

# AP5020

## Highlights

- Cloud-managed AP that simplifies deployment, operation, and management
- AI Ops for actionable Explainable ML insights to optimize performance
- Mobile app to easily onboard, provision, and troubleshoot your wireless network
- ExtremeCloud™ IQ and ExtremeCloud IQ Controller for cloud or on-premises

## AP Features

### Five-Radio Design

- 2.4 GHz (4x4:4)
- 5 GHz (4x4:4)
- 6 GHz (4x4:4)
- IoT Radio
- IoT Radio

### Operational Modes\*

- Mode 1: 2.4 GHz /5 GHz/6 GHz data radios
- Mode 2: 5 GHz/6 GHz data radios + tri-frequency sensor
- Mode 3: 5 GHz/5 GHz + 6 GHz data radio
- Mode 4: 2.4 GHz/5 GHz + tri-frequency sensor
- Mode 5: 5 GHz/5 GHz + 2.4 GHz data radio
- Mode 6: 6 GHz/6 GHz + 5 GHz data radio

### 2x2 Tri-Frequency Sensor

### Cellular Coexistence Filter (CCF)

- Minimizes the impact of interference from cellular networks

### Fully Functional with 802.3bt

### Built-in PoE Failover or PSE Out

\* Modes 2, 4, 5, 6 will be available in a future software release.



## Flexible, Cloud-Managed, Premium-Tier Wi-Fi 7 Access Point

The AP5020 is an ExtremeCloud IQ-managed<sup>1</sup>, premium-tier Wi-Fi 7 access point (AP) that delivers enhanced wireless experiences, faster speeds, and a range of use cases. This AP is built on Extreme Universal Platform technology, enabling deployment flexibility, and it leverages ExtremeCloud IQ AI Ops management to provide improved user experiences.

The AP5020 Wi-Fi 7 AP, with three 4x4:4 radios, provides high-efficiency, high-performance 802.11be aggregate data rates of up to 20 Gbps in the 6 GHz, 5 GHz, and 2.4 GHz bands. Designed for high density environments, such as schools, warehouses, healthcare facilities, and stadiums, the AP5020 is powerful and intelligent enough to provide the highest level of client services without compromising security. Despite advanced capabilities, the AP5020 can operate with fully featured performance capabilities using 802.3bt PoE, simplifying power capacity planning.

With more users, more devices, more applications, and more threats straining the infrastructure, the AP5020 was engineered to meet those challenges. The AP5020 combines powerful 802.11be Wi-Fi 7 technology, advanced security, and AI Ops 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 APs that scan only part time, the AP5020 features a dedicated 2x2 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 operational modes, optimizing for maximum performance and security, and features additional dual IoT radios, removing complexity by supporting multiple simultaneous IoT use cases.

<sup>1</sup> ExtremeCloud IQ license required

## Wi-Fi 7 (802.11be) Technology

Previous generations of Wi-Fi introduced the 6GHz band for unlicensed operation, increasing the available spectrum by up to 1,200 MHz\*, which is three times that of the existing usable spectrum. The 6 GHz band enables improved quality of service (QoS) in dense environments, new applications and use cases, and an improved user experience. Wi-Fi 7 (802.11be) introduces additional benefits across the 2.4 GHz, 5 GHz, and 6 GHz bands with reduced latency and jitter for time-sensitive networking applications. Wi-Fi 7 capabilities such as 320 MHz channels, 4K-QAM, and Multi-Link Operation (MLO) help enable superior speeds and high-density performance.

\* Country dependent

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## AI Ops Management

In conjunction with Extreme centralized management software, cloud or on-premises, the AP5020 provides a rich set of data displayed through widgets, representing enhanced 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, and policy roles. In each context, administrators can make a widget library. ExtremeCloud IQ CoPilot leverages Explainable Machine Learning (ML) insights and recommendations to help improve user experiences.

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## Software-Defined Radios

The AP5020 features the industry's first software-defined Wi-Fi 7 AP that supports not only dual 5 GHz and dual 6 GHz capabilities, but also multiple additional software programmable modes to optimally manage radios to provide the highest level of client performance. The AP5020 is a tri-radio AP that can transmit with multiple combinations of three data radios across the 2.4 GHz, 5 GHz, and 6 GHz bands in addition to a dedicated tri-frequency sensor. The AP5020 intelligently monitors the software-configurable radios, enabling network managers to configure network RF technology based on the user environment and to configure the APs in different modes as required. The AP5020 features superior tri-frequency radio performance with a multiband filter that reduces interference and enables 5 GHz and 6 GHz operation across all available channels without restrictions.

## Security

The AP5020 delivers the highest level of security services, beginning with support for the latest Wi-Fi Alliance WPA3 security certifications. The AP5020 can act as an enforcement point for ExtremeCloud Universal ZTNA to provide seamless policy enforcement. Leveraging [Extreme Fabric Attach](#) securely automates provisioning and deployment by connecting to a Fabric Connect-enabled switch. Additionally, the AP supports a stateful L2-L7 DPI firewall for context-based access security, tri-frequency security, a private pre-shared key (PPSK), a location analytics sensor, and much more. The AP5020 also includes a unique 2x2 security sensor for rich insights and threat detection when paired with Extreme AirDefense.

