Alcatel-Lucent OmniAccess Stellar AP1331

WLAN Access Points - Indoor 802.11 ax (Wi-Fi 6)

The Alcatel-Lucent OmniAccess® Stellar AP1331 premium mid-range WLAN Access Point with 802.11ax technology enables faster speeds, more capacity, and efficient airtime allocation for clients on both 2.4Ghz and 5Ghz Wi-Fi bands. Wi-Fi 6 technology can better serve a higher density of clients, deliver more capacity for bandwidth-hungry and latency-sensitive voice and video clients, and provides a dependable secure network for Internet of Things (IoT) devices while increasing the battery-powered lifespan. The OmniAccess Stellar WLAN portfolio brings unparalleled connectivity, coverage, and performance, to the modern IoT connected enterprise.

The 802.11ax premium high-end OmniAccess Stellar AP1331 is designed to accommodate the dense and high-capacity needs of next-generation mobility and IoT-enabled networks. The access point is powered with four built-in radios: two radios, 2.4Ghz/5Ghz band serving high density Wi-Fi clients; one full-band radio dedicated for scanning, supporting improved network security and Wi-Fi RF quality; and an integrated Bluetooth®/Zigbee radio enabling location and building automation services. The OmniAccess Stellar AP1331 series supports a maximum aggregate data rate of 3.55Gbps (2.4Gbps in 5 GHz and 1.15Gbps in 2.4GHz). The access points dual 5Gbps uplinks provide Power over Ethernet (POE) resiliency and load sharing.

The OmniAccess Stellar AP1331 supports 802.11ax (Wi-Fi 6) features, which include OFDMA, DL MU-MIMO, UL MU-MIMO, 1024-QAM modulation and more, making tomorrow's diverse digital workspaces highly reliable and efficient.

The OmniAccess Stellar AP1331 features enhanced WLAN technology with RF Radio Dynamic Adjustment, a distributed control Wi-Fi architecture, secure network admission control with Unified Access, built-in application intelligence and analytics, making it ideal for enterprises of all sizes that demand a simple, secure, and scalable wireless solution.

802.11 ax (Wi-Fi 6) high-efficiency features

IEEE 802.11ax allows enterprises to deliver high-performance wireless LAN services with increased throughput, enabling more clients in dense environments, and bringing power efficiency to IoT devices, while remaining fully backward compatible with existing 802.11 a/b/g/n/ac deployments. The 802.11ax standard is a dramatic step forward in wireless LAN technology for all organisations. Some of the key 802.11ax features enabled on the OmniAccess Stellar AP1331 include:

- Orthogonal Frequency Division Multiple Access (OFDMA) enabling more clients to simultaneously operate in the same channel and thereby improve efficiency, latency, and throughput. OFDMA can concurrently address multiple clients in both directions downlink (DL) and uplink (UL), including OFDMA Resource Units (RUs). OFDMA is very effective in environments where there are many devices with short frames demanding lower latency.
- Multi-user multiple input, multiple output (MU-MIMO) allowing more data to be transferred at once and enabling an access point to handle a larger number of concurrent clients
- 1024 quadrature amplitude modulation mode (1024-QAM) boosting peak data-rates by as much as 25 percent
- BSS Coloring improving spatial reuse in dense environments by providing a mechanism for colour coding different overlapping BSS's, allowing more simultaneous transmissions
- Extended Range (ER) providing increased coverage in scenarios where receiving side encounters high path loss and channel delay spread, especially in outdoor environments
- Target Wake Time (TWT) making Wi-Fi CERTIFIED 6 devices more power efficient. This capability lets client devices sleep much longer, and wake up to less contention, extending the battery life of smart phones, IoT sensors, and other devices.
- Transmit beamforming improving signal power resulting in significantly higher rates at a given range

Deliver enterprise-grade security and scale with simplicity

The OmniAccess Stellar AP1331 enables a visionary distributed Wi-Fi architecture with centralised management and policy control. This enforces security at every step starting at the network edge, and allowing unparalleled scale in network capacity. This architecture is vital for enabling the next generation of digital enterprise that demands business agility, seamless mobility and secure IoT-enabled infrastructure empowering business transformation through continuous innovation.

