

# EQUIPMENT SPECIFICATIONS

2020-10-08



# **Rooftop Radios**

NanoBeam: connect to minor sites PowerBeam: connect to major sites GigaBeam: high-speed connections PrismStation: connect to end-users



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## NanoBeam<sup>®</sup> AC GENZ

airMAX<sup>®</sup> ac CPE with Dedicated Management Radio Model: NBE-5AC-Gen2

Uniform Beamwidth Maximizes Noise Immunity

Dedicated Wi-Fi Radio for Management

airMAX ac Processor for Superior Performance



# Datasheet

## **Hardware Overview**

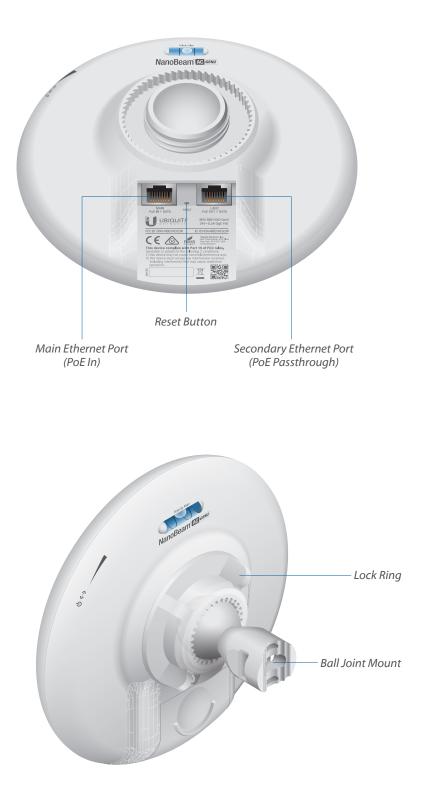
The NanoBeam 5AC Gen 2 features airMAX ac technology and enhanced protection against ESD events.

#### **Ease of Installation**

- Quick Installation No fasteners are required for pole-mounting, and a single wall fastener (not included) is required for wall-mounting.
- **Convenient Alignment** The NanoBeam 5AC Gen 2 pivots on its ball joint 3-axis mount for easy aiming.

#### **Innovative Mechanical Design**

- Efficient Footprint The radio and antenna are combined into a single body that takes up minimal space. The form factor features the highest gain for its size.
- **Aesthetics** The NanoBeam 5AC Gen 2 is small enough to blend discreetly into the background at a customer's location.
- Versatile Mounting The NanoBeam 5AC Gen 2 can be mounted in almost any position needed for line of sight.



# Datasheet

## Specifications

	NBE-5AC-Gen2		
Dimensions (Mount Included)		189 x 189 x 125 mm (7.44 x 7.44 x 4.92")	
Weight (Mount Included)	0.530 kg (1.17 lb)		
Power Supply		24V, 0.5A Gigabit PoE Adapter (Included)	
Max. Power Consumption		8.5W	
Gain		19 dBi	
Networking Interface		(2) 10/100/1000 Ethernet Ports Wi-Fi for Management	
Processor Specs		Atheros MIPS 74Kc, 720 MHz	
Memory		128 MB DDR2, 8 MB Flash	
LEDs		Power, Ethernet, (4) Signal Strength	
Signal Strength LEDs		Software-Adjustable to Correspond to Custom RSSI Levels	
Max. VSWR		1.5:1	
Channel Sizes	PtP Mode	PtMP Mode	
	10/20/30/40/50/60/80 MHz	10/20/30/40 MHz	
Polarization		Dual Linear	
Enclosure	Outdoor UV Stabilized Plastic		
Mounting	Pole-Mount (Kit Included), Wall-Mount		
Wind Loading	45.4 N @ 200 km/h (10.2 lbf @ 125 mph)		
Wind Survivability		200 km/h (125 mph)	
ESD/EMP Protection		Air: ± 24 kV, Contact: ± 24 kV	
Operating Temperature		-40 to 80° C (-40 to 176° F)	
Operating Humidity		5 to 95% Noncondensing	
Certifications		CE, FCC, IC	
RoHS Compliance	Yes		
Salt Fog Test	IEC 68-2-11 (ASTM B117), Equivalent: MIL-STD-810 G Method 509.5		
Vibration Test		IEC 68-2-6	
Temperature Shock Test		IEC 68-2-14	
UV Test		IEC 68-2-5 at 40° C (104° F), Equivalent: ETS 300 019-1-4	
Wind-Driven Rain Test		ETS 300 019-1-4, Equivalent: MIL-STD-810 G Method 506.5	

	0	perating Frequency (MHz	<u>z</u> )	
Worldwide				5150 - 5875
USA	U-NII-1: 5150 - 5250	U-NII-2A: 5250 - 5350 MHz	U-NII-2C: 5470 - 5725 MHz	U-NII-3: 5725 - 5850
	Ν	Management Radio (MHz)		
Worldwide				2412 - 2472
USA				2412 - 2462

