

# ALCATEL-LUCENT OMNIAACCESS 220 SERIES ACCESS POINTS

## SETTING A HIGHER STANDARD FOR 802.11AC

Multifunctional Alcatel-Lucent OmniAccess™ 220 Series Access Points (APs) deliver gigabit Wi-Fi performance to 802.11ac mobile devices. Integrated ClientMatch™ technology ensures consistently high performance across the WLAN infrastructure.



With a maximum data rate of 1.3 Gb/s in the 5-GHz band and 600 Mb/s in the 2.4-GHz band, the OmniAccess 220 Series APs are three-times faster than 802.11n APs and provide performance similar to a wired connection.

ClientMatch technology 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 if RF interference impedes performance, ClientMatch automatically steers the mobile device to a better AP.

With ClientMatch, OmniAccess 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.

In addition, the OmniAccess 220 Series APs support priority handling and policy enforcement for individual Microsoft® Lync® media on the same device, including encrypted videoconferencing, voice, chat and desktop sharing.

### FEATURES

- EtherChannel link aggregation on two Gigabit Ethernet ports, providing 1.9-Gb/s aggregate throughput\*
- Adapts to available 802.3af power-over-Ethernet (PoE) instead of requiring customers to upgrade to 802.3at PoE+
- Support for up to 600 Mb/s for TurboQAM-enabled mobile devices operating in the 2.4-GHz band – an industry first
- Integrated Adaptive Radio Management™ technology
- Remote spectrum analysis to identify sources of RF interference
- Wireless mesh connections, which are convenient where Ethernet drops are not available
  - Integrated Trusted Platform Module (TPM)
  - SecureJack-capable

### BENEFITS

- Provides capability for phased wired infrastructure upgrades
- Delivers best-in-class RF management
- Provides enhanced security:
  - Secure connection of remote users to corporate network resources
  - Secure storage of credentials and keys
  - Secure tunneling of wired Ethernet traffic

\* Available Q3 2013

## OPERATING MODES

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 AOS-W

When managed by Alcatel-Lucent Mobility Controllers, 220 series APs offer centralized configuration, data encryption, policy enforcement and network services as well as distributed and centralized traffic forwarding. Please refer to the Alcatel-Lucent Mobility Controller data sheets for more details.

### Alcatel-Lucent Instant™ AP running InstantOS™

In Instant mode, a single Instant AP (IAP) automatically distributes the network configuration to other IAPs in the WLAN. Simply power-up one IAP, configure it over the air, and plug in the other APs – the entire process takes about five minutes.

### Air monitor

### Hybrid WLAN AP and air monitor

### Secure enterprise mesh

If WLAN and network requirements change, a built-in migration path allows 220 Series IAPs to become part of a WLAN that is centrally managed by a Mobility Controller.

## TECHNICAL SPECIFICATIONS

### 220-series AP specifications

- OmniAccess WLAN (OAW)-AP225 and OAW-IAP225
  - 2.4-GHz (600 Mb/s max) and 5-GHz (1.3 Gb/s max) radios, each with 3x3 MIMO and three integrated omni-directional downtilt antennas
- OAW-AP224 and OAW-IAP224
  - 2.4-GHz (600 Mb/s max) and 5-GHz (1.3 Gb/s max) radios, each with 3x3 MIMO and three combined, diplexed external antenna connectors

### 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 Gb/s wireless data rate
- 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
  - 5-GHz bands: +23 dBm
- 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 (Mb/s):
  - 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: 15 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
  - 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+

### Antennas

- AP224: Three RP-SMA connectors for external dual-band antennas
- AP225: Six integrated down-tilt 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 AP225

### Other interfaces

- Two 10/100/1000BASE-T Ethernet network interfaces (RJ-45)
  - Auto-sensing link speed and MDI/MDX
  - MACSec encryption and 802.3az 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 (0.37 in.) cord
- USB 2.0 port (Type A connector)
- Serial console interface (RJ-45, TTL levels)
- Visual indicators (LEDs)
  - Power/system status
  - Ethernet link status: 2x; ENET0, ENET1
  - Radio status: 2x; RADO, RAD1
- Kensington security slot
- Reset button

### Mounting

- Included with AP
  - Mounting brackets (2) for attaching to 9/16-in. or 15/16
  - in. T-bar drop-tile ceiling
- Optional mounting kits
  - AP220-MNT-C2: OmniAccess AP220 Series Access Point Mount Kit (ceiling grid); contains 2x ceiling grid rail adapters (for Interlude and Silhouette style rails)

\* With AOS-W 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.

