Data sheet

HPE Aruba Networking 550 Series Campus Access Points

Extreme Wi-Fi 6 (802.11ax) performance with tri-radios

Key features

— Up to 5.37 Gbps combined peak data rate

— Wi-Fi Protected Access version 3 (WPA3) and Enhanced Open security

— Built-in technology that resolves sticky client device issues

— OFDMA and MU-MIMO for enhanced multiuser efficiency

— IoT-ready Bluetooth 5, Near Field Communication (NFC), and Zigbee support

— Optional tri-radio mode with two 5 GHz and one 2.4 GHz radio (4x4 MIMO)

— Embedded ranging technology for accurate indoor location measurements

HPE Aruba Networking Wi-Fi 6 access points provide high performance connectivity for any organization experiencing growing numbers of Internet of Things (IoT) and mobility requirements. With a combined peak data rate of up to 5.37 Gbps, the HPE Aruba Networking 550 Series Campus Access Points delivers the speed and reliability needed for any enterprise.

Incredible efficiency

The HPE Aruba Networking 550 Series Campus Access Points are also designed to optimize user experience by maximizing Wi-Fi efficiency and dramatically reducing airtime contention between clients device.

Features include orthogonal frequency-division multiple access (OFDMA), bidirectional multiuser MIMO (MU-MIMO), and cellular optimization. With optional tri-radios, up to four spatial streams (4SS) and 160 MHz channel bandwidth, the 550 series provides groundbreaking wireless capabilities for any enterprise.

Advantages of OFDMA

This capability allows HPE Aruba Networking access points to handle multiple Wi-Fi 6 capable clients device concurrently in a single transmit or receive time slot regardless of device or traffic type. Channel utilization is optimized by handling each transaction through smaller subcarriers or resource units (RUs), which means that clients device are sharing a time slot in the frequency domain and not competing for airtime and bandwidth.

Bidirectional MU-MIMO

Similar to downlink MU-MIMO in Wi-Fi 5 (802.11ac Wave 2), the 550 series can simultaneously connect clients device using downlink—and now—uplink spatial streams. The added benefit is the ability to multiply the number of clients device that can now send traffic, thus optimizing client-to-access point spatial stream diversity.

Wi-Fi 6 and MU-MIMO aware client device optimization

HPE Aruba Networking patented AI-powered ClientMatch technology helps eliminate sticky client device issues by placing Wi-Fi 6 capable devices on the best available access point. Session metrics are used to steer mobile devices to the best access point based on available bandwidth, types of applications being used, and traffic type—even as users roam.

HPE Aruba Networking Advanced Cellular Coexistence (ACC)

This feature uses built-in filtering to automatically helps minimize the impact of interference from cellular networks, distributed antenna systems (DAS), and commercial small-cell or femtocell equipment.

Intelligent power monitoring

HPE Aruba Networking access points continuously monitor and report hardware energy consumption. They can also be configured to enable or disable capabilities based on available Power over Ethernet (PoE) power—ideal when wired switches have exhausted their power budget.

IoT platform capabilities

Like all HPE Aruba Networking Wi-Fi 6 access points, the 550 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. It also enables NFC to easily display access point status information and streamline deployment. This allows organizations to leverage the 550 series as an IoT platform, which helps eliminate the need for an overlay infrastructure and additional IT resources.

Target wake time

Ideal for IoT devices that communicate infrequently, target wake time (TWT) establishes a schedule when clients device need to communicate with an access point. This helps improve client device power savings and reduces airtime contention with other clients device.

Foundation for accurate indoor location

HPE Aruba Networking access points act as a foundation for accurate indoor location so that location-aware services can be deployed at scale. Using embedded GPS receivers, HPE Aruba Networking Wi-Fi 6E access points are able to self-locate and work with Wi-Fi 6 access points to establish reference points that can be used to accurately determine indoor client device location.

