

FortiAP™ Universal Access Point Series

FAP-U421EV and U423EV

Enterprise WiFi has transformed from a transient network to a permanent fixture within all organizations. The data transported on our wireless networks span from classroom video conferencing to healthcare patient monitoring traffic to financial Point-of-Sale transactions. Expectations continue to rise for this always on, always everywhere network. Today, WiFi is no longer a convenience but a mission critical utility.



Universal Access Management

Ability to intelligently support stand-alone controllers (FortiWLC), integrated security controllers (FortiGate) and cloud management (future) options, establish a new benchmark in flexibility, performance and security.



Latest WiFi technologies

802.11ac Wave 2 technology with data rates of up to 3.5 Gbps and multi-user MIMO (MU-MIMO) improves client throughput and range.



Unmatched Security Protection

Integrates with Fortinet's Security Fabric providing unparalleled cybersecurity protection at the network edge.

Product Offerings

| | |
|-------------------|-------------------------------------|
| FAP-U421EV | 802.11ac Wave 2, |
| FAP-U423EV | 4x4 MU-MIMO APs with dual radios |

HIGHLIGHTS

Fortinet Universal access points are designed to support medium to large offices, schools, universities, hospitals, hotels, and large retail stores.

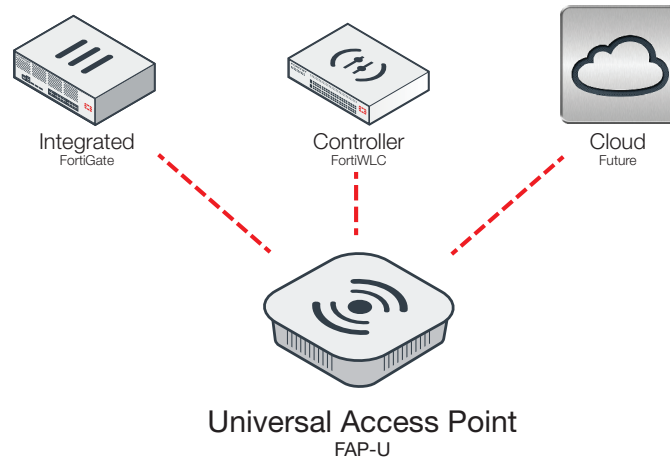


Figure 1 — Universal Access Management, highest Gigabit WiFi performance and unmatched security protection.

Education

Deployment of large scale WiFi requires site surveys, channel planning and worries over cell sizes and transmit power. Fortinet’s Universal access points ,when paired with our wireless controllers (FortiWLC and MC), eliminates this work.

This enables school administrators to simplify initial deployment or the adding of APs to support more students throughout the campus or in classrooms without the headaches of more wireless network planning.

