

# ***rocket*** D I S H

AirMax Carrier Class 2x2 PtP Bridge Dish Antenna

Models: RD-2G-24, RD-3G-26, RD-5G-30, RD-5G-34

Ultimate in RF Performance

Integrated Mount lets you easily  
snap Rocket M into place

Incredible Range and Speed



# Overview

02

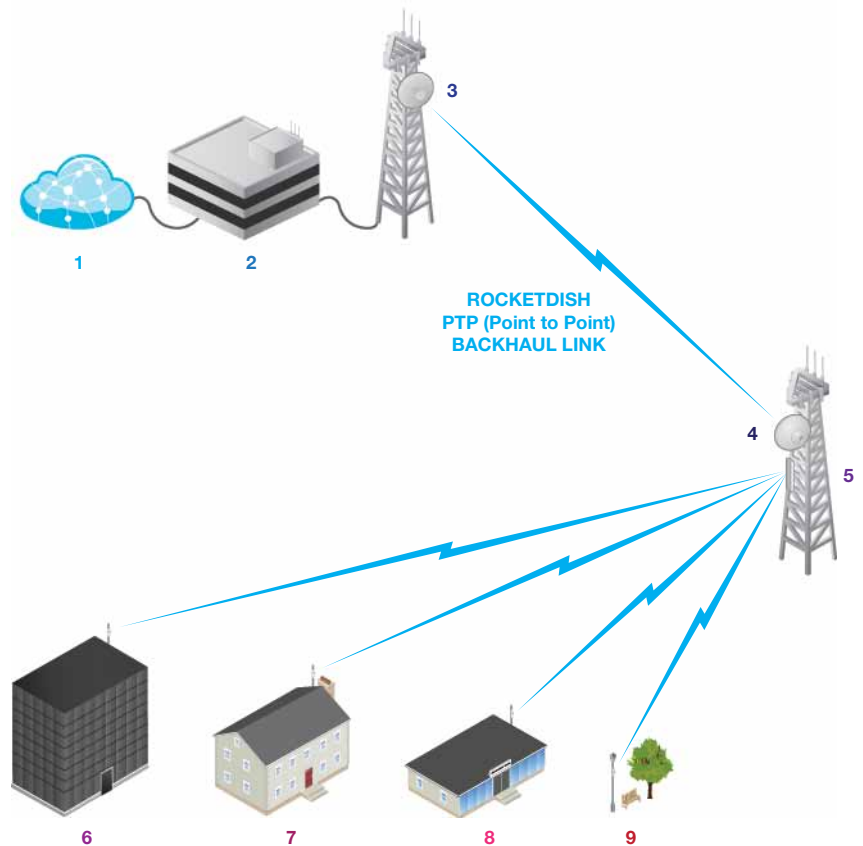
## AirMax 2x2 PtP Dish Antenna

RocketDish is a Carrier Class Dish Antenna that was designed to seamlessly integrate with Rocket M radios (sold separately).

Rocket M combines the “brains” in one robust unit; pair Rocket M with RocketDish to create powerful 2x2 MIMO PtP bridging applications. This seamless integration gives network architects unparalleled flexibility and convenience.

On the right is one example of how RocketDishes can be deployed:

- 1 Internet Backbone
- 2 ISP Network
- 3 RocketDish with Rocket M
- 4 RocketDish with Rocket M
- 5 AirMax BaseStation with Rocket M
- 6 Corporate building with NanoStation M client.
- 7 House with NanoStation M client.
- 8 Small business with NanoStation M client.
- 9 Lightpole with NanoStation M daisy-chained to a PicoStation M to create a wireless hotspot.



## 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.

## GPS Synchronization\*

Pair RocketDish with Rocket M GPS to utilize Ubiquiti AirSync GPS Synchronization technology. AirSync enhances the hardware and software of Rocket M to use GPS signals for precision timing.

**GPS Signal Reporting** AirOS was upgraded to take full advantage of the new GPS hardware in Rocket M GPS units; easily manage/monitor GPS satellite signals.

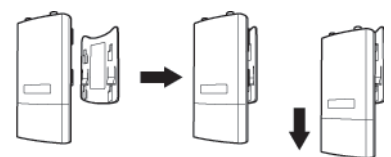
**No Co-location Interference** Synchronized transmission among Rocket M GPS powered BaseStations effectively eliminates co-location interference.

**Seamless AirMax Integration** Rocket M GPS units seamlessly integrate with AirMax BaseStation and RocketDish Antennas.

**Channel Re-use** Frequency reuse for increased scalability.

## Easy Installation

RocketDish Antennas and Rocket M radios have been designed to seamlessly work together.



Installing Rocket M on RocketDish requires no special tools, you simply snap it securely into place with the universal Rocket mount built into the antennas.

\* When paired with Rocket M GPS

# Models

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## **RocketDish\***

**RD-2G-24** (2.4 GHz, 24 dBi)

**RD-3G-26** (3.3-3.7 GHz, 26 dBi)

**RD-5G-30** (5 GHz, 30 dBi)

**RD-5G-34** (5 GHz, 34 dBi)



## **RocketDish Radome\*\***

**RAD-2RD** (2 ft / 648 mm)

**RAD-3RD** (3 ft / 972 mm)

- Greatly Reduce Wind Load
- Protect Antenna Surfaces from Harsh Environments
- Conceal Antenna Equipment from Public view
- Designed specifically for RocketDish Antennas

\*RocketDish does not include Rocket M (sold separately)

\*\*RocketDish Radome does not include RocketDish (sold separately)

# Software\*

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## 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

### GPS Signal Reporting\*



[www.ubnt.com/airos](http://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](http://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 Ubiquiti devices.

