

DATA SHEET

# FortiAP™ Universal Access Point Series

Available in:



Appliance

## Universally Manageable Access Points



The FortiAP-U family offers a wide range of models with the additional flexibility of dual 5 GHz support for Wi-Fi 6 APs. Perfect for everything from a large campus to hundreds of branch locations, the FortiAP-U family has a variety of form factors and performance levels. FortiAP-U access points are managed centrally by the integrated WLAN controller of any FortiGate® security appliance, through the FortiAP Cloud provisioning and management portal, or through standalone controllers (FortiWLC). Protect your LAN Edge from the campus to the branch with these high capacity capable APs.



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



Wi-Fi 6 technology with data rates of up to 4.8 Gbps and OFDMA improves client throughput and overall network efficiency.



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

### Product Offerings

#### 802.11ax Wi-Fi 6

**FAP-U431F** 4×4 Indoor tri-radio dual 5G 11ax APs  
**FAP-U433F**

**FAP-U231F** 2×2 Indoor tri-radio dual 5G 11ax APs

#### 802.11ac (Wave 2) Wi-Fi 5

**FAP-U421EV** 4×4 MU-MIMO APs with dual radios  
**FAP-U423EV**

**FAP-U422EV** 4×4 Outdoor AP, with dual radios

**FAP-U321EV** 3×3 Indoor dual-radio APs  
**FAP-U323EV**

#### 802.11ac (Wave 1) Wi-Fi 5

**FAP-U221EV** 2×2 MIMO APs with dual radios  
**FAP-U223EV**

**FAP-U24JE** 2×2 Wall jack AP with 4 GE ports

## HIGHLIGHTS

Fortinet Universal access points are designed to support a variety of deployments from branches, to medium to large offices, schools, universities, hospitals, hotels, and large retail stores. The Universal access points can serve such a wide range of applications because they can be managed by any of Fortinet’s control and management offerings: FortiGate, FortiWLC, and FortiAP Cloud.

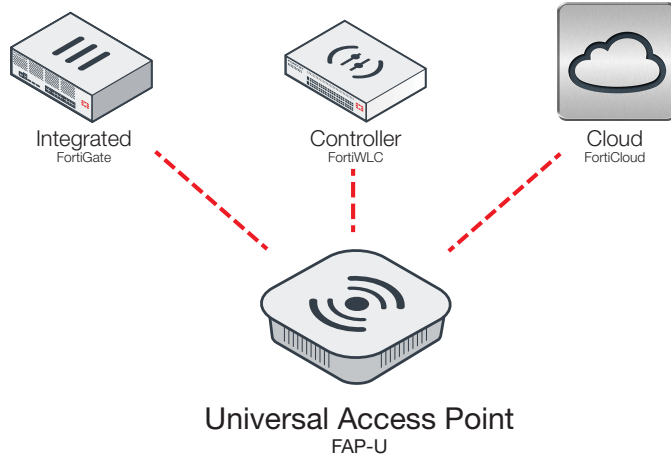


Figure 1 — Universal Access Management, highest Gigabit Wi-Fi performance and unmatched security protection.

## Education

The Education sector is at rising risk from cyber attacks. This in conjunction with requirements to protect minors from inappropriate materials can make deploying wireless

a challenge. Our integrated secure wireless controller (FortiGate) ensures secure student access to learning resources while FortiGuard services provides cybersecurity protection.

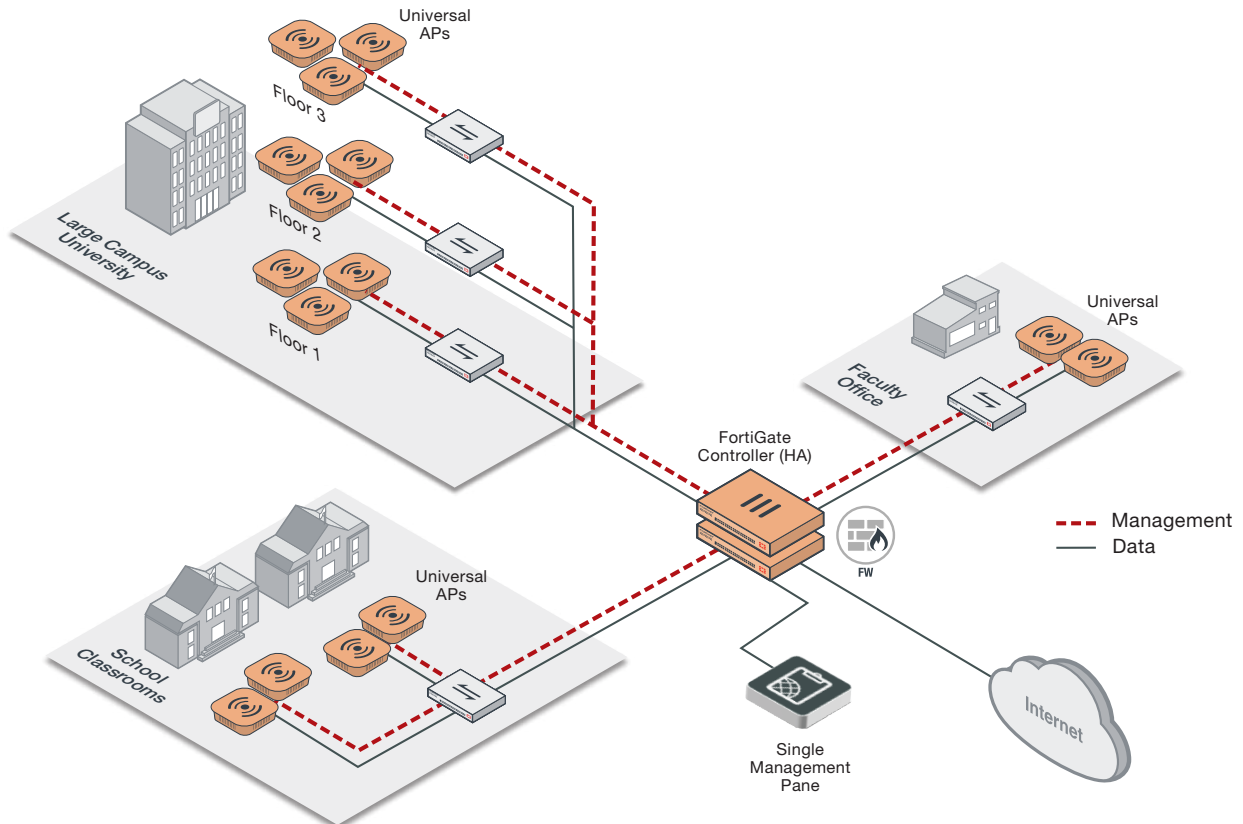


Figure 2 — Educational organizations with Universal APs managed by on-premise FortiGate controllers.



## 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 dedicated wireless

controllers (integrated WLAN controller of any FortiGate security appliance) connected to our Universal access points ensures patient safety remains paramount, while providing improved performance for wireless enabled medical devices.

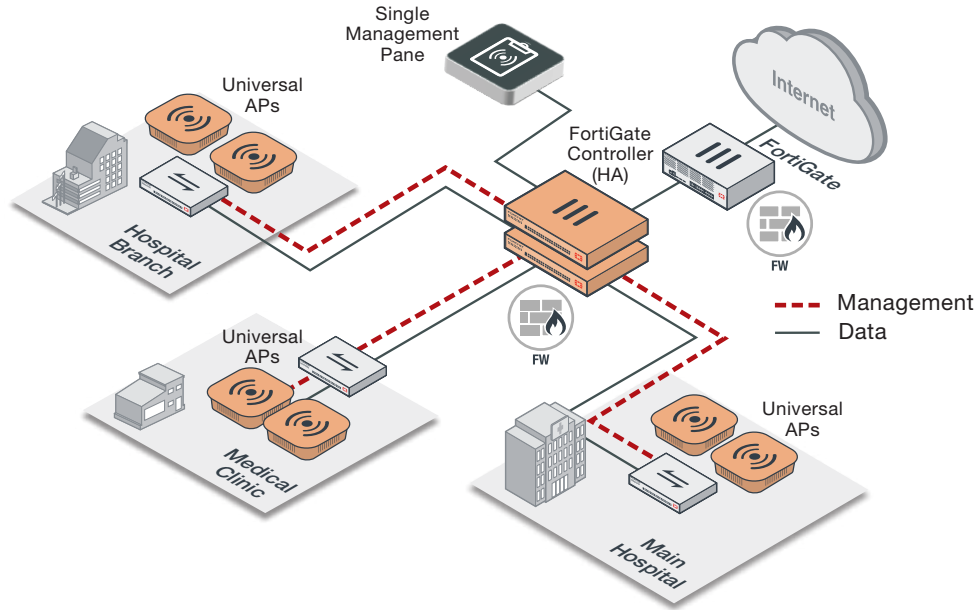


Figure 3 — Healthcare organizations with Universal APs managed by on-premise FortiGate acting as a Wireless controller.

### Small/Medium Business

Retailers can streamline Wi-Fi store deployments through the combination of Universal APs and FortiAP Cloud management. This, in combination with FortiDeploy for zero-touch provisioning and deployment, offers a cost-effective solution for retail IT.

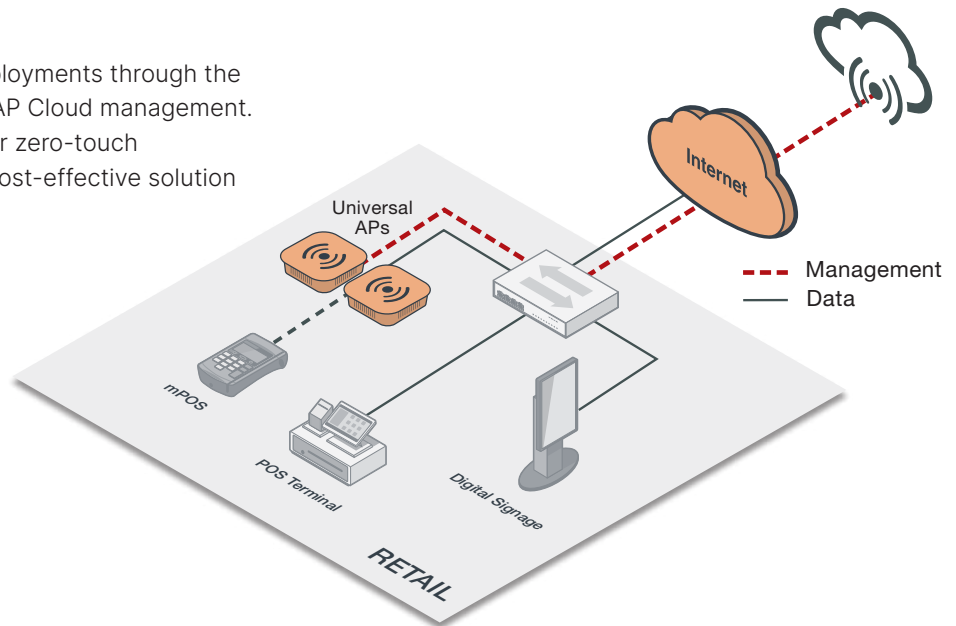


Figure 4 — Retail store with Universal APs managed by FortiCloud.



## HIGHLIGHTS

### FortiAP U431F and U433F

These enterprise class Wi-Fi6 (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 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. The integrated BLE radio can be used for beacons and locationing applications.



