



### 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

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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

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

**Series:** Outdoor Multi Band

**PART NUMBER:** W4165MMXX

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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**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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Magnetic Mount

**PART NUMBER:** W4165MMXX

**Series:** Outdoor Multi Band

### 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

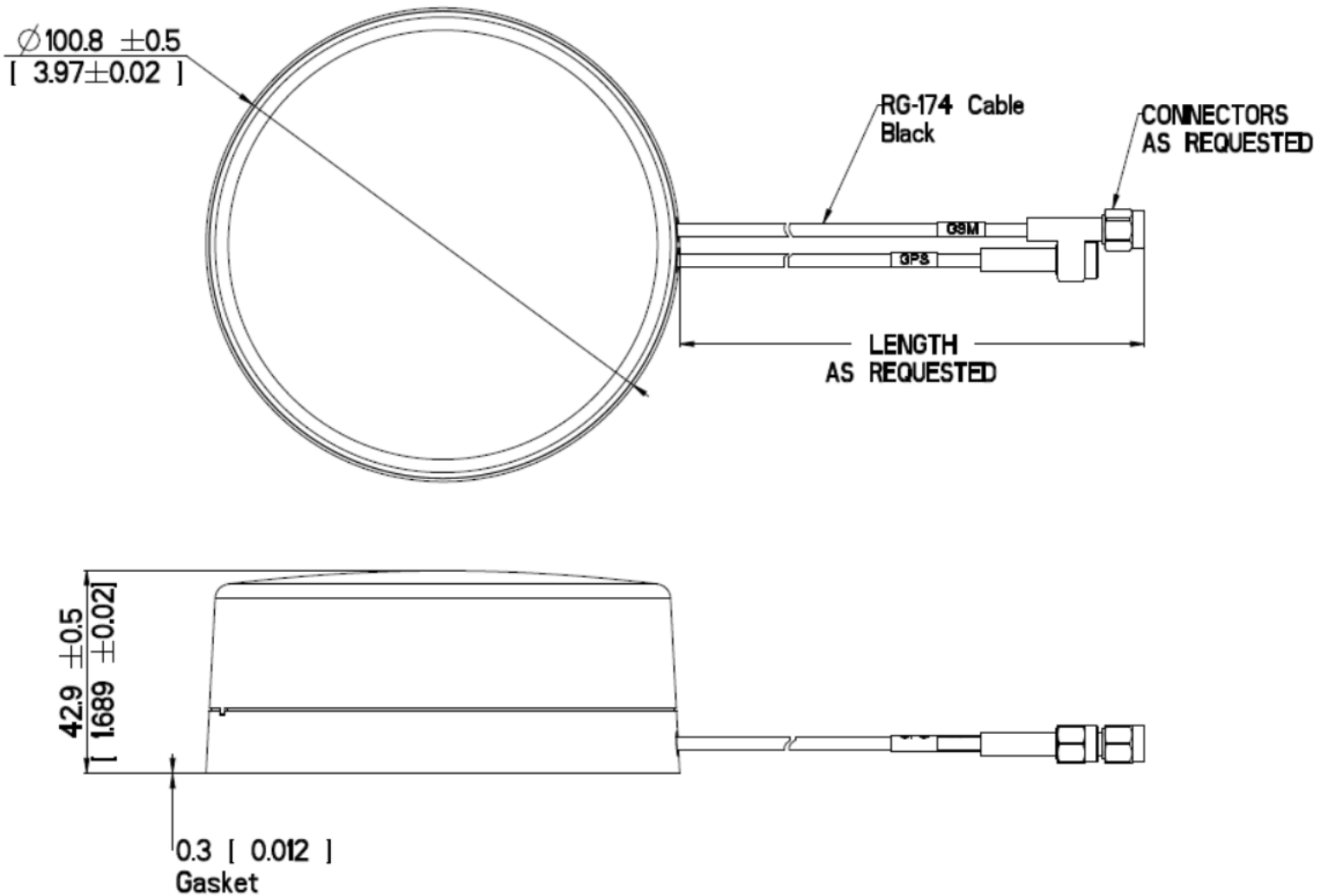
Operating Temperature	-40 ~ 85° C
Storage Temperature	-40 ~ 85° C
Ingress Protection	IP67
Wind-loading	160 km/h
RoHS Compliant	Yes

