

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. Perfect from everything from a large campus to hundreds of branch locations. Access Points are available across the performance spectrum up to the fastest Wi-Fi 6 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 Wi-Fi technologies

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



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 dual radios

802.11ax

FAP-U431F	4x4 Indoor tri-radio APs
FAP-U433F	

Highlights

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

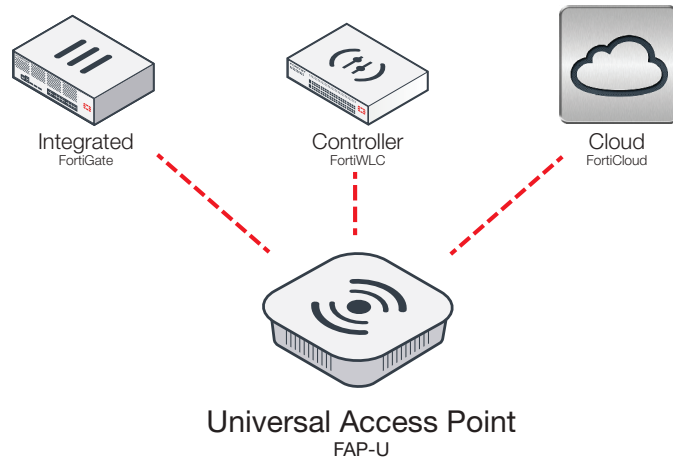


Figure 1 — Universal Access Management, highest Gigabit Wi-Fi performance and unmatched security protection.

Education

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

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

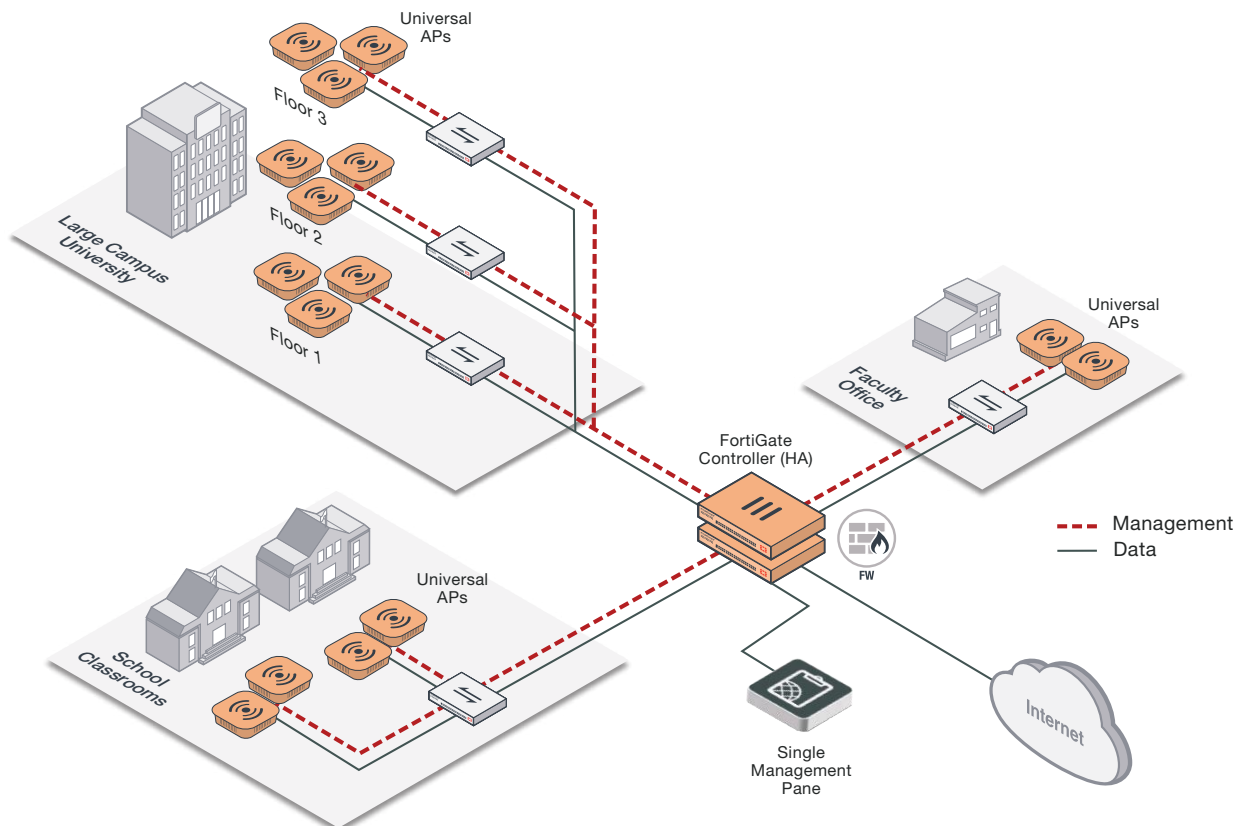


Figure 2 — Educational organizations with Universal APs managed by on-premise FortiGate controllers.

