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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 <u>benefits of Wi-Fi 6</u> 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.
- <u>URWB</u> 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

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

Features and benefits

 Table 1.
 Catalyst IW9167 Series features and benefits

Feature	Benefit									
Wi-Fi 6 and Wi-Fi 6E (802.11 ax)	on 802.11ac. IW9167 series can support 4x-	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 bas 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) 	 1W9167I 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 u	up to 5 Gbps.								
Smart AP†¥	client load. An access point will typically ope of how many clients are connected. With Sm									
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 Sand their clients to differentiate between BS transmissions.									
Target Wake Time [¥]	Target Wake Time (TWT) allows the client to prescheduled (target) times to exchange data significant energy savings for battery-operate savings achieved by 802.11n and 802.11ac.	ta with the access point. This offers ted devices, up to three to four times the								
Intelligent Capture [¥]	Intelligent Capture probes the network and panalysis. The software can track more than 2 packets on demand, emulating the onsite neallows for more informed decisions on your	240 anomalies and instantaneously review all twork administrator. Intelligent Capture								
Bluetooth 5.1	The integrated Bluetooth Low Energy (BLE) 5	5.1 radio enables location-based use cases								

Feature	Benefit
	such as asset tracking, wayfinding, and analytics.
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.

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.

[¥] Available only in Wi-Fi mode.

[¢] Available only in URWB mode.

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

- **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: extend cutting edge wireless connectivity to explosive environments worldwide with the Catalyst IW9167E-HZ.

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

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.

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.
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)

Item	Specification
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) 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

Item	Specification								
Antennas	IW9167E	IW9167I							
	 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 	 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 							
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 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. 								
Dimensions	IW9167E/IW9167E-HZ	IW9167I							
(W x L x H)	• 11.5 x 10.5 x 2.8 in (29.2 x 26.7 x 7.1 cm)	• 11.5 x 10.5 x 3.0 in (29.2 x 26.7 x 7.6 cm)							
	Note: IW9167E-HZ has permanent M25 extending. 35" on bottom of Access Poi does not exceed overall dimensions listed	nts but							
Weight	IW9167E	IW9167I							
	• 9.2 lb. (4.2 kg)	• 8 lb. (3.6 kg)							
	IW9167E-HZ	IW9167E-STA							
	• 9.4 lb. (4.3 kg) • 15.5 lb. (7 kg)								
Input power requirements	 802.3at (PoE+), 802.3bt (PoE++), Cisco Un DC power source: 24 to 48 VDC (maximur Cisco power AC-DC power adapter, IW-P Cisco power injector, IW-PWRINJ-60RGD 	m voltage range: 18 to 60 VDC) WRADPT-MFIT4P=							

Item	Specification										
Power draw	Power input type	2.4 GHz radio	5 GHz radio	5/6 GHz radio	RJ45	SFP/SFP+	Power				
	24-48 VDC	4x4	4x4	4x4	5Gbps	Yes	48W				
	802.3bt (UPOE)	4x4	4x4	4x4	5Gbps	Yes	48W				
	802.3at (PoE+)	2x2	2x2	2x2	1Gbps	Yes/1G	25W				
	Note: Power required at the Power Source Equipment (PSE) will depend on the cable length and other environmental issues.										
Surge	1 kV (line-	4, ± 2 kV (I line) 1 kV (line- ± 0.5 kV (line- tion to ± 2 lition to ± 1 lition to ± 2 lition to ± 1 lition to ± 2 lition to ± 1 lition to ± 1 lition to ± 1 lition to ± 1 lition to ± 2 lition to ± 2 lition to ± 2 lition to ± 2 lition to ± 1 lition to ± 2	kV on Ethernet	Surge protection to ± 2 kV on Ethernet ports							
Environmental	 (-40° to +70' air. Extended ope powered, not STA):-58° to without solar start limited t Operating type (condensing) Operating altimited to the without solar start limited to without solar sola	F (-40° to g (storage) a 17,000 ft. mperature: °C) with so erating tempt applicable +167°F (-loading, stio-40° C be test: +85 midity: 0% fittide: 15,00 fittide: Up to 1 fitted winds	+85°C) altitude test: -40° to +158°F lar load and still perature (DC to IW9167E- 50° to +75°C) Il air, and cold °C for 16 hours to 100% 00 ft. (4,500 m) 60 mph (257	 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 6052	9 (IP66 and	IP67)								
System memory	2048 MB DRA1024 MB flas										

