



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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99 Huo Ju Road(#29 Bldg,4th 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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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

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

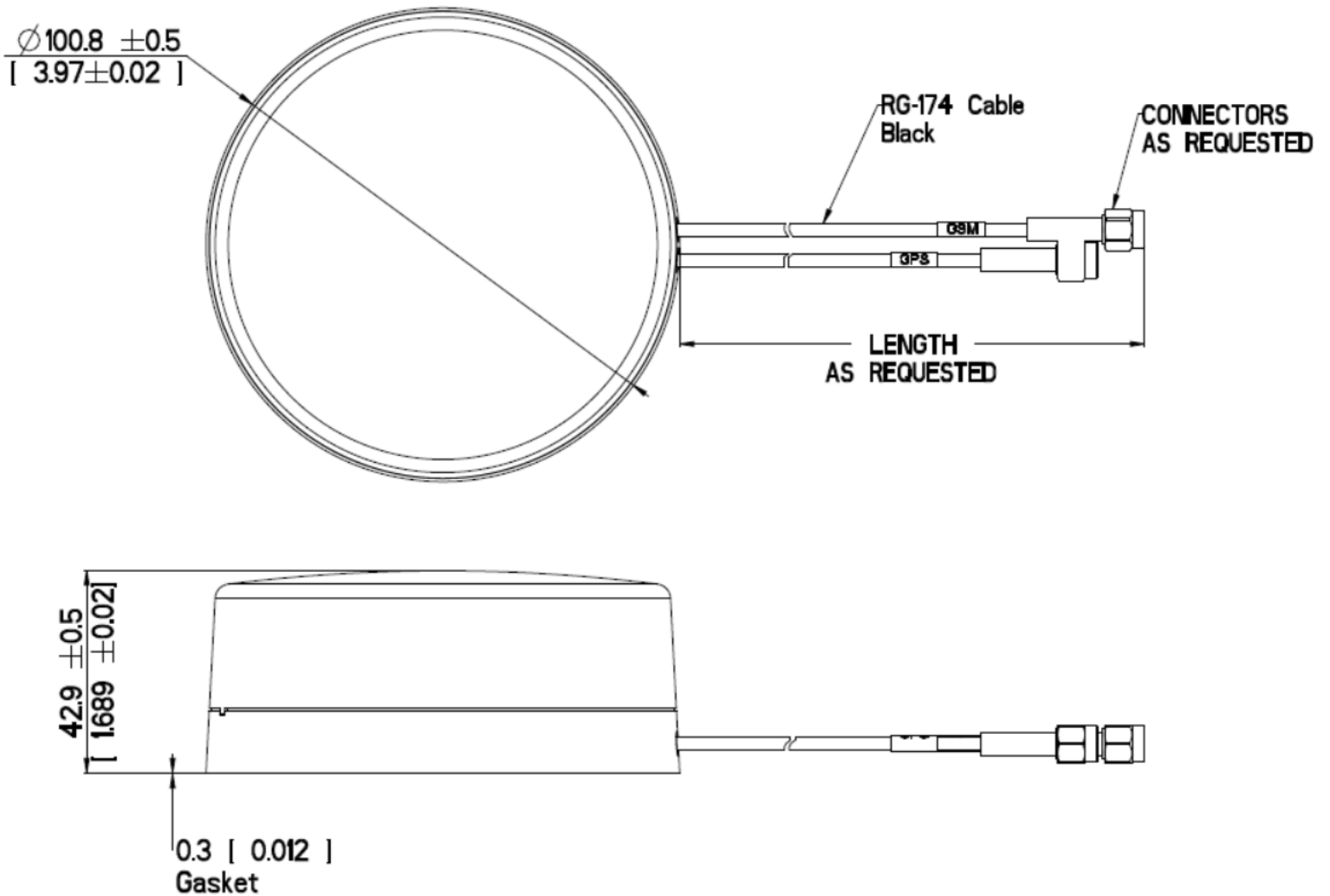
| | |
|-----------------------|-------------|
| Operating Temperature | -40 ~ 85° C |
| Storage Temperature | -40 ~ 85° C |
| Ingress Protection | IP67 |
| Wind-loading | 160 km/h |
| RoHS Compliant | Yes |