NBE-5AC-Gen2 Output Power: 25 dBm							
	TX Power Specif	fications		RX Power Specifications			
Modulation	Data Rate	Avg. TX	Tolerance	Modulation	Data Rate	Sensitivity	Tolerance
	1x BPSK (1/2)	25 dBm	$\pm 2 dB$		1x BPSK (1/2)	-96 dBm	± 2 dB
	2x QPSK (1/2)	25 dBm	$\pm 2 \text{ dB}$		2x QPSK (1/2)	-95 dBm	± 2 dB
	2x QPSK (¾) 25 dBm ± 2 dB	2x QPSK (¾)	-92 dBm	± 2 dB			
ac	4x 16QAM (½)	25 dBm	$\pm 2 \text{ dB}$	airMAX ac	4x 16QAM (½)	-90 dBm	± 2 dB
	4x 16QAM (¾)	25 dBm	± 2 dB		4x 16QAM (¾)	-86 dBm	± 2 dB
airMAX	6x 64QAM (⅔)	24 dBm	$\pm 2 \text{ dB}$		6x 64QAM (⅔)	-83 dBm	± 2 dB
ai	6x 64QAM (¾)	23 dBm	± 2 dB		6x 64QAM (¾)	-77 dBm	± 2 dB
	6x 64QAM (%)	22 dBm	$\pm 2 \text{ dB}$		6x 64QAM (%)	-74 dBm	± 2 dB
	8x 256QAM (¾)	21 dBm	$\pm 2 \text{ dB}$		8x 256QAM (¾)	-69 dBm	± 2 dB
	8x 256QAM (%)	20 dBm	$\pm 2 \text{ dB}$		8x 256QAM (%)	-65 dBm	± 2 dB



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## PowerBeam<sup>®</sup> AC GEN2

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5 GHz High Performance airMAX<sup>®</sup> ac Bridge Models: PBE-5AC-Gen2, PBE-5AC-ISO-Gen2

Highly Efficient Antenna Beam Performance

Up to 450+ Mbps Throughput

Dedicated Wi-Fi Radio for Management



### **Hardware Overview**

The PowerBeam 5AC Gen 2 supports up to 450+ Mbps real TCP/IP throughput and features improved surge protection.

#### **Innovative Mechanical Design**

- Built-in mechanical tilt Mounting bracket conveniently offers elevation adjustments: ± 20° tilt.
- Quick assembly Minimal fasteners simplify installation.
- **Easy removal** The antenna feed can be detached with the push of a button.

### PBE-5AC-Gen2

The dish reflector design of the PBE-5AC-Gen2 makes it an ideal CPE for deployments requiring maximum performance. A protective radome is available as an optional accessory for the PBE-5AC-Gen2.

## **PowerBeam**<sup>®</sup> 400 mm Radome

Model	Frequency	PBE-5AC-Gen2	Dish Reflector
PBE-RAD-40	00 5 GHz	✓	400 mm

### PBE-5AC-ISO-Gen2

The PBE-5AC-ISO-Gen2 offers a rear housing with a metal-plated interior, designed to enhance RF shielding. Additionally, an included protective radome shields the PowerBeam 5AC ISO Gen 2 from nature's harshest elements.

#### **Breakthrough RF Isolation**

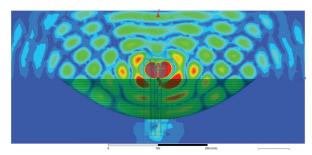
The integrated isolator design spatially filters out interference, so the PBE-5AC-ISO-Gen2 delivers improved noise immunity in co-location deployments.

Compare the two near-field plots below, and note the superior performance of the integrated RF isolator.

Both near-field plots are displayed in watts and use a linear scale. The strength of the electromagnetic field is color-coded:

- Red: Highest strength
- Green: Medium strength
- Indigo: Lowest strength

#### Without Integrated RF Isolator



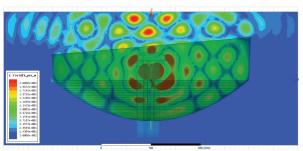
#### Industrial-Strength Construction

- 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. The hardware also prevents paint from being removed from the metal brackets for improved corrosion resistance.
- Optional support In high-wind environments, you can enhance support with additional hardware (not included).





