

DATA SHEET

# FortiAP™ Series

Available in:



Appliance

## FortiAP Cloud or FortiOS-managed Access Points



FortiAP(TM) access points are managed centrally by the integrated WLAN controller of any FortiGate® security appliance or through the FortiLAN Cloud provisioning and management portal. With the integration of the wireless controller functionality into the market-leading FortiGate appliance, these APs are perfect for campus and 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 console simplifies operations, ensuring consistency in effective policy enforcement and compliance.



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



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

## Product Offerings

### 802.11ax Wi-Fi 6

<b>FAP-831F</b>	8×8 Indoor tri-radio 11ax AP
<b>FAP-431F FAP-433F</b>	4×4 Indoor tri-radio 11ax APs
<b>FAP-432F</b>	4×4 Ruggedized indoor/outdoor tri-radio 11ax AP, external antennas

<b>FAP-231F</b>	2×2 Indoor tri-radio 11ax AP, internal antennas
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<b>FAP-234F</b>	2×2 Ruggedized indoor/outdoor tri-radio 11ax AP, internal antennas
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<b>FAP-23JF</b>	2×2 Wall-mount tri-radio AP, internal antennas
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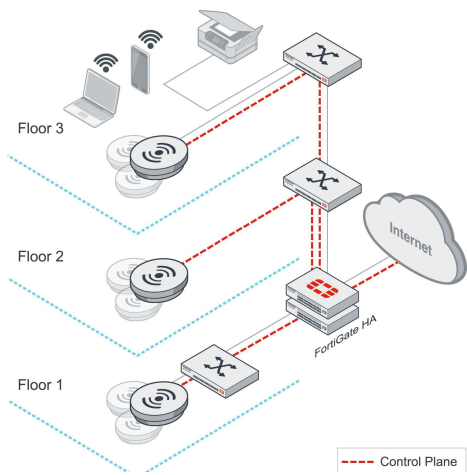
### 802.11ac (Wave 2) Wi-Fi 5

<b>FAP-221E FAP-223E</b>	2×2 Indoor dual-radio APs
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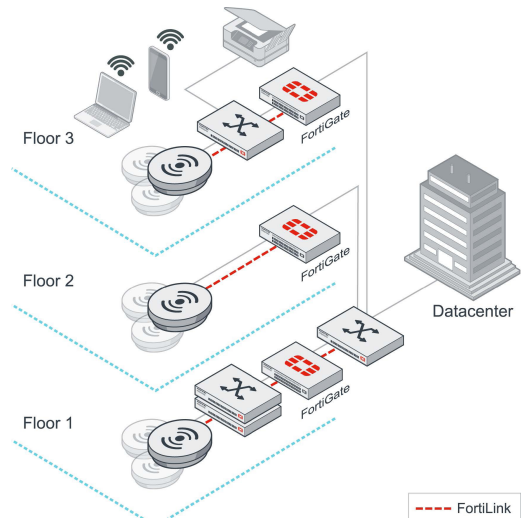
<b>FAP-C24JE</b>	2×2 Wall-mount dual-radio AP, internal antennas
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# DEPLOYMENT

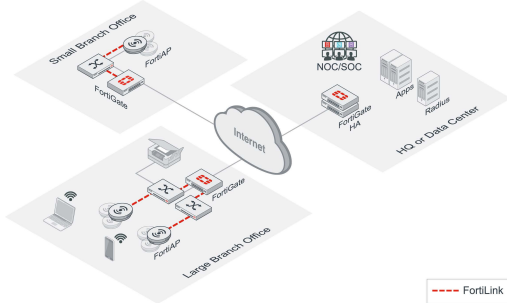
FortiAPs allow for a versatile collection of installation topologies with options to fit any enterprise.



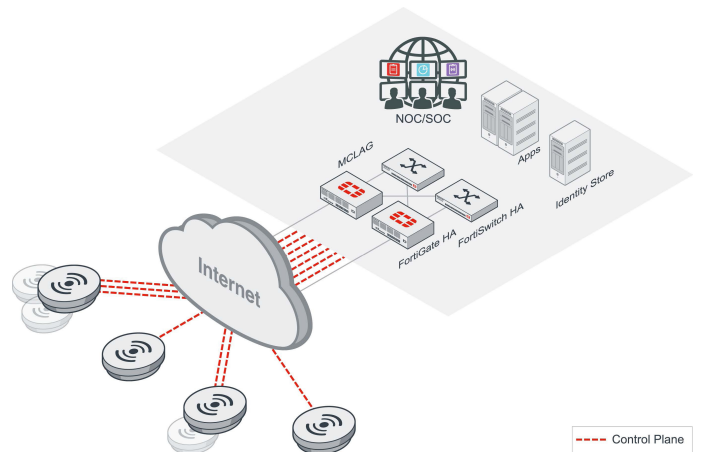
Central pair of FortiGates managing a large site



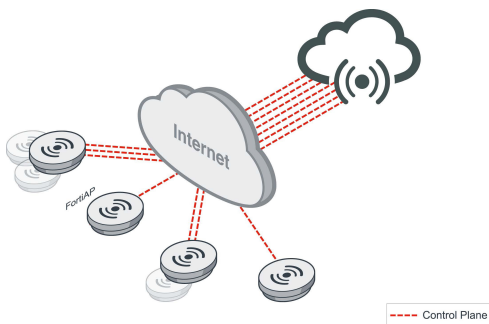
Distributed FortiGates throughout a large campus



Distributed branches via SD-Branch



Centralized FortiGates managing remote teleworkers



FortiLAN Cloud managing standalone FortiAPs



## HIGHLIGHTS

### FortiAP 831F

This high throughput enterprise class 802.11ax indoor AP provides three radios and 8 spatial streams. This top-of-the line access point supports OFDMA, a 5.0 Gigabit Ethernet port, plus an additional 1 Gbps Ethernet port for PoE diversity. The AP can provide 24/7 scanning across both bands while still providing access on both the 2.4 GHz 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 | 13 Internal Antennas**

 **8x8 MU-MIMO | Up to 1,147 Mbps + 4,804 Mbps**

## SPECIFICATIONS

FORTIAP 831F	
<b>Hardware</b>	
<b>Hardware Type</b>	Indoor AP
<b>Number of Radios</b>	3 + 1 BLE
<b>Number of Antennas</b>	4 2.4GHz band WiFi + 8 5GHz band WiFi + 1 Dual band Scanning + 1 2.4GHz band BLE
<b>Antenna Type and Peak Gain</b>	PIFA: 4.0 dBi for 2.4 GHz band WiFi antennas 6.0 dBi for 5.0 GHz band WiFi antennas 4.0 dBi for dual band Scanning radio antenna 4.5 dBi for 2.4 GHz band BLE antenna
<b>Frequency Bands (GHz)*</b>	2.400–2.4835, 5.150–5.250, 5.250–5.350, 5.470–5.725, 5.725–5.850
<b>Radio 1 Capabilities</b>	Frequency Band: 2.4 GHz Channel width: 20/40 MHz Modulation: BPSK, QPSK, QAM64 MIMO chains: 4x4 service
<b>Radio 2 Capabilities</b>	Frequency Band: 5.0 GHz Channel width: 20/40/80/80+80/160MHz Modulation: BPSK, QPSK, QAM64, QAM256, and QAM1024 Mimo chains: 8x8 service in mode 1 or 4x4+4x4 service in mode 2
<b>Radio 3 Capabilities</b>	Frequency band: 2.4/5.0 GHz MIMO chains: 1x1 frequency scanning
<b>Maximum Data Rate</b>	Radio 1: up to 1147.5 Mbps Radio 2: up to 4.804 Gbps in 8x8 MIMO and in 4x4 + 4x4 MIMO modes
<b>Bluetooth Low Energy Radio</b>	Bluetooth scanning and iBeacon advertisement @ 10 dBm max TX power
<b>Interfaces</b>	1x 100/1000/2500/5000 Base-T RJ45 1x 10/100/1000 Base-T RJ45 1x Type 3.0 USB, 1x RS-232 RJ45 Serial Port
<b>Power over Ethernet (PoE)</b>	• 2x 802.3at/bt/30W Passive PoE in (Full function) • 1x 802.3at PoE in (USB3.1 disabled)
<b>Simultaneous SSIDs</b>	Up to 24
<b>EAP Type(s)</b>	EAP-TLS, EAP-TTLS/MSCHAPv2, EAPv0/EAP-MSCHAPv2, PEAPv1/EAP-GTC, EAP-SIM, EAP-AKA, EAP-FAST
<b>User/Device Authentication</b>	WPA™, WPA2™, and WPA3™ with 802.1x or Preshared key, WEP, Web Captive Portal, MAC blacklist & whitelist
<b>Maximum Tx Power (Conducted)</b>	Radio 1: 2.4 GHz 27 dBm / 500 mW (4 chains combined)* Radio 2: 5 GHz 25.5 dBm / 354 mW (4 chains combined)* Radio 3: NA
<b>Kensington Lock</b>	Yes
<b>IEEE Standards</b>	802.11a, 802.11b, 802.11d, 802.11e, 802.11g, 802.11h, 802.11i, 802.11j, 802.11k, 802.11n, 802.11r, 802.11v, 802.11ac, 802.11ax (Wi-Fi 6), 802.1Q, 802.1X, 802.3ad, 802.3af, 802.3at, 802.3az, 802.3bz
<b>SSID Types Supported</b>	Local-Bridge, Mesh, Tunnel
<b>Per Radio Client Capacity</b>	up to 512 clients per radio (Radio1 and Radio2)
<b>Cellular Co-existence</b>	Yes
<b>LED Off Mode</b>	Yes
<b>Advanced 802.11 Features</b>	
<b>OFDMA</b>	Yes (UL and DL)

FORTIAP-831F	
<b>Spatial Reuse (BSS Coloring)</b>	Yes
<b>UL-MU-MIMO 802.11ax mode</b>	Yes
<b>DL-MU-MIMO</b>	Yes
<b>Enhanced Target Wake Time (TWT)</b>	Yes
<b>ZeroWait DFS /Agile DFS</b>	Yes
<b>Wireless Monitoring Capabilities</b>	
<b>Rogue Scan Radio Mode</b>	Dedicated
<b>WIPS / WIDS RAdio Modes</b>	Dedicated
<b>Packet Sniffer Mode</b>	Yes
<b>Spectrum Analyzer</b>	Yes
<b>Dimensions</b>	
<b>Length x Width x Height</b>	9.05 × 89.05 × 2.15 inches (230 × 230 × 55 mm)
<b>Weight</b>	2.25 lbs (1.02 kg)
<b>Package (shipping) Weight</b>	4.2 lbs (1.9 kg)
<b>Mounting Options</b>	Ceiling, T-Rail, and Wall
<b>Included Accessories</b>	Mount kit for Ceiling, T-Rail, and Wall
<b>Environment</b>	
<b>Power Supply</b>	SP-FAP400-PA-XX or GPI-130
<b>PSE Functionality</b>	No
<b>Power Consumption (Max)</b>	33 W
<b>PoE Mode</b>	
<b>Single 5G</b>	DC/2at → Full Mode ; Radios will be in (8x8 4x4) & USB Enabled 1at/2af → High Mode ; Radios will be in (8x8 4x4) & USB Disabled 1af → Low Mode ; Radios will be [2x2 2x2], Tx Power 10 dBm & USB Disabled
<b>Dual 5G</b>	DC/2at → Full Mode ; Radios will be in [4x4 4x4 4x4] & USB Enabled 1at/2af → High Mode ; Radios will be in [4x4 4x4 4x4] & USB Disabled 1af → Low Mode ; Radios will be [2x2 2x2 2x2], Tx Power 10 dBm & USB Disabled
<b>Humidity</b>	5–90% Non-Condensing
<b>Operating / Storage Temp.</b>	32–122°F (0–50°C) / -22–158°F (-30–70°C)
<b>Directives</b>	Low Voltage Directive • RoHS
<b>UL2043 Plenum Material</b>	No
<b>Mean Time Betw. Failures</b>	>10 Years
<b>Surge Protection Built In</b>	Yes
<b>Certifications</b>	
<b>Wi-Fi Alliance Certified</b>	Yes
<b>DFS</b>	CE
<b>Warranty</b>	
<b>Limited Lifetime Warranty</b>	Yes

