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Cisco Catalyst 9163E Series Access Points

Contents

The Cisco Catalyst™ 9163E Wi-Fi 6E access point is designed with a weatherized and robust enclosure, helping ensure uninterrupted wireless access in even the most challenging outdoor environments. As part of the Cisco Catalyst 9160 Series, the 9163E offers the flexibility to choose between on-premises and cloud management with the ability to change at any time, giving you the freedom to network your way.

This next-generation access point is specifically designed to extend your Wi-Fi 6E network outdoors, catering to a wide range of use cases from campus environments and municipal Wi-Fi to stadiums, airport hangars, and everything in between. This access point is not only reliable and secure but also highly flexible and intelligent, adapting to your network requirements seamlessly.

Figure 1.
Catalyst 9163E Series access point

Figure 2.
Catalyst 9163E, shown with omnidirectional dipole antennas (CW-ANT-O1-NS-00)
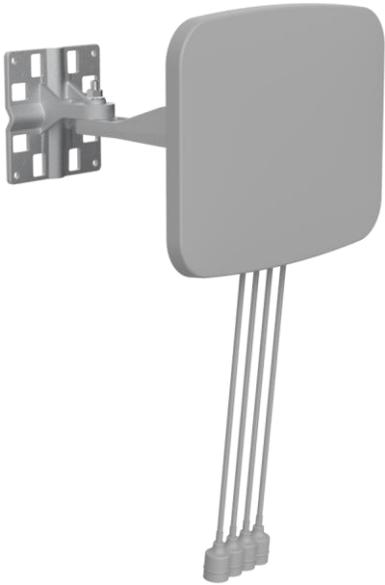
Figure 3.
Catalyst 9163E Directional Patch Antenna (CW-ANT-D1-NS-00)

The Cisco Catalyst 9163E Wi-Fi 6E access point is equipped with three client serving 2x2 radios, one IoT radio, and tri-band scanning radio. It offers a wide range of advanced features, tailored to meet any outdoor Wi-Fi requirements. And with options for a variety of external antennas, the Catalyst 9163E provides the flexibility to expand your 6-GHz wireless coverage according to your specific needs.

Perfect for organizations that require extended 6-GHz Wi-Fi coverage outside, the Catalyst 9163E combines high-density coverage with fast and dependable connectivity to address even the most demanding outdoor scenarios. The access point includes a built-in GPS antenna to report location data to Automated Frequency Coordination (AFC) services that enable standard power and outdoor operation. Standard power allows for increased range in both indoor and outdoor deployments, unlocking the full potential of 6-GHz Wi-Fi. By using the 6-GHz band, the 9163E access point neutralizes interference, minimizes latency, and provides wider channels and more spectrum, resulting in higher bandwidth to address today's most crucial wireless requirements.[*]

By combining the industry-leading Catalyst hardware platform with your choice of on-premises or cloud management this access point delivers an unparalleled network experience. If your organization seeks a solution to provide an exceptional outdoor Wi-Fi experience, the Cisco Catalyst 9163E Access Point is the optimal choice.

[*]**Note:** 6GHz operation is dependent on local regulatory approval. 6GHz will be enabled for outdoor use when regulatory approval has been received.

Features and benefits

Table 1.   Features and benefits

Feature	Benefits
Wi-Fi 6 and Wi-Fi 6E (802.11ax)	The IEEE 802.11ax standard, also known as High-Efficiency Wireless (HEW) or Wi-Fi 6, builds on 802.11ac. It delivers a better experience in typical environments with more predictable performance for advanced applications such as 4K or 8K video; high-density, high-definition collaboration apps; all-wireless offices; and the Internet of Things (IoT). Wi-Fi 6E is Wi-Fi 6 "extended" into the 6-GHz frequency band.
AP power optimizations (AP Power Save mode)	AP Power Save mode allows the access point to reduce its power consumption by shutting off radios during off-hours and weekends – while still being smart enough to reengage all features should they be needed. This both saves power and reduces the carbon footprint of running a wireless network.
CleanAir Pro	Cisco CleanAir® Pro applies Cisco's industry-leading RF interference detection and classification to the 2.4-GHz, 5-GHz, and 6-GHz bands.
Client steering	Client steering helps clients that are 6-GHz capable leave the 5-GHz radio and connect to the 6-GHz radio. Wi-Fi 6E clients are automatically directed to connect to the 6-GHz radio to take advantage of the benefits it offers and free up the 2.4-GHz and 5-GHz radios for legacy clients.
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	Uplink MU-MIMO is supported on the 6GHz band only. Multiuser multiple input, multiple output (MU-MIMO) enables the access points to split spatial streams between client devices to maximize throughput.
BSS coloring	Spatial reuse (also known as Basic Service Set [BSS] coloring) allow the access points and their clients to differentiate between BSSs, thus permitting more simultaneous transmissions.
Target Wake Time (TWT)	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 Catalyst 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 network.
Application hosting	Application hosting helps simplify IoT deployments and ready them for the future by eliminating the need to install and manage overlay networks. Using the USB interface, containerized applications and hardware modules can be deployed to reduce cost and complexity. Adding Cisco Catalyst Center provides workflows and deployment-wide application lifecycle management.
Bluetooth 5.1	The integrated Bluetooth Low Energy (BLE) 5.1 radio enables location-based use cases such as asset tracking, wayfinding, and analytics.