- AP220-MNT-W1: OmniAccess AP220 Series Access Point Mount Kit (basic, flat surface); contains 1x flat surface wall/ceiling mount bracket
- AP220-MNT-W2: OmniAccess AP220 Series Access Point Mount Kit (box style, secure, flat surface); contains 1x flat surface wall/ceiling secure mount cradle

## Dimensions

### Unit (excluding mount accessories)

- Height: 65 mm (2.55 in.)
- Width: 203 mm (7.99 in.)
- Depth: 203 mm (7.99 in.)
- Weight: 750 g (44 oz)

### Shipping

- Height: 100 mm (3.93 in.)
- Width: 315 mm (12.40 in.)
- Depth: 265 mm (10.43)
- Weight: 1,250 g (44 oz)

## 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 compliance\*

- FCC/Industry of Canada
- CE Marking
- 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

## Regulatory model numbers

- OAW-AP224 and OAW-IAP224: APIN0224
- OAW-AP225 and OAW-IAP225: APIN0225

## Certifications

- CB Scheme Safety, cTUVus
- Wi-Fi Alliance-certified 802.11a/b/g/n/ac\*\*

## Warranty

- Limited lifetime warranty

## Minimum operating system software versions

- AOS-W Release 6.3.0.0
- InstantOS Release 3.5.0.0 (available Q3 2013)

Table 1. RF performance

	MAXIMUM TRANSMIT POWER*** (DBM) PER TRANSMIT CHAIN	RECEIVER SENSITIVITY (DBM) PER RECEIVE CHAIN
<b>802.11B 2.4 GHZ</b>		
1 Mb/s	18.0	-92.0
2 Mb/s	18.0	-92.0
5.5 Mb/s	18.0	-90.0
11 Mb/s	18.0	-88.0
<b>802.11G 2.4 GHZ AND 802.11A 5 GHZ</b>		
6 Mb/s	18.0	-88.0
54 Mb/s	16.0	-75.0
<b>802.11N HT20 2.4 GHZ AND 5 GHZ</b>		
MCS0/8	18.0	-88.0
MCS7/15	14.0	-71.0
<b>802.11N HT40 2.4 GHZ AND 5 GHZ</b>		
MCS0/8	18.0	-85.0
MCS7/15	14.0	-68.0
<b>802.11AC VHT20 5 GHZ</b>		
MCS0	18.0	-88.0
MCS9	12.0	-65.0
<b>802.11AC VHT40 5 GHZ</b>		
MCS0	18.0	-85.0
MCS9	12.0	-62.0
<b>802.11AC VHT80 5 GHZ</b>		
MCS0	18.0	-82.0
MCS9	12.0	-59.0

Note: RF performance numbers for AP224 are slightly lower due to additional internal RF circuitry.

\* For more country-specific regulatory information and approvals, please contact your Alcatel-Lucent representative.

\*\* Wi-Fi Alliance certification currently covers only 802.11a/b/g/n; 802.11ac will be added as soon as the Wi-Fi Alliance establishes the certification program during the second half of 2013.

\*\*\* Maximum capability of the hardware provided. Maximum transmit power is limited by local regulatory settings.

Figure 1. AP225 Antenna pattern plots: Horizontal or azimuth plane (top view)

