



Description: MiMo LTE, MiMo WiFi, GNSS

Vehicle Mount Antenna

PART NUMBER: GPSMB50XX



Features:

- Supports MIMO Cellular LTE 698-960/1695-2170/2300-2700/2900-3600MHz
- Supports MIMO 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
- GPSMB501/GPSMB501C/GPSMB501D Black and GPSMB502 White

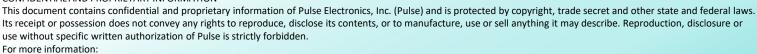
Applications:

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

All dimensions are in mm / inches

Issue: 2511

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



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TECHNICAL DATA SHEET



Series: Panther

Description: MiMo LTE, MiMo WiFi, GNSS **Vehicle Mount Antenna**

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ELECTRICAL SPECIFICATIONS

Frequency (LTE)		698 - 960 / 1695 – 2170 /	MHz
		2300 - 2700 / 2900 – 3600	
- (2400 – 2500/	MHz
Frequency (WiFi&DSRC)		4900 – 5925 4564 00843 0467	N 41 1-
Frequency (Beidou, GPS, G	Salileo Glonass)	1561.098±2.046/ 1575.42±1.023/	MHz
Trequency (Beldod, GF3, C	iallieo, Gloriass)	1602.5625±4	
		1002.302314	
Nominal Impedance		50	Ω
VSWR (LTE)		< 1.5	
VSWR (WiFi&DSRC)		< 1.4	
Gain* (LTE antenna, < 2170 MHz)		4	$dBi \pm 2.5 \; dB$
Gain* (LTE antenna, > 2170 MHz)		5	$dBi \pm 2 \; dB$
Gain* (WiFi antenna, < 2500 MHz)		4.5	$dBi \pm 1.5 \; dB$
Gain* (WiFi antenna, > 4900 MHz)		5	$dBi\pm 2\;dB$
Isolation LTE to LTE **		15 or better	dB
Isolation WiFi to WiFi **		40 or better	dB
GNSS antenna RHCP gain		1	$dBic \pm 2 dB$
LNA gain		30	$dB\pm 2\;dB$
Noise Figure		2.5 (cascade)	dB
Current		8	$mA\pm2\;mA$
V _{dc}		3-5	V_{dc}
LNA and filter attenuation			- ac
Livitaria miciratteriaation	@ 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

Pulse P/N	GPSMB501	GPSMB502	GPSMB501C	GPSMB501D	
Cable NO.	5	5	5	5	
Operating Bands	2-LTE + 2-WiFi + 1-GPS/GNSS	2-LTE + 2-WiFi + 1-GPS/GNSS	2-LTE + 2-WiFi + 1-GPS/GNSS	2-LTE + 2-WiFi + 1-GPS/GNSS	
Cable length	17FT	17FT	10FT	10FT	
Connector	LTE: SMA(M), WiFi: RPSMA(M), GPS: SMA(M)	LTE: SMA(M), WiFi: RPSMA(M), GPS: SMA(M)	LTE: SMA(M), WiFi: RPSMA(M), GPS: SMA(M)	LTE: SMB(M), WiFi: SMB(M), GPS: SMB(M)	
Cable Color	Black	White	Black	Black	
Assembly 1. Assembly directly with nut option 2. Magnetic mount base P/N:GPSMBMM					



TECHNICAL DATA SHEET

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MECHANICAL SPECIFICATIONS

Plastic radome ABS/PC Material UV

Stabilized, UL-94HB

Color GPSMB501:Black

GPSMB501C: Black GPSMB501D: Black GPSMB502: White

Ingress Protection IP67

Weight GPSMB501:~1340 g

GPSMB502: ~1340 g GPSMB501C: ~1320 g GPSMB501D: ~1320 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, 1meter drops

Issue: 2511





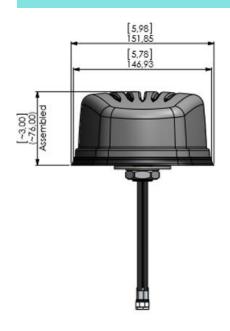


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Vehicle Mount Antenna

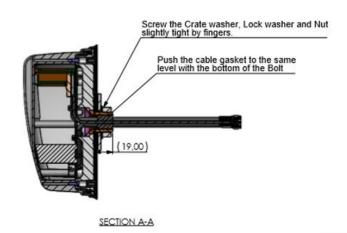
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MECHANICAL DRAWING













