Alcatel-Lucent OmniAccess Stellar AP1501S

WLAN Access Points - Indoor Wi-Fi 7

The Alcatel-Lucent OmniAccess® Stellar AP1501S is the ideal access point for organizations that need reliable, straightforward Wi-Fi 7 connectivity at the right price. Purpose-built for simplicity and cost efficiency, it delivers the essential wireless performance enterprises need for everyday connectivity, without over-engineering or unnecessary cost. Whether deploying in branch offices, retail locations, or small campuses, the AP1501S makes Wi-Fi 7 accessible and affordable.



The OmniAccess Stellar AP1501S features a focused **dual-radio** design covering **2.4 GHz** and **5 GHz**, with a maximum aggregate data rate of 3.57 Gbps (688 Mbps in 2.4 GHz, 2.882 Gbps in 5 GHz), precisely the right performance level for standard enterprise deployments. Its 2.5G Multigigabit Ethernet uplink provides ample capacity for low-density wireless environments, making the AP1501S a smart, cost-effective investment.

The OmniAccess Stellar AP1501S supports essential 802.11be features (MLO, OFDMA, MU-MIMO, and 4096-QAM), delivering a solid Wi-Fi 7 foundation at a price point that makes sense for cost-conscious deployments.

The OmniAccess Stellar AP1501S combines **Radio Dynamic Adjustment (RDA)** with a simple, distributed Wi-Fi architecture and built-in secure network admission control (NAC). This streamlined feature set makes it the perfect fit for small and medium enterprises looking for a no-fuss, cost-effective wireless solution.

802.11be features

Like all Alcatel-Lucent Wi-Fi 7 access points, the OmniAccess Stellar AP1501S provides high-efficiency, high-performance 802.11be aggregate data rates. IEEE 802.11be lets enterprises deliver high-performance wireless LAN services with increased throughput, enabling more clients to connect efficiently, while remaining fully backward compatible with existing 802.11a/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 AP1501S include:

- **Multi-Link Operation** (MLO) enabling 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-gen user applications.
- **Orthogonal Frequency Division Multiple Access** (OFDMA) enabling more clients to simultaneously operate in the same channel and thereby 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) allowing more data to be transferred at once and enabling an access point to handle a larger number of concurrent clients.
- **4096 quadrature amplitude modulation mode** (4096-QAM) boosting peak data rates by as much as 25 percent.
- **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 AP1501S 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 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 infrastructure empowering business transformation through continuous innovation.

The OmniAccess Stellar AP1501S 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 the 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. Wi-Fi Express mode, supporting up to 64 AP1501S in the management group; Cloud management, with OmniVista Lite or an upgrade to OmniVista Cirrus; and On-Premises management with OmniVista Terra.

OmniVista Lite provides free, cloud-based management for small and medium enterprises, providing the right set of features to simplify operations. For enhanced features or dense deployments, either OmniVista Cirrus or OmniVista Terra is the evolution path.

Alcatel-Lucent OmniAccess Stellar access points, including the AP1501S, support Dynamic Private-Group Pre-Shared Key (DPGPSK) deployments for massive private groups in Hospitality, MDUs, and Residential.

Optimized management for any size

The OmniAccess Stellar AP1501S supports three flexible management modes to fit any deployment size and IT model:

Wi-Fi Express Mode

For small to medium-sized enterprises, Wi-Fi Express mode provides controller-less cluster management with no dedicated hardware required. One AP in the group automatically becomes the Primary Virtual Controller (PVC), managing the entire cluster. Once the first AP is configured using the setup wizard, all remaining APs join and synchronize automatically, getting the network up and running within minutes.

Wi-Fi Express mode supports role-based management access including Admin, Viewer, and GuestOperator roles. GuestOperator access simplifies guest account management and can be used by non-IT staff such as front desk workers or receptionists. The AP1501S also includes a built-in, customizable captive portal for secure and seamless guest access.

Cloud Management – Alcatel-Lucent OmniVista Cirrus

The OmniAccess Stellar AP1501S can be managed through the Alcatel-Lucent OmniVista Cirrus cloud platform. OmniVista Cirrus delivers a secure, resilient, and scalable cloud-based network management experience, with hassle-free deployment, easy service rollout, and advanced analytics for smarter decision-making. It provides IT-friendly unified access with secure authentication and policy enforcement for users and devices.

OmniVista Lite, **a free edition** of OmniVista Cirrus, provides small and medium businesses with cloud management for an unlimited number of supported devices[1], with simplified operations. As their needs grow, customers can upgrade to full OmniVista Cirrus to remove configuration limits and access all features without service or management disruption.

