# AP32 ACCESS POINT DATASHEET

## Product Overview

*The AP32 series automates network operations and boosts Wi-Fi performance. It delivers an aggregate data rate of up to 3 Gbps concurrently on 2.4GHz and 5GHz radios. Managed by the Juniper Mist™ Cloud Architecture, the AP32 series delivers unprecedented user experiences at a lower cost for retail, warehouse, school, clinic, and home office 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 Enterprise 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 our open and programmable microservices architecture, which delivers maximum scalability and performance while also bringing DevOps agility to wireless networking and location services.

### The Juniper Mist Cloud Architecture

Mist AI leverages a cloud-native microservices architecture 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.

### Juniper Access Point Family

The Juniper enterprise-grade access point family consists of:

- AP45 and AP34 Series which support Wi-Fi 6E, 802.11ax (Wi-Fi 6), and Bluetooth LE
- AP43, AP12, AP32, AP33, and AP63 Series, which support 802.11ax (Wi-Fi 6), Bluetooth LE, and IoT
- AP21, AP41, and AP61 Series, which support 802.11ac Wave 2, Bluetooth LE, and IoT
- BT11, which supports Bluetooth LE

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

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

| | AP45 | AP34 | AP43 | AP63 | AP33 | AP32 | AP12 |
|---|---|---|---|---|---|---|---|
| Deployment | Indoor | Indoor | Indoor | Outdoor | Indoor | Indoor | Indoor Wall Plate/ Desk Mount |
| Wi-Fi Standard | 802.11ax (Wi-Fi 6 ) 4x4 : 4SS | 802.11ax (Wi-Fi 6 ) 2x2 : 2SS | 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 Radios | Dedicated fourth radio | Dedicated fourth radio | Dedicated third radio | Dedicated third radio | Dedicated third radio | Dedicated third radio | Dedicated third radio |
| Antenna Options | Internal/External | Internal | Internal/External | Internal/External | Internal | Internal/External | Internal |
| Virtual BLE | ✓ | — | ✓ | ✓ | ✓ | — | — |
| IoT Interface | — | — | ✓ | — | — | — | — |
| IoT Sensors | Temperature, Accelerometer | Temperature | Humidity, Pressure, Temperature | — | Temperature, Accelerometer | Temperature, Accelerometer | — |
| Warranty | Limited Lifetime | Limited Lifetime | Limited Lifetime | One Year | Limited Lifetime | Limited Lifetime | Limited Lifetime |
| Frequencies Supported | 2.4GHz 5GHz 6GHz | 2.4GHz 5GHz 6GHz | 2.4GHz 5GHz | 2.4GHz 5GHz | 2.4GHz 5GHz | 2.4GHz 5GHz | 2.4GHz 5GHz |

## Services Available for the Juniper AP32

### Wi-Fi Cloud Services

#### Juniper Mist Wi-Fi Assurance

For IT and NOC Teams

- Predictable and Measurable Wi-Fi
- Service-Level Expectation (SLE) Support
- 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 Conversational Interface
- Anomaly Detection
- Client SLE Visibility and Enforcement
- Data Science-Driven Root-Cause Analysis

### Bluetooth Cloud Services

#### Juniper Mist Asset Visibility

For Process and Resource Improvement Teams

- Identification of Assets by Name and View Location
- Zonal/Room Accuracy for Third-Party Tags
- Historical Analytics for Asset Tags
- Telemetry for Asset Tags (temperature, motion, and other data)
- APIs for Viewing Assets and Analytics

### Analytics Cloud Services

#### Juniper Mist Premium Analytics

For Network Teams

- Baseline Analytics Features Come Included with Wi-Fi Assurance, Mobile Engagement, and Asset Visibility Subscriptions
- End-to-End Network Visibility
- Orchestrated Networking and Application Performance Queries
- Simplified Network Transparency

For Business Teams

- Baseline Analytics Features Come Included with Wi-Fi Assurance, Mobile Engagement, and Asset Visibility Subscriptions
- Customer Segmentation and Reporting Based on Visitor Telemetry
- Customized* Dwell and Third-Party Reporting for Traffic and Trend Analysis
- Correlated Customer-Guest Traffic and Trend Analysis

*Juniper Mist Premium Analytics service subscription is needed

## Access Point Features

### High Performance Wi-Fi

The AP32 series offers six-stream wireless access points. They support 4x4:4SS in the 5GHz band, delivering a maximum data rate of 2,400 Mbps for high-bandwidth applications. They also support 2x2:2SS in the 2.4 GHz band, delivering a maximum data rate of 575 Mbps. The integrated third radio functions as a network, location, and security sensor, a synthetic test client radio, as well as a spectrum monitor.

