

# 4x4 MIMO Outdoor Panel Antenna

by WAVEFORM

**SKU: ANT660-NF-PANEL-4X4-OD**

## Main Features:

- Wideband 4x4 Cross-Polarized MIMO Panel Antenna
- 50  $\Omega$
- 3.5-8.5 dBi
- 600-6000 MHz



## Specifications:

### Electrical:

Frequency Range	600-698 MHz	698-960 MHz	1710-2700 MHz	3300-6000 MHz
Gain	4.0 dBi $\pm$ 0.5 dB	5.5 dBi $\pm$ 0.5 dB	8.0 dBi $\pm$ 0.5 dB	6.5 dBi $\pm$ 0.5 dB
Horizontal Beamwidth	94 $\pm$ 14 deg	107.5 $\pm$ 22.5 deg	76.5 $\pm$ 18.5 deg	58.5 $\pm$ 28 deg
Vertical Beamwidth	86.5 $\pm$ 11.5 deg	93 $\pm$ 15 deg	64 $\pm$ 19 deg	67.5 $\pm$ 44 deg
Front-to-Back Ratio	> 6 dB	> 7 dB	> 13 dB	> 10 dB
VSWR	$\leq$ 2.5	$\leq$ 2.0	$\leq$ 2.0	$\leq$ 2.0
Input Impedance	50 $\Omega$			
Polarization	4x4 Cross-Polarized, $\pm$ 45 deg			
Power Rating (Peak)	50 W			

### Mechanical:

Type	Directional
Radome Color	White
Radome Material	ABS (UV Stabilized)
Dimensions	385 x 315 x 68 mm
Connector Type	N-Female
Cable Type	RG58
Cable Length	30 cm
Net Weight	1.5 kg
Mounting Type	Pole
Mounting Material	Steel

### Environmental:

Protection Class	IP65
Rated Wind Velocity	210 km/h
Operating Temperature	-40 to +65 deg C
Lightning Protection	DC Ground



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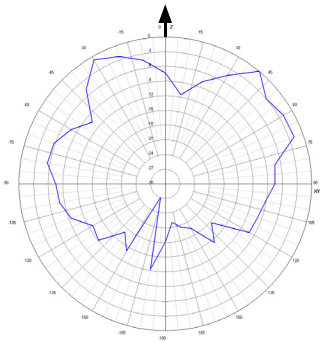
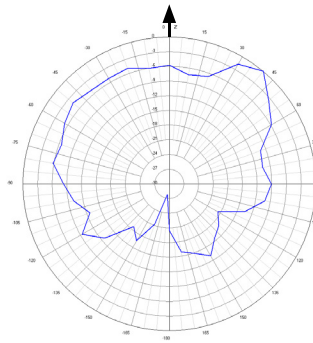
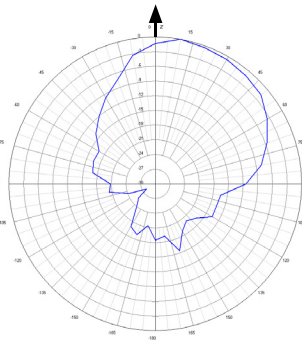
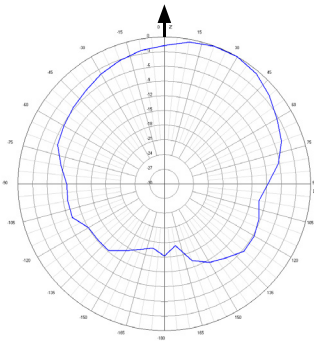
650 MHz

1950 MHz

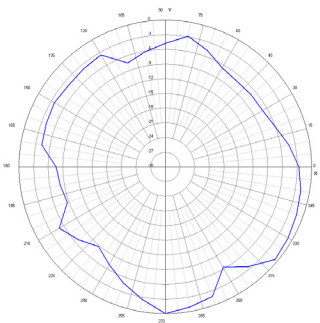
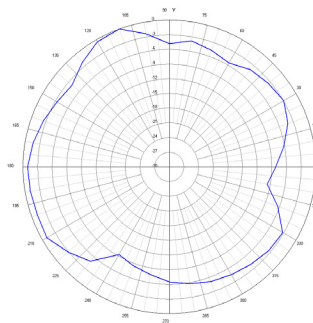
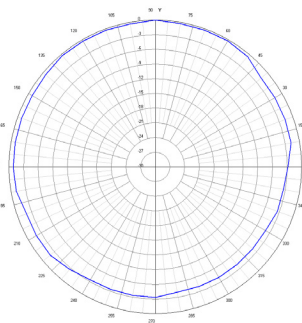
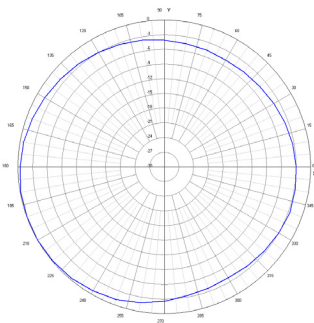
3800 MHz

