AP47 ACCESS POINT DATASHEET

Product Overview

The Juniper AP47 is Juniper's flagship Wi-Fi 7 access point with built-in advanced location services and Juniper Mist integration.

AP47 benefits
- Maximizes 6 GHz band, providing increased channel width and enabling multigigabit speeds
- Tri-band with dedicated fourth radio for supporting growing mobility demands
- Patented vBLE technology delivers industry-leading indoor location services accuracy and ease of use

Juniper Mist benefits
- Fast and reliable deployment and ease of ongoing management
- Centralized control and visibility
- Quick access to new features and functionality with no disruption to services
- Agility to scale as network needs grow

Product Description

The Juniper® AP47 indoor Wi-Fi 7 access point (AP) delivers multigigabit speeds, enhanced security, and more resilient Wi-Fi and IoT connectivity for demanding enterprise environments. Designed as a tri-band device with a dedicated fourth scanning radio, the AP47 offers increased capacity and wider channels with less interference. It provides unparalleled support for growing mobility demands and digital transformation while ensuring exceptional user experiences.

Combining enterprise-grade Wi-Fi with patented virtual BLE (vBLE) technology, the AP47 further enhances wireless networks through support for personalized location services, including user engagement, asset visibility, and contact tracing. The unique engineering of the AP47 eliminates the need for battery-powered BLE beacons or manual calibration. By providing one-to-three-meter accuracy, the AP47 sets a new standard in location services while ensuring business continuity and operational efficiency.

While wired and wireless networks are business critical, without the right architecture they can be harder to operate given the sheer number of mobile and IoT devices—not to mention the extensive variety of hardware, operating systems, and applications currently in use. Traditional architectures—highly manual and network-centric—lack the scale, flexibility, and end-to-end visibility required to support modern mobility requirements and the IT departments that manage them.

Juniper AI-Native Network

Juniper Mist brings true innovation to wireless networking with the world's first AI-Native wireless LAN (WLAN). The Juniper AI-Native Networking Platform makes Wi-Fi predictable, reliable, and measurable, offering unprecedented visibility into the user experience through unique service-level expectation (SLE) metrics.

Proactive, AI-driven automation and a self-healing network replace time- consuming manual tasks, lowering Wi-Fi operational costs and saving substantial time and money. All operations are managed using the open and programmable microservices that are based on the Juniper Mist Cloud architecture.

The Juniper Mist Cloud architecture

The Juniper Mist cloud-native, AI-driven microservices architecture delivers unparalleled agility, scale, and resiliency to your network. It lowers OpEx and delivers unprecedented insights into network performance, behaviors, traffic patterns, and potential trouble spots by using data science to analyze large amounts of rich metadata collected by the Juniper access points. Juniper AI solutions for Wi-Fi optimize operator and user experiences with secure client-to-cloud automation, insight, and AI-driven actions. With Juniper's AI-Native Networking Platform, purpose-built to leverage AIOps, the AP47 harnesses the faster speed, power, and performance of Wi-Fi 7 and assures an excellent experience for all users and devices and the best end-to-end operator experiences.

Juniper access point family

The real-time microservices in Juniper Mist Cloud manage the Juniper access point (AP) family.

- Wi-Fi 7: AP47

- Wi-Fi 6E: AP45, AP34, AP24, and AP64

Table 1 compares the supported major functions of the Juniper access points to help in selecting the most appropriate model(s).

Table 1: Juniper AP comparison chart

	AP47	AP45	AP34	AP24	AP64
Deployment	Indoor	Indoor	Indoor	Indoor	Indoor/Outdoor
Wi-Fi Standard	Wi-Fi 7 802.11be	Wi-Fi 6E 802.11ax	Wi-Fi 6E 802.11ax	Wi-Fi 6E 802.11ax	Wi-Fi 6E 802.11ax
Frequencies Supported	2.4 GHz, 5 GHz, 6 GHz	2.4 GHz, 5 GHz, 6 GHz	2.4 GHz, 5 GHz, 6 GHz	2.4 GHz, 5 GHz, 6 GHz	2.4 GHz, 5 GHz, 6 GHz
Chains/Streams	Serving: 4x4:4	Serving: 4x4:4	Serving: 2x2:2	Serving: 2x2:2	Serving: 2x2:2
Number of Wi-Fi Radios	4	4	4	3	3
Wi-Fi Radio Modes	2.4/5/6 GHz + 5 GHz + 6 GHz	2.4/5 GHz + 5 GHz + 6 GHz	2.4 + 5 + 6 GHz	2.4/6 + 5 GHz	2.4/6 + 5 GHz
Band Selectable	✓	✓	—	✓	✓
Scanning Radio	Dedicated	Dedicated	Dedicated	Dedicated	Dedicated
Antenna Options	Internal/Directional/External	Internal/External	Internal	Internal	Internal
Virtual BLE	✓	✓	—	—	—
Ultra-wideband (UWB)	✓	—	—	—	—
USB	✓	✓	✓	✓	—
IoT Sensors	Pressure, Temperature, Accelerometer	Temperature, Accelerometer	Temperature, Accelerometer	Temperature, Accelerometer	Temperature, Accelerometer
GPS/GNSS	L1/L5	—	—	—	L1/L5
Ethernet Redundancy	Dual PoE with seamless fail-over between Ethernet ports				
Warranty	Limited Lifetime	Limited Lifetime	Limited Lifetime	Limited Lifetime	One Year

