

### **TECHNICAL DATA SHEET**

Description: 2xLTE, WiFi, GNSS Multiband

Vehicular Antenna

PART NUMBER: GPSLPMB403



### Features:

- 2xMiMo 698-960/1710-2690MHz
- WiFi 2400-2500/4900-5900MHz
- Active GNSS:
  - GPS, Galileo, Glonass, Beidou
  - LNA Gain 30dB
- Size 145x135x25mm
- Adhesive mount on plastic and glass fiber surfaces
- Mounting accessory for metallic surfaces

## **Applications:**

- Vehicle mount multiband antenna
- · High Speed LTE data and WiFi
- · Tracking, Navigation
- Fleet management
- Utility Vans (Gas, Water, Electricity)

All dimensions are in mm / inches

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### **ELECTRICAL SPECIFICATIONS**

LTE		
Frequency	698-960/1710-2690	MHz
Nominal Impedance	50	Ω
VSWR	2.2	Max
Average Efficiency(698-960MHz)	72	%
Average Efficiency(1710-2690MHz)	68	%
Peak Gain (698-960MHz)	4.4	dBi
Peak Gain (1710-2690MHz)	5.4	dBi
WIFI		
Frequency	2400-2500/4900-5900	MHz
Frequency Nominal Impedance	2400-2500/4900-5900 50	MHz Ω
Nominal Impedance	50	Ω
Nominal Impedance VSWR @2400-2500MHz	50 4	Ω Max
Nominal Impedance VSWR @2400-2500MHz VSWR @4900-5900MHz	50 4 3	Ω Max Max
Nominal Impedance VSWR @2400-2500MHz VSWR @4900-5900MHz Average Efficiency(2400-2500MHz)	50 4 3 46	Ω Max Max %

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### **ELECTRICAL SPECIFICATIONS**

**GPS** 

**VSWR** 

Frequency 1561.098±2.046/1575.42±1.023/1602.5625±4 MHz

.....

Nominal Impedance

50

2:1

Ω

Gain (Radiating element)

1 dBic +/- 1 dB

Gain (LNA gain) 30 dB +/- 2 dB

Polarization

**RHCP** 

Out of Band Rejection

698 MHz >70 dB

960MHz >65 dB

1710MHz >60 dB

2170MHz >65 dB

2400MHz >65 dB

Noise Figure <2.4 dB

Operating Voltage 3.3-5 Vdc±0.5V

Current Consumption <11 mA

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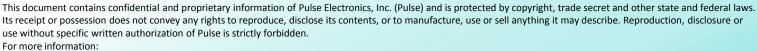
**PART NUMBER: GPSLPMB403** 

### **ELECTRICAL SPECIFICATIONS**

Cable and Connector type

Item	GPSLPMB403 RF Cables	Text on Label	Cable Type	Cable Length	Connector
1	LTE-1	Cell - 1	LMR195		TNC Male
2	WiFi	WiFi	LMR195	600mm	RP-TNC Male
3	GPS	GNSS	LMR100	[ 23.622" ]	SMA Male
4	LTE-2	Cell - 2	LMR195		RP-SMA Male

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### **TECHNICAL DATA SHEET**

Description: 2xLTE, WiFi, GNSS Multiband

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### **MECHANICAL SPECIFICATIONS**

Plastic radome SABIC PC943

Color Black

Ingress Protection IP67

Weight 310 g

Cable retention: Pull off 30N mini

Fixing system 3M VHB4959 (T=3mm)

### **ENVIRONMENTAL SPECIFICATIONS**

Operating temperature

-40 ~ +85 ° C

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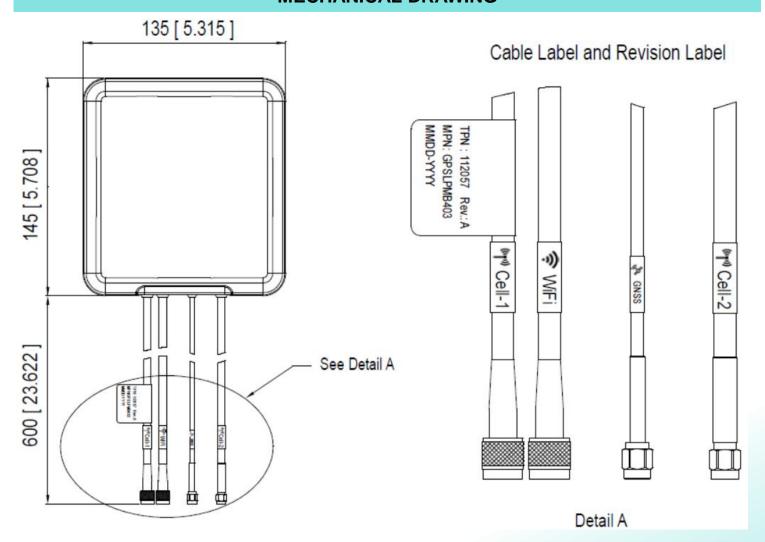
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## **Series: Low Profile MB**

### **MECHANICAL DRAWING**



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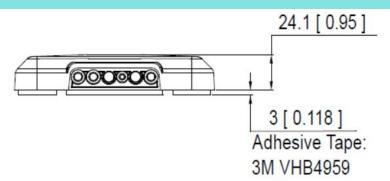
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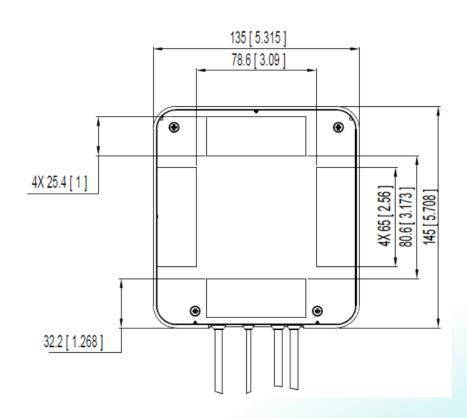
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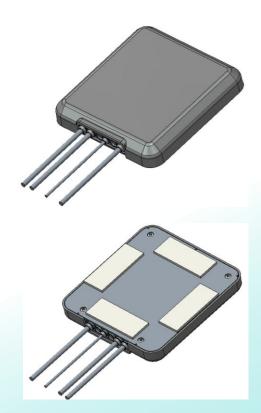
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### **MECHANICAL DRAWING**