With 802.11ax Orthogonal Frequency Division Multiple Access (OFDMA), Multi-User Multiple Input Multiple Output (MU-MIMO), and BSS Coloring technologies supported, AP32 series performance reaches 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, configuring and operating an access point has grown far more complex. Juniper automates and optimizes these features with our AI for AX capabilities, which improve data transmission scheduling within OFDMA and MU-MIMO and assign clients to the best radio to boost the overall performance of the network.

### Greater Spectral Efficiency

OFDMA improves spectral efficiency so that an increasing density of devices can be supported on the network. Density has become an issue with the rapid growth of IoT devices, which often utilize smaller data packets than mobile devices and hence increase contention on the network. Additionally, BSS Coloring improves the coexistence of overlapping BSSs and allows spatial reuse within a given channel by reducing packet collisions.

### Automatic RF Optimization

Radio Resource Management 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 coverage and capacity SLE metrics to learn and optimize the RF environment. The learning algorithm uses hysteresis on a 24-hour window to conduct a sitewide rebalancing for optimal channel and power assignment.

### Unprecedented Insight and Action

A dedicated, dual-band third radio collects data for Juniper's patent-pending Proactive Analytics and Correlation Engine (PACE), which uses machine learning to analyze user experience, correlate problems, and automatically detect their root cause.

These metrics are used to monitor SLEs and provide proactive recommendations to ensure problems don't occur (or are fixed as quickly as possible when they do). This radio also functions 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 Conversational Assistant

Marvis is a natural language processing (NLP)-based assistant with a Conversational Interface to understand user intent and goals, simplifying troubleshooting and the collection of network insights. It uses AI and data science to proactively identify issues, determine the root causes and scope of impact, and gain insights into your network and user experiences. It eliminates the need to manually hunt through endless dashboards and CLI commands.
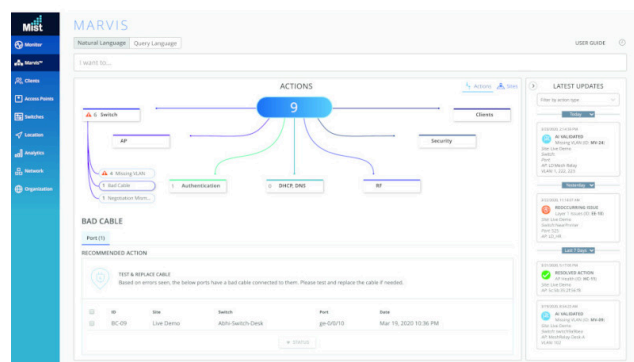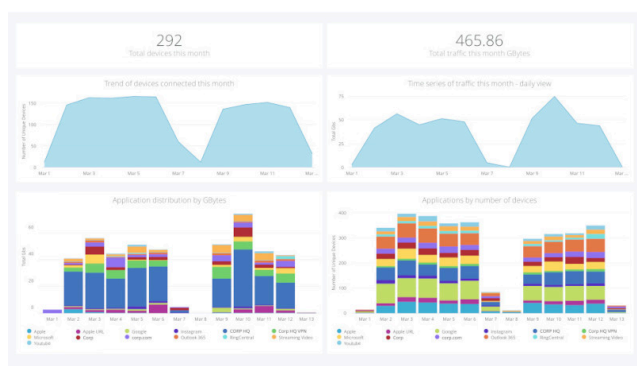
### Effortless, Cloud-Based Setup and Updates

The AP32 series 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, User 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 across your enterprise. If you require dynamic insights like motion paths* and other third-party* data and would like the option of customized reports, the Juniper Mist Premium Analytics service is available as an additional subscription.



### Juniper Mist Edge

Juniper Mist Edge is an on-premises appliance that runs a tunnel termination service. Juniper APs offer a flexible data plane.

