



NanoBeam™ M

High-Performance airMAX® Bridge

Models: NBE-M5-19, NBE-M5-16, NBE-M2-400, NBE-M5-400, NBE-M5-300

Uniform Beamwidth Maximizes Noise Immunity

Innovative Mechanical Design

High-Speed Processor for Superior Performance



Overview

Starting with the first-generation NanoBridge®, Ubiquiti Networks™ pioneered the all-in-one design for an airMAX® product functioning as a CPE (Customer Premises Equipment). Now Ubiquiti Networks launches the latest generation of CPE, the NanoBeam™.

Improved Noise Immunity

The NanoBeam directs RF energy in a tighter beamwidth. With the focus in one direction, the NanoBeam blocks or spatially filters out noise, so noise immunity is improved. This feature is especially important in an area crowded with other RF signals of the same or similar frequency.

Integrated Design

The NanoBeam models are available in two form factors:

- **All-in-One Design** The Ubiquiti Research and Development team combined the radio and antenna to create a more efficient and compact CPE. The NanoBeam gets maximum gain out of the smallest footprint.
- **Dish Reflector Design** Ubiquiti's InnerFeed™ technology integrates the radio into the feedhorn of an antenna, so there is no need for a cable. This improves performance because it eliminates cable losses.

Providing increased performance from its faster processor and innovative mechanical design at a low cost, the NanoBeam is extremely versatile and cost-effective to deploy.

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.

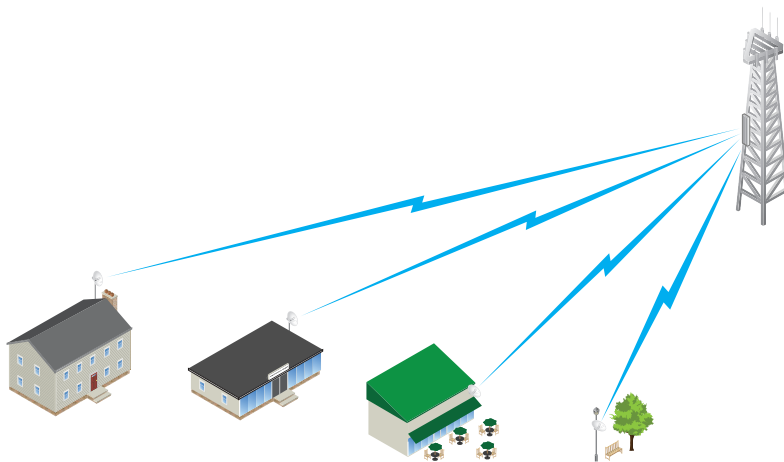
Intelligent QoS Priority is given to voice/video for seamless streaming.

Scalability High capacity and scalability.

Long Distance Capable of high-speed, carrier-class links.

Application Examples

PtMP Client Links



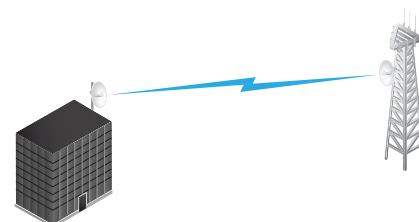
The NanoBeam used as a CPE device for each client in an airMAX PtMP network.

Wireless Client



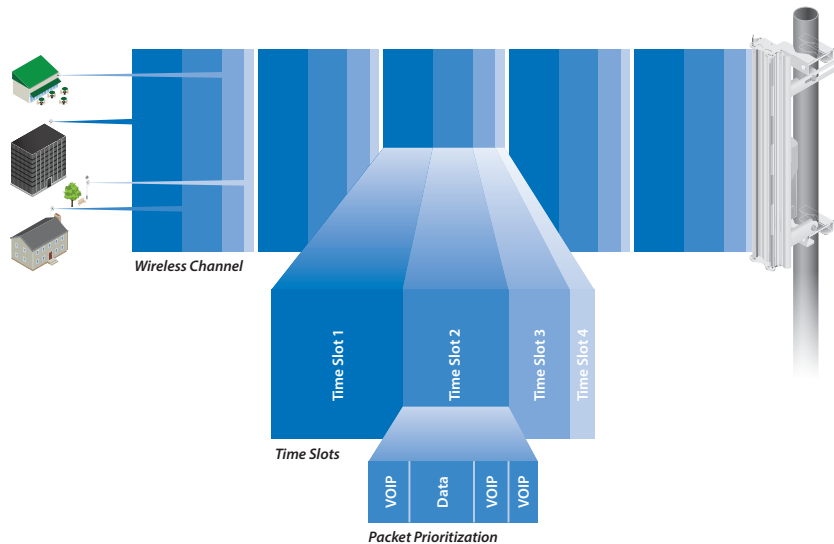
All-in-One Design The NanoBeam as a powerful wireless client.

