PulseLARSEN Antennas

TECHNICAL DATA SHEET

Series: Panther

Description: MiMo LTE, WiFi, GNSS Vehicle Mount Antenna

PART NUMBER: GPSMB401



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
- See GPSMBMM for magnetic mount details

Applications:

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

All dimensions are in mm / inches

Preliminary

RoHS COMPLIANT

Issue: 1706P

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ELECTRICAL SPECIFICATIONS

Frequency (LTE)	698-960/1695-2170/2300-2700/2900-3600 MHz
Frequency (WiFi & DSRC)	2400-2500/4900-5925 MHz
Frequency (Beidou,GPS,Galileo,Glonass)	1561.098±2.046/ 1575.42±1.023/ 1602.5625±4MHz
Nominal Impedance	50 Ω
VSWR** (LTE)	<1.5
VSWR** (WiFi & DSRC)	<1.4
Gain* (LTE antenna, <2170MHz)	4 dBi ± 2.5 dB
Gain* (LTE antenna, >2170MHz)	5 dBi ± 2 dB
Gain* (WiFi antenna, <2500MHz)	4.5 dBi ± 1.5 dB
Gain* (WiFi antenna, >4900MHz)	5 dBi ± 2 dB
Isolation LTE to LTE**	15 dB or better
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 2ft GND plane and with 4 inch cables

**In free space with 17ft cables

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ELECTRICAL SPECIFICATIONS

Connector type(s)	SMA (LTE and GPS) /SMA-RP (WiFi)
Cable type(s)	RG-58 (LTE and WiFi) / RG-174 (GPS)
Length	17 Feet

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MECHANICAL SPECIFICATIONS

Plastic radome	ABS/PC Material UV Stabilized, UL-94HB
Color	Black
Ingress Protection	IP67
Weight	~1340 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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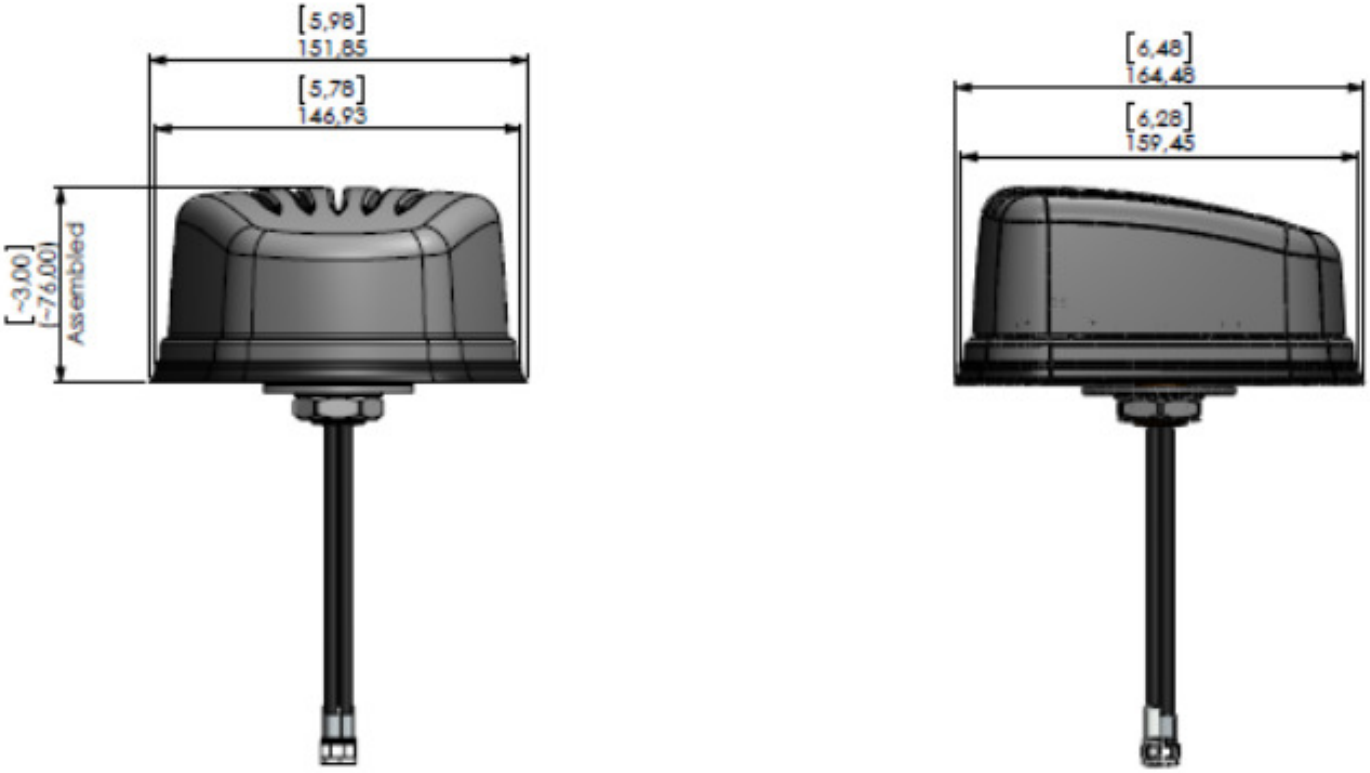
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MECHANICAL DRAWING



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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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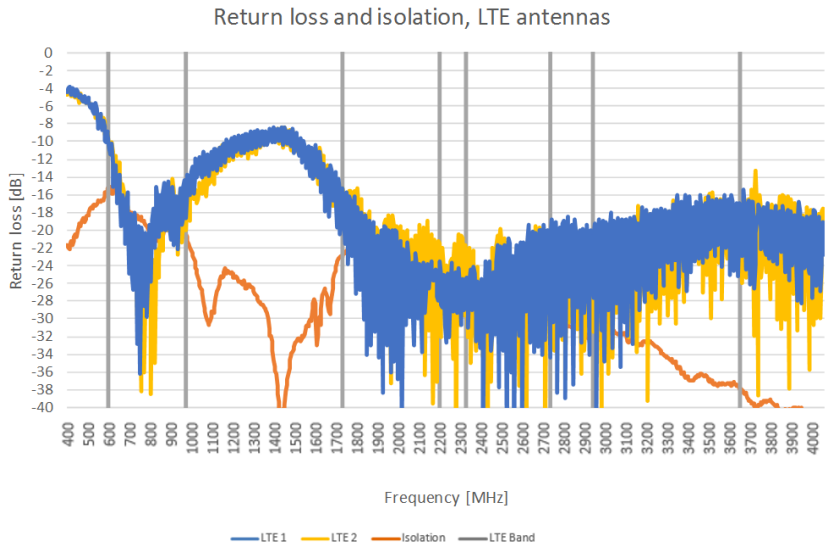
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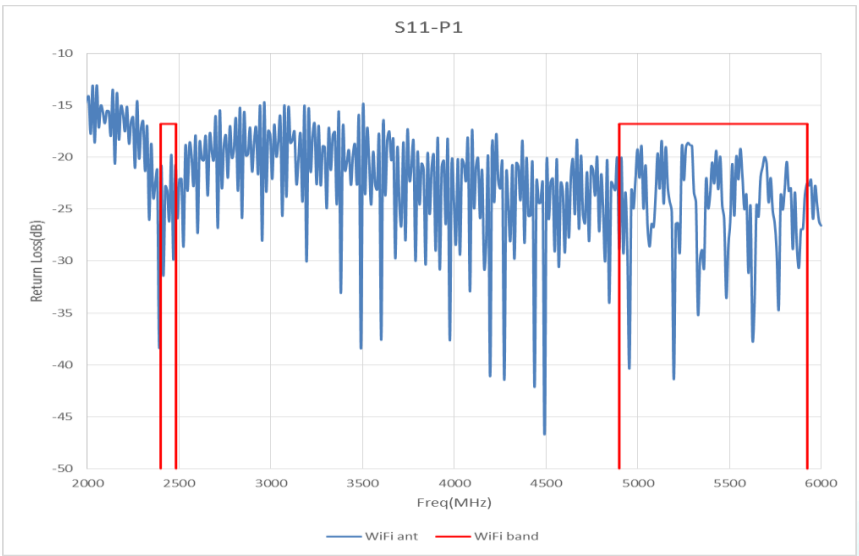
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CHARTS