Because they use universal latitude and longitude coordinates, there is no need for custom map development or to create separate applications for indoor and outdoor environments.

HPE Aruba Networking secure infrastructure

The HPE Aruba Networking 550 Series Campus Access Points include security components to help protect user authentication and wireless traffic. Select capabilities include:

WPA3 and Enhanced Open

Support for stronger encryption and authentication is provided through 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. It requires HPE Aruba Networking ClearPass Policy Manager.

VPN tunnels

In remote access point (RAP) and IAP-VPN deployments, the HPE Aruba Networking 550 Series Campus Access Point can be used to establish a secure SSL / Internet Protocol Security (IPSec) VPN tunnel to a Mobility Controller that is acting as a VPN concentrator.

Trusted Platform Module

For enhanced device assurance, all HPE Aruba Networking access points have an installed Trusted Platform Module (TPM) for secure storage of credentials and keys and boot code.

Simple and secure access

To simplify policy enforcement, the HPE Aruba Networking 550 Series Campus Access Point uses HPE Aruba Networking Policy Enforcement Firewall (PEF) feature to encapsulate all traffic from the access point to the Mobility Controller (or Gateway) for end-to-end encryption and inspection. Policies are applied based on user role, device type, applications, and location. This reduces the manual configuration of service set identifiers (SSIDs), VLANs, and access control lists (ACLs). PEF also serves as the underlying technology for HPE Aruba Networking dynamic segmentation.

High-density connectivity

Like the HPE Aruba Networking 530 Series Campus Access Points, each 550 series access point provides connectivity for a maximum of 1024 associated clients device per radio (2048 in total). In real-world scenarios, the maximum recommended client device density is dependent on environmental conditions.

Flexible operation and management

Our unified access points can operate as stand-alone APs or with a gateway for greater scalability, security, and manageability. Access points can be deployed using zero touch provisioning—without on-site technical expertise—for ease of implementation in branch offices and for remote work.

HPE Aruba Networking access points can be managed using cloud-based or on-premises solutions for any campus, branch, or remote work environment.

HPE Aruba Networking 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.

Additional Wi-Fi features

Each access point also includes the following standards-based technologies:

Transmit beamforming

Increased signal reliability and range

Dynamic frequency selection (DFS)

Optimized use of available radio frequency (RF) spectrum

Maximum ratio combining

Improved receiver performance

Cyclic delay / shift diversity

Greater downlink RF performance

Space-time block coding

Increased range and improved reception

Low-density parity check

High-efficiency error correction for increased throughput

Technical specifications

Hardware variants

— AP-555: Internal antenna models

Wi-Fi radio specifications

— AP type: Indoor, dual/tri-radio, 5 GHz and 2.4 GHz 802.11ax 4x4 MIMO

— 5 GHz radio (dual-radio operation): Eight spatial stream HE80 (or 4SS HE160) MIMO for up to 4.8 Gbps wireless data rate

— 5 GHz radio (tri-radio operation): Four spatial stream HE80 (or 2SS HE160) MIMO for up to 2.4 Gbps wireless data rate

— 2.4 GHz radio: Four spatial stream HE40 (HE20) MIMO for up to 1147 Mbps (574 Mbps)

— Both downlink and uplink MU-MIMO in 5 GHz, downlink only in 2.4 GHz

— Support for up to 1024 associated client devices per radio, and up to 16 BSSIDs per radio

— Supported frequency bands (country-specific restrictions apply):
  - 2.400 to 2.4835 GHz (radio 1) ISM
  - 5.150 to 5.250 GHz (radio 0 and 0L) U-NII-1
  - 5.250 to 5.350 GHz (radio 0 and 0L) U-NII-2A
  - 5.470 to 5.725 GHz (radio 0 and 0U) U-NII-2C
  - 5.725 to 5.850 GHz (radio 0 and 0U) U-NII-3
  - 5.850 to 5.895 GHz (radio 0 and 0U) U-NII-4

