GETTING STARTED GUIDE

Cisco Aironet 1140 Series Autonomous Access Point

1 About this Guide

This Guide explains how to install and configure your Cisco Aironet 1140 Series Autonomous Access Point. This guide also provides mounting instructions and limited troubleshooting procedures.

2 Safety Instructions

Translated versions of the following safety warnings are provided in the translated safety warnings document that is shipped with your access point. The translated warnings are also in the *Translated Safety Warnings for Cisco Aironet Access Points*, which is available on your documentation CD and cisco.com.

Warning **IMPORTANT SAFETY INSTRUCTIONS**

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. Use the statement number provided at the end of each warning to locate its translation in the translated safety warnings that accompanied this device. Statement 1071

SAVE THESE INSTRUCTIONS

Warning **Read the installation instructions before you connect the system to its power source.** Statement 1004

Warning **This product must be connected to a Power-over-Ethernet (PoE) IEEE 802.3af compliant power source or an IEC60950 compliant limited power source.** Statement 353

Warning **This equipment must be externally grounded using a customer-supplied ground wire before power is applied. Contact the appropriate electrical inspection authority or an electrician if you are uncertain that suitable grounding is available.** Statement 366

Warning **Installation of the equipment must comply with local and national electrical codes.** Statement 1074

Warning **This product relies on the building's installation for short-circuit (overcurrent) protection. Ensure that the protective device is rated not greater than: 20A.** Statement 1005

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 FCC radio frequency (RF) exposure limits, antennas should be located at a minimum of 7.9 inches (20 cm) or more from the body of all persons.** Statement 332

Caution When mounting the access point to a wall or ceiling, be sure to use appropriate fasteners. The fasteners used must be capable of maintaining a minimum pullout force of 20 lbs (9 kg) and must use all 4 indented holes on the low-profile mounting bracket.

Caution This product and all interconnected equipment must be installed indoors within the same building, including the associated LAN connections as defined by Environment A of the IEEE 802.af Standard.

Note The access point is suitable for use in environmental air space in accordance with section 300.22.C of the National Electrical Code and sections 2-128, 12-010(3), and 12-100 of the Canadian Electrical Code, Part 1, C22.1. You should not install the power supply or power injector in air handling spaces.

Note Use only with listed ITE equipment.

3 Overview

This section explains necessary tasks prior to installing the 1140 series access point.

Verifying Shipped Components

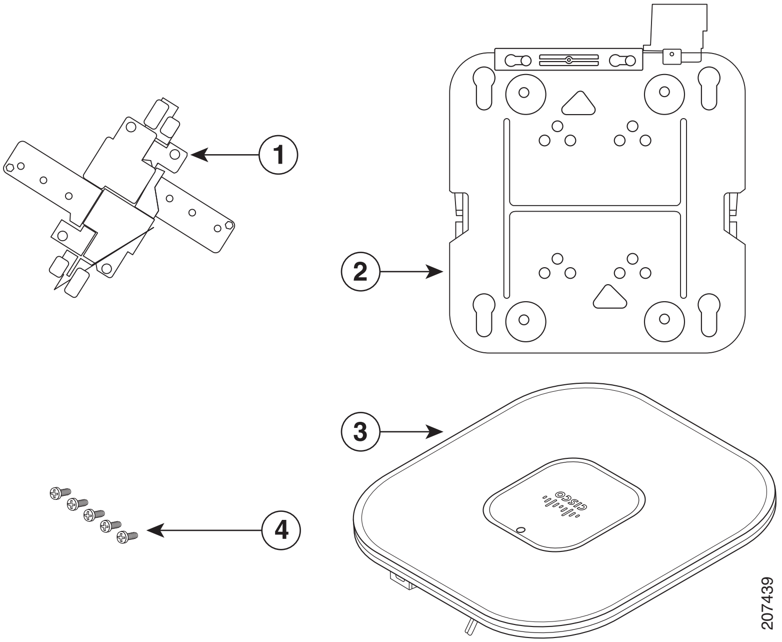
To unpack and verify the contents of the 1140 series access point and accessory kit, follow these steps:

Step 1 Unpack and remove the access point 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

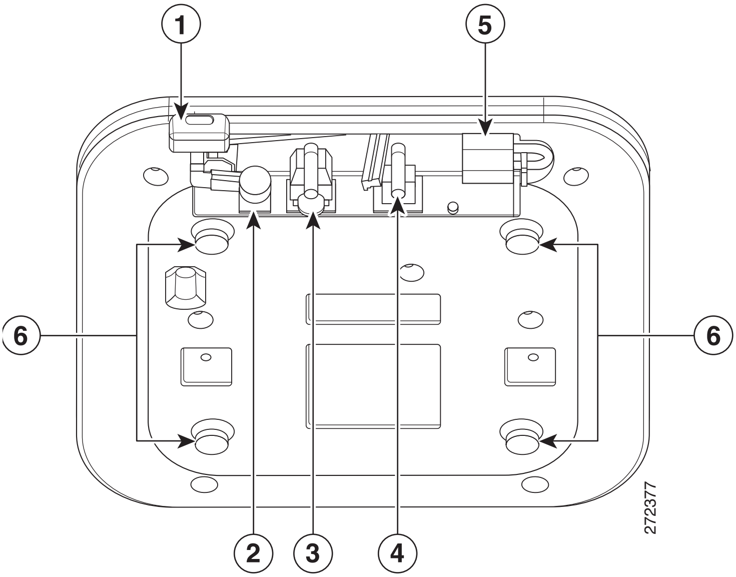


1	Standard ceiling adjustable T-rail clip	**3**	1140 series access point
2	Mounting bracket	**4**	6-32 x 1/4 in. (0.63 cm) flat head screws

Key Ports and Components

Familiarize yourself with the access point before continuing with the installation. Figure 2 shows the access point key components.

Figure 2 Access Point Ports and Connections



1	Kensington lock slot	**4**	Console port
2	Power connection	**5**	Security padlock and hasp
3	Ethernet port	**6**	Low-profile mounting bracket pins (feet for desk or table-top mount)

Performing a Site Survey

Before you mount and deploy your access point, we recommend that you perform a site survey (or use a site planning tool) to determine the best location to install your access point.

You should have the following information about your wireless network available:

- Access point locations.
- Access point mounting options: below a suspended ceiling, on a flat horizontal surface, or on a desktop.

  Note You can mount the access point above a suspended ceiling but you must purchase additional mounting hardware: See the "Mounting the Access Point" section on page 9 for additional information.

- Access point power options: power supplied by a DC power supply, PoE from a network device, or a PoE power injector/hub (usually located in a wiring closet).

  Note Access points mounted in a building's environmental airspace must be powered using PoE to comply with safety regulations.

Cisco recommends that you make a site map showing access point locations so that you can record the device MAC addresses from each location and return them to the person who is planning or managing your wireless network.

4 Obtaining and Assigning an IP Address

To browse to the access point Express Setup page, you must either obtain or assign the access point IP address using one of these methods:

Note The access point does not have a default IP address.

- Assign a static IP address by connecting to its console port and accessing the access point CLI.
- Use a DHCP server (if available) to automatically assign an IP address. You can find out the DHCP-assigned IP address by using one of the following methods:
  - Connect to the access point console port and use a Cisco IOS command to display the IP address, such as **show interface bvi1**.

