
MR45 and MR55 Datasheet

Overview

The Meraki MR45 and MR55 product lines provide exceptional wireless distribution for higher density networking environments that require flexibility and performance. These cloud-managed wireless access points allow for easy, yet granular configuration for wireless deployments, ensuring seamless integration and manageability in your network.

Introduce Wi-Fi 6 (802.11ax) throughput speeds into your Wireless LAN with ease with the MR45 and MR55. These access points provide high performance with Wi-Fi 6 (802.11ax) capabilities, 4 dual-band radios for 2.4 GHz and 5 GHz coverage, as well as integrated Multigigabit Ethernet ports for throughput speeds up to 5 Gbps.



Features

- Managed via Cisco Meraki Dashboard
- Remote Packet Capture Tools via Meraki Dashboard
- Automatic Firmware upgrades
- 802.11X and Active Directory integration
- Air Marshal for wireless reporting and security
- Dedicated scanning radio
- Real-time RF spectrum views
- Cloud-based automatic RF environment optimization
- Location analytics
- Cisco ISE integration for guest access and BYOD posturing

- Stateful Layer 3-7 firewall options
- Integrated antivirus scanning
- Dual-concurrent radios with MU-MIMO
- Maximal ratio combining (MRC) and beamforming
- Wi-Fi 6 (802.11ax) wireless support
- Integrated Ethernet port with Multigigabit capabilities

Configuration

The basic initial configuration of the MR45 is just as simple as with other MR models. The links below provide additional information and instructions relating to each step in getting the device setup and configured for the first time.

1. [Claim the device to an organization on the Meraki dashboard](#)
 - a. If a dashboard organization does not yet exist, [create one](#)
2. [Add the device to a dashboard network](#)
 - a. If a network does not yet exist, [create one first](#)
3. Physically connect the device to the local network
 - a. Connect the RJ45 ports to existing infrastructure to provide power and an uplink
 - b. If necessary, configure a static IP through the [local status page](#) to allow it to communicate with the Meraki dashboard.
4. Allow the device to completely check-in and perform any initial firmware upgrades
5. Finish configuring the device from the Meraki dashboard
 - a. [Enable SSIDs](#)
 - b. [Configure SSIDs](#)
 - c. [Modify Firewall rules](#)
 - d. [Assign wireless profiles](#)

Context and Comparisons

	MR45	MR55
Multigigabit Ethernet Port	1x 100/1000/2.5G BASE-T Ethernet	1x 100/1000/2.5/5G BASE-T Ethernet
802.11AX support	Yes, 4 Stream MU-MIMO	Yes, 8 Stream MU-MIMO
External antennas	No	No
Radios	2x 2.4 GHz and 2x 5 GHz	2x 2.4 GHz and 2x 5 GHz

BLE Location Analytics	Yes	Yes
Dedicated Scanning Radio	Yes, 1x	Yes, 1x
Warranty	Indoor access point, Lifetime hardware warranty with advanced replacement included	Indoor access point, Lifetime hardware warranty with advanced replacement included

Technical Breakdown

Hardware Breakdown

	MR45	MR55
Internal Antennas	4x Omni-directional antennas (5.4 dBi gain at 2.4 GHz, 6 dBi gain at 5 GHz)	8x Omni-directional antennas (5.4 dBi gain at 2.4 GHz, 6 dBi gain at 5 GHz)
External Antennas	None	None
RJ45 Ethernet Port	1x 100/1000/2.5G BASE-T Ethernet	1x 100/1000/2.5G/5G BASE-T Ethernet
12 V DC Input	1x	1x