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**MECHANICAL DRAWING**



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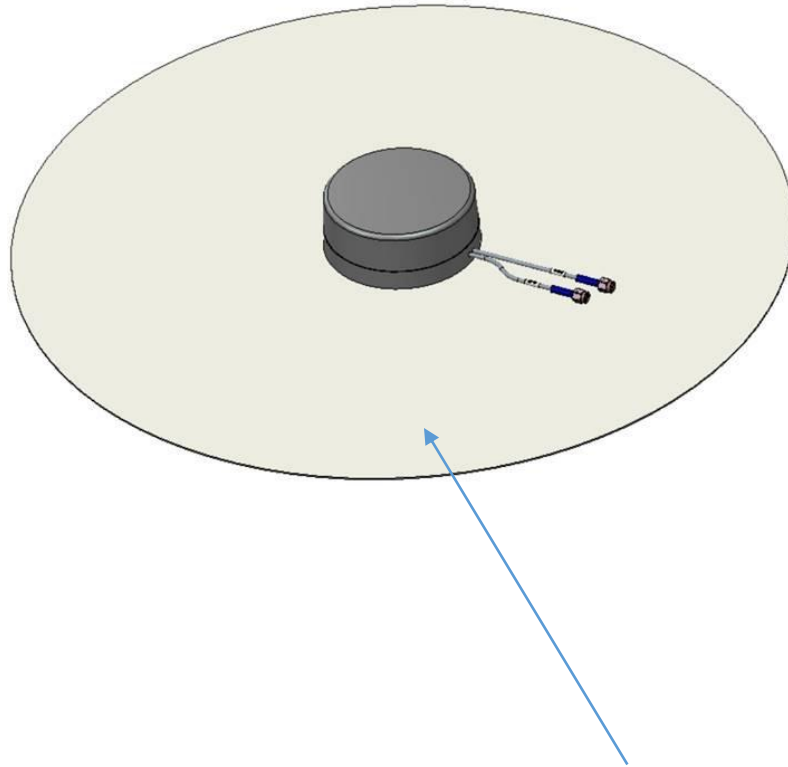
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**TEST SETUP**



**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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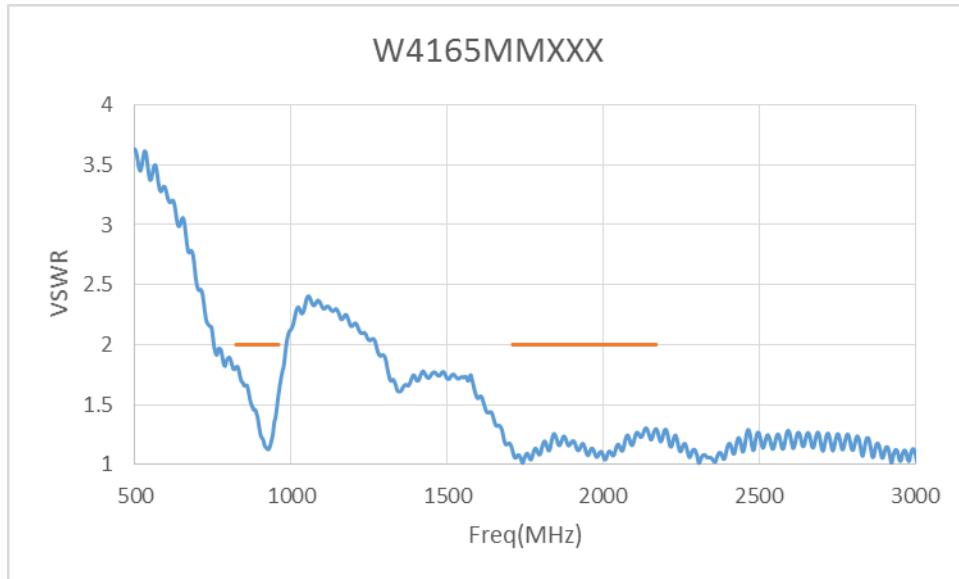
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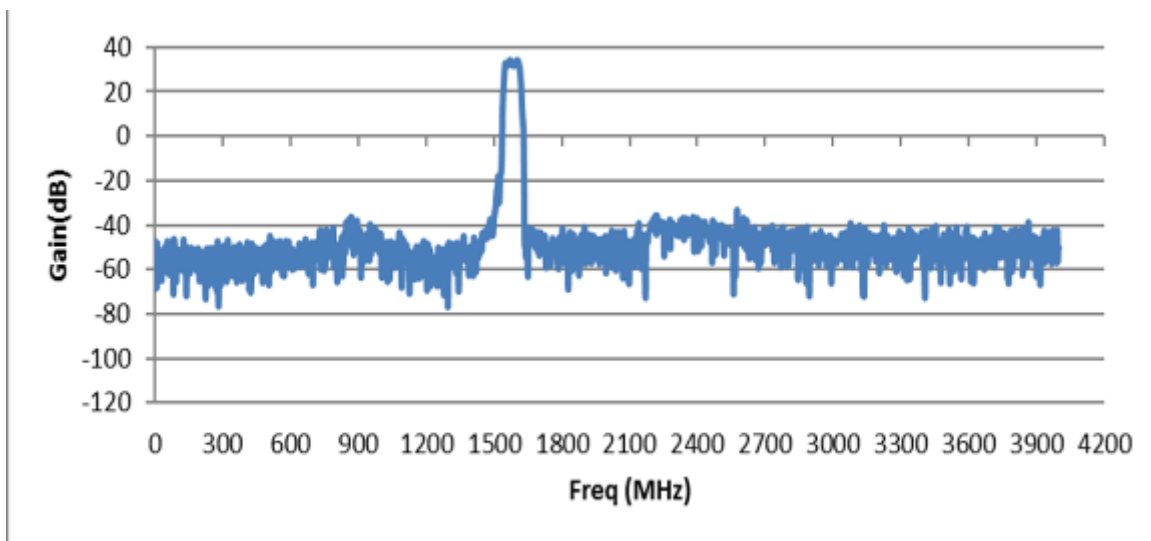
**Series:** Outdoor Multi Band

