

### Overview

#### Aruba 320 Series Access Points

Bringing a switch-like experience to 802.11ac



#### Product overview

Multifunctional 320 series wireless APs provide the best 802.11ac Wi-Fi connectivity and user experience. Featuring Aruba enhanced ClientMatch and Aruba Beacon technologies, the 320 series enables the highest capacity, performance, and efficiency in extremely high-density environments

With a maximum concurrent data rate of 1,733 Mbps in the 5 GHz band and 600 Mbps in the 2.4 GHz band (aggregated data rate of 2.3 Gbps), 320 series APs deliver best-in-class next-generation Wi-Fi infrastructure for the highest density environments.

The high performance and high density 802.11ac 320 series supports multi-user MIMO (MU-MIMO) and 4 spatial streams (4SS). It provides simultaneous multicast data transmission to multiple devices, maximizing data throughput and improving network efficiency.

The 320 series includes the patent-pending enhanced ClientMatch technology that extends the client steering technology with MU-MIMO client awareness. It automatically identifies MU-MIMO capable mobile devices and steers those devices to the closest MU-MIMO capable Aruba access point. By grouping MU-MIMO capable mobile devices together, the network starts taking advantage of the simultaneous transmission to these devices, increasing its overall capacity. These dynamic roaming policies that are based on device types, help customers achieve the best WLAN performance in a mixed device environment during the technology transition period.

The 320 series has an integrated Bluetooth Aruba Beacon that simplifies the remote management of a network of large-scale battery-powered Aruba beacons while also providing advanced location and indoor way finding, and proximity-based push notification capabilities. It enables businesses to leverage mobility context to develop applications that will deliver an enhanced user experience and increase the value of the wireless network for organizations.

## Overview

### Features and Benefits

#### Unique Benefits

- Dual radio 4x4 802.11ac access point with multi-user MIMO
  - Supports up to 1,733 Mbps in the 5 GHz band (with 4SS/VHT80 clients) and 600 Mbps in the 2.4 GHz band (with 4SS/HT40 clients).
- Built-in Bluetooth Low-Energy (BLE) radio
  - Enables location based services with BLE-enabled mobile devices receiving signals from multiple Aruba Beacons at the same time.
  - Simplifies battery-powered Aruba beacon management.
- Advanced Cellular Coexistence (ACC)
  - Minimizes interference from 3G/4G cellular networks, distributed antenna systems, and commercial small cell/femtocell equipment.
- Quality of service for unified communication apps
  - Supports priority handling and policy enforcement for unified communication apps, including Microsoft Skype for Business with encrypted videoconferencing, voice, chat, and desktop sharing.
- RF Management
  - Adaptive Radio Management (ARM) technology automatically assigns channel and power settings, provides airtime fairness, and ensures that APs stay clear of all sources of RF interference to deliver reliable, high-performance WLANs.
  - The Aruba 320 series APs can be configured to provide part-time or dedicated air monitoring for spectrum analysis and wireless intrusion protection, VPN tunnels to extend remote locations to corporate resources, and wireless mesh connections where Ethernet drops are not available.
- Support for additional 5 GHz bands
  - Supports software upgrade to enable additional 5 GHz spectrums when governments expand available frequencies.
- Spectrum analysis
  - Capable of part-time or dedicated air monitoring, the spectrum analyzer remotely scans the 2.4 GHz and 5 GHz radio bands to identify sources of RF interference.
- Intelligent app visibility and control
  - AppRF technology leverages deep packet inspection to classify and block, prioritize, or limit bandwidth for thousands of applications in a range of categories.
- Security
  - Integrated wireless intrusion protection offers threat protection and mitigation, and eliminates the need for separate RF sensors and security appliances.
  - IP reputation and security services identify, classify, and block malicious files, URLs and IPs, providing comprehensive protection against advanced online threats.
  - Integrated Trusted Platform Module (TPM) for secure storage of credentials and keys.
  - SecureJack-capable for secure tunneling of wired Ethernet traffic

#### Choose your Operating Mode

Aruba 320 series APs offer a choice of operating modes to meet your unique management and deployment requirements.