Highlights

Healthcare

Patient safety is priority one. Fortinet Universal APs empower hospitals to improve patient safety by enabling life-critical applications such as telemetry requiring low bandwidth but exceptionally high reliability. Our dedicated wireless controllers

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

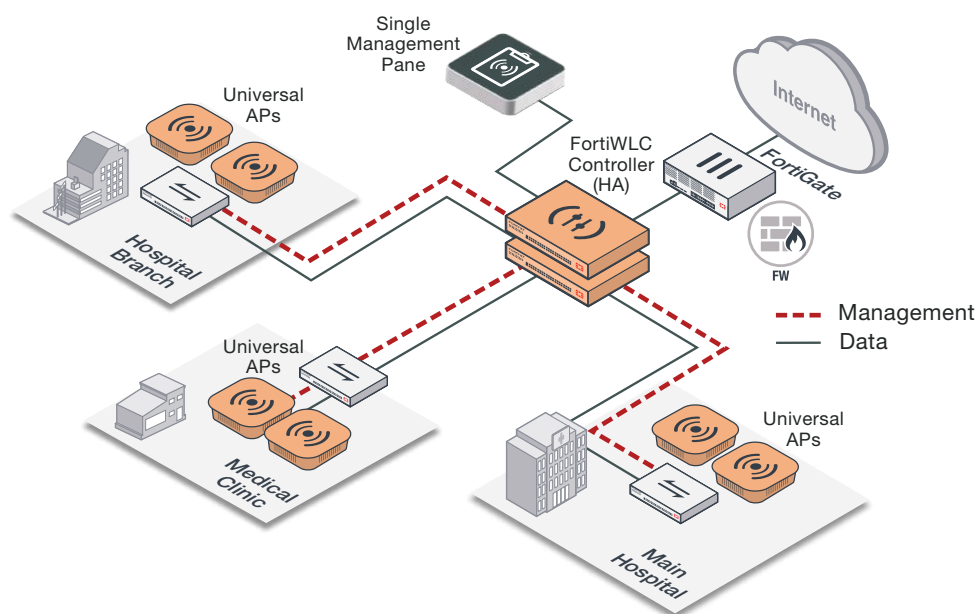


Figure 3 — Healthcare organizations with Universal APs managed by on-premise FortiWLC controllers.

Small/Medium Business

Retailers can streamline Wi-Fi 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.

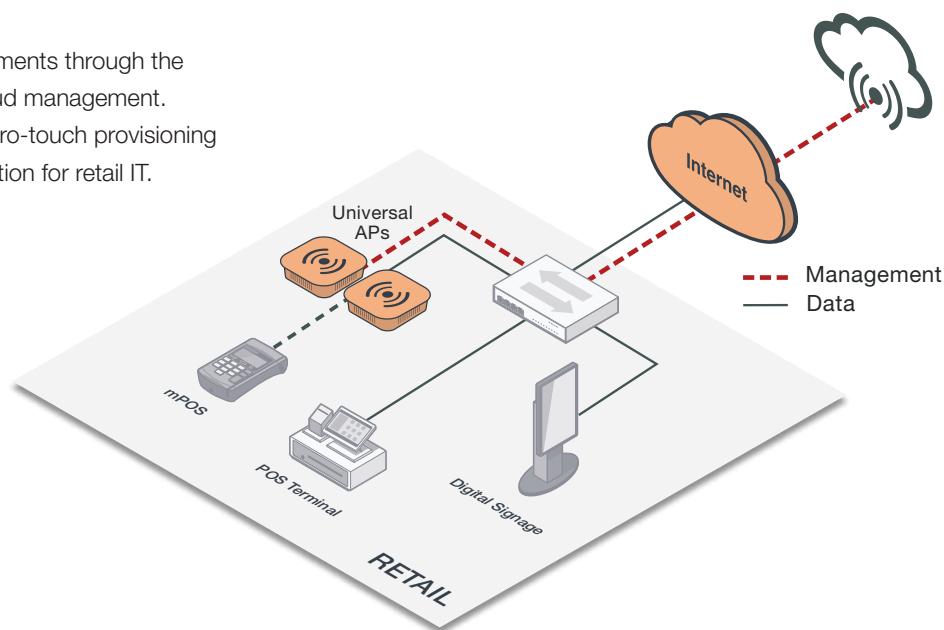


Figure 4 — Retail store with Universal APs managed by FortiCloud.

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
Hardware		
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 (RP-SMA) + 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
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

* 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
Wireless Monitoring Capabilities		
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
Dimensions		
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
Environment		
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
Certifications		
Wi-Fi Alliance Certified	Yes	Yes
DFS	FCC, CE, Japan	FCC, CE, Japan
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)
MSC 0 (BPSK)	—	—	18	-83
MSC 1 (QPSK)	—	—	17	-80
MSC 2 (QPSK)	—	—	17	-78
MSC 3 (16-QAM)	—	—	16	-75
MSC 4 (16-QAM)	—	—	16	-73
MSC 5 (64-QAM)	—	—	15	-75
MSC 6 (64-QAM)	—	—	15	-72
MSC 7 (64-QAM)	—	—	15	-69
MSC 8 (256-QAM)	—	—	15	-61
MSC 9 (256-QAM)	—	—	15	-58

