

**Features:**

- Supports MIMO Cellular LTE 698-960/1695-2170/2300-2700/2900-3600MHz
- Supports WiFi and DSRC 2400-2500MHz/4900-5925MHz
- Supports Beidou, GPS, Galileo, GLONASS
- Direct Mount and optional Magnetic Mount features

Applications:

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

All dimensions are in mm / inches

Issue: 2105

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

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

Preliminary



ELECTRICAL SPECIFICATIONS

Frequency (LTE) (3 ports)	698 -960 / 1710 –2690 MHz	
Frequency (WiFi&DSRC) (1 port)	2400 –2500 / 4900 –5925 MHz	
Frequency (GNSS) (2 ports)	1561.098±2.046/ 1575.42±1.023/ 1602.5625±4 MHz	
Nominal Impedance	50 Ω	
VSWR (3G)**	< 2:1	
VSWR (WiFi&DSRC)**	< 2:1	
Average Peak Gain* (3G antenna, Low band)	2.8 dBi	
Average Peak Gain* (3G antenna, High band)	5 dBi	
Average Peak Gain* (WiFi antenna, Low band)	5.5 dBi	
Average Peak Gain* (WiFi antenna, High band)	6 dBi	
Isolation LTE to LTE **	≤-8@698-960MHz ≤-12@1710-2690MHz dB	
Isolation LTE to WiFi**	≤-12@698-960MHz ≤-10@1710-2690MHz ≤-20@4900-5925MHz dB	
GPS 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	3-5 Vdc	
LNA and filter attenuation	@ 824 MHz	70 dB
	@ 960 MHz	65 dB
	@ 1710 MHz	60 dB
	@ 2170 MHz	65 dB

*Measured on 500mm GND plane and with 200mm cables

**In free space with 200mm cables

**Description: 3xMiMo LTE, 1xWiFi, 2xGNSS
Vehicle Mount Antenna****PART NUMBER: PANMB2GR1L1W2GD****Series: Panther****ELECTRICAL SPECIFICATIONS**

Connector type(s)	SMA-male
Cable type(s)	RG-58 (LTE and WiFi) / RG-174 (GPS)
Cable Length	200 mm

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**Description: 3xMiMo LTE, 1xWiFi, 2xGNSS
Vehicle Mount Antenna****PART NUMBER: PANMB2GR1L1W2GD****Series: Panther****MECHANICAL SPECIFICATIONS**

Plastic radome	ABS/PC Material UV Stabilized, UL-94HB
Color	Black
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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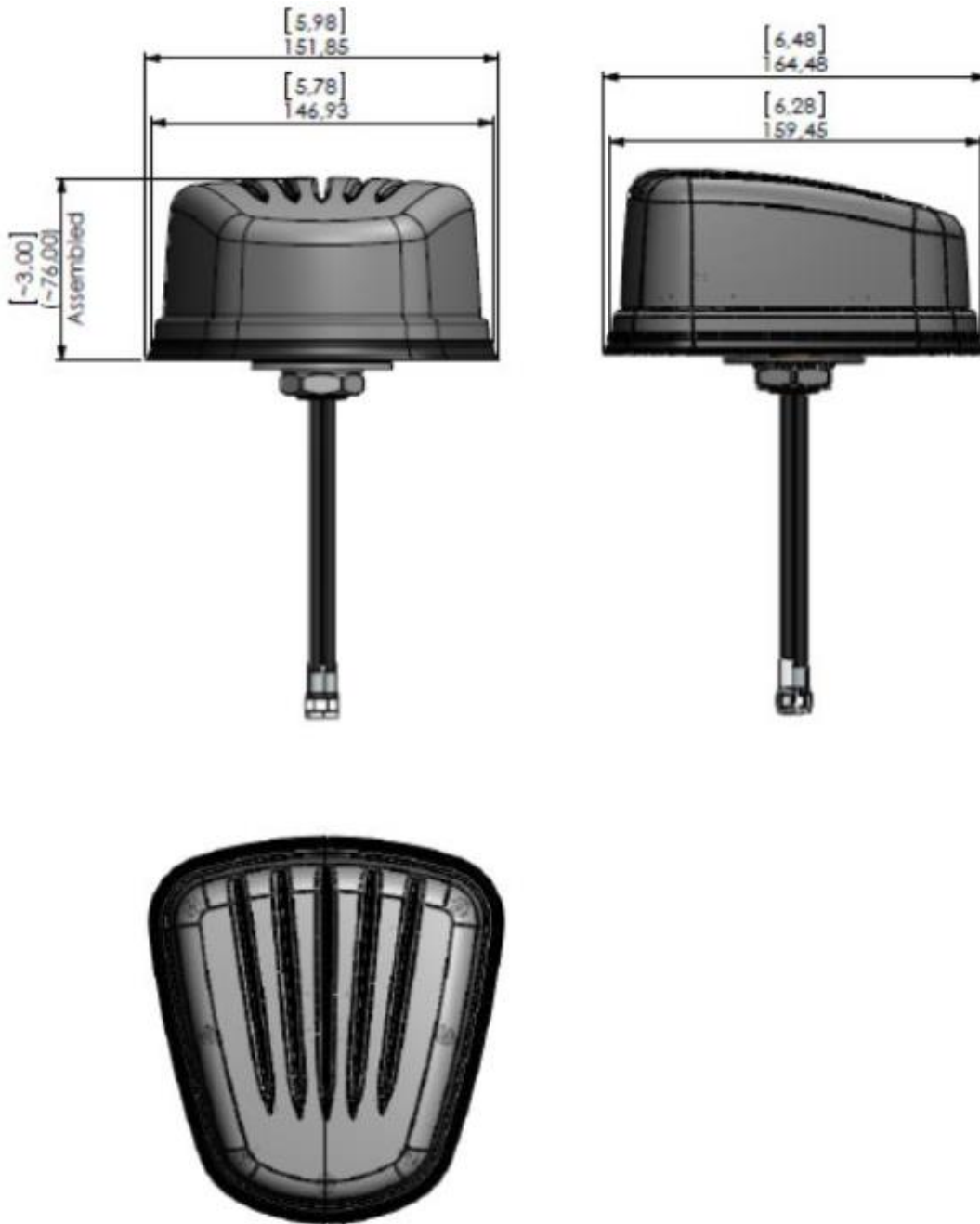
Preliminary

Description: 3xMiMo LTE, 1xWiFi, 2xGNSS
Vehicle Mount Antenna

PART NUMBER: PANMB2GR1L1W2GD

Series: Panther

MECHANICAL DRAWING



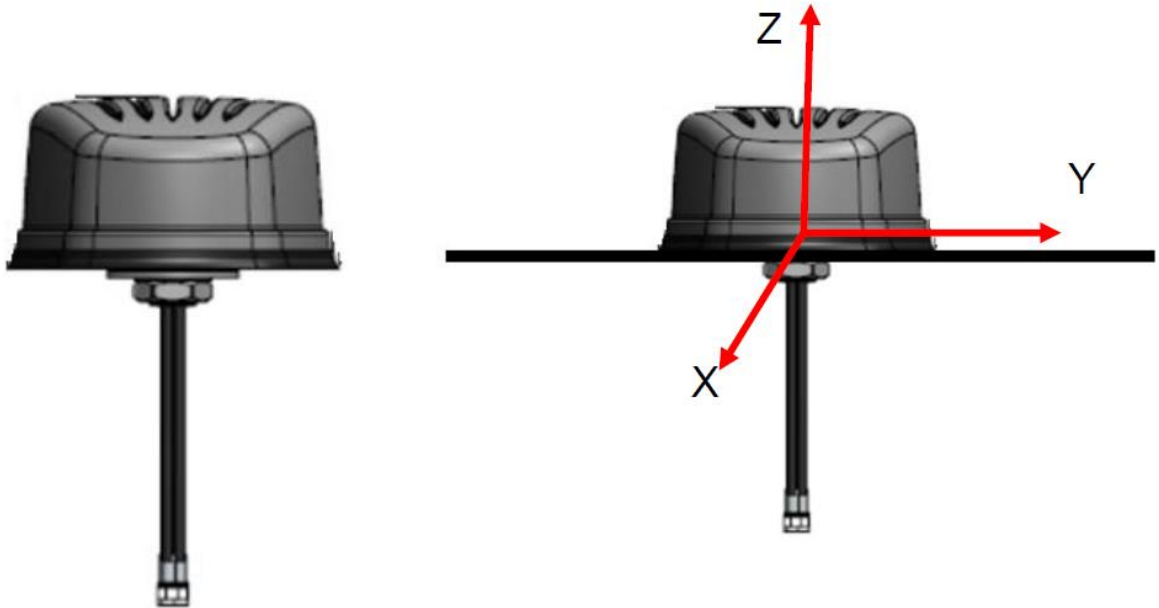
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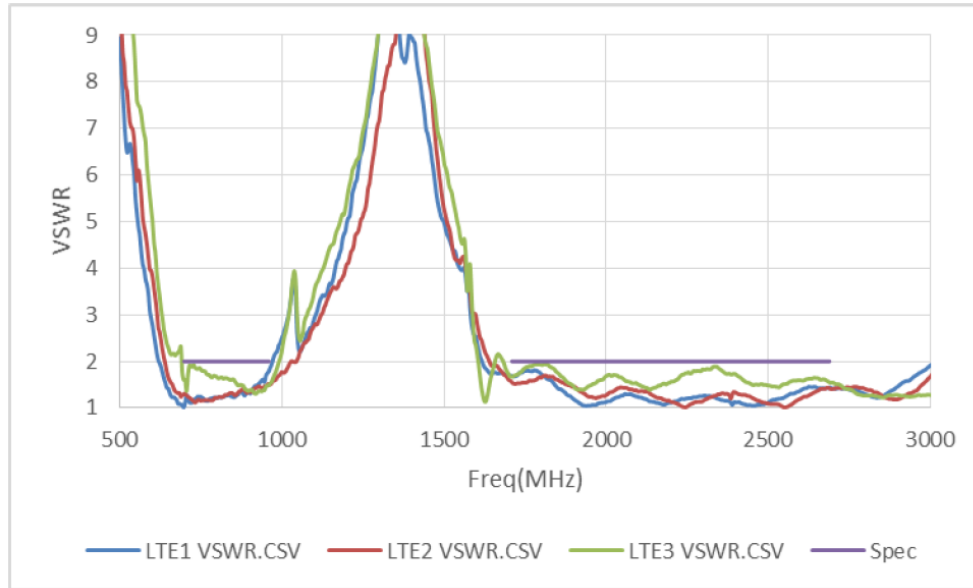
**Description: 3xMiMo LTE, 1xWiFi, 2xGNSS
Vehicle Mount Antenna****PART NUMBER: PANMB2GR1L1W2GD****Series: Panther****TEST SETUP**

For VSWR, test in free space with 200mm cables

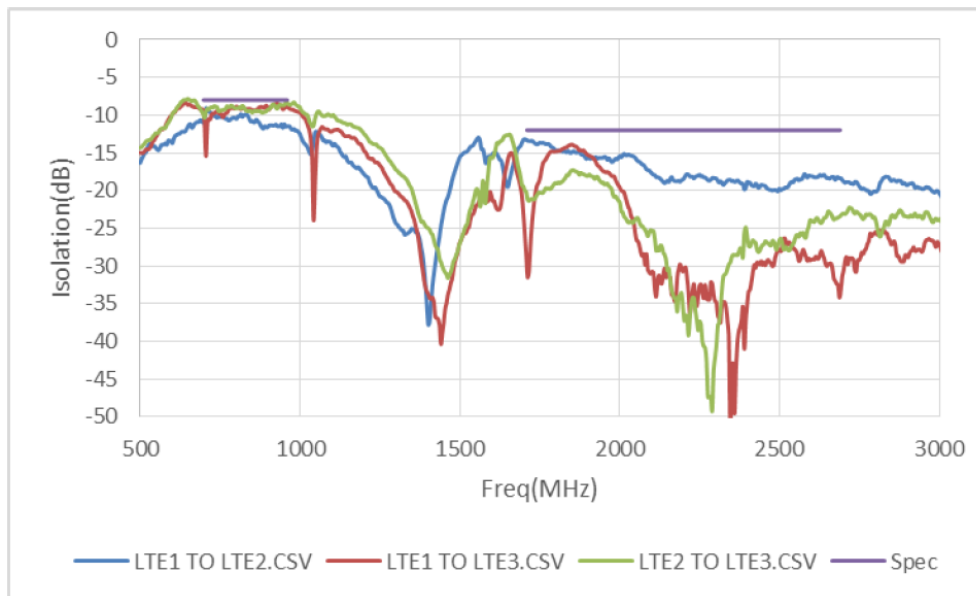
For radiation performance, test on 500mm GND plane with 200mm cables