— Available channels: Dependent on configured regulatory domain

— Dynamic frequency selection (DFS) optimizes the use of available RF spectrum
  - Including zero-wait DFS (ZWDFS) to accelerate channel changes

— Supported radio technologies:
  - 802.11b: Direct-sequence spread-spectrum (DSSS)
  - 802.11a/g/n/ac: Orthogonal frequency-division multiplexing (OFDM)
  - 802.11ax: OFDMA with up to 37 resource units (for an 80 MHz channel)

— Supported modulation types:
  - 802.11b: BPSK, QPSK, CCK
  - 802.11a/g/n: BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM (proprietary extension)
  - 802.11ac: BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM, 1024-QAM (proprietary extension)
  - 802.11ax: BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM, 1024-QAM

— 802.11n high-throughput (HT) support: HT20/40

— 802.11ac very high-throughput (VHT) support: VHT20/40/80/160

— 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 600 (MCS0 to MCS31, HT20 to HT40), 800 with 256-QAM
  - 802.11ac: 6.5 to 1733 (MCS0 to MCS9, NSS = 1 to 4, VHT20 to VHT160), 2,166 with 1024-QAM
  - 802.11ax (2.4 GHz): 3.6 to 1147 (MCS0 to MCS11, NSS = 1 to 4, HE20 to HE40)
  - 802.11ax (5 GHz): 3.6 to 4804 (MCS0 to MCS11, NSS = 1 to 8, HE20 to HE160)

— 802.11n/ac/ax 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):
  • 2.4 GHz band: +24 dBm (18 dBm per chain)
  • 5 GHz band: +27 dBm in dual-radio mode, +24 dBm in tri-radio mode (18 dBm per chain)
  • Note: Conducted transmit power levels exclude antenna gain. For total (EIRP) transmit power, add antenna gain
— HPE Aruba Networking Advanced Cellular Coexistence (ACC) helps minimize 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 beamforming (TxBF) for increased signal reliability and range
— 802.11ax TWT to support low-power client devices

Wi-Fi antennas

— Integrated downtilt omnidirectional antennas for 4x4 MIMO in 2.4 GHz with a peak antenna gain of 4.3 dBi, and 8x8 MIMO in 5 GHz with a peak antenna gain of 5.8 dBi in 5 GHz. In tri-radio mode, the peak gain of the antennas for each of the 4x4 5 GHz radios is 5.5 dBi (radio 0L, lower half of 5 GHz) and 5.6 dBi (radio 0U, upper half of 5 GHz). Built-in antennas are optimized for horizontal ceiling-mounted orientation of the access point. The downtilt angle for maximum gain is roughly 30°.
  • A mix of horizontally and vertically polarized antenna elements is used
  • Combining the patterns of each of the antennas of the MIMO radios, the peak gain of the combined, average pattern is 2.4 dBi in 2.4 GHz and 2.0 dBi in 5 GHz (dual-radio mode)
  • In tri-radio mode, the peak gain of the combined, average pattern is 2.7 dBi (radio 0L, lower half of 5 GHz) and 1.8 dBi (radio 0U, upper half of 5 GHz)

