

## Highlights

### Radio Technology

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

### Radio Modes – SSR

- 2.4 GHz / 5 GHz
- 5 GHz / 5 GHz – Dual 5 GHz
- Sensor (2.4 GHz/5 GHz) / 5 GHz

### High Density Environments

- Delivers exceptional end-user experience even in the densest user environments

### 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 802.3af

- USB port usage requires 802.3af

### Smart Management Choices

- Extreme Campus Controller or VX/NX controller is ideal for on-premises requirements
- Extreme Campus Controller, /VX or NX controller plus additional cloud management capabilities provided via ExtremeCloud™ IQ



## ExtremeWireless™ AP310i/e

Wi-Fi 6 (802.11ax) Indoor Access Point with integrated or external antenna options

The AP310i/e is based on a new system-on-a-chip (SoC) with two built in dual band 2x2 radios providing the best value with Wi-Fi 6 high-efficiency. Priced for the mass market, this enterprise-grade access point is ideal for budget-conscious enterprises who do not want to sacrifice performance. While other vendors may reduce features and functionality, the AP310i/e retains all the capabilities of higher-end APs software-selectable-antenna (SSR). 802.11ax data rates of up to 2.4 Gbps are available concurrently in both the 2.4 GHz and 5 GHz band. The AP310i/e also provides the flexibility to provide the same data rates simultaneously on two 5 GHz channels using dual-5 GHz SSR technology.

Despite the exponential growth of users, BYOD devices, IoT, high-bandwidth applications and security threats straining the infrastructure, the AP310 combines performance, security services and insightful ML/AI management capabilities to deliver an enterprise class solution at a value price.



## Security

The AP310i/e 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.

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## 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>

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## Programmable Radios

Extreme launched the Industry's first software defined 802.11ax access point supporting not only a dual 5GHz capability but also three software programmable modes to optimally manage radios to provide the highest level of client performance. The AP310i/e intelligent monitoring of the software configurable radios enables network managers configure network RF topology based on user environment and configure the access points in different modes as required.



## Management Analytics

In conjunction with management system, cloud or on-premises, the AP310i/e 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 from widget library.

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## RF Monitoring

Network managers will appreciate a powerful choice of RF management for their Wi-Fi networks, with Adaptive RF management with AI/ML-like functionality. Adaptive RF algorithms provide intelligent selection of the best channels and transmit power for unimpaird dual 5 GHz operation. Load balancing, band steering and many other attributes of the RF can all be automated.

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## Integrated BLE and Zigbee

To support both IoT and Guest Engagement services the AP310i/e integrates Bluetooth to connect with IoT devices with Thread wireless or engage loyalty customers with Apple iBeacon<sup>1</sup>. Enterprises can use Google Eddystone 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 & 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 & 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/HE40 support for 2.4 GHz
- DL SU-MIMO and MU-MIMO
- TxBF (Transmit Beamforming)

## IoT Radio

- BLE Radio Bluetooth® Low Energy (BLE) and IEEE® 802.15.4 compliant<sup>1</sup>

## Interfaces

- (2) Autosensing 10/100/1000 Ethernet Port, RJ45
- USB3.0, Type A, 0.5A

## Power Specifications

- IEEE 802.3af PoE Power

## Power Options

- Power Draw: Typical: 9W, Max:11.1W (w/o USB)  
Typical: 12W, Max:14W (w/ USB)

<sup>1</sup>IoT Radio included for certain AP310i/e model SKUs

- 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)
- 802.3af Power over Ethernet injector
- PoE Out Supports 802.3af Powered Devices (PD) when powered by 802.3at

## Physical

- 6.4" x 6.4" x 1.7" (165mm x 165mm x 45mm)
- AP310i/e: 1.5 lbs (.7 kg)

## Antennas

### AP310i - Internal Antennas

- (2) Integrated dual band, 2.4 GHz/5 GHz omnidirectional antennas
- (2) Integrated single band, 5.1-5.8 GHz omnidirectional antennas
- (1) Integrated single band, 2.4-2.5 GHz omnidirectional antennas for BLE<sup>1</sup>

