Installing a Cisco uBR-MC16U/X Cable Interface Line Card

⚠ **Warning**   **Only trained and qualified personnel should be allowed to install, replace, or service this product.**

⚠ **Caution**   You must be properly grounded before handling this ESD-sensitive product.

1 Purpose

This quick start guide shows you how to install a Cisco uBR-MC16 cable interface line card in the Cisco uBR7246VXR router.

2 Feature Description

The Cisco uBR-MC16 cable interface line card improves RF performance, supports spectrum management, increases system performance and supports online insertion and removal (OIR). The line card is available in two configurations:

- Cisco uBR-MC16U—With an onboard upconverter and green end tabs
- Cisco uBR-MC16X—Without an onboard upconverter and yellow end tabs

✎ **Note**   The Cisco NPE-400 or the Cisco NPE-G1 network processing engine must be used with this card.

3 Installing the Card

✎ **Note**   If you are using the Cisco uBR-MC16U/X card to replace a different type of card, you must reconfigure for the MC16U/X.

Step 1   Make sure that you are grounded.

Step 2   Use both hands to grasp the card by its metal carrier edges and align the card with the slot guides, component side up.

Step 3   With the metal carrier aligned in the slot guides, briskly slide the card into the card slot until you feel it seat in the backplane connectors.

Step 4   Tighten the captive screws.

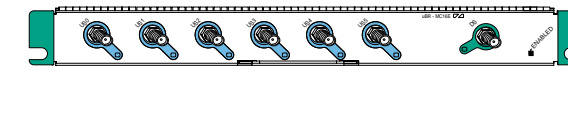✎ **Note**   The captive screws provide grounding for the electromagnetic interference (EMI) shielding.

Figure 1   Installing the Card in the Chassis
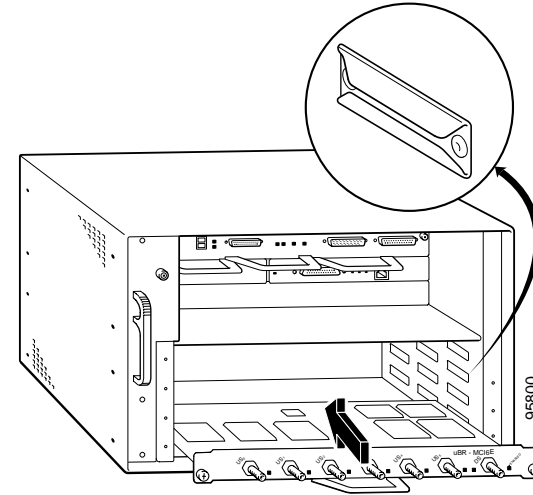
Cabling

- Cisco uBR-MC16U—Green tabs
- Cisco uBR-MC16X—Yellow tabs

Figure 2   Cisco uBR-MC16U

Cabling the Cisco uBR-MC16U

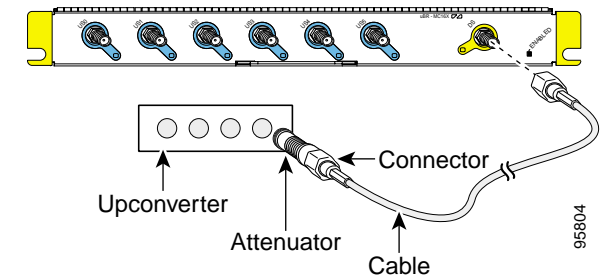The Cisco uBR-MC16U cable interface line card has an onboard upconverter. To cable the card:

Step 1   Connect the downstream cable to the downstream port (DS).

The RF downstream port ring and end tabs are green. See Figure 2.

Step 2   Connect the upstream cables to the upstream ports (US0—US5).

Cabling the Cisco uBR-MC16X

The Cisco uBR-MC16X cable interface line card does not have an onboard upconverter. The card may require up to 10 dB of attenuation due to a higher IF output power (higher than legacy Cisco line cards). To cable the card:

Step 1   Connect the downstream cable to the downstream port on the card (DS).

The IF downstream port ring and end tabs are yellow. See Figure 3.

Step 2   Add RF attenuators as required to get the correct IF output. Insert the attenuator between the downstream IF output cable and the upconverter. See Figure 3

Step 3   Connect the upstream cables to the upstream ports on the card (US0—US5).

Figure 3   Inserting an Attenuator

✎ **Note**   All upstream ports are light blue.

CISCO SYSTEMS

4 Removing the Card

To prevent the alarms from activating, administratively shut down the card before removing it from the chassis. Refer to "Shutting Down and Restarting the Interface" in the *Cisco uBR7200 Series Universal Broadband Router Software Configuration Guide.* See "Related Documentation" for the URL.

Step 1 Make sure that you are properly grounded.

Step 2 Disconnect all the cables from the cable interface line card.

Step 3 Unscrew the captive installation screws on the faceplate.

