

DATA SHEET

ARUBA 610 SERIES WI-FI 6E CAMPUS ACCESS POINTS

Fast, resilient, and secure Wi-Fi 6E connectivity in a compact and affordable platform

For enterprises who need more wireless capacity and/or wider channels, Aruba 610 Series Campus APs are designed to take advantage of the newly available 6 GHz spectrum using a unique dual-radio/tri-band architecture. Adding support for the 6 GHz band to the traditional 2.4 GHz and 5 GHz bands more than doubles the available wireless capacity in a wireless network – so you can meet growing demand due to bandwidth-hungry video, increasing numbers of client and IoT devices, and growth in cloud.

Unique to Aruba, the 610 Series features two radios that can be tuned to any two of the three available spectrum bands for Wi-Fi (2.4 GHz, 5 GHz, 6 GHz). This flexibility provides a cost-effective and compact platform that delivers full tri-band coverage as part of a multi-AP deployment and can be used with software that will intelligently and flexibly configure the radios of each of these dual-radio APs.

More capacity and wider channels

The Aruba 610 Series APs are designed to take advantage of **Wi-Fi 6E** and the 6 GHz band, which translates into far greater speeds, wider channels for multi-gigabit traffic, and less interference. Its two 2x2 MIMO radios deliver a combined peak data rate of up to 3.6 Gbps when configured for concurrent 5 GHz and 6 GHz operation.

Band	Channel bandwidth	Peak data rate
6 GHz	160 MHz	2.4 Gbps
5 GHz	80 MHz	1.2 Gbps
2.4 GHz	20 MHz	287 Mbps
Total		Up to 3.6 Gbps



KEY FEATURES

- Unlocks the 6 GHz band to more than double the available capacity in wireless networks
- Comprehensive dual radio/tri-band coverage across 2.4 GHz, 5 GHz, and 6 GHz to deliver up to 3.6 Gbps combined peak data rate¹
- Compact and low power consumption – virtually unrestricted operation from an 802.3af (class 3) PoE source²
- Up to seven 160 MHz channels in 6 GHz to support low-latency, bandwidth-hungry applications like high-definition video, and augmented reality/virtual reality applications
- 2.5 Gbps Smart Rate Ethernet port to minimize wired bottlenecks
- Built-in GPS receivers and fine time measurement (802.11mc) to enable APs to automatically locate themselves and serve as reference points for accurate indoor location measurements

¹ When configured for 5 GHz + 6 GHz operation

² By default (with IPM disabled) the AP-615 will disable the USB port and limit the speed of the Ethernet port to 1Gbps when on class 3 POE. The Intelligent Power Monitoring feature can be used to avoid these restrictions



Advantages of 6 GHz

Wi-Fi 6E provides up to 1200 MHz of additional unlicensed spectrum in the 6 GHz band for higher throughput and improved application performance. With up to seven 160 MHz channels, Wi-Fi 6E can better support low-latency, bandwidth hungry applications like high-definition video and augmented reality/virtual reality applications. Only Wi-Fi 6E capable devices can use the 6 GHz band so there is no interference or slowdowns due to legacy devices.

Device class support

The Aruba 610 Series APs are part of the low power indoor (LPI) device class. This fixed indoor-only class uses lower power levels and does not require an Automated Frequency Coordination service (AFC) to manage incumbent outdoor services, which is required for standard class APs.

Global readiness

While the need for more Wi-Fi capacity is recognized across the globe, countries are approaching the 6 GHz band differently. The 610 Series APs are set up to automatically update regulatory rules once Wi-Fi 6E regulations have been approved and certified.

Extend the benefits of Wi-Fi 6

The Aruba 610 Series APs are based on the [802.11ax \(Wi-Fi 6\) standard](#), which means that all its efficiency and security enhancements are also available on the 6 GHz band. Wi-Fi 6 features such as Orthogonal Frequency Division Multiple Access (OFDMA), BSS coloring etc. are fully supported on the Aruba Wi-Fi 6E access points as well.

Advantages of OFDMA

The Aruba 610 Series is equipped with OFDMA to handle multiple 802.11ax capable clients on each channel simultaneously, regardless of device or traffic type. Channel utilization is optimized by handling each transaction via smaller sub-carriers or resource units (RUs), which means that clients are sharing a channel and not competing for airtime and bandwidth.

