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Enterprise

Alcatel-Lucent OmniAccess Stellar AP1501

WLAN Access Points - Indoor Wi-Fi 7

The Alcatel-Lucent OmniAccess® Stellar AP1501 delivers an accessible entry point into Wi-Fi 7, combining next-generation wireless performance with the cost efficiency enterprises expect. The OmniAccess Stellar AP1501 makes Wi-Fi 7 performance affordable for everyday connectivity. Built for mid-density and distributed environments such as branch offices, retail locations and small campuses, it delivers the high bandwidth, low latency and reliability required by next-generation mobility and connected services. With Alcatel-Lucent Enterprise's proven enterprise wireless architecture, the OmniAccess Stellar AP1501 enables organizations to modernize their wireless networks with confidence, efficiency and long-term value.

The OmniAccess Stellar AP1501 is powered by three radios serving Wi-Fi clients. The OmniAccess Stellar AP1501 supports a maximum aggregate data rate of 9.328 Gbps (688 Mbps in 2.4GHz, 2.882 Gbps in 5GHz, 5.76 Gbps in 6GHz). As part of the optimized design, the OmniAccess Stellar AP1501 uses a **Multigigabit Ethernet interface capable of 2.5 Gbps**, suited for those spaces with a mid-density of wireless clients, but with intensive bandwidth needs.

The OmniAccess Stellar AP1501 supports **802.11be features, including MLO, OFDMA, DL MU-MIMO, UL MU-MIMO, 4096-QAM modulation and more**. These features make tomorrow's diverse digital workspaces highly reliable and efficient.

The OmniAccess Stellar AP1501 features enhanced WLAN technology with **RF Radio Dynamic Adjustment**, a distributed control Wi-Fi architecture, secure network admission control (NAC) with **Unified Access and built-in application intelligence and analytics** (Layer 7). This makes it ideal for enterprises of all sizes that demand simple, secure and scalable wireless solutions.

802.11be high efficiency features

Like all Alcatel-Lucent Wi-Fi 7 access points, the OmniAccess Stellar AP1501 provides high-efficiency, high-performance 802.11be aggregate data rates. IEEE 802.11be allows enterprises to deliver high performance wireless LAN services with increased throughput, enabling more clients in dense environments, while it remains fully backward compatible with existing 802.11 a/b/g/n/ac/ax deployments. The 802.11be standard is a dramatic step forward in wireless LAN technology for all organizations. Some of the key 802.11be features enabled on OmniAccess Stellar AP1501 include:

- **Multi-Link Operation** (MLO) is a Wi-Fi technology that enables devices connected to a Wi-Fi access point (AP) to simultaneously send and/or receive data across different frequency bands and channels. MLO is one of the many core features added in Wi-Fi 7 that help enhance the user experience. The deployment flexibility rendered by MLO is key to addressing SLAs of next-generation user applications.
- **Orthogonal Frequency Division Multiple Access** (OFDMA) enables more clients to simultaneously operate in the same channel, improving 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) allows more data to be transferred at once and enables an AP to handle a larger number of concurrent clients.
- **4096 Quadrature Amplitude Modulation mode** (4096-QAM) boosts peak data-rates by as much as 25 percent.
- **Transmit beamforming** improves signal power resulting in significantly higher rates at a given range.

Deliver enterprise-grade security and scale with simplicity

The OmniAccess Stellar AP1501 enables **a visionary distributed Wi-Fi architecture with centralized management and policy control**. This enforces security at every step starting at the network edge and allows 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 infrastructure empowering business transformation through continuous innovation.

The OmniAccess Stellar AP1501 provides enhanced security **with WPA3, improving Wi-Fi security by using advanced security algorithms and stronger ciphers** in enterprises including the 192-bit security suite. Public spaces that 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 OmniAccess Stellar AP1501, like other members of the OmniAccess Stellar portfolio, supports application monitoring and enforcement. This functionality allows detection of application flows crossing the AP, identification of the application (even if HTTPS/TLS-encrypted) and monitoring of usage. It also allows the enforcement of policies, such as traffic shaping, bandwidth limitations, traffic dropping or marking for further processing in the network.

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

OmniAccess Stellar APs, including the AP1501, support Dynamic Private-Group Pre-Shared Key (DPGPSK) deployments for massive private groups in hospitality, MDUs and residential.

