

# MiMo 4G/5G Dome Combination Antenna Range

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



- Low Profile 2x2 4G/5G MiMo
- Up to 6x6 MiMo Dual Band WiFi 6E
- Optional GPS/GNSS Active Antenna 26dB LNA

The L[G]M[X]M[X]-6-60[-24-58] range has been designed to provide 2x2 4G/5G MiMo performance from 617-960/1427-6000MHz 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 2.4/4.9-7.2GHz.

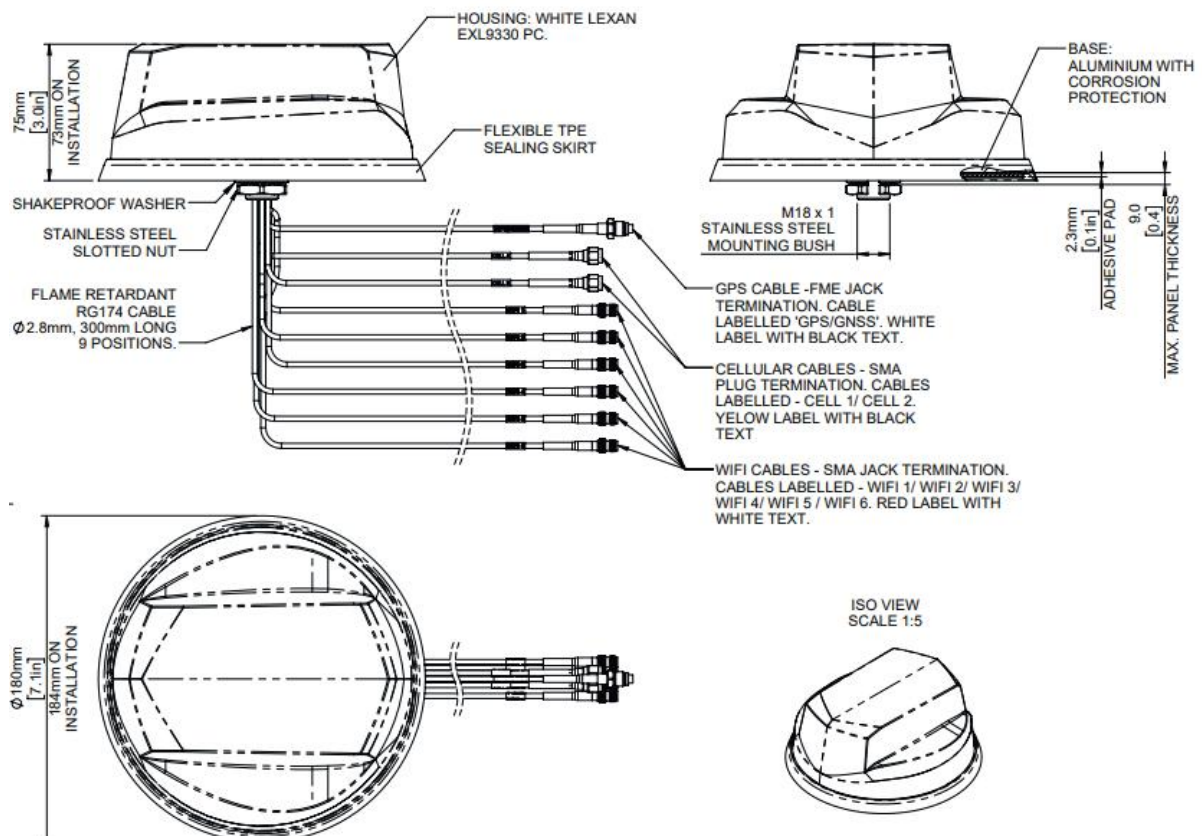
The antenna is designed to be panel mounted and can be fitted on a conductive or non- conductive panel. Supplied with integrated flame retardant RG174 cables (Compliant to UN ECE R118.03 and EN45545-2) and a halogen free flame retardant radome the antenna is suitable for many environments and applications.

The LGM variants have an integrated GPS/GNSS module supporting GPS, Glonass, Galileo 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

LGMHM-6-60-24-58 Shown



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PANORAMA ANTENNAS

## Product Data

Part No.

