



**Features:**

- 3G, GPRS, GSM
  - 824-960, 1710-2170MHz
- GNSS
  - GPS, Galileo Glonass, Beidou
  - 1560-1608MHz
  - 30dB LNA
- Magnetic mount onto metal surfaces
- IP67

**Applications:**

- Vehicular use
- Fleet management
- Tracking, navigation
- For easy installation and removal, no need to drill any holes

All dimensions are in mm / inches

Issue: 1719

In the effort to improve our products, we reserve the right to make changes judged to be necessary.

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Pulse (Suzhou) Wireless Products Co, Inc.  
99 Huo Ju Road(#29 Bldg, 4<sup>th</sup> Phase  
Suzhou New District  
Jiangsu Province, Suzhou 215009 PR China  
Tel: 86 512 6807 9998



This document covers all product variants of the following product family

Antennas	GSM Cable			GPS Cable		
	Cable Type	Cable Length	Connector	Cable Type	Cable Length	Connector
W4165MM	RG-174 Black	4000mm/157.5"/13.2'	SMA Male	RG-174 Black	4000mm/157.5"/13.2'	SMA Male
W4165MMAI		1524mm/60"/5'	TNC Male		1524mm/60"/5'	RP-TNC Male
W4165MMSMA5		1524mm/60"/5'	SMA Male		1524mm/60"/5'	SMA Male
W4165MMRPSMA10		3048mm/120"/10'	RP-SMA Male		3048mm/120"/10'	RP-SMA Male

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**Description:** 3G/GPRS/GSM + GNSS IP67 with  
Magnetic Mount

**PART NUMBER:** W4165MMXX

**Series:** Outdoor Multi Band

## ELECTRICAL SPECIFICATIONS

Frequency (GSM)	824-960/1710-2170 MHz
Frequency (Beidou,GPS,Galileo,Glonass)	1561.098±2.046/ 1575.42±1.023/ 1602.5625±4MHz
Nominal Impedance	50 Ω
VSWR** (GSM)	< 2:1
Average Peak Gain* (GSM antenna, Low band, typical)	4 dB
Average Peak Gain* (GSM antenna, High band, typical)	4.5 dB
GNSS antenna RHCP gain	1 dBic ± 2 dB
LNA gain	30 dB ± 2 dB
Noise Figure	2.5 (cascade) dB
Current	9 mA ± 2 mA
Vdc	3-5Vdc
LNA and filter attenuation	
@ 824 MHz	70 dB
@960 MHz	65 dB
@1710 MHz	60 dB
@2170 MHz	65 dB

\*Measured on diameter 500mm GND plane and with 5 inch cables

\*\* Measured on diameter 500mm GND plane and with 10 feet cables

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## MECHANICAL SPECIFICATIONS

Antenna Color / Material	Black
Connector type	As requested
Cable type	RG-174, Black
Cable length	As requested
Fixing system	Magnetic mount
Pull Force (in Z direction)	min. 100N (22.5 lbf)
Side Push Forth (in X/Y direction)	min. 140N (30 lbf)
Connector retention	30 N
Strain relief	30 N, applied to cable along axis and perpendicular to cable entry

