

FortiAP™ UTP Access Point Series



Highlights

Intelligently supports integrated security controllers and cloud management options

Establishes a new benchmark in flexibility, performance, and security

Built-in foundation for zero-trust network access (ZTNA) and secure access service edge (SASE), allowing you the flexibility to easily deploy microbranches with the security you need at the edge of your network

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

Provides unparalleled cybersecurity protection with Fortinet's Security Fabric integration and FortiGuard services

Unified Threat Protection Capable Access Points*

The FortiAP-U family offers a wide range of models with the additional power of FortiGuard services and the flexibility of dual 5 GHz support for Wi-Fi 6 APs. Perfect for everything from a large campus to hundreds of branch locations, the FortiAP-U family has a variety of form factors and performance levels. FortiAP-U access points are managed centrally by the integrated WLAN controller of any FortiGate® security appliance or through the FortiLAN Cloud provisioning and management portal. Protect your LAN Edge from the campus to the branch with these high capacity capable APs.

* Select models only, see listings

Available in



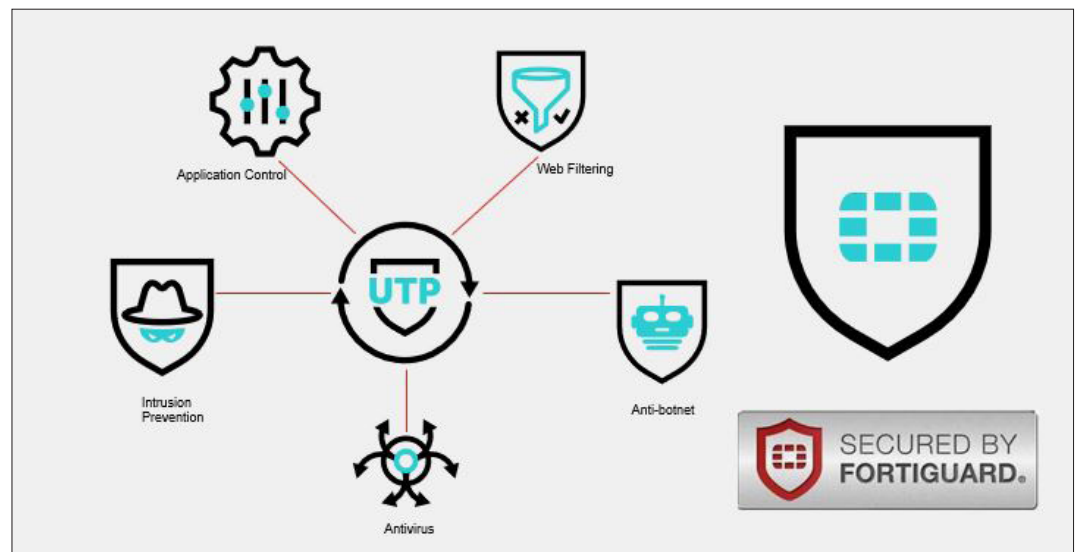
Appliance

Product Offerings

802.11ax Wi-Fi 6	
FAP-U431F and FAP-U433F	4×4 Indoor tri-radio dual 5G 11ax APs
FAP-U432F	4×4 Indoor/Outdoor tri-radio dual 5G 11ax APs
FAP-U231F	2×2 Indoor tri-radio dual 5G 11ax APs
FAP-U234F	2×2 Indoor/Outdoor tri-radio dual 5G 11ax APs

Highlights

Fortinet UTP access points are designed to support a variety of deployments from branches, to medium to large offices, schools, universities, hospitals, hotels, and large retail stores. These access points can serve such a wide range of applications because they can be managed by any of Fortinet's control and management. By supporting UTP services at the edge, deployments have the flexibility to enable security services wherever they need them in their network.



FortiGuard Services



Use Cases

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



Campus

A single building with multiple floors, or a corporate or education campus with a group of large buildings.

- High-capacity designs including Dual 5GHz and tri-band with Wi-Fi 6E allow a maximal number of client devices to attach to the network at the same time without over-air congestion
- Complete NOC functionality with network visibility and AIOps simplify a complex network deployment into a solution manageable by IT teams of any size



Branch Office / SD-Branch

A highly distributed number of small sites, often with no on-site IT.

- Built in NAC functions* allow secure onboarding of devices at remote locations where IT doesn't have reliable visibility
- Management orchestration with zero-touch deployment allows for quick and easy rollouts without the need for skilled installers at each site



Micro Branch

Ultra small sites that still fall under IT's responsibility.

- Can act as a SASE endpoint as a foundation for zero-trust network access (ZTNA)
- Simple management and provisioning through FortiSASE interface



Remote Workers

A remote AP installed at a worker's home or at micro-branch office space.

- Split tunneling allows local traffic to remain local while sending other traffic to the data center for inspection when needed
- Desktop mounting options for wall-plate models allow the use of Ethernet as well as Wi-Fi connectivity while leveraging the same secure tunnel



SMB

Single site or small collection of sites with limited IT resources.

- Built-in NAC functions* bring security to the wireless network with no need to install and manage additional products
- Network and security convergence decreases management overhead while keeping the network secure

*FortiGate-managed installations only.

FortiAP U431F and U433F

These enterprise class Wi-Fi 6 (802.11ax) indoor APs provide three radios. These top-of-the-line access points provide OFDMA, a 2.5 Gigabit Ethernet port plus an additional 1 Gbps Ethernet port for PoE diversity. The APs can be configured for dual 5 GHz band access while still providing coverage for devices on the 2.4 GHz band, or can be configured to offer dedicated scanning. The integrated BLE radio can be used for beacons and locationing applications.