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

Series: Outdoor Multi Band

PART NUMBER: W4165MMXX

MECHANICAL DRAWING



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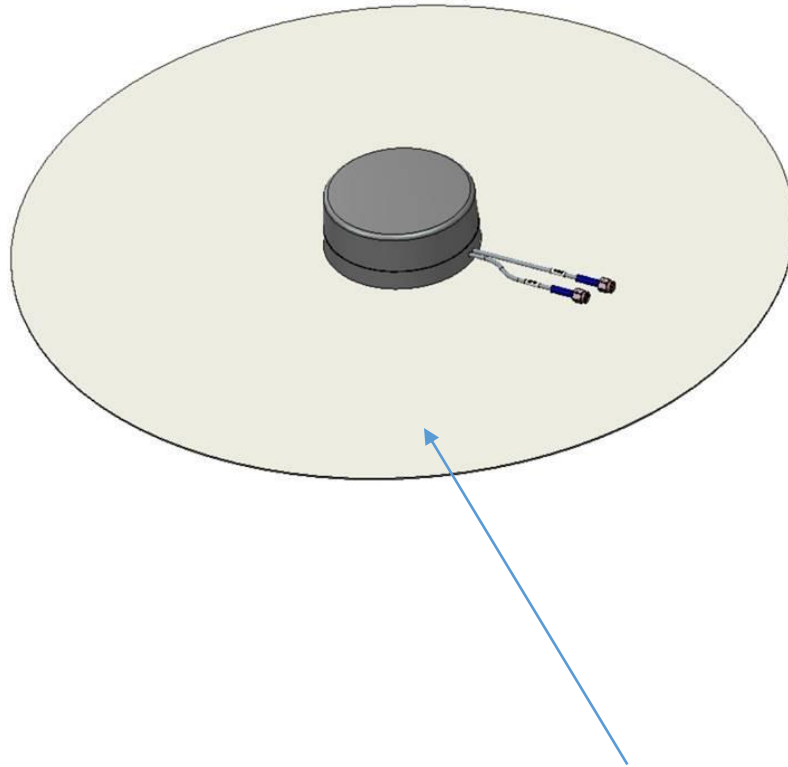
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Description: 3G/GPRS/GSM + GNSS IP67 with
Magnetic Mount

PART NUMBER: W4165MMXX

Series: Outdoor Multi Band

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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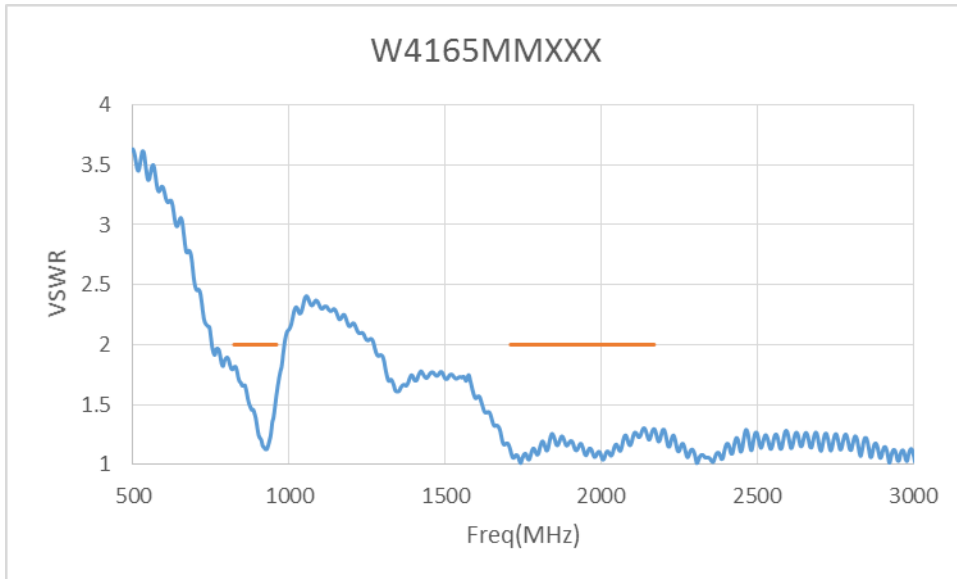
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Magnetic Mount

