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CW9163E Datasheet

Ultra-High Performance Wi-Fi 6E Wireless

The Cisco Wireless 9163E is an outdoor-rated, enterprise-class 802.11ax on-prem or cloud-managed access point. This AP is equipped with Tri-Band concurrent radios geared towards low/medium density applications. It will work with different external antennas for required directivity.

It features 2x2 Tri-Band traffic radios (2x2 2.4 GHz + 2x2 5 GHz + 2x2 6 GHz), 1x1 Tri-Band scanning radio and a 2.4 GHz IoT radio for (BLE/Zigbee/Thread etc.). It also has an inbuilt GNSS receiver for 6 GHz AFC compliance.

Figure 1.

CW9163E access point

Figure 2.

CW9163E, pictured with omnidirectional dipole antennas [CW-ANT-O1-NS-00]

Flexible Deployment Options

The Cisco Wireless 9163E outdoor Wi-Fi 6E access point is designed with a weatherized and robust enclosure, ensuring uninterrupted wireless access even in the most challenging outdoor environments. As part of the Cisco Wireless 916X series, these access points offer 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 a wide range of use cases from campus environments and municipal Wi-Fi to stadiums, airport hangers, and everything in between. These access points are not only reliable and secure but also highly flexible and intelligent, adapting to your network requirements seamlessly.

The Cisco Wireless 9163E Wi-Fi 6E access points are equipped with three client-serving 2x2 radios, one IoT radio, and a tri-band scanning radio. It offers a range of advanced features, tailored to meet any outdoor Wi-Fi requirements. With options for a variety of external antennas, the CW9163E provides the flexibility to expand your 6GHz wireless coverage according to your specific needs.

Perfect for organizations that require extended 6GHz Wi-Fi coverage outside, the CW9163E combines high-density coverage with fast and dependable connectivity to address even the most demanding outdoor scenarios. The CW9163E includes a built-in GPS antenna to report location data to AFC services that enable standard power and outdoor operation. It also offers an optional external GPS antenna for extended satellite coverage. Standard power allows for increased range in both indoor and outdoor deployments, unlocking the full potential of 6 GHz Wi-Fi spectrum. By utilizing the 6 GHz band, these access points

neutralize interference, minimize latency, and provide wider channels and more spectrum resulting in higher bandwidth to address today's most crucial wireless requirements.

With the industry's leading on-premises network platform (Catalyst) joining the industry's leading cloud IT platform (Meraki), these access points deliver an unparalleled network experience. If your organization seeks a solution to provide an exceptional outdoor Wi-Fi experience, the Cisco Wireless 9163E Access Points are the optimal choice.

> ⓘ **Note:** AFC operation is dependent upon regulatory approval. Once approved by local governing bodies, 6 GHz will be enabled for outdoor use with standard power.

Features

Tri–radio aggregate frame rate of up to 3.9 Gbps*

A 6 GHz 2x2:2, 5 GHz 2x2:2 and 2.4 GHz 2x2:2 radio offer a combined tri–radio aggregate frame rate of 3.9 Gbps*. Technologies like transmit beamforming and enhanced receive sensitivity allow the CW9163E to support a higher client density than typical enterprise-class access points, resulting in better performance for more clients from each AP.

> ⓘ **Note: " * "** Refers to maximum over-the-air data frame rate capability of the radio chipset, and may exceed data rates allowed by IEEE 802.11ax operation.

IoT and Bluetooth Low Energy Radio

An integrated Bluetooth radio provides seamless deployment of BLE Beacon functionality and effortless visibility of Bluetooth devices. The CW9163E enables the next generation of location-aware applications while future-proofing deployments, ensuring it's ready for any new customer engagement strategies.

Automatic Cloud-based RF Optimization

The CW9163E's sophisticated and automated RF optimization means that there is no need for the dedicated hardware and RF expertise typically required to tune a wireless network. The RF data collected by the dedicated fourth radio is continuously fed back to the Meraki cloud. This data is then used to automatically tune the channel selection, transmit power, and client connection settings for optimal performance under even the most challenging RF conditions.

Integrated Enterprise Security and Guest Access

The CW9163E features integrated, easy-to-use security technologies to provide secure connectivity for employees and guests alike. Advanced security features such as AES hardware-based encryption and Enterprise authentication with 802.1X and Active Directory integration provide wired-like security while still being easy to configure. CW9163E will also support 192-bit encryption along with WPA3 support for added security of the wireless network.

One-click guest isolation provides secure, Internet-only access for visitors. To simplify secure retail deployments, PCI compliance reports check network settings against PCI requirements.

Dedicated scanning radio delivers 24x7 Air Marshal and RF analytics

There's no need to choose between wireless security (AirMarshal), advanced RF analysis, and serving client data. A dedicated scanning radio means that all functions occur in real-time, without any impact on client traffic or AP throughput.

The CW9163E's dedicated tri-band scanning radio security radio continually monitors the environment, characterizing RF interference and containing wireless threats like rogue access points. Containment is only possible in the 2.4 GHz and 5 GHz frequencies as 6 GHz requires Protected Management Frames (PMF).

Enterprise Mobility Management (EMM) & Mobile Device Management (MDM) integration

Meraki Systems Manager natively integrates with the CW9163E to offer automatic, context-aware security. System Manager's self-service enrollment helps to rapidly deploy MDM without installing additional equipment and then dynamically tie firewall and traffic shaping policies to client posture.

Application-aware traffic shaping

The CW9163E includes an integrated layer 7 packet inspection, classification, and control engine, enabling the configuration of QoS policies based on traffic

type, helping to prioritize mission-critical applications while setting limits on recreational traffic like peer-to-peer and video streaming. Policies can be implemented per network, SSID, user group, or individual user for maximum flexibility and control.

Voice and video optimizations

Industry-standard QoS features are built-in and easy to configure. Wireless Multimedia (WMM) access categories, 802.1p, and DSCP standards support all ensure important applications get prioritized correctly, not only on the CW9163E but also on other network devices on. Unscheduled Automatic Power Save Delivery (U-APSD) and Target Wait Time feature in 802.11ax clients ensure minimal battery drain on wireless VoIP phones.