Traffic can be broken out locally, or tunneled to Juniper Mist Edge. There are many use cases the Juniper Mist Edge solves, including seamless mobility in large campus environments, tunneling of guest traffic to a DMZ, IoT segmentation, and teleworker. Learn more about Juniper Mist Edge.
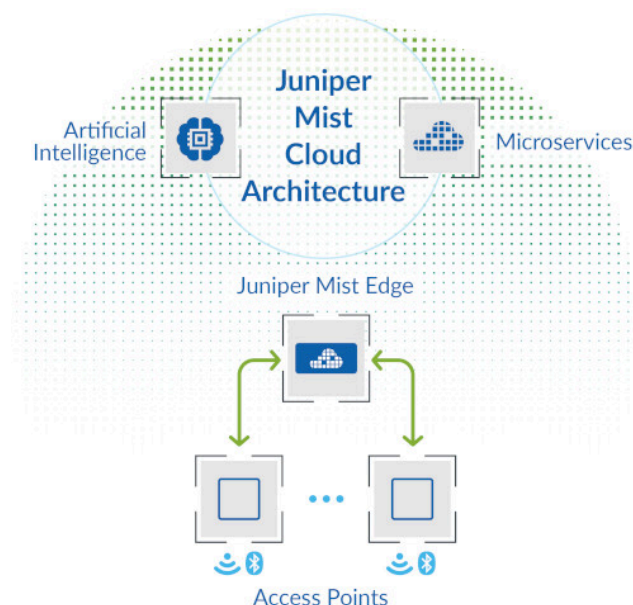
### Improves Battery Efficiency for IoT Devices

By incorporating the 802.11ax target wake time (TWT) capability and Bluetooth 5.0, AP32 access points help extend the battery life of IoT devices, particularly as additional ones join the network.
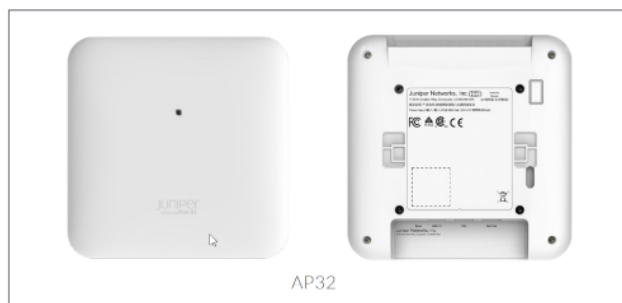
### Dynamic Debugging

Constantly monitor services running on the AP32 series 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 it becoming unavailable.

AP32

## I/O and Indicators

| | |
|---|---|
| **USB** | USB 2.0 support interface |
| **Eth0** | 100/1000Base-T, 2.5GBase-T (802.3bz); RJ45; PoE PD |
| **Eth1** | 10/100/1000Base-T; RJ45 |
| **External Antennas (AP32E)** | Five RP-SMA: four for Wi-Fi data; one for sensor. Male connectors |
| **Reset** | Reset to the factory default settings |
| **Indicators** | One multicolor status LED |

## 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** | 3.0 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** | 4x4 : 4 802.11ax up to 2,400 Mbps data rate |
| **MIMO Operation** | Four spatial stream SU-MIMO for up to 2,400 Mbps wireless data rate to individual 4x4 HE80 Four spatial stream MU-MIMO for up to 2,400 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** | Two 2.4GHz omnidirectional antennas with 5 dBi peak gain Four 5GHz omnidirectional antennas with 6 dBi peak gain |
| **Bluetooth 5.0** | Omnidirectional Bluetooth antenna Supports superbeacon mode with iBeacon and Eddystone |
| **Beam Forming** | Transmit Beamforming and Maximal Ratio Combining |
| **Power Options** | 802.3at PoE, 802.3bt PoE |
| **Dimensions** | 202 x 202 x 44 mm (7.95 x 7.95 x 1.73 in) |
| **Weight** | 0.83 kg (1.83 lbs) excluding mount and accessories AP32E: 0.81 kg (1.78 lbs) excluding mount and accessories |
| **Operating Temperature** | Internal antenna: 0° to 40° C External antenna: -20° to 50° C |
| **Operating Humidity** | 10% to 90% maximum relative humidity, non-condensing |
| **Operating Altitude** | 3,048 m (10,000 ft) |
| **Mean Time Between Failures (MTBF)** | Indoor MTBF in hours is 846,297* |
| **Trusted Platform Module (TPM)** | Includes a TPM for infrastructure security |

