

## SPECIFICATION

Part No. : **MA741.B.BI.001**

Product Name : Pantheon Antenna 2in1 MA.741  
LTE Cellular 4G/3G 2\*2 MIMO  
Screw-Mount (Permanent Mount)

Feature : **2 x LTE Cellular (2G/3G/4G) Antennas (MIMO)**  
Works for LTE/GSM/GPRS/CDMA/UMTS/HSPA  
698~960MHz, 1710~2170MHz, 2300~2700MHz  
IP67 Waterproof  
High Efficiency / Peak Gain Outdoor Antenna  
3M CFD-200 SMA(M)  
RoHS Compliant



## 1. Introduction

The MA741 Pantheon LTE 4G MIMO 2\*2 antenna is an omnidirectional, heavy-duty, fully IP67 waterproof external M2M antenna for use in telematics, transportation, and remote monitoring applications. It includes two LTE MIMO antennas with the highest efficiency and peak gain possible. This is necessary for today's high speed data uplink and downlink systems in applications such as real time video, for maximum throughput and highest signal-to-noise ratio.

The antenna elements operate at all common 2G, 3G, and 4G LTE bands worldwide 698-960MHz, 1710-2170MHz, 2300~2700MHz.

The housing is an extremely robust IP67 direct mount antenna package with excellent isolation (10dB+). The antenna has its own ground-plane and can radiate on any mounting environment like metal or plastic without affecting performance. For cable length requests above 5 metres contact Taoglas for advice about suitability for application.

The connectors and cable length are customizable. The enclosure is also available in White, MA741.W.B.BI.001.