802.11ax | Tri-Radio 5 GHz + 5 GHz + 2.4 GHz or 5 GHz + 2.4 GHz + scanning | 10 Antennas



4x4 MIMO | Up to 4,804 Mbps + 4,804 Mbps + 300 Mbps

## SPECIFICATIONS

	FORTIAP-U431F	FORTIAP-U433F
<b>Hardware</b>		
<b>Hardware Type</b>	Indoor AP	Indoor AP
<b>Number of Radios</b>	3 + 1 BLE	3 + 1 BLE
<b>Number of Antennas</b>	10 Internal + 1 BLE Internal	10 External (RP-SMA) + 1 BLE Internal
<b>Antenna Type and Peak Gain</b>	PIFA: 4 dBi for 2.4 GHz, 6 dBi for 5 GHz	Dipole: 3.5 dBi for 2.4 GHz, 5 dBi for 5 GHz
<b>Frequency Bands (GHz)</b>	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, 5.725–5.850
<b>Radio 1 Capabilities</b>	5.0 GHz a/n/ac/ax (4x4:4 stream) 20/40/80/160 MHz (64/256/1024 QAM)	5.0 GHz a/n/ac/ax (4x4:4 stream) 20/40/80/160 MHz (64/256/1024 QAM)
<b>Radio 2 Capabilities</b>	2.4 GHz or 5.0 GHz (high band) a/b/g/n/ac/ax (4x4:4 stream) 20/40/80/160 MHz (64/256/1024 QAM)	2.4 GHz or 5.0 GHz (high band) a/b/g/n/ac/ax (4x4:4 stream) 20/40/80/160 MHz (64/256/1024 QAM)
<b>Radio 3 Capabilities</b>	2.4/5.0 GHz dual band b/g/n/ac (2x2:2 stream) 20/40 MHz (64 QAM)	2.4/5.0 GHz dual band b/g/n/ac (2x2:2 stream) 20/40 MHz (64 QAM)
<b>Maximum Data Rate</b>	Radio 1: up to 4,804 Mbps Radio 2: up to 4,804 Mbps Radio 3: up to 300 Mbps	Radio 1: up to 4,804 Mbps Radio 2: up to 4,804 Mbps Radio 3: up to 300 Mbps
<b>Bluetooth Low Energy Radio</b>	Bluetooth scanning and iBeacon advertisement @ 4 dBm max TX power	Bluetooth scanning and iBeacon advertisement @ 4 dBm max TX power
<b>Interfaces</b>	1x 10/100/1000/2500 Base-T RJ45, 1x 10/100/1000 Base-T RJ45, 1x Type A USB, 1x RS-232 RJ45 Serial Port	1x 10/100/1000/2500 Base-T RJ45, 1x 10/100/1000 Base-T RJ45, 1x Type A USB, 1x RS-232 RJ45 Serial Port
<b>Power over Ethernet (PoE)</b>	Dual redundant PoE power ports with support for IEEE 802.3at or dual 802.3af power	Dual redundant PoE power ports with support for IEEE 802.3at or dual 802.3af power
<b>Simultaneous SSIDs</b>	Up to 16 (14 if background scanning enabled)	Up to 16 (14 if background scanning enabled)
<b>EAP Type(s)</b>	EAP-TLS, EAP-TTLS/MSCMAPv2, PEAPv0/EAP-MSCHAPv2, PEAPv1/EAP-GTC, EAP-SIM, EAP-AKA, EAP-FAST	EAP-TLS, EAP-TTLS/MSCMAPv2, PEAPv0/EAP-MSCHAPv2, PEAPv1/EAP-GTC, EAP-SIM, EAP-AKA, EAP-FAST
<b>User/Device Authentication</b>	WPA™, WPA2™, and WPA3™ with 802.1x or Preshared key, WEP, Web Captive Portal, MAC blacklist and allowlist	WPA™, WPA2™, and WPA3™ with 802.1x or Preshared key, WEP, Web Captive Portal, MAC blacklist and allowlist
<b>Maximum Tx Power (Conducted)</b>	Radio 1: 5 GHz: 24 dBm / 251 mW (4 chains combined)* Radio 2: 2.4 GHz: 26 dBm / 398 mW (4 chains combined)* 5 GHz: 24 dBm / 251 mW (4 chains combined)* Radio 3: 2.4 GHz: 22 dBm / 158 mW (2 chains combined)*	Radio 1: 5 GHz: 24 dBm / 251 mW (4 chains combined)* Radio 2: 2.4 GHz: 26 dBm / 398 mW (4 chains combined)* 5 GHz: 24 dBm / 251 mW (4 chains combined)* Radio 3: 2.4 GHz: 22 dBm / 158 mW (2 chains combined)*
<b>Kensington Lock</b>	Yes	Yes
<b>IEEE Standards</b>	802.11a, 802.11b, 802.11d, 802.11e, 802.11g, 802.11h, 802.11i, 802.11j, 802.11k, 802.11n, 802.11r, 802.11v, 802.11w, 802.11ac, 802.1Q, 802.1X, 802.3ad, 802.3af, 802.3at, 802.3az, 802.11ax, 802.3bz	802.11a, 802.11b, 802.11d, 802.11e, 802.11g, 802.11h, 802.11i, 802.11j, 802.11k, 802.11n, 802.11r, 802.11v, 802.11w, 802.11ac, 802.1Q, 802.1X, 802.3ad, 802.3af, 802.3at, 802.3az, 802.3bz Wi-Fi 6
<b>SSID Types Supported</b>	Local-Bridge, Mesh, & Tunnel	Local-Bridge, Mesh, & Tunnel
<b>Per Radio Client Capacity</b>	Up to 512 per Radio1 and Radio2	Up to 512 per Radio1 and Radio2
<b>Cellular Co-existence**</b>	Yes	Yes
<b>Reset Button</b>	Yes	Yes

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

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



## SPECIFICATIONS

	FORTIAP-U431F	FORTIAP-U433F
LED Off Mode	Yes	Yes
<b>Advanced 802.11 Features</b>		
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
OFDMA	Yes (UL and DL)	Yes (UL and DL)
2.4 GHz OFDMA	Yes	Yes
Spatial Reuse (BSS Coloring)	Yes	Yes
HE-MU-MIMO	Yes	Yes
UL-MU-MIMO 802.11ax mode	Yes	Yes
UL-MU-MIMO 802.11ac mode	No	No
DL-MU-MIMO	Yes	Yes
Enhanced Target Wake Time (TWT)	Yes	Yes
ZeroWait DFS /Agile DFS	Yes	Yes
<b>Wireless Monitoring Capabilities</b>		
Rogue Scan Radio Modes	Background, Dedicated	Background, Dedicated
WIPS / WIDS Radio Modes	Background, Dedicated (recommended)	Background, Dedicated (recommended)
Packet Sniffer Mode	Yes	Yes
Spectrum Analyzer	Yes	Yes
<b>Dimensions</b>		
Length x Width x Height	8.46 × 8.46 × 2.26 inches (215 × 215 × 57.5 mm)	8.46 × 8.46 × 2.26 inches (215 × 215 × 57.5 mm)
Weight	1.0 lb (0.453 kg)	1.0 lb (0.453 kg)
Package (shipping) Weight	1.8 lbs (0.82 kg)	1.8 lbs (0.82 kg)
Mounting Options	Ceiling, T-Rail, and Wall	Ceiling, T-Rail, and Wall
Included Accessories	Mount kits for Ceiling, T-Rail, and Wall	Mount kits for Ceiling, T-Rail, and Wall, 10x dipole antennas
<b>Environment</b>		
Power Supply	GPI-130, or 2x GPI-115 GPI-130, or 2x GPI-115, or AC adapter SP-FAP43F-PA-X-5	GPI-130, or 2x GPI-115 GPI-130, or 2x GPI-115, or AC adapter SP-FAP43F-PA-X-5
Power Consumption (Maximum)	24.5 W	24.5 W
Humidity	10–90% Non-Condensed 5–90% Condensed	10–90% Non-Condensed 5–90% Condensed
Operating / Storage Temperature	32–122°F (0–50°C) / -31–158°F (-35–70°C)	32–122°F (0–50°C) / -31–158°F (-35–70°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 (802.3at only)	Yes (802.3at only)
<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



## FAP-U431F / FAP-U433F RF RX/TX PERFORMANCE TABLE

FORTIAP U431F AND U433F						
	Radio 1		Radio 2		Radio 3	
	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)	Max Tx Power per transmit chain (dBm)	Rx Sensitivity per receiver chain (dBm)
<b>2.4 GHz, 802.11b</b>						
1 Mbps	20	-98	—	—	19	-96
11 Mbps	20	-89	—	—	19	-87
<b>2.4 GHz, 802.11g</b>						
6 Mbps	20	-94	—	—	19	-92
54 Mbps	20	-75	—	—	19	-73
<b>2.4 GHz, 802.11n HT20</b>						
MCS0	19	-93	—	—	18	-91
MCS7	17	-74	—	—	16	-72
<b>2.4 GHz, 802.11n HT40</b>						
MCS0	19	-92	—	—	18	-90
MCS7	17	-73	—	—	16	-71
<b>2.4 GHz, 802.11ax HE20</b>						
MCS0	18	-90	—	—	17	-88
MCS11	16	-71	—	—	15	-69
<b>2.4 GHz, 802.11ax HE40</b>						
MCS0	17	-88	—	—	16	-86
MCS11	15	-68	—	—	14	-66
<b>5.0 GHz, 802.11a</b>						
6 Mbps	20	-92	20	-92	—	—
54 Mbps	20	-72	20	-72	—	—
<b>5.0 GHz, 802.11n HT20</b>						
MCS0	20	-91	20	-91	—	—
MCS7	18	-72	18	-72	—	—
<b>5.0 GHz, 802.11n HT40</b>						
MCS0	20	-88	20	-88	—	—
MCS7	18	-69	18	-69	—	—
<b>5.0 GHz, 802.11ac VHT20</b>						
MCS0	20	-91	20	-91	—	—
MCS9	18	-67	18	-67	—	—
<b>5.0 GHz, 802.11ac VHT40</b>						
MCS0	20	-88	20	-88	—	—
MCS9	18	-62	18	-62	—	—
<b>5.0 GHz, 802.11ac VHT80</b>						
MCS0	19	-85	19	-85	—	—
MCS9	17	-59	17	-59	—	—
<b>5.0 GHz, 802.11ac VHT160</b>						
MCS0	16	-82	16	-82	—	—
MCS9	15	-56	15	-56	—	—
<b>5.0 GHz, 802.11ax HE20</b>						
MCS0	19	-90	19	-90	—	—
MCS11	17	-66	17	-66	—	—
<b>5.0GHz, 802.11ac HE40</b>						
MCS0	19	-87	19	-87	—	—
MCS11	17	-61	17	-61	—	—
<b>5.0 GHz, 802.11ac HE80</b>						
MCS0	18	-94	18	-94	—	—
MCS11	16	-58	16	-58	—	—



## FAP-U431F / FAP-U433F RF RX/TX PERFORMANCE TABLE

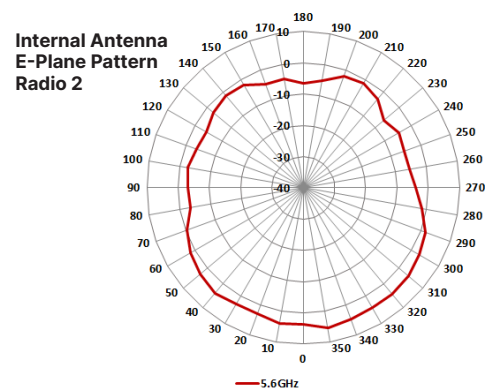
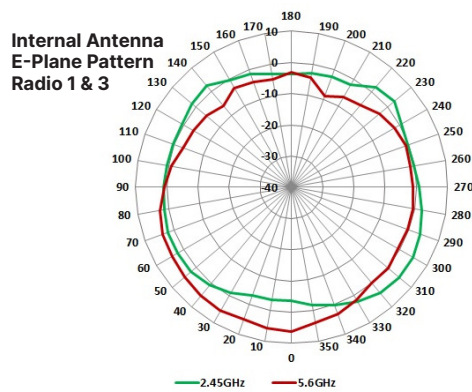
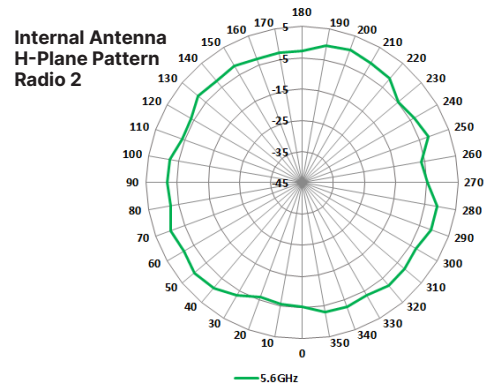
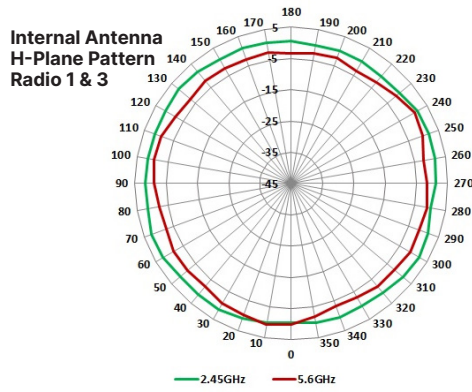
FORTIAP U431F AND U433F						
	Radio 1		Radio 2		Radio 3	
	Max Tx Power per transmit chain (dBm)	Rx Sensitivity per receiver chain (dBm)	Max Tx Power per transmit chain (dBm)	Rx Sensitivity per receiver chain (dBm)	Max Tx Power per transmit chain (dBm)	Rx Sensitivity per receiver chain (dBm)
5.0 GHz, 802.11ac HE160						
MCS0	15	-81	15	-81	—	—
MCS11	14	-55	14	-55	—	—

