

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 devices.



Universal Access Management

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



Latest WiFi technologies

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



Unmatched Security Protection

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

Product Offerings

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

HIGHLIGHTS

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

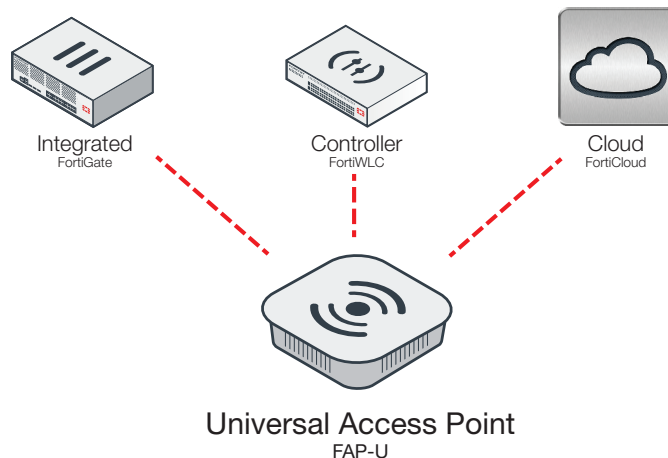


Figure 1 — Universal Access Management, highest Gigabit WiFi performance and unmatched security protection.

Education

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

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

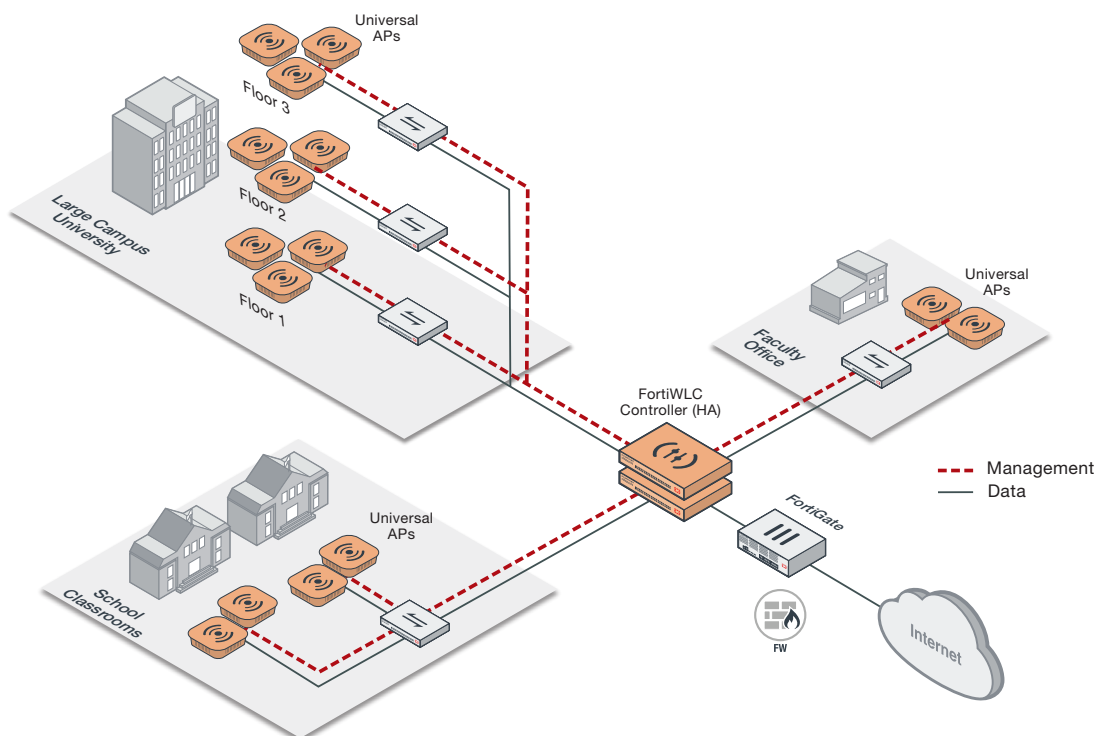


Figure 2 — Educational organizations with Universal APs managed by on-premise FortiWLC controllers.

HIGHLIGHTS

Healthcare

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

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

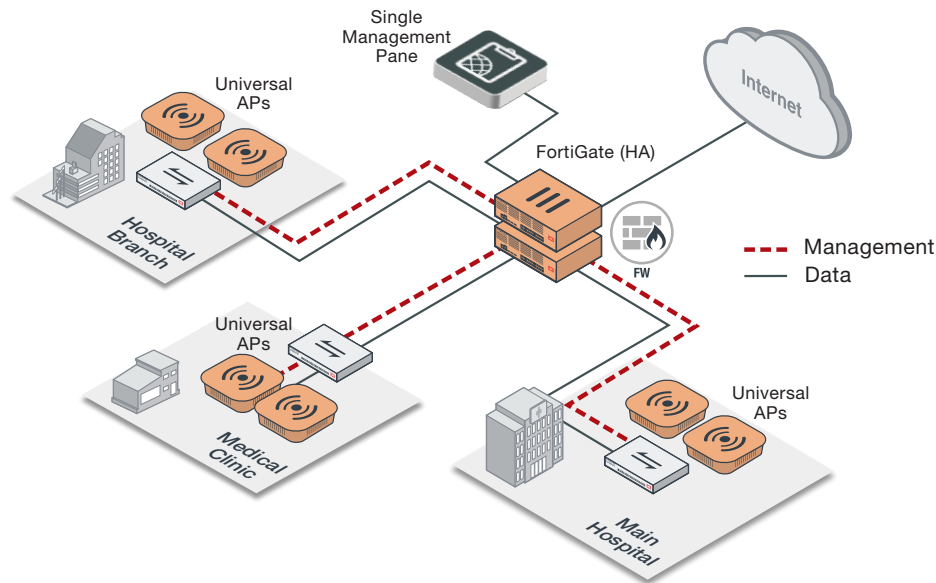


Figure 3 — Healthcare organizations with Universal APs managed by on-premise FortiGate controllers.

