

### Overview

#### HPE Aruba Networking 510 Series Campus Access Points

##### Very High Wi-Fi 6 (802.11ax) Performance with Dual Radios and Green AP Energy Efficiency

HPE Aruba Networking Wi-Fi 6 access points provide high-performance connectivity for any organization experiencing growing numbers of IoT and mobility requirements. With a maximum aggregate data rate of 3 Gbps (HE80/HE40), they deliver the speed and reliability needed for any enterprise environment.

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#### HPE Aruba Networking 510 Series Campus Access Points

##### Key features

- 3 Gbps of maximum throughput (HE80/HE40)
  - WPA3 and Enhanced Open security
  - Built-in technology that resolves sticky client issues for Wi-Fi 6 and Wi-Fi 5 devices
  - OFDMA and MU-MIMO for enhanced multi-user efficiency
  - IoT-ready Bluetooth 5 and Zigbee support
  - Wired and wireless policy enforcement with Dynamic Segmentation
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## Standard Features

### IoT Platform Capabilities

Like all HPE Aruba Networking Wi-Fi 6 APs, the HPE Aruba Networking 510 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. This allows organizations to leverage the HPE Aruba Networking 510 Series as an IoT platform, which eliminates the need for an overlay infrastructure and additional IT resources.

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### Incredible Efficiency

The HPE Aruba Networking 510 Series APs are also designed to optimize user experience by maximizing Wi-Fi efficiency and dramatically reducing airtime contention between clients.

Features include Orthogonal frequency-division multiple access (OFDMA), bi-directional multi-user MIMO and cellular optimization. With up to 4 spatial streams (4SS) and 160MHz channel bandwidth (VHT160), the HPE Aruba Networking 510 Series provides groundbreaking wireless capabilities for any enterprise.

Read the Multi-User 802.11ax [white paper](#) for further information.

### Advantages of OFDMA

This capability allows HPE Aruba Networking's APs to handle multiple Wi-Fi 6 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.

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### HPE Aruba Networking Air Slice for Extended Application Assurance

Initially, APs in controller-less mode (Instant) can provide SLA-grade performance by allocating radio resources (e.g., time, frequency, spatial streams) to specific traffic types. By combining HPE Aruba Networking's **Policy Enforcement Firewall (PEF)** and Layer 7 deep packet inspection (DPI) to identify user roles and applications, the APs will dynamically allocate the bandwidth needed. Non-Wi-Fi 6 clients can also benefit.

Aruba Air Slice for APs in controller mode will be supported in a future software release.

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### Bi-Directional Multi-User MIMO (MU-MIMO)

Similar to downlink MU-MIMO in Wi-Fi 5 (802.11ac Wave 2), the HPE Aruba Networking 510 Series can simultaneously connect clients use downlink – and now – uplink spatial streams. The added benefit is the ability to multiply the number of clients that can now send traffic, thus optimizing client-to-AP spatial stream diversity.

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### Wi-Fi 6 And MU-MIMO Aware Client Optimization

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

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### HPE Aruba Networking Advanced Cellular Coexistence (ACC)

This feature 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.

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### Intelligent Power Monitoring (IPM)

HPE Aruba Networking APs continuously monitor and report hardware energy consumption. They can also be configured to enable or disable capabilities based on available PoE power – ideal when wired switches have exhausted their power budget.

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### Green AP Energy Efficiency

HPE Aruba Networking Wi-Fi 6 APs utilize analytics from NetInsight to automatically transition in and out of a sleep mode based on client density. Learn more in the Green AP At-A-Glance.

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## Standard Features

### Target Wake Time (TWT)

Ideal for IoTs that communicate infrequently, TWT 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.

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### HPE Aruba Secure Infrastructure

The HPE Aruba Networking 510 Series includes components of HPE Aruba Networking's 360 Secure Fabric to help protect user authentication and wireless traffic. Select capabilities include:

### 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. Requires ClearPass Policy Manager.

### VPN Tunnels

In Remote AP (RAP) and IAP-VPN deployments, the HPE Aruba Networking 510 Series can be used to establish a secure SSL/IPSec VPN tunnel to a Mobility Controller that is acting as a VPN concentrator.

### Trusted Platform Module (TPM)

For enhanced device assurance, all HPE Aruba APs have an installed TPM for secure storage of credentials and keys, and boot code.

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### Simple And Secure Access

To simplify policy enforcement, the HPE Aruba Networking 510 Series uses the HPE Aruba Networking policy enforcement firewall (PEF) feature to encapsulate all traffic from the AP 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 SSIDs, VLANs and ACLs. PEF also serves as the underlying technology for dynamic segmentation.

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### High-Density Connectivity

Each HPE Aruba Networking 510 Series AP provides connectivity for a maximum of 512 associated clients per radio (1024 in total). Higher-end HPE Aruba Networking APs like the 550 Series support up to 1024 per radio. In real-world scenarios, the maximum recommended client density is dependent on environmental conditions.

