

Log Periodic Antenna

Directional High-Gain SISO Outdoor Log Periodic Antenna

Designed by WAVEFORM in the USA

SKU: ANT660-NF-LOGP11



600 to 6000 MHz



4G and 5G Support



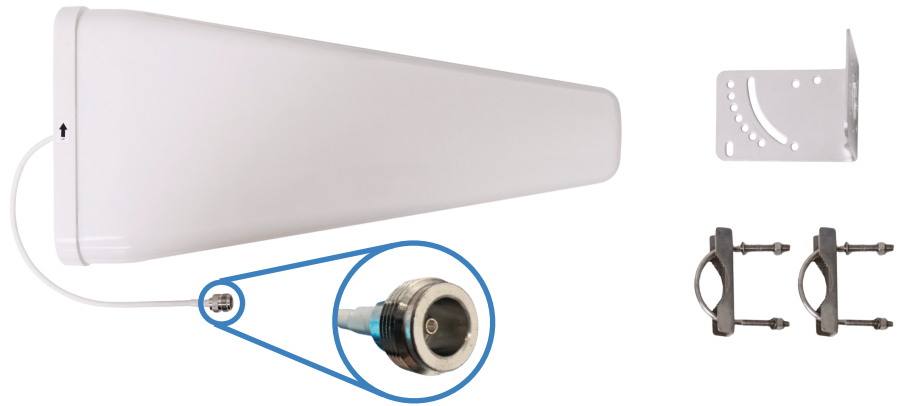
Up to 9.1 dBi Gain



Outdoor Rated



N-Female Connectors



Specifications:

Electrical:

Freq. Range	600-900 MHz	1700-2700 MHz	3500-4200 MHz	5000-6000 MHz
Peak Gain (Avg.)	7.1 dBi $\pm$ 1.2 dB	8.3 dBi $\pm$ 0.2 dB	8.4 dBi $\pm$ 0.3 dB	8.2 dBi $\pm$ 0.4 dB
Azimuth Beamwidth	105 $\pm$ 13 deg	78 $\pm$ 2 deg	58 $\pm$ 8 deg	50 $\pm$ 1 deg
Elevation Beamwidth	60 $\pm$ 3 deg	50 $\pm$ 2 deg	43 $\pm$ 8 deg	40 $\pm$ 1 deg
Front-to-Back Ratio (Avg.)	> 15 dB	> 22 dB	> 19 dB	> 20 dB
VSWR	$\leq$ 2.1	$\leq$ 1.5	$\leq$ 1.3	$\leq$ 2.1
Efficiency (Peak)	91 %	74 %	67 %	63 %
Input Imped.	50 Ω			
Polarization	Vertical			
Antenna Type	Directional			
Power Rating	50 W (Peak)			

Mechanical (Antenna):

Antenna Radome	Color	White
	Material	ABS (UV Stabilized)
	Dimensions (l x h x w)	443 x 210 x 65 mm (17.4 x 8.3 x 2.6 in)
Cable	Connector	N-Female
	Type	RG58
	Color	White
	Jacket Mat.	TPE
	Length	30 cm (1.0 ft)
	Bending Radius	50 mm (2.0 in) [Repeat] 25 mm (1.0 in) [Install]
	Net Wt.	1.1 kg (2.4 lbs)

Environmental:

Protection Class	IP65
Impact Rating	IK08
Rated Wind Velocity (Vert.)	160 kph (100 mph) [Sust.] 168 kph (105 mph) [Max]
Rated Wind Velocity (45°)	185 kph (115 mph) [Sust.] 200 kph (125 mph) [Max]
UV Rated?	Yes
Operating Temp.	-40 to +60 deg C (-40 to + 140 deg F)
Lightning Protect.	DC Ground

Mechanical (Assembly):

Bolt Assembly	Bolt	Material	304 Stainless steel
		Spec.	M6 x 16 mm
	Flat Washer	Material	304 Stainless steel
		Spec.	M6
	Lock Washer	Material	304 Stainless steel
		Spec.	M6
U-Bolt Assembly	U-Bolt	Material	Q235 steel, Dacromet / Zinc-Aluminium flake coat
		Spec.	M6 x 94 mm
	Flat Washer	Material	304 Stainless steel
		Spec.	M6
	Lock Washer	Material	65Mn steel, Dacromet / Zinc-Aluminium flake coat
		Spec.	M6
Nut		Material	Q235 steel, Dacromet / Zinc-Aluminium flake coat
		Spec.	M6
Bracket		Material	Q235 steel, Dacromet / Zinc-Aluminium flake coat
L-Bracket		Material	Q235 steel, Dacromet / Zinc-Aluminium flake coated
		Dims. (l x h x w)	93.0 x 64.5 x 64.5 mm (3.7 x 2.5 x 2.5 mm)



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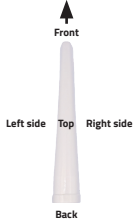
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Log Periodic Antenna

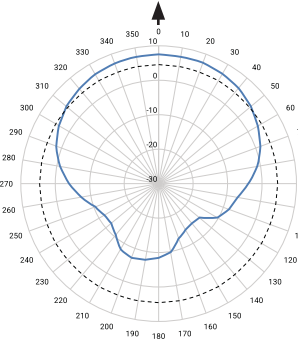
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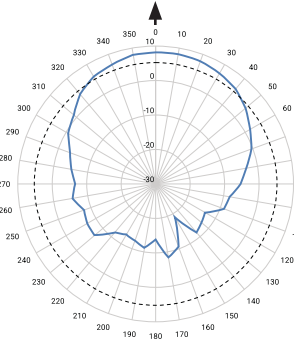
Azimuth Plane "Top-down view"