#### With Integrated RF Isolator



## Specifications

	PBE-5AC-Gen2		
Dimensions		420 x 420 x 230 mm (16.54 x 16.54 x 9.06")	
Weight	2.22 kg (4.89 lbs)		
Power Supply		24V, 0.5A Gigabit PoE Adapter (Included)	
Max. Power Consumption		8.5W	
Power Method		Passive PoE (Pairs 4, 5+; 7, 8 Return)	
Supported Voltage Range		20 to 26VDC	
Gain		25 dBi	
Networking Interface		(1) 10/100/1000 Ethernet Port	
Processor Specs		MIPS 74Kc	
Memory		64 MB	
LEDs		Power, Ethernet, (4) Signal Strength	
Channel Sizes	PtP Mode	PtMP Mode	
	10/20/30/40/50/60/80 MHz	10/20/30/40 MHz	
Enclosure Characteristics	Antenna Feed	Dish Reflector	
	Outdoor UV Stabilized Plastic	Powder-Coated SPCC	
Mounting		Pole-Mounting Kit (Included)	
Wind Loading	380 N @ 200 km/h (85.4 lbf @ 125 mph)		
Wind Survivability		200 km/h (125 mph)	
ESD/EMP Protection		Air: ± 24 kV, Contact: ± 24 kV	
Operating Temperature		-40 to 70° C (-40 to 158° F)	
Operating Humidity		5 to 95% Noncondensing	
RoHS Compliance		Yes	
Salt Fog Test	IEC 68-2-11 (ASTM B117), Equivalent: MIL-STD-810 G Method 509.5		
Vibration Test	IEC 68-2-6		
Temperature Shock Test		IEC 68-2-14	
UV Test		IEC 68-2-5 at 40° C (104° F), Equivalent: ETS 300 019-1-4	
Wind-Driven Rain Test		ETS 300 019-1-4, Equivalent: MIL-STD-810 G Method 506.5	
Certifications		CE, FCC, IC	

Operating Frequency (MHz)				
Worldwide				5150 - 5875
USA	U-NII-1: 5150 - 5250	U-NII-2A: 5250 - 5350 MHz	U-NII-2C: 5470 - 5725 MHz	U-NII-3: 5725 - 5850
	1			

Management Radio (MHz)			
Worldwide	2412 - 2472		
USA	2412 - 2462		

	PBE-5AC-Gen2 Output Power: 24 dBm						
	TX Power Speci	fications		RX Power Specifications			
Modulation	Data Rate	Avg. TX	Tolerance	Modulation	Data Rate	Sensitivity	Tolerance
	1x BPSK (1/2)	24 dBm	$\pm 2 \text{ dB}$		1x BPSK (1/2)	-96 dBm Min.	$\pm 2 \text{ dB}$
	2x QPSK (1/2)	24 dBm	± 2 dB		2x QPSK (1/2)	-95 dBm	± 2 dB
	2x QPSK (¾)	24 dBm	$\pm 2 \text{ dB}$	± 2 dB b   ± 2 dB b	2x QPSK (¾)	-92 dBm	$\pm 2 \text{ dB}$
ac	4x 16QAM (1/2)	24 dBm	± 2 dB		4x 16QAM (1/2)	-90 dBm	± 2 dB
	4x 16QAM (¾)	24 dBm	$\pm 2 \text{ dB}$		4x 16QAM (¾)	-86 dBm	$\pm 2 \text{ dB}$
airMAX	6x 64QAM (⅔)	22 dBm	± 2 dB		6x 64QAM (⅔)	-83 dBm	± 2 dB
ai	6x 64QAM (¾)	21 dBm	±2 dB		6x 64QAM (¾)	-77 dBm	± 2 dB
	6x 64QAM (%)	21 dBm	± 2 dB		6x 64QAM (%)	-74 dBm	± 2 dB
	8x 256QAM (¾)	20 dBm	± 2 dB		8x 256QAM (¾)	-69 dBm	± 2 dB
	8x 256QAM (%)	20 dBm	$\pm 2 \text{ dB}$		8x 256QAM (%)	-65 dBm	± 2 dB

## airMAX GigaBeam Long-Range 60/5 GHz Radio

#### **GBE-LR**

Dimensions	415 x 415 x 303 mm (16.34 x 16.34 x 11.93")
Weight Without Mount With Mount	1.4 kg (3.09 lb) 1.8 kg (3.97 lb)
Enclosure	Aluminum, UV-stabilized Polycarbonate
Antenna Gain 5 Ghz 60 Ghz	11 dBi 38 dBi
Networking Interface	(1) 10/100/1000 Mbps Ethernet Port
Max. Power Consumption	11W
Power Method	Passive PoE, Pins 4, 5+ and 7, 8-
Power Supply	24VDC, 0.5A Gigabit PoE Adapter (Included)
Voltage Range	+22 to +26VDC
LEDs	Power/Ethernet/5G/60G
Wind Loading	56 N @ 200 km/h <(12.6 lbf @ 125 mph)
Wind Survivability	200 km/h (125 mph)
Mounting	Pole Mount (Included)
ESD/EMP Protection	± 24kV Contact/Air
Operating Temperature	-40 to 60° C (-40 to 140° F)
Operating Humidity	5 to 95% Noncondensing
	FCC, IC, CE

## Datasheet

## **PPIS** Station AC

Shielded airMAX<sup>®</sup> ac Radio Base with airPrism<sup>®</sup> Technology Model: PS-5AC

Proprietary Ubiquiti® airMAX ac Processor

airPrism Active RF Filtering Technology

Dedicated Wi-Fi Radio for Management



# Datasheet

## **Hardware Overview**

The PrismStation 5AC comes with a mounting bracket that allows for  $\pm 20^{\circ}$  tilt adjustments of the horn's elevation. This pole-mounting method allows for easy adjustments depending on your deployment needs.