The OmniAccess Stellar AP1331 provides enhanced security with WPA3, a new security standard for enterprise and public networks, improving Wi-Fi security by using advanced security algorithms and stronger ciphers in enterprises including the 192-bit security suite. Public spaces which provide open non-protected access, can now provide encryption and privacy using OmniAccess Stellar, which supports a new security standard Wi-Fi Enhanced Open based on Opportunistic Wireless Encryption (OWE).*

The access points can be deployed in three different modes, all through a single version of software, simplifying IT operations.

For medium- to large-scale enterprises, the Alcatel-Lucent OmniVista® Network Management System provides secure plug-and-play APs for large scale deployment, with user friendly workflows for wireless services and unified access for end-to-end security. It comes with an integrated Unified Policy Authentication Manager (UPAM) which helps define the authentication strategy and policy enforcement for employees, guest management, and BYOD devices. The OmniAccess Stellar AP1331 has built-in DPI technology providing real-time Application Monitoring and enforcement capabilities. The network administrator can obtain a comprehensive view of applications running in the network and apply adequate controls to optimise the performance of the network for business-critical applications. OmniVista provides advanced options for RF management, wIDS/wIPS for intrusion detection and prevention, and heatmaps for WLAN site planning. To further simplify IT, the APs can be managed as one or more access point groups (a logical grouping of one or more access points).

* The hardware is ready, and will be supported in a future software update.

Cloud-enabled with OmniVista Cirrus Network Management as a Service

The OmniAccess Stellar AP1331 can be managed by the Alcatel-Lucent OmniVista® Cirrus cloud platform. OmniVista Cirrus powers a secure, resilient, and scalable cloud-based network management platform. It offers hassle-free network deployment and easy service rollout with advanced analytics for smarter decision making. OmniVista Cirrus also offers IT-friendly unified access with secure authentication and policy enforcement for users and devices.

On premises deployment with OmniVista 2500 Network Management System (NMS)

The OmniAccess Stellar AP1331 can be managed on premises from the Alcatel-Lucent OmniVista 2500 NMS.

For small- to medium-size enterprises, Wi-Fi Express provides secure web managed (HTTPS) cluster deployment.

The OmniAccess Stellar AP1331 by default can operate in a cluster architecture to provide simplified plug-and-play deployment. The AP cluster is an autonomous system that consists of a group of OmniAccess Stellar APs which is managed by one AP that is elected as the primary virtual manager. One AP cluster supports up to 255 APs.

The AP cluster architecture ensures simplified and quick deployment. Once the first AP is configured using the configuration wizard, the remaining APs in the network will come up automatically with an updated configuration. This ensures the whole network is up and functional within a few minutes.

The OmniAccess Stellar AP1331 also supports secure zero-touch provisioning with Alcatel-Lucent OXO Connect R2 which provides a mechanism by which all APs in a cluster will obtain bootstrap data securely from an on premises OXO Connect.

The W-Fi Express mode supports role-based management access to the AP cluster which includes Admin, Viewer, and GuestOperator access. GuestOperator access simplifies guest account creation and management, and can be used by any non-IT person such as a front-desk worker or receptionist. The OmniAccess Stellar AP1331 also supports a built-in customisable captive portal which enables customers to offer secure and seamless guest access experience.

Quality of Service for Unified Communications apps

The OmniAccess Stellar AP1331 supports fine-tuned, Quality of Service (QoS) parameters to differentiate and provide appropriate QoS for each application such as voice, video, and desktop sharing. Application aware RF scanning avoids interruption of real-time applications.

RF management

Radio Dynamic Adjustment (RDA) technology automatically assigns channels and power settings, provides DFS/TPC, and ensures that APs stay clear of all radio frequency interference (RFI) sources to deliver a reliable, high-performance WLAN. The OmniAccess Stellar AP1331 can be configured to provide part-time or dedicated scanning for spectrum analysis and wireless intrusion protection.

