4x4 MiMo 4G/5G Sharkfin Antenna

GPS[X]D4[X]-6-60[-X]

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GPS[X]D4[X]-6-60[-X]

- 4x4 MiMo Sharkfin for 4G/5G
- Up to 4x GPS/GNSS
- Up to 6x MiMo WiFi 6e
- Whip Position for Optional Comms Whip

The GPS[X]D4[X]-6-60[-X] is an advanced 4G/5G, GPS/GNSS and WiFi antenna with a dual sharkfin style housing. The housing contains a 4x4 MiMo antenna function for 4G/5G (617-960/1427-6000MHz), up to 6x6 MiMo dual-band WiFi, which supports WiFi 6e. It can include up to four active GPS/GNSS antennas, each with a 26dB gain LNA and advanced filtering for LTE Band 13/14 operation.

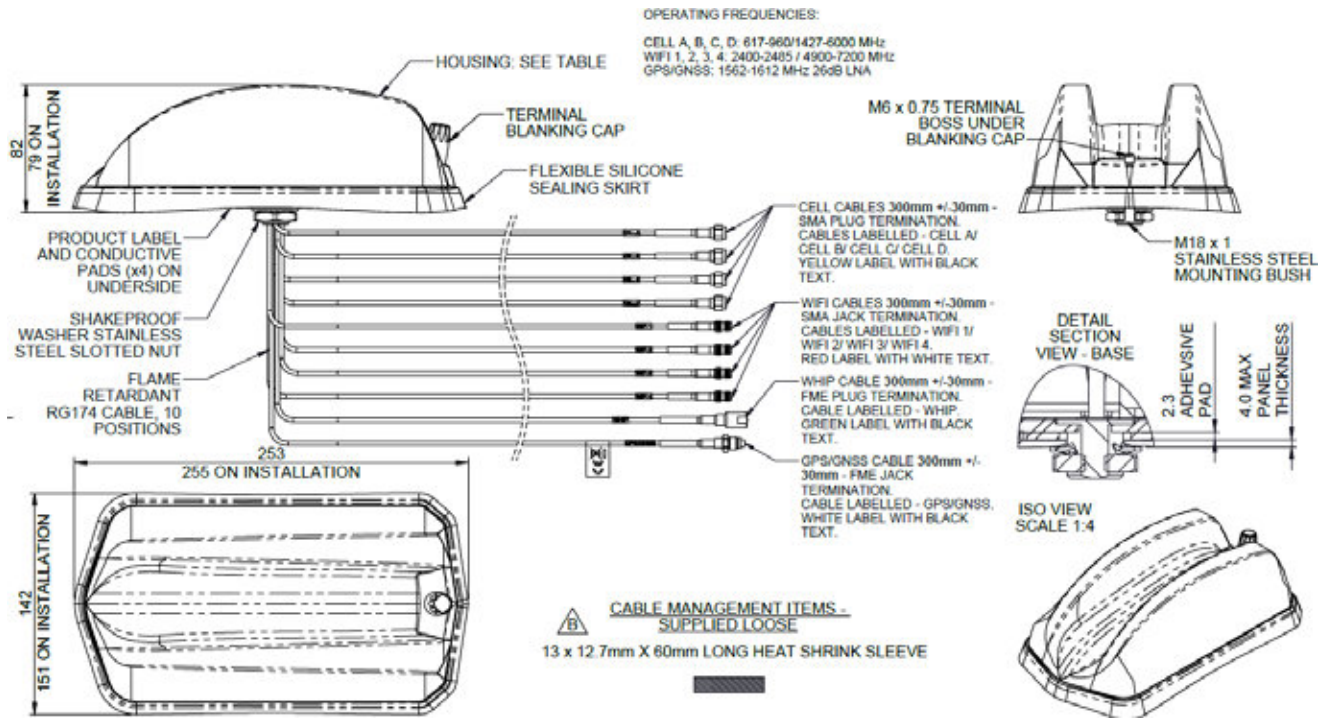
An integral mounting stud for an external antenna whip is provided, with a blanking cap supplied if this function is not required.

The antenna must be installed on a metal panel when a comms whip is used, otherwise, it may be fitted on a non-metallic panel whilst still offering similar performance.

The dual fin 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 antenna reduces vehicle damage, installation time, cost and visual impact whilst protecting a vehicle's resale value.

Technical Drawing

GPSD4-6-60-Q Shown



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Product Data

Part No.					
		GPS2D4[W]-6-60-Q	GPS2D4[W]-6-60-T	GPS2D4[W]-6-60-D	GPS2D4[W]-6-60
Electrical Data					
Frequency Range (MHz)	GPS/GNSS Elements	2x 1562-1612			
	4G/5G Elements	4x 617-960, 1427-6000			
	WiFi Elements	4x 2.4/5.0/7.1GHz	3x 2.4/5.0/7.1GHz	2x 2.4/5.0/7.1GHz	-
	Whip	dependent on whip			
Peak gain: Isotropic*	4G/5G Elements	5dBi (617-960MHz) 8dBi (1427-4200MHz) 9dBi (4900-6000MHz)			
	WiFi Elements	7dBi (2396-2485MHz) 11dBi (4900-7200MHz)			- -
Isolation**	4G/5G Elements	>8dB (617-960 MHz) | > 15dB (1427-6000MHz)			
	WiFi Elements	> 15dB			-
Typical Efficiency* W/o Cable Loss	4G/5G Elements	> 40% (617-698Mz) >70% (698-960/1710-6000MHz)			
Correlation Co-efficient	4G/5G Elements	<0.25			
Polarisation		Vertical			
Pattern		Omni-directional			
Impedance		50Ω			
Max Input Power (W)		Internal elements 5W / main whip 60W			
GPS/GNSS Data					
Frequency Range (MHz)		1562-1612			
Gain: LNA		26dB			
Polarisation		Right Hand Circular			
Out of Band Rejection		>40dB (+/- 100MHz f) | Notch Filter @787MHz - 23dB			
Operating Voltage		3-5V DC (fed via coax)			
Current		Typical <20mA			
Mechanical Data					
Dimensions (mm) - Installed	Total Height (excl whip)	82 (3.2")			
	Length	253 (9.96")			
	Width	142 (5.56")			
Operating Temp (°C)		-40° / +80°C (-40° / 176°F)			
Material		ASA,Silicone Rubber, Aluminium Alloy			
Colour		Black (GPS[X]D4W denotes White variant)			
Ingress Protection		IP69K			
Mounting Info					
Fixing		Panel Mount			
Hole Size (mm)		19 (3/4")			
Cable Data					
Cable Type - All Pigtails		FR RG174 (UN ECE R 118 Compliant)			
Dimensions (mm)	Diameter	2.8 (0.11")			
	Length	300 mm (12")			
Termination	Whip	1xFME (m)			
	GPS/GNSS	2x FME (f)			
	4G/5G	4x SMA plug			
	WiFi	4x SMA (f)	3x SMA (f)	2x SMA (f)	-

*Peak Gain and efficiency simulated in CST Microwave Studio for each element fed without cable loss on 600x600mm (2'x2') ground plane

** Isolation measured as worst case for elements of the same type on a 600x600 (2'x2') ground plane without additional cable