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### Flexible Operation and Management

A unique feature of HPE Aruba Networking APs is the ability to operate in either controllerless (Instant) or controller-based mode. In controllerless mode, one AP serves as a virtual controller for the entire network. Learn more about Instant mode in this technology brief.

For optimized network performance, roaming and security, APs tunnel all traffic to a mobility controller for centrally managed traffic forwarding and segmentation, data encryption, and policy enforcement. Learn more in the HPE ArubaOS datasheet.

Available management solutions include HPE Aruba Networking Central (cloud-managed) or AirWave – a multi-vendor on-premises management solution.

For large installations across multiple sites, APs can be factory-shipped and can be activated with Zero Touch Provisioning through HPE Aruba Networking Central or Aruba AirWave. This reduces deployment time, centralizes configuration, and helps manage inventory.

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### Specifications - Hardware Variants

- HPE Aruba Networking AP-514: External antenna models
  - HPE Aruba Networking AP-515: Internal antenna models
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## Standard Features

### Additional Wi-Fi Features

Each AP also includes the following standards-based technologies:

- Transmit beamforming (TxBF) increases signal reliability and range
  - Passpoint Wi-Fi (Release 2) (Hotspot 2.0) offers seamless cellular-to-Wi-Fi carryover for guests
  - Dynamic Frequency Selection (DFS) optimizes use of available RF spectrum
  - Maximum Ratio Combining (MRC) improves receiver performance
  - Cyclic Delay/Shift Diversity (CDD/CSD) provides greater downlink RF performance
  - Space-Time Block Coding increases range and improved reception
  - Low-Density Parity Check (LDPC) provides a high-efficiency error correction for increased throughput
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### Mounting

- 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 (sold separately) mount kits; see the ordering Information section below for details.
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### Warranty

- **HPE Aruba Networking Limited lifetime warranty**
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### Minimum Operating System Software Versions

- HPE ArubaOS
  - HPE Aruba Instant OS 8.5.0.0
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## Configuration Information

### BTO Models

Remarks	Description	SKU
	<b>HPE Aruba Networking 515 Internal Antenna Access Points</b>	
<b>Notes:</b>	<a href="#">Add Mount Kit</a>	
	HPE Aruba Networking AP-515 (EG) Dual Radio 4x4/2x2 802.11ax Internal Antennas Unified Campus AP	Q9H59A
	HPE Aruba Networking AP-515 (IL) Dual Radio 4x4/2x2 802.11ax Internal Antennas Unified Campus AP	Q9H60A
	HPE Aruba Networking AP-515 (JP) Dual Radio 4x4/2x2 802.11ax Internal Antennas Unified Campus AP	Q9H61A
	HPE Aruba Networking AP-515 (RW) Dual Radio 4x4/2x2 802.11ax Internal Antennas Unified Campus AP	Q9H62A
	HPE Aruba Networking AP-515 (US) Dual Radio 4x4/2x2 802.11ax Internal Antennas Unified Campus AP	Q9H63A
	<b>HPE Aruba Networking 514 External Antenna Access Points</b>	
<b>Notes:</b>	<a href="#">Add Mount Kit, Antennas</a>	
	HPE Aruba Networking AP-514 (EG) Dual Radio 4x4/2x2 802.11ax External Antennas Unified Campus AP	Q9H54A
	HPE Aruba Networking AP-514 (IL) Dual Radio 4x4/2x2 802.11ax External Antennas Unified Campus AP	Q9H55A
	HPE Aruba Networking AP-514 (JP) Dual Radio 4x4/2x2 802.11ax External Antennas Unified Campus AP	Q9H56A
	HPE Aruba Networking AP-514 (RW) Dual Radio 4x4/2x2 802.11ax External Antennas Unified Campus AP	Q9H57A
	HPE Aruba Networking AP-514 (US) Dual Radio 4x4/2x2 802.11ax External Antennas Unified Campus AP	Q9H58A
	<b>HPE Aruba Networking 515 Internal Antenna Access Points - TAA Models</b>	
<b>Notes:</b>	<a href="#">Add Mount Kit</a>	
	HPE Aruba Networking AP-515 (EG) TAA Dual Radio 4x4/2x2 802.11ax Internal Ants Unified Campus AP	Q9H69A
	HPE Aruba Networking AP-515 (IL) TAA Dual Radio 4x4/2x2 802.11ax Internal Ants Unified Campus AP	Q9H70A
	HPE Aruba Networking AP-515 (JP) TAA Dual Radio 4x4/2x2 802.11ax Internal Ants Unified Campus AP	Q9H71A
	HPE Aruba Networking AP-515 (RW) TAA Dual Radio 4x4/2x2 802.11ax Internal Ants Unified Campus AP	Q9H72A
	HPE Aruba Networking AP-515 (US) TAA Dual Radio 4x4/2x2 802.11ax Internal Ants Unified Campus AP	Q9H73A
	<b>HPE Aruba Networking 514 External Antenna Access Points - TAA Models</b>	
<b>Notes:</b>	<a href="#">Add Mount Kit, Antennas</a>	
	HPE Aruba Networking AP-514 (EG) TAA Dual Radio 4x4/2x2 802.11ax Ext Antennas Unified Campus AP	Q9H64A
	HPE Aruba Networking AP-514 (IL) TAA Dual Radio 4x4/2x2 802.11ax Ext Antennas Unified Campus AP	Q9H65A
	HPE Aruba Networking AP-514 (JP) TAA Dual Radio 4x4/2x2 802.11ax Ext Antennas Unified Campus AP	Q9H66A
	HPE Aruba Networking AP-514 (RW) TAA Dual Radio 4x4/2x2 802.11ax Ext Antennas Unified Campus AP	Q9H67A
	HPE Aruba Networking AP-514 (US) TAA Dual Radio 4x4/2x2 802.11ax Ext Antennas Unified Campus AP	Q9H68A

