# Cisco Catalyst 9105AX Series Access Points

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## Cisco Catalyst 9105AXI and 9105AXW overview

The Cisco® Catalyst® 9100 Access Points have integrated built-in security in the form of Secure Boot, runtime defenses, image signing, integrity verification, and hardware authenticity. The 9100 access points, with Wi-Fi 6, provide reliable wireless to meet the needs of your branch and campus network deployments.

With the most compact size in the Wi-Fi 6 portfolio, the Cisco Catalyst 9105AX Series Access Points are for organizations looking to grow or to enable employees to take advantage of the OfficeExtend Access Point (OEAP) mode and work from home while still connected to the company network.

The 9105AX Series is made up of two distinct offerings (wall and ceiling mounted) that are affordable and will take a spot in the small to medium-sized office space.

The two Catalyst 9105AX Series access points are:

- 9105AXI: Ideal for small to medium-sized deployments due to its robust enterprise features and attractive price, this access point is great for home and micro-offices for the remote workforce.
- 9105AXW: Same features and functionality as the 9105AXI, but suited for hospitality, residence halls, or other multi-dwelling units due to its ability to be mounted on a wall.

This document is intended for trained and experienced technical personnel familiar with the existing Cisco wireless enterprise networking product line and features.

## Designed for next-generation mobility

The Cisco Catalyst 9105AX Series Access Points, with high-performance Wi-Fi 6 capabilities and innovations in RF performance and security, as well as analytics, enable end-to-end digitization and help accelerate the rollout of business services by delivering beyond Wi-Fi.

- **Resilient:** Increased efficiency and cellular-like determinism with up to four times the capacity of 802.11ac access points, even in demanding environments.
- **Secure:** Along with built-in security and Cisco Software-Defined Access (SD-Access) support, these access points can deliver standards-compliant, enhanced security on open Wi-Fi.
- **Intelligent:** With multi-RF support paramount for Internet of Things (IoT) devices and expanded ecosystem partnerships, the Cisco Catalyst 9100 portfolio provides unprecedented visibility from mobile devices on the Cisco network, along with enhanced Cisco DNA Assurance

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## Cisco Catalyst 9105AXI details

**Figure 1.**
Cisco Catalyst 9105AXI

### Key features

- Next-generation Wi-Fi 6 (802.11ax) access points with 2x2 Multiuser Multiple-Input Multiple-Output (MU-MIMO) and two spatial streams:
  - 2x2:2 on 5 GHz with downlink and uplink Orthogonal Frequency-Division Multiple Access (OFDMA) and MU-MIMO
  - 2x2:2 on 2.4 GHz with downlink and uplink OFDMA and MU-MIMO
- Cisco DNA ready
- Cisco Spectrum Intelligence
- Built-in IoT radio: Bluetooth low energy (BLE), Zigbee, and Thread
- Gigabit Ethernet
- 1024 QAM radio data rate of 1.2 Gbps
- Cisco DNA Center on-premises and cloud
- Supports up to 200 Wi-Fi devices
- Internal antennas with client analytics to enhance Cisco DNA Assurance
- Support for Kensington-style lock
- Small size (16 x 9 x 3.2 cm) U.S. (6.3 x 3.5 x 1.3 inches)
- Weight 0.7 lb. (329.5 g)
- Mean time between failures (MTBF) at 25°C (77°F) 653,568 hours; at 40°C (104°F) 614,054 hours
- Mounting bracket part number AIR-AP-BRACKET-8=
- Operating temperature: -32° to 122°F (0° to 50°C)

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## Cisco Catalyst 9105AXW details

**Figure 2.**
Cisco Catalyst 9105AXW

### Key features

- Next-generation Wi-Fi 6 (802.11ax) access points with 2x2 MU-MIMO and two spatial streams:
  - 2x2:2 on 5 GHz with downlink and uplink OFDMA and MU-MIMO
  - 2x2:2 on 2.4 GHz with downlink and uplink OFDMA and MU-MIMO
- Cisco DNA ready
- Cisco Spectrum Intelligence
- USB port up to 4.5W out
- PoE out port up to 10.5W
- Built-in IoT radio: BLE, Zigbee, and Thread
- Multigigabit Ethernet
- 1024 QAM radio data rate of 1.2 Gbps
- Cisco DNA Center on-premises and cloud
- Supports up to 200 Wi-Fi devices
- Internal antennas with client analytics to enhance Cisco DNA Assurance
- Support for Kensington-style lock
- Small size (14.9 x 14.9 x 3 cm) U.S. (5.9 x 5.9 x 1.2 inches)
- Weight 0.8 lb. (373.2g)
- MTBF at 25°C (77°F) 701,904 hours; at 40°C (104°F) 636,108 hours
- Mounting bracket part number AIR-AP-BRACKET-W4=
- Operating temperature: -32° to 122°F (0° to 50°C)

