NanoBridge *M*

Hi-Performance & Cost-Effective MIMO Bridging

Models: NBM9, NBM2, NBM3, NBM365, NBM5

Hi-Performance, Long Range

Completely Integrated CPE in the Feed of the Antenna

**Easy Assembly and Installation**

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Overview

InnerFeed Antenna Technology

Ubiquiti's revolutionary InnerFeed technology integrates the entire radio system into the feedhorn of an antenna. NanoBridge M combines Ubiquiti's Innerfeed and AirMax (MIMO TDMA Protocol) technologies to create a simple, yet extremely powerful and robust wireless unit capable of 100+Mbps real outdoor throughput and up to 30km+ range.

Complete antenna and radio system integration provides revolutionary cost/performance solutions to the Worldwide Broadband Industry.

The low cost, hi-performance, and robust "all-in-one" design of NanoBridge M make it extremely versatile and ideal in several different applications (see diagrams on right for some usage examples).

Usage Examples

PTMP CLIENT LINKS
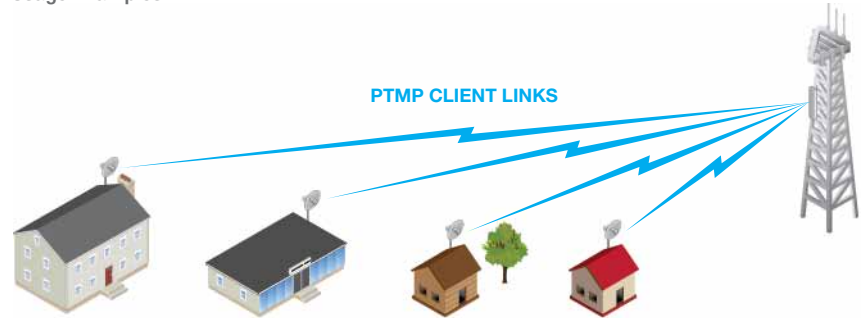
NanoBridge M as powerful clients in an AirMax PTMP (point to multi-point) network setup.

PTP LINK
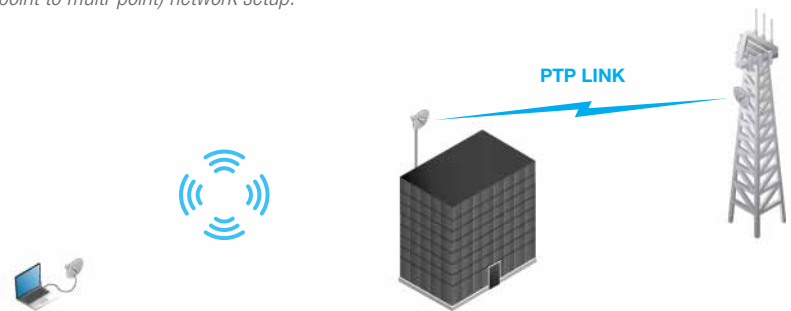
NanoBridge M as a powerful wireless client.

Using two NanoBridge M to create a powerful, long range, PTP (point to point) link.

Integrated AirMax Technology

Unlike standard WiFi protocol, Ubiquiti's Time Division Multiple Access (TDMA) AirMax protocol allows each client to send & receive data using pre-designated time slots scheduled by an intelligent AP controller.
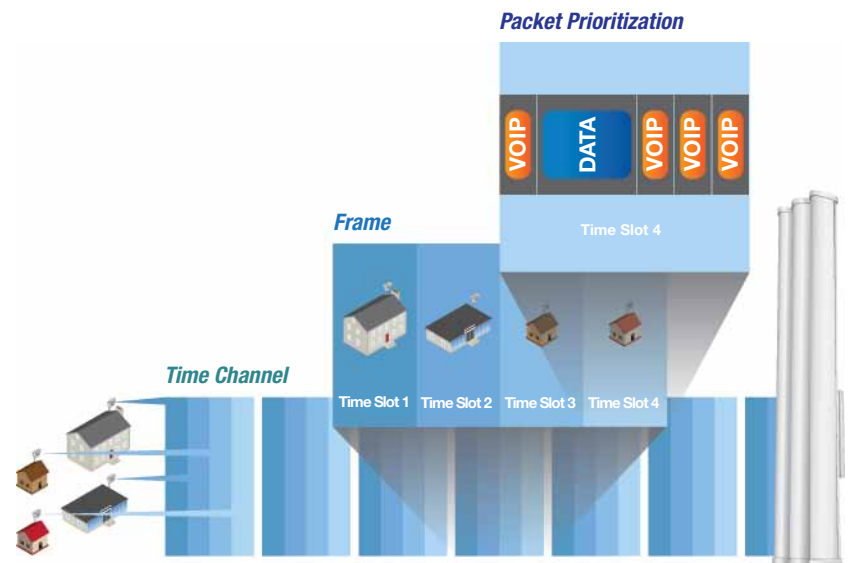
This "time slot" method eliminates hidden node collisions & maximizes air time efficiency. It provides many magnitudes of performance improvements in latency, throughput, & scalability compared to all other outdoor systems in its class.