Other interfaces

— E0, E1: HPE SmartRate port (RJ-45, maximum negotiated speed 5 Gbps)
  • Auto-sensing link speed (100/1000/2500/5000BASE-T) and MDI/MDIX
  • 2.5 Gbps and 5 Gbps speeds comply with NBase-T and 802.3bz specifications
  • PoE-PD: 48 Vdc (nominal) 802.3at/bt PoE (class 4 or higher)
  • 802.3az Energy Efficient Ethernet (EEE)
— Link Aggregation Control Protocol (LACP) support between both network ports for redundancy and increased capacity
— PoE power can be drawn from either port (single source, or set to prioritize) or both ports simultaneously (set to combine). When set to prioritize, the AP draws power from E0 and may failover to E1
— DC power interface: 48 Vdc (nominal, +/–5%), accepts 1.35 mm / 3.5 mm center-positive circular plug with 9.5 mm length
— USB 2.0 host interface (Type A connector)
  • Capable of sourcing up to 1A/5W to an attached device
— Bluetooth Low Energy (BLE5.0) and Zigbee (802.15.4) radio (2.4 GHz)
  • BLE: up to 8 dBm transmit power (class 1) and –99 dBm receive sensitivity (125 kbps)
  • Zigbee: up to 8 dBm transmit power and –97 dBm receive sensitivity
  • A pair of integrated omnidirectional antennas (polarization diversity) with roughly 30° downtilt and peak gain of 4.5 dBi
— Visual indicators (two multicolor LEDs): For system and radio status
— Reset button: Factory reset, LED mode control (normal/off)
— Serial console interface (proprietary, micro-B USB physical jack)
— Kensington security slot

Power sources and power consumption

— The access point supports direct DC power and PoE; (on port E0 and/or E1)
— When PoE power is supplied to both Ethernet ports, the access point can be configured to combine or prioritize power sources
— When both DC and PoE power sources are available, DC power takes priority over PoE
— Power sources are sold separately; see the following ordering information section for details
— When powered by DC, 802.3bt (class 5) PoE, or 2x 802.3at (class 4) PoE, the access point will operate without restrictions
— When powered by 1x 802.3at (class 4) PoE and with the intelligent power monitoring (IPM) feature disabled, the access point will disable the USB port, disable the other Ethernet port, operate the 5 GHz radio in 4x4 mode, and disable tri-radio operation
— No other restrictions will be applied in this case (IPM disabled)
— In the same situation but with IPM enabled, the access point will start up in fully unrestricted mode, but may dynamically apply restrictions depending on the PoE budget and actual power
— When using IPM, the actual restrictions that are applied by the feature and the order in which they're applied are configurable
— Operating the access point with an 802.3af (class 3 or lower) PoE source is not supported
— Maximum (worst-case) power consumption (dual-radio operation):
  • DC powered: 32.6W
  • PoE powered (802.3bt or dual 802.3at): 38.2W
  • PoE powered (802.3at, IPM disabled): 25.1W
  • All the previous numbers are without an external USB device connected. When sourcing the full 5W power budget to such a device, the incremental (worst-case) power consumption for the AP is up to 6.0W (PoE powered) or 5.4W (DC powered)
— Maximum (worst-case) power consumption in idle mode (dual-radio operation): 15.0W (PoE) or 15.1W (DC)
— Maximum (worst-case) power consumption in deep-sleep mode: 3.8W (PoE) or 3.6W (DC)

Mounting details

— A mounting bracket has been preinstalled on the back of the access point. This bracket is used to secure the access point to any of the HPE Aruba Networking mount kits (sold separately); see the following ordering information section for details

Mechanical specifications

— Dimensions/weight (AP-555; unit, excluding mount bracket):
  • 260 mm (W) x 260 mm (D) x 61 mm (H) / 10.2" (W) x 10.2" (D) x 2.3" (H)
  • 1570g / 55.4oz
— Dimensions/weight (AP-555; shipping):
  • 320 mm (W) x 303 mm (D) x 108 mm (H) / 12.6" (W) x 11.9" (D) x 4.3" (H)
  • 2230g / 78.7oz

Environmental specifications

— Operating conditions
  • Temperature: 0°C to +50°C/+32°F to +122°F
  • Humidity: 5% to 93% noncondensing
  • AP is plenum rated for use in air-handling spaces
  • ETS 300 019 class 3.2 environments
— Storage and transportation conditions
  • Temperature: –40°C to +70°C/–40°F to +158°F
  • Humidity: 5% to 93% noncondensing
  • ETS 300 019 classes 1.2 and 2.3 environments

Reliability

— Mean time between failure (MTBF): 855,000 hours (98 years) at +25°C operating temperature

Regulatory compliance

— FCC/ISED
— CE Marked
— Radio Equipment Directive (RED) 2014/53/EU
— Electromagnetic compatibility (EMC) Directive 2014/30/EU
— Low voltage directive 2014/35/EU
— UL/IEC/EN 62368-1
— EN 60601-1-1, EN60601-1-2

For more country-specific regulatory information and approvals, contact your HPE Aruba Networking representative.

