Cisco Outdoor Omnidirectional Antenna for 2G/3G/4G Cellular (ANT-4G-OMNI-OUT-N)

This chapter contains the following:

Overview

The Cisco Outdoor Omnidirectional Antenna for 2G/3G/4G Cellular antenna is designed to cover domestic LTE700/Cellular/PCS/AWS/MDS, WiMAX 2300/2500, and GSM900/GSM1800/UMTS/CBRS/LTE2600 bands. This document provides the antenna specifications and mounting instructions.

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Caution Read the information in General Safety Warnings before installing or replacing antennas.
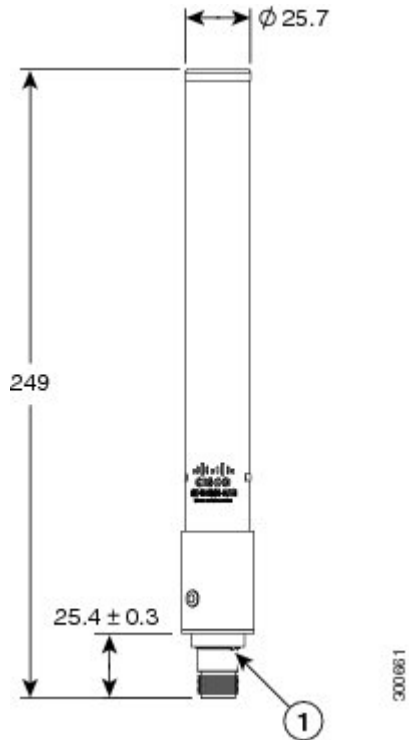