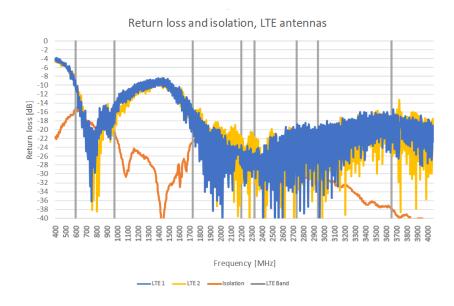
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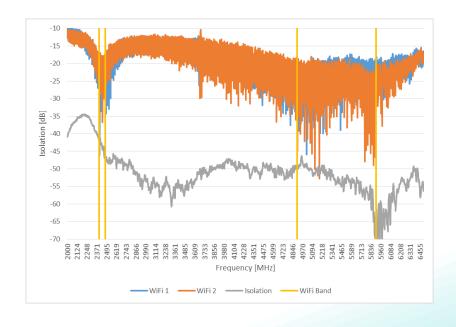
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CHARTS

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



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







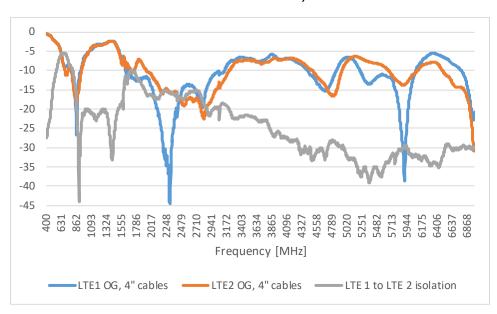
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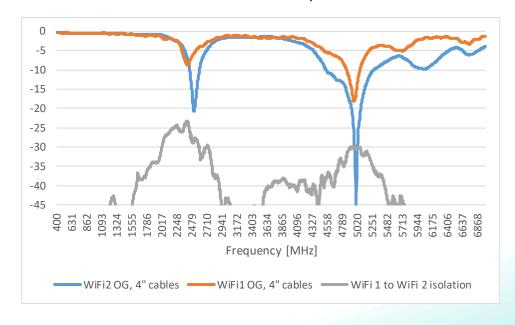
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CHARTS

Return Loss and isolation, LTE antennas*



Return Loss and isolation, WiFi antennas*







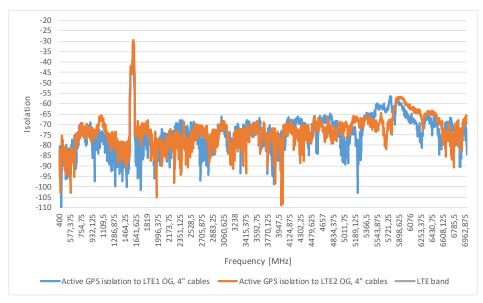
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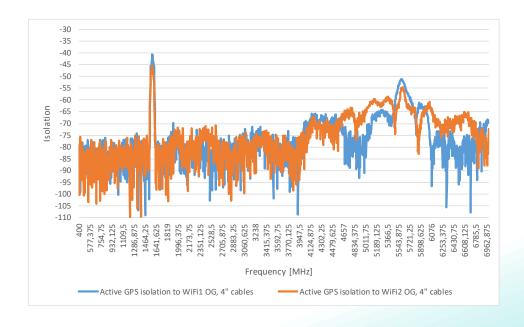
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CHARTS

GPS isolation to LTE 1 and LTE 2 antenna*



GPS isolation to WiFi 1 and WiFi 2 antenna*









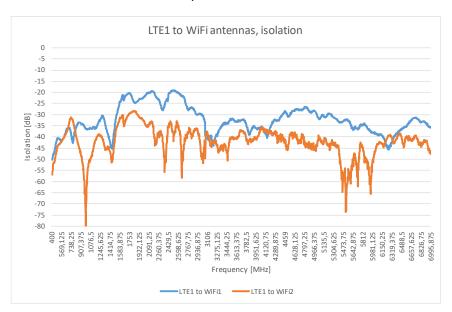
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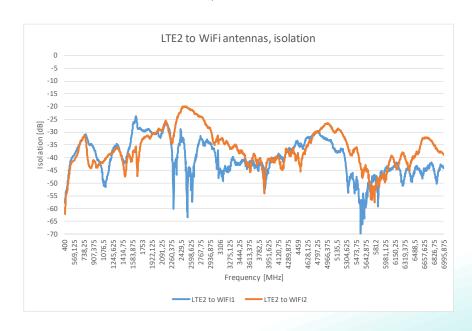
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CHARTS

