Installing the Cisco CMC

Installing the Cisco CMC

This section provides information on how to install the Cisco CMC.

Mounting the Cisco CMC

Wall-Mounting the Cisco CMC

Before You Begin

- To prevent injury and damage to the equipment, review the safety guidelines in Preparing for the Cisco Remote-PHY Solution Installation before installing the Cisco CMC on the wall.

- Close the Cisco CMC lid. See Closing the Cisco CMC, on page 38.

Procedure

Step 1   Drill four holes at a distance of 291 mm x 158.4 mm on the wall as shown in the figure below.

Note   Ensure proper ventilation around the equipment. Inadequate ventilation can cause the equipment to overheat.

Figure 1: Wall-Mounting the Cisco CMC

1	Mounting holes		—

Step 2   Align the mounting holes on the Cisco CMC with the holes on the wall.

Step 3   Insert a 5/16" or M8 expansion bolt through each mounting hole on the Cisco CMC and then into the hole on the wall.

Strand-Mounting the Cisco CMC

Strand-mounting is the aerial installation of the Cisco CMC.

Before You Begin
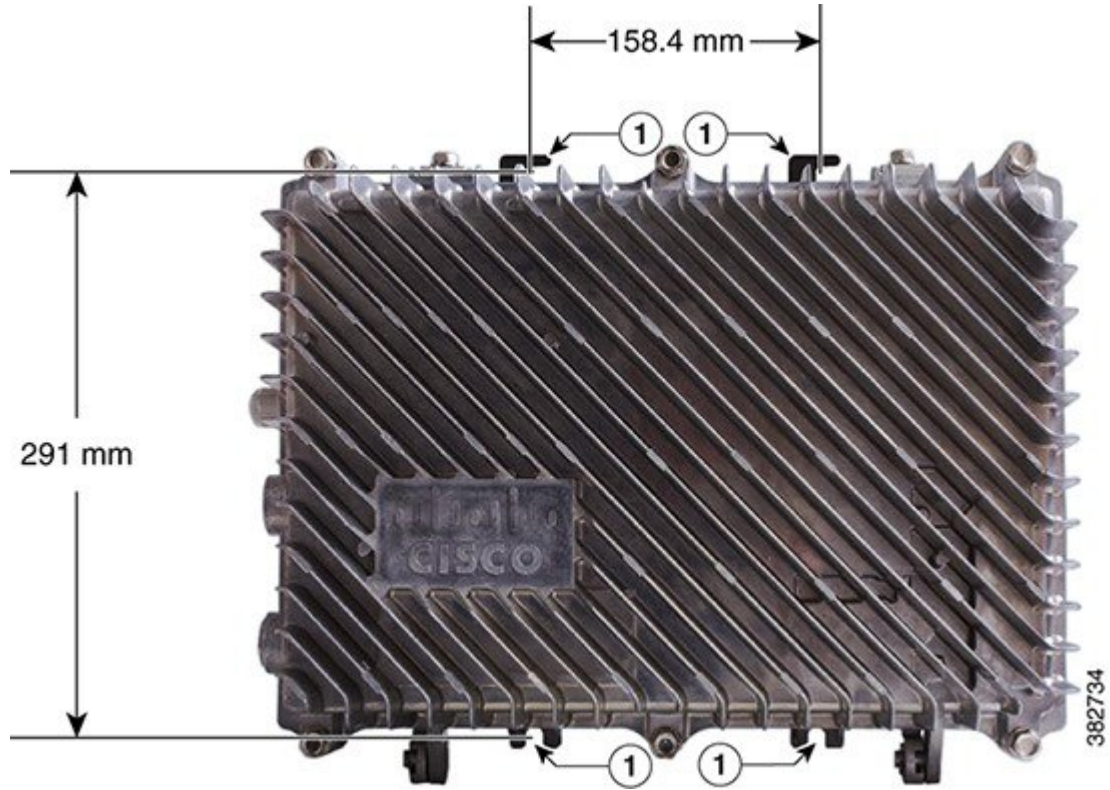
- To prevent injury and damage to the equipment, review the safety guidelines in Preparing for the Cisco Remote-PHY Solution Installation before installing the Cisco CMC on the strand.

- Close the Cisco CMC lid. See Closing the Cisco CMC, on page 38.

- Have the following tools ready before performing this task:

◦ Torque wrench

◦ 1/2-inch socket

Procedure

Step 1 Check the strand size. The minimum strand diameter must be 5/16".

Step 2 Loosen the strand clamp bolts on the Cisco CMC to separate the clamps enough to insert the strand, but do not remove them.
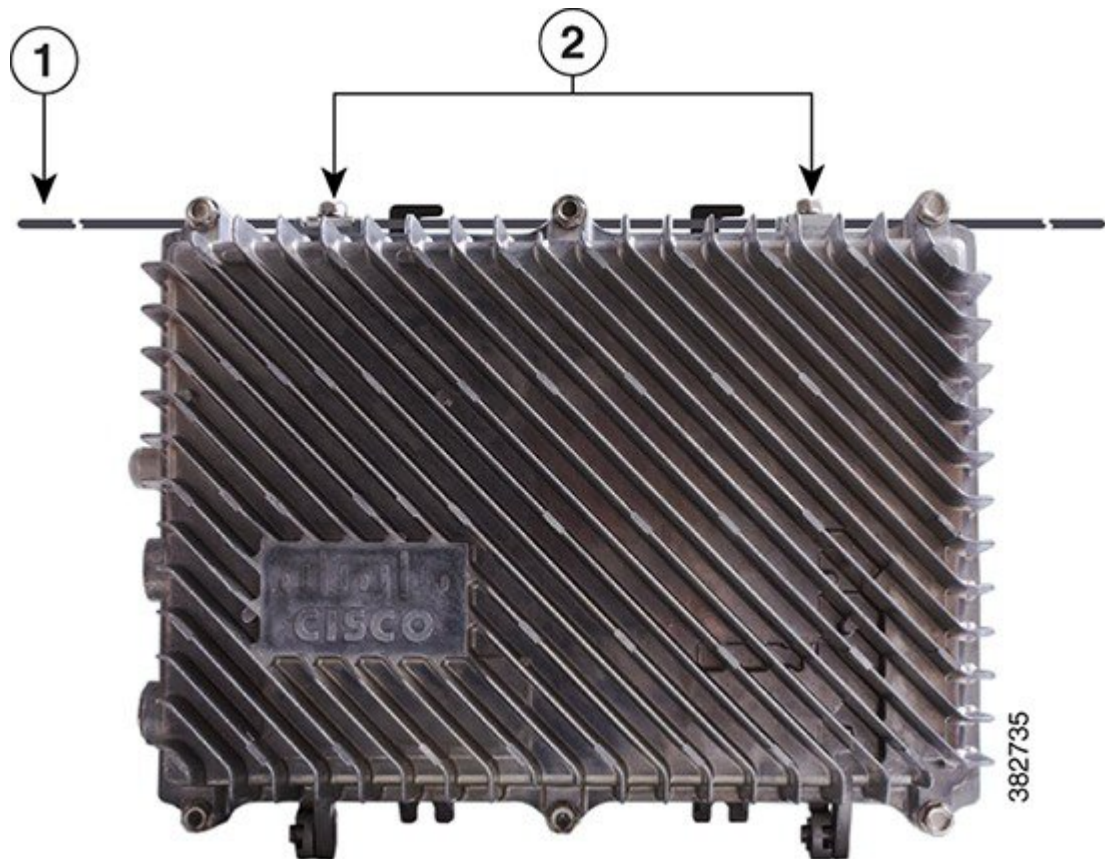
Figure 2: Location of the Strand Clamp Bolts on the Cisco CMC
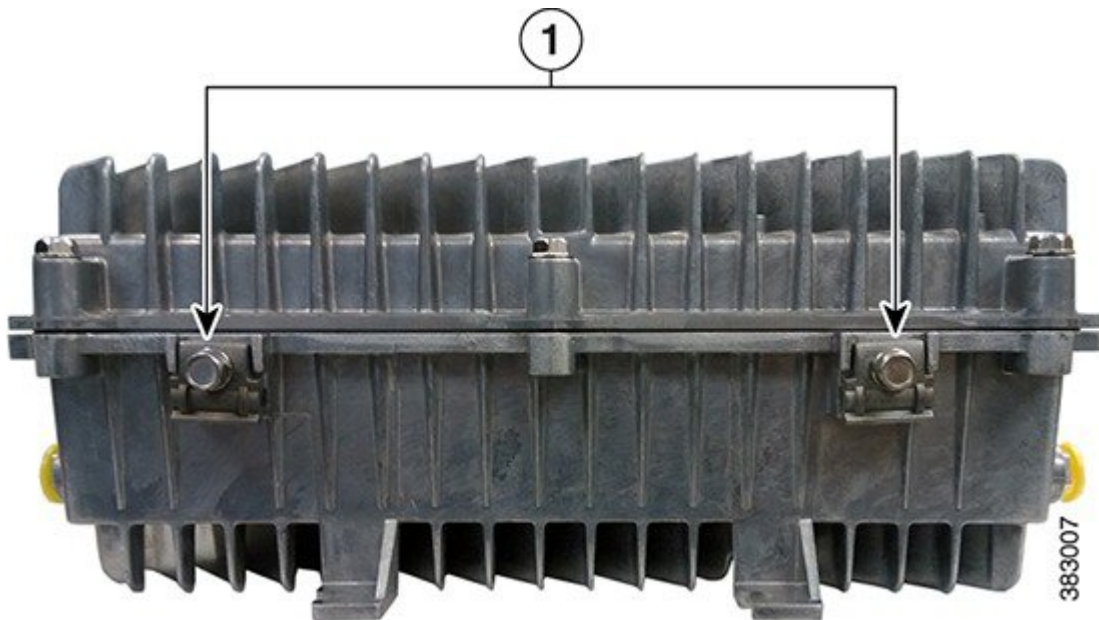
1	Strand clamp bolts		—

Step 3   Place the Cisco CMC into proper position on the strand.

