# AP12 ACCESS POINT

## Wall Plate 802.11ax (Wi-Fi 6) Driven by Mist AI Automates Network Operation

Mist
A Juniper Company

The wall plate AP12 access point driven by Mist AI automates network operations and boosts Wi-Fi performance for various environments that require easy and flexible deployment, and simultaneous support of multiple IT and IoT devices. It supports an aggregate data rate up to 1.8 Gbps concurrently on both 2.4GHz and 5GHz radios. Managed by Juniper Mist Cloud Architecture, the AP12 access point delivers unprecedented user experiences at a lower cost for branch office, remote worker, school dormitory, and hotel room environments.

### JUNIPER AI-DRIVEN NETWORK

Juniper brings true innovation to the wireless space with the world's first AI-driven Wireless LAN (WLAN).

The Juniper AI-Driven Network makes Wi-Fi predictable, reliable and measurable with unprecedented visibility into the user experience through customizable Service Level Expectation (SLE) metrics. Time consuming manual IT tasks are replaced with AI-driven proactive automation and self-healing, lowering Wi-Fi operational costs and saving substantial time and money.

All operations are managed via the open and programmable microservices with Juniper Mist Cloud Architecture. This delivers maximum scalability and performance while also bringing DevOps agility to wireless networking and location services.

### THE JUNIPER MIST CLOUD ARCHITECTURE

Juniper's Mist AI leverages a cloud-native microservices architecture in order to bring unparalleled agility, scale and resiliency to your network. It leverages an AI engine to lower OpEx and deliver unprecedented insight by using data science to analyze large amounts of rich metadata collected from Juniper Access Points driven by Mist AI.

### JUNIPER ACCESS POINT FAMILY

The Juniper enterprise-grade access point family consists of:

- AP12, AP32, AP33, AP43, and AP63 Series that support 802.11ax (Wi-Fi 6), Bluetooth® LE and IoT
- AP21, AP41 and AP61 Series that support 802.11ac Wave 2, Bluetooth LE and IoT
- BT11 that supports Bluetooth LE.

These access points are all built on a real-time microservices platform and are managed by the Juniper Mist cloud.

**AP12**


The table below compares the supported major functions of the Juniper Wi-Fi 6 access points to help in selecting the most appropriate model(s).

| | AP43 | AP63 | AP33 | AP32 | AP12 |
|---|---|---|---|---|---|
| **Deployment** | Indoor | Outdoor | Indoor | Indoor | Indoor Wall Plate |
| **Wi-Fi Standard** | 802.11ax (Wi-Fi 6) 4x4 : 4SS | 802.11ax (Wi-Fi 6) 4x4 : 4SS | 802.11ax (Wi-Fi 6) 5GHz: 4x4 : 4SS 2.4GHz: 2x2 :2SS | 802.11ax (Wi-Fi 6) 5GHz: 4x4 : 4SS 2.4GHz: 2x2 : 2SS | 802.11ax (Wi-Fi 6) 2x2 : 2SS |
| **Wi-Fi Tri-Radio** | ✓ | ✓ | ✓ | ✓ | ✓ |
| **Antenna Options** | Internal/ External | Internal/ External | Internal | Internal/ External | Internal |
| **Virtual BLE** | ✓ | ✓ | ✓ | – | – |
| **IoT Interface** | ✓ | – | – | – | – |
| **IoT Sensors** | Humidity, Pressure, Temperature | – | – | – | – |
| **Warranty** | Limited Lifetime | One Year | Limited Lifetime | Limited Lifetime | Limited Lifetime |

### SERVICES AVAILABLE FOR THE JUNIPER AP12

#### WI-FI CLOUD SERVICES

**Juniper Mist Wi-Fi Assurance**

*For IT and NOC Teams*

- Predictable and Measurable Wi-Fi
- Service Level Expectations (SLE)
- WxLAN Policy Fabric for Role-Based Access
- Customizable Guest Wi-Fi Portal
- Radio Resource Management

**Marvis Virtual Assistant**

*For IT Helpdesk Teams*

- AI-powered Virtual Network Assistant
- Natural Language Processing Interface
- Anomaly Detection
- Client SLE Visibility and Enforcement
- Data Science Driven Root Cause Analysis

