G244 Performing the Four Degree ROADM Node with 40-SMR-2-C Cards Acceptance Test

Purpose	This procedure tests a four-degree ROADM node with 40-SMR-2-C cards installed.
Tools/Equipment	One of the following: • A tunable laser • TXP_DME_10E_C An optical power meter or optical spectrum analyzer Two bulk attenuators (10 dB) with LC connectors
Prerequisite Procedures	• Complete the NTP-G143 Importing the Cisco Transport Planner NE Update Configuration File task. • Complete the NTP-G30 Installing the DWDM Cards. • Complete the NTP-G34 Installing Fiber-Optic Cables on DWDM Cards and DCUs • NTP-G37 Running Automatic Node Setup • DLP-G46 Log into CTC
Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	Superuser only

Procedure

Step 1 On the 40-SMR-2-C card on Side A, do the following steps:

a) Remove the LC connectors between the ADD/DROP ports of the 40-SMR-2-C card and the MUX and DMX units.

b) Create a physical loopback by connecting a fiber optic jumper between the ADD and DROP ports.

Step 2 Retrieve the power set point of the DROP-TX port of the 40-SMR-2-C card on Side A. To view this set point, do the following:

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

b) In the Selector window on the left, expand the shelf.
c) Expand the 40-SMR-2-C card on Side A.
d) Expand the Port DROP-TX category.
e) Select Power.
f) Record the value of the Shelf *i* Slot *i* (40-SMR-2-C).Port DROP-TX.Power parameter in the right pane.
g) If the value of the Power set point is greater than -6dBm, continue with Step 3, else edit the Power set point to -6dBm and complete the NTP-G37 Running Automatic Node Setup task.

This will ensure there is enough power to perform the optical validation procedure.

Step 3 Display the 40-SMR-2-C card for Side A in card view and complete the following steps:
a) Click the **Maintenance** > **ALS** tabs.
b) From the ALS Mode pull-down menu, select **Disable** for port 8 (LINE-TX).
c) Click **Apply**.

Step 4 Connect a tunable laser or a fully tunable TXP_DME_10E_C to the LINE RX port of the 40-SMR-2-C card on Side A. Connect a bulk attenuator to the fiber or regulate the output power of the tunable laser to -10dBm.

Step 5 Create an OCHNC DCN on Side A related to the ADD-DROP path of channel 1 using the DLP-G105 Provisioning Optical Channel Network Connections task. The circuit must be bidirectional connecting the ADD-RX port to the LINE-TX port of the 40-SMR-2-C card and vice-versa (LINE-RX port to the DROP-TX port of the 40-SMR-2-C card)

Step 6 Set the tunable laser or the TXP_DME_10E_C card to the first wavelength of the 100-GHz ITU-T C-band grid (1530.33 nm) and place the trunk port of the TXP_DME_10E_C card in the In-Service (IS) state.

Step 7 Verify the power levels of channel 1 by performing the following steps:
a) Check the parameters of the RX-amplifier in the 40-SMR2-C card:

- In the 40-SMR2-C card view, click the **Provisioning** > **Opt.Ampli.Line** > **Parameters** tabs.
- Verify that the working mode on the EXP-TX port is set to Gain.
- Record the values of the Total Output Power and Channel Power Ref. parameters.
- Verify that the value of the Total Output Power is within +/-1.0 dB of the Channel Power Ref. value.
- Record the value of the DCU insertion loss parameter and verify that the value is less than 11 dB.

b) Check the parameters of the drop VOA in the 40-SMR-2-C card:

- Go to the multishelf view (multishelf mode) and click the **Provisioning** > **WDM-ANS** > **Port Status** tabs.
- In the Selector window on the left, expand shelf *i*, where *i* is the shelf you are working on.
- Expand Slot *i* (40-SMR2-C), where *i* is the slot where the 40-SMR2-C card is located.
- Expand the Port DROP-TX category.
- Click the VOA Target Attenuation parameter.
- Record the VOA target attenuation displayed in the Value field.
- In the 40-SMR2-C card view, click the **Provisioning** > **Optical Line** > **Port Status** tabs.
- Record the VOA Attenuation Ref. value on Port 6 (DROP-TX).

