Preface

This guide is designed to help you install an IEEE 802.11g-compliant radio in a Cisco Aironet 1100 or 1200 Series Access Point. Detailed installation and configuration information can be found in the following documents:

- *Cisco Aironet 1100 Series Access Point Hardware Installation Guide*
- *Cisco Aironet 1200 Series Access Point Hardware Installation Guide*
- *Cisco IOS Software Configuration Guide for Cisco Aironet Access Points*

Note Before installing your 802.11g radio, make sure that you upgrade to Cisco IOS Release 12.2(13)JA or later. If you do not upgrade, the access point will continually reboot.

Documentation for the 1100 and 1200 series access points is available at Cisco.com. Follow these steps to access it.

1. Use your browser to go to http://www.cisco.com.
2. Click **Products and Services**. The Products and Services window appears.
3. Click **Wireless LAN Products**. The Cisco Wireless LAN Products page appears.

4. Select one of the following products:
    a. Cisco Aironet 1100 Series
    b. Cisco Aironet 1200 Series
5. When the product page appears, click **Technical Documentation**. The Technical Documentation page appears.
6. Select the document you wish to open.

Introduction

The Cisco Aironet IEEE 802.11g-compliant radio (hereafter called the *802.11g radio*) is designed to upgrade 1100 and 1200 series access points to IEEE 802.11g standards. The radio delivers 100 milliwatts (mW) maximum transmit power at 1, 2, 5.5, and 11 megabits per second (Mbps) data rates and 30 mW maximum at all other data rates. The radio supports data rates of up to 54 Mbps.

This guide provides instructions for installing or replacing an 802.11g radio in an 1100 or 1200 series access point. The following operations summarize the upgrade procedure:

1. Remove all cables and power connections from the access point.
2. Follow standard electrostatic discharge (ESD) procedures.
3. Place the access point on an ESD-protected work surface.

4. Open the access point's radio access cover.
5. Install the new 802.11g radio card.
6. Close the access point's radio access cover.

Caution ESD can damage the Cisco Aironet client radio and the internal components of the access point. It is recommended that the 802.11g radio upgrade procedures be performed by an ESD-trained service technician at an ESD-protected workstation.

Unpacking the Radio

Each 802.11g radio is shipped with the following items:

- This radio upgrade guide
- A product registration card
- A T-10 tamper-resistant Torx L-wrench (for 1200 series access points only)
- Access point compliance labels (one for the 1100 and two for the 1200 series access points)

If anything is missing or damaged, contact your Cisco representative for support.

1100 Series Installation Instructions

Note Before installing your 802.11g radio, make sure that you upgrade to Cisco IOS Release 12.2(13)JA or later. If you do not upgrade, the access point will continually reboot.

Preparing the Access Point and Work Area

Follow these steps to prepare your access point and work area before installing the 802.11g radio:

1. Remove all cables and power connections from the access point.
2. Place the access point on an ESD-protected work surface.
3. Remove all static-generating items from the work area, such as plastic material, styrofoam cups, and other similar items.
4. Place the access point and the new 802.11g radio (in its antistatic bag) on an antistatic work surface.

5. Discharge any static buildup on your body by touching a grounded surface (antistatic work surface) before proceeding.
6. Follow standard ESD procedures during all phases of the process.

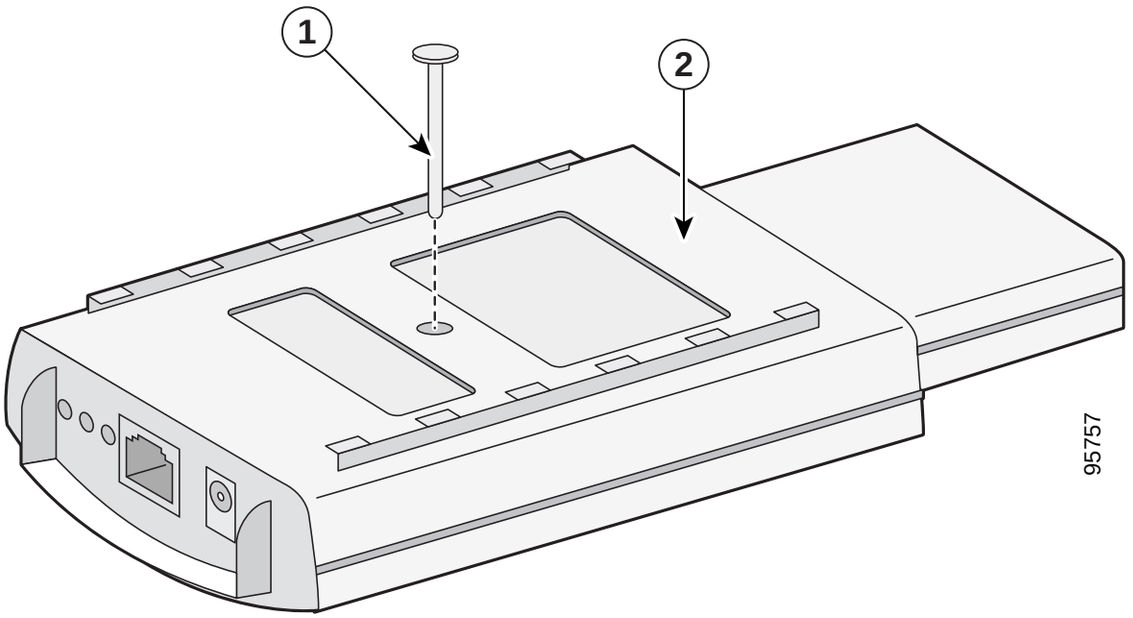
Removing the Back Cover

Follow these steps to remove the access point's back cover:

1. Position the access point so that its back cover is facing up.

Caution ESD can damage the internal access point components and the 802.11g radio if they are not handled properly.