- Controller-managed mode – When managed by Aruba Mobility Controllers, Aruba 320 series APs offer centralized configuration, data encryption, policy enforcement, and network services, as well as distributed and centralized traffic forwarding.
- Aruba Instant mode – In Aruba Instant mode, a single AP automatically distributes the network configuration to other Instant APs in the WLAN. Simply power-up one
- Instant AP, configure it over the air, and plug in the other APs – the entire process takes about five minutes. If WLAN requirements change, a built-in migration path allows 320 series Instant APs to become part of a WLAN that is managed by a Mobility Controller.
- Remote AP (RAP) for branch deployments.

## Overview

- Air monitor (AM) for wireless IDS, rogue detection, and containment.
- Spectrum analyzer, dedicated or hybrid, for identifying sources of RF interference.
- Secure enterprise mesh.

For large installations across multiple sites, the Aruba Activate service significantly reduces deployment time by automating device provisioning, firmware upgrades, and inventory management. With Aruba Activate, Instant APs are factory-shipped to any site and configure themselves when powered up.

## AP 320 Series Specifications

- AP-325 and IAP-325
  - 5 GHz (1,733 Mbps max rate) and 2.4 GHz (600 Mbps max rate) radios, each with 4x4 MIMO support and a total of eight integrated omni-directional downtilt antennas.
- AP-324 and IAP-324
  - 5 GHz (1,733 Mbps max rate) and 2.4 GHz (600 Mbps max rate) radios, each with 4x4 MIMO support and a total of four combined, diplexed (dual-band) external RP-SMA antenna connectors.

## Wi-Fi Radio Specifications

- AP type: Indoor, dual radio, 5 GHz 802.11ac and 2.4 GHz 802.11n 4x4 MIMO.
- Software-configurable dual radio supports 5 GHz (Radio 0) and 2.4 GHz (Radio 1).
- Four spatial stream SU-MIMO for up to 1,733 Mbps wireless data rate to a single client device.
- Three spatial stream MU-MIMO for up to 1,300 Mbps wireless data rate to up to three MU-MIMO capable client devices simultaneously.
- Support for up to 255 associated client devices per radio, and up to 16 BSSIDs per radio.
- Supported frequency bands (country-specific restrictions apply):
  - 2.400 to 2.4835 GHz
  - 5.150 to 5.250 GHz
  - 5.250 to 5.350 GHz
  - 5.470 to 5.725 GHz
  - 5.725 to 5.850 GHz
- Available channels: Dependent on configured regulatory domain.
- Dynamic frequency selection (DFS) optimizes the use of available RF spectrum.
- Supported radio technologies:
  - 802.11b: Direct-sequence spread-spectrum (DSSS)
  - 802.11a/g/n/ac: Orthogonal frequency-division multiplexing (OFDM)
- Supported modulation types:
  - 802.11b: BPSK, QPSK, CCK
  - 802.11a/g/n/ac: BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM
- Transmit power: Configurable in increments of 0.5 dBm
- Maximum (aggregate, conducted total) transmit power (limited by local regulatory requirements):
  - 2.4 GHz band: +24 dBm (18 dBm per chain)
  - 5 GHz band: +24 dBm (18 dBm per chain)
  - **NOTE:** conducted transmit power levels exclude antenna gain. For total (EIRP) transmit power, add antenna gain
- Advanced Cellular Coexistence (ACC) minimizes interference from cellular networks.
- Maximum ratio combining (MRC) for improved receiver performance.
- Cyclic delay/shift diversity (CDD/CSD) for improved downlink RF performance.
- Short guard interval for 20-MHz, 40-MHz and 80-MHz channels.
- Space-time block coding (STBC) for increased range and improved reception.
- Low-density parity check (LDPC) for high-efficiency error correction and increased throughput.
- Transmit beamforming (TxBF) for increased signal reliability and range.
- Supported data rates (Mbps):
  - 802.11b: 1, 2, 5.5, 11

