

# FortiAP™ Series

FortiAP Cloud or FortiOS-managed Access Points

FortiAP™ access points are managed centrally by the integrated WLAN controller of any FortiGate® security appliance or through the FortiAP Cloud provisioning and management portal. With the integration of the wireless controller functionality into the market-leading FortiGate appliance, these APs are perfect for campus and branch deployments. Fortinet’s Security Fabric enables you to easily manage wired and wireless security from a single-pane-of-glass management console and protects your network from the latest security threats.



## Unified Management

Unified management console simplifies operations, ensuring consistency in effective policy enforcement and compliance.



## Advanced Security Protection

Wireless LAN security done right, from the leader in network security. Integrated Firewall, IPS, Application Control, and Web Filtering protect the wireless LAN from the latest security threats.



## Built-in Wi-Fi Security

Protects the network from advanced wireless threats and satisfies PCI DSS compliance.

## Product Offerings

### Wi-Fi 6

**FAP-431F** 4x4 Indoor tri radio 802.11ax  
**FAP-433F** APs

### 802.11ac Wave 2

**FAP-421E** 4x4 MU-MIMO APs with dual radio  
**FAP-423E**

**FAP-321E** 3x3 MU-MIMO AP with dual radios, internal antennas

**FAP-221E** 2x2 MU-MIMO APs with dual radio  
**FAP-223E**

**FAP-231E** 2x2 MU-MIMO AP with tri radio, internal antennas

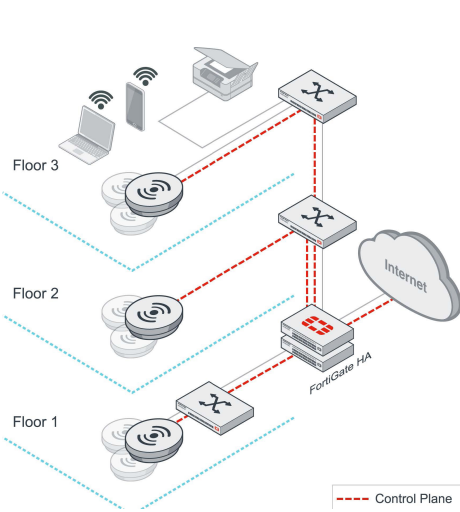
**FAP-222E** Outdoor, IP67 rated AP, 2x2 MU-MIMO with dual radio with a variety of external antenna options

**FAP-224E** Outdoor, IP67 rated AP, 2x2 MU-MIMO with dual radio, internal antennas

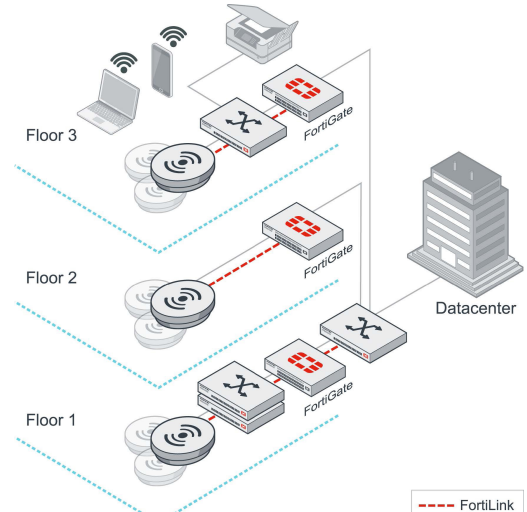
**FAP-C24JE** 2x2 Indoor wall jack AP with dual 2.4 GHz and 5 GHz radios

# Deployment

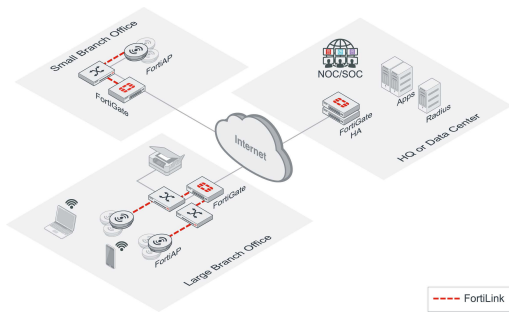
FortiAPs allow for a versatile collection of installation topologies with options to fit any enterprise.



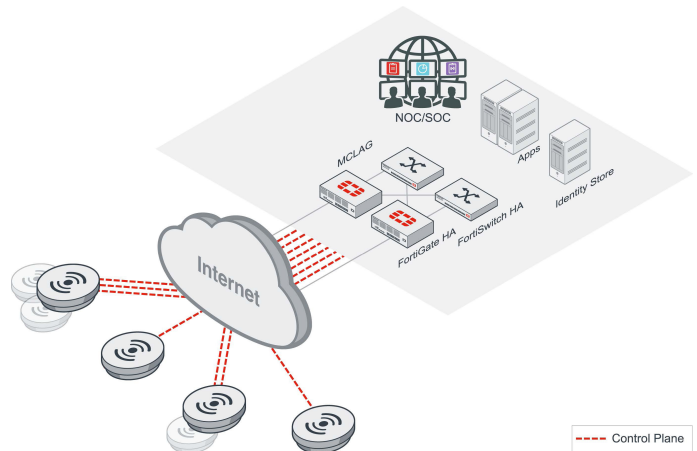
Central pair of FortiGates managing a large site



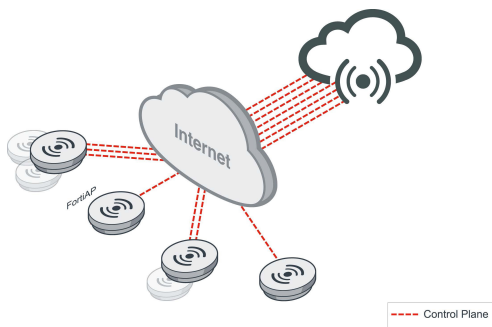
Distributed FortiGates throughout a large campus



Distributed branches via SD-Branch



Centralized FortiGates managing remote teleworkers

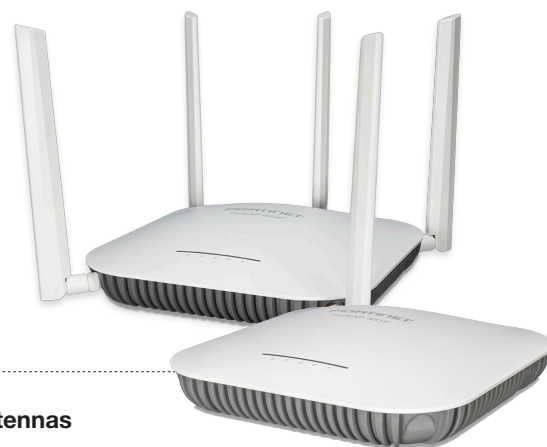



FortiAP Cloud managing standalone FortiAPs

## Highlights

### FortiAP 431F and 433F

These enterprise class 802.11ax indoor APs provide three radios. These top-of-the-line access points provide OFDMA, a 2.5 Gigabit Ethernet port, plus an additional 1 Gbps Ethernet port for PoE diversity. The APs can provide 24/7 scanning across both bands while still providing access on both the 2.4 and 5 GHz bands. The integrated BLE radio can be used for beacons and locationing applications.



 **802.11ax | Tri-Radio 2.4 GHz + 5 GHz + scanning | 5 Internal/External Antennas**

 **4x4 MIMO | Up to 1,147 Mbps + 2,402 Mbps**

## Specifications

|                              | FORTIAP 431F  | FORTIAP 433F   |
|------------------------------|---|--|
| <b>Hardware</b>              |   |  |
| Hardware Type                | Indoor AP   | Indoor AP  |
| Number of Radios             | 3 + 1 BLE   | 3 + 1 BLE  |
| Number of Antennas           | 5 Internal + 1 BLE Internal   | 5 External (RP-SMA) + 1 BLE Internal                                       |
| Antenna Type and Peak Gain   | PIFA: 4 dBi for 2.4 GHz, 5 dBi for 5 GHz  | Omni directional rubber duck antenna: 4 dBi for 2.4 GHz, 6 dBi for 5 GHz   |
| Frequency Bands (GHz)        | 2.400–2.4835, 5.150–5.250, 5.250–5.350, 5.470–5.725, 5.725–5.850  |  |
| Radio 1 Capabilities         | Frequency Band: 2.4 Band<br>Channel width: 20/40MHz<br>Modulation: BPSK, QPSK, QAM64, QAM256, and QAM1024   |  |
| Radio 2 Capabilities         | Frequency Band: 5.0 Band<br>Channel width: 4x4 20/40/80MHz and 2x2 160MHz contiguous<br>Modulation: BPSK, QPSK, QAM64, QAM256, and QAM1024                                  |  |
| Radio 3 Capabilities         | Frequency Band: 2.4/5.0 Band 1x1 scan only  |  |
| Maximum Data Rate            | Radio 1: up to 1147 Mbps<br>Radio 2: up to 2402 Mbps<br>Radio 3: scan only  | Radio 1: up to 1147 Mbps<br>Radio 2: up to 2402 Mbps<br>Radio 3: scan only |
| Bluetooth Low Energy Radio   | Bluetooth scanning and iBeacon advertisement @ 6 dBm max TX power   |  |
| Interfaces                   | 1x 10/100/1000/2500 Base-T RJ45,<br>1 x 10/100/1000 Base-T RJ45,<br>1x Type A USB, 1x RS-232 RJ45 Serial Port   |  |
| Power over Ethernet (PoE)    | PoE type 802.3at<br>Supports dual redundant 802.3af/at.<br>Single 802.3af PoE is not supported.   |  |
| Simultaneous SSIDs           | Up to 16 (14 if background scanning enabled)  |  |
| EAP Type(s)                  | EAP-TLS, EAP-TTLS/MSCHAPv2, EAPv0/EAP-MSCHAPv2, PEAPv1/EAP-GTC, EAP-SIM, EAP-AKA, EAP-FAST  |  |
| User/Device Authentication   | WPA™, WPA2™, and WPA3™ with 802.1x or Preshared key, WEP, Web Captive Portal, MAC blocklist and allowlist   |  |
| Maximum Tx Power (Conducted) | Radio 1: 5GHz: 23 dBm / 200 mW (4 chains combined)*<br>Radio 2: 2.4GHz: 24 dBm / 251 mW (4 chains combined)*<br>5GHz: 23 dBm / 200 mW (4 chains combined)*<br>Radio 3: NA   |  |
| Kensington Lock              | Yes   | Yes  |
| IEEE Standards               | 802.11a, 802.11b, 802.11e, 802.11g, 802.11h, 802.11i, 802.11j, 802.11k, 802.11n, 802.11r, 802.11v, 802.11ac, 802.11ax (Wi-Fi 6), 802.1X, 802.3ad, 802.3af, 802.3at, 802.3az |  |
| SSID Types Supported         | Local-Bridge, Mesh, Tunnel  |  |
| Per Radio Client Capacity    | 512 per Radio1 and Radio2   |  |
| Cellular Co-existence**      | Yes   |  |
| LED Off Mode                 | Yes   |  |

|   | FORTIAP-431F                                    | FORTIAP-433F                 |
|---|---|------------------------------|
| <b>Advanced 802.11 Features</b>         |   |                              |
| OFDMA                                   | Yes (UL and DL)                                 | Yes (UL and DL)              |
| 2.4 GHz OFDMA                           | Yes   | Yes                          |
| Spatial Reuse (BSS Coloring)            | Future release                                  | Future release               |
| HE-MU-MIMO                              | Yes   | Yes                          |
| UL-MU-MIMO                              | 802.11ax mode Yes, 802.11ac mode NO             |                              |
| DL-MU-MIMO                              | Yes   | Yes                          |
| Enhanced Target Wake Time (TWT)         | Yes   | Yes                          |
| ZeroWait DFS /Agile DFS                 | No  | No                           |
| <b>Wireless Monitoring Capabilities</b> |   |                              |
| Rogue Scan Radio Mode                   | Background, Dedicated                           | Background, Dedicated        |
| WIPS / WIDS RAdio Modes                 | Background, Dedicated (recommended)             |                              |
| Packet Sniffer Mode                     | Yes   | Yes                          |
| Spectrum Analyzer                       | Yes   | Yes                          |
| <b>Dimensions</b>                       |   |                              |
| Length x Width x Height                 | 8.27 x 8.27 x 2.22 inches (210 x 210 x 56.5 mm) |                              |
| Weight                                  | 2.16 lbs (0.98 kg)                              | 2.19 lbs (0.995 kg)          |
| Package (shipping) Weight               | 3.97 lbs (1.8 kg)                               | 4.4 lbs (2 kg)               |
| Mounting Options                        | Ceiling, T-Rail, and Wall                       | Ceiling, T-Rail, and Wall    |
| Included Accessories                    | Ceiling, T-Rail, and Wall                       | Ceiling, T-Rail, and Wall    |
| <b>Environment</b>                      |   |                              |
| Power Supply                            | SP-FAP400-PA-XX or GPI-130                      | SP-FAP400-PA-XX or GPI-130   |
| Power Consumption (Max)                 | 24.5 W  | 24.5 W                       |
| Humidity                                | 5–90% Non-Condensing                            | 5–90% Non-Condensing         |
| Operating / Storage Temperature         | 32–113°F (0–45°C) / -31–94°F (-35–70°C)         |                              |
| Directives                              | Low Voltage Directive • RoHS                    | Low Voltage Directive • RoHS |
| UL2043 Plenum Material                  | No  | No                           |
| Mean Time Between Failures              | >10 Years                                       | >10 Years                    |
| IP Rating                               | —   | —                            |
| Surge Protection Built In               | Yes   | Yes                          |
| Hit-less PoE Failover                   | Yes   | Yes                          |
| <b>Certifications</b>                   |   |                              |
| Wi-Fi Alliance Certified                | No  | No                           |
| <b>Warranty</b>                         |   |                              |
| Limited Lifetime Warranty               | Yes   | Yes                          |

\* Frequency selection and power may be restricted to abide by regional regulatory compliance laws.

\*\* Initial releases may not support some 11ax functionalities.

