Alcatel-Lucent OmniAccess Stellar AP1521

WLAN Access Points - Indoor Wi-Fi 7

The Alcatel-Lucent OmniAccess® Stellar AP1521 Wi-Fi 7 Access Point (AP) provides high-efficiency, high-performance 802.11be aggregate **data rates up to 12.2 Gbps across the 6GHz, 5GHz and 2.4GHz band**. Wi-Fi 7 technology supports a higher density of clients, delivers more capacity for bandwidth-hungry and latency-sensitive applications, and provides a dependable secure network for Internet of Things (IoT) devices while increasing their battery powered lifespan.

The OmniAccess Stellar WLAN portfolio brings unparalleled experience in connectivity, coverage and performance for the modern, IoT-connected enterprise.

The Wi-Fi 7 premium OmniAccess Stellar AP1521 is designed to accommodate the very dense and high-capacity needs of next-generation mobility and IoT-enabled networks. The access point is powered with **five built-in radios, three radios 2.4GHz/5GHz/6GHz serving high-density Wi-Fi clients**, one **full band radio dedicated to scanning** for improved network security and Wi-Fi quality and **an integrated Bluetooth/Zigbee radio**, enabling the growing needs of enterprise IoT connectivity for powering location and building automation services. The OmniAccess Stellar AP1521 series supports a **maximum aggregate data rate of 12.2 Gbps** (688 Mbps in 2.4GHz, 5.76 Gbps in 5GHz, 5.76 Gbps in 6GHz). The access point provides **one 10GE Power over Ethernet (PoE) uplink and one GE uplink/ downlink**.

The OmniAccess Stellar AP1521 supports **802.11be features**, which include **Multi-Link Operation** (MLO), **Orthogonal Frequency Division Multiplexing** (OFDMA), **Downlink Multi-User Multiple Input, Multiple Output** (DL MU-MIMO), Uplink Multi-User Multiple Input, Multiple Output (UL MU-MIMO), **4096 Quadrature Amplitude Modulation mode** (4096-QAM) and more, making tomorrow's diverse digital workspaces highly reliable and efficient.

The OmniAccess Stellar AP1521 features enhanced WLAN technology with **RF Radio Dynamic Adjustment**, a **distributed control Wi-Fi architecture, secure network admission control** with Unified Access and **built-in application intelligence and analytics**, making it ideal for enterprises of all sizes that demand a simple, secure and scalable wireless solution.

802.11be high-efficiency features

IEEE 802.11be 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 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 AP1521 include:

- **MLO:** A Wi-Fi technology that enables devices connected to a Wi-Fi 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.
- **OFDMA:** Enables more clients to simultaneously operate in the same channel, thereby improving efficiency, latency and throughput. OFDMA can concurrently address multiple clients in both directions DL and UL), including OFDMA Resource Units (RUs). OFDMA is very effective in environments where there are many devices with short frames demanding lower latency.
- **Multiple non-contiguous RU allocations per client:** Allows for increased RF spectrum utilization efficiency and reduced interference impact on bandwidth
- **MU-MIMO:** Allows more data to be transferred at once and enables an access point to handle a larger number of concurrent clients
- **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
- Support for **512 Compressed Block Ack**

Deliver enterprise-grade security and scale with simplicity

The OmniAccess Stellar AP1521 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 IoT-enabled infrastructure empowering business transformation through continuous innovation.

The OmniAccess Stellar AP1521 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 deliver encryption and privacy using OmniAccess Stellar, which supports a new security standard Wi-Fi Enhanced Open based on Opportunistic Wireless Encryption (OWE).

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

The OmniAccess Stellar AP1521 supports **802.1ae MACsec in the uplink port**. This way, the path from the AP to the network access switch can be protected with data confidentiality, data integrity and data origin authenticity. This feature also provides protection against man-in-the-middle attacks.

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 AP1521 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 access point 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 AP1521 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 AP1521 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 OmniAccess Stellar AP1521, 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 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.

