PulseLARSEN Antennas

TECHNICAL DATA SHEET

Description: 2xMiMo LTE, 3xMiMo WiFi, GNSS Vehicle Mount Antenna

Series: Panther

PART NUMBER: GPSMB601, GPSMB602



GPSMB601 Black



GPSMB602 White

All dimensions are in mm / inches

Features:

- Supports 2xMIMO Cellular LTE 698-960/1695-2170/2300-2700/2900-3600MHz
- Supports 3xMIMO WiFi and DSRC 2400-2500MHz/4900-5925MHz
- Supports Beidou, GPS, Galileo, GLONASS, Active Satellite Antenna
- Direct Mount and optional Magnetic Mount features
- See GPSMBMM for magnetic mount details

Applications:

- Telematics
- Location based services
- First Responders(Police, Ambulance, Fire)
- Government
- Energy(Utility Vehicles)
- Fleet Management

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Issue: 1706P

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Suzhou New District
Jiangsu Province, Suzhou 215009 PR China
Tel: 86 512 6807 9998

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Frequency (2XLTE)	698 - 960 / 1695 – 2170 / 2300 - 2700 / 2900 – 3600	MHz
Frequency (3XWiFi&DSRC)	2400 – 2500/ 4900 – 5925	MHz
Frequency (1XGNSS)	1561.098±2.046/ 1575.42±1.023/ 1602.5625±4	MHz
Nominal Impedance	50	Ω
VSWR** (LTE)	< 1.5	
VSWR** (WiFi&DSRC)	< 1.4	
Gain* (LTE antenna, < 2170 MHz)	4	dBi ± 2.5 dB
Gain* (LTE antenna, > 2170 MHz)	5	dBi ± 2 dB
Gain* (WiFi antenna, < 2500 MHz)	4.5	dBi ± 1.5 dB
Gain* (WiFi antenna, > 4900 MHz)	5	dBi ± 2 dB
Isolation LTE to LTE **	15 or better	dB
Isolation WiFi to WiFi **	25 or better	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
V_{dc}	3-5	V_{dc}
LNA and filter attenuation		
@ 824 MHz	70	dB
@ 960 MHz	65	dB
@ 1710 MHz	60	dB
@ 2170 MHz	65	dB

*Measured on 2ft GND plane and with 4 inch cables
**In free space with 17ft cables

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MECHANICAL SPECIFICATIONS

Plastic radome	ABS/PC Material UV Stabilized, UL-94H
Color	GPSMB601: Black GPSMB602: White
Ingress Protection	IP67
Weight	~1540 g
Fixing system	Roof mounting (Also Magnet mounting accessory available, GPSMBMM) Recommended fastening torque 1518ft-lb (20-25Nm).

ENVIRONMENTAL SPECIFICATIONS

Operating temperature	MIL-STD 810G -40/+85° C
Humidity	95%RH @ +25°C for 12h and 55°C for 12h
Vibration	MIL-STD 810G, section 514.6 , 5-500 Hz, 60min/axis
Thermal Shocks	MIL-STD 810G, section 503.5, -40 to +85°C, 3 cycles
Drop Test	Minimum of one drop per axis – 4, 1 meter drops

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MECHANICAL DRAWING

Pulse P/N	GPSMB601	GPSMB602
Cable NO.	6	6
Operating Bands	2-LTE + 3-WiFi + 1-GPS/GNSS	2-LTE + 3-WiFi + 1-GPS/GNSS
Cable length	17FT	17FT
Connector	LTE: SMA(M), WiFi: RP SMA(M), GPS: SMA(M)	LTE: SMA(M), WiFi: RP SMA(M), GPS: SMA(M)
Cable Color	Black	White
Assembly option	1. Assembly directly with nut 2. Magnetic mount base P/N:GPSMBMM	

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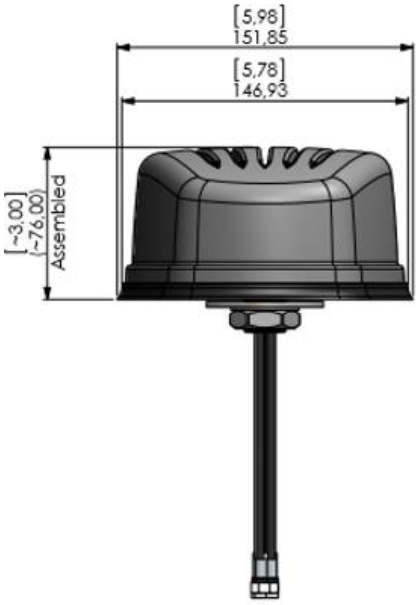
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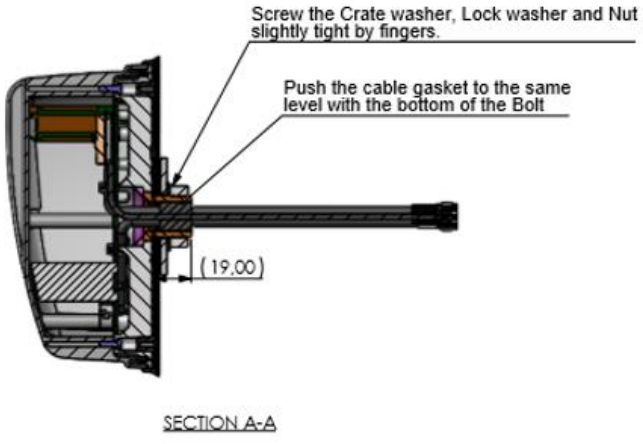
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MECHANICAL DRAWING









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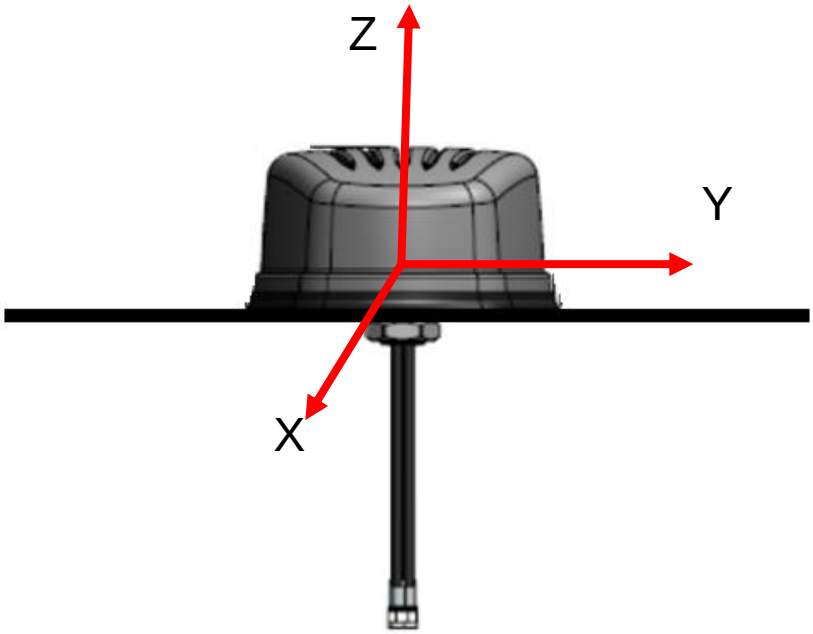
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TEST SETUP





For VSWR, test in free space with 17ft cables

For radiation performance, test on 2ft GND plane with 4inch cables

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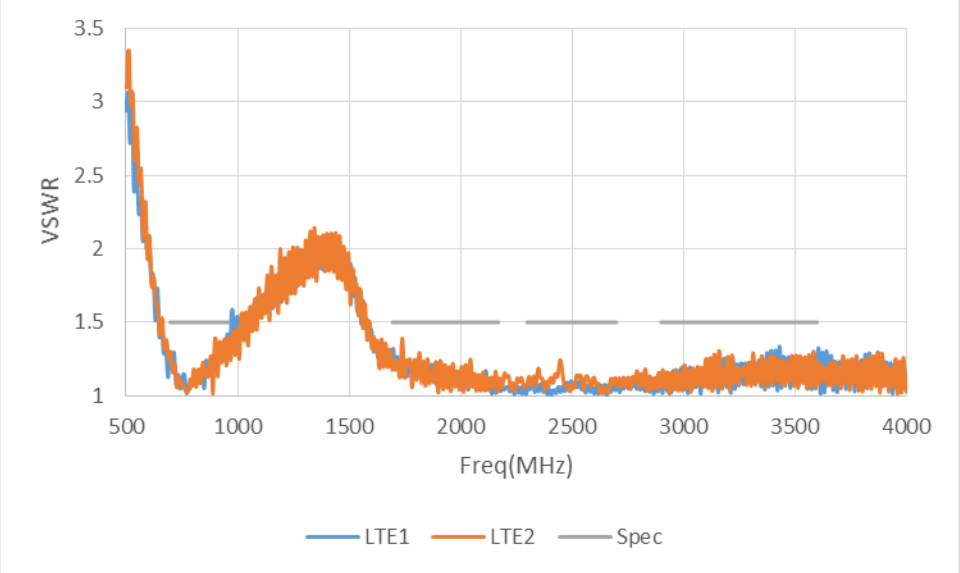
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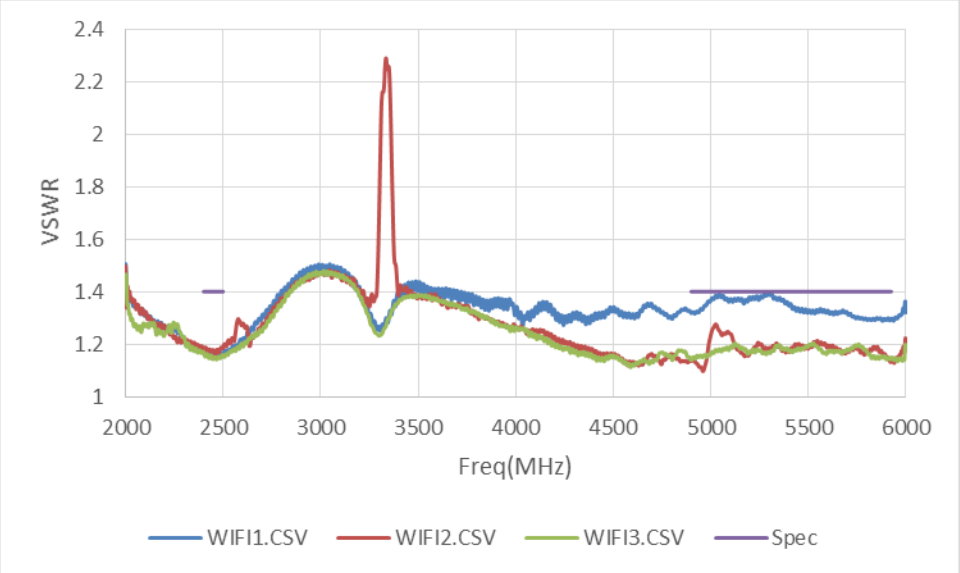
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CHARTS

