

# Cisco Aironet and Catalyst Antennas and Accessories

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## Overview

### Executive overview

This antenna reference guide explains issues and concerns about antennas used with a Cisco Aironet and Catalyst wireless LAN system or wireless bridge system. It details deployment and design, limitations and capabilities, and basic theories of antennas. This document also contains information about the Cisco antennas and accessories, as well as installation scenarios, regulatory information, and technical specifications and diagrams of the available antennas.

### Overview of antennas

Each Cisco Aironet radio product is designed to perform in a variety of environments. Implementing the antenna system can greatly improve coverage and performance.

To optimize the overall performance of a Cisco wireless LAN, it is important to understand how to maximize radio coverage with the appropriate antenna selection and placement. An antenna system comprises numerous components, including the antenna, mounting hardware, connectors, antenna cabling, and in some cases a lightning arrester. For a consultation, please contact a Cisco Aironet partner at:

[https://tools.cisco.com/WWChannels/LOCATR/jsp/partner\\_locator.jsp](https://tools.cisco.com/WWChannels/LOCATR/jsp/partner_locator.jsp).

Cisco partners can provide onsite engineering assistance for complex requirements.

### Antenna properties and ratings

An antenna gives the wireless system three fundamental properties: gain, direction, and polarization. **Gain** is a measure of increase in power. **Direction** is the shape of the transmission pattern. A good analogy for an antenna is the reflector in a flashlight. The reflector concentrates and intensifies the light beam in a particular direction similar to what a parabolic dish antenna would do to an RF source in a radio system.

Antenna gain is measured in decibels, which is a ratio between two values. The gain of a specific antenna is compared to the gain of an isotropic antenna. An isotropic antenna is a theoretical antenna with a uniform three-dimensional radiation pattern (similar to a light bulb with no reflector). The decibels over an isotropic radiator (dBi) value is used to compare the power level of a given antenna to the theoretical isotropic antenna. The U.S. regulatory agency (the Federal Communications Commission, or FCC) uses dBi in its calculations. An isotropic antenna is said to have a power rating of 0 dB, meaning that it has zero gain/loss when compared to itself.

Unlike isotropic antennas, dipole antennas are real antennas. Dipole antennas have a different radiation pattern compared to isotropic antennas. The dipole radiation pattern is 360 degrees in the horizontal plane and 75 degrees in the vertical plane (assuming the dipole antenna is standing vertically) and resembles a doughnut in shape. Because the beam is “slightly” concentrated, dipole antennas have a gain over isotropic antennas of 2.14 dB in the horizontal plane. Dipole antennas are said to have a gain of 2.14 dBi (in comparison to an isotropic antenna).

Some antennas are rated in comparison to dipole antennas. This is denoted by the suffix dBd, short for decibels over a dipole antenna. Hence, dipole antennas have a gain of 0 dBd (= 2.14 dBi).

Note that the majority of documentation refers to dipole antennas as having a gain of 2.2 dBi. The actual figure is 2.14 dBi, but it is often rounded up.

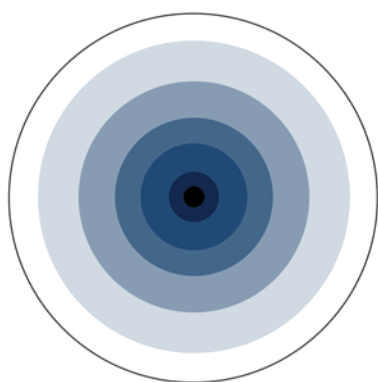
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## Types of antennas

Cisco offers several different styles of antennas for use with access points and bridges in both 2.4-GHz and 5-GHz products. Every antenna offered for sale has been FCC-approved. Each type of antenna has different coverage capabilities. As the gain of an antenna increases, there is some tradeoff in its coverage area. Usually high-gain antennas offer longer coverage distances, but only in a certain direction. The radiation patterns described below show the coverage areas of the styles of antennas that Cisco offers: dipole, omnidirectional, and patch antennas.

### Omnidirectional antennas

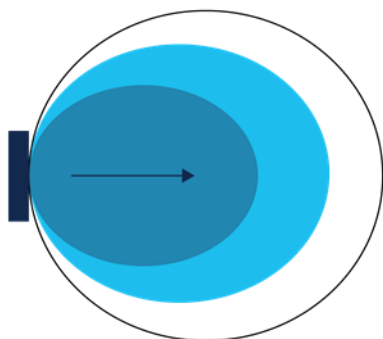
An omnidirectional antenna (Figure 1) is designed to provide a 360-degree radiation pattern. This type of antenna is used when coverage in all directions from the antenna is required. The standard 2.14-dBi “rubber duck” is one style of omnidirectional antenna.



**Figure 1.**  
Omnidirectional antenna

### Directional antennas

Directional antennas come in many different styles and shapes. An antenna does not offer any added power to the signal; it simply redirects the energy it receives from the transmitter. By redirecting this energy, it has the effect of providing more energy in one direction and less energy in all other directions. As the gain of a directional antenna increases, the angle of radiation usually decreases, providing a greater coverage distance but with a reduced coverage angle. Directional antennas include patch antennas (Figure 2) and parabolic dishes. Parabolic dishes have a very narrow RF energy path, and the installer must be accurate in aiming these types of antennas at each other.



**Figure 2.**  
Directional patch antenna

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## Cabling

Cabling introduces losses into the system, negating some of the gain an antenna introduces and reducing the range of the RF coverage.

### Interconnect cable

Attached to all antennas (except the standard dipoles), this cable provides a 50-ohm impedance to the radio and antenna, with a flexible connection between the two items. It has a high loss factor and should not be used except for very short connections (usually less than 10 feet). Typical length on all antennas is 36 inches.

### Low-loss and ultra-low-loss cable

Cisco offers two styles of cables for use with the 2.4-GHz and 5-GHz product lines. These cables provide a much lower loss factor than standard interconnect cables, and they can be used when the antenna must be placed at any distance from the radio device. While these are low-loss cables, they should still be kept to a minimum length.

Two types of cables are available for mounting the antenna away from the radio unit. The 100- and 150-foot cables are LMR600-type cables, while the 20- and 50-foot cables are LMR400-type cables. All four lengths are supplied with one reverse polarity-TNC (RP-TNC) plug and one RP-TNC jack connector attached. This allows for connection to the radio unit and to the interconnect cable supplied on the antenna.

## Connectors

According to the U.S. Federal Code of Regulations, products used in the 2.4- and 5-GHz ISM bands manufactured after June 1994 must either use connectors that are unique and nonstandard (meaning not readily available on the market) or be designed to be professionally installed (“professional” here indicates a person trained in RF installation and regulations). Since many of the 2.4-GHz products are installed by non-RF-trained personnel, these products must comply with the unique connector rule. The Cisco outdoor access and bridge products are designed for installation by an RF professional, and therefore may use a standard N-style connector. Cisco Aironet indoor products use RP-TNC connectors. While these are similar to the normal TNC connectors, they cannot be mated to the standard connectors.

Cisco has recently introduced a new multi-RF connector known as DART. DART connectors can support four or eight RF signals along with several electrical pins. Cisco developed the DART connector to simplify installations and to create a single insertion cable to go along with a new line of self-identifying antennas (SIA) containing circuitry to automate provisioning and detection.

To ensure compatibility with Cisco products, use antennas and cabling from Cisco.

**Note:** Self-Identifying Antennas (SIA) are supported starting from IOS XE 17.5.1 and later software for C9800 WLCs.

## Mounting hardware

Each antenna requires some type of mounting. The standard dipole antenna simply connects to the RP-TNC connector on the unit. Mast-mount antennas are designed to mount to a variety of mast diameters, and each comes with mounting hardware for attachment. Patch antennas are designed to mount flat against a wall or ceiling, and ceiling-mount antennas are equipped with a drop-ceiling cross-member attachment.

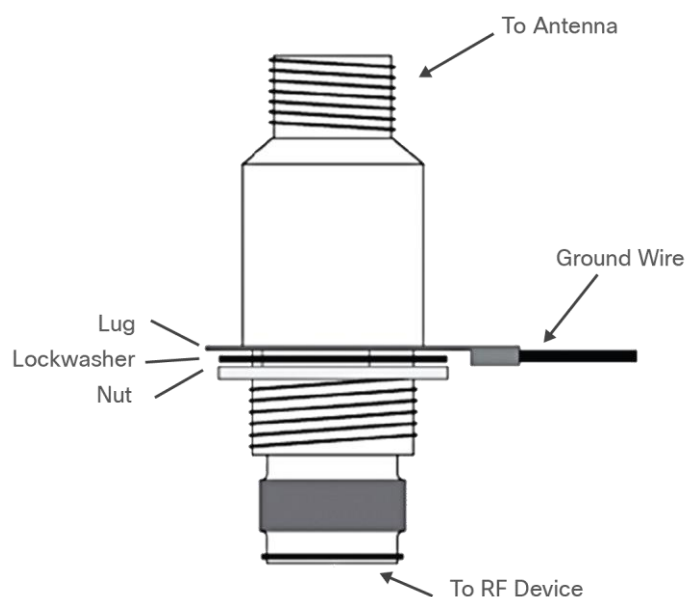
For most indoor applications, a .75- or 1-inch electrical conduit provides a suitable mounting. For outdoor applications, use a heavy galvanized or aluminum wall mast that will withstand the wind-loading rating of the selected antenna.

## Lightning arrestors

When using outdoor antenna installations, it is always possible that an antenna will suffer damage from charges developing on the antenna and cable, or surges induced from nearby lightning strikes. The Cisco Aironet lightning arrestor is designed to protect 2.4-GHz to 5-GHz radio equipment from static electricity and lightning-induced surges that travel on coaxial transmission lines. Both systems need to be properly grounded as identified in the hardware installation manuals of the products. These protection mechanisms will not prevent damage in the event of a direct lightning hit.

### Theory of operation

The Cisco Aironet Lightning Arrestor (Figure 3) prevents energy surges from reaching the RF equipment by shunting them to the ground. Surges are limited to less than 50 volts, in about 0.0000001 second (100 nanoseconds). A typical lightning surge is about 0.000002 second (2 microseconds).



**Figure 3.**  
Cisco Aironet Lightning Arrestor

The accepted IEEE transient (surge) suppression is 0.000008 second (8 microseconds). The Cisco Aironet Lightning Arrestor is a 50-ohm transmission line with a gas discharge tube positioned between the center conductor and ground. This gas discharge tube changes from an open circuit to a short circuit almost instantaneously in the presence of voltage and energy surges, providing a path to ground for the energy surge.

### Installation

This arrestor is designed to be installed between your antenna cable and the Aironet access point. Installation should be indoors or inside a protected area. A good ground must be attached to the arrestor. This can be accomplished by attaching a ground lug to the arrestor and using a heavy wire (number 6 solid copper) to connect the lug to a good earth ground.

## Cisco Aironet antenna descriptions

**Table 1.** Antennas for 2.4-, 5- and 6- GHz for indoor access points

Cisco part number	Antenna type	Description	Gain
<b>AIR-ANT2524DB-R</b> <b>AIR-ANT2524DB-R=</b>	Black dipole, 1 port	Single black dipole antenna with RP-TNC connector. The antenna provides indoor omnidirectional coverage. It has a 90-degree articulation radius and can be used with the Aironet 1830, 1850, 2800, and 3800 Series and Cisco Catalyst 9115AX, 9120AX, 9130AX Series access points.	2.4 GHz: 2 dBi 5 GHz: 4 dBi
<b>AIR-ANT2524DG-R</b> <b>AIR-ANT2524DG-R=</b>	Gray dipole, 1 port	Single gray dipole antenna with RP-TNC connector. The antenna provides indoor omnidirectional coverage. It has a 90-degree articulation radius and can be used with the Aironet 1830, 1850, 2800, and 3800 Series and Cisco Catalyst 9115AX, 9120AX, 9130AX Series access points.	2.4 GHz: 2 dBi 5 GHz: 4 dBi
<b>AIR-ANT2524DW-R</b> <b>AIR-ANT2524DW-R=</b>	White dipole, 1 port	Single white dipole antenna with RP-TNC connector. The antenna provides indoor omnidirectional coverage. It has a 90-degree articulation radius and can be used with the Aironet 1830, 1850, 2800, and 3800 Series and Cisco Catalyst 9115AX, 9120AX, 9130AX Series access points.	2.4 GHz: 2 dBi 5 GHz: 4 dBi
<b>AIR-ANT2535SDW-R</b> <b>AIR-ANT2535SDW-R=</b> <b>AIR-ANT2535SDW-RS(=)</b>	White dipole, 1 port	Single white dipole antenna with RP-TNC connector. The antenna provides indoor omnidirectional coverage. It does not articulate, as the other dipole antennas do. It can be used with the Aironet 1830, 1850, 2800, and 3800 Series and Cisco Catalyst 9115AX, 9120AX, 9130AX Series access points.	2.4 GHz: 3 dBi 5 GHz: 5 dBi
<b>AIR-ANT2524DW-RS</b> <b>AIR-ANT2524DW-RS=</b>	White dipole, 1 port (self-identifying circuitry)	Single white dipole antenna with RP-TNC connector. The antenna provides indoor omnidirectional coverage. It has a 90-degree articulation radius and can be used with the Aironet 1830, 1850, 2800, and 3800 Series and Cisco Catalyst 9115AX, 9120AX, 9130AX Series access points.	2.4 GHz: 2 dBi 5 GHz: 4 dBi
<b>AIR-ANT2524V4C-R=</b> <b>AIR-ANT2524V4C-RS=</b>	Omnidirectional, 4 ports (all ports dual band)	Ceiling-mount omnidirectional antenna. Designed for indoor use, this antenna comes with ceiling mount hardware. It has 4 plenum-rated pigtail cables, 3 ft each, with 4 RP-TNC connectors. Designed for use with access points having dual-band ports, such as the Aironet 1830, 1850, 2800, and 3800 Series and Cisco Catalyst 9115AX, 9120AX, 9130AX Series access point.	2.4 GHz: 2 dBi 5 GHz: 4 dBi
<b>AIR-ANT2544V4M-R=</b> <b>AIR-ANT2544V4M-RS=</b>	Omnidirectional, 4 ports (all ports dual band)	Indoor/outdoor wall- or mast-mounted dual-band omnidirectional antenna with 4 plenum-rated, 36-in. cables and RP-TNC connectors. Designed for use with access points having dual-band ports, such as the Aironet 1830, 1850, 2800, and 3800 Series and Cisco Catalyst 9115AX, 9120AX, 9130AX Series access point.	2.4 GHz: 4 dBi 5 GHz: 4 dBi
<b>AIR-ANT2544V4M-R8=</b>	Omnidirectional, 4 ports (all ports dual band)	Dual-band Multiple-Input, Multiple-Output (MIMO) wall-mounted omnidirectional antenna with 8-ft antenna cable operates in the 2.4- and 5-GHz frequency ranges and is designed for indoor or outdoor use with the Aironet 1830, 1850, 2800, and 3800 Series and Cisco Catalyst 9115AX, 9120AX, 9130AX Series access points.	2.4 GHz: 3 dBi 5 GHz: 2 dBi



Cisco part number	Antenna type	Description	Gain
<b>AIR-ANT2566P4W-R=</b> <b>AIR-ANT2566P4W-RS=</b>	Patch, 4 ports (all ports dual band))	Indoor/outdoor wall-mounted dual-band patch antenna with 4 plenum-rated, 36-in. cables and RP-TNC connectors. Designed for use with access points having dual-band ports, such as the Aironet 1830, 1850, 2800, and 3800 Series and Cisco Catalyst 9115AX, 9120AX, 9130AX Series access points.	2.4 GHz: 6 dBi 5 GHz: 6 dBi
<b>AIR-ANT2566D4M-R=</b> <b>AIR-ANT2566D4M-RS=</b>	Patch, 4 ports (all ports dual band))	Dual-band MIMO wall-mounted directional array antenna operates in the 2.4- and 5-GHz frequency ranges and is designed for indoor or outdoor use with the Aironet 1830, 1850, 2800, and 3800 Series and Cisco Catalyst 9115AX, 9120AX, 9130AX Series access points.	2.4 GHz: 6 dBi 5 GHz: 6 dBi
<b>C-ANT9101=</b>	Omnidirectional, 8 ports	Tri-band MIMO Ceiling mount omnidirectional antenna operates in the 2.4-, 5- and 6-GHz frequency ranges and supports IoT. This antenna is designed for indoor use with 9130AX Series access points	2.4 GHz: 2 dBi 5 GHz: 3 dBi 6 GHz: 3 dBi IoT: 3 dBi
<b>C-ANT9102=</b>	Omnidirectional, 8 ports	Tri-band MIMO Wall/Pole mount omnidirectional antenna operates in the 2.4-, 5- and 6-GHz frequency ranges and supports IoT. This antenna is designed for indoor use with 9130AX Series access points	2.4 GHz: 4 dBi 5 GHz: 4 dBi 6 GHz: 4 dBi IoT: 4 dBi
<b>C-ANT9103=</b>	Directional, 8 ports	Tri-band MIMO Wall/Pole mount directional antenna operates in the 2.4-, 5- and 6-GHz frequency ranges and supports IoT. This antenna is designed for indoor use with 9130AX Series access points	2.4 GHz: 6 dBi 5 GHz: 6 dBi 6 GHz: 6 dBi IoT: 6 dBi
<b>C-ANT9104=</b>	Directional, 8 ports	Dual-band MIMO Wall/Pole mount directional antenna operates in the 2.4- and 5-GHz frequency ranges with beamwidth switching and beamsteering (boresight, +/- 10 degs, and +/- 20 degs) capabilities at 5 GHz. This antenna supports IoT and is designed for indoor or outdoor use with 9130AX Series access points	2.4 GHz: 6 dBi 5 GHz wide beamwidth: 7 dBi 5 GHz narrow beamwidth, (boresight, +/- 10 degs, +/- 20 degs): 10 dBi IoT: 6 dBi

**Table 2.** 2.4-GHz and 5-GHz access point and bridge antennas with N-type connectors

Cisco part number	Antenna type	Description	Gain
<b>AIR-ANT2420V-N (=)</b>	Omnidirectional	2.4-GHz omnidirectional antenna for mesh access points. Suitable for use on Aironet 1570 Series mesh access points. It is only 5 in. long, mounts directly to the access point, and has no cable attachments.	2 dBi
<b>AIR-ANT2450V-N (=)</b>	Omnidirectional	2.4-GHz omnidirectional antenna for mesh access points. Suitable for use on Aironet 1560 and 1570 Series mesh access points. It mounts directly to the access point and has no cable attachments.	5 dBi
<b>AIR-ANT2455V-N=</b>	Omnidirectional	2.4-GHz omnidirectional antenna for mesh access points. Suitable for use on Aironet 1560 and 1570 Series mesh access points. It mounts directly to the access point and has no cable attachments.	5.5 dBi
<b>AIR-ANT2450V-N-HZ (=)</b>	Omnidirectional	2.4-GHz omnidirectional antenna for mesh access points. Suitable for use on Aironet 1560 and 1570 Series mesh access points. It mounts directly to the access point and has no cable attachments.	5 dBi
<b>AIR-ANT2450VG-N (=)</b>	Omnidirectional	2.4-GHz omnidirectional antenna for mesh access points. Suitable for use on Aironet 1560 and 1570 Series mesh access points. It mounts directly to the access point and has no cable attachments.	5 dBi
<b>AIR-ANT2450HG-N (=)</b>	Omnidirectional	2.4-GHz omnidirectional antenna for mesh access points. Suitable for use on Aironet 1560 and 1570 Series mesh access points. It mounts directly to the access point and has no cable attachments.	5 dBi
<b>AIR-ANT2480V-N (=)</b>	Omnidirectional	2.4-GHz omnidirectional antenna for mesh access points. Suitable for use on Aironet 1560 and 1570 Series mesh access points. It mounts directly to the access point and has no cable attachments.	8 dBi
<b>AIR-ANT2413P2M-N=</b>	Patch, 2 ports	2.4-GHz directional antenna with 2 orthogonally polarized ports. Comes with two 30-in. cables terminated in right-angle N-type connectors. Suitable for use on Aironet 1560 and 1570 Series mesh access points.	13 dBi
<b>AIR-ANT5140V-N (=)</b>	Omnidirectional	5-GHz omnidirectional antenna for mesh access points. Suitable for use on Aironet 1570 Series mesh access points. It mounts directly to the access point and has no cable attachments.	4 dBi
<b>AIR-ANT5150VG-N (=)</b>	Directional	5-GHz omnidirectional antenna for mesh access points. Suitable for use on Aironet 1560 and 1570 mesh access points. It mounts directly to the access point and has no cable attachments.	5 dBi
<b>AIR-ANT5150HG-N (=)</b>	Directional	5-GHz omnidirectional antenna for mesh access points. Suitable for use on Aironet 1560 and 1570 mesh access points. It mounts directly to the access point and has no cable attachments.	5 dBi

Cisco part number	Antenna type	Description	Gain
<b>AIR-ANT5180V-N (=)</b>	Omnidirectional	5-GHz omnidirectional antenna for mesh access points. Suitable for use on Cisco Aironet 1560 and 1570 Series mesh access points. It mounts directly to the access point and has no cable attachments.	8 dBi
<b>AIR-ANT5114P-N=</b>	Patch	5-GHz patch antenna for use in the 4950- to 5850-MHz frequency band. Has an N-type connector and will require a separate low-loss cable for mounting to the access point. Articulating mount included. Fits mast poles with a maximum diameter of 2 in. Suitable for use on Aironet outdoor access points.	14 dBi
<b>AIR-ANT5114P2M-N=</b>	Patch, 2 ports	5-GHz, directional antenna with 2 orthogonally polarized ports. Comes with two 30-in. cables terminated in right-angle N-type connectors. Suitable for use on Aironet outdoor access points.	14 dBi

**Table 3.** 2.4-GHz and 5-GHz dual-band antennas with N-type connectors

Cisco part number	Antenna type	Description	Gain
<b>AIR-ANT2547V-N (=)</b> <b>AIR-ANT2547VG-N (=)</b> <b>AIR-ANT2547VG-NS (=)</b>	Omnidirectional	Dual-band omnidirectional antenna that uses an N-type connector. It mounts directly to the access point and has no cable attachments. AIR-ANT2547VG-N has a gray radome. Suitable for use on Aironet outdoor access points.	2.4 GHz: 4 dBi 5 GHz: 7 dBi
<b>AIR-ANT2547V-N-HZ (=)</b>	Omnidirectional	Dual-band omnidirectional antenna that uses an N-type connector. It mounts directly to the access point and has no cable attachments. Used in hazardous locations. Suitable for use on Aironet outdoor access points.	2.4 GHz: 4 dBi 5 GHz: 7 dBi
<b>AIR-ANT2568VG-N (=)</b> <b>AIR-ANT2568VG-NS(=)</b>	Omnidirectional	Dual-band omnidirectional antenna that uses an N-type connector. It mounts directly to the access point and has no cable attachments. It has a gray radome.	2.4 GHz: 6 dBi 5 GHz: 8 dBi
<b>AIR-ANT2588P3M-N=</b>	Patch, 3 ports	Dual-band directional antenna with 3 N-type connectors. It can be used with the outdoor access points and has no cable attachments.	2.4 GHz: 8 dBi 5 GHz: 8 dBi
<b>AIR-ANT2513P4M-N=</b> <b>AIR-ANT2513P4M-NS(=)</b>	Patch, 4 ports	Dual-band directional antenna with 4 N-type connectors. It is outdoor rated and has no cable attachments.	2.4 GHz: 13 dBi 5 GHz: 13 dBi

**Table 4.** 2.4-GHz and 5-GHz access point and bridge integrated antennas

Cisco part number	Antenna type	Description	Gain
<b>Integrated Aironet 3500 Series antenna</b>	Omnidirectional	802.11n antenna package for both 2.4 GHz and 5 GHz designed for high performance in both ceiling- and wall-mount applications. Antennas provide hemispherical coverage and cannot be removed from the access point. No connectors are offered for additional external antennas.	2.4 GHz: 4 dBi 5 GHz: 3 dBi

Cisco part number	Antenna type	Description	Gain
<b>Integrated Aironet 600 Series OfficeExtend (OEAP600) antenna</b>	Omnidirectional	802.11n antenna package for both 2.4 GHz and 5 GHz designed for high performance in ceiling-, wall-, and desk-mount applications. Antennas provide hemispherical coverage and cannot be removed from the access point. No connectors are offered for additional external antennas.	2.4 GHz: 2 dBi 5 GHz: 2 dBi
<b>Integrated Aironet 700 Series antenna</b>	Omnidirectional	802.11n antenna package for both 2.4 GHz and 5 GHz designed for high performance in both ceiling- and wall-mount applications. Antennas provide hemispherical coverage and cannot be removed from the access point. No connectors are offered for additional external antennas.	2.4 GHz: 3 dBi 5 GHz: 5 dBi
<b>Integrated Aironet 700W Series antenna</b>	Omnidirectional	802.11n antenna package for both 2.4 GHz and 5 GHz designed for high-performance wall-mount applications. Antennas provide hemispherical coverage and cannot be removed from the access point. No connectors are offered for additional external antennas.	2.4 GHz: 2 dBi 5 GHz: 4 dBi
<b>Integrated Aironet 1600 Series antenna</b>	Omnidirectional	802.11n antenna package for both 2.4 GHz and 5 GHz designed for high performance in both ceiling- and wall-mount applications. Antennas provide hemispherical coverage and cannot be removed from the access point. No connectors are offered for additional external antennas.	2.4 GHz: 4 dBi 5 GHz: 4 dBi
<b>Integrated Aironet 2600 Series antenna</b>	Omnidirectional	802.11n antenna package for both 2.4 GHz and 5 GHz designed for high performance in both ceiling- and wall-mount applications. Antennas provide hemispherical coverage and cannot be removed from the access point. No connectors are offered for additional external antennas.	2.4 GHz: 4 dBi 5 GHz: 4 dBi
<b>Integrated Aironet 3600 Series antenna</b>	Omnidirectional	802.11n antenna package for both 2.4 GHz and 5 GHz designed for high performance in both ceiling- and wall-mount applications. Antennas provide hemispherical coverage and cannot be removed from the access point. No connectors are offered for additional external antennas.	2.4 GHz: 2 dBi 5 GHz: 4 dBi
<b>Integrated Aironet 3700 Series antenna</b>	Omnidirectional	802.11ac antenna package for both 2.4 GHz and 5 GHz designed for high performance in both ceiling- and wall-mount applications. Antennas provide hemispherical coverage and cannot be removed from the access point. No connectors are offered for additional external antennas.	2.4 GHz: 4 dBi 5 GHz: 4 dBi
<b>Integrated Aironet 2700 Series antenna</b>	Omnidirectional	802.11ac antenna package for both 2.4 GHz and 5 GHz designed for high performance in both ceiling- and wall-mount applications. Antennas provide hemispherical coverage and cannot be removed from the access point. No connectors are offered for additional external antennas.	2.4 GHz: 4 dBi 5 GHz: 4 dBi

Cisco part number	Antenna type	Description	Gain
<b>Integrated Aironet 1700 Series antenna</b>	Omnidirectional	802.11ac antenna package for both 2.4 GHz and 5 GHz designed for high performance in both ceiling- and wall-mount applications. Antennas provide hemispherical coverage and cannot be removed from the access point. No connectors are offered for additional external antennas.	2.4 GHz: 4 dBi 5 GHz: 4 dBi
<b>Integrated Aironet 1550 Series antenna</b>	Omnidirectional	802.11n antenna package for both 2.4 GHz and 5 GHz. When the integrated antenna version is ordered, this antenna is attached to the access point and provides omnidirectional coverage in a low-profile package. No connectors are offered for additional external antennas.	2.4 GHz: 2 dBi 5 GHz: 4 dBi
<b>Integrated Aironet 1530 Series antenna</b>	Omnidirectional	802.11n antenna package for both 2.4 GHz and 5 GHz. When the integrated antenna version is ordered, this antenna is attached to the access point and provides omnidirectional coverage in a low-profile package. No connectors are offered for additional external antennas.	2.4 GHz: 3 dBi 5 GHz: 5 dBi
<b>Integrated Aironet 1570 Series antenna</b>	Omnidirectional	802.11ac antenna package for both 2.4 GHz and 5 GHz. When the integrated antenna version is ordered, this antenna is attached to the access point and provides omnidirectional coverage in a low-profile package. No connectors are offered for additional external antennas.	2.4 GHz: 4 dBi 5 GHz: 6 dBi
<b>Integrated Aironet 1815 Series antenna</b>	Omnidirectional	802.11ac antenna package for both 2.4 GHz and 5 GHz. When the integrated antenna version is ordered, this antenna is attached to the access point and provides omnidirectional coverage in a low-profile package. No connectors are offered for additional external antennas.	2.4 GHz: 2 dBi 5 GHz: 4 dBi
<b>Integrated Aironet 1840 Series antenna</b>	Omnidirectional	802.11ac antenna package for both 2.4 GHz and 5 GHz. When the integrated antenna version is ordered, this antenna is attached to the access point and provides omnidirectional coverage in a low-profile package. No connectors are offered for additional external antennas.	2.4 GHz: 4 dBi 5 GHz: 5 dBi
<b>Integrated Aironet 1830/1850 Series antenna</b>	Omnidirectional	802.11ac antenna package for both 2.4 GHz and 5 GHz. When the integrated antenna version is ordered, this antenna is attached to the access point and provides omnidirectional coverage in a low-profile package. No connectors are offered for additional external antennas.	2.4 GHz: 3 dBi 5 GHz: 5 dBi
<b>Integrated Aironet 2800 Series antenna</b>	Omnidirectional	802.11ac antenna package for both 2.4 GHz and 5 GHz. When the integrated antenna version is ordered, this antenna is attached to the access point and provides omnidirectional coverage in a low-profile package. No connectors are offered for additional external antennas.	2.4 GHz: 4 dBi 5 GHz: 6 dBi
<b>Integrated Aironet 3800 Series antenna</b>	Omnidirectional	802.11ac antenna package for both 2.4 GHz and 5 GHz. When the integrated antenna version is ordered, this antenna is attached to the access point and provides omnidirectional coverage in a low-profile package. No connectors are offered for additional external antennas.	2.4 GHz: 4 dBi 5 GHz: 6 dBi
<b>Integrated Aironet 4800 Series antenna</b>	Omnidirectional	802.11ac antenna package for both 2.4 GHz and 5 GHz. When the integrated antenna version is ordered, this antenna is attached to the access point and provides omnidirectional coverage in a low-profile package. No connectors are offered for additional external antennas.	2.4 GHz: 2.5 dBi 5 GHz: 5 dBi