CHARTS

VSWR in free space, LTE antennas**



Isolation in free space, LTE antennas**



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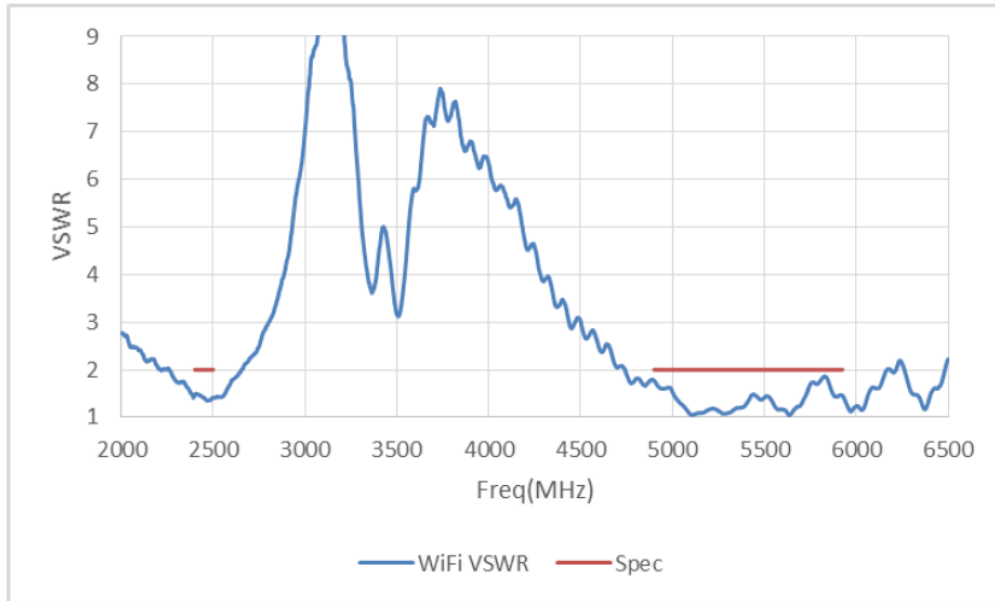
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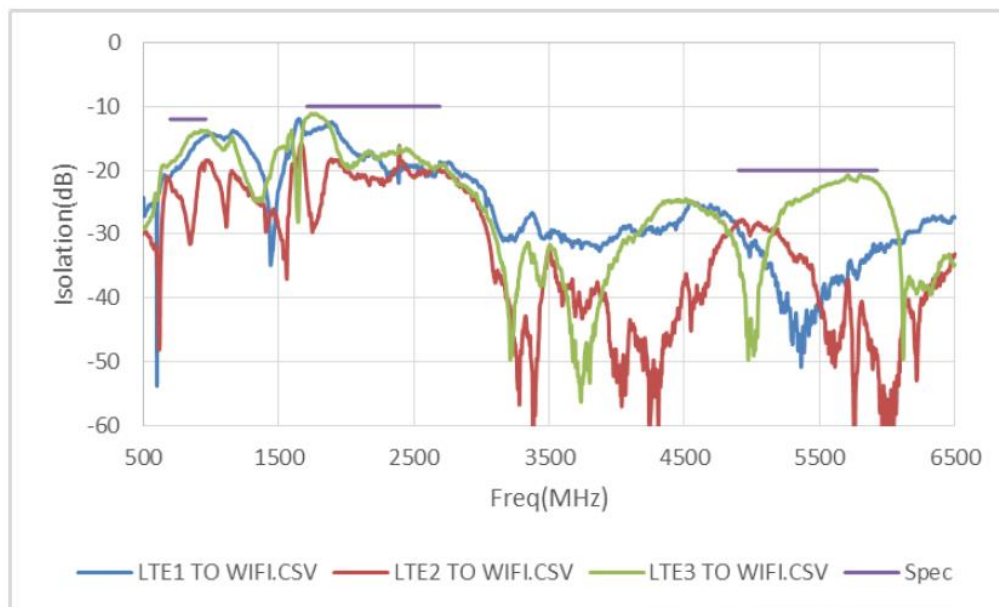
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CHARTS

VSWR in free space, WiFi antennas**



Isolation in free space, LTE antennas to WiFi antenna**



Issue: 2105

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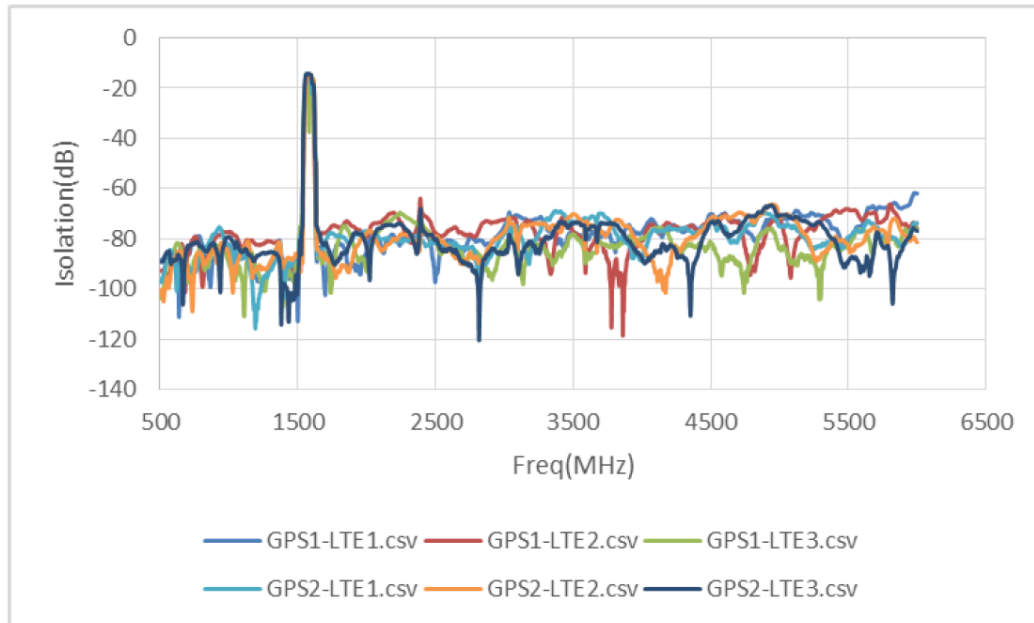
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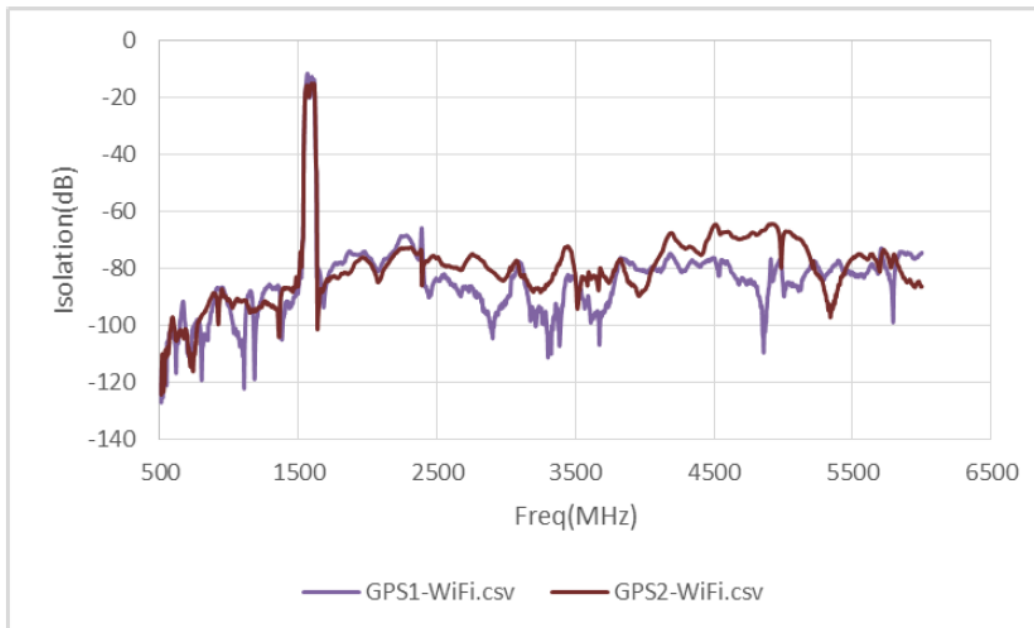
Preliminary

CHARTS

Isolation in free space, GPS to LTE antennas**



Isolation in free space, GPS to WiFi antenna**



Issue: 2105

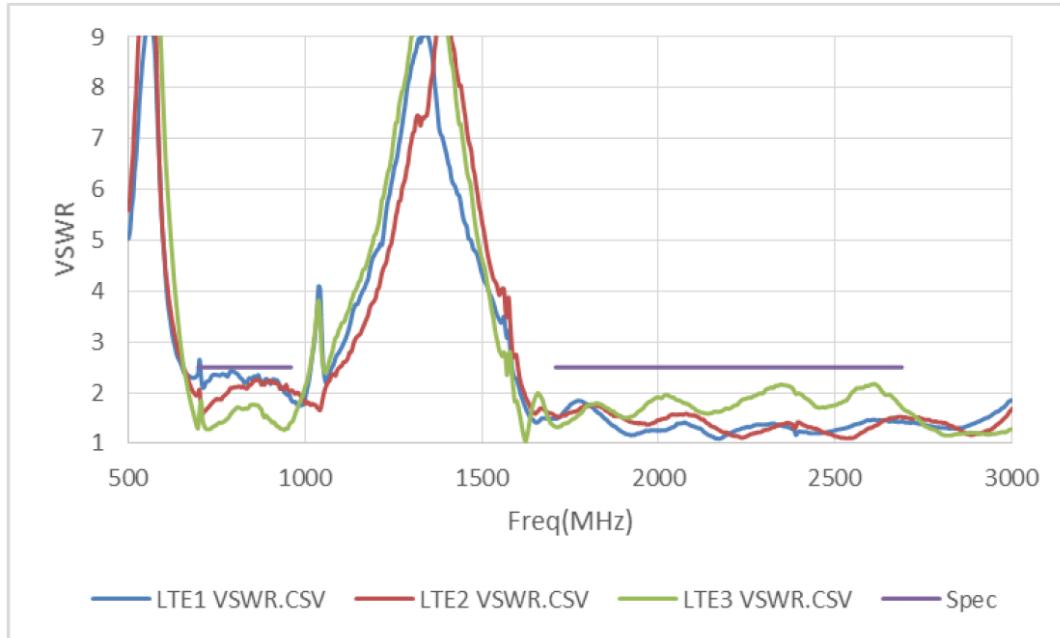
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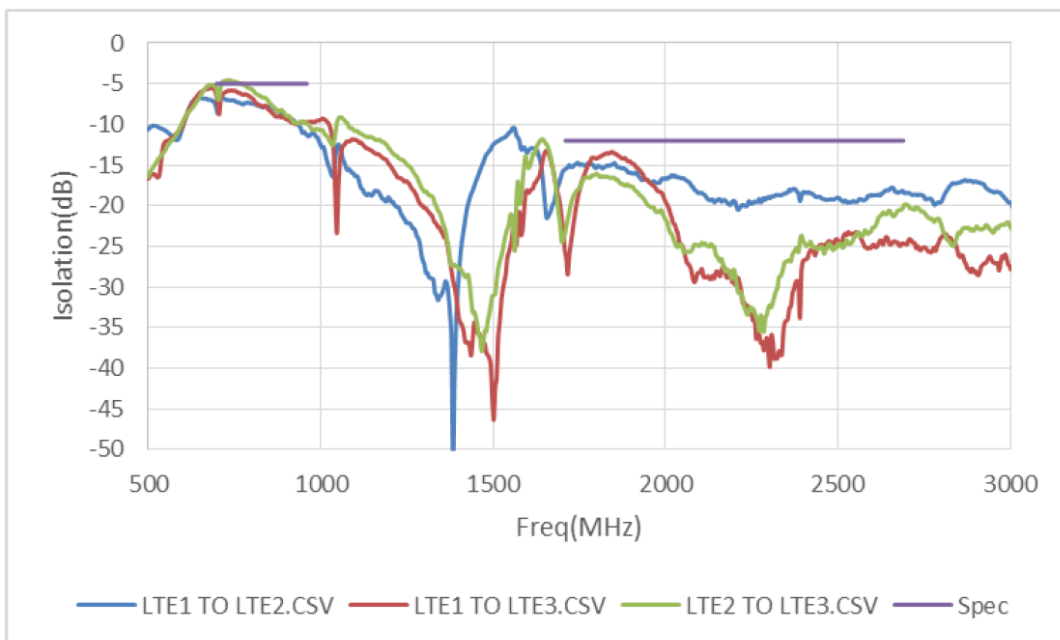
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CHARTS

VSWR on ground plane, 3G antennas*



Isolation on ground plane, LTE antennas*



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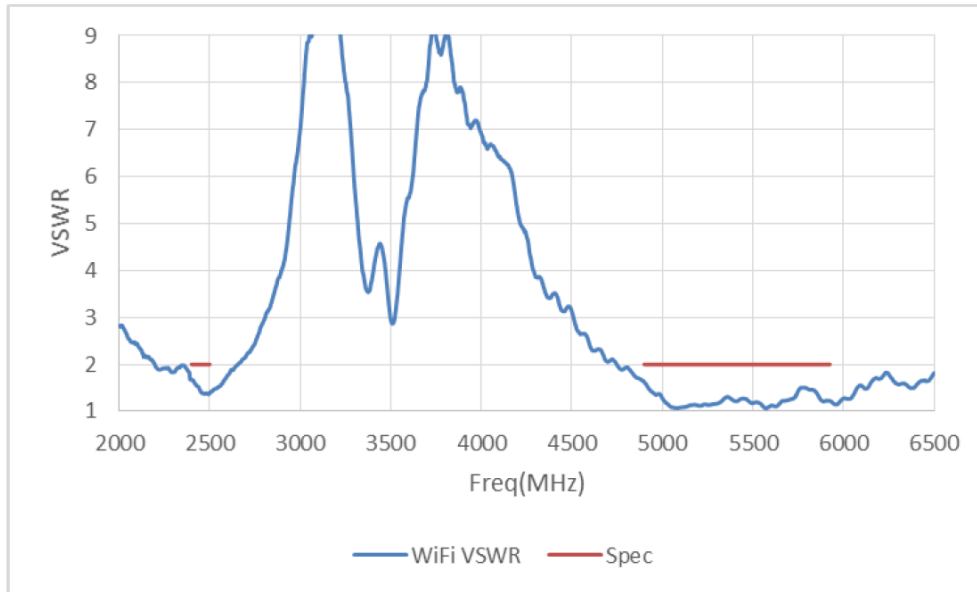
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Vehicle Mount Antenna

