



# Datasheet

## Gemini

**Part No:**  
LMA101.A.BI.001

### Description:

Gemini 2\*5G/4G MIMO Magnetic/Desk/Wall Mount Antenna

### Features:

- 5G/4G MIMO Antenna
- Covers Cellular Bands between 600-6000MHz
- High Efficiency Antenna
- IP67 Rating
- 3 Way Mounting Options
  - Magnetic Mount
  - Wall Mount
  - Desktop Mount
- 2\*Low Loss 1m CFD-200 Cables, SMA(M)
- Cable and Connector Customizable
- Enclosure Dimensions: 164\*164\*36.5mm
- RoHS & Reach Compliant

|                                   |    |
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## 1. Introduction



Taoglas Gemini LMA101 is a 2\* 5G/4G MIMO Antenna for use with all 5G/4G cellular routers and access points worldwide requiring MIMO connectivity. It includes two high-efficiency 5G/4G antennas that operate at all common and 5G/4G bands worldwide from 600MHz to 6000MHz. It has been designed to include 3G and 2G bands, meaning the antenna can also be used for fallback in circumstances where 5G/4G is not available. High isolation and low ECC between the two embedded MIMO antennas prevent self-interference and the low loss CFD-200 cables are used to keep efficiency high over longer cable lengths of up to 5 meters.

This unique antenna offers three mounting options for easy installation. The base features eight super-magnets for easy and secure installation on metal surfaces. The rear of the enclosure features a bracket to enable wall installation, keeping your workstation free from clutter or the antenna can also be placed directly on a flat surface using the stand. The LMA101 can be used both indoors and outdoors as the robust external enclosure is fully IP67 rated.

Typical Applications include:

- HD Real-time Streaming Video over LTE
- Intelligent Transport Systems
- Digital Signage and HD Broadcast Systems
- Wireless 5G/4G MIMO M2M devices with legacy 3G/2G functionality.

Cable length and connector types are customizable. Contact your regional Taoglas sales office for support.

## 2. Specifications

### Electrical

| Band  | Frequency (MHz) |        | Efficiency (%) | Average Gain (dB) | Peak Gain (dBi) | Impedance | Max Input Power | Polarization | Radiation Pattern |
|---|-----------------|--------|----------------|-------------------|-----------------|-----------|-----------------|--------------|-------------------|
| 5G NR/4G<br>Band 71                           | 617~698         | MIMO 1 | 40             | -4.9              | -0.3            | 50 Ω      | 10W             | Linear       | Omni-Directional  |
|   |                 | MIMO 2 | 39.9           | -4.7              | -0.2            |           |                 |              |                   |
| 4G/3G<br>Band 12,13,14,17,28,29               | 698~806         | MIMO 1 | 60.9           | -2.2              | 2.1             |           |                 |              |                   |
|   |                 | MIMO 2 | 64             | -2                | 2.3             |           |                 |              |                   |
| 4G/3G/NB-IoT/Cat M<br>Band 5,8,18,19,20,26,27 | 824~960         | MIMO 1 | 34.5           | -4.7              | -0.2            |           |                 |              |                   |
|   |                 | MIMO 2 | 43             | -3.7              | 0.7             |           |                 |              |                   |
| 5G NR/4G<br>Band 21,32,74,75,76               | 1427~1518       | MIMO 1 | 35.1           | -4.5              | 1.7             |           |                 |              |                   |
|   |                 | MIMO 2 | 25.7           | -5.8              | 1               |           |                 |              |                   |
| 4G/3G<br>Band 1,2,3,4,9,23,25,35,39,66        | 1710~2200       | MIMO 1 | 45             | -3.5              | 1.9             |           |                 |              |                   |
|   |                 | MIMO 2 | 40.3           | -4.1              | 1.5             |           |                 |              |                   |
| 4G/3G<br>Band 7,38,41                         | 2490~2690       | MIMO 1 | 42.3           | -3.8              | 1.6             |           |                 |              |                   |
|   |                 | MIMO 2 | 47.8           | -3.3              | 3               |           |                 |              |                   |
| 5G NR<br>Band 22,42,48,77,78,79               | 3300~5000       | MIMO 1 | 18.1           | -7.8              | -0.6            |           |                 |              |                   |
|   |                 | MIMO 2 | 16.9           | -8.5              | -1.6            |           |                 |              |                   |
| LTE5200/<br>Wi-Fi 5800                        | 5150~5925       | MIMO 1 | 25.7           | -5.9              | -0.9            |           |                 |              |                   |
|   |                 | MIMO 2 | 34.7           | -4.6              | 3.4             |           |                 |              |                   |

### Mechanical

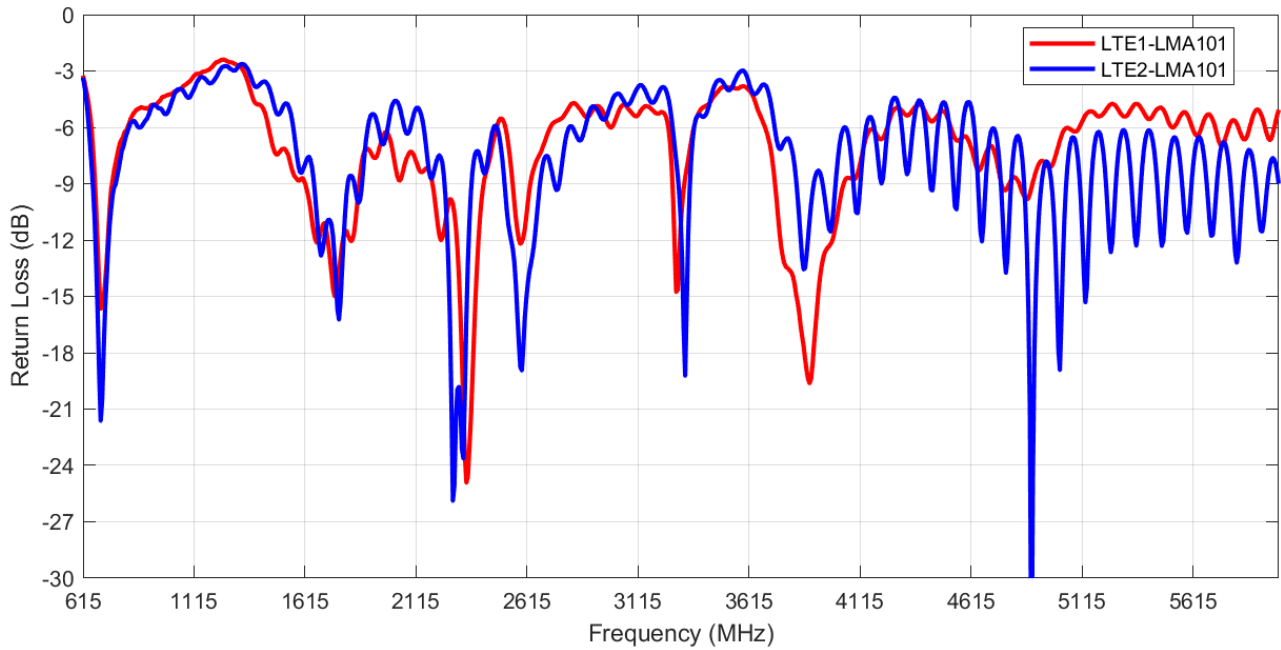
|                     |   |
|---------------------|---|
| Casing              | PCL1250Y                                    |
| Coaxial Cable       | CFD-200                                     |
| Cable Length        | 1 Meter Standard, fully customizable        |
| Connector           | SMA Male Standard, fully customizable       |
| Weight              | 400g (Antenna with 1 meter Cable and Stand) |
| Dimension           | 164*164*36.5mm                              |
| Waterproof Rating   | IP67  |
| Magnetic Pull Force | 11.24 kgF-cm                                |
| Magnetic Dim/Pcs    | Ø18*3t N48M/ 8 pcs                          |

| <b>Environmental</b>     |                            |
|--------------------------|----------------------------|
| <b>Temperature Range</b> | -40°C to 85°C              |
| <b>Humidity</b>          | Non-condensing 65°C 95% RH |