Regulatory model numbers

— AP-555: APIN0555

Certifications

— UL2043 plenum rating
— Wi-Fi alliance:
  • Wi-Fi CERTIFIED a, b, g, n, ac, ax
  • 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 CERTIFIED Location™
  • Bluetooth Special Interest Group (SIG)

Warranty

HPE Aruba Networking hardware limited lifetime warranty.

Minimum operating system software versions

— HPE Aruba Networking Wireless Operating System and HPE Aruba Networking Instant OS 8.5.0.0 (with some restrictions). For unrestricted operation, use 8.6.0.0 or later.
— HPE Aruba Networking Wireless Operating System 10.0.0.0.

RF performance table

Band, rate	Maximum transmit power (dBm) per transmit chain	Receiver sensitivity (dBm) per receive chain
2.4 GHz, 802.11b		
1 Mbps	18	–98
11 Mbps	18	–89
2.4 GHz, 802.11g		
6 Mbps	18	–92
54 Mbps	16	–75
2.4 GHz, 802.11n HT20		
MCS0	18	–92
MCS7	14	–73
2.4 GHz, 802.11ax HE20		
MCS0	18	–92
MCS11	10	–64
5 GHz, 802.11a		
6 Mbps	18	–91
54 Mbps	16	–74
5 GHz, 802.11n HT20		
MCS0	18	–91
MCS7	14	–72
5 GHz, 802.11n HT40		
MCS0	18	–88
MCS7	14	–69

RF performance table (continued)

Band, rate	Maximum transmit power (dBm) per transmit chain	Receiver sensitivity (dBm) per receive chain
5 GHz, 802.11ac VHT20		
MCS0	18	–91
MCS9	12	–68
5 GHz, 802.11ac VHT40		
MCS0	18	–88
MCS9	12	–65
5 GHz, 802.11ac VHT80		
MCS0	18	–85
MCS9	12	–62
5 GHz, 802.11ac VHT160		
MCS0	18	–82
MCS9	12	–59
5 GHz, 802.11ax HE20		
MCS0	18	–91
MCS11	10	–62
5 GHz, 802.11ax HE40		
MCS0	18	–88
MCS11	10	–58
5 GHz, 802.11ax HE80		
MCS0	18	–85
MCS11	10	–56
5 GHz, 802.11ax HE160		
MCS0	18	–82
MCS11	10	–53

Antenna patterns

Horizontal planes (top view)

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

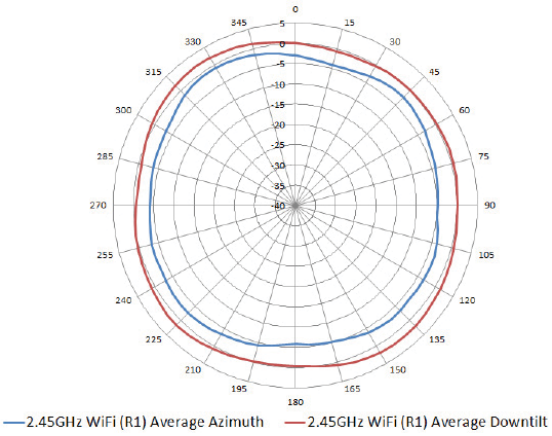

Figure 1. 2.45 GHz Wi-Fi (radio 1)