**CHARTS**

**VSWR\***



**GNSS LNA performance**



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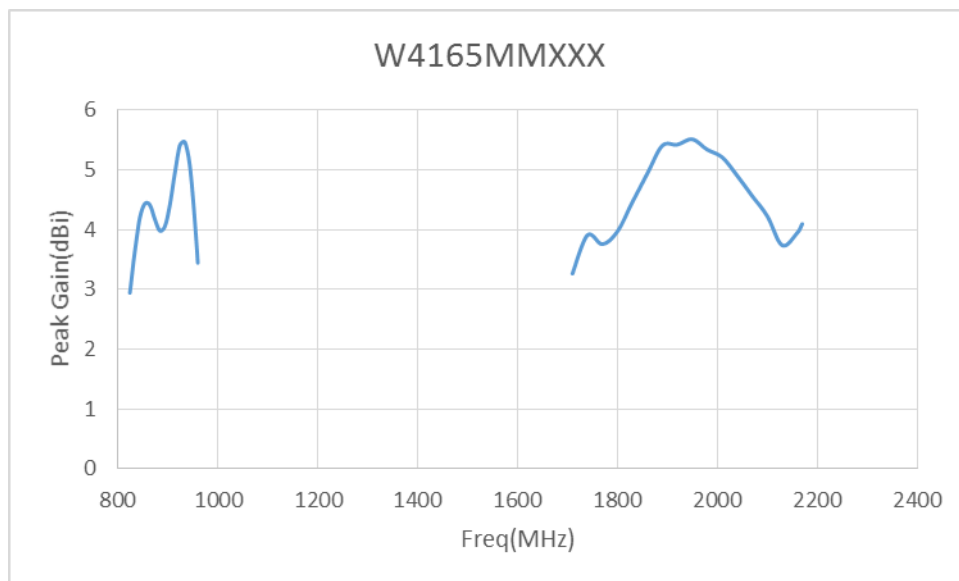
**Series:** Outdoor Multi Band

