

# Calcasieu Parish School Board E-Rate Proposal for 325-AP



## PREPARED FOR:

Dana Swift  
Calcasieu Parish School Board  
3310 Board St.  
Lake Charles, LA 70615

## SUBMITTED BY:

Dean Harrington  
General Informatics  
One Smart Way  
Baton Rouge, LA 70810

FRN : 0027208693

SPIN : 143035602



[www.geninf.com](http://www.geninf.com) | 225.767.7670 | [info@geninf.com](mailto:info@geninf.com)  
One Smart Way . Baton Rouge, LA . 70810

## WHAT WE ARE AIMING TO DO FOR YOU

*Vision: Continue to earn the title of "leading IT partner of businesses, schools and government agencies"*

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General Informatics intends to provide the procurement of access points for CPSB. We are proposing the procurement of Extreme AP equipment outlined in the RFP. Delivery time will vary due to CSPD need, product availability, and shipping times.



## WHO WE ARE

*Mission: To make our clients even more successful through the best use of technology.*

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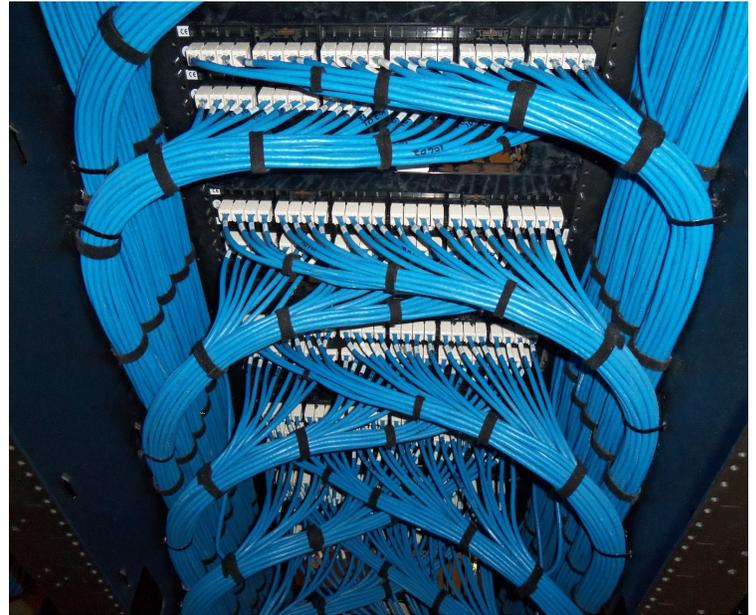
GI was founded in 2001, and from the beginning we've maintained our commitment to meeting the growing needs of our clients through continuous innovation. As part of that drive, GI acquired fellow IT firm Teknarus in 2016 and TCTelecom in 2018, and most recently EMCO MSP, bringing Louisiana's top technology talent under one roof.

Today, with a team of 60+ engineers, programmers, and designers, GI has evolved to become the leading IT partner of businesses, schools and government agencies.

## HOW GI APPROACHES CLIENTS' SERVICES

When organizations hire General Informatics, they employ a partner dedicated to their success through the best use of technology.

At GI, we believe that the best investment we can make toward supporting our customers is investing in our people. As a result, GI has only the best technicians in the infrastructure field to install technology and cabling. In addition, our support structure enables us to serve our clients no matter the scenario.



GI's support teams understand that our clients want the best possible products and installation the industry offers. GI follows and maintains the highest of industry standards regarding installation practices and the products that we use. All projects are managed to uphold the quality that GI has worked so hard to make standard in our installations. Making our clients successful makes us successful. Delivering successful outcomes for our clients begins with this understanding.



To Whom It May Concern:

On behalf of the entire General Informatics team, thank you for the opportunity to present the enclosed E- Rate proposal to Calcasieu Parish School Board for new Extreme Access Points. As a leading systems integrator providing complex IT, technology, and infrastructure solutions for more than 20 years, we have extensive experience providing these types of services and solutions across many industries, including government agencies and municipalities state-wide.

As a foundation of our customer service philosophy, it is our mission to produce excellent results and ensure complete satisfaction. Client satisfaction is a trademark of our reputation among our customers who continually find value in our services as we have retained 98% of them for the past 20 years, while 100% are referenceable. Several of these customers are referenced in our proposal response.

It is an honor to be included in this proposal evaluation process for the Calcasieu Parish School Board. We sincerely hope that based on the following facts that Calcasieu Parish School Board determines General Informatics is well qualified to meet and exceed expectations and provide competitive pricing for organizations in need of our services across the State.

General Informatics acknowledges all solicitation terms and conditions and in accordance with proposal requirements. If you have any questions, please feel free to contact our office at 225.767.7670 or email at donm@geninf.com.