### Network Map

### Monitor Device Status

### Mass Firmware Upgrade

### Web UI Access

### Manage Groups of Devices

### Task Scheduling



[www.ubnt.com/aircontrol](http://www.ubnt.com/aircontrol)

\* When RocketDish is paired with Rocket M

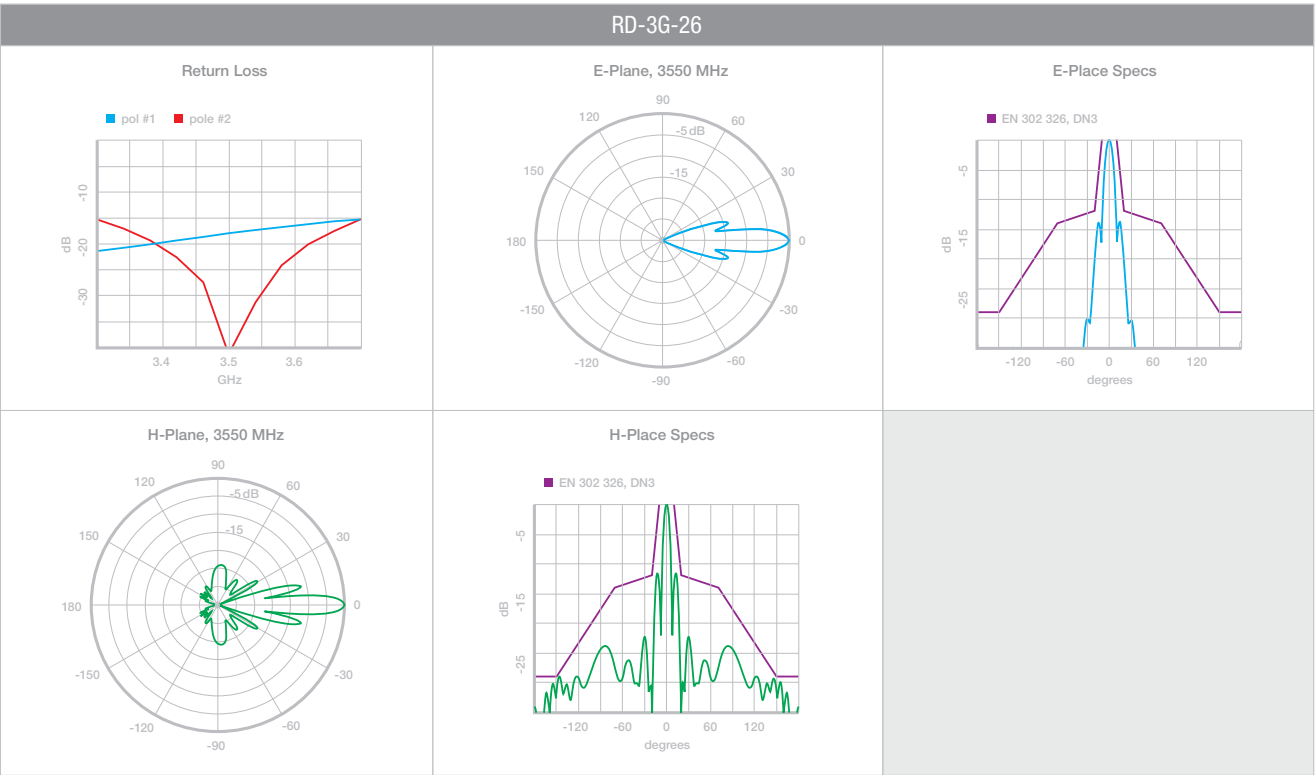
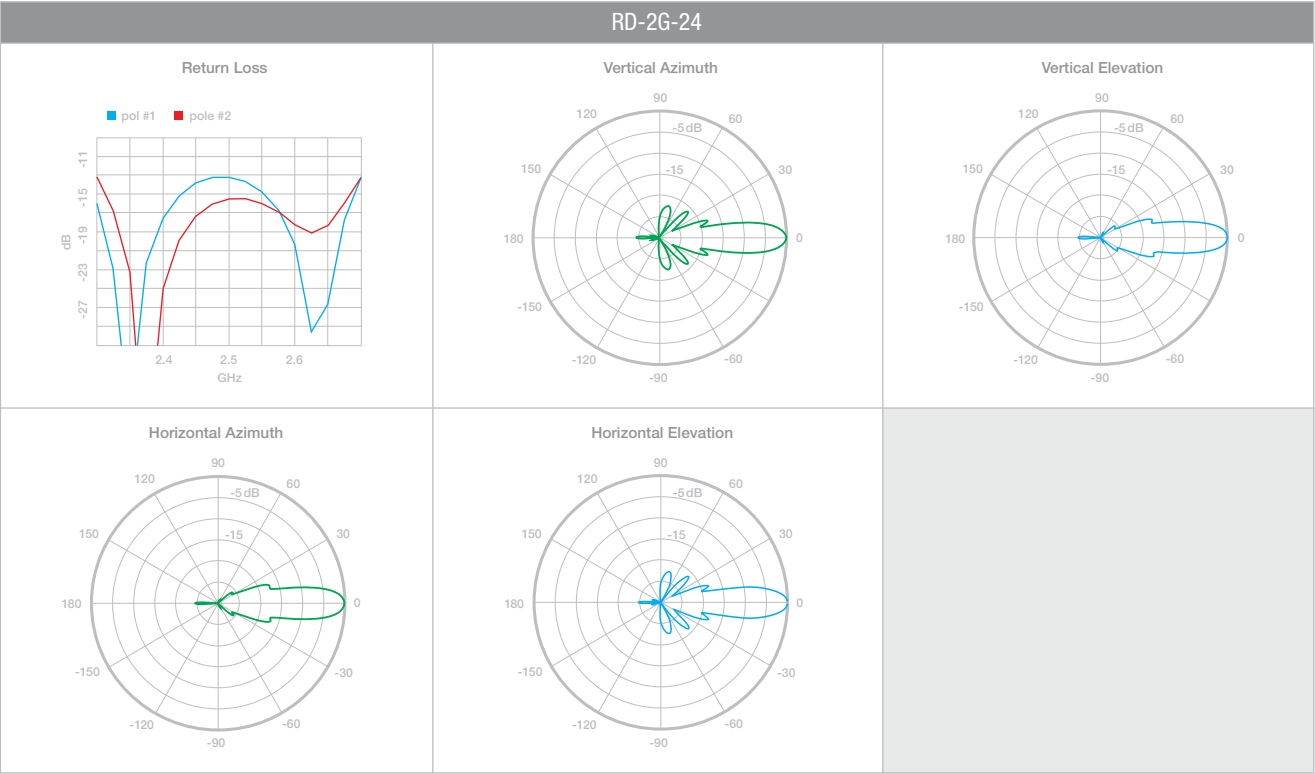
# Specifications