- Provide your organization’s network administrator with your access point MAC address. Your network administrator will query the DHCP server using the MAC address to identify the IP address. The MAC address is on a label attached to the bottom of the access point.
- Use the CLI and serial port to identify the assigned IP address.

Connecting to the Access Point Locally

If you need to configure the access point locally (without connecting it to a wired LAN), you can connect a PC to its console port by using a DB-9 to RJ-45 serial cable.

⚠ **Caution** Be careful when handling the access point, the bottom plate might be hot.

Follow these steps to open the CLI by connecting to the access point console port:

Step 1 Connect a nine-pin, female DB-9 to RJ-45 serial cable to the RJ-45 console port on the access point and to the COM port on a computer.

✎ **Note** The Cisco part number for the serial cable is AIR-CONCAB1200.

Step 2 Set up a terminal emulator on your PC to communicate with the access point. Use the following settings for the terminal emulator connection: 9600 baud, 8 data bits, no parity, 1 stop bit, and no flow control.

Assigning the IP Address to the BVI

When you assign an IP address to the access point by using the CLI, you must assign the address to the bridge-group virtual interface (BVI). Beginning in a privileged EXEC mode, follow these steps to assign an IP address to the access point BVI using the access point console port.

	Command	Purpose
Step 1	**configure terminal**	Enter global configuration mode.

	Command	Purpose
Step 2	**interface bvi1**	Enters interface configuration mode for the BVI.
Step 3	**ip address** *ip_address net_mask*	Assigns an IP address and subnet mask address to the BVI.

Assigning an IP Address Using 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.

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**.

Step 3 In the Host Name field, type the access point IP address and click **Connect**.

Note If you are connected to the access point using a Telnet session, you lose your connection to the access point when you assign a new IP address to the BVI. If you need to continue configuring the access point using Telnet, use the new IP address to open another Telnet session to the access point.

5 Mounting the Access Point

Cisco Aironet 3500, 1260, 1140, 1130, and 1040 series access points can be mounted in several configurations, including on a suspended ceiling, on a hard ceiling or wall, on an elecrtical or network box, and above a suspended ceiling. Click this URL to browse to complete access point mounting instructions:

http://www.cisco.com/en/US/docs/wireless/access_point/mounting/guide/apmount.html

Note The integrated antenna design of the 1140 series access point is designed for horizontal surfaces, (table top and ceiling installations). When mounted to such surfaces, the integrated antennas produce the best antenna radiation pattern. For advanced features such as voice, location, and rogue access point detection, ceiling mounting is strongly recommended. However, for smaller areas such as conference rooms, kiosks, transportation, and hot-spot usage where the customer is concerned primarily with data coverage and not advanced features, you can mount the unit on a wall using wall anchors.

Caution Do not use plastic wall anchors or the keyhole slots on the mounting bracket for ceiling installations. When mounting the access point on a hard ceiling, use four fasteners capable of maintaining a minimum pullout force of 20 lbs (9 kg).

6 Configuring Basic Settings

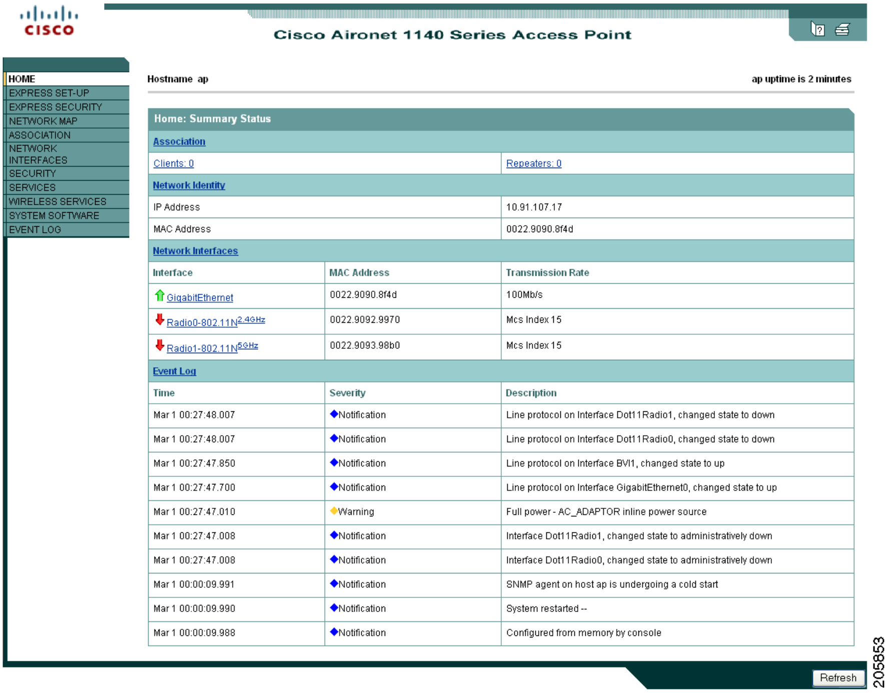
Before you can configure basic settings, the access point and your PC needs an IP address. See the “Obtaining and Assigning an IP Address” section on page 6.

Follow these steps to configure basic settings for the access point using the GUI Express Setup page.

Step 1 Open your browser, and enter the access point IP address in the address field. A username and password screen appears.

Step 2 Enter the username **Cisco** and password **Cisco**. The username and password are case sensitive.

Step 3 Press **Enter**. The Summary Status page appears.



Hostname ap

ap uptime is 2 minutes

Home: Summary Status

Association	
Clients: 0	Repeaters: 0

Network Identity	
IP Address	10.91.107.17
MAC Address	0022.9090.8f4d

Network Interfaces

Interface	MAC Address	Transmission Rate
⇧ GigabitEthernet	0022.9090.8f4d	100Mb/s
⇩ Radio0-802.11N2.4GHz	0022.9092.9970	Mcs Index 15
⇩ Radio1-802.11N5GHz	0022.9093.98b0	Mcs Index 15

Event Log

Time	Severity	Description
Mar 1 00:27:48.007	◆Notification	Line protocol on Interface Dot11Radio1, changed state to down
Mar 1 00:27:48.007	◆Notification	Line protocol on Interface Dot11Radio0, changed state to down
Mar 1 00:27:47.850	◆Notification	Line protocol on Interface BVI1, changed state to up
Mar 1 00:27:47.700	◆Notification	Line protocol on Interface GigabitEthernet0, changed state to up
Mar 1 00:27:47.010	◆Warning	Full power - AC_ADAPTOR inline power source
Mar 1 00:27:47.008	◆Notification	Interface Dot11Radio1, changed state to administratively down
Mar 1 00:27:47.008	◆Notification	Interface Dot11Radio0, changed state to administratively down
Mar 1 00:00:09.991	◆Notification	SNMP agent on host ap is undergoing a cold start
Mar 1 00:00:09.990	◆Notification	System restarted --
Mar 1 00:00:09.988	◆Notification	Configured from memory by console

