dGETTING STARTED GUIDE

Cisco Aironet 1430 Series Wireless Bridge

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Revised October 2008 P/N 78-18922-01

1 About this Guide

This Guide provides instructions on how to install and configure your Cisco Aironet 1430 Series Wireless Bridge (*hereafter called the bridge)*. This guide also provides bridge alignment instructions and limited troubleshooting procedures.

The Cisco Aironet 1430 Series Wireless bridge is an updated replacement for the Cisco Aironet 1400 Series Wireless Bridge. The 1430 series is a 802.11a wireless bridge supporting point-to-point and point-to-multipoint applications operating in the 4.9-, 5.6-, and 5.8-GHz spectrum. The bridge delivers long-range, high capacity, and is easy to deploy. The bridge supports 40 MHz channelization in the 5.6- and 5.8-GHz bands to deliver data rates at or above 130 Mbps. The bridge also supports external and integrated antenna configurations for various deployment scenarios for enterprise and commercial customer applications.

The bridge is deployed as an autonomous point-to-point bridge, providing intelligent network services in a simple autonomous environment. Cisco's wireless controller software (WCS) management provides centralized management and monitoring services for the bridge.

2 Safety Instructions

Translated versions of the following safety warnings are provided in the translated safety warnings document that is shipped with your bridge. The translated warnings are also in the *Translated Safety Warnings for Cisco Aironet 1430 Series Wireless Bridges*, which is available on your documentation CD and cisco.com.

Warning **This warning symbol means danger. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents. (To see translations of the warnings that appear in this publication, refer to the appendix "Translated Safety Warnings.")**
Statement 1071

Warning **Only trained and qualified personnel should be allowed to install, replace, or service this equipment.**
Statement 1030

Warning **Do not locate the antenna near overhead power lines or other electric light or power circuits, or where it can come into contact with such circuits. When installing the antenna, take extreme care not to come into contact with such circuits, because they may cause serious injury or death. For proper installation and grounding of the antenna, please refer to national and local codes (for example, U.S.:NFPA 70, National Electrical Code, Article 810, Canada: Canadian Electrical Code, Section 54).**
Statement 1052

Warning **This product relies on the building's installation for short-circuit (overcurrent) protection. Ensure that the protective device is rated not greater than:**
120 VAC, 15A U.S. (240 VAC, 10A International)
Statement 1005

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 366

Warning **Read the installation instructions before connecting the system to the power source.**
Statement 1004

Warning **Do not work on the system or connect or disconnect cables during periods of lightning activity.**
Statement 1001

Warning **Do not operate your wireless network device near unshielded blasting caps or in an explosive environment unless the device has been modified to be especially qualified for such use.**
Statement 245B

Warning **In order to comply with radio frequency (RF) exposure limits, the antennas for this product should be positioned no less than 6.56 ft (2 m) from your body or nearby persons.** Statement 332

Warning **This unit is intended for installation in restricted access areas. A restricted access area can be accessed only through the use of a special tool, lock and key, or other means of security and is controlled by the authority responsible for the location.** Statement 37

3 Unpacking

Figure 1 shows the typical contents of the shipping container. The contents of your shipping container may be different depending on what you ordered. Follow these steps to unpack the shipping container.

Step 1 Unpack and remove the bridge and the accessory kit from the shipping box.

Step 2 Return any packing material to the shipping container and save it for future use.

Step 3 Verify that you have received the items shown in Figure 1. If any item is missing or damaged, contact your Cisco representative or reseller for instructions.

Figure 1 Shipping Box Contents

1	1430 series wireless bridge	**4**	
2		**5**	
3		**6**	Documentation CD

4 Overview

The following illustrations show the bridge connections and features.

Figure 2 Bridge Connections and Features

1		4	
2		5	
3		6	

5 Configuring the Bridge for the First Time

This chapter describes how to configure basic settings on your bridge for the first time. The contents of this chapter are similar to the instructions in the quick start guide that shipped with your bridge. You can configure all the settings described in this chapter using the command-line interface (CLI), but it might be simplest to browse to the bridge's web-browser interface to complete the initial configuration and then use the CLI to enter additional settings for a more detailed configuration.

This chapter contains these sections:

- Before You Start, page 7
- Obtaining and Assigning an IP Address, page 8
- Connecting to the Bridge Locally, page 9
- Assigning Basic Settings, page 10
- What To Do Next, page 14
- Assigning an IP Address Using the CLI, page 15
- Using a Telnet Session to Access the CLI, page 15

Before You Start

Before you install the bridge, make sure you are using a computer connected to the same network as the bridge, and obtain the following information:

- From your network system administrator:
  - A system name
  - The case-sensitive wireless service set identifier (SSID) for your radio network
  - If not connected to a DHCP server, a unique IP address for your bridge (such as 172.17.255.115)
  - If the bridge is not on the same subnet as your PC, a default gateway address and subnet mask
  - A Simple Network Management Protocol (SNMP) community name and the SNMP file attribute (if SNMP is in use)

Resetting the Bridge to Default Settings

If you need to start over during the initial setup process, follow these steps to reset the bridge to factory default settings using the power injector's Mode button:

Step 1 Disconnect the power jack from the power injector.

Step 2 Press and hold the power injector's **MODE** button while you reconnect the power jack.

Step 3 Hold the **MODE** button until the Status LED turns amber (approximately 1 to 3 seconds) and wait until the bridge boots up (Status LED turns green). All bridge settings return to factory defaults.

You can also use the web-browser interface to reset the bridge to defaults. Follow these steps to return to default settings using the web-browser interface:

Step 1 Open your Internet browser. You must use Microsoft Internet Explorer (version 5.x or later) or Netscape Navigator (version 4.x).

Step 2 Enter the bridge's IP address in the browser address line and press **Enter**. An Enter Network Password window appears.

Step 3 Enter your username in the User Name field. The default username is **Cisco**.

Step 4 Enter the bridge password in the Password field and press **Enter**. The default password is **Cisco**. The Summary Status page appears.

Step 5 Click **System Software** and the System Software screen appears.

Step 6 Click **System Configuration** and the System Configuration screen appears.

Step 7 Click **Default**.

Note If the bridge is configured with a static IP address, the IP address is not changed.

Obtaining and Assigning an IP Address

To browse to the bridge's Express Setup page, you must either obtain or assign the bridge's IP address using one of the following methods:

- Use default address 10.0.0.1 when you connect to the bridge locally. For detailed instructions, see the "Connecting to the Bridge Locally" section on page 9.
- Use a DHCP server (if available) to automatically assign an IP address. You can find the DHCP-assigned IP address using one of the following methods:
  - Provide your organization's network administrator with your bridge's Media Access Control (MAC) address. Your network administrator will query the DHCP server using the MAC address to identify the IP address. The bridge's MAC address is on label attached to the bottom of the bridge.

Connecting to the Bridge Locally

If you need to configure the bridge locally (without connecting the bridge's power injector to a wired LAN), you can connect a PC to the power injector's Ethernet port using a Category 5 Ethernet cable. You can use a local connection to the Ethernet port much as you would use a serial port connection.

Note You do not need a special crossover cable to connect your PC to the bridge's power injector; you can use either a straight-through cable or a crossover cable.