## ENVIRONMENTAL SPECIFICATIONS

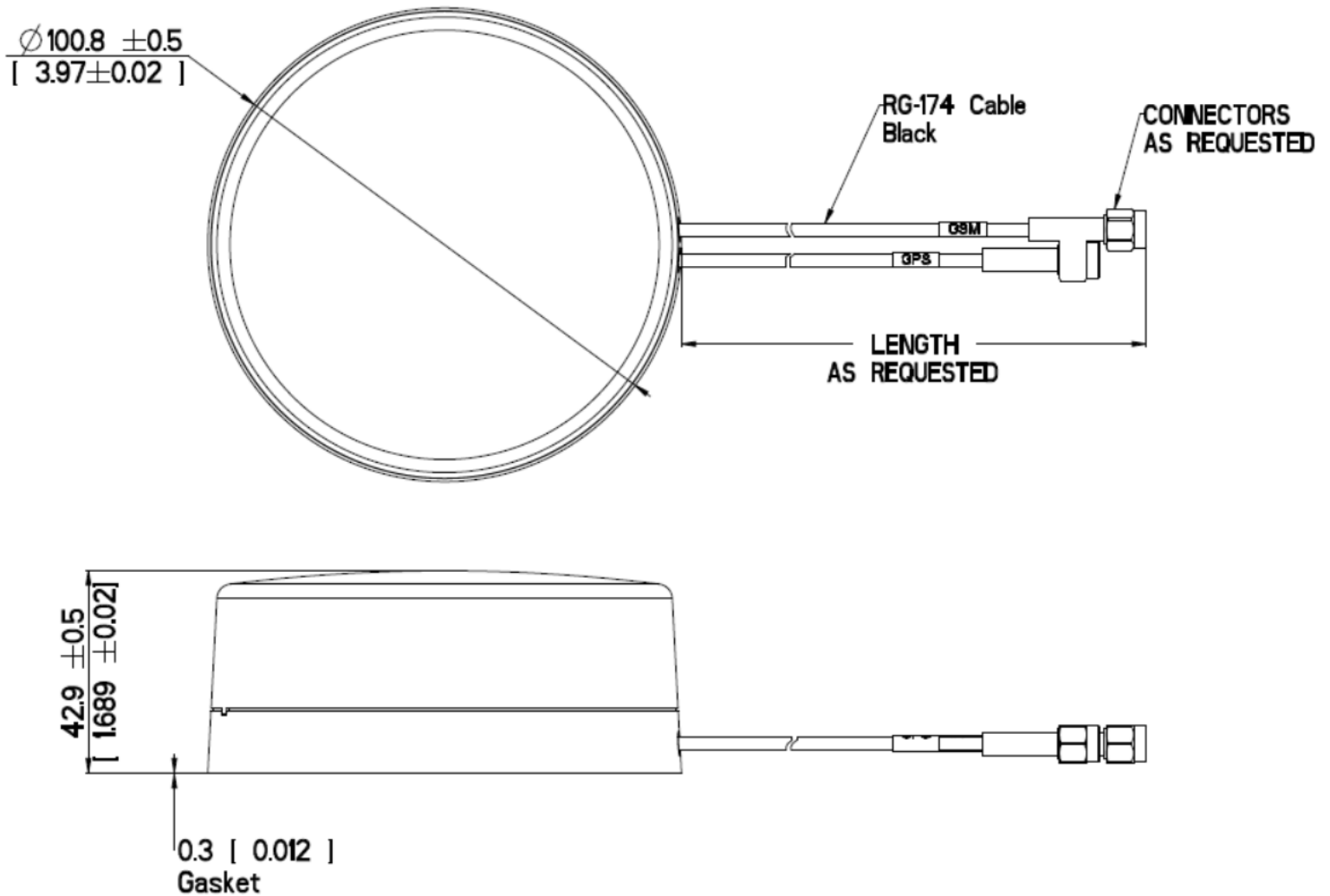
Operating Temperature	-40 ~ 85° C
Storage Temperature	-40 ~ 85° C
Ingress Protection	IP67
Wind-loading	160 km/h
RoHS Compliant	Yes

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## MECHANICAL DRAWING



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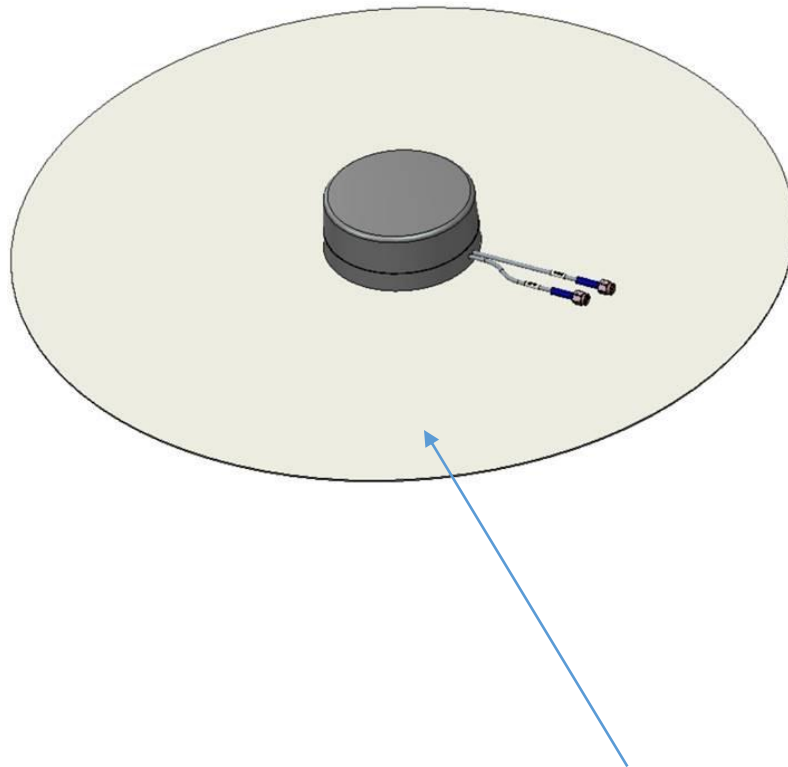
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## TEST SETUP



