

# FortiAP™ Universal Access Point Series

Universally Manageable Access Points

Fortinet's FortiAP-U Series offers a wide range of Access Points capable of being managed by any of Fortinet's controller and management options: Cloud, FortiOS, or WLAN Controller. Access Points are available across the performance spectrum up to the fastest 802.11ac Wave 2 4x4:4 devices.



## Universal Access Management

Ability to intelligently support stand-alone controllers (FortiWLC), integrated security controllers (FortiGate) and cloud management 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

802.11ac Wave 1	<b>FAP-U221EV</b>	2x2 MIMO APs with dual radios
	<b>FAP-U223EV</b>	2x2 Wall jack AP with 4 GE ports
	<b>FAP-U24JEV</b>	2x2 Wall jack AP with 4 GE ports
802.11ac Wave 2	<b>FAP-U321EV</b>	3x3 MU-MIMO APs with dual radios
	<b>FAP-U323EV</b>	3x3 MU-MIMO APs with dual radios
	<b>FAP-U421EV</b>	4x4 MU-MIMO APs with dual radios
	<b>FAP-U423EV</b>	4x4 MU-MIMO APs with dual radios
	<b>FAP-U422EV</b>	4x4 Outdoor AP with dual radios

# HIGHLIGHTS

Fortinet Universal access points are designed to support a variety of deployments from small sites, 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 FortiCloud.

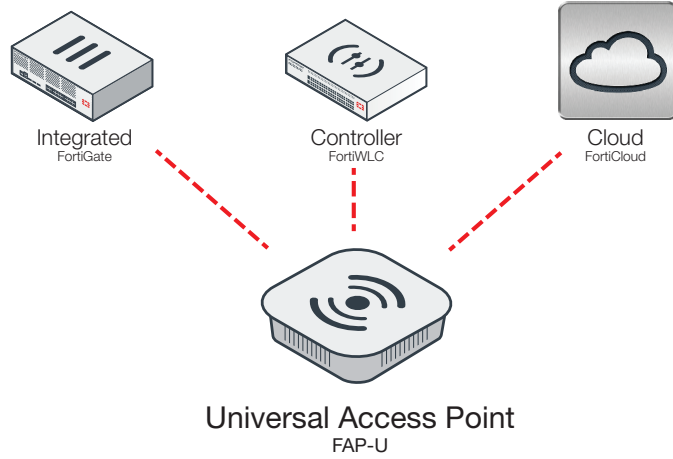


Figure 1 — Universal Access Management, highest Gigabit WiFi performance and unmatched security protection.