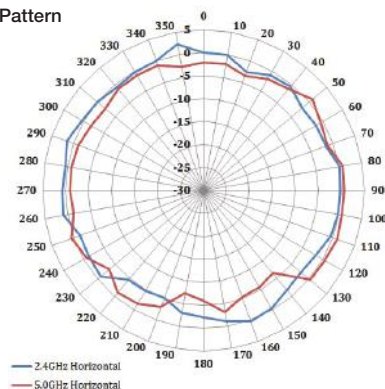
Maximum capability of the Hardware provided (Excluding antenna gain)

Antenna Radiation Patterns

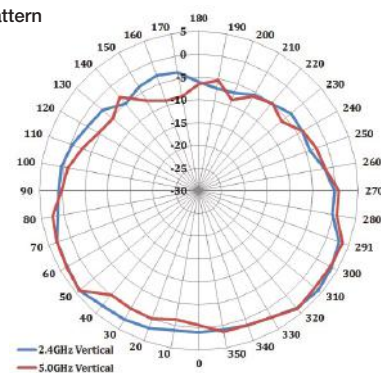
FAP-U221EV



H-Plane Pattern



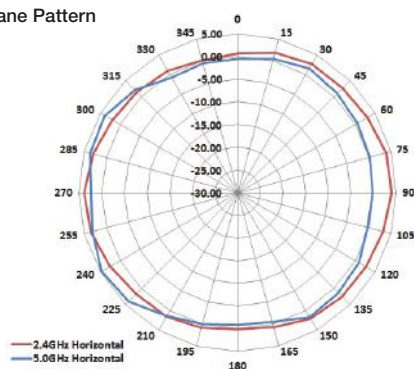
E-Plane Pattern



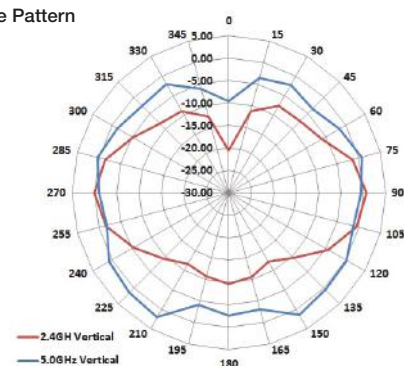
FAP-U223EV



H-Plane Pattern



E-Plane Pattern



Highlights

FortiAP U24JEV

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



802.11ac Wave 1 | 2x2 Radio capable of operating as Dual Band 1x1 Radios



2x2 | 2x 1x1 radios up to 867 Mbps

Specifications

FORTIAP U24JEV	
Hardware	
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/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: 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
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

FORTIAP U24JEV	
Maximum Ratio Combining (MRC)	Yes
A-MPDU and A-MSDU Packet Aggregation	Yes
MIMO Power Save	Yes
Short Guard Interval	Yes
Wireless Monitoring Capabilities	
Rogue Scan Radio Modes	Background, Dedicated
WIPS / WIDS Radio Modes	Background, Dedicated (recommended)
Packet Sniffer Mode	Yes
Spectrum Analyzer	Yes
Dimensions	
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
Environment	
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
Certifications	
Wi-Fi Alliance Certified	Yes
DFS	CE, Japan
Warranty	
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

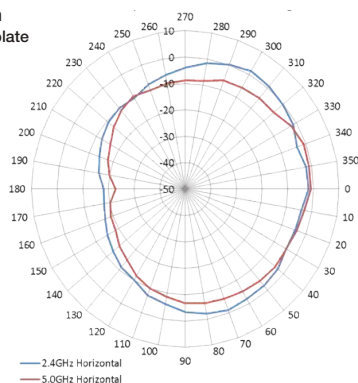
Maximum capability of the Hardware provided (Excluding antenna gain)

Antenna Radiation Patterns — Wall Mount

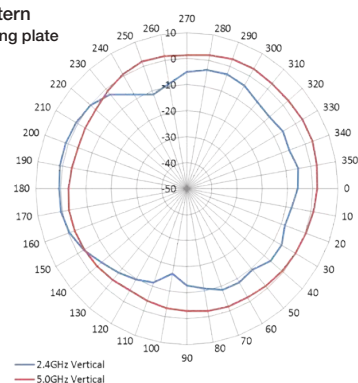
FAP-U24JEV



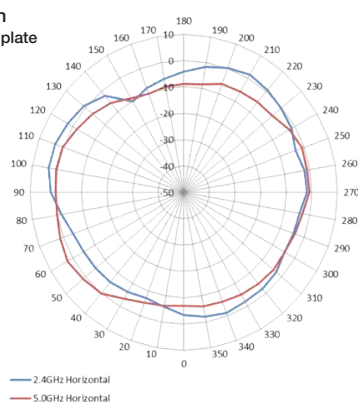
H-Plane Pattern
with metal mounting plate



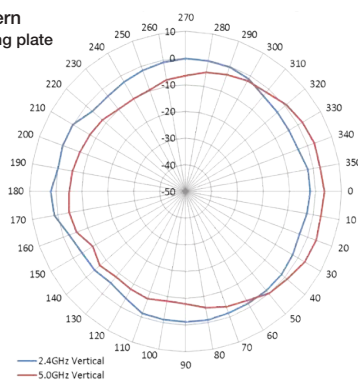
E-Plane Pattern
with metal mounting plate