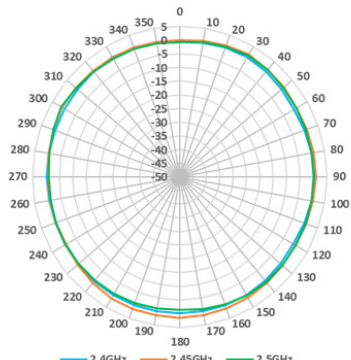


## RF RX/TX PERFORMANCE TABLE

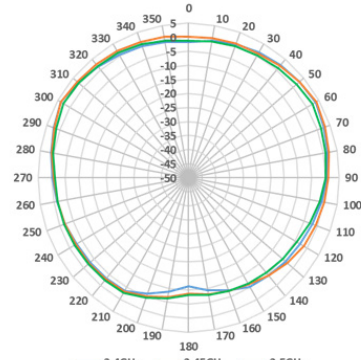
FORTIAP 831F								
	Radio 1		Radio 2		Radio 3			
	2.4 GHz Tx Power per chain (dBm)	Rz Sensitivity (dBm)	5 GHz Tx Power per Chain (dBm)	Rz Sensitivity (dBm)	2.4 GHz Tx Power per chain (dBm)	Rz Sensitivity (dBm)	5 GHz Tx Power per Chain (dBm)	Rz Sensitivity (dBm)
<b>802.11b</b>								
1 Mbps	21	-98	—	—	21	-96	—	—
11 Mbps	23	-89	—	—	18	-87	—	—
<b>802.11g</b>								
6 Mbps	20	-94	—	—	20	-92	—	—
54 Mbps	22	-75	—	—	18	-73	—	—
<b>802.11n HT20</b>								
MCS0	20	-93	—	—	20	-91	—	—
MCS7	20	-74	—	—	17	-72	—	—
<b>802.11n HT40</b>								
MCS0	17	-92	—	—	19	-90	—	—
MCS7	18	-73	—	—	17	-71	—	—
<b>802.11ax HE20</b>								
MCS0	21	-90	—	—	—	—	—	—
MCS11	17	-71	—	—	—	—	—	—
<b>802.11ax HE40</b>								
MCS0	17	-88	—	—	—	—	—	—
MCS11	17	-68	—	—	—	—	—	—
<b>802.11a</b>								
6 Mbps	—	—	20	-92	—	—	20	-90
54 Mbps	—	—	20	-72	—	—	17.5	-72
<b>802.11n HT20</b>								
MCS0	—	—	20	-91	—	—	20	-90
MCS7	—	—	19	-72	—	—	17.5	-71
<b>802.11n HT40</b>								
MCS0	—	—	20	-88	—	—	19	-88
MCS7	—	—	18	-69	—	—	16.5	-69
<b>802.11ac VHT20</b>								
MCS0	—	—	20	-91	—	—	19	-90
MCS9	—	—	19	-67	—	—	17.5	-67
<b>802.11ac VHT40</b>								
MCS0	—	—	20	-88	—	—	19	-88
MCS9	—	—	18	-62	—	—	16	-62
<b>802.11ac VHT80</b>								
MCS0	—	—	18	-85	—	—	18	-85
MCS9	—	—	17	-59	—	—	16	-58
<b>802.11ax HE20</b>								
MCS0	—	—	20	-90	—	—	—	—
MCS11	—	—	18	-66	—	—	—	—
<b>802.11ac HE40</b>								
MCS0	—	—	20	-87	—	—	—	—
MCS11	—	—	18	-61	—	—	—	—
<b>802.11ac HE80</b>								
MCS0	—	—	18	-94	—	—	—	—
MCS11	—	—	17	-58	—	—	—	—



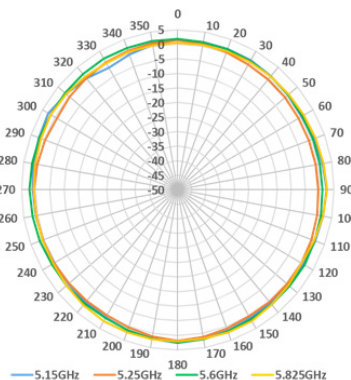
# FAP 831F ANTENNA RADIATION PATTERNS



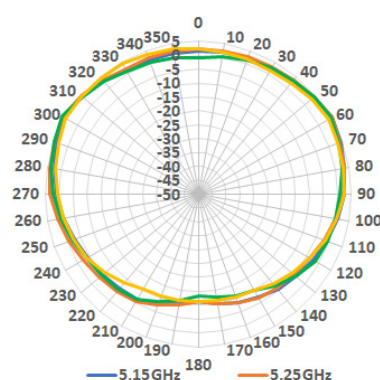
**Radio1 2.4 GHz Horizontal**



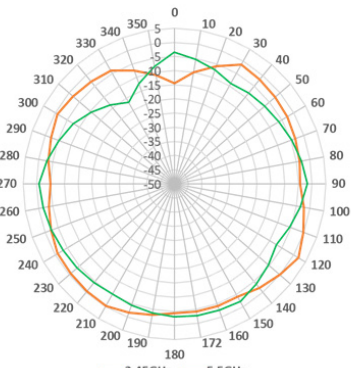
**Radio1 2.4 GHz Vertical**



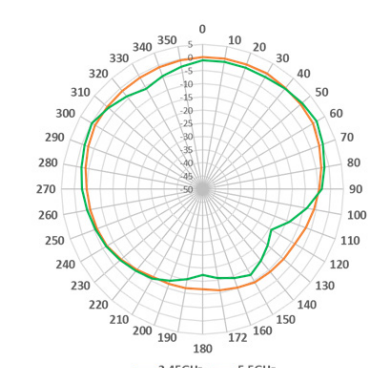
**Radio2 5.0 GHz Horizontal**



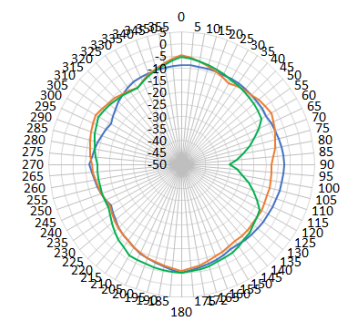
**Radio2 5.0 GHz Vertical**



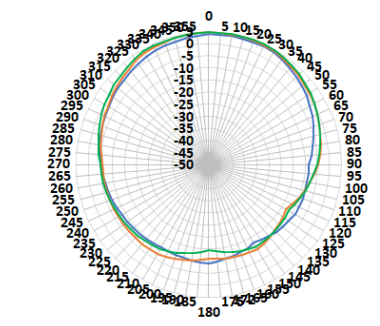
**Scanning Radio Horizontal**



**Scanning Radio Vertical**



**BLE Radio Horizontal**



**BLE Radio Vertical**




# 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 GHz 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
<b>Hardware</b>		
<b>Hardware Type</b>	Indoor AP	Indoor AP
<b>Number of Radios</b>	3 + 1 BLE	3 + 1 BLE
<b>Number of Antennas</b>	5 Internal + 1 BLE Internal	5 External (RP-SMA) + 1 BLE Internal
<b>Antenna Type and Peak Gain</b>	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
<b>Frequency Bands (GHz)*</b>	2.400–2.4835, 5.150–5.250, 5.250–5.350, 5.470–5.725, 5.725–5.850	
<b>Radio 1 Capabilities</b>	Frequency Band: 2.4 GHz Channel width: 4x4 20/40 MHz Modulation: BPSK, QPSK, QAM64, QAM256, and QAM1024 MIMO chains: 4x4 service	
<b>Radio 2 Capabilities</b>	Frequency Band: 5.0 GHz Channel width: 4x4 20/40/80MHz and 2x2 160MHz contiguous Modulation: BPSK, QPSK, QAM64, QAM256, and QAM1024 Mimo chains: 4x4 service	
<b>Radio 3 Capabilities</b>	Frequency band: 2.4/5.0 GHz MIMO chains: 1x1 frequency scanning	
<b>Maximum Data Rate</b>	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
<b>Bluetooth Low Energy Radio</b>	Bluetooth scanning and iBeacon advertisement @ 6 dBm max TX power	
<b>Interfaces</b>	1x 100/1000/2500 Base-T RJ45, 1 x 10/100/1000 Base-T RJ45, 1x Type A USB, 1x RS-232 RJ45 Serial Port	
<b>Power over Ethernet (PoE)</b>	<ul style="list-style-type: none"> <li>• 802.3at PoE default</li> <li>• 1 port powered by 802.3at or 2 ports powered by 802.3af - Full System functionality + USB support</li> <li>• 1 port is connected to 802.3af - No USB support, Operate in 2x2 mode with reduced power R1/R2 17dBm(Tx power)</li> </ul>	
<b>Simultaneous SSIDs</b>	Up to 16 (14 if background scanning enabled)	
<b>EAP Type(s)</b>	EAP-TLS, EAP-TTLS/MSCHAPv2, PEAPv0/EAP-MSCHAPv2, PEAPv1/EAP-GTC, EAP-SIM, EAP-AKA, EAP-FAST	
<b>User/Device Authentication</b>	WPA™, WPA2™, and WPA3™ with 802.1x or Preshared key, WEP, Web Captive Portal, MAC blacklist and allowlist	
<b>Maximum Tx Power (Conducted)</b>	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	
<b>Kensington Lock</b>	Yes	Yes
<b>IEEE Standards</b>	802.11a, 802.11b, 802.11d, 802.11e, 802.11g, 802.11h, 802.11i, 802.11j, 802.11k, 802.11n, 802.11r, 802.11v, 802.11w, 802.11ac, 802.11ax (Wi-Fi 6), 802.11q, 802.11x, 802.3ad, 802.3af, 802.3at, 802.3az, 802.3bz	
<b>SSID Types Supported</b>	Local-Bridge, Mesh, Tunnel	Local-Bridge, Mesh, Tunnel
<b>Per Radio Client Capacity</b>	512 per Radio1 and Radio2	512 per Radio1 and Radio2
<b>Cellular Co-existence</b>	Yes	Yes
<b>Reset Button</b>	Yes	Yes
<b>LED Off Mode</b>	Yes	Yes
<b>Advanced 802.11 Features</b>		
<b>OFDMA</b>	Yes (UL and DL)	Yes (UL and DL)

