AP3000/X

Highlights

Advanced Radio Technology
Dual-Radio Design
- 2.4/5 GHz (2x2:2)
- 5/6 GHz (2x2:2)

Universal Hardware Platform
- On-Premises: WiNG OS (Distributed*), ExtremeCloud™ IQ Controller (Centralized)
- Cloud: ExtremeCloud IQ

Operational Modes
- Mode 1: 2.4 GHz/5 GHz Data Radios
- Mode 2: 5 GHz/6 GHz Data Radios

Designed for harsh environments
- External antennas and extended temperature range -20°C to +55°C

Cellular Coexistence Filter (CCF)
- Minimizes the impact of interference from cellular networks

Fully Functional Wi-Fi with 802.3af
Smart Management Choices
- ExtremeCloud IQ for public, private, and ExtremeCloud Edge cloud management capabilities
- ExtremeCloud IQ Controller or WiNG for on-premises requirements

* Distributed in a future release on select models

Wi-Fi 6E Dual-Radio Indoor Access Point With Integrated or External Antenna Options

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. To meet the needs of budget-conscious enterprises who do not want to sacrifice performance, the AP3000/X was engineered to deliver on those requirements. The AP3000/X combines powerful 802.11ax Wi-Fi 6E technology, advanced security, and ML/AI cloud management capabilities as an enterprise-class solution in a small, low-power package that allows you to deploy high speed and highly secure Wi-Fi.

The AP3000/X is a Universal and World SKU Wi-Fi 6E Wireless Access point. 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 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 AP3000/X Wi-Fi 6E access point, with two 2x2:2 radios, provides high- efficiency, high-performance 802.11ax aggregate data rates up to 4.8 Gbps in the 6 GHz, 5 GHz, and 2.4 GHz bands. Designed for dense and/or harsh environments, such as classrooms, warehouses, healthcare clinics, and manufacturing, the AP3000/X is powerful and intelligent enough to provide the highest level of client services without compromising security. Despite powerful capabilities, the AP3000/X allows for flexible placement as the market's smallest form-factor Wi-Fi 6E access point to emphasize aesthetics. The AP3000/X 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 (802.11ax) Technology

Wi-Fi 6 ushered in a new generation of Wi-Fi. While 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 6 GHz band for unlicensed operation, Wi-Fi 6E has access to up to 1,200 MHz of spectrum*, which is three times that of existing 'usable' spectrum which enables improved quality of service (QoS) in dense environments, new applications and use cases, and an improved user experience. To learn more, visit Extreme's Wi-Fi 6E page.

* Country dependent

Management Analytics

In conjunction with Extreme centralized management software, cloud or on-premises, the AP3000/X provides a rich set of data displayed via 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 make a widget library.

Dual-Radio Programmable AP

Extreme launched the industry's first software defined Wi-Fi 6E access point supporting multiple software programmable modes to optimally manage radios to provide the highest level of client performance. The AP3000/X is a dual radio access point can transmit with two data radios: 2.4 GHz and 5 GHz or 5 GHz and 6 GHz.

Security

The AP3000/X delivers the highest level of security services, beginning with support for the latest Wi-Fi Alliance WPA3 security certifications. Leverage Extreme Fabric Attach to securely automate provisioning and deployment by connecting to a Fabric Connect-enabled switch. AP3000/X supports a stateful L2-L7 DPI firewall for context-based access security and Private Pre-Shared Key (PPSK), location analytics sensor, and much more.

Universal Hardware

The AP3000/X is a universal hardware platform that comes with a multi-persona capability allowing user choice of the Wi-Fi operating system (OS). The IQ Engine operating system, the WiNG operating system, or the ExtremeCloud IQ Controller Engine persona can be enabled as required. The desired persona can be selected at start-up or changed at a later stage. Once selected, the AP3000/X assumes the features or capabilities of the selected OS. When first booted, the AP3000/X automatically connects to ExtremeCloud IQ to find its persona. The preprovisioned OS persona is then remotely enabled on the AP3000/X system, eliminating the need for manual selection.

Integrated Bluetooth Low Energy

To support both IoT and Guest Engagement services integrates Bluetooth® to connect with IoT devices 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.

