



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



## Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China





### 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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For more information:

Pulse Worldwide Headquarters  
15255 Innovation Drive #100  
San Diego, CA 92128  
USA  
Tel: 1-858-674-8100

Pulse/Larsen Antennas  
18110 SE 34<sup>th</sup> St Bldg 2 Suite 250  
Vancouver, WA 98683  
USA  
Tel: 1-360-944-7551

Europe Headquarters  
Pulse GmbH & Do, KG  
Zeppelinstrasse 15  
Herrenberg, Germany  
Tel: 49 7032 7806 0

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

**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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Pulse GmbH & Do, KG  
Zeppelinstrasse 15  
Herrenberg, Germany  
Tel: 49 7032 7806 0

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

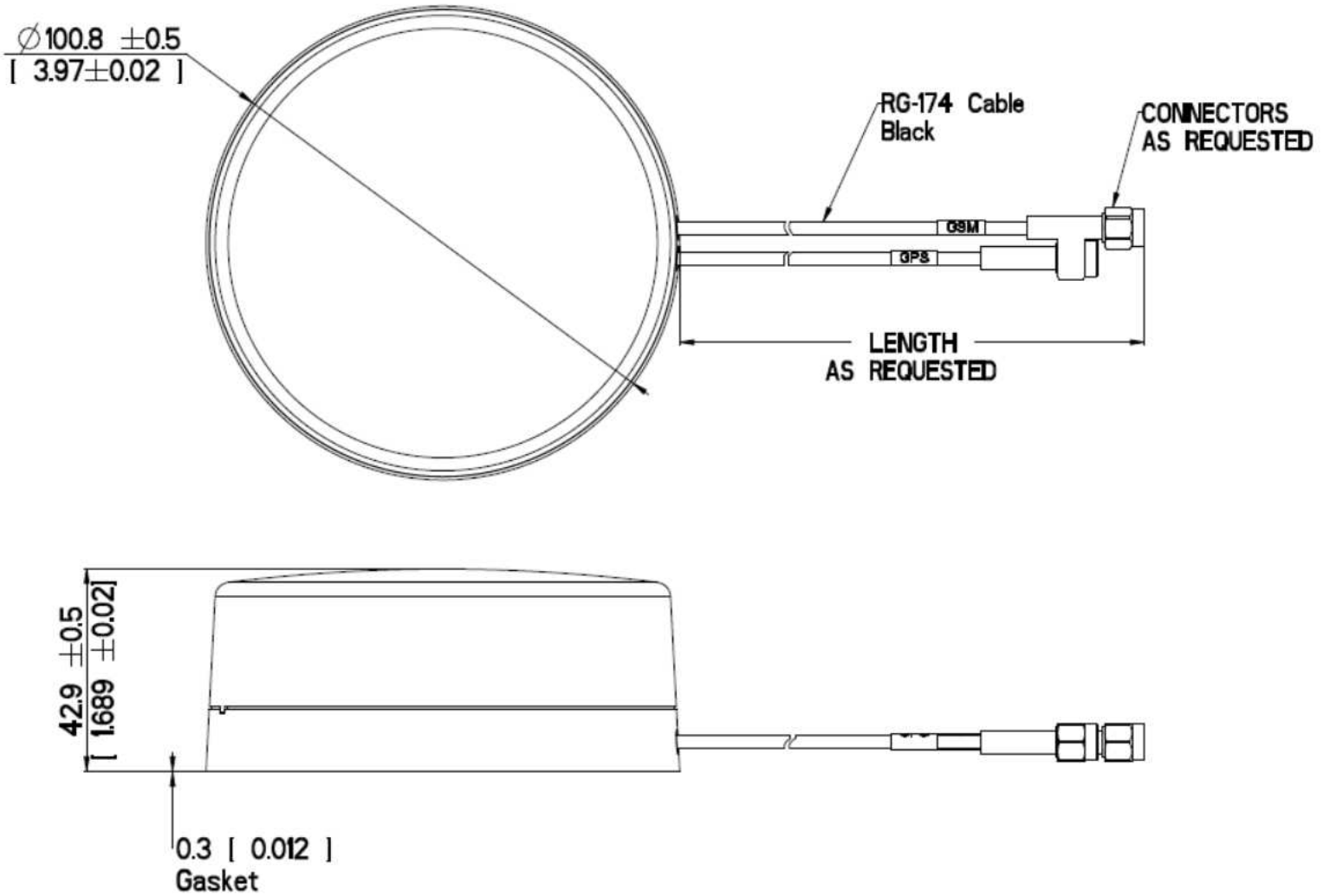
Operating Temperature	-40 ~ 85° C
Storage Temperature	-40 ~ 85° C
Ingress Protection	IP67
Wind-loading	160 km/h
RoHS Compliant	Yes