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## Access point mechanicals and ports

**Figure 3.**
Cisco Catalyst 9105AXI mechanicals

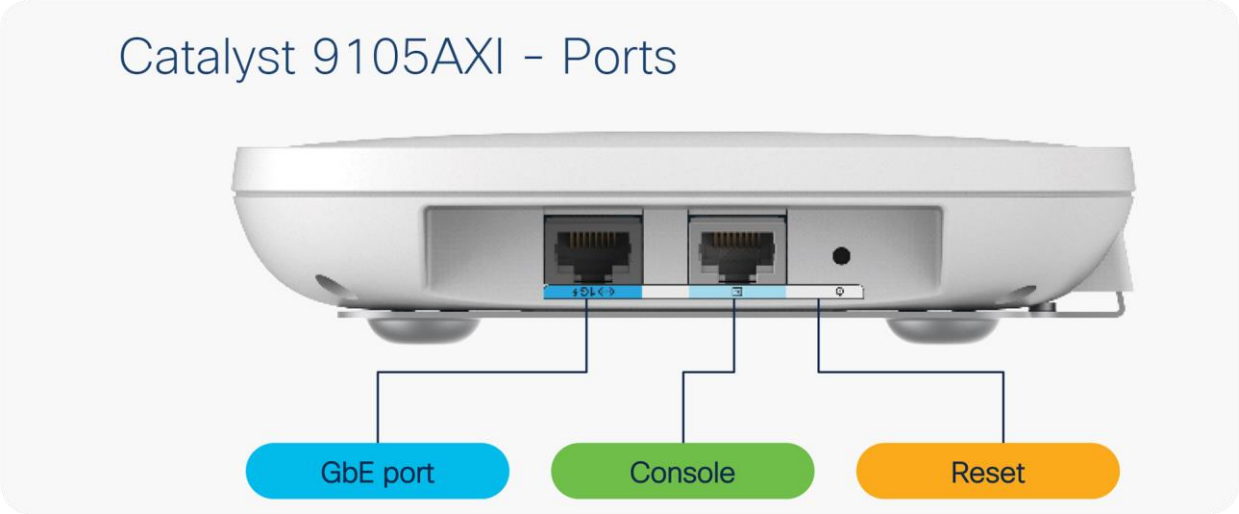


**Figure 4.**
Cisco Catalyst 9105AXI ports

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**Figure 5.**
Cisco Catalyst 9105AXW mechanicals

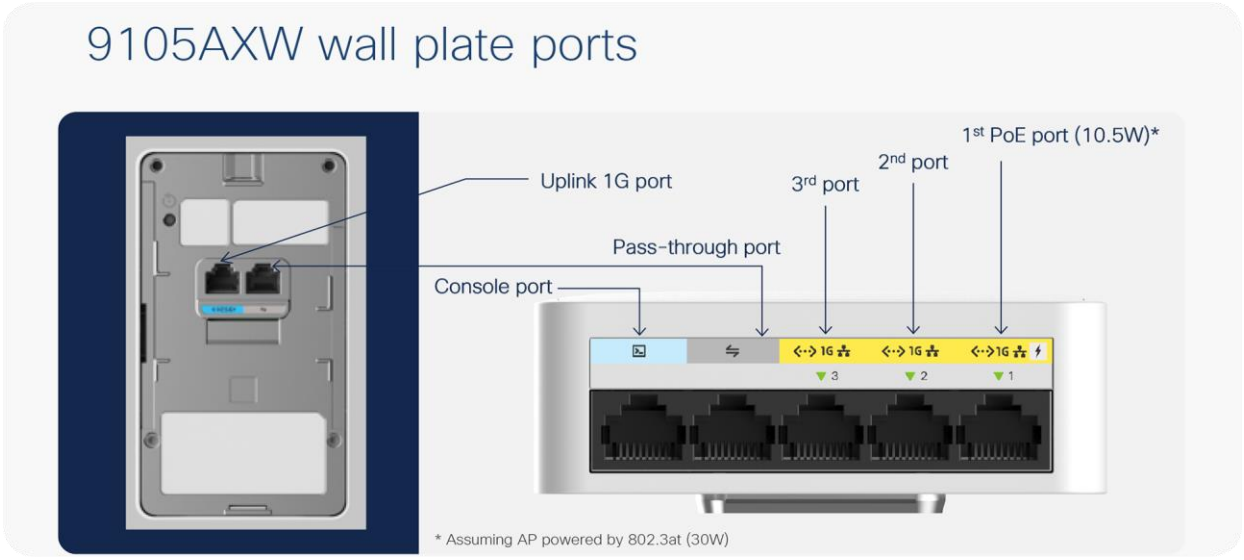


**Figure 6.**
Cisco Catalyst 9105AXW ports

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## Access point brackets

The Catalyst 9105AXI uses Cisco bracket AIR-AP-BRACKET-8.

