DATA SHEET

ARUBA 500H SERIES HOSPITALITY ACCESS POINTS

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 to 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.

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 2 spatial streams (2SS) 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.

KEY FEATURES

- Combine wireless and wired access in a single compact form factor
- Ideal for organizations with work from home or teleworker initiatives
- Up to 1.5 Gbps of maximum wireless throughput
- 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

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.

IOT PLATFORM CAPABILITIES

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 feature uses built-in filtering to allow Wi-Fi and BLE/Zigbee radios to operate at maximum capacity without the impact of interference.

ARUBA SECURE INFRASTRUCTURE

The Aruba 500H Series includes 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 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 Gateway or 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 credentials, keys and boot code.

SIMPLE AND SECURE ACCESS

To simplify policy enforcement, the Aruba 500H Series uses Aruba's Policy Enforcement Firewall (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.

Remote AP or IAP-VPN mode

For both cloud and on-premises deployments, each AP can establish secure overlay VPN tunnels to a VPN Concentrator (VPNC). Aruba Central-managed SD-WAN Gateways and on-premises Mobility Controllers both support VPNC functionality.

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

Access point with optional stand shown

TECHNICAL SPECIFICATIONS

Model	AP-505H
AP type	High-end dual radio Wi-Fi 6 Hospitality AP with 1+4 Ethernet ports
5GHz radio	Two spatial stream (SU/MU) MIMO for up to 1.2Gbps wireless data rate (HE80)
2.4GHz radio	Two spatial stream (SU/MU) MIMO for up to 287Mbps wireless data rate (HE20) Note: HE40 operation is supported in 2.4GHz, but uncommon and not recommended for enterprise deployments
Maximum number of associated client devices	Up to 256 associated client devices per radio
Maximum number of BSSIDs	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
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
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
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, VHT20 to VHT80), 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 2, HE20 to HE80)
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):	• 2.4 GHz band: +20 dBm (17 dBm per chain) • 5 GHz band: +21 dBm (18 dBm per chain) • Note: conducted transmit power levels exclude antenna gain. For total (EIRP) transmit power, add antenna gain
Minimum configurable transmit power level	0dBm (conducted, per chain)

- 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
- VPN IPsec throughput performance: 500Mbps or better

WI-FI ANTENNAS

- Two integrated semi-directional antennas for 2x2 MIMO with peak single antenna gain of 5.2dBi 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.

OTHER INTERFACES

Model	AP-505H
Uplink (E0): Smart Rate Ethernet wired network port (RJ45)	• 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) • POE-PD: 48Vdc (nominal) 802.3af/at/bt POE (class 3, 4 or 6)
Local (E1-E4): Four Ethernet wired network ports (RJ45)	• Auto-sensing link speed (10/100/1000BASE-T) and MDI/MDX • 802.3az Energy Efficient Ethernet (EEE) • E1 & E2: POE-PSE: 802.3af/at POE output; dual 802.3af (both ports) or single 802.3at (E1 only)
DC power interface	• 48Vdc (nominal, +/- 5%), accepts 1.35mm/3.5mm center-positive circular plug with 9.5mm length
USB 2.0 host interface (Type A connector)	• Cellular modems • IOT or other plug-in accessories • Device battery charging port • 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 7dBm transmit power (class 1) and -100dBm receive sensitivity (125kbps) • Zigbee: up to 7dBm transmit power and -97dBm receive sensitivity (250kbps) • Integrated semi-directional antenna with peak gain of 1.3dBi
Visual indictors (two multi-color LEDs):	• Power/System status • Radio status • Local network port status (4x) • POE-PSE status (2x)
Reset button:	Factory reset, LED mode control (normal/off)
Serial console interface	Proprietary, micro-B USB physical jack