Wi-Fi 6E Enhanced Capacity

By utilizing the additional 6 GHz spectrum offered by Wi-Fi 6E, the AP3000/X operates up to 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	160 MHz	2.4 Gbps
2.4 GHz	3	20 MHz	287 Mbps

Note: For US regulatory environments (20 MHz channels)

Product Specifications

Radio Specifications

Max Users

SSID per Radio/Total: 16/32

Users per Radio/total: 512/1024

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

HT 20 High-Throughput (HT) Support (for both 2.4 GHz and 5 GHz)

HT 40 High-Throughput (HT) Support for 5 GHz

A-MPDU and A-MSDU Frame Aggregation

Rates (Mbps): MCS0 – MCS15 (6.5MBps - 300Mbps)

802.11ac

5.150–5.850 GHz Operating Frequency

802.11ac Modulation (256-QAM)

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, 5.15-5.850 GHz and 5.925-7.125 GHz Operating Frequencies

802.11ax Modulation (1024-QAM)

Dual-band OFDMA

6G Rate: HE0-HE11 (8 Mbps – 2400 Mbps)

5G Rate : HE0-HE11 (8 Mbps – 1200 Mbps)

2.4G Rate: HE0-HE11 (8 Mbps – 573.3 Mbps)

2x2:2 Stream Multiple-In, Multiple-Out (MIMO) Radio @ 6 GHz

2x2:2 Stream Multiple-In, Multiple-Out (MIMO) Radio @ 5 GHz

2x2:2 Stream Multiple-In, Multiple-Out (MIMO) Radio @ 2.4 GHz

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, Bluetooth® 5.2 Low Energy, IEEE 802.15.4

Interfaces

Eth0 is 2.5/1GE with Power over Ethernet (PoE)

Eth1 is 1GE/100

Power Options

Typical Power Draw: 12.5W (w/o USB): 15.3W (w/ USB)

Max Power Draw: 13.9W (w/o USB), 17W (w/ USB)

Power Specifications

802.3af Power over Ethernet (PoE) capable w/o USB
802.3at Power over Ethernet (PoE) capable w/USB

Physical Specifications

Kensington lock slot
Trusted Platform Module (TPM)

AP 3000

Dimensions: 6.4" x 6.4" x 1.4" (16.2 cm x 16.2 cm x 3.6 cm)
Weight: 1.15 lb (0.52 kg)

AP 3000X

Dimensions: 6.8" x 6.8" x 1.4" (17.3 cm x 17.3 cm x 37mm)
Weight: 1.88 pounds (.85 kg)

Mounting

Wall/Solid Ceiling/15/16" Tbar:AH-ACC-BKT-AX-TB (included in box)
Beam: ACC-BKT-AX-BEAM
Junction Box: ACC-BKT-AX-JB
1.5" Tbar: ACC-BKT-AX-TBW
WiNG: ACC-BKT-AX-WNGADAPT
9&15/16" Tbar (flat): AH-ACC-BKT-AX-TB
9/16 Tbar (w/rail): AH-ACC-BKT-AX-IL
Silhouette: AH-ACC-BKT-AX-SL
Standoff (1.25") Wall: AH-ACC-BKT-AX-WL
9/16" Protruding Tiles Adapter: AH-ACC-BKT-916-KIT
15/16" Protruding Tiles Adapter: ACC-BKT-TB-NF

Environmental Specifications

Operating: AP 3000 0°C to 50°C, AP 3000X -20°C to 55°C
Storage: -40°C to 70°C (-40°F to 158°F)
Humidity: 0% to 95% (non-condensing)

Environmental Compliance

EU RoHS – 2011/65/EU & 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

Radio Standards Canada

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

Radio Standards CE

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

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 IEC 62368-1
AS/NZS 60950-1 (Australia/New Zealand)

EMI/EMC Standards

North American EMC Standards

FCC CFR 47 part 15 Class B (USA)
ICES-003 Class B (Canada)

European EMC Standards

EN 55032 Class B
EN 55024
EN 55035
EN 55011, EN 60601-1-2
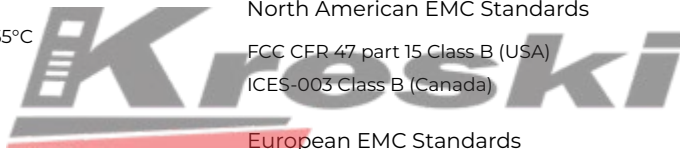EN 61000-3-2 (Harmonics)
EN 61000-3-3 (Flicker)
2014/30/EU EMC Directive