#### Modular Design

For versatility, the PrismStation 5AC is compatible with four different isolation horn antennas and one dish antenna (not included).

- All metal, shielded radio base
- Antenna interchangeability
- Single button release for ease of changing antennas

## Horn<sup>®</sup> 5

#### Horn Antennas

Each horn antenna model is designed with a precise radiation angle for specific beam shaping.

These models are available in 30°, 45°, 60°, and 90° angle designs with different antenna gain specs to suit your application.

#### Horn Antenna Model Comparison

PrismStation 5AC with Horn-5-45 Mounted on Pole

- Symmetrical horn antennas: unique beam performance and great co-location characteristics for a higher density of sectors than traditional sector technology
- Asymmetrical horn antennas: naturally attenuated side lobes and extremely low back radiation for cluster sector installations with high co-location requirements



	Horn-5-30	Horn-5-45	Horn-5-60	Horn-5-90	PS-5A
Beamwidth	30°	45°	60°	90°	
Gain	19 dBi	15.5 dBi	16 dBi	13 dBi	

## UOMT-Dish

#### Dish Antenna

Pair the PrismStation 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**

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PS-5AC
155 x 155 x 104 mm (5.16 x 5.16 x 4.09") 83 x 117 x 69 mm (3.27 x 4.61 x 2.72")
770 g (1.70 lb) 790 g (1.74 lb)
(1) 10/100/1000 Ethernet Port
(1) GPS*
Power
10W
24V, 1A Gigabit PoE Adapter (Included)
Passive PoE (Pairs 4, 5+; 7, 8 Return)
20 to 26VDC
MIPS 74 Kc
128 MB DDR2 SDRAM, 16 M NOR FLASH
2:1
Dual-Linear
31 N @ 200 km/h (7 lbf @ 125 mph)
200 km/h (125 mph)
-40 to 70° C (-40 to 158° F)
5 to 95% Noncondensing
Pole-Mount (Kit Included)
± 24 kV Contact/Air
FCC, IC, CE

\* GPS sync support available in airOS firmware v8.3.0 and newer.

Operating Frequency (MHz)			
			5150 - 5875
		U-NII-2C: 5470 - 5725 MHz	U-NII-3: 5725 - 5850
	II-1:	II-1: U-NII-2A:	II-1: U-NII-2A: U-NII-2C:

Management Radio (MHz)		
Worldwide	2412 - 2472	
USA	2412 - 2462	

PS-5AC Output Power: 28 dBm							
TX Power Specifications			RX Power Specifications				
Modulation	Data Rate	Avg. TX	Tolerance	Modulation	Data Rate	Sensitivity	Tolerance
	1x BPSK (½) 28 dBm ± 2 dB	1x BPSK (1/2)	-96 dBm	± 2 dB			
	2x QPSK (1/2)	28 dBm	±2dB		2x QPSK (1/2)	-95 dBm	± 2 dB
2x QPSK (¾) 4x 16QAM (½)	28 dBm	±2dB		2x QPSK (¾)	-92 dBm	± 2 dB	
	4x 16QAM (1/2)	28 dBm	±2dB	ac	4x 16QAM (1/2)	-90 dBm	± 2 dB
			4x 16QAM (¾)	-86 dBm	± 2 dB		
airMAX	6x 64QAM (3)	28 dBm	±2dB	airMAX	6x 64QAM (⅔)	-83 dBm	± 2 dB
ai	6x 64QAM (¾) 27 dBm ± 2 dB	<b>ਾਂ</b>	6x 64QAM (¾)	-77 dBm	± 2 dB		
8)	6x 64QAM (5%)	26 dBm	±2dB		6x 64QAM (%)	-74 dBm	± 2 dB
	8x 256QAM (¾)	24 dBm	± 2 dB		8x 256QAM (¾)	-69 dBm	± 2 dB
	8x 256QAM (%)	22 dBm	±2dB		8x 256QAM (%)	-65 dBm	± 2 dB

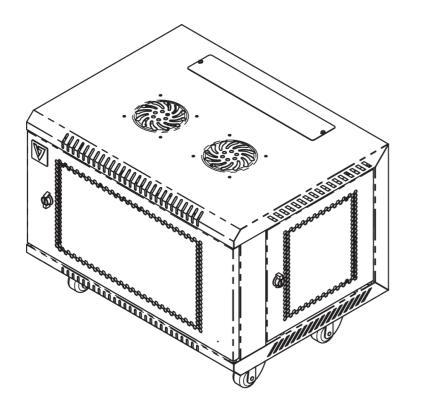
Specifications are subject to change. Ubiquiti products are sold with a limited warranty described at: www.ubnt.com/support/warranty ©2017-2018 Ubiquiti Networks, Inc. All rights reserved. Ubiquiti, Ubiquiti Networks, the Ubiquiti U logo, air/Magic, air/MAX, airOS, airPrism, airView, Horn, IsoStation, PrismStation, and UNMS are trademarks or registered trademarks of Ubiquiti Networks, Inc. in the United States and in other countries. Apple and the Apple logo are trademarks of Apple Inc., registered in the U.S. and other countries. App Store is a service mark of Apple Inc., registered in the U.S. and other countries. Android, Google, Google Play, the Google Play logo and other marks are trademarks of Google Inc. All other trademarks are the property of their respective owners.