Maximum capability of the hardware provided (excluding antenna gain)

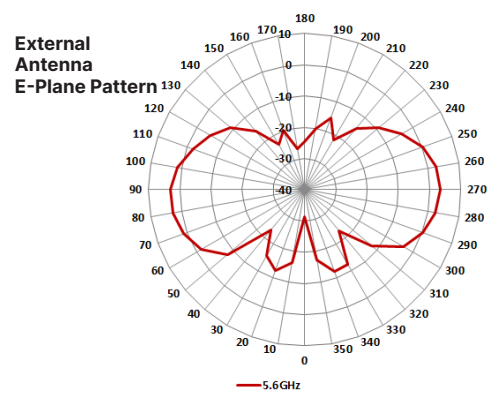
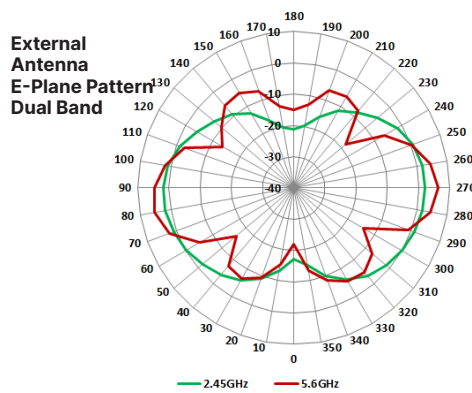
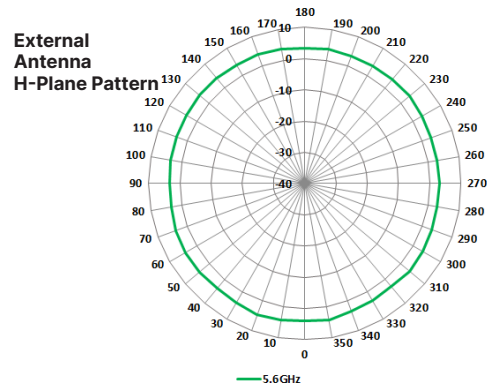
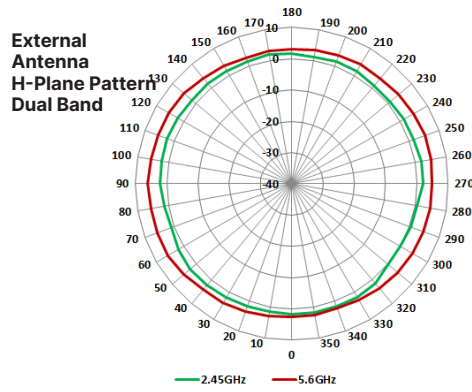
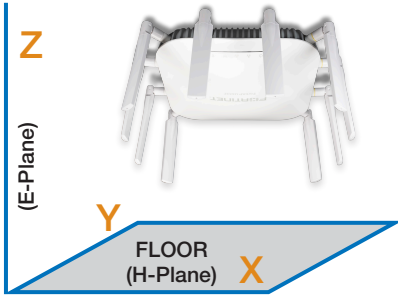


# ANTENNA RADIATION PATTERNS

## FAP-U431F



## FAP-U433F





# HIGHLIGHTS

## FortiAP U231F

This enterprise class Wi-Fi 6 (802.11ax) indoor AP provides three radios as well as features such as OFDMA and dual 1 Gbps Ethernet ports for PoE diversity. The APs 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. The integrated BLE radio can be used for beacons and locationing applications.



 **802.11ax | Tri-Radio 5 GHz + 5 GHz + 2.4 GHz or 5 GHz + 2.4 GHz + scanning | 5 Antennas**

 **2x2 MIMO | Up to 1,201 Mbps + 1,201 Mbps + 574 Mbps**

# SPECIFICATIONS

FORTIAP U231F	
<b>Hardware</b>	
Hardware Type	Indoor AP
Number of Radios	3 + 1 BLE
Number of Antennas	4 Dual band WiFi + 2 WiFi+Dual band Scanning + 1 Single band 2.4GHz BLE/ZigBee
Antenna Type and Peak Gain	PIFA antenna Dual band: 3.97 dBi for 2.4GHz and 5.89 dBi for 5GHz Single band 5Ghz antenna 5dBi for 2.4GHz band BLE antenna 3.5dBi at 2.4GHz band
<b>Frequency Bands (GHz)</b>	
Radio 1 Capabilities	Band: 2.4 GHz or 5.0 GHz(High Band) a/b/g/n/ac/ax (2x2:2 stream) Channel width: 20/40/80MHz Modulation: BPSK, QPSK, 64/256/1024 QAM
Radio 2 Capabilities	5.0 GHz a/b/g/n/ac/ax (2x2:2 stream) Channel width: 20/40/80MHz Modulation: BPSK, QPSK, 64/256/1024QAM
Radio 3 Capabilities	Service: (2x2:2 stream) Band: 2.4 GHz service b/g/n/ax Channel width: 20/40MHz Modulation: BPSK, QPSK, 64/256/1024QAM Scan: dual band scan
Maximum Data Rate	Radio 1: up to 1201 Mbps Radio 2: up to 1201 Mbps Radio 3: up to 574 Mbps
Bluetooth Low Energy Radio	Bluetooth scanning and iBeacon advertisement @ 10 dBm max TX power
Interfaces	2x 10/100/1000 Base-T RJ45, 1x Type 2.0 USB, 1x RS-232 RJ45 Serial Port
Power over Ethernet (PoE)	1 x 802.3at PoE default 1 x 802.af PoE with reduce TX power and no USB function
Simultaneous SSIDs	Up to 24 (21 if background scanning enabled)
EAP Type(s)	EAP-TLS, EAP-TTLS/MSCHAPv2, PEAPv0/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 and allowlist
Maximum Tx Power (Conducted)	Radio 1: 2.4GHz: 23 dBm / 200 mW (2 chains combined)* 5GHz: 22 dBm / 158 mW (2 chains combined)* Radio 2: 5GHz: 22 dBm / 158 mW (2 chains combined)* Radio 3: 2.4GHz: 23 dBm / 200 mW (2 chains combined)* 5GHz: 22 dBm / 158 mW (2 chains combined)*
Kensington Lock	Yes

FORTIAP U231F	
IEEE Standards	802.11a, 802.11b, 802.11e, 802.11g, 802.11h, 802.11i, 802.11j, 802.11k, 802.11n, 802.11r, 802.11v, 802.11w, 802.11ac, 802.11ax, 802.1Q, 802.1X, 802.3ad, 802.3af, 802.3at, 802.3az
SSID Types Supported	Local-Bridge, Tunnel, and Mesh
Per Radio Client Capacity	Up to 512 clients per radio (all radios)
Cellular Co-existence**	Yes
Reset Button	Yes
LED Off Mode	Yes
<b>Advanced 802.11 Features</b>	
Transmit Beam Forming (TxBF)	Yes
Low-Density Parity Check (LDPC) Encoding	Yes
Maximum Likelihood Demodulation (MLD)	Yes
Maximum Ratio Combining (MRC)	Yes
A-MPDU and A-MSDU Packet Aggregation	Yes
OFDMA	Yes
2.4 GHz OFDMA	Yes
Spatial Reuse (BSS Coloring)	Yes
HE-MU-MIMO	Yes
UL MU-MIMO 802.11ax mode	Yes
UL MU-MIMO 802.11ac mode	No
DL-MU-MIMO	Yes
Enhanced Target Wake Time (TWT)	Yes
ZeroWait DFS /Agile DFS	Yes
<b>Wireless Monitoring Capabilities</b>	
Rogue Scan radio modes	Background, Dedicated
WIPS / WIDS radio modes	Background, Dedicated (recommended)
Packet Sniffer Mode	Yes
Spectrum Analyzer	Yes
<b>Dimensions</b>	
Length x Width x Height	6.5 x 6.5 x 2.05 inches (165 x 165 x 52 mm)
Weight	1.5 lbs (0.68 kg)
Package (shipping) Weight	2.6 lbs (1.185 kg)
Mounting Options	Ceiling, T-Rail, and Wall
Included Accessories	Standard Mount kit for Ceiling, T-Rail and Wall



## SPECIFICATIONS

FORTIAP U231F	
<b>Environment</b>	
<b>Power Supply</b>	GPI-130 or SP-FAP250-PAX-10
<b>Power Consumption (Maximum)</b>	18.5W
<b>Humidity</b>	5 - 90% non condensing
<b>Operating / Storage Temperature</b>	32-122°F (0 - 50°C) / -22-158°F (-30-70°C)
<b>Directives</b>	Low Voltage Directive • RoHS
<b>UL2043 Plenum Material</b>	Yes
<b>Mean Time Between Failures</b>	> 10 Years
<b>IP Rating</b>	N/A
<b>Surge Protection Built In</b>	--
<b>Hit-less PoE Failover</b>	N/A
<b>Certifications</b>	
<b>WiFi Alliance Certified</b>	No
<b>DFS</b>	No
<b>Warranty</b>	
<b>Limited Lifetime Warranty</b>	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.



## FAP-U231F RX/TX PERFORMANCE TABLE

FORTIAP U231F						
	Radio 1		Radio 2		Radio 3	
	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)	Max Tx Power per transmit chain (dBm)	Rx Sensitivity per receiver chain (dBm)
<b>2.4 GHz, 802.11b</b>						
1 Mbps	20	-98	—	—	20	-96
11 Mbps	20	-89	—	—	20	-87
<b>2.4 GHz, 802.11g</b>						
6 Mbps	20	-94	—	—	20	-92
54 Mbps	19	-75	—	—	19	-73
<b>2.4 GHz, 802.11n HT20</b>						
MCS0	20	-93	—	—	20	-91
MCS7	18	-75	—	—	18	-72
<b>2.4 GHz, 802.11n HT40</b>						
MCS0	19	-91	—	—	19	-90
MCS7	18	-69	—	—	18	-71
<b>2.4 GHz, 802.11ax HE20</b>						
MCS0	20	93	—	—	20	-88
MCS11	19	-71	—	—	19	-69
<b>2.4 GHz, 802.11ax HE40</b>						
MCS0	19	-90	—	—	19	-86
MCS11	18	-65	—	—	18	-66
<b>5.0 GHz, 802.11a</b>						
6 Mbps	21	-92	20	-92	21	-92
54 Mbps	20	-75	19	-75	20	-75
<b>5.0 GHz, 802.11n HT20</b>						
MCS0	20	-91	20	-92	20	-91
MCS7	18	-74	18	-74	18	-74
<b>5.0 GHz, 802.11n HT40</b>						
MCS0	20	-90	20	-89	20	-90
MCS7	18	-72	18	-71	18	-72
<b>5.0 GHz, 802.11ac VHT20</b>						
MCS0	20	-92	20	-92	20	-92
MCS9	19	-70	19	-70	19	-70
<b>5.0 GHz, 802.11ac VHT40</b>						
MCS0	20	-89	20	-90	20	-89
MCS9	18	-66	18	-65	18	-66
<b>5.0 GHz, 802.11ac VHT80</b>						
MCS0	19	-87	19	-86	19	-87
MCS9	18	-62	18	-61	18	-62
<b>5.0 GHz, 802.11ax HE20</b>						
MCS0	20	-93	20	-93	20	-93
MCS11	18	-66	18	-62	18	-66
<b>5.0GHz, 802.11ax HE40</b>						
MCS0	20	-87	20	-90	20	-87
MCS11	18	-61	18	-60	18	-61
<b>5.0 GHz, 802.11ax HE80</b>						
MCS0	19	-94	19	-89	19	-94
MCS11	17	-58	17	-58	17	-58

