DATASHEET

IsoStation™ M5

Shielded airMAX® Radio with Isolation Antenna

Model: IS-M5

Interchangeable Isolation Antenna Horn

All-Metal, Shielded Radio Base

airMAX Processor for Superior Performance

UBIQUITI® NETWORKS

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Overview

Ubiquiti Networks launches the latest generation of airMAX CPE (Customer Premises Equipment) with dedicated Wi-Fi management, the IsoStation™ M5.

Improved Noise Immunity

The IsoStation M5 provides high isolation solutions in fixed beamwidth increments through interchangeable horn antennas that have been optimized for an urban environment. The tailored antenna radiation patterns spatially filters both in-band and out-of-band spurious RF emissions to increase the noise immunity of the IsoStation M5. This feature is especially important in an increasingly congested RF environment.

Modular Design

With flexible sectorization for optional antenna beamwidths, the horn antenna is interchangeable and improves beam-shaping for specific deployment and environment needs. The IsoStation M5 uses horn antenna sectors designed for increased co-location performance without sacrificing gain.

Providing high throughput and an innovative form factor, the IsoStation M5 is versatile and cost-effective to deploy.

Symmetrical Antennas

Symmetrical horn antennas (30° and 45° versions) offer breakthrough scalability options for wireless systems. They are ideal for cluster sector installations with high co-location requirements.

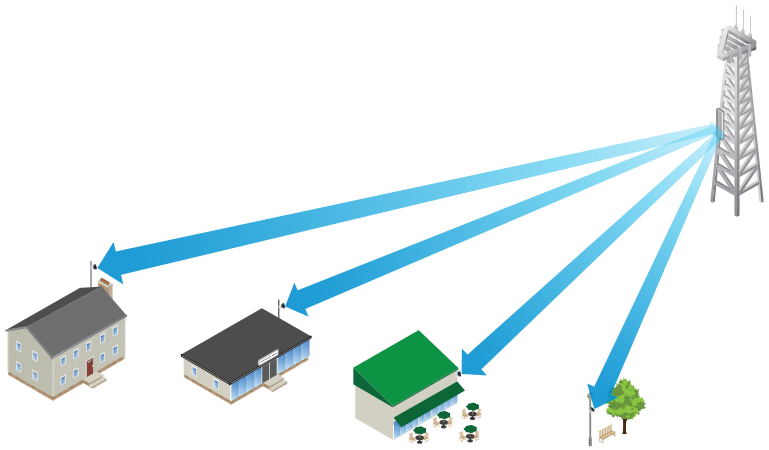
Unique beam performance and great co-location characteristics allow for a higher density of sectors than traditional sector technology.

Asymmetrical Antennas

Asymmetrical horn antennas (60° and 90° versions) are designed to have attenuated side lobes and extremely low back radiation. They offer best front-to-back ratio in the industry and the lowest side lobe radiation.