If the bridge is configured with default values and not connected to a DHCP server or cannot obtain an IP address, it defaults to IP address 10.0.0.1 and becomes a mini-DHCP server. In that capacity, the bridge provides up to twenty IP addresses between 10.0.0.11 and 10.0.0.30 to an Ethernet-capable PC connected to the power injector's Ethernet port.

The mini-DHCP server feature is disabled automatically when you assign a static IP address to the bridge.

Caution When a bridge with default settings is connected on a wired LAN and does not receive an IP address from a DHCP server, the bridge provides an IP address to any DHCP requests it receives.

Follow these steps to connect to the bridge locally:

Step 1 Make sure that the PC you intend to use is configured to obtain an IP address automatically, or manually assign it an IP address from 10.0.0.31 to 10.0.0.40. Connect your PC to the power injector using a Category 5 Ethernet cable. You can use either a crossover cable or a straight-through cable.

Note When you connect your PC to the bridge's power injector or reconnect your PC to the wired LAN, you might need to release and renew the IP address on the PC. On most PCs, you can perform a release and renew by rebooting your PC or by entering **ipconfig /release** and **ipconfig /renew** commands in a command prompt window. Consult your PC operating instructions for detailed instructions.

Step 2 Power up the power injector.

Step 3 Follow the steps in the "Assigning Basic Settings" section on page 10. If you make a mistake and need to start over, follow the steps in the "Resetting the Bridge to Default Settings" section on page 7.

Step 4 After configuring the bridge, remove the Ethernet cable from your PC and connect the power injector to your wired LAN.

Assigning Basic Settings

After you determine or assign the bridge's IP address, you can browse to the bridge's Express Setup page and perform an initial configuration. Follow these steps:

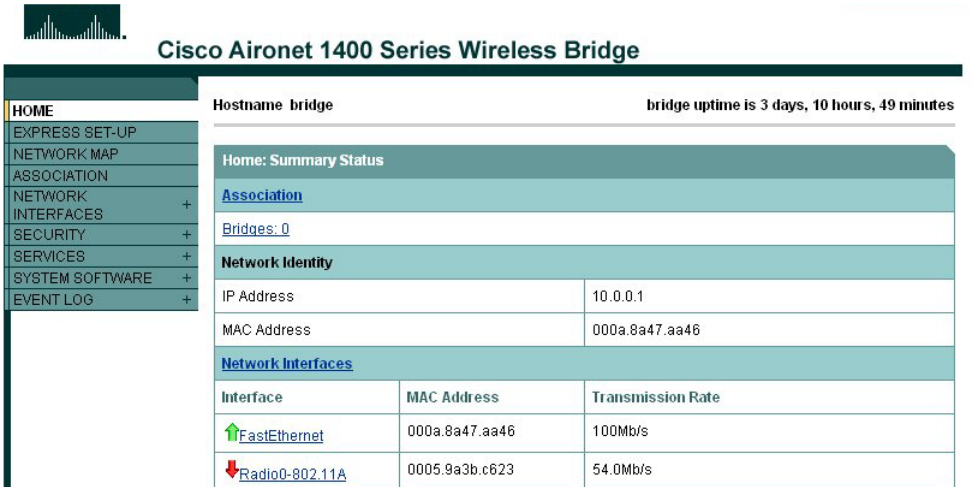
Step 1 Open your Internet browser. You must use Microsoft Internet Explorer (version 5.x or later) or Netscape Navigator (version 4.x).

Step 2 Enter the bridge's IP address in the browser address line and press **Enter**. An Enter Network Password screen appears.

Step 3 Press **Tab** to bypass the Username field and advance to the Password field.

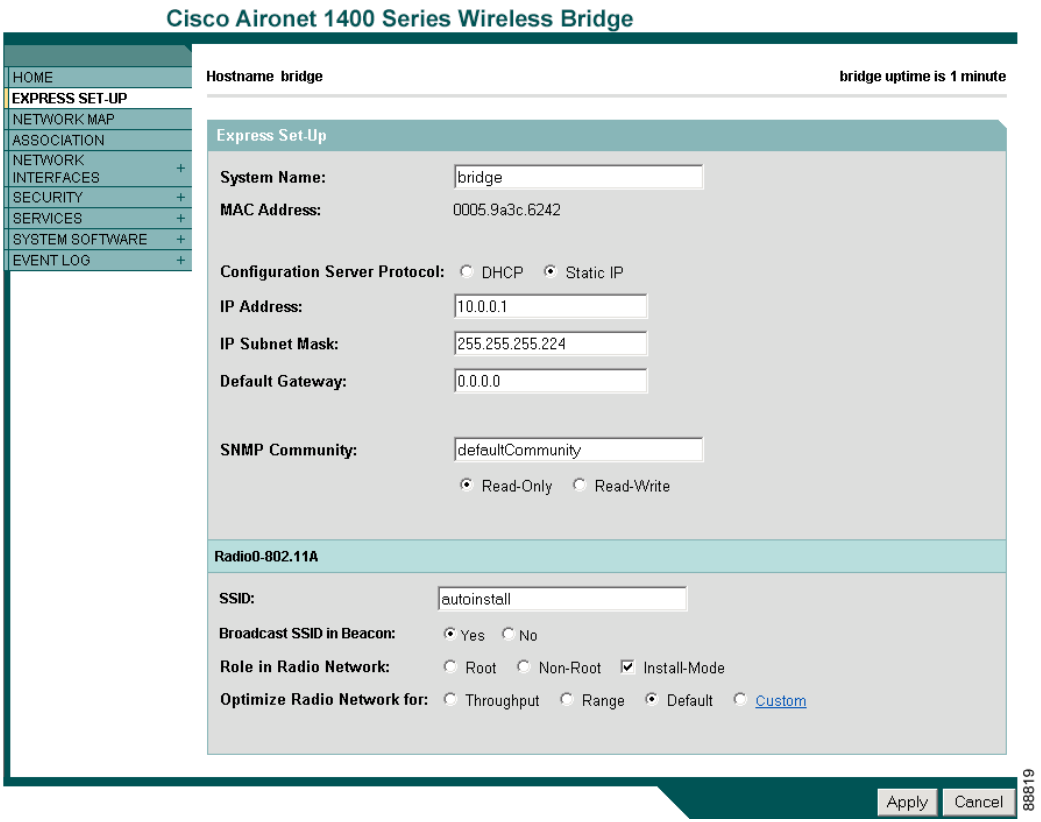
Step 4 Enter the case-sensitive password *Cisco* and press **Enter**. The Summary Status page appears. Figure 3 shows the Summary Status page.

Figure 3 Summary Status Page



Step 5 Click **Express Setup**. The Express Setup screen appears. Figure 4 shows the Express Setup page.

Figure 4 Express Setup Page



Step 6 Enter the configuration settings you obtained from your system administrator. The configurable settings include:

- **System Name**—The system name, while not an essential setting, helps identify the bridge on your network. The system name appears in the titles of the management system pages.
- **Configuration Server Protocol**—Click on the button that matches the network's method of IP address assignment.
- **DHCP**—IP addresses are automatically assigned by your network's DHCP server.

