Cisco Catalyst IW9167 Heavy Duty Series

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The Cisco® Catalyst® IW9167 Series provides reliable wireless connectivity for mission-critical applications in a state-of-the art platform. It can operate in Wi-Fi 6, Workgroup Bridge (WGB), or Ultra-Reliable Wireless Backhaul (URWB) mode.

Product overview

The Catalyst IW9167 Series addresses the growing need to provide reliable wireless connectivity for mission-critical applications as organizations automate processes and operations. It comes with three 4x4 radios in a heavy-duty design that is IP67 rated and packed with advanced features.

The Catalyst IW9167 Series is designed to take advantage of the 6 GHz band expansion to deliver a network that is more reliable and secure, with higher throughput, more capacity, and less device interference. The 6 GHz band support will be available with a future software upgrade and is subject to approvals and regulations by each countries' regulatory agencies for the use of the 6 GHz spectrum for outdoor standard power devices. Please refer to the Wi-Fi 6E white paper for more details on 6 GHz.

Cisco Catalyst IW9167E Heavy Duty Access Point

The Catalyst IW9167E is designed with external antenna ports and provides flexibility to choose the right antenna based on the use case. It offers unmatched flexibility, as it can operate in one of three different modes: Wi-Fi 6, WGB, or URWB:

- All the benefits of Wi-Fi 6 in industrial or outdoor spaces: Higher density, higher throughput, more channels, power efficiency, and improved security.
- WGB mode provides an arsenal of features and capabilities to help ensure continuous connectivity for static and mobile industrial applications in a Wi-Fi deployment.
- URWB provides ultra-reliable wireless connectivity for moving assets or to extend the network where running fiber isn't feasible or is too costly. It provides up to 99.995% availability, <10 ms latency, and zero packet loss with seamless handoffs. URWB is a proven technology that has been used by many customers, operates on unlicensed spectrum, deploys like Wi-Fi, and gives you full control of your network.

Figure 1.
Catalyst IW9167E Heavy Duty Access Point

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Cisco Catalyst IW9167I Heavy Duty Access Point

The Catalyst IW9167I is designed to make wireless deployments simple in outdoor and industrial environments. It is built with a cast-aluminum case that can handle water, dust, and extreme temperatures. It comes with a built-in antenna that enables high-throughput connectivity for high-density Wi-Fi clients.

The IW9167I supports Wi-Fi 6, and it comes with 6-GHz hardware support. That way organizations can deploy Wi-Fi 6E and get up to 1.2 GHz more spectrum to boost capacity and mitigate interference.

Figure 2.
Catalyst IW9167I Heavy Duty Access Point

Catalyst IW9167E Heavy Duty Access Point for Hazardous Locations

The Catalyst IW9167E-HZ has all the capabilities, benefits, and features of the IW9167E Heavy Duty Access Point with the additional capability to deploy in Hazardous Locations (HAZLOC) around the world. Equipped with hardened ports and certified by UL, ATEX, and IECEx, the Catalyst IW9167E Heavy Duty Access Point for Hazardous Locations brings Wi-Fi 6, Wi-Fi 6E, and URWB into regulated explosive environments for the first time.

Note: IW9167E-HZ shares all specifications listed for IW9167E unless otherwise noted

Secure infrastructure

Trustworthy systems built with Cisco Trust Anchor technologies provide a highly secure foundation for Cisco products. With the Cisco Catalyst IW9167 Series, these technologies enable assurance of hardware and software authenticity for supply chain trust and strong defense against man-in-the-middle attacks that compromise software and firmware. Trust Anchor capabilities include:

- Image signing
- Secure Boot
- Cisco Trust Anchor module

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Features and benefits

Table 1. Catalyst IW9167 Series features and benefits

Feature	Benefit	
Wi-Fi 6 and Wi-Fi 6E (802.11 ax)	The IEEE 802.11ax standard, also known as High-Efficiency Wireless or Wi-Fi 6, builds on 802.11ac. IW9167 series can support 4x4 MIMO and up to four spatial streams. Wi-Fi 6E is Wi-Fi 6 "extended" into the 6 GHz frequency band, allowing the use of additional channels.	
Flexible multitechnology support	Two different technologies (Wi-Fi and URWB) provide flexibility to choose a mode based on the use case. Ability to swap images in the field helps you select Wi-Fi, WGB, or URWB operating modes without changing the hardware.	
Tri-radio architecture	IW9167E • 2.4 GHz 4x4 radio: 20-MHz channels • 5 GHz 4x4 radio: 20, 40, 80 MHz channels • 5/6* GHz 4x4 radio: 20, 40, 80, and 160 MHz channels (6 GHz-only on IW9167E-STA)	IW9167I • 2.4 GHz 4x4 radio: 20-MHz channels • 5 GHz 4x4 radio: 20, 40, 80 MHz channels • 6* GHz 4x4 radio: 20, 40, 80, and 160 MHz channels
Multigigabit Ethernet	Dual Multigigabit Ethernet supports speeds up to 5 Gbps.	
Smart AP†¥	Smart AP causes the access point to change its power consumption to reflect its current client load. An access point will typically operate on the radios provided to it regardless of how many clients are connected. With Smart AP, if the number of clients is small enough, the access point will automatically reduce the radio stream count, saving power.	
Band steering¥†	Enhanced to help clients that are 6 GHz capable to leave the 5 GHz radio and connect to the 6 GHz one. Wi-Fi 6E clients are automatically directed to connect to the 6 GHz radio to take advantage of the benefits that the radio offers and free up the 2.4- and 5 GHz radios for legacy clients. IW9167 is Wi-Fi 6E ready, subject to approvals and regulations for the use of the 6 GHz spectrum by each country's regulatory agencies.	
Uplink/downlink OFDMA¥	Orthogonal Frequency-Division Multiple Access (OFDMA)-based scheduling splits the bandwidth into smaller frequency allocations called Resource Units (RUs), which can be assigned to individual clients in both the downlink and uplink directions to reduce overhead and latency.	
Uplink/downlink MU-MIMO technology¥	Supporting four spatial streams, Multiuser Multiple Input, Multiple Output (MU-MIMO) enables access points to split spatial streams between client devices to maximize throughput.	
BSS coloring¥	Spatial reuse (also known as Basic Service Set [BSS] coloring) allows the access points and their clients to differentiate between BSSs, thus permitting more simultaneous transmissions.	
Target Wake Time¥	Target Wake Time (TWT) allows the client to stay asleep and to wake up only at prescheduled (target) times to exchange data with the access point. This offers significant energy savings for battery-operated devices, up to three to four times the savings achieved by 802.11n and 802.11ac.	
Intelligent Capture¥	Intelligent Capture probes the network and provides Cisco DNA Center with deep analysis. The software can track more than 240 anomalies and instantaneously review all packets on demand, emulating the onsite network administrator. Intelligent Capture allows for more informed decisions on your wireless networks.	
Bluetooth 5.1	The integrated Bluetooth Low Energy (BLE) 5.1 radio enables location-based use cases such as asset tracking, wayfinding, and analytics.	

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Feature	Benefit
Scanning radio	Dedicated radio for monitoring air space to perform advanced RF spectrum analysis and deliver features such as Cisco CleanAir®, Wireless Intrusion Prevention System (WIPS), etc.
Container support for applications	Container support enables edge computing capabilities for IoT applications on the host access point.
Self-identifying antenna	The access point is able to read information from antennas that support the Self-Identifying Antenna (SIA) feature and automatically populates antenna gain for plug-and-play antenna configuration.
GNSS	A built-in GNSS (Global Navigation Satellite System) receiver provides coordinates to track the location of the access point.
M12 adapter	M12 adapter accessories give the flexibility to convert Ethernet and power interfaces on the base unit into M12 interfaces while retaining all the certifications.
Multipath operations†¢	Multipath Operations (MPO) can enhance reliability by sending duplicate copies of packets across multiple wireless paths.
WorkGroup Bridge (WGB)	Provides wireless connectivity to a lightweight access point infrastructure on behalf of wired clients that are connected via Ethernet behind the WGB access point.

† Available with a future software upgrade.

¥ Available only in Wi-Fi mode.

¢ Available only in URWB mode.

* 6 GHz subject to approval by country's regulatory agency.