Sincerely,



Donald Monistere  
CEO and President, General Informatics

## Company Partners

**PANDUIT™**

**ONE** Gold  
Partner



Extreme®

**CORNING**



**aruba**  
a Hewlett Packard  
Enterprise company

**BELDEN**

SONICWALL™

  
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**ISONAS™**  
PURE IP ACCESS CONTROL

**AVAYA**

**Panasonic**

 Polycom™

 **ATLONA**  
Connecting Technology

 **Uniti Fiber**

**VALCOM®**

## Client Focus through empathy and respect.

“

General Informatics was able to integrate all of our data and communications into a single smart system and back it up with top notch support. A true partner.

---

Hillar Moore

*EBR District Attorney*

“

GI not only provides outstanding service, they help us stay on the cutting edge of technology. They've exceeded our expectations in both performance and value of money.

---

Jerry Hebert

*GraceHebert Architects*

“

TotalCARE™ was a great decision for our company. We have a department of professionals managing our IT with best practices. Within the first year we realized the ROI was fantastic.

---

Dan Strecker

*CK Associates*

“

The mark of a great IT expert is when everything runs to a level of precision that you don't even realize you need. Everything just works. That's General Informatics.

---

Roxson Welch

*Family & Youth Service  
Center*

# 1. Equipment Specifications and Warranty



Data Sheet

## Highlights

### Radio Technology

- 5 GHz 2x2:2
- 2.4 GHz 2x2:2

### Radio Modes - SSR

- 5 GHz/2.4 GHz - Fixed
- 5 GHz/5 GHz - Dual 5 GHz

### Universal Hardware Platform

- On-Premise: WiNG OS - Centralized and Distributed
- Cloud: IQ Engine

### High Density Environments

- Delivers exceptional end-user experience even in dense user environments

### WPA3 Support

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

### Fully Functional over 802.3af

### Cellular Coexistence Filter (CCF)

- Minimizes the impact of interference from cellular networks

### Smart Management

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



## Universal Wireless AP305C/CX

Wi-Fi 6 (802.11ax) 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 AP 305C/CX is part of Extreme's Universal Wi-Fi platform and provides users the choice of Wi-Fi operating system (IQ Engine or WiNG Operating System). Customers have the flexibility to select the OS at start-up or at a later stage and the AP will assume the features/capabilities of the selected OS. When first booted, the AP305C/CX automatically connects to ExtremeCloud IQ to find its persona. The pre-provisioned OS persona is then remotely enabled on the AP305C/CX AP and the user can stay in the cloud or select manage the device locally.

The AP305C/CX are indoor enterprise APs based on a new system-on-a-chip (SoC) with two built-in dual-band radios providing the best value with Wi-Fi 6 high efficiency. The AP305C/CX platforms are the first generation of APs to run multiple Extreme operating systems, providing flexibility and choice of on-premise or cloud deployment, while minimizing total cost of ownership. You have your choice of models with either integrated or external antennas. Advanced radio technology delivers 802.11ax 2x2:2 data rates up to 2.4 Gbps concurrently on both the 2.4 GHz and 5 GHz radios. These 2x2:2 APs continue the Extreme tradition of software-selectable radios (SSRs) capable of dual 5 GHz connectivity for indoor and industrial environments.

This enterprise-grade access point is ideal for budget-conscious enterprises who do not want to sacrifice performance.

The AP305C/CX comes in an aesthetic design and can fit in the palm of your hand. Both models are eco-friendly APs partially made from recycled materials. Also included is an integrated light sensor and integrated power meter to help conserve power consumption\*. The easy install ceiling mount for quick installation and unique way to hide the Ethernet cables for an aesthetically pleasing installation.

Despite the exponential growth of users, BYOD devices, IoT, high-bandwidth applications and security threats straining the infrastructure, the AP305C/CX combines performance, security services and insightful ML/AI management capabilities to deliver an enterprise class solution at a value price.

\* future software release



## Security

The AP305C/CX delivers the highest level of security services, beginning with support for the latest Wi-Fi Alliance WPA3 security certifications. Additionally, the AP305C/CX supports a stateful L2-L7 DPI firewall for context-based access security, Private Pre-Shared Key (PPSK) and much more.



## Management Analytics

In conjunction with Extreme Management system, cloud or on-premises, the AP305C/CX provides a very rich set of data displayed via context driven widgets, representing 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.



## Wi-Fi 6 Technology

Prior generations of 802.11n, 802.11ac wave 1 and 2, can be considered generational improvements with an emphasis on faster speed. 802.11ax technology instead enhances Wi-Fi efficiency as well as speed, taking Wi-Fi networks to an entirely new level. To learn more about 802.11ax, go to: <https://www.extremenetworks.com/are-you-ready-for-802-11ax>



## Programmable Radios

Extreme launched the industry's first software defined 802.11ax access point supporting not only a dual 5 GHz capability, but also two software programmable modes to optimally manage radios to provide the highest level of client performance. The AP305C/CX intelligent monitoring of the software-configurable radios enables network managers to configure network RF technology based on user environment and configure the access points in different modes as required.