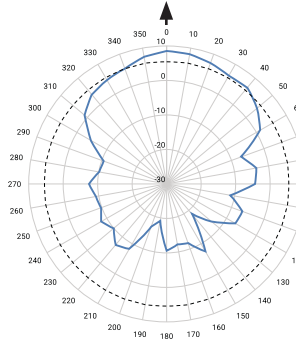
600-900 MHz



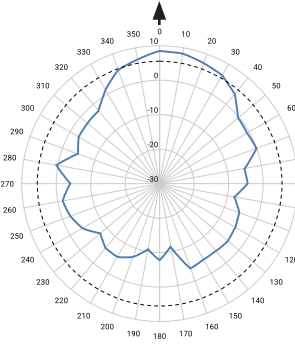
1700-2700 MHz



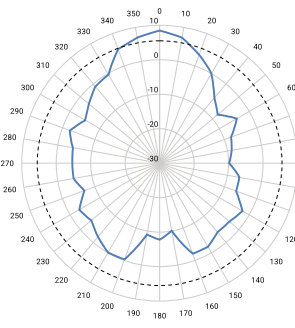
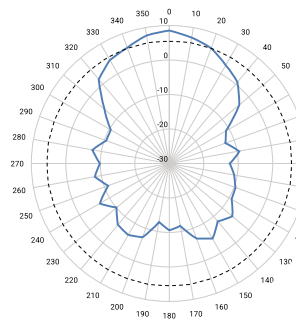
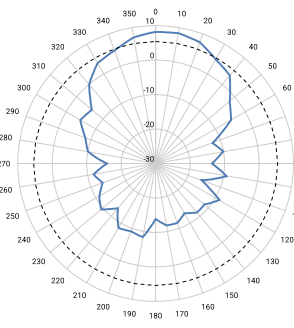
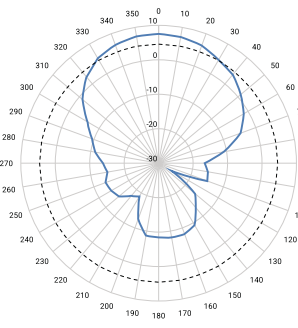
3500-4200 MHz



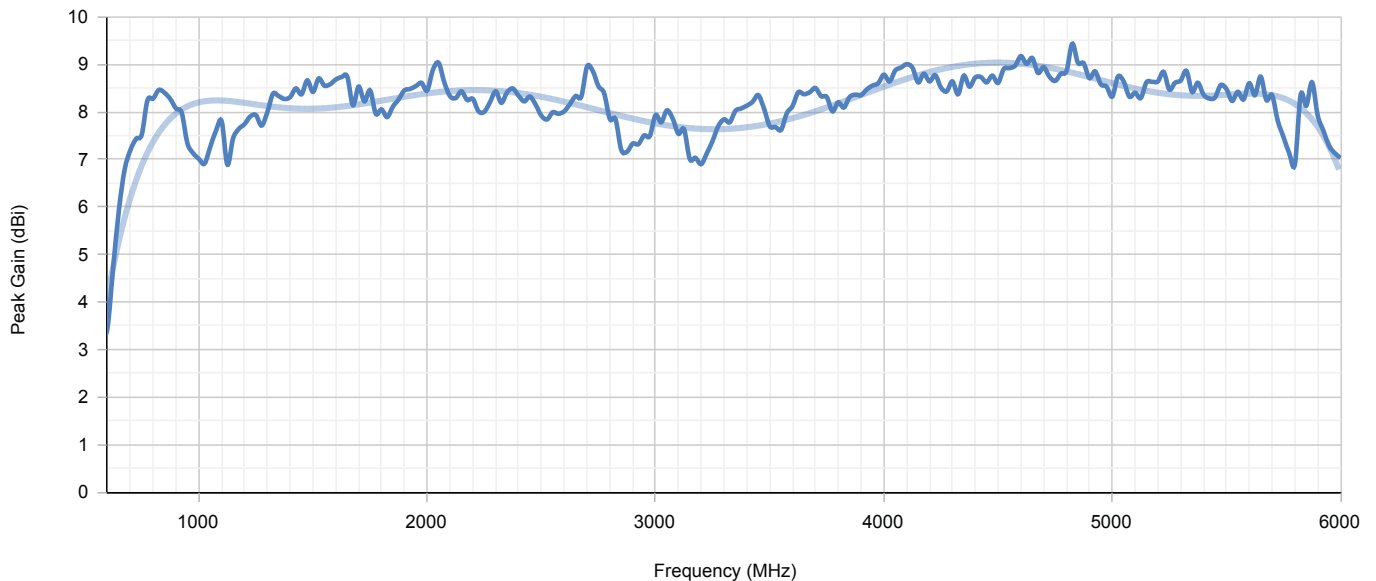
5000-6000 MHz



Elevation Plane "Side-on view"



Antenna Peak Gain (dBi) by Frequency (MHz)



