

# Multifunction MiMo Antenna

GPSD

PANORAMA ANTENNAS



## GPSD

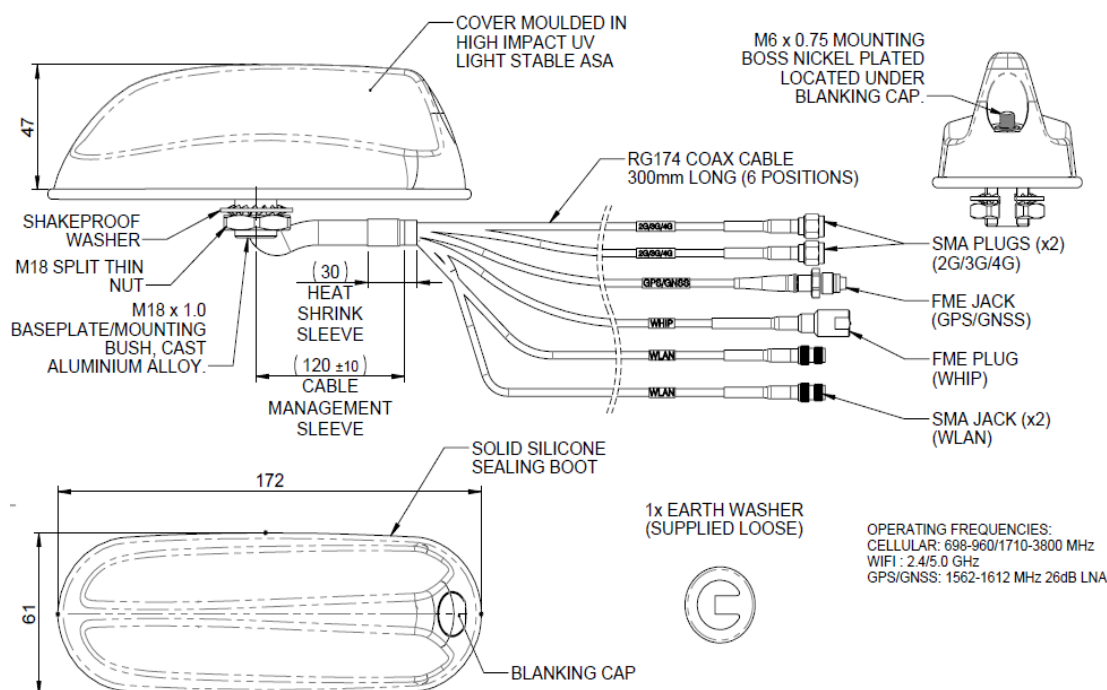
- OEM shark fin styling
- GPS/GNSS, MiMo 4G/3G/2G & Optional MiMo 2.4/4.9-6GHz
- Support for VHF or UHF external antenna

The GPSD 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 addition, there is an integral stud mount for an external antenna whip that can support a range of VHF, UHF or 700/800MHz antennas. A blanking cover is supplied for when an external whip is not required. A further version of GPSD is available that adds 2x2 MiMo antenna function for 2.4/5.8GHz WiFi.

The GPSD 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 GPSD reduces vehicle damage, installation time & cost and visual impact whilst protecting a vehicle's resale value.