Services available for the Juniper AP47

Wi-Fi cloud services

Juniper Mist Wi-Fi Assurance

For IT and NOC teams

- Predictable and measurable Wi-Fi
- Service-Level Expectations (SLEs) support
- WxLAN policy fabric for role-based access
- Customizable guest Wi-Fi portal
- Radio Resource Management (RRM), driven by AI

Marvis™ Virtual Network 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 cloud services

Juniper Mist Mobile Engagement

For digital experience teams

- Accurate (1-3m) turn-by-turn navigation
- Sensor fusion with dead reckoning
- Unsupervised machine learning
- Virtual beacons with custom notifications
- Mobile SDK for iOS and Android

Juniper Mist Asset Visibility

For process and resource improvement teams

- Identification of assets by name and location visibility
- 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](#), User 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, User Engagement, and Asset Visibility subscriptions
- Customer segmentation and reporting based on visitor telemetry
- Customized1 Dwell and third-party reporting for traffic and trend analysis
- Correlation of customer-guest traffic and trend analysis
- Correlated customer-guest traffic and trend analysis

Access Point Features

High-Performance Wi-Fi

The AP47 Series is a four-radio, 802.11be Wi-Fi 7 access point. Three four-spatial stream data serving radios with maximum data rates of 11528 Mbps in the 6 GHz band, 5764 Mbps in the 5 GHz band, and 1376 Mbps in the 2.4 GHz band. A dedicated fourth tri-band scanning radio providing WIDS/WIPS, spectrum analysis, sensor and location analytics. With 802.11be Multi-Link Operation (MLO), Orthogonal Frequency Division Multiple Access (OFDMA), Multi-User Multiple Input Multiple Output (MU-MIMO), and BSS Coloring technologies, the AP47 Series offers performance at unprecedented levels to support new bandwidth-hungry applications and soaring device densities.

Wi-Fi 7 Amendment

The new 802.11be amendment (Wi-Fi 7) expands the capabilities of [Wi-Fi 6E](#), including the use of up to 1200 MHz of the 6 GHz band for higher throughput and improved application performance. New capabilities include 320 MHz channels which provides double the throughput, Multi-Link Operation (MLO) for more efficient load balancing and failover, Multi-Resource Units (Multi-RU), preamble puncturing, and 4K QAM for higher transmission rates and better user experiences. Only Wi-Fi 7 and 6E client devices can use the 6 GHz band so there is no interference due to IoT or legacy devices.

AP Redundancy

Automation in Juniper Mist helps simplify the validation of AP placements and AP-switch uplinks for highly-redundant coverage in mission-critical deployments. In addition, the AP47 provides high availability with two 10 Gbps Ethernet ports for seamless failover for both data and power. The dual ports provide business continuity for mission-critical applications.

AI for AX

Juniper automates and optimizes Wi-Fi 7 features with AI for AX capabilities to optimize BSS Coloring, improve data transmission scheduling within OFDMA and MU-MIMO, and assign clients to the best radio to boost the overall performance of the network.

Improved IoT Operations

The AP47 Series extends network monitoring and insights to vBLE, Thread*, Zigbee*, or Matter* to increase IoT capabilities with dual 802.15.4 radios for concurrent location services and electronic shelf labels (ESL). Ultra-wideband (UWB) ready.

*future

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 that often utilize smaller data packets than mobile devices and, hence, increase the burden and 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

Reliable RF optimization is even more critical with the addition of 6GHz spectrum. Radio Resource Management uses a dedicated sensor radio to automate dynamic channel and power assignments, thus avoiding Wi-Fi and external sources of interference. The AI engine continuously monitors coverage and capacity SLE metrics to learn and optimize the RF environment. A learning algorithm uses hysteresis on a 24-hour window to conduct a sitewide rebalancing for optimal channel and power assignment.

The Automatic Frequency Coordination (AFC) mandated by the FCC specifies that when using the 6 GHz band (in the US) with either an access point that has a removable external antenna or a weatherized access point, it must operate in Standard Power (SP) mode. The AP47E-US access point will operate in SP mode on 6 GHz in the US, while the AP47 and AP47D access points will initially operate in Lower Power Indoor (LPI) mode, with the future

opportunity to enable SP mode. The AP47E-WW will be able to operate in LPI in many regulatory domains around the world.

Built-in GPS/GNNS receiver is utilized in support of AFC, as well as other scenarios such as automatic geo-location and more.

Proactive Insight and Action

A dedicated, tri-band fourth radio collects data for Juniper Mist, which uses machine learning to analyze user experiences, correlate problems, and automatically detect their root causes. 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).

Improved IoT Battery Efficiency

By incorporating the 802.11ax target wake time (TWT) capability and Bluetooth 5.4, AP47 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 AP47 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.

Dynamic Packet Capture and Dynamic Spectrum Capture

The Juniper Mist platform automatically captures packets and radio frequency spectrum and streams them to the cloud when major issues are detected. AI-Native dynamic packet capture and dynamic spectrum capture enables "network rewind" to identify and resolve wireless interference issues more efficiently. Both features save IT time and effort and eliminate the need for truck rolls with sniffers to reproduce and capture data for troubleshooting.

