GPSD

Multifunction MiMo Antenna

23/06/2016 v.1

GPSD

OEM shark fin styling

GPS/GNSS, MiMo 4G/3G/2G & Optional MiMo 2.4/4.9-6GHz

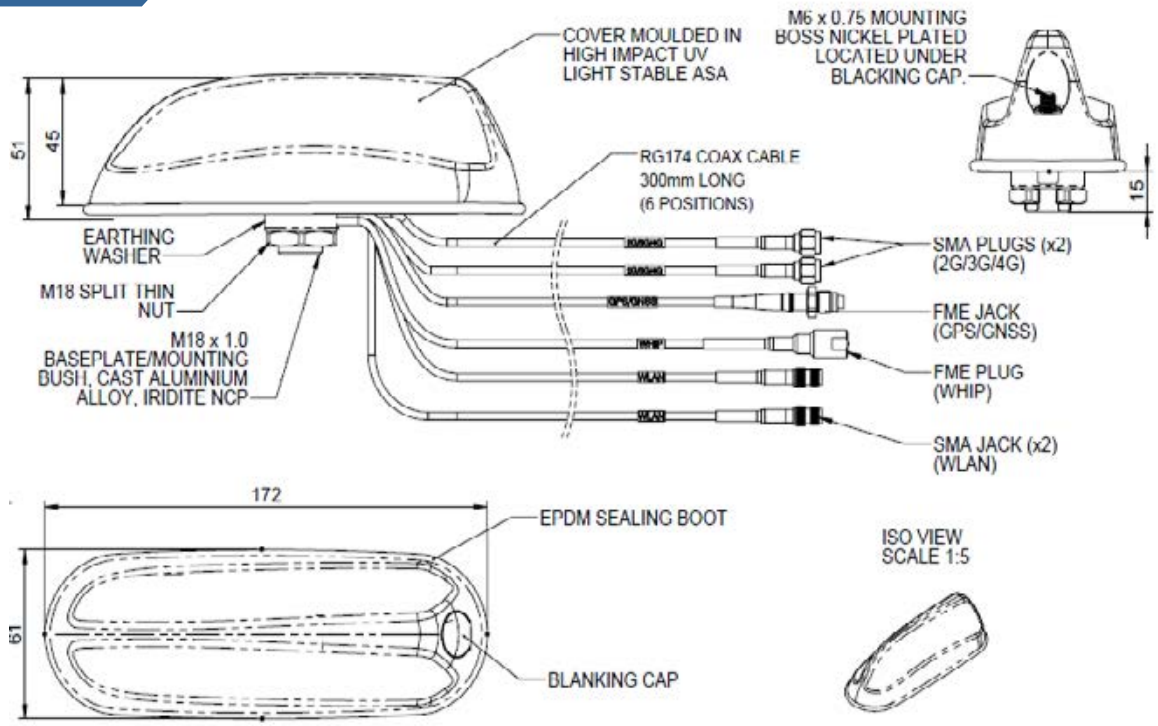
Support for VHF or UHF external antenna

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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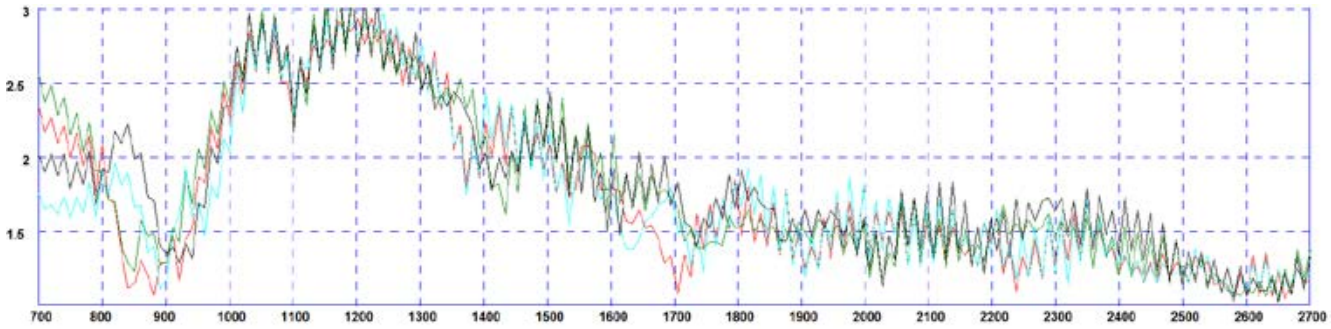
Part No.		GPSD-7-27	GPSD-7-27-24-58
Electrical Data			
Frequency Range (MHz)	Element 1	1562-1612	
	Elements 2 & 3	698-960, 1710-2170, 2500-3800	
	Elements 4 & 5	-	2300-2500 & 4900-6000
	Whip	Dependent on selected whip	
Operational Bands	Element 1	GPS/GNSS/Galileo/Beidou	
	Elements 2 & 3	4G/3G/2G	
	Elements 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
Cable Data			
Cable Type - All Feeds		RG174 (UN ECE 118.01 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