Maximum capability of the hardware provided (excluding antenna gain)

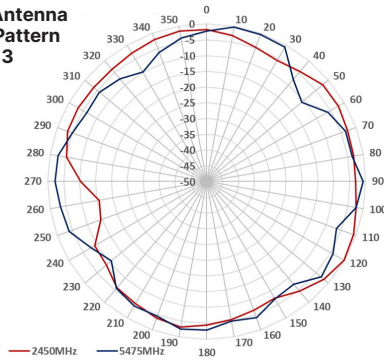


# ANTENNA RADIATION PATTERNS

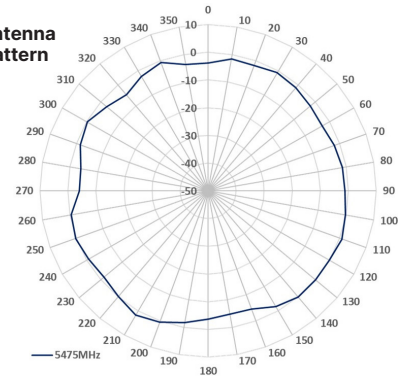
## FAP-U231F



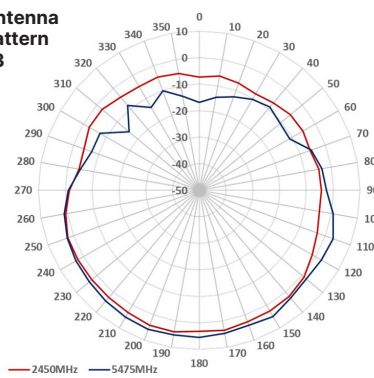
**Internal Antenna  
H-Plane Pattern  
Radio 1 & 3**



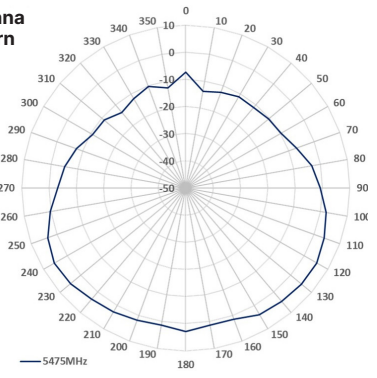
**Internal Antenna  
H-Plane Pattern  
Radio 2**



**Internal Antenna  
E-Plane Pattern  
Radio 1 & 3**



**Internal Antenna  
E-Plane Pattern  
Radio 2**





# HIGHLIGHTS

## FortiAP U421EV and U423EV

The FortiAP U421EV and U423EV access points support the latest 802.11ac Wave 2 standard, with a maximum data rate of up to 3.4 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 Internal/External Antennas
-  4x4 MU-MIMO | Up to 600 Mbps + 3,466 Mbps

# SPECIFICATIONS

	FORTIAP U421EV	FORTIAP U423EV
<b>Hardware</b>		
<b>Hardware Type</b>	Indoor AP	Indoor AP
<b>Number of Radios</b>	2 + 1 BLE	2 + 1 BLE
<b>Number of Antennas</b>	8 Internal + 1 BLE Internal	8 External (RP-SMA) + 1 BLE Internal
<b>Antenna Type and Peak Gain</b>	Patch: 4 dBi for 2.4 GHz, 5 dBi for 5 GHz	Dipole: 3 dBi for 2.4 GHz, 3 dBi for 5 GHz
<b>Frequency Bands (GHz)</b>	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, 5.725–5.850
<b>Radio 1 Capabilities</b>	2.4 GHz b/g/n (4x4:4 stream) 20/40 MHz (64 QAM)	2.4 GHz b/g/n (4x4:4 stream) 20/40 MHz (64 QAM)
<b>Radio 2 Capabilities</b>	5 GHz a/n/ac (4x4:4 stream) 20/40/80/160 MHz (256 QAM)	5 GHz a/n/ac (4x4:4 stream) 20/40/80/160 MHz (256 QAM)
<b>Maximum Data Rate</b>	Radio 1: up to 600 Mbps Radio 2: up to 3,466 Mbps	Radio 1: up to 600 Mbps Radio 2: up to 3,466 Mbps
<b>Bluetooth Low Energy Radio</b>	Bluetooth scanning and iBeacon advertisement @ 4 dBm max TX power	Bluetooth scanning and iBeacon advertisement @ 4 dBm max TX power
<b>Interfaces</b>	2x 10/100/1000 Base-T RJ45, 1x Type A USB, 1x RS-232 RJ45 Serial Port	2x 10/100/1000 Base-T RJ45, 1x Type A USB, 1x RS-232 RJ45 Serial Port
<b>Power over Ethernet (PoE)</b>	Dual redundant PoE power ports with support for IEEE 802.3at (2x2 operation at 17 dBm TX Power and USB disabled with 802.3af)	Dual redundant PoE power ports with support for IEEE 802.3at (2x2 operation at 17 dBm TX Power and USB disabled with 802.3af)
<b>Simultaneous SSIDs</b>	Up to 16 (14 if background scanning enabled)	Up to 16 (14 if background scanning enabled)
<b>EAP Type(s)</b>	EAP-TLS, EAP-TTLS/MSCHAPv2, PEAPv0/EAP-MSCHAPv2, PEAPv1/EAP-GTC EAP-SIM, EAP-AKA, EAP-FAST	EAP-TLS, EAP-TTLS/MSCHAPv2, PEAPv0/EAP-MSCHAPv2, PEAPv1/EAP-GTC EAP-SIM, EAP-AKA, EAP-FAST
<b>User/Device Authentication</b>	WPA™, WPA2™, and WPA3™ with 802.1x or Preshared key, WEP, Web Captive Portal, MAC blocklist and allowlist	WPA™, WPA2™, and WPA3™ with 802.1x or Preshared key, WEP, Web Captive Portal, MAC blocklist and allowlist
<b>Maximum Tx Power (Conducted)</b>	2.4 GHz: 28 dBm / 631 mW (4 chains combined)* 5 GHz: 26 dBm / 398mW (4 chains combined)*	2.4 GHz: 28 dBm / 631 mW (4 chains combined)* 5 GHz: 26 dBm / 398mW (4 chains combined)*
<b>Kensington Lock</b>	Yes	Yes
<b>IEEE Standards</b>	802.11a, 802.11b, 802.11d, 802.11e, 802.11g, 802.11h, 802.11i, 802.11j, 802.11k, 802.11n, 802.11v, 802.11w, 802.11ac, 802.1Q, 802.1X, 802.3ad, 802.3af, 802.3at, 802.3az	802.11a, 802.11b, 802.11d, 802.11e, 802.11g, 802.11h, 802.11i, 802.11j, 802.11k, 802.11n, 802.11v, 802.11w, 802.11ac, 802.1Q, 802.1X, 802.3ad, 802.3af, 802.3at, 802.3az
<b>SSID Types Supported</b>	Local-Bridge, Tunnel & Mesh	Local-Bridge, Tunnel & Mesh
<b>Per Radio Client Capacity</b>	Up to 256	Up to 256
<b>Cellular Co-existence**</b>	Yes	Yes
<b>Reset Button</b>	Yes	Yes
<b>LED Off Mode</b>	Yes	Yes

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



# SPECIFICATIONS

	FORTIAP U421EV	FORTIAP U423EV
<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
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, Dedicated	Background, Dedicated
WIPS / WIDS Radio Modes	Background, Dedicated (recommended)	Background, Dedicated (recommended)
Packet Sniffer Mode	Yes	Yes
Spectrum Analyzer	Yes	Yes
<b>Dimensions</b>		
Length x Width x Height	8.46 x 8.46 x 2.2 inches (215 x 215 x 56 mm)	8.46 x 8.46 x 2.2 inches (215 x 215 x 56 mm)
Weight	3.31 lbs (1.5 kg)	3.4 lbs (1.53 kg)
Package (shipping) Weight	5.09 lbs (2.31 kg)	5.36 lbs (2.43 kg)
Mounting Options	Ceiling, T-Rail and Wall	Ceiling, T-Rail and Wall
Included Accessories	Mount kits for Ceiling, T-Rail and Wall	Mount kits for Ceiling, T-Rail and Wall, 8 dipole antennas
<b>Environment</b>		
Power Supply	SP-FAP400-PA-XX, GPI-115, or GPI-130	SP-FAP400-PA-XX, GPI-115, or GPI-130
Power Consumption (Maximum)	24.5 W max power draw in 802.3at mode and 12.5 W max power draw when in 802.3af power mode (operates in at reduced power and spatial streams)	24.5 W max power draw in 802.3at mode and 12.5 W max power draw when in 802.3af power mode (operates in at reduced power and spatial streams)
Humidity	5–90% non-condensing	5–90% non-condensing
Operating / Storage Temperature	-4–122°F (-20–50°C) / -40–158°F (-40–70°C)	-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



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

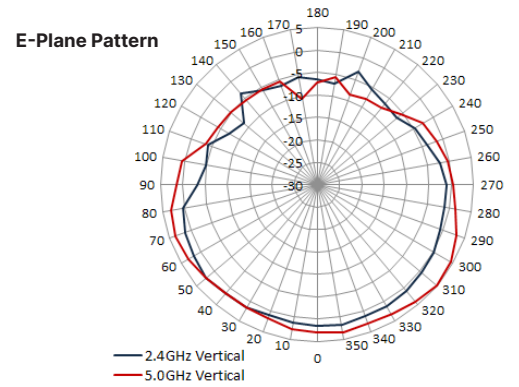
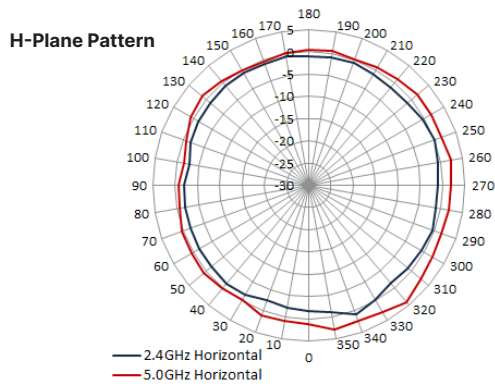
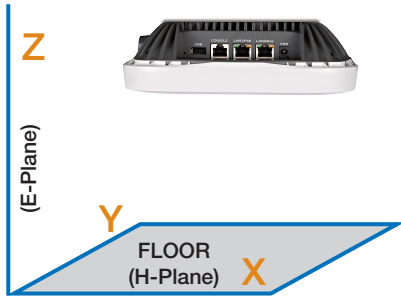
FORTIAP U421EV AND U423EV				
802.11 a/g	Radio 1 2.4 GHz		Radio 2 5 GHz	
	Max Tx Power per transmit chain (dBm)	Rx Sensitivity per receiver chain (dBm)	Max Tx Power per transmit chain (dBm)	Rx Sensitivity per receiver chain (dBm)
6 Mbps	22	-94	20	-91
9 Mbps	22	-92	20	-89
12 Mbps	22	-89	20	-86
18 Mbps	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)	-	-	14	-65
MSC 9/17/25 (256-QAM)	-	-	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)

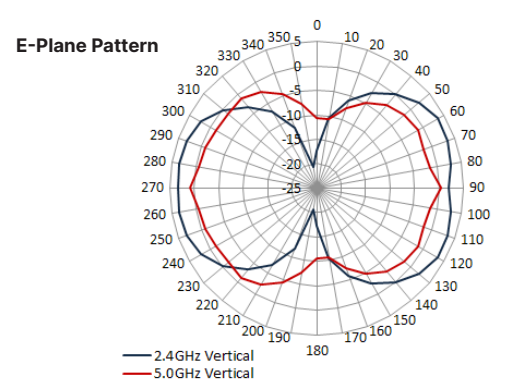
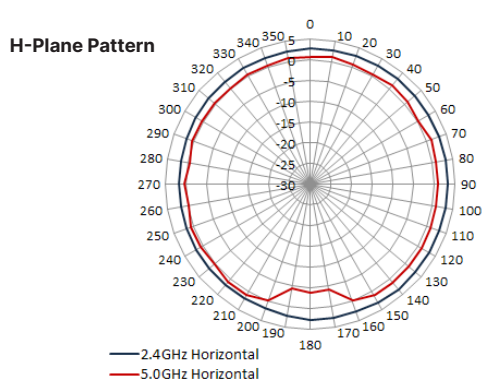
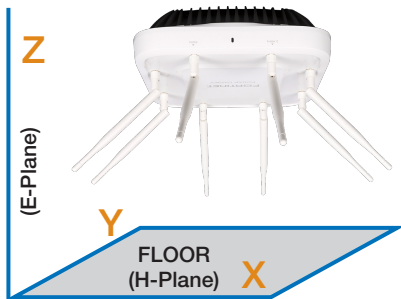


# ANTENNA RADIATION PATTERNS

## 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



# HIGHLIGHTS

## FortiAP U422EV

This enterprise class 802.11ac Wave 2 outdoor AP provides dual concurrent 4x4 radios in both 2.4 GHz and 5 GHz frequencies. This top-of-the-line access point provides MU-MIMO, two Gigabit Ethernet ports and supports 1xPD+1xPSE function and withstands harsh outdoor environments with certified IP67 industrial grade protection.