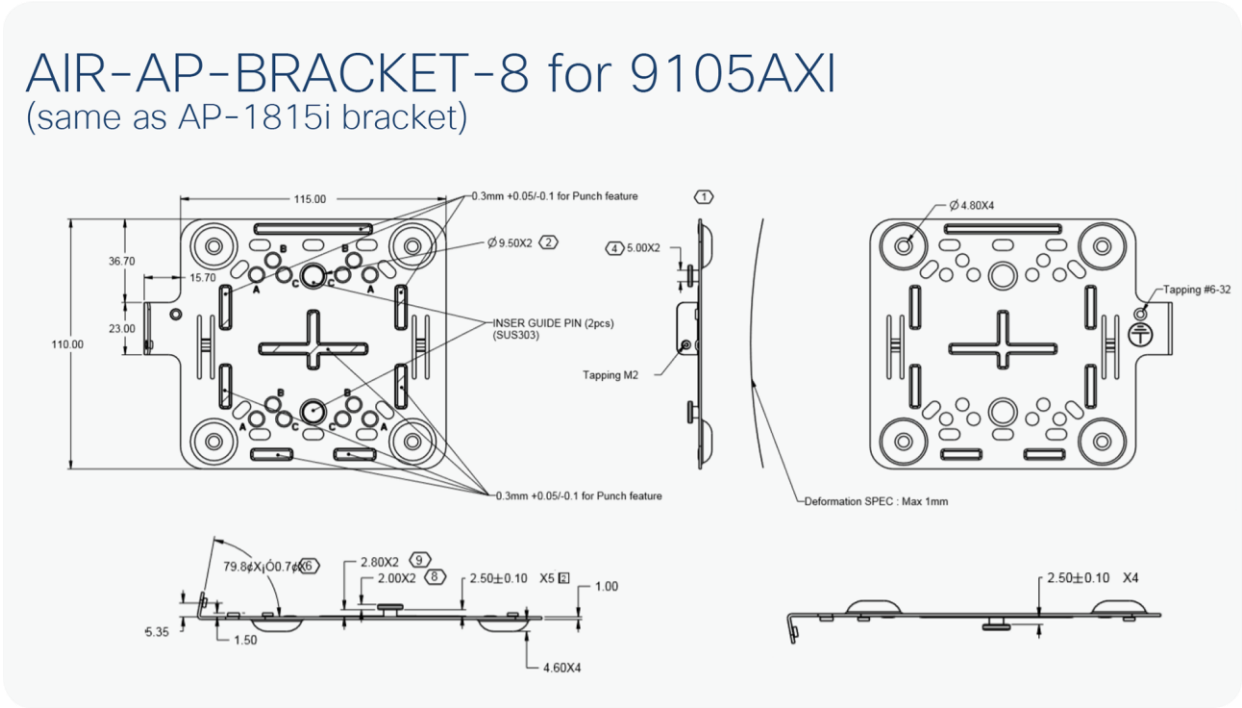


**Figure 7.**
AIR-AP-BRACKET-8 for Catalyst 9105AXI

The Catalyst 9105AXW uses Cisco bracket AIR-AP-BRACKET-W4.