## Technical Drawing

GPSD-7-27-24-58 shown



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## Product Data

|                                    |                               |   |  |                |
|------------------------------------|-------------------------------|---|--|----------------|
| Part No                            | GPSD-7-27                     |   | GPSD-7-27-24-58                                  |                |
| Electrical Data                    |                               |   |  |                |
| Frequency Range (MHz)              | Element 1                     | 1562-1612                               |  |                |
|                                    | Elements 2 & 3                | 698-960, 1710-2170, 2500-3800           |  |                |
|                                    | Elements 4 & 5                | -                                       | 2300-2500 & 4900-6000                            |                |
|                                    | Whip                          | Dependent on selected whip              |  |                |
| Operational Bands                  | Element 1                     | GPS/GNSS/Galileo/Beidou                 |  |                |
|                                    | Elements 2 & 3                | 4G/3G/2G                                |  |                |
|                                    | Elements 4 & 5                | -                                       | 2.4GHz WLAN / Public Safety 4.9GHz / 5.8GHz WiFi |                |
|                                    | Whip                          | Dependent on selected whip              |  |                |
| Peak gain: Isotropic*              | Elements 2 & 3                | 2dBi (698-960MHz)   5dBi (1710-3800MHz) |  |                |
|                                    | Elements 3 & 4                | -                                       | 4dBi (2.4GHz), 6dBi (5.8GHz)                     |                |
| Isolation (with 5m (16') CS29      | Cellular                      | >12dB                                   |  |                |
|                                    | WiFi                          | > 20dB                                  |  |                |
| Typical Efficiency* w/o Cable Loss | Elements 2 & 3                | > 50%                                   |  |                |
| Correlation Co-efficient           | Elements 2 & 3                | <0.2                                    |  |                |
| Polarisation                       | Vertical                      |   |  |                |
| Pattern                            |                               | Omni-directional                        |  |                |
| Impedance                          | 50Ω                           |   |  |                |
| Max Input Power (W)                |                               | Internal elements 25W / main whip 60W   |  |                |
| GPS/GNSS Data                      |                               |   |  |                |
| Frequency Range (MHz)              | 1562-1612                     |   |  |                |
| VSWR                               |                               | <2:1 ± 4MHz                             |  |                |
| Gain: LNA                          | 26dB                          |   |  |                |
| Polarisation                       |                               | Right Hand Circular                     |  |                |
| Operating Voltage                  | 3-5V DC (fed via coax)        |   |  |                |
| Current                            |                               | Typical <20mA                           |  |                |
| Mechanical Data                    |                               |   |  |                |
| Dimensions (mm)                    | Total Height (excluding whip) | 50 (2.2")                               |  |                |
|                                    | Length                        | 170 (6.77")                             |  |                |
|                                    | Width                         | 60 (2.4")                               |  |                |
| Operating Temp (°C)                | -40° / +80°C (-40° / 176°F)   |   |  |                |
| Material                           |                               | ASA, EPDM, Aluminium Alloy              |  |                |
| Colour                             | Black                         |   |  |                |
| Weight (g)                         |                               | 240                                     |  | 260            |
| Ingress Protection                 | IP66                          |   |  |                |
| Mounting Info                      |                               |   |  |                |
| Fixing                             | Panel Mount                   |   |  |                |
| Hole Size (mm)                     | 19 (3/4")                     |   |  |                |
| Cable Data                         |                               |   |  |                |
| Cable Type - All Feeds             | RG174 (UN ECE 118 Compliant)  |   |  |                |
| Dimensions (mm)                    | Diameter                      | 2.8 (0.11")                             |  |                |
|                                    | Length                        | 300 mm (12")                            |  |                |
| Termination                        | Whip                          | FME plug                                |  |                |
|                                    | GPS/GNSS                      | FME socket                              |  |                |
|                                    | 2 x 4G/3G/2G                  | 2 x SMA plug                            |  |                |
|                                    | 2 x WiFi                      | -                                       |  | 2 x SMA socket |

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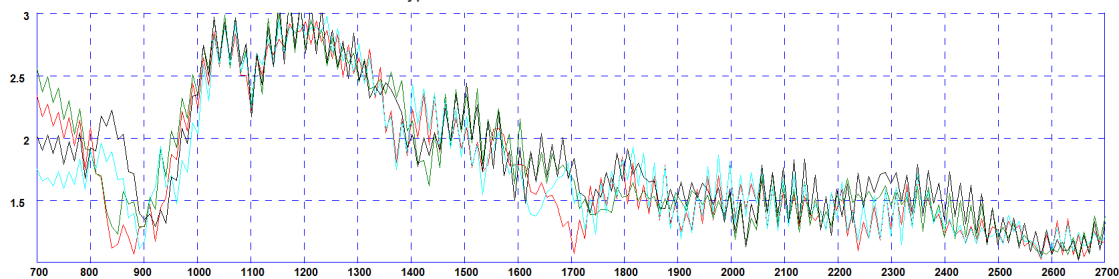
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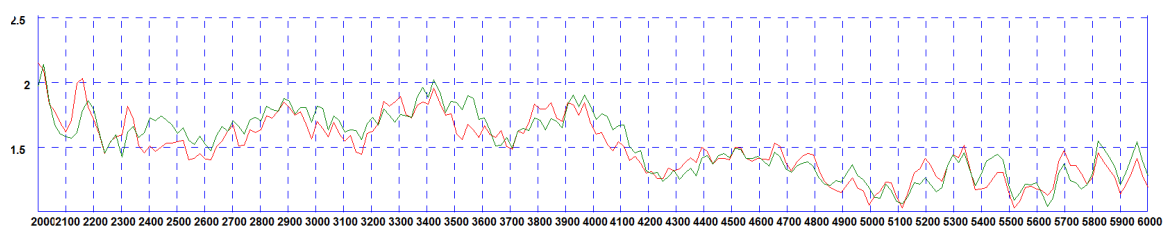
## Electrical Data - Cell