PtP Link



Dish Reflector Design Use a NanoBeam on each side of a PtP link.

airMAX TDMA Technology



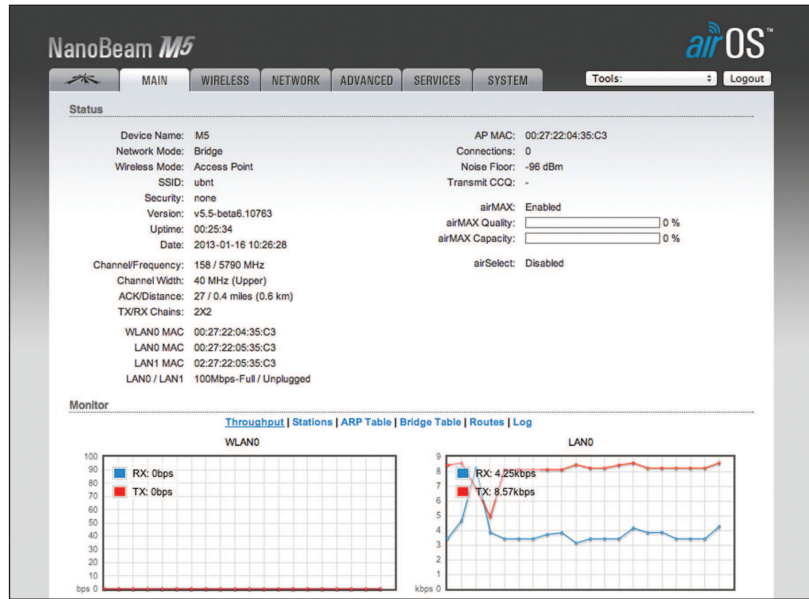
Up to 100 airMAX stations can be connected to an airMAX Sector; four airMAX stations are shown to illustrate the general concept.

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.

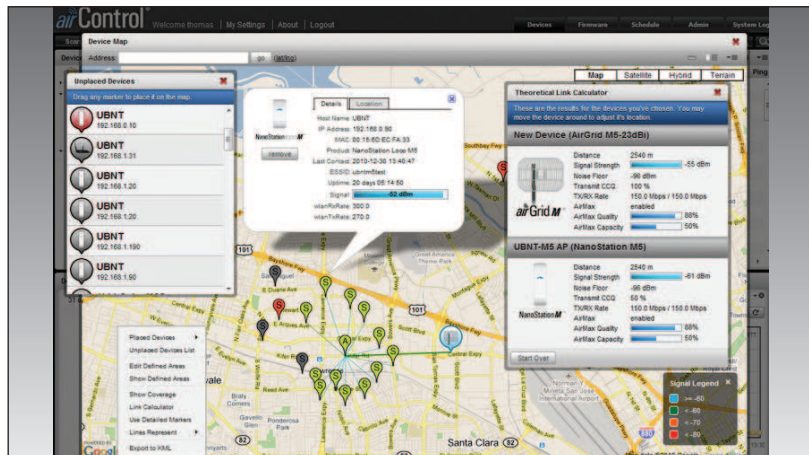
- **Waterfall** Aggregate energy over time for each frequency.
- **Waveform** Aggregate energy collected.
- **Real-time** Energy is shown in real time as a function of frequency.
- **Recording** Automate airView to record and report results.



airControl®

airControl® is a powerful and intuitive, web-based server network management application, which allows operators to centrally manage entire networks of Ubiquiti devices.

- Network Map
- Monitor Device Status
- Mass Firmware Upgrade
- Web UI Access
- Manage Groups of Devices
- Task Scheduling