 **802.11ac Wave 2 | Dual Radio 2.4 GHz & 5 GHz | 8 External Antennas**

 **4x4 MU-MIMO | Up to 600 Mbps + 3,466 Mbps**

# SPECIFICATIONS

FORTIAP U422EV	
<b>Hardware</b>	
Hardware Type	Outdoor AP
Number of Radios	2 + 1 BLE
Number of Antennas	8 External (Type N) + 1 BLE Internal
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 (4x4:4 stream) 20/40 MHz (64 QAM)
Radio 2 Capabilities	5 GHz a/n/ac (4x4:4 stream) 20/40/80/160 MHz (256 QAM)
Maximum Data Rate	Radio 1: up to 600 Mbps Radio 2: up to 3,466 Mbps
Bluetooth Low Energy Radio	Bluetooth scanning and iBeacon advertisement @ 4 dBm max TX power
Interfaces	2x 10/100/1000 Base-T RJ45, 1x RS-232 RJ45 Serial Port
Power over Ethernet (PoE)	LAN1 supports 802.3at or proprietary PoE injector. LAN2 supports 802.3af PSE Out.
Simultaneous SSIDs	Up to 16 (14 if background scanning enabled)
EAP Type(s)	EAP-TLS, EAP-TTLS/MSCHAPv2, PEAPv0/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 and allowlist
Maximum Tx Power (Conducted)	2.4 GHz: 24 dBm / 251 mW (4 chains combined)* 5 GHz: 24 dBm / 251 mW (4 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, 802.11v, 802.11w, 802.11ac, 802.1Q, 802.1X, 802.3af, 802.3at, 802.3az, 802.3ad
SSID Types Supported	Local-Bridge, Tunnel & Mesh
Per Radio Client Capacity	Up to 256
Cellular Co-existence**	Yes
Reset Button	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 U422EV	
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, Dedicated
WIPS / WIDS Radio Modes	Background, Dedicated (recommended)
Packet Sniffer Mode	Yes
Spectrum Analyzer	Yes
<b>Dimensions</b>	
Length x Width x Height	8.3 x 8.3 x 2.0 inches (210 x 210 x 51 mm)
Weight	4.08 lbs (1.85 kg)
Package (shipping) Weight	11.42 lbs (5.18 kg)
Mounting Options	Wall Mount or Pole Mount
Included Accessories	Mounting Kits, Grounding Cable, 4x 2.4 GHz and 4x 5 GHz dipole Antennas
<b>Environment</b>	
Power Supply	Proprietary PoE injector or GPI-130
Power Consumption (Maximum)	22 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	>9.9 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
<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.



## FAP-U422EV RF RX/TX PERFORMANCE TABLE

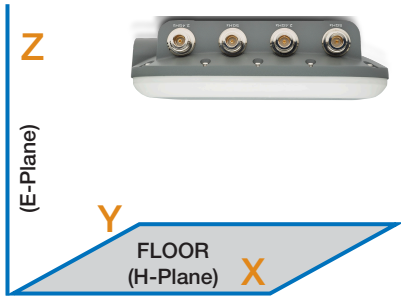
FORTIAP U422EV				
802.11 a/g	Radio 1 2.4 GHz		Radio 2 5 GHz	
	Max Tx Power per transmit chain (dBm)	Rx Sensitivity per receiver chain (dBm)	Max Tx Power per transmit chain (dBm)	Rx Sensitivity per receiver chain (dBm)
6 Mbps	18	-92	18	-91
9 Mbps	18	-90	18	-89
12 Mbps	18	-88	18	-87
18 Mbps	18	-84	18	-85
24 Mbps	18	-82	18	-82
36 Mbps	18	-78	18	-80
48 Mbps	18	-77	18	-77
54 Mbps	18	-75	15	-73
802.11 HT20	Tx Power (dBm)	Rx Sensitivity (dBm)	Tx Power (dBm)	Rx Sensitivity (dBm)
MCS 0 (BPSK)	18	-92	18	-91
MCS 1 (QPSK)	18	-89	18	-88
MCS 2 (QPSK)	18	-86	18	-86
MCS 3 (16-QAM)	18	-83	18	-83
MCS 4 (16-QAM)	18	-80	18	-79
MCS 5 (64-QAM)	18	-75	18	-75
MCS 6 (64-QAM)	17	-74	16	-74
MCS 7 (64-QAM)	17	-72	15	-71
802.11 HT40	Tx Power (dBm)	Rx Sensitivity (dBm)	Tx Power (dBm)	Rx Sensitivity (dBm)
MCS 0 (BPSK)	18	-90	18	-87
MCS 1 (QPSK)	18	-86	18	-84
MCS 2 (QPSK)	18	-84	18	-82
MCS 3 (16-QAM)	18	-80	18	-79
MCS 4 (16-QAM)	18	-77	17	-75
MCS 5 (64-QAM)	18	-73	16	-71
MCS 6 (64-QAM)	17	-71	15	-70
MCS 7 (64-QAM)	16	-70	14	-69
MCS 8 (256-QAM)	-	-	14	-64
MCS 9 (256-QAM)	-	-	13	-62
802.11 HT80	Tx Power (dBm)	Rx Sensitivity (dBm)	Tx Power (dBm)	Rx Sensitivity (dBm)
MCS 0 (BPSK)	-	-	18	-84
MCS 1 (QPSK)	-	-	18	-81
MCS 2 (QPSK)	-	-	18	-79
MCS 3 (16-QAM)	-	-	18	-76
MCS 4 (16-QAM)	-	-	17	-72
MCS 5 (64-QAM)	-	-	16	-68
MCS 6 (64-QAM)	-	-	15	-67
MCS 7 (64-QAM)	-	-	14	-66
MCS 8 (256-QAM)	-	-	13	-61
MCS 9 (256-QAM)	-	-	12	-59

Maximum capability of the hardware provided (excluding antenna gain).

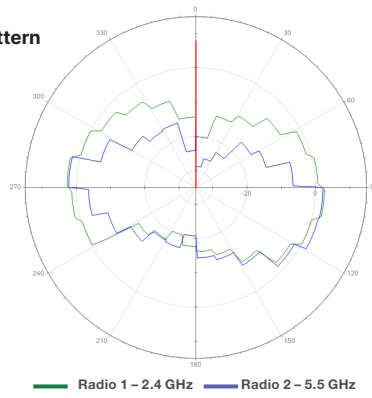


# ANTENNA RADIATION PATTERNS

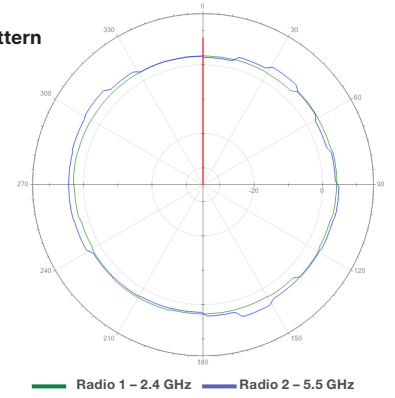
## FAP-U422EV



H-Plane Pattern



E-Plane Pattern




## HIGHLIGHTS

### FortiAP U321EV and U323EV

The FortiAP U321EV and U323EV access points support the latest 802.11ac Wave 2 standard, with a maximum data rate of up to 2.6 Gbps. Additional features include 802.11ac explicit transmit beamforming (TxBF), MU-MIMO built in BLE radio for location services and more.



 **802.11ac Wave 2 | Dual Radio 2.4 & 5 GHz | 6 Internal/External Antennas**

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

## SPECIFICATIONS

	FORTIAP U321EV	FORTIAP U323EV
<b>Hardware</b>		
<b>Hardware Type</b>	Indoor AP	Indoor AP
<b>Number of Radios</b>	2 + 1 BLE	2 + 1 BLE
<b>Number of Antennas</b>	6 Internal + 1 BLE Internal	6 External (RP-SMA) + 1 BLE Internal
<b>Antenna Type and Peak Gain</b>	Patch: 4.5 dBi for 2.4 GHz, 6.5 dBi for 5 GHz	Dipole: 3.5 dBi for 2.4 GHz, 5 dBi for 5 GHz
<b>Frequency Bands (GHz)</b>	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, 5.725–5.850
<b>Radio 1 Capabilities</b>	2.4 GHz b/g/n (3x3:3 stream) 20/40 MHz (64 QAM)	2.4 GHz b/g/n (3x3:3 stream) 20/40 MHz (64 QAM)
<b>Radio 2 Capabilities</b>	5 GHz a/n/ac (3x3:3 stream) 20/40/80 MHz (256 QAM)	5 GHz a/n/ac (3x3:3 stream) 20/40/80 MHz (256 QAM)
<b>Maximum Data Rate</b>	Radio 1: up to 450 Mbps Radio 2: up to 1,733 Mbps	Radio 1: up to 450 Mbps Radio 2: up to 1,733 Mbps
<b>Bluetooth Low Energy Radio</b>	Bluetooth scanning and iBeacon advertisement @ 4 dBm max TX power	Bluetooth scanning and iBeacon advertisement @ 4 dBm max TX power
<b>Interfaces</b>	2x 10/100/1000 Base-T RJ45, 1x Type A USB, 1x RS-232 RJ45 Serial Port	2x 10/100/1000 Base-T RJ45, 1x Type A USB, 1x RS-232 RJ45 Serial Port
<b>Power over Ethernet (PoE)</b>	Dual redundant PoE power ports with support for IEEE 802.3af (20 dBm TX Power and USB disabled with 802.3af)	Dual redundant PoE power ports with support for IEEE 802.3af (20 dBm TX Power and USB disabled with 802.3af)
<b>Simultaneous SSIDs</b>	Up to 16 (14 if background scanning enabled)	Up to 16 (14 if background scanning enabled)
<b>EAP Type(s)</b>	EAP-TLS, EAP-TTLS/MSCHAPv2, PEAPv0/EAP-MSCHAPv2, PEAPv1/EAP-GTC EAP-SIM, EAP-AKA, EAP-FAST	EAP-TLS, EAP-TTLS/MSCHAPv2, PEAPv0/EAP-MSCHAPv2, PEAPv1/EAP-GTC EAP-SIM, EAP-AKA, EAP-FAST
<b>User/Device Authentication</b>	WPA™, WPA2™, and WPA3™ with 802.1x or Preshared key, WEP, Web Captive Portal, MAC blocklist and allowlist	WPA™, WPA2™, and WPA3™ with 802.1x or Preshared key, WEP, Web Captive Portal, MAC blocklist and allowlist
<b>Maximum Tx Power (Conducted)</b>	2.4 GHz: 26.7 dBm / 468 mW (3 chains combined)* 5 GHz: 24.7 dBm / 295 mW (3 chains combined)*	2.4 GHz: 26.7 dBm / 468 mW (3 chains combined)* 5 GHz: 24.7 dBm / 295 mW (3 chains combined)*
<b>Kensington Lock</b>	Yes	Yes
<b>IEEE Standards</b>	802.11a, 802.11b, 802.11d, 802.11e, 802.11g, 802.11h, 802.11i, 802.11j, 802.11k, 802.11n, 802.11v, 802.11w, 802.11ac, 802.11q, 802.1X, 802.3af, 802.3at, 802.3az, 802.3ad	802.11a, 802.11b, 802.11d, 802.11e, 802.11g, 802.11h, 802.11i, 802.11j, 802.11k, 802.11n, 802.11v, 802.11w, 802.11ac, 802.11q, 802.1X, 802.3af, 802.3at, 802.3az, 802.3ad
<b>SSID Types Supported</b>	Local-Bridge, Tunnel & Mesh	Local-Bridge, Tunnel & Mesh
<b>Per Radio Client Capacity</b>	Up to 256	Up to 256
<b>Cellular Co-existence**</b>	Yes	Yes
<b>Reset Button</b>	Yes	Yes
<b>LED Off Mode</b>	Yes	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.



