



Cisco Aironet 5-dBi Diversity Omnidirectional Antenna (AIR-ANT2452V-R)

This document outlines the specifications for the Cisco Aironet 5-dBi Diversity Omnidirectional Antenna (AIR-ANT2452V-R) and provides instructions for mounting it. The antenna operates in the 2.4 GHz frequency range and is designed for indoor use.

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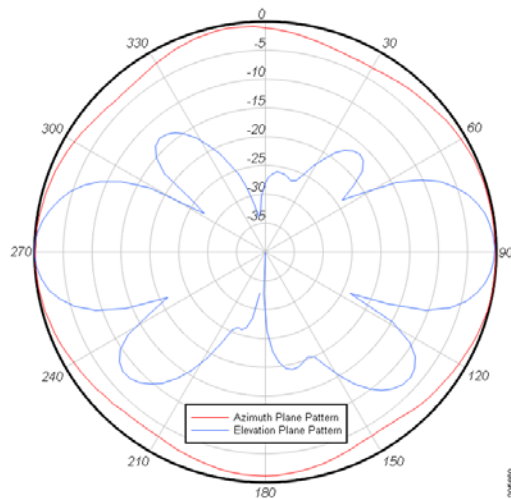
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Technical Specifications

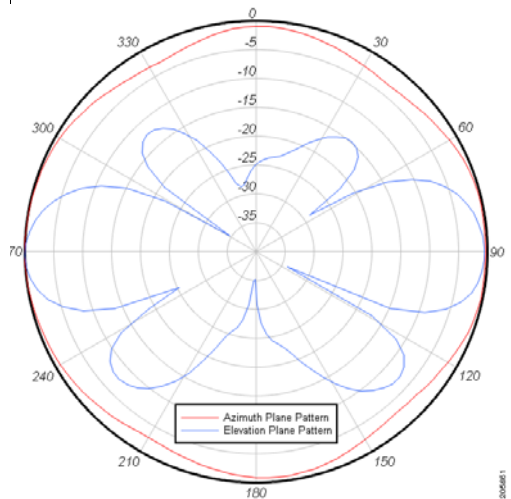
Antenna type	Diversity Omnidirectional
Operating frequency range	2400 MHz - 2500 MHz
VSWR	< 2:1
Gain	5 dBi
Polarization	Linear, Vertical
Elevation Plane Beamwidth	27 degrees
Azimuth Plane Beamwidth	360 degrees
Length	11 in. (27.24 cm)
Width	5 in. (12.7 cm)
Depth	1 in. (2.54 cm)
Environment	Indoor
Cable length and type	Conjoined Plenum Rated 36 in.
Connector	RP-TNC plug
Operating temperature	-22 to 167 F (-30 C to +75 C)



Azimuth and Elevation Radiation Patterns



Azimuth and Elevation Radiation Patterns



System Requirements

This antenna is designed for indoor use with any 2.4-GHz Cisco Aironet radio device that uses a RP-TNC connector.

Safety Precautions

Translated versions of the following safety warnings are provided in the *Safety Warnings for Cisco Aironet Antennas*, which is available at <http://cisco.com>.



Warning

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 good installation, please read and follow these safety precautions. **They may save your life!**

1. 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.
2. Select your installation site with safety as well as performance in mind. Remember: electric power lines and phone lines look alike. For your safety, assume that any overhead line can kill you.
3. Call your electric power company. Tell them your plans and ask them to come look at your proposed installation. This is a small inconvenience considering your life is at stake.
4. Plan your installation carefully and completely before you begin. Successful raising of a mast or tower is largely a matter of coordination. Each person should be assigned 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.
5. When installing your antenna, remember:
 - a. **Do not** use a metal ladder.
 - b. **Do not** work on a wet or windy day.
 - c. **Do** dress properly—shoes with rubber soles and heels, rubber gloves, long sleeved shirt or jacket.
6. 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. Even the slightest touch of any of these parts to a power line completes an electrical path through the antenna and the installer: **You!**
7. If any part of the antenna system should come in contact with a power line, **don't touch it or try to remove it yourself. Call your local power company.** They will remove it safely.
8. If an accident occurs with the power lines, call for qualified emergency help immediately.