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 + 1,733 Mbps**



Specifications

	FORTIAP U321EV	FORTIAP U323EV
Hardware		
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 (RP-SMA) + 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 1,733 Mbps	Radio 1: up to 450 Mbps Radio 2: up to 1,733 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 802.3at (20 dBm TX Power and USB disabled with 802.3af)	Dual redundant PoE power ports with support for IEEE 802.3at (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
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
Wireless Monitoring Capabilities		
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
Dimensions		
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
Environment		
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
Certifications		
Wi-Fi Alliance Certified	Yes	Yes
DFS	FCC, IC, CE, Japan	FCC, IC, CE, Japan
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

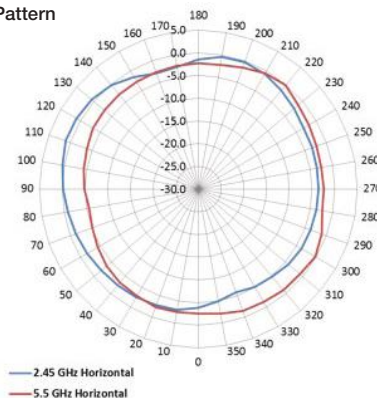
Maximum capability of the Hardware provided (Excluding antenna gain)

Antenna Radiation Patterns

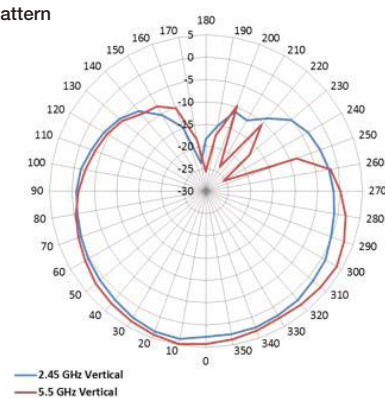
FAP-U321EV



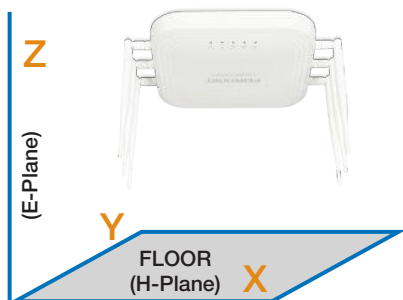
H-Plane Pattern



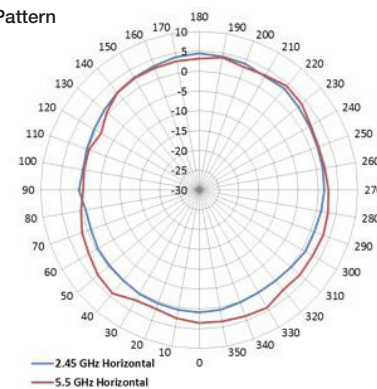
E-Plane Pattern



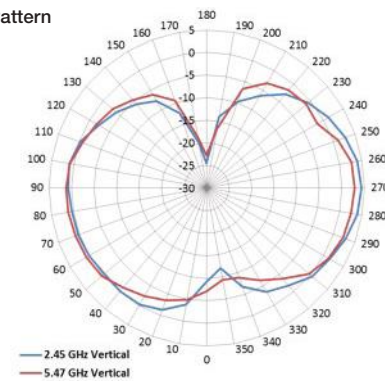
FAP-U323EV



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	
		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
Hardware		
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 (RP-SMA) + 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, 802.3ad, 802.3af, 802.3at, 802.3az	802.11a, 802.11b, 802.11d, 802.11e, 802.11g, 802.11h, 802.11i, 802.11j, 802.11k, 802.11n, 802.11v, 802.11ac, 802.1X, 802.3ad, 802.3af, 802.3at, 802.3az
SSID Types Supported	Local-Bridge, Tunnel & Mesh	Local-Bridge, Tunnel & Mesh
Per Radio Client Capacity	Up to 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
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
Wireless Monitoring Capabilities		
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
Dimensions		
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
Environment		
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
Certifications		
Wi-Fi Alliance Certified	Yes	Yes
DFS	FCC, IC, CE, Japan, Taiwan, Korea	FCC, IC, CE, Japan, Taiwan, Korea
Warranty		
Limited Lifetime Warranty	Yes	Yes

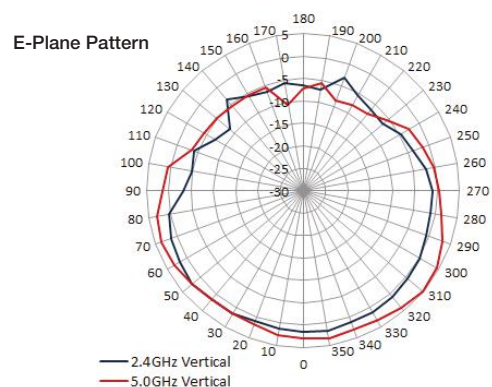
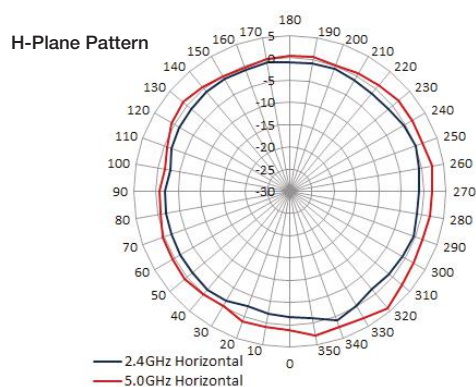
FAP-U421EV / FAP-U423EV RF Rx/Tx Performance Table