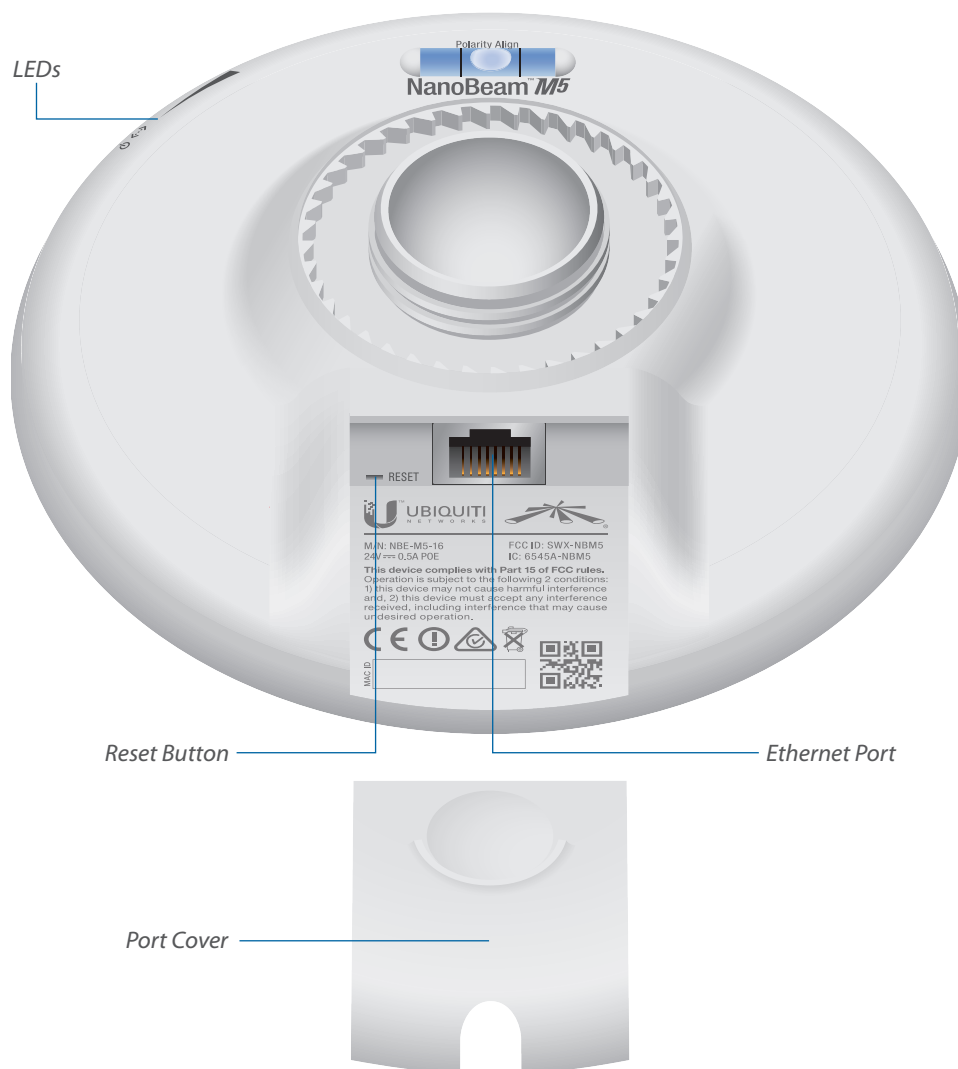
Hardware Overview – All-in-One Design

Innovative Mechanical Design

- **All-in-one design** The NanoBeam provides both the radio and antenna in the smallest possible footprint.
- **Quick and easy installation** No fasteners are required for pole-mounting, and a single wall fastener (not included) is required for wall-mounting.
- **Convenient alignment** The NanoBeam pivots on its ball joint for easy aiming.

Compact Form Factor

- **Efficient footprint** The radio and antenna are combined into a single body that takes up minimal space.
- **Versatile mounting** The NanoBeam can be mounted in almost any position needed for line of sight.
- **Aesthetics** The NanoBeam is small enough to blend discreetly into the background at a customer's location.