LGMHM-6-60-24-58 LGMHMB-6-60-24-58 LGMQM-6-60-24-58 LGMQMB-6-60-24-58

### Electrical Data

|  |                |                        |    |                   |
|--|----------------|------------------------|----|-------------------|
| Frequency Range (MHz)                      | 4G/5G Elements | 2x 617-960 / 1427-6000 |    |                   |
|  | WiFi Elements  | 6x 2.4/4.9-7.2GHz      |    | 4x 2.4/4.9-7.2GHz |
| Peak Gain: Isotropic<br>: All Elements Fed | 4G/5G Elements | 617-960MHz             | 5  |                   |
|  |                | 1427-3800MHz           | 9  |                   |
|  |                | 4900-6000MHz           | 10 |                   |
|  | WiFi Elements  | 2.4GHz                 | 8  |                   |
|  |                | 4.9-7.2GHz             | 10 |                   |
| Typical Efficiency                         | 4G/5G Elements | >70%                   |    |                   |
|  | WiFi Elements  | >80%                   |    |                   |
| Isolation                                  | 4G/5G Elements | >12dB                  |    |                   |
|  | Wifi Elements  | >20dB                  |    |                   |
| Correlation<br>Co-efficient                | 4G/5G Elements | < 0.1                  |    |                   |
|  | WiFi Elements  | <0.1                   |    |                   |
| Nominal Impedance                          | 50Ω            |                        |    |                   |

### GPS/GNSS Data

|                                |                          |  |  |   |
|--------------------------------|--------------------------|--|--|---|
| Frequency Range (MHz)          | 1559-1612                |  |  |   |
| VSWR                           | <2.0:1 ± 4MHz            |  |  | - |
| Gain: LNA                      | 26dB                     |  |  |   |
| Out of band rejection          | >40dB (@ > +/- 100MHz f) |  |  |   |
| Typical Noise Figure           | 2.7dB                    |  |  |   |
| Notch Filter rejection @787MHz | 23dB                     |  |  |   |
| Operating Voltage              | 3 - 5V DC                |  |  |   |
| Typical Current (mA)           | 15                       |  |  |   |

### Mechanical Data

|                    |                               |            |       |       |
|--------------------|-------------------------------|------------|-------|-------|
| Dimensions (mm)    | Height                        | 75 (3")    |       |       |
|                    | Diameter                      | 180 (7.1") |       |       |
| Operating Temp     | -40° / +80°C (-40° / +176°F ) |            |       |       |
| Colour             | White                         | Black      | White | Black |
| Ingress Protection | IP69K                         |            |       |       |
| Impact Protection  | IK10                          |            |       |       |

### Mounting Data

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

### Cable Data

|            |               |                                      |
|------------|---------------|--------------------------------------|
|            | Type          | RG174 -FR (UN ECE R118.03 Compliant) |
| All Cables | Diameter (mm) | 2.8 (0.1")                           |
|            | Length (m)    | 0.3 (1')                             |

### Terminations

|       |         |
|-------|---------|
| 4G/5G | SMA (m) |
| WiFi  | SMA (f) |

# MiMo 4G/5G Dome Combination Antenna Range

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

PANORAMA ANTENNAS

## Product Data

### Part No.

LGTM-6-60-24-58 LGMTMB-6-60-24-58 LGMDM-6-60-24-58 LGMDB-6-60-24-58

### Electrical Data

|  |                |                        |                   |
|--|----------------|------------------------|-------------------|
| Frequency Range (MHz)                      | 4G/5G Elements | 2x 617-960 / 1427-6000 |                   |
|  | WiFi Elements  | 3x 2.4/4.9-7.2GHz      | 2x 2.4/4.9-7.2GHz |
| Peak Gain: Isotropic<br>: All Elements Fed | 4G/5G Elements | 617MHz-960MHz          | 5                 |
|  |                | 1427-3800MHz           | 9                 |
|  |                | 4900-6000MHz           | 10                |
|  | WiFi Elements  | 2.4GHz                 | 8                 |
|  |                | 4.9-7.2GHz             | 10                |
| Typical Efficiency                         | 4G/5G Elements | >70%                   |                   |
|  | WiFi Elements  | >80%                   |                   |
| Isolation                                  | 4G/5G Elements | >12dB                  |                   |
|  | WiFi Elements  | >20dB                  |                   |
| Correlation Co-efficient                   | 4G/5G Elements | < 0.1                  |                   |
|  | WiFi Elements  | <0.1                   |                   |
| Nominal Impedance                          |                | 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         | Height   | 75 (3")                       |       |       |
|                    | 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 ECE R118.03 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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L[G]M[X]M[X]-6-60[-24-58]