Electrical Data

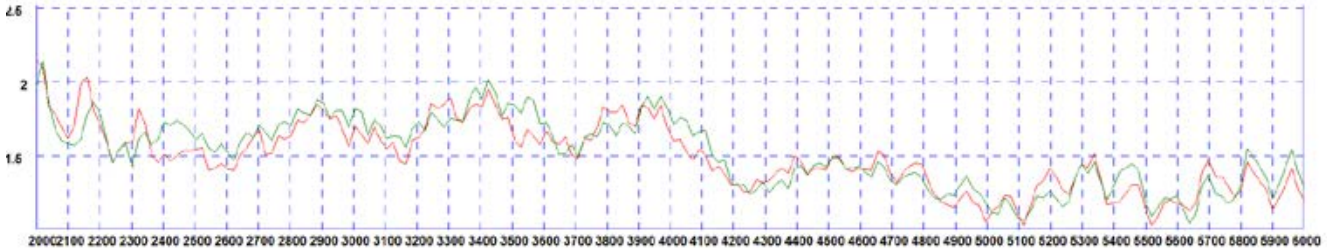
VSWR

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 = 600x 600mm (2'x2') ground plane

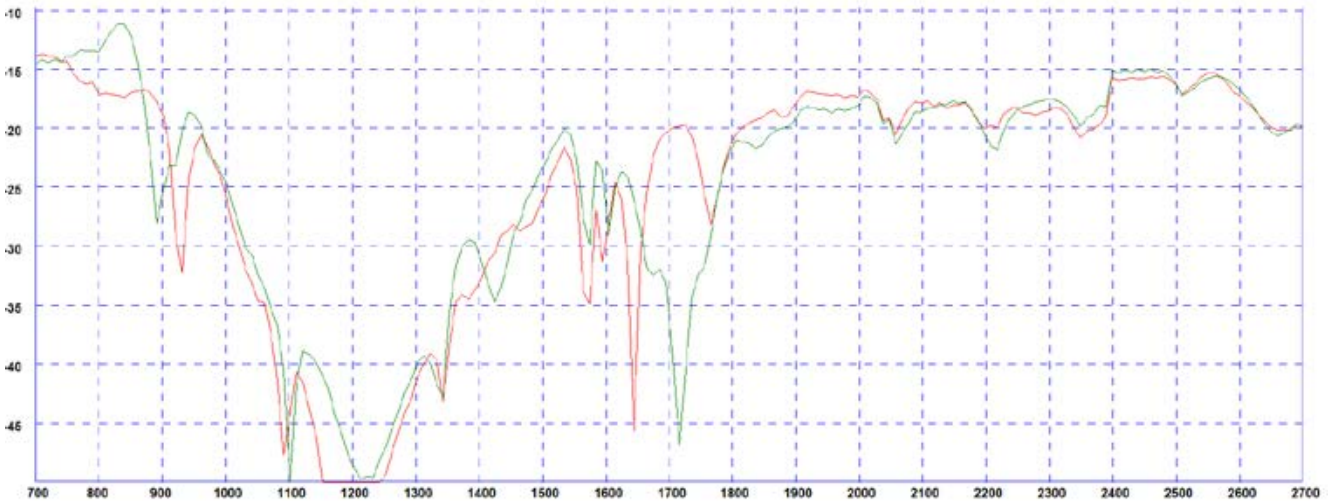
Typical VSWR - WiFI Elements 4&5*



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

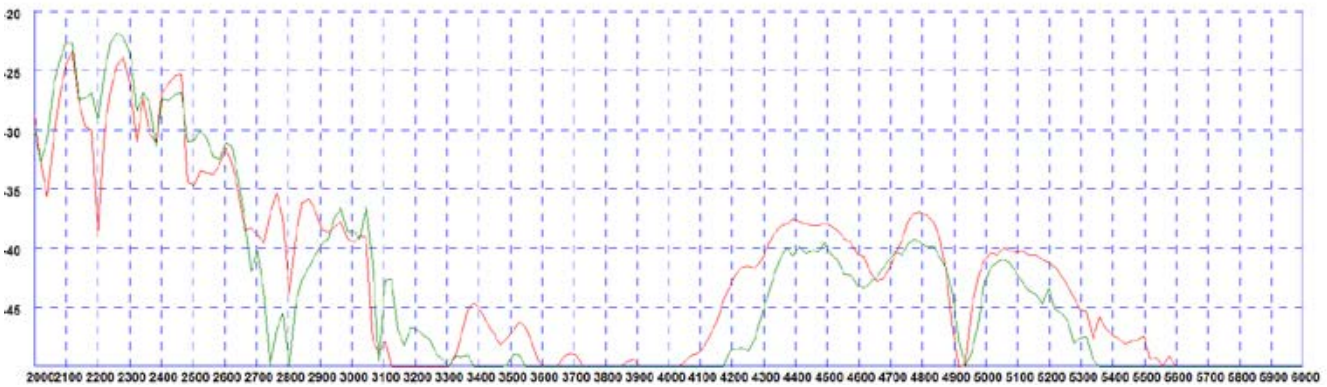
Isolation

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

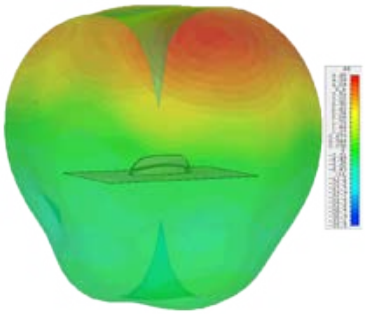
Typical Isolation - WiFi Elements 4&5*