Self-configuring, self-maintaining, always up-to-date

When plugged in, the CW9163E automatically connects to the Meraki cloud, downloads its configuration, and joins the appropriate network. Administrators can schedule automatic firmware upgrades for their Dashboard network seamlessly. This ensures the network is kept up-to-date with bug fixes, security updates, and new features.

Meraki Health

CW9163E will support all the latest and greatest analytics to provide AI/ML anomaly detection, server root cause analysis, wireless client scoring based on performance and connectivity metrics, and network benchmarking for networks of similar size and vertical. Along with these features, CW9163E will provide advanced location analytics via API and graphs in dashboard to provide a clear picture of client density and their movement across the floor plan.

Choice of Mode

Cisco Catalyst 9163E Access Points can be managed either on-premises with Catalyst 9800 Wireless Lan Controllers (WLC) or cloud-managed through the Meraki dashboard. Customers have the flexibility to deploy these access points in one mode and migrate to the other mode in the future.

Specifications

Category	Specifications
Radios	• 2.4 GHz 802.11b/g/n/ax client access radio • 5 GHz 802.11a/n/ac/ax client access radio • 6 GHz 802.11ax client access radio • 2.4 GHz, 5 GHz, and 6 GHz tri-band Air Marshal WIDS/WIPS, spectrum analysis, & location analytics radio • 2.4 GHz Bluetooth Low Energy (BLE) radio with Beacon and BLE scanning support Concurrent operation of all five radios
Antennas	**CW-ANT-O1-NS-00 Omnidirectional Dipole Self-Identifying Antenna with N-Type Connectors** • 2.4GHz: Peak gain 4 dBi, omnidirectional in azimuth • 5GHz: Peak gain 8 dBi, omnidirectional in azimuth • 6GHz: Peak gain 8 dBi, omnidirectional in azimuth ⓘ One antenna per pack. Four antennas are required to fully populate all ports. **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

802.11 ax compatible, 802.11ac Wave 2 and 802.11n Capabilities	• UL/DL-OFDMA • Target Wait Time (TWT) • BSS coloring* • 2x2 MIMO with two spatial streams • Maximal ratio combining (MRC) • 802.11ax beamforming • 20 and 40 MHz* channels (802.11n) • 20, 40*, 80 MHz channels (802.11ac Wave 2) • 20, 40*, 80 and 160MHz channels (802.11ax) ⓘ **Note:** *40MHz channels are supported only in 5 & 6 GHz bands • Up to 1024-QAM on 2.4 GHz, 5 GHz and 6 GHz bands • Packet aggregation - A-MPDU (transmit and receive), A-MSDU (transmit and receive)
Power	• Power over Ethernet: 42.5 - 57 V (PoE+ and UPoE compliant) • Power requirement: Up to 25W (PoE+) • Power over Ethernet injector sold separately Actual power consumption may vary depending on the AP usage
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
Mounting	• Wall and pole (2.5" to 3.9" diameter) mount capable • Compatible with MA-MNT-MR-16 (included) and AIR-MNT-VERT1

Security	• Integrated Layer 7 firewall with mobile device policy management
	• Real-time WIDS/WIPS with alerting and automatic rogue AP containment with Air Marshal
	• Flexible guest access with device isolation
	• VLAN tagging (802.1q) and tunneling with IPsec VPN
	• PCI compliance reporting
	• WPA2-PSK, WPA2-Enterprise, WPA3 - Personal, WPA3 - Enterprise, WPA3 - Enhanced Open (OWE)
	• EAP Local authentication - EAP-TTLS/PAP, PEAP-GTC, EAP-TLS
	• Advanced Encryption Standard (AES)
	• Enterprise Mobility Management (EMM) & Mobile Device Management (MDM) integration
	• Cisco ISE integration for Guest access and BYOD Posturing
Quality of Service	• Advanced Power Save (U-APSD)
	• WMM Access Categories with DSCP and 802.1p support
	• Layer 7 application traffic identification and shaping
Mobility	• PMK, OKC, & 802.11r for fast Layer 2 roaming
	• Distributed or centralized layer 3 roaming
Analytics	• Embedded location analytics reporting and device tracking
	• Global L7 traffic analytics reporting per network, per device, & per application
LED Indicators	• One power/booting/firmware upgrade status
Reliability	Mean Time Between Failure (MTBF):
	• 468,413 hrs at 77°F (25°C) operating temperature
	• 128,631 hrs at 149°F (65°C) operating temperature
Dimensions (W x L x H)	• Access point (without mounting brackets):
	• CW9163E: 9.64 x 9.64 x 2.5 in. (245 x 245 x 63.5 mm)
Weight	• 3.3 lb (1.50 kg)

- 802.3at Power over Ethernet Plus (PoE+), 802.3af Power over Ethernet (PoE)

Input power requirements	Power Source	2.4GHz radio	5GHz radio	6GHz radio	Link speed
	802.3at (PoE+)	2x2	2x2	2x2	2.5 Gbps
	802.3af (PoE)	1x1	1x1	off	1Gbps

Note: <u>Actual power consumption may vary depending on AP usage. It is recommended that you ensure that LLDP/CDP is enabled to a</u>

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	• Outdoor access point
	• 1 year hardware warranty with advanced replacement included

Available transmit power settings	**2.4GHz**	**5GHz**	**6G**
	• 23 dBm (200 mW)	• 23 dBm (200 mW)	•
	• -4 dBm (0.39 mW)	• -4 dBm (0.39 mW)	•
			No

Compliance and Standards

Category	Standard
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
Certifications	• **Wi-Fi Alliance:** Wi-Fi 6 (R2), Wi-Fi 6E, WPA3-R3, WPA3-Suite B, Enhanced Open Security • **Bluetooth SIG:** Bluetooth Low Energy
Safety Approvals	• 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
Radio Approvals	• 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)

For additional country-specific regulatory information, please contact Meraki sales

EMI Approvals (Class B)

- FCC Part 15B

- ICES-003 (Canada)