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

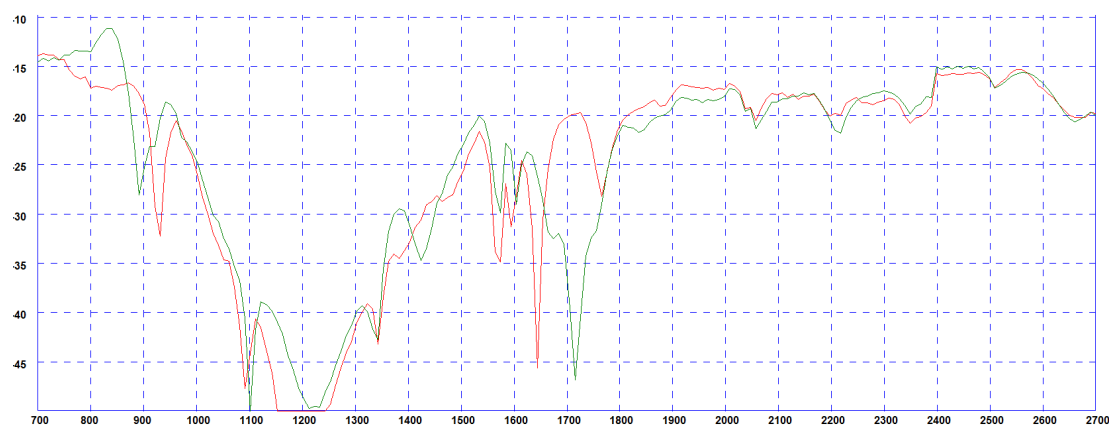
Typical VSWR - WiFi Elements 4&5\*



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

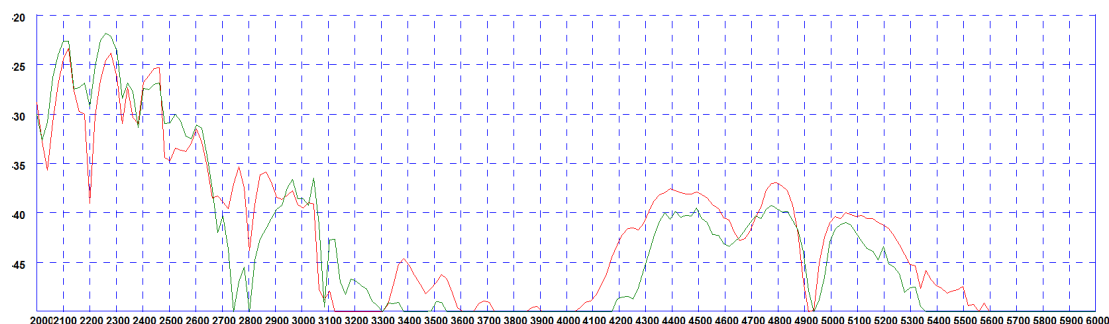
## Isolation

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

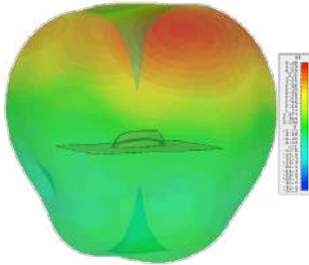
Typical Isolation - WiFi Elements 4&5\*



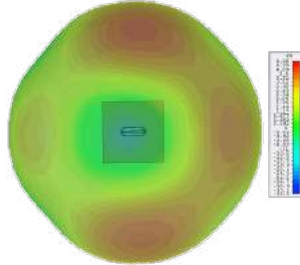
\*Isolation measured with no whip and 5m (16') of CS29 cable Red Plot = 600x600mm (2' X2') ground plane Green Plot = no ground plane