### AP310e - External Antenna

- (4) RP SMA connectors
- (1) RP SMA connectors for BLE<sup>1</sup>

## Mounting

- Wall, and flat tile and 15/16" wide tbar, mount included as part of AP
- Built-in slot for Kensington type locks
- 5/8" Ceiling tile protrusions on 9/16", 15/16" and 1.5" wide t-bars sold as an accessory
- Flush ceiling tiles with 9/16", 15/16" and 1.5" wide t-bars sold as an accessory

## Environmental

- Operating: AP310i: 0 to 50°C  
AP310e: -20 to 55°C
- Storage: -40 to 70°C

## 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, Intertek NTRL
- 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)
- EN 55011, (Group 1, Class B)
- EN 55024
- EN 61000-3-2
- EN 61000-3-3
- EN 300 328
- EN 301 893
- EN 50581

## Support

- Limited Lifetime Warranty WiNG

## Peak Gains

| Software Mode | Radio 1         | Radio 2       | IoT Radio |
|---------------|-----------------|---------------|-----------|
| Dual Band     | 2.4GHz - 4.5dBi | 5GHz - 4.8dBi | 4.7dBi    |
| Sensor        | 2.4GHz - 4.5dBi | 5GHz - 4.8dBi | 4.7dBi    |
|               | 5GHz - 5.2dBi   |               |           |
| Dual 5G       | 5GHz - 5.2dBi   | 5GHz - 4.8dBi | 4.7dBi    |

# AP310i

## Power and Receive Sensitivity - 2.4 GHz

| Channel   | Data Rate   | Power (dBm) | Sensitivity |
|-----------|-------------|-------------|-------------|
| 11b       | 1 - 11 Mbps | 20          | -94, -87    |
| 11g       | 6 Mbps      | 20          | -90         |
|           | 54 Mbps     | 18          | -73         |
| 11n HT20  | MCS0, 7     | 20, 17      | -89, -70    |
| 11n HT40  | MCS0, 7     | 19, 16      | -86, -67    |
| 11ax HE20 | HE0, 11     | 20, 14      | -89, -60    |
| 11ax HE40 | HE0, 11     | 19, 13      | -86, -56    |

## Power and Receive Sensitivity - 5 GHz (Full band)

| Channel    | Data Rate | Power (dBm) | Sensitivity |
|------------|-----------|-------------|-------------|
| 11a        | 6 Mbps    | 20          | -90         |
|            | 54 Mbps   | 18          | -74         |
| 11n HT20   | MCS0, 7   | 20, 18      | -90, -70    |
| 11n HT40   | MCS0, 7   | 19, 17      | -87, -68    |
| 11ac VHT20 | MCS0, 8   | 20, 17      | -89, -66    |
| 11ac VHT40 | MCS0, 9   | 19, 16      | -87, -62    |
| 11ac VHT80 | MCS0, 9   | 19, 16      | -84, -59    |
| 11ax HE20  | HE0, 11   | 20, 15      | -89, -61    |
| 11ax HE40  | HE0, 11   | 19, 15      | -87, -58    |
| 11ax HE80  | HE0, 11   | 19, 15      | -85, -56    |

## Power and Receive Sensitivity - 5 GHz (High Band)

| Channel    | Data Rate | Power (dBm) | Sensitivity |
|------------|-----------|-------------|-------------|
| 11a        | 6 Mbps    | 18          | -89         |
|            | 54 Mbps   | 17          | -73         |
| 11n HT20   | MCS0, 7   | 18, 16      | -89, -69    |
| 11n HT40   | MCS0, 7   | 18, 16      | -86, -67    |
| 11ac VHT20 | MCS0, 8   | 18, 15      | -88, -65    |
| 11ac VHT40 | MCS0, 9   | 18, 15      | -86, -61    |
| 11ac VHT80 | MCS0, 9   | 18, 15      | -83, -58    |
| 11ax HE20  | HE0, 11   | 18, 14      | -88, -60    |
| 11ax HE40  | HE0, 11   | 18, 14      | -86, -57    |
| 11ax HE80  | HE0, 11   | 18, 14      | -84, -55    |