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## Universal Hardware

The AP5020 is a Universal hardware platform that allows the user to choose the Wi-Fi operating system (OS). Either the ExtremeCloud IQ Engine OS or the ExtremeCloud IQ Controller Engine OS persona can be enabled as required. The desired persona can be selected at startup or changed later.

After the OS persona is selected, the AP5020 assumes the features or capabilities of the selected OS. When first booted, the AP5020 automatically connects to ExtremeCloud IQ to find its persona. The preprovisioned OS persona is then remotely enabled on the AP5020 system, eliminating the need for manual selection. As a Universal World SKU AP, the AP5020 allows customers, partners, and distributors to order one model for any region where Extreme Networks products are sold, replacing the age-old problem of country-specific models.

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## Modern IoT Platform

To support both IoT and guest engagement services, the AP5020 integrates Bluetooth® to connect with IoT devices wirelessly to engage loyal 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. The AP5020 features dual IoT radios, enabling multiple concurrent IoT use cases with improved performance and reduced complexity.

# Product Specifications

## Radio Specifications

### Max. Users

- SSID per radio/total: 16/48
- Users per radio/total: 512/1536

### 802.11a

- 5.150 GHz–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 GHz–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 GHz–2.5 GHz operating frequency
- OFDM modulation
- Rates (Mbps): 54, 48, 36, 24, 18, 12, 9, 6 w/auto fallback

### 802.11n

- 2.4 GHz–2.5 GHz and 5.150 GHz–5.850 GHz operating frequency
- 802.11n modulation
- HT20 high-throughput (HT) support (for both 2.4 GHz and 5 GHz)
- HT40 HT support for 5 GHz
- A-MPDU and A-MSDU frame aggregation
- Rates (Mbps): MCS0–MCS31 (6.5Mbps–600Mbps)

### 802.11ac

- 5.150 GHz–5.850 GHz operating frequency
- 802.11ac modulation (256-QAM)
- 5G: 4x4 multiple-in, multiple-out (MIMO) radio
- 2.4G: 4x4 MIMO radio
- Rates (Mbps): MCS0–MCS9 (6.5 Mbps), 3,466 Mbps, NSS = 1-4
- 4x4:4 stream MIMO radio
- VHT20/VHT40/VHT80/VHT160
- TxBF (transmit beamforming)

### 802.11ax

- 2.4 GHz–2.5 GHz, 5.50GHz–5.850 GHz, and 5.925 GHz–7.125 GHz operating frequencies
- 802.11ax modulation (1024-QAM)
- Dual-band OFDMA
- Rates (Mbps):
  - 6G: HE0-HE11 (8Mbps–9,600Mbps)
  - 5G: HE0-HE11 (8Mbps–4,800Mbps)

- 2.4G: HE0-HE11 (8Mbps–1,148Mbps)
- 4x4:4 stream MIMO radio at 6 GHz
- 4x4:4 stream MIMO radio at 5 GHz
- 4x4:4 stream MIMO radio at 2.4 GHz
- HE20/HE40/HE80/HE160/HE320 support for 6 GHz
- HE20/HE40/HE80/HE160 support for 5 GHz
- HE20/HE40 support for 2.4 GHz
- UL/DL SU-MIMO and MU-MIMO
- TxBF (transmit beamforming)

### 802.11be

- 2.4 GHz–2.5GHz, 5.50 GHz–5.850 GHz, and 5.925 GHz–7.125 GHz operating frequencies
- 802.11be modulation (4096-QAM)
- Rates (Mbps):
  - 6G: EHT0-EHT13 (8Mbps–11,500Mbps)
  - 5G: EHT0-EHT13 (8Mbps–5,700Mbps)
  - 2.4G: EHT0-EHT13 (8Mbps–1,300Mbps)
- 4x4:4 stream MIMO radio at 6 GHz
- 4x4:4 stream MIMO radio at 5 GHz
- 4x4:4 stream MIMO radio at 2.4 GHz
- EHT20/EHT40/EHT80/EHT160/EHT320 support for 6 GHz
- EHT20/EHT40/EHT80/EHT160 support for 5 GHz
- EHT20/EHT40 support for 2.4 GHz
- UL/DL SU-MIMO and MU-MIMO
- TxBF (transmit beamforming)

## Dual IoT Radios

- (2) radios for Thread, Zigbee®, Bluetooth 5.4 Low Energy, IEEE 802.15.4

## Interfaces

- Eth0, Eth1: (2) wired Ethernet ports (RJ45)
- 100/1,000/2,500/5,000/10,000 Mbps autosensing link speed Ethernet port, PoE PD
- 100/1,000/2,500/5,000 Mbps autosensing link speed Ethernet port, PoE PD in or 15.4W PSE out mode (requires 802.3bt on Eth0)
- 802.3az Energy-Efficient Ethernet (EEE)
- USB 2.0, Type A, 5V/400mA with POE 802.3at or 5V/1,000mA with PoE 802.3bt

