Description: 2x5G-FR1, WiFi-6E, GNSS
Multiband Vehicular Antenna

PART NUMBER: 5GGNSSLPMB401

Features:
- 2xMiMo 617-960/1427-1518/1710-6000MHz
- WiFi 2400-2500/4900-7125MHz
- 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 5G Data
- WiFi-6E compliant, supports 7.125GHz
- 4G LTE compliant
- Tracking, Navigation
- Fleet management
- Utility Vans (Gas, Water, Electricity)

All dimensions are in mm / inches
## Description:
2x5G-FR1, WiFi-6E, GNSS Multiband Vehicular Antenna

**PART NUMBER:** 5GGNSSLPMB401

---

### ELECTRICAL SPECIFICATIONS

#### LTE

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
<td>698-960/1427-1518/1710-6000 MHz</td>
</tr>
<tr>
<td>Nominal Impedance</td>
<td>50 Ω</td>
</tr>
<tr>
<td>VSWR</td>
<td>3 Max</td>
</tr>
<tr>
<td>Average Efficiency (617-960MHz)</td>
<td>62 %</td>
</tr>
<tr>
<td>Average Efficiency (1427-1518MHz)</td>
<td>58 %</td>
</tr>
<tr>
<td>Average Efficiency (1710-6000MHz)</td>
<td>68 %</td>
</tr>
<tr>
<td>Peak Gain (617-960MHz)</td>
<td>2.7 dBi</td>
</tr>
<tr>
<td>Peak Gain (1427-1518MHz)</td>
<td>3.0 dBi</td>
</tr>
<tr>
<td>Peak Gain (1710-6000MHz)</td>
<td>3.9 dBi</td>
</tr>
</tbody>
</table>

#### WIFI

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
<td>2400-2500/4900-7125 MHz</td>
</tr>
<tr>
<td>Nominal Impedance</td>
<td>50 Ω</td>
</tr>
<tr>
<td>VSWR @2400-2500MHz</td>
<td>2 Max</td>
</tr>
<tr>
<td>VSWR @4900-7125MHz</td>
<td>2 Max</td>
</tr>
<tr>
<td>Average Efficiency (2400-2500MHz)</td>
<td>63 %</td>
</tr>
<tr>
<td>Average Efficiency (4900-7125MHz)</td>
<td>74 %</td>
</tr>
<tr>
<td>Peak Gain (2400-2500MHz)</td>
<td>4.5 dBi</td>
</tr>
<tr>
<td>Peak Gain (4900-7125MHz)</td>
<td>5.7 dBi</td>
</tr>
</tbody>
</table>
**Description:** 2x5G-FR1, WiFi-6E, GNSS Multiband Vehicular Antenna

**PART NUMBER:** 5GGNSSLPMB401

### ELECTRICAL SPECIFICATIONS

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GPS</strong></td>
<td></td>
</tr>
<tr>
<td>Frequency</td>
<td>1561.098±2.046/ 1575.42±1.023/ 1602.5625±4 MHz</td>
</tr>
<tr>
<td>Nominal Impedance</td>
<td>50 Ω</td>
</tr>
<tr>
<td>VSWR</td>
<td>2:1</td>
</tr>
<tr>
<td>Gain (Radiating element)</td>
<td>1 dBi +/- 1 dB</td>
</tr>
<tr>
<td>Gain (LNA gain)</td>
<td>30 dB +/- 2 dB</td>
</tr>
<tr>
<td>Polarization</td>
<td>RHCP</td>
</tr>
<tr>
<td>Out of Band Rejection</td>
<td></td>
</tr>
<tr>
<td>698 MHz &gt;70 dB</td>
<td></td>
</tr>
<tr>
<td>960 MHz &gt;65 dB</td>
<td></td>
</tr>
<tr>
<td>1710 MHz &gt;60 dB</td>
<td></td>
</tr>
<tr>
<td>2170 MHz &gt;65 dB</td>
<td></td>
</tr>
<tr>
<td>2400 MHz &gt;65 dB</td>
<td></td>
</tr>
<tr>
<td>Noise Figure</td>
<td>&lt;2.4 dB</td>
</tr>
<tr>
<td>Operating Voltage</td>
<td>3.3-5 Vdc±0.5 V</td>
</tr>
<tr>
<td>Current Consumption</td>
<td>&lt;11 mA</td>
</tr>
</tbody>
</table>
**Description:** 2x5G-FR1, WiFi-6E, GNSS
Multiband Vehicular Antenna