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

Series: Outdoor Multi Band

PART NUMBER: W4165MMXX

MECHANICAL DRAWING



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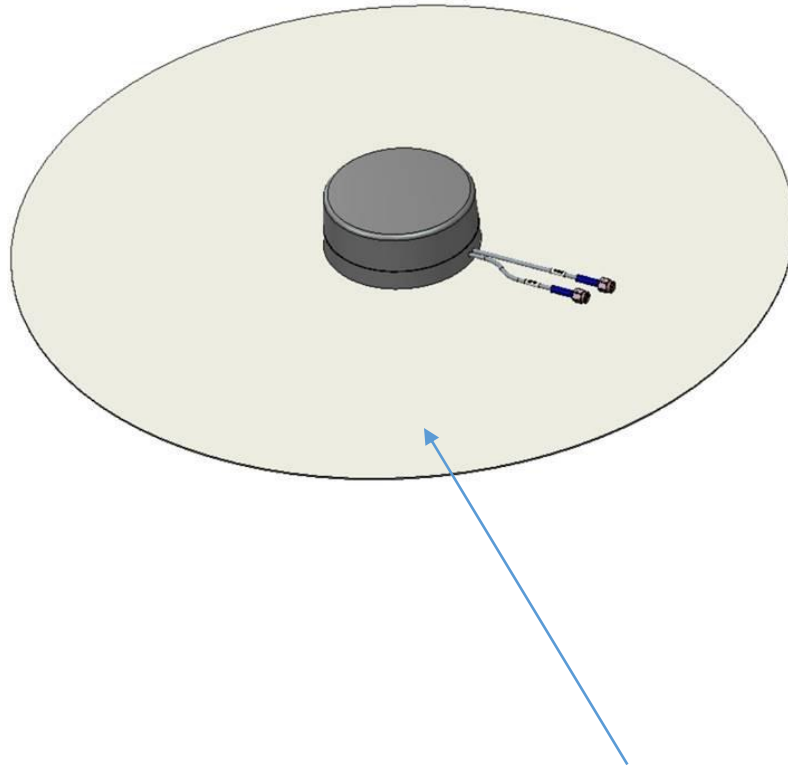
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**Description:** 3G/GPRS/GSM + GNSS IP67 with  
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**TEST SETUP**