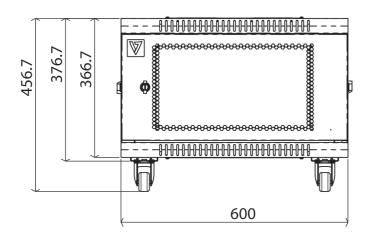


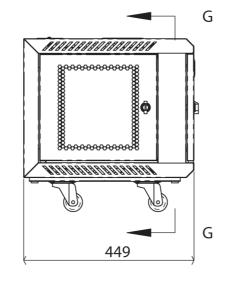
## **Equipment Cabinet**

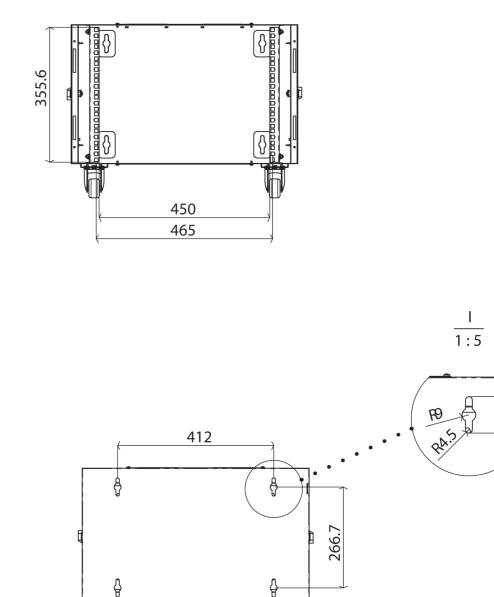
## In-building hub



## **Rack Mount Wall Cabinet Enclosure 6U** RMWC6U-1N



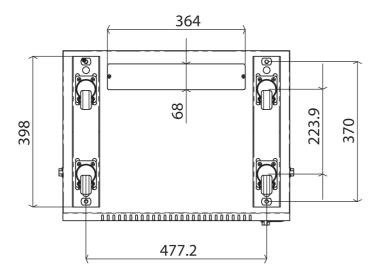


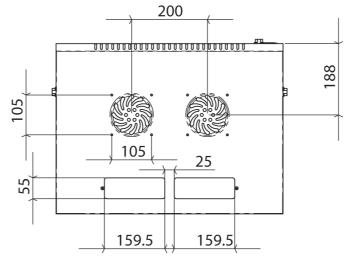


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# **Ethernet Cabling**

# Ruggedized cabling to connect rooftop radios to in-building hub



#### CAT5E FTP/Outdoor/UV Rated/Shielded Cable

Electrical Characteristics(20°C)

(100 to 200MHz)  $\Omega$ 

(200 to 350MHz)  $\Omega$ 

Item # DC-1021

m)

m)