WI-FI OPTIMIZATION

Client optimization

Aruba's patented AI-powered technology eliminates sticky client issues by steering a client to the AP where it receives the best radio signal. ClientMatch steers traffic from the noisy 2.4 GHz band to the preferred 5 GHz or 6 GHz band depending on client capabilities and AP settings. ClientMatch also dynamically steers traffic to load balance APs to improve the user experience.

Automated Wi-Fi radio frequency management

To optimize the user experience and provide greater stability, Aruba AirMatch allows organizations to automate network optimization using machine learning. AirMatch provides dynamic bandwidth adjustments to support changing device density, enhanced roaming using an even distribution of Effective Isotropic Radiated Power (EIRP) to radios, and real-time channel assignments to mitigate co-channel interference.

AirMatch also ensures that the two radios of Aruba 610 Series Access Points are automatically configured in the most effective and efficient way to deliver full tri-band coverage.

Application Assurance

With Aruba Air Slice, organizations can provide application assurance to their users that goes beyond the traditional capabilities of airtime fairness. After the SLAs are configured, Air Slice monitors network usage, automatically allocates radio resources, and dynamically adjusts radio resources as new users connect and applications sessions begin or end.

Aruba Advanced Cellular Coexistence (ACC)

Unique to Aruba, Advanced Cellular Coexistence uses built-in filtering to automatically minimize the impact of interference from cellular networks, distributed antenna systems (DAS), and commercial small cell or femtocell equipment.

Intelligent Power Monitoring (IPM)

For better insights into energy consumption, Aruba APs continuously monitor and report hardware energy usage. Unlike other vendor's access points, Aruba APs can also be configured to enable or disable capabilities based on available PoE power – ideal when wired switches have exhausted their power budget. Enterprises can deploy Wi-Fi 6E APs and update switching and power at a later if needed based on their actual usage.



Self-Locating APs

Indoor location shouldn't require guesswork or costly overlay technologies. Aruba's Wi-Fi 6 and 6E APs help organizations leverage their wireless investment to deliver indoor location – everywhere.

Aruba 610 Series Campus APs include built-in GPS receivers and intelligent software to allow them to automatically locate themselves accurately within the universal framework of latitude and longitude. As part of Aruba's indoor location services solution, they serve as reference points for client devices using fine time measurements (802.11mc) and other location technologies.

In addition, Aruba's Wi-Fi 6 and 6E APs support Open Locate, an emerging standard that allows APs to share their location over the air and through cloud-based APIs, enabling mobile devices to locate themselves and applications to support network analytics.

APs as an IoT transport platform

The Aruba 610 Series includes an integrated Bluetooth 5 and 802.15.4 radio for Zigbee support to simplify deploying and managing IoT-based location services, asset tracking services, security solutions, and IoT sensors. There is also a USB-port extension to provide IoT connectivity to a wider range of devices. These IoT capabilities allows organizations to leverage Aruba APs as an IoT transport platform, which eliminates the need for an overlay infrastructure and additional IT resources and can accelerate IoT initiatives.

In addition, Target Wake Time (TWT), part of the 802.11ax standard, establishes a schedule for when clients need to communicate with an AP. This helps improve client power savings and reduces airtime contention with other clients, which is ideal for IoT.

Aruba secure infrastructure

The Aruba 610 Series includes build-security capabilities such as:

- **WPA3 and Enhanced Open**

Support for stronger encryption and authentication is provided via the latest version of WPA for enterprise-protected networks. Enhanced Open offers seamless new protection for users connecting to open networks where each session is automatically encrypted to protect user passwords and data on guest networks.

- **WPA2-MPSK**

MPSK enables simpler passkey management for WPA2 devices – should the Wi-Fi password on one device or device type change, no additional changes are needed for other devices. This capability requires Aruba ClearPass Policy Manager.

- **Simple and secure access**

To improve security and ease of management, IT can centrally configure and automatically enforce role-based policies that define proper access privileges for employees, guests, contractors, and other user groups – no matter where users connect on wired and WLANs. Dynamic Segmentation eliminates the time consuming and error-prone task of managing complex and static VLANs, ACLs, and subnets by dynamically assigning policies and keeping traffic secure and separated.