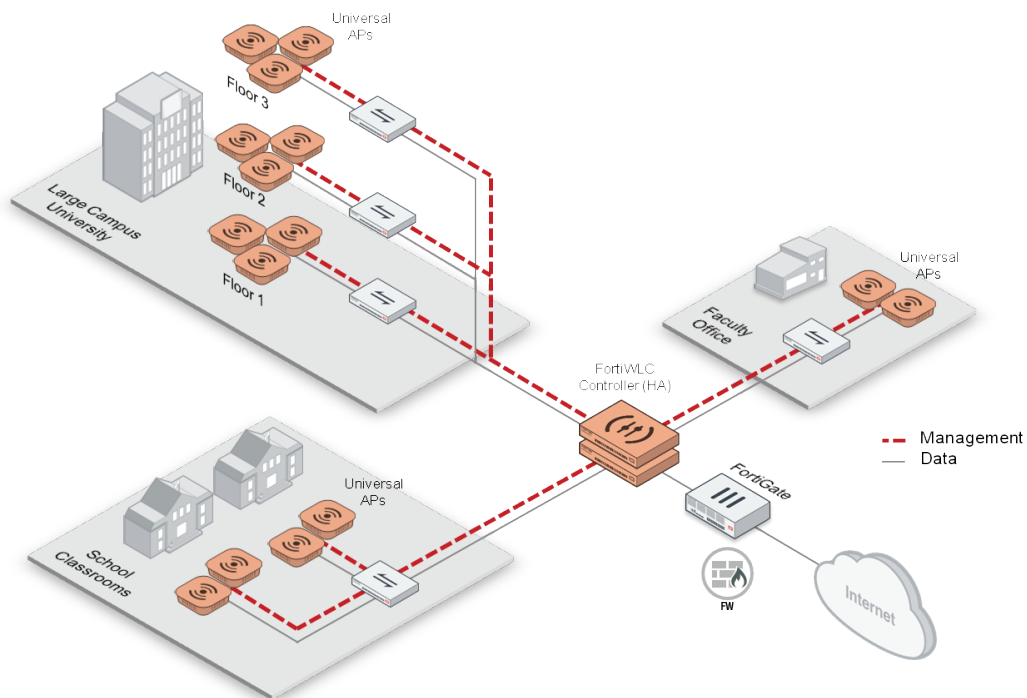


Figure 2 — Educational organizations with Universal APs managed by on-premise FortiWLC controllers.

HIGHLIGHTS

Healthcare

Patient safety is priority one. Fortinet Universal APs empower hospitals to improve patient safety by enabling life-critical applications such as telemetry requiring low bandwidth but

exceptionally high reliability. Our Integrated secure wireless controllers (FortiGate) connected to our Universal access points ensures patient safety remains paramount.

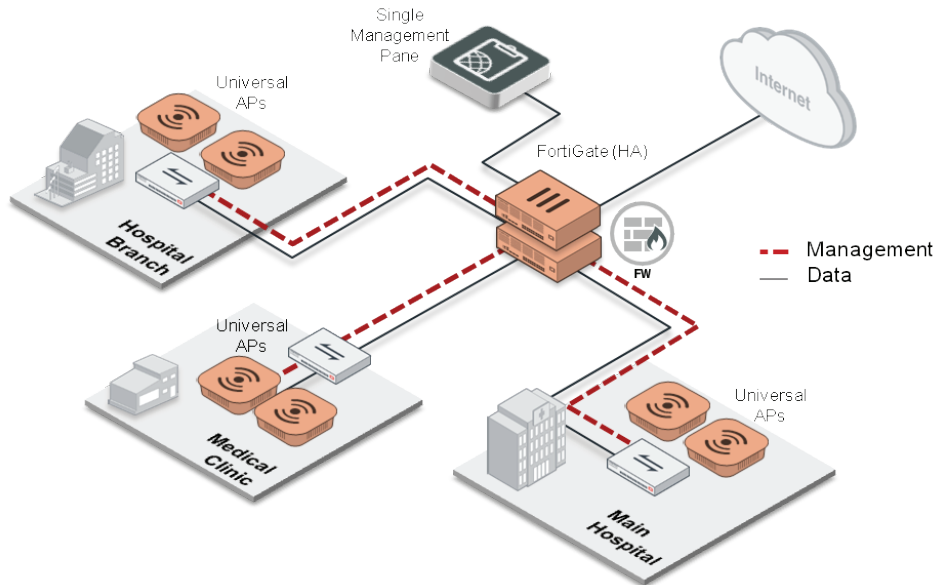


Figure 3 — Healthcare organizations with Universal APs managed by on-premise FortiGate controllers.

Small/Medium Business

The retail sector continues to be a top target for cyber criminals. To protect themselves and their customers, while also providing robust wireless services to their customers and employees, retailers need a cost-effective wireless solution. Retailers can streamline WiFi store deployments through the combination of Universal APs and FortiGate. This, in combination with FortiGuard services, provides cybersecurity protection to mitigate risk to retailers from damage created by a data breach.