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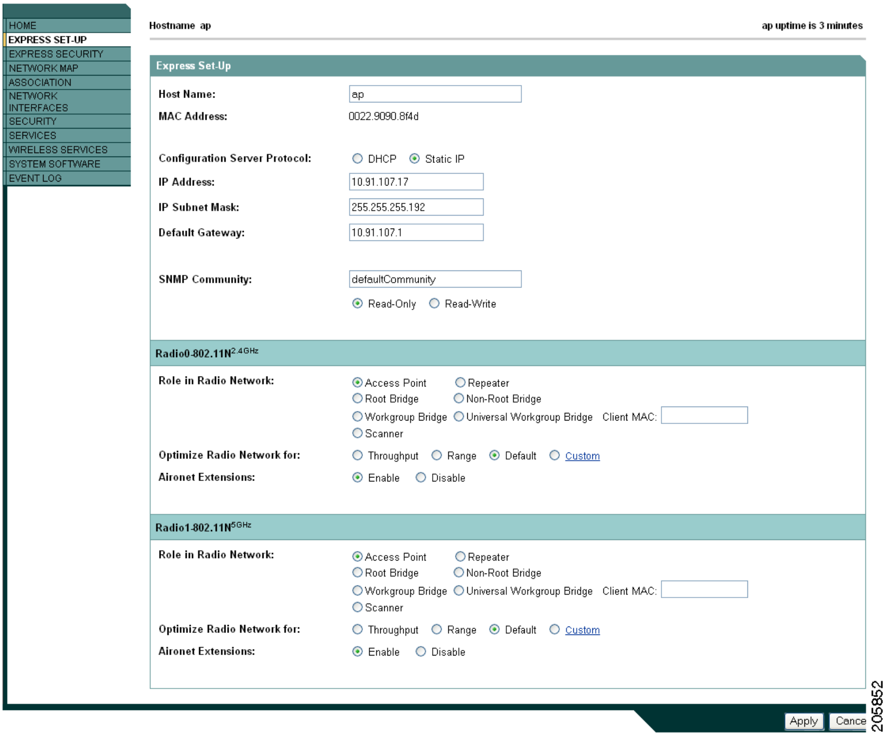
Step 4 If required, configure the power settings as described in the previous section. Otherwise, Click **Express Setup**. The Express Setup page appears.



Hostname ap | ap uptime is 3 minutes

Express Set-Up

Host Name:	ap
MAC Address:	0022.9090.8f4d
Configuration Server Protocol:	○ DHCP ● Static IP
IP Address:	10.91.107.17
IP Subnet Mask:	255.255.255.192
Default Gateway:	10.91.107.1
SNMP Community:	defaultCommunity ● Read-Only ○ Read-Write

Radio0-802.11N$^{2.4GHz}$

Role in Radio Network:	● Access Point ○ Repeater ○ Root Bridge ○ Non-Root Bridge ○ Workgroup Bridge ○ Universal Workgroup Bridge Client MAC: ○ Scanner
Optimize Radio Network for:	○ Throughput ○ Range ● Default ○ Custom
Aironet Extensions:	● Enable ○ Disable

Radio1-802.11N^{5GHz}

Role in Radio Network:	● Access Point ○ Repeater ○ Root Bridge ○ Non-Root Bridge ○ Workgroup Bridge ○ Universal Workgroup Bridge Client MAC: ○ Scanner
Optimize Radio Network for:	○ Throughput ○ Range ● Default ○ Custom
Aironet Extensions:	● Enable ○ Disable

Step 5 Configure the settings using the following sections as a guide.

- Host Name—The host name (or system name) is a name for the access point that identifies it on your network. The system name appears in the titles of the management system pages.
- Configuration Server Protocol—This setting specifies how the access point obtains an IP address.
  - DHCP—IP address is automatically assigned by the network DHCP server.
  - Static IP—The access point uses a static IP address that you enter in the IP address field.
- IP Address—This setting assigns or changes the access point IP address. If DHCP is enabled, the access point obtains its IP address from your network DHCP server. You can assign a static IP address in this field.
- IP Subnet Mask—The IP subnet mask identifies the subnet on which the access point resides. This subnet is provided by your network administrator. If DHCP is enabled, leave this field blank.

- Default Gateway—The default gateway identifies the address the access point uses to access another network. This gateway is provided by your network administrator. If DHCP is enabled, leave this field blank.
- Web Server—This setting specifies the type of HTTP used to access the access point using a web browser.
  - Standard (HTTP)—Standard protocol used to transfer HTML using unencrypted traffic between web browsers.
  - Secure (HTTPS)—Protocol used to transfer secure data by using encrypted traffic to and from the user by means of a Secure Socket Layer (SSL).
- SNMP Community—The SNMP Community setting identifies and sets attributes for the Simple Network Management Protocol (SNMP) used to manage the network on which the access point resides.
  - Read-Only—Access point allows only SNMP read access.
  - Read-Write—Access point allows read and write access.

Configuring the Radios

Your 1140 series access point includes two internal radios, which must be configured individually in Express Setup. Select the role, optimization setting, and extension capabilities for Radio0 (802.11N$^{2.4GHz}$) and Radio1 (802.11N^{5GHz}).

- Role in Radio Network—Determines what function each radio in the access point performs in the wireless network.
  - Access Point—Specifies that the unit operates as an access point connected to the main Ethernet LAN network. In this mode, wireless clients associate to the access point.
  - Repeater—Specifies that the unit operates as a repeater access point not connected to Ethernet LAN. In this mode, wireless clients associate to the access point.
  - Root Bridge—Specifies that the unit operates as a root bridge and connects directly to the main Ethernet LAN. In this mode, the unit accepts associations from other Cisco Aironet non-root bridges and wireless client devices.
  - Workgroup Bridge—Specifies that the unit operates as a workgroup bridge connected to a small wired Ethernet LAN network through an Ethernet hub or switch. The workgroup bridge must associate to a Cisco Aironet access point or bridge.
  - Scanner—Specifies that the unit is configured by a Cisco WLSE and operates as a scanner and reports network traffic to the Cisco WLSE.
- Optimize Radio Network For—Optimizes the access point radio performance in the wireless network by adjusting data rates. This setting must match the setting on the clients.

  - Throughput—Maximizes data volume handled by the access point but might reduce its range.
  - Range—Maximizes the access point range but might reduce throughput.
  - Default—The access point uses its default data rate settings for the radio selected.
  - Custom—The access point uses settings that you enter on the radio settings page. Clicking **Custom** takes you to the radio settings page.
- Aironet Extensions—By default, the access point uses Cisco Aironet 802.11 extensions to detect the capabilities of Cisco Aironet client devices and to support features that require specific interaction between the access point and associated client devices. Aironet extensions must be enabled to support features such as load balancing, Message Integrity Check (MIC), Temporal Key Integrity Check (TKIP), Repeater Mode, and World Mode. Disabling Aironet Extensions disables the features mentioned above, but it sometimes improves the ability of non-Cisco client devices to associate to the access point.

Default Settings on the Express Setup Page

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

Table 1 Express Setup Default Settings

Setting	Default
System Name	ap
Configuration Server Protocol	DHCP
IP Address	Assigned by DHCP **Note** The access point does not have a default IP address.
IP Subnet Mask	Assigned by DHCP
Default Gateway	Assigned by DHCP
Role in Radio Network	Access point
Web Server	Standard (HTTP)
SNMP Community	default Community
Optimize Radio Network for	Throughput
Aironet Extensions	Enable

Note You can restore the access point to its factory defaults by unplugging the power jack and plugging it back in while holding the **Mode** button down until the Ethernet LED turns amber (approximately 2 to 3 seconds).

Enabling the Radio Interfaces

The access point radios are disabled by default, and there is no default SSID. You must create an SSID and enable the radios before the access point allows wireless associations from other devices. Refer to the "Configuring Basic Security Settings" section on page 15 for instructions on configuring the SSID.