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Product Data

Part No.		GPSD4[W]-6-60-Q	GPSD4[W]-6-60-T	GPSD4[W]-6-60-D	GPSD4[W]-6-60
Electrical Data					
Frequency Range (MHz)	GPS/GNSS Elements	1x 1562-1612			
	4G/5G Elements	4x 617-960, 1427-6000			
	WiFi Elements	4x 2.4/5.0/7.1GHz	3x 2.4/5.0/7.1GHz	2x 2.4/5.0/7.1GHz	-
	Whip	dependent on whip			
Peak gain: Isotropic*	4G/5G Elements	5dBi (617-960MHz) 8dBi (1427-4200MHz) 9dBi (4900-6000MHz)			
	WiFi Elements	7dBi (2396-2485MHz) 11dBi (4900-7200MHz)			- -
Isolation**	4G/5G Elements	>8dB (617-960 MHz) | > 15dB (1427-6000MHz)			
	WiFi Elements	> 15dB			-
Typical Efficiency* W/o Cable Loss	4G/5G Elements	> 40% (617-698Mz) >70% (698-960/1710-6000MHz)			
Correlation Co-efficient	4G/5G Elements	<0.25			
Polarisation		Vertical			
Pattern		Omni-directional			
Impedance		50Ω			
Max Input Power (W)		Internal elements 5W / main whip 60W			
GPS/GNSS Data					
Frequency Range (MHz)		1562-1612			
Gain: LNA		26dB			
Polarisation		Right Hand Circular			
Out of Band Rejection		>40dB (+/- 100MHz f) | Notch Filter @787MHz - 23dB			
Operating Voltage		3-5V DC (fed via coax)			
Current		Typical <20mA			
Mechanical Data					
Dimensions (mm) - Installed	Total Height (excl whip)	82 (3.2")			
	Length	253 (9.96")			
	Width	142 (5.56")			
Operating Temp (°C)		-40° / +80°C (-40° / 176°F)			
Material		ASA,Silicone Rubber, Aluminium Alloy			
Colour		Black (GPS[X]D4W denotes White variant)			
Ingress Protection		IP69K			
Mounting Info					
Fixing		Panel Mount			
Hole Size (mm)		19 (3/4")			
Cable Data					
Cable Type - All Pigtails		FR RG174 (UN ECE R 118 Compliant)			
Dimensions (mm)	Diameter	2.8 (0.11")			
	Length	300 mm (12")			
Termination	Whip	1xFME (m)			
	GPS/GNSS	1x FME (f)			
	4G/5G	4x SMA plug			
	WiFi	4x SMA (f)	3x SMA (f)	2x SMA (f)	-

*Peak Gain and efficiency simulated in CST Microwave Studio for each element fed without cable loss on 600x600mm (2'x2') ground plane

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Product Data

Part No.		FIND4[W]-6-60-Q	FIND4[W]-6-60-T	FIND4[W]-6-60-D	FIND4[W]-6-60
Electrical Data					
	4G/5G Elements	4x 617-960, 1427-6000			
	WiFi Elements	4x 2.4/5.0/7.1GHz	3x 2.4/5.0/7.1GHz	2x 2.4/5.0/7.1GHz	-
	Whip	dependent on whip			
Peak gain: Isotropic*	4G/5G Elements	5dBi (617-960MHz) 8dBi (1427-4200MHz) 9dBi (4900-6000MHz)			
	WiFi Elements	7dBi (2396-2485MHz) 11dBi (4900-7200MHz)			- -
Isolation**	4G/5G Elements	>8dB (617-960 MHz) | > 15dB (1427-6000MHz)			
	WiFi Elements	> 15dB			-
Typical Efficiency* W/o Cable Loss	4G/5G Elements	> 40% (617-698Mz) >70% (698-960/1710-6000MHz)			
Correlation Co-efficient	4G/5G Elements	<0.25			
Polarisation		Vertical			
Pattern		Omni-directional			
Impedance		50Ω			
Max Input Power (W)		Internal elements 5W / main whip 60W			
Mechanical Data					
Dimensions (mm) - Installed	Total Height (excl whip)	82 (3.2")			
	Length	253 (9.96")			
	Width	142 (5.56")			
Operating Temp (°C)		-40° / +80°C (-40° / 176°F)			
Material		ASA,Silicone Rubber, Aluminium Alloy			
Colour		Black (FIND4W denotes White variant)			
Ingress Protection		IP69K			
Mounting Info					
Fixing		Panel Mount			
Hole Size (mm)		19 (3/4")			
Cable Data					
Cable Type - All Pigtails		FR RG174 (UN ECE R 118 Compliant)			
Dimensions (mm)	Diameter	2.8 (0.11")			
	Length	300 mm (12")			
Termination	Whip	1xFME (m)			
	4G/5G	4x SMA plug			
	WiFi	4x SMA (f)	3x SMA (f)	2x SMA (f)	-

*Peak Gain and efficiency simulated in CST Microwave Studio for each element fed without cable loss on 600x600mm (2'x2') ground plane

** Isolation measured as worst case for elements of the same type on a 600x600 (2'x2') ground plane without additional cable

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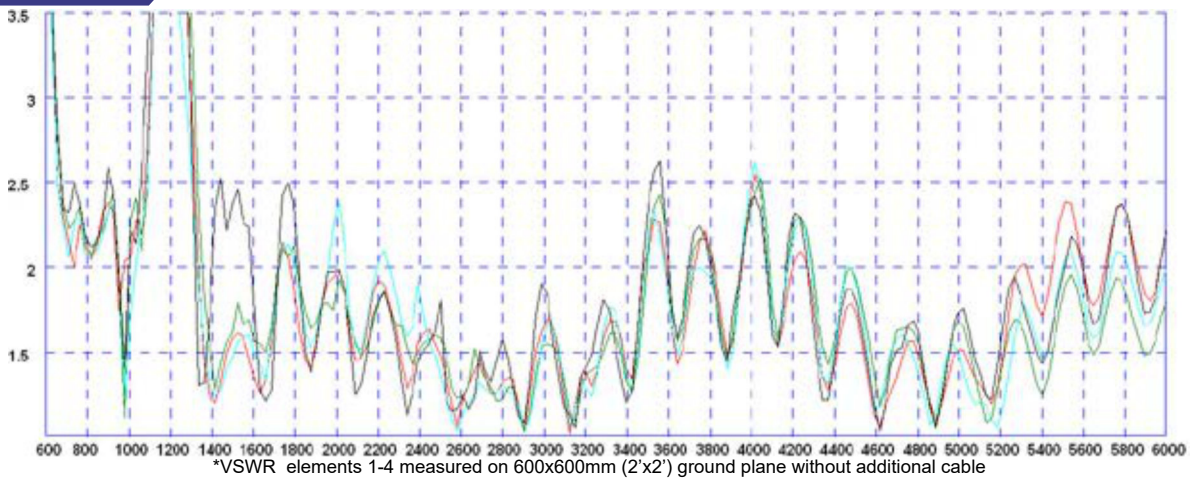
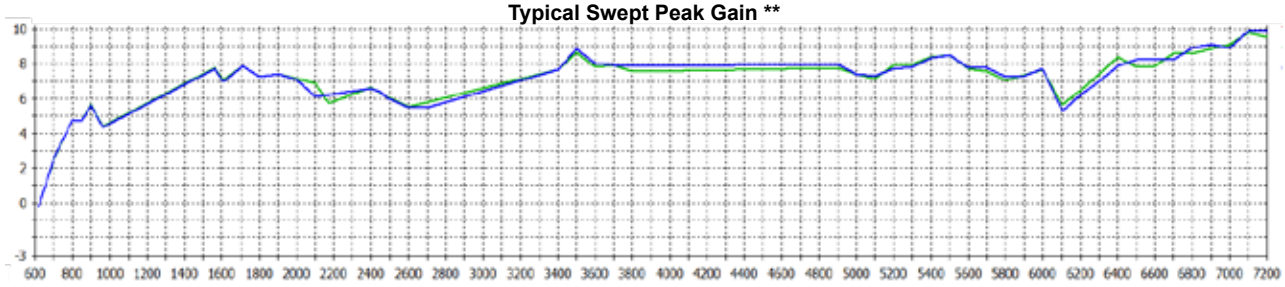
Electrical Data on Ground Plane - Cell