## Overview

- 802.11a/g: 6, 9, 12, 18, 24, 36, 48, 54
- 802.11n: 6.5 to 450 (MCS0 to MCS23)
- 802.11ac: 6.5 to 1,733 (MCS0 to MCS9, NSS = 1 to 4)
- 802.11n high-throughput (HT) support: HT 20/40
- 802.11ac very high throughput (VHT) support: VHT 20/40/80
- 802.11n/ac packet aggregation: A-MPDU, A-MSDU

## Wi-Fi Antennas

- AP-324/IAP-324: Four RP-SMA connectors for external dual band antennas. Internal loss between radio interface and external antenna connectors (due to diplexing circuitry): 2.5 dB in 2.4 GHz and 1.5 dB in 5 GHz.
- AP-325/IAP-325: Eight integrated downtilt omni-directional antennas for 4x4 MIMO with maximum antenna gain of 3.5 dBi in 2.4 GHz and 5.0 dBi in 5 GHz. Built-in antennas are optimized for horizontal ceiling-mounted orientation of the AP. The downtilt angle for maximum gain is ~ 30 degrees.

## Other Interfaces

- Two 10/100/1000BASE-T Ethernet network interfaces (RJ-45)
  - Auto-sensing link speed and MDI/MDX
  - Link Aggregation support to achieve platform throughput up to 2 Gbps
  - 802.3az Energy Efficient Ethernet (EEE)
  - PoE-PD: 48 Vdc (nominal) 802.3af or 802.3at PoE
- DC power interface, accepts 2.1/5.5-mm center-positive circular plug with 9.5-mm length
- USB 2.0 host interface (Type A connector)
- Bluetooth Low Energy (BLE) radio
  - Up to 4dBm transmit power (class 2) and -94dBm receive sensitivity
  - Integrated antenna, -5dBi gain (30 degrees downtilt)
  - Can be disabled with configuration
- Visual indicators (tri-color LEDs): For system and radio status
- Reset button: Factory reset (during device power up)
- Serial console interface (RJ-45)
- Kensington security slot

## Power

- Maximum (worst-case) power consumption: 20W (802.3at PoE), 13.5W (802.3af PoE) or 18.5W (DC)
  - Excludes power consumed by external USB device (and internal overhead); this could add up to 6W (POE) or 5.5W (DC) for 5W/1A USB device
- Maximum (worst-case) power consumption in idle mode: 8W (PoE) or 7W (DC)
- Direct DC source: 12 Vdc nominal, +/- 5%
- Power over Ethernet (PoE): 48 Vdc (nominal) 802.3af/802.3at compliant source
  - Unrestricted functionality with 802.3at PoE
  - Power-save mode with reduced functionality from 802.3af PoE
    - USB port disabled
    - Second Ethernet port disabled
    - 2.4 GHz radio in 1x1:1 mode
- Power sources sold separately
- When both power sources are available, DC power takes priority

## Mounting

- The AP ships with two (white) mounting clips to attach to a 9/16-inch or 15/16-inch flat T-bar drop-tile ceiling.

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- Several optional mount kits are available to attach the AP to a variety of surfaces; see the Ordering Information section for details.

## Mechanical

- Dimensions/weight (unit, excluding mount accessories):
  - 203mm (W) x 203mm (D) x 57mm (H) 8.0" (W) x 8.0" (D) x 2.2" (H)
  - 950g/34 oz
- Dimensions/weight (shipping):
  - 315mm(W) x 265mm(D) x 100mm (H) 12.4" (W) x 10.4" (D) x 3.9" (H)
  - 1,350g/48 oz

## Environmental

- Operating:
  - Temperature: 0° C to +50° C (+32° F to +122° F)
  - Humidity: 5% to 95% non-condensing
- Storage and transportation:
  - Temperature: -40° C to +70° C (-40° F to +158° F)

## Regulatory

- FCC/Industry of Canada
- CE Marked
- R&TTE Directive 1995/5/EC
- Low Voltage Directive 72/23/EEC
- EN 300 328
- EN 301 489
- EN 301 893
- UL/IEC/EN 60950
- EN 60601-1-1, EN60601-1-2

For more country-specific regulatory information and approvals, please see your Aruba representative.