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 AP1521 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 AP1521 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 **Dynamic Frequency Selection/Transmit Power Control** (DFS/TPC), and ensures that APs **stay clear of all radio frequency interference** (RFI) sources to deliver reliable, high-performance WLAN. The OmniAccess Stellar AP1521 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, 6 GHz High 2x2:2, 5 GHz 4x4:4, and 2.4 GHz 2x2:2 • 6 GHz: 2x2:2 up to 5.76Gbps wireless data rate to individual 2SS EHT320 802.11be client devices. • 5 GHz: 4x4:4 up to 5.76Gbps wireless data rate to individual 2SS EHT160 802.11be client devices. • 2.4 GHz: 2x2:2 up to 688Mbps wireless data rate to individual 2SS EHT40 802.11be client devices. • Dedicated Scanning Tri-Band Radio (6GHz, 5GHz and 2.4GHz) 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 600 (MCS0 to MCS31, 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 1733 (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 4804 (MCS0 to MCS11, NSS = 1 to 4, 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 5765 (MCS0 to MCS13, NSS = 1 to 4, 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 • 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 802.11mc/az Fine timing measurement (FTM) Bluetooth 5.4/Zigbee: up to 6dBm transmit power (class 1) and -93dBm receive sensitivity Integrated omnidirectional antenna with peak gain of 4.3dBi
Interfaces	• 1x multi-gigabit 100M/1G/2.5G/5G/10G IEEE 802.3bz compliant autosensing (RJ-45) uplink port Eth0. Power over Ethernet (PoE) 802.3bt compliant. IEEE 802.3az Energy-Efficient Ethernet (EEE). MACsec. • 1x USB 2.0 Type C (5V, 500mA) • 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	• Integrated Trusted Platform Module (TPM 2.0) for secure storage of credentials and keys • Dedicated Scanning Radio for Wireless Protection. • 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 • MACsec Eth0
Antenna	• Integrated omni-directional antennas with maximum antenna gain of 4.6dBi in 2.4GHz and 5.8dBi in 5GHz and 6.4dBi in 6GHz

Receive sensitivity	2.4 GHz	5 GHz	6GHz
1 Mbps	-97		
11 Mbps	-88		
6 Mbps	-91	-94	
54 Mbps	-75	-76	
HT20(MCS0/8)	-92	-94	
HT20(MCS7/15)	-75	-75	
HT40(MCS0/8)	-89	-92	
HT40(MCS7/15)	-72	-73	
VHT20(MCS0)	-92	-94	
VHT20(MCS8)	-70	-72	
VHT40(MCS0)	-89	-92	
VHT40(MCS9)	-66	-68	
VHT80(MCS0)		-89	
VHT80(MCS9)		-64	
HE20(MCS0)	-92	-94	-93
HE20(MCS11)	-63	-65	-64
HE40(MCS0)	-89	-91	-89
HE40(MCS11)	-60	-62	-61
HE80(MCS0)		-89	-87
HE80(MCS11)		-61	-59
HE160(MCS0)		-87	-86
HE160(MCS11)		-57	-56
EHT20(MCS0)	-93	-94	-92
EHT20(MCS13)		-59	-57
EHT40(MCS0)	-93	-91	-89
EHT40(MCS13)		-57	-56
EHT80(MCS0)		-89	-88
EHT80(MCS13)		-56	-55
EHT160(MCS0)		-87	-86
EHT160(MCS13)		-54	-53
EHT320(MCS0)			-83
EHT320(MCS13			-52