Small/Medium Business

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

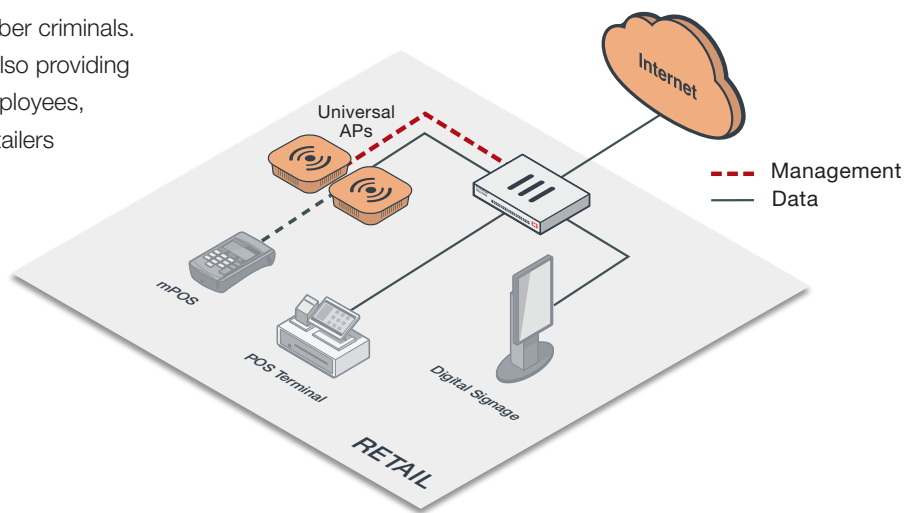


Figure 4 — Retail store with Universal APs managed by FortiGate.

HIGHLIGHTS

FortiAP 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
Hardware		
Hardware Type	Indoor Universal AP	Indoor Universal AP
Number of Radios	2	2
Number of Antennas	4 Internal + 1 BT/BLE Internal	4 RP-SMA External + 1 BT/BLE Internal
Peak Antenna Gain	3 dBi for 2.4 GHz, 4 dBi for 5 GHz with 30 degree downtilt for ceiling mount	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
Frequency of Radio 1	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)
Frequency of Radio 2	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
Tx/Rx Streams	2x2 MIMO 2 spatial stream	2x2 MIMO 2 spatial stream
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
Ethernet Ports	1x GE RJ45	1x GE RJ45
USB Port	1x Type A	1x Type A
Serial Console Port	No	No
Power over Ethernet (PoE)	IEEE 802.3af (12.9 W) and 802.3at	IEEE 802.3af (12.9 W) and 802.3at
Simultaneous SSIDs	16 (14 if background scanning enabled)	16 (14 if background scanning enabled)
EAP Type(s)	EAP-TLS, EAP-TTLS/MSCHAPv2, EAPv0/EAP-MSCHAPv2, PEAPv1/EAP-GTC EAP-SIM, EAP-AKA, EAP-FAST	EAP-TLS, EAP-TTLS/MSCHAPv2, EAPv0/EAP-MSCHAPv2, PEAPv1/EAP-GTC EAP-SIM, EAP-AKA, EAP-FAST
User/Device Authentication	WPA™ and WPA2™ with 802.1x or Preshared key, WEP and Web Captive Portal, MAC blacklist & whitelist	WPA™ and WPA2™ with 802.1x or Preshared key, WEP and Web Captive Portal, MAC blacklist & whitelist
Maximum Tx Power (Hardware Capability)	25 dBm / 316 mW (2 chains combined)*	25 dBm / 316 mW (2 chains combined)*
Physical Security	Kensington Lock	Kensington Lock
IEEE Standards	802.11a, 802.11b, 802.11d, 802.11e, 802.11g, 802.11h, 802.11i, 802.11j, 802.11n, 802.1x, 802.3af, 802.11ac, 802.3at, 802.3az, 802.3ad	802.11a, 802.11b, 802.11d, 802.11e, 802.11g, 802.11h, 802.11i, 802.11j, 802.11n, 802.1x, 802.3af, 802.11ac, 802.3at, 802.3az, 802.3ad
FortiPresence Capable	Yes	Yes
Wireless Mesh Capable	Yes	Yes
Modes of Operation	WLC/MC with SD 8.4 and above, FWLM, FortiGate or FortiCloud management	WLC/MC with SD 8.4 and above, FWLM, FortiGate or FortiCloud management
SSID Types Supported**	Local-Bridge, Tunnel & Mesh (when managed by controller)	Local-Bridge, Tunnel & Mesh (when managed by controller)
FortiDeploy and FortiCloud Key	Yes	Yes
Per Radio Client Capacity	Up to 256	Up to 256
LED Off Mode	Yes	Yes

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

** When FAP-U22xEV is managed by FortiWLC, it can support a maximum of 8 ESS profiles (8 SSIDs) and 128 clients.

SPECIFICATIONS

	FORTIAP U221EV	FORTIAP U223EV
Advanced 802.11 Features		
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
WME Multimedia Extensions	Yes (4 priority queues for voice, video, data and background traffic)	Yes (4 priority queues for voice, video, data and background traffic)
Wireless Monitoring Capabilities		
Frequencies Scanned	2.4 and 5 GHz	2.4 and 5 GHz
Background Scan with Client Access on 2.4 and 5 GHz	Yes	Yes
Full-time Scan as Dedicated Monitor	Yes	Yes
Packet Sniffer Mode	Yes	Yes
Spectrum Analyzer	Yes	Yes
Dimensions		
Length x Width x Height (inches)	7.87 x 7.87 x 1.5	7.87 x 7.87 x 1.5
Length x Width x Height (mm)	200 x 200 x 40	200 x 200 x 40
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	Ceiling, T-Rail and wall mount kit (AC power adapter sold separately)	Ceiling, T-Rail and wall mount kit and 8 dipole antennas (AC power adapter sold separately)
Environment		
Power Supply	Adapter input: 100–240V, 50/60 Hz, 0.9A Max output: 12V DC, 3A	Adapter input: 100–240V, 50/60 Hz, 0.9A Max output: 12V DC, 3A
Power Consumption (Average / Maximum)	12.5 W maximum	12.5 W maximum
Humidity	5–90% non-condensing	5–90% non-condensing
Operating Temperature	32–122°F (0–50°C)	32–122°F (0–50°C)
Storage Temperature	-40–158°F (-40–70°C)	-40–158°F (-40–70°C)
Directives	Low Voltage Directive • RoHS	Low Voltage Directive • RoHS
UL2043 Plenum Material	No	No
Mean Time Between Failures	>10 Years	>10 Years
Certifications		
WiFi Alliance Certified	Yes	Yes
DFS Certified	In Process	In Process
Warranty		
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