Product specifications

Features	Description
Radio specifications	• AP type: Indoor Wi-Fi 6□802.11ax□ • Dual Radio, 5 GHz 4x4:4 and 2.4 GHz 4x4:4 ¬ 5 GHz Low: 4x4:4 up to 2.4Gbps wireless data rate to individual 4SS HE80 or 2SS HE160/80+80 802.11ax client devices ¬ 2.4 GHz: 4x4:4 up to 1.147Gbps wireless data rate to individual 4SS HE40 802.11ax client devices • Supported frequency bands (country-specific restrictions apply): ¬ 2.400 to 2.4835 GHz ¬ 5.150 to 5.250 GHz ¬ 5.250 to 5.350 GHz ¬ 5.470 to 5.725 GHz ¬ 5.725 to 5.850 GHz • Available channels: Dependent on configured regulatory domain • Brazil: Maximum transmit power: 24dBm on 2.4GHz, 24dBm on 5GHz • Maximum (aggregate, conducted total) transmit power (limited by local regulatory requirements): ¬ 24dBm on 2.4GHz (18dBm per chain) ¬ 24dBm on 5GHz (18dBm per chain) • DFA (Dynamic Frequency Adjustment) optimises available channels and provides proper transmission power • Transmit beamforming (TxBF) for increased signal reliability and range • 802.11n/ac packet aggregation: Aggregated Mac Protocol Data Unit (A-MPDU), Aggregated Mac Service Data Unit (A-MSDU) • 802.11ax Target Wait Time (TWT) to support low-power client devices • Supported data rates (Mbps): ¬ 802.11b: 1, 2, 5.5, 11 ¬ 802.11a/g: 6, 9, 12, 18, 24, 36, 48, 54 ¬ 802.11n: 6.5 to 600 (MCS0 to MCS7, HT20 to HT40) ¬ 802.11ac: 6.5 to 1733 (MCS0 to MCS9, NSS = 1 to 4, VHT20 to VHT160(80+80)) ¬ 802.11ax(2.4GHz): 3.6 to 1147 (MCS0 to MCS11, NSS = 1 to 4, HE20 to HE40) ¬ 802.11ax(5GHz): 3.6 to 2402 (MCS0 to MCS11, NSS = 1 to 4, HE20 to HE160(80+80)) • Supported modulation types: ¬ 802.11b: BPSK, QPSK, CCK ¬ 802.11a/g/n/ac: BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM ¬ 802.11ax: BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM, 1024-QAM • 802.11n high-throughput (HT) support: HT 20/40 • 802.11ac very high throughput (VHT) support: VHT 20/40/80/160(80+80) • 802.11ax high efficiency (HE) support: HE 20/40/80/160(80+80) • Advanced Cellular Coexistence (ACC) ¬ Minimises interference from 3G/4G cellular networks, distributed antenna systems, and commercial small cell/ femtocell equipment • Full band 1x1 radio, dedicated for scanning • Bluetooth 5/Zigbee: up to 6dBm transmit power (class 1) and -93dBm receive sensitivity