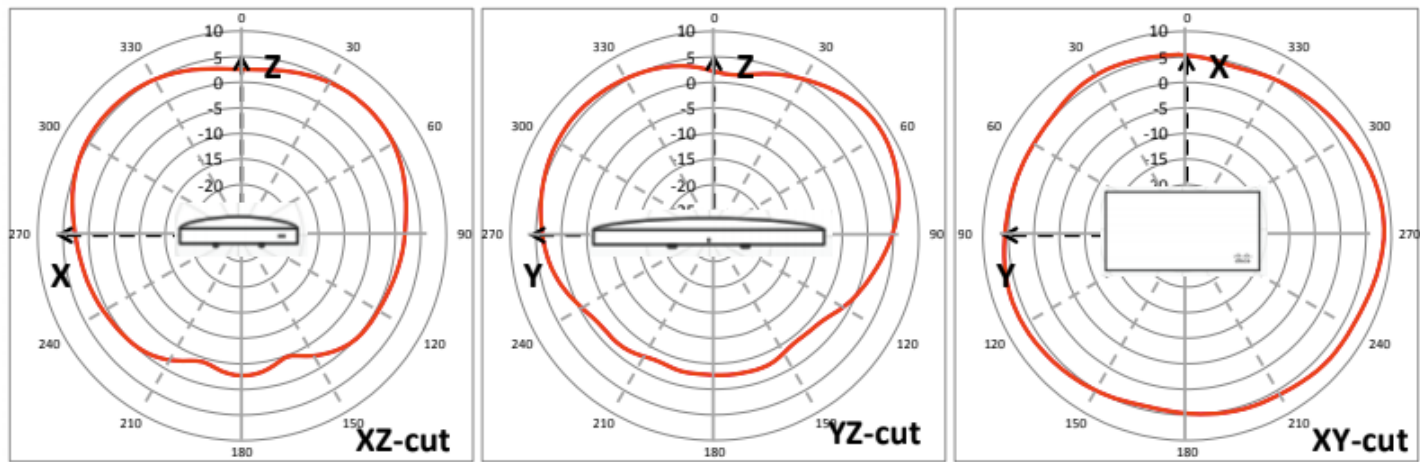
802.11 Wireless

	MR45	MR55
2.4 GHz Radio Information	802.11b/g/n/ax 4x4 MU-MIMO with 4 spatial streams	802.11b/g/n/ax 4x4 MU-MIMO with 8 spatial streams
5 GHz Radio Information	802.11a/n/ac/ax 4x4 MU-MIMO with 4 spatial streams	802.11a/n/ac/ax 8x8 MU-MIMO with 8 spatial streams
Maximum Data Rate	3.5 Gbps	5.9 Gbps
Maximal Ratio Combining (MRC) and Beamforming	Yes	Yes