Feature	Benefits
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.
Container support for applications	Container support enables edge computing capabilities for IoT applications on the host access point.
Choice of management mode	The Catalyst 9163E can be managed either on-premises with Catalyst 9800 Series Wireless Controllers or in the cloud through the Meraki dashboard. It gives you the flexibility to deploy the access point in one management mode and shift to a different management mode in the future.

For more details about Catalyst 9163E feature support, see Cisco's Feature Matrix.

Secure infrastructure

Trustworthy systems built with Cisco® Trust Anchor Technologies provide a highly secure foundation for Cisco products. With the Cisco Catalyst **9163E** Access Point, 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

Cisco DNA and Catalyst 9800 support

Pairing the Catalyst 9163E Access Point with the Catalyst 9800 Series wireless controller and Cisco DNA Software allows for a total network transformation. Cisco DNA allows you to truly understand your network with real-time analytics, quickly detect and contain security threats, and easily provide networkwide consistency through automation and virtualization. The Catalyst 9163E supports Software-Defined Access (SD-Access), Cisco's leading enterprise architecture.

Working together, the Catalyst 9163E and Cisco DNA Software offer such features as:

- Cisco Spaces
- Cisco Identity Services Engine
- Analytics and Assurance along with Intelligence Capture

Note: For information about Cisco DNA Software, refer to the Cisco Networking Solution Overview.

Cisco Meraki cloud management

Pairing the Cisco Catalyst 9163E Access Point with the Meraki cloud platform gives organizations a unified IT experience for network monitoring and management. The Meraki dashboard provides an intuitive and interactive web interface connecting your network to the industry's leading cloud IT platform.

Through the dashboard, Meraki provides sophisticated and scalable tools to automate network optimization, deploy policy and segmentation configurations across thousands of sites and devices, and manage a full-stack network from SD-WAN to SD-Access to IoT technologies. The platform supports over 4.2 million active networks around the world.

Working together, the Catalyst 9163E and Cisco Meraki offer such features as:

- Cisco Spaces
- Cisco Identity Services Engine
- Meraki Health intelligent optimization and assurance
- Meraki Vision, smart cameras, and sensors for network closet monitoring

Note: For information about Cisco Meraki, refer to https://meraki.cisco.com/products/

Product specifications

Table 2.   Specifications

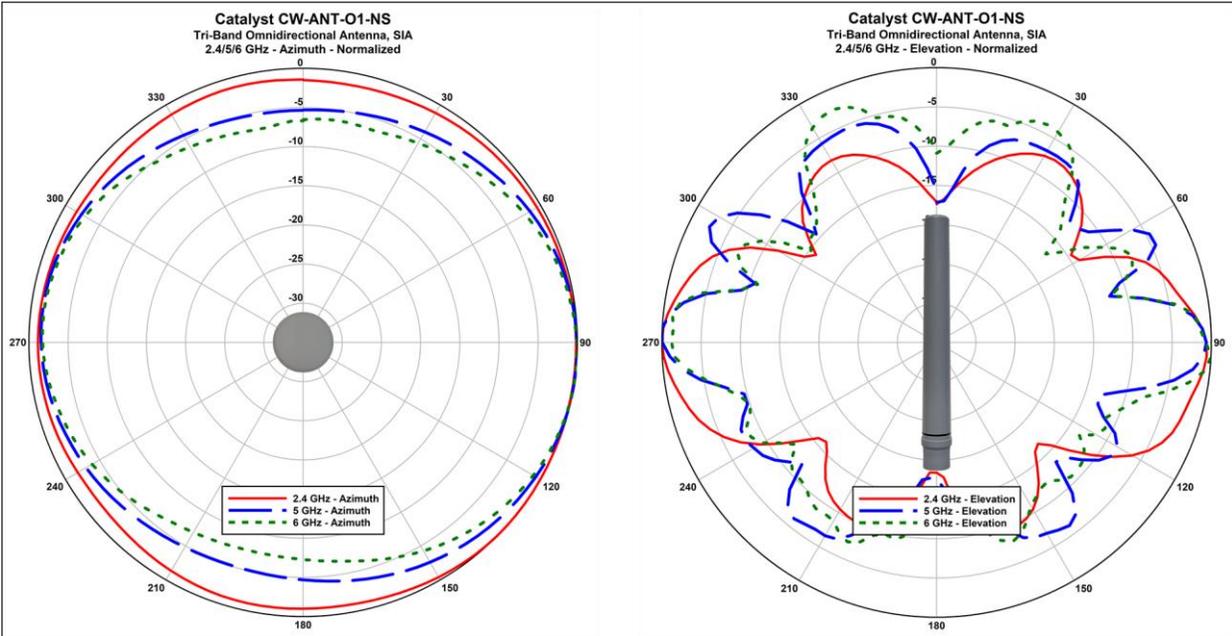| Item	Specification
Part numbers	**Cisco Catalyst access point** - CW9163E-x: Cisco Catalyst 9163E outdoor access point **Regulatory domains: (x = regulatory domain)** Customers are responsible for verifying approval for use in their individual countries. To verify approval and to identify the regulatory domain that corresponds to a particular country, visit https://www.cisco.com/go/aironet/compliance. 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. - CW9163E-MR: Cisco Catalyst 9163E Outdoor Access Point, w/Meraki Cloud-managed version using Meraki dashboard **Cisco wireless LAN services** - For details on optional WLAN services, visit Services for Wireless and Mobility **Note:** Antennas are not included with the CW9163E access point. See the antenna section for a list of supported antennas.
Software	- Cisco IOS® XE Software Release 17.12.3 or later

