MULTI FUNCTION MIMO ANTENNA

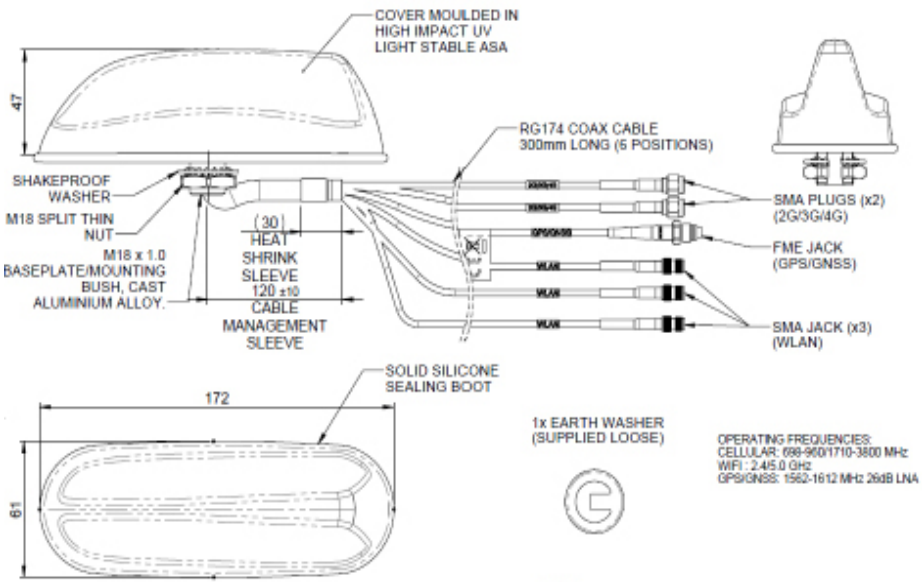
MIMO LTE/GPS/WIFI ANTENNA

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

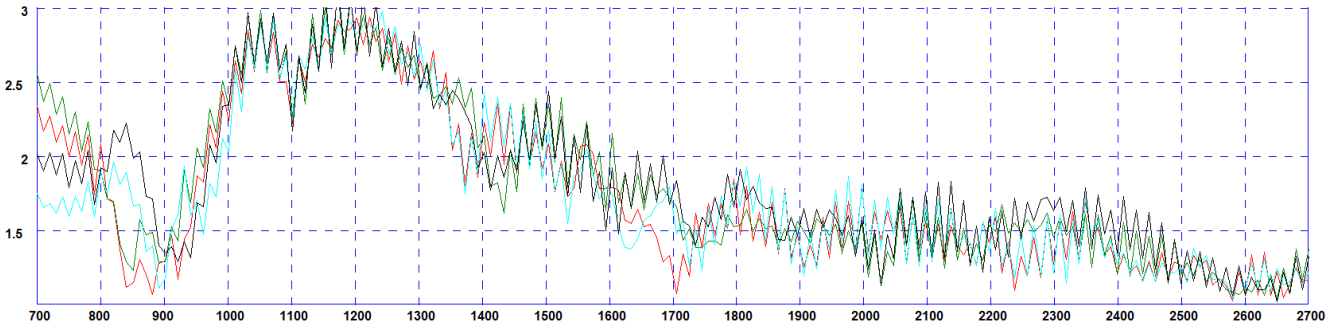


MULTI FUNCTION MIMO ANTENNA

Part Number					
		2332157-1	2332157-2	2332157-3	2332157-4
Electrical Data					
Frequency Range (MHz)		698-960 / 1710-2170 / 2500-3800 (2G,3G,4G)			
		-	1562-1612 (GPS/GNSS/Galileo/Beidou)		
		-		2300-2500, 4900-6000 (WLAN	
Peak Gain: (Excluding cable loss)	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			
Typicall 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					
Frequency Range (MHz)		-	1562-1612		
VSWR		-	<2:1 ± 4MHz		
Gain: LNA		-	26dB		
Polarisation		-	Rigth Hand Cirular		
Operating Voltage		-	3-5V DC (fed via Coax)		
Current		-	Typical <20mA		
Mechanical Data					
Dimensions (mm)	Height	50 (2.2")			
	Length	170 (6.77")			
	Width	60 (2.4")			
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			