## Universal Hardware

The AP305C/CX 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 AP305C/CX assumes the features/capabilities of the selected OS. When first booted, the AP305C/CX automatically connects to ExtremeCloud IQ to find its persona. The pre-provisioned OS persona is then remotely enabled on the AP305C/CX system, eliminating the need for manual selection.



## Integrated BLE and USB Port

To support both IoT and Guest Engagement services the AP305C/CX 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: 8/16
- 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
- Rates (Mbps): MCS0–MCS15 (6.5Mbps – 300Mbps)
- 2x2 Multiple-In, Multiple-Out (MIMO) Radio
- 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–MCS9 (6.5Mbps – 867Mbps), NSS = 1-2.
- 2x2:2 Stream Multiple-In, Multiple-Out (MIMO) Radio
- VHT20/VHT40/VHT80 support
- TxBF (Transmit Beamforming)

#### 802.11ax

- 2.4–2.5 GHz and 5.150–5.850 GHz Operating Frequency
- 802.11ax Modulation (1024-QAM)
- Dual-band OFDMA
- Rates (Mbps):
  - 5G: HE0-HE11 (8 Mbps – 1200 Mbps).
  - 2.4G: HE0-HE11 (8 Mbps – 574 Mbps).
- 2x2:2 Stream Multiple-In, Multiple-Out (MIMO) Radio
- HE20/HE40/HE80 support for 5 GHz
- HE20 support for 2.4 GHz
- DL SU-MIMO and MU-MIMO
- TxBF (Transmit Beamforming)

BLE 5 Radio Bluetooth® Low Energy (BLE)

### Interfaces

- (1) Autosensing 10/100/1000 BASE-T Ethernet PoE (Power over Ethernet 802.3af) Port
- USB2.0, Type A 5V, 0.9A
  - USB power <= 500 mA – 802.3af
  - USB power > 500 mA – 802.3at

### Power Options

- Power Draw: Typical: 9.98 W; Max: 11.28 W (w/o USB)  
Typical: 14.98 W; Max: 16.28 W (w/USB)
- 802.3af Power over Ethernet (PoE) capable Gigabit Ethernet port (RJ-45 power input pins: Wires 4,5,7,8 or 1,2,3,6)
- Support 802.3af/802.3at Power over Ethernet Injector

### Power Specifications

- IEEE 802.3af PoE Power

### Physical

- AP 305C: 5.2" x 5.2" x 1.5" (133mm x 133mm x 37mm)
- AP 305CX: 5.8" x 5.8" x 1.5" (147mm x 147mm x 39mm)
- AP 305C and AP 305CX: .9 lbs (.4kg)
- TPM Chip

### Antennas

#### AP305C - Internal Antennas

- (3) Integrated dual band 2.4/5GHz omnidirectional antennas
- (1) Integrated single band 5GHz omnidirectional antenna

#### AP305CX - External Antennas

- (4) external omnidirectional 2.4/5 GHz dual band antennas (RP SMA connectors)

### Mounting

- AP support 15/16 flush ceiling tile and is integrated to AP
- Wall Mount sold as an accessory
- Ceiling Tile Recessed 15/16" sold as an accessory
- Built-in slot for Kensington type locks

### Environmental

- Operating: 0 to 40 °C, Storage: -40 to 70 °C
- Humidity: 10% to 95% (non-condensing)

### Environmental Discharge

- +/-8 kV (contact discharge)/+/-15 kV (Air Discharge)

### Environmental Compliance

- UL2043 - Plenum Rated

### Regulatory Compliance

#### Product Safety Certifications

- IEC 62368/60950-1, EN 62368/60950-1, USA 62368/60950-1, AS/NZS 62368/60950.1
- RoHS Directive 2011/65/EU

### Radio Approvals

- FCC CFR 47 Part 15, Class B
- ICES-003, Class B
- FCC Subpart C 15.247
- FCC Subpart E 15.407
- RSS247
- AS/NZS4268 + CISPR32
- IEC/EN 60601-1-2
- EN 62311
- EN 50385
- EN 301 489-1
- EN 301 489-17
- EN 55032, (Class B)

### Power Options

- EN 55011, (Group 1, Class B)
- EN 55024
- EN 60601-1-2
- EN 61000-3-2
- EN 61000-3-3
- EN 300 328
- EN 301 893
- EN 300 440
- EN 50581

### Wi-Fi Alliance Certifications

Wi-Fi Alliance Certifications	
Connectivity	Wi-Fi CERTIFIED 6® Wi-Fi CERTIFIED® a, b, g, n, ac
Access	Passpoint®
Optimization	WMM® WMM® - Power Save Wi-Fi Agile Multiband®
Security	Protected Management Frames WPA® - Enterprise, Personal WPA2® - Enterprise, Personal WPA3® - Enterprise, Personal

### Peak Antenna Gain

	Radio 0	Radio 1	IoT
Dual Band	2.4 Ghz 2.67dBi	5 Ghz 3.75dBi	2.7dBi
Dual 5Ghz	5 Ghz 3.97dBi	5 Ghz 3.75dBi	2.7dBi