#### BLUETOOTH LE CLOUD SERVICES

**Juniper Mist Asset Visibility**

*For Process and Resource Improvement Teams*

- Identify Assets by Name and View Location
- Zonal/Room Accuracy for 3rd Party Tags
- Historical Analytics for Asset Tags
- Telemetry for Asset Tags (temp., motion, ...)
- APIs for Viewing Assets and Analytics

#### ANALYTICS CLOUD SERVICES

**Juniper Mist Premium Analytics**

*For Network Teams*

- Base Features are Included with Wi-Fi Assurance and Asset Visibility Subscriptions
- End-to-end Network Visibility
- Orchestrated Networking and Application Performance Queries
- Simplified Network Transparency

*For Business Teams*

- Base Features are Included with Wi-Fi Assurance and Asset Visibility Subscriptions
- Customer Segmentation and Reporting Based on Visitor Telemetry
- Customized* Dwell and 3rd Party Reporting for Traffic and Trend Analysis
- Correlate Customer-Guest Traffic and Trend Analysis



*Juniper Mist Premium Analytics service subscription is needed

## ACCESS POINT FEATURES

### High Performance Wi-Fi

The AP12 access point is a tri-radio 2x2:2SS 802.11ax access point with maximum data rates of 1,200 Mbps in the 5GHz band and 575 Mbps in the 2.4GHz band. The integrated 3rd radio functions as a network, location, and security sensor, a synthetic test client radio, as well as a spectrum monitor.

By adding 802.11ax Orthogonal Frequency Division Multiple Access (OFDMA), Multi-User Multiple Input Multiple Output (MU-MIMO) and BSS Coloring technologies into the AP12 access point, performance is boosted to unprecedented levels to support new bandwidth-hungry applications and soaring device densities.

### AI for AX

With the new features that 802.11ax (Wi-Fi 6) introduces to boost performance and efficiency, the complexity of configuring and operating an access point has soared. Juniper is applying its industry-leading Mist AI technology to automate and optimize these features with its AI for AX capabilities. We are leveraging AI in order to optimize BSS Coloring, to improve data transmission scheduling within OFDMA and MU-MIMO and to assign clients to the best radio to boost the overall performance of the network.

### Boosts Spectral Efficiency

OFDMA improves spectral efficiency so that an increasing density of devices can be supported on the network, especially with IoT devices that often utilize smaller data packets than mobile devices and hence increase the burden and contention on the network. Additionally, BSS Coloring improves the co-existence of overlapping BSS' and allows spatial reuse within a given channel by reducing the packet collisions. This helps you improve spectral efficiency for dense networks where channel reuse is increasing.

### Automatic RF optimization

Juniper's radio resource management (RRM) automates dynamic channel and power assignment, taking Wi-Fi and external sources of interference into account with its dedicated sensor radio. The AI engine continuously monitors the coverage and capacity SLE metrics to learn and optimize the RF environment. The RRM learning algorithm uses hysteresis on a 24-hour window to conduct a site-wide rebalancing for optimal channel and power assignment.

### Unprecedented Insight and Action

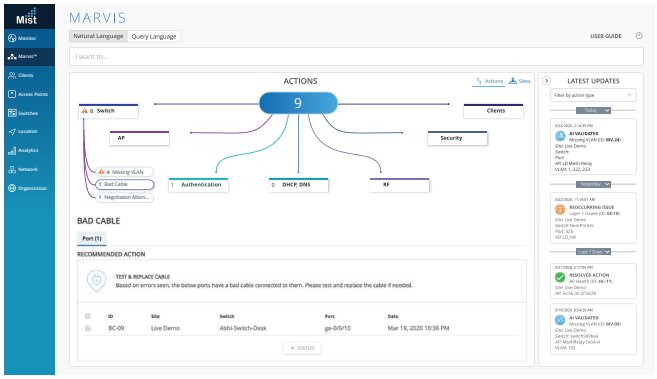
A dedicated dual band 3rd radio collects data for Juniper's patent-pending Proactive Analytics and Correlation Engine (PACE), which leverages machine learning to analyze user experience, correlate problems and automatically detect the root cause of problems. These metrics are used to monitor service level expectations and provide proactive recommendations to ensure problems don't occur (or are fixed as quickly as possible when they do). This radio also is able to function as a synthetic test client to proactively detect and mitigate network anomalies.