Return Loss and isolation in free space, LTE antennas**



Return Loss in free space, WiFi antenna**



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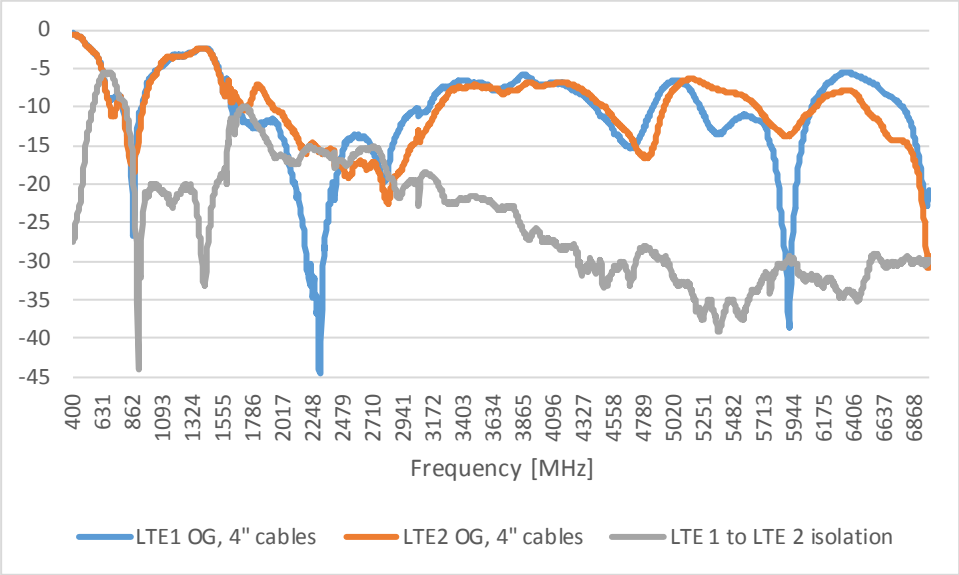
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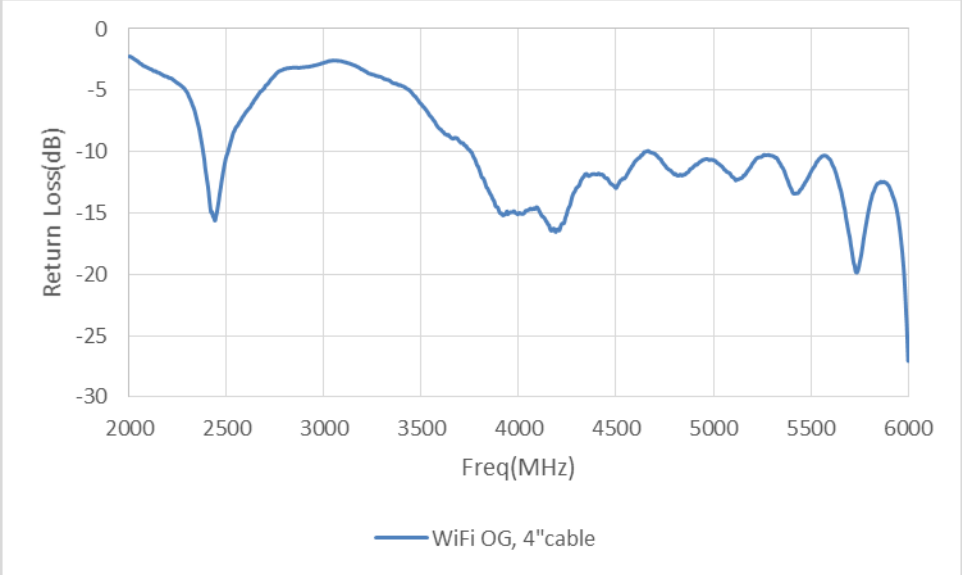
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CHARTS

Return Loss and isolation, LTE antennas*



Return Loss, WiFi antenna*



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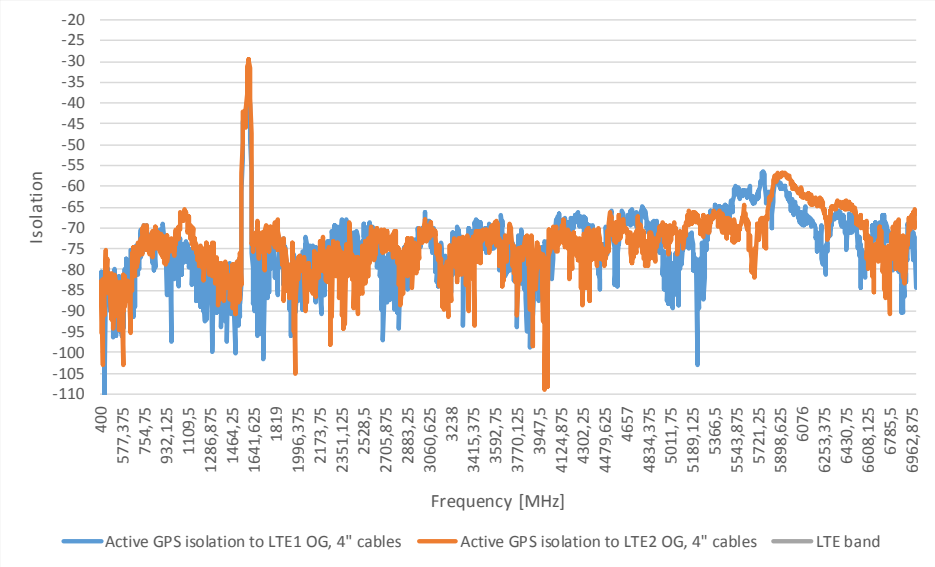
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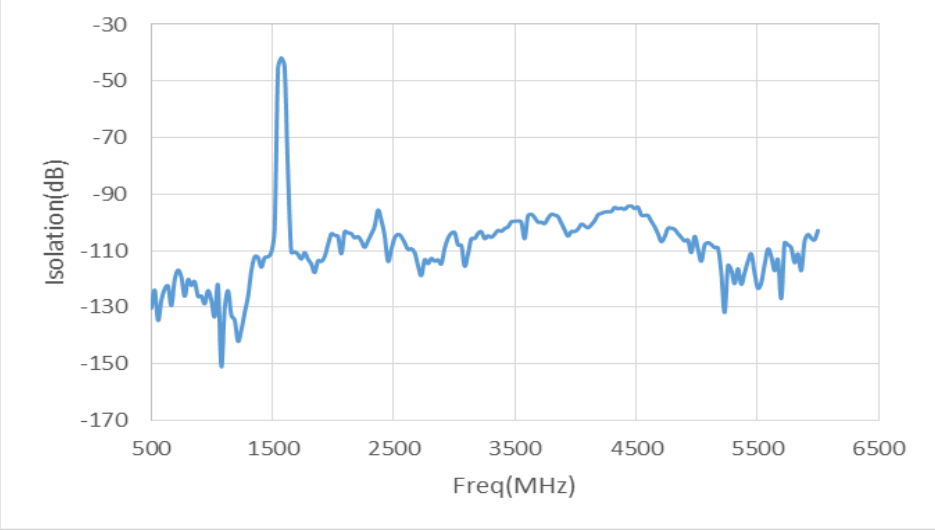
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CHARTS