Step 4   Insert the clamps over the strand and tighten the strand clamp bolts with your fingers. This allows additional side-to-side movement of the Cisco CMC as needed.

Figure 3: Strand-Mounting the Cisco CMC

1	Strand	2	Strand clamps

Step 5   Move and position the Cisco CMC on the strand as required for installing the cables.

Step 6   Tighten the strand clamp bolts from 5 ft-lb to 8 ft-lbs (6.8 to 10.8 Nm) using a torque wrench and 1/2-inch socket .
    Note   Due to the strand tension, a slight tilt of the face of the Cisco CMC is normal.

Opening the Cisco CMC

Installation or maintenance of the Cisco CMC requires opening the housing to access the internal components.

Before You Begin

Have the following tools ready before performing this task:

- Torque wrench

Procedure

Step 1   Loosen the 1/2-inch closure bolts on the Cisco CMC lid using a torque wrench.

Figure 4: Location of the Closure Bolts on the Cisco CMC

1	Closure bolts		—
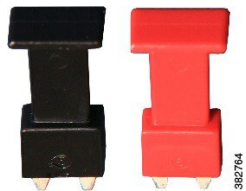
Step 2   Open the Cisco CMC lid.

        Note   The closure bolts remain attached to the Cisco CMC lid after opening the housing.

Removing and Installing the Accessories on the Cisco CMC

This section provides information on how to remove and install the following accessories located inside the Cisco CMC.

Accessory	Description	Illustration
Attenuator pads	An attenuator pad produces flat (even) loss across the forward and reverse frequency spectrums. It is used during the station balancing to adjust signal levels. The loss (in dB) produced by an attenuator pad is equal to the value printed on the top of the attenuator pad. An attenuator pad with *75 Ω* printed on the top works as a 75 ohm terminator. **Important** Do not change the attenuator pads, unless specified by the system design.	
Equalizers	An equalizer produces linear tilt. It must be used on the Cisco CMC if the output tilt does not have the desired output tilt. The EQ value specified on the equalizer is the amount of tilt from lowest to highest frequency (52 to 1002 MHz).	
Signal director—Splitter	A splitter splits the RF input signal to feed two RF output ports. It is used for configuring the 4-way RF configuration on the Cisco CMC.	

Accessory	Description	Illustration
Signal director—Jumper	A jumper routes the RF input signal to the RF output port. It is used for configuring the 2-way RF configuration on the Cisco CMC.	
AC shunts	An AC shunt is used for configuring the power direction in the Cisco CMC with the 60VAC power supply unit. Use the red AC shunt for the RF input port and black AC shunts for the RF output ports. **Warning** Remove all the AC shunts if they are installed in the Cisco CMC before connecting the coaxial cables to the F-connectors. **Note** Do not use AC shunts in the Cisco CMC with the 220VAC power supply unit.	

These accessories can be removed and installed in the Cisco CMC through the cutouts in the base cover.

Figure 5: Location of the Accessories Inside the Cisco CMC
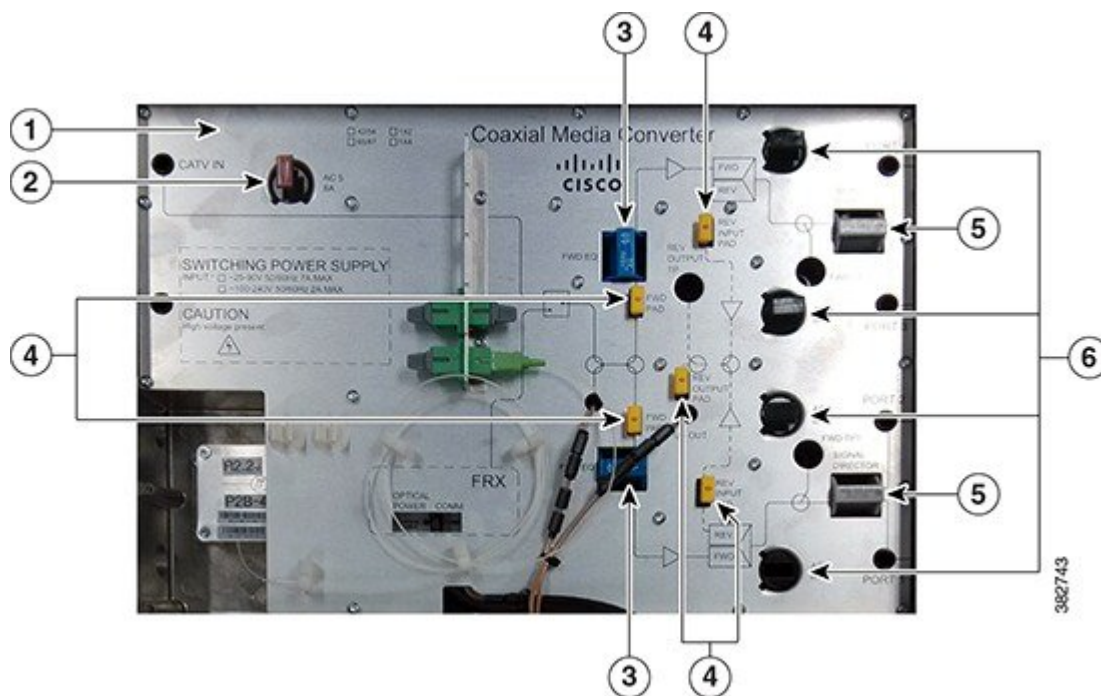
1	Base cover	4	Attenuator pads
2	AC shunt for the CATV IN port	5	Signal directors
3	Equalizers	6	AC shunts for the RF output ports

Before You Begin

Open the Cisco CMC lid. See Opening the Cisco CMC, on page 5.

Procedure

Step 1   Remove the existing accessory from the slot if it is already installed.

Step 2   Align all the pins on the accessory with the pin holes in the appropriate accessory slot.

Step 3   Insert the accessory into the slot.

What to Do Next

Close the Cisco CMC lid. See Closing the Cisco CMC, on page 38.

Installing the Coaxial Cables on the Cisco CMC

Coaxial cables carry the forward-path RF signal input and outputs, and reverse-path RF signal inputs on the Cisco CMC. The coaxial cables can also supply 25 to 90VAC power input to the Cisco CMC. You can install up to:

- Five coaxial cables on the Cisco CMC with the 220VAC Power Supply Unit (PSU)
- Six coaxial cables on the Cisco CMC with the 60VAC PSU

Trimming the Center Conductor on the F-Connector

F-connectors are used for the RF connections on the Cisco CMC. The Cisco CMC supports PG11 and 5/8" F-connectors. The Cisco CMC has a strip on the external housing that shows the center conductor pin trim length for the F-connector. You must trim the center conductor pin if it extends beyond the strip line on the Cisco CMC before inserting it into the RF ports.

Before You Begin

Have the following tools ready before performing this task:

- Heavy-duty wire cutter
- Deburring tool

Procedure

Step 1   Place the F-connector above the CATV IN port on the Cisco CMC so that the seal shoulder aligns with the strip.

Step 2   Perform one of the following:

- For the 5/8" F-connector, if the center conductor pin extends beyond the 5/8"-strip line, trim the pin to the 5/8"-strip line (35 mm) using a heavy-duty wire cutter.

- For the PG11 F-connector, if the center conductor pin extends beyond the PG11-strip line, trim the pin to the PG11-strip line (32 mm) using a heavy-duty wire cutter.

The figure below shows a visual guide of the center conductor trim length.