Features	Descriptions		
Interfaces	• 2x multi-Gigabit 1/2.5/5 Gig IEEE 802.3bz compliant autosensing (RJ-45) ports, Eth0-Eth1, Power over Ethernet (PoE), 802.3az Energy Efficient Ethernet (EEE) • 1x USB 3.0 Type A (5V, 500mA) • Management Console RJ-45 • Reset button: Factory reset		
Visual indicators (Tri-colour LED)	• For system and radio status ¬ Red flashing: System abnormal, link down ¬ Red light: System startup ¬ Red and blue rotate flashing: System running, OS upgrading ¬ Blue light: System running, dual bands working ¬ Green flashing: System running, no SSID created ¬ Green light: System running, single band working ¬ Red, blue and green rotate flashing ¬ System running, use for location of an AP		
Security	• Integrated Trusted Platform Module (TPM 2.0) for secure storage of credentials and keys • 802.11i, WPA2, WPA3, Enterprise with CNSA Option, Personal (SAE) • 802.1X • WEP, Advanced Encryption Standard (AES), Temporal Key Integrity Protocol (TKIP) • Firewall: ACL, wIPS/wIDS and DPI application policy enforcement with OmniVista • Portal page authentication		
Antenna	• Integrated omni-directional antennas with peak antenna gain of 3.9dBi in 2.4 GHz 4.6dBi in 5 GHz ¬ Built-in antennas are optimised for horizontal ceiling mounted orientation of the AP. The downtilt angle for maximum gain is roughly 30 degrees • Integrated BLE antenna with peak gain 3.7dBi		
Receive sensitivity		• 2.4 GHz	• 5 GHz
	• 1 Mbps	• -97	
	• 11 Mbps	• -89	
	• 6 Mbps	• -92	• -93
	• 54 Mbps	• -75	• -76
	• HT20(MCS0/8)	• -92	• -92
	• HT20(MCS7/15)	• -74	• -75
	• HT40(MCS0/8)	• -90	• -90
	• HT40(MCS7/15)	• -72	• -72
	• VHT20(MCS0)	• -91	• -92
	• VHT20(MCS8)	• -71	• -71
	• VHT40(MCS0)	• -90	• -90
	• VHT40(MCS9)	• -67	• -67
	• VHT80(MCS0)		• -87
	• VHT80(MCS9)		• -63
	• HE20(MCS0)	• -93	• -93
	• HE20(MCS11)	• -63	• -63
	• HE40(MCS0)	• -90	• -90
	• HE40(MCS11)	• -61	• -61
	• HE80(MCS0)		• -87
	• HE80(MCS11)		• -57
Maximum transmit power (per chain)		• 2.4 GHz	• 5 GHz
	• 1 Mbps	• 18 dBm	
	• 11 Mbps	• 18 dBm	
	• 6 Mbps	• 18 dBm	• 18 dBm
	• 54 Mbps	• 16 dBm	• 16 dBm
	• HT20(MCS0/8)	• 18 dBm	• 18 dBm
	• HT20(MCS7/15)	• 15 dBm	• 14 dBm
	• HT40(MCS0/8)	• 18 dBm	• 18 dBm
	• HT40(MCS7/15)	• 15 dBm	• 14 dBm
	• VHT20(MCS0)	• 18 dBm	• 18 dBm
	• VHT20(MCS8)	• 14 dBm	• 13 dBm
	• VHT40(MCS0)	• 18 dBm	• 18 dBm
	• VHT40(MCS9)	• 14 dBm	• 13 dBm
	• VHT80(MCS0)		• 18 dBm
	• VHT80(MCS9)		• 12 dBm
	• HE20(MCS0)	• 18 dBm	• 18 dBm
	• HE20(MCS11)	• 13 dBm	• 12 dBm
	• HE40(MCS0)	• 18 dBm	• 18 dBm
	• HE40(MCS11)	• 13 dBm	• 12 dBm
	• HE80(MCS0)		• 18 dBm
	• HE80(MCS11)		• 12 dBm
	Note: Maximum transmit power is limited by local regulatory settings.		

Features	Descriptions
Power	• Supports direct DC power and Power over Ethernet (PoE) • When both power sources are available, DC power takes priority over PoE • Direct DC source: ¬ 48 V DC nominal, +/- 5% • Power over Ethernet (PoE): ¬ IEEE 802.3bt/at compliant source • Maximum (worst case) power consumption: ¬ 28W (input IEEE 802.3bt or dual IEEE 802.3at POE); Unrestricted functionality ¬ 25W (input IEEE 802.3at POE); The USB port is disabled ¬ 23W (input dual IEEE 802.3af POE); The USB port is disabled, Eth1 port is disabled ¬ 12.5W (input IEEE 802.3af POE); The USB port is disabled, Eth1 port is disabled, and dual radio downgrade to 1*1
Mounting	Ceiling/wall mounting (Mount kit needs to be ordered separately)
Environmental	• Operating: ¬ Temperature: 0°C to 45°C (-32°F to +113°F) ¬ Humidity: 5% to 95% non-condensing • Storage and transportation: Temperature: -40°C to +70°C (-40°F to +158°F)
Dimensions/Weight	• Single AP excluding packing box and accessories: ¬ 210mm (W) x 210mm (D) x 40mm (H) - 8.27″ (W) x 8.27″ (D) x 1.57″ (H) ¬ 985g/2.17lb • Single AP including packing box and accessories: ¬ 238mm (W) x 237mm (D) x 69mm (H) - 9.37″ (W) x 9.33″ (D) x 2.72″ (H) ¬ 2828g/6.23lb
Reliability	MTBF: 572,332h (65.33 years) at +25ºC operating temperature
Capacity	• Up to 16 SSID per radio (total 32 SSID) • Up to 1024 associated client devices
Software features	• Up to 4K APs when managed by OV2500. No limit on number of AP groups • Up to 255 APs per web managed (HTTP/ HTTPS) cluster • Auto channel selection • Auto transmit power control • Bandwidth control per SSID • L2 roaming • L3 roaming with OmniVista 2500 • Captive portal (Internal/External) • Guest self-registration optional SMS notification) with OmniVista 2500 • Internal user database • RADIUS client • Guest social-login with OmniVista 2500 • RADIUS proxy authentication with OmniVista 2500 • LDAP/AD proxy authentication with OmniVista 2500 • Wireless QoS • Band steering • Client smart load balance • Client sticky avoidance • User behavior tracking • White/black list • Zero-touch provisioning (ZTP) • NTP Client • ACL • DHCP/DNS/NAT • Wireless MESH P2P/P2MP • Wireless Bridge • Rogue AP location and containment • Dedicated Scanning AP • System log report • SSHv2 • SNMPv2, SNMPv3 • Wireless attack detection with OmniVista 2500 • Floor plan and heat map with OmniVista 2500 • Stanley Healthcare/Aeroscout RTLS support
IEEE standard	• IEEE 802.11a/b/g/n/ac/ax • IEEE 802.11e WMM, U-APSD • IEEE 802.11h, 802.11i, 802.11e QoS • IEEE 802.1Q (VLAN Tagging) • 802.11k Radio Resource Management • 802.11v BSS Transition Management • 802.11r Fast roaming • 802.11w Protected Management Frame