NBE-M5-16

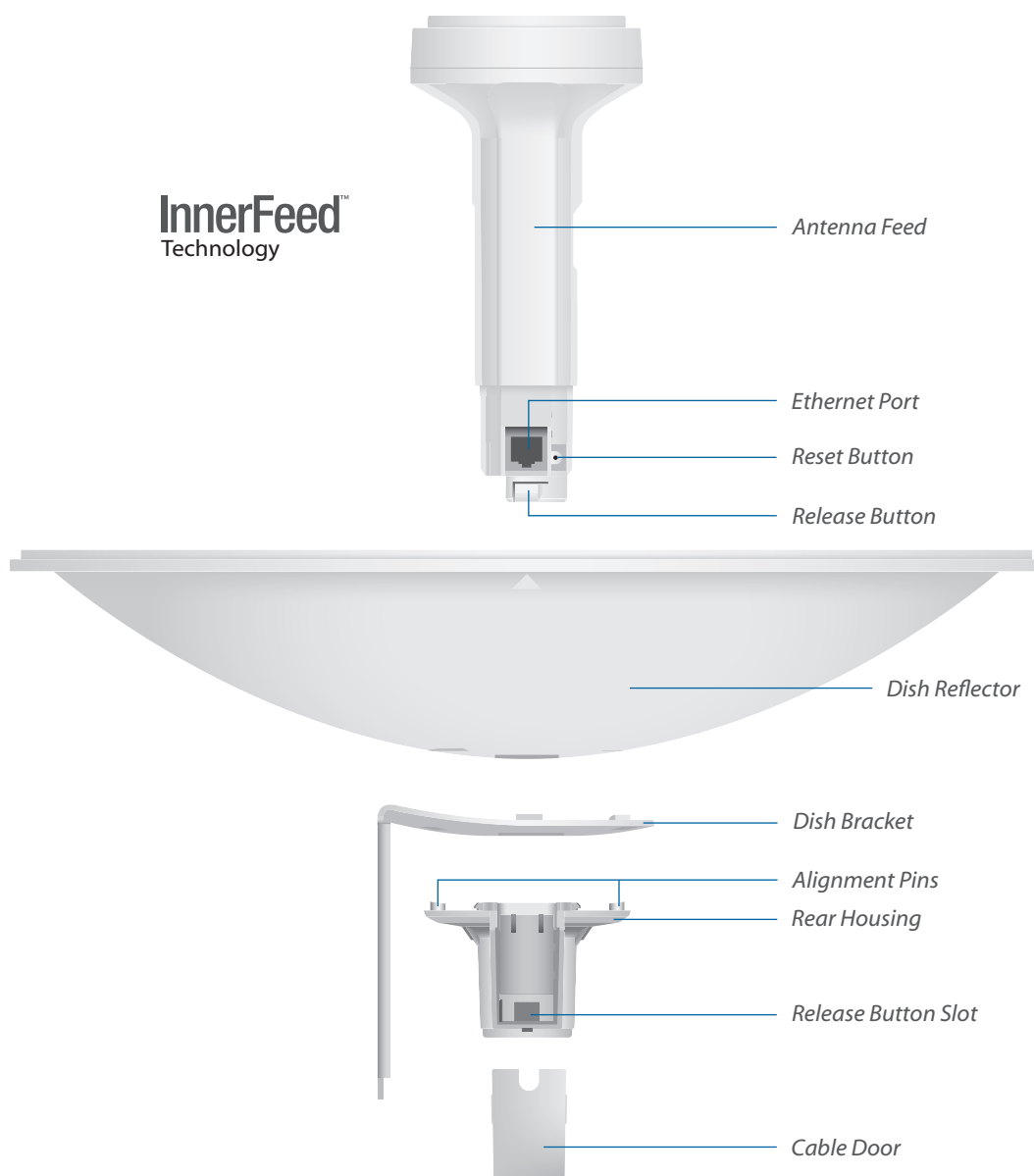
Hardware Overview – Dish Reflector Design

Innovative Mechanical Design

- **Built-in mechanical tilt** The mounting bracket conveniently offers 20° of uptilt and up to 20° of downtilt.
- **Quick assembly** The number of fasteners was reduced to simplify assembly. Tools are required only when the technician mounts the NanoBeam on the pole.
- **Easy removal** The antenna feed can be detached with the push of a button.

Corrosion Resistance

- **Fasteners** GEOMET-coated for improved corrosion resistance when compared with zinc-plated fasteners.
- **Dish and brackets** Made of galvanized steel that is powder-coated for superior corrosion resistance. Redesigned pole bracket for the 400 mm dish and fender washers for the 300 mm dish prevent paint from being removed from the metal brackets for improved corrosion resistance.



NBE-M2-400

Models



NanoBeam™ M2

Model	Frequency	Gain	Dish Reflector
NBE-M2-400	2.4 GHz	18 dBi	400 mm



NanoBeam™ M5

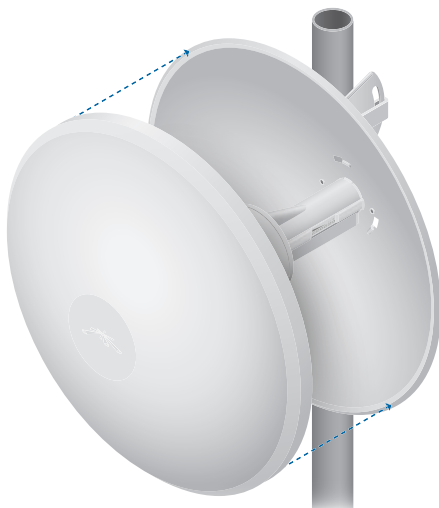
Model	Frequency	Gain	Dish Reflector
NBE-M5-400	5 GHz	25 dBi	400 mm

The NBE-M5-400 Antenna Feed has a thin gray ring around the center of the cap to differentiate it from the NBE-M5-300 Antenna Feed.



