IsoStation™ M5
Shielded airMAX® Radio with Isolation Antenna
Model: IS-M5

Interchangeable High-Isolation Horn Antenna

All-Metal, Shielded Radio Base

airMAX Processor for Superior Performance
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
The interchangeable antenna improves beam-shaping for specific deployment needs. By default, the IsoStation M5 includes the symmetrical horn antenna with 45° beamwidth.

Scalability
Horn antennas increase co-location performance without sacrificing gain.

Symmetrical horn antennas (30° and 45° versions) offer breakthrough scalability options for wireless systems. Unique beam performance and great co-location characteristics allow for a higher density of sectors than traditional sector technology.

Enhanced Co-Location
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. Asymmetrical horn antennas are ideal for cluster sector installations with high co-location requirements.

Extended Performance
A robust dish antenna, model U-OMT-Dish, offers excellent beam directivity with 27 dBi of gain. It can be paired with the IsoStation M5 to extend radio performance for a greater number of WISP customers.

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

Application Example

PtMP Client Links

The IsoStation™ M5 is used as a CPE device for each client in an airMAX PtMP (Point-to-MultiPoint) network.

PtP Link

Use an IsoStation M5 on each side of a PtP (Point-to-Point) link.
Software

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™ (Ubiquiti® Network Management System) 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.
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.

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 and simple mounting

Mounting Flexibility

OMT-Mount

Optional Mounting Bracket

An optional mounting bracket, model U-OMT-MOUNT, allows for ± 20° tilt adjustments of the horn’s elevation. This pole-mounting method enables easy adjustments depending on your deployment needs.
Antenna Options

Horn Antennas
The IsoStation M5 comes with a 45° isolation antenna. We offer three optional antennas with precise radiation angles for specific beam shaping, so you can customize the IsoStation M5 for your specific installation requirements:

- 30°
- 60°
- 90°

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.

Horn Antenna Model Comparison

<table>
<thead>
<tr>
<th>Horn-5-30</th>
<th>45° ( Included)</th>
<th>Horn-5-60</th>
<th>Horn-5-90</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beamwidth</td>
<td>30°</td>
<td>45°</td>
<td>60°</td>
</tr>
<tr>
<td>Gain</td>
<td>19 dBi</td>
<td>15.5 dBi</td>
<td>16 dBi</td>
</tr>
</tbody>
</table>

Dish Antenna
Pair the IsoStation M5 with a robust dish antenna, model U-OMT-Dish, to provide SISO or 2x2 MIMO, dual-polarity performance as a client in a PtMP link. This radio/antenna combination delivers bandwidth to an extended number of WISP customers.

- Dish reflector design for excellent beam directivity
- Industrial-strength hardware for outdoor use
- HPOL and VPOL Beamwidth: 6.5°
- Antenna gain: 27 dBi
Specifications

| IS-M5 | Dimensions | 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    | 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 (MHz) | 5150 - 5875
| USA | U-NII-1: 5150 - 5250 | U-NII-3: 5725 - 5850

| 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 |
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|       | 100 Mbps | 20 dBm | ± 2 dB |       | 100 Mbps | -75 dBm | ± 2 dB |
|       | 200 Mbps | 19 dBm | ± 2 dB |       | 200 Mbps | -75 dBm | ± 2 dB |
|       | 500 Mbps | 18 dBm | ± 2 dB |       | 500 Mbps | -75 dBm | ± 2 dB |
|       | 1000 Mbps | 17 dBm | ± 2 dB |       | 1000 Mbps | -75 dBm | ± 2 dB |
|       | 2000 Mbps | 16 dBm | ± 2 dB |       | 2000 Mbps | -75 dBm | ± 2 dB |
|       | 5000 Mbps | 15 dBm | ± 2 dB |       | 5000 Mbps | -75 dBm | ± 2 dB |
|       | 10000 Mbps | 14 dBm | ± 2 dB |       | 10000 Mbps | -75 dBm | ± 2 dB |

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