Typical VSWR*



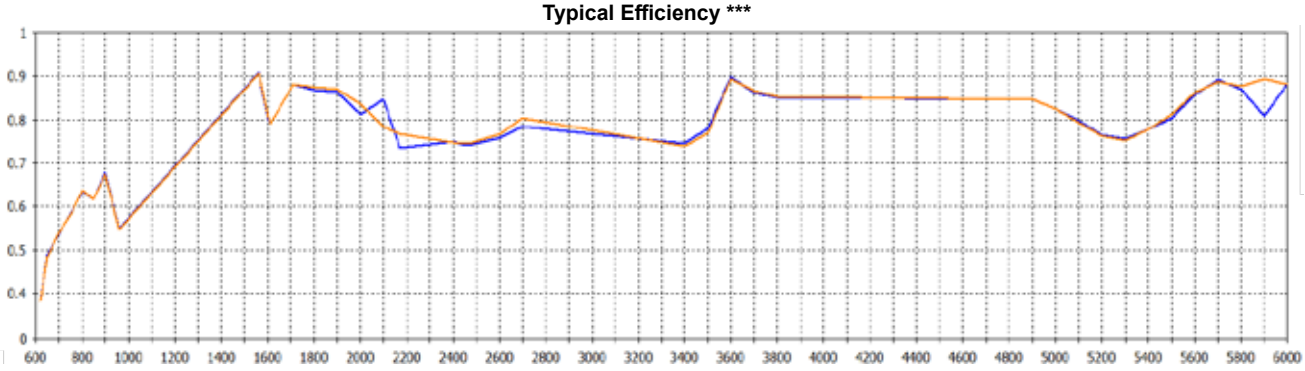
*VSWR elements 1-4 measured on 600x600mm (2'x2') ground plane without additional cable

Typical Swept Peak Gain **



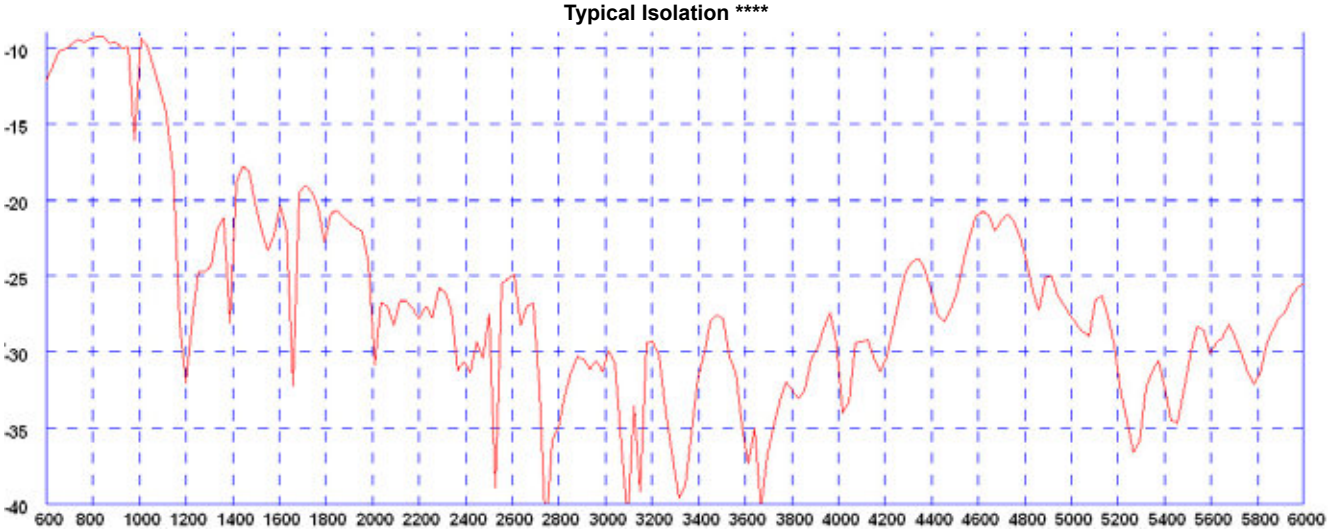
**Swept peak gain simulated in CST Microwave Studio for each element fed without cable loss on 600x600mm (2'x2') ground plane

Typical Efficiency ***



***Efficiency simulated in CST Microwave Studio for each element fed without cable loss on 600x600mm (2'x2') ground plane

Typical Isolation ****



****Typical worst case isolation measured on a 600x600mm (2'x2') ground plane without cable loss

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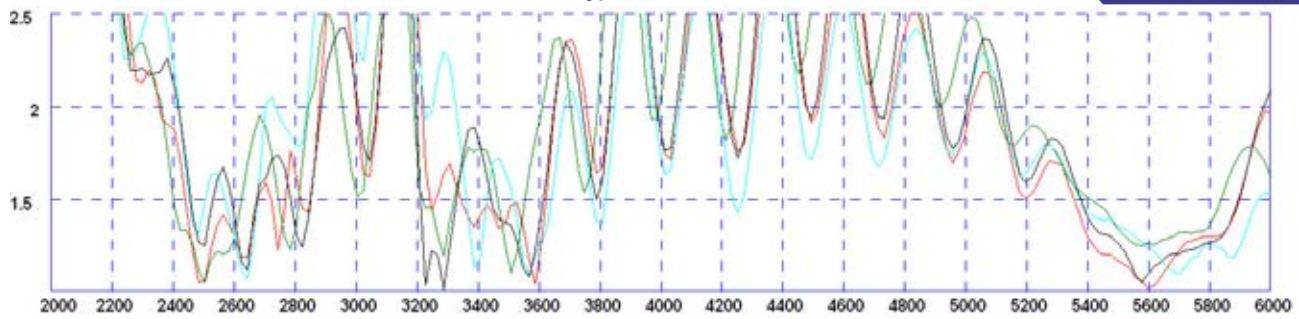
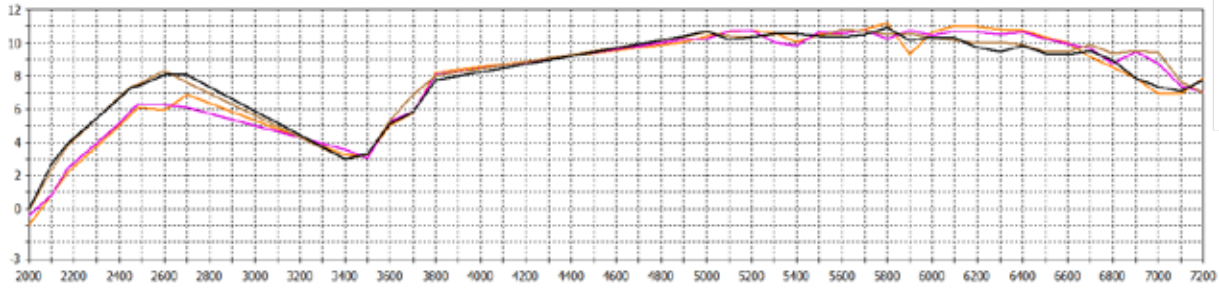
Electrical Data -on Ground Plane - WiFi

Typical VSWR*



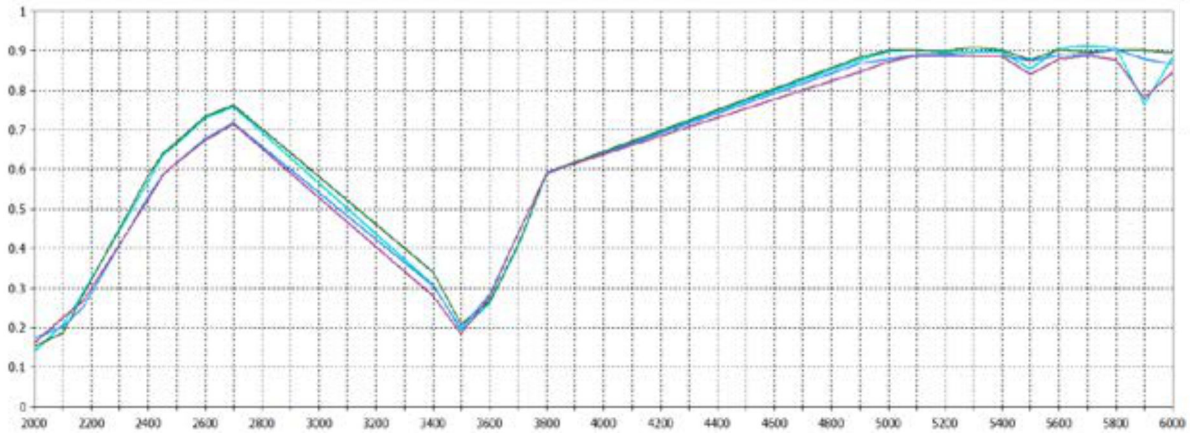
*VSWR elements 1-4 measured on a 600x600 (2'x2') ground plane without additional cable