Item	Specification
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 802.11a: 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 W9167E 5/6 GHz radio: 802.11a (5 GHz band only, not applicable to IW9167E-STA): 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11a (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 • 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: 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 E (E regulatory domain, indoor): • 2.412 to 2.472 GHz; 13 channels E (E regulatory domain, indoor): • 2.412 to 2.472 GHz; 13 channels

Item	Specification							
	 • 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 us 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/#/. 							
Maximum number of nonoverlapping channels	 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: 6	6 GHz* ■ 802.11ax: □ 20 MHz: 59 □ 40 MHz: 29 □ 80 MHz: 14 □ 160 MHz: 7					
Available conducted transmit power settings (max/min), all antennas active	each regulatory domain. 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)					

Item	Specification																			
Conducted transmit power and receive sensitivity			2.4 GI		5 GHz radio							5/6 GHz radio (E) 6 GHz radio (I, E-STA)								
	Data Rate Spatial streams	(dBm)		k power					Total Tx power (dBm)			Rx sensitivity (dBm)			Total Tx power (dBm)			Rx sensitivity (dBm)		
			E I	E-STA I	E & E	- I		E E	-STA I		E & E- STA	ı		E	E-STA		E & E- STA	ı		
	802.11/11	b																		
	1 Mbps	1	27	27	30	-99	-100) -	-	-	-		-	-	-	-	-	-		
	11 Mbps	1	27	27	30	-90	-91	-	-	-	-		-	-	-	-	-	-		
	802.11a/g	ı																		
	6 Mbps	1	27	27	30	-93	-94	30	26	30	-9	6	-94	23	-	-	-96	-		
	24 Mbps	1	27	27	30	-84	-85	30	26	30	-8	7	-86	23	-	-	-86	-		
	54 Mbps	1	27	27	27	-77	-78	27	26	27	-7	9	-78	21	-	-	-79	-		
	802.11n F	2.11n HT20																		
	MCS0	1	27	27	30	-94	-95	30	26	30	-9	6	-94	23	-	-	-95	-		
	MCS7	1	26	26	26	-77	-77	25	25	25	-7	9	-77	20	-	-	-79	-		
	MCS8	2	27	27	30	-92	-92	30	26	30	-9	3	-92	23	-	-	-91	-		
	MCS15	2	26	26	26	-74	-74	25	25	25	-7	6	-74	20	-	-	-76	-		
	MCS24	4	24	24	30	-89	-89	30	26	30	-9	0	-89	23	-	-	-89	-		
	MCS31	4	24	24	26	-71	-71	25	25	25	-7	3	-71	20	-	-	-73	-		
	802.11n F	IT40																		
	MCS0	1	-	-	-	-	-	28	26	28	-9	4	-91	23	-	_	-92	-		
	MCS7	1	-	-	-	-	-	25	25	25	-7	6	-74	20	-	-	-76	-		
	MCS8	2	-	-	-	-	-	28	26	28	-9	1	-88	23	-	-	-89	-		
	MCS15	2	-	-	-	-	-	25	25	25	-7	3	-71	20	-	-	-73	-		
	MCS24	4	-	-	-	-	-	28	26	28	-8	8	-85	23	-	-	-86	-		
	MCS31	4	-	-	-	-	-	25	25	25	-7	0	-68	20	-	-	-70	-		

m	Specific	cation															
	802.11ac VHT20																
	Moss							00	00	00	00		00			25	
	MCS0	1	-	-	-	-	-	30	26	30	-96 -74	-94	23	-	-	-95	-
	MCS8	2	-	_	_	_	_	30	26	30	-93	-72 -92	19	-	-	-75 -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																
	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	-
	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