Diameter: 500mm ground pane

\*Measured on diameter 500mm GND plane and with 5 inch cables for radiation performance

\*\* Measured on diameter 500mm GND plane and with 10 feet cables for VSWR

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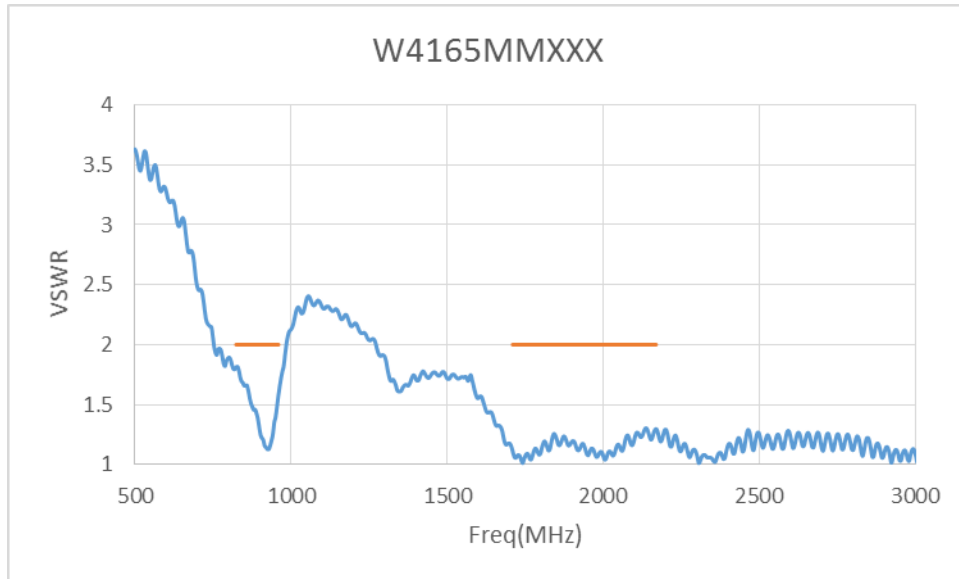
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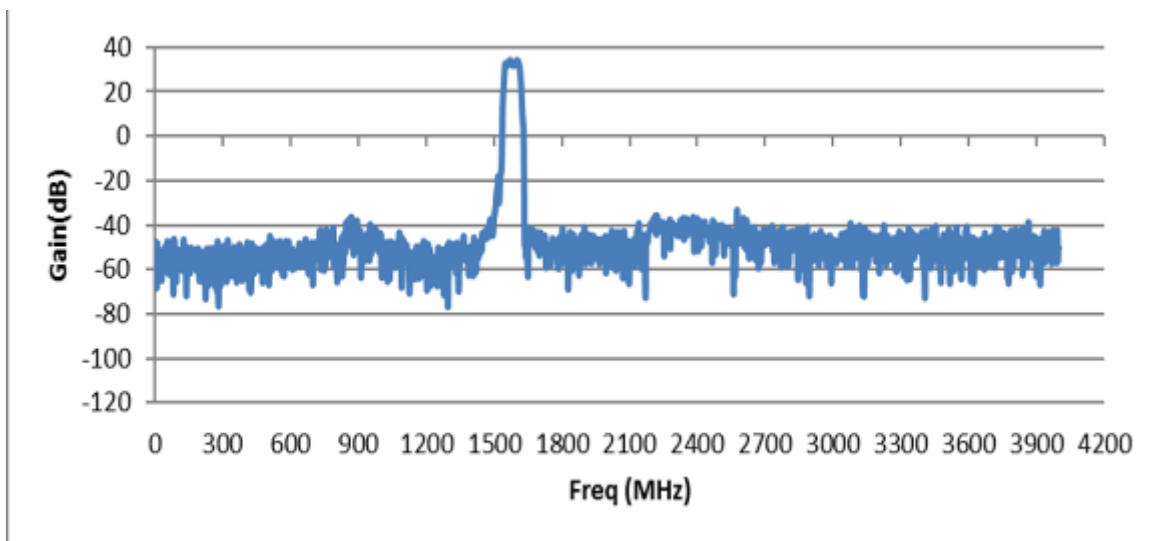
**PART NUMBER:** W4165MMXX