## Power Options

- Power draw: 802.3at PoE: typical 21W, max. 25.5W (802.3at profile) w/o PoE out or USB
- Power draw: 802.3bt: max. 35W with 5W USB
- 12V DC/3A. DC power has priority when both DC and PoE power sources are available.
- PoE failover or optional PSE out supported

## Physical Specifications

- Dimensions: 10.16" x 10.16" x 1.62" (258mm x 258mm x 41mm)
- Weight: 3.57 lbs (1.62 kg)

## Security

- Kensington lock slot
- Trusted Platform Module (TPM)

## Internal Antennas

- (4) dual band 2.4 GHz and 5 GHz
- (4) single band 6 GHz
- (2) 5 GHz/6 GHz sensor
- (3) IoT sensor

## Mounting

- AP support 15/16" flush ceiling tile included in the box
- Wall mount included in the box or sold as an accessory
- Sculpted ceiling tile 15/16" wide t-bar sold as an accessory
- Sculpted ceiling tile 9/16" wide t-bar sold as an 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 Specifications

- Operating: 0°C to 50°C (32°F to 122°F)
- Storage: 0°C to 70°C (32°F to 158°F)
- Humidity: 0% to 95% (noncondensing)

## Environmental Compliance

- EU RoHS–2011/65/EU and Amendments (EU) 2015/863
- EU WEEE–2012/19/EU
- EU REACH–Regulation (EC) No 1907/2006–Reporting
- EU SCIP–EU Waste Framework Directive
- China RoHS–2 SJ/T 11364-2014
- Taiwan RoHS CNS 15663 (2013.7)

## Regulatory Compliance

### Radio Standards

#### USA

- Part 15C - 15.247
- Part 15E - 15.407
- RF exposure - FCC Part 1.1307
- IEC 60601-1-2 EMC for medical devices

#### Canada

- RSS 247 for 2.4 GHz and 5 GHz
- RSS 248 for 6 GHz RLAN
- RF exposure - RSS-102: Issue 5, 2015

#### CE

- 2014/53/EU Radio Equipment Directive
- EN 300 328, EN 301 893, EN 303 687, EN 300 440
- EN 301 489 1, EN 301 489 17, EN 62311, 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

- IEC 60950-1 + National Differences
- CB IEC 62368-1 2nd Edition + National Differences
- CB IEC 62368-1 1st and 3rd Editions + National Differences
- AS/NZS 60950-1 (Australia/New Zealand)

## EMI/EMC Standards

### North American EMC Standards

- FCC CFR 47 Part 15 Class B (U.S.)
- ICES-003 Class B (Canada)

### European EMC Standards

- EN 55032 Class B
- EN 55035
- EN 55011
- EN 60601-1-2
- EN 61000-3-2 (Harmonics)
- EN 61000-3-3 (Flicker)
- 2014/30/EU EMC Directive

### International EMC Certifications

- CISPR 32 Class B (International Emissions)
- CISPR 11
- AS/NZS CISPR32
- CISPR 35 (International Immunity)

## Warranty

The AP5020 is covered under Extreme's Universal LLW policy. For warranty details, visit [www.extremenetworks.com/support/policies](http://www.extremenetworks.com/support/policies).

## AP5020 2.4G Power and Sensitivity

### 2.4G Radio

Channel	Data rate	Power (dBm)	Sensitivity (dBm)
11b	1 - 11 Mbps	18	-93, -87
11g	6 Mbps	18	-93
	54 Mbps	16	-75
11n HT20	MCS0,7	18, 16	-92, -74
11n HT40	MCS0,7	18, 16	-90, -72
11ax HE20	HE0,11	18, 14	-92, -62
11ax HE40	HE0,11	18, 14	-90, -60
11be EHT20	EHT1,13	18, 12	-91, -56
11be EHT40	EHT1,13	18, 12	-88, -53

## AP5020 5G Power and Sensitivity

### 5G - Full Radio

Channel	Data rate	Power (dBm)	Sensitivity (dBm)
11a	6 Mbps	18	-92
	54 Mbps	16	-73
11n HT20	MCS0,7	18, 16	-92, -73
11n HT40	MCS0,7	18, 16	-90, -71
11ac VHT20	MCS0,8	18, 15	-92, -70
11ac VHT40	MCS0,9	18, 15	-90, -65
11ac VHT80	MCS0,9	18, 15	-88, -63
11ac VHT160	MCS0,9	18, 15	-85, -61
11ax HE20	HE0,11	18, 14	-91, -62
11ax HE40	HE0,11	18, 14	-89, -60
11ax HE80	HE0,11	18, 14	-87, -58
11ax HE160	HE0,11	18, 14	-85, -56
11be EHT20	EHT0,13	18, 12	-91, -54
11be EHT40	EHT0,13	18, 12	-88, -52
11be EHT80	EHT0,13	18, 12	-85, -49
11be EHT160	EHT0,13	18, 12	-82, -46