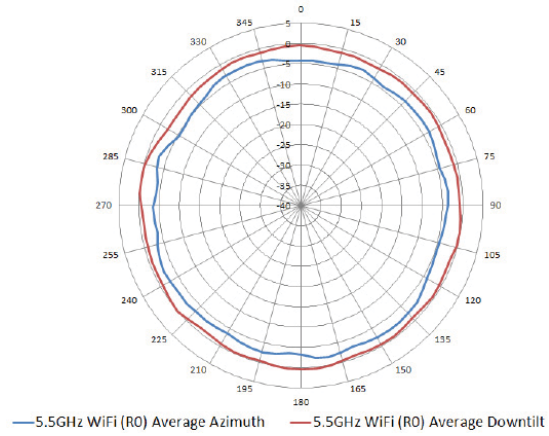

Figure 2. 5.5 GHz Wi-Fi (radio 0, dual-radio mode)

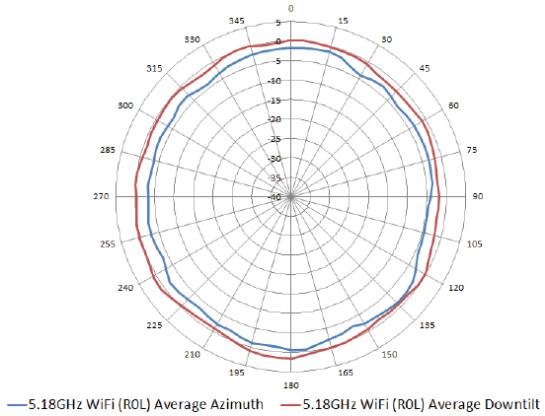

Figure 3. 5.18 GHz Wi-Fi (radio 0L, tri-radio mode)

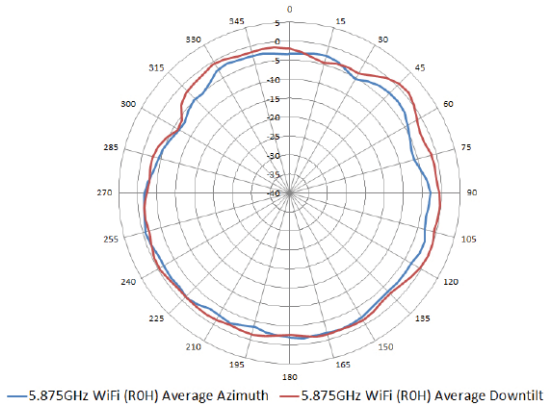

Figure 4. 5.875 GHz Wi-Fi (radio 0U, tri-radio mode)

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

Showing side view with access point rotated 0° and 90° (averaged patterns for all applicable antennas)

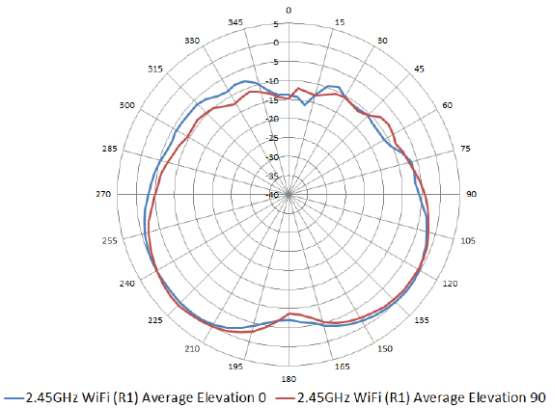

Figure 5. 2.45 GHz Wi-Fi (radio 1)

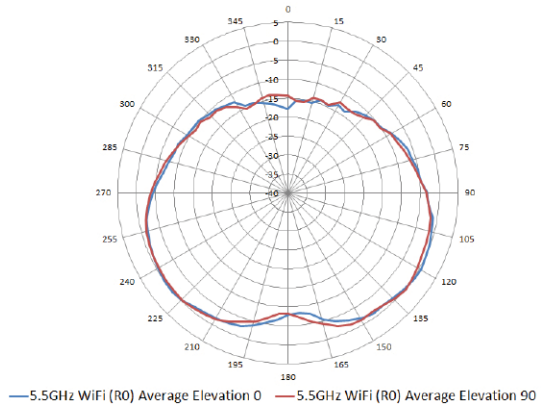

Figure 6. 5.5 GHz Wi-Fi (radio 0, dual-radio mode)