Typical Swept Peak Gain **



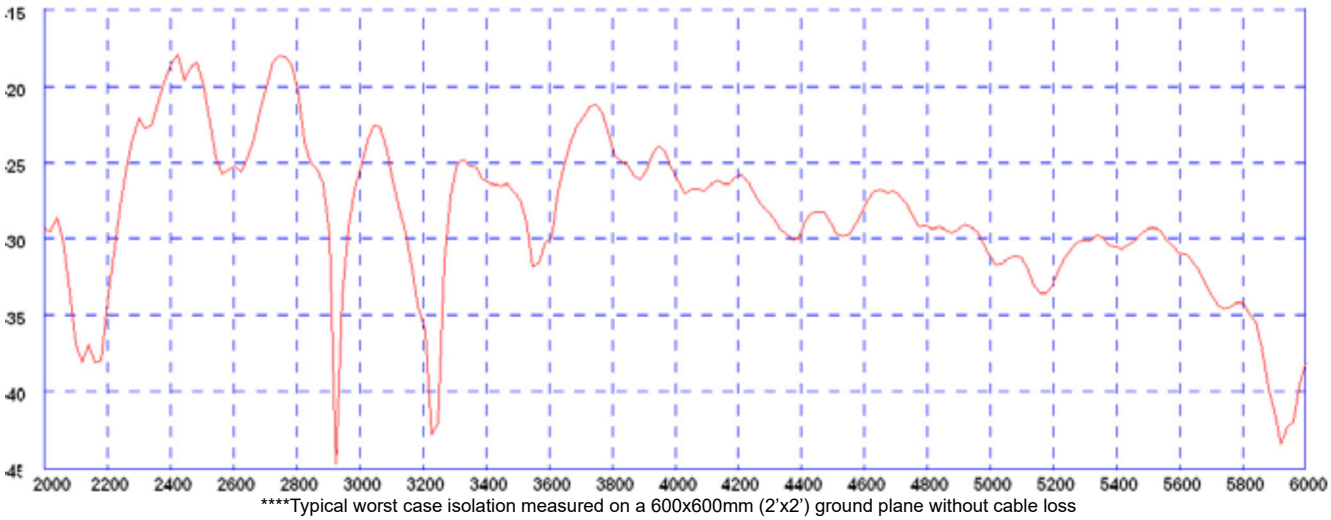
**Swept peak gain simulated in CST Microwave Studio for each element fed without cable loss on 600x600mm (2'x2') ground plane

Typical Efficiency ***



***Efficiency simulated in CST Microwave Studio for each element fed without cable loss on 600x600mm (2'x2') ground plane

Typical Isolation ****



****Typical worst case isolation measured on a 600x600mm (2'x2') ground plane without cable loss

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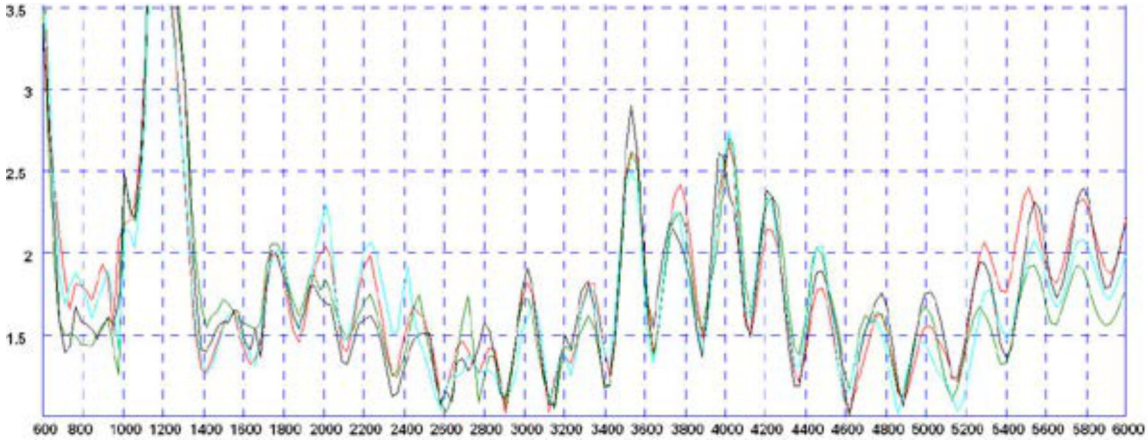
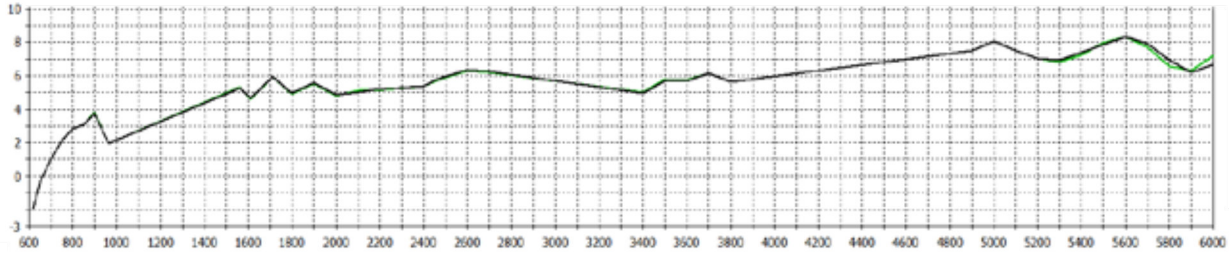
Electrical Data in Free Space - Cell

Typical VSWR*



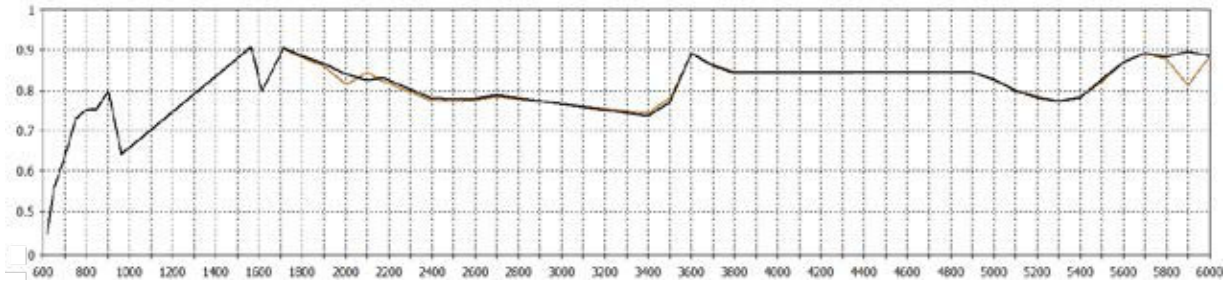
*VSWR elements 1-4 measured in free space without addtional cable

Typical Swept Peak Gain **



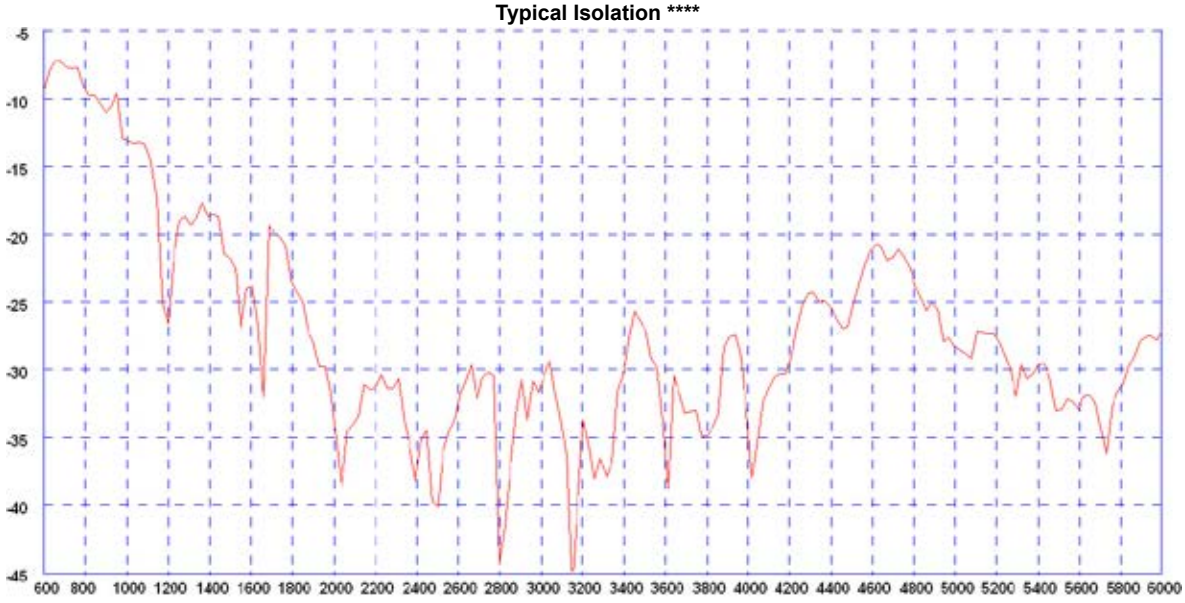
**Swept peak gain simulated in CST Microwave Studio for each element fed without cable loss in free space

