

# 4x4 MiMo 4G/5G Dome Combination Antenna Range

PANORAMA ANTENNAS

L[G]M[X]M4[X]-6-60[-24-58]



- Low Profile 4x4 4G/5G MiMo
- Up to 6 x 6 MiMo Dual Band WiFi
- Optional GPS/GNSS Active Antenna 26dB LNA

The L[G]M[X]M4[X]-6-60[-24-58] range has been designed to provide 4x4 4G/5G MiMo performance from 617-960/1710-6000MHz in a robust low profile package. The flexible platform allows the main elements to be combined with a number of other functions including GPS/GNSS and up to 6x6 MiMo WiFi 2.4/5.0GHz.

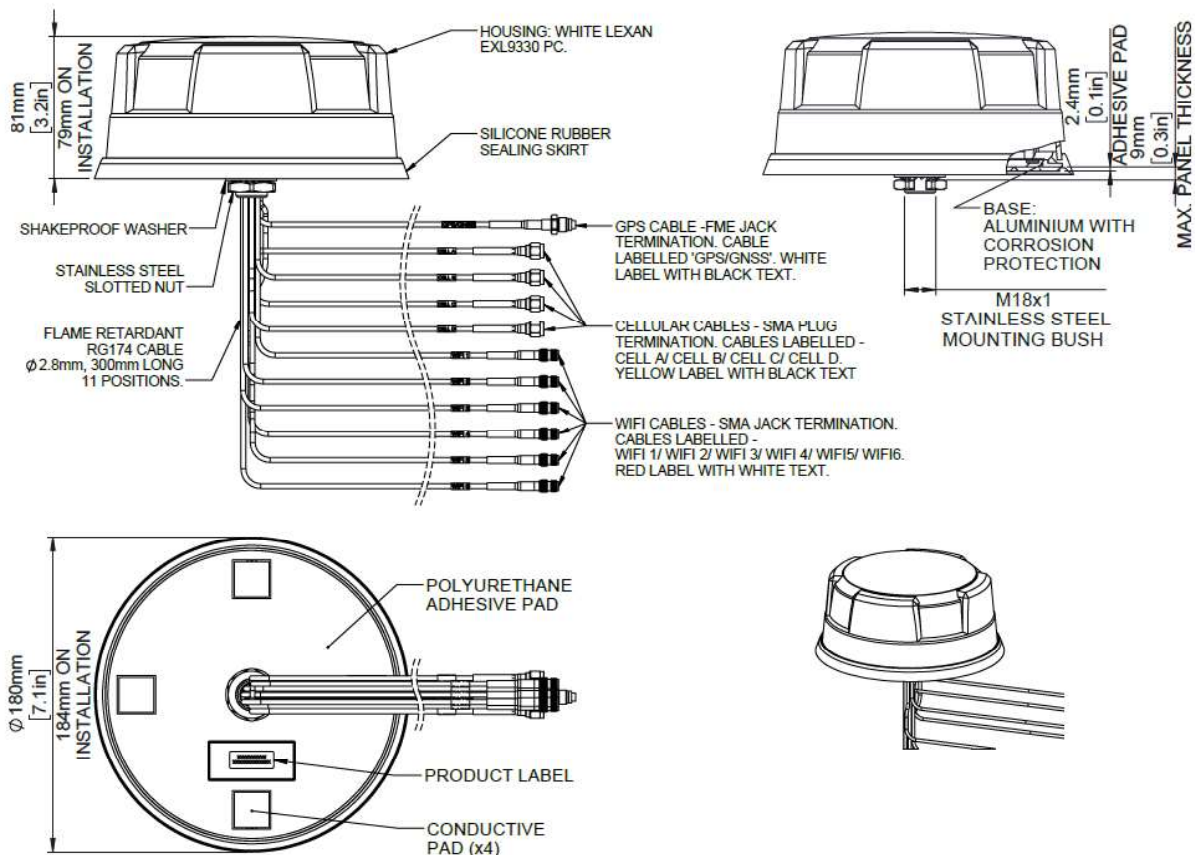
The antenna is designed to be panel mounted and can be fitted on a conductive or non- conductive panel. Supplied with integrated flame retardant RG174 cables (Compliant to UNECE 118.01 and EN45545-2) and a halogen free flame retardant radome the antenna is suitable for many environments and applications.