## Reliability

- MTBF: 739,935 hrs (84.5yrs) at +25C operating temperature (AP-325)

## Regulatory Model Numbers

- AP-324 and IAP-324: APIN0324
- AP-325 and IAP-325: APIN0325

## Certifications

- CB Scheme Safety, cTUVus
- UL2043 plenum rating
- Wi-Fi Alliance (WFA) certified 802.11a/b/g/n/ac
- Bluetooth SIG interoperability certification

## Overview

### Warranty

- **Aruba Limited lifetime warranty**

### Minimum Operating System Software Versions

- ArubaOS 6.4.4.0
    - 320 Series Access Points are not supported on **650 Series Mobility Controllers**
  - Aruba InstantOS 4.2.2.0
-

## Configuration

### Ordering Guide

#### Step 1: Select AP Model

Description	Part Number	Configuration Impact
<b>Controller-based Access Points</b>		
Aruba AP-324 802.11n/ac 4x4:4 MU-MIMO Dual Radio Antenna Connectors AP	JW184A	Add PoE injector or AC adapter, antennas
Aruba AP-325 802.11n/ac 4x4:4 MU-MIMO Dual Radio Integrated Antenna AP	JW186A	Add PoE injector or AC adapter
Aruba AP-324 FIPS/TAA-compliant 802.11n/ac Dual 4x4:4 MU-MIMO Dual Radio Antenna Connectors AP	JW185A	Add PoE injector or AC adapter, antennas
Aruba AP-325 FIPS/TAA-compliant 802.11n/ac Dual 4x4:4 MU-MIMO Dual Radio Integrated Antenna AP	JW187A	Add PoE injector or AC adapter
Description	Part Number	Configuration Impact
<b>Instant Access Points</b>		
Aruba Instant IAP-324 (RW) 802.11n/ac Dual 4x4:4 MU-MIMO Radio Antenna Connectors AP	JW319A	Add PoE injector or AC adapter, antennas
Aruba Instant IAP-324 (US) 802.11n/ac Dual 4x4:4 MU-MIMO Radio Antenna Connectors AP	JW321A	Add PoE injector or AC adapter, antennas
Aruba Instant IAP-324 (JP) 802.11n/ac Dual 4x4:4 MU-MIMO Radio Antenna Connectors AP	JW318A	Add PoE injector or AC adapter, antennas
Aruba Instant IAP-324 (JP) FIPS/TAA 802.11n/ac Dual 4x4:4 MU-MIMO Radio Ant Connectors AP	JY745A	Add PoE injector or AC adapter, antennas
Aruba Instant IAP-325 (JP) FIPS/TAA 802.11n/ac Dual 4x4:4 MU-MIMO Radio Integrated Ant AP	JY746A	Add PoE injector or AC Adapter
Aruba Instant IAP-324 (IL) 802.11n/ac Dual 4x4:4 MU-MIMO Radio Antenna Connectors AP	JW317A	Add PoE injector or AC adapter, antennas
Aruba Instant IAP-325 (RW) 802.11n/ac Dual 4x4:4 MU-MIMO Radio Integrated Antenna AP	JW325A	Add PoE injector or AC Adapter
Aruba Instant IAP-325 (US) 802.11n/ac Dual 4x4:4 MU-MIMO Radio Integrated Antenna AP	JW327A	Add PoE injector or AC Adapter
Aruba Instant IAP-325 (JP) 802.11n/ac Dual 4x4:4 MU-MIMO Radio Integrated Antenna AP	JW324A	Add PoE injector or AC Adapter
Aruba Instant IAP-325 (IL) 802.11n/ac Dual 4x4:4 MU-MIMO Radio Integrated Antenna AP	JW323A	Add PoE injector or AC Adapter
Aruba Instant IAP-324 (RW) FIPS/TAA 802.11n/ac Dual 4x4:4 MU-MIMO Radio Antenna Connectors AP	JW320A	
Aruba Instant IAP-324 (US) FIPS/TAA 802.11n/ac Dual 4x4:4 MU-MIMO Radio Antenna Connectors AP	JW322A	
Aruba Instant IAP-325 (RW) FIPS/TAA 802.11n/ac Dual 4x4:4 MU-MIMO Radio Integrated Antenna AP	JW326A	
Aruba Instant IAP-325 (US) FIPS/TAA 802.11n/ac Dual 4x4:4 MU-MIMO Radio Integrated Antenna AP	JW328A	