Specifi	ication	1														
MCS0	4	24	24	30	-89	-89	30	26	30	-90	-89	23	23	16	-89	-6
MCS11	4	23	23	23	-59	-60	23	23	23	-61	-59	16	16	16	-62	-6
802.11ax	K HE40															
MCS0	1	-	-	-	-	-	28	26	28	-94	-92	23	23	16	-92	-9
MCS11	1	-	-	-	-	-	23	23	23	-64	-62	16	16	16	-64	-(
MCS0	2	-	-	-	-	-	28	26	28	-91	-89	23	23	16	-89	-9
MCS11	2	-	-	-	-	-	23	23	23	-61	-59	16	16	16	-61	-6
MCS0	4	-	-	-	-	-	28	26	28	-88	-86	23	23	16	-84	-8
MCS11	4	-	-	-	-	-	23	23	23	-58	-56	16	16	16	-58	-6
802.11a	k HE80															
MCS0	1	-	-	-	-	-	28	25	28	-91	-89	23	23	18	-89	-6
MCS11	1	-	-	-	-	-	22	22	23	-61	-60	16	16	18	-62	-(
MCS0	2	-	-	-	-	-	28	25	28	-88	-86	23	23	18	-86	
MCS11	2	-	-	-	-	-	22	22	23	-58	-57	16	16	18	-59	-
MCS0	4	-	-	-	-	-	28	25	28	-85	-83	23	23	18	-83	-
MCS11	4	-	-	-	-	-	22	22	23	-55	-54	16	16	18	-56	-!
802.11a	x HE160															
MCS0	1	-	-	-	-	-	-	-	-	-	-	23	23	18	-86	-
MCS11	1	-	-	-	-	-	-	-	-	-	-	16	16	18	-58	-
MCS0	2	-	-	-	-	-	-	-	-	-	-	23	23	18	-83	-
MCS11	2	-	-	-	-	-	-	-	-	-	-	16	16	18	-55	-
MCS0	4	-	-	-	-	-	-	-	-	-	-	23	23	18	-80	-
MCS11	4	_	_	_	_	_	_	_	_	_	_	16	16	18	-52	-

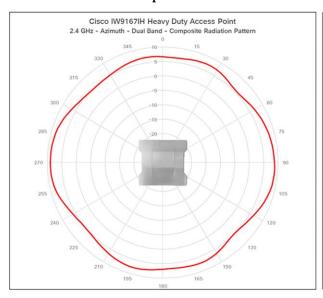
Item	Specification						
Compliance	IW9167E	IW9167I					
standards	Environmental	Environmental					
	EN 60529 IP67	EN 60529 IP67					
	UL50E Type 4X	UL50E Type 4X					
	IEC 60068-2-1 (Cold)	Electromagnetic compatibility					
	IEC 60068-2-2 (Dry Heat)	FCC 47 CFR Part 15 Class A					
	IEC 60068-2-14 (Change of Temperature)	EN 55032 Class A					
	IEC 60068-2-30 (Damp Heat)	VCCI Class A					
	IEC 60068-2-6 (Vibration)	AS/NZ CISPR 32 Class A					
	IEC 60068-2-27 (Shock)	CISPR 32 Class A					
	IEC 60068-2-30 (Humidity)	ICES 003 Class A					
	IEC 60068-2-32 (Freefall)	CNS13438 Class A					
	IEC 60068-3-3 (Seismic)	EN 300 386					
	Electromagnetic compatibility	KS C 9832:2019					
	FCC 47 CFR Part 15 Class A	EN 301 489-1 v2.1.1					
	EN 55032 Class A	EN 301 489-17 v2.1.1					
	VCCI Class A	EN 301 489 - 19					
	AS/NZ CISPR 32 Class A	EN 55035					
	CISPR 32 Class A	CISPR35					
	ICES 003 Class A	KS C 9835:2019					
	CNS13438 Class A	KS X 3124					
	EN 300 386	KS X 3126					
	KS C 9832:2019	IEC/EN 61000-4-2 - Electrostatic Discharge					
	EN 301 489-1 v2.1.1 EN 301 489-17 v2.1.1	IEC/EN 61000-4-3 - Radiated RF Immunity					
	EN 301 489 - 19	IEC/EN 61000-4-5 - Surge					
	EN 55035	IEC/EN 61000-4-6 - Conducted RF Immunity					
	CISPR35 KS C 9835:2019	IEC/EN 61000-4-8 - Power Frequency Magnetic Field					
	KS X 3124	IEC 61000-4-11 - AC Voltage Dips					
	KS X 3126	EN-61000-4-29 - DC Voltage Dips					
	IEC/EN 61000-4-2 - Electrostatic Discharge	Safety					
	IEC/EN 61000-4-3 - Radiated RF Immunity	IEC 62368-1					
	IEC/EN 61000-4-5 - Surge	EN 62368-1					
	IEC/EN 61000-4-6 - Conducted RF Immunity	EN 62311					
	IEC/EN 61000-4-8 - Power Frequency Magnetic Field	Industrial					
	IEC 61000-4-9 - Pulsed Magnetic Field	EN 61000-6-2 - Industrial					