The LGM variants have an integrated GPS/GNSS module supporting GPS, Glonass, Galileo, QZSS and Compass with 26dB LNA gain. This GPS module features advanced filtering for LTE B13/14 designed to minimise potential in band interference.

The antenna is available with a black or white radome which meets IK10 for vandal resistance and IP69K for Ingress protection.

## Technical Drawing

LGMHM4-6-60-24-58 Shown



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L[G]M[X]M4[X]-6-60[-24-58]

Part No.		LGMHM4-6-60-24-58	LGMHM4B-6-60-24-58	LGMQM4-6-60-24-58	LGMQM4B-6-60-24-58
<b>Electrical Data</b>					
Frequency Range (MHz)	4G/5G Elements	4x 617-960 / 1710-6000			
	WiFi Elements	6x 2.4/4.9-6GHz		4x 2.4/4.9-6GHz	
Peak Gain: Isotropic : (dBi)†		617-960MHz	4		
	4G/5G Elements	1710-3800MHz	8		
		4900-6000MHz	9		
	WiFi Elements	2.4 GHz	9		
		4.9-6.0GHz	9		
Typical Efficiency **		617-960MHz	>50%		
	4G/5G Elements	1710-3800MHz	>75%		
		4900-6000MHz	>85%		
	WiFi Elements		>70%		
Isolation ***	4G/5G Elements	>10dB			
	Wifi Elements	>12dB			
Correlation Co-efficient	4G/5G Elements	< 0.2			
	Wifi Elements	<0.1			
Nominal Impedance		50Ω			
<b>GPS/GNSS Data</b>					
Frequency Range (MHz)		1562-1612			
VSWR		<2.0:1 ± 4MHz			-
Gain: LNA		26dB			
Out of band rejection		>40dB (@ > +/- 100MHz f)			
Typical Noise Figure		-2.7dB			
Notch Filter rejection @787MHz		23dBm			
Operating Voltage		3 - 5V DC			
Typical Current (mA)		15			
<b>Mechanical Data</b>					
Dimensions (mm)	Height	80 (3.1")			
	Diameter	180 (7.1")			
Operating Temp		-40° / +80°C (-40° / +176°F )			
Colour		White	Black	White	Black
Ingress Protection		IP69K			
<b>Mounting Data</b>					
Mounting type		Panel mount			
Max panel thickness (mm)		7 (0.27")			
Mounting hole (mm)		19 (3/4")			
<b>Cable Data</b>					
	Type	RG174 -FR (UN ECE118.01 Compliant)			
All Cables	Diameter (mm)	2.8 (0.1")			
	Length (m)	0.3 (1')			
<b>Terminations</b>					
4G/5G		SMA (m)			
WiFi		SMA (f)			
GPS/GNSS		FME (f)			

# 4x4 MiMo 4G/5G Dome Combination Antenna Range

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L[G]M[X]M4[X]-6-60[-24-58]

Part No.

LGMTM4-6-60-24-58 LGMTM4B-6-60-24-58 LGMDM4-6-60-24-58 LGMDM4B-6-60-24-58

## Electrical Data

Frequency Range (MHz)	4G/5G Elements	4x 617-960 / 1710-6000		
	WiFi Elements	3x 2.4/4.9-6GHz		2x 2.4/4.9-6GHz
Peak Gain: Isotropic : (dBi)†	4G/5G Elements	617-960MHz	4	
		1710-3800MHz	8	
	WiFi Elements	4900-6000MHz	9	
		2.4 GHz	9	
Typical Efficiency **	4G/5G Elements	4.9-6.0GHz	9	
		617-960MHz	>50%	
Isolation ***	4G/5G Elements	1710-3800MHz	>75%	
		4900-6000MHz	>85%	
Correlation Co-efficient	WiFi Elements			>70%
				>10dB
Nominal Impedance			>12dB	
			< 0.2	
				<0.1
				50Ω