## 2. Specification Table

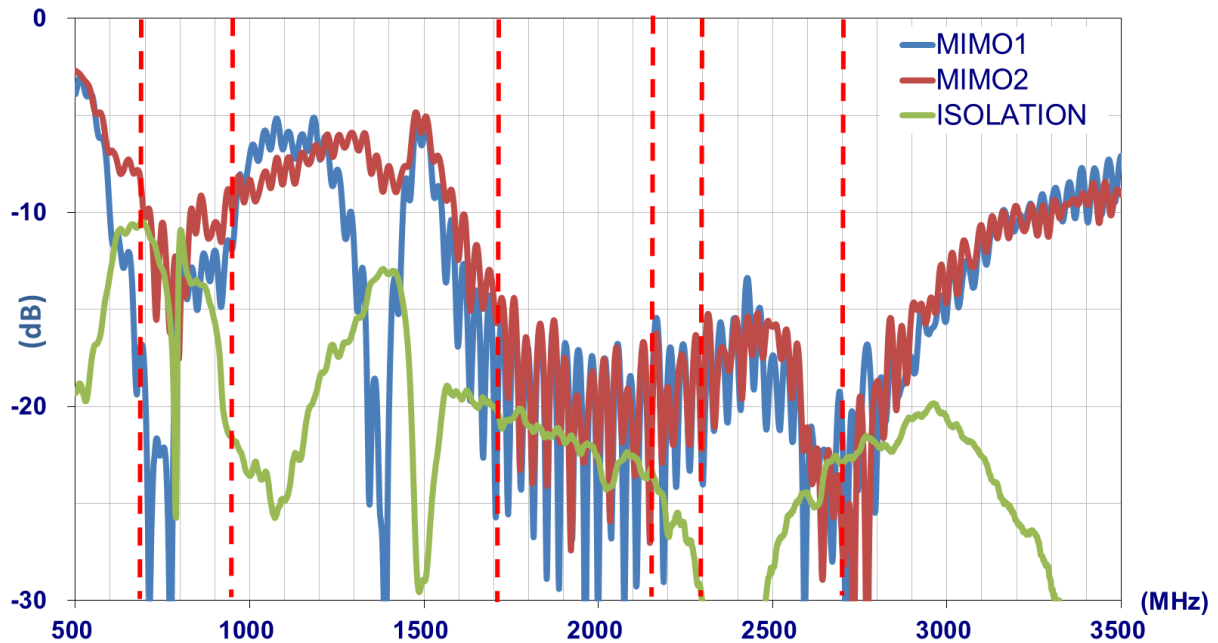
| 2G/3G/4G MIMO1                  |               |         |                                  |           |           |           |           |           |           |
|---------------------------------|---------------|---------|----------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|
|                                 | XIII, 17 (NA) | XX (EU) | V (NA)                           | VIII (EU) | III (EU)  | II (NA)   | IV (NA)   | I (EU)    | VII (EU)  |
| Frequency                       | 698-803       | 791-862 | 824-894                          | 880-960   | 1710-1880 | 1850-1990 | 1710-2155 | 1920-2170 | 2500-2690 |
| Peak Gain                       | 4.16          | 2.47    | 2.47                             | 2.58      | 1.54      | 2.31      | 2.31      | 2.24      | 3.01      |
| Efficiency                      | 62.41         | 58.02   | 61.74                            | 58.56     | 55.45     | 63.19     | 59.89     | 63.93     | 56.19     |
| Average Gain                    | -2.08         | -2.39   | -2.10                            | -2.34     | -2.56     | -2.00     | -2.24     | -1.95     | -2.51     |
| Return Loss                     | <-6           |         |                                  |           |           |           |           |           |           |
| Polarization                    | Vertical      |         |                                  |           |           |           |           |           |           |
| Impedance                       | 50            |         |                                  |           |           |           |           |           |           |
| 2G/3G/4G MIMO2                  |               |         |                                  |           |           |           |           |           |           |
|                                 | XIII, 17 (NA) | XX (EU) | V (NA)                           | VIII (EU) | III (EU)  | II (NA)   | IV (NA)   | I (EU)    | VII (EU)  |
| Frequency                       | 698-803       | 791-862 | 824-894                          | 880-960   | 1710-1880 | 1850-1990 | 1710-2155 | 1920-2170 | 2500-2690 |
| Peak Gain                       | 2.95          | 2.13    | 2.08                             | 2.01      | 2.02      | 2.58      | 2.58      | 2.58      | 3.40      |
| Efficiency                      | 61.03         | 56.79   | 58.01                            | 52.35     | 55.11     | 63.06     | 59.74     | 64.13     | 58.27     |
| Average Gain                    | -2.17         | -2.47   | -2.37                            | -2.82     | -2.59     | -2.01     | -2.25     | -1.93     | -2.35     |
| Return Loss                     | <-6           |         |                                  |           |           |           |           |           |           |
| Polarization                    | Vertical      |         |                                  |           |           |           |           |           |           |
| Impedance                       | 50            |         |                                  |           |           |           |           |           |           |
| MECHANICAL                      |               |         |                                  |           |           |           |           |           |           |
| Antenna Dimensions              |               |         | Height 85.7mm x Diameter 145.6mm |           |           |           |           |           |           |
| Casing                          |               |         | Wonderloy PC-540 PC/ABS Alloy    |           |           |           |           |           |           |
| Waterproof                      |               |         | IP67                             |           |           |           |           |           |           |
| Weight                          |               |         | 1.16kg/1pcs                      |           |           |           |           |           |           |
| Recommended Torque for Mounting |               |         | 49N·m                            |           |           |           |           |           |           |
| Max Torque for Mounting         |               |         | 58.8N·m                          |           |           |           |           |           |           |
| 2G/3G/4G MIMO 1                 |               |         | 3M CFD-200 SMA(M)                |           |           |           |           |           |           |
| 2G/3G/4G MIMO 2                 |               |         | 3M CFD-200 SMA(M)                |           |           |           |           |           |           |
| ENVIRONMENTAL                   |               |         |                                  |           |           |           |           |           |           |
| Operation Temperature           |               |         | -40°C to 85°C                    |           |           |           |           |           |           |
| Storage Temperature             |               |         | -40°C to 85°C                    |           |           |           |           |           |           |
| Humidity                        |               |         | Non-condensing 65°C 95% RH       |           |           |           |           |           |           |