### Dynamic Packet Capture

The Juniper Mist platform automatically captures packets and streams them to the cloud when major issues are detected. This saves IT time and effort and eliminates the need for truck rolls with sniffers to reproduce and capture data for troubleshooting.

### Marvis Virtual Network Assistant

The NLP-based assistant, Marvis, simplifies troubleshooting and collection of insights for your network by leveraging AI and data science to proactively identify issues, determine the root causes and scope of impact and to gain insight into your network and users by eliminating the need to manually hunt through endless dashboards and CLI commands.

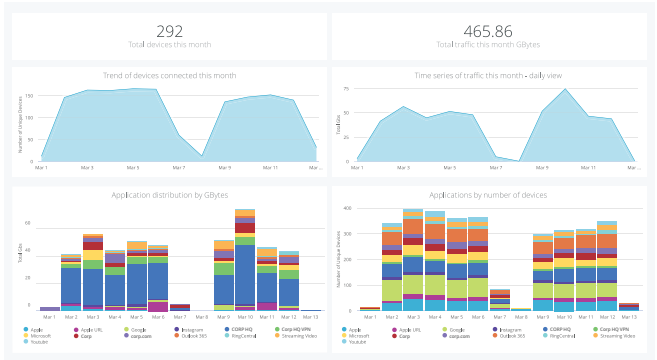



### Effortless, Cloud-based Setup and Updates

The AP12 access point automatically connects to the Juniper Mist cloud, downloads its configuration, and joins the appropriate network. Firmware updates are retrieved and installed automatically, ensuring that the network is always up to date with new features, bug fixes, and security updates.

### Premium Analytics

Juniper Mist Wi-Fi Assurance, Engagement and Asset Tracking services include a base analytics capability for analyzing up to 30 days of data which enables you to simplify the process of extracting network insights from data and analytics across your enterprise. To extend these capabilities for more dynamic insights like motion paths* and other 3rd Party* data, along with the option to generate customized reports, the Juniper Mist Premium Analytics service is available as an additional subscription.




### Improves Battery Efficiency for IoT Devices

By incorporating the 802.11ax target wake time (TWT) capability and Bluetooth 5.0, battery life for IoT devices can be extended as new IoT devices enter the network.

### Dynamic Debugging

Constantly monitor services running on the AP12 model and send alerts whenever a service behaves abnormally. Dynamic debugging relieves IT of having to worry about an AP going offline or any services running on becoming unavailable.