**NOTE:** All models ship with ceiling rail adapters (for flat rails) in the box.

#### Step 2: Add Powering Accessories (Optional)

Description	Part Number	Configuration Impact
<b>Select one of the following:</b>		

## Configuration

PD-9001GR-AC 30W 802.3at PoE+ 10/100/1000 Ethernet Indoor Rated Midspan Injector JW629A Add AC power cable

AP-AC-12V30B 12V/30W AC/DC Desktop Style 2.1/5.5/9.5mm Circular 90 Deg Plug DoE Level VI Adapter JX990A Add AC power cable

### Select three-prong AC power cord for injector or AC adapter (no power cable needed for universal adapter):

PC-AC-ARG Argentina 220V AC 10A 2-meter AC Power Cord	JW113A
PC-AC-AUS Australian AC Power Cord	JW114A
PC-AC-BR Brazil AC Power Cord	JW115A
PC-AC-CHN China AC Power Cord	JW116A
PC-AC-DEN Denmark 220V AC 10A 2-meter AC Power Cord	JW117A
PC-AC-EC Continental European/Schuko AC Power Cord	JW118A
PC-AC-IN India AC Power Cord	JW119A
PC-AC-IL Israel 250V AC 10A 2-meter AC Power Cord	JW120A
PC-AC-IT Italian AC Power Cord	JW121A
PC-AC-JP Japanese AC Power Cord	JW122A
PC-AC-KOR Korea AC Power Cord	JW123A
PC-AC-NA North America AC Power Cord	JW124A
PC-AC-SWI Switzerland 220V AC 10A 2-meter AC Power Cord	JW125A
PC-AC-TW Taiwan AC Power Cord	JW126A
PC-AC-UK UK AC Power Cord	JW127A
PC-AC-ZA South Africa 250V AC 10A 2-meter AC Power Cord	JW128A

## Step 3: Add Mount Accessories (Optional)

### Description

### Part Number

AP-220-MNT-C2 2x Ceiling Grid Rail Adapter for Interlude and Silhouette Mt Kit	JW045A
AP-220-MNT-W1 Flat Surface Wall/Ceiling Black AP Basic Flat Surface Mount Kit	JW046A
AP-220-MNT-W1W Flat Surface Wall/Ceiling White AP Basic Flat Surface Mount Kit	JW047A
AP-MNT-CM1 Industrial Grade Indoor Access Point Metal Suspended Ceiling Rail Mount Kit	JX961A
AP-220-MNT-W3 White Low Profile Box Style Secure Large AP Flat Surface Mount Kit	JY706A
AP-MNT-W4 White Low Profile Basic AP Flat Surface Mount Kit	Q9U25A

## Step 4: Select Antennas (AP-324 Only)

Description	Part Number	Qty	Interface(s)	Target Environment	Mounting
<b>AP-324 antenna interface: 4x RP-SMA female, concurrent dual-band.</b>					
AP-ANT-1W 2.4-2.5GHz (4dBi)/4.9-5.875GHz (6dBi) Hi Gain Dual-band Omni-Dir Indoor Antenna	JW009A	4	1x RP-SMA male connector	Indoor	Direct-mount
AP-ANT-13B 2.4-2.5GHz (4.4dBi)/4.9-5.9GHz (3.3dBi) Downtilt Smallest Omni-Dir Single Antenna	JW001A	4	1x RP-SMA male pigtail	Indoor	Direct, using pigtails
AP-ANT-19 2.4/5G Dual Band Omni-Dir 3dBi/6dBi Indr/Otdr RPSMA Cnctr Ant w/36in Intgrtd Cable	JW004A	4	1x RP-SMA male pigtail	Indoor/outdoor	Direct, using pigtails
AP-ANT-20W 2.4-2.5GHz (2dBi)/4.9-5.875GHz (2dBi) Compact Omni-Dir DMt Indr White Antenna	JW011A	4	1x RP-SMA male connector	Indoor	Direct-mount
AP-ANT-40 Dual Band Downtilt Omni 4dBi 4 Elmt MIMO Ceiling Mount 4xRPSMA Pigtail Antenna	JW017A	1	4x RP-SMA male pigtail	Indoor	Direct, using pigtails