2. Remove the back-cover retaining screw using a Philips screwdriver as shown in the following illustration.



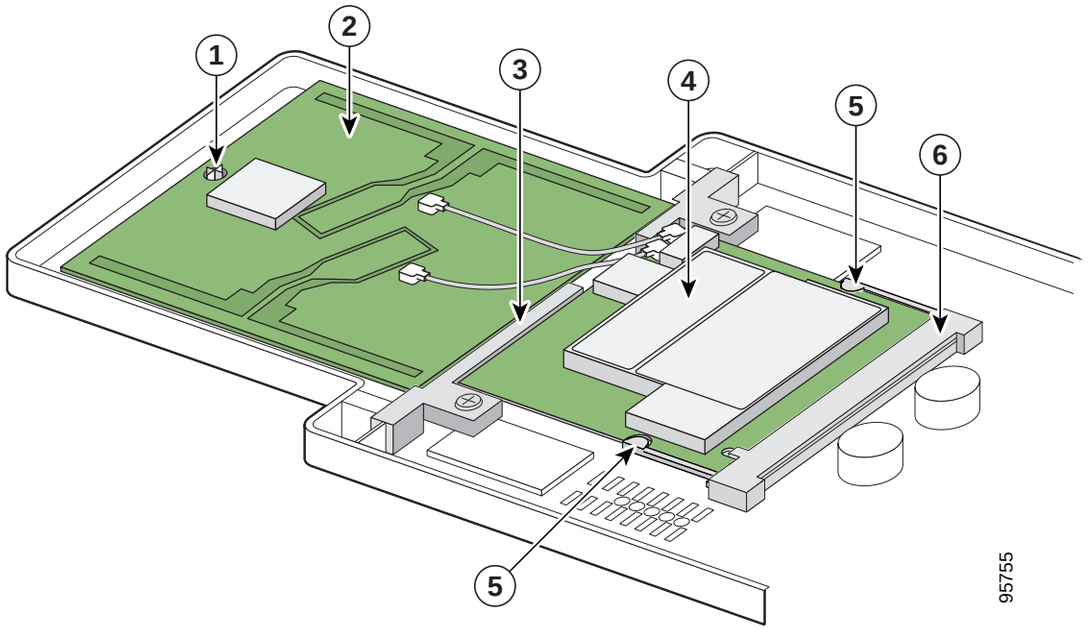
1	Back cover screw	**2**	Back cover

3. Hold the front cover with one hand, and with the other hand gently slide the back cover towards the connector end of the unit.
4. Gently lift the connector end of the back cover and remove the cover.

Removing the 2.4-GHz Radio

Follow these steps to remove the 2.4-GHz radio card from your access point:

1. Gently lift the top of the antenna card until it clears the plus-shaped (+) support post as shown in the following illustration.



1	Plus-shaped (+) support post	**4**	2.4-Ghz radio card
2	Antenna card	**5**	Card retaining clips
3	Support bracket	**6**	Mini-PCI connector

2. Gently pull the antenna card to remove it from the notch in the support bracket. Do not disconnect the antenna wire connectors.

3. Push the card-retaining clips (on each side of card) away from the radio card (see the previous illustration). When released, the radio card springs up. Do not disconnect the antenna wires.

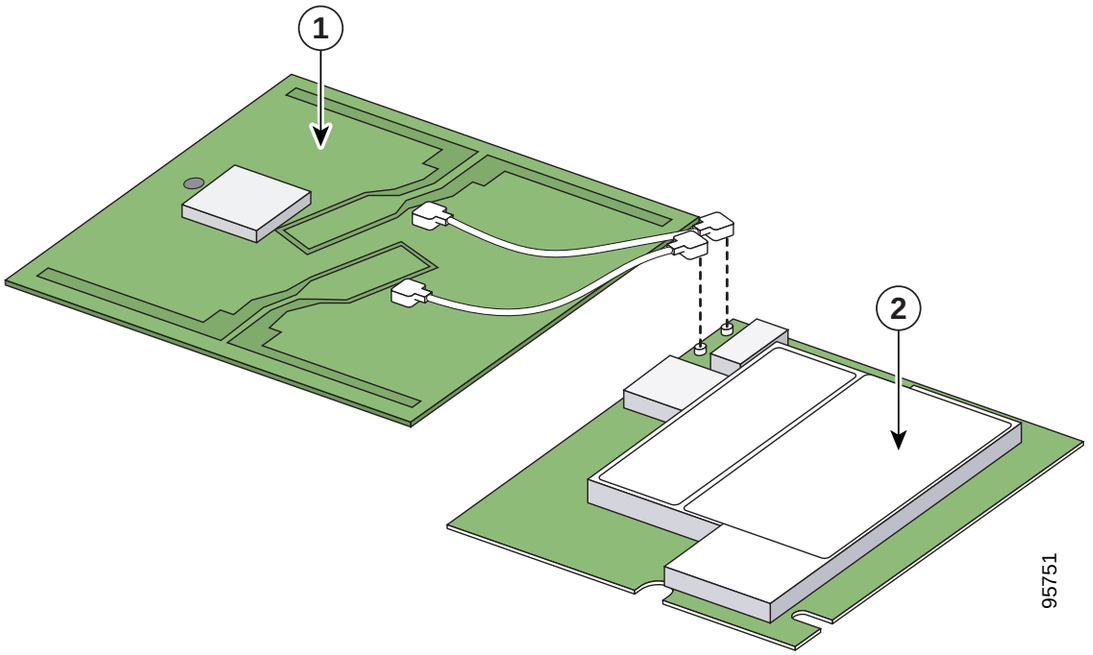
Note If the radio card does not spring up, slightly loosen the support bracket screws.