PART NUMBER: PANMB2GR1L1W2GD

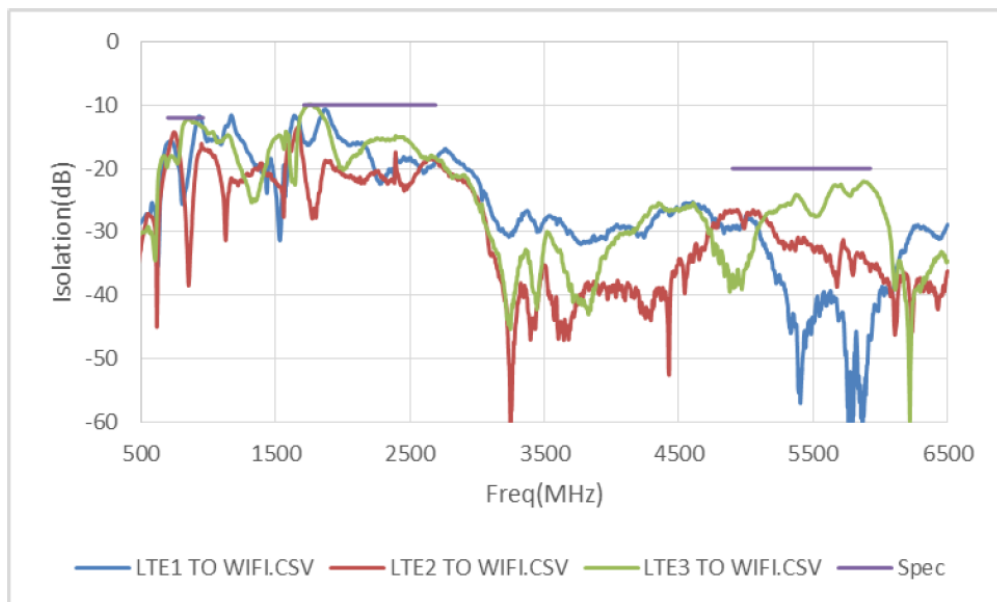
Series: Panther

CHARTS

VSWR on ground plane, WiFi antennas**



Isolation on ground plane, LTE antennas to WiFi antenna**



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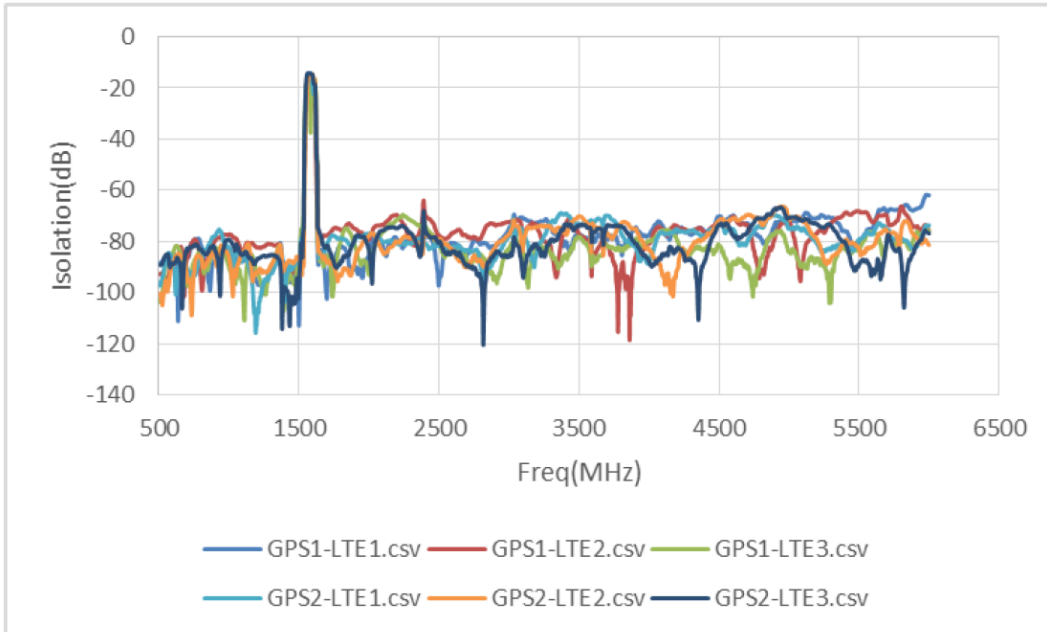
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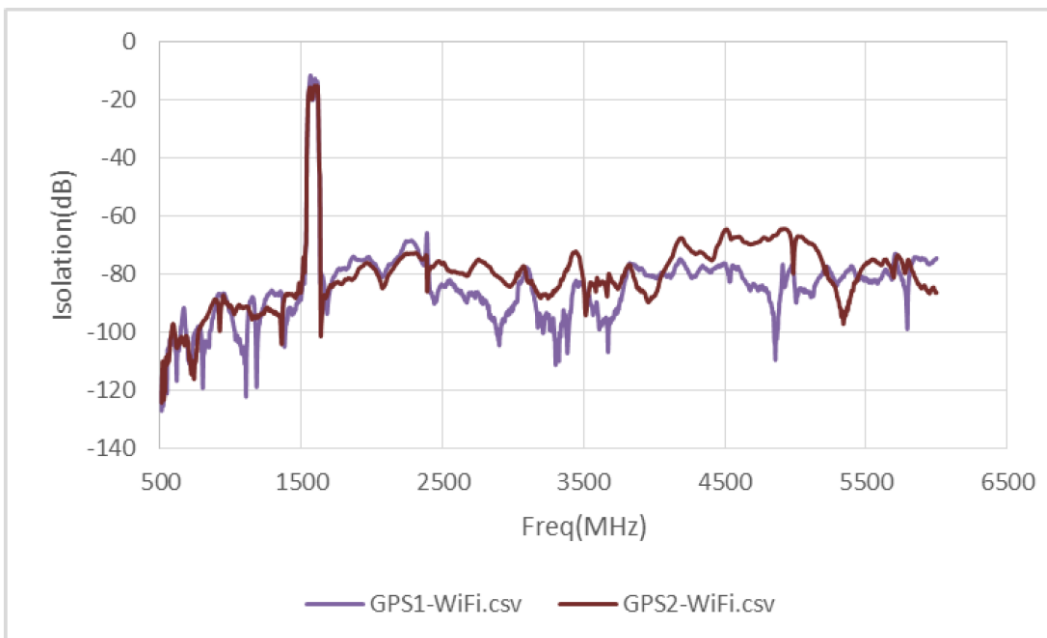
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CHARTS

Isolation on ground plane, GPS to LTE antennas*



Isolation on ground plane, GPS to WiFi antenna*



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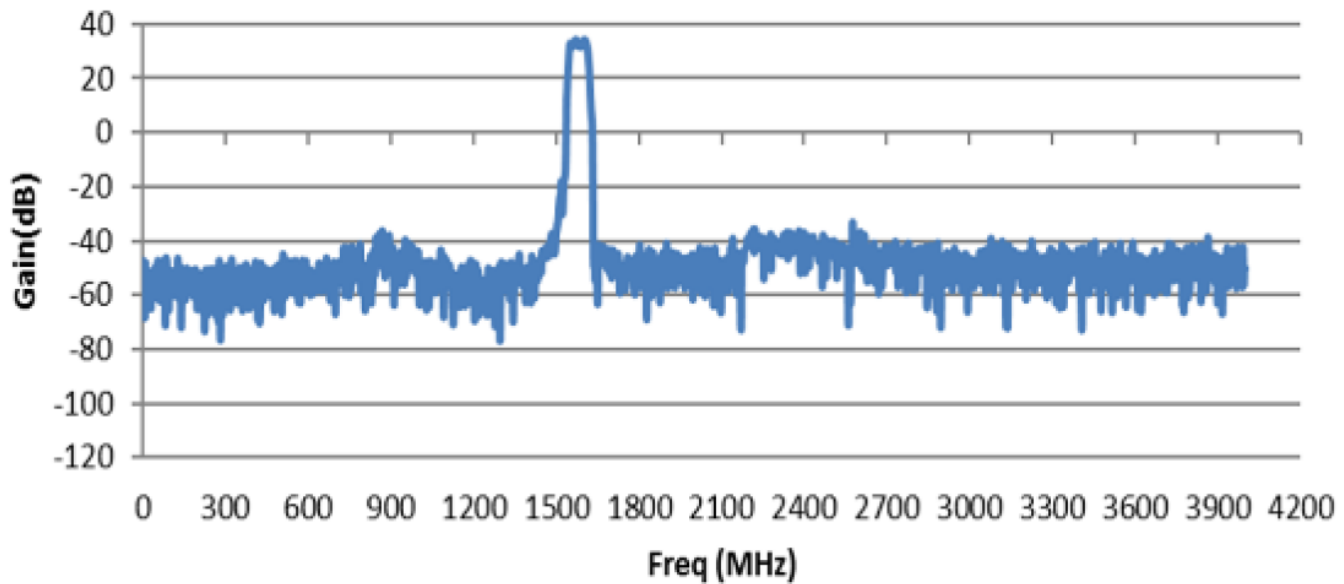
Description: 3xMiMo LTE, 1xWiFi, 2xGNSS
Vehicle Mount Antenna

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Series: Panther

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GNSS LNA performance



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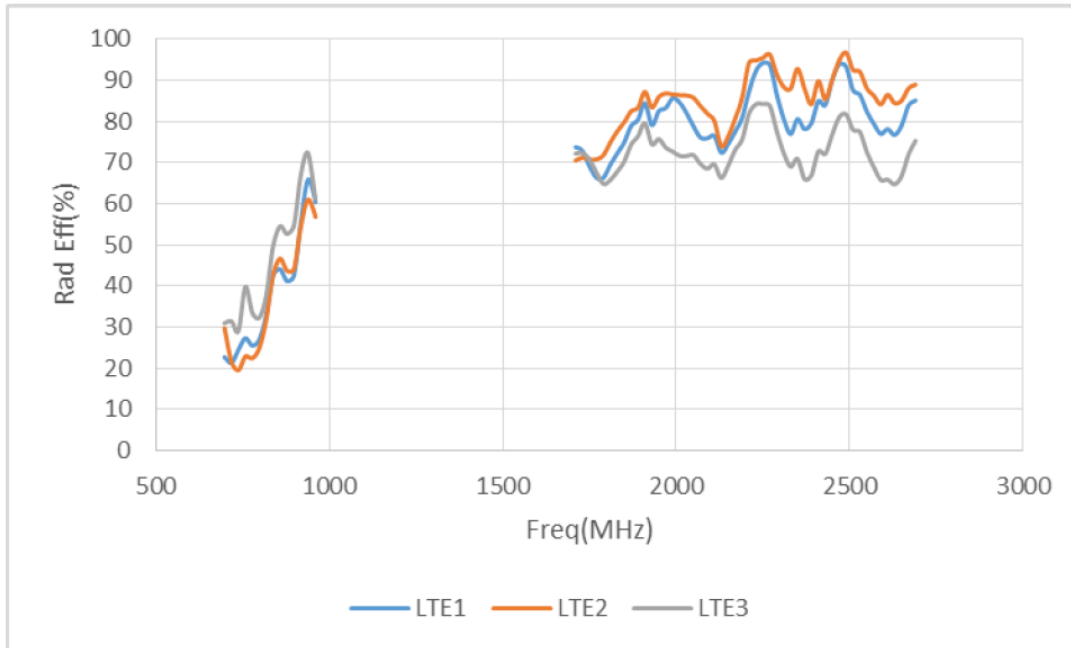
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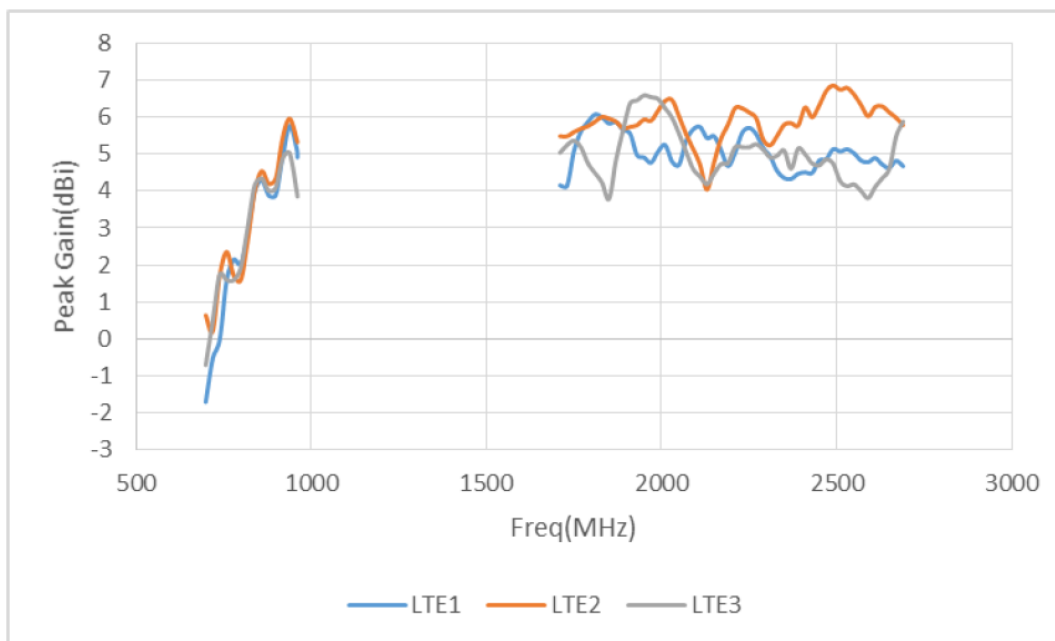
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CHARTS