Prominent features

Get reliable wireless connectivity for your mission-critical applications

As you automate your processes and operations to increase safety and productivity, you also need to improve your situational awareness to control your systems. Moving assets involved in mission-critical applications, such as Automated Guided Vehicles (AGVs), Autonomous Mobile Robots (AMRs), and teleremote devices, require reliable wireless connectivity. And sometimes you need to extend your network where running fiber isn't feasible or is too costly.

The Catalyst IW9167 Series gives you flexibility and reliability so you can extend reliable wireless connectivity to more places and applications, with features such as:

- **One hardware device, three different technologies:** Protect your investment and evolve your wireless networks without the added cost of purchasing a new device. Simply update the software to run Wi-Fi 6, WGB, or URWB.
- **MultiPath Operations (MPO):**[1] Patented technology that duplicates your high-priority traffic and works alongside hardware failures to increase availability, lower latency, and lower the effects of interference and hardware failures.
- **WorkGroup Bridge (WGB):** In workgroup bridge mode, the device associates to another access point as a client and provides a network connection for the equipment connected to its Ethernet port.

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- **Heavy-duty design:** IP67-rated, hardened to withstand shock, vibration, and extreme temperatures. Supports industrial protocols and industrial certifications (e.g., the EN 50155 rail standard on the Catalyst IW9167E).
- **Class I, Division 2, ATEX, and IECEx rated[2]:** extend cutting edge wireless connectivity to explosive environments worldwide with the Catalyst IW9167E-HZ.

[1] In URWB mode.

[2] Available on IW9167EH-x-HZ only; please work with your account team to ensure local requirements and regulations are met.

Licensing

Table 2. Wi-Fi licensing

Item	Description
IW-DNA-E	Industrial Wireless Cisco DNA Essentials
IW-DNA-A	Industrial Wireless Cisco DNA Advantage

Table 3. URWB licensing

Item	Description
IW9167-URWB-NW-E	IW9167 Cisco URWB Network Essentials
IW9167-URWB-NW-A	IW9167 Cisco URWB Network Advantage
IW9167-URWB-NW-P	IW9167 Cisco URWB Network Premier
IOTOD-IW-E	IoT-OD Essentials for Cisco URWB
IOTOD-IW-A	IoT-OD Advantage for Cisco URWB

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Product specifications

Table 4. IW9167 Series product specifications

Item	Specification
Hardware	**Cisco Catalyst IW9167E Heavy Duty Access Point** • IW9167EH-x: Catalyst IW9167E for x domains • IW9167EH-ROW: Catalyst IW9167E for 'Rest of the World' **Cisco Catalyst IW9167I Heavy Duty Access Point** • IW9167IH-x: Catalyst IW9167I for x domains • IW9167IH-ROW: Catalyst IW9167I for 'Rest of the World' **Catalyst IW9167E Heavy Duty Access Point for Hazardous Locations** • IW9167EH-x-HZ: Catalyst IW9167E-HZ for x domains • IW9167EH-ROW-HZ: Catalyst IW9167E-HZ for 'Rest of the World' **Cisco Catalyst IW9167E-STA Access Point (IW9167E AP with IW-ANT-PNL25610-R stadium antenna)** • IW9167EH-B-STA: Catalyst IW9167E-STA for B domain **Regulatory domains: (x = A, B, E, F, Q, or Z)** ROW is for 'rest of the world' that is not covered as part of above-mentioned specific domain list. Customers are responsible for verifying approval for use in their individual countries. To verify approval and to identify the regulatory domain that corresponds to a particular country, visit https://cae-cnc-prd.cisco.com/pdtcnc/#/. Not all regulatory domains have been approved. As they are approved, the part numbers will be available on the Global Price List and/or regional price lists. See the ordering information section for actual orderable part numbers.
Software	**IW9167E-AP** • Cisco IOS® XE Software Release 17.9.4 or later **IW9167E-URWB** • Cisco Unified Industrial Wireless Software 17.11.1 or later **IW9167E-WGB** • Cisco Unified Industrial Wireless Software 17.11.1 or later **IW9167I-AP** • Cisco IOS XE Software Release 17.12.1 or later **IW9167E-STA** • Cisco IOS XE Software Release 17.15.1 or later
Supported wireless LAN controllers	• Cisco Catalyst 9800 Series Wireless Controllers (physical or virtual)
802.11n version 2.0 (and related) capabilities	• 4x4 MIMO with four spatial streams in one 2.4 GHz radio and two 5 GHz radios • Maximal Ratio Combining (MRC) • 802.11n and 802.11a/g • 20- and 40-MHz channels • PHY data rates up to 1.5 Gbps (with 40 MHz on both 5 GHz radios and 20 MHz on the 2.4 GHz radio) • Packet aggregation: Aggregate MAC Protocol Data Unit (A-MPDU) (transmit and receive), Aggregate MAC Service Data Unit (A-MSDU) (transmit and receive)

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Item	Specification	
	• 802.11 Dynamic Frequency Selection (DFS) • Cyclic Shift Diversity (CSD) support	
802.11ac	• 4x4 downlink MU-MIMO with four spatial streams on both 5 GHz radios • Maximal Ratio Combining (MRC) • 802.11ac beamforming • 20, 40, and 80 MHz channels • PHY data rates up to 3.4 Gbps (dual 4x4:4SS 80 MHz) • Packet aggregation: A-MPDU (transmit and receive), A-MSDU (transmit and receive) • 802.11 DFS • CSD support • Wi-Fi Protected Access (WPA) 3 support	
802.11ax	• 4x4 uplink/downlink MU-MIMO with four spatial streams in 2.4, 5, and 6 GHz* • Uplink/downlink OFDMA • Target Wake Time (TWT) • BSS coloring • Maximal Ratio Combining (MRC) • 802.11ax beamforming • 20, 40, 80, and 160 MHz channels (IW9167E 5/6 GHz radio, IW9167I and IW9167E-STA 6 GHz radio) • 20, 40, 80 channels (5 GHz radio) • 20 MHz channels (2.4 GHz radio) • PHY data rates up to 7.8 Gbps (4x4 160 MHz on 6 GHz, 4x4 80 MHz on 5 GHz, and 4x4 20 MHz on 2.4 GHz) • Packet aggregation: A-MPDU (transmit and receive), A-MSDU (transmit and receive) • 802.11 DFS • CSD support • WPA3 support	
Antennas	**IW9167E** • 8x N-type antenna ports • 1x TNC GNSS antenna port • Cisco offers the industry's broadest selection of antennas, delivering optimal coverage for a variety of deployment scenarios. • Supports Self-Identifiable Antennas (SIA) **IW9167E-STA** • 2.4 GHz and BLE: Peak gain 8 dBi, ±45° cross-polarized, directional antennas • 5 GHz: Peak gain 9 dBi, ±45° cross-polarized, directional antennas • 6 GHz: Peak gain 10 dBi, ±45° cross-polarized, directional antennas • GNSS: Average gain -2 dBi, linearly polarized, omnidirectional antenna	**IW9167I** • 2.4 GHz: Peak gain 3.95 dBi, internal antennas, cross-polarized, omnidirectional • 5 GHz: Peak gain 4.78 dBi, internal antennas, cross-polarized, omnidirectional • 6 GHz: Peak gain 5.81 dBi, internal antennas, cross-polarized, omnidirectional • BLE: Peak gain 3.05 dBi, internal antenna, vertical polarization, omnidirectional • GNSS: Average gain -2 dBi, linearly polarized, omnidirectional antenna
Interfaces	• 1x 100M/1000M/2.5G/5G Multigigabit Ethernet (RJ-45)/M12 X-code autosensing PoE+ in (802.3at/bt), UPOE in • 1x SFP (copper) 100M/1000M/10G Multigigabit Ethernet /M12 X-code OR 1x SFP (fiber) 1G/10G • Management console port (RJ-45) • Multicolor system LED	

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<table>
<tr><th>Item</th><th>Specification</th></tr>
<tr><td></td><td>

DC power input (micro-fit/M12 A-code)
Reset button

Note: PG 13.5 glands or M12 adapters shall be used with Ethernet and power interfaces to meet IP67 rating.