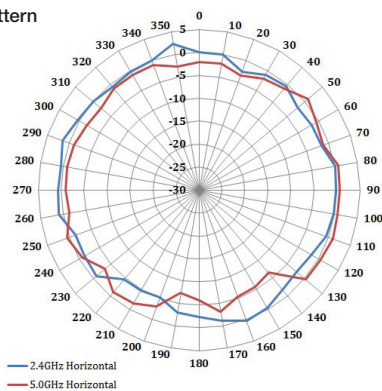
Maximum capability of the Hardware provided (Excluding antenna gain)

ANTENNA RADIATION PATTERNS

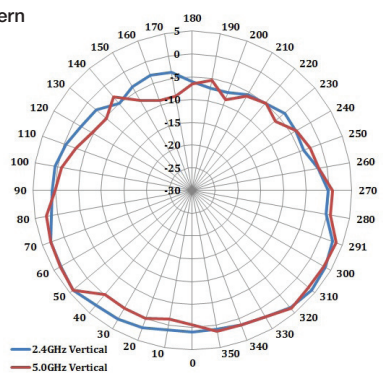
FAP-U221EV



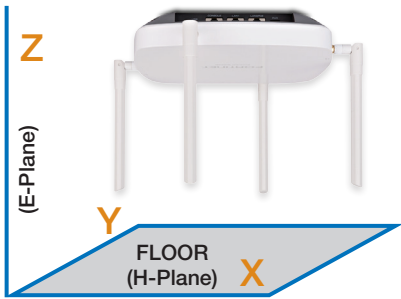
H-Plane Pattern



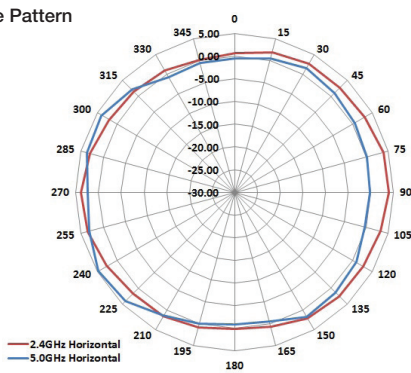
E-Plane Pattern



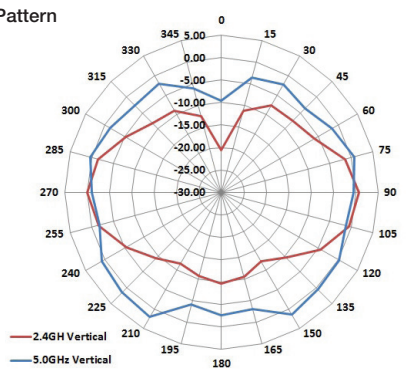
FAP-U223EV



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.



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	
Hardware	
Hardware Type	Universal Wall Plate AP
Number of Radios	1 (can operate as 2)
Number of Antennas	2
Peak Antenna Gain	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
Frequency of Radio 1	2.4 GHz b/g/n (2x2:2 stream) 20/40 MHz (64 QAM) 5 GHz a/n/ac (2x2:2 stream) 20/40/80 MHz (256 QAM) 2x (1x1:1) 2.4 GHz and 5 GHz
Maximum Data Rate	867 Mbps
Tx/Rx Streams	2x2 MIMO 2 spatial stream (1x1 when operating in 2.4 and 5 GHz dual concurrent mode)
Bluetooth Low Energy (BT/BLE) Radio	Bluetooth scanning and iBeacon advertisement @ 4 dBm max TX power
Ethernet Ports	6 Ports, 1x GE 802.3at PoE (PD), 1x GE 802.3af PoE (PSE), 2x Non-PoE GE Ports, Pass-through in and Pass-through out
USB Port	No
Serial Console Port	No
Power over Ethernet (PoE)	Yes
Simultaneous SSIDs	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 and Web Captive Portal, MAC blacklist & whitelist
Maximum Tx Power	20 dBm (100mW)*
Physical Security	Designed to attach to existing backbox
IEEE Standards	802.11a, 802.11b, 802.11d, 802.11e, 802.11g, 802.11h, 802.11i, 802.11j, 802.11n, 802.1x, 802.3af, 802.11ac, 802.3at, 802.3az, 802.3ad
FortiPresence Capable	Yes
Wireless Mesh Capable	No
Modes of Operation	WLC (8.4 and above), FortiGate, FortiCloud
SSID Types Supported	Local-Bridge, Tunnel (when managed by controller)
FortiDeploy and FortiCloud Key	Yes
Per Radio Client Capacity	Up to 128
LED Off Mode	Yes

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

FORTIAP U24JEV	
Advanced 802.11 Features	
802.11ac MU-MIMO Wave 2	No
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
MIMO Power Save	Yes
Short Guard Interval	Yes
WME Multimedia Extensions	Yes
Wireless Monitoring Capabilities	
Frequencies Scanned	2.4 GHz and 5 GHz
Background Scan with Client Access on 2.4 and 5 GHz	Yes (dependent on configuration)
Full-time Scan as Dedicated Monitor	Yes
Packet Sniffer Mode	Yes
Spectrum Analyzer	Yes
Dimensions	
Length x Width x Height (inches)	6.1 x 3.7 x 1.2
Length x Width x Height (mm)	155 x 95 x 31
Weight	9.1 oz (258 g)
Package (shipping) Weight	21.4 oz (606 g)
Mounting Options	Wall Mount or Desk Stand
Included Accessories	Mounting Kit
Environment	
Power Supply	Adapter input: 100–240V, 50/60Hz, 0.9A Maximum output: 12V DC, 3A
Power Consumption (Average / Maximum)	Depends on PoE connected and USB power consumed
Humidity	10–90% non-condensing
Operating Temperature	32–104°F (0–40°C)
Storage Temperature	-22–158°F (-30–70°C)
Directives	RoHS
UL2043 Plenum Material	No
Mean Time Between Failures	>30 Years
Certifications	
WiFi Alliance Certified	Yes
DFS Certified	In Process
Warranty	
Limited Lifetime Warranty	Yes