## Configuration

AP-ANT-45 Dual Band 90x90deg 5dBi 4 Element MIMO 4xRPSMA Pigtail Antenna	JW018A	1	4x RP-SMA male pigtail	Indoor/outdoor	Direct, using pigtails
AP-ANT-48 Dual Band 60x60deg 8dBi 4 Element MIMO 4xRPSMA Pigtail Antenna	JW019A	1	4x RP-SMA male pigtail	Indoor/outdoor	Direct, using pigtails

## Step 5: Add Antenna Mount Kit (Optional)

Description	Part Number	Comments
AP-ANT-MNT-4 AP-ANT-48 Azimuth and Elevation Adjustable Mount Kit	JW021A	Compatible with antenna AP-ANT-48
AP-ANT-MNT-5 AP-ANT-45 Azimuth and Elevation Adjustable Mount Kit	JW022A	Compatible with antenna AP-ANT-45

## Step 6: Add Cosmetic Snap-on Cover (AP-325 Only, Optional)

Description	Part Number	Comments
325-CVR-20 20-pk for AP-325 with Holes for LED Indicators White Non-glossy Snap-on Covers	JW076A	One kit per 20 access points

## Technical Specifications

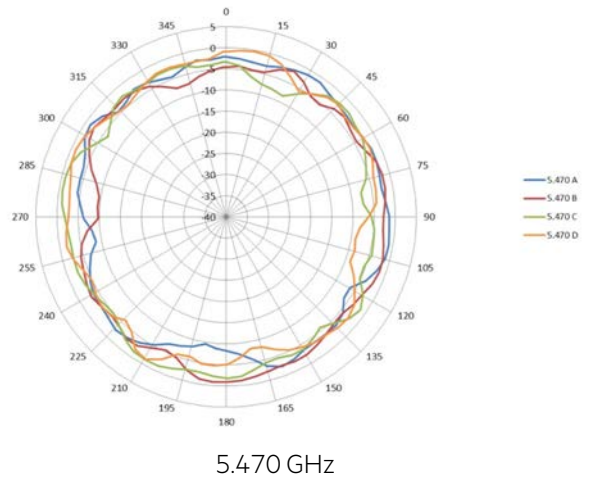
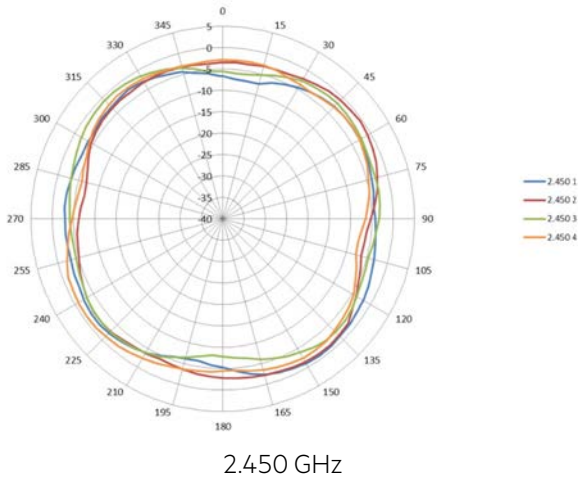
### RF Performance Table