## RF Rx/Tx Performance Table

| FORTIAP 431F / 433F   |                                  |                      |                                |                      |                                  |                      |                                |                      |
|-----------------------|----------------------------------|----------------------|--------------------------------|----------------------|----------------------------------|----------------------|--------------------------------|----------------------|
|                       | Radio 1                          |                      | Radio 2                        |                      | Radio 3                          |                      |                                |                      |
|                       | 2.4 GHz Tx Power per chain (dBm) | Rx Sensitivity (dBm) | 5 GHz Tx Power per Chain (dBm) | Rx Sensitivity (dBm) | 2.4 GHz Tx Power per chain (dBm) | Rx Sensitivity (dBm) | 5 GHz Tx Power per Chain (dBm) | Rx Sensitivity (dBm) |
| <b>802.11b</b>        |                                  |                      |                                |                      |                                  |                      |                                |                      |
| 1 Mbps                | 23                               | -98                  | —                              | —                    | 20                               | -96                  | —                              | —                    |
| 11 Mbps               | 23                               | -89                  | —                              | —                    | 18                               | -87                  | —                              | —                    |
| <b>802.11g</b>        |                                  |                      |                                |                      |                                  |                      |                                |                      |
| 6 Mbps                | 23                               | -94                  | —                              | —                    | 20                               | -92                  | —                              | —                    |
| 54 Mbps               | 22                               | -75                  | —                              | —                    | 18                               | -73                  | —                              | —                    |
| <b>802.11n HT20</b>   |                                  |                      |                                |                      |                                  |                      |                                |                      |
| MCS0                  | 22                               | -93                  | —                              | —                    | 20                               | -91                  | —                              | —                    |
| MCS7                  | 20                               | -74                  | —                              | —                    | 17                               | -72                  | —                              | —                    |
| <b>802.11n HT40</b>   |                                  |                      |                                |                      |                                  |                      |                                |                      |
| MCS0                  | 20                               | -92                  | —                              | —                    | 19                               | -90                  | —                              | —                    |
| MCS7                  | 18                               | -73                  | —                              | —                    | 17                               | -71                  | —                              | —                    |
| <b>802.11ax HE20</b>  |                                  |                      |                                |                      |                                  |                      |                                |                      |
| MCS0                  | 22                               | -90                  | —                              | —                    | —                                | —                    | —                              | —                    |
| MCS11                 | 17                               | -71                  | —                              | —                    | —                                | —                    | —                              | —                    |
| <b>802.11ax HE40</b>  |                                  |                      |                                |                      |                                  |                      |                                |                      |
| MCS0                  | 19                               | -88                  | —                              | —                    | —                                | —                    | —                              | —                    |
| MCS11                 | 17                               | -68                  | —                              | —                    | —                                | —                    | —                              | —                    |
| <b>802.11a</b>        |                                  |                      |                                |                      |                                  |                      |                                |                      |
| 6 Mbps                | —                                | —                    | 20                             | -92                  | —                                | —                    | 20                             | -90                  |
| 54 Mbps               | —                                | —                    | 20                             | -72                  | —                                | —                    | 17.5                           | —                    |
| <b>802.11n HT20</b>   |                                  |                      |                                |                      |                                  |                      |                                |                      |
| MCS0                  | —                                | —                    | 20                             | -91                  | —                                | —                    | 20                             | -90                  |
| MCS7                  | —                                | —                    | 19                             | -72                  | —                                | —                    | 17.5                           | -71                  |
| <b>802.11n HT40</b>   |                                  |                      |                                |                      |                                  |                      |                                |                      |
| MCS0                  | —                                | —                    | 20                             | -88                  | —                                | —                    | 19                             | -88                  |
| MCS7                  | —                                | —                    | 18                             | -69                  | —                                | —                    | 16.5                           | -69                  |
| <b>802.11ac VHT20</b> |                                  |                      |                                |                      |                                  |                      |                                |                      |
| MCS0                  | —                                | —                    | 20                             | -91                  | —                                | —                    | 19                             | -90                  |
| MCS9                  | —                                | —                    | 19                             | -67                  | —                                | —                    | 17.5                           | -67                  |
| <b>802.11ac VHT40</b> |                                  |                      |                                |                      |                                  |                      |                                |                      |
| MCS0                  | —                                | —                    | 20                             | -88                  | —                                | —                    | 19                             | -88                  |
| MCS9                  | —                                | —                    | 18                             | -62                  | —                                | —                    | 16                             | -62                  |
| <b>802.11ac VHT80</b> |                                  |                      |                                |                      |                                  |                      |                                |                      |
| MCS0                  | —                                | —                    | 18                             | -85                  | —                                | —                    | 18                             | -85                  |
| MCS9                  | —                                | —                    | 17                             | -59                  | —                                | —                    | 16                             | -58                  |
| <b>802.11ax HE20</b>  |                                  |                      |                                |                      |                                  |                      |                                |                      |
| MCS0                  | —                                | —                    | 20                             | -90                  | —                                | —                    | —                              | —                    |
| MCS11                 | —                                | —                    | 18                             | -66                  | —                                | —                    | —                              | —                    |
| <b>802.11ac HE40</b>  |                                  |                      |                                |                      |                                  |                      |                                |                      |
| MCS0                  | —                                | —                    | 20                             | -87                  | —                                | —                    | —                              | —                    |
| MCS11                 | —                                | —                    | 18                             | -61                  | —                                | —                    | —                              | —                    |
| <b>802.11ac HE80</b>  |                                  |                      |                                |                      |                                  |                      |                                |                      |
| MCS0                  | —                                | —                    | 18                             | -94                  | —                                | —                    | —                              | —                    |
| MCS11                 | —                                | —                    | 17                             | -58                  | —                                | —                    | —                              | —                    |

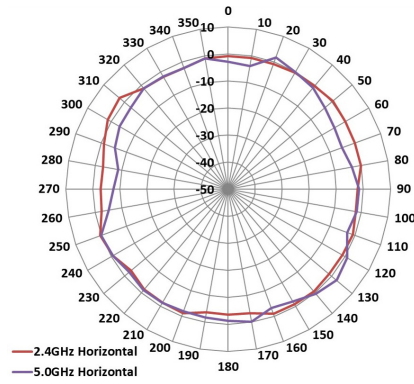


# Antenna Radiation Patterns

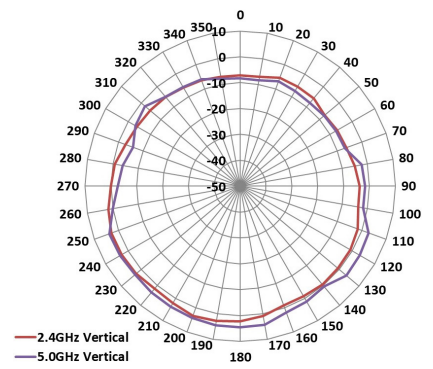
## FAP-431F



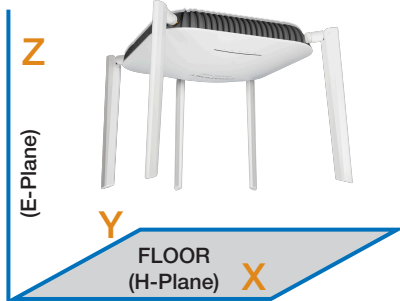
H-Plane Pattern



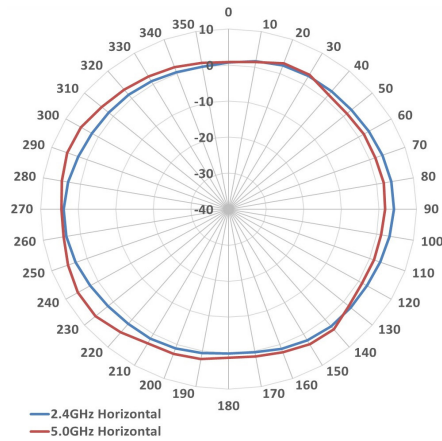
E-Plane Pattern



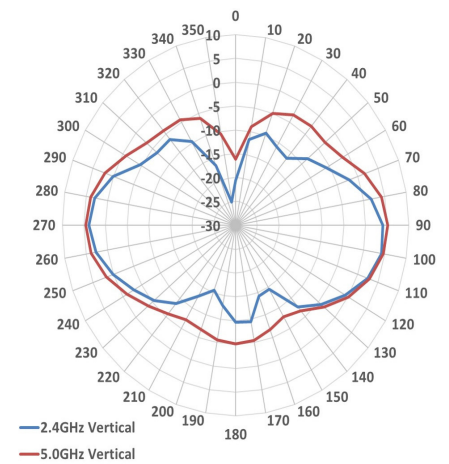
## FAP-433F



H-Plane Pattern



E-Plane Pattern





## Highlights

### FortiAP 421E and 423E

The FortiAP 421E and 423E access points support the latest 802.11ac Wave 2 standard. Additional features include 802.11ac explicit transmit beamforming (TxBF), multi-user MIMO (MU-MIMO), and more.



-  **802.11ac Wave 2 | Dual Radio 2.4 and 5 GHz | 8 Internal/External Antennas**
-  **4x4 MU-MIMO | Up to 800 + 1,733 Mbps**

## Specifications

|  | FORTIAP 421E  | FORTIAP 423E   |
|--|---|--|
| <b>Hardware</b>                          |   |  |
| Hardware Type                            | Indoor AP   | Indoor AP  |
| Number of Radios                         | 2   | 2  |
| Number of Antennas                       | 8 Internal  | 8 External (RP-SMA)                                  |
| Antenna Type and Peak Gain               | PIFA: 4 dBi for 2.4 GHz,<br>5 dBi for 5 GHz   | Dipole: 3 dBi for 2.4 GHz,<br>3 dBi for 5 GHz        |
| Frequency Bands (GHz)*                   | 2.400–2.4835, 5.150–5.250, 5.250–5.350, 5.470–5.725,<br>5.725–5.850   |  |
| Radio 1 Capabilities                     | 2.4 GHz b/g/n (4x4:4 stream) 20/40 MHz (256 QAM)  |  |
| Radio 2 Capabilities                     | 5 GHz a/n/ac (4x4:4 stream) 20/40/80 MHz (256 QAM)  |  |
| Maximum Data Rate                        | Radio 1: up to 800 Mbps<br>Radio 2: up to 1,733 Mbps  | Radio 1: up to 800 Mbps<br>Radio 2: up to 1,733 Mbps |
| Bluetooth Low Energy Radio               | —   | —  |
| Interfaces                               | 2x 10/100/1000 Base-T RJ45, 1x Type A USB,<br>1x RS-232 RJ45 Serial Port  |  |
| Power over Ethernet (PoE)                | Dual redundant PoE power ports with support for IEEE 802.3af<br>(2x2 operation with 802.3af)  |  |
| Simultaneous SSIDs                       | Up to 16 (14 if background scanning enabled)  |  |
| EAP Type(s)                              | EAP-TLS, EAP-TTLS/MSCHAPv2, EAPv0/EAP-MSCHAPv2,<br>PEAPv1/EAP-GTC, EAP-SIM, EAP-AKA, EAP-FAST   |  |
| User/Device Authentication               | WPA™, WPA2™, and WPA3™ with 802.1x or Preshared key, WEP,<br>Web Captive Portal, MAC blocklist & allowlist  |  |
| Maximum Tx Power                         | 2.4 GHz: 24 dBm / 251 mW (4 chains combined)*<br>5 GHz: 25 dBm / 316 mW (4 chains combined)*  |  |
| Kensington Lock                          | Yes   | Yes  |
| IEEE Standards                           | 802.11a, 802.11b, 802.11d, 802.11e, 802.11g, 802.11h, 802.11i,<br>802.11j, 802.11k, 802.11n, 802.11r, 802.11v, 802.11ac, 802.11x,<br>802.3ad, 802.3af, 802.3at, 802.3az |  |
| SSID Types Supported                     | Local-Bridge, Tunnel, Mesh  | Local-Bridge, Tunnel, Mesh                           |
| Per Radio Client Capacity                | Up to 512   | Up to 512  |
| Cellular Co-existence                    | No  | No   |
| LED Off Mode                             | Yes   | Yes  |
| <b>Advanced 802.11 Features</b>          |   |  |
| 802.11ac MU-MIMO Wave 2                  | Yes   | Yes  |
| Transmit Beam Forming (TxBF)             | Yes   | Yes  |
| Low-Density Parity Check (LDPC) Encoding | Yes   | Yes  |
| Maximum Likelihood Demodulation (MLD)    | Yes   | Yes  |
| Maximum Ratio Combining (MRC)            | Yes   | Yes  |

|   | FORTIAP 421E  | FORTIAP 423E   |
|---|---|--|
| A-MPDU and A-MSDU Packet Aggregation    | Yes   | Yes  |
| MIMO Power Save                         | Yes   | Yes  |
| Short Guard Interval                    | Yes   | Yes  |
| <b>Wireless Monitoring Capabilities</b> |   |  |
| Rogue Scan Radio Modes                  | Background, Full-time   | Background, Full-time  |
| WIPS / WIDS Radio Modes                 | Background, Full-time   | Background, Full-time  |
| Packet Sniffer Mode                     | Yes   | Yes  |
| Spectrum Analyzer                       | Yes   | Yes  |
| <b>Dimensions</b>                       |   |  |
| Length x Width x Height                 | 8.5 x 8.5 x 2.2 inches (215 x 215 x 56 mm)  |  |
| Weight                                  | 3.53 lbs (1.6 kg)   | 3.57 lbs (1.62 kg)   |
| Package (shipping) Weight               | 4.95 lbs (2.2 kg)   | 5.3 lbs (2.4 kg)   |
| Mounting Options                        | Ceiling, T-Rail, and Wall   | Ceiling, T-Rail, and Wall                                      |
| Included Accessories                    | Mount kits for Ceiling, T-Rail,<br>and Wall   | Mount kits for Ceiling, T-Rail, and<br>Wall, 8 dipole antennas |
| <b>Environment</b>                      |   |  |
| Power Supply                            | SP-FAP400-PA-XX, GPI-115, or GPI-130  |  |
| Power Consumption (Max.)                | 23 W max power draw in 802.3at mode and 12.95 W max power draw<br>when in 802.3af power mode (operates in 2x2 mode) |  |
| Humidity                                | 5–90% non-condensing  | 5–90% non-condensing   |
| Operating / Storage Temperature         | -4–122°F (-20–50°C) / -40–158°F (-40–70°C)  |  |
| Directives                              | Low Voltage Directive • RoHS  | Low Voltage Directive • RoHS                                   |
| UL2043 Plenum Material                  | Yes   | Yes  |
| Mean Time Between Failures              | >30 Years   | >30 Years  |
| IP Rating                               | —   | —  |
| Surge Protection Built In               | —   | —  |
| Hit-less PoE Failover                   | Yes   | Yes  |
| <b>Certifications</b>                   |   |  |
| Wi-Fi Alliance Certified                | Yes   | Yes  |
| DFS                                     | FCC, IC, CE, Japan, Taiwan, Korea   | FCC, IC, CE, Japan, Taiwan, Korea                              |
| <b>Warranty</b>                         |   |  |
| Limited Lifetime Warranty               | Yes   | Yes  |

\* Frequency selection and power may be restricted to abide by regional regulatory compliance laws.

## RF Rx/Tx Performance Table

| FORTIAP 421E / 423E |                                     |                      |                                   |                      |
|---------------------|-------------------------------------|----------------------|-----------------------------------|----------------------|
|                     | RADIO 1                             |                      | RADIO 2                           |                      |
| 802.11 a/g          | 2.4 GHz<br>Tx Power per Chain (dBm) | RX Sensitivity (dBm) | 5 GHz<br>Tx Power per Chain (dBm) | RX Sensitivity (dBm) |
| 6 Mbps              | 18                                  | -93                  | 19                                | -86                  |
| 9 Mbps              | 18                                  | -91                  | 19                                | -83                  |
| 12 Mbps             | 18                                  | -88                  | 19                                | -81                  |
| 18 Mbps             | 18                                  | -85                  | 19                                | -78                  |
| 24 Mbps             | 18                                  | -80                  | 19                                | -76                  |
| 36 Mbps             | 18                                  | -77                  | 18                                | -74                  |
| 48 Mbps             | 18                                  | -76                  | 18                                | -70                  |
| 54 Mbps             | 18                                  | -75                  | 16                                | -66                  |
| <b>802.11 HT20</b>  |                                     |                      |                                   |                      |
| MSC 0/8/16          | 18                                  | -87                  | 18                                | -84                  |
| MSC 1/9/17          | 17                                  | -84                  | 17                                | -81                  |
| MSC 2/10/18         | 17                                  | -81                  | 17                                | -79                  |
| MSC 3/11/19         | 16                                  | -78                  | 16                                | -76                  |
| MSC 4/12/20         | 16                                  | -73                  | 16                                | -72                  |
| MSC 5/13/21         | 15                                  | -70                  | 15                                | -68                  |
| MSC 6/14/22         | 15                                  | -69                  | 15                                | -67                  |
| MSC 7/15/23         | 15                                  | -67                  | 15                                | -66                  |
| <b>802.11 HT40</b>  |                                     |                      |                                   |                      |
| MSC 0/8/16          | 18                                  | -84                  | 18                                | -83                  |
| MSC 1/9/17          | 17                                  | -80                  | 17                                | -80                  |
| MSC 2/10/18         | 17                                  | -77                  | 17                                | -78                  |
| MSC 3/11/19         | 16                                  | -74                  | 16                                | -75                  |
| MSC 4/12/20         | 16                                  | -71                  | 16                                | -73                  |
| MSC 5/13/21         | 15                                  | -67                  | 15                                | -72                  |
| MSC 6/14/22         | 15                                  | -65                  | 15                                | -70                  |
| MSC 7/15/23         | 15                                  | -65                  | 15                                | -69                  |
| MSC 8/16/24         | —                                   | —                    | 15                                | -65                  |
| MSC 9/17/25         | —                                   | —                    | 15                                | -63                  |
| <b>802.11 HT80</b>  |                                     |                      |                                   |                      |
| MSC 0               | —                                   | —                    | 18                                | -83                  |
| MSC 1               | —                                   | —                    | 17                                | -80                  |
| MSC 2               | —                                   | —                    | 17                                | -78                  |
| MSC 3               | —                                   | —                    | 16                                | -75                  |
| MSC 4               | —                                   | —                    | 16                                | -73                  |
| MSC 5               | —                                   | —                    | 15                                | -72                  |
| MSC 6               | —                                   | —                    | 15                                | -70                  |
| MSC 7               | —                                   | —                    | 15                                | -69                  |
| MSC 8               | —                                   | —                    | 15                                | -65                  |
| MSC 9               | —                                   | —                    | 15                                | -63                  |