PART NUMBER: W4165MMXX

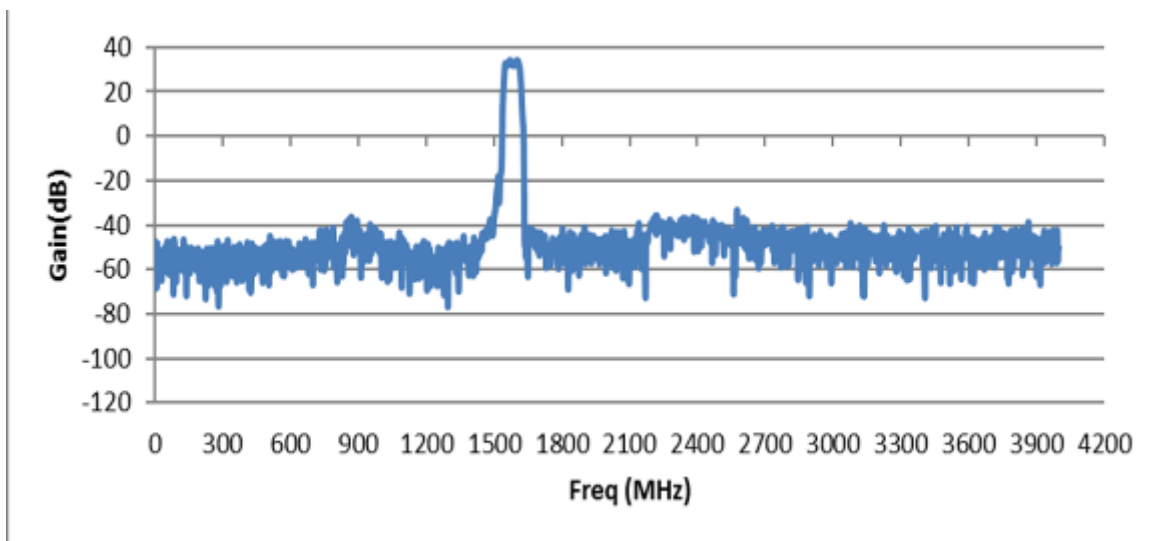
Series: Outdoor Multi Band

CHARTS

VSWR*



GNSS LNA performance



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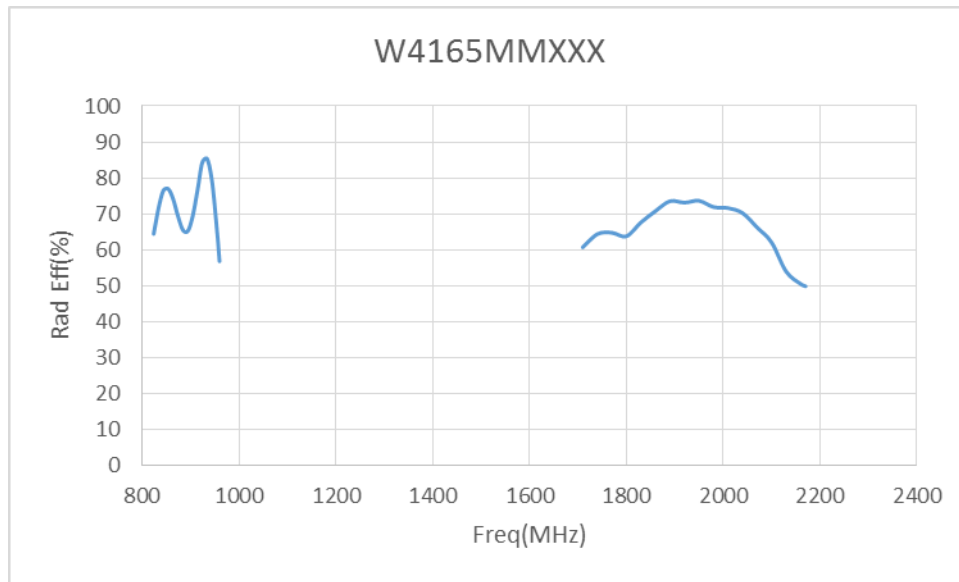
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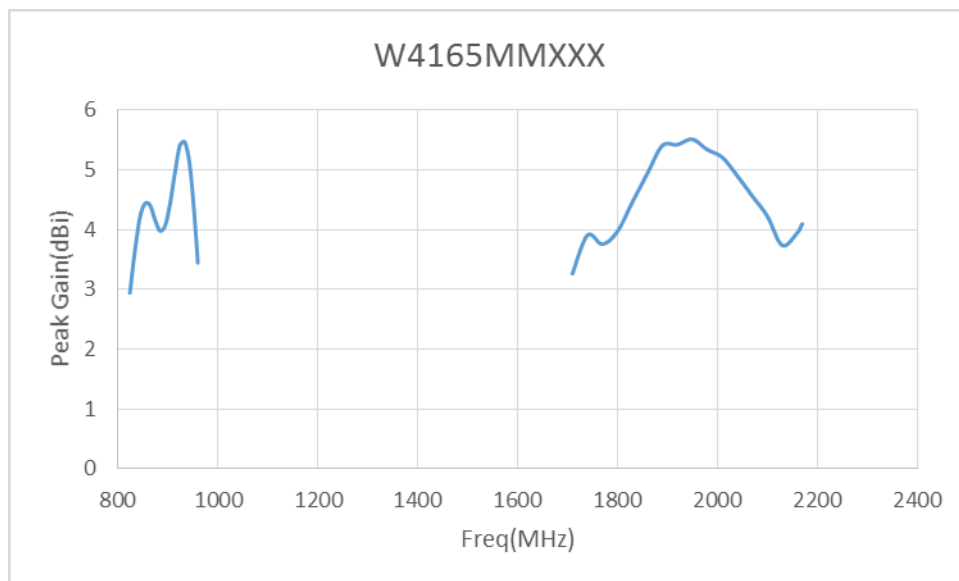
