

FortiAP™ Series

FortiAP Cloud or FortiOS-managed Access Points

FortiAP access points are managed centrally by the integrated WLAN controller of any FortiGate® security appliance or through the FortiAP Cloud provisioning and management portal. With the integration of the wireless controller functionality into the market-leading FortiGate appliance, these APs are perfect for protecting your LAN Edge from the campus to branch deployments. Fortinet’s Security Fabric enables you to easily manage wired and wireless security from a single pane-of-glass management console and protects your network from the latest security threats.



Unified Management

Unified management console simplifies operations, ensuring consistency in effective policy enforcement and compliance.



Advanced Security Protection

Wireless LAN security done right, from the leader in network security. Integrated Firewall, IPS, Application Control, and Web Filtering protect the wireless LAN from the latest security threats.



Built-in Wi-Fi Security

Protects the network from advanced wireless threats and satisfies PCI DSS compliance.

Product Offerings

802.11ax Wi-Fi 6

FAP-431F
FAP-433F 4x4 Indoor tri-radio 11ax APs

FAP-231F 2x2 Indoor tri-radio 11ax AP, internal antennas

802.11ac (Wave 2) Wi-Fi 5

FAP-421E
FAP-423E 4x4 Indoor dual-radio APs

FAP-321E 3x3 Indoor dual-radio AP, internal antennas

FAP-221E
FAP-223E 2x2 Indoor dual-radio APs

FAP-231E 2x2 Indoor tri-radio AP, internal antennas

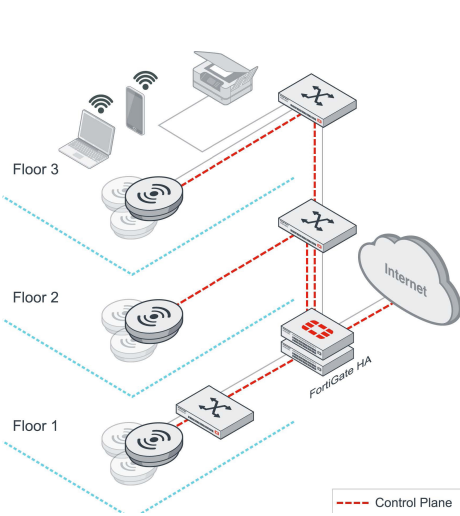
FAP-222E 2x2 Outdoor dual-radio AP, IP67 rated, external antennas

FAP-224E 2x2 Outdoor dual-radio AP, IP67 rated, internal antennas

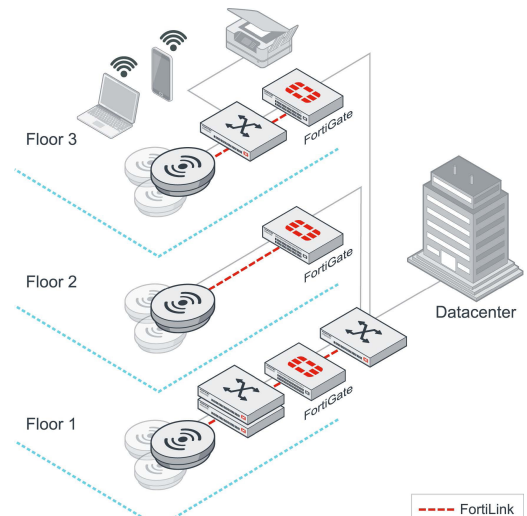
FAP-C24JE 2x2 Wall-mount dual-radio AP, internal antennas

Deployment

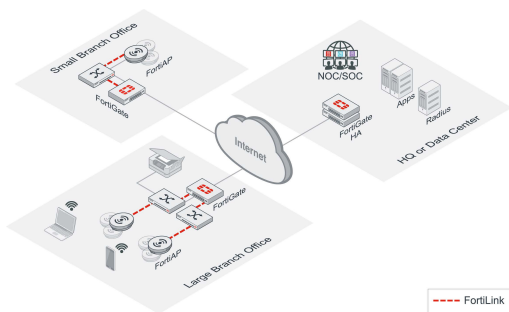
FortiAPs allow for a versatile collection of installation topologies with options to fit any enterprise.



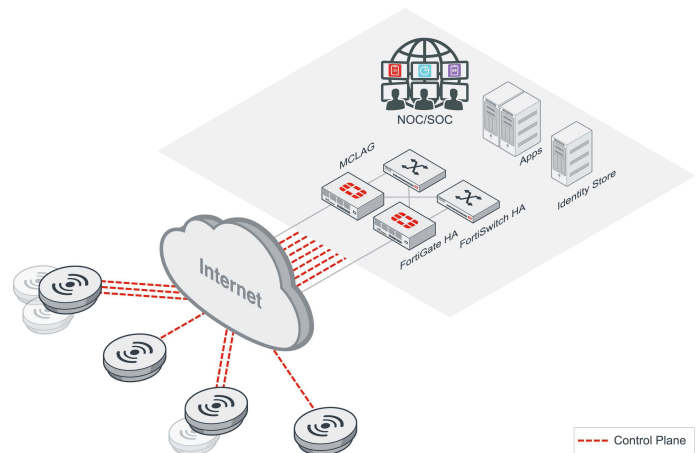
Central pair of FortiGates managing a large site



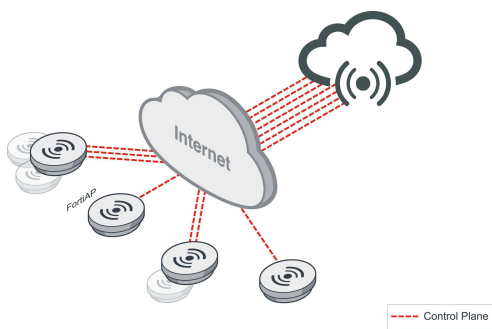
Distributed FortiGates throughout a large campus



Distributed branches via SD-Branch



Centralized FortiGates managing remote teleworkers

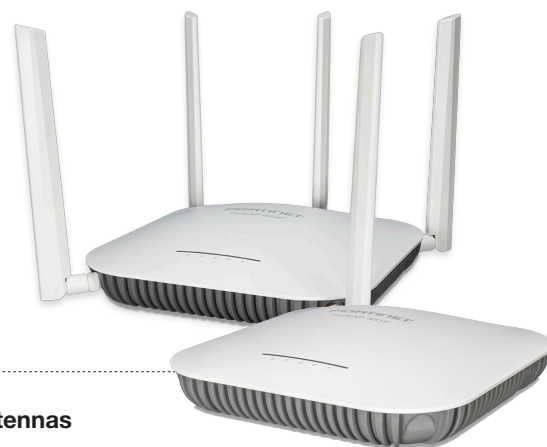



FortiAP Cloud managing standalone FortiAPs

Highlights

FortiAP 431F and 433F

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 provide 24/7 scanning across both bands while still providing access on both the 2.4 and 5 GHz bands. The integrated BLE radio can be used for beacons and locationing applications.



 **802.11ax | Tri-Radio 2.4 GHz + 5 GHz + scanning | 5 Internal/External Antennas**

 **4x4 MU-MIMO | Up to 1,147 Mbps + 2,402 Mbps**

Specifications

	FORTIAP 431F	FORTIAP 433F
Hardware		
Hardware Type	Indoor AP	Indoor AP
Number of Radios	3 + 1 BLE	3 + 1 BLE
Number of Antennas	5 Internal + 1 BLE Internal	5 External (RP-SMA) + 1 BLE Internal
Antenna Type and Peak Gain	PIFA: 4 dBi for 2.4 GHz, 5 dBi for 5 GHz	Omni directional rubber duck antenna: 4 dBi for 2.4 GHz, 6 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	Frequency Band: 2.4 Band Channel width: 4x4 20/40MHz Modulation: BPSK, QPSK, QAM64, QAM256, and QAM1024	
Radio 2 Capabilities	Frequency Band: 5.0 Band Channel width: 4x4 20/40/80MHz and 2x2 160MHz contiguous Modulation: BPSK, QPSK, QAM64, QAM256, and QAM1024	
Radio 3 Capabilities	Frequency band: 1x1 2.4/5.0 Bands, scan only	
Maximum Data Rate	Radio 1: up to 1147 Mbps Radio 2: up to 2402 Mbps Radio 3: scan only	Radio 1: up to 1147 Mbps Radio 2: up to 2402 Mbps Radio 3: scan only
Bluetooth Low Energy Radio	Bluetooth scanning and iBeacon advertisement @ 6 dBm max TX power	
Interfaces	1x 10/100/1000/2500 Base-T RJ45, 1 x 10/100/1000 Base-T RJ45, 1x Type A USB, 1x RS-232 RJ45 Serial Port	
Power over Ethernet (PoE)	1 port powered by 802.3af No USB support, Operate in 2x2 mode with reduced power R1/R2 17dBm(Tx power) or Single 802.3af PoE: 2x2, max TX power 17dBm, no USB	
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™, WPA2™, and WPA3™ with 802.1x or Preshared key, WEP, Web Captive Portal, MAC blacklist and allowlist	
Maximum Tx Power (Conducted)	Radio 1: 2.4 GHz 24 dBm / 251 mW (4 chains combined)* Radio 2: 5 GHz 23 dBm / 200 mW (4 chains combined)* Radio 3: NA	
Kensington Lock	Yes	Yes
IEEE Standards	802.11a, 802.11b, 802.11e, 802.11g, 802.11h, 802.11i, 802.11j, 802.11k, 802.11n, 802.11r, 802.11v, 802.11ac, 802.11ax (Wi-Fi 6), 802.1Q, 802.1X, 802.3ad, 802.3af, 802.3at, 802.3az, 802.3bz	
SSID Types Supported	Local-Bridge, Mesh, Tunnel	Local-Bridge, Mesh, Tunnel
Per Radio Client Capacity	512 per Radio1 and Radio2	512 per Radio1 and Radio2
Cellular Co-existence	Yes	Yes
Reset Button	Yes	Yes
LED Off Mode	Yes	Yes

	FORTIAP-431F	FORTIAP-433F
Advanced 802.11 Features		
OFDMA	Yes (UL and DL)	Yes (UL and DL)
2.4 GHz OFDMA	Yes	Yes
Spatial Reuse (BSS Coloring)	Yes	Yes
HE-MU-MIMO	Yes	Yes
UL-MU-MIMO 802.11ax mode	Yes	Yes
DL-MU-MIMO	Yes	Yes
Enhanced Target Wake Time (TWT)	Yes	Yes
ZeroWait DFS /Agile DFS	No	No
Wireless Monitoring Capabilities		
Rogue Scan Radio Mode	Background, Dedicated	Background, Dedicated
WIPS / WIDS RAdio Modes	Background, Dedicated (recommended)	
Packet Sniffer Mode	Yes	Yes
Spectrum Analyzer	Yes	Yes
Dimensions		
Length x Width x Height	8,27 x 8,27 x 2,22 inches (210 x 210 x 56.5 mm)	
Weight	2.16 lbs (0.98 kg)	2.19 lbs (0.995 kg)
Package (shipping) Weight	3.97 lbs (1.8 kg)	4.4 lbs (2 kg)
Mounting Options	Ceiling, T-Rail, and Wall	Ceiling, T-Rail, and Wall
Included Accessories	Mount kit for Ceiling, T-Rail and Wall	Mount kit for Ceiling, T-Rail and Wall, 5 RP-SMA Male dual-band dipole antenna
Environment		
Power Supply	SP-FAP400-PA-XX or GPI-130	SP-FAP400-PA-XX or GPI-130
Power Consumption (Max)	24.5 W	24.5 W
Humidity	5–90% Non-Condensing	5–90% Non-Condensing
Operating / Storage Temperature	32–113°F (0–45°C) / -31–94°F (-35–70°C)	
Directives	Low Voltage Directive • RoHS	Low Voltage Directive • RoHS
UL2043 Plenum Material	No	No
Mean Time Between Failures	>10 Years	>10 Years
IP Rating	—	—
Surge Protection Built In	Yes	Yes
Hit-less PoE Failover	Yes	Yes
Certifications		
Wi-Fi Alliance Certified	No	No
DFS	FCC, IC, CE, Japan	FCC, IC, CE, Japan
Warranty		
Limited Lifetime Warranty	Yes	Yes