Cisco part number	Antenna type	Description	Gain
<b>Integrated Cisco Catalyst 9105AXi Series antenna</b>	Omnidirectional	802.11ax antenna package for both 2.4 GHz and 5 GHz. When the integrated antenna version is ordered, this antenna is attached to the access point and provides omnidirectional coverage in a low-profile package. No connectors are offered for additional external antennas.	2.4 GHz: 3 dBi 5 GHz: 4 dBi
<b>Integrated Cisco Catalyst 9105AXW Series antenna</b>	Omnidirectional	802.11ax antenna package for both 2.4 GHz and 5 GHz. When the integrated antenna version is ordered, this antenna is attached to the access point and provides omnidirectional coverage in a low-profile package. No connectors are offered for additional external antennas.	2.4 GHz: 3 dBi 5 GHz: 4 dBi
<b>Integrated Cisco Catalyst 9115AX Series antenna</b>	Omnidirectional	802.11ax antenna package for both 2.4 GHz and 5 GHz. When the integrated antenna version is ordered, this antenna is attached to the access point and provides omnidirectional coverage in a low-profile package. No connectors are offered for additional external antennas.	2.4 GHz: 3 dBi 5 GHz: 4 dBi
<b>Integrated Cisco Catalyst 9117AX Series antenna</b>	Omnidirectional	802.11ax antenna package for both 2.4 GHz and 5 GHz. When the integrated antenna version is ordered, this antenna is attached to the access point and provides omnidirectional coverage in a low-profile package. No connectors are offered for additional external antennas.	2.4 GHz: 4 dBi 5 GHz: 6 dBi
<b>Integrated Cisco Catalyst 9120AX Series antenna</b>	Omnidirectional	802.11ax antenna package for both 2.4 GHz and 5 GHz. When the integrated antenna version is ordered, this antenna is attached to the access point and provides omnidirectional coverage in a low-profile package. No connectors are offered for additional external antennas.	2.4 GHz: 4 dBi 5 GHz: 5 dBi
<b>Integrated Cisco Catalyst 9130AX Series antenna</b>	Omnidirectional	802.11ax antenna package for both 2.4 GHz and 5 GHz. When the integrated antenna version is ordered, this antenna is attached to the access point and provides omnidirectional coverage in a low-profile package. No connectors are offered for additional external antennas.	2.4 GHz: 4 dBi 5 GHz: 6 dBi
<b>Integrated Cisco Catalyst 9124AX Series antenna</b>	Omnidirectional	802.11ax antenna package for both 2.4 GHz and 5 GHz. When the integrated antenna version is ordered, this antenna is attached to the access point and provides omnidirectional coverage in a low-profile package. No connectors are offered for additional external antennas.	2.4 GHz: 7 dBi 5 GHz: 7 dBi BLE Antenna Gain: 5 dBi
<b>Integrated Cisco Catalyst 9124AXD Series antenna</b>	Directional	802.11ax antenna package for both 2.4 GHz and 5 GHz. When the integrated antenna version is ordered, this antenna is attached to the access point and provides directional coverage in a low-profile package. No connectors are offered for additional external antennas.	2.4 GHz: 9 dBi 5 GHz: 9 dBi BLE Antenna Gain: 4 dBi
<b>Integrated Cisco Catalyst 9136 Series antenna</b>	Omnidirectional	802.11ax antenna package for 2.4 GHz, 5 GHz and 6 GHz. When the integrated antenna version is ordered, this antenna is attached to the access point and provides omnidirectional coverage in a low-profile package. No connectors are offered for additional external antennas.	2.4 GHz: 4 dBi 5 GHz: 5 dBi 6 GHz: 6 dBi

Cisco part number	Antenna type	Description	Gain
<b>Integrated Cisco Catalyst 9166I Series antenna</b>	Omnidirectional	802.11ax antenna package for 2.4 GHz, 5 GHz and 6 GHz. When the integrated antenna version is ordered, this antenna is attached to the access point and provides omnidirectional coverage in a low-profile package. No connectors are offered for additional external antennas.	2.4 GHz: 3 dBi 5 GHz: 5 dBi 5 GHz(XOR): 5 dBi 6 GHz: 4 dBi
<b>Integrated Cisco Catalyst 9164 Series antenna</b>	Omnidirectional	802.11ax antenna package for 2.4 GHz, 5 GHz and 6 GHz. When the integrated antenna version is ordered, this antenna is attached to the access point and provides omnidirectional coverage in a low-profile package. No connectors are offered for additional external antennas.	2.4 GHz: 3 dBi 5 GHz: 5 dBi 6 GHz: 4 dBi
<b>Integrated Cisco Catalyst 9162 Series antenna</b>	Omnidirectional	802.11ax antenna package for 2.4 GHz, 5 GHz and 6 GHz. When the integrated antenna version is ordered, this antenna is attached to the access point and provides omnidirectional coverage in a low-profile package. No connectors are offered for additional external antennas.	2.4 GHz: 4 dBi 5 GHz: 5 dBi 6 GHz: 5 dBi

## Cisco Aironet cable descriptions

Table 5 defines the cables available for interconnecting the antennas and the radio devices for the Cisco Aironet product line.

**Table 5.** Cisco cables

Cisco part number	Type of cable	Description	Loss at 2.4 GHz	Loss at 5.8 GHz
<b>AIR-CAB002L240-N=</b>	Interconnect	2-ft low-loss cable, one straight N connector, one 90-degree N connector	0.5 dB	0.8 dB
<b>AIR-CAB005LL-N</b>	Interconnect	5-ft low-loss cable, one straight N connector, one 90-degree N connector	0.5 dB	0.8 dB
<b>AIR-CAB005LL-R</b>	Interconnect	5-ft low-loss cable, one RP-TNC plug, one RP-TNC jack	0.5 dB	0.8 dB
<b>AIR-CAB005LL-R-N=</b>	Interconnect	5-ft low-loss cable, one RP-TNC plug, one 90-degree N male connector	0.5 dB	0.8 dB
<b>AIR-CAB010LL-N</b>	Interconnect	10-ft low-loss cable, one straight N connector, one 90-degree N connector	0.9 dB	1.5 dB
<b>AIR-CAB020LL-R</b>	Interconnect	20-ft low-loss cable, one RP-TNC plug, one RP-TNC jack	1.3 dB	2.5 dB
<b>AIR-CAB050LL-R</b>	Interconnect	50-ft low-loss cable, one RP-TNC plug, one RP-TNC jack	3.4 dB	5.75 dB
<b>AIR-CAB100ULL-R</b>	Interconnect	100-ft ultra-low-loss cable, one RP-TNC plug, one RP-TNC jack	4.4 dB	7.25 dB
<b>AIR-CAB150ULL-R</b>	Interconnect	150-ft ultra-low-loss cable, one RP-TNC plug, one RP-TNC jack	6.6 dB	11 dB

Cisco part number	Type of cable	Description	Loss at 2.4 GHz	Loss at 5.8 GHz
AIR-CAB025HZ-N=	Interconnect	25-ft ultra-low-loss cable, two straight N male connectors, ruggedized jacket for use in hazardous locations	2.0 dB	3.5 dB
AIR-ACC2537-060	Bulkhead extender	5-ft (60-in.) RG-58 type cable with one RP-TNC plug and one RP-TNC jack	2 dB	3 dB
AIR-CAB002-D8-R=	Interconnect	2-ft (24-in.) breakout cable with DART-8 connector and eight RP-TNC jacks	2 dB	2.3 dB
AIR-CAB-003-D8-N=	Interconnect	3-ft (36-in.) breakout cable with DART-8 connector and eight N-type (male) connectors	2 dB	2.3 dB
AIR-CAB-003-D8-D8=	Interconnect	3-ft (36-in.) jumper cable with DART-8 connectors (one end straight, one end right angle)	2.1 dB	3.1 dB

**Table 6.** Accessories

Cisco part number	Name	Description
AIR-ACC245LA-R	Lightning arrestor	Supports both 2.4-GHz and 5-GHz operation with RP-TNC connectors. Prevents lightning and related energy surges at the antenna from reaching the radio circuitry. A ground ring is included.
AIR-ACC245LA-N=	Lightning arrestor	Supports both 2.4-GHz and 5-GHz operation with N-type connectors. Prevents lightning and related energy surges at the antenna from reaching the radio circuitry. A ground ring is included.

## Cisco Aironet antenna specifications

The following section provides detailed descriptions, including physical and electrical specifications, for the antennas offered by Cisco for the Cisco Aironet and Cisco Catalyst product lines. A full, detailed installation guide for each antenna can be found at the following:

[https://www.cisco.com/en/US/products/hw/wireless/ps469/prod\\_installation\\_guides\\_list.html](https://www.cisco.com/en/US/products/hw/wireless/ps469/prod_installation_guides_list.html).



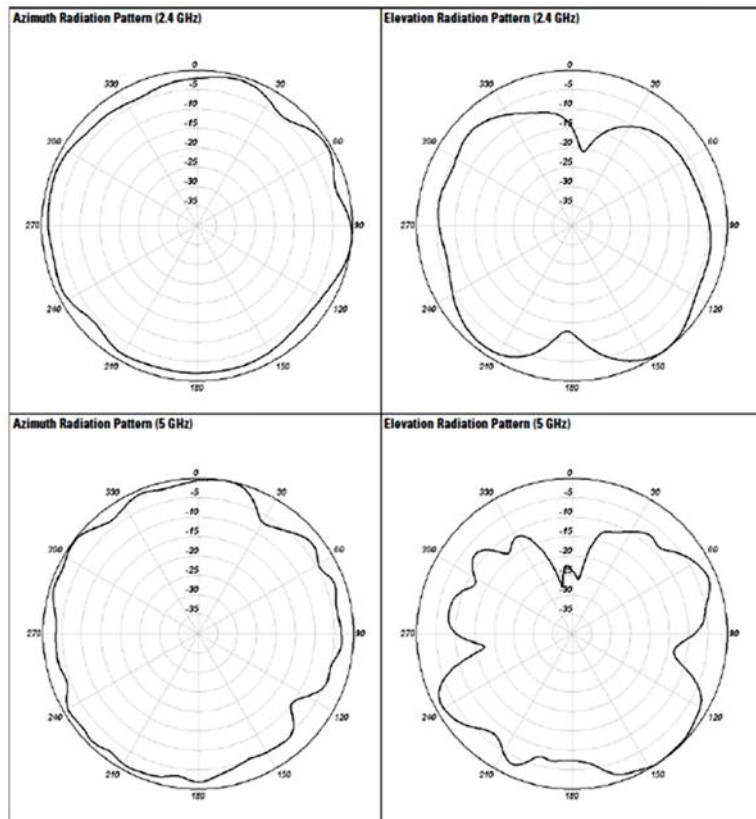
## Dual-band articulating dipole

[AIR-ANT2524DB-R](#), [AIR-ANT2524DG-R](#), [AIR-ANT2524DW-R](#), [AIR-ANT2524DW-RS\(=\)](#)



### Dimensions and mounting specifications

### Azimuth and elevation plane radiation pattern



Dimensions and mounting specifications	Azimuth and elevation plane radiation pattern
Frequency range	2.4 to 2.5 GHz 5.150 to 5.925 GHz
VSWR	Less than 2:1
Gain	2.4 GHz: 2 dBi 5 GHz: 4 dBi
Polarization	Linear
Azimuth 3-dB beamwidth	Omnidirectional
Elevation 3-dB beamwidth	40 degrees
Antenna connector	RP-TNC
Cable length	None
Dimensions	6.6 in. (16.8 cm)
Mounting	To RP-TNC connector

## Dual-band short dipole

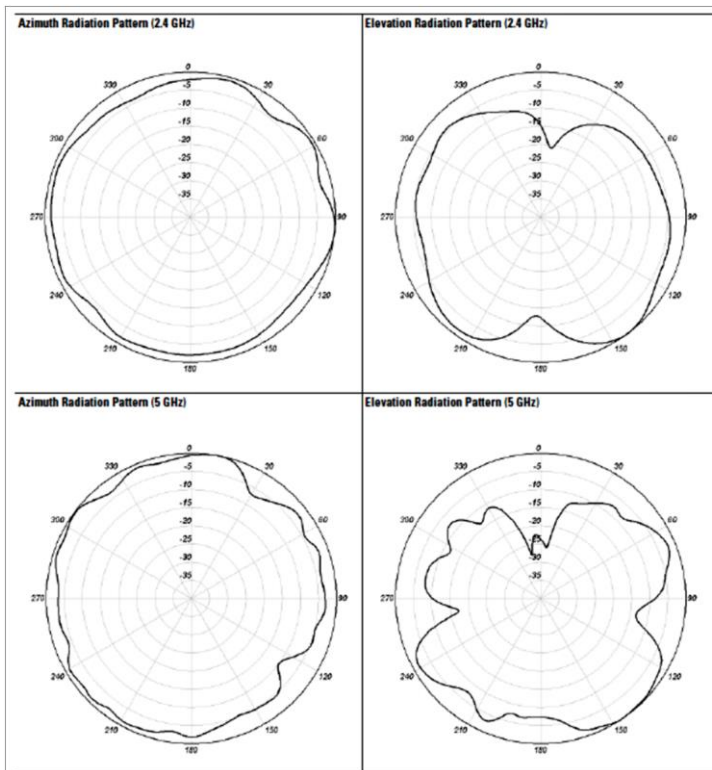
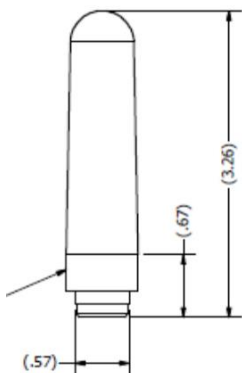
### AIR-ANT2535SDW-R



Dimensions and mounting specifications	Azimuth and elevation plane radiation pattern
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**Dimensions and mounting specifications**

**Azimuth and elevation plane radiation pattern**



**Frequency range**

2.4 to 2.5 GHz  
5.150 to 5.925 GHz

**VSWR**

Less than 2:1

**Gain**

2.4 GHz: 3 dBi  
5 GHz: 5 dBi

**Polarization**

Linear

**Azimuth 3-dB beamwidth**

Omnidirectional

**Elevation 3-dB beamwidth**

40 degrees

**Antenna connector**

RP-TNC

**Cable length**

None

**Dimensions**

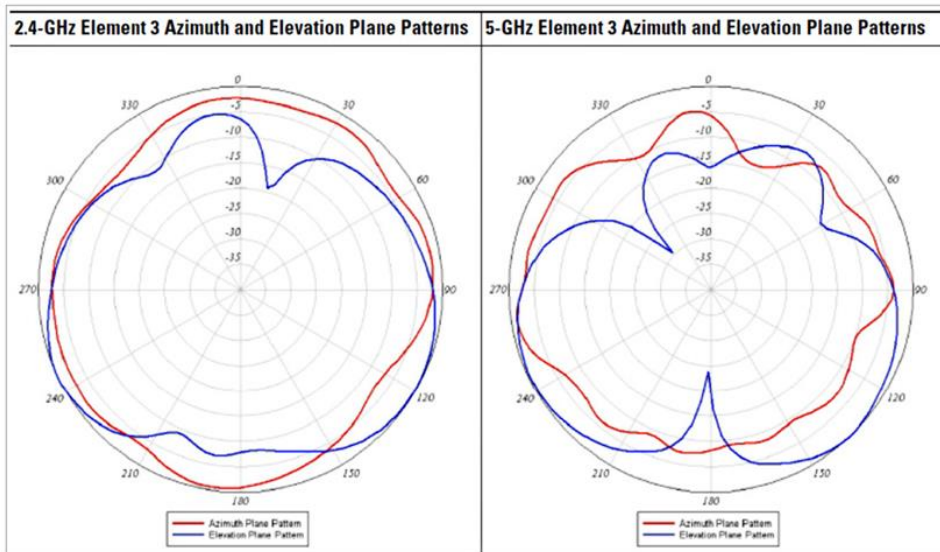
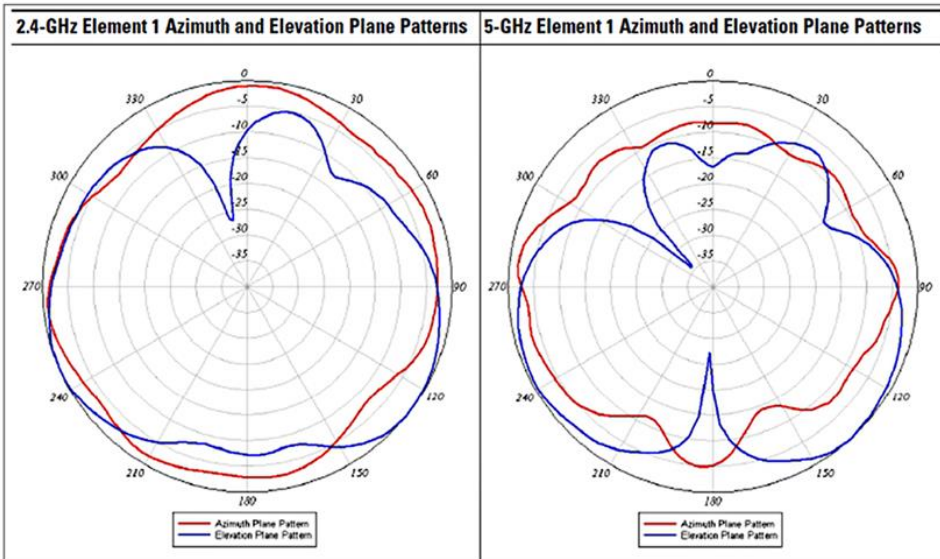
3.3 in. (8.4 cm)

**Mounting**

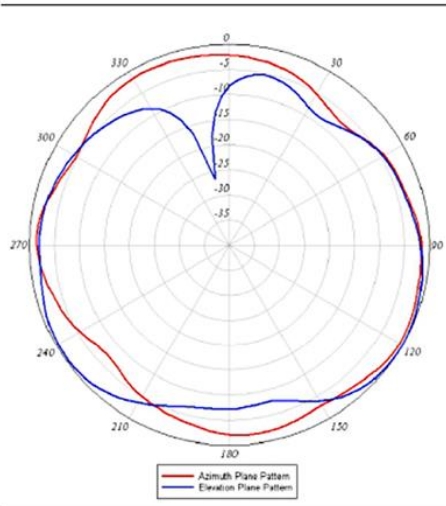
To RP-TNC connector

Dual-band ceiling-mount omnidirectional, 4 elements

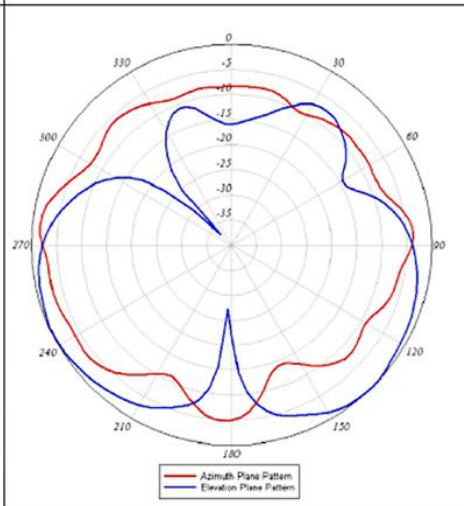
AIR-ANT2524V4C-R(=), AIR-ANT2524V4C-RS(=)



**2.4-GHz Element 2 Azimuth and Elevation Plane Patterns**



**5-GHz Element 2 Azimuth and Elevation Plane Patterns**



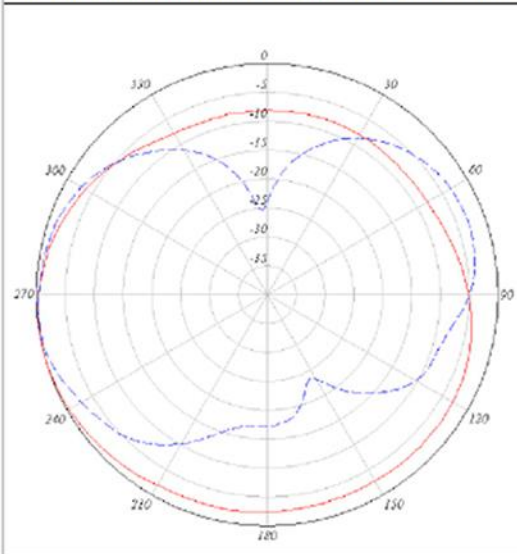
<b>Frequency range</b>	2.400 to 2.484 GHz 5.150 to 5.850 GHz
<b>VSWR</b>	2:1
<b>Gain</b>	<ul style="list-style-type: none"> <li>• 2 dBi in 2.4 GHz</li> <li>• 4 dBi in 5 GHz</li> </ul>
<b>Polarization</b>	Linear
<b>Azimuth 3-dB beamwidth</b>	Omni
<b>Elevation 3-dB beamwidth</b>	<ul style="list-style-type: none"> <li>• 69 degrees in 2.4 GHz</li> <li>• 60 degrees in 5 GHz</li> </ul>
<b>Antenna connector</b>	4 RP-TNC male
<b>Cable length</b>	36 in. (91 cm) plenum rated
<b>Dimensions</b>	7.25 x 7.25 x 1 in (18.4 x 18.4 x 2.5 cm)
<b>Mounting</b>	Ceiling

Dual-band wall-mount omnidirectional, 4 elements

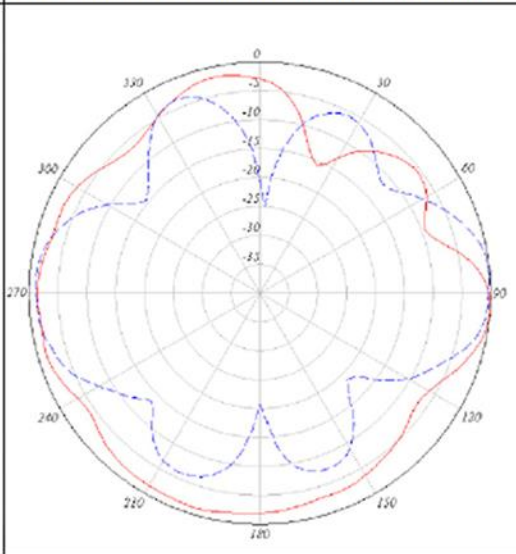
**AIR-ANT2544V4M-R=, AIR-ANT2544V4M-RS=**



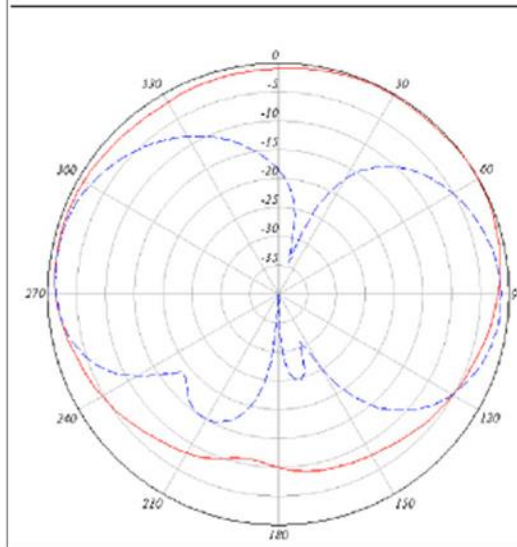
**2.4-GHz Antenna 1 Azimuth and Elevation Plane Patterns**



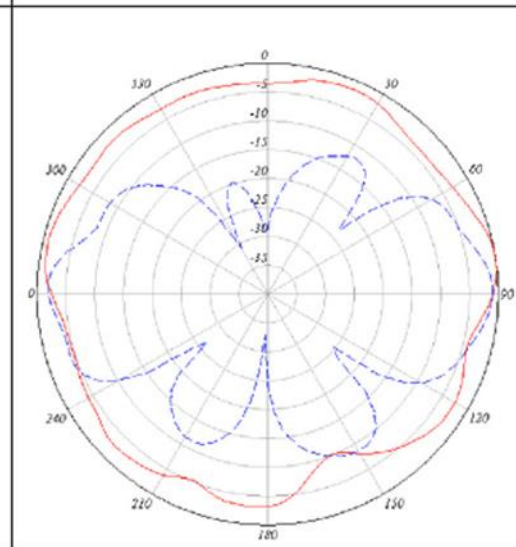
**5-GHz Antenna 1 Azimuth and Elevation Plane Patterns**



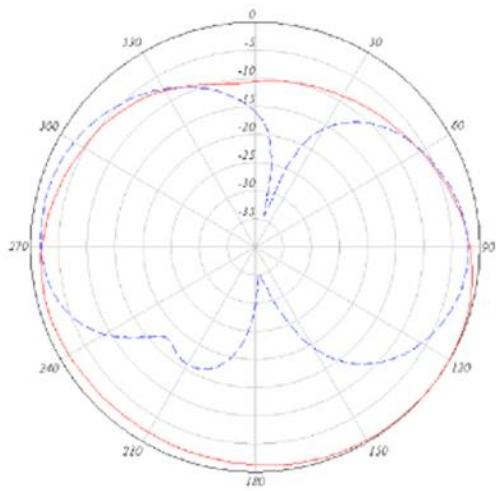
**2.4-GHz Antenna 3 Azimuth and Elevation Plane Patterns**



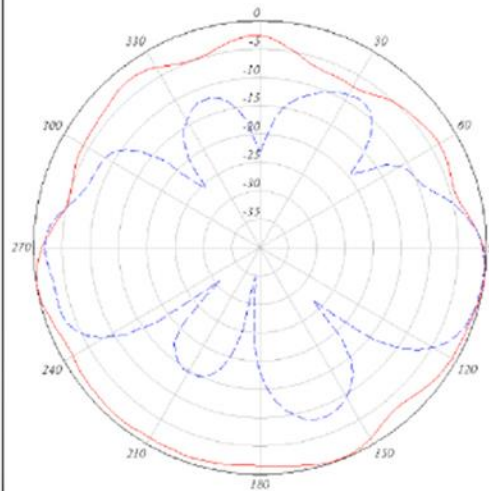
**5-GHz Antenna 3 Azimuth and Elevation Plane Patterns**



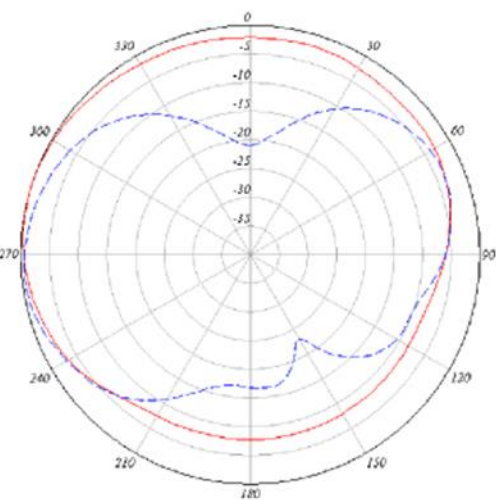
**2.4-GHz Antenna 2 Azimuth and Elevation Plane Patterns**



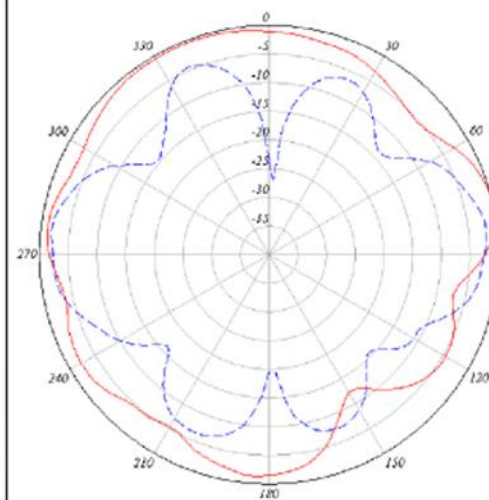
**5-GHz Antenna 2 Azimuth and Elevation Plane Patterns**