LTE antenna total efficiency on ground plane**



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



Issue: 2105

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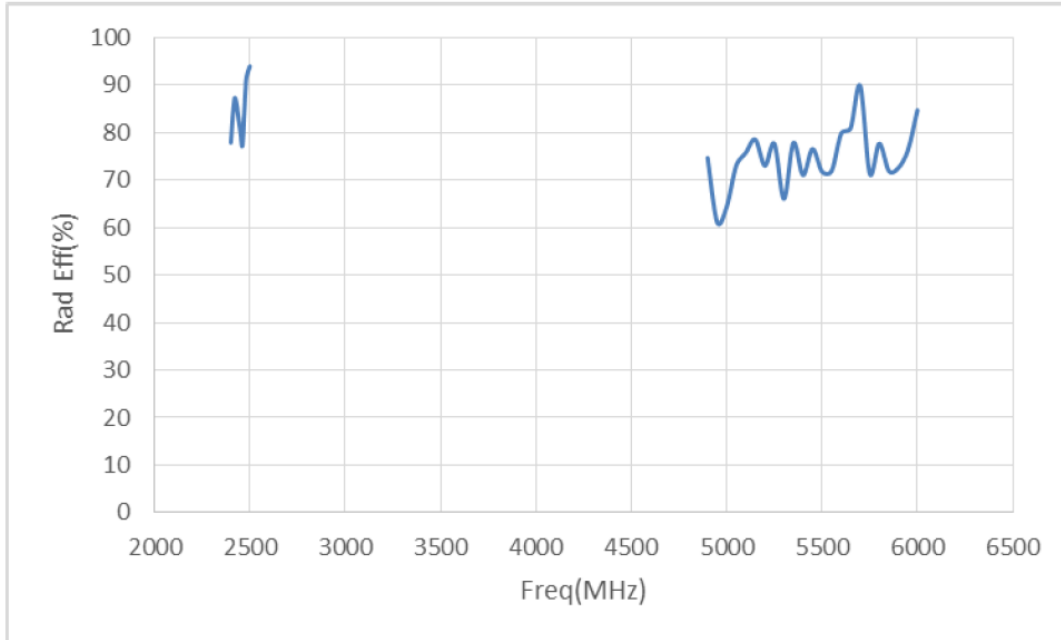
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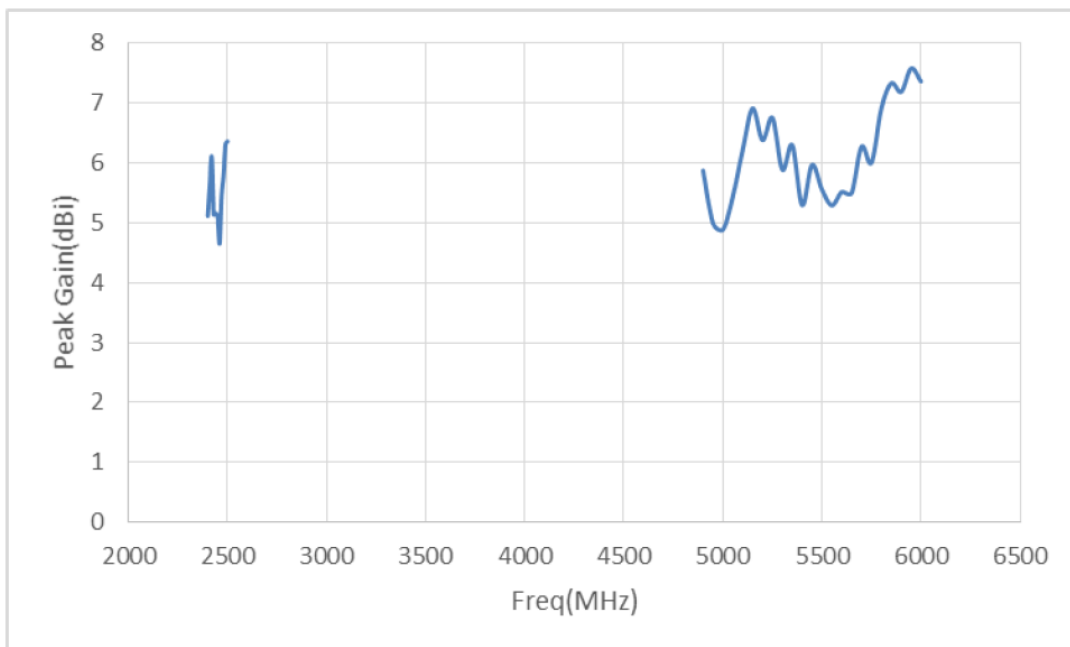
Series: Panther

CHARTS

WiFi antenna total efficiency on ground plane**



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



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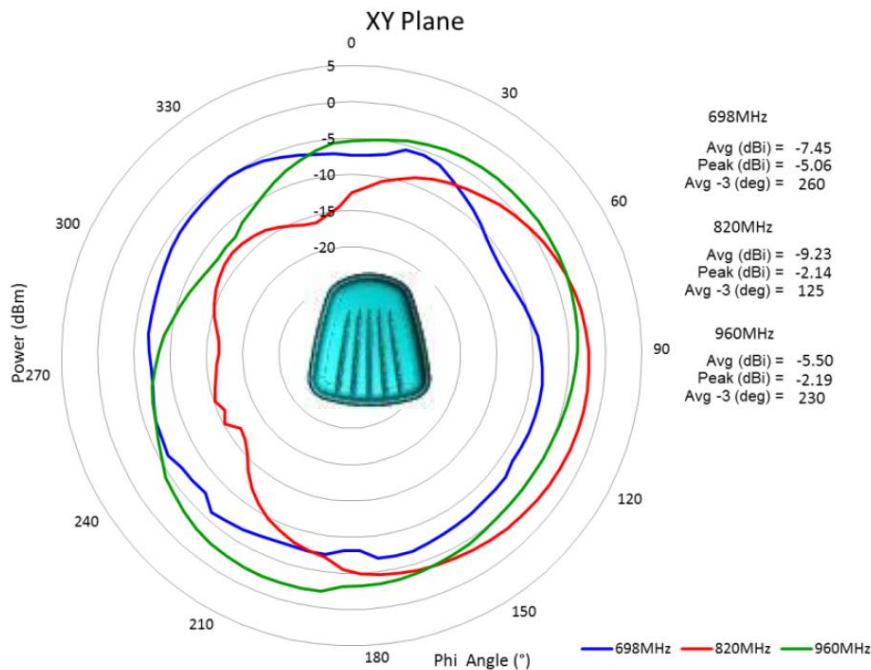
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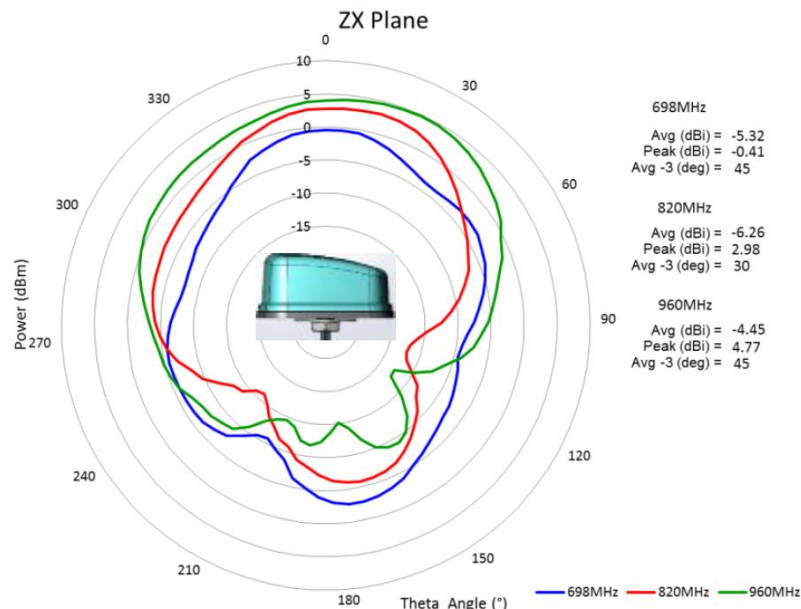
Series: Panther

CHARTS

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



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



Issue: 2105

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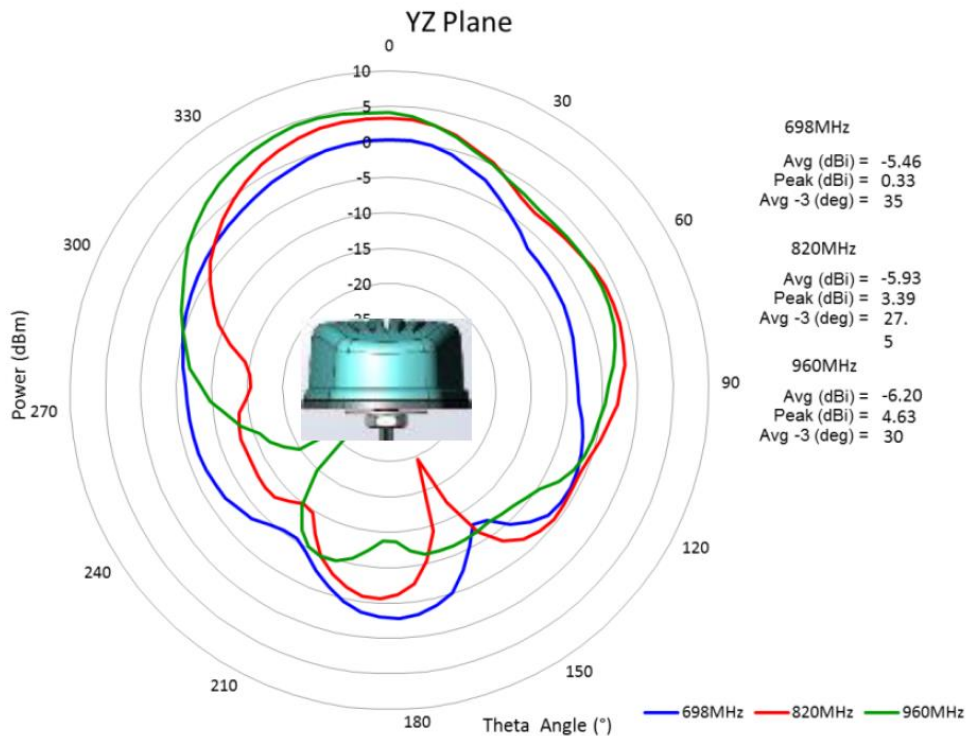
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LTE1 antenna Y-Z plane radiation pattern at LTE low band**



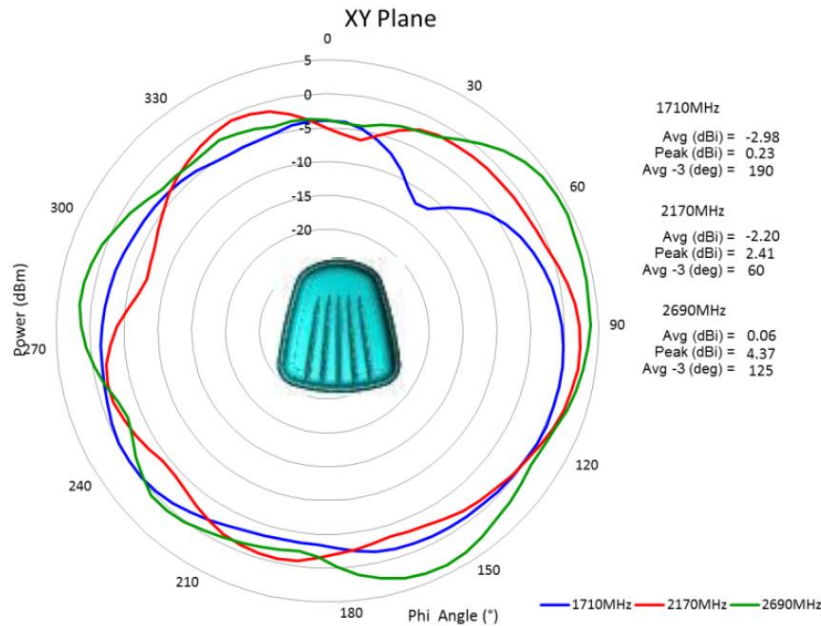
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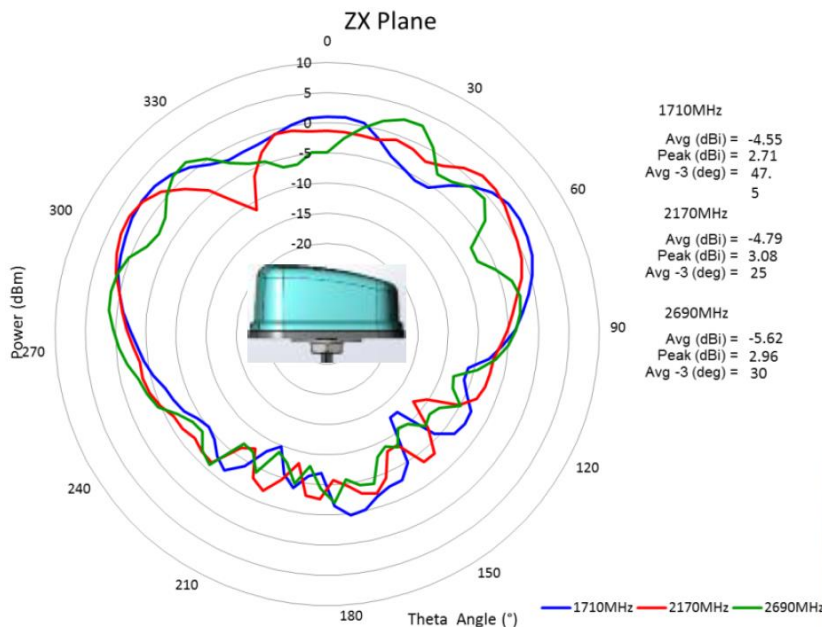
Series: Panther