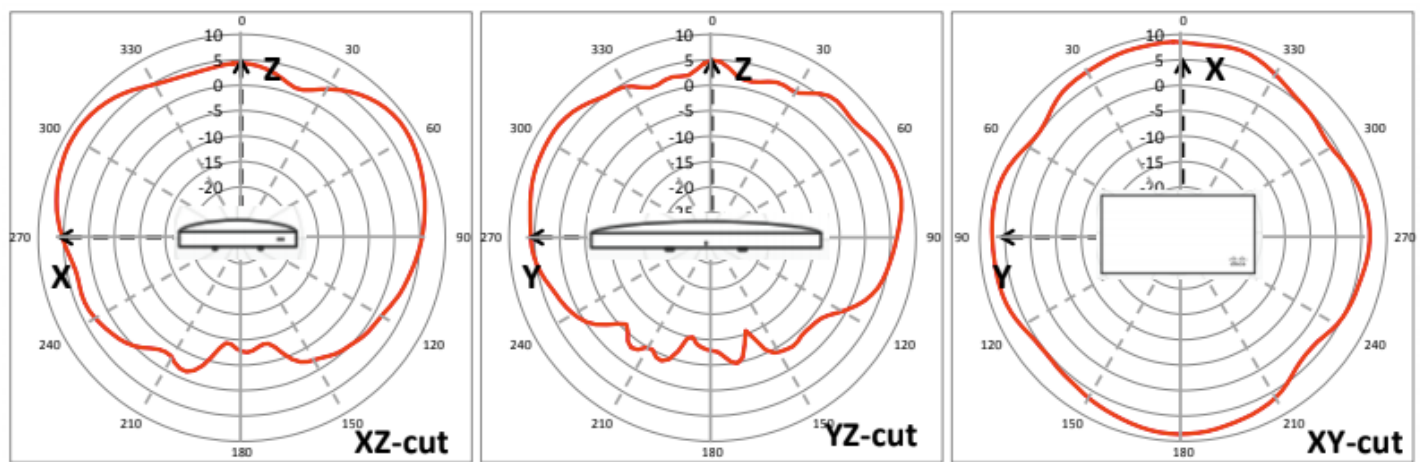
Radiation Patterns

MR45 Patterns

2.4GHz

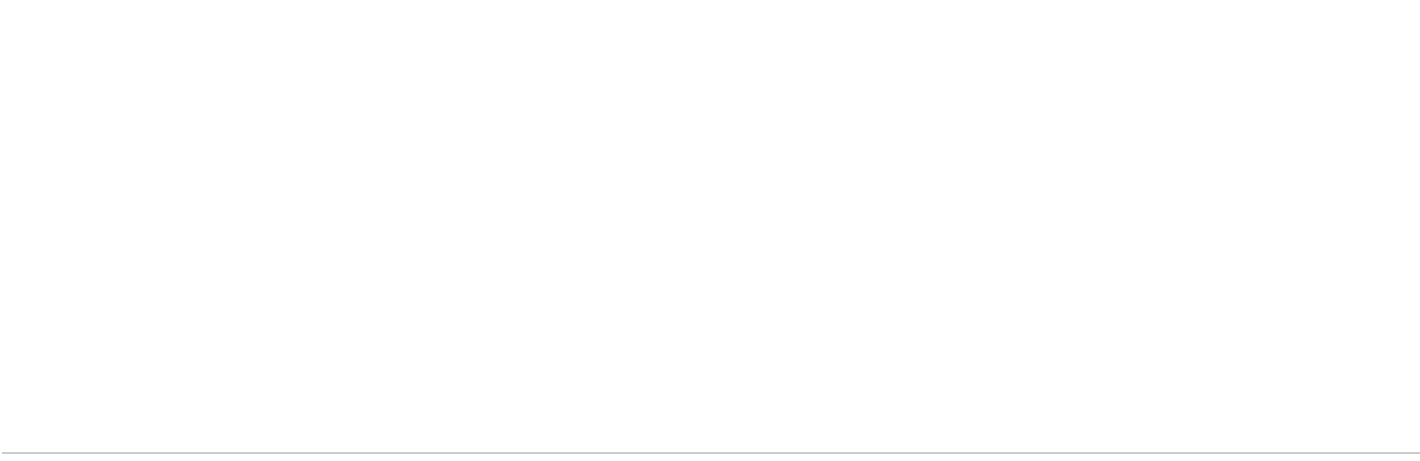


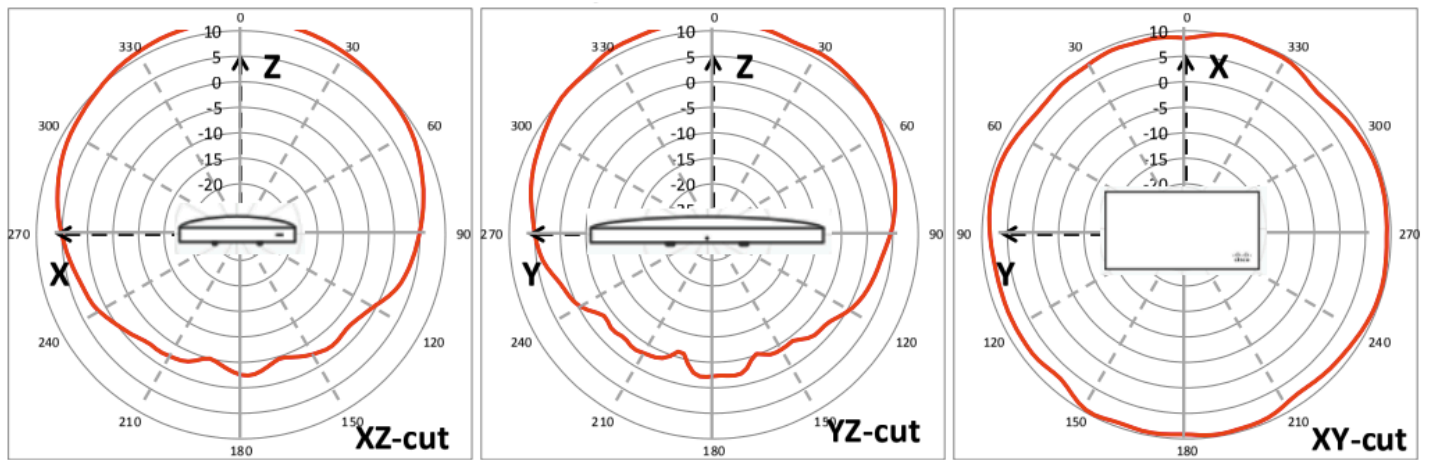
5GHz



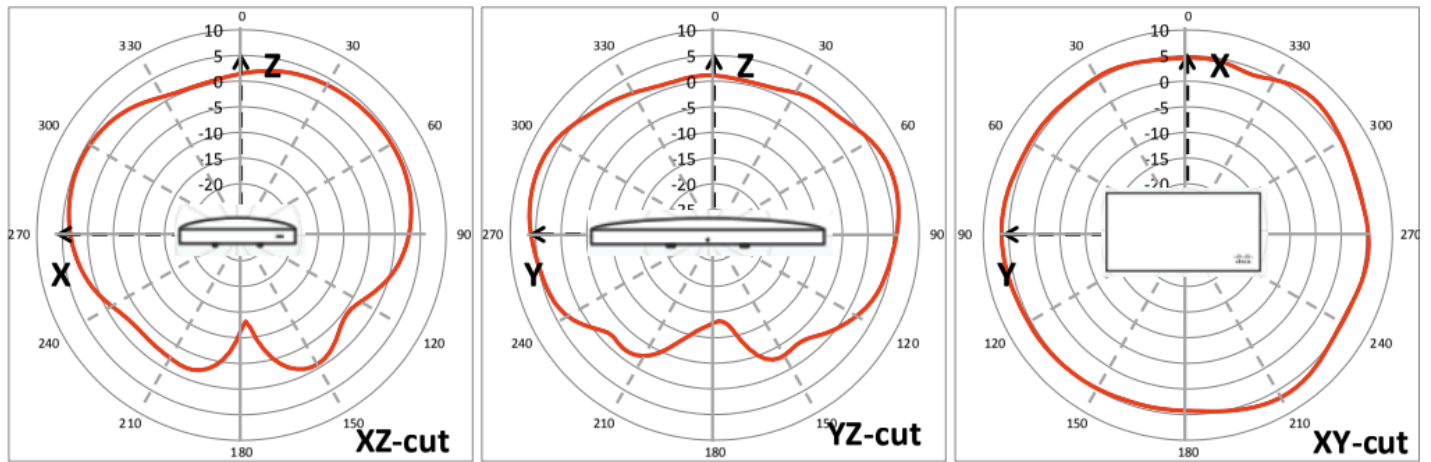
MR55 Patterns

2.4GHz





5GHz



Physical

	MR45	MR55
Mount Type	Desktop, ceiling, and wall mount capable	Desktop, ceiling, and wall mount capable
Dimensions (L x W x H)	12.05" x 5.06" x 1.74" (30.6 cm x 12.84 cm x 4.426 cm)	12.83" x 5.54" x 1.76" (32.6 cm x 14.8 cm x 4.47 cm)
Weigh	28.22 oz (800 g)	35.27 oz (1 kg)
Power Supply	Not included	Not Included

Power Load	18 Watt Maximum	22 Watt Maximum
Operating Temperature	32°F - 104 °F 0°C - 40 °C	32°F - 104 °F 0°C - 40 °C
Humidity	5% to 95%	5% to 95%

Accessories

Accessory	Description
MA-PWR-30W	AP wall power adapter
MA-INJ-4	Meraki MR 802.3at PoE Injector (Power Cord Not Included)
MA-INJ-5	Meraki MR MultiGigabit 802.3bt Injector (Power Cord Not Included)

Troubleshooting

Meraki MR access points use LEDs to indicate their current status. When the devices power on, the main LED will be amber in color. Additional LED statuses are described below.

