INSTALLATION GUIDE

Cisco Aironet Directional Hyperlocation Antenna (AIR-ANT25-LOC-02=)

Cisco Systems, Inc.
www.cisco.com

This document describes the AIR-ANT25-LOC-02= antenna and provides electrical specifications and mounting instructions.

The antenna is a four-port polarization-diverse patch array that operates over the 2.4-GHz and 5-GHz Wi-Fi bands. The antenna provides both location-based services and Wi-Fi coverage over wide, open areas. The antenna may be mounted on a wall or mounted using an articulating mount. The location array in the antenna services a wide coverage area (±55º left and right of the boresight).

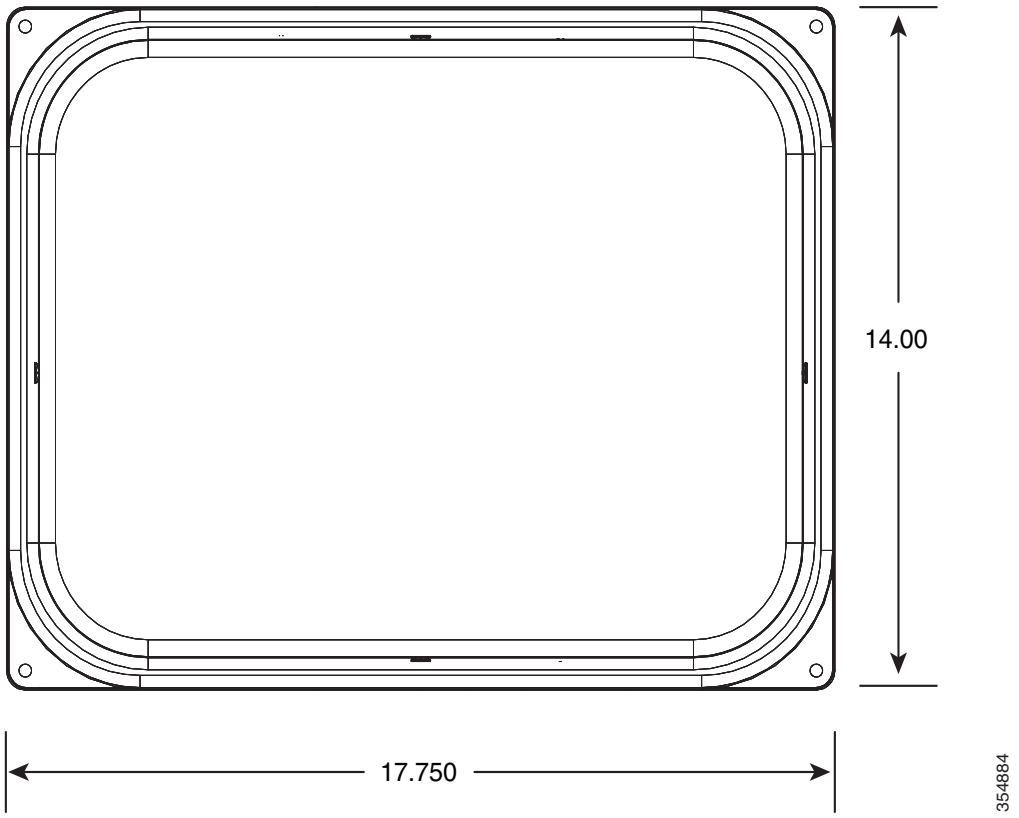
The antenna ships with an articulating mount for use on flat surfaces and masts and is adjustable in both the horizontal and vertical planes. The antenna radome can be painted using commonly available non-conductive spray paints, such as Krylon or Rust-Oleum. The antenna is designed for use in indoor or outdoor environments. The antenna is designed for use with the Cisco Aironet AP3702E and AP3702P access points along with the Cisco Hyperlocation module (AIR-RM3010L-x-K9=).

The following information is provided in this document:

Technical Specifications

Antenna Type	Printed Dipole, Dual-Band, with Location Array	
Operating Frequency Ranges	2.4–2.484 GHz	5.15–5.925 GHz
Peak Gain	4 dBi, for Wi-Fi Element	5 dBi, for Wi-Fi Element
	N.A. for Location Sensor	N.A. for Location Sensor
Nominal Azimuth Plane 3-dB Beamwidth	105 Degrees, for Wi-Fi Element	105 Degrees, for Wi-Fi Element
	140 Degrees, for Location Sensor	150 Degrees, for Location Sensor
Nominal Elevation Plane 3-dB Beamwidth	60 Degrees, for Wi-Fi Element	60 Degrees, for Wi-Fi Element
	85 Degrees, for Location Sensor	100 Degrees, for Location Sensor
Nominal Input Impedance	50 Ohms	50 Ohms
VSWR	1.5:1	1.5:1 (above 5.7 GHz to 5.9 GHz) 2:1 (from 5.15 GHz to 5.7 GHz)
Polarization	Vertical	Vertical
V-Pol Maximum Sidelobe Level	-15 dBc	-12 dBc
H-Pol Maximum Sidelobe Level	-10 dBc	-12 dBc
Front-to-Back Ratio	> 30 dB	> 30 dB
Connector Type	Five cables which include the following: ■ One cable with a rectangular (DART) connector that attaches to the Hyperlocation module. ■ Four coaxial cables with RP-TNC connectors that attach to the AP's antenna connectors. **Note** Although two cables are labeled *A* and two are labeled *B*, this has no significance to the order in which these cables are attached to the Cisco AP3702E.	
Length	14.5 in. (36.8 cm)	
Width	20 in. (50.7 cm)	
Height	0.8 in. (2.11 cm)	
Weight	81.1 oz. (2.3 kg)	
Water/Foreign Body Ingress	IP67	
Operational Wind	100 MPH	
Operating Temperature Range	-40° C to 85° C	

Figure 1 Antenna Dimensions (in inches)