# Performance Matrix

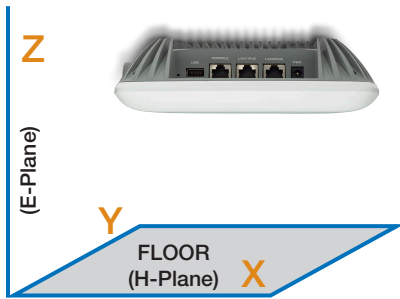
| FORTIAP 421E / 423E                      |              |           |          |           |          |           |          |          |
|--|--------------|-----------|----------|-----------|----------|-----------|----------|----------|
| 802.11AC PERFORMANCE — DATA RATES (MBPS) |              |           |          |           |          |           |          |          |
| Descriptor                               | Data Streams | VHT20     |          | VHT40     |          | VHT80     |          | Short GI |
|  |              | Normal GI | Short GI | Normal GI | Short GI | Normal GI | Short GI |          |
| MCS 0                                    | 1            | 6.5       | 7.2      | 13.5      | 15       | 29.3      | 32.5     |          |
| MCS 1                                    | 1            | 13        | 14.4     | 27        | 30       | 58.5      | 65       |          |
| MCS 2                                    | 1            | 19.5      | 21.7     | 40.5      | 45       | 87.8      | 97.5     |          |
| MCS 3                                    | 1            | 26        | 28.9     | 54        | 60       | 117       | 130      |          |
| MCS 4                                    | 1            | 39        | 43.3     | 81        | 90       | 175.5     | 195      |          |
| MCS 5                                    | 1            | 52        | 57.8     | 108       | 120      | 234       | 260      |          |
| MCS 6                                    | 1            | 58.5      | 65       | 121.5     | 135      | 263.3     | 292.5    |          |
| MCS 7                                    | 1            | 65        | 72.2     | 135       | 150      | 292.5     | 325      |          |
| MCS 8                                    | 1            | 78        | 86.7     | 162       | 180      | 351       | 390      |          |
| MCS 9                                    | 1            | NA        | NA       | 180       | 200      | 390       | 433.3    |          |
|  |              |           |          |           |          |           |          |          |
| MCS 0                                    | 2            | 13        | 14.4     | 27        | 30       | 58.5      | 65       |          |
| MCS 1                                    | 2            | 26        | 28.9     | 54        | 60       | 117       | 130      |          |
| MCS 2                                    | 2            | 39        | 43.3     | 81        | 90       | 175.5     | 195      |          |
| MCS 3                                    | 2            | 52        | 57.8     | 108       | 120      | 234       | 260      |          |
| MCS 4                                    | 2            | 78        | 86.7     | 162       | 180      | 351       | 390      |          |
| MCS 5                                    | 2            | 104       | 115.6    | 216       | 240      | 468       | 520      |          |
| MCS 6                                    | 2            | 117       | 130      | 243       | 270      | 526.5     | 585      |          |
| MCS 7                                    | 2            | 130       | 144.4    | 270       | 300      | 585       | 650      |          |
| MCS 8                                    | 2            | 156       | 173.3    | 324       | 360      | 702       | 780      |          |
| MCS 9                                    | 2            | NA        | NA       | 360       | 400      | 780       | 866.7    |          |
|  |              |           |          |           |          |           |          |          |
| MCS 0                                    | 3            | 19.5      | 21.7     | 40.5      | 45       | 87.8      | 97.5     |          |
| MCS 1                                    | 3            | 39        | 43.3     | 81        | 90       | 175.5     | 195      |          |
| MCS 2                                    | 3            | 58.5      | 65       | 121.5     | 135      | 263.3     | 292.5    |          |
| MCS 3                                    | 3            | 78        | 86.7     | 162       | 180      | 351       | 390      |          |
| MCS 4                                    | 3            | 117       | 130      | 243       | 270      | 526.5     | 585      |          |
| MCS 5                                    | 3            | 156       | 173.3    | 324       | 360      | 702       | 780      |          |
| MCS 6                                    | 3            | 175.5     | 195      | 364.5     | 405      | NA        | NA       |          |
| MCS 7                                    | 3            | 195       | 216.7    | 405       | 450      | 877.5     | 975      |          |
| MCS 8                                    | 3            | 234       | 260      | 486       | 540      | 1053      | 1170     |          |
| MCS 9                                    | 3            | 260       | 288.9    | 540       | 600      | 1170      | 1300     |          |
|  |              |           |          |           |          |           |          |          |
| MCS 0                                    | 4            | 26        | 28.9     | 54        | 60       | 117       | 130      |          |
| MCS 1                                    | 4            | 52        | 57.8     | 108       | 120      | 234       | 260      |          |
| MCS 2                                    | 4            | 78        | 86.7     | 162       | 180      | 351       | 390      |          |
| MCS 3                                    | 4            | 104       | 115.6    | 216       | 240      | 468       | 520      |          |
| MCS 4                                    | 4            | 156       | 173.3    | 324       | 360      | 702       | 780      |          |
| MCS 5                                    | 4            | 208       | 231.1    | 432       | 480      | 936       | 1040     |          |
| MCS 6                                    | 4            | 234       | 260      | 486       | 540      | 1053      | 1170     |          |
| MCS 7                                    | 4            | 260       | 288.9    | 540       | 600      | 1170      | 1300     |          |
| MCS 8                                    | 4            | 312       | 346.7    | 648       | 720      | 1404      | 1560     |          |
| MCS 9                                    | 4            | NA        | NA       | 720       | 800      | 1560      | 1733.3   |          |

## Performance Matrix

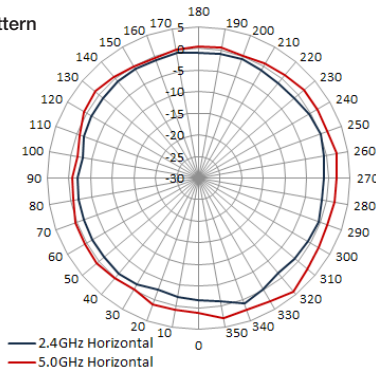
| FORTIAP 421E / 423E                     |                 |           |          |           |          |  |
|---|-----------------|-----------|----------|-----------|----------|--|
| 802.11N PERFORMANCE — DATA RATES (MBPS) |                 |           |          |           |          |  |
| Descriptor                              | Spatial Streams | HT20      |          | HT40      |          |  |
|   |                 | Normal GI | Short GI | Normal GI | Short GI |  |
| MCS 0                                   | 1               | 6.5       | 7.2      | 13.5      | 15       |  |
| MCS 1                                   | 1               | 13        | 14.4     | 27        | 30       |  |
| MCS 2                                   | 1               | 19.5      | 21.7     | 40.5      | 45       |  |
| MCS 3                                   | 1               | 26        | 28.9     | 54        | 60       |  |
| MCS 4                                   | 1               | 39        | 43.3     | 81        | 90       |  |
| MCS 5                                   | 1               | 52        | 57.8     | 108       | 120      |  |
| MCS 6                                   | 1               | 58.5      | 65       | 121.5     | 135      |  |
| MCS 7                                   | 1               | 65        | 72.2     | 135       | 150      |  |
| MCS 8                                   | 2               | 13        | 14.4     | 27        | 30       |  |
| MCS 9                                   | 2               | 26        | 28.9     | 54        | 60       |  |
| MCS10                                   | 2               | 39        | 43.3     | 81        | 90       |  |
| MCS 11                                  | 2               | 52        | 57.8     | 108       | 120      |  |
| MCS 12                                  | 2               | 78        | 86.7     | 162       | 180      |  |
| MCS 13                                  | 2               | 104       | 115.6    | 216       | 240      |  |
| MCS 14                                  | 2               | 117       | 130      | 243       | 270      |  |
| MCS 15                                  | 2               | 130       | 144.4    | 270       | 300      |  |
| MCS 16                                  | 3               | 19.5      | 21.7     | 40.5      | 45       |  |
| MCS 17                                  | 3               | 39        | 43.3     | 81        | 90       |  |
| MCS 18                                  | 3               | 58.5      | 65       | 121.5     | 135      |  |
| MCS 19                                  | 3               | 78        | 86.7     | 162       | 180      |  |
| MCS 20                                  | 3               | 117       | 130      | 243       | 270      |  |
| MCS 21                                  | 3               | 156       | 173.3    | 324       | 360      |  |
| MCS 22                                  | 3               | 175.5     | 195      | 364.5     | 405      |  |
| MCS 23                                  | 3               | 195       | 216.7    | 405       | 450      |  |

# Antenna Radiation Patterns

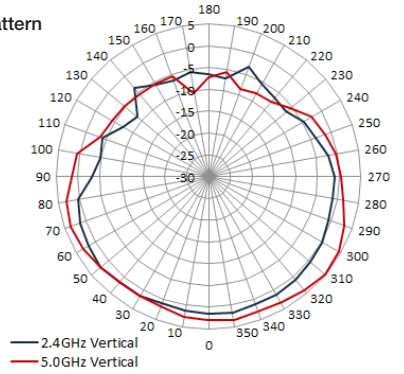
## FAP-421E



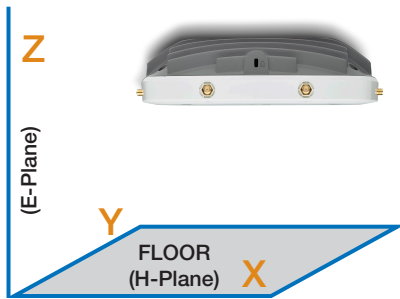
H-Plane Pattern



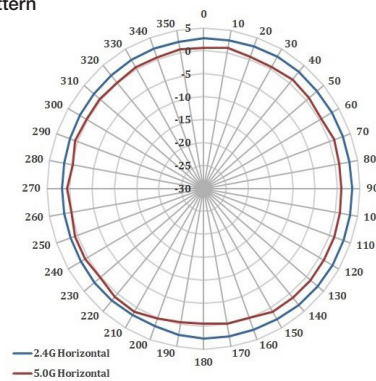
E-Plane Pattern



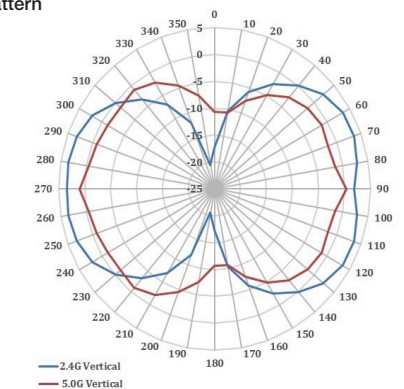
## FAP-423E



H-Plane Pattern



E-Plane Pattern





## Highlights

### FortiAP 321E

The FortiAP 321E is a dual-radio medium-density 3x3 802.11ac Wave 2 access point. This Enterprise-class access point is ideal for environments such as offices, classrooms, or retail establishments with performance throughput of up to 1,300 Mbps at 5GHz. The AP can support MU-MIMO and clients that utilize 3 streams for increased data throughput.



 **802.11ac Wave 2 | Dual Radio 5 GHz and 2.4 GHz | 6 Internal Antennas**

 **3x3 MIMO | Up to 450 + 1,300 Mbps**

## Specifications

| FORTIAP 321E                             |   |
|--|---|
| <b>Hardware</b>                          |   |
| Hardware Type                            | Indoor AP   |
| Number of Radios                         | 2 + 1 BLE   |
| Number of Antennas                       | 6 Internal + 1 BLE internal   |
| Antenna Type and peak Gain               | PIFA: 3 dBi for 2.4 GHz, 4 dBi for 5 GHz  |
| Frequency Bands (GHz)                    | 2.400–2.4835, 5.150–5.250, 5.250–5.350, 5.470–5.725, 5.725–5.850  |
| Radio 1 Capabilities                     | 2.4 GHz b/g/n (3x3:3 stream) 20/40 MHz (256 QAM)  |
| Radio 2 Capabilities                     | 5 GHz a/n/ac (3x3:3 stream) 20/40/80 MHz (256 QAM)  |
| Maximum Data Rate                        | Radio 1: up to 450 Mbps<br>Radio 2: up to 1,300 Mbps  |
| Bluetooth Low Energy Radio               | Bluetooth scanning and iBeacon advertisement @ 4 dBm max TX power   |
| Interfaces                               | 1x 10/100/1000 Base-T RJ45,<br>1x RS-232 RJ45 Serial Port   |
| Power over Ethernet (PoE)                | IEEE 802.3af & 802.3at  |
| Simultaneous SSIDs                       | Up to 16 (14 if background scanning enabled)  |
| EAP Type(s)                              | EAP-TLS, EAP-TTLS/MSCVAPv2, EAPv0/EAP-MSCHAPv2, PEAPv1/EAP-GTC, EAP-SIM, EAP-AKA, EAP-FAST  |
| User/Device Authentication               | WPA™, WPA2™, and WPA3™ with 802.1x or Pre-shared key, WEP, Web Captive Portal, MAC blocklist & allowlist                              |
| Maximum Tx Power                         | 2.4 GHz: 27.7 dBm/588 mW (3 chains combined)*<br>5 GHz: 27.7 dBm / 588 mW (3 chains combined)*  |
| Kensington Lock                          | Yes   |
| IEEE Standards                           | 802.11a, 802.11b, 802.11e, 802.11g, 802.11h, 802.11i, 802.11j, 802.11k, 802.11n, 802.11r, 802.11v, 802.11ac, 802.1X, 802.3af, 802.3at |
| SSID Types Supported                     | Local-Bridge, Mesh, & Tunnel  |
| Per Radio Client Capacity                | Up to 128 for Radio 1, Up to 512 for Radio 2  |
| Cellular Co-existence**                  | Yes   |
| LED Off Mode                             | Yes   |
| <b>Advanced 802.11 Features</b>          |   |
| 802.11ac MU-MIMO Wave 2                  | Yes   |
| Transmit Beam Forming (TxBF)             | Yes   |
| Low-Density Parity Check (LDPC) Encoding | Yes   |
| Maximum Likelihood Demodulation (MLD)    | Yes   |
| Maximum Ratio Combining (MRC)            | Yes   |

| FORTIAP 321E                            |   |
|---|---|
| A-MPDU and A-MSDU                       | Yes   |
| Packet Aggregation                      |   |
| MIMO Power Save                         | Yes   |
| Short Guard Interval                    | Yes   |
| OFDMA                                   | No  |
| <b>Wireless Monitoring Capabilities</b> |   |
| Rogue Scan Radio Modes                  | Background, Dedicated                         |
| WIPS / WIDS Radio Modes                 | Background, Dedicated                         |
| Packet Sniffer Mode                     | Yes   |
| Spectrum Analyzer                       | Yes   |
| <b>Dimensions</b>                       |   |
| Length x Width x Height                 | 7.08 x 7.08 x 1.50 inches (180 x 180 x 38 mm) |
| Weight                                  | 1.0 lbs (0.454 kg)                            |
| Package (shipping) Weight               | 1.60 lbs (0.73 kg)                            |
| Mounting Options                        | Ceiling, T-Rail, and Wall                     |
| Included Accessories                    | Mount kits for Ceiling, T-Rail, and Wall      |
| <b>Environment</b>                      |   |
| Power Supply                            | SP-FAP200-PA-XX, or GPI-130                   |
| Power Consumption (Maximum)             | 16.8 W  |
| Humidity                                | 10–90% non-condensing                         |
| Operating / Storage Temperature         | 14–113°F (-10–45°C) / -22–158°F (-30–70°C)    |
| Directives                              | Low Voltage Directive • RoHS                  |
| UL2043 Plenum Material                  | Yes   |
| Mean Time Between Failures              | >10 Years                                     |
| IP Rating                               | N/A   |
| Surge Protection Built In               | —   |
| Hit-less PoE Failover                   | No  |
| <b>Certifications</b>                   |   |
| WiFi Alliance Certified                 | No  |
| DFS                                     | FCC, CE                                       |
| <b>Warranty</b>                         |   |
| Limited Lifetime Warranty               | Yes   |

\* Frequency selection and power may be restricted to abide by regional regulatory compliance laws.