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

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



Specifications

	FortiAP-U431F	FortiAP-U433F
Hardware		
Hardware Type	Indoor AP	Indoor AP
Number of Radios	3 + 1 BLE	3 + 1 BLE
Number of Antennas	10 Internal + 1 BLE Internal	10 External (RP-SMA) + 1 BLE Internal
Antenna Type and Peak Gain	PIFA 4 dBi for 2.4 GHz, 6 dBi for 5 GHz	Dipole 3.5 dBi for 2.4 GHz, 5 dBi for 5 GHz
Frequency Bands (GHz)	2.400–2.4835, 5.150–5.250, 5.250–5.350, 5.470–5.725, 5.725–5.850	2.400–2.4835, 5.150–5.250, 5.250–5.350, 5.470–5.725, 5.725–5.850
Radio 1 Capabilities	5.0 GHz a/n/ac/ax (4x4:4 stream) 20/40/80/160 MHz (64/256/1024 QAM)	5.0 GHz a/n/ac/ax (4x4:4 stream) 20/40/80/160 MHz (64/256/1024 QAM)
Radio 2 Capabilities	2.4 GHz or 5.0 GHz (high band) a/b/g/n/ac/ax (4x4:4 stream) 20/40/80/160 MHz (64/256/1024 QAM)	2.4 GHz or 5.0 GHz (high band) a/b/g/n/ac/ax (4x4:4 stream) 20/40/80/160 MHz (64/256/1024 QAM)
Radio 3 Capabilities	2.4/5.0 GHz dual band b/g/n/ac (2x2:2 stream) 20/40 MHz (64 QAM)	2.4/5.0 GHz dual band b/g/n/ac (2x2:2 stream) 20/40 MHz (64 QAM)
Maximum Data Rate	Radio 1 up to 4,804 Mbps Radio 2 up to 4,804 Mbps Radio 3 up to 300 Mbps	Radio 1 up to 4,804 Mbps Radio 2 up to 4,804 Mbps Radio 3 up to 300 Mbps
Bluetooth Low Energy Radio	Bluetooth scanning and iBeacon advertisement @ 4 dBm max TX power	Bluetooth scanning and iBeacon advertisement @ 4 dBm max TX power
Interfaces	1x 10/100/1000/2500 Base-T RJ45, 1x 10/100/1000 Base-T RJ45, 1x Type A USB, 1x RS-232 RJ45 Serial Port	1x 10/100/1000/2500 Base-T RJ45, 1x 10/100/1000 Base-T RJ45, 1x Type A USB, 1x RS-232 RJ45 Serial Port
Power over Ethernet (PoE)	Dual redundant PoE power ports with support for IEEE 802.3at or dual 802.3af power	Dual redundant PoE power ports with support for IEEE 802.3at or dual 802.3af power
Simultaneous SSIDs	Up to 16 (24 if third radio is servicing clients)	Up to 16 (24 if third radio is servicing clients)
EAP Type(s)	EAP-TLS, EAP-TTLS/MSCHAPv2, PEAPv0/EAP-MSCHAPv2, PEAPv1/EAP-GTC, EAP-SIM, EAP-AKA, EAP-FAST	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 and allowlist	WPA™, WPA2™, and WPA3™ with 802.1x or Preshared key, WEP, Web Captive Portal, MAC blacklist and allowlist
Maximum Tx Power (Conducted)	Radio 1 5 GHz 24 dBm / 251 mW (4 chains combined)* Radio 2 2.4 GHz 26 dBm / 398 mW (4 chains combined)* 5 GHz 24 dBm / 251 mW (4 chains combined)* Radio 3 2.4 GHz 22 dBm / 158 mW (2 chains combined)*	Radio 1 5 GHz 24 dBm / 251 mW (4 chains combined)* Radio 2 2.4 GHz 26 dBm / 398 mW (4 chains combined)* 5 GHz 24 dBm / 251 mW (4 chains combined)* Radio 3 2.4 GHz 22 dBm / 158 mW (2 chains combined)*
Kensington Lock	Yes	Yes
IEEE Standards	802.11a, 802.11b, 802.11d, 802.11e, 802.11g, 802.11h, 802.11i, 802.11j, 802.11k, 802.11n, 802.11r, 802.11v, 802.11w, 802.11ac, 802.1Q, 802.1X, 802.3ad, 802.3af, 802.3at, 802.3az, 802.11ax, 802.3bz, Wi-Fi 6	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, 802.1Q, 802.1X, 802.3ad, 802.3af, 802.3at, 802.3az, 802.3bz Wi-Fi 6
SSID Types Supported	Local-Bridge, Mesh, and Tunnel	Local-Bridge, Mesh, and Tunnel
Per Radio Client Capacity	Up to 512 per Radio1 and Radio2	Up to 512 per Radio1 and Radio2
Cellular Co-existence**	Yes	Yes
Reset Button	Yes	Yes
Threat Protection Capable	Yes	Yes
LED Off Mode	Yes	Yes

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

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



FortiAP U431F and U433F

Specifications

	FortiAP-U431F	FortiAP-U433F
Advanced 802.11 Features		
Transmit Beam Forming (TxBF)	Yes	Yes
Low-Density Parity Check (LDPC) Encoding	Yes	Yes
Maximum Likelihood Demodulation (MLD)	Yes	Yes
Maximum Ratio Combining (MRC)	Yes	Yes
A-MPDU and A-MSDU Packet Aggregation	Yes	Yes
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
UL-MU-MIMO 802.11ac mode	No	No
DL-MU-MIMO	Yes	Yes
Enhanced Target Wake Time (TWT)	Yes	Yes
ZeroWait DFS /Agile DFS	Yes	Yes
Wireless Monitoring Capabilities		
Rogue Scan Radio Modes	Background, Dedicated	Background, Dedicated
WIPS / WIDS Radio Modes	Background, Dedicated (recommended)	Background, Dedicated (recommended)
Packet Sniffer Mode	Yes	Yes
Spectrum Analyzer	Yes	Yes
Dimensions		
Length x Width x Height	8.46 × 8.46 × 2.26 inches (215 × 215 × 57.5 mm)	8.46 × 8.46 × 2.26 inches (215 × 215 × 57.5 mm)
Weight	2.6 lb (1.2 kg)	2.6 lb (1.2 kg)
Package (shipping) Weight	3.5 lb (1.6 kg)	3.95 lb (1.8 kg)
Mounting Options	Ceiling, T-Rail, and Wall	Ceiling, T-Rail, and Wall
Included Accessories	Mount kits for Ceiling, T-Rail, and Wall	Mount kits for Ceiling, T-Rail, and Wall, 10x dipole antennas
Environment		
Power Supply	GPI-130, or 2x GPI-115 GPI-130, or 2x GPI-115, or AC adapter SP-FAP43F-PA-X-5	GPI-130, or 2x GPI-115 GPI-130, or 2x GPI-115, or AC adapter SP-FAP43F-PA-X-5
Power Consumption (Maximum)	24.5 W	24.5 W
Humidity	10% to 90% Non-Condensed 5% to 90% Condensed	10% to 90% Non-Condensed 5% to 90% Condensed
Operating / Storage Temperature	32°F to 122°F (0°C to 50°C) / -31°F to 158°F (-35°C to 70°C)	32°F to 122°F (0°C to 50°C) / -31°F to 158°F (-35°C to 70°C)
Directives	Low Voltage Directive • RoHS	Low Voltage Directive • RoHS
UL2043 Plenum Material	Yes	Yes
Mean Time Between Failures	>30 Years	>30 Years
IP Rating	—	—
Surge Protection Built In	—	—
Hit-less PoE Failover	Yes (802.3at only)	Yes (802.3at only)
Certifications		
Wi-Fi Alliance Certified	Yes	Yes
DFS	FCC, IC, CE, Japan, Taiwan, Korea, Brazil	FCC, IC, CE, Japan, Taiwan, Korea, Brazil
Warranty		
Limited Lifetime Warranty	Yes	Yes

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



FortiAP U431F and U433F

RF RX/TX Performance Table

FortiAP U431F and U433F						
	Radio 1		Radio 2		Radio 3	
	Max Tx Power per transmit chain (dBm)	Rx Sensitivity per receiver chain (dBm)	Max Tx Power per transmit chain (dBm)	Rx Sensitivity per receiver chain (dBm)	Max Tx Power per transmit chain (dBm)	Rx Sensitivity per receiver chain (dBm)
2.4 GHz, 802.11b						
1 Mbps	20	-98	—	—	19	-96
11 Mbps	20	-89	—	—	19	-87
2.4 GHz, 802.11g						
6 Mbps	20	-94	—	—	19	-92
54 Mbps	20	-75	—	—	19	-73
2.4 GHz, 802.11n HT20						
MCS0	19	-93	—	—	18	-91
MCS7	17	-74	—	—	16	-72
2.4 GHz, 802.11n HT40						
MCS0	19	-92	—	—	18	-90
MCS7	17	-73	—	—	16	-71
2.4 GHz, 802.11ax HE20						
MCS0	18	-90	—	—	17	-88
MCS11	16	-71	—	—	15	-69
2.4 GHz, 802.11ax HE40						
MCS0	17	-88	—	—	16	-86
MCS11	15	-68	—	—	14	-66
5.0 GHz, 802.11a						
6 Mbps	20	-92	20	-92	—	—
54 Mbps	20	-72	20	-72	—	—
5.0 GHz, 802.11n HT20						
MCS0	20	-91	20	-91	—	—
MCS7	18	-72	18	-72	—	—
5.0 GHz, 802.11n HT40						
MCS0	20	-88	20	-88	—	—
MCS7	18	-69	18	-69	—	—