- EN 301 489-1-17

- EN 55032

- EN 55024 (Europe)
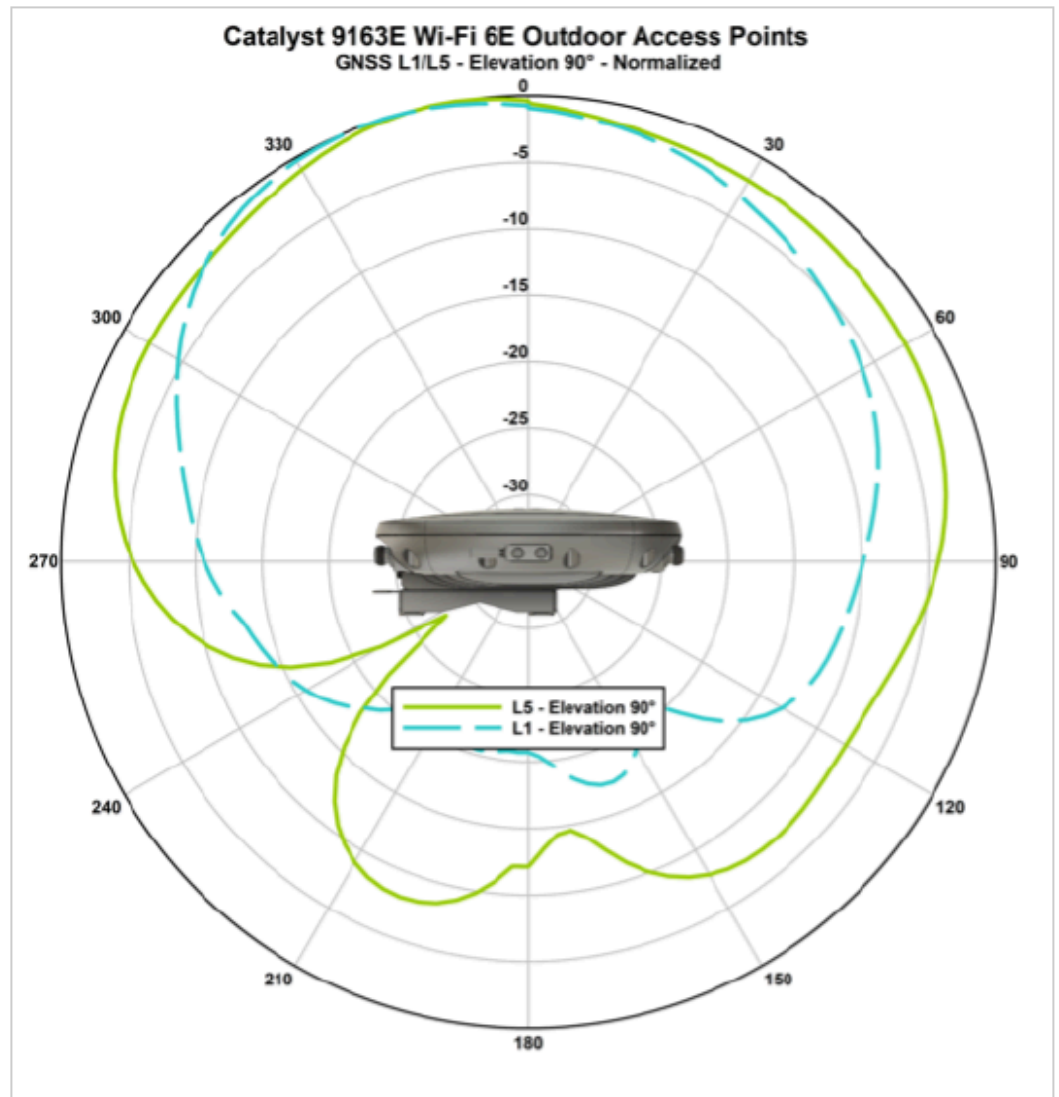
- CISPR 32 (Australia/NZ) VCCI (Japan)

Exposure Approvals

- EN 50385:2017
- ARPANSA
- AS/NZS 2772.2 (rev. 2016)
- 47 CFR Part 1.1310 and Part 2.1091
- RSS-102 (2015)

