# Overview

## Aruba 220 Series Access Points

### Setting A Higher Standard For 802.11ac

Multifunctional 220 series wireless APs deliver gigabit Wi-Fi performance to 802.11ac mobile devices. Integrated Aruba ClientMatch technology ensures consistently high performance across the WLAN infrastructure.

With a maximum data rate of 1.3 Gbps in the 5-GHz band and 600 Mbps in the 2.4-GHz band, 220 series APs are three-times faster than 802.11n APs and provide performance similar to a wired connection.

The 220 series APs include ClientMatch technology, which eliminates sticky clients by continuously gathering session performance metrics from mobile devices. This information is then used to steer each mobile device to the best AP and radio on the WLAN.
Proactive and deterministic, ClientMatch dynamically optimizes Wi-Fi client performance as users roam and RF conditions change. If a mobile device moves out of range of an AP or RF interference impedes performance, ClientMatch automatically steers it to a better AP.

With ClientMatch, 220 series APs load web pages faster, deliver video streams with improved quality and support high densities of mobile devices. An 802.11ac network without ClientMatch performs no different than an 802.11n WLAN.

The 220 series APs additionally support priority handling and policy enforcement for individual Microsoft Lync media on the same device, including encrypted videoconferencing, voice, chat and desktop sharing.




**Aruba 220 Series Access Points**

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## Standard Features

### Features and Benefits

**Unique Benefits**

- Allows phased wired infrastructure upgrades
  - Adapts to available 802.3af power-over-Ethernet (PoE) instead of requiring customers to upgrade to 802.3at PoE+.

- Delivers 1.9 Gbps aggregate throughput.
  - EtherChannel link aggregation on two Gigabit Ethernet ports provides 1.9 Gbps throughput.
- 600 Mbps in the 2.4-GHz band.
  - Supports up to 600 Mbps for TurboQAM-enabled mobile devices operating in the 2.4-GHz band - an industry first.
- Best-in-class RF management
  - Integrated Adaptive Radio Management technology manages the 2.4-GHz and 5-GHz radio bands and ensures that APs stay clear of RF interference.
- Spectrum analysis
  - Capable of part-time or dedicated air monitoring, the spectrum analyzer remotely scans the 2.4-GHz and 5 GHz radio bands to identify sources of RF interference.
- Wireless mesh
  - Wireless mesh connections are convenient where Ethernet drops are not available.
- Security
  - Integrated wireless intrusion protection offers threat protection and mitigation and eliminates the need for separate RF sensors and security appliances.
  - IP reputation and security services identify, classify, and block malicious files, URL and IPs, providing comprehensive protection against advanced online threats
  - Encrypted IPsec VPN tunnels securely connect remote users to corporate network resources.
  - Integrated Trusted Platform Module (TPM) for secure storage of credentials and keys.
  - SecureJack-capable for secure tunneling of wired Ethernet traffic.

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**Choose your Operating Mode**

The 220 series APs offer a choice of operating modes to meet your unique management and deployment requirements.

- Controller-managed AP or Remote AP (RAP) running ArubaOS. When managed by Aruba Mobility Controllers, 220 series APs offer centralized configuration, data encryption, policy enforcement and network services, as well as distributed and centralized traffic forwarding.
- Aruba Instant AP running InstantOS. 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.
- 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

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 220 series Instant APs to become part of a WLAN that is centrally managed by a Mobility Controller.

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**AP 220 Series Specifications**

- AP AP-225 and IAP-225
  - 2.4-GHz (600 Mbps max) and 5-GHz (1.3 Gbps max) radios, each with 3x3 MIMO and three integrated omni- directional downtilt antennas.
- AP-224 and IAP-224
  - 2.4-GHz (600 Mbps max) and 5-GHz (1.3 Gbps max) radios, each with 3x3 MIMO and three combined, diplexed external antenna connectors.

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**Antennas**

- AP-224: 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 3.0 dB in 5 GHz.
- AP-225: Six integrated downtilt omni-directional antennas for 3x3 MIMO with maximum antenna gain of 3.5 dBi in 2.4 GHz and 4.5 dBi in 5 GHz. Built-in antennas are optimized for horizontal ceiling mounted orientation of AP-225. The downtilt angle for maximum gain is approximately 30 degrees.

