Highlights

Advanced Radio Technology

Tri-Radio Design

- 2.4 GHz (2x2:2)
- 5 GHz (2x2:2)
- 6 GHz (2x2:2)

Operational modes

- Mode 1: 2.4 GHz/5 GHz/6 GHz Data Radios
- Mode 2: 2.4 GHz/5GHz Data radios + Tri-frequency band sensor (2.4 GHz/5 GHz/6 GHz)

Universal Hardware Platform

- On-Premise: WiNG OS (Centralized)
- Cloud: IQ Engine

Superior Tri-Frequency Radio Performance

- Multi-band filter reduces interference and enables 5 GHz and 6 GHz operation across all available channels without restrictions
- Multi-Band functionality out-of-the-box without the need for a software or hardware upgrade

WPA3 Support

- Includes the latest WPA3 Wi-Fi security standard delivering robust protections for users and IoT devices

Cellular Coexistence Filter (CCF)

- Minimizes the impact of interference from cellular networks

Fully Functional over 802.3at

Smart Management Choices

- ExtremeCloud IQ delivers powerful, simple, and secure public or private cloud management capabilities
- ExtremeCloud Appliance controller is ideal for on-premises requirements

Universal Wireless AP4000

Wi-Fi 6E Tri-Radio Indoor Access Point with Support for Multiple Extreme Operating Systems

In today's world, as businesses make capital investments in their technology infrastructure, they must have a keen eye on how those investments can improve operational efficiency and reduce cost. With Extreme's Universal infrastructure, customers can take advantage of hardware agility and reduce the total cost of their network by adopting platforms that allow them to run multiple Extreme operating systems. This multi-persona capability provides increased product flexibility and reduced hardware obsolescence.

The AP4000 is the industry's first Enterprise Universal and World SKU Wi-Fi 6E Wireless Access point. This innovation simplifies the sales ordering process and reinforces Extreme's commitment to the journey to the "Infinite Enterprise". The World SKU allows customers, partners, and distributors to order one model for any region, replacing the age-old problem of country specific SKUs. ExtremeCloud™ IQ geo-locates the Access Point and accurately provides it the corresponding set of channel and power specifications that the product can operate under in that country.

The AP4000 Wi-Fi 6E access point, with three 2x2:2 radios, provides high-efficiency, high-performance 802.11ax aggregate data rates up to 3.9 Gbps in the 6 GHz, 5 GHz, and 2.4 GHz band. Designed for high density environments, such as schools, warehouses, healthcare facilities, and stadiums, the AP4000 is powerful and intelligent enough to provide the highest level of client services without compromising security. Despite powerful capabilities, the AP4000 allows for flexible placement as the market's smallest form-factor enterprise-grade Wi-Fi 6E access point, emphasizing aesthetics.

With more users, more devices, more things, more applications, and more threats straining the infrastructure, the AP4000 was engineered to meet those challenges. The AP4000 combines powerful 802.11ax Wi-Fi 6E technology, advanced security, and ML/AI management capabilities together as an enterprise-class solution that allows you to deploy high speed, highly secure Wi-Fi into high-density environments.

Unlike other access points that scan only part-time, the AP4000 features a dedicated tri-frequency sensor that monitors for rogue devices full time, eliminating the risk of vulnerability and attacks. This tri-radio AP is capable of multiple operating modes, optimizing for maximum performance without trading off security. The AP4000 is the first enterprise Wi-Fi 6E access point that features a fully functional Multi-Band filter, enabling simultaneous operations with no performance degradation between all the 5 GHz frequencies and the entire range of 6 GHz frequencies (U-NII-5 thru U-NII-8 bands).*

* Country dependent

Wi-Fi 6E Enhanced Capacity

By utilizing the additional 6 GHz spectrum offered by Wi-Fi 6E, the AP4000 operates across three times as much spectrum as previous generations of Wi-Fi to deliver enhanced wireless experiences, faster speeds, and less interference.