GPS isolation to LTE 1 and LTE 2 antenna*



GPS isolation to WiFi antenna*



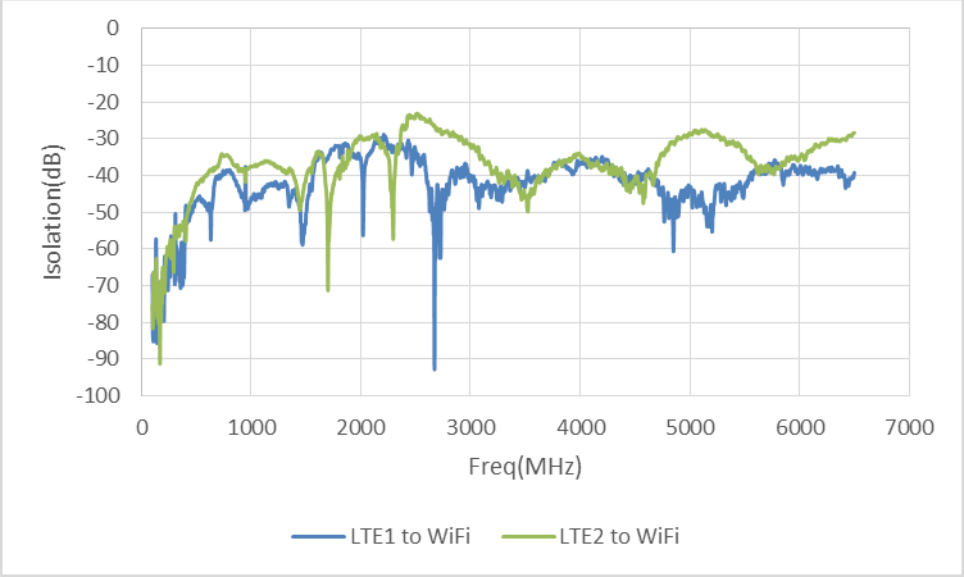
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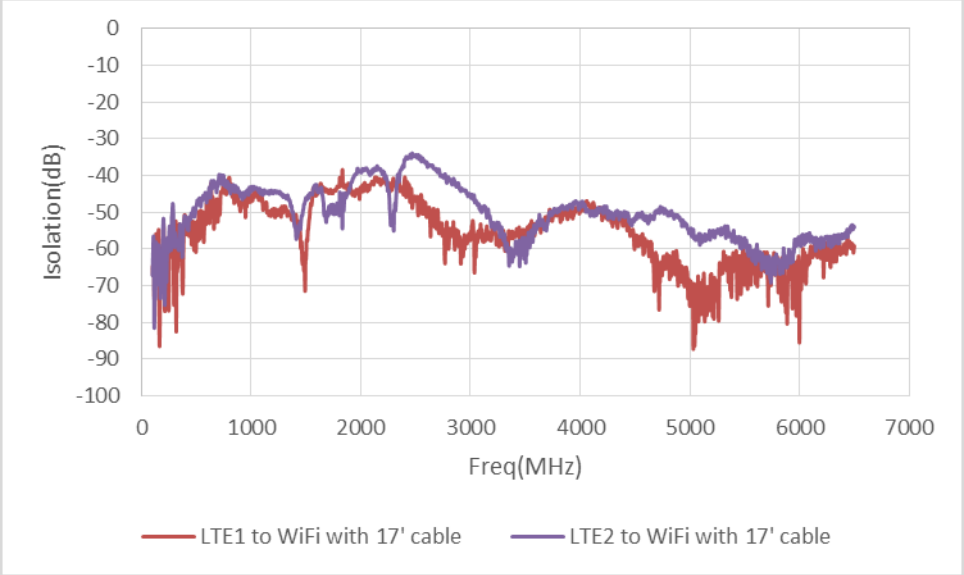
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CHARTS

Isolation characteristics, WiFi to LTE 1 and LTE 2*



Isolation characteristics, WiFi to LTE 1 and LTE 2**



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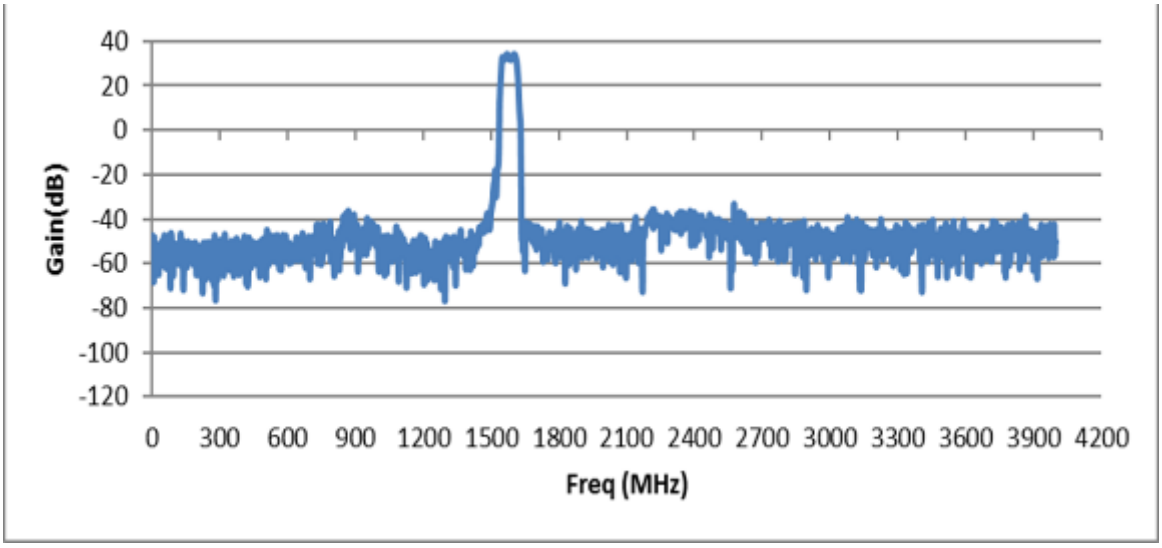
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GNSS LNA performance



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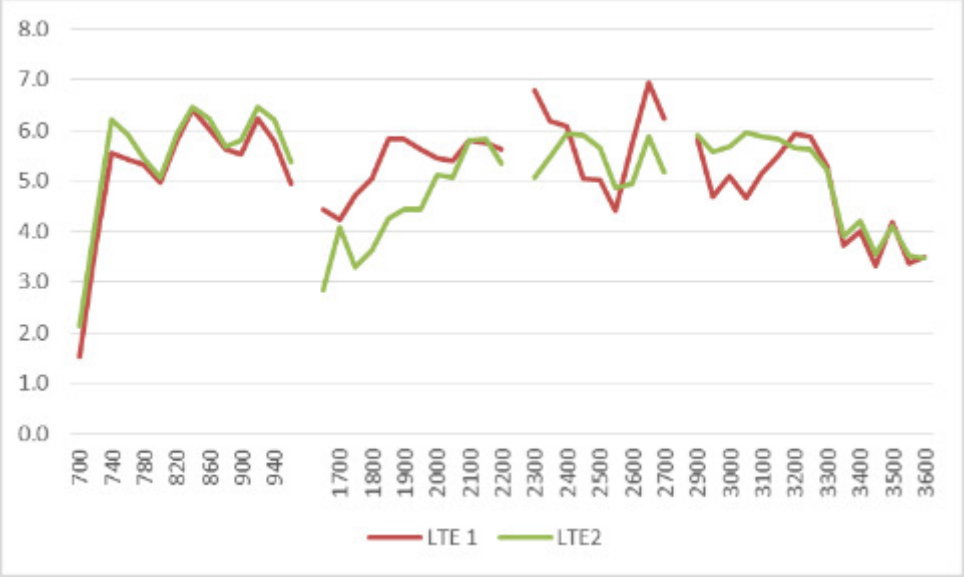
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LTE antenna total efficiency with 2ft metal plate and 4inch cables