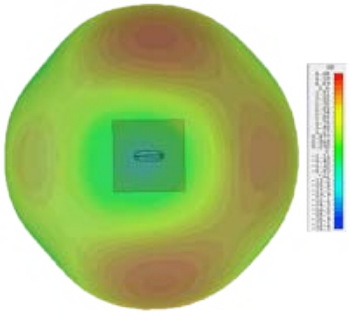
*Isolation measured with no whip and 5m (16') of CS29 cable Red Plot = 600x600mm (2' X2') ground plane Green Plot = no ground plane

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

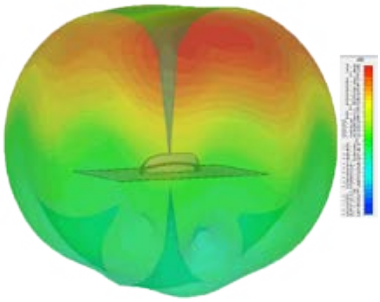
3D Gain Plot Side (700MHz)



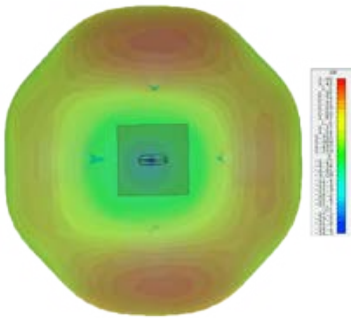
3D Gain Plot Top (700MHz)



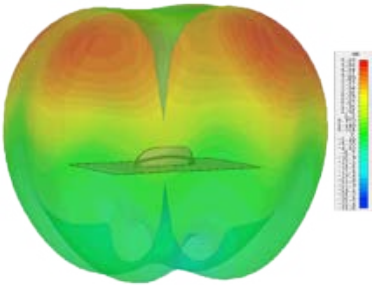
3D Gain Plot Side (800MHz)



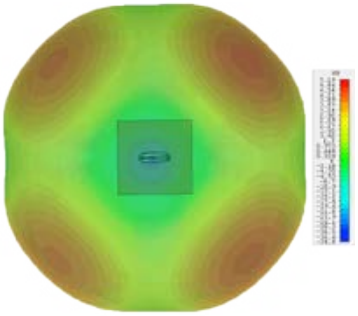
3D Gain Plot Top (800MHz)