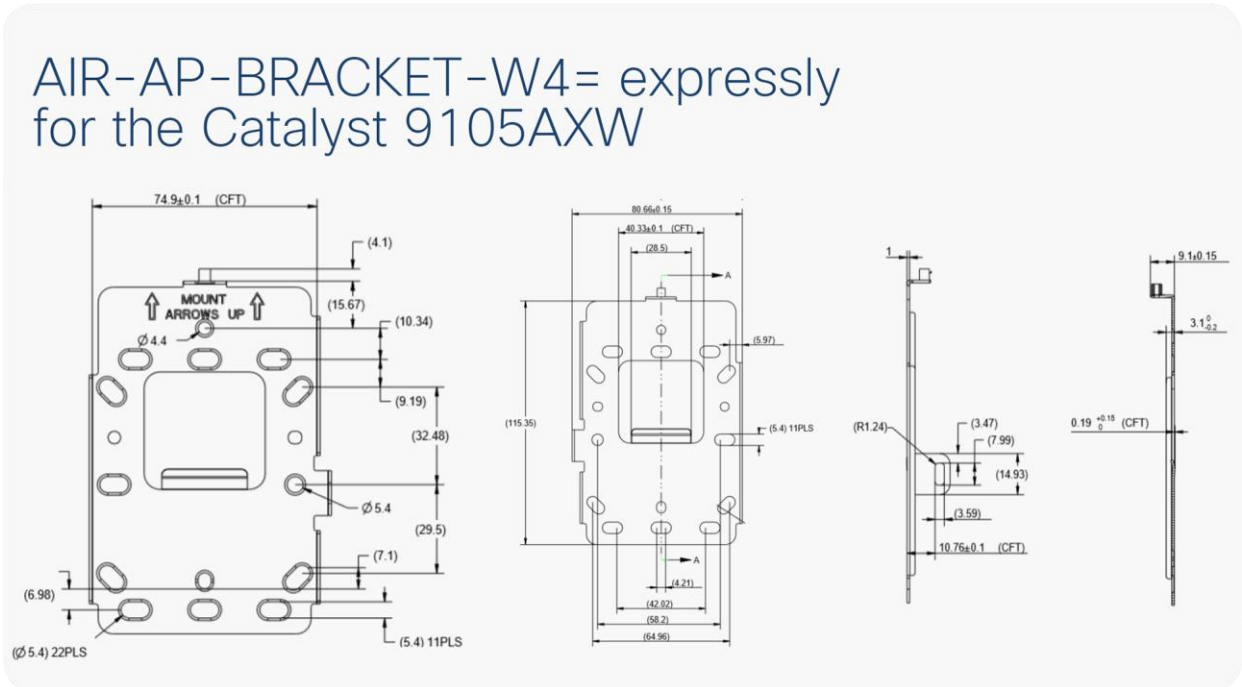


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**Figure 8.**
AIR-AP-BRACKET-W4 for Catalyst 9105AXW

**Note:** The 9105AXW uses a completely new bracket. While our goal was to reuse the existing AIR-AP-BRACKET-W3, there were engineering considerations that prevented its use, resulting in the new bracket. To reduce the installation impact, mounting brackets “W4” and “W3” share the same mounting holes and do not require redrilling for W4 bracket installation.

**Note:** This bracket uses a small security screw, type M2x5.5 Torx (pin in the middle). The screw head is standard T6 Security.

## 9105AXI antenna and radiation patterns

The Cisco Catalyst 9105AX Series Access Points contain integrated antennas for a small, aesthetically pleasing design. These antennas are designed to have a 360-degree type pattern.

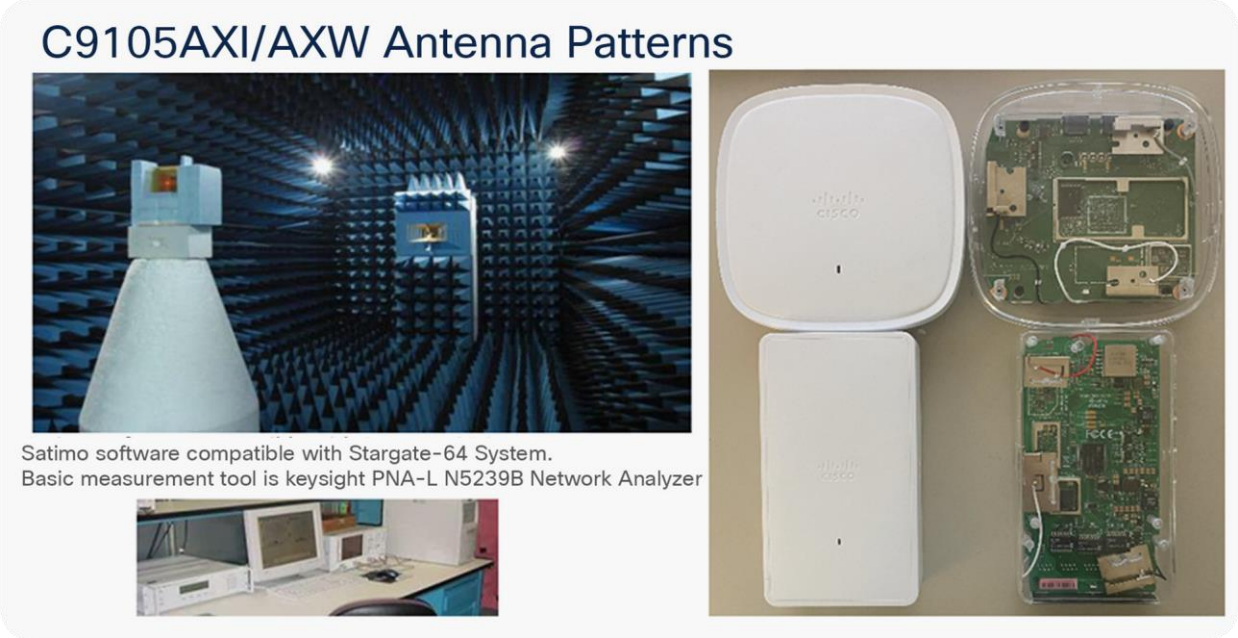


**Figure 9.**
9105AXI and 9105AXW access point antennas

Patterns courtesy of Jonathan Cypert, Center for RF Excellence, Richfield Ohio.