	Maximum transmit power (dBm) per transmit chain	Receiver sensitivity (dBm) per receive chain
<b>802.11b 2.4 GHz</b>		
1 Mbps	18.0	-97.0
11 Mbps	18.0	-89.0
<b>802.11g 2.4 GHz</b>		
6 Mbps	18.0	-93.0
54 Mbps	18.0	-75.0
<b>802.11n HT20 2.4 GHz</b>		
MCS0/8/16	18.0	-92.0
MCS7/15/23	16.0	-72.0
<b>802.11n HT40 2.4 GHz</b>		
MCS0/8/16	18.0	-90.0
MCS7/15/23	16.0	-70.0
<b>802.11a 5 GHz</b>		
6 Mbps	18.0	-93.0
54 Mbps	16.5	-75.0
<b>802.11n HT20 5 GHz</b>		
MCS0/8/16	18.0	-92.0
MCS7/15/23	16.0	-72.0
<b>802.11n HT40 5 GHz</b>		
MCS0/8/16	18.0	-89.0
MCS7/15/23	16.0	-69.0
<b>802.11ac VHT20 5 GHz</b>		
MCS0	18.0	-92.0
MCS9	14.0	-65.0
<b>802.11ac VHT40 5 GHz</b>		
MCS0	18.0	-89.0
MCS9	14.0	-62.0
<b>802.11ac VHT80 5 GHz</b>		
MCS0	18.0	-86.0
MCS9	14.0	-59.0

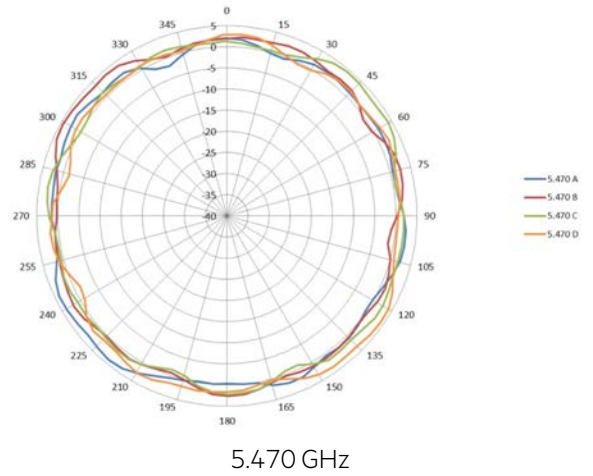
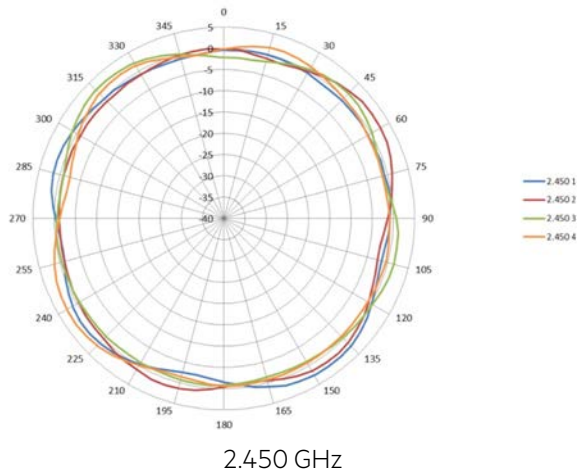
Maximum capability of the hardware provided (excluding antenna gain). Maximum transmit power is limited by local regulatory settings.