Alcatel-Lucent OmniVista® Network Management System

For mid- 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 authentication strategy and policy enforcement for employees, guest management and BYOD devices. The OmniAccess Stellar AP1501 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 optimize the performance of the network for business-critical applications. OmniVista provides advanced options for RF management, wireless Intrusion Detection System/ wireless Intrusion Prevention System (wIDS/wIPS) and heatmaps for WLAN site planning. To further simplify IT, the APs can be managed as one or more groups (a logical grouping of one or more APs).

The **OmniVista Network Management System** provides two deployment models: cloud-based or on premises. Learn more about the OmniVista Network Management System.

- The OmniAccess Stellar AP1501 can be managed by the **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 provides IT-friendly unified access with secure authentication and policy enforcement for users and devices.
- The OmniAccess Stellar AP1501 can be managed **on-premises from OmniVista**, dedicated for on-premises deployment, which addresses stringent requirements for local infrastructure management, data sovereignty and advanced security compliance.

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

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.

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 management and can be used by any non-IT person such as a front desk worker or receptionist. The OmniAccess Stellar AP1501 also supports a built-in, customizable captive portal, which enables customers to offer secure and seamless guest access experience.

Quality of service for unified communication apps

The OmniAccess Stellar AP1501 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 access points stay clear of all radio frequency interference (RFI)** sources to deliver reliable, high-performance WLAN. The OmniAccess Stellar AP1501 can be configured to provide part-time or dedicated scanning for spectrum analysis and wireless intrusion protection.

Product specifications

Feature	Description
Radio specification	• AP type: Indoor Wi-Fi 7(802.11be) • Tri Radio, Tri Band: 2.4GHz 2x2 + 5GHz 2x2 + 6GHz 2x2 ¬ 6 GHz: 2x2:2 up to 5.76 Gbps wireless data rate to individual 2SS EHT320 802.11be client devices ¬ 5 GHz: 2x2:2 up to 2.882 Gbps wireless data rate to individual 2SS EHT160 802.11be client devices ¬ 2.4 GHz: 2x2:2 up to 688 Mbps wireless data rate to individual 2SS EHT40 802.11be client devices • Supported frequency bands (country-specific restrictions apply): ¬ 2.400 to 2.4835GHz ¬ 5.150 to 5.250GHz ¬ 5.250 to 5.350GHz ¬ 5.470 to 5.725GHz ¬ 5.725 to 5.850GHz ¬ 5.925 to 6.425GHz ¬ 6.425 to 6.525GHz ¬ 6.525 to 6.875GHz ¬ 6.875 to 7.125GHz • Available channels: Dependent on configured regulatory domain • Brazil: Maximum transmit power: 24dBm on 2.4GHz, 24dBm on 5GHz • Maximum transmit power (limited by local regulatory requirements): ¬ 26dBm on 2.4GHz ¬ 26dBm on 5GHz ¬ 27dBm on 6GHz • DFA (Dynamic Frequency Adjustment) optimizes available channels and provides proper transmission power • Short guard interval for 20MHz, 40MHz, 80MHz, 160MHz and 320MHz channels • 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) • Supported data rates (Mbps): ¬ 802.11b: 1, 2, 5.5, 11 ¬ 802.11a/g: 6, 9, 12, 18, 24, 36, 48, 54 ¬ 802.11n(2.4GHz): 6.5 to 300 (MCS0 to MCS15, HT20 to HT40) ¬ 802.11n(5GHz): 6.5 to 300 (MCS0 to MCS15, HT20 to HT40) ¬ 802.11ac(2.4GHz): 6.5 to 400 (MCS0 to MCS9, NSS=1 to 2, VHT20 to VHT40) ¬ 802.11ac(5GHz): 6.5 to 866.7 (MCS0 to MCS9, NSS = 1 to 2, VHT20 to VHT80) ¬ 802.11ax(2.4GHz): 3.6 to 574 (MCS0 to MCS11, NSS = 1 to 2, HE20 to HE40) ¬ 802.11ax(5GHz): 3.6 to 2402 (MCS0 to MCS11, NSS = 1 to 2, HE20 to HE160) ¬ 802.11ax(6GHz): 3.6 to 2402 (MCS0 to MCS11, NSS = 1 to 2, HE20 to HE160) ¬ 802.11be(2.4GHz): 3.6 to 688 (MCS0 to MCS13, NSS = 1 to 2, EHT20 to EHT40) ¬ 802.11be(5GHz): 3.6 to 2882 (MCS0 to MCS13, NSS = 1 to 2, EHT20 to EHT160) ¬ 802.11be(6GHz): 3.6 to 5765 (MCS0 to MCS13, NSS = 1 to 2, EHT20 to EHT320) • 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 ¬ 802.11be: BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM, 1024-QAM, 4096-QAM ¬ 802.11n high-throughput (HT) support: HT 20/40 ¬ 802.11ac very high throughput (VHT) support: VHT 20/40/80 ¬ 802.11ax high-efficiency (HE) support: HE 20/40/80/160 ¬ 802.11be extreme high throughput (EHT) support: EHT 20/40/80/160/320 • Advanced Cellular Coexistence (ACC) minimizes interference from 3G/4G cellular networks, distributed antenna systems and commercial small cell/femtocell equipment
Interfaces	• 1x multi-gigabit 100M/1G/2.5G Ethernet autosensing (RJ-45) uplink port Eth0. Power over Ethernet (PoE) 802.3at compliant • 1x USB2.0 Type-C port • 1x USB Type-C console • Reset button: Factory reset