**2.4-GHz Antenna 4 Azimuth and Elevation Plane Patterns**



**5-GHz Antenna 4 Azimuth and Elevation Plane Patterns**

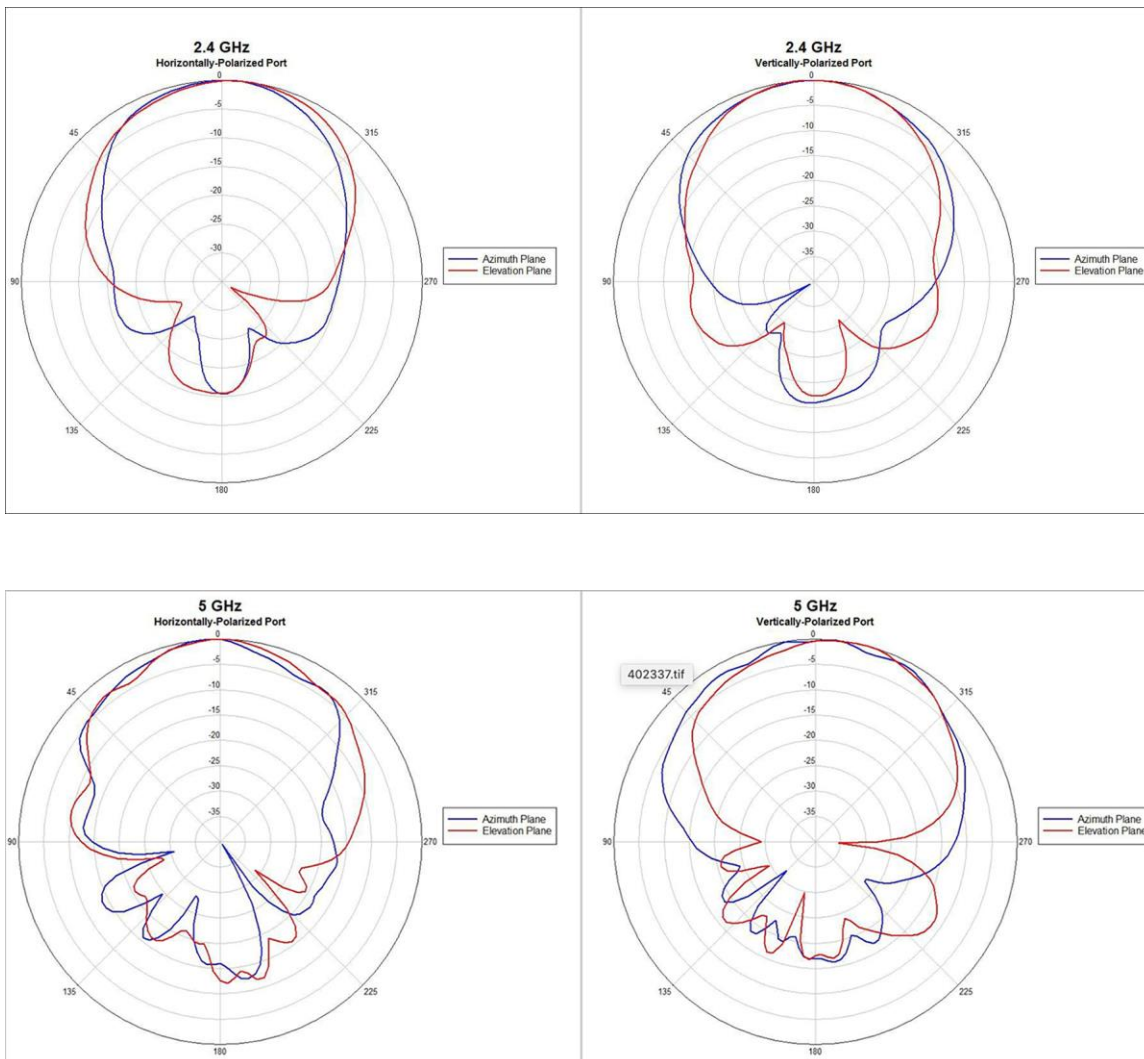


<b>Frequency range</b>	2.400 to 2.484 GHz 5.150 to 5.850 GHz
<b>VSWR</b>	2:1
<b>Gain</b>	<ul style="list-style-type: none"> <li>• 4 dBi in 2.4 GHz</li> <li>• 4 dBi in 5 GHz</li> </ul>
<b>Polarization</b>	Linear

<b>Azimuth 3-dB beamwidth</b>	Omnidirectional
<b>Elevation 3-dB beamwidth</b>	<ul style="list-style-type: none"> <li>• 60 degrees in 2.4 GHz</li> <li>• 33 degrees in 5 GHz</li> </ul>
<b>Antenna connector</b>	4 RP-TNC male
<b>Cable length</b>	36 in. (91 cm) plenum rated
<b>Dimensions</b>	8.6 x 6.3 in. dia. (21.8 x 16 cm dia.)
<b>Mounting</b>	Wall or mast

## Dual-band wall-mount directional array antenna

**AIR-ANT2566D4M-R(=), AIR-ANT2566D4M-RS(=)**

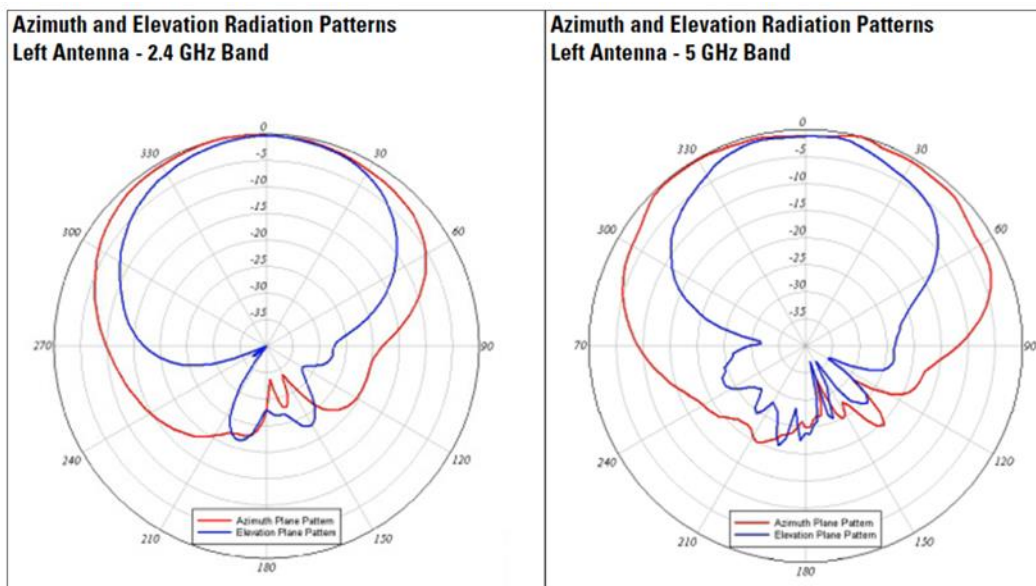




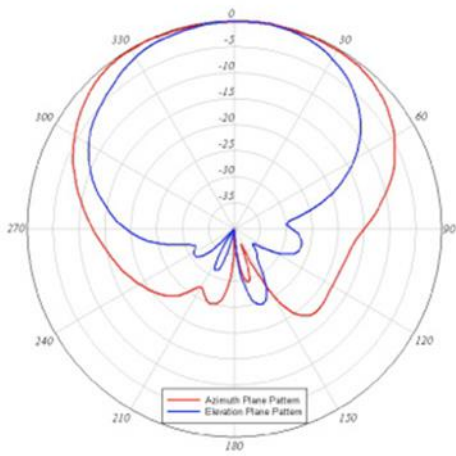
<b>Frequency range</b>	2.400 to 2.484 GHz 5.150 to 5.850 GHz
<b>VSWR</b>	2:1
<b>Gain</b>	<ul style="list-style-type: none"> <li>• 6 dBi in 2.4 GHz</li> <li>• 6 dBi in 5 GHz</li> </ul>
<b>Polarization</b>	Linear
<b>Azimuth 3-dB beamwidth</b>	<ul style="list-style-type: none"> <li>• 65 degrees in 2.4 GHz</li> <li>• 55 degrees in 5 GHz</li> </ul>
<b>Elevation 3-dB beamwidth</b>	<ul style="list-style-type: none"> <li>• 60 degrees in 2.4 GHz</li> <li>• 55 degrees in 5 GHz</li> </ul>
<b>Antenna connector</b>	4 RP-TNC male
<b>Cable length</b>	36 in. (91 cm)
<b>Mounting</b>	Wall or mast

## Dual-band wall-mount patch, 4 elements

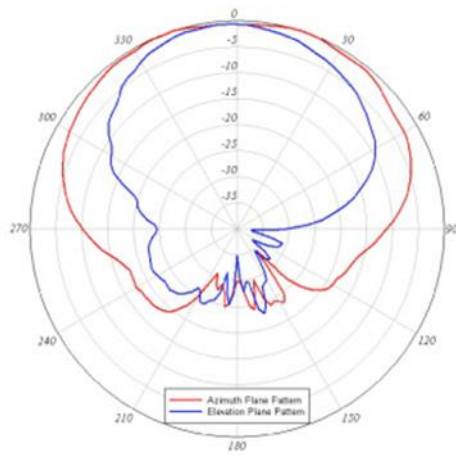
[AIR-ANT2566P4W-R=](#), [AIR-ANT2566P4W-RS=](#)



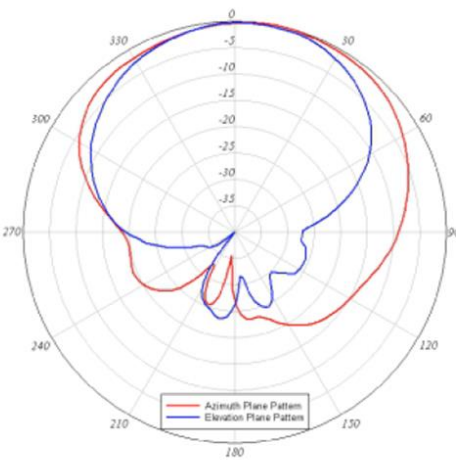
**Azimuth and Elevation Radiation Patterns  
Left Center Antenna - 2.4 GHz Band**



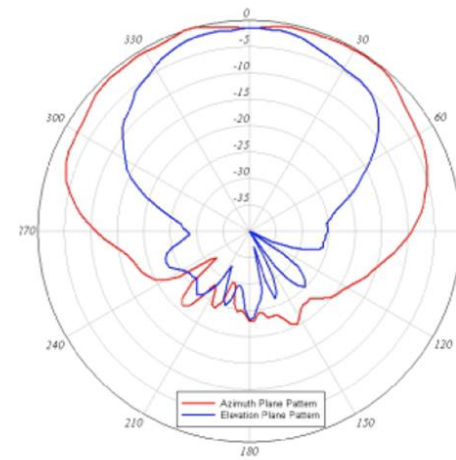
**Azimuth and Elevation Radiation Patterns  
Left Center Antenna - 5 GHz Band**



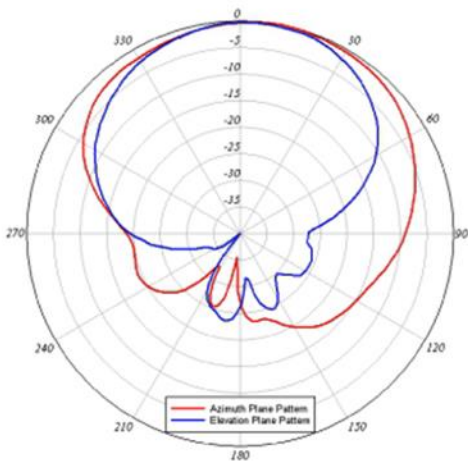
**Azimuth and Elevation Radiation Patterns  
Right Antenna - 2.4 GHz Band**



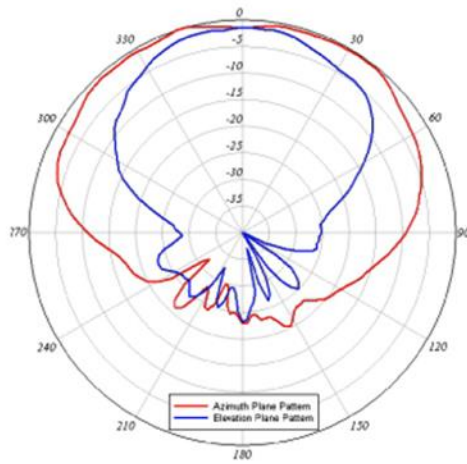
**Azimuth and Elevation Radiation Patterns  
Right Antenna - 5 GHz Band**



**Azimuth and Elevation Radiation Patterns  
Right Antenna - 2.4 GHz Band**



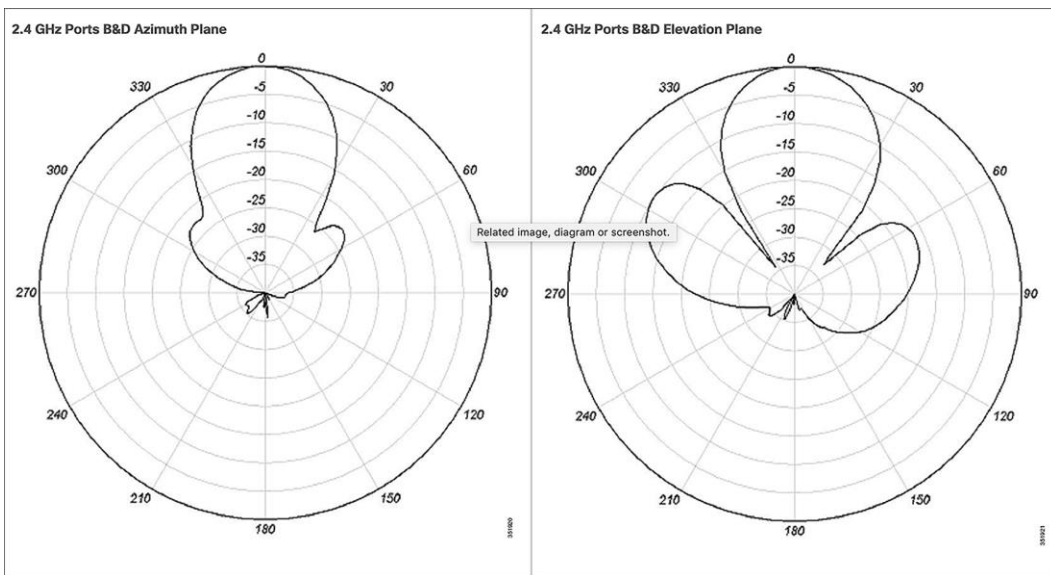
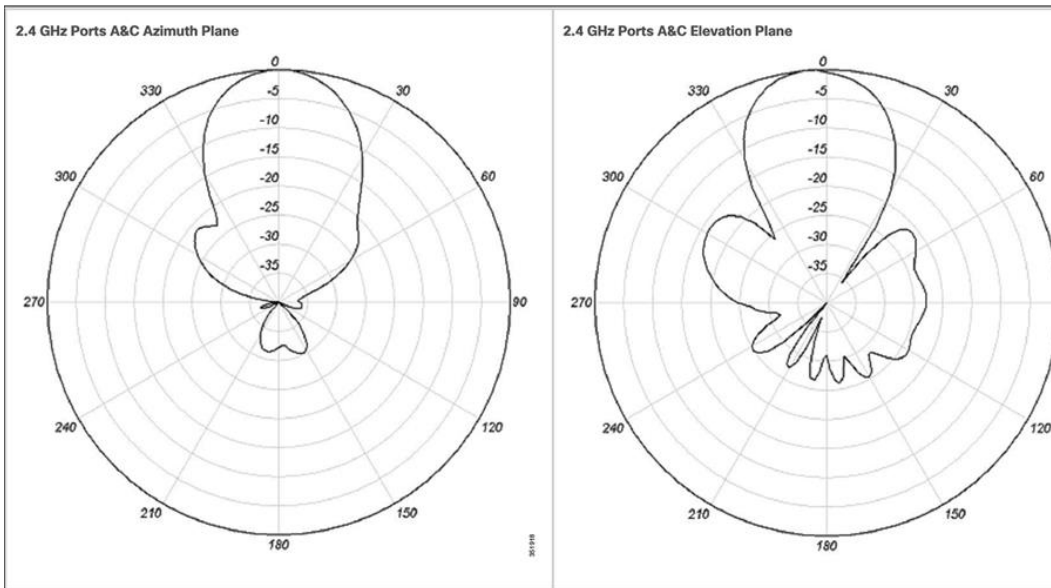
**Azimuth and Elevation Radiation Patterns  
Right Antenna - 5 GHz Band**

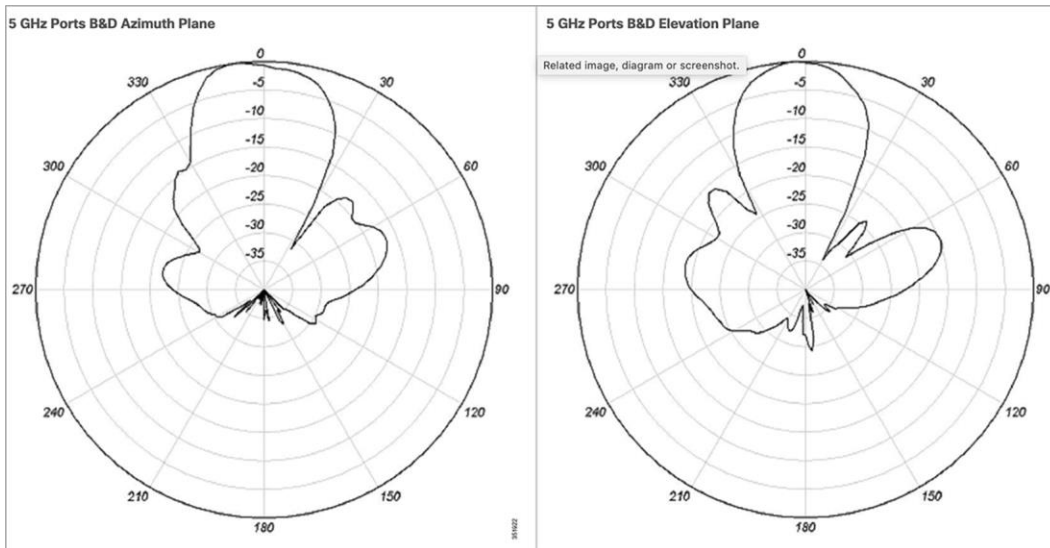
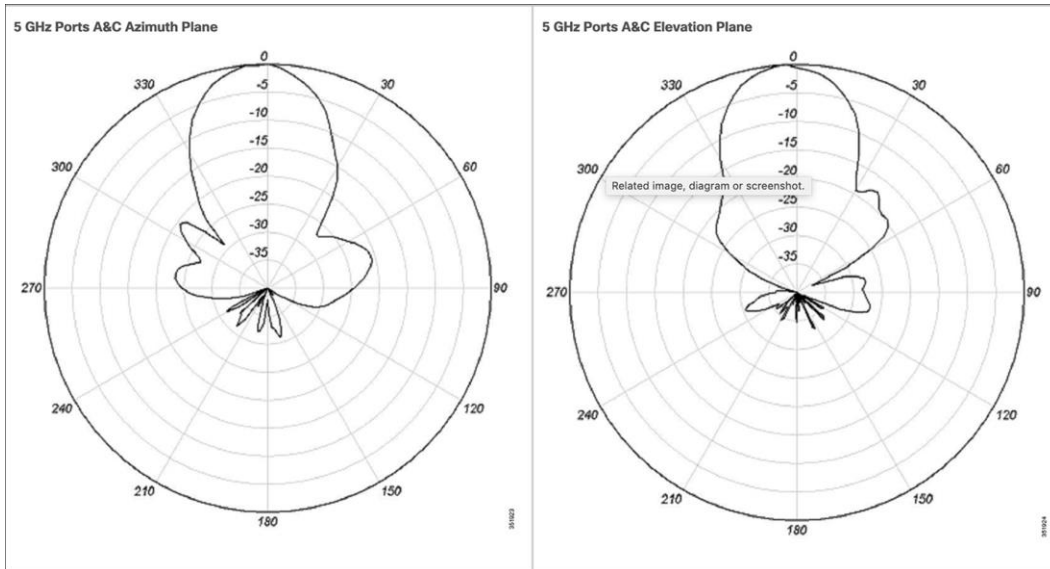


<b>Frequency range</b>	2.400 to 2.484 GHz 5.150 to 5.850 GHz
<b>VSWR</b>	2:1
<b>Gain</b>	<ul style="list-style-type: none"> <li>• 6 dBi in 2.4 GHz</li> <li>• 6 dBi in 5 GHz</li> </ul>
<b>Polarization</b>	Linear
<b>Azimuth 3-dB beamwidth</b>	<ul style="list-style-type: none"> <li>• 105 degrees in 2.4 GHz</li> <li>• 125 degrees in 5 GHz</li> </ul>
<b>Elevation 3-dB beamwidth</b>	<ul style="list-style-type: none"> <li>• 70 degrees in 2.4 GHz</li> <li>• 60 degrees in 5 GHz</li> </ul>
<b>Antenna connector</b>	4 RP-TNC male
<b>Cable length</b>	36 in. (91 cm) plenum rated
<b>Dimensions</b>	11 x 6.3 x 1.2 in (28 x 16 x 3 cm)
<b>Mounting</b>	Wall

# Dual-band wall-mount stadium antenna

**AIR-ANT2513P4M-N, AIR-ANT2513P4M-NS=**





<b>Frequency range</b>	2.4 to 2.5 GHz 5.15 to 5.925 GHz
<b>VSWR</b>	2.4 GHz: 1.6:1 5.7 to 5.9 GHz: 1.5:1 5.15 to 5.7 GHz: 2:1
<b>Gain</b>	<ul style="list-style-type: none"> <li>• 13 dBi in 2.4 GHz</li> <li>• 13 dBi in 5 GHz</li> </ul>
<b>Polarization</b>	Linear
<b>Azimuth 3-dB beamwidth</b>	<ul style="list-style-type: none"> <li>• 31 degrees in 2.4 GHz</li> <li>• 31 degrees in 5 GHz</li> </ul>

<b>Elevation 3-dB beamwidth</b>	<ul style="list-style-type: none"> <li>• 33 degrees in 2.4 GHz</li> <li>• 27 degrees in 5 GHz</li> </ul>
<b>Antenna connector</b>	N-female bulkhead
<b>Mounting</b>	Wall

2-dBi direct-mount omnidirectional

**AIR-ANT2420V-N**




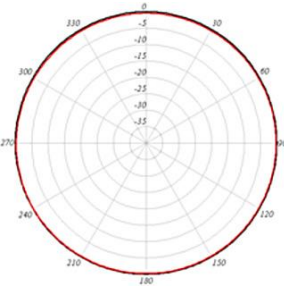
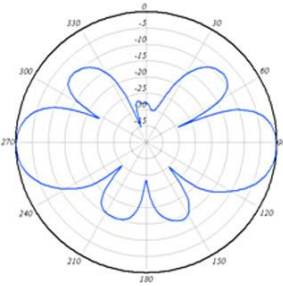
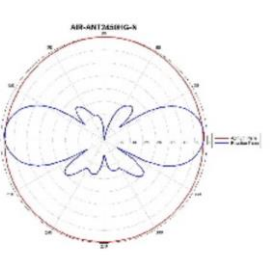
<b>Dimensions and mounting specifications</b>	
<b>Frequency range</b>	2.4 to 2.5 GHz
<b>VSWR</b>	<2:1
<b>Gain</b>	2 dBi
<b>Polarization</b>	Linear, vertical
<b>Azimuth 3-dB beamwidth</b>	Omnidirectional
<b>Elevation 3-dB beamwidth</b>	30 degrees for 2.4 GHz; 14 degrees for 5 GHz
<b>Antenna connector</b>	N-male
<b>Cable length</b>	None
<b>Dimensions</b>	5 x 1 in. (12.7 x 2.5 cm)
<b>Mounting</b>	Direct mount
<b>Wind rating (operational)</b>	125 mph (201 km/h)
<b>Wind rating (survival)</b>	165 mph (265 km/h)

## 5-dBi direct-mount omnidirectional

### AIR-ANT2450V-N, AIR-ANT2450VG-N, AIR-ANT2450V-N-HZ, AIR-ANT2450HG-N

The AIR-ANT2450V-N, AIR-ANT2450VG-N, and AIR-ANT2450V-N-HZ share the same radiation patterns. The AIR-ANT2450HG-N has a different pattern.



Dimensions and mounting specifications	Azimuth plane radiation pattern	Elevation plane radiation pattern	AIR-ANT2450HG-N radiation pattern
			
<b>Frequency range</b>	2.4 to 2.5 GHz		
<b>VSWR</b>	1:7:1 (AIR-ANT2450V-N) 2:1 (AIR-ANT2450VG-N, AIR-ANT2450V-N-HZ, AIR-ANT2450HG-N)		
<b>Gain</b>	5 dBi		
<b>Polarization</b>	Linear AIR-ANT2450V-N: Vertical AIR-ANT2450VG-N: Vertical AIR-ANT2450V-N-HZ: Horizontal AIR-ANT2450HG-N: Horizontal		
<b>Azimuth 3-dB beamwidth</b>	Omnidirectional		
<b>Elevation 3-dB beamwidth</b>	30 degrees		
<b>Antenna connector</b>	N-male		
<b>Cable length</b>	None		

Dimensions and mounting specifications	Azimuth plane radiation pattern	Elevation plane radiation pattern	AIR-ANT2450HG-N radiation pattern
<b>Dimensions</b>	AIR-ANT2450V-N: 11 x 1 in. (27.9 x 2.5 cm) AIR-ANT2450VG-N, AIR-ANT2450V-N-HZ, AIR-ANT2450HG-N: 12.9 x 1.5 in (32.8 x 3.8 cm)		
<b>Mounting</b>	Direct mount		
<b>Wind rating (operational)</b>	AIR-ANT2450V-N: 125 mph (201 km/h) AIR-ANT2450VG-N, AIR-ANT2450V-N-HZ, AIR-ANT2450HG-N: 100 mph (161 kph)		
<b>Wind rating (survival)</b>	AIR-ANT2450V-N: 165 mph (265 km/h)		

## 5.5-dBi omnidirectional

### AIR-ANT2455V-N



Dimensions and mounting specifications	Azimuth plane radiation pattern	Elevation plane radiation pattern
<b>Frequency range</b>	2.4 to 2.83 GHz	
<b>VSWR</b>	2:1 or better	
<b>Gain</b>	5.5 dBi	
<b>Polarization</b>	Linear	



Dimensions and mounting specifications	Azimuth plane radiation pattern	Elevation plane radiation pattern
Azimuth plane 3-dB beamwidth	Omnidirectional	
Elevation plane 3-dB beamwidth	25 degrees	
Connectors	N	
Cable length	None	
Dimensions	12.5 x 1 in. (31.7 x 2.5 cm)	
Mounting	Direct mount	

8-dBi omnidirectional

**AIR-ANT2480V-N(=)**

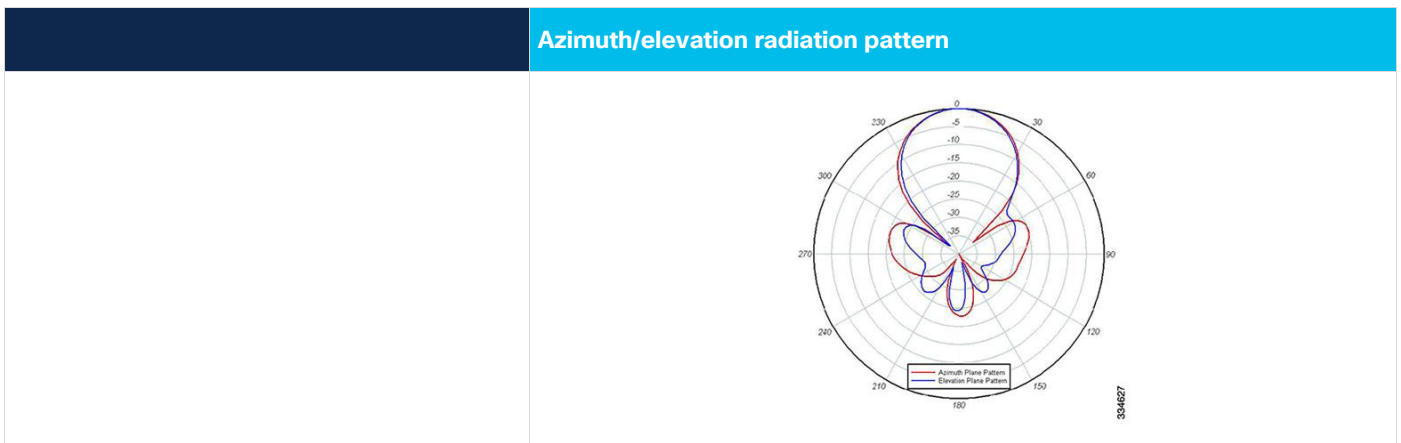


Dimensions and mounting specifications	Azimuth plane radiation pattern	Elevation plane radiation pattern
<p>19 1/2"</p>		