PANORAMA ANTENNAS

## Product Data

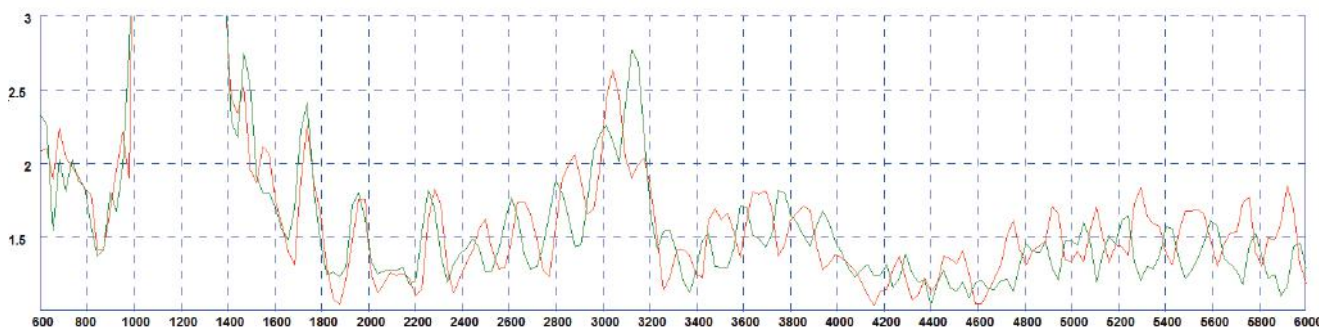
| Part No.                                | LGMM-6-60                     | LGMMB-6-60                           | LPMM-6-60              | LPMMB-6-60 |
|---|-------------------------------|--------------------------------------|------------------------|------------|
| <b>Electrical Data</b>                  |                               |                                      |                        |            |
| Frequency Range (MHz)                   | 4G/5G Elements                |                                      | 2x 617-960 / 1427-6000 |            |
| Peak Gain: Isotropic : All Elements Fed | 4G/5G Elements                | 617-960MHz                           | 5                      |            |
|   |                               | 1427-3800MHz                         | 9                      |            |
|   |                               | 4900-6000MHz                         | 10                     |            |
| Typical Efficiency                      | 4G/5G Elements                |                                      | >70%                   |            |
| Isolation                               | 4G/5G Elements                |                                      | >12dB                  |            |
| Correlation Co-efficient                | 4G/5G 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                              | Height                        | 75 (3")                              |                        |            |
|   | 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 ECE R118.03 Compliant) |                        |            |
|   | Diameter (mm)                 | 2.8 (0.1")                           |                        |            |
|   | Length (m)                    | 0.3 (1')                             |                        |            |
| <b>Terminations</b>                     |                               |                                      |                        |            |
| 4G/5G                                   | SMA (m)                       |                                      |                        |            |
| GPS/GNSS                                | FME (f)                       |                                      | -                      |            |