Note

- When DHCP is enabled, the IP Address, Subnet Mask, and Default Gateway fields indicate *Negotiated by DHCP*
- **Static IP**—The bridge uses a static IP address that you enter in the IP address field.

- **IP Address**—Use this setting to assign or change the bridge's IP address. If DHCP is enabled for your network, leave this field blank.

Note If the bridge's IP address changes while you are configuring the bridge using the web-browser interface or a Telnet session over the wired LAN, you lose your connection to the bridge. If you lose your connection, reconnect to the bridge using its new IP address. Follow the steps in the "Resetting the Bridge to Default Settings" section on page 7 if you need to start over.

- **IP Subnet Mask**—Enter the IP subnet mask provided by your network administrator so the IP address can be recognized on the LAN. If DHCP is enabled, leave this field blank.
- **Default Gateway**—Enter the default gateway IP address provided by your network administrator. If DHCP is enabled, leave this field blank.
- **SNMP Community**—If your network is using SNMP, enter the SNMP Community name provided by your network administrator and select the attributes of the SNMP data (also provided by your network administrator).
- **Read-Only**—indicates the bridge allows only SNMP read accesses. Using this option, an SNMP user cannot change bridge configuration settings.
- **Read-Write**—indicates the bridge allows SNMP read and write accesses. This setting allows an SNMP user to change the bridge configuration.
- **Radio Service Set ID (SSID)**—Enter the case-sensitive SSID (32 alphanumeric characters maximum) provided by your network administrator. The SSID is a unique identifier that remote bridges use to associate with your bridge.
- **Broadcast SSID in Beacon**—Use this setting to allow devices that do not specify an SSID to associate with the bridge.
  - **Yes**—This is the default setting; it allows a remote bridge that does not specify an SSID to associate with the bridge.
  - **No**—Remote bridges must specify an SSID to associate with the bridge. With No selected, the SSID used by the remote bridge must match exactly the bridge's SSID.
- **Role in Radio Network**—Click on the check box and button that describes the role of the bridge on your network.
- **Install Mode**—Activates the bridge install and alignment mode. Specifies that the bridge automatically determines the network role. If the bridge is able to associate to another root bridge within 60 seconds, the bridge assumes a non-root bridge role. If the bridge is unable to associate with another root bridge within 60 seconds, the bridge assumes a root bridge role.

  You can also pre-configure the bridge into root or non-root modes and avoid the 60 seconds automatic detection phase.

- **Root**—Specifies that the bridge connects directly to the main Ethernet LAN network and accepts associations from other bridges.
- **Non-root**—Specifies that the bridge connects to a remote LAN network and must associate with the root bridge using the wireless interface.

Note When initially powered up, the bridge is configured in Install mode with automatic detection activated.

- **Optimize Radio Network for**—Use this setting to select either preconfigured settings for the bridge radio or customized settings for the bridge radio.
  - **Throughput**—Maximizes the data volume handled by the bridge but might reduce its range.
  - **Range**—Maximizes the bridge's range but might reduce throughput.
  - **Default**—The bridge retains default radio settings that are designed to provide good range and throughput for most bridges.
  - **Custom**—The bridge uses settings you enter on the Network Interfaces: Radio-802.11a Settings page. Clicking **Custom** takes you to the Network Interfaces: Radio-802.11a Settings page.
  - Click **Apply** to save your settings. If you changed the IP address, you lose your connection to the bridge. Browse to the new IP address to reconnect to the bridge.

Note You can restore the bridge to its factory defaults by unplugging the power injector's power jack and plugging it back in while holding down the Mode button for a few seconds, or until the Status LED turns amber.

Default Settings on the Express Setup Page

Table 1 lists the default settings for the settings on the Express Setup page.

Table 1 Default Settings on the Express Setup Page

Setting	Default
System Name	Bridge
Configuration Server Protocol	DHCP

Table 1 Default Settings on the Express Setup Page (continued)

Setting	Default
IP Address	Assigned by DHCP (default setting); if DHCP is disabled, the default setting is 10.0.0.1
IP Subnet Mask	Assigned by DHCP (default setting); if DHCP is disabled, the default setting is 255.255.255.224
Default Gateway	Assigned by DHCP (default setting); if DHCP is disabled, the default setting is 0.0.0.0
SNMP	defaultCommunity
	Read Only
SSID	autoinstall[1]
Broadcast SSID in Beacon	Yes
Role in Radio Network	Install
Optimize Radio Network for	Throughput

1. During Install Mode, the SSID is *autoinstall*.

What To Do Next

After your bridge has basic settings, you need to complete your bridge's configuration. You might need to adjust the output power level and other network and security settings.

Output Power Level

Your bridge's output power level might require adjustment under the following conditions:

- When bridges are installed less than 328 ft (100 m) apart, you should reduce their output power to avoid overloading the bridge's receivers.

To configure your bridge's output power level, refer to the *Power Levels and Channels for Cisco Aironet Access Points and Bridges*.

Protecting Your Wireless LAN

To prevent unauthorized access to your network, you must configure security settings. Because the bridge is a radio device, the bridge communicates beyond the physical boundaries of your building. Refer to the *Cisco Aironet 1400 Series Wireless Bridge Software Configuration Guide* to configure security features to protect your network from intruders:

- Unique SSIDs that are not broadcast in the bridge beacon
- WEP and additional WEP features, such as TKIP and broadcast key rotation
- Dynamic WEP and EAP authentication

Assigning an IP Address Using the CLI

When you connect the bridge to the wired LAN, the bridge links to the network using a bridge virtual interface (BVI) that it creates automatically. Instead of tracking separate IP addresses for the bridge's Ethernet and radio ports, the network uses the BVI.

When you assign an IP address to the bridge using the CLI, you must assign the address to the BVI. Beginning in privileged EXEC mode, follow these steps to assign an IP address to the bridge's BVI:

	Command	Purpose
Step 1	configure terminal	Enter global configuration mode.
Step 2	interface bvi1	Enter interface configuration mode for the BVI.
Step 3	ip address *address mask*	Assign an IP address and address mask to the BVI. This step automatically saves the running configuration to the startup configuration. **Note** You lose your connection to the bridge when you assign a new IP address to the BVI. If you need to continue configuring the bridge, use the new IP address to open another Telnet session to the bridge.

Using a Telnet Session to Access the CLI

Follow these steps to access the CLI using a Telnet session. These steps are for a PC running Microsoft Windows with a Telnet terminal application. Check your PC operating instructions for detailed instructions for your operating system.

Step 1 Select **Start > Programs > Accessories > Telnet**.

If Telnet is not listed in your Accessories menu, select **Start > Run**, type **Telnet** in the entry field, and press **Enter**.

Step 2 When the Telnet window appears, click **Connect** and select **Remote System**.

Note In Windows 2000, the Telnet window does not contain drop-down menus. To start the Telnet session in Windows 2000, type **open** followed by the bridge's IP address.

Step 3 In the Host Name field, type the bridge's IP address and click **Connect**.

6 Mounting the Bridge

This section describes in fundamental terms how to mount the bridge using its supplied mounting hardware. Detailed mounting instructions are contained in the *Cisco Aironet 1430 Wireless Bridge Mounting Instructions*, which shipped with your bridge. This document is also available on cisco.com.