Technical Specifications

The Outdoor Omnidirectional antenna features the following:

- UV stable radome
- Mast mount bracket
- Multiple frequency ranges.

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Important Cisco claims no support for FDD46 and TDD71

Figure 1: Outdoor Omnidirectional Antenna

| 1 | 2x drain slot |

RF Specifications

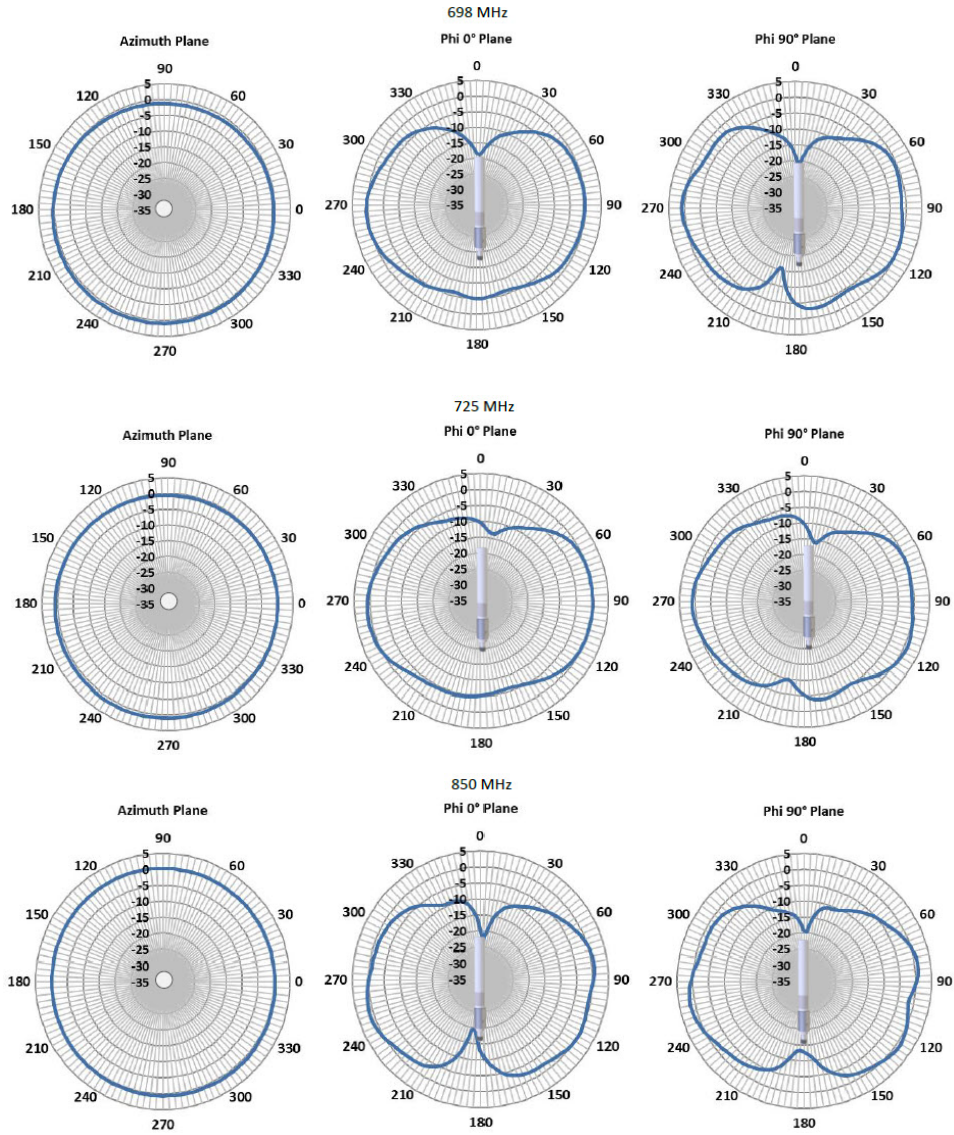| Specification	Description
Frequency ranges	698 to 862 MHz
	824 to 894MHz
	880 to 960MHz
	1710 to 1880Mhz
	1850 to 1990MHz
	1920 to 2170MHz
	2300 to 2400MHz
	2400 to 2500MHz
	2500 to 2690MHz
	3400 to 3800 MHz