*Juniper Mist Premium Analytics service subscription is needed

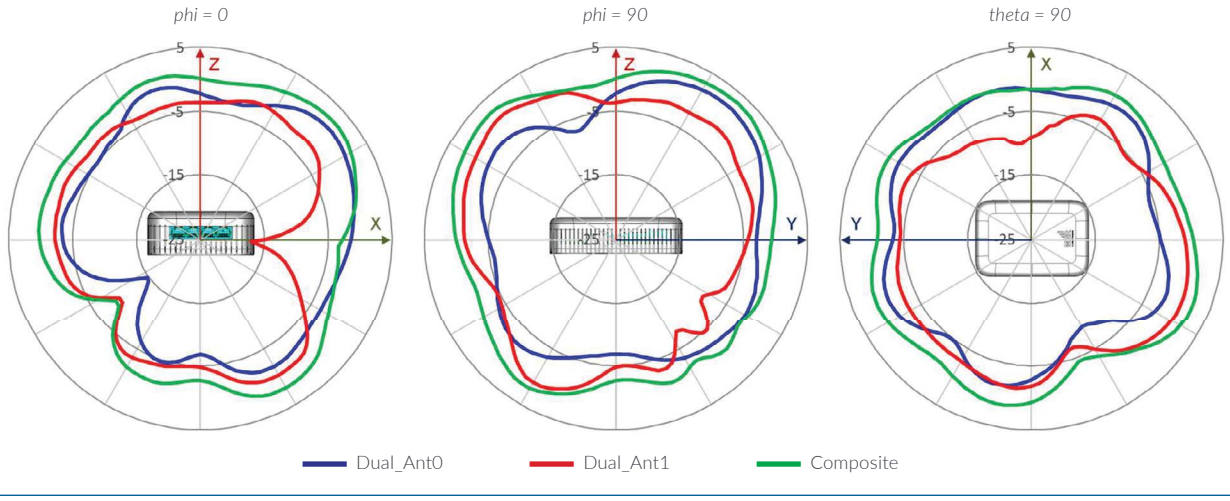
| SPECIFICATIONS | |
|---|---|
| Wi-Fi Standard | 802.11ax (Wi-Fi 6), including support for OFDMA, 1024-QAM, MU MIMO, Target Wake Time (TWT), Spatial Frequency Reuse (BSS Coloring). Backwards compatibility with 802.11a/b/g/n/ac |
| Combined Highest Supported Data Rates | 1.8 Gbps |
| 2.4 GHz | 2x2 : 2 802.11b/g/n/ac up to 400 Mbps data rate; 2x2 : 2 802.11ax up to 575 Mbps data rate |
| 5 GHz | 2x2 : 2 802.11ax up to 1,200 Mbps data rate |
| MIMO Operation | Two spatial stream Single User (SU) MIMO for up to 1,200 Mbps wireless data rate to individual 2x2 HE80<br>Two spatial stream Multi User (MU) MIMO for up to 1,200 Mbps wireless data rate to up to four MU-MIMO capable client devices simultaneously |
| Dedicated Third Radio | 2.4GHz and 5GHz dual-band WIDS/WIPS, spectrum analysis, synthetic client and location analytics radio |
| Internal Antennas | 2.4GHz omni-directional antennas with 3 dBi peak gain<br>5GHz omni-directional antennas with 6 dBi peak gain |
| Bluetooth 5.0 | Omni-directional Bluetooth Antenna<br>Supports superbeacon mode with iBeacon and Eddystone |
| Beam Forming | Transmit Beamforming and Maximal Ratio Combining |
| Power Options | 802.3af/at PoE |
| Dimensions | 150 x 100 x 40 mm (5.9 x 3.9 x 1 in) |
| Weight | 0.6 kg (1.3 lbs) excluding mount and accessories |
| Operating Temperature | Internal antenna: 0° to 40° C |
| Operating Humidity | 10% to 90% maximum relative humidity, non-condensing |
| Operating Altitude | 3,048 m (10,000 ft) |

| I/O AND INDICATORS | |
|---|---|
| Eth0 | 10/100/1000Base-T, RJ45; PoE PD |
| Eth1 | 10/100/1000Base-T; RJ45 PoE Out class 2 (requires .3at power) |
| Eth2-3 | 10/100/1000BaseT, RJ45 |
| Passthru | Passthru |
| Reset | Reset to the factory default settings |
| Indicators | One multi-color status LED |

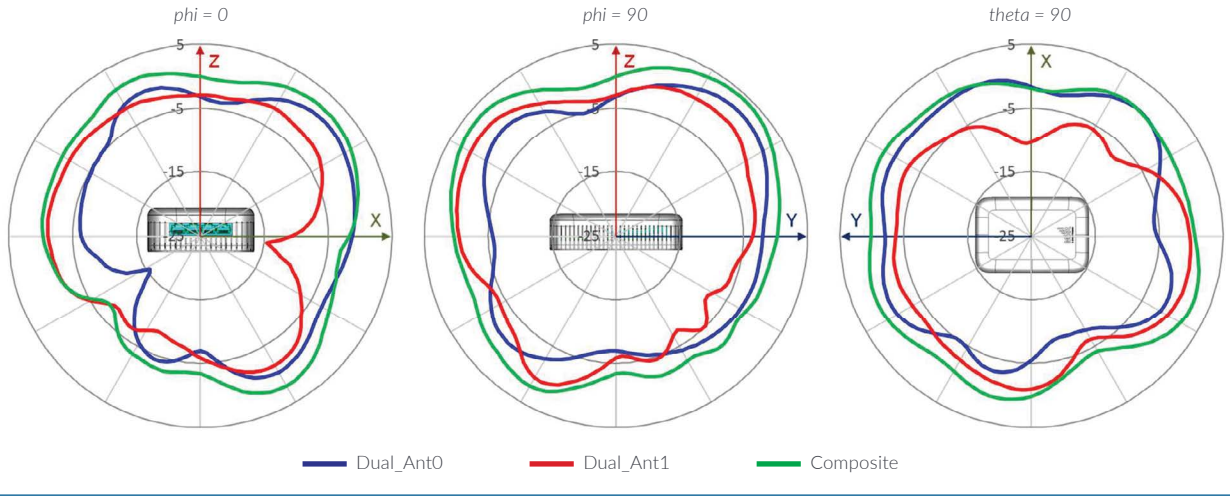
| MOUNTING BRACKETS | |
|---|---|
| APBR-WP1 | Wall plate bracket for AP12 |