**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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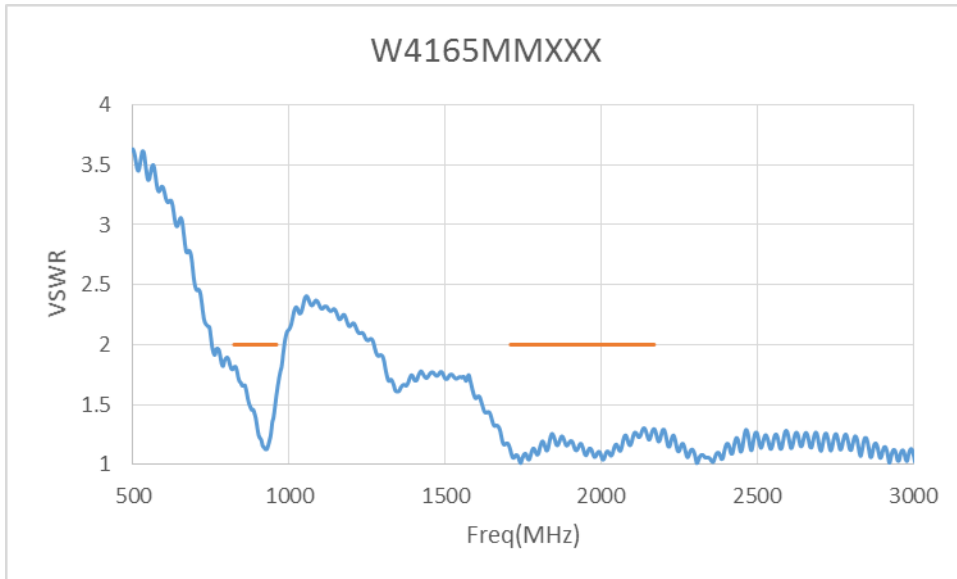
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**PART NUMBER:** W4165MMXX