	FORTIAP-431F	FORTIAP-433F
<b>2.4 GHz OFDMA</b>	Yes	Yes
<b>Spatial Reuse (BSS Coloring)</b>	Yes	Yes
<b>HE-MU-MIMO</b>	Yes	Yes
<b>UL-MU-MIMO 802.11ax mode</b>	Yes	Yes
<b>DL-MU-MIMO</b>	Yes	Yes
<b>Enhanced Target Wake Time (TWT)</b>	Yes	Yes
<b>ZeroWait DFS /Agile DFS</b>	No	No
<b>Wireless Monitoring Capabilities</b>		
<b>Rogue Scan Radio Mode</b>	Background, Dedicated	Background, Dedicated
<b>WIPS / WIDS Radio Modes</b>	Background, Dedicated (recommended)	
<b>Packet Sniffer Mode</b>	Yes	Yes
<b>Spectrum Analyzer</b>	Yes	Yes
<b>Dimensions</b>		
<b>Length x Width x Height</b>	8.27 × 8.27 × 2.22 inches (210 × 210 × 56.5 mm)	
<b>Weight</b>	2.16 lbs (0.98 kg)	2.19 lbs (0.995 kg)
<b>Package (shipping) Weight</b>	3.97 lbs (1.8 kg)	4.4 lbs (2 kg)
<b>Mounting Options</b>	Ceiling, T-Rail, and Wall	Ceiling, T-Rail, and Wall
<b>Included Accessories</b>	Mount kit for Ceiling, T-Rail and Wall	Mount kit for Ceiling, T-Rail and Wall. 5 RP-SMA Male dual-band dipole antenna
<b>Environment</b>		
<b>Power Supply</b>	SP-FAP400-PA-XX or GPI-130	SP-FAP400-PA-XX or GPI-130
<b>Power Consumption (Max)</b>	24.5 W	24.5 W
<b>Humidity</b>	5–90% Non-Condensing	5–90% Non-Condensing
<b>Operating / Storage Temperature</b>	32–113°F (0–45°C) / -31–94°F (-35–70°C)	
<b>Directives</b>	Low Voltage Directive • RoHS	Low Voltage Directive • RoHS
<b>UL2043 Plenum Material</b>	No	No
<b>Mean Time Between Failures</b>	>10 Years	>10 Years
<b>IP Rating</b>	—	—
<b>Surge Protection Built In</b>	Yes	Yes
<b>Hit-less PoE Failover</b>	Yes	Yes
<b>Certifications</b>		
<b>Wi-Fi Alliance Certified</b>	Yes	Yes
<b>DFS</b>	FCC, IC, CE, Japan, Korea, Taiwan	FCC, IC, CE, Japan, Korea, Taiwan
<b>Warranty</b>		
<b>Limited Lifetime Warranty</b>	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)
<b>802.11b</b>								
1 Mbps	23	-98	—	—	20	-96	—	—
11 Mbps	23	-89	—	—	18	-87	—	—
<b>802.11g</b>								
6 Mbps	23	-94	—	—	20	-92	—	—
54 Mbps	22	-75	—	—	18	-73	—	—
<b>802.11n HT20</b>								
MCS0	22	-93	—	—	20	-91	—	—
MCS7	20	-74	—	—	17	-72	—	—
<b>802.11n HT40</b>								
MCS0	20	-92	—	—	19	-90	—	—
MCS7	18	-73	—	—	17	-71	—	—
<b>802.11ax HE20</b>								
MCS0	22	-90	—	—	—	—	—	—
MCS11	17	-71	—	—	—	—	—	—
<b>802.11ax HE40</b>								
MCS0	19	-88	—	—	—	—	—	—
MCS11	17	-68	—	—	—	—	—	—
<b>802.11a</b>								
6 Mbps	—	—	20	-92	—	—	20	-90
54 Mbps	—	—	20	-72	—	—	17.5	—
<b>802.11n HT20</b>								
MCS0	—	—	20	-91	—	—	20	-90
MCS7	—	—	19	-72	—	—	17.5	-71
<b>802.11n HT40</b>								
MCS0	—	—	20	-88	—	—	19	-88
MCS7	—	—	18	-69	—	—	16.5	-69
<b>802.11ac VHT20</b>								
MCS0	—	—	20	-91	—	—	19	-90
MCS9	—	—	19	-67	—	—	17.5	-67
<b>802.11ac VHT40</b>								
MCS0	—	—	20	-88	—	—	19	-88
MCS9	—	—	18	-62	—	—	16	-62
<b>802.11ac VHT80</b>								
MCS0	—	—	18	-85	—	—	18	-85
MCS9	—	—	17	-59	—	—	16	-58
<b>802.11ax HE20</b>								
MCS0	—	—	20	-90	—	—	—	—
MCS11	—	—	18	-66	—	—	—	—
<b>802.11ac HE40</b>								
MCS0	—	—	20	-87	—	—	—	—
MCS11	—	—	18	-61	—	—	—	—
<b>802.11ac HE80</b>								
MCS0	—	—	18	-94	—	—	—	—
MCS11	—	—	17	-58	—	—	—	—

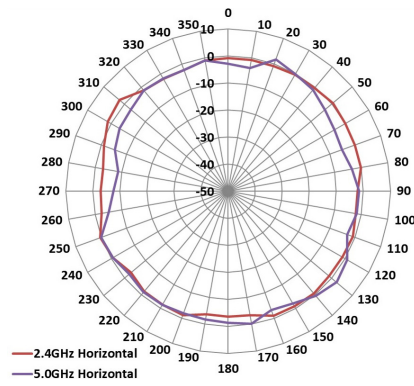


# ANTENNA RADIATION PATTERNS

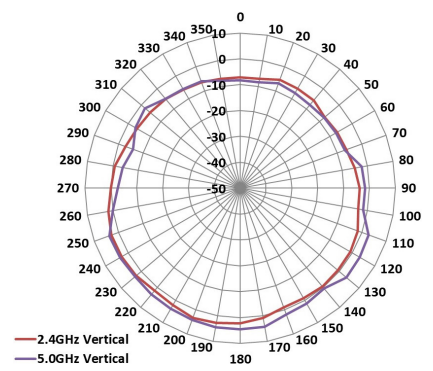
## FAP-431F



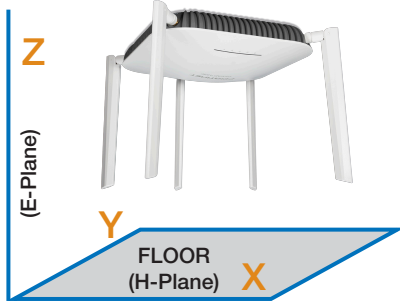
H-Plane Pattern



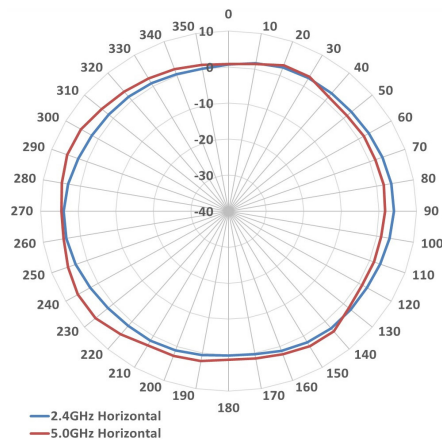
E-Plane Pattern



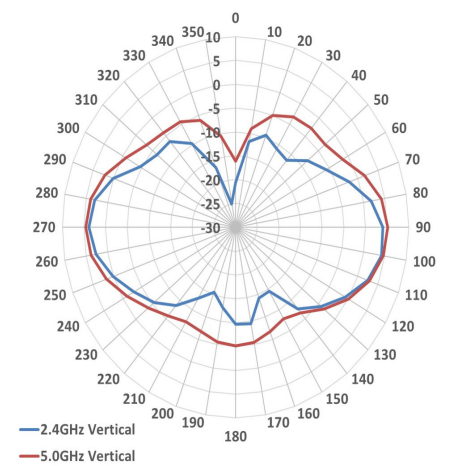
## FAP-433F



H-Plane Pattern



E-Plane Pattern





## HIGHLIGHTS

### FortiAP 432F

This enterprise class 802.11ax ruggedized indoor/outdoor AP provides three radios. As a top-of-the-line Wi-Fi 6 access point it provides OFDMA, a 2.5 Gigabit Ethernet port, plus an additional 1 Gbps Ethernet port with PoE out. The AP can provide 24/7 scanning across both bands while still providing access on both the 2.4 GHz 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 | 6 External Antennas**

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

## SPECIFICATIONS

FORTIAP 432F	
<b>Hardware</b>	
Hardware Type	Ruggedized indoor/outdoor AP
Number of Radios	3 + 1 BLE
Number of Antennas	4 dual band WiFi + 1 dual band scanning + 1 single band 2.4 GHz BLE/ZigBee
Antenna Type and Peak Gain	WiFi and scanning radio dual band antenna: 5.5 dBi in 2.4 GHz and 7.2 dBi in 5 GHz band BLE antenna: 5.0 dBi in 2.4 GHz 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: 2.4 GHz Channel width: 20/40MHz Modulation: BPSK, QPSK, 64/256/1024 QAM MIMO Chains: 4x4 Service
Radio 2 Capabilities	Frequency band: 5.0 GHz Channel width: 4x4 20/40/80MHz and 2x2 160 MHz contiguous Modulation: BPSK, QPSK, QAM64, QAM256, and QAM1024 MIMO Chains: 4x4 Service
Radio 3 Capabilities	Frequency bands: 2.4 GHz and 5.0 GHz MIMO Chains: 1x1 Frequency Scanning
Maximum Data Rate	Radio 1: up to 1147 Mbps Radio 2: up to 2402 Mbps Radio 3: Frequency scanning only
Bluetooth Low Energy Radio	Bluetooth scanning and iBeacon advertisement @ 10 dBm max TX power
Interfaces	1x 100/1000/2500 Base-T RJ45, 1x 10/100/1000 Base-T RJ45 (802.3af PoE PSE), 1x RS-232 RJ45 Serial Port
Power over Ethernet (PoE)	<ul style="list-style-type: none"> <li>802.3bt PoE default (ships with Passive PoE injector)</li> <li>Powered by 802.3at PoE - Operate in 4x4 mode with reduced Tx power Radio1/R2 17dBm</li> <li>This product only supports PSE functionality when it is powered by PoE injector that ships with the product.</li> </ul>
Simultaneous SSIDs	Up to 16 (14 if background scanning enabled)
EAP Type(s)	EAP-TLS, EAP-TTLS/MSCHAPv2, PEAPv0/EAP-MSCHAPv2, PEAPv1/EAP-GTC, EAP-SIM, EAP-AKA, EAP-FAST
User/Device Authentication	WPA™, WPA2™, and WPA3™ with 802.1x or pre-shared key, WEP, Web Captive Portal, MAC blacklist & allowlist
Maximum Tx Power (Conducted)	Radio 1: 2.4 GHz 30 dBm / 1000 mW (4 chains combined)* Radio 2: 5 GHz 26 dBm / 398 mW (4 chains combined)* Radio 3: N/A
Kensington Lock	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, 802.11w, 802.11ac, 802.11ax (Wi-Fi 6), 802.1Q, 802.1X, 802.3ad, 802.3af, 802.3at, 802.3az, 802.3bt, 802.3bz
Per Radio Client Capacity	Up to 512 clients per radio (Radio1 and Radio2)
Cellular Co-existence*	Yes
LED Off Mode	Yes