Maximum 3D gain, LTE antenna with 2ft metal plate and 4inch cables



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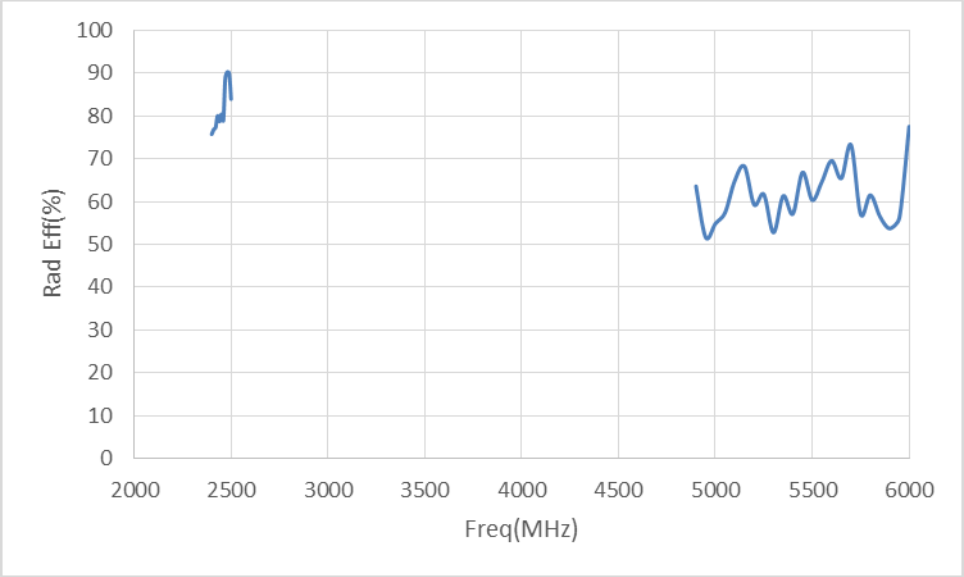
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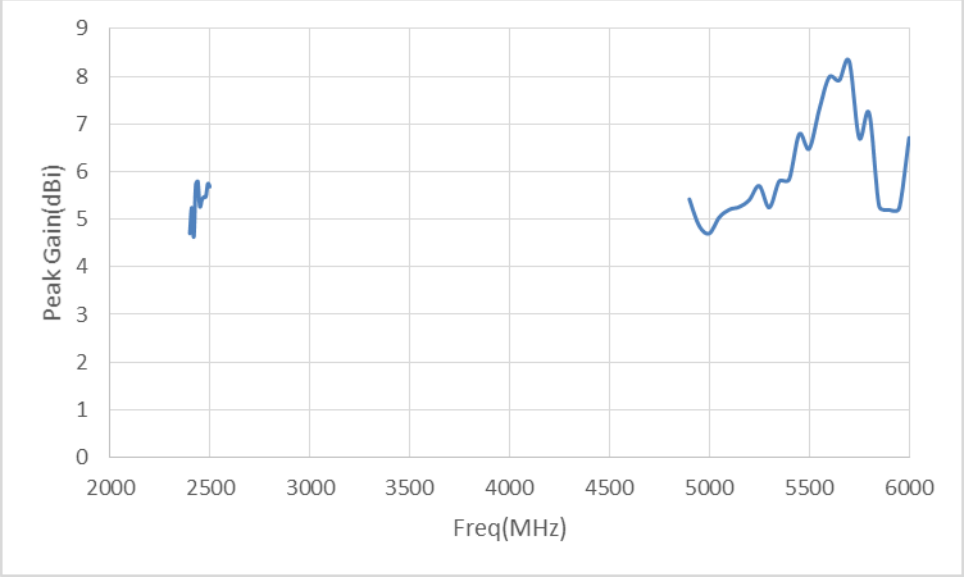
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CHARTS

WiFi antenna total efficiency with 2ft metal plate and 4inch cables



Maximum 3D gain, WiFi antenna with 2ft metal plate and 4inch cables



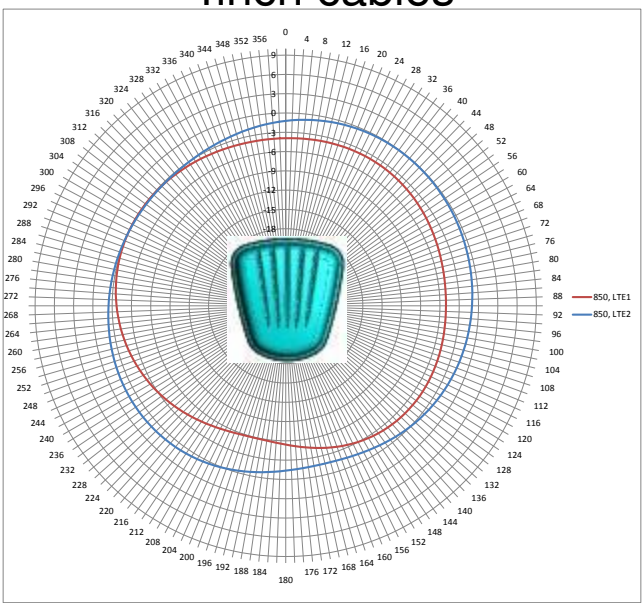
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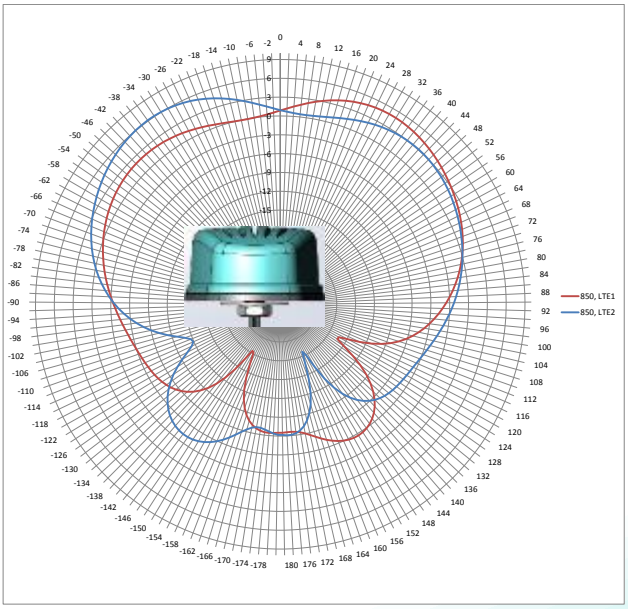
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CHARTS

