

## DATA SHEET

# ARUBA 110 SERIES ACCESS POINTS

Optimize client performance in high-density Wi-Fi environments

Multifunctional and affordable 110 series wireless access points (APs) maximize mobile device performance in high-density Wi-Fi environments while minimizing interference from LTE cellular networks.

These high-performance 802.11n APs deliver wireless data rates up to 450 Mbps per radio and employ three spatial streams to support 50% more throughput and mobile devices than previous-generation APs.

The AP-115 and IAP-115 APs feature a 2.4-GHz and a 5-GHz radio, each with 3x3:3 MIMO and three integrated omnidirectional downtilt antennas. The AP-114 and IAP-114 models feature the same radios with three combined and diplexed external antenna connectors.

### ADVANCED CELLULAR COEXISTENCE (ACC)

The 110 series Advanced Cellular Coexistence (ACC) feature enables Aruba WLANs to perform at peak efficiency by minimizing interference from 3G/4G LTE networks, distributed antenna systems and commercial small-cell/femtocell equipment.

### WI-FI CLIENT OPTIMIZATION

To eliminate sticky client behavior while users roam, the 110 series features patented ClientMatch™ technology, which continuously gathers session performance metrics from mobile devices.

If a mobile device moves out of range of an AP or if RF interference impedes performance, ClientMatch automatically steers the device to a better AP.



### BEST-IN-CLASS RF MANAGEMENT

All Aruba APs include Adaptive Radio Management™ technology, which is essential to creating the most reliable, high-performance WLANs. ARM™ manages the 2.4-GHz and 5-GHz radio bands to optimize Wi-Fi client performance and ensures that Aps stay clear of RF interference.

The 110 series can be configured to provide part-time or dedicated air monitoring for spectrum analysis and wireless intrusion protection, VPN tunnels to extend remote locations to corporate resources, and wireless mesh connections where Ethernet drops are not available.

### CHOOSE YOUR OPERATING MODE

The 110 series of APs offers a choice of operating modes to meet your unique management and deployment requirements.

- **Controller-managed mode.** When managed by Aruba Mobility Controllers, 110 series APs offer centralized configuration, data encryption, policy enforcement and network services, as well as distributed and centralized traffic forwarding. Please refer to the Aruba [Mobility Controller](#) data sheets for more details.
- **Aruba Instant™ mode.** In Aruba Instant mode, a single AP automatically distributes the network configuration to other Instant APs in the WLAN. Simply power-up one Instant AP, configure it over the air, and plug in the other APs – the entire process takes about five minutes.

For large installations across multiple sites, the Aruba Activate™ service significantly reduces deployment time by automating device provisioning, firmware upgrades, and inventory management. With Aruba Activate, Instant APs are factory-shipped to any site and configure themselves when powered up.

If WLAN and network requirements change, a built-in migration path allows 110 series Instant APs to become part of a WLAN that is centrally managed by a Mobility Controller.

### OPERATING MODES

- 802.11a/b/g/n controllerless Aruba Instant AP
- 802.11a/b/g/n Mobility Controller-managed AP
- Remote AP (RAP)
- Spectrum analysis identifies sources of RF interference
- Air monitor provides wireless intrusion protection
- Hybrid AP serves Wi-Fi clients and provides wireless intrusion protection and spectrum analysis
- Secure enterprise mesh

### SECURITY

- With an **OpenDNS** service subscription, Aruba Instant RAPs deliver integrated web filtering, malware and botnet protection to every device connected to the WLAN
- Integrated Trusted Platform Module (TPM) for secure storage of credentials and keys
- SecureJack-capable for secure tunneling of wired Ethernet traffic