LED Status	Meaning
Solid Green	AP is communicating with the Meraki dashboard and is functioning properly
Solid Blue	AP is communicating with the Meraki dashboard and currently has clients connected
Blinking Blue	AP is applying the latest configured firmware
Cycling Colors	AP is booting and attempting to reach out to the Meraki dashboard
Amber	AP is going through initial boot up process, is having trouble communicating to the Meraki dashboard, or has a potential hardware issue
Blinking Amber	AP has determined there is a hardware fault

Common Troubleshooting

My device is connected to the network but not checking in to the Meraki cloud or shows a solid orange LED

Confirm that the device is powered on and has a valid IP address that is able to access the internet. Use the local status page to get more information about the connectivity status of the device such as if it can successfully reach the local gateway, internet, and/or Meraki cloud servers. If necessary, contact Meraki support for additional assistance.

My status LED is blinking BLUE

A blinking BLUE Status LED indicates that the device is in contact with the Meraki cloud servers and is performing a firmware update. This can sometimes take 20-45 minutes or more to complete depending on hardware and other factors.

My status LED is blinking ORANGE

The device is not able to successfully communicate with the Dashboard Cloud servers or there may be a hardware issue with the device. Check the local status page of the device to confirm the status. If necessary, contact Meraki support for additional assistance.

Event Log

The most common event log messages and their meanings are listed in the [Common Wireless Event Log Messages](#) guide.

Common Wireless Alerts

802.1X authentication failure

Indication that the access point was not able to appropriately communicate with the configured RADIUS server and thus is unable to authenticate clients on an SSID that requires users to authenticate via RADIUS credentials.

DFS Event

When the access point detects a radar signal on the same channel it is broadcasting on with its 5 GHz radio, the access point will then take action so it will not interfere with the radar signal. There are several steps the AP will take when a DFS event takes place. First, all new transmissions on the channel will be blocked, followed by a broadcast of an 802.11h channel-switch announcement. The access point will then disassociate all remaining clients, and then select a new 5 GHz channel to broadcast on.

FAQ

Are MR45 & MR55 compliant with the Wi-Fi 6/802.11ax standard?

As of April 29th, 2019 the 802.11ax standard has not been fully ratified. This is expected to be completed at the end of 2019. MR45 and MR55 comply with a majority of features that are part of the 802.11ax standard and end-users can immediately recognize all of the benefits related to these features.

Does Meraki have Wi-Fi 6 APs with external antennas? Are those on the roadmap?

MR45 and MR55 do not come with external antennas. The new Wi-Fi 6 standard does enable up to a maximum 4x increase in speeds at the cell boundary. Meraki does intend to build Wi-Fi 6 APs with external antennas, but as of April 29th, 2019 we have not announced anything to the public.

Do MR45 & MR55 have UL-MIMO and UL-OFDMA?

Today, MR45 and MR55 support DL-MIMO, and DL-OFDMA, not UL-MIMO and UL-OFDMA. Meraki has observed that a majority of bandwidth in wireless networks is downlink traffic, and a majority of the impact on aggregate throughputs comes from downlink traffic.

How will Meraki's new MR45/55 work with existing legacy Wi-Fi networks?

MR45/55 are backward compatible and will work with legacy devices. Additionally, there are very few Wi-Fi 6 capable devices available in the market and hence a majority of the traffic seen on the APs will be from legacy devices.

What is the benefit of Wi-Fi 6 AP's if there are no Wi-Fi 6 clients on the network?