## Power and Sensitivity Tables

### Power - 2.4 GHz

Channel	Data Rate	Power (dBm)
11b	1 - 11 Mbps	18
11g	6 Mbps	18
	54 Mbps	17
11n HT20	MCS0, 7	18, 14
11n HT40	MCS0, 7	18, 14
11ac HT20	MCS0, 8	18, 13
11ac HT40	MCS0, 9	18, 12
11ax HE20	HE0, 11	18, 11
11ax HE40	HE0, 11	18, 11

### Receive Sensitivity - 2.4 GHz

Channel	Data Rate	Sensitivity
11b	1 - 11 Mbps	-95, -88
11g	6 Mbps	-91
	54 Mbps	-74
11n HT20	MCS0, 7	-91, -71
11n HT40	MCS0, 7	-88, -69
11ac HT20	MCS0, 8	-90, -61
11ac HT40	MCS0, 9	-88, -58
11ax HE20	HE0, 11	-90, -61
11ax HE40	HE0, 11	-88, -58

### Power - 5 GHz

Channel	Data Rate	Power (dBm)
11a	6 Mbps	18
	54 Mbps	16
11n HT20	MCS0, 7	18, 15
11n HT40	MCS0, 7	18, 15
11ac VHT20	MCS0, 8	18, 14
11ac VHT40	MCS0, 9	18, 13
11ac VHT80	MCS0, 9	18, 13
11ax HE20	HE0, 11	18, 13
11ax HE40	HE0, 11	18, 13
11ax HE80	HE0, 11	18, 13

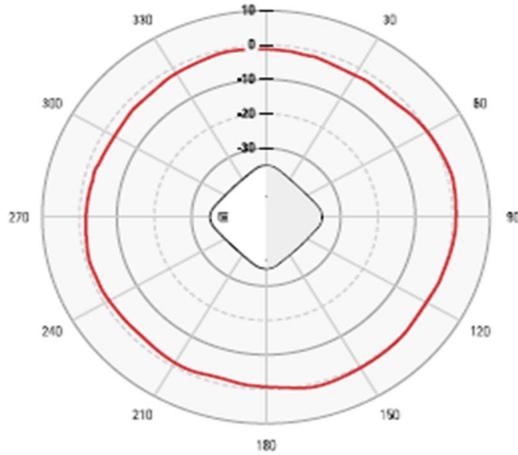
### Receive Sensitivity - 5 GHz

Channel	Data Rate	Sensitivity
11a	6 Mbps	-92
	54 Mbps	-74
11n HT20	MCS0, 7	-90, -72
11n HT40	MCS0, 7	-88, -69
11ac VHT20	MCS0, 8	-90, -68
11ac VHT40	MCS0, 9	-88, -63
11ac VHT80	MCS0, 9	-85, -58
11ax HE20	HE0, 11	-88, -59
11ax HE40	HE0, 11	-87, -57
11ax HE80	HE0, 11	-85, -54

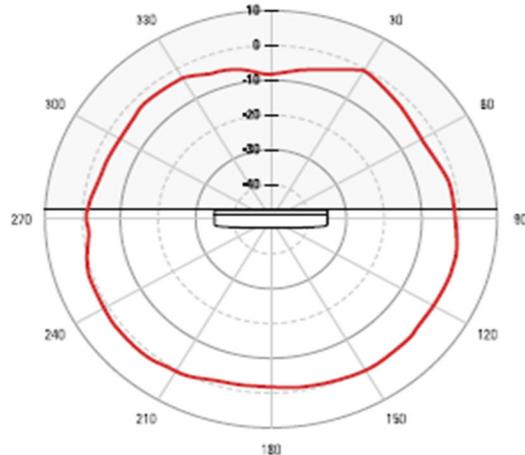
*Maximum EIRP may vary based upon deployed country*