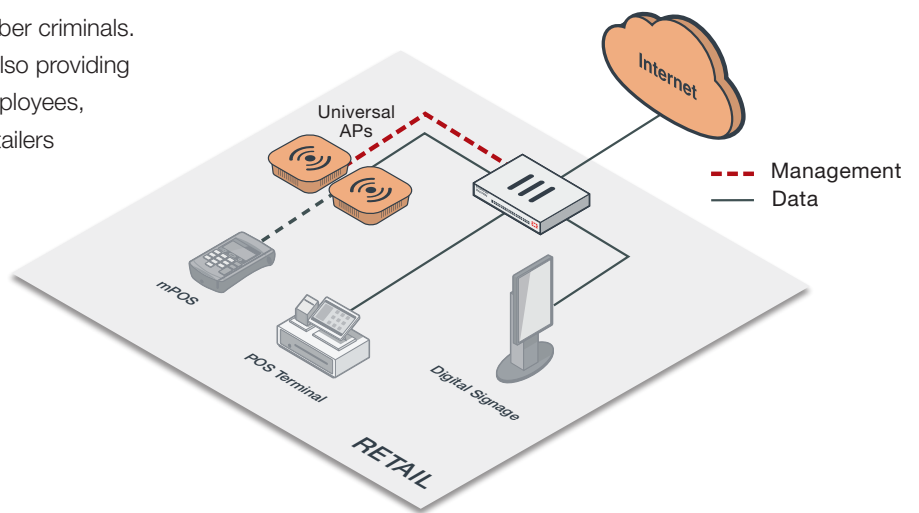



Figure 4 — Retail store with Universal APs managed by FortiGate.

HIGHLIGHTS

FortiAP U421EV and U423EV

The FortiAP U421EV and U423EV access points support the latest 802.11ac Wave 2 standard, with a client association rate of up to 3.5 Gbps. Additional features include 802.11ac explicit transmit beamforming (TxBF), MU-MIMO and more.