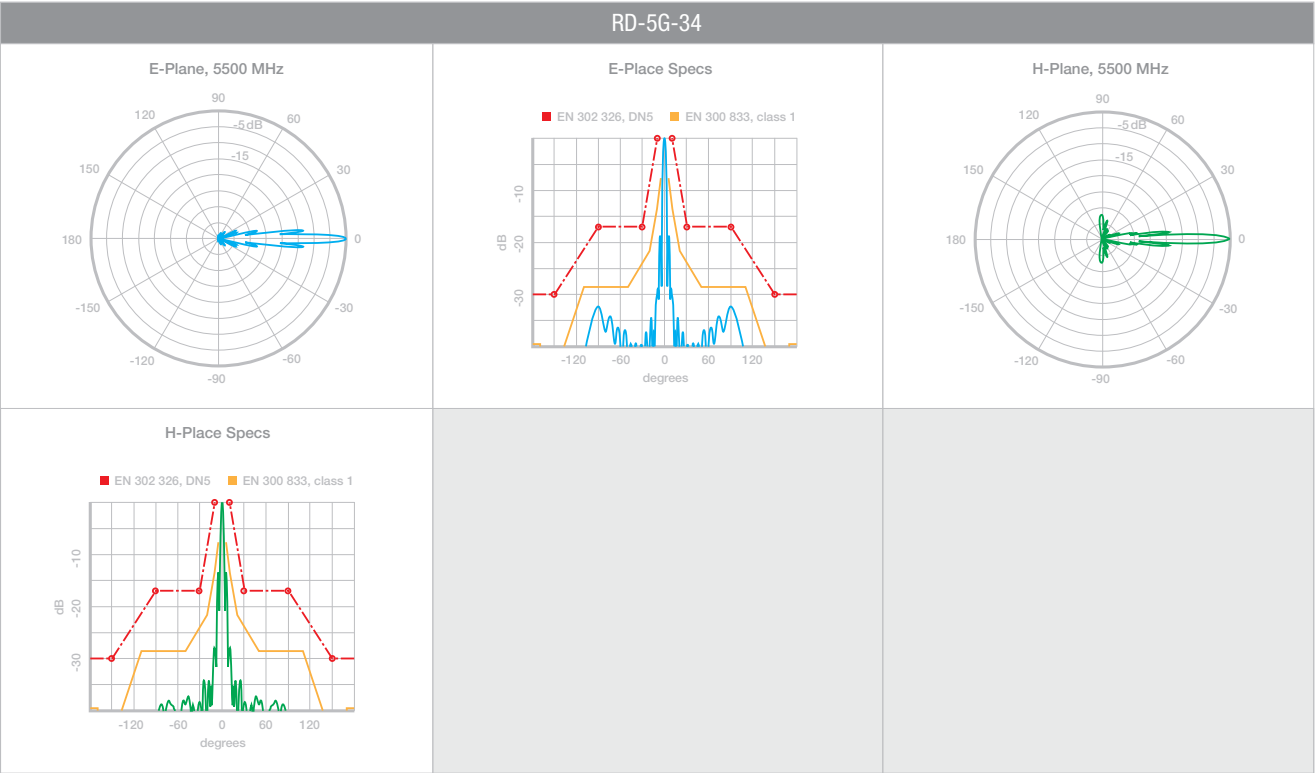
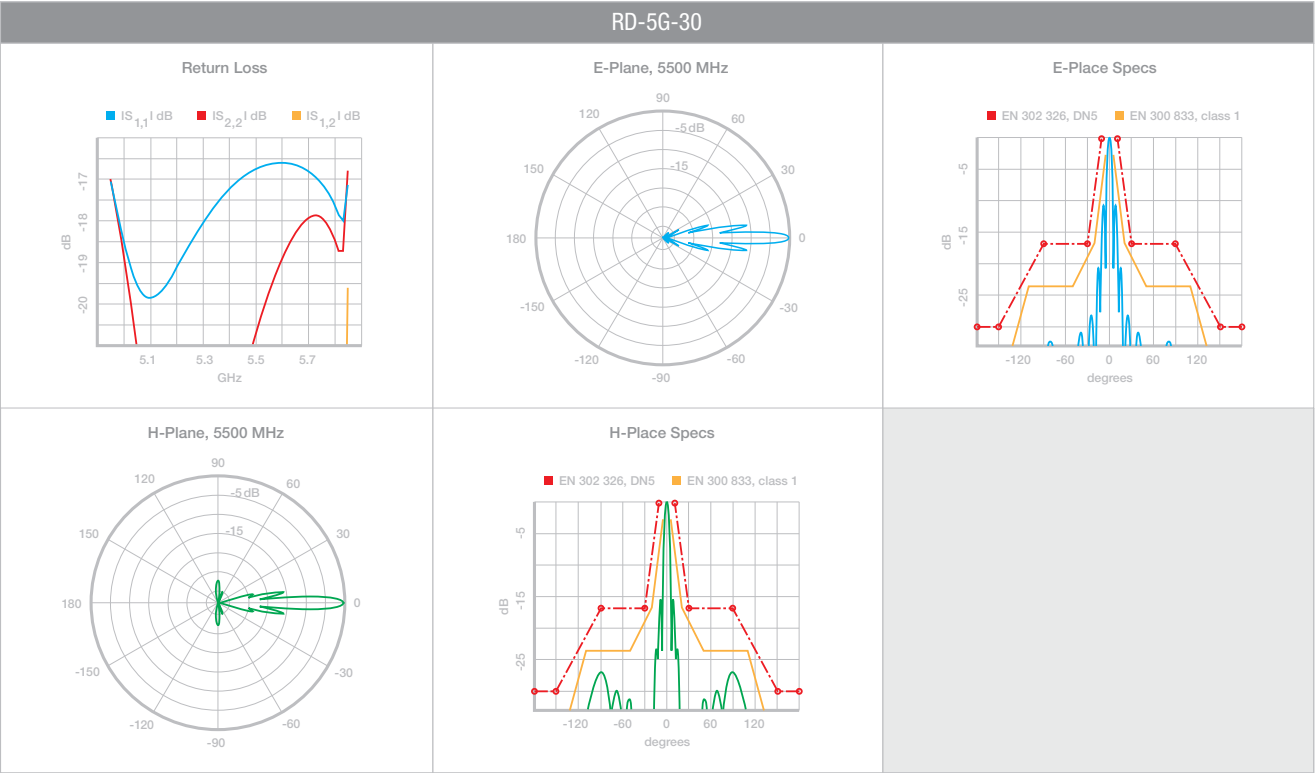
05