Installation Notes

Antennas transmit and receive radio signals which 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:

- Install the antenna vertically and mount it as high as possible.
- 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 can pass through and still maintain 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 pre-cast concrete walls without degrading signal strength.
 - Signals penetrate three or four concrete and wood block walls without degrading signal strength.
 - Signals penetrate five or six walls constructed of drywall or wood without degrading signal strength.
 - Signals will likely reflect off a thick metal wall and may not penetrate it at all.
 - Signals will likely reflect off a chain link fence or wire mesh spaced between 1 and 1 1/2 in. (2.5 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 to which your antenna is connected.

Choosing a Mounting Location

The antenna should be mounted clear of any obstructions to the sides of the radiating elements. Generally, the higher an antenna is above the floor, the better it performs. If possible, find a mounting place directly above your wireless device to ensure the lead-in cable can be as short as possible.

Installing the Antenna

You can install the antenna on any flat vertical surface or on a pole. All hardware for mounting the antenna on a wall is provided. If you intend to install your antenna on another surface, you must provide the appropriate hardware.

Tools and Equipment Required

A mounting installation kit is included with the antenna and consists of the following hardware:

- Antenna bracket
- One 1/4 –20 cap screw

- One flat washer
- One screen mesh washer
- One spherical washer
- One wing bolt
- Mounting bracket
- Wall bracket
- Four #8 x ¾ in. screws

You may need the following tools and equipment, which are not provided.

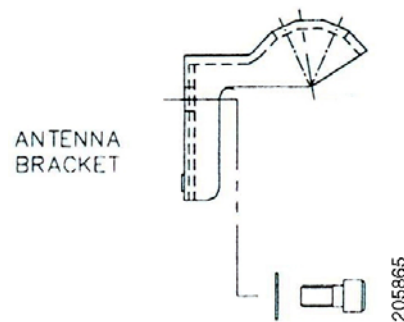
- A #2 Phillips screwdriver
- A drill and drill bit
- A pencil
- Two hose clamps

Mounting on a Vertical Surface

Follow these steps to mount your antenna on a vertical surface.

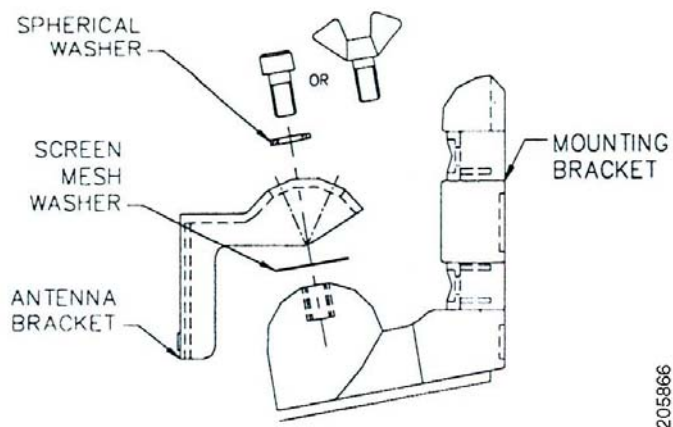
- Step 1** Attach the antenna bracket to the antenna using the 1/4 – 20 cap screw and flat washer provided (Figure 1).

Figure 1 Antenna Bracket



- Step 2** With the screen mesh washer between the two brackets, attach the antenna bracket to the mounting bracket using the spherical washer and wing bolt provided (Figure 2).

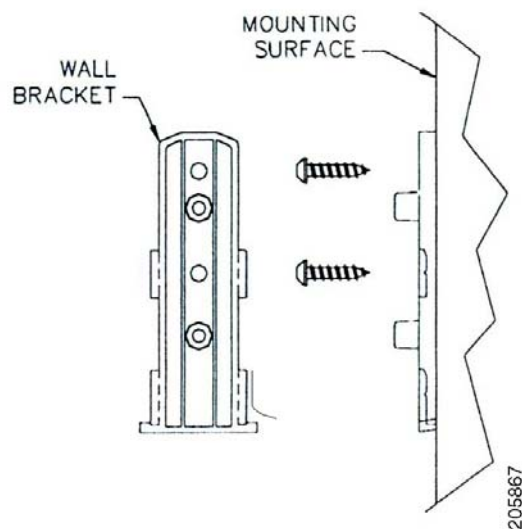
Figure 2 Antenna Bracket Attached to Mounting Bracket



Step 3 Determine the mounting location for the antenna.