Figure 6: Trimming the Center Conductor Pin
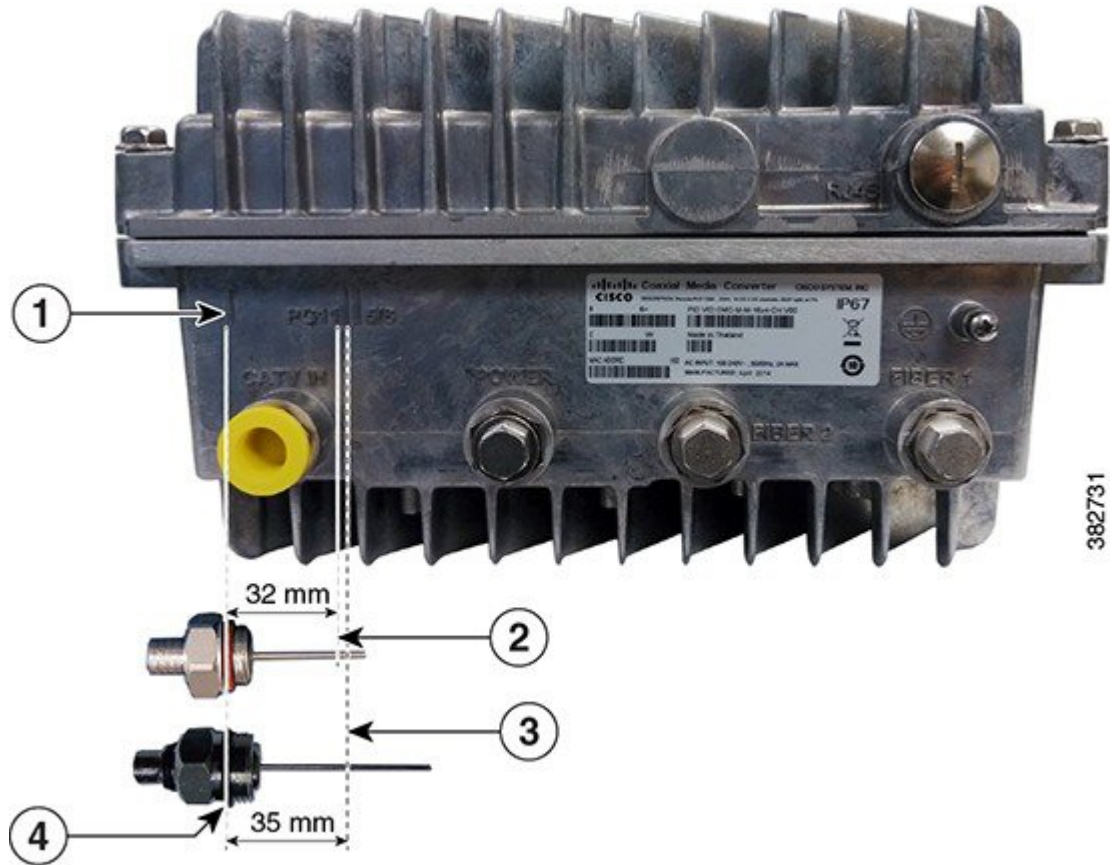
1	Strip	3	5/8"-strip
2	PG11-strip	4	Seal shoulder

Step 3   Remove any burrs or sharp edges on the trimmed end of the center conductor pin using a deburring tool.

Connecting the Coaxial Cable to the Cisco CMC

Use the 75 ohm coaxial cables with the Cisco CMC.

Before You Begin

- Open the Cisco CMC lid. See Opening the Cisco CMC, on page 5.
- Remove the plastic cover or 5/8" port plug from the RF ports on the Cisco CMC using a torque wrench.

- Have the following tools ready before performing this task:
  - Heavy-duty wire cutter
  - Torque wrench
  - Slot screwdriver

Procedure

Step 1 Trim the center conductor pin with a heavy-duty wire cutter if it extends beyond the strip line on the Cisco CMC. See Trimming the Center Conductor on the F-Connector, on page 10.

Step 2 Lightly loosen the seizure screw, do not remove it. The figure below shows the location of the seizure screw inside the Cisco CMC.

Figure 7: Location of Seizure Screw

1	Seizure screw	—

Step 3 To use the PG11 F-connector, remove the PG11-to-5/8" adapter plug from the RF port using a torque wrench. The figure below shows the PG11-to-5/8" adapter plug.

Figure 8: Removing the PG11-to-5/8" Adapter Plug
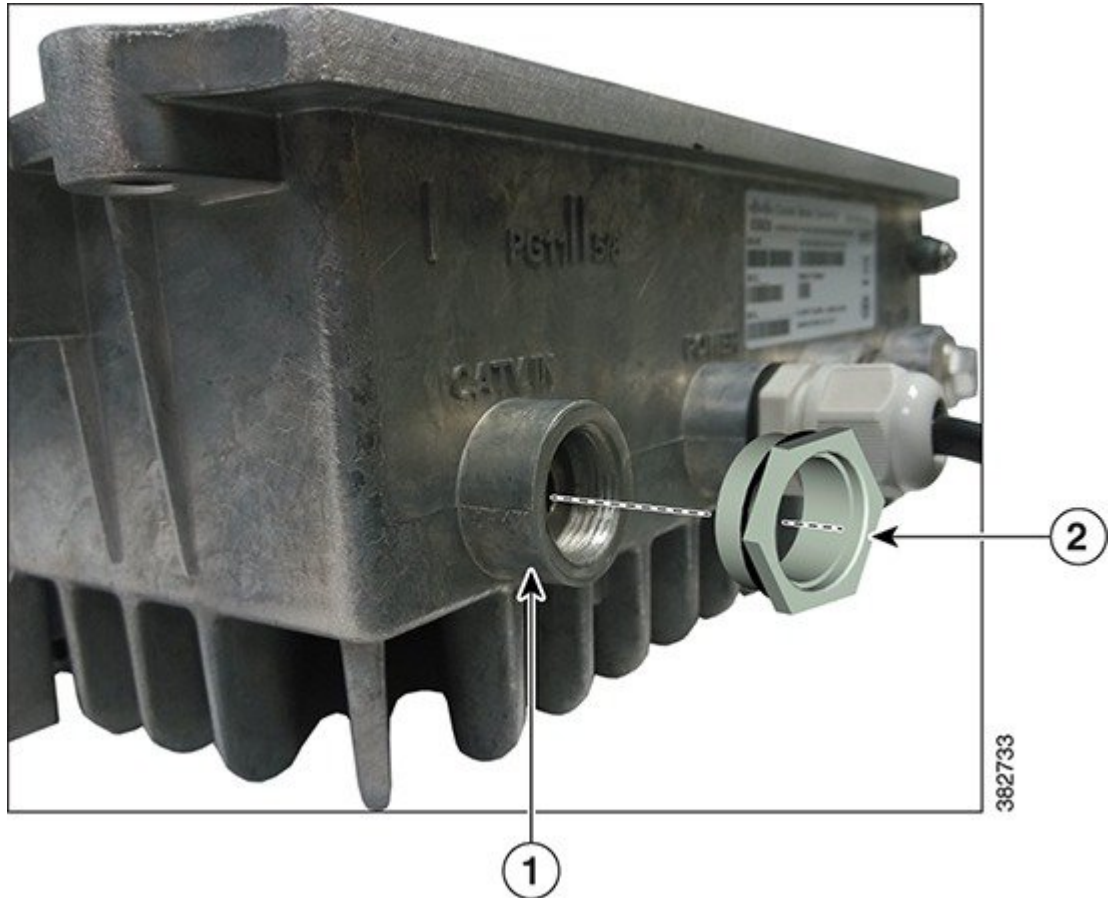
1	RF port	2	PG11-to-5/8" adapter plug

Step 4 Insert the F-connector into the RF port. Tighten the connector nut with a torque wrench.

Step 5 Tighten the seizure screw from 2 ft-lb to 5 ft-lb (2.7 Nm to 6.8 Nm) using a slot screwdriver.

Step 6 Remove the AC shunt for the RF port to prevent damage to the equipment that is connected to the other end of the coaxial cable.

Step 7 Connect the coaxial cable to the F-connector.

Step 8 Reinstall the AC shunt for the RF port.

Step 9 Repeat Step 1, on page 12 through Step 7, on page 13 for each RF port used.

Step 10 Check if RF signal is present at the unused RF ports and perform one of the following:

  • If RF signal is present, insert a 75 ohm terminator into the RF port and tighten according to the manufacturer specifications.

• If RF signal is not present, insert a 5/8" port plug into the RF port and tighten from 5 ft-lb to 8 ft-lb (6.8 Nm to 10.8 Nm) using a torque wrench.

What to Do Next

Close the Cisco CMC lid. See .

Installing a Fiber Adapter on the Cisco CMC

The Cisco CMC supports two types of fiber adapters:

- SC/APC-LC/APC fiber adapter
- SC/APC-SC/APC fiber adapter

The Cisco CMC contains two pre-installed SC/APC-SC/APC fiber adapters. Perform this procedure to install additional fiber adapters.

Before You Begin

Open the Cisco CMC lid. See .

Procedure

Step 1   Align the fiber adapter with the slot.

Step 2   Insert the fiber adapter through the slot as shown in the figure below until you feel the fiber adapter lock into the slot.

Figure 9: Installing the Fiber Adapter on the Cisco CMC
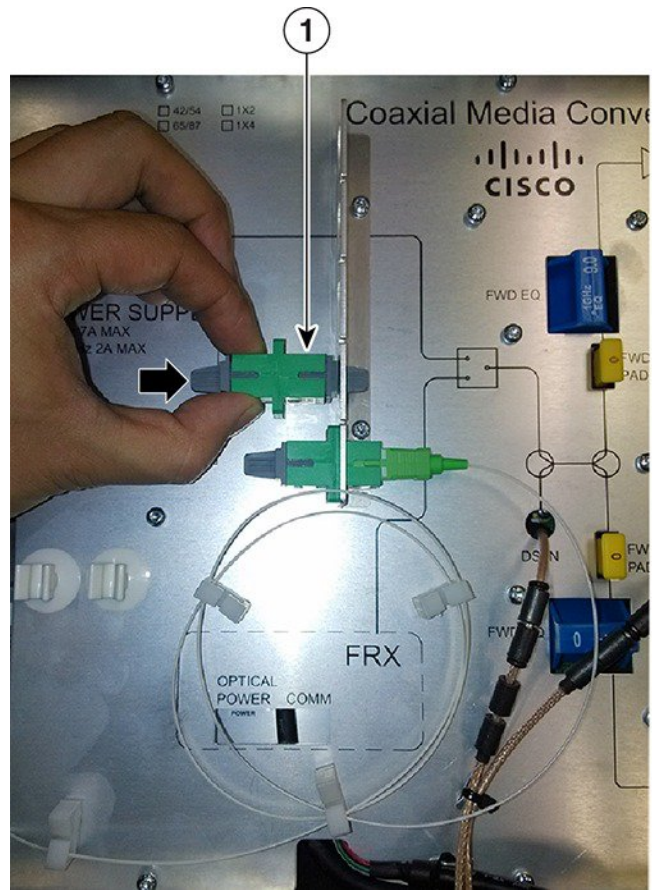
1	SC/APC-SC/APC fiber adapter	—

Step 3   Remove the dust plug from the fiber adapter and connect the optical fibers. See Connecting the Optical Fibers to the SFP Module, on page 17 and Connecting the Optical Fibers to the FRx, on page 22.