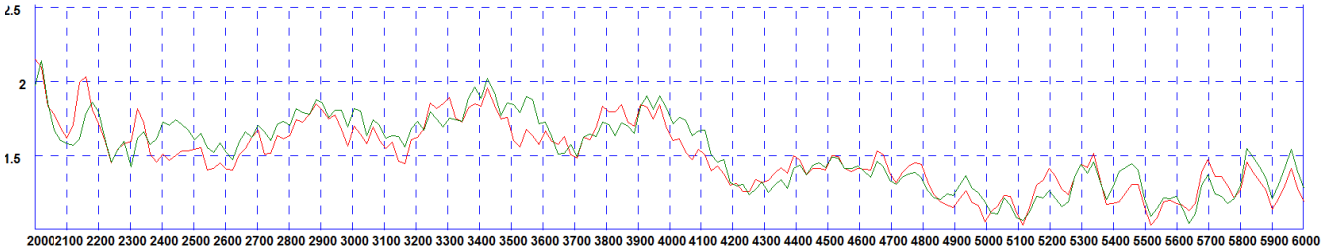
VSWR

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

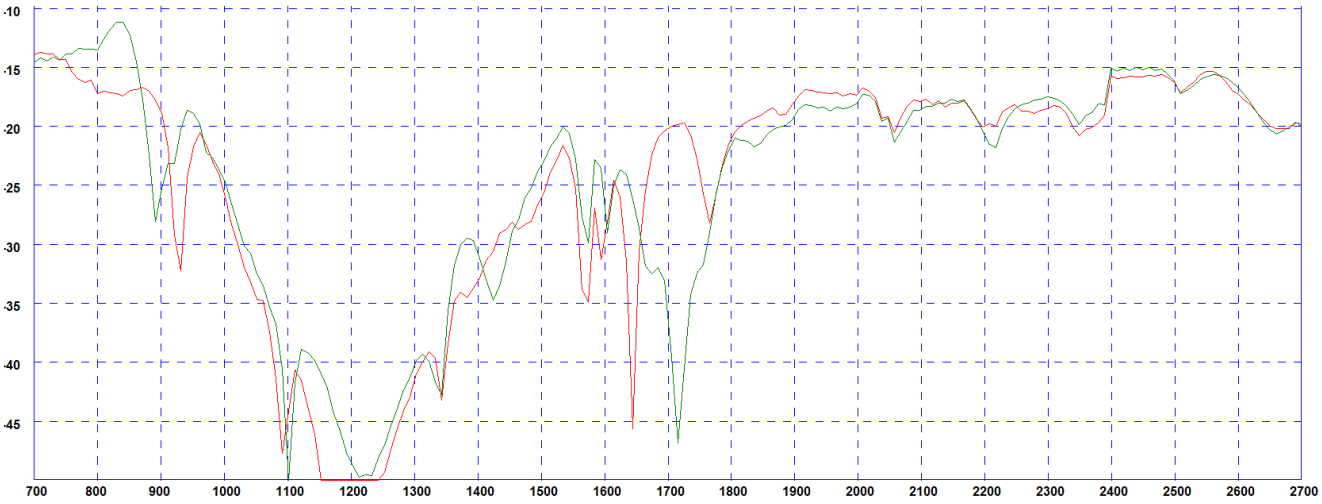
Typical VSWR - WiFI Elements 4&5*



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

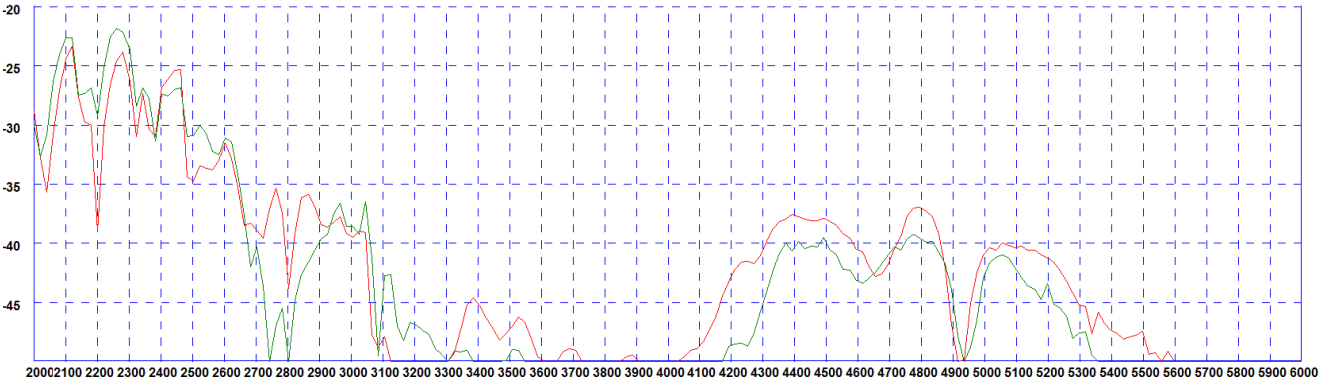
Isolation

Typical Isolation - Cellular Elements 2&3*



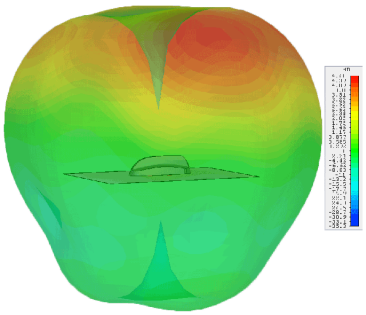
*Isolation measured with no whip and 5m (16') of CS29 cable Green Plot = 600x600mm (2' X2') ground plane Red Plot = no ground plane

Typical Isolation - WiFi Elements 4&5*