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

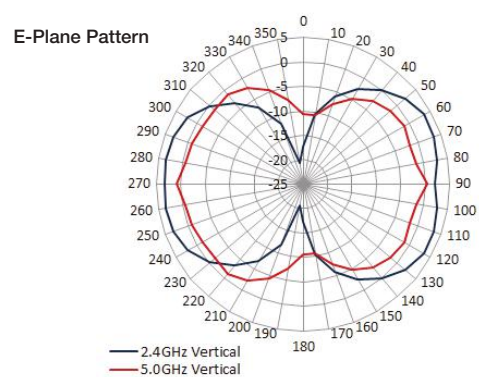
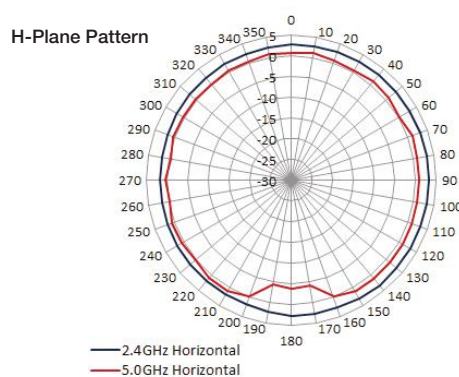
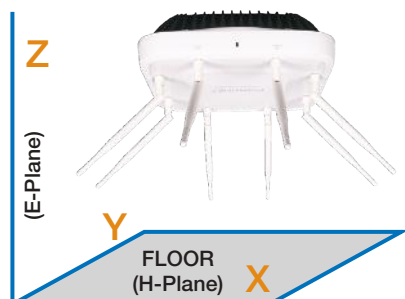
Maximum capability of the Hardware provided (Excluding antenna gain)

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 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	
Hardware	
Hardware Type	Outdoor AP
Number of Radios	2 + 1 BT/BLE
Number of Antennas	8 External (Type N) + 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
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
A-MPDU and A-MSDU Packet Aggregation	Yes

FORTIAP U422EV	
MIMO Power Save	Yes
Short Guard Interval	Yes
Wireless Monitoring Capabilities	
Rogue Scan Radio Modes	Background, Dedicated
WIPS / WIDS Radio Modes	Background, Dedicated (recommended)
Packet Sniffer Mode	Yes
Spectrum Analyzer	Yes
Dimensions	
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
Environment	
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
Certifications	
Wi-Fi Alliance Certified	Yes
DFS	FCC, IC, CE, Japan
Warranty	
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.

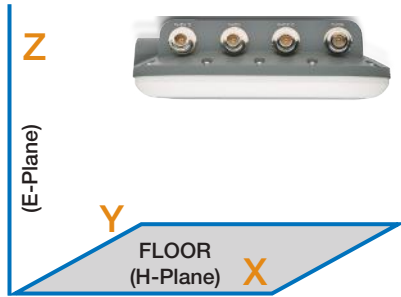
FAP-U422EV RF Rx/Tx Performance Table

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

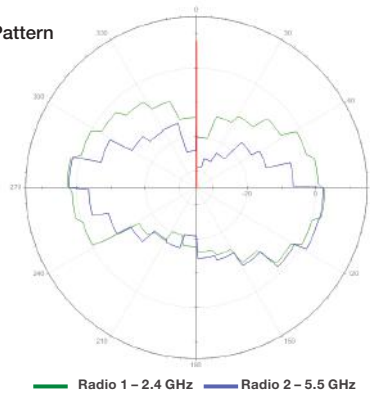
Maximum capability of the Hardware provided (Excluding antenna gain)

Antenna Radiation Patterns

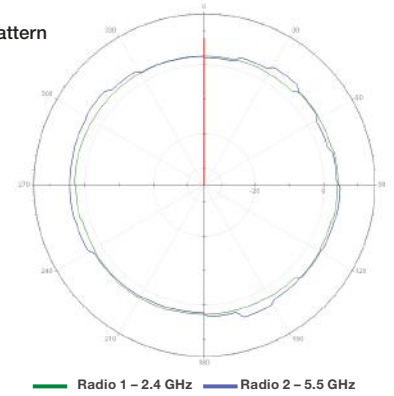
FAP-U422EV



H-Plane Pattern



E-Plane Pattern



Highlights

FortiAP U431F and U433F

These enterprise class 802.11ax indoor APs provide three radios. These top-of-the-line access points provide OFDMA, a 2.5 Gigabit Ethernet port plus an additional 1 Gbps Ethernet port for PoE diversity. The APs can be configured for dual 5 GHz band access while still providing coverage for devices on the 2.4 GHz band, or can be configured to offer dedicated scanning. The integrated BLE radio can be used for beacons and locationing applications.