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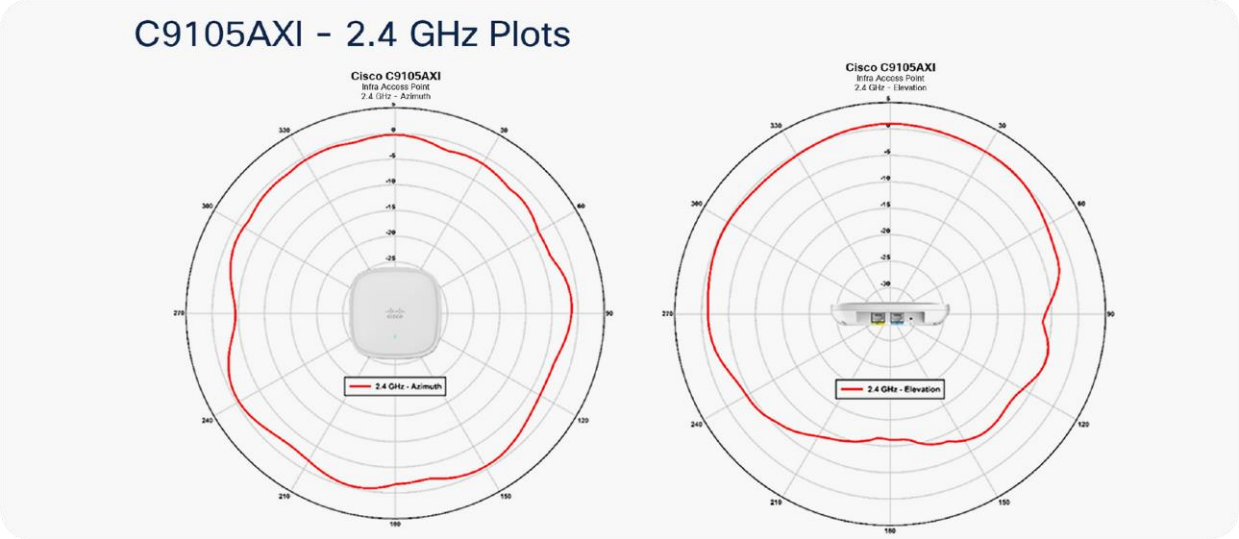


**Figure 10.**
9105AXI 2-GHz antenna patterns

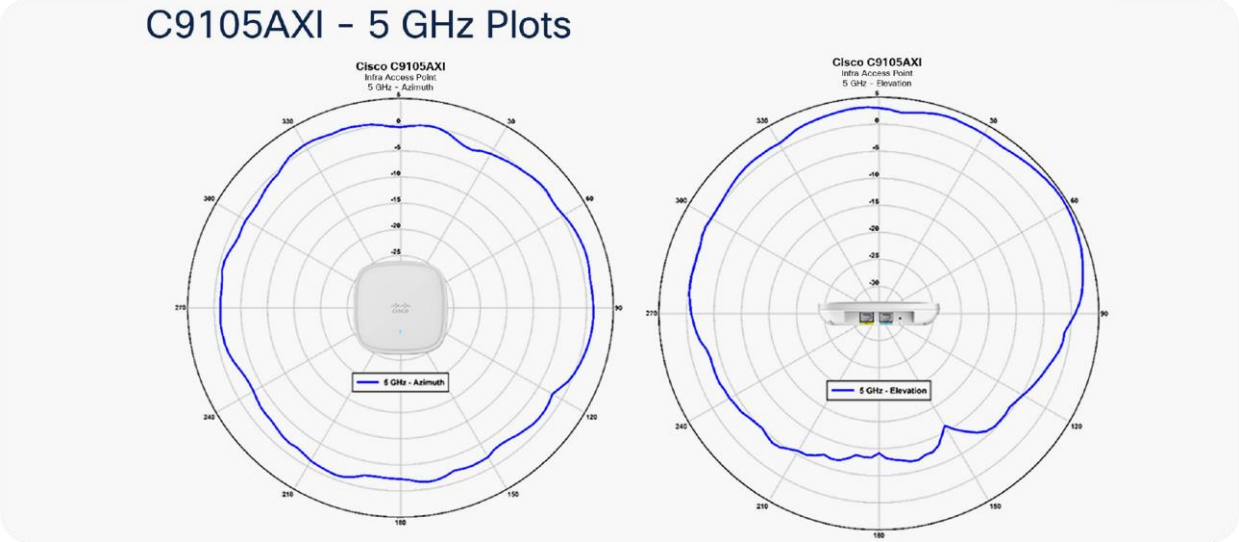


**Figure 11.**
9105AXI 5-GHz antenna patterns

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## 9105AXW antenna and radiation patterns

The Cisco Catalyst 9105AX Series Access Points contain integrated antennas for a small, aesthetically pleasing design. These antennas are designed to have a 360-degree type pattern.