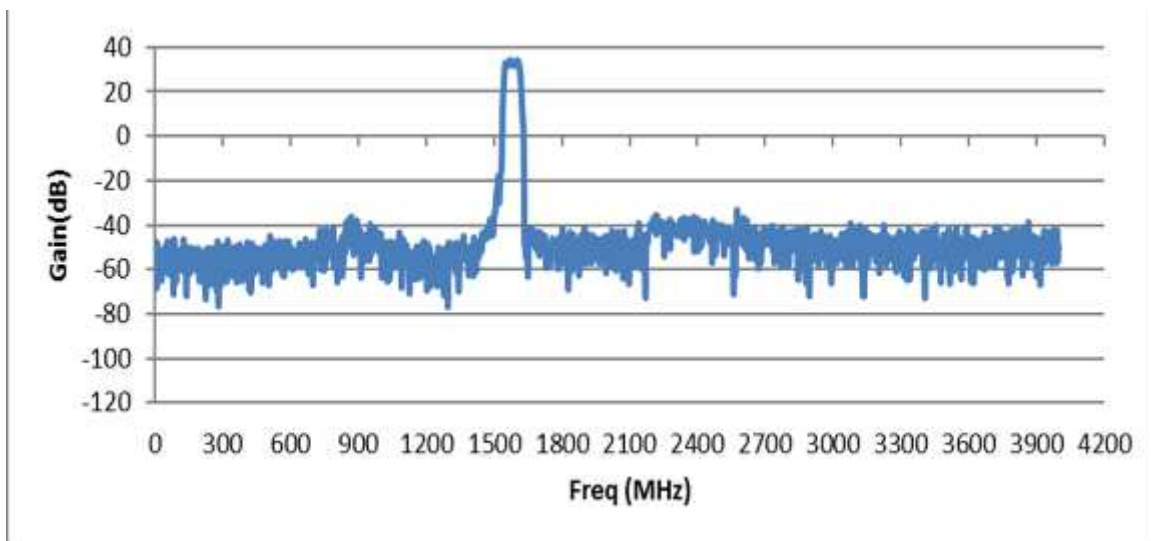
**Series:** Outdoor Multi Band

**CHARTS**

**VSWR\***



**GNSS LNA performance**



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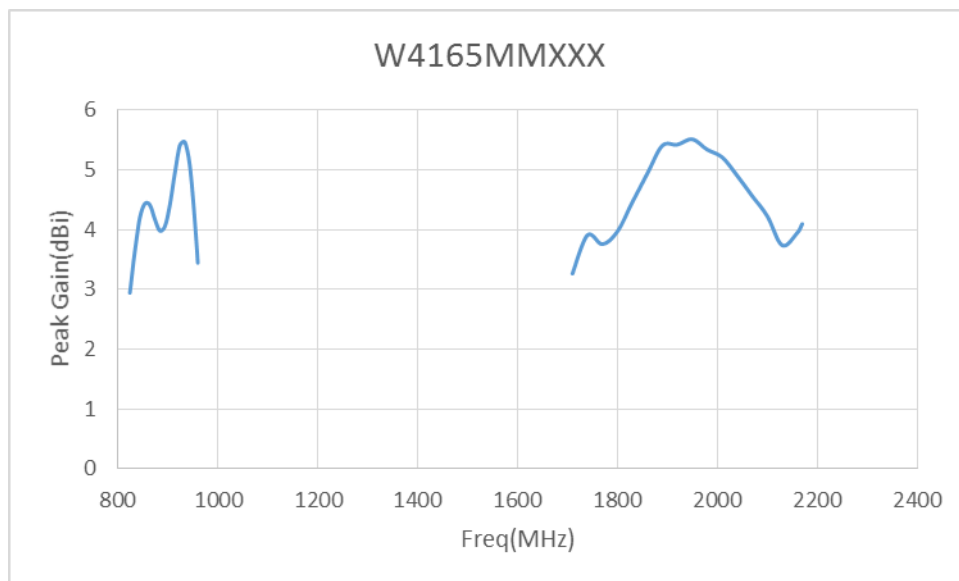
**Series:** Outdoor Multi Band

**CHARTS**

**GSM antenna total efficiency\***



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



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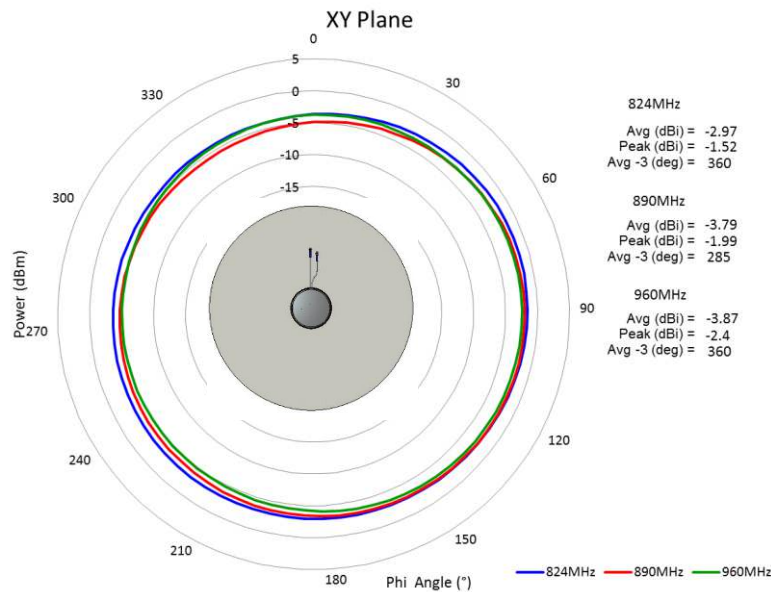
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Series: Outdoor Multi Band