Antenna Characteristics				
	RD-2G-24	RD-3G-26	RD-5G-30	RD-5G-34
Frequency Range	2.3-2.7 GHz	3.3-3.8 GHz	5.1-5.8 GHz	
Gain	24 dBi	26 dBi	30 dBi	34 dBi
Hpol Beamwidth	3.8 deg. (Rx Dish) 6.6 deg. (Tx Dish)	7 deg. (6 dB)	5 deg. (3 dB)	3 deg. (3 dB)
Vpol Beamwidth	3.8 deg. (Rx Dish) 6.6 deg. (Tx Dish)	7 deg. (6 dB)	5 deg. (6 dB)	3 deg. (6 dB)
F/B Ratio	-50 dB (Rx Dish) -65 dB (Tx Dish)	-33 dB	-34 dB	-42 dB
Max VSWR	1.6:1	1.4:1		
Dimensions	648 mm diameter			1050 mm diameter
Weight	9.8 kg			13.5 kg
Wind Survivability	120 mph			125 mph
Wind Loading	113 lb @ 100 mph			256 lb @ 100 mph
Polarization	Dual Linear			
Cross-pol Isolation	35 dB min			
ETSI Specification	EN 302 326 DN2			
Mounting	Universal pole mount, Rocket M bracket, and weatherproof RF jumpers included			

RocketDish does not include Rocket M (sold separately)

# Specifications (cont.)







# TOUGH Cable

OUTDOOR CARRIER CLASS SHIELDED

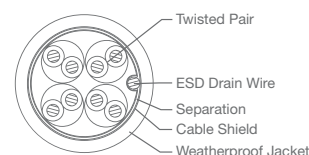
Protect your networks from the most brutal environments with Ubiquiti's industrial-grade shielded ethernet cable, TOUGH Cable.

**Increase Performance** Dramatically improve your ethernet link states, speeds, and overall performance with Ubiquiti TOUGH Cables.

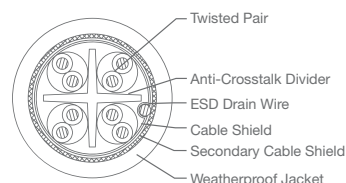
**Extreme Weatherproof** TOUGH Cables have been built to perform even in the harshest weather and environments.

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

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



**LEVEL 1**  
SHIELDING PROTECTION



**LEVEL 2**  
SHIELDING PROTECTION

## Bulletproof your networks

TOUGH Cable 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.

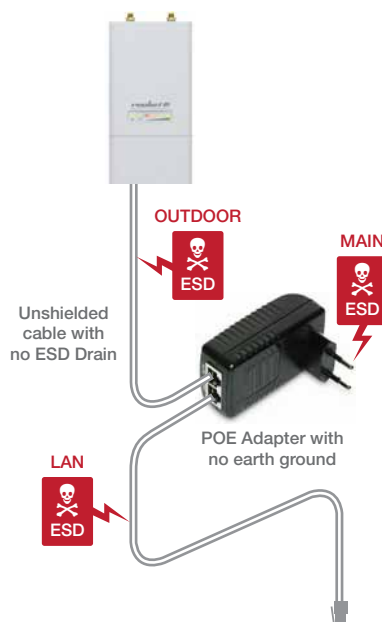
**Level 2** is a Category 6 (1Gbps Ethernet Support) Outdoor Carrier Class Shielded Cable that is also capable of providing enhanced Category 5e performance.