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**Other Interfaces**

- Two 10/100/1000BASE-T Ethernet network interfaces (RJ-45)
  - Auto-sensing link speed and MDI/MDX
  - Load balancing support to achieve platform throughput greater than 1 Gbps

- 802.3az Energy Efficient Ethernet (EEE)
- PoE-PD: 48 Vdc 802.3af PoE or 802.3at PoE+

- DC power interface, accepts 1.7/4.0mm center-positive circular plug with 9.5 mm length
- USB 2.0 port (Type A connector)
- Serial console interface (RJ-45)
- Visual indicators (LEDs):
  - Power/system status
  - Ethernet link status (2x; ENET0, ENET1)
  - Radio status (2x; RAD0, RAD1)
- Kensington security slot
- Reset button

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**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 220 series AP mount kit contains two ceiling-grid rail adapters for Interlude and Silhouette style rails.
  - AP-220-MNT-W1: Aruba 220 series AP mount kit contains one flat-surface wall/ceiling mount bracket.
  - AP-220-MNT- W3: Aruba 220 series AP mount kit contains one flat-surface wall/ceiling secure mount cradle.

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**Warranty**

- **Aruba Limited lifetime warranty**

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**Minimum Software Versions**

- ArubaOS 6.3.0.0
- Aruba InstantOS 4.0.0.0

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## Configuration Information

**Ordering Guide**

**Step 1: Select AP Model**

| Remarks | Description | SKU |
|---|---|---|
| | **Controller-based Access Points** | |
| | Aruba AP-224 FIPS/TAA-compliant 802.11n/ac Dual 3x3:3 Radio Antenna Connectors AP | JW173A |
| | Aruba AP-225 FIPS/TAA-compliant 802.11n/ac Dual 3x3:3 Radio Integrated Antenna AP | JW175A |
| NOTE: | All models ship with ceiling rail adapters (for flat rails) in the box.<br>Add PoE injector or AC adapter,<br>Add Antennas if it is not integrated. | |

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**Step 2: Add Powering Accessories (Optional)**

| Remarks | Description | SKU |
|---|---|---|
| | Select one of the following: | |
| NOTE: | Add AC power cable | |
| | Aruba Aruba PD-9001GR-AC 30W 802.3at PoE+ 10/100/1000 Ethernet Indoor Rated Midspan Injector | JW629A |
| | AP-AC-12V30A 12V/30W AC/DC Desktop Style 1.7/4.0/9.5mm Circular 90 Deg Plug DoE Level VI Adapter | JX989A |
| | AP-AC2-12A 12V/36W AC/DC desktop style power adapter with type A connector | R3J99A |
| | **Select three-prong AC power cord for injector or AC adapter (no power cable needed for universal adapter):** | |
| | PC-AC-ARG Argentina 220V AC 10A 2-meter AC Power Cord | JW113A |
| | PC-AC-AUS Australian AC Power Cord | JW114A |
| | PC-AC-BR Brazil AC Power Cord | JW115A |

| | | |
|---|---|---|
| | PC-AC-CHN China AC Power Cord | JW116A |
| | PC-AC-DEN Denmark 220V AC 10A 2-meter AC Power Cord | JW117A |
| | PC-AC-EC Continental European/Schuko AC Power Cord | JW118A |
| | PC-AC-IN India AC Power Cord | JW119A |
| | PC-AC-IL Israel 250V AC 10A 2-meter AC Power Cord | JW120A |
| | PC-AC-IT Italian AC Power Cord | JW121A |
| | PC-AC-JP Japanese AC Power Cord | JW122A |
| | PC-AC-KOR Korea AC Power Cord | JW123A |
| | PC-AC-NA North America AC Power Cord | JW124A |
| | PC-AC-SWI Switzerland 220V AC 10A 2-meter AC Power Cord | JW125A |
| | PC-AC-TW Taiwan AC Power Cord | JW126A |
| | PC-AC-UK UK AC Power Cord | JW127A |
| | PC-AC-ZA South Africa 250V AC 10A 2-meter AC Power Cord | JW128A |