Follow these steps to enable the radio interfaces:

Step 1 Browse to your access point.

Step 2 When the Summary Status page appears, click **802.11N**$^{\mathbf{2.4GHz}}$. The 2.4-GHz radio status page appears.

Step 3 Choose the **Settings** tab at the top of the page. The Radio Settings page appears.

Step 4 Click **Enable** in the Enable Radio field.

Step 5 Click **Apply**.

Step 6 Return to the Summary Status page and click **802.11N**$^{\mathbf{5GHz}}$. The 5-GHz radio status page appears.

Step 7 Repeat Steps 3-5.

Step 8 Close your web browser.

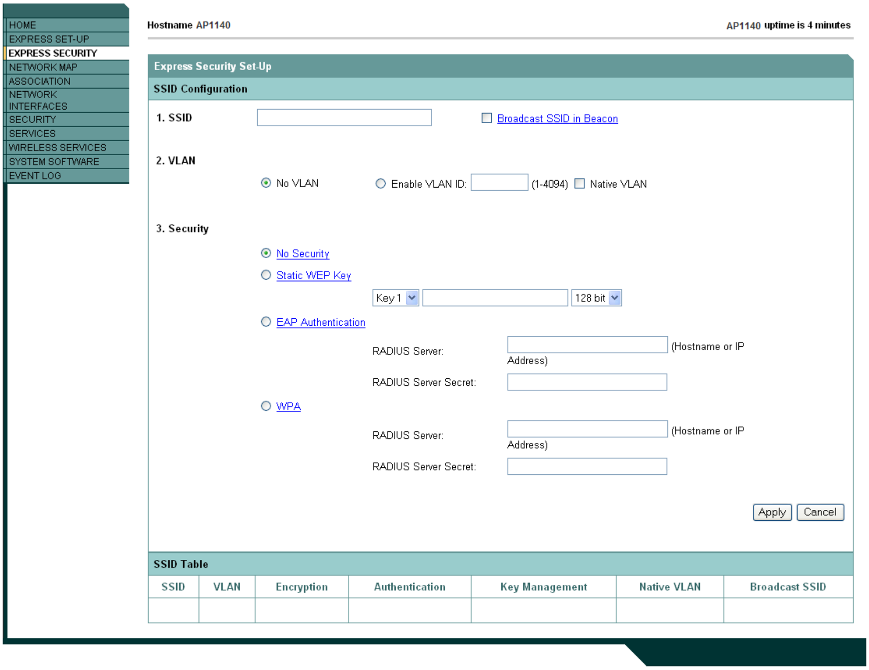
Configuring Security Settings

After you assign basic settings to your access point, you must configure security settings to prevent unauthorized access to your network. Because it is a radio device, the access point can communicate beyond the physical boundaries of your work site.

Just as you use the Express Setup page to assign basic settings, you can use the Express Security page to create unique SSIDs and assign one of four security types to them. For detailed security information, refer to the *Cisco IOS Software Configuration Guide for Cisco Aironet Access Points*.

Configuring Basic Security Settings

You can use the Express Security page to create unique SSIDs and assign one of four security types to them. This illustration shows the Express Security page.



Hostname AP1140 AP1140 uptime is 4 minutes

Express Security Set-Up

SSID Configuration

1. SSID □ Broadcast SSID in Beacon

2. VLAN

● No VLAN ○ Enable VLAN ID: (1-4094) □ Native VLAN

3. Security

● No Security

○ Static WEP Key

Key 1 128 bit

○ EAP Authentication

RADIUS Server: (Hostname or IP Address)

RADIUS Server Secret:

○ WPA

RADIUS Server: (Hostname or IP Address)

RADIUS Server Secret:

SSID Table

SSID	VLAN	Encryption	Authentication	Key Management	Native VLAN	Broadcast SSID

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Understanding Express Security Settings

When the access point configuration is set to factory defaults, the first SSID that you create by using the Express Security page overwrites the default SSID, which has no security settings. The SSIDs that you create appear in the SSID table at the bottom of the page. You can create up to 16 SSIDs on the access point.

Using VLANs

If you use VLANs on your wireless LAN and assign SSIDs to VLANs, you can create multiple SSIDs by using any of the four security settings on the Express Security page. However, if you do not use VLANs on your wireless LAN, the security options that you can assign to SSIDs are limited because of the limited Express Security page encryption options. Without VLANs, encryption settings (WEP and ciphers) apply to an interface, such as the radio, and you cannot use more than one encryption setting on an interface. For example, when you create an SSID with static WEP with VLANs disabled, you cannot create additional SSIDs with WPA authentication because they use different encryption settings. If you find that the security setting for an SSID conflicts with another SSID, you can delete one or more SSIDs to eliminate the conflict.

If any VLANs are defined on the access point, the trunk port on the switch must be limited to allow only the VLANs defined on the access point.

Express Security Types

There are four security types you can assign to an SSID:

- No security—The least secure option. Use this option only for SSIDs used in a public space, and assign it to a VLAN that restricts access to your network.
- Static WEP Key—More secure than no security. Static WEP keys are vulnerable to attack. There are two different lengths for WEP keys: 40-bit and 128-bit (hexadecimal or ASCII characters). Cisco access points use hexadecimal characters. Client adapters can use either, depending on how the vendor chooses to configure them.
- EAP Authentication—Enables 802.1x authentication. Requires an IP address and shared secret from an authentication server on your network (server authentication port 1645). You do not need to enter a WEP key.
- WPA—Wi-Fi Protected Access (WPA) permits wireless access to users authenticated against a database through the services of an authentication server and encrypts their IP traffic with stronger algorithms than those used in WEP. As with EAP authentication, you must enter the IP address and shared secret for an authentication server on your network (server authentication port 1645).

Configuring Security for 802.11n

To achieve 802.11n speeds, you need to configure the access point for no encryption or WPA2/AES encryption. Any other setting eliminates 802.11n capabilities from the configuration.

Express Security Limitations

Because the Express Security page is designed for simple configuration of basic security, the options available are a subset of the access point security capabilities. Keep these limitations in mind when using the Express Security page:

- You cannot edit SSIDs. However, you can delete SSIDs and recreate them.
- You cannot assign SSIDs to specific radio interfaces. The SSIDs that you create are enabled on all radio interfaces. To assign SSIDs to specific radio interfaces, choose **Security > SSID Manager**.
- You cannot configure multiple authentication servers. To configure multiple authentication servers, click **Security > Server Manager**.

- You cannot configure multiple WEP keys. To configure multiple WEP keys, click **Security > Encryption Manager**.
- You cannot assign an SSID to a VLAN that is already configured on the access point. To assign an SSID to an existing VLAN, choose **Security > SSID Manager**.
- You cannot configure combinations of authentication types on the same SSID (such as MAC address authentication and EAP authentication). To configure combinations of authentication types, choose **Security > SSID Manager**.

Using the Express Security Page

Follow these steps to create an SSID using the Express Security page:

Step 1 Type the SSID in the SSID entry field. The SSID can contain up to 32 alphanumeric characters.

Note These characters are not allowed in the SSID: +,], /, “, TAB, and trailing SPACE.

Step 2 To broadcast the SSID in the access point beacon, check the Broadcast SSID in Beacon check box.