 **802.11ac Wave 2 | Dual Radio 2.4 & 5 GHz | 8 Interior/Exterior Antennas**

 **4x4 MU-MIMO | Up to 800 Mbps + 3.46 Gbps**

SPECIFICATIONS

| | FORTIAP U421EV | FORTIAP U423EV |
|--|---|---|
| Hardware | | |
| Hardware Type | Indoor Universal AP | Indoor Universal AP |
| Number of Radios | 2 | 2 |
| Number of Antennas | 9 Internal (8 WiFi + 1 Bluetooth/BLE) | 8 RP-SMA External and 1 Bluetooth/BLE Internal |
| Peak Antenna Gain | 4 dBi for 2.4 GHz, 5 dBi for 5 GHz | 3 dBi for 2.4 GHz, 3 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 | 2.400–2.4835, 5.150–5.250, 5.250–5.350, 5.470–5.725, 5.725–5.851 |
| Frequency of Radio 1 | 2.4 GHz b/g/n 20/40 MHz (256 QAM) | 2.4 GHz b/g/n 20/40 MHz (256 QAM) |
| Frequency of Radio 2 | 5 GHz a/n/ac 20/40/80/160 MHz (256 QAM) | 5 GHz a/n/ac 20/40/80/160 MHz (256 QAM) |
| Maximum Data Rate | Radio 1: up to 800 Mbps Radio 2: up to 3.46 Gbps | Radio 1: up to 800 Mbps Radio 2: up to 3.46 Gbps |
| Radio Chains / Streams | 4x4 / spatial streams | 4x4 / spatial streams |
| Bluetooth Low Energy (BT/BLE) Radio | 4 dBm Transmit Power (class 2) -94 dBm Receive Sensitivity | 4 dBm Transmit Power (class 2) -94 dBm Receive Sensitivity |
| Ethernet Ports | 2x GE RJ45 | 2x GE RJ45 |
| USB Port | 1x Type A | 1x Type A |
| Serial Console Port | 1 RS-232 x RJ45 | 1 RS-232 x RJ45 |
| Power over Ethernet (PoE) | Dual redundant PoE power ports with support for IEEE 802.3at (25.5 W) | Dual redundant PoE power ports with support for IEEE 802.3at (25.5 W) |
| Simultaneous SSIDs Per Radio | Up to 16 (14 if background scanning enabled) | 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 | EAP-TLS, EAP-TTLS/MSCHAPv2, 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 and Web Captive Portal, MAC blacklist & whitelist | WPA™ and WPA2™ with 802.1x or Preshared key, WEP and Web Captive Portal, MAC blacklist & whitelist |
| Maximum Tx Power | 2.4 GHz band – 22.0 dBm* 5.0 GHz band – 20.0 dBm* | 2.4 GHz band – 22.0 dBm* 5.0 GHz band – 20.0 dBm* |
| Physical Security | Kensington Lock | Kensington Lock |
| IEEE Standards | 802.11a, 802.11ac, 802.11b, 802.11d, 802.11e, 802.11g, 802.11h, 802.11i, 802.11j, 802.11n, 802.1x, 802.3af, 802.3at, 802.3az | 802.11a, 802.11ac, 802.11b, 802.11d, 802.11e, 802.11g, 802.11h, 802.11i, 802.11j, 802.11n, 802.1x, 802.3af, 802.3at, 802.3az |
| FortiPresence Capable | Yes, when managed by controller | Yes, when managed by controller |
| Wireless Mesh Capable | Yes | Yes |
| Modes of Operation | MC with SD 8.2, FWLM, and FortiGate support | MC with SD 8.2, FWLM, and FortiGate support |
| SSID Types Supported | Local-Bridge, Tunnel & Mesh (when managed by controller) | Local-Bridge, Tunnel & Mesh (when managed by controller) |
| Concurrent Clients Per Radio (Maximum / Recommended) | Up to 256 / Dependent on use case | Up to 256 / Dependent on use case |
| LED Off Mode | Yes | Yes |

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

SPECIFICATIONS

| | FORTIAP U421EV | FORTIAP U423EV |
|---|--|--|
| Advanced 802.11 Features | | |
| 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 |
| A-MPDU and A-MSDU Packet Aggregation | Yes | Yes |
| MIMO Power Save | Yes | Yes |
| Short Guard Interval | Yes | Yes |
| WME Multimedia Extensions | Yes (4 priority queues for voice, video, data and background traffic) | Yes (4 priority queues for voice, video, data and background traffic) |
| Wireless Monitoring Capabilities | | |
| Frequencies Scanned | 2.4 and 5 GHz | 2.4 and 5 GHz |
| Background Scan with Client Access on 2.4 and 5 GHz | Yes | Yes |
| Full-time Scan as Dedicated Monitor | Yes | Yes |
| Packet Sniffer Mode | Yes | Yes |
| Spectrum Analyzer | Yes — Dedicated chipset | Yes — Dedicated chipset |
| Dimensions | | |
| Length x Width x Height (inches) | 8.46 x 8.46 x 2.2 | 8.46 x 8.46 x 2.2 |
| Length x Width x Height (mm) | 215 x 215 x 56 | 215 x 215 x 56 |
| Weight | 3.31 lb (1.5 kg) | 3.4 lb (1.53 kg) |
| Package (shipping) Weight | 5.09 lb (2.31 kg) | 5.36 lb (2.43 kg) |
| Mounting Options | Ceiling, T-Rail and Wall | Ceiling, T-Rail and Wall |
| Included Accessories | Ceiling, T-Rail and wall mount kit (AC power adapter sold separately) | Ceiling, T-Rail and wall mount kit and 8 dipole antennas (AC power adapter sold separately) |
| Environment | | |
| Power Supply | Adapter input: 100-240V, 50/60 Hz, 0.9A Max output: 12V DC, 3A | Adapter input: 100-240V, 50/60 Hz, 0.9A Max output: 12V DC, 3A |
| Power Consumption (Maximum) | 24.58 W | 24.58 W |
| Humidity | 5–90% non condensing | 5–90% non condensing |
| Operating Temperature | -4–122°F (-20–50°C) | -4–122°F (-20–50°C) |
| Storage Temperature | -40–158°F (-40–70°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 |
| Hit-less PoE Failover | Yes | Yes |
| Compliance | | |
| SAFETY | | |
| FCC | Yes | Yes |
| ICES | Yes | Yes |
| CE | Yes | Yes |
| RCM | Yes | Yes |
| VCCI | Yes | Yes |
| RF | | |
| IC | Yes | Yes |
| CE + RCM | Yes | Yes |
| WiFi Alliance | | |
| WFA | Yes (FortiWLC and MC image only) | Yes (FortiWLC and MC image only) |
| Dynamic Frequency Selection | | |
| CE DFS | Yes (FortiWLC and MC image only) | Yes (FortiWLC and MC image only) |
| Warranty | | |
| Limited Lifetime Warranty | Yes | Yes |