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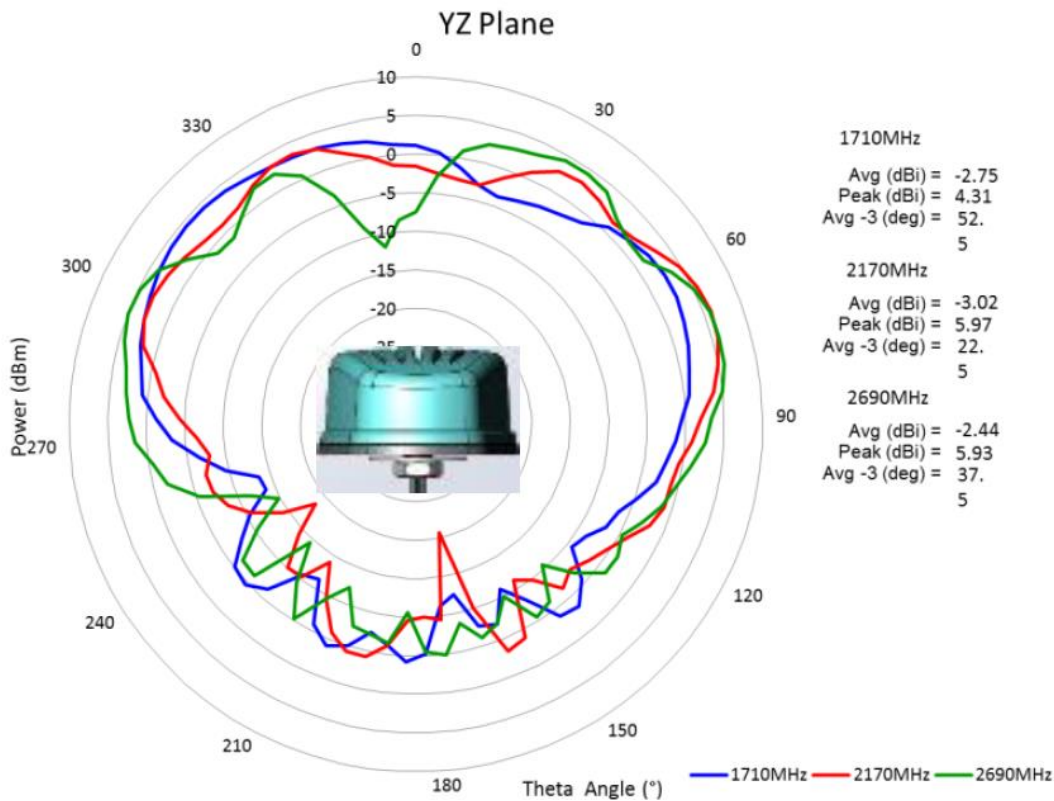
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LTE1 antenna Y-Z plane radiation pattern at LTE high band**



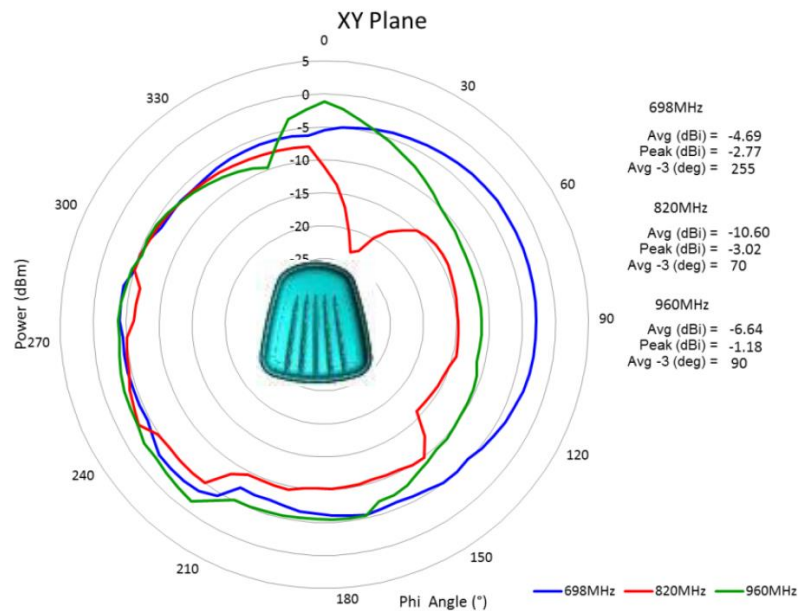
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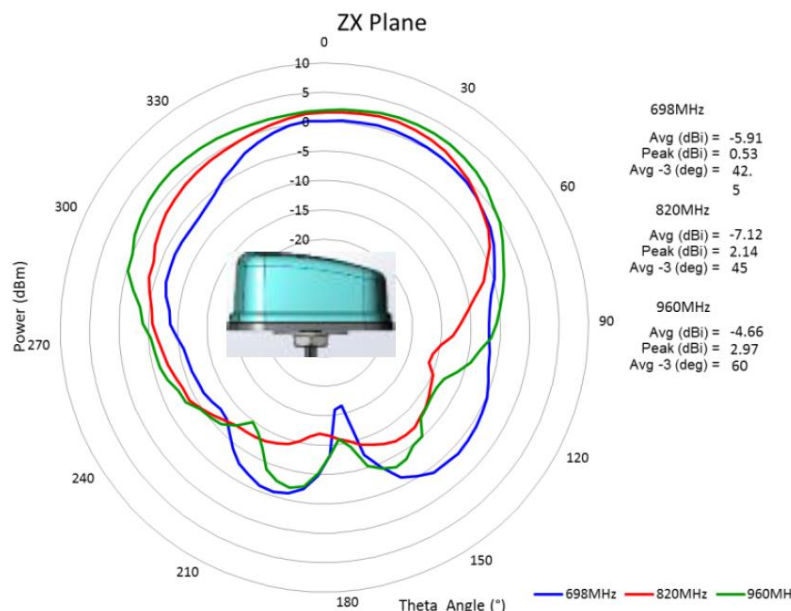
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CHARTS

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



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



Issue: 2105

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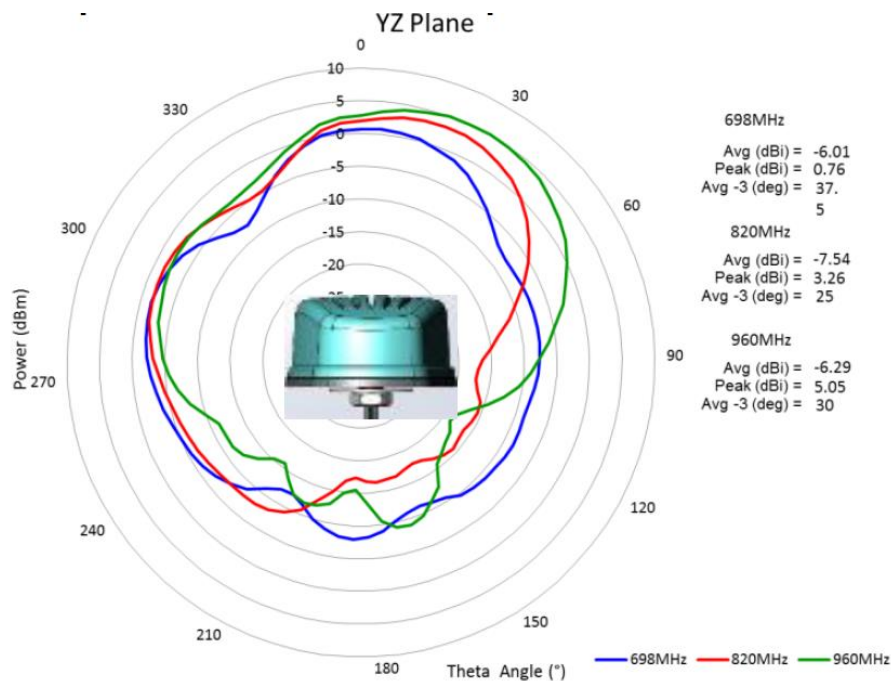
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LTE2 antenna Y-Z plane radiation pattern at LTE low band**



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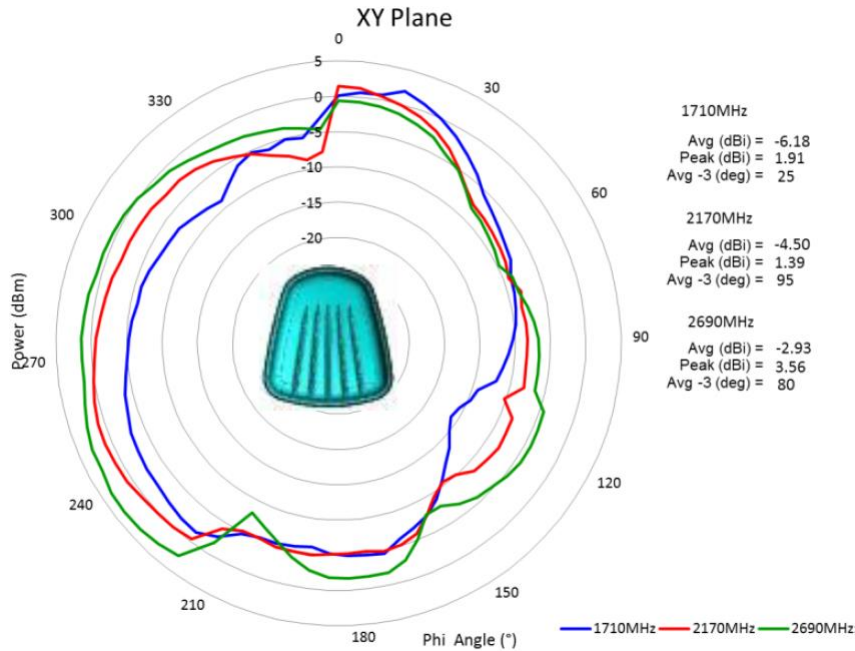
**Description: 3xMiMo LTE, 1xWiFi, 2xGNSS
Vehicle Mount Antenna**

PART NUMBER: PANMB2GR1L1W2GD

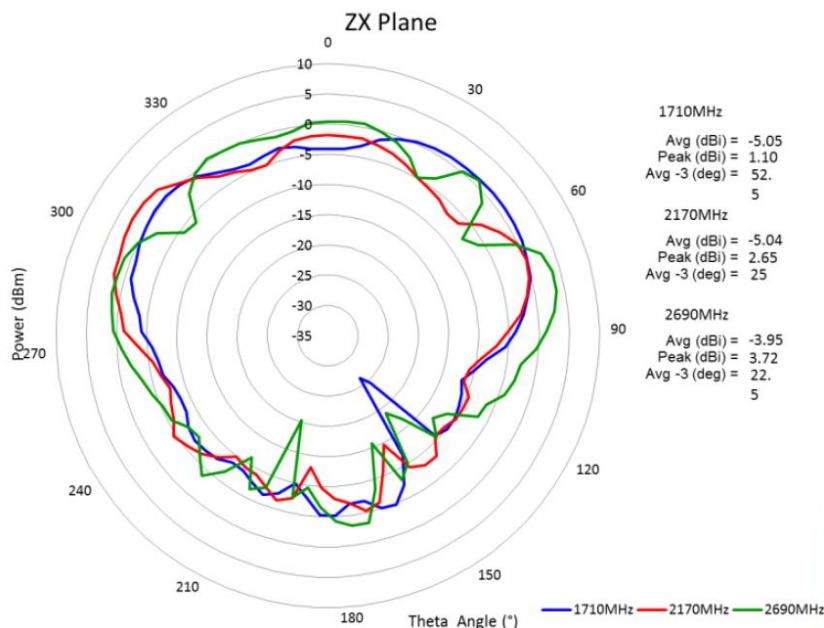
Series: Panther

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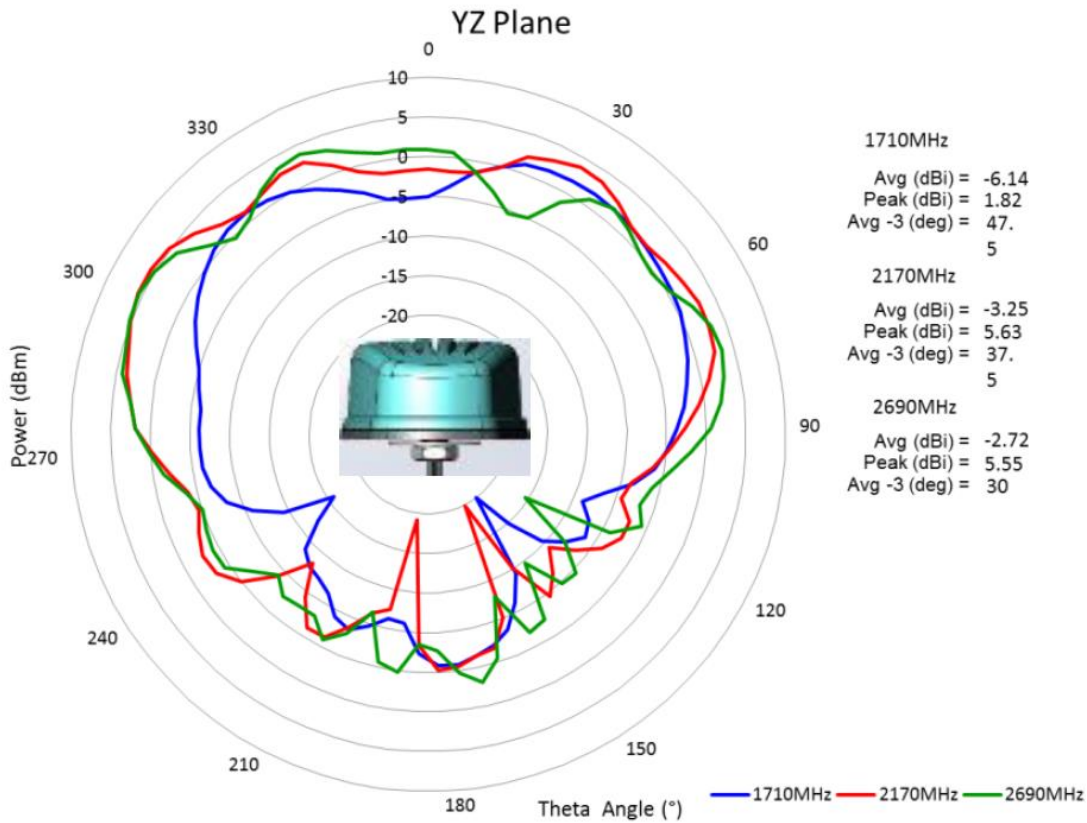
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LTE2 antenna Y-Z plane radiation pattern at LTE high band**



