

# Introduction to Cisco Catalyst 9130 Access Point with 9104 Stadium Antenna

This document describes the Introduction to Cisco Catalyst 9130 Access Point with 9104 Stadium Antenna (C-ANT9104) and provides electrical specifications and mounting instructions. The antenna is an eight-port polarization-diverse, ultralow sidelobe patch array that operates over the 2.4-GHz and supports dual 5-GHz Wi-Fi bands. At 5-GHz, the antenna supports beamwidth switching as well as beam steering. The antenna supports stadiums, large public venues. It ships with an articulating mount for flat surfaces and masts and is adjustable in horizontal and vertical planes.

**Note**

- The C9130AXE-x part number is a certified indoor access point.
- The C9130AXE-STA-x bundle, consisting of the C9130AXE-x AP and C-ANT9104 antenna, is a factory-assembled bundle and is protected from weather elements for use in indoor or outdoor environments such as arenas and stadiums.


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# Technical Specifications

| Parameters | 2.4-GHz | 5-GHz Wide Beamwidth | 5-GHz Narrow Beamwidth Boresight | 5-GHz Narrow Beamwidth 10° | 5-GHz Narrow Beamwidth 20° | IoT |
|---|---|---|---|---|---|---|
| Nominal Input Impedance | 50 Ohms | 50 Ohms | 50 Ohms | 50 Ohms | 50 Ohms | 50 Ohm |
| Voltage Standing Wave Ratio (VSWR) | 2:1 | 2:1 | 2:1 | 2:1 | 2:1 | 2:1 |
| Peak Gain | 6 dBi | 7 dBi | 10 dBi | 10 dBi | 10 dBi | 6 dBi |
| Polarization | Ports A and C are vertically polarized | Ports A, C, E, and G are vertically polarized | Ports A, C, E, and G are vertically polarized | Ports A, C, E, and G are vertically polarized | Ports A, C, E, and G are vertically polarized | Vertical Polariz |
| | Ports B and D are horizontally polarized | Ports B, D, F, and H are horizontally polarized | Ports B, D, F, and H are horizontally polarized | Ports B, D, F, and H are horizontally polarized | Ports B, D, F, and H are horizontally polarized | |
| 3–dB Beamwidth Azimuth | 70° | 80° | 25° | 25° | 25° | 70° |
| 3–dB Beamwidth Elevation | 70° | 25° | 25° | 25° | 25° | 70° |
| Sidelobe Level | NA | -21 dBr | -30 dBr | -30 dBr | -30 dBr | NA |
| Front-to-Back Ratio | -15 dBr | -20 dBr | -30 dBr | -30 dBr | -30 dBr | -15 dBr |
| Connector Type | RJ45 PoE | | | | | |
| Width | 23.5 in. (59.70 cm) | | | | | |
| Height | 18.2 in. (46.23 cm) | | | | | |
| Depth | 5.8 in. (14.8 cm) | | | | | |
| Weight | 15.5 lbs (7.03 Kg) | | | | | |
| Water/Foreign Body Ingress | IP65 | | | | | |
| Operational Wind | 100 mph | | | | | |

| Parameters | 2.4-GHz | 5-GHz Wide Beamwidth | 5-GHz Narrow Beamwidth Boresight | 5-GHz Narrow Beamwidth 10° | 5-GHz Narrow Beamwidth 20° | IoT |
|---|---|---|---|---|---|---|
| Operating Temperature Range | No solar loading: -20°C to 60°C (-4°F to 140°F)<br>With solar loading and solar cover: up to 50°C (122°F) | | | | | |
| Storage Temperature Range | -40°C to 70°C (-40°F to 158°F) | | | | | |

# Azimuth and Elevation Radiation Patterns

The following illustrations show the C-ANT9104= antenna radiation patterns:

*Figure 1: C9104–Antenna Radiation Pattern Slot0 Radio (2.4-GHz Azimuth)*

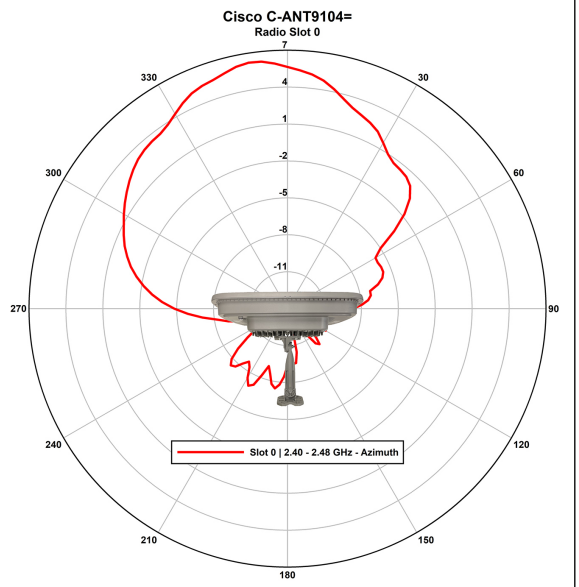



*Figure 2: C9104–Antenna Radiation Pattern Slot0 Radio (2.4-GHz Elevation)*

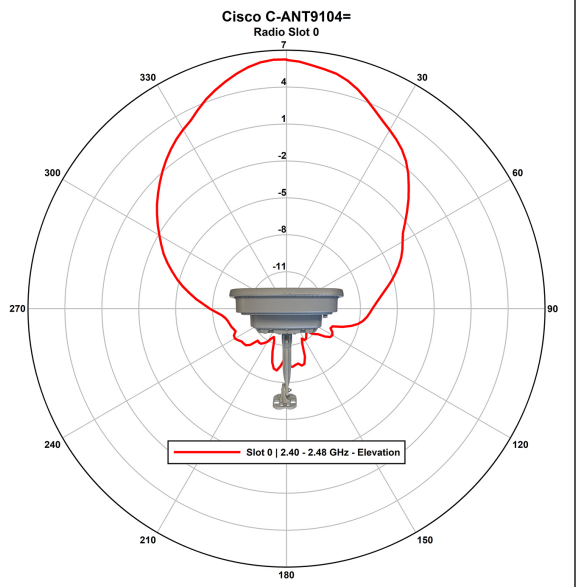


*Figure 3: C9104–S1-S2 Narrow 0° Pattern (5-GHz Azimuth)*

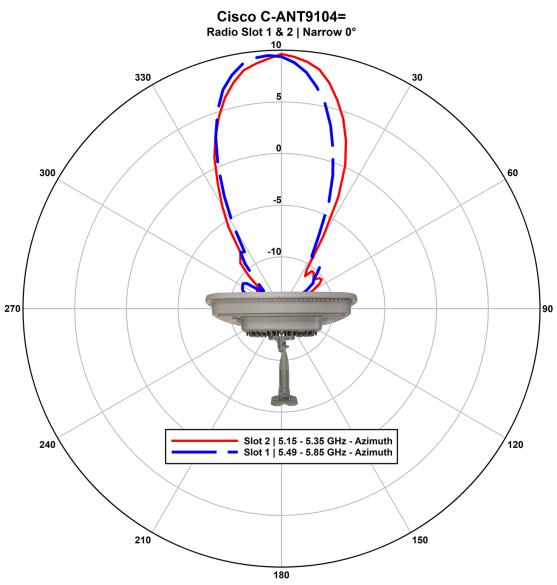



*Figure 4: C9104–S1-S2 Narrow 10° Pattern (5-GHz Azimuth)*

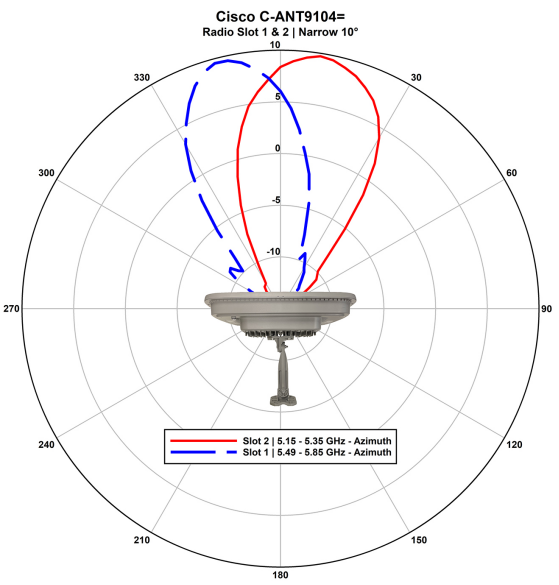



*Figure 5: C9104–S1-S2 Narrow 0° Pattern (5-GHz Elevation)*

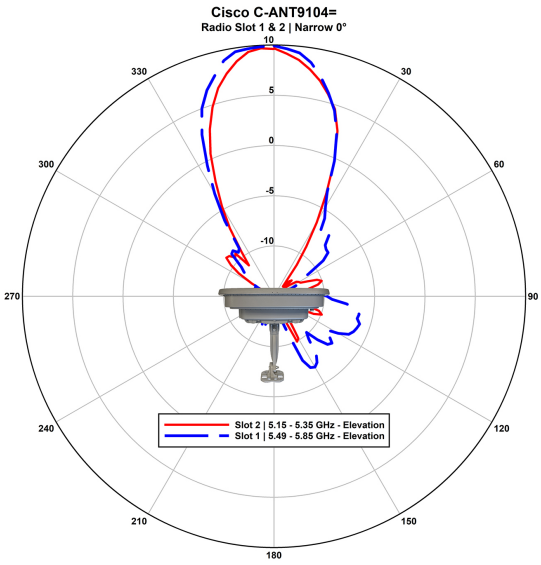



*Figure 6: C9104–S1-S2 Wide Radiation Pattern (5-GHz Elevation)*

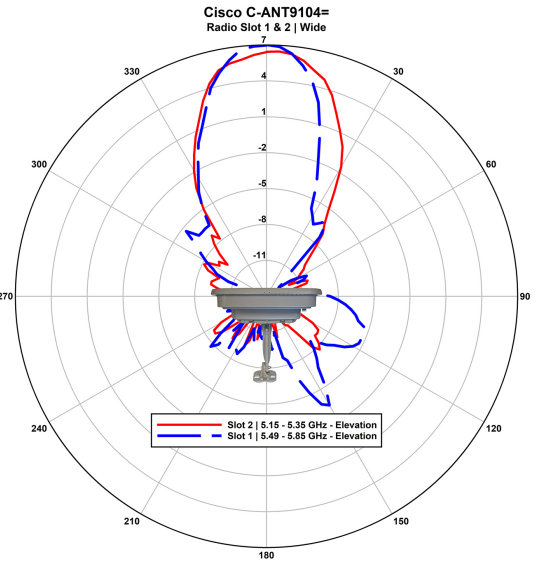


*Figure 7: C9104–S1-S2 Narrow 20° Pattern (5-GHz Azimuth)*

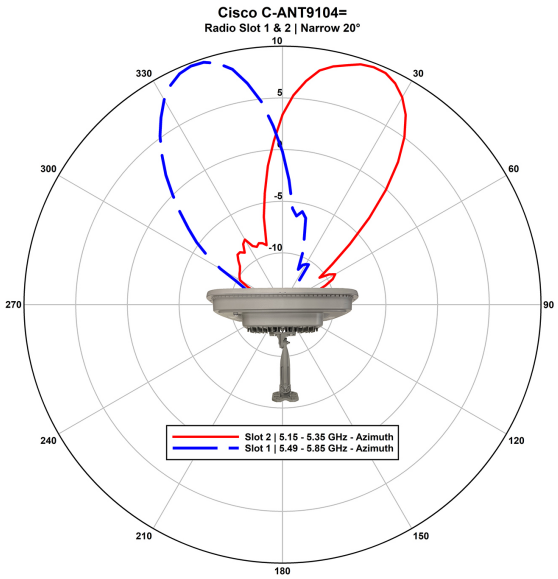



*Figure 8: C9104–S1-S2 Wide Radiation Pattern (5-GHz Azimuth)*

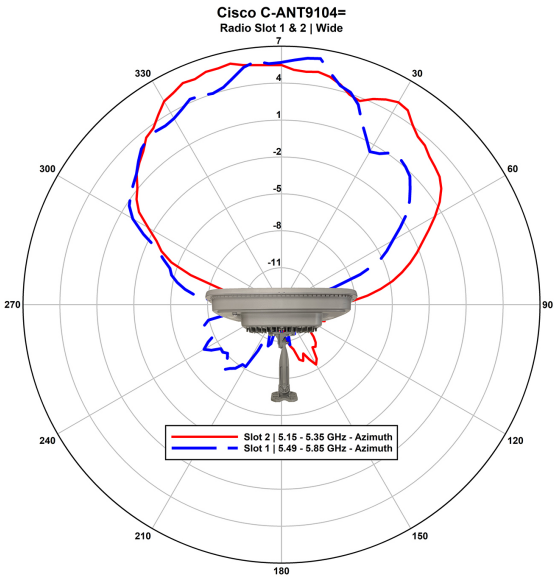



*Figure 9: C9104–IoT Antenna Radiation Pattern (2.4-GHz Azimuth)*

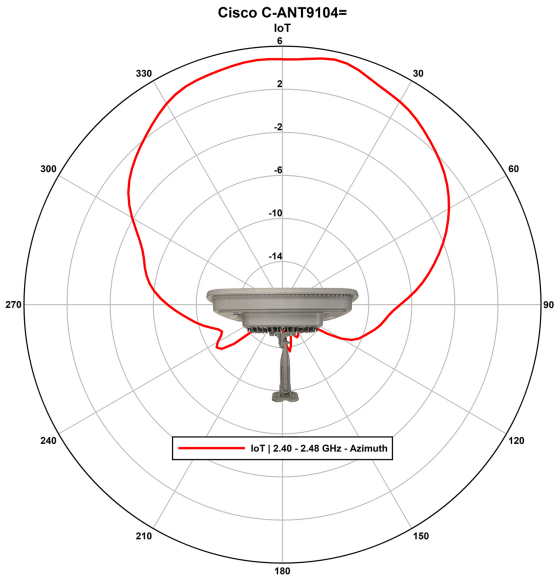



*Figure 10: C9104–IoT Antenna Radiation Pattern (2.4-GHz Elevation)*

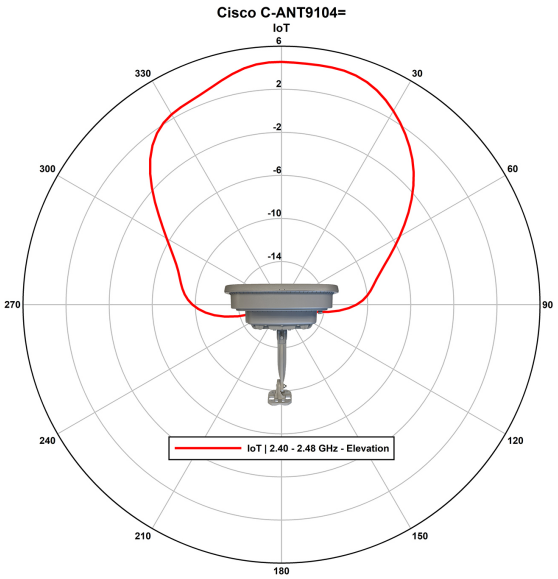


*Figure 11: C9104–AUX RF ASIC Wide Antenna Radiation Pattern (Azimuth)*

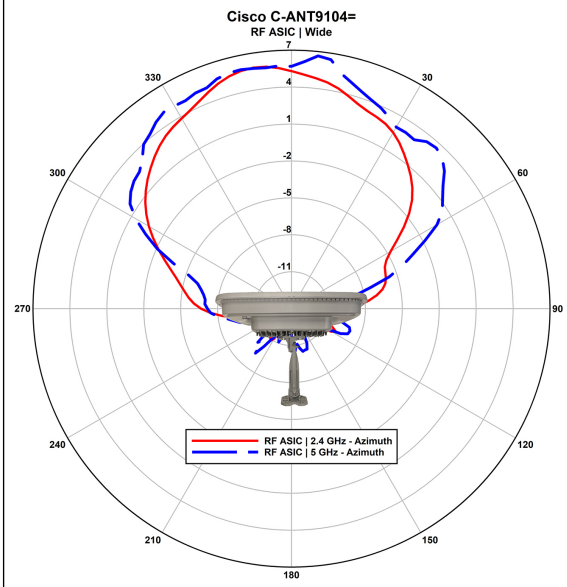
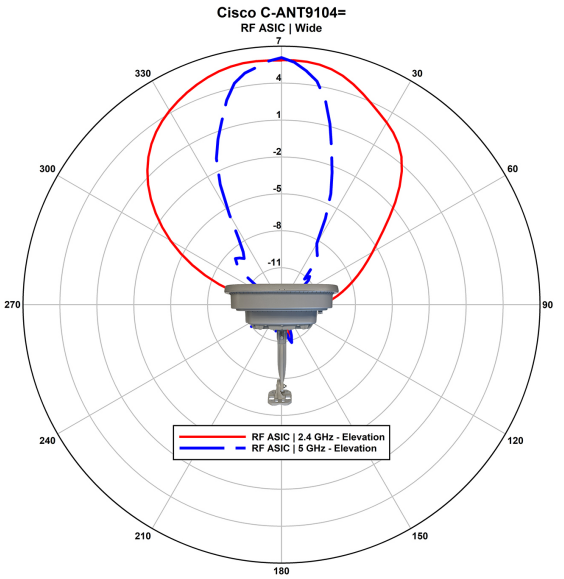



*Figure 12: C9104–AUX RF ASIC Wide Antenna Radiation Pattern (Elevation)*




# Safety Precautions

**Danger** Installation of this antenna near power lines is dangerous. For your safety, follow the installation directions.