Series: Outdoor Multi Band

CHARTS

GSM antenna total efficiency*



Maximum 3D gain, GSM antenna*



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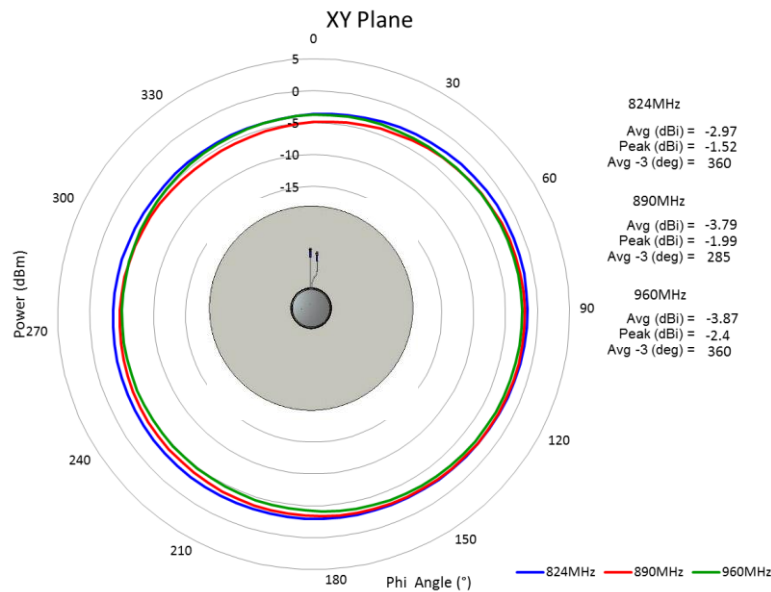
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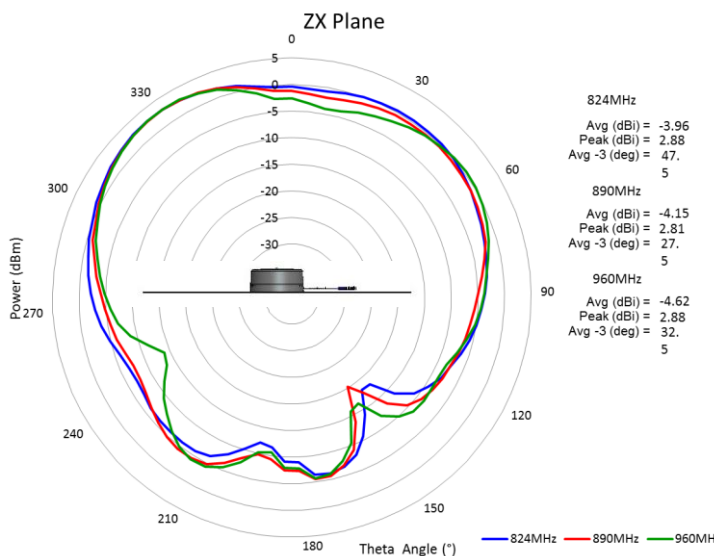
Series: Outdoor Multi Band