2.4 GHz WiFi Antenna Radiation Patterns

Figure 2 2.4 GHz Radiation Pattern—Azimuth Plane

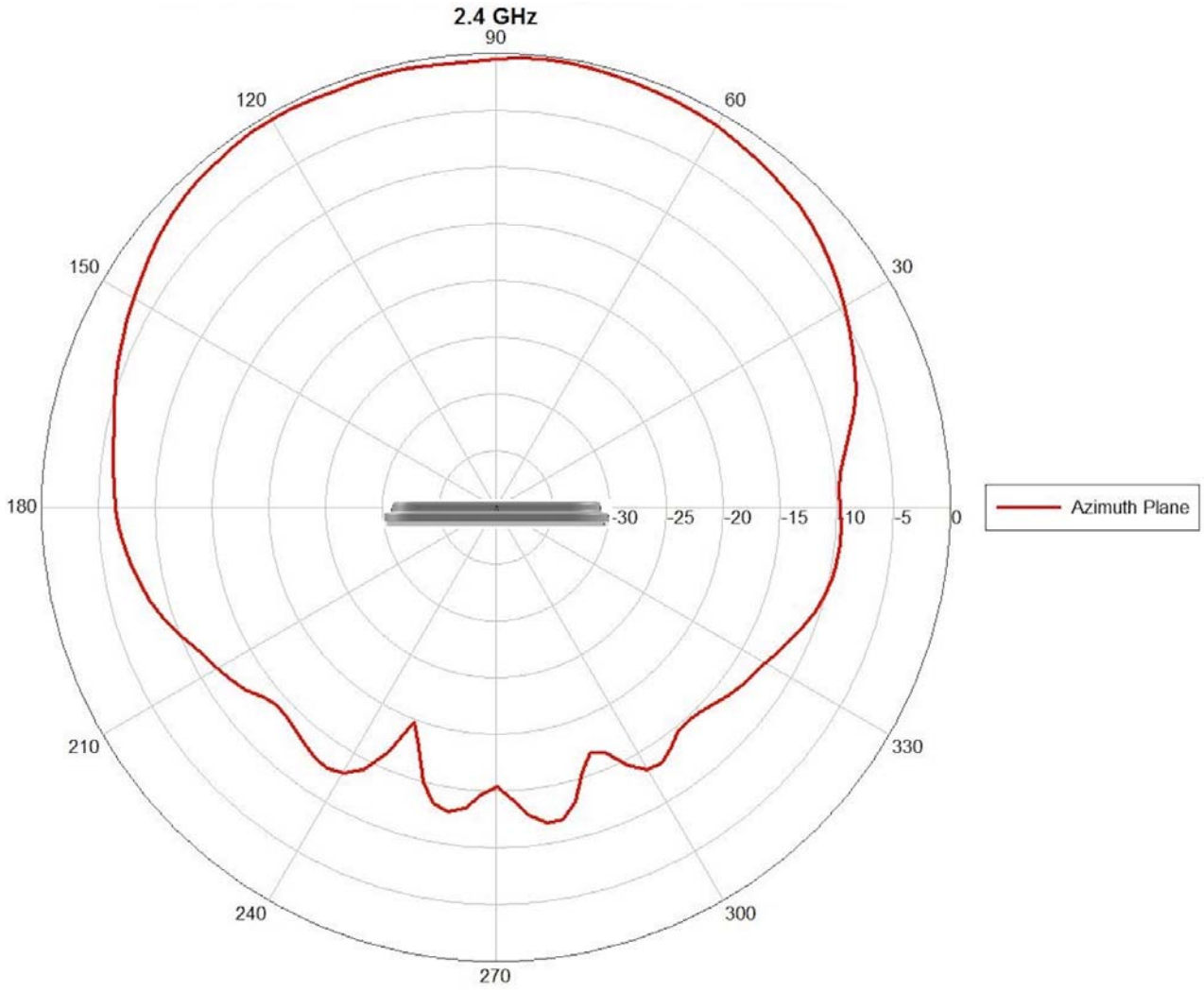
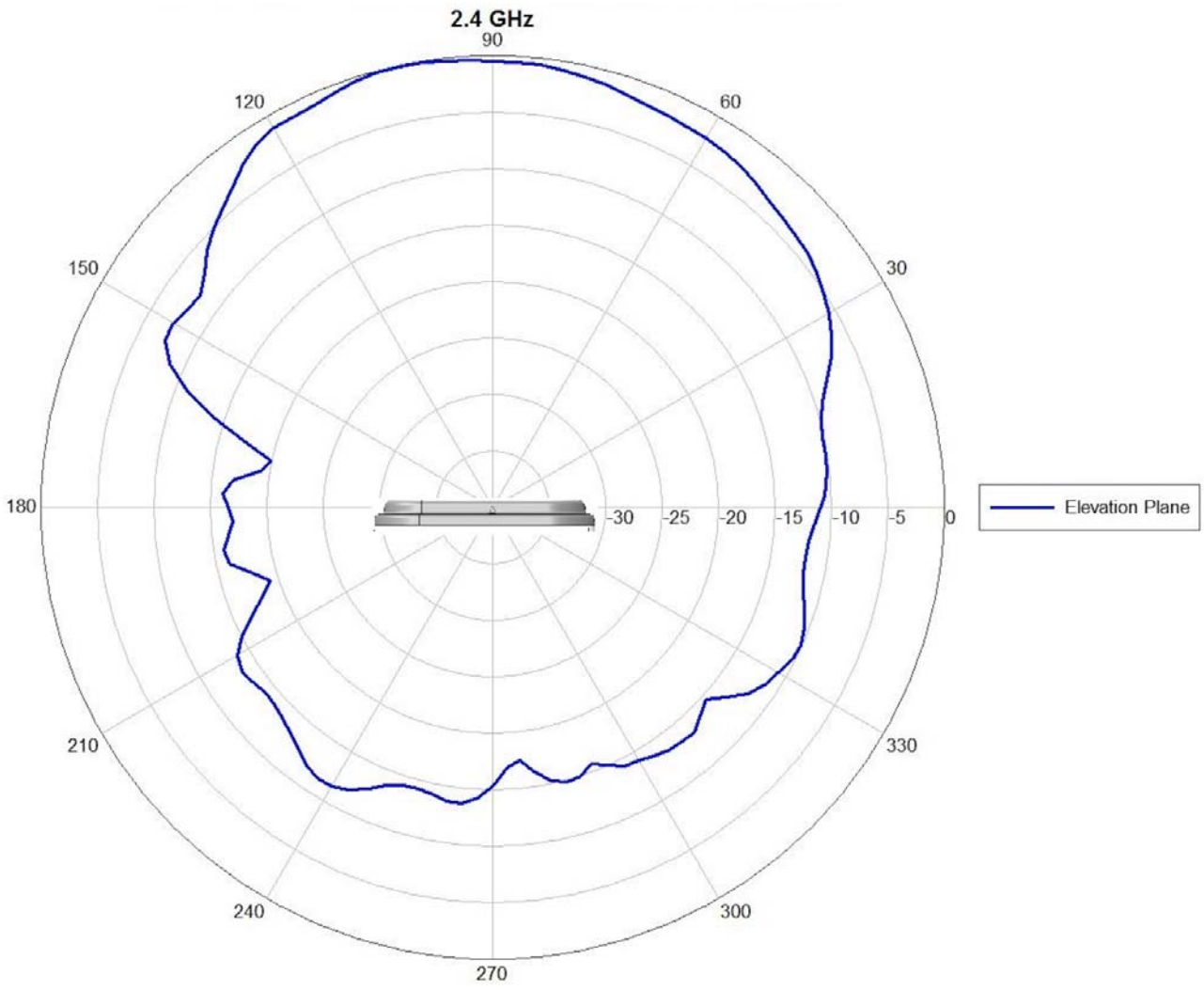