### 5G Radio (Sensor)

Channel	Data rate	Power (dBm)	Sensitivity (dBm)
11a	6 Mbps	18	-92
	54 Mbps	16	-73
11n HT20	MCS0,7	18, 16	-92, -73
11n HT40	MCS0,7	18, 16	-90, -71
11ac VHT20	MCS0,8	18, 15	-92, -70
11ac VHT40	MCS0,9	18, 15	-90, -65
11ac VHT80	MCS0,9	18, 15	-88, -63
11ac VHT160	MCS0,9	18, 15	-85, -61
11ax HE20	HE0,11	18, 14	-91, -62
11ax HE40	HE0,11	18, 14	-89, -60
11ax HE80	HE0,11	18, 14	-87, -58
11ax HE160	HE0,11	18, 14	-85, -56
11be EHT20	EHT0,13	18, 12	-91, -54
11be EHT40	EHT0,13	18, 12	-88, -52
11be EHT80	EHT0,13	18, 12	-85, -49
11be EHT160	EHT0,13	18, 12	-82, -46

## 5G-High and 5G-Low Radio

Channel	Data rate	Power (dBm)	Sensitivity (dBm)
11a	6 Mbps	16	-92
	54 Mbps	15	-73
11n HT20	MCS0,7	16, 14	-92, -73
11n HT40	MCS0,7	16, 14	-90, -71
11ac VHT20	MCS0,8	16, 13	-92, -70
11ac VHT40	MCS0,9	16, 13	-90, -65
11ac VHT80	MCS0,9	16, 13	-88, -63
11ac VHT160	MCS0,9	16, 13	-85, -61
11ax HE20	HE0,11	16, 12	-91, -62
11ax HE40	HE0,11	16, 12	-89, -60
11ax HE80	HE0,11	16, 12	-87, -58
11ax HE160	HE0,11	16, 12	-85, -56
11be EHT20	EHT0,13	16, 10	-91, -54
11be EHT40	EHT0,13	16, 10	-88, -52
11be EHT80	EHT0,13	16, 10	-85, -49
11be EHT160	EHT0,13	16, 10	-82, -46

## AP5020 6G Power and Sensitivity

### 6G - Full Radio

Channel	Data rate	Power (dBm)	Sensitivity (dBm)