## 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.

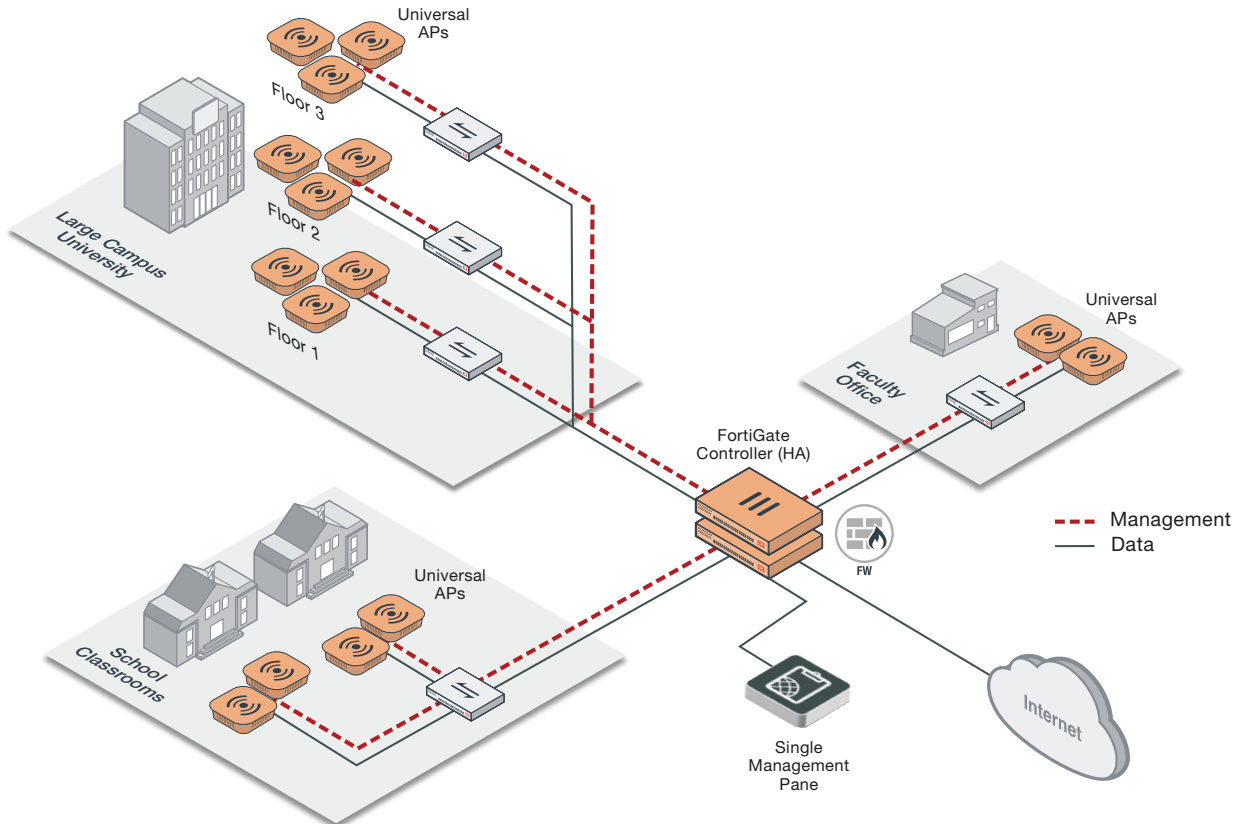


Figure 2 — Educational organizations with Universal APs managed by on-premise FortiGate controllers.

## 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

(FortiWLC) connected to our Universal access points ensures patient safety remains paramount, while providing improved performance for wireless enabled medical devices.

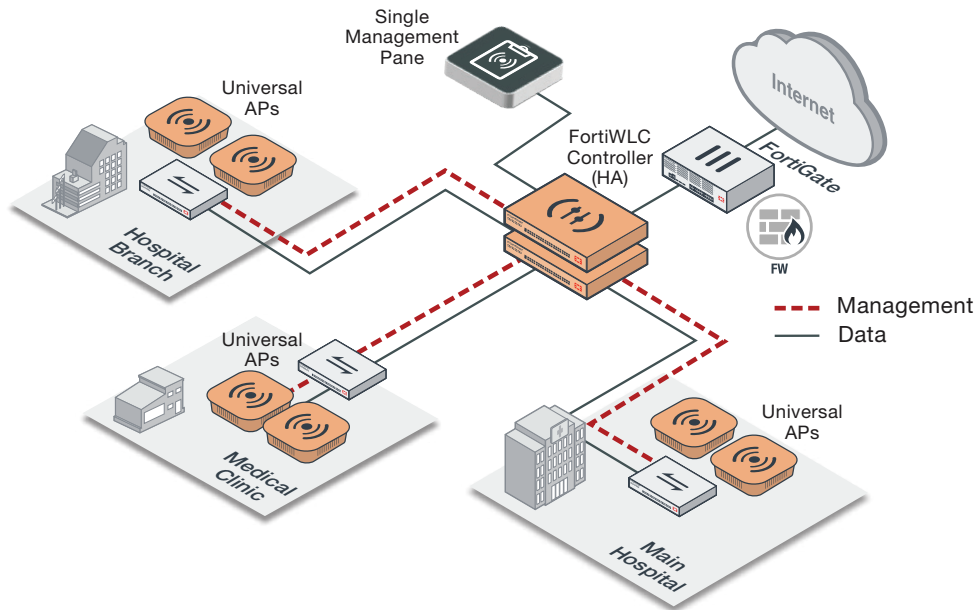


Figure 3 — Healthcare organizations with Universal APs managed by on-premise FortiWLC controllers.