Figure 3 2.4 GHz Radiation Pattern—Elevation Plane



5 GHz WiFi Antenna Radiation Patterns

Figure 4 5 GHz Radiation Pattern—Azimuth Plane

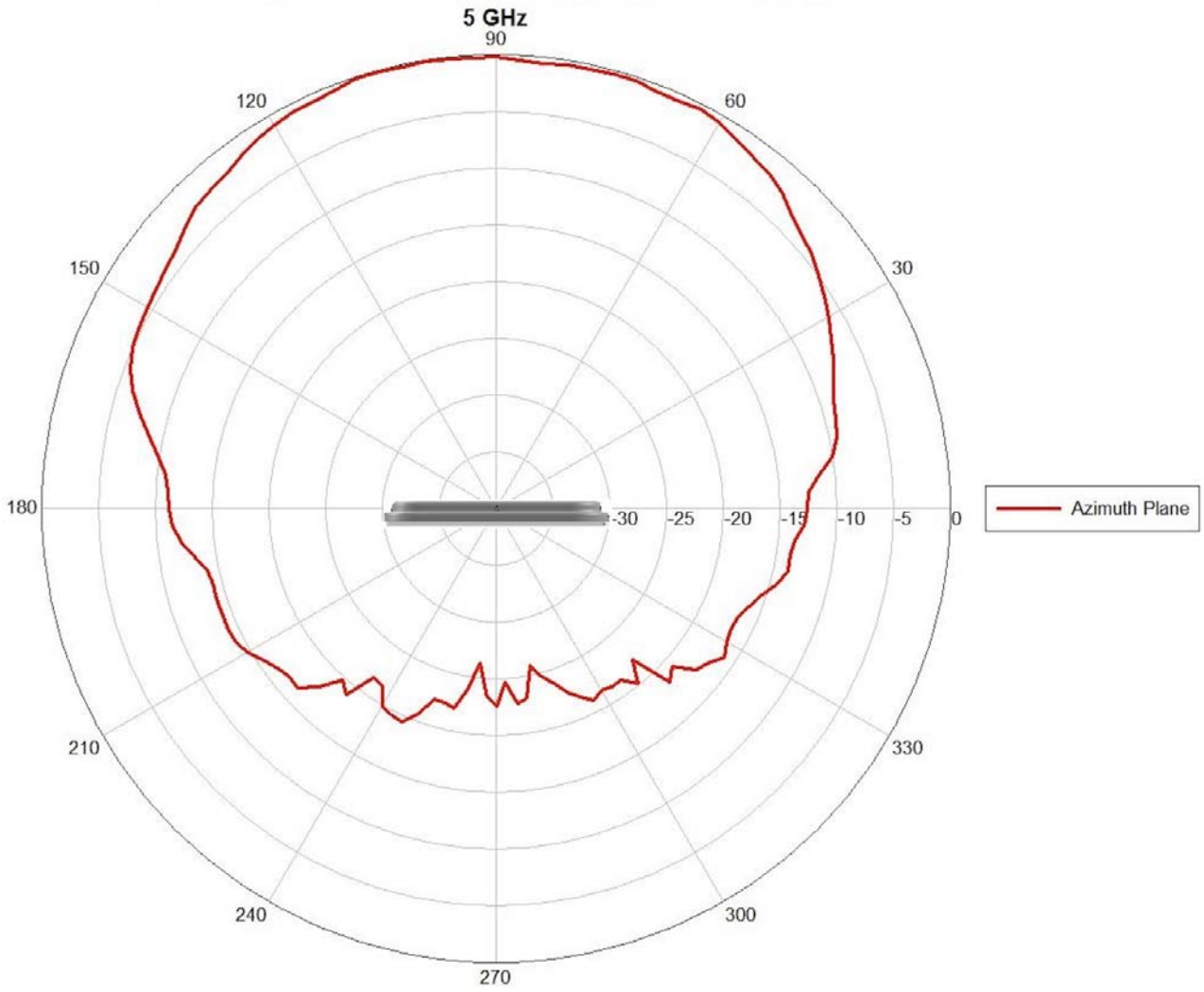
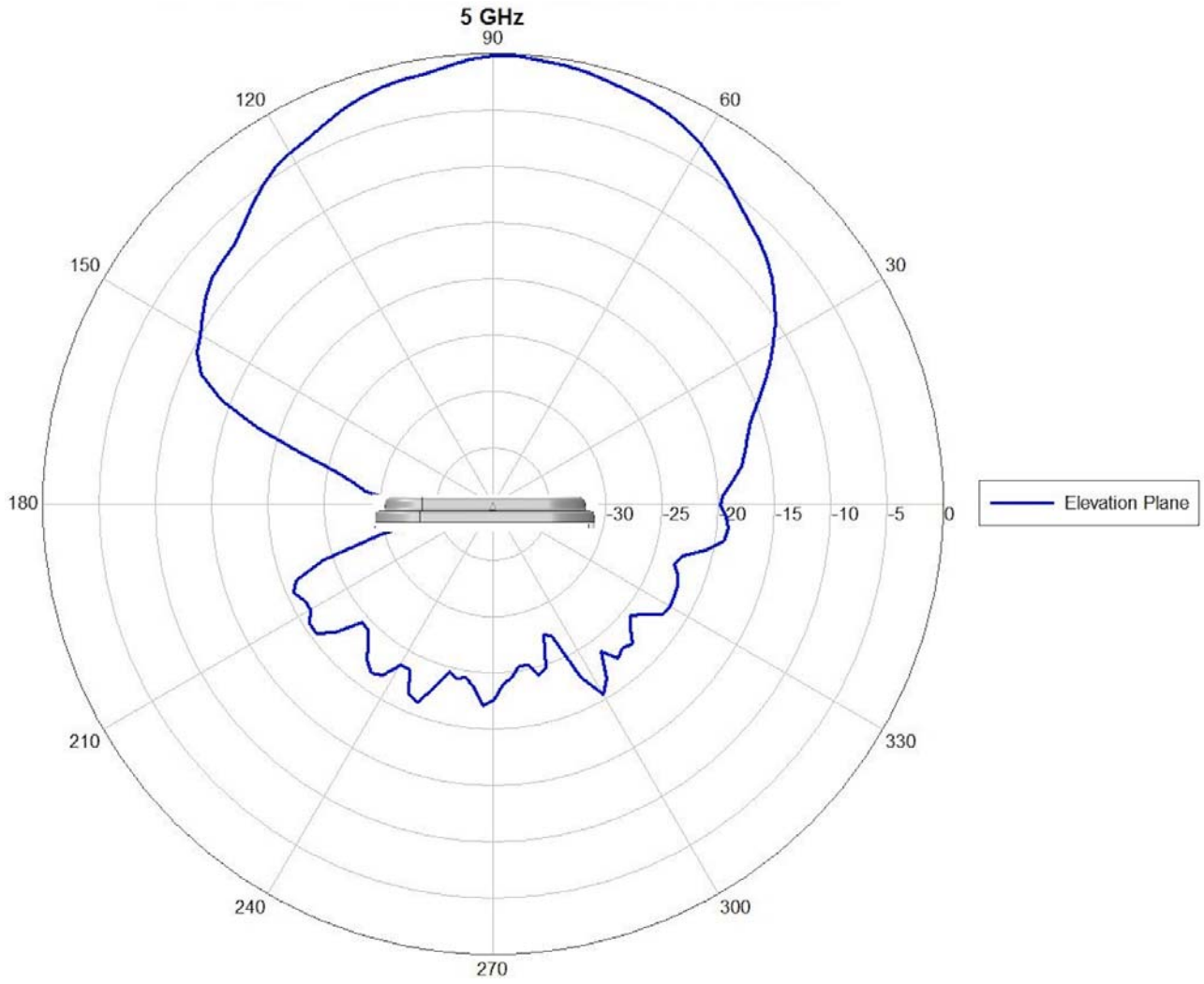


Figure 5 5 GHz Radiation Pattern—Elevation Plane



What's in the Box

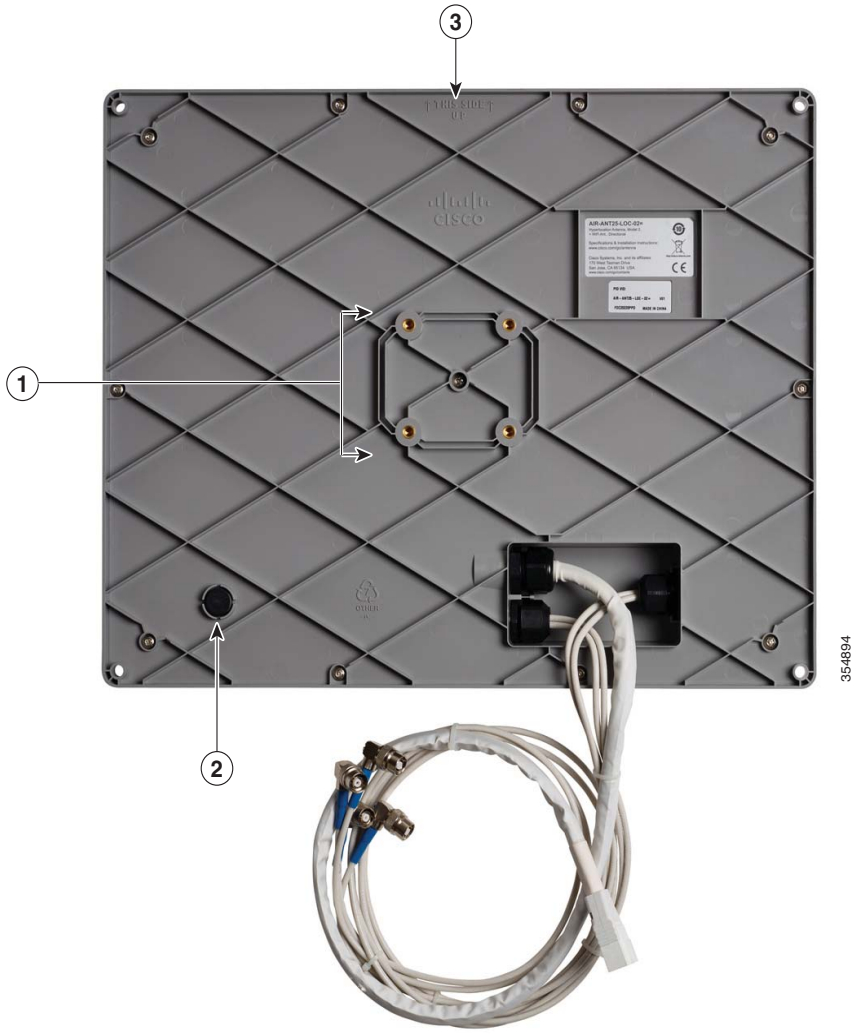
- AIR-ANT25-LOC-02= directional hyperlocation antenna with directional WiFi, with five attached cables. See the "Parts of the Antenna" section on page 9.
- Mounting bracket assembly parts and hardware. See the "Mounting Bracket Hardware Kit" section on page 11.

