

### TRNM[G]-7-60-NJ

Standard four hole rail fixing

2x2 MiMo Cell / LTE / WiFi 2.4/5.0

Optional Integrated GPS / GNSS / Beidou antenna



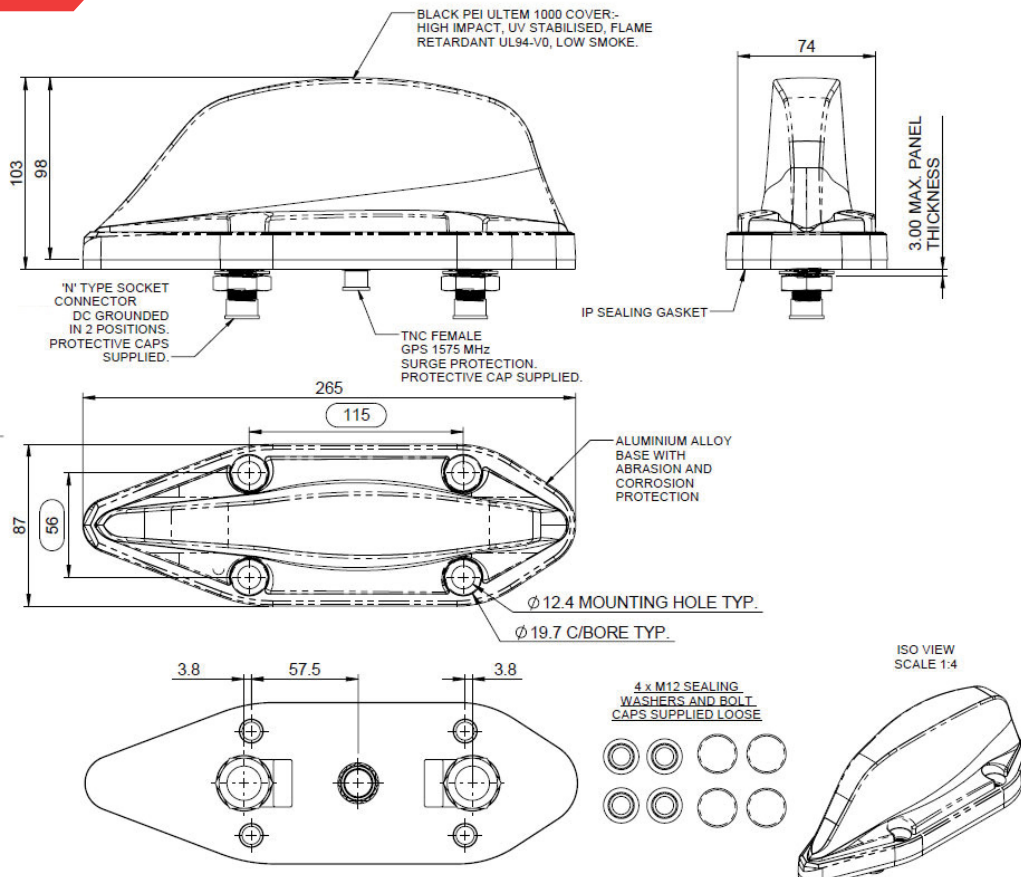
The TRNM(G) MiMo antenna series is designed specifically for use on trains, trams and buses underground or over ground. Incorporating two elements operating wideband across all frequencies from 698MHz to 6000MHz the TRNM(G) range is versatile and future proof.

The TRNM(G) series covers GSMR, 700MHz LTE, 800MHz TETRA and trunking bands along with all Cellular and GSM frequencies, 2.4 & 5.8GHz WLAN, 2.6 GHz LTE and WIMAX all in one housing.

The TRNM(G) has two DC grounded radiating elements, in versions with a GPS module it is protected by a gas discharge surge arrester.

Housed in a high impact, flame retardant Ultem housing, the TRNM(G) series is weatherproof ensuring that the antenna's performance is never compromised.