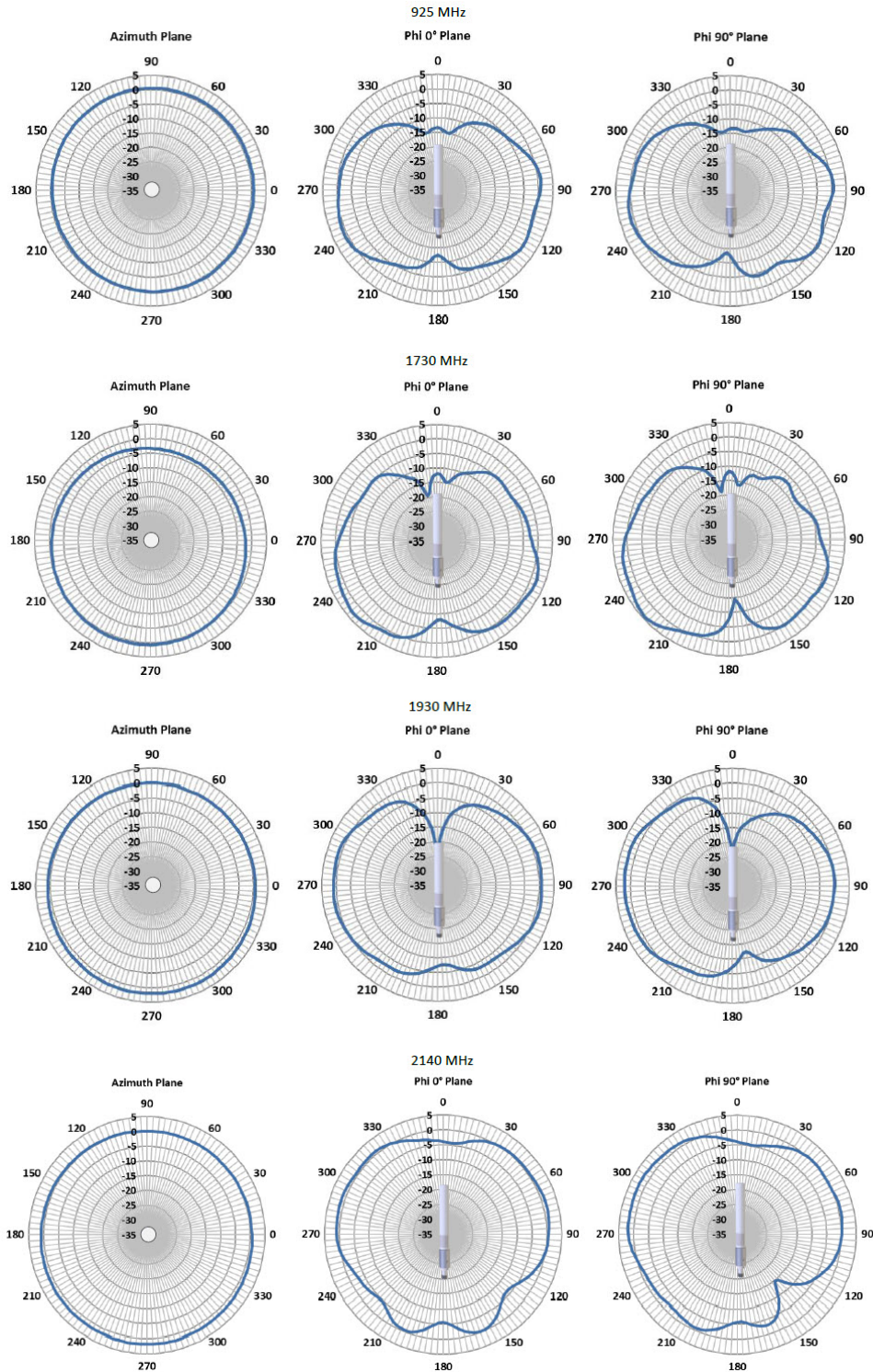| Specification	Description
Peak gain (dBi)	1.5 dBi (698 to 960MHz) 3.5 dBi (1710 to 2690MHz) 5.2 dBi (3400 to 3800MHz)
Efficiency	Antennas were designed and tested to high RF efficiency in all supported cellular bands. Detailed technical specifications can be obtained through your Cisco authorized partner or Cisco account representative.
Polarization	Vertical, Omnidirectional Radiation Pattern
Normal impedance	50 ohms
VSWR	< 2.5:1 (698 to 960 MHz) < 2:1 (1710 to 2690 MHz) < 2.5:1 (3400 to 3800 MHz)
Power	20 Watts