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RF RX/TX Performance Table

FortiAP U431F and U433F						
	Radio 1		Radio 2		Radio 3	
	Max Tx Power per transmit chain (dBm)	Rx Sensitivity per receiver chain (dBm)	Max Tx Power per transmit chain (dBm)	Rx Sensitivity per receiver chain (dBm)	Max Tx Power per transmit chain (dBm)	Rx Sensitivity per receiver chain (dBm)
5.0 GHz, 802.11ac VHT20						
MCS0	20	-91	20	-91	—	—
MCS9	18	-67	18	-67	—	—
5.0 GHz, 802.11ac VHT40						
MCS0	20	-88	20	-88	—	—
MCS9	18	-62	18	-62	—	—
5.0 GHz, 802.11ac VHT80						
MCS0	19	-85	19	-85	—	—
MCS9	17	-59	17	-59	—	—
5.0 GHz, 802.11ac VHT160						
MCS0	16	-82	16	-82	—	—
MCS9	15	-56	15	-56	—	—
5.0 GHz, 802.11ax HE20						
MCS0	19	-90	19	-90	—	—
MCS11	17	-66	17	-66	—	—
5.0GHz, 802.11ac HE40						
MCS0	19	-87	19	-87	—	—
MCS11	17	-61	17	-61	—	—
5.0 GHz, 802.11ac HE80						
MCS0	18	-94	18	-94	—	—
MCS11	16	-58	16	-58	—	—
5.0 GHz, 802.11ac HE160						
MCS0	15	-81	15	-81	—	—
MCS11	14	-55	14	-55	—	—

Maximum capability of the hardware provided (excluding antenna gain)

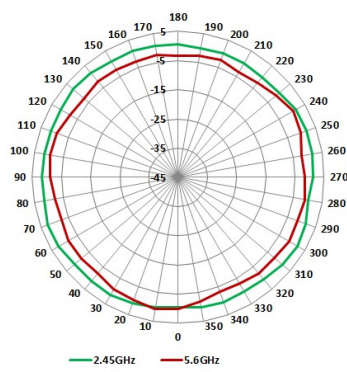


Antenna Radiation Patterns

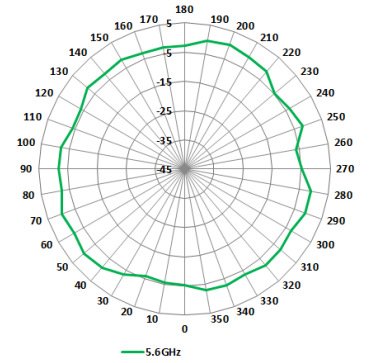
FAP-U431F



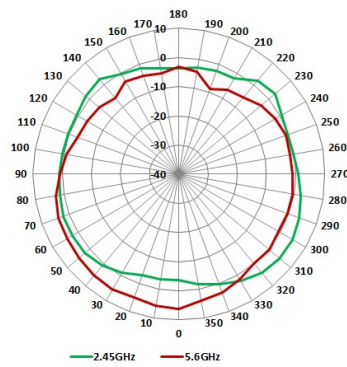
Internal Antenna
H-Plane Pattern
Radio 1 and 3



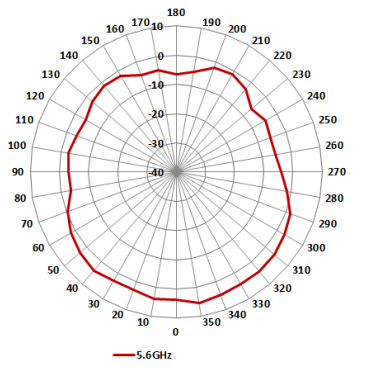
Internal Antenna
H-Plane Pattern
Radio 2



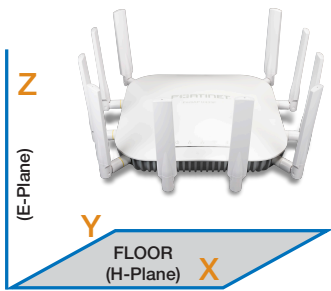
Internal Antenna
E-Plane Pattern
Radio 1 and 3



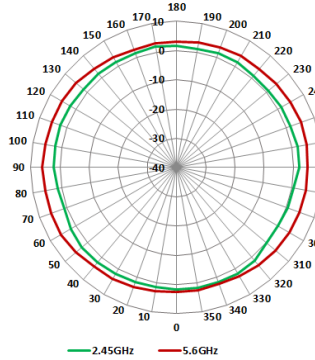
Internal Antenna
E-Plane Pattern
Radio 2



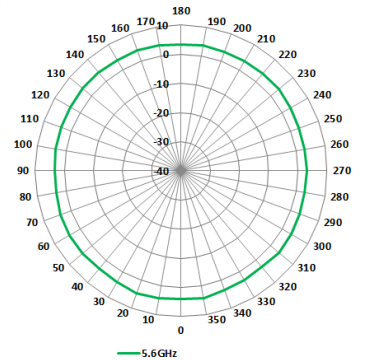
FAP-U433F



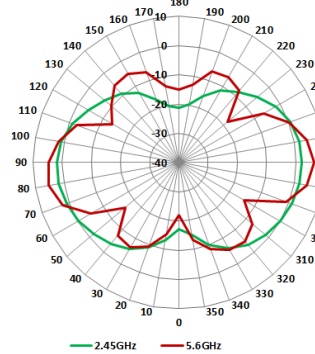
External Antenna
H-Plane Pattern
Dual Band



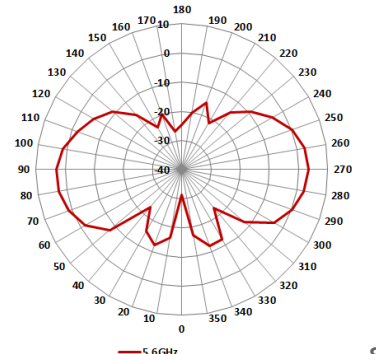
External Antenna
H-Plane Pattern



External Antenna
E-Plane Pattern
Dual Band



External Antenna
E-Plane Pattern



FortiAP U432F

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 be configured for dual 5 GHz band access while still providing coverage for devices on the 2.4 GHz band, or can be configured to offer dedicated scanning. The integrated BLE radio can be used for beacons and locationing applications.