### Radiation Patterns - Azimuth and Elevation

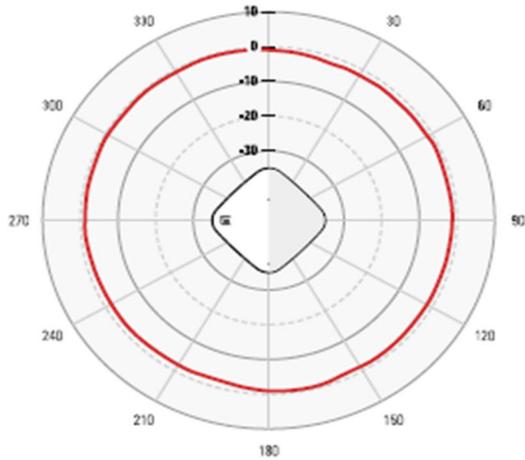
Azimuth - 2.4 GHz



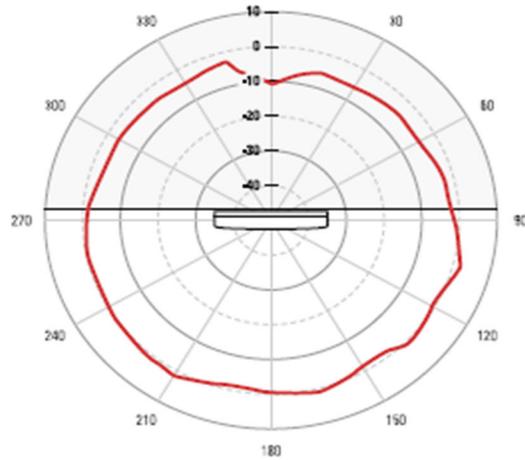
Elevation - 2.4 GHz



Azimuth - 5 GHz



Elevation - 5 GHz



## Ordering Information

### AP 305C and AP 305CX

MKT Product SKU	Description
AP 305C-FCC	ExtremeCloud IQ: Indoor Wi-Fi 6 AP, 2x2 radios with Dual 5GHz and 1x1GbE port. Integrated light/power sensors and BLE. AI/ML green mode. Internal antennas. Built-in ceiling mounts. Includes Connect. Domain: US
AP 305C-CAN	ExtremeCloud IQ: Indoor Wi-Fi 6 AP, 2x2 radios with Dual 5GHz and 1x1GbE port. Integrated light/power sensors and BLE. AI/ML green mode. Internal antennas. Built-in ceiling mounts. Includes Connect. Domain: Canada
AP 305C-WR	ExtremeCloud IQ: Indoor Wi-Fi 6 AP, 2x2 radios with Dual 5GHz and 1x1GbE port. Integrated light/power sensors and BLE. AI/ML green mode. Internal antennas. Built-in ceiling mounts. Includes Connect. Domain: EMEA, Rest of World
AP 305CX-FCC	ExtremeCloud IQ: Indoor Wi-Fi 6 AP, 2x2 radios with Dual 5GHz and 1x1GbE port. Integrated light/power sensors and BLE. AI/ML green mode. External antennas. Built-in ceiling mounts. Includes Connect. Domain: US
AP 305CX-CAN	ExtremeCloud IQ: Indoor Wi-Fi 6 AP, 2x2 radios with Dual 5GHz and 1x1GbE port. Integrated light/power sensors and BLE. AI/ML green mode. External antennas. Built-in ceiling mounts. Includes Connect. Domain: Canada
AP 305CX-WR	ExtremeCloud IQ: Indoor Wi-Fi 6 AP, 2x2 radios with Dual 5GHz and 1x1GbE port. Integrated light/power sensors and BLE. AI/ML green mode. External antennas. Built-in ceiling mounts. Includes Connect. Domain: EMEA, Rest of World
AP305C-IL	ExtremeCloud IQ : Indoor Wi-Fi 6 AP, 2x2 radios with Dual 5GHz and 1x1GbE port. Integrated light/power sensors and BLE/ Zigbee. AI/ML green mode. Internal antennas. Includes Connect. Domain : Israel
AP305C-EG	ExtremeCloud IQ : Indoor Wi-Fi 6 AP, 2x2 radios with Dual 5GHz and 1x1GbE port. Integrated light/power sensors and BLE/ Zigbee. AI/ML green mode. Internal antennas. Includes Connect. Domain : Egypt
AP305CX-IL	ExtremeCloud IQ : Indoor Wi-Fi 6 AP, 2x2 radios with Dual 5GHz and 1x1GbE port. Integrated light/power sensors and BLE/ Zigbee. AI/ML green mode. External antenna support. Antennas sold separately. Includes Connect. Domain : Israel

### Accessories

Marketing Part #	Indoor AP Mounting	Notes
AH-ACC-BKT-AX-IL	Mounting bracket for Interiude ceilings	
AH-ACC-BKT-AX-SL	Mounting bracket for Armstrong 1/8" and 1/4" main beam silhouette reveal ceiling grids	
AH-ACC-BKT-AX-TB	Mounting bracket for prelude 15/16" and suprafine 9/16" ceilings and walls	Can be used for flush wall mounting
AH-ACC-BKT-AX-WL	Mounting bracket for direct-to-wall installations	Not flush to wall
ACC-BKT-AX-JB	Junction box or wall mounting for indoor access points	
ACC-BKT-AX-BEAM	Beam mounting for indoor access points	

Note: Two clips designed into the underside of the AP unit that will accommodate a 15/16 type ceiling tile rail system. Other mounting accessories are listed below. For more detail on these accessories see: [WiFi 6 \(802.11ax\) Access Point Accessories Guide](#)

For additional information on antennas see: [Wi-Fi 6 \(802.11ax\) Antennas Specifications Guide](#)