Feature	Description			
Maximum transmit power (per chain)		2.4 GHz	5 GHz	6 GHz
	1 Mbps	18 dBm		
	11 Mbps	18 dBm		
	6 Mbps	18 dBm	18 dBm	
	54 Mbps	17 dBm	17 dBm	
	HT20(MCS0/8)	18 dBm	18 dBm	
	HT20(MCS7/15)	16 dBm	17 dBm	
	HT40(MCS0/8)	18 dBm	18 dBm	
	HT40(MCS7/15)	16 dBm	17 dBm	
	VHT20(MCS0)	18 dBm	18 dBm	
	VHT20(MCS8)	16 dBm	17 dBm	
	VHT40(MCS0)	18 dBm	18 dBm	
	VHT40(MCS9)	15 dBm	15 dBm	
	VHT80(MCS0)		18 dBm	
	VHT80(MCS9)		15 dBm	
	HE20(MCS0)	18 dBm	18 dBm	18 dBm
	HE20(MCS11)	13 dBm	14 dBm	14 dBm
	HE40(MCS0)	18 dBm	18 dBm	18 dBm
	HE40(MCS11)	13 dBm	14 dBm	14 dBm
	HE80(MCS0)		18 dBm	18 dBm
	HE80(MCS11)		14 dBm	14 dBm
	HE160(MCS0)		18 dbm	18 dBm
	HE160(MCS11)		14 dbm	14 dBm
	EHT20(MCS0)	18 dbm	18 dbm	18 dbm
	EHT20(MCS13)		12 dbm	12 dbm
	EHT40(MCS0)	18 dbm	18 dbm	18 dbm
	EHT40((MCS13)		12 dbm	12 dbm
	EHT80(MCS0)		18 dbm	18 dbm
	EHT80(MCS13)		13 dbm	13 dbm
	EHT160(MCS0)		18 dbm	18 dbm
	EHT160(MCS13)		13 dbm	13 dbm
	EHT320(MCS0)			18 dbm
	EHT320(MCS13)			11 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 • PoE: IEEE 802.3at/bt compliant source • Maximum (worst case) power consumption: ¬ 40.2W (single input IEEE 802.3bt PoE) unrestricted functionality ¬ 25W (single input IEEE 802.3at PoE), operating in "degraded mode": - Wi-Fi 2.4GHz 2x2, 5GHz 4x4, 6GHz 2x2 ; Wired Uplink 2.5 GE - All other components are disabled. Scanning Radio, IoT Radio, Eth1, and USB port: disabled			
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 43mm (H) - 8.27" (W) x 8.27" (D) x 1.69" (H) • 1020g/2.25lb Single AP including packing box and accessories: • 234mm (W) x 232mm (D) x 68mm (H) - 9.21" (W) x 9.13" (D) x 2.68" (H) • 1270g/2.80lb			
Reliability	MTBF: 650,124hours (74.22years) at +25ºC operating temperature			

Feature	Description
Capacity	Up to 16 SSID/Radio. Support for up to 256 associated clients in 2.4GHz Radio and up to 512 associated clients in 5GHz and 6GHz Radios. Support for 1280 associated clients per AP1521.
Software features	• Up to 5K APs when managed by OmniVista Terra (OVT)[1] • Up to 12K APs when managed by OmniVista Cirrus (OVC) for a single tenant[1] • Up to 255 APs per web managed (HTTP/ HTTPS) cluster (Express Mode) • Auto channel selection • Auto transmit power control Bandwidth control per SSID L2 roaming • L3 Roaming with OmniVista • Captive portal (Internal/External) • Guest self-registration with optional SMS notification with OmniVista • Internal user database • RADIUS client • Guest social-login with OmniVista • RADIUS proxy authentication with OmniVista • LDAP/AD proxy authentication with OmniVista • Wireless QoE • Band steering • Client smart load balance • Client sticky avoidance • User behavior tracking • Allow/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 • Heatmap with OmniVista • Stanley Healthcare/Aeroscout RTLS support [1] Please check the current scalability from your ALE Sales representatives, as these numbers are increasing in each OmniVista release. Up to 4K APs with OmniVista 2500.
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) • 802.3az Energy-Efficient Ethernet • 802.11w Protected Management Frames • 802.11k Radio Resource Management • 802.11v BSS Transition Management • 802.11r Fast roaming • 802.1ae MAC Security – MACsec • 802.1x Port-Based Network Access Control (Including MACsec Key Agreement protocol)

Feature	Description
Regulatory & certification	• CB Scheme Safety, cTUVus • Wi-Fi CERTIFIED Wi-Fi 7, Passpoint R3 • FCC • CE Marked • Bluetooth SIG • 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-AP1521-RW	OmniAccess Stellar Indoor AP1521. Tri radio 2.4GHz 2x2+5GHz 4x4+6GHz 2x2 Wi-Fi 7, integrated omni antenna. 2.4GHz/5GHz/6GHz tri-band dedicated scanning radio, BLE/Zigbee radio. 1x 10GE, 1xGE, Console, USB, 48V DC. AP mount to be ordered separately. Regulatory domain not for use in US, Japan.
OAW-AP1521-US	OmniAccess Stellar Indoor AP1521. Tri radio 2.4GHz 2x2+5GHz 4x4+6GHz 2x2 Wi-Fi7, integrated omni antenna. 2.4GHz/5GHz/6GHz tri-band dedicated scanning radio, BLE/Zigbee radio. 1x 10GE, 1xGE, 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 Indoor AP1101, AP12xx, AP13xx, AP14xx and AP15xx series.
AP-MNT-IN-WE (single pack)	Indoor metal mounting kit, Type WE for flat surface: wall, ceiling and electrical box mounting.
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 Indoor AP1101, AP12xx, AP13xx, AP14xx and AP15xx series.
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).