FORTIAP 432F	
<b>Advanced 802.11 Features</b>	
OFDMA	Yes (UL and DL)
Spatial Reuse (BSS Coloring)	Yes
UL MU-MIMO	Yes
DL-MU-MIMO	Yes
Enhanced Target Wake Time (TWT)	Yes
ZeroWait DFS	Yes
<b>Wireless Monitoring Capabilities</b>	
Rogue Scan radio modes	Background, Dedicated
WIPS / WIDS radio modes	Background, Dedicated (recommended)
Packet Sniffer Mode	Yes
Spectrum Analyzer	Yes
<b>Dimensions</b>	
Length x Width x Height	8.23 x 8.23 x 2.38 inches (209 x 209 x 60.5 mm)
Weight	5.12 lbs (2.325 kg)
Package (shipping) Weight	12.56.93 lbs (5.7 kg)
Mounting Options	Ceiling, T-Rail, and Wall
Included Accessories	Standard Mount kit for Ceiling, T-Rail, and Wall
<b>Environment</b>	
Power Supply	802.3bt PoE, ships with PoE injector (reset functionality)
PSE functionality	Yes (while powered by PoE injector shipped with product)
Power Consumption (Maximum)	25 W without PSE out and 37.9 W with PSE out
Humidity	10 - 90% non condensing
Operating / Storage Temperature	-22–140°F (-40 - 60°C) / -40–176°F (-40–80°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	N/A
<b>Certifications</b>	
WiFi Alliance Certified	Yes
DFS	CE, A
<b>Warranty</b>	
Limited Lifetime Warranty	Yes

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



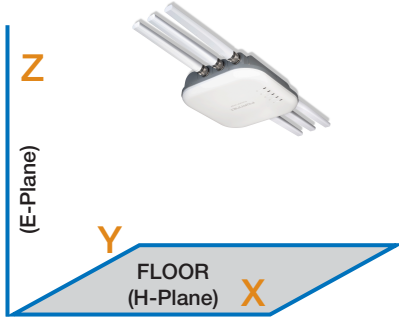
## RF RX/TX PERFORMANCE TABLE

FORTIAP 432F							
	Radio 1		Radio 2		Radio 3 Scanning		
	2.4 GHz Tx Power per chain (dBm)	Rz Sensitivity (dBm)	5 GHz Tx Power per Chain (dBm)	Rz Sensitivity (dBm)	2.4 GHz Tx Power per chain (dBm)	5 GHz Tx Power per Chain (dBm)	Rz Sensitivity (dBm)
<b>802.11b</b>							
1 Mbps	24	-99	—	—	20	—	-92
11 Mbps	24	-91	—	—	18	—	-91
<b>802.11g</b>							
6 Mbps	24	-94	—	—	20	—	-92
54 Mbps	23	-78	—	—	18	—	-77
<b>802.11n HT20</b>							
MCS0	24	-94	—	—	20	—	-92
MCS7	23	-75	—	—	17	—	-74
<b>802.11n HT40</b>							
MCS0	23	-92	—	—	19	—	-90
MCS7	22	-73	—	—	17	—	-72
<b>802.11ax HE20</b>							
MCS0	23	-90	—	—	—	—	—
MCS11	21	-71	—	—	—	—	—
<b>802.11ax HE40</b>							
MCS0	21	-91	—	—	—	—	—
MCS11	19	-72	—	—	—	—	—
<b>802.11a</b>							
6 Mbps	—	—	22	-92	—	20	-93
54 Mbps	—	—	22	-76	—	19	-76
<b>802.11n HT20</b>							
MCS0	—	—	22	-93	—	20	-93
MCS7	—	—	21	-74	—	19	-73
<b>802.11n HT40</b>							
MCS0	—	—	22	-91	—	19	-90
MCS7	—	—	21	-72	—	18	-71
<b>802.11ac VHT20</b>							
MCS0	—	—	22	-91	—	19	-93
MCS9	—	—	20	-72	—	18	-69
<b>802.11ac VHT40</b>							
MCS0	—	—	22	-91	—	19	-90
MCS9	—	—	19	-72	—	16	-64
<b>802.11ac VHT80</b>							
MCS0	—	—	20	-86	—	17	-88
MCS9	—	—	17	-62	—	17	-61
<b>802.11ax HE20</b>							
MCS0	—	—	22	-91	—	—	—
MCS11	—	—	19	-72	—	—	—
<b>802.11ac HE40</b>							
MCS0	—	—	22	-91	—	—	—
MCS11	—	—	19	-72	—	—	—
<b>802.11ac HE80</b>							
MCS0	—	—	20	-87	—	—	—
MCS11	—	—	18	-58	—	—	—

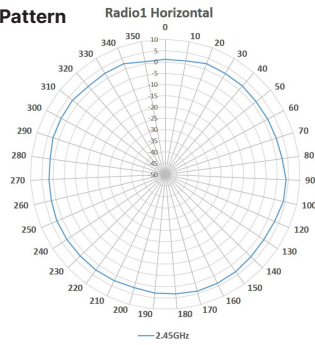


# ANTENNA RADIATION PATTERNS

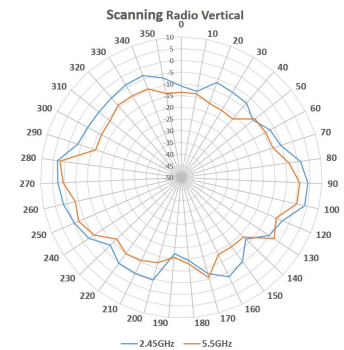
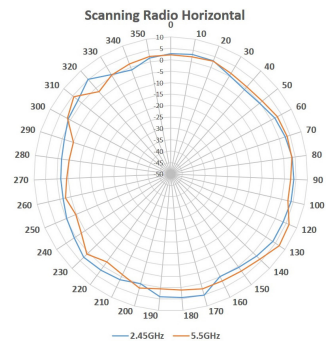
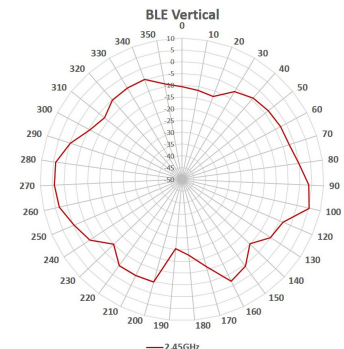
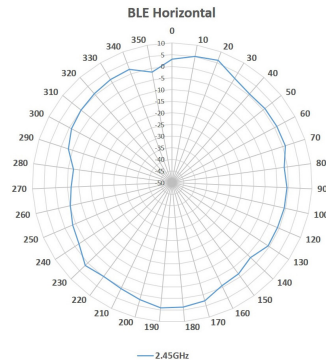
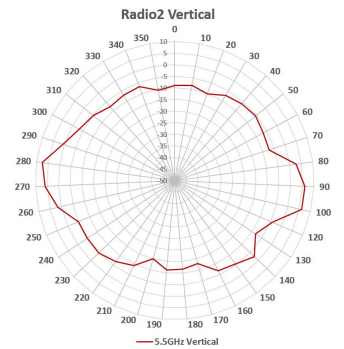
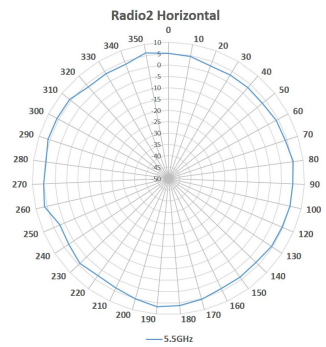
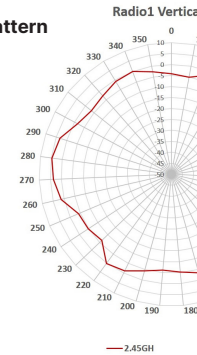
## FAP-432F



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 GHz 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	
<b>Hardware</b>	
<b>Hardware Type</b>	Indoor AP
<b>Number of Radios</b>	3 + 1 BLE
<b>Number of Antennas</b>	3 Dual band Internal Wi-Fi + 1 BLE/ZigBee
<b>Antenna Type and Peak Gain</b>	PIFA antenna Dual band: 4.5dBi for 2.4GHz and 5.5dBi for 5GHz BLE antenna 4.0dBi at 2.4GHz band
<b>Frequency Bands (GHz)*</b>	2.400–2.4835, 5.150–5.250, 5.250–5.350, 5.470–5.725, 5.725–5.850
<b>Radio 1 Capabilities</b>	Frequency band: 2.4GHz Channel width: 20/40MHz Modulation: BPSK, QPSK, 64/256/1024 QAM MIMO Chains: 2x2 Service
<b>Radio 2 Capabilities</b>	Frequency band: 5.0GHz Channel width: 20/40/80MHz Modulation: BPSK, QPSK, 64/256/1024 QAM MIMO Chains: 2x2 Service
<b>Radio 3 Capabilities</b>	Frequency bands: 2.4GHz and 5.0GHz MIMO Chains: 1x1 Frequency Scanning
<b>Maximum Data Rate</b>	Radio 1: up to 574 Mbps Radio 2: up to 1201 Mbps Radio 3: Frequency scanning only
<b>Bluetooth Low Energy Radio</b>	Bluetooth scanning and iBeacon advertisement @ 10 dBm max TX power
<b>Interfaces</b>	2x 10/100/1000 Base-T RJ45, 1x Type 2.0 USB, 1x RS-232 RJ45 Serial Port
<b>Power over Ethernet (PoE)</b>	<ul style="list-style-type: none"> <li>• 802.3at PoE default</li> <li>• 1 port powered by 802.3at - full system functionality + USB support</li> <li>• 1 port is connected to 802.3af - no USB support</li> </ul>
<b>Simultaneous SSIDs</b>	Up to 16 (14 if background scanning enabled)
<b>EAP Type(s)</b>	EAP-TLS, EAP-TTLS/MSCHAPv2, PEAPv0/EAP-MSCHAPv2, PEAPv1/EAP-GTC, EAP-SIM, EAP-AKA, EAP-FAST
<b>User/Device Authentication</b>	WPA™, WPA2™, and WPA3™ with 802.1x or Preshared key, WEP, Web Captive Portal, MAC blocklist & allowlist
<b>Maximum Tx Power (Conducted)</b>	Radio 1: 2.4GHz: 23 dBm / 200 mW (2 chains combined)* Radio 2: 5GHz: 22 dBm / 158 mW (2 chains combined)* Radio 3: NA
<b>Kensington Lock</b>	Yes
<b>IEEE Standards</b>	802.11a, 802.11b, 802.11d, 802.11e, 802.11g, 802.11h, 802.11i, 802.11j, 802.11k, 802.11n, 802.11r, 802.11v, 802.11w, 802.11ac, 802.11ax, 802.1Q, 802.1X, 802.3ad, 802.3af, 802.3at, 802.3az
<b>SSID Types Supported</b>	Local-Bridge, Tunnel, and Mesh
<b>Per Radio Client Capacity</b>	Up to 512 clients per radio (Radio1 and Radio2)
<b>Cellular Co-existence*</b>	Yes
<b>Reset Button</b>	Yes