Dimensions and mounting specifications	Azimuth plane radiation pattern	Elevation plane radiation pattern
Frequency range	2.4 to 2.5 GHz	
VSWR	1:6:1	
Gain	8 dBi	
Polarization	Linear, vertical	
Azimuth 3-dB beamwidth	10 degrees	
Elevation 3-dB beamwidth	Omnidirectional	
Antenna connector	N-male	
Cable length	None	
Dimensions	19.5 x 7/8 in. (49.5 x 2.2 cm)	
Mounting	Direct mount	
Wind rating (operational)	100 mph (161 km/h)	
Wind rating (survival)	165 mph (265 km/h)	

## 13-dBi dual-port patch

**AIR-ANT2413P2M-N=**



	Azimuth/elevation radiation pattern
Frequency range	2.400 to 2.484 GHz
VSWR	2:1
Gain	13 dBi
Polarization	Linear, dual
Azimuth 3-dB beamwidth	30 degrees
Elevation 3-dB beamwidth	30 degrees
Antenna connector	2 right-angle N-male
Cable length	30 in. (76 cm)
Dimensions	7.8 x 7.8 x 1.2 in. (19.8 x 19.8 x 3 cm)
Mounting	Wall or mast

#### 4-dBi direct-mount omnidirectional

##### AIR-ANT5140V-N(=)



Dimensions and mounting specifications	
Frequency range	5.25 to 5.875 GHz
VSWR	<2:1
Gain	4 dBi
Polarization	Linear, vertical
Azimuth 3-dB beamwidth	Omni
Elevation 3-dB beamwidth	45 degrees
Antenna connector	N-male
Cable length	None

Dimensions and mounting specifications	
Dimensions	5 x 1 in. (12.7 x 2.5 cm)
Mounting	Direct mount
Wind rating (operational)	125 mph (201 km/h)
Wind rating (survival)	165 mph (265 km/h)

## 8-dBi direct-mount omnidirectional

### AIR-ANT5180V-N



Dimensions and mounting specifications	Azimuth plane radiation pattern	Elevation plane radiation pattern
Frequency range	4.9 to 5.85 GHz	
VSWR	1:7:1	
Gain	8 dBi	
Polarization	Linear, vertical	
Azimuth 3-dB beamwidth	Omnidirectional	
Elevation 3-dB beamwidth	16 degrees	

Dimensions and mounting specifications	Azimuth plane radiation pattern	Elevation plane radiation pattern
Antenna connector	N-male	
Cable length	None	
Dimensions	11 x 1 in. (27.9 x 2.5 cm)	
Mounting	Direct mount	
Wind rating (operational)	125 mph (201 km/h)	
Wind rating (survival)	165 mph (265 km/h)	

5-dBi direct-mount directional

**AIR-ANT5150VG-N, AIR-ANT5150HG-N**



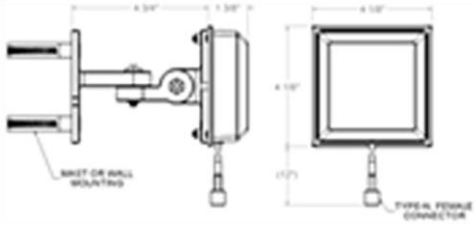
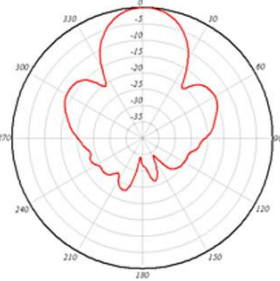
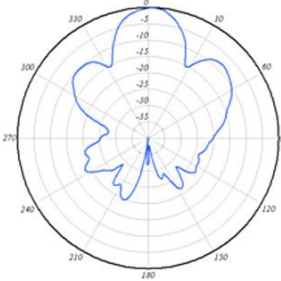
Dimensions and mounting specifications	AIR-ANT5150VG-N radiation pattern	AIR-ANT5150 HG-N radiation pattern
Frequency range	5.150 to 5.925 GHz	
VSWR	2:1	

Dimensions and mounting specifications	AIR-ANT5150VG-N radiation pattern	AIR-ANT5150 HG-N radiation pattern
Gain	5 dBi	
Polarization	Linear AIR-ANT5150VG-N: Vertical AIR-ANT5150HG-N: Horizontal	
Azimuth 3-dB beamwidth	Omnidirectional	
Elevation 3-dB beamwidth	30 degrees	
Antenna connector	N-male	
Cable length	None	
Dimensions	7.8 x 1 in. (20 x 2.5 cm)	
Mounting	Direct mount	
Wind rating (operational)	100 mph (161 km/h)	

## 14-dBi patch

**AIR-ANT5114P-N(=)**



Dimensions and mounting specifications	Azimuth plane radiation pattern	Elevation plane radiation pattern
		
<b>Frequency range</b>	4.9 to 5.85 GHz	
<b>VSWR</b>	2:1	
<b>Gain</b>	<ul style="list-style-type: none"> <li>• 4.9 to 5.4 GHz: 13 dBi</li> <li>• 5.4 to 5.85 GHz: 14 dBi</li> </ul>	
<b>Polarization</b>	Linear, vertical	
<b>Azimuth 3-dB beamwidth</b>	25 degrees	
<b>Elevation 3-dB beamwidth</b>	29 degrees	
<b>Antenna connector</b>	N-female	
<b>Cable length</b>	1 ft. (0.3 m)	
<b>Dimensions</b>	4 1/8 x 4 1/8 in. (1.3 x 1.3 cm)	
<b>Mounting</b>	Wall or mast	

## 14-dBi dual-port patch

**AIR-ANT5114P2M-N=**

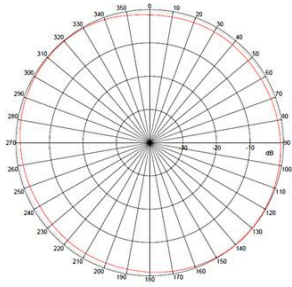
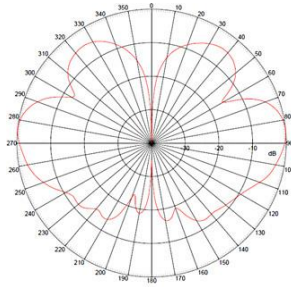
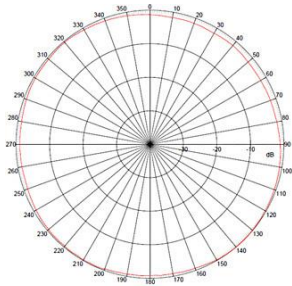
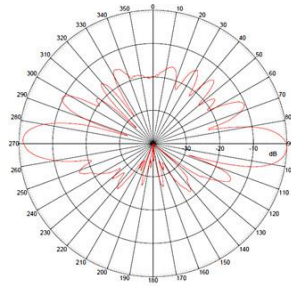


	Azimuth/elevation radiation pattern
<b>Frequency range</b>	5.150 to 5.900 GHz
<b>VSWR</b>	2:1
<b>Gain</b>	14 dBi
<b>Polarization</b>	Linear, dual
<b>Azimuth 3-dB beamwidth</b>	30 degrees
<b>Elevation 3-dB beamwidth</b>	30 degrees
<b>Antenna connector</b>	2 right-angle N-male
<b>Cable length</b>	30 in. (76 cm)
<b>Dimensions</b>	7.8 x 7.8 x 1.2 in. (19.8 x 19.8 x 3 cm)
<b>Mounting</b>	Wall or mast



## Dual-band omnidirectional

### AIR-ANT2547V-N, AIR-ANT2547VG-N, AIR-ANT2547V-N-HZ, AIR-ANT2547VG-NS(=)

2.4-GHz azimuth plane radiation pattern	2.4-GHz elevation plane radiation pattern
	
5-GHz azimuth plane radiation pattern	5-GHz elevation plane radiation pattern
	
<b>Frequency range</b>	2.400 to 2.483 MHz 5.150 to 5.875 MHz
<b>VSWR</b>	2:1
<b>Gain</b>	<ul style="list-style-type: none"> <li>• 4 dBi in 2.4 GHz</li> <li>• 7 dBi in 5 GHz</li> </ul>
<b>Polarization</b>	Linear, vertical
<b>Azimuth 3-dB beamwidth</b>	Omnidirectional
<b>Elevation 3-dB beamwidth</b>	<ul style="list-style-type: none"> <li>• 30 degrees in 2.4 GHz</li> <li>• 14 degrees in 5 GHz</li> </ul>
<b>Antenna connector</b>	N-type male
<b>Cable length</b>	None
<b>Dimensions</b>	11.1 x 1.25 in. dia. (28.2 x 3.2 cm dia.)
<b>Mounting</b>	Direct mount
<b>Wind rating (operational)</b>	100 mph (161 km/h)
<b>Wind rating (survival)</b>	165 mph (265 km/h)

## Dual-band omnidirectional

**AIR-ANT2568VG-N, AIR-ANT2568VG-NS(=)**



2.4-GHz azimuth plane radiation pattern	2.4-GHz elevation plane radiation pattern
5-GHz azimuth plane radiation pattern	5-GHz elevation plane radiation pattern
<b>Frequency range</b>	2.400 to 2.483 GHz 5.150 to 5.925 GHz
<b>VSWR</b>	1.5:1 (2.4 GHz) 2:1 (5 GHz)
<b>Gain</b>	<ul style="list-style-type: none"> <li>• 6 dBi in 2.4 GHz</li> <li>• 8 dBi in 5 GHz</li> </ul>
<b>Polarization</b>	Linear, vertical
<b>Azimuth 3-dB beamwidth</b>	Omnidirectional
<b>Elevation 3-dB beamwidth</b>	<ul style="list-style-type: none"> <li>• 24 degrees in 2.4 GHz</li> <li>• 11 degrees in 5 GHz</li> </ul>

<b>Antenna connector</b>	N-type male
<b>Cable length</b>	None
<b>Dimensions</b>	14.8 x 1.5 in. dia. (37.7 x 3.8 cm dia.)
<b>Mounting</b>	Direct mount
<b>Wind rating (operational)</b>	100 mph (161 km/h)
<b>Wind rating (survival)</b>	136 mph (218 km/h)

## 8-dBi dual-band patch

**AIR-ANT2588P3M-N=**



<b>Frequency range</b>	2.400 to 2.500 GHz 5.150 to 5.900 GHz
<b>VSWR</b>	2:1
<b>Gain</b>	8 dBi, both bands
<b>Polarization</b>	Linear, dual (2 vertical, 1 horizontal)
<b>Azimuth 3-dB beamwidth</b>	120 degrees
<b>Elevation 3-dB beamwidth</b>	30 degrees
<b>Antenna connector</b>	3 N-female
<b>Cable length</b>	None
<b>Dimensions</b>	12 x 7 x 1.1 in. (30.5 x 17.8 x 2.8 cm)
<b>Mounting</b>	Wall or mast

# C-ANT9101



2.4-GHz azimuth plane radiation pattern	5-GHz azimuth plane radiation pattern	2.4-GHz elevation plane radiation pattern	5-GHz elevation plane radiation pattern
<b>Frequency range</b>	<ul style="list-style-type: none"> <li>• 2.4 to 2.484 GHz</li> <li>• 5.15 to 7.125 GHz</li> </ul>		
<b>Gain</b>	<ul style="list-style-type: none"> <li>• 2 dBi at 2.4 GHz</li> <li>• 6 dBi for ports A through D and 3 dBi for ports E through H at 5 GHz</li> </ul>		
<b>Polarization</b>	Dual polarized		
<b>Azimuth 3-dB beamwidth</b>	Omnidirectional		
<b>Antenna connector</b>	DART connector		
<b>Mounting</b>	Ceiling mount		
<b>Antenna type</b>	Omnidirectional		

## C-ANT9102



2.4-GHz azimuth plane radiation pattern	5-GHz azimuth plane radiation pattern	2.4-GHz elevation plane radiation pattern	5-GHz elevation plane radiation pattern
<b>Frequency range</b>	<ul style="list-style-type: none"> <li>• 2.4 to 2.484 GHz</li> <li>• 5.15 to 7.125 GHz</li> </ul>		
<b>Gain</b>	<ul style="list-style-type: none"> <li>• 2.4 GHz: 4 dBi</li> <li>• 5 GHz: 4 dBi</li> </ul>		
<b>Polarization</b>	Dual polarized		
<b>Azimuth 3-dB beamwidth</b>	Omnidirectional		
<b>Elevation 3-dB beamwidth</b>	2.4 GHz = 60 degrees, 5 GHz = 30 degrees		
<b>Antenna connector</b>	DART connector		
<b>Mounting</b>	Wall or pole		
<b>Antenna type</b>	Omnidirectional		

# C-ANT9103



2.4-GHz azimuth plane radiation pattern	5-GHz azimuth plane radiation pattern	2.4-GHz elevation plane radiation pattern	5-GHz elevation plane radiation pattern
<b>Frequency range</b>		<ul style="list-style-type: none"> <li>• 2.4 to 2.484 GHz</li> <li>• 5.15 to 7.125 GHz</li> </ul>	
<b>Gain</b>		<ul style="list-style-type: none"> <li>• 2.4 GHz: 6 dBi</li> <li>• 5 GHz: 6 dBi</li> </ul>	
<b>Polarization</b>		Dual polarized	
<b>Azimuth 3-dB beamwidth</b>		Directional	
<b>Elevation 3-dB beamwidth</b>		2.4 GHz = 75 degrees, 5 GHz = 70 degrees	
<b>Antenna connector</b>		Right-angle DART-8	
<b>Mounting</b>		Wall or pole mount	
<b>Antenna type</b>		Directional	

## Cisco Aironet 1040, 1140, 3500i Series integrated antennas \*



2.4-GHz 4-dBi azimuth plane radiation pattern	5-GHz 3-dBi azimuth plane radiation pattern	2.4-GHz 4-dBi elevation plane radiation pattern	5-GHz 3-dBi elevation plane radiation pattern
<b>Frequency range</b>	<ul style="list-style-type: none"> <li>• 2.4 to 2.5 GHz</li> <li>• 5.15 to 5.85 GHz</li> </ul>		
<b>Gain</b>	<ul style="list-style-type: none"> <li>• 2.4 GHz: 4 dBi</li> <li>• 5 GHz: 3 dBi</li> </ul>		
<b>Polarization</b>	Linear, vertical		
<b>Azimuth 3-dB beamwidth</b>	Omnidirectional		
<b>Elevation 3-dB beamwidth</b>	2.4 GHz = 120 degrees, 5 GHz = 120 degrees		
<b>Antenna connector</b>	Integrated		
<b>Mounting</b>	Integrated		
<b>Antenna type</b>	Omnidirectional		

## Cisco Aironet OEAP600 Series integrated antenna



2.4-GHz 4-dBi azimuth plane radiation pattern	5-GHz 3-dBi azimuth plane radiation pattern	2.4-GHz 4-dBi elevation plane radiation pattern	5-GHz 3-dBi elevation plane radiation pattern
<b>Frequency range</b>	<ul style="list-style-type: none"> <li>• 2.4 to 2.5 GHz</li> <li>• 5.15 to 5.85 GHz</li> </ul>		
<b>Gain</b>	<ul style="list-style-type: none"> <li>• 2.4 GHz: 2 dBi</li> <li>• 5 GHz: 2 dBi</li> </ul>		
<b>Polarization</b>	Linear, vertical		
<b>Azimuth 3-dB beamwidth</b>	Omnidirectional		
<b>Elevation 3-dB beamwidth</b>	2.4 GHz = 120 degrees, 5 GHz = 120 degrees		
<b>Antenna connector</b>	Integrated		
<b>Mounting</b>	Integrated		
<b>Antenna type</b>	Omnidirectional		



## Cisco Aironet 700i Series integrated antennas



2.4-GHz azimuth plane radiation pattern	5-GHz azimuth plane radiation pattern	2.4-GHz elevation plane radiation pattern	5-GHz elevation plane radiation pattern
<b>Frequency range</b>	<ul style="list-style-type: none"> <li>• 2.4 to 2.5 GHz</li> <li>• 5.15 to 5.85 GHz</li> </ul>		
<b>Gain</b>	<ul style="list-style-type: none"> <li>• 2.4 GHz: 3 dBi</li> <li>• 5 GHz: 5 dBi</li> </ul>		
<b>Polarization</b>	Linear, vertical		
<b>Azimuth 3-dB beamwidth</b>	Omnidirectional		
<b>Elevation 3-dB beamwidth</b>	2.4 GHz = 130 degrees, 5 GHz = 130 degrees		
<b>Antenna connector</b>	Integrated		
<b>Mounting</b>	Ceiling		
<b>Antenna type</b>	Omnidirectional		

## Cisco Aironet 700W Series integrated antennas



2.4-GHz radiation pattern	5-GHz radiation pattern
<b>Frequency range</b>	2.4 to 2.5 GHz, 5.150 to 5.850 GHz
<b>Gain</b>	2.4 GHz = 2 dBi 5 GHz = 4 dBi
<b>Polarization</b>	Linear, vertical
<b>Azimuth 3-dB beamwidth</b>	2.4 GHz = 130 degrees, 5 GHz = 80 degrees
<b>Elevation 3-dB beamwidth</b>	2.4 GHz = 180 degrees, 5 GHz = 100 degrees
<b>Antenna connector</b>	Integrated
<b>Mounting</b>	Wall plate

## Cisco Aironet 3600i integrated antennas



2.4-GHz azimuth plane radiation pattern	5-GHz azimuth plane radiation pattern	2.4-GHz elevation plane radiation pattern	5-GHz elevation plane radiation pattern
<p style="text-align: right;"><b>2.4 GHz</b></p>	<p style="text-align: right;"><b>5 GHz</b></p>	<p style="text-align: right;"><b>2.4 GHz</b></p>	<p style="text-align: right;"><b>5 GHz</b></p>
<b>Frequency range</b>	<ul style="list-style-type: none"> <li>• 2.4 to 2.5 GHz</li> <li>• 5.15 to 5.85 GHz</li> </ul>		
<b>Gain</b>	<ul style="list-style-type: none"> <li>• 2.4 GHz: 2 dBi</li> <li>• 5 GHz: 4 dBi</li> </ul>		
<b>Polarization</b>	Linear, vertical		
<b>Azimuth 3-dB beamwidth</b>	Omnidirectional		
<b>Elevation 3-dB beamwidth</b>	2.4 GHz = 120 degrees, 5 GHz = 120 degrees		
<b>Antenna connector</b>	Integrated		
<b>Mounting</b>	Integrated		
<b>Antenna type</b>	Omnidirectional		

## Cisco Aironet 2600i integrated antennas



2.4-GHz azimuth plane radiation pattern	5-GHz azimuth plane radiation pattern	2.4-GHz elevation plane radiation pattern	5-GHz elevation plane radiation pattern
<b>Frequency range</b>		<ul style="list-style-type: none"> <li>• 2.4 to 2.5 GHz</li> <li>• 5.15 to 5.85 GHz</li> </ul>	
<b>Gain</b>		<ul style="list-style-type: none"> <li>• 2.4 GHz: 4 dBi</li> <li>• 5 GHz: 4 dBi</li> </ul>	
<b>Polarization</b>		Linear, vertical	
<b>Azimuth 3-dB beamwidth</b>		Omnidirectional	
<b>Elevations 3-dB beamwidth</b>		2.4 GHz = 120 degrees, 5 GHz = 120 degrees	
<b>Antenna connector</b>		Integrated	
<b>Mounting</b>		Integrated	
<b>Antenna type</b>		Omnidirectional	

## Cisco Aironet 1600i integrated antennas



2.4-GHz azimuth plane radiation pattern	5-GHz azimuth plane radiation pattern	2.4-GHz elevation plane radiation pattern	5-GHz elevation plane radiation pattern
<b>Frequency range</b>	<ul style="list-style-type: none"> <li>• 2.4 to 2.5 GHz</li> <li>• 5.15 to 5.85 GHz</li> </ul>		
<b>Gain</b>	<ul style="list-style-type: none"> <li>• 2.4 GHz: 4 dBi</li> <li>• 5 GHz: 4 dBi</li> </ul>		
<b>Polarization</b>	Linear, vertical		
<b>Azimuth 3-dB beamwidth</b>	Omnidirectional		
<b>Elevation 3-dB beamwidth</b>	2.4 GHz = 120 degrees, 5 GHz = 120 degrees		
<b>Antenna connector</b>	Integrated		
<b>Mounting</b>	Integrated		
<b>Antenna type</b>	Omnidirectional		

## Cisco Aironet 3700i integrated antennas



2.4-GHz azimuth plane radiation pattern	5-GHz azimuth plane radiation pattern	2.4-GHz elevation plane radiation pattern	5-GHz elevation plane radiation pattern
<b>Frequency range</b>	<ul style="list-style-type: none"> <li>• 2.4 to 2.5 GHz</li> <li>• 5.15 to 5.85 GHz</li> </ul>		
<b>Gain</b>	<ul style="list-style-type: none"> <li>• 2.4 GHz: 4 dBi</li> <li>• 5 GHz: 4 dBi</li> </ul>		
<b>Polarization</b>	Linear, vertical		
<b>Azimuth 3-dB beamwidth</b>	Omnidirectional		
<b>Elevation 3-dB beamwidth</b>	2.4 GHz = 120 degrees, 5 GHz = 120 degrees		
<b>Antenna connector</b>	Integrated		
<b>Mounting</b>	Integrated		
<b>Antenna type</b>	Omnidirectional		

## Cisco Aironet 2700i integrated antennas



2.4-GHz azimuth plane radiation pattern	5-GHz azimuth plane radiation pattern	2.4-GHz elevation plane radiation pattern	5-GHz elevation plane radiation pattern
<b>Frequency range</b>		<ul style="list-style-type: none"> <li>• 2.4 to 2.5 GHz</li> <li>• 5.15 to 5.85 GHz</li> </ul>	
<b>Gain</b>		<ul style="list-style-type: none"> <li>• 2.4 GHz: 4 dBi</li> <li>• 5 GHz: 4 dBi</li> </ul>	
<b>Polarization</b>		Linear, vertical	
<b>Azimuth 3-dB beamwidth</b>		Omnidirectional	
<b>Elevation 3-dB beamwidth</b>		2.4 GHz = 120 degrees, 5 GHz = 120 degrees	
<b>Antenna connector</b>		Integrated	
<b>Mounting</b>		Integrated	
<b>Antenna type</b>		Omnidirectional	

## Cisco Aironet 1700i integrated antennas

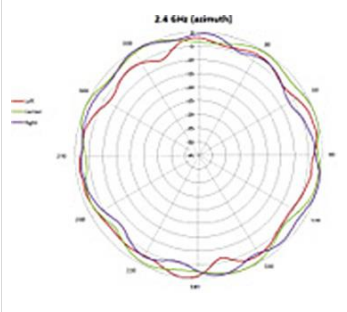
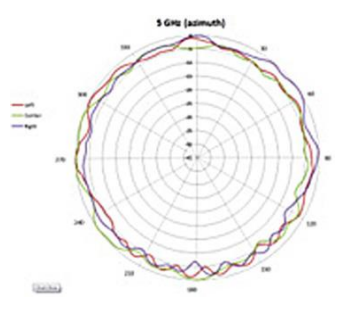
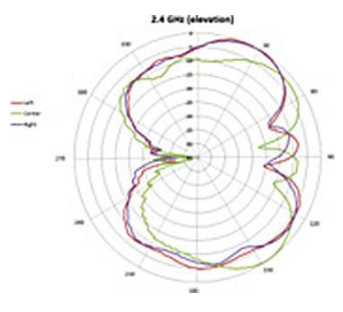
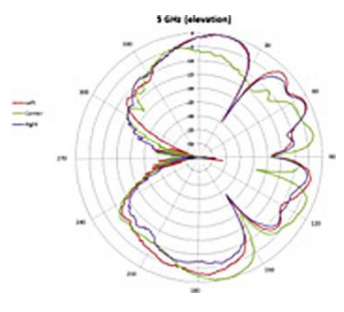


2.4-GHz azimuth plane radiation pattern	5-GHz azimuth plane radiation pattern	2.4-GHz elevation plane radiation pattern	5-GHz elevation plane radiation pattern
<b>Frequency range</b>	<ul style="list-style-type: none"> <li>• 2.4 to 2.5 GHz</li> <li>• 5.15 to 5.85 GHz</li> </ul>		
<b>Gain</b>	<ul style="list-style-type: none"> <li>• 2.4 GHz: 4 dBi</li> <li>• 5 GHz: 4 dBi</li> </ul>		
<b>Polarization</b>	Linear, vertical		
<b>Azimuth 3-dB beamwidth</b>	Omnidirectional		
<b>Elevation 3-dB beamwidth</b>	2.4 GHz = 120 degrees, 5 GHz = 120 degrees		
<b>Antenna connector</b>	Integrated		
<b>Mounting</b>	Integrated		
<b>Antenna type</b>	Omnidirectional		



## Cisco Aironet 1550 Series integrated antenna



2.4-GHz azimuth plane radiation pattern	5-GHz azimuth plane radiation pattern	2.4-GHz elevation plane radiation pattern	5-GHz elevation plane radiation pattern
			
<b>Frequency range</b>	<ul style="list-style-type: none"> <li>• 2.4 to 2.5 GHz</li> <li>• 5.15 to 5.85 GHz</li> </ul>		
<b>Gain</b>	<ul style="list-style-type: none"> <li>• 2.4 GHz: 2 dBi</li> <li>• 5 GHz: 4 dBi</li> </ul>		
<b>Polarization</b>	Linear, vertical		
<b>Azimuth 3-dB beamwidth</b>	Omnidirectional		
<b>Elevation 3-dB beamwidth</b>	2.4 GHz = 120 degrees, 5 GHz = 120 degrees		
<b>Antenna connector</b>	Integrated		
<b>Mounting</b>	Integrated		
<b>Antenna type</b>	Omnidirectional		

## Cisco Aironet 1530 Series integrated antenna



2.4-GHz azimuth plane radiation pattern	5-GHz azimuth plane radiation pattern	2.4-GHz elevation plane radiation pattern	5-GHz elevation plane radiation pattern
<b>Frequency range</b>	<ul style="list-style-type: none"> <li>• 2.4 to 2.5 GHz</li> <li>• 5.15 to 5.85 GHz</li> </ul>		
<b>Gain</b>	<ul style="list-style-type: none"> <li>• 2.4 GHz: 3 dBi</li> <li>• 5 GHz: 5 dBi</li> </ul>		
<b>Polarization</b>	Linear, vertical		
<b>Antenna connector</b>	Integrated		
<b>Mounting</b>	Integrated		
<b>Antenna type</b>	Omnidirectional		

## Cisco Aironet 1570 Series integrated antenna



2.4-GHz azimuth plane radiation pattern	5-GHz azimuth plane radiation pattern	2.4-GHz elevation plane radiation pattern	5-GHz elevation plane radiation pattern
<b>Frequency range</b>		<ul style="list-style-type: none"> <li>• 2.4 to 2.5 GHz</li> <li>• 5.15 to 5.85 GHz</li> </ul>	
<b>Gain</b>		<ul style="list-style-type: none"> <li>• 2.4 GHz: 4 dBi</li> <li>• 5 GHz: 6 dBi</li> </ul>	
<b>Polarization</b>		Linear, vertical	
<b>Antenna connector</b>		Integrated	
<b>Mounting</b>		Integrated	
<b>Antenna type</b>		Omnidirectional	

## Cisco Aironet 1815 (i, t, w, m) Series integrated antenna



2.4-GHz azimuth plane radiation pattern	5-GHz azimuth plane radiation pattern	2.4-GHz elevation plane radiation pattern	5-GHz elevation plane radiation pattern
<b>Frequency range</b>		<ul style="list-style-type: none"> <li>• 2.4 to 2.5 GHz</li> <li>• 5.15 to 5.85 GHz</li> </ul>	
<b>Gain</b>		<ul style="list-style-type: none"> <li>• 2.4 GHz: 2 dBi</li> <li>• 5 GHz: 4 dBi</li> </ul>	
<b>Polarization</b>		Linear, vertical	
<b>Antenna connector</b>		Integrated	
<b>Mounting</b>		Integrated	
<b>Antenna type</b>		Omnidirectional	