**PART NUMBER:** 5GGNSSLPMB401

### ELECTRICAL SPECIFICATIONS

Cable and Connector type

<table>
<thead>
<tr>
<th>Item</th>
<th>5GGNSSLPMB401 RF Cables</th>
<th>Cable Type</th>
<th>Cable Length</th>
<th>Connector</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5GFR1-1</td>
<td>LMR195</td>
<td></td>
<td>SMA Male</td>
</tr>
<tr>
<td>2</td>
<td>WiFi-6E</td>
<td>LMR195</td>
<td>10ft / 3meters</td>
<td>RP-SMA Male</td>
</tr>
<tr>
<td>3</td>
<td>GPS</td>
<td>LMR100</td>
<td></td>
<td>SMA Male</td>
</tr>
<tr>
<td>4</td>
<td>5GFR1-2</td>
<td>LMR195</td>
<td></td>
<td>SMA Male</td>
</tr>
</tbody>
</table>
**Description:** 2x5G-FR1, WiFi-6E, GNSS
Multiband Vehicular Antenna

**PART NUMBER:** 5GGNSSLPMB401

### MECHANICAL SPECIFICATIONS

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plastic radome</td>
<td>SABIC PC943</td>
</tr>
<tr>
<td>Color</td>
<td>Black</td>
</tr>
<tr>
<td>Ingress Protection</td>
<td>IP67</td>
</tr>
<tr>
<td>Weight</td>
<td>800 g</td>
</tr>
<tr>
<td>Cable retention: Pull off</td>
<td>30N mini</td>
</tr>
<tr>
<td>Fixing system</td>
<td>3M VHB4959 (T=3mm)</td>
</tr>
</tbody>
</table>

### ENVIRONMENTAL SPECIFICATIONS

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating temperature</td>
<td>-40 ~ +85 °C</td>
</tr>
</tbody>
</table>
Description: 2x5G-FR1, WiFi-6E, GNSS Multiband Vehicular Antenna

PART NUMBER: 5GGNSSLPMB401

MECHANICAL DRAWING

<table>
<thead>
<tr>
<th>Item</th>
<th>5GGNSSLPMB401 RF Cables</th>
<th>Cable Type</th>
<th>Cable Length</th>
<th>Connector</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5GFR1-1</td>
<td>LMR195</td>
<td>10ft / 3meters</td>
<td>SMA Male</td>
</tr>
<tr>
<td>2</td>
<td>WiFi-6E</td>
<td>LMR195</td>
<td></td>
<td>RP-SMA Male</td>
</tr>
<tr>
<td>3</td>
<td>GPS</td>
<td>LMR100</td>
<td></td>
<td>SMA Male</td>
</tr>
<tr>
<td>4</td>
<td>5GFR1-2</td>
<td>LMR195</td>
<td></td>
<td>SMA Male</td>
</tr>
</tbody>
</table>
Description: 2x5G-FR1, WiFi-6E, GNSS Multiband Vehicular Antenna
PART NUMBER: 5GGNSSLPMB401

Series: Jaguar

MECHANICAL DRAWING
Description: 2x5G-FR1, WiFi-6E, GNSS Multiband Vehicular Antenna
PART NUMBER: 5GGNSSLPMB401

5G-FR1 / LTE 1 and LTE2 VSWR

![5G-FR1 / LTE 1 and LTE2 VSWR Chart]

WiFi VSWR

![WiFi VSWR Chart]
Description: 2x5G-FR1, WiFi-6E, GNSS Multiband Vehicular Antenna
PART NUMBER: 5GGNSSLPMB401

CHARTS
Isolation

Isolation Vs Frequency measured with 1M cable in free space

GPS LNA Gain and out-of-band rejection

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Description: 2x5G-FR1, WiFi-6E, GNSS Multiband Vehicular Antenna
PART NUMBER: 5GGNSSLPMB401

CHARTS

5G-FR1 / LTE 1 and LTE2 Efficiency

![Graph showing 5G-FR1 / LTE 1 and LTE2 Efficiency](image)

WiFi Efficiency

![Graph showing WiFi Efficiency](image)
Series: Jaguar

Description: 2x5G-FR1, WiFi-6E, GNSS Multiband Vehicular Antenna

PART NUMBER: 5GGNSSLPMB401

CHARTS

5G-FR1 / LTE1 and LTE2 Peak Gain

![Graph showing 5G-FR1 / LTE1 and LTE2 Peak Gain vs Frequency with 1M cable in free space.]

WiFi Peak Gain*

![Graph showing WiFi Peak Gain vs Frequency with 1M cable in free space.]