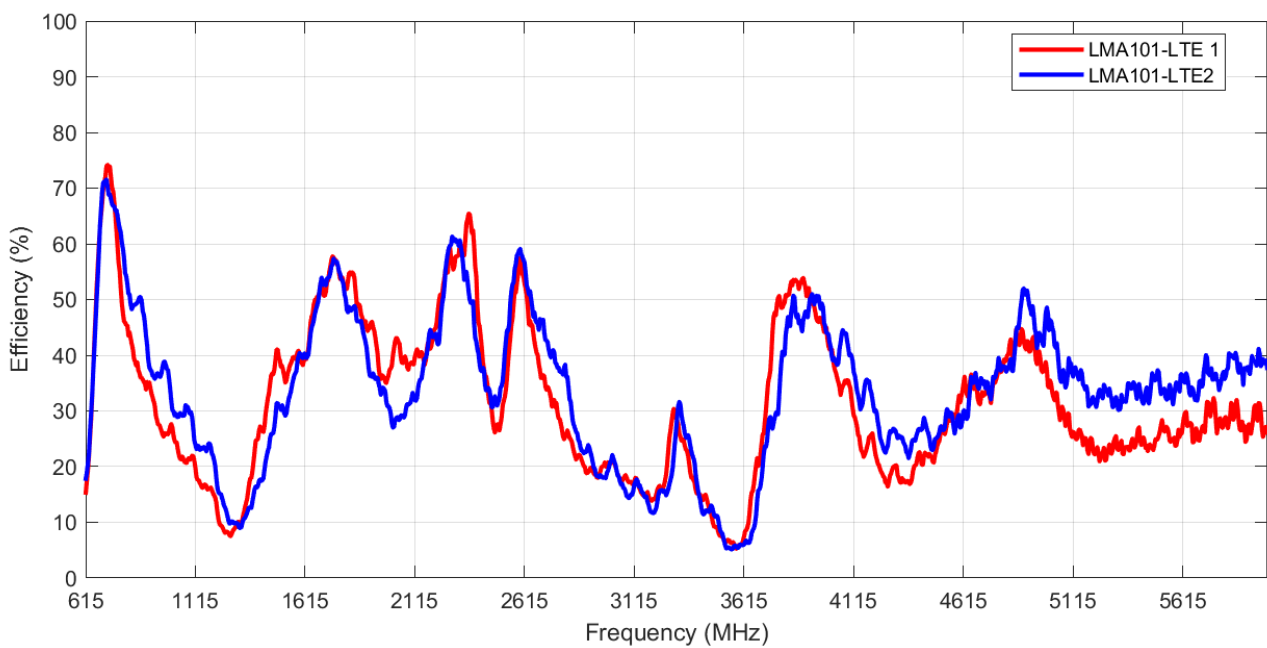
| 5G/4G Bands |   |                      |         |
|-------------|---|----------------------|---------|
| Band Number | 5G NR / FR1 / LTE / LTE-Advanced / WCDMA / HSPA / HSPA+ / TD-SCDMA / Cat M / NB-IoT |                      |         |
|             | Uplink  | Downlink             | Covered |
| 1           | UL: 1920 to 1980  | DL: 2110 to 2170     | ✓       |
| 2           | UL: 1850 to 1910  | DL: 1930 to 1990     | ✓       |
| 3           | UL: 1710 to 1785  | DL: 1805 to 1880     | ✓       |
| 4           | UL: 1710 to 1755  | DL: 2110 to 2155     | ✓       |
| 5           | UL: 824 to 849  | DL: 869 to 894       | ✓       |
| 7           | UL: 2500 to 2570  | DL: 2620 to 2690     | ✓       |
| 8           | UL: 880 to 915  | DL: 925 to 960       | ✓       |
| 9           | UL: 1749.9 to 1784.9  | DL: 1844.9 to 1879.9 | ✓       |
| 11          | UL: 1427.9 to 1447.9  | DL: 1475.9 to 1495.9 | ✓       |
| 12          | UL: 699 to 716  | DL: 729 to 746       | ✓       |
| 13          | UL: 777 to 787  | DL: 746 to 756       | ✓       |
| 14          | UL: 788 to 798  | DL: 758 to 768       | ✓       |
| 17          | UL: 704 to 716  | DL: 734 to 746       | ✓       |
| 18          | UL: 815 to 830  | DL: 860 to 875       | ✓       |
| 19          | UL: 830 to 845  | DL: 875 to 890       | ✓       |
| 20          | UL: 832 to 862  | DL: 791 to 821       | ✓       |
| 21          | UL: 1447.9 to 1462.9  | DL: 1495.9 to 1510.9 | ✓       |
| 22          | UL: 3410 to 3490  | DL: 3510 to 3590     | ✓       |
| 23          | UL: 2000 to 2020  | DL: 2180 to 2200     | ✓       |
| 24          | UL: 1625.5 to 1660.5  | DL: 1525 to 1559     | ✓       |
| 25          | UL: 1850 to 1915  | DL: 1930 to 1995     | ✓       |
| 26          | UL: 814 to 849  | DL: 859 to 894       | ✓       |
| 27          | UL: 807 to 824  | DL: 852 to 869       | ✓       |
| 28          | UL: 703 to 748  | DL: 758 to 803       | ✓       |
| 29          | UL: -   | DL: 717 to 728       | ✓       |
| 30          | UL: 2305 to 2315  | DL: 2350 to 2360     | ✓       |
| 31          | UL: 452.5 to 457.5  | DL: 462.5 to 467.5   | ✗       |
| 32          | UL: -   | DL: 1452 - 1496      | ✓       |
| 35          |   | 1850 to 1910         | ✓       |
| 38          |   | 2570 to 2620         | ✓       |
| 39          |   | 1880 to 1920         | ✓       |
| 40          |   | 2300 to 2400         | ✓       |
| 41          |   | 2496 to 2690         | ✓       |
| 42          |   | 3400 to 3600         | ✗       |
| 43          |   | 3600 to 3800         | ✓       |
| 48          |   | 3550 to 3700         | ✓       |
| 66          | UL: 1710-1780   | DL: 2110-2200        | ✓       |
| 71          |   | 617 to 698           | ✓       |
| 74/75/76    |   | 1427 to 1518         | ✓       |
| 77          |   | 3300 to 4200         | ✓       |
| 78          |   | 3300 to 3800         | ✗       |
| 79          |   | 4400 to 5000         | ✓       |