Marvis Virtual Network Assistant

Marvis is a natural language processing (NLP)-based assistant with a conversational interface who helps the understanding of user intent and goals, simplifies troubleshooting, and collects network insights. Marvis 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. Marvis eliminates the need to manually hunt through endless dashboards and CLI commands.
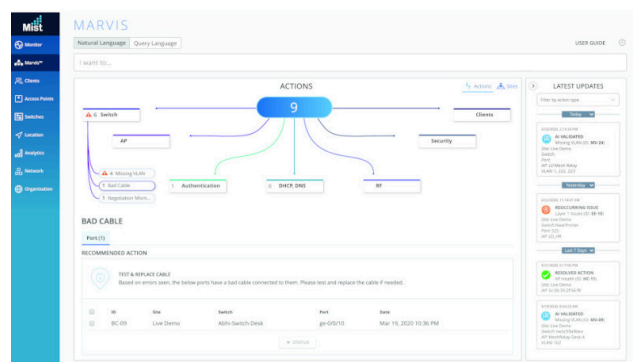
Effortless, Cloud-Based Setup and Updates

The AP47 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 Wireless Assurance, User Engagement, and Asset Visibility 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[1] and other third-party[1] data and would like the option of customized reports, the Juniper Mist Premium Analytics service is available as an additional subscription.

High-Accuracy Indoor Location

The AP47 has a patented vBLE antenna array controlled from the Juniper Mist Cloud. Passive antennas enhance the power of a single transmitter and produce directional beams (or can be combined to act as an omnidirectional radio) to accurately detect distance and location with 1-3-meter accuracy. With Juniper's patented vBLE technology, you can deploy an unlimited number of virtual beacons in your physical environment with no need to install battery-powered physical BLE beacons. Support for Bluetooth 5.1 boosts IoT device range and battery life.

Patented vBLE Technology

In addition to the industry-leading Wi-Fi technology at the heart of the AP47 access point, our next-generation, patented, and dynamic vBLE antenna array combines with machine learning to eliminate the need for battery-powered beacons. This maximizes scalability and optimizes your deployment investment in location-based services.

vBLE enables businesses to provide rich location-based experiences that are engaging, accurate, real-time, and scalable.
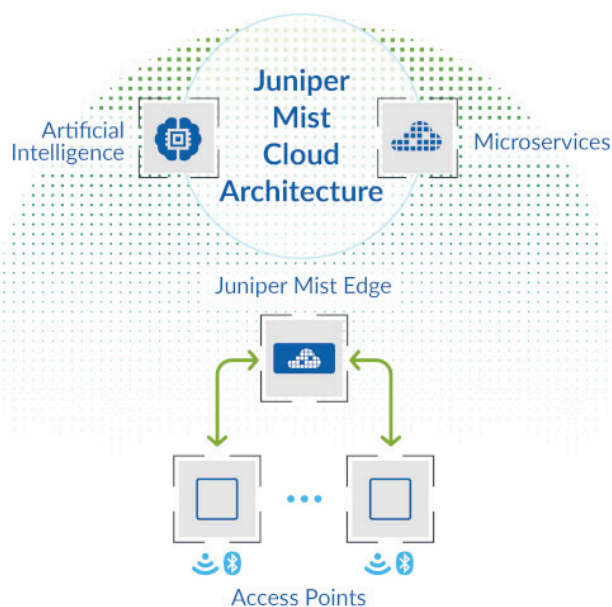
Juniper Mist Edge

Juniper APs offer a flexible data plane. Juniper Mist Edge is an on-premises appliance that runs a tunnel termination service. Traffic can be broken out locally or tunneled to Juniper Mist Edge.

Juniper Mist Edge use cases include seamless mobility in large campus environments, tunneling of guest traffic to a DMZ, IoT segmentation, and teleworker services.