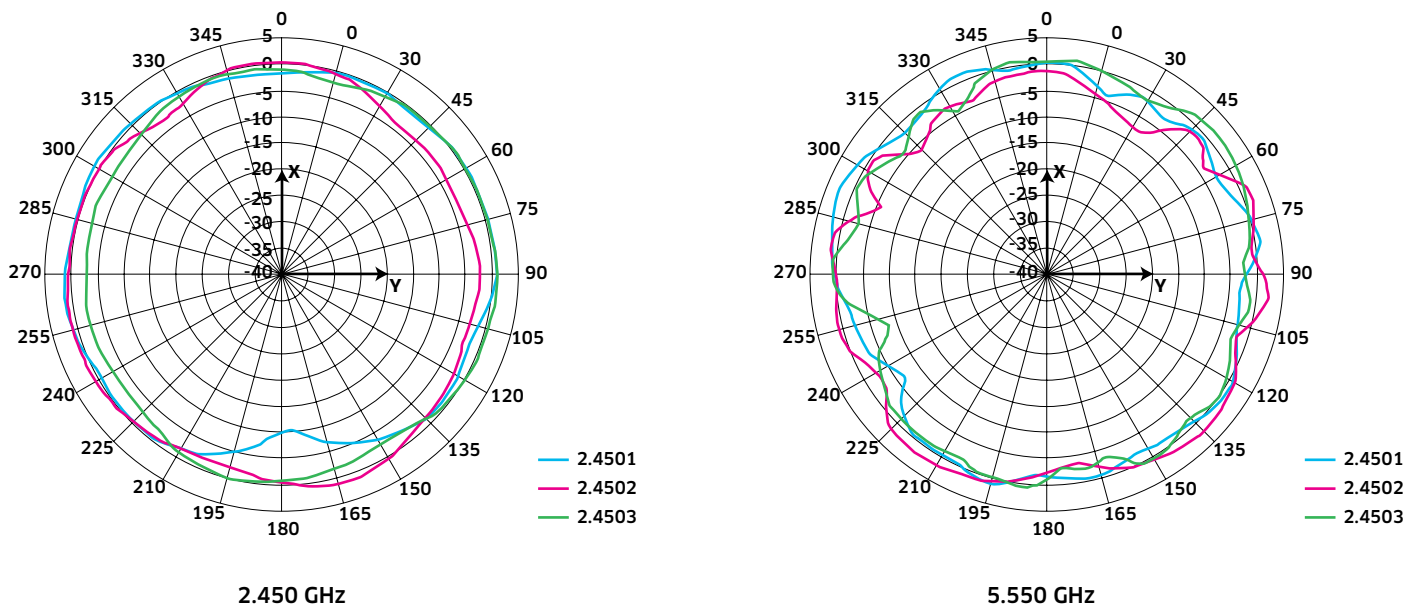
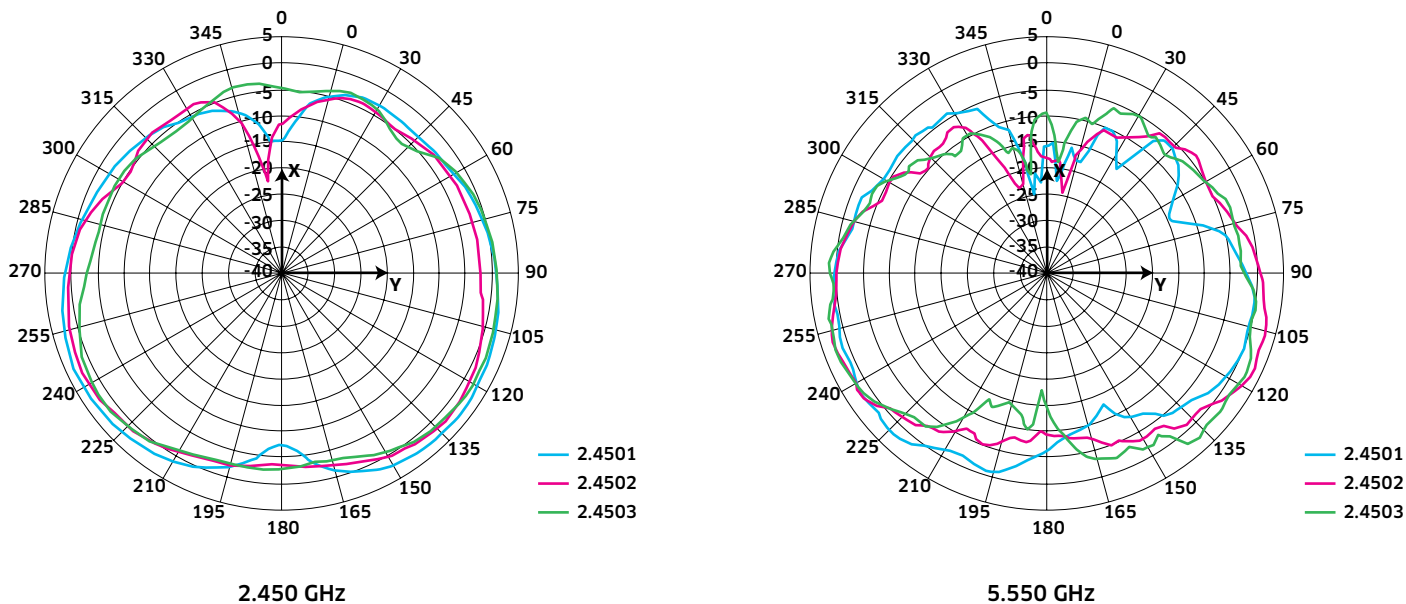


Figure 2. AP225 Antenna pattern plots: Elevation plane (side view)



