

2x2 MIMO Outdoor Panel Antenna

by WAVEFORM

SKU: ANT627-NF-PANEL-MIMO-OD

Main Features:

- Wideband Cross-Polarized MIMO Panel Antenna
- 50 Ω
- 5.5-9.5 dBi
- 600-2700 MHz



Specifications:

| Electrical: | | | Mechanical: | |
|----------------------|-----------------------------------|--------------------|-------------------|---------------------|
| Frequency Range | 600-960 MHz | 1690-2700 MHz | Type | Directional |
| Gain (Peak) | 6 dBi \pm 0.5 dB | 9 dBi \pm 0.5 dB | Radome Color | White |
| Horizontal Beamwidth | 85 \pm 10 deg | 60 \pm 5 deg | Radome Material | ABS (UV Stabilized) |
| Vertical Beamwidth | 80 \pm 5 deg | 55 \pm 5 deg | Dimensions | 315 x 195 x 68 mm |
| Front-to-Back Ratio | \leq 20 dB | \leq 23 dB | Connector Type | 2x N-Female |
| VSWR | \leq 2.0 | | Cable Type | RG58 |
| Input Impedance | 50 Ω | | Cable Length | 300 mm |
| Polarization | 2x2 Cross-Polarized, \pm 45 deg | | Net Weight | 700 g |
| Maximum Power | 50 W | | Mounting Type | Pole |
| | | | Mounting Material | Steel |

| Environmental: | |
|-----------------------|------------------|
| Protection Class | IP65 |
| Rated Wind Velocity | 210 km/h |
| Operating Temperature | -40 to +65 deg C |



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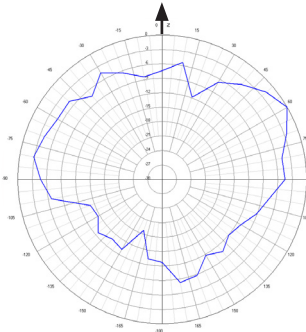
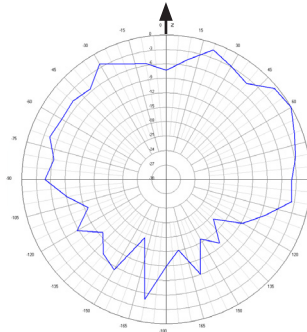
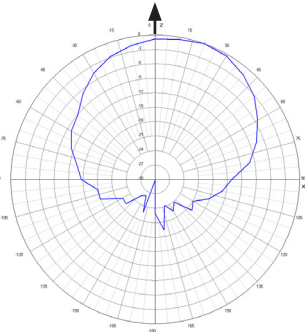
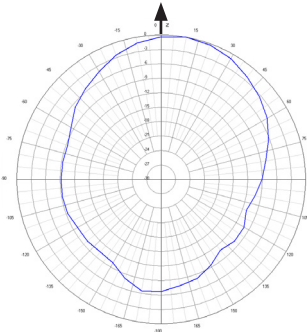
650 MHz

1950 MHz

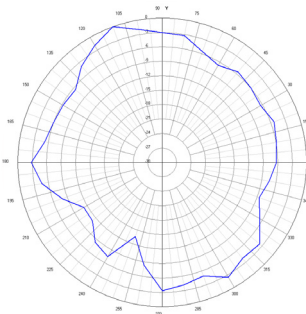
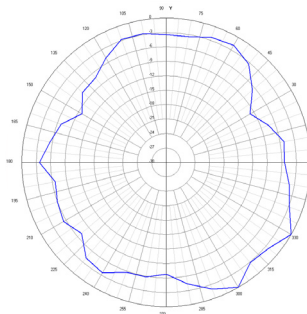
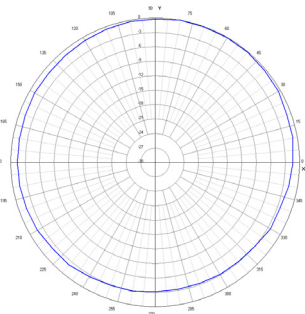
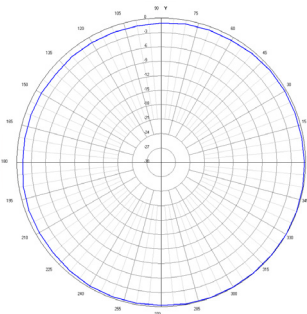
3800 MHz