## AP12 2.4GHZ WI-FI ANTENNA PLOTS

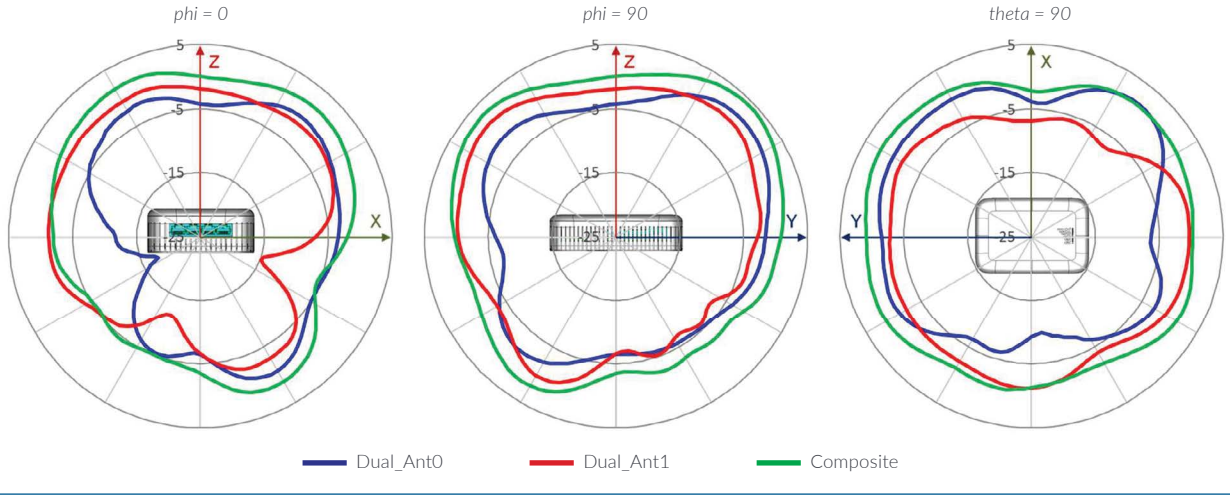
### 2.4 GHz Wi-Fi @ 2400MHz (R1)