Band	Number of 20 MHz Channels	Maximum Channel Size	Maximum throughput
6 GHz	59	160 MHz	2.4 Gbps
5 GHz	25	80 MHz	1.2 Gbps
2.4 GHz	3	20 MHz	287 Mbps
Total	87		3.9

*For US regulatory environments (20 MHz channels)

Wi-Fi 6E (802.11ax) Technology

Wi-Fi 6 ushered a new generation of Wi-Fi, with prior generations emphasized on higher speeds, 802.11ax technology instead focused on improving Wi-Fi efficiency as well as speed, taking Wi-Fi networks to an entirely new level. Now, with addition of the 6GHz band for unlicensed operation, Wi-Fi 6E has access to up to 1200 MHz of spectrum*, which is three times that of existing 'usable' spectrum which enables improved quality of service in dense environments, new applications and use cases, and an improved user experience. To learn more about 802.11ax and Wi-Fi 6E, visit here to learn more.

Management Analytics

In conjunction with Extreme centralized management software, cloud or on-premises, the AP4000 provides a rich set of data displayed via context driven widgets, representing unlimited historical data or a combination of historical and current data. This provides context-specific granularity with perspective views for locations, network, APs, individual client devices, as well as policy roles. In each context, administrators can adjust dashboards make a widget library.

Tri-Radio Programmable AP

Extreme launched the industry's first software defined Wi-Fi 6E access point supporting two software programmable modes to optimally manage radios to provide the highest level of client performance. The AP4000 is a tri-radio AP can transmit with three data radios or with two data radios and a dedicated tri-frequency sensor. The AP4000 intelligently monitors the software-configurable radios, enabling network managers to configure network RF technology based on the user environment and configure the access points in different modes as required.

Security

The AP4000 delivers the highest level of security services, beginning with support for the latest Wi-Fi Alliance WPA3 security certifications. Additionally, supporting a stateful L2-L7 DPI firewall for context-based access security, tri-frequency security and location analytics sensor, Private Pre-Shared Key (PPSK) and much more.

Universal Hardware

The AP4000 as a universal hardware platform comes with a dual-persona capability allowing user choice of the Wi-Fi operating system (OS). Either the IQ Engine operating system or the WiNG Operating System persona can be enabled as required. The desired persona can be selected at start-up or changed at a later stage. Once selected, the AP4000 assumes the features/capabilities of the selected OS. When first booted, the AP4000 automatically connects to ExtremeCloud™ IQ to find its persona. The pre-provisioned OS persona is then remotely enabled on the AP4000 system, eliminating the need for manual selection.

Integrated Bluetooth Low Energy and USB Port

To support both IoT and Guest Engagement services the AP4000 integrates Bluetooth® to connect with IoT devices wireless to engage loyalty customers with Apple iBeacon. Enterprises can use API driven applications to send advertisements directly to shoppers, guests, and conference attendees. This makes it ideal for businesses to advertise their app download pages, captive portals, or site-specific information.

Product Specifications

Radio Specifications

Max Users
- SSID per Radio/Total: 8/24
- Users per Radio/total: 512/1536

802.11a
- 5.150–5.850 GHz Operating Frequency
- Orthogonal Frequency Division Multiplexing (OFDM) Modulation
- Rates (Mbps): 54, 48, 36, 24, 18, 12, 9, 6 w/auto fallback

802.11b
- 2.4–2.5 GHz Operating Frequency
- Direct-Sequence Spread-Spectrum (DSSS) Modulation
- Rates (Mbps): 11, 5.5, 2, 1 w/auto fallback

802.11g
- 2.4–2.5 GHz Operating Frequency
- Orthogonal Frequency Division Multiplexing (OFDM) Modulation
- Rates (Mbps): 54, 48, 36, 24, 18, 12, 9, 6 w/auto fallback

802.11n
- 2.4–2.5 GHz and 5.150–5.850 GHz Operating Frequency
- 802.11n Modulation
- HT20 High-Throughput (HT) Support (for both 2.4 GHz and 5 GHz)
- HT40 High-Throughput (HT) Support for 5 GHz
- A-MPDU and A-MSDU Frame Aggregation