## Cisco Aironet 1840 Series integrated antenna



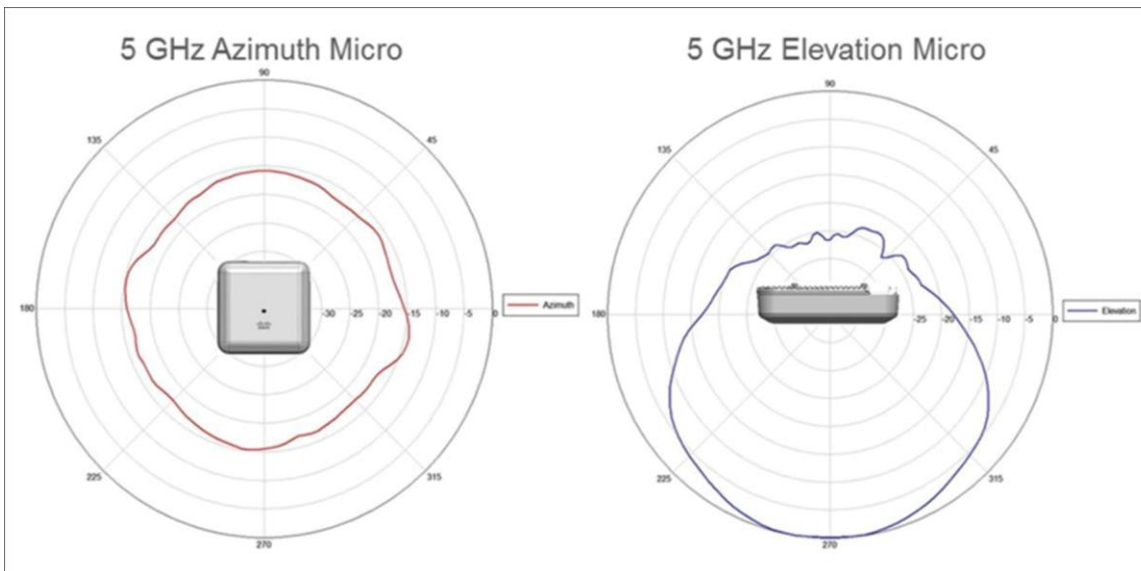
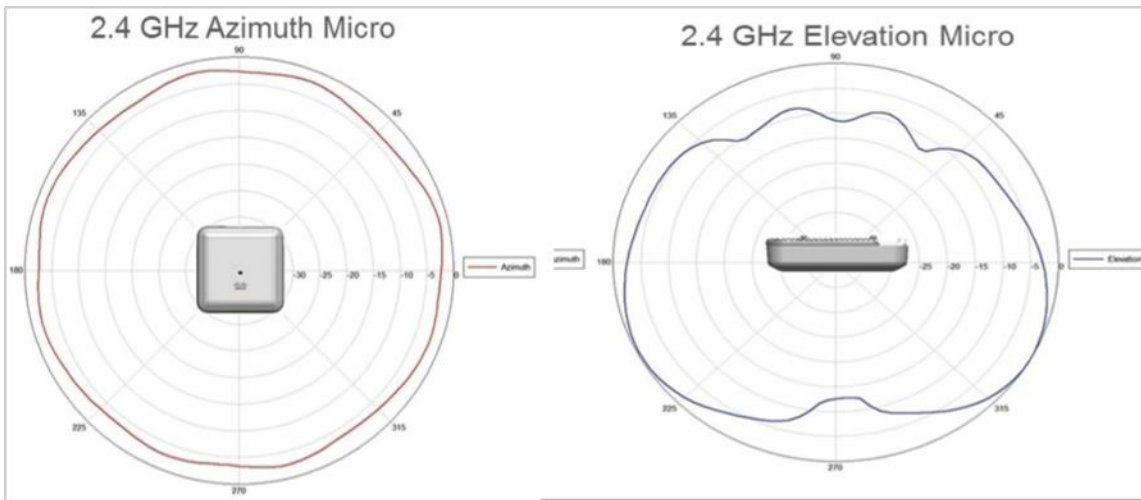
2.4-GHz azimuth plane radiation pattern	5-GHz azimuth plane radiation pattern	2.4-GHz elevation plane radiation pattern	5-GHz elevation plane radiation pattern
<b>Frequency range</b>	<ul style="list-style-type: none"> <li>• 2.4 to 2.5 GHz</li> <li>• 5.15 to 5.85 GHz</li> </ul>		
<b>Gain</b>	<ul style="list-style-type: none"> <li>• 2.4 GHz: 4 dBi</li> <li>• 5 GHz: 5 dBi</li> </ul>		
<b>Polarization</b>	Linear, vertical		
<b>Antenna connector</b>	Integrated		
<b>Mounting</b>	Integrated		
<b>Antenna type</b>	Omnidirectional		

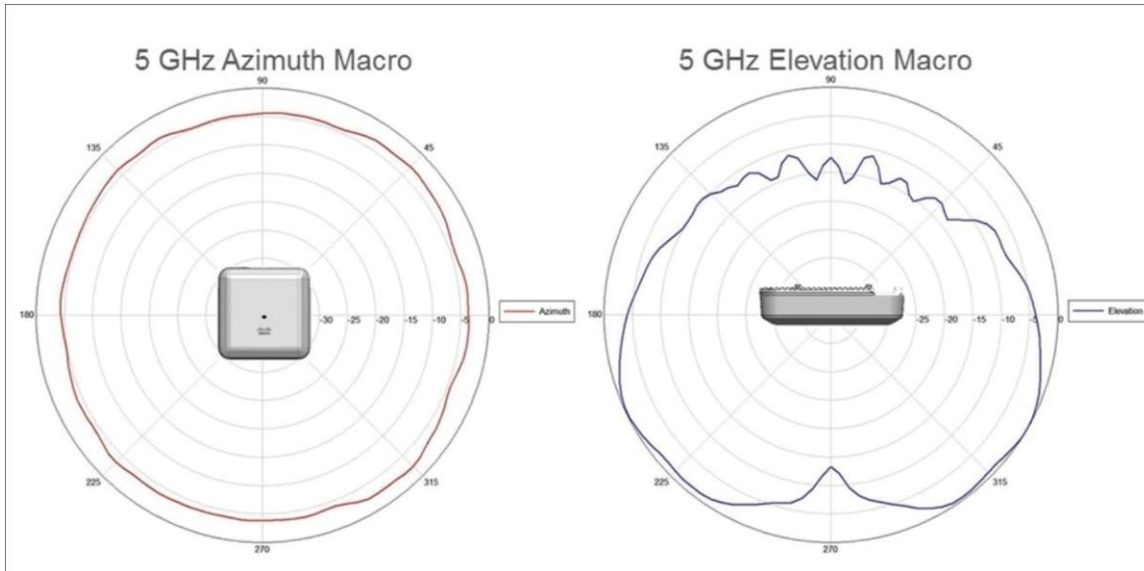
## Cisco Aironet 1830/1850 Series integrated antenna



2.4-GHz azimuth plane radiation pattern	5-GHz azimuth plane radiation pattern	2.4-GHz elevation plane radiation pattern	5-GHz elevation plane radiation pattern
<b>Frequency range</b>	<ul style="list-style-type: none"> <li>• 2.4 to 2.5 GHz</li> <li>• 5.15 to 5.85 GHz</li> </ul>		
<b>Gain</b>	<ul style="list-style-type: none"> <li>• 2.4 GHz: 3 dBi</li> <li>• 5 GHz: 5 dBi</li> </ul>		
<b>Polarization</b>	Linear, vertical		
<b>Antenna connector</b>	Integrated		
<b>Mounting</b>	Integrated		
<b>Antenna type</b>	Omnidirectional		

## Cisco Aironet 2800 and 3800 Series integrated antenna

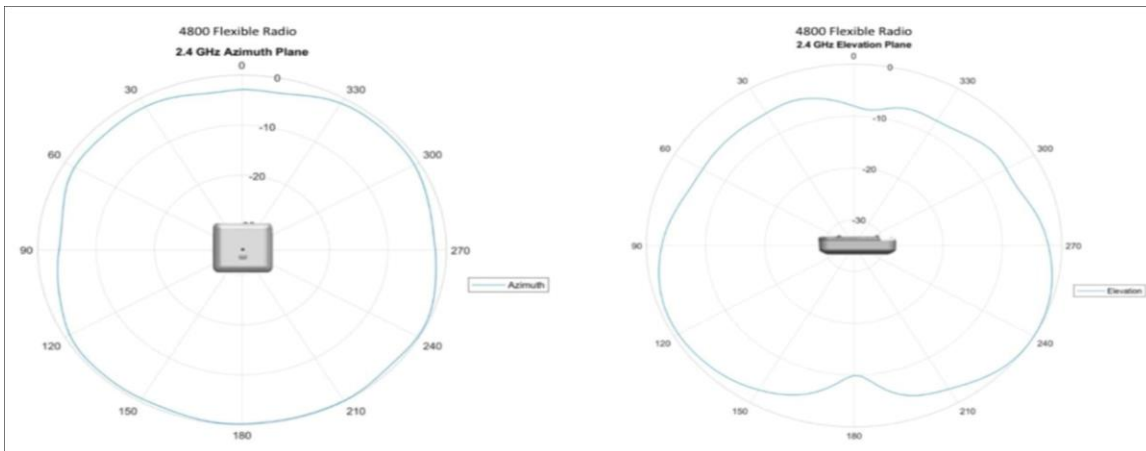


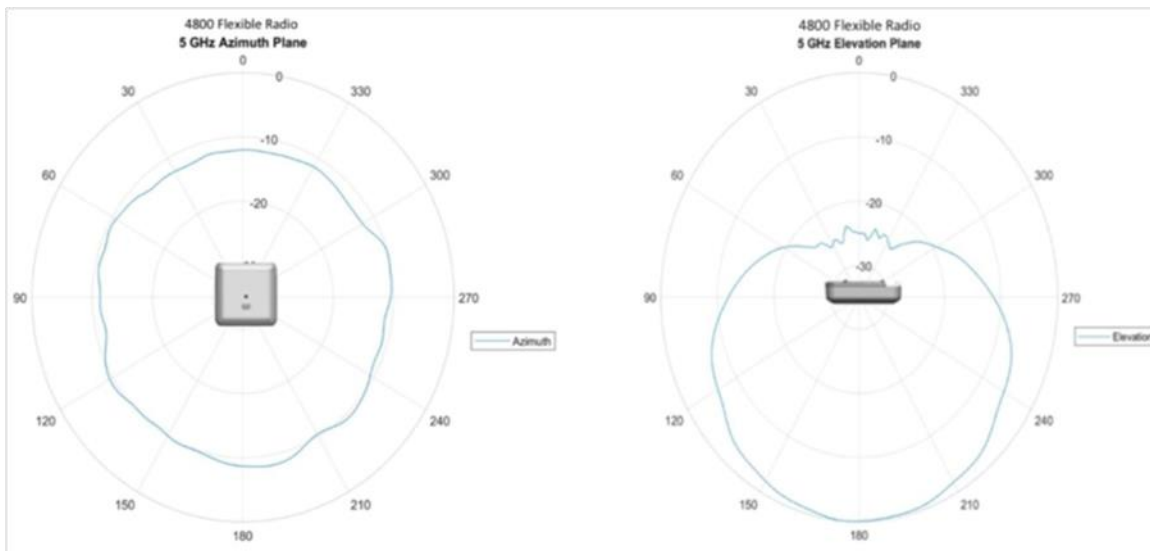
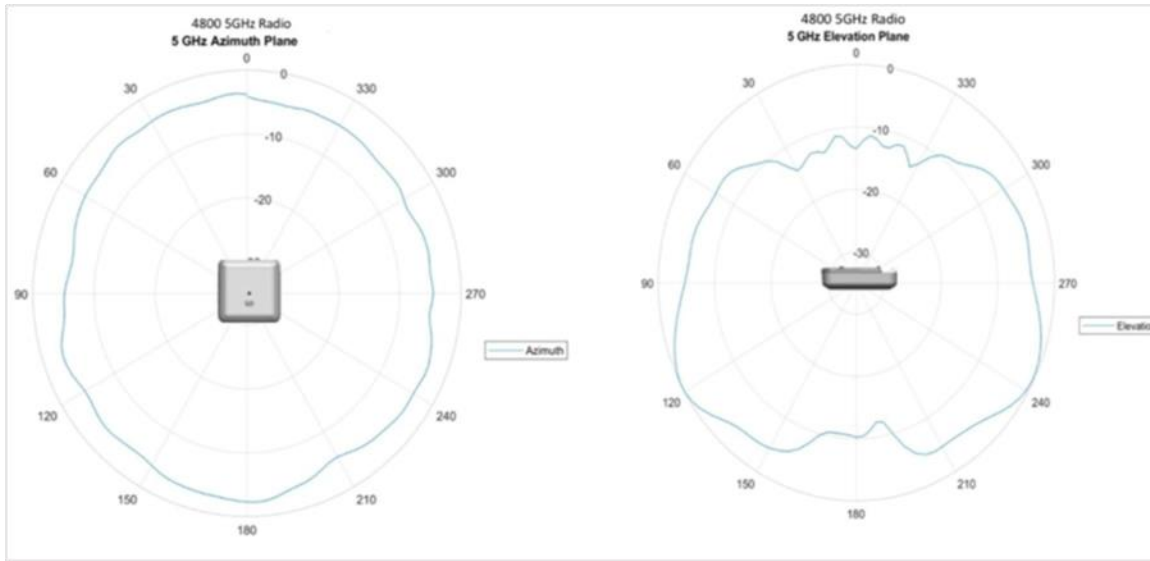


Dimensions and mounting specifications	
<b>Frequency range</b>	2.4 to 2.5 GHz 5.15 to 5.85 GHz
<b>Gain</b>	FRA: 2.4 GHz: 4 dBi, 5 GHz: 6 dBi 5 GHz: 5 dBi
<b>Polarization</b>	Linear, vertical
<b>Mounting</b>	Integrated
<b>Antenna connector</b>	Integrated
<b>Antenna type</b>	FRA: 2.4 GHz: Omnidirectional, 5 GHz: Directional 5 GHz: Omnidirectional



# Cisco Aironet 4800 Series integrated antenna

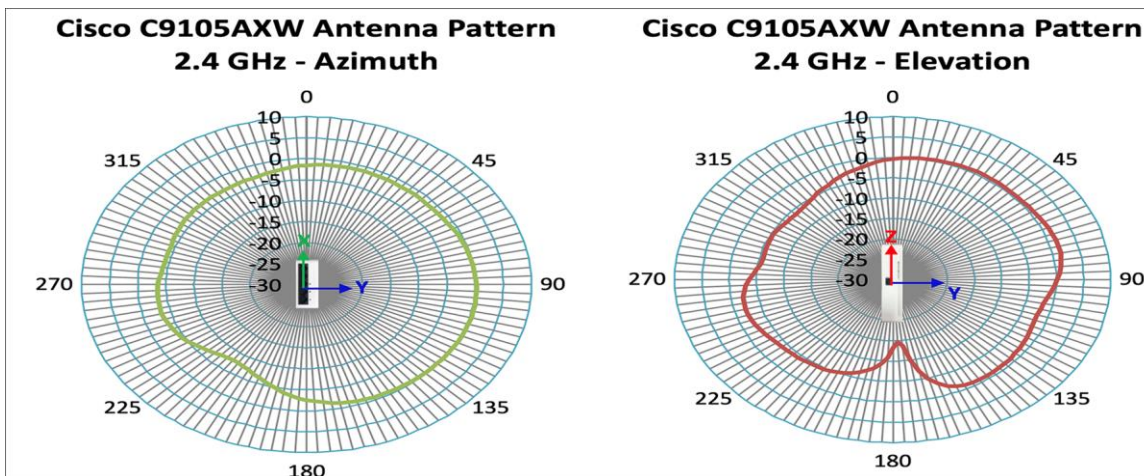


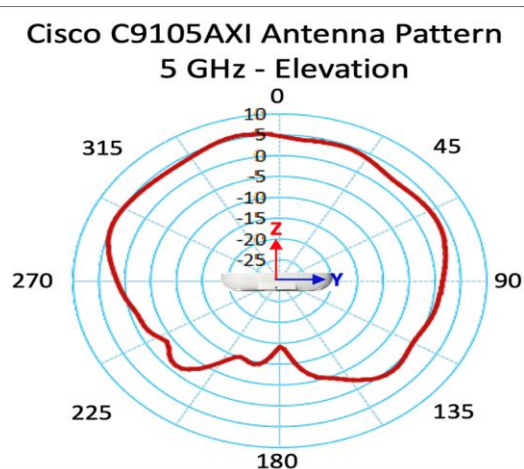
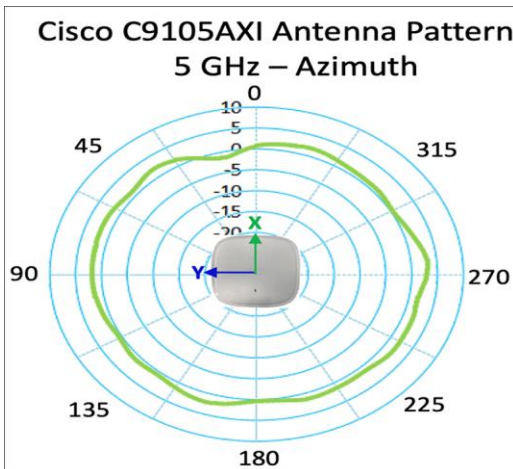
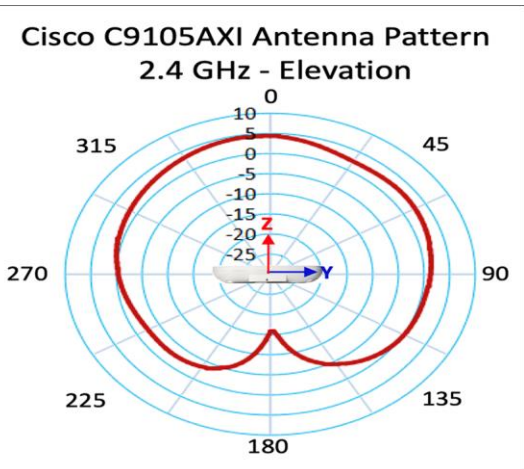
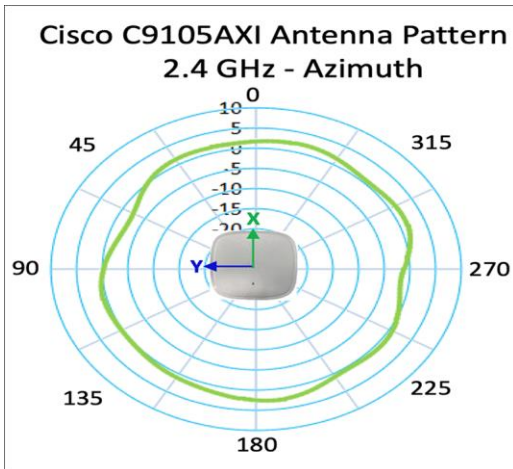
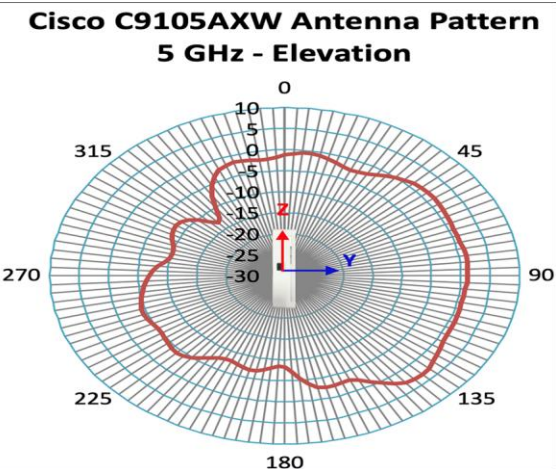
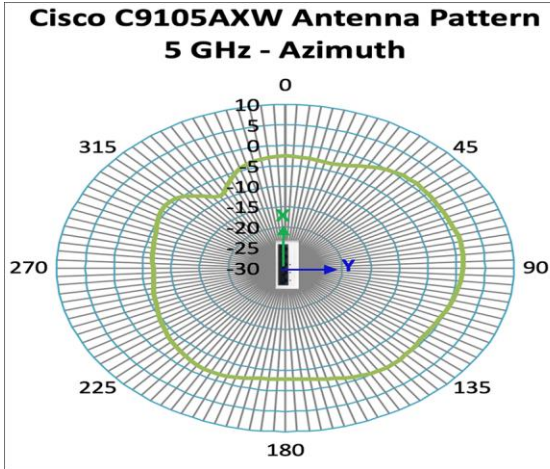


Dimensions and mounting specifications	
Frequency range	2.4 to 2.5 GHz 5.15 to 5.85 GHz
Gain	FRA: 2.4 GHz: 2.5 dBi, 5 GHz: 5 dBi 5 GHz: 3.5 dBi
Polarization	Linear, vertical

Dimensions and mounting specifications	
Mounting	Integrated
Antenna connector	Integrated
Antenna type	FRA: 2.4 GHz: Omnidirectional, 5 GHz: Directional 5 GHz: Omnidirectional

### Cisco Catalyst 9105AX Series integrated antenna





Dimensions and mounting specifications	
<b>Frequency range</b>	<ul style="list-style-type: none"> <li>• 2.4 to 2.5 GHz</li> <li>• 5.15 to 5.85 GHz</li> </ul>
<b>Gain</b>	Catalyst 9105AXW <ul style="list-style-type: none"> <li>• 2.4 GHz: Peak gain 3 dBi</li> <li>• 5 GHz: Peak gain 5 dBi</li> </ul> Catalyst 9105AXI <ul style="list-style-type: none"> <li>• 2.4 GHz: Peak gain 4 dBi</li> <li>• 5 GHz: Peak gain 5 dBi</li> </ul>
<b>Polarization</b>	Linear, vertical
<b>Mounting</b>	Integrated
<b>Antenna connector</b>	Integrated
<b>Antenna type</b>	Omnidirectional

## Cisco Catalyst 9115AX Series integrated antenna

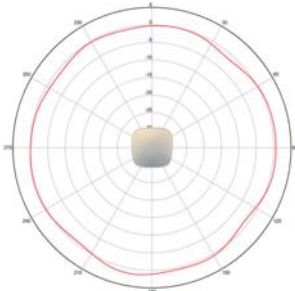
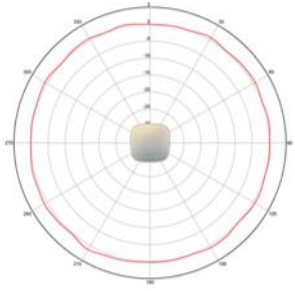
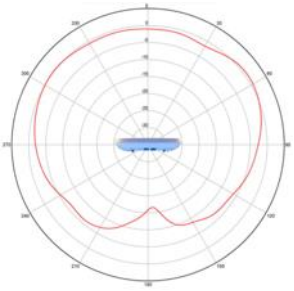
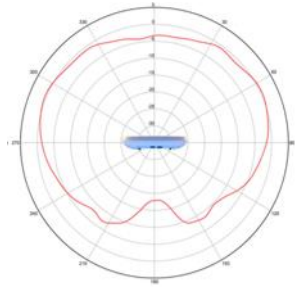


2.4-GHz azimuth plane radiation pattern	5-GHz azimuth plane radiation pattern	2.4-GHz elevation plane radiation pattern	5-GHz elevation plane radiation pattern
<b>Frequency range</b>	<ul style="list-style-type: none"> <li>• 2.4 to 2.5 GHz</li> <li>• 5.15 to 5.85 GHz</li> </ul>		
<b>Gain</b>	<ul style="list-style-type: none"> <li>• 2.4 GHz: 3 dBi</li> <li>• 5 GHz: 4 dBi</li> </ul>		
<b>Polarization</b>	Linear, vertical		

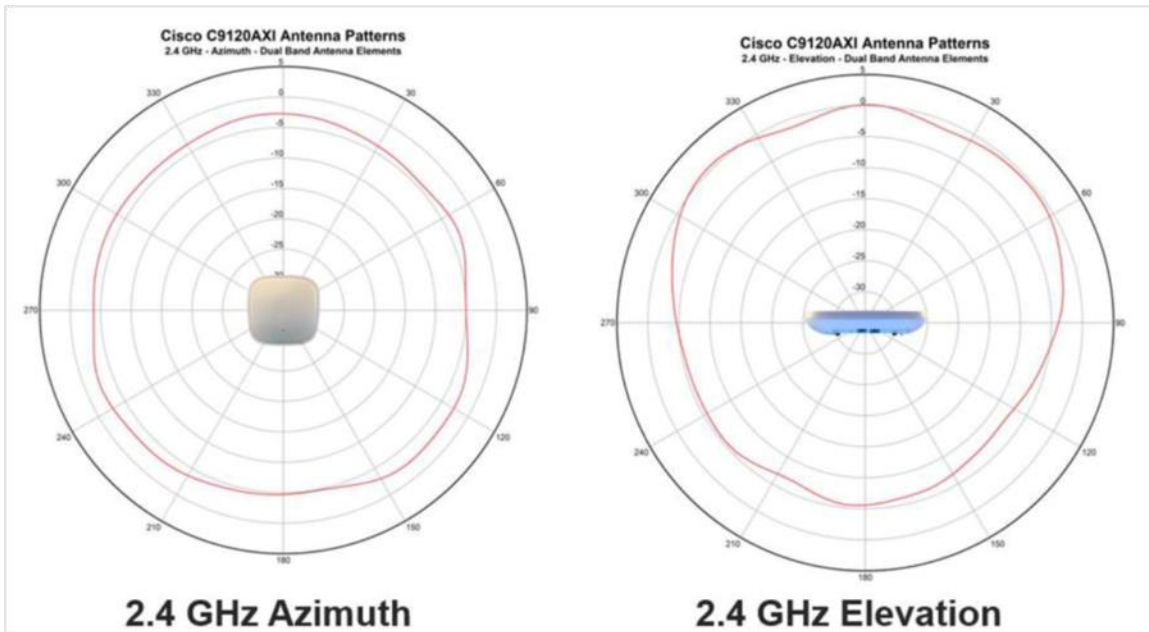
2.4-GHz azimuth plane radiation pattern	5-GHz azimuth plane radiation pattern	2.4-GHz elevation plane radiation pattern	5-GHz elevation plane radiation pattern
<b>Antenna connector</b>		Integrated	
<b>Mounting</b>		Integrated	
<b>Antenna type</b>		Omnidirectional	

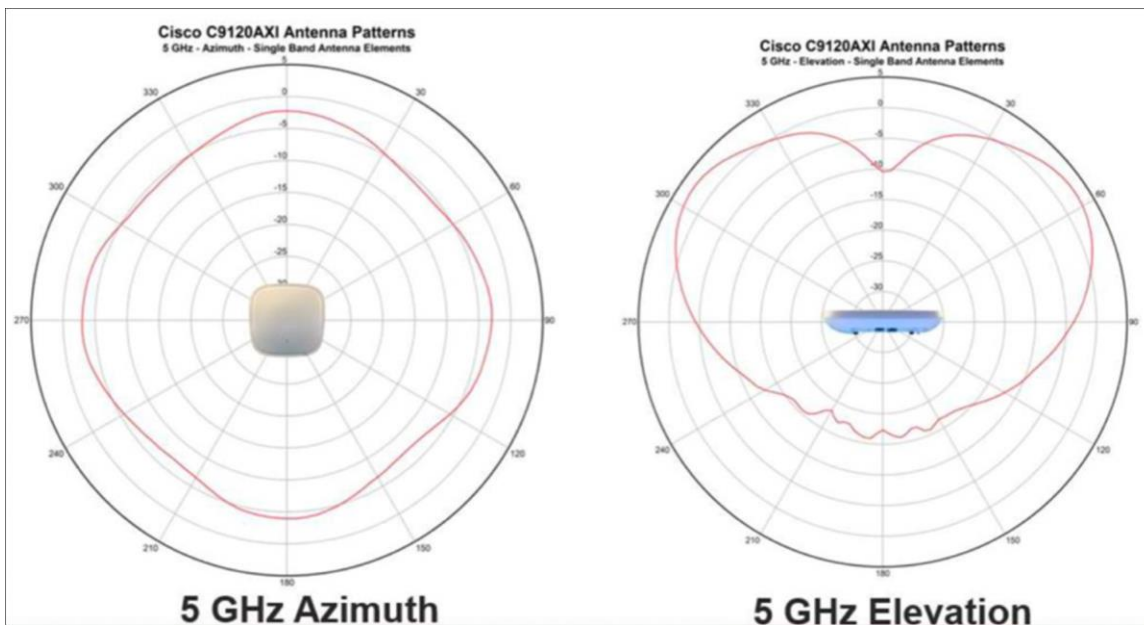
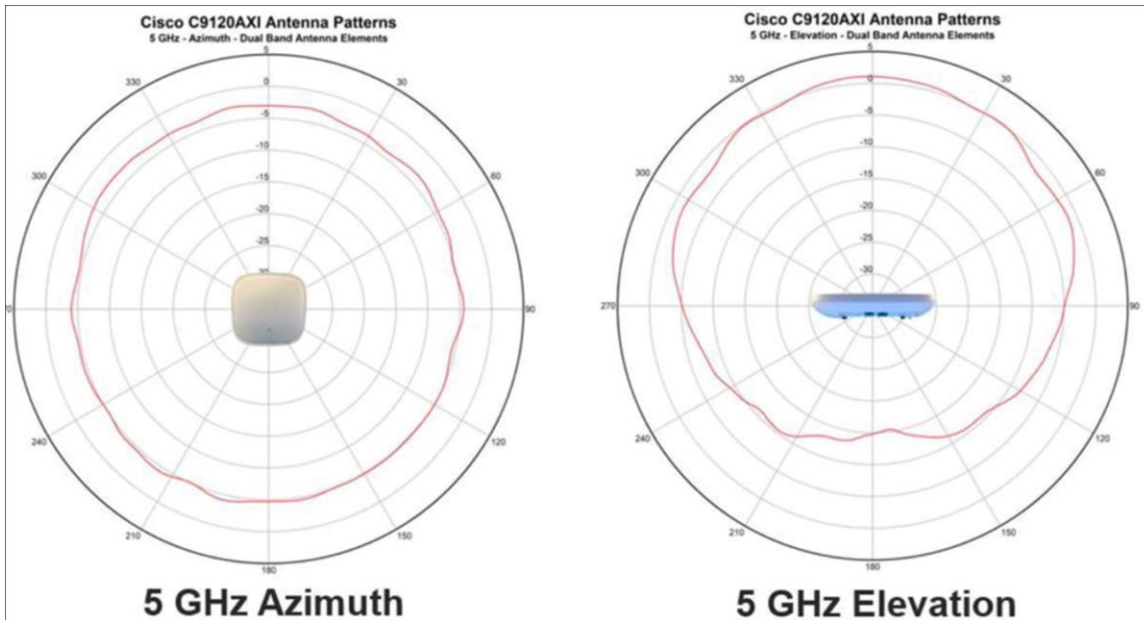
## Cisco Catalyst 9117AX Series integrated antenna