## CHARTS

### VSWR\*



### GNSS LNA performance



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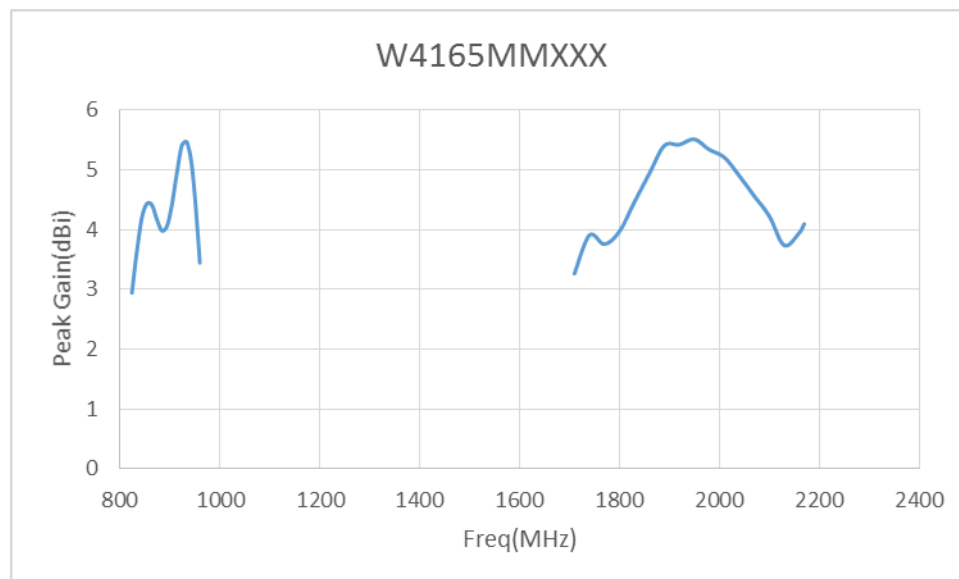
**Series:** Outdoor Multi Band

## CHARTS

### GSM antenna total efficiency\*



### Maximum 3D gain, GSM antenna\*



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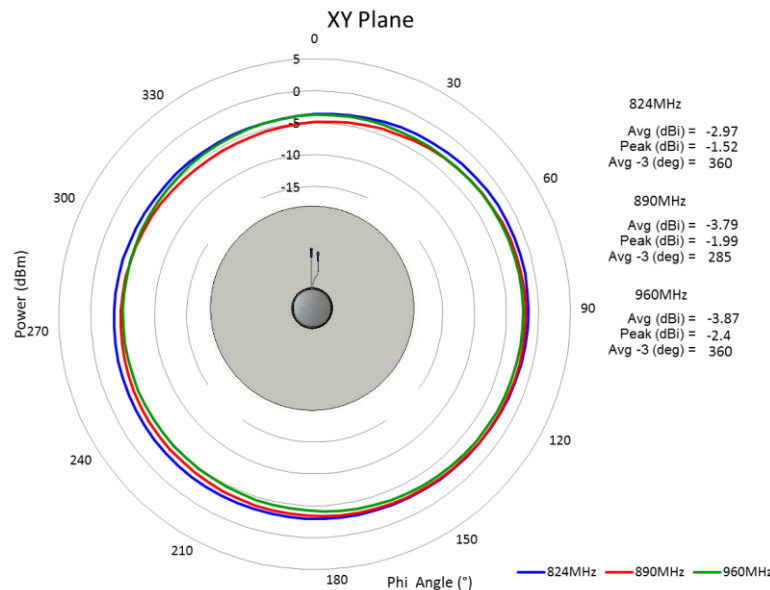
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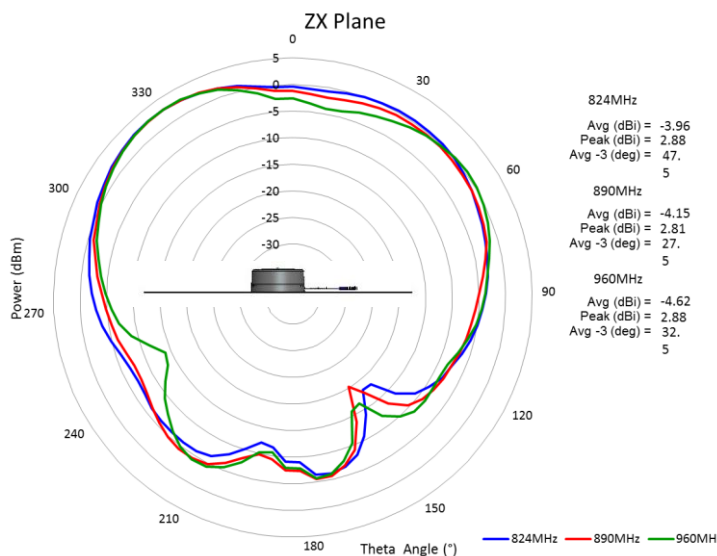
**Series:** Outdoor Multi Band