\*\* Additional filtration added to reduce interference in 2.4 GHz band from nearby cellular equipment.

## RF Rx/Tx Performance Table

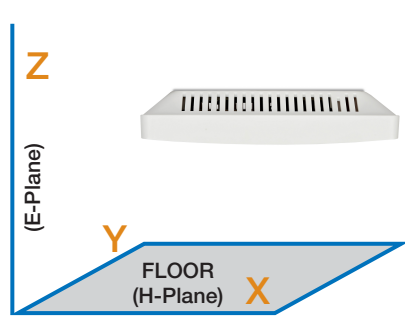
| FORTIAP 321E          |                                     |                      |                                   |                      |
|-----------------------|-------------------------------------|----------------------|-----------------------------------|----------------------|
|                       | RADIO 1                             |                      | RADIO 2                           |                      |
|                       | 2.4 GHz<br>Tx Power per Chain (dBm) | RX Sensitivity (dBm) | 5 GHz<br>Tx Power per Chain (dBm) | RX Sensitivity (dBm) |
| <b>802.11b</b>        |                                     |                      |                                   |                      |
| 1                     | 20                                  | -96                  | —                                 | —                    |
| 2                     | 20                                  | -95                  | —                                 | —                    |
| 5.5                   | 20                                  | -92                  | —                                 | —                    |
| 11                    | 20                                  | -89                  | —                                 | —                    |
| <b>802.11g/a</b>      |                                     |                      |                                   |                      |
| 6                     | 20                                  | -93                  | 20                                | -91                  |
| 9                     | 20                                  | -91                  | 20                                | -90                  |
| 12                    | 20                                  | -90                  | 20                                | -89                  |
| 18                    | 19                                  | -88                  | 19                                | -86                  |
| 24                    | 19                                  | -85                  | 19                                | -83                  |
| 36                    | 18                                  | -82                  | 18                                | -80                  |
| 48                    | 18                                  | -77                  | 18                                | -76                  |
| 54                    | 17                                  | -75                  | 18                                | -74                  |
| <b>802.11n HT20</b>   |                                     |                      |                                   |                      |
| MCS0                  | 20                                  | -91                  | 20                                | -91                  |
| MCS1                  | 20                                  | -89                  | 20                                | -88                  |
| MCS2                  | 20                                  | -88                  | 19                                | -86                  |
| MCS3                  | 20                                  | -83                  | 19                                | -83                  |
| MCS4                  | 19                                  | -80                  | 19                                | -79                  |
| MCS5                  | 18                                  | -75                  | 18                                | -75                  |
| MCS6                  | 17                                  | -73                  | 18                                | -74                  |
| MCS7                  | 17                                  | -71                  | 18                                | -72                  |
| <b>802.11n HT40</b>   |                                     |                      |                                   |                      |
| MCS0                  | 20                                  | -89                  | 19                                | -88                  |
| MCS1                  | 20                                  | -86                  | 19                                | -85                  |
| MCS2                  | 20                                  | -84                  | 18                                | -82                  |
| MCS3                  | 20                                  | -81                  | 18                                | -79                  |
| MCS4                  | 19                                  | -77                  | 18                                | -76                  |
| MCS5                  | 18                                  | -73                  | 18                                | -72                  |
| MCS6                  | 17                                  | -71                  | 18                                | -70                  |
| MCS7                  | 17                                  | -68                  | 17                                | -69                  |
| <b>802.11ac VHT20</b> |                                     |                      |                                   |                      |
| MCS0                  | —                                   | —                    | 20                                | -91                  |
| MCS1                  | —                                   | —                    | 20                                | -88                  |
| MCS2                  | —                                   | —                    | 19                                | -86                  |
| MCS3                  | —                                   | —                    | 18                                | -83                  |
| MCS4                  | —                                   | —                    | 18                                | -79                  |
| MCS5                  | —                                   | —                    | 18                                | -75                  |
| MCS6                  | —                                   | —                    | 18                                | -74                  |
| MCS7                  | —                                   | —                    | 18                                | -72                  |
| MCS8                  | —                                   | —                    | 18                                | -69                  |
| <b>802.11ac VHT40</b> |                                     |                      |                                   |                      |
| MCS0                  | —                                   | —                    | 19                                | -88                  |
| MCS1                  | —                                   | —                    | 19                                | -85                  |
| MCS2                  | —                                   | —                    | 18                                | -82                  |
| MCS3                  | —                                   | —                    | 18                                | -79                  |
| MCS4                  | —                                   | —                    | 18                                | -76                  |
| MCS5                  | —                                   | —                    | 18                                | -72                  |
| MCS6                  | —                                   | —                    | 18                                | -70                  |
| MCS7                  | —                                   | —                    | 17                                | -69                  |
| MCS8                  | —                                   | —                    | 17                                | -65                  |
| MCS9                  | —                                   | —                    | 17                                | -64                  |

## RF Rx/Tx Performance Table

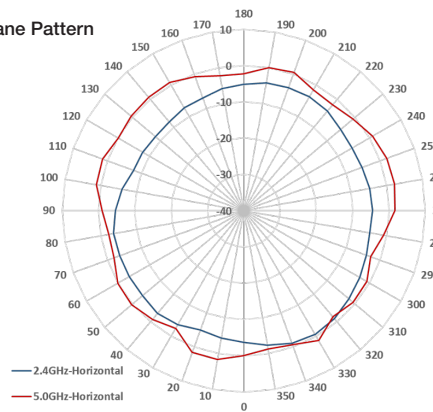
| STANDARD / DATA RATE | FORTIAP 321E                        |                      |                                   |                      |
|----------------------|-------------------------------------|----------------------|-----------------------------------|----------------------|
|                      | RADIO 1                             |                      | RADIO 2                           |                      |
| 802.11ac VHT80       | 2.4 GHz<br>Tx Power per Chain (dBm) | RX Sensitivity (dBm) | 5 GHz<br>Tx Power per Chain (dBm) | RX Sensitivity (dBm) |
| MCS0                 | —                                   | —                    | 19                                | -88                  |
| MCS1                 | —                                   | —                    | 19                                | -85                  |
| MCS2                 | —                                   | —                    | 18                                | -82                  |
| MCS3                 | —                                   | —                    | 18                                | -79                  |
| MCS4                 | —                                   | —                    | 18                                | -76                  |
| MCS5                 | —                                   | —                    | 18                                | -72                  |
| MCS6                 | —                                   | —                    | 18                                | -70                  |
| MCS7                 | —                                   | —                    | 17                                | 69                   |
| MCS8                 | —                                   | —                    | 17                                | -65                  |
| MCS9                 | —                                   | —                    | 17                                | -64                  |

## Antenna Radiation Patterns

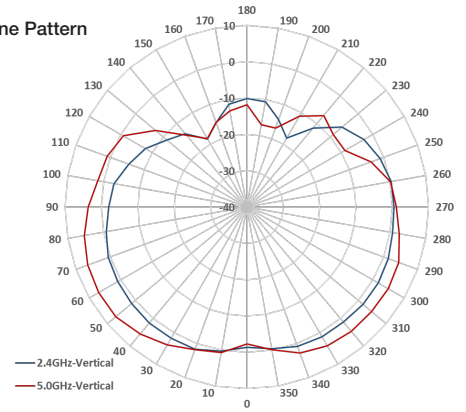
### FAP-321E



H-Plane Pattern



E-Plane Pattern



## Highlights

### FortiAP 221E and 223E\*

The FortiAP 221E and 223E are medium-density 802.11ac Wave 2 access points. These Enterprise-class access points are ideal for medium-density environments such as office or classroom with Performance Throughput of up to 867 Mbps.



 **802.11ac Wave 2 | Dual Radio 2.4 and 5 GHz | 4 Internal/External Antennas**

 **2x2 MU-MIMO | Up to 400 + 867 Mbps**

## Specifications

|  | FORTIAP 221E*   | FORTIAP 223E*   |
|--|---|---|
| <b>Hardware</b>                          |   |   |
| Hardware Type                            | Indoor AP   | Indoor AP   |
| Number of Radios                         | 2 + 1 BLE   | 2 + 1 BLE   |
| Number of Antennas                       | 4 Internal + 1 Internal BLE   | 4 External + 1 Internal BLE                           |
| Antenna Type and Peak Gain               | Patch: 4 dBi for 2.4 GHz,<br>5 dBi for 5 GHz  | Dipole: 4 dBi for 2.4 GHz,<br>5 dBi for 5 GHz         |
| Frequency Bands (GHz)**                  | 2.400–2.4835, 5.150–5.250, 5.250–5.350, 5.470–5.725,<br>5.725–5.850   |   |
| Radio 1 Capabilities                     | 2.4 GHz b/g/n (2x2:2 stream)<br>20/40 MHz (256 QAM)   | 2.4 GHz b/g/n (2x2:2 stream)<br>20/40 MHz (256 QAM)   |
| Radio 2 Capabilities                     | 5 GHz a/n/ac (2x2:2 stream)<br>20/40/80 MHz (256 QAM)   | 5 GHz a/n/ac (2x2:2 stream)<br>20/40/80 MHz (256 QAM) |
| Maximum Data Rate                        | Radio 1: up to 400 Mbps<br>Radio 2: up to 867 Mbps  | Radio 1: up to 400 Mbps<br>Radio 2: up to 867 Mbps    |
| Bluetooth Low Energy Radio               | Bluetooth scanning and iBeacon advertisement @ 4 dBm max TX power   |   |
| Interfaces                               | 1x 10/100/1000 Base-T RJ45  | 1x 10/100/1000 Base-T RJ45                            |
| Power over Ethernet (PoE)                | IEEE 802.3af  | IEEE 802.3af  |
| Simultaneous SSIDs                       | 16 (14 if background scanning enabled)  |   |
| EAP Type(s)                              | EAP-TLS, EAP-TTLS/MSCSHAPv2, EAPv0/EAP-MSCHAPv2,<br>PEAPv1/EAP-GTC, EAP-SIM, EAP-AKA, EAP-FAST  |   |
| User/Device Authentication               | WPA™, WPA2™, and WPA3™ with 802.1x or Preshared key, WEP,<br>Web Captive Portal, MAC blacklist & allowlist  |   |
| Maximum Tx Power                         | 2.4 GHz: 23 dBm / 200 mW (2 chains combined)**<br>5 GHz: 24 dBm / 251 mW (2 chains combined)**  |   |
| Kensington Lock                          | Yes   | Yes   |
| IEEE Standards                           | 802.11a, 802.11b, 802.11d, 802.11e, 802.11g, 802.11h, 802.11i,<br>802.11j, 802.11k, 802.11n, 802.11r, 802.11v, 802.11ac, 802.11x,<br>802.3af, 802.3az |   |
| SSID Types Supported                     | Local-Bridge, Tunnel, Mesh  | Local-Bridge, Tunnel, Mesh                            |
| Per Radio Client Capacity                | Up to 512   | Up to 512   |
| Cellular Co-existence                    | Yes   | Yes   |
| LED Off Mode                             | Yes   | Yes   |
| <b>Advanced 802.11 Features</b>          |   |   |
| 802.11ac Wave 2 MU-MIMO                  | Yes   | Yes   |
| Transmit Beam Forming (TxBF)             | Yes   | Yes   |
| Low-Density Parity Check (LDPC) Encoding | Yes   | Yes   |
| Maximum Likelihood Demodulation (MLD)    | Yes   | Yes   |
| Maximum Ratio Combining (MRC)            | Yes   | Yes   |
| A-MPDU and A-MSDU Packet Aggregation     | Yes   | Yes   |

|   | FORTIAP 221E*                               | FORTIAP 223E*  |
|---|---|--|
| MIMO Power Save                         | Yes   | Yes  |
| Short Guard Interval                    | Yes   | Yes  |
| <b>Wireless Monitoring Capabilities</b> |   |  |
| Rogue Scan Radio Modes                  | Background, Full-time                       | Background, Full-time  |
| WIPS / WIDS Radio Modes                 | Background, Full-time                       | Background, Full-time  |
| Packet Sniffer Mode                     | Yes   | Yes  |
| Spectrum Analyzer                       | Yes   | Yes  |
| <b>Dimensions</b>                       |   |  |
| Length x Width x Height                 | 6.3 x 6.3 x 1.85 inches (160 x 160 x 47 mm) |  |
| Weight                                  | 1.1 lbs (0.5 kg)                            | 1.1 lbs (0.5 kg)   |
| Package (shipping) Weight               | 4.95 lbs (2.2 kg)                           | 5.3 lbs (2.4 kg)   |
| Mounting Options                        | Ceiling, T-Rail, and Wall                   | Ceiling, T-Rail, and Wall                                      |
| Included Accessories                    | Mount kits for Ceiling, T-Rail,<br>and Wall | Mount kits for Ceiling, T-Rail, and<br>Wall, 4 dipole antennas |
| <b>Environment</b>                      |   |  |
| Power Supply                            | SP-FAP200-PA-XX, GPI-115, or GPI-130        |  |
| Power Consumption (Max.)                | 12.36 W                                     | 12.36 W  |
| Humidity                                | 5–90% non-condensing                        | 5–90% non-condensing   |
| Operating / Storage Temperature         | -4–113°F (-20–45°C) / -40–158°F (-40–70°C)  |  |
| Directives                              | Low Voltage Directive • RoHS                | Low Voltage Directive • RoHS                                   |
| UL2043 Plenum Material                  | Yes   | Yes  |
| Mean Time Between Failures              | >30 Years                                   | >30 Years  |
| IP Rating                               | —   | —  |
| Surge Protection Built In               | —   | —  |
| Hit-less PoE Failover                   | No  | No   |
| <b>Certifications</b>                   |   |  |
| Wi-Fi Alliance Certified                | Yes   | Yes  |
| DFS                                     | FCC, IC, CE, Japan, Taiwan, Korea           | FCC, IC, CE, Japan, Taiwan, Korea                              |
| <b>Warranty</b>                         |   |  |
| Limited Lifetime Warranty               | Yes   | Yes  |

\* These AP models are Gen 2 with part number: P23607-0x (for 221E) and P23611-0x (for 223E).

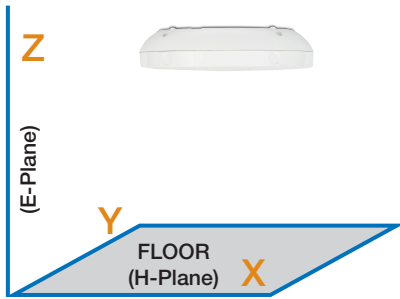
\*\* Frequency selection and power may be restricted to abide by regional regulatory compliance laws.