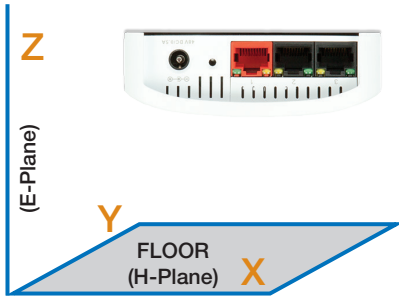
FAP-U24JEV RF RX/TX PERFORMANCE TABLE

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

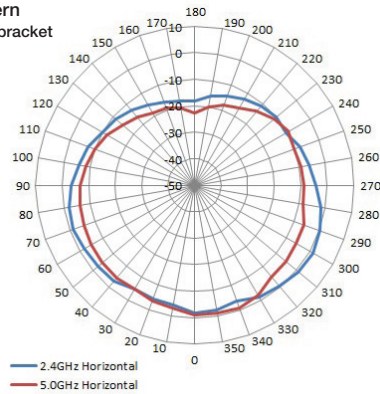
Maximum capability of the Hardware provided (Excluding antenna gain)

ANTENNA RADIATION PATTERNS

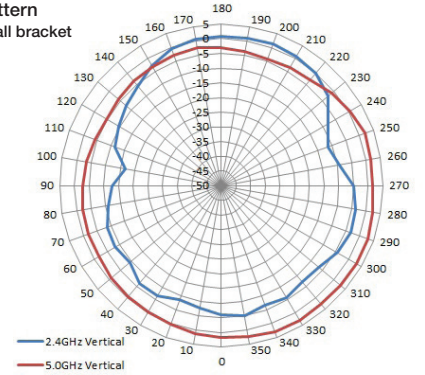
FAP-U24JEV



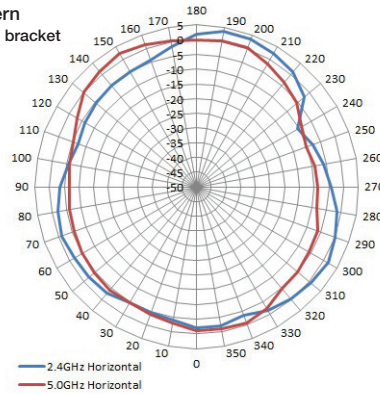
H-Plane Pattern
with metal wall bracket



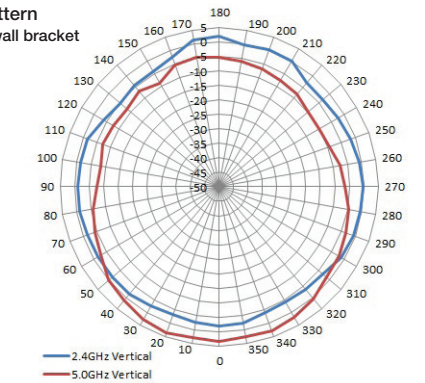
E-Plane Pattern
with metal wall bracket



H-Plane Pattern
with plastic wall bracket



E-Plane Pattern
with plastic wall bracket



HIGHLIGHTS

FortiAP U321EV and U323EV

The FortiAP U321EV and U323EV access points support the latest 802.11ac Wave 2 standard, with a client association rate of up to 2.34 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 + 1,300 Mbps**

SPECIFICATIONS

	FORTIAP U321EV	FORTIAP U323EV
Hardware		
Hardware Type	Indoor Universal AP	Indoor Universal AP
Number of Radios	2	2
Number of Antennas	6 Internal plus 1 Bluetooth	6 RP-SMA External plus 1 Internal Bluetooth
Peak Antenna Gain	4.5 dBi for 2.4 GHz, 6.5 dBi for 5 GHz with 30 degree downtilt for ceiling mount	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
Frequency of Radio 1	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)
Frequency of Radio 2	5 GHz a/n/ac (3x3:3 stream) 20/40/80 MHz (256 QAM) MU-MIMO 2 simultaneous devices	5 GHz a/n/ac (3x3:3 stream) 20/40/80 MHz (256 QAM) MU-MIMO 2 simultaneous devices
Maximum Data Rate	Radio 1: up to 450 Mbps Radio 2: up to 1,300 Mbps	Radio 1: up to 450 Mbps Radio 2: up to 1,300 Mbps
Tx/Rx Streams	3x3 MIMO 3 spatial stream	3x3 MIMO 3 spatial stream
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
Ethernet Ports	2x GE RJ45	2x GE RJ45
USB Port	1x Type A	1x Type A
Serial Console Port	1 RS-232 x RJ45	1 RS-232 x RJ45
Power over Ethernet (PoE)	Dual redundant PoE power ports with support for IEEE 802.3at	Dual redundant PoE power ports with support for IEEE 802.3at
Simultaneous SSIDs Per Radio	16 (14 if background scanning enabled)	16 (14 if background scanning enabled)
EAP Type(s)	EAP-TLS, EAP-TTLS/MSCHAPv2, EAPv0/EAP-MSCHAPv2, PEAPv1/EAP-GTC EAP-SIM, EAP-AKA, EAP-FAST	EAP-TLS, EAP-TTLS/MSCHAPv2, EAPv0/EAP-MSCHAPv2, PEAPv1/EAP-GTC EAP-SIM, EAP-AKA, EAP-FAST
User/Device Authentication	WPA™ and WPA2™ with 802.1x or Preshared key, WEP and Web Captive Portal, MAC blacklist & whitelist	WPA™ and WPA2™ with 802.1x or Preshared key, WEP and Web Captive Portal, MAC blacklist & whitelist
Maximum Tx Power	2.4 GHz: 26 dBm / 398 mW (3 chains combined)* 5 GHz: 24 dBm / 250 mW (3 chains combined)*	2.4 GHz: 21.5 dBm (141 mW)* 5 GHz: 19.5 dBm (89.13 mW)*
Physical Security	Kensington Lock	Kensington Lock
IEEE Standards	802.11a, 802.11b, 802.11d, 802.11e, 802.11g, 802.11h, 802.11i, 802.11j, 802.11n, 802.1x, 802.3af, 802.11ac, 802.3at, 802.3az, 802.3ad	802.11a, 802.11b, 802.11d, 802.11e, 802.11g, 802.11h, 802.11i, 802.11j, 802.11n, 802.1x, 802.3af, 802.11ac, 802.3at, 802.3az, 802.3ad
FortiPresence Capable	Yes	Yes
Wireless Mesh Capable	Yes	Yes
Modes of Operation	WLC 8.3.3 (min.), FortiGate, (FortiCloud – Future)	WLC 8.3.3 (min.), FortiGate, (FortiCloud – Future)
SSID Types Supported	Local-Bridge, Tunnel & Mesh (when managed by controller)	Local-Bridge, Tunnel & Mesh (when managed by controller)
Per Radio Client Capacity	Up to 256	Up to 256
LED Off Mode	Yes	Yes

