

Cisco Catalyst 9105AX Series Access Points

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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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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Figure 2. Cisco Catalyst 9105AXW



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- 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 3.81 cm) U.S. (5.9 x 5.9 x 1.5 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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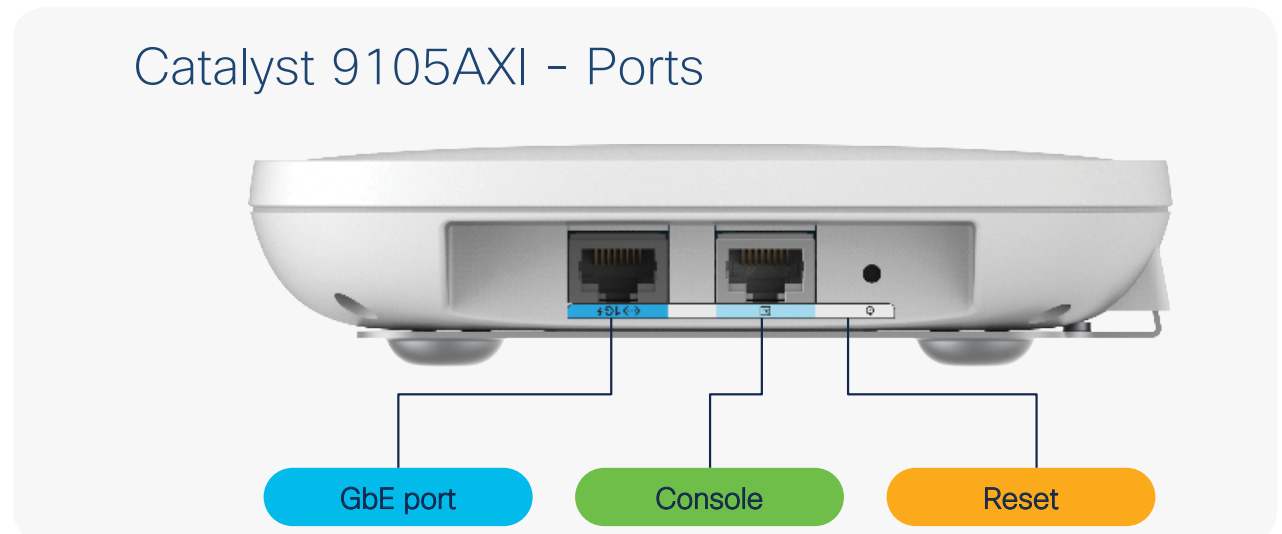
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Figure 3. Cisco Catalyst 9105AXI mechanicals



Figure 4. Cisco Catalyst 9105AXI ports



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Figure 5. Cisco Catalyst 9105AXW mechanicals

Catalyst 9105AXW – Wall plate



9105AXW – Front/side

Kensington lock

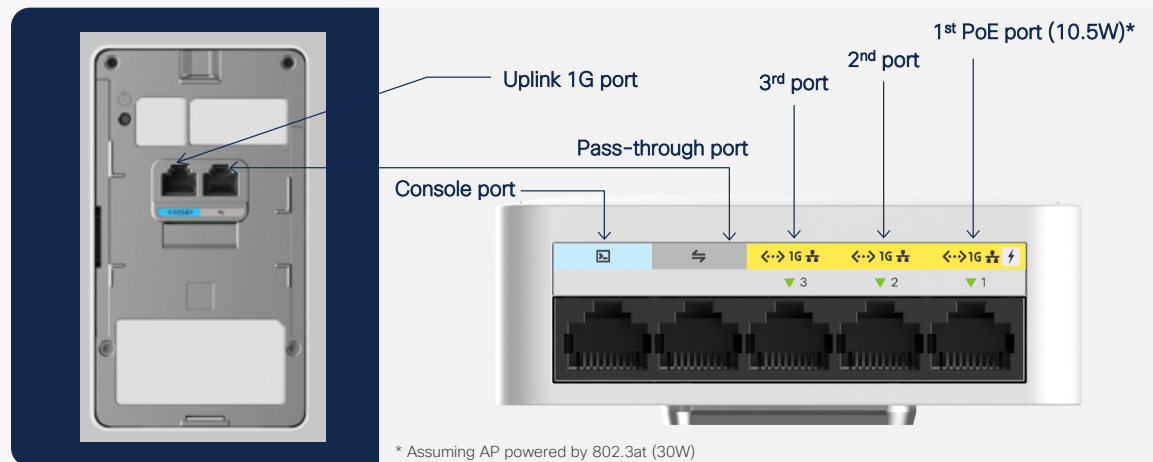


9105AXW – Front/other side (USB)
Uses AIR-AP-BRACKET-W4=

9105AXW – Mechanical: 6.3 x 3.5 x 1.3 in.