### Additional Information:

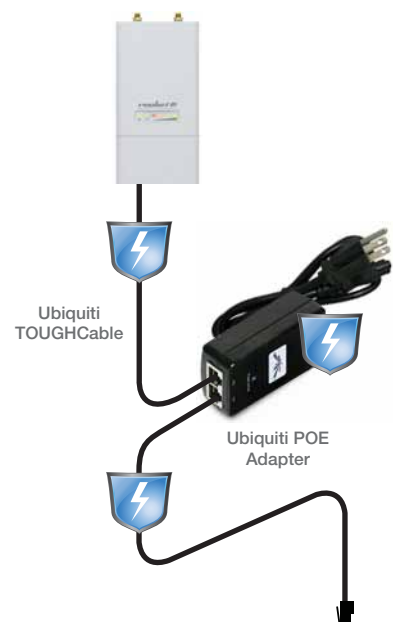
- 24 AWG copper conductor pairs
- ESD Drain Wire: 26 AWG integrated ESD Drain wire to prevent ESD attacks & damage.
- PVC outdoor rated jacket
- 0.35um foil shield
- Multi-Layered Shielding
- 1000ft (304.8m) length

Learn more:  
[www.ubnt.com/toughcable](http://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 TOUGH Cable (sold separately), you can effectively eliminate ESD Attacks.







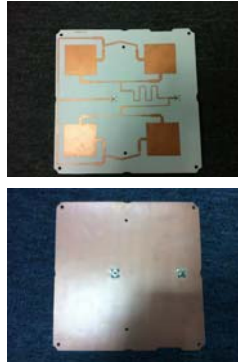
TERMS OF USE: The Ubiquiti radio device must be professionally installed. Shielded ethernet cable and earth grounding must be used as conditions of product warranty. It is the installers responsibility to follow local country regulations including operation within legal frequency channels, output power,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

For further information, please visit [www.ubnt.com](http://www.ubnt.com).

All specifications in this document are subject to change without notice.

RD-DS-08-24-11

## 2.4GHz 14dBi directional antenna (FWA18)



- ◆ Designed for 2.4GHz ISM band applications
- ◆ High gain and low VSWR
- ◆ All-weather operation
- ◆ Wall or pole mounting
- ◆ Low profile small size

### TECHNICAL SUPPORT

The highly acclaimed Deliberant support team is always ready to help you solve all arising problems or give professional advice about your network design, deployment.

### Support telephone numbers:

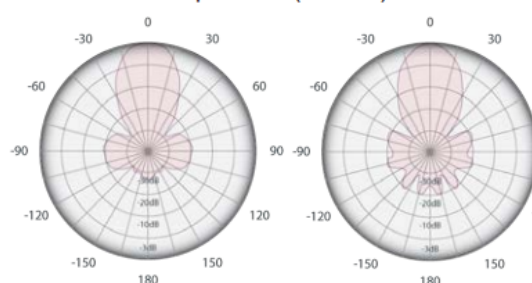
EU support office:  
+370 37 759037

USA support office:  
+1 800 742 9865  
+1 404 478 2727

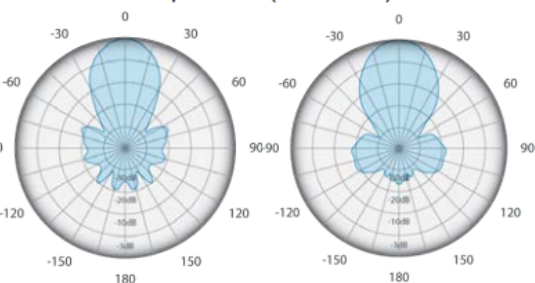
## Electrical Specifications

Frequency range	2.400-2.483GHz
Gain	14 dBi
Polarization	Dual linear
Cross-pol Isolation	38 dBi
Max VSWR	1.8:1
H-pol Beamwidth	34 deg
V-pol Beamwidth	36 deg
Elevation Beamwidth	36 deg
Impedance	50 ohms
Connector type	MCX

RF patterns (vertical)



RF patterns (horizontal)



## 2.4GHz 8dBi directional antenna (FWA-24)



- ◆ Designed for 2.4GHz ISM band applications
- ◆ Medium gain and low VSWR
- ◆ All-weather operation
- ◆ Wall or pole mounting
- ◆ Low profile small size

### TECHNICAL SUPPORT

The highly acclaimed Deliberant support team is always ready to help you solve all arising problems or give professional advice about your network design, deployment.

### Support telephone numbers:

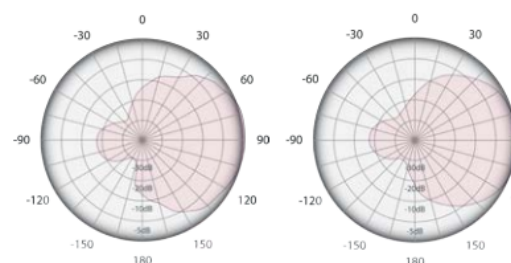
EU support office:  
+370 37 759037

USA support office:  
+1 800 742 9865  
+1 404 478 2727

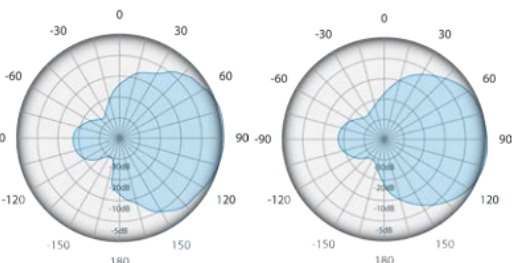
## Electrical Specifications

Frequency range	2.400-2.483GHz
Gain	8 dBi
Polarization	Dual linear
Cross-pol Isolation	22 dBi
Max VSWR	1.9:1
H-pol Beamwidth	60 deg
V-pol Beamwidth	60 deg
Elevation Beamwidth	60 deg
Impedance	50 ohms
Connector type	MCX

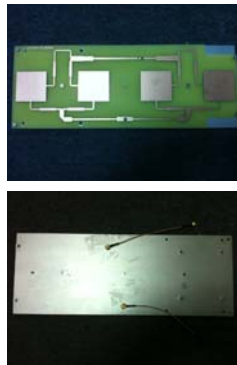
RF patterns (vertical)



RF patterns (horizontal)



## 2.4GHz 16dBi sector antenna (FWMP-10)



- ◆ Designed for 2.4GHz ISM band applications
- ◆ High gain and low VSWR
- ◆ All-weather operation
- ◆ Wall or pole mounting
- ◆ Low profile

### TECHNICAL SUPPORT

The highly acclaimed Deliberant support team is always ready to help you solve all arising problems or give professional advice about your network design, deployment.

