



Connecting Cisco Wireless Multipoint Network Modules to the Network

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This guide describes how to connect Cisco wireless multipoint network modules to your network. It contains the following sections:

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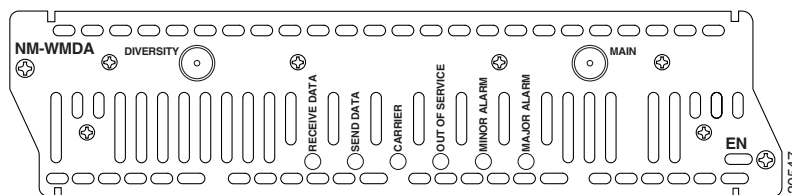
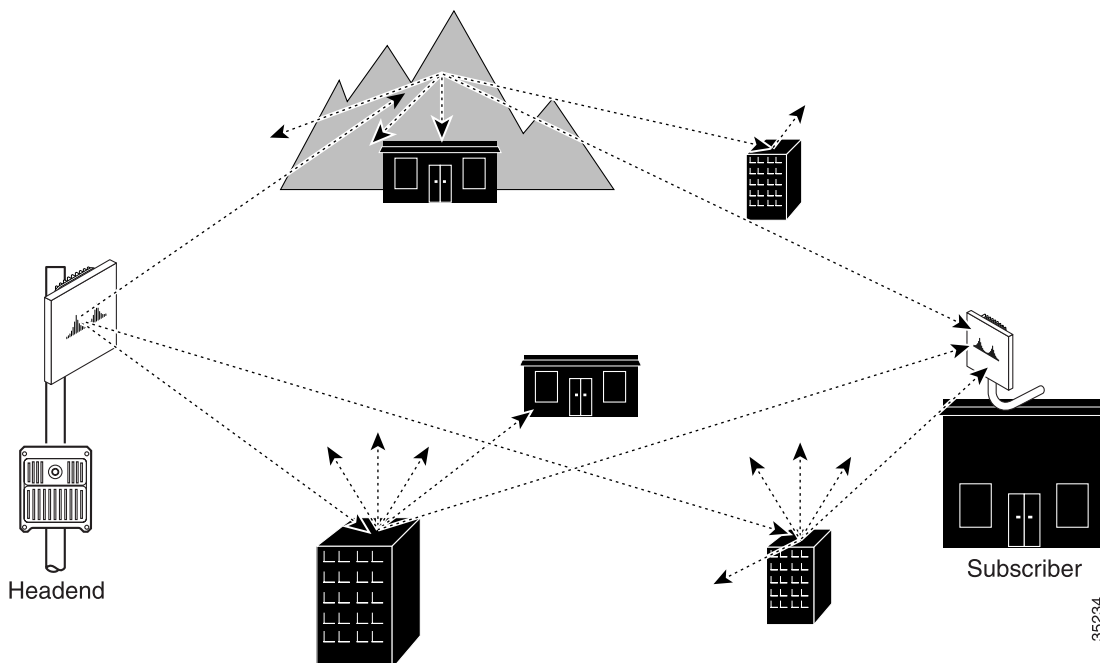
Wireless Multipoint Network Modules

The wireless multipoint network module, shown in [Figure 1](#), also referred to as a *subscriber unit* (SU), provides a high-speed broadband fixed wireless radio-frequency (RF) link between each subscriber site and a single headend site. This link delivers full-duplex data in the licensed MMDS band (2.500 to 2.690 GHz) or unlicensed U-NII band (5.725 to 5.825 GHz).

The headend of the system consists of a Cisco uBR7200 series universal broadband router, one or more wireless modem cards, and the required subsystem for each modem card. The diversity option, which minimizes the effects of fading, uses two wireless transverters at each site, with each transverter connected to its own antenna. (See [Figure 2](#).)