Each year, hundreds of people are killed or injured when attempting to install an antenna. In many of these cases, the victim was aware of the danger of electrocution but did not take adequate steps to avoid the hazard.

For your safety and to help you achieve a sound installation, read and follow these safety precautions. *They may save your life!*

- If you are installing an antenna for the first time, for your safety and that of others, seek professional assistance. Your Cisco sales representative can explain which mounting method to use for the size and type of antenna you are about to install.
- Select your installation site with safety and performance in mind. Remember that electric power lines and phone lines look alike. For your safety, assume that any overhead line can kill you.
- Call your electric power company. Tell them your plans and ask them to come and look at your proposed installation. It is a minor inconvenience considering your life is at stake.
- Plan your installation carefully and thoroughly before you begin. Successful raising of a mast or tower is essentially a matter of coordination. Assign each person a specific task and know what to do and when to do it. One person should be in charge of the operation to issue instructions and watch for signs of trouble.
- When installing your antenna, remember:
  - *Do not* use a metal ladder.

- *Do not* work on a wet or windy day.
- *Do* dress properly: shoes with rubber soles and heels, rubber gloves, long–sleeved shirt, or jacket.

- If the assembly starts to drop, get away from it and let it fall. Remember, the antenna, mast, cable, and metal guy wires are all excellent conductors of electrical current. The slightest touch of these parts to a power line completes an electrical path through the antenna and the installer: *You!*
- If any part of the antenna system should contact a power line, don't touch it or remove it yourself. Instead, call your local power company. They would remove it safely.
- If an accident occurs with the power lines, call for qualified emergency help immediately.

For a listing of all the warning statements and their translations, see *Translated Safety Warnings for Cisco Aironet Access Points* at:

http://www.cisco.com/c/en/us/td/docs/wireless/access_point/warnings/reference/guide/ap_warn1.html

# Installation Notes

Antennas transmit and receive radio signals susceptible to RF obstructions and common sources of interference that can reduce throughput and the range of the device connected with them. Therefore, follow these guidelines to ensure the best possible performance:

- Keep the antenna away from metal obstructions such as:
  - Heating
  - Air-conditioning ducts
  - Large ceiling trusses
  - Building superstructures
  - Major power cabling runs

  If necessary, use a rigid conduit to lower the antenna away from these obstructions.
- In an outdoor environment, connect the antenna to a lightning arrestor and ensure proper grounding.
- The density of the materials used in a building's construction determines the number of walls the signal can pass through and maintains adequate signal strength. Consider the following before choosing the location for your antenna:
  - Signals penetrate paper and vinyl walls with little change to signal strength.
  - Signals penetrate only one or two solid and precast concrete walls without degrading signal strength.
  - Signals penetrate three or four concrete and woodblock walls without degrading signal strength.
  - Signals penetrate five or six walls constructed of drywall or wood without degrading signal strength.
  - Signals are likely to reflect off a thick metal wall and may not penetrate it at all.
  - Signals are likely to reflect off a chain–link fence or wire mesh spaced between 1 and 1 1/2 inches. (2.5 cm and 3.8 cm) The fence acts as a harmonic reflector that blocks the signal.

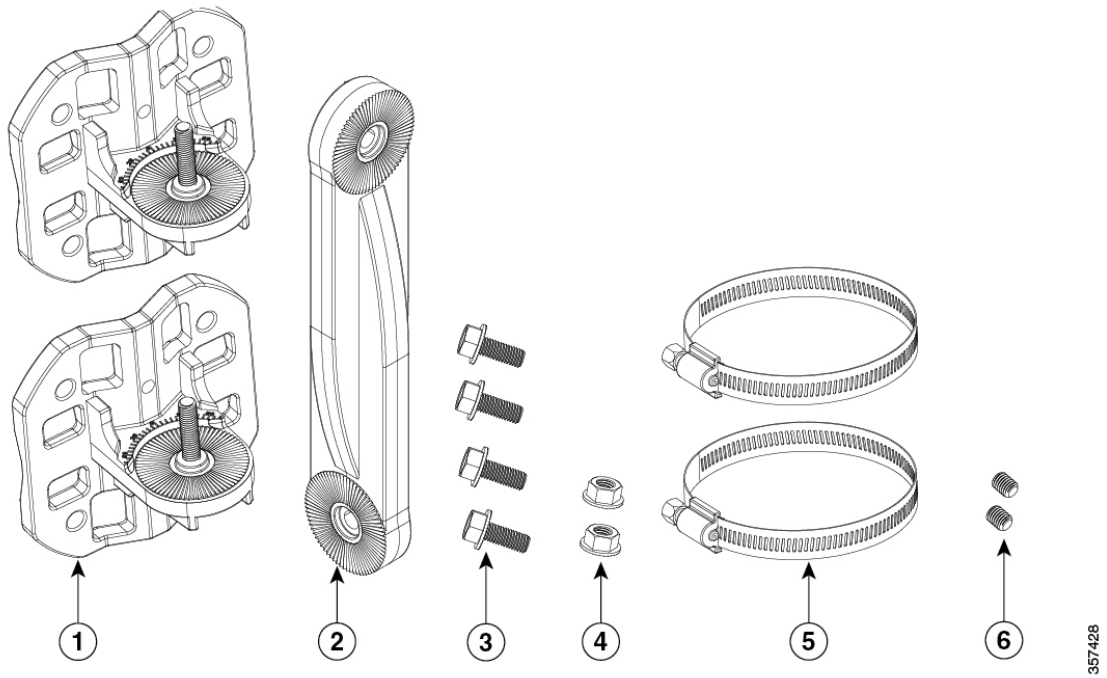
- Install the antenna away from microwave ovens and 2-GHz cordless phones. These products can cause signal interference because they operate in the same frequency range as the device.
- Due to the tight side lobe configuration, the antenna does not support RRM. Hence, you need to configure the channel and power for it statically.
- Australian regulatory restrictions are applied when the device is configured for the -Z domain with the country set as Australia. This results in a band lock on radios that are enabled.
- Console access using the console port

  We recommend that you use a console cable that is one meter or less in length.

**Note** The AP may face issues while booting if you use an unterminated console cable (not plugged into any device or terminal) or a console cable that is more than one meter in length.

# Contents of the Antenna and Bracket Kit

*Figure 13: Contents of the Antenna Bracket Kit*



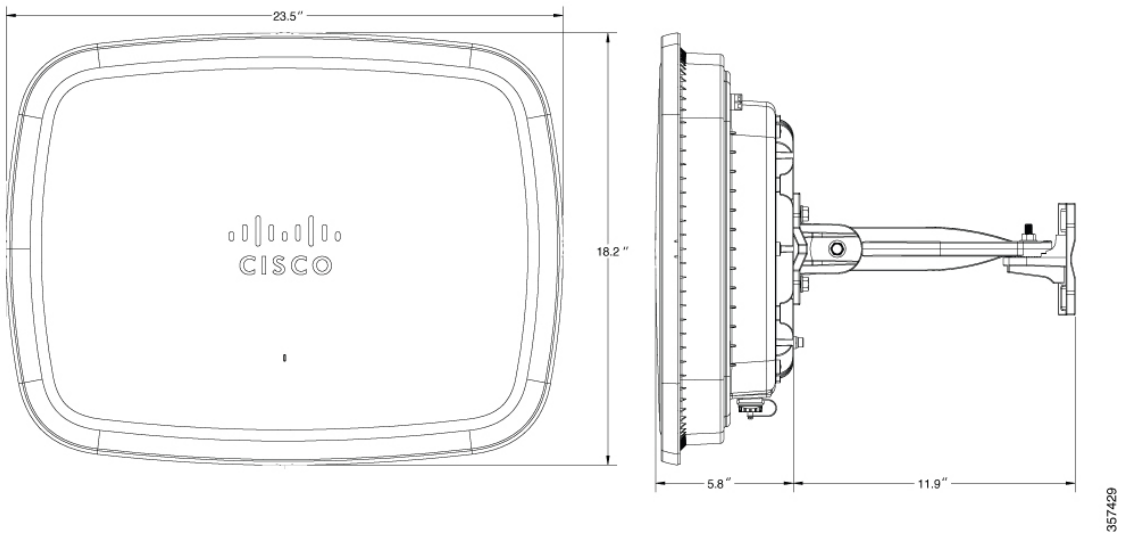

| Item # | Part | Quantity | Tightening Values |
|---|---|---|---|
| 1 | Mounting Flange | 2 | — |
| 2 | Mounting Arm | 1 | — |

| Item # | Part | Quantity | Tightening Values |
|---|---|---|---|
| 3 | M8 x 20 screws | 4 | 20.0 +/- 1.0 Nm |
| 4 | M8 nut | 2 | 25.0 +/- 1.0 Nm |
| 5 | Hose Clamp (mast/pole mount only) | 2 | 5.5 to 6.0 Nm |
| 6 | Set screws (mast/pole mount only) | 2 | 3.0 to 3.5 Nm |