802.11ac
- 5.150–5.850 GHz Operating Frequency
- 802.11ac Modulation (256-QAM)
- Rates (Mbps): MCS0 – MCS31 (6.5MBps - 600Mbps)
- 5G: 2x2 Multiple-In, Multiple-Out (MIMO) Radio
- 2.4G: 2x2 Multiple-In, Multiple-Out (MIMO) Radio
- Rates (Mbps): MCS0–MCS9 (6.5Mbps – 1734Mbps), NSS = 1-2.
- 2x2:2 Stream Multiple-In, Multiple-Out (MIMO) Radio
- VHT20/VHT40/VHT80 support
- TxBF (Transmit Beamforming)

802.11ax
- 2.4-2.5GHz, 5.50-5.850 and 5.925-7.125 GHz Operating Frequencies
- 802.11ax Modulation (1024-QAM)
- Dual-band OFDMA
- Rates (Mbps):
  - 6G: HE0-HE11 (8 Mbps – 2400 Mbps)
  - 5G: HE0-HE11 (8 Mbps – 1200 Mbps)
  - 2.4G: HE0-HE11 (8Mbps – 574 Mbps)
- 2x2:2 Stream Multiple-In, Multiple-Out (MIMO) Radio@ 6GHz
- 2x2:2 Stream Multiple-In, Multiple-Out (MIMO) Radio@ 5GHz
- 2x2:2 Stream Multiple-In, Multiple-Out (MIMO) Radio @2.4GHz
- HE20/HE40/HE80/HE160 support for 6 GHz
- HE20/HE40/HE80 support for 5 GHz
- HE20/HE40 support for 2.4 GHz
- DL SU-MIMO and MU-MIMO
- TxBF (Transmit Beamforming)

IOT Radio
- Thread, Zigbee®, Bluetooth® 5.2 Low Energy, IEEE 802.15.4

Interfaces
- Eth0, Eth1: (2) Wired Ethernet ports (RJ-45)
  - (1) 100/1000/2500Mbps auto-sensing link speed Ethernet port, POE 802.3at
  - (1) 10/100/1000 Mbps auto-sensing link speed Ethernet port
  - 802.3az Energy Efficient Ethernet(EEE)
- USB 2.0, Type A, 5V/500mA

Power Specifications
- IEEE 802.3at PoE Power

Power Options
- Power Draw: Typical: 12.3W; Max: 13.8W (w/o USB)
  Typical: 15W; Max: 16.6W (w USB)
- 802.3at Power over Ethernet (PoE) capable
- Gigabit Ethernet port (RJ-45 power input pins: Wires 4,5,7,8 or 1,2,3,6)

Physical
- Dimensions: 8″ x 8″ x 1.5″ (205mm x 205mm x 37mm)
- Weight: 1.88 pounds (.85 kg)
- Kensington lock slot
- Trusted Platform Module(TPM)

Internal Antennas
- (2) Integrated single band, 5.925-7.125 GHz omnidirectional antennas
- (2) Integrated dual band, 2.4-2.5 GHz and 5.1-5.8 GHz omnidirectional
- (2) Integrated dual band, 2.4-2.5 GHz and 5.1-5.8 GHz omnidirectional for sensor
- (1) Integrated dual band, 2.4-2.5 GHz omnidirectional for IoT

Mounting
- AP support 15/16 flush ceiling tile include in box
- Wall mount included in box or sold as an accessory
- Ceiling Tile Recessed 15/16 sold as accessory
- Beam sold as an accessory
- Junction Box sold as an accessory
- IL or 9/16 t-bar sold as an accessory
- SL (Silhouette) sold as an accessory
- Wing Main Plate adaptor sold as an accessory
- Built in slot for Kensington

Environmental
- Operating: AP4000: 0 to 50°C
- Storage: -40 to 70°C
- Humidity: 0% to 95% (non-condensing)