## GPS/GNSS Data

Frequency Range (MHz)	1562-1612			
VSWR	<2.0:1 ± 4MHz			-
Gain: LNA	26dB			
Out of band rejection	>40dB (@ > +/- 100MHz f)			
Typical Noise Figure	-2.7dB			
Notch Filter rejection @787MHz	23dBm			
Operating Voltage	3 - 5V DC			
Typical Current (mA)	15			

## Mechanical Data

Dimensions (mm)	Height	80 (3.1")			
	Diameter	180 (7.1")			
Operating Temp	-40° / +80°C (-40° / +176°F)				
Colour	White	Black	White	Black	
Ingress Protection	IP69K				

## Mounting Data

Mounting type	Panel mount
Max panel thickness (mm)	7 (0.27")
Mounting hole (mm)	19 (3/4")

## Cable Data

All Cables	Type	RG174 -FR (UN ECE118.01 Compliant)
	Diameter (mm)	2.8 (0.1")
	Length (m)	0.3 (1')

## Terminations

4G/5G	SMA (m)
WiFi	SMA (f)
GPS/GNSS	FME (f)

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# 4x4 MiMo 4G/5G Dome Combination Antenna Range

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L[G]M[X]M4[X]-6-60[-24-58]

Part No.		LGMM4-6-60	LGMM4B-6-60	LPMM4-6-60	LPMM4B-6-60
<b>Electrical Data</b>					
Frequency Range (MHz)	4G/5G Elements	4x 617-960 / 1710-6000			
Peak Gain: Isotropic : (dBi)†	4G/5G Elements	617-960MHz	4		
		1710-3800MHz	8		
		4900-6000MHz	9		
Typical Efficiency **	4G/5G Elements	617-960MHz	>50%		
		1710-3800MHz	>75%		
		4900-6000MHz	>85%		
Isolation ***	4G/5G Elements	>10dB			
Correlation Co-efficient	4G/5G Elements	< 0.2			
Nominal Impedance		50Ω			
<b>GPS/GNSS Data</b>					
Frequency Range (MHz)		1562-1612			-
VSWR		<2.0:1 ± 4MHz			-
Gain: LNA		26dB			-
Out of band rejection		>40dB (@ > +/- 100MHz f)			-
Typical Noise Figure		-2.7dB			-
Notch Filter rejection @787MHz		23dBm			-
Operating Voltage		3 - 5V DC			-
Typical Current (mA)		15			-
<b>Mechanical Data</b>					
Dimensions (mm)	Height	80 (3.1")			
	Diameter	180 (7.1")			
Operating Temp		-40° / +80°C (-40° / +176°F)			
Colour		White	Black	White	Black
Ingress Protection		IP69K			
<b>Mounting Data</b>					
Mounting type		Panel mount			
Max panel thickness (mm)		7 (0.27")			
Mounting hole (mm)		19 (3/4")			
<b>Cable Data</b>					
All Cables	Type	RG174 -FR (UN ECE118.01 Compliant)			
	Diameter (mm)	2.8 (0.1")			
	Length (m)	0.3 (1')			
<b>Terminations</b>					
4G/5G		SMA (m)			
GPS/GNSS		FME (f)			-

\*\*Typical efficiency shown for single element of relevant type simulated in CST Microwave Studio on 600x600mm (23.6"x23.6") ground plane excluding cable loss.

\*\*\* Isolation shown is worst case across all element pairings measured on 600x600mm (23.6"x23.6") ground plane with 0.5m (1'5") of Cable.