Note: Catalyst IW9167E-HZ has permanent M25 ports. M12 adapters are not compatible. See Installation Guide for gland requirements.
</td></tr>
<tr><td>Dimensions (W x L x H)</td><td>
IW9167E/IW9167E-HZ

11.5 x 10.5 x 2.8 in (29.2 x 26.7 x 7.1 cm)

Note: IW9167E-HZ has permanent M25 ports extending. 35” on bottom of Access Points but does not exceed overall dimensions listed
</td><td>
IW9167I

11.5 x 10.5 x 3.0 in (29.2 x 26.7 x 7.6 cm)

IW9167E-STA

14.5 x 14.5 x 4.3 in (36.8 x 36.8 x 10.9 cm)

</td></tr>
<tr><td>Weight</td><td>
IW9167E

9.2 lb. (4.2 kg)

IW9167E-HZ

9.4 lb. (4.3 kg)

</td><td>
IW9167I

8 lb. (3.6 kg)

IW9167E-STA

15.5 lb. (7 kg)

</td></tr>
<tr><td>Input power requirements</td><td>

802.3at (PoE+), 802.3bt (PoE++), Cisco Universal PoE (Cisco UPOE®)
DC power source: 24 to 48 VDC (maximum voltage range: 18 to 60 VDC)
Cisco power AC-DC power adapter, IW-PWRADPT-MFIT4P=
Cisco power injector, IW-PWRINJ-60RGDMG=

</td></tr>
<tr><td>Power draw</td><td>
<table>
<tr><th>Power input type</th><th>2.4 GHz radio</th><th>5 GHz radio</th><th>5/6 GHz radio</th><th>RJ45</th><th>SFP/SFP+</th><th>Power</th></tr>
<tr><td>24-48 VDC</td><td>4x4</td><td>4x4</td><td>4x4</td><td>5Gbps</td><td>Yes</td><td>48W</td></tr>
<tr><td>802.3bt (UPOE)</td><td>4x4</td><td>4x4</td><td>4x4</td><td>5Gbps</td><td>Yes</td><td>48W</td></tr>
<tr><td>802.3at (PoE+)</td><td>2x2</td><td>2x2</td><td>2x2</td><td>1Gbps</td><td>Yes/1G</td><td>25W</td></tr>
</table>
Note: Power required at the Power Source Equipment (PSE) will depend on the cable length and other environmental issues.
</td></tr>
<tr><td>Surge</td><td>
IW9167E

DC power input

EN50121-4, ± 2 kV (line-earth) and ± 1 kV (line-line)
AREMA, ± 1 kV (line-earth) and ± 1 kV (line-line)
CISPR35, ± 0.5 kV (line-earth)

Surge protection to ± 2 kV on Ethernet ports
Surge protection to ± 1 kV on SFP copper port with shielded cable

</td><td>
IW9167I

DC power input

CISPR35, ± 0.5 kV (line-earth)

Surge protection to ± 2 kV on Ethernet ports
Surge protection to ± 1 kV on SFP copper port with shielded cable

</td></tr>
</table>

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Item	Specification	
Environmental	**IW9167E** • Nonoperating (storage) temperature: -40° to +185°F (-40° to +85°C) • Nonoperating (storage) altitude test: +25˚C (77˚F), 17,000 ft. • Operating temperature: -40° to +158°F (-40° to +70°C) with solar load and still air. • Extended operating temperature (DC powered, not applicable to IW9167E-STA):-58° to +167°F (-50° to +75°C) without solar loading, still air, and cold start limited to-40°C • Operating type test: +85°C for 16 hours • Operating humidity: 0% to 100% (condensing) • Operating altitude: 15,000 ft. (4,500 m) • Wind resistance: Up to 160 mph (257 km/h) sustained winds	• IW9167I • Nonoperating (storage) temperature: -40° to +185°F (-40° to +85°C) • Nonoperating (storage) altitude test: +25˚C (77˚F), 17,000 ft. • Operating temperature: -40° to +131°F (-40° to +55°C) with solar load and still air • Extended operating temperature (DC powered): -58° to +149°F (-50° to +65°C) without solar loading, still air, and cold start limited to -40°C • Operating type test: +85°C for 16 hours • Operating humidity: 0% to 100% (condensing) • Operating altitude: 15,000 ft. (4,500 m) • Wind resistance: Up to 160 mph (257 km/h) sustained winds
Environmental ratings	• EN/IEC 60529 (IP66 and IP67)	
System memory	• 2048 MB DRAM • 1024 MB flash	
Data rates supported	2.4 GHz radio: 802.11b: 1, 2, 5.5, 11 Mbps 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11n: HT20 MCS0 – 31 802.11ax: HE20 MCS0 – 11, 1 to 4 spatial streams 5 GHz radio: 802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11n: HT20 and HT40, MCS0 to 31 802.11ac: • VHT20 MCS0 to 8, 1 to 4 spatial streams • VHT40 and VHT80 MCS0 to 9, 1 to 4 spatial streams 802.11ax: • HE20, HT40, and HE80 MCS0 to 11, 1 to 4 spatial streams IW9167E 5/6 GHz radio: 802.11a (5 GHz band only, not applicable to IW9167E-STA): 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11n (5 GHz band only, not applicable to IW9167E-STA): HT20 and HT40, MCS0 to 31 802.11ac (5 GHz band only, not applicable to IW9167E-STA): • VHT20 MCS0 to 8, 1 to 4 spatial streams • VHT80, VHT160 MCS0 to 9, 1 to 4 spatial streams 802.11ax: HE20, HT40, HE80, and HE160 MCS0 to 11, 1 to 4 spatial streams IW9167I 6 GHz radio:	

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Item	Specification
	802.11ax: HE20, HE40, HE80, and HE160 MCS0 to 11,1 to 4 spatial streams
Frequency band and 20-MHz operating channels	A (A regulatory domain): • 2.412 to 2.462 GHz; 11 channels • 5.260 to 5.320 GHz; 4 channels • 5.500 to 5.700 GHz; 8 channels (excludes 5.600 to 5.640 GHz) • 5.745 to 5.825 GHz; 5 channels • 5.955 to 6.855 GHz; 46 channels B (B regulatory domain): • 2.412 to 2.462 GHz; 11 channels • 5.180 to 5.320 GHz; 8 channels • 5.500 to 5.720 GHz; 12 channels • 5.745 to 5.825 GHz; 5 channels • 5.955 to 6.415 GHz; 24 channels • 6.535 to 6.855 GHz; 17 channels E (E regulatory domain, outdoor): • 2.412 to 2.472 GHz; 13 channels • 5.500 to 5.700 GHz; 11 channels E (E regulatory domain, indoor): • 2.412 to 2.472 GHz; 13 channels • 5.180 to 5.320 GHz; 8 channels • 5.500 to 5.700 GHz; 11 channels • 5.955 to 7.115 GHz; 59 channels (IW9167I only) F (F regulatory domain): • 2.412 to 2.472 GHz; 13 channels • 5.745 to 5.805 GHz; 4 channels Q (Q regulatory domain): • 2.412 to 2.472 GHz; 13 channels • 5.500 to 5.720 GHz; 12 channels Z (Z regulatory domain): • 2.412 to 2.462 GHz; 11 channels • 5.500 to 5.700 GHz; 8 channels (excludes 5.600 to 5.640 GHz) • 5.745 to 5.825 GHz; 5 channels **Note:** This varies by regulatory domain. Customers are responsible for verifying approval for use in their individual countries. To verify approval and to determine availability of the regulatory domain that corresponds to a particular country, visit https://cae-cnc-prd.cisco.com/pdtcnc/#/.