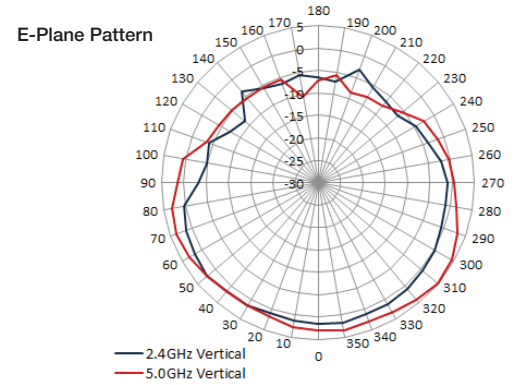
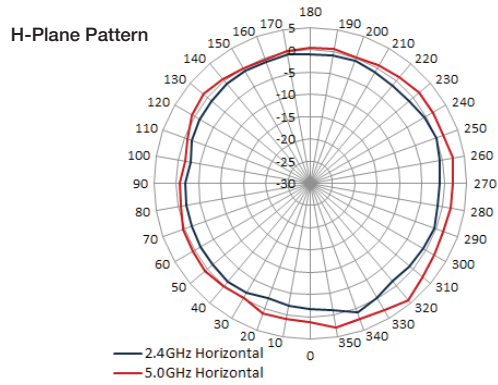
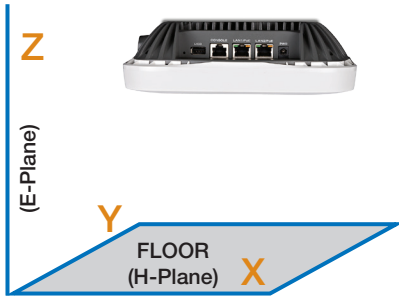
FAP-U421EV / FAP-U423EV RF RX/TX PERFORMANCE TABLE