# Dimensions of the Antenna and Brackets

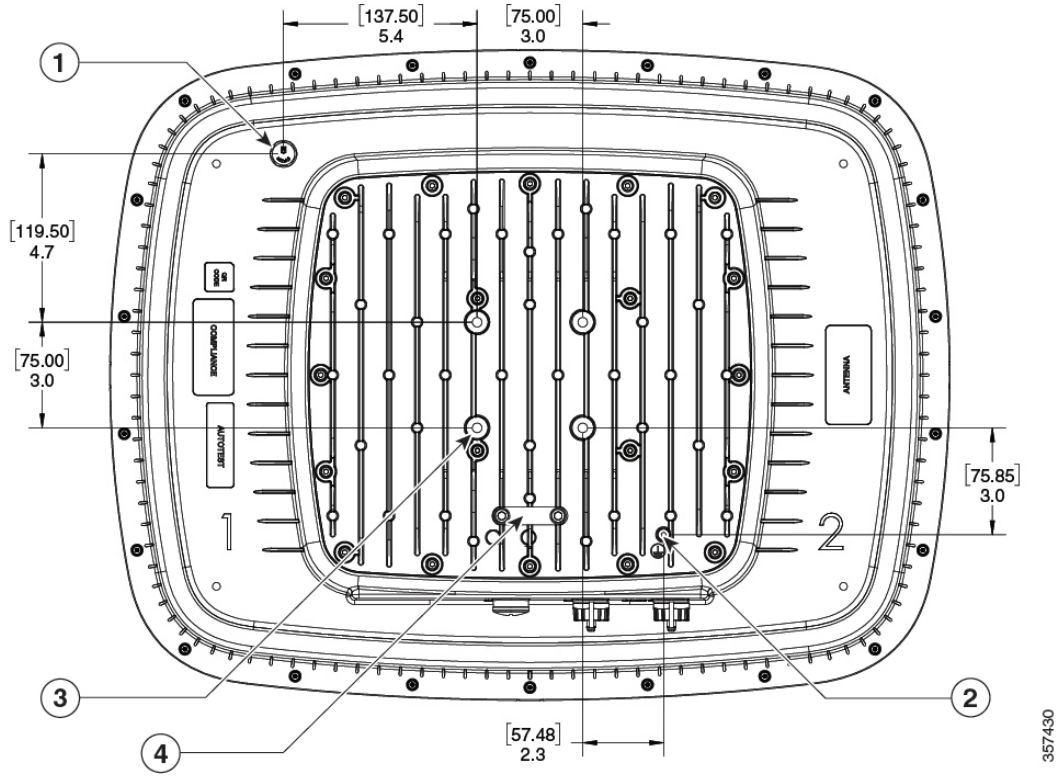
The dimensions noted in the following illustrations are all in millimeters, unless noted otherwise.

***Figure 14: Dimensions of the Antenna with Brackets and Cables***




The pressure vent and mounitng screw hole locations at the back of the antenna.

*Figure 15: Locations of Screw Holes and Pressure Vent at the Back of the Antenna*



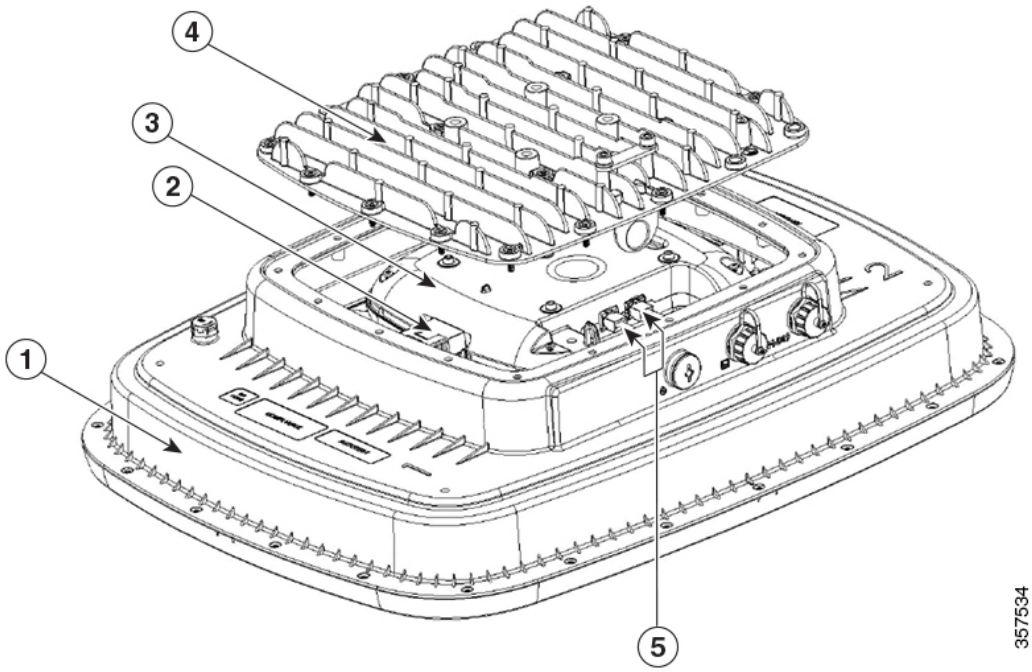

The mounting hole location on the articulating mount flange.

| | | | |
|---|---|---|---|
| 1 | Pressure Vent | 3 | VESA 75 mount pattern |
| 2 | Grounding Point | 4 | Tether anchor |

View the assembly of the Cisco C-ANT9104 antenna with the Cisco Catalyst 9130AX AP.

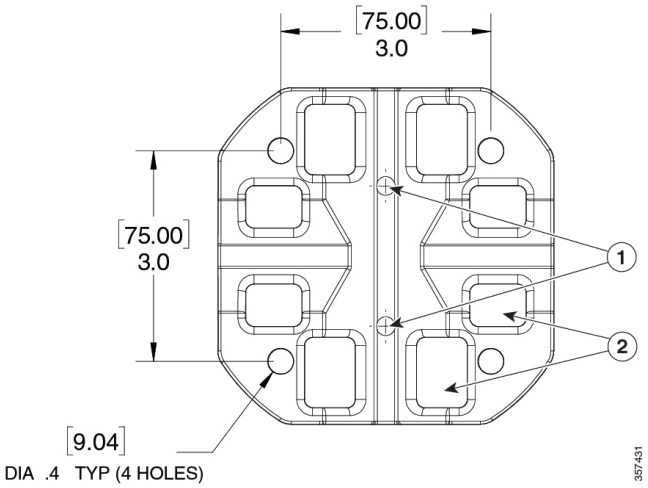
**Note** Removing back plate will void product warranty.

*Figure 16: Assembly view of C-ANT9104 Antenna*




| | | | |
|---|---|---|---|
| 1 | Cisco C-ANT9104 Antenna | 4 | Back plate |
| 2 | DART cable connecting the C9130AX AP with the C-ANT9104 Antenna | 5 | Ethernet and Console jumper cables |
| 3 | Cisco Catalyst 9130AX AP | | |

*Figure 17: Locations of the Screw Holes on the Articulating Mount Flange*




| | |
|---|---|
| 1 | Pole / Mast mounting set screw holes |

| | |
|---|---|
| 2 | Slotted holes for hose clamps |

# Installing the Antenna

You can install the antenna on a wall or ceiling (must be a flat surface) or on a pole with a minimum diameter of 2 inches (5.08 cm) and a maximum diameter of 5 inches (12.7 cm).

**Procedure**

**Step 1** Decide on a mounting location.

See Deciding on a Mounting Location, on page 12.

**Step 2** Ensure that you have the required tools and fasteners ready

See Required Tools and Equipment, on page 13.

**Step 3** Proceed with mounting the antenna.

When mounting the antenna:

**a.** Assemble the bracket hardware.

**b.** Connect the antenna and the bracket to the mounting surface.

**c.** Secure the antenna using the tether anchor (tether strap not included).

**d.** Connect the antenna to ground using the included ground screw and Electrical Joint Compound.

**e.** Adjust the antenna orientation.

The mounting options available are:

- Mounting on a Wall or Ceiling Using Articulating Bracket, on page 14
- Mounting on a Pole or Mast

**Step 4** (Optional) Paint the antenna.

See Painting the Antenna, on page 25.

**Step 5** Install a Solar Shield.

See Installing the Solar Shield, on page 26.

# Deciding on a Mounting Location

The antenna should be mounted clear of any obstructions to the side or front of the enclosure, which contains the radiating elements. Remember to aim this antenna at the intended coverage area. Therefore, you should mount the antenna and adjust it to achieve the desired mechanical tilt.

**Caution** As with all the outdoor installations, you must install the antenna with cables exiting downward which helps prevent water from accumulating around the cable exit points.