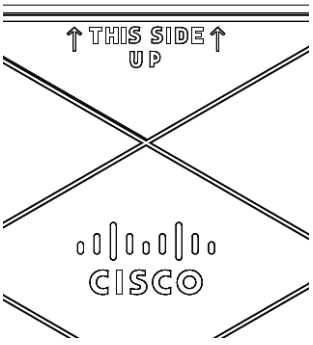
Parts of the Antenna

Figure 6 Face view of the antenna

1	Holes for flush-mounting the antenna on a wall	**3**	Four coaxial cables with RP-TNC (plug) connectors that attach to the AP's antenna connectors. **Note** Although two cables are labeled *A* and two are labeled *B*, this has no significance to the order in which these cables are attached to the Cisco AP3702E.
2	One cable with a rectangular (DART) connector that attaches to the Hyperlocation module	**4**	Arrow denoting the direction for Hyperlocation. This arrow is present on the top (as shown), base, and the sides of the antenna. For information on orienting the antenna for Hyperlocation to work, see the *Hyperlocation Deployment Guide* at the following URL: http://www.cisco.com/c/en/us/td/docs/wireless/controller/technotes/8-1/Halo-DG/b_hyperlocation-deployment-guide.html

Figure 7 Back view of the antenna

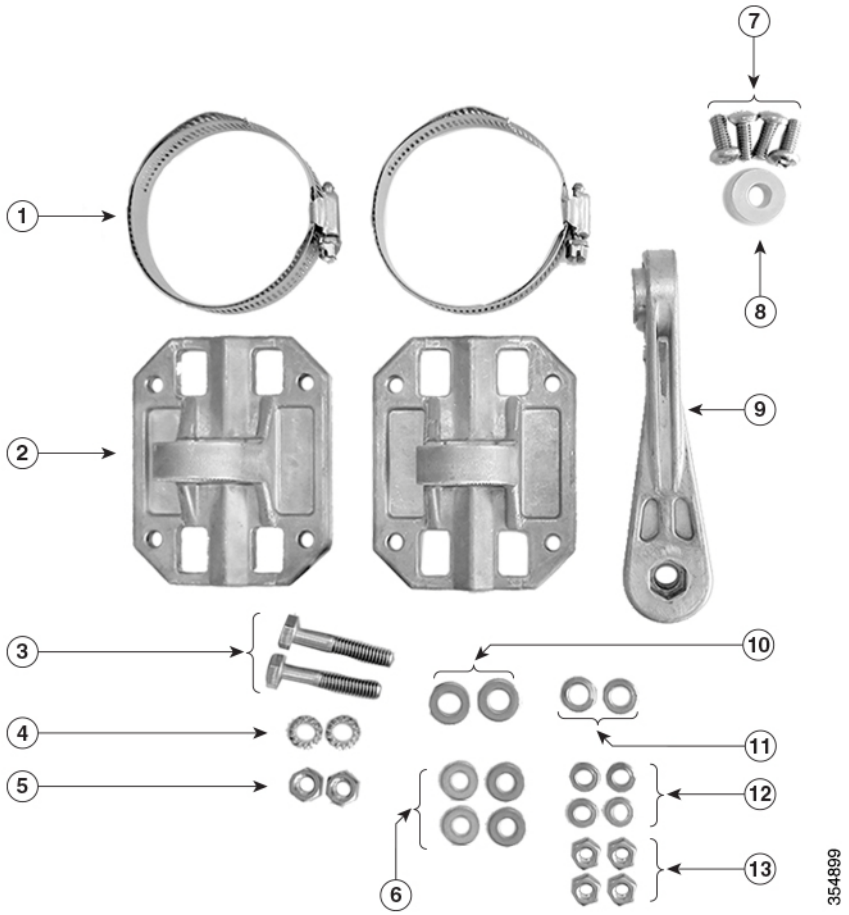


1	Holes for attaching the mounting bracket. See xxx.	**3**	Arrow indicating the vertical orientation in which the antenna needs to be mounted.
2	Pressure release vent.		

Mounting Bracket Hardware Kit

Figure 8 shows the parts of the antenna bracket kit that is factory-shipped with the antenna.

Figure 8 Antenna Mounting Bracket Kit Contents



1	Worm-gear type hose clamp (50-135mm), 2 nos, used only when mounting the antenna on a pole.	**8**	Spacer[1] for attaching Female-Female mount flanges.
2	Mount flange, 2 nos. Both mount flanges are identical. Each can be attached to the back of the antenna, a wall, or a pole.	**9**	Mount arm, 1 nos.
3	Hex bolts, 5/16-18 X 1-5/8”, 2 nos.	**10**	Flat washers, 5/16" , 2 nos.
4	M8 external serrated lock washers, 2 nos.	**11**	Split-lock washers, 5/16" , 2 nos.
5	Hex nuts, 5/16-18”, 2 nos.	**12**	Split-lock washers, 1/4 inch, 4 nos.
6	1/4 inch flat washers, 4 nos.	**13**	Hex nuts, 1/4-20, 4 nos.
7	Phillips machine screws. Pan head type. 4 nos.		

1. The spacer is used only in the short-link mount configuration.

Mounting the Antenna

Follow these steps for installing the antenna:

- Read the Safety Instructions, page 12 and Installation Guidelines, page 13 thoroughly.
- Familiarize yourself with theParts of the Antenna, page 9 and Mounting Bracket Hardware Kit, page 11.
- Proceed with Choosing the Mounting Location and Brackets, page 13 and then following the different deployment scenarios provided therein.
  - Flush-Mounting the Antenna on a Wall, page 18
  - Mounting using Short-Link Mount Assembly, page 20
  - Mounting using Mount Arm-Flanges Bracket Assembly, page 23

Safety Instructions

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

Follow these safety instructions when installing your antenna.

- Plan your installation procedure carefully and completely before you begin.
- If you are installing an antenna for the first time, for your own safety as well as others, seek professional assistance. Consult your dealer, who can explain which mounting method to use for the location where you intend to install the antenna.
- Select your installation site with safety, as well as performance, in mind. Remember that electric power cables and telephone lines look alike. For your safety, assume that any line is an electric power line until determined otherwise.
- Call your local power company or building maintenance organization if you are unsure about cables close to your mounting location.
- When installing your antenna, do not use a metal ladder. Do dress properly: shoes with rubber soles and heels, rubber gloves, and a long sleeved shirt or jacket.
- If an accident or emergency occurs with the power lines, call for qualified emergency help immediately.

Installation Guidelines

As antennas transmit and receive radio signals, they are susceptible to RF obstructions and common sources of interference that can reduce throughput and range of the device to which they are connected. Follow these guidelines to ensure the best possible performance:

- Mount the antenna to utilize its propagation characteristics. This antenna is designed to radiate energy in a somewhat narrow beam from the front of the antenna. It should be aimed into the intended coverage area.
- Keep the antenna away from metal obstructions such as heating and air-conditioning ducts, large ceiling trusses, building superstructures, and major power cabling runs. If necessary, use a rigid conduit to lower the antenna away from these obstructions.
- The density of the materials used in a building's construction determines the number of walls the signal must pass through and still maintain adequate coverage. Consider the following before choosing the location to install your antenna:
  - Signals penetrate paper, vinyl and drywall the easiest. A signal can penetrate five or six walls constructed of drywall or wood.
  - Signals are more heavily attenuated passing through concrete and solid-wood walls.
  - Signals often reflect off thick metal walls and may not penetrate at all.
- 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 access point to which your antenna is connected.

Choosing the Mounting Location and Brackets

The antenna is designed for use with the Cisco Aironet AP3702E and AP3702P access points along with the Cisco Hyperlocation module (AIR-RM3010L-x-K9=). The antenna can be mounted only vertically, on a wall, or on a pole. For pole-mounting, the pole should have a minimum diameter of 2 inches and a maximum diameter of 5 inches (50mm - 135mm).

The antenna is designed for both indoor and outdoor deployments. You can deploy it in large halls, warehouses, and atriums having high ceilings.

When mounting the antenna you need to assemble the bracket hardware, mount the antenna using the bracket, and adjust the antenna orientation.

The antenna should be mounted clear of any obstructions to the side or front of the antenna enclosure. Note that this antenna should be aimed into the intended coverage area, and so you should mount the antenna so as to achieve the required mechanical tilt. Mount the antenna as close to the access point so that the access point is within the range of the connecting cables.

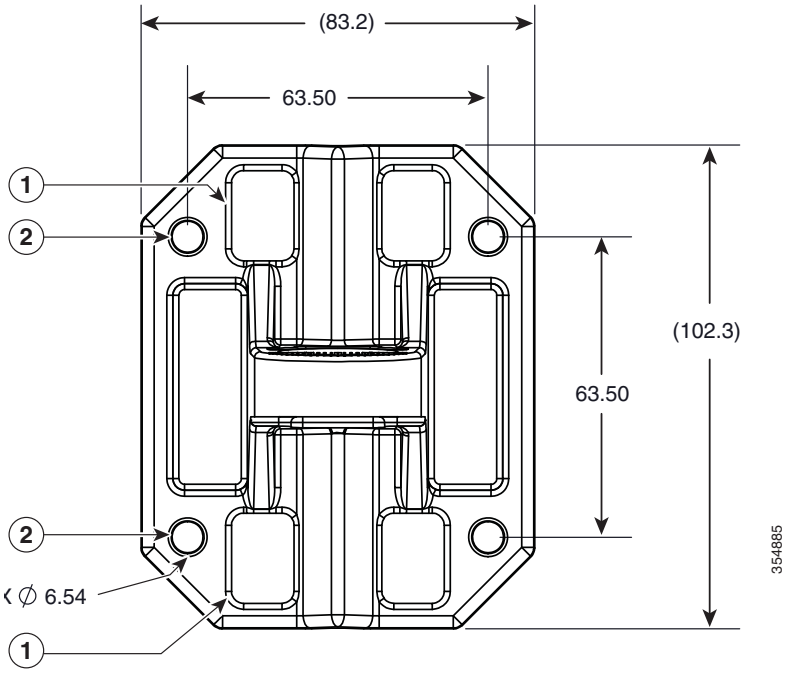
Depending on where you are mounting the antenna, there are multiple mounting and bracket assembly options available. See Table 1.