- **Seamless handoffs to cellular**

Built on the technical foundations of Passpoint® and Wi-Fi Calling, Aruba Air Pass creates a roaming network across the Aruba enterprise customer footprint, extending cellular coverage and enhancing the visitor and subscriber experience to deliver a great experience for your guests while reducing costs and management overhead for DAS.

- **Flexible operation and management**

Our APs can operate as standalone access points or with a gateway for greater scalability, security, and manageability. APs can be deployed using zero touch provisioning – without on-site technical expertise – for ease of implementation in branch offices and for remote work. Aruba APs can be managed using cloud-based or on-premises solutions for any campus, branch, or remote work environment. As the management and orchestration console for Aruba ESP (Edge Services Platform), Aruba Central provides a single pane of glass for overseeing every aspect of wired and wireless LANs, WANs, and VPNs. AI-powered analytics, end-to-end orchestration and automation, and advanced security features are built natively into the solution.



SUMMARY

Aruba 610 Series Access Points are designed to take advantage of the 6 GHz band using two radios that can deliver comprehensive tri-band coverage in a multi-AP environment and better meet the growing demands of Wi-Fi due to increased use of video, growth in client and IoT devices, and expanded use of cloud.

With a 3.6 Gbps combined peak data rate for higher throughput and faster speeds for indoor use, the Aruba 610 Series delivers a cost-effective enterprise Wi-Fi 6E solution with increased capacity, wider channels, reduced power consumption.

SPECIFICATIONS

Hardware variants

AP-615: Internal antenna models

Wi-Fi radio specifications

- AP type: Indoor, dual-radio/tri-band 2.4GHz, 5GHz and 6GHz (dual concurrent) 802.11ax 2x2 MIMO
- 2.4GHz radio: Two spatial stream Single User (SU) MIMO for up to 574Mbps wireless data rate with 2SS HE40 802.11ax client devices (287Mbps for HE20)
- 5GHz radio: Two spatial stream Single User (SU) MIMO for up to 1.2Gbps wireless data rate with 2SS HE80 802.11ax client devices
- 6GHz radio: Two spatial stream Single User (SU) MIMO for up to 2.4Gbps wireless data rate with 2SS HE160 802.11ax client devices
- Up to 512 associated client devices per radio, and up to 16 BSSIDs per radio (limited to 4 for the 6GHz radio)
- Supported frequency bands (country-specific restrictions apply)³:

- 2.400 to 2.4835GHz	ISM
- 5.150 to 5.250GHz	U-NII-1
- 5.250 to 5.350GHz	U-NII-2A
- 5.470 to 5.725GHz	U-NII-2C
- 5.725 to 5.850GHz	U-NII-3/ISM
- 5.850 to 5.895GHz	U-NII-4
- 5.925 to 6.425GHz	U-NII-5
- 6.425 to 6.525GHz	U-NII-6
- 6.525 to 6.875GHz	U-NII-7
- 6.875 to 7.125GHz	U-NII-8

- Available bands and channels: Dependent on configured regulatory domain (country)
- Dynamic frequency selection (DFS) optimizes the use of available RF spectrum in the 5GHz band
- Supported radio technologies:
 - 802.11b: Direct-sequence spread-spectrum (DSSS)
 - 802.11a/g/n/ac: Orthogonal frequency-division multiplexing (OFDM)
 - 802.11ax: Orthogonal frequency-division multiple access (OFDMA) with up to 8 resource units
- Supported modulation types:
 - 802.11b: BPSK, QPSK, CCK
 - 802.11a/g/n: BPSK, QPSK, 16-QAM, 64-QAM and 256-QAM (proprietary extension)
 - 802.11ac: BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM and 1024-QAM (proprietary extension)
 - 802.11ax: BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM and 1024-QAM
- 802.11n high-throughput (HT) support: HT20/40
- 802.11ac very high throughput (VHT) support: VHT20/40/80
- 802.11ax high efficiency (HE) support: HE20/40/80/160
- 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 300 (MCS0 to MCS15, HT20 to HT40), 400 with 256-QAM (proprietary extension)
 - 802.11ac: 6.5 to 867 (MCS0 to MCS9, NSS = 1 to 2, VHT20 to VHT80); 1,083 with 1024-QAM (MCS10 and MCS11, proprietary extension)
 - 802.11ax (2.4GHz): 3.6 to 574 (MCS0 to MCS11, NSS = 1 to 2, HE20 to HE40)
 - 802.11ax (5GHz): 3.6 to 1,201 (MCS0 to MCS11, NSS = 1 to 2, HE20 to HE80)
 - 802.11ax (6GHz): 3.6 to 2,402 (MCS0 to MCS11, NSS = 1 to 2, HE20 to HE160)
- 802.11n/ac packet aggregation: A-MPDU, A-MSDU
- Transmit power: Configurable in increments of 0.5 dBm
- Maximum (aggregate, conducted total) transmit power (limited by local regulatory requirements):
 - Per radio/band (2.4GHz / 5GHz / 6GHz): +21 dBm (18dBm per chain)
 - Note: conducted transmit power levels exclude antenna gain. For total (EIRP) transmit power, add antenna gain.