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

RF Rx/Tx Performance Table

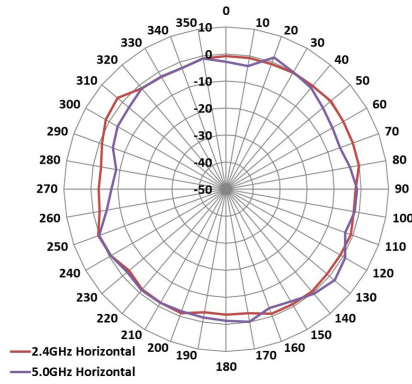
FORTIAP 431F / 433F								
	Radio 1		Radio 2		Radio 3			
	2.4 GHz Tx Power per chain (dBm)	Rx Sensitivity (dBm)	5 GHz Tx Power per Chain (dBm)	Rx Sensitivity (dBm)	2.4 GHz Tx Power per chain (dBm)	Rx Sensitivity (dBm)	5 GHz Tx Power per Chain (dBm)	Rx Sensitivity (dBm)
802.11b								
1 Mbps	23	-98	—	—	20	-96	—	—
11 Mbps	23	-89	—	—	18	-87	—	—
802.11g								
6 Mbps	23	-94	—	—	20	-92	—	—
54 Mbps	22	-75	—	—	18	-73	—	—
802.11n HT20								
MCS0	22	-93	—	—	20	-91	—	—
MCS7	20	-74	—	—	17	-72	—	—
802.11n HT40								
MCS0	20	-92	—	—	19	-90	—	—
MCS7	18	-73	—	—	17	-71	—	—
802.11ax HE20								
MCS0	22	-90	—	—	—	—	—	—
MCS11	17	-71	—	—	—	—	—	—
802.11ax HE40								
MCS0	19	-88	—	—	—	—	—	—
MCS11	17	-68	—	—	—	—	—	—
802.11a								
6 Mbps	—	—	20	-92	—	—	20	-90
54 Mbps	—	—	20	-72	—	—	17.5	—
802.11n HT20								
MCS0	—	—	20	-91	—	—	20	-90
MCS7	—	—	19	-72	—	—	17.5	-71
802.11n HT40								
MCS0	—	—	20	-88	—	—	19	-88
MCS7	—	—	18	-69	—	—	16.5	-69
802.11ac VHT20								
MCS0	—	—	20	-91	—	—	19	-90
MCS9	—	—	19	-67	—	—	17.5	-67
802.11ac VHT40								
MCS0	—	—	20	-88	—	—	19	-88
MCS9	—	—	18	-62	—	—	16	-62
802.11ac VHT80								
MCS0	—	—	18	-85	—	—	18	-85
MCS9	—	—	17	-59	—	—	16	-58
802.11ax HE20								
MCS0	—	—	20	-90	—	—	—	—
MCS11	—	—	18	-66	—	—	—	—
802.11ac HE40								
MCS0	—	—	20	-87	—	—	—	—
MCS11	—	—	18	-61	—	—	—	—
802.11ac HE80								
MCS0	—	—	18	-94	—	—	—	—
MCS11	—	—	17	-58	—	—	—	—

Antenna Radiation Patterns

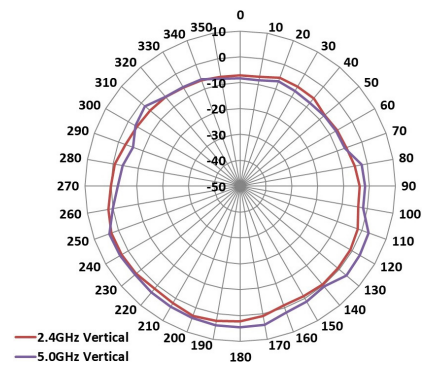
FAP-431F



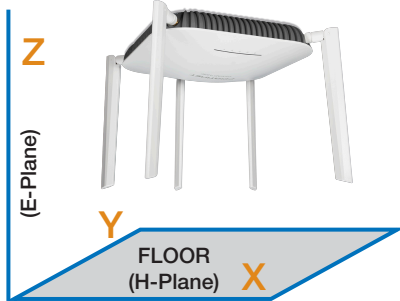
H-Plane Pattern



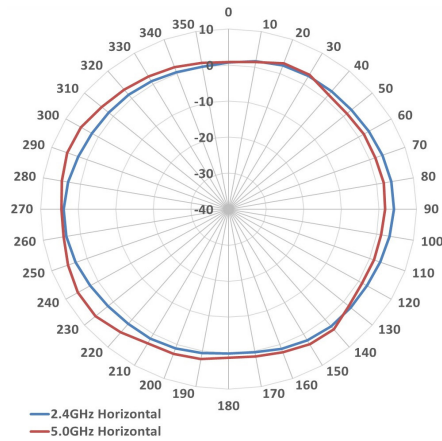
E-Plane Pattern



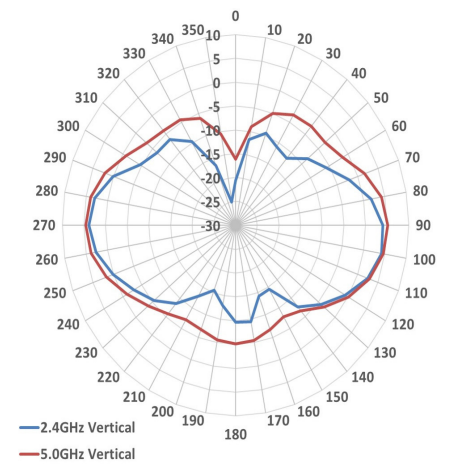
FAP-433F



H-Plane Pattern



E-Plane Pattern




Highlights

FortiAP 231F

This enterprise class Wi-Fi 6 indoor AP provides three radios as well as features such as OFDMA and dual 1 Gbps Ethernet ports. The AP can provide 24/7 scanning across both bands while still providing access on both the 2.4 and 5 GHz bands. The integrated BLE radio can be used for beacons and locationing applications.



 **802.11ax | Tri-Radio 5 GHz + 2.4 GHz + scanning | 3 Antennas**

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

Specifications

FORTIAP 231F	
Hardware	
Hardware Type	Indoor AP
Number of Radios	3 + 1 BLE
Number of Antennas	3 Dual band Internal Wi-Fi + 1 BLE/ZigBee
Antenna Type and Peak Gain	PIFA antenna Dual band: 4.5dBi for 2.4GHz and 5.5dBi for 5GHz BLE antenna 4.0dBi at 2.4GHz band
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	Frequency band: 2.4GHz Channel width: 20/40MHz Modulation: BPSK, QPSK, 64/256/1024 QAM MIMO Chains: 2x2 Service
Radio 2 Capabilities	Frequency band: 5.0GHz Channel width: 20/40/80MHz Modulation: BPSK, QPSK, 64/256/1024 QAM MIMO Chains: 2x2 Service
Radio 3 Capabilities	Frequency bands: 2.4GHz and 5.0GHz MIMO Chains: 1x1 Frequency Scanning
Maximum Data Rate	Radio 1: up to 574 Mbps Radio 2: up to 1201 Mbps Radio 3: Frequency scanning only
Bluetooth Low Energy Radio	Bluetooth scanning and iBeacon advertisement @ 10 dBm max TX power
Interfaces	2x 10/100/1000 Base-T RJ45, 1x Type 2.0 USB, 1x RS-232 RJ45 Serial Port
Power over Ethernet (PoE)	1 x 802.3af PoE default 1 x 802.3af PoE no USB function
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™, WPA2™, and WPA3™ with 802.1x or Pre-shared key, WEP, Web Captive Portal, MAC blacklist & allowlist
Maximum Tx Power (Conducted)	Radio 1: 2.4GHz: 23 dBm / 200 mW (2 chains combined)* Radio 2: 5GHz: 22 dBm / 158 mW (2 chains combined)* Radio 3: NA
Kensington Lock	Yes
IEEE Standards	802.11a, 802.11b, 802.11e, 802.11g, 802.11h, 802.11i, 802.11j, 802.11k, 802.11n, 802.11r, 802.11v, 802.11ac, 802.11ax, 802.1Q, 802.1X, 802.3ad, 802.3af, 802.3at, 802.3az
SSID Types Supported	Local, Bridge, Tunnel, and Mesh
Per Radio Client Capacity	Up to 512 clients per radio (Radio1 and Radio2)
Cellular Co-existence*	Yes

FORTIAP 231F	
Reset Button	Yes
LED Off Mode	Yes
Advanced 802.11 Features	
OFDMA	Yes
Spatial Reuse (BSS Coloring)	Yes
UL MU-MIMO 802.11ax mode	Yes
DL-MU-MIMO	Yes
Enhanced Target Wake Time (TWT)	Yes
ZeroWait DFS/Agile DFS	No
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	6.0 x 6.0 x 2.86 inches (153.2 x 153.2 x 53.0 mm)
Weight	1.0 lbs (0.543 kg)
Package (shipping) Weight	2.1 lbs (0.95 kg)
Mounting Options	Ceiling, T-Rail, and Wall
Included Accessories	Standard Mount kit for Ceiling, T-Rail, and Wall
Environment	
Power Supply	802.3at PoE SP-FAP200-PA-XX or GPI-130
Power Consumption (Maximum)	17W
Humidity	5 - 90% non condensing
Operating / Storage Temperature	32–122°F (0 - 50°C) / -22–158°F (-30–70°C)
Directives	Low Voltage Directive • RoHS
UL2043 Plenum Material	No
Mean Time Between Failures	> 10 Years
IP Rating	N/A
Surge Protection Built In	Yes
Hit-less PoE Failover	N/A
Certifications	
Wi-Fi Alliance Certified	No
DFS	CE
Warranty	
Limited Lifetime Warranty	Yes

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

RF Rx/Tx Performance Table

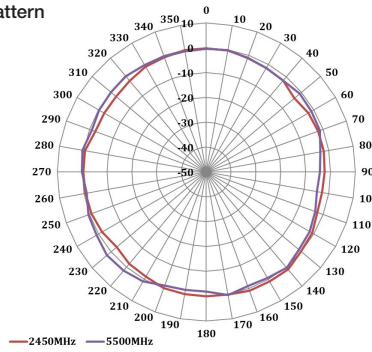
FORTIAP 231F				
	Radio 1		Radio 2	
	2.4 GHz Tx Power per chain (dBm)	Rx Sensitivity (dBm)	5 GHz Tx Power per Chain (dBm)	Rx Sensitivity (dBm)
802.11b				
1 Mbps	21	-99	—	—
11 Mbps	21	-90	—	—
802.11g				
6 Mbps	20	-94	—	—
54 Mbps	20	-77	—	—
802.11n HT20				
MCS0	19	-94	—	—
MCS7	18	-76	—	—
802.11n HT40				
MCS0	19	-92	—	—
MCS7	19	-73	—	—
802.11ax HE20				
MCS0	19	-94	—	—
MCS11	17	-65	—	—
802.11ax HE40				
MCS0	19	-91	—	—
MCS11	16	-63	—	—
802.11a				
6 Mbps	—	—	22	-94
54 Mbps	—	—	21	-77
802.11n HT20				
MCS0	—	—	21	-94
MCS7	—	—	19	-76
802.11n HT40				
MCS0	—	—	21	-91
MCS7	—	—	19	-73
802.11ac VHT20				
MCS0	—	—	21	-94
MCS9	—	—	18	-72
802.11ac VHT40				
MCS0	—	—	21	-91
MCS9	—	—	18	-68
802.11ac VHT80				
MCS0	—	—	19	-88
MCS9	—	—	17	-64
802.11ax HE20				
MCS0	—	—	21	-94
MCS11	—	—	17	-64
802.11ac HE40				
MCS0	—	—	21	-91
MCS11	—	—	17	-62
802.11ac HE80				
MCS0	—	—	19	-88
MCS11	—	—	16	-58