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

Scalability High capacity and scalability.

Long Distance Capable of high speed 50km+ links

Latency Multiple features dramatically reduce noise.

Packet Prioritization

VOIP | DATA | VOIP | VOIP | VOIP

Time Slot 4

Frame

Time Channel

Time Slot 1 | Time Slot 2 | Time Slot 3 | Time Slot 4

AirMax Clients (up to 300 clients can be connected per AirMax BaseStation, 4 clients are shown to show general concept)

AirMax BaseStation

www.ubnt.com

NanoBridge M | Datasheet

Models

NanoBridge M2 2.4 GHz
Product ID: NB-2G18

NanoBridge M5-22 5 GHz, 22 dBi
Product ID: NB-5G22

NanoBridge M5-25 5 GHz, 25 dBi
Product ID: NB-5G25

NanoBridge M3 3.3-3.7 GHz
Product ID: NBM3

NanoBridge M365 3.65-3.675 GHz
Product ID: NBM365

NanoBridge M9 900 MHz
Product ID: NBM9

www.ubnt.com

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 hi-performance outdoor multipoint networking.

Protocol Support

Ubiquiti Channelization

Spectral Width Adjust

ACK Auto-Timing

AAP Technology

Multi-Language Support
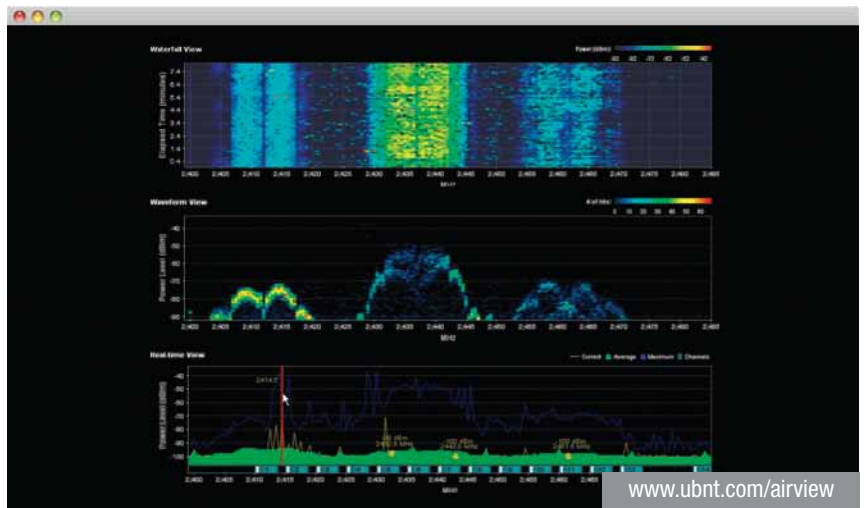

www.ubnt.com/airos

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 real-time as a function of frequency.

Recording Automize AirView to record and report results.

www.ubnt.com/airview

airControl

AirControl is a powerful and intuitive web based server network management application which allows operators to centrally manage entire networks of Ubiqutii devices.