POWER SOURCES AND POWER CONSUMPTION

Model	AP-505H
Power Sources: The AP supports direct DC power and Power over Ethernet	• The AP supports direct DC power and Power over Ethernet • 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 support (802.3af) POE-PSE power on E1 only (no PSE on E2) • When powered by 802.3af (class 3) POE with the IPM feature disabled, the AP will disable the USB port and POE-PSE capability • With IPM enabled, the AP will start up without restrictions, but may dynamically apply additional restrictions depending on the POE budget and actual power consumption. The feature specific restrictions and order in which they are applied can be configured
Maximum (worst-case) power consumption (without USB or PSE / max):	• DC powered: 14W / 50W • POE powered (802.3bt): 14W / 51W • POE powered (802.3at): 14W / 25.5W • POE powered (802.3af): 13.5W / 13.5W
Maximum (worst-case) power consumption in idle mode (without USB or PSE)	6.2W
Maximum (worst-case) power consumption in deep-sleep mode (without USB or PSE)	3.5W

MECHANICAL SPECIFICATIONS

Model	AP-505H
Dimensions/weight (AP-505; unit, excluding mount bracket):	• 86mm (W) x 47mm (D) x 150mm (H) • 360g
Dimensions/weight (AP-505; shipping):	• 111mm (W) x 54mm (D) x 167mm (H) • 450g
Mounting details	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.

ENVIRONMENTAL SPECIFICATIONS

Model	AP-505H
Operating conditions	• Temperature: 0C to +40C / +32F to +104F • Humidity: 5% to 93% non-condensing • 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

RELIABILITY	
Model	**AP-505H**
Mean Time Between Failure (MTBF):	780khrs (88yrs) at +25C operating temperature.

REGULATORY AND SAFETY COMPLIANCE	
Model	**AP-505H**
Regulatory model numbers	• APINH505
Minimum Software Release	• ArubaOS and Aruba InstantOS 8.7.0.0
Regulatory compliance (For more country-specific regulatory information and approvals, please see your Aruba representative.)	• 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
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)

For more and country-specific regulatory information and approvals, please see your Aruba representative.
Aruba's hardware limited lifetime warranty.

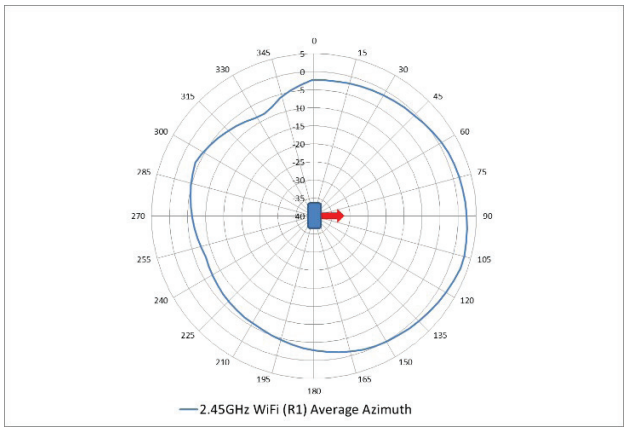
RF PERFORMANCE TABLE

	Maximum transmit power (dBm) per transmit chain	Receiver sensitivity (dBm) per receive chain
2.4GHz, 802.11b		
1Mbps	17	-94
11Mbps	17	-86
2.4GHz, 802.11g		
6Mbps	17	-89
54Mbps	17	-73
2.4GHz, 802.11n HT20		
MCS0	17	-89
MCS7	15	-69
2.4GHz, 802.11ax HE20		
MCS0	17	-89
MCS11	11	-60
5GHz, 802.11a		
6Mbps	18	-92
54Mbps	18	-74
5GHz, 802.11n HT20		
MCS0	18	-91
MCS7	16	-71
5GHz, 802.11n HT40		
MCS0	18	-88
MCS7	16	-78
5GHz, 802.11ac VHT20		
MCS0	18	-91
MCS9	14	-67
5GHz, 802.11ac VHT40		
MCS0	18	-90
MCS9	14	-64
5GHz, 802.11ac VHT80		
MCS0	18	-86
MCS9	14	-63
5GHz, 802.11ax HE20		
MCS0	18	-91
MCS11	12	-62
5GHz, 802.11ax HE40		
MCS0	18	-90
MCS11	12	-59
5GHz, 802.11ax HE80		
MCS0	18	-87
MCS11	12	-56