FORTIAP 231F	
<b>LED Off Mode</b>	Yes
<b>Advanced 802.11 Features</b>	
<b>OFDMA</b>	Yes (UL and DL)
<b>Spatial Reuse (BSS Coloring)</b>	Yes
<b>UL MU-MIMO 802.11ax mode</b>	Yes
<b>DL-MU-MIMO</b>	Yes
<b>Enhanced Target Wake Time (TWT)</b>	Yes
<b>ZeroWait DFS/Agile DFS</b>	No
<b>Wireless Monitoring Capabilities</b>	
<b>Rogue Scan radio modes</b>	Background, Dedicated
<b>WIPS / WIDS radio modes</b>	Background, Dedicated (recommended)
<b>Packet Sniffer Mode</b>	Yes
<b>Spectrum Analyzer</b>	Yes
<b>Dimensions</b>	
<b>Length x Width x Height</b>	6.0 x 6.0 x 2.86 inches (153.2 x 153.2 x 53.0 mm)
<b>Weight</b>	1.0 lbs (0.543 kg)
<b>Package (shipping) Weight</b>	2.1lbs (0.95 kg)
<b>Mounting Options</b>	Ceiling, T-Rail, and Wall
<b>Included Accessories</b>	Standard Mount kit for Ceiling, T-Rail, and Wall
<b>Environment</b>	
<b>Power Supply</b>	802.3at PoE GPI-130
<b>Power Consumption (Maximum)</b>	17W
<b>Humidity</b>	5 - 90% non condensing
<b>Operating / Storage Temperature</b>	32–122°F (0 - 50°C) / -22–158°F (-30–70°C)
<b>Directives</b>	Low Voltage Directive • RoHS
<b>UL2043 Plenum Material</b>	No
<b>Mean Time Between Failures</b>	> 10 Years
<b>IP Rating</b>	N/A
<b>Surge Protection Built In</b>	Yes
<b>Hit-less PoE Failover</b>	N/A
<b>Certifications</b>	
<b>WiFi Alliance Certified</b>	Yes
<b>DFS</b>	CE, FCC, IC, Taiwan
<b>Warranty</b>	
<b>Limited Lifetime Warranty</b>	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)
<b>802.11b</b>				
1 Mbps	21	-99	—	—
11 Mbps	21	-90	—	—
<b>802.11g</b>				
6 Mbps	20	-94	—	—
54 Mbps	20	-77	—	—
<b>802.11n HT20</b>				
MCS0	19	-94	—	—
MCS7	18	-76	—	—
<b>802.11n HT40</b>				
MCS0	19	-92	—	—
MCS7	19	-73	—	—
<b>802.11ax HE20</b>				
MCS0	19	-94	—	—
MCS11	17	-65	—	—
<b>802.11ax HE40</b>				
MCS0	19	-91	—	—
MCS11	16	-63	—	—
<b>802.11a</b>				
6 Mbps	—	—	22	-94
54 Mbps	—	—	21	-77
<b>802.11n HT20</b>				
MCS0	—	—	21	-94
MCS7	—	—	19	-76
<b>802.11n HT40</b>				
MCS0	—	—	21	-91
MCS7	—	—	19	-73
<b>802.11ac VHT20</b>				
MCS0	—	—	21	-94
MCS9	—	—	18	-72
<b>802.11ac VHT40</b>				
MCS0	—	—	21	-91
MCS9	—	—	18	-68
<b>802.11ac VHT80</b>				
MCS0	—	—	19	-88
MCS9	—	—	17	-64
<b>802.11ax HE20</b>				
MCS0	—	—	21	-94
MCS11	—	—	17	-64
<b>802.11ac HE40</b>				
MCS0	—	—	21	-91
MCS11	—	—	17	-62
<b>802.11ac HE80</b>				
MCS0	—	—	19	-88
MCS11	—	—	16	-58

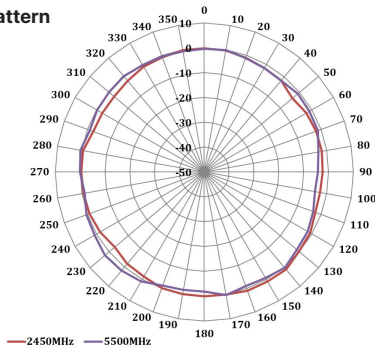


# ANTENNA RADIATION PATTERNS

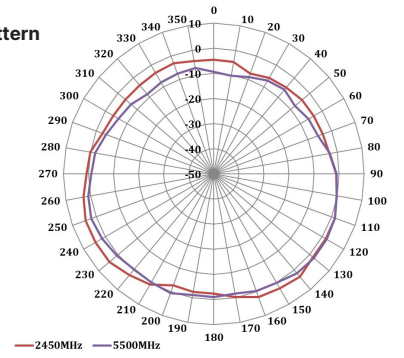
## FAP-231F



H-Plane Pattern



E-Plane Pattern





## HIGHLIGHTS

### FortiAP 234F

This enterprise class Wi-Fi 6 ruggedized indoor/outdoor AP provides three radios with internal antennas 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 GHz 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 | 2 5G antenna + 2 2.4G antenna + 1 dual band antenna + 1 single band 2.4 Ghz BLE/ZigBee**

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

## SPECIFICATIONS

FORTIAP 234F	
<b>Hardware</b>	
<b>Hardware Type</b>	Ruggedized indoor/outdoor AP
<b>Number of Radios</b>	3 + 1 BLE
<b>Number of Antennas</b>	2 dual band WiFi + 1 dual band scanning + 1 single band 2.4 GHz BLE/ZigBee
<b>Antenna Type and Peak Gain</b>	Directional patch antenna Single band antennas: 10 dBi in 2.4 GHz band, 10 dBi in 5.0 GHz band Scanning radio: 3.5 dBi in 2.4 GHz band and 4.5 dBi in 5 GHz band BLE antenna: 3.5 dBi in 2.4 GHz band
<b>Antenna Beam Width</b>	2.4GHz Horizontal BW 70 degree Vertical BW 30 degree 5.0GHz Horizontal BW 78 degree Vertical BW 25 degree
<b>Frequency Bands (GHz)*</b>	2.400–2.4835, 5.150–5.250, 5.250–5.350, 5.470–5.725, 5.725–5.850
<b>Radio 1 Capabilities</b>	Frequency band: 2.4GHz Channel width: 20/40MHz Modulation: BPSK, QPSK, 64/256/1024 QAM MIMO Chains: 2x2 Service
<b>Radio 2 Capabilities</b>	Frequency band: 5.0GHz Channel width: 20/40/80MHz Modulation: BPSK, QPSK, 64/256/1024 QAM MIMO Chains: 2x2 Service
<b>Radio 3 Capabilities</b>	Frequency bands: 2.4 GHz and 5.0 GHz MIMO Chains: 1x1 Frequency Scanning
<b>Maximum Data Rate</b>	Radio 1: up to 574 Mbps Radio 2: up to 1200 Mbps Radio 3: Frequency scanning only
<b>Bluetooth Low Energy Radio</b>	Bluetooth scanning and iBeacon advertisement @ 10 dBm max TX power
<b>Interfaces</b>	2x 10/100/1000 Base-T RJ45, 1x RS-232 RJ45 Serial Port
<b>Power over Ethernet (PoE)</b>	<ul style="list-style-type: none"> <li>802.3at PoE default ( Ships with Passive PoE injector)</li> <li>1 port powered by 802.3at or 2 ports powered by 802.3af - Full System functionality</li> <li>1 port is connected to 802.3af - No USB support, Operate in 2x2 mode with reduced Tx power R1/R2 17dBm</li> </ul>
<b>Simultaneous SSIDs</b>	Up to 16 (14 if background scanning enabled)
<b>EAP Type(s)</b>	EAP-TLS, EAP-TTLS/MSCHAPv2, PEAPv0/EAP-MSCHAPv2, PEAPv1/EAP-GTC, EAP-SIM, EAP-AKA, EAP-FAST
<b>User/Device Authentication</b>	WPA™, WPA2™, and WPA3™ with 802.1x or Preshared key, WEP, Web Captive Portal, MAC blocklist & allowlist
<b>Maximum Tx Power (Conducted)</b>	Radio 1: 2.4 GHz: 27 dBm / 500 mW (2 chains combined)* Radio 2: 5 GHz: 25.5 dBm / 354 mW (2 chains combined)* Radio 3: N/A
<b>Kensington Lock</b>	Yes
<b>IEEE Standards</b>	802.11a, 802.11b, 802.11d, 802.11e, 802.11g, 802.11h, 802.11i, 802.11j, 802.11k, 802.11n, 802.11r, 802.11v, 802.11w, 802.11ac, 802.11ax (Wi-Fi 6), 802.1Q, 802.1X, 802.3ad, 802.3af, 802.3at, 802.3az, 802.3bz

FORTIAP 234F	
<b>SSID Types Supported</b>	Local-Bridge, Tunnel, and Mesh
<b>Per Radio Client Capacity</b>	Up to 512 clients per radio (Radio1 and Radio2)
<b>Cellular Co-existence*</b>	Yes
<b>LED Off Mode</b>	Yes
<b>Advanced 802.11 Features</b>	
<b>OFDMA</b>	Yes (UL and DL)
<b>Spatial Reuse (BSS Coloring)</b>	Yes
<b>UL MU-MIMO</b>	Yes
<b>DL-MU-MIMO</b>	Yes
<b>Enhanced Target Wake Time (TWT)</b>	Yes
<b>ZeroWait DFS</b>	Yes
<b>Wireless Monitoring Capabilities</b>	
<b>Rogue Scan radio modes</b>	Background, Dedicated
<b>WIPS / WIDS radio modes</b>	Background, Dedicated (recommended)
<b>Packet Sniffer Mode</b>	Yes
<b>Spectrum Analyzer</b>	Yes
<b>Dimensions</b>	
<b>Length x Width x Height</b>	12.45 x 8.6 x 1.66 inches (316 x 218 x 42 mm)
<b>Weight</b>	2.88 lbs (1.307 kg)
<b>Package (shipping) Weight</b>	7.93 lbs (3.6 kg)
<b>Mounting Options</b>	Ceiling, T-Rail, and Wall
<b>Included Accessories</b>	Standard Mount kit for Ceiling, T-Rail, and Wall
<b>Environment</b>	
<b>Power Supply</b>	802.3at PoE: GPI-130 ; ships with PoE Injector (reset functionality)
<b>PSE functionality</b>	No
<b>Power Consumption (Maximum)</b>	15.5 W
<b>Humidity</b>	10 - 90% non condensing
<b>Operating / Storage Temperature</b>	-22–140°F (-40 - 60°C) / -40–176°F (-40–80°C)
<b>Directives</b>	Low Voltage Directive • RoHS
<b>UL2043 Plenum Material</b>	No
<b>Mean Time Between Failures</b>	> 10 Years
<b>IP Rating</b>	IP67
<b>Surge Protection Built In</b>	Yes
<b>Hit-less PoE Failover</b>	N/A
<b>Certifications</b>	
<b>WiFi Alliance Certified</b>	Yes
<b>DFS</b>	CE, A
<b>Warranty</b>	
<b>Limited Lifetime Warranty</b>	Yes