### Small/Medium Business

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

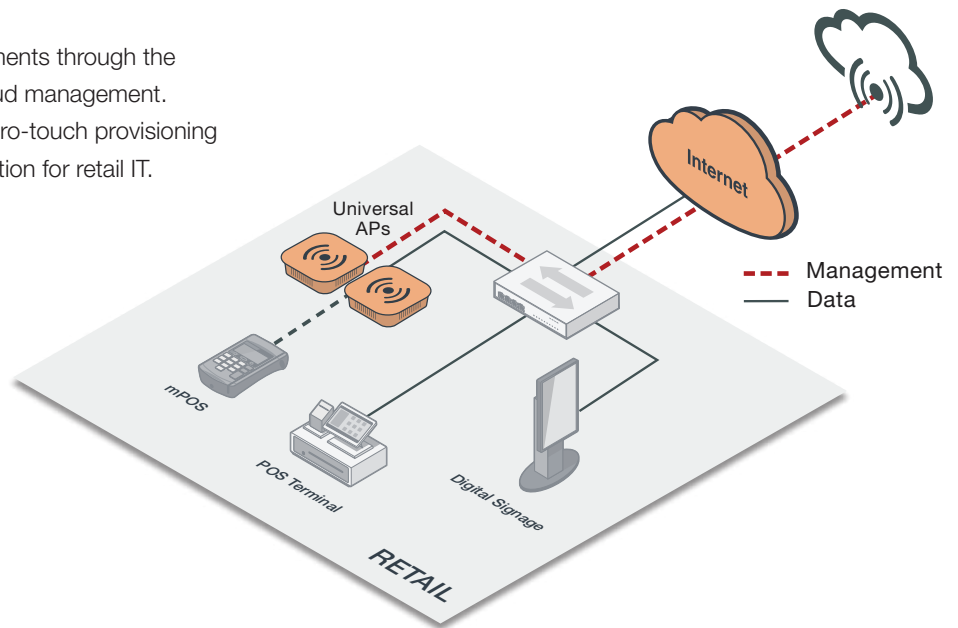


Figure 4 — Retail store with Universal APs managed by FortiCloud.

## HIGHLIGHTS

### FortiAP 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 2x2:2 radios, supporting client devices transmitting up to two spatial streams.

 **802.11ac Wave 1 | Dual Radio 2.4 & 5 GHz | 4 Interior/Exterior Antennas**

 **2x2 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 BT/BLE	2 + 1 BT/BLE
Number of Antennas	4 Internal + 1 BT/BLE Internal	4 External + 1 BT/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 (2x2:2 stream) 20/40 MHz (64 QAM)	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)	5 GHz a/n/ac (2x2:2 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 (BT/BLE) Radio	Bluetooth scanning and iBeacon advertisement @ 4 dBm max TX power	Bluetooth scanning and iBeacon advertisement @ 4 dBm max TX power
Interfaces	1x 10/100/1000 Base-T RJ45, 1x Type A USB	1x 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, 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, Web Captive Portal, MAC blacklist & whitelist	WPA™ and WPA2™ with 802.1x or Preshared key, WEP, Web Captive Portal, MAC blacklist & whitelist
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, 802.11ac, 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, 802.11ac, 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
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
Short Guard Interval	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
<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 x 7.87 x 1.5 inches (200 x 200 x 40 mm)	7.87 x 7.87 x 1.5 inches (200 x 200 x 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>		
WiFi Alliance Certified	Yes	Yes
DFS	CE, Japan	CE, Japan
<b>Warranty</b>		
Limited Lifetime Warranty	Yes	Yes

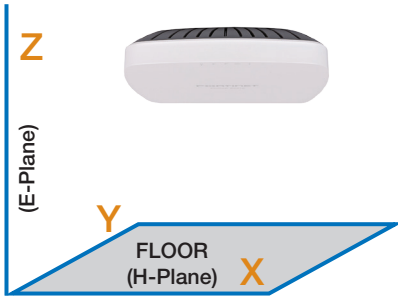
## FAP-U221EV / FAP-U223EV RF RX/TX PERFORMANCE TABLE

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)
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

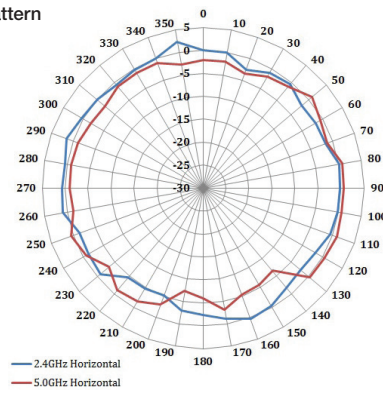
Maximum capability of the Hardware provided (Excluding antenna gain)