11a	6 Mbps	18	-91
	54 Mbps	16	-73
11n HT20	MCS0,7	18, 16	-91, -73
11n HT40	MCS0,7	17, 15	-88, -70
11ac VHT20	MCS0,8	17, 15	-91, -69
11ac VHT40	MCS0,9	17, 14	-88, -65
11ac VHT80	MCS0,9	17, 14	-85, -62
11ac VHT160	MCS0,9	17, 14	-82, -59
11ax HE20	HE0,11	18, 14	-91, -62
11ax HE40	HE0,11	17, 13	-88, -59
11ax HE80	HE0,11	17, 13	-85, -56
11ax HE160	HE0,11	17, 13	-82, -53
11be EHT20	EHT0,13	18, 12	-91, -55
11be EHT40	EHT0,13	17, 11	-88, -52
11be EHT80	EHT0,13	17, 11	-85, -49
11be EHT160	EHT0,13	17, 11	-82, -46
11be EHT320	EHT0,13	17, 11	-79, -43

### 6G Radio (Sensor)

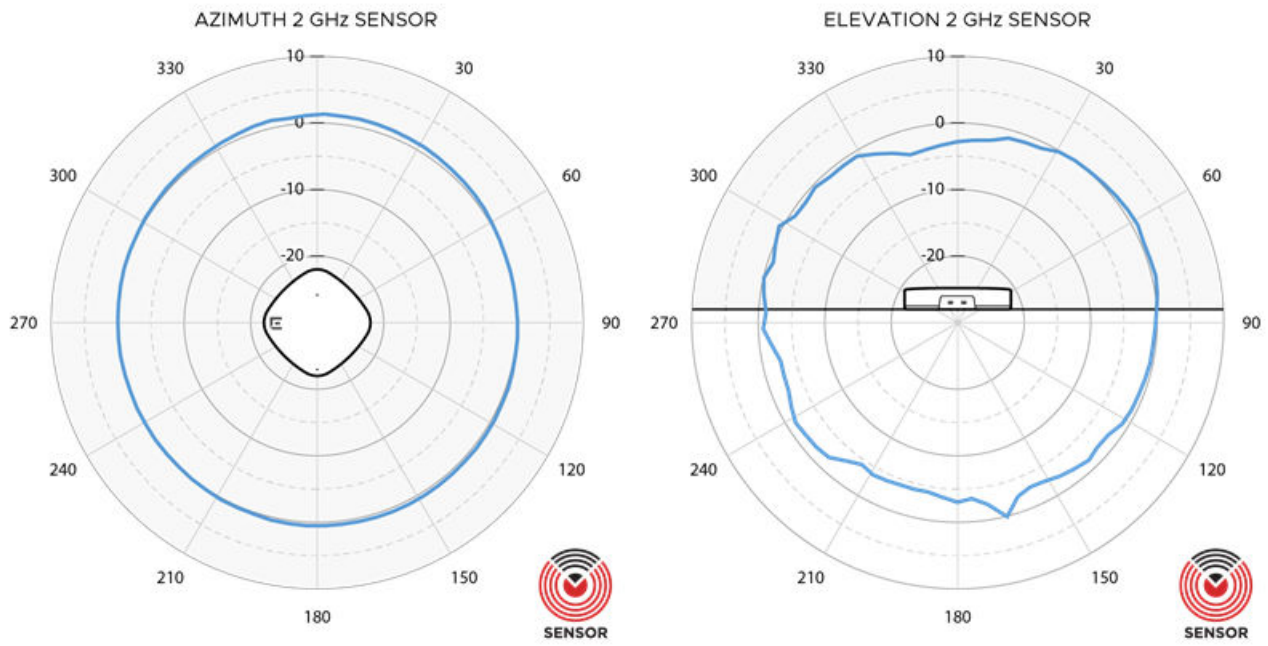
Channel	Data rate	Power (dBm)	Sensitivity (dBm)
11a	6 Mbps	18	-91
	54 Mbps	16	-73
11n HT20	MCS0,7	18, 16	-91, -73
11n HT40	MCS0,7	17, 15	-88, -70
11ac VHT20	MCS0,8	17, 15	-91, -69
11ac VHT40	MCS0,9	17, 14	-88, -65
11ac VHT80	MCS0,9	17, 14	-85, -62
11ac VHT160	MCS0,9	17, 14	-82, -59
11ax HE20	HE0,11	18, 14	-91, -62
11ax HE40	HE0,11	17, 13	-88, -59
11ax HE80	HE0,11	17, 13	-85, -56
11ax HE160	HE0,11	17, 13	-82, -53
11be EHT20	EHT0,13	18, 12	-91, -55
11be EHT40	EHT0,13	17, 11	-88, -52
11be EHT80	EHT0,13	17, 11	-85, -49
11be EHT160	EHT0,13	17, 11	-82, -46
11be EHT320	EHT0,13	17, 11	-79, -43