## CHARTS

### GSM antenna Low band Radiation Pattern X-Y Plane\*



### GSM antenna Low band Radiation Pattern Z-X Plane\*



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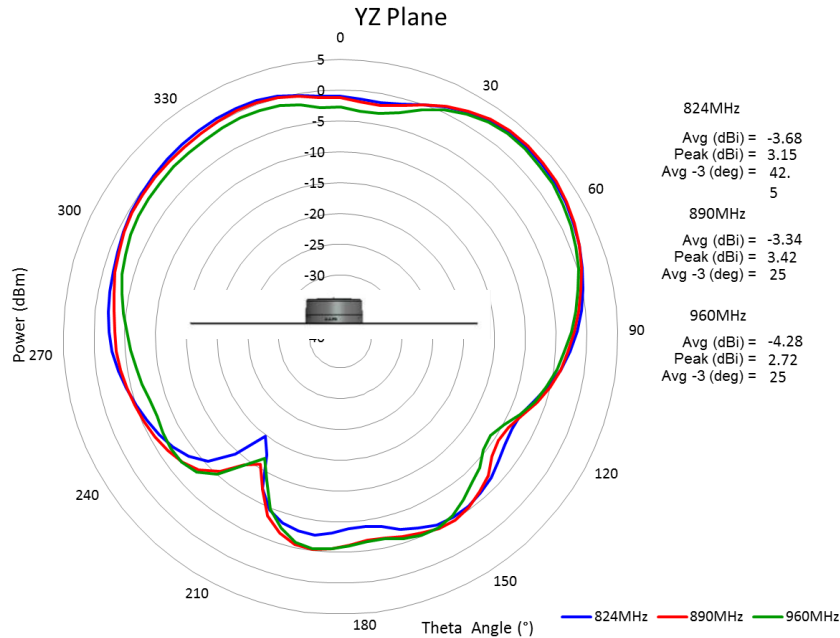
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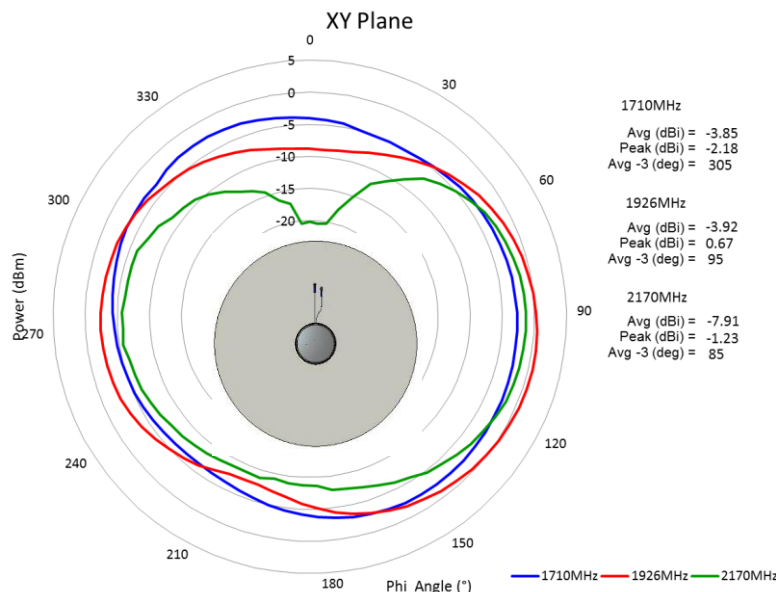
**Series:** Outdoor Multi Band