Item	Specification
Supported wireless controllers	• Cisco Catalyst 9800 Series Wireless Controllers (physical or virtual)
802.11n version 2.0 (and related) capabilities	• 2x2 MIMO with two spatial streams • Maximal Ratio Combining (MRC) • 802.11n and 802.11a/g • 20- and 40-MHz channels • PHY data rates up to 750 Mbps (40 MHz with 5 GHz and 20 MHz with 2.4 GHz) • 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	• 2x2 MIMO with two spatial streams • MRC • 802.11ac beamforming • 20-, 40-, 80-, channels • PHY data rates up to 867Mbps (2x2 80MHz on 5 GHz) • 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	• 1024-QAM • 2x2 downlink MU-MIMO with two spatial streams (2.4 GHz, 5 GHz, and 6 GHz) • Uplink/downlink OFDMA • TWT • BSS coloring • MRC • 802.11ax beamforming • 20-, 40-, 80-, and 160-MHz channels (6 GHz) • 20-, 40-, and 80-MHz, channels (5 GHz) • 20-MHz channels (2.4 GHz) • PHY data rates up to 3.9 Gbps (2x2 160 MHz on 6 GHz, 2x2 80 MHz on 5 GHz, and 2x2 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	**CW-ANT-O1-NS-00 Omnidirectional Dipole Self-Identifying Antenna with N-Type Connector** • 2.4 GHz: Peak gain 4 dBi, omnidirectional in azimuth • 5 GHz: Peak gain 8 dBi, omnidirectional in azimuth • 6 GHz: Peak gain 8 dBi, omnidirectional in azimuth **CW-ANT-D1-NS-00 4-Port Directional Patch Self-Identifying Antenna with N-Type Connectors** • 2.4 GHz: Peak gain 8 dBi, directional antenna, (75x30) • 5 GHz: Peak gain 9 dBi, directional antenna, (60x30) • 6 GHz: Peak gain 9 dBi, directional antenna, (72x27) **CW-ANT-GPS2-S-00 Active GNSS/GPS Antenna with RP-SMA Connector** • Optional GNSS/GPS external antenna • L1/L5 frequency bands • Integrated mounting bracket for wall or pole mounting • 10ft cable with RP-SMA connector
Interfaces	• 1x 100M/1000M/2.5G Multigigabit Ethernet (RJ-45) • Management console port (RJ-45) • 4x N-Type Wi-Fi antenna connectors • RP-SMA active GPS/GNSS antenna connector
Indicators	• Status LED indicates boot loader status, association status, operating status, boot loader warnings, and boot loader errors
Dimensions (W x L x H)	• Access point (without mounting brackets): ◦ 9.64 x 9.64 x 2.5 in. (245 x 245 x 63.5 mm)
Weight	• 3.3 lb (1.5 kg)
Input power requirements	• 802.3at Power over Ethernet Plus (PoE+), 802.3af Power over Ethernet (PoE) • Cisco power injectors: AIR-PWRINJ7=, AIR-PWRINJ6=, MA-INJ-6

	Catalyst 9163E				
Power source	**2.4-GHz radio**	**5-GHz radio**	**6-GHz radio (LPI)**	**Link speed**	**Max PoE power consumption**
802.3at (PoE+)	2x2	2x2	2x2	2.5 Gbps	25.5W
802.3af (PoE)	1x1	1x1	1x1	1 Gbps	14.0W

Note: Actual power consumption may vary depending on AP usage. It is recommended that you ensure that LLDP/CDP is enabled to allow proper power negotiation.