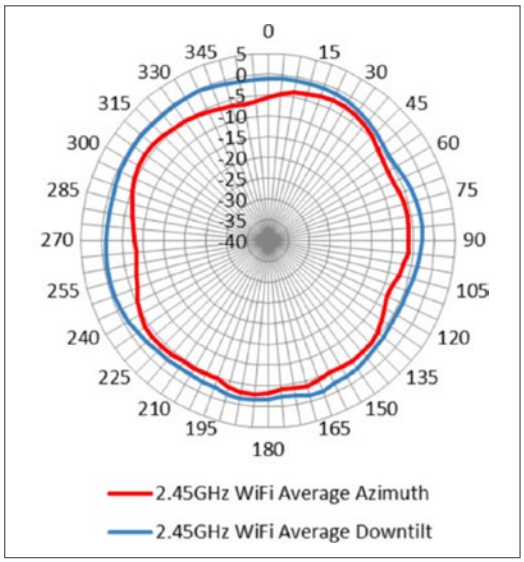
Services and support

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

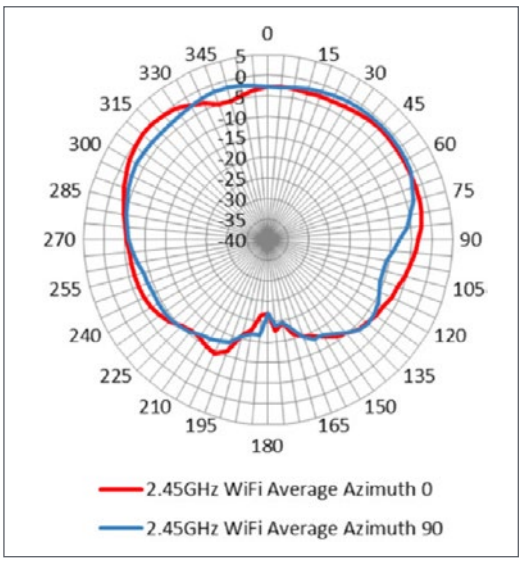
http://enterprise.alcatel-lucent.com/?services=EnterpriseServices&page=directory