Network Map

Monitor Device Status

Mass Firmware Upgrade

Web UI Access

Manage Groups of Devices

Task Scheduling

www.ubnt.com/aircontrol

NanoBridge M | Datasheet

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Specifications

System Information		
Processor Specs		Atheros MIPS 24KC, 400MHz
	M9	M2, M3, M365, M5
Memory Information	64MB SDRAM, 8MB Flash	32MB SDRAM, 8MB Flash
	M9, M2, M5	M3, M365
Networking Interface	1 X 10/100 BASE-TX (Cat. 5, RJ-45) Ethernet	2 X 10/100 BASE-TX (Cat. 5, RJ-45) Ethernet

Regulatory / Compliance Information				
	M9	M2, M5	M3	M365
Wireless Approvals	FCC Part 15.247, IC RS210	FCC Part 15.247, IC RS210, CE	-	FCC Part 90Y
RoHS Compliance	YES			

Physical / Electrical / Environmental		
Enclosure Characteristics	Outdoor UV Stabilized Plastic	
Mounting Kit	Pole Mounting Kit included	
Power Supply	24V, 1A POE Supply included	
Power Method	Passive Power over Ethernet (pairs 4, 5+; 7, 8 return)	
Operating Temperature	-30C to 75C	
Operating Humidity	5 to 95% Condensing	
Shock and Vibration	ETSI300-019-1.4	
	M9	M2, M5	M3, M365
Dimensions	543 x 440 x 725 mm	400 mm diameter (M2) 326 mm diameter (M5-22) 420 mm diameter (M5-25)	492 x 440 x 705 mm
Weight	1310 g	1565 g	900 g
Max Power Consumption	6.5 Watts	5.5 Watts	8 Watts
Antenna Gain	10.6 - 11.3 dBi	18 dBi (M2) 22 dBi (M5-22) 25 dBi (M5-25)	21.5 - 22.5 dBi

Operating Frequency Summary (MHz)				
M9	M2	M3	M365	M5
902-928	2412-2462	3300-3700	3650-3675	5470-5825*

* Only 5745 - 5825 MHz is supported in the USA

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NanoBridge _M_ | **Datasheet**

Specifications (cont.)

NanoBridge M9 - Operating Frequency 902-928 MHz							
OUTPUT POWER: 28 dBm							
900 MHz TX POWER SPECIFICATIONS				900 MHz RX POWER SPECIFICATIONS			
AirMax	MCS0	28 dBm	+/- 2 dB	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	28 dBm	+/- 2 dB		MCS4	-86 dBm	+/- 2 dB
	MCS5	24 dBm	+/- 2 dB		MCS5	-83 dBm	+/- 2 dB
	MCS6	22 dBm	+/- 2 dB		MCS6	-77 dBm	+/- 2 dB
	MCS7	21 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	28 dBm	+/- 2 dB		MCS12	-84 dBm	+/- 2 dB
	MCS13	24 dBm	+/- 2 dB		MCS13	-79 dBm	+/- 2 dB
	MCS14	22 dBm	+/- 2 dB		MCS14	-78 dBm	+/- 2 dB
	MCS15	21 dBm	+/- 2 dB		MCS15	-75 dBm	+/- 2 dB