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



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







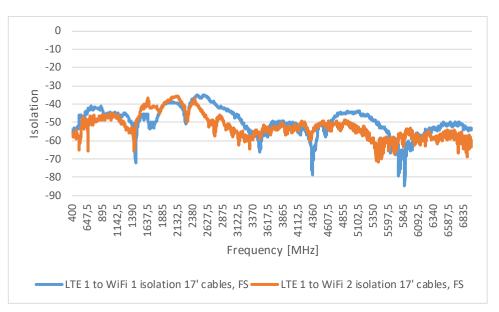
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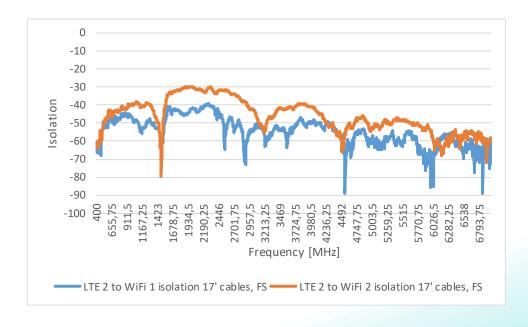
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Isolation characteristics, LTE 1 to WiFi 1 and WiFi 2**



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







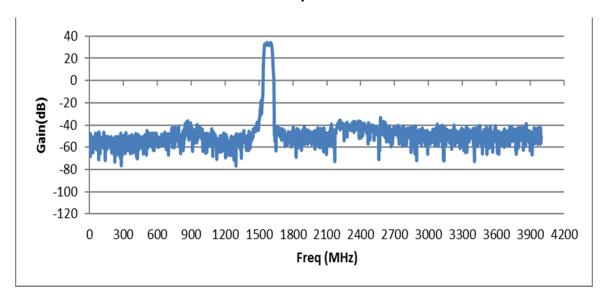
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CHARTS

GNSS LNA performance





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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







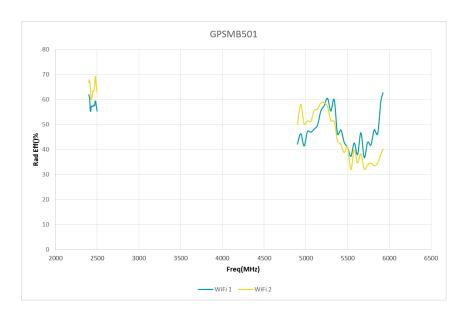
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CHARTS

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



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







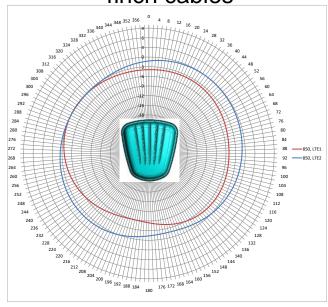
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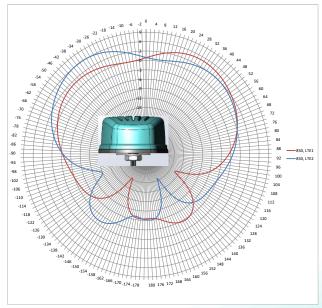
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CHARTS

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



Horizontal plot



Vertical plot front view

Issue: 2511

ROHS





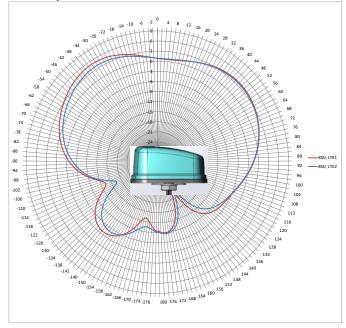
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Vehicle Mount Antenna

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CHARTS

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



Vertical plot side view





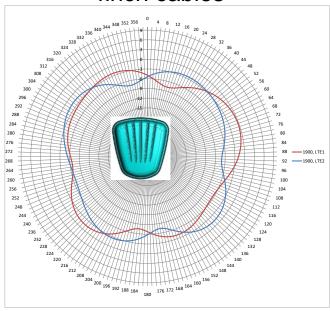
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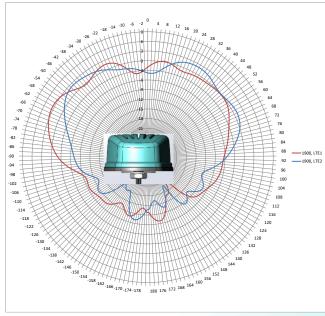
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CHARTS