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

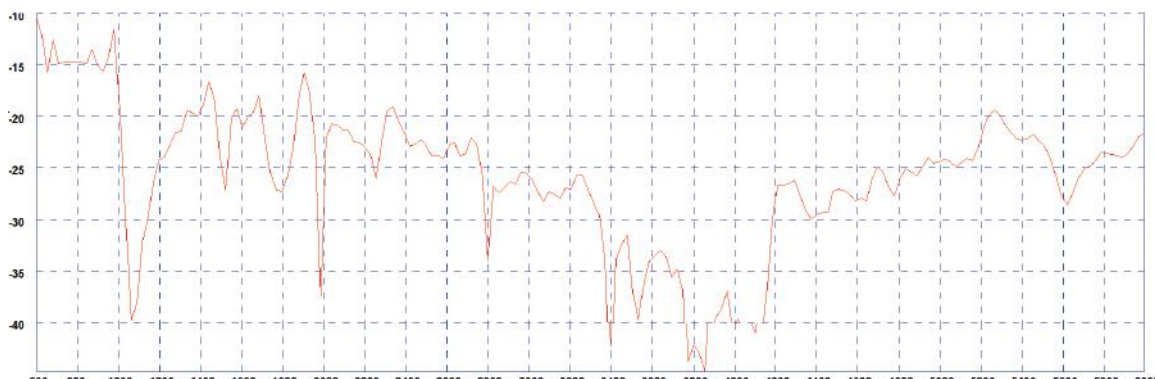
Electrical Data - Cell

Typical VSWR - 4G/5G Elements\*



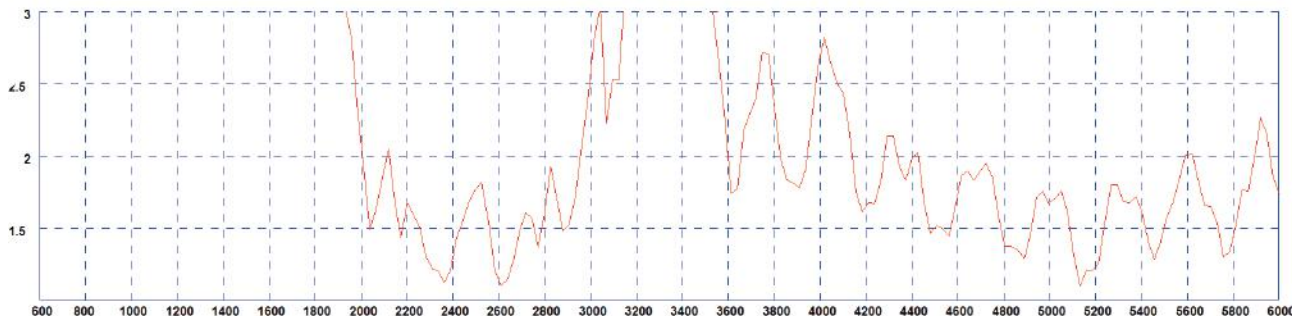
\* measured with 0.5m (1.5') of RG174 cable on a 600x600mm (2'x2') groundplane

Typical Isolation - 4G/5G Elements\*



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

Typical VSWR - WiFi Elements\*



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

Typical Isolation - WiFi Elements\*



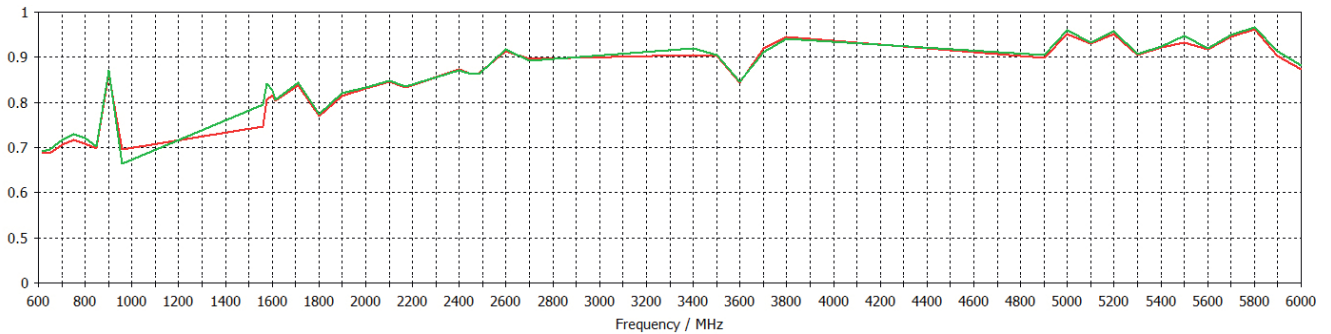
\* measured with 0.5m (1.5') of RG174 cable on a 600x600mm (2'x2') groundplane