Signal Coverage Pattern

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

L5 - Elevation 90°
L1 - Elevation 90°

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


Legend:
- L5 - Elevation 0°
- L1 - Elevation 0°

IoT radio

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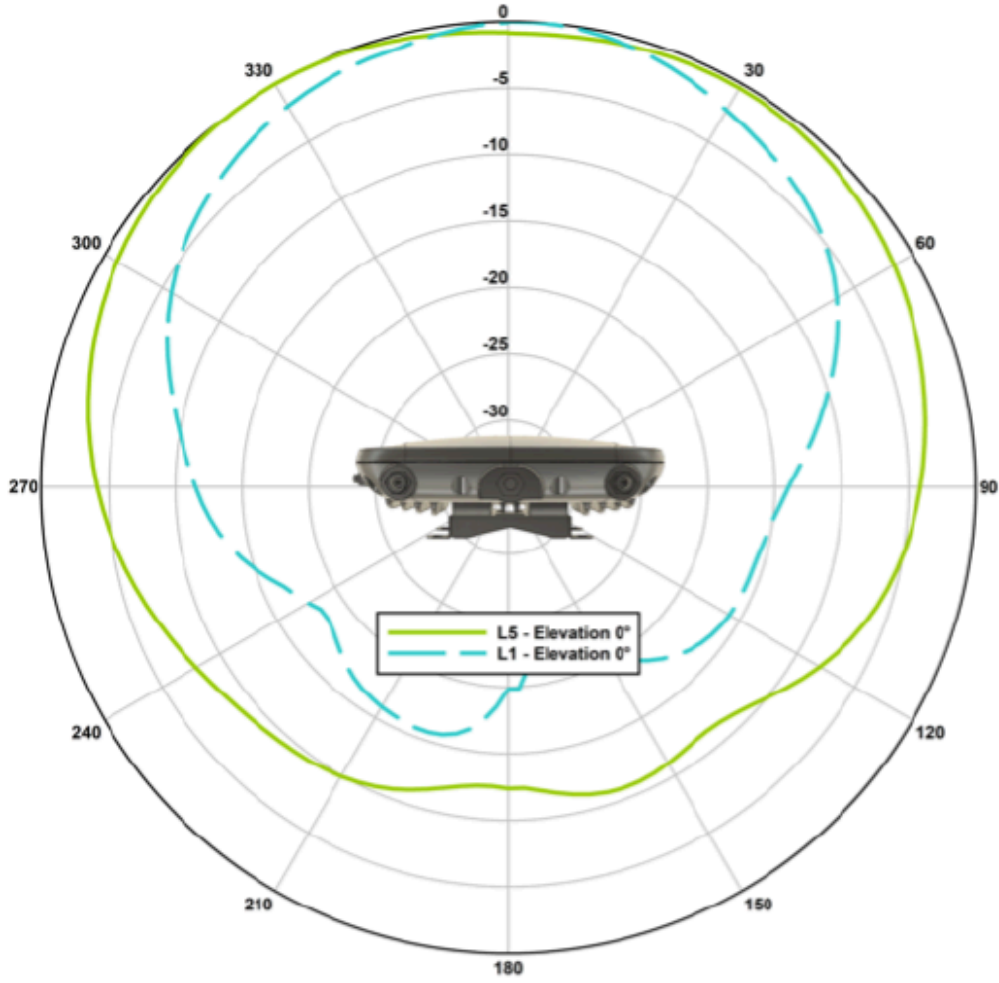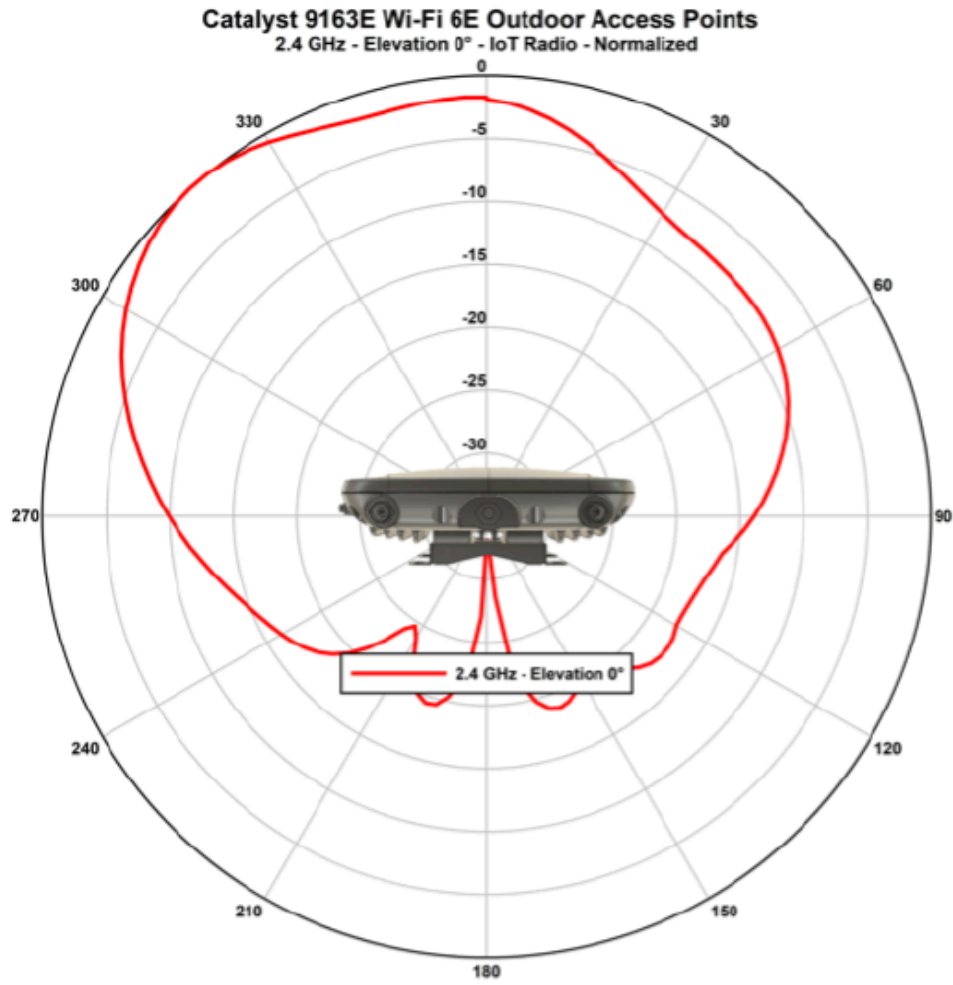
2.4 GHz - Elevation 0°

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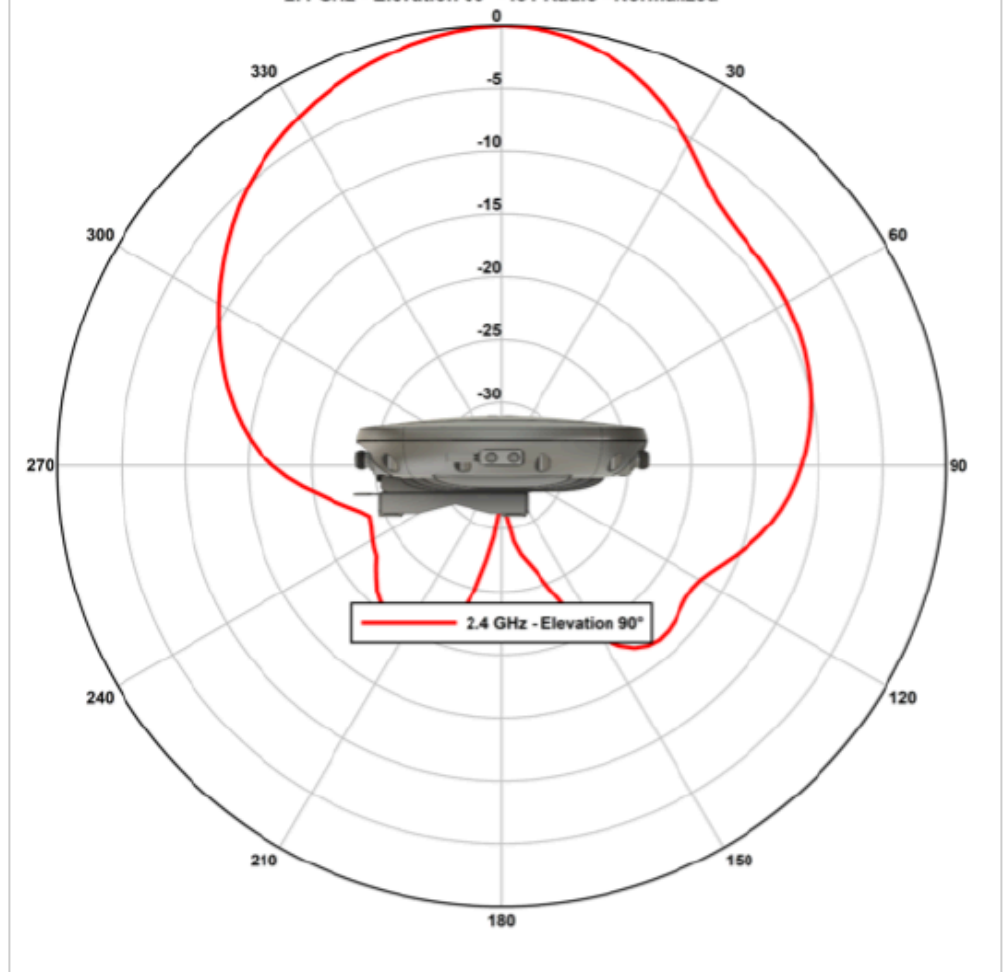
2.4 GHz - Elevation 90°