Mechanical Specifications

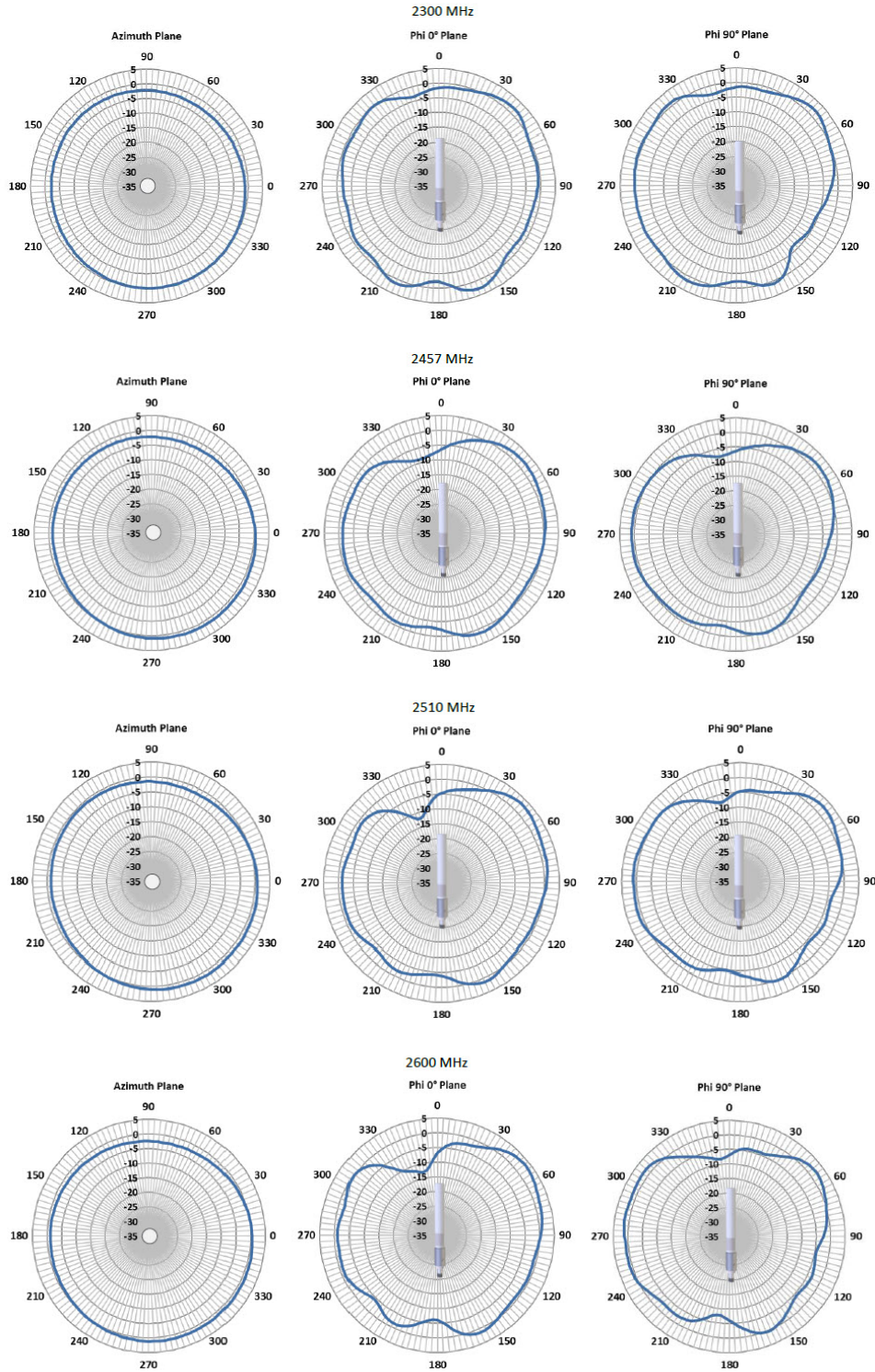| Specification	Description
Mount style	Mast mount, upright position only, connector on bottom (due to drain holes located only on antenna bottom)
Environment	Outdoor IP55 with drain holes
Connector	N-Type female
Antenna length (height)	9.8" x 1" (24.9 cm x 2.45 cm)
Weight	156g
Dimensions (height x outside dimensions)	9.8" x 1" (248 x 24.5 mm)
Operating temperature range	-40 to 158-degrees F (-40 to +70-degrees C)
Storage temperature	-40 to 185 degrees F (-40 to 85 degrees C)
Wind Rating	Operational 120 MPH / Survival 136 MPH
Radome	Polycarbonate, UV, white
Material substance compliance	ROHS compliant

Radiation Patterns

The following series of graphics show the antennas radiation patterns:

698 MHz

Azimuth Plane   **Phi 0° Plane**   **Phi 90° Plane**

725 MHz

Azimuth Plane   **Phi 0° Plane**   **Phi 90° Plane**

850 MHz

Azimuth Plane   **Phi 0° Plane**   **Phi 90° Plane**

925 MHz

Azimuth Plane | Phi 0° Plane | Phi 90° Plane

1730 MHz

Azimuth Plane | Phi 0° Plane | Phi 90° Plane

1930 MHz

Azimuth Plane | Phi 0° Plane | Phi 90° Plane

2140 MHz

Azimuth Plane | Phi 0° Plane | Phi 90° Plane

2300 MHz

2457 MHz

2510 MHz

2600 MHz
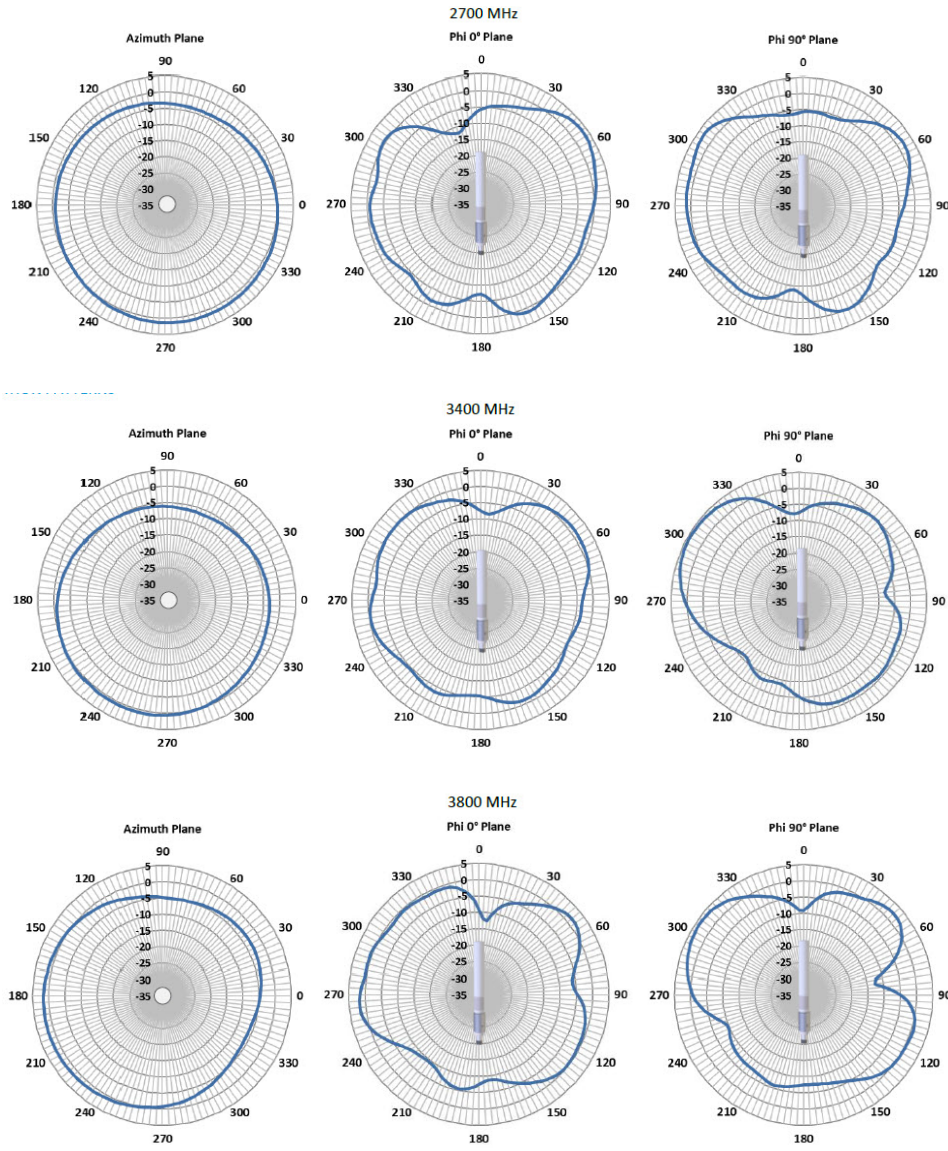
Antenna Kit

The contents of the multi-purpose integrated antenna are listed in the following table:

Table 1: Antenna Kit Contents

Quantity	Description
1	Antenna-mount bracket
4	1/4"-20x3/4 carriage bolt
6	1/4"-20 hex nut

Quantity	Description
6	1/4"-20 spring lock washer
6	1/4"-20 flat washer
2	Pipe clamps
1	ANT-4G-OMNI-OUT-N Antenna

General Safety Precautions

Warning This warning symbol means danger. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents. 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**

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

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

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

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.

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

For your safety, read and follow these safety precautions.

- If you are installing an antenna for the first time, for your own safety as well as others, seek professional assistance. Your Cisco sales representative can explain which mounting method to use for the size and type antenna you are about to install.

- Before you install an antenna, contact your Cisco account representative to explain which mounting method to use for the size and type of antenna that you are about to install.
- Find someone to help you—installing an antenna is often a two-person job.
- Select your installation site with safety, as well as performance, in mind. Remember that electric power lines and phone lines look alike. For your safety, assume that any overhead line can kill you.
- Contact your electric power company. Tell them your plans and ask them to come look at your proposed installation.
- Plan your installation carefully and completely before you begin. Each person involved in an installation should be assigned to a specific task, and should 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, follow these guidelines:

    - Do not use a metal ladder.
    - Do not work on a wet or windy day.
    - Do dress properly—wear shoes with rubber soles and heels, rubber gloves, and a long-sleeved shirt or jacket.