5400 MHz

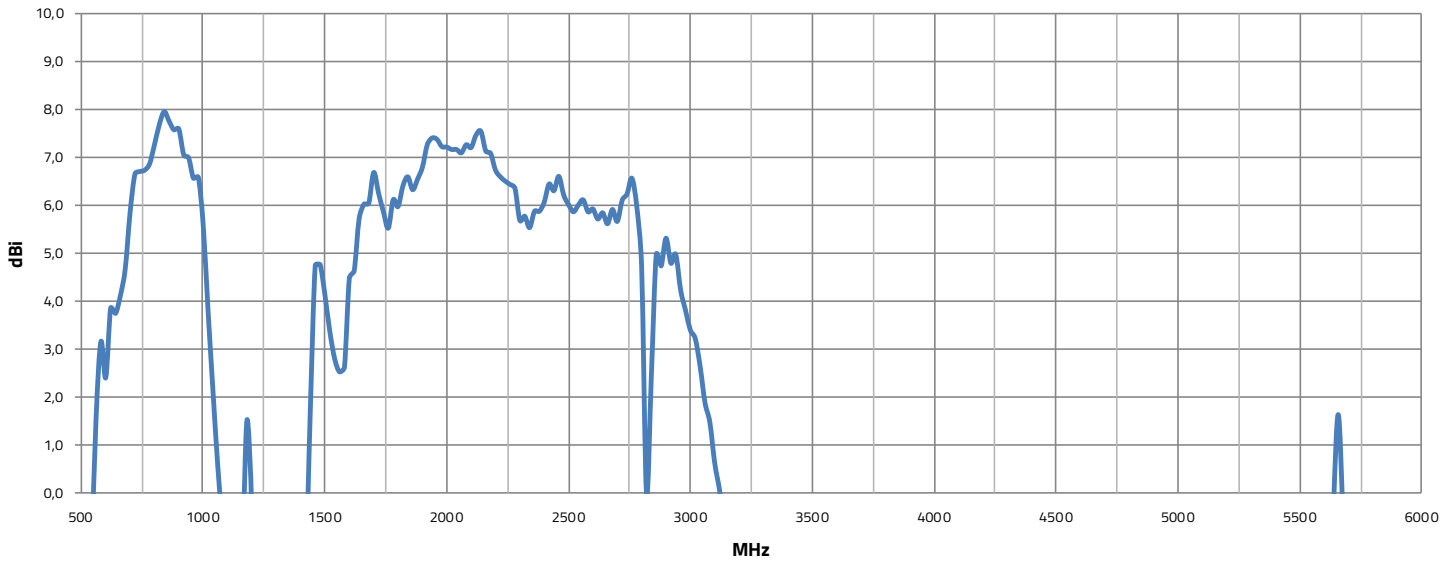
Vertical Plane
"Top-down view"



Horizontal Plane
"Head-on view"



Antenna Broadside Gain (dBi) by Frequency (Mhz)



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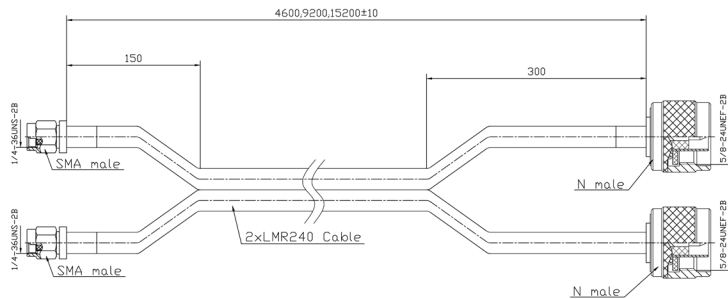
Twin-RS240 N-Male to SMA-Male Coaxial Cable

by WAVEFORM

SKU: RS240-TWIN-NM-SMAM-x

Main Features:

- N-Male to SMA-Male connectors
- 0-6000 MHz
- 50 Ω
- 12.2 mm (0.5 inch) diameter cable



| Section Description | Material | Plating |
|---------------------|----------------------|-------------|
| N Body | Brass | Nickel |
| SMA Body | Brass | Gold/Nickel |
| Inner Conductor | Aluminum | Copper |
| Dielectric | FPE | N/A |
| Outer Conductor | Bonded Aluminum Foil | N/A |
| Overall Braid | Aluminum | Copper |
| Jacket | PVC | N/A |