What to Do Next

Close the Cisco CMC lid. See Closing the Cisco CMC, on page 38.

Installing an SFP Module on the Cisco CMC

The Cisco CMC supports Gigabit Ethernet SFP and Ethernet Passive Optical Network (EPON) SFP.

Before You Begin

Open the Cisco CMC lid. See .

Procedure

Step 1 Remove the SFP module from its protective packaging.

Step 2 Locate the transmit (Tx) and receive (Rx) markings on the top side of the SFP module.

> **Note** On some SFP modules, the Tx and Rx markings may be replaced by arrowheads pointing from the SFP connector (transmit direction or Tx) and towards the connector (receive direction or Rx).

Step 3 Align the SFP module with the socket opening.

Step 4 Insert the SFP module into the socket until you feel the SFP module connector lock into the socket connector and then close the SFP latch.

Figure 10: Installing the SFP module on the Cisco CMC

1	SFP port	2	SFP module

Step 5 Remove the dust plug from the SFP module and save it for future use.

> **Note** For optical SFP module, before you remove the dust plugs and make any optical connections, observe these guidelines:
>
> • Do not remove the protective dust plugs on the SFP module until you are ready to make a connection.
>
> • Inspect and clean the connector end-faces just before you make any connections.
>
> • Grasp the connector housing to plug or unplug a optical.

Step 6 Perform one of the following:

- For the optical SFP module, connect the optical fibers to the SFP module. See Connecting the Optical Fibers to the SFP Module, on page 17.

- For the Gigabit Ethernet SFP module, connect the RJ-45 cable to the Gigabit Ethernet SFP module. See Connecting the RJ-45 Cables to the Cisco CMC, on page 19.

What to Do Next

Close the Cisco CMC lid. See Closing the Cisco CMC, on page 38.

Connecting the Optical Fibers to the SFP Module

Before You Begin

- Open the Cisco CMC lid. See Opening the Cisco CMC, on page 5.

- Install the SFP module on the Cisco CMC. See Installing an SFP Module on the Cisco CMC, on page 16.

- Remove the 5/8" port plug from the fiber port on the Cisco CMC using a torque wrench

Procedure

Step 1   Insert the optical fiber into the fiber port.

Step 2   Secure the optical fibers using the cable clips and insert the optical fiber connector into the SFP port until it clicks and locks into place and as shown in the figure below:

Figure 11: Connecting Optical Fiber to the SFP Port
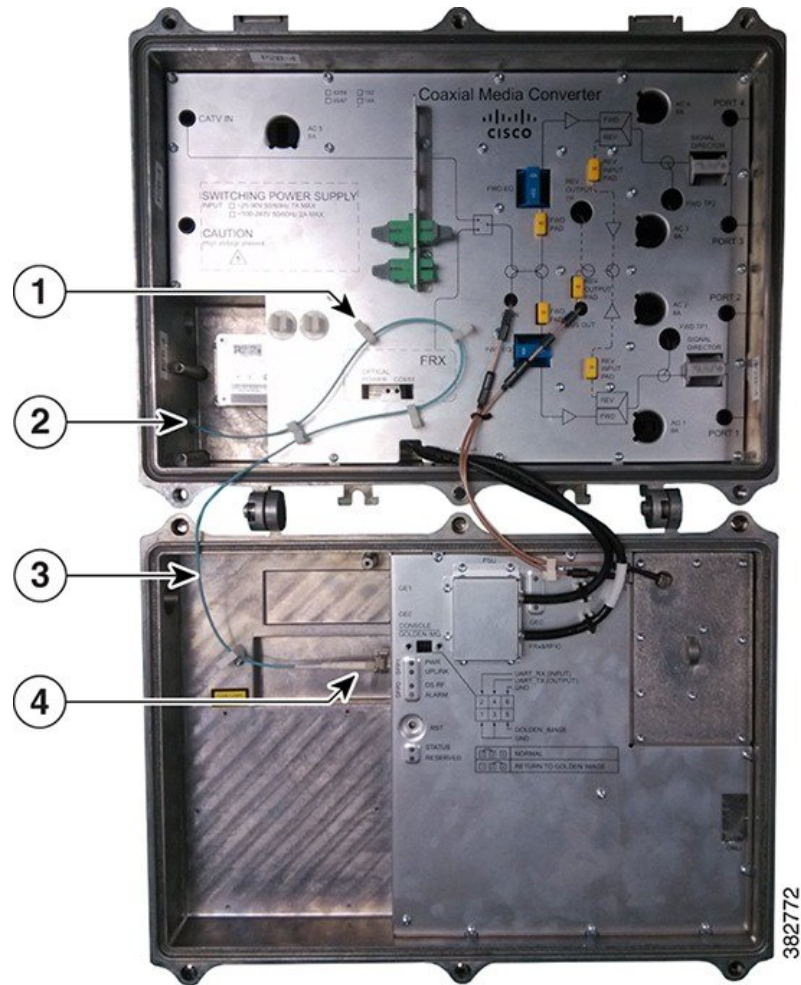
1	Cable clips	3	Optical fiber
2	Fiber port	4	Optical fiber connector

Step 3   Seal the fiber port with an appropriate gland to waterproof the port.

What to Do Next
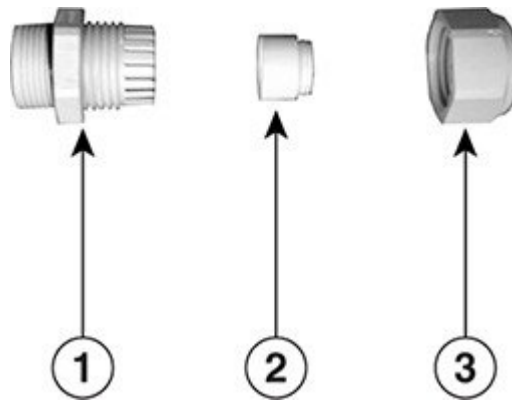
Close the Cisco CMC lid. See .

Connecting the RJ-45 Cables to the Cisco CMC

Use the PG16 gland to connect the RJ-45 cable to the Cisco CMC.

Figure 12: PG16 Gland

1	Body	3	Sealing nut
2	Seal		—

The Cisco CMC supports two types of PG16 glands for the RJ-45 port:

- PG16 gland with one hole for single Ethernet connection
- PG16 gland with two holes for dual Ethernet connection

Before You Begin

- Open the Cisco CMC lid. See .
- Have the following tools ready before performing this task:
  - Torque wrench

Procedure

Step 1   Remove the PG16 port plug or the PG16 gland from the RJ-45 port on the Cisco CMC if it is already installed.

**Step 2** Insert the RJ-45 cable through the PG16 gland as shown in the figure below.

Figure 13: Inserting the RJ-45 Cable through the PG16 Port Plug
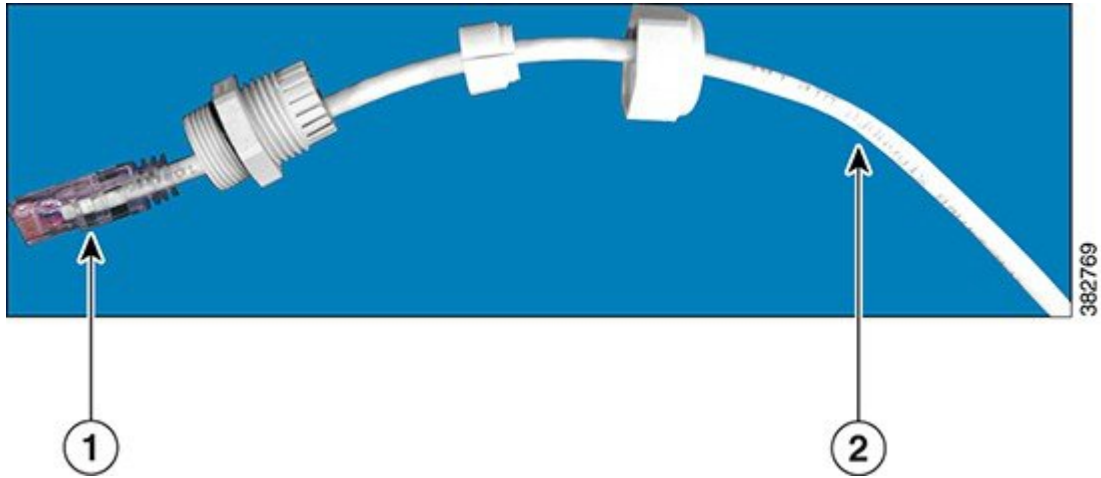
1	RJ-45 connector	2	RJ-45 cable

Step 3   Insert the RJ-45 connector through the RJ-45 port on the Cisco CMC.

Step 4   Insert the RJ-45 connector into the Gigabit Ethernet port until it clicks and locks into place.