Environmental Compliance
- EU RoHS – 2011/65/EU
- EU WEEE – 2012/19/EU
- EU REACH - Regulation (EC) No 1907/2006 – Reporting
- EU SCIP – EU Waste Framework Directive
- China RoHS – SJ/T 11363-2006
- Taiwan RoHS CNS 15663(2013.7)

Regulatory Compliance

Radio Standards

USA
- Part 15C - 15.247
- Part 15E - 15.407
- Part 15B EMC class B
- RF exposure - KDB 447498D01V06 FCC Part1.1310
- ANSI C63.4 test methods
- IEC 60601-1-2 EMC for medical devices

Canada
- RSS 247 for 2.4G 802.11
- IECS-003 class B
- RF exposure - RSS-102: Issue 5, 2015

CE
- 2014/53/EU Radio Equipment Directive
- EN 300 328, EN 301 893, EN 302 502, EN 300 440
- EN301 489 1, EN 301 489 17, EN 62311, EN 62479, EN 50385

Regulatory and Safety

North American ITE
- UL 60950-1 2nd edition Listed Device (U.S.)
- CSA 22.2 No. 60950-1 2nd edition 2014(Canada)
- UL/CuL 62368-1 Listed
- UL 2043 Plenum Rated

European ITE
- EN 62368-1
- 2014/35/EU Low Voltage Directive

International ITE
- CB Report and Certificate per IEC 60950-1 + National Differences
- CB Report and certificate IEC 62368-1
- AS/NZS 60950-1 (Australia /New Zealand)

EMI/EMC Standards

North American EMC Standards
- FCC CFR 47 part 15 Class A (USA)
- ICES-003 Class A (Canada)

European EMC Standards
- EN 55032 Class A
- EN 55035
- EN 55011
- EN 61000-3-2: (Harmonics)
- EN 61000-3-3 (Flicker)
- EN 300 386 (EMC Telecommunications)
- 2014/30/EU EMC Directive

International EMC Certifications
- CISPR 32 Class A (International Emissions)
- AS/NZS CISPR32
- CISPR 24 Class A (International Immunity)
- IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6
- IEC/EN 61000-4-11

Warranty

The AP4000 is covered under Extreme's Universal LLW policy. For warranty details, please.visit: www.extremenetworks.com/support/policies.

Power and Sensitivity Tables

Power and Receive Sensitivity- 2.4 GHz Radio

Channel	Data Rate	Power (dBm)	Sensitivity
11b	1 - 11 Mbps	19	-94, -87
11g	6 Mbps	19	-91
	54 Mbps	16	-73
11n HT20	MCS0, 7	19, 16	-91, -72
11n HT40	MCS0, 7	18, 16	-88, -69
11ax HE20	HE0, 11	19, 14	-90, -60
11ax HE40	HE0, 11	18, 14	-87, -57

Power and Receive Sensitivity – 5 GHz Radio

Channel	Data Rate	Power (dBm)	Sensitivity
11a	6 Mbps	18	-94
	54 Mbps	17	-75
11n HT20	MCS0, 7	18, 16	-94, -75
11n HT40	MCS0, 7	18, 16	-91, -72
11ac VHT20	MCS0, 8	18, 15	-94, -71
11ac VHT40	MCS0, 9	18, 15	-91, -67
11ac VHT80	MCS0, 9	18, 15	-88, -64
11ax HE20	HE0, 11	18, 14	-93, -64
11ax HE40	HE0, 11	18, 14	-90, -60
11ax HE80	HE0, 11	18, 14	-87, -57