Note When you broadcast the SSID, devices that do not specify an SSID can associate to the access point. This is a useful option for an SSID used by guests or client devices in public space. If you do not broadcast the SSID, client devices cannot associate to the access point unless their SSID matches this SSID, so only one SSID can be included in the access point beacon.

Step 3 (Optional) Check the Enable VLAN ID check box and enter a VLAN number (1 through 4095) to assign the SSID to a VLAN. You cannot assign an SSID to an existing VLAN.

Step 4 (Optional) Check the Native VLAN check box to mark the VLAN as the native VLAN.

Step 5 Select the security setting for the SSID. The settings are listed in order of their robustness, from No Security to WPA, which is the most secure setting.

a. If you select Static WEP Key, choose the key number and encryption size and enter the encryption key (10 hexadecimal characters for 40-bit keys or 26 hexadecimal characters for 128-bit keys.

b. If you select EAP Authentication or WPA, enter the IP address and shared secret for the authentication server on your network.

c. Your 802.11n security configuration must be either no encryption or WPA2/AES. Any other configuration eliminates the higher data speeds provided by 802.11n.

Note If you do not use VLANS on your wireless LAN, the security options that you can assign to multiple SSIDs are limited. Refer to the *Cisco IOS Software Configuration Guide for Cisco Aironet Access Points* for VLAN details.

1. Click **Apply**. The SSID appears in the SSID table at the bottom of the page.

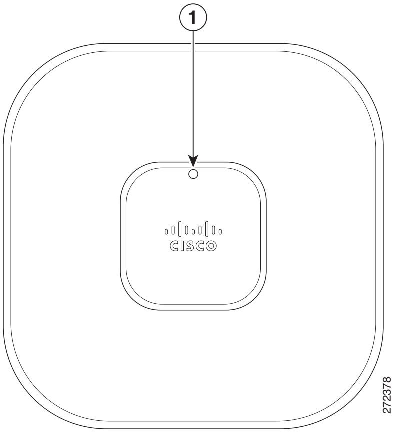
7 Troubleshooting

This section offers some diagnostic and configuration suggestions for troubleshooting your access point.

Checking the Access Point LED

Figure 3 shows the location of the access point Status LED.

Figure 3 Access Point LED Location



1	Status LED	

Note Regarding LED status colors, it is expected that there will be small variations in color intensity and hue from unit to unit. This is within the normal range of the LED manufacturer's specifications and is not a defect.

Table 2 shows the access point LED diagnostics for various conditions.

Table 2 Access Point LED Diagnostic Messages

Message Type	Status LED	Message Meaning
Boot loader status sequence	Blinking green	DRAM memory test in progress
		DRAM memory test OK
		Board initialization in progress
		Initializing FLASH file system
		FLASH memory test OK
		Initializing Ethernet
		Ethernet OK
		Starting Cisco IOS
		Initialization successful
Association status	Green	Normal operating condition, but no wireless client associated
	Blue	Normal operating condition, at least one wireless client association
Operating status	Blinking blue	Software upgrade in progress
	Rapidly cycling through blue, green, red, and white	Access point location command invoked
Boot loader warnings	Blinking blue	Configuration recovery in progress (MODE button pushed for 2 to 3 seconds)
	Red	Ethernet failure or image recovery (MODE button pushed for 20 to 30 seconds)
	Blinking green	Image recovery in progress (MODE button released)
	Blinking red	Ethernet link not operational

Table 2 Access Point LED Diagnostic Messages (continued)

Message Type	Status LED	Message Meaning
Boot loader errors	Red	DRAM memory test failure
	Blinking red and blue	FLASH file system failure
	Blinking red and off	Environment variable failure
		Bad MAC address
		Ethernet failure during image recovery
		Boot environment failure
		No Cisco image file
		Boot failure
Cisco IOS errors	Red	Software failure; try disconnecting and reconnecting unit power
	Cycling through blue, green, red, and off	General warning; insufficient inline power

Configuring System Power Settings

After connecting the access point to a power source, its status LED might be amber, which can indicate that the access point is unable to verify that the power source equipment (PSE) is supplying sufficient power. In such cases, you need to configure settings on the access point or the switch to identify your power source.

Identify your power source and switch condition, and then make sure that your devices are configured with an IP address.

Follow these steps to configure the system power settings using the GUI:

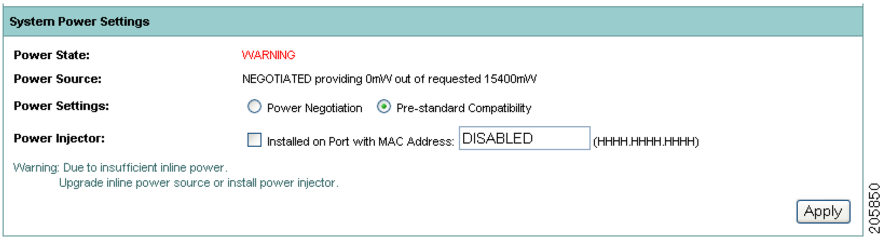
Step 1 Open your browser and enter the access point IP address in the address field. A login and password screen appears.

Step 2 Enter the username **Cisco** and password **Cisco**. The username and password are case sensitive.

Step 3 When the access point does not receive enough power for full operations, it is in low power mode. If your access point is in low power mode, a warning message appears indicating that all radios are disabled due to insufficient power. Click **OK** to continue. The System Configuration page appears.

Step 4 Scroll down to the System Power Settings section as shown in Figure 4.

Figure 4 Low Power Mode Warning



System Power Settings

Power State: WARNING

Power Source: NEGOTIATED providing 0mW out of requested 15400mW

Power Settings: ○ Power Negotiation ● Pre-standard Compatibility

Power Injector: □ Installed on Port with MAC Address: DISABLED (HHHH.HHHH.HHHH)

Warning: Due to insufficient inline power.
Upgrade inline power source or install power injector.

Step 5 Set the power settings and power injector fields, and verify your switch status as shown in Table 3.

Note To verify switch status, you need to use the switch CLI. See the Cisco IOS software configuration guide for your switch.

Table 3 System Power Settings

Power Source	System Power Settings	Switch Status
Cisco PSE supporting Cisco Intelligent Power Management feature[1]	Power Settings: Power Negotiation selected Power Injector: Unchecked	power inline auto
Cisco PSE not supporting Cisco Intelligent Power Management feature[1]	Power Settings: Prestandard Compatibility selected Power Injector: Unchecked	power inline auto
Cisco Aironet Power Injector with a Cisco PSE supporting Intelligent Power Management feature[1]	Power Settings: Power Negotiation selected Power Injector: Unchecked	power inline never
Cisco Aironet Power Injector with a Cisco PSE not supporting Cisco Intelligent Power Management feature[1]	Power Settings: Power Negotiation selected Power Injector: Checked MAC address[2]	power inline never
Cisco Aironet Power Injector with a non-Cisco switch	No configuration requirement	

Table 3 System Power Settings (continued)

Power Source	System Power Settings	Switch Status
802.3af-compliant switch that does not support Cisco inline power (non-Cisco switch)	No configuration requirement	
AC power adapter	No configuration requirement	

[1] Check the release notes for your power sourcing equipment to determine which Cisco IOS version supports Cisco Intelligent Power Management. For some PSEs, support for Cisco Intelligent Power Management might not be available yet.