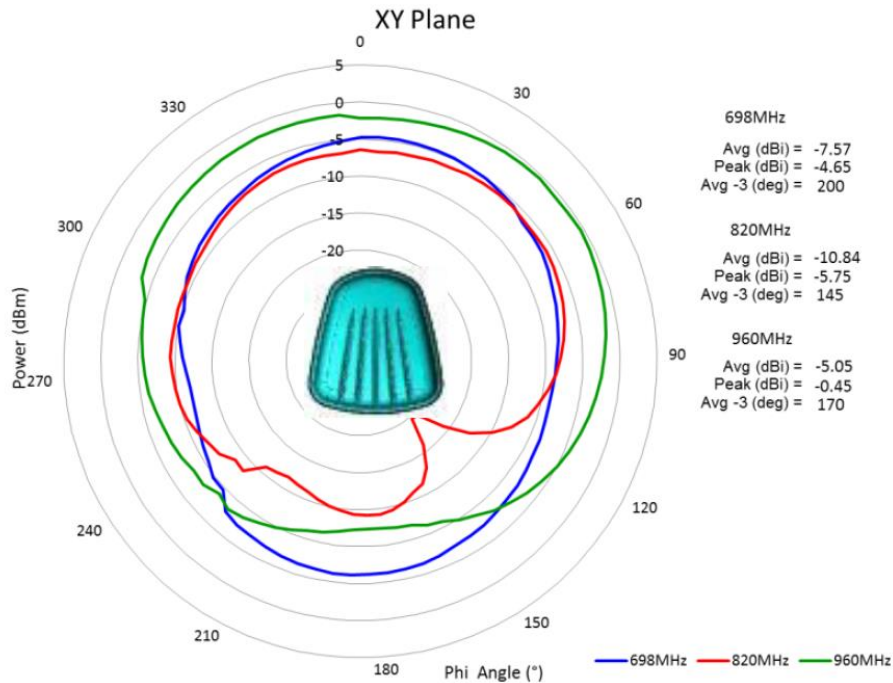
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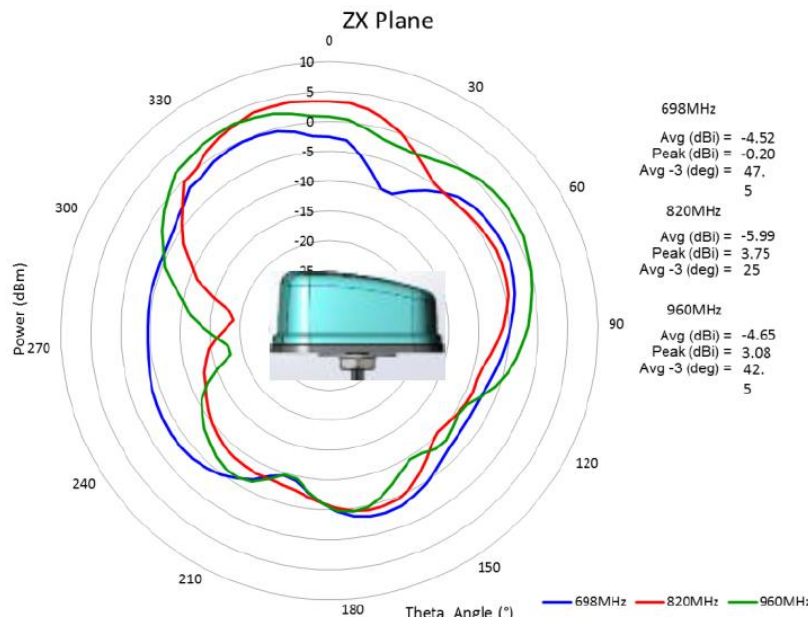
Series: Panther

CHARTS

LTE3 antenna X-Y plane radiation pattern at LTE low band**



LTE3 antenna Z-X plane radiation pattern at LTE low band**



Issue: 2105

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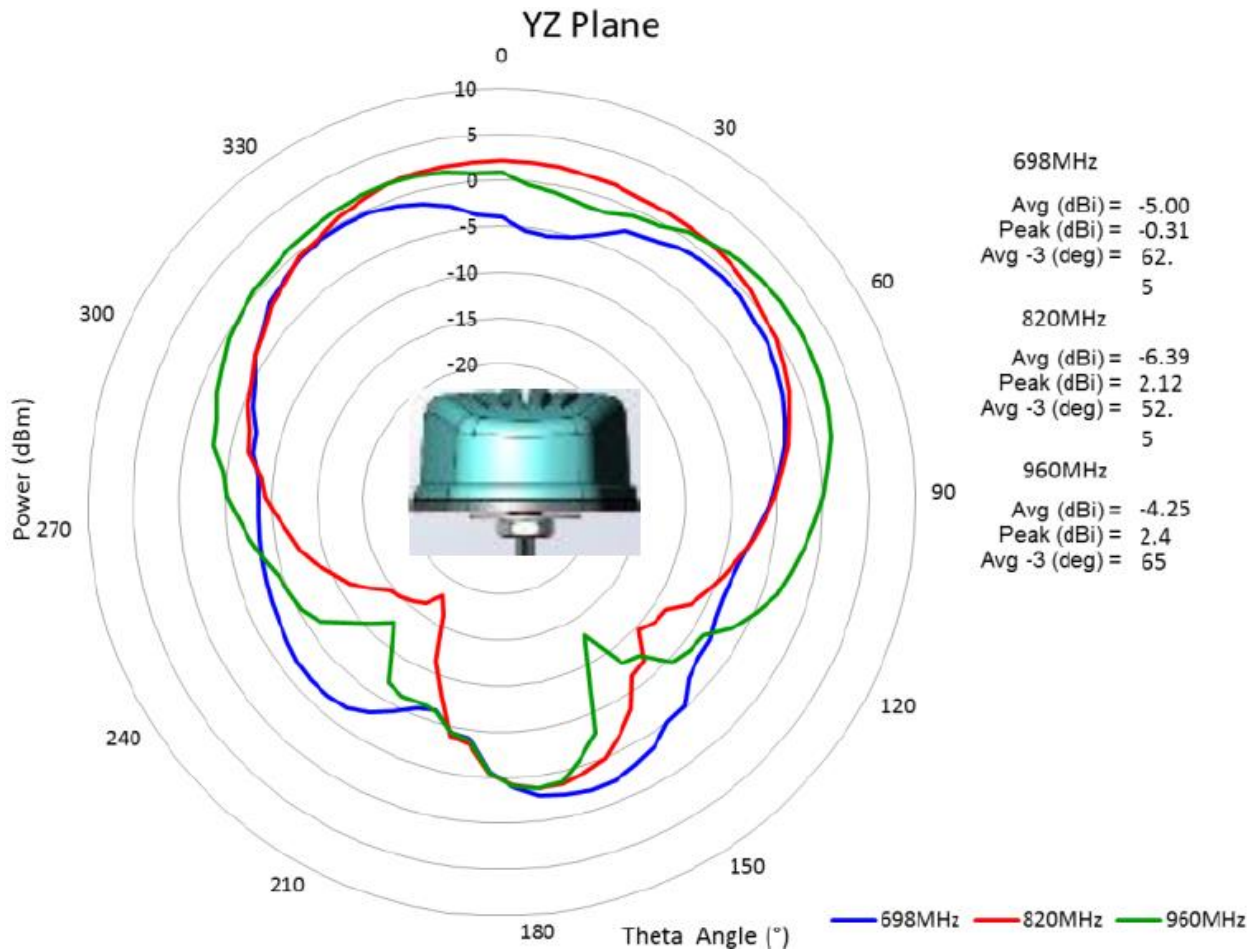
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CHARTS

LTE3 antenna Y-Z plane radiation pattern at LTE low band**



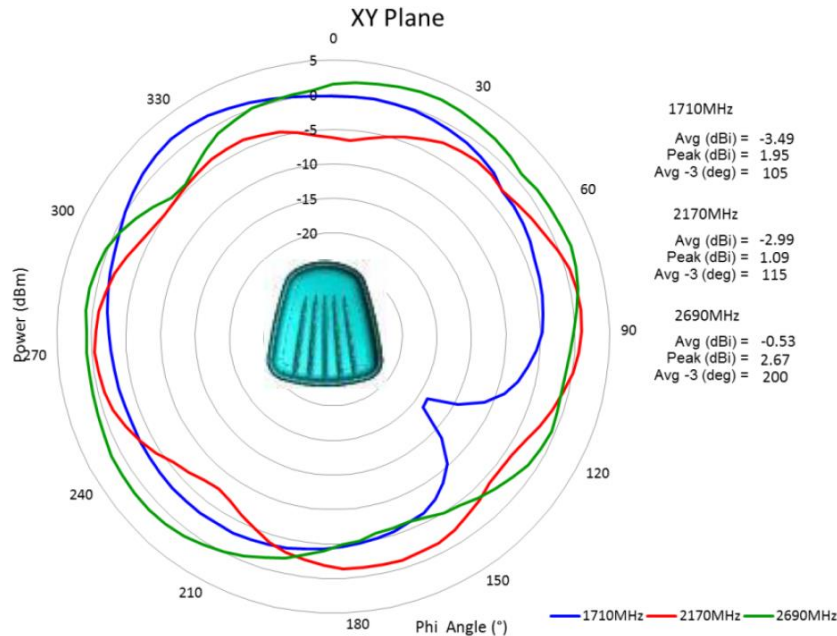
Description: 3xMiMo LTE, 1xWiFi, 2xGNSS Vehicle Mount Antenna