### 3. Antenna Characteristics

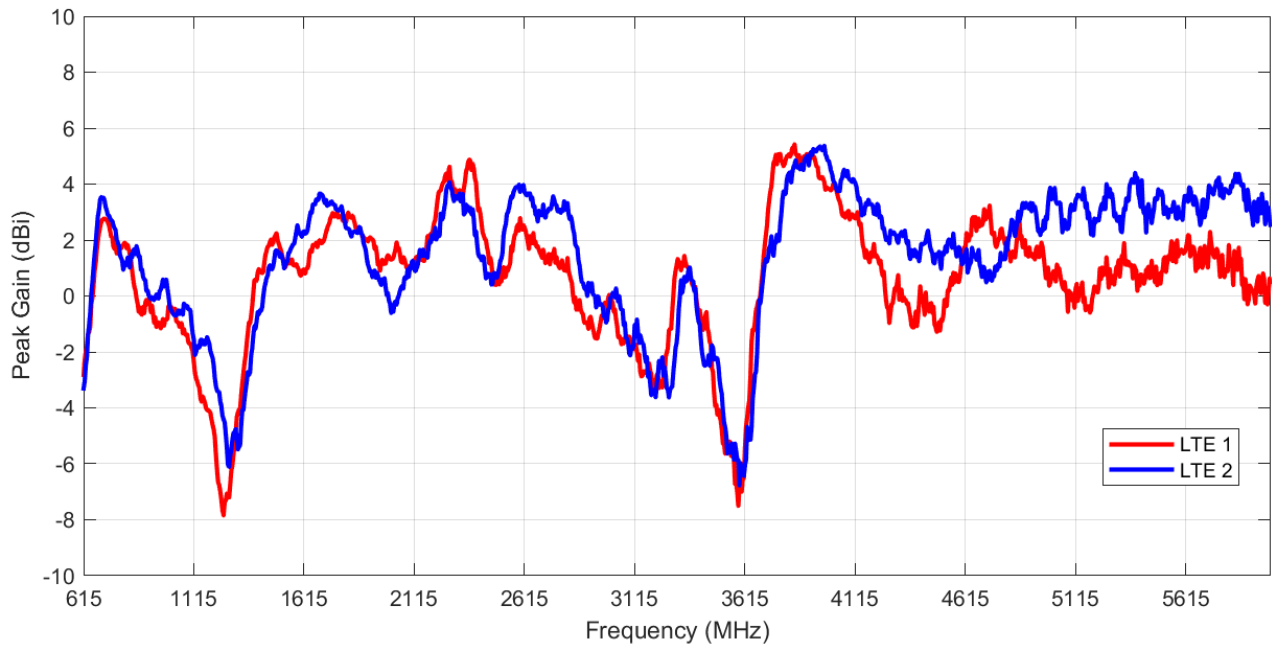
#### 3.1 Return Loss



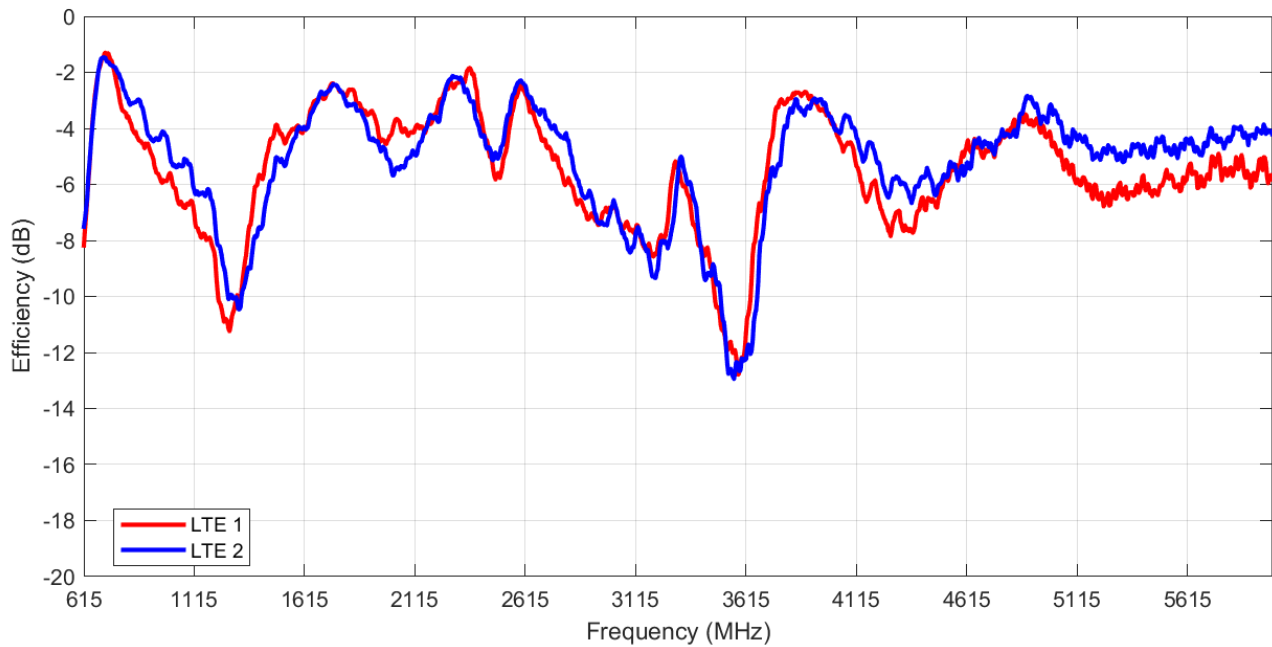
#### 3.2 Efficiency



### 3.3 Peak Gain



### 3.4 Average Gain





## 4. Radiation Patterns

### 4.1 Test Setup

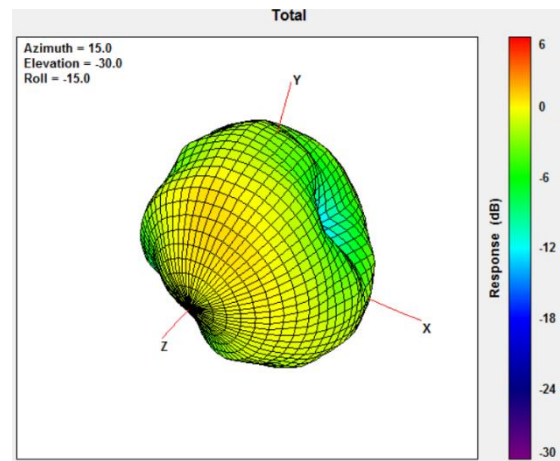
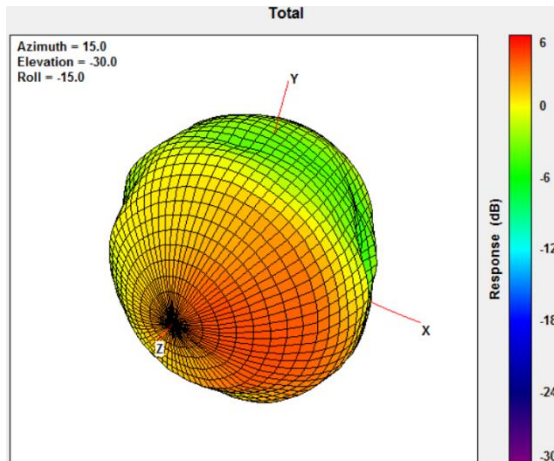