Typically, the bridge is installed on a rooftop, mast, tower, wall, or a suitable flat surface. Each of these installations requires a different approach. This document provides a mounting overview. For detailed mounting instructions, refer to the *Cisco Aironet 1400 Series Wireless Bridge Mounting Instructions* that shipped with your bridge.

Personnel installing the bridge must understand wireless bridging techniques, antenna alignment and adjustment, and grounding methods. The integrated antenna configuration can be installed by an experienced IT professional.

Mounting Hardware

The bridge is shipped with the following mounting hardware:

- Multi-function mount (consisting of two bridge brackets and one mast bracket)
- Fastener hardware (consisting of nuts, bolts, washers, and U-bolts)

Multi-function Mount

The multi-function mount provides a method for mounting the bridge on a mast, tower, or an optional roof-mast mount. The multi-function mount permits easy azimuth and elevation adjustments for antenna alignment purposes. The basic mounting procedure is shown below:

1. Mount the two bridge brackets to the bridge with the support pins facing the sides of the bridge.

2. Mount the mast bracket to the tower or mast using the supplied U-bolts.
3. Suspend the bridge on the mast bracket using the bridge bracket support pins.
4. Secure the bridge brackets to the mast bracket using the supplied nuts, bolts, and washers (hand tighten).
5. Connect the dual-coax cable to the power injector dual-coax ports (F-type connectors) on the bridge.

Note You should securely tighten the cable connectors (15 to 20 inch-pounds) using a small wrench.

6. Connect the ground wire to the bridge.
7. Align the bridge and tighten the nuts and bolts.

Bridge Brackets

The two bridge brackets mount on the back side of the bridge housing. Each bracket mounts on two screw posts on opposite ends of the unit. The support pin on the bridge bracket must be facing the side of the unit. These support pins are used to suspend the bridge in the notches on the mast mounting bracket until you secure the mounting bolts.

The bridge brackets must be positioned to obtain the correct antenna polarization that matches the remote antenna. The bridge housing contains an antenna polarization mark consisting of an arrow on the side of the housing. When the bridge is positioned so that the arrow is pointing up, the bridge antenna is vertically polarized. For horizontal polarization, the arrow should be pointing from left to right. All bridges must use the same antenna polarization for best operation.

Mast Bracket

The mast bracket attaches to a mast or tower support and is used to secure the bridge.The procedure for attaching the mounting bracket to the support depends on the pipe diameter, as shown in Table 2.

Table 2 Mast Bracket Attachment Methods

Mast Type	Mast Diameter	Mast Attachment Method
Roof mount, small mast, or tower	1.5 to 2.5 in. (30.5 to 63.5 mm)	Attach the pipe inside the mounting bracket, between the bracket and bridge.
Large mast	2.5 to 4.5 in. (63.5 to115 mm)	Attach the pipe outside the mounting bracket, away from the bridge.

Note The U-bolts supplied with the bridge support mast diameters up to 1.75 in. (44.5 mm). For larger masts, you must supply the U-bolts to attach the bridge.

Bridge LEDs

When you power up the bridge for the first time, it starts in a special installation mode. The LEDs indicate the startup status, operating mode, association status, and received signal strength. This information simplifies the process of activating the link and positioning the antenna from the bridge mounting location.

The LEDs are mounted on the back of the housing near the connectors (see Figure 5).

Figure 5 LED and Connector Locations

1	Status LED—bridge software status	**3**	Radio LED—status of 802.11a radio
2	Uplink LED—Ethernet status	**4**	Install LED—

When the bridge is initially powered-up, installation mode is activated and the bridge attempts to associate to a root bridge for 60 seconds. If it is unable to associate with a root bridge, it automatically assumes the root bridge role. The Install LED provides bridge association status during installation mode as shown in Table 3.

Table 3 Install LED Association Status

Install LED	State	Bridge State
Off	Self test	Startup.
Blinking amber	Non-root, searching	Not associated (non-root mode). The bridge attempts to associate with a root bridge for 60 seconds[1].
Amber	Non-root, associated	Associated (non-root mode).
Blinking green	Root, searching	Not associated (root mode). The bridge attempts to associate with a non-root bridge indefinitely.
Green	Root, associated	Associated (root mode).

1. Preconfigured bridges search indefinitely.

Use the Install LED to determine when the bridge successfully associates with a remote bridge and to verify its mode of operation. After association, the other three LEDs indicate signal strength (see Table 4).

The startup and association sequence depends on the bridge configuration, which can be one of the following types:

- Default—The bridge attempts to associate with a root bridge for 60 seconds. If it does not associate with a root bridge, it then attempts to associate with a non-root bridge.
- Preconfigured—The bridge attempts to associate with a remote bridge in the configured mode, either root or non-root. Because there are no timeouts, it is easier to align the antenna.

Aligning the Antenna Using LED Indications

You can align the integrated antenna using LEDs after the bridge successfully associates with a remote bridge. In the installation mode before association to another bridge, the Install LED blinks amber. If the bridge associates to a root bridge, the Install LED turns continuous amber. If the bridge does not associate to a root bridge in the first 60 seconds, the Install LED blinks green to indicate beacons are being transmitted and the bridge is waiting for another non-root bridge to associate. After association, the Install LED turns into continuous green and the Ethernet, status, and radio LEDs then display signal strength as shown in Table 4).

Note For the signal level (dBm), a smaller number represents a stronger signal because the signal level is given as a negative value.

Table 4 LED Installation Mode Signal Strength Display

Signal Level (dBm)	Uplink LED	Status LED	Radio LED
>–42	On	On	On
–45 to –42	Fast blink[1]	On	On
–48 to –45	Slow blink[2]	On	On
–51 to –48	Very slow blink [3]	On	On
–54 to –51	Off	On	On
–57 to –54	Off	Fast blink[1]	On
–60 to –57	Off	Slow blink[2]	On
–63 to –60	Off	Very slow blink[3]	On
–66 to –63	Off	Off	On
–69 to –66	Off	Off	Fast blink[1]
–72 to –69	Off	Off	Slow blink[2]
–75 to –72	Off	Off	Very slow blink[3]
< –75	Off	Off	Off

1. Fast blink rate is 1 blink/sec.
2. Slow blink rate is 2 blinks/sec.
3. Very slow blink rate is 4 blinks/sec

When using LEDs to maximize the signal, adjust the antenna until as many LEDs as possible are turned on and the rest are blinking as fast as possible.

Aligning the Antenna Using the RSSI Voltage

The RSSI port produces a DC voltage that is proportional to the received signal level. The RSSI voltage is available whenever a signal is present, regardless of the bridge mode (installation or normal), association status, or pre configuration role setting. In Install mode, the RSSI voltage provides an

instantaneous reading as you move the antenna. In Normal mode, the RSSI reading has a delay, so you must stop moving the antenna and wait before taking your reading. The RSSI port is a female BNC connector on the bridge housing (see Figure 5).

The RSSI voltage increases linearly with signal level as shown in Table 5.

Note A larger RSSI voltage reading indicates a stronger signal.