Figure 14: Connecting the RJ-45 Connector to the Cisco CMC
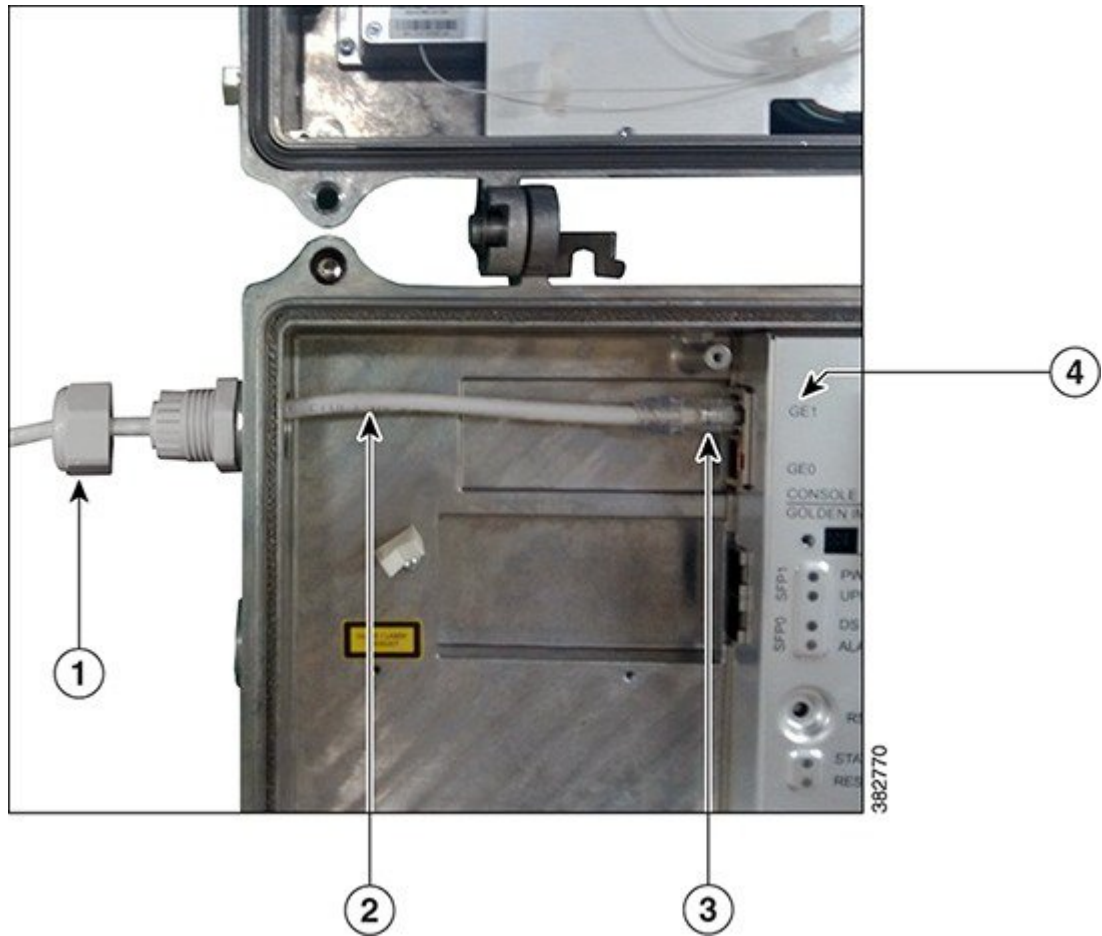
1	PG16 gland	3	RJ-45 connector
2	RJ-45 cable	4	RJ-45 Gigabit Ethernet port

Step 5   Tighten the PG16 gland into the RJ-45 port using a torque wrench (4.44 ft-lb) and then tighten the dome cap using a torque wrench (2.44 ft-lb).

What to Do Next

Close the Cisco CMC lid. See .

Connecting the Optical Fibers to the FRx

**Before You Begin**

- Open the Cisco CMC lid. See .

- Ensure that the Forward Optical Receiver Module (FRx) module is installed on the Cisco CMC. To install the FRx on the Cisco CMC, contact the Cisco Technical Assistance Center (TAC) for further assistance.

- Remove the 5/8" port plug from the fiber port on the Cisco CMC using a torque wrench.

Procedure

Step 1   Insert the optical fiber into the fiber port.

Step 2   Secure the optical fiber using the cable clips and insert the optical fiber connector to the fiber adapter as shown in the figure below:

Figure 15: Connecting Optical Fiber to the Fiber Adapter
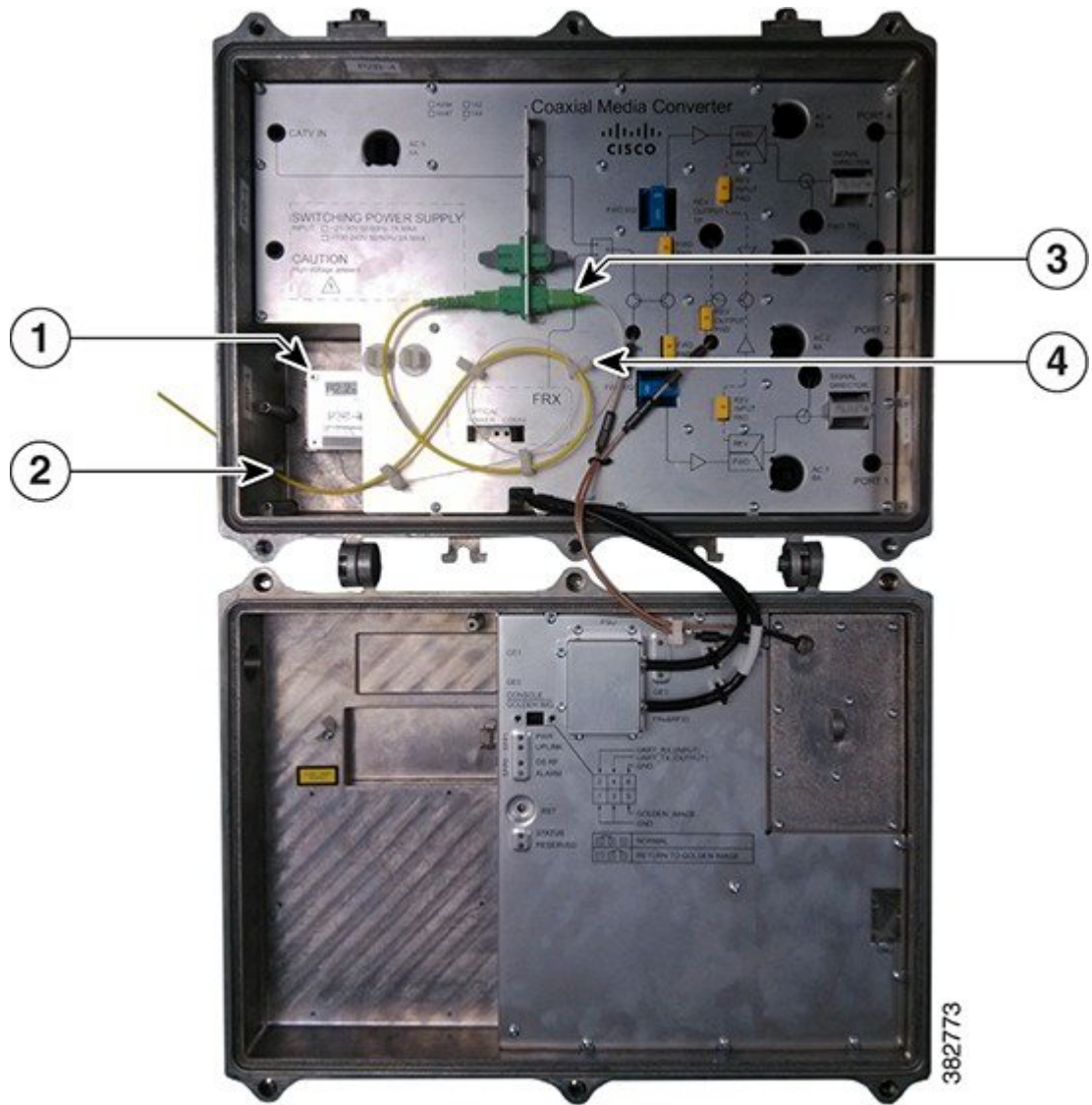
1	FRx	3	Fiber adapter
2	Optical fiber	4	Cable clip

Step 3 Seal the fiber port with an appropriate gland to waterproof the port.

What to Do Next

Close the Cisco CMC lid. See .