Specifications

Wi-Fi Standard	Wi-Fi 7 802.11be Backwards compatibility with 802.11a/b/g/n/ac/ax
Wi-Fi Radios	2.4/5/6 GHz 802.11a/b/g/n/ac/ax/be radio 5 GHz 802.11a/n/ac/axbe radio 6 GHz 802.11ax/be
Combined Highest Supported Data Rates	Tri-Band: 28.8 Gbps - Dual 6 GHz + 5 GHz
2.4 GHz	4x4:4 802.11be up to 1,376 Mbps data rate
5 GHz	4x4:4 802.11be up to 5764 Mbps data rate
6 GHz	4x4:4 802.11be up to 11528 Mbps data rate
MIMO Operation	• Four spatial stream SU-MIMO for up to 11,528 Mbps wireless data rate to individual 4x4 EHT320 • Four spatial stream MU-MIMO for up to 11,528 Mbps wireless data rate to up to four MU-MIMO capable client devices simultaneously
Dedicated Fourth Radio	2.4 GHz, 5 GHz, and 6 GHz tri-band WIDS/WIPS, spectrum analysis, sensor and location analytics radio
AP47 Internal Omni Antennas	Four 2.4 GHz omnidirectional antennas with 4 dBi peak gain Four 5 GHz omnidirectional antennas with 6 dBi peak gain Four 6 GHz omnidirectional antennas with 6 dBi peak gain
AP47D Internal Directional Antennas	Pattern approximately 60 x 60 degrees Four 2.4 GHz directional antennas with 6 dBi peak gain Four 5 GHz directional antennas with 8 dBi peak gain Four 6 GHz directional antennas with 8 dBi peak gain
IoT Radios	Dual Multi Personality 802.15.4 radios and dual omnidirectional antennas, vBLE Directional Antenna Array, Bluetooth 5.4 Ultra-wideband (UWB)
Beam Forming	Transmit Beamforming and Maximal Ratio Combining
Power Options	Dual Hitless PoE PD support via Eth0 + Eth1 • 802.3bt (Class 6): Full function, tri radio 4x4, scan, BLE, eth0 10 Gbps, eth1 10 Gbps, USB • 802.3at: Reduced functionality • 802.3af: Radios disabled, cloud connectivity only
Dimensions	AP47, AP47E : 254 mm x 254 mm x 60 mm / 10" x 10" x 2.36" AP47D : 254 mm x 254 mm x 66 mm / 10" x 10" x 2.6"
Shipping Box	315 mm x 292 mm x 90 mm / 12.4" x 11.5" x 3.54"
Weight	AP47, AP47D, AP47E - 2.0 kg / 4.41 lbs
Operating Temperature	AP47, AP47D - 0° to 40°C (32° – 104°F), AP47E -20° to 50°C (-4°F – 122°F)
Operating Humidity	10% to 90% maximum relative humidity, non-condensing
Operating Altitude	3,048 m (10,000 ft)
Trusted Platform Module (TPM)	Includes a TPM for infrastructure security

Supported Frequency Bands (Country-Specific Restrictions Apply)	2.400 to 2.4835 GHz ISM 5.150 to 5.250 GHz U-NII-1 5.250 to 5.350 GHz U-NII-2A 5.470 to 5.725 GHz U-NII-2C 5.725 to 5.850 GHz U-NII-3/ISM 5.850 to 5.895 GHz U-NII-4 5.925 to 6.425 GHz U-NII-5 6.425 to 6.525 GHz U-NII-6 6.525 to 6.875 GHz U-NII-7 6.875 to 7.125 GHz U-NII-8

Ordering information

United States Only	AP47-US (Internal Omni Antenna) AP47D-US (Internal Directional Antenna) AP47E-US (External Antenna)
Outside of United States	AP47-WW (Internal Omni Antenna) AP47D-WW (Internal Directional Antenna) AP47E-WW (External Antenna)

* Juniper products are manufactured in accordance with local regulations specific to certain regions and countries. For example, customers should not use any SKUs designated for outside of the US in the US. Customers are responsible for ensuring that any regional or country-specific SKUs are only used in the specified authorized area and accept all associated liability. Failure to comply with the applicable regional designations of SKUs may void the warranty of the Juniper products.

I/O and Indicators

IoT Sensors	Pressure, Temperature, Accelerometer
USB	USB 2.0 support interface, 900 mA output
Eth0	100/1000/2500/5000/10000Base-T (802.3bz); RJ45; PoE PD; MACsec (802.1AE)
Eth1	100/1000/2500/5000/10000Base-T (802.3bz); RJ45; PoE PD
AP47E External Antenna	Three pluggable antenna connectors; 2.4/5/6 GHz (6 pin), 6 GHz + Scan (6 pin), 5 GHz (4 pin)
Reset	Reset to the factory default settings
Indicators	One multicolor status LED
Traffic Forwarding Options	Eth0, Eth1, Juniper Mist Edge

Mounting Brackets

APBR-U[2]	Universal bracket
APBR-ADP-M16	16mm threaded rod (M16-2)
APBR-ADP-T58	5/8" Threaded Rod
APBR-ADP-CR9	9/16" T-Rail, Channel Rail
APBR-ADP-RT15	15/16" T-Rail
APBR-ADP-WS15	1-1/2" T-Rail
APBR-ADP-T12	1/2" threaded rod

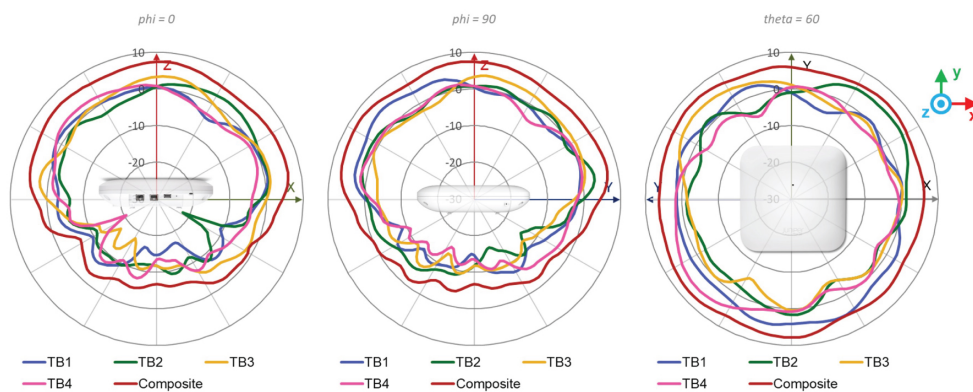[2]The AP package includes one Universal Bracket.