### Adhesive Tape Placement





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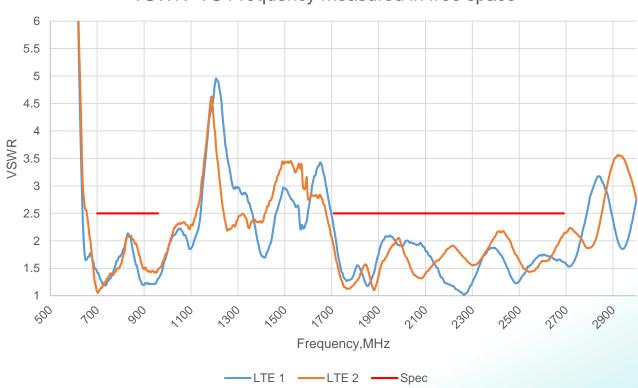
Vehicular Antenna

**PART NUMBER: GPSLPMB403** 

### **CHARTS**

### LTE 1 and LTE2 VSWR

VSWR VS Frequency measured in free space



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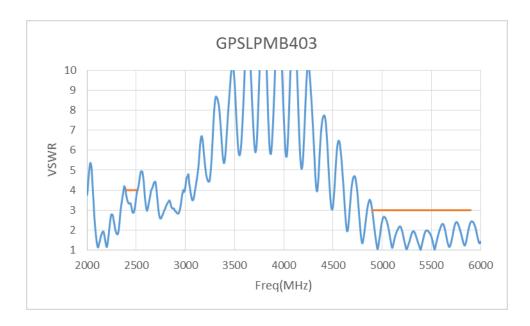
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### **CHARTS**

### WiFi VSWR\*



\* Test on bracket and diameter is 500mm ground plane

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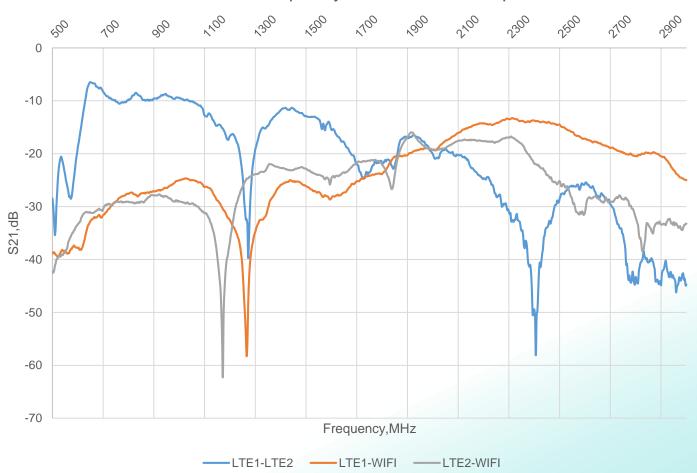
Vehicular Antenna

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### **CHARTS**

## Isolation

### Isolation vs Frequency measured in free space



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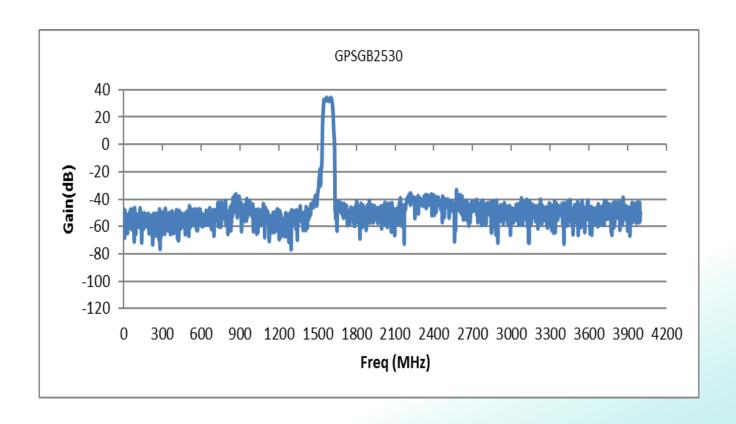
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### **CHARTS**

# GPS LNA Gain and out-of-band rejection



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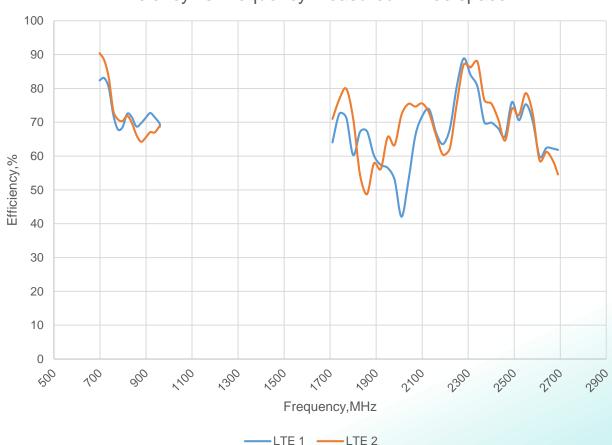
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### **CHARTS**

## LTE 1 and LTE2 Efficiency

Efficiency vs Frequency measured in free space



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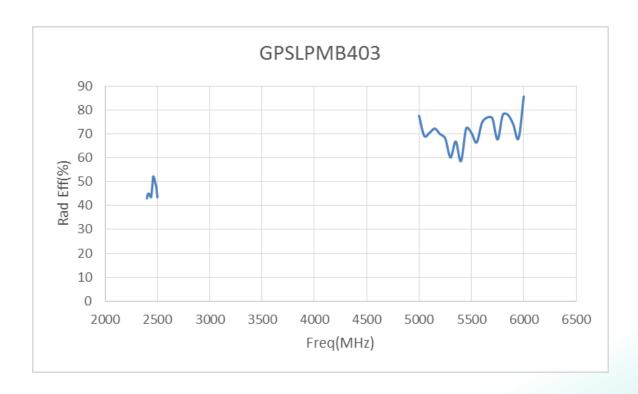
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### **CHARTS**

# WiFi Efficiency\*



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<sup>\*</sup> Test on bracket and diameter is 500mm ground plane



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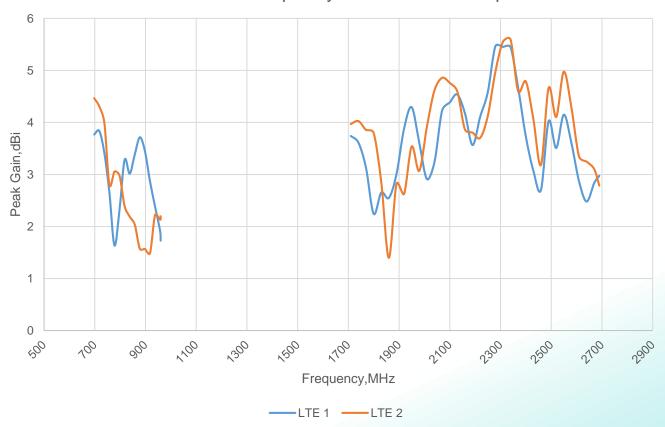
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### **CHARTS**