NanoBridge M9 - Antenna Information

Return Loss

Vertical Azimuth

Vertical Elevation

Horizontal Azimuth

Horizontal Elevation

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NanoBridge M | Datasheet
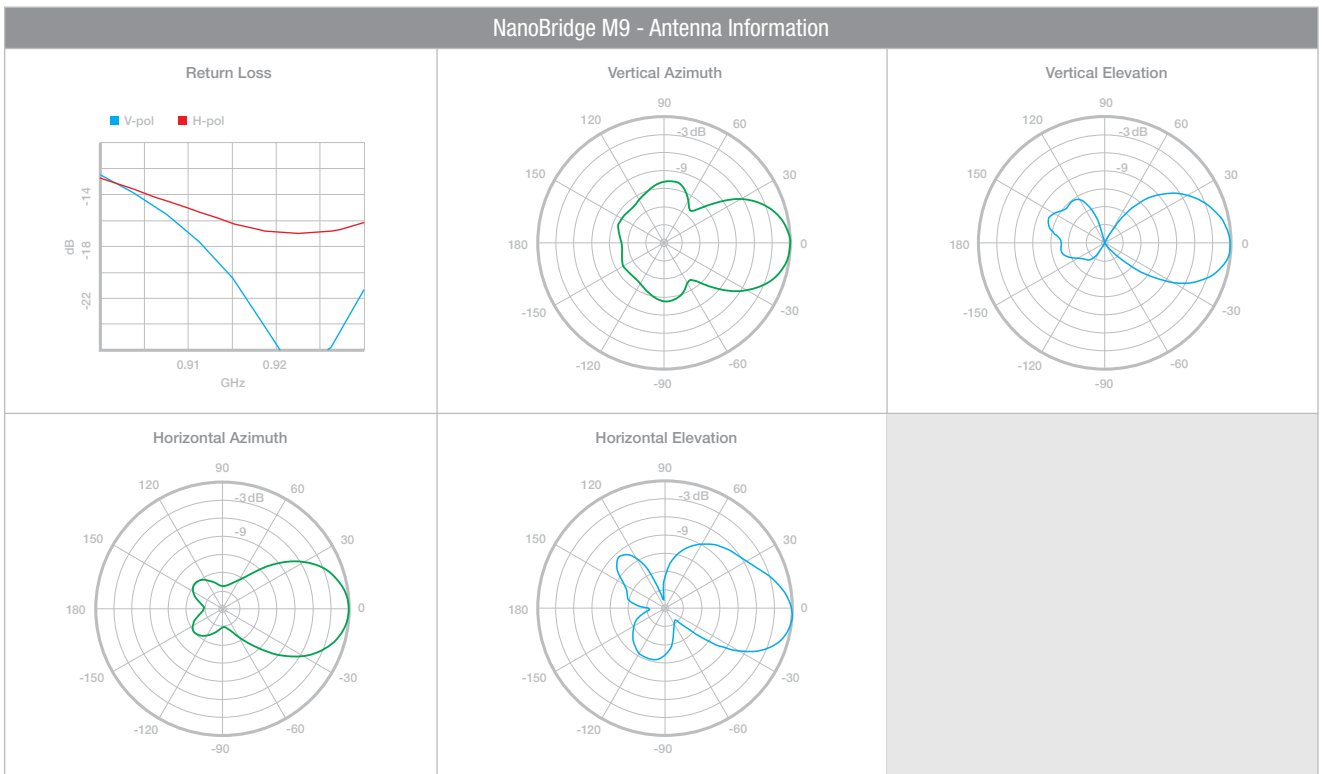
Specifications (cont.)

NanoBridge M2 - Operating Frequency 2412-2462 MHz							
OUTPUT POWER: 23 dBm							
2.4 GHz TX POWER SPECIFICATIONS					**2.4 GHz RX POWER SPECIFICATIONS**		
AirMax	MCS0	23 dBm	+/- 2 dB	AirMax	MCS0	-94 dBm	+/- 2 dB
	MCS1	23 dBm	+/- 2 dB		MCS1	-93 dBm	+/- 2 dB
	MCS2	23 dBm	+/- 2 dB		MCS2	-90 dBm	+/- 2 dB
	MCS3	23 dBm	+/- 2 dB		MCS3	-89 dBm	+/- 2 dB
	MCS4	22 dBm	+/- 2 dB		MCS4	-86 dBm	+/- 2 dB
	MCS5	20 dBm	+/- 2 dB		MCS5	-83 dBm	+/- 2 dB
	MCS6	19 dBm	+/- 2 dB		MCS6	-77 dBm	+/- 2 dB
	MCS7	18 dBm	+/- 2 dB		MCS7	-74 dBm	+/- 2 dB
	MCS8	23 dBm	+/- 2 dB		MCS8	-93 dBm	+/- 2 dB
	MCS9	23 dBm	+/- 2 dB		MCS9	-91 dBm	+/- 2 dB
	MCS10	23 dBm	+/- 2 dB		MCS10	-89 dBm	+/- 2 dB
	MCS11	23 dBm	+/- 2 dB		MCS11	-87 dBm	+/- 2 dB
	MCS12	22 dBm	+/- 2 dB		MCS12	-84 dBm	+/- 2 dB
	MCS13	20 dBm	+/- 2 dB		MCS13	-79 dBm	+/- 2 dB
	MCS14	19 dBm	+/- 2 dB		MCS14	-78 dBm	+/- 2 dB
	MCS15	18 dBm	+/- 2 dB		MCS15	-75 dBm	+/- 2 dB

NanoBridge M2 - Antenna Information

Return Loss

Vertical Azimuth

Vertical Elevation

Horizontal Azimuth

Horizontal Elevation

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NanoBridge M | Datasheet

Specifications (cont.)