## RF Rx/Tx Performance Table

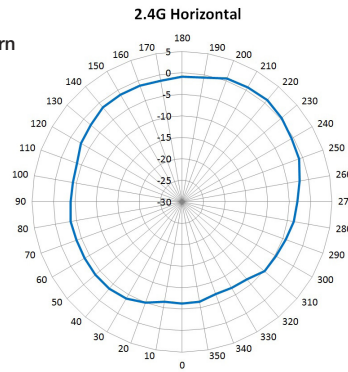
| FORTIAP 221E / 223E   |                           |                      |                         |                      |
|-----------------------|---------------------------|----------------------|-------------------------|----------------------|
|                       | RADIO 1                   |                      | RADIO 2                 |                      |
| 802.11 a/g            | 2.4 GHz<br>Tx Power (dBm) | RX Sensitivity (dBm) | 5 GHz<br>Tx Power (dBm) | RX Sensitivity (dBm) |
| 6 Mbps                | 20                        | -93                  | 21                      | -91                  |
| 9 Mbps                | 20                        | -91                  | 21                      | -90                  |
| 12 Mbps               | 20                        | -90                  | 21                      | -89                  |
| 18 Mbps               | 19                        | -88                  | 21                      | -86                  |
| 24 Mbps               | 19                        | -85                  | 21                      | -83                  |
| 36 Mbps               | 18                        | -82                  | 21                      | -80                  |
| 48 Mbps               | 18                        | -77                  | 19                      | -76                  |
| 54 Mbps               | 17                        | -75                  | 19                      | -74                  |
| <b>802.11n HT20</b>   |                           |                      |                         |                      |
| MCS 0/8/16            | 20                        | -91                  | 21                      | -91                  |
| MCS 1/9/17            | 19                        | -89                  | 21                      | -88                  |
| MCS 2/10/18           | 19                        | -86                  | 21                      | -86                  |
| MCS 3/11/19           | 18                        | -83                  | 21                      | -83                  |
| MCS 4/12/20           | 18                        | -80                  | 21                      | -79                  |
| MCS 5/13/21           | 17                        | -75                  | 21                      | -75                  |
| MCS 6/14/22           | 17                        | -73                  | 19                      | -74                  |
| MCS 7/15/23           | 16                        | -71                  | 19                      | -72                  |
| <b>802.11n HT40</b>   |                           |                      |                         |                      |
| MCS 0/8/16            | 19                        | -89                  | 20                      | -88                  |
| MCS 1/9/17            | 19                        | -86                  | 20                      | -85                  |
| MCS 2/10/18           | 18                        | -84                  | 20                      | -82                  |
| MCS 3/11/19           | 18                        | -81                  | 20                      | -79                  |
| MCS 4/12/20           | 17                        | -77                  | 20                      | -76                  |
| MCS 5/13/21           | 17                        | -73                  | 20                      | -72                  |
| MCS 6/14/22           | 16                        | -71                  | 19                      | -70                  |
| MCS 7/15/23           | 16                        | -69                  | 19                      | -69                  |
| <b>802.11ac VHT20</b> |                           |                      |                         |                      |
| MCS 0                 | 19                        | -91                  | 21                      | -91                  |
| MCS 1                 | 19                        | -89                  | 21                      | -88                  |
| MCS 2                 | 19                        | -86                  | 21                      | -86                  |
| MCS 3                 | 18                        | -83                  | 21                      | -83                  |
| MCS 4                 | 18                        | -80                  | 21                      | -79                  |
| MCS 5                 | 18                        | -76                  | 21                      | -75                  |
| MCS 6                 | 18                        | -73                  | 19                      | -74                  |
| MCS 7                 | 18                        | -71                  | 19                      | -72                  |
| MCS 8                 | 18                        | -68                  | 18                      | -69                  |
| <b>802.11ac VHT40</b> |                           |                      |                         |                      |
| MCS 0                 | 19                        | -89                  | 20                      | -88                  |
| MCS 1                 | 19                        | -86                  | 20                      | -85                  |
| MCS 2                 | 19                        | -84                  | 20                      | -82                  |
| MCS 3                 | 18                        | -81                  | 20                      | -79                  |
| MCS 4                 | 17                        | -77                  | 20                      | -76                  |
| MCS 5                 | 17                        | -73                  | 20                      | -72                  |
| MCS 6                 | 17                        | -71                  | 19                      | -70                  |
| MCS 7                 | 17                        | -69                  | 19                      | -69                  |
| MCS 8                 | 17                        | -68                  | 18                      | -65                  |
| MCS 9                 | 16                        | -66                  | 17                      | -64                  |
| <b>802.11ac VHT80</b> |                           |                      |                         |                      |
| MCS 0                 | —                         | —                    | 19                      | -85                  |
| MCS 1                 | —                         | —                    | 19                      | -83                  |
| MCS 2                 | —                         | —                    | 19                      | -80                  |
| MCS 3                 | —                         | —                    | 19                      | -77                  |
| MCS 4                 | —                         | —                    | 19                      | -74                  |
| MCS 5                 | —                         | —                    | 19                      | -71                  |
| MCS 6                 | —                         | —                    | 18                      | -69                  |
| MCS 7                 | —                         | —                    | 18                      | -68                  |
| MCS 8                 | —                         | —                    | 17                      | -63                  |
| MCS 9                 | —                         | —                    | 17                      | -61                  |

# Antenna Radiation Patterns

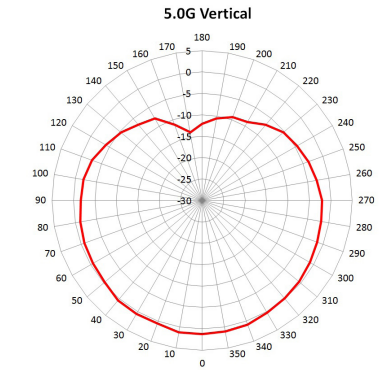
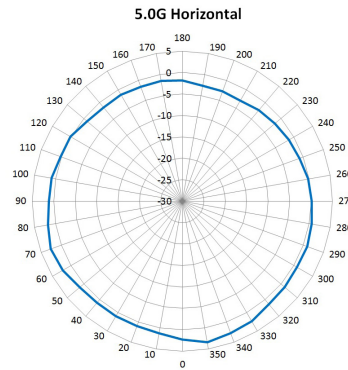
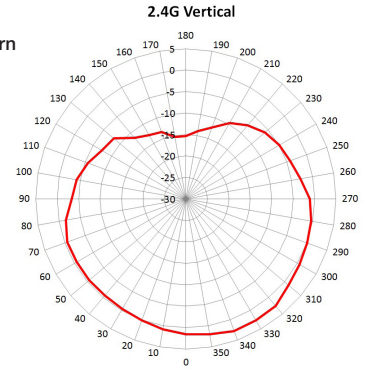
## FAP-221E



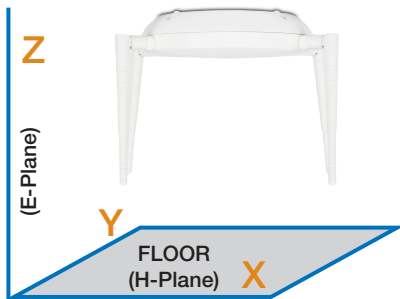
H-Plane Pattern



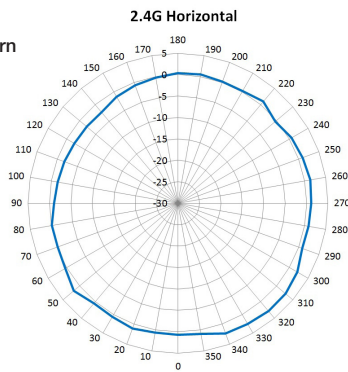
E-Plane Pattern



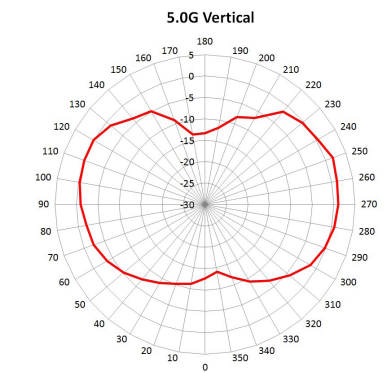
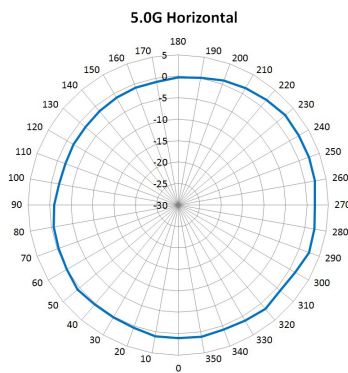
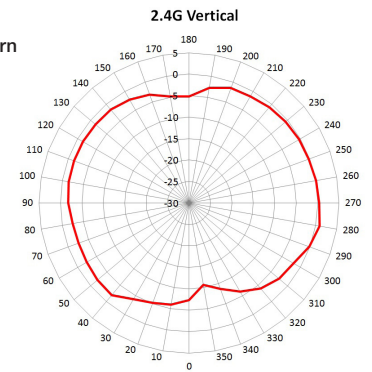
## FAP-223E



H-Plane Pattern



E-Plane Pattern






# Highlights

## FortiAP 231E

The FortiAP 231E is a tri-radio medium-density 802.11ac Wave 2 access point. This Enterprise-class access point is ideal for environments such as offices, classrooms, or retail establishments with performance throughput of up to 867 Mbps per radio. The AP can be configured for dual 5 GHz band access while still providing coverage for devices on the 2.4 GHz band or can be configured to offer dedicated scanning with the third radio.



 **802.11ac Wave 2 | Tri Radio 5 GHz + 2.4 GHz + scanning or 5 GHz + 5 GHz + scanning or 5 GHz + 5 GHz + 2.4 GHz | 6 Internal Antennas**

 **2x2 MIMO | Up to 867 + 867 + 400 Mbps**

# Specifications

| FORTIAP 231E                             |  |
|--|--|
| <b>Hardware</b>                          |  |
| Hardware Type                            | Indoor AP  |
| Number of Radios                         | 3 + 1 BLE  |
| Number of Antennas                       | 6 Internal + 1 BLE internal  |
| Antenna Type and peak Gain               | PIFA: 4 dBi for 2.4 GHz, 5 dBi for 5 GHz   |
| Frequency Bands (GHz)                    | 2.400–2.4835, 5.150–5.250, 5.250–5.350, 5.470–5.725, 5.725–5.850   |
| Radio 1 Capabilities                     | 2.4 GHz or 5.0 GHz (high band) a/b/g/n/ac W2 (2x2:2 stream) 20/40/80 MHz (256 QAM)   |
| Radio 2 Capabilities                     | 5.0 GHz a/n/ac W2 (2x2:2 stream) 20/40/80 MHz (256 QAM)  |
| Radio 3 Capabilities                     | 2.4/5.0 GHz dual band b/g/n (2x2:2 stream) 20/40 MHz (256 QAM)   |
| Maximum Data Rate                        | Radio 1: up to 867 Mbps<br>Radio 2: up to 867 Mbps<br>Radio 3: up to 400 Mbps  |
| Bluetooth Low Energy Radio               | Bluetooth scanning and iBeacon advertisement @ 6 dBm max TX power  |
| Interfaces                               | 2x 10/100/1000 Base-T RJ45, 1x RS-232 RJ45 Serial Port   |
| Power over Ethernet (PoE)                | IEEE 802.3af or 802.3at  |
| Simultaneous SSIDs                       | Up to 24 (21 if background scanning enabled)   |
| EAP Type(s)                              | EAP-TLS, EAP-TTLS/MSCSHAPv2, EAPv0/EAP-MSCSHAPv2, PEAPv1/EAP-GTC, EAP-SIM, EAP-AKA, EAP-FAST   |
| User/Device Authentication               | WPA™, WPA2™, and WPA3™ with 802.1x or Pre-shared key, WEP, Web Captive Portal, MAC blacklist and allowlist                                     |
| Maximum Tx Power                         | 2.4 GHz: 24 dBm / 251 mW (2 chains combined)*<br>5 GHz: 25 dBm / 316 mW (2 chains combined)*   |
| Kensington Lock                          | Yes  |
| IEEE Standards                           | 802.11a, 802.11b, 802.11e, 802.11g, 802.11h, 802.11i, 802.11j, 802.11k, 802.11n, 802.11r, 802.11v, 802.11ac, 802.1x, 802.3ad, 802.3af, 802.3at |
| SSID Types Supported                     | Local-Bridge, Mesh, & Tunnel   |
| Per Radio Client Capacity                | Up to 512 for Radio 1 & 2, Up to 128 for Radio 3   |
| Cellular Co-existence**                  | Yes  |
| LED Off Mode                             | Yes  |
| <b>Advanced 802.11 Features</b>          |  |
| 802.11ac MU-MIMO Wave 2                  | Yes  |
| Transmit Beam Forming (TxBF)             | Yes  |
| Low-Density Parity Check (LDPC) Encoding | Yes  |
| Maximum Likelihood Demodulation (MLD)    | Yes  |

| FORTIAP 231E                            |  |
|---|--|
| Maximum Ratio Combining (MRC)           | Yes  |
| A-MPDU and A-MSDU Packet Aggregation    | Yes  |
| MIMO Power Save                         | Yes  |
| Short Guard Interval                    | Yes  |
| OFDMA                                   | No   |
| <b>Wireless Monitoring Capabilities</b> |  |
| Rogue Scan Radio Modes                  | Background, Dedicated  |
| WIPS / WIDS Radio Modes                 | Background, Dedicated  |
| Packet Sniffer Mode                     | Yes  |
| Spectrum Analyzer                       | Yes  |
| <b>Dimensions</b>                       |  |
| Length x Width x Height                 | 7.87 x 7.87 x 1.81 inches (200 x 200 x 46 mm)                                      |
| Weight                                  | 1.2 lbs (0.55 kg)  |
| Package (shipping) Weight               | 2.5 lbs (1.15 kg)  |
| Mounting Options                        | Ceiling, T-Rail, and Wall  |
| Included Accessories                    | Mount kits for Ceiling, T-Rail, and Wall   |
| <b>Environment</b>                      |  |
| Power Supply                            | SP-FAP200-PA-XX, GPI-130   |
| Power Consumption (Maximum)             | 17 W with 802.3at PoE, 12.9 W with 802.3af PoE- reduced TX power (13dBm per radio) |
| Humidity                                | 5–93% non-condensing   |
| Operating / Storage Temperature         | 32–104°F (0–40°C) / -31–158°F (-35–70°C)   |
| Directives                              | Low Voltage Directive • RoHS   |
| UL2043 Plenum Material                  | Yes  |
| Mean Time Between Failures              | >10 Years  |
| IP Rating                               | —  |
| Surge Protection Built In               | —  |
| Hit-less PoE Failover                   | No   |
| <b>Certifications</b>                   |  |
| WiFi Alliance Certified                 | Yes  |
| DFS                                     | FCC, CE  |
| <b>Warranty</b>                         |  |
| Limited Lifetime Warranty               | Yes  |

\* Frequency selection and power may be restricted to abide by regional regulatory compliance laws.  
 \*\* Additional filtration added to reduce interference in 2.4 GHz band from nearby cellular equipment.