### LTE1 and LTE2 Peak Gain

Peak Gain vs Frequency measured in free space



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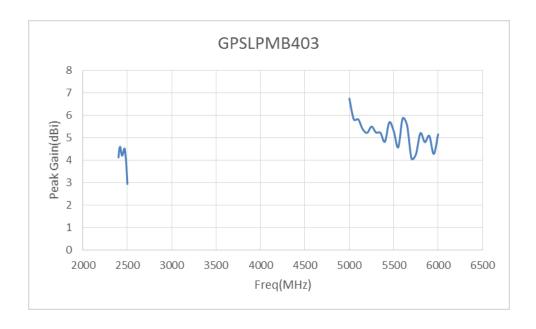
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### **CHARTS**

### WiFi Peak Gain\*



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**Series: Low Profile MB** 

**TECHNICAL DATA SHEET** 

Description: 2xLTE, WiFi, GNSS Multiband

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### **CHARTS**

### Gain Plots LTE1 XY Plane 5 30 330 700MHz Avg (dBi) = -4.43Peak (dBi) = 1.82 Avg - 3 (deg) = -515 60 300 -20 824MHz Avg (dBi) = -5.38-25 Peak (dBi) = -2.23Rower (dBm) -30 Avg - 3 (deg) = 140960MHz 90 Avg (dBi) = -4.35Y Peak (dBi) = -2.22Avg - 3 (deg) = 320120 240 150 210 -700MHz <del>----</del>824MHz <del>----</del>960MHz Issue: 1717 180 Phi Angle (°) RóHS

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# PulseLARSEN

**Series: Low Profile MB** 

**TECHNICAL DATA SHEET** 

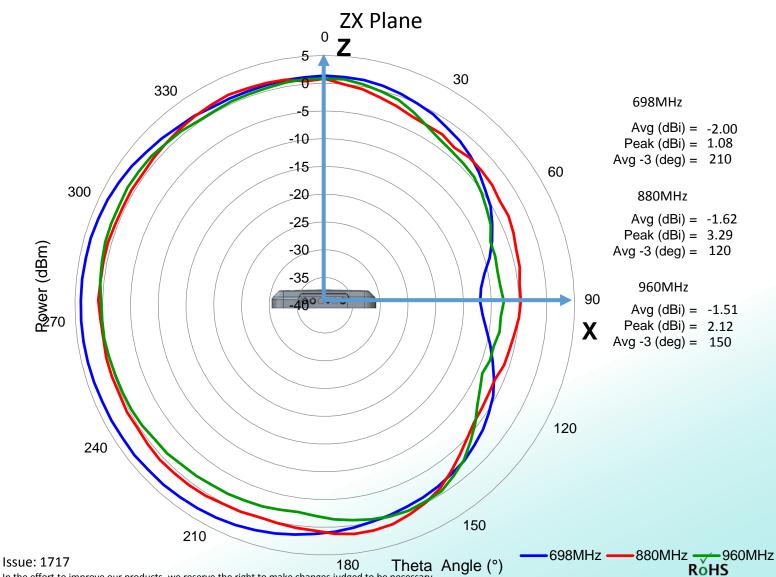
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### **CHARTS**

## Gain Plots LTE1



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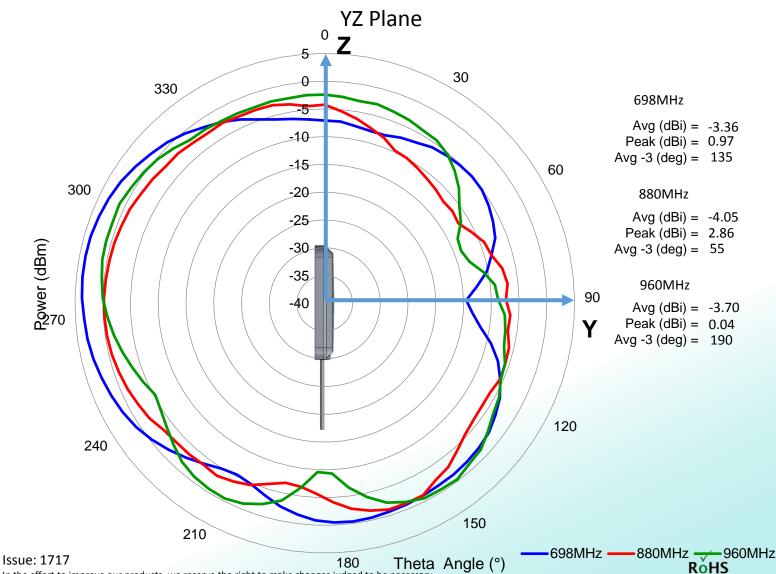
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### **CHARTS**

# Gain Plots LTE1



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### **CHARTS**

Gain Plots LTE1

### XY Plane 5 30 330 1710MHz Avg (dBi) = -5.66Peak (dBi) = -3.48Avg - 3 (deg) = 255-15 60 300 -20 2170MHz Avg (dBi) = -6.05-25 Peak (dBi) = -3.09Rewer (dBm) -30 Avg - 3 (deg) = 1602690MHz 90 Avg (dBi) = -0.19Y Peak (dBi) = 1.55 Avg - 3 (deg) = 320

Phi Angle (°) 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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Pulse (Suzhou) Wireless Products Co, Inc. 99 Huo Ju Road(#29 Bldg,4th Phase Suzhou New District Jiangsu Province, Suzhou 215009 PR China Tel: 86 512 6807 9998