2.4-GHz azimuth plane radiation pattern	5-GHz azimuth plane radiation pattern	2.4-GHz elevation plane radiation pattern	5 GHz, Elevation Plane Radiation Pattern
			
<b>Frequency range</b>		<ul style="list-style-type: none"> <li>• 2.4 to 2.5 GHz</li> <li>• 5.15 to 5.85 GHz</li> </ul>	
<b>Gain</b>		<ul style="list-style-type: none"> <li>• 2.4 GHz: 4 dBi</li> <li>• 5 GHz: 6 dBi</li> </ul>	
<b>Polarization</b>		Linear, vertical	
<b>Antenna connector</b>		Integrated	
<b>Mounting</b>		Integrated	
<b>Antenna type</b>		Omnidirectional	

# Cisco Catalyst 9120AX Series integrated antenna





Dimensions and mounting specifications	
Frequency range	<ul style="list-style-type: none"> <li>• 2.4 to 2.5 GHz</li> <li>• 5.15 to 5.85 GHz</li> </ul>
Gain	<ul style="list-style-type: none"> <li>• FRA: 2.4 GHz: 4 dBi, 5 GHz: 5 dBi</li> <li>• 5 GHz: 4 dBi</li> </ul>
Polarization	Linear, vertical
Mounting	Integrated



## Dimensions and mounting specifications

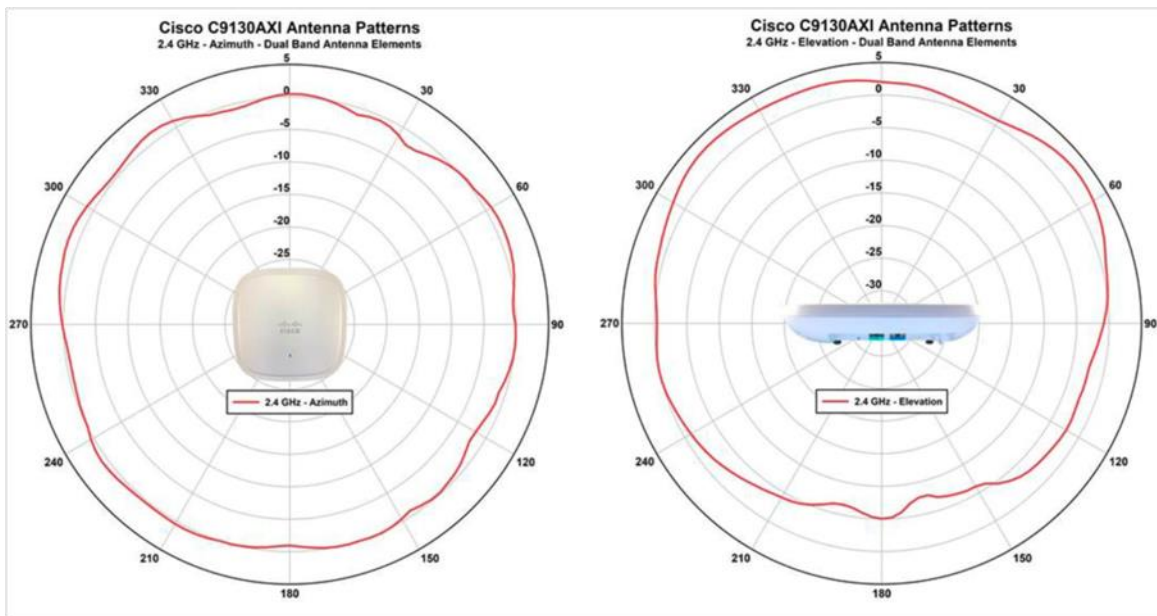
### Antenna connector

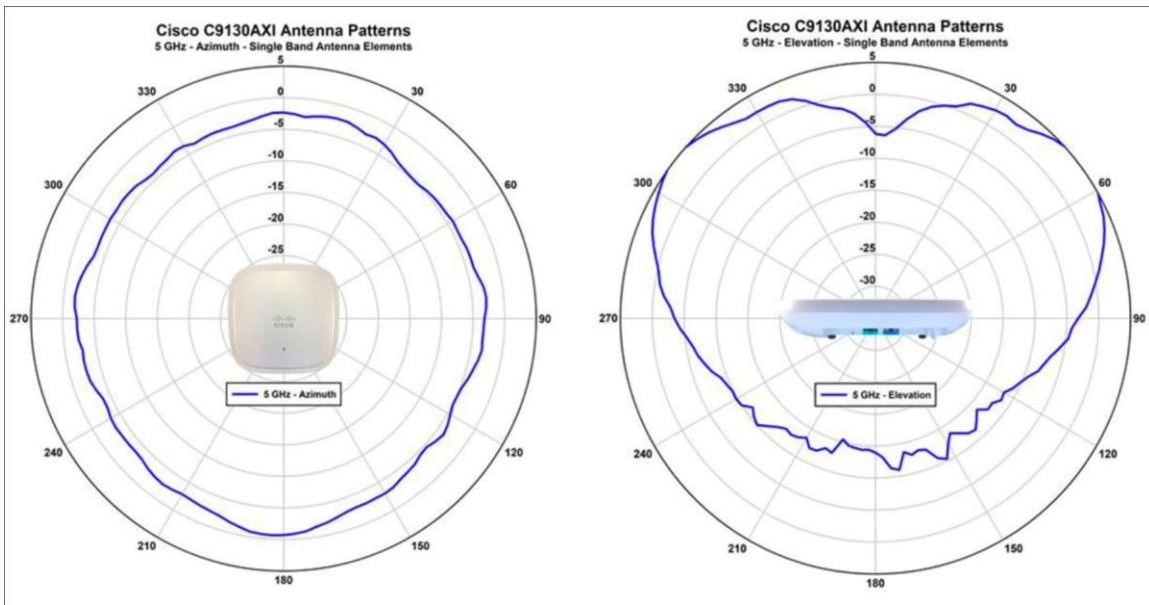
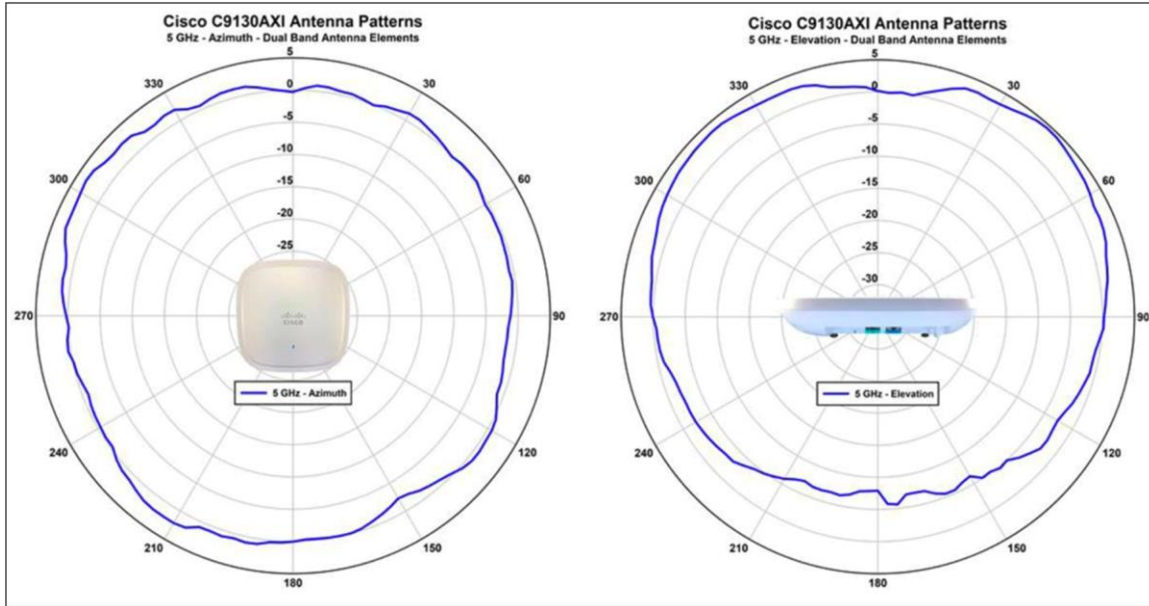
Integrated

### Antenna type

- FRA: 2.4 GHz: Omnidirectional, 5 GHz: Omnidirectional
- 5 GHz: Omnidirectional

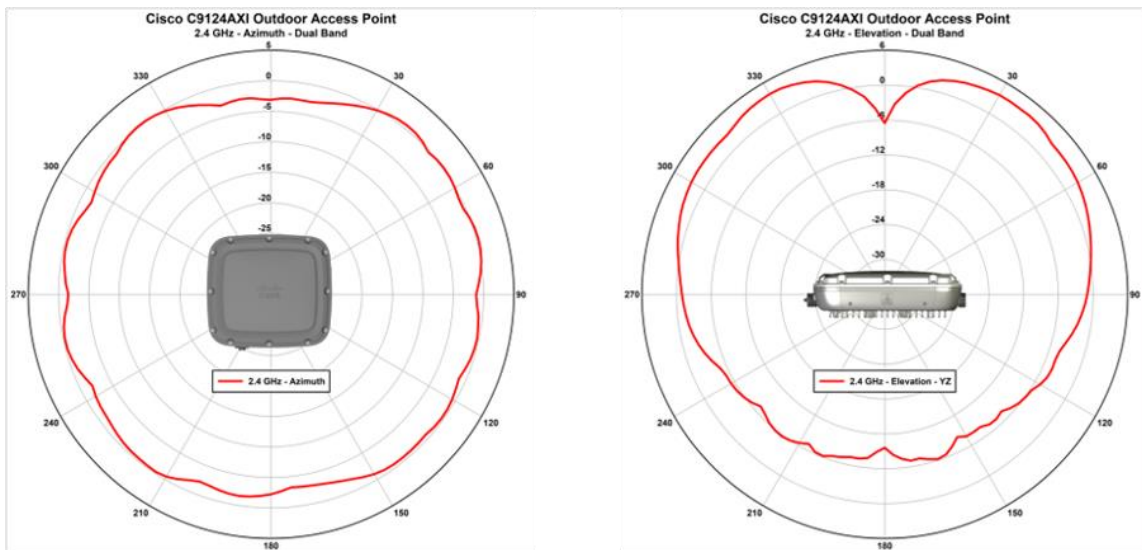
## Cisco Catalyst 9130AX Series integrated antenna

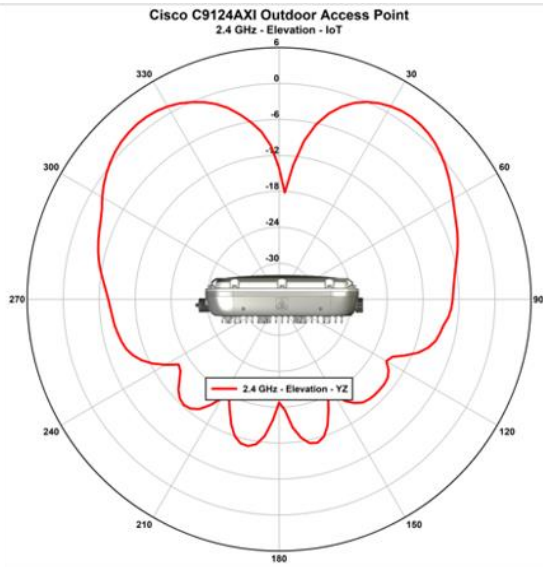
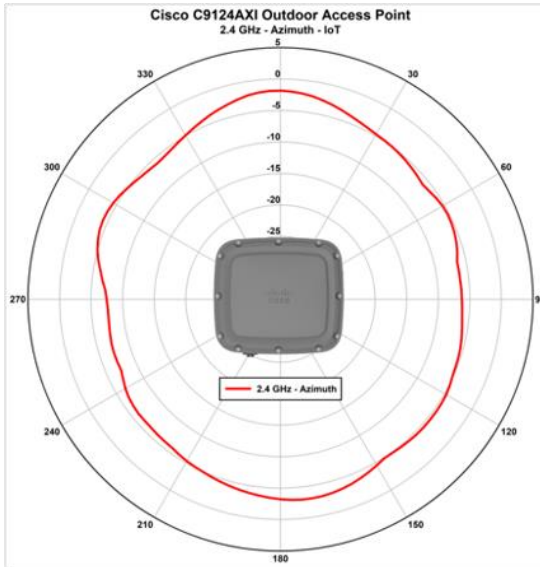
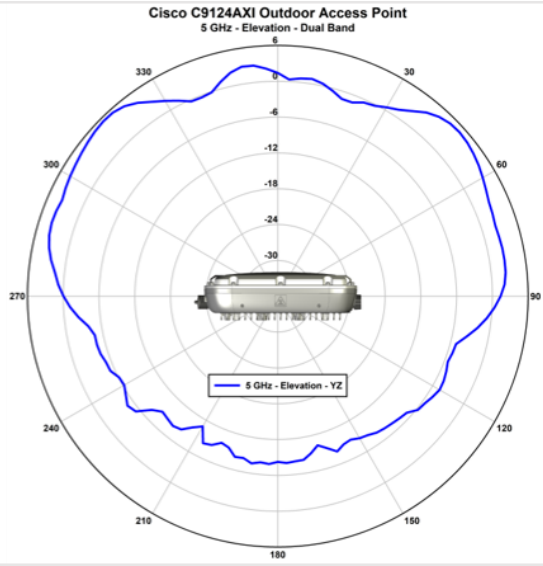
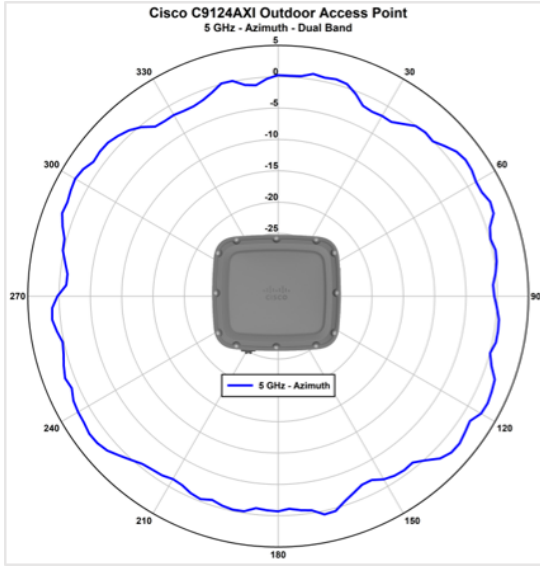


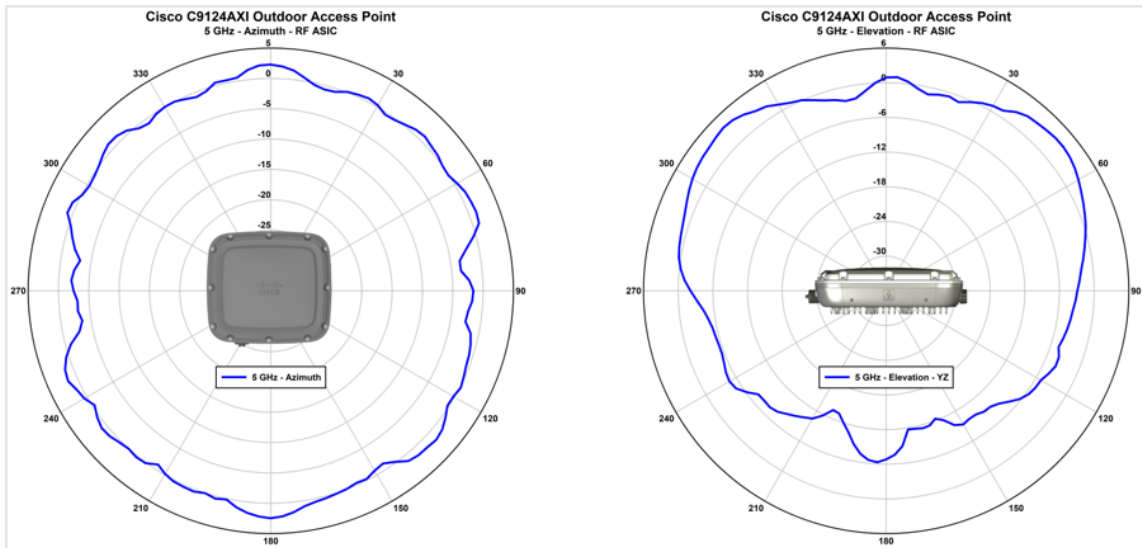
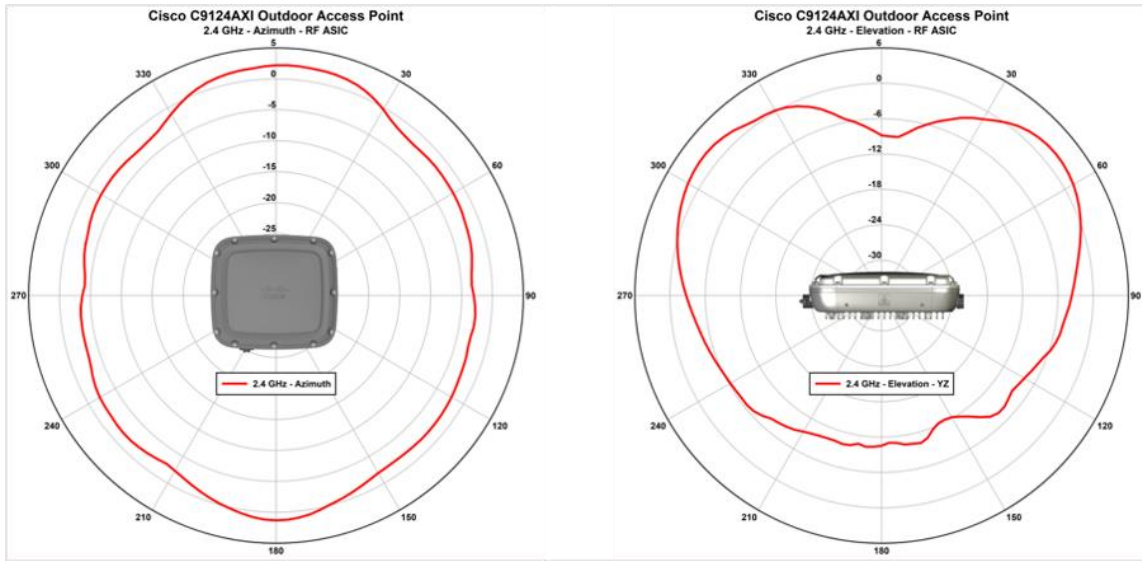


Dimensions and mounting specifications	
Frequency range	<ul style="list-style-type: none"> <li>• 2.4 to 2.5 GHz</li> <li>• 5.15 to 5.85 GHz</li> </ul>
Gain	<ul style="list-style-type: none"> <li>• 2.4 GHz: 4 dBi, 5 GHz: 6 dBi</li> </ul>
Polarization	Linear, vertical
Mounting	Integrated
Antenna connector	Integrated
Antenna type	Omnidirectional

### Cisco Catalyst 9124AX Series integrated Omni directional antenna

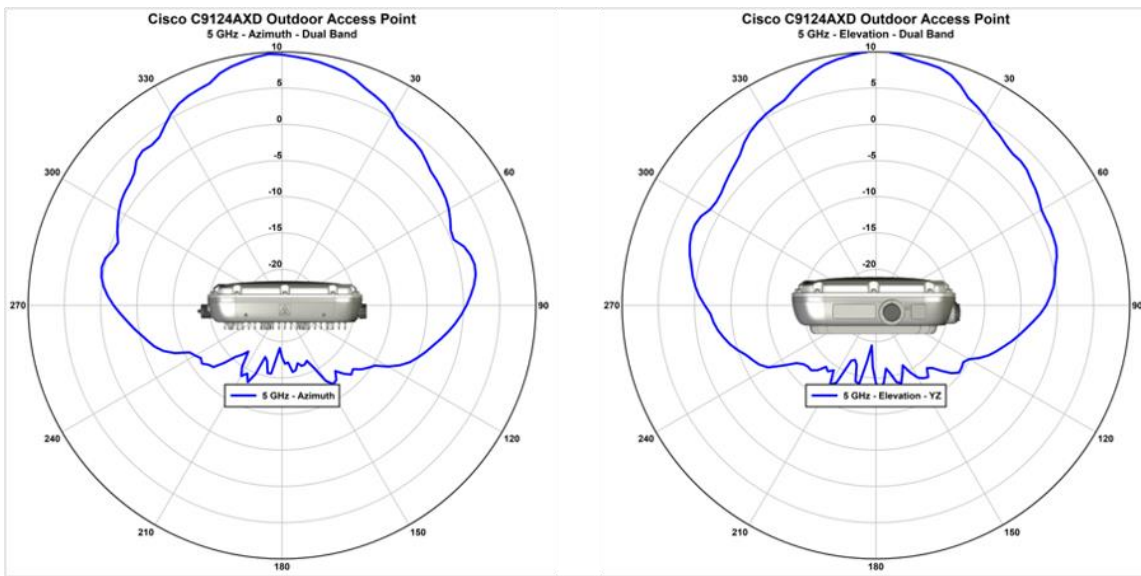
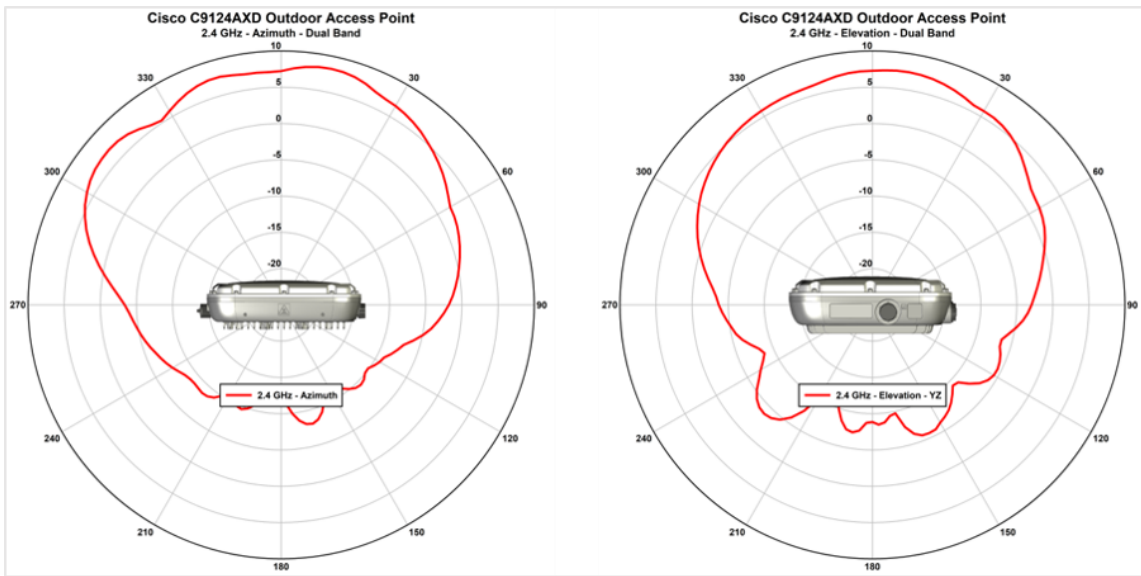


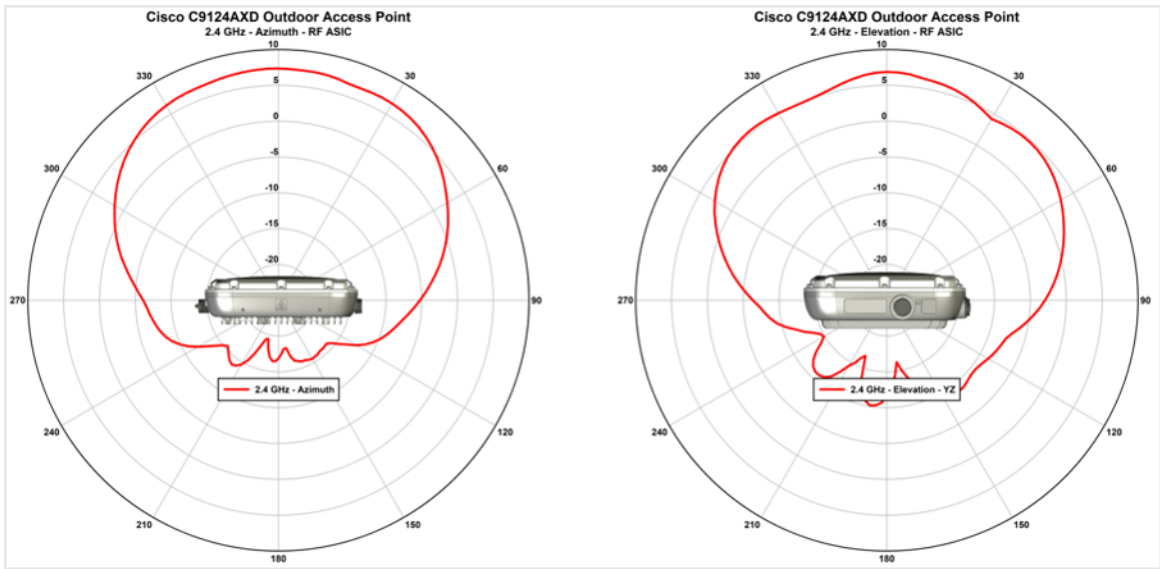
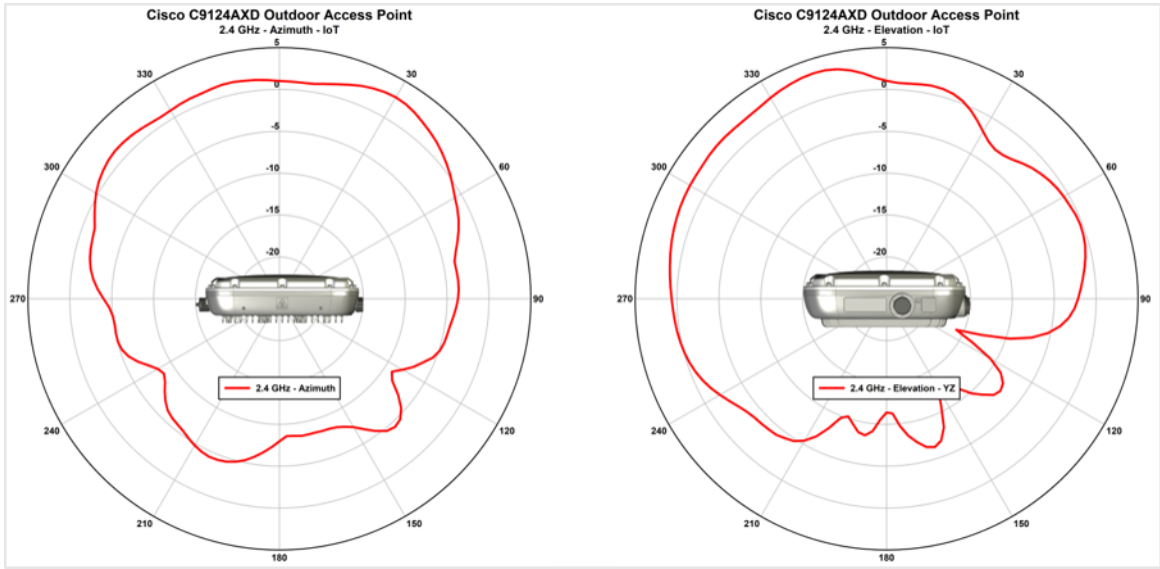