International EMC Certifications

CISPR 32 Class B (International Emissions)
AS/NZS CISPR 32
CISPR 24/CISPR 35 (International Immunity)

Ordering Information

Product SKU	Description
AP3000-WW	Indoor Dual Radio Wi-Fi 6E AP, 2.4 GHz and 5 GHz or 5GHz and 6GHz, Multirate Port, Internal antennas. IoT Radio. Includes AH-ACC-BKT-AX-TB mounting bracket. Domain: World SKU
AP3000X-WW	Indoor Dual Radio Wi-Fi 6E AP, 2.4 GHz and 5 GHz or 5GHz and 6GHz, Multirate Port, External antennas. IoT Radio. Includes AH-ACC-BKT-AX-TB mounting bracket, 2 integral 6 GHz and 2 AI-DS0305360-RPSMA antennas. Domain:World SKU
AP3000-IL	Indoor Dual Radio Wi-Fi 6E AP, 2.4 GHz and 6 GHz or 5 GHz and 6 GHz or 2.4 GHz and 5 GHz, Multirate Port, Internal antennas. Inc Mt (AH-ACC-BKT-AX-TB). Domain: Israel
AP3000-TN	Indoor Dual Radio Wi-Fi 6E AP, 2.4 GHz and 6 GHz or 5 GHz and 6 GHz or 2.4 GHz and 5 GHz, Multirate Port, Internal antennas. Inc Mt (AH-ACC-BKT-AX-TB). Domain: Tunisia
AP3000X-IL	Indoor Dual Radio WiFi 6E AP, 2.4 GHz and 6 GHz or 5 GHz and 6 GHz or 2.4 GHz and 5 GHz Multi-rate Port, External antennas. Inc Mt (AH-ACC-BKT-AX-TB). Domain: Israel

Note: AP3000-TN does not support the WiNG Distributed operating system.

Mounting Accessories

Product SKU	Description	
AH-ACC-BKT-AX-TB	Mounting bracket for prelude 15/16" and suprafine 9/16" ceilings and walls	Ships with AP3000/X 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.	
ACC-BKT-AX-TBW	Cloud AP Bracket for 1.5 inch wide T-bars varying in thickness from 3.175 mm to 6.35 mm	
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 Non-Flat/Protruded ceiling tiles	5/16" Wide T-Bars Non-Flat/Protruded ceiling tiles
ACC-BKT-AX-WNGADAPT	Adapter bracket for Cloud AP to WiNG Mounting Plate (#37201). 10 pack	Allow twist mount to mount to legacy mounts

See the Product Accessories Guide for more details.

Power Accessories

Product SKU	Description
PD-9001GR-ENT	Single Port 802.3at Compliant Midspan
10033	Power Cord, 10A,CEE 7/7,IEC320-C13,250V, 0.75MMSQ (for EU and Korea)
10034	Power Cord, 10A,BS1363, IEC320-C13, 250V, 0.75MMSQ (for UK)

Product SKU	Description
10036	Power Cord, 10A, AS3112, IEC320-C13, 250V, 0.75MMSQ (for AU)
10061	Power Cord, 10A,NEMA 5-15P, IEC320-C13, 125V, 18AWG (for US)
10062	Power Cord, 12A, JISC8303, IEC320-C13, 125V, 1.25MMSQ (for Japan)

Wi-Fi Alliance Certifications

Connectivity	Wi-Fi CERTIFIED 6™ Wi-Fi CERTIFIED™ a,b, g, n, ac Enhanced Open
Optimization	WMM® Wi-Fi Agile Multiband™
Security	Protected Management Frames WPA™ – Enterprise, Personal WPA2™ – Enterprise, Personal WPA3™ – Enterprise, Personal

Antenna Gain Matrix

AP3000-WW Internal Antenna Gains

Software Mode	Radio 1	Radio 2	IoT Radio
Mode 1	2.4 GHz –4.2 dBi	5 GHz –5.07 dBi	3.65 dBi
Mode 2	6 GHz –5.14 dBi	5 GHz –5.07 dBi	3.65 dBi