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

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

Specifications

FortiAP-U432F	
Hardware	
Hardware Type	Outdoor AP
Number of Radios	3 + 1 BLE
Number of External Antennas	11
Antenna Type and Peak Gain	Dual band Dipole Omni Directional Peak Gain 5.5dBi for 2.4GHz and 7dBi for 5.0GHz
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 a/b/g/n (4x4 4stream) (64 QAM) or 5.0 GHz (high band) a/b/g/n/ac/ax (4x4 4 stream) 20/40/80/160 MHz (64/256/1024 QAM)
Radio 2 Capabilities	5.0 GHz a/b/g/n/ac/ax (4x4 4 stream) 20/40/80/160 MHz (64/256/1024 QAM)
Radio 3 Capabilities	2.4/5.0 GHz dual band b/g/n/ac (2x2 2 stream) 20/40 MHz (64 QAM)
Maximum Data Rate	Radio 1 up to 4,804 Mbps Radio 2 up to 4,804 Mbps Radio 3 up to 300 Mbps
Bluetooth Low Energy Radio	Bluetooth scanning and iBeacon advertisement @ 10 dBm max TX power
Interfaces	1x 100/1000/2500 Base-T RJ45(802.3bt PoE) , 1x 10/100/1000 Base-T RJ45 (802.3af PSE OUT), 1x RS-232 RJ45 Serial Port
Power over Ethernet (PoE)	802.3bt PoE default (ships with Passive PoE injector • Powered by 802.3at PoE - Operate in 4x4 mode with reduced Tx power Radio1/R2 17dBm • This product only supports PSE functionality when it is powered by PoE injector that ships with the product.
Simultaneous SSIDs	Up to 16 (24 if third radio is servicing clients)
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 blocklist and allowlist
Maximum Tx Power (Conducted)	Radio 1 2.4 GHz 29 dBm / 794 mW (4 chains combined)* 5.0 GHz 28 dBm / 630 mW (4 chains combined)* Radio 2 5.0 GHz 26 dBm / 400 mW (2 chains combined)* Radio 3 2.4 GHz 26 dBm / 400 mW (2 chains combined) 5.0 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, 802.11w, 802.11ac, 802.11Q, 802.11X, 802.3ad, 802.3af, 802.3at, 802.3az, 802.11ax, 802.3bz
SSID Types Supported	Local-Bridge, Mesh, and Tunnel
Per Radio Client Capacity	Up to 512 per Radio1 and Radio2
Cellular Co-existence**	Yes
LED Off Mode	No

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

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



FortiAP U432F

Specifications

FortiAP-U432F	
Advanced 802.11 Features	Yes
Transmit Beam Forming (TxBF)	Yes
Low-Density Parity Check (LDPC) Encoding	Yes
Maximum Likelihood Demodulation (MLD)	Yes
Maximum Ratio Combining (MRC)	Yes
A-MPDU and A-MSDU Packet Aggregation	Yes
OFDMA	Yes (UL and DL)
2.4 GHz OFDMA	Yes
Spatial Reuse (BSS Coloring)	Yes
HE-MU-MIMO	Yes
UL-MU-MIMO 802.11ax mode	Yes
UL-MU-MIMO 802.11ac mode	No
DL-MU-MIMO	Yes
Enhanced Target Wake Time (TWT)	Yes
ZeroWait DFS /Agile DFS	Yes
Wireless Monitoring Capabilities	
Rogue Scan Radio Modes	Background, Dedicated
WIPS / WIDS Radio Modes	Background, Dedicated (recommended)
Packet Sniffer Mode	Yes
Spectrum Analyzer	Yes
Dimensions	
Length x Width x Height	8.23 × 8.23 × 2.38 inches (209 × 209 × 60.5 mm)
Weight	4.85 lb (2.2 kg)
Package (shipping) Weight	11.65 lb (5.3 kg)
Mounting Options	Wall and Pole
Included Accessories	1-3. Wall/ Pole/ Sector Ant. bracket 4. POE adapter 5. Power cable - PIN060 6. Grounding cable 7. Mounting Kit (Pole straps; mounting bolts, screws; grounding screws) 8. External Ant.(2.4GHz; 5GHz; 2.4/5GHz)
Environment	
Power Supply	802.3bt (ships with passive PoE injector with build in reset switch)
PSE Functionality	Yes (while powered by PoE injector shipped with product)
Power Consumption (Maximum)	32W max (without PSE) and 45W max (with PSE 12.99W)
Humidity	10% to 90% Non-Condensing
Operating / Storage Temperature	-40°F to 140°F (-40°C to 60°C) / -50°F to 176°F (-58°C to 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
Certifications	
Wi-Fi Alliance Certified	Yes
DFS	FCC, IC, CE
Warranty	
Limited Lifetime Warranty	Yes

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



FortiAP U432F

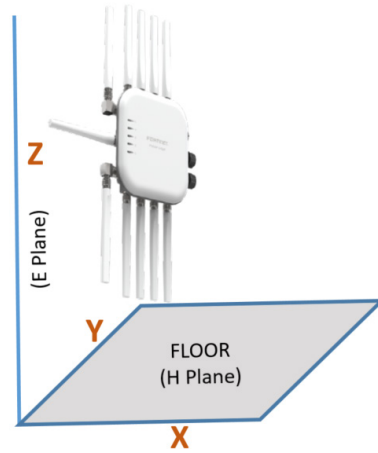
RF RX/TX Performance Table

FortiAP U432F				
	2.4 GHz		5 GHz	
	Tx Power (dBm)	Rx Sensitivity (dBm)	Tx Power (dBm)	Rx Sensitivity (dBm)
802.11 b				
1 Mbps	22	-93	—	—
11 Mbps	21	-93	—	—
802.11 a/g				
6 Mbps	21	-93	20	-91
54 Mbps	19	-75	17	-74
802.11 n HT20				
MCS0	21	-91	20	-91
MCS7	19	-71	16	-72
802.11 n HT40				
MCS0	20	-89	19	-88
MCS7	19	-69	16	-69
802.11 ac/ax VHT20				
MCS0	21	-91	19	-91
MCS8	18	-68	18	-69
802.11 ac/ax VHT40				
MCS0	20	-89	19	-88
MCS9	17	-66	16	-64
MCA 10 (QAM 1024)			15	-62
MCA 11 (QAM 1024)			15	-62
802.11 ac/ax VHT80				
MCS0			19	-85
MCS9			15	-61
MCA 10 (QAM 1024)			14	-60
MCA 11 (QAM 1024)			14	-60
802.11 ac/ax VHT160				
MCS0			17	-83
MCS9			13	-59
MCA 10 (QAM 1024)			13	-58
MCA 11 (QAM 1024)			13	-58



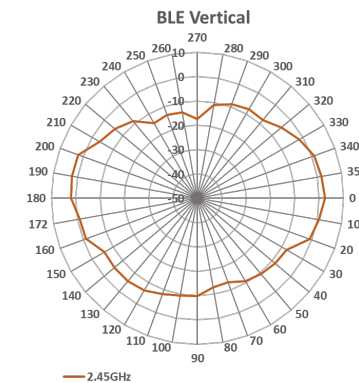
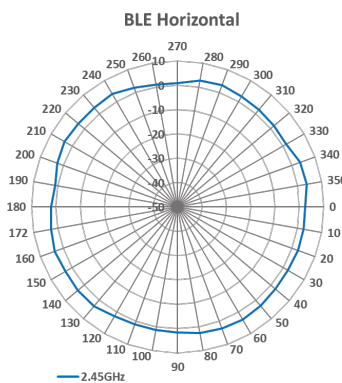
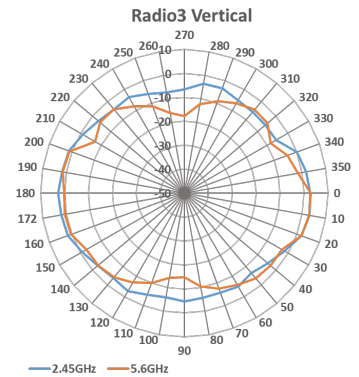
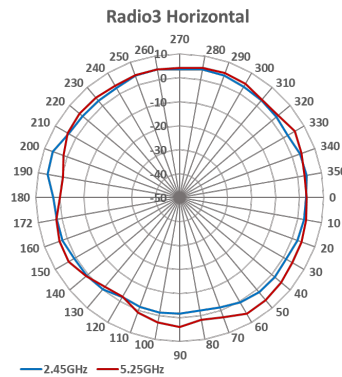
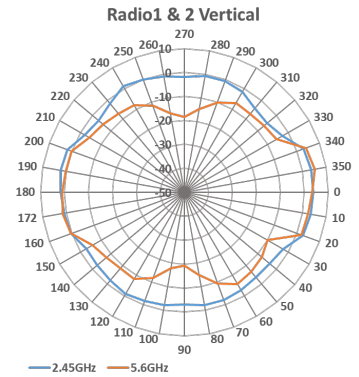
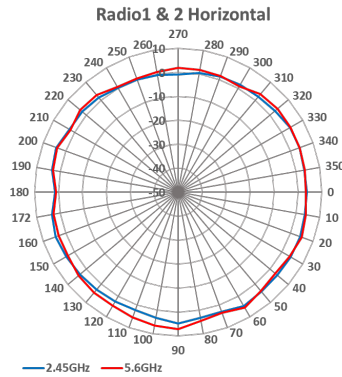
FortiAP U432F