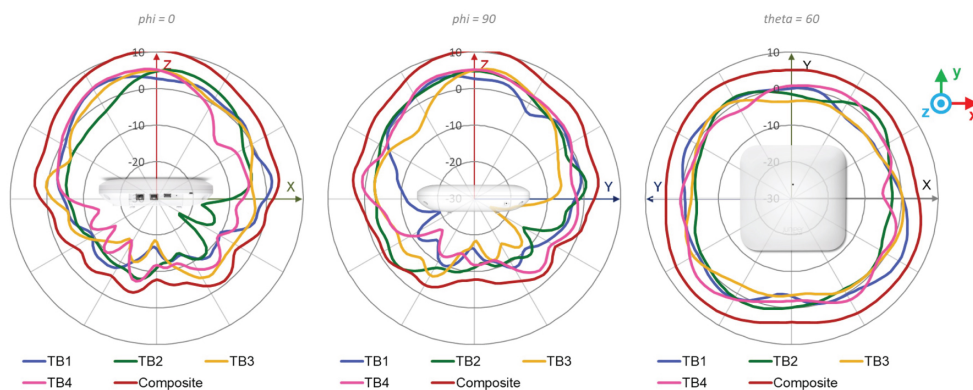**AP47 Antenna Plots**

AP47 Tri Band Radio Wi-Fi Antenna Plots
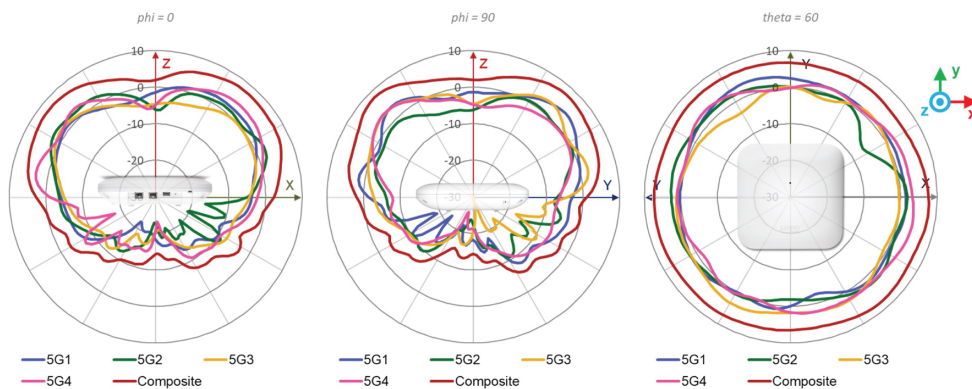
2.5 GHz @ 2450 MHz
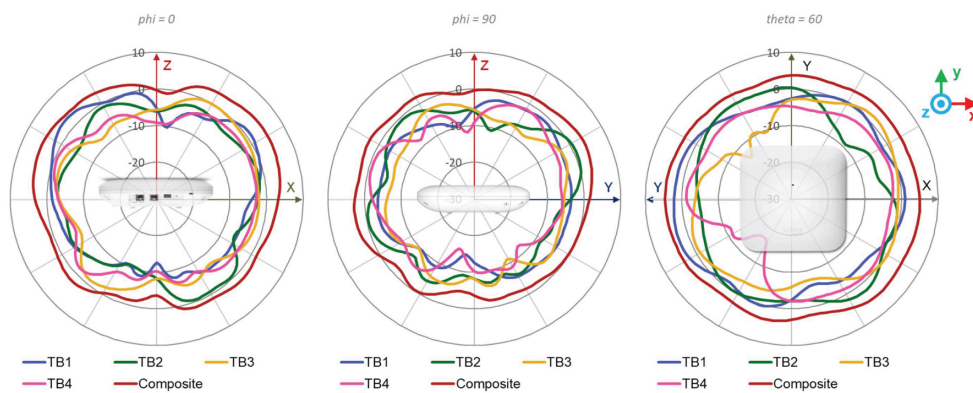
5 GHz @ 5550 MHz
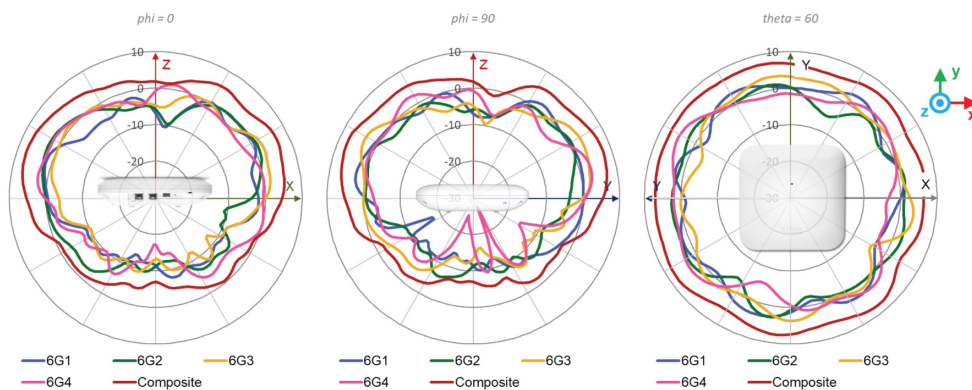