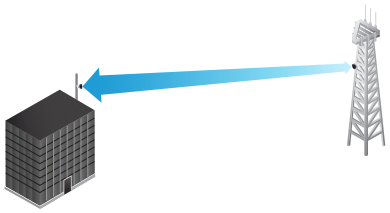
Application Examples

PtMP Client Links



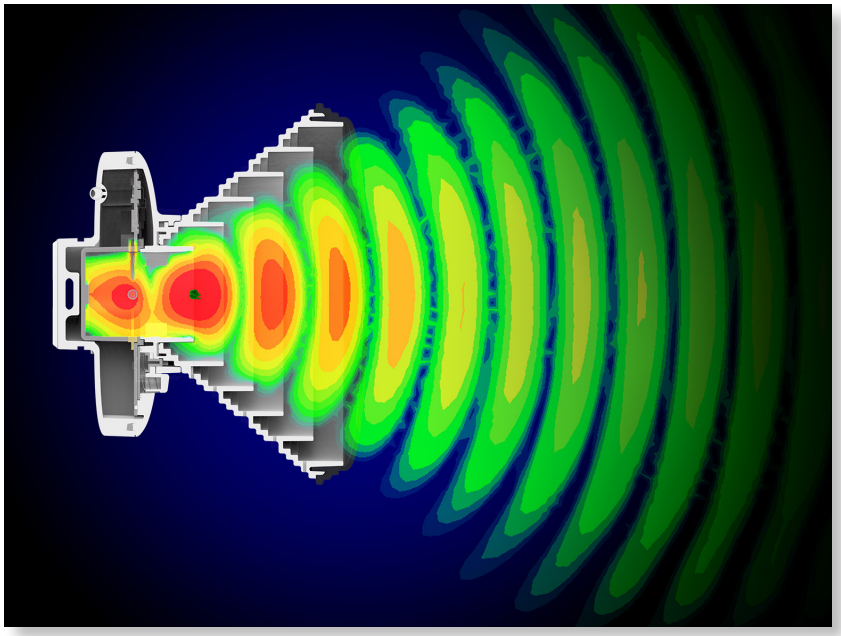
The IsoStation M5 used as a CPE device for each client in an airMAX PtMP network.

PtP Link



Use an IsoStation M5 on each side of a PtP link.

Beam Performance Perfected



IsoStation M5 with 45º radiation beam

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Software

airOS®

airOS® is an intuitive, versatile, highly developed Ubiquiti firmware technology. It is exceptionally intuitive and was designed to require no training to operate. Behind the user interface is a powerful firmware architecture, which enables high-performance, outdoor multi-point networking.

- Protocol Support
- Ubiquiti Channelization
- Spectral Width Adjustment
- ACK Auto-Timing
- AAP Technology
- Multi-Language Support

airView®

Integrated on all Ubiquiti M products, airView® provides advanced spectrum analyzer functionality: waterfall, waveform, and real-time spectral views allow operators to identify noise signatures and plan their networks to minimize noise interference.

- **Waterfall** Aggregate energy over time for each frequency.
- **Waveform** Aggregate energy collected.
- **Real-time** Energy is shown in real time as a function of frequency.
- **Recording** Automate airView to record and report results.

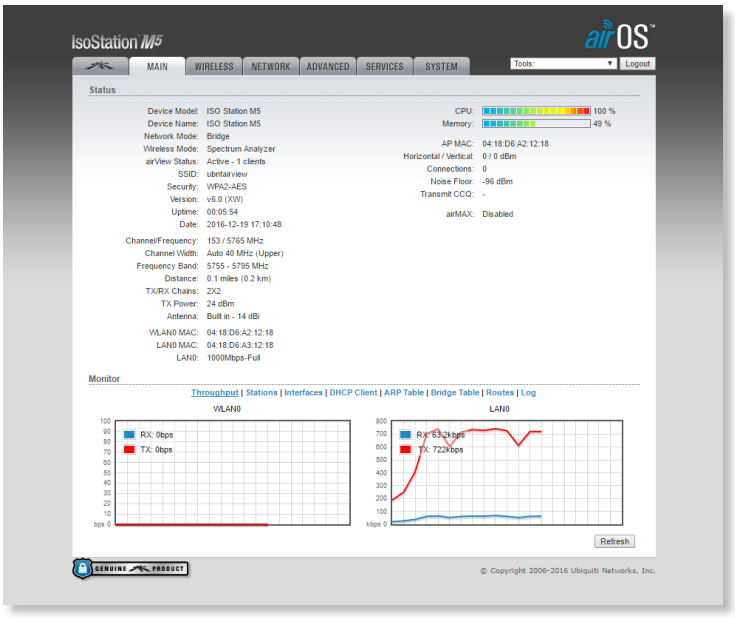
UNMS App

The IsoStation M5 can be accessed by the UNMS™ app once it has been set up on the same Wi-Fi network as your mobile device. (Original setup is done through your browser).

Accessing airOS via Wi-Fi

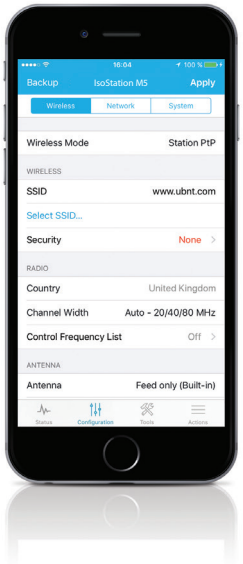
The UNMS app provides instant accessibility to the airOS configuration interface and can be downloaded from the App Store (iOS) or Google Play™ (Android). UNMS allows you to configure and manage the IsoStation M5 and offers various configuration options once you're connected or logged in.