## 3D Radiation Patterns - Cell / LTE Elements 2&3

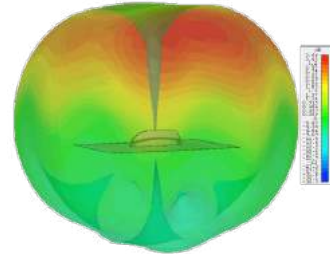
3D Gain Plot Side (700MHz)



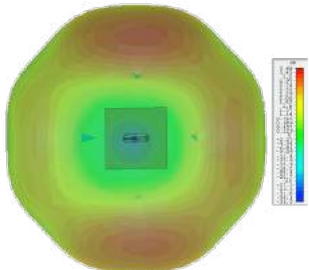
3D Gain Plot Top (700MHz)



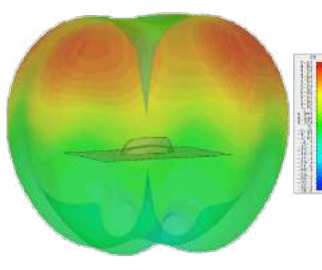
3D Gain Plot Side (800MHz)



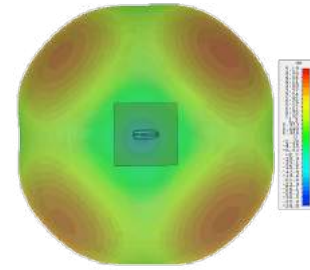
3D Gain Plot Top (800MHz)



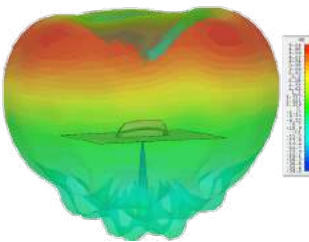
3D Gain Plot Side (900MHz)



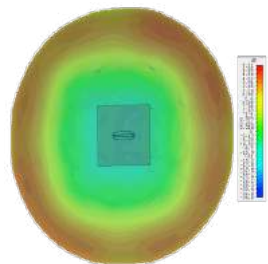
3D Gain Plot Top (900MHz)



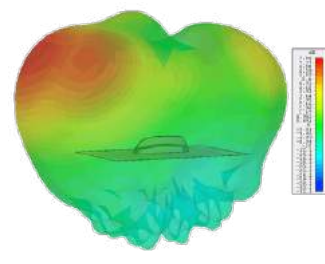
3D Gain Plot Side (1800MHz)



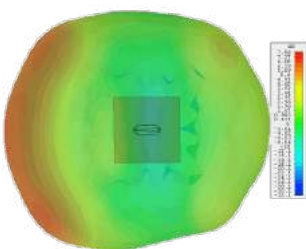
3D Gain Plot Top (1800MHz)



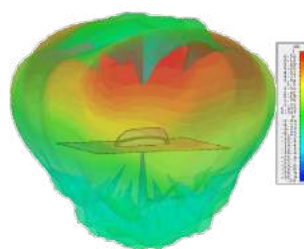
3D Gain Plot Side (2100MHz)



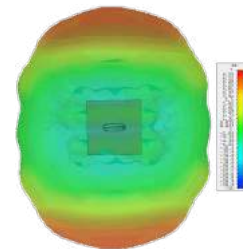
3D Gain Plot Top (2100MHz)



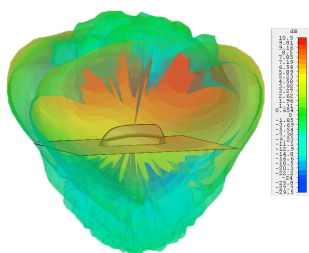
3D Gain Plot Side (2600MHz)



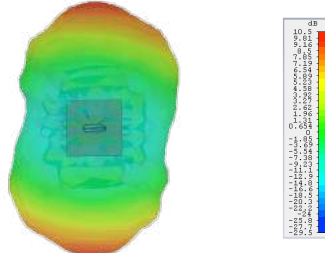
3D Gain Plot Top (2600MHz)



3D Gain Plot Side (3600MHz)



3D Gain Plot Top (3600MHz)

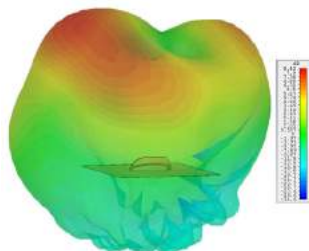


\*3D radiation patterns simulated in CST Microwave Studio on a 600x600mm (2' X2') ground plane with both elements fed together.