Table 5 RSSI Voltage Levels

Nominal Signal Level (dBm)	RSSI Reading (volts)
–20 or greater	2.70
–30	2.31
–40	1.93
–50	1.54
–60	1.16
–70	0.77
–80	0.39
–90 or less	0.00

The voltage varies from 0 to 2.7 volts for signals between –90 and –20 dBm, respectively. The accuracy over temperature and component variations is ± 4 dB. To obtain RSSI readings, you can use any convenient voltmeter connected to the RSSI port using a cable with a male BNC connector.

Grounding the Bridge

The bridge must be grounded before you connect power. Your grounding installation must comply with national and local electrical codes. Follow these steps to ground the bridge to a suitable building ground.

Step 1 Find a suitable building grounding point as close to the bridge as possible.

Step 2 Connect a user-supplied ground wire to the building grounding point. The wire should be a minimum of #14AWG assuming a circuit length of 25 ft (30.5 cm). Consult your local electrical codes for additional information.

Step 3 Route the ground wire to the bridge.

Step 4 Use a Phillips screw driver to remove grounding post screw on the low-profile mounting bracket.

Step 5 Attach the wire to a suitable grounding O-ring lug.

Step 6 Crimp or solder the wire to the lug.

Step 7 Insert the grounding post screw into the O-ring lug and reinstall it on the low-profile mounting plate as shown in Figure 6.

Figure 6

Step 8 Use a Phillips screw driver to tighten the grounding post screw.

7 Troubleshooting

If you follow the instructions in previous sections of this guide, you should have no trouble getting your bridge installed and running. If you do experience difficulty, before contacting Cisco, look for a solution to your problem in this guide or the troubleshooting chapter of the hardware installation guide for the bridge you are using. These, and other documents, are available on Cisco.com. Follow these steps to access and download these documents:

Step 1 Open your web browser and go to http://www.cisco.com.

Step 2 Click **Products & Services**. A pop-up window appears.

Step 3 Click **Wireless**. The Wireless Introduction page appears.

Step 4 Scroll down to the Product Portfolio section.

Step 5 Under **Outdoor Wireless**, click **Cisco Aironet 1430 Series**. The Cisco Aironet 1430 Series Introduction page appears.

Step 6 Scroll down to the Support window and click **Install and Upgrade**. The Cisco Aironet 1430 Series Install and Upgrade page appears.

Step 7 Click **Install and Upgrade Guides**. The Cisco Aironet 1430 Series Install and Upgrade Guides page appears.

Step 8 Select the section that best suits your troubleshooting needs.

Checking the Bridge LEDs

If your bridge is not associating with the remote bridge, check the four LEDs on the back panel. You can use them to quickly assess the unit's status. For information on using the LEDs during the installation and alignment of the bridge antenna, refer to the "Bridge LEDs" section on page 3.

Figure 7 shows the bridge LEDs.

Figure 7 Bridge LEDs

1	Ethernet LED	**3**	Radio LED
2	Status LED	**4**	Install LED

Bridge Normal Mode LED Indications

During bridge operation the LEDs provide status information as shown in Table 6.

Table 6 Bridge Normal Mode LED Indications

Ethernet LED	Status LED	Radio LED	Meaning
Off	—	—	Ethernet link is down or disabled.
Green	—	—	Ethernet link is operational.
Blinking green	—	—	Transmitting and receiving Ethernet packets.
Blinking amber	—	—	Transmitting and receiving Ethernet errors.
amber	—	—	Firmware error—disconnect and reconnect the power injector power jack. If the problem continues, contact technical support for assistance.
—	Blinking green	—	Root mode—no remote bridges are associated. Non-root mode—not associated to the root bridge. If all bridges are powered up, this could be caused by incorrect SSID and security settings or improper antenna alignment. You should check the SSID and security settings of all bridges and verify antenna alignment. If the problem continues, contact technical support for assistance.
—	Green	—	Root mode—associated to at least one remote bridge. Non-root mode—associated to the root bridge. This is normal operation.
—	Blinking amber	—	General warning—disconnect and reconnect the power injector power jack. If the problem continues, contact technical support for assistance.
—	Amber	—	Loading firmware.
Red	Amber	Red	Loading Firmware error—disconnect and reconnect the power injector power. If the problem continues, contact technical support for assistance.
—	—	Off	Normal operation.
—	—	Blinking green	Transmitting and receiving radio packets—normal operation.

Table 6 Bridge Normal Mode LED Indications (continued)

Ethernet LED	Status LED	Radio LED	Meaning
—	—	Blinking amber	Maximum retries or buffer full occurred on the radio interface—disconnect and reconnect the power injector power jack. If the problem continues, contact technical support for assistance.
—	—	Amber	Radio firmware error—disconnect and reconnect power injector power.If the problem continues, contact technical support for assistance.

The bridge uses a blinking code to identify various error conditions. The code sequence uses a two-digit diagnostic code that starts with a long pause to delimit the code, followed by the LED flashing red to count out the first digit, then a short pause, followed by the LED flashing red to count out the second digit (see Table 7).

Table 7 Bridge LED Blinking Error Codes

LED	Blinking Codes		Description
	First Digit	Second Digit	
Ethernet	2	1	Ethernet cable problem—verify that the cable is properly connected and not defective. This error might also indicate a problem with the Ethernet link. If the cable is connected properly and not defective, contact technical support for assistance.
Radio	1	2	Radio not detected—contact technical support for assistance.
	1	3	Radio not ready—contact technical support for assistance.
	1	4	Radio did not start—contact technical support for assistance.
	1	5	Radio failure—contact technical support for assistance.
	1	6	Radio did not flash its firmware—contact technical support for assistance.

Power Injector LEDs

The power injector contains three LEDs to provide status information on the wired Ethernet link, the bridge Ethernet link, and the bridge status. When the power injector is powered up, it sends a constant discovery tone on the dual-coax cables to the bridge. When the bridge is connected to the dual-coax cables, it returns the discovery tone to the power injector. When the power injector detects the returned discovery tone, it applies +48 VDC to the dual-coax cables to the bridge.

When power is applied to the bridge, the bridge activates the bootloader and begins the POST operations. The bridge begins to load the IOS image when the Post operations are successfully completed. Upon successfully loading the IOS image, the bridge initializes and tests the radio.

The power injector LEDs are shown in Figure 8.

Figure 8 Power Injector LEDs

1	Power jack (+48 VDC)	**5**	Ethernet port (RJ–45 connector)
2	Power LED	**6**	Ethernet Activity LED
3	Power injector dual-coax ports (F-Type connectors)	**7**	Injector Status LED
4	Mode button	**8**	Uplink Activity LED

The power injector LED indications are shown in Table 8.

Table 8 Power Injector LED Indications

Uplink Activity	Injector Status	Ethernet Activity	Description
—	—	Off	Wired LAN Ethernet link is not active.
—	—	Green	Wired LAN Ethernet link is operational.
—	—	Blinking Green	Transmitting and receiving packets over the wired LAN Ethernet link.
—	—	Amber	Power injector internal memory error—disconnect and reconnect the power injector power plug. If the problem continues, contact technical support for assistance.
Off	—	—	Link between power injector and bridge is not active. This might be caused by improper connections or a defective cable or connector. Verify that the dual-coax cables are connected correctly to the power injector, grounding block, and bridge. If the cables are connected correctly, contact technical support for assistance.
Green	—	—	Link between power injector and bridge is operational.
Blinking Green	—	—	Transmitting and receiving Ethernet packets between the power injector and the bridge.
Amber	—	—	Power injector internal memory error—disconnect and reconnect the power injector power plug. If the problem continues, contact technical support for assistance.
—	Green	—	Bridge successfully passed Power On Self Test (POST) and loaded the IOS image.
—	Blinking Green	—	Bridge power is active and the bridge is loading IOS image or POST operation has started.