5400 MHz

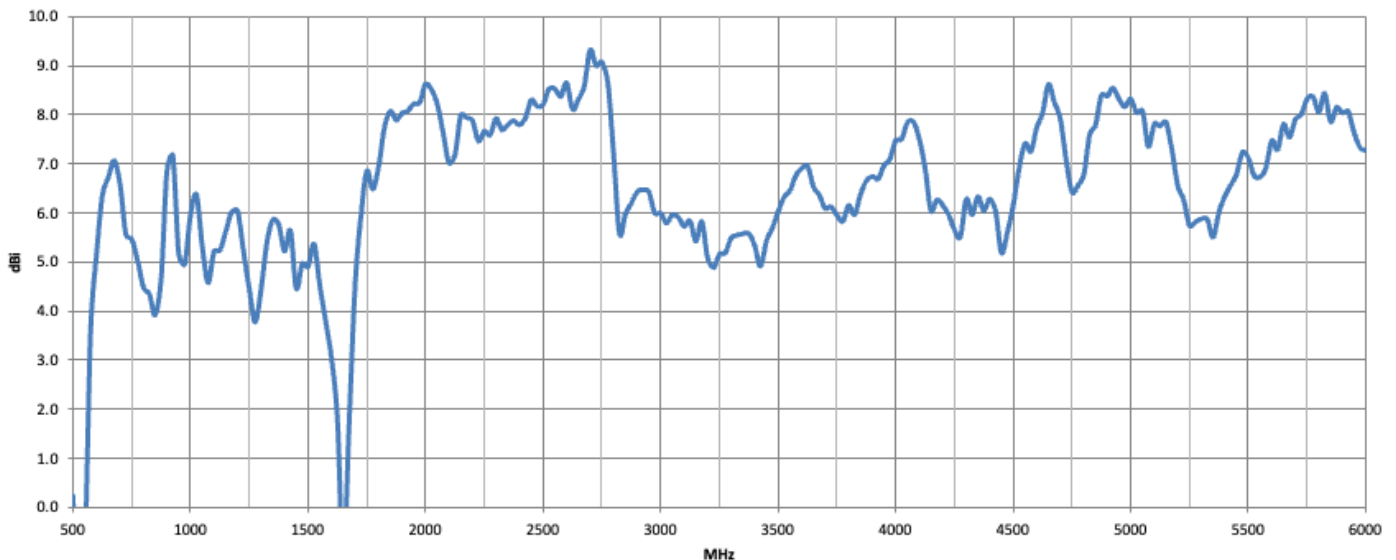
Vertical Plane  
"Top-down view"



Horizontal Plane  
"Head-on view"



## Antenna Gain (dBi) by Frequency (Mhz)



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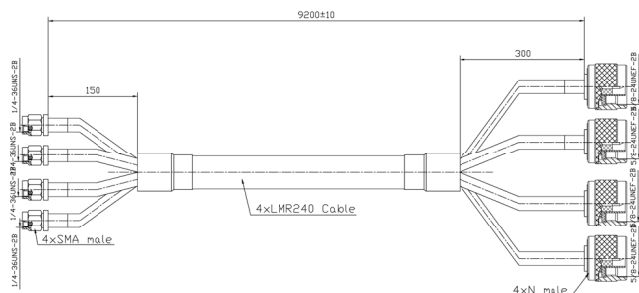
# RS240 Quad N-Male to SMA-Male Coaxial Cable

by WAVEFORM

SKU: RS240-QUAD-NM-SMAM-30

## Main Features:

- N-Male to SMA-Male connectors
- 0-6000 MHz
- 50  $\Omega$
- 6.1 mm diam. cabling (x4)



Section Description	Material	Plating
N Body	Brass	Nickel
SMA Body	Brass	Gold/Nickel
Inner Conductor	Phosphor Bronze	Gold
Jacket	PE	
Gasket	Silicone Rubber	
Dielectric	PTFE	

## Specifications:

### Electrical:

Input Impedance	50 $\Omega$
Frequency Range	0 - 6000 MHz
VSWR	$\leq 1.2$
Capacitance	79.4 pF/m
Velocity	84 %
Shielding	> 90 dB
Power Rating (Peak)	5.6 kW

### Environmental:

Burial Rated?	No
UV Rated?	Yes
Operating Temperature	-55 to +155 deg C

### 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

### Mechanical:

Jacket Color	Black
Cable Type	RS240 (LMR240)
Cable Diameter (Group)	24.4 mm
Cable Diameter (Indiv.)	6.1 mm
Cable Length	9.2 m (30 ft)
Bending Radius	20 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	1.82 kg