Figures. OmniAccess AP1521 antenna pattern plots

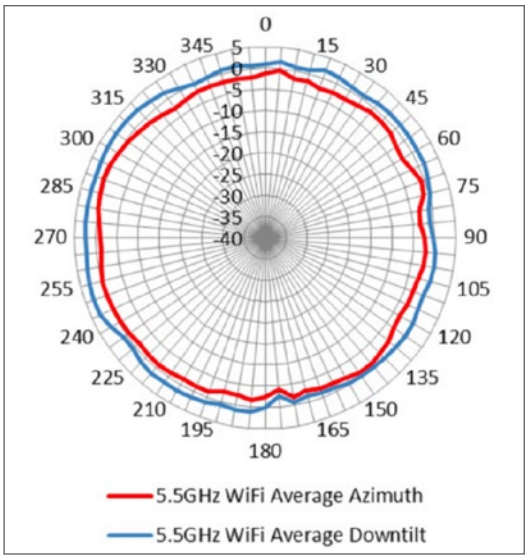
Azimuth plane (top view) - 2.4GHz



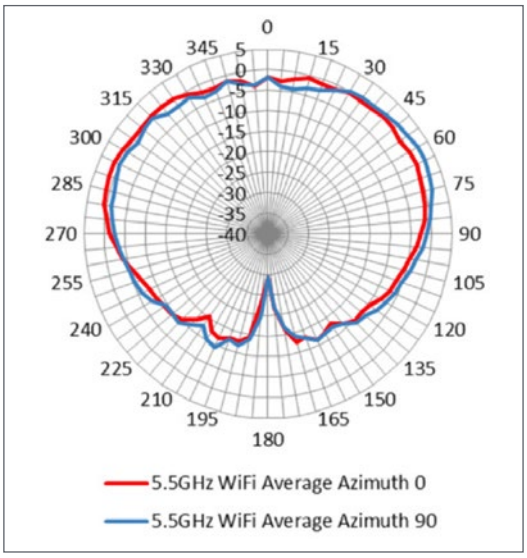
Elevation plane (side view) - 2.4GHz



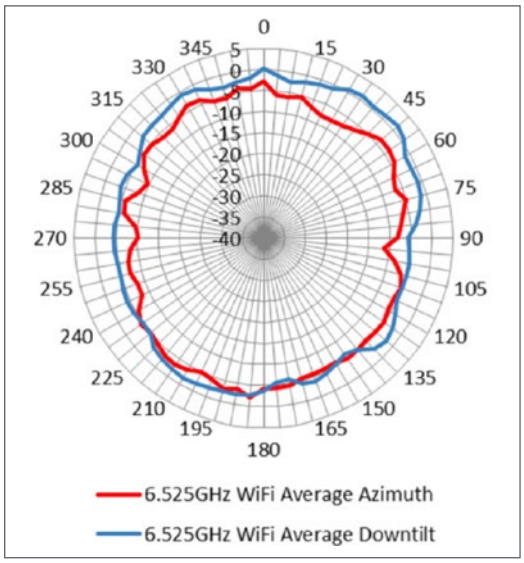
Azimuth plane (top view) - 5GHz



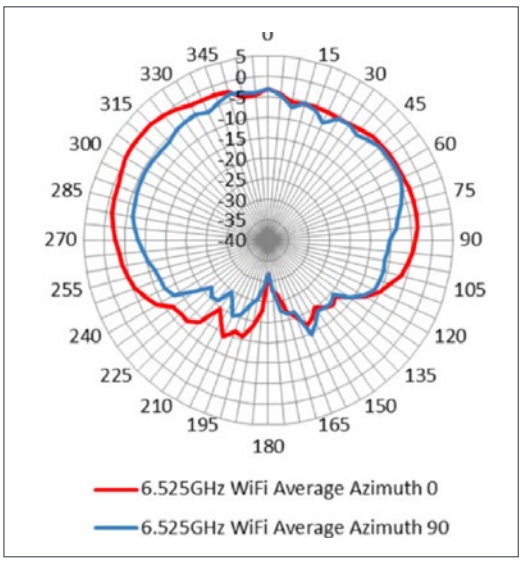
Elevation plane (side view) - 5GHz



Azimuth plane (top view) - 6GHz

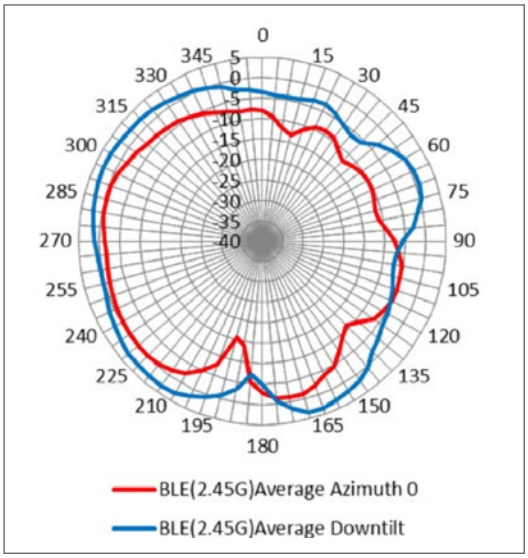


Elevation plane (side view) - 6GHz

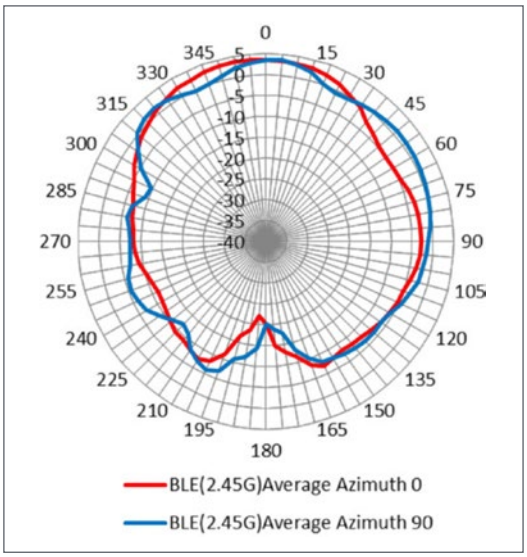


BLE radio antenna pattern

Azimuth plane (top view) - BLE



Elevation plane (side view) - BLE



Alcatel·Lucent Enterprise