Main



airView

UNMS Configuration



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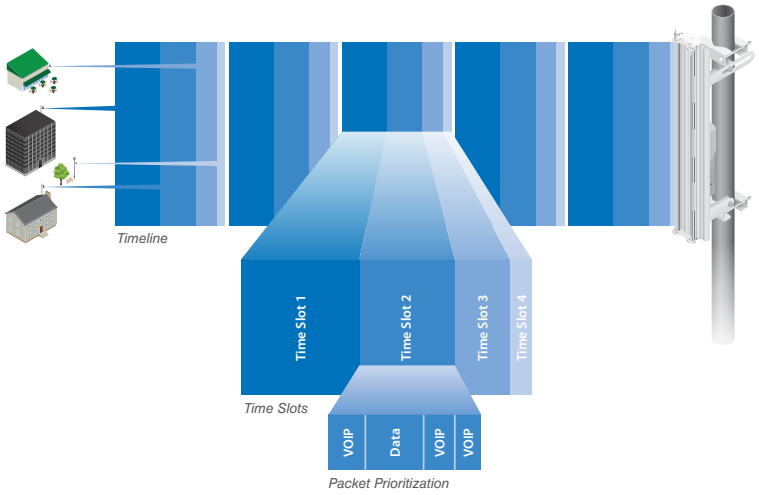
airMAX Technology Included

Unlike standard Wi-Fi protocol, Ubiquiti's Time Division Multiple Access (TDMA) airMAX protocol allows each client to send and receive data using pre-designated time slots scheduled by an intelligent AP controller.

This time slot method eliminates hidden node collisions and maximizes airtime efficiency. It provides significant performance improvements in latency, throughput, and scalability compared to all other outdoor systems in its class.

- Intelligent QoS with voice/video priority for seamless streaming.
- High capacity and scalability.
- Long-distance, carrier-class links.



Up to 100 airMAX stations can be connected to an airMAX Sector; four airMAX stations are shown to illustrate the general concept.

Hardware Overview

Using airMAX technology, the IsoStation M5 supports up to 100+ Mbps real TCP/IP throughput. It also offers the following features:

- Interchangeable horn antennas for enhanced beam shaping
- Horn feed comes directly from the radio input/output so connectors are eliminated
- Single button release for ease of changing antennas
- All metal, shielded radio base
- Metal strap for quick pole-mounting

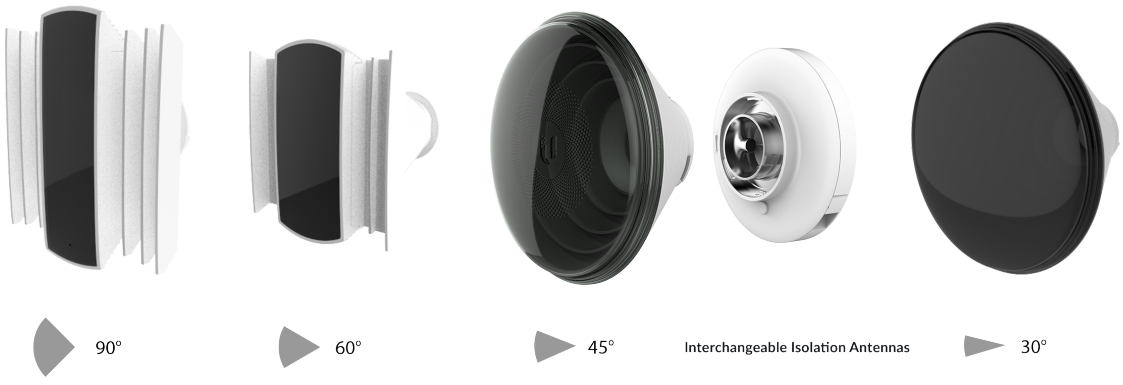
Pole-Mounting of the IsoStation M5

Antenna Options

The IsoStation M5 comes with a 45° isolation antenna. We offer three optional antennas (30°, 60°, 90°) with precise radiation angles for specific beam shaping, so you can customize the IsoStation M5 for your specific installation.