### Technical Drawing

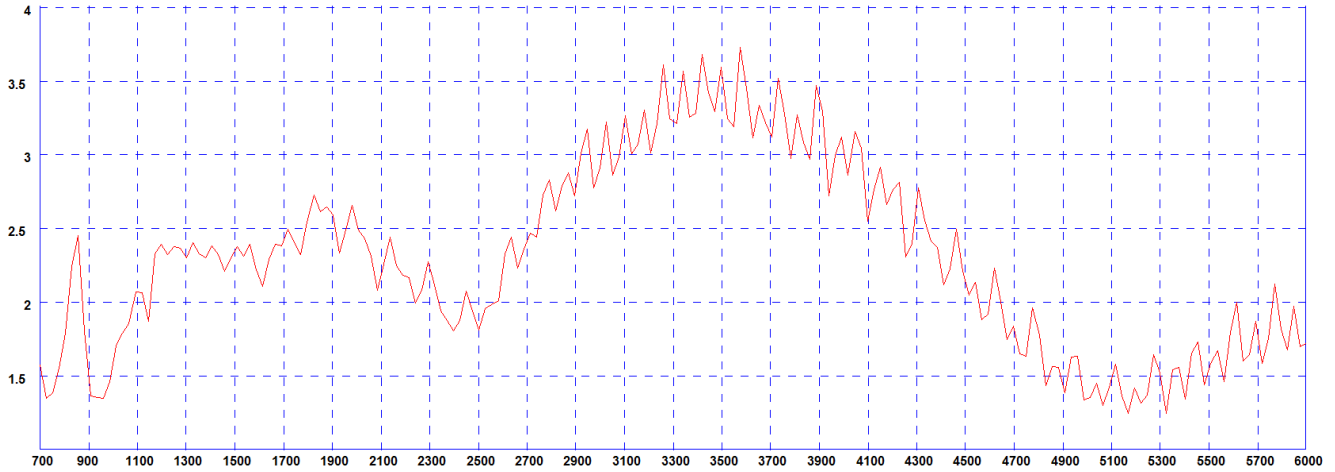


# GSM-R / LTE

## MiMo Transit Antenna with GPS

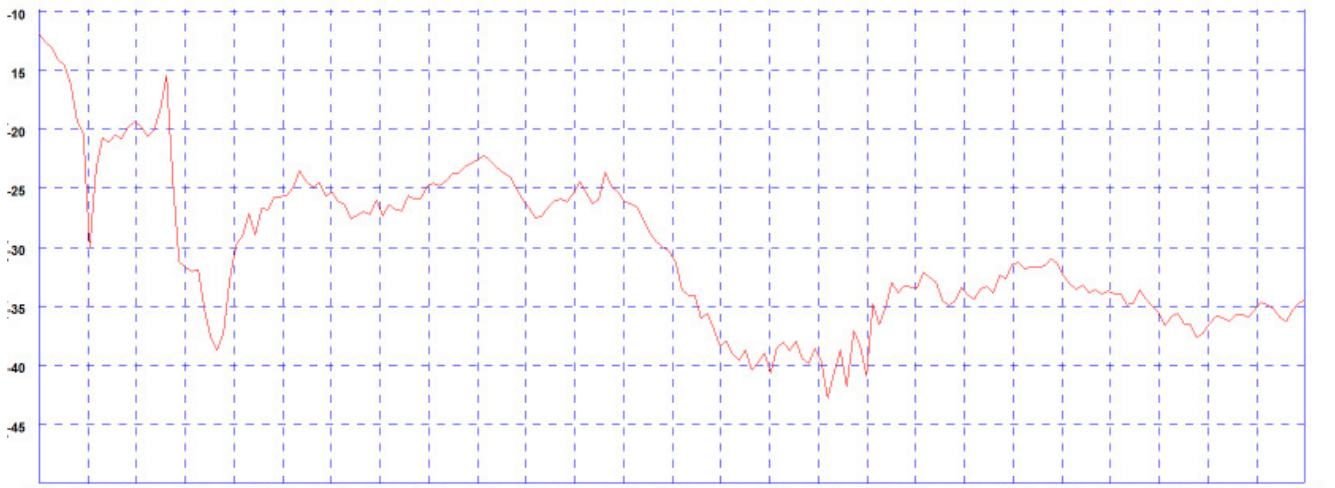
### Electrical Data

Typical VSWR \*



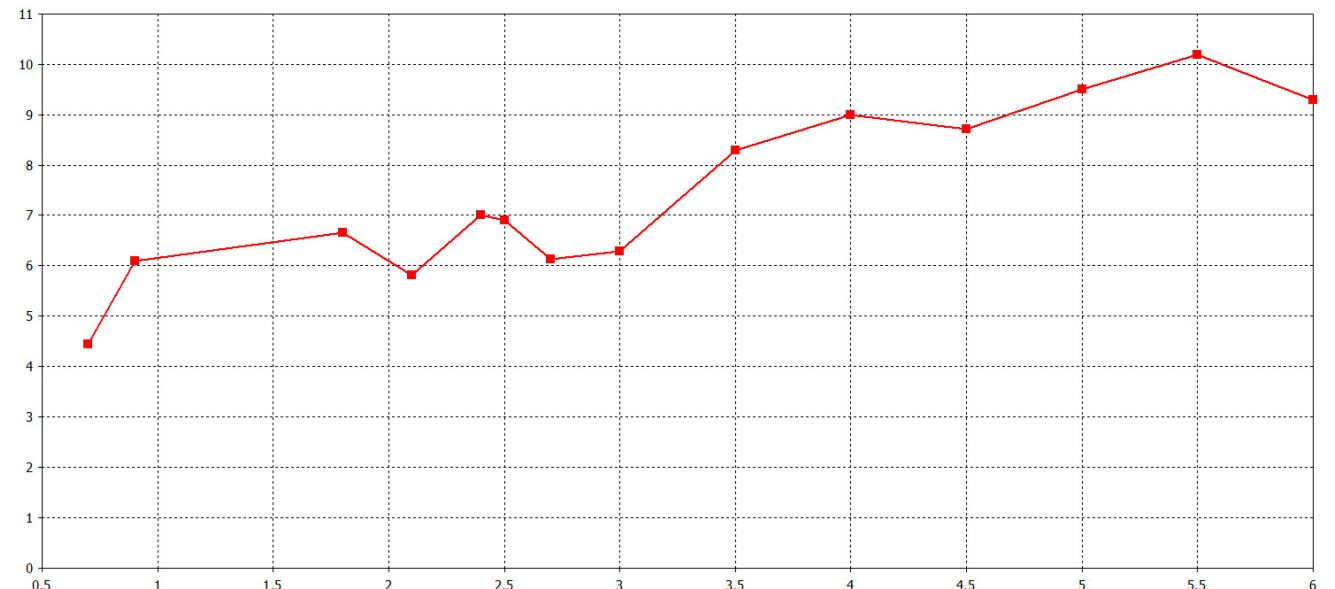
\* Measured on a 600 x 600mm (2' x 2') ground plane with 1m (3') of low loss cable

Typical Isolation \*



\* Measured on a 600 x 600mm (2' x 2') ground plane with 1m (3') of low loss cable

Swept Peak Gain \*



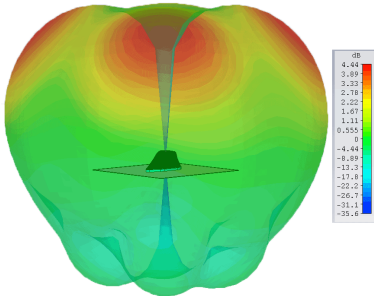
\* Simulated in CST Microwave Studio on a 600 x 600mm (2' x 2') ground plane with 1m (3') of low loss cable