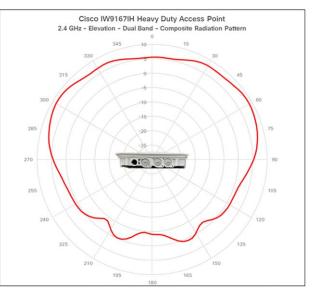
Item	Specification Specification	
	IEC 61000-4-11 - AC Voltage Dips	EN 61000-6-4 - Industrial
	IEC 61000-4-18 - Damped Oscillatory Wave	EN 61000-6-1 - Light Industrial
	EN-61000-4-29 - DC Voltage Dips	Ğ
	Safety	
	IEC 62368-1	
	EN 62368-1	
	EN 62311	
	Flammability	
	EN 45545-3	
	DIN 5510-2	
	Industrial	
	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	
	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	

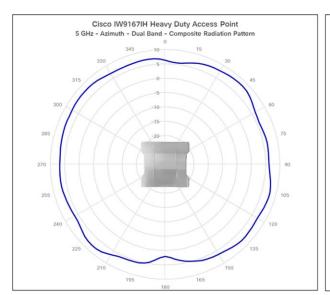
Specification Item Wireless Radio approvals communication • FCC Part 15.247, 15.407 standards • RSS 247 • EN 300 328 v2.2.2 (EU) • EN 301 893 v2.1.1 (EU) • EN 303 413 • ARIB-STD 66 (Japan) • ARIB-STD T71 (Japan) • EMI and susceptibility (Class B) • EN 303 687 - (IW9167IH LPI approval) • AS/NZ 4268:2017 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

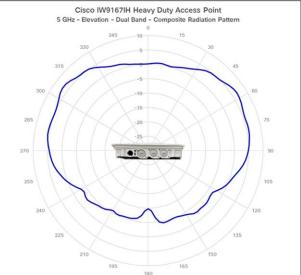
^{*6} GHz usage subject to approvals by country's regulatory agency.