NanoBridge M3 & M365 - Operating Frequency 3650-3675 MHz							
OUTPUT POWER: 25 dBm							
TX POWER SPECIFICATIONS					RX POWER SPECIFICATIONS		
AirMax	MCS0	25 dBm	+/- 2 dB	AirMax	MCS0	-94 dBm	+/- 2 dB
	MCS1	25 dBm	+/- 2 dB		MCS1	-93 dBm	+/- 2 dB
	MCS2	25 dBm	+/- 2 dB		MCS2	-90 dBm	+/- 2 dB
	MCS3	25 dBm	+/- 2 dB		MCS3	-89 dBm	+/- 2 dB
	MCS4	24 dBm	+/- 2 dB		MCS4	-86 dBm	+/- 2 dB
	MCS5	23 dBm	+/- 2 dB		MCS5	-83 dBm	+/- 2 dB
	MCS6	22 dBm	+/- 2 dB		MCS6	-77 dBm	+/- 2 dB
	MCS7	20 dBm	+/- 2 dB		MCS7	-74 dBm	+/- 2 dB
	MCS8	25 dBm	+/- 2 dB		MCS8	-93 dBm	+/- 2 dB
	MCS9	25 dBm	+/- 2 dB		MCS9	-91 dBm	+/- 2 dB
	MCS10	25 dBm	+/- 2 dB		MCS10	-89 dBm	+/- 2 dB
	MCS11	25 dBm	+/- 2 dB		MCS11	-87 dBm	+/- 2 dB
	MCS12	24 dBm	+/- 2 dB		MCS12	-84 dBm	+/- 2 dB
	MCS13	23 dBm	+/- 2 dB		MCS13	-79 dBm	+/- 2 dB
	MCS14	22 dBm	+/- 2 dB		MCS14	-78 dBm	+/- 2 dB
	MCS15	20 dBm	+/- 2 dB		MCS15	-75 dBm	+/- 2 dB