With the MR55 you now have an 8x8 access point that enables more streams to the

client. This will enable better access point range and enable more spatial diversity which enables better MU-MIMO performance. Additionally, legacy Wi-Fi clients will benefit from the new 4x4 2.4 GHz radio, this doubles the number of spatial streams available to clients in this band for both the MR45 and MR55. As of early 2019, there have already been several Wi-Fi 6 clients released, and more are expected through 2019 & 2020.

What improved performance can I expect on my network?

Wi-Fi 6 introduces a host of new features that can help improve range, aggregate throughput, power savings, and more. Features such as OFDMA, MU-MIMO, 1024 QAM, BSS coloring all work to provide the next generation of Wi-Fi, targeted at the modern world of high-density client counts, and throughputs. The exact improved performance will depend on the particular nature of the network.

Is an mGig switch required for MR45/55?

It is not required for the network, but MR45 and MR55 will have mGig support. Whether the switches are needed depends on the specific network and the bandwidth that traverses the AP. As more Wi-Fi 6 clients become available, it is likely that you will need mGig support.

Does MR45 & MR55 support Low power mode?

No, it requires 802.3at power and do not guarantee the functioning or performance when they are powered with 802.3af power.

How does Wi-Fi 6 work or compete with 5G?

Wi-Fi 6 and 5G networks are expected to work together. In fact, several Wi-Fi 6 technologies, including OFDMA are analogous to cellular LTE technologies. We expect that Wi-Fi 6 will continue to be the dominant access technology indoors, while 5G will see increased use in outdoor environments. Wi-Fi 6 and 5G are expected to have more seamless transitions between the two technologies. When higher speed 4G was introduced, Wi-Fi offloading increased, and 5G is expected to have a similar impact. According to the [Cisco 2019 VNI](#), 71% of 5G traffic is expected to be offloaded to Wi-Fi or small-cell.

Compliance and Standards

IEEE Standards

802.11a

802.11ac

Radio Approvals

Canada: FCC Part 15C, 15E, RSS-247

Europe: EN 300 328, EN 301 893

802.11ax Compatible	Australia/NZ: AS/NZS 4268
802.11b	Mexico: IFT, NOM-208
802.11e	Taiwan: NCC LP0002
802.11g	For additional country-specific regulatory information, please contact Meraki Sales
802.11h	
802.11i	EMI Approvals (Class B)
802.11k	Canada: FCC Part 15B, ICES-003
802.11n	Europe: EN 301 489-1-17, EN 55032, EN 55024
802.11r	Australia/NZ: CISPR 22
802.11u and Hotspot 2.0	Japan: VCCI
Safety Approvals	Exposure Approvals
CSA and CB 60950 & 62368	Canada: FCC Part 2, RSS-102
Conforms to UL 2043 (Plenum Rating)	Europe: EN 50385, EN 62311, EN 62479
	Australia/NZ: AS/NZS 2772

Tx/Rx Tables | 2.4 GHz

Operating Band	Operating Mode	Data Rate	TX Power (conducted)	RX Sensitivity
2.4 GHz	802.11b	1 Mb/s	26.0 dBm	-99 dbm
		2 Mb/s	26.0 dBm	-94 dBm
		5.5 Mb/s	26.0 dBm	-94 dBm
		11 Mb/s	26.0 dBm	-90 dBm
2.4 GHz	802.11g	6 Mb/s	26.0 dBm	-94 dBm
		9 Mb/s	26.0 dBm	-93 dBm

2.4 GHz	802.11n (HT20)	12 Mb/s	24.0 dBm	-90 dBm
		18 Mb/s	24.0 dBm	-89 dBm
		24 Mb/s	23.0 dBm	-86 dBm
		36 Mb/s	23.0 dBm	-83 dBm
		48 Mb/s	22.0 dBm	-78 dBm
		54 Mb/s	22.0 dBm	-77 dBm
		MCS0	26.0 dBm	-95 dBm
		MCS1	26.0 dBm	-92 dBm
		MCS2	24.0 dBm	-90 dBm
		MCS3	24.0 dBm	-87 dBm
2.4 GHz	802.11ac (VHT20)	MCS4	24.0 dBm	-84 dBm
		MCS5	22.0 dBm	-80 dBm
		MCS6	22.0 dBm	-70 dBm
		MCS7	21.0 dBm	-77 dBm
		MCS0	26.0 dBm	-95 dBm
		MCS1	26.0 dBm	-92 dBm
		MCS2	24.0 dBm	-90 dBm
		MCS3	24.0 dBm	-87 dBm
		MCS4	24.0 dBm	-84 dBm