# ANTENNA RADIATION PATTERNS

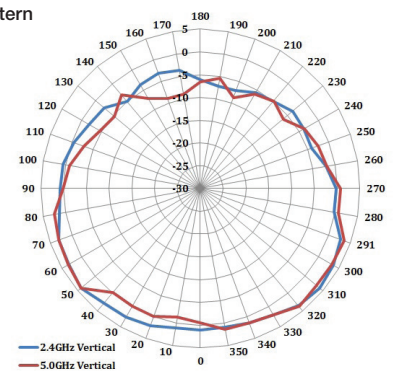
## FAP-U221EV



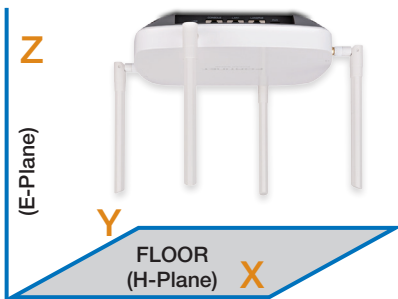
H-Plane Pattern



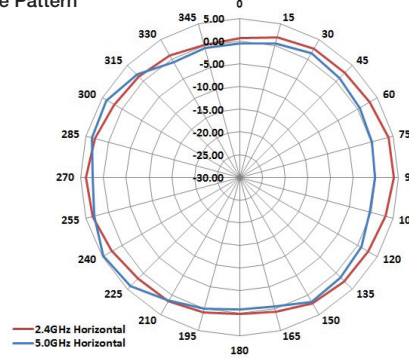
E-Plane Pattern



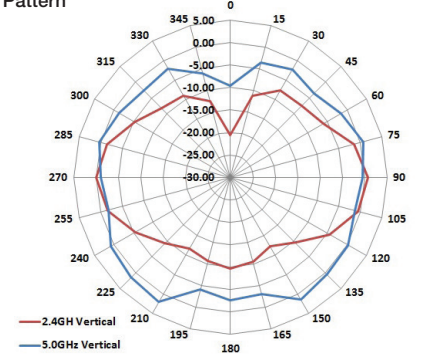
## FAP-U223EV



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>	
Hardware Type	Wall Plate AP
Number of Radios	1 (can operate as 2) + 1 BT/BLE
Number of Antennas	2 Internal + 1 BT/BLE Internal
Antenna Type and Peak Gain	Patch: 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 (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)
Radio 2 Capabilities	—
Maximum Data Rate	up to 867 Mbps
Bluetooth Low Energy (BT/BLE) Radio	Bluetooth scanning and iBeacon advertisement @ 4 dBm max TX power
Interfaces	4x 10/100/1000 Base-T RJ45 Ports (1x 802.3at PoE (PD), 1x 802.3af PoE (PSE), 2x Non-PoE Ports), 1 Pass-through in RJ45, 1 Pass-through out RJ45
Power over Ethernet (PoE)	802.3af (max PSE output of 4W) or 802.3at (full 802.3af PSE output)
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™ and WPA2™ with 802.1x or Preshared key, WEP, Web Captive Portal, MAC blacklist & whitelist
Maximum Tx Power (Conducted)	2.4 GHz: 23 dBm / 200 mW (2 chains combined)* or 5 GHz: 21 dBm / 126 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, 802.11v, 802.11ac, 802.1x, 802.3af, 802.3at, 802.3az, 802.3ad
SSID Types Supported	Local-Bridge, Tunnel
Per Radio Client Capacity	Up to 128
Cellular Co-existence**	Yes
LED Off Mode	Yes
<b>Advanced 802.11 Features</b>	
802.11ac MU-MIMO Wave 2	No
Transmit Beam Forming (TxBF)	Yes
Low-Density Parity Check (LDPC) Encoding	Yes
Maximum Likelihood Demodulation (MLD)	Yes

FORTIAP U24JEV	
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, Dedicated
WIPS / WIDS Radio Modes	Background, Dedicated (recommended)
Packet Sniffer Mode	Yes
Spectrum Analyzer	Yes
<b>Dimensions</b>	
Length x Width x Height	6.1 x 3.7 x 1.2 inches (155 x 95 x 31 mm)
Weight	0.569 lbs (0.258 kg)
Package (shipping) Weight	1.34 lbs (0.606 kg)
Mounting Options	Wall plate or desk stand
Included Accessories	Mounting kit for wall plate
<b>Environment</b>	
Power Supply	SP-FAPU24-PA-XX, GPI-115, or GPI-130
Power Consumption (Maximum)	24W (Depends on PoE connected and USB power consumed)
Humidity	10–90% non-condensing
Operating / Storage Temperature	32–104°F (0–40°C) / -22–158°F (-30–70°C)
Directives	RoHS
UL2043 Plenum Material	No
Mean Time Between Failures	>30 Years
IP Rating	—
Surge Protection Built In	—
Hit-less PoE Failover	No
<b>Certifications</b>	
WiFi Alliance Certified	Yes
DFS	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 2.4GHz 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

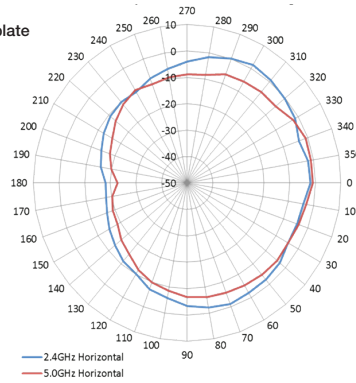
Maximum capability of the Hardware provided (Excluding antenna gain)