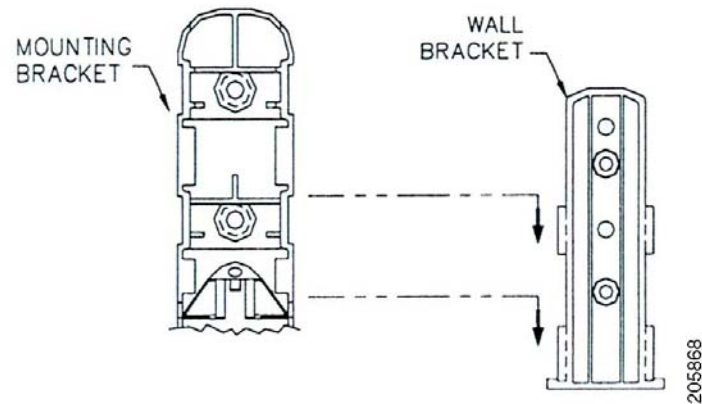
Step 4 Attach the wall bracket to the wall using the two screws provided ([Figure 3](#)).

Figure 3 Wall Mounting



Step 5 Slide the mounting bracket onto the wall bracket and secure it in place (optional) with the two screws provided ([Figure 4](#)).

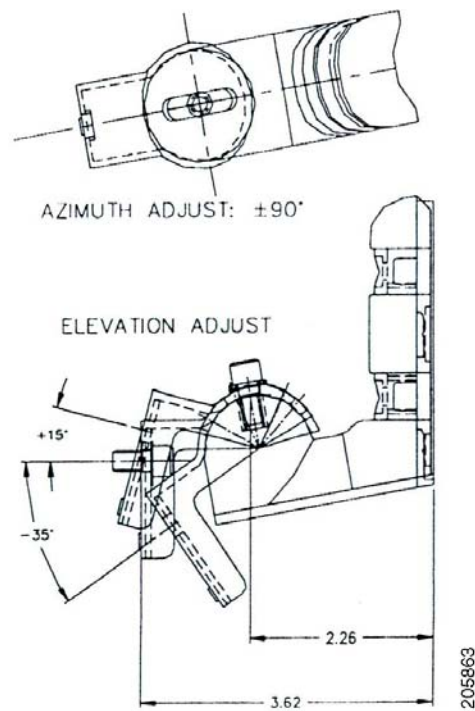
Figure 4 Attaching Mounting Bracket to Wall Bracket



Once the antenna is secured on the wall, you can adjust the azimuth and elevation.

- Step 6** To adjust the azimuth and elevation, loosen the bolt that attaches the antenna bracket to the mounting bracket (Figure 5). Azimuth can be adjusted ± 90 degrees. Elevation can be adjusted $+15$ degrees and -35 degrees.

Figure 5 Azimuth and Elevation Adjustment



Mounting on a Mast

The antenna can be mounted on a mast rather than on a wall using two 1/2 inch-wide hose clamps (not provided).

To mount the antenna on a mast, follow these steps:

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- Step 1** Follow Step 1 and Step 2 from “[Mounting on a Vertical Surface](#)”.
 - Step 2** Position the antenna, mounting bracket, and hose clamps on the mast.
 - Step 3** Tighten the hose clamps until the antenna is secure on the mast.
Once the antenna is secured on the mast, you can adjust the azimuth and elevation.
 - Step 4** To adjust the azimuth and elevation, loosen the bolt that attaches the antenna bracket to the mounting bracket ([Figure 5](#)). Azimuth can be adjusted ± 90 degrees. Elevation can be adjusted +15 degrees and -35 degrees.

Suggested Cable

Cisco recommends a high-quality, low-loss cable for use with the antenna.

**Note**

Coaxial cable loses efficiency as the frequency increases, resulting in signal loss. The cable should be kept as short as possible because cable length also determines the amount of signal loss (the longer the run, the greater the loss).

Each antenna terminates with a RP-TNC plug after a short, 3-ft (0.91-m) cable. The mating connector to the antenna is an appropriate RP-TNC jack. The connector on the opposite end will vary according to the type of equipment used.

Obtaining Documentation, Obtaining Support, and Security Guidelines

For information on obtaining documentation, obtaining support, providing documentation feedback, security guidelines, and also recommended aliases and general Cisco documents, see the monthly *What's New* in Cisco Product Documentation, which also lists all new and revised Cisco technical documentation, at:

<http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html>

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