Based on Telcordia SR-332 issue 3, Method I, Case 3 and measured at temperature of 25°C (77°F) for indoor access points, and 65°C (149°F) for outdoor access points.
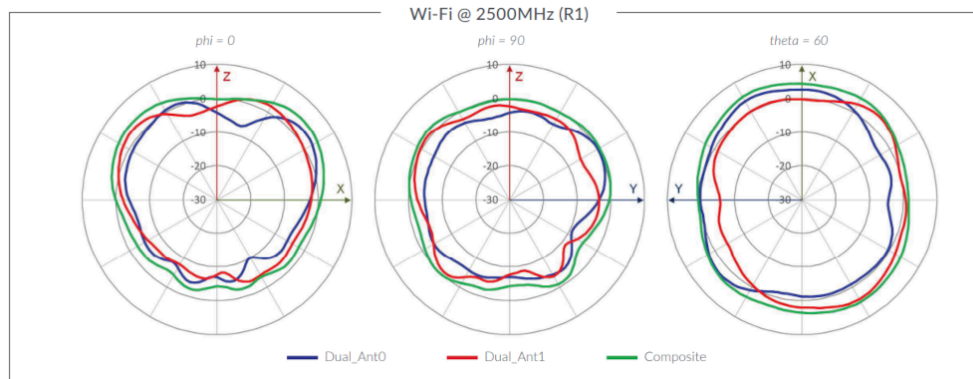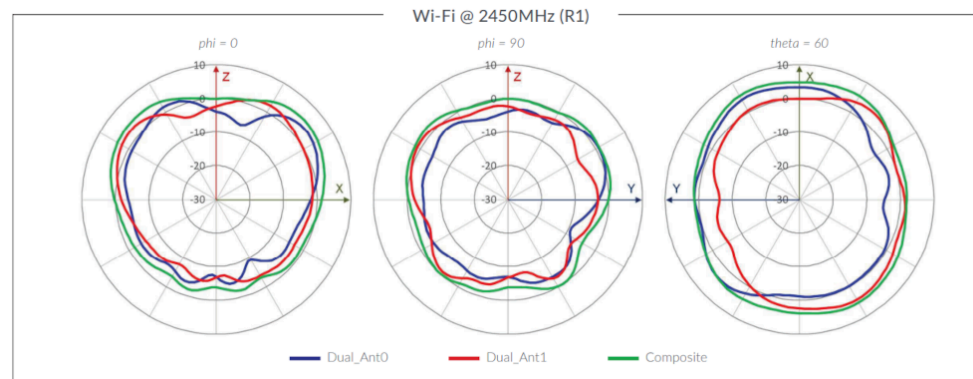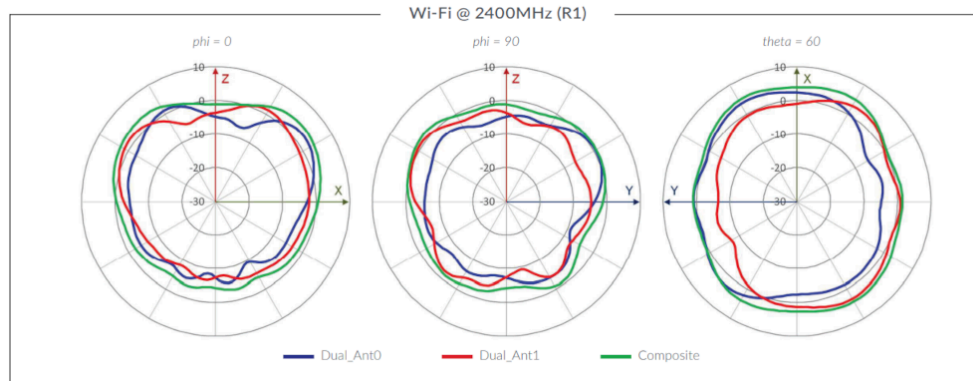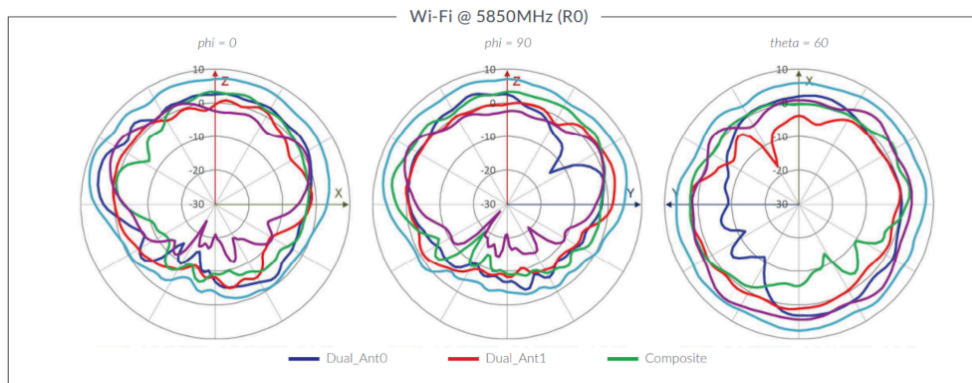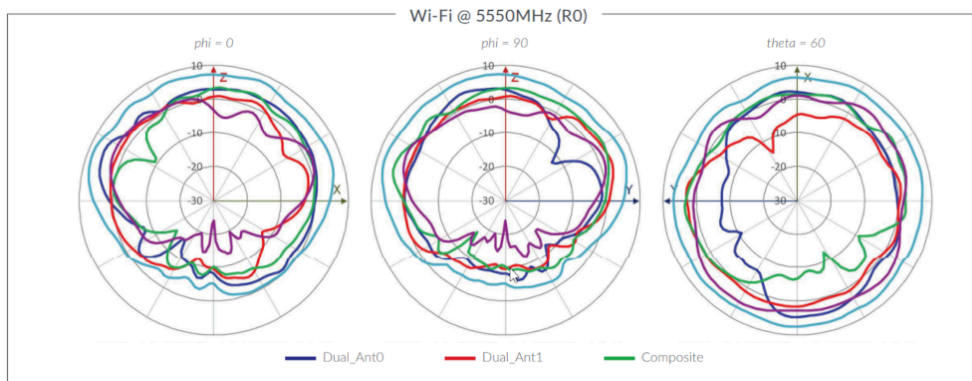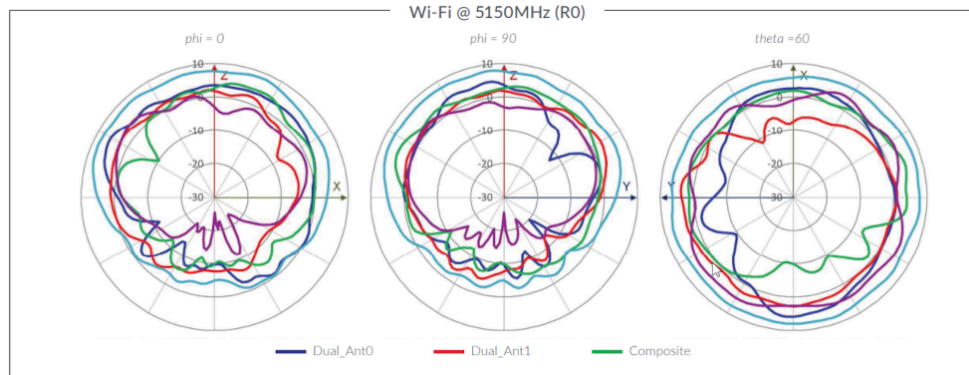
## Mounting Brackets