Power and Receive Sensitivity – 6 GHz Radio

Channel	Data Rate	Power (dBm)	Sensitivity
11a	6 Mbps	18	-93
	54 Mbps	16	-75
11n HT20	MCS0, 7	18, 15	-93, -75
11n HT40	MCS0, 7	17, 15	-91, -72
11ac VHT20	MCS0, 8	18, 14	-93, -71
11ac VHT40	MCS0, 9	17, 13	-91, -67
11ac VHT80	MCS0, 9	17, 13	-88, -64
11ac VHT160	MCS0, 9	17, 11	-85, -61
11ax HE20	HE0, 11	18, 12	-92, -63
11ax HE40	HE0, 11	17, 12	-90, -60
11ax HE80	HE0, 11	17, 12	-87, -57
11ax HE160	HE0, 11	17, 11	-84, -54

Power and Receive Sensitivity - 2.4 GHz Sensor

Channel	Data Rate	Power (dBm)	Power (dBm)
11b	1 - 11 Mbps	16	-95, -88
	6 Mbps	16	-94
11g	54 Mbps	16	-77
11n HT20	MCS0, 7	16, 15	-93, -75
11n HT40	MCS0, 7	16, 15	-90, -72
11ax HE20	HE0, 11	16, 14	-92, -62
11ax HE40	HE0, 11	16, 14	-89, -59

Power and Receive Sensitivity – 5 GHz Sensor

Channel	Data Rate	Power (dBm)	Sensitivity
11a	6 Mbps	20	-95
	54 Mbps	17	-76
11n HT20	MCS0, 7	20, 17	-95, -75
11n HT40	MCS0, 7	20, 17	-92, -72
11ac VHT20	MCS0, 8	20, 16	-94, -72
11ac VHT40	MCS0, 9	20, 15	-91, -67
11ac VHT80	MCS0, 9	20, 15	-88, -64
11ac VHT160	MCS0, 9	20, 15	-85, -61
11ax HE20	HE0, 11	20, 15	-94, -64
11ax HE40	HE0, 11	20, 15	-91, -61
11ax HE80	HE0, 11	20, 15	-88, -58
11ax HE160	HE0, 11	20, 15	-85, -55

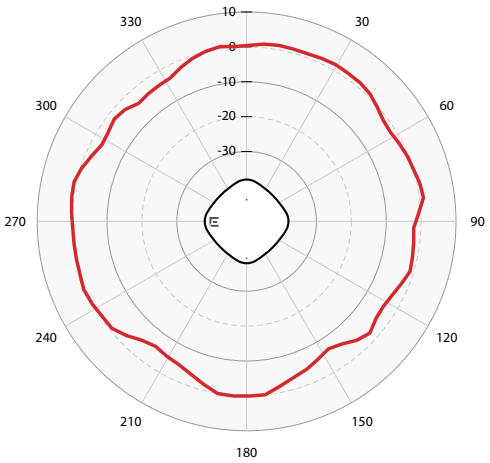
Power and Receive Sensitivity – 6 GHz Radio Senso

Channel	Data Rate	Power (dBm)	Sensitivity
11a	6 Mbps	18	-93
	54 Mbps	16	-75
11n HT20	MCS0, 7	18, 15	-93, -75
11n HT40	MCS0, 7	17, 15	-91, -72
11ac VHT20	MCS0, 8	18, 14	-93, -71
11ac VHT40	MCS0, 9	17, 13	-91, -67
11ac VHT80	MCS0, 9	17, 13	-88, -64
11ac VHT160	MCS0, 9	17, 11	-85, -61
11ax HE20	HE0, 11	18, 12	-92, -63
11ax HE40	HE0, 11	17, 12	-90, -60
11ax HE80	HE0, 11	17, 12	-87, -57
11ax HE160	HE0, 11	17, 11	-84, -54

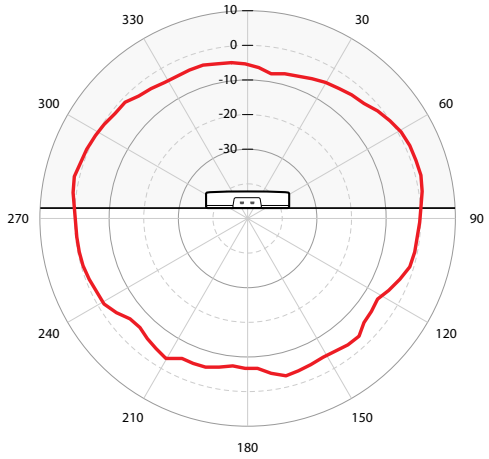
Maximum EIRP may vary based upon deployed country