## RF Rx/Tx Performance Table

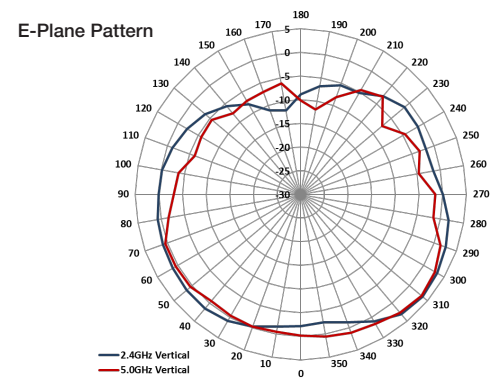
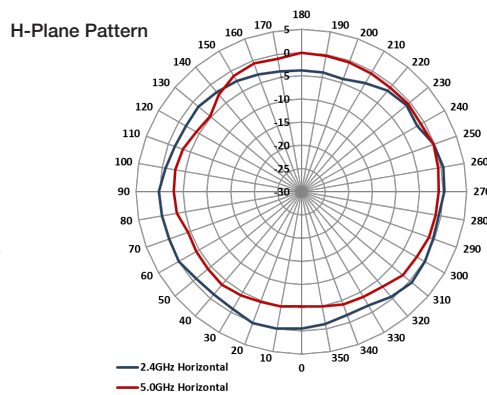
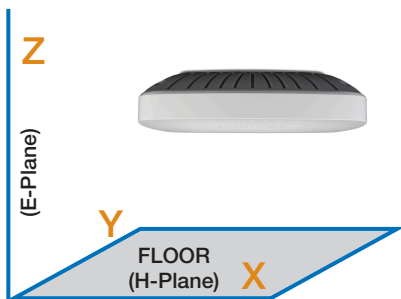
| FORTIAP 231E          |                                     |                      |                                   |                      |
|-----------------------|-------------------------------------|----------------------|-----------------------------------|----------------------|
| 802.11b               | 2.4 GHz<br>Tx Power per Chain (dBm) | RX Sensitivity (dBm) | 5 GHz<br>Tx Power per Chain (dBm) | RX Sensitivity (dBm) |
| 1                     | 20                                  | -98                  | —                                 | —                    |
| 2                     | 20                                  | -97                  | —                                 | —                    |
| 5.5                   | 20                                  | -94                  | —                                 | —                    |
| 11                    | 20                                  | -91                  | —                                 | —                    |
| <b>802.11g/a</b>      |                                     |                      |                                   |                      |
| 6                     | 20                                  | -96                  | 20                                | -94                  |
| 9                     | 20                                  | -94                  | 20                                | -93                  |
| 12                    | 20                                  | -93                  | 20                                | -92                  |
| 18                    | 19                                  | -91                  | 20                                | -89                  |
| 24                    | 24                                  | -87                  | 20                                | -86                  |
| 36                    | 18                                  | -84                  | 19                                | -83                  |
| 48                    | 17                                  | -79                  | 18                                | -78                  |
| 54                    | 17                                  | -78                  | 17                                | -76                  |
| <b>802.11n HT20</b>   |                                     |                      |                                   |                      |
| MCS0                  | 20                                  | -95                  | 19                                | -94                  |
| MCS1                  | 20                                  | -93                  | 19                                | -91                  |
| MCS2                  | 18                                  | -90                  | 19                                | -89                  |
| MCS3                  | 18                                  | -87                  | 19                                | -86                  |
| MCS4                  | 17                                  | -84                  | 19                                | -82                  |
| MCS5                  | 17                                  | -79                  | 18                                | -77                  |
| MCS6                  | 17                                  | -77                  | 17                                | -76                  |
| MCS7                  | 16                                  | -76                  | 17                                | -74                  |
| <b>802.11n HT40</b>   |                                     |                      |                                   |                      |
| MCS0                  | 19                                  | -93                  | 19                                | -90                  |
| MCS1                  | 19                                  | -90                  | 19                                | -88                  |
| MCS2                  | 19                                  | -88                  | 19                                | -86                  |
| MCS3                  | 18                                  | -84                  | 19                                | -82                  |
| MCS4                  | 18                                  | -81                  | 19                                | -79                  |
| MCS5                  | 17                                  | -76                  | 18                                | -75                  |
| MCS6                  | 17                                  | -75                  | 17                                | -73                  |
| MCS7                  | 16                                  | -73                  | 17                                | -71                  |
| <b>802.11ac VHT20</b> |                                     |                      |                                   |                      |
| MCS0                  | —                                   | —                    | 19                                | -90                  |
| MCS1                  | —                                   | —                    | 19                                | -87                  |
| MCS2                  | —                                   | —                    | 19                                | -85                  |
| MCS3                  | —                                   | —                    | 19                                | -82                  |
| MCS4                  | —                                   | —                    | 19                                | -79                  |
| MCS5                  | —                                   | —                    | 18                                | -73                  |
| MCS6                  | —                                   | —                    | 17                                | -72                  |
| MCS7                  | —                                   | —                    | 17                                | -73                  |
| MCS8                  | —                                   | —                    | 17                                | -67                  |
| <b>802.11ac VHT40</b> |                                     |                      |                                   |                      |
| MCS0                  | —                                   | —                    | 19                                | -87                  |
| MCS1                  | —                                   | —                    | 19                                | -83                  |
| MCS2                  | —                                   | —                    | 19                                | -81                  |
| MCS3                  | —                                   | —                    | 19                                | -78                  |
| MCS4                  | —                                   | —                    | 19                                | -75                  |
| MCS5                  | —                                   | —                    | 18                                | -73                  |
| MCS6                  | —                                   | —                    | 17                                | -70                  |
| MCS7                  | —                                   | —                    | 17                                | -68                  |
| MCS8                  | —                                   | —                    | 17                                | -64                  |
| MCS9                  | —                                   | —                    | 16                                | -62                  |

## RF Rx/Tx Performance Table

| FORTIAP 231E   |                                     |                      |                                   |                      |
|----------------|-------------------------------------|----------------------|-----------------------------------|----------------------|
| 802.11ac VHT80 | 2.4 GHz<br>Tx Power per Chain (dBm) | RX Sensitivity (dBm) | 5 GHz<br>Tx Power per Chain (dBm) | RX Sensitivity (dBm) |
| MCS0           | —                                   | —                    | 18                                | -84                  |
| MCS1           | —                                   | —                    | 18                                | -80                  |
| MCS2           | —                                   | —                    | 18                                | -78                  |
| MCS3           | —                                   | —                    | 18                                | -75                  |
| MCS4           | —                                   | —                    | 18                                | -72                  |
| MCS5           | —                                   | —                    | 17                                | -70                  |
| MCS6           | —                                   | —                    | 16                                | -67                  |
| MCS7           | —                                   | —                    | 16                                | -65                  |
| MCS8           | —                                   | —                    | 16                                | -61                  |
| MCS9           | —                                   | —                    | 15                                | -59                  |

## Antenna Radiation Patterns

### FAP-231E



## Highlights

### FortiAP 222E

The FAP-222E is a new member of our 802.11ac Wave 2 family with MU-MIMO capability and transmit beamforming capable of handling an astounding 512 clients per radio. This high-performance dual-band AP is ruggedized with an Ingress Protection IP67-rated enclosure capable of withstanding extended temperature ranges. The FAP-222E is suitable for deployment in harsh conditions. It has 4 external antennas for Wi-Fi and one Bluetooth and is suitable for mission-critical bridging or mesh deployments.



 **802.11ac Wave 2 | Dual Radio 2.4 and 5 GHz | High Gain Omni-directional Antennas**

 **2x2 MU-MIMO | Up to 400 + 866.7 Mbps**

## Specifications

| FORTIAP 222E                             |  |
|--|--|
| <b>Hardware</b>                          |  |
| Hardware Type                            | Outdoor AP   |
| Number of Radios                         | 2 + 1 BLE  |
| Number of Antennas                       | 4 External (Type N) + 1 BLE External (RP-SMA)  |
| Antenna Type and Peak Gain               | Dipole: 5 dBi for 2.4 GHz, 7 dBi for 5 GHz   |
| Frequency Bands (GHz)*                   | 2.400–2.4835, 5.150–5.250, 5.250–5.350, 5.470–5.725, 5.725–5.850   |
| Radio 1 Capabilities                     | 2.4 GHz b/g/n (2x2:2 stream) 20/40 MHz (256 QAM)   |
| Radio 2 Capabilities                     | 5 GHz a/n/ac (2x2:2 stream) 20/40/80 MHz (256 QAM)   |
| Maximum Data Rate                        | Radio 1: up to 400 Mbps, Radio 2: up to 867 Mbps   |
| Bluetooth Low Energy Radio               | Bluetooth scanning and iBeacon advertisement @ 4 dBm max TX power  |
| Interfaces                               | 1x 10/100/1000 Base-T RJ45   |
| Power over Ethernet (PoE)                | IEEE 802.3af/at  |
| Simultaneous SSIDs                       | Up to 16 (14 if background scanning enabled)   |
| EAP Type(s)                              | EAP-TLS, EAP-TTLS/MSCHAPv2, EAPv0/EAP-MSCHAPv2, PEAPv1/EAP-GTC, EAP-SIM, EAP-AKA, EAP-FAST   |
| User/Device Authentication               | WPA™, WPA2™, WPA3™ and with 802.1x or Preshared key, WEP, Web Captive Portal, MAC blacklist & allowlist  |
| Maximum Tx Power                         | 2.4 GHz: 27.2 dBm / 525 mW (2 chains combined)*<br>5 GHz: 29.5 dBm / 891 mW (2 chains combined)*   |
| Kensington Lock                          | No   |
| IEEE Standards                           | 802.11a, 802.11b, 802.11d, 802.11e, 802.11g, 802.11h, 802.11i, 802.11j, 802.11k, 802.11n, 802.11r, 802.11v, 802.11ac, 802.11x, 802.3af, 802.3at, 802.3az |
| SSID Types Supported                     | Local-Bridge, Tunnel & Mesh (when managed by controller)   |
| Per Radio Client Capacity                | Up to 512  |
| Cellular Co-existence                    | Yes  |
| LED Off Mode                             | Yes  |
| <b>Advanced 802.11 Features</b>          |  |
| 802.11ac Wave2 MU-MIMO                   | Yes  |
| Transmit Beam Forming (TxBF)             | Yes  |
| Low-Density Parity Check (LDPC) Encoding | Yes  |
| Maximum Likelihood Demodulation (MLD)    | Yes  |
| Maximum Ratio Combining (MRC)            | Yes  |

| FORTIAP 222E                            |  |
|---|--|
| A-MPDU and A-MSDU Packet Aggregation    | Yes  |
| MIMO Power Save                         | Yes  |
| Short Guard Interval                    | Yes  |
| <b>Wireless Monitoring Capabilities</b> |  |
| Rogue Scan Radio Modes                  | Background, Full-time  |
| WIPS / WIDS Radio Modes                 | Background, Full-time  |
| Packet Sniffer Mode                     | Yes  |
| Spectrum Analyzer                       | Yes  |
| <b>Dimensions</b>                       |  |
| Length x Width x Height                 | 9.8 x 8.66 x 2 inches (249 x 220 x 53 mm)  |
| Weight                                  | 3.40 lbs (1.54 kg)   |
| Package (shipping) Weight               | 8.40 lbs (3.81 kg)   |
| Mounting Options                        | Wall Mount or Pole Mount   |
| Included Accessories                    | Mounting kit for Wall or Pole, Grounding cable, 4 dipole Wi-Fi antennas, 1 BLE antenna |
| <b>Environment</b>                      |  |
| Power Supply                            | GPI-115, or GPI-130  |
| Power Consumption (Maximum)             | 12.95 W  |
| Humidity                                | 5–90% non-condensing   |
| Operating / Storage Temperature         | -40–140°F (-40–60°C) / -40–158°F (-40–70°C)  |
| Directives                              | Low Voltage Directive • RoHS   |
| UL2043 Plenum Material                  | No   |
| Mean Time Between Failures              | >10 Years  |
| IP Rating                               | IP67   |
| Surge Protection Built In               | Yes  |
| Hit-less PoE Failover                   | No   |
| <b>Certifications</b>                   |  |
| Wi-Fi Alliance Certified                | Yes  |
| DFS                                     | FCC, IC, CE, Japan, Taiwan   |
| <b>Warranty</b>                         |  |
| Limited Lifetime Warranty               | No — 1 Year Limited Warranty   |

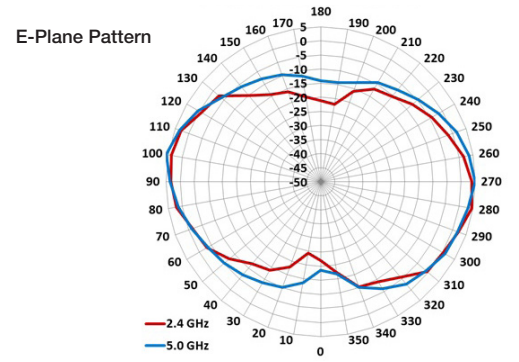
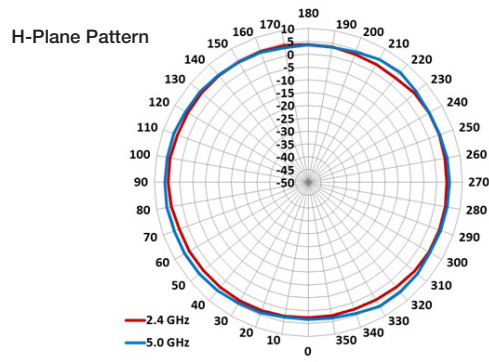
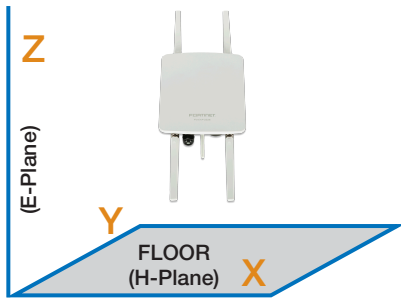
\* Frequency selection and power may be restricted to abide by regional regulatory compliance laws.

## RF Rx/Tx Performance Table

| FORTIAP 222E          |                                     |                                |                                   |                                |
|-----------------------|-------------------------------------|--------------------------------|-----------------------------------|--------------------------------|
|                       | RADIO 1                             |                                | RADIO 2                           |                                |
| 802.11 a/g            | 2.4 GHz<br>Tx Power (dBm) per Chain | RX Sensitivity (dBm) per Chain | 5 GHz<br>Tx Power (dBm) per Chain | RX Sensitivity (dBm) per Chain |
| 6 Mbps                | 24.2                                | -91                            | 26.5                              | -90                            |
| 9 Mbps                | 24.2                                | -90                            | 26.5                              | -89                            |
| 12 Mbps               | 24.2                                | -88                            | 26.5                              | -88                            |
| 18 Mbps               | 24.1                                | -86                            | 26.4                              | -85                            |
| 24 Mbps               | 24.1                                | -83                            | 26.4                              | -82                            |
| 36 Mbps               | 23.5                                | -79                            | 24.2                              | -79                            |
| 48 Mbps               | 23.5                                | -75                            | 23.3                              | -75                            |
| 54 Mbps               | 23.5                                | -74                            | 23.3                              | -73                            |
| <b>802.11n HT20</b>   |                                     |                                |                                   |                                |
| MSC 0/8/16            | 24.5                                | -91                            | 26.5                              | -90                            |
| MSC 1/9/17            | 24.5                                | -88                            | 26.5                              | -87                            |
| MSC 2/10/18           | 24.5                                | -86                            | 26.5                              | -85                            |
| MSC 3/11/19           | 24.2                                | -82                            | 26.4                              | -82                            |
| MSC 4/12/20           | 24.2                                | -78                            | 26.4                              | -78                            |
| MSC 5/13/21           | 23.6                                | -75                            | 24.2                              | -74                            |
| MSC 6/14/22           | 23.1                                | -74                            | 23.2                              | -72                            |
| MSC 7/15/23           | 23.1                                | -73                            | 23.2                              | -70                            |
| <b>802.11n HT40</b>   |                                     |                                |                                   |                                |
| MCS 0/8/16            | 23.8                                | -89                            | 26.4                              | -87                            |
| MCS 1/9/17            | 23.8                                | -86                            | 26.4                              | -84                            |
| MCS 2/10/18           | 23.8                                | -84                            | 26.4                              | -82                            |
| MCS 3/11/19           | 23.8                                | -80                            | 26.3                              | -79                            |
| MCS 4/12/20           | 23.8                                | -77                            | 26.3                              | -75                            |
| MCS 5/13/21           | 23.2                                | -74                            | 25.4                              | -71                            |
| MCS 6/14/22           | 22.6                                | -73                            | 24.5                              | -69                            |
| MCS 7/15/23           | 22.6                                | -72                            | 23.5                              | -68                            |
| <b>802.11ac VHT20</b> |                                     |                                |                                   |                                |
| MCS 0                 | —                                   | —                              | 26.4                              | -90                            |
| MCS 1                 | —                                   | —                              | 26.4                              | -86                            |
| MCS 2                 | —                                   | —                              | 26.4                              | -84                            |
| MCS 3                 | —                                   | —                              | 26.3                              | -82                            |
| MCS 4                 | —                                   | —                              | 26.3                              | -80                            |
| MCS 5                 | —                                   | —                              | 25.3                              | -75                            |
| MCS 6                 | —                                   | —                              | 23.3                              | -73                            |
| MCS 7                 | —                                   | —                              | 22.5                              | -71                            |
| MCS 8                 | —                                   | —                              | 22.4                              | -68                            |
| <b>802.11ac VHT40</b> |                                     |                                |                                   |                                |
| MCS 0                 | —                                   | —                              | 26.3                              | -87                            |
| MCS 1                 | —                                   | —                              | 26.3                              | -85                            |
| MCS 2                 | —                                   | —                              | 26.3                              | -83                            |
| MCS 3                 | —                                   | —                              | 26.3                              | -80                            |
| MCS 4                 | —                                   | —                              | 26.3                              | -77                            |
| MCS 5                 | —                                   | —                              | 25.3                              | -73                            |
| MCS 6                 | —                                   | —                              | 23.3                              | -72                            |
| MCS 7                 | —                                   | —                              | 22.2                              | -70                            |
| MCS 8                 | —                                   | —                              | 22.1                              | -66                            |
| MCS 9                 | —                                   | —                              | 21.9                              | -64                            |
| <b>802.11ac VHT80</b> |                                     |                                |                                   |                                |
| MCS 0                 | —                                   | —                              | 25.4                              | -84                            |
| MCS 1                 | —                                   | —                              | 25.4                              | -81                            |
| MCS 2                 | —                                   | —                              | 25.4                              | -78                            |
| MCS 3                 | —                                   | —                              | 25.4                              | -74                            |
| MCS 4                 | —                                   | —                              | 25.3                              | -70                            |
| MCS 5                 | —                                   | —                              | 24.2                              | -66                            |
| MCS 6                 | —                                   | —                              | 23.6                              | -65                            |
| MCS 7                 | —                                   | —                              | 22.3                              | -64                            |
| MCS 8                 | —                                   | —                              | 22.1                              | -60                            |
| MCS 9                 | —                                   | —                              | 22.1                              | -60                            |