# ANTENNA RADIATION PATTERNS – WALL MOUNT

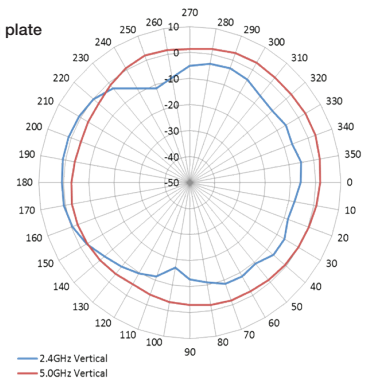
## FAP-U24JEV



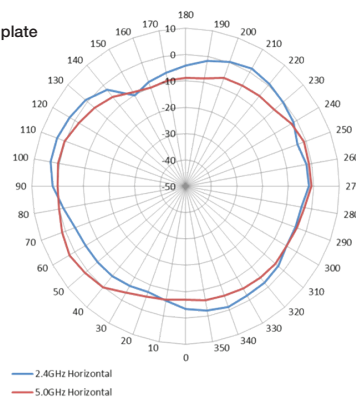
H-Plane Pattern  
with metal mounting plate



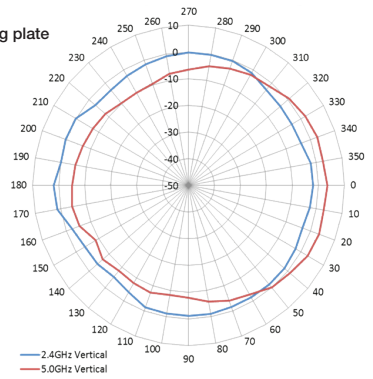
E-Plane Pattern  
with metal mounting plate



H-Plane Pattern  
with plastic mounting plate



E-Plane Pattern  
with plastic mounting plate




## 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 Interior/Exterior Antennas**

 **3x3 MU-MIMO | Up to 450 Mbps + 2,600 Mbps**

## SPECIFICATIONS

	FORTIAP U321EV	FORTIAP U323EV
<b>Hardware</b>		
Hardware Type	Indoor AP	Indoor AP
Number of Radios	2 + 1 BT/BLE	2 + 1 BT/BLE
Number of Antennas	6 Internal + 1 BT/BLE Internal	6 External + 1 BT/BLE Internal
Antenna Type and Peak Gain	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
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 (3x3:3 stream) 20/40 MHz (64 QAM)	2.4 GHz b/g/n (3x3:3 stream) 20/40 MHz (64 QAM)
Radio 2 Capabilities	5 GHz a/n/ac (3x3:3 stream) 20/40/80 MHz (256 QAM) (also supports 1024 Turbo QAM)	5 GHz a/n/ac (3x3:3 stream) 20/40/80 MHz (256 QAM) (also supports 1024 Turbo QAM)
Maximum Data Rate	Radio 1: up to 450 Mbps Radio 2: up to 2,600 Mbps	Radio 1: up to 450 Mbps Radio 2: up to 2,600 Mbps
Bluetooth Low Energy (BT/BLE) Radio	Bluetooth scanning and iBeacon advertisement @ 4 dBm max TX power	Bluetooth scanning and iBeacon advertisement @ 4 dBm max TX power
Interfaces	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
Power over Ethernet (PoE)	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)
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, 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, Web Captive Portal, MAC blacklist & whitelist	WPA™ and WPA2™ with 802.1x or Preshared key, WEP, Web Captive Portal, MAC blacklist & whitelist
Maximum Tx Power (Conducted)	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)*
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, 802.11ac, 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, 802.11ac, 802.1X, 802.3af, 802.3at, 802.3az, 802.3ad
SSID Types Supported	Local-Bridge, Tunnel & Mesh	Local-Bridge, Tunnel & Mesh
Per Radio Client Capacity	Up to 256	Up to 256
Cellular Co-existence**	Yes	Yes
LED Off Mode	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 x 8.58 x 1.69 inches (218 x 218 x 43 mm)	8.58 x 8.58 x 1.69 inches (218 x 218 x 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>		
WiFi 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

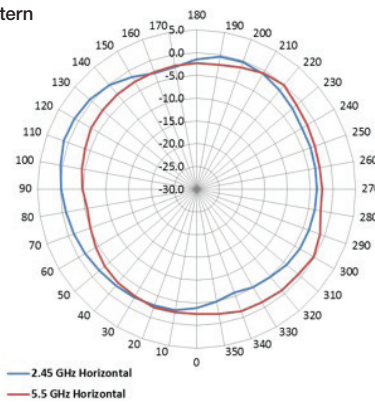
Maximum capability of the Hardware provided (Excluding antenna gain)