VSWR of LTE antenna



VSWR of WiFi antenna



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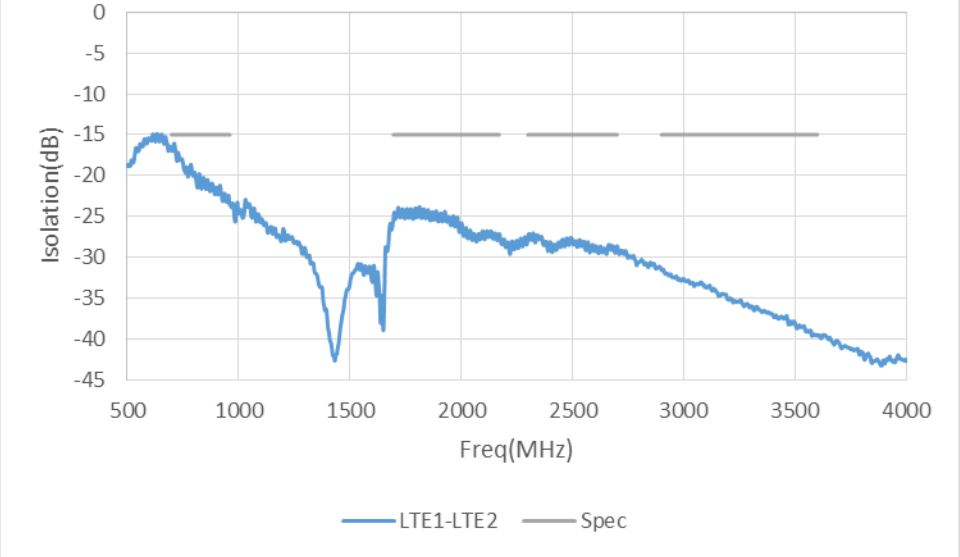
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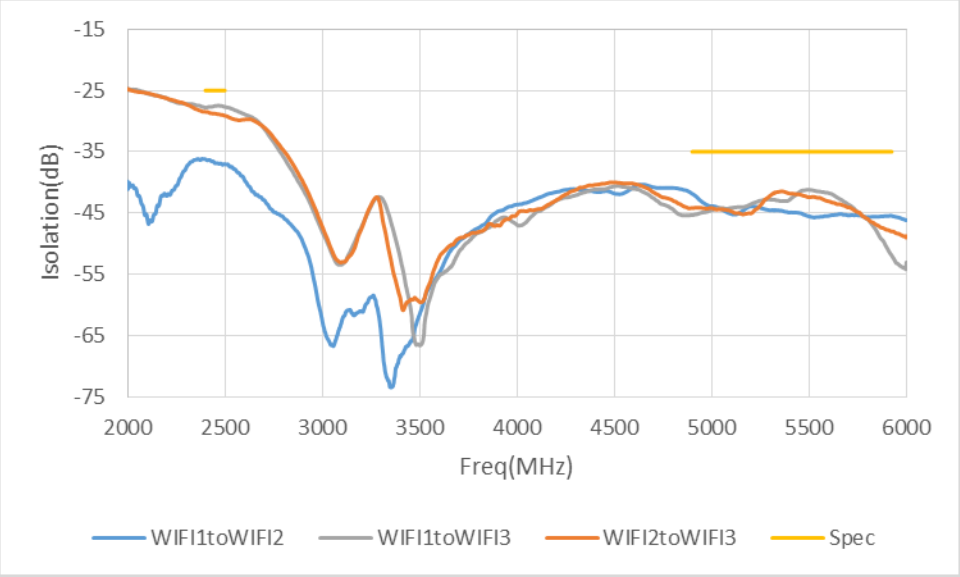
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CHARTS

Isolation of LTE antenna



Isolation of WiFi antenna



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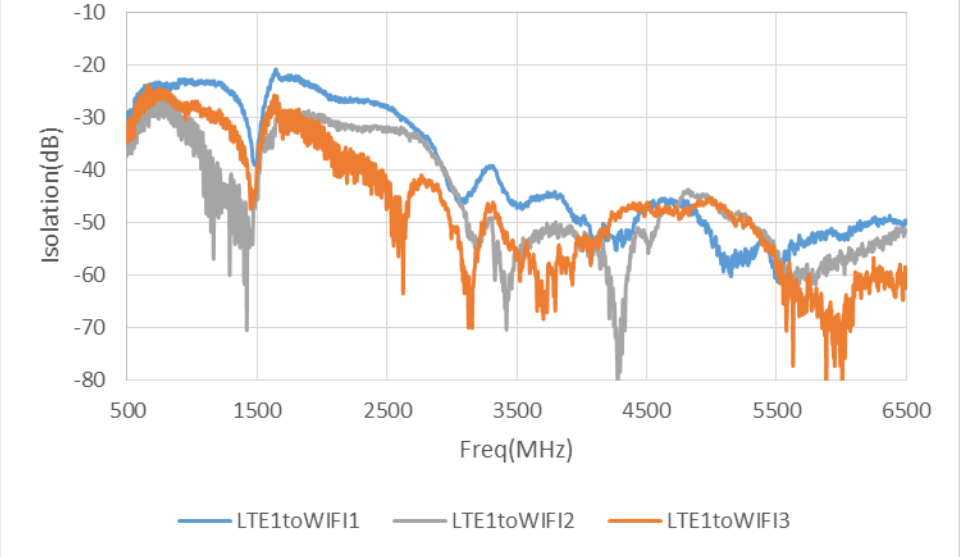
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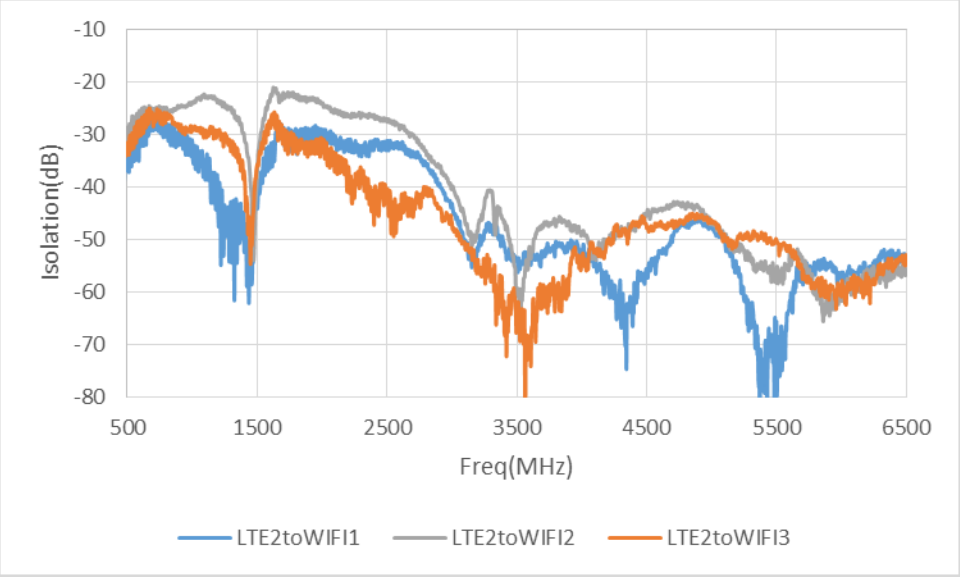
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CHARTS

Isolation of LTE1 antenna to WiFi antenna



Isolation of LTE2 antenna to WiFi antenna



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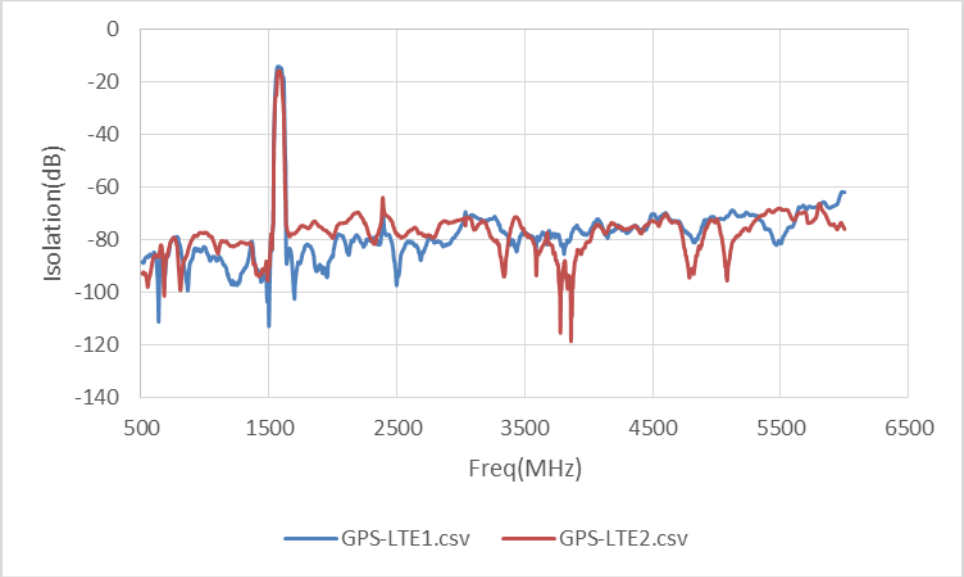
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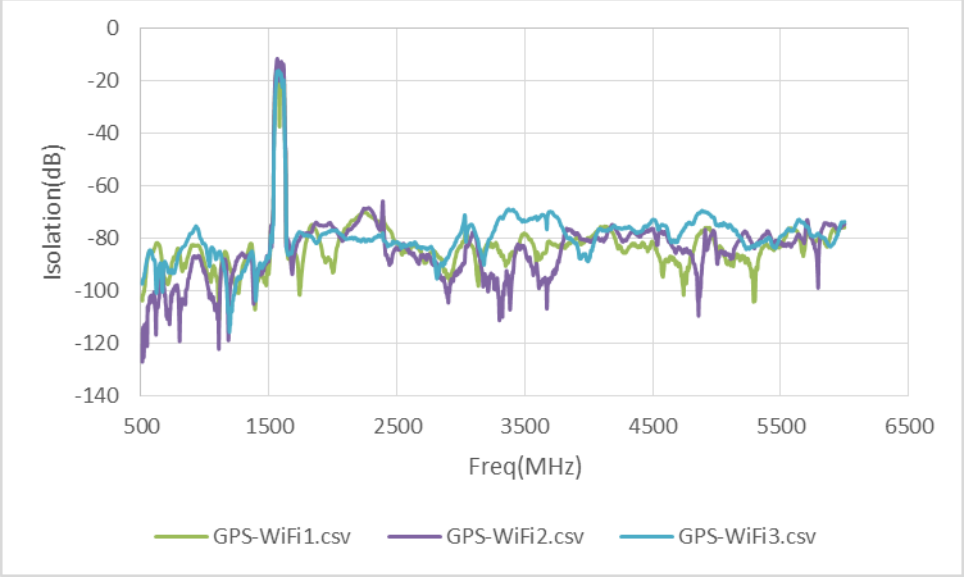
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CHARTS