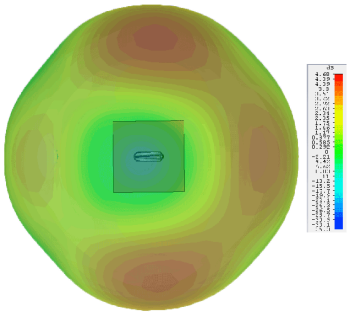


*Isolation measured with no whip and 5m (16') of CS29 cable Red Plot = 600x600mm (2' X2') ground plane Green Plot = no ground plane

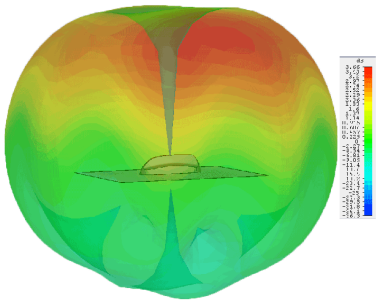
3D Gain Plot Side (700MHz)



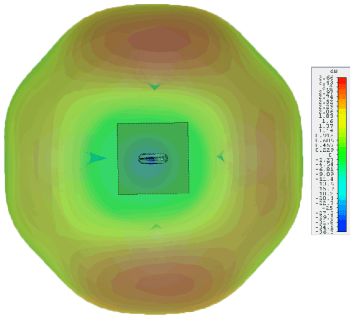
3D Gain Plot Top (700MHz)



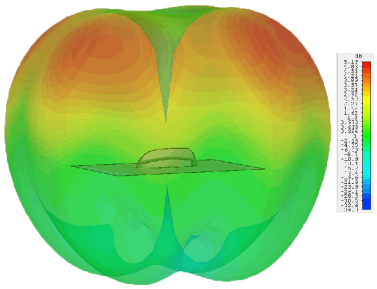
3D Gain Plot Side (800MHz)



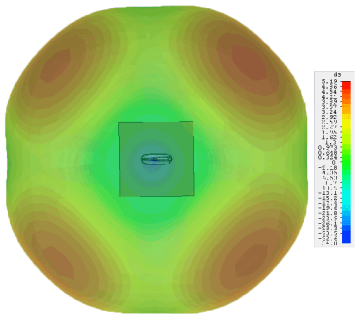
3D Gain Plot Top (800MHz)



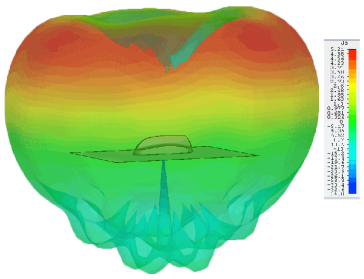
3D Gain Plot Side (900MHz)