Issue: 2110

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Description: 2x5G-FR1, WiFi-6E, GNSS Multiband Vehicular Antenna

PART NUMBER: 5GGNSSLPMB401

CHARTS

Gain Plots 5G-FR1 / LTE1

Gain (dB)

XY Plane

Gain (dB)

ZX Plane

Gain (dB)

YZ Plane

617MHz
Avg (dB) = -3.12
Peak (dB) = 0.24
Avg -3 (deg) = 186.5

777MHz
Avg (dB) = -3.33
Peak (dB) = 1.65
Avg -3 (deg) = 60.5

960MHz
Avg (dB) = -4.31
Peak (dB) = -0.34
Avg -3 (deg) = 93.5

617MHz
Avg (dB) = -3.55
Peak (dB) = -0.98
Avg -3 (deg) = 236.5

777MHz
Avg (dB) = -2.75
Peak (dB) = 1.03
Avg -3 (deg) = 85.5

960MHz
Avg (dB) = -1.96
Peak (dB) = 2.54
Avg -3 (deg) = 81.5

617MHz
Avg (dB) = -3.09
Peak (dB) = 0.29
Avg -3 (deg) = 135.5

777MHz
Avg (dB) = -2.80
Peak (dB) = 0.79
Avg -3 (deg) = 142.5

960MHz
Avg (dB) = -2.04
Peak (dB) = 1.78
Avg -3 (deg) = 91.5

Issue: 2110

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Description: 2x5G-FR1, WiFi-6E, GNSS Multiband Vehicular Antenna
PART NUMBER: 5GGNSSLPMB401

**CHARTS**

Gain Plots 5G-FR1 / LTE1

**Issue:** 2110
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Description: 2x5G-FR1, WiFi-6E, GNSS Multiband Vehicular Antenna
PART NUMBER: 5GGNSSLPMB401

CHARTS

Gain Plots 5G-FR1 / LTE2

![Gain Plots Diagrams](image-url)
Description: 2x5G-FR1, WiFi-6E, GNSS
Multiband Vehicular Antenna

PART NUMBER: 5GGNSSLPMB401

CHARTS

Gain Plots 5G-FR1 / LTE2
Description: 2x5G-FR1, WiFi-6E, GNSS Multiband Vehicular Antenna

PART NUMBER: 5GGNSSLPMB401

Series: Jaguar

**CHARTS**

Gain Plots WIFI

**Issue: 2110**

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Description: 2x5G-FR1, WiFi-6E, GNSS
Multiband Vehicular Antenna
PART NUMBER: 5GGNSSLPMB401

CHARTS

Gain Plots WIFI

XY Plane

4900MHz
Avg(dB) = -2.27
Peak(dB) = 1.17
Avg -3(dB) = 147.5

6000MHz
Avg (dB) = -1.79
Peak (dB) = 1.82
Avg -3 (dB) = 131.5

7125MHz
Avg (dB) = -0.70
Peak (dB) = 5.90
Avg -3 (dB) = 52.5

ZX Plane

4900MHz
Avg(dB) = -4.46
Peak(dB) = 0.26
Avg -3(dB) = 74.5

6000MHz
Avg (dB) = -5.20
Peak (dB) = -2.04
Avg -3 (dB) = 167.5

7125MHz
Avg (dB) = -4.13
Peak (dB) = -0.39
Avg -3 (dB) = 136.5

YZ Plane

4900MHz
Avg(dB) = -1.76
Peak(dB) = 2.59
Avg -3(dB) = 118.5

6000MHz
Avg (dB) = -1.75
Peak (dB) = 1.84
Avg -3 (dB) = 161.5

7125MHz
Avg (dB) = -1.76
Peak (dB) = 1.84
Avg -3 (dB) = 158.5

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Description: 2x5G-FR1, WiFi-6E, GNSS Multiband Vehicular Antenna

PART NUMBER: 5GGNSSLPMB401

CHARTS

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

25 X 25 X 4mm Ceramic Antenna
Description: 2x5G-FR1, WiFi-6E, GNSS Multiband Vehicular Antenna

PART NUMBER: 5GGNSSLPMB401

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

25 X 25 X 4mm Ceramic Antenna

25 X 25 X 4mm Ceramic Antenna
Description: 2x5G-FR1, WiFi-6E, GNSS Multiband Vehicular Antenna
PART NUMBER: 5GGNSSLPMB401

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

25 X 25 X 4mm Ceramic Antenna

25 X 25 X 4mm Ceramic Antenna
Description: 2x5G-FR1, WiFi-6E, GNSS Multiband Vehicular Antenna

PART NUMBER: 5GGNSSLPMB401

PACKAGING

- Each antenna packed in a plastic bag
- 12 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:** 2x5G-FR1, WiFi-6E, GNSS Multiband Vehicular Antenna

**PART NUMBER:** 5GGNSSLPMB401

---

**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, LPMB4BRACKETMM 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 be attached on the iron metals by magnets, and also could be removed from the metal surface easily without surface damage.
Description: 2x5G-FR1, WiFi-6E, GNSS
Multiband Vehicular Antenna
PART NUMBER: 5GGNSSLPMB401

ASSEMBLY

Option 2, LPMB4BRACKETAM 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).