Antenna Radiation Patterns

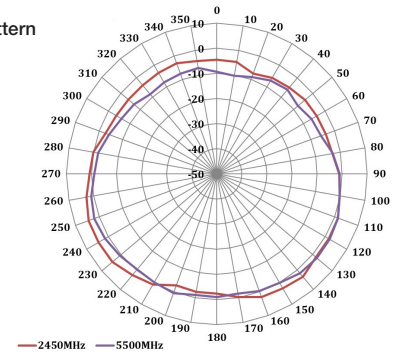
FAP-231F



H-Plane Pattern



E-Plane Pattern





Highlights

FortiAP 421E and 423E

The FortiAP 421E and 423E access points support the latest 802.11ac Wave 2 standard. Additional features include 802.11ac explicit transmit beamforming (TxBF), multi-user MIMO (MU-MIMO), and more.



-  **802.11ac Wave 2 | Dual Radio 2.4 and 5 GHz | 8 Internal/External Antennas**
-  **4x4 MU-MIMO | Up to 800 + 1,733 Mbps**

Specifications

	FORTIAP 421E	FORTIAP 423E
Hardware		
Hardware Type	Indoor AP	Indoor AP
Number of Radios	2	2
Number of Antennas	8 Internal	8 External (RP-SMA)
Antenna Type and Peak Gain	PIFA: 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	
Radio 1 Capabilities	2.4 GHz b/g/n (4x4:4 stream) 20/40 MHz (256 QAM)	
Radio 2 Capabilities	5 GHz a/n/ac (4x4:4 stream) 20/40/80 MHz (256 QAM)	
Maximum Data Rate	Radio 1: up to 800 Mbps Radio 2: up to 1,733 Mbps	Radio 1: up to 800 Mbps Radio 2: up to 1,733 Mbps
Bluetooth Low Energy Radio	—	—
Interfaces	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, disable USB with 802.3af)	
Simultaneous SSIDs	Up to 16 (14 if background scanning enabled)	
EAP Type(s)	EAP-TLS, EAP-TLS/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 blocklist & allowlist	
Maximum Tx Power	2.4 GHz: 24 dBm / 251 mW (4 chains combined)* 5 GHz: 25 dBm / 316 mW (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, 802.11r, 802.11v, 802.11ac, 802.11q, 802.11x, 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 512	Up to 512
Cellular Co-existence	No	No
Reset Button	Yes	Yes
LED Off Mode	Yes	Yes
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

	FORTIAP 421E	FORTIAP 423E
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	Background, Dedicated
Packet Sniffer Mode	Yes	Yes
Spectrum Analyzer	Yes	Yes
Dimensions		
Length x Width x Height	8.5 x 8.5 x 2.2 inches (215 x 215 x 56 mm)	
Weight	3.53 lbs (1.6 kg)	3.57 lbs (1.62 kg)
Package (shipping) Weight	4.95 lbs (2.2 kg)	5.3 lbs (2.4 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	
Power Consumption (Max.)	23 W max power draw in 802.3at mode and 12.95 W max power draw when in 802.3af power mode (operates in 2x2 mode)	
Humidity	5–90% non-condensing	5–90% non-condensing
Operating / Storage Temperature	-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

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

RF Rx/Tx Performance Table

FORTIAP 421E / 423E				
	RADIO 1		RADIO 2	
802.11 a/g	2.4 GHz Tx Power per Chain (dBm)	RX Sensitivity (dBm)	5 GHz Tx Power per Chain (dBm)	RX Sensitivity (dBm)
6 Mbps	18	-93	19	-86
9 Mbps	18	-91	19	-83
12 Mbps	18	-88	19	-81
18 Mbps	18	-85	19	-78
24 Mbps	18	-80	19	-76
36 Mbps	18	-77	18	-74
48 Mbps	18	-76	18	-70
54 Mbps	18	-75	16	-66
802.11 HT20				
MSC 0/8/16	18	-87	18	-84
MSC 1/9/17	17	-84	17	-81
MSC 2/10/18	17	-81	17	-79
MSC 3/11/19	16	-78	16	-76
MSC 4/12/20	16	-73	16	-72
MSC 5/13/21	15	-70	15	-68
MSC 6/14/22	15	-69	15	-67
MSC 7/15/23	15	-67	15	-66
802.11 HT40				
MSC 0/8/16	18	-84	18	-83
MSC 1/9/17	17	-80	17	-80
MSC 2/10/18	17	-77	17	-78
MSC 3/11/19	16	-74	16	-75
MSC 4/12/20	16	-71	16	-73
MSC 5/13/21	15	-67	15	-72
MSC 6/14/22	15	-65	15	-70
MSC 7/15/23	15	-65	15	-69
MSC 8/16/24	—	—	15	-65
MSC 9/17/25	—	—	15	-63
802.11 HT80				
MSC 0	—	—	18	-83
MSC 1	—	—	17	-80
MSC 2	—	—	17	-78
MSC 3	—	—	16	-75
MSC 4	—	—	16	-73
MSC 5	—	—	15	-72
MSC 6	—	—	15	-70
MSC 7	—	—	15	-69
MSC 8	—	—	15	-65
MSC 9	—	—	15	-63

Performance Matrix

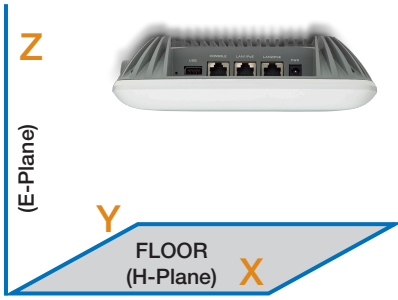
FORTIAP 421E / 423E								
802.11AC PERFORMANCE — DATA RATES (MBPS)								
Descriptor	Data Streams	VHT20		VHT40		VHT80		Short GI
		Normal GI	Short GI	Normal GI	Short GI	Normal GI	Short GI	
MCS 0	1	6.5	7.2	13.5	15	29.3	32.5	
MCS 1	1	13	14.4	27	30	58.5	65	
MCS 2	1	19.5	21.7	40.5	45	87.8	97.5	
MCS 3	1	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	175.5	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	288.9	540	600	1170	1300	
MCS 0	4	26	28.9	54	60	117	130	
MCS 1	4	52	57.8	108	120	234	260	
MCS 2	4	78	86.7	162	180	351	390	
MCS 3	4	104	115.6	216	240	468	520	
MCS 4	4	156	173.3	324	360	702	780	
MCS 5	4	208	231.1	432	480	936	1040	
MCS 6	4	234	260	486	540	1053	1170	
MCS 7	4	260	288.9	540	600	1170	1300	
MCS 8	4	312	346.7	648	720	1404	1560	
MCS 9	4	NA	NA	720	800	1560	1733.3	

Performance Matrix

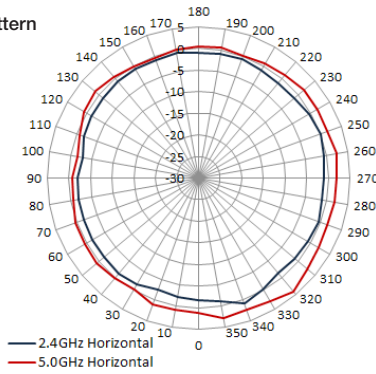
FORTIAP 421E / 423E						
802.11N PERFORMANCE — DATA RATES (MBPS)						
Descriptor	Spatial Streams	HT20		HT40		
		Normal GI	Short GI	Normal GI	Short GI	
MCS 0	1	6.5	7.2	13.5	15	
MCS 1	1	13	14.4	27	30	
MCS 2	1	19.5	21.7	40.5	45	
MCS 3	1	26	28.9	54	60	
MCS 4	1	39	43.3	81	90	
MCS 5	1	52	57.8	108	120	
MCS 6	1	58.5	65	121.5	135	
MCS 7	1	65	72.2	135	150	
MCS 8	2	13	14.4	27	30	
MCS 9	2	26	28.9	54	60	
MCS10	2	39	43.3	81	90	
MCS 11	2	52	57.8	108	120	
MCS 12	2	78	86.7	162	180	
MCS 13	2	104	115.6	216	240	
MCS 14	2	117	130	243	270	
MCS 15	2	130	144.4	270	300	
MCS 16	3	19.5	21.7	40.5	45	
MCS 17	3	39	43.3	81	90	
MCS 18	3	58.5	65	121.5	135	
MCS 19	3	78	86.7	162	180	
MCS 20	3	117	130	243	270	
MCS 21	3	156	173.3	324	360	
MCS 22	3	175.5	195	364.5	405	
MCS 23	3	195	216.7	405	450	

Antenna Radiation Patterns

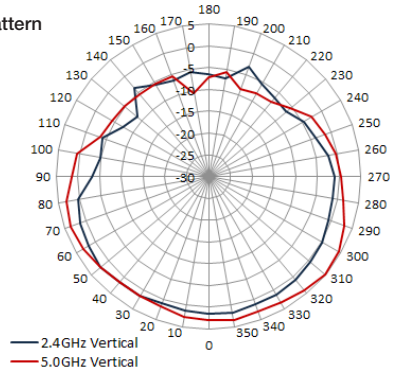
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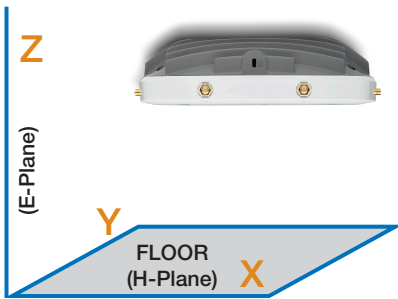
H-Plane Pattern



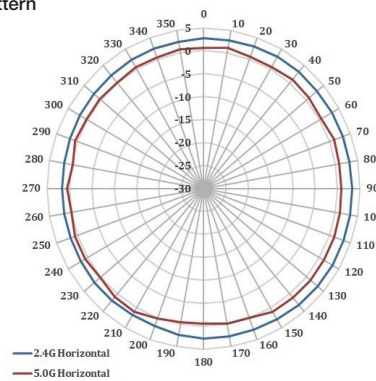
E-Plane Pattern



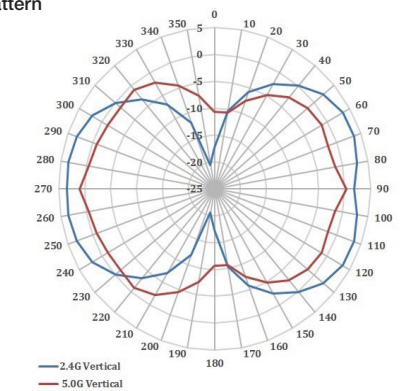
FAP-423E



H-Plane Pattern



E-Plane Pattern



Highlights

FortiAP 321E

The FortiAP 321E is a dual-radio medium-density 3x3 802.11ac Wave 2 access point. This Enterprise-class access point is ideal for environments such as offices, classrooms, or retail establishments with performance throughput of up to 1,300 Mbps at 5GHz. The AP can support MU-MIMO and clients that utilize 3 streams for increased data throughput.