2.4 GHz	802.11ax (HE20)	MCS5	22.0 dBm	-80 dBm
		MCS6	22.0 dBm	-79 dBm
		MCS7	21.0 dBm	-77 dBm
		MCS8	20.0 dBm	-73 dBm
		MCS0	26.0 dBm	-95 dBm
		MCS1	26.0 dBm	-93 dBm
		MCS2	26.0 dBm	-91 dBm
		MCS3	24.0 dBm	-88 dBm
		MCS4	24.0 dBm	-85 dBm
		MCS5	24.0 dBm	-81 dBm
		MCS6	23.0 dBm	-79 dBm
2.4 GHz	802.11ac (VHT40)	MCS7	22.0 dBm	-77 dBm
		MCS8	21.0 dBm	-74 dBm
		MCS9	20.0 dBm	-72 dBm
		MCS10	19.0 dBm	-68 dBm
		MCS11	19.0 dBm	-66 dBm
		MCS0	24.0 dBm	-92 dBm
		MCS1	24.0 dBm	-89 dBm
		MCS2	24.0 dBm	-87 dBm

2.4 GHz	802.11ax (HE40)	MCS3	24.0 dBm	-84 dBm
		MCS4	24.0 dBm	-81 dBm
		MCS5	23.0 dBm	-77 dBm
		MCS6	22.0 dBm	-76 dBm
		MCS7	23.0 dBm	-74 dBm
		MCS8	20.5 dBm	-71 dBm
		MCS9	20.0	-69 dBm
		MCS0	24.0 dBm	-92 dBm
		MCS1	24.0 dBm	-91 dBm
		MCS2	24.0 dBm	-88 dBm
		MCS3	24.0 dBm	-85 dBm
		MCS4	24.0 dBm	-82 dBm
		MCS5	23.0 dBm	-78 dBm
		MCS6	22.0 dBm	-79 dBm
		MCS7	21.5 dBm	-75 dBm
		MCS8	20.5 dBm	-71 dBm
		MCS9	20.0 dBm	-69 dBm
		MCS10	18.5 dBm	-65 dBm
		MCS11	18.5 dBm	-63 dBm

Tx/Rx Tables | 5 GHz

Operating Band	Operating Mode	Data Rate	TX Power (conducted)	RX Sensitivity
5 GHz	802.11a	6 Mb/s	26.0 dBm	-93 dBm
		9 Mb/s	26.0 dBm	-91 dBm
		12 Mb/s	24.0 dBm	-89 dBm
		18 Mb/s	24.0 dBm	-87 dBm
		24 Mb/s	23.0 dBm	-84 dBm
		36 Mb/s	23.0 dBm	-81 dBm
		48 Mb/s	22.0 dBm	-77 dBm
		54 Mb/s	22.0 dBm	-75 dBm
		MCS0	26.0 dBm	-93 dBm
		MCS1	26.0 dBm	-90 dBm
		MCS2	24.0 dBm	-88 dBm
		MCS3	24.0 dBm	-85 dBm
		MCS4	24.0 dBm	-82 dBm
		MCS5	23.0 dBm	-78 dBm
5 GHz	802.11n (HT20)	MCS6	22.0 dBm	-77 dBm
		MCS7	22.0 dBm	-75 dBm
		MCS0	24.0 dBm	-90 dBm
		MCS0	24.0 dBm	-90 dBm