Feature	Description			
Visual indicators (Tri-color 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 or tri 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	• 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 maximum antenna gain of 5.6dBi in 2.4GHz, 5.9dBi in 5GHz and 6.4dBi in 6GHz			
Receive sensitivity		2.4 GHz	5 GHz	6GHz
	1 Mbps	-97		
	11 Mbps	-89		
	6 Mbps	-94	-93	
	54 Mbps	-76	-74	
	HT20(MCS0/8)	-94	-93	
	HT20(MCS7/15)	-75	-73	
	HT40(MCS0/8)	-93	-90	
	HT40(MCS7/15)	-74	-72	
	VHT20(MCS0)	-94	-94	
	VHT20(MCS8)	-71	-71	
	VHT40(MCS0)	-92	-90	
	VHT40(MCS9)	-67	-66	
	VHT80(MCS0)		-87	
	VHT80(MCS9)		-62	
	HE20(MCS0)	-94	-93	-93
	HE20(MCS11)	-65	-63	-63
	HE40(MCS0)	-92	-90	-90
	HE40(MCS11)	-62	-55	-61
	HE80(MCS0)		-87	-87
	HE80(MCS11)		-59	-59
	HE160(MCS0)		-85	-85
	HE160(MCS11)		-56	-56
	EHT20(MCS0)	-92	-93	-93
	EHT20(MCS13)		-57	-57
	EHT40(MCS0)	-92	-90	-90
	EHT40(MCS13)		-55	-55
	EHT80(MCS0)		-87	-87
	EHT80(MCS13)		-54	-54
	EHT160(MCS0)		-85	-85
	EHT160(MCS13)		-52	-52
	EHT320(MCS0)			-83
	EHT320(MCS13)			-51

Feature	Description			
Maximum transmit power (per chain)		2.4 GHz	5 GHz	6GHz
	1 Mbps	18 dBm		
	11 Mbps	18 dBm		
	6 Mbps	18 dBm	18 dBm	
	54 Mbps	18 dBm	18 dBm	
	HT20(MCS0/8)	18 dBm	18 dBm	
	HT20(MCS7/15)	17 dBm	17 dBm	
	HT40(MCS0/8)	18 dBm	18 dBm	
	HT40(MCS7/15)	17 dBm	17 dBm	
	VHT20(MCS0)	18 dBm	18 dBm	
	VHT20(MCS8)	16 dBm	16 dBm	
	VHT40(MCS0)	18 dBm	18 dBm	
	VHT40(MCS9)	15 dBm	16 dBm	
	VHT80(MCS0)		18 dBm	
	VHT80(MCS9)		16 dBm	
	HE20(MCS0)	18 dBm	18 dBm	18 dBm
	HE20(MCS11)	15 dBm	15 dBm	15 dBm
	HE40(MCS0)	18 dBm	18 dBm	18 dBm
	HE40(MCS11)	15 dBm	15 dBm	15 dBm
	HE80(MCS0)		18 dBm	18 dBm
	HE80(MCS11)		15 dBm	15 dBm
	HE160(MCS0)		18 dBm	18 dBm
	HE160(MCS11)		16 dBm	15 dBm
	EHT20(MCS0)	18 dBm	18 dBm	18 dBm
	EHT20(MCS13)	14 dBm	14 dBm	14 dBm
	EHT40(MCS0)	18 dBm	18 dBm	18 dBm
	EHT40((MCS13)	14 dBm	15 dBm	14 dBm
	EHT80(MCS0)		18 dBm	18 dBm
	EHT80(MCS13)		14 dBm	14 dBm
	EHT160(MCS0)		18 dBm	18 dBm
	EHT160(MCS13)		14 dBm	14 dBm
	EHT320(MCS0)			18 dBm
	EHT320(MCS13)			14 dBm
Note: Maximum transmit power is limited by local regulatory settings.				
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: ¬ 40~57V • Power over Ethernet (PoE): ¬ IEEE 802.3at compliant source • Maximum (worst case) power consumption: ¬ 22.19W (single input IEEE 802.3at POE)			
Mounting	Ceiling/wall mounting (Mount kit needs to be ordered separately)			