## ORDERING INFORMATION

PART NUMBER	DESCRIPTION
<b>220 SERIES APS</b>	
OAW-AP224	OmniAccess AP224: Dual-radio IEEE 802.11ac wireless access point with support for 802.11'B' and 802.11'A/G/N/AC' operation, RP-SMA external antenna connectivity, 2 x 10/100/1000Base-T (RJ-45) Ethernet interface (supports 802.3at PoE), 1 x 12 V DC power interface
OAW-AP225	OmniAccess AP225: Dual-radio IEEE 802.11ac wireless access point with support for 802.11'B' and 802.11'A/G/N/AC' operation, integral antenna, 2 x 10/100/1000Base-T (RJ-45) Ethernet interface (supports 802.3at PoE), 1 x 12V DC power interface
OAW-AP-AC-UN	Universal AC Power Adapter Kit for Indoor OmniAccess APs - Universal, ships with 8 country-specific plug inserts - North America, Japan, United Kingdom, Italy, EC (Shuko), Australia, China, India, Korea.
OAW-AP-AC-12V18	OmniAccess12VDC/18W AC Power Adapter for compatible indoor AP models. Does not include country specific power cord.
PD-9001GR-AC	OAW WLAN 1 Port 802.3at PoE Midspan 10/100/1000 30W. US power cord included.
OAW-IAP224	OmniAccess Instant AP224 Dual radio IEEE 802.11ac wireless access point with support for 802.11'B' and 802.11'A/G/N/AC' operation, RP-SMA external antenna connectivity, 2 x 10/100/1000Base-T (RJ-45) Ethernet Interface (Supports 802.3at Power over Ethernet), 1 x 12V DC power interface. Rest of the world - Not to be used in US.
OAW-IAP224-US	OmniAccess Instant AP224 Dual radio IEEE 802.11ac wireless access point with support for 802.11'B' and 802.11'A/G/N/AC' operation, RP-SMA external antenna connectivity, 2 x 10/100/1000Base-T (RJ-45) Ethernet Interface (Supports 802.3at Power over Ethernet), 1 x 12V DC power interface.Restricted regulatory domain: United States.
OAW-IAP224-IS	OmniAccess Instant AP224 Dual radio IEEE 802.11ac wireless access point with support for 802.11'B' and 802.11'A/G/N/AC' operation, RP-SMA external antenna connectivity, 2 x 10/100/1000Base-T (RJ-45) Ethernet Interface (Supports 802.3at Power over Ethernet), 1 x 12V DC power interface.Restricted regulatory domain: Israel.
OAW-IAP224-JP	OmniAccess Instant AP224 Dual radio IEEE 802.11ac wireless access point with support for 802.11'B' and 802.11'A/G/N/AC' operation, RP-SMA external antenna connectivity, 2 x 10/100/1000Base-T (RJ-45) Ethernet Interface (Supports 802.3at Power over Ethernet), 1 x 12V DC power interface.Restricted regulatory domain: Japan.
OAW-IAP225	OmniAccess Instant AP225 Dual radio IEEE 802.11ac wireless access point with support for 802.11'B' and 802.11'A/G/N/AC' operation, integral antenna, 2 x 10/100/1000Base-T (RJ-45) Ethernet Interface (Supports 802.3at Power over Ethernet), 1 x 12V DC power interface. Rest of the world - Not to be used in US.
OAW-IAP225-US	OmniAccess Instant AP225 Dual radio IEEE 802.11ac wireless access point with support for 802.11'B' and 802.11'A/G/N/AC' operation, integral antenna, 2 x 10/100/1000Base-T (RJ-45) Ethernet Interface (Supports 802.3at Power over Ethernet), 1 x 12V DC power interface. Restricted regulatory domain: United States.
OAW-IAP225-IS	OmniAccess Instant AP225 Dual radio IEEE 802.11ac wireless access point with support for 802.11'B' and 802.11'A/G/N/AC' operation, integral antenna, 2 x 10/100/1000Base-T (RJ-45) Ethernet Interface (Supports 802.3at Power over Ethernet), 1 x 12V DC power interface. Restricted regulatory domain : Israel.
OAW-IAP225-JP	OmniAccess Instant AP225 Dual radio IEEE 802.11ac wireless access point with support for 802.11'B' and 802.11'A/G/N/AC' operation, integral antenna, 2 x 10/100/1000Base-T (RJ-45) Ethernet Interface (Supports 802.3at Power over Ethernet), 1 x 12V DC power interface. Restricted regulatory domain: Japan.
<b>220 SERIES ACCESSORIES</b>	<b>REST ALL POWER CORD SHALL BE ORDERED SEPARATELY</b>
OAW-AP220-MNT-C2	OmniAccess AP220 Series Access Point Mount Kit (ceiling grid): Contains 2x ceiling grid rail adapters (for Interlude and Silhouette style rails)
OAW-AP220-MNT-W1	OmniAccess AP220 Series Access Point Mount Kit (basic, flat surface): Contains 1x flat surface wall/ceiling mount bracket
OAW-AP220-MNT-W2	OmniAccess AP220 Series Access Point Mount Kit (box style, secure, flat surface): Contains 1x flat surface wall/ceiling secure mount cradle
<b>GENERIC INDOOR AP ACCESSORIES (SEE ALCATEL-LUCENT WEB SITE FOR PART NUMBERS)</b>	
DC power supplies	
PoE injectors	
Antennas	