## Configuration Information

**Notes:** [OCA Only Model Selection Form - HPE Offering > HPE Aruba > Access Points - Indoor: HPE Aruba Networking 510 Series Campus Access Points](#)

### Mount Accessories

Remarks	Description	SKU
	<b>AP Mount Kits</b>	
	HPE Aruba Networking AP-MNT-A Campus AP Type A Suspended Ceiling Rail Flat 9/16 Mount Bracket Kit	R3J15A
*	HPE Aruba Networking AP-MNT-MP10-A Campus AP 10-Pack 9/16 Flat Ceiling Rail Mount Bracket Kit	JZ370A
	HPE Aruba Networking AP-MNT-B Campus AP Type B Suspended Ceiling Rail Flat 15/16 Mount Bracket Kit	R3J16A
*	HPE Aruba Networking AP-MNT-MP10-B Campus AP 10-Pack 15/16 Flat Ceiling Rail Mount Bracket Kit	Q9G69A
	HPE Aruba Networking AP-MNT-C Campus AP Type C Suspended Ceiling Rail 9/16 Profile Mnt Bracket Kit	R3J17A
*	HPE Aruba Networking AP-MNT-MP10-C Campus AP 10-Pack Profile 9/16 Ceiling Rail Mount Bracket Kit	Q9G70A
	HPE Aruba Networking AP-MNT-D Campus AP Type D Solid Surface Mount Bracket Kit	R3J18A
*	HPE Aruba Networking AP-MNT-MP10-D Campus AP 10-Pack Solid Surface Mount Bracket Kit	Q9G71A
	HPE Aruba Networking AP-MNT-E Campus AP Type E Wall-Box Mount Bracket Kit	R3J19A
*	HPE Aruba Networking AP-MNT-MP10-E Campus AP 10-Pack Wall-box Mount Bracket Kit	R1C72A
	HPE Aruba Networking AP-MNT-U Campus Access Point Type U Universal Mount Bracket Kit	S4K79A
*	HPE Aruba Networking AP-MNT-MP10-U Campus AP Universal 10-pack Mount Bracket Kit	S0J40A
*	HPE Aruba Networking AP-MNT-MP10-X Campus AP 10-Pack Mount Adapter Kit	R3T20A

**Notes:**

- \*Kit contains mounts for 10 access points
- For 514, 515, Series Std (Min 0 // max 99) User Selection (min 0 // max 99)

### Antennas

For HPE Aruba Networking 514 Std (Min 0 // max1) User Selection (min 0 // max 1)

	Antennas	
*	HPE Aruba Networking AP-ANT-1W 2.4/5GHz Dual Band 4dBi/6dBi Indoor Omnidirectional Antennas <ul style="list-style-type: none"> <li>• Direct mount</li> </ul>	JW009A
*	HPE Aruba Networking AP-ANT-13B 2.4/5GHz Dual Band 2.3dBi/4.0dBi Indoor Downtilt-Omni Antennas <ul style="list-style-type: none"> <li>• Direct, using pigtails</li> </ul>	JW001A
*	HPE Aruba Networking AP-ANT-19 2.4/5GHz Dual Band 3dBi/6dBi Ind/Out Omnidirectional Antennas <ul style="list-style-type: none"> <li>• Direct, using pigtails</li> </ul>	JW004A
*	HPE Aruba Networking AP-ANT-20W 2.4/5GHz Dual Band 2dBi/2dBi Indoor Compact Omnidirectional Antennas <ul style="list-style-type: none"> <li>• Direct mount</li> </ul>	JW011A
	HPE Aruba Networking AP-ANT-40 2.4/5GHz Dual Band 4dBi/4dBi Indoor 4x4 Downtilt-Omni Antennas <ul style="list-style-type: none"> <li>• Direct, using pigtails</li> </ul>	JW017A
	HPE Aruba Networking AP-ANT-45 Dual Band 90x90deg 5dBi 4 Element MIMO 4xRPSMA Pigtail Antennas <ul style="list-style-type: none"> <li>• Direct, using pigtails</li> </ul>	JW018A
	HPE Aruba Networking AP-ANT-48 Dual Band 60x60deg 8.5dBi 4 Element MIMO 4xRPSMA Pigtail Antennas <ul style="list-style-type: none"> <li>• Direct, using pigtails</li> </ul>	JW019A
*	HPE Aruba Networking AP-ANT-311 Direct-Mount RP-SMA Tri-Band 1x1 Omni Dipole Antenna	S1F79A