Isolation of GPS antenna to LTE antenna



Isolation of GPS antenna to WiFi antenna



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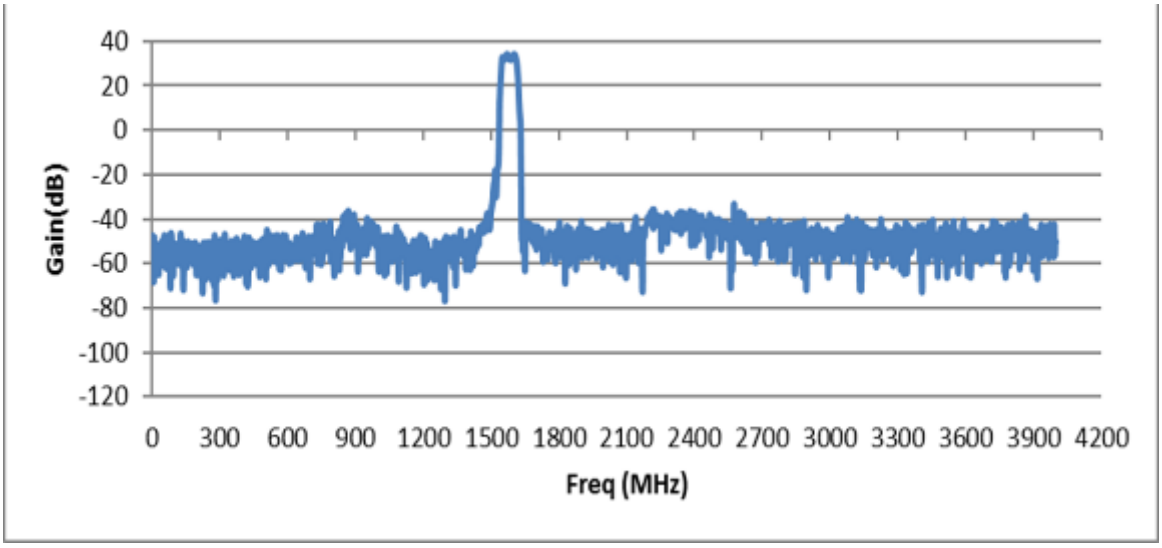
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CHARTS

GNSS LNA performance



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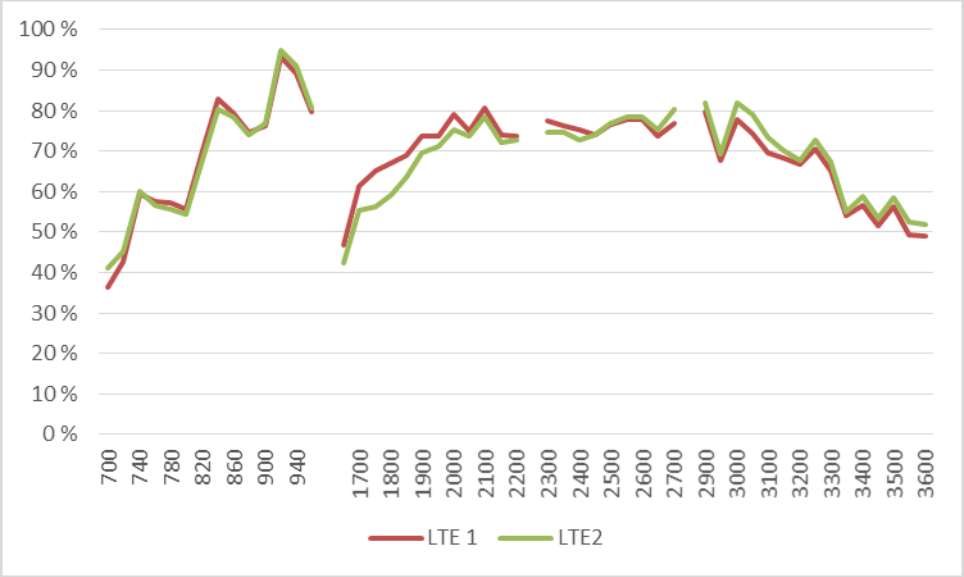
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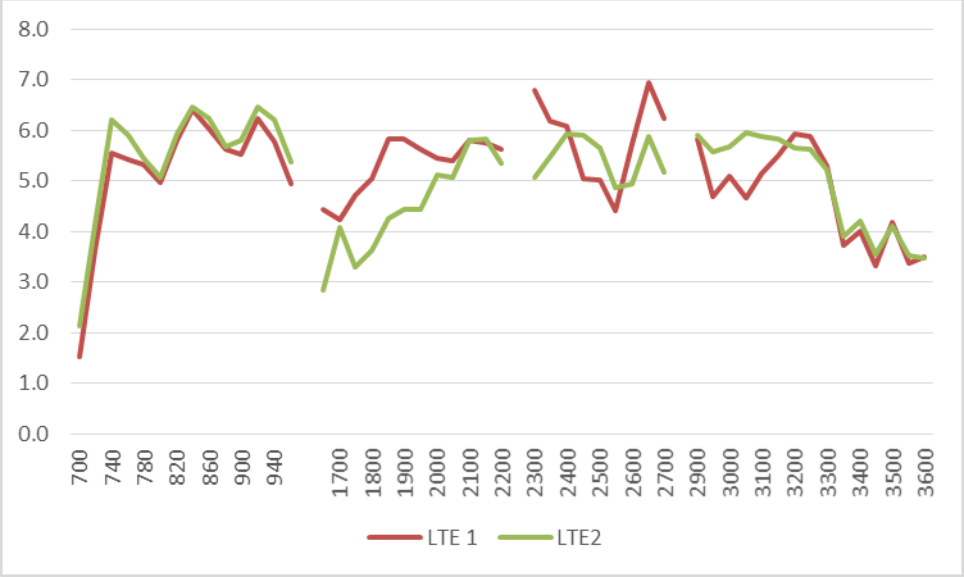
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CHARTS

LTE antenna total efficiency on ground plane**



Maximum 3D gain, LTE antenna on ground plane**



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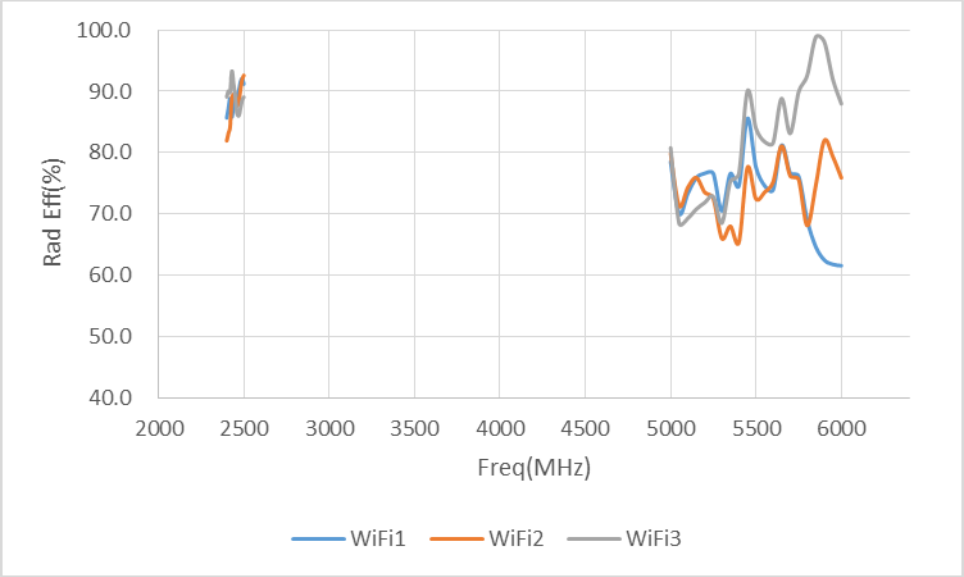
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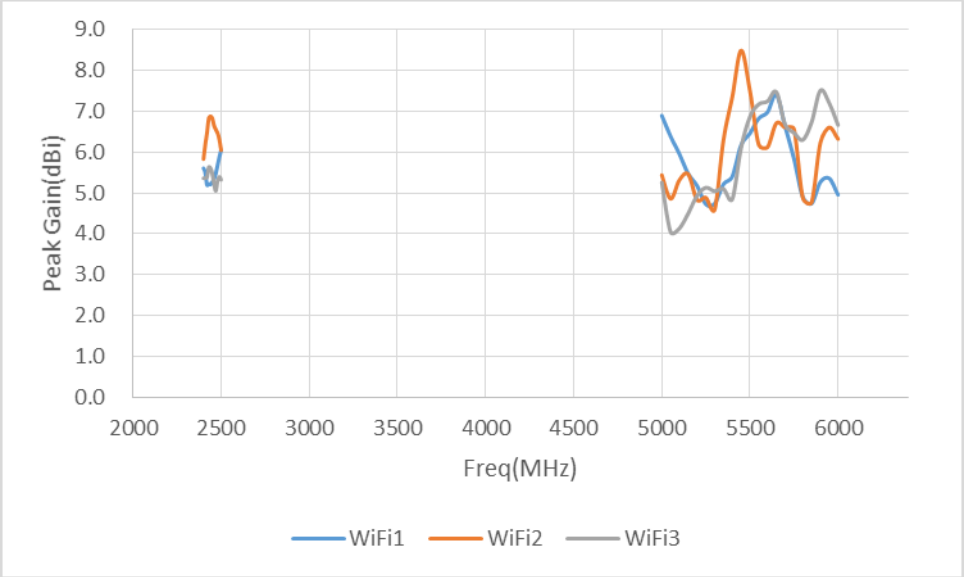
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WiFi antenna total efficiency on ground plane**



Maximum 3D gain, WiFi antenna on ground plane**



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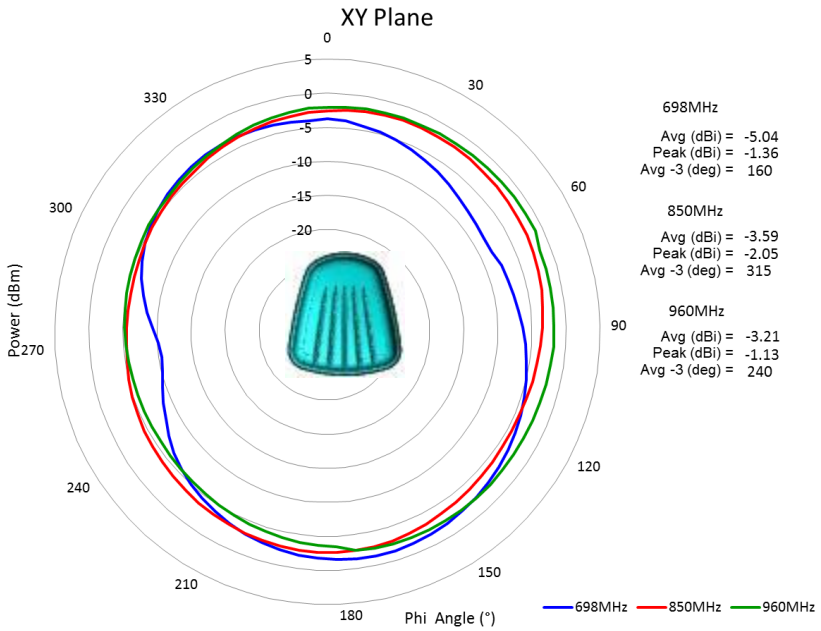
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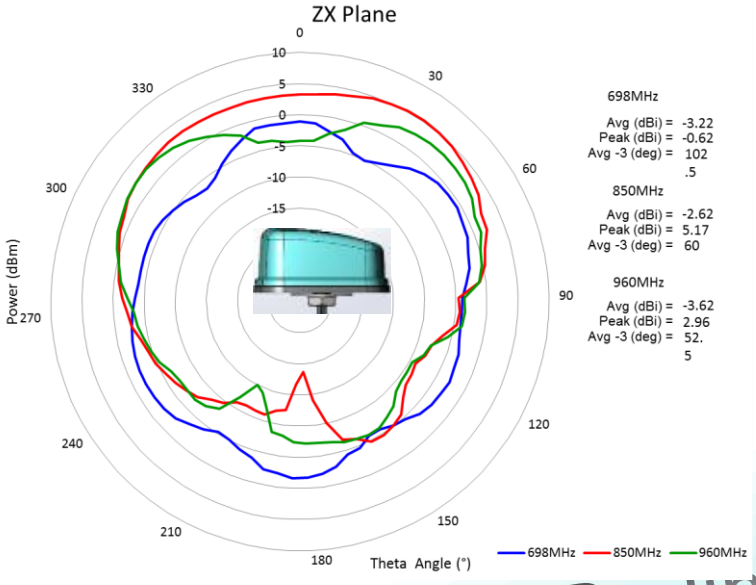
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CHARTS