Feature	Description
Environmental	• Operating: ¬ Temperature: 0°C to 50°C (-32°F to +122°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: ¬ 190mm (W) x 190mm (D) x 38mm (H) - 7.48" (W) x 7.48" (D) x 1.50" (H) ¬ 760g/1.66lb • Single AP including packing box and accessories: ¬ 228mm (W) x 198mm (D) x 66mm (H) - 8.98" (W) x 7.80" (D) x 2.60" (H) ¬ 950g/2.09lb
Reliability	MTBF: 1,087,617h (124.16 years) at +25ºC operating temperature
Capacity	• Up to 8 SSID/radio • Support for up to 256 associated client devices per radio
Software features	• Up to 30K APs when managed by OmniVista Cloud • Up to 10K APs when managed by OmniVista Terra • No limit on the 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 NMS • Captive portal (Internal/External) • Guest self-registration optional (SMS notification) with OmniVista NMS • Internal user database • RADIUS client • Guest social-login with OmniVista NMS • RADIUS proxy authentication with OmniVista NMS • LDAP/AD proxy authentication with OmniVista NMS • Wireless QoS • Band steering • Client smart load balance • Client sticky avoidance • User behavior tracking • White/Block 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 • Wireless attack detection with OmniVista NMS • Floor plan and heat map with OmniVista 2500 • Stanley Healthcare/Aeroscout RTLS support • Dynamic Private-Group Pre-Shared Key (hospitality, MDUs, residential)

Feature	Description
IEEE standard	• IEEE 802.11a/b/g/n/ac/ax/be • IEEE 802.11e WMM, U-APSD • IEEE 802.11h, 802.11i, 802.11e QoS • IEEE 802.1Q (VLAN Tagging) • 802.11w Protected Management Frames • 802.11k Radio Resource Management • 802.11v BSS Transition Management • 802.11r Fast roaming
Regulatory & certification	• CB Scheme Safety, cTUVus • Wi-Fi CERTIFIED Wi-Fi 7, Passpoint R3 • FCC • CE Marked • RoHS, REACH, WEEE • UL2043 Plenum rating • 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 60601-1-1 & EN 60601-1-2 • IEC/EN 60950 and 62368 • EN 300 328 • EN 301 893 • EN 301 489-1 • EN 301 489-17 • EN 62311 • EN 303 687

Ordering information

Access Points	Description
OAW-AP1501-RW	• OmniAccess Stellar Indoor AP1501. Tri radio, Tri band 2.4/5/6GHz 2x2 Wi-Fi 7, integrated omni antenna. 1x 2.5GE (PoE), Console, 48V DC. AP mount to be ordered separately. Regulatory domain not for use in US, Japan.
OAW-AP1501-US	• OmniAccess Stellar Indoor AP1501. Tri radio, Tri band 2.4/5/6GHz 2x2 Wi-Fi 7, integrated omni antenna. 1x 2.5GE (PoE), Console, 48V DC. AP mount to be ordered separately. Restricted Regulatory Domain: US

Accessories	Description
AP-MNT-IN-BE	• Indoor mounting kit enhanced, Type B1 (9/16) and Type B2 (15/16) for T shaped ceiling rail mounting. Applicable for OmniAccess Stellar Indoor AP1101, AP12xx, AP13xx, AP14xx and AP15xx series.
AP-MNT-IN-CE	• Indoor mounting kit enhanced, Type C1 (Open Silhouette) and C2 (Flanged Interlude), for other shaped ceiling rail mounting. Applicable for OmniAccess Stellar Indoor AP1101, AP12xx, AP13xx, AP14xx and AP15xx series.
AP-MNT-IN-WE	• Indoor Mounting kit for flat surface: wall/ceiling/junction-box mount with screws. Stainless Steel. Applicable for OmniAccess Stellar AP13xx, AP14xx and AP15xx.
AP-MNT-IN-WE2	• Indoor Mounting kit for flat surface: wall/ceiling/junction-box mount with screws. High-Density Plastic. Wide compatibility. Applicable for OmniAccess Stellar AP13xx, AP14xx and AP15xx.
POE60U-1BT-X-R	• IEEE 802.3bt (60W) PoE midspan. Support data speeds 1/2.5/5/10GE. No power cord included. Please order PWR-CORD-XX for country specific power cord.
ADP-50GRBD	• 48V/30W 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