Free space

## 4.2 4G MIMO 1 - 3D and 2D Radiation Patterns

704MHz

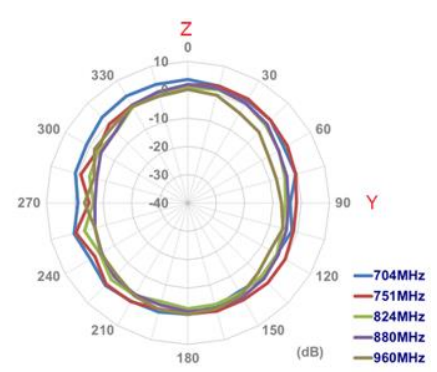
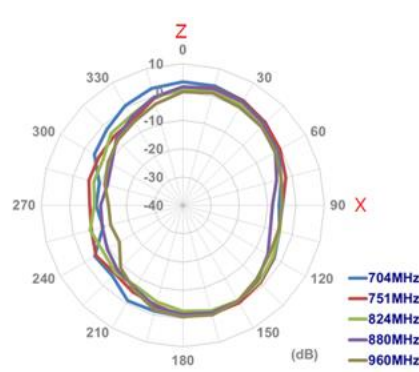
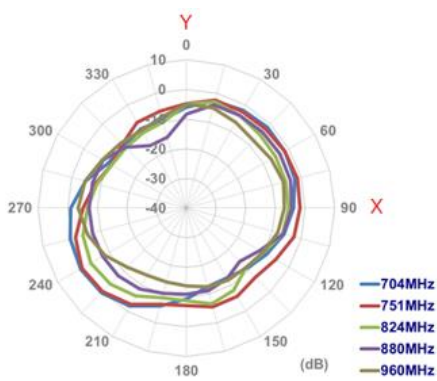
960MHz



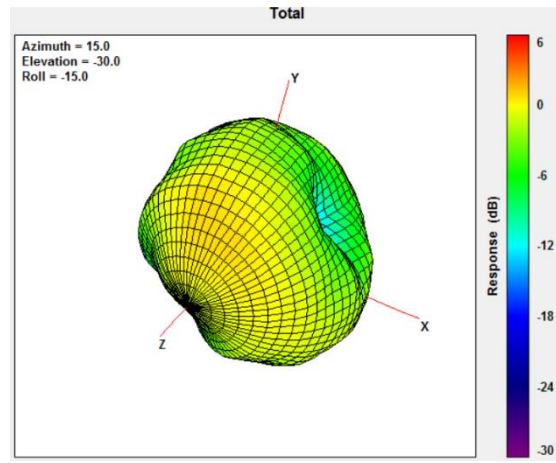
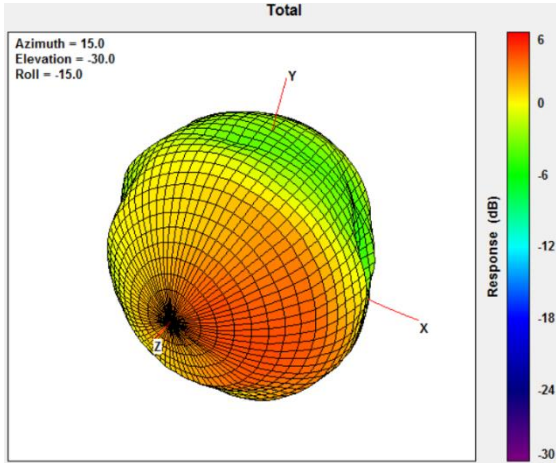
XY Plane

XZ Plane

YZ Plane



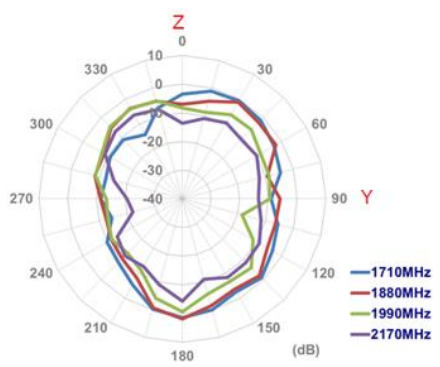
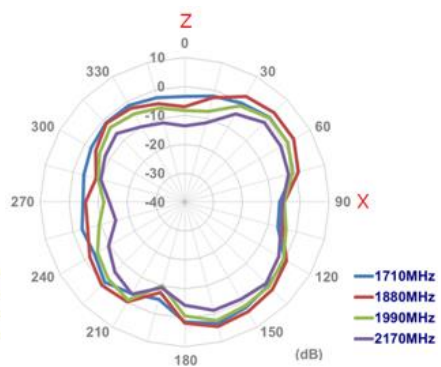
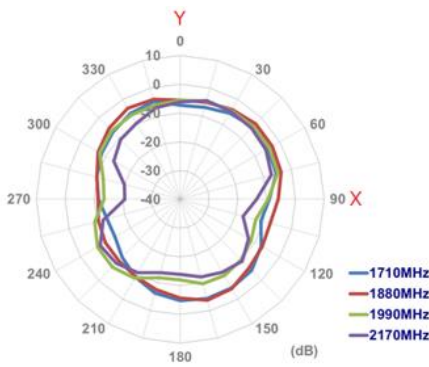
1710MHz 2170MHz