# GSM-R / LTE

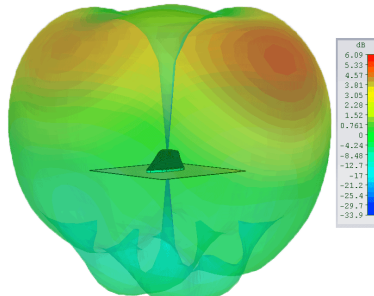
## MiMo Transit Antenna with GPS

### Patterns

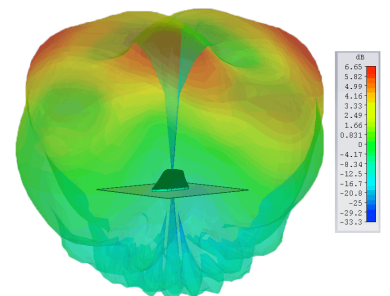
Typical 3D Pattern - 700MHz



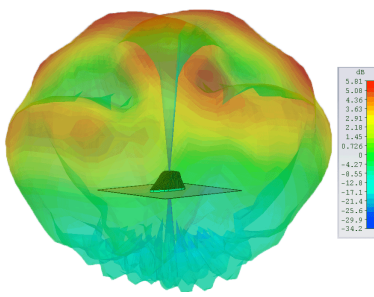
Typical 3D Pattern - 900MHz



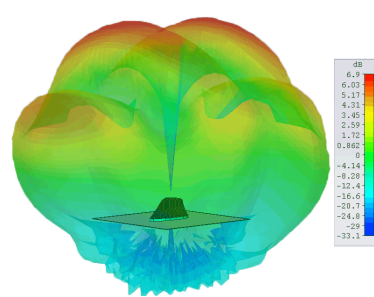
Typical 3D Pattern - 1800MHz



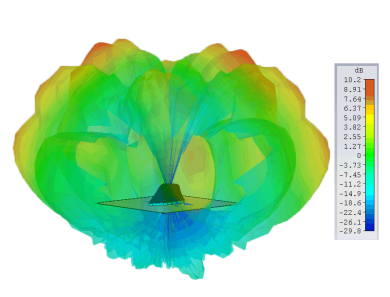
Typical 3D Pattern 2100MHz



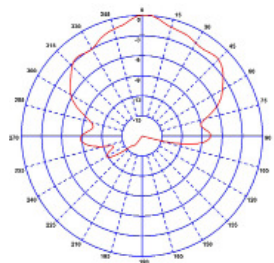
Typical 3D Pattern 2500MHz



Typical 3D Pattern 5500MHz



Typical E-Plane Pattern - (GPS) 1575MHz



# GSM-R / LTE

## MiMo Transit Antenna with GPS

Part No.		TRNM-7-60-NJ	TRNMG-7-60-NJ
<b>Electrical Data</b>			
Frequency Range (MHz)		2x 698-960 / 1700-6000 MHz	
Peak Gain: Isotropic**	698-960	6dBi	
	1710-2700	6dBi	
	4.9-6GHz	10dBi	
Polarisation		Vertical	
Typical VSWR*		< 2.5:1	
Correlation Co-Efficient		<0.1	
Typical Isolation***		<15dB	
Pattern		Omni-directional	
Impedance		50Ω	
Max Input Power (W)		60	
<b>GPS Data</b>			
Frequency Range (MHz)		-	1560-1612
Impedance		-	50Ω
LNA Gain		-	26dB ± 3
Polarisation		-	Righth Hand Circular
Operating Voltage		-	3-5V DC
Current (Typical)		-	15mA
GPS Antenna EMC Compliance		-	EN 301 489-1 V1.81 & EN 301 489-3 V1.6.1   EN 50121-3-2:2015
<b>Mechanical Data</b>			
Dimensions (mm)	Height (N/inc pad)	98 (3.86")	
	Width	87 (3.42")	
	Length	265 (10.4")	
<b>Environmental Specification</b>			
Operating Temp (°C)		-40° / +80°C ( -40° / +176°F )	
Radome Material		Ultem 1000	
Radome Flame Retardance Rating		V0 (UL 94)	
Base Material		Cast Aluminium (corrosion protected & powder coated)	
Ingress Protection		IP67 (Report No. 48621)	
<b>Approvals Data</b>			
Regulatory Approvals		EN50155:2007 (Dry heat & Cooling), EN61373:2010 / EN50155:2007 (Shock & Vibration), EN45545 - HL3 (flammability), EN50124-1 ( Rated Insulation UNm 17.25/27.5 KV   Short Circuit Current 25 Ka 100ms)	
<b>Mounting Data</b>			
Fixing		4 × mounting holes to suit M12 bolts	
<b>Termination Data</b>			
Termination	Comms	2x N (female) - DC grounded	
	GPS	-	TNC (female) - surge protected

\*\* Measured on a 600 x 600mm (2' x 2') ground plane with both elements fed and without cable.

\*\*\* 700-800MHz = <12dB 800-6000MHz = <15dB

\* Measured on a 600 x 600mm (2' x 2') ground plane with 1m (3') of low loss cable.

### Panorama Antennas Ltd

Frogmore, London, SW18 1HF, United Kingdom

T: +44 (0)20 8877 4444

F: +44 (0)20 8877 4477

E: sales@panorama-antennas.com

www.panorama-antennas.com

Waiver: The data given above is indicative of the performance of the product/s under particular conditions and does not imply a guarantee of performance. These specifications are subject to change without notice.

Copyright © Panorama Antennas Ltd. All rights reserved.

PANORAMA  ANTENNAS