Overview

Aruba 500H Series Unified Hospitality Access

High-performance and cost-effective Wi-Fi 6 (802.11ax) for hospitality, branch, and teleworker deployments

These economical Wi-Fi 6 access points provide high-performance connectivity for any organization experiencing growing mobile, cloud and IoT requirements. With a wireless aggregate data rate of up 1.5 Gbps and gigabit local wired ports, they deliver the range of connectivity options needed for venues such as hotels, residence halls, and remote offices alike.

Aruba 500H Series Unified Hospitality Access

Standard Features

Key Features

- Combine wireless and wired access in a single compact form-factor
- Up to 1.5 Gbps of maximum wireless throughput
- Up to 4 wired network ports and 1 Smart Rate uplink port
- 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

Incredible Efficiency

The 500H Series APs are 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), multi-user MIMO and cellular optimization. With up to 4 spatial streams (4SS) and 80MHz channel bandwidth, the 500H Series provides groundbreaking wireless capabilities for budget-conscious deployments.

Read the Multi-User 802.11ax white paper for further information.

Advantages of OFDMA

This capability allows Aruba'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.

Aruba Air Slice for Extended OFDMA Assurance

APs in controller-less mode (Instant) can provide SLA-grade performance by allocating RUs to specific traffic types. By combining Aruba'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. Air Slice for APs in controller mode will be supported in a future software release. Learn more in the technical brief.

Multi-user MIMO (MU-MIMO)

Similar to downlink MU-MIMO in Wi-Fi 5 (802.11ac Wave 2), the 500H Series can simultaneously connect clients using 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.

Wi-Fi 6 and MU-MIMO aware client optimization

Aruba'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.

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.

Intelligent Power Monitoring (IPM)

Aruba 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.

Green AP energy efficiency

Aruba Wi-Fi 6 APs can use analytics from Aruba Central to automatically transition in and out of a sleep mode based on client density.

Standard Features

IoT Platform Capabilties
Like all Aruba Wi-Fi 6 APs, the 500H 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 500H Series as an IoT platform, which eliminates the need for an overlay infrastructure and additional IT resources.

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.

Advanced IoT Coexistence (AIC)
This features uses built-in filtering to automatically minimize the impact of interference from IoT wireless radios like Bluetooth and Zigbee.

Aruba Secure Infrastructure
The Aruba 500H Series includes components of Aruba's 360 Secure Fabric to help protect user authentication and wireless traffic.

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 requires ClearPass Policy Manager.

VPN Tunnels
In Remote AP (RAP) and IAP-VPN deployments, the Aruba 500H 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 Aruba APs have an installed TPM for secure storage of credentials, keys, and boot code.

Simple and Secure Access
To simplify policy enforcement, the Aruba 500H Series uses Aruba's Policy Enforcement Rirewall (PEF) 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 Aruba Dynamic Segmentation.

High-Density Connectivity
Each 500H Series AP provides connectivity for a maximum of 256 associated clients per radio (512 in total). In real-world scenarios, the maximum recommended client density is dependent on environmental conditions.

Versatile Installation Options
The APs can be deployed as a wall-mount or, for remote teleworker environments, they can be converted to a desk-mount by using an optional accessory stand.

Flexible Operation and Management
A unique feature of Aruba APs is the ability to operate in either controller-less (Instant) or controller-based mode.

Controller-less (Instant) mode
In controller-less mode, one AP serves as a virtual controller for the entire network. Learn more about Instant mode in this technology brief.

Standard Features

Mobility Controller mode

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 ArubaOS datasheet.

Management options

Available management solutions include Aruba Central (cloud-managed) or Aruba 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 Aruba Central or AirWave. This reduces deployment time, centralizes configuration, and helps manage inventory.

Additional Wi-Fi Features

Each AP also includes the following standards-based technologies:

- Advanced Cellular Coexistence (ACC) minimizes the impact of interference from cellular networks
- Advanced IOT Coexistence (AIC) allows concurrent operation of multiple radios in the 2.4GHz band
- 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

Configuration Information

Build To Order: BTO is a standalone unit with no integration. BTO products ship standalone are not part of a CTO or Rack-Shippable solution.