# MiMo 4G/5G Dome Combination Antenna Range

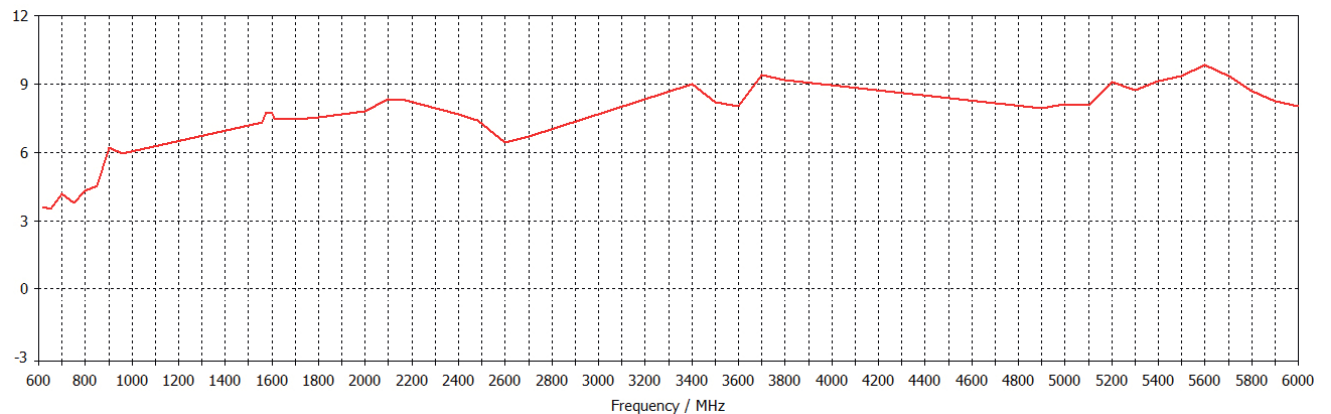
L[G]M[X]M[X]-6-60[-24-58]

Typical Efficiency- 4G/5G Elements\*



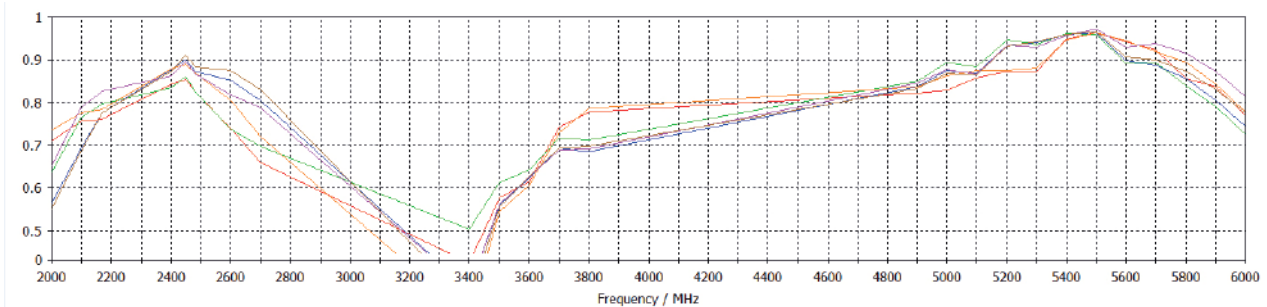
\* Efficiency modelled with CST Microwave Studio and ignores cable losses

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



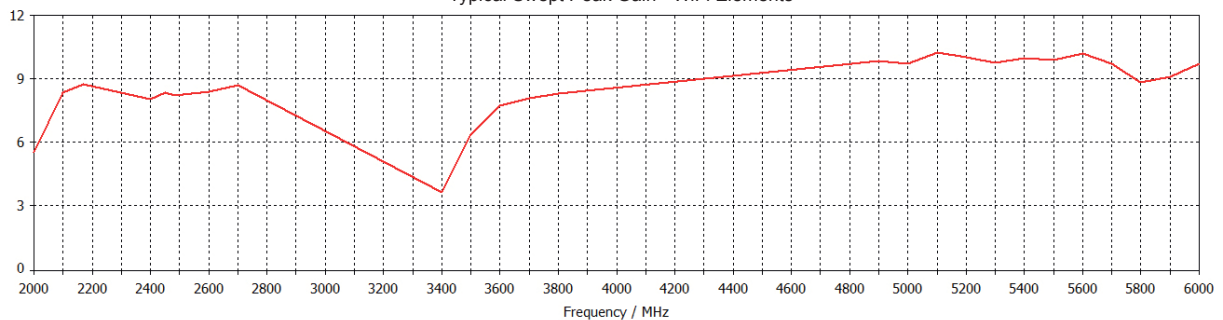
\*Swept peak gain modelled with all elements fed in CST Microwave Studio on a 600x600mm (2'x2') ground plane excluding cable loss

Typical Efficiency - WiFi Elements\*



\* Efficiency modelled with CST Microwave Studio and ignores cable losses

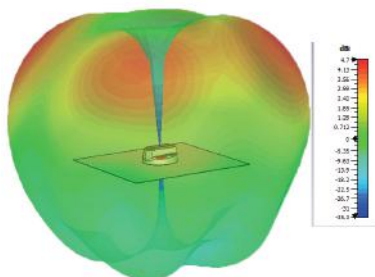
Typical Swept Peak Gain - WiFi Elements\*