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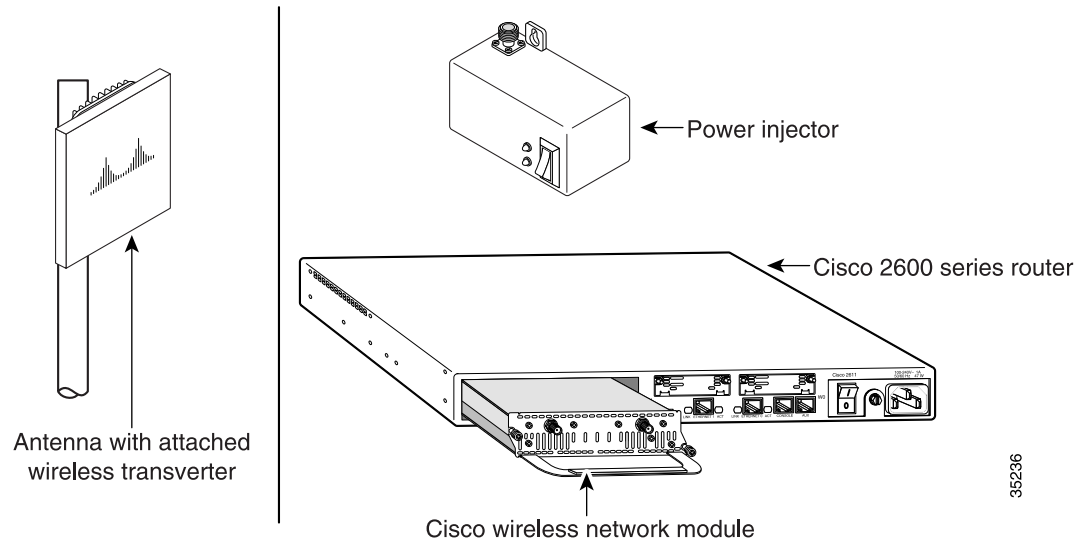
Figure 1 *Wireless Multipoint Network Module with Diversity***Figure 2** *Multipoint Communications with Multipath and Diversity Reception*

The network module provides the control and data interface to the radio frequency (RF) subsystem in the wireless transverter. It also provides the up-down conversion from baseband to intermediate frequency (IF). One network module supports one or two wireless transverters (main and diversity).

Subscriber-Unit System

Each subscriber unit system (see [Figure 3](#)) consists of the necessary cables and these items:

- A wireless multipoint network module in the router
- One or two antennas to transmit and receive RF signals to and from the headend. (Diversity reception of headend transmissions requires two antennas.)
- One wireless transverter for each antenna. The transverter can be attached to the back of the subscriber antenna, as shown in [Figure 3](#), or mounted separately.
- One power injector for each transverter. The power injector connects the network module to the wireless transverter, and provides the transverter with DC power, control signals, and IF signals.

Figure 3 Components of the Multipoint Subscriber-Unit System**Note**

The antenna, wireless transverter, and power injector are third-party products. For further information about these components, see the manufacturer's documentation.

Hardware and Software Requirements

Wireless multipoint network modules require that the router have at least 16 MB of flash memory.

The wireless multipoint network modules require an external microcode bundle. You can download this microcode at <http://www.cisco.com/cgi-bin/tablebuild.pl/rsu>.

Connecting Wireless Ports to the Network

Use an indoor IF coaxial cable to connect the wireless network module Main connector to a power injector. If you are using the diversity feature, connect the network module Diversity connector to a second power injector.

Wireless Multipoint Network Module LEDs

Wireless multipoint network modules have the LEDs shown in [Table 1](#).

Table 1 Wireless Multipoint Network Module LEDs

LED	Meaning
EN (Enable)	The module has passed its self-tests and is available to the router.
RECEIVE DATA	The module is receiving packets.
SEND DATA	The module is sending packets.

Table 1 **Wireless Multipoint Network Module LEDs (continued)**

LED	Meaning
CARRIER	Indicates the state of the radio link. Green means that the radio link is synchronized and the line protocol is up. Yellow indicates loss of link synchronization.
OUT OF SERVICE	Yellow means that the radio link is still up, but not available for use (typically in a test or loopback mode).
MINOR ALARM	Yellow means that the link is degraded and may need maintenance action, or one or more user-defined event thresholds have been exceeded.
MAJOR ALARM	The link is down.

Related Documents

For additional information, see the following documents and resources.

Related Topic	Document Title
Subscriber unit feature documentation	<i>Multipoint Wireless Support for the Cisco 2600 and 3600 Series Routers</i> http://www.cisco.com/en/US/docs/ios/12_1/12_1xm/feature/guide/ftwrlssu.html
Headend feature documentation	<i>Multipoint Support for the Cisco uBR7200 Series Universal Broadband Router</i> http://www.cisco.com/en/US/docs/ios/12_1/12_1xm/feature/guide/ftwrlsmc.html
Regulatory compliance and safety information	<i>Cisco Network Modules and Interface Cards Regulatory Compliance and Safety Information</i> http://www.cisco.com/en/US/docs/routers/access/interfaces/rcsi/IOHrcsi.html
Cisco IOS software website and reference documentation	<i>Cisco IOS Software</i> http://www.cisco.com/web/psa/products/index.html?c=268438303

Obtaining Documentation, Obtaining Support, and Security Guidelines

For information on obtaining documentation, obtaining support, providing documentation feedback, security guidelines, and also recommended aliases and general Cisco documents, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised Cisco technical documentation, at:

<http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html>

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