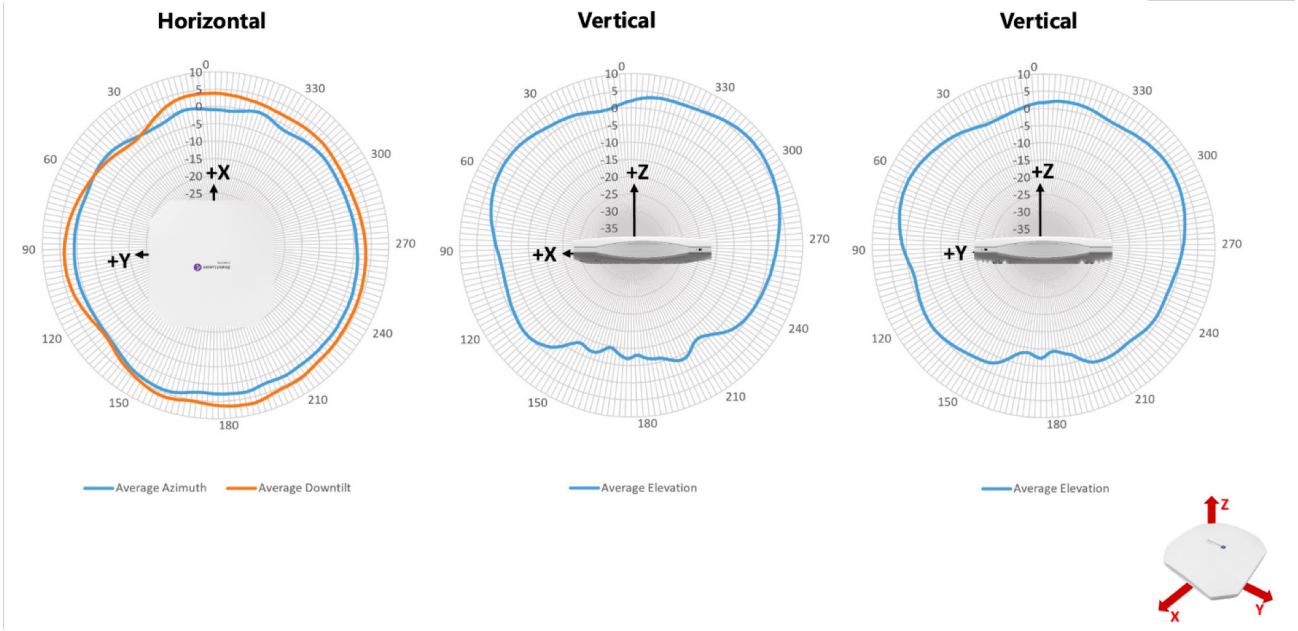
For more information about our Professional services, Support services and Managed services, please go to:

https://www.al-enterprise.com/en/services

Figures. OmniAccess AP1501 antenna pattern plots

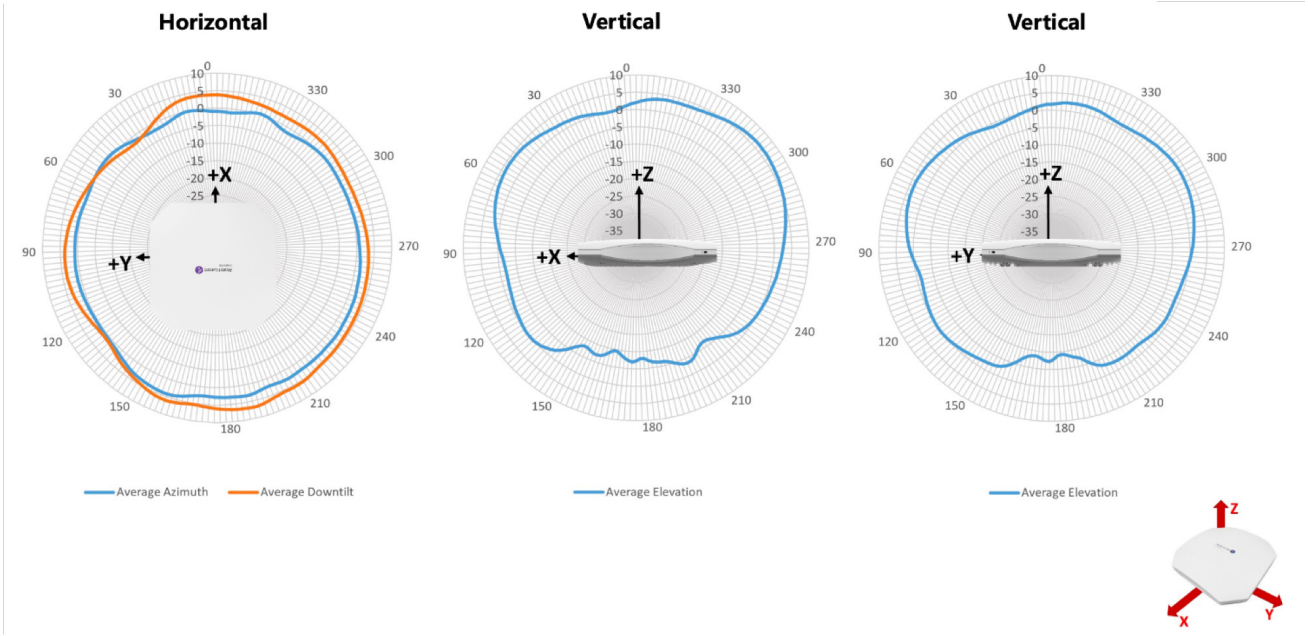
Azimuth plane (top view) - 2.4GHz

Elevation plane (side view) - 2.4GHz



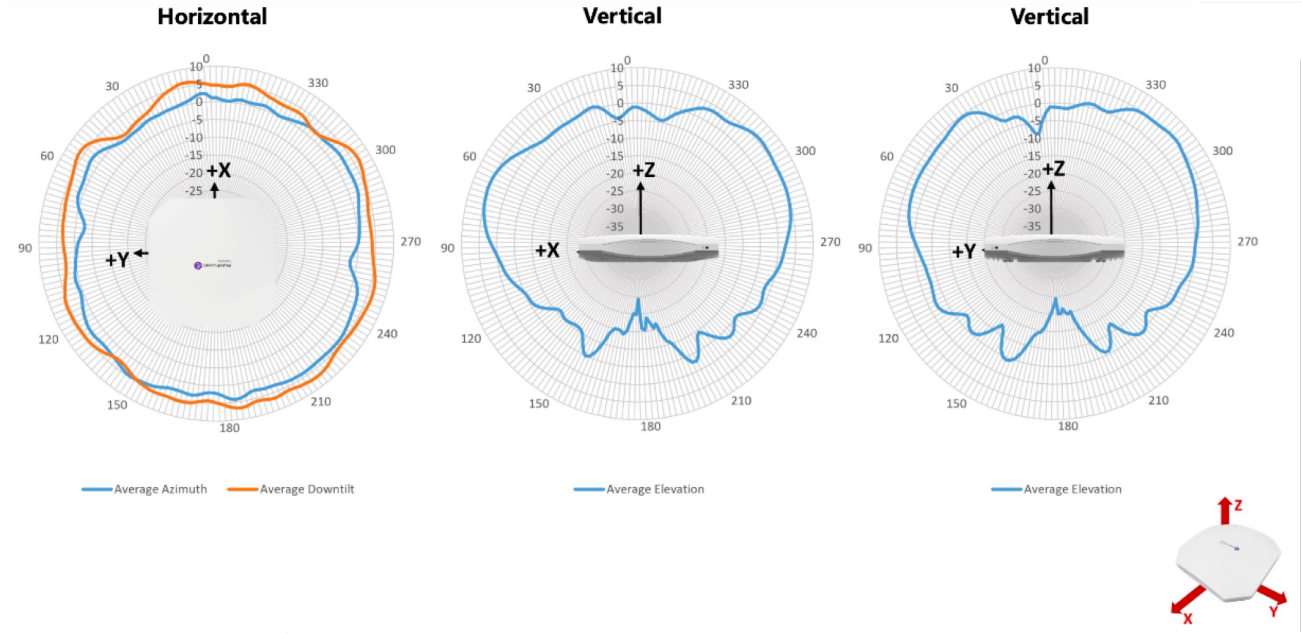
Azimuth plane (top view) – 5.5GHz

Elevation plane (side view) – 5.5GHz



Azimuth plane (top view) – 6.5GHz

Elevation plane (side view) – 6.5GHz



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