Typical Efficiency ***



***Efficiency simulated in CST Microwave Studio for each element fed without cable loss in free space

Typical Isolation ****



**** Typical worst case isolation measured in free space without additional cable

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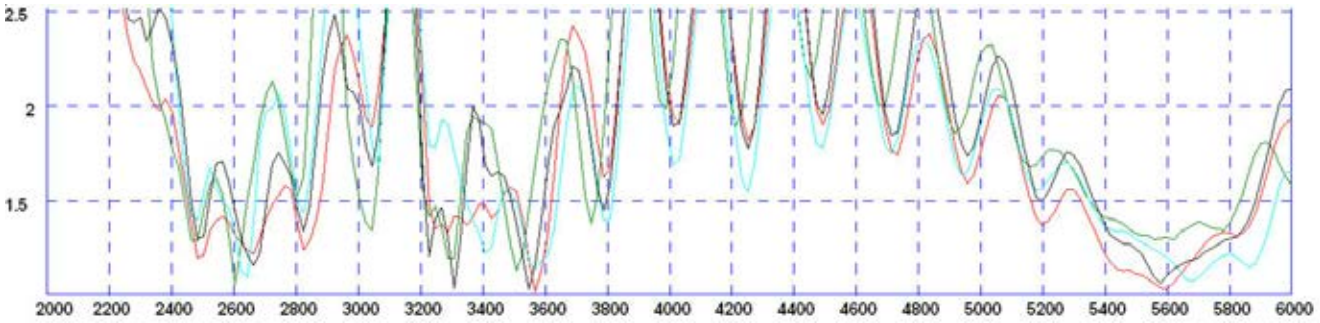
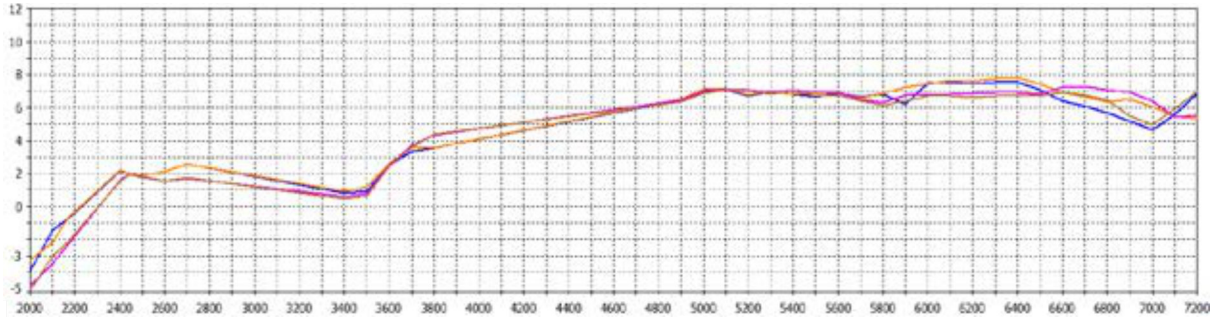
Electrical Data -in Free Space -

Typical VSWR*



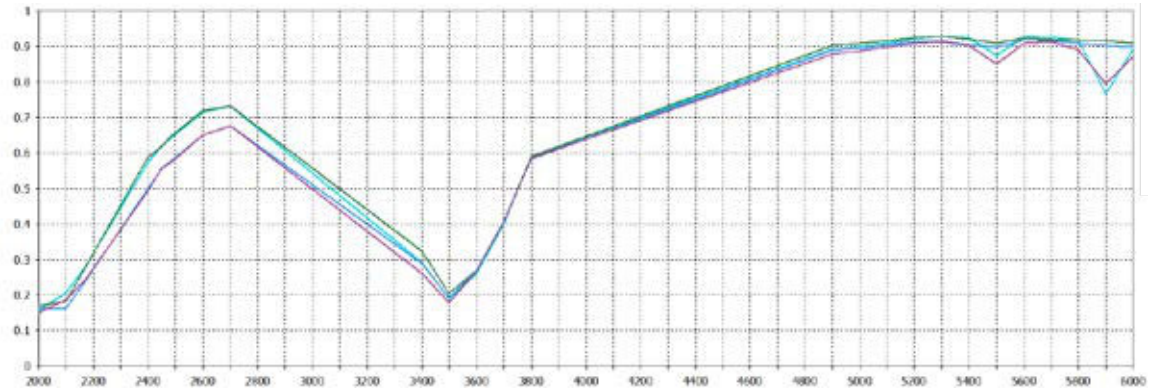
*VSWR elements 1-4 measured in free space without addtional cable

Typical Swept Peak Gain **



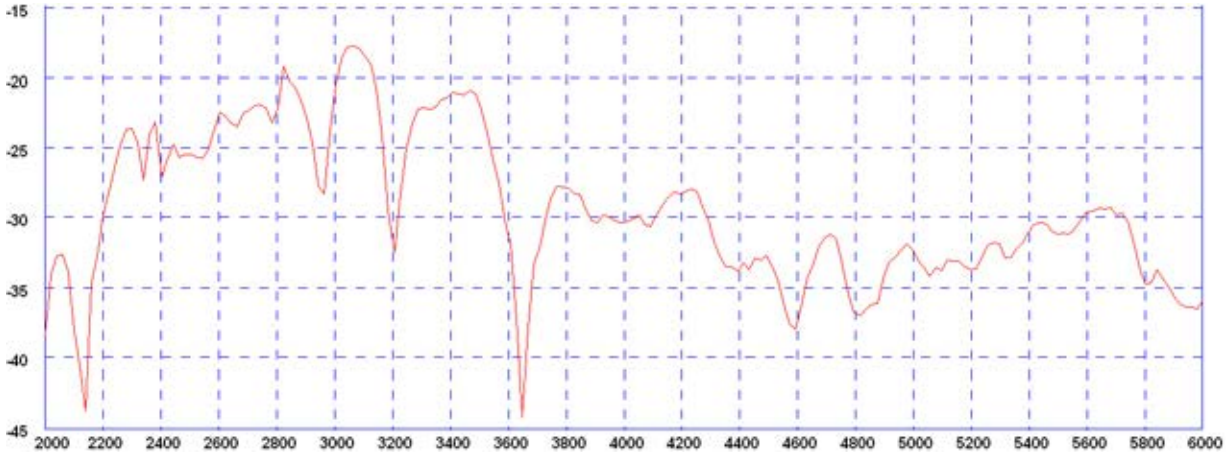
**Swept peak gain simulated in CST Microwave Studio for each element fed without cable loss in free space

Typical Efficiency ***



***Efficiency simulated in CST Microwave Studio for each element fed without cable loss in free space

Typical Isolation ****



***Typical worst case isolation simulated in CST Microwave Studio without cable loss

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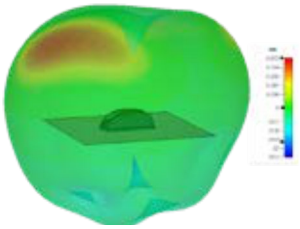
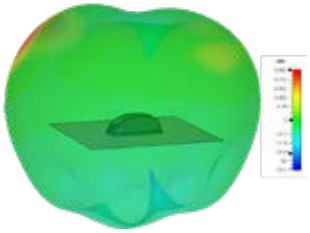
3D Patterns on Ground Plane -Cell