6 GHz @ 6565 MHz

AP47 5 GHz Wi-Fi Antenna Plots

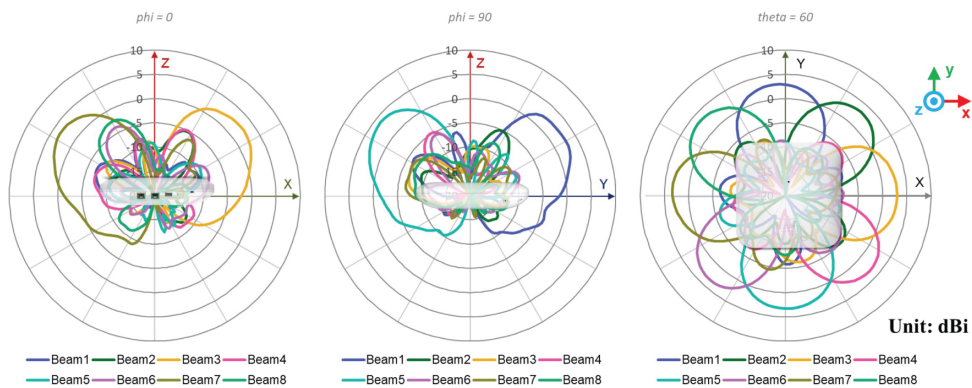**5 GHz @ 5550 MHz**

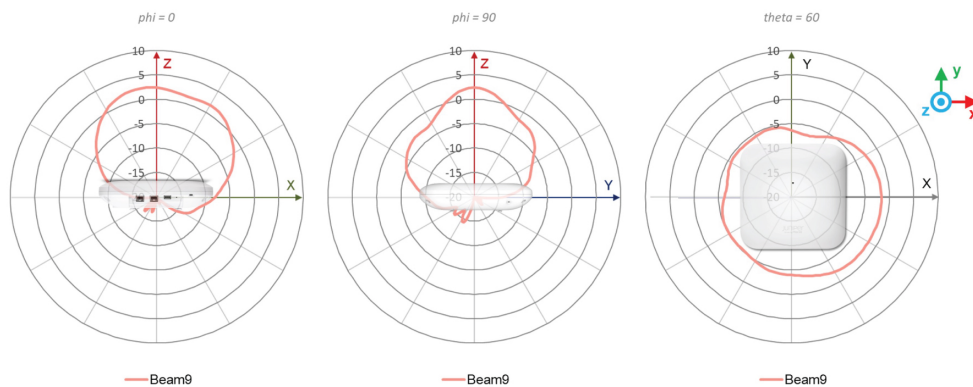## AP47 6 GHz Wi-Fi Antenna Plots

6 GHz @ 6565 MHz

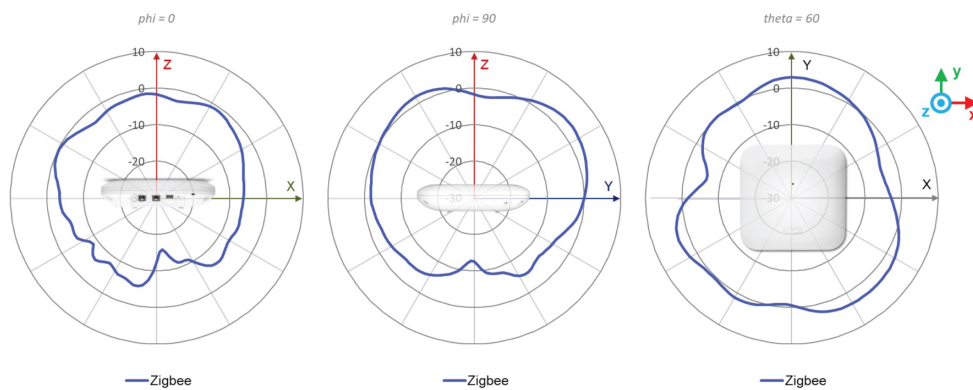## AP47 2.4 GHz Directional BLE Antenna Plots