 **802.11ac Wave 2 | Dual Radio 5 GHz and 2.4 GHz | 6 Internal Antennas**

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

Specifications

FORTIAP 321E	
Hardware	
Hardware Type	Indoor AP
Number of Radios	2 + 1 BLE
Number of Antennas	6 Internal + 1 BLE internal
Antenna Type and peak Gain	PIFA: 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 (3x3:3 stream) 20/40 MHz (256 QAM)
Radio 2 Capabilities	5 GHz a/n/ac (3x3:3 stream) 20/40/80 MHz (256 QAM)
Maximum Data Rate	Radio 1: up to 450 Mbps Radio 2: up to 1,300 Mbps
Bluetooth Low Energy Radio	Bluetooth scanning and iBeacon advertisement @ 4 dBm max TX power
Interfaces	1x 10/100/1000 Base-T RJ45, 1x RS-232 RJ45 Serial Port
Power over Ethernet (PoE)	IEEE 802.3af & 802.3at
Simultaneous SSIDs	Up to 16 (14 if background scanning enabled)
EAP Type(s)	EAP-TLS, EAP-TTLS/MSCVAPv2, EAPv0/EAP-MSCHAPv2, PEAPv1/EAP-GTC, EAP-SIM, EAP-AKA, EAP-FAST
User/Device Authentication	WPA™, WPA2™, and WPA3™ with 802.1x or Pre-shared key, WEP, Web Captive Portal, MAC blacklist & allowlist
Maximum Tx Power	2.4 GHz: 27.7 dBm/588 mW (3 chains combined)* 5 GHz: 27.7 dBm / 588 mW (3 chains combined)*
Kensington Lock	Yes
IEEE Standards	802.11a, 802.11b, 802.11e, 802.11g, 802.11h, 802.11i, 802.11j, 802.11k, 802.11n, 802.11r, 802.11v, 802.11ac, 802.11q, 802.1x, 802.3af, 802.3at
SSID Types Supported	Local-Bridge, Mesh, & Tunnel
Per Radio Client Capacity	Up to 128 for Radio 1, Up to 512 for Radio 2
Cellular Co-existence**	Yes
Reset Button	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

FORTIAP 321E	
A-MPDU and A-MSDU	Yes
Packet Aggregation	
MIMO Power Save	Yes
Short Guard Interval	Yes
OFDMA	No
Wireless Monitoring Capabilities	
Rogue Scan Radio Modes	Background, Dedicated
WIPS / WIDS Radio Modes	Background, Dedicated
Packet Sniffer Mode	Yes
Spectrum Analyzer	Yes
Dimensions	
Length x Width x Height	7.08 x 7.08 x 1.50 inches (180 x 180 x 38 mm)
Weight	1.0 lbs (0.454 kg)
Package (shipping) Weight	1.60 lbs (0.73 kg)
Mounting Options	Ceiling, T-Rail, and Wall
Included Accessories	Mount kits for Ceiling, T-Rail, and Wall
Environment	
Power Supply	SP-FAP200-PA-XX, GPI-115, or GPI-130
Power Consumption (Maximum)	16.8 W
Humidity	10–90% non-condensing
Operating / Storage Temperature	14–113°F (-10–45°C) / -22–158°F (-30–70°C)
Directives	Low Voltage Directive • RoHS
UL2043 Plenum Material	No
Mean Time Between Failures	>10 Years
IP Rating	N/A
Surge Protection Built In	—
Hit-less PoE Failover	No
Certifications	
WiFi Alliance Certified	No
DFS	FCC, CE
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 2.4 GHz band from nearby cellular equipment.

RF Rx/Tx Performance Table

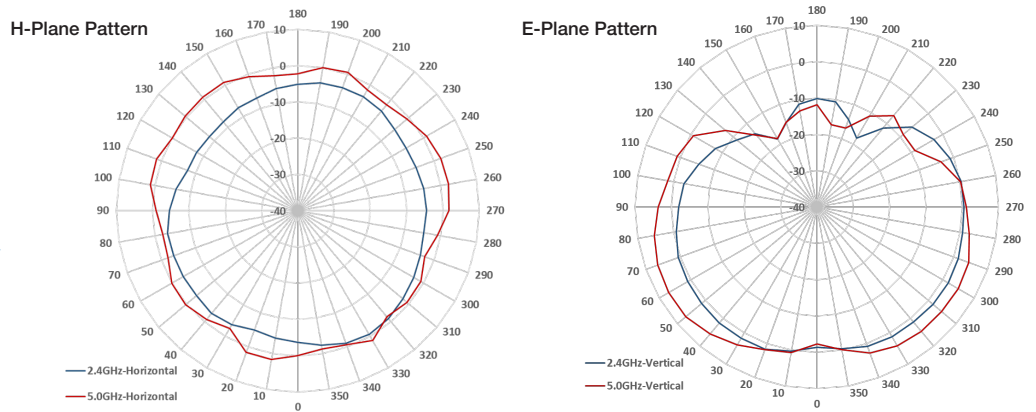
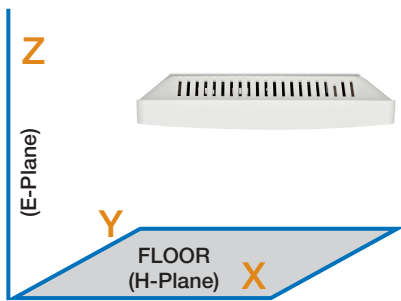
FORTIAP 321E				
	RADIO 1		RADIO 2	
802.11b	2.4 GHz Tx Power per Chain (dBm)	RX Sensitivity (dBm)	5 GHz Tx Power per Chain (dBm)	RX Sensitivity (dBm)
1	20	-96	—	—
2	20	-95	—	—
5.5	20	-92	—	—
11	20	-89	—	—
802.11g/a				
6	20	-93	20	-91
9	20	-91	20	-90
12	20	-90	20	-89
18	19	-88	19	-86
24	19	-85	19	-83
36	18	-82	18	-80
48	18	-77	18	-76
54	17	-75	18	-74
802.11n HT20				
MCS0	20	-91	20	-91
MCS1	20	-89	20	-88
MCS2	20	-88	19	-86
MCS3	20	-83	19	-83
MCS4	19	-80	19	-79
MCS5	18	-75	18	-75
MCS6	17	-73	18	-74
MCS7	17	-71	18	-72
802.11n HT40				
MCS0	20	-89	19	-88
MCS1	20	-86	19	-85
MCS2	20	-84	18	-82
MCS3	20	-81	18	-79
MCS4	19	-77	18	-76
MCS5	18	-73	18	-72
MCS6	17	-71	18	-70
MCS7	17	-68	17	-69
802.11ac VHT20				
MCS0	—	—	20	-91
MCS1	—	—	20	-88
MCS2	—	—	19	-86
MCS3	—	—	18	-83
MCS4	—	—	18	-79
MCS5	—	—	18	-75
MCS6	—	—	18	-74
MCS7	—	—	18	-72
MCS8	—	—	18	-69
802.11ac VHT40				
MCS0	—	—	19	-88
MCS1	—	—	19	-85
MCS2	—	—	18	-82
MCS3	—	—	18	-79
MCS4	—	—	18	-76
MCS5	—	—	18	-72
MCS6	—	—	18	-70
MCS7	—	—	17	-69
MCS8	—	—	17	-65
MCS9	—	—	17	-64

RF Rx/Tx Performance Table

STANDARD / DATA RATE	FORTIAP 321E			
	RADIO 1		RADIO 2	
802.11ac VHT80	2.4 GHz Tx Power per Chain (dBm)	RX Sensitivity (dBm)	5 GHz Tx Power per Chain (dBm)	RX Sensitivity (dBm)
MCS0	—	—	19	-88
MCS1	—	—	19	-85
MCS2	—	—	18	-82
MCS3	—	—	18	-79
MCS4	—	—	18	-76
MCS5	—	—	18	-72
MCS6	—	—	18	-70
MCS7	—	—	17	69
MCS8	—	—	17	-65
MCS9	—	—	17	-64

Antenna Radiation Patterns

FAP-321E



Highlights

FortiAP 221E and 223E

The FortiAP 221E and 223E are medium-density 802.11ac Wave 2 access points. These enterprise-class access points are ideal for medium-density environments such as an office or classroom with performance throughput of up to 867 Mbps.

 **802.11ac Wave 2 | Dual Radio 2.4 and 5 GHz | 4 Internal/External Antennas**

 **2x2 MU-MIMO | Up to 400 + 867 Mbps**



Specifications

	FORTIAP 221E	FORTIAP 223E
Hardware		
Hardware Type	Indoor AP	Indoor AP
Number of Radios	2 + 1 BLE	2 + 1 BLE
Number of Antennas	4 Internal + 1 Internal BLE	4 External + 1 Internal BLE
Antenna Type and Peak Gain	Patch: 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	
Radio 1 Capabilities	2.4 GHz b/g/n (2x2:2 stream) 20/40 MHz (256 QAM)	2.4 GHz b/g/n (2x2:2 stream) 20/40 MHz (256 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 400 Mbps Radio 2: up to 867 Mbps	Radio 1: up to 400 Mbps Radio 2: up to 867 Mbps
Bluetooth Low Energy Radio	Bluetooth scanning and iBeacon advertisement @ 4 dBm max TX power	
Interfaces	1x 10/100/1000 Base-T RJ45	1x 10/100/1000 Base-T RJ45
Power over Ethernet (PoE)	IEEE 802.3af	IEEE 802.3af
Simultaneous SSIDs	16 (14 if background scanning enabled)	
EAP Type(s)	EAP-TLS, EAP-TTLS/MSCSHAPv2, EAPv0/EAP-MSCHAPv2, PEAPv1/EAP-GTC, EAP-SIM, EAP-AKA, EAP-FAST	
User/Device Authentication	WPA™, WPA2™, and WPA3™ with 802.1x or preshared key, WEP, Web Captive Portal, MAC blacklist & allowlist	
Maximum Tx Power	2.4 GHz: 23 dBm / 200 mW (2 chains combined)* 5 GHz: 24 dBm / 251 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, 802.1Q, 802.1X, 802.3af, 802.3az	
SSID Types Supported	Local-Bridge, Tunnel, Mesh	Local-Bridge, Tunnel, Mesh
Per Radio Client Capacity	Up to 512	Up to 512
Cellular Co-existence	Yes	Yes
Reset Button	Yes	Yes
LED Off Mode	Yes	Yes
Advanced 802.11 Features		
802.11ac Wave 2 MU-MIMO	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

	FORTIAP 221E	FORTIAP 223E
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	Background, Dedicated
Packet Sniffer Mode	Yes	Yes
Spectrum Analyzer	Yes	Yes
Dimensions		
Length x Width x Height	6.3 x 6.3 x 1.85 inches (160 x 160 x 47 mm)	
Weight	1.1 lbs (0.5 kg)	1.1 lbs (0.5 kg)
Package (shipping) Weight	4.95 lbs (2.2 kg)	5.3 lbs (2.4 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	
Power Consumption (Max.)	12.36 W	12.36 W
Humidity	5–90% non-condensing	5–90% non-condensing
Operating / Storage Temperature	-4–113°F (-20–45°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	No	No
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

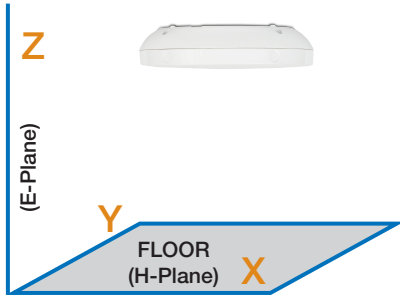
* Frequency selection and power may be restricted to abide by regional regulatory compliance laws.