LTE1 antenna X-Y plane radiation pattern at LTE low band**



LTE1 antenna Z-X plane radiation pattern at LTE low band**



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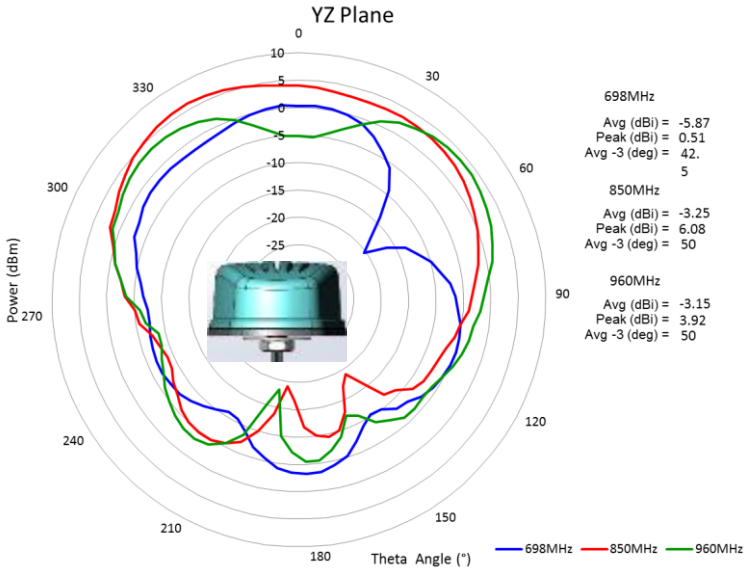
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LTE1 antenna Y-Z plane radiation pattern at LTE low band**



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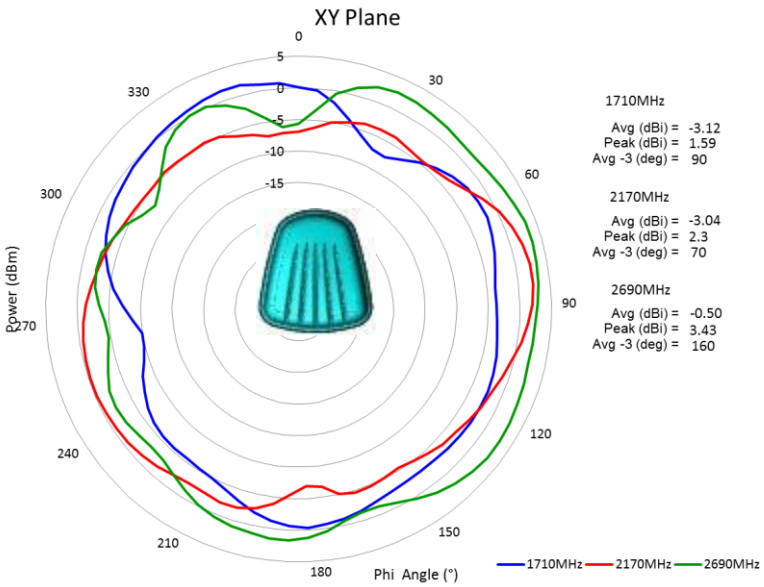
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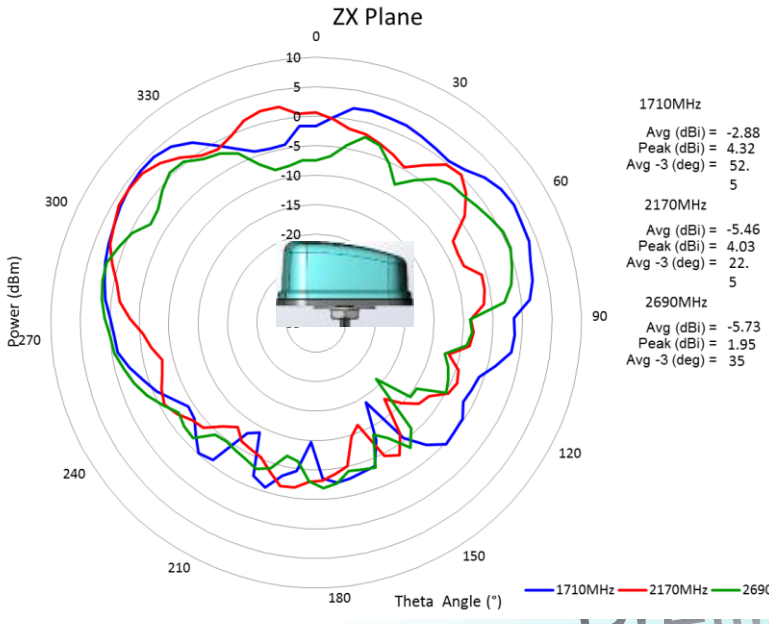
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CHARTS

LTE1 antenna X-Y plane radiation pattern at LTE high band**



LTE1 antenna Z-X plane radiation pattern at LTE high band**



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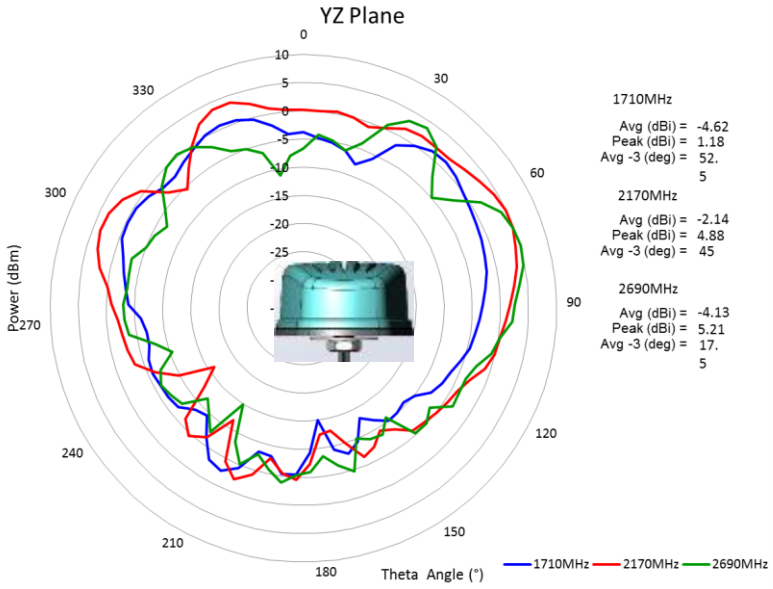
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CHARTS

LTE1 antenna Y-Z plane radiation pattern at LTE high band**



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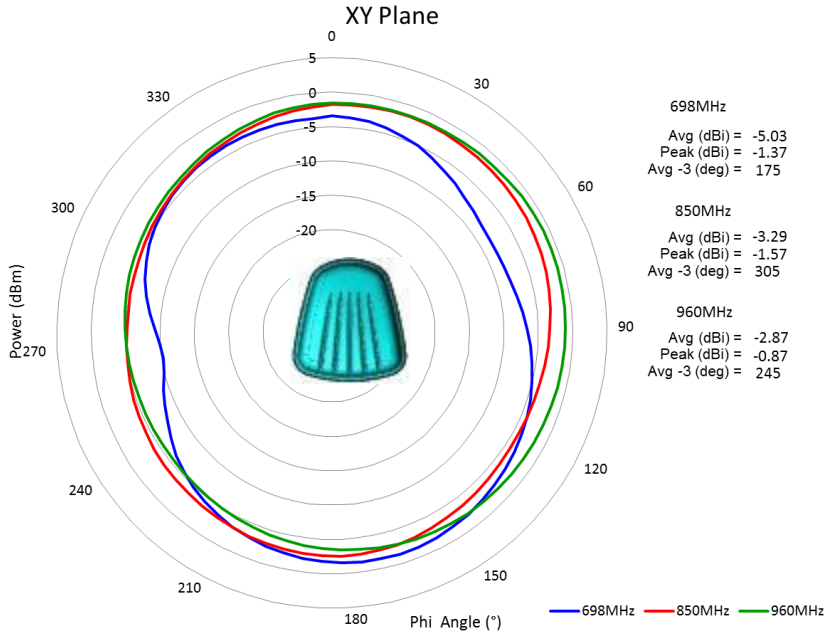
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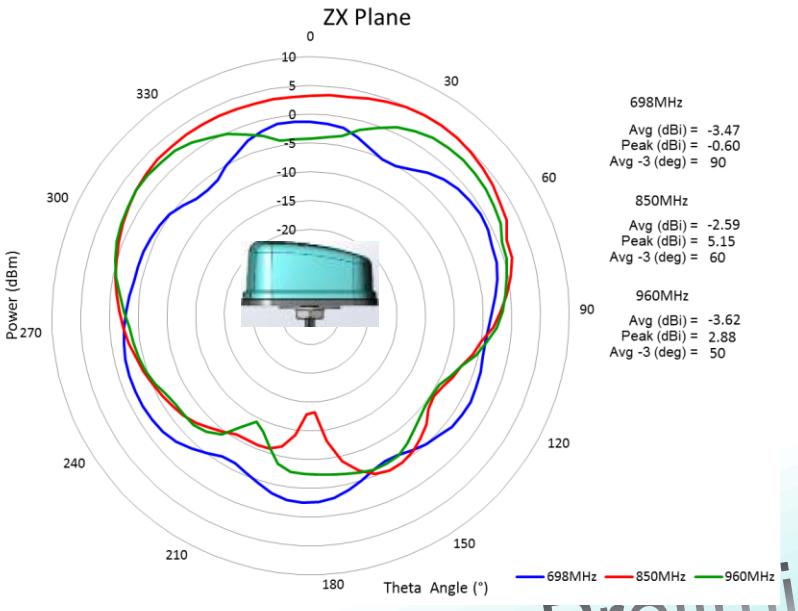
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CHARTS