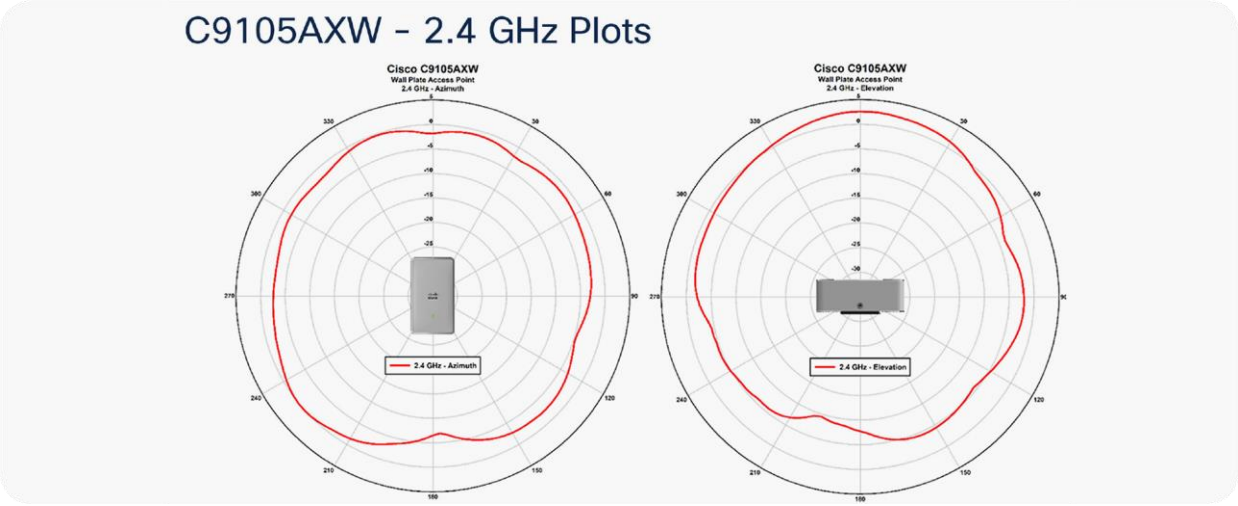


**Figure 12.**
9105AXW 2-GHz antenna patterns

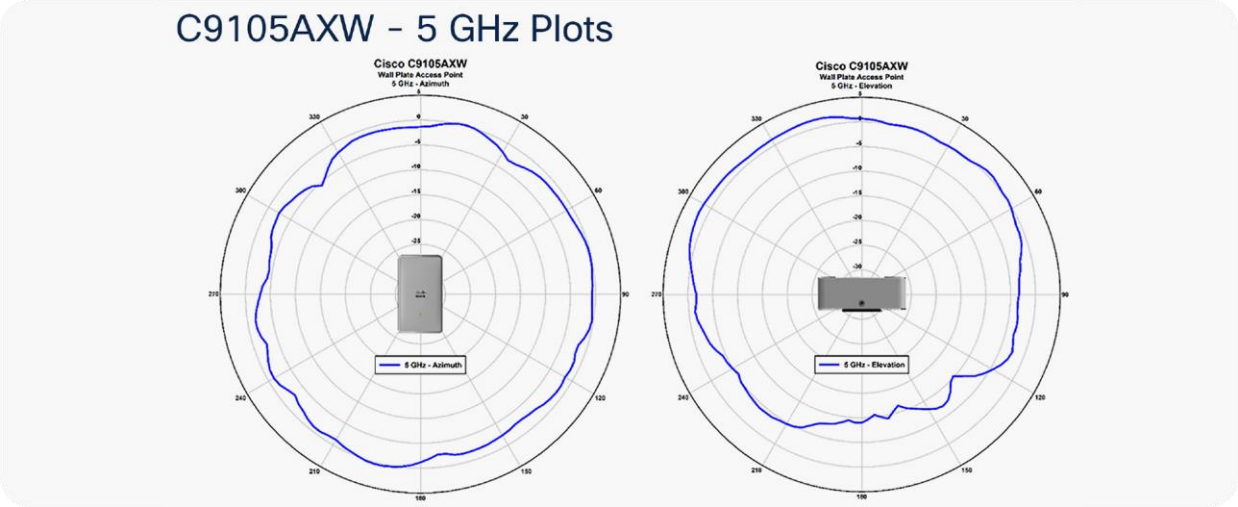


**Figure 13.**
9105AXW 5-GHz antenna patterns

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## Cisco Catalyst 9105AX Series PoE requirements