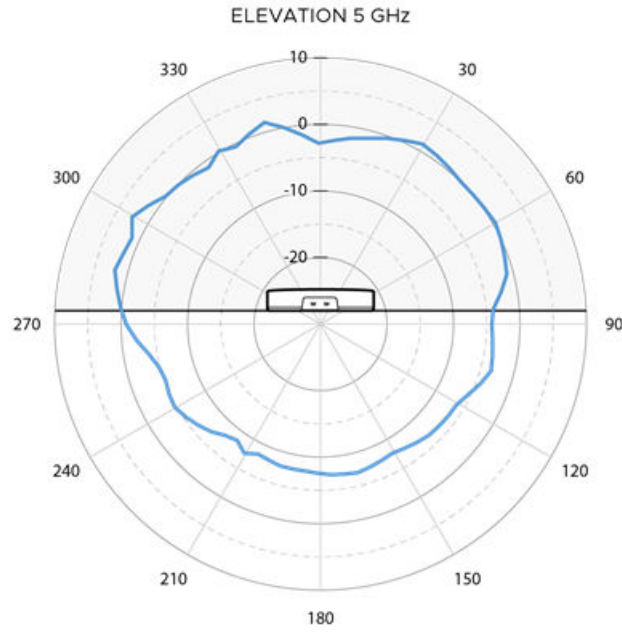
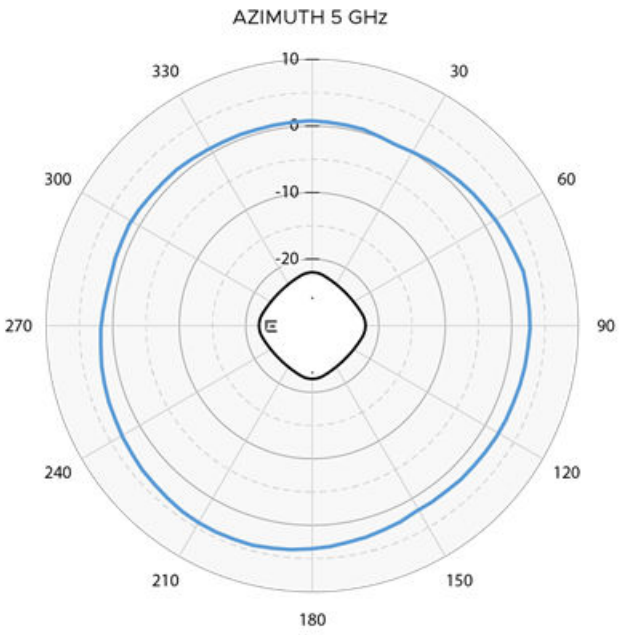
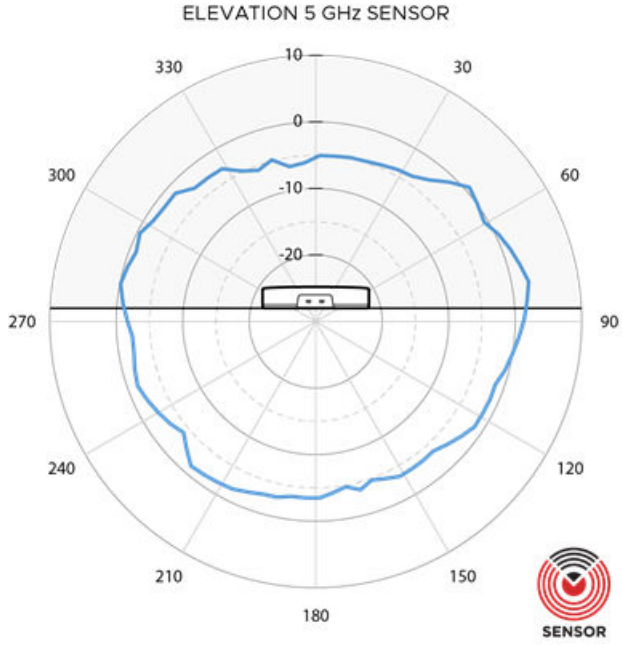
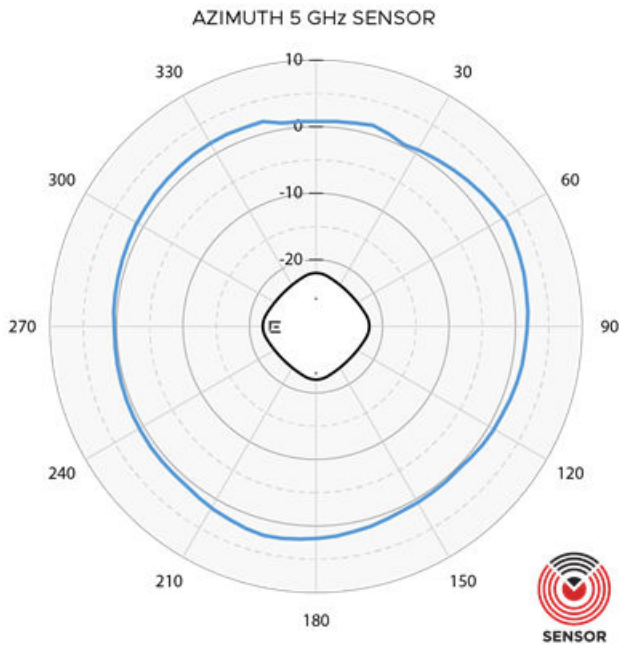
## 6G-High and 6G-Low Radio