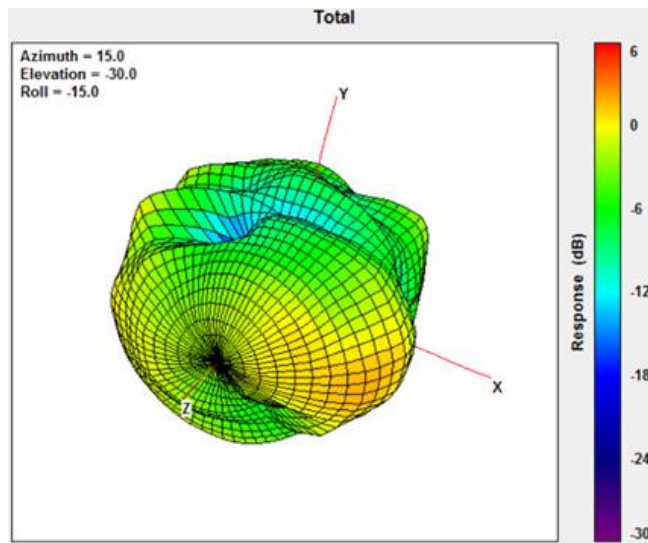
XY Plane

XZ Plane

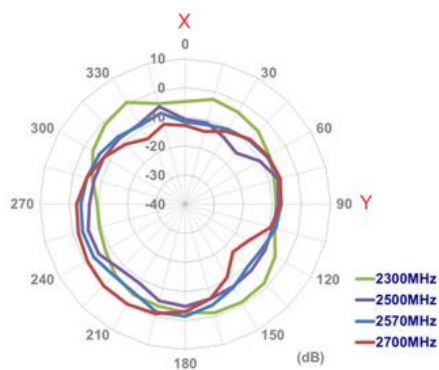
YZ Plane



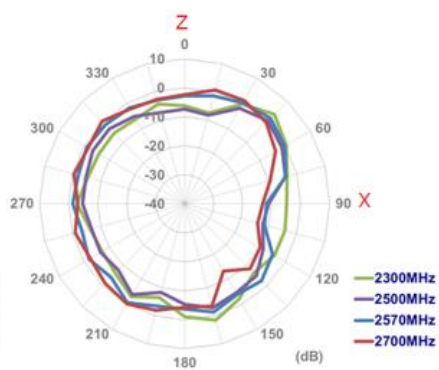
2600MHz



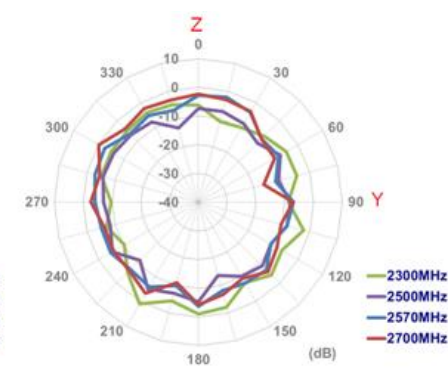
XY Plane



XZ Plane



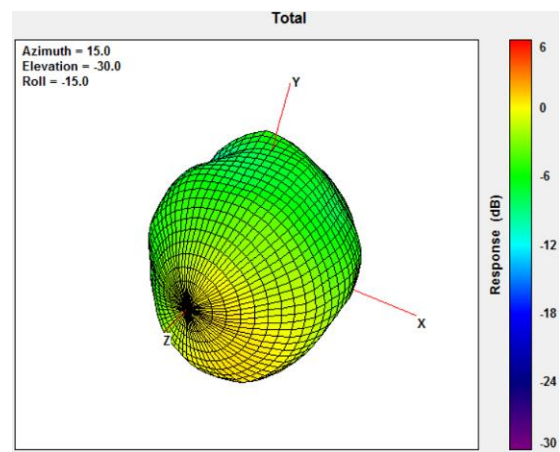
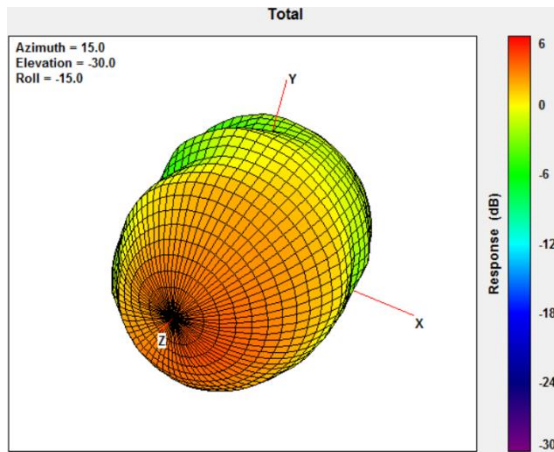
YZ Plane



### 4.3 4G MIMO 2 - 3D and 2D Radiation Patterns

704MHz

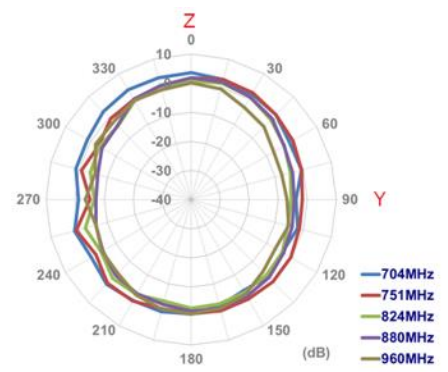
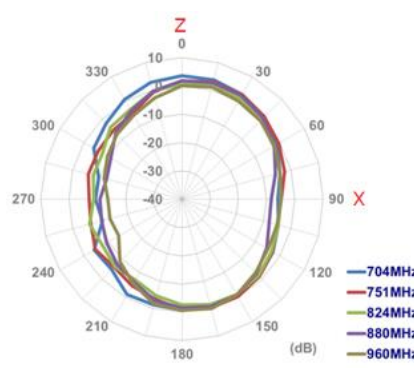
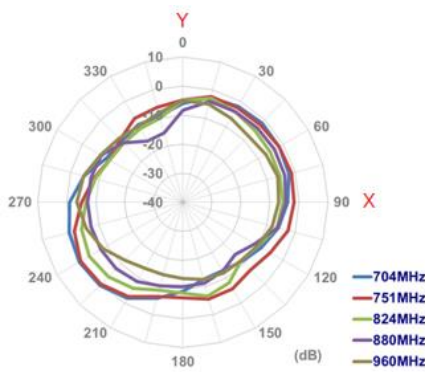
960MHz



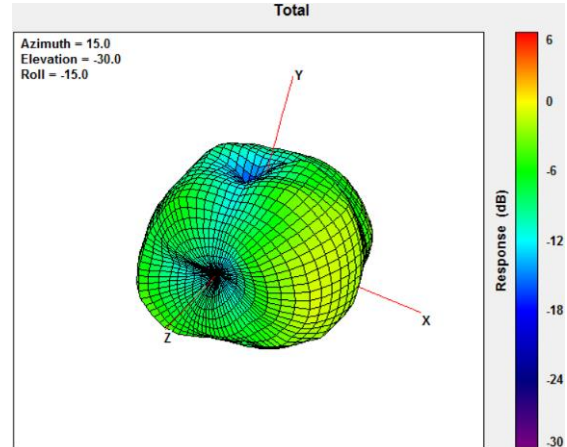
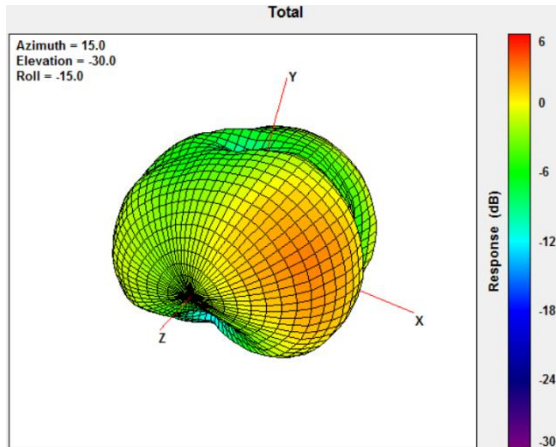
XY Plane