BTO Models

505H

Notes: Add Mount Kit (not included)

Remarks	Description	SKU
	Aruba AP-505H (EG) Dual-radio 802.11ax 2x2 Unified Hospitality AP with 1+4 Ethernet PSE USB	R3V54A
	Aruba AP-505H (IL) Dual-radio 802.11ax 2x2 Unified Hospitality AP with 1+4 Ethernet PSE USB	R3V52A
	Aruba AP-505H (JP) Dual-radio 802.11ax 2x2 Unified Hospitality AP with 1+4 Ethernet PSE USB	R3V50A
	Aruba AP-505H (RW) Dual-radio 802.11ax 2x2 Unified Hospitality AP with 1+4 Ethernet PSE USB	R3V46A
	Aruba AP-505H (US) Dual-radio 802.11ax 2x2 Unified Hospitality AP with 1+4 Ethernet PSE USB	R3V48A

505H TAA

Notes: Add Mount Kit (not included)

	Aruba AP-505H (EG) TAA Dual-radio 802.11ax 2x2 Unified Hospitality AP with 1+4 Ethernet PSE USB	R3V55A
	Aruba AP-505H (IL) TAA Dual-radio 802.11ax 2x2 Unified Hospitality AP with 1+4 Ethernet PSE USB	R3V53A
	Aruba AP-505H (JP) TAA Dual-radio 802.11ax 2x2 Unified Hospitality AP with 1+4 Ethernet PSE USB	R3V51A
	Aruba AP-505H (RW) TAA Dual-radio 802.11ax 2x2 Unified Hospitality AP with 1+4 Ethernet PSE USB	R3V47A
	Aruba AP-505H (US) TAA Dual-radio 802.11ax 2x2 Unified Hospitality AP with 1+4 Ethernet PSE USB	R3V49A

Notes: OCA Only Model Selection Form -
Aruba > Wireless > Access Points > Hospitality / Remote:
Aruba 500H Series Unified Hospitality Access Points

Mount Accessories

AP Mount Kits

Remarks	Description	SKU
	AP-500H-MNT1 Kit with Single-gang Wall-box Mount Adapter for 500H Series AP	R3V58A
Notes:	For wall and (wiring) wall-box	
	AP-505H-MNT2 Kit with Dual-gang Wall-box Mount Adapter for AP-505H	R3V59A
Notes:	For wall and (wiring) wall-box	
	AP-500H-MNTD Kit with Desk Mount Adapter for 500H Series AP	R3V60A
Notes:	For desk	

Power Options

Power Options

Notes: If this Power Supply is selected, bring in (Min 1 // Max 1) Localized power cord based on the Aruba Localization Menu.
Most devices are PoE powered from switch so these are optional

Remarks	Description	SKU
	AP-AC2-48C 48V/50W AC/DC desktop style power adapter with type C connector	R3K01A
Notes:	Add AC power cord, Unrestricted	
	Aruba PD-3510G-AC 15.4W 802.3af PoE 10/100/1000Base-T Ethernet Midspan Injector	JW627A
Notes:	Add AC power cord, limited power budget	
	Aruba PD-9001GR-AC 30W 802.3at PoE+ 10/100/1000 Ethernet Indoor Rated Midspan Injector	JW629A
Notes:	Add AC power cord, limited power budget	
	AP-POE-BTSR 1-Port Smart Rate 802.3bt 60W midspan injector	R1C73A
Notes:	Add AC power cord, Unrestricted	

Configuration Information

Accessories

	Other Accessories	
Remarks	**Description**	**SKU**
	AP-CBL-SERU Micro-USB TTL3.3V to USB2.0 AP Console Adapter Cable	JY728A
Notes:	Drivers available on the Aruba Support Center	