4. Remove the 2.4-GHz radio card from the mini-PCI connector by performing the following operations:
   a. Grasp the radio card only on the edges, being careful not to touch components on the board or the gold connector pins.
   b. Remove the 2.4-GHz card from the mini-PCI connector.
5. Place the radio card and antenna card on the ESD-protected work surface.

Caution You can damage the connectors if you use long-nose pliers or similar tools during the removal process. To avoid damaging the antenna wire assemblies, remove them by hand.

6. Use your fingers to carefully remove the antenna wire connectors from the 2.4-GHz radio card. Do not remove the antenna wire connectors from the antenna board.

Caution Do not pull the antenna wire to remove the connector from the radio card. Damage to the wire and connector will result.



1	Antenna card	**2**	2.4-GHz radio card

7. Place the 2.4-GHz radio card into an anti-static bag.

Note Do not put the antenna card in the anti-static bag. You will connect it to the 802.11g radio card.

Installing the 802.11g Radio

Follow these steps to install the 802.11g radio:

Caution ESD can damage the internal access point components and the 802.11g radio if they are not handled properly.

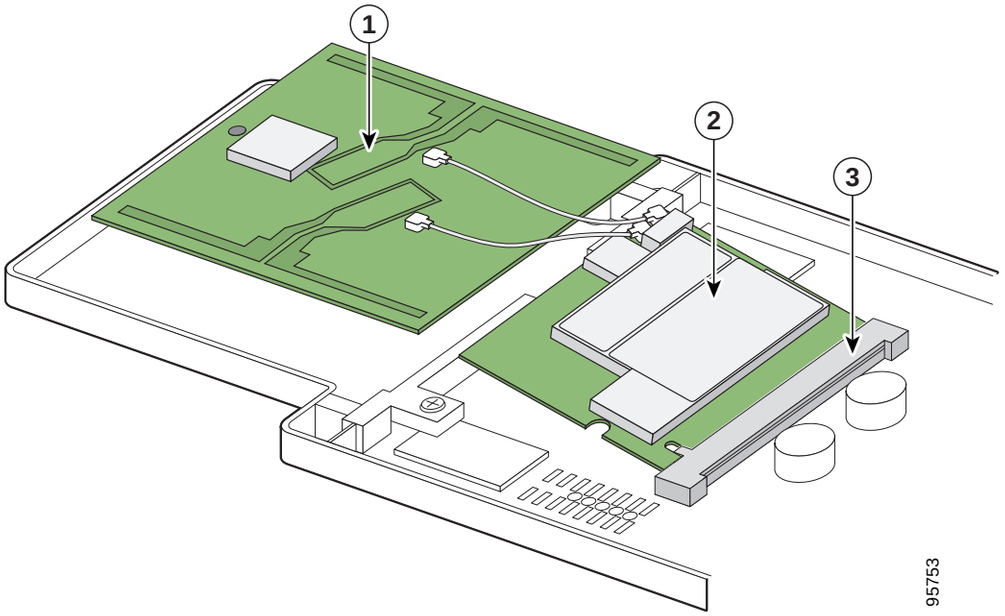
1. Carefully remove the 802.11g radio from its anti-static bag.
2. Grasp the card only on the edges, being careful not to touch components on the board or the gold connector pins.
3. Place the radio on the anti-static work surface next to the antenna card.

Caution Do not use long-nose pliers or similar tools. To avoid damaging the antenna wire assemblies, handle them by their connectors.

4. Use your fingers to carefully connect the antenna wire connectors to the mating connectors on the 2.4-GHz radio card as shown in the illustration on the following page.

5. Insert the 802.11g radio card into the access point's mini-PCI connector by following these steps:

a. Tilt the radio card at approximately 20° to 30° so that its gold pins are aligned with the mini-PCI connector as shown in the following illustration.