LTE antenna radiation pattern at 850MHz with 2ft metal plate and 4inch cables



Horizontal plot



Vertical plot front view

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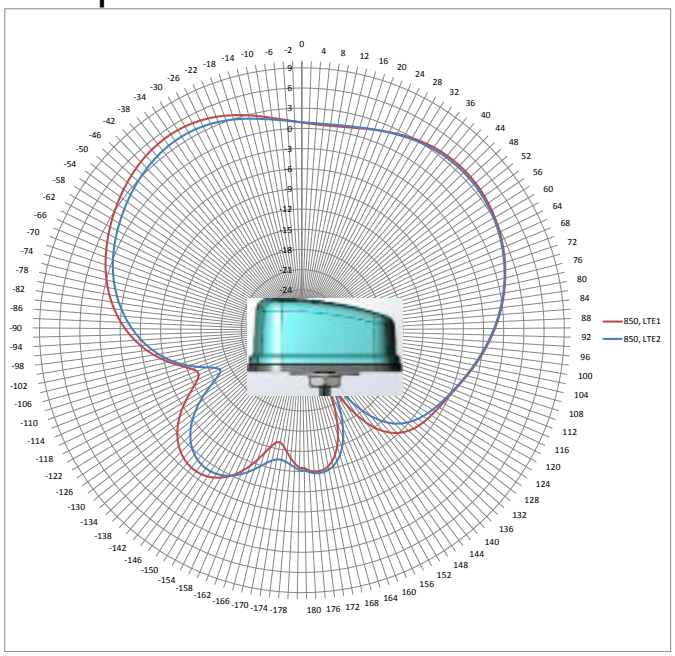
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CHARTS

LTE antenna radiation pattern at 850MHz with 2ft metal plate and

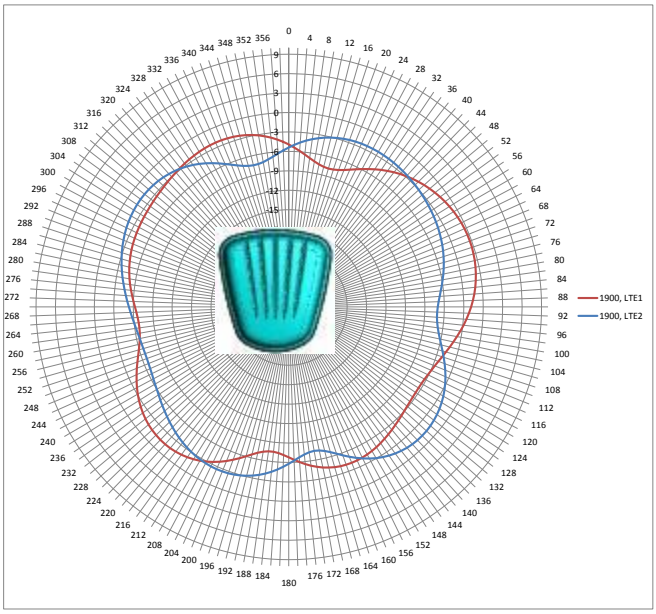


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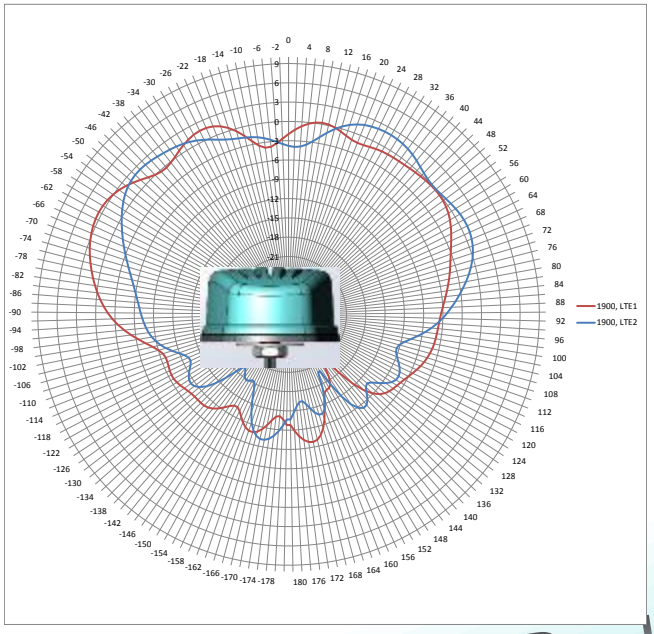
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CHARTS

LTE antenna radiation pattern at 1900MHz with 2ft metal plate and 4inch cables



Horizontal plot



Vertical plot front view

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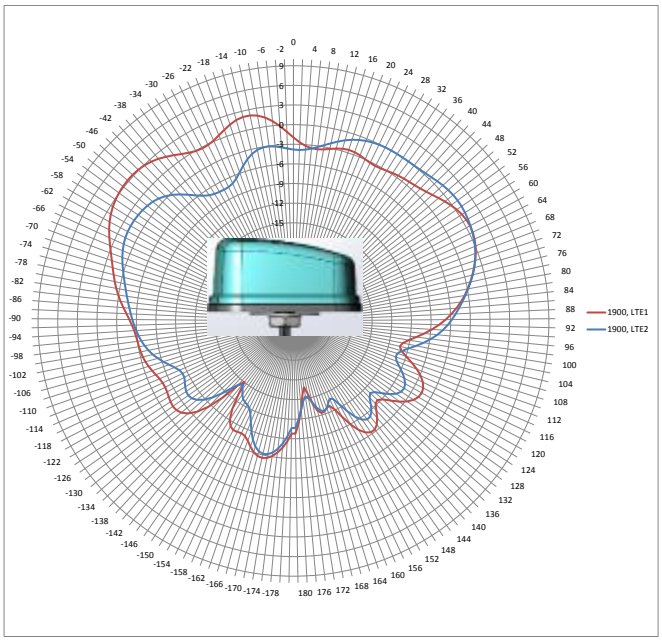
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PART NUMBER: GPSMB401

CHARTS

LTE antenna radiation pattern at 1900MHz with 2ft metal plate and 4inch cables



Vertical plot side view

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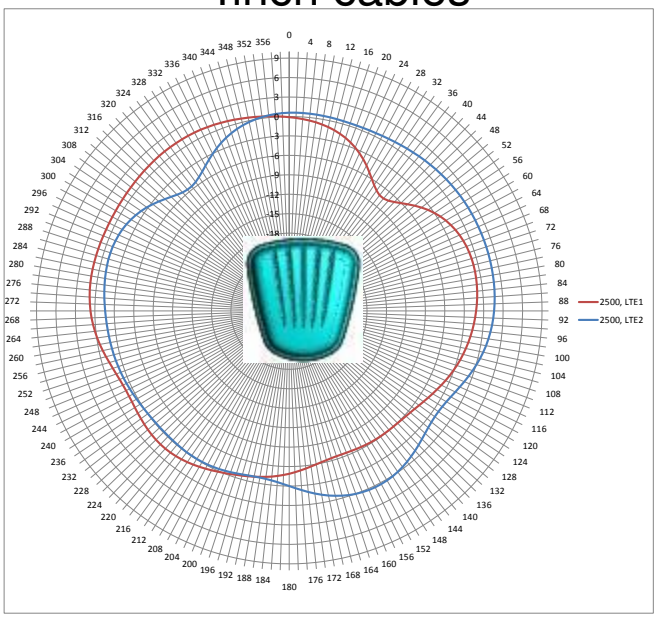
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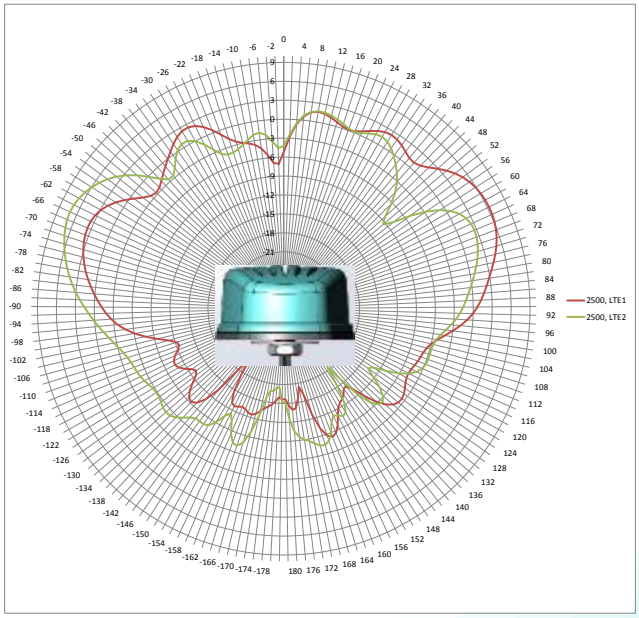
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CHARTS