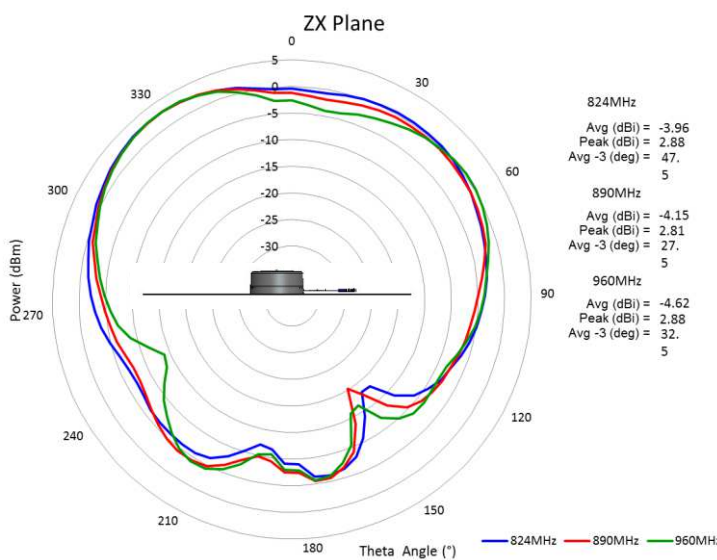
PART NUMBER: W4165MMXX

CHARTS

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



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



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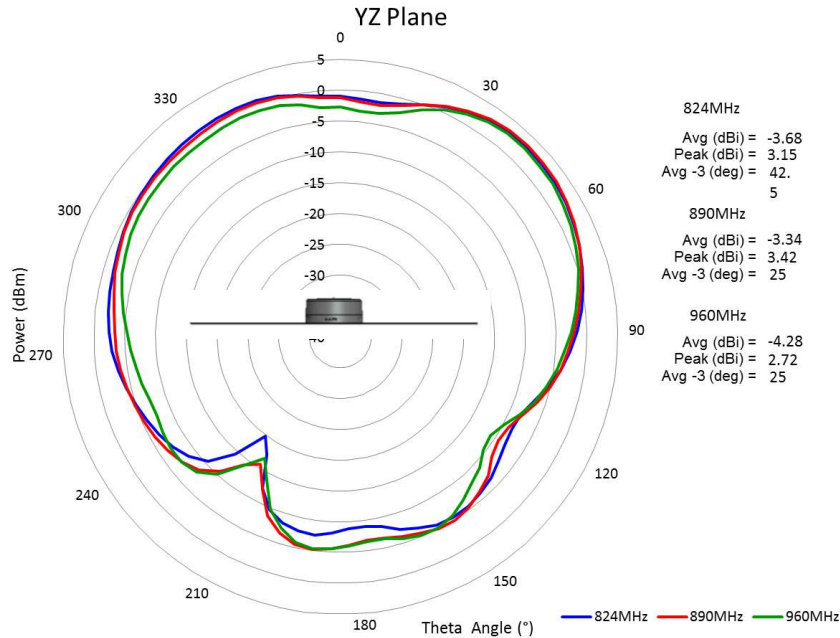
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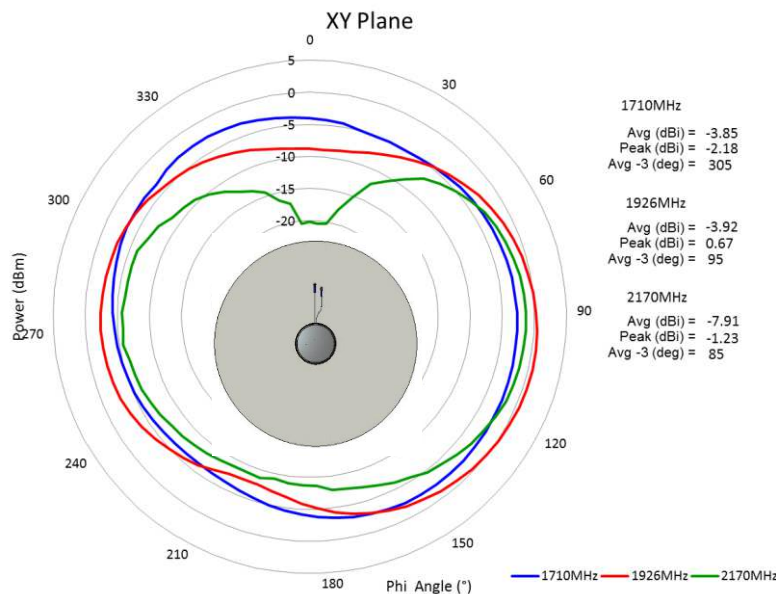
**Series:** Outdoor Multi Band