1710MHz

2690MHz

120

2170MHz

RŏHS



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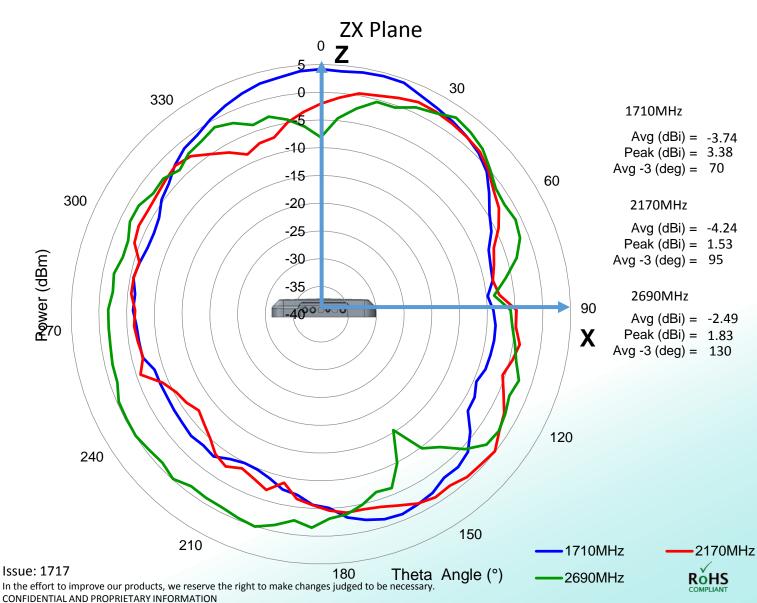
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# Gain Plots LTE1



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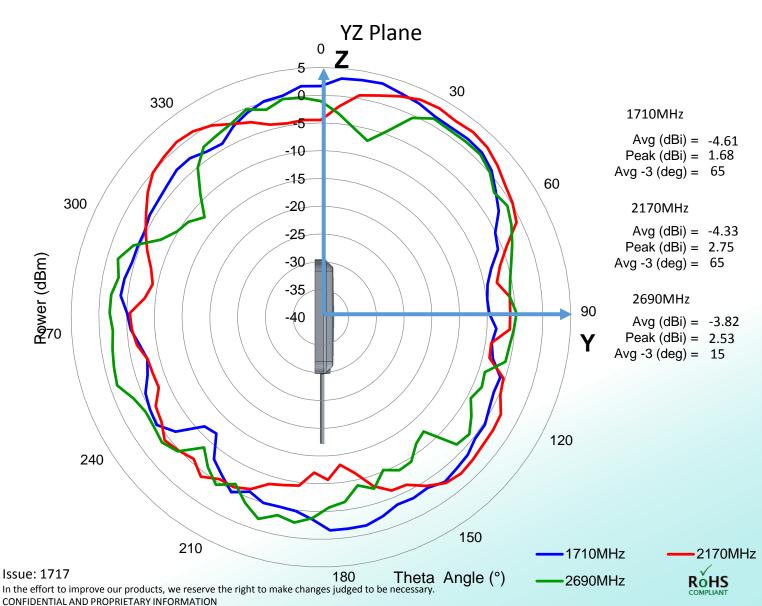
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PART NUMBER: GPSLPMB403

### **CHARTS**

## Gain Plots LTE1



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Tel:1-858-674-8100

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**Series: Low Profile MB** 

**TECHNICAL DATA SHEET** 

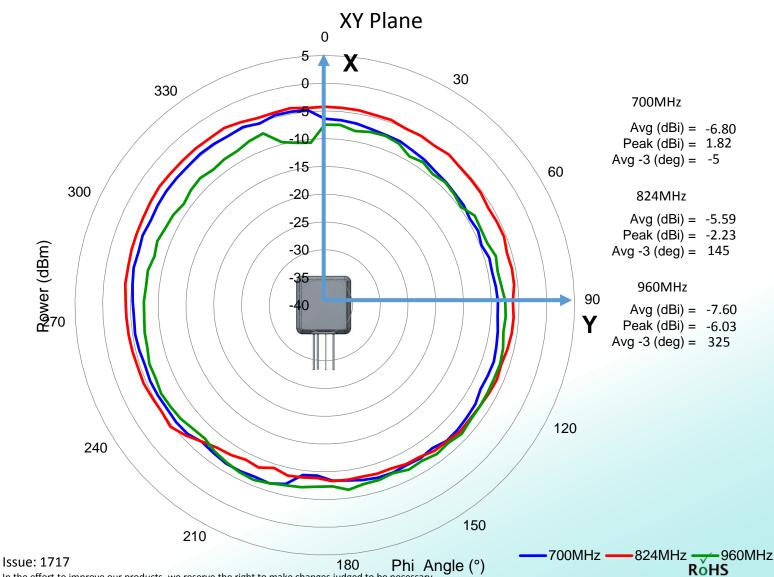
Description: 2xLTE, WiFi, GNSS Multiband

Vehicular Antenna

PART NUMBER: GPSLPMB403

### **CHARTS**

# Gain Plots LTE2



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**Series: Low Profile MB** 

TECHNICAL DATA SHEET

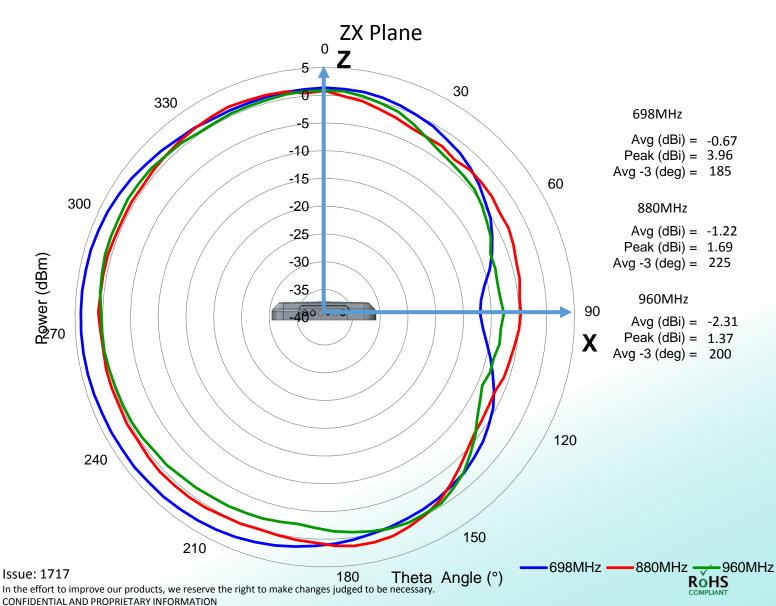
Description: 2xLTE, WiFi, GNSS Multiband