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



Horizontal plot



Vertical plot front view

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ROHS





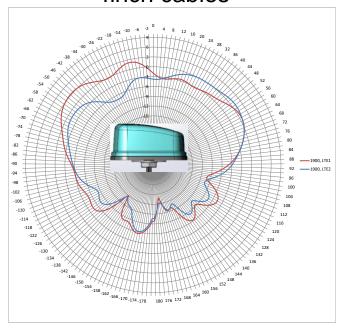
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CHARTS

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



Vertical plot side view





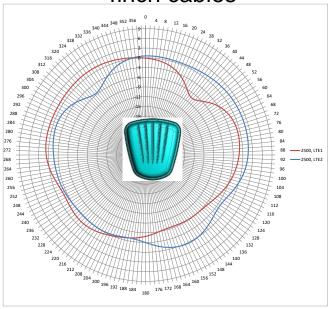
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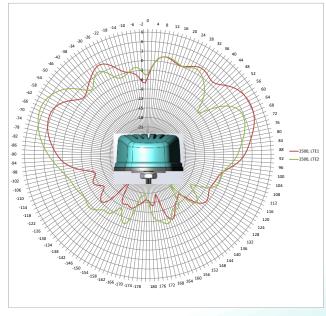
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CHARTS

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



Horizontal plot



Vertical plot front view

Issue: 2511

ROHS





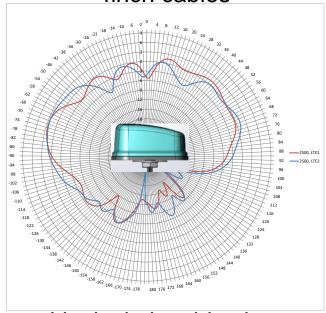
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Vehicle Mount Antenna

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CHARTS

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



Vertical plot side view





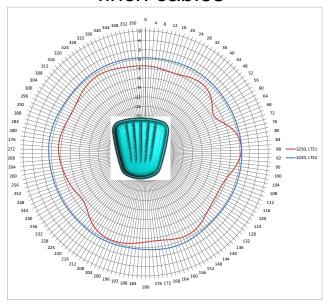
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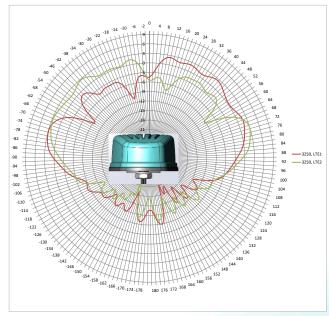
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CHARTS

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



Horizontal plot



Vertical plot front view

Issue: 2511

ROHS





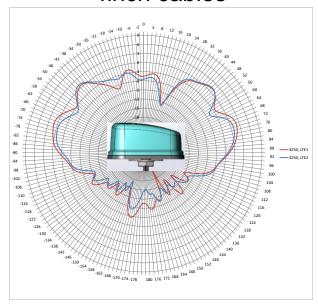
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CHARTS

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



Vertical plot side view





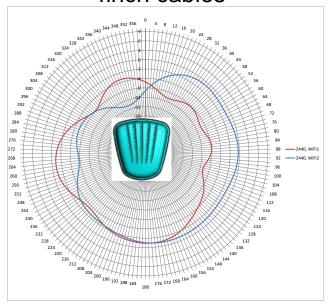
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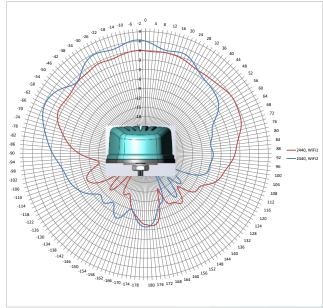
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CHARTS

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



Horizontal plot



Vertical plot front view

Issue: 2511

ROHS





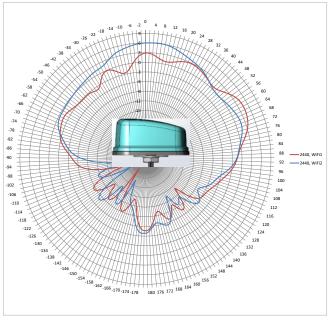
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CHARTS