### 2.4 GHz Wi-Fi @ 2450MHz (R1)

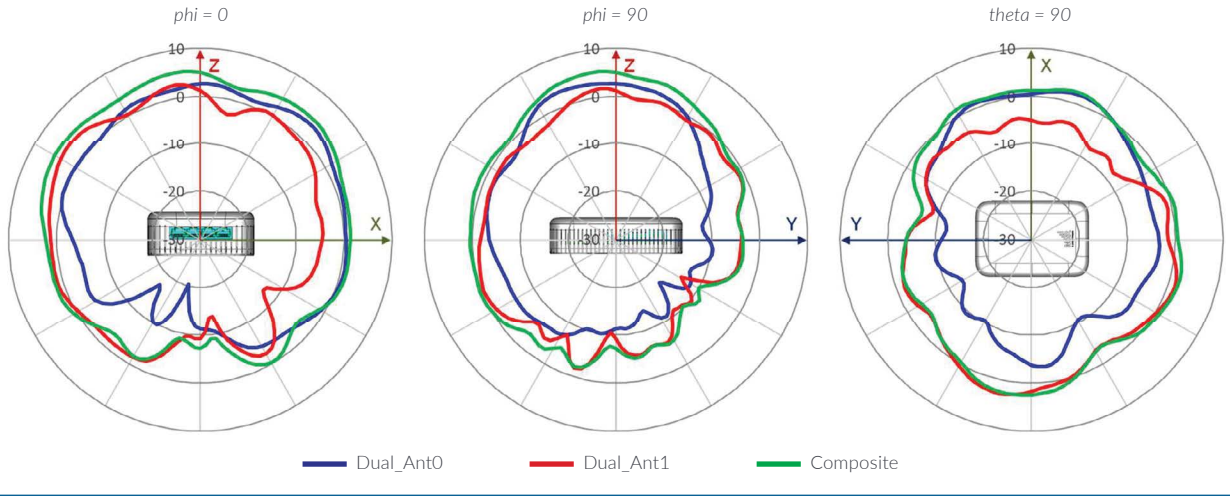



### 2.4 GHz Wi-Fi @ 2500MHz (R1)

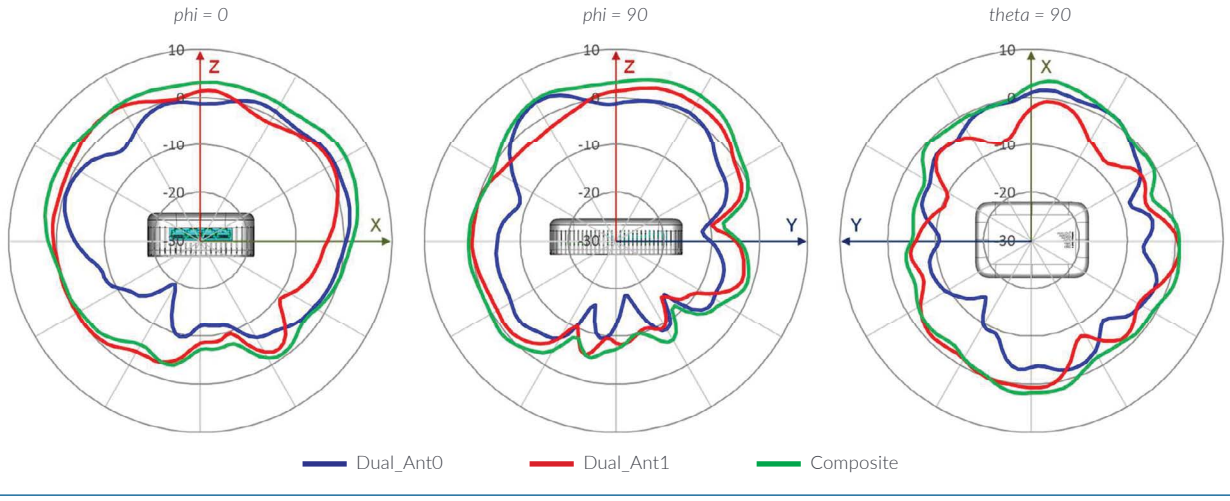


## AP12 5GHZ WI-FI ANTENNA PLOTS

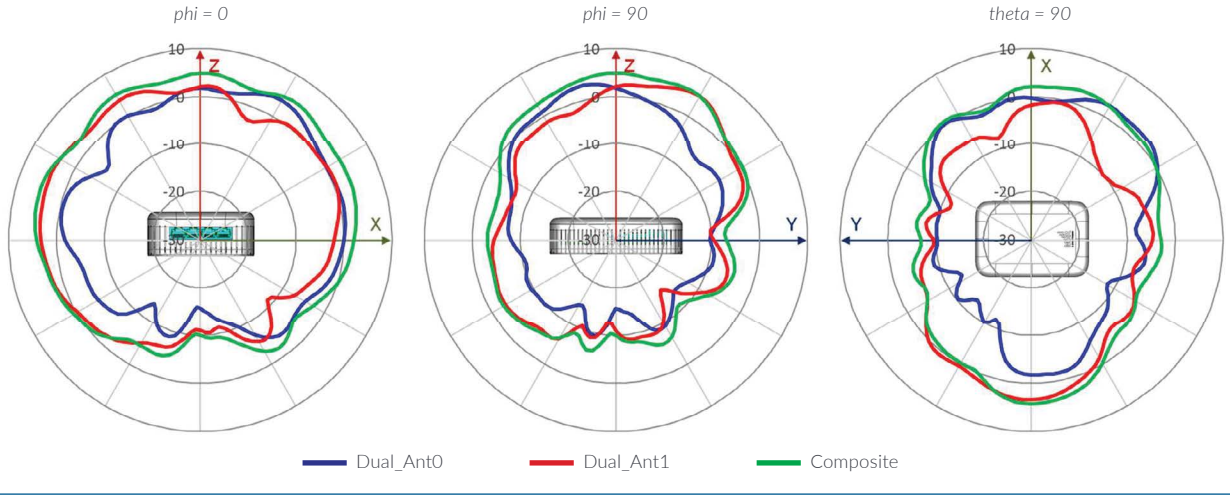
### 5 GHz Wi-Fi @ 5150MHz (R0)