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

SPECIFICATIONS

	FORTIAP U321EV	FORTIAP U323EV
Advanced 802.11 Features		
802.11ac MU-MIMO Wave 2	Yes	Yes
Transmit Beam Forming (TxBF)	Yes	Yes
Low-Density Parity Check (LDPC) Encoding	Yes	Yes
Maximum Likelihood Demodulation (MLD)	Yes	Yes
Maximum Ratio Combining (MRC)	Yes	Yes
A-MPDU and A-MSDU Packet Aggregation	Yes	Yes
MIMO Power Save	Yes	Yes
Short Guard Interval	Yes	Yes
WME Multimedia Extensions	Yes (4 priority queues for voice, video, data and background traffic)	Yes (4 priority queues for voice, video, data and background traffic)
Wireless Monitoring Capabilities		
Frequencies Scanned	2.4 and 5 GHz	2.4 and 5 GHz
Background Scan with Client Access on 2.4 and 5 GHz	Yes	Yes
Full-time Scan as Dedicated Monitor	Yes	Yes
Packet Sniffer Mode	Yes	Yes
Spectrum Analyzer	Yes	Yes
Dimensions		
Length x Width x Height (inches)	8.58 x 8.58 x 1.69	8.96 x 8.58 x 1.69
Length x Width x Height (mm)	218 x 218 x 43	227.7 x 218 x 43
Weight	2.24 lb (1016.5 g)	2.25 lb (1021.5 g)
Package (shipping) Weight	3.73 lb (1694 g)	3.74 lb (1699 g)
Mounting Options	Wall, T-Rail & Ceiling Mounting	Wall, T-Rail & Ceiling Mounting
Included Accessories	Ceiling, T-Rail and wall mount kit (AC power adapter sold separately)	Ceiling, T-Rail and wall mount kit and 6 dipole antennas (AC power adapter sold separately)
Environment		
Power Supply	Adapter input: 100–240V, 50/60Hz, 0.9A Maximum output: 12V DC, 3A	Adapter input: 100–240V, 50/60Hz, 0.9A Maximum output: 12V DC, 3A
Power Consumption (Maximum)	15 W when supplied by 802.3at power and 12.8 W when supplied with 802.3af power (TX power limited to 20 dBm)	15 W when supplied by 802.3at power and 12.8 W when supplied with 802.3af power (TX power limited to 20 dBm)
Humidity	5–90% non-condensing	5–90% non-condensing
Operating Temperature	32–122°F (0–50°C)	32–122°F (0–50°C)
Storage Temperature	-40–158°F (-40–70°C)	-40–158°F (-40–70°C)
Directives	Low Voltage Directive • RoHS	Low Voltage Directive • RoHS
UL2043 Plenum Material	No	No
Mean Time Between Failures	>30 Years	>30 Years
Hit-less PoE Failover	Yes	Yes
Compliance		
SAFETY		
FCC	FCC Part 15 Subpart B (Class B), Subpart C and Subpart E	FCC Part 15 Subpart B (Class B), Subpart C and Subpart E
UL	UL 60950-1, UL 2043, CSA C22.2 No. 60950-1	UL 60950-1, UL 2043, CSA C22.2 No. 60950-1
CB	IEC 60950-1	IEC 60950-1
RF		
IC	RSS-210, RSS-GEN, RSS-102, ICES-003	RSS-210, RSS-GEN, RSS-102, ICES-003
Certifications		
WiFi Alliance Certified	Yes	Yes
DFS Certified	Yes	Yes
Warranty		
Limited Lifetime Warranty	Yes	Yes

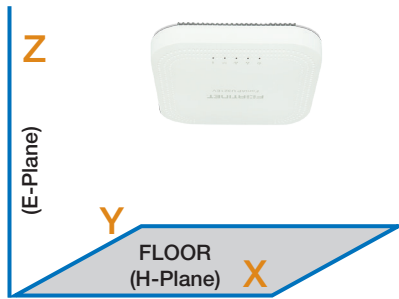
FAP-U321EV / FAP-U323EV RF RX/TX PERFORMANCE TABLE

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

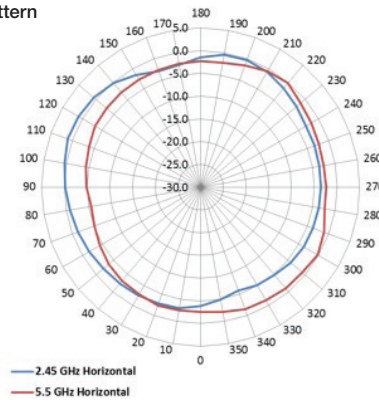
Maximum capability of the Hardware provided (Excluding antenna gain)