Technical Specifications

WI-FI Radio Specifications

- AP type: High-end dual radio Wi-Fi 6 Hospitality AP with 1+4 Ethernet ports

5 GHz:

- Two spatial stream (SU/MU) MIMO for up to 1.2Gbps wireless data rate

2.4 GHz:

- Two spatial stream (SU/MU) MIMO for up to 287Mbps wireless data rate
- Note: HE40 operation is supported in 2.4GHz, but uncommon and not recommended for enterprise deployments
- 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 2.500GHz (ISM), channels 1-13
    - 5.150 to 5.250GHz (U-NII-1), channels 36, 40, 44, 48
    - 5.250 to 5.350GHz (U-NII-2A), channels 52, 56, 60, 64
    - 5.470 to 5.725GHz (U-NII-2C), channels 100, 104, 108, 112, 116, 120, 124, 128, 132, 136, 140, 144
    - 5.725 to 5.850GHz (U-NII-3), channels 149, 153, 157, 161, 165
    - 5.850 to 5.925GHz (U-NII-4), channels 169, 173, 177
- 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 8 resource units (RU)
- 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: HT 20/40
- 802.11ac very high throughput (VHT) support: VHT 20/40/80
- 802.11ax high efficiency (HE) support: HE20/40/80
- 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
    - 802.11ac: 6.5 to 867 (MCS0 to MCS9, NSS = 1 to 2 for VHT20 to VHT160), 1,083 with 1024-QAM
    - 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 4, HE20 to HE80)
- 802.11n/ac packet aggregation: A-MPDU, A-MSDU
- Transmit power: Configurable in increments of 0.5 dBm
- Maximum (aggregated, conducted total) transmit power (limited by local regulatory requirements):
    - 2.4 GHz band: +21 dBm (18 dBm per chain)
    - 5 GHz band: +21 dBm (18 dBm per chain)
    - Note: conducted transmit power levels exclude antenna gain
- Minimum configurable transmit power level: 0dBm (conducted, per chain)

Wi-Fi Antennas

- Two integrated semi-directional antennas for 2x2 MIMO with peak antenna gain of 6.3dBi in 2.4GHz and 5.4dBi in 5GHz. Built-in antennas are optimized for vertical wall or desk mounted orientation of the AP.
- Combining the patterns of each of the antennas of the MIMO radios, the peak gain of the combined, average pattern is 3.3dBi in 2.4GHz and 2.9dBi in 5GHz.

Technical Specifications

Additional interfaces

- E0: HPE SmartRate port (RJ-45)
  - Auto-sensing link speed (100/1000/2500BASE-T) and MDI/MDX
  - 2.5Gbps speed complies with NBase-T and 802.3bz specifications
  - 802.3az Energy Efficient Ethernet (EEE)
- E1-4: 10/100/1000BASE-T (RJ-45)
  - Auto-sensing link speed and MDI/MDX
  - 802.3az Energy Efficient Ethernet (EEE)
- E1-2: POE-PSE, 48Vdc (nominal) 802.3af/at POE output (max 30W combined)
- DC power interface: 48Vdc (nominal, +/- 5%), accepts 1.35mm/3.5mm center-positive circular plug with 9.5mm length
- Bluetooth Low Energy (BLE5.0) and Zigbee (802.15.4) radio
  - BLE: up to 7dBm transmit power (class 1) and -100dBm receive sensitivity (125kbps)
  - Zigbee: up to 7dBm transmit power and -98dBm receive sensitivity (250kbps)
  - Integrated semi-directional antenna with peak gain of 1.2dBi
- USB 2.0 (Type A):
  - Cellular modems
  - IOT or other plug-in accessories
  - Device battery charging port
  - Capable of sourcing up to 1A / 5W to an attached device
- Visual indicators (2 multi-color LEDs):
  - Power/System status
  - Radio status
  - Local network port status (4x)
  - POE-PSE status (2x)
- Serial console interface: proprietary, micro-B USB physical jack
- Security slot: Kensington security slot