On-Premises Management – Alcatel-Lucent OmniVista Terra

For organizations with stringent requirements for local infrastructure control, data sovereignty, or advanced security compliance, the OmniAccess Stellar AP1501S can be managed on-premises with Alcatel-Lucent OmniVista Terra. OmniVista Terra provides centralized management, RF optimization, wIDS/wIPS intrusion detection and prevention, and heat maps for WLAN site planning.

OmniVista Cirrus and OmniVista Terra deliver identical management functionality, including RF optimization, unified access, and advanced analytics. The only difference is the deployment model: OmniVista Cirrus is cloud-based, while OmniVista Terra is on-premises. Both are collectively referred to as OmniVista NMS.

Learn more about the OmniVista Network Management Platform.

Quality of service for unified communication apps

The OmniAccess Stellar AP1501S supports **fine-tuned quality of service (QoS) parameters** to differentiate and provide appropriate QoS for each application such as voice, video, and desktop sharing.

RF management

Radio Dynamic Adjustment (RDA) technology automatically **assigns channels and power settings, provides DFS/TPC, and helps access points stay clear of all radio frequency interference (RFI)** sources to deliver reliable, high-performance WLAN. The OmniAccess Stellar AP1501S can be configured to provide part-time or dedicated scanning for spectrum analysis and wireless intrusion protection.

[1] See the OmniVista Lite datasheet for the list of supported devices.

Product specifications

Feature	Description
Radio specification	• AP type: Indoor Wi-Fi 7 (802.11be) • Dual Radio, Dual Band: 2.4 GHz 2x2 + 5 GHz 2x2 ¬ 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 2.4835 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: 24 dBm on 2.4 GHz, 24 dBm on 5 GHz • Maximum transmit power (limited by local regulatory requirements): ¬ 25 dBm on 2.4 GHz ¬ 25 dBm on 5 GHz • RDA (Radio Dynamic Adjustment) optimizes available channels and provides proper transmission power • Short guard interval for 20 MHz, 40 MHz, 80 MHz, and 160 MHz channels • Transmit beamforming (TxBF) for increased signal reliability and range • 802.11n/ac/ax/be 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 (2.4 GHz): 6.5 to 300 (MCS0 to MCS15, HT20 to HT40) ¬ 802.11n (5 GHz): 6.5 to 300 (MCS0 to MCS15, HT20 to HT40) ¬ 802.11ac (5 GHz): 6.5 to 866.7 (MCS0 to MCS9, NSS = 1 to 2, VHT20 to VHT80) ¬ 802.11ax (2.4 GHz): 3.6 to 574 (MCS0 to MCS11, NSS = 1 to 2, HE20 to HE40) ¬ 802.11ax (5 GHz): 3.6 to 2402 (MCS0 to MCS11, NSS = 1 to 2, HE20 to HE160) ¬ 802.11be (2.4 GHz): 3.6 to 688 (MCS0 to MCS13, NSS = 1 to 2, EHT20 to EHT40) ¬ 802.11be (5 GHz): 3.6 to 2882 (MCS0 to MCS13, NSS = 1 to 2, EHT20 to EHT160) • 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 Extremely High Throughput (EHT) support: EHT 20/40/80/160 • 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. • Reset button: Factory reset
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 band 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, wIDS/wIPS • Portal page authentication
Antenna	Integrated omnidirectional antennas with maximum antenna gain of 4.8 dBi in 2.4 GHz and 4.5 dBi in 5 GHz

Feature	Description		
Receive sensitivity		2.4 GHz	5 GHz
	1 Mbps	-94	
	11 Mbps	-84	
	6 Mbps	-91	-92
	54 Mbps	-73	-73
	HT20(MCS0/8)	-92	-92
	HT20(MCS7/15)	-72	-73
	HT40(MCS0/8)	-89	-87
	HT40(MCS7/15)	-70	-71
	VHT20(MCS0)	-92	-92
	VHT20(MCS8)	-68	-70
	VHT40(MCS0)	-90	-87
	VHT40(MCS9)	-64	-66
	VHT80(MCS0)		-85
	VHT80(MCS9)		-62
	HE20(MCS0)	-92	-92
	HE20(MCS11)	-62	-63
	HE40(MCS0)	-90	-87
	HE40(MCS11)	-59	-60
	HE80(MCS0)		-85
	HE80(MCS11)		-59
	HE160(MCS0)		-85
	HE160(MCS11)		-55
	EHT20(MCS0)	-92	-93
	EHT20(MCS13)	-56	-57
	EHT40(MCS0)	-89	-90
	EHT40(MCS13)	-54	-55
	EHT80(MCS0)		-85
	EHT80(MCS13)		-54
	EHT160(MCS0)		-85
	EHT160(MCS13)		-52
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)	18 dBm	18 dBm
	HT20(MCS7)	15 dBm	15 dBm
	HT40(MCS0)	18 dBm	18 dBm
	HT40(MCS7)	15 dBm	15 dBm
	VHT20(MCS0)	18 dBm	18 dBm
	VHT20(MCS8)	14 dBm	14 dBm
	VHT40(MCS0)	18 dBm	18 dBm
	VHT40(MCS9)	14 dBm	14 dBm
	VHT80(MCS0)		18 dBm
	VHT80(MCS9)		14 dBm
	HE20(MCS0)	18 dBm	18 dBm
	HE20(MCS11)	13 dBm	13 dBm
	HE40(MCS0)	18 dBm	18 dBm
	HE40(MCS11)	13 dBm	13 dBm
	HE80(MCS0)		18 dBm
	HE80(MCS11)		13 dBm
	HE160(MCS0)		18 dBm
	HE160(MCS11)		13 dBm
	EHT20(MCS0)	18 dBm	18 dBm
	EHT20(MCS13)	12 dBm	12 dBm
	EHT40(MCS0)	18 dBm	18 dBm
	EHT40(MCS13)	12 dBm	12 dBm
	EHT80(MCS0)		18 dBm
	EHT80(MCS13)		12 dBm
	EHT160(MCS0)		18 dBm
	EHT160(MCS13)		12 dBm