**Step 3: Add Mount Accessories (Optional)**

| Remarks | Description | SKU |
|---|---|---|
| | AP-220-MNT-W1 Flat Surface Wall/Ceiling Black AP Basic Flat Surface Mount Kit | JW046A |
| | AP-220-MNT-W1W Flat Surface Wall/Ceiling White AP Basic Flat Surface Mount Kit | JW047A |
| | AP-220-MNT-C2 2x Ceiling Grid Rail Adapter for Interlude and Silhouette Mt Kit | JW045A |
| | AP-MNT-CM1 Industrial Grade Indoor Access Point Metal Suspended Ceiling Rail Mount Kit | JX961A |
| | AP-220-MNT-W3 White Low Profile Box Style Secure Large Indoor AP Flat Surface Mount Kit | JY706A |

**Step 4: Select Antennas (AP-224 Only)**

**AP-224 antenna interface: 3x RP-SMA female, concurrent dual-band.**

| Description | Part Number | Qty | Interface(s) | Target Environment | Mounting |
|---|---|---|---|---|---|
| AP-ANT-1W 2.4-2.5GHz (4dBi)/4.9-5.875GHz (6dBi) Hi Gain Dual-band Omni-Dir Indoor Antenna | JW009A | 3 | 1x RP-SMA male connector | Indoor | Direct-mount |
| AP-ANT-13B 2.4-2.5GHz (4.4dBi)/4.9-5.9GHz (3.3dBi) Downtilt Smallest Omni-Dir Single Antnna | JW001A | 3 | 1x RP-SMA male pigtail | Indoor | Direct, using pigtails |
| AP-ANT-16 2.4-2.5Ghz (3.9dBi)/4.9-5.9GHz (4.7dBi) 3 Elmt MIMO Ant w/Downtilt Omni-Dir Antenna | JW003A | 1 | 3x RP-SMA male pigtail | Indoor | Direct, using pigtails |
| AP-ANT-19 2.4/5G Dual Band Omni-Dir 3dBi/6dBi Indr/Otdr RPSMA Cnctr Ant w/36in Intgrtd Cable | JW004A | 3 | 1x RP-SMA male pigtail | Indoor/outdoor | Direct, using pigtails |
| AP-ANT-20W 2.4-2.5GHz (2dBi)/4.9-5.875GHz (2dBi) Compact Omni-Dir DMt Indr White Antenna | JW011A | 3 | 1x RP-SMA male connector | Indoor | Direct-mount |
| AP-ANT-35A Dual Band 90x90deg 5dBi +/- 45 and V Pol 3 Element MIMO 3xRPSMA Pigtail Antenna | JW015A | 1 | 3x RP-SMA male pigtail | Indoor/outdoor | Direct, using pigtails |
| AP-ANT-38 Dual Band 60x60deg 8dBi +/- 45 and V Pol 3 Element MIMO 3xRPSMA Pigtail Antenna | JW016A | 1 | 3x RP-SMA male pigtail | Indoor/outdoor | Direct, using pigtails |

**Step 5: Add Antenna Mount Kit (Optional)**

| Remarks | Description | SKU |
|---|---|---|
| | AP-ANT-MNT-3 AP-ANT-25A/28/35A/38 Azimuth and Elevation Adjustable Mount Kit | JW020A |
| **NOTE:** | Compatible with AP JW015A and JW016A | |

## Technical Specifications

| RF Performance Table | | |
|---|---|---|
| | **Maximum transmit power (dBm) per transmit chain** | **Receiver sensitivity (dBm) per receive chain** |
| **802.11b 2.4 GHz** | | |
| 1 Mbps | 18.0 | -94.0 |
| 2 Mbps | 18.0 | -90.0 |
| 5.5 Mbps | 18.0 | -89.0 |
| 11 Mbps | 18.0 | -88.0 |
| **802.11g 2.4 GHz and 802.11a 5 GHz** | | |
| 6 Mbps | 18.0 | -91.0 |
| 54 Mbps | 16.0 | -76.0 |
| **802.11n HT20 2.4 GHz and 5 GHz** | | |
| MCS0/8 | 18.0 | -91.0 |
| MCS7/15 | 14.5 | -73.0 |
| **802.11n HT40 2.4 GHz and 5 GHz** | | |
| MCS0/8 | 18.0 | -88.0 |
| MCS7/15 | 14.5 | -70.0 |
| **802.11ac VHT20 5 GHz** | | |
| MCS0 | 18.0 | -91.0 |
| MCS9 | 12.5 | -64.0 |
| **802.11ac VHT40 5 GHz** | | |
| MCS0 | 18.0 | -88.0 |
| MCS9 | 12.5 | -61.0 |
| **802.11ac VHT80 5 GHz** | | |
| MCS0 | 18.0 | -85.0 |
| MCS9 | 12.5 | -58.0 |