³ When configured for concurrent operation in 5GHz and 6GHz (only), the U-NII-4 band will be disabled.



- Advanced Cellular Coexistence (ACC) minimizes the impact of interference from cellular networks
- Maximum ratio combining (MRC) for improved receiver performance
- Cyclic delay/shift diversity (CDD/CSD) for improved downlink RF performance
- Space-time block coding (STBC) for increased range and improved reception
- Low-density parity check (LDPC) for high-efficiency error correction and increased throughput
- Transmit beam-forming (TxBF) for increased signal reliability and range
- 802.11ax Target Wait Time (TWT) to support low-power client devices
- 802.11mc Fine Timing Measurement (FTM) for precision distance ranging
- Bluetooth Low Energy (BLE5.0) and Zigbee (802.15.4) radio
 - BLE: up to 5dBm transmit power (class 1) and -100dBm receive sensitivity (125kbps)
 - Zigbee: up to 5dBm transmit power and -97dBm receive sensitivity (250kbps)
 - Integrated omnidirectional antenna with roughly 30 to 40 degrees downtilt and peak gain of 2.6dBi
- GNSS L1 (1575.42MHz) receiver supporting GPS, Galileo, GLONASS and BeiDou signals
 - Receive sensitivity: -162dBm (tracking)
 - Integrated omnidirectional antenna with roughly 30 to 40 degrees downtilt and peak gain of 2.3dBi
- Advanced IOT Coexistence (AIC) allows concurrent operation of multiple radios in the 2.4GHz band
- Built-in Trusted Platform Module (TPM) for enhanced security and anti-counterfeiting
- Visual indicators (four multi-color LEDs): for System (1x) and Radio (3x) status
- Reset button: factory reset, LED mode control (normal/off)
- Serial console interface (proprietary, micro-B USB physical jack)
- Kensington security slot
- Automatic thermal shutdown and recovery function

Wi-Fi antennas

- AP-615: Integrated downtilt omni-directional antennas for 2x2 MIMO with peak antenna gain of 2.8dBi in 2.4GHz, 4.5dBi in 5GHz and 4.5dBi in 6GHz. Built-in antennas are optimized for horizontal ceiling mounted orientation of the AP. The downtilt angle for maximum gain is roughly 30 to 40 degrees.
 - Combining the patterns of each of the antennas of the MIMO radios, the peak gain of the combined, average pattern is 2.0dBi in 2.4GHz, 3.5dBi in 5GHz and 3.4dBi in 6GHz.

Other interfaces and features

- E0: Ethernet wired network ports (RJ-45)
 - Auto-sensing link speed (100/1000/2500BASE-T) and MDI/MDX
 - 2.5Gbps speed complies with NBase-T and 802.3bz specifications
 - POE-PD: 48Vdc (nominal) 802.3af/at POE (class 3 or higher)
 - 802.3az Energy Efficient Ethernet (EEE)
- DC power interface: 12Vdc (nominal, +/- 5%), accepts 2.1mm/5.5mm center-positive circular plug with 9.5mm length
- USB 2.0 host interface (Type A connector)
 - Capable of sourcing up to 1A / 5W to an attached device

Power sources and power consumption

- The AP supports direct DC power and Power over Ethernet (POE) on port E0
- When both DC and POE power sources are available, DC power takes priority over POE
- Power sources are sold separately; see the 610 Series Ordering Guide for details
- When powered by DC or 802.3at (class 4) POE, the AP will operate without restrictions.
- When powered by 802.3af (class 3) POE with the IPM feature disabled, the AP will disable the USB port.
- With IPM enabled, the AP will start up in unrestricted mode but may dynamically apply restrictions depending on the available power budget and actual consumption. The feature restrictions and order in which these get applied are configurable.
- Maximum (worst-case) power consumption (without / with a USB device attached):
 - DC powered: 12.5W/18.2W.
 - POE powered: 14.7W/20.9W.
 - This assumes that up to 5W is supplied to the attached USB device.