LTE2 antenna X-Y plane radiation pattern at LTE low band**



LTE2 antenna Z-X plane radiation pattern at LTE low band**



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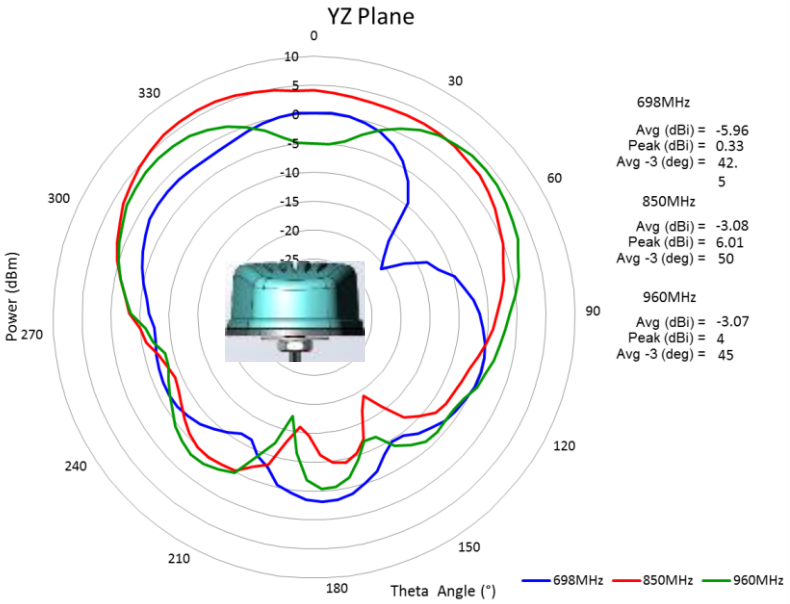
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CHARTS

LTE2 antenna Y-Z plane radiation pattern at LTE low band**



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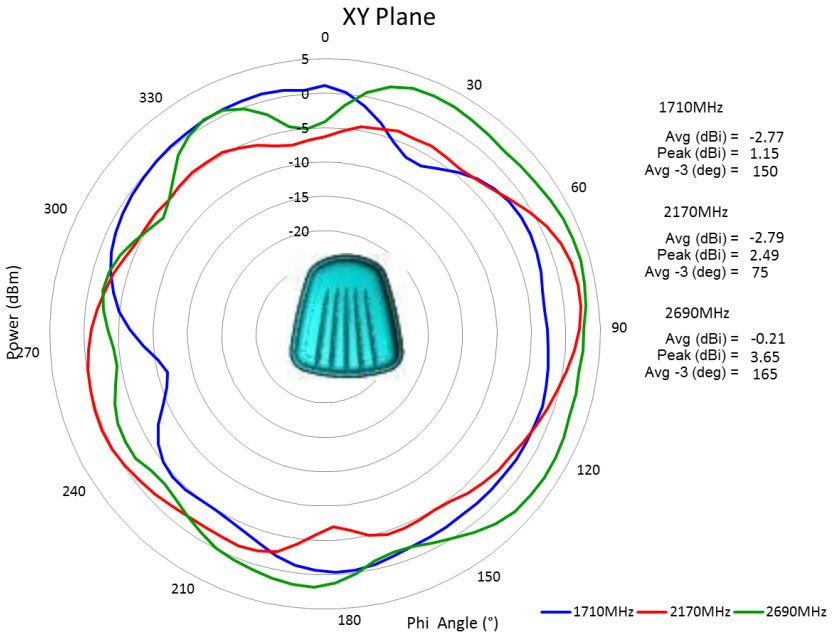
Series: Panther

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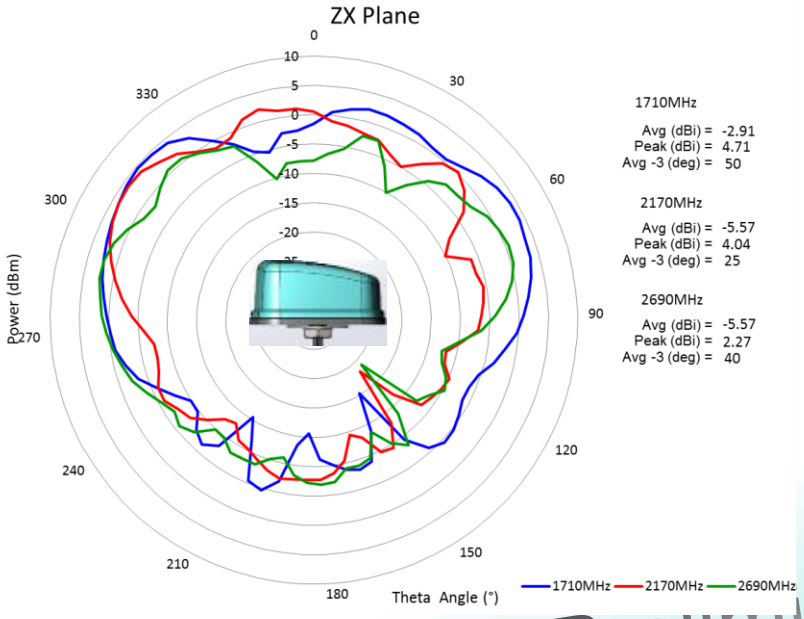
PART NUMBER: GPSMB601, GPSMB602

CHARTS

LTE2 antenna X-Y plane radiation pattern at LTE high band**



LTE2 antenna Z-X plane radiation pattern at LTE high band**



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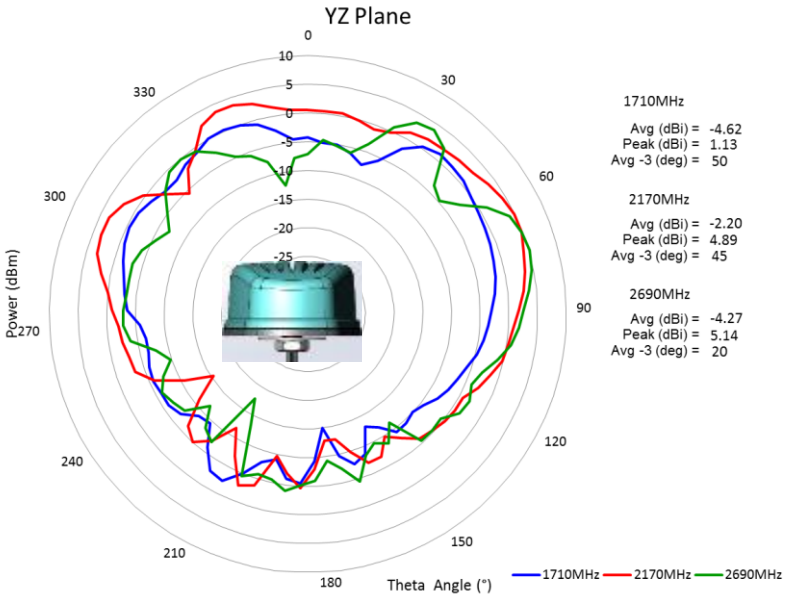
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CHARTS

LTE2 antenna Y-Z plane radiation pattern at LTE high band**



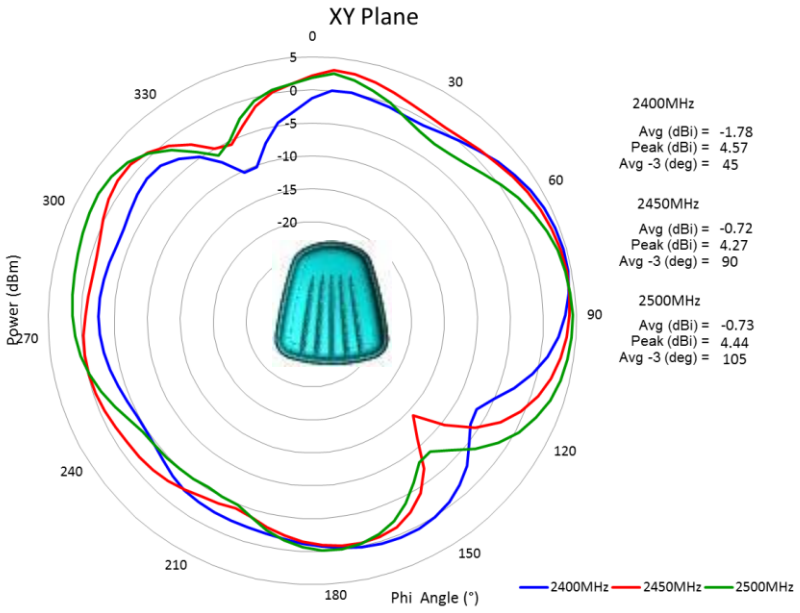
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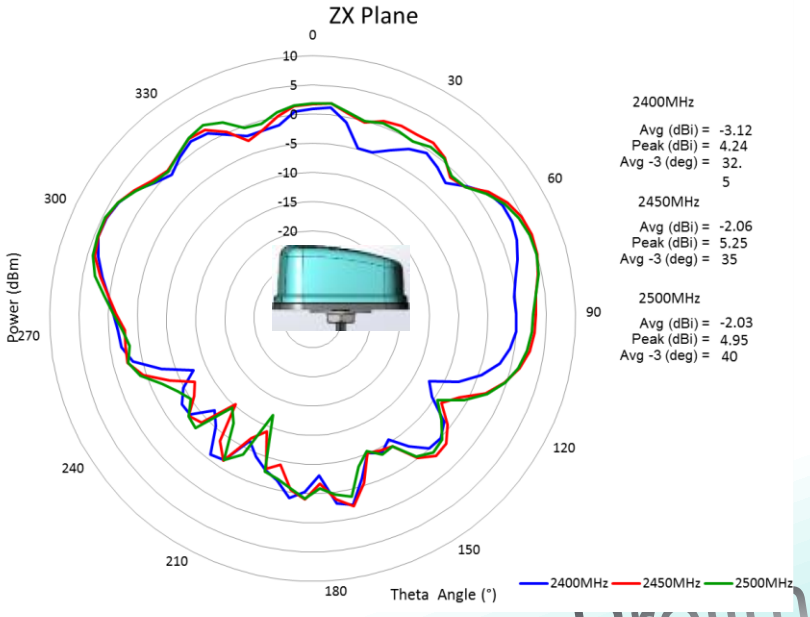
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CHARTS