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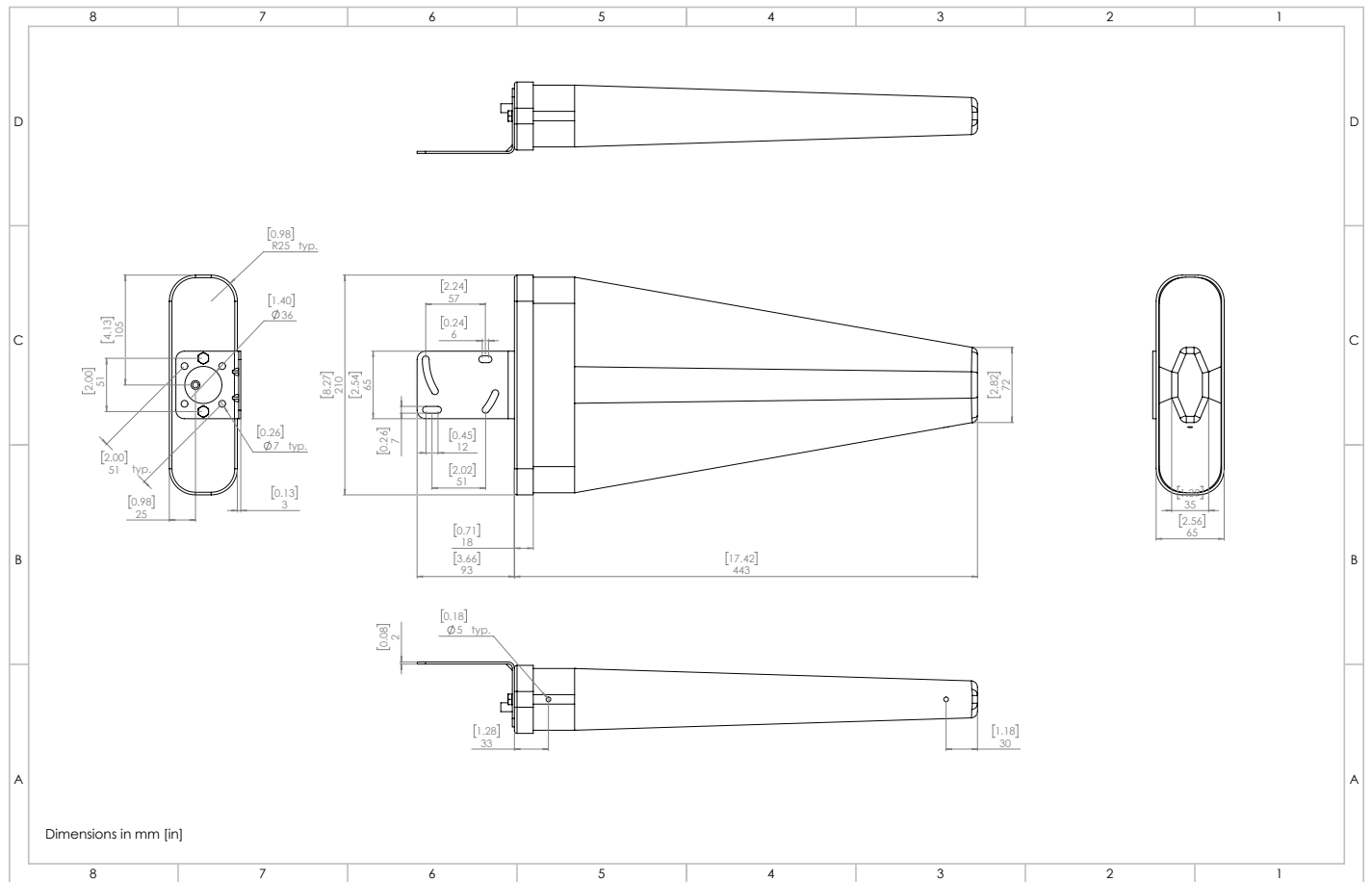
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Dimensions:



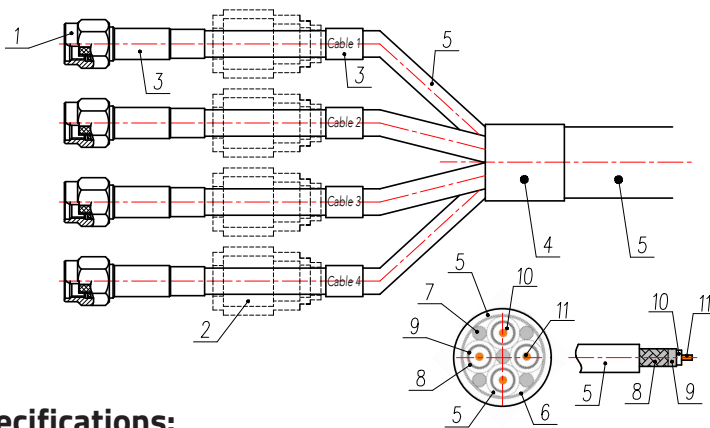
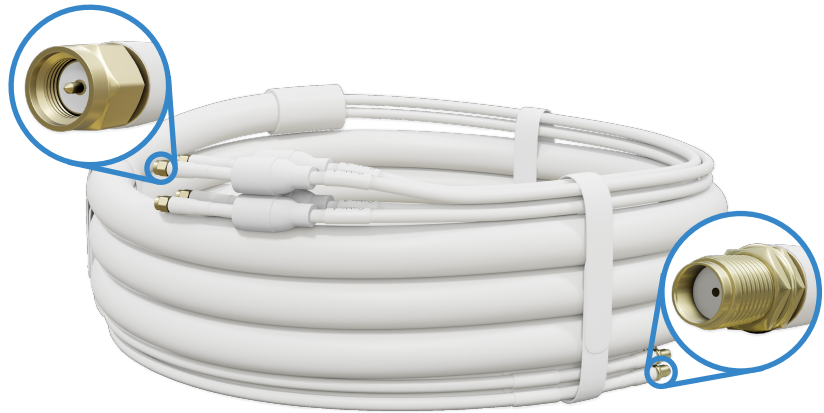
UltraFlex-Quad

Designed by WAVEFORM in California

SKU: 195Q-SFM-xx

Features:

- Four SMA-Female to SMA-Male ultraflex LMR195 cables grouped into one highly flexible cable.
- Integrated Weatherproof boots offer a fortified outdoor SMA connection.
- 0 MHz to 6000 MHz



#	Description	Material
1	SMA Body	Gold-Plated Brass
2	Weatherproof Boot	Silicone Rubber
3	Heatshrink	PVC
4	Cable Molding	Solid TPE
5	Cable Jacket (Group & Indiv.)	TPE
6	Inter-cable Sheath	Clear PET
7	Inter-cable Filler	PP Lattice
8	Outer Conductor (#1)	Tinned Copper Braid
9	Outer Conductor (#2)	Bonded Aluminum Foil
10	Dielectric	PE Foam
11	Inner Conductor	Bare Copper

Specifications:

Electrical:		RF Attenuation (per 10 ft):		Mechanical:		
Input Impedance	50 Ω	600 MHz	0.9 dB	Cable (Whole)	Jacket Color	White (RAL 9016)
Frequency Range	0 - 6000 MHz	900 MHz	1.1 dB		Type	LMR195
VSWR	≤ 1.5	1800 MHz	1.6 dB		Length	3.05 m (10 ft) 6.10 m (20 ft)
Capacitance	83.3 pF/m	2100 MHz	1.7 dB		Diameter	13.4 mm (0.53 in) [Group] 18.7 mm (0.74 in) [Mold] 4.7 mm (0.19 in) [Indiv.]
Velocity	75 %	2500 MHz	1.9 dB			
Shielding	> 90 dB	3000 MHz	2.1 dB			
Voltage	1000 V max (Working) 3000 V rms (Withstand)	4000 MHz	2.4 dB	Bending Radius	130 mm (5.1 in) [Repeat] 65 mm (2.6 in) [Install]	
		5000 MHz	2.8 dB			
Contact Resist. (Cables)	≤ 24.9 Ω/km (Center) ≤ 16.1 Ω/km (Outer)	6000 MHz	3.0 dB			
Contact Resist. (Connectors)	≤ 3.0 mΩ (Center) ≤ 2.5 mΩ (Outer)	Environmental:				
		Protection Class	IP66 (w/ Boots)			
Insulation Resist.	≥ 1000 mΩ	Burial Rated?	No	Male Cable End	Connector Type	SMA-Male
Power Rating	2.5 kW (Peak)	UV Rated?	Yes		Connector Diam.	7.9 mm (0.31 in)
		Operating Temperature	-40 to +85 deg C (-40 to +185 deg F)		Cable Length	400 mm (16 in)
				Female Cable End	Connector Type	SMA-Female
					Connector Diam.	7.0 mm (0.28 in)
					Cable Length	300 mm (12 in)
				Net Weight		0.58 kg (1.28 lbs) [10 ft] 1.13 kg (2.50 lbs) [20 ft]



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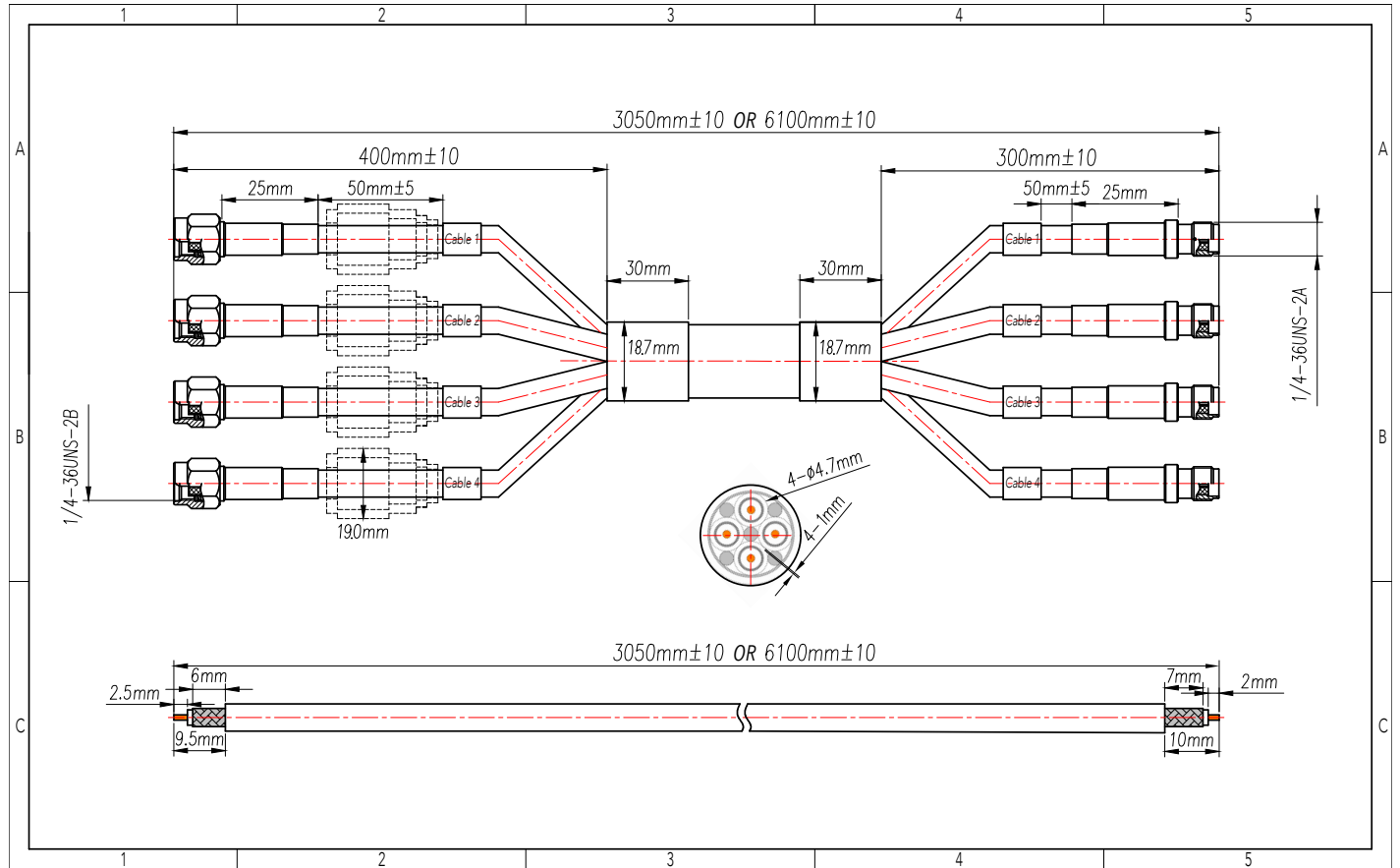
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UltraFlex-Quad

Designed by WAVEFORM in California

Dimensions:



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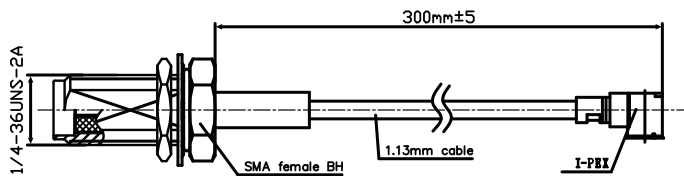
SMA-Female to U.FL Pigtail Adapter

by WAVEFORM

SKU: PTA-SMAF-UFL-V2

Main Features:

- SMA-Female to U.FL-Female connector
- 0-6000 MHz Frequency Support
- 50 Ω Impedance
- 1.13 mm diameter cable type



Section Description	Material	Plating
SMA Body	Brass	Gold
I-PEX UFL Body	Brass	Gold
Inner Conductor	Steel	Silver & Copper
Dielectric	PTFE	N/A
Outer Conductor	Copper Braid	Silver
Jacket	FEP	Nickel

Specifications:

Electrical:

Input Impedance	50 Ω
Frequency Range	0 - 6000 MHz
VSWR	≤ 1.15 (Straight) ≤ 1.25 (Right Angle)
Capacitance	95.6 pF/m
Velocity	70 %
Voltage	335 V max (Working) 1000 V rms (Withstand)
Insertion Loss	< 0.7 dB @ 6000 MHz
Contact Resistance	≤ 3 m Ω (Center) ≤ 2 m Ω (Outer)
Insulation Resistance	≥ 5000 M Ω

Mechanical:

Jacket Color	Black
Cable Type	1.13mm
Cable Diameter	1.13 mm (0.05 in.)
Cable Length	30 cm (12 in.)
Bending Radius	4 mm (0.15 in.)
Connector A Type	SMA-Female Bulk-head
Connector A Angle	Straight
Connector A Diameter	7.0 mm (0.27 in.)
Connector B Type	U.FL-Female
Connector B Angle	Right-Angle
Connector B Diameter	2.0 mm (0.08 in.)
Net Weight	15 g (0.5 oz)

Environmental:

Burial Rated?	No
UV Rated?	No
Operating Temp.	-40 to +85 deg C



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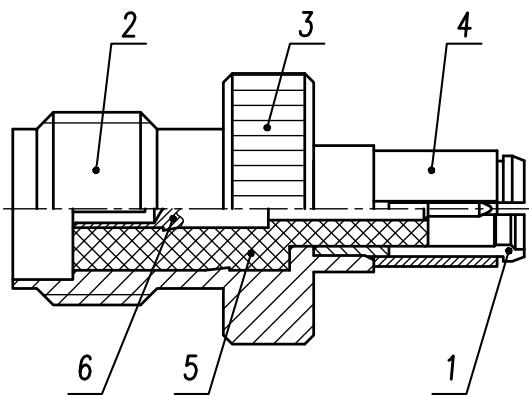
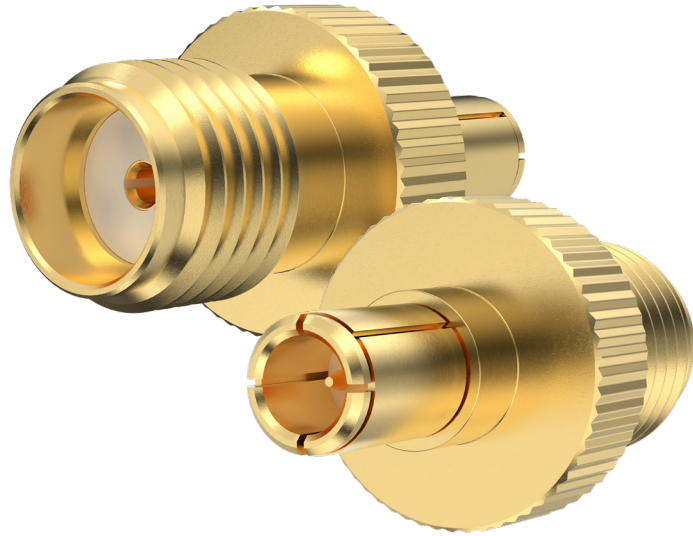
TS9-Male to SMA-Female Adapter (2-pack)

by WAVEFORM

SKU: ADT-SF-TM-2

Features:

- 2x TS9-Male to SMA-Female Adapters
- 0 MHz to 4500 MHz
- 50 Ω



#	Description	Material	Plating
1	TS9-Male Body	Copper Alloy (C3604)	Gold
2	SMA-Female Body	Copper Alloy (C3604)	Gold
3	Adapter Body	Copper Alloy (C3604)	Gold
4	Sleeve	Copper Alloy (C3604)	Gold
5	Dielectric	PTFE	N/A
6	Inner Conductor	Copper Alloy (C3604)	Gold

Specifications:

Electrical:

Input Impedance	50 Ω
Frequency Range	0 - 4500 MHz
VSWR	≤ 1.2
Capacitance	95 pF/m
Shielding	90%
Insertion Loss (Typical)	≤ 0.13 dB (0-3000 MHz) ≤ 0.25 dB (3000-4500 MHz)
Voltage	300 V max (Working) 1000 V rms (Withstand)
Contact Resist.	≤ 4.0 m Ω (Center) ≤ 2.5 m Ω (Outer)
Insulation Resist.	≥ 5000 M Ω

Mechanical:

Length	17.0 mm (0.67 in)
Connector A	Type TS9-Male
	Diameter 3.9 mm (0.15 in)
Connector B	Type SMA-Female
	Diameter 7.0 mm (0.28 in)
Net Weight	2.6 g (0.1 oz) [Each]
	5.2 g (0.2 oz) [2-Pack]

Environmental:

Burial Rated?	No
UV Rated?	Yes
Operating Temperature	-55 to +155 deg C (-67 to +311 deg F)