\* All measurements were conducted with 3M CFD200 cable

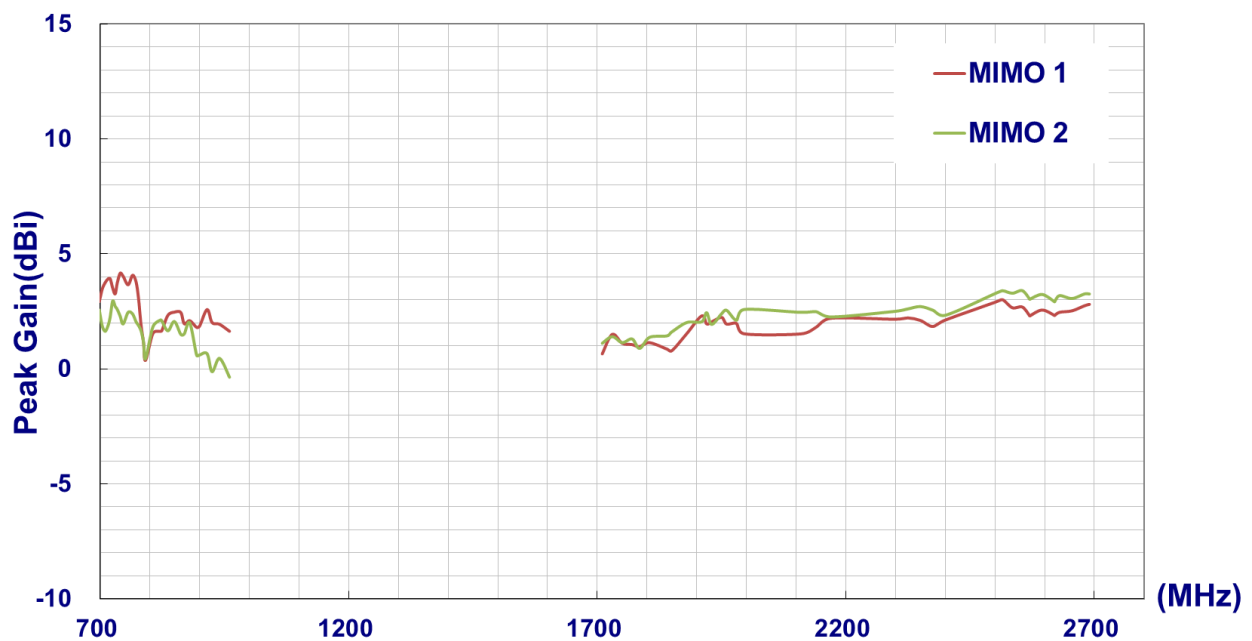
## 3. LTE MIMO

### 