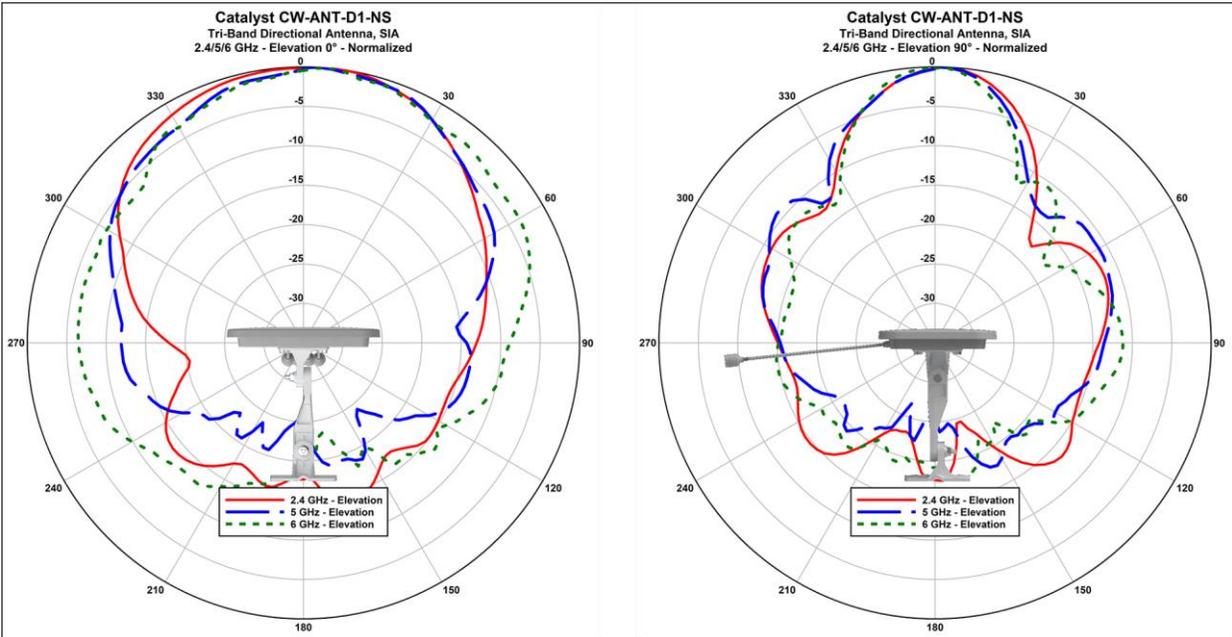| Item	Specification		
Environmental	• Nonoperating (storage) temperature: –22° to 158°F (–30° to 70°C) • Nonoperating (storage) altitude test: 25°C (77°F) at 15,000 ft (4600 m) • Operating temperature: –40° to 149°F (–40° to 65°C) without solar derating • Operating temperature: –40° to 131°F (–40° to 55°C) with solar derating • Operating humidity: 5% to 95% (noncondensing) • Operating altitude test: 40°C (104°F) at 9843 ft (3000 m) • Ingress Protection: IP67 • Wind resistance up to 100 mph (161 km/h) sustained winds and 165 mph (266 km/h) wind gusts • Icing protection: MIL-STD-810F,13mm 13mm (0.5 in.) • Corrosion: NEMA 250-2008 (600 hrs. salt, 1200 hrs. mixed gas) • Solar radiation: EN 60068-2-5 (753 W/m2) • Vibration: MIL-STD-810E, Method 514.4 (0.41 Grms from 5Hz to 500Hz, 2 hours per each axis X,Y,Z)		
System memory	• 2048 MB DRAM • 1024 MB flash		
Warranty	Limited 1-year hardware warranty (WARR-CW-1YR-LTD)		
Available transmit power settings	**2.4 GHz** • 23 dBm (200 mW) • -4 dBm (0.39 mW)	**5 GHz** • 23 dBm (200 mW) • -4 dBm (0.39 mW)	**6 GHz** • 23 dBm (200 mW) • -4 dBm (0.39 mW) **Note:** In countries where use of the 6-GHz band is not allowed or authorized, or if there is no current software support, the 6-GHz radio will be disabled. The 6-GHz radio may be enabled with future software, once the product is certified to operate at 6 GHz for that country.
Regulatory domains	**Note:** 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 the Wireless LAN Compliance Lookup page.		
Compliance standards	• **Safety:** ◦ IEC 60950-1 / IEC 60950-22 ◦ IEC 62368-1 ◦ EN 60950-1 / EN60950-22 ◦ EN62368-1 ◦ CAN/CSA-C22.2 No. 60950-1 / 60950-22 ◦ CAN/CSA-C22.2 No. 62368-1 ◦ AS/NZS60950.1 / AS/NZS62368.1 • **Emissions:** ◦ CISPR 32 (rev. 2015) ◦ EN 55032:2015/A11:2020	• **Radio:** ◦ EN 300 328 (v2.2.2 2019-7) ◦ EN 301 893 (v2.1.1) ◦ AS/NZS 4268 (rev. 2017) ◦ 47 CFR FCC Part 15C, 15.247, 15.407 ◦ RSP-100 ◦ RSS-GEN ◦ RSS-247 ◦ LP002 (rev 2020) ◦ Japan Std. 33a, Std 66 and Std 71 ◦ QCVN (54:2020/BTTTT) ◦ QCVN (65:2013/BTTTT)	