CHARTS

GSM antenna Low band Radiation Pattern X-Y Plane*



GSM antenna Low band Radiation Pattern Z-X Plane*



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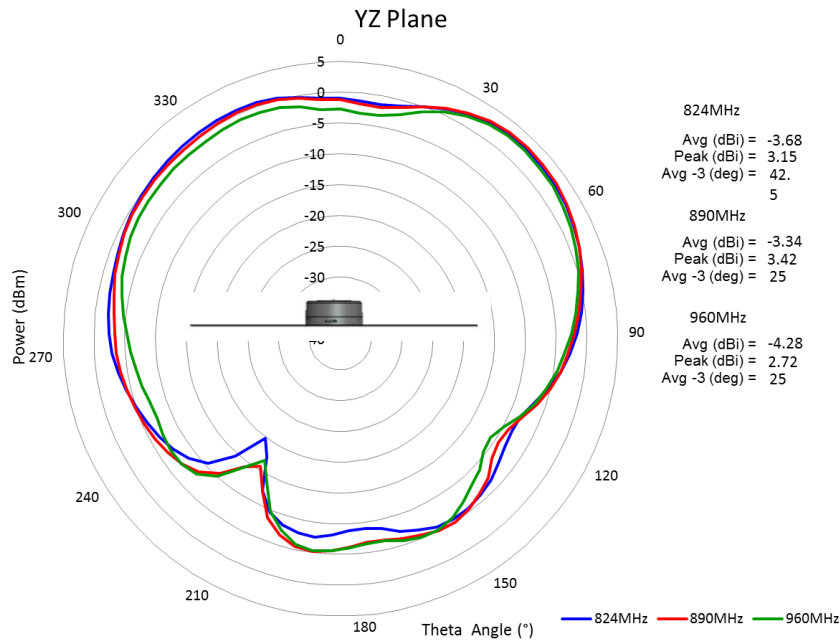
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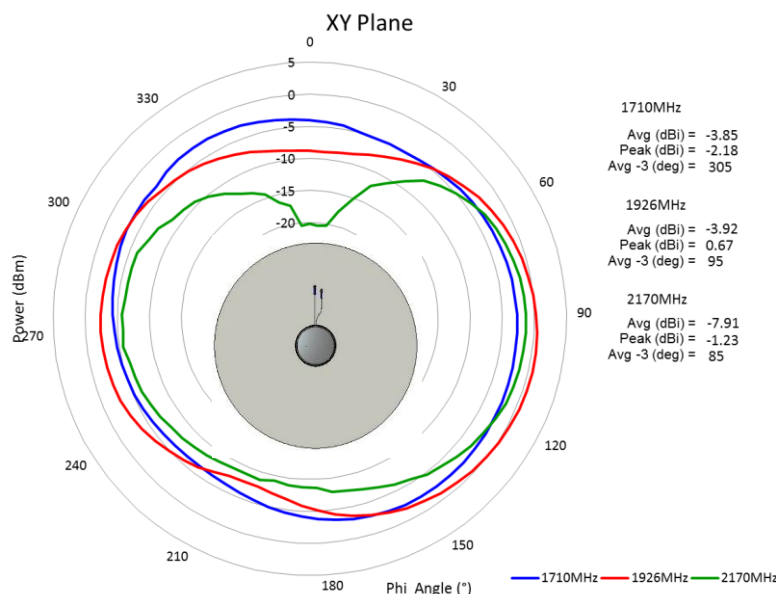
Series: Outdoor Multi Band