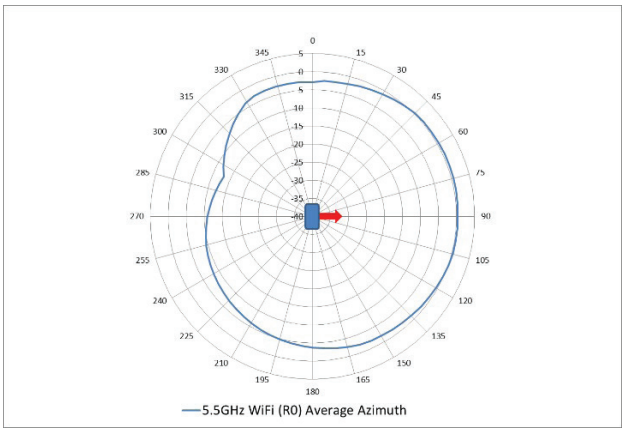
ANTENNA PATTERNS

Horizontal or azimuth plane (looking at the top of the AP, front facing to the right)

(averaged patterns for all applicable antennas)



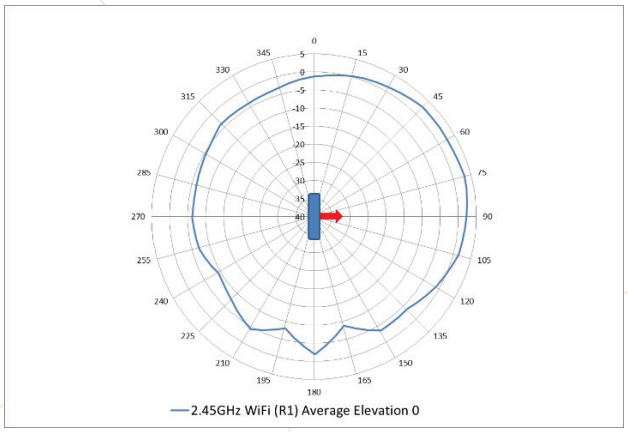
2.45GHz Wi-Fi (antennas 0, 1)



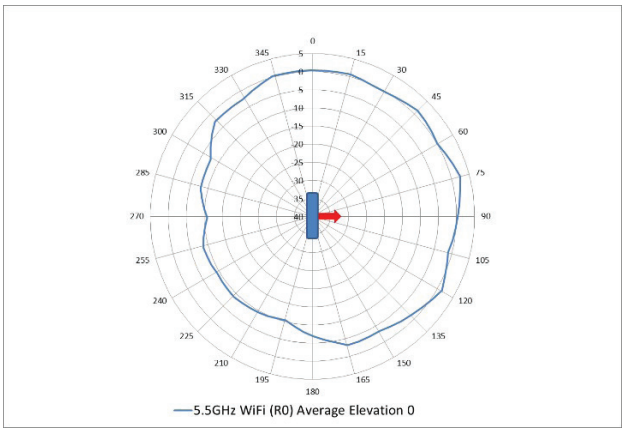
5.5GHz Wi-Fi (antennas 0, 1)

Vertical (elevation) plane 0 (looking at the side of the AP, front facing to the right)

(averaged patterns for all applicable antennas)