Note: Maximum transmit power is limited by local regulatory settings.

Feature	Description
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: ¬ 40~57 V • Power over Ethernet (PoE): ¬ IEEE 802.3at compliant source • Maximum (worst-case) power consumption: ¬ 18.77 W (single input IEEE 802.3at PoE)
Mounting	• Ceiling/wall mounting (mount kit included)
Environmental	• Operating: ¬ Temperature: 0ºC to 40ºC (+32ºF to +104ºF) ¬ Humidity: 5% to 95% non-condensing • Storage and transportation: Temperature: -40ºC to +70ºC (-40ºF to +158ºF)
Dimensions/ Weight	• Single AP excluding packing box and accessories: ¬ 205 mm (W) x 205 mm (D) x 41mm (H) - 8.07" (W) x 8.07" (D) x 1.61" (H) ¬ 560 g/1.23 lb • Single AP including packing box and accessories: ¬ 231 mm (W) x 216 mm (D) x 65 mm (H) - 9.09" (W) x 8.50" (D) x 2.56" (H) ¬ 850 g/1.87 lb
Reliability	• MTBF: 2,099,908 h (239.72 years) at +25ºC operating temperature
Capacity	• Up to 8 SSIDs per radio. • Support for up to 256 associated client devices per radio.
Software feature	• Up to 30K APs when managed by OmniVista Cirrus • Up to 10K APs when managed by OmniVista Terra • No limit on the number of AP groups with OmniVista Cirrus or Terra • Up to 64 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 balancing • Client sticky avoidance • User behavior tracking • White/Block list • 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 NMS • 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 QoS, WMM, U-APSD • IEEE 802.11h, 802.11i • IEEE 802.1Q (VLAN Tagging) • IEEE 802.11w Protected Management Frames • IEEE 802.11k Radio Resource Measurement • IEEE 802.11v BSS Transition Management • IEEE 802.11r Fast roaming
Regulatory & certification	• CB Scheme Safety • CE • RoHS, REACH, WEEE

Ordering information

Access Points	Description
OAW-AP1501S-RW	OmniAccess Stellar Indoor AP1501S. Dual Radio, Dual Band 2.4/5 GHz 2x2 Wi-Fi 7, integrated omni antenna. 1x 2.5GE (PoE), 48V DC. AP mount included. Regulatory domain not for use in the US or Japan.

Accessories	Description
ADP-50GRBD	48 V/30 W AC-to-DC Power Adapter with Type A DC plug 2.1 x 5.5 x 9.5 mm circular, straight. Please order PWR-CORD-XX for a country-specific power cord.