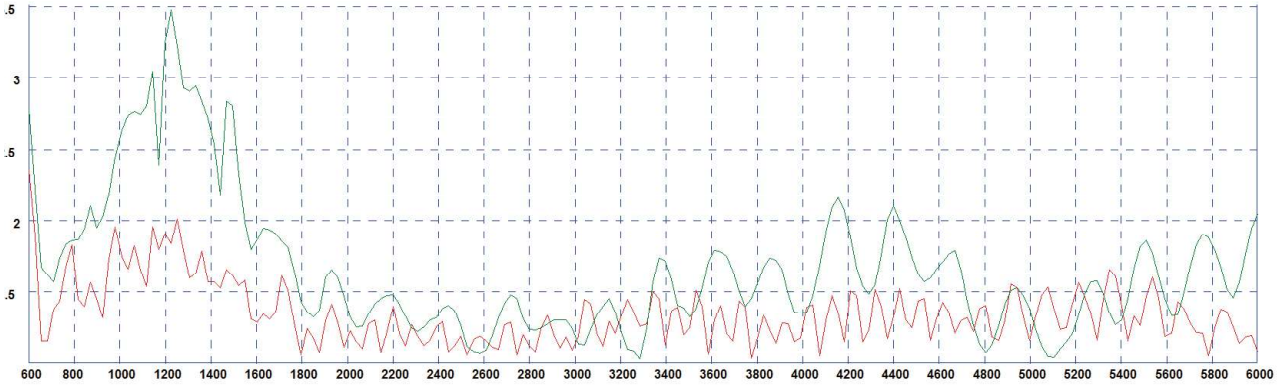
† Typical peak gain shown for single element of relevant type simulated in CST Microwave Studio on 600x600mm (23.6"x23.6") ground plane excluding cable loss.

# 4x4 MiMo 4G/5G Dome Combination Antenna Range

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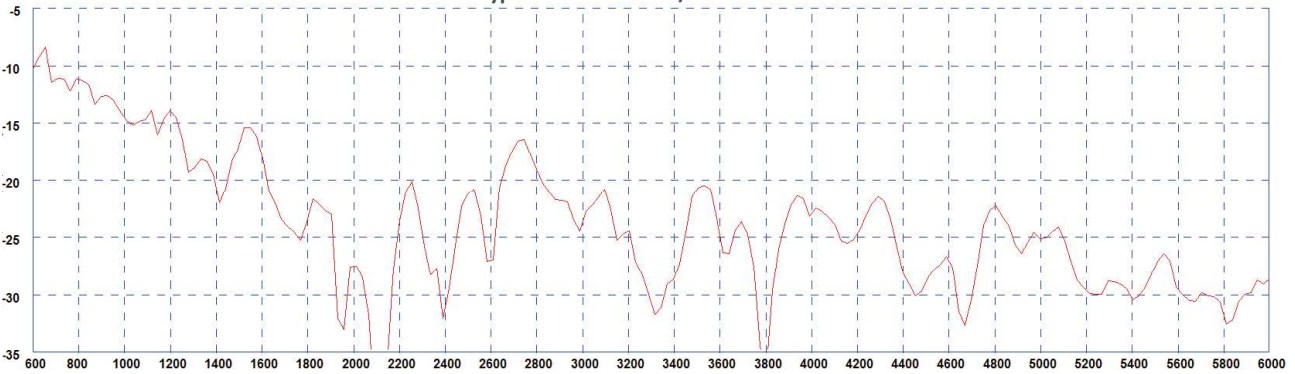
## Electrical Data

Typical VSWR - 4G/5G Elements\*



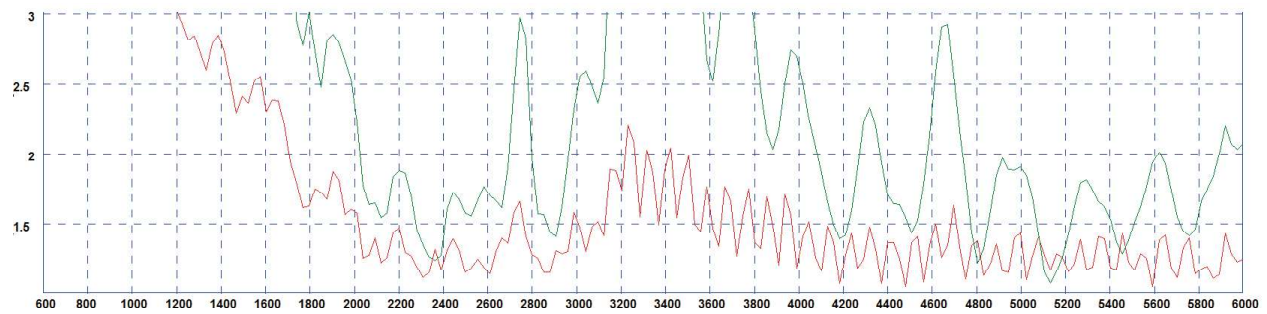
\* Green Trace measured with 0.5m (1.5') of RG174 cable Red Trace measured with 5m(17') of CS32 Cable both on a 600x600mm (2'x2') groundplane