XZ Plane

YZ Plane



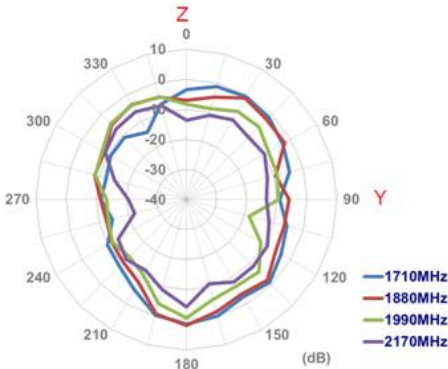
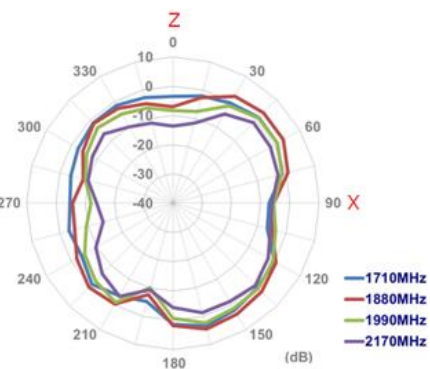
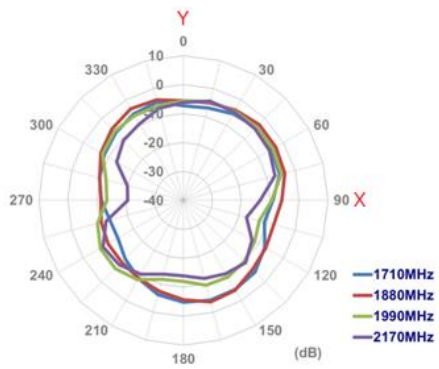
**1710MHz** **2170MHz**