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



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

Specifications

	FORTIAP-U431F	FORTIAP-U433F
Hardware		
Hardware Type	Indoor AP	Indoor AP
Number of Radios	3 + 1 BT/BLE	3 + 1 BT/BLE
Number of Antennas	10 Internal + 1 BT/BLE Internal	10 External (RP-SMA) + 1 BT/BLE Internal
Antenna Type and Peak Gain	PIFA: 4 dBi for 2.4 GHz, 5 dBi for 5 GHz	Dipole: 4 dBi for 2.4 GHz, 5 dBi for 5 GHz
Frequency Bands (GHz)	2.400–2.4835, 5.150–5.250, 5.250–5.350, 5.470–5.725, 5.725–5.850	2.400–2.4835, 5.150–5.250, 5.250–5.350, 5.470–5.725, 5.725–5.850
Radio 1 Capabilities	5.0 GHz a/n/ac/ax (4x4:4 stream) 20/40/80/160 MHz (64 QAM and 1024 QAM)	5.0 GHz a/n/ac/ax (4x4:4 stream) 20/40/80/160 MHz (64 QAM and 1024 QAM)
Radio 2 Capabilities	2.4 GHz or 5.0 GHz (high band) a/b/g/n/ac/ax (4x4:4 stream) 20/40/80/160 MHz (64 QAM and 1024 QAM)	2.4 GHz or 5.0 GHz (high band) a/b/g/n/ac/ax (4x4:4 stream) 20/40/80/160 MHz (64 QAM and 1024 QAM)
Radio 3 Capabilities	2.4/5.0 GHz dual band b/g/n/ac (2x2:2 stream) 20/40 MHz (64 QAM)	2.4/5.0 GHz dual band b/g/n/ac (2x2:2 stream) 20/40 MHz (64 QAM)
Maximum Data Rate	Radio 1: up to 4,804 Mbps Radio 2: up to 4,804 Mbps Radio 3: up to 300 Mbps	Radio 1: up to 4,804 Mbps Radio 2: up to 4,804 Mbps Radio 3: up to 300 Mbps
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 10/100/1000/2500 Base-T RJ45, 1x 10/100/1000 Base-T RJ45, 1x Type A USB, 1x RS-232 RJ45 Serial Port	1x 10/100/1000/2500 Base-T RJ45, 1x 10/100/1000 Base-T RJ45, 1x Type A USB, 1x RS-232 RJ45 Serial Port
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	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™, WPA2™, and WPA3™ with 802.1x or Preshared key, WEP, Web Captive Portal, MAC blacklist & whitelist	WPA™, WPA2™, and WPA3™ with 802.1x or Preshared key, WEP, Web Captive Portal, MAC blacklist & whitelist
Maximum Tx Power (Conducted)	Radio 1: 5 GHz: 24 dBm / 251 mW (4 chains combined)* Radio 2: 2.4 GHz: 26 dBm / 398 mW (4 chains combined)* 5 GHz: 24 dBm / 251 mW (4 chains combined)* Radio 3: 2.4 GHz: 22 dBm / 158 mW (2 chains combined)*	Radio 1: 5 GHz: 24 dBm / 251 mW (4 chains combined)* Radio 2: 2.4 GHz: 26 dBm / 398 mW (4 chains combined)* 5 GHz: 24 dBm / 251 mW (4 chains combined)* Radio 3: 2.4 GHz: 22 dBm / 158 mW (2 chains combined)*
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, 802.11r, 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, 802.11r, 802.11v, 802.11ac, 802.1X, 802.3af, 802.3at, 802.3az
SSID Types Supported	Local-Bridge, Mesh, & Tunnel	Local-Bridge, Mesh, & Tunnel
Per Radio Client Capacity	Up to 512	Up to 512
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-U431F	FORTIAP-U433F
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
OFDMA	Yes	Yes
Wireless Monitoring Capabilities		
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
Dimensions		
Length x Width x Height	8.46 x 8.46 x 2.26 inches (215 x 215 x 57.5 mm)	8.46 x 8.46 x 2.26 inches (215 x 215 x 57.5 mm)
Weight	1.0 lb (0.453 kg)	1.0 lb (0.453 kg)
Package (shipping) Weight	1.8 lbs (0.82 kg)	1.8 lbs (0.82 kg)
Mounting Options	Ceiling, T-Rail, and Wall	Ceiling, T-Rail, and Wall
Included Accessories	Mount kits for Ceiling, T-Rail, and Wall	Mount kits for Ceiling, T-Rail, and Wall, 10x dipole antennas
Environment		
Power Supply	SP-FAP200-PA-XX, or GPI-130	SP-FAP200-PA-XX, or GPI-130
Power Consumption (Maximum)	24.5 W	24.5 W
Humidity	10–90% Non-Condensed 5–90% Condensed	10–90% Non-Condensed 5–90% Condensed
Operating / Storage Temperature	32–122°F (0–50°C) / -31–158°F (-35–70°C)	32–122°F (0–50°C) / -31–158°F (-35–70°C)
Directives	Low Voltage Directive • RoHS	Low Voltage Directive • RoHS
UL2043 Plenum Material	Yes	Yes
Mean Time Between Failures	>30 Years	>30 Years
IP Rating	—	—
Surge Protection Built In	—	—
Hit-less PoE Failover	Yes (802.3at only)	Yes (802.3at only)
Certifications		
Wi-Fi Alliance Certified	No	No
DFS	—	—
Warranty		
Limited Lifetime Warranty	Yes	Yes