PART NUMBER: PANMB2GR1L1W2GD

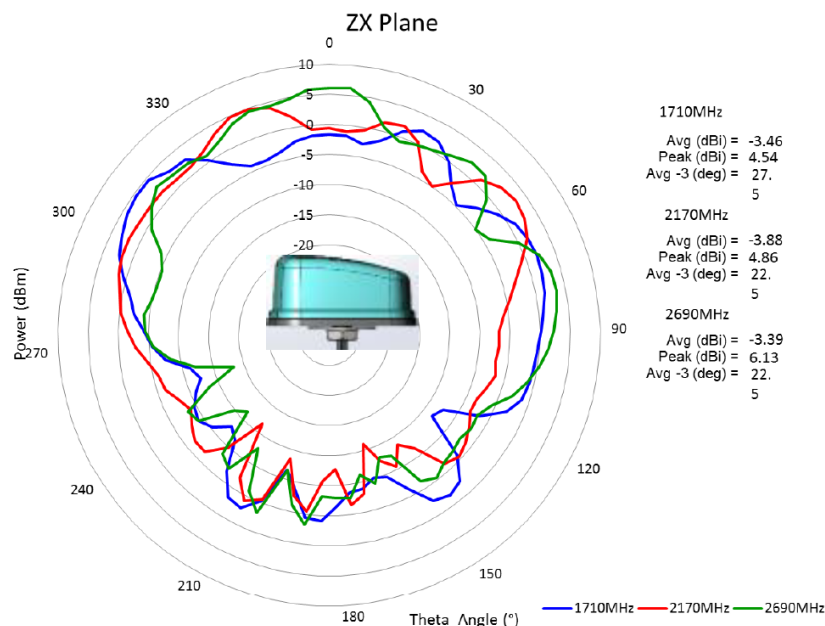
Series: Panther

CHARTS

LTE3 antenna X-Y plane radiation pattern at LTE high band**



LTE3 antenna Z-X plane radiation pattern at LTE high band**



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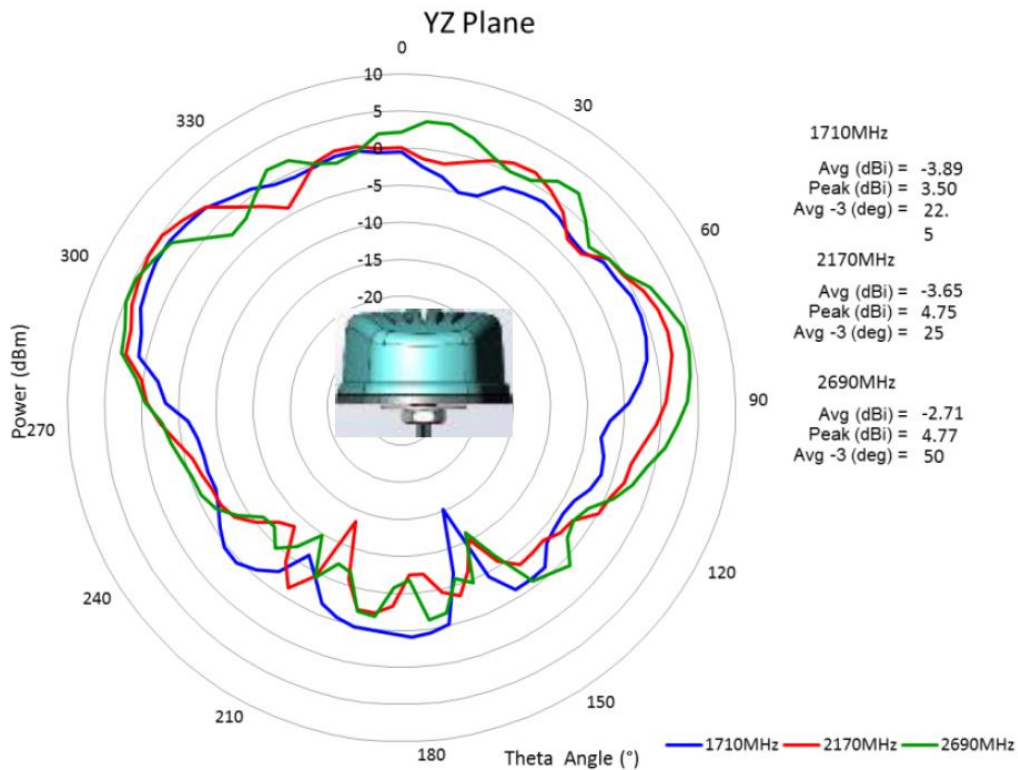
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LTE3 antenna Y-Z plane radiation pattern at LTE high band**



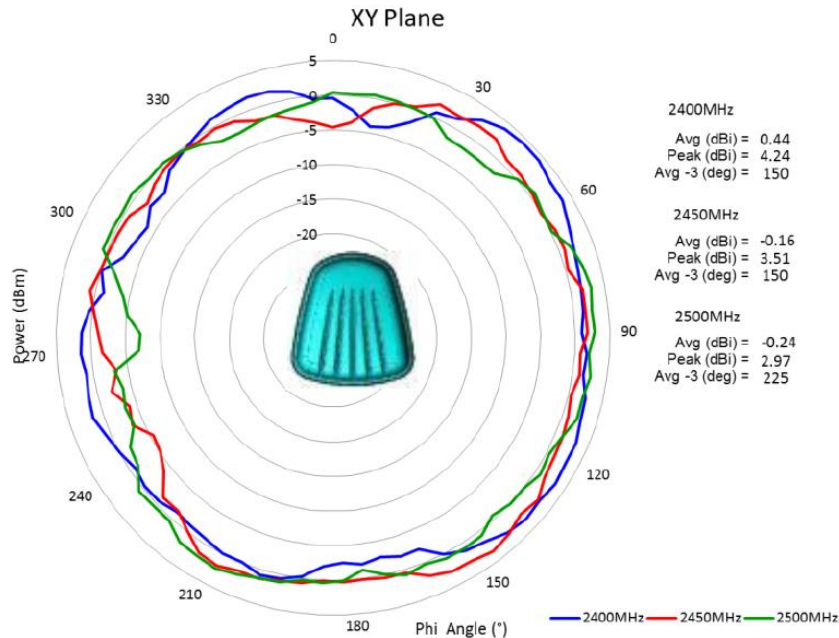
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Vehicle Mount Antenna**

PART NUMBER: PANMB2GR1L1W2GD

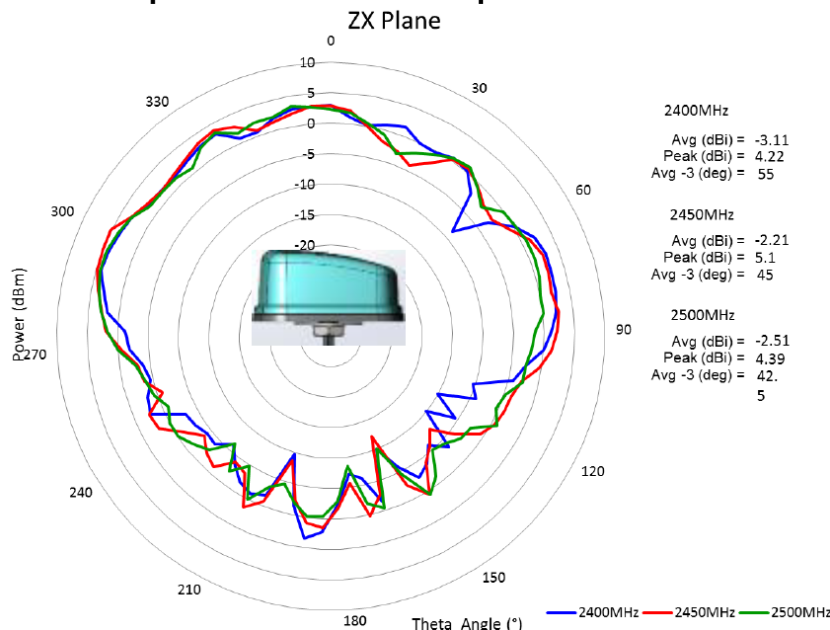
Series: Panther

CHARTS

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



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



Issue: 2105

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

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Preliminary

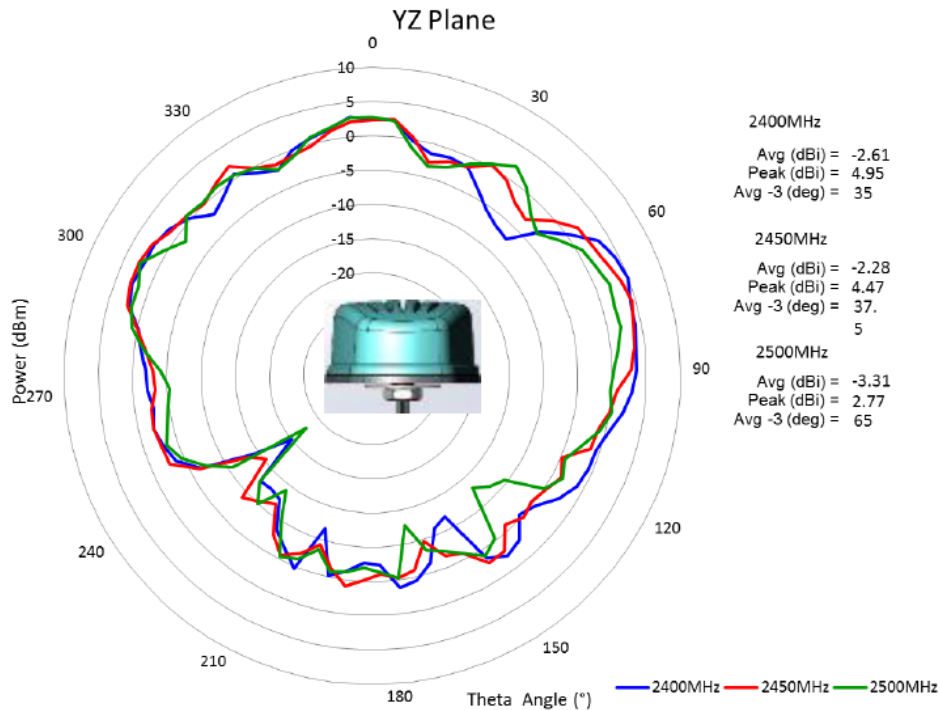
Description: 3xMiMo LTE, 1xWiFi, 2xGNSS
Vehicle Mount Antenna

PART NUMBER: PANMB2GR1L1W2GD

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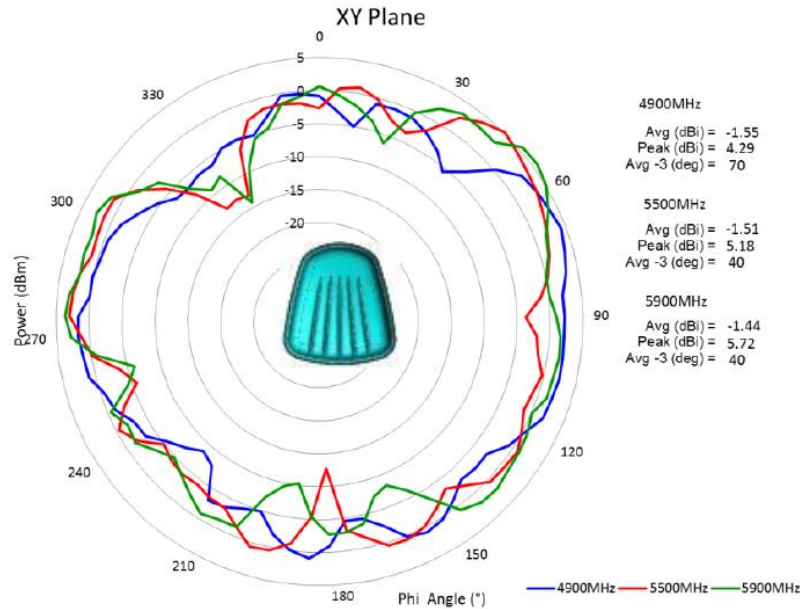
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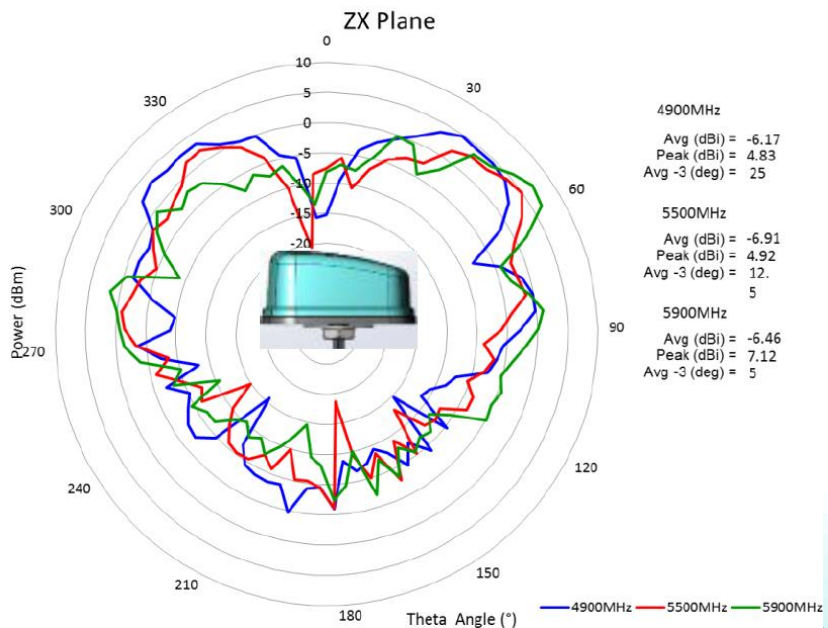
Preliminary

CHARTS

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



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



Issue: 2105

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

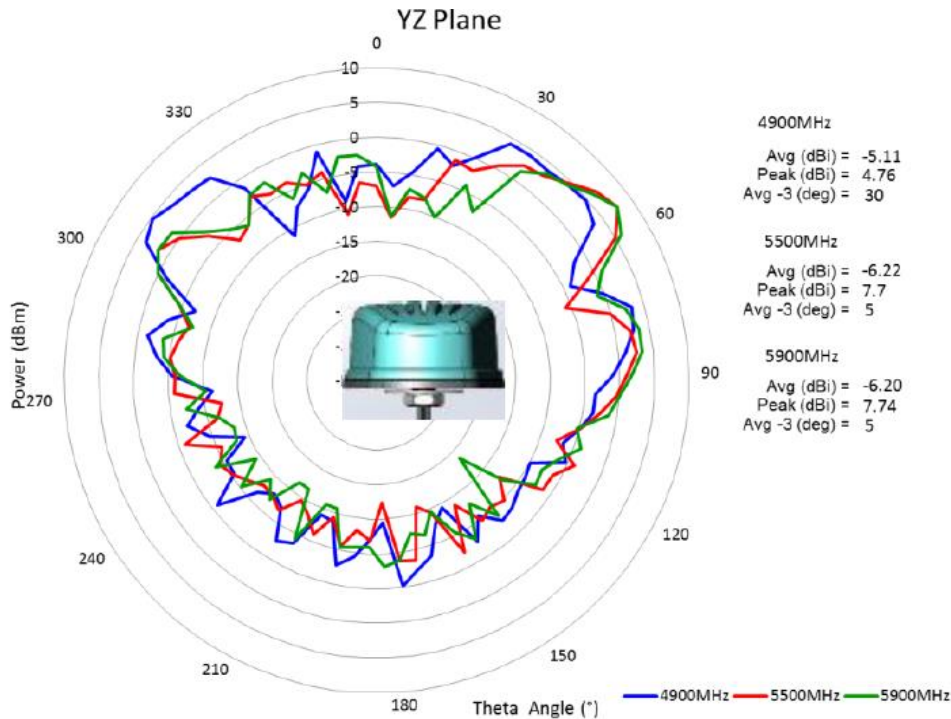
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Preliminary