CHARTS

GSM antenna Low band Radiation Pattern Y-Z Plane*



GSM antenna High band Radiation Pattern X-Y Plane*



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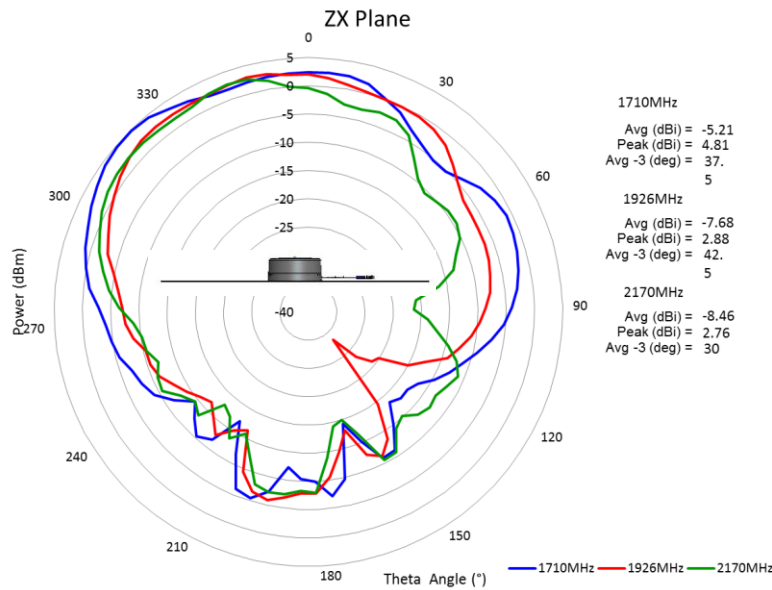
Description: 3G/GPRS/GSM + GNSS IP67 with Magnetic Mount