Features	Descriptions
Regulatory and certification	• CB Scheme Safety, cTUVus • Wi-Fi CERTIFIED Wi-Fi 6, Passpoint R3 • FCC • CE Marked • EN 60601-1-1 & EN 60601-1-2 • Bluetooth SIG • RoHS, REACH, WEEE • EMI and susceptibility (Class B) • 2014/35/EU Low Voltage Directive • 2014/30/EU EMC Directive • 2011/65/EU RoHS Directive • 2014/53/EU Radio Equipment Directive • EN 55032 • EN 55035 • EN 50385 • IEC/EN 60950 and 62368 • EN 300 328 • EN 301 893 • EN 301 489-1 • EN 301 489-17 • UL2043 plenum rating

Ordering information

Access Points	Description
OAW-AP1331-RW	OmniAccess Stellar Indoor AP1331. Dual radio 2.4 & 5Ghz, 4x4+4x4 802.11ax, integrated omni antenna. 1x1 scanning and BLE/Zigbee radio. 2x 5GE up, 1x RS-232 Console, USB, 48V DC. AP mount to be ordered separately. Not for use in US, Egypt, Japan.
OAW-AP1331-ME	OmniAccess Stellar Indoor AP1331. Dual radio 2.4 & 5Ghz, 4x4+4x4 802.11ax, integrated omni antenna. 1x1 scanning and BLE/Zigbee radio. 2x 5GE up, 1x RS-232 Console, USB, 48V DC. AP mount to be ordered separately. Restricted Regulatory Domain: Egypt.
OAW-AP1331-US	OmniAccess Stellar Indoor AP1331. Dual radio 2.4 & 5Ghz, 4x4+4x4 802.11ax, integrated omni antenna. 1x1 scanning and BLE/Zigbee radio. 2x 5GE up, 1x RS-232 Console, USB, 48V DC. AP mount to be ordered separately. Restricted Regulatory Domain: US.

Accessories	Description
AP-MNT-IN-BE (single pack)	Indoor mounting kit enhanced, Type B1 (9/16) and Type B2 (15/16) for T shaped ceiling rail mounting. Applicable for OmniAccess Stellar AP1331, AP1101, AP12xx and other AP13xx series.
OAW-AP-MNT-W (single pack) OAW-AP-MNT-W-10 (10 pack)	Mounting kit, Type A wall mount and ceiling mount with screws. Applicable for OmniAccess Stellar Indoor 1101, 12xx and 13xx series.
AP-MNT-IN-CE (single pack)	Indoor mounting kit enhanced, Type C1 (Open Silhouette) and C2 (Flanged Interlude), for other shaped ceiling rail mounting. Applicable for OmniAccess Stellar AP1331, AP1101, AP12xx and other AP13xx series.
POE60U-1BT-X-R	1-Port IEEE 802.3bt PoE Midspan. Port speed 10G PoE power 60W. No power cord included. Please order PWR-CORD-XX for country specific power cord.
ADP-50GR BE	48V/50W AC-to-DC Power Adapter with Type A DC plug 2.1*5.5*9.5mm circular, straight. Please order PWR-CORD-XX for country specific power cord.