NanoBridge M3 & M365 - Antenna Information

Return Loss

Vertical Azimuth

Vertical Elevation

Horizontal Azimuth

Horizontal Elevation

NanoBridge M | Datasheet
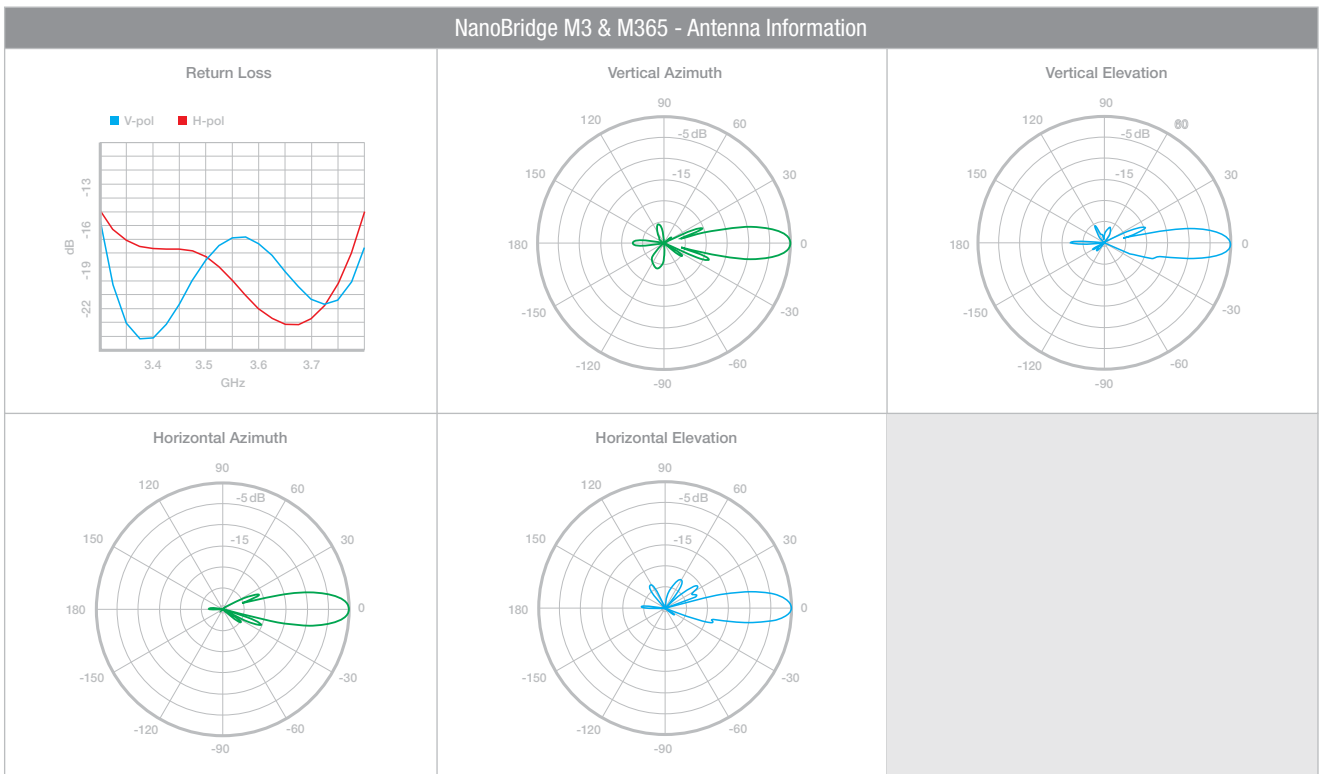
Specifications (cont.)

NanoBridge M5 - Operating Frequency 5470-5825 MHz*							
OUTPUT POWER: 23 dBm							
TX POWER SPECIFICATIONS					RX POWER SPECIFICATIONS		
AirMax	MCS0	23 dBm	+/- 2 dB	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	20 dBm	+/- 2 dB		MCS5	-83 dBm	+/- 2 dB
	MCS6	19 dBm	+/- 2 dB		MCS6	-77 dBm	+/- 2 dB
	MCS7	18 dBm	+/- 2 dB		MCS7	-74 dBm	+/- 2 dB
	MCS8	23 dBm	+/- 2 dB		MCS8	-95 dBm	+/- 2 dB
	MCS9	23 dBm	+/- 2 dB		MCS9	-93 dBm	+/- 2 dB
	MCS10	23 dBm	+/- 2 dB		MCS10	-90 dBm	+/- 2 dB
	MCS11	23 dBm	+/- 2 dB		MCS11	-87 dBm	+/- 2 dB
	MCS12	22 dBm	+/- 2 dB		MCS12	-84 dBm	+/- 2 dB
	MCS13	20 dBm	+/- 2 dB		MCS13	-79 dBm	+/- 2 dB
	MCS14	19 dBm	+/- 2 dB		MCS14	-78 dBm	+/- 2 dB
	MCS15	18 dBm	+/- 2 dB		MCS15	-75 dBm	+/- 2 dB

NanoBridge M5 - Antenna Information

Return Loss

Vertical Azimuth

Vertical Elevation

Horizontal Azimuth

Horizontal Elevation

* Only 5745 - 5825 MHz is supported in the USA

NanoBridge M | Datasheet
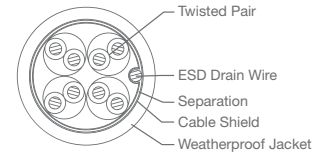
TOUGHCable
OUTDOOR CARRIER CLASS SHIELDED

Protect your networks from the most brutal environments with Ubiquiti's industrial-grade shielded ethernet cable, TOUGHCable.

Increase Performance Dramatically improve your ethernet link states, speeds, and overall performance with Ubiquiti TOUGHCables.
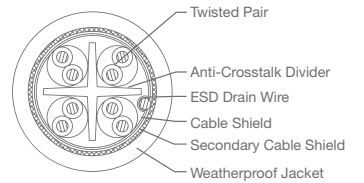
Extreme Weatherproof TOUGHCables have been built to perform even in the harshest weather and environments.