Vehicular Antenna

PART NUMBER: GPSLPMB403

### **CHARTS**

## Gain Plots LTE2



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**Series: Low Profile MB** 

**TECHNICAL DATA SHEET** 

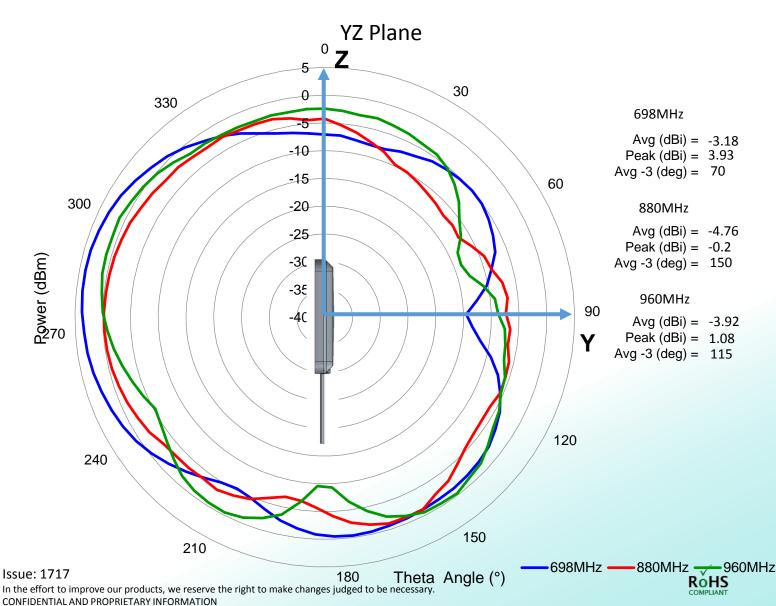
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Vehicular Antenna

PART NUMBER: GPSLPMB403

### **CHARTS**

## Gain Plots LTE2



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**Series: Low Profile MB** 

**TECHNICAL DATA SHEET** 

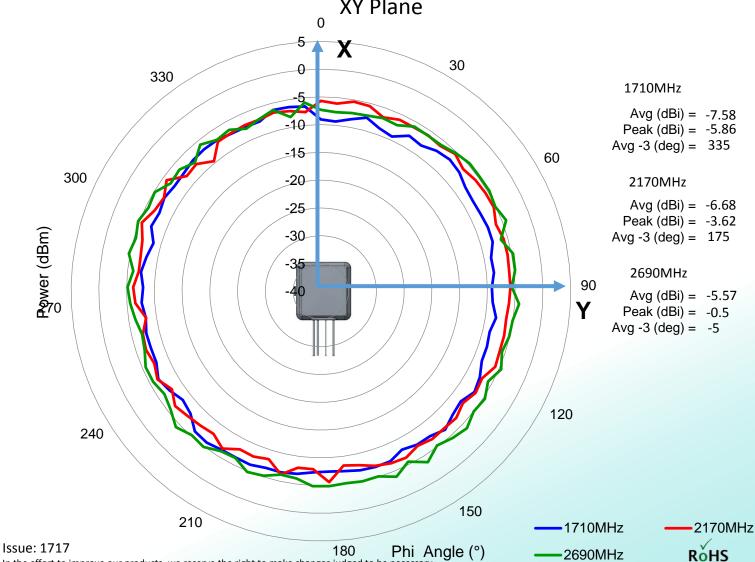
Description: 2xLTE, WiFi, GNSS Multiband

Vehicular Antenna

PART NUMBER: GPSLPMB403

### **CHARTS**

# Gain Plots LTE2 <sub>0</sub> XY Plane



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**Series: Low Profile MB** 

**TECHNICAL DATA SHEET** 

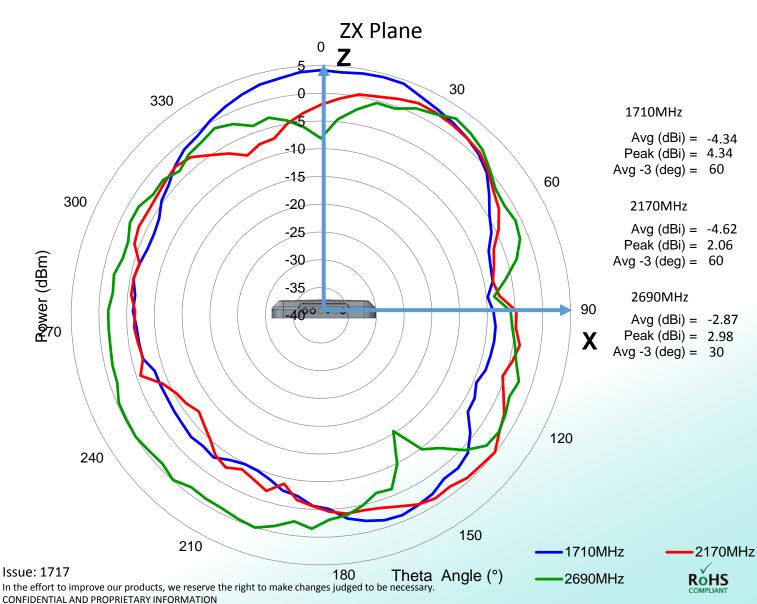
Description: 2xLTE, WiFi, GNSS Multiband

Vehicular Antenna

PART NUMBER: GPSLPMB403

### **CHARTS**

# Gain Plots LTE2



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**Series: Low Profile MB** 

TECHNICAL DATA SHEET

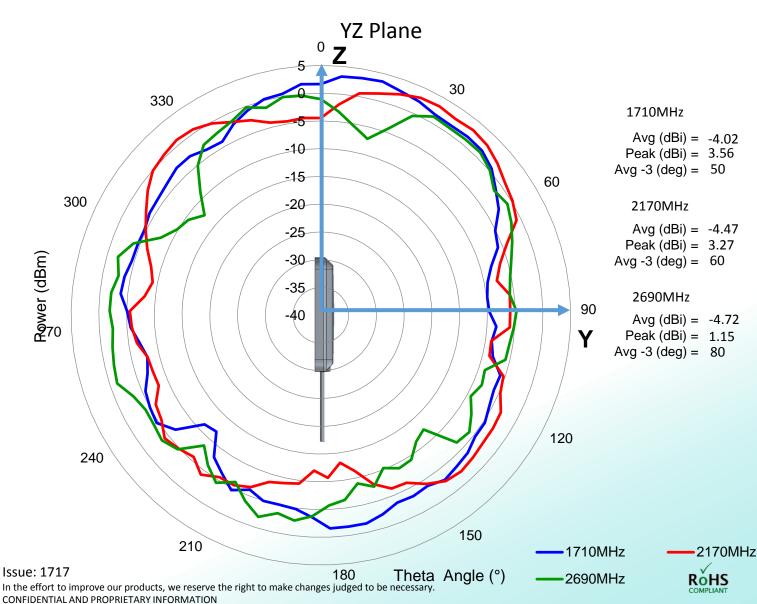
Description: 2xLTE, WiFi, GNSS Multiband