Antenna Radiation Patterns

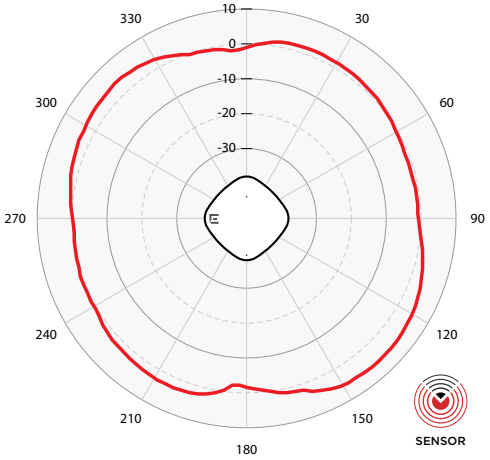
Azimuth – 6 GHz



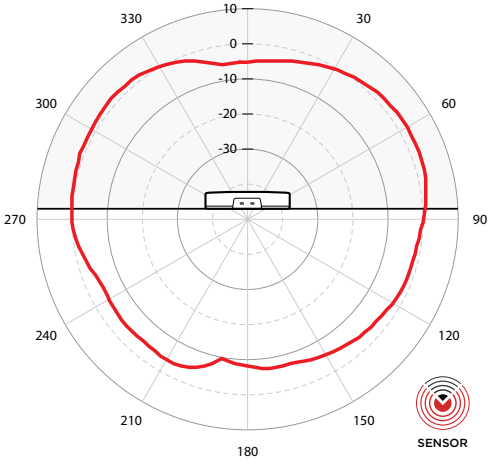
Elevation – 2 GHz



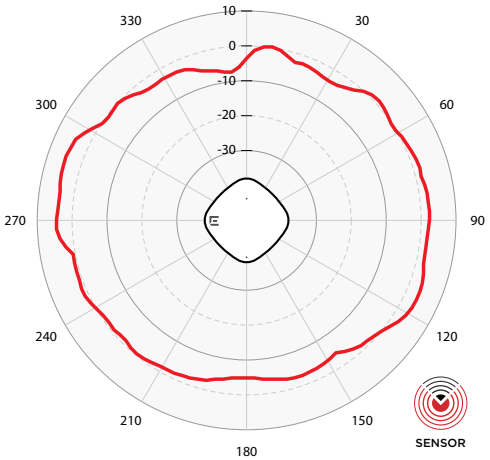
Azimuth – 2 GHz



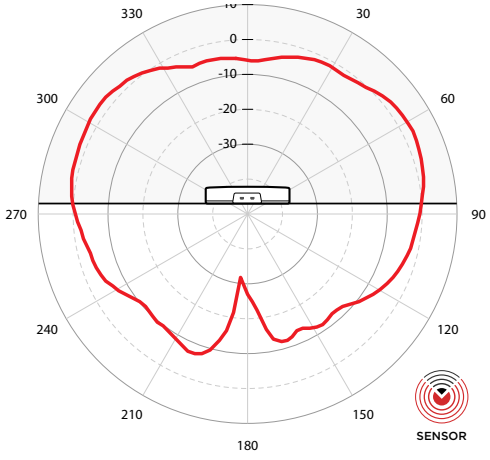
Elevation – 5 GHz



Azimuth – 5 GHz

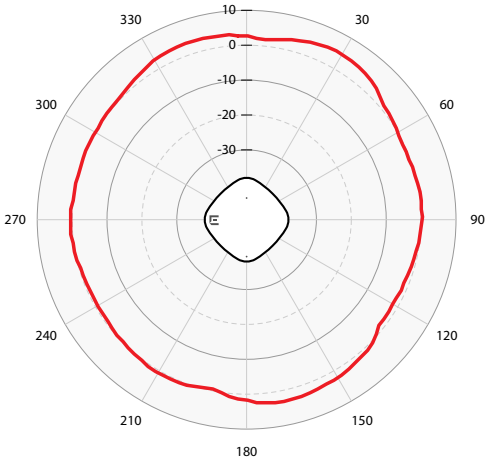


Elevation – 6 GHz

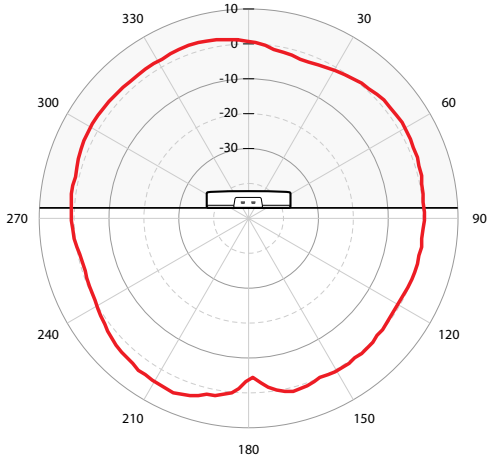


Antenna Radiation Patterns (Cont.)