ANTENNA RADIATION PATTERNS

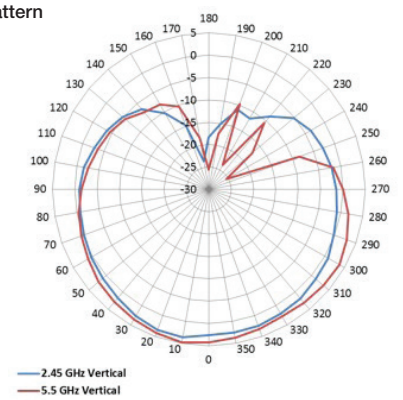
FAP-U321EV



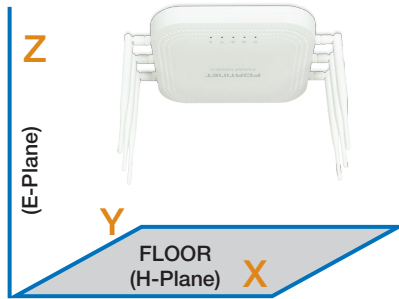
H-Plane Pattern



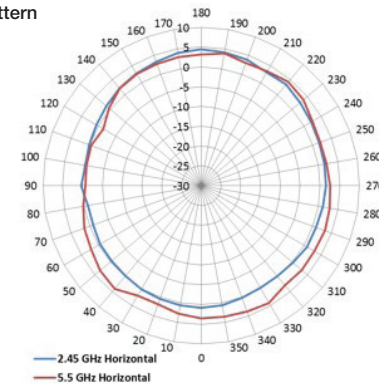
E-Plane Pattern



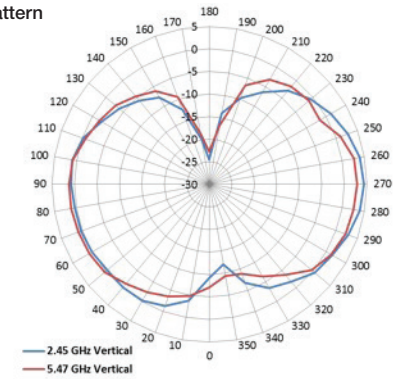
FAP-U323EV



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		VHT160	
		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	175.5	195
MCS 1	3	39	43.3	81	90	175.7	195	351	390
MCS 2	3	58.5	65	121.5	135	263.3	292.5	526.5	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	1579.5	1755
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	286	540	600	1170	1300	NA	NA

HIGHLIGHTS

FortiAP U421EV and U423EV

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



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

 **4x4 MU-MIMO | Up to 600 Mbps + 1,733 Mbps**

SPECIFICATIONS

	FORTIAP U421EV	FORTIAP U423EV
Hardware		
Hardware Type	Indoor Universal AP	Indoor Universal AP
Number of Radios	2	2
Number of Antennas	8 Internal plus 1 Bluetooth	8 RP-SMA External and 1 Bluetooth/BLE Internal
Peak Antenna Gain	4 dBi for 2.4 GHz, 5 dBi for 5 GHz	3 dBi for 2.4 GHz, 3 dBi for 5 GHz
Frequency Bands (GHz) *	2.400–2.4835, 5.150–5.250, 5.250–5.350, 5.470–5.725, 5.725–5.850	2.400–2.4835, 5.150–5.250, 5.250–5.350, 5.470–5.725, 5.725–5.851
Frequency of Radio 1	2.4 GHz b/g/n 20/40 MHz (64 QAM)	2.4 GHz b/g/n 20/40 MHz (64 QAM)
Frequency of Radio 2	5 GHz a/n/ac 20/40/80/160 MHz (256 QAM) MU-MIMO 3 simultaneous devices	5 GHz a/n/ac 20/40/80/160 MHz (256 QAM) MU-MIMO 3 simultaneous devices
Maximum Data Rate	Radio 1: up to 600 Mbps Radio 2: up to 1,733 Mbps	Radio 1: up to 600 Mbps Radio 2: up to 1,733 Mbps
Tx/Rx Streams	4x4 MIMO 4 spatial stream	4x4 MIMO 4 spatial stream
Bluetooth Low Energy (BT/BLE) Radio	Bluetooth scanning and iBeacon advertisement @ 4 dBm max TX power	Bluetooth scanning and iBeacon advertisement @ 4dBm max TX power
Ethernet Ports	2x GE RJ45	2x GE RJ45
USB Port	1x Type A	1x Type A
Serial Console Port	1 RS-232 x RJ45	1 RS-232 x RJ45
Power over Ethernet (PoE)	Dual redundant PoE power ports with support for IEEE 802.3at (2x2 @ 17 dBm with 802.3af; USB disabled)	Dual redundant PoE power ports with support for IEEE 802.3at (2x2 @ 17 dBm with 802.3af; USB disabled)
Simultaneous SSIDs Per Radio	Up to 16 (14 if background scanning enabled)	16 (14 if background scanning enabled)
EAP Type(s)	EAP-TLS, EAP-TTLS/MSCHAPv2, EAPv0/EAP-MSCHAPv2, PEAPv1/EAP-GTC EAP-SIM, EAP-AKA, EAP-FAST	EAP-TLS, EAP-TTLS/MSCHAPv2, EAPv0/EAP-MSCHAPv2, PEAPv1/EAP-GTC EAP-SIM, EAP-AKA, EAP-FAST
User/Device Authentication	WPA™ and WPA2™ with 802.1x or Preshared key, WEP and Web Captive Portal, MAC blacklist & whitelist	WPA™ and WPA2™ with 802.1x or Preshared key, WEP and Web Captive Portal, MAC blacklist & whitelist
Maximum Tx Power	2.4 GHz: 28 dBm / 630 mW (4 chains combined)* 5 GHz: 26 dBm / 398 mW (4 chains combined)*	2.4 GHz: 28 dBm / 630 mW (4 chains combined)* 5 GHz: 26 dBm / 398 mW (4 chains combined)*
Physical Security	Kensington Lock	Kensington Lock
IEEE Standards	802.11a, 802.11ac, 802.11b, 802.11d, 802.11e, 802.11g, 802.11h, 802.11i, 802.11j, 802.11n, 802.1x, 802.3af, 802.3at, 802.3az	802.11a, 802.11ac, 802.11b, 802.11d, 802.11e, 802.11g, 802.11h, 802.11i, 802.11j, 802.11n, 802.1x, 802.3af, 802.3at, 802.3az
FortiPresence Capable	Yes	Yes
Wireless Mesh Capable	Yes	Yes
Modes of Operation	WLC 8.2 (min.), FortiGate, (FortiCloud – Future)	WLC 8.2 (min.), FortiGate, (FortiCloud – Future)
SSID Types Supported	Local-Bridge, Tunnel & Mesh (when managed by controller)	Local-Bridge, Tunnel & Mesh (when managed by controller)
Per Radio Client Capacity	Up to 256	Up to 256
LED Off Mode	Yes	Yes