## Power and Receive Sensitivity - 5 GHz (Low Band)

| Channel    | Data Rate | Power (dBm) | Sensitivity |
|------------|-----------|-------------|-------------|
| 11a        | 6 Mbps    | 18          | -89         |
|            | 54 Mbps   | 16          | -73         |
| 11n HT20   | MCS0, 7   | 18, 16      | -89, -69    |
| 11n HT40   | MCS0, 7   | 17, 15      | -86, -67    |
| 11ac VHT20 | MCS0, 8   | 18, 15      | -88, -65    |
| 11ac VHT40 | MCS0, 9   | 17, 14      | -86, -61    |
| 11ac VHT80 | MCS0, 9   | 17, 14      | -83, -58    |
| 11ax HE20  | HE0, 11   | 18, 13      | -88, -60    |
| 11ax HE40  | HE0, 11   | 17, 13      | -86, -57    |
| 11ax HE80  | HE0, 11   | 17, 13      | -84, -55    |

# AP310e

## Power and Receive Sensitivity - 2.4 GHz

| Channel   | Data Rate   | Power (dBm) | Sensitivity |
|-----------|-------------|-------------|-------------|
| 11b       | 1 - 11 Mbps | 19          | -93, -86    |
| 11g       | 6 Mbps      | 19          | -89         |
|           | 54 Mbps     | 17          | -72         |
| 11n HT20  | MCS0, 7     | 19, 16      | -88, -69    |
| 11n HT40  | MCS0, 7     | 18, 15      | -85, -66    |
| 11ax HE20 | HE0, 11     | 19, 13      | -88, -59    |
| 11ax HE40 | HE0, 11     | 18, 12      | -85, -55    |

## Power and Receive Sensitivity - 5 GHz (Full band)

| Channel    | Data Rate | Power (dBm) | Sensitivity |
|------------|-----------|-------------|-------------|
| 11a        | 6 Mbps    | 20          | -90         |
|            | 54 Mbps   | 18          | -74         |
| 11n HT20   | MCS0, 7   | 20, 18      | -90, -70    |
| 11n HT40   | MCS0, 7   | 19, 17      | -87, -68    |
| 11ac VHT20 | MCS0, 8   | 20, 17      | -89, -66    |
| 11ac VHT40 | MCS0, 9   | 19, 16      | -87, -62    |
| 11ac VHT80 | MCS0, 9   | 19, 16      | -84, -59    |
| 11ax HE20  | HE0, 11   | 20, 15      | -89, -61    |
| 11ax HE40  | HE0, 11   | 19, 15      | -87, -58    |
| 11ax HE80  | HE0, 11   | 19, 15      | -85, -56    |

## Power and Receive Sensitivity - 5 GHz (High Band)

| Channel    | Data Rate | Power (dBm) | Sensitivity |
|------------|-----------|-------------|-------------|
| 11a        | 6 Mbps    | 18          | -89         |
|            | 54 Mbps   | 17          | -73         |
| 11n HT20   | MCS0, 7   | 18, 16      | -89, -69    |
| 11n HT40   | MCS0, 7   | 18, 16      | -86, -67    |
| 11ac VHT20 | MCS0, 8   | 18, 15      | -88, -65    |
| 11ac VHT40 | MCS0, 9   | 18, 15      | -86, -61    |
| 11ac VHT80 | MCS0, 9   | 18, 15      | -83, -58    |
| 11ax HE20  | HE0, 11   | 18, 14      | -88, -60    |
| 11ax HE40  | HE0, 11   | 18, 14      | -86, -57    |
| 11ax HE80  | HE0, 11   | 18, 14      | -84, -55    |

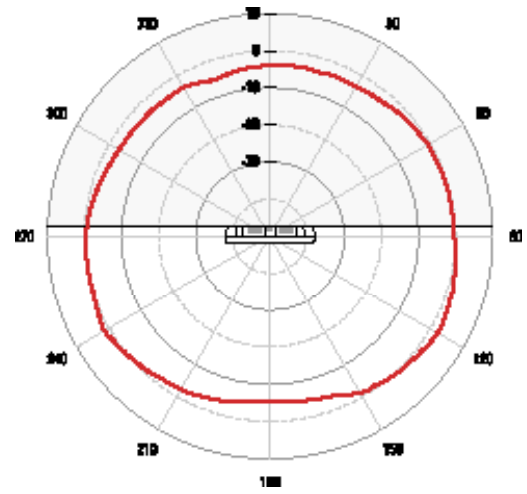
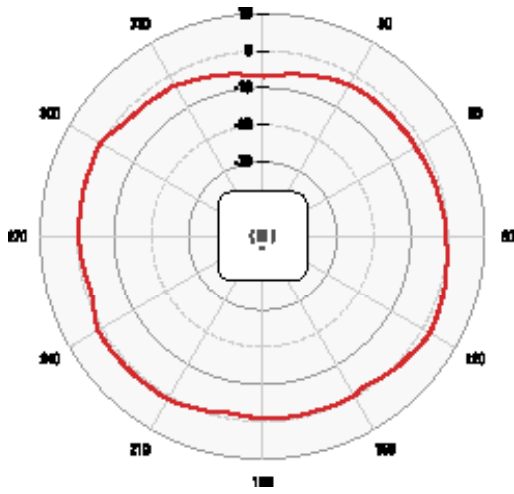
## Power and Receive Sensitivity - 5 GHz (Low Band)