Pole/Wall Mounting Position



FortiAP U432F

Antenna Radiation Patterns



FortiAP U231F

This enterprise class Wi-Fi 6 (802.11ax) indoor AP provides three radios as well as features such as OFDMA and dual 1 Gbps Ethernet ports for PoE diversity. The APs can be configured for dual 5 GHz band access while still providing coverage for devices on the 2.4 GHz band, or can be configured to offer dedicated scanning. The integrated BLE radio can be used for beacons and locationing applications.



 **802.11ax | Tri-Radio 5 GHz + 5 GHz + 2.4 GHz or 5 GHz + 2.4 GHz + scanning | 6 Antennas**

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

Specifications

FortiAP U231F	
Hardware	
Hardware Type	Indoor AP
Number of Radios	3 + 1 BLE
Number of Antennas	4 Dual band Wi-Fi + 2 5.0GHz Wi-Fi + 1 Single band 2.4GHz BLE/ZigBee
Antenna Type and Peak Gain	PIFA antenna Dual band 3.97 dBi for 2.4GHz and 5.89 dBi for 5GHz Single band 5Ghz antenna 5dBi for 2.4GHz band BLE antenna 3.5dBi at 2.4GHz band
Frequency Bands (GHz)	
Radio 1 Capabilities	Band 2.4 GHz or 5.0 GHz(High Band) a/b/g/n/ac/ax (2x2 2 stream) Channel width 20/40/80MHz Modulation BPSK, QPSK, 64/256/1024 QAM
Radio 2 Capabilities	5.0 GHz a/b/g/n/ac/ax (2x2 2 stream), Channel width 20/40/80MHz, Modulation BPSK, QPSK, 64/256/1024QAM
Radio 3 Capabilities	Service (2x2 2 stream), Band 2.4 GHz service b/g/n/ax Channel width 20/40MHz Modulation BPSK, QPSK, 64/256/1024QAM, Scan dual band scan
Maximum Data Rate	Radio 1 up to 1201 Mbps Radio 2 up to 1201 Mbps Radio 3 up to 574 Mbps
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 802.3at PoE default 1 x 802.af PoE with reduce TX power and no USB function
Simultaneous SSIDs	Up to 16 (24 if third radio is servicing clients)
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 blocklist and allowlist
Maximum Tx Power (Conducted)	Radio 1 2.4GHz 23 dBm / 200 mW (2 chains combined)* 5GHz 22 dBm / 158 mW (2 chains combined)* Radio 2 5GHz 22 dBm / 158 mW (2 chains combined)* Radio 3 2.4GHz 23 dBm / 200 mW (2 chains combined)* 5GHz 22 dBm / 158 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, 802.11w, 802.11ac, 802.11ax, 802.1Q, 802.1X, 802.3ad, 802.3af, 802.3at, 802.3az, Wi-Fi 6
SSID Types Supported	Local-Bridge, Tunnel, and Mesh
Per Radio Client Capacity	Up to 512 clients per radio (all radios)
Cellular Co-existence**	Yes
Reset Button	Yes
Threat Protection Capable	Yes
LED Off Mode	Yes



FortiAP U231F

Specifications

FortiAP U231F	
Advanced 802.11 Features	
Transmit Beam Forming (TxBF)	Yes
Low-Density Parity Check (LDPC) Encoding	Yes
Maximum Likelihood Demodulation (MLD)	Yes
Maximum Ratio Combining (MRC)	Yes
A-MPDU and A-MSDU Packet Aggregation	Yes
OFDMA	Yes
2.4 GHz OFDMA	Yes
Spatial Reuse (BSS Coloring)	Yes
HE-MU-MIMO	Yes
UL MU-MIMO 802.11ax mode	Yes
UL MU-MIMO 802.11ac mode	No
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	6.5 × 6.5 × 2.05 inches (165 × 165 × 52 mm)
Weight	1.5 lbs (0.68 kg)
Package (shipping) Weight	2.6 lbs (1.185 kg)
Mounting Options	Ceiling, T-Rail, and Wall
Included Accessories	Standard Mount kit for Ceiling, T-Rail and Wall
Environment	
Power Supply	GPI-130 or SP-FAP250-PA-10
Power Consumption (Maximum)	18.5W
Humidity	5% to 90% non condensing
Operating / Storage Temperature	32°F to 122°F (0°C to 50°C) / -22°F to 158°F (-30°C to 70°C)
Directives	Low Voltage Directive • RoHS
UL2043 Plenum Material	Yes
Mean Time Between Failures	> 10 Years
IP Rating	N/A
Surge Protection Built In	--
Hit-less PoE Failover	N/A
Certifications	
Wi-Fi Alliance Certified	Yes
DFS	FCC, IC, CE, Japan, Taiwan, Korea, Brazil
Warranty	
Limited Lifetime Warranty	Yes

** Frequency selection, power, and some communication features 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.



FortiAP U231F

RF RX/TX Performance Table

FortiAP U231F						
	Radio 1		Radio 2		Radio 3	
	Max Tx Power per transmit chain (dBm)	Rx Sensitivity per receiver chain (dBm)	Max Tx Power per transmit chain (dBm)	Rx Sensitivity per receiver chain (dBm)	Max Tx Power per transmit chain (dBm)	Rx Sensitivity per receiver chain (dBm)
2.4 GHz, 802.11b						
1 Mbps	20	-98	—	—	20	-96
11 Mbps	20	-89	—	—	20	-87
2.4 GHz, 802.11g						
6 Mbps	20	-94	—	—	20	-92
54 Mbps	19	-75	—	—	19	-73
2.4 GHz, 802.11n HT20						
MCS0	20	-93	—	—	20	-91
MCS7	18	-75	—	—	18	-72
2.4 GHz, 802.11n HT40						
MCS0	19	-91	—	—	19	-90
MCS7	18	-69	—	—	18	-71
2.4 GHz, 802.11ax HE20						
MCS0	20	93	—	—	20	-88
MCS11	19	-71	—	—	19	-69
2.4 GHz, 802.11ax HE40						
MCS0	19	-90	—	—	19	-86
MCS11	18	-65	—	—	18	-66
5.0 GHz, 802.11a						
6 Mbps	21	-92	20	-92	21	-92
54 Mbps	20	-75	19	-75	20	-75
5.0 GHz, 802.11n HT20						
MCS0	20	-91	20	-92	20	-91
MCS7	18	-74	18	-74	18	-74
5.0 GHz, 802.11n HT40						
MCS0	20	-90	20	-89	20	-90
MCS7	18	-72	18	-71	18	-72
5.0 GHz, 802.11ac VHT20						
MCS0	20	-92	20	-92	20	-92
MCS9	19	-70	19	-70	19	-70
5.0 GHz, 802.11ac VHT40						
MCS0	20	-89	20	-90	20	-89
MCS9	18	-66	18	-65	18	-66
5.0 GHz, 802.11ac VHT80						
MCS0	19	-87	19	-86	19	-87
MCS9	18	-62	18	-61	18	-62
5.0 GHz, 802.11ax HE20						
MCS0	20	-93	20	-93	20	-93
MCS11	18	-66	18	-62	18	-66
5.0GHz, 802.11ac HE40						
MCS0	20	-87	20	-90	20	-87
MCS11	18	-61	18	-60	18	-61
5.0 GHz, 802.11ac HE80						
MCS0	19	-94	19	-89	19	-94
MCS11	17	-58	17	-58	17	-58