## Configuration Information

	<ul style="list-style-type: none"> <li>• Direct mount</li> </ul>	
*	HPE Aruba Networking AP-ANT-312 Direct-Mount RP-SMA Tri-Band 1x1 Low-Profile Omni Dipole Antenna	S1F80A
	<ul style="list-style-type: none"> <li>• Direct mount</li> </ul>	
*	HPE Aruba Networking AP-ANT-313 Cabled RP-SMA Tri-Band 1x1 Omni Dipole Antenna	S1F81A
	<ul style="list-style-type: none"> <li>• Direct, using pigtails</li> </ul>	
	HPE Aruba Networking AP-ANT-340 Cabled RP-SMA Tri-Band 4x4 Downtilt Omni Ceiling Antenna	S1F82A
	<ul style="list-style-type: none"> <li>• Direct, using pigtails</li> </ul>	
	HPE Aruba Networking AP-ANT-345 Cabled RP-SMA Tri-Band 4x4 Medium Gain Directional Panel Antenna	S1F83A
	<ul style="list-style-type: none"> <li>• Direct, using pigtails</li> </ul>	
	HPE Aruba Networking AP-ANT-348 Cabled RP-SMA Tri-Band 4x4 High Gain Directional Panel Antenna	S1F84A
	<ul style="list-style-type: none"> <li>• Direct, using pigtails</li> </ul>	

### Notes:

- \*Must select Qty 0 or Qty 4
- OCA Blue Notes:
  - o AP-ANT-1W, and AP-ANT-20W are usually direct connect to the chassis
  - o AP-ANT-45,AP-ANT-48 ship with hardware for flush mount to a flat surface
  - o AP-514 has 4x RPSMA female, concurrent dual-band connections

### Antenna Mount Kits

For HPE Aruba Networking 514 Series Std (Min 0 // max 1) User selection (min 0 // max 1)

Rule#	Description	SKU
1	HPE Aruba Networking AP-ANT-MNT-4 AZ/EL Adjustable Antennas Pole/Wall Mount Kit	JW021A
2	HPE Aruba Networking AP-ANT-MNT-5 AZ/EL Adjustable Antennas Pole/Wall Mount Kit	JW022A
3	HPE Aruba Networking AP-ANT-MNT-U Universal AZ/EL Adjustable Antenna Pole Wall Mount Kit	S1J09A

### Configuration Rules

Rule#	Description	SKU
1	Only compatible with JW019A	
2	Only compatible with JW018A	
3	AP-ANT-MNT-U compatible with AP-ANT-345 and AP-ANT-348	

## Power Options

For HPE Aruba Networking 514, 515 Series Std (Min 0 // max 1) User Selection (min 0 // max 1)

Remarks	Description	SKU
<b>Notes:</b>	<ul style="list-style-type: none"> <li>- If this Power Supply is selected, bring in (Min 1 // Max 1) Localized power cord based on the Aruba Localization Menu</li> <li>- Most devices are PoE powered from switch so these are optional.</li> </ul>	
	HPE Aruba Networking AP-POE-ATSR 1-Port Smart Rate 802.3at 30W Midspan Injector	R6P67A
	HPE Aruba Networking AP-AC2-12B 12V/48W AC/DC Desktop Style Power Adapter with 2.1/5.5mm Connector	R3K00A

## Accessories

For HPE Aruba Networking 515 Series Std (Min 0 // max 99) User Selection (min 0 // max 99)

### Snap-on Covers

HPE Aruba Networking AP-MNT-MP10-B1 Campus AP 10-Pack 15/16 Adj Flat Ceiling Rail Mount Bracket Kit	R6T34A
HPE Aruba Networking AP-515-CVR-20 20pk for AP-515 White Non-glossy Snap-On Covers	Q9H74A

**Notes:** Kit contains 20 optional Snap-On covers



## Configuration Information

### Other Accessories

For 514, 515 Series Std (Min 0 // max 99) User Selection (min 0 // max 99)

HPE Aruba Networking AP-MOD-SERU Micro-USB TTL3.3V to RJ45 RS232 AP Console Adapter Module	R6Q99A
AP-CBL-SERU Micro-USB TTL3.3V to USB2.0 AP Console Adapter Cable	JY728A
HPE Aruba Networking USB LTE Modem for Access Points and Gateways	R8F34A
HPE Aruba Networking USB Extender Cable Kit for use with Aruba USB LTE Modem	R8G76A