Table 8 Power Injector LED Indications (continued)

Uplink Activity	Injector Status	Ethernet Activity	Description
—	Blinking Amber	——	Bridge has not been detected and bridge power is not active. This might be caused by bad connections or a defective cable or connector. Verify that the dual-coax cables are connected correctly to the power injector, grounding block, and bridge. If the cables are connected correctly, contact technical support for assistance.
Amber	Amber	Amber	Power injector internal memory error—disconnect and reconnect the power injector power plug. If the problem continues, contact technical support for assistance.
Off	Amber	Off	Bridge is resetting the configuration to defaults; mode button has been depressed more than 2 seconds but less than 20 seconds.
—	Red	—	Image recovery mode, downloading new image; mode button pressed more than 20 seconds.
Red	Red	Red	Power injector internal memory error—disconnect and reconnect the power injector power plug. If the problem continues, contact technical support for assistance.

Checking Power

You can verify the availability of power to the bridge by checking the power injector LEDs (see Figure 8):

- Power LED
  - Green color indicates 48 VDC is available to the power injector (see Figure 8).
  - Off indicates 48 VDC is not available to the power injector—verify that the power module is connected to the power injector and to an AC receptacle and that AC power is available.
- Uplink Activity LED
  - Green or blinking green color indicates the bridge is operating.

  - Off indicates that the power injector-to-bridge link is not active—verify that the dual-coax cable connections are properly connected to the power injector, the grounding block, and the bridge. If the dual-coax cable is connected properly and the cable is not defective, contact technical support for assistance.
  - Amber color indicates that an internal power injector problem—disconnect and reconnect the power injector power plug. If the problem continues, contact technical support for assistance contact technical support for assistance.
- Status LED
  - Green or blinking green color indicates that the bridge is operating.
  - Blinking amber color indicates that the bridge has not been detected by the power injector and that power is not being supplied to the bridge—verify that the dual-coax cable connectors are properly connected to the power injector, the grounding block, and the bridge. If the dual-coax cable is connected properly and not defective, contact technical support for assistance.

Checking Basic Configuration Settings

Mismatched basic settings are the most common causes of lost wireless connectivity. If the bridge does not associate with a remote bridge, check the following areas.

SSID

To associate, all bridges must use the same SSID. The bridge installation mode SSID is *autoinstall* and the normal mode default SSID is *tsunami*. You should verify that the SSID value shown on the Express Setup page is the same for all bridges. You should also verify that the bridges are configured for the proper network role; only one bridge can be configured as the root bridge.

Security Settings

Remote bridges attempting to authenticate to your bridge must support the same security options configured in the bridge, such as WEP, EAP or LEAP, MAC address authentication, Message Integrity Check (MIC), WEP key hashing, and 802.1X protocol versions.

If a non-root bridge is unable to authenticate to your root bridge, verify that the security settings are the same as your bridge settings.

Antenna Alignment

If your non-root bridges are unable to associate to your root bridge, you should verify the basic configuration settings on all bridges before attempting to verify bridge antenna alignment (refer to “Configuring the Bridge for the First Time” section on page 1). If your basic configuration settings are

correct, you can verify antenna alignment by using the RSSI port. The RSSI port can be used even when the bridges are not associated. For additional information, refer to the "Aligning the Antenna Using the RSSI Voltage" section on page 6.

Note To meet regulatory restrictions, the external antenna bridge configuration and the external antenna must be professionally installed.

For detailed alignment instructions, refer to the *Cisco Aironet 1400 Series Wireless Bridge Mounting Instructions* that shipped with your bridge.

Resetting to the Default Configuration

If you forget the password that allows you to configure the bridge, you may need to completely reset the configuration. You can use the MODE button on the power injector or the web-browser interface.

Note The following steps reset *all* configuration settings to factory defaults, including passwords, WEP keys, the IP address, and the SSID.

Using the MODE Button

Follow these steps to delete the current configuration and return all bridge settings to factory defaults using the MODE button:

Step 1 Disconnect the power jack on the power injector.

Step 2 Press and hold the **MODE** button while you reconnect power to the power injector.

Step 3 Hold the **MODE** button until the Status LED turns amber (approximately 3 seconds).

Step 4 After the bridge reboots, you must reconfigure the bridge by using the Web browser interface, the Telnet interface, or IOS commands.

Note The bridge is configured with the factory default values including the IP address (set to receive an IP address using DHCP). To obtain the bridge's new IP address, refer to the "Using the IP Setup Utility" section on page 9.

Using the Web Browser Interface

Follow the steps below to delete the current configuration and return all bridge settings to the factory defaults using the web browser interface.

Step 1 Open your Internet browser. You must use Microsoft Internet Explorer (version 5.x or later) or Netscape Navigator (version 4.x).

Step 2 Enter the bridge's IP address in the browser address line and press **Enter**. An Enter Network Password screen appears.

Step 3 Enter your username in the User Name field.

Step 4 Enter the bridge password in the Password field and press **Enter**. The Summary Status page appears.

Step 5 Click **System Software** and the System Software screen appears.

Step 6 Click **System Configuration** and the System Configuration screen appears.

Step 7 Click **Default**.

Note If the bridge is configured with a static IP address, the IP address does not change.

Step 8 After the bridge reboots, you must reconfigure the bridge by using the Web browser interface, the Telnet interface, or IOS commands.

Reloading the Bridge Image

If your bridge has a firmware failure, you must reload the complete bridge image file using the Web browser interface or by pressing and holding the MODE button for around 30 seconds. You can use the browser interface if the bridge firmware is still fully operational and you want to upgrade the firmware image. However, you can use the MODE button when the bridge has a corrupt firmware image.

Using the MODE button

You can use the MODE button on the bridge to reload the bridge image file from an active Trivial File Transfer Protocol (TFTP) server on a PC connected directly to the power injector Ethernet port.

Note If your bridge experiences a firmware failure or a corrupt firmware image, indicated by three red LEDs, you must reload the image from a directly connected PC with a TFTP server.

Note This process resets *all* configuration settings to factory defaults, including passwords, WEP keys, the bridge IP address, and SSIDs.

Follow the steps below to reload the bridge image file:

Step 1 The PC you intend to use must be configured with a static IP address in the range of 10.0.0.2 to 10.0.0.30.

Step 2 Make sure the PC contains the bridge image file (*c1410-k9w7-tar.122-13.JA.tar*) in the TFTP server folder and the TFTP server is activated. For additional information, refer to the "Obtaining the Bridge Image File" and "Obtaining the TFTP Server Software" sections.

Step 3 Connect the PC to the bridge using a Category 5 Ethernet cable.

Step 4 Disconnect the power jack from the power injector.

Step 5 Press and hold the **MODE** button while you reconnect power to the power injector.