Figure 4   *Removing the Card from the Chassis*
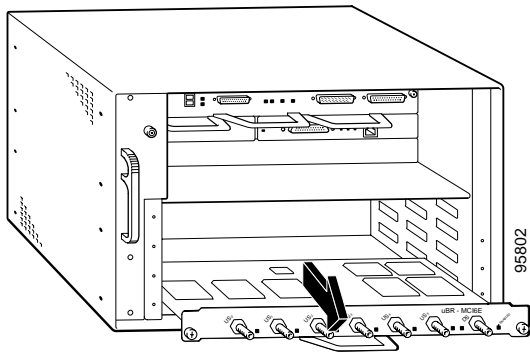
Step 4 Grasp the handle and carefully pull the card out of its slot.

⚠ **Caution**   Always handle the cable interface line card by the carrier edges and handle; never touch the card's components or connector pins.

Step 5 Place the card on an antistatic surface with the component side facing up.

✎ **Note**   If the card is being returned to the factory, immediately place it in a static shielding bag and proper packaging for protection.

⚠ **Caution**   For proper cooling and airflow, always install a line card cover in an empty line card slot.

5 Troubleshooting

Check the following:

1. Make sure that the card is securely seated in the chassis.

    If the captive screws do not tighten all the way, the card is not properly seated in the chassis or backplane. Carefully pull the card halfway out of the slot, reinsert it, and tighten the captive installation screws.

⚠ **Caution**   A partially seated line card can cause the router to reboot.

2. Are *all* ENABLED LEDs on?

    If yes, the system is operational.

    If no, check the following possibilities:

    a. Verify that the card has been enabled and configured for operation. The ENABLED LED remains off when a card has not been configured and enabled.

    b. If a port is enabled but its corresponding ENABLED LED is still off, check to see if the card has pulled away from the backplane. Reseat the card in its slot. (You do not have to turn off the system power to do this.) After the system reinitializes the interfaces, the ENABLED LED on the card should come on.

3. If the ENABLED LED remains off after the above checks, it is likely that the system has detected a processor hardware failure.

    Contact Cisco TAC for further information and help. To access the Cisco TAC website, go to the following URL:
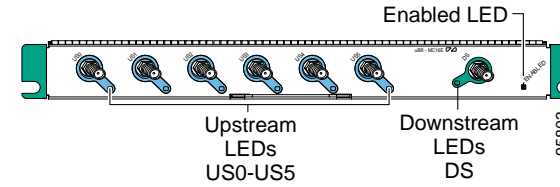
    http://www.cisco.com/tac

Figure 5   *LEDs*

Table 1   *LEDs/Status*

LED/Status	Description
ENABLED—Green	Card operating normally
ENABLED—Off	Card not enabled
US—Green	Upstream enabled
US—Off	Upstream not enabled
DS—Green	Downstream enabled
DS—Off	Downstream not enabled

6 Technical Specifications

Table 2   *Technical Specifications*

Description	Order Num/ Specifications
Cisco uBR-MC16U, with upconverter	UBR-MC16U, UBR-MC16U=
Cisco uBR-MC16X, without upconverter	UBR-MC16X, UBR-MC16X=
Blank covers	UBR-MC-COVER=
Weight—MC16U Weight—MC16X	5.25 lbs (2.38 kg) 4.75 lbs (2.16 kg)
Power	
MC16U MC16X	62 Watts (211.6 BTU/h) 47 Watts (160.4 BTU/h)
RF output power range—50 to 61 dBmV	
Output—MC16U Output—MC16X	+50 to 61 dBmV at RF +42 dBmV at IF (+/-2 dB)
Modulation	
Upstream (US0–US5)	QPSK 8-, 16-, 32-, 64-QAM
Downstream (DS)	64-QAM, 256-QAM

Table 2   *Technical Specifications (continued)*

Description	Order Num/ Specifications
Frequency range	
Upstream Downstream	5–65 MHz 70–860 MHz

The Cisco MC16U/X line card is compatible with most cable systems worldwide, including but not limited to Asia Pacific, Europe, and the Americas. See Cisco IOS release notes for more information.

7 Related Documentation

For more information, see the following:

- *Cisco uBR7200Series Universal Broadband Hardware Installation Guide*

  http://www.cisco.com/univercd/cc/td/doc/product/cable/cab_rout/cr72hig/index.htm

- *Cisco uBR7200 Series Cable Interface Line Card Installation Guide*

  http://www.cisco.com/univercd/cc/td/doc/product/cable/cab_rout/cfig_nts/index.htm

- *Cisco uBR7200 Series Universal Broadband Software Configuration Guide*

  http://www.cisco.com/univercd/cc/td/doc/product/cable/cab_rout/cr72scg/index.htm

- Cisco CMTS Error Messages

  http://www.cisco.com/univercd/cc/td/doc/product/cable/cab_rout/ubrerrs.htm

- *Cisco CMTS Feature Guide*

  http://www.cisco.com/univercd/cc/td/doc/product/cable/cab_rout/cmtsfg/index.htm

- For information about the 1–year warranty, enter 78-10747-01C0 at the following URL:

  http://www.cisco.com/univercd/cc/td/doc/es_inpck/cetrans.htm

- For more Cisco cable products information, go to the following URL:

  http://www.cisco.com/warp/public/44/jump/cable.shtml