Scanning radio

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

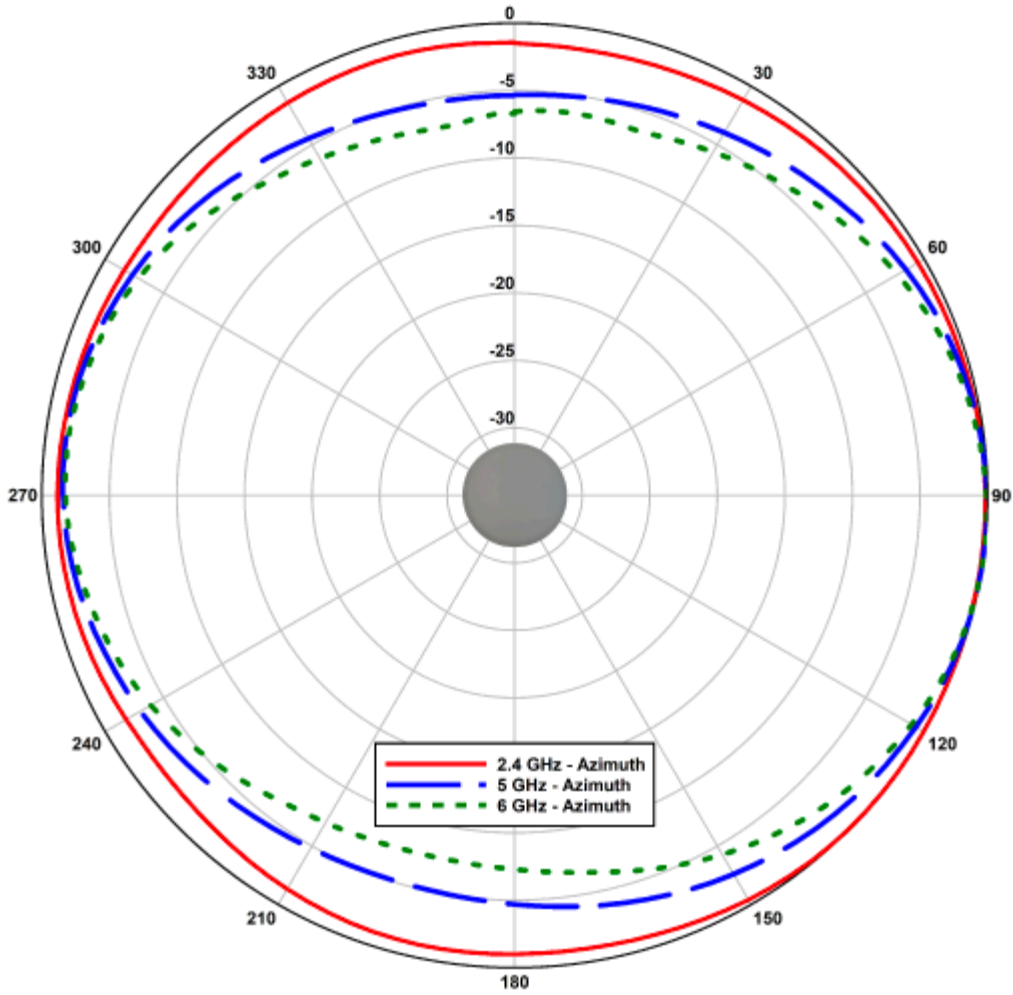- 2.4 GHz - Elevation 0°
- 5 GHz - Elevation 0°
- 6 GHz - Elevation 0°
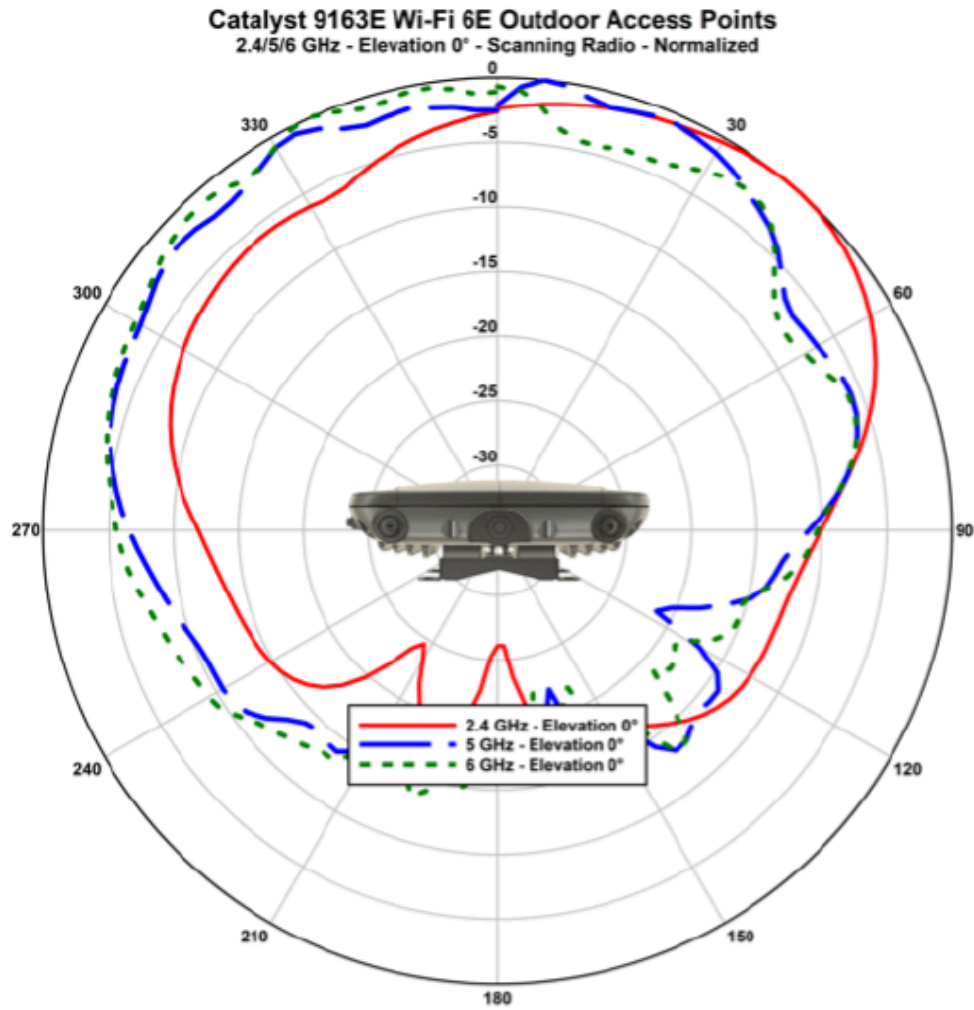
Catalyst 9163E Series Wi-Fi 6E Outdoor Access Points
2.4/5/6 GHz - Elevation 90° - Scanning Radio - Normalized
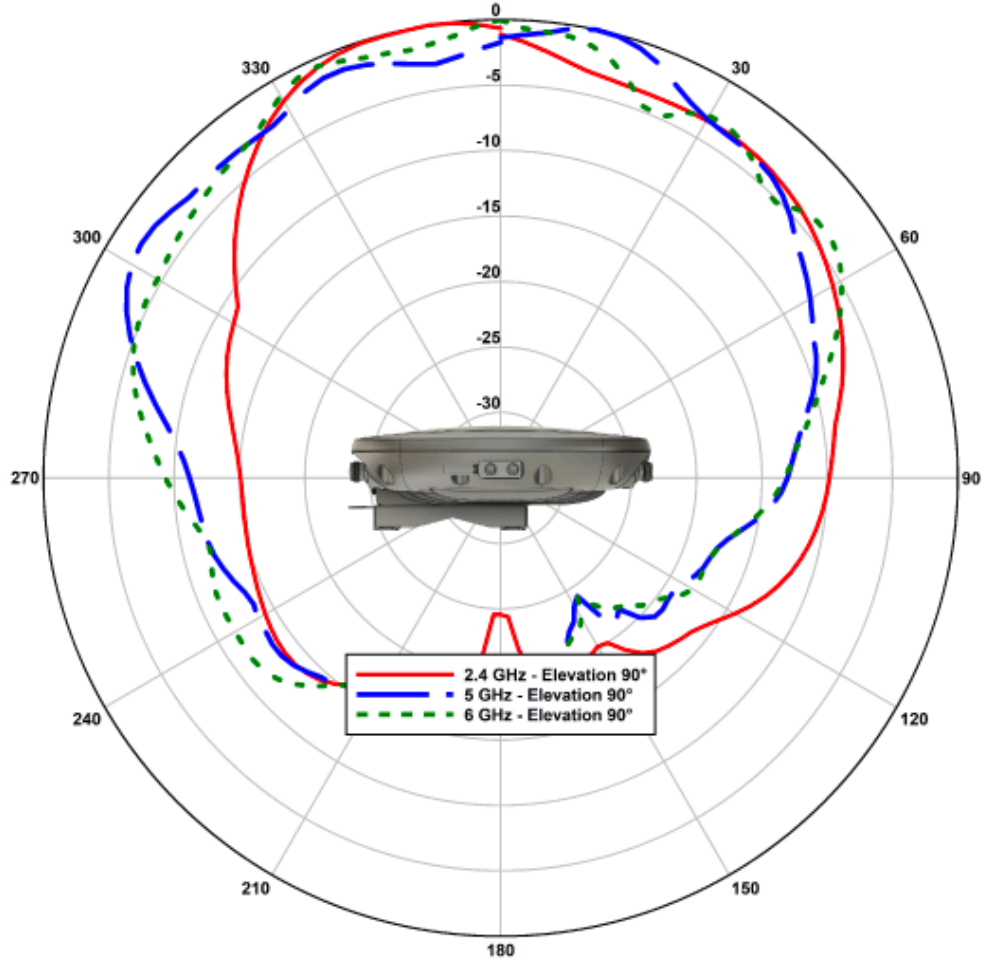
Legend:
- 2.4 GHz - Elevation 90°
- 5 GHz - Elevation 90°
- 6 GHz - Elevation 90°