12910 Cloverleaf Center Drive Germantown, MD USA Tel: 301-838-4380 www.shireeninc.com

Units

%

Ω/100m

kV/min

MΩ-km

nF/100m

pF/100m

ANSI/TIA/EIA-568-B.2 & IEC/ISO 11801

Spec

≤9.5

≤2.5

≤1.0

≤5.6

≤330 100±15

100±25

100±35

None

≥5000

Conductor
PET Tape
Drain Wire
Rip Cord
— AL Foil Tape
Jacket

**Cross Section** 

		9. Shield		_	Continu	e
Cable De	scription	Frequency (MHz)	RL (dB)	SRL (dB)	ATTEN (dB/100m)	NEXT (dB/100n
1)Conductor		1	20.00	28.00	2.03	65.30
Pairs	4	4	23.01	28.00	4.03	56.27
Total Conductor	8	8	24.52	28.00	5.73	51.75
AWG	24	10	25.00	28.00	6.43	50.30
Dia. of Conductor	Φ 0.50±0.01mm	16	25.00	28.00	8.19	47.24
Material	Solid Bare Copper	20	25.00	25.00	9.20	45.78
Elongation	≥15%	25	24.32	27.03	10.33	44.33
2)Insulation:		31.25	23.64	26.06	11.62	42.88
Material	HDPE - Polyethylene	62.5	21.54	23.05	16.79	38.36
Nom. Thickness	0.24mm	100	20.11	21.01	21.65	35.30
Dia.	Φ 0.95±0.05mm	155	18.80	19.10	27.20	32.50
Elongation	≥300%	200	18.00	18.00	32.40	30.80
Color Cord	White/Blue & Blue	250	17.30	17.00	21.65	29.30
	White/Orange & Orange	300	16.80	16.20	41.00	28.10
	White/Green & Green	350	16.30	15.60	44.90	27.10
	White/Brown & Brown					
3)Paired:		Frequency	PSNEXT	ELFEXT	PSELFEXT	Delay
Length of Lay	< 30 mm	(MHz)	(dB/100m)	(dB/100m)	(dB/100m)	(ns/100n
4)Cabling: Order of the pair	Coothe Cross Costier	1	62.30	64.00	61.00	570
•	See the Cross Section 0.03×18mm	4	53.27	51.96	48.96	552
Mylar Tape 5) Shielding:	0.03*1800	8	48.75	45.94	48.96	552
Vertical Wrap	Al-Mylar Tape 0.055×18mm		47.30	44.00	41.00	545
Coverage %	100%	16	44.24	39.92	36.92	543
AWG	24	20	42.78	37.98	34.98	543
Drain Wire	TC - Solid Tinned Copper	25	41.33	36.04	34.98 33.04	542
6)Sheath:	Te Solid Timed copper	31.25	39.88	34.10	31.10	540
Material	Outer: LDPE	62.5	35.36	28.08	25.08	539
Rip Cord	200D×3	100	32.30	24.00	23.08	538
Nom. Thickness	0.75±0.03mm	155	29.50	20.20	17.20	537
O.D.	Φ 6.50±0.3mm	200	29.50	18.00	17.20	537
Color	Black	250	26.30	16.00	13.00	537
7)Packing:	1000Ft Reel-in-a-Box	300	25.10	14.50		
8)Temperature rating:	-40C to +85C	350	24.10	14.30	11.50	536
e, enperatore rating.	UV Rated	550	24.10	15.10	10.10	536
	ASTM D1603 2.6%					
	ASTM D3349 440 kAB/m					

Standard:

Test Item

1. Conductor D.C. Resistance

6. Unbalance of Capacitance

8. Short or Open of the loop

4. Insulation Resistance

5. Capacitance

2. Unbalance of Pair DC Resistance

3. Dielectric Strength between Pairs

7. Characteristic Impedance(1 to 100MHz)  $\Omega$ 



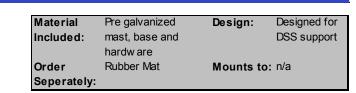
WillaMesh Community-powered broadband.<sup>™</sup> willamesh.net • connectme@willamesh.net • 541-321-MESH

# **Rooftop Radio Mounts**

## Equipment used to mount rooftop radios

### **Roof-Top Applications**

#### **Non-Penetrating Flat Roof Mounts**



N E L L O

Part #	Description	Weight (Lbs)
103489	FRM Non-Penetrating Roof Mount (1.25" O.D. Tubing, 60" Overall Mast Height)	31.0
103490	FRM Non-Penetrating Roof Mount (1.50" O.D. Tubing, 30" Overall Mast Height)	29.0
103491	FRM Non-Penetrating Roof Mount (1.66" O.D. Tubing, 30" Overall Mast Height)	30.0
103492	FRM Non-Penetrating Roof Mount (2.375" O.D. Tubing, 30" Overall Mast Height)	
103493	FRM Non-Penetrating Roof Mount (2.375" O.D. Tubing, 60" Overall Mast Height)	37.0



Approx. 35-114 in Square-

## TELESCOPING MASTS



## T-TELESCOPING MASTS-

#### **TELESCOPING MASTS** FOR USE IN GUYED OR BRACKETED INSTALLATIONS

ROHN Telescoping Masts are available in 20', 30', 33', 40' and 50' nominal heights. All are pre-galvanized for corrosion protection and come assembled with hardware.

#### **Specifications:**

All installations must be guyed or bracketed. Installation of masts should be done by experienced professionals.

Telescoping Masts are not recommended for commercial, CB or beam antenna installations.

Part No.	Wt.	O.D. Bottom	O.D. Top	<b>Shipping Length</b>
H20	17 lbs.	1 1/2″	1 1/4″	123″
H30	27 lbs.	1 3/4″	1 1/4″	123″
H40	36 lbs.	2″	1 1/4″	123″
H50	46 lbs.	2 1/4″	1 1/4″	123″
9H50*	34 lbs.	2 1/4″	1 1/4″	99″

\*9H50 is UPS shippable.