Maximum capability of the hardware provided (excluding antenna gain)

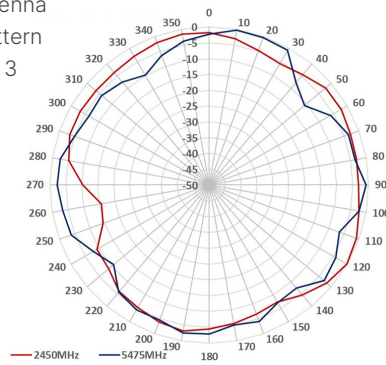


FortiAP U231F

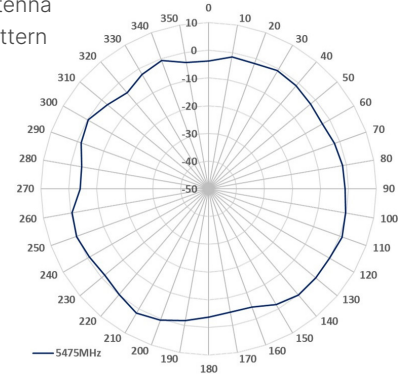
Antenna Radiation Patterns



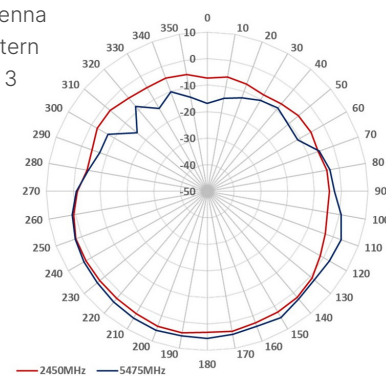
Internal Antenna
H-Plane Pattern
Radio 1 and 3



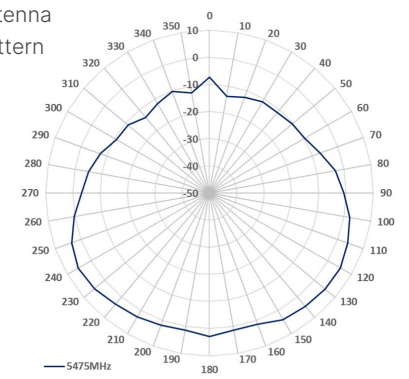
Internal Antenna
H-Plane Pattern
Radio 2



Internal Antenna
E-Plane Pattern
Radio 1 and 3



Internal Antenna
E-Plane Pattern
Radio 2



FortiAP U234F

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 be configured for dual 5 GHz band access while still providing coverage for devices on the 2.4 GHz band, or can be configured to offer dedicated scanning. The integrated BLE radio can be used for beacons and locationing applications.



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

 2x2 MIMO | Up to 1,201 Mbps + 1,201 Mbps + 574 Mbps

Specifications

FortiAP U234F	
Hardware	
Hardware Type	Outdoor AP
Number of Radios	3 + 1 BLE
Number of Antennas	2 Wi-Fi 5.0GHz band + 4 dual band Wi-Fi + 1 Single band 2.4GHz BLE/ZigBee
Antenna Type and Peak Gain	Directional patch antenna Single band antennas: 10 dBi in 2.4 GHz band, 10 dBi in 5.0 GHz band Dual band scanning radio: 4.0 dBi in 2.4 GHz band and 4.0 dBi in 5 GHz band BLE antenna: 4.0 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	2.4 GHz a/b/g/n (2x2 2stream) (64 QAM) or 5.0 GHz (high band) a/b/g/n/ac/ax (2x2 2 stream) 20/40/80/160 MHz (64/256/1024 QAM)
Radio 2 Capabilities	5.0 GHz a/n/ac/ax (2x2 2 stream) 20/40/80/160 MHz (64/256/1024 QAM)
Radio 3 Capabilities	2.4/5.0 GHz dual band b/g/n/ac (2x2 2 stream) 20/40 MHz (64 QAM)
Maximum Data Rate	Radio 1 up to 2,402 Mbps Radio 2 up to 2,402 Mbps Radio 3 up to 300 Mbps
Bluetooth Low Energy Radio	Bluetooth scanning and iBeacon advertisement @ 10 dBm max TX power
Interfaces	1x 100/1000/2500 Base-T RJ45(802.3bt/at PoE) 1 x 10/100/1000 Base-T RJ45 (802.3af PoE PSE), 1x RS-232 RJ45 Serial Port
Power over Ethernet (PoE)	802.3bt PoE ships with PoE injector (reset functionality)
Simultaneous SSIDs	Up to 16 (24 if third radio is servicing clients)
EAP Type(s)	EAP-TLS, EAP-TTLS/MSCSHAPv2, 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 blocklist and allowlist
Maximum Tx Power (Conducted)	Radio 1 2.4GHz 25 dBm / 316 mW (2 chains combined)* 5GHz 25 dBm / 316 mW (2 chains combined)* Radio 2 5GHz 25 dBm / 316 mW (2 chains combined)* Radio 3 2.4GHz 27 dBm / 501 mW (2 chains combined)* 5GHz 25 dBm / 316 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, 802.11w, 802.11ac, 802.1Q, 802.1X, 802.3ad, 802.3af, 802.3at, 802.3az, 802.11ax, 802.3bz
SSID Types Supported	Local-Bridge, Mesh, and Tunnel
Per Radio Client Capacity	Up to 512 clients per Radio1 and Radio2
Cellular Co-existence**	Yes
LED Off Mode	No



FortiAP U234F

Specifications

FortiAP U234F	
Advanced 802.11 Features	Yes
Transmit Beam Forming (TxBF)	Yes
Low-Density Parity Check (LDPC) Encoding	Yes
Maximum Likelihood Demodulation (MLD)	Yes
Maximum Ratio Combining (MRC)	Yes
A-MPDU and A-MSDU Packet Aggregation	Yes
OFDMA	Yes
2.4 GHz OFDMA	Yes
Spatial Reuse (BSS Coloring)	Yes
HE-MU-MIMO	Yes
UL MU-MIMO 802.11ax mode	Yes
UL MU-MIMO 802.11ac mode	No
DL-MU-MIMO	Yes
Enhanced Target Wake Time (TWT)	Yes
ZeroWait DFS /Agile DFS	No
Wireless Monitoring Capabilities	
Rogue Scan radio modes	Background and Dedicated
WIPS / WIDS radio modes	Background and Dedicated (recommended)
Packet Sniffer Mode	Yes
Spectrum Analyzer	Yes
Dimensions	
Length x Width x Height	12.45 × 8.59 × 1.66 inches (316.18 × 218.16 × 42.21 mm)
Weight	2.66 lbs (1.207 kg)
Package (shipping) Weight	5.86 lbs (3.6 kg)
Mounting Options	Wall / Pole
Included Accessories	1-2. Wall/ Pole bracket 3. POE adapter - PIN060-54PR 4. Power cable 5. Grounding cable 6. Mounting Kit (Pole straps; mounting bolts, screws; grounding screws)
Environment	
Power Supply	802.3bt/at (ships with passive PoE injector with build in reset switch)
Power Consumption (Maximum)	21 Watts
Humidity	10% to 90% non condensing
Operating / Storage Temperature	-40°F to 140°F (-40°C to 60°C) / -50°F to 176°F (-58°C to 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
Certifications	
Wi-Fi Alliance Certified	Yes
DFS	FCC, IC, CE, Taiwan
Warranty	
Limited Lifetime Warranty	Yes