Figure 6. Cisco Catalyst 9105AXW ports

9105AXW wall plate ports



* Assuming AP powered by 802.3at (30W)

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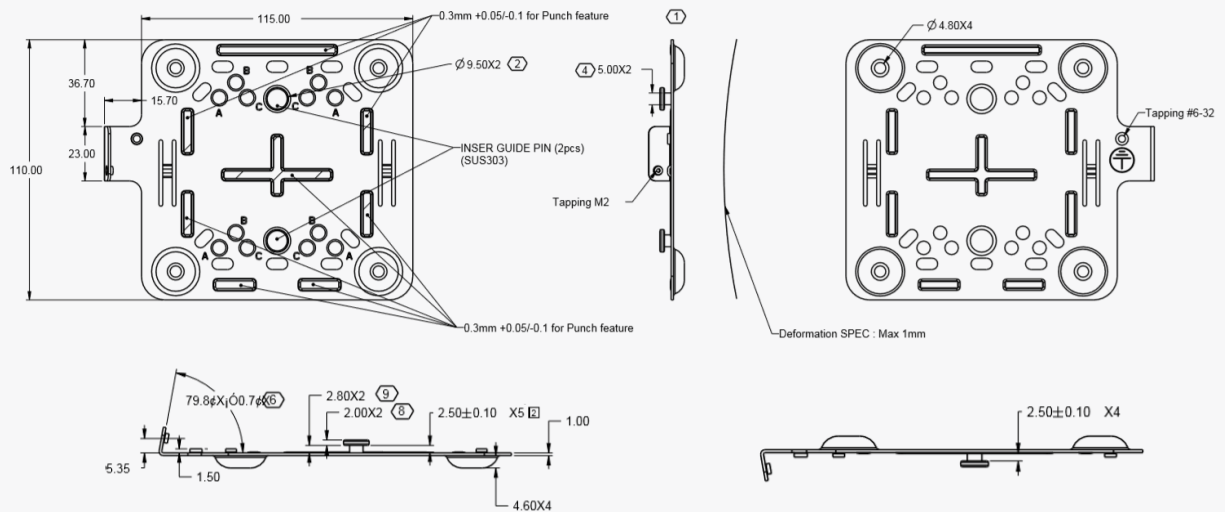
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The Catalyst 9105AXI uses Cisco bracket AIR-AP-BRACKET-8.

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

AIR-AP-BRACKET-8 for 9105AXI (same as AP-1815i bracket)



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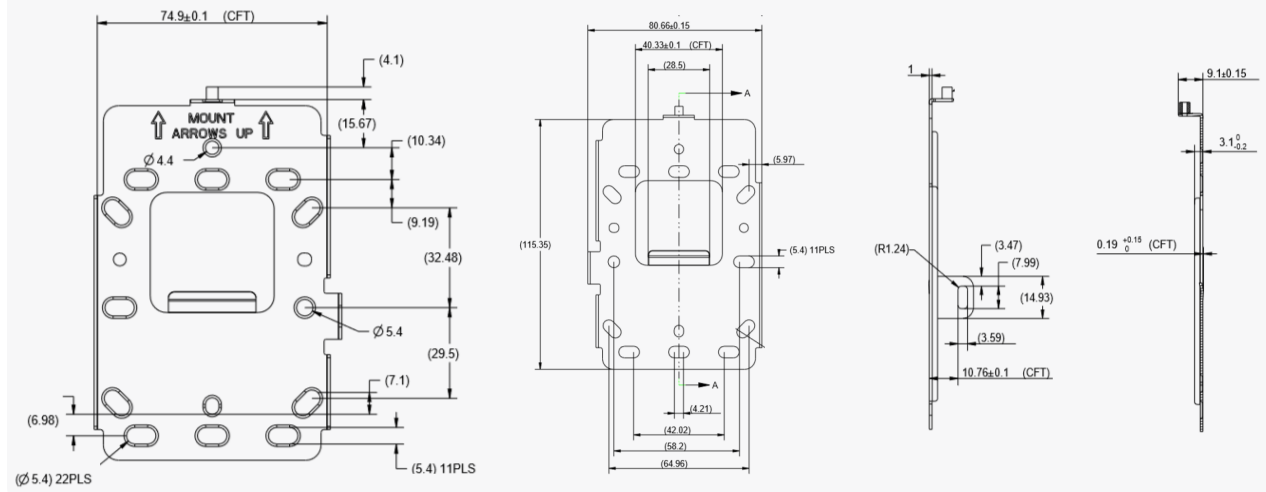
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The Catalyst 9105AXW uses Cisco bracket AIR-AP-BRACKET-W4.