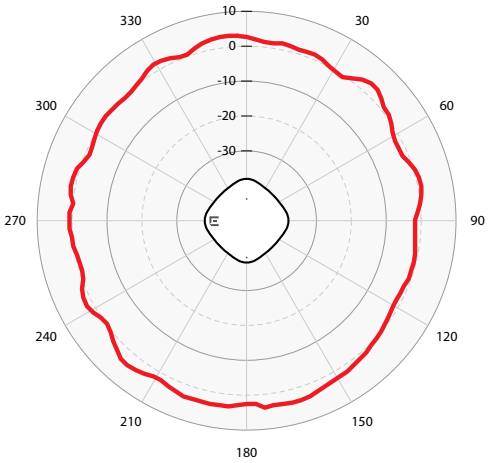
Dual Band Azimuth – 2 GHz



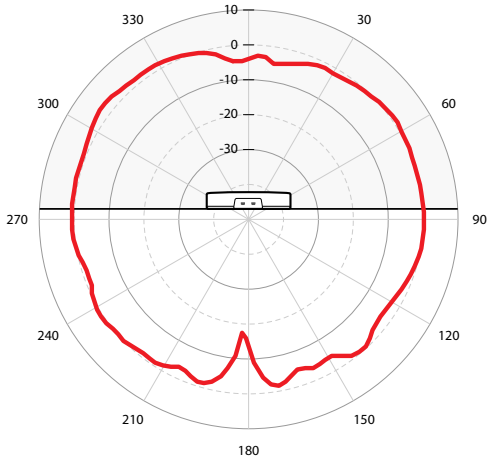
Dual Band Elevation – 5 GHz



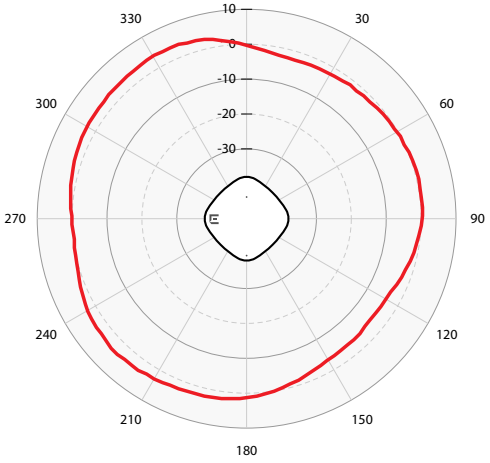
Dual Band Azimuth – 5 GHz



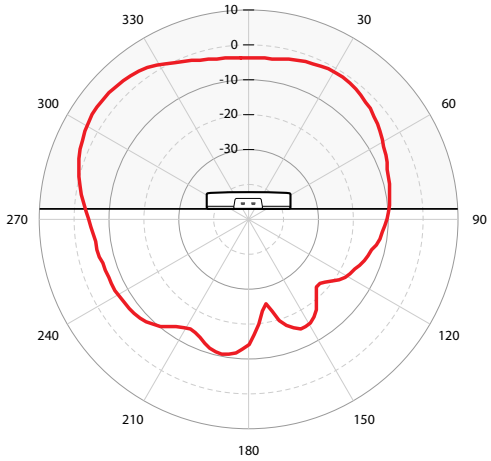
Dual Band Elevation – 5 GHz



BLE Azimuth – 2 GHz



BLE Elevation – 2 GHz



Dual Band Elevation – 2 GHz

Ordering Information

AP4000 - SKUs

Part Number	Description
AP4000-WW	Indoor Tri Radio WiFi 6E AP, 2.4 GHz, 5GHz, 6GHz and Multirate Port. Integrated Light, power sensors, BLE/Zigbee. AI/ML green mode. INT antennas. T-Bar, Incl Mt (AH-ACC-BKT-AX-TB). Domain: World Sku

Accessories

Mounting Accesories		
Marketing Part #	**Indoor AP Mounting**	**Notes**
ACC-4000-ETH-CAP	Cable cover for AP4000 to hide Ethernet Port and Ethernet cable	Hides ethernet cable for aesthetically pleasing installation Includes a 7″ Flat Cat6 RJ45 Cable (5 Pack Kit)
AH-ACC-BKT-AX-TB	Mounting bracket for prelude 15/16″ and suprafine 9/16″ ceilings and walls	Ships with AP4000 Can be used for wall - .25″
AH-ACC-BKT-AX-WL	Mounting bracket for direct-to-wall installations	Can be used for wall - 1.25″
AH-ACC-BKT-AX-IL	Mounting bracket for interlude ceilings	