- Maximum (worst-case) power consumption in idle mode: 5.6W/11.0W (DC) or 6.9W/12.9W (POE).
- Maximum (worst-case) power consumption in deep-sleep mode: 1.0W (DC) or 1.8W (POE).

POE source	class 4 (802.3at)	class 3 (802.3af)
Power budget	25.5W	13.9W
Power mode	Unrestricted	Restricted
USB port	Enabled	Disabled
Ethernet	Enabled	Enabled
MIMO	2x2	2x2
Max RF power reduction	0dB	0dB

POE operating modes and default restrictions with IPM disabled

Mounting details

A mounting bracket has been pre-installed on the back of the AP. This bracket is used to secure the AP to any of the mount kits (sold separately); see the 610 Series Ordering Guide for details.

Mechanical specifications

- Dimensions/weight (AP-615; unit without mount bracket):
 - 160mm (W) x 160mm (D) x 39mm (H)
 - 520g
- Dimensions/weight (AP-615; shipping):
 - 212mm (W) x 194mm (D) x 66mm (H)
 - 800g

Environmental specifications

- Operating conditions
 - Temperature: 0C to +50C / +32F to +122F
 - Relative humidity: 5% to 95%
 - ETS 300 019 class 3.2 environments
 - AP is plenum rated for use in air-handling spaces
- Storage conditions
 - Temperature: -25C to +55C / -13F to +131F
 - Relative humidity: 10% to 100%
 - ETS 300 019 class 1.2 environments
- Transportation conditions
 - Temperature: -40C to +70C / -40F to +158F
 - Relative humidity: up to 95%
 - ETS 300 019 class 2.3 environments

Reliability

Mean Time Between Failure (MTBF): 540khrs (62yrs) at +25C operating temperature.

Regulatory compliance

- FCC/ISED
- CE Marked
- RED Directive 2014/53/EU
- EMC Directive 2014/30/EU
- Low Voltage Directive 2014/35/EU
- UL/IEC/EN 60950
- IEC/EN 62368-1
- EN 60601-1-1, EN60601-1-2

For more country-specific regulatory information and approvals, please see your Aruba representative.

Regulatory model numbers

- AP-615 (all models): APIN0615

Certifications

- UL2043 plenum rating
- Wi-Fi Alliance (WFA):
 - Wi-Fi CERTIFIED a, b, g, n, ac
 - Wi-Fi CERTIFIED 6E (ax, 6GHz)
 - WPA, WPA2 and WPA3 – Enterprise with CNSA option, Personal (SAE), Enhanced Open (OWE)
 - WMM, WMM-PS, W-Fi Agile Multiband
 - Passpoint (release 2)
 - Wi-Fi Location
- Bluetooth SIG
- Ethernet Alliance (POE, PD device, class 4)