RF Rx/Tx Performance Table

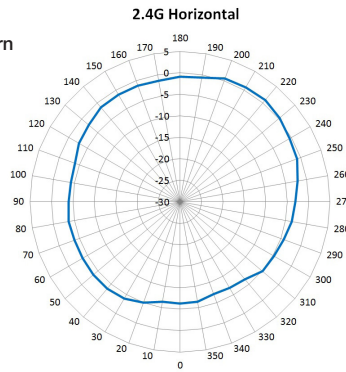
FORTIAP 221E / 223E				
	RADIO 1		RADIO 2	
802.11 a/g	2.4 GHz Tx Power (dBm)	RX Sensitivity (dBm)	5 GHz Tx Power (dBm)	RX Sensitivity (dBm)
6 Mbps	20	-93	21	-91
9 Mbps	20	-91	21	-90
12 Mbps	20	-90	21	-89
18 Mbps	19	-88	21	-86
24 Mbps	19	-85	21	-83
36 Mbps	18	-82	21	-80
48 Mbps	18	-77	19	-76
54 Mbps	17	-75	19	-74
802.11n HT20				
MCS 0/8/16	20	-91	21	-91
MCS 1/9/17	19	-89	21	-88
MCS 2/10/18	19	-86	21	-86
MCS 3/11/19	18	-83	21	-83
MCS 4/12/20	18	-80	21	-79
MCS 5/13/21	17	-75	21	-75
MCS 6/14/22	17	-73	19	-74
MCS 7/15/23	16	-71	19	-72
802.11n HT40				
MCS 0/8/16	19	-89	20	-88
MCS 1/9/17	19	-86	20	-85
MCS 2/10/18	18	-84	20	-82
MCS 3/11/19	18	-81	20	-79
MCS 4/12/20	17	-77	20	-76
MCS 5/13/21	17	-73	20	-72
MCS 6/14/22	16	-71	19	-70
MCS 7/15/23	16	-69	19	-69
802.11ac VHT20				
MCS 0	19	-91	21	-91
MCS 1	19	-89	21	-88
MCS 2	19	-86	21	-86
MCS 3	18	-83	21	-83
MCS 4	18	-80	21	-79
MCS 5	18	-76	21	-75
MCS 6	18	-73	19	-74
MCS 7	18	-71	19	-72
MCS 8	18	-68	18	-69
802.11ac VHT40				
MCS 0	19	-89	20	-88
MCS 1	19	-86	20	-85
MCS 2	19	-84	20	-82
MCS 3	18	-81	20	-79
MCS 4	17	-77	20	-76
MCS 5	17	-73	20	-72
MCS 6	17	-71	19	-70
MCS 7	17	-69	19	-69
MCS 8	17	-68	18	-65
MCS 9	16	-66	17	-64
802.11ac VHT80				
MCS 0	—	—	19	-85
MCS 1	—	—	19	-83
MCS 2	—	—	19	-80
MCS 3	—	—	19	-77
MCS 4	—	—	19	-74
MCS 5	—	—	19	-71
MCS 6	—	—	18	-69
MCS 7	—	—	18	-68
MCS 8	—	—	17	-63
MCS 9	—	—	17	-61

Antenna Radiation Patterns

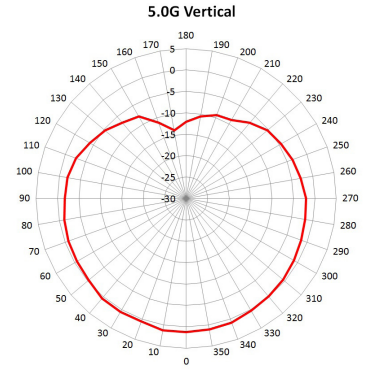
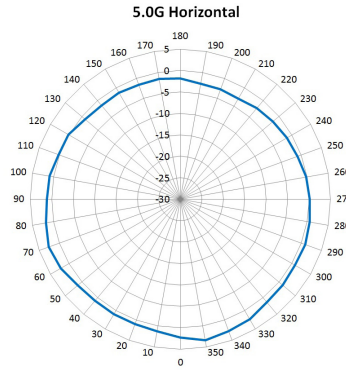
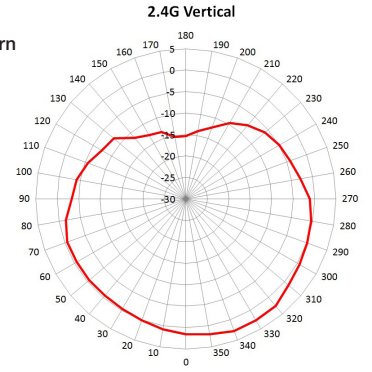
FAP-221E



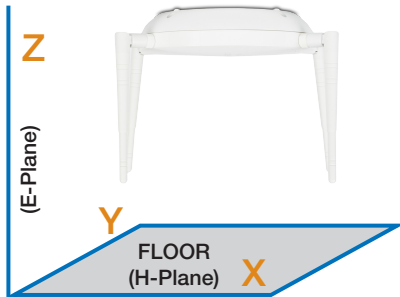
H-Plane Pattern



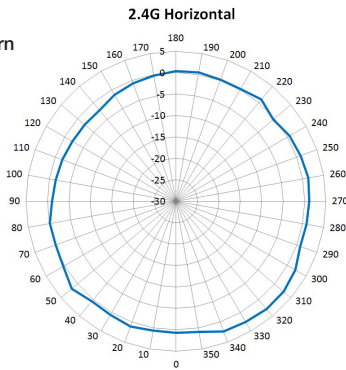
E-Plane Pattern



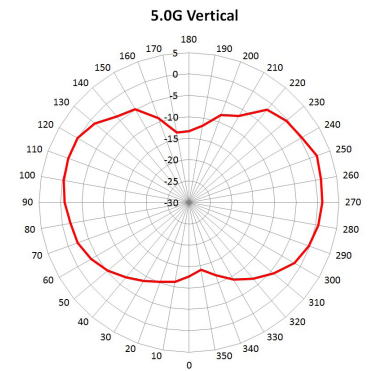
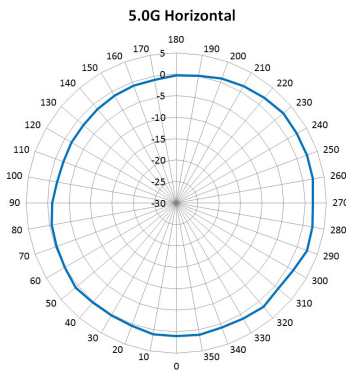
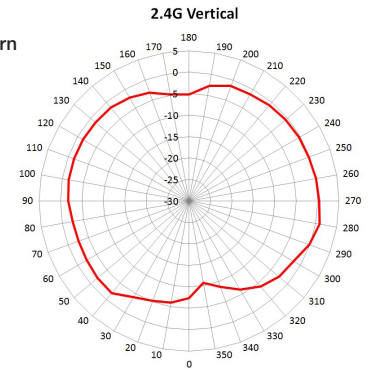
FAP-223E



H-Plane Pattern



E-Plane Pattern




Highlights

FortiAP 231E

The FortiAP 231E is a tri-radio medium-density 802.11ac Wave 2 access point. This enterprise-class access point is ideal for environments such as offices, classrooms, or retail establishments with performance throughput of up to 867 Mbps per radio. The AP 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 with the third radio.



 **802.11ac Wave 2 | Tri Radio 5 GHz + 2.4 GHz + scanning or 5 GHz + 5 GHz + scanning or 5 GHz + 5 GHz + 2.4 GHz | 6 Internal Antennas**

 **2x2 MIMO | Up to 867 + 867 + 400 Mbps**

Specifications

FORTIAP 231E	
Hardware	
Hardware Type	Indoor AP
Number of Radios	3 + 1 BLE
Number of Antennas	6 Internal + 1 BLE internal
Antenna Type and peak Gain	PIFA: 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
Radio 1 Capabilities	2.4 GHz or 5.0 GHz (high band) a/b/g/n/ac W2 (2x2:2 stream) 20/40/80 MHz (256 QAM)
Radio 2 Capabilities	5.0 GHz a/n/ac W2 (2x2:2 stream) 20/40/80 MHz (256 QAM)
Radio 3 Capabilities	2.4/5.0 GHz dual band b/g/n (2x2:2 stream) 20/40 MHz (256 QAM)
Maximum Data Rate	Radio 1: up to 867 Mbps Radio 2: up to 867 Mbps Radio 3: up to 400 Mbps
Bluetooth Low Energy Radio	Bluetooth scanning and iBeacon advertisement @ 6 dBm max TX power
Interfaces	2x 10/100/1000 Base-T RJ45, 1x RS-232 RJ45 Serial Port
Power over Ethernet (PoE)	IEEE 802.3af or 802.3at
Simultaneous SSIDs	Up to 24 (21 if background scanning enabled)
EAP Type(s)	EAP-TLS, EAP-TTLS/MSCSHAPv2, EAPv0/EAP-MSCHAPv2, PEAPv1/EAP-GTC, EAP-SIM, EAP-AKA, EAP-FAST
User/Device Authentication	WPA™, WPA2™, and WPA3™ with 802.1x or Pre-shared key, WEP, Web Captive Portal, MAC blacklist and allowlist
Maximum Tx Power	2.4 GHz: 24 dBm / 251 mW (2 chains combined)* 5 GHz: 25 dBm / 316 mW (2 chains combined)*
Kensington Lock	Yes
IEEE Standards	802.11a, 802.11b, 802.11e, 802.11g, 802.11h, 802.11i, 802.11j, 802.11k, 802.11n, 802.11r, 802.11v, 802.11ac, 802.1Q, 802.1X, 802.3ad, 802.3af, 802.3at
SSID Types Supported	Local-Bridge, Mesh, & Tunnel
Per Radio Client Capacity	Up to 512 for Radio 1 & 2, Up to 128 for Radio 3
Cellular Co-existence**	Yes
Reset Button	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

FORTIAP 231E	
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
OFDMA	No
Wireless Monitoring Capabilities	
Rogue Scan Radio Modes	Background, Dedicated
WIPS / WIDS Radio Modes	Background, Dedicated
Packet Sniffer Mode	Yes
Spectrum Analyzer	Yes
Dimensions	
Length x Width x Height	7.87 x 7.87 x 1.81 inches (200 x 200 x 46 mm)
Weight	1.2 lbs (0.55 kg)
Package (shipping) Weight	2.5 lbs (1.15 kg)
Mounting Options	Ceiling, T-Rail, and Wall
Included Accessories	Mount kits for Ceiling, T-Rail, and Wall
Environment	
Power Supply	SP-FAP200-PA-XX, GPI-130
Power Consumption (Maximum)	17 W with 802.3at PoE, 12.9 W with 802.3af PoE- reduced TX power (13dBm per radio)
Humidity	5–93% non-condensing
Operating / Storage Temperature	32–104°F (0–40°C) / -31–158°F (-35–70°C)
Directives	Low Voltage Directive • RoHS
UL2043 Plenum Material	No
Mean Time Between Failures	>10 Years
IP Rating	—
Surge Protection Built In	—
Hit-less PoE Failover	No
Certifications	
WiFi Alliance Certified	Yes
DFS	FCC, CE
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 2.4 GHz band from nearby cellular equipment.