FAP-U431F / FAP-U433F RF Rx/Tx Performance Table

FORTIAP U431F AND U433F						
	Radio 1		Radio 2		Radio 3	
	Max Tx Power per transmit chain (dBm)	Rx Sensitivity per receiver chain (dBm)	Max Tx Power per transmit chain (dBm)	Rx Sensitivity per receiver chain (dBm)	Max Tx Power per transmit chain (dBm)	Rx Sensitivity per receiver chain (dBm)
2.4 GHz, 802.11b						
1 Mbps	20	-98	—	—	19	-96
11 Mbps	20	-89	—	—	19	-87
2.4 GHz, 802.11g						
6 Mbps	20	-94	—	—	19	-92
54 Mbps	20	-75	—	—	19	-73
2.4 GHz, 802.11n HT20						
MCS0	19	-93	—	—	18	-91
MCS7	17	-74	—	—	16	-72
2.4 GHz, 802.11n HT40						
MCS0	19	-92	—	—	18	-90
MCS7	17	-73	—	—	16	-71
2.4 GHz, 802.11ax HE20						
MCS0	18	-90	—	—	17	-88
MCS11	16	-71	—	—	15	-69
2.4 GHz, 802.11ax HE40						
MCS0	17	-88	—	—	16	-86
MCS11	15	-68	—	—	14	-66
5.0 GHz, 802.11a						
6 Mbps	20	-92	20	-92	—	—
54 Mbps	20	-72	20	-72	—	—
5.0 GHz, 802.11n HT20						
MCS0	20	-91	20	-91	—	—
MCS7	18	-72	18	-72	—	—
5.0 GHz, 802.11n HT40						
MCS0	20	-88	20	-88	—	—
MCS7	18	-69	18	-69	—	—
5.0 GHz, 802.11ac VHT20						
MCS0	20	-91	20	-91	—	—
MCS9	18	-67	18	-67	—	—
5.0 GHz, 802.11ac VHT40						
MCS0	20	-88	20	-88	—	—
MCS9	18	-62	18	-62	—	—
5.0 GHz, 802.11ac VHT80						
MCS0	19	-85	19	-85	—	—
MCS9	17	-59	17	-59	—	—
5.0 GHz, 802.11ac VHT160						
MCS0	16	-82	16	-82	—	—
MCS9	15	-56	15	-56	—	—
5.0 GHz, 802.11ax HE20						
MCS0	19	-90	19	-90	—	—
MCS11	17	-66	17	-66	—	—
5.0GHz, 802.11ac HE40						
MCS0	19	-87	19	-87	—	—
MCS11	17	-61	17	-61	—	—
5.0 GHz, 802.11ac HE80						
MCS0	18	-94	18	-94	—	—
MCS11	16	-58	16	-58	—	—
5.0 GHz, 802.11ac HE160						
MCS0	15	-81	15	-81	—	—
MCS11	14	-55	14	-55	—	—

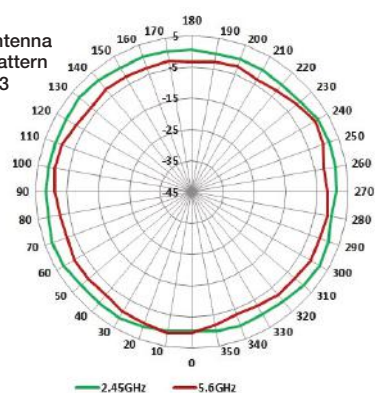
Maximum capability of the Hardware provided (Excluding antenna gain)

Antenna Radiation Patterns

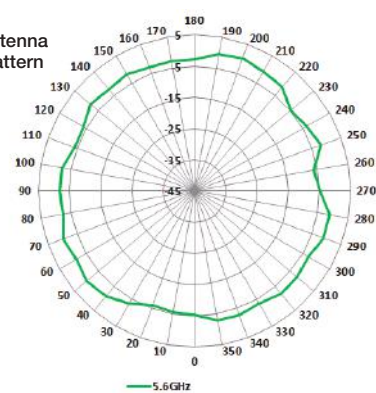
FAP-U431F



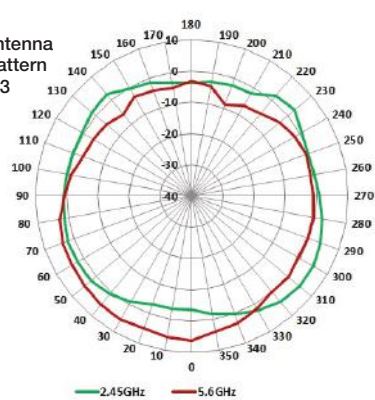
Internal Antenna
H-Plane Pattern
Radio 1 & 3