Item	Specification
	◦ EN 61000-3-2:2019 ◦ EN61000-3-3:2013+A1:2019 ◦ KS C 9610-3-2:2020 ◦ KS C 9610-3-3:2020 ◦ AS/NZS CISPR32 Class B (rev. 2015) ◦ 47 CFR FCC Part 15B ◦ ICES-003 (Issue 7, Class B) ◦ VCCI-CISPR 32:2016 ◦ CNS 13438 ◦ KS C 9832:2019 ◦ QCVN 118:2019/BTTTT ● **Immunity:** ◦ CISPR 24 (rev 2010) ◦ EN55024 + AMD 1 (rev. 2010) ◦ EN55035: 2017 ◦ QCVN (TCVN 7317:2003) ◦ KS C 9835:2019 ● **Emissions and immunity:** ◦ EN 301 489-1 V2.2.3 (2019-11) ◦ EN 301 489-17 V3.2.4 (2020-09) ◦ QCVN 18:2014/BTTTT ◦ QCVN 112:2017/BTTTT ◦ KS X 3124:2020 ◦ KS X 3126:2020	● **RF safety:** ◦ EN 50385:2017 ◦ ARPANSA ◦ AS/NZS 2772.2 (rev. 2016) ◦ 47 CFR Part 1.1310 and Part 2.1091 ◦ RSS-102 (2015) ● **IEEE standards:** ◦ IEEE 802.3 ◦ IEEE 802.3ab ◦ IEEE 802.3af/at ◦ IEEE 802.11a/b/g/n/ac/ax ◦ IEEE 802.11h, 802.11d ◦ IEEE 802.15.1/802.15.4 ● **Security** ◦ WPA2-Personal (802.11i) ◦ WPA2-Enterprise with 802.1X ◦ WPA3-Personal, WPA3-Enterprise ◦ WPA3-Enhanced Open (OWE) ◦ Advanced Encryption Standard (AES) ● **Extensible Authentication Protocol (EAP) types:** ◦ EAP-Transport Layer Security (TLS) ◦ EAP-Tunneled TLS (TTLS) or Microsoft Challenge Handshake Authentication Protocol (MSCHAP) v2 ◦ Protected EAP (PEAP) v0 or EAP-MSCHAP v2 ◦ EAP-Flexible Authentication via Secure Tunneling (EAP-FAST) ◦ PEAP v1 or EAP-Generic Token Card (GTC) ◦ EAP-Subscriber Identity Module (SIM)
Certifications	● Wi-Fi Alliance: Wi-Fi 6 (R2), Wi-Fi 6E, WPA3-R3, WPA3-Suite B, Enhanced Open Security ● Bluetooth SIG: Bluetooth Low Energy (BLE)

Antenna patterns – CW-ANT-O1-NS-00

Catalyst CW-ANT-O1-NS
Tri-Band Omnidirectional Antenna, SIA
2.4/5/6 GHz - Azimuth - Normalized

- 2.4 GHz - Azimuth
- 5 GHz - Azimuth
- 6 GHz - Azimuth

Catalyst CW-ANT-O1-NS
Tri-Band Omnidirectional Antenna, SIA
2.4/5/6 GHz - Elevation - Normalized

- 2.4 GHz - Elevation
- 5 GHz - Elevation
- 6 GHz - Elevation

Antenna patterns – CW-ANT-D1-NS-00

Catalyst CW-ANT-D1-NS
Tri-Band Directional Antenna, SIA
2.4/5/6 GHz - Elevation 0° - Normalized

- 2.4 GHz - Elevation
- 5 GHz - Elevation
- 6 GHz - Elevation

Catalyst CW-ANT-D1-NS
Tri-Band Directional Antenna, SIA
2.4/5/6 GHz - Elevation 90° - Normalized

- 2.4 GHz - Elevation
- 5 GHz - Elevation
- 6 GHz - Elevation

Antenna patterns – Scanning radio

Catalyst 9163E Series Wi-Fi 6E Outdoor Access Points
2.4/5/6 GHz - Elevation 0° - Scanning Radio - Normalized