RF Rx/Tx Performance Table

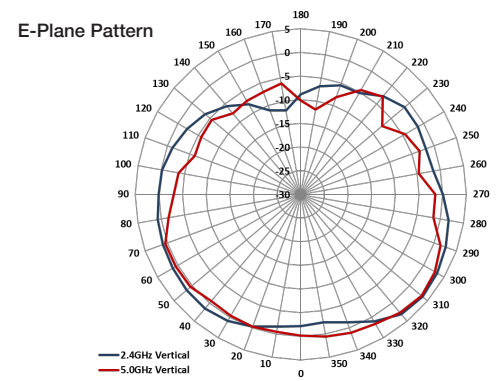
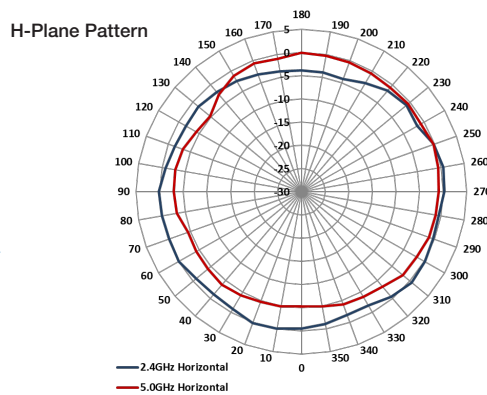
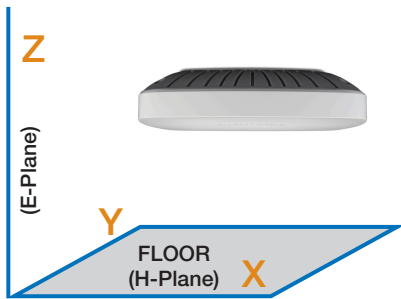
FORTIAP 231E				
802.11b	2.4 GHz Tx Power per Chain (dBm)	RX Sensitivity (dBm)	5 GHz Tx Power per Chain (dBm)	RX Sensitivity (dBm)
1	20	-98	—	—
2	20	-97	—	—
5.5	20	-94	—	—
11	20	-91	—	—
802.11g/a				
6	20	-96	20	-94
9	20	-94	20	-93
12	20	-93	20	-92
18	19	-91	20	-89
24	24	-87	20	-86
36	18	-84	19	-83
48	17	-79	18	-78
54	17	-78	17	-76
802.11n HT20				
MCS0	20	-95	19	-94
MCS1	20	-93	19	-91
MCS2	18	-90	19	-89
MCS3	18	-87	19	-86
MCS4	17	-84	19	-82
MCS5	17	-79	18	-77
MCS6	17	-77	17	-76
MCS7	16	-76	17	-74
802.11n HT40				
MCS0	19	-93	19	-90
MCS1	19	-90	19	-88
MCS2	19	-88	19	-86
MCS3	18	-84	19	-82
MCS4	18	-81	19	-79
MCS5	17	-76	18	-75
MCS6	17	-75	17	-73
MCS7	16	-73	17	-71
802.11ac VHT20				
MCS0	—	—	19	-90
MCS1	—	—	19	-87
MCS2	—	—	19	-85
MCS3	—	—	19	-82
MCS4	—	—	19	-79
MCS5	—	—	18	-73
MCS6	—	—	17	-72
MCS7	—	—	17	-73
MCS8	—	—	17	-67
802.11ac VHT40				
MCS0	—	—	19	-87
MCS1	—	—	19	-83
MCS2	—	—	19	-81
MCS3	—	—	19	-78
MCS4	—	—	19	-75
MCS5	—	—	18	-73
MCS6	—	—	17	-70
MCS7	—	—	17	-68
MCS8	—	—	17	-64
MCS9	—	—	16	-62

RF Rx/Tx Performance Table

FORTIAP 231E				
802.11ac VHT80	2.4 GHz		5 GHz	
	Tx Power per Chain (dBm)	RX Sensitivity (dBm)	Tx Power per Chain (dBm)	RX Sensitivity (dBm)
MCS0	—	—	18	-84
MCS1	—	—	18	-80
MCS2	—	—	18	-78
MCS3	—	—	18	-75
MCS4	—	—	18	-72
MCS5	—	—	17	-70
MCS6	—	—	16	-67
MCS7	—	—	16	-65
MCS8	—	—	16	-61
MCS9	—	—	15	-59

Antenna Radiation Patterns

FAP-231E



Highlights

FortiAP 222E

The FAP-222E is a new member of our 802.11ac Wave 2 family with MU-MIMO capability and transmit beamforming capable of handling an astounding 512 clients per radio. This high-performance dual-band AP is ruggedized with an Ingress Protection IP67-rated enclosure capable of withstanding extended temperature ranges. The FAP-222E is suitable for deployment in harsh conditions. It has 4 external antennas for Wi-Fi and one Bluetooth and is suitable for mission-critical bridging or mesh deployments.



 **802.11ac Wave 2 | Dual Radio 2.4 and 5 GHz | High Gain Omni-directional Antennas**

 **2x2 MU-MIMO | Up to 400 + 866.7 Mbps**

Specifications

FORTIAP 222E	
Hardware	
Hardware Type	Outdoor AP
Number of Radios	2 + 1 BLE
Number of Antennas	4 External (Type N) + 1 BLE External (RP-SMA)
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 (2x2:2 stream) 20/40 MHz (256 QAM)
Radio 2 Capabilities	5 GHz a/n/ac (2x2:2 stream) 20/40/80 MHz (256 QAM)
Maximum Data Rate	Radio 1: up to 400 Mbps, Radio 2: up to 867 Mbps
Bluetooth Low Energy Radio	Bluetooth scanning and iBeacon advertisement @ 4 dBm max TX power
Interfaces	1x 10/100/1000 Base-T RJ45
Power over Ethernet (PoE)	IEEE 802.3af/at
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™, WPA2™, WPA3™ and with 802.1x or Preshared key, WEP, Web Captive Portal, MAC blacklist & allowlist
Maximum Tx Power	2.4 GHz: 27.2 dBm / 525 mW (2 chains combined)* 5 GHz: 29.5 dBm / 891 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, 802.11r, 802.11v, 802.11ac, 802.11q, 802.11x, 802.3af, 802.3at, 802.3az
SSID Types Supported	Local-Bridge, Tunnel & Mesh (when managed by controller)
Per Radio Client Capacity	Up to 512
Cellular Co-existence	Yes
Reset Button	Yes
LED Off Mode	Yes
Advanced 802.11 Features	
802.11ac Wave2 MU-MIMO	Yes
Transmit Beam Forming (TxBF)	Yes
Low-Density Parity Check (LDPC) Encoding	Yes
Maximum Likelihood Demodulation (MLD)	Yes

FORTIAP 222E	
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
Packet Sniffer Mode	Yes
Spectrum Analyzer	Yes
Dimensions	
Length x Width x Height	9.8 x 8.66 x 2 inches (249 x 220 x 53 mm)
Weight	3.40 lbs (1.54 kg)
Package (shipping) Weight	8.40 lbs (3.81 kg)
Mounting Options	Wall Mount or Pole Mount
Included Accessories	Mounting kit for Wall or Pole, Grounding cable, 4 dipole Wi-Fi antennas, 1 BLE antenna
Environment	
Power Supply	GPI-115, or GPI-130
Power Consumption (Maximum)	12.95 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	>10 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, Taiwan
Warranty	
Limited Lifetime Warranty	Yes

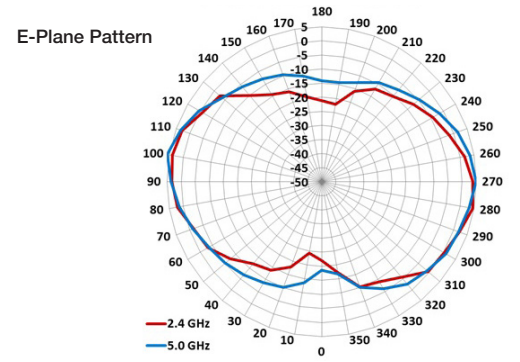
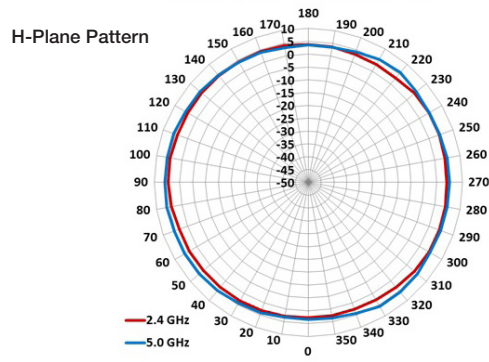
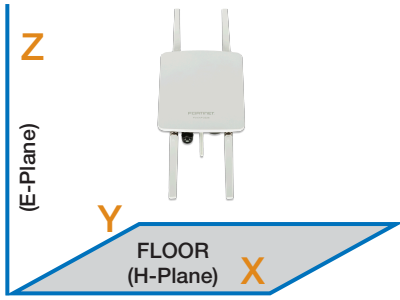
* Frequency selection and power may be restricted to abide by regional regulatory compliance laws.

RF Rx/Tx Performance Table

FORTIAP 222E				
	RADIO 1		RADIO 2	
802.11 a/g	2.4 GHz Tx Power (dBm) per Chain	RX Sensitivity (dBm) per Chain	5 GHz Tx Power (dBm) per Chain	RX Sensitivity (dBm) per Chain
6 Mbps	24.2	-91	26.5	-90
9 Mbps	24.2	-90	26.5	-89
12 Mbps	24.2	-88	26.5	-88
18 Mbps	24.1	-86	26.4	-85
24 Mbps	24.1	-83	26.4	-82
36 Mbps	23.5	-79	24.2	-79
48 Mbps	23.5	-75	23.3	-75
54 Mbps	23.5	-74	23.3	-73
802.11n HT20				
MSC 0/8/16	24.5	-91	26.5	-90
MSC 1/9/17	24.5	-88	26.5	-87
MSC 2/10/18	24.5	-86	26.5	-85
MSC 3/11/19	24.2	-82	26.4	-82
MSC 4/12/20	24.2	-78	26.4	-78
MSC 5/13/21	23.6	-75	24.2	-74
MSC 6/14/22	23.1	-74	23.2	-72
MSC 7/15/23	23.1	-73	23.2	-70
802.11n HT40				
MCS 0/8/16	23.8	-89	26.4	-87
MCS 1/9/17	23.8	-86	26.4	-84
MCS 2/10/18	23.8	-84	26.4	-82
MCS 3/11/19	23.8	-80	26.3	-79
MCS 4/12/20	23.8	-77	26.3	-75
MCS 5/13/21	23.2	-74	25.4	-71
MCS 6/14/22	22.6	-73	24.5	-69
MCS 7/15/23	22.6	-72	23.5	-68
802.11ac VHT20				
MCS 0	—	—	26.4	-90
MCS 1	—	—	26.4	-86
MCS 2	—	—	26.4	-84
MCS 3	—	—	26.3	-82
MCS 4	—	—	26.3	-80
MCS 5	—	—	25.3	-75
MCS 6	—	—	23.3	-73
MCS 7	—	—	22.5	-71
MCS 8	—	—	22.4	-68
802.11ac VHT40				
MCS 0	—	—	26.3	-87
MCS 1	—	—	26.3	-85
MCS 2	—	—	26.3	-83
MCS 3	—	—	26.3	-80
MCS 4	—	—	26.3	-77
MCS 5	—	—	25.3	-73
MCS 6	—	—	23.3	-72
MCS 7	—	—	22.2	-70
MCS 8	—	—	22.1	-66
MCS 9	—	—	21.9	-64
802.11ac VHT80				
MCS 0	—	—	25.4	-84
MCS 1	—	—	25.4	-81
MCS 2	—	—	25.4	-78
MCS 3	—	—	25.4	-74
MCS 4	—	—	25.3	-70
MCS 5	—	—	24.2	-66
MCS 6	—	—	23.6	-65
MCS 7	—	—	22.3	-64
MCS 8	—	—	22.1	-60
MCS 9	—	—	22.1	-60

Antenna Radiation Patterns

FAP-222E



Highlights

FortiAP 224E

The FAP-224E is a new member of our 802.11ac Wave 2 family with MU-MIMO capability and transmit beamforming capable of handling an astounding 512 clients per radio. This high-performance dual-band AP is ruggedized with an Ingress Protection IP67-rated enclosure capable of withstanding extended temperature ranges. The FAP-224E is suitable for deployment in harsh conditions. It has 4 internal antennas for Wi-Fi and one Bluetooth and also provides SFP cage to allow for long-distance fiber connectivity and is suitable for mission-critical bridging or mesh deployments.