Typical Isolation - 4G/5G Elements\*



\* measured with 0.5m (1.5') of RG174 cable on a 600x600mm (2'x2') groundplane

Typical VSWR - WiFi Elements\*



\* Green Trace measured with 0.5m (1.5') of RG174 cable Red Trace measured with 5m(17') of CS32 Cable both on a 600x600mm (2'x2') groundplane

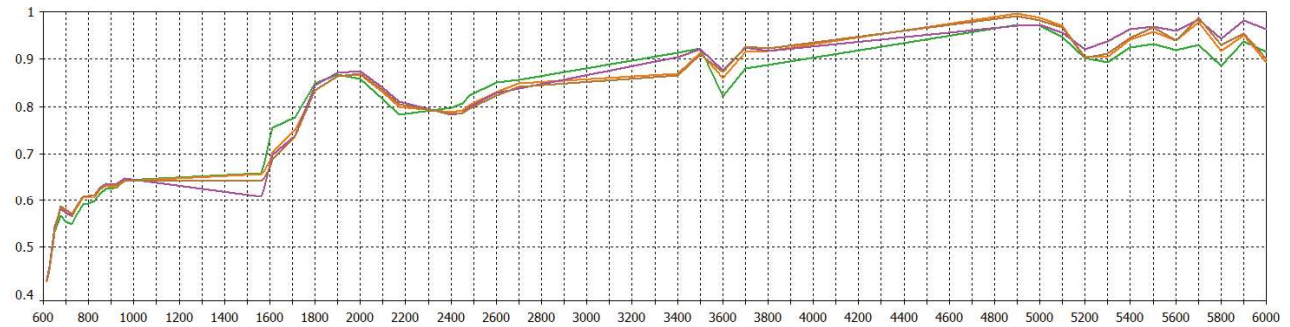


# 4x4 MiMo 4G/5G Dome Combination Antenna Range

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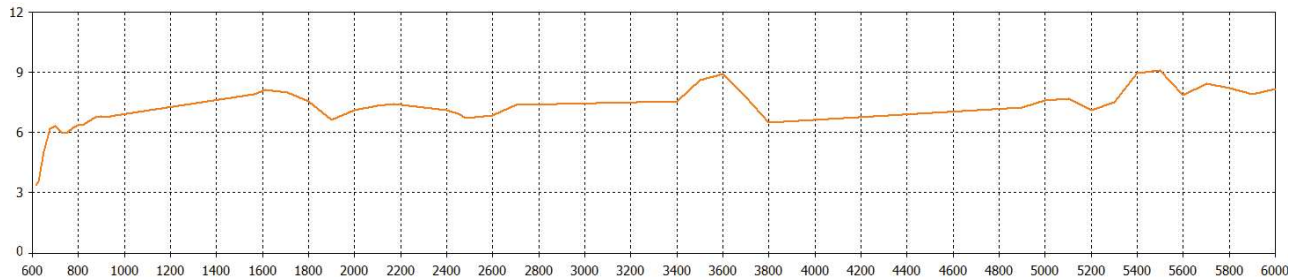
L[G]M[X]M4[X]-6-60[-24-58]

Typical Efficiency- 4G/5G Elements\*



\* Efficiency modelled with CST Microwave Studio with antenna mounted on 600x600mm (2'x2') ground plane and ignores cable losses