[2] MAC address is the 12- character hexadecimal address of the switch port to which the access point is attached. The MAC address format is HHHH.HHHH.HHHH.

Step 6 Click **Apply.** The access point reboots configured with the power settings you specified.

Note You might have to refresh your browser screen to see the current status indicating that the access point radios are enabled.

Finding More Troubleshooting Help

If you are still experiencing 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 access point 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 Access Points, click **Cisco Aironet 1140 Series**. The Cisco Aironet 1140 Series Introduction page appears.

Step 6 Scroll down to the Support window and click **Install and Upgrade**. The Cisco Aironet 1140 Series Install and Upgrade page appears.

Step 7 Click **Install and Upgrade Guides**. The Cisco Aironet 1140 Series Install and Upgrade Guides page appears.

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

8 Access Point Specifications

Table 4 lists the technical specifications for the 1140 series autonomous access point.

Table 4 Access Point Specifications

Category	Specification
Dimensions (LxWxD)	8.68 x 8.68 x 1.84 in. (22.04 x 22.04 x 4.67 cm)
Weight	1.9 lbs (0.86 kg)
Operating temperature	32 to 104 degrees F (0 to –40 degrees C)
Storage temperature	–22 to 185 degrees F (–30 to 85 degrees C)
Humidity	10% to 90% (noncondensing)
Antenna	Integrated
Compliance	The 1140 series access point complies with UL 2043 for products installed in a building's environmental air handling spaces, such as above suspended ceilings.
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 301.489 EN 55022 Class B, 2000 version EN 55024 AS/NZS 3548 Class B VCCI Class B

Table 4 Access Point Specifications (continued)

Category	Specification
Radio	FCC Part 15.247, 15.407 Canada RSS-210 Japan Telec 33, 66, T71 EN 330.328, EN 301.893 FCC Bulletin OET-65C Industry Canada RSS-102
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 Lightweight Access Points*. This document is available on cisco.com.

9 Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, submitting a service request, and gathering additional information, 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

Subscribe to the *What's New in Cisco Product Documentation* as a Really Simple Syndication (RSS) feed and set content to be delivered directly to your desktop using a reader application. The RSS feeds are a free service and Cisco currently supports RSS Version 2.0.

10 Declarations of Conformity and Regulatory Information

This section provides declarations of conformity and regulatory information for the Cisco Aironet 1140 Series Autonomous Access Point.

Manufacturers Federal Communication Commission Declaration of Conformity Statement

Tested To Comply
With FCC Standards

FOR HOME OR OFFICE USE

Models	Certification Numbers
AIR-AP1141N-A-K9	LDK102069
AIR-AP1142N-A-K9	LDK102070

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:

1. This device may not cause harmful interference, and
2. 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.

VCCI Statement for Japan

Warning

This is a Class B product based on the standard of the VCCI Council. If this is used near a radio or television receiver in a domestic environment, it may cause radio Interference. Install and use the equipment according to the instruction manual.

VCCI-B

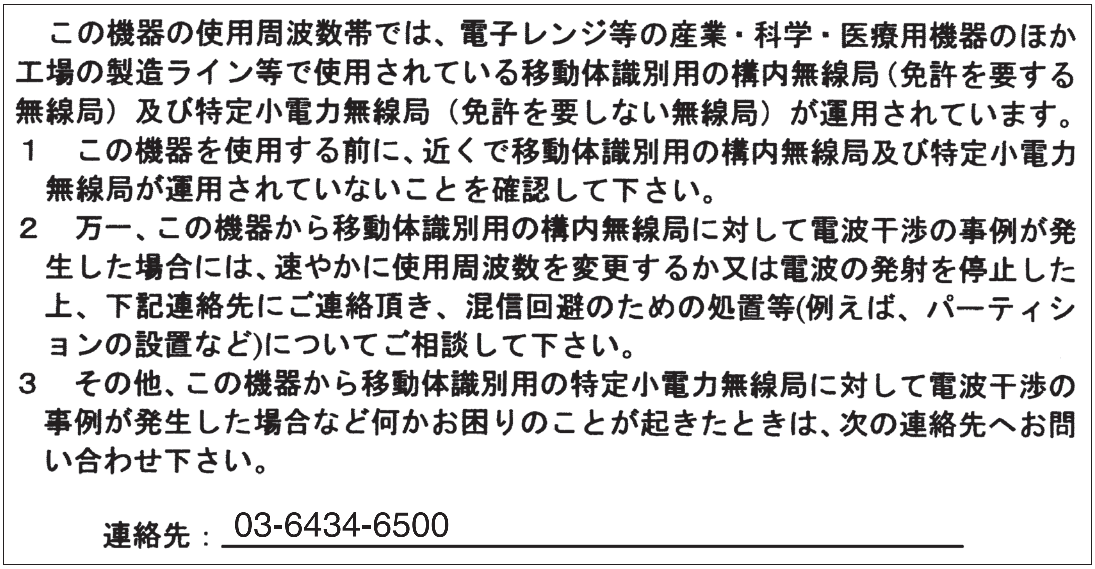
警告 この装置は、クラスＢ情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。
取扱説明書に従って正しい取り扱いをして下さい。

ＶＣＣＩ－Ｂ

Guidelines for Operating Cisco Aironet Access Points in Japan

This section provides guidelines for avoiding interference when operating Cisco Aironet access points in Japan. These guidelines are provided in both Japanese and English.

Japanese Translation



この機器の使用周波数帯では、電子レンジ等の産業・科学・医療用機器のほか工場の製造ライン等で使用されている移動体識別用の構内無線局（免許を要する無線局）及び特定小電力無線局（免許を要しない無線局）が運用されています。

1　この機器を使用する前に、近くで移動体識別用の構内無線局及び特定小電力無線局が運用されていないことを確認して下さい。

2　万一、この機器から移動体識別用の構内無線局に対して電波干渉の事例が発生した場合には、速やかに使用周波数を変更するか又は電波の発射を停止した上、下記連絡先にご連絡頂き、混信回避のための処置等(例えば、パーティションの設置など)についてご相談して下さい。

3　その他、この機器から移動体識別用の特定小電力無線局に対して電波干渉の事例が発生した場合など何かお困りのことが起きたときは、次の連絡先へお問い合わせ下さい。

連絡先：03-6434-6500

43768

English Translation

This equipment operates in the same frequency bandwidth as industrial, scientific, and medical devices such as microwave ovens and mobile object identification (RF-ID) systems (licensed premises radio stations and unlicensed specified low-power radio stations) used in factory production lines.

1. Before using this equipment, make sure that no premises radio stations or specified low-power radio stations of RF-ID are used in the vicinity.
2. If this equipment causes RF interference to a premises radio station of RF-ID, promptly change the frequency or stop using the device; contact the number below and ask for recommendations on avoiding radio interference, such as setting partitions.
3. If this equipment causes RF interference to a specified low-power radio station of RF-ID, contact the number below.