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



## RF RX/TX PERFORMANCE TABLE

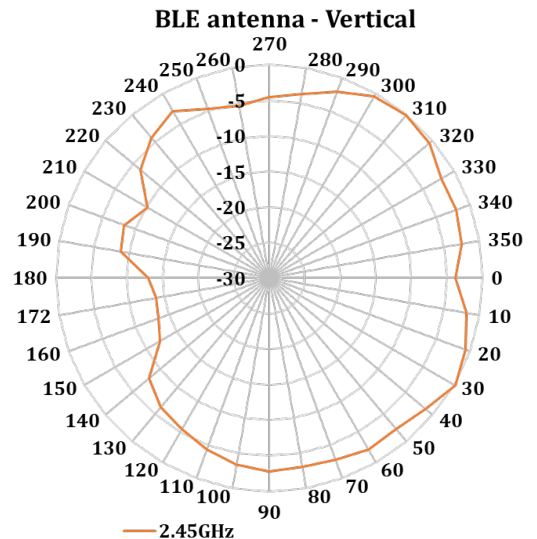
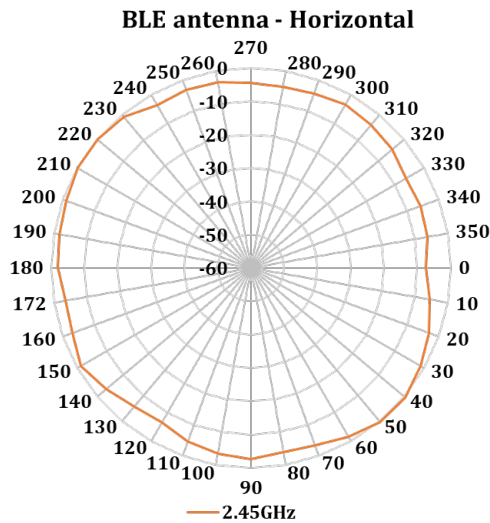
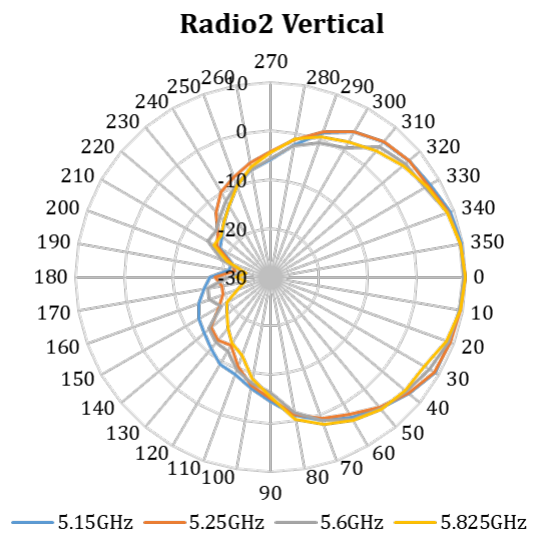
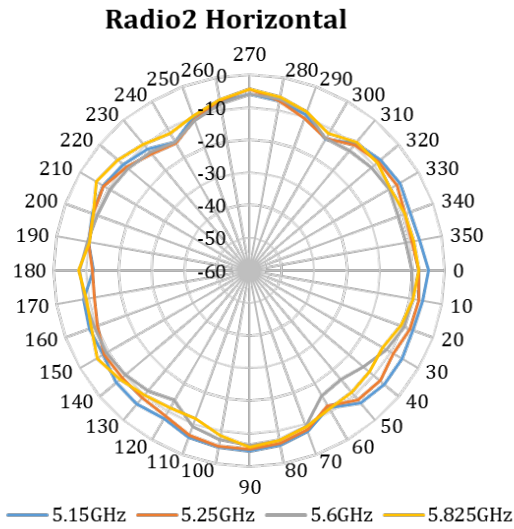
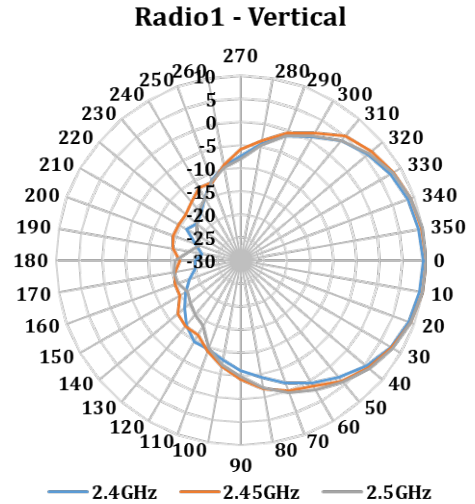
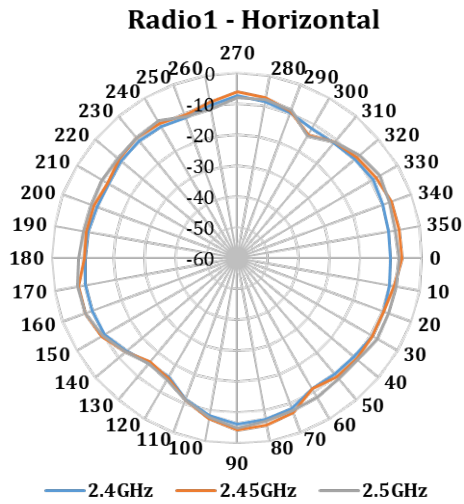
FORTIAP 234F							
	Radio 1		Radio 2		Radio 3 Scanning		
	2.4 GHz Tx Power per chain (dBm)	Rz Sensitivity (dBm)	5 GHz Tx Power per Chain (dBm)	Rz Sensitivity (dBm)	2.4 GHz Tx Power per chain (dBm)	5 GHz Tx Power per Chain (dBm)	Rz Sensitivity (dBm)
<b>802.11b</b>							
1 Mbps	24	-99	—	—	20	—	-92
11 Mbps	24	-91	—	—	18	—	-91
<b>802.11g</b>							
6 Mbps	24	-95	—	—	20	—	-92
54 Mbps	23	-78	—	—	18	—	-77
<b>802.11n HT20</b>							
MCS0	24	-94	—	—	20	—	-92
MCS7	23	-78	—	—	17	—	-74
<b>802.11n HT40</b>							
MCS0	23	-92	—	—	19	—	-90
MCS7	22	-74	—	—	17	—	-72
<b>802.11ax HE20</b>							
MCS0	23	-90	—	—	—	—	—
MCS11	21	-71	—	—	—	—	—
<b>802.11ax HE40</b>							
MCS0	21	-91	—	—	—	—	—
MCS11	19	-72	—	—	—	—	—
<b>802.11a</b>							
6 Mbps	—	—	21	-93	—	20	-93
54 Mbps	—	—	21	-77	—	19	-76
<b>802.11n HT20</b>							
MCS0	—	—	21	-91	—	20	-93
MCS7	—	—	20	-72	—	19	-73
<b>802.11n HT40</b>							
MCS0	—	—	21	-91	—	19	-90
MCS7	—	—	20	-72	—	18	-71
<b>802.11ac VHT20</b>							
MCS0	—	—	20	-91	—	19	-93
MCS9	—	—	18	-72	—	18	-69
<b>802.11ac VHT40</b>							
MCS0	—	—	19	-87	—	19	-90
MCS9	—	—	17	-64	—	16	-64
<b>802.11ac VHT80</b>							
MCS0	—	—	22	-91	—	17	-88
MCS9	—	—	19	-72	—	17	-61
<b>802.11ax HE20</b>							
MCS0	—	—	22	-91	—	—	—
MCS11	—	—	19	-72	—	—	—
<b>802.11ac HE40</b>							
MCS0	—	—	22	-91	—	—	—
MCS11	—	—	19	-72	—	—	—
<b>802.11ac HE80</b>							
MCS0	—	—	20	-89	—	—	—
MCS11	—	—	18	-59	—	—	—





# ANTENNA RADIATION PATTERNS


## FAP-234F



# HIGHLIGHTS

## FortiAP 23JF

This enterprise class Wi-Fi 6 wall plate AP provides three radios with internal antennas as well as features such as OFDMA and is PSE-capable. The AP can provide 24/7 scanning across both bands while still providing access on both the 2.4 GHz and 5 GHz bands. The integrated BLE radio can be used for beacons and locationing applications. Additional features include PoE out for downstream devices and RJ45 passthrough. This access point can be installed in minutes, right over the existing wall plate.

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

 **2x2 MU-MIMO | Up to 574 Mbps + 1,200 Mbps + scanning**



# SPECIFICATIONS

FORTIAP 23JF	
<b>Hardware</b>	
<b>Hardware Type</b>	Indoor walljack/desktop AP
<b>Number of Radios</b>	3 + 1 BLE
<b>Number of Antennas</b>	4 single band WiFi + 1 dual band scanning + 1 single band 2.4 GHz BLE/ZigBee
<b>Antenna Type and Peak Gain</b>	PCB antenna Dual band: 4.0 dBi in 2.4 GHz band and 4.0 dBi in 5 GHz band BLE antenna: 3.5 dBi in 2.4 GHz band
<b>Frequency Bands (GHz)*</b>	2.400–2.4835, 5.150–5.250, 5.250–5.350, 5.470–5.725, 5.725–5.850
<b>Radio 1 Capabilities</b>	Frequency band: 2.4 GHz Channel width: 20/40 MHz Modulation: BPSK, QPSK, 64/256/1024 QAM MIMO Chains: 2x2 Service
<b>Radio 2 Capabilities</b>	Frequency band: 5.0 GHz Channel width: 20/40/80 MHz Modulation: BPSK, QPSK, 64/256/1024 QAM MIMO Chains: 2x2 Service
<b>Radio 3 Capabilities</b>	Frequency bands: 2.4 GHz and 5.0 GHz MIMO Chains: 1x1 Frequency Scanning
<b>Maximum Data Rate</b>	Radio 1: up to 574 Mbps Radio 2: up to 1200 Mbps Radio 3: Frequency scanning only
<b>Bluetooth Low Energy Radio</b>	Bluetooth scanning and iBeacon advertisement @ 10 dBm max TX power
<b>Interfaces</b>	4x 10/100/1000 Base-T RJ45 Ports (1x 802.3at PoE(PD), 1x 802.3af PoE (PSE), 2x Non-PoE Ports)  3 RJ-45 Ports (1x Pass-through in, 1x Pass-through out, 1x RS-232 Serial Port)
<b>Power over Ethernet (PoE)</b>	<ul style="list-style-type: none"> <li>802.3at PoE default ( optional DC adaptor)</li> <li>Powered via DC power supply - Full System functionality + USB + PSE (8023af 15.4W)</li> <li>Powered by 802.3af - Only Radio functionality is operational (No USB/PSE supported)</li> <li>Powered by 802.3at - Full System functionality+ PSE(7w)</li> </ul>
<b>Simultaneous SSIDs</b>	Up to 16 (14 if background scanning enabled)
<b>EAP Type(s)</b>	EAP-TLS, EAP-TTLS/MSCHAPv2, PEAPv0/EAP-MSCHAPv2, PEAPv1/EAP-GTC, EAP-SIM, EAP-AKA, EAP-FAST
<b>User/Device Authentication</b>	WPA™, WPA2™, and WPA3™ with 802.1x or preshared key, WEP, Web Captive Portal, MAC blacklist & allowlist
<b>Maximum Tx Power (Conducted)</b>	Radio 1: 2.4 GHz: 25 dBm / 158 mW (2 chains combined)* Radio 2: 5 GHz: 21 dBm / 158 mW (2 chains combined)* Radio 3: N/A
<b>Kensington Lock</b>	Yes
<b>IEEE Standards</b>	802.11a, 802.11b, 802.11d, 802.11e, 802.11g, 802.11h, 802.11i, 802.11j, 802.11k, 802.11n, 802.11r, 802.11v, 802.11w, 802.11ac, 802.11ax (Wi-Fi 6), 802.1Q, 802.1X, 802.3ad, 802.3af, 802.3at, 802.3az, 802.3bz
<b>SSID Types Supported</b>	Local-Bridge, Tunnel, and Mesh