Warranty

Aruba's hardware limited lifetime warranty

Minimum operating system software versions

- ArubaOS and Aruba InstantOS 8.11.0.0
- ArubaOS 10.5.0.0



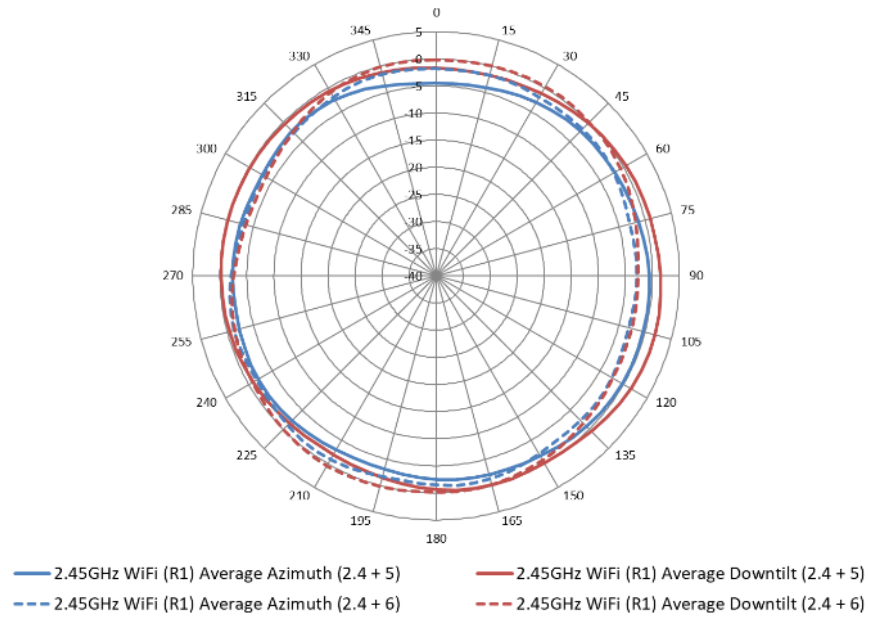
RF PERFORMANCE TABLE		
Band, rate	Maximum transmit power (dBm) per transmit chain	Receiver sensitivity (dBm) per receive chain
2.4GHz, 802.11b		
1Mbps	18.0	-95.0
11Mbps	18.0	-87.0
2.4GHz, 802.11g		
6Mbps	18.0	-93.0
54Mbps	18.0	-75.0
2.4GHz, 802.11n HT20		
MCS0	18.0	-93.0
MCS7	16.0	-74.0
2.4GHz, 802.11ax HE20		
MCS0	18.0	-93.0
MCS11	13.0	-62.0
5GHz, 802.11a		
6Mbps	18.0	-93.0
54Mbps	16.0	-75.0
5GHz, 802.11n HT20 / HT40		
MCS0	18.0 / 18.0	-92.0 / -89.0
MCS7	16.0 / 16.0	-73.0 / -70.0
5GHz, 802.11ac VHT20 / VHT40 / VHT80		
MCS0	18.0 / 18.0 / 18.0	-92.0 / -89.0 / -86.0
MCS9	15.0 / 15.0 / 15.0	-67.0 / -64.0 / -61.0
5GHz, 802.11ax HE20 / HE40 / HE80		
MCS0	18.0 / 18.0 / 18.0	-91.0 / -89.0 / -86.0
MCS11	13.0 / 13.0 / 13.0	-62.0 / -59.0 / -56.0
6GHz, 802.11ax HE20 / HE40 / HE80 / HE160		
MCS0	18.0 / 18.0 / 18.0 / 18.0	-91.0 / -88.0 / -85.0 / -82.0
MCS11	13.0 / 13.0 / 13.0 / 13.0	-62.0 / -59.0 / -56.0 / -53.0



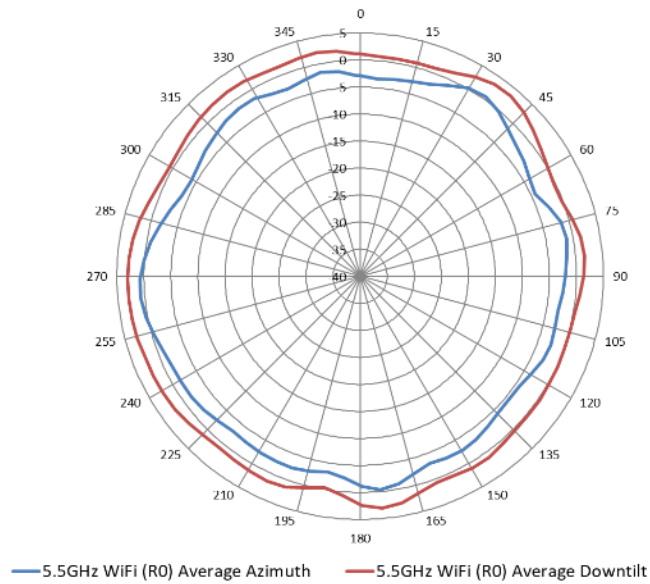
ANTENNA PATTERNS AP-615

Horizontal planes (top view)