### Support telephone numbers:

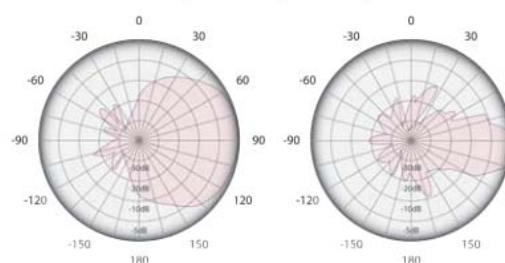
EU support office:  
+370 37 759037

USA support office:  
+1 800 742 9865  
+1 404 478 2727

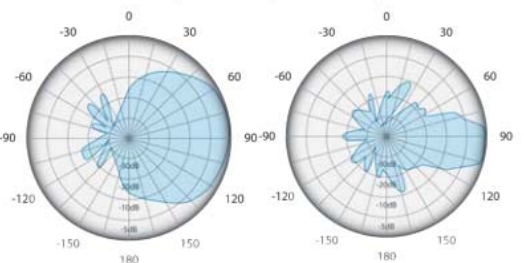
## Electrical Specifications

Frequency range	2.400-2.483GHz
Gain	16 dBi
Polarization	Dual linear
Cross-pol Isolation	25 dBi
Max VSWR	1.7:1
H-pol Beamwidth	(6 dB) 100 deg
V-pol Beamwidth	(6 dB) 100 deg
Elevation Beamwidth	30 deg
Impedance	50 ohms
Connector type	MCX

RF patterns (vertical)



RF patterns (horizontal)



## ExtraLink Omni - 2400 - 12Dbi

Omnidirectional antenna Microstrip with the technology 2,4Ghz 12Dbi-Gain

### Key features:

Gain 12 dBi

VSWR <1.5

Solid construction



Electrical Specifications	
Model	2400A-12
Frequency Range-MHz	2400-2500
Gain-dBi	12
Horizontal Beamwidth-°	360
Vertical Beamwidth-°	7
Front to Back Ratio-dB	/
VSWR	≤1.5
Input Impedance -Ω	50
Polarization	Vertical
Maximum Power -W	100
Connector	Customized
Lighting Protection	DC
Mechanical Specifications	
Antenna Dimensions-mm	Φ20×1200
Weight-kg	1.20
Mounting Mast Diameter	Φ40~50



Project No.: SG201202090065

Date: 2012.02.17

Revision: A0

## Acknowledgement

Client Name: Function (Huizhou) Telecommunications Co., Ltd

Client Part No.: \_\_\_\_\_

B&T Part No.: AG-011320-0158-A0-0000

Spec: Omni Directional (Rubber Duck Omni Antenna (RPSMA))  
3dBi

### Function Approval:

Made by	Checked by	Approved by
Xiaobing Yan	Yaming Deng	Youjian Wang

### B&T Acknowledgement Approval

Made by	Checked by	Approved by

### B&T contact info

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Technical contact: Youjian Wang	Email:	Email:
Quality contact: Quan Zhou	Mob: 13410479328	Email: <a href="mailto:zhouq@tech-now.com">zhouq@tech-now.com</a>