3.1. LTE MIMO 1 and LTE MIMO 2 Specification

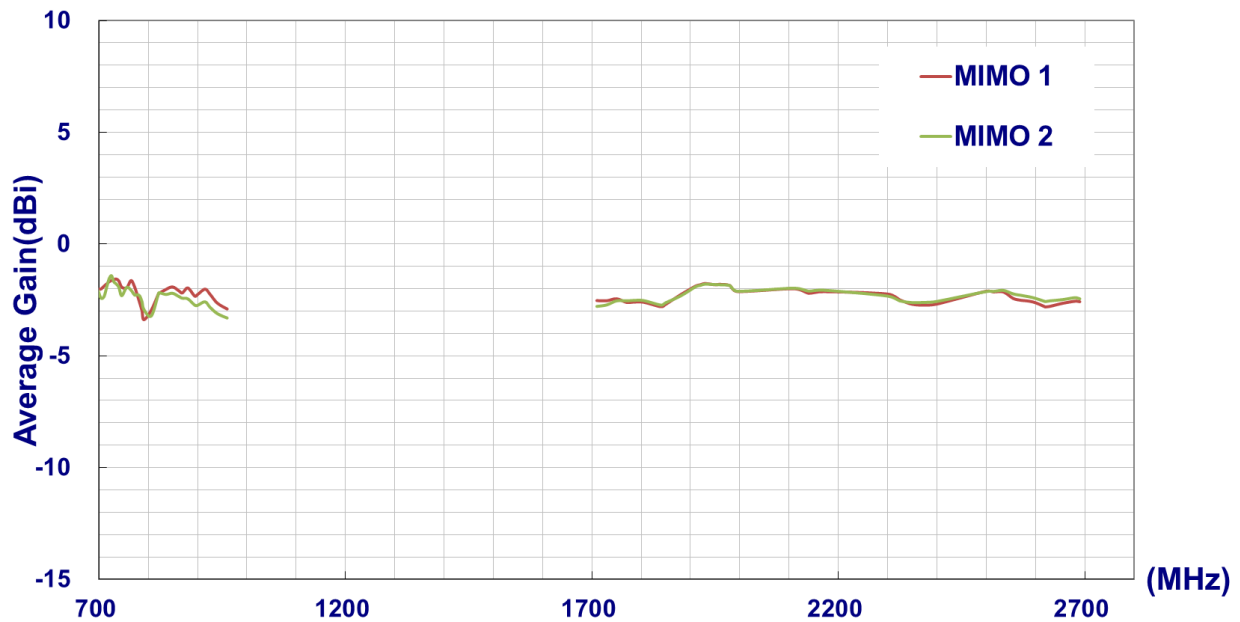
#### 3.1.1. Return Loss and Isolation