Step 6 Hold the **MODE** button until the status LED turns red (approximately 20 to 30 seconds).

Step 7 Wait until the bridge reboots as indicated by all LEDs turning green followed by the Status LED blinking green.

Step 8 After the bridge reboots, you must reconfigure the bridge by using the Web interface, the Telnet interface, or IOS commands.

Note The bridge is configured with the factory default values including the IP address (set to receive an IP address using DHCP). To obtain the bridge's new IP address, refer to the "Using the IP Setup Utility" section on page 9.

Web Browser Interface

You can also use the Web browser interface to reload the bridge image file. The Web browser interface supports loading the image file using HTTP or TFTP interfaces.

Note Your bridge configuration is not changed when using the browser to reload the image file.

Browser HTTP Interface

The HTTP interface enables you to browse to the bridge image file on your PC and download the image to the bridge. Follow the instructions below to use the HTTP interface:

Step 1 Open your Internet browser. You must use Microsoft Internet Explorer (version 5.x or later) or Netscape Navigator (version 4.x).

Step 2 Enter the bridge's IP address in the browser address line and press **Enter**. An Enter Network Password screen appears.

Step 3 Enter your username in the User Name field.

Step 4 Enter the bridge password in the Password field and press **Enter**. The Summary Status page appears.

Step 5 Click the **System Software** tab and then click **Software Upgrade**. The HTTP Upgrade screen appears.

Step 6 Click **Browse** to locate the image file on your PC.

Step 7 Click **Upload**.

For additional information, click the **Help** icon on the Software Upgrade screen.

Browser TFTP Interface

The TFTP interface enables you to use a TFTP server on a network device to load the bridge image file. Follow the instructions below to use a TFTP server:

Step 1 Open your Internet browser. You must use Microsoft Internet Explorer (version 5.x or later) or Netscape Navigator (version 4.x).

Step 2 Enter the bridge's IP address in the browser address line and press **Enter**. An Enter Network Password screen appears.

Step 3 Enter your username in the User Name field.

Step 4 Enter the bridge password in the Password field and press **Enter**. The Summary Status page appears.

Step 5 Click **System Software** and then click **Software Upgrade**. The HTTP Upgrade screen appears.

Step 6 Click **TFTP Upgrade**.

Step 7 Enter the IP address for the TFTP server in the TFTP Server field.

Step 8 Enter the filename for the bridge image file (*c1410-k9w7-tar.122-13.JA.tar*) in the Upload New System Image Tar File field. If the file is located in a subdirectory of the TFTP server root directory, include the relative path of the TFTP server root directory with the filename. If the file is in the TFTP root directory, enter only the filename.

Step 9 Click **Upload**.

For additional information click the **Help** icon on the Software Upgrade screen.

Obtaining the Bridge Image File

You can obtain the bridge image file from the Cisco.com software center by following these steps:

Step 1 Use your web browser to go to the Cisco Software Center at the following URL:

http://www.cisco.com/public/sw-center/sw-wireless.shtml

Step 2 Select **Option #1: Aironet Wireless Software Selector.**

Step 3 For the Product Type, select **Wireless Bridge** and click **Submit**.

Step 4 Select **1430 Series** for the model number and click **Submit**.

Step 5 Select **Current Release** (**Recommended**) and click **Submit**.

Step 6 Select **c1410-k9w7-tar.122-13.JA.tar,** which is the bridge image file.

Step 7 On the Encryption Authorization Form, enter the requested information, read the encryption information, and check the boxes that apply. Click **Submit.**

Step 8 Read and accept the terms and conditions of the Software License Agreement.

Step 9 Select the bridge image file again to download it.

Step 10 Save the file to a directory on your hard drive and then exit the Internet browser.

Obtaining the TFTP Server Software

You can download TFTP server software from several web sites. Cisco recommends the shareware TFTP utility available at this URL:

http://tftpd32.jounin.net

Follow the instructions on the website for installing and using the utility.

8 Declarations of Conformity and Regulatory Information

This section provides declarations of conformity and regulatory information for the Cisco Aironet 1430 Series Wireless Bridge.

Manufacturers Federal Communication Commission Declaration of Conformity Statement

Models	Certification Numbers
AIR-BR1430Axx-A-K9 series (AIR-RM1520-58-A-K9)	LDK102068
AIR-BR1430Pxx-A-K9 series (AIR-RM1520-49-A-K9)	LDK102067
AIR-BR1430Uxx-A-K9 series (AIR-RM1520-56-A-K9)	LDK102071

Manufacturer:

Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA

This device complies with Part 15 rules. Operation is subject to the following two conditions:

8. This device may not cause harmful interference, and
9. This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits of a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a residential environment. This equipment generates, uses, and radiates radio frequency energy, and if not installed and used in

accordance with the instructions, may cause harmful interference. However, there is no guarantee that interference will not occur. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase separation between the equipment and receiver.
- Connect the equipment to an outlet on a circuit different from which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician.

Caution The Part 15 radio device operates on a non-interference basis with other devices operating at this frequency when using the integrated antennas. Any changes or modification to the product not expressly approved by Cisco could void the user's authority to operate this device.

Caution Within the 5.15 to 5.25 GHz band (5 GHz radio channels 34 to 48) the UNII devices are restricted to indoor operations to reduce any potential for harmful interference to co-channel Mobile Satellite System (MSS) operations.

Industry Canada

Canadian Compliance Statement

AIR-BR1430Axx-A-K9 series (AIR-RM1520-58-A-K9)	2461B-102068
AIR-BR1430Pxx-A-K9 series (AIR-RM1520-49-A-K9)	2461B-102067
AIR-BR1430Uxx-A-K9 series (AIR-RM1520-56-A-K9)	2461B-102071

This Class B Digital apparatus meets all the requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numerique de la classe B respecte les exigences du Reglement sur le material broilleur du Canada.

This device complies with Class B Limits of Industry Canada. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

Cisco Aironet Access Points are certified to the requirements of RSS-210. The use of this device in a system operating either partially or completely outdoors may require the user to obtain a license for the system according to the Canadian regulations. For further information, contact your local Industry Canada office.

European Community, Switzerland, Norway, Iceland, and Liechtenstein

Models:

AIR-BR1430Uxx-E-K9 series

Declaration of Conformity with Regard to the R&TTE Directive 1999/5/EC

Български [Bulgarian]	Това оборудване отговаря на съществените изисквания и приложими клаузи на Директива 1999/5/EC.
Česky [Czech]:	Toto zařízení je v souladu se základními požadavky a ostatními odpovídajícími ustanoveními Směrnice 1999/5/EC.
Dansk [Danish]:	Dette udstyr er i overensstemmelse med de væsentlige krav og andre relevante bestemmelser i Direktiv 1999/5/EF.
Deutsch [German]:	Dieses Gerät entspricht den grundlegenden Anforderungen und den weiteren entsprechenden Vorgaben der Richtlinie 1999/5/EU.
Eesti [Estonian]:	See seade vastab direktiivi 1999/5/EÜ olulistele nõuetele ja teistele asjakohastele sätetele.
English:	This equipment is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.
Español [Spanish]:	Este equipo cumple con los requisitos esenciales asi como con otras disposiciones de la Directiva 1999/5/CE.
Ελληνική [Greek]:	Αυτός ο εξοπλισμός είναι σε συμμόρφωση με τις ουσιώδεις απαιτήσεις και άλλες σχετικές διατάξεις της Οδηγίας 1999/5/EC.
Français [French]:	Cet appareil est conforme aux exigences essentielles et aux autres dispositions pertinentes de la Directive 1999/5/EC.
Íslenska [Icelandic]:	Þetta tæki er samkvæmt grunnkröfum og öðrum viðeigandi ákvæðum Tilskipunar 1999/5/EC.
Italiano [Italian]:	Questo apparato é conforme ai requisiti essenziali ed agli altri principi sanciti dalla Direttiva 1999/5/CE.
Latviešu [Latvian]:	Šī iekārta atbilst Direktīvas 1999/5/EK būtiskajām prasībām un citiem ar to saistītajiem noteikumiem.