## CHARTS

### GSM antenna Low band Radiation Pattern Y-Z Plane\*



### GSM antenna High band Radiation Pattern X-Y Plane\*



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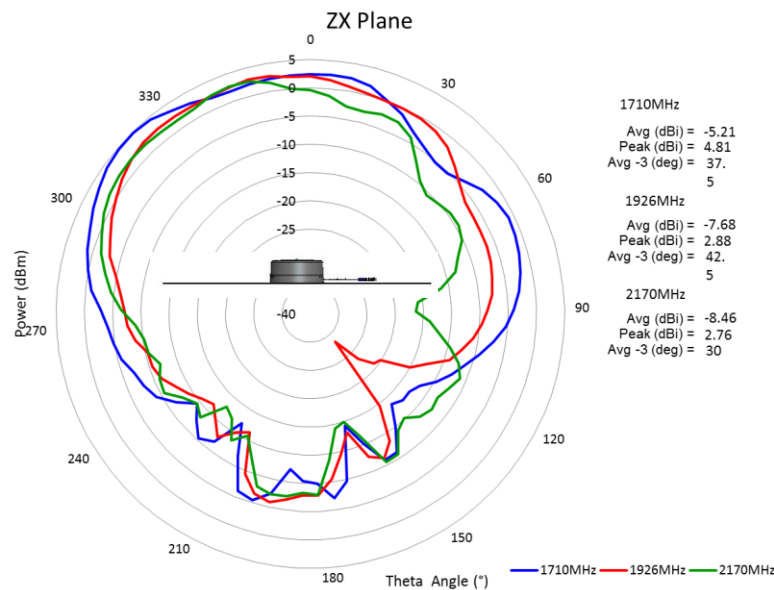
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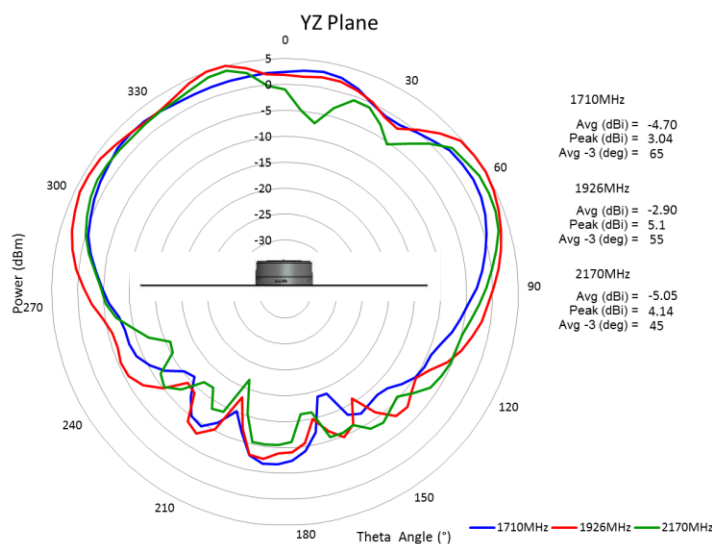
**Series:** Outdoor Multi Band