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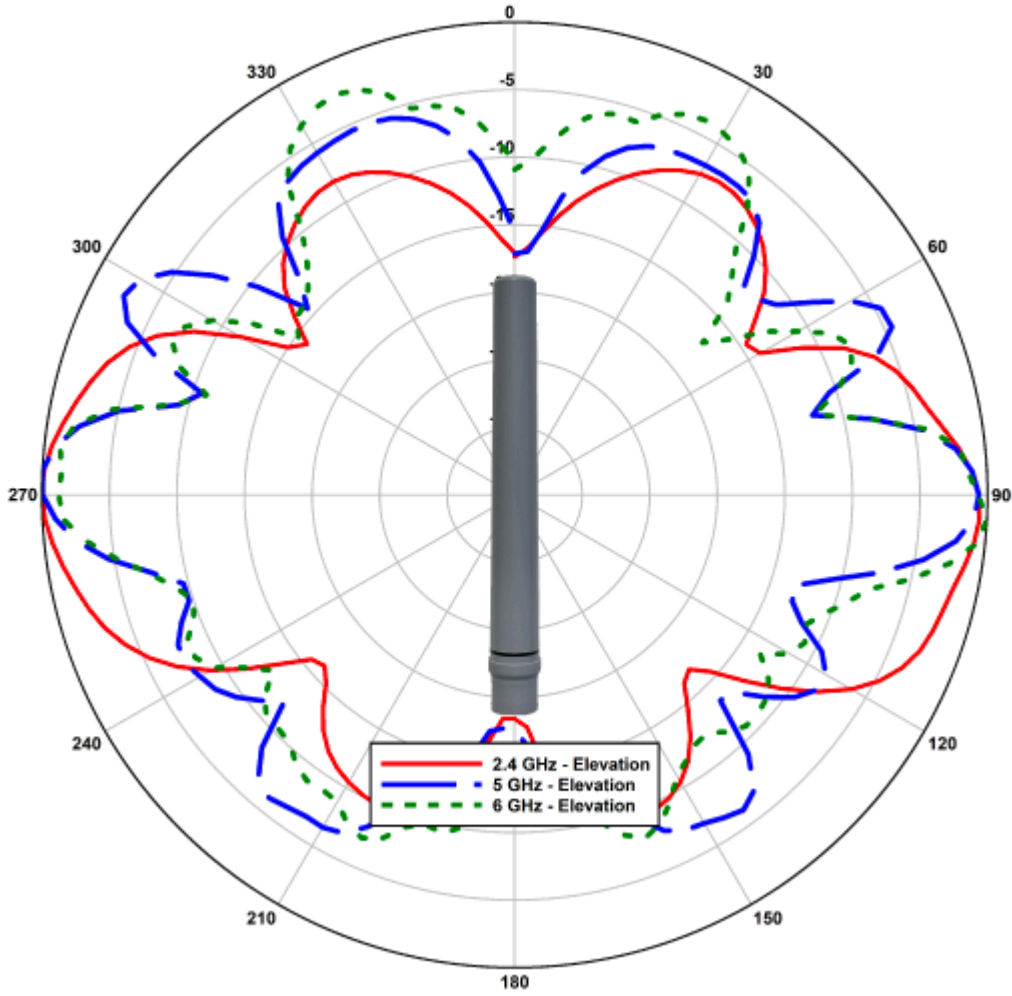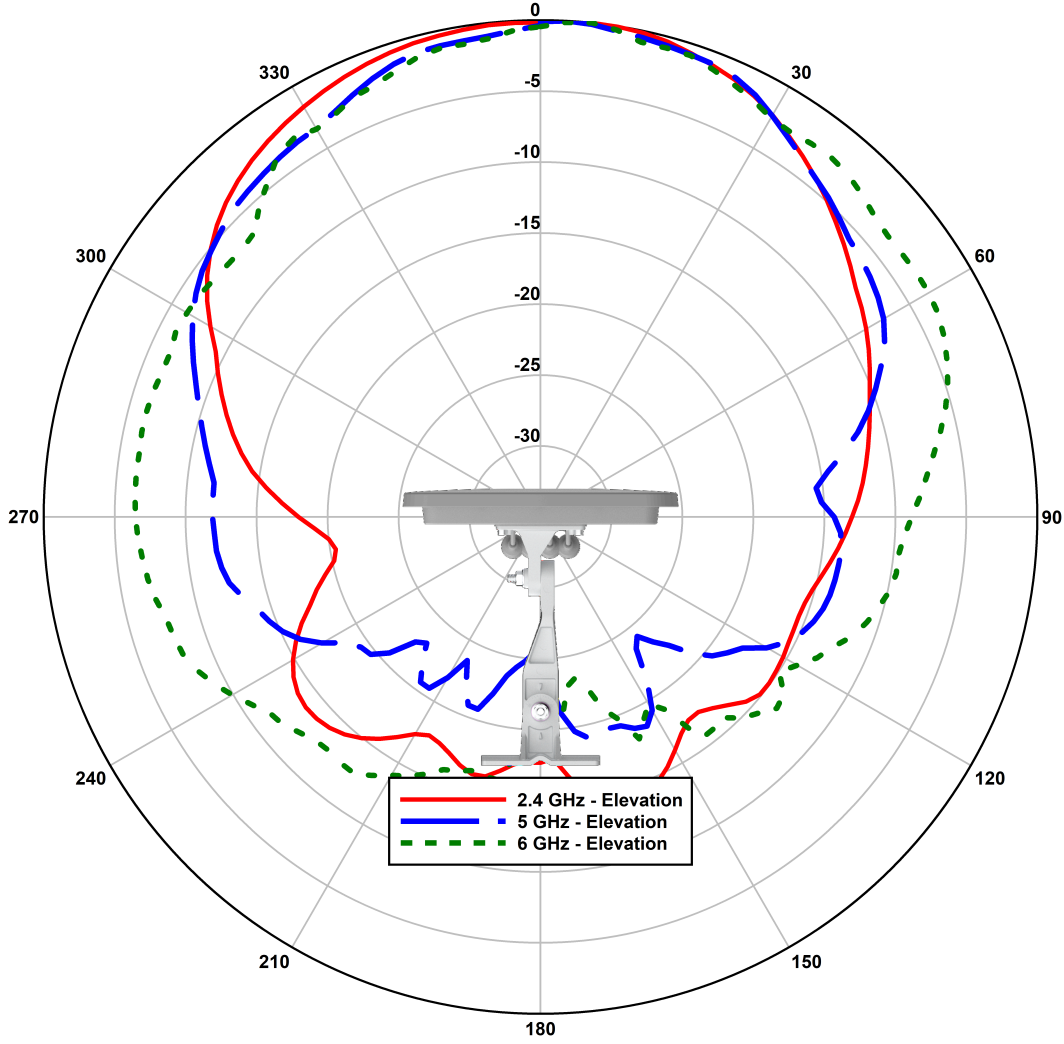