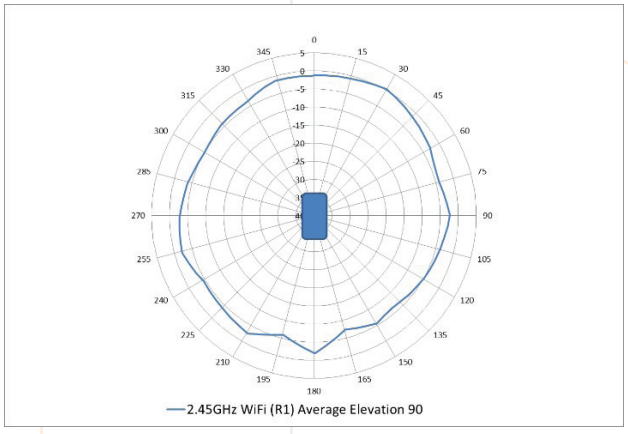
2.45GHz Wi-Fi (antennas 0, 1)



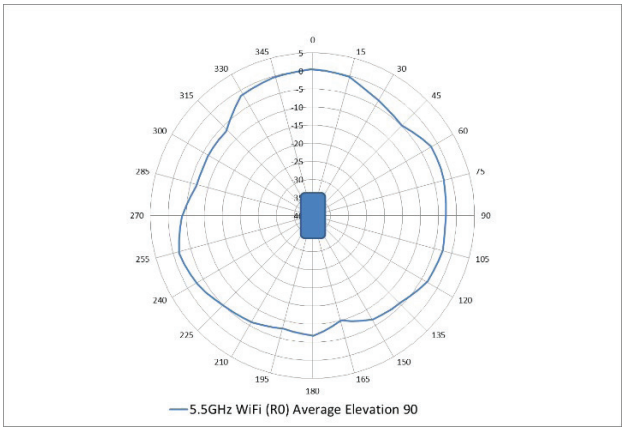
5.5GHz Wi-Fi (antennas 0, 1)

Vertical (elevation) plane 90 (looking at the front of the AP)

(averaged patterns for all applicable antennas)



2.45GHz Wi-Fi (antennas 0, 1)



5.5GHz Wi-Fi (antennas 0, 1)

ORDERING INFORMATION

Part Number	Description
Aruba 500H Series Hospitality Access Points	
AP-505H access points	
R3V54A	Aruba AP-505H (EG) Dual-radio 802.11ax 2x2 Unified Hospitality AP with 1+4 Ethernet, PSE, USB
R3V52A	Aruba AP-505H (IL) Dual-radio 802.11ax 2x2 Unified Hospitality AP with 1+4 Ethernet, PSE, USB
R3V50A	Aruba AP-505H (JP) Dual-radio 802.11ax 2x2 Unified Hospitality AP with 1+4 Ethernet, PSE, USB
R3V46A	Aruba AP-505H (RW) Dual-radio 802.11ax 2x2 Unified Hospitality AP with 1+4 Ethernet, PSE, USB
R3V48A	Aruba AP-505H (US) Dual-radio 802.11ax 2x2 Unified Hospitality AP with 1+4 Ethernet, PSE, USB
AP-505H access points – TAA models	
R3V55A	Aruba AP-505H (EG) TAA Dual-radio 802.11ax 2x2 Unified Hospitality AP with 1+4 Ethernet, PSE, USB
R3V53A	Aruba AP-505H (IL) TAA Dual-radio 802.11ax 2x2 Unified Hospitality AP with 1+4 Ethernet, PSE, USB
R3V51A	Aruba AP-505H (JP) TAA Dual-radio 802.11ax 2x2 Unified Hospitality AP with 1+4 Ethernet, PSE, USB
R3V47A	Aruba AP-505H (RW) TAA Dual-radio 802.11ax 2x2 Unified Hospitality AP with 1+4 Ethernet, PSE, USB
R3V49A	Aruba AP-505H (US) TAA Dual-radio 802.11ax 2x2 Unified Hospitality AP with 1+4 Ethernet, PSE, USB

For compatible accessories and spares, see the 500H Series Ordering Guide.

DS_Aruba500HSeries_SK_061120 a00096366enw