Channel	Data rate	Power (dBm)	Sensitivity (dBm)
11a	6 Mbps	16	-91
	54 Mbps	14	-73
11n HT20	MCS0,7	16, 14	-91, -73
11n HT40	MCS0,7	16, 14	-88, -70
11ac VHT20	MCS0,8	16, 13	-91, -69
11ac VHT40	MCS0,9	16, 13	-88, -65
11ac VHT80	MCS0,9	16, 13	-85, -62
11ac VHT160	MCS0,9	16, 13	-82, -59
11ax HE20	HE0,11	16, 12	-91, -62
11ax HE40	HE0,11	16, 12	-88, -59
11ax HE80	HE0,11	16, 12	-85, -56
11ax HE160	HE0,11	16, 12	-82, -53
11be EHT20	EHT0,13	16, 10	-91, -55
11be EHT40	EHT0,13	16, 10	-88, -52
11be EHT80	EHT0,13	16, 10	-85, -49
11be EHT160	EHT0,13	16, 10	-82, -46
11be EHT320	EHT0,13	16, 10	-79, -43

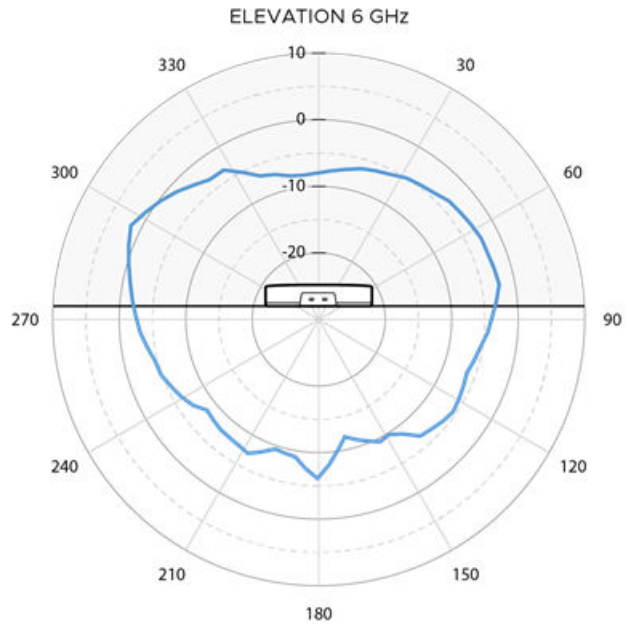
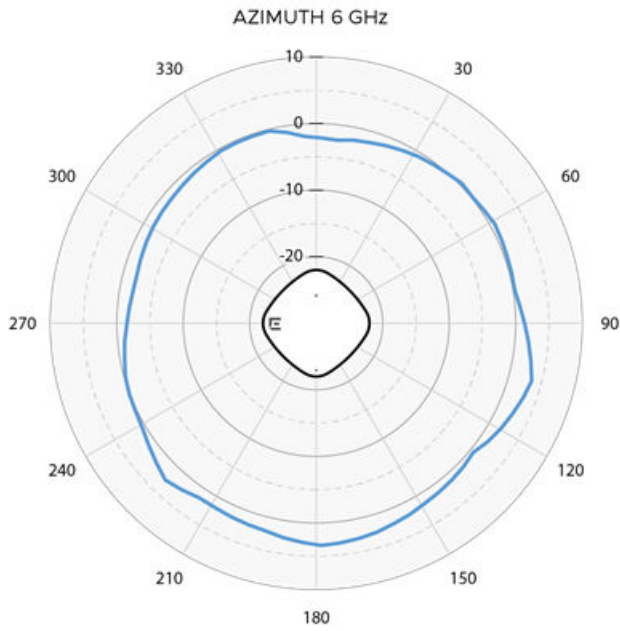
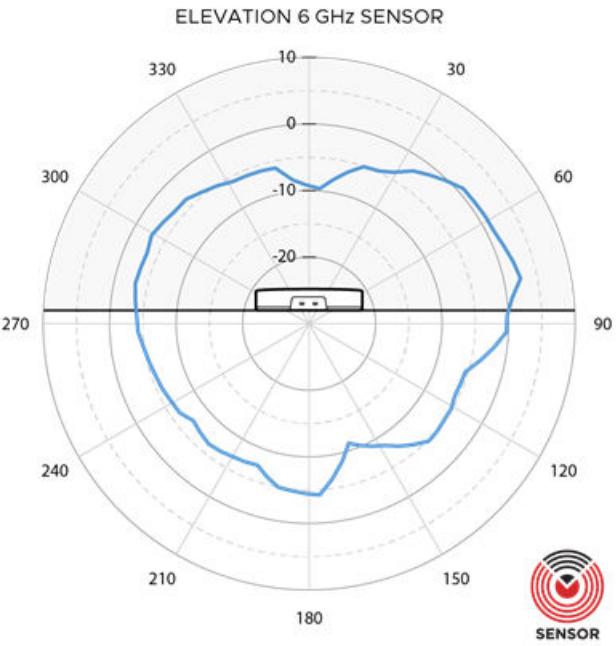
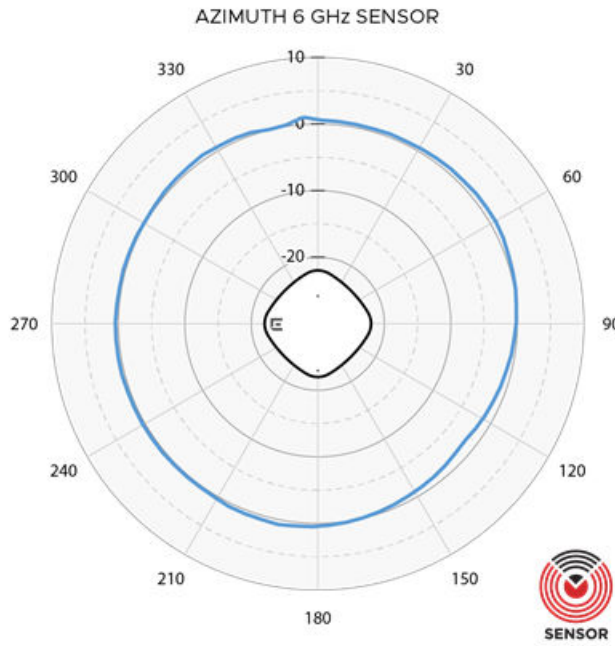
## Radiation Patterns 2.4G – Azimuth and Elevation