| FORTIAP U421EV AND U432EV | | | | |
|---------------------------|--|--|--|--|
| 802.11 a/g | Radio 1 2.4 GHz | | Radio 2 5 GHz | |
| | MAX TX Power per transmit chain (dBm) | RX Sensitivity per receiver chain (dBm) | MAX TX Power per transmit chain (dBm) | RX Sensitivity per receiver chain (dBm) |
| 6 Mbps | 22 | -94 | 20 | -91 |
| 9 Mbps | 22 | -92 | 20 | -89 |
| 12 Mbps | 22 | -89 | 20 | -86 |
| 18 Mbps | 22 | -88 | 20 | -85 |
| 24 Mbps | 22 | -83 | 20 | -80 |
| 36 Mbps | 22 | -78 | 19 | -75 |
| 48 Mbps | 22 | -77 | 19 | -74 |
| 54 Mbps | 19 | -76 | 18 | -73 |
| 802.11 HT20 | TX Power (dBm) | RX Sensitivity (dBm) | TX Power (dBm) | RX Sensitivity (dBm) |
| MSC 0/8/16 (BPSK) | 22 | -91 | 20 | -89 |
| MSC 1/9/17 (QPSK) | 21 | -89 | 19 | -87 |
| MSC 2/10/18 (QPSK) | 20 | -86 | 19 | -84 |
| MSC 3/11/19 (16-QAM) | 19 | -85 | 18 | -83 |
| MSC 4/12/20 (16-QAM) | 19 | -80 | 17 | -78 |
| MSC 5/13/21 (64-QAM) | 18 | -75 | 17 | -73 |
| MSC 6/14/22 (64-QAM) | 18 | -74 | 17 | -72 |
| MSC 7/15/23 (64-QAM) | 18 | -73 | 17 | -71 |
| 802.11 HT40 | TX Power (dBm) | RX Sensitivity (dBm) | TX Power (dBm) | RX Sensitivity (dBm) |
| MSC 0/8/16 (BPSK) | 21 | -89 | 20 | -86 |
| MSC 1/9/17 (QPSK) | 20 | -87 | 19 | -84 |
| MSC 2/10/18 (QPSK) | 20 | -84 | 19 | -81 |
| MSC 3/11/19 (16-QAM) | 19 | -83 | 18 | -80 |
| MSC 4/12/20 (16-QAM) | 19 | -78 | 18 | -75 |
| MSC 5/13/21 (64-QAM) | 18 | -73 | 17 | -70 |
| MSC 6/14/22 (64-QAM) | 18 | -72 | 17 | -69 |
| MSC 7/15/23 (64-QAM) | 18 | -71 | 17 | -68 |
| MSC 8/16/24 (256-QAM) | 15 | -66 | 14 | -65 |
| MSC 9/17/25 (256-QAM) | 15 | -65 | 14 | -63 |
| 802.11 HT80 | TX Power (dBm) | RX Sensitivity (dBm) | TX Power (dBm) | RX Sensitivity (dBm) |
| MSC 0 (BPSK) | - | - | 18 | -83 |
| MSC 1 (QPSK) | - | - | 17 | -80 |
| MSC 2 (QPSK) | - | - | 17 | -78 |
| MSC 3 (16-QAM) | - | - | 16 | -75 |
| MSC 4 (16-QAM) | - | - | 16 | -73 |
| MSC 5 (64-QAM) | - | - | 15 | -72 |
| MSC 6 (64-QAM) | - | - | 15 | -70 |
| MSC 7 (64-QAM) | - | - | 15 | -69 |
| MSC 8 (256-QAM) | - | - | 15 | -65 |
| MSC 9 (256-QAM) | - | - | 15 | -59 |

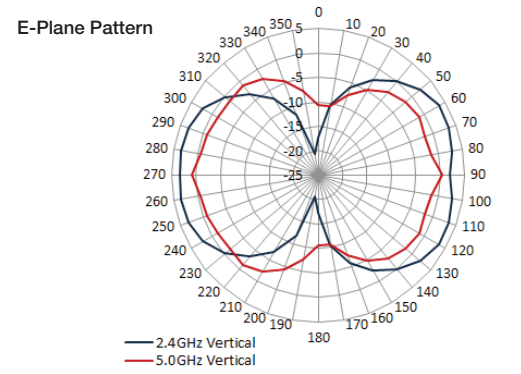
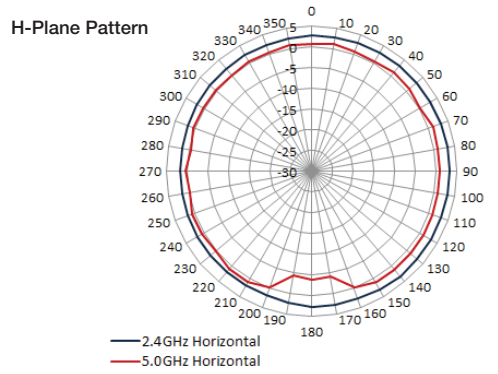
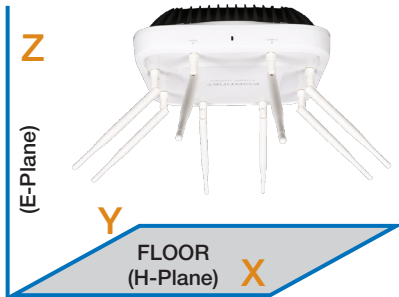
Maximum capability of the Hardware provided (Excluding antenna gain)