## SPECIFICATIONS

	FORTIAP U321EV	FORTIAP U323EV
<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
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, Dedicated	Background, Dedicated
WIPS / WIDS Radio Modes	Background, Dedicated (recommended)	Background, Dedicated (recommended)
Packet Sniffer Mode	Yes	Yes
Spectrum Analyzer	Yes	Yes
<b>Dimensions</b>		
Length x Width x Height	8.58 × 8.58 × 1.69 inches (218 × 218 × 43 mm)	8.58 × 8.58 × 1.69 inches (218 × 218 × 43 mm)
Weight	2.24 lbs (1.02 kg)	2.25 lbs (1.02 kg)
Package (shipping) Weight	3.73 lbs (1.69 kg)	3.74 lbs (1.70 kg)
Mounting Options	Ceiling, T-Rail and Wall	Ceiling, T-Rail and Wall
Included Accessories	Mount kits for Ceiling, T-Rail and Wall	Mount kits for Ceiling, T-Rail and Wall, 6 dipole antennas
<b>Environment</b>		
Power Supply	SP-FAP200-PA-XX, GPI-115, or GPI-130	SP-FAP200-PA-XX, GPI-115, or GPI-130
Power Consumption (Maximum)	15 W when supplied by 802.3at power and 12.8 W when in 802.3af power mode (TX power limited to 20 dBm)	15 W when supplied by 802.3at power and 12.8 W when in 802.3af power mode (TX power limited to 20 dBm)
Humidity	5–90% non-condensing	5–90% non-condensing
Operating / Storage Temperature	32–122°F (0–50°C) / -40–158°F (-40–70°C)	32–122°F (0–50°C) / -40–158°F (-40–70°C)
Directives	Low Voltage Directive • RoHS	Low Voltage Directive • RoHS
UL2043 Plenum Material	No	No
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	FCC, IC, CE, Japan
<b>Warranty</b>		
Limited Lifetime Warranty	Yes	Yes



## FAP-U321EV / FAP-U323EV RF RX/TX PERFORMANCE TABLE

FORTIAP U321EV AND U323EV				
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	-91	20	-90
9 Mbps	22	-90	20	-89
12 Mbps	22	-87	20	-86
18 Mbps	22	-86	20	-85
24 Mbps	22	-81	20	-80
36 Mbps	22	-76	19	-75
48 Mbps	22	-75	19	-74
54 Mbps	19	-74	18	-73
802.11 HT20	Tx Power (dBm)	Rx Sensitivity (dBm)	Tx Power (dBm)	Rx Sensitivity (dBm)
MCS 0/8/16 (BPSK)	21	-90	19	-90
MCS 1/9/17 (QPSK)	21	-86	19	-87
MCS 2/10/18 (QPSK)	20	-83	19	-85
MCS 3/11/19 (16-QAM)	19	-82	18	-82
MCS 4/12/20 (16-QAM)	19	-77	17	-80
MCS 5/13/21 (64-QAM)	18	-75	17	-77
MCS 6/14/22 (64-QAM)	18	-73	17	-74
MCS 7/15/23 (64-QAM)	17	-70	16	-71
802.11 HT40	Tx Power (dBm)	Rx Sensitivity (dBm)	Tx Power (dBm)	Rx Sensitivity (dBm)
MCS 0/8/16 (BPSK)	21	-87	18	-88
MCS 1/9/17 (QPSK)	20	-87	18	-85
MCS 2/10/18 (QPSK)	20	-84	18	-85
MCS 3/11/19 (16-QAM)	19	-83	18	-80
MCS 4/12/20 (16-QAM)	19	-78	18	-78
MCS 5/13/21 (64-QAM)	18	-73	17	-74
MCS 6/14/22 (64-QAM)	18	-72	17	-71
MCS 7/15/23 (64-QAM)	18	-71	15	-68
MCS 8/16/24 (256-QAM)	-	-	15	-64
MCS 9/17/25 (256-QAM)	-	-	15	-61
802.11 HT80	Tx Power (dBm)	Rx Sensitivity (dBm)	Tx Power (dBm)	Rx Sensitivity (dBm)
MCS 0 (BPSK)	-	-	18	-83
MCS 1 (QPSK)	-	-	17	-80
MCS 2 (QPSK)	-	-	17	-78
MCS 3 (16-QAM)	-	-	16	-75
MCS 4 (16-QAM)	-	-	16	-73
MCS 5 (64-QAM)	-	-	15	-75
MCS 6 (64-QAM)	-	-	15	-72
MCS 7 (64-QAM)	-	-	15	-69
MCS 8 (256-QAM)	-	-	15	-61
MCS 9 (256-QAM)	-	-	15	-58

Maximum capability of the Hardware provided (Excluding antenna gain)

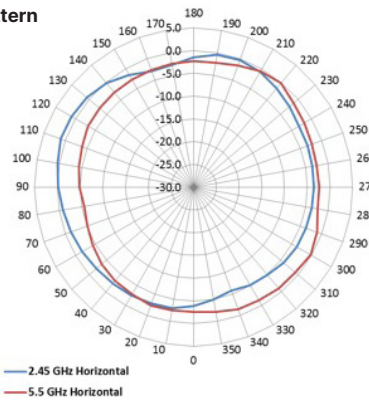


# ANTENNA RADIATION PATTERNS

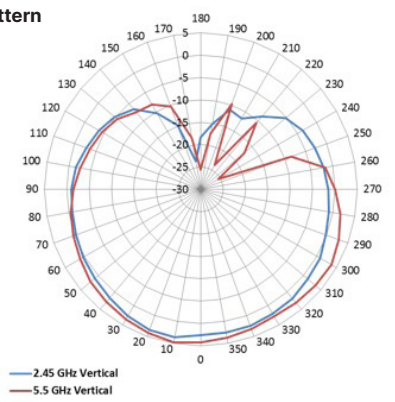
## FAP-U321EV



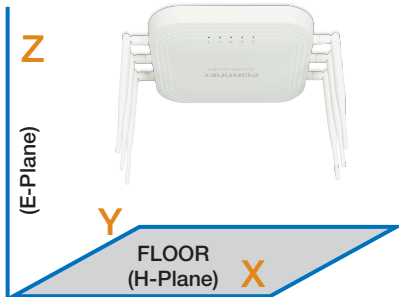
H-Plane Pattern



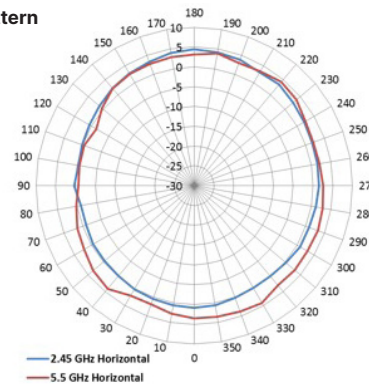
E-Plane Pattern



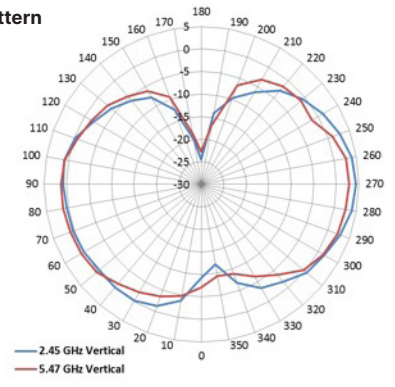
## FAP-U323EV



H-Plane Pattern



E-Plane Pattern





# PERFORMANCE MATRIX

FAP-U321EV AND FAP-U323EV 802.11AC PERFORMANCE — DATA RATES (MBPS)							
Descriptor	Data Streams	VHT20		VHT40		VHT80	
		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	175.7	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	286	540	600	1170	1300



## HIGHLIGHTS

### FortiAP U221EV and U223EV

The Fortinet U221EV and U223EV access points support the latest 802.11ac Wave 1 standard, with a client association rate of up to 867 Mbps. These APs feature two 2×2:2 radios, supporting client devices transmitting up to two spatial streams.

 **802.11ac Wave 1 | Dual Radio 2.4 & 5 GHz | 4 Internal/External Antennas**

 **2×2 MIMO | Up to 300 + 867 Mbps**



## SPECIFICATIONS

	FORTIAP U221EV	FORTIAP U223EV
<b>Hardware</b>		
Hardware Type	Indoor AP	Indoor AP
Number of Radios	2 + 1 BLE	2 + 1 BLE
Number of Antennas	4 Internal + 1 BLE Internal	4 External (RP-SMA) + 1 BLE Internal
Antenna Type and Peak Gain	Patch: 3 dBi for 2.4 GHz, 4 dBi for 5 GHz	Dipole: 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	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 (2×2:2 stream) 20/40 MHz (64 QAM)	2.4 GHz b/g/n (2×2:2 stream) 20/40 MHz (64 QAM)
Radio 2 Capabilities	5 GHz a/n/ac (2×2:2 stream) 20/40/80 MHz (256 QAM)	5 GHz a/n/ac (2×2:2 stream) 20/40/80 MHz (256 QAM)
Maximum Data Rate	Radio 1: up to 300 Mbps Radio 2: up to 867 Mbps	Radio 1: up to 300 Mbps Radio 2: up to 867 Mbps
Bluetooth Low Energy Radio	Bluetooth scanning and iBeacon advertisement @ 4 dBm max TX power	Bluetooth scanning and iBeacon advertisement @ 4 dBm max TX power
Interfaces	1× 10/100/1000 Base-T RJ45, 1x Type A USB	1× 10/100/1000 Base-T RJ45, 1x Type A USB
Power over Ethernet (PoE)	IEEE 802.3af or 802.3at	IEEE 802.3af or 802.3at
Simultaneous SSIDs	Up to 16 (14 if background scanning enabled)	Up to 16 (14 if background scanning enabled)
EAP Type(s)	EAP-TLS, EAP-TTLS/MSCHAPv2, PEAPv0/EAP-MSCHAPv2, PEAPv1/EAP-GTC EAP-SIM, EAP-AKA, EAP-FAST	EAP-TLS, EAP-TTLS/MSCHAPv2, PEAPv0/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	WPA™, WPA2™, and WPA3™ with 802.1x or Preshared key, WEP, Web Captive Portal, MAC blocklist and allowlist
Maximum Tx Power (Conducted)	2.4 GHz: 25 dBm / 316 mW (2 chains combined)* 5 GHz: 23 dBm/ 200 mW (2 chains combined)*	2.4 GHz: 25 dBm / 316 mW (2 chains combined)* 5 GHz: 23 dBm/ 200 mW (2 chains combined)*
Kensington Lock	Yes	Yes
IEEE Standards	802.11a, 802.11b, 802.11d, 802.11e, 802.11g, 802.11h, 802.11i, 802.11j, 802.11k, 802.11n, 802.11v, 802.11w, 802.11ac, 802.1Q, 802.1X, 802.3af, 802.3at, 802.3az	802.11a, 802.11b, 802.11d, 802.11e, 802.11g, 802.11h, 802.11i, 802.11j, 802.11k, 802.11n, 802.11v, 802.11w, 802.11ac, 802.1Q, 802.1X, 802.3af, 802.3at, 802.3az
SSID Types Supported	Local-Bridge, Tunnel & Mesh	Local-Bridge, Tunnel & Mesh
Per Radio Client Capacity	Up to 128	Up to 128
Cellular Co-existence**	Yes	Yes
Reset Button	Yes	Yes
LED Off Mode	Yes	Yes
<b>Advanced 802.11 Features</b>		
802.11ac MU-MIMO Wave 2	No	No
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