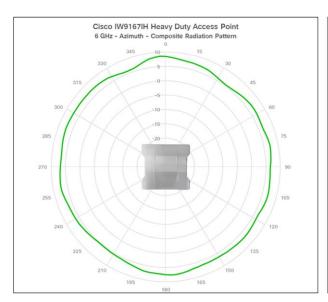
IW9167I antenna patterns

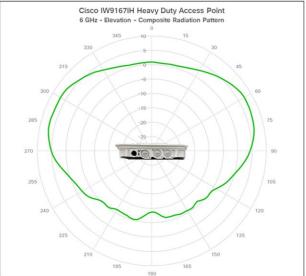


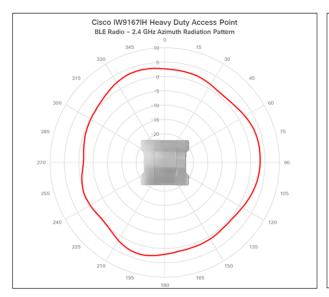


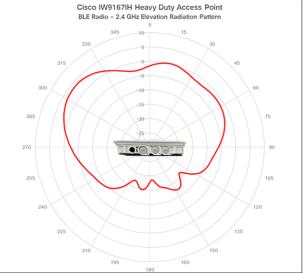


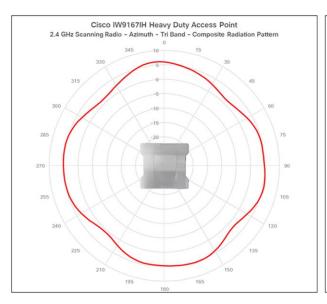


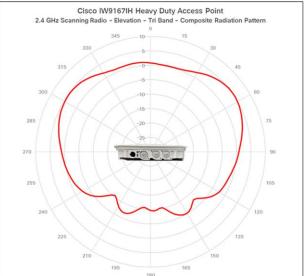


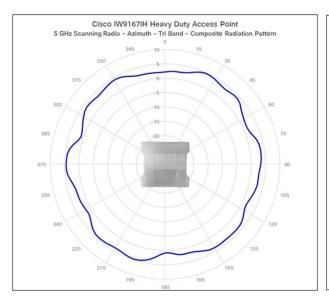


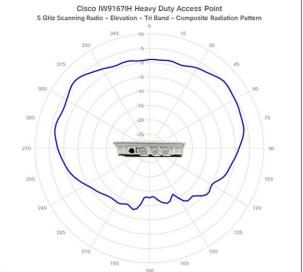


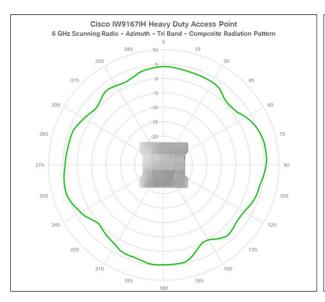


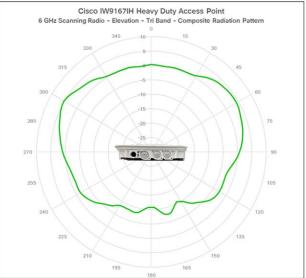




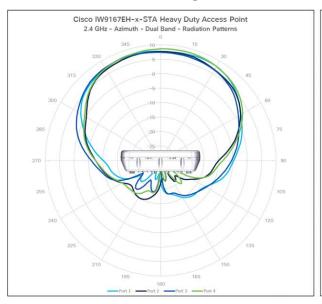


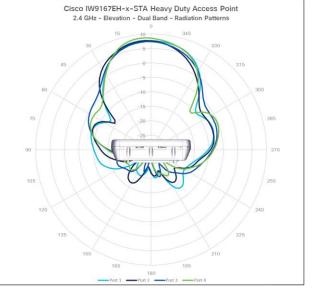


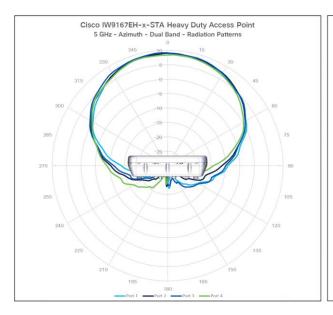




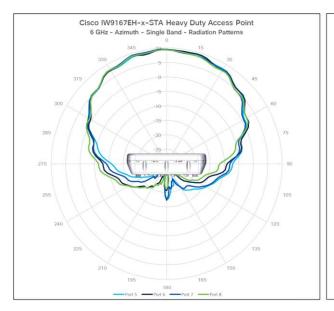
IW9167E-STA antenna patterns

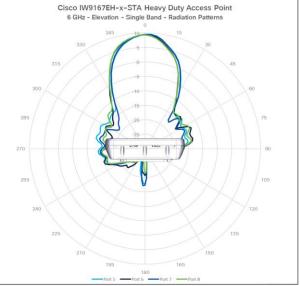


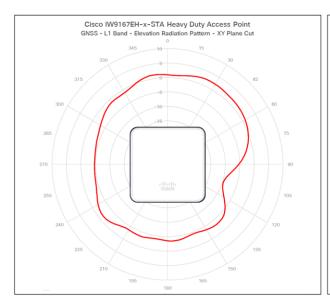


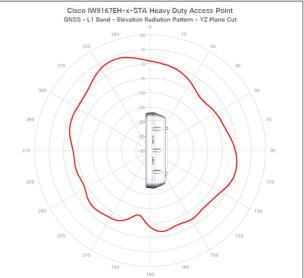












Ordering information

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

Product sustainability

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

Table 6. Cisco environmental sustainability information

Sustainab	ility topic	Reference				
General	Information on product-material-content laws and regulations	<u>Materials</u>				
	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.

Cisco Capital

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Cisco Capital® makes it easier to get the right technology to achieve your objectives, enable business transformation and help you stay competitive. We can help you reduce the total cost of ownership, conserve capital, and accelerate growth. In more than 100 countries, our flexible payment solutions can help you acquire hardware, software, services, and complementary third-party equipment in easy, predictable payments. Learn more.

Learn more

Get reliable wireless connectivity for any application, anywhere

Need to connect your mission-critical time-sensitive applications wirelessly with more bandwidth, higher reliability, and seamless handoffs? Take advantage of the 6 GHz band expansion and the flexibility to run one of two wireless technologies (Wi-Fi 6 or URWB) in a state-of-the-art hardware platform with the Cisco Catalyst IW9167 Series.

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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