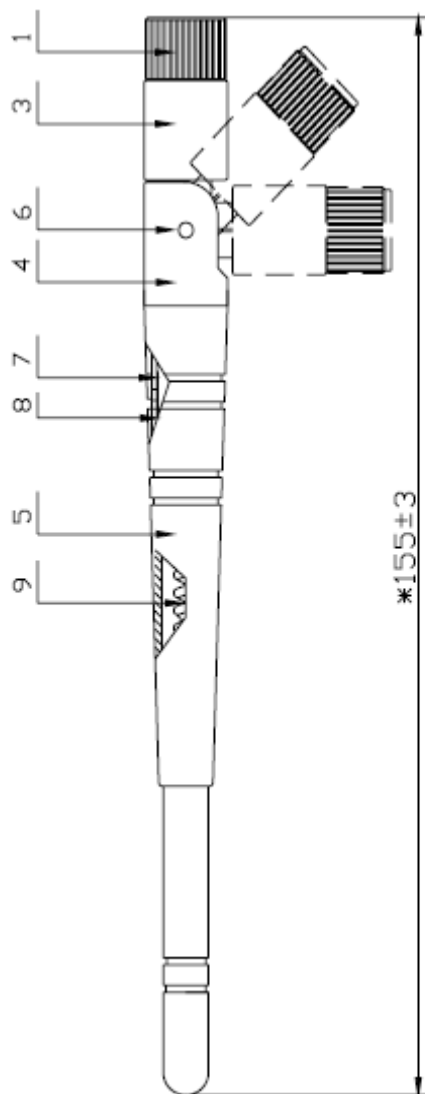


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### 3. Product Drawing



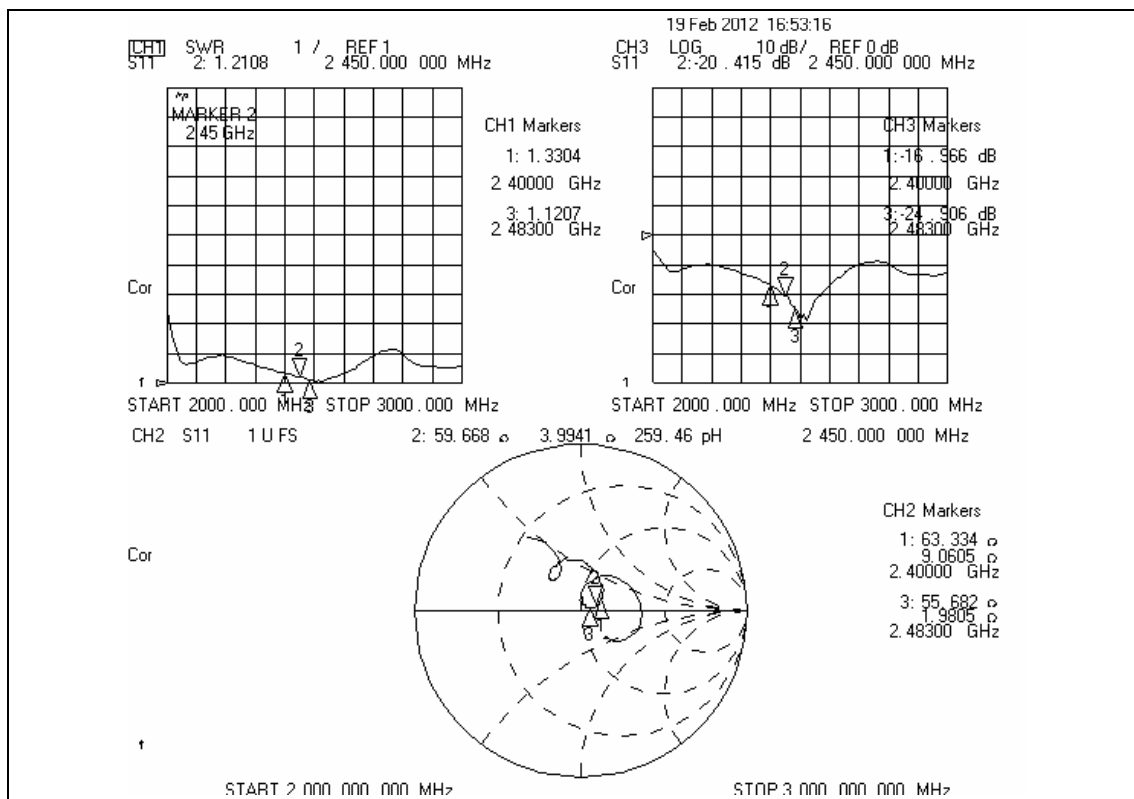


#### 4. Technical Parameters:

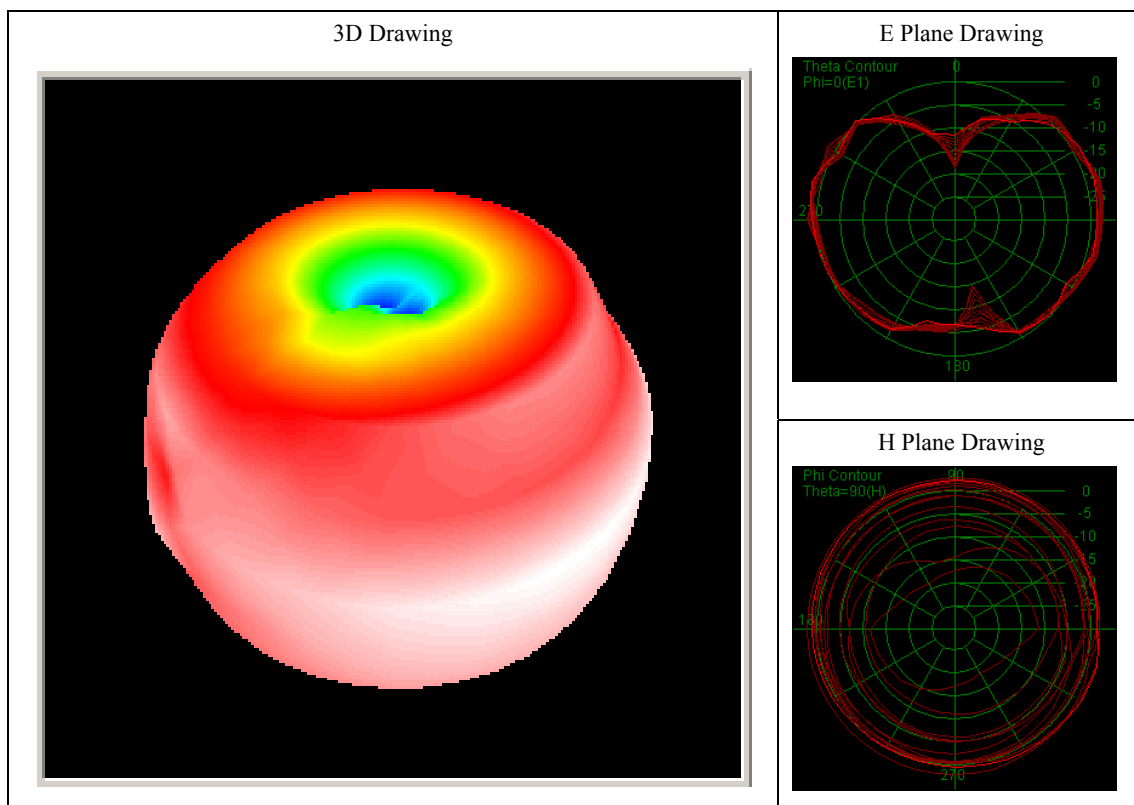
Electrical Parameters	
Frequency Range	2400~2483MHz
Input impedance	50Ω
SWR	≤2.0
Gain	3.0dBi
Power Capacity	1w
Withstand Voltage	1KV
On/Off	On
Polarization	Vertical
Radiation	Omni directional
Connector Type	RPSMA-J connector
Mechanical Parameters	
Total Length	155±3mm
Tension Strength	4Kg
Plug/Unplug Strength	/
Coaxial Cable	RG178
Salt Fog Test	24H
Environmental Parameters	
Operating Temp	-30℃~65℃
Storage Temp	-30℃~75℃