WiFi1 antenna X-Y plane radiation pattern at WiFi low band**



WiFi1 antenna Z-X plane radiation pattern at WiFi low band**



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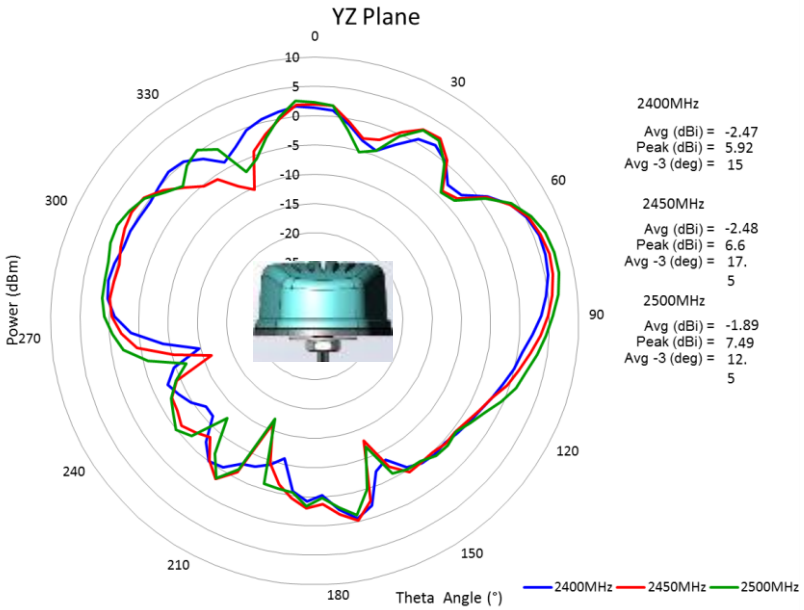
Description: 2xMiMo LTE, 3xMiMo WiFi, GNSS Vehicle Mount Antenna

Series: Panther

PART NUMBER: GPSMB601, GPSMB602

CHARTS

WiFi1 antenna Y-Z plane radiation pattern at WiFi low band**



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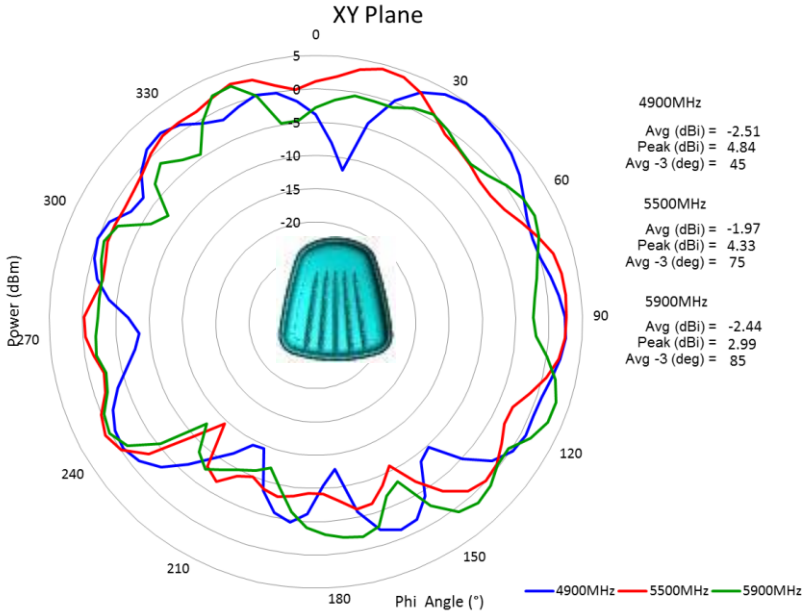
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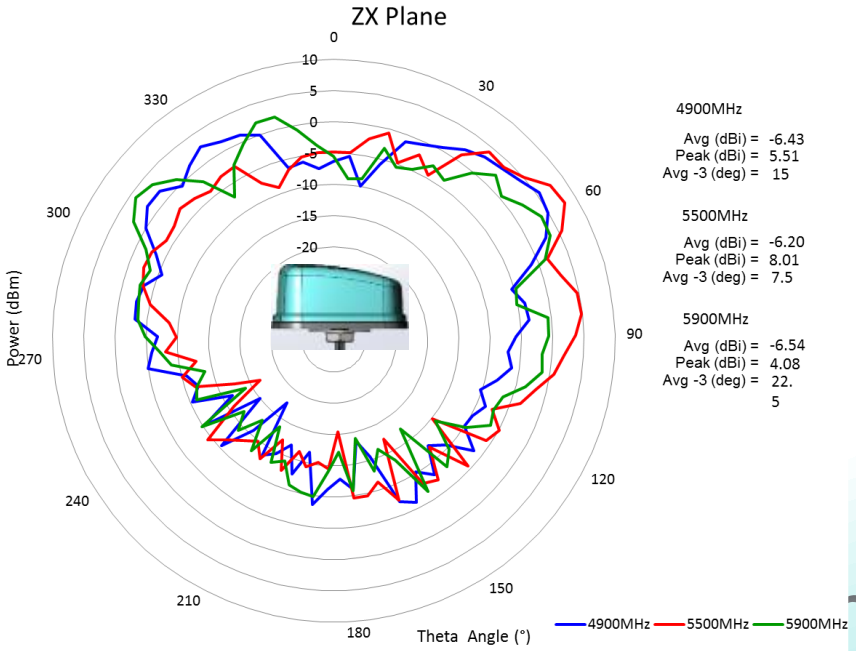
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CHARTS

WiFi1 antenna X-Y plane radiation pattern at WiFi high band**



WiFi1 antenna Z-X plane radiation pattern at WiFi high band**



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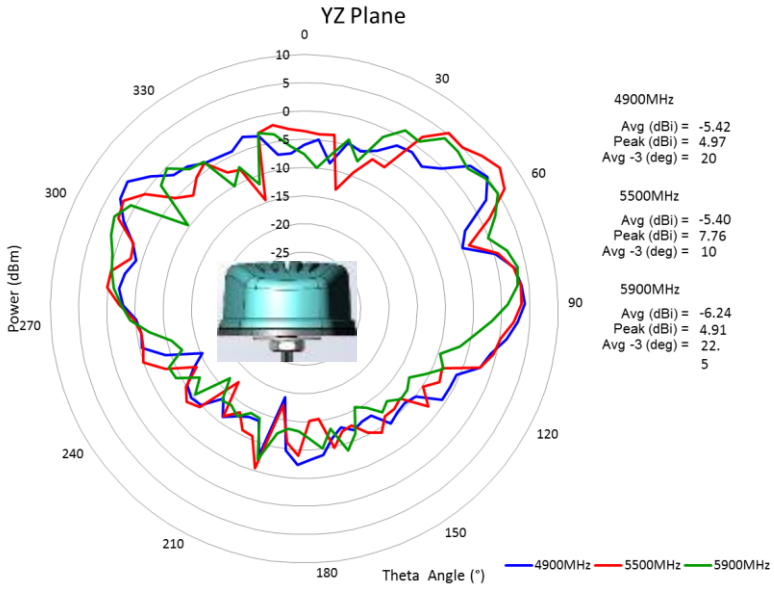
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CHARTS

WiFi1 antenna Y-Z plane radiation pattern at WiFi high band**



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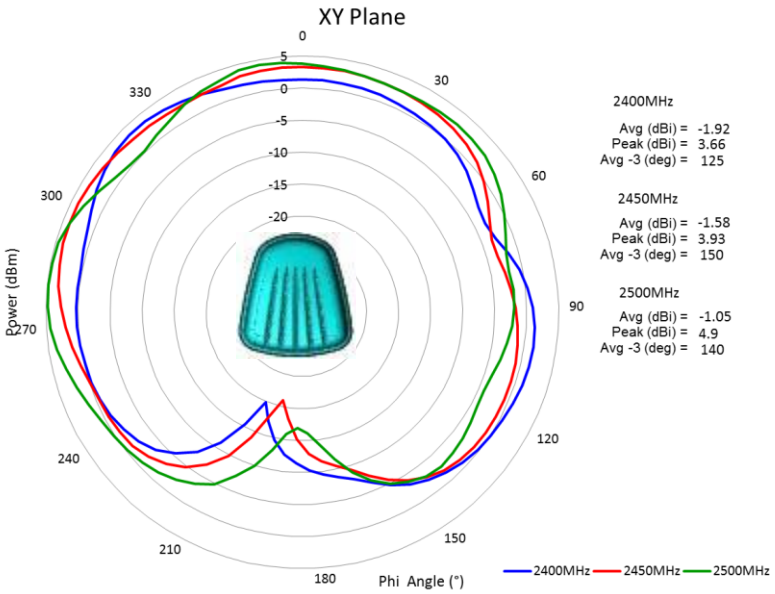
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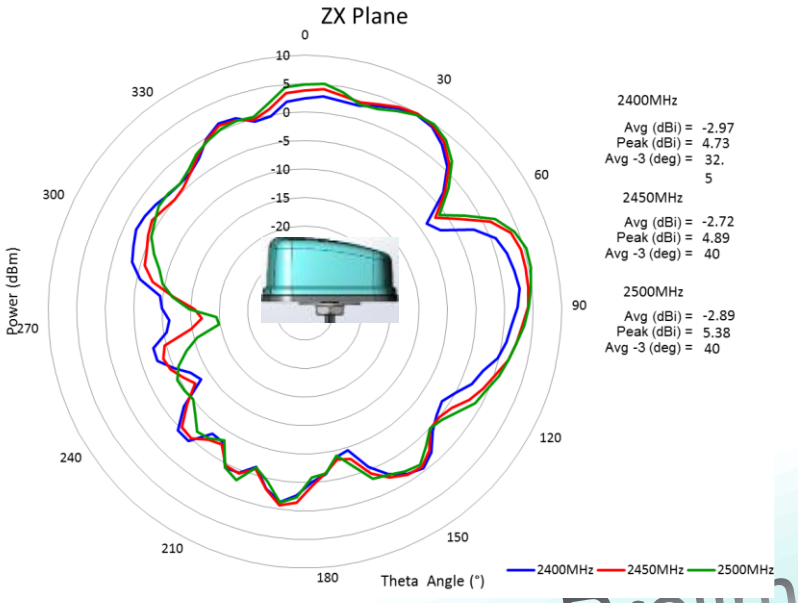
PART NUMBER: GPSMB601, GPSMB602

CHARTS

WiFi2 antenna X-Y plane radiation pattern at WiFi low band**



WiFi2 antenna Z-X plane radiation pattern at WiFi low band**



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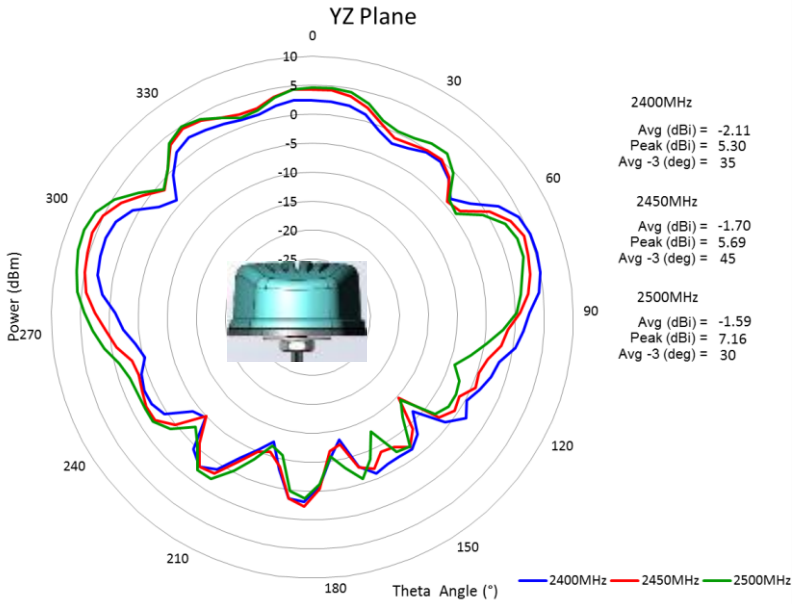
Description: 2xMiMo LTE, 3xMiMo WiFi, GNSS Vehicle Mount Antenna