# Required Tools and Equipment

**Danger** IMPORTANT SAFETY INSTRUCTIONS Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents. Read the installation instructions before using, installing, or connecting the system to the power source. Use the statement number provided at the end of each warning statement to locate its translation in the translated safety warnings for this device.SAVE THESE INSTRUCTIONS Statement 1071

**Danger** **Only skilled person should be allowed to install, replace, or service this equipment. Refer to Statement 1089 for description of skilled person.** Statement 1090

**Danger** **To reduce the risk of electric shock, refer to national and local codes for proper installation and grounding of antennas.** Statement 1052

**Danger** **To reduce the risk of electric shock, the chassis of this equipment needs to be connected to permanent earth ground during normal use.** Statement 0445

**Caution** The fasteners and the mounting surface should be capable of maintaining a minimum pullout force of 150 pounds (68 kg) to support the weight of the antenna and bracket, along with the potential wind loading on the antenna.

**Caution** The pole or mast must be rigid enough to hold the weight of the antenna along with the associated forces produced by wind loads. Also, the pole or mast must be structurally strong enough to withstand the clamping force of the hose clamps.

Before you mount the antenna, go through the supported mounting procedures and ensure that you have all tools and fasteners mentioned therein ready. The following is a general list of fasteners and tools not included in the antenna and brackets kit:

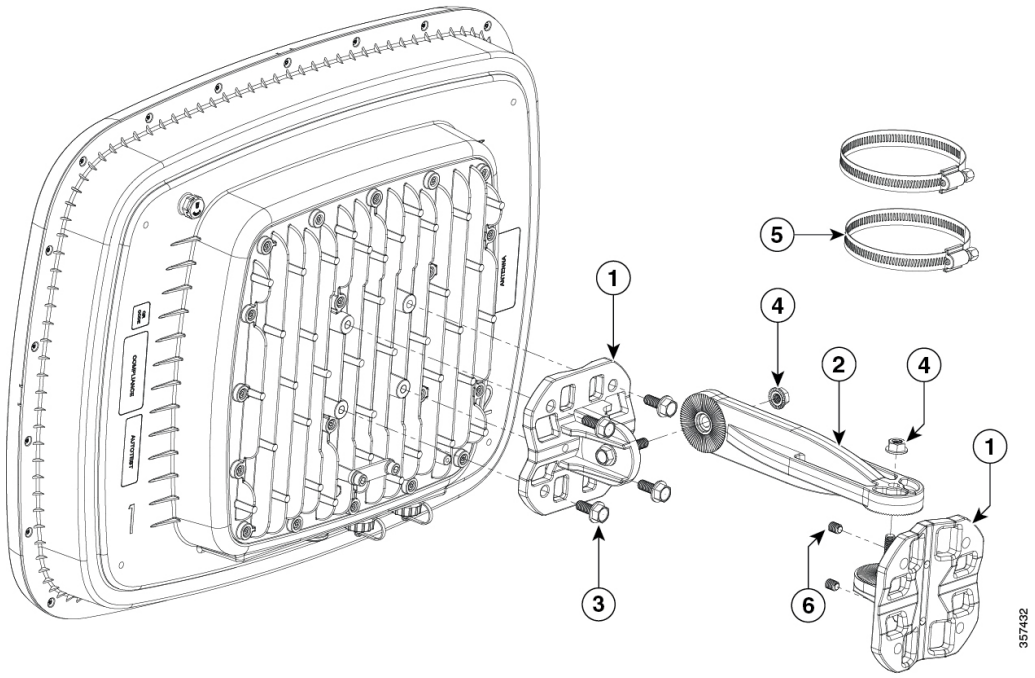
- To mount the antenna on a wall or ceiling, you need four mounting M8 screws or bolts and wall anchors.

- To mount the antenna on a pole or mast, you may need either or both of these supplies:
  - A slotted screwdriver or a wrench to tighten the screws on the hose clamps
  - A Hex key to tighten set screws

# Mounting on a Wall or Ceiling Using Articulating Bracket

**Note** Tether antenna assembly and mounting hardware to a secure mounting surface using the tether anchor on the antenna. The mounting kit does not include the tether strap.

*Figure 18: Exploded View of Antenna and Bracket Hardware Assembly*




| Item # | Mounting Bracket Kit | Quantity | Tightening Values |
|---|---|---|---|
| 1 | Mounting flange | 2 | — |
| 2 | Mounting arm | 1 | — |
| 3 | M8 x20 screws | 4 | 20.0 +/- 1.0 Nm |
| 4 | M8 nut | 2 | 25.0 +/- 1.0 Nm |
| 5 | Hose clamp (mast/pole mount only) | 2 | 5.5 Nm to 6 Nm |

| Item # | Mounting Bracket Kit | Quantity | Tightening Values |
|---|---|---|---|
| 6 | Set screws (mast/pole mount only) | 2 | 3.0 Nm to 3.5 Nm |

*Figure 19: Close-Up View of the Azimuth and Elevation-Adjustment Pivots*

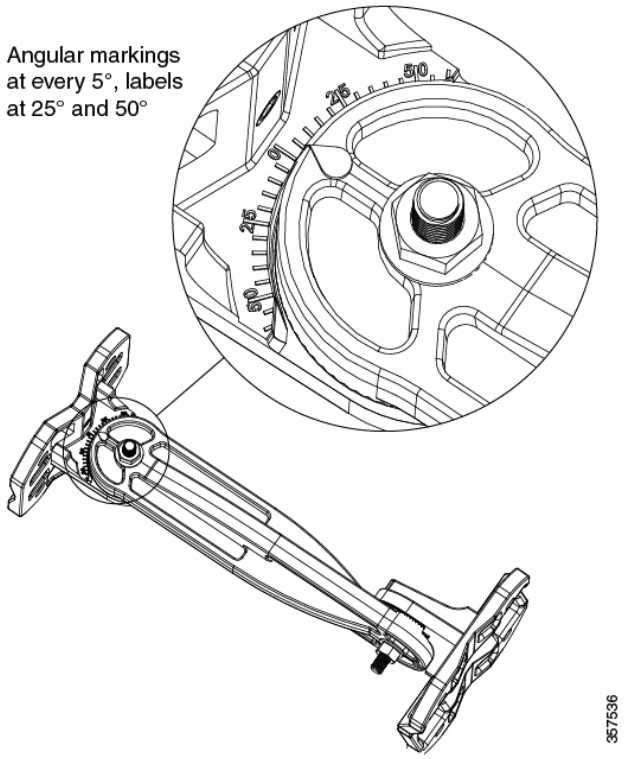


*Figure 20: Azimuth Adjustment*

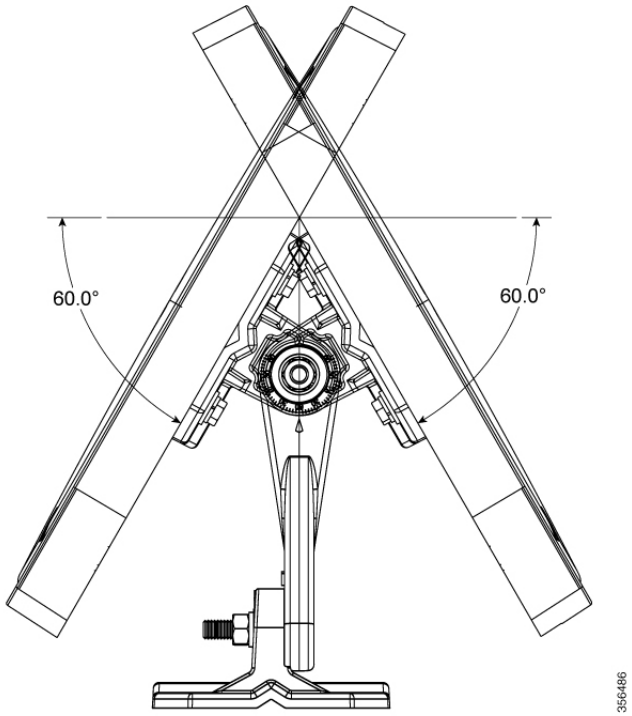
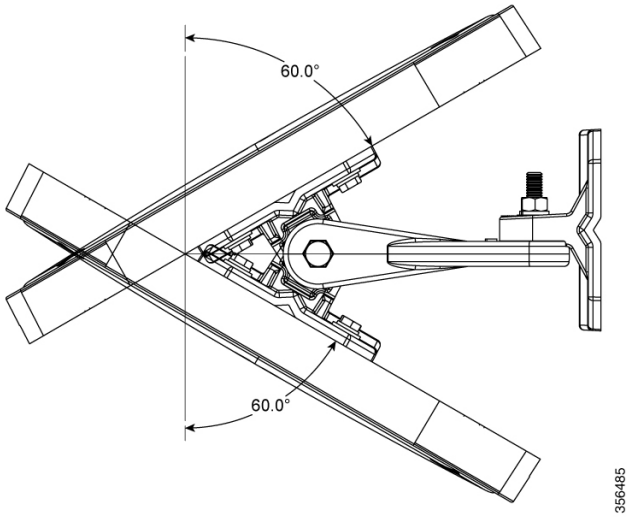



*Figure 21: Elevation Adjustment*




## Procedure

**Step 1** Determine the mounting location for the antenna.

**Step 2** Attach one of the mount flanges to the wall or ceiling using four M8 screws through the holes in the bracket.

The mounting kit includes the mount flanges. See Figure 13: Contents of the Antenna Bracket Kit, on page 8.