 **802.11ac Wave 2 | Dual Radio 2.4 and 5 GHz | 4 Internal Antennas**

 **2x2 MU-MIMO | Up to 400 + 867 Mbps**

Specifications

FORTIAP 224E	
Hardware	
Hardware Type	Outdoor AP
Number of Radios	2
Number of Antennas	4 Internal + 1 BLE Internal
Antenna Type and Peak Gain	Dipole: 6 dBi for 2.4 GHz, 8 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 (256 QAM)
Radio 2 Capabilities	5 GHz a/n/ac (2x2:2 stream) 20/40/80 MHz (256 QAM)
Maximum Data Rate	Radio 1: up to 400 Mbps Radio 2: up to 867 Mbps
Bluetooth Low Energy Radio	Bluetooth scanning and iBeacon advertisement @ 4 dBm max TX power
Interfaces	1x 10/100/1000 Base-T RJ45, 1x 10/100/1000 Base-T RJ45 (PoE), 1x optical fiber SFP cage
Power over Ethernet (PoE)	IEEE 802.3af/at
Simultaneous SSIDs	Up to 16 (14 if background scanning enabled)
EAP Type(s)	EAP-TLS, EAP-TTLS/MSCSHAPv2, EAPv0/EAP-MSCHAPv2, PEAPv1/EAP-GTC, EAP-SIM, EAP-AKA, EAP-FAST
User/Device Authentication	WPA™, WPA2™, and WPA3™ with 802.1x or Preshared key, WEP, Web Captive Portal, MAC blacklist & allowlist
Maximum Tx Power	2.4 GHz: 24 dBm / 251 mW (2 chains combined)* 5 GHz: 24 dBm / 251 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, 802.11r, 802.11v, 802.11ac, 802.1Q, 802.1X, 802.3af, 802.3at, 802.3az
SSID Types Supported	Local-Bridge, Tunnel & Mesh (when managed by controller)
Per Radio Client Capacity	Up to 512
Cellular Co-existence	No
Reset Button	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

FORTIAP 224E	
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
Wireless Monitoring Capabilities	
Rogue Scan Radio Modes	Background, Dedicated
WIPS / WIDS Radio Modes	Background, Dedicated
Packet Sniffer Mode	Yes
Spectrum Analyzer	Yes
Dimensions	
Length x Width x Height	8.4 x 8.4 x 2.66 inches (214 x 214 x 67.5 mm)
Weight	3.8 lbs (1.7 kg)
Package (shipping) Weight	5.82 lbs (2.64 kg)
Mounting Options	Wall Mount or Pole Mount
Included Accessories	Mounting kit for Wall or Pole, Grounding cable
Environment	
Power Supply	GPI-115, or GPI-130
Power Consumption (Maximum)	12.95 W
Humidity	5–90% non-condensing
Operating / Storage Temperature	-4–149°F (-20–65°C) / -4–158°F (-20–70°C)
Directives	Low Voltage Directive • RoHS
UL2043 Plenum Material	No
Mean Time Between Failures	>10 Years
IP Rating	IP67
Surge Protection Built In	Yes
Hit-less PoE Failover	No
Certifications	
Wi-Fi Alliance Certified	Yes
DFS	CE
Warranty	
Limited Lifetime Warranty	Yes

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

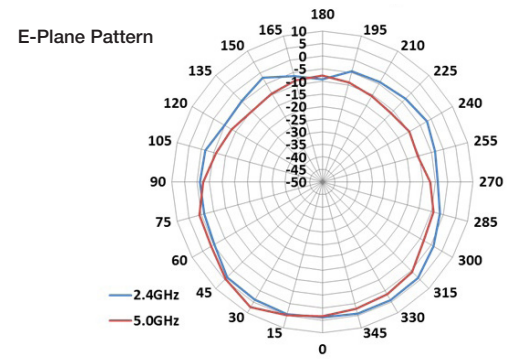
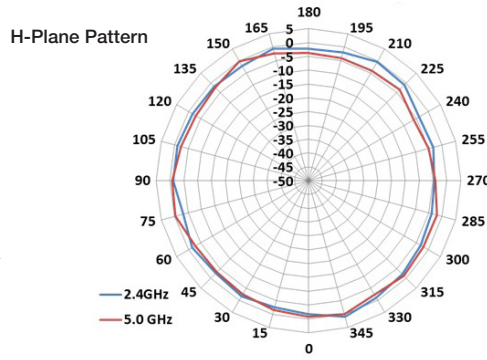
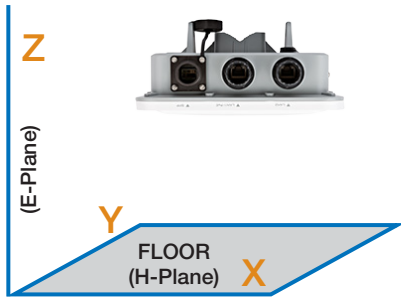
RF Rx/Tx Performance Table

FORTIAP 224E				
802.11 a/b/g	RADIO 1		RADIO 2	
	2.4 GHz Tx Power (dBm) per Chain	RX Sensitivity (dBm) per Chain	5 GHz Tx Power (dBm) per Chain	RX Sensitivity (dBm) per Chain
1 Mbps	24	-96	—	—
6 Mbps	24	-93	24	-93
9 Mbps	24	-92	24	-91
12 Mbps	24	-90	24	-90
18 Mbps	24	-88	24	-88
24 Mbps	24	-85	24	-85
36 Mbps	23	-82	23	-82
48 Mbps	22	-78	22	-77
54 Mbps	22	-76	22	-76
802.11 HT20				
MCS 0 (BPSK)	24	-92	24	-91
MCS 1 (QPSK)	24	-89	24	-88
MCS 2 (QPSK)	24	-87	23	-85
MCS 3 (16-QAM)	24	-84	23	-83
MCS 4 (16-QAM)	23	-81	22	-80
MCS 5 (64-QAM)	23	-76	22	-75
MCS 6 (64-QAM)	23	-74	21	-74
MCS 7 (64-QAM)	22	-73	20	-72
MCS 8 (256-QAM)	—	—	18	-68
MCS 9 (256-QAM)	—	—	—	—
802.11 HT40				
MCS 0 (BPSK)	23	-90	23	-89
MCS 1 (QPSK)	23	-87	22	-86
MCS 2 (QPSK)	23	-85	22	-83
MCS 3 (16-QAM)	23	-81	21	-80
MCS 4 (16-QAM)	23	-78	21	-77
MCS 5 (64-QAM)	23	-74	21	-73
MCS 6 (64-QAM)	22	-73	20	-72
MCS 7 (64-QAM)	22	-71	19	-70
MCS 8 (256-QAM)	—	—	18	-66
MCS 9 (256-QAM)	—	—	17	-64
802.11 HT80				
MCS 0 (BPSK)	—	—	22	-86
MCS 1 (QPSK)	—	—	22	-83
MCS 2 (QPSK)	—	—	22	-81
MCS 3 (16-QAM)	—	—	21	-78
MCS 4 (16-QAM)	—	—	21	-74
MCS 5 (64-QAM)	—	—	21	-70
MCS 6 (64-QAM)	—	—	20	-69
MCS 7 (64-QAM)	—	—	19	-67
MCS 8 (256-QAM)	—	—	17	-63
MCS 9 (256-QAM)	—	—	16	-60

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

Antenna Radiation Patterns

FAP-224E



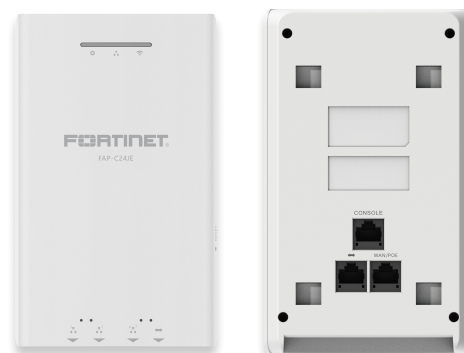
Highlights

FortiAP C24JE

The FAP-C24JE is a performance/price-competitive 2.4 GHz/5 GHz concurrent MU-MIMO wall plate AP with support of PoE IP phone and RJ45 pass-through. This access point can be installed in minutes, right over the existing wall plate.

 **802.11 ac Wave 2 | Dual Radio 2.4 & 5 GHz | 4 Internal Antennas**

 **Up to 300 + 867 Mbps**



Specifications

FORTIAP C24JE	
Hardware	
Hardware Type	Wall Plate AP
Number of Radios	2
Number of Antennas	4 Internal
Antenna Type and Peak Gain	Chip: 1.5 dBi for 2.4 GHz, 2 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)
Radio 2 Capabilities	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
Bluetooth Low Energy Radio	—
Interfaces	6x 10/100/1000 Base-T RJ45 Ports (1x 802.3at PoE (PD), 1x 802.3af PoE (PSE), 2x Non-PoE Ports, 1x Pass-through in, 1x Pass-through out, 1x RS-232 RJ45 Serial Port)
Serial Console Port	1x RJ45 RS232
Power over Ethernet (PoE)	802.3af (max PSE output of 4W) or 802.3at (full 802.3af PSE output) PSE functionality is only supported when powered via PoE/PoE+
Simultaneous SSIDs	Up to 8 (4 per radio)
EAP Type(s)	EAP-TLS, EAP-TTLS/MSCMAPv2, 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 & allowlist
Maximum Tx Power	23 dBm / 100mW (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, 802.11r, 802.11v, 802.11ac, 802.1Q, 802.1X, 802.3af, 802.3at, 802.3az
SSID Types Supported	Local-Bridge, Tunnel
Per Radio Client Capacity	Up to 64
Cellular Co-existence	No
Reset Button	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

FORTIAP C24JE	
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
Wireless Monitoring Capabilities	
Rogue Scan Radio Modes	Background, Dedicated
WIPS / WIDS Radio Modes	Background, Dedicated
Packet Sniffer Mode	No
Spectrum Analyzer	No
Dimensions	
Length x Width x Height	6.69 x 4.04 x 1.08 inches 170 x 102.5 x 27.5 mm
Weight	1.3 lbs (0.6 kg)
Package (shipping) Weight	1.6 lbs (0.74 kg)
Mounting Options	Wall Plate, Optional Desk Mount FAP-MNT-WJ-20
Included Accessories	Mounting kit for Wall Plate
Environment	
Power Supply	GPI-115, GPI-130, or SP-FAP400-PA
Power Consumption (Maximum)	Depends on PoE connected
Humidity	5–90% non-condensing
Operating / Storage Temperature	32–104°F (0–40°C) / -4–158°F (-20–70°C)
Directives	Low Voltage Directive • RoHS
UL2043 Plenum Material	No
Mean Time Between Failures	>10 Years
IP Rating	—
Surge Protection Built In	—
Hit-less PoE Failover	No
Certifications	
Wi-Fi Alliance Certified	No
DFS	No
Warranty	
Limited Lifetime Warranty	Yes