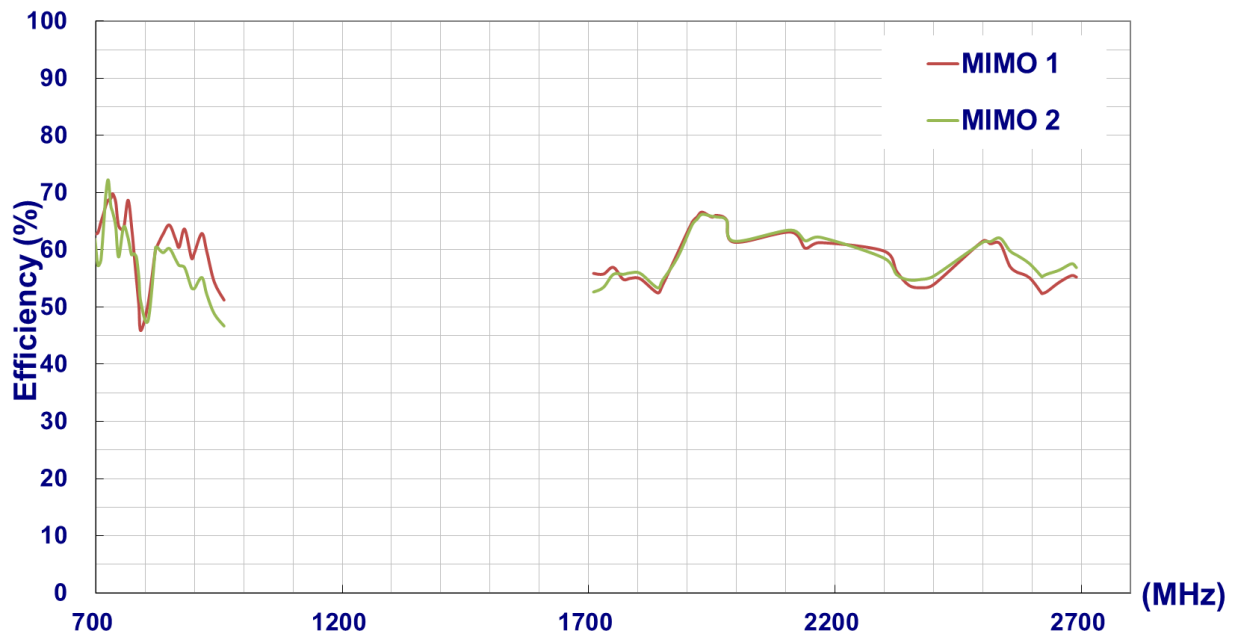
#### 3.1.2. Peak Gain



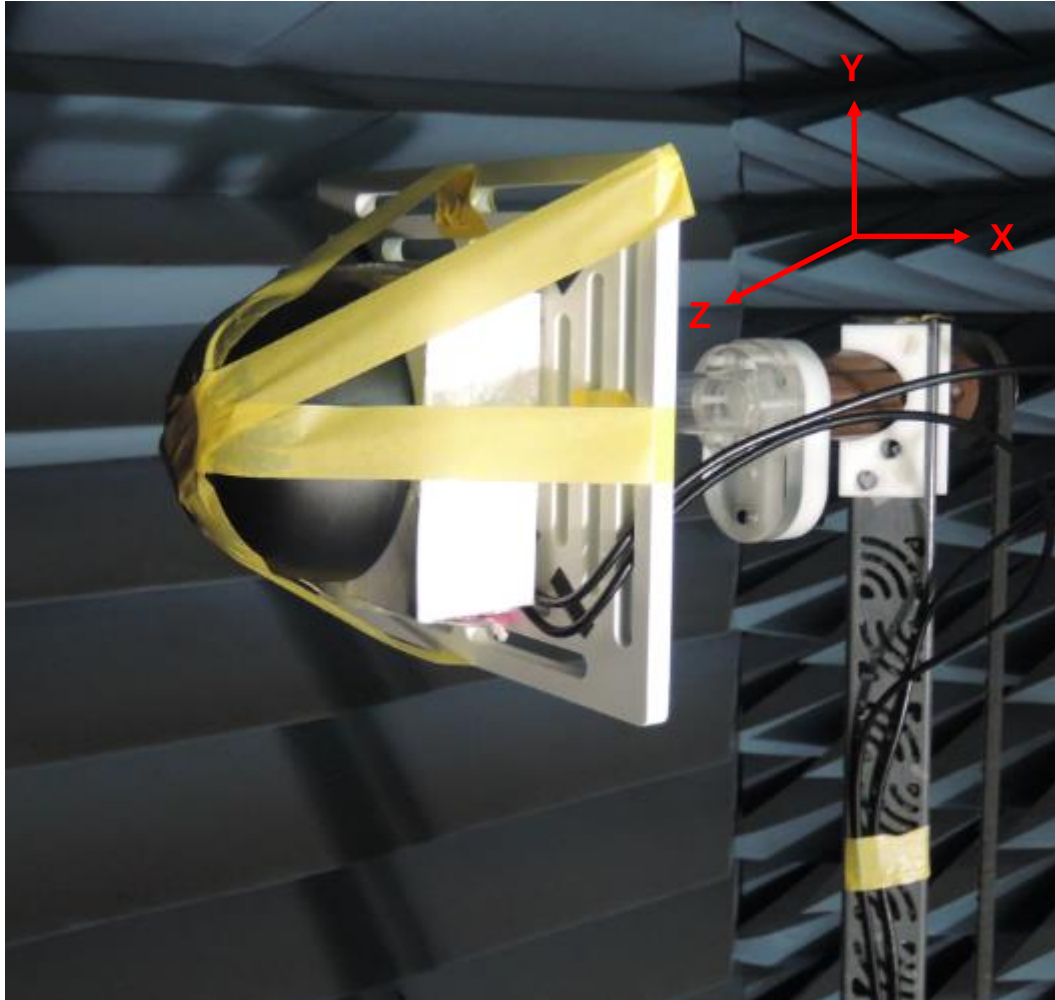