**CHARTS**

**GSM antenna total efficiency\***



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



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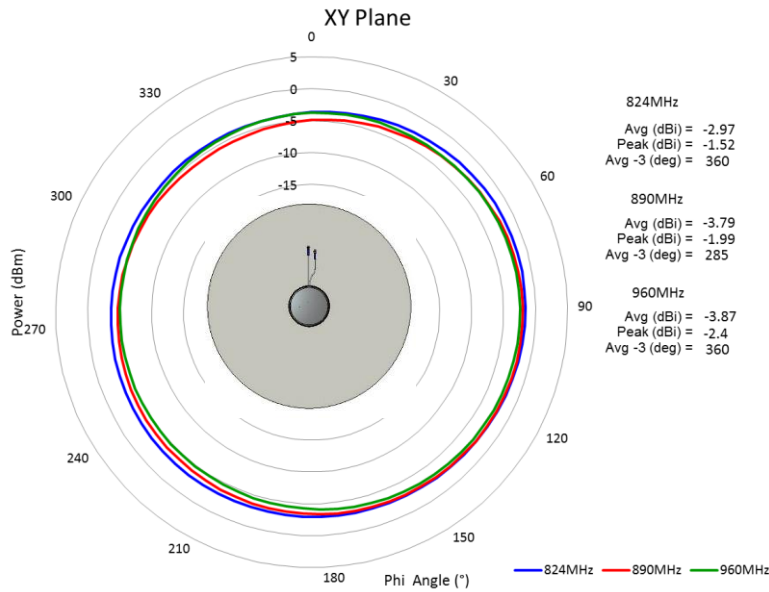
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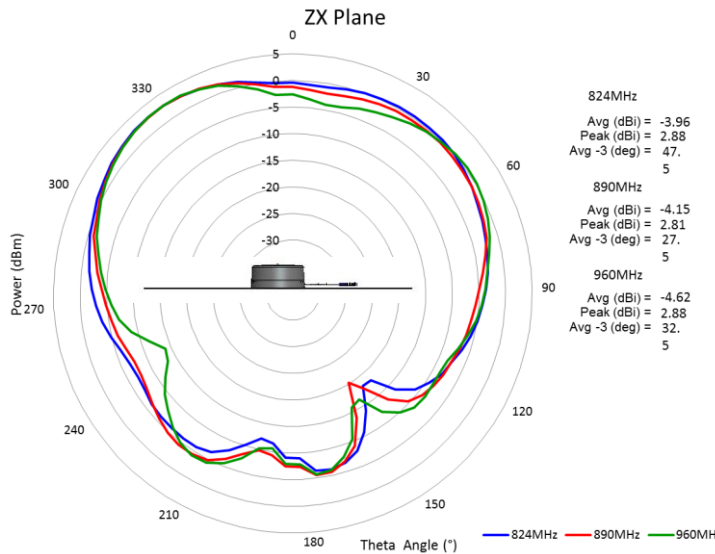
**Series:** Outdoor Multi Band

**CHARTS**

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



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



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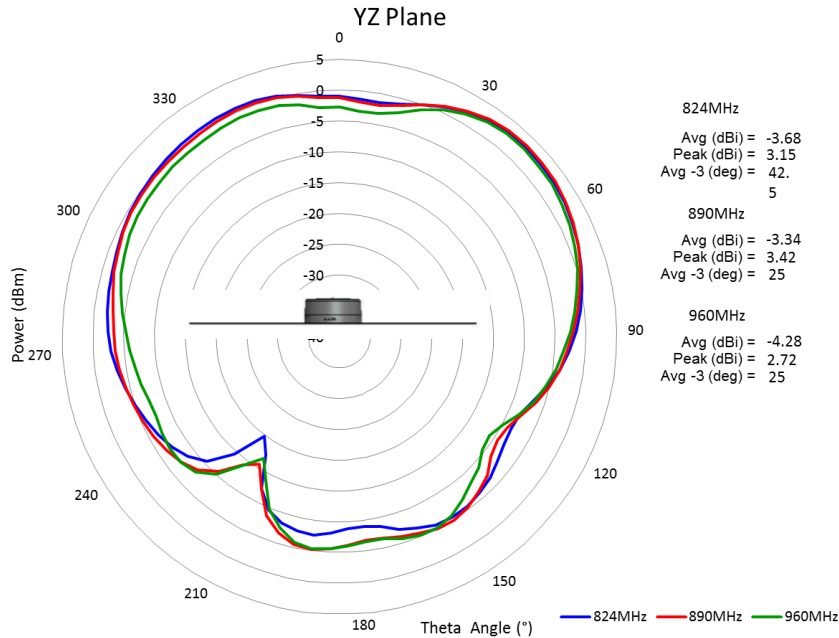
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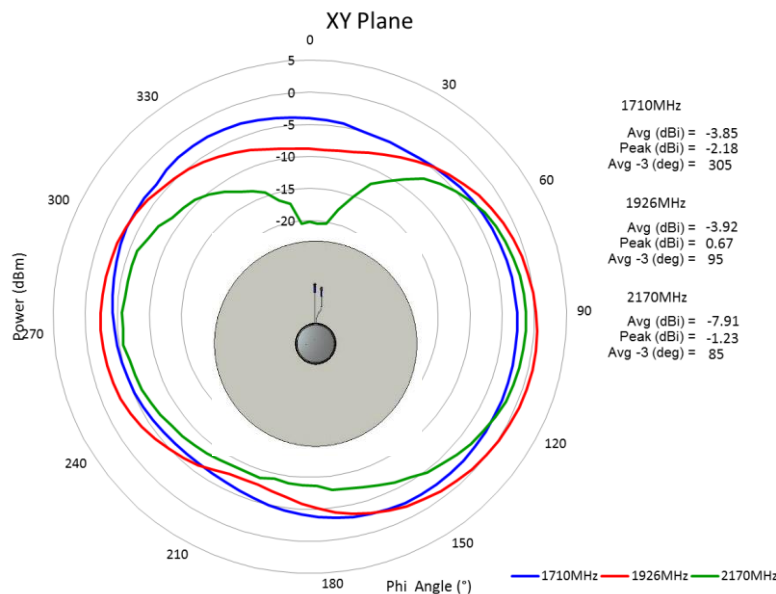
**Series:** Outdoor Multi Band