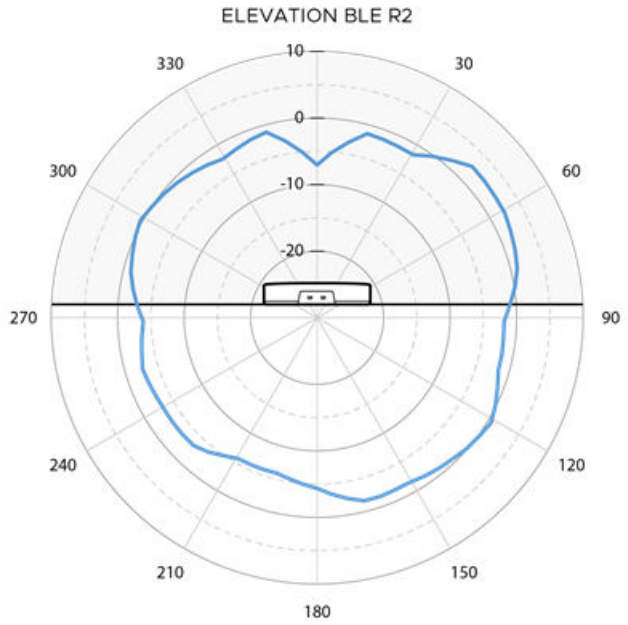
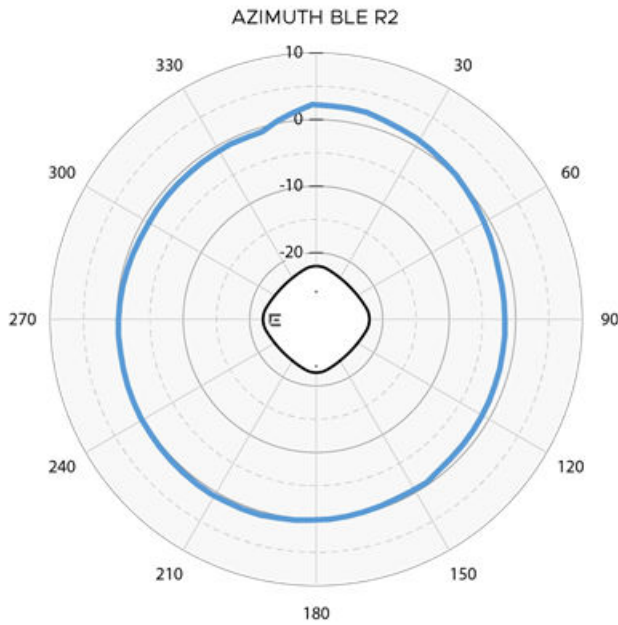
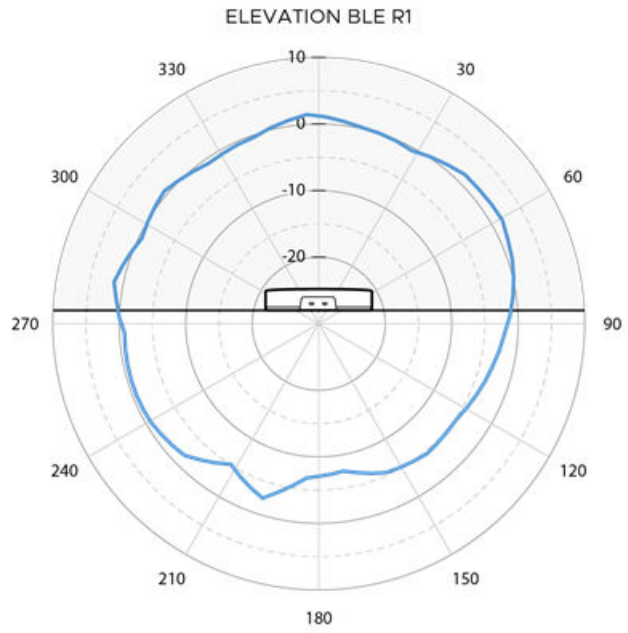
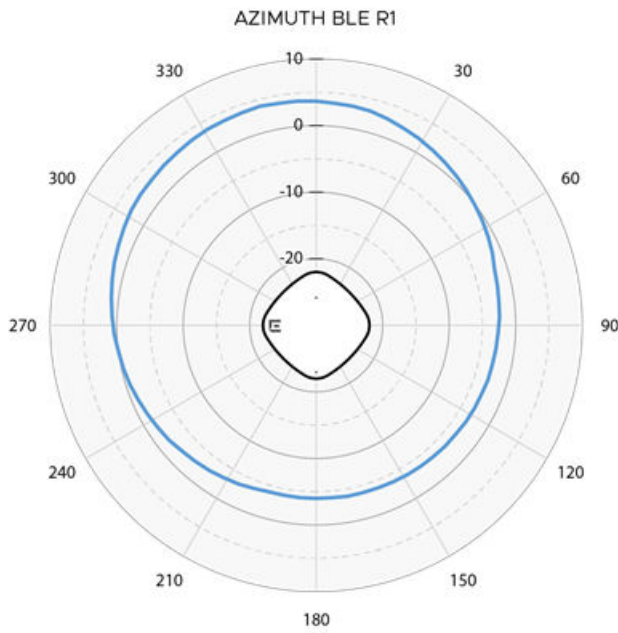
# Radiation Patterns 5G – Azimuth and Elevation



# Radiation Patterns 6G – Azimuth and Elevation



# Radiation Patterns BLE – Azimuth and Elevation



## Ordering Information

### AP5020 - SKUs

Part number	Description
AP5020-WW	Indoor tri-radio Wi-Fi 7 AP (4x4:4): 2.4 GHz, 5 GHz, 6 GHz and multirate port, internal antennas. T-bar, incl. mt. (AH-ACC-BKT-AX-TB). Domain: World SKU.

### Mounting accessories

Part number	Indoor AP mounting	Notes
AH-ACC-BKT-AX-TB	Mounting bracket for Prelude 15/16" and Suprafine 9/16" ceilings and walls	Ships with AP5020 Can be used for wall - 0.25"
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 0.33" ceiling tile protrusion
ACC-BKT-AX-JB	Junction box or wall mounting for indoor APs	Gang/junction box
ACC-BKT-AX-BEAM	Beam mounting for indoor APs	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	Adapter 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	Adapter backet for cloud AP to wing mounting plate (#37201). 10 pack.	Allow twist mount to mount to legacy mounts

### Power accessories

Part number	Description
37219	PWR adapter 12V DC, 3A, 2.5 mm x 5.5 mm connector

### Other accessories

Part number	Description
ACC-WIFI-MICRO-USB	Micro-USB to USB console adapter cable for Extreme wireless APs

See Product Installation Guide for more details.

## Disclaimer

Specifications described in this document are preliminary and subject to change. Extreme Networks reserves the right to modify the specifications in this document without notice. Please check with your Extreme Networks point of contact for the most up to date information.



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