

Antenna Use Cases & Selection Guide

OVERVIEW

This guide is intended as a reference for selecting antennas to use in a Wi-Fi deployment. It covers the basic types of antennas and the situations in which they would be used, and includes a reference table showing the Meru access point (AP) models they are compatible with.

TYPES OF ANTENNAS

Omni-directional antennas provide a 360° coverage pattern, ideal for use in many types of rooms. These antennas are used in many deployments to ensure adequate coverage for all users.

Directional antennas provide a radiation pattern along a straight line. These types of antennas are best used to move a Wi-Fi signal from one area to another. The signal can be received or directed by an antenna on another building or across a large expanse of land.

Antennas can be either high gain or low gain, corresponding to their range. High-gain antennas provide a larger coverage area and are able to transmit a directional signal across longer distances, while low-gain antennas have a smaller coverage area and are used for short-distance directional applications. Typical low-gain antennas are in the range of 2–6 dBi, while high-gain antennas can go up to 15dBi and are capable of covering distances of more than 2 kilometers.

INDOOR ANTENNAS

1. Ceiling mount antennas, as the name implies, are designed to be mounted on the ceiling. These antennas provide the best coverage downward toward the floor, expanding out in a circular pattern.
2. Wall mount antennas are used for wall mount applications. They can also be specifically designed for outdoor use (see reference table below). This type of antenna provides a coverage pattern similar to that of a ceiling mount antenna, generating Wi-Fi coverage out and away from the wall, minimizing radiation patterns that pass through the wall behind the antenna.

OUTDOOR ANTENNAS



Meru's outdoor antennas have weather-resistant covers and are designed specifically to meet the challenges of providing wireless network coverage outdoors.

1. Pole-mounted antennas are specifically for use in outdoor applications. The coverage pattern is typically omni-directional, which is ideal for use in outdoor cafes, campus social areas, and parks. These antennas are also available with high- and low-gain options, depending on the deployment requirements.
2. Wall mounted antennas are also available for outdoor deployments. These are typically directional antennas used to move a signal from one place to another and are available with high- and low-gain options.

PRE-REQUISITES

For successful deployment of these antennas, ensure that you meet the following prerequisites before you begin.

1. Determine your wireless requirements
 - a. Coverage area
 - b. Coverage type (directional, omni-directional)
 - c. Antenna range
 - d. Available mounting points

ANTENNA	ANTENNA MODEL	DESCRIPTION	USE	AP1010 E	AP1020 E	AP433 E	AP433 I	AP433i S	OAP433 E	AP320 E	AP332 E	AP832 E	AP822 E
	ANT-ABGN230-W	Omni Directional Rubber Duct Dual-Band	Indoor	X2	X 4	X9				X 6	X 6	X 6	X 4
	ANT-I2ABGN-0304-O	Ceiling mount Omni Dual-Band 2 x 2 MIMO	Indoor/ Ceiling mount		X 2								X 2
	ANT-I3ABGN-0304-O	Ceiling mount Omni Dual-Band 3 x 3 MIMO	Indoor/ Ceiling mount			X 3				X 2	X 2	X 2	
	ANT-O4ABGN-0607-PT	Wall mount Patch Dual-Band 2 X 2 MIMO	Indoor/ Ceiling mount/ Wall mount		X 1								X 1
	ANT-O6ABGN-0607-PT	Wall mount Patch Dual-Band 3 X 3 MIMO	Outdoor			X 1					X 1	X 1	
	ANT-O6ABGN-0606-O	Outdoor Omni Dual-Band Dual radio 3 x 3 MIMO	Outdoor/ wall and Pole mount						X 2		X 1	X 1	
	ANT-BG080-NM	Outdoor High gain Omni directional 2.4GHz single Band	Outdoor						X 2				
	Ant-A080-NM-1	Outdoor High gain Omni directional	Outdoor						X 3				
	ANT-A080-NM-2	Outdoor High gain Omni directional Low 5 GHz Single Band	Outdoor						X 3				
	MERU-ANT-PI622	Internal PIFA Dual-Band 3 x 3 MIMO	Indoor/Built-in				X 1	X1					
	MERU-ANT-PD312	Paddle Dipole Dual-Band 3 x 3 MIMO	Indoor				X 1	X1					
	ANT-01ABGN-0406-O	Dual band dipole omnidirectional antenna (4/6 dBi)	Indoor									X6	X4
	ANT-ABGN-23	Dual Band Ceiling mount antenna, 3	Indoor/Ceiling mount										
	ANT-6Abgn-24	Dual Band Mini MIMO Ceiling mount antenna, 6 leads	Indoor/Ceiling mount							X1	X 1	X1	
	ANT-ABGN470	Omni Directional Rubber Duct Dual-Band High Gain	Indoor							X6	X 6	X 6	X 4

REFERENCE TABLE NOTES

- Only the antennas listed here are recommended for use with MeruWi-Fi equipment.
- Every antenna must be certified according to strict regulations, and thus we cannot advise on the use of third-party antennas for Meru products.
- Certain antennas listed should only be used in specialized situations and may have certain other requirements for installation.
- The ANT-ABGN230-W external antenna is utilized for approximately 80% of indoor deployments using the access points listed as compatible (except AP832e/822e, which have the ANT-01ABGN-0406-O paddle antenna). This guide is not intended as a substitute for an official Meru site survey. Because each deployment is different, we recommend consulting with a Meru installation specialist for individual configurations. Your Meru consultant will be able to help determine the most effective coverage options for your needs.

For more information about Meru Networks, visit www.merunetworks.com or email your questions to: meruinfo@merunetworks.com

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