**Note**
The mounting kit does not include the M8 screws for securing the bracket to the mounting surface.

**Step 3** Attach the other mount flange to the back of the antenna using four M8 screws through the holes in the bracket.

Tighten the screws to 20.0 +/- 1.0 Nm torque.

**Step 4** Assemble the mounting arm to the flanges.

Use a wrench to tighten all screws and nuts. See Figure 18: Exploded View of Antenna and Bracket Hardware Assembly, on page 14.

**Step 5** Orient the antenna correctly so that the antenna cable exits downwards.

Use a wrench to loosen or tighten the fasteners at the azimuth and elevation- adjustment pivots.

**Step 6** Adjust the azimuth (side-to-side position) and elevation (up-and-down position) of the antenna.

Loosen the adjustment pivot nuts slightly to allow for adjustment. Use the azimuth and elevation markings on the articulating mounting arm and the flange brackets as a guide. See Figure 19: Close-Up View of the Azimuth and Elevation-Adjustment Pivots, on page 15. You may adjust the azimuth angle up to ±60 degrees, see Figure 20: Azimuth Adjustment, on page 16, and elevation up to ±60 degrees see Figure 21: Elevation Adjustment, on page 16.

**Step 7** After adjusting the antenna position, tighten the pivot nuts.

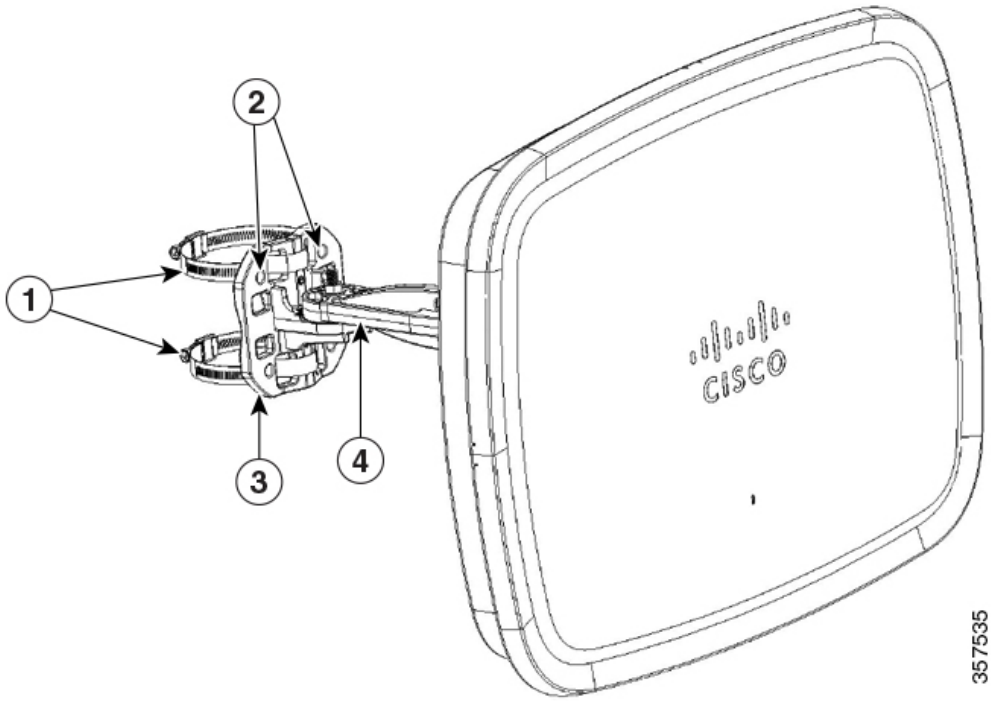
Tighten all nuts at the pivot points to 25.0 +/- 1.0 Nm torque.

**Step 8** Connect the Ethernet cable to the antenna using the termination kit.

**Step 9** Connect the antenna to the building ground using the grounding kit.

# Mounting on a Pole or Mast

*Figure 22: Antenna Bracket Hose Clamp Assembly for Pole Mounting*




| | | | |
|---|---|---|---|
| 1 | Worm-gear-type hose clamp (50–135mm) for mounting the assembly on a pole or mast | 3 | Articulating mount flange that is fastened to the pole or mast using hose clamps |
| 2 | Screws holes to mount the assembly to a wall. | 4 | Articulating mount arm |

### Before you begin

**Note** The pole or mast must be rigid enough to hold the weight of an antenna along with the associated forces produced by wind loads. In addition, the mast must be structurally strong enough to withstand the clamping force of the hose clamps.

### Procedure

**Step 1** Determine the mounting location for the antenna on the pole or mast.

**Step 2** Position and mount the mounting flange bracket onto the pole or mast using the hose clamps provided in the kit.

The hose clamps should pass through the slots on the free mounting flange bracket.

**Step 3** Tighten the hose clamps and set screws until the antenna is fully secure on the mast.

Then, adjust the antenna to its final position. Then, use a slotted screwdriver to tighten the screws on the hose clamps.

**Step 4** Attach the other mount flange through the holes in the bracket to the back of the antenna using four M8 screws.

The mounting kit includes the mounting flange and M8 screws. Tighten the screws to 20.0 +/- 1.0 Nm torque.

**Step 5** Assemble the mounting arm to the flanges.

Use a wrench to tighten all screws and nuts.

**Step 6** Ensure that the antenna cannot rotate about the mast.

**Step 7** Adjust the azimuth (side-to-side position) and the antenna's elevation (up-and-down position).

Loosen the adjustment pivot nuts slightly to allow for adjustment.

You can use the azimuth and elevation markings on the articulating mounting arm and the flange brackets as a guide. See Figure 19: Close-Up View of the Azimuth and Elevation-Adjustment Pivots, on page 15. You can adjust the azimuth angle up to ±50 degrees, see Figure 20: Azimuth Adjustment, on page 16, and elevation up to ±50 degrees see Figure 21: Elevation Adjustment, on page 16.

**Step 8** After adjusting the antenna position, tighten all nuts at the pivot points to 25.0 +/- 1.0 Nm torque.

**Step 9** Connect the Ethernet cable to the antenna using the termination kit.

# Grounding the Antenna

The antenna must be grounded before connecting power.

### Procedure

**Step 1** Install grounding standoff included in the solar shield kit when the optional solar cover is used.

Use the included Electrical Joint Compound on both ends of grounding standoff and tighten the standoff to 10.2 +/- 1.0 kgf-cm of torque.

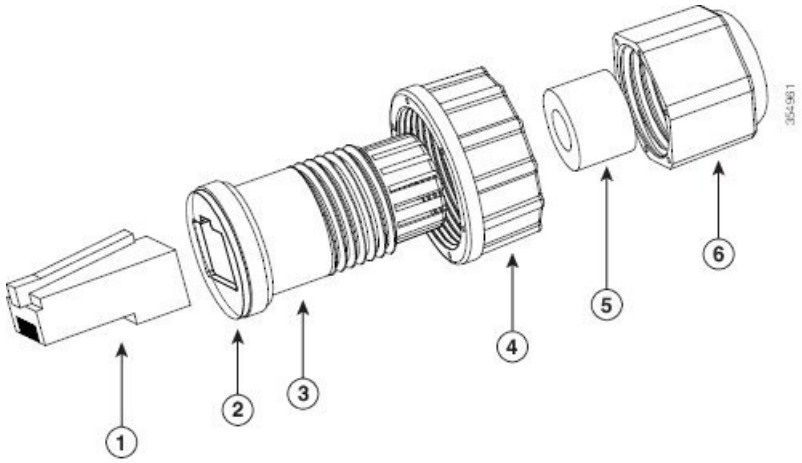
**Step 2** Connect the antenna to building ground with the included ground screw and included Electrical Joint Compound.

Tighten the ground screw to 10.2 +/- 1.0 kgf-cm of torque.

# Connecting an Ethernet Cable to the Access Point

## Installing a CAT 5e Ethernet Cable and Gland Assembly to the Access Point

*Figure 23: CAT 5e Cable Gland Assembly*




| | | | |
|---|---|---|---|
| 1 | CAT 5e RJ45 Plug | 4 | Screw nut |
| 2 | Gasket<br>It is pre-attached to the Clamp ring. | 5 | Cable Seal |
| 3 | Clamp ring | 6 | Cable Sealing Nut |

### Before you begin

You must supply these tools and materials:

- Shielded outdoor-rated CAT 5e Ethernet cable with a diameter of 0.2 to 0.35 inch (5 to 9 mm)
- CAT 5e RJ-45 connector and installation tool
- Adjustable wrench or 28–mm box wrench
- CAT 5e gland kit is supplied standard with AP

**Note** The provided CAT 5e gland must be used with CAT 5e cable only. When using CAT 6/6A cable you need to use AIR-ACC-CAT6= kit which is an orderable accessory from Cisco.