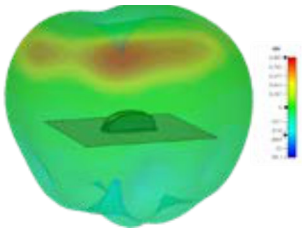
3D Plot Element 1 Side (650 MHz)



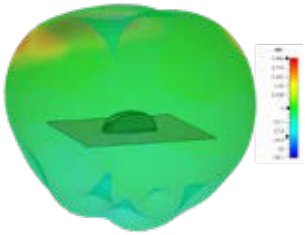
3D Plot Element 2 Side (650 MHz)



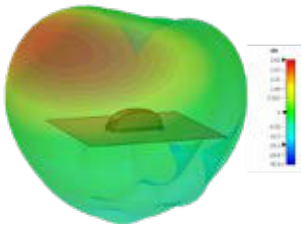
3D Plot Element 3 Side (650 MHz)



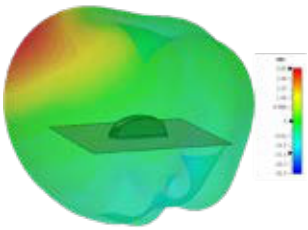
3D Plot Element 4 Side (650 MHz)



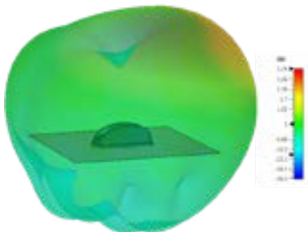
3D Plot Element 1 Side (750 MHz)



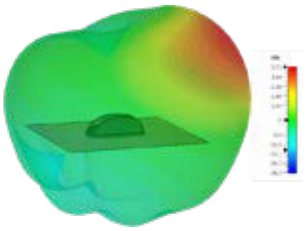
3D Plot Element 2 Side (750 MHz)



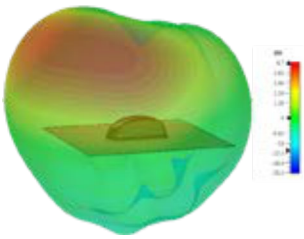
3D Plot Element 3 Side (750 MHz)



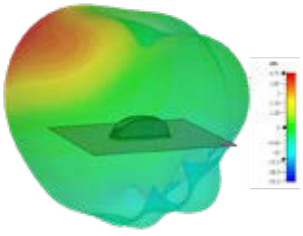
3D Plot Element 4 Side (750 MHz)



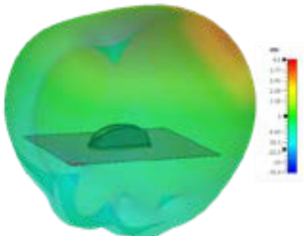
3D Plot Element 1 Side (850 MHz)



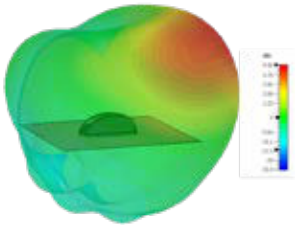
3D Plot Element 2 Side (850 MHz)



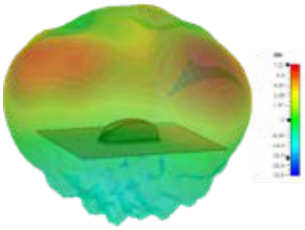
3D Plot Element 3 Side (850 MHz)



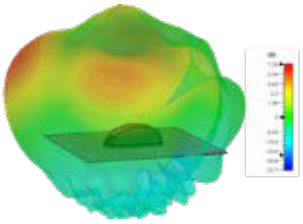
3D Plot Element 4 Side (850 MHz)



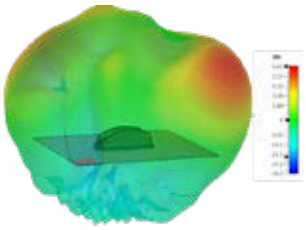
3D Plot Element 1 Side (1800 MHz)



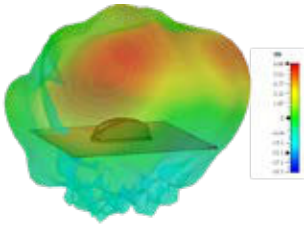
3D Plot Element 2 Side (1800 MHz)



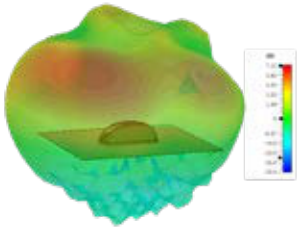
3D Plot Element 3 Side (1800 MHz)



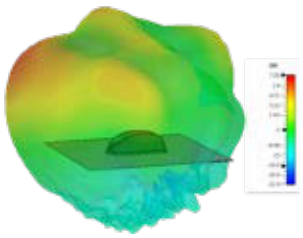
3D Plot Element 4 Side (1800 MHz)



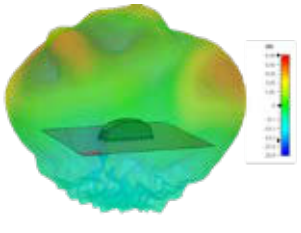
3D Plot Element 1 Side (2000 MHz)



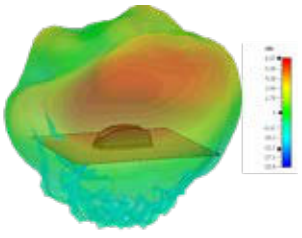
3D Plot Element 2 Side (2000 MHz)



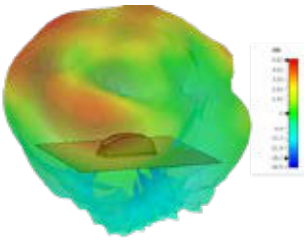
3D Plot Element 3 Side (2000 MHz)



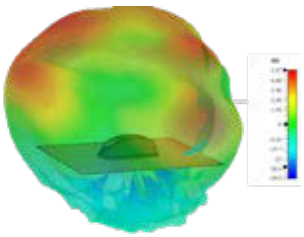
3D Plot Element 4 Side (2000 MHz)



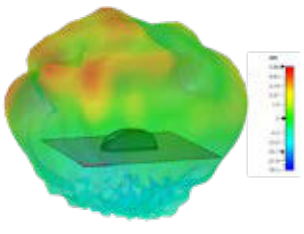
3D Plot Element 1 Side (2600 MHz)



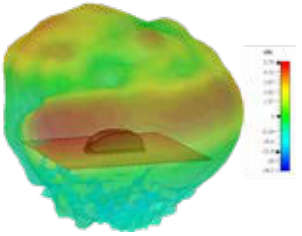
3D Plot Element 2 Side (2600 MHz)



3D Plot Element 3 Side (2600 MHz)



3D Plot Element 4 Side (2600 MHz)



3D patterns all simulated in CST Microwave Studio with each element fed individually excluding cable loss

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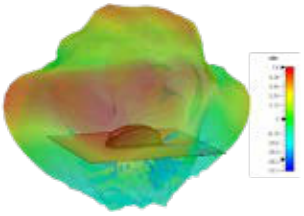
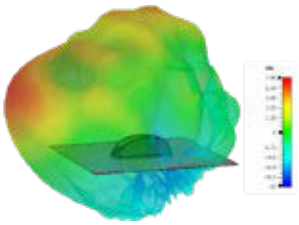
3D Patterns on Ground Plane -Cell

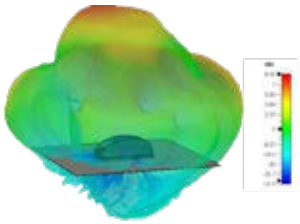
3D Plot Element 1 Side (3600 MHz)



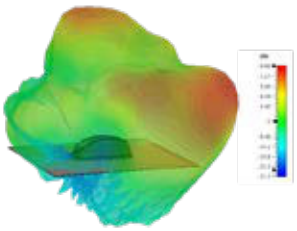
3D Plot Element 2 Side (3600 MHz)