Nederlands [Dutch]:	Dit apparaat voldoet aan de essentiele eisen en andere van toepassing zijnde bepalingen van de Richtlijn 1999/5/EC.
Malti [Maltese]:	Dan l-apparat huwa konformi mal-ħtiġiet essenzjali u l-provedimenti l-oħra rilevanti tad-Direttiva 1999/5/EC.
Magyar [Hungarian]:	Ez a készülék teljesíti az alapvető követelményeket és más 1999/5/EK irányelvben meghatározott vonatkozó rendelkezéseket.
Norsk [Norwegian]:	Dette utstyret er i samsvar med de grunnleggende krav og andre relevante bestemmelser i EU-direktiv 1999/5/EF.
Polski [Polish]:	Urządzenie jest zgodne z ogólnymi wymaganiami oraz szczególnymi warunkami określonymi Dyrektywą UE: 1999/5/EC.
Português [Portuguese]:	Este equipamento está em conformidade com os requisitos essenciais e outras provisões relevantes da Directiva 1999/5/EC.
Română [Romanian]	Acest echipament este in conformitate cu cerintele esentiale si cu alte prevederi relevante ale Directivei 1999/5/EC.
Slovensko [Slovenian]:	Ta naprava je skladna z bistvenimi zahtevami in ostalimi relevantnimi pogoji Direktive 1999/5/EC.
Slovensky [Slovak]:	Toto zariadenie je v zhode so základnými požiadavkami a inými príslušnými nariadeniami direktív: 1999/5/EC.
Suomi [Finnish]:	Tämä laite täyttää direktiivin 1999/5/EY olennaiset vaatimukset ja on siinä asetettujen muiden laitetta koskevien määräysten mukainen.
Svenska [Swedish]:	Denna utrustning är i överensstämmelse med de väsentliga kraven och andra relevanta bestämmelser i Direktiv 1999/5/EC.

142730

The following standards were applied:

- Radio—EN 301.893
- EMC—EN 301.489-1, EN 301.489-17
- Safety—EN 60950-1

Note This equipment is intended to be used in all EU and EFTA countries. Outdoor use may be restricted to certain frequencies and/or may require a license for operation. For more details, contact Cisco Corporate Compliance.

The following CE mark is affixed to the bridge with a 2.4-GHz radio and a 54-Mb/s, 5-GHz radio:

Declaration of Conformity for RF Exposure

United States

This system has been evaluated for RF exposure for Humans in reference to ANSI C 95.1 (American National Standards Institute) limits. The evaluation was based on ANSI C 95.1 and FCC OET Bulletin 65C rev 01.01. The minimum separation distance from the antenna to maintain compliance for a general bystander is as follows:

- AIR-BR1430Axx Series: 78.6 inches (200cm)
- AIR-BR1430Pxx Series: 19.7 inches (50cm)
- AIR-BR1430Uxx Series: 7.9 inches (20cm)

Canada

This system has been evaluated for RF exposure for Humans in reference to ANSI C 95.1 (American National Standards Institute) limits. The evaluation was based on RSS-102 Rev 2. The minimum separation distance from the antenna to to maintain compliance for a general bystander is as follows:

- AIR-BR1430Axx Series: 78.6 inches (200cm)
- AIR-BR1430Pxx Series: 19.7 inches (50cm)
- AIR-BR1430Uxx Series: 7.9 inches (20cm)

European Union

This system has been evaluated for RF exposure for Humans in reference to the ICNIRP (International Commission on Non-Ionizing Radiation Protection) limits. The evaluation was based on the EN 50385 Product Standard to Demonstrate Compliance of Radio Base stations and Fixed Terminals for

Wireless Telecommunications Systems with basic restrictions or reference levels related to Human Exposure to Radio Frequency Electromagnetic Fields from 300 MHz to 40 GHz. The minimum separation distance from the antenna to maintain compliance for a general bystander is as follows:

Australia

This system has been evaluated for RF exposure for Humans as referenced in the Australian Radiation Protection standard and has been evaluated to the ICNIRP (International Commission on Non-Ionizing Radiation Protection) limits. The minimum separation distance from the antenna to a general bystander is as follows:

- AIR-BR1430Axx Series: 78.6 inches (200cm)
- AIR-BR1430Uxx Series: 7.9 inches (20cm)

Declaration of Conformity Statements

All the Declaration of Conformity statements related to this product can be found at the following location: http://www.ciscofax.com

9 Bridge Specifications

Table 9 lists the technical specifications for the 1430 series bridge.

Table 9 1430 Series Bridge Specifications

Category	Specification
Dimensions (LxWxD)	
Weight	
Operating temperature	
Storage temperature	
Humidity	
Antenna	
Compliance	The 1430 series bridge complies with UL 2043 for products installed in a building's environmental air handling spaces, such as above suspended ceilings.

Table 9 1430 Series Bridge Specifications (continued)

Category	Specification
Safety	UL 60950-1 CAN/CSA C22.2 No. 60950-1 IEC 60950-1 with all national deviations EN 60950-1 UL 2043
EMI and Susceptibility	FCC Part 15.107 and 15.109 Class B ICES-003 Class B Canada EN 55022 Class B EN 55024 AS/NZS 3548 Class B
Radio	FCC Part 15.247, 15.407 Industry Canada RSS-102 EN 301.893 (Europe) AS 4268.2 (Australia) FCC Bulletin OET-65C
Maximum power and channel settings	Maximum power and the channels allowed in your regulatory domain, refer to *Channels and Maximum Power Settings for Cisco Aironet Autonomous Access Points and Bridges*. This document is available on cisco.com.

Americas Headquarters
Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA
www.cisco.com
Tel: 408 526-4000
800 553-NETS (6387)
Fax: 408 527-0883

Asia Pacific Headquarters
Cisco Systems (USA) Pte. Ltd.
168 Robinson Road
#28-01 Capital Tower
Singapore 068912
www.cisco.com
Tel: +65 6317 7777
Fax: +65 6317 7799

Europe Headquarters
Cisco Systems International BV
Haarlerbergpark
Haarlerbergweg 13-19
1101 CH Amsterdam
The Netherlands
www-europe.cisco.com
Tel: 31 0 800 020 0791
Fax: 31 0 20 357 1100

Cisco has more than 200 offices worldwide. Addresses, phone numbers, and fax numbers are listed on the Cisco Website at www.cisco.com/go/offices.