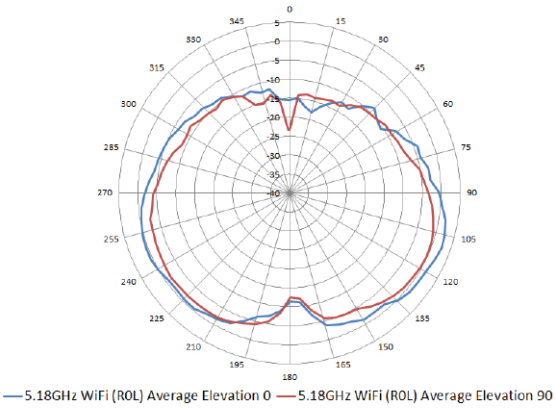

Figure 7. 5.18 GHz Wi-Fi (radio 0L, tri-radio mode)

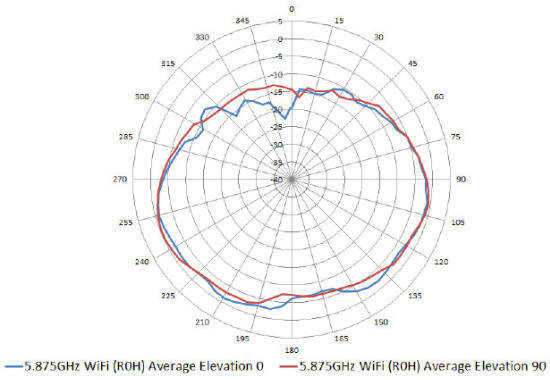

Figure 8. 5.875 GHz Wi-Fi (radio 0U, tri-radio mode)

Ordering information

Part number	Description
HPE Aruba Networking 550 Series Campus Access Points	
JZ353A	HPE Aruba Networking AP-555 (EG) Dual Radio 8x8:8/4x4:4 802.11ax Internal Antennas Unified Campus AP
JZ354A	HPE Aruba Networking AP-555 (IL) Dual Radio 8x8:8/4x4:4 802.11ax Internal Antennas Unified Campus AP
JZ355A	HPE Aruba Networking AP-555 (JP) Dual Radio 8x8:8/4x4:4 802.11ax Internal Antennas Unified Campus AP
JZ356A	HPE Aruba Networking AP-555 (RW) Dual Radio 8x8:8/4x4:4 802.11ax Internal Antennas Unified Campus AP
JZ357A	HPE Aruba Networking AP-555 (US) Dual Radio 8x8:8/4x4:4 802.11ax Internal Antennas Unified Campus AP
JZ363A	HPE Aruba Networking AP-555 (EG) TAA Dual Radio 8x8:8/4x4:4 802.11ax Internal Antennas Unified Campus AP
JZ364A	HPE Aruba Networking AP-555 (IL) TAA Dual Radio 8x8:8/4x4:4 802.11ax Internal Antennas Unified Campus AP
JZ365A	HPE Aruba Networking AP-555 (JP) TAA Dual Radio 8x8:8/4x4:4 802.11ax Internal Antennas Unified Campus AP
JZ366A	HPE Aruba Networking AP-555 (RW) TAA Dual Radio 8x8:8/4x4:4 802.11ax Internal Antennas Unified Campus AP
JZ367A	HPE Aruba Networking AP-555 (US) TAA Dual Radio 8x8:8/4x4:4 802.11ax Internal Antennas Unified Campus AP
S5D88A	HPE Aruba Networking AP-555 (ID) Dual Radio 8x8/4x4 802.11ax Internal Antennas Campus Access Point

For more ordering information and compatible accessories, see the ordering guide.

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