# ANTENNA RADIATION PATTERNS

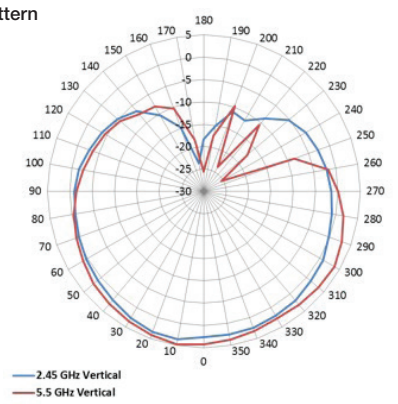
## FAP-U321EV



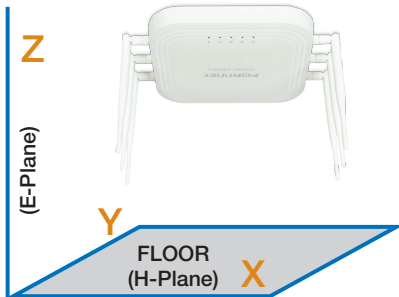
H-Plane Pattern



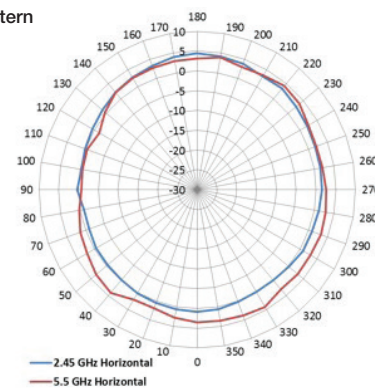
E-Plane Pattern



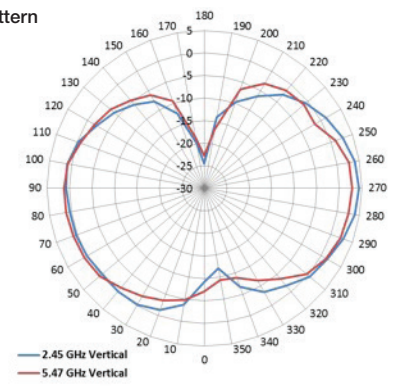
## FAP-U323EV



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 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 Interior/Exterior Antennas**

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

## SPECIFICATIONS

	FORTIAP U421EV	FORTIAP U423EV
<b>Hardware</b>		
Hardware Type	Indoor AP	Indoor AP
Number of Radios	2 + 1 BT/BLE	2 + 1 BT/BLE
Number of Antennas	8 Internal + 1 BT/BLE Internal	8 External + 1 BT/BLE Internal
Antenna Type and Peak Gain	Patch: 4 dBi for 2.4 GHz, 5 dBi for 5 GHz	Dipole: 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, 5.725–5.850
Radio 1 Capabilities	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)
Radio 2 Capabilities	5 GHz a/n/ac (4x4:4 stream) 20/40/80/160 MHz (256 QAM) (also supports 1024 Turbo QAM)	5 GHz a/n/ac (4x4:4 stream) 20/40/80/160 MHz (256 QAM) (also supports 1024 Turbo QAM)
Maximum Data Rate	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
Bluetooth Low Energy (BT/BLE) Radio	Bluetooth scanning and iBeacon advertisement @ 4 dBm max TX power	Bluetooth scanning and iBeacon advertisement @ 4 dBm max TX power
Interfaces	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
Power over Ethernet (PoE)	Dual redundant PoE power ports with support for IEEE 802.3af (2x2 operation at 17 dBm TX Power and USB disabled with 802.3af)	Dual redundant PoE power ports with support for IEEE 802.3af (2x2 operation at 17 dBm TX Power and USB disabled with 802.3af)
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, 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, Web Captive Portal, MAC blacklist & whitelist	WPA™ and WPA2™ with 802.1x or Preshared key, WEP, Web Captive Portal, MAC blacklist & whitelist
Maximum Tx Power (Conducted)	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)*
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, 802.11ac, 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, 802.11ac, 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 256	Up to 256
Cellular Co-existence**	Yes	Yes
LED Off Mode	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>		
WiFi 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