Series: Panther

PART NUMBER: GPSMB601, GPSMB602

CHARTS

WiFi2 antenna Y-Z plane radiation pattern at WiFi low band**



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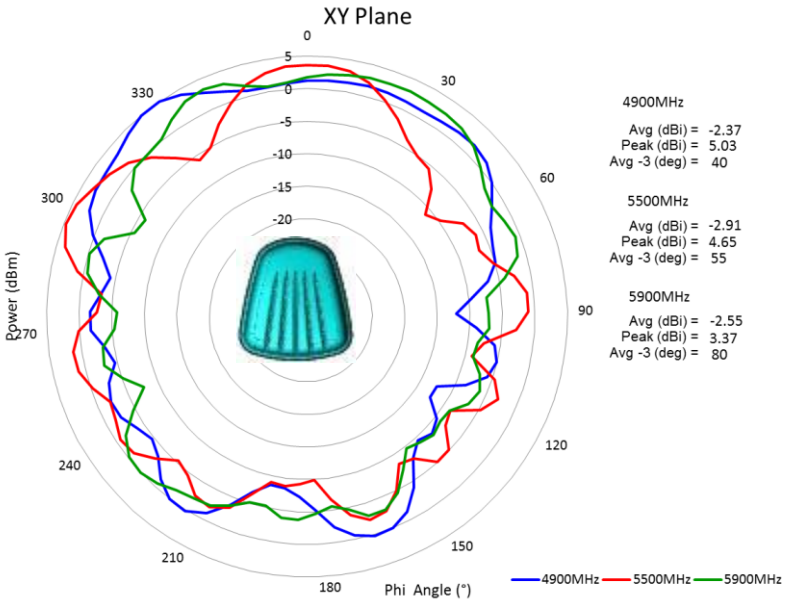
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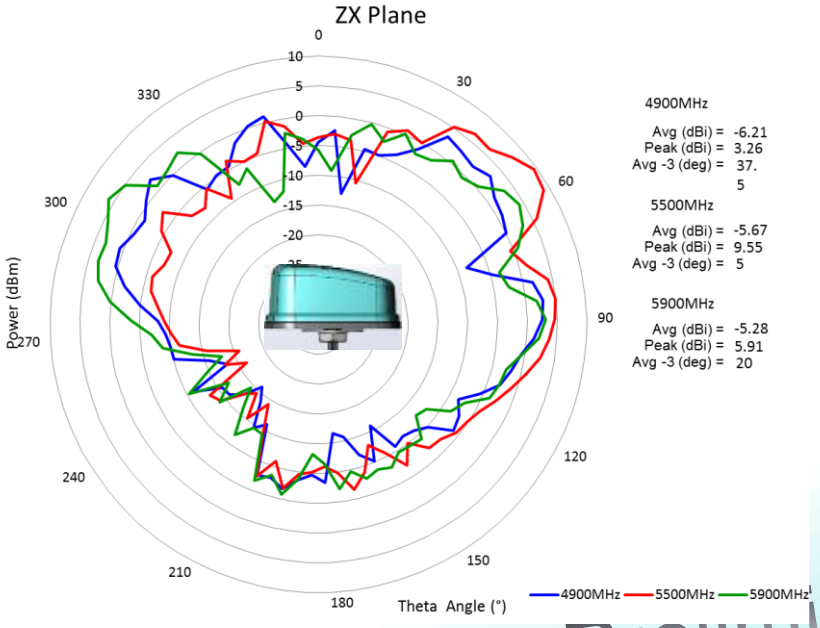
PART NUMBER: GPSMB601, GPSMB602

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WiFi2 antenna X-Y plane radiation pattern at WiFi high band**



WiFi2 antenna Z-X plane radiation pattern at WiFi high band**



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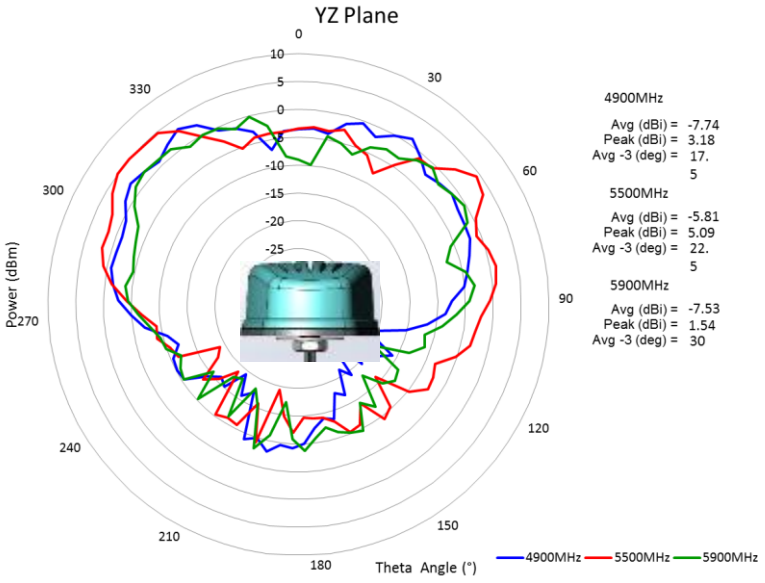
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WiFi2 antenna Y-Z plane radiation pattern at WiFi high band**



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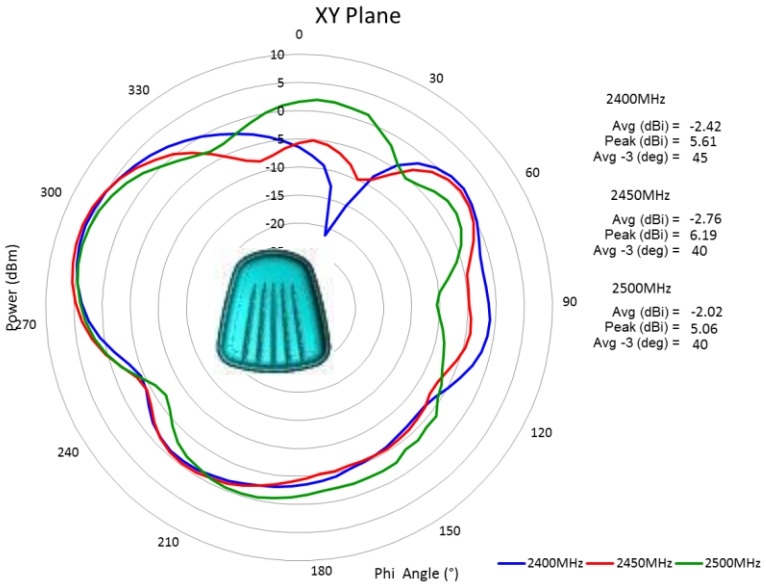
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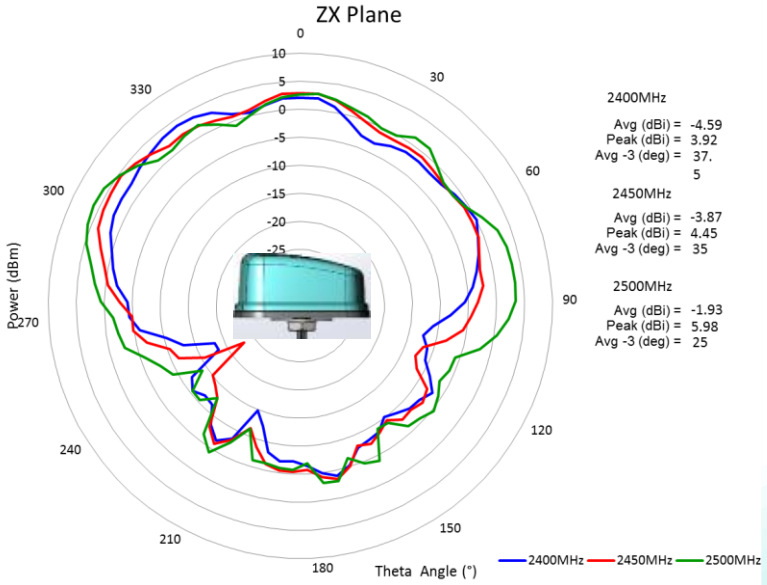
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CHARTS

WiFi3 antenna X-Y plane radiation pattern at WiFi low band**



WiFi3 antenna Z-X plane radiation pattern at WiFi low band**



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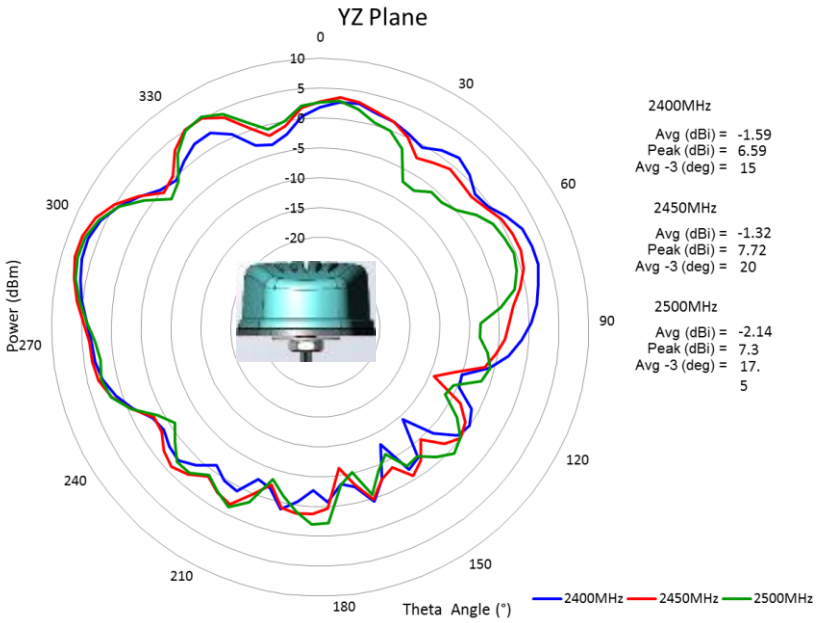
Series: Panther

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PART NUMBER: GPSMB601, GPSMB602

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WiFi3 antenna Y-Z plane radiation pattern at WiFi low band**