#### Note:

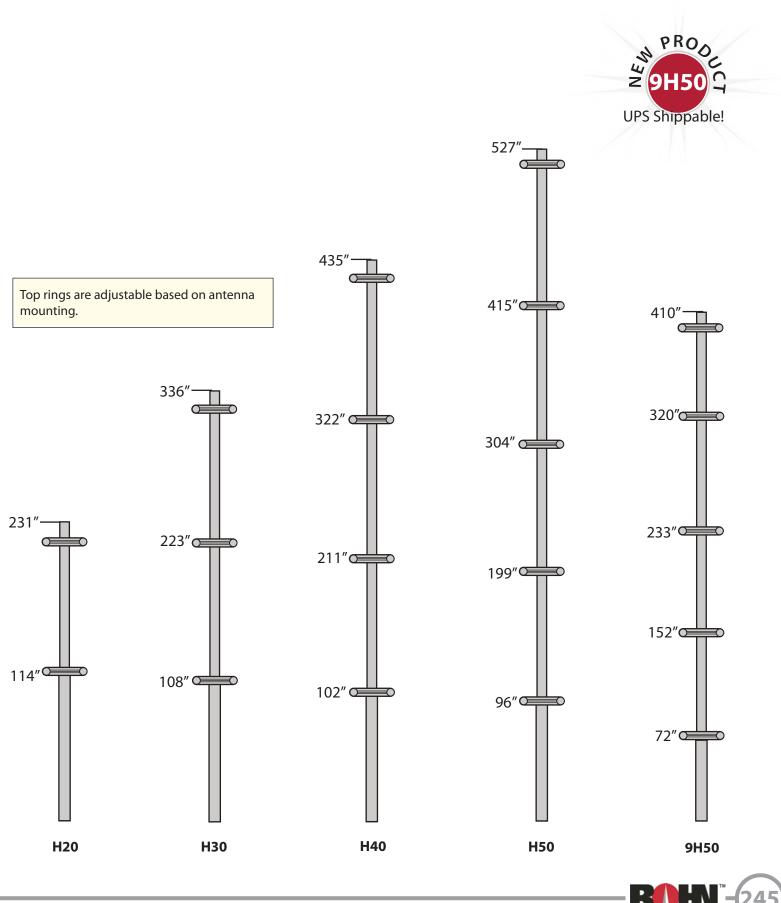
Guys, guy hardware, anchors and base mount must be ordered separately. Refer to pages 245-248 for standard kits and page 249 for individual components.



TELESCOPING MASTS.

Products LLC

#### **TELESCOPING MASTS** H20|H30|H40|H50|9H50

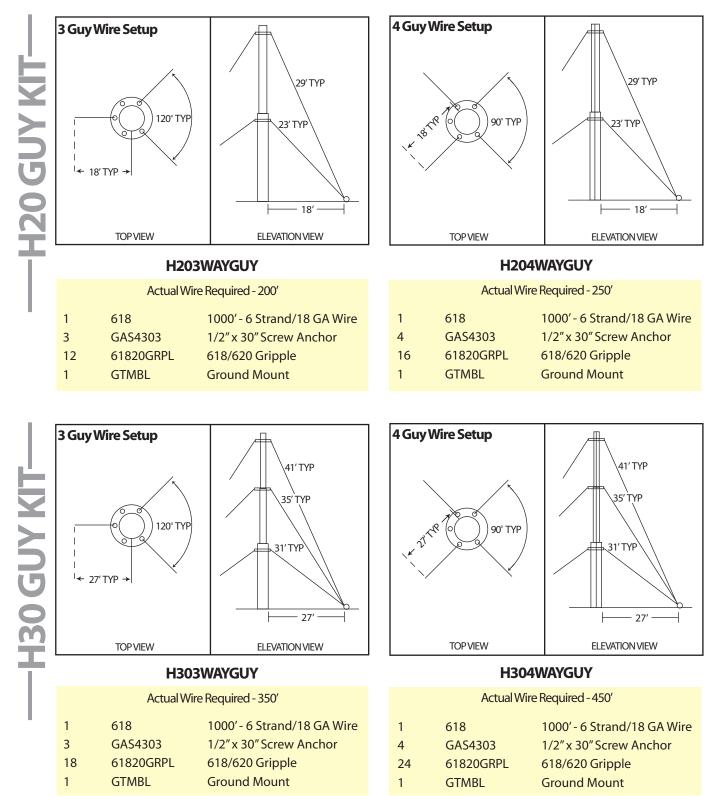


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#### INSTALLATION GUIDELINES

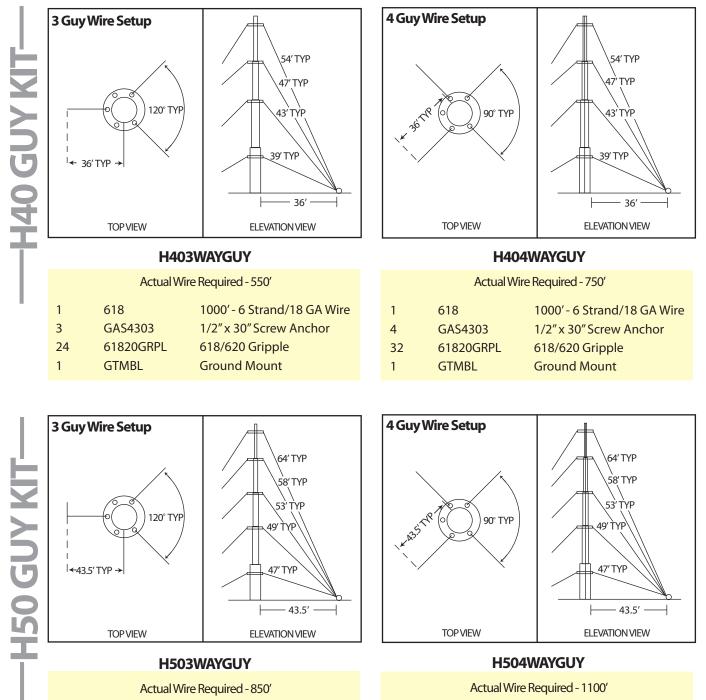
#### All Telescoping Mast kits include guys, connection hardware, anchors and ground mount. Mast must be ordered separately.