2.4 GHz @ 2440 MHz

AP47 2.4 GHz Omni BLE Antenna Plots

2.4 GHz @ 2440 MHz
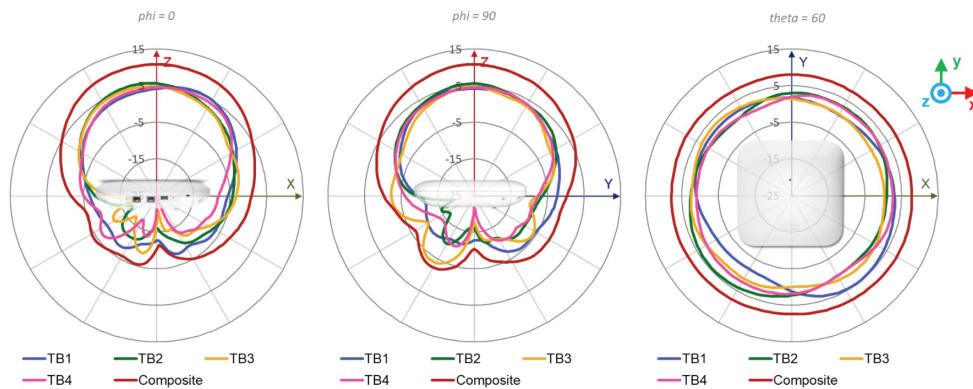

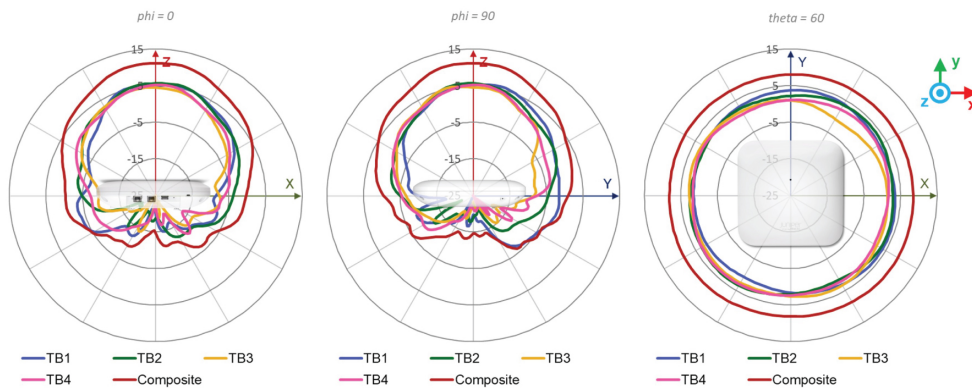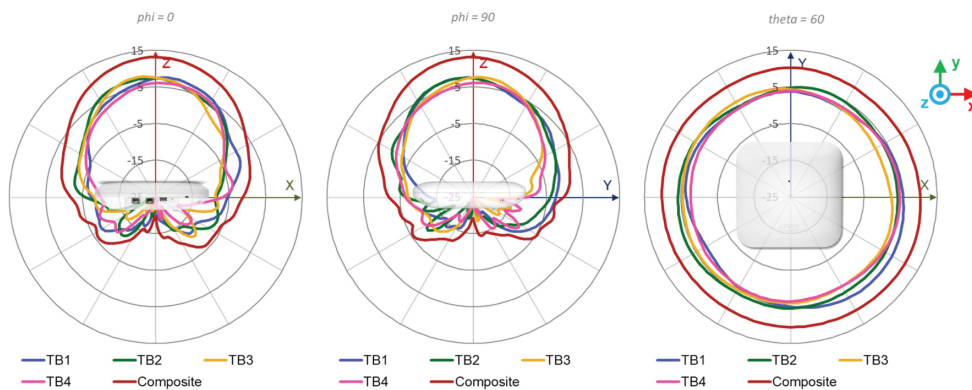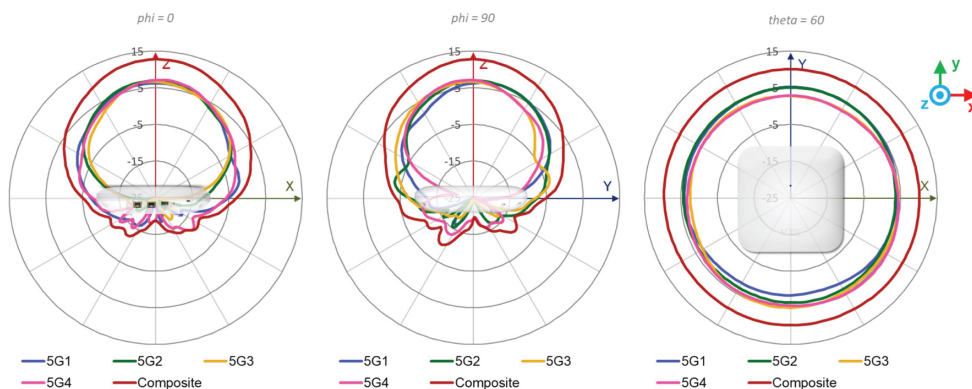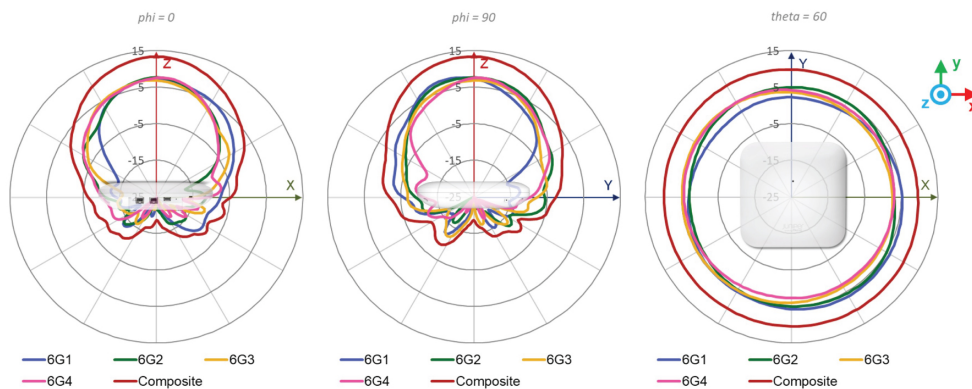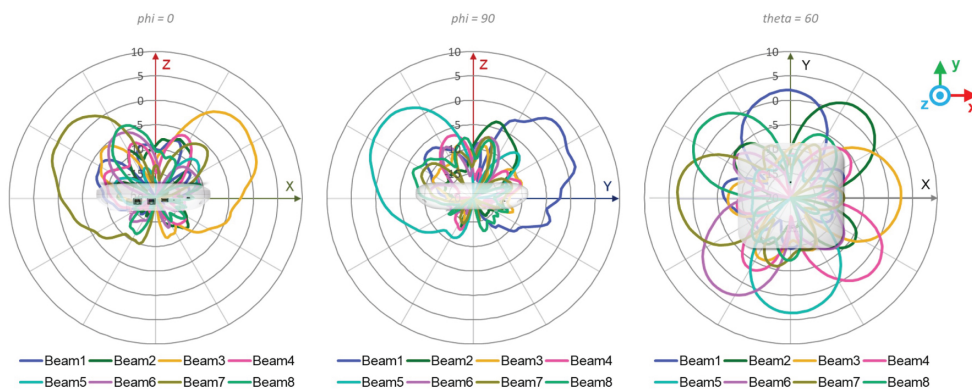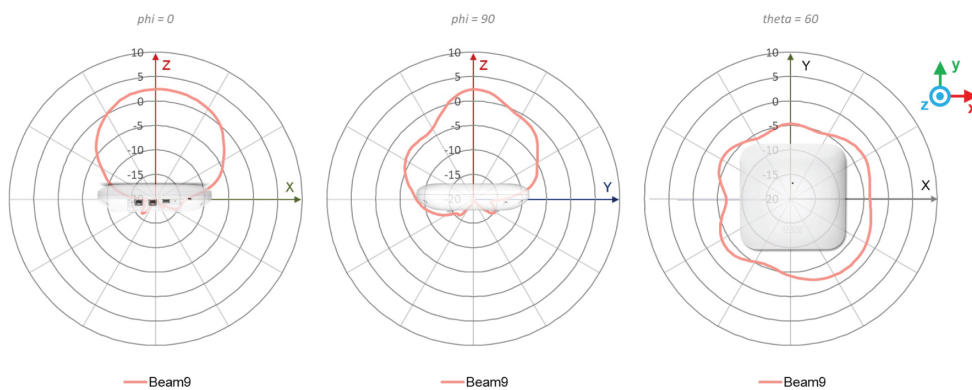## AP47 2.4 GHz Zigbee Antenna Plots