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

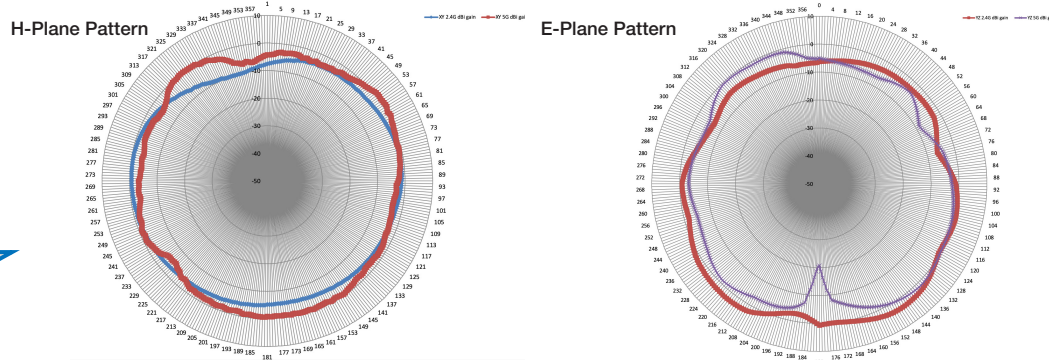
RF Rx/Tx Performance Table

FORTIAP C24JE				
802.11 a/g	Radio 1 2.4 GHz		Radio 2 5 GHz	
	Maximum TX Power per Transmit Chain (dBm)	RX Sensitivity (dBm) per Receiver Chain	Maximum TX Power per Transmit Chain (dBm)	RX Sensitivity (dBm) per Receiver Chain
6 Mbps	21	-91	21	-91
9 Mbps	20	-89	20	-89
12 Mbps	20	-87	20	-87
18 Mbps	20	-85	19	-84
24 Mbps	19	-82	19	-80
36 Mbps	19	-76	19	-76
48 Mbps	18	-75	18	-74
54 Mbps	17	-74	18	-73
802.11 HT20				
MSC 0/8/16 (BPSK)	20	-90	19	-91
MSC 1/9/17 (QPSK)	19	-88	18	-88
MSC 2/10/18 (QPSK)	19	-85	18	-84
MSC 3/11/19 (16-QAM)	19	-83	17	-80
MSC 4/12/20 (16-QAM)	19	-76	17	-76
MSC 5/13/21 (64-QAM)	18	-72	17	-73
MSC 6/14/22 (64-QAM)	17	-72	16	-71
MSC 7/15/23 (64-QAM)	16	-71	16	-70
802.11 HT40				
MSC 0/8/16 (BPSK)	20	-89	19	-87
MSC 1/9/17 (QPSK)	19	-87	18	-84
MSC 2/10/18 (QPSK)	19	-84	18	-81
MSC 3/11/19 (16-QAM)	19	-82	18	-78
MSC 4/12/20 (16-QAM)	18	-77	17	-75
MSC 5/13/21 (64-QAM)	18	-72	17	-72
MSC 6/14/22 (64-QAM)	17	-71	17	-70
MSC 7/15/23 (64-QAM)	17	-70	17	-68
MSC 8/16/24 (256-QAM)	16	-69	16	-66
MSC 9/17/25 (256-QAM)	16	-69	16	-64
802.11 HT80				
MSC 0 (BPSK)			19	-85
MSC 1 (QPSK)			18	-82
MSC 2 (QPSK)			18	-80
MSC 3 (16-QAM)			18	-77
MSC 4 (16-QAM)			17	-75
MSC 5 (64-QAM)			17	-74
MSC 6 (64-QAM)			17	-72
MSC 7 (64-QAM)			17	-69
MSC 8 (256-QAM)			16	-65
MSC 9 (256-QAM)			16	-61

Maximum capability of the Hardware provided (Excluding antenna gain)

Antenna Radiation Patterns

FAP-C24JE



Order Information

Product	SKU	Description
FortiAP 431F	FAP-431F	Indoor Wireless AP - Tri radio (2x 802.11 a/b/g/n/ac/ax, 4x4 MIMO and 1x 802.11 a/b/g/n/ac Wave 2, 1x1 MU-MIMO), internal antennas, 1x 10/100/1000/2500 Base-T RJ45, 1x 10/100/1000 Base-T RJ45, BT/BLE, 1x Type A USB, 1x RS-232 RJ45 Serial Port. Ceiling/wall mount kit included. For power order: 802.3at PoE injector GPI-130 or AC adapter SP-FAP400-PA.
	FC-10-F431F-247-02-DD	24x7 FortiCare Contract
FortiAP 433F	FAP-433F	Indoor Wireless AP - Tri radio (2x 802.11 a/b/g/n/ac/ax, 4x4 MIMO and 1x 802.11 a/b/g/n/ac Wave 2, 1x1 MU-MIMO), external antennas included, 1x 10/100/1000/2500 Base-T RJ45, 1x 10/100/1000 Base-T RJ45, BT/BLE, 1x Type A USB, 1x RS-232 RJ45 Serial Port. Ceiling/wall mount kit included. For power order: 802.3at PoE injector GPI-130 or AC adapter SP-FAP400-PA.
	FC-10-F433F-247-02-DD	24x7 FortiCare Contract
FortiAP 231F	FAP-231F	Indoor Wireless AP - Tri radio (802.11 b/g/n/ax 2x2 MU-MIMO, 802.11 a/n/ac/ax 2x2 MU-MIMO and 1x 802.11 a/b/g/n/ac Wave 2, 1x1), internal antennas, 2x 10/100/1000 RJ45 port, BT/BLE, 1x Type A USB, 1x RS-232 RJ45 Serial Port. Ceiling/wall mount kit included. For power order: 802.3at PoE injector GPI-130 or AC adapter SP-FAP200-PA.
	FC-10-PF231-247-02-DD	24x7 FortiCare Contract
FortiAP 421E	FAP-421E	Indoor Wireless AP - Dual radio (802.11 b/g/n and 802.11 a/n/ac Wave 2, 4x4 MU-MIMO), internal antennas, 2 x 10/100/1000 RJ45 port, . Ceiling/wall mount kit included. For power order: 802.3af PoE injector GPI-115 (limited features) or 802.3at PoE injector GPI-130 or AC adapter SP-FAP400-PA.
	FC-10-P421E-247-02-DD	24x7 FortiCare Contract
FortiAP 423E	FAP-423E	Indoor Wireless AP - Dual radio (802.11 b/g/n and 802.11 a/n/ac Wave 2, 4x4 MU-MIMO), external antennas included, 2 x 10/100/1000 RJ45 port, . Ceiling/wall mount kit included. For power order: 802.3af PoE injector GPI-115 (limited features) or 802.3at PoE injector GPI-130 or AC adapter SP-FAP400-PA.
	FC-10-P423E-247-02-DD	24x7 FortiCare Contract
FortiAP 321E	FAP-321E	Indoor Wireless AP - Dual radio (802.11 b/g/n and 802.11 a/n/ac Wave 2, 3x3 MIMO), internal antennas, 1 x 10/100/1000 RJ45 port, BT / BLE. Ceiling/wall mount kit included. For power order: 802.3at PoE injector GPI-130 or AC adapter SP-FAP200-PA.
	FC-10-P321E-247-02-DD	24x7 FortiCare Contract
FortiAP 221E	FAP-221E	Indoor Wireless AP - Dual radio (802.11 b/g/n and 802.11 a/n/ac Wave 2, 2x2 MU-MIMO), internal antennas, 1 x 10/100/1000 RJ45 port, BT / BLE. Ceiling/wall mount kit included. For power order: 802.3af PoE injector GPI-115 or AC adapter SP-FAP200-PA.
	FC-10-PE221-247-02-DD	24x7 Comprehensive FortiCare
FortiAP 223E	FAP-223E	Indoor Wireless AP - Dual radio (802.11 b/g/n and 802.11 a/n/ac Wave 2, 2x2 MU-MIMO), external antennas included, 1 x 10/100/1000 RJ45 port, BT / BLE. Ceiling/wall mount kit included. For power order: 802.3af PoE injector GPI-115 or AC adapter SP-FAP200-PA.
	FC-10-PE223-247-02-DD	24x7 Comprehensive FortiCare
FortiAP 231E	FAP-231E	Indoor Wireless AP - Tri-radio (802.11 a/b/g/n/ac Wave 2, 802.11a/n/ac Wave 2, 802.11 b/g/n, 2x2 MU-MIMO), internal antennas, 2 x 10/100/1000 RJ45 port, BT / BLE. Ceiling/wall mount kit included. For power order: 802.3at PoE injector GPI-130 or AC adapter SP-FAP200-PA.
	FC-10-P231E-247-02-DD	24x7 FortiCare Contract
FortiAP 222E	FAP-222E	Outdoor Wireless AP - Dual radio (802.11 b/g/n and 802.11 a/n/ac Wave 2, 2x2 MU-MIMO), external antennas included, 1 x 10/100/1000 RJ45 port, BT / BLE. Pole / wall mount, lightning grounding wire, and PoE injector included.
	FC-10-PE222-247-02-DD	24x7 Comprehensive FortiCare
FortiAP 224E	FAP-224E	Outdoor Wireless AP - Dual radio (802.11 b/g/n and 802.11 a/n/ac/ax Wave 2, 2x2 MU-MIMO), internal antennas, 2 x 10/100/1000 RJ45 port, 1 SFP port, BT / BLE, IP67 rated. Pole / wall mount, lightning grounding wire included. For power order: 802.3af PoE injector GPI-115.
	FC-10-PE224-247-02-DD	24x7 Comprehensive FortiCare
FortiAP C24JE	FAP-C24JE	Wall Plate AP - Dual radio (802.11 b/g/n and 802.11 a/n/ac Wave 2, 2x2 MU-MIMO), internal antennas, 4 x 10/100/1000 RJ45 port (1x 802.3at PoE PD, 1x 802.3af PoE PSE, 2x Non-PoE Ports), . Wall plate mounting kit included. For power order: 802.3af PoE injector GPI-115 (limited features) or 802.3at PoE injector GPI-130. Optional accessory (desktop stand): FAP-MNT-WJ-20.
	FC-10-PC24E-247-02-DD	24x7 FortiCare Contract
Gigabit PoE Injector	GPI-115	1-Port Gigabit PoE Power Injector, 802.3af 15.4 W, 10/100/1000.
	GPI-130	1-Port Gigabit PoE Power Injector, 802.3at up to 30 W.
Power Adapter	SP-FAP400-PA	AC Power Adapter for FAP-431F, FAP-433F, FAP-421E, FAP-423E, and FAP-C24JE.
	SP-FAP200-PA	AC Power Adapter for FAP-231F, FAP-221E, FAP-223E, FAP-231E, and FAP-321E.
Desktop Stand	FAP-MNT-WJ-20	Desktop stand for FAP/FAP-C/FAP-U wall jack style APs. Converts wall mounting hardware included with unit to desktop mounting - 20 pack.

Note: Additional external antenna options available for some models. 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.