LTE antenna radiation pattern at 2500MHz with 2ft metal plate and 4inch cables



Horizontal plot



Vertical plot front view

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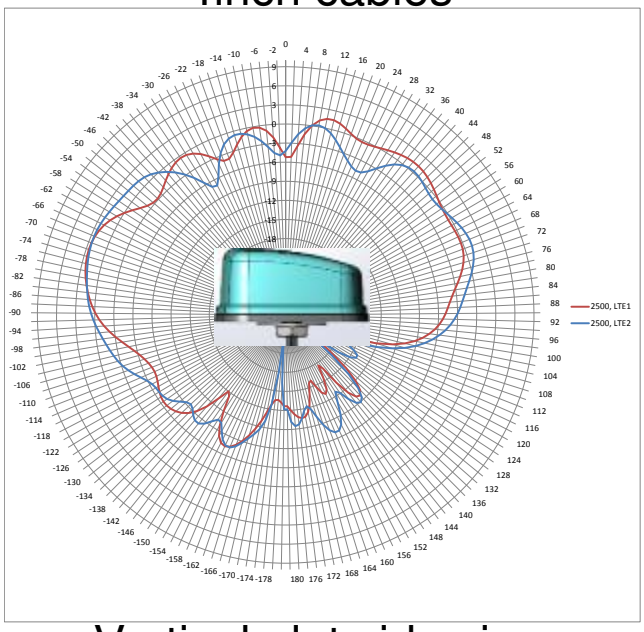
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Series: Panther

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CHARTS

LTE antenna radiation pattern at 2500MHz with 2ft metal plate and 4inch cables



Vertical plot side view

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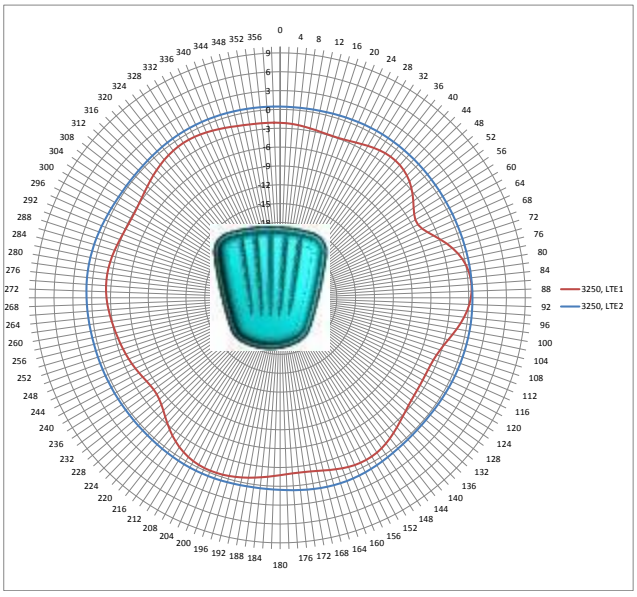
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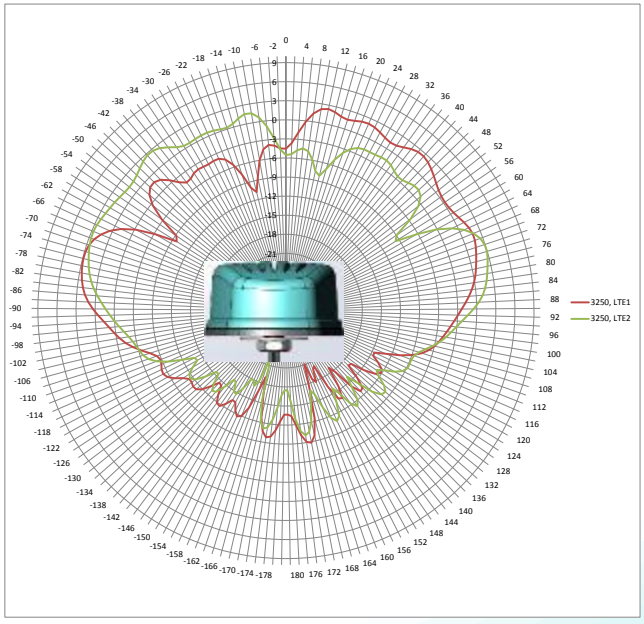
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CHARTS

LTE antenna radiation pattern at 3250MHz with 2ft metal plate and 4inch cables



Horizontal plot



Vertical plot front view

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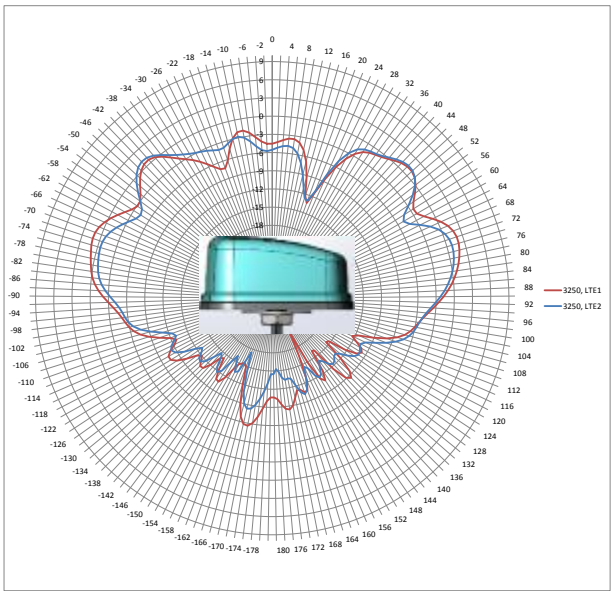
Description: MiMo LTE, WiFi, GNSS Vehicle Mount Antenna

Series: Panther

PART NUMBER: GPSMB401

CHARTS

LTE antenna radiation pattern at 3250MHz with 2ft metal plate and 4inch cables



Vertical plot side view

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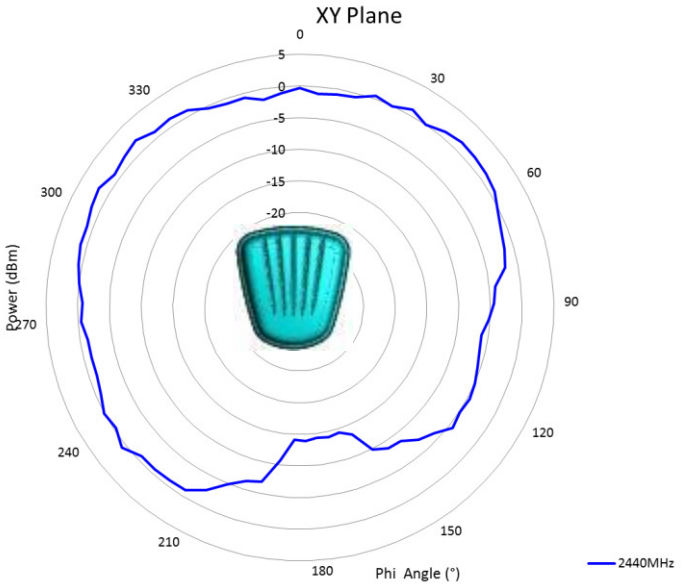
Description: MiMo LTE, WiFi, GNSS Vehicle Mount Antenna