## Software

### HPE Aruba Networking Central

#### Cloud Services / Access Point Foundation Subscriptions

2, 8	HPE Aruba Networking Central AP Foundation 1 year Subscription E-STU	Q9Y58AAE
2, 8	HPE Aruba Networking Central AP Foundation 3 year Subscription E-STU	Q9Y59AAE
2, 8	HPE Aruba Networking Central AP Foundation 5 year Subscription E-STU	Q9Y60AAE
2, 8	HPE Aruba Networking Central AP Foundation 7 year Subscription E-STU	Q9Y61AAE
2, 8	HPE Aruba Networking Central AP Foundation 10 year Subscription E-STU	Q9Y62AAE

#### Cloud Services / Access Point Advanced Subscriptions

2, 8	HPE Aruba Networking Central AP Advanced 1 year Subscription E-STU	Q9Y63AAE
2, 8	HPE Aruba Networking Central AP Advanced 3 year Subscription E-STU	Q9Y64AAE
2, 8	HPE Aruba Networking Central AP Advanced 5 year Subscription E-STU	Q9Y65AAE
2, 8	HPE Aruba Networking Central AP Advanced 7 year Subscription E-STU	Q9Y66AAE
2, 8	HPE Aruba Networking Central AP Advanced 10 year Subscription E-STU	Q9Y67AAE

#### On-Prem Services / Access Point Foundation Subscriptions

3, 8	HPE Aruba Networking Central on Prem AP Foundation 1 year Subscription E-STU	R6U63AAE
3, 8	HPE Aruba Networking Central on Prem AP Foundation 3 year Subscription E-STU	R6U64AAE
3, 8	HPE Aruba Networking Central on Prem AP Foundation 5 year Subscription E-STU	R6U65AAE
3, 8	HPE Aruba Networking Central on Prem AP Foundation 7 year Subscription E-STU	R6U66AAE
3, 8	HPE Aruba Networking Central on Prem AP Foundation 10 year Subscription E-STU	R6U67AAE

#### FedRAMP Services / Access Point Advanced Subscriptions

6, 8	Aruba Central AP Advanced 1yr Subscription Government E-STU	R8K84AAE
6, 8	Aruba Central AP Advanced 3yr Subscription Government E-STU	R8K85AAE
6, 8	Aruba Central AP Advanced 5yr Subscription Government E-STU	R8K86AAE
6, 8	Aruba Central AP Advanced 7yr Subscription Government E-STU	R8K87AAE
6, 8	Aruba Central AP Advanced 10yr Subscription Government E-STU	R8K88AAE

### Configuration Rules

Rule #	Description	SKU
2	Add the HPE Aruba Networking Central Cloud SKUs to the HPE Aruba Catalog as Standalone: HPE Aruba > Network Management > HPE Aruba Networking Central > Cloud Services	
3	Add the HPE Aruba Networking Central On-Prem SKUs to the HPE Aruba Catalog as Standalone: HPE Aruba > Network Management > HPE Aruba Networking Central > On-Prem Services	
6	Add the HPE Aruba Networking Central FedRAMP Service SKUs to the HPE Aruba Catalog as Standalone: HPE Aruba > Network Management > HPE Aruba Networking Central > FedRAMP	
8	For OCA: When configuring the following AP 10-Pack, selection condition for this Subscription should be 0(default) or 10	
	HPE Aruba Networking AP-503 (RW) 10-Pack Dual Radio 2x2:2 Wi-Fi 6 Campus Access Point	S1E83A
	HPE Aruba Networking AP-503 (US) 10-Pack Dual Radio 2x2:2 Wi-Fi 6 Campus Access Point	S1E84A



## Configuration Information

### As-a-Service

#### Cloud Services / Access Point Foundation Subscriptions

7	HPE Aruba Networking Central AP Foundation 1 year Subscription SaaS	Q9Y58AAS
7	HPE Aruba Networking Central AP Foundation 3 year Subscription SaaS	Q9Y59AAS
7	HPE Aruba Networking Central AP Foundation 5 year Subscription SaaS	Q9Y60AAS
7	HPE Aruba Networking Central AP Foundation 7 year Subscription SaaS	Q9Y61AAS
7	HPE Aruba Networking Central AP Foundation 10 year Subscription SaaS	Q9Y62AAS

#### Cloud Services / Access Point Advanced Subscriptions

7	HPE Aruba Networking Central AP Advanced 1 year Subscription SaaS	Q9Y63AAS
7	HPE Aruba Networking Central AP Advanced 3 year Subscription SaaS	Q9Y64AAS
7	HPE Aruba Networking Central AP Advanced 5 year Subscription SaaS	Q9Y65AAS
7	HPE Aruba Networking Central AP Advanced 7 year Subscription SaaS	Q9Y66AAS
7	HPE Aruba Networking Central AP Advanced 10 year Subscription SaaS	Q9Y67AAS

#### Configuration Rules

Rule#	Description	SKU
7	<a href="#">For IRIS reference only. No action required for OCX and Clic</a>	



