MULTI FUNCTION MIMO ANTENNA

MIMO LTE/GPS/WIFI ANTENNA

The Multi Function has a compact OEM style shark fin housing that contains 2x2 MiMo antenna function for 4G/3G/2G and an active antenna for GPS/GLONASS/Galileo/Beidou with 26dB gain LNA. In order to maximise functionality versions of the Multi Function Antenna are available that add either 2x2 MiMo or 3x3 MiMo antenna functionality for 2.4/5.8GHz WiFi.

The shark fin style design provides multiple antenna functions while remaining discreet and is suitable for public safety (overt/covert), industrial and transport applications where a cost effective, efficient and robust antenna is essential. Requiring only a single hole mounting, the SHK[G] reduces vehicle damage, installation time & cost and visual impact whilst protecting a vehicle’s resale value.

Technical Drawing
## MULTI FUNCTION MIMO ANTENNA

### Part Number

<table>
<thead>
<tr>
<th></th>
<th>2332157-1</th>
<th>2332157-2</th>
<th>2332157-3</th>
<th>2332157-4</th>
</tr>
</thead>
</table>

### Electrical Data

<table>
<thead>
<tr>
<th>Frequency Range (MHz)</th>
<th>698-960 / 1710-2170 / 2500-3800 (2G, 3G, 4G)</th>
<th>- / 1562-1612 (GPS/GNSS/Galileo/Beidou)</th>
<th>- / 2300-2500, 4900-6000 (WLAN)</th>
</tr>
</thead>
</table>

**Peak Gain:**

- Elements 2&3: 2dBi (598-960MHz), 5dBi (1710-3800MHz)
- Elements 4, 5, 6: - / 4dBi (2.4GHz), 6dBi (5.8GHz)

**Isolation with 5m CS29:**

- Cellular: >12dBi, WiFi: >20dB

**Typical efficiency w/o cable loss:**

- Elements 2&3: >50%

**Correlation co-efficient:**

- Elements 2&3: <0.2

**Polarisation:**

- Vertical (Element 6 is Horizontal)

**Pattern:**

- Omni Directional

**Impedance:**

- 50Ω

**Max Input Power (W):**

- 25

### GPS / GNSS Data

<table>
<thead>
<tr>
<th>Frequency Range (MHz)</th>
<th>-</th>
<th>1562-1612</th>
</tr>
</thead>
</table>

**VSWR:**

- <2:1 ± 4MHz

**Gain: LNA:**

- - / 26dB

**Polarisation:**

- Right Hand Circular

**Operating Voltage:**

- 3-5V DC (fed via Coax)

**Current:**

- Typical <20mA

### Mechanical Data

<table>
<thead>
<tr>
<th>Dimensions (mm)</th>
<th>Height</th>
<th>50 (2.2&quot;)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Length</td>
<td>170 (6.77&quot;)</td>
</tr>
<tr>
<td></td>
<td>Width</td>
<td>60 (2.4&quot;)</td>
</tr>
</tbody>
</table>

**Operating Temp (°C):**

- -40 to +80°C (-40 to 176°F)

**Material:**

- ASA, EPDM, Aluminium Alloy Black

**Approx Weight (g):**

- 260

**Ingress protection:**

- IP 66

### Mounting Data

**Fixing:**

- Panel Mount, 19mm hole size

### Cable Data

**Cable Type all feeds:**

- RG174 (UN ECE 118.01 Compliant)

**Dimensions:**

- 2.8mm x 300mm (0.11" x 12")

**Termination:**

- GPS/GNSS: FME Socket, 4G: 2x SMA plug, WiFi: 2 or 3x SMA socket
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### Typical VSWR - 2G/3G/4G Elements 2&3*

*VSWR measured with no whip and 5m (16') of CS29 cable. Black & Blue = no ground plane. Green and Red = 600x600mm (2'x2') ground plane.*

### Typical VSWR - WiFi Elements 4&5*

*VSWR measured with no whip and 5m (16') of CS32 cable.*

### Typical Isolation - Cellular Elements 2&3*

*Isolation measured with no whip and 5m (16') of CS29 cable. Green Plot = 600x600mm (2'x2') ground plane. Red Plot = no ground plane.*

### Typical Isolation - WiFi Elements 4&5*

*Isolation measured with no whip and 5m (16') of CS29 cable. Red Plot = 600x600mm (2'x2') ground plane. Green Plot = no ground plane.*
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Typical 3D Radiation Patterns - Wifi Elements 4&5

3D Gain Plot Side (2.4GHz)

3D Gain Plot Top (2.4GHz)

3D Gain Plot Side (5.4GHz)

3D Gain Plot Top (5.4GHz)

3D Gain Plot Side (2.4GHz)

*3D radiation patterns simulated in CST Microwave Studio on a 600x600mm (2' X2') ground plane with both elements fed together.

Typical Radiation Patterns - GPS/GNSS Element 1

Element 3: Typical E Plane Pattern

Typical Total Efficiency

Typical Total Efficiency - Cellular Elements 2&3*

* Efficient simulated in free space with no whip and no ground plane and no cable.

Typical Correlation Co-efficient

Typical Correlation Co-efficient - Cellular Elements 2&3*

*Correlation co-efficient simulated in free space with no whip, no additional cable and no ground plane.