Dell Networking 220 series access points

Ultimate performance and scale for mobile devices

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

With a maximum data rate of 1.3Gbps in the 5GHz band and 600Mbps in the 2.4GHz 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 WiFi 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.

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 1.9Gbps aggregate throughput.
  - EtherChannel link aggregation on two Gigabit Ethernet ports provides 1.9Gbps throughput.
- 600Mbps in the 2.4GHz band.
  - Supports up to 600Mbps for TurboQAM-enabled mobile devices operating in the 2.4GHz band – an industry first.
- Best-in-class RF management
  - Integrated Adaptive Radio Management™ technology manages the 2.4GHz and 5GHz 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 2.4GHz and 5GHz 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.
  - With an OpenDNS service subscription, Dell Instant APs deliver integrated web filtering, malware and botnet protection to every device connected to the WLAN.
  - 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.

Choose your operating mode

- Controller-managed AP or Remote AP (RAP) running ArubaOS™. When managed by Dell Mobility Controllers, 220 series APs offer centralized configuration, data encryption, policy enforcement and network services, as well as distributed and centralized traffic forwarding.
- Dell Instant AP running InstantOS™. In 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 WiFi clients and provides wireless intrusion protection and spectrum analysis
- Secure enterprise mesh

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.

AP-220 series specifications

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

Wireless radio specifications

- AP type: Indoor, dual radio, 5GHz 802.11ac and 2.4GHz 802.11n
  - In addition to 802.11n data rates, the 2.4GHz 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 5GHz and 2.4GHz
- 3x3 MIMO with three spatial streams and up to 1.3Gbps wireless data rate
- Supported frequency band (country-specific restrictions apply):
  - 2.4000 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 upon configured regulatory domain
- Dynamic frequency selection optimizes the use of available RF spectrum
- Supported radio technologies:
  - 802.11b: Direct-sequence spread-spectrum
  - 802.11a/g/n/ac: Orthogonal frequency-division multiplexing
  - 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 0.5dBm
- Maximum (aggregate, conducted total) transmit power (limited by local regulatory requirements):
  - 2.4GHz band: +23dBm (18 dBm per chain)
  - 5GHz bands: +23dBm (18 dBm per chain)
- Advanced Cellular Coexistence feature to effectively deal with interference from cellular systems
- Maximum ratio combining for improved receiver performance
- Cyclic delay diversity for improved downlink RF performance
- Short guard interval for 20, 40 or 80MHz channels
- Space time-blocking code for increased range and improved reception
- Low-density parity check for high-efficiency error correction and increased throughput
- Transmit beam-forming 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 MCS15)
  - 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

Power

- Maximum power consumption: 15W, plus up to 2.5W for attached USB device.
- Power sources sold separately
- Direct DC source: 12V DC nominal, +/- 5%
- Power over Ethernet (PoE): 48V DC (nominal) 802.3af or 802.3at-compliant source
  - Efficient Mode PoE: Power savings with 802.3af POE and limited functionality:
    - > USB port disabled
    - > Second Ethernet port disabled
    - > 2.4GHz 802.11n radio in 1x3:1 spatial-stream mode
    - > 5GHz 802.11ac radio operates without restrictions*
  - Unrestricted functionality with 802.3at POE+

*With ArubaOS software 6.3.0, the 5GHz 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.

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): 1.5dB in 2.4GHz and 3.0dB in 5GHz.
- AP-225: Six integrated down-tilt omni-directional antennas for 3x3 MIMO with maximum antenna gain of 3.5dBi in 2.4GHz and 4.5dBi in 5GHz. Built-in antennas are optimized for horizontal ceiling mounted orientation of AP-225

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 1Gbps
  - MACSec encryption and 802.3az EEE
  - POE-PD: 48V DC 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 port (Type A connector)
- Serial console interface (RJ45, TTL levels)
- Visual indicators (LEDs):
  - Power/system status
  - Ethernet link status (2x; ENET0, ENET1)
  - Radio status (2x; RAD0, RAD1)
- Kensington security slot
- Reset button

Mounting

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

Mechanical

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

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 Dell representative.

Regulatory model numbers

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

Certifications

- CB Scheme Safety, cTUVus
- UL2043 plenum rating
- Wi-Fi Alliance (WFA) certified 802.11a/b/g/n/ac 2

Warranty

- Limited lifetime warranty

Minimum software versions

- ArubaOS 6.3.0.0
- Aruba Instant 4.0.0.1

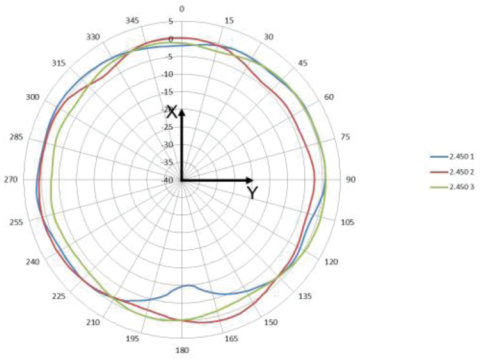
RF performance table

	Maximum transmit power (dBm) per transmit chain	Receiver sensitivity (dBm) per receive chain
802.11b 2.4GHz		
1Mbps	18.0	-92.0
2Mbps	18.0	-92.0
5.5Mbps	18.0	-90.0
11Mbps	18.0	-88.0
802.11g 2.4GHz and 802.11a 5GHz		
6Mbps	18.0	-88.0
54Mbps	16.0	-75.0
802.11n HT20 2.4 and 5GHz		
MCS0/8	18.0	-88.0
MCS7/15	14.0	-71.0
802.11n HT40 2.4 and 5GHz		
MCS0/8	18.0	-85.0
MCS7/15	14.0	-68.0
802.11ac VHT20 5GHz		
MCS0	18.0	-88.0
MCS9	12.0	-65.0
802.11ac VHT40 5GHz		
MCS0	18.0	-85.0
MCS9	12.0	-62.0
802.11ac VHT80 5GHz		
MCS0	18.0	-82.0
MCS9	12.0	-59.0