Vehicular Antenna

PART NUMBER: GPSLPMB403

### **CHARTS**

# Gain Plots LTE2



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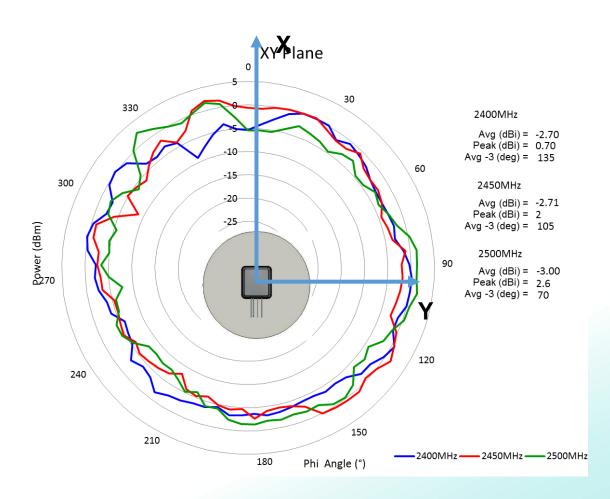
Description: 2xLTE, WiFi, GNSS Multiband

Vehicular Antenna

PART NUMBER: GPSLPMB403

### **CHARTS**

### Gain Plots WIFI\*



### \* Test on bracket and diameter is 500mm ground plane

Issue: 1717

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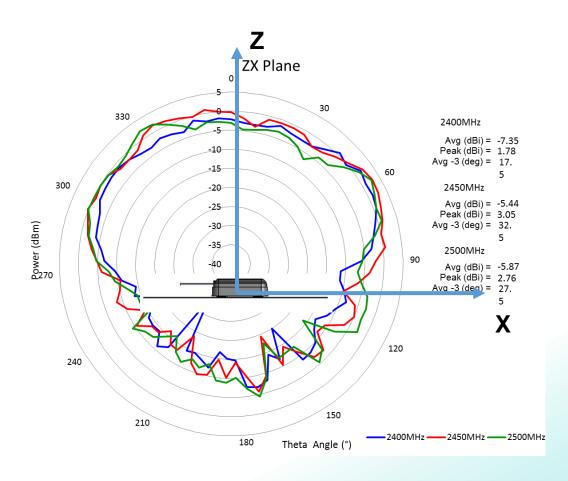
Description: 2xLTE, WiFi, GNSS Multiband

Vehicular Antenna

PART NUMBER: GPSLPMB403

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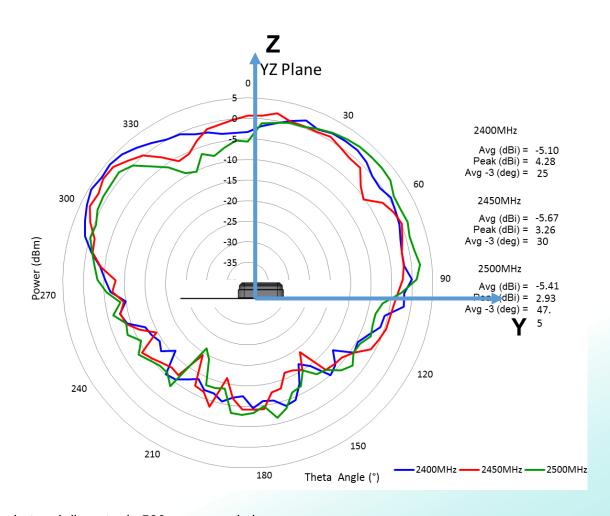
Description: 2xLTE, WiFi, GNSS Multiband

Vehicular Antenna

**PART NUMBER: GPSLPMB403** 

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### Gain Plots WIFI\*



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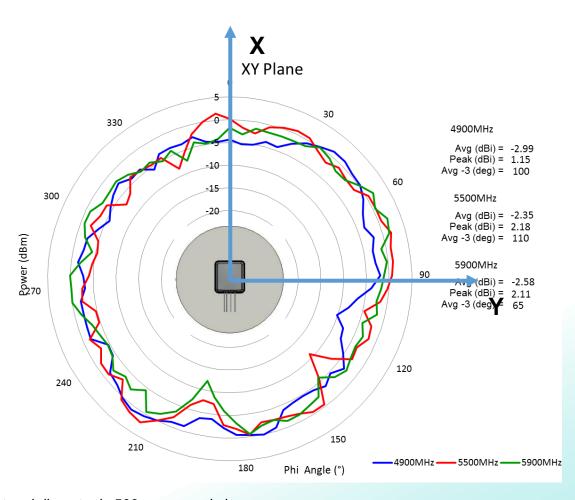
Description: 2xLTE, WiFi, GNSS Multiband

Vehicular Antenna

PART NUMBER: GPSLPMB403

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### Gain Plots WIFI\*



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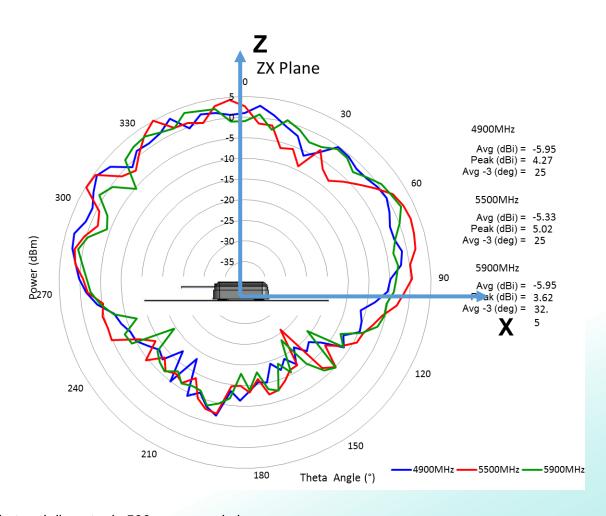
Description: 2xLTE, WiFi, GNSS Multiband