## Technical Specifications

### RF Performance Table

Band, Rate	Maximum Transmit Power (Dbm) Per Transmit Chain	Receiver Sensitivity (Dbm) Per Receive Chain
<b>2.4GHz, 802.11b</b>		
1Mbps	18	-96
11Mbps	18	-88
<b>2.4GHz, 802.11g</b>		
6Mbps	18	-93
54Mbps	17	-75
<b>2.4GHz, 802.11n HT20</b>		
MCS0	18	-93
MCS7	16	-75
<b>2.4GHz, 802.11ax HE20</b>		
MCS0	18	-92
MCS11	14	-62
<b>5GHz, 802.11a</b>		
6Mbps	18	-93
54Mbps	17	-75
<b>5GHz, 802.11n HT20</b>		
MCS0	18	-93
MCS7	16	-73
<b>5GHz, 802.11n HT40</b>		
MCS0	18	-90
MCS7	16	-70
<b>5GHz, 802.11ac VHT20</b>		
MCS0	18	-93
MCS9	16	-68
<b>5GHz, 802.11ac VHT40</b>		
MCS0	18	-90
MCS9	16	-65
<b>5GHz, 802.11ac VHT80</b>		
MCS0	18	-87
MCS9	16	-62
<b>5GHz, 802.11ac VHT160</b>		
MCS0	18	-84
MCS9	16	-59
<b>5GHz, 802.11ax HE20</b>		
MCS0	18	-90
MCS11	14	-60
<b>5GHz, 802.11ax HE40</b>		
MCS0	18	-87
MCS11	14	-57
<b>5GHz, 802.11ax HE80</b>		
MCS0	18	-84
MCS11	14	-54
<b>5GHz, 802.11ax HE160</b>		
MCS0	18	-81
MCS11	13	-51

## Technical Specifications

### Wi-Fi Radio Specifications

- AP type: Indoor, dual radio, 5GHz 802.11ax 4x4 MIMO and 2.4GHz 802.11ax 2x2 MIMO
- 5GHz radio:
  - Four spatial stream Single User (SU) MIMO for up to 4.8Gbps wireless data rate to individual 4SS HE160 802.11ax client devices (max)
  - Two spatial stream Single User (SU) MIMO for up to 1.2Gbps wireless data rate to individual 2SS HE80 802.11ax client devices (typical)
  - Four spatial stream Multi User (MU) MIMO for up to 4.8Gbps wireless data rate to up to four 1SS or two 2SS HE160 802.11ax DL-MU-MIMO capable client devices simultaneously (max)
  - Four spatial stream Multi User (MU) MIMO for up to 2.4Gbps wireless data rate to up to four 1SS or two 2SS HE80 802.11ax DL-MU-MIMO capable client devices simultaneously (typical)
- 2.4GHz radio:
  - Two spatial stream Single User (SU) MIMO for up to 575Mbps wireless data rate to individual 2SS HE40 802.11ax client devices or to two 1SS HE40 802.11ax DL-MU-MIMO capable client devices simultaneously (max)
  - Two spatial stream Single User (SU) MIMO for up to 287Mbps wireless data rate to individual 2SS HE20 802.11ax client devices or to two 1SS HE20 802.11ax DL-MU-MIMO capable client devices simultaneously (typical)
- Support for up to 256 associated client devices per radio, and up to 16 BSSIDs per radio
- 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
- Available channels: Dependent on configured regulatory domain
- Dynamic frequency selection (DFS) optimizes the use of available RF spectrum
- 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 16 resource units (for an 80MHz 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 (2.4GHz): 6.5 to 300 (MCS0 to MCS15, HT20 to HT40)
  - 802.11n (5GHz): 6.5 to 600 (MCS0 to MVC31, HT20 to HT40)
  - 802.11ac: 6.5 to 3,467 (MCS0 to MCS9, NSS = 1 to 4, VHT20 to VHT160)
  - 802.11ax (2.4GHz): 3.6 to 574 (MCS0 to MCS11, NSS = 1 to 2, HE20 to HE40)
  - 802.11ax (5GHz): 3.6 to 4,803 (MCS0 to MCS11, NSS = 1 to 4, 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):

## Technical Specifications

- 2.4 GHz band: +21 dBm (18dBm per chain)
- 5 GHz band: +24 dBm (18 dBm per chain)

**Notes:** Conducted transmit power levels exclude antenna gain. For total (EIRP) transmit power, add antenna gain.

- 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

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## Mechanical Specifications

- Dimensions/weight (AP-515; unit, excluding mount bracket):
  - 200mm (W) x 200mm (D) x 46mm (H) / 7.9" (W) x 7.9" (D) x 1.8" (H)
  - 810g / 28.5oz
- Dimensions/weight (AP-515; shipping):
  - 230mm (W) x 220mm (D) x 72mm (H) / 9.1" (W) x 8.7" (D) x 2.8" (H)
  - 1010 / 35.5oz