Catalyst CW-ANT-O1-NS
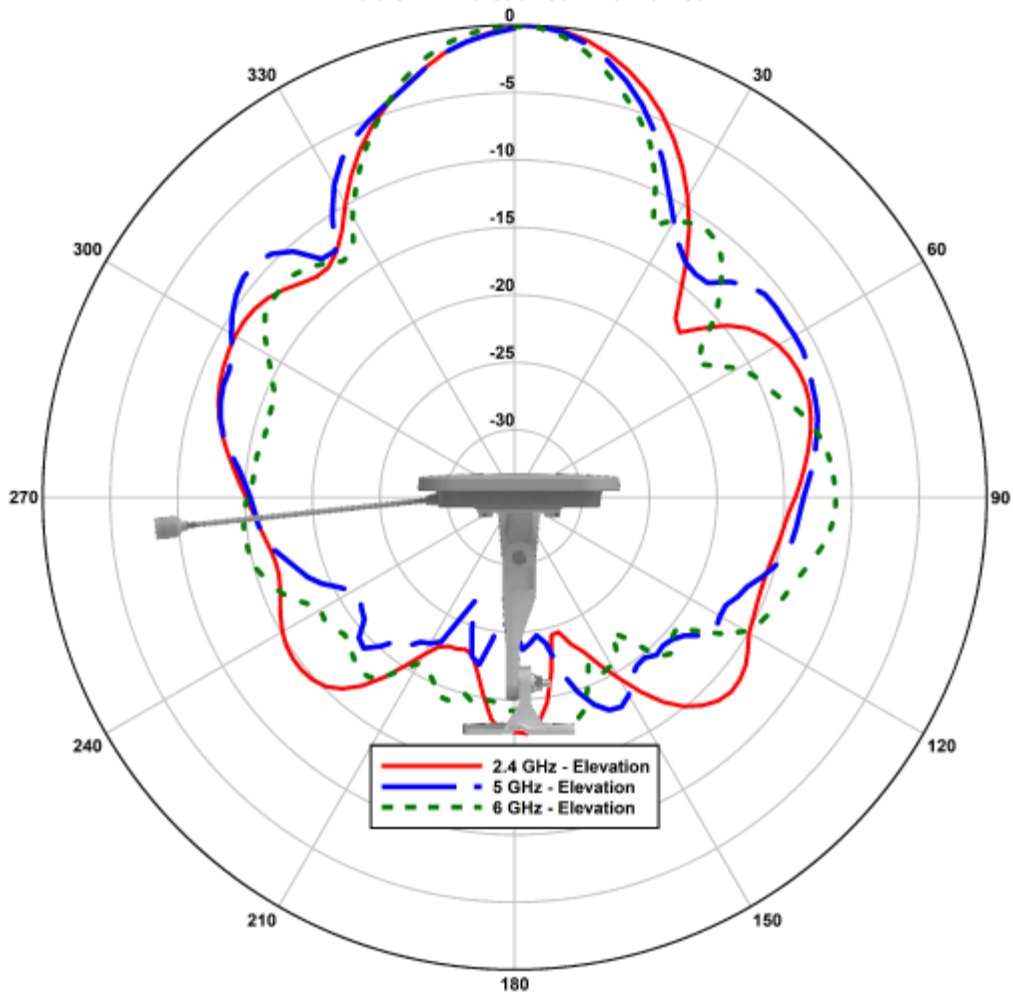Tri-Band Omnidirectional Antenna, SIA
2.4/5/6 GHz - Azimuth - Normalized