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

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



# SPECIFICATIONS

	FORTIAP U221EV	FORTIAP U223EV
Short Guard Interval	Yes	Yes
<b>Wireless Monitoring Capabilities</b>		
Rogue Scan Radio Modes	Background, Dedicated	Background, Dedicated
WIPS / WIDS Radio Modes	Background, Dedicated (recommended)	Background, Dedicated (recommended)
Packet Sniffer Mode	Yes	Yes
Spectrum Analyzer	Yes	Yes
<b>Dimensions</b>		
Length x Width x Height	7.87 × 7.87 × 1.5 inches (200 × 200 × 40 mm)	7.87 × 7.87 × 1.5 inches (200 × 200 × 40 mm)
Weight	1.2 lbs (0.55 kg)	1.3 lbs (0.6 kg)
Package (shipping) Weight	2.5 lbs (1.15 kg)	2.6 lbs (1.18 kg)
Mounting Options	Ceiling, T-Rail and Wall	Ceiling, T-Rail and Wall
Included Accessories	Mount kits for Ceiling, T-Rail and Wall	Mount kits for Ceiling, T-Rail and Wall, 4 dipole antennas
<b>Environment</b>		
Power Supply	SP-FAP200-PA-XX, GPI-115, or GPI-130	SP-FAP200-PA-XX, GPI-115, or GPI-130
Power Consumption (Maximum)	12.5 W	12.5 W
Humidity	5–90% non-condensing	5–90% non-condensing
Operating / Storage Temperature	32–122°F (0–50°C) / -40–158°F (-40–70°C)	32–122°F (0–50°C) / -40–158°F (-40–70°C)
Directives	Low Voltage Directive • RoHS	Low Voltage Directive • RoHS
UL2043 Plenum Material	No	No
Mean Time Between Failures	>3 Years	>3 Years
IP Rating	—	—
Surge Protection Built In	—	—
Hit-less PoE Failover	No	No
<b>Certifications</b>		
Wi-Fi Alliance Certified	Yes	Yes
DFS	FCC, CE, Japan	FCC, CE, Japan
<b>Warranty</b>		
Limited Lifetime Warranty	Yes	Yes



## FAP-U221EV / FAP-U223EV RF RX/TX PERFORMANCE TABLE

FORTIAP U221EV AND FORTIAP U223EV				
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)
1 Mbps	22	-97	-	-
6 Mbps	22	-91	20	-90
9 Mbps	22	-90	20	-89
12 Mbps	22	-87	20	-86
18 Mbps	22	-86	20	-85
24 Mbps	22	-81	20	-80
36 Mbps	22	-76	19	-75
48 Mbps	22	-75	19	-74
54 Mbps	19	-74	18	-73
802.11 HT20	Tx Power (dBm)	Rx Sensitivity (dBm)	Tx Power (dBm)	Rx Sensitivity (dBm)
MCS 0 (BPSK)	21	-90	19	-90
MCS 1 (QPSK)	21	-86	19	-87
MCS 2 (QPSK)	20	-83	19	-85
MCS 3 (16-QAM)	19	-82	18	-82
MCS 4(16-QAM)	19	-77	17	-80
MCS 5 (64-QAM)	18	-75	17	-77
MCS 6 (64-QAM)	18	-73	17	-74
MCS 7 (64-QAM)	17	-70	16	-71
MCS 8 (256-QAM)	-	-	-	-66
MCS 9 (256-QAM)	-	-	-	-
802.11 HT40	Tx Power (dBm)	Rx Sensitivity (dBm)	Tx Power (dBm)	Rx Sensitivity (dBm)
MCS 0 (BPSK)	21	-87	18	-88
MCS 1 (QPSK)	20	-87	18	-85
MCS 2 (QPSK)	20	-84	18	-85
MCS 3 (16-QAM)	19	-83	18	-80
MCS 4(16-QAM)	19	-78	18	-78
MCS 5 (64-QAM)	18	-73	17	-74
MCS 6 (64-QAM)	18	-72	17	-71
MCS 7 (64-QAM)	18	-71	15	-68
MCS 8 (256-QAM)	-	-	15	-64
MCS 9 (256-QAM)	-	-	15	-61
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	-75
MSC 6 (64-QAM)	-	-	15	-72
MSC 7 (64-QAM)	-	-	15	-69
MSC 8 (256-QAM)	-	-	15	-61
MSC 9 (256-QAM)	-	-	15	-58

Maximum capability of the Hardware provided (Excluding antenna gain)

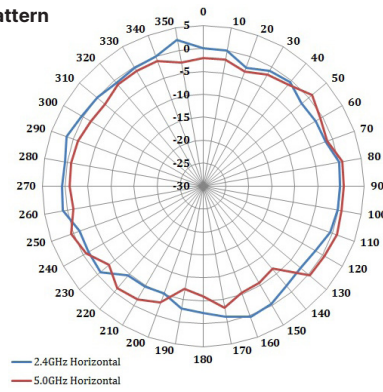


# ANTENNA RADIATION PATTERNS

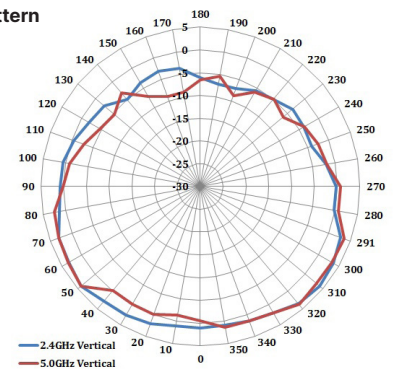
## FAP-U221EV



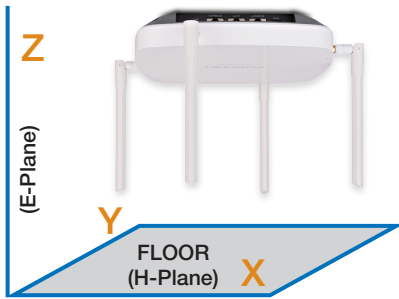
H-Plane Pattern



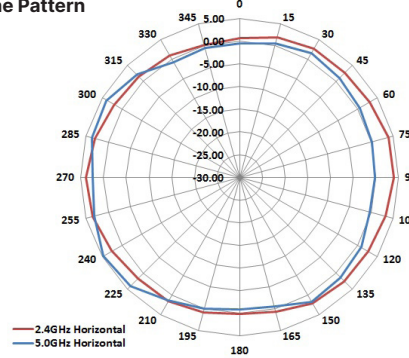
E-Plane Pattern



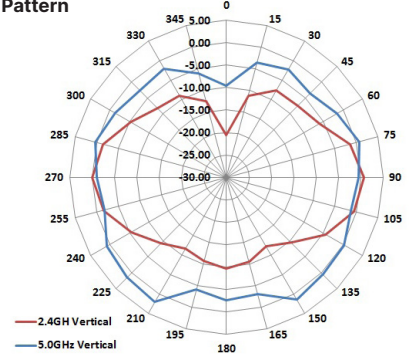
## FAP-U223EV



H-Plane Pattern



E-Plane Pattern





## HIGHLIGHTS

### FortiAP U24JEV

The FortiAP U24JEV is an enterprise low cost next generation compact design 2x2 MU-MIMO 802.11ac Wave 1 Dual Band (2.4 GHz/5.0 GHz) wall plug/wall plate access point with an optionally available stand for desk mounting.



-  **802.11ac Wave 1 | 2x2 Radio capable of operating as Dual Band 1x1 Radios**
-  **2x2 | 2x 1x1 radios up to 867 Mbps**

## SPECIFICATIONS

FORTIAP U24JEV	
<b>Hardware</b>	
<b>Hardware Type</b>	Wall Plate AP
<b>Number of Radios</b>	1 (can operate as 2) + 1 BLE
<b>Number of Antennas</b>	2 Internal + 1 BLE Internal
<b>Antenna Type and Peak Gain</b>	Patch: 3 dBi for 2.4 GHz, 4 dBi for 5 GHz
<b>Frequency Bands (GHz)</b>	2.400–2.4835, 5.150–5.250, 5.250–5.350, 5.470–5.725, 5.725–5.850
<b>Radio 1 Capabilities</b>	2.4 GHz b/g/n (2x2:2 stream) 20/40 MHz (64 QAM) or 5 GHz a/n/ac (2x2:2 stream) 20/40/80 MHz (256 QAM) or 2.4 GHz b/g/n (1x1:1 stream) 20/40 MHz (64 QAM) & 5 GHz a/n/ac (1x1:1 stream) 20/40/80 MHz (256 QAM)
<b>Radio 2 Capabilities</b>	—
<b>Maximum Data Rate</b>	Up to 867 Mbps
<b>Bluetooth Low Energy Radio</b>	Bluetooth scanning and iBeacon advertisement @ 4 dBm max TX power
<b>Interfaces</b>	4x 10/100/1000 Base-T RJ45 Ports (1x 802.3at PoE (PD), 1x 802.3af PoE (PSE), 2x Non-PoE Ports), 1 Passthrough in RJ45, 1 Passthrough out RJ45
<b>Power over Ethernet (PoE)</b>	802.3af (max PSE output of 4W) or 802.3at (full 802.3af PSE output)
<b>Simultaneous SSIDs</b>	Up to 16 (14 if background scanning enabled)
<b>EAP Type(s)</b>	EAP-TLS, EAP-TTLS/MSCHAPv2, PEAPv0/EAP-MSCHAPv2, PEAPv1/EAP-GTC EAP-SIM, EAP-AKA, EAP-FAST
<b>User/Device Authentication</b>	WPA™, WPA2™, and WPA3™ with 802.1x or Preshared key, WEP, Web Captive Portal, MAC blocklist and allowlist
<b>Maximum Tx Power (Conducted)</b>	2.4 GHz: 23 dBm / 200 mW (2 chains combined)* or 5 GHz: 21 dBm / 126 mW (2 chains combined)*
<b>Kensington Lock</b>	No
<b>IEEE Standards</b>	802.11a, 802.11b, 802.11d, 802.11e, 802.11g, 802.11h, 802.11i, 802.11j, 802.11k, 802.11n, 802.11v, 802.11w, 802.11ac, 802.11q, 802.11x, 802.3af, 802.3at, 802.3az, 802.3ad
<b>SSID Types Supported</b>	Local-Bridge, Tunnel
<b>Per Radio Client Capacity</b>	Up to 128
<b>Cellular Co-existence**</b>	Yes
<b>Reset Button</b>	Yes
<b>LED Off Mode</b>	Yes
<b>Advanced 802.11 Features</b>	
<b>802.11ac MU-MIMO Wave 2</b>	No
<b>Transmit Beam Forming (TxBF)</b>	Yes
<b>Low-Density Parity Check (LDPC) Encoding</b>	Yes