** Frequency selection, power, and some communication features 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.



FortiAP U234F

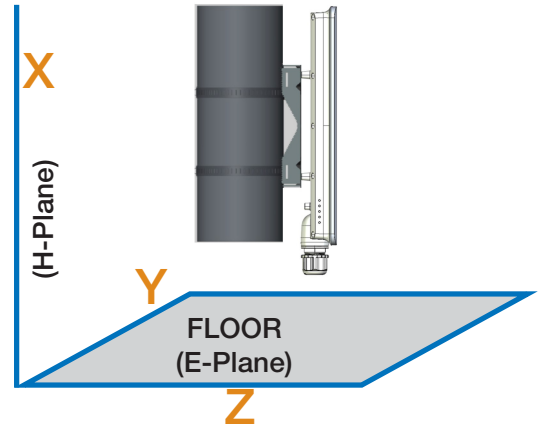
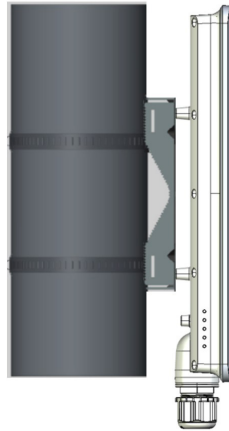
RF RX/TF Performance Table

FortiAP U234F				
	2.4 GHz		5 GHz	
	Tx Power (dBm)	Rx Sensitivity (dBm)	Tx Power (dBm)	Rx Sensitivity (dBm)
802.11 b				
1 Mbps	23	-98	—	—
11 Mbps	23	-90	—	—
802.11 a/g				
6 Mbps	23	-93	22	-91
54 Mbps	19	-75	17	-74
802.11 n HT20				
MCS0	23	-91	22	-91
MCS7	19	-71	16	-72
802.11 n HT40				
MCS0	23	-89	22	-88
MCS7	19	-69	16	-69
802.11 ac/ax VHT20				
MCS0	23	-91	22	-91
MCS8	18	-68	18	-69
802.11 ac/ax VHT40				
MCS0	23	-89	22	-88
MCS9	17	-66	16	-64
MCA 10 (QAM 1024)			15	-62
MCA 11 (QAM 1024)			15	-62
802.11 ac/ax VHT80				
MCS0			22	-85
MCS9			15	-61
MCA 10 (QAM 1024)			14	-60
MCA 11 (QAM 1024)			14	-60
802.11 ac/ax VHT160				
MCS0			1722	-83
MCS9			13	-59
MCA 10 (QAM 1024)			13	-58
MCA 11 (QAM 1024)			13	-58



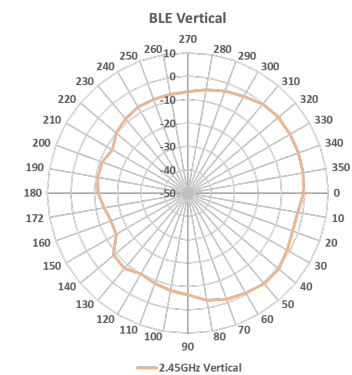
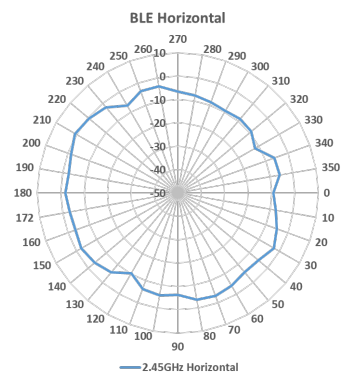
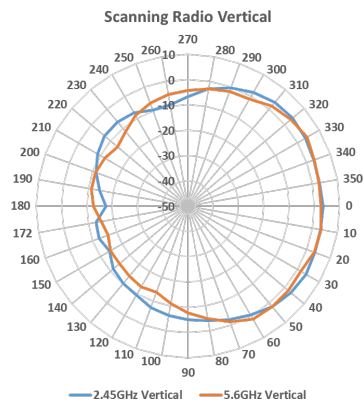
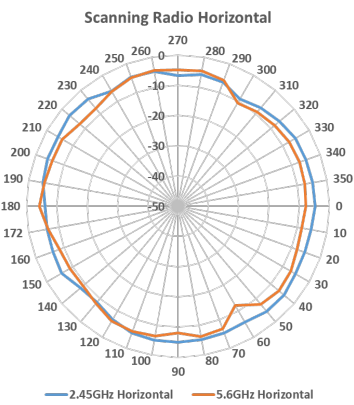
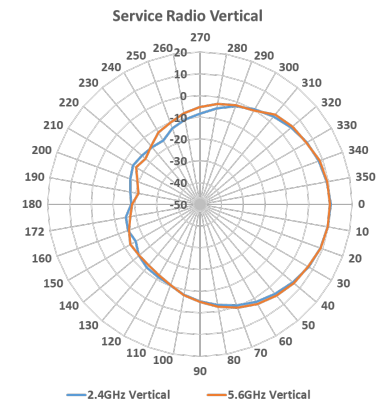
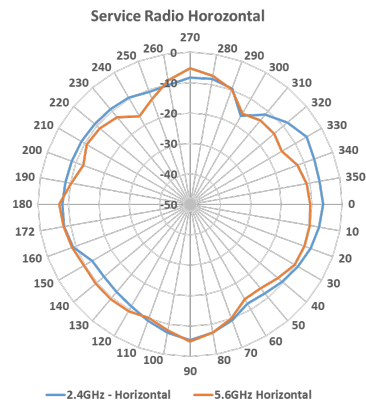
FortiAP U234F