Typical Peak Gain - 4G/5G Elements\*



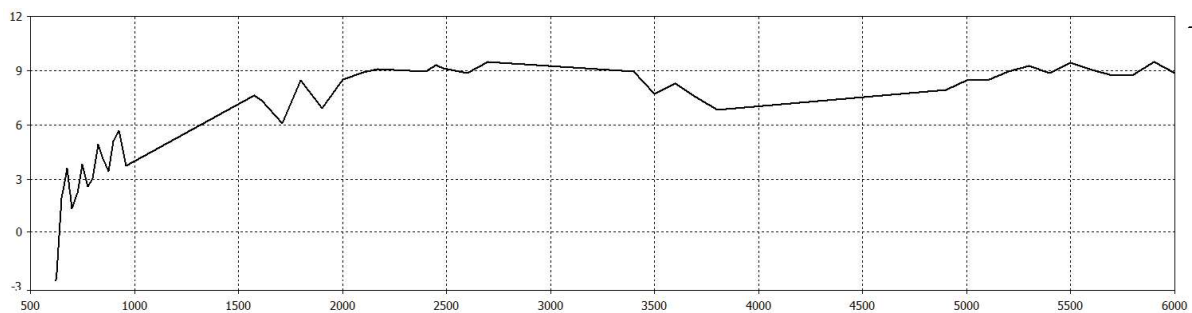
\*Swept peak gain modelled with one element fed in CST Microwave Studio on a 600x600mm (2'x2') ground plane excluding cable loss

Typical Efficiency - WiFi Elements\*



\* Efficiency modelled for 4x4 MiMo Wifi version with CST Microwave Studio with antenna mounted on 600x600mm (2'x2') ground plane and ignores cable losses

Typical Swept Peak Gain - WiFi Elements\*



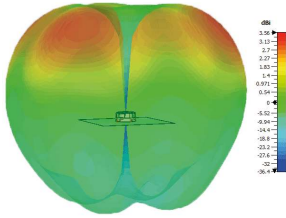
\*Swept peak gain modelled with one element fed in CST Microwave Studio on a 600x600mm (2'x2') ground plane excluding cable loss

# 4x4 MiMo 4G/5G Dome Combination Antenna Range

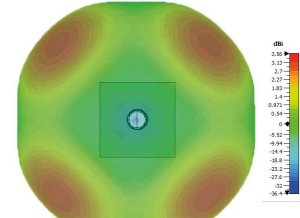
L[G]M[X]M4[X]-6-60[-24-58]

## 4G/5G Pattern Data

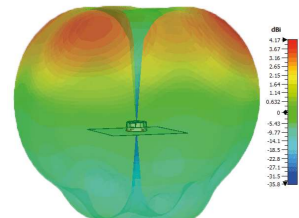
Typical 3D Pattern LTE Elements Side 617MHz



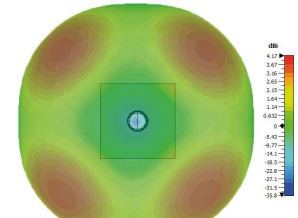
Typical 3D Pattern - LTE Elements Top 617MHz



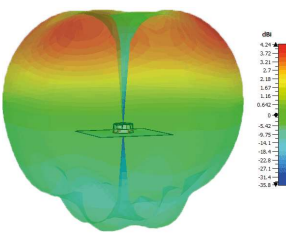
Typical 3D Pattern LTE Elements Side 700MHz



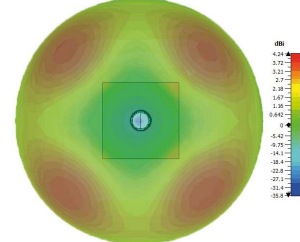
Typical 3D Pattern LTE Elements Top 700MHz



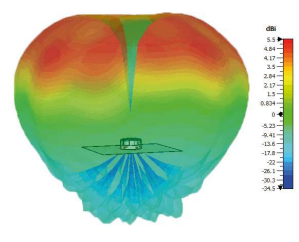
Typical 3D Pattern LTE Elements Side 800MHz



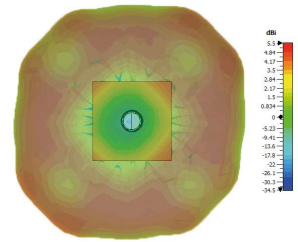
Typical 3D Pattern - LTE Elements Top 800MHz



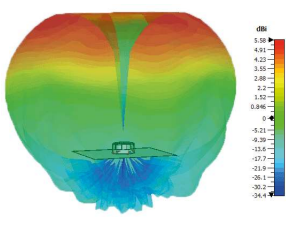
Typical 3D Pattern LTE Elements Side 1800MHz