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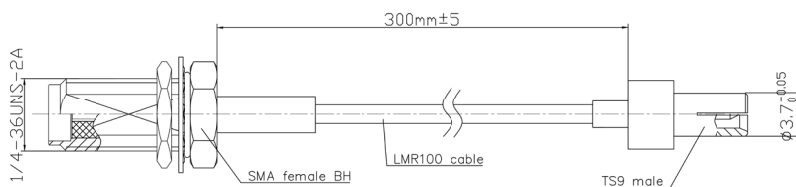
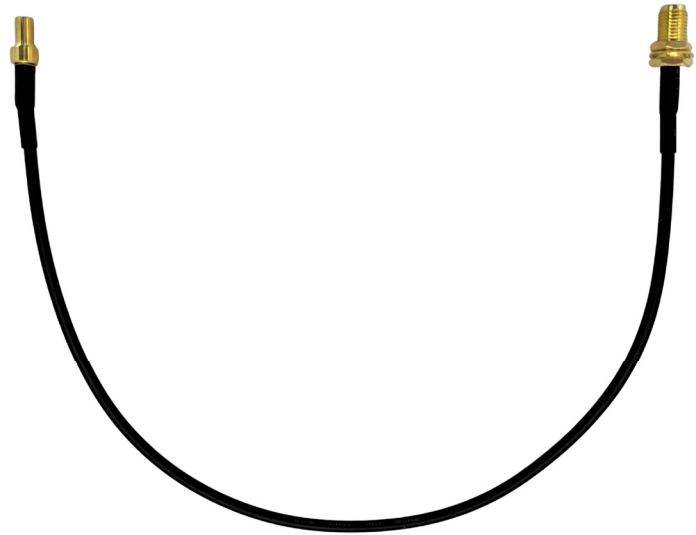
# SMA-Female to TS9-Male Pigtail Adapter

by WAVEFORM

SKU: PTA-SMAF-TS9M

## Main Features:

- SMA-Female to TS9-Male connector
- 0-6000 MHz
- 50  $\Omega$
- 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 $\Omega$
Frequency Range	0 - 6000 MHz
VSWR	$\leq 1.25$
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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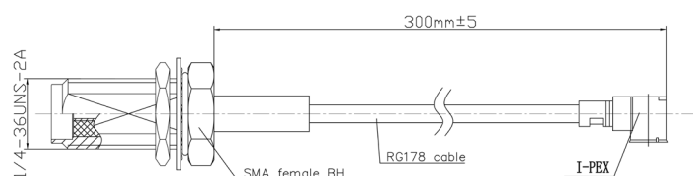
# SMA-Female to U.FL Pigtail Adapter

by WAVEFORM

**SKU: PTA-SMAF-UFLM**

## Main Features:

- SMA-Female to U.FL connector
- 0-6000 MHz
- 50  $\Omega$
- 1.8 mm diam. cabling



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

## Specifications:

### Electrical:

Input Impedance	50 $\Omega$
Frequency Range	0 - 6000 MHz
VSWR	$\leq 1.25$
Capacitance	96.46 pF/m
Velocity	70 %
Shielding	> 40 dB
Power Rating (Peak)	0.4 kW
Insertion Loss (Typical)	< 1.5 dB @ 6000 MHz

### Mechanical:

Jacket Color	Orange
Cable Type	RG178
Cable Diameter	1.8 mm
Cable Length	30 cm
Bending Radius	7.5 mm
Connector A Type	SMA-Female
Connector A Diameter	7.0 mm
Connector B Type	U.FL
Connector B Angle	Right-Angle
Connector B Diameter	2.0 mm
Net Weight	15 g

### Environmental:

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



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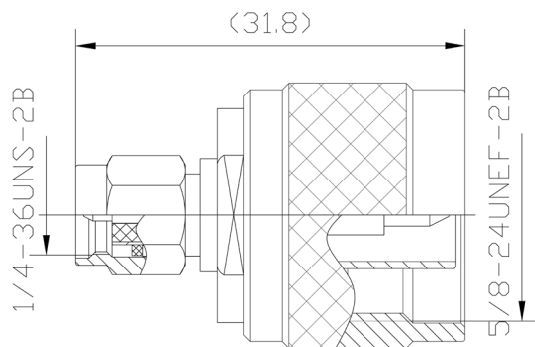
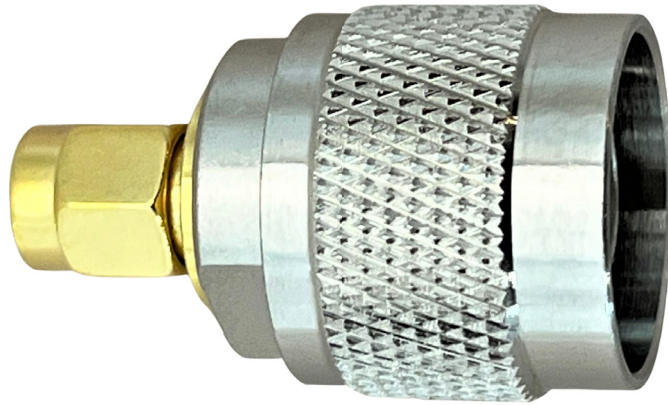
# N-Male to SMA-Male Adapter

by WAVEFORM

SKU: ADT-NM-SMAM

## Main Features:

- N-Male to SMA-Male connector
- 0-6000 MHz
- 50  $\Omega$



## 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 $\Omega$
Frequency Range	0 - 6000 MHz
VSWR	$\leq 1.3$
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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