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## Wi-Fi Antennas

- AP-514: Four RP-SMA connectors for external dual band antennas (A0 through A3, corresponding with radio chains 0 through 3). Worst-case internal loss between radio interface and external antenna connectors (due to diplexing circuitry): 1.3dB in 2.4GHz and 1.7dB in 5GHz.
- AP-515: Four integrated dual-band downtilt omni-directional antennas for 4x4 MIMO with peak antenna gain of 4.2dBi in 2.4GHz and 7.5dBi in 5GHz. Built-in antennas are optimized for horizontal ceiling mounted orientation of the AP. The downtilt angle for maximum gain is roughly 30 degrees.
  - Combining the patterns of each of the antennas of the MIMO radios, the peak gain of the effective per-antenna pattern is 3.8dBi in 2.4GHz and 4.6dBi in 5GHz.

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## Additional Interfaces

- E0: HPE Smart Rate port (RJ-45, maximum negotiated speed 2.5Gbps)
  - 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/802.3at POE
- E1: 10/100/1000BASE-T Ethernet network interface (RJ-45)
  - Auto-sensing link speed and MDI/MDX
- Link aggregation (LACP) support between both network ports for redundancy and increased capacity
- 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
- Bluetooth Low Energy (BLE5.0) and Zigbee (802.15.4) radio
  - BLE: up to 8dBm transmit power (class 1) and -95dBm receive sensitivity
  - Zigbee: up to 8dBm transmit power and -97dBm receive sensitivity
  - Integrated vertically polarized omnidirectional antenna with roughly 30 degrees downtilt and peak gain of 3.5dBi (AP-515) or 4.9dBi (AP-514)
- Visual indicators (two multi-color 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



## Technical Specifications

### Reliability

Mean Time Between Failure (MTBF): 560,000hrs (64yrs) at +25C operating temperature.

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### Regulatory Model Numbers

- HPE Aruba Networking AP-514: APIN0514
  - HPE Aruba Networking AP-515: APIN0515
- 

### Power Sources and Power Consumption

- The AP supports direct DC power and Power over Ethernet (POE; on port E0)
  - When both power sources are available, DC power takes priority over POE
  - Power sources are sold separately; see the ordering Information section below for details
  - When powered by DC or 802.3at POE, the AP will operate without restrictions
  - When powered by 802.3af POE and with the IPM feature enabled, the AP will start up in unrestricted mode, but it may apply restrictions depending on the POE budget and actual power. What IPM restrictions to apply, and in what order, is programmable.
  - When powered by 802.3af POE with the IPM feature disabled, the AP operates in power-save mode, and will apply some fixed restrictions:
    - The USB interface and E1 Ethernet port are disabled
    - The 5GHz radio is restricted to 2x2 operation
  - Maximum (worst-case) power consumption:
    - DC powered: 17W
    - POE powered (802.3at): 20.8W
    - POE powered (802.3af): 13.5W
    - All numbers above 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 6.5W.
  - Maximum (worst-case) power consumption in idle mode: 11W (DC or POE)
  - Maximum (worst-case) power consumption in deep-sleep mode: 1W (DC or POE)
- 

### Environmental Specifications

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

### 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
- EN 60601-1-1, EN60601-1-2

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

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## Technical Specifications

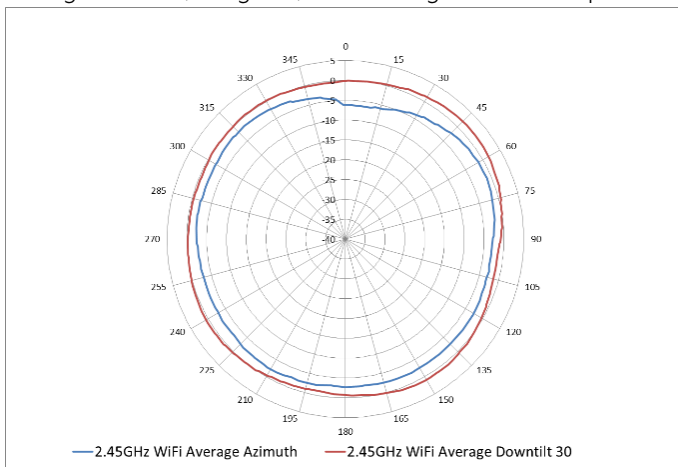
### Certifications

- UL2043 plenum rating
- Wi-Fi Alliance:
  - Wi-Fi certified a, b, g, n, ac
  - Wi-Fi certified ax
    - Notes:** May require software update. Certification effort will be kicked off as soon as the Wi-Fi Alliance starts the program.
  - WPA, WPA2 and WPA3 – Enterprise, Personal
  - WMM, WMM-PS, Wi-Fi Vantage, W-Fi Agile Multiband
  - Wi-Fi Location
    - Notes:** Not available initially; will require a software upgrade.
  - Passpoint (release 2)
- Bluetooth SIG
- Ethernet Alliance (POE, PD device, class 4)