All horn antennas are optimized for co-location. The asymmetrical versions (60° and 90°) narrow the elevation pattern to increase gain where users need it.

Switching Out the 45° Horn Antenna



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Specifications

IS-M5	
Dimensions With Horn Without Horn	 174 x 174 x 150 mm (6.85 x 6.85 x 5.91") 131 x 131 x 65 mm (5.16 x 5.16 x 2.56")
Weight With Horn Without Horn	 725.7 g (1.6 lb) 408.2 g (0.9 lb)
Max. Power Consumption	6.5W
Power Supply	24V, 0.5A Gigabit PoE Adapter
Power Method	Passive PoE (Pairs 4, 5+; 7, 8 Return)
Gain	14 dBi
Beamwidth	45° (Default Horn)
Networking Interface	(1) 10/100/1000 Ethernet Port
Processor Specs	MIPS 74 Kc
Memory	64 MB DDR2
LED	(1) Power
Mounting	Pole-Mount
Wind Loading	36 N @ 200 km/h (8.09 lbf @ 125 mph)
Wind Survivability	200 km/h (125 mph)
ESD/EMP Protection	± 24 kV Contact/Air
Operating Temperature	-40 to 70° C (-40 to 158° F)
Operating Humidity	5 to 95% Noncondensing
Certifications	FCC, IC, CE

IS-M5 Operating Frequency			
Operating Frequency	Worldwide	USA: U-NII-1	USA: U-NII-3
	5150 - 5875 MHz	5150 - 5250 MHz	5725 - 5850 MHz

IS-M5 Output Power: 24 dBm							
TX Power Specifications				RX Power Specifications			
Modulation	Data Rate	Avg. TX	Tolerance	Modulation	Data Rate	Sensitivity	Tolerance
802.11a	6 - 24 Mbps	24 dBm	± 2 dB	**802.11a**	6 - 24 Mbps	-94 dBm Min.	± 2 dB
	36 Mbps	24 dBm	± 2 dB		36 Mbps	-80 dBm	± 2 dB
	48 Mbps	23 dBm	± 2 dB		48 Mbps	-77 dBm	± 2 dB
	54 Mbps	22 dBm	± 2 dB		54 Mbps	-75 dBm	± 2 dB
802.11n/airMAX	MCS0	24 dBm	± 2 dB	**802.11n/airMAX**	MCS0	-96 dBm	± 2 dB
	MCS1	23 dBm	± 2 dB		MCS1	-95 dBm	± 2 dB
	MCS2	23 dBm	± 2 dB		MCS2	-92 dBm	± 2 dB
	MCS3	23 dBm	± 2 dB		MCS3	-90 dBm	± 2 dB
	MCS4	22 dBm	± 2 dB		MCS4	-86 dBm	± 2 dB
	MCS5	21 dBm	± 2 dB		MCS5	-83 dBm	± 2 dB
	MCS6	20 dBm	± 2 dB		MCS6	-77 dBm	± 2 dB
	MCS7	20 dBm	± 2 dB		MCS7	-74 dBm	± 2 dB
	MCS8	24 dBm	± 2 dB		MCS8	-96 dBm	± 2 dB
	MCS9	24 dBm	± 2 dB		MCS9	-95 dBm	± 2 dB
	MCS10	23 dBm	± 2 dB		MCS10	-92 dBm	± 2 dB
	MCS11	23 dBm	± 2 dB		MCS11	-90 dBm	± 2 dB
	MCS12	22 dBm	± 2 dB		MCS12	-86 dBm	± 2 dB
	MCS13	21 dBm	± 2 dB		MCS13	-83 dBm	± 2 dB
	MCS14	20 dBm	± 2 dB		MCS14	-77 dBm	± 2 dB
	MCS15	20 dBm	± 2 dB		MCS15	-74 dBm	± 2 dB