### WIRELESS RADIO SPECIFICATIONS

- AP type: Indoor, dual radio, 5-GHz and 2.4-GHz 802.11n 3x3:3
- Software-configurable dual radio supports 5-GHz (Radio 0) and 2.4-GHz (Radio 1)
- 3x3 MIMO with three spatial streams and up to 450 Mbps wireless data rate
- Supported frequency bands (country-specific restrictions apply):
  - 2.4000 to 2.4835 GHz
  - 5.150 to 5.250 GHz
  - 5.250 to 5.350 GHz
  - 5.470 to 5.725 GHz
  - 5.725 to 5.850 GHz
- 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: Orthogonal frequency-division multiplexing (OFDM)
- Supported modulation types:
  - 802.11b: BPSK, QPSK, CCK
  - 802.11a/g/n: BPSK, QPSK, 16-QAM, 64-QAM
- Transmit power: Configurable in increments of 0.5 dBm
- Maximum (aggregate, conducted total) transmit power (limited by local regulatory requirements):
  - 2.4-GHz band: +28 dBm (23 dBm per chain)
  - 5-GHz band: +25 dBm (20 dBm per chain)
- Advanced Cellular Coexistence (ACC) minimizes interference from LTE cellular networks
- Maximum ratio combining (MRC) for improved receiver performance
- Cyclic delay/shift diversity (CDD/CSD) for improved downlink RF performance
- Short guard interval for 20-MHz and 40-MHz channels
- Space-time block coding (STBC) for increased range and improved reception
- Low-density parity check (LDPC) for high-efficiency error correction and increased throughput
- 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 450 (MCS0 to MCS23)
- 802.11n high-throughput (HT) support: HT 20/40
- 802.11n packet aggregation: A-MPDU, A-MSDU

### POWER

- Maximum power consumption: 13 watts, plus up to 2.5 watts for attached USB device.
- Power sources sold separately
- Direct DC source: 12 Vdc nominal, +/- 5%
- Power over Ethernet (PoE): 48 Vdc (nominal) 802.3af or 802.3at-compliant source
  - USB host port is disabled when using an 802.3af PoE power source; for unrestricted operation with PoE power, use an 802.3at compliant source

## ANTENNAS

- AP-114: Three RP-SMA connectors for external dual-band antennas. Internal loss between radio interface and external antenna connectors (due to diplexing circuitry): 1.5 dB in 2.4-GHz and 2.5 dB in 5-GHz.
- AP-115: Six integrated down-tilt omni-directional antennas for 3x3 MIMO with maximum antenna gain of 4.5 dBi in 2.4-GHz and 5.5 dBi in 5-GHz. Built-in antennas are optimized for horizontal ceiling mounted orientation of AP-115.

## OTHER INTERFACES

- 10/100/1000BASE-T Ethernet network interface (RJ-45)
  - Auto-sensing link speed and MDI/MDX
  - 802.3az Energy Efficient Ethernet (EEE)
  - PoE-PD: 48 Vdc 802.3af PoE or 802.3at PoE+
- DC power interface, accepts 1.7/4.0-mm center-positive circular plug with 9.5-mm length
- USB 2.0 host interface (Type A connector)
- Serial console interface (RJ-45)
- Visual indicators (LEDs):
  - Power/system status
  - Ethernet link status (ENET)
  - Radio status (2x; RAD0, RAD1)
- Kensington security slot
- Reset button

## MOUNTING

- Included with AP:
  - Mounting brackets (2) for attaching to 9/16-inch or 15/16-inch T-bar drop-tile ceiling
- Optional mounting kits:
  - AP-220-MNT-C2: Aruba AP mount kit contains two ceiling-grid rail adapters for Interlude and Silhouette style rails
  - AP-220-MNT-W1: Aruba AP mount kit contains one flat-surface wall/ceiling mount bracket
  - AP-220-MNT-W2: Aruba AP mount kit contains one flat-surface wall/ceiling secure mount cradle

## MECHANICAL

- Dimensions/weight (unit, excluding mount accessories):
  - 180 mm (W) x 180 mm (D) x 45 mm (H)
  - 7.09" (W) x 7.09" (D) x 1.77" (H)
  - 650 g (1.43 lbs)
- Dimensions/weight (shipping):
  - 220 mm (W) x 225 mm (D) x 55 mm (H)
  - 8.66" (W) x 8.86" (D) x 2.17" (H)
  - 880 g (1.94 lbs)

## ENVIRONMENTAL

- Operating:
  - Temperature: 0° C to +50° C (+32° F to +122° F)
  - Humidity: 5% to 95% non-condensing
- Storage and transportation temperature range:
  - Temperature: -40° C to +70° C (-40° F to +158° F)