Series: Outdoor Multi Band

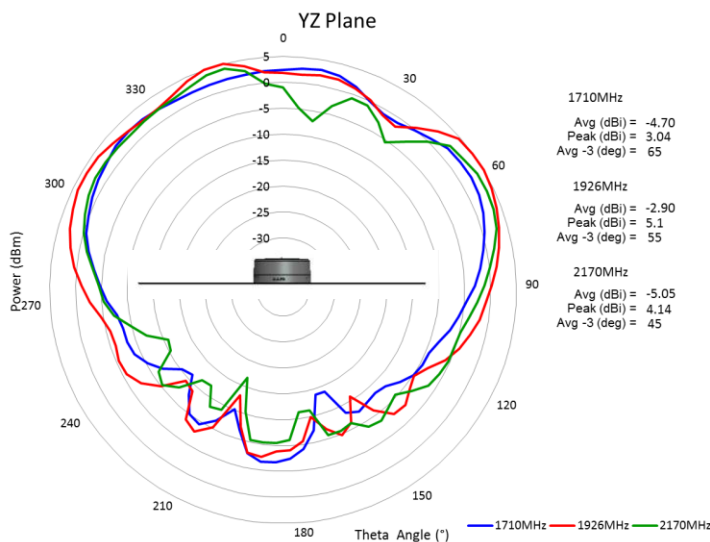
PART NUMBER: W4165MMXX

CHARTS

GSM antenna High band Radiation Pattern Z-X Plane*



GSM antenna High band Radiation Pattern Y-Z Plane*



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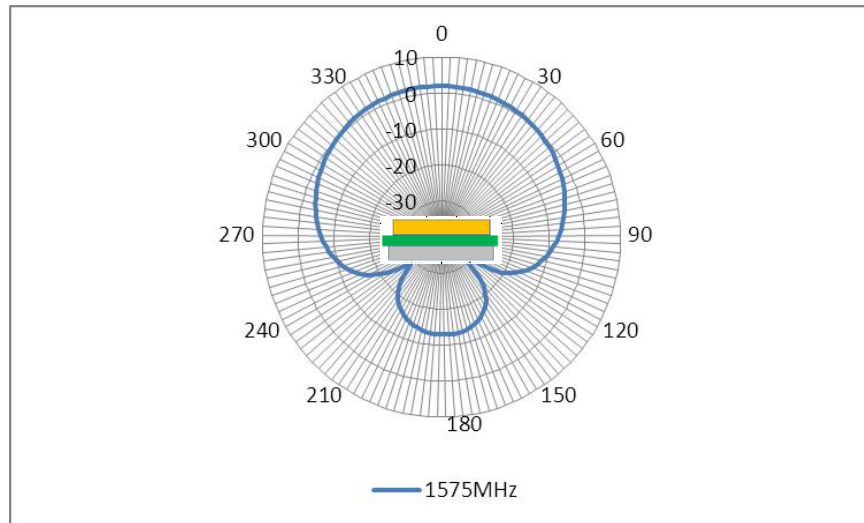
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PART NUMBER: W4165MMXX

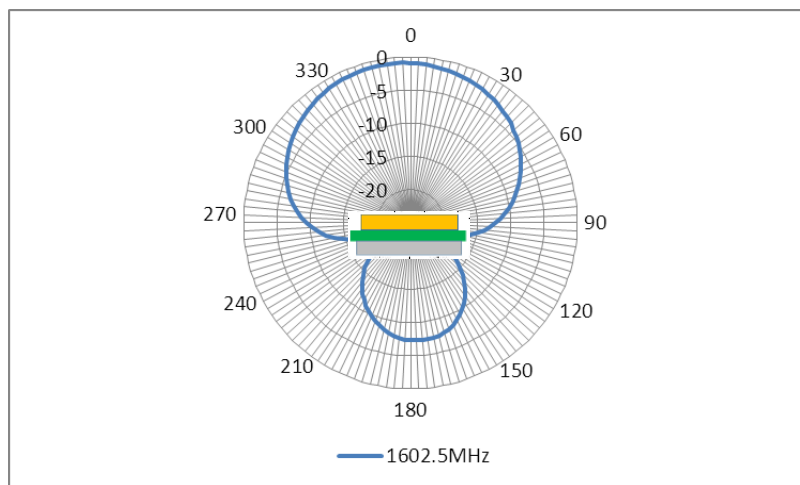
Series: Outdoor Multi Band

CHARTS

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



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



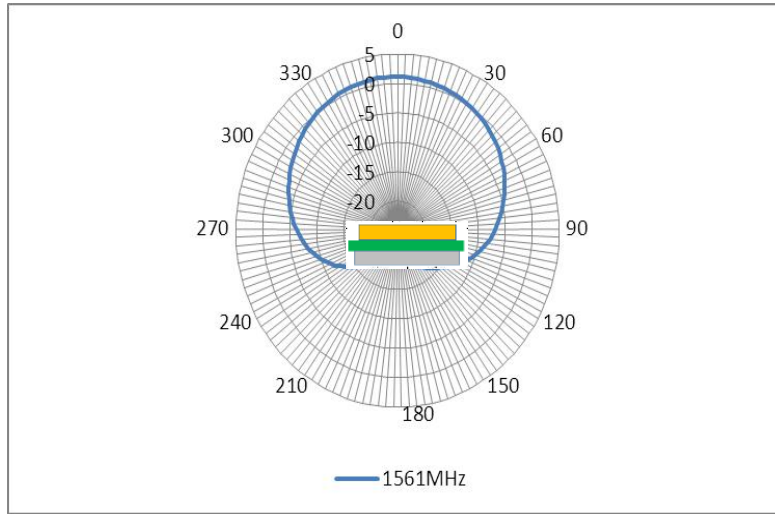
Description: 3G/GPRS/GSM + GNSS IP67 with
Magnetic Mount

PART NUMBER: W4165MMXX

Series: Outdoor Multi Band

CHARTS

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



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

Mouser Electronics

Authorized Distributor

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Pulse:

[W4165MMSMA5](#) [W4165MM](#) [W4165MMRPSMA10](#)