Table 1 Choosing the Mounting Options and Bracket Assemblies

Mounting Scenario	Instructions
Flush-mounting the antenna directly on a wall, with no articulation. In this installation: ■ No mounting bracket is used. ■ No azimuth and elevation adjustment is possible. ■ The cables, at the back of the antenna, will need to be routed through a hole in the wall.	Flush-Mounting the Antenna on a Wall, page 18
Wall-mounting and pole-mounting the antenna, using a short-link mount.	Mounting using Short-Link Mount Assembly, page 20
Wall-mounting and pole-mounting the antenna, with articulation, allowing for azimuth and elevation adjustment	Mounting using Mount Arm-Flanges Bracket Assembly, page 23

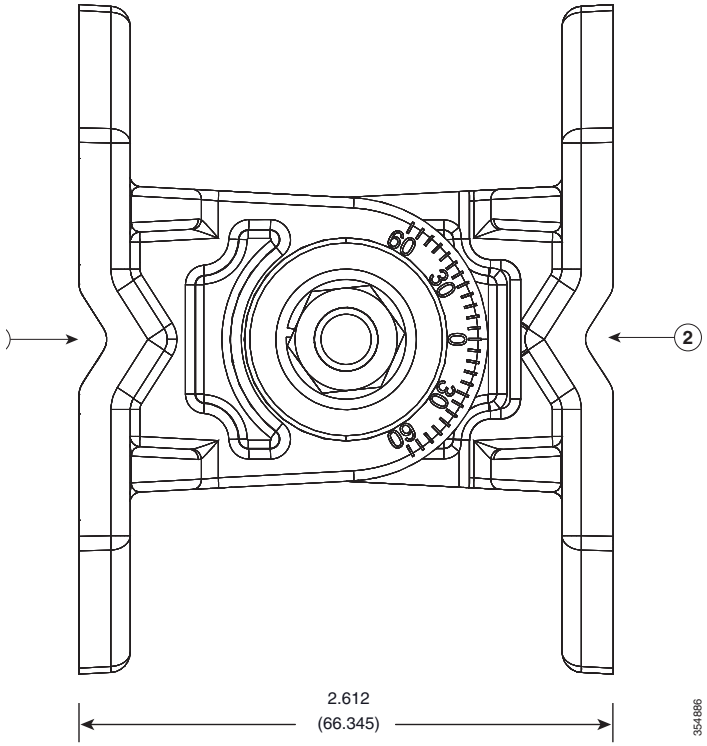
Mounting Bracket Assemblies and Dimensions

Figure 9 Mount Flange Parts and Dimensions (in millimeters)



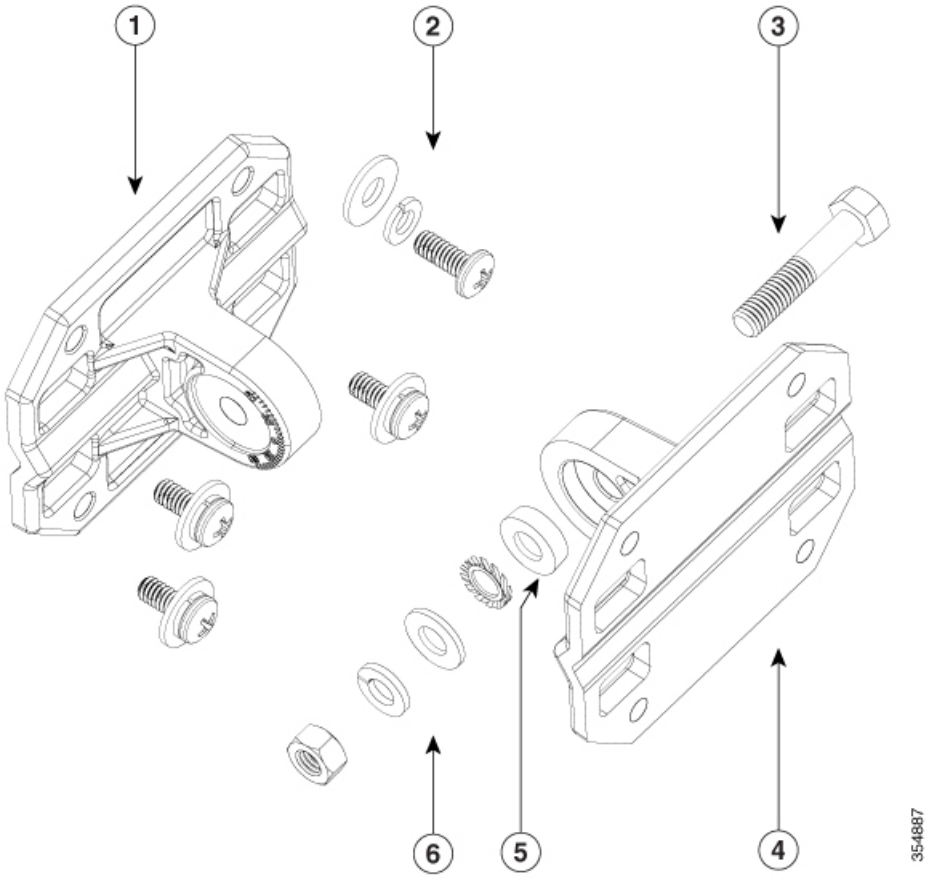
1	Slotted holes for steel band clamps, for pole-mounting only.	2	Screw holes for fastening flange to the antenna or to a wall.

Figure 10 Length of Short Link Mount – in inches (and millimeters)



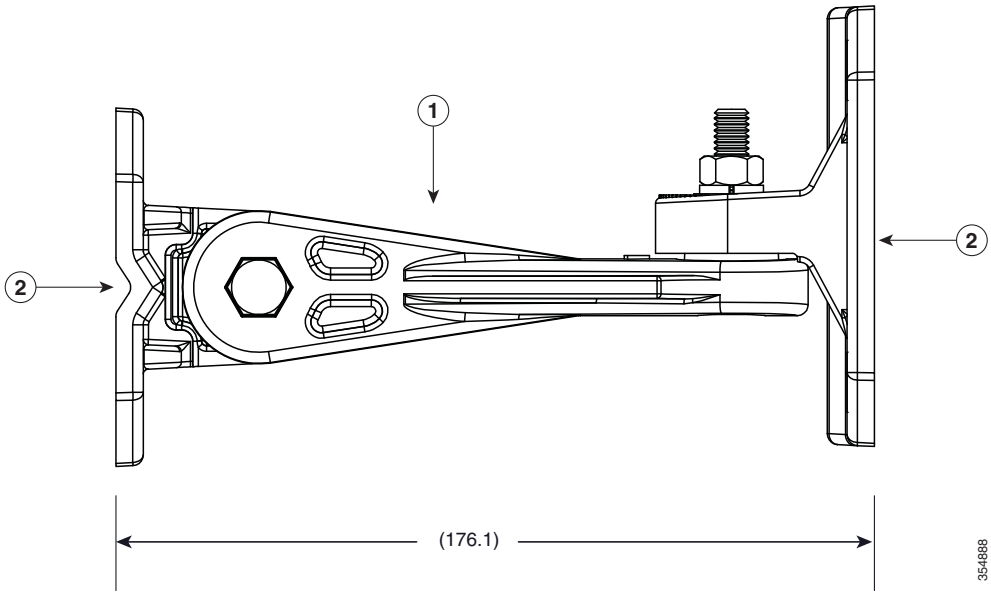
1 and 2	Mount flanges. One flange attaches to the mounting surface—a wall or a pole. The other flange attaches to the antenna. The mount arm is not used in this assembly.