Eliminate ESD Attacks Protect your networks from devastating ESD Attacks, TOUGHCables eliminate ESD attacks and ethernet hardware damage.

Extended Cable Support TOUGHCables have been developed to have increased power handling performance for extended cable run lengths.

Twisted Pair
ESD Drain Wire
Separation
Cable Shield
Weatherproof Jacket

LEVEL 1
SHIELDING PROTECTION

Twisted Pair
Anti-Crosstalk Divider
ESD Drain Wire
Cable Shield
Secondary Cable Shield
Weatherproof Jacket

LEVEL 2
SHIELDING PROTECTION

Bulletproof your networks

TOUGHCable is currently available in two versions: Level 1 Shielding Protection and Level 2 Shielding Protection.

Level 1 is a Category 5e (100Mbps Ethernet Support) Outdoor Carrier Class Shielded Cable.

Level 2 is a Category 6 (1Gbps Ethernet Support) Outdoor Carrier Class Shielded Cable that is also capable of providing enhanced Category 5e performance.
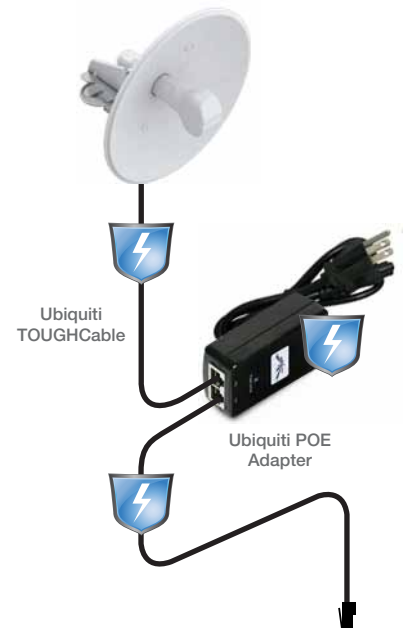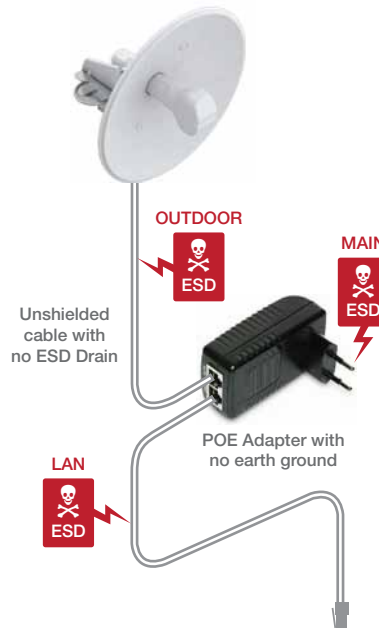
Additional Information:
• 24 AWG copper conductor pairs
• ESD Drain Wire: 26 AWG integrated ESD Drain wire to prevent ESD attacks & damage.
• PVC outdoor rated jacket
• 0.35um foil shield
• Multi-Layered Shielding
• 1000ft (304.8m) length

Learn more:
www.ubnt.com/toughcable

ESD Attacks are overwhelmingly the leading cause for device failures. The diagram below illustrates the areas vulnerable to ESD Attacks in a defenseless network.

By using a grounded Ubiquiti POE adapter (included) along with Ubiquiti TOUGHCable (sold separately), you can effectively eliminate ESD Attacks.

OUTDOOR
MAIN
ESD
ESD
Unshielded cable with no ESD Drain
LAN
ESD
POE Adapter with no earth ground

Ubiquiti TOUGHCable
Ubiquiti POE Adapter

NanoBridge **M** | Datasheet

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NanoBridge M | **Datasheet**

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TERMS OF USE: The Ubiquiti radio device must be professionally installed. Shielded ethernet cable and earth grounding must be used as conditions of product warranty. It is the installers responsibility to follow local country regulations including operation within legal frequency channels, output power, and Dynamic Frequency Selection (DFS) requirements.

For further information, please visit www.ubnt.com.

All specifications in this document are subject to change without notice.   NBM-DS-032111