MKT Product SKU	Descriptions
<b>Antennas</b>	
AH-ACC-ANT-AX-KT (x8 per pack)	Articulated indoor antenna kit (8 x Dual Band 5dBi antennas)
ML-2452-APA2-02	Dipole Omni, 3.2/4.9 dBi, White (need 4 for AP305CX)
<b>Power Accessories</b>	
PD-3501G-ENT	Single port 802.3af compliant midspan
AH-ACC-PW-CBL-US	6ft 18 AWG universal power cord with US plug
AH-ACC-PW-CBL-UK	6ft universal power cord with UK plug
AH-ACC-PW-CBL-EU	6ft universal power cord with EU plug
AH-ACC-PW-CBL-AU	6ft universal power cord with AU plug
AH-ACC-PW-CBL-JP	6ft universal power cord with Japan plug
AH-ACC-PW-CBL-KR	6ft universal power cord with Korea plug

## Warranty

All AP305C and AP305CX models are covered under Extreme's Universal LLW policy. For warranty details, please visit: [www.extremenetworks.com/support/policies](http://www.extremenetworks.com/support/policies)



<http://www.extremenetworks.com/contact>

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[WWW.EXTREMENETWORKS.COM](http://WWW.EXTREMENETWORKS.COM)

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Data Sheet

## 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.



### 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.



### 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.



### 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 - MCS11 (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 - 175Mbps), 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, 5W/500mA

### Power Specifications

- IEEE 802.3at PoE Power

### Power Options

- Power Draw: Typical: 12.1W, 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
- L or 9/16 1-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 447498D0V06 FCC Part1120
- ANSI C63.4 test methods
- IEC 60601-1-2 EMC for medical devices

##### Canada

- RSS 247 for 2.4G 802.11
- ICES-003 class B
- RF exposure - RSS-302: Issue 5, 2015

##### CE

- 2014/53/EU Radio Equipment Directive
- EN 300 328, EN 301 893, EN 302 502, EN 300 440
- EN5501489 1, EN 301 889 11, 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)
- 2014/50/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 61000-4-3

### Warranty

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

**Power and Sensitivity Tables**
**Power and Receive Sensitivity- 2.4 GHz Radio**

Channel	Data Rate	Power (dBm)	Sensitivity
T1b	1- 11 Mbps	19	-94, -87
	6 Mbps	19	-91
T1g	54 Mbps	16	-73
	6 Mbps	19, 16	-91, -72
T1n HT20	MCS0, 7	18, 16	-88, -69
T1n HT40	MCS0, 7	18, 14	-90, -60
T1ax HE20	HE0, 11	18, 14	-87, -57
T1ax HE40	HE0, 11	18, 14	-87, -57

T1b	1- 11 Mbps	16	-95, -88
	6 Mbps	16	-94
T1g	54 Mbps	16	-77
T1n HT20	MCS0, 7	16, 15	-93, -75
T1n HT40	MCS0, 7	16, 15	-90, -72
T1ax HE20	HE0, 11	16, 14	-92, -62
T1ax HE40	HE0, 11	16, 14	-89, -59

**Power and Receive Sensitivity - 5 GHz Radio**

Channel	Data Rate	Power (dBm)	Sensitivity
T1a	6 Mbps	18	-94
	54 Mbps	17	-75
T1n HT20	MCS0, 7	18, 16	-94, -75
T1n HT40	MCS0, 7	18, 16	-91, -72
T1ac VHT20	MCS0, 8	18, 15	-94, -71
T1ac VHT40	MCS0, 9	18, 15	-91, -67
T1ac VHT80	MCS0, 9	18, 15	-88, -64
T1ax HE20	HE0, 11	18, 14	-93, -64
T1ax HE40	HE0, 11	18, 14	-90, -60
T1ax HE80	HE0, 11	18, 14	-87, -57

**Power and Receive Sensitivity - 5 GHz Sensor**

Channel	Data Rate	Power (dBm)	Sensitivity
T1a	6 Mbps	20	-95
	54 Mbps	17	-76
T1n HT20	MCS0, 7	20, 17	-95, -75
T1n HT40	MCS0, 7	20, 17	-92, -72
T1ac VHT20	MCS0, 8	20, 16	-94, -72
T1ac VHT40	MCS0, 9	20, 15	-91, -67
T1ac VHT80	MCS0, 9	20, 15	-88, -64
T1ac VHT160	MCS0, 9	20, 15	-85, -61
T1ax HE20	HE0, 11	20, 15	-94, -64
T1ax HE40	HE0, 11	20, 15	-91, -61
T1ax HE80	HE0, 11	20, 15	-88, -58
T1ax HE160	HE0, 11	20, 15	-85, -55

**Power and Receive Sensitivity - 6 GHz Radio**

Channel	Data Rate	Power (dBm)	Sensitivity
T1a	6 Mbps	18	-93
	54 Mbps	16	-75
T1n HT20	MCS0, 7	18, 15	-93, -75
T1n HT40	MCS0, 7	17, 15	-91, -72
T1ac VHT20	MCS0, 8	18, 14	-93, -71
T1ac VHT40	MCS0, 9	17, 13	-91, -67
T1ac VHT80	MCS0, 9	17, 13	-88, -64
T1ac VHT160	MCS0, 9	17, 11	-85, -61
T1ax HE20	HE0, 11	18, 12	-92, -63
T1ax HE40	HE0, 11	17, 12	-90, -60
T1ax HE80	HE0, 11	17, 12	-87, -57
T1ax HE160	HE0, 11	17, 11	-84, -54