| Channel    | Data Rate | Power (dBm) | Sensitivity |
|------------|-----------|-------------|-------------|
| 11a        | 6 Mbps    | 16          | -89         |
|            | 54 Mbps   | 14          | -73         |
| 11n HT20   | MCS0, 7   | 16, 14      | -89, -69    |
| 11n HT40   | MCS0, 7   | 15, 13      | -86, -67    |
| 11ac VHT20 | MCS0, 8   | 16, 13      | -88, -65    |
| 11ac VHT40 | MCS0, 9   | 15, 12      | -86, -61    |
| 11ac VHT80 | MCS0, 9   | 15, 12      | -83, -58    |
| 11ax HE20  | HE0, 11   | 16, 11      | -88, -60    |
| 11ax HE40  | HE0, 11   | 15, 11      | -86, -57    |
| 11ax HE80  | HE0, 11   | 15, 11      | -84, -55    |

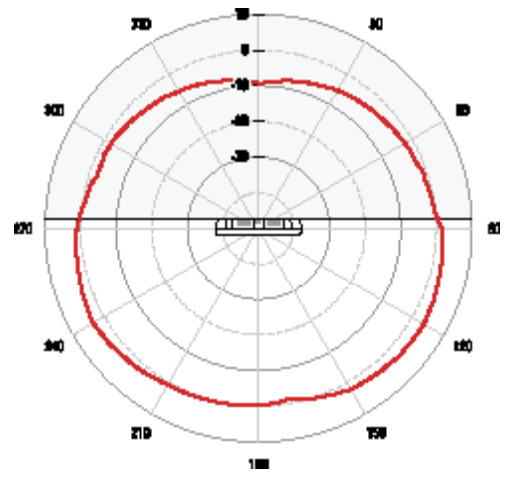
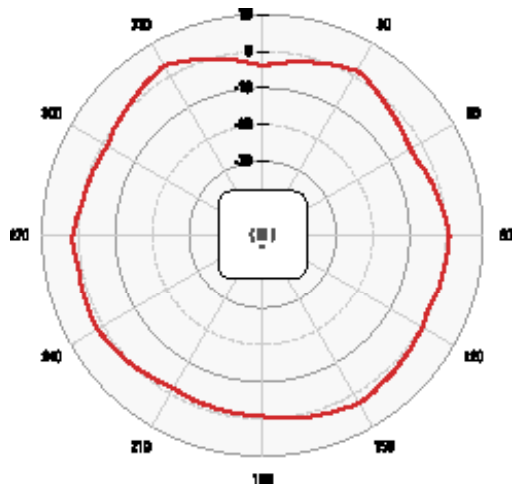
Maximum EIRP may vary based upon deployed country