ANTENNA RADIATION PATTERNS

FAP-U421EV



FAP-U423EV



PERFORMANCE MATRIX

| FAP-U421EV AND FAP-U423EV 802.11AC PERFORMANCE — DATA RATES (MBPS) | | | | | | | | | | |
|--|--------------|-----------|----------|-----------|----------|-----------|----------|-----------|----------|--|
| Descriptor | Data Streams | VHT20 | | VHT40 | | VHT80 | | VH160 | | |
| | | Normal GI | 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 | 58.6 | 65 | |
| MCS 1 | 1 | 13 | 14.4 | 27 | 30 | 58.5 | 65 | 117 | 130 | |
| MCS 2 | 1 | 19.5 | 21.7 | 40.5 | 45 | 87.8 | 97.5 | 175.6 | 195 | |
| MCS 3 | 1 | 26 | 28.9 | 54 | 60 | 117 | 130 | 234 | 260 | |
| MCS 4 | 1 | 39 | 43.3 | 81 | 90 | 175.5 | 195 | 351 | 390 | |
| MCS 5 | 1 | 52 | 57.8 | 108 | 120 | 234 | 260 | 468 | 520 | |
| MCS 6 | 1 | 58.5 | 65 | 121.5 | 135 | 263.3 | 292.5 | 526.6 | 585 | |
| MCS 7 | 1 | 65 | 72.2 | 135 | 150 | 292.5 | 325 | 585 | 650 | |
| MCS 8 | 1 | 78 | 86.7 | 162 | 180 | 351 | 390 | 702 | 780 | |
| MCS 9 | 1 | NA | NA | 180 | 200 | 390 | 433.3 | 780 | 866.6 | |
| MCS 0 | 2 | 13 | 14.4 | 27 | 30 | 58.5 | 65 | 117 | 130 | |
| MCS 1 | 2 | 26 | 28.9 | 54 | 60 | 117 | 130 | 234 | 260 | |
| MCS 2 | 2 | 39 | 43.3 | 81 | 90 | 175.5 | 195 | 351 | 390 | |
| MCS 3 | 2 | 52 | 57.8 | 108 | 120 | 234 | 260 | 468 | 520 | |
| MCS 4 | 2 | 78 | 86.7 | 162 | 180 | 351 | 390 | 702 | 780 | |
| MCS 5 | 2 | 104 | 115.6 | 216 | 240 | 468 | 520 | 936 | 1040 | |
| MCS 6 | 2 | 117 | 130 | 243 | 270 | 526.5 | 585 | 1053 | 1170 | |
| MCS 7 | 2 | 130 | 144.4 | 270 | 300 | 585 | 650 | 1170 | 1300 | |
| MCS 8 | 2 | 156 | 173.3 | 324 | 360 | 702 | 780 | 1404 | 1560 | |
| MCS 9 | 2 | NA | NA | 360 | 400 | 780 | 866.7 | 1560 | 1733.4 | |
| MCS 0 | 3 | 19.5 | 21.7 | 40.5 | 45 | 87.8 | 97.5 | 175.6 | 195 | |
| MCS 1 | 3 | 39 | 43.3 | 81 | 90 | 175.5 | 195 | 351 | 390 | |
| MCS 2 | 3 | 58.5 | 65 | 121.5 | 135 | 263.3 | 292.5 | 526.6 | 585 | |
| MCS 3 | 3 | 78 | 86.7 | 162 | 180 | 351 | 390 | 702 | 780 | |
| MCS 4 | 3 | 117 | 130 | 243 | 270 | 526.5 | 585 | 1053 | 1170 | |
| MCS 5 | 3 | 156 | 173.3 | 324 | 360 | 702 | 780 | 1404 | 1560 | |
| MCS 6 | 3 | 175.5 | 195 | 364.5 | 405 | NA | NA | NA | NA | |
| MCS 7 | 3 | 195 | 216.7 | 405 | 450 | 877.5 | 975 | 1755 | 1950 | |
| MCS 8 | 3 | 234 | 260 | 486 | 540 | 1053 | 1170 | 2106 | 2340 | |
| MCS 9 | 3 | 260 | 288.9 | 540 | 600 | 1170 | 1300 | N/A | N/A | |
| MCS 0 | 4 | 26 | 28.9 | 54 | 60 | 117 | 130 | 234 | 260 | |
| MCS 1 | 4 | 52 | 57.8 | 108 | 120 | 234 | 260 | 468 | 520 | |
| MCS 2 | 4 | 78 | 86.7 | 162 | 180 | 351 | 390 | 702 | 780 | |
| MCS 3 | 4 | 104 | 115.6 | 216 | 240 | 468 | 520 | 936 | 1040 | |
| MCS 4 | 4 | 156 | 173.3 | 324 | 360 | 702 | 780 | 1404 | 1560 | |
| MCS 5 | 4 | 208 | 231.1 | 432 | 480 | 936 | 1040 | 1872 | 2080 | |
| MCS 6 | 4 | 234 | 260 | 486 | 540 | 1053 | 1170 | 2106 | 2340 | |
| MCS 7 | 4 | 260 | 288.9 | 540 | 600 | 1170 | 1300 | 2340 | 2600 | |
| MCS 8 | 4 | 312 | 346.7 | 648 | 720 | 1404 | 1560 | 2808 | 3120 | |
| MCS 9 | 4 | NA | NA | 720 | 800 | 1560 | 1733.3 | 3120 | 3466.6 | |