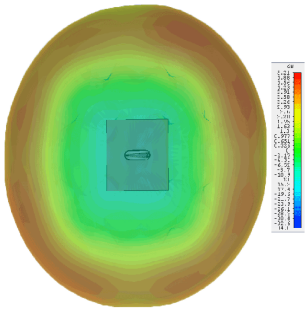
3D Gain Plot Top (900MHz)



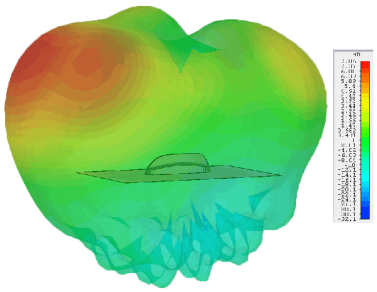
3D Gain Plot Side (1800MHz)



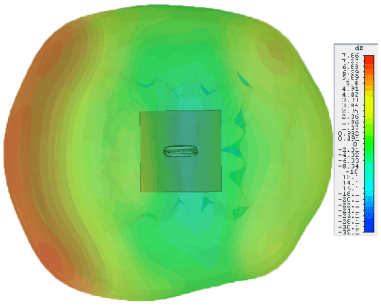
3D Gain Plot Top (1800MHz)



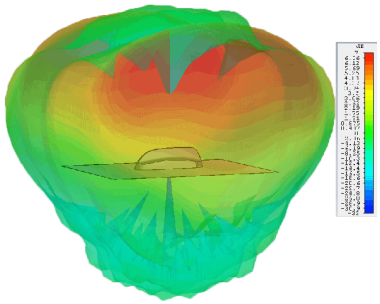
3D Gain Plot Side (2100MHz)



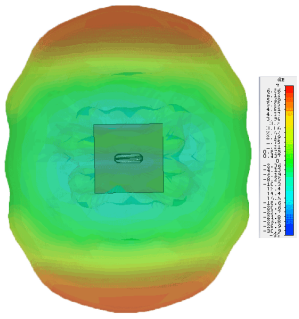
3D Gain Plot Top (2100MHz)



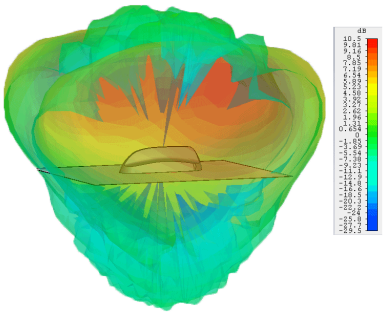
3D Gain Plot Side (2600MHz)



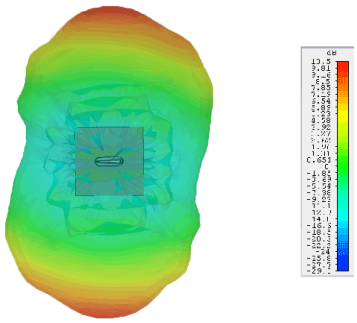
3D Gain Plot Top (2600MHz)



3D Gain Plot Side (3600MHz)

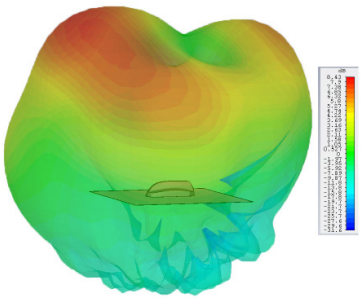


3D Gain Plot Top (3600MHz)

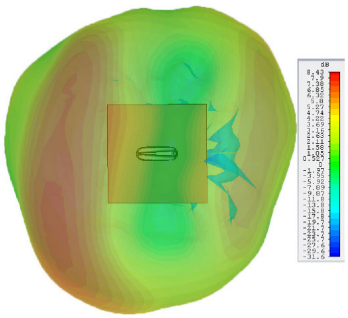


Typical 3D Radiation Patterns - Wifi Elements 4&5

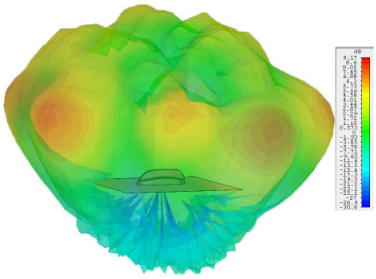
3D Gain Plot Side (2.4GHz)