Warranty

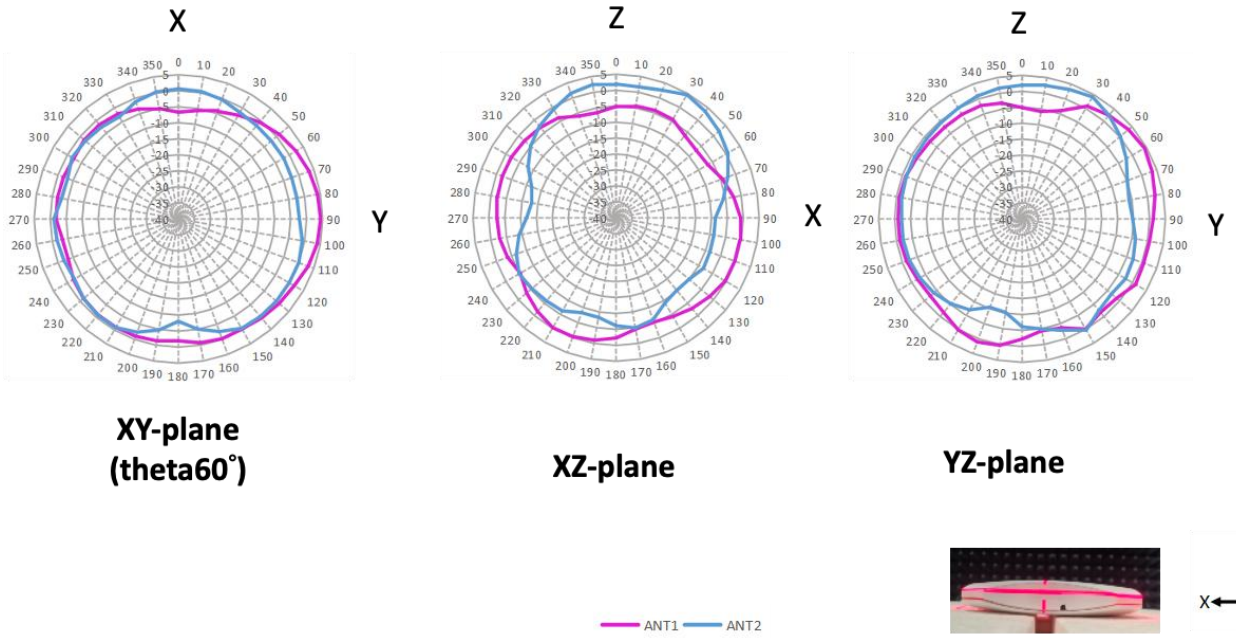
OmniAccess Stellar Access Points come with a Hardware Limited Lifetime Warranty (HLLW).

Services and support

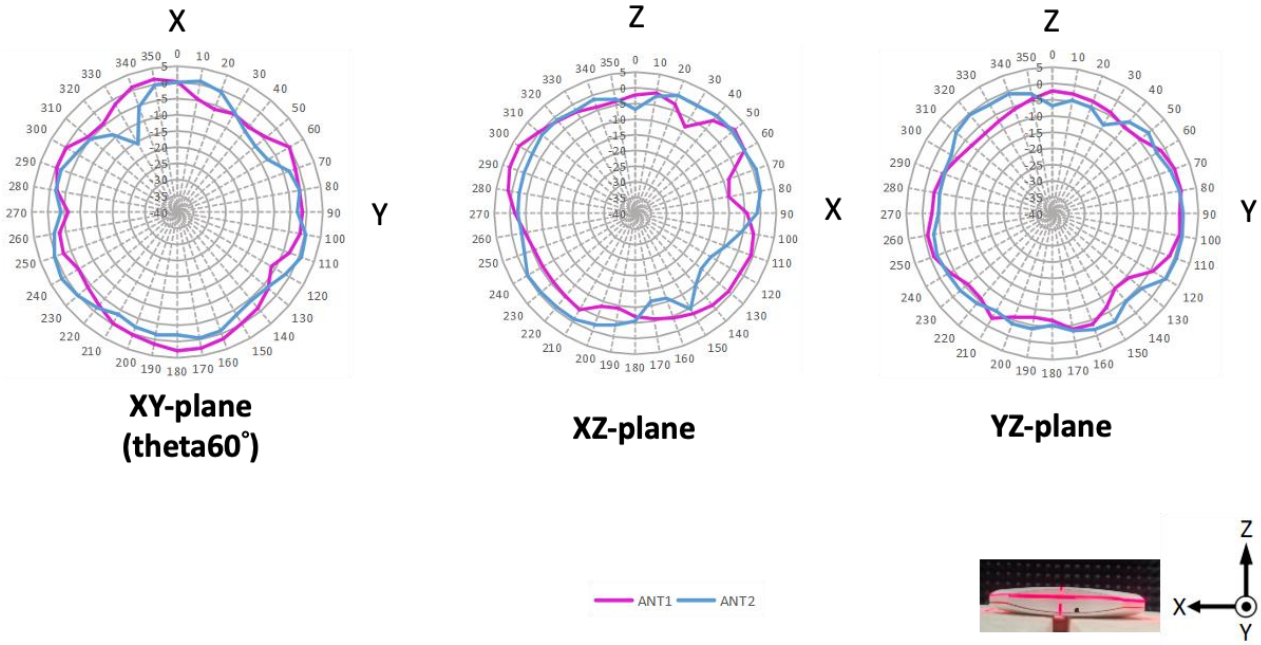
For more information about our Professional services, Support services, and Managed services, please go to: https://www.al-enterprise.com/en/services

Figures. OmniAccess Stellar AP1501S antenna pattern plots

Azimuth plane (top view) - 2.4 GHz | Elevation plane (side view) - 2.4 GHz



Azimuth plane (top view) – 5.5 GHz | Elevation plane (side view) – 5.5 GHz



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