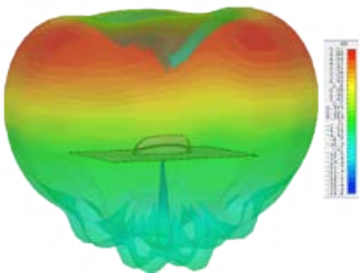
3D Gain Plot Side (900MHz)



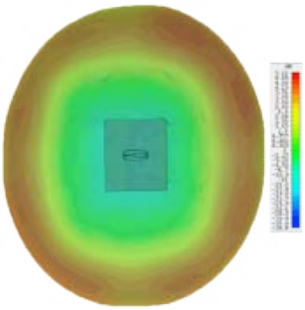
3D Gain Plot Top (900MHz)



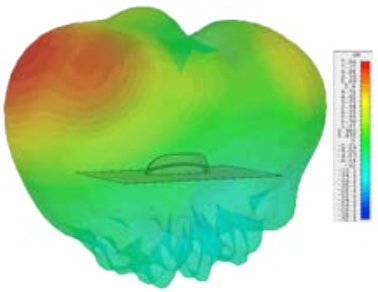
3D Gain Plot Side (1800MHz)



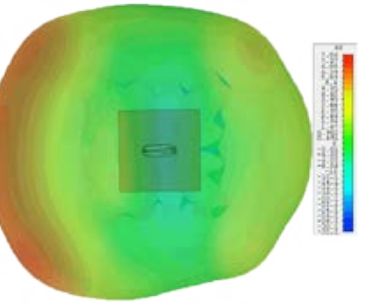
3D Gain Plot Top (1800MHz)



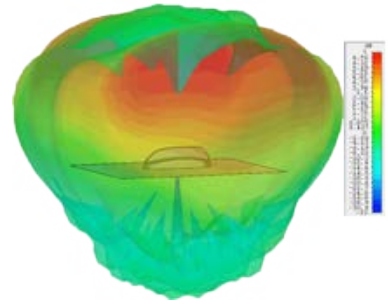
3D Gain Plot Side (2100MHz)



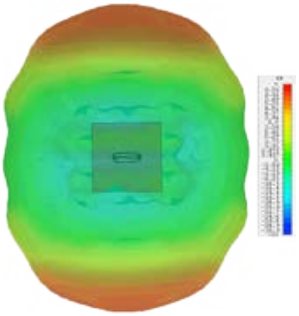
3D Gain Plot Top (2100MHz)



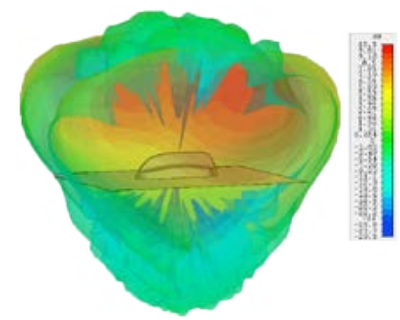
3D Gain Plot Side (2600MHz)



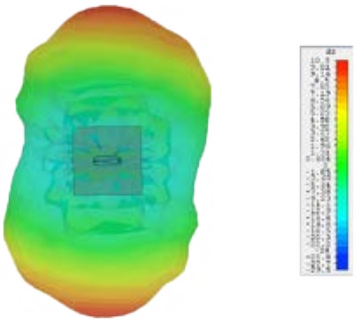
3D Gain Plot Top (2600MHz)



3D Gain Plot Side (3600MHz)



3D Gain Plot Top (3600MHz)

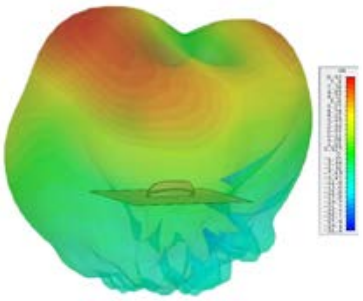


*3D radiation patterns simulated in CST Microwave Studio on a 600x600mm (2' X2') ground plane with both elements fed together.