Series: Panther

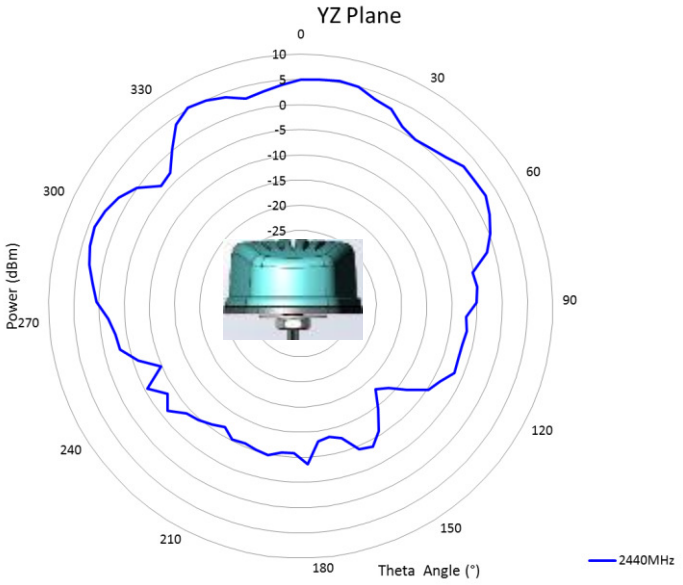
PART NUMBER: GPSMB401

CHARTS

WiFi antenna radiation pattern at 2440MHz with 2ft metal plate and 4inch cables



Horizontal plot



Vertical plot front view

Preliminary

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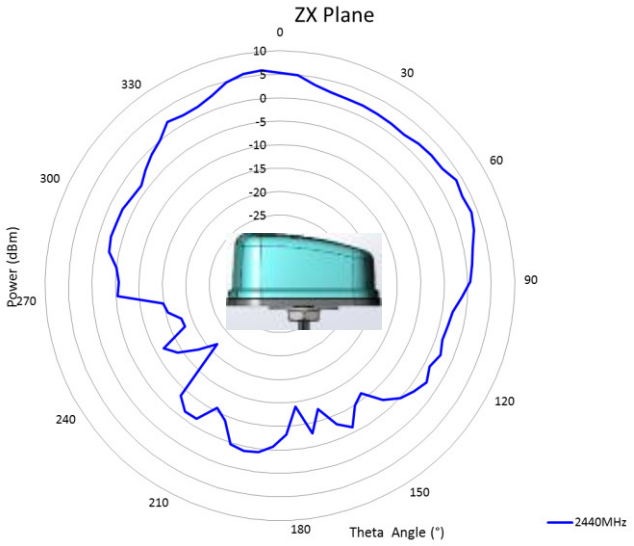
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CHARTS

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Vertical plot side view

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RoHS COMPLIANT

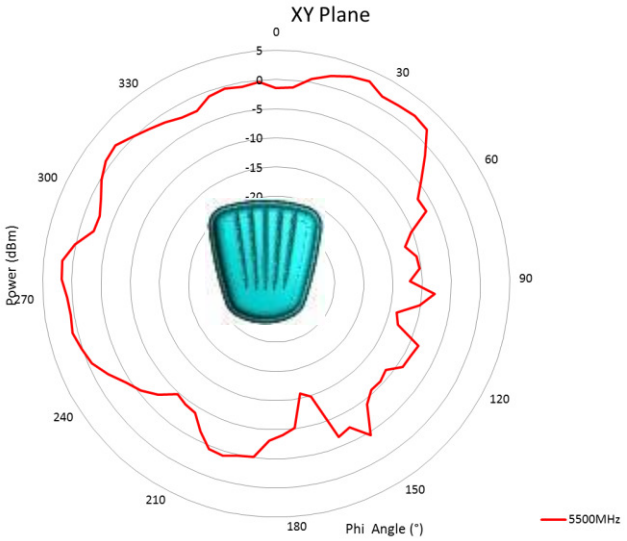
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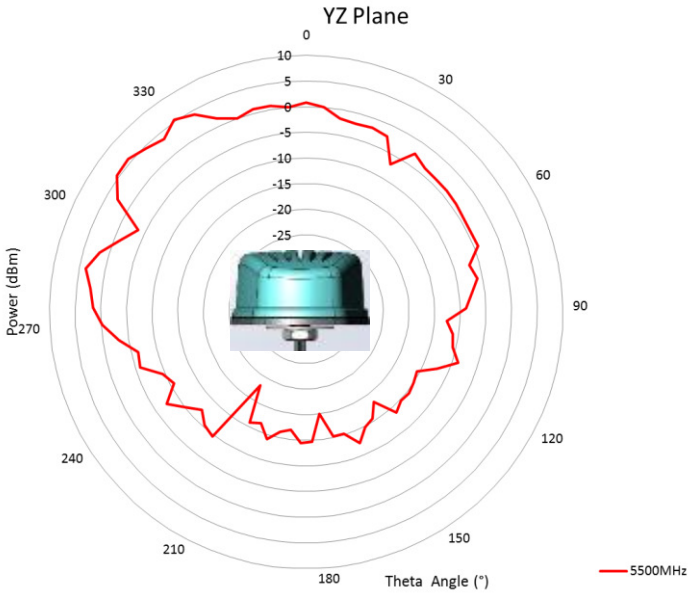
PART NUMBER: GPSMB401

CHARTS

WiFi antenna radiation pattern at 5500MHz with 2ft metal plate and 4inch cables



Horizontal plot



Vertical plot front view

Preliminary

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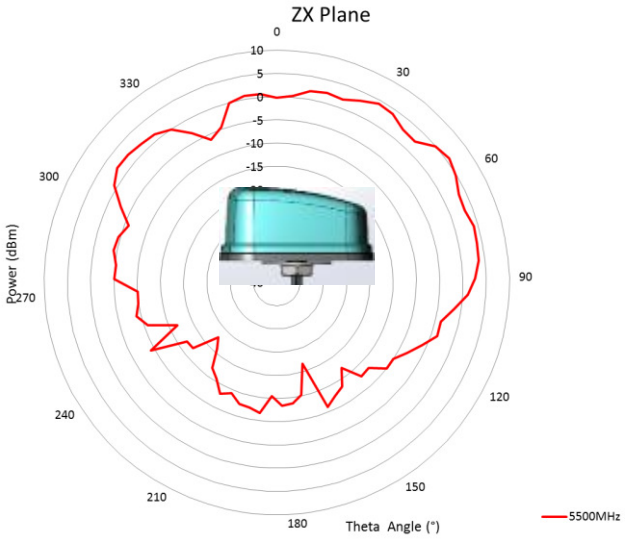
Description: MiMo LTE, WiFi, GNSS Vehicle Mount Antenna