**CHARTS**

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



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



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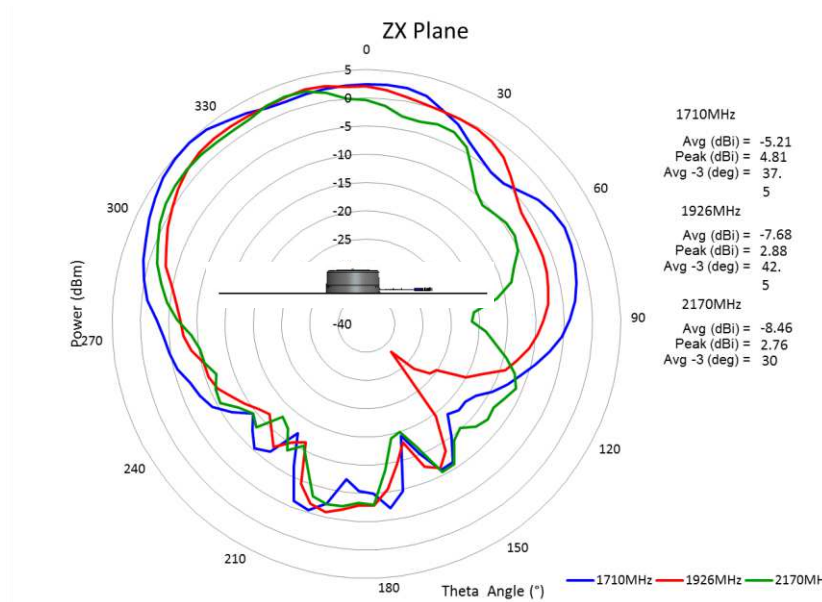
Description: 3G/GPRS/GSM + GNSS IP67 with Magnetic Mount