ORDER INFORMATION

| Product | SKU | Description |
|----------------------|-----------------------|---|
| FortiAP U421EV | FAP-U421EV | Universal Indoor wireless AP — 4x4 MU-MIMO 802.11 a/b/g/n/ac Wave 2, dual concurrent dual-band (2.4 GHz/5 GHz) radios and 3rd BT/BLE radio, 2x GE RJ45 802.3at PoE ports, Internal antennas, ceiling/wall mount kit included, power adapter not included. |
| | FC-10-P0421-311-02-DD | 8x5 FortiCare Contract |
| | FC-10-P0421-247-02-DD | 24x7 FortiCare Contract |
| FortiAP U423EV | FAP-U423EV | Universal Indoor wireless AP — 4x4 MU-MIMO 802.11 a/b/g/n/ac Wave 2, dual concurrent dual-band (2.4 GHz/5 GHz) radios and 3rd BT/BLE radio, 2x GE RJ45 802.3at PoE ports, external antennas, ceiling/wall mount kit included, power adapter not included. |
| | FC-10-P0423-311-02-DD | 8x5 FortiCare Contract |
| | FC-10-P0423-247-02-DD | 24x7 FortiCare Contract |
| Gigabit PoE Injector | GPI-130 | 1-Port Gigabit PoE Power Injector, 802.3at up to 30W. |
| Power Adapter | SP-FAP400-PA | AC Power Adapter for FAP-U421EV, FAP-U423EV, FAP-S421E, FAP-S423E, FAP-421E and FAP-423E. |

| REGION/COUNTRY SKU SUFFIX* | | | | | | | | |
|----------------------------|-------------|---------------|-------|-------|----------|-----------|--------|------------|
| Americas-FCC | Europe ETSI | International | Japan | Korea | Non-FFCA | Singapore | Taiwan | World 2.4G |
| -A | -E | -I | -J | -K | -N | -S | -T | -W |

* For the complete list of countries and regions, refer to <http://www.fortinet.com/wireless>.



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