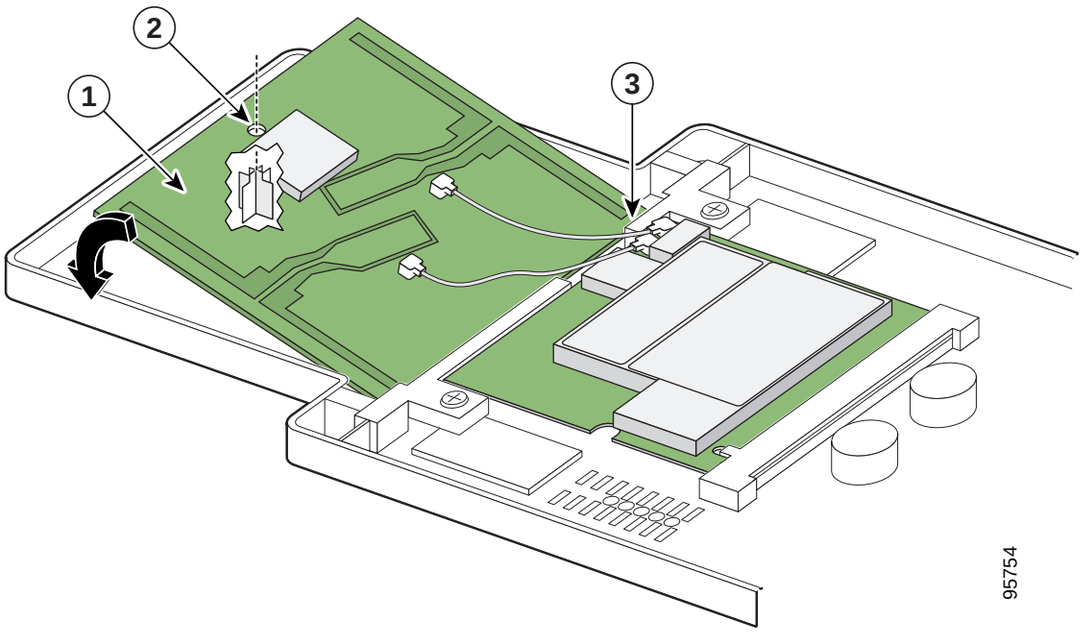


1	Antenna card	**3**	Mini-PCI connector
2	802.11g radio card		

b. Push the radio card into the mini-PCI connector until it is fully seated (you will hear a slight click).

6. Hold the top of the antenna card with one hand and carefully push the radio card down (towards the access point's motherboard) with your other hand until the card-retaining clips lock into the notches on the side of the radio card (you will hear a click).

7. Insert the antenna card into the notch on the support bracket and gently push until it is seated (see the following illustration).



1	Antenna card	**3**	Support bracket notch
2	Support post hole		

8. Align the hole on the top of the antenna board with the support post and gently push down until the board is fully seated on the support post.

9. Carefully position the antenna wires so that the metal connectors do not touch each other.
10. Verify the following:
    a. The card is properly secured with both retaining clips engaged.
    b. The antenna board is properly secured.
    c. The antenna connectors are not touching.

Caution Do not allow the antenna connectors to touch while power is applied. If they are touching, carefully rotate them in opposite directions until they are separated.

Replacing the Back Cover

Follow these steps to replace the back cover:

1. While holding the back cover near the connector end of the access point, carefully place the latches on the antenna end into the detents on the end of the front cover.
2. Release the back cover and with one finger gently push the connector end of the back cover towards the antenna end. The back cover drops into place and slides forward until it is fully seated.

3. Use a Philips screwdriver to hand tighten the cover's retaining screw.
4. Remove the backing paper from the 1100 series access point product compliance label and carefully place the label over the existing label.

Configuring the 802.11g Radio

Refer to the following documents to configure the 802.11g radio:

- *Cisco Aironet 1100 Series Access Point Hardware Installation Guide*
- *Cisco IOS Software Configuration Guide for Cisco Aironet Access Points*

These documents are available at Cisco.com. Follow the steps on page 4 to access them.

1200 Series Installation Instructions

Note Before installing your 802.11g radio, make sure that you upgrade to Cisco IOS Release 12.2(13)JA or later. If you do not upgrade, the access point will continually reboot.

Caution ESD can damage the radio and the internal components of the access point. It is recommended that the 802.11g radio upgrade procedures be performed by an ESD-trained service technician at an ESD-protected workstation.

Preparing the Access Point and Work Area

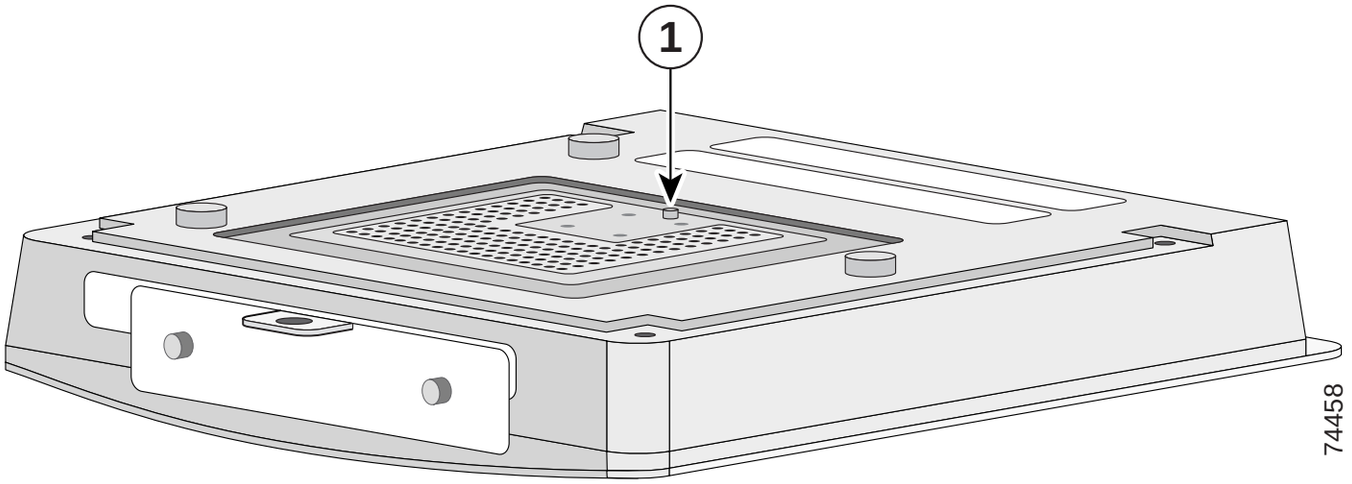
Follow these steps to prepare your access point and work area:

1. Remove all cables and power connections from the access point.
2. Place the access point on an ESD-protected work surface.
3. Remove all static-generating items from the work area, such as plastic material, styrofoam cups, and other similar items.
4. Place the access point and the new 802.11g radio (in its antistatic bag) on an antistatic work surface.
5. Discharge any static buildup on your body by touching a grounded surface (antistatic work surface) before proceeding.
6. Follow standard ESD procedures during all phases of the process.