**Table 1.** PoE requirements

### Catalyst 9105 Power over Ethernet (PoE) Draw

| Product | Family | PoE-in/DC Mode | Consumption @ PD | Consumption @ PSE | Feature Mode | | | | | Operating temperature |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | at AP | worst-case cable | Radio 1 | Radio 2 | Ethernet | USB | PoE-out | |
| **Somerset** | C9105AXI | .3af/at | 11W | 12.5W | 2x2 | 2x2 | 1Gbps | N/A | N/A | 40C |
| | C9105AXW | .3af | 13W | 14.9W | 2x2 | 2x2 | 2.5Gbps | N | N | 40C |
| | | .3at | 18.5W | 21.4W | 2x2 | 2x2 | 2.5Gbps | Y (4.5W) | N | 40C |
| | | .3at | 25.5W | 30W | 2x2 | 2x2 | 2.5Gbps | N | Y (10.5W) | 40C |

**Note:** The 9105AXI operates at full functionality with only 11 Watts

## Installation tips and guidelines

The 9105AXI should be mounted on the ceiling when possible.

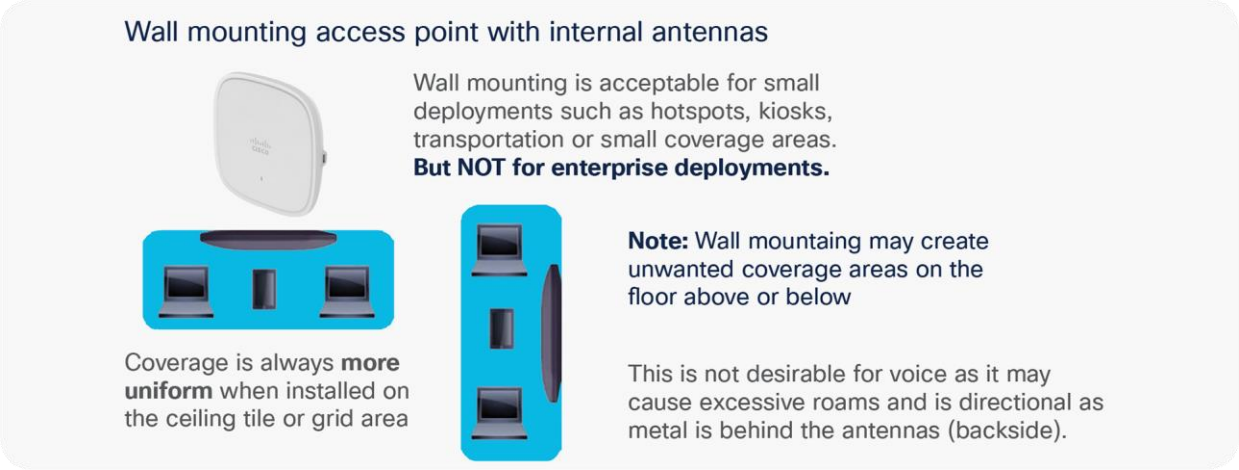


**Figure 14.**
Wall mounting

**Note:** When mounting the access point to a wall, it is recommended that you use the 9105AXW model, as it is expressly designed for wall mounting.

If you must mount the 9105AXI on a wall, there are third-party solutions that allow for this.

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**Figure 15.**
Third-party wall-mounting solutions for the 9105AXI

The 9105AXI can be adapted to the type of wedge bracket shown in Figure 15, which allows the AP to be oriented in the correct position while being mounted to a wall or perhaps a pole structure.

The following third-party vendors are recommended for different types of mounting solutions.

- Oberon: www.oberoninc.com/
- AccelTex: www.acceltex.com/
- Ventev: www.ventev.com/

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## Changing the color of an AP

If you wish to change the color of an AP, rather than painting it, which would void the warranty, consider using colored vinyl tape or a colored plastic cover from Oberon.

**Figure 16.**
Access point cover

**Figure 17.**
Custom vinyl skins

Third-party vendors such as AccelTex (www.acceltex.com) can change the appearance of the AP with a vinyl skin that can be customized for your particular environment.