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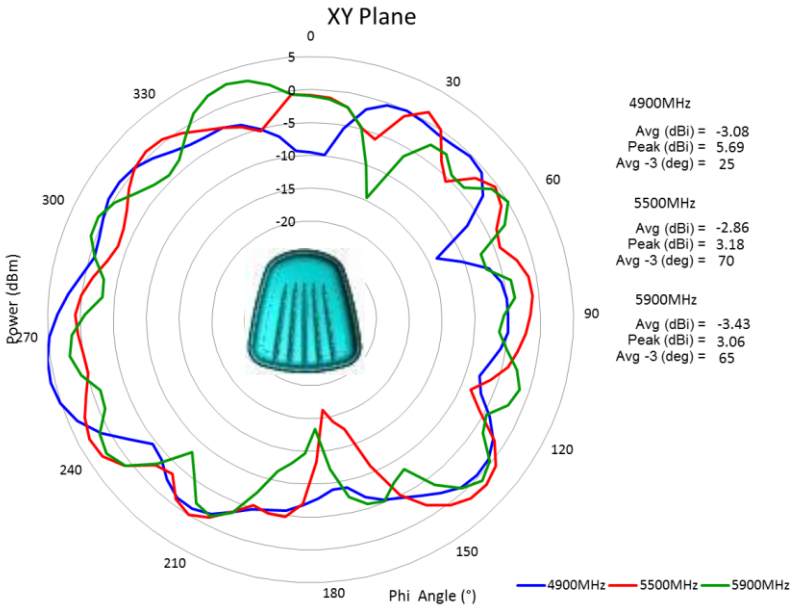
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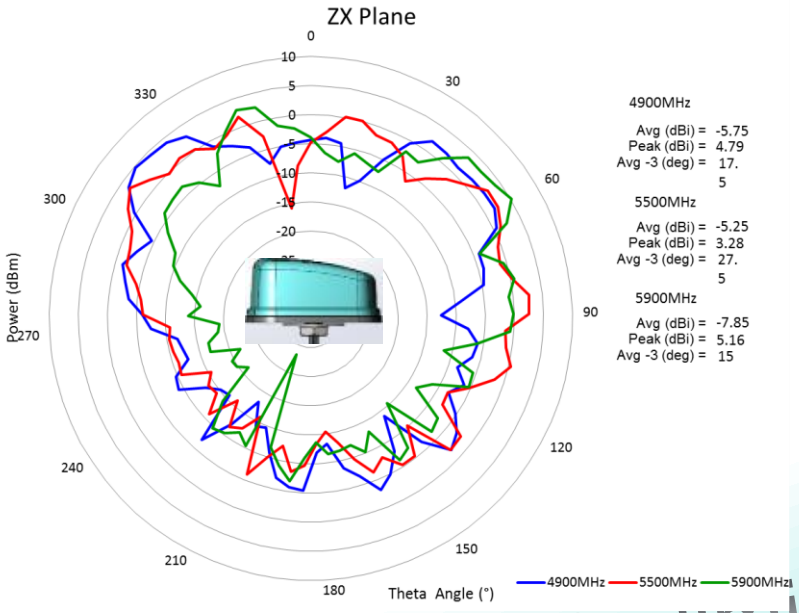
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WiFi3 antenna X-Y plane radiation pattern at WiFi high band**



WiFi3 antenna Z-X plane radiation pattern at WiFi high band**



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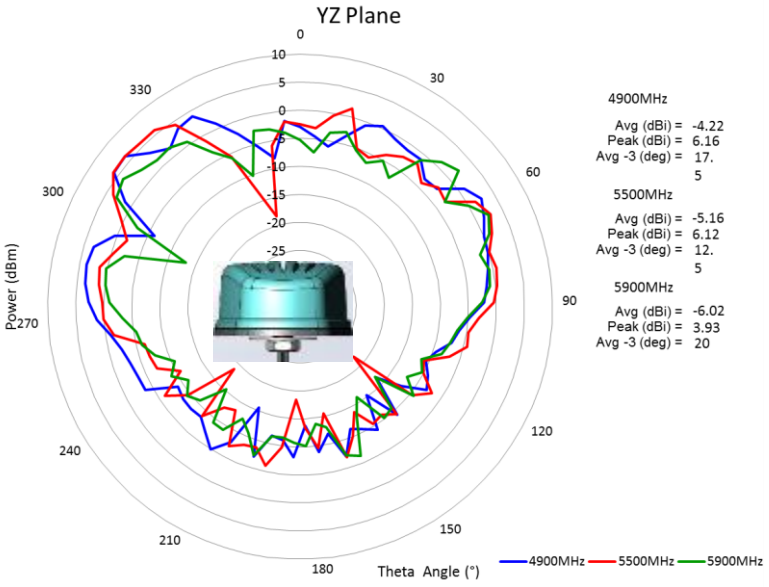
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WiFi3 antenna Y-Z plane radiation pattern at WiFi high band**



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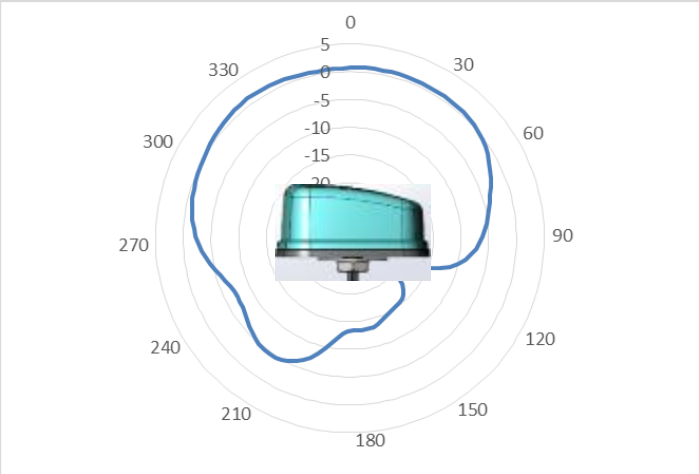
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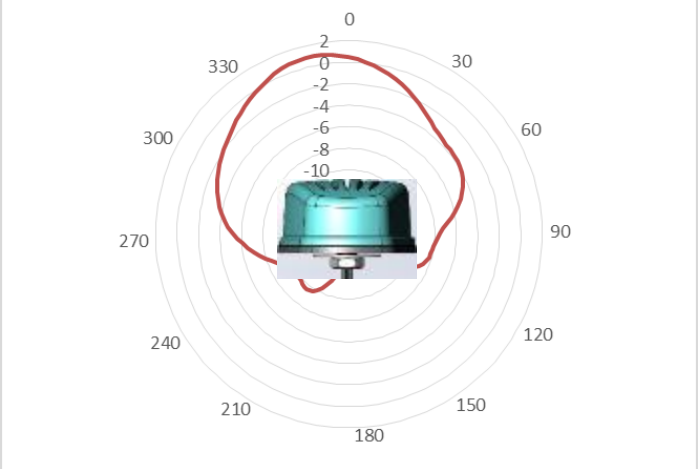
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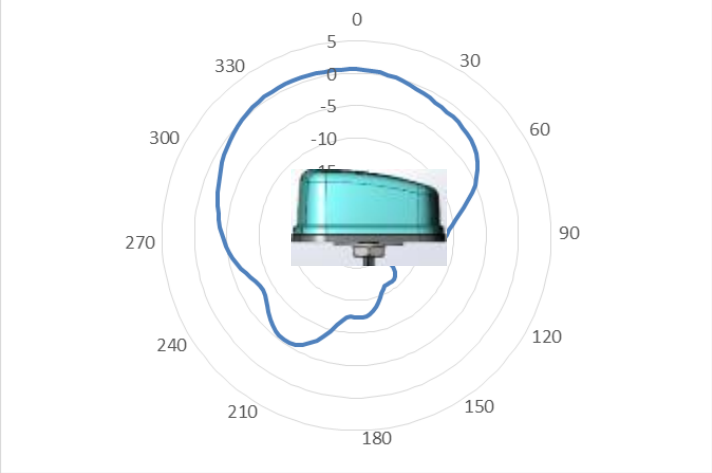
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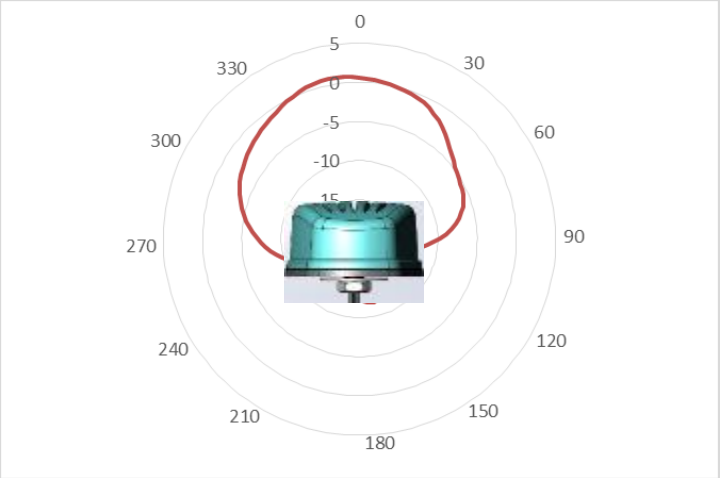
GPS antenna, BD2 RHCP patterns, in free space*





GPS antenna, GPS & Galileo RHCP patterns, in free space*





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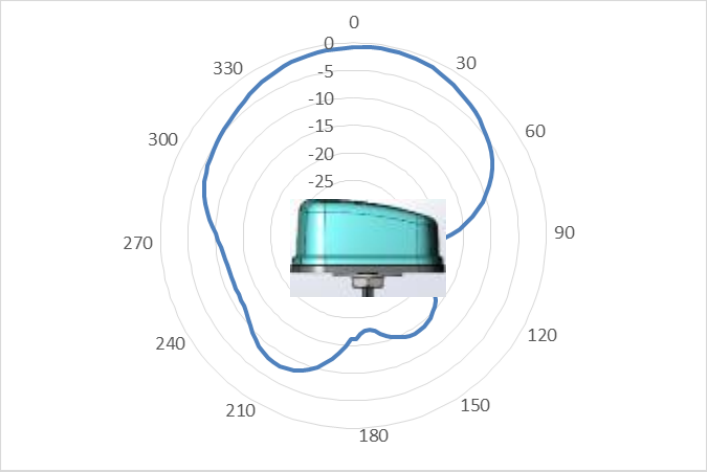
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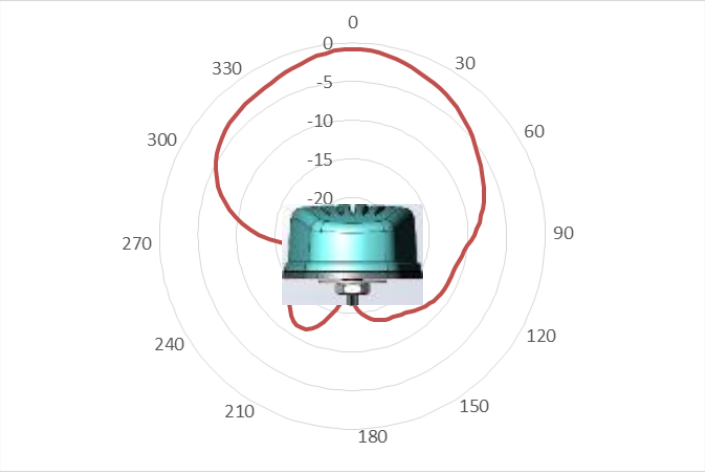
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CHARTS

GPS antenna, GLONASS RHCP patterns, in free space*





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PACKAGING

One antenna pack in one PE bag, 6 antennae in one box

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