**CHARTS**

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



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



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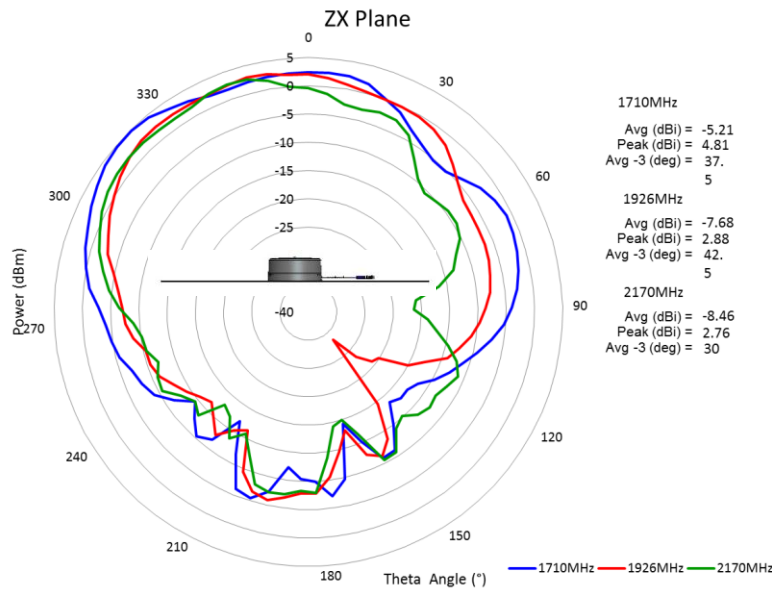
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Series: Outdoor Multi Band