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Item	Specification
Maximum number of nonoverlapping channels	**2.4 GHz** • 802.11b/g: ◦ 20 MHz: 3 • 802.11n/ax: ◦ 20 MHz: 3 • 40 MHz: 1 (hardware capable) **5 GHz** • 802.11a: ◦ 20 MHz: 25 • 802.11n: ◦ 20 MHz: 25 ◦ 40 MHz: 12 • 802.11ac/ax: ◦ 20 MHz: 25 ◦ 40 MHz: 12 ◦ 80 MHz: 6 **6 GHz*** • 802.11ax: ◦ 20 MHz: 59 ◦ 40 MHz: 29 ◦ 80 MHz: 14 ◦ 160 MHz: 7
	Note: This varies by regulatory domain. Refer to the product documentation for specific details for each regulatory domain.
Available conducted transmit power settings (max/min), all antennas active	**2.4 GHz** • 24 dBm (250 mW) • -4 dBm (0.4 mW) **5 GHz** • 30 dBm (1 W) • -4 dBm (0.4 mW) **IW9167E 5/6 GHz** • 23 dBm (200 mW) • -4 dBm (0.4 mW) **IW9167I 6 GHz** • 18 dBm (63 mW) • -4 dBm (0.4 mW)

Conducted transmit power and receive sensitivity

	2.4 GHz radio					5 GHz radio					5/6 GHz radio (E) 6 GHz radio (I, E-STA)				
Data Rate / Spatial streams	**Total Tx power (dBm)**			**Rx sensitivity (dBm)**		**Total Tx power (dBm)**			**Rx sensitivity (dBm)**		**Total Tx power (dBm)**			**Rx sensitivity (dBm)**	
	E	**E-STA**	**I**	**E & E-STA**	**I**	**E**	**E-STA**	**I**	**E & E-STA**	**I**	**E**	**E-STA**	**I**	**E & E-STA**	**I**
802.11/11b															
1 Mbps	1	27	27	30	-99	-100	-	-	-	-	-	-	-	-	-
11 Mbps	1	27	27	30	-90	-91	-	-	-	-	-	-	-	-	-
802.11a/g															
6 Mbps	1	27	27	30	-93	-94	30	26	30	-96	-94	23	-	-	-96	-
24 Mbps	1	27	27	30	-84	-85	30	26	30	-87	-86	23	-	-	-86	-
54 Mbps	1	27	27	27	-77	-78	27	26	27	-79	-78	21	-	-	-79	-
802.11n HT20															
MCS0	1	27	27	30	-94	-95	30	26	30	-96	-94	23	-	-	-95	-
MCS7	1	26	26	26	-77	-77	25	25	25	-79	-77	20	-	-	-79	-

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Item	Specification																
	MCS8	2	27	27	30	-92	-92	30	26	30	-93	-92	23	-	-	-91	-
	MCS15	2	26	26	26	-74	-74	25	25	25	-76	-74	20	-	-	-76	-
	MCS24	4	24	24	30	-89	-89	30	26	30	-90	-89	23	-	-	-89	-
	MCS31	4	24	24	26	-71	-71	25	25	25	-73	-71	20	-	-	-73	-
	802.11n HT40																
	MCS0	1	-	-	-	-	-	28	26	28	-94	-91	23	-	-	-92	-
	MCS7	1	-	-	-	-	-	25	25	25	-76	-74	20	-	-	-76	-
	MCS8	2	-	-	-	-	-	28	26	28	-91	-88	23	-	-	-89	-
	MCS15	2	-	-	-	-	-	25	25	25	-73	-71	20	-	-	-73	-
	MCS24	4	-	-	-	-	-	28	26	28	-88	-85	23	-	-	-86	-
	MCS31	4	-	-	-	-	-	25	25	25	-70	-68	20	-	-	-70	-
	802.11ac VHT20																
	MCS0	1	-	-	-	-	-	30	26	30	-96	-94	23	-	-	-95	-
	MCS8	1	-	-	-	-	-	24	24	24	-74	-72	19	-	-	-75	-
	MCS0	2	-	-	-	-	-	30	26	30	-93	-92	23	-	-	-92	-
	MCS8	2	-	-	-	-	-	24	24	24	-71	-69	19	-	-	-72	-
	MCS0	4	-	-	-	-	-	30	26	30	-90	-89	23	-	-	-89	-
	MCS8	4	-	-	-	-	-	24	24	24	-68	-66	19	-	-	-69	-
	802.11ac VHT40																
	MCS0	1	-	-	-	-	-	28	26	28	-94	-91	23	-	-	-92	-
	MCS9	1	-	-	-	-	-	24	24	24	-70	-69	19	-	-	-71	-
	MCS0	2	-	-	-	-	-	28	26	28	-91	-88	23	-	-	-89	-
	MCS9	2	-	-	-	-	-	24	24	24	-67	-66	19	-	-	-68	-
	MCS0	4	-	-	-	-	-	28	26	28	-88	-85	23	-	-	-86	-
	MCS9	4	-	-	-	-	-	24	24	24	-64	-63	19	-	-	-65	-
	802.11ac VHT80																
	MCS0	1	-	-	-	-	-	28	25	28	-91	-89	23	-	-	-89	-

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Item	Specification																
	MCS9	1	-	-	-	-	-	23	23	24	-67	-66	19	-	-	-67	-
	MCS0	2	-	-	-	-	-	28	25	28	-88	-86	23	-	-	-86	-
	MCS9	2	-	-	-	-	-	23	23	24	-64	-63	19	-	-	-64	-
	MCS0	4	-	-	-	-	-	28	25	28	-85	-83	23	-	-	-83	-
	MCS9	4	-	-	-	-	-	23	23	24	-61	-60	19	-	-	-61	-
	802.11ax HT20																
	MCS0	1	27	27	30	-94	-95	30	26	30	-96	-94	23	23	16	-95	-96
	MCS11	1	23	23	23	-65	-66	23	23	23	-67	-65	16	16	16	-68	-69
	MCS0	2	27	27	30	-92	-92	30	26	30	-93	-92	23	23	16	-92	-93
	MCS11	2	23	23	23	-62	-63	23	23	23	-64	-62	16	16	16	-65	-66
	MCS0	4	24	24	30	-89	-89	30	26	30	-90	-89	23	23	16	-89	-90
	MCS11	4	23	23	23	-59	-60	23	23	23	-61	-59	16	16	16	-62	-63
	802.11ax HE40																
	MCS0	1	-	-	-	-	-	28	26	28	-94	-92	23	23	16	-92	-93
	MCS11	1	-	-	-	-	-	23	23	23	-64	-62	16	16	16	-64	-66
	MCS0	2	-	-	-	-	-	28	26	28	-91	-89	23	23	16	-89	-90
	MCS11	2	-	-	-	-	-	23	23	23	-61	-59	16	16	16	-61	-63
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	MCS11	4	-	-	-	-	-	23	23	23	-58	-56	16	16	16	-58	-60
	802.11ax HE80																
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	MCS0	2	-	-	-	-	-	28	25	28	-88	-86	23	23	18	-86	-87
	MCS11	2	-	-	-	-	-	22	22	23	-58	-57	16	16	18	-59	-60
	MCS0	4	-	-	-	-	-	28	25	28	-85	-83	23	23	18	-83	-84
	MCS11	4	-	-	-	-	-	22	22	23	-55	-54	16	16	18	-56	-57

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Item	Specification																
	802.11ax HE160																
	MCS0	1	-	-	-	-	-	-	-	-	-	-	23	23	18	-86	-87
	MCS11	1	-	-	-	-	-	-	-	-	-	-	16	16	18	-58	-60
	MCS0	2	-	-	-	-	-	-	-	-	-	-	23	23	18	-83	-84
	MCS11	2	-	-	-	-	-	-	-	-	-	-	16	16	18	-55	-57
	MCS0	4	-	-	-	-	-	-	-	-	-	-	23	23	18	-80	-81
	MCS11	4	-	-	-	-	-	-	-	-	-	-	16	16	18	-52	-54
	Note: Values in this table assume all four antennas are used.																

Compliance standards	**IW9167E** **Environmental** EN 60529 IP67 UL50E Type 4X IEC 60068-2-1 (Cold) IEC 60068-2-2 (Dry Heat) IEC 60068-2-14 (Change of Temperature) IEC 60068-2-30 (Damp Heat) IEC 60068-2-6 (Vibration) IEC 60068-2-27 (Shock) IEC 60068-2-30 (Humidity) IEC 60068-2-32 (Freefall) IEC 60068-3-3 (Seismic) **Electromagnetic compatibility** FCC 47 CFR Part 15 Class A EN 55032 Class A VCCI Class A AS/NZ CISPR 32 Class A CISPR 32 Class A ICES 003 Class A CNS13438 Class A EN 300 386 KS C 9832:2019 EN 301 489-1 v2.1.1 EN 301 489-17 v2.1.1 EN 301 489 – 19	**IW9167I** **Environmental** EN 60529 IP67 UL50E Type 4X **Electromagnetic compatibility** FCC 47 CFR Part 15 Class A EN 55032 Class A VCCI Class A AS/NZ CISPR 32 Class A CISPR 32 Class A ICES 003 Class A CNS13438 Class A EN 300 386 KS C 9832:2019 EN 301 489-1 v2.1.1 EN 301 489-17 v2.1.1 EN 301 489 – 19 EN 55035 CISPR35 KS C 9835:2019 KS X 3124 KS X 3126 IEC/EN 61000-4-2 - Electrostatic Discharge IEC/EN 61000-4-3 - Radiated RF Immunity IEC/EN 61000-4-5 - Surge