Connecting I/O to the Cisco CMC

The Cisco CMC supports two types of I/O configurations:

- Forward-path I/O configurations
- Reverse-path I/O configurations

Forward-Path I/O Configurations

Forward-path refers to the signals received at the Cisco CMC from the headend. These signals are amplified in the Cisco CMC and routed to the subscribers through the cable modems. The Cisco CMC supports the following forward-path RF configurations:

- 4-way forward output RF configuration (default RF configuration)
- 2-way forward output RF configuration

Reverse-Path I/O Configurations

Reverse-path refers to the signals received at the Cisco CMC from the cable modem. These signals are amplified in Cisco CMC and returned to the headend optically through the fiber portion of the network. The reverse-path RF configuration is not used in all networks. The Cisco CMC supports the following reverse-path RF configurations:

- 4-way reverse input RF configuration (default RF configuration)
- 2-way reverse input RF configuration

The following sections provide information on how to enable the different RF configurations on the Cisco CMC:

Enabling the 4-Way Forward Output RF Configuration on the Cisco CMC

Before You Begin
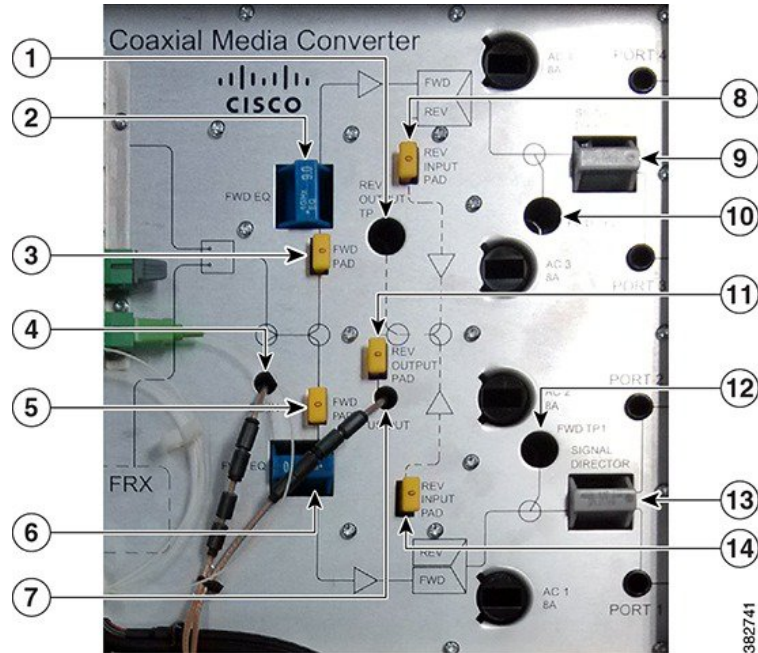
Open the Cisco CMC lid. See .

Procedure

Step 1 Remove all the AC shunts installed on the Cisco CMC. Removing the AC shunts prevents damage to the equipment that is connected on the other end of the coaxial cable. Power surge to the components and F-connectors is reduced when the AC shunts are removed.

Caution The RF connectors and housing seizure assemblies can get damaged if the AC shunts are not removed from the Cisco CMC before installing or removing the components from the housing.

Step 2   Insert the signal director—splitter to provide the RF output to the four RF output ports.

Figure 16: 4-Way Forward Output RF Configuration

1	Reverse output test point	8	Reverse input pad 2
2	Forward equalizer 2	9	Splitter 2
3	Forward pad 2	10	Forward test point 2
4	Downstream input port	11	Reverse output pad
5	Forward pad 1	12	Forward test point 1
6	Forward equalizer 1	13	Splitter 1
7	Upstream input port	14	Reverse input pad 1

Step 3   Perform one of the following:

- If FRx is installed on the Cisco CMC, connect the optical input signal to the FRx. See .

- If FRx is not installed on the Cisco CMC, insert the F-connector into the CATV IN port. Connect the coaxial cable from the node or amplifier in the HFC network to the F-connector. See Installing the Coaxial Cables on the Cisco CMC, on page 10.

Step 4 Insert the F-connector into each RF output port (Port 1 through Port 4). Connect the coaxial cable from each F-connector to the cable modem. See Installing the Coaxial Cables on the Cisco CMC, on page 10.

Step 5 Reinstall the AC shunts on the Cisco CMC.

What to Do Next

Close the Cisco CMC lid. See Closing the Cisco CMC, on page 38.

Enabling the 2-Way Forward Output RF Configuration on the Cisco CMC

Before You Begin

Open the Cisco CMC lid. See Opening the Cisco CMC, on page 5.

Procedure

Step 1 Remove all the AC shunts installed on the Cisco CMC. Removing the AC shunts prevents damage to the equipment that is connected on the other end of the coaxial cable. Power surge to the components and F-connectors is reduced when the AC shunts are removed.

Caution The RF connectors and housing seizure assemblies can get damaged if the AC shunts are not removed from the Cisco CMC before installing or removing the components from the housing.

Step 2   Insert the signal director—jumper to provide the RF output to two RF output ports.

Figure 17: 2-Way Forward Output RF Configuration
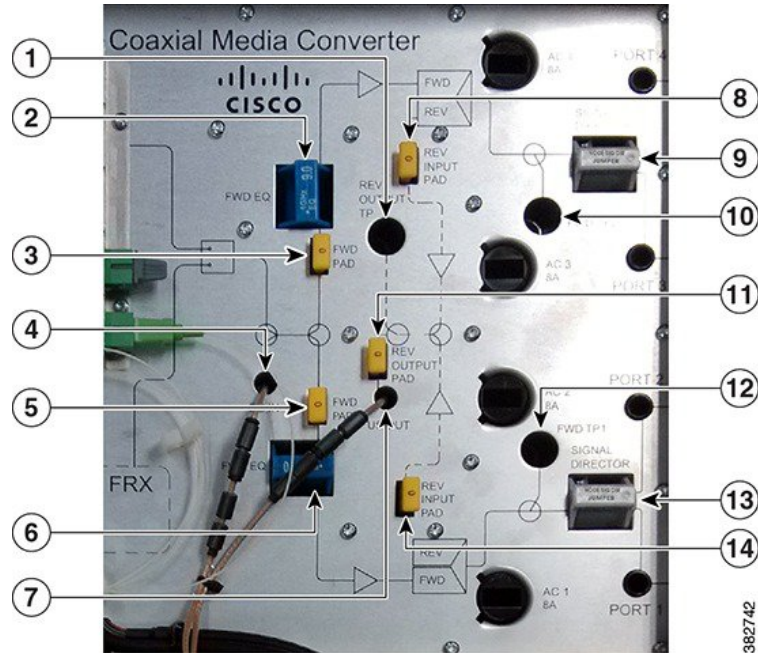
1	Reverse output test point	8	Reverse input pad 2
2	Forward equalizer 2	9	Jumper 2
3	Forward pad 2	10	Forward test point 2
4	Downstream input port	11	Reverse output pad
5	Forward pad 1	12	Forward test point 1
6	Forward equalizer 1	13	Jumper 1
7	Upstream input port	14	Reverse input pad 1

Step 3   Perform one of the following:

- If FRx is installed on the Cisco CMC, connect the optical input signal to the FRx. See Connecting the Optical Fibers to the FRx, on page 22.

- If FRx is not installed on the Cisco CMC, insert the F-connector into the CATV IN port. Connect the coaxial cable from the node or amplifier in the HFC network to the F-connector. See Installing the Coaxial Cables on the Cisco CMC, on page 10.

Step 4   Insert the F-connector into two RF output ports. Connect the coaxial cable from each F-connector to the cable modem. See Installing the Coaxial Cables on the Cisco CMC, on page 10.

Note   We recommend that you provide the RF output through the Port 1 and Port 4 for the 2-way forward output RF configuration.

Step 5   Reinstall the AC shunts on the Cisco CMC.

What to Do Next

Close the Cisco CMC lid. See

Enabling the 4-Way Reverse Input RF Configuration on the Cisco CMC

Before You Begin

Open the Cisco CMC lid. See

Procedure

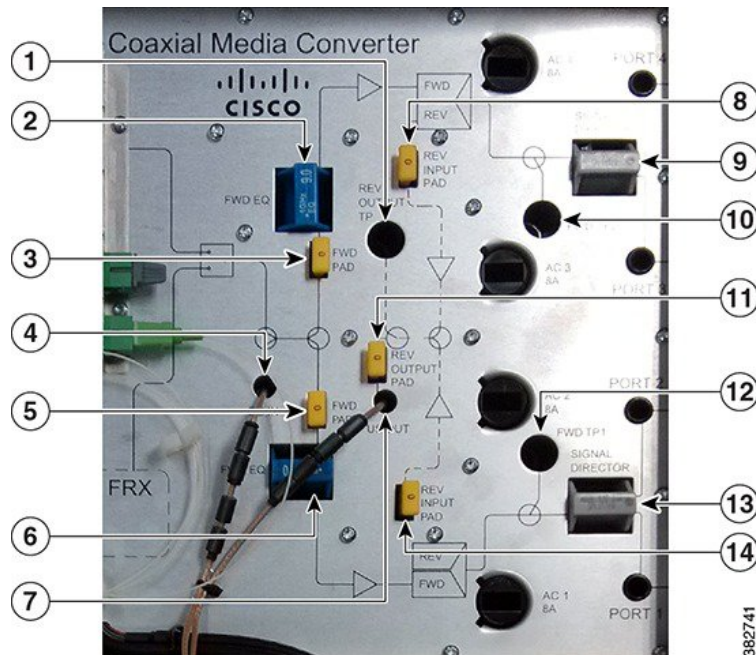**Step 1**   Remove all the AC shunts installed on the Cisco CMC. Removing the AC shunts prevents damage to the equipment that is connected on the other end of the coaxial cable. Power surge to the components and F-connectors is reduced when the AC shunts are removed.

        Caution   The RF connectors and housing seizure assemblies can get damaged if the AC shunts are not removed from the Cisco CMC before installing or removing the components from the housing.

Step 2   Insert the signal director—splitter to provide the RF input from the four RF output ports.

Figure 18: 4-Way Reverse Input RF Configuration

1	Reverse output test point	8	Reverse input pad 2
2	Forward equalizer 2	9	Splitter 2

3	Forward pad 2	10	Forward test point 2
4	Downstream input port	11	Reverse output pad
5	Forward pad 1	12	Forward test point 1
6	Forward equalizer 1	13	Splitter 1
7	Upstream input port	14	Reverse input pad 1

Step 3 Insert the F-connector into each RF output port (Port 1 through Port 4). Connect the coaxial cables from the cable modems to each F-connectors. See Installing the Coaxial Cables on the Cisco CMC, on page 10.