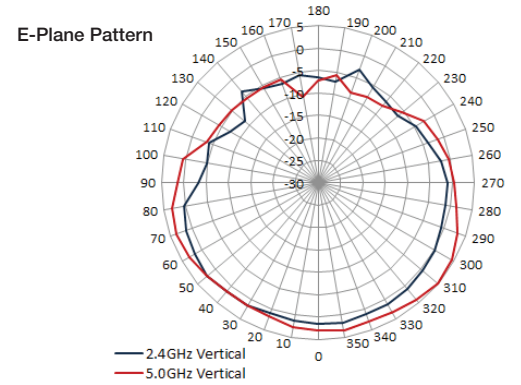
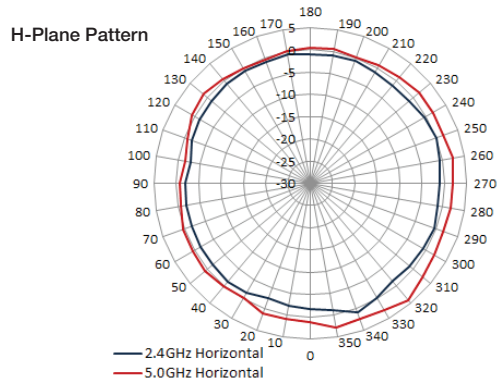
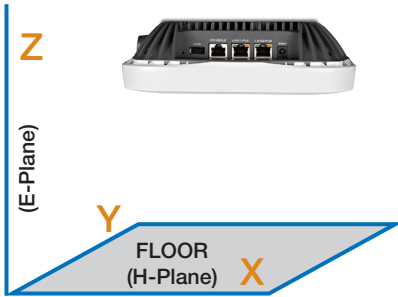
## FAP-U421EV / FAP-U423EV RF RX/TX PERFORMANCE TABLE

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

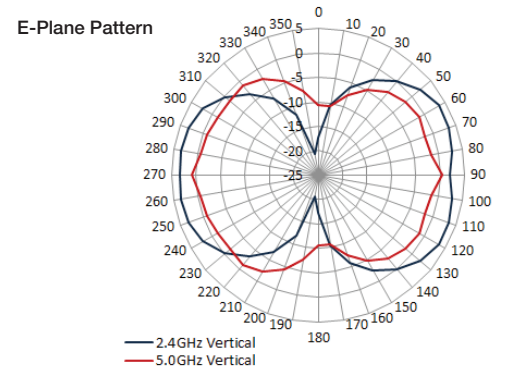
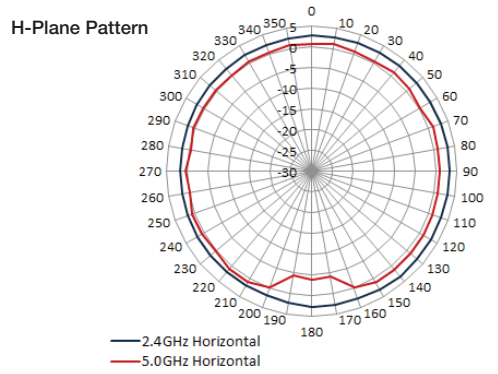
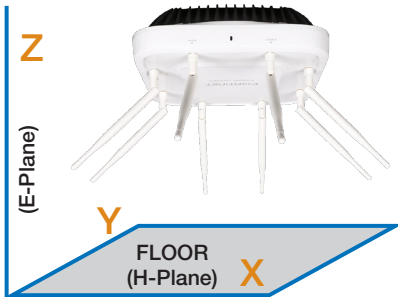
Maximum capability of the Hardware provided (Excluding antenna gain)

# 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 BT/BLE
Number of Antennas	8 External + 1 BT/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) (also supports 1024 Turbo QAM)
Maximum Data Rate	Radio 1: up to 600 Mbps Radio 2: up to 3,466 Mbps
Bluetooth Low Energy (BT/BLE) 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)	Proprietary or 802.3at
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™ and WPA2™ with 802.1x or Preshared key, WEP, Web Captive Portal, MAC blacklist & whitelist
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, 802.11ac, 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
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
A-MPDU and A-MSDU Packet Aggregation	Yes

FORTIAP U422EV	
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>	
WiFi Alliance Certified	Yes
DFS	CE, Japan
<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.

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

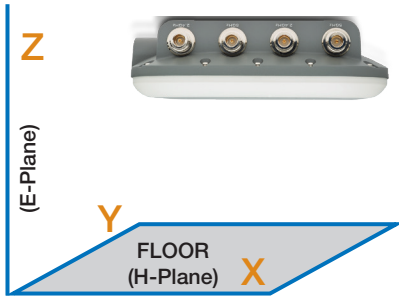
## FAP-U422EV RF RX/TX PERFORMANCE TABLE

FORTIAP U24JEV				
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

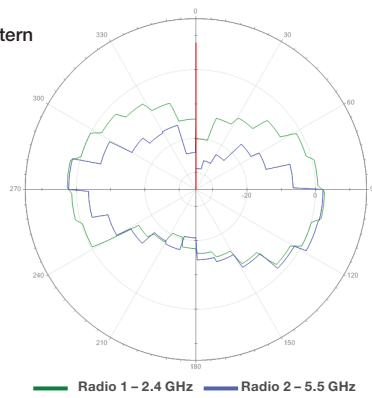
Maximum capability of the Hardware provided (Excluding antenna gain)