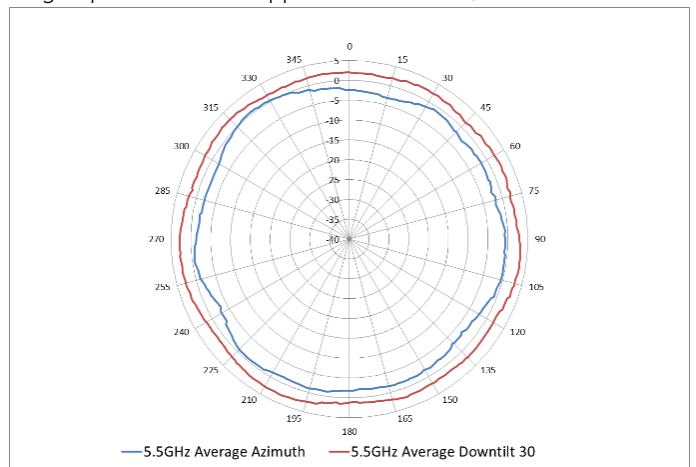
### Antenna Patterns

#### Horizontal Planes (Top View)

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



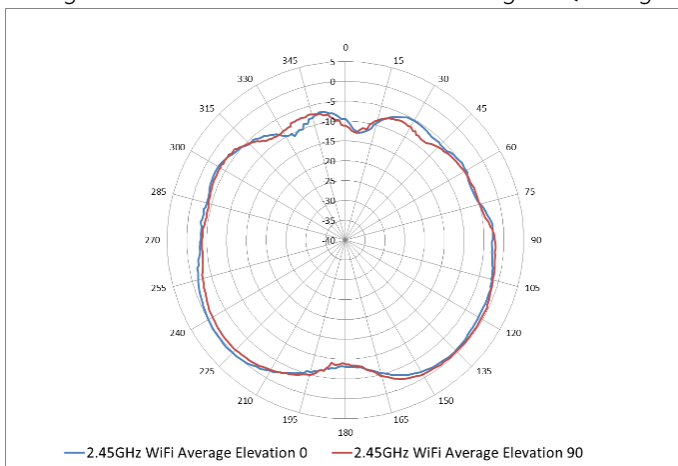
**2.45GHz Wi-Fi (antennas 1, 2)**



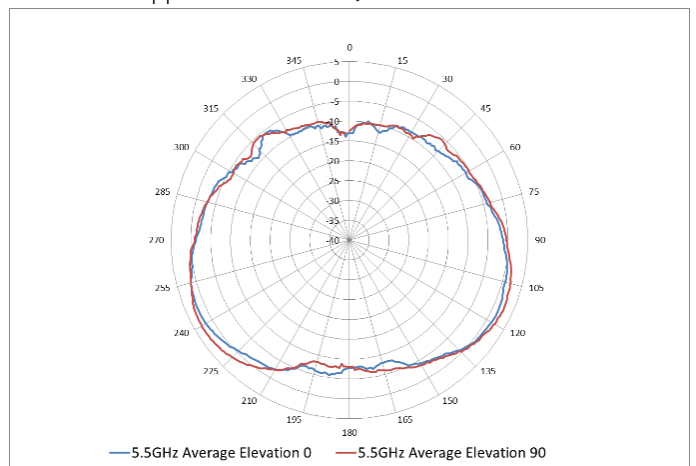
**5.5GHz Wi-Fi (antennas 1, 2, 3, 4)**

#### 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 1, 2)**



**5.5GHz Wi-Fi (antennas 1, 2, 3, 4)**



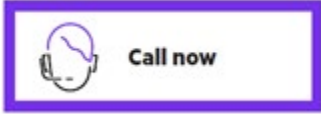
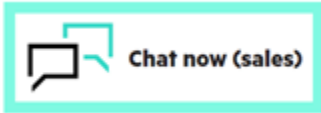
## Summary of Changes

Date	Version History	Action	Description of Change
01-Jul-2024	Version 13	Changed	Configuration Information section was updated
04-Dec-2023	Version 12	Changed	Series name was updated
05-Sep-2023	Version 11	Changed	Configuration Information section was updated
07-Aug-2023	Version 10	Changed	Configuration Information section was updated
01-May-2023	Version 9	Changed	Configuration Information section was updated, new SKU was added.
05-Jul-2022	Version 8	Changed	Configuration Information section was updated.
15-Mar-2021	Version 7	Changed	SKUs were added in Configuration Information section.
08-Sep-2020	Version 6	Changed	Configuration Information section was updated New SKUS were added
04-Nov-2019	Version 5	Changed	Configuration Information section was updated New SKUS were added
07-Oct-2019	Version 4	Changed	Overview, Standard Features and Configuration Information sections were updated New SKUS were added
03-Jun-2019	Version 3	Changed	Configuration and Accessories sections were updated. New SKUs were added.
18-Feb-2019	Version 2	Changed	Minor change made on Technical Specifications
13-Nov-2018	Version 1	New	New QuickSpecs



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