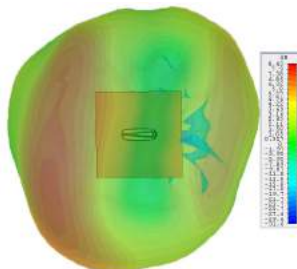
## 3D Patterns - Cell

### Typical 3D Radiation Patterns - Wifi Elements 4&5

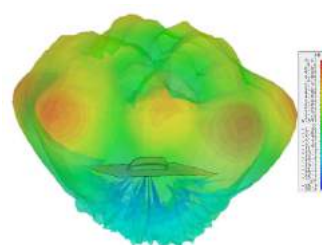
3D Gain Plot Side (2.4GHz)



3D Gain Plot Top (2.4GHz)

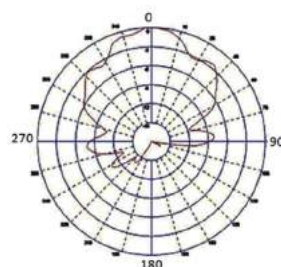
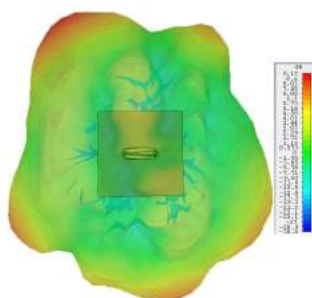


3D Gain Plot Side (5.4GHz)



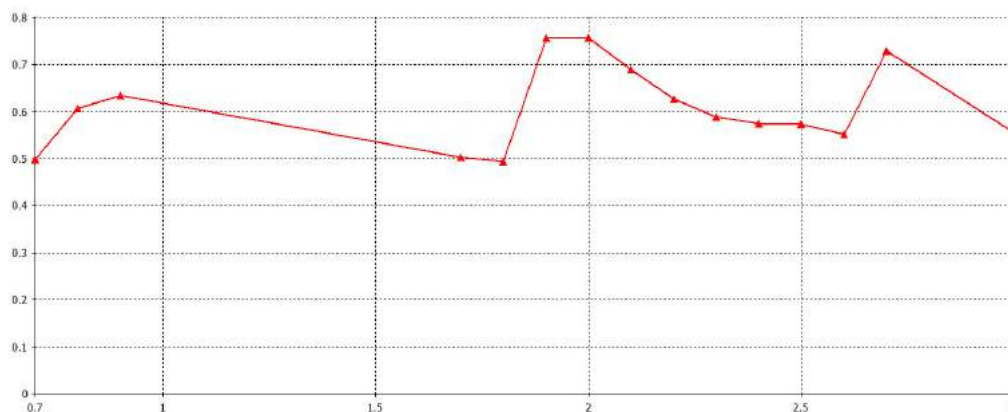
### Typical Radiation Patterns - GPS/GNSS Element 1 Element 3: Typical E Plane Pattern

3D Gain Plot Top (5.4GHz)



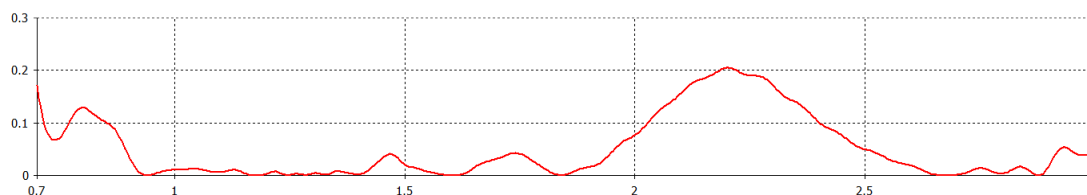
\*3D radiation patterns simulated in CST Microwave Studio on a 600x600mm (2' X2') ground plane with both elements fed together.

### 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

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