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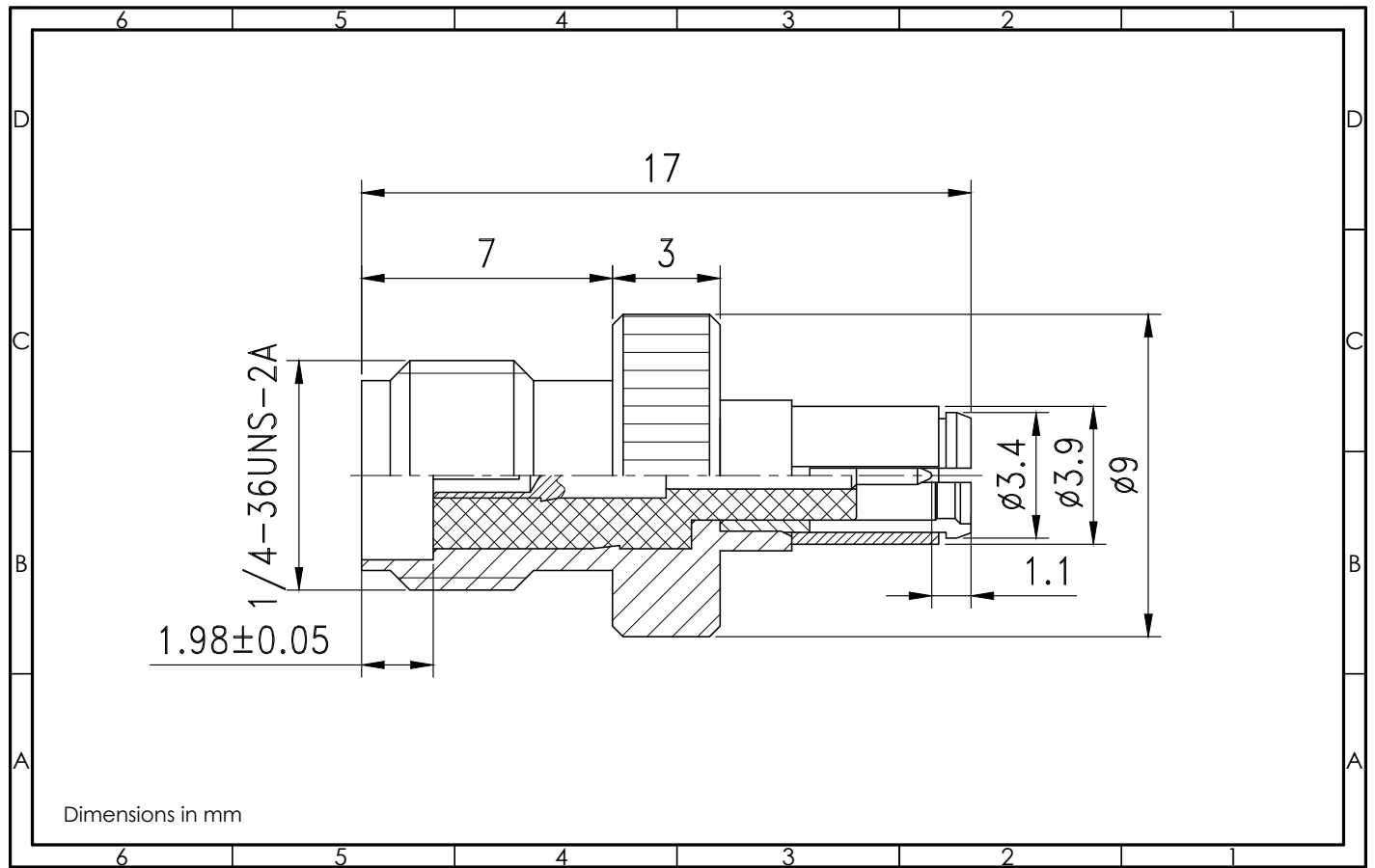
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TS9-Male to SMA-Female Adapter (2-pack)

by WAVEFORM

Dimensions:



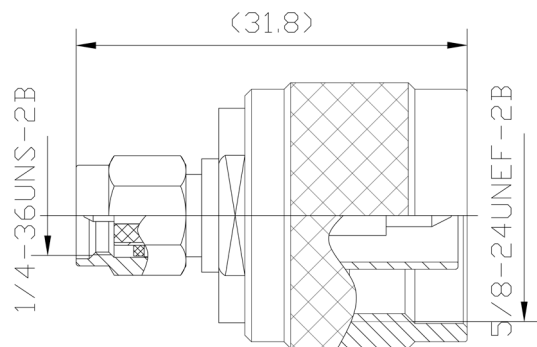
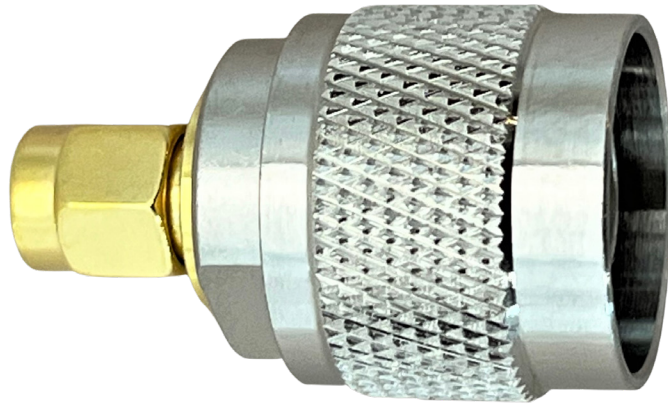
N-Male to SMA-Male Adapter

by WAVEFORM

SKU: ADT-NM-SMAM

Main Features:

- N-Male to SMA-Male connector
- 0-6000 MHz
- 50 Ω



Section Description

Material

Plating

N Body	Brass	Nickel
SMA Body	Brass	Gold/Nickel
Inner Conductor	Phosphor Bronze	Gold/Silver
Gasket	Silicone Rubber	
Dielectric	PTFE	

Specifications:

Electrical:

Input Impedance	50 Ω
Frequency Range	0 - 6000 MHz
VSWR	≤ 1.3
Insertion Loss (Typical)	.15 dB @ 6000 MHz

Mechanical:

Connector Length	31.8 mm
Connector A Type	N-Male
Connector A Diameter	20.3 mm
Connector B Type	SMA-Male
Connector B Diameter	7.9 mm
Net Weight	45 g

Environmental:

Burial Rated?	No
UV Rated?	Yes
Operating Temperature	-55 to +150 deg C



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UltraPole: The Universal Antenna Mount (Base Kit)

by WAVEFORM

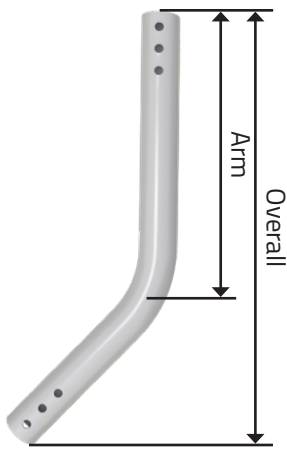
SKU: WF-UPM-Base

Main Features:

- Made of galvanized carbon steel for corrosion protection
- 90° of free pivoting with 3 lockable pivot positions (0°, 45°, 90°)
- Integrated ground terminals
- Easy to install
- Net weight: 1.2 kg (2.7 lbs)

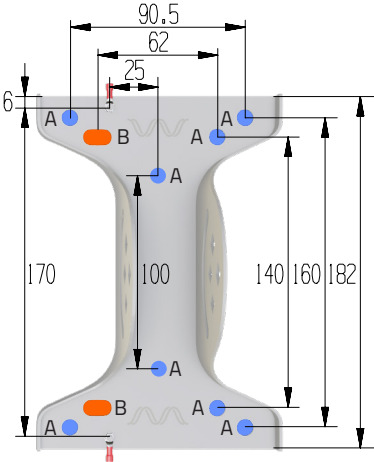


Specifications:



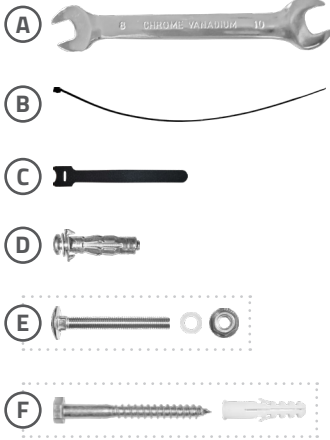
J-Pole:

Color	Industrial Grey (RAL7035)
Material	Galvanized Carbon Steel
Thickness	2.0 mm (0.1 in.)
Diameter	38 mm (1.5 in.) O.D. 34 mm (1.4 in.) I.D.
Overall Length	42.0 cm (16.5 inch)
Arm Length	26.7 cm (10.5 inch)
Coating	Matte Powder Coat
Weight	0.8 kg (1.8 lbs)
Quantity	1



Footpad:

Color	Industrial Grey (RAL7035)
Material	Galvanized Carbon Steel
Thickness	2.1 mm (0.1 in.)
Footpad	18.2 x 12.5 x 7.7 cm (7.2 x 4.9 x 3.0 in.)
Hole A	Ø8.3 mm (Ø0.33 in.)
Hole B	14.6 x 8.3 mm (0.6 x 0.3 in.)
Ground Terminal	M3 x 10.0 mm
Coating	Matte Powder Coat
Weight	0.4 kg (0.9 lbs)
Quantity	1



Mounting Tools:

#	Part Name	Material	Dimensions	Qua.
A	Wrench	Steel	Size-8/10 mm	1
B	Zip Tie	Plastic	250 mm	4
C	Velcro Tie	Plastic	150 x 12 x 1 mm	5
D	Expansion Bolt	Steel	M6 x 52 mm	5*
	Carriage Bolt	Steel	M6 x 55 mm	
E	Washer	Plastic	M6	4*
	Flange Nut	Steel	M6	
F	Hex-Head Wood Screw	Steel	M6 x 60 mm	5*
	Anchor	Plastic	Ø10 x 50 mm	

*Includes 1x spare

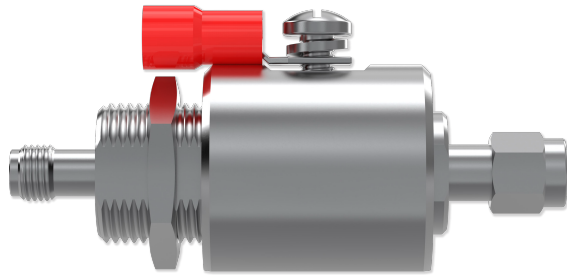
SMA Lightning Arrester Kit

Designed by WAVEFORM in the USA

SKU: WF-LSP-SFM

Features:

- SMA-Male to SMA-Female bulkhead lightning arrester.
- 0-6000 MHz frequency support
- 50 Ω impedance
- 1 m (5 ft) 10 AWG ground wire with ring terminals
- 15 cm (6 in) weatherproofing tape



Lightning Arrester Specifications:

Electrical:

Frequency Range	0 - 6000 MHz
VSWR (DC)	≤ 1.25
Insertion Loss	≤ 0.25 dB
Input Impedance	50 Ω
Insulation Resistance	≥ 5000 M Ω
Transmission Power	200 W
Gas Tube Breakdown Voltage (DC)	90 V
Withstanding Voltage (50 Hz, at sea level)	≥ 2500 V RMS
Working Voltage (50 Hz, at sea level)	≤ 1000 V RMS
Maximum Impulse Discharge Current (8/20 μ s)	20 KA 2000 J
Contact Resistance (Center Contact)	≤ 0.4 m Ω
Contact Resistance (Outer Contact)	≤ 0.2 m Ω

Mechanical:

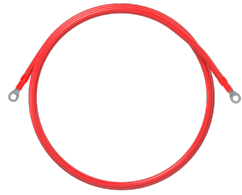
Dimensions	$\varnothing 7.8 \times 6.3$ cm ($\varnothing 3.1 \times 2.5$ in)
Connector A Type	SMA-Male
Connector B Type	SMA-Female
Connector Body	Nickel Plated Brass
Bulkhead Spec	5/8-24UNEF-2A
Body	Nickel Plated Brass
Pin Material	Gold Plated Brass
O-Ring Material	Rubber
Ground Connection	By Feedthrough or Screw Terminal
Net Weight	0.10 kg (3.55 oz)

Environmental & Regulatory:

Protection Class	IP67
Operating Temperature	-55 to +155 deg C
NFPA Rated?	No
ROHS Compliant?	Yes

SMA Lightning Arrester Kit

Designed by WAVEFORM in the USA



Grounding Cable Specifications:

Electrical:		Mechanical:	
Voltage Rating (AC)	600 V	Jacket Color	Red
		Jacket Material	PVC
		Conductor Material	Stranded Copper
		Cable Diameter	6 mm (0.24 in)
		Cable Gauge	10 AWG
		Cable Length	1.5 m (5 ft)
		Connector Type	Ring Terminal
		Connector Hole Diam.	4.3 mm (0.17 in)
		Net Weight	0.10 kg (3.55 oz)

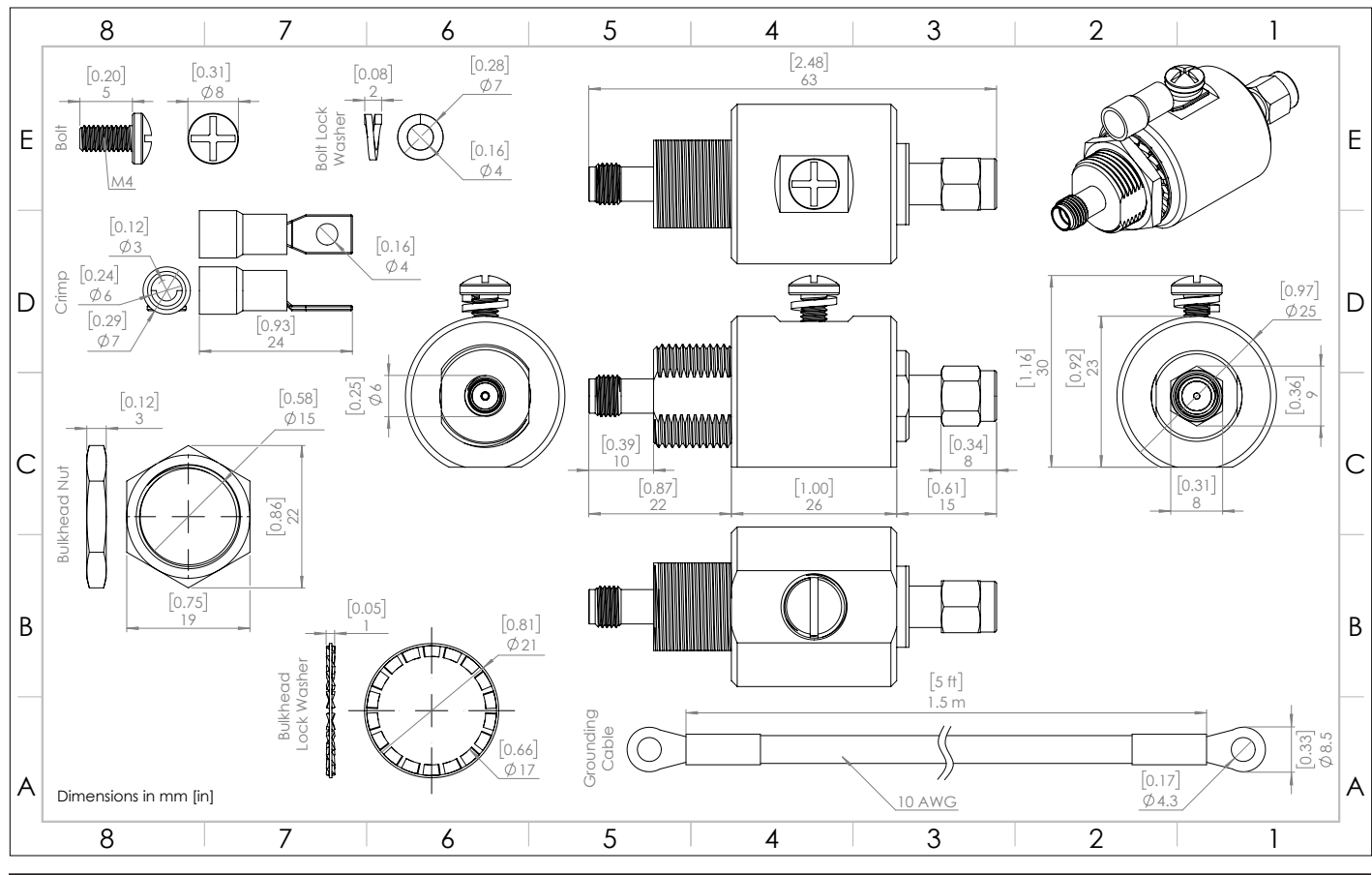
Environmental & Regulatory:

UV Rated?	No
Operating Temp.	-55 to +155 deg C (-67 to 311 deg F)
NFPA Rated?	No

Weatherproofing Tape Specifications:

Color	Clear
Material	Self-fusing Silicone Rubber
Dimensions (l x w x thk)	150 x 25 x 0.5 mm (6.0 x 1.0 x 0.02 in)
Tensile Strength	>2.51 Mpa (364 psi)
Heat Resistance	100 deg C (212 deg F) for 168 hrs
Operating Temp.	-50 to +300 deg C (-58 to +572 deg F)
Withstanding Voltage	35 kV
Net Weight	0.15 kg (5.29 oz)

Dimensions:



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