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Item	Specification	
	EN 55035 CISPR35 KS C 9835:2019 KS X 3124 KS X 3126 IEC/EN 61000-4-2 - Electrostatic Discharge IEC/EN 61000-4-3 - Radiated RF Immunity IEC/EN 61000-4-5 - Surge IEC/EN 61000-4-6 - Conducted RF Immunity IEC/EN 61000-4-8 - Power Frequency Magnetic Field IEC 61000-4-9 – Pulsed Magnetic Field IEC 61000-4-11 - AC Voltage Dips IEC 61000-4-18 - Damped Oscillatory Wave EN-61000-4-29 - DC Voltage Dips **Safety** IEC 62368-1 EN 62368-1 EN 62311 **Flammability** EN 45545-3 DIN 5510-2 **Industrial** EN 61000-6-2 – Industrial EN 61000-6-4 - Industrial EN 61000-6-1 - Light Industrial **Rail** AREMA C&S Manual Section 11.5.1 AAR S9401 Rail - Rolling stock cab, wayside outside EN 50155 Rail - Electronic Equipment on Rolling Stock Class TX (EMC, Environmental) EN 61373 Rail - Environmental EN 50121-4 Rail - Signaling and Telecommunications Apparatus EN 50121-3-2 Rail - Apparatus for Rolling Stock EN 61373 - Shock and Vibration **Hazardous Locations (IW9167E-HZ only)** Class I Division 2 (C1D2) UL/cUL C1D2	IEC/EN 61000-4-6 - Conducted RF Immunity IEC/EN 61000-4-8 - Power Frequency Magnetic Field IEC 61000-4-11 - AC Voltage Dips EN-61000-4-29 - DC Voltage Dips **Safety** IEC 62368-1 EN 62368-1 EN 62311 **Industrial** EN 61000-6-2 – Industrial EN 61000-6-4 - Industrial EN 61000-6-1 - Light Industrial

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Item	Specification
	Zone 2/Zone 22 (ec+ic+tc) UL 121201 CSA C22.2 No 213 ANSI/UL 60079-0, -7, -11, -31 IECEx ATEX UKEx IEC/EN 60079-0 IEC/EN 60079-7 IEC/EN 60079-11 IEC/EN 60079-31
Wireless communication standards	**Radio approvals** • FCC Part 15.247, 15.407 • RSS 247 • EN 300 328 v2.2.2 (EU) • EN 301 893 v2.1.1 (EU) • EN 303 413 • ARIB-STD 66 (Japan) • ARIB-STD T71 (Japan) • EMI and susceptibility (Class B) • EN 303 687 - (IW9167IH LPI approval) • AS/NZ 4268:2017 Amendment 1:2021 standard (IW9167IH LPI approval) • Hongkong OFCA 6GHz approval (IW9167IH LPI approval) **IEEE Wi-Fi and security standards** • IEEE 802.11a/b/g/n/ac/ax, 802.11h, 802.11d, 802.11v, 802.11u, 802.11k, 802.11r • IEEE 802.11i, Wi-Fi Protected Access 3 (WPA3), WPA2, WPA • IEEE 802.1X • Advanced Encryption Standards (AES), Temporal Key Integrity Protocol (TKIP) **Extensible Authentication Protocol (EAP) types** • EAP-Transport Layer Security (TLS) • EAP-Tunneled TLS (TTLS) or Microsoft Challenge Handshake Authentication Protocol Version 2 (MSCHAPv2) • Protected EAP (PEAP) v0 or EAP-MSCHAPv2 • EAP-Flexible Authentication via Secure Tunneling (FAST) • PEAP v1 or EAP-Generic Token Card (GTC) • EAP-Subscriber Identity Module (SIM) **Multimedia** • Wi-Fi Multimedia (WMM) **Other** • FCC Bulletin OET-65C • RSS-102

*6 GHz usage subject to approvals by country's regulatory agency.

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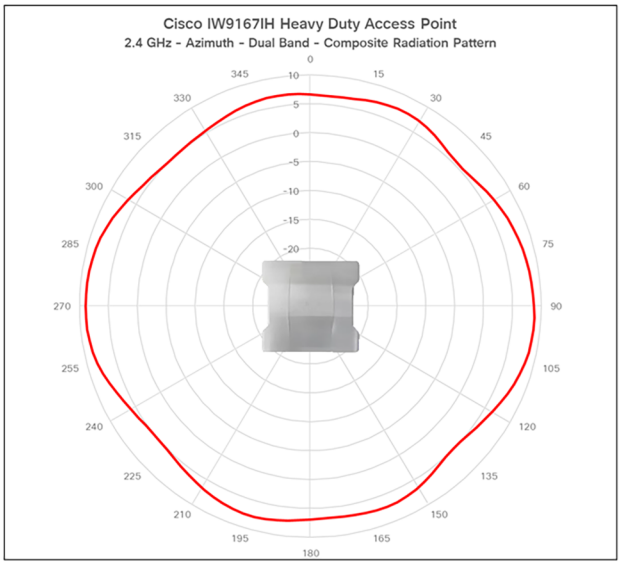
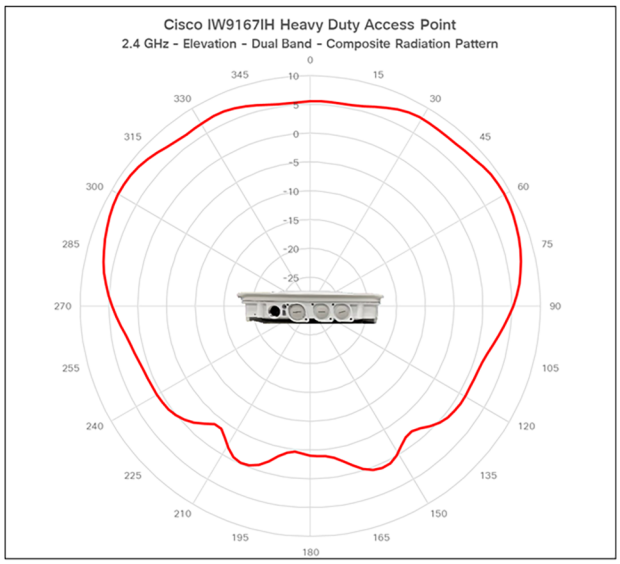
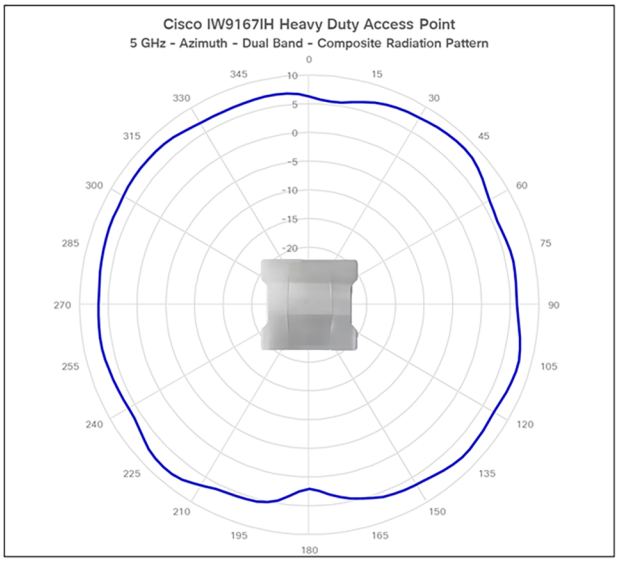
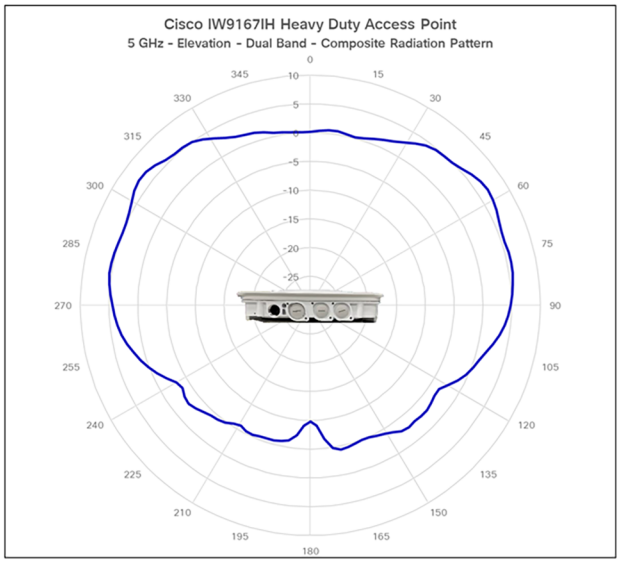
IW9167I antenna patterns