**Power and Receive Sensitivity - 6 GHz Radio Sensor**

Channel	Data Rate	Power (dBm)	Sensitivity
T1a	6 Mbps	18	-93
	54 Mbps	16	-75
T1n HT20	MCS0, 7	18, 15	-93, -75
T1n HT40	MCS0, 7	17, 15	-91, -72
T1ac VHT20	MCS0, 8	18, 14	-93, -71
T1ac VHT40	MCS0, 9	17, 13	-91, -67
T1ac VHT80	MCS0, 9	17, 13	-88, -64
T1ac VHT160	MCS0, 9	17, 11	-85, -61
T1ax HE20	HE0, 11	18, 12	-92, -63
T1ax HE40	HE0, 11	17, 12	-90, -60
T1ax HE80	HE0, 11	17, 12	-87, -57
T1ax HE160	HE0, 11	17, 11	-84, -54

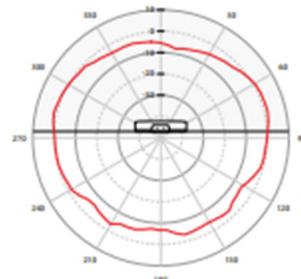
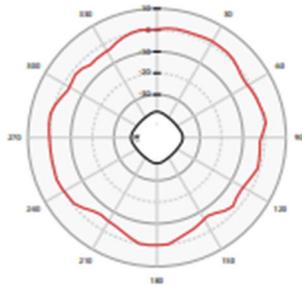
**Power and Receive Sensitivity - 2.4 GHz Sensor**

Channel	Data Rate	Power (dBm)	Power (dBm)
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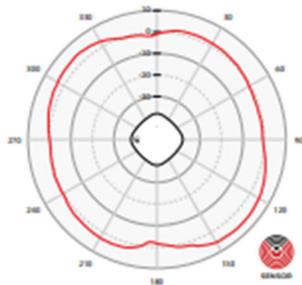
Maximum EIRP may vary based upon deployed country

**Antenna Radiation Patterns**

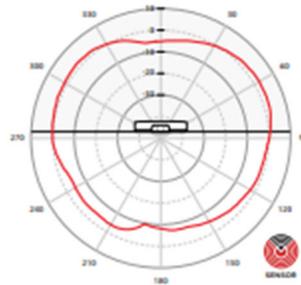
**Azimuth - 6 GHz**



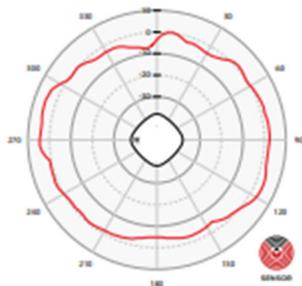
**Azimuth - 2 GHz**



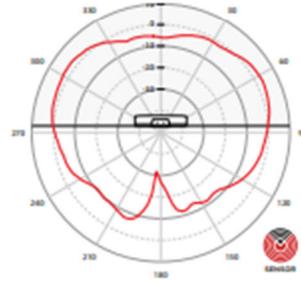
**Elevation - 2 GHz**



**Azimuth - 5 GHz**



**Elevation - 5 GHz**

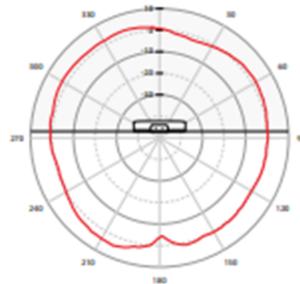
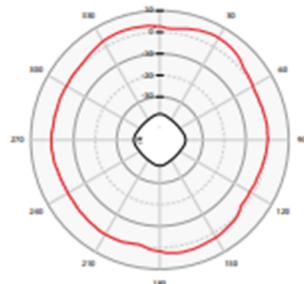


**Elevation - 6 GHz**

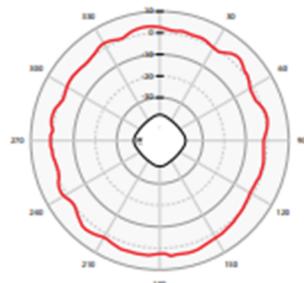
[WWW.EXTRMNETWORKS.COM](http://WWW.EXTRMNETWORKS.COM)