- Verify that the value of the VOA Target Attenuation parameter recorded above is equal to the value of the VOA Attenuation Ref. parameter on the DROP-TX port with a tolerance +/-1.0 dB.

c) Check the parameters of the add VOA in the 40-SMR-2-C card:

- In the 40-SMR-2-C card view, click the **Provisioning** > **OCH** > **Parameters** tabs.
- Select the required channel from the Wavelength drop-down list and click **Retrieve**. The optical path from the ADD-RX port to the LINE-TX port is displayed in the table.
- Record the values of the Power To and VOA Power Ref. parameters for the ADD-RX to LINE-TX row.
- Verify that the value of the VOA Power Ref. parameter is equal to the value of the Power To parameter with a tolerance +/-1.0dB.
- In the 40-SMR-2-C card view, click the **Provisioning** > **Opt.Ampli.Line** > **Parameters** tabs.
- Record the working mode of Port 8 (LINE-TX).
- Verify that the working mode on the LINE-TX port is set to Gain.
- Go to the multishelf view (multishelf mode) and click the **Provisioning** > **WDM-ANS** > **Port Status** tabs.
- In the Selector window on the left, expand shelf *i*, where *i* is the shelf you are working on.
- Expand Slot *i* (40-SMR2-C) , where *i* is the slot where the 40-SMR2-C card is located.
- Expand the Port LINE-TX category.
- Click the Gain parameter.
- Record the gain displayed in the Value field.
- Verify that the gain is equal to 17 dB.

Step 8 Delete the OCHNC DCN circuit for channel 1 on Side A related to the ADD-DROP path that was created in Step 5 using the DLP-G106 Deleting Optical Channel Network Connections task.

Step 9 Create an OCHNC DCN circuit for channel 1 on Side A related to the EXP-TX path towards Side B using the DLP-G105 Provisioning Optical Channel Network Connections task. The circuit must be bidirectional and connects the LINE-RX port of the 40-SMR-2-C card on Side A to the LINE-TX port of the 40-SMR-2-C card on Side B.

Step 10 Verify the power levels of channel 1 by performing the following steps:

a) Check the parameters of the RX-amplifier in the 40-SMR-2-C card:

- In the 40-SMR2-C card view on Side A, click the **Provisioning** > **Opt.Ampli.Line** > **Parameters** tabs.
- Verify that the working mode on the EXP-TX port is set to Gain.
- Record the values of the Total Output Power and Channel Power Ref. parameters.
- Verify that the value of the Total Output Power is within +/-1.0 dB of the Channel Power Ref. value.

b) Check the optical connection between Side A and Side B through the 15454-PP-4-SMR patch panel. Depending on the source side, the EXP-*i*-RX port of the destination side varies. Verify the connectivity

among the different sides using the 15454-PP-4-SMR patch panel block diagram in the Node Reference chapter. For example, on Side A, EXP-TX is connected to Side B on EXP-1-RX, Side C on EXP-2-RX, and Side D on EXP-3-RX. The power difference between the EXP-TX port and the EXP-*i*-RX port must be less than 7 dB.

- In the 40-SMR2-C card view on Side B, click the **Provisioning** > **Optical Line** > **Parameters** tabs.
- Record the express RX power on Port 10 (EXP-RX 1-2).
- Compare the express RX power to the total output power recorded in Step 11a.
- Verify that the absolute value of the total output power minus the express RX power is less than 7 dB.

c) Check the parameters of the pass-through VOA and TX-amplifier in the 40-SMR-2-C card on Side B:

- In the card view, click the **Provisioning** > **OCH** > **Parameters** tabs.
- Select the first channel from the Wavelength drop-down list and click **Retrieve**.
- View the optical path from the EXP-*i*-RX port to the LINE-TX port that is displayed in the table.
- Verify that the value of the Power To parameter is the same as the value of the Channel Power Ref. parameter with a tolerance +/-1.0dB.
- Click the **Provisioning** > **Opt.Ampli.Line** > **Parameters** tabs.
- Verify that the working mode on Port 8 (LINE-TX) is set to Gain.
- Ensure that the value of the gain parameter on Port 8 (LINE-TX) must be equal to 17 dB.
- The Working mode on the LINE-TX port must be the same as the ANS set point value that is set to Gain.
- The value of the Gain parameter on the LINE-TX port must be equal to the Gain set point +/-1.0dB. The gain set point for the 40-SMR-2-C card is 17dB.

Step 11 Delete the OCHNC DCN circuit towards Side B related to channel 1 created in Step 9 using the DLP-G106 Deleting Optical Channel Network Connections task.