Maximum capability of the hardware provided. Maximum transmit power is limited by local regulatory settings. RF performance numbers for AP-224 are slightly lower due to additional internal RF circuitry.

**Wireless Radio Specifications**

- AP type: Indoor, dual radio, 5 GHz 802.11ac and 2.4 GHz 802.11n
  - In addition to 802.11n data rates, the 2.4-GHz radio supports 802.11ac data rates using 256-QAM modulation. This gives TurboQAM-enabled clients a 33% boost above the maximum supported data rate.
- Software-configurable dual radio supports 5 GHz and 2.4 GHz
- 3x3 MIMO with three spatial streams and up to 1.3 Gbps wireless data rate
- Support for up to 255 associated client devices per radio, and up to 16 BSSIDs per radio
- Supported frequency bands (country-specific restrictions apply):
  - 2.4000 GHz to 2.4835 GHz
  - 5.150 GHz to 5.250 GHz
  - 5.250 GHz to 5.350 GHz
  - 5.470 GHz to 5.725 GHz
  - 5.725 GHz to 5.850 GHz
- Available channels: Dependent upon 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)
  - 802.11n/ac: 3x3 MIMO with up to three spatial streams
- Supported modulation types:
  - 802.11b: BPSK, QPSK, CCK
  - 802.11a/g/n: BPSK, QPSK, 16-QAM, 64-QAM
  - 802.11ac: BPSK, QPSK, 16-QAM, 64-QAM, 256-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: +23 dBm (18 dBm per chain)
  - 5-GHz bands: +23 dBm (18 dBm per chain)
- Advanced cellular coexistence (ACC) feature to effectively deal with interference from cellular systems
- Maximum ratio combining (MRC) for improved receiver performance
- Cyclic delay diversity (CDD) for improved downlink RF performance
- Short guard interval for 20-MHz, 40-MHz and 80-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
- Transmit beam-forming (TxBF) for increased reliability in signal delivery
- 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)
  - 802.11ac: 6.5 to 1,300 (MCS0 to MCS9, NSS = 1 to 3)
- 802.11n high-throughput (HT) support: HT 20/40
- 802.11ac very high throughput (VHT) support: VHT 20/40/80
- 802.11n/ac packet aggregation: A-MPDU, A-MSDU

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**Mechanical**

- Dimensions/weight (unit, excluding mount accessories):
  - 203 mm (W) x 203 mm (D) x 54 mm (H), 8.0" (W) x 8.0" (D) x 2.1" (H)
  - 750 g/27 oz
- Dimensions/weight (shipping):
  - 315 mm (W) x 265 mm (D) x 100 mm (H), 12.4" (W) x 10.4" (D) x 3.9" (H)
  - 1,250 g/44 oz

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**Power**

- Worst-case power consumption from the AP (excluding power drawn by an attached USB device):
  - In restricted mode (PoE): 13.5W
  - In unrestricted mode (PoE): 17W
  - In unrestricted mode (DC): 15.5W
- 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
  - Efficient mode PoE - power save with 802.3af PoE and limited functionality
    - USB port disabled
    - Second Ethernet port disabled
    - 2.4-GHz 802.11n radio in 1x3:1 spatial-stream mode
    - 5-GHz 802.11ac radio operates without restrictions*
  - Unrestricted functionality with 802.3at PoE+

**NOTE:***With ArubaOS software 6.3.0, the 5-GHz 802.11ac radio operates in 2x3:2 spatial stream mode when the AP is powered by 802.3af PoE. This restriction has been removed in 6.3.1.