| | |
|---|---|
| **APBR-T58** | 3⁄8" threaded rod |
| **APBR-M16** | 16mm threaded rod (M16-2) |
| **APBR-ADP-CR9** | 9⁄16" T-Rail |
| **APBR-ADP-RT15** | 15⁄16" T-Rail |
| **APBR-ADP-WS15** | 1½" T-Rail |
| **APBR-ADP-T12** | ½" threaded rod |

*The AP package includes one Universal Bracket. APBR-U is available separately as an accessory.
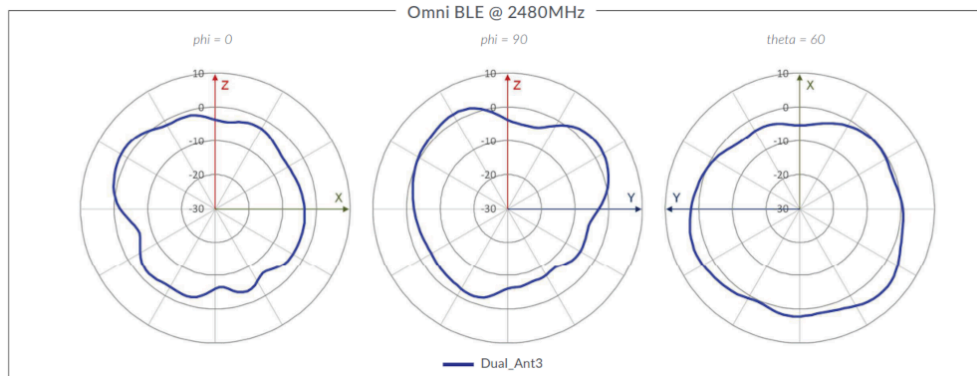
## AP32 Wi-Fi Antenna Plots