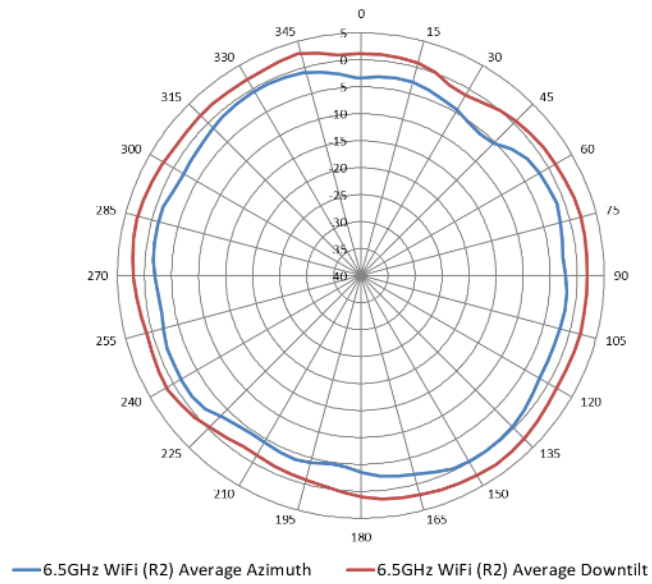
Showing azimuth (0 degrees) and 30 degrees downtilt patterns (averaged patterns for all applicable antennas)



2.45GHz Wi-Fi antenna patterns (horizontal) for both 2.4 GHz + 5 GHz mode and 2.4 GHz + 6 GHz mode



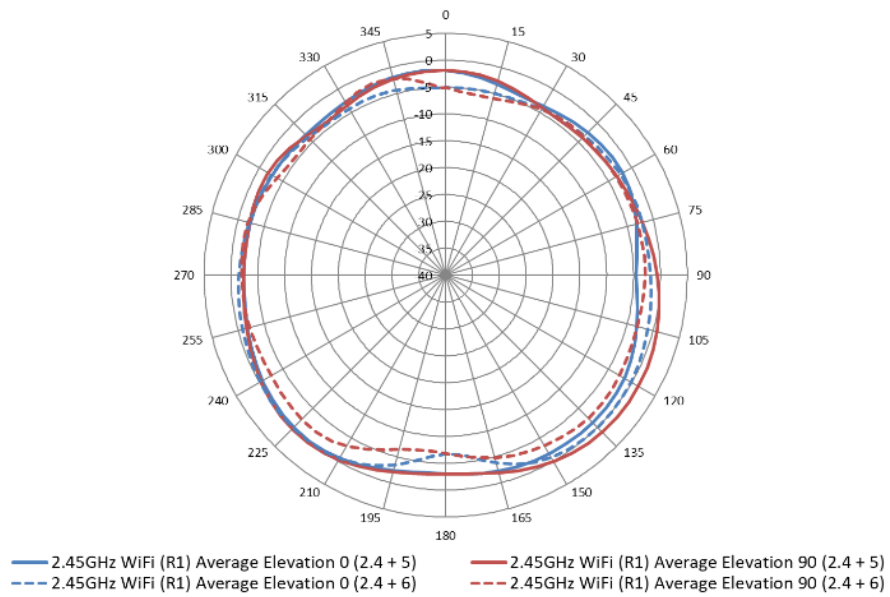
5.5 GHz Wi-Fi antenna patterns (horizontal)



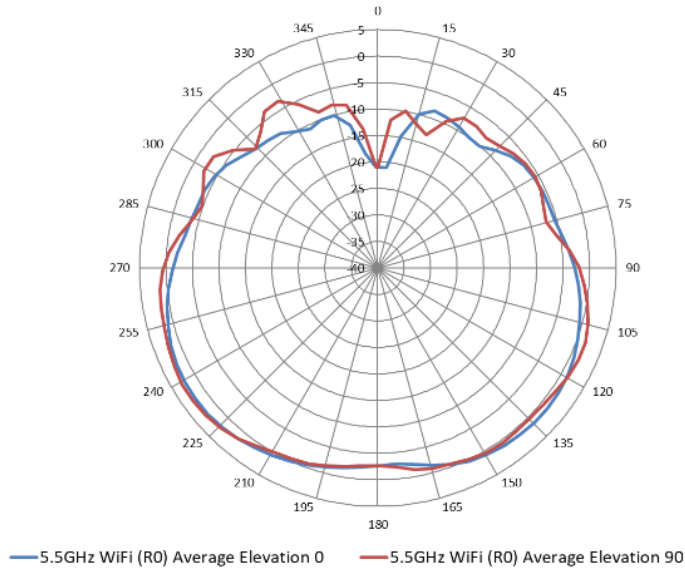
6.5 GHz Wi-Fi antenna patterns (horizontal)