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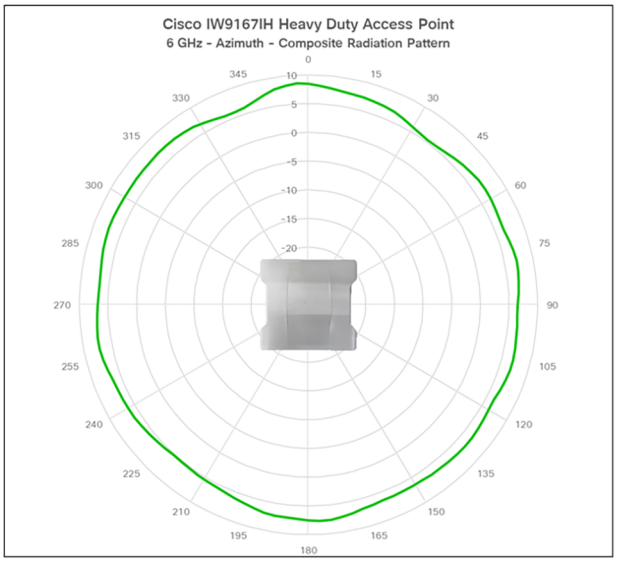

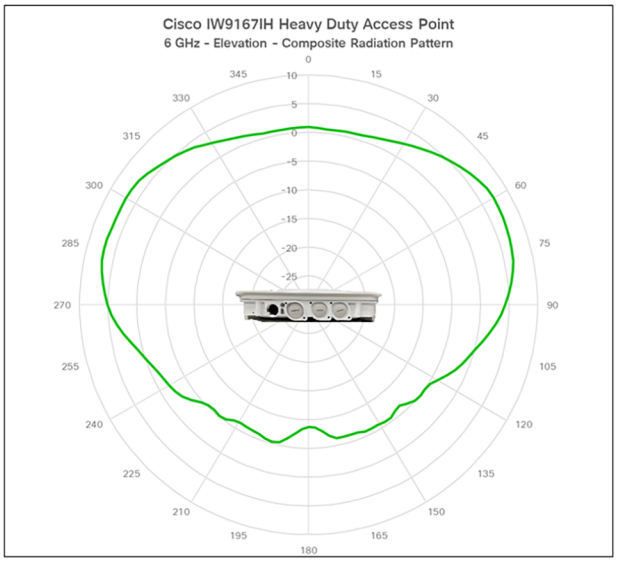

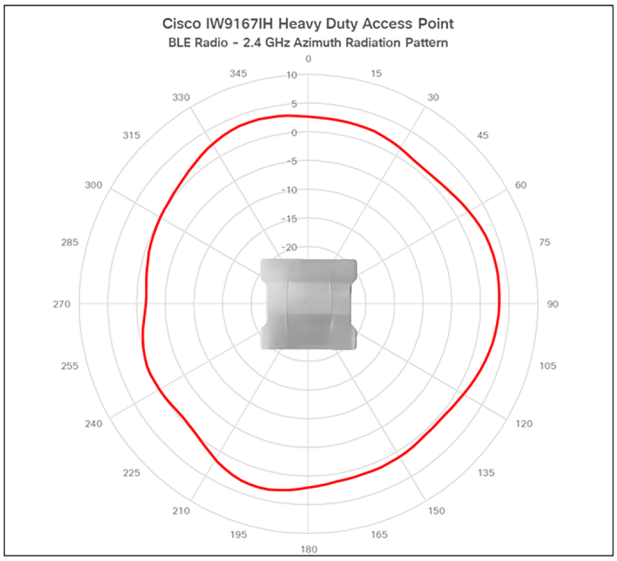

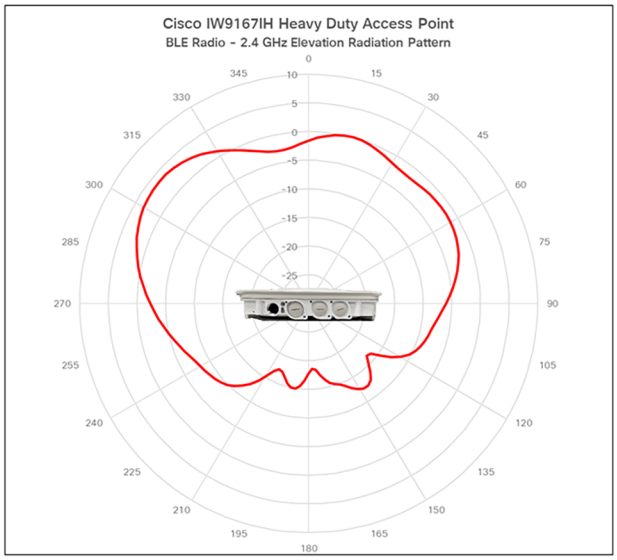

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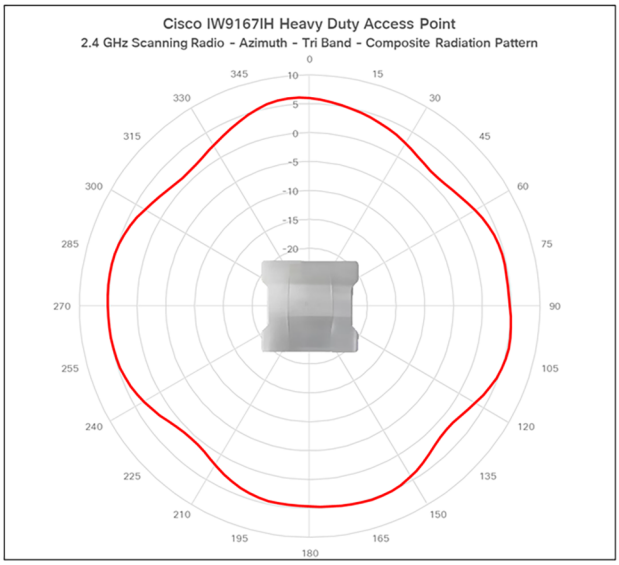