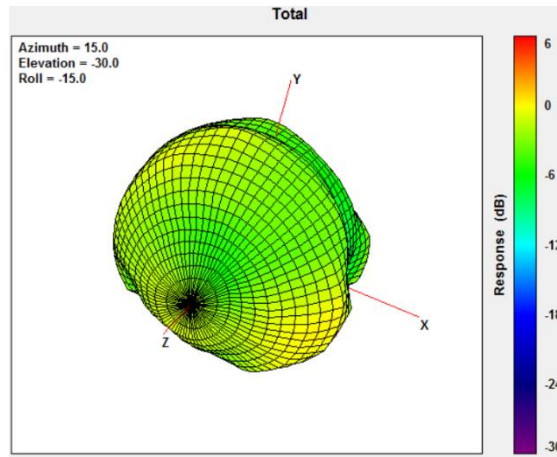
**XY Plane**

**XZ Plane**

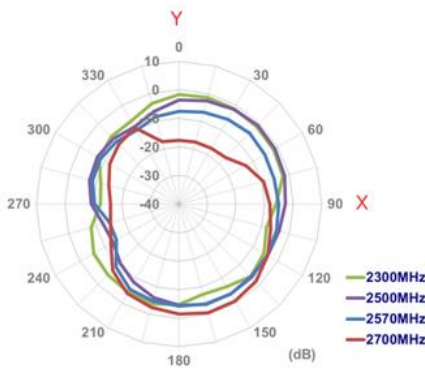
**YZ Plane**



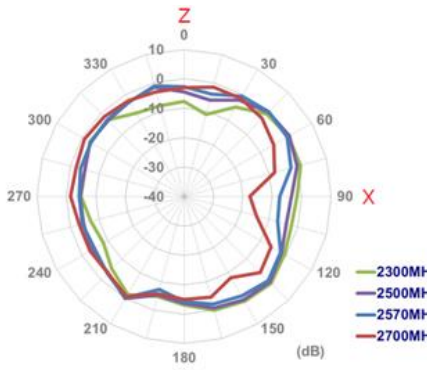
2600MHz



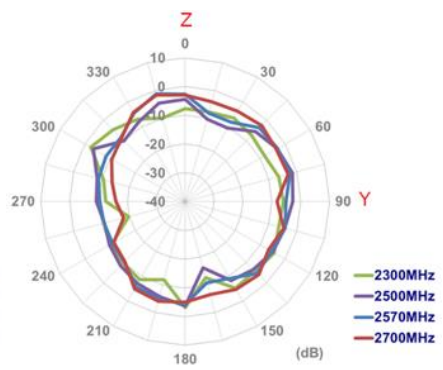
XY Plane



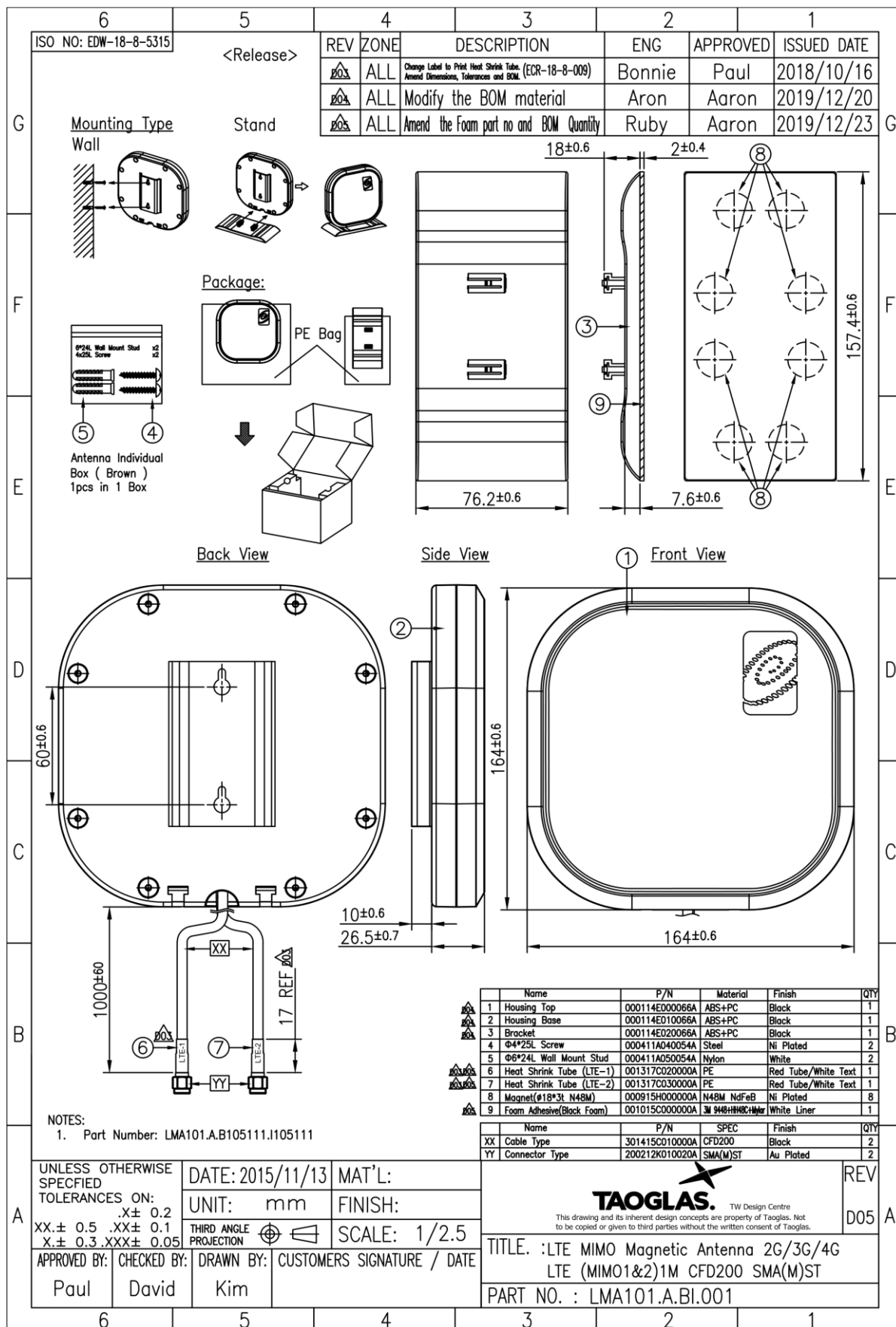
XZ Plane



YZ Plane



# 5. Mechanical Drawing (Units: mm)

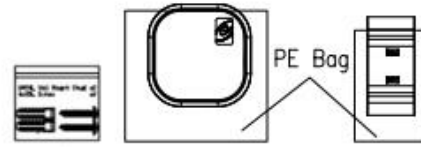




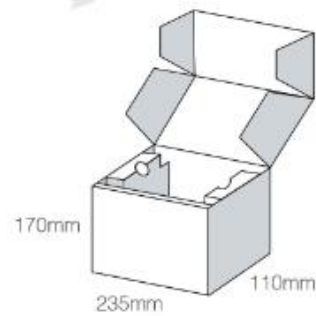
## 6. Packaging

### LMA101.A.BI.001

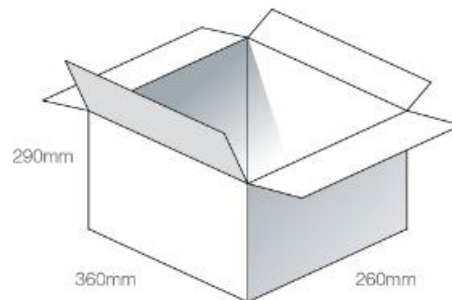
#### Packaging Specifications



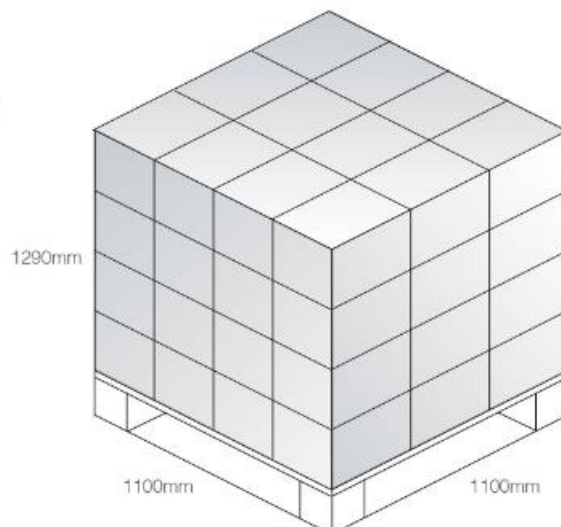
1pc LMA101.A.BI.001 per small box  
 Box Dimensions - 235\*170\*110mm  
 Weight - 650g



5 small boxes in one carton  
 Carton Dimensions - 360\*290\*260mm  
 Weight - 3.8Kg



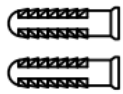
Pallet Dimensions 1100\*1100\*1290mm  
 48 Cartons per Pallet  
 12 Cartons per layer  
 4 Layers