Opening the Access Cover

Follow these steps to open the 2.4-GHz radio access cover:

1. Position the access point so that its bottom cover is facing up.
2. Use a T-10 tamper-resistant Torx L-wrench to remove the access cover retaining fastener. See the illustration below.



1	Access cover screw	

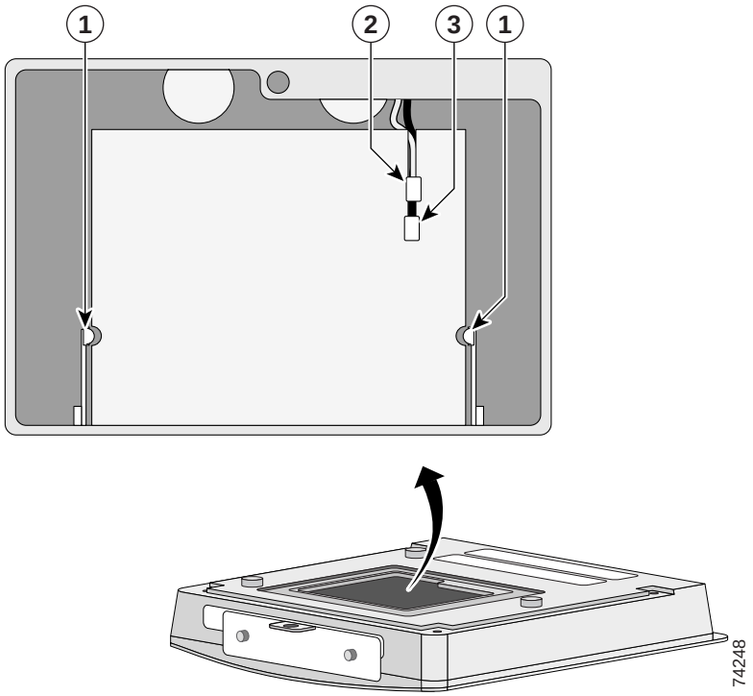
If your access point was not configured with a 2.4-GHz radio, go to the next section. If you are replacing an existing 2.4-GHz radio, go to the “Removing a 2.4-GHz Radio” section on page 25.

Removing the Blank Spacer Card

When your access point is not configured with a 2.4-GHz radio, it contains a blank spacer card in the internal mini-PCI connector. You must remove the blank spacer card prior to installing your 802.11g radio. If you are replacing an existing 2.4-GHz radio, go to the “Removing a 2.4-GHz Radio” section on page 25.

Caution Handle all components carefully and observe all ESD precautions. The internal access point components can be damaged by ESD if not handled properly.

Follow these steps to remove the blank spacer card from the mini-PCI connector. It may be helpful to refer to the following illustration before you proceed.

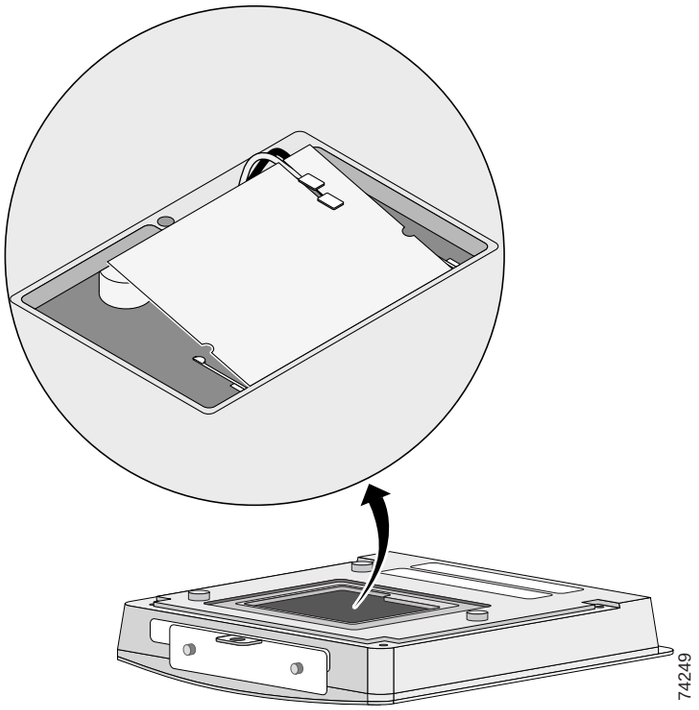


1	Card-retaining clips	**3**	Antenna connector (black wire)
2	Antenna connector (white wire)		

Caution

ESD can damage the internal access point components and the 802.11g radio if they are not handled properly.

1. Push the card-retaining clips (on each side of card) away from the card. When released, the card will spring up as shown in the following illustration.



2. Carefully bend the card near the slots in opposite directions to provide enough clearance to remove the antenna wires.
3. Remove the antenna wires from the slots.

Caution To avoid damaging the antenna wire assemblies, handle them by their connectors.

4. Remove the card from the mini-PCI connector.
5. Discard the card.
6. Go to the “Installing the 802.11g Radio” section.

Removing a 2.4-GHz Radio

Follow these steps to remove a 2.4-GHz radio card from your access point.

Caution ESD can damage the internal access point components and the 2.4-GHz radio if they are not handled properly.