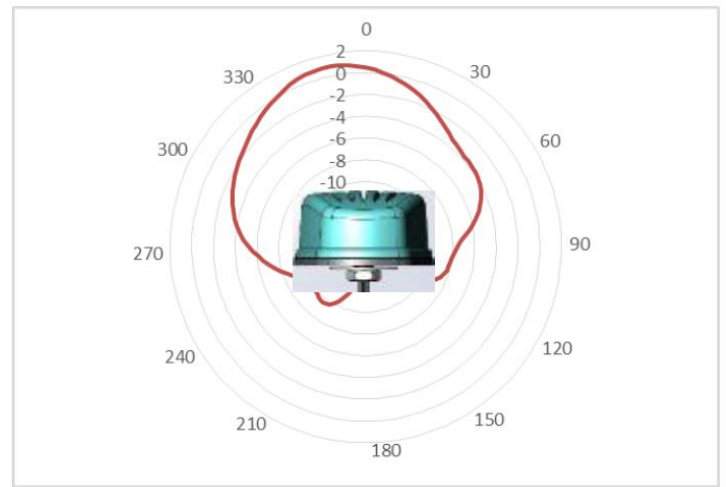
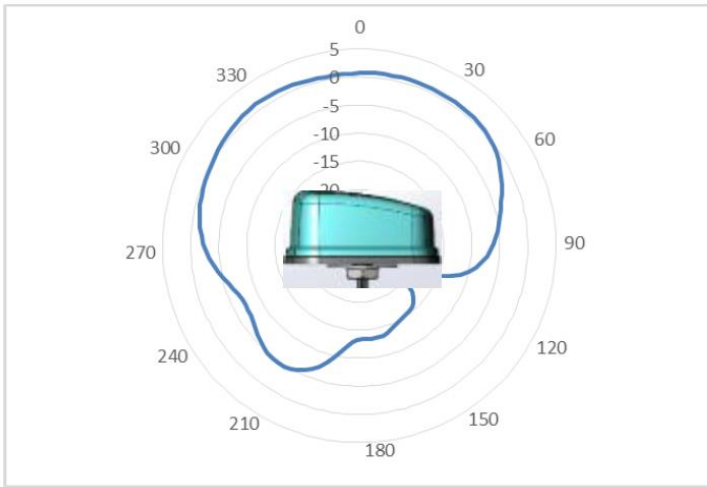
CHARTS

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

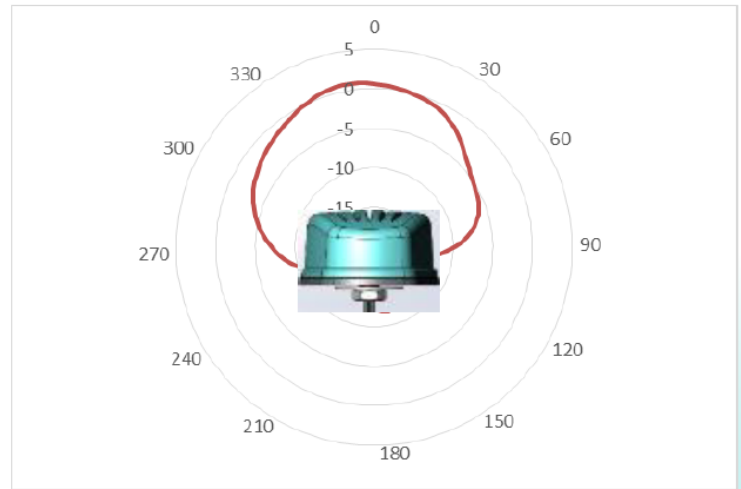
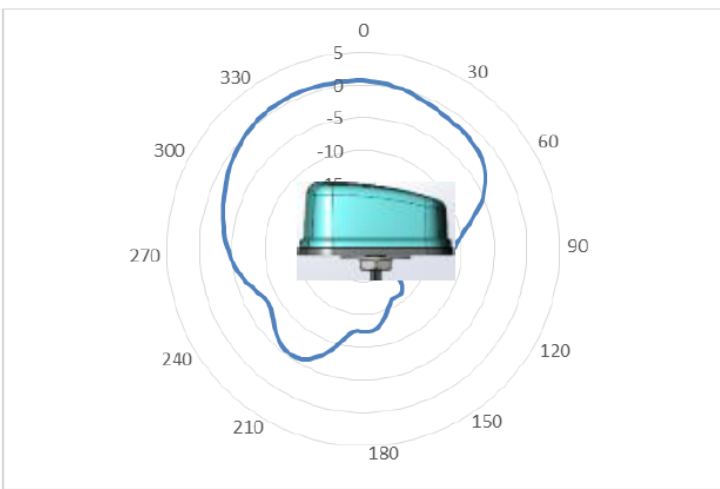


CHARTS

GPS1 antenna, BD2 RHCP patterns, in free space*

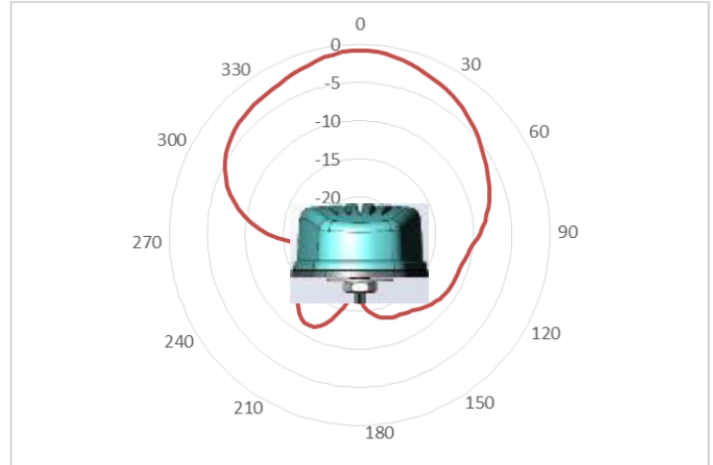
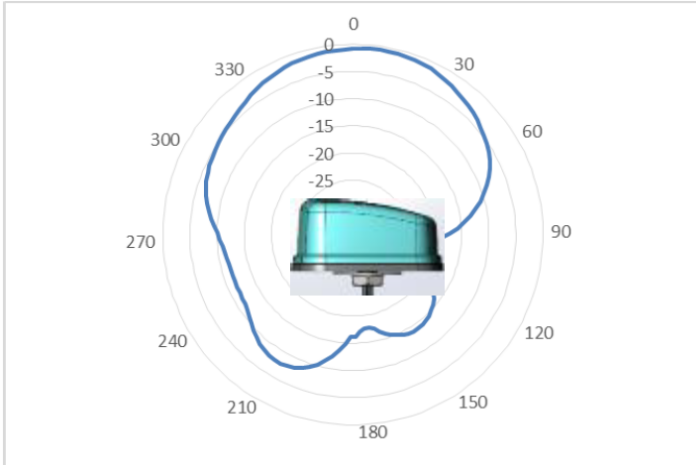


GPS1 antenna, GPS & Galileo RHCP patterns, in free space*



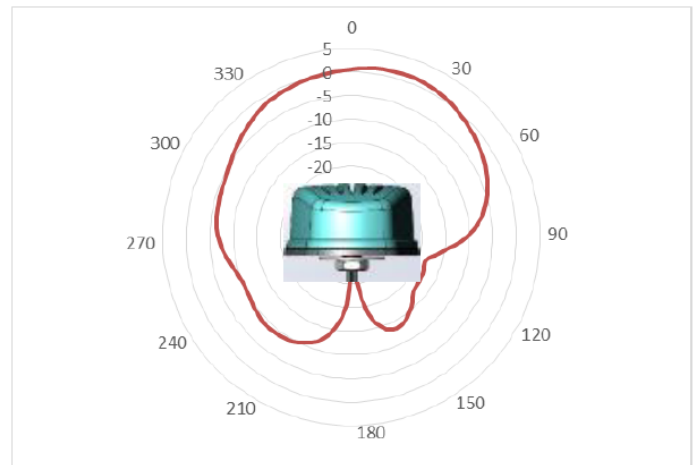
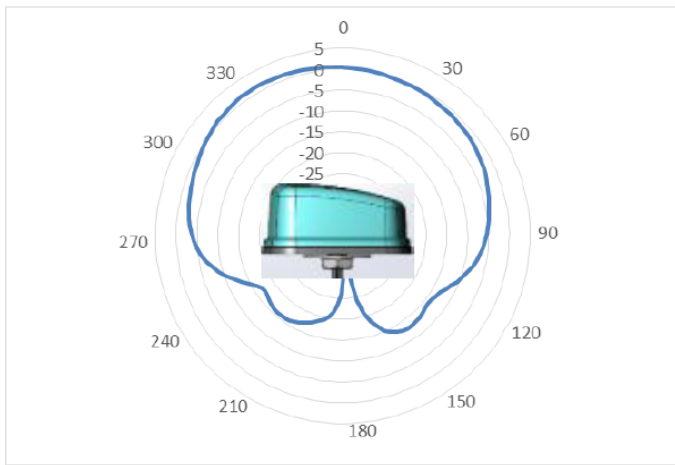
CHARTS

GPS1 antenna, GLONASS RHCP patterns, in free space*

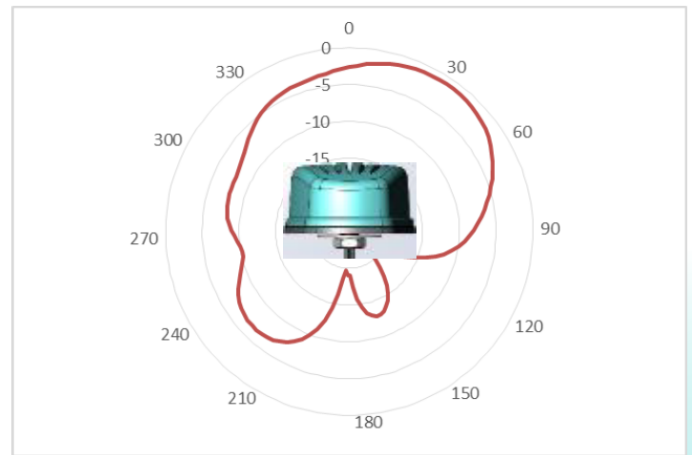
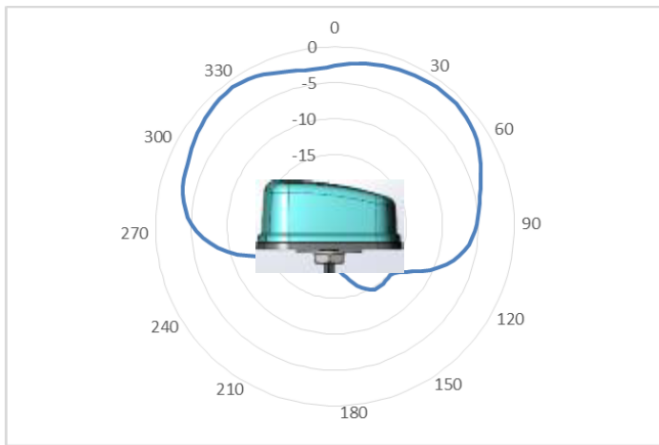


CHARTS

GPS2 antenna, BD2 RHCP patterns, in free space*

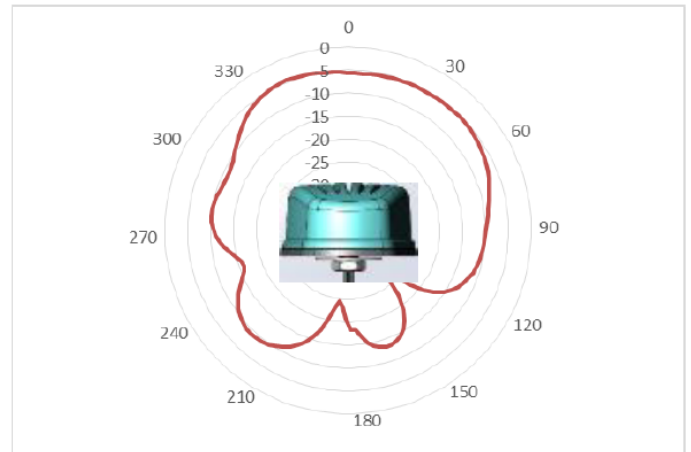
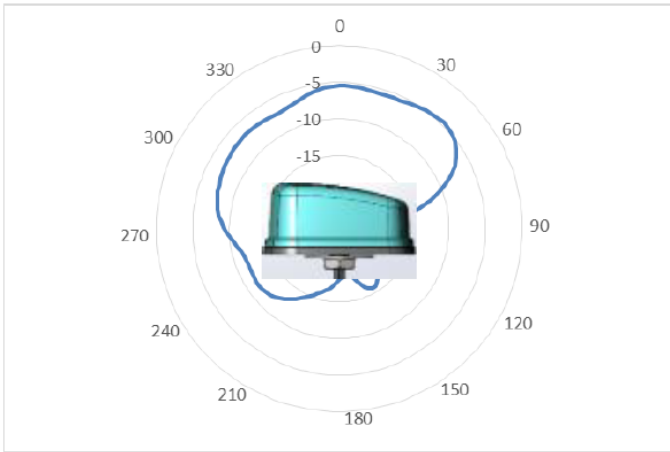


GPS2 antenna, GPS & Galileo RHCP patterns, in free space*



CHARTS

GPS2 antenna, GLONASS RHCP patterns, in free space*



**Description: 3xMiMo LTE, 1xWiFi, 2xGNSS
Vehicle Mount Antenna**

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Series: Panther

PACKAGING

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