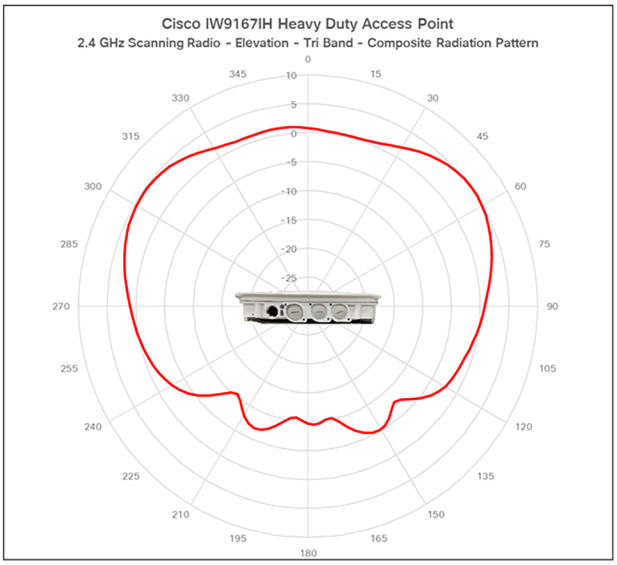

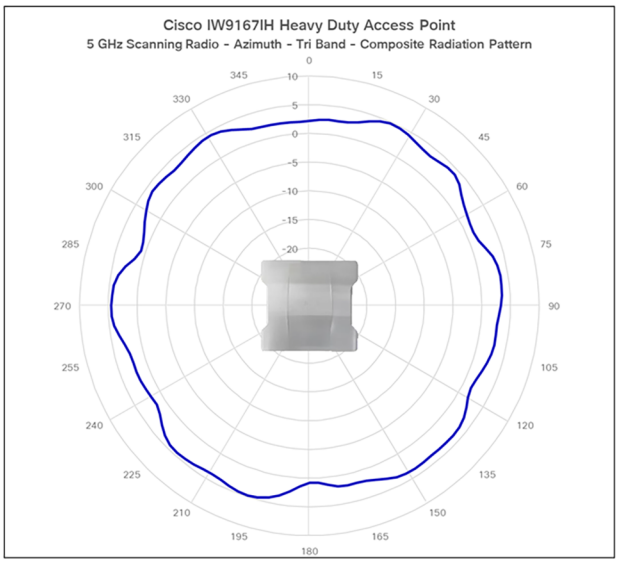

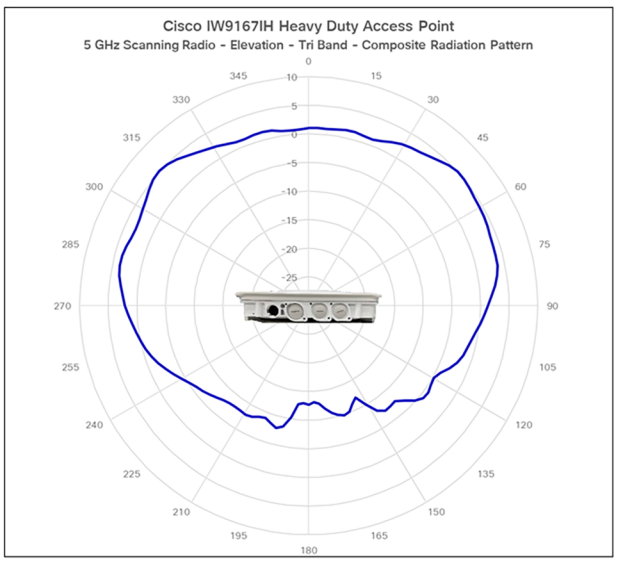

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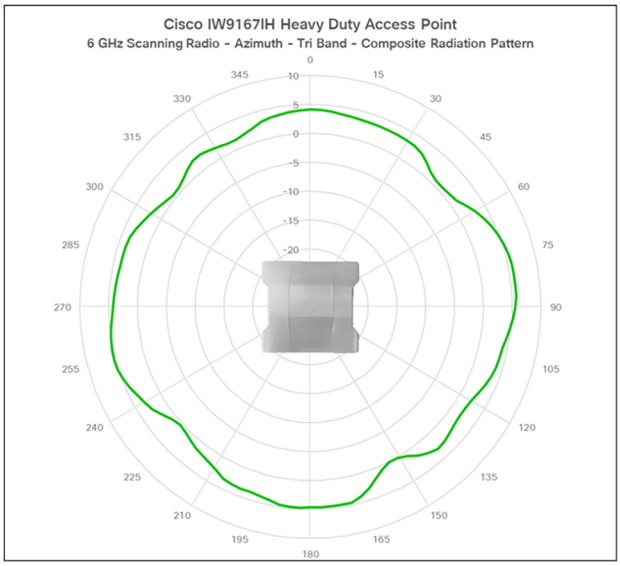
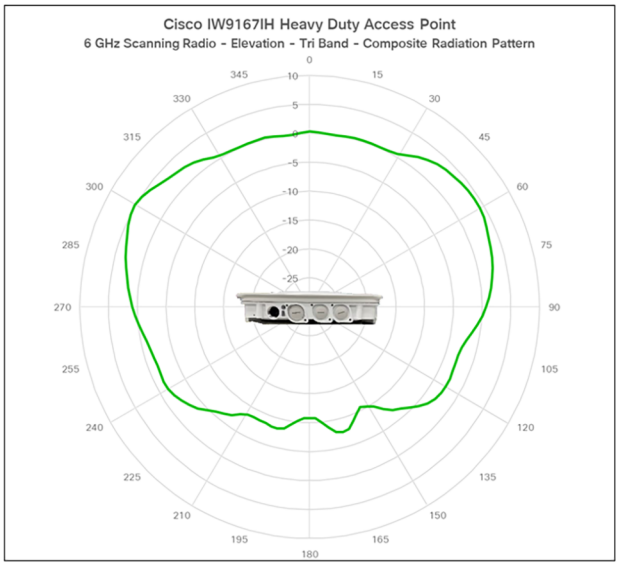
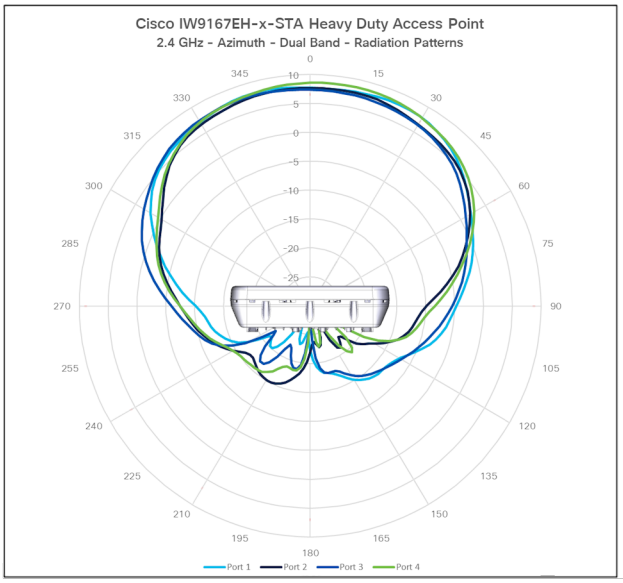
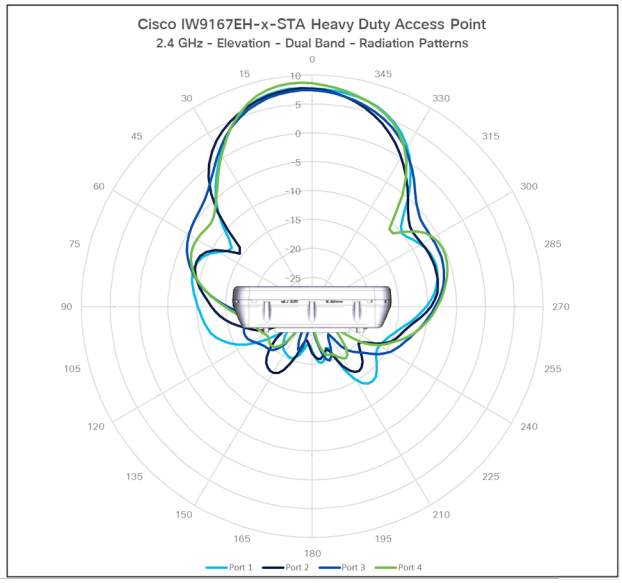




IW9167E-STA antenna patterns





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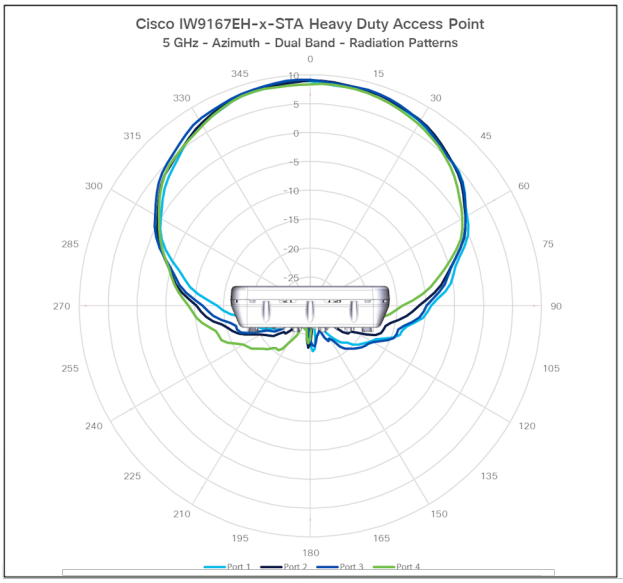