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

AIR-AP-BRACKET-W4= expressly for the 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.

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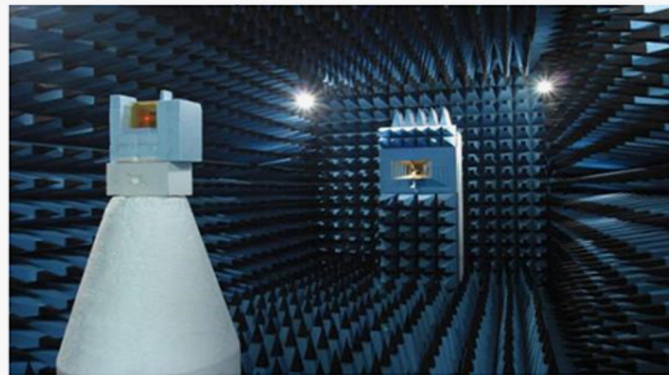
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9105AXI antenna and radiation patterns

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

C9105AXI/AXW Antenna Patterns



Satimo software compatible with Stargate-64 System.
Basic measurement tool is keysight PNA-L N5239B Network Analyzer



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

Figure 10. 9105AXI 2-GHz antenna patterns

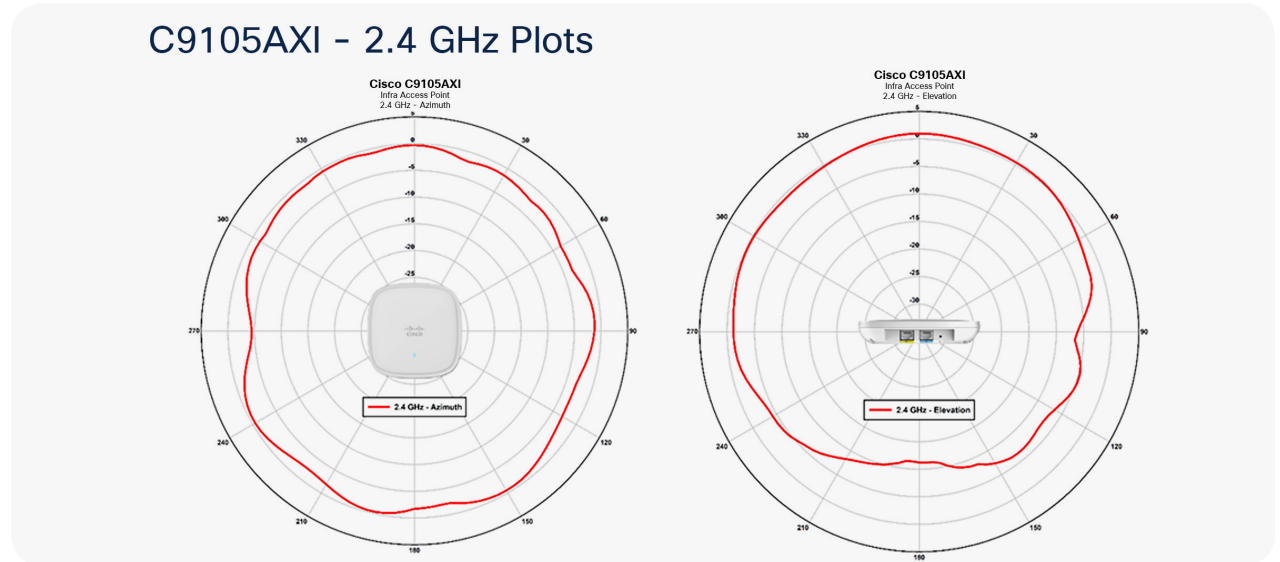
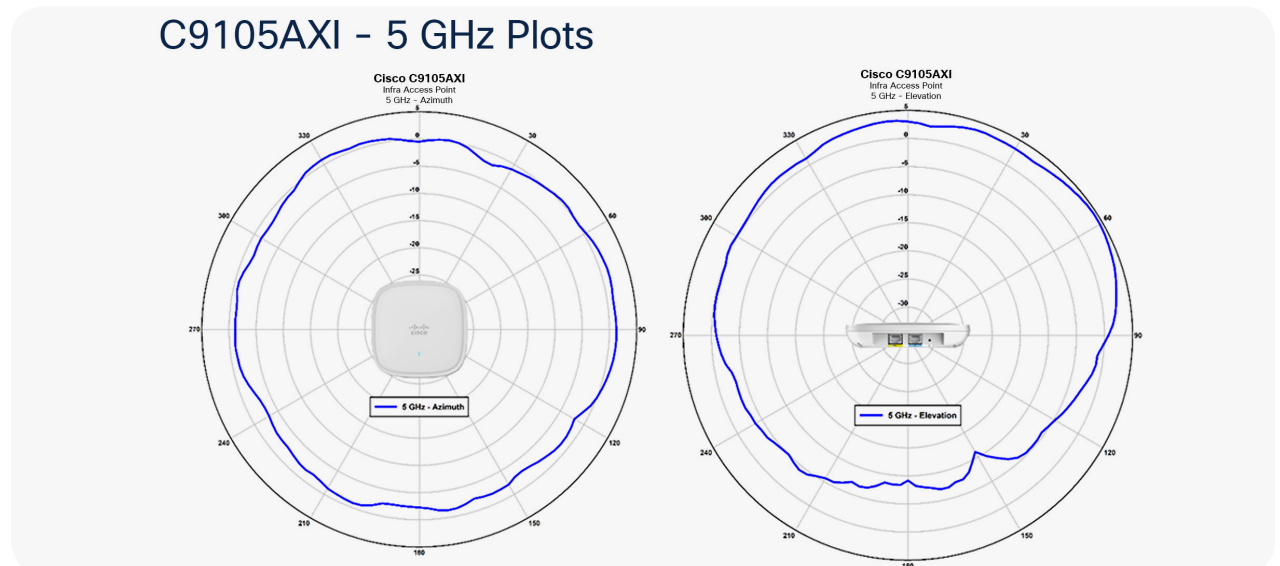