Step 12 Create the OCHNC DCN circuit for channel 1 on Side A related to EXP-TX path towards Side C using the DLP-G105 Provisioning Optical Channel Network Connections task. Repeat Step 10 and Step 11 for the circuit that is created.

Step 13 Repeat Step 12 towards Side D, turn off the laser or place the trunk port of the TXP_DME_10E_C card in OutofService (OOS) state.

Step 14 Set the tunable laser or the TXP_DME_10E_C card to the second wavelength of the 100-GHz ITU-T C-band grid and place the trunk port of the TXP_DME_10E_C card in the In-Service (IS) state. Repeat Step 5 through Step 13 for the second wavelength.

Step 15 Repeat Step 14 for the remaining 38 wavelengths on Side A.

Step 16 Delete the OCHNC DCN circuit related to channel 40 using the DLP-G106 Deleting Optical Channel Network Connections task, and turn off the laser or place the trunk port of the TXP_DME_10E_C card in OutofService (OOS) state.

Step 17 On the 40-SMR-2-C card on Side A, do the following steps:

a) Remove the physical loopback between the ADD and DROP ports on the 40-SMR-2-C card created in Step 1.

b) Reconnect the DROP-TX port on the 40-SMR2-C card to the COM-RX port on the DMX side of the 15216-MD-40-ODD patch panel.
c) Reconnect the ADD-RX port on the 40-SMR2-C card to the COM-TX port on the MUX side of the 15216-MD-40-ODD patch panel.

Step 18 On the15216-MD-40-ODD unit on Side A, do the following steps:
a) Create a physical loopback between the MUX and DMX ports of the 15216-MD-40-ODD unit that are related to the same wavelength. Perform this step for all the 40 wavelengths on the 15216-MD-40-ODD patch panel on the side you are working on.

Step 19 Create an OCHNC DCN for channel 1 on Side A related to the ADD-DROP path as done in Step 5.

Step 20 Set the tunable laser or the TXP_DME_10E_C card to the first wavelength of the 100-GHz ITU-T C-band grid (1530.33 nm) and place the trunk port of the TXP_DME_10E_C card in the In-Service (IS) state.

Step 21 To verify the insertion loss on the optical path of the 15216-MD-40-ODD unit on Side A, do the following steps:
a) In the 40-SMR2-C card view, click the **Provisioning** > **Optical Line** > **Parameters** tabs.
b) Retrieve the power value on Port 6 (DROP-TX) of the 40-SMR-2-C card and record it as Pin.
c) Retrieve the power value on Port 5 (ADD-RX) port and record it as Pout.
d) Verify that the power difference between the power values obtained in step 22 b. and step 22 c. do not exceed the insertion loss value specified for the 15216-MD-40-ODD unit. (Pin - Pout must be less than 13dB with a tolerance of 1dB).

Step 22 Turn off the laser or place the trunk port of the TXP_DME_10E_C card in OutofService (OOS) state and delete the OCHNC DCN circuit on Side A related to channel 1 using the DLP-G106 Deleting Optical Channel Network Connections task.

Step 23 Set the tunable laser or the TXP_DME_10E_C card to the next wavelength of the 100-GHz ITU-T C-band grid (1530.33 nm) and place the trunk port of the TXP_DME_10E_C card in the In-Service (IS) state and repeat Step 19 through Step 22 for the new wavelength.

Step 24 Restore the initial configuration after checking all the 40 available wavelengths:
a) Remove the power meter and reconnect the 15216-MD-40-ODD unit to the ADD-RX port of the 40-SMR-2-C card.
b) Remove the physical loopbacks between the MUX and DMX ports on the 15216-MD-40-ODD unit on Side A.
c) Reset the ALS parameter on the 40-SMR-2-C card. Complete the following:
- In card view, display the 40-SMR-2-C and click the **Maintenance** > **ALS** tabs.
- From the ALS Mode pull-down menu, select **Auto Restart**.

d) Import the CTP XML file again using the NTP-G143 Importing the Cisco Transport Planner NE Update Configuration File task to overwrite any manual settings.
e) Complete the NTP-G37 Running Automatic Node Setup task and verify no errors are present.

Step 25 Repeat all the steps from Step 1 through Step 24 related to Side B.

Step 26 Repeat all the steps from Step 1 through Step 24 related to Side C.

Step 27 Repeat all the steps from Step 1 through Step 24 related to Side D.

Stop. You have completed this procedure.