		(HT40)	MCS1	24.0 dBm	-88 dBm
			MCS2	24.0 dBm	-85 dBm
			MCS3	24.0 dBm	-82 dBm
			MCS4	24.0 dBm	-79 dBm
			MCS5	23.0 dBm	-75 dBm
			MCS6	22.0 dBm	-74 dBm
			MCS7	22.0 dBm	-73 dBm
			MCS0	26.0 dBm	-93 dBm
			MCS1	26.0 dBm	-90 dBm
			MCS2	24.0 dBm	-88 dBm
5 GHz	802.11ac (VHT20)		MCS3	24.0 dBm	-85 dBm
			MCS4	24.0 dBm	-82 dBm
			MCS5	23.0 dBm	-78 dBm
			MCS6	22.0 dBm	-77 dBm
			MCS7	22.0 dBm	-75 dBm
			MCS8	21.0 dBm	-71 dBm
			MCS0	24.0 dBm	-90 dBm
			MCS1	24.0 dBm	-88 dBm
			MCS2	24.0 dBm	-85 dBm
5 GHz	802.11ac (VHT40)		MCS1	24.0 dBm	-88 dBm
			MCS2	24.0 dBm	-85 dBm

			MCS3	24.0 dBm	-82 dBm
			MCS4	24.0 dBm	-79 dBm
			MCS5	23.0 dBm	-75 dBm
			MCS6	22.0 dBm	-74 dBm
			MCS7	22.0 dBm	-73 dBm
			MCS8	20.5 dBm	-69 dBm
			MCS9	20.0 dBm	-67 dbm
			MCS0	24.0 dBm	-87 dBm
			MCS1	24.0 dBm	-85 dBm
			MCS2	24.0 dBm	-82 dBm
5 GHz	802.11ac (VHT80)		MCS3	24.0 dBm	-79 dBm
			MCS4	24.0 dBm	-77 dBm
			MCS5	22.0 dBm	-72 dBm
			MCS6	22.0 dBm	-71 dBm
			MCS7	20.0 dBm	-69 dBm
			MCS8	19.0 dBm	-65 dBm
			MCS9	19.0 dBm	-64 dBm
			MCS0	26.0 dBm	-93 dBm
			MCS1	26.0 dBm	-91 dBm
5 GHz	802.11ax (HE20)				

5 GHz	802.11ax (HE40)	MCS2	24.0 dBm	-89 dBm
		MCS3	24.0 dBm	-86 dBm
		MCS4	24.0 dBm	-83 dBm
		MCS5	23.0 dBm	-79 dBm
		MCS6	22.0 dBm	-77 dBm
		MCS7	22.0 dBm	-75 dBm
		MCS8	21.0 dBm	-72 dBm
		MCS9	21.0 dBm	-70 dBm
		MCS10	19.0 dBm	-67 dBm
		MCS11	19.0 dBm	-67 dBm
		MCS0	24.0 dBm	-90 dBm
		MCS1	24.0 dBm	-89 dBm
		MCS2	24.0 dBm	-86 dBm
		MCS3	24.0 dBm	-83 dBm
		MCS4	24.0 dBm	-81 dBm
		MCS5	23.0 dBm	-76 dBm
		MCS6	22.0 dBm	-75 dBm
		MCS7	21.5 dBm	-73 dBm
		MCS8	20.5 dBm	-69 dBm

5 GHz	802.11ax	MCS9	20.0 dBm	-68 dBm
		MCS10	18.5 dBm	-64 dBm
		MCS11	18.5 dBm	-61 dBm
		MCS0	24.0 dBm	-87 dBm
		MCS1	24.0 dBm	-85 dBm
		MCS2	24.0 dBm	-83 dBm
		MCS3	24.0 dBm	-80 dBm
		MCS4	24.0 dBm	-77 dBm
		MCS5	22.0 dBm	-73 dBm
		MCS6	22.0 dBm	-73 dBm
		MCS7	20.0 dBm	-70 dBm
		MCS8	19.0 dBm	-67 dBm
		MCS9	19.0 dBm	-65 dBm
		MCS10	17.0 dBm	-61 dBm
		MCS11	17.0 dBm	-59 dBm