- If the assembly starts to drop, move away from it and let it fall. Because the antenna, mast, cable, and metal guy wires are all excellent conductors of electrical current, even the slightest touch of any of these parts to a power line completes an electrical path through the antenna and the installer.
- If any part of the antenna system should come in contact with a power line, do not touch it or try to remove it yourself. Call your local power company to have it removed safely.
- If an accident should occur with the power lines, call for qualified emergency help immediately.

Antenna Installation

The antenna installation includes the following procedures:

Tools and Equipment Required

In addition to the parts included in the antenna kit described in the previous section , you must provide the following tool to install the antenna on the router:

- A flathead screwdriver
- 3/4 in. open-end wrench

Note This list does not include the tools and equipment required to assemble and erect the tower, mast, or other structure you intend to mount your antenna on.

Installing the Antenna

The antenna is provided with a mounting kit consisting of a mounting bracket and hose clamp. This kit allows you to mount the antenna to masts from 1.25 inches (3.2 centimeters) to 2 inches (5.1 cm). Cisco recommends that a 1.5 inch (3.8 centimeter) or larger tubing mast be used.

The antenna is vertically polarized. Since the antenna has vertical gain, it is very important to mount the antenna in a vertical (not leaning) position for optimal performance.

Follow these steps to mount the antenna onto a mast:

Step 1   Place the connector end of the antenna through the hole in the antenna bracket.

Figure 2: Antenna Details
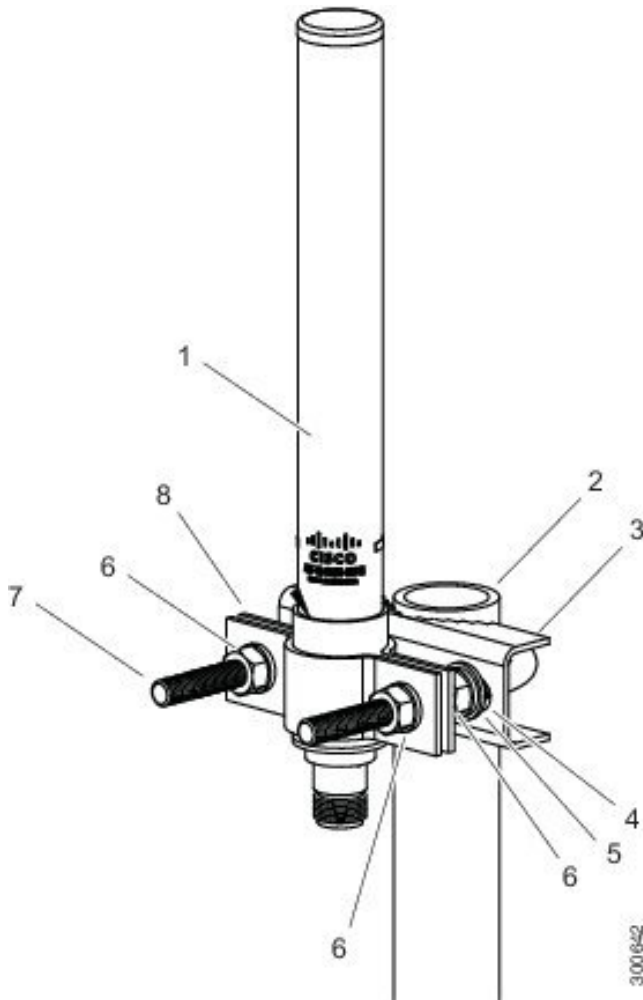
1	Outdoor omnidirectional antenna
2	Aluminum pipe/mast—31.8 mm to 54.0 mm mast diameter. (For optimum performance, mast height should sit lower than aluminum tube)
3	Antenna bracket
4	Flat washer
5	Lock washer
6	Hex nut
7	Carriage bolt

8	Pipe clamps

Step 2   Place the pipe clamps into the grooves on the bracket.

Step 3   Attach the bracket to the top of the mast. The top surface of the mounting mast must not exceed the top surface of the mounting bracket. Securely tighten hose clamps.

Step 4   Route the cable to the router and attach the cable to the antenna port of the router.

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Modifications to this product not authorized by Cisco could void the FCC approval and negate your authority to operate the product.

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