**Antenna Radiation Patterns (Cont.)**

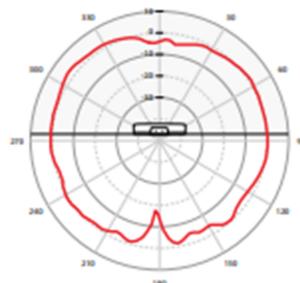
Dual Band Azimuth - 2 GHz



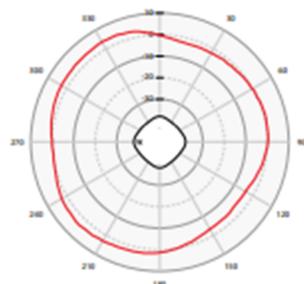
Dual Band Azimuth - 5 GHz



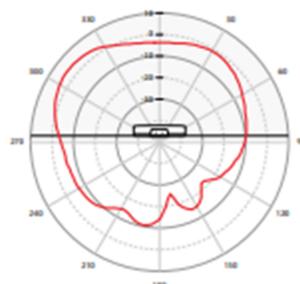
Dual Band Elevation - 5 GHz



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 Accessories		
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-NIT	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-WINGADAPT	Adaptor bracket for Cloud AP to WING Mounting Plate (#3720), 10 pack	Allow twist mount to mount to legacy mounts
Power Accessories		
Part Number	Description	
PD-9001GR-ENT	Single port 802.3at compliant midspan	
10061	Per Cord,10A,NEMA 5-15P,IEC320-C13,125V, 18AWG (for US)	
10034	Per Cord,10A,B5156,IEC320-C13,250V, 0.75MM5G (for UK)	
10033	Per Cord,10A,CEE 7/7,IEC320-C13,250V, 0.75MM5G (for EU)	
10036	Per Cord,10A,AS3112,IEC320-C13,250V, 0.75MM5G (for AU)	
10062	Per Cord,12A,J15C8303,IEC320-C13,125V, 1.25MM5G (for Japan)	
10035	Per Cord,10A,CEE 7/7,IEC320-C13,250V, 0.75MM5G (for Korea)	

See Product Installation guide for more details



<http://www.extremenetworks.com/contact>

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[WWW.EXTREMENETWORKS.COM](http://WWW.EXTREMENETWORKS.COM)

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## 2. Company References

**Livingston Parish Public Schools**

Carlos Williams, IT Director  
13909 Florida Blvd.  
Livingston, LA 70754  
Email: carlos.williams@lpsb.org  
Phone: 225.686.7044

**Ascension Parish Public Schools**

Jake Ragusa, Director of Technology  
1707 South Purpera  
Gonzales, LA 70754  
Email: jake.ragusa@apsb.org  
Phone: 225.391.7153

**Iberville Parish Government**

Jayce Morales, IT Director  
PO Box 389  
Plaquemine, LA 70765  
Email: jmorales@ibervilleparish.com  
Phone: 225.687.5190

**Holmes Community College**

Jesse Nichols, IT Specialist  
1 Hill St.  
Goodman, MS 39079  
Email: jnichols@holmescc.edu  
Phone: 601.605.3356

**Biloxi Public Schools**

Alex Mitchell, IT Director  
160 St. Peter St.  
Biloxi, MS 39503  
Email: alex.mitchell@biloxischools.net  
Phone: 228.297.6039

**Enterprise Holdings**

Caitlin Ryan  
3529 N. I-10 Service Rd.  
Metairie, LA 70002  
Email: caitlin.e.ryan@ehi.com  
Phone: 504-717-6108

## 3. Proposal

Description of Equipment, Model # (exact)	Unit Price	Quantity	Total Price
Extreme Universal wireless AP305 C/ AP305C-FCC	\$ 444.72	3194	\$ 1,420,435.68
Extreme Universal wireless AP4000/ AP4000-WW	\$ 773.21	3438	\$ 2,658,295.98
Aerohive Mounting Bracket for Wireless Access Point/ AH-ACC-BKT-AX-TB	\$ 22.17	500	\$ 11,085
EXTREMECLOUD IQ PILOT TIER 0 CLD RTU 5YR XCIQ-PT0-C-EW-5YR-K12	\$ 376.15	6632	\$2,494,626.80
8x5 warranty comes with each device.			
			=\$ 6,584,443.46

## 4. Requested Documents



**State Licensing Board for Contractors**

**This is to Certify that:**

GENERAL INFORMATICS, LLC.  
8000 GSRI Road, #3000  
Baton Rouge, LA 70820

**is duly licensed and entitled to practice the following classifications**

SPECIALTY: TELECOMMUNICATIONS (EXCLUDING PROPERTY PROTECTION AND LIFE SAFETY SYSTEMS)



Witness our hand and seal of the Board dated,  
Baton Rouge, LA 6th day of February 2019

Will B. M... ..  
Director

See Mallett  
Chairman

Andre Demme  
Treasurer

Expiration Date: February 5, 2022

License No: 66287

This License Is Not Transferrable





AUTHORIZED PARTNER  
FY 22

General Informatics

VALID FROM AUGUST 1, 2021 - JULY 31, 2022

*N. Vianden*

NATALIA VIANDEN, DIRECTOR, GLOBAL CHANNEL PROGRAMS