Step 4 Reinstall the AC shunts on the Cisco CMC.

Step 5 Perform one of the following:

- If the optical SFP module is installed on the Cisco CMC, connect the optical fiber from the SFP module to the digital fiber network. See Connecting the Optical Fibers to the SFP Module, on page 17.

- If the optical SFP module is not installed on the Cisco CMC, connect the RJ-45 cable from the Gigabit Ethernet port to the PON module in the digital fiber network. See Connecting the RJ-45 Cables to the Cisco CMC, on page 19.

What to Do Next

Close the Cisco CMC lid. See Closing the Cisco CMC, on page 38.

Enabling the 2-Way Reverse Input RF Configuration on the Cisco CMC

Before You Begin

Open the Cisco CMC lid. See Opening the Cisco CMC, on page 5.

Procedure

Step 1 Remove all the AC shunts installed on the Cisco CMC. Removing the AC shunts prevents damage to the equipment that is connected on the other end of the coaxial cable. Power surge to the components and F-connectors is reduced when the AC shunts are removed.

Caution The RF connectors and housing seizure assemblies can get damaged if the AC shunts are not removed from the Cisco CMC before installing or removing the components from the housing.

Step 2   Insert the signal director—jumper to provide the RF input from the two RF output ports.

Figure 19: 2-Way Reverse Input RF Configuration
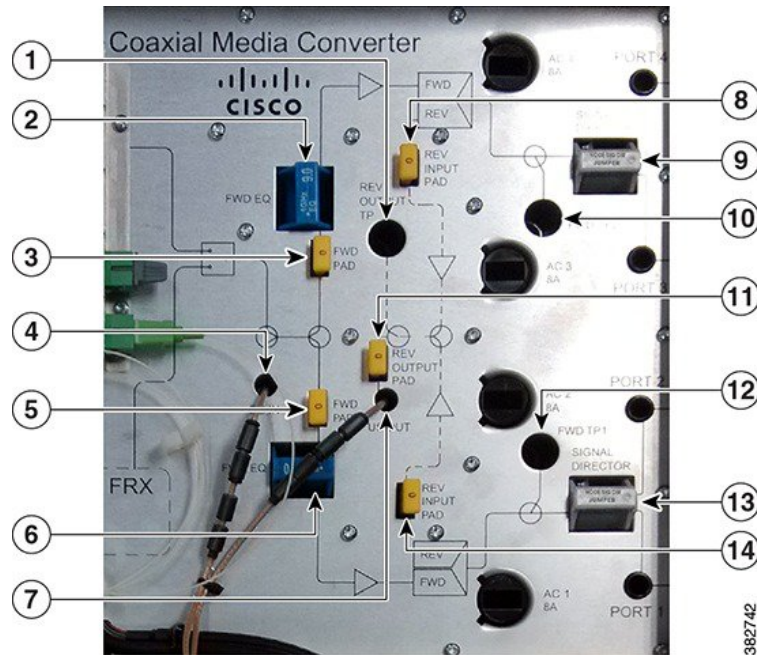
1	Reverse output test point	8	Reverse input pad 2
2	Forward equalizer 2	9	Jumper 2
3	Forward pad 2	10	Forward test point 2
4	Downstream input port	11	Reverse output pad
5	Forward pad 1	12	Forward test point 1
6	Forward equalizer 1	13	Jumper 1
7	Upstream input port	14	Reverse input pad 1

Step 3   Insert the F-connector into two RF output ports. Connect the coaxial cable from the cable modems to each F-connector. See Installing the Coaxial Cables on the Cisco CMC, on page 10.

Note   We recommend that you provide the RF input through the Port 1 and Port 4 for the 2-way reverse input RF configuration.

Step 4   Reinstall the AC shunts on the Cisco CMC.

Step 5   Perform one of the following:

   • If the optical SFP module is installed on the Cisco CMC, connect the optical fiber from the SFP module to the digital fiber network. See Connecting the Optical Fibers to the SFP Module, on page 17.

- If the optical SFP module is not installed on the Cisco CMC, connect the RJ-45 cable from the Gigabit Ethernet port to the PON module in the digital fiber network. See Connecting the RJ-45 Cables to the Cisco CMC, .

What to Do Next

Close the Cisco CMC lid. See Closing the Cisco CMC, .

Powering Up the Cisco CMC

> ⚠ **Warning**
> **Before working on equipment that is connected to power lines, remove jewelry (including rings, necklaces, and watches). Metal objects will heat up when connected to power and ground and can cause serious burns or weld the metal object to the terminals.** Statement 43.

> ⚠ **Warning**
> **This equipment must be grounded. Never defeat the ground conductor or operate the equipment in the absence of a suitably installed ground conductor. Contact the appropriate electrical inspection authority or an electrician if you are uncertain that suitable grounding is available.** Statement 1024

> ⚠ **Warning**
> **This unit might have more than one power supply connection. All connections need to be removed to de-energize the unit.** Statement 1028

Before powering up the Cisco CMC, you must provide an adequate ground connection for the equipment.

The Cisco CMC available in the following variants of the power supply unit (PSU):

- Cisco CMC with the 220VAC PSU
- Cisco CMC with the 60VAC PSU

The following sections provide information on how to ground and power up the Cisco CMC:

Grounding the Cisco CMC

Grounding the equipment is mandatory for the Cisco CMC with the 60VAC PSU and optional for the Cisco CMC with the 220VAC PSU.

> ⚠ **Warning**
> **Use copper conductors only.** Statement 1025.

> ⚠ **Warning**
> **This equipment must be grounded. Never defeat the ground conductor or operate the equipment in the absence of a suitably installed ground conductor. Contact the appropriate electrical inspection authority or an electrician if you are uncertain that suitable grounding is available.** Statement 1024.

⚠️

Warning **When installing or replacing the unit, the ground connection must always be made first and disconnected last.** Statement 1046.

Before You Begin

Have the following tools ready before performing this task:

• M4 (metric) panhead Philips screwdriver

Procedure

Step 1 Power down the Cisco CMC.

Step 2 Connect one end of an 18-gauge or larger wire to the grounding screw on the Cisco CMC using the M4 panhead Phillips screwdriver.

Figure 20: Location of the Grounding Screw on the Cisco CMC

1	Grounding screw		—

Step 3 Connect the other end of the grounding wire to an appropriate ground source.

Powering Up the Cisco CMC with the 220VAC PSU

Before You Begin

Open the Cisco CMC lid. See .

Procedure

Step 1   Ensure that the 220VAC power source is switched off.

Step 2   Connect the power cord on the Cisco CMC to the 220VAC power source.

Figure 21: Connecting 220VAC Power to the Cisco CMC

1	Power cord		—

Step 3   Switch on the power source to power up the Cisco CMC.

What to Do Next

Verify if the PWR LED illuminates (green) to ensure that the Cisco CMC is powered up. Close the Cisco CMC lid. See Closing the Cisco CMC, on page 38.

Powering Up the Cisco CMC with the 60VAC PSU

This section describes how to power up the Cisco CMC with the 60VAC PSU:

Connecting 60VAC Power to the Cisco CMC Through the Power Port

Before You Begin

- Ensure that the grounding wire is installed before powering up the Cisco CMC. See Grounding the Cisco CMC, on page 31.

- The F-connector used for connecting the 60VAC power must meet the following requirements:

    ◦ Impedance of 75 ohms

    ◦ IP rating of IP67

    ◦ RMS current rating greater than 8 A

- Open the Cisco CMC lid. See Opening the Cisco CMC, on page 5.

Restrictions

> ⚠
>
> **Warning**   You must supply 60VAC power to the Cisco CMC with 60VAC PSU using only one coaxial cable. Connecting more than one coaxial cable with the 60VAC power damages the Cisco CMC. If you are connecting a modem to the port that has a black AC shunt, ensure to use combiners in the network to isolate pass-through power to prevent accidental injury.

Procedure

Step 1   Ensure that the power source is switched off.

Step 2   Install the F-connector in the power port. See Connecting the Coaxial Cable to the Cisco CMC, on page 11.