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2	618	1000' - 6 Strand/18 GA Wire
4	GAS604	5/8" x 48" Screw Anchor
40	61820GRPL	618/620 Gripple
1	GTMBL	Ground Mount



1000' - 6 Strand/18 GA Wire

5/8" x 48" Screw Anchor

618/620 Gripple

**Ground Mount** 

618

GAS604 61820GRPL

GTMBL

1

3

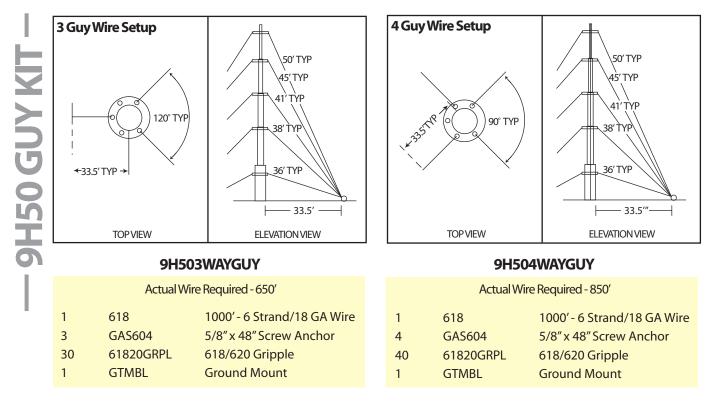
30

1



#### INSTALLATION GUIDELINES

#### All Telescoping Mast kits include guys, connection hardware, anchors and ground mount. Mast must be ordered separately.



#### INSTALLATION GUIDELINES

1. Installation or dismantling of telescoping masts require professional contractors experienced with guyed masts.

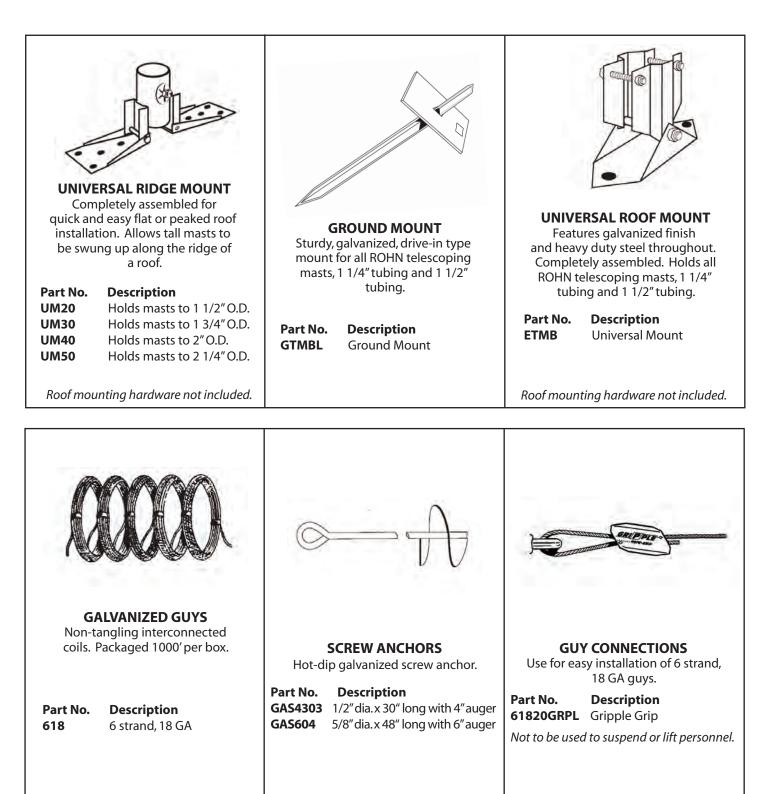
2. All installations must be bracketed or guyed.

3. The pictured guy layouts are for a typical installation. Individual installation requirements may vary.

4. Antenna load (top load) should not exceed an effective projected area (EPA) of 2 square feet (see your antenna specifications).



#### **PARTS & ACCESSORIES**



Refer to page 251 for roof mounts. Refer to page 275 for wall mounts.