Pole/Wall Mounting Position



FortiAP U234F

Antenna Radiation Patterns



Ordering Information

Product	SKU	Description
FortiAP U431F	FAP-U431F	Indoor Wireless UTP AP - Tri radio (2× 802.11 a/b/g/n/ac/ax, 4×4 MIMO and 1× 802.11 a/b/g/n/ac Wave 2, 2×2 MU-MIMO), internal antennas, 1× 10/100/1000/2500 Base-T RJ45, 1× 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-FAP43F-PA-X-5.
	FC-10-90APU-443-02-DD	FortiAP-U Series FortiGuard Universal Threat Protection Subscription Service License. Applicable to FortiGate or FortiLAN Cloud managed F-Series or later FortiAP-U family Access Points.
	FC-10-P431F-247-02-DD	FortiCare Premium Support.
	FC-10-P431F-284-02-DD	FortiCare Elite Support.
FortiAP U432F	FAP-U432F	Outdoor Universal AP - Tri radio (1× 2.4GHz/5GHz 4×4 Wi-Fi 6, 1× 5GHz 4×4 Wi-Fi 6, 1× 2.4GHz/5GHz 1×1 Wi-Fi 5), external antennas included, 1× 100/1000/2500 RJ45, 1× 10/100/1000 RJ45, IoT Enabled (BT/BLE), 1x RS-232 RJ45 Serial Port. Pole/wall mount kit and PoE injector included.
	FC-10-90APU-443-02-DD	FortiAP-U Series FortiGuard Universal Threat Protection Subscription Service License. Applicable to FortiGate or FortiLAN Cloud managed F-Series or later FortiAP-U family Access Points.
	FC-10-PU432-247-02-DD	FortiCare Premium Support.
	FC-10-PU432-284-02-DD	FortiCare Elite Support.
FortiAP U433F	FAP-U433F	Indoor Wireless UTP AP - Tri radio (2× 802.11 a/b/g/n/ac/ax, 4×4 MIMO and 1× 802.11 a/b/g/n/ac Wave 2, 2×2 MU-MIMO), external antennas included, 1× 10/100/1000/2500 Base-T RJ45, 1× 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-FAP43F-PA-X-5.
	FC-10-90APU-443-02-DD	FortiAP-U Series FortiGuard Universal Threat Protection Subscription Service License. Applicable to FortiGate or FortiLAN Cloud managed F-Series or later FortiAP-U family Access Points.
	FC-10-P433F-247-02-DD	FortiCare Premium Support.
	FC-10-P433F-284-02-DD	FortiCare Elite Support.
FortiAP U231F	FAP-U231F	Indoor Wireless UTP AP - Tri radio (802.11 b/g/n/ax 2×2 MU-MIMO, 802.11 a/n/ac/ax 2×2 MU-MIMO and 1× 802.11 a/b/g/n/ac Wave 2, 1×1), internal antennas, 2× 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: SP-FAP250-PA-10.
	FC-10-90APU-443-02-DD	FortiAP-U Series FortiGuard Universal Threat Protection Subscription Service License. Applicable to FortiGate or FortiLAN Cloud managed F-Series or later FortiAP-U family Access Points.
	FC-10-P231-247-02-DD	FortiCare Premium Support.
	FC-10-P231F-284-02-DD	FortiCare Elite Support.
FortiAP U234F	FAP-U234F	Outdoor Universal AP - Tri radio (1× 2.4GHz/5GHz 2×2 Wi-Fi 6, 1× 5GHz 2×2 Wi-Fi 6, 1× 2.4GHz/5GHz 2×2 Wi-Fi 5), internal antennas, 2× 10/100/1000 RJ45, IoT Enabled (BT/BLE), 1x RS-232 RJ45 Serial Port. Pole/wall mount kit and PoE injector included.
	FC-10-90APU-443-02-DD	FortiAP-U Series FortiGuard Universal Threat Protection Subscription Service License. Applicable to FortiGate or FortiLAN Cloud managed F-Series or later FortiAP-U family Access Points.
	FC-10-PU234-247-02-DD	FortiCare Premium Support.
	FC-10-PU234-284-02-DD	FortiCare Elite Support.
Accessories		
Gigabit PoE Injector	GPI-115	1-Port Gigabit PoE Injector, 802.3af up to 12.95 W.
	GPI-130	1-Port Gigabit PoE Power Injector, 802.3at up to 30W.
Power Adapter	SP-FAP43F-PA-X-5	AC power adapter for FAP-U431F and FAP-U433F.
	SP-FAP400-PA	AC power adapter for FAP-U423EV.
	SP-FAP200-PA	AC power adapter for FAP-U321EV.
	SP-FAPU24-PA	AC power adapter for FAP-U24JEV.
	SP-FAP250-PA-10	AC power adapter with US and EU plugs for FAP-U231F and FAP-231F.
FortiGuard Services		
	FC-10-90APU-443-02-DD	FortiAP-U Series FortiGuard Universal Threat Protection Subscription Service License. Applicable to FortiGate or FortiLAN Cloud managed F-Series or later FortiAP-U family Access Points.

Notes.

Additional external antenna options are available for some models. Please see the antenna datasheet for details.

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.

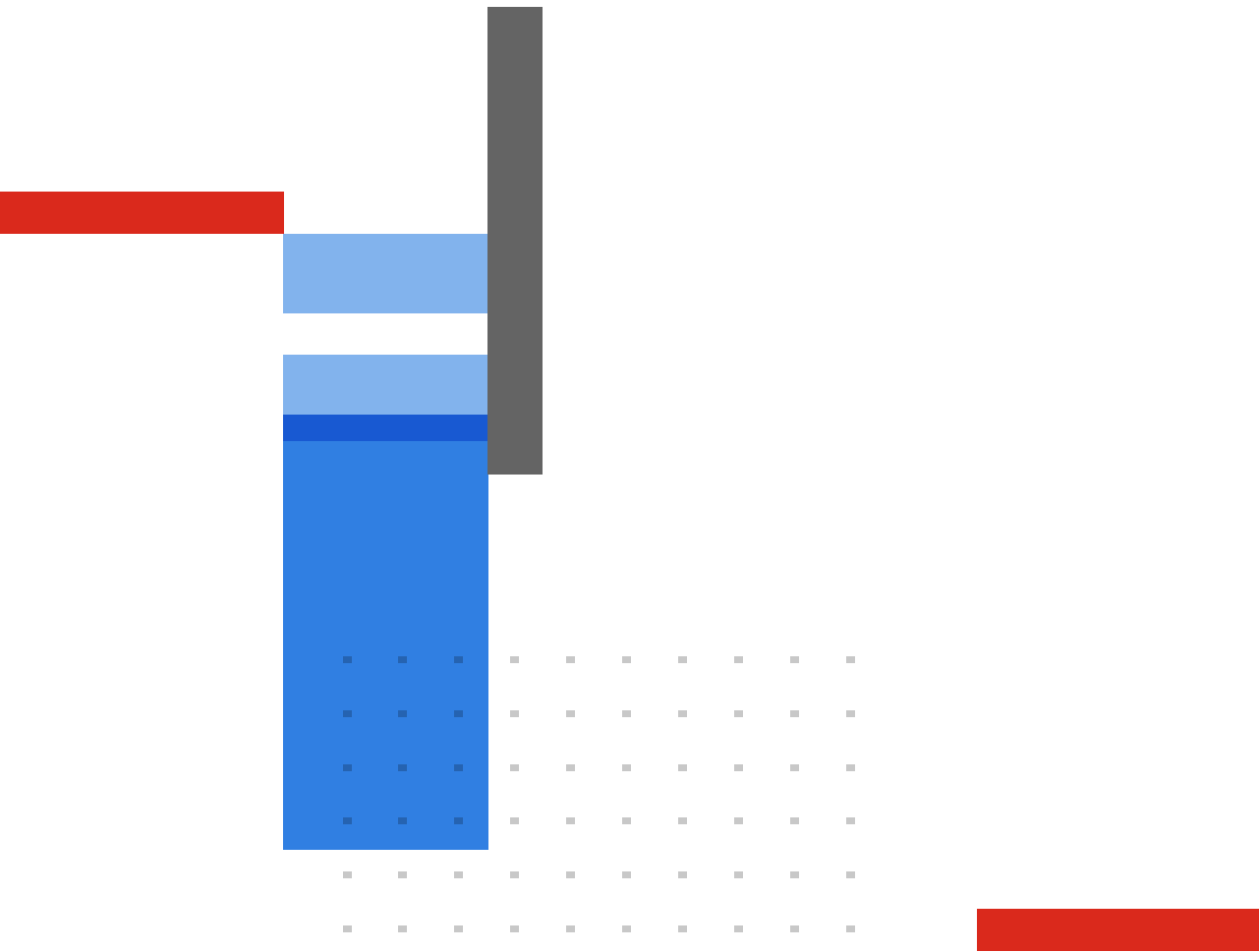
Access Points mentioned in this datasheet are covered by a Limited Lifetime Hardware Warranty.

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