Horizontal or Azimuth plane (top view), 0 degrees downtilt

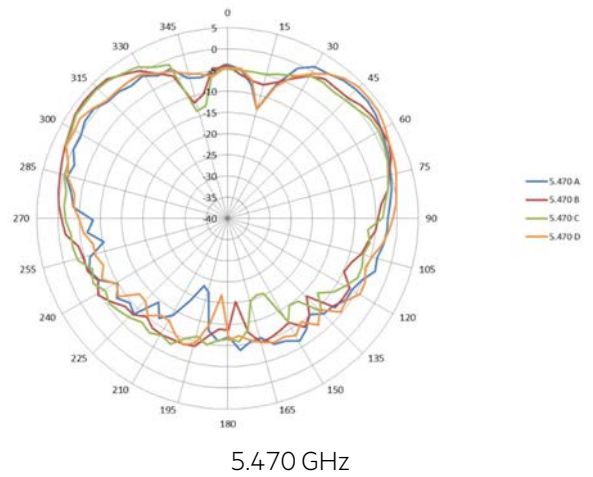
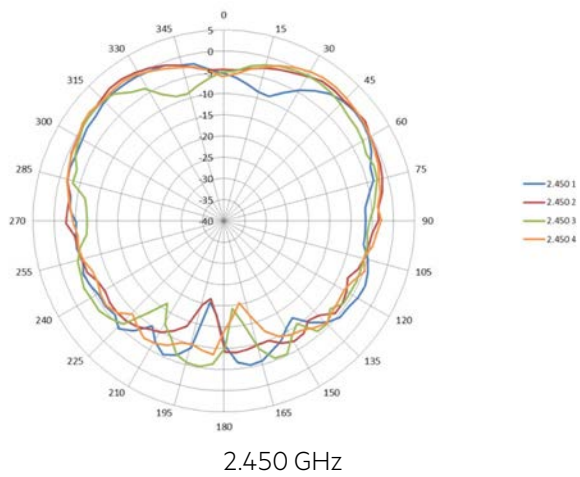
### Technical Specifications



### Horizontal or Azimuth plane (top view), 30 degrees downtilt

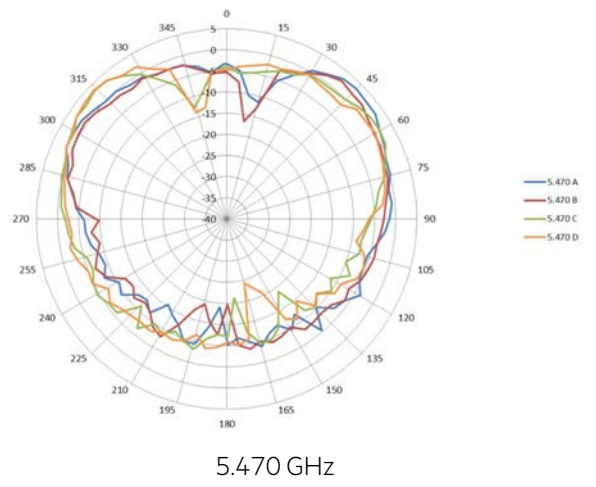
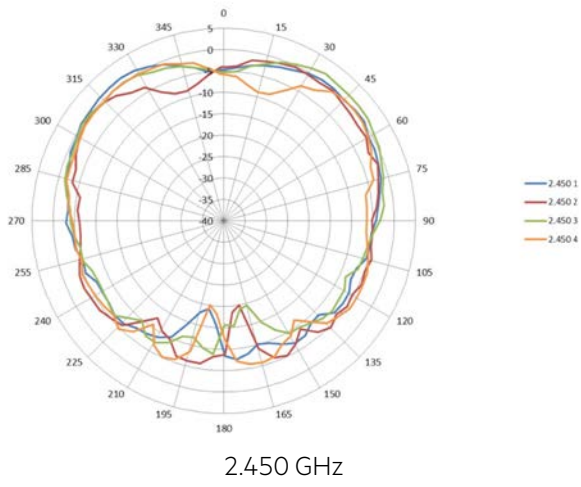


### Elevation plane (side view, 0 degrees angle)



### Elevation plane (side view, 90 degrees angle)

### Technical Specifications



## Summary of Changes

Date	Version History	Action	Description of Change
02-Jul-2018	Version 7	Changed	Minor changes made on Configuration
07-May-2018	Version 6	Added	SKU added: Q9U25A
18-Dec-2017	Version 5	Changed	Minor changes made on Features and Benefits
23-Oct-2017	Version 4	Changed	Updates made on Features and Benefits
06-Mar-2017	Version 3	Changed	Updates made on Configuration section
07-Nov-2016	Version 2	Added	Models added: JY745A, JY746A
01-Nov-2016	Version 1	Created	Document creation.



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