Warranty

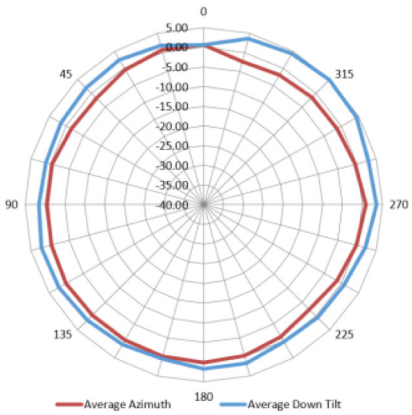
OmniAccess Stellar Access Points come with Hardware Limited Lifetime Warranty (HLLW).

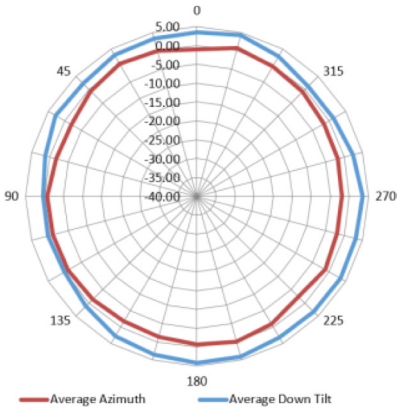
Services and support

OmniAccess Stellar Access Points include one year of complementary SUPPORT Software for partners. For more information about our Professional services, Support services, and Managed services, please go to:

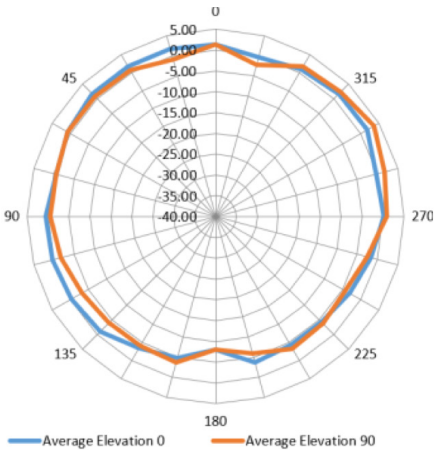
http://enterprise.alcatel-lucent.com/?services=EnterpriseServices&page=directory

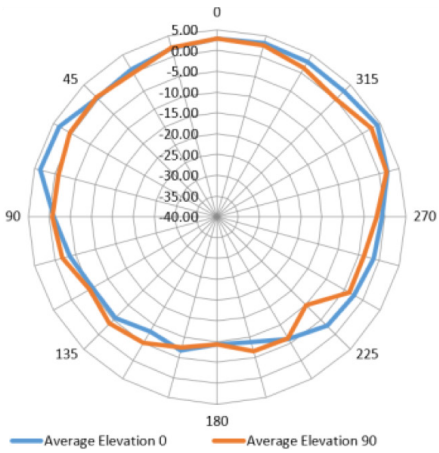
Figures. OmniAccess AP1331 antenna pattern plots



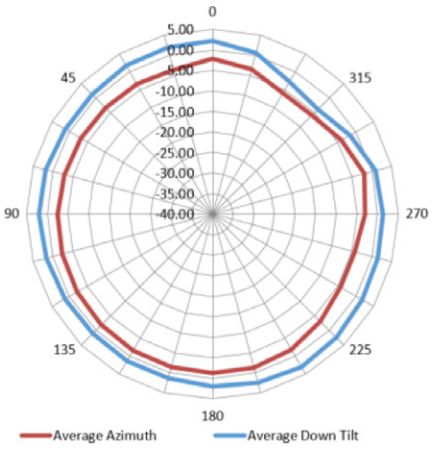


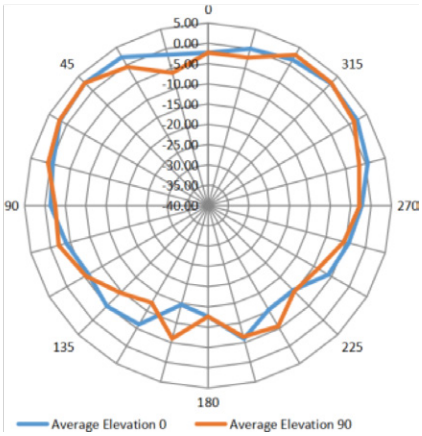
Azimuth plane (top view) 2.4GHz 5GHz H





Elevation plane (side view) 2.4GHz 5GHz H





BLE radio antenna pattern Azimuth plane (top view) Elevation plane (side view)

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