- 2.4 GHz - Elevation 0°
- 5 GHz - Elevation 0°
- 6 GHz - Elevation 0°

Catalyst 9163E Series Wi-Fi 6E Outdoor Access Points
2.4/5/6 GHz - Elevation 90° - Scanning Radio - Normalized

- 2.4 GHz - Elevation 90°
- 5 GHz - Elevation 90°
- 6 GHz - Elevation 90°
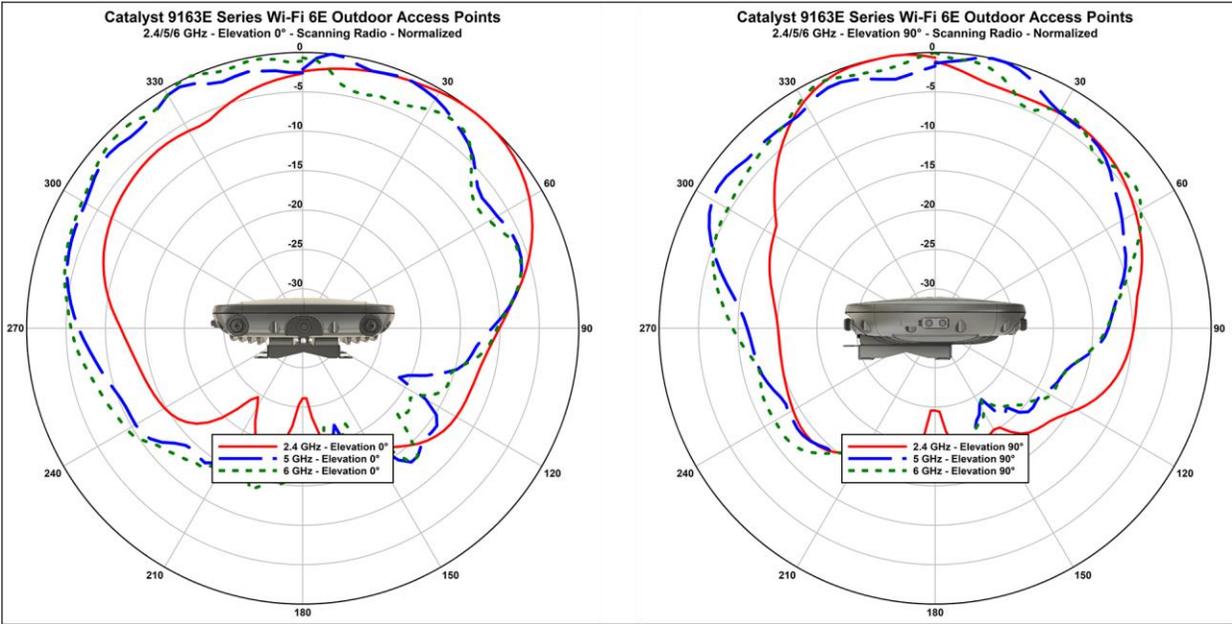
Antenna patterns – IoT radio

Catalyst 9163E Series Wi-Fi 6E Outdoor Access Points
2.4 GHz - Elevation 0° - IoT Radio - Normalized

- 2.4 GHz - Elevation 0°

Catalyst 9163E Series Wi-Fi 6E Outdoor Access Points
2.4 GHz - Elevation 90° - IoT Radio - Normalized