Power

- Supports direct DC power and Power over Ethernet (PoE)
- When both DC and PoE power sources are available, DC power takes priority over PoE
- Power sources are sold separately; see the 500H Series Ordering Guide for details
- When powered by DC or 802.3bt (class 6) PoE, the AP will operate without restrictions.
- When powered by 802.3at (class 4) PoE and with the IPM feature disabled, the AP will disable the USB port (only) if PoE-PSE is enabled and limit PoE-PSE power to 12.5W. In the same configuration but with IPM enabled, the AP will (only) limit PoE-PSE power to 15.4W (802.3af class 3), but may dynamically apply additional restrictions depending on the PoE budget and actual power. The feature restrictions and order can be programmed.
- Maximum (worst-case) power consumption (without USB or PSE / max):
  - DC powered: 12W / 50W
  - PoE powered (802.3bt): 12W / 50W
  - PoE powered (802.3at): 12W / 25.5W
  - PoE powered (802.3af): 12W / 13.5W
- Maximum (worst-case) power consumption in idle mode: 6W (DC) or 6W (PoE)
- Maximum (worst-case) power consumption in deep-sleep mode: 3W (DC) or 3W (PoE)

Mounting

- Optional mounting kits: Using one of the (separate orderable) mount kits, the AP can be attached to a single or dual gang wall-box, directly to a wall, or desk mounted. See the 500H Series Ordering Guide for details.

Technical Specifications

Dimensions and weight

- Unit by itself:
  - 86 (W) x 47 (D) x 150 mm (H) / 3.4 (W) x 1.9 (D) x 5.9 in (H)
  - 360 gm / 0.8 lb
- Unit in shipping box:
  - 111 (W) x 54 (D) x 167 mm (H) / 4.4 (W) x 2.1 (D) x 6.6 in (H)
  - 450 gm / 1.0 lb

Environmental

- Operating:
  - Temperature: -0° C to +40° C (+32° F to +104° F)
  - Humidity: 5% to 93% non-condensing
  - ETS 300 019 class 3.2 environments
- Storage and transportation:
  - Temperature: -40° C to +70° C (-40° F to +158° F)
  - Humidity: 5% to 93% non-condensing
  - ETS 300 019 classes 1.2 and 2.3 environments

Regulatory

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

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

Regulatory Model Numbers

- APINH505

Certifications

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

Warranty

- Limited lifetime warranty

Minimum Operating System Software

- ArubaOS and Aruba InstantOS 8.7.0.0

Technical Specifications

RF Performance Table

	Maximum transmit power (dBm) per transmit chain	Receiver sensitivity (dBm) per receive chain
2.4GHz, 802.11b		
1Mbps	18	-98
11Mbps	18	-90
2.4GHz, 802.11g		
6Mbps	18	-93
54Mbps	18	-76
2.4GHz, 802.11n HT20		
MCS0	18	-93
MCS7	16	-75
2.4GHz, 802.11ax HE20		
MCS0	18	-93
MCS11	14	-62
5GHz, 802.11a		
6Mbps	18	-92
54Mbps	18	-75
5GHz, 802.11n HT20		
MCS0	18	-92
MCS7	16	-74
5GHz, 802.11n HT40		
MCS0	18	-90
MCS7	16	-71
5GHz, 802.11ac VHT20		
MCS0	18	-90
MCS9	16	-69
5GHz, 802.11ac VHT40		
MCS0	18	-90
MCS9	16	-65
5GHz, 802.11ac VHT80		
MCS0	18	-87
MCS9	16	-62
5GHz, 802.11ax HE20		
MCS0	18	-93
MCS11	14	-62
5GHz, 802.11ax HE40		
MCS0	18	-90
MCS11	14	-59
5GHz, 802.11ax HE80		
MCS0	18	-87
MCS11	14	-56

Notes: Table shows the maximum capability of the hardware provided (excluding antenna gain). Maximum transmit power is limited by local regulatory settings.

Summary of Changes

Date	Version History	Action	Description of Change
04-May-2020	Version 1	New	New QuickSpecs

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