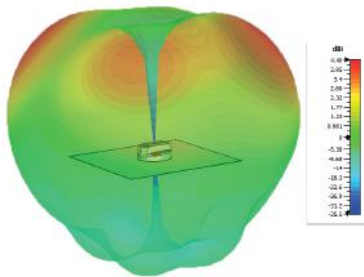
\*Swept peak gain modelled with all elements fed in CST Microwave Studio on a 600x600mm (2'x2') ground plane excluding cable loss

## 4G/5G Pattern Data

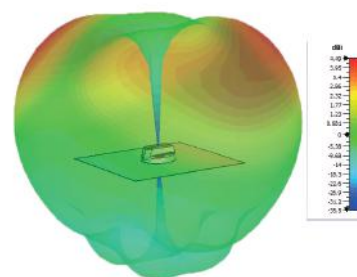
Typical 3D Pattern - 4G/5G Elements 617MHz



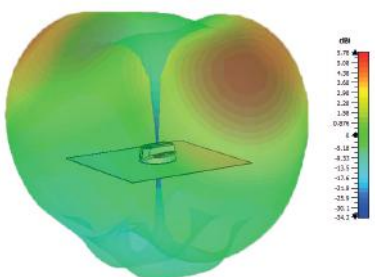
Typical 3D Pattern - 4G/5G Elements 700MHz



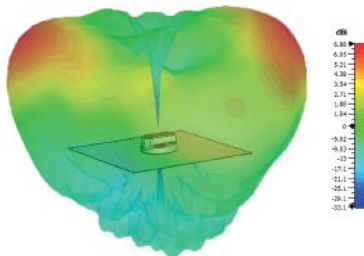
Typical 3D Pattern - 4G/5G Elements 800MHz



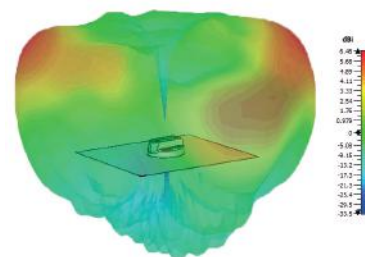
Typical 3D Pattern - 4G/5G Elements 900MHz



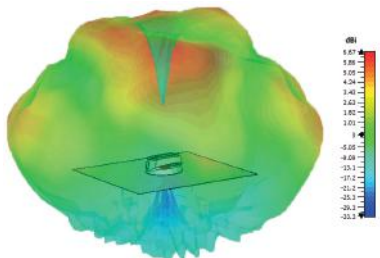
Typical 3D Pattern - 4G/5G Elements 1800MHz



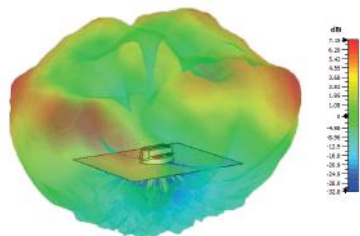
Typical 3D Pattern - 4G/5G Elements 2000MHz



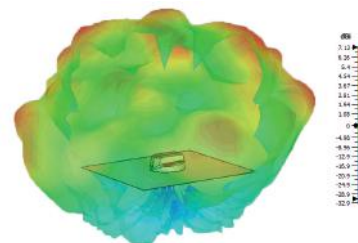
Typical 3D Pattern - 4G/5G Elements 2600MHz



Typical 3D Pattern - 4G/5G Elements 3600MHz

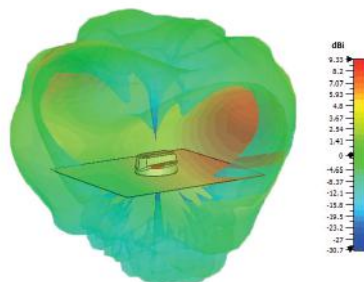


Typical 3D Pattern - 4G/5G Elements 5400MHz

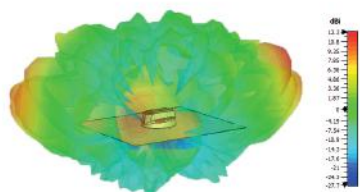


## WiFi Pattern Data

Typical 3D Pattern - WiFi Elements 2400MHz



Typical 3D Pattern - WiFi Elements 5400MHz



\*Patterns are LGMHM-6-60-24-58 modelled in CST Microwave Studio with all elements of each type fed.