- 2.4 GHz - Elevation 90°
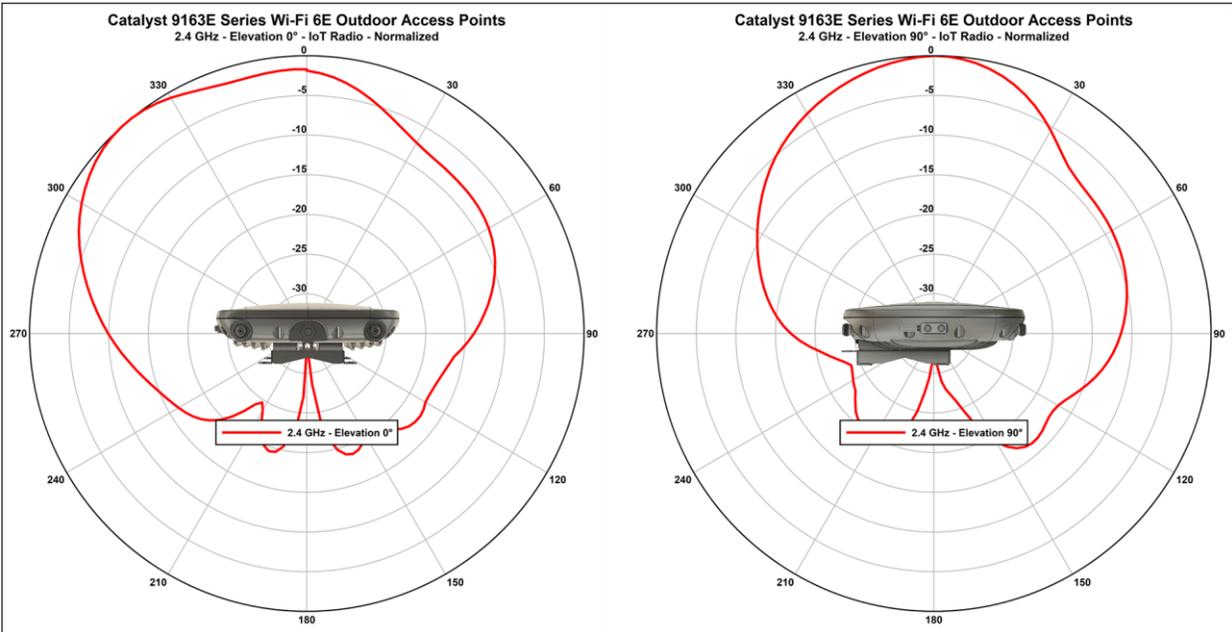
Antenna patterns – GPS/GNSS radio

Catalyst 9163E Series Wi-Fi 6E Outdoor Access Points
GNSS L1/L5 - Elevation 0° - Normalized

L5 - Elevation 0°
L1 - Elevation 0°

Catalyst 9163E Series Wi-Fi 6E Outdoor Access Points
GNSS L1/L5 - Elevation 90° - Normalized

L5 - Elevation 90°
L1 - Elevation 90°
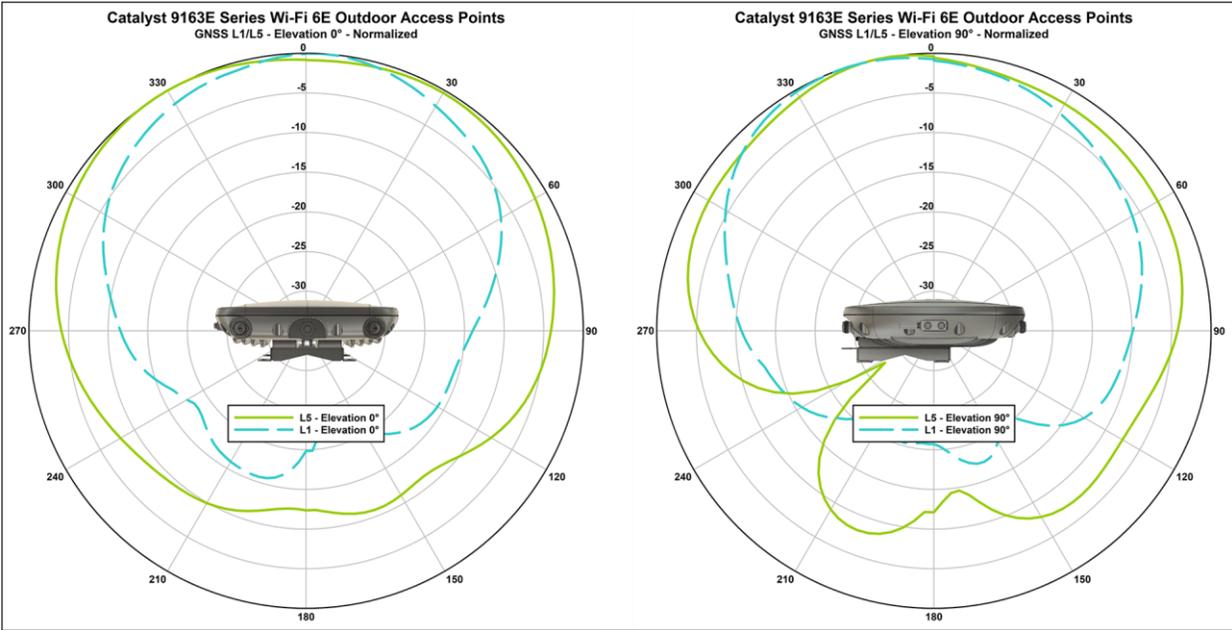
Antenna patterns – CW-ANT-GPS2-S-00

Catalyst CW-ANT-GPS2-S
Dual-Band Receive Only Directional Antenna, SIA
GNSS L1/L5 - Elevation 0° - Normalized

L5 - Elevation
L1 - Elevation

Catalyst CW-ANT-GPS2-S
Dual-Band Receive Only Directional Antenna, SIA
GNSS L1/L5 - Elevation 90° - Normalized