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## Mean time between failures

### Catalyst 9105AXI/AXW MTBF

| 9105AXI calculated MTBF: | 9105AXW (Wall Plate) calculated MTBF: |
|---|---|
| 25C: 653, 568 Hours | 25C: 701, 904 Hours |
| 40C: 614, 054 Hours | 40C: 636, 108 Hours |
| 50C: 579, 332 Hours | 50C: 581, 802 Hours |

**Note:** When responding to RFP's competitors often use 25C (77F) which has a higher MTBF rating

## 9105AX Series software versions

The table below lists software versions by product type (current at the time this document was created).

**Table 2.** Access point software versions

| Access Points | IOS-XE | AireOS | Cisco DNA Center | Prime | CMX | ISE |
|---|---|---|---|---|---|---|
| **C9105** | 17.3 | 8.10 (MR3) | 2.1.2.0 | 3.9 | 10.6.2 (MR2) | 2.4<br>2.6<br>2.7 |
| **C9115AX, C9117AX C9120AX** | 16.12.1s | 8.9.111 | 1.3.1.2 | 3.7 | 10.6.2 | 2.3<br>2.4<br>2.5 |
| **C9130AXI** | 16.12.1s with AP DP | 8.10 | 1.3.1.2 | 3.7 | 10.6.2 | 2.3<br>2.4<br>2.6 |
| **C9120AXE/P** | 16.12.2 | 8.10 | 1.3.2 | 3.7 | 10.6.2 | 2.3<br>2.4<br>2.6 |
| **C9130AXE** | 17.1.1 | 8.10MR1 | 1.3.2 | 3.7 | 10.6.2 | 2.3<br>2.4<br>2.6 |
| **Wave 2 APs** | 16.12.1s | 8.5MR5 | 1.3.1.2 | 3.7 | 10.6.2 | 2.3<br>2.4<br>2.6 |

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## 9105AX Cisco DNA Center Release 2.1.2 Wireless AP Assurance Feature Matrix

| Wireless Assurance feature | WLC | 11ac Wave 2 1800, 1540 Series | 11ac Wave 2 2000, 3000,1560 Series | 11ac Wave 2 4800 Series | 11ax 9105AX Series | 11ax 9115AX Series | 11ax 9120AX Series | 11ax 9130AX Series |
|---|---|---|---|---|---|---|---|---|
| **Wi-Fi 6 Analytics** | AireOS | 8.10 MR3 | 8.10 MR3 | 8.10 MR3 | 8.10 MR3 | 8.10 MR3 | 8.10 MR3 | 8.10 MR3 |
| | IOS XE | 17.3.1 | 17.3.1 | 17.3.1 | 17.3.1 | 17.3.1 | 17.3.1 | 17.3.1 |
| **ICAP – Anomaly PCAP, Scheduled PCAP, AP/client statistics** | AireOS | 8.10 | 8.8 MR2 | 8.8 MR2 | 8.10 MR3 | 8.10 | 8.10 | 8.10 MR3 |
| | IOS XE | 16.12.1.s | 16.12.1s | 16.12.1s | 17.3.1 | 16.12.1s | 16.12.1s | 17.3.1 |
| **ICAP – Full packet capture** | AireOS | N/A | N/A | 8.8 MR2 | N/A | N/A | N/A | 8.10 MR3 |
| | IOS XE | N/A | N/A | 16.12.1s | N/A | N/A | N/A | 17.3.1 |
| **ICAP – Spectrum Analysis** | AireOS | N/A | 8.8 MR2 | 8.8 MR2 | N/A | N/A | 8.10 MR2 | 8.10 MR3 |
| | IOS XE | N/A | 16.12.1s | 16.12.1s | N/A | N/A | 17.2.1 | 17.3.1 |
| **Apple iOS Analytics** | AireOS | 8.5 | 8.5 | 8.8 MR2 | 8.10 MR3 | 8.10 | 8.10 | 8.10 MR1 |
| | IOS XE | 16.12.1s | 16.12.1s | 16.12.1s | 17.3.1 | 16.12.1s | 16.12.1s | 17.1.1 |
| **Samsung Analytics** | AireOS | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| | IOS XE | 17.1.1x | 17.1.1x | 17.1.1x | 17.3.1 | 17.1.1x | 17.1.1x | 17.1.1 |

**Note**

- This matrix depicts the minimum support required for each of the features.
- Recommendation is to move to 8.10 MR3 for AireOS, or 17.3.1 for Cisco IOS® XE.
- AireOS 8.9 is a deferred software branch and does not support ICAP.
- Catalyst® 9117AX Series APs do not and will not support ICAP.

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# Appendix

## Useful URLs

- Cisco Catalyst 9105AX Series data sheet
- Cisco Aironet® 1815T teleworker deployment guide
- Wi-Fi 6 overview

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