Series: Panther

PART NUMBER: GPSMB401

CHARTS

WiFi antenna radiation pattern at 5500MHz with 2ft metal plate and 4inch cables



Vertical plot side view

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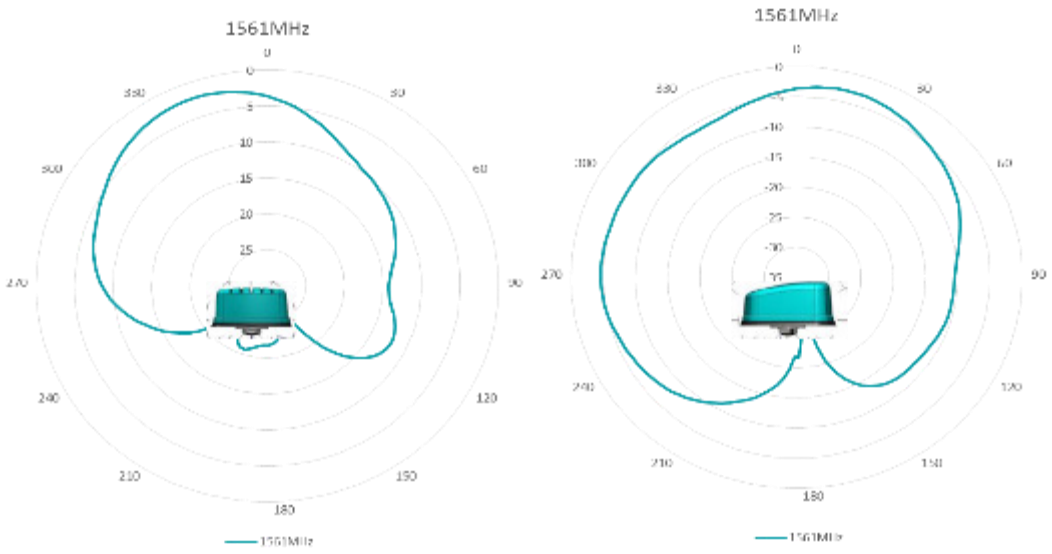
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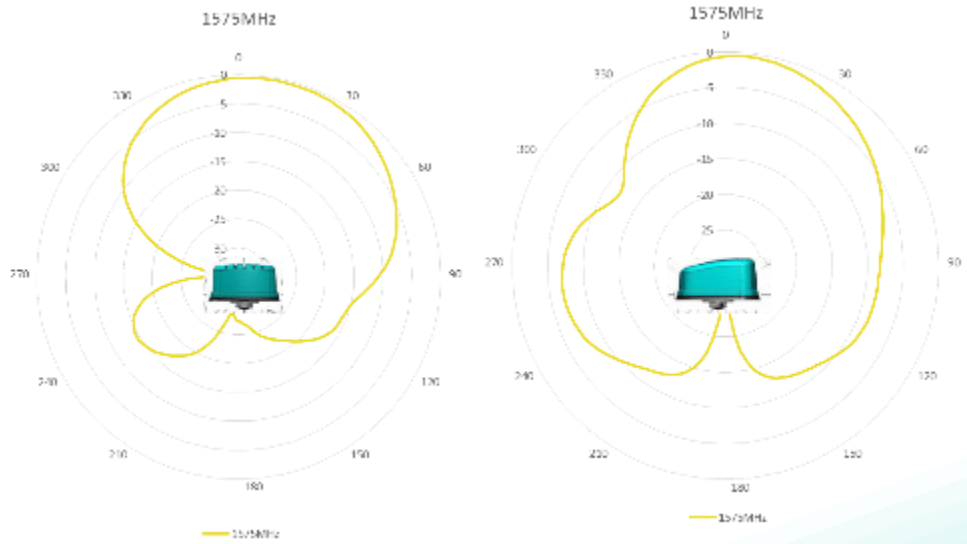
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CHARTS

BD2 RHCP patterns, measured with 4inch cables in free space



GPS & Galileo RHCP patterns, measured with 4inch cables in free space



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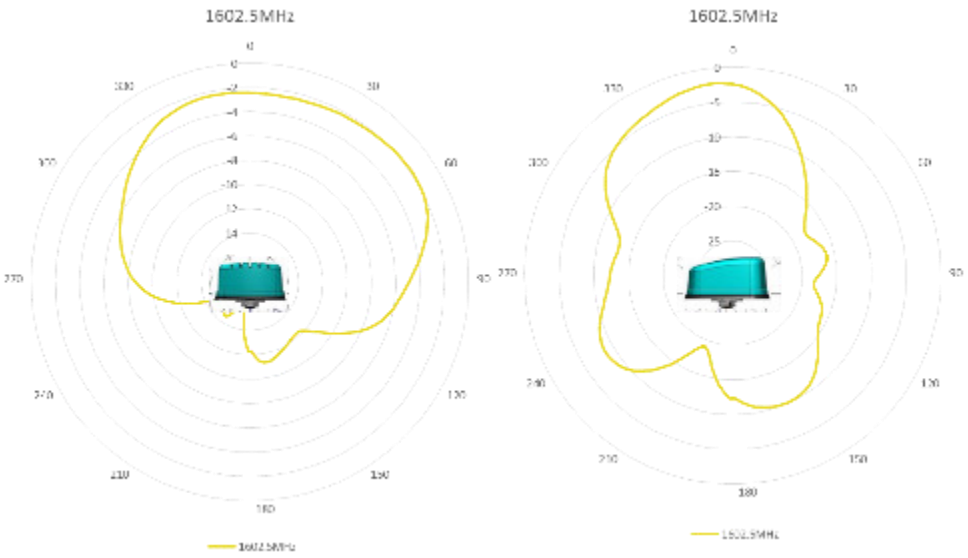
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CHARTS

GLONASS RHCP patterns, measured with 4inch cables in free space



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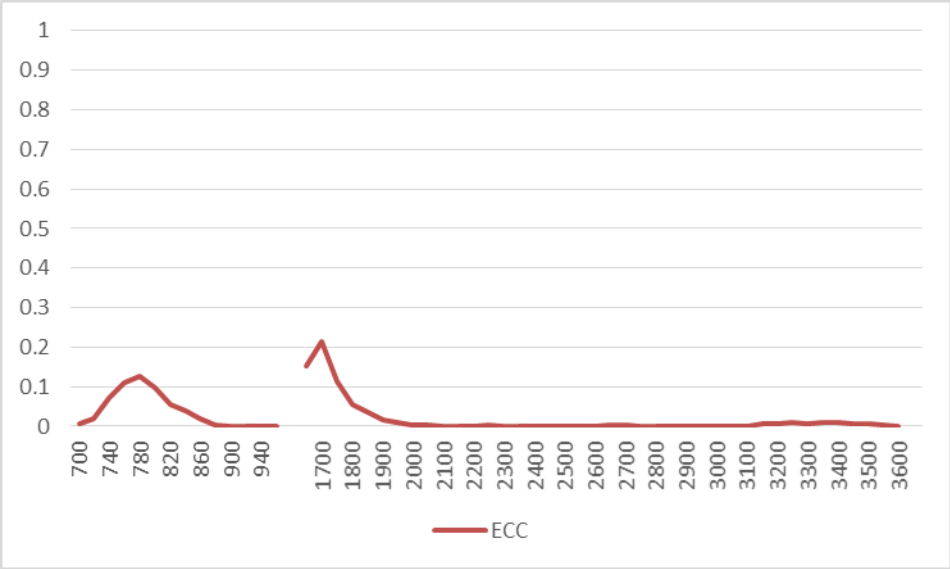
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CHARTS

Envelope correlation coefficient – LTE 1 to LTE 2



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RoHS COMPLIANT

PACKAGING

One antenna pack in one PE bag, 6 pcs antennas in one box

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