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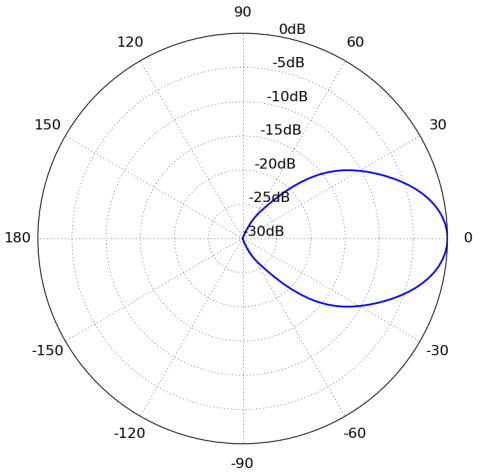
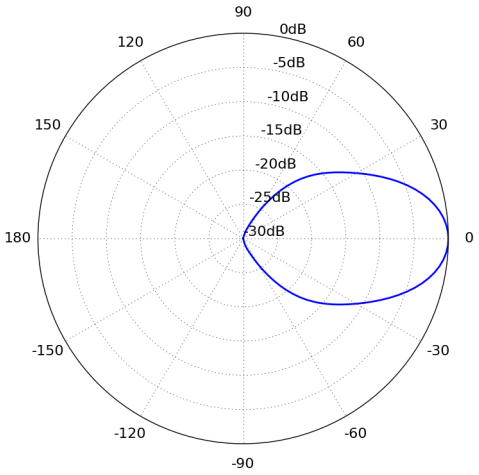
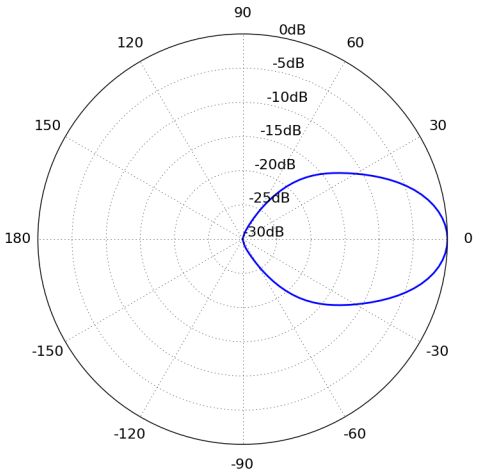
Vertical Azimuth



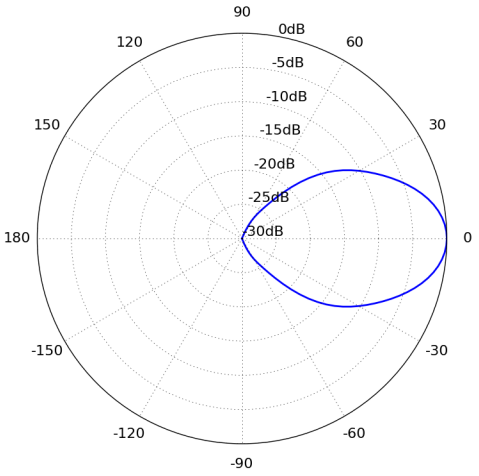
Vertical Elevation



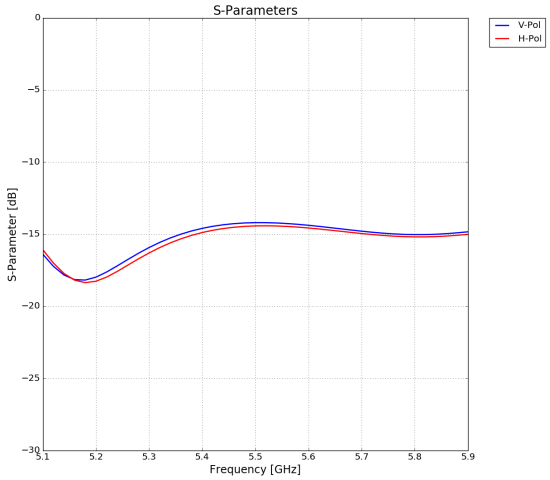
Horizontal Azimuth



Horizontal Elevation



Return Loss



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