NanoBeam™ M5

Model	Frequency	Gain	Dish Reflector
NBE-M5-300	5 GHz	22 dBi	300 mm



NanoBeam™ M 400 mm Radome

Model	NBE-M2-400	NBE-M5-400	NBE-M5-300
NBE-RAD-400	✓	✓	N/A

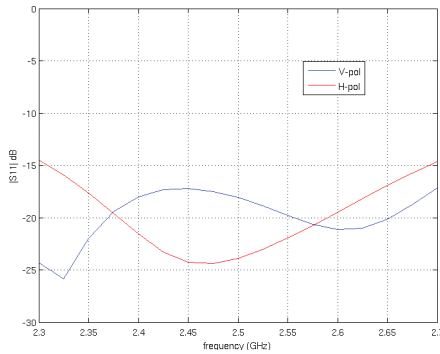
A protective radome is available as an optional accessory for the NBE-M2-400 and NBE-M5-400.

Specifications

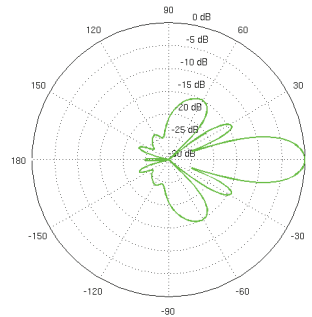
NBE-M2-400 – Output Power: 28 dBm							
2.4 GHz TX POWER SPECIFICATIONS				2.4 GHz RX POWER SPECIFICATIONS			
	Data Rate	Avg. TX	Tolerance		Data Rate	Sensitivity	Tolerance
11g	1-24 Mbps	28 dBm	± 2 dB	11g	1-24 Mbps	-97 dBm	± 2 dB
	36 Mbps	26 dBm	± 2 dB		36 Mbps	-80 dBm	± 2 dB
	48 Mbps	25 dBm	± 2 dB		48 Mbps	-77 dBm	± 2 dB
	54 Mbps	24 dBm	± 2 dB		54 Mbps	-75 dBm	± 2 dB
11n/airMAX	MCS0	28 dBm	± 2 dB	11n/airMAX	MCS0	-96 dBm	± 2 dB
	MCS1	28 dBm	± 2 dB		MCS1	-95 dBm	± 2 dB
	MCS2	28 dBm	± 2 dB		MCS2	-92 dBm	± 2 dB
	MCS3	28 dBm	± 2 dB		MCS3	-90 dBm	± 2 dB
	MCS4	27 dBm	± 2 dB		MCS4	-86 dBm	± 2 dB
	MCS5	25 dBm	± 2 dB		MCS5	-83 dBm	± 2 dB
	MCS6	23 dBm	± 2 dB		MCS6	-77 dBm	± 2 dB
	MCS7	22 dBm	± 2 dB		MCS7	-74 dBm	± 2 dB
	MCS8	28 dBm	± 2 dB		MCS8	-95 dBm	± 2 dB
	MCS9	28 dBm	± 2 dB		MCS9	-93 dBm	± 2 dB
	MCS10	28 dBm	± 2 dB		MCS10	-90 dBm	± 2 dB
	MCS11	28 dBm	± 2 dB		MCS11	-87 dBm	± 2 dB
	MCS12	27 dBm	± 2 dB		MCS12	-84 dBm	± 2 dB
	MCS13	25 dBm	± 2 dB		MCS13	-79 dBm	± 2 dB
	MCS14	23 dBm	± 2 dB		MCS14	-78 dBm	± 2 dB
MCS15	22 dBm	± 2 dB	MCS15	-75 dBm	± 2 dB		

NanoBeam NBE-M2-400 Antenna Information	
Gain	18 dBi
Max. VSWR	1.5:1
Built-In Mechanical Downtilt	+20° to -10°

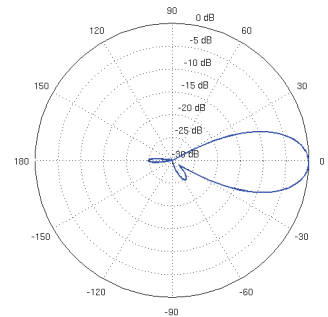
Return Loss



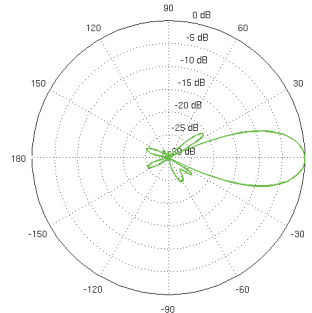
Vertical Azimuth



Vertical Elevation



Horizontal Azimuth



Horizontal Elevation