# Antenna Radiation Patterns

## FAP-222E





## Highlights

### FortiAP 224E

The FAP-224E is a new member of our 802.11ac Wave 2 family with MU-MIMO capability and transmit beamforming capable of handling an astounding 512 clients per radio. This high-performance dual-band AP is ruggedized with an Ingress Protection IP67-rated enclosure capable of withstanding extended temperature ranges. The FAP-224E is suitable for deployment in harsh conditions. It has 4 internal antennas for Wi-Fi and one Bluetooth and also provides SFP cage to allow for long-distance fiber connectivity and is suitable for mission-critical bridging or mesh deployments.



 **802.11ac Wave 2 | Dual Radio 2.4 and 5 GHz | 4 Internal Antennas**

 **2x2 MU-MIMO | Up to 400 + 867 Mbps**

## Specifications

| FORTIAP 224E                             |   |
|--|---|
| <b>Hardware</b>                          |   |
| Hardware Type                            | Outdoor AP  |
| Number of Radios                         | 2   |
| Number of Antennas                       | 4 Internal + 1 BLE Internal   |
| Antenna Type and Peak Gain               | Dipole: 6 dBi for 2.4 GHz, 8 dBi for 5 GHz  |
| Frequency Bands (GHz)*                   | 2.400–2.4835, 5.150–5.250, 5.250–5.350, 5.470–5.725, 5.725–5.850  |
| Radio 1 Capabilities                     | 2.4 GHz b/g/n (2x2:2 stream) 20/40 MHz (256 QAM)  |
| Radio 2 Capabilities                     | 5 GHz a/n/ac (2x2:2 stream) 20/40/80 MHz (256 QAM)  |
| Maximum Data Rate                        | Radio 1: up to 400 Mbps<br>Radio 2: up to 867 Mbps  |
| Bluetooth Low Energy Radio               | Bluetooth scanning and iBeacon advertisement @ 4 dBm max Tx power   |
| Interfaces                               | 1x 10/100/1000 Base-T RJ45, 1x 10/100/1000 Base-T RJ45 (PoE), 1x optical fiber SFP cage   |
| Power over Ethernet (PoE)                | IEEE 802.3af/at   |
| Simultaneous SSIDs                       | Up to 16 (14 if background scanning enabled)  |
| EAP Type(s)                              | EAP-TLS, EAP-TTLS/MSCSHAPv2, EAPv0/EAP-MSCHAPv2, PEAPv1/EAP-GTC, EAP-SIM, EAP-AKA, EAP-FAST   |
| User/Device Authentication               | WPA™, WPA2™, and WPA3™ with 802.1x or Preshared key, WEP, Web Captive Portal, MAC blacklist & allowlist   |
| Maximum Tx Power                         | 2.4 GHz: 24 dBm / 251 mW (2 chains combined)*<br>5 GHz: 24 dBm / 251 mW (2 chains combined)*  |
| Kensington Lock                          | No  |
| IEEE Standards                           | 802.11a, 802.11b, 802.11d, 802.11e, 802.11g, 802.11h, 802.11i, 802.11j, 802.11k, 802.11n, 802.11r, 802.11v, 802.11ac, 802.1X, 802.3af, 802.3at, 802.3az |
| SSID Types Supported                     | Local-Bridge, Tunnel & Mesh (when managed by controller)  |
| Per Radio Client Capacity                | Up to 512   |
| Cellular Co-existence                    | No  |
| LED Off Mode                             | Yes   |
| <b>Advanced 802.11 Features</b>          |   |
| 802.11ac MU-MIMO Wave 2                  | Yes   |
| Transmit Beam Forming (TxBF)             | Yes   |
| Low-Density Parity Check (LDPC) Encoding | Yes   |
| Maximum Likelihood Demodulation (MLD)    | Yes   |

| FORTIAP 224E                            |  |
|---|--|
| Maximum Ratio Combining (MRC)           | Yes  |
| A-MPDU and A-MSDU Packet Aggregation    | Yes  |
| MIMO Power Save                         | Yes  |
| Short Guard Interval                    | Yes  |
| <b>Wireless Monitoring Capabilities</b> |  |
| Rogue Scan Radio Modes                  | Background, Full-time                            |
| WIPS / WIDS Radio Modes                 | Background, Full-time                            |
| Packet Sniffer Mode                     | Yes  |
| Spectrum Analyzer                       | Yes  |
| <b>Dimensions</b>                       |  |
| Length x Width x Height                 | 8.4 x 8.4 x 2.66 inches<br>(214 x 214 x 67.5 mm) |
| Weight                                  | 3.8 lbs (1.7 kg)                                 |
| Package (shipping) Weight               | 5.82 lbs (2.64 kg)                               |
| Mounting Options                        | Wall Mount or Pole Mount                         |
| Included Accessories                    | Mounting kit for Wall or Pole, Grounding cable   |
| <b>Environment</b>                      |  |
| Power Supply                            | GPI-115, or GPI-130                              |
| Power Consumption (Maximum)             | 12.95 W  |
| Humidity                                | 5–90% non-condensing                             |
| Operating / Storage Temperature         | -4–149°F (-20–65°C) / -4–158°F (-20–70°C)        |
| Directives                              | Low Voltage Directive • RoHS                     |
| UL2043 Plenum Material                  | No   |
| Mean Time Between Failures              | >10 Years  |
| IP Rating                               | IP67   |
| Surge Protection Built In               | Yes  |
| Hit-less PoE Failover                   | No   |
| <b>Certifications</b>                   |  |
| Wi-Fi Alliance Certified                | Yes  |
| DFS                                     | CE   |
| <b>Warranty</b>                         |  |
| Limited Lifetime Warranty               | No — 1 Year Limited Warranty                     |

\* Frequency selection and power may be restricted to abide by regional regulatory compliance laws.

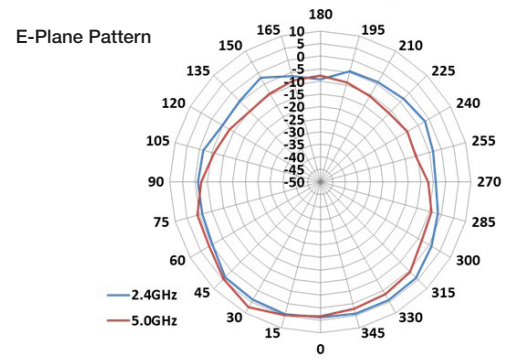
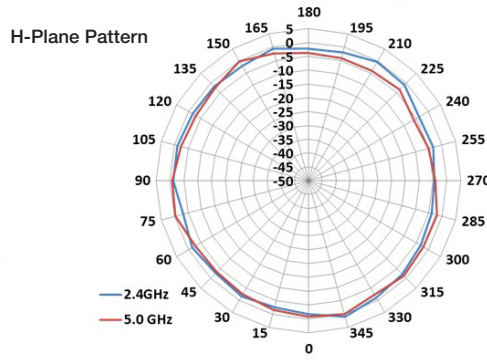
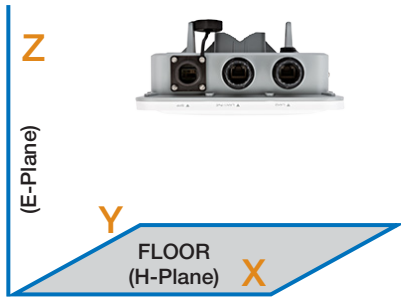
## RF Rx/Tx Performance Table

| FORTIAP 224E       |                                     |                                |                                   |                                |
|--------------------|-------------------------------------|--------------------------------|-----------------------------------|--------------------------------|
| 802.11 a/b/g       | RADIO 1                             |                                | RADIO 2                           |                                |
|                    | 2.4 GHz<br>Tx Power (dBm) per Chain | RX Sensitivity (dBm) per Chain | 5 GHz<br>Tx Power (dBm) per Chain | RX Sensitivity (dBm) per Chain |
| 1 Mbps             | 24                                  | -96                            | —                                 | —                              |
| 6 Mbps             | 24                                  | -93                            | 24                                | -93                            |
| 9 Mbps             | 24                                  | -92                            | 24                                | -91                            |
| 12 Mbps            | 24                                  | -90                            | 24                                | -90                            |
| 18 Mbps            | 24                                  | -88                            | 24                                | -88                            |
| 24 Mbps            | 24                                  | -85                            | 24                                | -85                            |
| 36 Mbps            | 23                                  | -82                            | 23                                | -82                            |
| 48 Mbps            | 22                                  | -78                            | 22                                | -77                            |
| 54 Mbps            | 22                                  | -76                            | 22                                | -76                            |
| <b>802.11 HT20</b> |                                     |                                |                                   |                                |
| MCS 0 (BPSK)       | 24                                  | -92                            | 24                                | -91                            |
| MCS 1 (QPSK)       | 24                                  | -89                            | 24                                | -88                            |
| MCS 2 (QPSK)       | 24                                  | -87                            | 23                                | -85                            |
| MCS 3 (16-QAM)     | 24                                  | -84                            | 23                                | -83                            |
| MCS 4(16-QAM)      | 23                                  | -81                            | 22                                | -80                            |
| MCS 5 (64-QAM)     | 23                                  | -76                            | 22                                | -75                            |
| MCS 6 (64-QAM)     | 23                                  | -74                            | 21                                | -74                            |
| MCS 7 (64-QAM)     | 22                                  | -73                            | 20                                | -72                            |
| MCS 8 (256-QAM)    | —                                   | —                              | 18                                | -68                            |
| MCS 9 (256-QAM)    | —                                   | —                              | —                                 | —                              |
| <b>802.11 HT40</b> |                                     |                                |                                   |                                |
| MCS 0 (BPSK)       | 23                                  | -90                            | 23                                | -89                            |
| MCS 1 (QPSK)       | 23                                  | -87                            | 22                                | -86                            |
| MCS 2 (QPSK)       | 23                                  | -85                            | 22                                | -83                            |
| MCS 3 (16-QAM)     | 23                                  | -81                            | 21                                | -80                            |
| MCS 4(16-QAM)      | 23                                  | -78                            | 21                                | -77                            |
| MCS 5 (64-QAM)     | 23                                  | -74                            | 21                                | -73                            |
| MCS 6 (64-QAM)     | 22                                  | -73                            | 20                                | -72                            |
| MCS 7 (64-QAM)     | 22                                  | -71                            | 19                                | -70                            |
| MCS 8 (256-QAM)    | —                                   | —                              | 18                                | -66                            |
| MCS 9 (256-QAM)    | —                                   | —                              | 17                                | -64                            |
| <b>802.11 HT80</b> |                                     |                                |                                   |                                |
| MCS 0 (BPSK)       | —                                   | —                              | 22                                | -86                            |
| MCS 1 (QPSK)       | —                                   | —                              | 22                                | -83                            |
| MCS 2 (QPSK)       | —                                   | —                              | 22                                | -81                            |
| MCS 3 (16-QAM)     | —                                   | —                              | 21                                | -78                            |
| MCS 4(16-QAM)      | —                                   | —                              | 21                                | -74                            |
| MCS 5 (64-QAM)     | —                                   | —                              | 21                                | -70                            |
| MCS 6 (64-QAM)     | —                                   | —                              | 20                                | -69                            |
| MCS 7 (64-QAM)     | —                                   | —                              | 19                                | -67                            |
| MCS 8 (256-QAM)    | —                                   | —                              | 17                                | -63                            |
| MCS 9 (256-QAM)    | —                                   | —                              | 16                                | -60                            |

Maximum capability of the Hardware provided (Excluding antenna gain)

# Antenna Radiation Patterns

## FAP-224E



## Highlights

### FortiAP C24JE

The FAP-C24JE is a performance/price competitive 2.4 GHz/5 GHz concurrent MU-MIMO wall plate AP with support of PoE IP phone and RJ45 pass-through. This access point can be installed in minutes, right over the existing wall plate.