# ANTENNA RADIATION PATTERNS

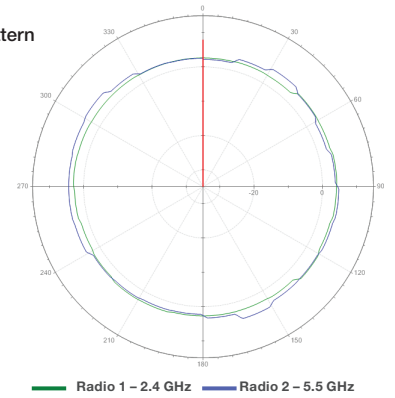
## FAP-U422EV



H-Plane Pattern



E-Plane Pattern



## ORDER INFORMATION

Product	SKU	Description
FortiAP U221EV	FAP-U221EV	Universal Indoor Wireless AP — dual radio (Radio1 — 2x2 MIMO 2.4/5 GHz 802.11 a/b/g/n/ac @ 300 Mbps, Radio 2 — 2x2 MIMO 5 GHz 802.11a/n/ac Wave 1 @ 867 Mbps) with TX Beam-forming and 3rd BLE radio, 1x RJ45 802.3af or at GE PoE port, internal antennas, ceiling/wall mount kit included, power adapter not included. For Gigabit PoE injector order: GPI-115 or GPI-130 for higher TX power.
	FC-10-P221E-311-02-DD	8x5 FortiCare Contract
	FC-10-P221E-247-02-DD	24x7 FortiCare Contract
FortiAP U223EV	FAP-U223EV	Universal Indoor Wireless AP — dual radio (Radio1 — 2x2 MIMO 2.4/5 GHz 802.11 a/b/g/n/ac @ 300 Mbps, Radio 2 — 2x2 MIMO 5 GHz 802.11a/n/ac Wave 1 @ 867 Mbps) with TX Beam-forming and 3rd BLE radio, 1x RJ45 802.3af or at GE PoE port, external antennas, ceiling/wall mount kit included, power adapter not included. For Gigabit PoE injector order: GPI-115 or GPI-130 for higher TX power.
	FC-10-P223E-311-02-DD	8x5 FortiCare Contract
	FC-10-P223E-247-02-DD	24x7 FortiCare Contract
FortiAP U24JEV	FAP-U24JEV	Universal Wireless Wall Plate AP — integrated antennas and 4x RJ45 ports (3x 10/100/1000 BASE-T ports, 1 PoE-out, 1 pass-thru). 2x2, 802.11 a/b/g/n/ac, dual concurrent dual-band (2.4 GHz/5 GHz). Powered by PoE 802.3af or external power adapter (sold separately).
	FC-10-P024E-311-02-DD	8x5 FortiCare Contract
	FC-10-P024E-247-02-DD	24x7 FortiCare Contract
FortiAP U321EV	FAP-U321EV	Universal Indoor Wireless AP — 3x3 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 802.3af PoE ports, internal antennas, ceiling/wall mount kit included, power adapter not included.
	FC-10-PU321-311-02-DD	8x5 FortiCare Contract
	FC-10-PU321-247-02-DD	24x7 FortiCare Contract
FortiAP U323EV	FAP-U323EV	Universal Indoor Wireless AP — 3x3 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 802.3af PoE ports, external antennas, ceiling/wall mount kit included, power adapter not included.
	FC-10-PU323-311-02-DD	8x5 FortiCare Contract
	FC-10-PU323-247-02-DD	24x7 FortiCare Contract
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 802.3af 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 — 4x 10/100/1000 Base-T RJ45 Ports (1x 802.3af PoE (PD), 1x 802.3af PoE (PSE), 2x Non-PoE Ports), 1 RJ45 Pass-through in, 1 RJ45 Pass-through out, 2x GE RJ45 802.3af 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
FortiAP U422EV	FAP-U422EV	Universal Outdoor Wireless AP — 802.11ac Wave 2 4x4 MU-MIMO, 802.11 a/b/g/n/ac, dual concurrent dual-band (2.4 GHz/5 GHz), IP67, PoE 802.3at+ support included.
	FC-10-P0422-311-02-DD	8x5 FortiCare Contract
	FC-10-P0422-247-02-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.
	SP-FAP200-PA	AC Power Adapter for FAP-U321EV, FAP-U323EV, FAP-U221EV and FAP-U223EV.

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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