### Procedure

**Step 1** Disconnect power to the power injector and ensure all power sources to the AP are turned off.

**Danger**
**This unit might have more than one power supply connection. All connections must be removed to de-energize the unit.** Statement 1028

**Step 2** Ensure a 6 AWG ground wire is connected to the AP (see Grounding the Antenna, on page 19).

**Step 3** Remove the covering cap from the PoE port.

**Step 4** Loosen and remove the cable sealing nut of the cable gland by turning it counterclockwise.

**Note**
Verify that the cable gland has a rubber seal and ensure that it is not damaged.

**Caution**
If the cable gland and rubber gasket is not installed correctly, it causes the cable grip to leak.

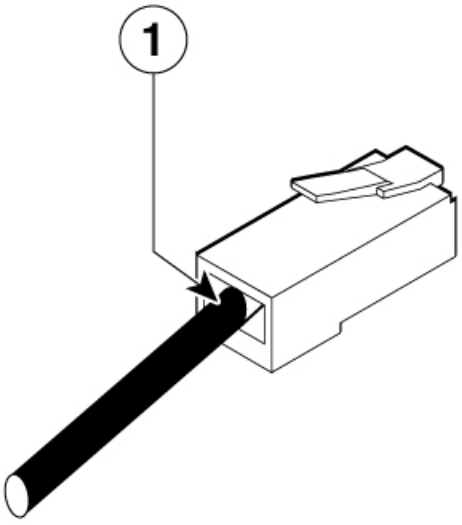
**Step 5** Re-install Cable Seal and Sealing Nut.

**Step 6** Insert the Ethernet cable's unterminated end through the sealing nut end of the cable gland.

Pass the Ethernet cable through the appropriate size cable seal and pull several inches of cable through the adapted components.

**Step 7** Install an RJ-45 connector on the Ethernet cable's unterminated end using your Ethernet cable installation tool.

**Note**
Ensure that the RJ45 connector end where the cable enters is free from cable foil, shielding, or jacket that was peeled back during termination. If any material is left, this may cause internal component interference and fail to seal properly to the RJ45 port.



| | |
|---|---|
| 1 | RJ45 connector end where the cable enters, terminate the cable foil, shielding, or jacket that was peeled back during termination at this line. |

**Step 8** Slide the terminated RJ45 connector into the clamp ring till it stops.

Pull the cable to ensure that the connector is seated into the clamp ring.

**Step 9** Rotate the Cable Seal Nut to tighten seal around cable jacket.

Use an adjustable or 18 mm wrench and torque to 7-9 lbf-in (8-10 kgf-cm).

**Step 10** Insert the RJ45 cable gland assembly into the port on the AP.

Thread the screw nut onto the AP threaded port and tighten by hand to be sure the gland seals to the port. Torque to 15 lbf-in (17 kgf-cm), if possible.

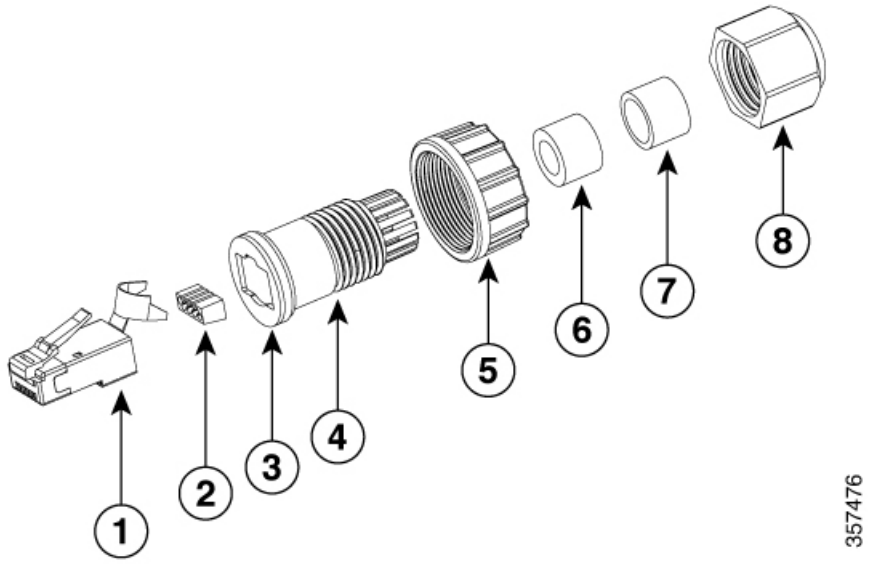
**Step 11** Route your Ethernet cable and cut off any excess cable.

**Step 12** Install an RJ45 connector on the unterminated cable end and insert it into the power injector or device PoE port.

**Step 13** Turn on the power to the power injector.

# Installing a CAT 6/6A Ethernet Cable and Gland Assembly to the Antenna

*Figure 24: CAT 6/6a Cable Gland Assembly*




| | | | |
|---|---|---|---|
| 1 | CAT 6/6A RJ45 Plug | 5 | Screw nut |
| 2 | RJ45 wire load bar<br>Note the orientation into plug | 6 | Cable Seal (Cable OD range 5 mm to 7 mm) |

| | | | |
|---|---|---|---|
| 3 | Gasket<br>It is pre-attached to the Clamp ring. | 7 | Cable Seal (Cable OD range 7 mm to9 mm) |
| 4 | Clamp ring | 8 | Cable sealing nut |

### Before you begin

You must supply these tools and materials:

- Shielded outdoor-rated Ethernet (CAT 6 or CAT 6A) cable with a diameter of 0.2 to 0.35 inch (5 to 9 mm)
- CAT 6 RJ-45 connector installation tool
- Adjustable wrench or 28–mm box wrench
- CAT 6 / CAT 6A gland ordered separately with AIR-ACC-CAT6= kit

**Note** The provided CAT 5e gland must be used with CAT 5e cable only. When using CAT 6/6A cable you need to use AIR-ACC-CAT6= kit which is an orderable accessory from Cisco.

### Procedure

**Step 1** Disconnect power to the power injector and ensure all power sources to the AP are turned off.

**Danger**
**This unit might have more than one power supply connection. All connections must be removed to de-energize the unit.** Statement 1028

**Step 2** Ensure a 6 AWG ground wire is connected to the antenna (see Grounding the Antenna, on page 19).

**Step 3** Remove the covering cap from the PoE port.

**Note**
Verify that the cable gland has a rubber seal and gasket. Ensure that it is not damaged.

**Caution**
If the cable gland and rubber gasket are not installed correctly, it causes the cable grip to leak.

**Step 4** Loosen and remove the cable sealing nut of the cable gland by turning it counter clockwise.

**Step 5** Insert the Ethernet cable's unterminated end through the cable sealing nut.

Pass the Ethernet cable through the appropriate size cable seal, then pull several inches of cable through the gland components.

**Note**
Install the proper cable seal that fits the OD of the Ethernet cable used.

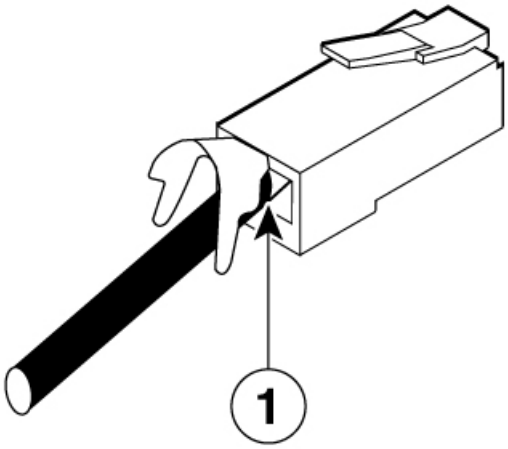
**Step 6** Insert the cable seal into the clamp ring, then install the cable seal nut back to the clamp ring.

Do not tighten the clamp ring.

**Step 7** Install the CAT 6/6A RJ45 connector on the Ethernet cable's unterminated end using your Ethernet cable installation tool.

Follow the common CAT6/6A Ethernet connector installation procedures. Fold and crimp the connector metal strain lug end over the outer cable jacket, foil and ground wire if equipped.

**Caution**
Ensure the RJ45 connector end where the cable enters is free from cable foil, shielding, and jacket that was peeled back during termination. If any material is left this may cause internal component interference and fail to seal properly to the RJ45 port.




| | |
|---|---|
| 1 | RJ45 connector end where the cable enters, terminate the cable foil, shielding, or jacket that was peeled back during termination at this line. |

**Note**
- Position and insert load bar with notches aligned to connector as shown in the figure.
- Ensure individual conductor sequence matches opposite connection end. Typical sequence follows the T568B pinout standard.

**Step 8** Slide the terminated RJ45 connector into the clamp ring till it stops.

Pull the cable to ensure that the connector is seated into the clamp ring.