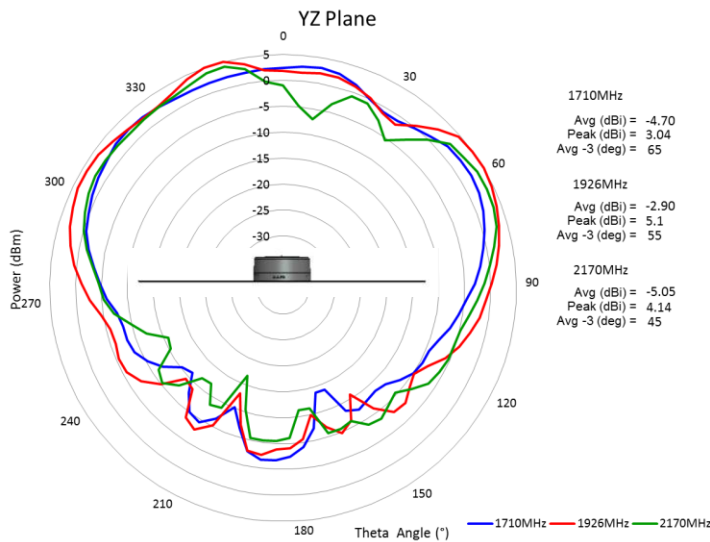
PART NUMBER: W4165MMXX

CHARTS

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



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



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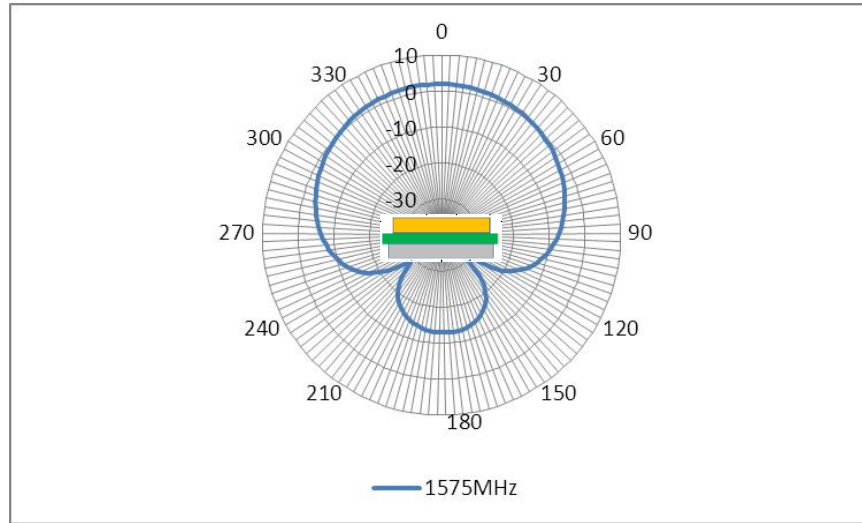
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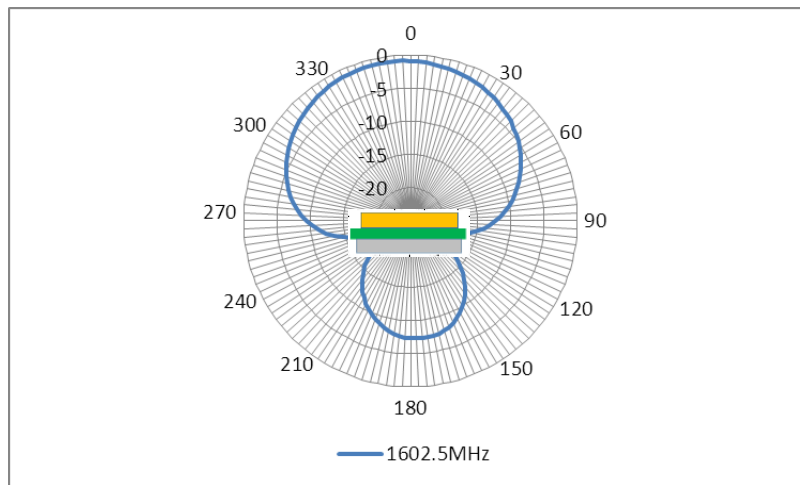
**Series:** Outdoor Multi Band

**CHARTS**

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



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



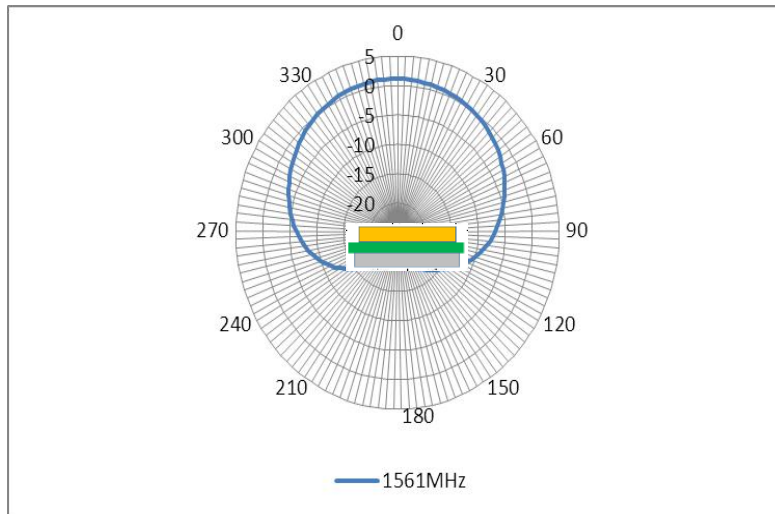
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**CHARTS**

**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.