AP3000X-WW External Antenna Gains
(antennas ship with AP)

Software Mode	Radio 1	Radio 2	IoT Radio
Mode 1	5GHz - 5.22 dBi	2.4GHz – 3.23 dBi	3.65 dBi
Mode 2	5GHz - 5.22 dBi	6GHz- 5.49 dBi	3.65 dBi

Antennas - AP3000/X

Marketing Part #	Description	Notes
AI-DS0305360-RPSMA	Dipole, 3.2 dBi (2.4 GHz) and 5.2 dBi (5 GHz) dual band with RP-SMA connector (2 pack)	2 Pack ships in box for AP3000X - listed for spares
ML-2452-APA2-01	Dipole, 3.2 dBi (2.4 GHz) and 4.9 dBi (5 GHz) dual band with RP-SMA connector, color: black	Up to 2 antennas for dual band ports for 2.4 and 5 GHz ports
ML-2452-APA2-02	Dipole, 3.2 dBi (2.4 GHz) and 4.9 dBi (5 GHz) dual band with RP-SMA connector, color: white	Up to 2 antennas for dual band 2.4 and 5 GHz ports
ML-2452-HPAG5A8-01	Dipole, 4.7 dBi (2.4 GHz) and 8 dBi (5 GHz) dual band with N-type connector	Need adapter 25-85392-01R per port

Marketing Part #	Description	Notes
ML-2452-HPA5-036	Dipole, 3.9 dBi (2.4 GHz) and 5.7 dBi (5 GHz) dual band with RP-SMA connector, outdoor rated, color: white	Up to 2 antennas for dual band 2.4 and 5 GHz ports
ML-2452-PTA2M2-036	Patch, 4 dBi (2.4 GHz) and 5 dBi (5 GHz) dual band with 2 RP-SMA connectors	2 36" antenna leads for dual band 2.4 and 5 GHz ports
ML-2452-HPAG4A6-01	Dipole, 4 dBi (2.4 GHz) and 7.3 dBi (5 GHz) dual band with standard N-type connector, outdoor rated, color: white	Needs adapter 25-85392-01R for each port
AIO-DD75060-RPSMA	Panel, 60 deg sector, 7.5 dBi (2.4 GHz) and 7.5 dBi (2.4GHz), dual band 36" lead with 2 RP-SMA connectors, outdoor rated	2 36" antenna leads for dual band 2.4 and 5 GHz ports
AIO-DD05120-RPSMA	Panel, 120 deg sector, 5 dBi/5 dBi, dual band, outdoor, 36" lead with 2 RP-SMA connectors	2 36" antenna leads for dual band 2.4 and 5 GHz ports
ML-2452-SEC6M4-036	Polarized Panel, Azimuth 100° Elevation Beamwidth 80 deg, 6.92 dBi/ 7.3 dBi, dual band, indoor with quad feed 32" leads and standard RP- SMA plug connectors	Use 2 of the 4 antennas leads for dual band 2.4 and 5 GHz ports
ML-2452-PNA5-01R	Panel, 120 deg sector, 4.5 dBi/5 dBi, dual band, outdoor, 4" lead with standard N-type connector	Need adapter 25-85392-01R per port

See Antenna Guide - Wi-Fi 6 (802.11ax) Antenna Specifications Guide

Warranty

The AP3000/X is covered under Extreme's LLW Warranty policy.
For warranty details,.visit: www.extremenetworks.com/support/policies.

Zapraszamy do kontaktu!
Więcej informacji: www.kreski.pl

Power and Receiver Sensitivity - AP3000/X

2.4 GHz Radio

Channel	Data Rate	Power (dBm)	Sensitivity (dBm)
11b	1 - 11 Mbps	18	-94, -87
11g	6 Mbps	18	-91
	54 Mbps	16	-73
11n HT20	MCS0,7	18, 16	-91,-72
11n HT40	MCS0,7	18, 16	-88, -69
11ax HE20	HE0,11	18, 14	-90,-60
11axHE40	HE0,11	18, 14	-87, -57