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

SPECIFICATIONS

	FORTIAP U421EV	FORTIAP U423EV
Advanced 802.11 Features		
802.11ac MU-MIMO Wave 2	Yes	Yes
Transmit Beam Forming (TxBF)	Yes	Yes
Low-Density Parity Check (LDPC) Encoding	Yes	Yes
Maximum Likelihood Demodulation (MLD)	Yes	Yes
Maximum Ratio Combining (MRC)	Yes	Yes
A-MPDU and A-MSDU Packet Aggregation	Yes	Yes
MIMO Power Save	Yes	Yes
Short Guard Interval	Yes	Yes
WME Multimedia Extensions	Yes (4 priority queues for voice, video, data and background traffic)	Yes (4 priority queues for voice, video, data and background traffic)
Wireless Monitoring Capabilities		
Frequencies Scanned	2.4 and 5 GHz	2.4 and 5 GHz
Background Scan with Client Access on 2.4 and 5 GHz	Yes	Yes
Full-time Scan as Dedicated Monitor	Yes	Yes
Packet Sniffer Mode	Yes	Yes
Spectrum Analyzer	Yes	Yes
Dimensions		
Length x Width x Height (inches)	8.46 x 8.46 x 2.2	8.46 x 8.46 x 2.2
Length x Width x Height (mm)	215 x 215 x 56	215 x 215 x 56
Weight	3.31 lb (1.5 kg)	3.4 lb (1.53 kg)
Package (shipping) Weight	5.09 lb (2.31 kg)	5.36 lb (2.43 kg)
Mounting Options	Ceiling, T-Rail and Wall	Ceiling, T-Rail and Wall
Included Accessories	Ceiling, T-Rail and wall mount kit (AC power adapter sold separately)	Ceiling, T-Rail and wall mount kit and 8 dipole antennas (AC power adapter sold separately)
Environment		
Power Supply	Adapter input: 100–240V, 50/60 Hz, 0.9A Max output: 12V DC, 3A	Adapter input: 100–240V, 50/60 Hz, 0.9A Max output: 12V DC, 3A
Power Consumption (Maximum)	24.5 W max power draw in 802.3at mode and 12.5 W max power draw when supplied with 802.3af mode (operates in 2x2 mode)	24.5 W max power draw in 802.3at mode and 12.5 W max power draw when supplied with 802.3af mode (operates in 2x2 mode)
Humidity	5–90% non-condensing	5–90% non-condensing
Operating Temperature	-4–122°F (-20–50°C)	-4–122°F (-20–50°C)
Storage Temperature	-40–158°F (-40–70°C)	-40–158°F (-40–70°C)
Directives	Low Voltage Directive • RoHS	Low Voltage Directive • RoHS
UL2043 Plenum Material	Yes	Yes
Mean Time Between Failures	>30 Years	>30 Years
Hit-less PoE Failover	Yes	Yes
Compliance		
SAFETY		
FCC	FCC Part 15 Subpart B (Class B), Subpart C and Subpart E	FCC Part 15 Subpart B (Class B), Subpart C and Subpart E
UL	UL 60950-1, UL 2043, CSA C22.2 No. 60950-1	UL 60950-1, UL 2043, CSA C22.2 No. 60950-1
CB	IEC 60950-1	IEC 60950-1
RF		
IC	RSS-210, RSS-GEN, RSS-102, ICES-003	RSS-210, RSS-GEN, RSS-102, ICES-003
Certifications		
WiFi Alliance Certified	Yes	Yes
DFS Certified	Yes	Yes
Warranty		
Limited Lifetime Warranty	Yes	Yes

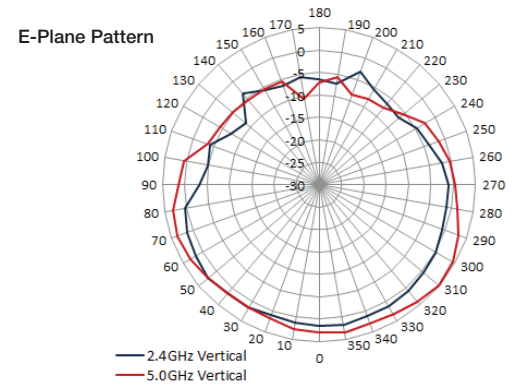
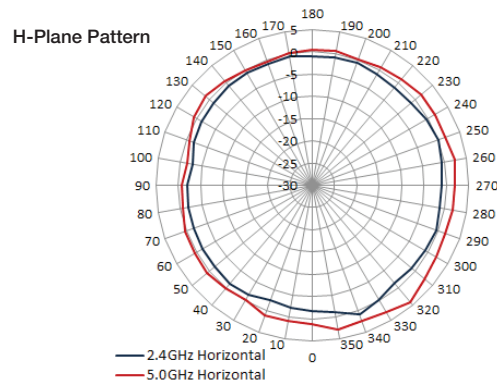
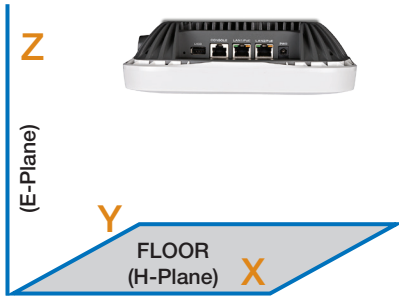
FAP-U421EV / FAP-U423EV RF RX/TX PERFORMANCE TABLE

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

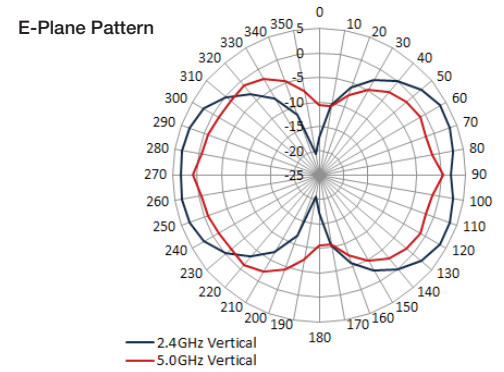
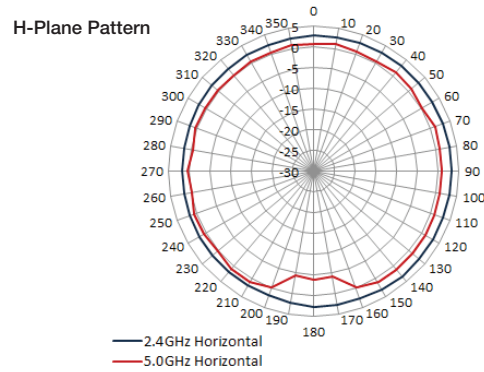
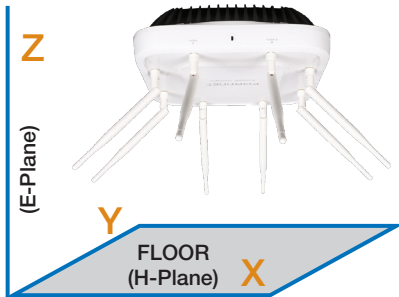
Maximum capability of the Hardware provided (Excluding antenna gain)