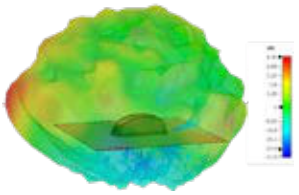
3D Plot Element 3 Side (3600 MHz)



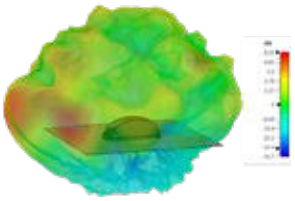
3D Plot Element 4 Side (3600 MHz)



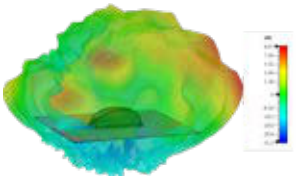
3D Plot Element 1 Side (5400 MHz)



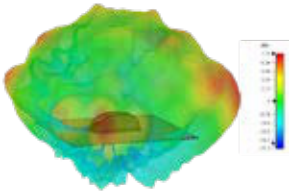
3D Plot Element 2 Side (5400 MHz)



3D Plot Element 3 Side (5400 MHz)

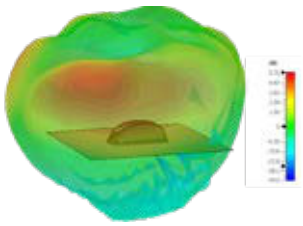


3D Plot Element 4 Side (5400 MHz)

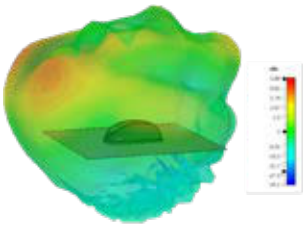


3D Patterns on Ground Plane -WiFi

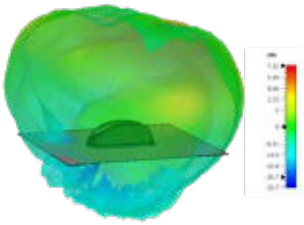
3D Plot Element 1 Side (2450 MHz)



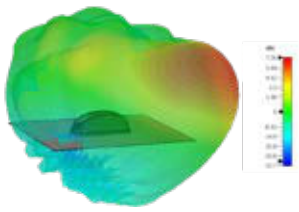
3D Plot Element 2 Side (2450 MHz)



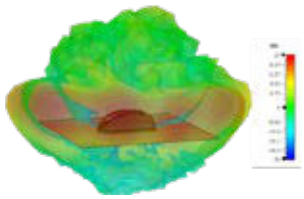
3D Plot Element 3 Side (2450 MHz)



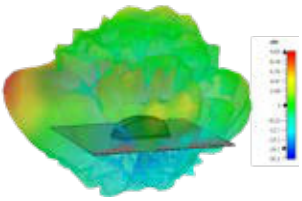
3D Plot Element 4 Side (2450 MHz)



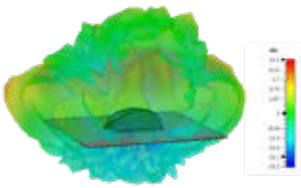
3D Plot Element 1 Side (5400 MHz)



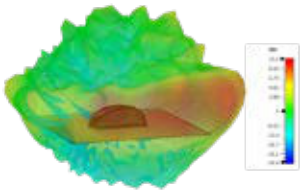
3D Plot Element 2 Side (5400 MHz)



3D Plot Element 3 Side (5400 MHz)



3D Plot Element 4 Side (5400 MHz)



3D patterns all simulated in CST Microwave Studio with each element fed individually excluding cable loss

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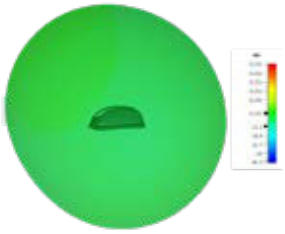
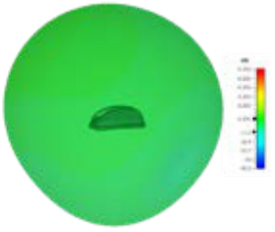
3D Patterns in Free Space- Cell

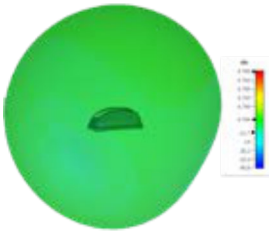
3D Plot Element 1 Side (650 MHz)



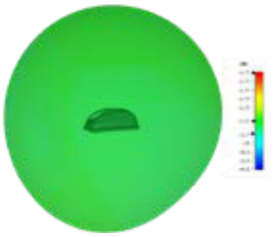
3D Plot Element 2 Side (650 MHz)



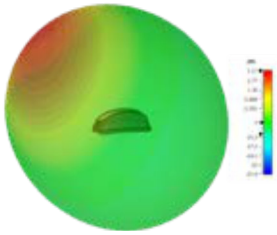
3D Plot Element 3 Side (650 MHz)



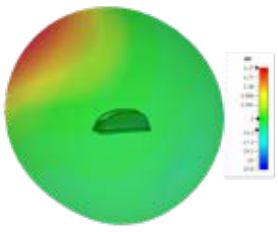
3D Plot Element 4 Side (650 MHz)



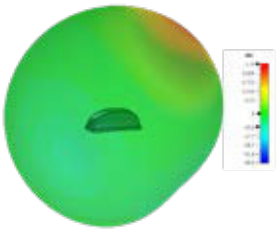
3D Plot Element 1 Side (750 MHz)



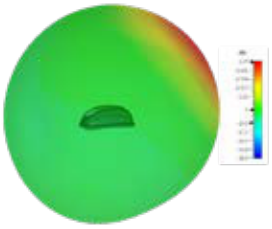
3D Plot Element 2 Side (750 MHz)



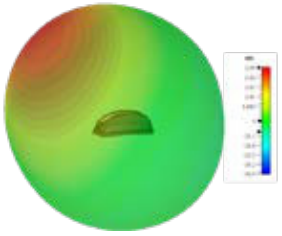
3D Plot Element 3 Side (750 MHz)



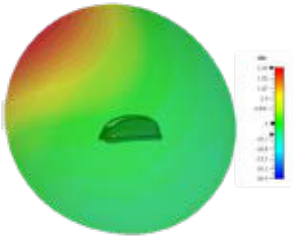
3D Plot Element 4 Side (750 MHz)



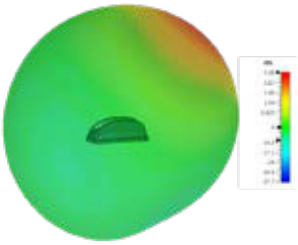
3D Plot Element 1 Side (850 MHz)



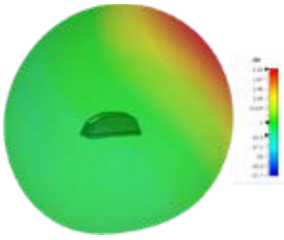
3D Plot Element 2 Side (850 MHz)



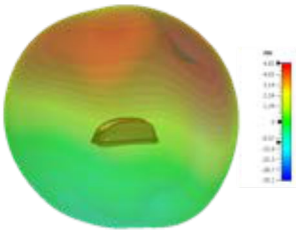
3D Plot Element 3 Side (850 MHz)



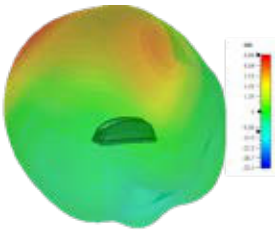
3D Plot Element 4 Side (850 MHz)



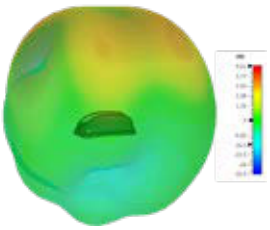
3D Plot Element 1 Side (1800 MHz)



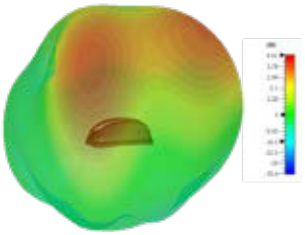
3D Plot Element 2 Side (1800 MHz)