Vertical (elevation) planes (side view, AP facing down)

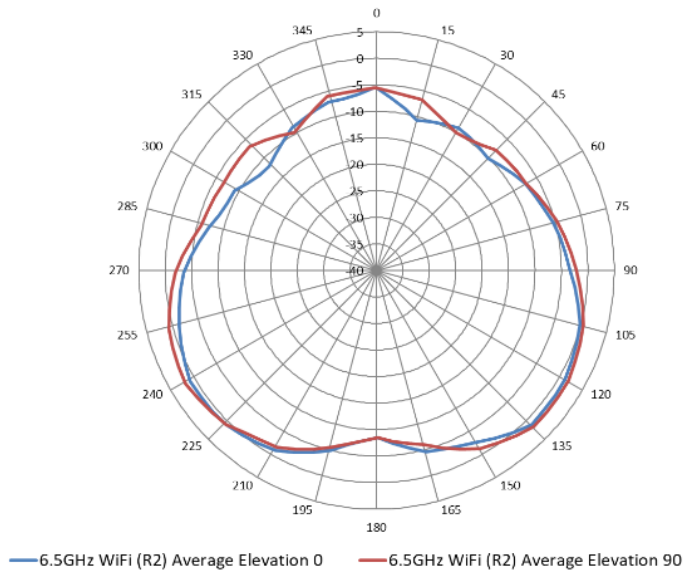
Showing side view with AP rotated 0 and 90 degrees (averaged patterns for all applicable antennas)



2.45GHz Wi-Fi antennas patterns (vertical) for both 2.4 GHz + 5 GHz mode and 2.4 GHz + 6 GHz mode



5.5GHz Wi-Fi antenna patterns (vertical)



6.5GHz Wi-Fi antennas patterns (vertical)



ARUBA 610 SERIES CAMPUS ACCESS POINTS	
Part Number	Description
Aruba 610 Series Campus Access Points	
Internal antenna access points	
R7J46A	Aruba AP-615 (EG) Dual-radio Tri-band 2x2:2 802.11ax Wi-Fi 6E Internal Antennas Campus AP
R7J47A	Aruba AP-615 (IL) Dual-radio Tri-band 2x2:2 802.11ax Wi-Fi 6E Internal Antennas Campus AP
R7J48A	Aruba AP-615 (JP) Dual-radio Tri-band 2x2:2 802.11ax Wi-Fi 6E Internal Antennas Campus AP
R7J49A	Aruba AP-615 (RW) Dual-radio Tri-band 2x2:2 802.11ax Wi-Fi 6E Internal Antennas Campus AP
R7J50A	Aruba AP-615 (US) Dual-radio Tri-band 2x2:2 802.11ax Wi-Fi 6E Internal Antennas Campus AP
Internal antenna access points - TAA models	
R7J51A	Aruba AP-615 (EG) TAA Dual-radio Tri-band 2x2:2 802.11ax Wi-Fi 6E Internal Antennas Campus AP
R7J52A	Aruba AP-615 (IL) TAA Dual-radio Tri-band 2x2:2 802.11ax Wi-Fi 6E Internal Antennas Campus AP
R7J53A	Aruba AP-615 (JP) TAA Dual-radio Tri-band 2x2:2 802.11ax Wi-Fi 6E Internal Antennas Campus AP
R7J54A	Aruba AP-615 (RW) TAA Dual-radio Tri-band 2x2:2 802.11ax Wi-Fi 6E Internal Antennas Campus AP
R7J55A	Aruba AP-615 (US) TAA Dual-radio Tri-band 2x2:2 802.11ax Wi-Fi 6E Internal Antennas Campus AP

For compatible accessories, please refer to the 610 Series Ordering Guide



Contact Us
Phone: +852-51736677
Skype: wendycisco
WhatsApp: +852-51736677
E-mail: wendy@donewin.com.hk