# Radiation Patterns – Azimuth and Elevation

AP310i/e Antenna Radiation Patterns – 2.4GHz



AP310i/e Antenna Radiation Patterns – 5.0GHz



# Ordering Information

## AP310i/e

| Mkt Part #   | Description  |
|--------------|--|
| AP310i-FCC   | Dual Radio 802.11ax - 2x2:2, Dual 5G Indoor Internal Antenna Access Point. Domain: US, and Puerto Rico           |
| AP310i-WR    | Dual Radio 802.11ax - 2x2:2, Dual 5G Indoor Internal Antenna Access Point. Domain: EMEA, and Rest of World       |
| AP310i-CAN   | Dual Radio 802.11ax - 2x2:2, Dual 5G Indoor Internal Antenna Access Point. Domain: Canada                        |
| AP310e-FCC   | Dual Radio 802.11ax - 2x2:2, Dual 5G Indoor External Antenna Access Point. Domain: US, and Puerto Rico           |
| AP310e-CAN   | Dual Radio 802.11ax - 2x2:2, Dual 5G Indoor External Antenna Access Point. Domain: Canada                        |
| AP310e-WR    | Dual Radio 802.11ax - 2x2:2, Dual 5G Indoor External Antenna Access Point. Domain: EMEA, Rest of World           |
| AP310i-1-WR* | Dual Radio 802.11ax - 2x2:2, Dual 5G Indoor Internal Antenna Access Point. Wi-Fi 6 - Domain: EMEA, Rest of World |
| AP310e-1-WR* | Dual Radio 802.11ax - 2x2:2, Dual 5G Indoor External Antenna Access Point. Wi-Fi 6 - Domain: EMEA, Rest of World |

\* AP310i-1-WR and AP310e-1-WR do not include IoT radio and Bluetooth functionality.

## Mounting Options - AP310i/e

| Mkt Part #      | Description   |
|-----------------|---|
| 37201           | Mounting Plate for Indoor APs (included in box)                           |
| KT-135628-01    | Universal Mounting Kit for WLAN APs Requires (37201) bracket for mounting |
| BRKT-000147A-01 | Beam Clip Accessory   |
| 37210           | Flat Metal Indoor Bracket   |
| 30518           | WS-MBI-DCMTR01 bracket  |
| 30516           | WS-MBI-WALL04   |
| 37211           | WS-MBI-DCFLUSH  |

## Power Options - AP310i/e

| Mkt Part #    | Description                            |
|---------------|--|
| PD-3501G-ENT  | Single Port 802.3AF Midspan Device     |
| PD-9001GR-ENT | Single Port 802.3AT Compliant Midspan  |
| 37215         | PWR 12VDC, 3A, 2.5mm x 5.5mm connector |

## Antennas - AP310i/e

| Mkt Part #         | Description   |
|--------------------|---|
| ML-2452-APA2-01    | Dipole, 3.2dBi/4.9dBi, dual band, black with RPSMA plug connector (up to 5 per AP)  |
| ML-2452-APA2-02    | Dipole, 3.2dBi/4.9dBi, dual band, white with RPSMA plug connector (up to 5 per AP)  |
| ML-2452-HPA5-036   | Dipole, 3.9dBi/ 5.7dBi, dual band, outdoor, white with RPSMA plug connector (up to 5 per AP)                                    |
| ML-2452-HPAG4A6-01 | Dipole, 4dBi/ 7.3dBi, dual band, outdoor, white with standard N plug connector (up to 5 per AP)                                 |
| ML-2452-PNA5-01R   | Panel, 120 deg sector, 4.5dBi/ 5dBi, dual band, outdoor, 4" lead with standard N plug connector (up to 5 per AP)                |
| ML-2452-PTA4M4-036 | Patch, 360 deg, 4dBi/ 5dBi, dual band, indoor, with quad feed 36" leads and RPSMA plug connectors                               |
| ML-2452-HPAG5A8-01 | Dipole Omni, 7.5dBi/8dBi, dual band, outdoor with standard N Plug connector (up to 5 per AP)                                    |
| ML-2452-SEC6M4-036 | Polarized Panel, 10 O/ 80 deg, 6.92dBi/ 7.23dBi, dual band, indoor with quad feed 32" leads and standard RP SMA plug connectors |
| ML-2452-PNA7-01R   | Panel, 68/ 52 deg sector, 7.8dBi/ 10.7dBi, dual band, outdoor, 4" lead with standard N plug connector (up to 5 per AP)          |
| AI-DQ04360S        | Dipole Omni Array, 5.5dBi/ 6dBi, dual band, outdoor with quad feed 36" leads and RPSMA connectors                               |
| 30702              | WS-AI-DQ05120 Indoor, 2.3-2.7/4.9-6.1GHz, 4-feed, 5dBi, 120 degree sector antenna with standard RPSMA-type plug connector       |
| 30705              | WS-AI-DE07025 Indoor 2.4GHz/5GHz, eight feed, 6.5/5.5dBi, 25 degree sector antenna with standard RPSMA-type plug connector      |
| 30707              | WS-AI-DE10055 Indoor 2.4GHz/5GHz, eight feed, 10/6dBi, 55 degree sector antenna with standard RPSMA-type plug connector         |



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