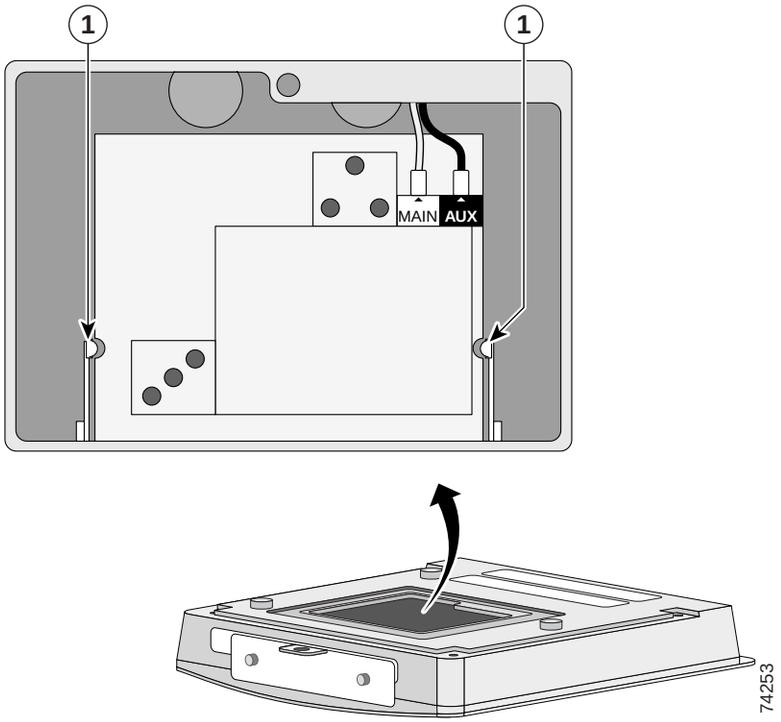
Caution Do not use long-nose pliers or similar tools. To avoid damaging the antenna wire assemblies, handle them by their connectors.

Caution Do not pull the antenna wire to remove the connector from the radio card. Damage to the wire and connector will result.

1. Use your fingers to carefully remove the antenna wire connectors from the 2.4-GHz radio card.

2. Remove the 2.4-GHz radio card from the mini-PCI connector by performing the following steps:

a. Push the card-retaining clips (on each side of the card) away from the card as shown in the following illustration. When released, the card will spring up.



1	Card retaining clips	

b. Grasp the card only by its edges, being careful not to touch components on the card or the gold connector pins.

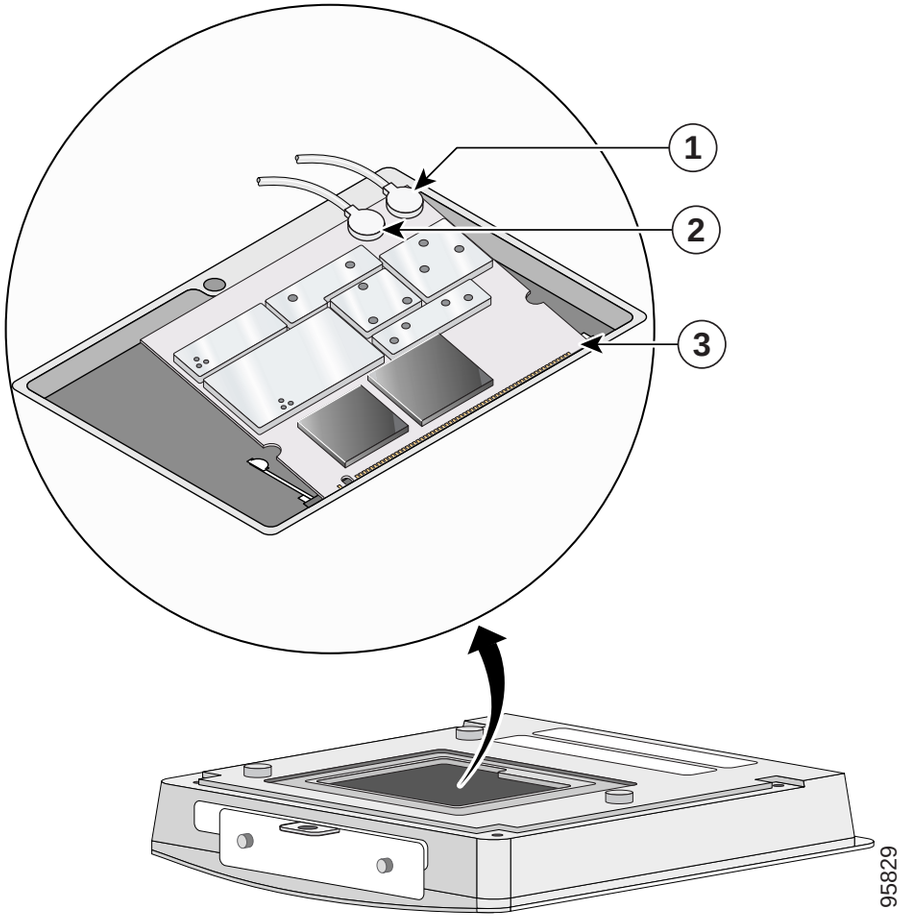
c. Remove the card from the mini-PCI connector.