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 both support 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 + 1.733 Gbps**

SPECIFICATIONS

FORTIAP U422EV	
Hardware	
Hardware Type	External Universal AP
Number of Radios	2
Number of Antennas	8
Peak Antenna Gain	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
Frequency of Radio 1	2.4 GHz b/g/n (4x4:4 stream) 20/40 MHz (64 QAM)
Frequency of Radio 2	5 GHz a/n/ac (4x4:4 stream) 20/40/80/160 MHz (256 QAM)
Maximum Data Rate	2.3 Gbps
Tx/Rx Streams	4x4 MIMO 4 spatial stream
Bluetooth Low Energy (BT/BLE) Radio	Bluetooth scanning and iBeacon advertisement @ 4 dBm max TX power
Ethernet Ports	2x GE RJ45
USB Port	No
Serial Console Port	1 RS232 x RJ45
Power over Ethernet (PoE)	Yes
Simultaneous SSIDs Per Radio	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 and Web Captive Portal, MAC blacklist & whitelist
Maximum Tx Power	26 dBm / 398 mW (4 chains combined)*
Physical Security	Wall and Pole mounting brackets
IEEE Standards	802.11a, 802.11b, 802.11d, 802.11e, 802.11g, 802.11h, 802.11i, 802.11j, 802.11n, 802.1x, 802.3af, 802.11ac, 802.3at, 802.3az, 802.3ad
FortiPresence Capable	Yes
Wireless Mesh Capable	Yes
Modes of Operation	WLC (8.4 and above), FortiGate, FortiCloud
SSID Types Supported	Local-Bridge, Tunnel & Mesh (when managed by controller)
Per Radio Client Capacity	Up to 256
LED Off Mode	Yes

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

Advanced 802.11 Features	
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	
Advanced 802.11 Features	
A-MPDU and A-MSDU Packet Aggregation	Yes
MIMO Power Save	Yes
Short Guard Interval	Yes
WME Multimedia Extensions	Yes
Wireless Monitoring Capabilities	
Frequencies Scanned	2.4 GHz and 5 GHz
Background Scan with Client Access on 2.4 and 5 GHz	Yes
Full-time Scan as Dedicated Monitor	Yes
Packet Sniffer Mode	Yes
Spectrum Analyzer	Yes
Dimensions	
Length x Width x Height (inches)	8.3 x 8.3 x 2.0
Length x Width x Height (mm)	210 x 210 x 51
Weight	4.08 lb (1.85 kg)
Package (shipping) Weight	11.42 lb (5.18 kg)
Mounting Options	Wall Mount or Pole Mount
Included Accessories	Mounting Kits, Grounding Cable, 4x 2.4 GHz and 4x 5 GHz Antennas

Environment	
Power Supply	PoE input: 48V DC, 0.8A
Power Consumption (Maximum)	22 W
Humidity	10–90% non condensing
Operating Temperature	-40–140°F (-40–60°C)
Storage Temperature	-40–158°F (-40–70°C)
Directives	Low Voltage Directive • RoHS
UL2043 Plenum Material	Yes
Mean Time Between Failures	>30 Years
Hit-less PoE Failover	No
Surge Protection Built In	Yes

Compliance		
SAFETY	FCC	FCC Part 15 Subpart B (Class B), Subpart C and Subpart E
	UL	UL 60950-1, UL 2043, CSA C22.2 No. 60950-1 (Not Certified)
	CB	CB IEC 60950-1
RF	IC	IC RSS-210, RSS-GEN, RSS-102, ICES-003

Warranty	
Limited Lifetime Warranty	No — 1 Year Limited Warranty

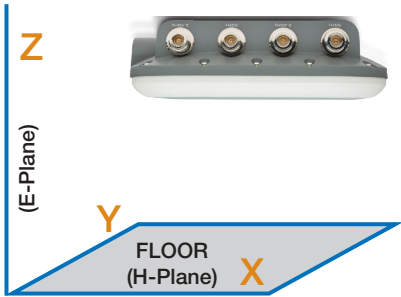
FAP-U422EV RF RX/TX PERFORMANCE TABLE

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

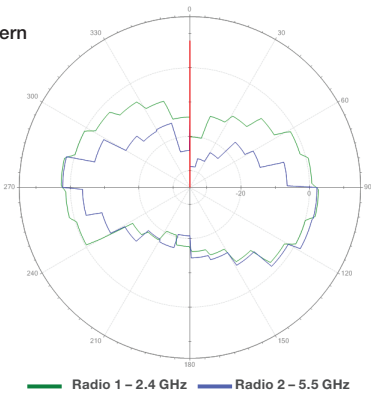
Maximum capability of the Hardware provided (Excluding antenna gain)

ANTENNA RADIATION PATTERNS

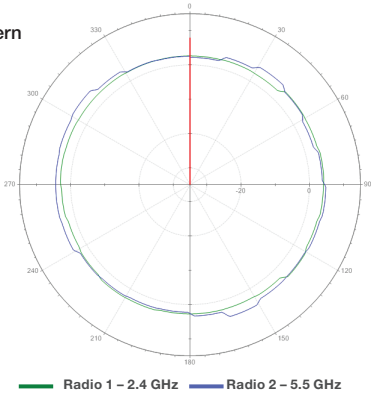
FAP-U422EV



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 802.3at PoE ports, internal antennas, ceiling/wall mount kit included, power adapter not included.
	FC-10-P0421-311-02-DD	8x5 FortiCare Contract
	FC-10-P0421-247-02-DD	24x7 FortiCare Contract
FortiAP U423EV	FAP-U423EV	Universal Indoor Wireless AP — 4x4 MU-MIMO 802.11 a/b/g/n/ac Wave 2, dual concurrent dual-band (2.4 GHz/5 GHz) radios and 3rd BT/BLE radio, 2x GE RJ45 802.3at PoE ports, external antennas, ceiling/wall mount kit included, power adapter not included.
	FC-10-P0423-311-02-DD	8x5 FortiCare Contract
	FC-10-P0423-247-02-DD	24x7 FortiCare Contract
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.

REGION/COUNTRY SKU SUFFIX							
Americas-FCC	China	India	Europe ETSI	Indonesia	International	Japan	Korea
-A	-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



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