### 3.1.3. Average Gain



### 3.1.4. Efficiency

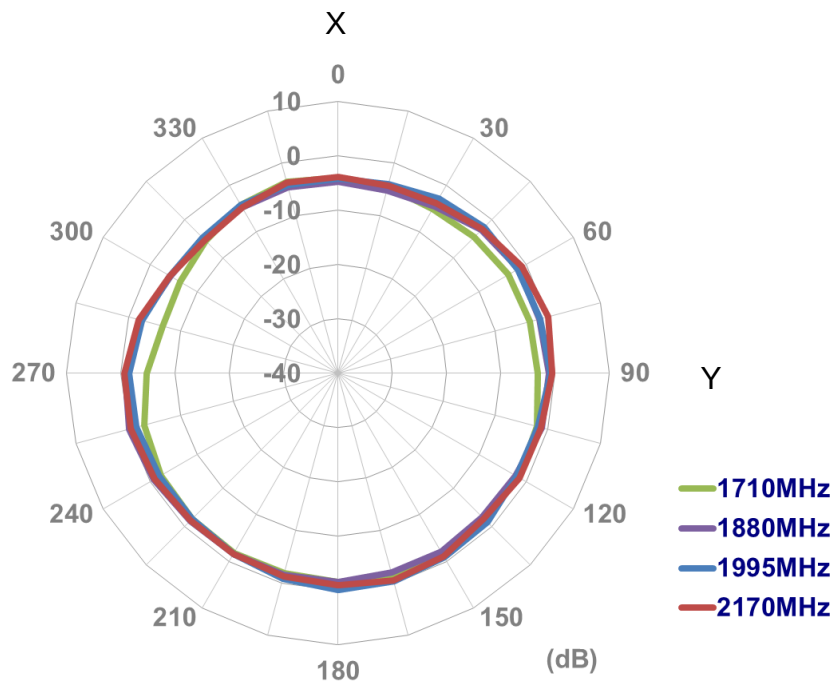
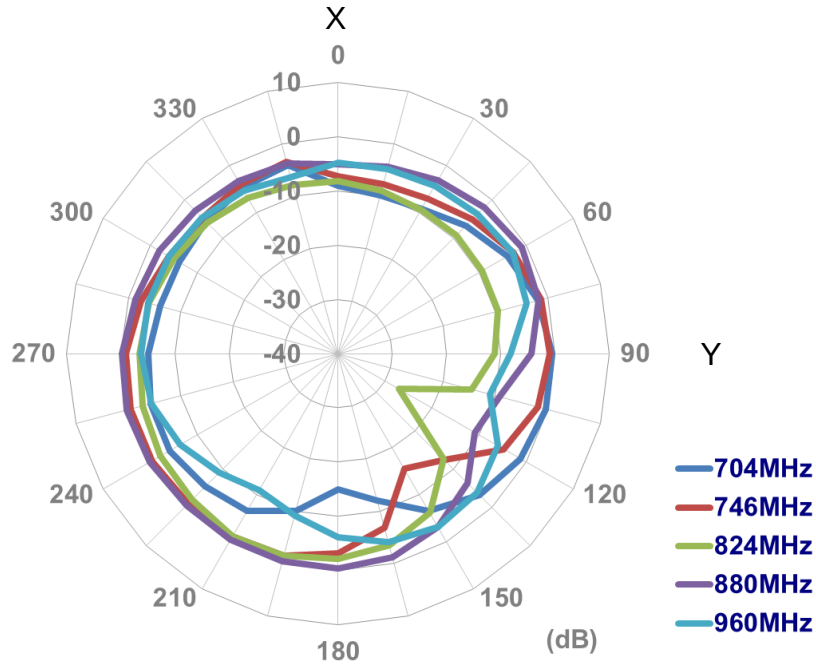