3. Place the card in an anti-static bag.

Installing the 802.11g Radio Card

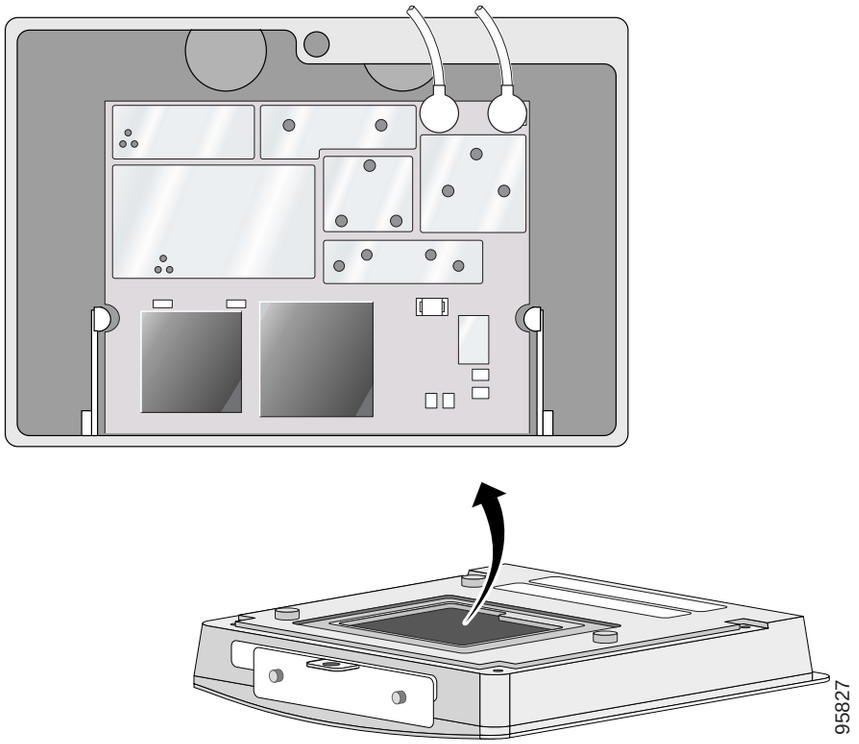
Follow these steps to install the 802.11g radio card:

1. Carefully remove the radio card from its anti-static bag.
2. Grasp the card by its edges, being careful not to touch components on the card or the gold connector pins.
3. Carefully connect the black wire's antenna connector to the radio card antenna connector marked J2 (the connector on the outside of the card).
4. Carefully connect the white wire's antenna connector to the radio card antenna connector marked J1 (the connector on the inside of the card) connector).
5. Insert the radio card into the access point's mini-PCI connector by following these steps:
    a. Tilt the card at approximately 20 to 30 degrees so that its gold pins are aligned with the mini-PCI connector.
    b. Insert the card into the mini-PCI connector and gently push the card until it is firmly seated as shown in the following illustration.



1	Antenna connector (black wire, J2)	**3**	Mini PCI connector
2	Antenna connector (white wire, J1)		

6. Carefully push the card down (towards the access point's motherboard) until the card-retaining clips lock into the notches on the side of the card (you will hear a click when the retaining clips lock into the notches).



7. Verify the following:

   a. The card is properly secured with both retaining clips engaged.

   b. The black antenna wire is connected to outside connector (J2).

   c. The white antenna wire is connected to the inside connector (J1).

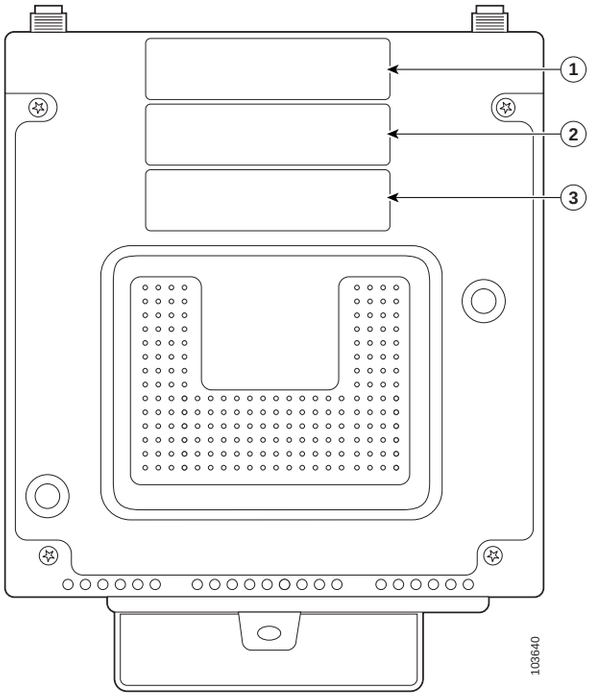
   d. The antenna connectors are not touching.

Caution Do not allow the antenna connectors to touch while power is applied. If they are touching, carefully rotate them in opposite directions until they are separated.

8. Reinstall the 2.4-GHz radio access cover and use a T-10 tamper-resistant Torx L-wrench to tighten the cover's retaining screw.

Attaching the Compliance Labels

There are three places on the 1200 series access point dedicated to compliance labels, one for the product compliance label and two for the radio compliance labels. The locations are shown in the following illustration.



1	Product compliance label	**3**	Radio compliance label
2	Radio compliance label		

The product compliance label always occupies the top space (location 1). The two spaces below (locations 2 and 3) contain the radio compliance labels. Whether or not locations 2 or 3 contain labels depends on how your access point is configured. For example, a dual-band access point could have two radio compliance labels (one for each radio device installed), or it could have only a product compliance label, depending on how it was ordered.

Make sure your that access point has the correct labels after you install or upgrade its radio configuration so that it will be in compliance with regulations in your country.