Figure 22: Connecting 60VAC Power to the Cisco CMC Through the Power Port
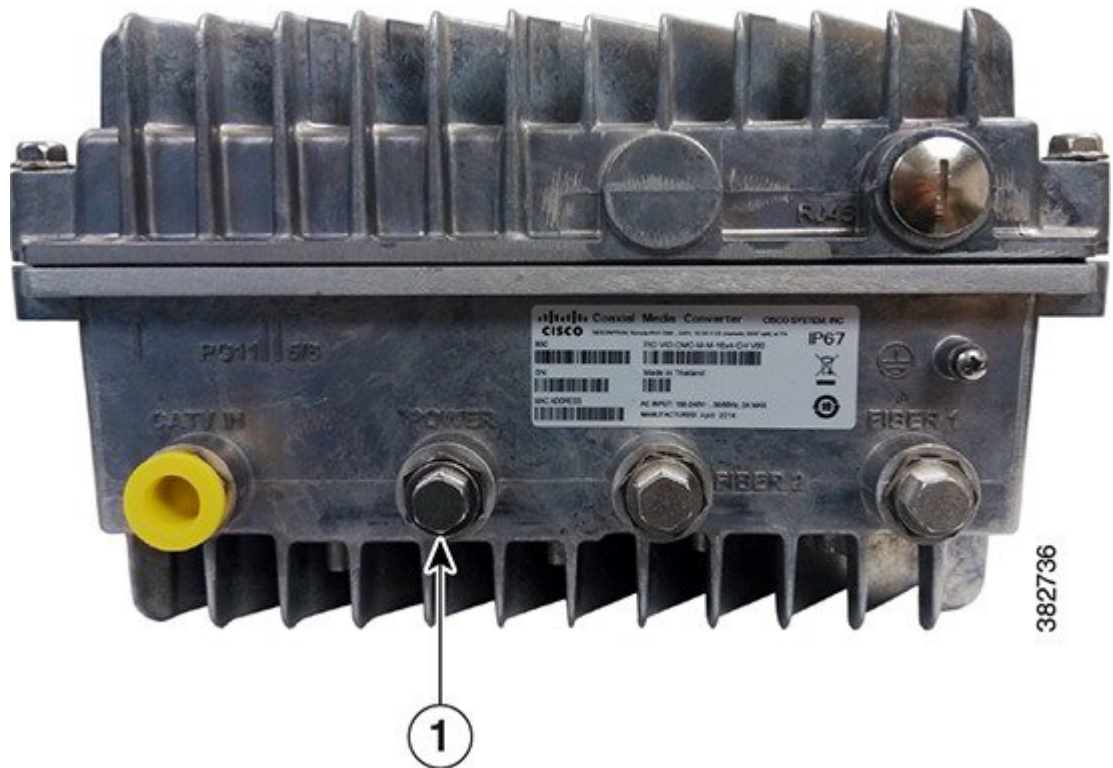
1	Power port		—

Step 3   Connect the coaxial cable to the F-connector.

Step 4   Connect the other end of the coaxial cable to a 60VAC power source.

**Step 5**   Switch on the power source to power up the Cisco CMC.

What to Do Next

Verify if the PWR LED illuminates (green) to ensure that the Cisco CMC is powered up. Close the Cisco CMC lid. See Closing the Cisco CMC, on page 38.

Connecting 60VAC Power to the Cisco CMC Through the RF Port

For the Cisco CMC with the 60VAC PSU, the power direction is configured by installing the AC shunts for the RF ports through which the AC power is passed. Use the red AC shunt for the RF input port and black AC shunts for the RF output ports.

Figure 23: Location of AC Shunts on the Cisco CMC
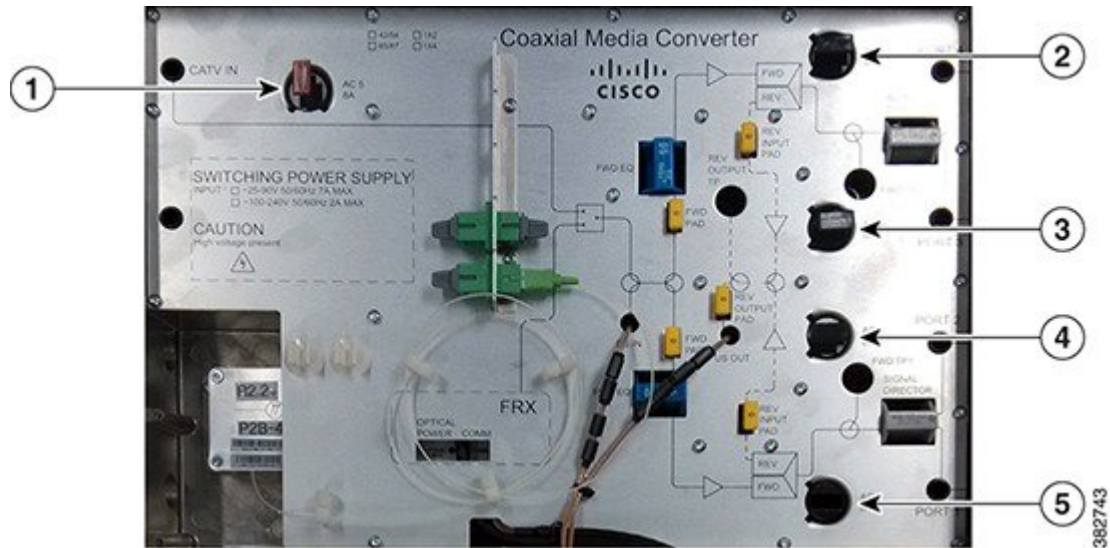
1	AC shunt for the CATV IN port	4	AC shunt for the RF output port (Port 2)
2	AC shunt for the RF output port (Port 4)	5	AC shunt for the RF output port (Port 1)
3	AC shunt for the RF output port (Port 3)		—

Before You Begin

- Ensure that the grounding wire is installed before powering up the Cisco CMC. See Grounding the Cisco CMC, on page 31.

- The F-connector used for connecting the 60VAC power must meet the following requirements:
  - Impedance of 75 ohms
  - IP rating of IP67
  - RMS current rating greater than 8 A

- Open the Cisco CMC lid. See Opening the Cisco CMC, on page 5.

Restrictions

![Warning icon] **Warning** You must supply 60VAC power to the Cisco CMC with 60VAC PSU using only one coaxial cable. Connecting more than one coaxial cable with the 60VAC power damages the Cisco CMC. If you are connecting a modem to the port that has a black AC shunt, ensure to use combiners in the network to isolate pass-through power to prevent accidental injury.

Procedure

Step 1 Ensure that the power source is switched off.

Step 2 Install the F-connector in the CATV IN and four RF output ports (Port 1 through Port 4). See Connecting the Coaxial Cable to the Cisco CMC, on page 11.

> **Note** Each RF port can support up to 8 A. Ensure that the total current from all the four RF output ports and Cisco CMC does not exceed 8 A.

Figure 24: Connecting 60VAC Power to the Cisco CMC Through the RF Port
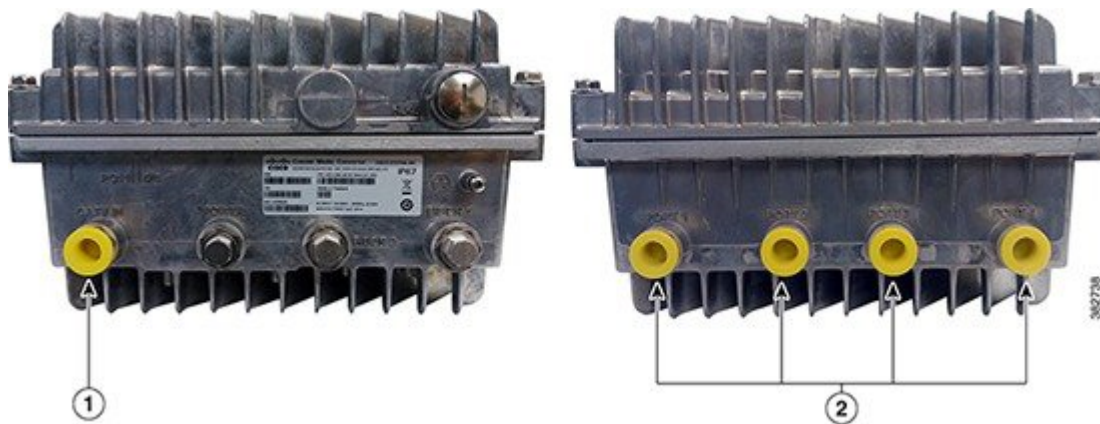
1	CATV IN port	2	RF output ports

Step 3 Remove all the AC shunts installed on the Cisco CMC.

Step 4 Connect the coaxial cables to the F-connectors.

Step 5 Insert the black AC shunts for the RF ports that need to be supplied with 60VAC power **from** the Cisco CMC.

Step 6 Insert the red AC shunt for the RF port that supplies 60VAC power **to** the Cisco CMC. Connect the other end of the coaxial cable to a 60VAC power source.

Step 7 Switch on the power source to power up the Cisco CMC.

What to Do Next

Verify if the PWR LED illuminates (green) to ensure that the Cisco CMC is powered up. Close the Cisco CMC lid. See Closing the Cisco CMC, on page 38.

Closing the Cisco CMC

Proper housing closure is important to maintain the Cisco CMC in good working condition. Proper closure ensures a good seal against the environment and protects the internal modules.

⚠️

Caution   Avoid moisture damage and RF leakage. Follow the procedure exactly as shown below to ensure a proper seal.

The Cisco CMC has waterproof rubber and EMI gasket to seal the equipment.

Figure 25: Location of the Waterproof Rubber and EMI Gasket on the Cisco CMC

1	Waterproof rubber	2	EMI gasket

Before You Begin

- Ensure that the waterproof rubber and EMI gasket on the Cisco CMC are not worn out. Wipe off any excess dirt and debris. If the waterproof rubber or EMI gasket is worn out, contact the Cisco Technical Assistance Center (TAC) for further assistance.

- Have the following tools ready before performing this task:

    ◦ Torque wrench

◦ Hex driver or ratchet

Procedure

Step 1 Close the lid.

  Caution Ensure that all the cables are out of the way when closing the lid.

Step 2 Lightly secure the six 1/2-inch closure bolts using a hex driver or ratchet.

Step 3 Tighten the six housing closure bolts from 5 ft-lb to 12 ft-lb (6.8 Nm to 16.3 Nm) using a torque wrench in the correct sequence as shown in the figure below.

Figure 26: Torque Sequence

Step 4   Using the same sequence, tighten the closure bolts again with the same torque specification to ensure proper closure.