5 GHz Radio

Channel	Data Rate	Power (dBm)	Sensitivity (dBm)
11a	6 Mbps	18	-94
	54 Mbps	16	-75
11n HT20	MCS0,7	18, 16	-94,-75
11n HT40	MCS0,7	18, 16	-91,-72
11ac VHT20	MCS0,8	18, 16	-94,-71
11ac VHT40	MCS0,9	18, 16	-91, -67
11ac VHT80	MCS0,9	18, 16	-88, -64
11ac VHT160	MCS0,9	17, 15	-85, -61
11ax HE20	HE0,11	18, 14	-93,-64
11axHE40	HE0,11	18, 14	-90,-60
11ax HE80	HE0,11	18, 14	-87, -57
11ax HE160	HE0,11	17, 14	-84, -54

6 GHz Radio

Channel	Data Rate	Power (dBm)	Sensitivity (dBm)
11a	6 Mbps	18	-93
	54 Mbps	15	-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, 13	-85, -61
11ax HE20	HE0,11	18, 12	-92,-63
11axHE40	HE0,11	17, 12	-90,-60
11ax HE80	HE0,11	17, 12	-87, -57
11ax HE160	HE0,11	17, 12	-84, -54

Radiation Patterns – AP3000

2G Elevation
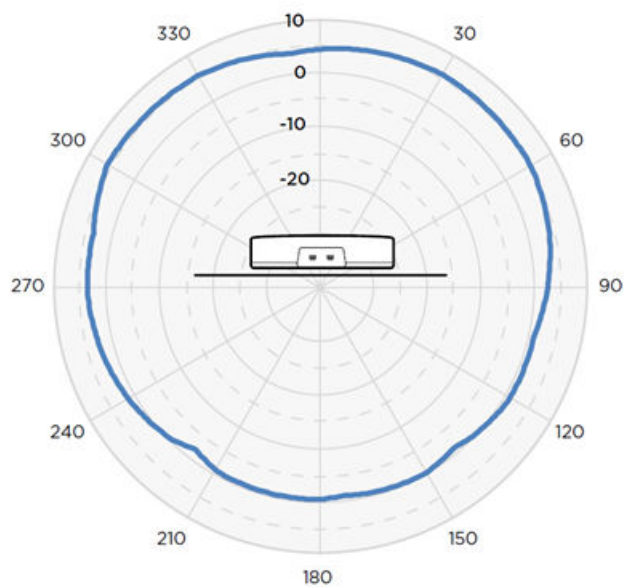
2G Azimuth

5G Elevation

5G Azimuth

6G Elevation

6G Azimuth

BLE Elevation

BLE Azimuth

Wi-Fi 6 CERTIFIED®
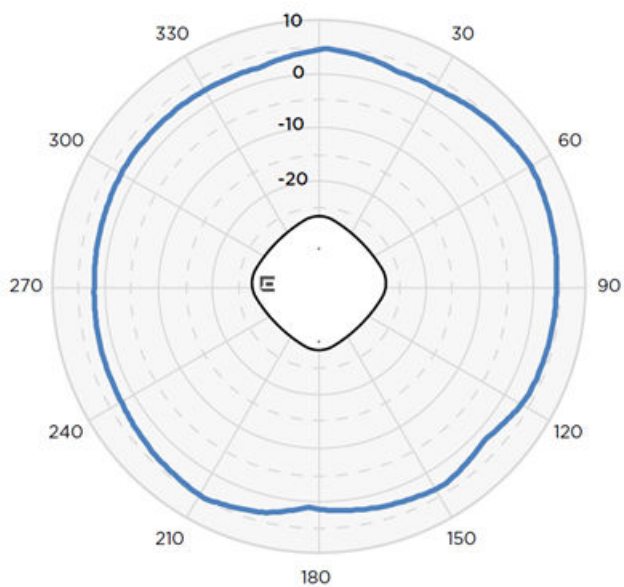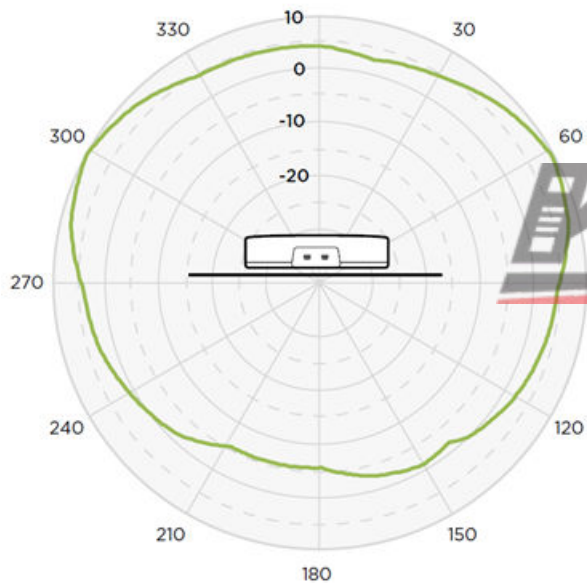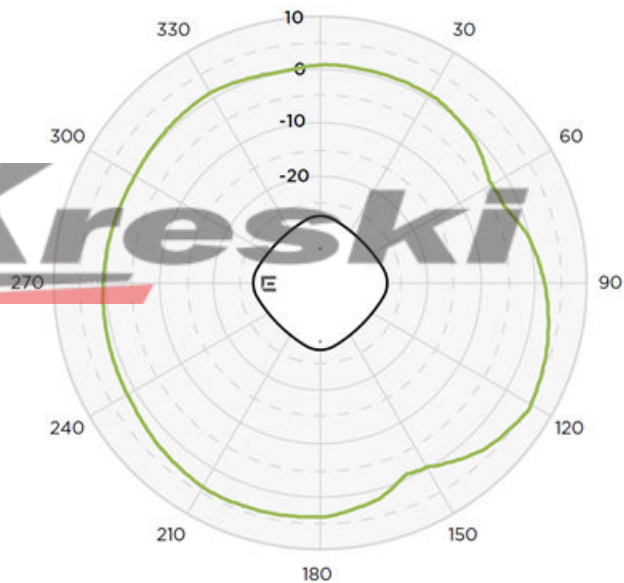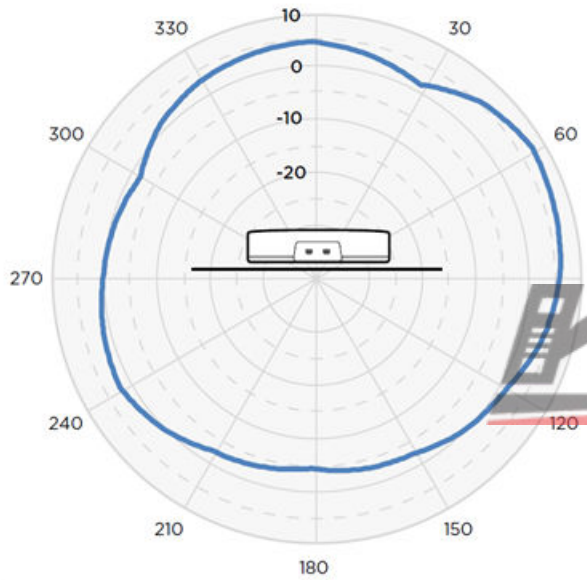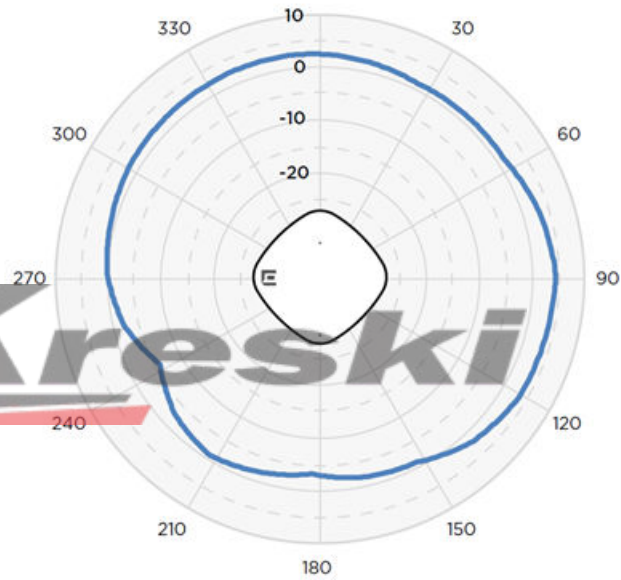
Kreski

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