**Step 9** Tighten the cable seal nut around the cable.

Using a 18mm or adjustable wrench, tighten the nut to 7-9 lbf-in (8 – 10 kgf-cm).

**Step 10** Install the RJ45 cable gland assembly into the AP port.

Thread the screw nut onto the AP threaded port and tighten by hand to be sure the gland seals to the port. Torque to 15 lbf-in (17 kgf-cm), if possible.

**Step 11** Route your Ethernet cable and cut off any excess cable.

**Step 12** Install an RJ45 connector on the unterminated cable end and insert it into the power injector or device PoE port.

**Note**

Ensure individual conductor sequence matches opposite connection end. Typical sequence follows T568B pinout standard.

**Step 13** Turn on the power to the power injector.

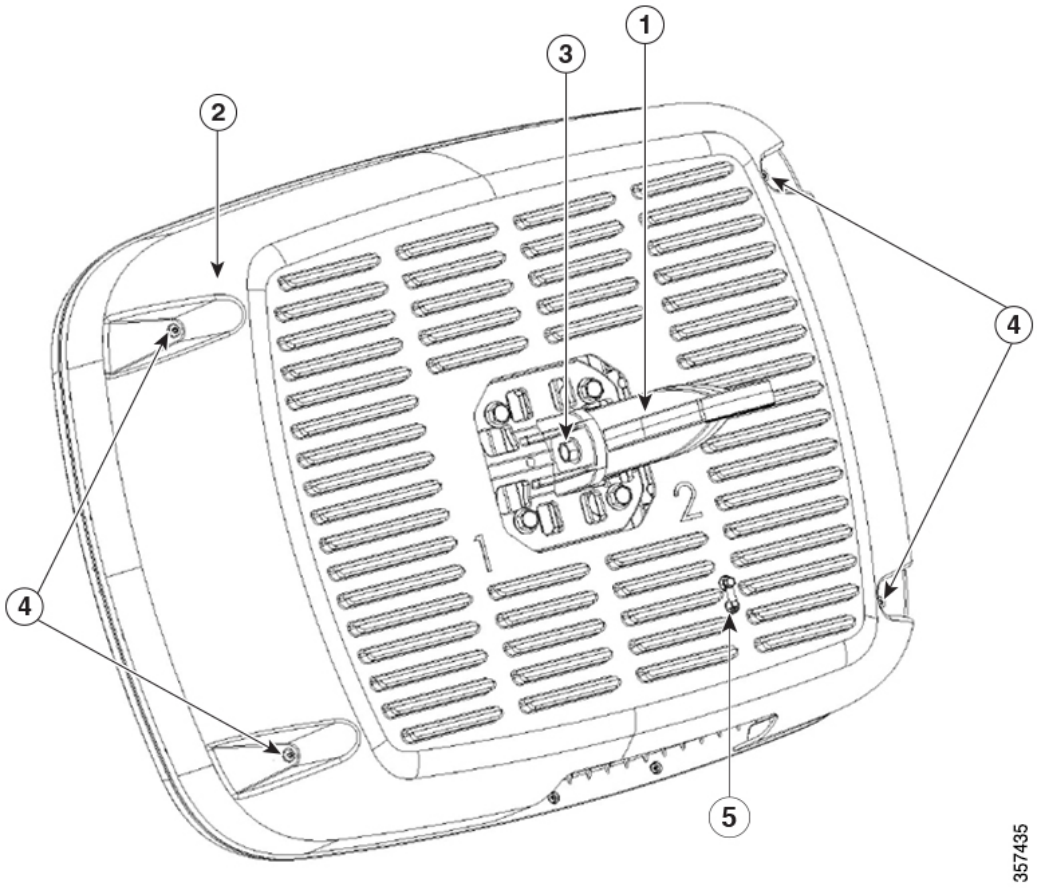
# Painting the Antenna

Painting the antenna and the bracket does not affect its performance when you use standard exterior-grade, oil-based, or latex paint. Do not use metallic or metallic-flake paints, which may degrade antenna performance.

**Note** Before painting the antenna, cover the pressure-release vent on the rear, lower-left of the antenna with masking tape to prevent clogging. Ensure that you remove the tape afterward.

# Installing the Solar Shield

*Figure 25: Solar Shield*




| | | | |
|---|---|---|---|
| 1 | Mounting arm | 4 | M4 screws to install the solar shield on to the antenna. |
| 2 | Solar Shield (C-ANT9104-CVR=) | 5 | Grounding point when solar shield is used |
| 3 | M8 nut | | |

If the installation location exposes the antenna to the sun, you may order and install the solar shield, an optional accessory to protect the AP from the sun. Install the solar shield on the antenna using the four M4 screws before mounting it to a wall or pole.

You may order the optional solar shield accessory using the PID C-ANT9104-CVR=.

### Procedure

**Step 1** Install grounding standoff included in the solar shield kit when the optional solar cover is used.

Use the included Electrical Joint Compound on both ends of grounding standoff and tighten the standoff to 10.2 +/- 1.0 kgf-cm of torque.

**Step 2** Connect the antenna to building ground with the included ground screw and included Electrical Joint Compound.

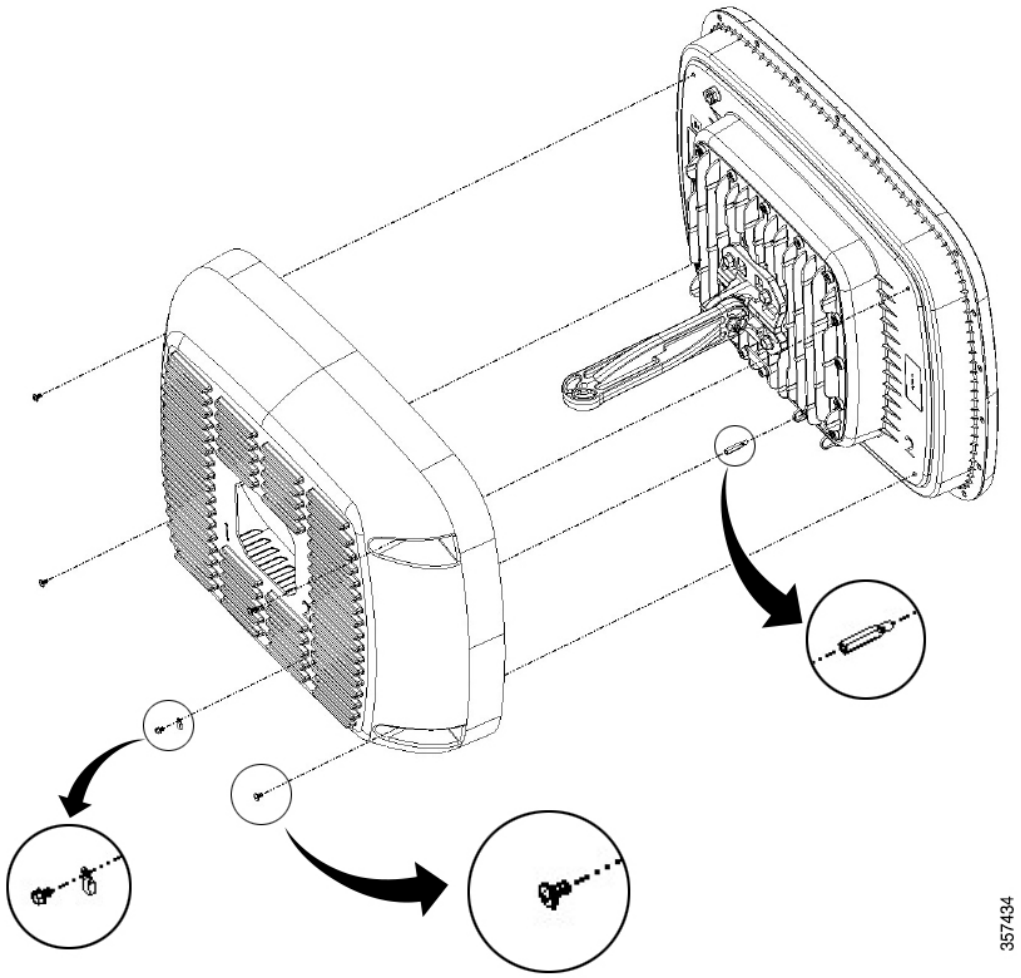
Tighten the ground screw to 10.2 +/- 1.0 kgf-cm of torque.

**Step 3** Attach tether strap to tether anchor before installing solar shield.

**Note**
Tether strap not included in the package.

**Step 4** Install the solar shield before mounting antenna to wall or pole.

***Figure 26: Installing the Solar Shield to the Antenna***




Use the four M4 screws to install the solar shield and tighten to 10.2 +/- 1.0 kgf-cm of torque.

**Step 5** Mount antenna to wall or pole.

**Step 6** Connect the antenna to ground.

Apply the Electrical Joint Compound on the included ground screw and tighten to 10.2 +/- 1.0 kgf-cm of torque.