FORTIAP 23JF	
<b>Per Radio Client Capacity</b>	Up to 512 clients per radio (Radio1 and Radio2)
<b>Cellular Co-existence*</b>	Yes
<b>LED Off Mode</b>	Yes
<b>Advanced 802.11 Features</b>	
<b>OFDMA</b>	Yes (UL and DL)
<b>Spatial Reuse (BSS Coloring)</b>	Yes
<b>UL MU-MIMO</b>	Yes
<b>DL-MU-MIMO</b>	Yes
<b>Enhanced Target Wake Time (TWT)</b>	Yes
<b>ZeroWait DFS</b>	No
<b>Wireless Monitoring Capabilities</b>	
<b>Rogue Scan radio modes</b>	Background, Dedicated
<b>WIPS / WIDS radio modes</b>	Background, Dedicated (recommended)
<b>Packet Sniffer Mode</b>	Yes
<b>Spectrum Analyzer</b>	Yes
<b>Dimensions</b>	
<b>Length x Width x Height</b>	6.6 × 4.6 × 1.1 inches (168 × 117 × 28 mm)
<b>Weight</b>	0.99 lbs (0.45 kg)
<b>Package (shipping) Weight</b>	1.54 lbs (0.7 kg)
<b>Mounting Options</b>	Wall Plate, Optional Desk Mount FAP-MNT-WJ-20
<b>Included Accessories</b>	Standard Mount kit for Ceiling, T-Rail, and Wall
<b>Environment</b>	
<b>Power Supply</b>	802.3at PoE: GPI-130 Optional DC power adaptor SP-FAP23J-PA-10
<b>PSE functionality</b>	Yes
<b>Power Consumption (Maximum)</b>	17.5W without PSE out and 31W with PSE out
<b>Humidity</b>	10 - 90% non condensing
<b>Operating / Storage Temperature</b>	32–122°F (0 - 50°C) / -22–158°F (-30–70°C)
<b>Directives</b>	Low Voltage Directive • RoHS
<b>UL2043 Plenum Material</b>	No
<b>Mean Time Between Failures</b>	> 10 Years
<b>IP Rating</b>	N/A
<b>Surge Protection Built In</b>	Yes
<b>Hit-less PoE Failover</b>	N/A
<b>Certifications</b>	
<b>WiFi Alliance Certified</b>	Yes
<b>DFS</b>	CE, Taiwan
<b>Warranty</b>	
<b>Limited Lifetime Warranty</b>	Yes

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



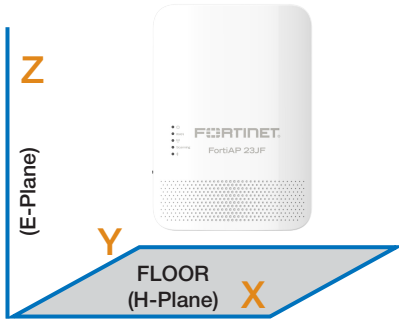
## RF RX/TX PERFORMANCE TABLE

FORTIAP 23JF							
	Radio 1		Radio 2		Radio 3 Scanning		
	2.4 GHz Tx Power per chain (dBm)	Rz Sensitivity (dBm)	5 GHz Tx Power per Chain (dBm)	Rz Sensitivity (dBm)	2.4 GHz Tx Power per chain (dBm)	5 GHz Tx Power per Chain (dBm)	Rz Sensitivity (dBm)
<b>802.11b</b>							
1 Mbps	22	-98	—	—	20	—	-92
11 Mbps	20	-90	—	—	18	—	-91
<b>802.11g</b>							
6 Mbps	22	-93	—	—	20	—	-92
54 Mbps	20	-77	—	—	18	—	-77
<b>802.11n HT20</b>							
MCS0	22	-94	—	—	20	—	-92
MCS7	20	-76	—	—	17	—	-74
<b>802.11n HT40</b>							
MCS0	22	-92	—	—	19	—	-90
MCS7	20	-73	—	—	17	—	-72
<b>802.11ax HE20</b>							
MCS0	22	-90	—	—	—	—	—
MCS11	20	-71	—	—	—	—	—
<b>802.11ax HE40</b>							
MCS0	20	-90	—	—	—	—	—
MCS11	18	-70	—	—	—	—	—
<b>802.11a</b>							
6 Mbps	—	—	18	-93	—	20	-91
54 Mbps	—	—	18	-77	—	19	-75
<b>802.11n HT20</b>							
MCS0	—	—	19	-94	—	20	-90
MCS7	—	—	19	-75	—	19	-72
<b>802.11n HT40</b>							
MCS0	—	—	21	-91	—	19	-90
MCS7	—	—	20	-72	—	18	-71
<b>802.11ac VHT20</b>							
MCS0	—	—	21	-91	—	19	-93
MCS9	—	—	20	-72	—	18	-69
<b>802.11ac VHT40</b>							
MCS0	—	—	20	-91	—	19	-90
MCS9	—	—	18	-72	—	16	-64
<b>802.11ac VHT80</b>							
MCS0	—	—	19	-87	—	17	-88
MCS9	—	—	17	-64	—	17	-61
<b>802.11ax HE20</b>							
MCS0	—	—	20	-91	—	—	—
MCS11	—	—	18	-72	—	—	—
<b>802.11ac HE40</b>							
MCS0	—	—	19	-91	—	—	—
MCS11	—	—	17	-62	—	—	—
<b>802.11ac HE80</b>							
MCS0	—	—	18	-89	—	—	—
MCS11	—	—	16	-60	—	—	—

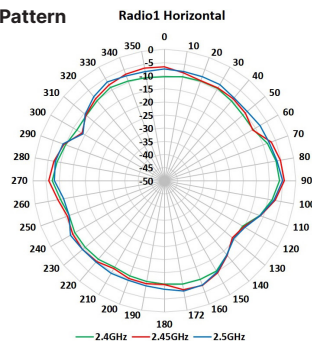


# ANTENNA RADIATION PATTERNS

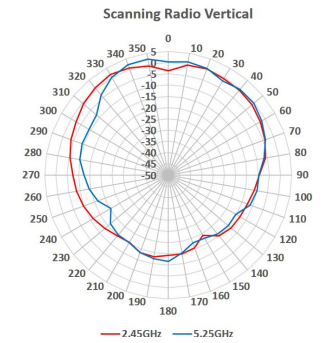
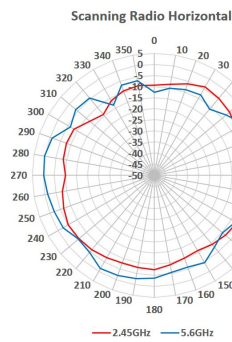
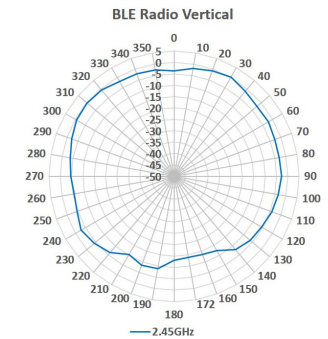
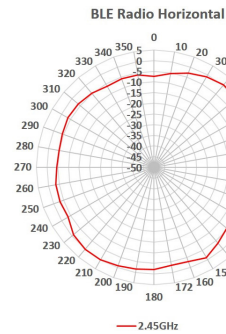
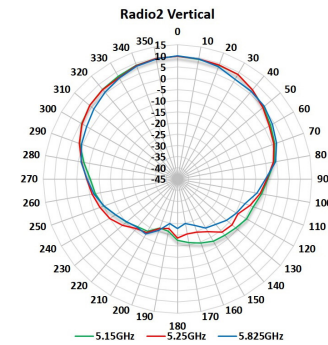
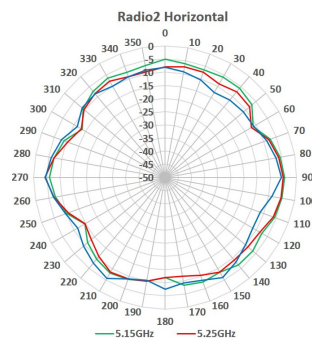
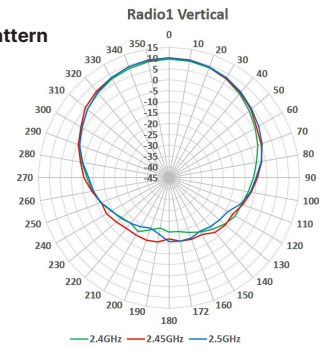
## FAP-23JF



H-Plane Pattern



E-Plane Pattern



## 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
<b>Hardware</b>		
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/MSCHAPv2, PEAPv0/EAP-MSCHAPv2, PEAPv1/EAP-GTC, EAP-SIM, EAP-AKA, EAP-FAST	
User/Device Authentication	WPA™, WPA2™, and WPA3™ with 802.1x or preshared key, WEP, Web Captive Portal, MAC blacklist & 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, 802.11w, 802.11ac, 802.11q, 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
<b>Advanced 802.11 Features</b>		
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

	FORTIAP 221E	FORTIAP 223E
Maximum Ratio Combining (MRC)	Yes	Yes
A-MPDU and A-MSDU Packet Aggregation	Yes	Yes
MIMO Power Save	Yes	Yes
Short Guard Interval	Yes	Yes
<b>Wireless Monitoring Capabilities</b>		
Rogue Scan Radio Modes	Background, Dedicated	Background, Dedicated
WIPS / WIDS Radio Modes	Background, Dedicated	Background, Dedicated
Packet Sniffer Mode	Yes	Yes
Spectrum Analyzer	Yes	Yes
<b>Dimensions</b>		
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
<b>Environment</b>		
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
<b>Certifications</b>		
Wi-Fi Alliance Certified	Yes	Yes
DFS	FCC, IC, CE, Japan, Taiwan, Korea	FCC, IC, CE, Japan, Taiwan, Korea
<b>Warranty</b>		
Limited Lifetime Warranty	Yes	Yes

\* 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
<b>802.11n HT20</b>				
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
<b>802.11n HT40</b>				
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
<b>802.11ac VHT20</b>				
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
<b>802.11ac VHT40</b>				
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
<b>802.11ac VHT80</b>				
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



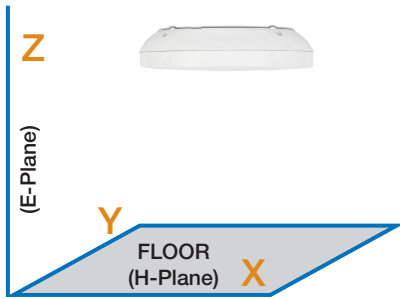
## RF RX/TX PERFORMANCE TABLE

FORTIAP 221E / 223E				
802.11ac VHT80	RADIO 1		RADIO 2	
	2.4 GHz Tx Power (dBm)	RX Sensitivity (dBm)	5 GHz Tx Power (dBm)	RX Sensitivity (dBm)
MCS 7	—	—	18	-68
MCS 8	—	—	17	-63
MCS 9	—	—	17	-61