L5 - Elevation
L1 - Elevation
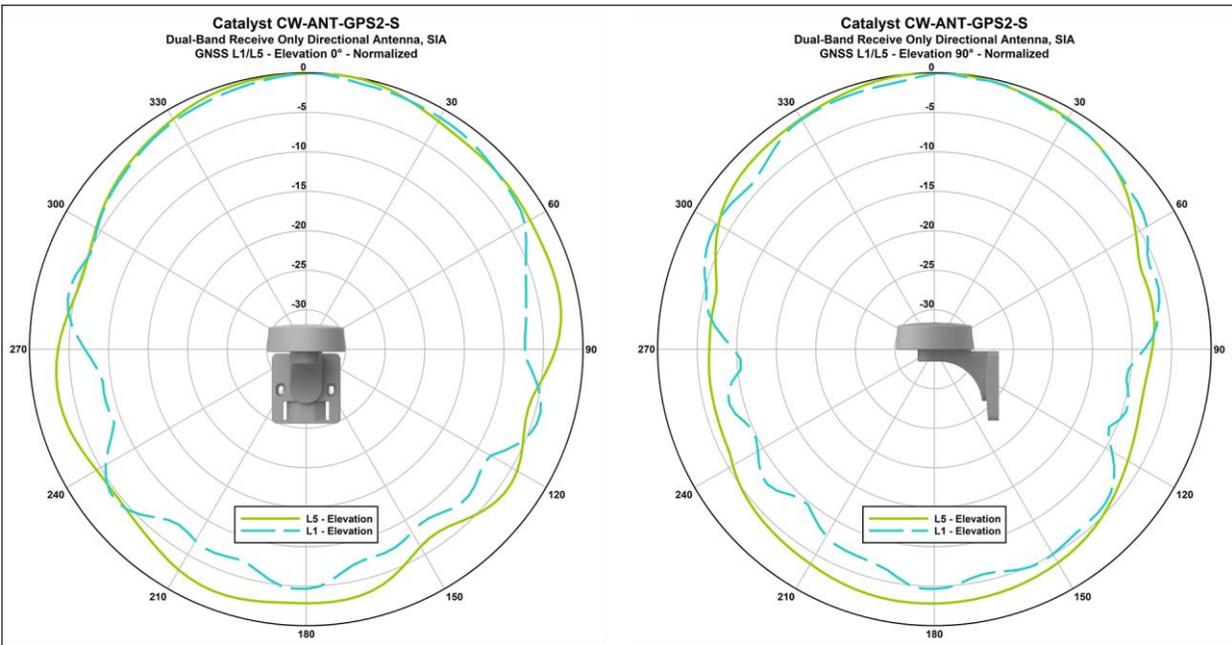
Licensing

For information about licensing and packaging, refer to the Cisco DNA Software Subscriptions for Wireless Data Sheet.

Warranty information

The Cisco Catalyst 9163E Access Point comes with a 1 -year limited warranty that provides full warranty coverage of the hardware for as long as the original end user continues to own or use the product. The warranty includes 10-day advance hardware replacement and ensures that software media are defect-free for 90 days. For more details, visit https://www.cisco.com/go/warranty.

Cisco environmental sustainability

Information about Cisco's environmental sustainability policies and initiatives for our products, solutions, operations, and extended operations or supply chain is provided in the "Environment Sustainability" section of Cisco's Corporate Social Responsibility (CSR) Report.

Reference links to information about key environmental sustainability topics (mentioned in the "Environmental Sustainability" section of the CSR Report) are provided in the following table.

Table 3.   Links to environmental sustainability topics

Sustainability topic	Reference
Information on product material content laws and regulations	Materials
Information on electronic waste laws and regulations, including products, batteries, and packaging	WEEE compliance

Cisco makes the packaging data available for informational purposes only. It may not reflect the most current legal developments, and Cisco does not represent, warrant, or guarantee that it is complete, accurate, or up to date. This information is subject to change without notice.

Cisco Services

With Cisco Services, you can achieve infrastructure excellence faster with less risk. From an initial WLAN readiness assessment to implementation, full solution support, and in-depth training, our services for the Cisco Catalyst 9163E Access Point provide expert guidance to help you successfully plan, deploy, manage, and support your new access point. With unmatched networking expertise, best practices, and innovative tools, Cisco Services can help you reduce overall upgrade, refresh, and migration costs as you introduce new hardware, software, and protocols into the network. With a comprehensive lifecycle of services, Cisco experts will help you minimize disruption and improve operational efficiency to extract maximum value from your Cisco DNA-ready infrastructure.

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

Flexible payment solutions to help you achieve your objectives

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.

Document history

New or revised topic	Described in	Date
New Catalyst 9163E Directional Antenna	Updated product specifications and details for the new Catalyst 9163E Directional Antenna	April 16, 2024

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