Placing the Labels

The 802.11g radio upgrade kit ships with the following labels for the 1100 and 1200 series access points:

- 1100 series access point upgrade label (AIR-1121G-x-K9 UPGRADE)
- 1200 series product compliance label (AIR-AP1231G-x-K9)
- 1200 series radio compliance label (AIR-MP21G-x-K9)

The following table shows where to place the labels on your 1200 series access point, based on the model you are upgrading. Follow these steps to place the labels correctly:

1. Check the product compliance label to identify the model number of your 1200 series access point.

2. Use the matrix in the table to decide which labels to use and where to place them on the access point.

1200 Series Model	AIR-MP21G-x-K9 Radio Compliance Label	AIR-AP1231G-x-K9 Product Compliance Label
AIR-AP1200	Place over existing AIR-MP20B-x-K9 radio compliance label or location 2 if no label exists.	—
AIR-AP1210		
AIR-AP1220A		
AIR-AP1230A		
AIR-AP1220B	—	Place over existing AIR-AP12xx-x-K9 product compliance label.
AIR-AP1230B		

3. Discard any labels you did not use.

Configuring the 802.11g Radio

Refer to the following documents to configure the 802.11g radio:

- *Cisco Aironet 1200 Series Access Point Hardware Installation Guide*
- *Cisco IOS Software Configuration Guide for Cisco Aironet Access Points*

These documents are available at Cisco.com. Follow the steps on page 1 to access them.

In Case of Difficulty

If you followed the instructions in previous sections of this guide, you should have had no trouble getting your access point installed and running. However, if you did experience difficulty, help is available from Cisco. Before contacting Cisco, look for a solution to your problem in the troubleshooting sections of the following documents:

- *Cisco Aironet 1100 Series Access Point Hardware Installation Guide*
- *Cisco Aironet 1200 Series Access Point Hardware Installation Guide*
- *Cisco IOS Software Configuration Guide for Cisco Aironet Access Points*

The Technical Assistance Center's list of top wireless technology issues contains additional troubleshooting information. Follow these steps to access this list:

1. Open your browser and go to http://www.cisco.com/.
2. Click **Technical Support**. The Technical Support Window appears.
3. Click **Hardware Support**. The Hardware Support page appears.
4. Click **Wireless Devices**.

5. Click on the product (**Aironet 1100 Series** or **Aironet 1200 Series**).
6. Select the link that best describes your needs.

Safety Information

The FCC with its action in ET Docket 96-8 has adopted a safety standard for human exposure to radio frequency (RF) electromagnetic energy emitted by FCC certified equipment. When used with approved Cisco Aironet antennas, Cisco Aironet products meet the uncontrolled environmental limits found in OET-65 and ANSI C95.1, 1991. Proper installation of this radio according to the instructions found in the *Cisco Aironet 1100 Series Access Point Hardware Installation Guide*, and the *Cisco Aironet 1200 Series Hardware Installation Guide* will result in user exposure that is substantially below the FCC recommended limits.

- Do not touch or move antenna(s) while the unit is transmitting or receiving.
- Do not hold any component containing a radio such that the antenna is very close to or touching any exposed parts of the body, especially the face and eyes, while transmitting.
- Do not operate the radio or attempt to transmit data unless the antenna is connected; otherwise the radio may be damaged.

- Antenna use:

  High-gain, wall-mount, or mast-mount antennas are designed to be professionally installed. Cisco recommends that you contact your professional installer, VAR, or antenna manufacturer to obtain proper installation requirements.

Warning **Do not operate a portable transmitter near unshielded blasting caps or in an explosive environment unless it is a type especially qualified for such use.**

Warning **In order to comply with FCC RF exposure limits, dipole antennas should be located at a minimum of 7.9 in. (20 cm) from the body of all persons.**

Compliance Information

This equipment has been tested and found to comply with the European Telecommunications Standard ETS 300.328. This standard covers Wideband Data Transmission Systems referred to in CEPT recommendation T/R 10.01.

This type-accepted equipment is designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. this equipment generates, uses, and can radiate radio frequency energy and, if not installed in accordance with the instruction manual, may cause harmful interference to radio communications.

Cisco One-Year Limited Hardware Warranty Terms

There are special terms applicable to your hardware warranty and various services that you can use during the warranty period. Your formal Warranty Statement, including the warranties and license agreements applicable to Cisco software, is available on Cisco.com. Follow these steps to access and download the *Cisco Information Packet* and your warranty and license agreements from Cisco.com.

1. Launch your browser, and go to this URL:

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

   The Warranties and License Agreements page appears.

2. To read the *Cisco Information Packet*, follow these steps:

   a. Click the **Information Packet Number** field, and make sure that the part number 78-5235-03A0 is highlighted.

   b. Select the language in which you would like to read the document.

   c. Click **Go**.

      The Cisco Limited Warranty and Software License page from the Information Packet appears.

   d. Read the document online, or click the **PDF** icon to download and print the document in Adobe Portable Document Format (PDF).

Note You must have Adobe Acrobat Reader to view and print PDF files. You can download the reader from Adobe's website: http://www.adobe.com

3. To read translated and localized warranty information about your product, follow these steps:

   a. Enter this part number in the Warranty Document Number field:

      78-10747-01C0

   b. Select the language in which you would like to view the document.

   c. Click **Go**.

      The Cisco warranty page appears.

   d. Read the document online, or click the **PDF** icon to download and print the document in Adobe Portable Document Format (PDF).

You can also contact the Cisco service and support website for assistance:

http://www.cisco.com/public/Support_root.shtml.

Duration of Hardware Warranty

One (1) Year

Replacement, Repair, or Refund Policy for Hardware

Cisco or its service center will use commercially reasonable efforts to ship a replacement part within ten (10) working days after receipt of a Return Materials Authorization (RMA) request. Actual delivery times can vary, depending on the customer location.

Cisco reserves the right to refund the purchase price as its exclusive warranty remedy.

To Receive a Return Materials Authorization (RMA) Number

Contact the company from whom you purchased the product. If you purchased the product directly from Cisco, contact your Cisco Sales and Service Representative.

Complete the information below, and keep it for reference.

Company product purchased from	
Company telephone number	
Product model number	
Product serial number	
Maintenance contract number	