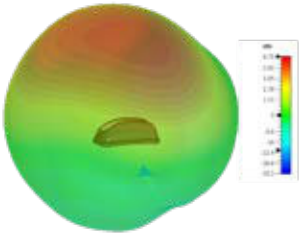
3D Plot Element 3 Side (1800 MHz)



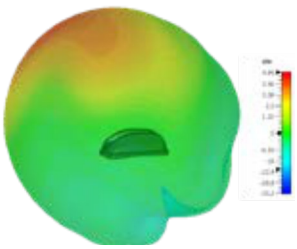
3D Plot Element 4 Side (1800 MHz)



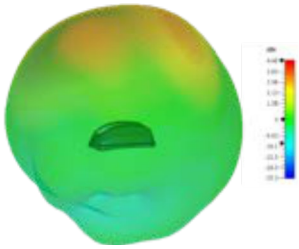
3D Plot Element 1 Side (2000 MHz)



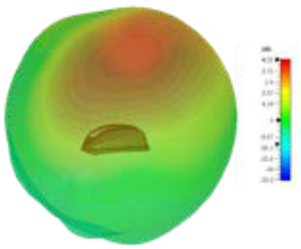
3D Plot Element 2 Side (2000 MHz)



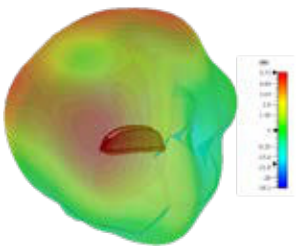
3D Plot Element 3 Side (2000 MHz)



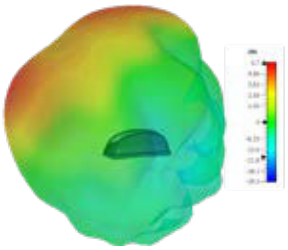
3D Plot Element 4 Side (2000 MHz)



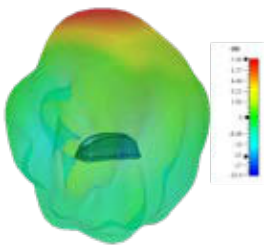
3D Plot Element 1 Side (2600 MHz)



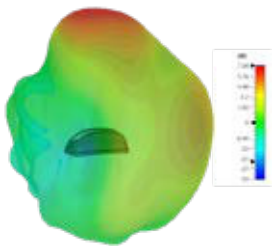
3D Plot Element 2 Side (2600 MHz)



3D Plot Element 3 Side (2600 MHz)



3D Plot Element 4 Side (2600 MHz)



3D patterns all simulated in CST Microwave Studio with each element fed individually excluding cable loss

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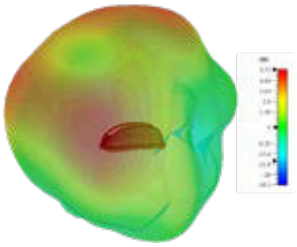
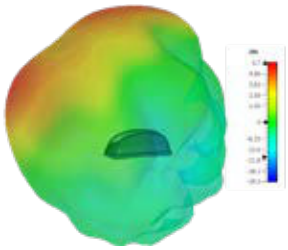
Electrical Data -in Free Space - Cell

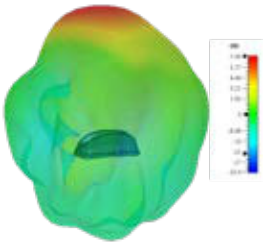
3D Plot Element 1 Side (3600 MHz)



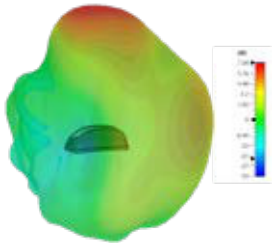
3D Plot Element 2 Side (3600 MHz)



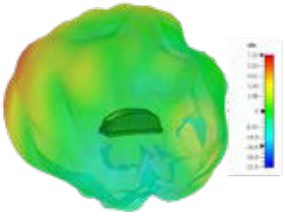
3D Plot Element 3 Side (3600 MHz)



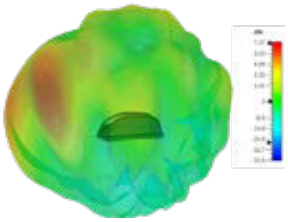
3D Plot Element 4 Side (3600 MHz)



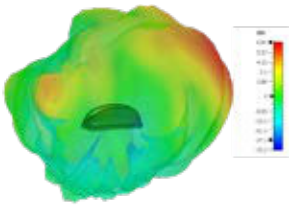
3D Plot Element 1 Side (5400 MHz)



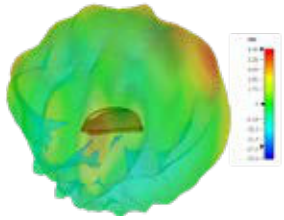
3D Plot Element 2 Side (5400 MHz)



3D Plot Element 3 Side (5400 MHz)

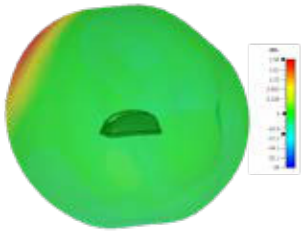


3D Plot Element 4 Side (5400 MHz)

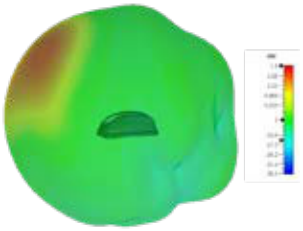


Electrical Data -in Free Space -

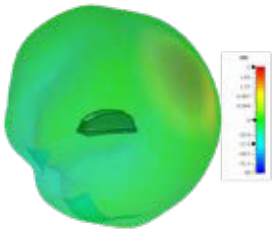
3D Plot Element 1 Side (2450 MHz)



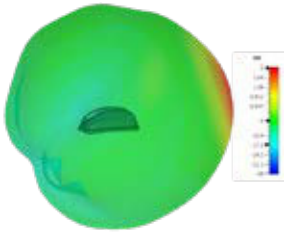
3D Plot Element 2 Side (2450 MHz)



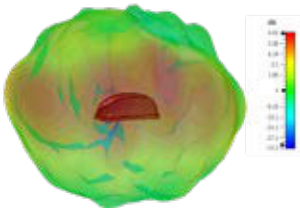
3D Plot Element 3 Side (2450 MHz)



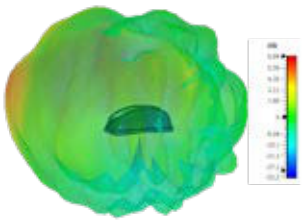
3D Plot Element 4 Side (2450 MHz)



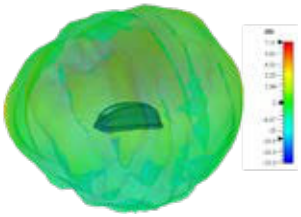
3D Plot Element 1 Side (5400 MHz)



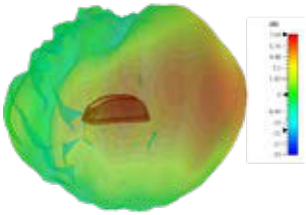
3D Plot Element 2 Side (5400 MHz)



3D Plot Element 3 Side (5400 MHz)

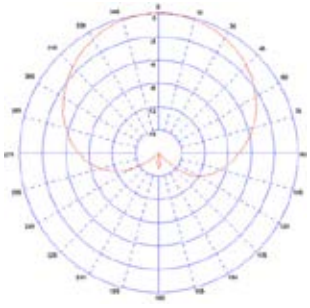


3D Plot Element 4 Side (5400 MHz)

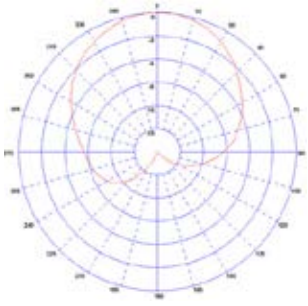


Electrical Data GPS/GNSS E Plane

GPS 1575MHz Typical E Plane



GPS 1602MHzTypical E Plane



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