Figure 11 Assembling the Short Link Mount



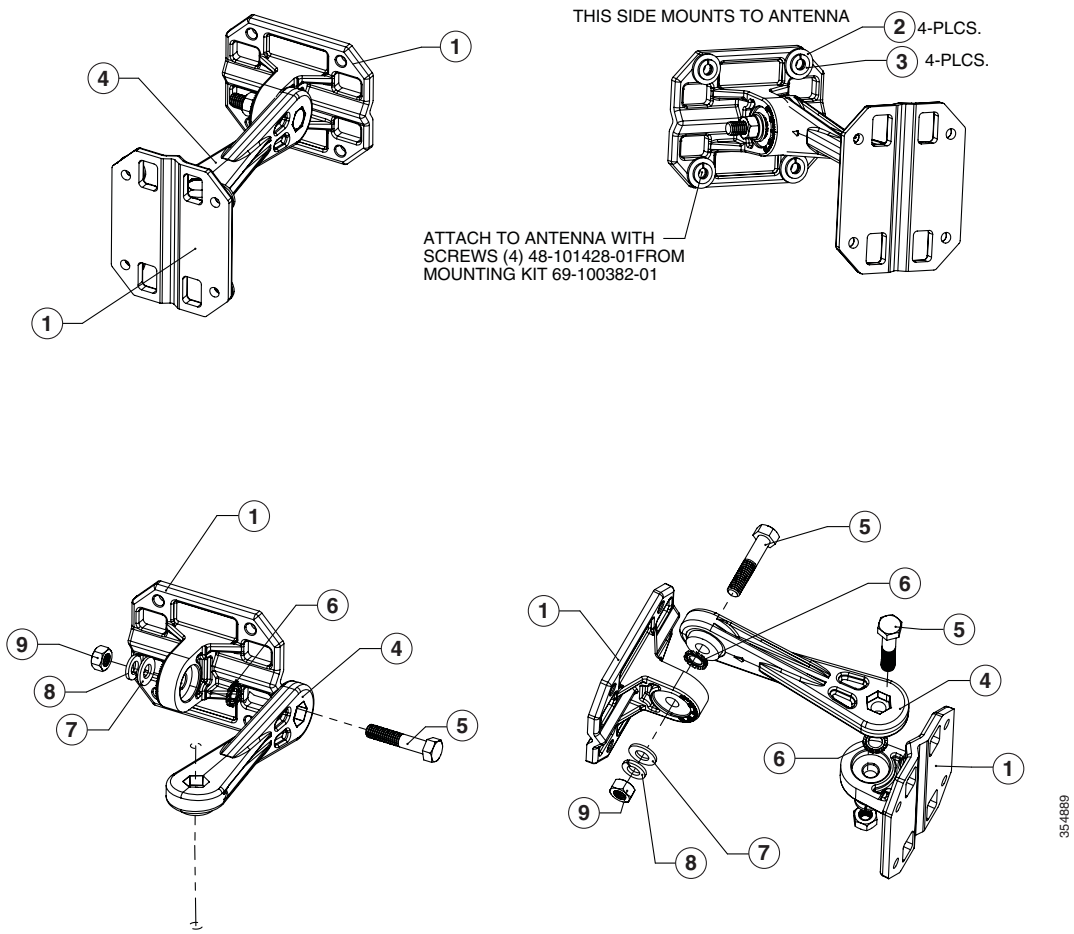
1	Mount flange which attaches to the antenna.	**4**	Mount flange which attaches to the mounting surface.
2	Phillips machine screws, flat washers, and split-lock washers used to attach the flange to the antenna	**6, 5, and 3**	5/16-18 X 1-5/8" screw, spacer, M8 serrated washer, 5/16" flat washer, 5/16" split-lock washer, 5/16-18" hex nut–used to attach one flange to the other. Use a 1/2 in. (13-mm) wrench to fasten the screw, washers, and nut to the assembly. Tighten to 18.7 +/- 5 lb-ft (25.4 Nm).
3,5, and 6	5/16-18 X 1-5/8" screw, spacer, M8 serrated washer, 5/16" flat washer, 5/16" split-lock washer, 5/16-18" hex nut–used to attach one flange to the other. Use a 1/2 in. (13-mm) wrench to fasten the screw, washers, and nut to the assembly. Tighten to 18.7 +/- 5 lb-ft (25.4 Nm).		

Figure 12 Length of Fully Assembled Mount Arm-Flanges Bracket - in inches (and millimeters)



1	Mount arm, connecting the two mount flanges, and providing articulation–both azimuth and elevation adjustment.	**2**	Mount flanges. One flange attaches to the mounting surface–a wall or a pole. The other flange attaches to the antenna.

Figure 13 Assembling the Full Mount Arm-Flanges Bracket



1	Mount flange	**6**	5/16-18 X 1-5/8" screw for pivot adjustment
2	1/4 inch flat washer	**7**	M8 serrated washer
3	1/4 split-lock washer	**8**	5/16" flat washer
4		**9**	5/16" split-lock washer
5	Mount arm	**10**	5/16-18” hex nut

Flush-Mounting the Antenna on a Wall

You can mount the antenna directly on a wall, vertically, without using any mounting bracket assembly, allowing the antenna to be flush against the wall (see Figure 14). The cables, at the back of the antenna, will need to be routed through a hole in the wall.

The following table lists the materials needed for this installation:

Materials Needed	Factory-Shipped?
Four mounting screws and wall anchors (Used for mounting the antenna on a wall. These fasteners should be capable of maintaining a minimum pullout force of 150 pounds (68 kg) to support the weight of the antenna and bracket, plus the potential wind loading on the antenna.)	No
Roxtec Multidiameter™ cable sealing system (http://www.roxtec.com/)	No
Drill, drill bits, and a pencil.	No

To flush-mount the antenna on a wall, follow these steps:

Step 1 Determine the mounting location for the antenna.

Note The fasteners and mounting surface should be capable of maintaining a minimum pullout force of 150 pounds (68 kg) to support the weight of the antenna plus the potential wind loading on the antenna.

Step 2 Use the antenna as a template and mark the positions of the holes for flushing-mounting the antenna, on the wall. Drill holes into this marked positions and insert wall anchors as required.

Step 3 Cut a hole in the wall, for passing the antenna cables through.

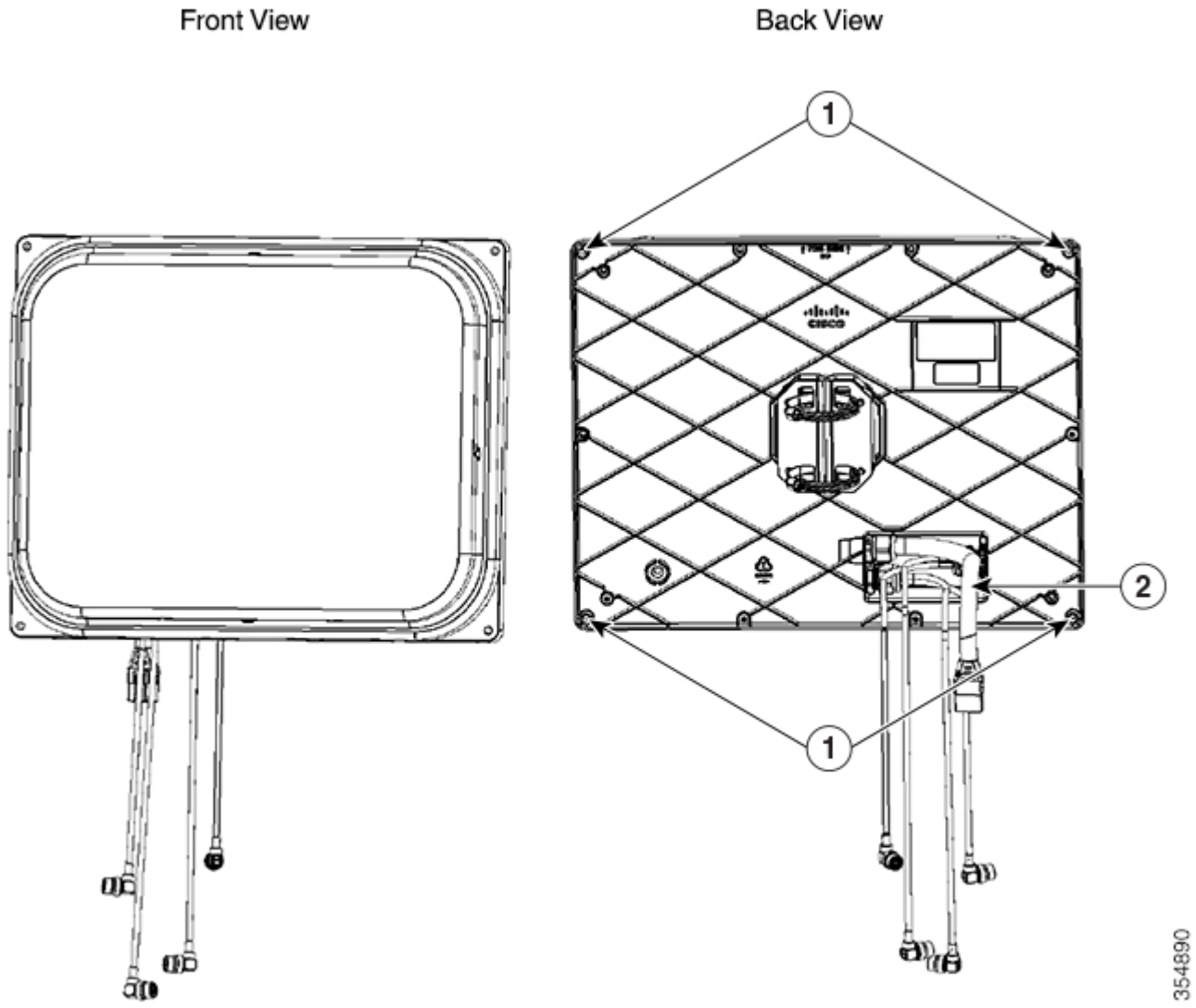
Step 4 Hold up the antenna against the wall and pass the antenna cables through the hole in the wall. Make sure you orient the antenna correctly (note the arrow on the back of the antenna that indicates the top of the antenna).