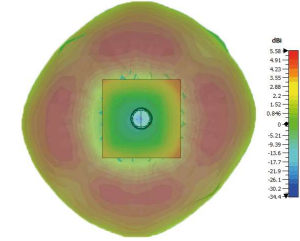
Typical 3D Pattern LTE Elements Top 1800MHz



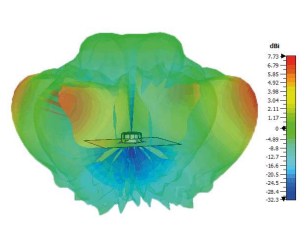
Typical 3D Pattern LTE Elements Side 2100MHz



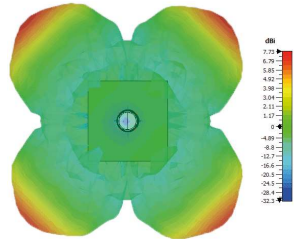
Typical 3D Pattern - LTE Elements Top 2100MHz



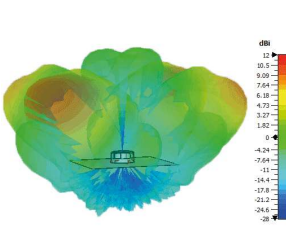
Typical 3D Pattern LTE Elements Side 2600MHz



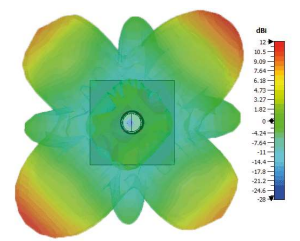
Typical 3D Pattern LTE Elements Top 2600MHz



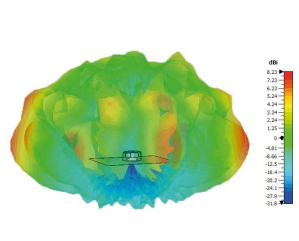
Typical 3D Pattern LTE Elements Side 3600MHz



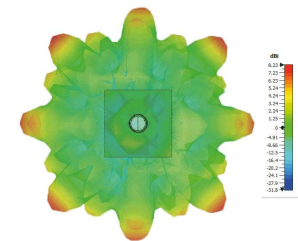
Typical 3D Pattern - LTE Elements Top 3600MHz



Typical 3D Pattern LTE Elements Side 5400MHz



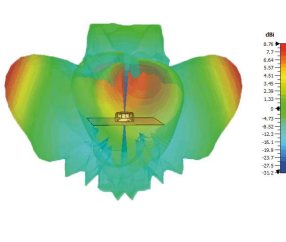
Typical 3D Pattern LTE Elements Top 5400MHz



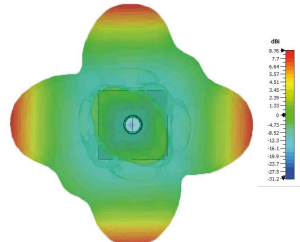
\*Patterns are LGMQM4-6-60-24-58 modelled in CST Microwave Studio on a 600x600mm(2'x2') ground plane with all elements of each type fed.

## WiFi Pattern Data

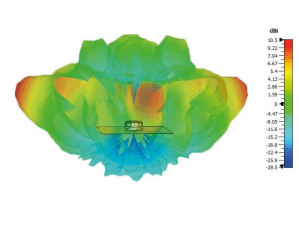
Typical 3D Pattern WiFi Elements Side 2450MHz



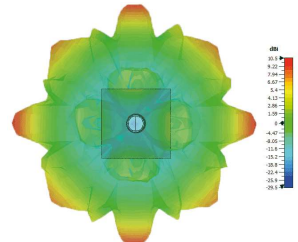
Typical 3D Pattern - WiFi Elements Top 2450MHz



Typical 3D Pattern WiFi Elements Side 5400MHz



Typical 3D Pattern WiFi Elements Top 5400MHz



\*Patterns are LGMQM4-6-60-24-58 modelled in CST Microwave Studio on a 600x600mm(2'x2') ground plane with all elements of each type fed.