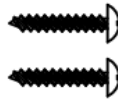
## 7. Installation

### 7.1 Package Contents

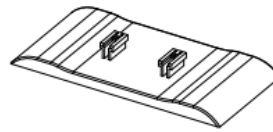
6\*24L  
Wall Mount  
Stud \*2



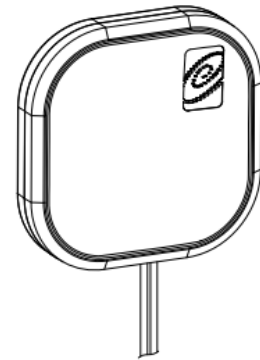
4\*25L  
Screw\*2



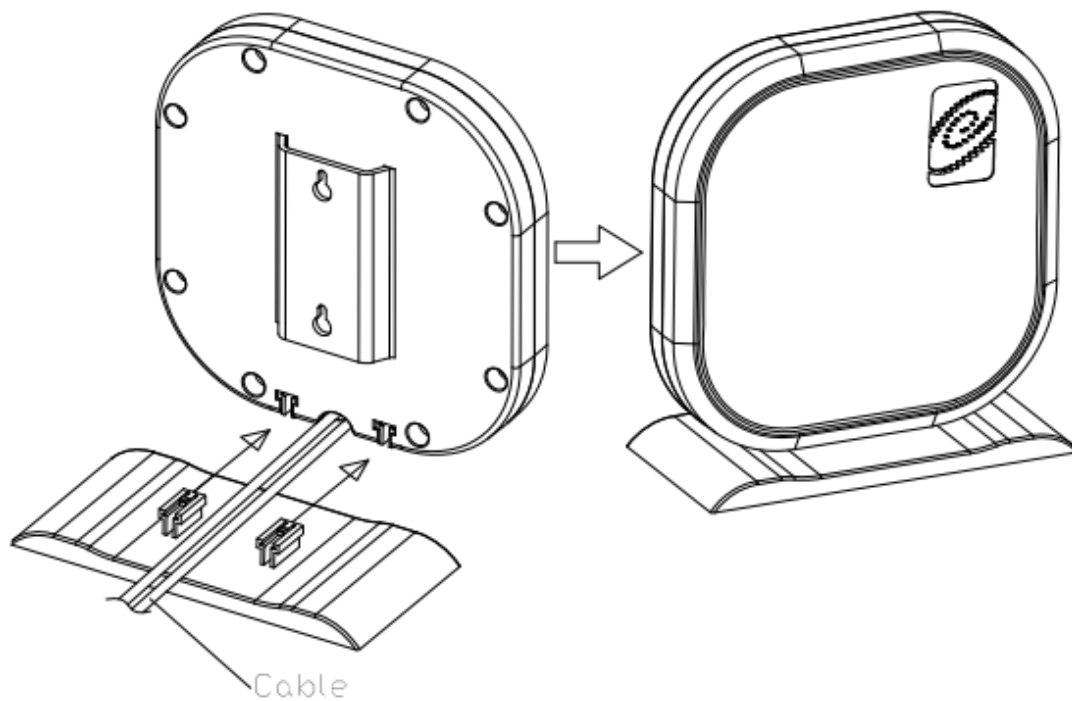
Stand \*1



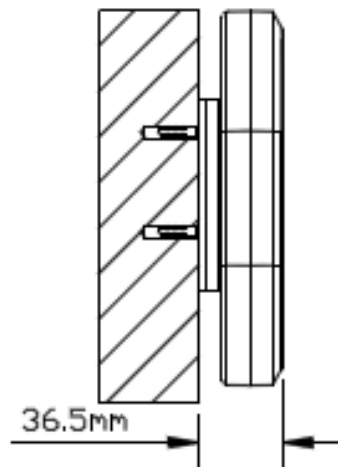
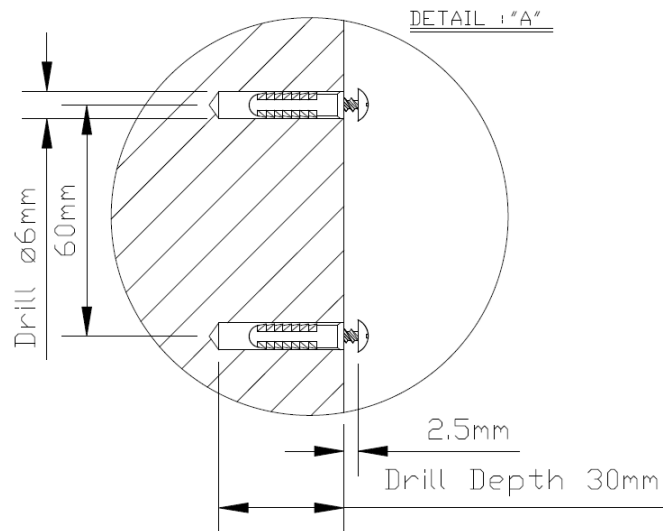
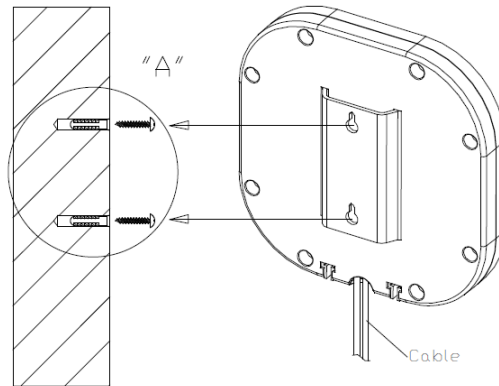
Antenna \*1



### 7.2 Desktop Stand/Magnet Mount

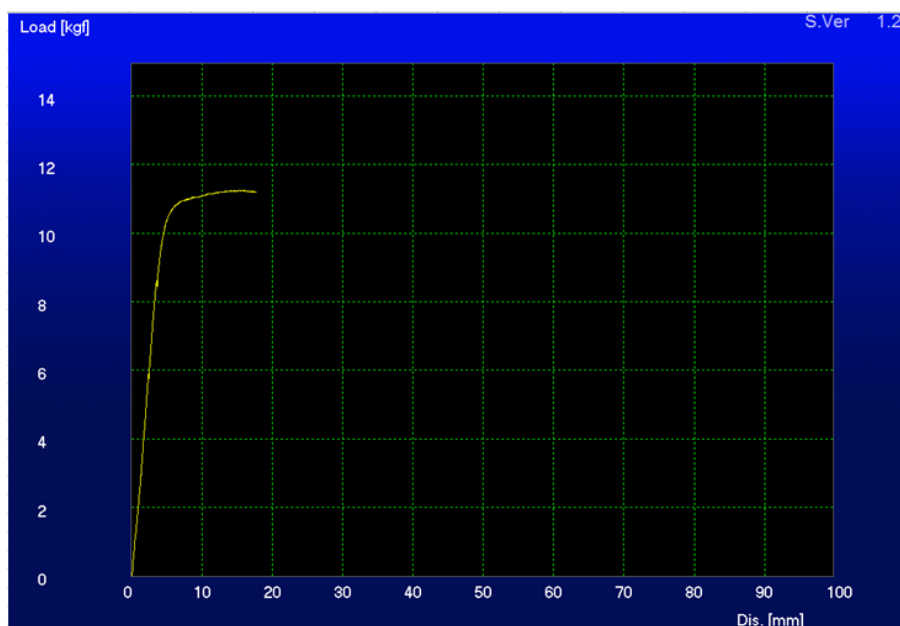
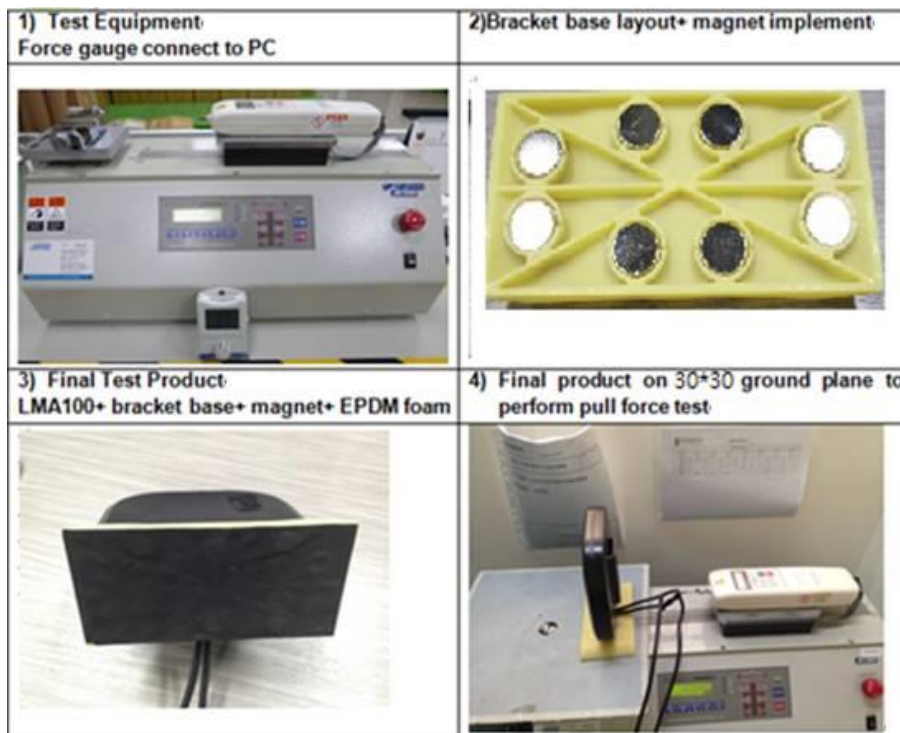


7.3 Wall Mount



## 8. Installation

### 8.1 Testing setup



Max Pull Force: 11.24Kgf-cm

Changelog for the datasheet

**SPE-17-8-017 – LMA101.A.BI.001**

| <b>Revision: E (Current Version)</b> |                                  |
|--------------------------------------|----------------------------------|
| Date:                                | 2023-07-10                       |
| Changes:                             | Update electrical specifications |
| Changes Made by:                     | Cesar Sousa                      |

**Previous Revisions**

| <b>Revision: D</b> |                         |
|--------------------|-------------------------|
| Date:              | 2019-01-02              |
| Changes:           | Updated to show 5G data |
| Changes Made by:   | Jack Conroy             |

| <b>Revision: C</b> |                        |
|--------------------|------------------------|
| Date:              | 2018-12-20             |
| Changes:           | Updated Drawing issues |
| Changes Made by:   | Jack Conroy            |

| <b>Revision: B</b> |                      |
|--------------------|----------------------|
| Date:              | 2017-06-15           |
| Changes:           | Updated to match PCN |
| Changes Made by:   | Andy Mahoney         |

| <b>Revision: A (Original First Release)</b> |             |
|---|-------------|
| Date:                                       | 2017-02-23  |
| Notes:                                      |             |
| Author:                                     | Jack Conroy |



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