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



Vertical plot side view





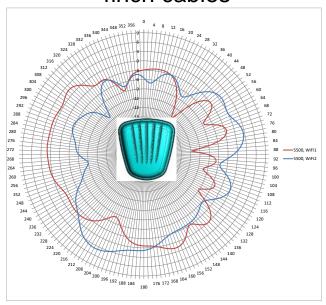
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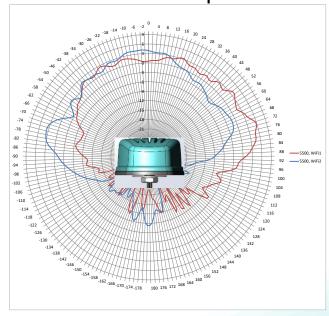
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CHARTS

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



Horizontal plot



Vertical plot front view





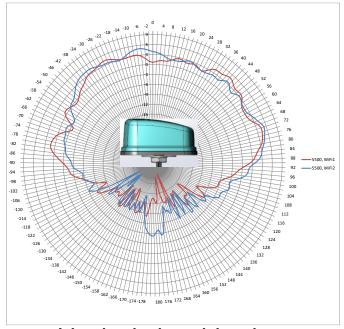
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CHARTS

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



Vertical plot side view



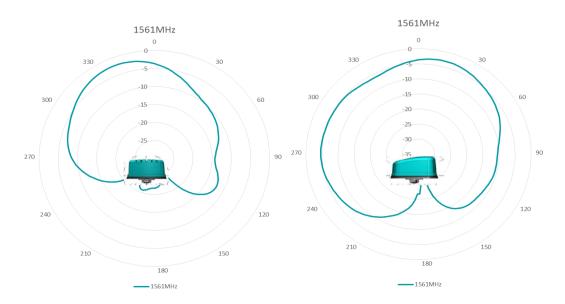
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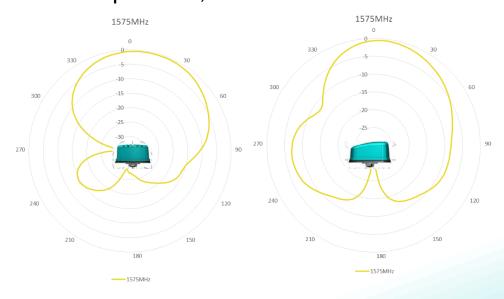
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CHARTS

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



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







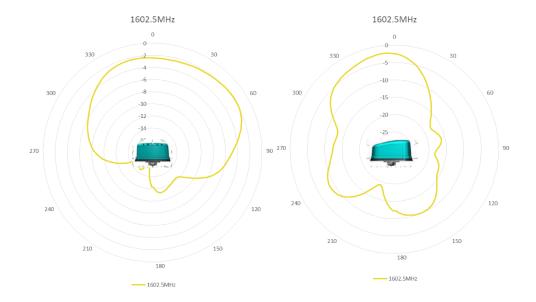
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CHARTS

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









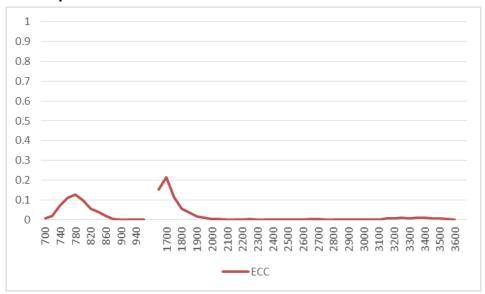
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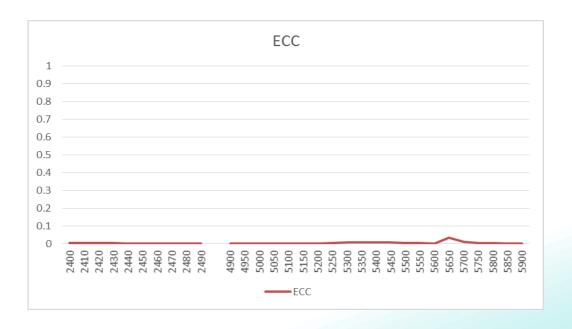
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CHARTS

Envelope correlation coefficient – LTE 1 to LTE 2



Envelope correlation coefficient – WiFi 1 to WiFi 2







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PACKAGING

One antenna packed in one PE bag, 6 antennas packed in one box.