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**Environmental**

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

- 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, EN60601-1-2

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

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**Regulatory Model Numbers**

- AP-224 and IAP-224: APIN0224
- AP-225 and IAP-225: APIN0225

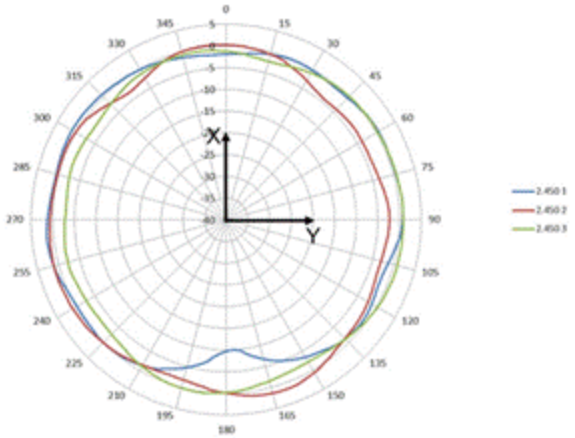
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**Certifications**

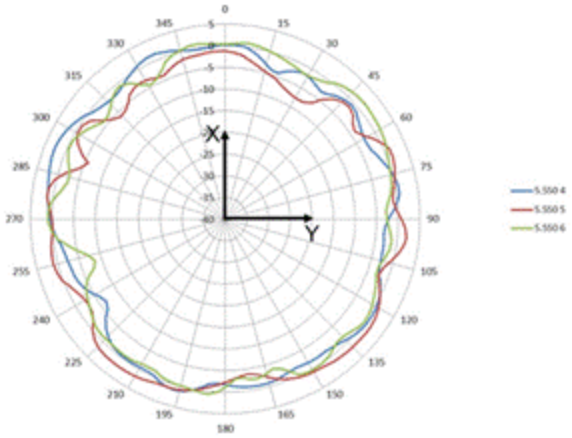
- CB Scheme Safety, cTUVus
- UL2043 plenum rating
- Wi-Fi Alliance certified 802.11a/b/g/n/ac

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**Horizontal or Azimuth plane (top view)**



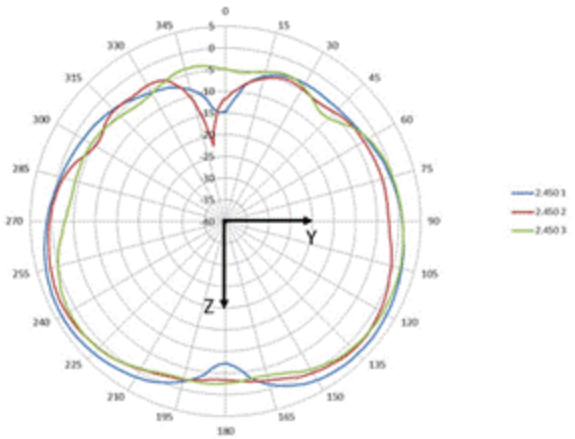

**2.450 GHz**



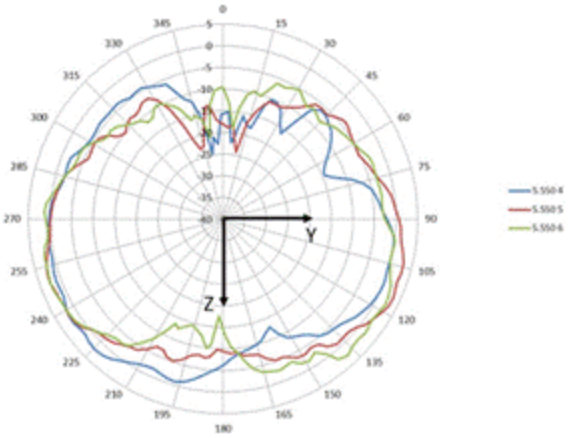

**5.550 GHz**

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**Elevation plane (side view)**




**2.450 GHz**




**5.550 GHz**

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## Summary of Changes

| Date | Version History | Action | Description of Change |
|---|---|---|---|
| 18-Nov-2019 | Version 4 | Changed | Configuration Information was updated. |
| 06-Mar-2017 | Version 3 | Changed | Edits made on Overview and Configuration sections |
| 07-Nov-2016 | Version 2 | Added | Models added: JY741A, JY742A |
| 01-Nov-2016 | Version 1 | New | New QuickSpecs |



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