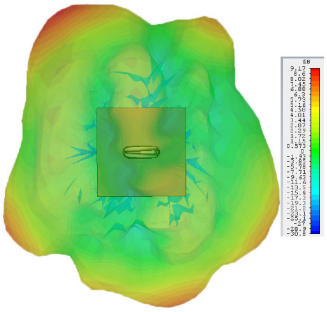
3D Gain Plot Top (2.4GHz)



3D Gain Plot Side (5.4GHz)

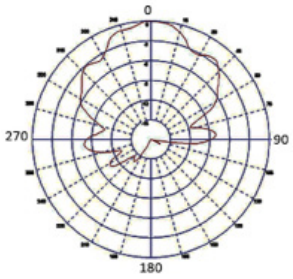


3D Gain Plot Top (5.4GHz)



Typical Radiation Patterns - GPS/GNSS Element 1

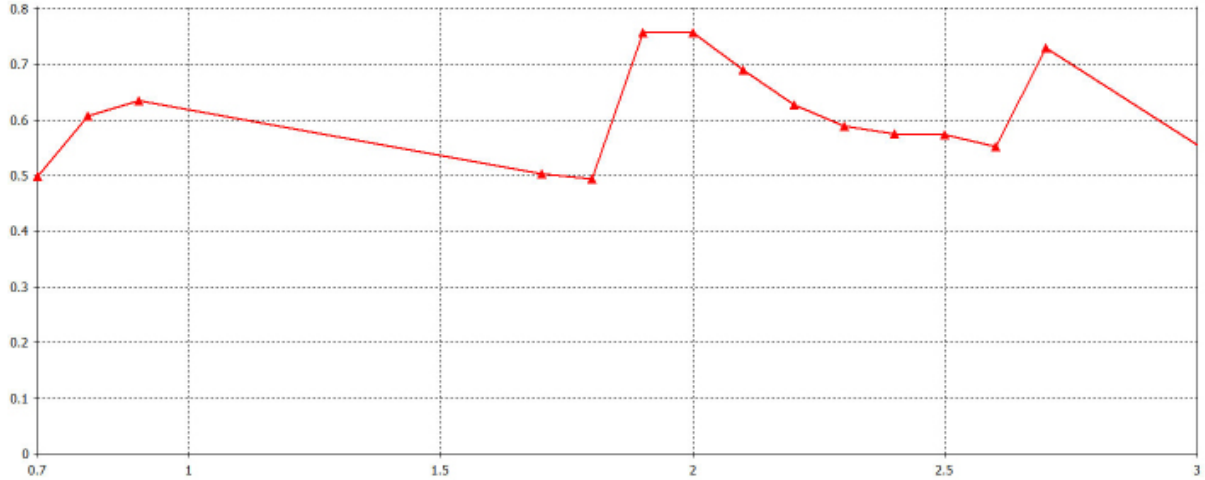
Element 3: Typical E Plane Pattern



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

Typical Total Efficiency

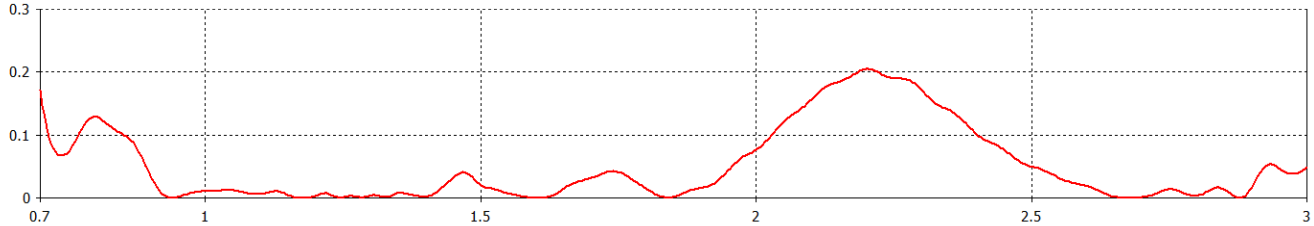
Typical Total Efficiency - Cellular Elements 2&3*



* 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