   Contact Number: 03-6434-6500

Statement 371—Power Cable and AC Adapter

接続ケーブル、電源コード、AC アダプタ、バッテリーなどの部品は、必ず添付品または指定品をご使用ください。添付品・指定品以外の部品をご使用になると故障や動作不良、火災の原因となります。また、電気用品安全法により、当該法の認定（PSE とコードに表記）でなく UL 認定（UL または CSA マークがコードに表記）の電源ケーブルは弊社が指定する製品以外の電気機器には使用できないためご注意ください。

English Translation

When installing the product, please use the provided or designated connection cables/power cables/AC adaptors. Using any other cables/adaptors could cause a malfunction or a fire. Electrical Appliance and Material Safety Law prohibits the use of UL-certified cables (that have the "UL" shown on the code) for any other electrical devices than products designated by CISCO. The use of cables that are certified by Electrical Appliance and Material Safety Law (that have "PSE" shown on the code) is not limited to CISCO-designated products.

Industry Canada

Canadian Compliance Statement

AIR-AP1141N-E-K9	2461B-102069
AIR-AP1142N-E-K9	2461B-102070

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:

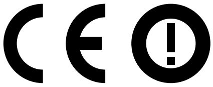
AIR-AP1141N-E-K9
AIR-AP1142N-E-K9

The following standards were applied:

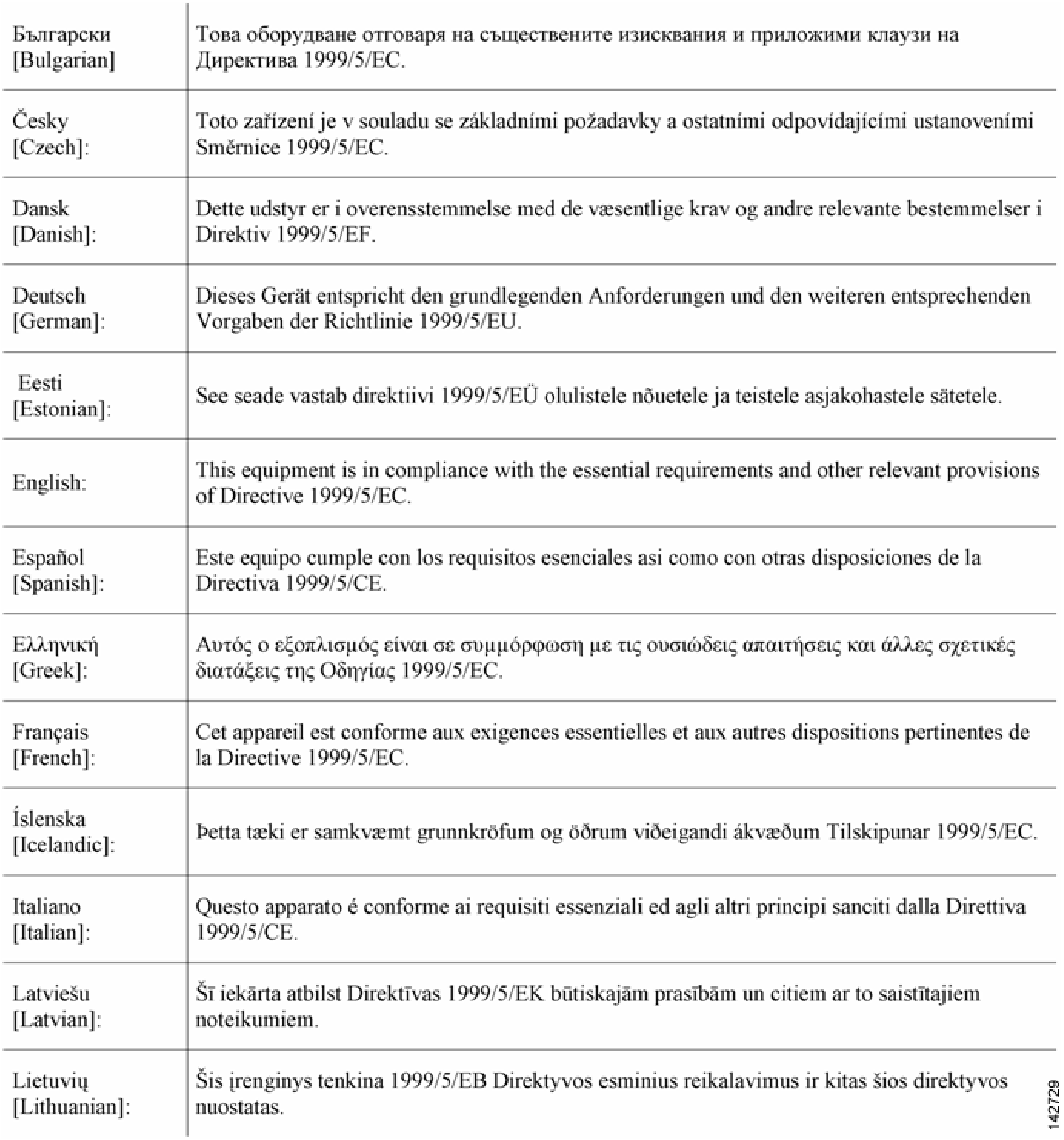
- Radio—EN 300.328-1, EN 300.328-2, EN 301.893
- EMC—EN 301.489-1, EN 301.489-17
- Safety—EN 60950-1

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.

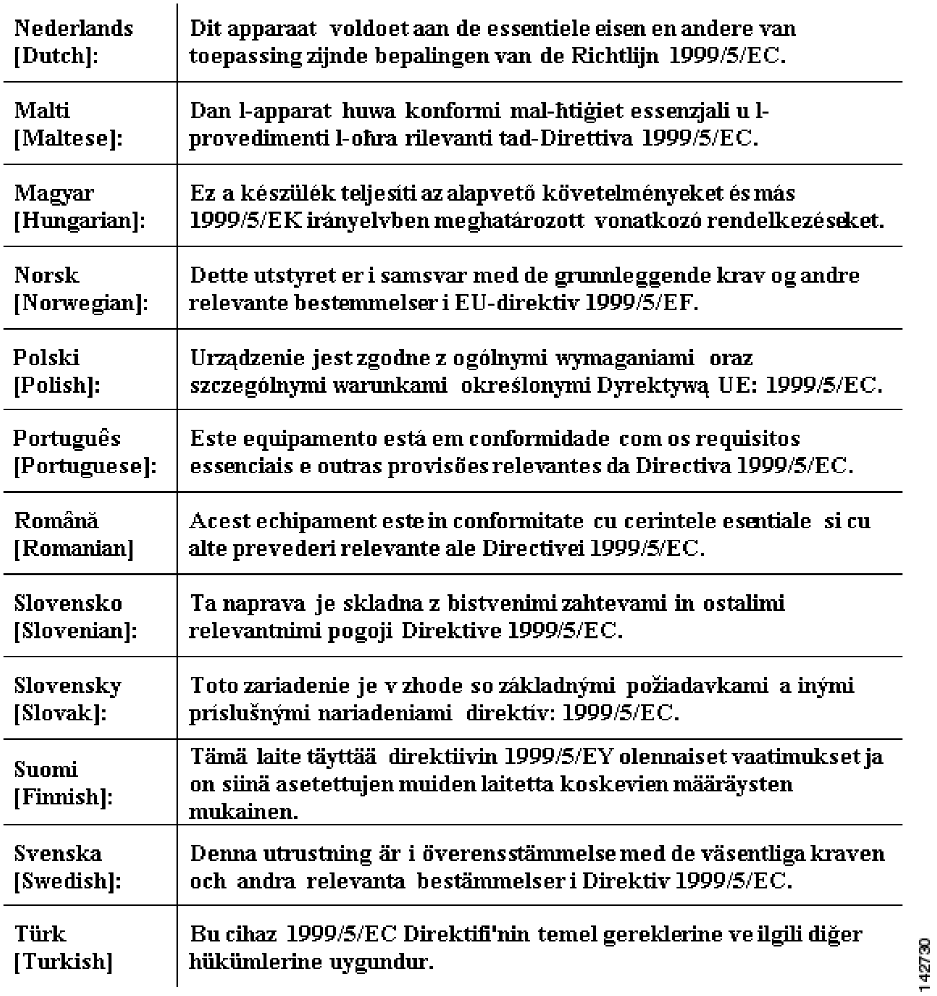
The following CE mark is affixed to the access point with a 2.4-GHz radio and a 54-Mb/s, 5-GHz radio:



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/ЕС.
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.
Lietuvių [Lithuanian]:	Šis įrenginys tenkina 1999/5/EB Direktyvos esminius reikalavimus ir kitas šios direktyvos nuostatas.