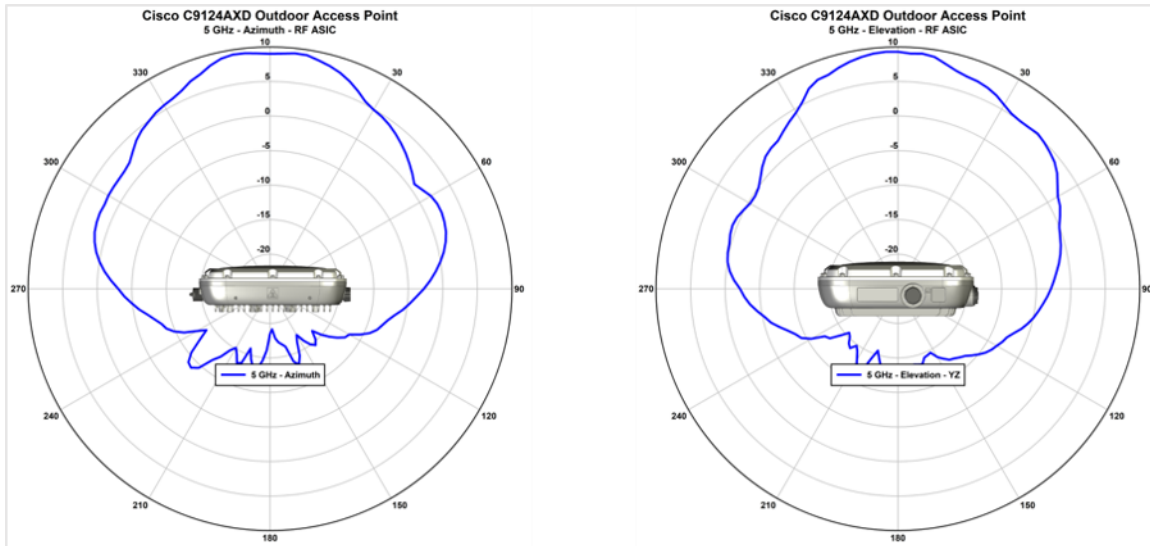


Dimensions and mounting specifications	
<b>Frequency range</b>	<ul style="list-style-type: none"> <li>• 2.4 to 2.5 GHz</li> <li>• 5.15 to 5.85 GHz</li> </ul>
<b>Gain</b>	<ul style="list-style-type: none"> <li>• 2.4 GHz: 7 dBi, 5 GHz: 7 dBi</li> <li>• BLE antenna gain – 5 dBi</li> </ul>
<b>Polarization</b>	Linear, vertical
<b>Mounting</b>	Integrated
<b>Antenna connector</b>	Integrated
<b>Antenna type</b>	Omnidirectional

# Cisco Catalyst 9124AX Series integrated Directional antenna



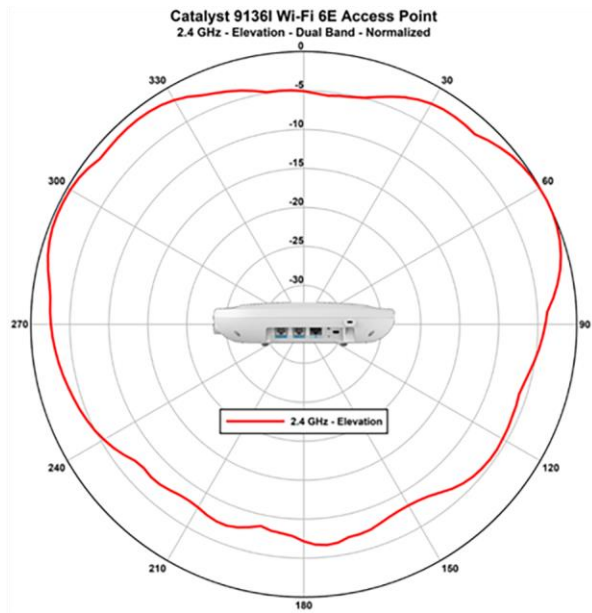
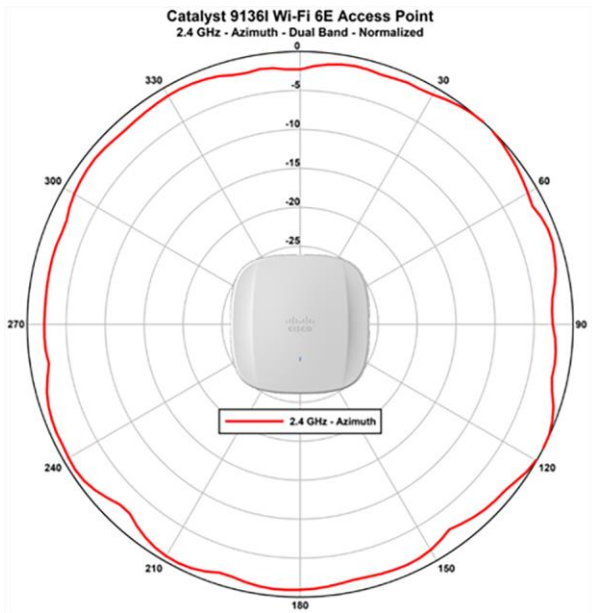


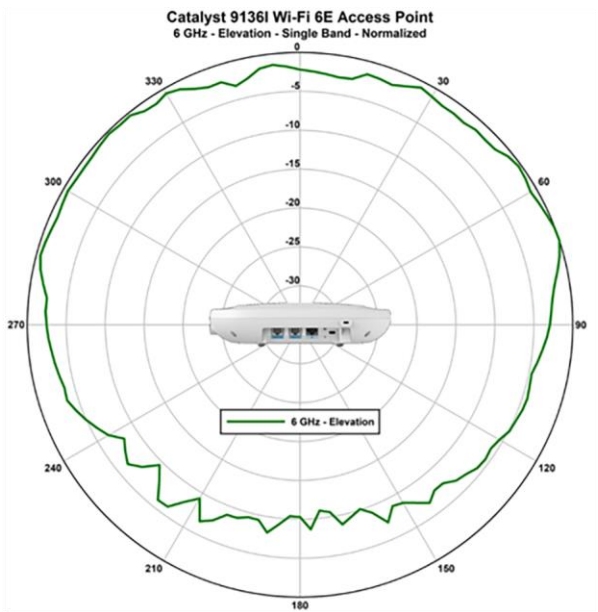
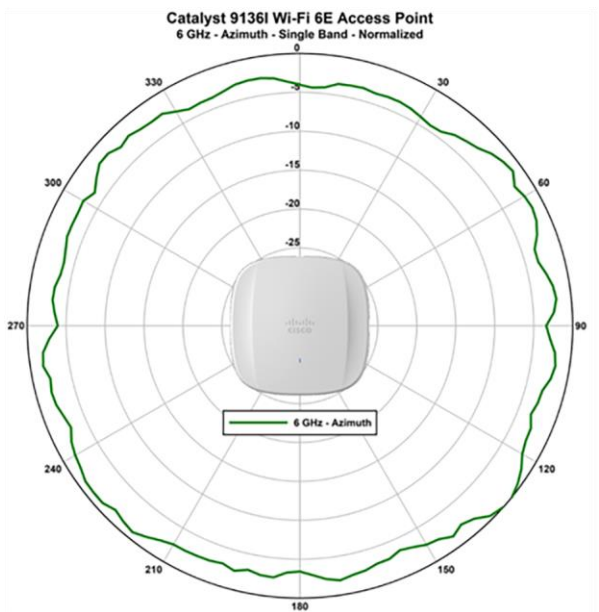
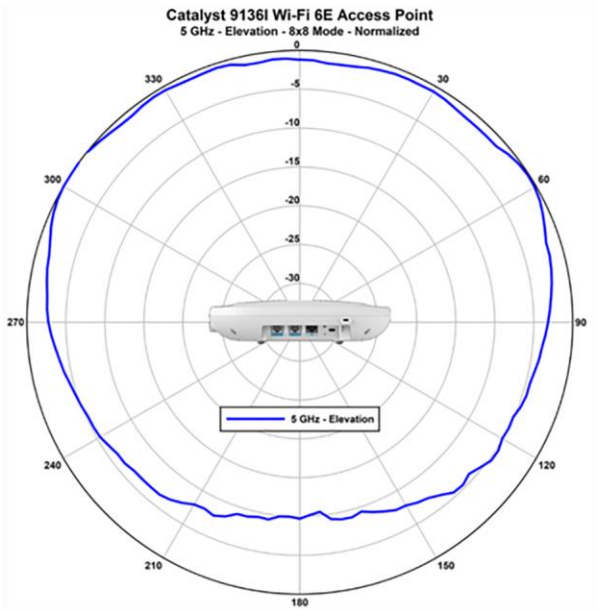
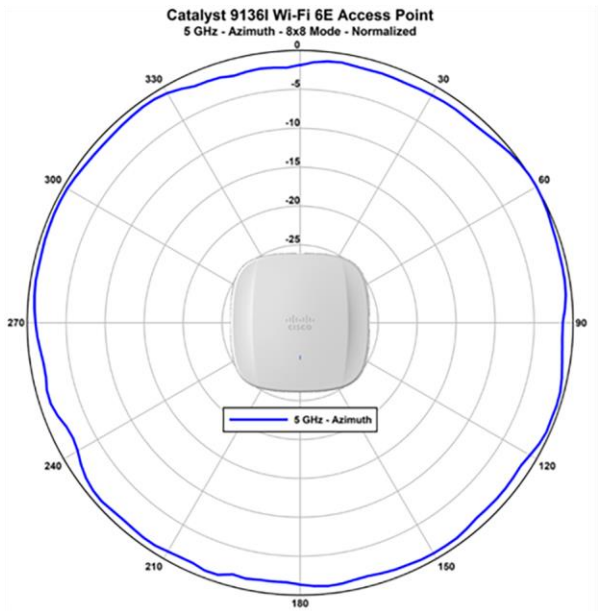


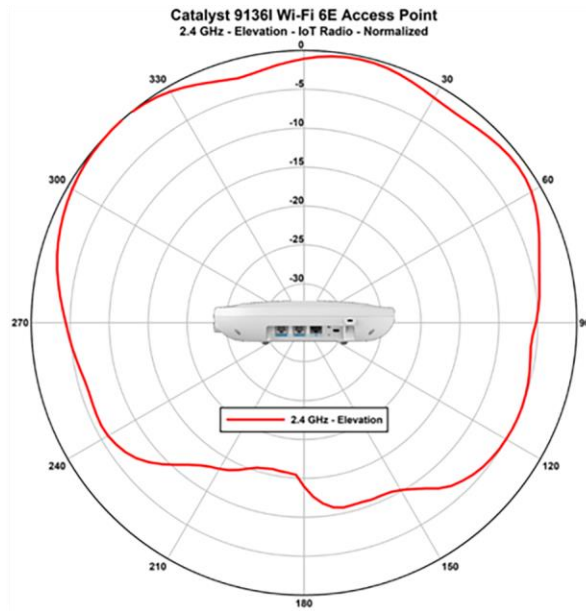
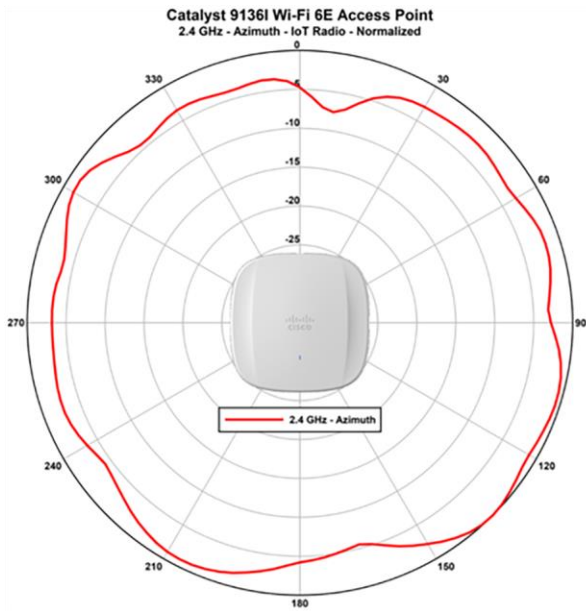
Dimensions and mounting specifications	
Frequency range	<ul style="list-style-type: none"> <li>• 2.4 to 2.5 GHz</li> <li>• 5.15 to 5.85 GHz</li> </ul>
Gain	<ul style="list-style-type: none"> <li>• 2.4 GHz: 7 dBi, 5 GHz: 7 dBi</li> <li>• BLE antenna gain - 5 dBi</li> </ul>
Polarization	Linear, Dual
Mounting	Integrated
Azimuth	2.4 GHz- 70 deg, 5 GHz - 65 deg
Elevation	2.4 GHz- 55 deg, 5 GHz - 50 deg
Antenna connector	Integrated
Antenna type	Directional



# Cisco Catalyst 9136 Series integrated antenna





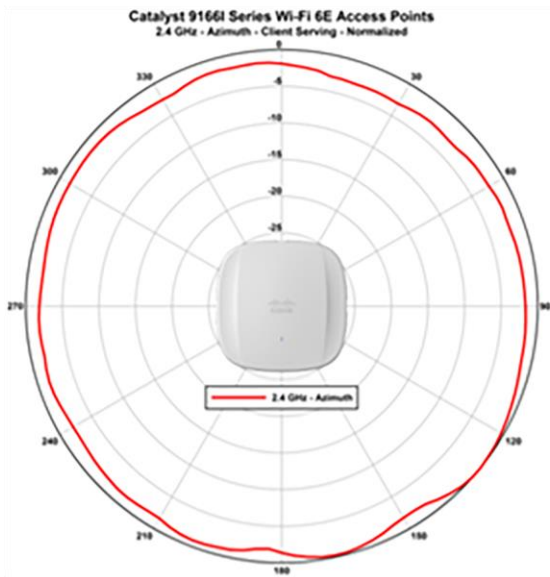


Dimensions and mounting specifications	
Frequency range	<ul style="list-style-type: none"> <li>• 2.4 to 2.4835 GHz</li> <li>• 5.15 to 5.85 GHz</li> <li>• 5.925 to 6.425 GHz</li> </ul>
Gain	<ul style="list-style-type: none"> <li>• 2.4 GHz: 4 dBi</li> <li>• 5 GHz: 5 dBi</li> <li>• 6 GHz: 6 dBi</li> </ul>
Polarization	Linear, vertical
Mounting	Integrated
Antenna connector	Integrated
Antenna type	Omnidirectional

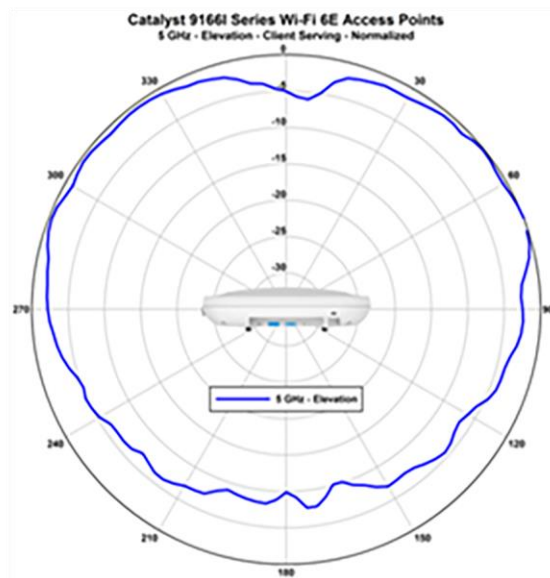
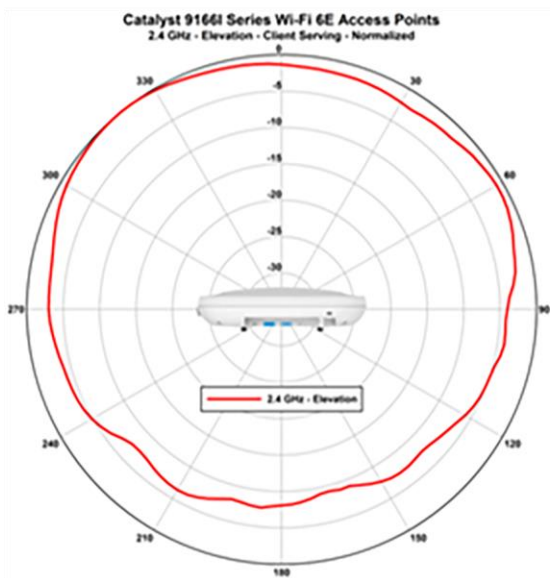
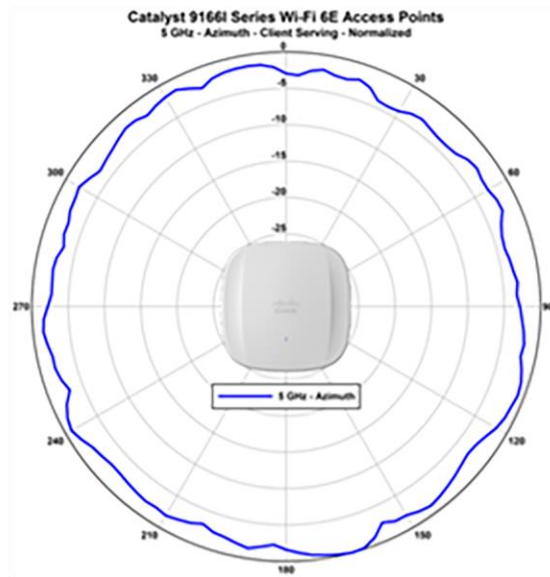
# Cisco Catalyst 9166 Series integrated antenna



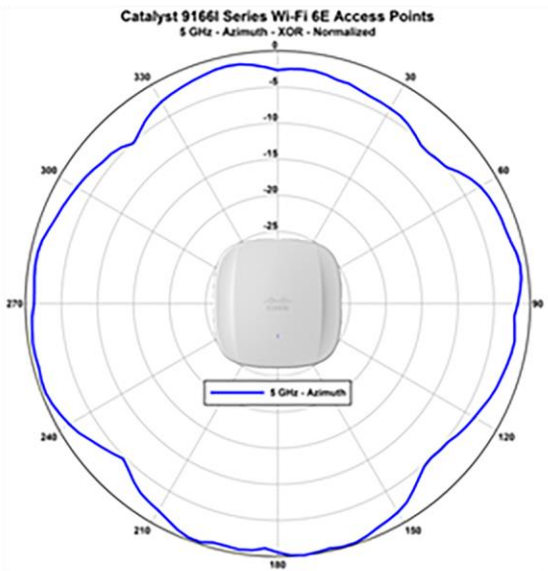
Catalyst 9166 2.4-GHz client serving radio



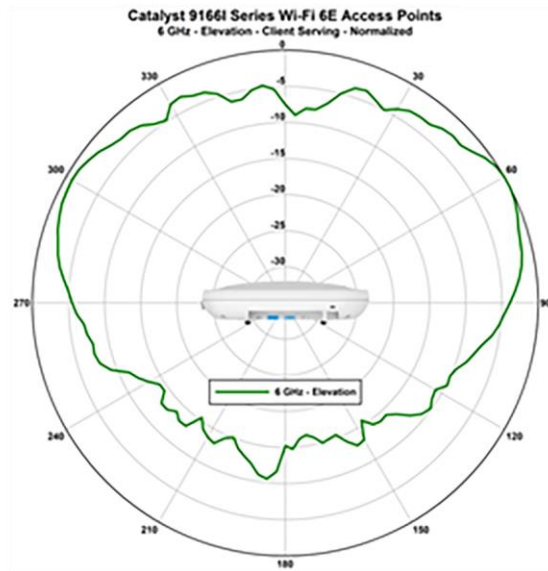
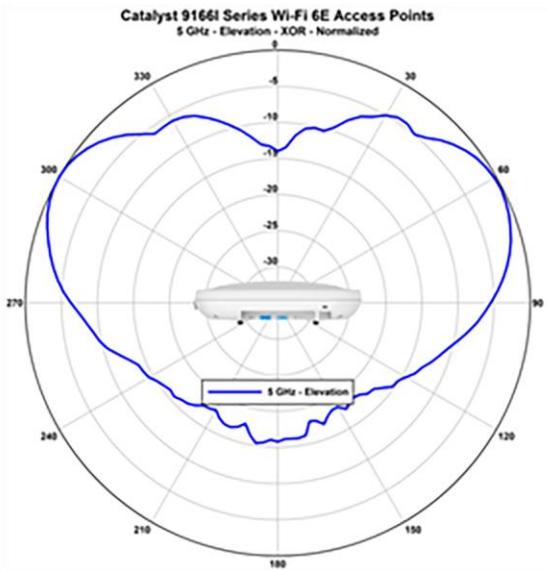
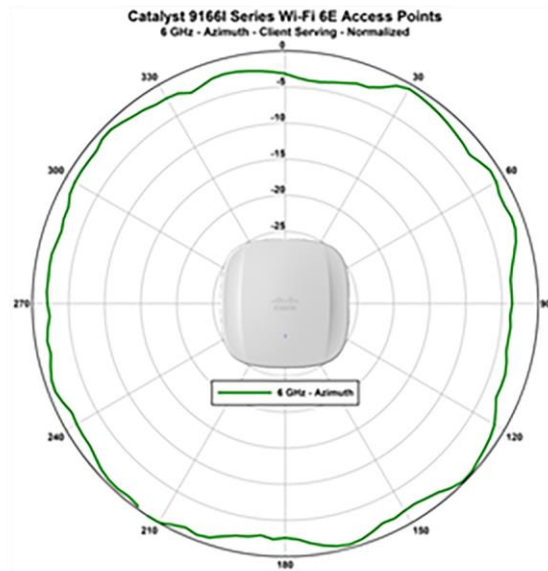
Catalyst 9166 5-GHz client serving radio



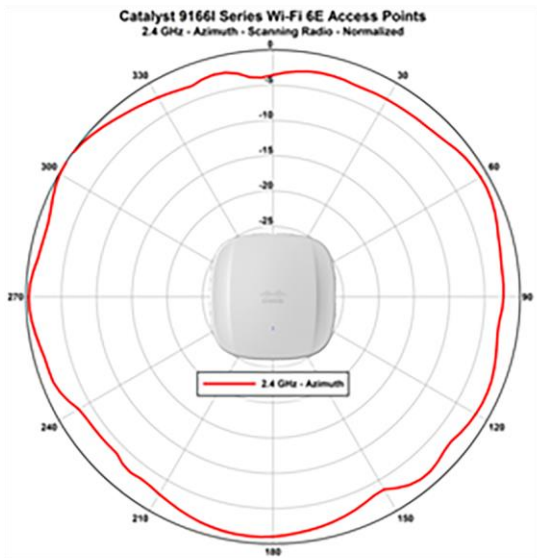
### Catalyst 9166 (XOR) 5-GHz client serving radio



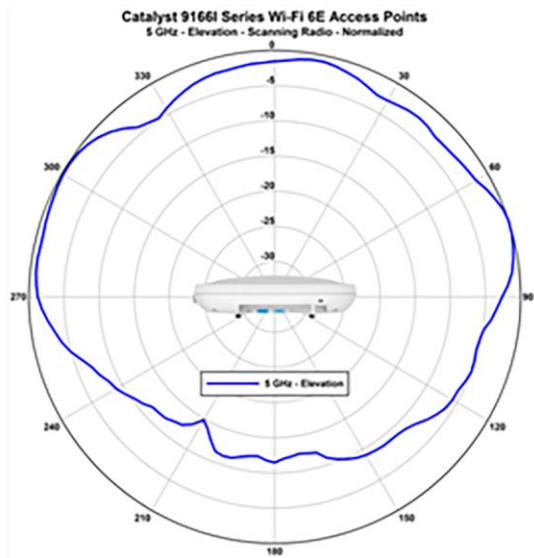
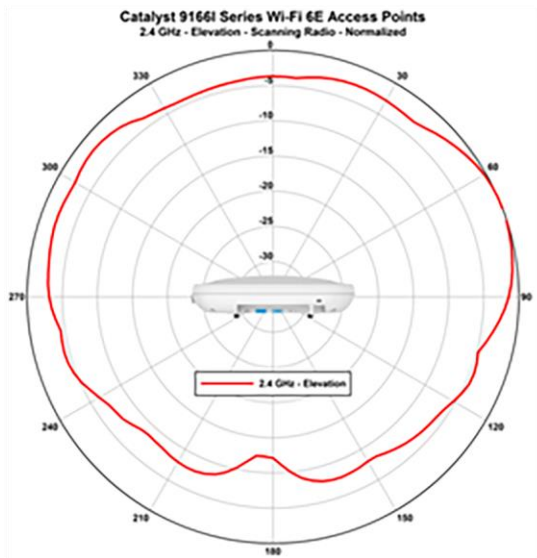
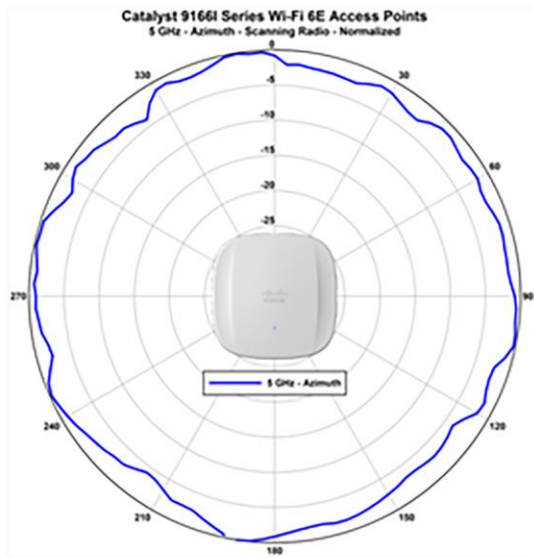
### Catalyst 9166 6-GHz client serving radio



### Catalyst 9166 2.4-GHz scanning radio

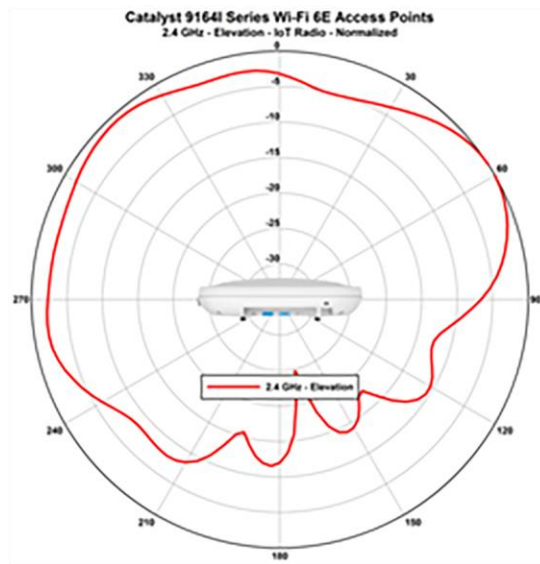
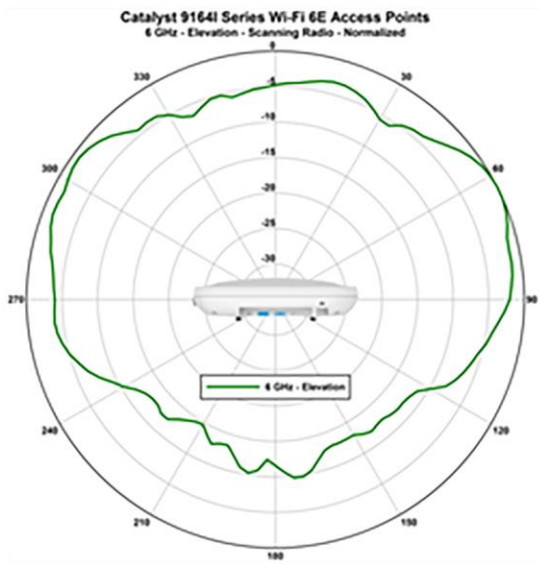
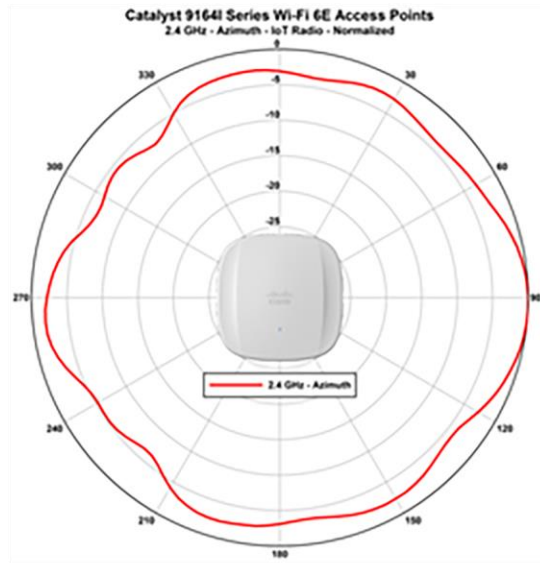
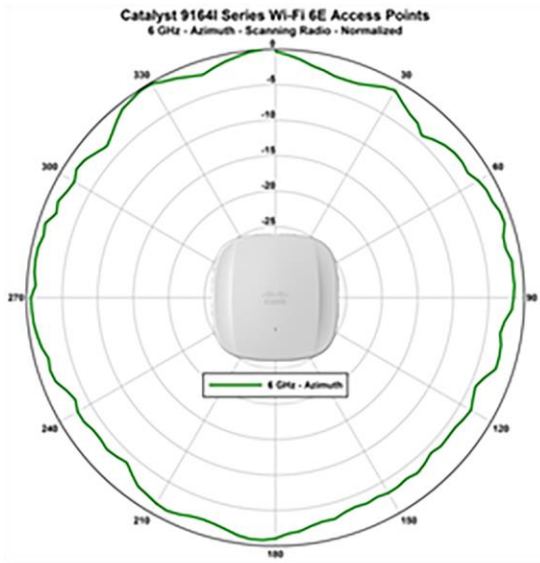