**Wi-Fi @ 2400MHz (R1)**

*phi = 0*   *phi = 90*   *theta = 60*

Dual_Ant0   Dual_Ant1   Composite

**Wi-Fi @ 2450MHz (R1)**

*phi = 0*   *phi = 90*   *theta = 60*

Dual_Ant0   Dual_Ant1   Composite

**Wi-Fi @ 2500MHz (R1)**

*phi = 0*   *phi = 90*   *theta = 60*

Dual_Ant0   Dual_Ant1   Composite

## AP32 Wi-Fi Antenna Plots

## AP32 Wi-Fi Antenna Plots



Wi-Fi @ 5150MHz (R0)



Wi-Fi @ 5550MHz (R0)



Wi-Fi @ 5850MHz (R0)

## AP32 Omni BLE Antenna Plots

### Omni BLE @ 2400MHz

phi = 0     phi = 90     theta = 60

Dual_Ant3

### Omni BLE @ 2440MHz

phi = 0     phi = 90     theta = 60

Dual_Ant3

### Omni BLE @ 2480MHz

phi = 0     phi = 90     theta = 60

Dual_Ant3
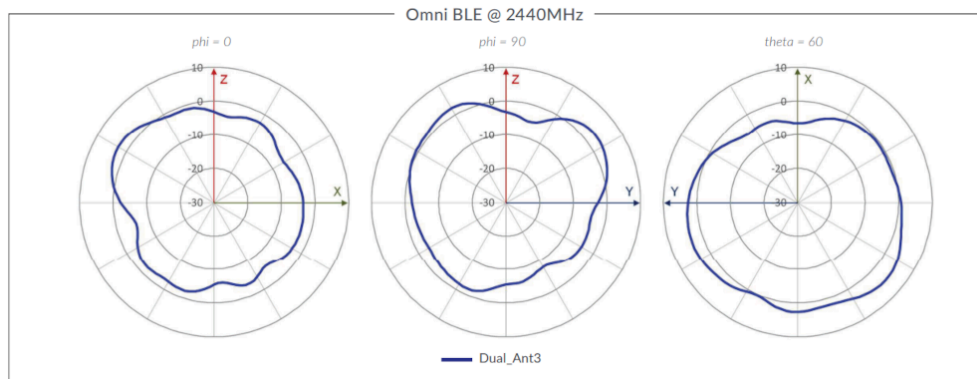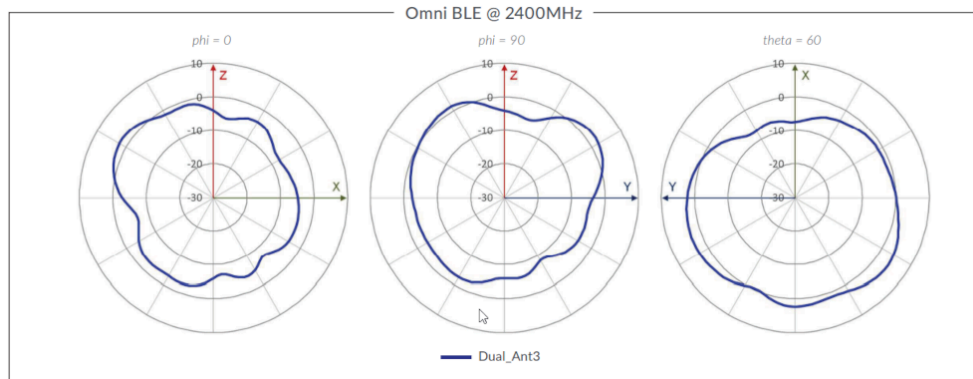
## About Juniper Networks

Juniper Networks is leading the convergence of AI and networking. Mist™, Juniper's AI-native networking platform, is purpose-built to run AI workloads and simplify IT operations, assuring exceptional and secure user and application experiences—from the edge to the data center to the cloud. Additional information can be found at www.juniper.net, X, LinkedIn, and Facebook.

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