Step 5 Align the antenna's wall-mount screw holes with the holes in the wall, and then fasten the antenna to the wall using the fasteners which you have procured.

Step 6 Optionally, seal the hole for the cables using a cable sealing system, such as the Roxtec Multidiameter™ cable sealing system. Visit http://www.roxtec.com/ for information on how to install the cable sealing system.

Step 7 Connect the antenna cables to the access point.

Figure 14 Flush-mounting the Antenna on a Wall

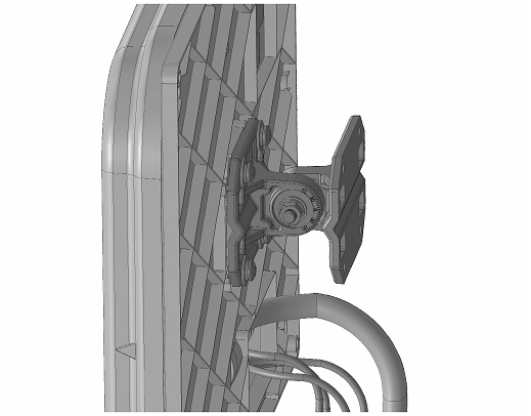


1	Holes for mounting the antenna to the wall using fasteners.	**2**	Hole in the wall through which the cables are routed. Optionally, you can seel this hole using a cable sealing system, such as the Roxtec Multidiameter™ cable sealing system. Visit http://www.roxtec.com/ for information on how to install the cable sealing system.

Mounting using Short-Link Mount Assembly

You can mount the antenna on a wall or a pole, vertically, using the Short-Link mount bracket assembly. See Figure 15.

Figure 15 Short-Link Mount Assembly



The following table lists the materials needed for this installation:

Materials Needed	Factory-Shipped?
Short-Link mount bracket assembly parts, as shown in Figure 10.	Yes
1/2 in. (13-mm) wrench or socket	No
(For pole mounting only) Worm-gear type hose clamp (50-135mm). 2 nos.	Yes
Slotted screwdriver (Used for tightening the screws on the hose clamps.)	No.
(For wall mounting only) Four mounting screws and wall anchors (Used for mounting the antenna and bracket assembly on a wall. These fasteners should be capable of maintaining a minimum pullout force of 150 pounds (68 kg) to support the weight of the antenna and bracket, plus the potential wind loading on the antenna.)	No
(Optional, and for wall mounting only) Roxtec Multidiameter™ cable sealing system (http://www.roxtec.com/)	No
Drill, drill bits, and a pencil.	No

Mounting the Antenna on a Wall

To mount the antenna on a wall using the short-link mount bracket assembly, follow these steps:

Step 1 Familiarize yourself with:

- "Length of Short Link Mount – in inches (and millimeters)"
- "Assembling the Short Link Mount"

Step 2 Determine the mounting location for the antenna.

Note The fasteners and mounting surface should be capable of maintaining a minimum pullout force of 150 pounds (68 kg) to support the weight of the antenna plus the potential wind loading on the antenna.

Step 3 Use the mount flange as a template (see Figure 9) and mark the positions of the holes for mounting the antenna-bracket assembly on the wall. Drill holes into this marked positions, insert wall anchors as required, and attach the flange to the wall using four screws.

Step 4 (Optional) Cut a hole in the wall, for passing the antenna cables through.

Step 5 Attach the other mount flange to the back of the antenna.

Step 6 Hold up the antenna–mount flange assembly against the wall and pass the antenna cables through the hole in the wall. Make sure you orient the antenna correctly (note the arrow on the back of the antenna that indicates the top of the antenna).

Step 7 Mount the antenna–mount flange assembly on to the flange mount on the wall. For guidance, see the short-link mount bracket assembly in Figure 11.

Step 8 (Optional) Seal the hole for the cables using a cable sealing system, such as the Roxtec Multidiameter™ cable sealing system. Visit http://www.roxtec.com/ for information on how to install the cable sealing system.

Step 9 Connect the antenna cables to the access point.

Mounting the Antenna on a Pole

You can mount the antenna on poles that have diameters ranging from 2 to 5 inches (50mm – 135mm).

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

To mount the antenna on a pole using the short-link mount bracket assembly, follow these steps:

Step 1 Familiarize yourself with:

- "Length of Short Link Mount – in inches (and millimeters)"
- "Assembling the Short Link Mount"

Step 2 Determine the mounting location on the pole.

Note The fasteners and mounting surface should be capable of maintaining a minimum pullout force of 150 pounds (68 kg) to support the weight of the antenna plus the potential wind loading on the antenna.

Step 3 Position and mount a mounting flange (Figure 9) onto the pole using the hose clamps provided in the kit. The hose clamps should pass through the slots on the mounting flange (Figure 9).

Step 4 Tighten the clamps only enough such that the flange and antenna can be held in place until the antenna is positioned to its final position.

Step 5 Attach the other mount flange to the back of the antenna.

Step 6 Hold up the antenna–mount flange assembly against the pole-mounted flange. Make sure you orient the antenna correctly (note the arrow on the back of the antenna that indicates the top of the antenna).

Step 7 Mount the antenna–mount flange assembly on to the flange mount on the pole. For guidance, see the short-link mount bracket assembly in Figure 11.

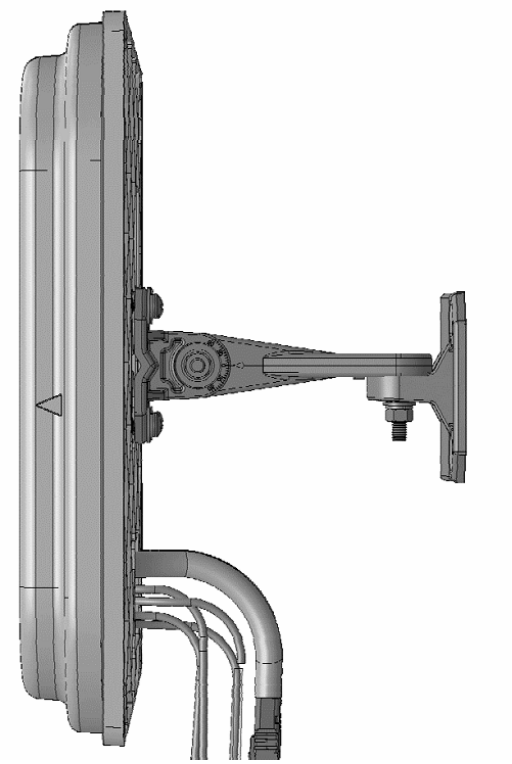
Step 8 Tighten the hose clamps until the antenna is fully secure on the mast. Ensure that the antenna cannot rotate about the mast.

Step 9 Connect the antenna cables to the access point.

Mounting using Mount Arm-Flanges Bracket Assembly

You can mount the antenna on a wall or a pole, vertically, with both azimuth and elevation adjustment. For this you will need to use the full bracket assembly which includes the mount arm and the mount flanges. See Figure 16.

Figure 16 Mount Arm-Flanges Bracket Assembly



The following table lists the materials needed for this installation:

Materials Needed	Factory-Shipped?
Mount Arm-Flanges Bracket assembly as shown in Figure 13.	Yes
1/2 in. (13-mm) wrench or socket	No
(For pole mounting only) Worm-gear type hose clamp (50-135mm). 2 nos.	Yes

Materials Needed	Factory-Shipped?
Slotted screwdriver (Used for tightening the screws on the hose clamps.)	No.
(For wall mounting only) Four mounting screws and wall anchors (Used for mounting the antenna and bracket assembly on a wall. These fasteners should be capable of maintaining a minimum pullout force of 150 pounds (68 kg) to support the weight of the antenna and bracket, plus the potential wind loading on the antenna.)	No
(Optional, and for wall mounting only) Roxtec Multidiameter™ cable sealing system (http://www.roxtec.com/)	No
Drill, drill bits, and a pencil.	No

Mounting the Antenna on a Wall

To mount the antenna on a wall using the full bracket assembly, follow these steps:

Step 1 Familiarize yourself with:

- "Length of Fully Assembled Mount Arm-Flanges Bracket – in inches (and millimeters)"
- "Assembling the Full Mount Arm–Flanges Bracket"

Step 2 Determine the mounting location for the antenna.