### 5 GHz Wi-Fi @ 5550MHz (R0)

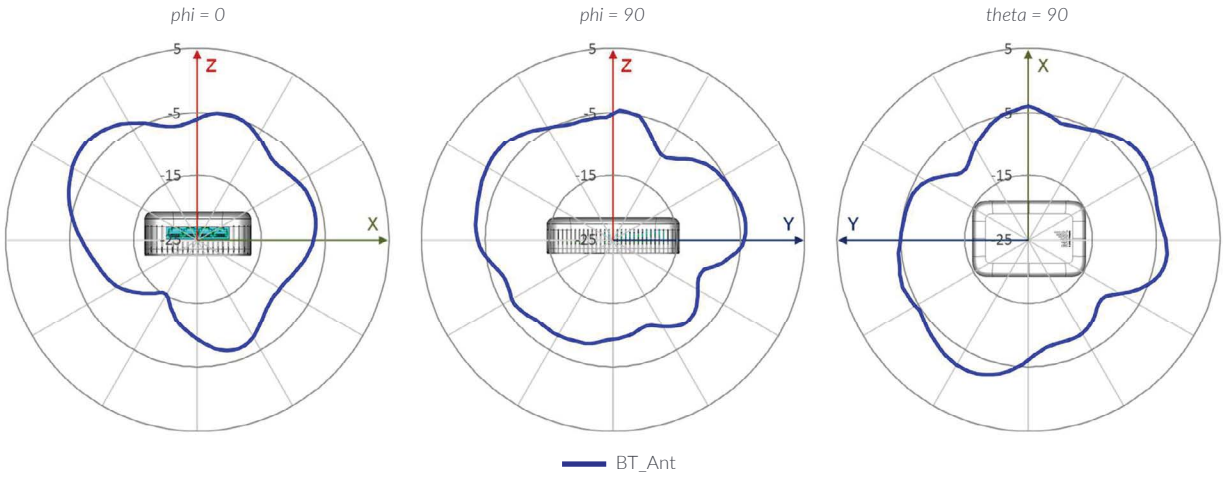



### 5 GHz Wi-Fi @ 5850MHz (R0)

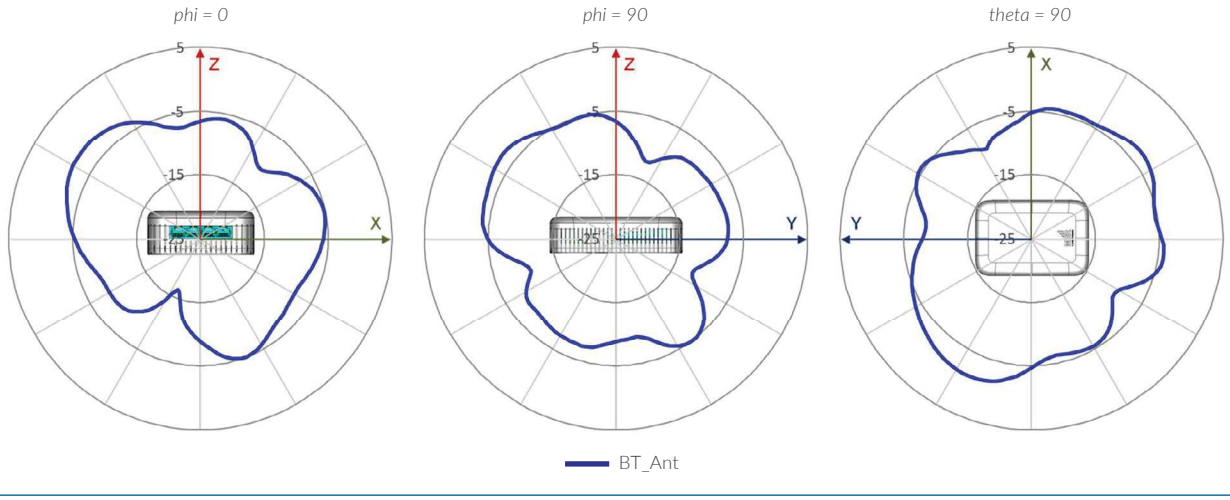


## AP12 2.4GHZ OMNI BLE ANTENNA PLOTS

### Omni BLE @ 2400MHz




### Omni BLE @ 2440MHz




### Omni BLE @ 2480MHz