### Catalyst 9166 5-GHz scanning radio



Catalyst 9164 6-GHz scanning radio

Catalyst 9164 2.4-GHz IoT radio



**Dimensions and mounting specifications**

**Frequency range**

- 2.4 to 2.4835 GHz
- 5.15 to 5.725 GHz
- 5.945 to 6.425 GHz

**Gain**

- 2.4 GHz: 3 dBi
- 5 GHz: 5 dBi, 5 GHz (XOR): 5 dBi
- 6 GHz: 4 dBi

**Polarization**

Linear, vertical

**Mounting**

Integrated

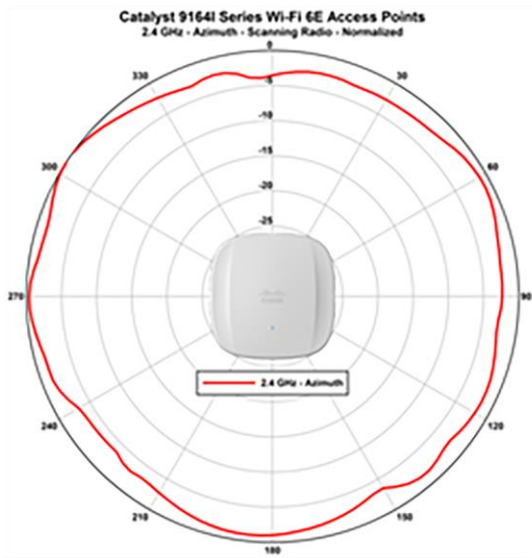
## Dimensions and mounting specifications

Antenna connector	Integrated
Antenna type	Omnidirectional

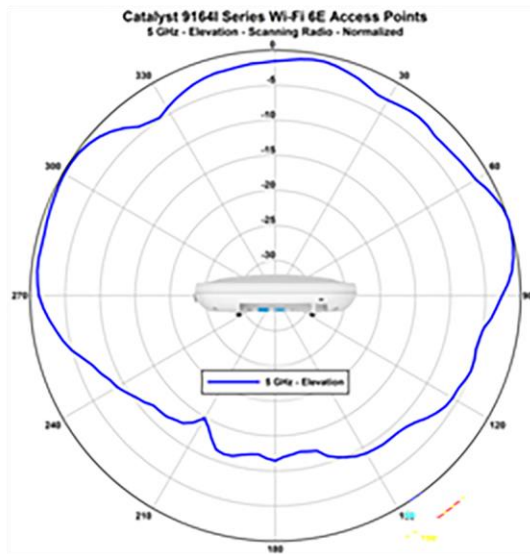
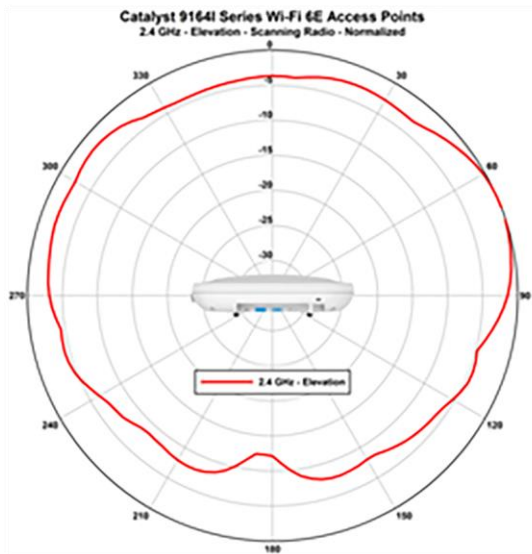
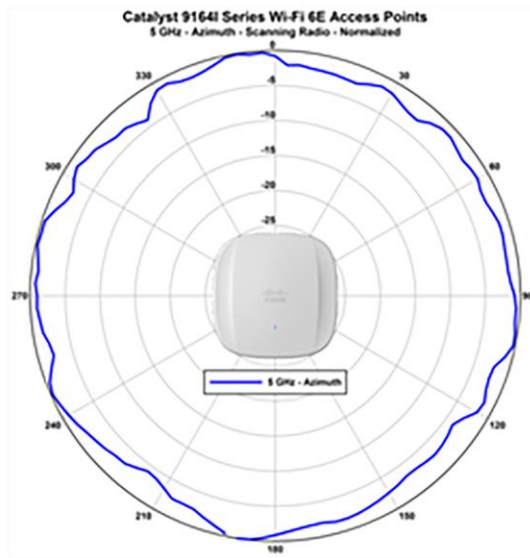
## Cisco Catalyst 9164 Series integrated antenna

Error!

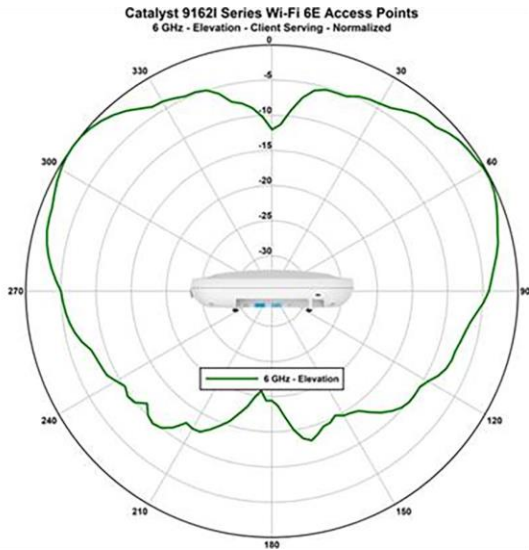
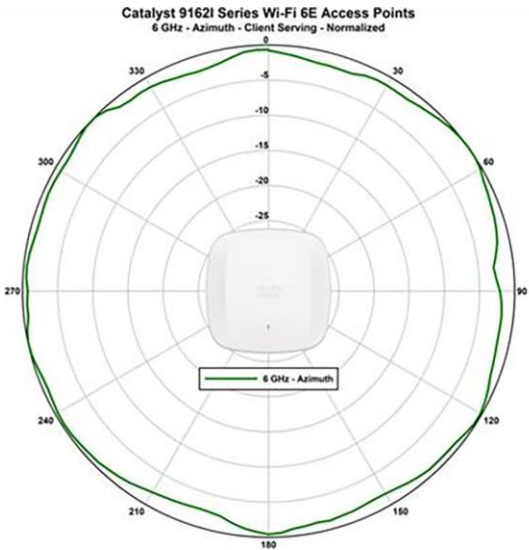
Catalyst 9164 2.4-GHz scanning radio



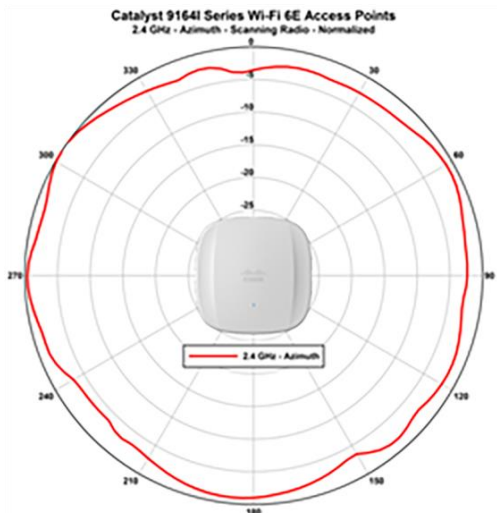
Catalyst 9164 5-GHz scanning radio



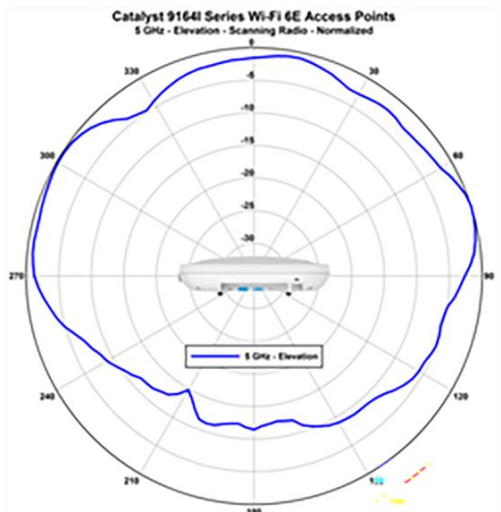
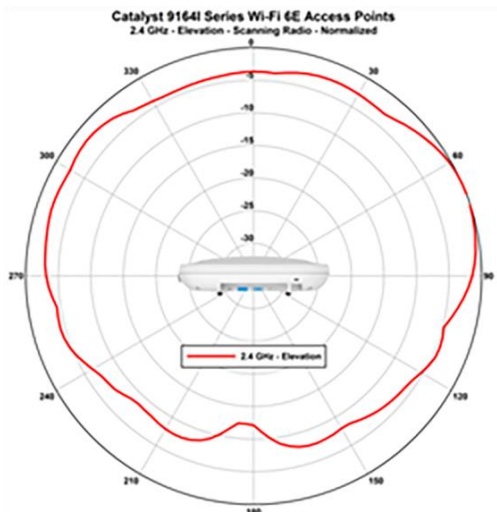
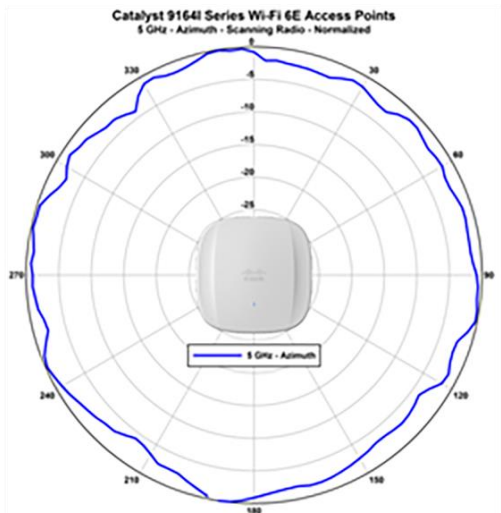




**Catalyst 9164 2.4-GHz scanning radio**

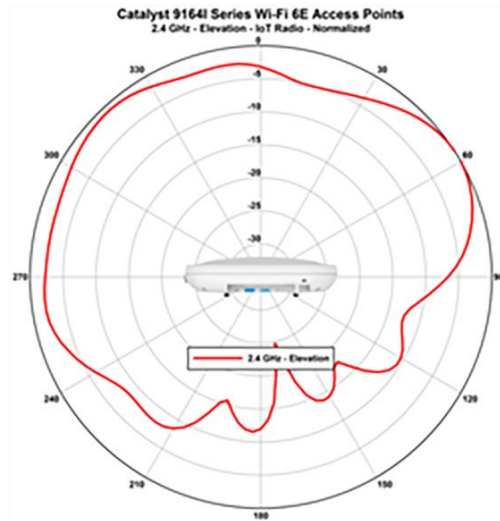
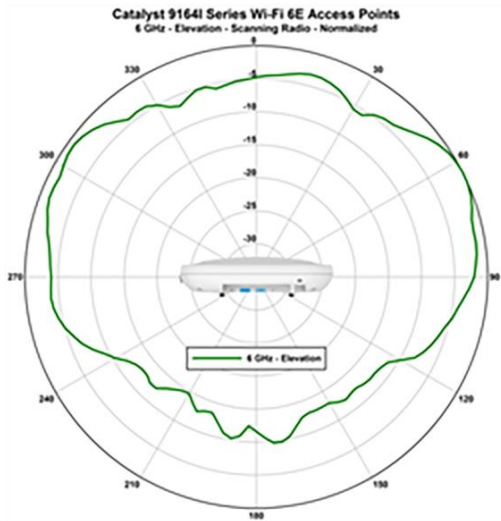
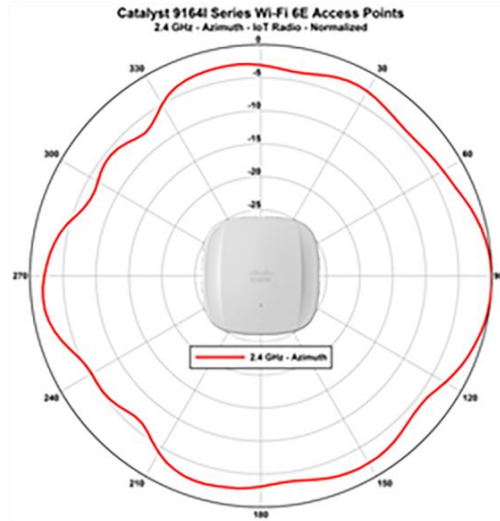
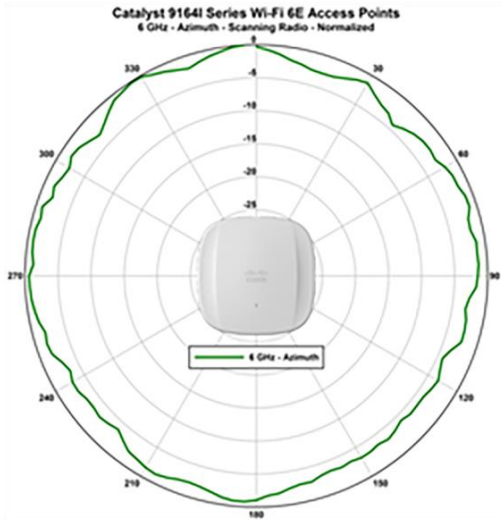


**Catalyst 9164 5-GHz scanning radio**



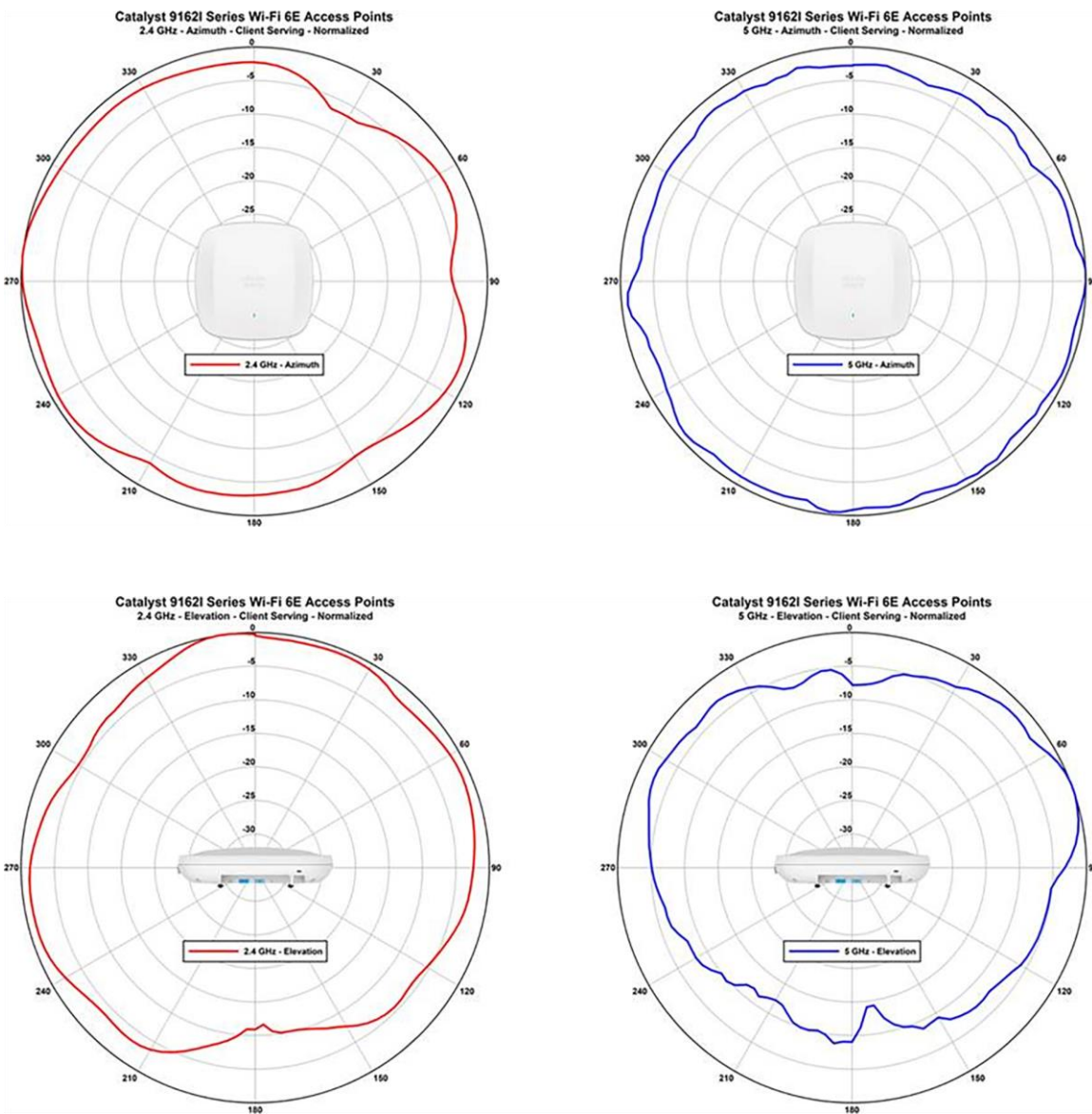
Catalyst 9164 6-GHz scanning radio

Catalyst 9164 2.4-GHz IoT radio

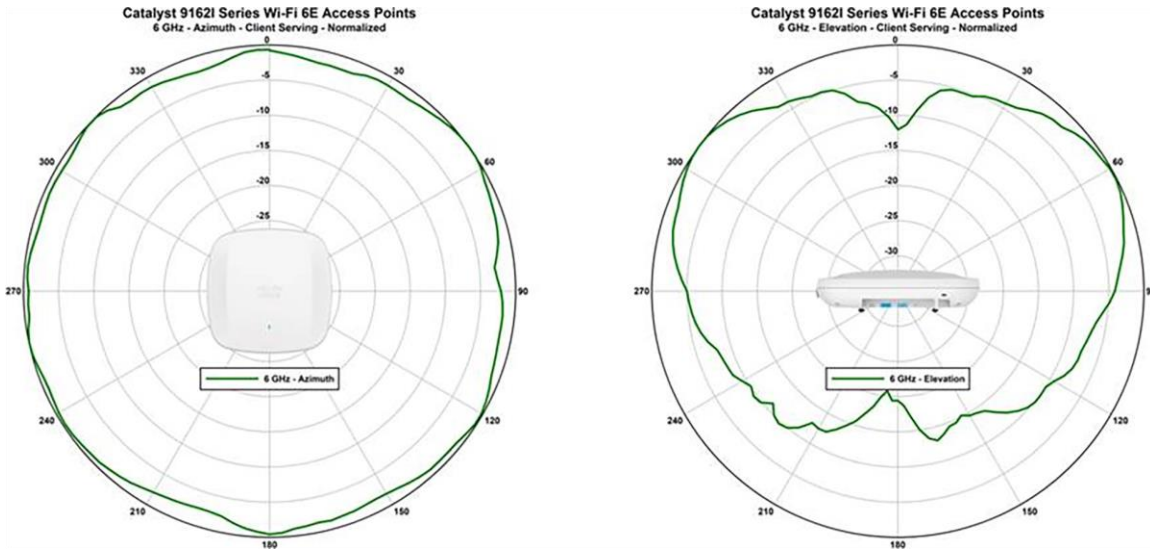


Dimensions and mounting specifications	
<b>Frequency range</b>	<ul style="list-style-type: none"> <li>• 2.412 to 2.484 GHz</li> <li>• 5.15 to 5.825 GHz</li> <li>• 5.925 to 7.125 GHz</li> </ul>
<b>Gain</b>	<ul style="list-style-type: none"> <li>• 2.4 GHz: 3 dBi</li> <li>• 5 GHz: 5 dBi</li> <li>• 6 GHz: 4 dBi</li> </ul>
<b>Polarization</b>	Linear, vertical
<b>Mounting</b>	Integrated
<b>Antenna connector</b>	Integrated
<b>Antenna type</b>	Omnidirectional

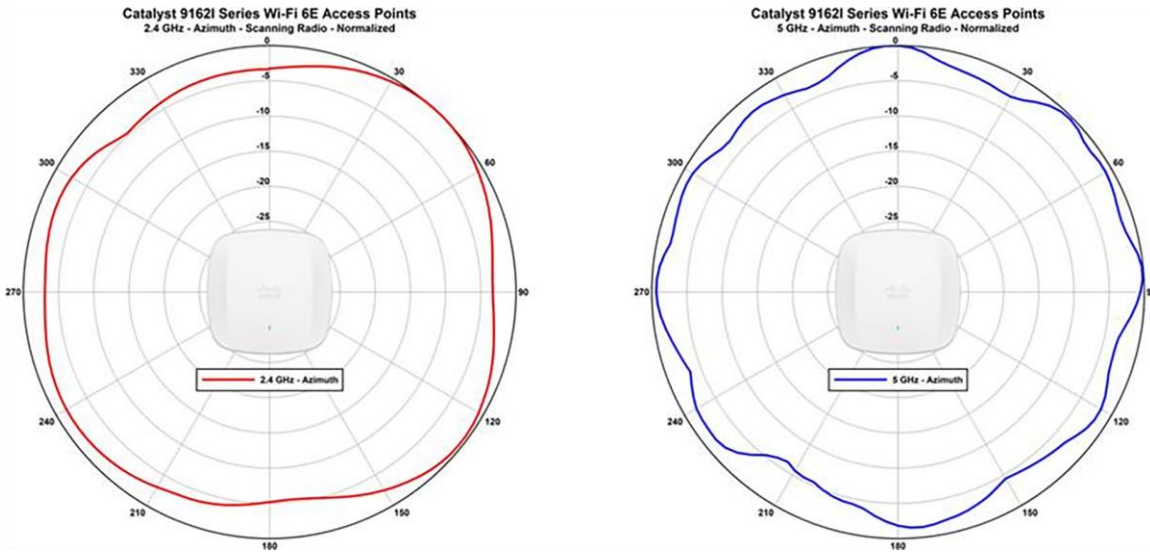
# Cisco Catalyst 9162 Series integrated antenna

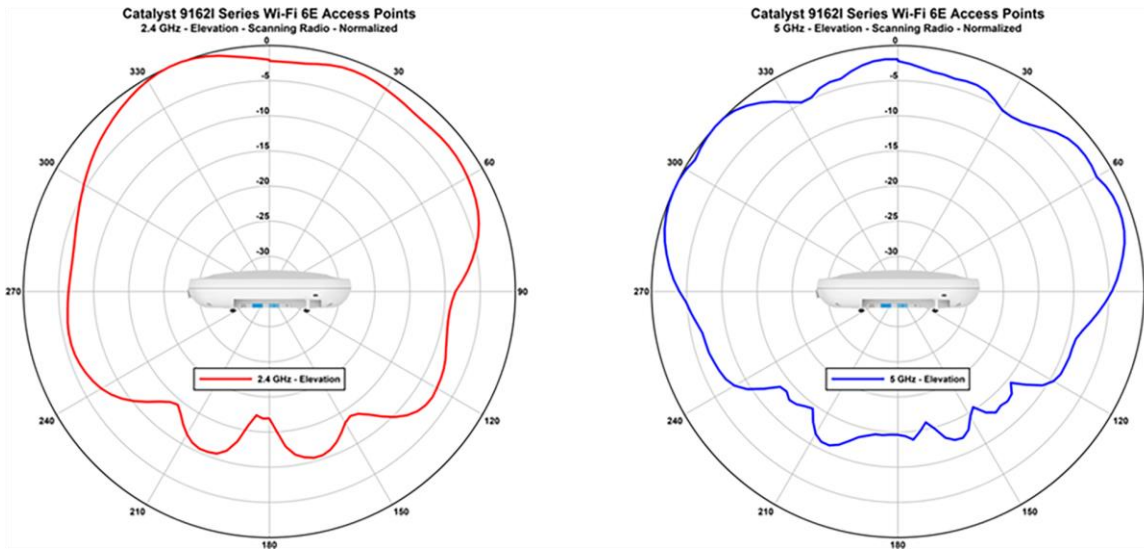


**Figure 4.** Antenna patterns for Catalyst 9162I 2.4-GHz and 5-GHz client serving radios

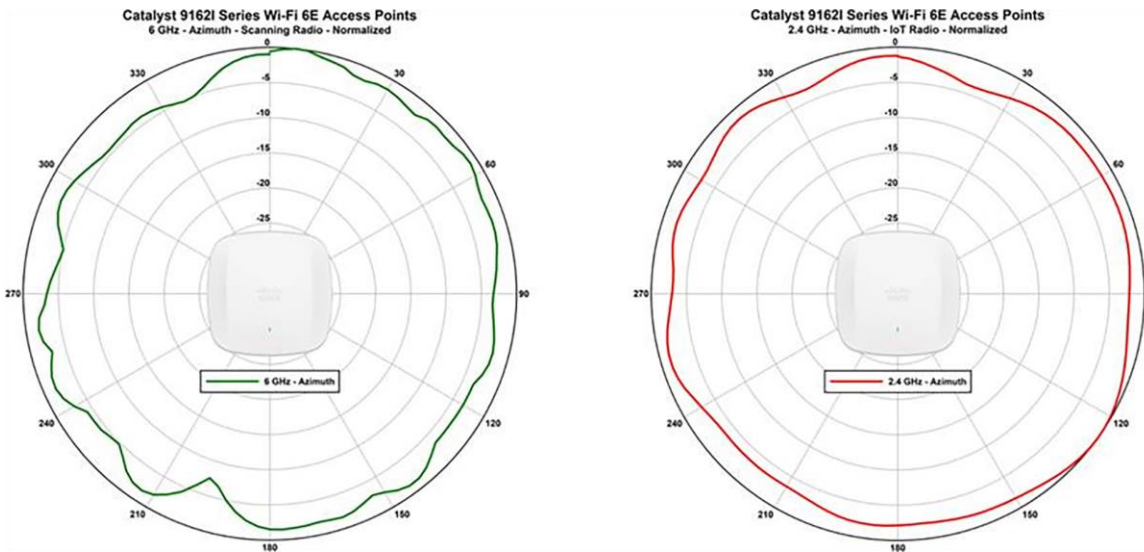


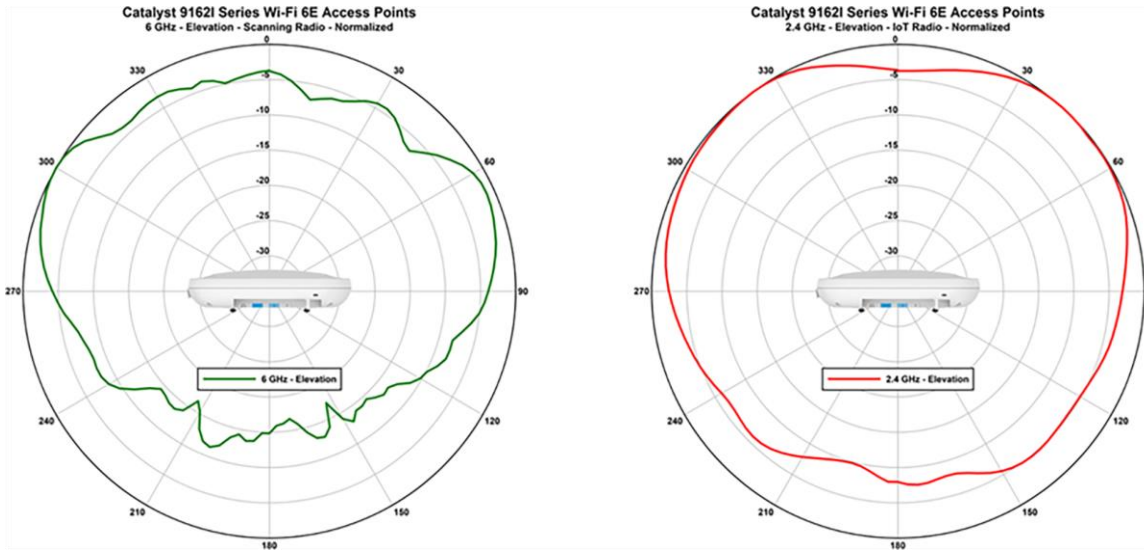
**Figure 5.** Antenna patterns for Catalyst 9162I 6-GHz client serving and scanning radios





**Figure 6.** Antenna patterns for Catalyst 9162I 2.4-GHz and 5-GHz scanning radii





**Figure 7.**  
Antenna patterns for Catalyst 9162I 6-GHz scanning radio and 2.4-GHz IoT radio

Dimensions and mounting specifications	
<b>Frequency range</b>	<ul style="list-style-type: none"> <li>• 2.412 to 2.484 GHz</li> <li>• 5.15 to 5.825 GHz</li> <li>• 5.925 to 7.125 GHz</li> </ul>
<b>Gain</b>	<ul style="list-style-type: none"> <li>• 2.4 GHz: 4 dBi</li> <li>• 5 GHz: 5 dBi</li> <li>• 6 GHz: 5 dBi</li> </ul>
<b>Polarization</b>	Linear, vertical
<b>Mounting</b>	Integrated
<b>Antenna connector</b>	Integrated
<b>Antenna type</b>	Omnidirectional

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