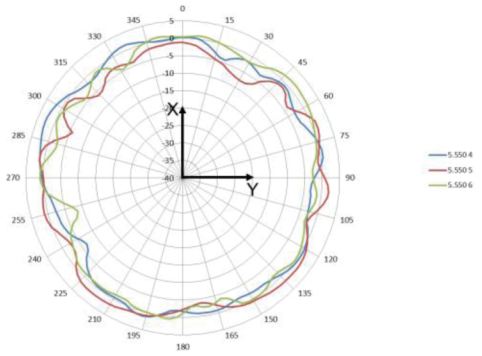
Maximum capability of the hardware provided. Maximum transmit power will be limited by local regulatory settings. RF performance numbers for AP-224 are slightly lower due to additional internal RF circuitry.

AP-225 antenna pattern plots

Horizontal or Azimuth plane (top view)

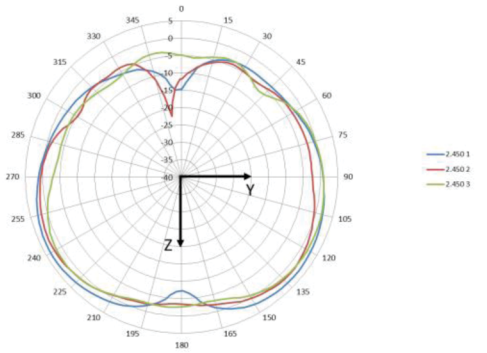


2.450GHz

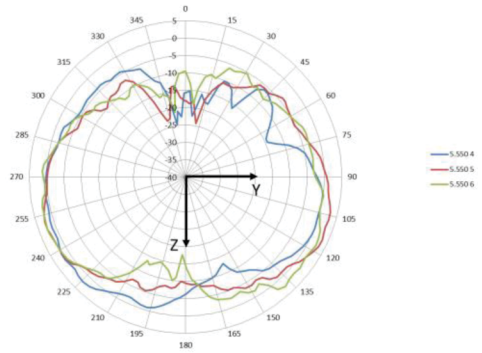


5.550GHz

Elevation plane (side view)



2.450GHz



5.550GHz

Ordering information

Part Number	Description
	AP-220 series access points
W-AP224	Dell Networking W-AP224 Wireless Access Point, 802.11ac, 3x3:3, dual radio, antenna connectors
W-IAP224	Dell Networking W-Instant IAP224 Wireless Access Point[1], 802.11ac, 3x3:3, dual radio, antenna connectors
W-IAP224-US	Dell Networking W-Instant IAP224 Wireless Access Point[1], 802.11ac, 3x3:3, dual radio, antenna connectors - Restricted regulatory domain: United States
W-IAP224-JP	Dell Networking W-Instant IAP224 Wireless Access Point[1], 802.11ac, 3x3:3, dual radio, antenna connectors - Restricted regulatory domain: Japan
W-AP225	Dell Networking W-AP225 Wireless Access Point, 802.11ac, 3x3:3, dual radio, integrated antennas
W-IAP225	Dell Networking W-Instant IAP225 Wireless Access Point[1], 802.11ac, 3x3:3, dual radio, integrated antennas
W-IAP225-US	Dell Networking W-Instant IAP225 Wireless Access Point[1], 802.11ac, 3x3:3, dual radio, integrated antennas. Restricted regulatory domain: United States
W-IAP225-JP	Dell Networking W-Instant IAP225 Wireless Access Point[1], 802.11ac, 3x3:3, dual radio, integrated antennas. Restricted regulatory domain: Japan
	AP-220 series accessories
AP-220-MNT-C2	Dell Networking W-220 Series Access Point Mount Kit (ceiling grid). Contains 2x ceiling grid rail adapters (for Interlude and Silhouette style rails).
AP-220-MNT-W1	Dell Networking 220 Series Access Point Mount Kit (basic, flat surface). Contains 1x flat surface wall/ceiling mount bracket.
AP-220-MNT-W2	Dell Networking W- 220 Series Access Point Mount Kit (box style, secure, flat surface). Contains 1x flat surface wall/ceiling secure mount cradle.

[1] IAP coming

*Select Dell Networking products carry an Extended Life Warranty with Basic Hardware Service. Warranty covers repair or replacement of the product for as long as it remains in use by the customer. In the event of discontinuance of product manufacture, Dell Extended Life Warranty extends until five (5) years after end of product model sales. Warranty limits any power supply, antennae or accessories to one (1) year from date of purchase. Warranty does not include troubleshooting, configuration, or other advanced service provided by Dell ProSupport.The Extended Life Limited Hardware Warranty is not transferrable. For more information see dell.com/warranty.

Learn more at Dell.com/Networking

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