FORTIAP U24JEV	
<b>Maximum Likelihood Demodulation (MLD)</b>	Yes
<b>Maximum Ratio Combining (MRC)</b>	Yes
<b>A-MPDU and A-MSDU Packet Aggregation</b>	Yes
<b>MIMO Power Save</b>	Yes
<b>Short Guard Interval</b>	Yes
<b>Wireless Monitoring Capabilities</b>	
<b>Rogue Scan Radio Modes</b>	Background, Dedicated
<b>WIPS / WIDS Radio Modes</b>	Background, Dedicated (recommended)
<b>Packet Sniffer Mode</b>	Yes
<b>Spectrum Analyzer</b>	Yes
<b>Dimensions</b>	
<b>Length x Width x Height</b>	6.1 x 3.7 x 1.2 inches (155 x 95 x 31 mm)
<b>Weight</b>	0.569 lbs (0.258 kg)
<b>Package (shipping) Weight</b>	1.34 lbs (0.606 kg)
<b>Mounting Options</b>	Wall plate or desk stand
<b>Included Accessories</b>	Mounting kit for wall plate
<b>Environment</b>	
<b>Power Supply</b>	SP-FAPU24-PA-XX, GPI-115, or GPI-130
<b>Power Consumption (Maximum)</b>	24W (Depends on PoE connected and USB power consumed)
<b>Humidity</b>	10–90% non-condensing
<b>Operating / Storage Temperature</b>	32–104°F (0–40°C) / -22–158°F (-30–70°C)
<b>Directives</b>	RoHS
<b>UL2043 Plenum Material</b>	No
<b>Mean Time Between Failures</b>	>30 Years
<b>IP Rating</b>	—
<b>Surge Protection Built In</b>	—
<b>Hit-less PoE Failover</b>	No
<b>Certifications</b>	
<b>Wi-Fi Alliance Certified</b>	Yes
<b>DFS</b>	CE, Japan
<b>Warranty</b>	
<b>Limited Lifetime Warranty</b>	Yes

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



# FAP-U24JEV RF RX/TX PERFORMANCE TABLE

FORTIAP U24JEV				
802.11 a/g	Radio 1 2.4 GHz		Radio 1 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	20	-96	18	-94
9 Mbps	20	-94	18	-93
12 Mbps	20	-93	18	-92
18 Mbps	20	-91	18	-89
24 Mbps	20	-87	18	-86
36 Mbps	20	-84	18	-83
48 Mbps	20	-79	18	-78
54 Mbps	17	-78	15	-76
802.11 HT20	Tx Power (dBm)	Rx Sensitivity (dBm)	Tx Power (dBm)	Rx Sensitivity (dBm)
MCS 0/8/16 (BPSK)	19	-95	19	-90
MCS 1/9/17 (QPSK)	19	-93	19	-87
MCS 2/10/18 (QPSK)	19	-90	19	-85
MCS 3/11/19 (16-QAM)	19	-87	19	-82
MCS 4/12/20 (16-QAM)	18	-84	19	-80
MCS 5/13/21 (64-QAM)	17	-79	19	-77
MCS 6/14/22 (64-QAM)	17	-77	19	-74
MCS 7/15/23 (64-QAM)	16	-76	16	-71
802.11 HT40	Tx Power (dBm)	Rx Sensitivity (dBm)	Tx Power (dBm)	Rx Sensitivity (dBm)
MCS 0 (BPSK)	19	-93	18	-90
MCS 1 (QPSK)	19	-90	18	-87
MCS 2 (QPSK)	19	-88	18	-85
MCS 3 (16-QAM)	19	-84	18	-82
MCS 4 (16-QAM)	18	-81	18	-79
MCS 5 (64-QAM)	17	-76	17	-73
MCS 6 (64-QAM)	17	-75	16	-72
MCS 7 (64-QAM)	16	-73	15	-73
MCS 8 (256-QAM)	-	-	15	-67
MCS 9 (256-QAM)	-	-	15	-66
802.11 HT80	Tx Power (dBm)	Rx Sensitivity (dBm)	Tx Power (dBm)	Rx Sensitivity (dBm)
MCS 0 (BPSK)	-	-	17	-87
MCS 1 (QPSK)	-	-	17	-83
MCS 2 (QPSK)	-	-	17	-81
MCS 3 (16-QAM)	-	-	16	-78
MCS 4 (16-QAM)	-	-	16	-75
MCS 5 (64-QAM)	-	-	15	-73
MCS 6 (64-QAM)	-	-	15	-70
MCS 7 (64-QAM)	-	-	15	-68
MCS 8 (256-QAM)	-	-	14	-64
MCS 9 (256-QAM)	-	-	14	-62

Maximum capability of the Hardware provided (Excluding antenna gain)

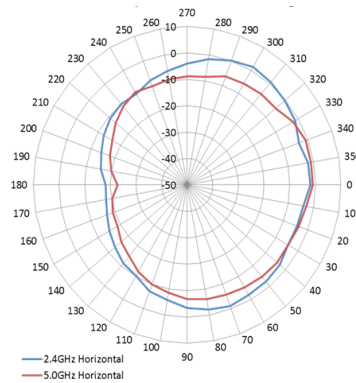


# ANTENNA RADIATION PATTERNS — WALL MOUNT

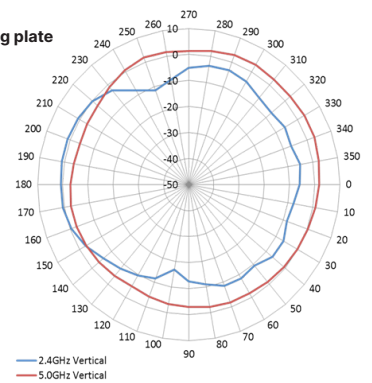
## FAP-U24JEV



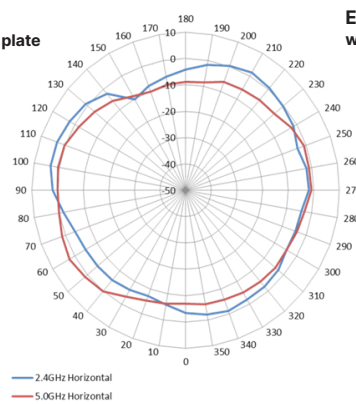
**H-Plane Pattern  
with metal mounting  
plate**



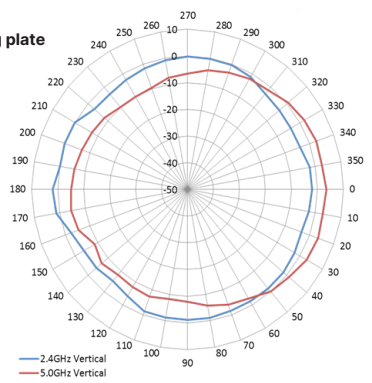
**E-Plane Pattern  
with metal mounting plate**



**H-Plane Pattern  
without metal mounting plate**



**E-Plane Pattern  
without metal mounting plate**





## ORDER INFORMATION

PRODUCT	SKU	DESCRIPTION
FortiAP U431F	FAP-U431F	Indoor Wireless Universal AP - Tri radio (2× 802.11 a/b/g/n/ac/ax, 4×4 MIMO and 1× 802.11 a/b/g/n/ac Wave 2, 2×2 MU-MIMO), internal antennas, 1× 10/100/1000/2500 Base-T RJ45, 1× 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-FAP43F-PA-X-5
	FC-10-P431F-247-02-DD	24×7 FortiCare Contract
FortiAP U433F	FAP-U433F	Indoor Wireless Universal AP - Tri radio (2× 802.11 a/b/g/n/ac/ax, 4×4 MIMO and 1× 802.11 a/b/g/n/ac Wave 2, 2×2 MU-MIMO), external antennas included, 1× 10/100/1000/2500 Base-T RJ45, 1× 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-FAP43F-PA-X-5
	FC-10-P433F-247-02-DD	24×7 FortiCare Contract
FortiAP U231F	FAP-U231F	Indoor Wireless Universal AP - Tri radio (802.11 b/g/n/ax 2×2 MU-MIMO, 802.11 a/n/ac/ax 2×2 MU-MIMO and 1× 802.11 a/b/g/n/ac Wave 2, 1×1 ), internal antennas, 2× 10/100/1000 RJ45 port, BT/BLE, 1x Type A USB, 1x RS-232 RJ45 Serial Port. Ceiling/wall mount kit included. For power order: SP-FAP250-PAX-10.
	FC-10-P231-247-02-DD	24×7 FortiCare Contract
FortiAP U421EV	FAP-U421EV	Indoor Wireless Universal AP - Dual radio (802.11 a/b/g/n and 802.11 a/b/g/n/ac Wave 2, 4×4 MU-MIMO), internal antennas, 2 × 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-P0421-247-02-DD	24×7 FortiCare Contract
FortiAP U423EV	FAP-U423EV	Indoor Wireless Universal AP - Dual radio (802.11 a/b/g/n and 802.11 a/b/g/n/ac Wave 2, 4×4 MU-MIMO), external antennas included, 2 × 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-P0423-247-02-DD	24×7 FortiCare Contract
FortiAP U422EV	FAP-U422EV	Outdoor Wireless Universal AP - Dual radio (802.11 a/b/g/n and 802.11 a/b/g/n/ac Wave 2, 4×4 MU-MIMO), external antennas included, 2 × 10/100/1000 RJ45 port, IP67 rated. Pole/wall mount kit, ground cable, power supply included.
	FC-10-P0422-247-02-DD	24×7 FortiCare Contract
FortiAP U321EV	FAP-U321EV	Indoor Wireless Universal AP - Dual radio (802.11 a/b/g/n and 802.11 a/n/ac Wave 2, 3×3 MU-MIMO), internal antennas, 2 × 10/100/1000 RJ45 port, BT / BLE. 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-FAP200-PA.
	FC-10-PU321-247-02-DD	24×7 FortiCare Contract
FortiAP U323EV	FAP-U323EV	Indoor Wireless Universal AP - Dual radio (802.11 a/b/g/n and 802.11 a/n/ac Wave 2, 3×3 MU-MIMO), external antennas included, 2 × 10/100/1000 RJ45 port, BT / BLE. 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-FAP200-PA.
	FC-10-PU323-247-02-DD	24×7 FortiCare Contract
FortiAP U221EV	FAP-U221EV	Indoor Wireless Universal AP - Dual radio (802.11 b/g/n and 802.11a/n/ac, 2×2 MIMO), internal antennas, 1 × 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-P221E-247-02-DD	24×7 FortiCare Contract
FortiAP U223EV	FAP-U223EV	Indoor Wireless Universal AP - Dual radio (802.11 b/g/n and 802.11a/n/ac, 2×2 MIMO), external antennas included, 1 × 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-P223E-247-02-DD	24×7 FortiCare Contract
FortiAP U24JEV	FAP-U24JEV	Wall Plate Universal AP - Single radio [can be configured as two] (802.11 a/b/g/n/ac, 2×2 MIMO 2.4GHz/5GHz or 1×1 SISO 2.4GHz and 1×1 SISO 5GHz), internal antennas, 4 × 10/100/1000 RJ45 port (1× 802.3at PoE PD, 1× 802.3af PoE PSE, 2x Non-PoE Ports). Mounting bracket included. For power order: 802.3af PoE injector GPI-115 (limited features) or 802.3at PoE injector GPI-130 or AC adapter SP-FAPU24-PA.
	FC-10-P024E-247-02-DD	24×7 FortiCare Contract
	FAP-MNT-WJ-20	Optional desk mount.
Gigabit PoE Injector	GPI-115	1-Port Gigabit PoE Injector, 802.3af up to 12.95 W.
	GPI-130	1-Port Gigabit PoE Power Injector, 802.3at up to 30W.
Power Adapter	SP-FAP43F-PA-X-5	AC power adapter for FAP-U431F and FAP-U433F.
	SP-FAP400-PA	AC power adapter for FAP-U421EV and FAP-U423EV.
	SP-FAP200-PA	AC power adapter for FAP-U321EV, FAP-U323EV, FAP-U221EV, and FAP-U223EV.
	SP-FAPU24-PA	AC power adapter for FAP-U24JEV.
	SP-FAP250-PAX-10	AC power adapter with US and EU plugs for FAP-U231F and FAP-231F.

Additional external antenna options are available for some models. Please see the antenna datasheet for details.

**Note:** A country suffix code (-A, -B, -C, -D, -E, -F, -I, -J, -K, -N, -P, -S, -T, -U, -V, -W, or -Y) applies to all AP models based upon country of deployment. Work with your local supplier for the correct model in your regulatory domain.



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