## REGULATORY

- FCC/Industry of Canada
- CE Marked
- R&TTE Directive 1995/5/EC
- Low Voltage Directive 72/23/EEC
- EN 300 328
- EN 301 489
- EN 301 893
- UL/IEC/EN 60950
- EN 60601-1-1 and EN 60601-1-2

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

## REGULATORY MODEL NUMBERS

- AP-114 and IAP-114: APIN0114
- AP-115 and IAP-115: APIN0115

## CERTIFICATIONS

- CB Scheme Safety, cTUVus
- UL2043 plenum rating
- Wi-Fi Alliance (WFA) certified 802.11a/b/g/n

## WARRANTY

- [Limited lifetime warranty](#)

## MINIMUM SOFTWARE VERSIONS

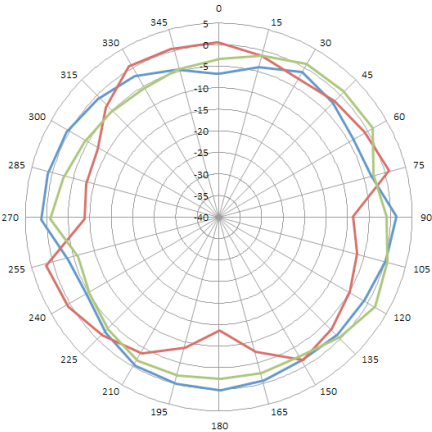
- ArubaOS™ 6.3.1.0
- Aruba InstantOS™ 4.0.0.0

RF PERFORMANCE TABLE				
	Maximum transmit power per transmit chain (dBm)	Receive sensitivity per transmit chain (dBm)	Maximum transmit power per transmit chain (dBm)	Receive sensitivity per transmit chain (dBm)
	2.4 GHz		5 GHz	
<b>802.11b</b>				
1 Mbps	23	-97	-	-
11 Mbps	23	-88	-	-
<b>802.11a/g</b>				
6 Mbps	21	-93	20	-92
54 Mbps	18	-76	16	-74
<b>802.11n HT20</b>				
MCS0/8/16	20	-93	19	-92
MCS7/15/23	16	-73	14	-71
<b>802.11n HT40</b>				
MCS0/8/16	20	-90	19	-88
MCS7/15/23	16	-69	14	-67

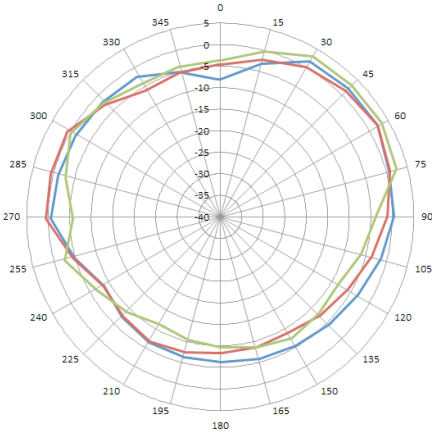
Maximum capability of the hardware provided. Maximum transmit power is limited by local regulatory settings. RF performance numbers for the AP-114 are slightly lower due to additional internal RF circuitry.

AP-115 ANTENNA PATTERN PLOTS

Horizontal or Azimuth plane (top view)

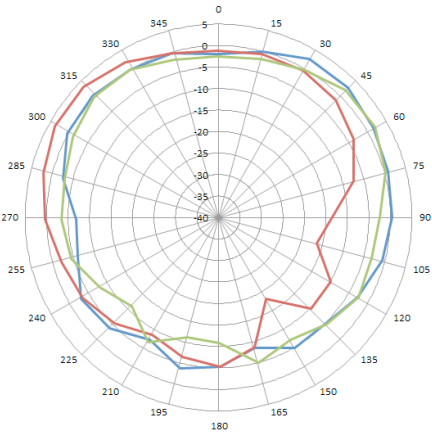


2.450 GHz

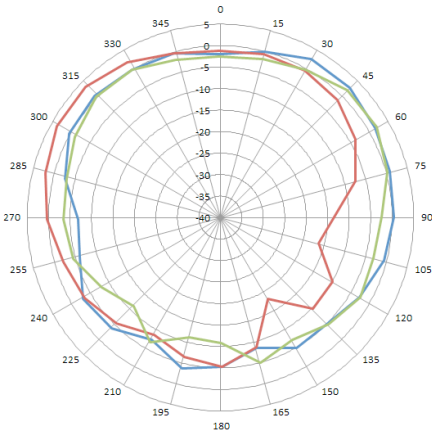


5.550 GHz

Elevation plane (side view)