 **802.11 ac Wave 2 | Dual Radio 2.4 & 5 GHz | 4 Internal Antennas**

 **Up to 300 + 867 Mbps**

## Specifications

| FORTIAP C24JE                            |   |
|--|---|
| <b>Hardware</b>                          |   |
| Hardware Type                            | Wall Plate AP   |
| Number of Radios                         | 2   |
| Number of Antennas                       | 4 Internal  |
| Antenna Type and Peak Gain               | Chip: 1.5 dBi for 2.4 GHz, 2 dBi for 5 GHz  |
| Frequency Bands (GHz)*                   | 2.400–2.4835, 5.150–5.250, 5.250–5.350, 5.470–5.725, 5.725–5.850  |
| Radio 1 Capabilities                     | 2.4 GHz b/g/n (2x2:2 stream) 20/40 MHz (64 QAM)   |
| Radio 2 Capabilities                     | 5 GHz a/n/ac (2x2:2 stream) 20/40/80 MHz (256 QAM)  |
| Maximum Data Rate                        | Radio 1: up to 300 Mbps,<br>Radio 2: up to 867 Mbps   |
| Bluetooth Low Energy Radio               | —   |
| <b>Interfaces</b>                        |   |
|  | 6x 10/100/1000 Base-T RJ45 Ports (1x 802.3af PoE (PD), 1x 802.3af PoE (PSE), 2x Non-PoE Ports, 1x Pass-through in, 1x Pass-through out, 1x RS-232 RJ45 Serial Port) |
| Serial Console Port                      | 1x RJ45 RS232   |
| Power over Ethernet (PoE)                | 802.3af (max PSE output of 4W) or 802.3at (full 802.3af PSE output)<br>PSE functionality is only supported when powered via PoE/PoE+                                |
| Simultaneous SSIDs                       | Up to 8 (4 per radio)   |
| EAP Type(s)                              | EAP-TLS, EAP-TTLS/MSCSHAPv2, EAPv0/EAP-MSCHAPv2, PEAPv1/EAP-GTC, EAP-SIM, EAP-AKA, EAP-FAST   |
| User/Device Authentication               | WPA™ and WPA2™ with 802.1x or Preshared key, WEP, Web Captive Portal, MAC blocklist & allowlist   |
| Maximum Tx Power                         | 23 dBm / 100mW (2 chains combined)*   |
| Kensington Lock                          | No  |
| IEEE Standards                           | 802.11a, 802.11b, 802.11d, 802.11e, 802.11g, 802.11h, 802.11i, 802.11j, 802.11k, 802.11n, 802.11r, 802.11v, 802.11ac, 802.1X, 802.3af, 802.3at, 802.3az             |
| SSID Types Supported                     | Local-Bridge, Tunnel  |
| Per Radio Client Capacity                | Up to 64  |
| Cellular Co-existence                    | No  |
| LED Off Mode                             | Yes   |
| <b>Advanced 802.11 Features</b>          |   |
| 802.11ac MU-MIMO Wave 2                  | Yes   |
| Transmit Beam Forming (TxBF)             | Yes   |
| Low-Density Parity Check (LDPC) Encoding | Yes   |
| Maximum Likelihood Demodulation (MLD)    | Yes   |

| FORTIAP C24JE                           |  |
|---|--|
| Maximum Ratio Combining (MRC)           | Yes  |
| A-MPDU and A-MSDU Packet Aggregation    | Yes  |
| MIMO Power Save                         | Yes  |
| Short Guard Interval                    | Yes  |
| <b>Wireless Monitoring Capabilities</b> |  |
| Rogue Scan Radio Modes                  | Background, Full-time                              |
| WIPS / WIDS Radio Modes                 | Background, Full-time                              |
| Packet Sniffer Mode                     | No   |
| Spectrum Analyzer                       | No   |
| <b>Dimensions</b>                       |  |
| Length x Width x Height                 | 6.69 x 4.04 x 1.08 inches<br>170 x 102.5 x 27.5 mm |
| Weight                                  | 1.3 lbs (0.6 kg)                                   |
| Package (shipping) Weight               | 1.6 lbs (0.74 kg)                                  |
| Mounting Options                        | Wall Plate, Optional Desk Mount FAP-MNT-WJ-20      |
| Included Accessories                    | Mounting kit for Wall Plate                        |
| <b>Environment</b>                      |  |
| Power Supply                            | GPI-115, GPI-130, or SP-FAP400-PA                  |
| Power Consumption (Maximum)             | Depends on PoE connected                           |
| Humidity                                | 5–90% non-condensing                               |
| Operating / Storage Temperature         | 32–104°F (0–40°C) / -4–158°F (-20–70°C)            |
| Directives                              | Low Voltage Directive • RoHS                       |
| UL2043 Plenum Material                  | No   |
| Mean Time Between Failures              | >10 Years  |
| IP Rating                               | —  |
| Surge Protection Built In               | —  |
| Hit-less PoE Failover                   | No   |
| <b>Certifications</b>                   |  |
| Wi-Fi Alliance Certified                | No   |
| DFS                                     | No   |
| <b>Warranty</b>                         |  |
| Limited Lifetime Warranty               | Yes  |

\* Frequency selection and power may be restricted to abide by regional regulatory compliance laws.

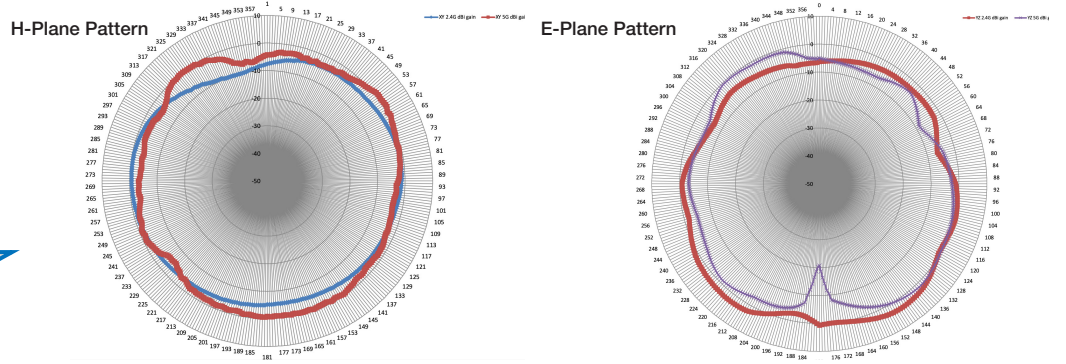
## RF Rx/Tx Performance Table

| FORTIAP C24JE         |  |  |  |  |
|-----------------------|--|--|--|--|
| 802.11 a/g            | Radio 1<br>2.4 GHz                           |  | Radio 2<br>5 GHz                             |  |
|                       | Mamimum TX Power<br>per Transmit Chain (dBm) | RX Sensitivity (dBm)<br>per Receiver Chain | Mamimum TX Power<br>per Transmit Chain (dBm) | RX Sensitivity (dBm)<br>per Receiver Chain |
| 6 Mbps                | 21   | -91  | 21   | -91  |
| 9 Mbps                | 20   | -89  | 20   | -89  |
| 12 Mbps               | 20   | -87  | 20   | -87  |
| 18 Mbps               | 20   | -85  | 19   | -84  |
| 24 Mbps               | 19   | -82  | 19   | -80  |
| 36 Mbps               | 19   | -76  | 19   | -76  |
| 48 Mbps               | 18   | -75  | 18   | -74  |
| 54 Mbps               | 17   | -74  | 18   | -73  |
| <b>802.11 HT20</b>    |  |  |  |  |
| MSC 0/8/16 (BPSK)     | 20   | -90  | 19   | -91  |
| MSC 1/9/17 (QPSK)     | 19   | -88  | 18   | -88  |
| MSC 2/10/18 (QPSK)    | 19   | -85  | 18   | -84  |
| MSC 3/11/19 (16-QAM)  | 19   | -83  | 17   | -80  |
| MSC 4/12/20 (16-QAM)  | 19   | -76  | 17   | -76  |
| MSC 5/13/21 (64-QAM)  | 18   | -72  | 17   | -73  |
| MSC 6/14/22 (64-QAM)  | 17   | -72  | 16   | -71  |
| MSC 7/15/23 (64-QAM)  | 16   | -71  | 16   | -70  |
| <b>802.11 HT40</b>    |  |  |  |  |
| MSC 0/8/16 (BPSK)     | 20   | -89  | 19   | -87  |
| MSC 1/9/17 (QPSK)     | 19   | -87  | 18   | -84  |
| MSC 2/10/18 (QPSK)    | 19   | -84  | 18   | -81  |
| MSC 3/11/19 (16-QAM)  | 19   | -82  | 18   | -78  |
| MSC 4/12/20 (16-QAM)  | 18   | -77  | 17   | -75  |
| MSC 5/13/21 (64-QAM)  | 18   | -72  | 17   | -72  |
| MSC 6/14/22 (64-QAM)  | 17   | -71  | 17   | -70  |
| MSC 7/15/23 (64-QAM)  | 17   | -70  | 17   | -68  |
| MSC 8/16/24 (256-QAM) | 16   | -69  | 16   | -66  |
| MSC 9/17/25 (256-QAM) | 16   | -69  | 16   | -64  |
| <b>802.11 HT80</b>    |  |  |  |  |
| MSC 0 (BPSK)          |  |  | 19   | -85  |
| MSC 1 (QPSK)          |  |  | 18   | -82  |
| MSC 2 (QPSK)          |  |  | 18   | -80  |
| MSC 3 (16-QAM)        |  |  | 18   | -77  |
| MSC 4 (16-QAM)        |  |  | 17   | -75  |
| MSC 5 (64-QAM)        |  |  | 17   | -74  |
| MSC 6 (64-QAM)        |  |  | 17   | -72  |
| MSC 7 (64-QAM)        |  |  | 17   | -69  |
| MSC 8 (256-QAM)       |  |  | 16   | -65  |
| MSC 9 (256-QAM)       |  |  | 16   | -61  |

Maximum capability of the Hardware provided (Excluding antenna gain)

# Antenna Radiation Patterns

## FAP-C24JE





## Order Information

| Product              | SKU                   | Description   |
|----------------------|-----------------------|---|
| FortiAP 431F         | FAP-431F              | Indoor Wireless AP - Tri radio (2x 802.11 a/b/g/n/ac/ax, 4x4 MIMO and 1x 802.11 a/b/g/n/ac Wave 2, 1x1 MU-MIMO), internal antennas, 1x 10/100/1000/2500 Base-T RJ45, 1x 10/100/1000 Base-T RJ45, BT/BLE, 1x Type A USB, 1x RS-232 RJ45 Serial Port. Ceiling/wall mount kit included. For power order: 802.3at PoE injector GPI-130 or AC adapter SP-FAP400-PA.                    |
|                      | FC-10-F431F-247-02-DD | 24x7 FortiCare Contract   |
| FortiAP 433F         | FAP-433F              | Indoor Wireless AP - Tri radio (2x 802.11 a/b/g/n/ac/ax, 4x4 MIMO and 1x 802.11 a/b/g/n/ac Wave 2, 1x1 MU-MIMO), external antennas included, 1x 10/100/1000/2500 Base-T RJ45, 1x 10/100/1000 Base-T RJ45, BT/BLE, 1x Type A USB, 1x RS-232 RJ45 Serial Port. Ceiling/wall mount kit included. For power order: 802.3at PoE injector GPI-130 or AC adapter SP-FAP400-PA.           |
|                      | FC-10-F433F-247-02-DD | 24x7 FortiCare Contract   |
| FortiAP 421E         | FAP-421E              | Indoor Wireless AP - Dual radio (802.11 b/g/n and 802.11 a/n/ac Wave 2, 4x4 MU-MIMO), internal antennas, 2 x 10/100/1000 RJ45 port, . Ceiling/wall mount kit included. For power order: 802.3af PoE injector GPI-115 (limited features) or 802.3at PoE injector GPI-130 or AC adapter SP-FAP400-PA.   |
|                      | FC-10-P421E-247-02-DD | 24x7 FortiCare Contract   |
| FortiAP 423E         | FAP-423E              | Indoor Wireless AP - Dual radio (802.11 b/g/n and 802.11 a/n/ac Wave 2, 4x4 MU-MIMO), external antennas included, 2 x 10/100/1000 RJ45 port, . Ceiling/wall mount kit included. For power order: 802.3af PoE injector GPI-115 (limited features) or 802.3at PoE injector GPI-130 or AC adapter SP-FAP400-PA.  |
|                      | FC-10-P423E-247-02-DD | 24x7 FortiCare Contract   |
| FortiAP 321E         | FAP-321E              | Indoor Wireless AP - Dual radio (802.11 b/g/n and 802.11 a/n/ac Wave 2, 3x3 MIMO), internal antennas, 1 x 10/100/1000 RJ45 port, BT / BLE. Ceiling/wall mount kit included. For power order: 802.3at PoE injector GPI-130 or AC adapter SP-FAP200-PA.   |
|                      | FC-10-P321E-247-02-DD | 24x7 FortiCare Contract   |
| FortiAP 221E         | FAP-221E              | Indoor Wireless AP - Dual radio (802.11 b/g/n and 802.11 a/n/ac Wave 2, 2x2 MU-MIMO), internal antennas, 1 x 10/100/1000 RJ45 port, BT / BLE. Ceiling/wall mount kit included. For power order: 802.3af PoE injector GPI-115 or AC adapter SP-FAP200-PA.  |
|                      | FC-10-PE221-247-02-DD | 24x7 Comprehensive FortiCare  |
| FortiAP 223E         | FAP-223E              | Indoor Wireless AP - Dual radio (802.11 b/g/n and 802.11 a/n/ac Wave 2, 2x2 MU-MIMO), external antennas included, 1 x 10/100/1000 RJ45 port, BT / BLE. Ceiling/wall mount kit included. For power order: 802.3af PoE injector GPI-115 or AC adapter SP-FAP200-PA.   |
|                      | FC-10-PE223-247-02-DD | 24x7 Comprehensive FortiCare  |
| FortiAP 231E         | FAP-231E              | Indoor Wireless AP - Tri-radio (802.11 a/b/g/n/ac Wave 2, 802.11a/n/ac Wave 2, 802.11 b/g/n, 2x2 MU-MIMO), internal antennas, 2 x 10/100/1000 RJ45 port, BT / BLE. Ceiling/wall mount kit included. For power order: 802.3at PoE injector GPI-130 or AC adapter SP-FAP200-PA.   |
|                      | FC-10-P231E-247-02-DD | 24x7 FortiCare Contract   |
| FortiAP 222E         | FAP-222E              | Outdoor Wireless AP - Dual radio (802.11 b/g/n and 802.11 a/n/ac Wave 2, 2x2 MU-MIMO), external antennas included, 1 x 10/100/1000 RJ45 port, BT / BLE. Pole / wall mount, lightning grounding wire, and PoE injector included.   |
|                      | FC-10-PE222-247-02-DD | 24x7 Comprehensive FortiCare  |
| FortiAP 224E         | FAP-224E              | Outdoor Wireless AP - Dual radio (802.11 b/g/n and 802.11 a/n/ac Wave 2, 2x2 MU-MIMO), internal antennas, 2 x 10/100/1000 RJ45 port, 1 SFP port, BT / BLE, IP67 rated. Pole / wall mount, lightning grounding wire included. For power order: 802.3af PoE injector GPI-115.   |
|                      | FC-10-PE224-247-02-DD | 24x7 Comprehensive FortiCare  |
| FortiAP C24JE        | FAP-C24JE             | Wall Plate AP - Dual radio (802.11 b/g/n and 802.11 a/n/ac Wave 2, 2x2 MU-MIMO), internal antennas, 4 x 10/100/1000 RJ45 port (1x 802.3at PoE PD, 1x 802.3af PoE PSE, 2x Non-PoE Ports), . Wall plate mounting kit included. For power order: 802.3af PoE injector GPI-115 (limited features) or 802.3at PoE injector GPI-130. Optional accessory (desktop stand): FAP-MNT-WJ-20. |
|                      | FC-10-PC24E-247-02-DD | 24x7 FortiCare Contract   |
| Gigabit PoE Injector | GPI-115               | 1-Port Gigabit PoE Power Injector, 802.3af 15.4 W, 10/100/1000.   |
|                      | GPI-130               | 1-Port Gigabit PoE Power Injector, 802.3at up to 30 W.  |
| Power Adapter        | SP-FAP400-PA          | AC Power Adapter for FAP-431F, FAP-433F, FAP-421E, FAP-423E, and FAP-C24JE.   |
|                      | SP-FAP200-PA          | AC Power Adapter for FAP-221E, FAP-223E, FAP-231E, and FAP-321E.  |
| Desktop Stand        | FAP-MNT-WJ-20         | Desktop stand for FAP/FAP-C/FAP-U wall jack style APs. Converts wall mounting hardware included with unit to desktop mounting - 20 pack.  |

Note: Additional external antenna options available for some models. Please see antenna datasheet for details.

| REGION/COUNTRY SKU SUFFIX* |            |           |        |             |                   |               |       |       |
|----------------------------|------------|-----------|--------|-------------|-------------------|---------------|-------|-------|
| Americas-FCC               | Bangladesh | China     | India  | Europe ETSI | Indonesia         | International | Japan | Korea |
| -A                         | -B         | -C        | -D     | -E          | -F                | -I            | -J    | -K    |
| Non-FFCA                   | Russia     | Singapore | Taiwan | Ukraine     | Vietnam, Thailand | World 2.4G    | Egypt |       |
| -N                         | -P         | -S        | -T     | -U          | -V                | -W            | -Y    |       |

Note: Additional countries may apply to given suffix codes. Please work with your local supplier for the correct model in your regulatory domain.



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