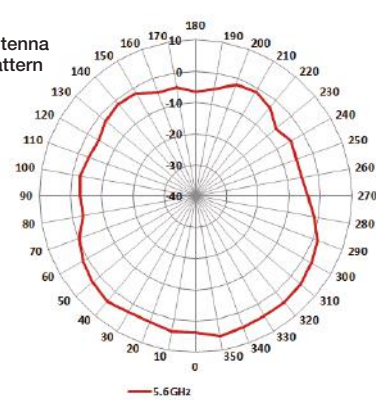
Internal Antenna
H-Plane Pattern
Radio 2



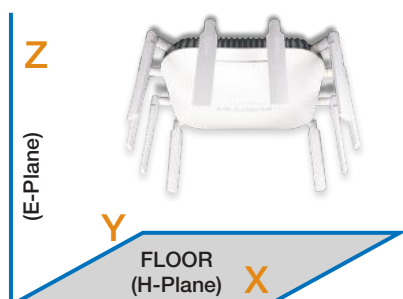
Internal Antenna
E-Plane Pattern
Radio 1 & 3



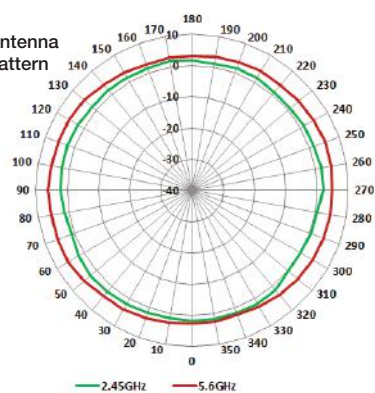
Internal Antenna
E-Plane Pattern
Radio 2



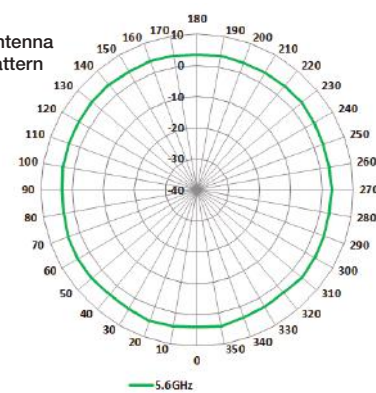
FAP-U433F



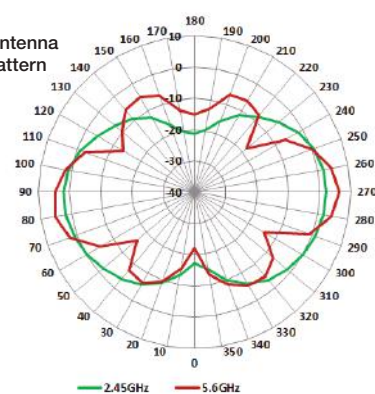
External Antenna
H-Plane Pattern
Dual Band



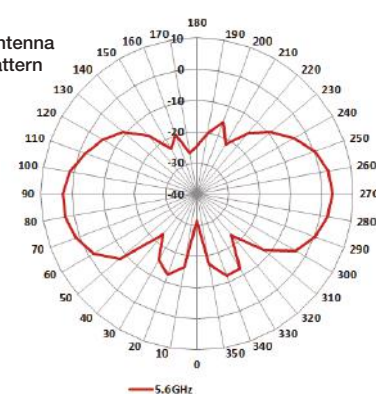
External Antenna
H-Plane Pattern



External Antenna
E-Plane Pattern
Dual Band



External Antenna
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-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-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-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-PU321-247-02-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-PU323-247-02-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-P0421-247-02-DD	24x7 FortiCare Contract
FortiAP U423EV	FAP-U423EV	Universal Indoor Wireless AP — 4x 10/100/1000 Base-T RJ45 Ports (1x 802.3at PoE (PD), 1x 802.3af PoE (PSE), 2x Non-PoE Ports), 1 RJ45 Pass-through in, 1 RJ45 Pass-through out, 2x GE RJ45 802.3at PoE ports, external antennas, ceiling/wall mount kit included, power adapter not included.
	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-P0422-247-02-DD	24x7 FortiCare Contract
FortiAP U431F	FAP-U431F	Universal Indoor Wireless AP — 4x4 Wi-Fi 6, tri-radio design for 24/7 scanning or dual 5 GHz operation radios, includes BLE radio, 1x 2.5 GE RJ45 and 1x GE RJ45, 802.3at PoE, internal antennas, ceiling/wall mount kit included, power adapter not included.
	FC-10-P431F-247-02-DD	24x7 FortiCare Contract
FortiAP U433F	FAP-U433F	Universal Indoor Wireless AP — 4x4 Wi-Fi 6, tri-radio design for 24/7 scanning or dual 5 GHz operation radios, includes BLE radio, 1x 2.5 GE RJ45 and 1x GE RJ45, 802.3at PoE, external antennas, ceiling/wall mount kit included, power adapter not included.
	FC-10-P433F-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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