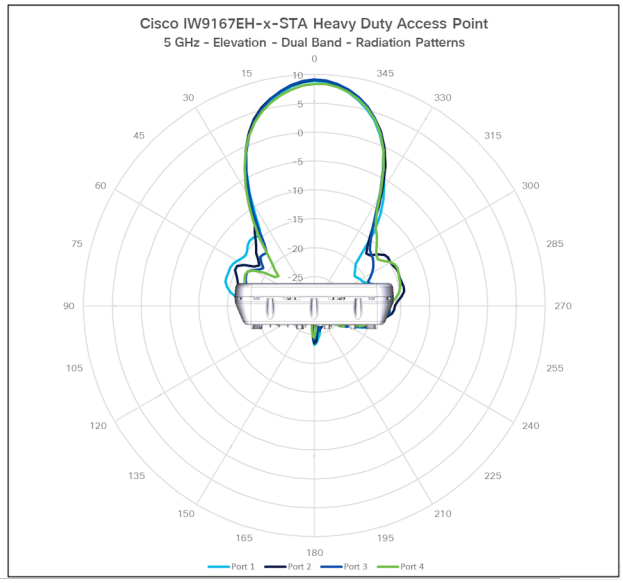

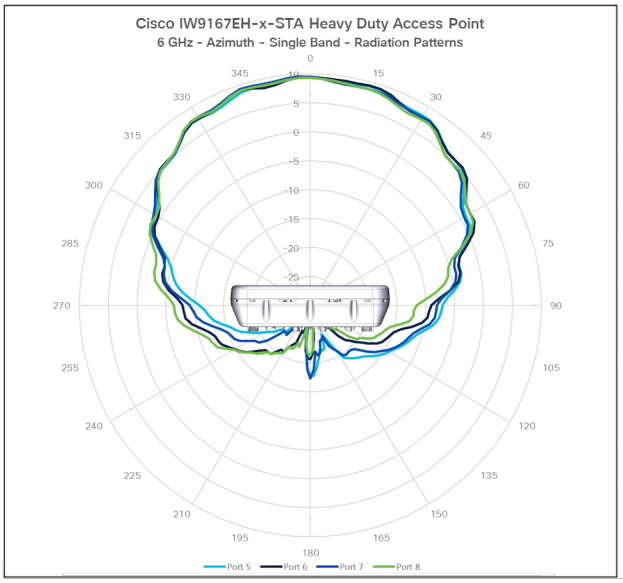

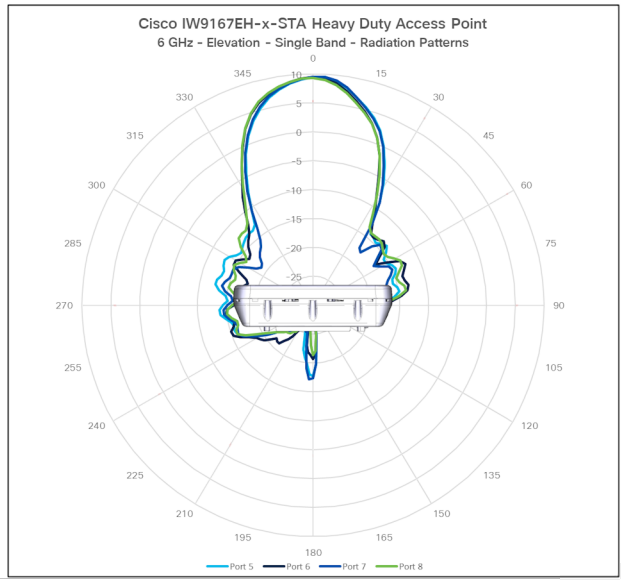

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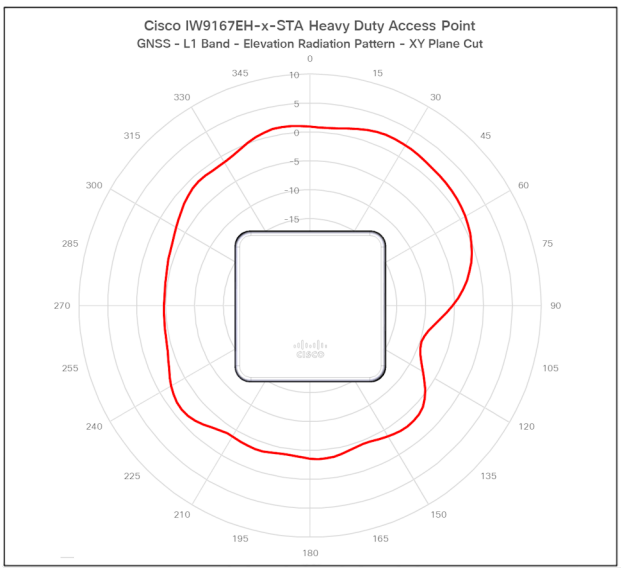

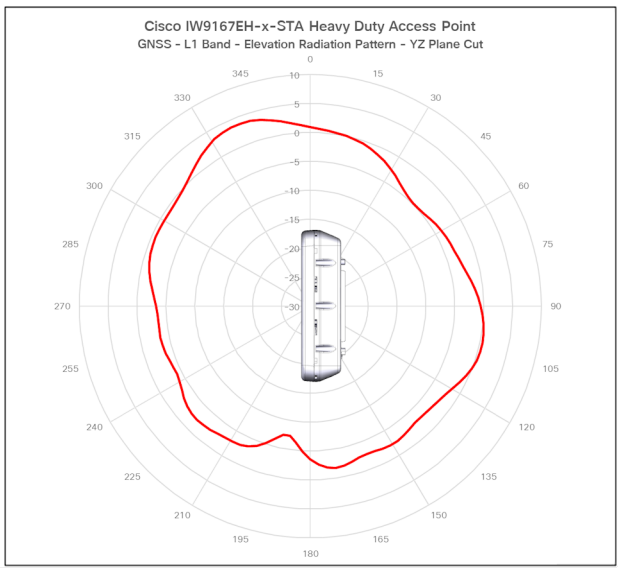

Ordering information

Table 5. Ordering information

Part #	Product description
IW9167EH-x-AP	Industrial Wireless 9167E, 11ax 6E AP, 8 RF ports, x domain, Wi-Fi software
IW9167EH-x-URWB	Industrial Wireless 9167E, 11ax 6E AP, 8 RF ports, x domain, URWB software
IW9167EH-x-WGB	Industrial Wireless 9167E, 11ax 6E AP, 8 RF ports, x domain, WGB software
IW9167IH-x-AP	Industrial Wireless 9167I, 11ax 6E AP, internal antenna, x domain, Wi-Fi software
IW9167EH-x-HZ	Industrial Wireless 9167EH-HZ, 11ax 6E AP, 8 RF ports, x domain, Hazardous Locations
IW9167EH-B-STA	Industrial Wireless 9167E with stadium antenna, B domain

x = regulatory domain

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Product sustainability

Information about Cisco's Environmental, Social, and Governance (ESG) initiatives and performance is provided in Cisco's CSR and sustainability reporting.

Table 6. Cisco environmental sustainability information

Sustainability topic		Reference
General	Information on product-material-content laws and regulations	Materials
	Information on electronic waste laws and regulations, including our products, batteries, and packaging	WEEE Compliance
	Information on product takeback and reuse program	Cisco Takeback and Reuse Program
	Sustainability Inquiries	Contact: csr_inquiries@cisco.com
	Environmental operating temperature range	Table 4. Product Specifications
Power	Power input	Table 4. Product Specifications
	Power consumption	Table 4. Product Specifications
Material	Product packaging weight and materials	Contact: environment@cisco.com
	Physical dimensions and weight	Table 4. Product Specifications

Warranty information

The Catalyst IW9167 Series comes with a 1-year limited warranty. The warranty includes 10-day advance hardware replacement and ensures that software media are defect-free for 90 days. For more details, visit Product Warranties.

Cisco and partner services

Realize the full business value of your technology investments faster with intelligent, customized services from Cisco and our partners. Backed by deep networking expertise and a broad ecosystem of partners, Cisco Services enable you to deploy a sound, scalable mobility network that enables rich media collaboration while improving the operational efficiency gained from a converged wired and wireless network infrastructure. Together with our partners, we offer expert plan, build, and run services to accelerate your transition to advanced mobility services while continuously optimizing the performance, reliability, and security of that architecture after it is deployed. For more details, visit Services for Wireless.

Smart Account

Creating a Smart Account by using the Cisco Smart Software Manager (SSM) enables you to order devices and licensing packages and also manage your software licenses from a centralized website. For more information on Smart Accounts, refer to https://www.cisco.com/go/smartaccounts.

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Learn more:

- Cisco.com/go/iw9167
- Cisco.com/go/iw

Document history

New or Revised Topic	Described In	Date
Product overview and specifications	Updated details about IW9167I platform	May 31, 2023
Multiple Sections	IW9167E-HZ variant information added	January 10, 2024
Multiple Sections	IW9167E-STA variant information added	May 31, 2024

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