Specifications:

Electrical:

| | |
|-----------------------|-------------------------------------------------------------|
| Input Impedance | 50 Ω |
| Frequency Range | 0 - 6000 MHz |
| VSWR | ≤ 1.25 |
| Capacitance | 79.4 pF/m |
| Velocity | 84 % |
| Shielding | > 90 dB |
| Power Rating (Peak) | 5.6 kW |
| Voltage | 1500 V max (Working) 2500 V rms (Withstand) |
| Contact Resist. (N) | ≤ 1 m Ω (Center) ≤ 1 m Ω (Outer) |
| Contact Resist. (SMA) | ≤ 3 m Ω (Center) ≤ 2 m Ω (Outer) |
| Insulation Resist. | ≥ 5000 M Ω |

RF Attenuation (per 30 ft):

| | |
|----------|--------|
| 600 MHz | 1.8 dB |
| 900 MHz | 2.3 dB |
| 1800 MHz | 3.3 dB |
| 2100 MHz | 3.5 dB |
| 2500 MHz | 3.9 dB |
| 3000 MHz | 4.3 dB |
| 4000 MHz | 4.9 dB |
| 5000 MHz | 5.6 dB |
| 6000 MHz | 6.2 dB |

Environmental:

| | |
|-----------------|-------------------|
| Burial Rated? | No |
| UV Rated? | Yes |
| Operating Temp. | -50 to +155 deg C |

Mechanical:

| | |
|-------------------------|--------------------------------------------------|
| Jacket Color | Black |
| Cable Type | RS240 (LMR240) |
| Cable Diameter (Group) | 12.2 mm (0.5 in.) |
| Cable Diameter (Splits) | 6.1 mm (0.24 in.) |
| Cable Length | 4.6 m (15 ft) 9.2 m (30 ft) 15.2 m (50 ft) |
| Bending Radius | 30 mm (1.2 in.) |
| Connector A Type | N-Male |
| Connector A Diameter | 20.3 mm (0.9 in.) |
| Connector B Type | SMA-Male |
| Connector B Diameter | 7.9 mm (0.3 in.) |
| Net Weight (per 30 ft) | 0.91 kg (2.0 lbs) |



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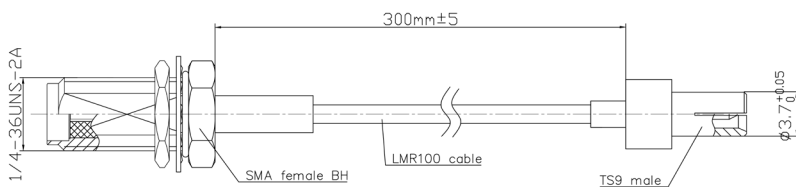
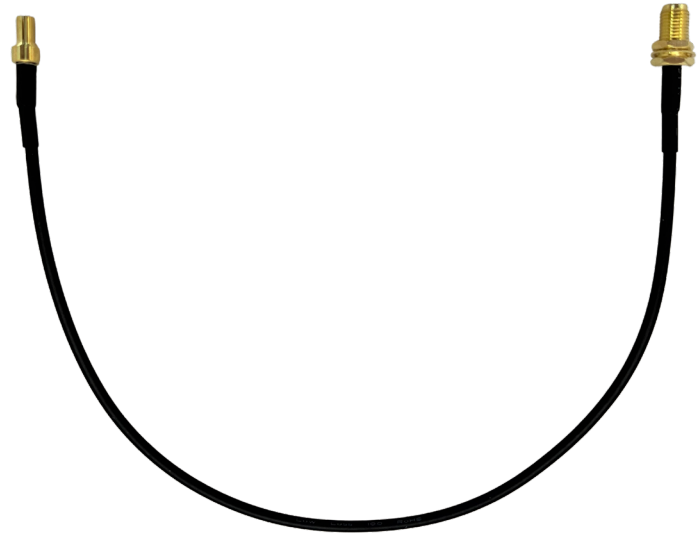
SMA-Female to TS9-Male Pigtail Adapter

by WAVEFORM

SKU: PTA-SMAF-TS9M

Main Features:

- SMA-Female to TS9-Male connector
- 0-6000 MHz
- 50 Ω
- 2.79 mm diam. cabling



| Section Description | Material | Plating |
|---------------------|-----------------|---------|
| SMA Body | Brass | Gold |
| TS9 Body | Brass | Gold |
| Crimping Suite | Brass | Nickel |
| Inner Conductor | Phosphor Bronze | Gold |
| Jacket | PE | |
| Gasket | Silicone Rubber | |
| Dielectric | PTFE | |

Specifications:

Electrical:

| | |
|--------------------------|---------------------|
| Input Impedance | 50 Ω |
| Frequency Range | 0 - 6000 MHz |
| VSWR | ≤ 1.25 |
| Capacitance | 101.1 pF/m |
| Velocity | 66 % |
| Shielding | > 90 dB |
| Power Rating (Peak) | 0.6 kW |
| Insertion Loss (Typical) | < 0.4 dB @ 6000 MHz |

Mechanical:

| | |
|----------------------|------------|
| Jacket Color | Black |
| Cable Type | LMR100 |
| Cable Diameter | 2.79 mm |
| Cable Length | 30 cm |
| Bending Radius | 6.35 mm |
| Connector A Type | SMA-Female |
| Connector A Diameter | 7.9 mm |
| Connector B Type | TS9-Male |
| Connector B Diameter | 3.8 mm |
| Net Weight | 30 g |

Environmental:

| | |
|-----------------------|------------------|
| Burial Rated? | No |
| UV Rated? | No |
| Operating Temperature | -40 to +85 deg C |



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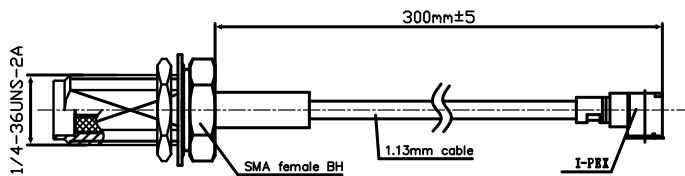
SMA-Female to U.FL Pigtail Adapter

by WAVEFORM

SKU: PTA-SMAF-UFL-V2

Main Features:

- SMA-Female to U.FL-Female connector
- 0-6000 MHz
- 50 Ω
- 1.13 mm diam. cabling



| 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 (0.8 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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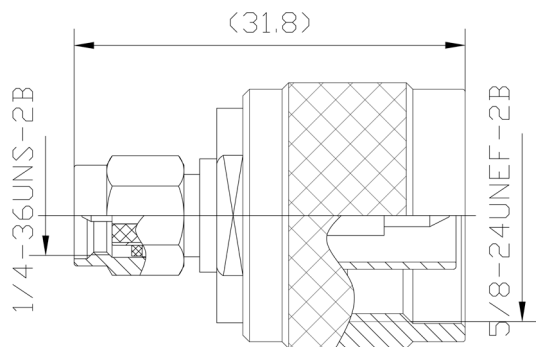
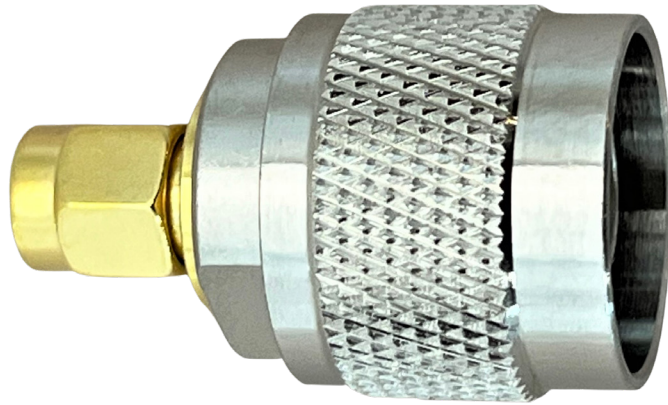
N-Male to SMA-Male Adapter

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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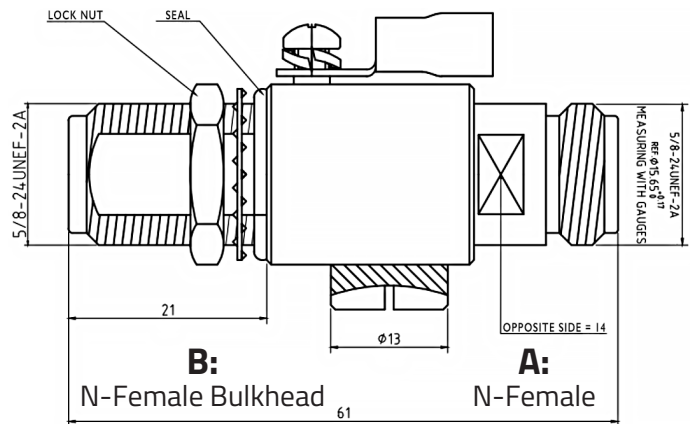
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50 Ohm Lightning Surge Protector Kit

by WAVEFORM

SKU: WF-LSP-50-KIT



Main Features:

- N-Female to N-Female Bulkhead Surge Protector
- 0-6000 MHz Frequency Support
- 50 Ω Impedance
- 5 ft 10 AWG Grounding Wire
- 5 ft RS240 N-Male to N-Male Jumper Cable

Surge Protector 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 | 22.7 mm \varnothing x 61.0 mm |
| Connector A Type | N-Female |
| Connector B Type | N-Female Bulkhead |
| Connector Body | Nickel Plated Brass |
| Body | Nickel Plated Brass |
| Pin Material | Gold Plated Brass |
| O-Ring Material | Rubber |
| Ground Connection | By Feedthrough or Screw Terminal |
| Net Weight | 0.13 kg |
| NFPA Rated? | No |
| ROHS Compliant? | Yes |

Environmental:

| | |
|-----------------------|-------------------|
| Protection Class | IP67 |
| Operating Temperature | -55 to +155 deg C |



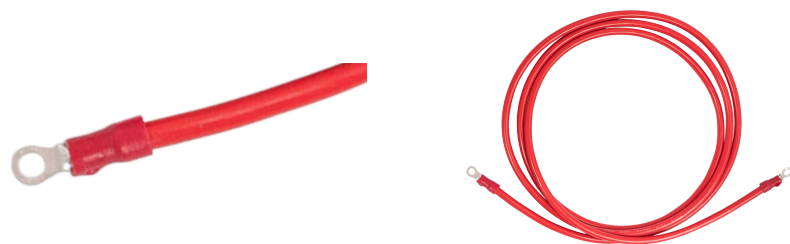
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50 Ohm Lightning Surge Protector Kit

by WAVEFORM



Grounding Cable Specifications:

| Electrical: | | Mechanical: | | Environmental: | |
|---------------------|-------|-------------------------|---------------|-----------------------|-------------------|
| Voltage Rating (AC) | 600 V | Jacket Color | Red | UV Rated? | No |
| | | Cable Type | Copper | Operating Temperature | -55 to +155 deg C |
| | | Cable Diameter | 6 mm | | |
| | | AWG | 10 AWG | | |
| | | Cable Length | 1.5 m (5 ft) | | |
| | | Connector Type | Ring Terminal | | |
| | | Connector Hole Diameter | 4 mm | | |
| | | Net Weight | 0.07 kg | | |
| | | NFPA Rated? | No | | |



Jumper Cable Specifications:

| Electrical: | | Mechanical: | | Cable Layers: | | | |
|---------------------|--------------|--------------------|--------------|---------------|-----------------------|------------------|---------|
| Input Impedance | 50 Ω | Jacket Color | Black | # | Description | Material | Diam. |
| Frequency Range | 0 - 6000 MHz | Cable Type | RS240 | 1 | Jacket | PVC | 6.10 mm |
| VSWR | $\leq 1.0:1$ | Cable Diameter | 6.10 mm | 2 | Outer Shield | Copper Braid | 4.12 mm |
| Capacitance | < 79 pF/m | Cable Length | 1.5 m (5 ft) | 3 | Inner Shield | Aluminum Foil | 3.94 mm |
| Velocity | > 84 % | Bending Radius | 19.1 mm | 4 | Dielectric | PE | 3.81 mm |
| Shielding | > 90 dB | Connector Type | N-Male | 5 | Inner Conductor | Copper | 1.42 mm |
| Power Rating (Peak) | 5.6 kW | Connector Diameter | 20.3 mm | | | | |
| | | Net Weight | 0.15 kg | | | | |
| | | NFPA Rated? | No | | | | |
| | | ROHS Compliant? | Yes | | | | |
| | | | | | Environmental: | | |
| | | | | | Protection Class | IP67 | |
| | | | | | UV Rated? | Yes | |
| | | | | | Operating Temperature | -40 to +85 deg C | |



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