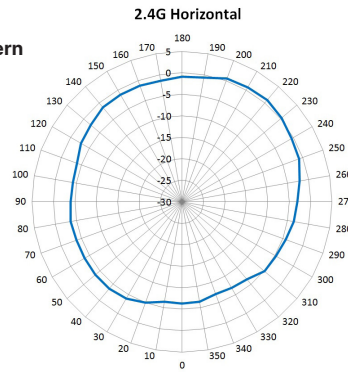


# ANTENNA RADIATION PATTERNS

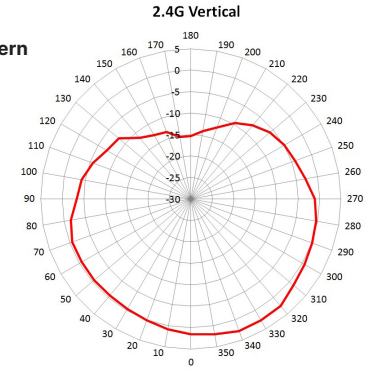
## FAP-221E



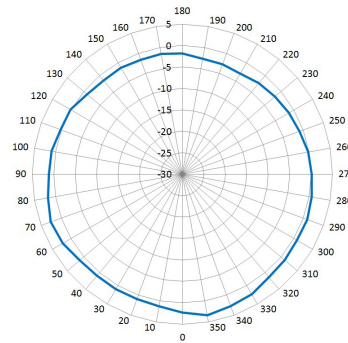
H-Plane Pattern



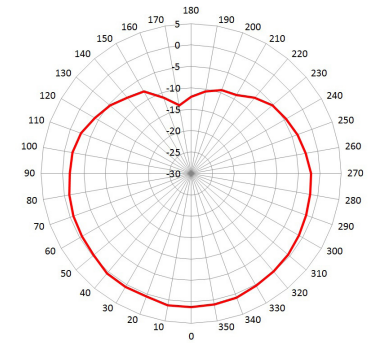
E-Plane Pattern



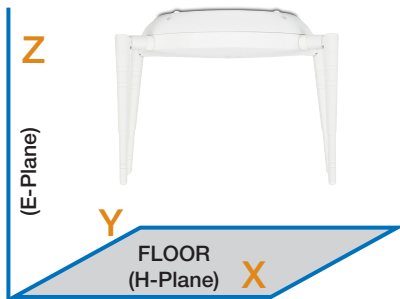
5.0G Horizontal



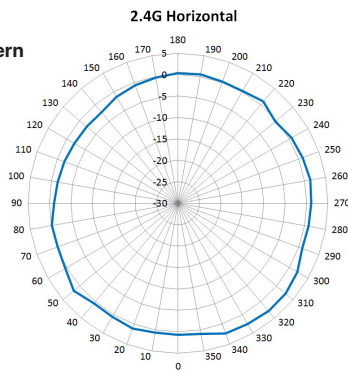
5.0G Vertical



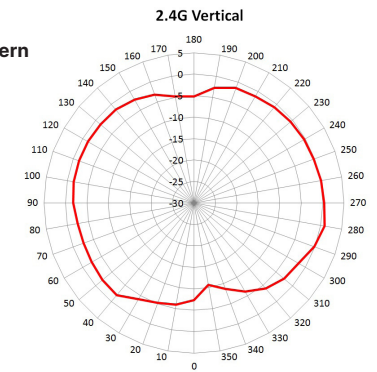
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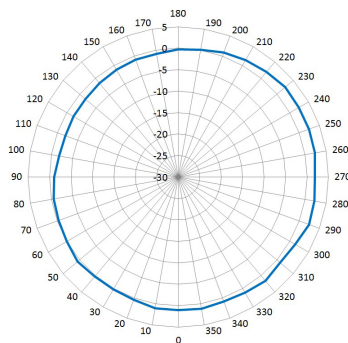
H-Plane Pattern



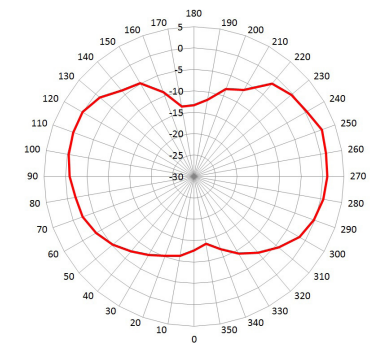
E-Plane Pattern



5.0G Horizontal



5.0G Vertical

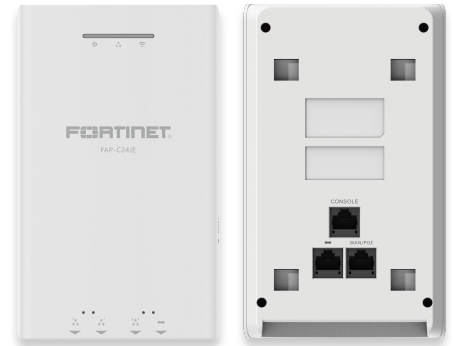




## HIGHLIGHTS

### 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 GHz and 5 GHz | 4 Internal Antennas**

 **Up to 300 + 867 Mbps**

## SPECIFICATIONS

FORTIAP C24JE	
<b>Hardware</b>	
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	4x 10/100/1000 Base-T RJ45 Ports (1x 802.3at PoE(PD), 1x 802.3af PoE (PSE), 2x Non-PoE Ports)  3 RJ-45 Ports (1x Pass-through in, 1x Pass-through out, 1x RS-232 Serial Port)
Serial Console Port	1x RJ45 RS232
Power over Ethernet (PoE)	<ul style="list-style-type: none"> <li>• 802.3af (max PSE output of 4W) or</li> <li>• 802.3at (full 802.3af PSE output)</li> <li>• PSE functionality is only supported when powered via PoE/PoE+</li> </ul>
Simultaneous SSIDs	Up to 8 (4 per radio)
EAP Type(s)	EAP-TLS, EAP-TTLS/MSCHAPv2, PEAPv0/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, 802.11w, 802.11v, 802.11ac, 802.11q, 802.11x, 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
<b>Advanced 802.11 Features</b>	
802.11ac MU-MIMO Wave 2	Yes
Transmit Beam Forming (TxBF)	Yes
Low-Density Parity Check (LDPC) Encoding	Yes

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
<b>Wireless Monitoring Capabilities</b>	
Rogue Scan Radio Modes	Background, Dedicated
WIPS / WIDS Radio Modes	Background, Dedicated
Packet Sniffer Mode	No
Spectrum Analyzer	No
<b>Dimensions</b>	
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
<b>Environment</b>	
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
<b>Certifications</b>	
Wi-Fi Alliance Certified	No
DFS	No
<b>Warranty</b>	
Limited Lifetime Warranty	Yes

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



## RF RX/TX PERFORMANCE TABLE

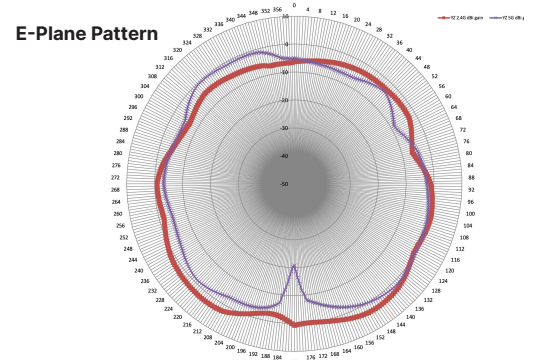
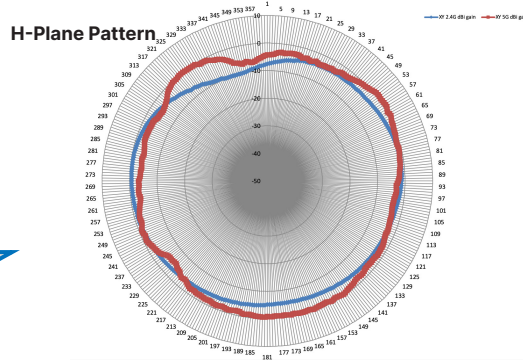
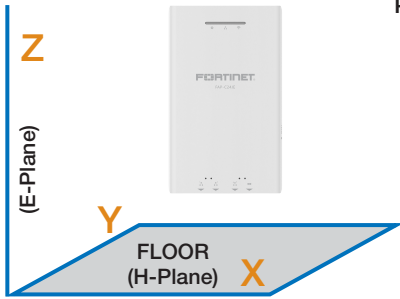
FORTIAP C24JE					
802.11 a/g	Radio 1 2.4 GHz		Radio 2 5 GHz		
	Maximum TX Power per Transmit Chain (dBm)	RX Sensitivity (dBm) per Receiver Chain	Maximum TX Power per Transmit Chain (dBm)	RX Sensitivity (dBm) per Receiver Chain	
6 Mbps	21	-91	21	-91	
9 Mbps	20	-89	20	-89	
12 Mbps	20	-87	20	-87	
18 Mbps	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	
<b>802.11 HT20</b>					
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	
<b>802.11 HT40</b>					
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	
<b>802.11 HT80</b>					
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
<b>FortiAP 831F</b>	FAP-831F	Indoor Wireless AP - Tri radio (1x 802.11 a/b/g/n/ac/ax 4x4 MIMO, 1x 802.11 a/b/g/n/ac/ax 8x8 MIMO and 1x 802.11 a/b/g/n/ac Wave 2 1x1 MU-MIMO), internal antennas, 1x 100/1000/5000 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-F831F-247-02-DD	24x7 FortiCare Contract
<b>FortiAP 431F</b>	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 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
<b>FortiAP 433F</b>	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 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
<b>FortiAP 432F</b>	FAP-432F	Ruggedized indoor/outdoor Wireless FortiAP - Tri radio (1x 802.11b/g/n/ax 4x4 radio, 1x 802.11a/n/ac/ax 4x4 Radio and 1x 802.11 a/b/g/n/ac Wave 2, 2x2), 1x 100/1000/2500 Base-T RJ45, 1x 10/100/1000 Base-T RJ45, BT/BLE + Zigbee, 1x Type A USB, 1x RS-232 RJ45 Serial Port. External Dual Band N-Type Omnidirectional antennas, Integrated mounting bracket for Antenna included + Wall/Pole Mount mounting kit. Ships with passive PoE injector. For power order: 802.3bt.
	FC-10-PF432-247-02-DD	24x7 FortiCare Contract
<b>FortiAP 231F</b>	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-FAP250-PA-10.
	FC-10-PF231-247-02-DD	24x7 FortiCare Contract
<b>FortiAP 234F</b>	FAP-234F	Ruggedized indoor/outdoor 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. Pole/wall mount kit included. For power order: 802.3at PoE injector GPI-130.
	FC-10-P234F-247-02-DD	24x7 FortiCare Contract
<b>FortiAP 23JF</b>	FAP-23JF	Wall Plate 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, 4 x 10/100/1000 RJ45 port (1x 802.3at PoE PD, 1x 802.3af PoE PSE, 2x Non-PoE Ports), 2 RJ-45 Ports (1xPass-through in, 1x Pass-through out), BT / BLE, 1x RS-232 RJ45 Serial Port. Wall plate mounting kit included. For power order: 802.3at PoE injector GPI-130. Optional Accessory: AC power adapter SP-FAP23J-PAX-10; Desktop stand: FAP-MNT-WJ-20.
	FC-10-P23JF-247-02-DD	24x7 FortiCare Contract
<b>FortiAP 221E</b>	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
<b>FortiAP 223E</b>	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
<b>FortiAP C24JE</b>	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), 2 RJ-45 Ports (1xPass-through in, 1x Pass-through out), 1x RS-232 RJ45 Serial Port. Wall plate mounting kit includedFor 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
PRODUCT	SKU	DESCRIPTION
<b>Gigabit PoE Injector</b>	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.
<b>Power Adapter</b>	SP-FAP400-PA	AC power adapter 12v, 3.0A - 36W for FAP-831F, FAP-431F, FAP-433F, and FAP-C24JE.
	SP-FAP200-PA	AC power adapter 12v, 2.5A - 30W for FAP-221E, and FAP-223E.
	SP-FAP23J-PA-10	AC power adapter 48v, 1.04A - 50W without power cord for FAP-23JF.
	SP-FAP250-PA-10	AC power adapter 12v, 4.0A - 48W with Extended operating temp 0 deg C - 50 deg C with US and EU plugs for FAP-U231F and FAP-231F.
<b>Desktop Stand</b>	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.

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



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