## 5. Electrical Features Test Report

### S11 Parameter



### Gain/Radiation Pattern





## 6. Reliability Test Report

### 6.1. Tension Test

Test Item	<b>Tension Strength</b>	Document No.			
Product Name	Omni Directional (Rubber Duck Omni Antenna (RPSMA)) 3dBi	Qty: 5PCS			
Test Date: 2011-08-18	Complexion Date: 2011-08-18				
Test Equipment: 1. Tension strength tester					
Test Conditions: 1.Temp: 18-25℃ 2.Humidity: ≤70%RH					
Test Result: Pass					
Item Condition	2400~2483MHz≥4kgf				
Test Time	1	2	3	4	5
Test Result	4.0	4.2	4.0	4.1	4.3
Remarks:					
Verdict: <input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail <input type="checkbox"/> No Verdict					
Tested by: Chong Hu    Checked by: Yangming Deng    Approved by: Youjian Wang					



## 6.2. Constant Humidity&Temp Test

Test Item	<b>Constant Humidity&amp;Temp Test</b>	Document No.
Product Name	Omni Directional (Rubber Duck Omni Antenna (RPSMA)) 3dBi	Qty: 5PCS
Test Date: 2011-08-18		Complexion Date: 2011-08-18
Test Equipment: 1.Programmable Constant Humidity&Temp Chamber 2.8753ES Network Analyzer		
Test Conditions: 1.Temp: 60±2°C 2.Humidity: 90~95% 3.Duration: 2H		
Test Result: No distortion; Features OK		
Sample No.	Verdict	Defect
1	Pass	
2	Pass	
3	Pass	
4	Pass	
5	Pass	
Verdict: <input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail <input type="checkbox"/> No Verdict		
Tested by: Chong Hu    Checked by: Yangming Deng    Approved by: Youjian Wang		



### 6.3. High&Low Temp Test

Test Item	<b>High&amp;Low Temp Test</b>	Document No.
Product Name	Omni Directional (Rubber Duck Omni Antenna (RPSMA)) 3dBi	Qty: 5PCS
Test Date: 2011-08-18		Complexion Date: 2011-08-18
Test Equipment: 1. High&low Temp Chamber 2. 8753ES Network Analyzer		
Test Conditions: 1.-40℃ (1H) ---Interval (1H) ---- +60℃ (1H) ; 2 Cycles		
Test Result: No distortion; Features OK		
Sample No.	Verdict	Defect
1	Pass	
2	Pass	
3	Pass	
4	Pass	
5	Pass	
Verdict: <input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail <input type="checkbox"/> No Verdict		
Tested by: Chong Hu    Checked by: Yangming Deng    Approved by: Youjian Wang		



#### 6.4. Salt Fog Test

Test Item	<b>Salt Fog Test</b>	Document No.
Product Name	Omni Directional (Rubber Duck Omni Antenna (RPSMA)) 3dBi	Qty: 5PCS
Test Date: 2011-08-18	Complexion Date: 2011-08-19	
Test Equipment: 1.HL-60-SS salt fog tester		
Test Conditions: 1.Tester inner temp: 35±2℃; Lab temp: 22~30℃ 2. Fog sinking speed: 24H later, 1-2ML/h for each 80cm; Sodium Chloride Strength:50±10g/L, PH 6.5/7.2		
Test Result: Pass		
Sample No.	Verdict	Defect
1	Pass	
2	Pass	
3	Pass	
4	Pass	
5	Pass	
Verdict: <input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail <input type="checkbox"/> No Verdict		
Tested by: Chong Hu    Checked by: Yangming Deng    Approved by: Youjian Wang		



## 7. Packing Criterion

Part NO.: AG-011320-0158-A0-0000

External, black 3dBi antenna, RPSMA-J connector, 2.4G

### 1. Labeling Requirement

Inner Label: Length 10cm Width 6cm around

Purchaser	*****		
Supplier	SHENZHEN B&T TECHNOLOGY Co.,Ltd.		
Po No.	*****		
Material NO.	*****		
Product Name	*****	Inspector	Product Name
Qty/Unit	XXX PCS	Shipment Date	X年X月X日
Remarks	*****		

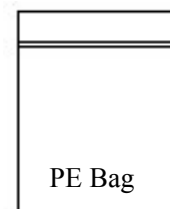
Outer Label: Length 10cm Width 6cm around

Purchaser	*****		
Supplier	SHENZHEN B&T TECHNOLOGY Co.,Ltd.		
Po No.	*****		
Material NO.	*****		
Product Name	*****	Inspector	**
Qty/Unit	XXX PCS	Shipment Date	X年X月X日
Remarks	*****		

### 2. Packing Requirement

#### Instructions

#### 1. Inner packing

Product 1 PCS in 1 small PE bagProduct 50 PCS in 1 big PE bag

#### 2. Outer packing:

2000 PCS in 1 carton

Carton

#### Attentions

- Whether to include median board and cotton
- Label including ROHS