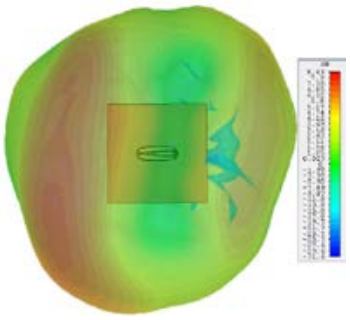
Radiation Patterns

Typical 3D Radiation Patterns - Wifi Elements 4&5

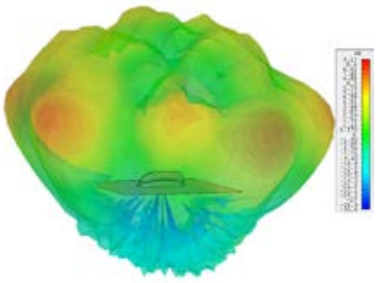
3D Gain Plot Side (2.4GHz)



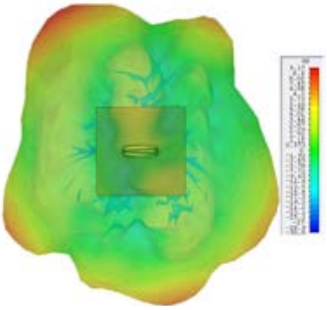
3D Gain Plot Top (2.4GHz)



3D Gain Plot Side (5.4GHz)

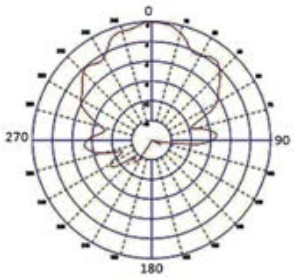


3D Gain Plot Top (5.4GHz)



Typical Radiation Patterns - GPS/GNSS Element 1

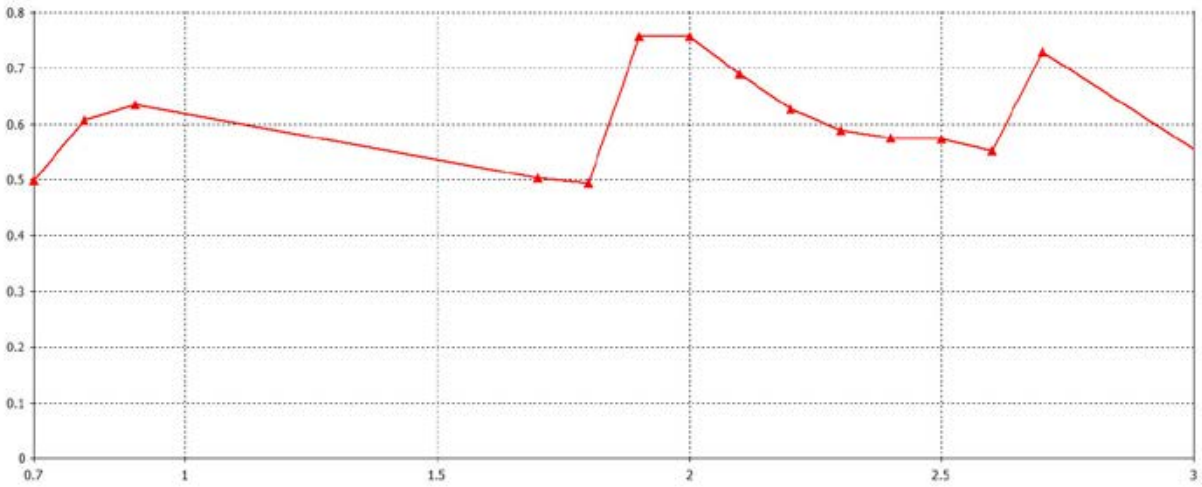
Element 3: Typical E Plane Pattern



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

Typical Total Efficiency

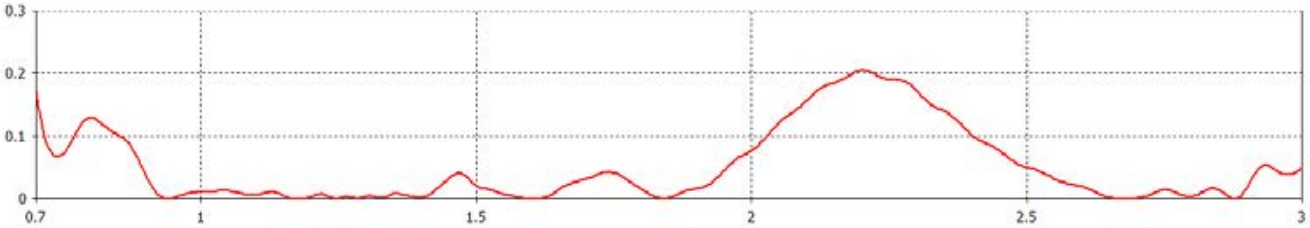
Typical Total Efficiency - Cellular Elements 2&3*



* 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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