## CHARTS

### GSM antenna High band Radiation Pattern Z-X Plane\*



### GSM antenna High band Radiation Pattern Y-Z Plane\*



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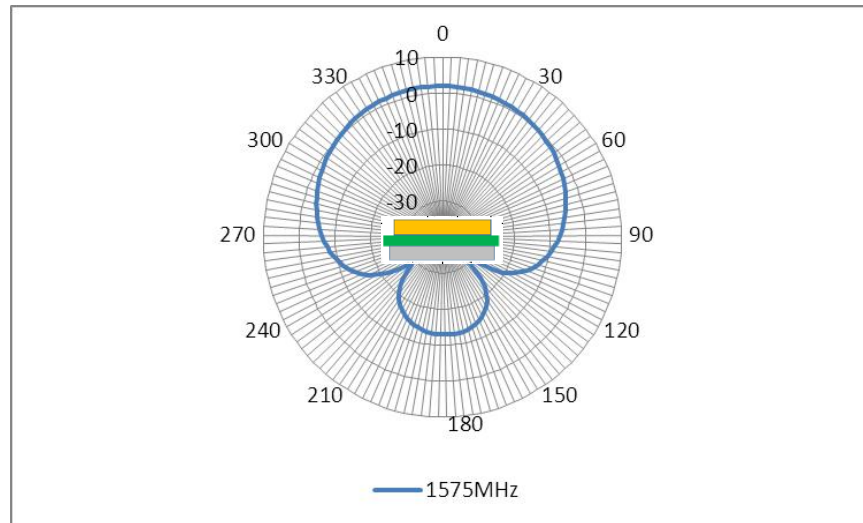
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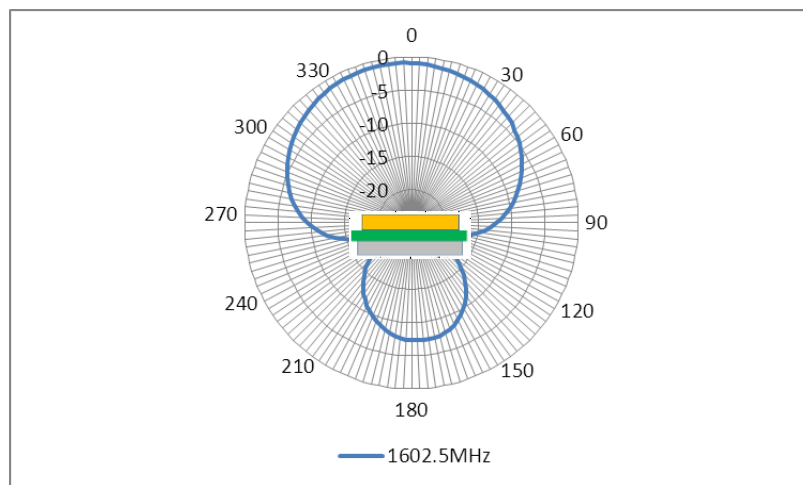
**Series:** Outdoor Multi Band

## CHARTS

RHCP Radiation Pattern (70mm x 70mm ground plane ) GPS & Galileo



RHCP Radiation Pattern (70mm x 70mm ground plane ) GLONASS



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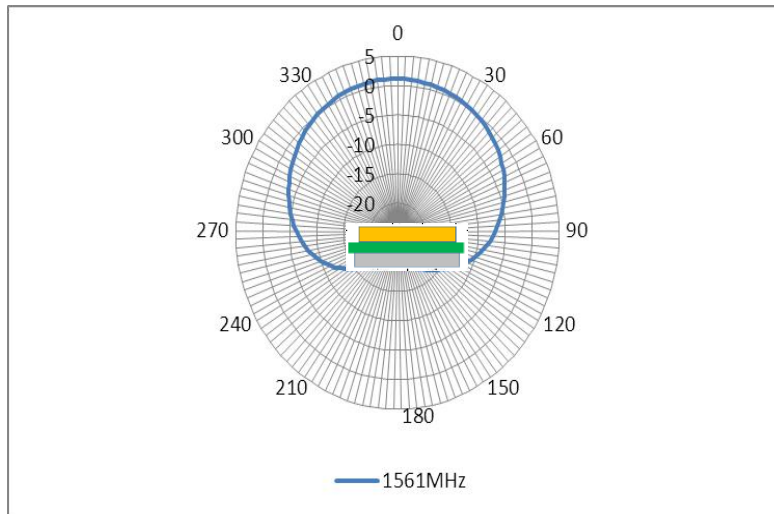
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## CHARTS

RHCP Radiation Pattern (70mm x 70mm ground plane ) BD2



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## PACKAGING

1 antenna packed in a plastic bag

12 plastic bags of antennas packed in a carton

1 label on each carton with part number, description, date code.

# Mouser Electronics

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