2.4 GHz @ 2440 MHz

AP47D Antenna Plots

AP47D Tri Band Radio Wi-Fi Antenna Plots

2.4 GHz @ 2450 MHz

5 GHz @ 5550 MHz

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

| TB1 | TB2 | TB3 |
| TB4 | Composite | |

6 GHz @ 6565 MHz

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

| TB1 | TB2 | TB3 |
| TB4 | Composite | |

AP47D 5 GHz Wi-Fi Antenna Plots

5 GHz @ 5550 MHz

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

| 5G1 | 5G2 | 5G3 |
| 5G4 | Composite | |

AP47D 6 GHz Wi-Fi Antenna Plots

6 GHz @ 6565 MHz

AP47D 2.4 GHz Directional BLE Antenna Plots

2.4 GHz @ 2440 MHz

AP47D 2.4 GHz Omni BLE Antenna Plots

2.4 GHz @ 2440 MHz

AP47D 2.4 GHz Zigbee BLE Antenna Plots

2.4 GHz @ 2440 MHz
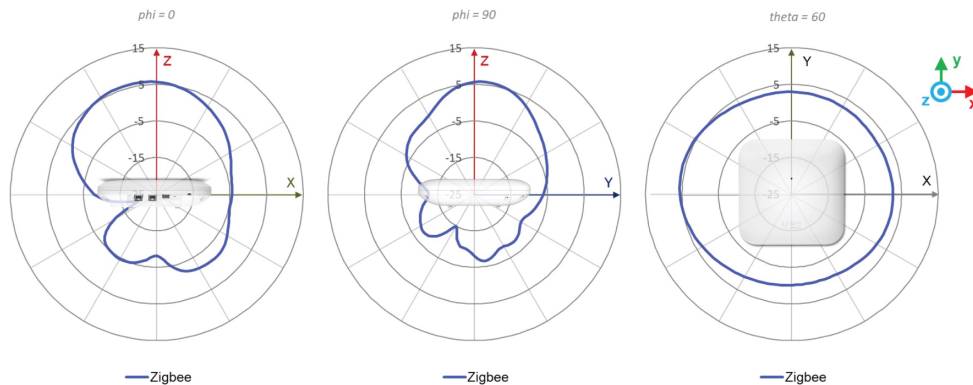
About Juniper Networks

Juniper Networks believes that connectivity is not the same as experiencing a great connection. Juniper's AI-Native Networking Platform is built from the ground up to leverage AI to deliver exceptional, highly secure, and sustainable user experiences from the edge to the data center and cloud. You can find additional information at juniper.net or connect with Juniper on X (formerly Twitter), LinkedIn, and Facebook.