2.450 GHz



5.550 GHz

## ORDERING INFORMATION

Part Number	Description
<b>AP-110 Series Access Points</b>	
AP-114	Aruba AP-114 Wireless Access Point, 802.11n, 3x3:3, dual radio, antenna connectors
IAP-114-RW	Aruba Instant IAP-114 Wireless Access Point, 802.11n, 3x3:3, dual radio, antenna connectors – Restricted regulatory domain: Rest of world
IAP-114-US	Aruba Instant IAP-114 Wireless Access Point, 802.11n, 3x3:3, dual radio, antenna connectors – Restricted regulatory domain: United States
IAP-114-JP	Aruba Instant IAP-114 Wireless Access Point, 802.11n, 3x3:3, dual radio, antenna connectors – Restricted regulatory domain: Japan
AP-115	Aruba AP-115 Wireless Access Point, 802.11n, 3x3:3, dual radio, integrated antennas
IAP-115-RW	Aruba Instant IAP-115 Wireless Access Point, 802.11n, 3x3:3, dual radio, integrated antennas – Restricted regulatory domain: Rest of world
IAP-115-US	Aruba Instant IAP-115 Wireless Access Point, 802.11n, 3x3:3, dual radio, integrated antennas – Restricted regulatory domain: United States
IAP-115-JP	Aruba Instant IAP-115 Wireless Access Point, 802.11n, 3x3:3, dual radio, integrated antennas – Restricted regulatory domain: Japan
<b>AP-110 Series Access Points (FIPS/TAA)</b>	
AP-114-F1	Aruba AP-114 Wireless Access Point, 802.11n, 3x3:3, dual radio, antenna connectors (FIPS/TAA)
AP-115-F1	Aruba AP-115 Wireless Access Point, 802.11n, 3x3:3, dual radio, integrated antennas (FIPS/TAA)
<b>Mounting Accessories</b>	
AP-220-MNT-C1	Aruba Access Point Mount Kit (ceiling grid). Contains 2x ceiling grid rail adapters (for flat rails). Color: black. Spare.
AP-220-MNT-C2	Aruba Access Point Mount Kit (ceiling grid). Contains 2x ceiling grid rail adapters (for Interlude and silhouette style rails). Color: black.
AP-220-MNT-W1	Aruba Access Point Mount Kit (basic, flat surface). Contains 1x flat surface wall/ceiling mount bracket. Color: black.
AP-220-MNT-W2 (black)	Aruba Access Point Mount Kit (box style, secure, flat surface). Contains 1x flat surface wall/ceiling secure mount cradle. Color: black.
AP-220-MNT-W2W (white)	Aruba Access Point Mount Kit (box style, secure, flat surface). Contains 1x flat surface wall/ceiling secure mount cradle. Color: white.

## ORDERING INFORMATION

Part Number	Description
<b>Generic Indoor AP Accessories</b>	
AP-AC-UN	12V/18W Indoor Access Point AC power adapter. Universal, ships with 8 country-specific plug inserts (US, EU, UK, Australia, China, Korea, Argentina, Brazil), covering all Aruba core countries
AP-AC-12V18	12V/18W Indoor Access Point AC power adapter. Does not include country-specific power cord (order separately)
PD-3501G-AC	15.4W 802.3af PoE midspan injector, 10/100/1000BASE-T Ethernet
PD-9001GR-AC	30W 802.3at PoE midspan injector, 10/100/1000BASE-T Ethernet
Antennas	See info on <a href="#">Aruba website</a> for antenna part numbers



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