Vehicular Antenna

**PART NUMBER: GPSLPMB403** 

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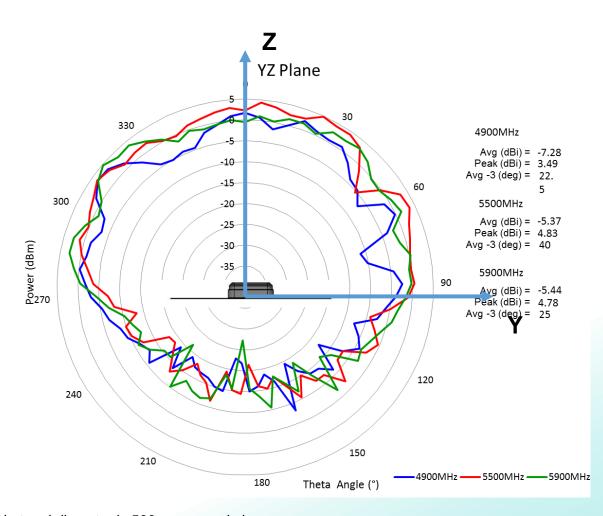
Description: 2xLTE, WiFi, GNSS Multiband

Vehicular Antenna

PART NUMBER: GPSLPMB403

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Description: 2xLTE, WiFi, GNSS Multiband

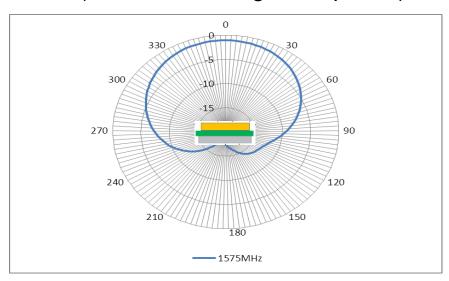
Vehicular Antenna

PART NUMBER: GPSLPMB403

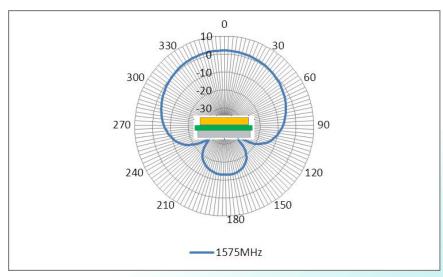
# **Series: Low Profile MB**

### **CHARTS**

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



25 X 25 X 4mm Ceramic Antenna



25 X 25 X 4mm Ceramic Antenna

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### **TECHNICAL DATA SHEET**

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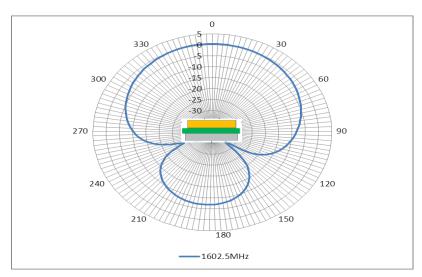
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PART NUMBER: GPSLPMB403

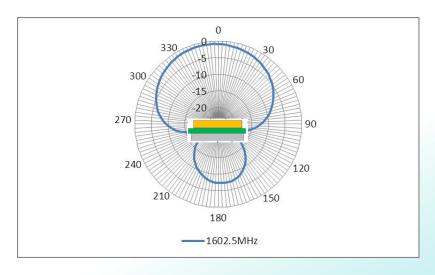
### PART NOIVIBL

### **CHARTS**

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



25 X 25 X 4mm Ceramic Antenna



25 X 25 X 4mm Ceramic Antenna

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Description: 2xLTE, WiFi, GNSS Multiband

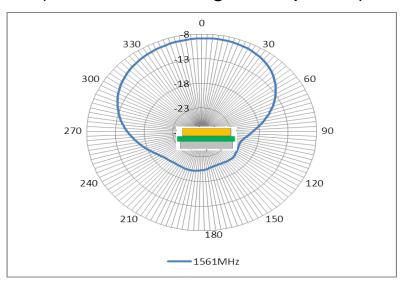
Vehicular Antenna

**PART NUMBER: GPSLPMB403** 

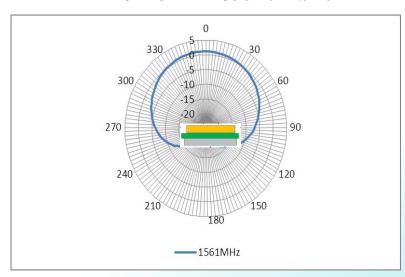
# **Series: Low Profile MB**

### **CHARTS**

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



25 X 25 X 4mm Ceramic Antenna



25 X 25 X 4mm Ceramic Antenna

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Description: 2xLTE, WiFi, GNSS Multiband

Vehicular Antenna

**PART NUMBER: GPSLPMB403** 

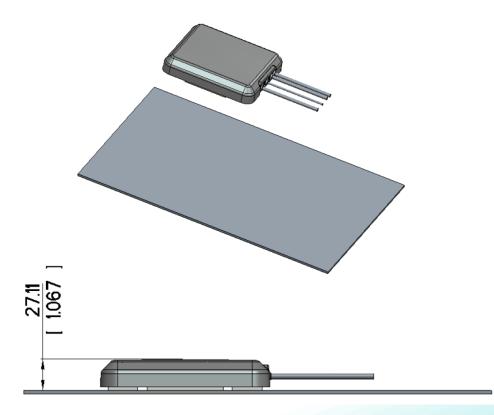
**Series: Low Profile MB** 

### **PACKAGING**

- Each antenna packed in a plastic bag
- 24 bags of antennas packed in a cardboard box.
- 1 label on each box with qty, part number, date code.

### **ASSEMBLY**

When this antenna is applied to a non-metallic surface, like glass fiber or plastic material, it could be adhered on the surface directly.





Description: 2xLTE, WiFi, GNSS Multiband

Vehicular Antenna

**Series: Low Profile MB** 

PART NUMBER: GPSLPMB403

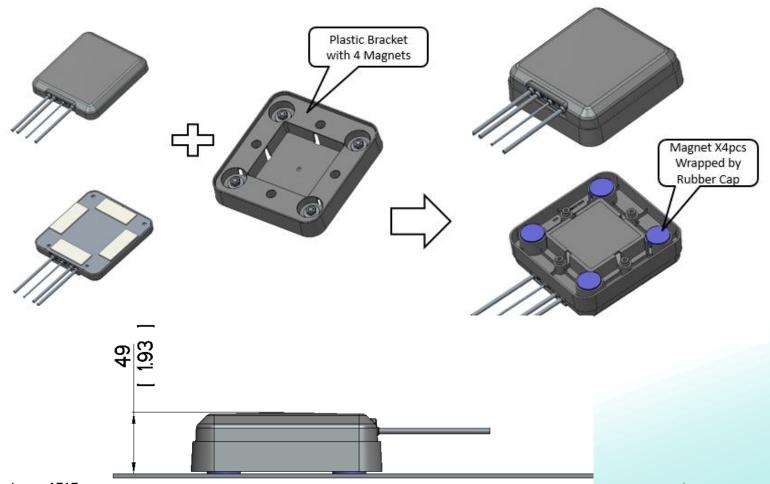
### **ASSEMBLY**

**Mounting with a plastic bracket**: When this antenna applied to the metal surface, a plastic bracket is needed to elevate the antenna 1" for the optimum RF performance.