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

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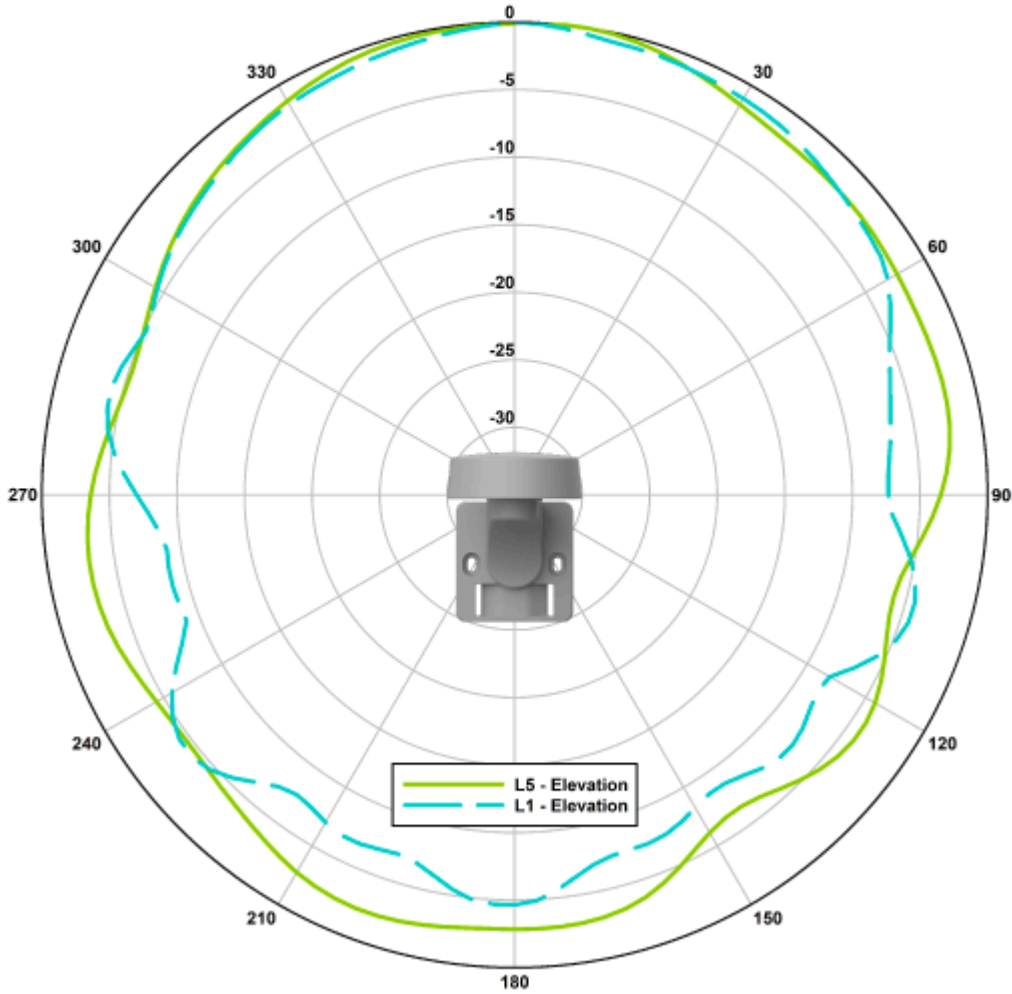### Tri-Band Directional Antenna, SIA
2.4/5/6 GHz - Elevation 90° - Normalized

Legend:
- 2.4 GHz - Elevation
- 5 GHz - Elevation
- 6 GHz - Elevation

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

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

Legend:
- L5 - Elevation
- L1 - Elevation