AH-ACC-BKT-AX-SL	Mounting bracket for Armstrong 1/8″ and 1/4″ main beam silhouette reveal ceiling grids	Up to .33″ ceiling tile protrusion
ACC-BKT-AX-JB	Junction box or wall mounting for indoor access points	Gang/Junction Box
ACC-BKT-AX-BEAM	Beam mounting for indoor access points	Up to 0.78″ thick beam.
AH-ACC-BKT-916-KIT	9/16″ ceiling mount brackets for Non-Flat/Protruded ceiling tiles - Use with AH-ACC-BKT-AX-TB	9/16″ Non-Flat/Protruded ceiling tiles
ACC-BKT-TB-NF	Adaptor bracket AH-ACC-BKT-TB for 15/16″ Wide T-Bars Non-Flat/Protruded ceiling tiles	5/16″ Wide T-Bars Non-Flat/Protruded ceiling tiles
ACC-BKT-AX-WNGADAPT	Adaptor backet for Cloud AP to WiNG Mounting Plate (#37201). 10 pack	Allow twist mount to mount to legacy mounts

Power Accesories	
Part Number	**Description**
PD-9001GR-ENT	Single port 802.3at compliant midspan
10061	Pwr Cord,10A,NEMA 5-15P,IEC320-C13,125V, 18AWG (for US)
10034	Pwr Cord,10A,BS1363,IEC320-C13,250V, 0.75MMSQ (for UK)
10033	Pwr Cord,10A,CEE 7/7,IEC320-C13,250V, 0.75MMSQ (for EU)
10036	Pwr Cord,10A,AS3112,IEC320-C13,250V, 0.75MMSQ (for AU)
10062	Pwr Cord,12A,JISC8303,IEC320-C13,125V, 1.25MMSQ (for Japan)
10033	Pwr Cord,10A,CEE 7/7,IEC320-C13,250V, 0.75MMSQ (for Korea)

See Product Installation guide for more details

Extreme networks

http://www.extremenetworks.com/contact