## Option 1, Magnetic Mount ----Removable Mounting (No Surface damage)

The mounting surface is made of steel or iron.

Firstly, The antenna adhered on the plastic bracket with magnets by the adhesive tape. Then the whole assemble could "stick" on the iron metals by magnets, and also could be removed from the metal surface easily without surface damage.



Issue: 1717

ROHS



Description: 2xLTE, WiFi, GNSS Multiband

Vehicular Antenna

Series: Low Profile MB

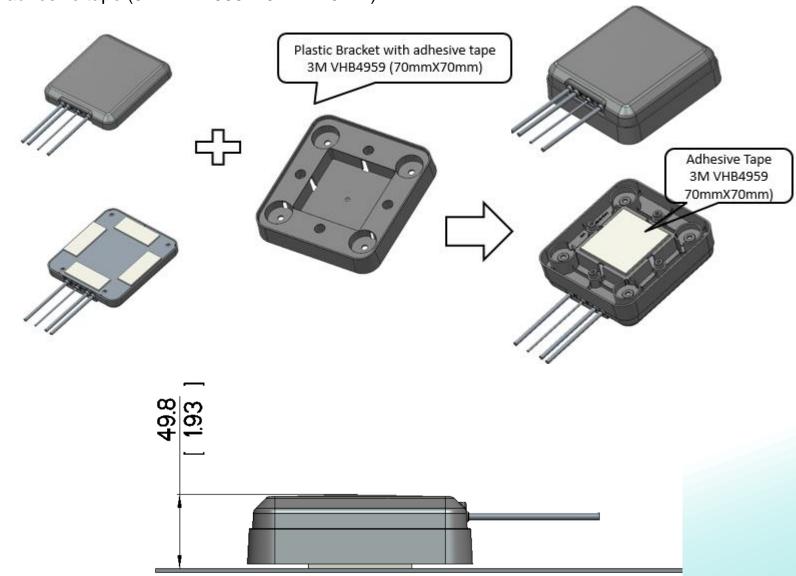
**PART NUMBER: GPSLPMB403** 

### **ASSEMBLY**

# Option 2, Adhesive Mount -- Permanent Mount

Especially when the mounting surface is made of non-ferrum metals, like aluminum, Firstly, the antenna adhered on the plastic bracket by the adhesive tape,

Then the whole assemble could adhere on the mounting surface by the 3MVHB adhesive tape (3M VHB4959 70mmX70mm).



Issue: 1717

ROH



Description: 2xLTE, WiFi, GNSS Multiband

Vehicular Antenna

**PART NUMBER: GPSLPMB403** 

## **Series: Low Profile MB**

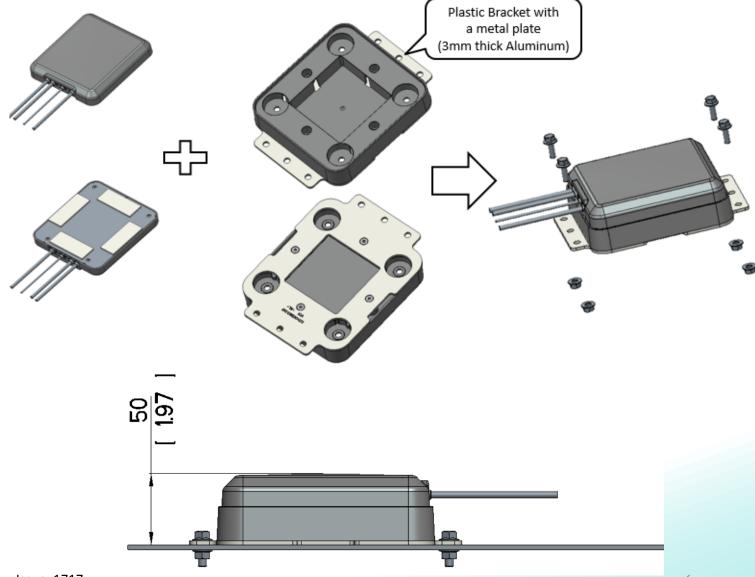
### **ASSEMBLY**

# **Option 3, Metal Plate Mount**

Permanent (but removable) mount with mechanical fastening (such as screws)

Firstly, the antenna adhered on a bracket by the adhesive tape,

Then the whole assemble could mount on the mounting surface with 4pcs M6 screws and 4pcs M6 nuts .









Description: 2xLTE, WiFi, GNSS Multiband

Vehicular Antenna

PART NUMBER: GPSLPMB403

## **Series: Low Profile MB**

### **ASSEMBLY**

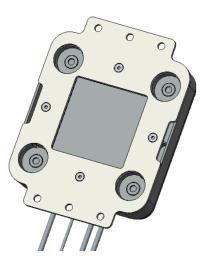
# **Option 3, Metal Plate Mount**

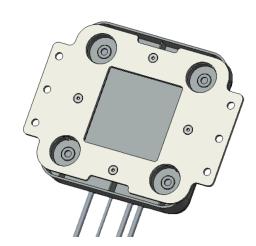
Permanent (but removable) mount with mechanical fastening (such as screws)

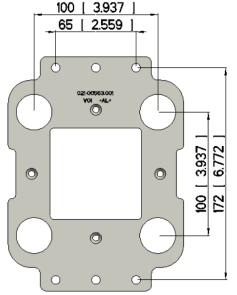
The metal plate is made of 3mm aluminum with anodizing (black color).

Different assembly orientation (Vertical/horizontal) of the metal plate is available (shown

as below).







Item	Mounting Screws and Nuts	Q'ty	Remark
1	Screw - M6 x 12mm	4pcs	Flanged Hex Head, Serated, DIN 6921, Class 8.8, Steel/Zinc Plated
2	Screw - M6 x 30mm	4pcs	Flanged Hex Head, Serated, DIN 6921, Class 8.8, Fully Threaded, Steel/Zinc Plated
3	Nut - M6	4pcs	Flanged, Serated, Class 8, Steel/Zinc Plated

# Mounting hole Dimensions

Issue: 1717



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