Figure 11. 9105AXI 5-GHz antenna patterns



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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

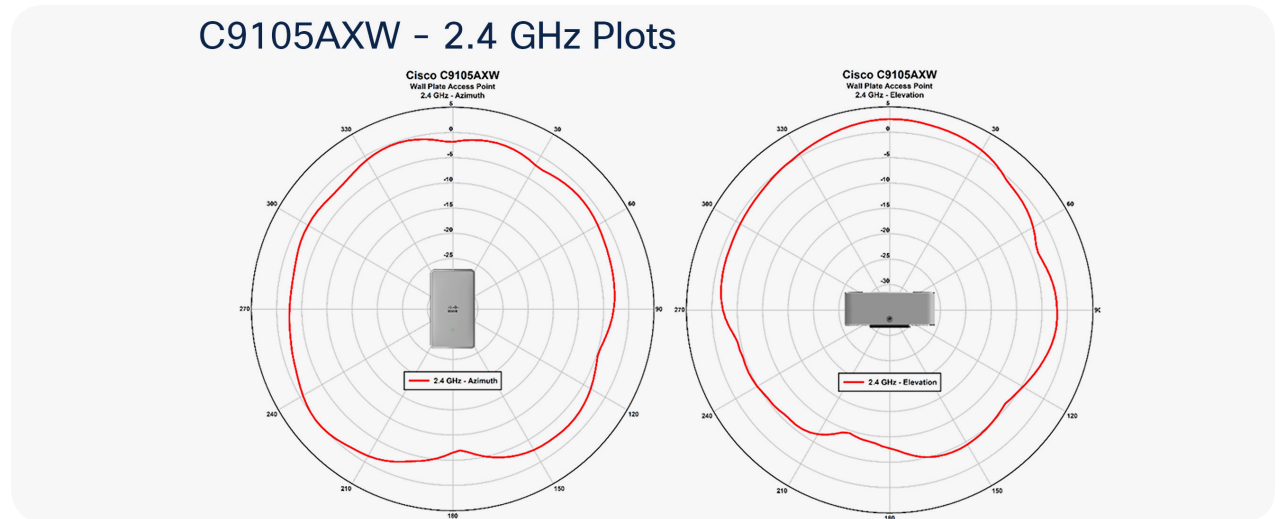
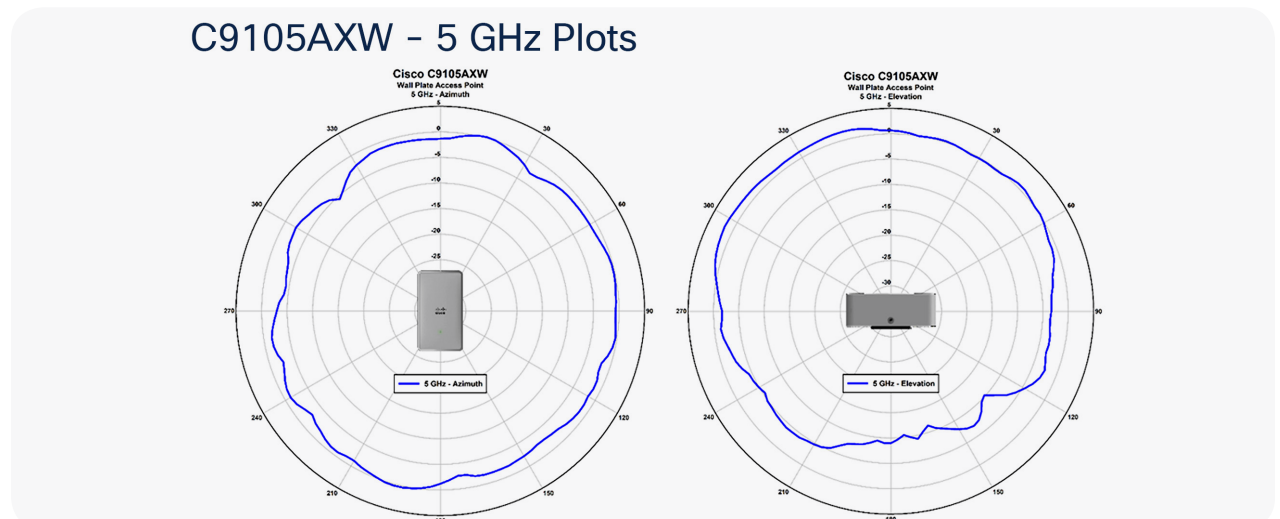


Figure 13. 9105AXW 5-GHz antenna patterns



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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

Wall mounting access point with internal antennas



Coverage is always **more uniform** when installed on the ceiling tile or grid area

Wall mounting is acceptable for small deployments such as hotspots, kiosks, transportation or small coverage areas.

But NOT for enterprise deployments.



Note: Wall mounting may create unwanted coverage areas on the floor above or below

This is not desirable for voice as it may cause excessive roams and is directional as metal is behind the antennas (backside).

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.

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

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



If the environment requires an AP color change or you have a requirement to remove the Cisco logo or LED you have options

www.oberonwireless.com

Phone (814) 867-2312

Part numbers:

1140/3500i/3600i-SKIN

3600e-SKIN

1260/3500e-SKIN

Specifications:

- Fabricated from textured ABS plastic
- The skin is virtually transparent to access point radio frequency signals
- Attaches to access point with Velcro tabs (included)
- Standard color is black
- Skins are paintable
- Custom colors are available on request. Please contact your Oberon representative

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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.

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

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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 2.6 2.7
C9115AX, C9117AX C9120AX	16.12.1s	8.9.111	1.3.1.2	3.7	10.6.2	2.3 2.4 2.5
C9130AXI	16.12.1s with AP DP	8.10	1.3.1.2	3.7	10.6.2	2.3 2.4 2.6
C9120AXE/P	16.12.2	8.10	1.3.2	3.7	10.6.2	2.3 2.4 2.6
C9130AXE	17.1.1	8.10MR1	1.3.2	3.7	10.6.2	2.3 2.4 2.6
Wave 2 APs	16.12.1s	8.5MR5	1.3.1.2	3.7	10.6.2	2.3 2.4 2.6

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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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- [Cisco Aironet® 1815T teleworker deployment guide](#)
- [Wi-Fi 6 overview](#)