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.
Türk [Turkish]	Bu cihaz 1999/5/EC Direktifi'nin temel gereklerine ve ilgili diğer hükümlerine uygundur.

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 general bystander is 7.9 inches (20cm) to maintain compliance.

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 general bystander is 7.9 inches (20cm) to maintain compliance.

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 general bystander is 20cm (7.9 inches).

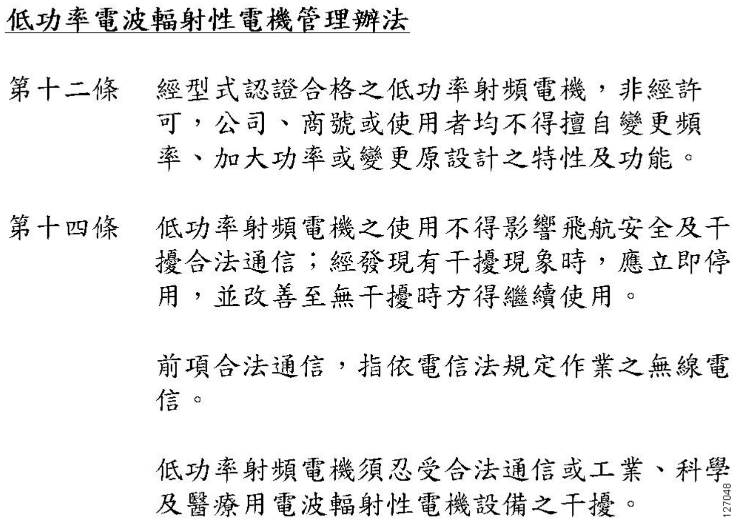
Australia

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 general bystander is 20cm (7.9 inches).

Administrative Rules for Cisco Aironet Access Points in Taiwan

This section provides administrative rules for operating Cisco Aironet access points in Taiwan. The rules for all access points are provided in both Chinese and English.

Chinese Translation



低功率電波輻射性電機管理辦法

第十二條　經型式認證合格之低功率射頻電機，非經許可，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。

第十四條　低功率射頻電機之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應立即停用，並改善至無干擾時方得繼續使用。

前項合法通信，指依電信法規定作業之無線電信。

低功率射頻電機須忍受合法通信或工業、科學及醫療用電波輻射性電機設備之干擾。

English Translation

Administrative Rules for Low-power Radio-Frequency Devices

Article 12

For those low-power radio-frequency devices that have already received a type-approval, companies, business units or users should not change its frequencies, increase its power or change its original features and functions.

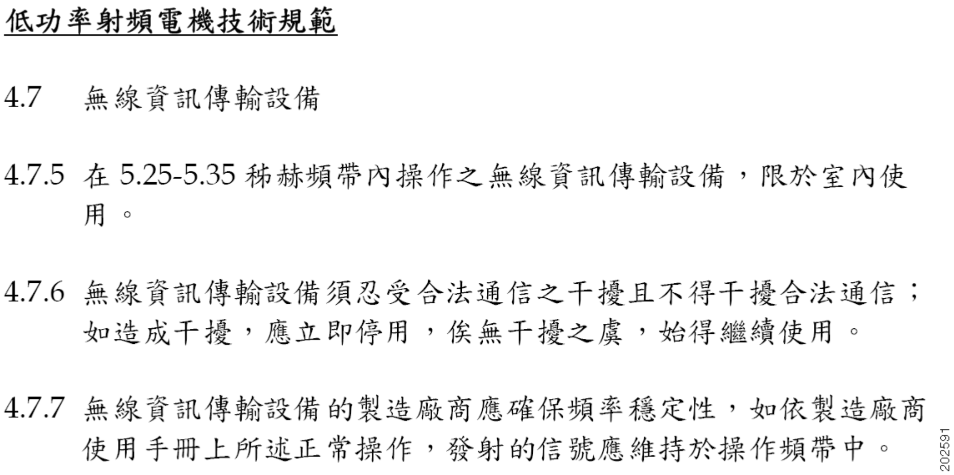
Article 14

The operation of the low-power radio-frequency devices is subject to the conditions that no harmful interference is caused to aviation safety and authorized radio station; and if interference is caused, the user must stop operating the device immediately and can't re-operate it until the harmful interference is clear.

The authorized radio station means a radio-communication service operating in accordance with the Communication Act.

The operation of the low-power radio-frequency devices is subject to the interference caused by the operation of an authorized radio station, by another intentional or unintentional radiator, by industrial, scientific and medical (ISM) equipment, or by an incidental radiator.

Chinese Translation



低功率射頻電機技術規範

4.7 無線資訊傳輸設備

4.7.5 在 5.25-5.35 秭赫頻帶內操作之無線資訊傳輸設備，限於室內使用。

4.7.6 無線資訊傳輸設備須忍受合法通信之干擾且不得干擾合法通信；如造成干擾，應立即停用，俟無干擾之虞，始得繼續使用。

4.7.7 無線資訊傳輸設備的製造廠商應確保頻率穩定性，如依製造廠商使用手冊上所述正常操作，發射的信號應維持於操作頻帶中。

Operation of Cisco Aironet Access Points in Brazil

This section contains special information for operation of Cisco Aironet access points in Brazil.

Access Point Models

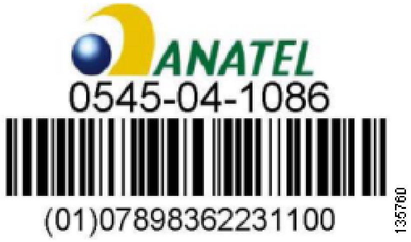
AIR-AP1142N-T-K9

AIR-AP1141N-A-K9

Regulatory Information

Figure 5 contains Brazil regulatory information for the access point models identified in the previous section.

Figure 5 ***Brazil Regulatory Information***



Portuguese Translation

Este equipamento opera em caráter secundário, isto é, não tem direito a proteção contra interferência prejudicial, mesmo de estações do mesmo tipo, e não pode causar interferência a sistemas operando em caráter primário.

English Translation

This equipment operates on a secondary basis and consequently must accept harmful interference, including interference from stations of the same kind. This equipment may not cause harmful interference to systems operating on a primary basis.

Americas Headquarters
Cisco Systems, Inc.
San Jose, CA

Asia Pacific Headquarters
Cisco Systems (USA) Pte. Ltd.
Singapore

Europe Headquarters
Cisco Systems International BV
Amsterdam, The Netherlands

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.**