Note The fasteners and mounting surface should be capable of maintaining a minimum pullout force of 150 pounds (68 kg) to support the weight of the antenna plus the potential wind loading on the antenna.

Step 3 Use the mount flange as a template (see Figure 9) and mark the positions of the holes for mounting the antenna-bracket assembly on the wall. Drill holes into this marked positions, insert wall anchors as required, and attach the flange to the wall using four screws.

Step 4 (Optional) Cut a hole in the wall, for passing the antenna cables through.

Step 5 Attach the other mount flange to the back of the antenna.

Step 6 Hold up the antenna–mount flange assembly against the wall and pass the antenna cables through the hole in the wall. Make sure you orient the antenna correctly (note the arrow on the back of the antenna that indicates the top of the antenna).

Step 7 Mount the antenna–mount flange assembly on to the flange mount on the wall, using the mount arm. For guidance, see the full mount arm–flanges bracket assembly in Figure 13. Do not fully tighten the pivot adjustment screws.

Step 8 Adjust the azimuth (side-to-side position) and elevation (up-and-down position) of the antenna (see Figure 17 and Figure 18). Loosen the adjustment screws slightly to allow for adjustment. Azimuth angle can be adjusted ±25 degrees and elevation can be adjusted ±60 degrees. You can use the azimuth and elevation markings on the mounting arm and the flanges as a guide.

Step 9 After you adjust the antenna position, tighten the adjustment screws to 18.7 +/- 5 lb-ft (25.4 Nm).

Step 10 (Optional) Seal the hole for the cables using a cable sealing system, such as the Roxtec Multidiameter™ cable sealing system. Visit http://www.roxtec.com/ for information on how to install the cable sealing system.

Step 11 Connect the antenna cables to the access point.

Mounting the Antenna on a Pole

You can mount the antenna on poles that have diameters ranging from 2 to 5 inches (50mm – 135mm).

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

To mount the antenna on a pole using the full bracket assembly, follow these steps:

Step 1 Familiarize yourself with:

- "Length of Fully Assembled Mount Arm-Flanges Bracket – in inches (and millimeters)"
- "Assembling the Full Mount Arm–Flanges Bracket"

Step 2 Determine the mounting location on the pole.

Note The fasteners and mounting surface should be capable of maintaining a minimum pullout force of 150 pounds (68 kg) to support the weight of the antenna plus the potential wind loading on the antenna.

Step 3 Position and mount a mounting flange (Figure 9) onto the pole using the hose clamps provided in the kit. The hose clamps should pass through the slots on the mounting flange (Figure 9).

Step 4 Tighten the clamps only enough such that the flange and antenna can be held in place until the antenna is positioned to its final position.

Step 5 Attach the other mount flange to the back of the antenna.

Step 6 Hold up the antenna–mount flange assembly against the pole-mounted flange. Make sure you orient the antenna correctly (note the arrow on the back of the antenna that indicates the top of the antenna).

Step 7 Mount the antenna–mount flange assembly on to the flange mount on the wall, using the mount arm. For guidance, see the full mount arm–flanges bracket assembly in Figure 13. Do not fully tighten the pivot adjustment screws.

Step 8 Adjust the azimuth (side-to-side position) and elevation (up-and-down position) of the antenna. Loosen the adjustment screws slightly to allow for adjustment. Azimuth angle can be adjusted ±25 degrees and elevation can be adjusted ±60 degrees. You can use the azimuth and elevation markings on the mounting arm and the flanges as a guide.

Step 9 After you adjust the antenna position, tighten the adjustment screws to 18.7 +/- 5 lb-ft (25.4 Nm).

Step 10 Tighten the hose clamps until the antenna is fully secure on the mast. Ensure that the antenna cannot rotate about the mast.

Step 11 Connect the antenna cables to the access point.

Figure 17 Antenna Azimuth Adjustment

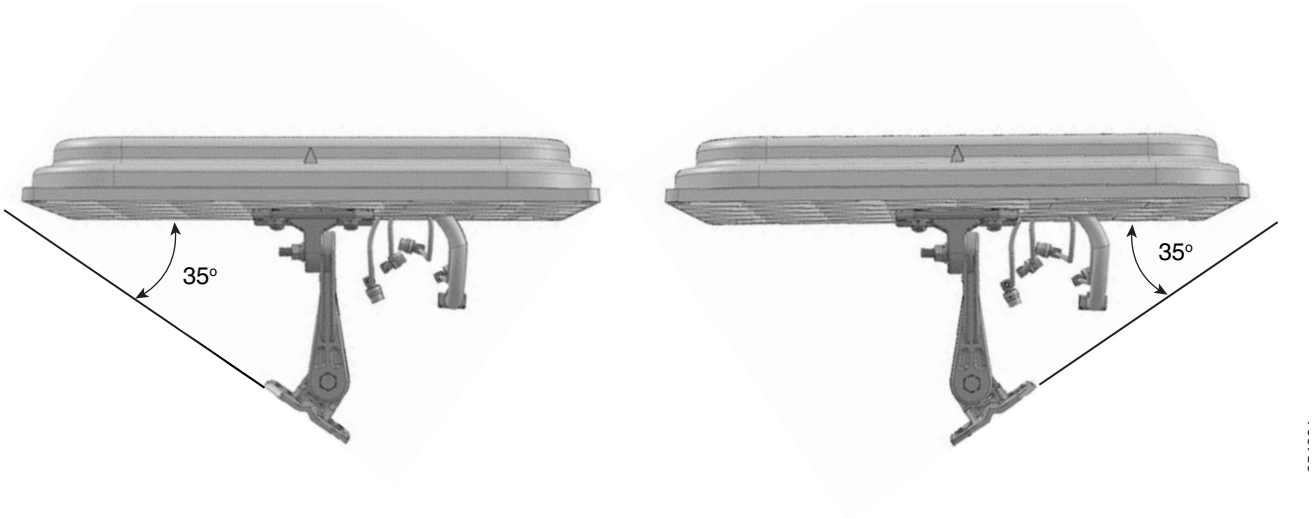
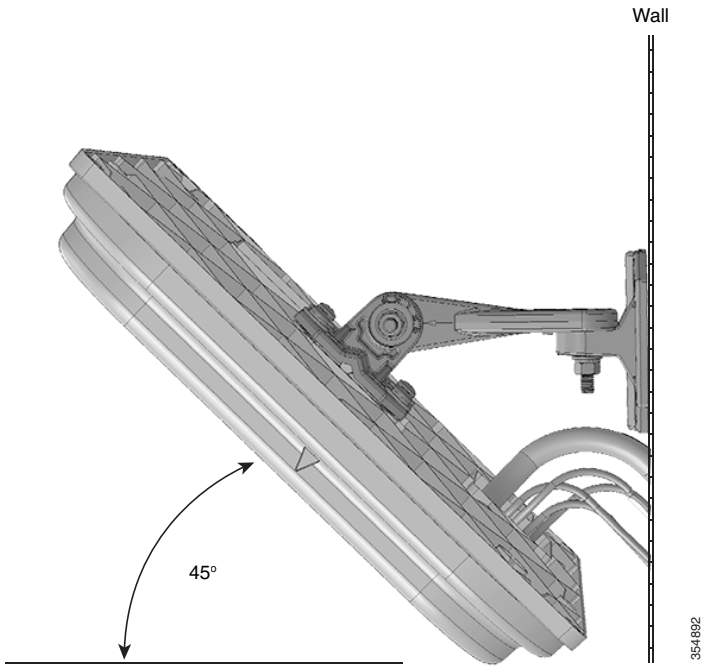


Figure 18 Antenna Elevation Adjustment



Painting the Antenna

Painting the antenna and the bracket does not affect its performance if you use standard exterior-grade, oil-based or latex paint. Do not use metallic or metallic-flake paints, which will 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 (Figure 7).

Cisco recommends Krylon Fusion for Plastic or Rust-Oleum for Plastic (which might require a primer coat). For best results, follow the surface preparation suggestions from the paint manufacturer.

Obtain Documentation and Submit a Service Request

For information on obtaining documentation, using the Cisco Bug Search Tool (BST), submitting a service request, and gathering additional information, see *What's New in Cisco Product Documentation*.

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