Series: Outdoor Multi Band

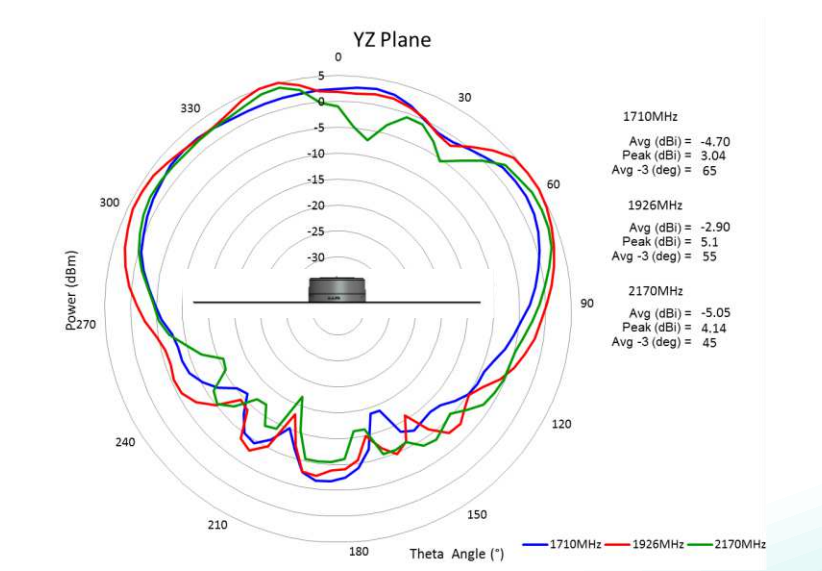
PART NUMBER: W4165MMXX

CHARTS

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



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



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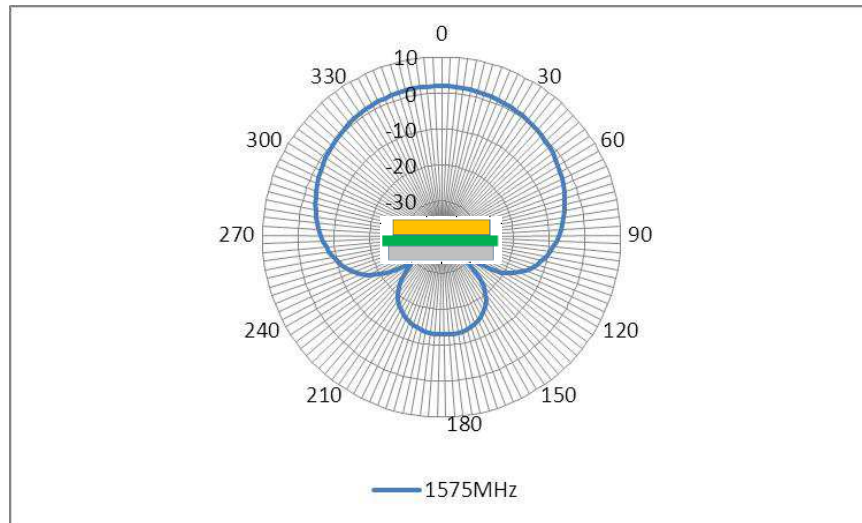
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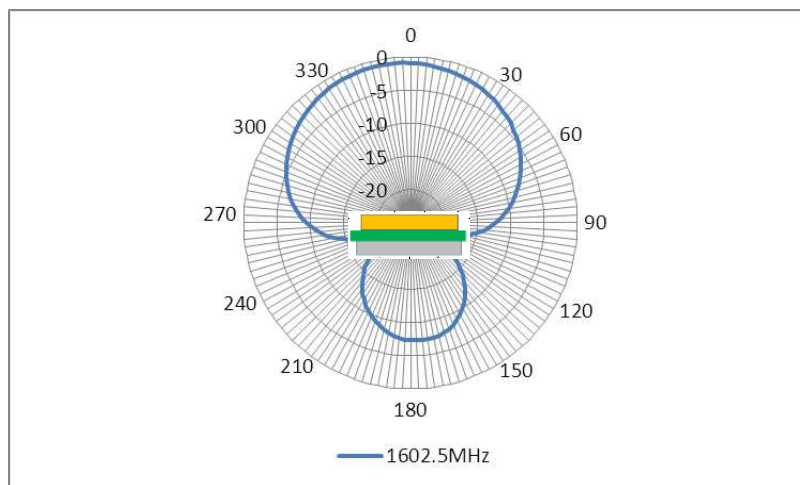
**Series:** Outdoor Multi Band

**CHARTS**

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



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



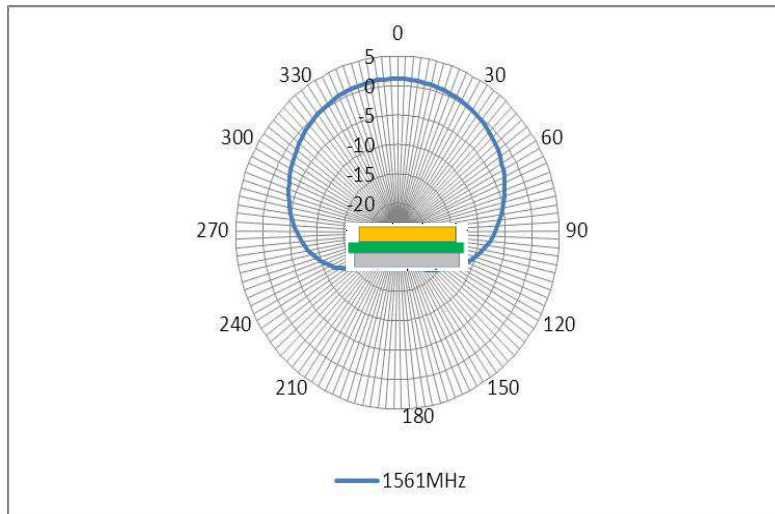
**Description:** 3G/GPRS/GSM + GNSS IP67 with  
Magnetic Mount

**PART NUMBER:** W4165MMXX

**Series:** Outdoor Multi Band

**CHARTS**

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



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

**PART NUMBER:** W4165MMXX

**Series:** Outdoor Multi Band

## 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.