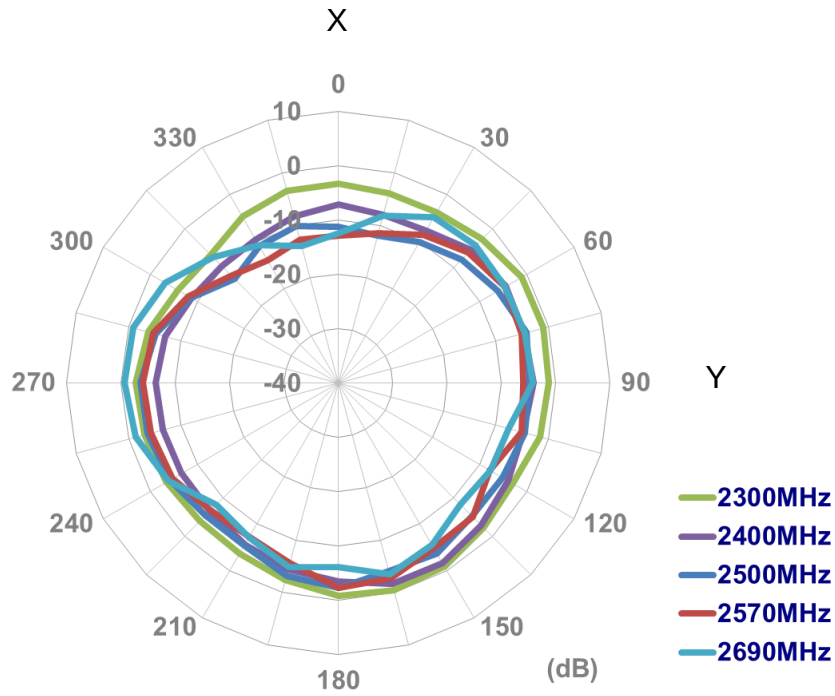
## 3.2 Radiation Patterns



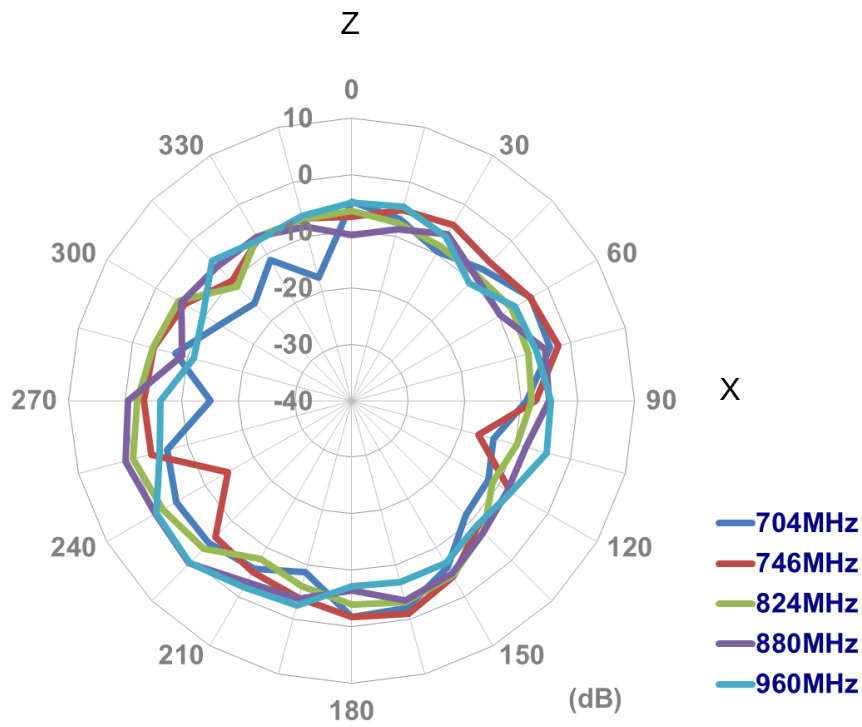
### 3.2.1 LTE MIMO 1 Radiation Pattern

XY plane

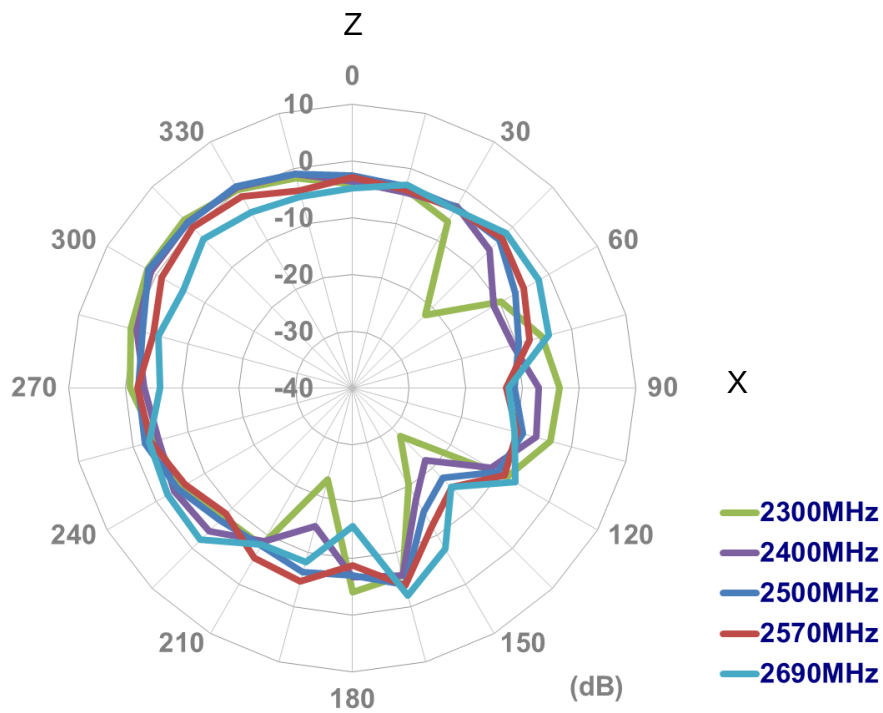
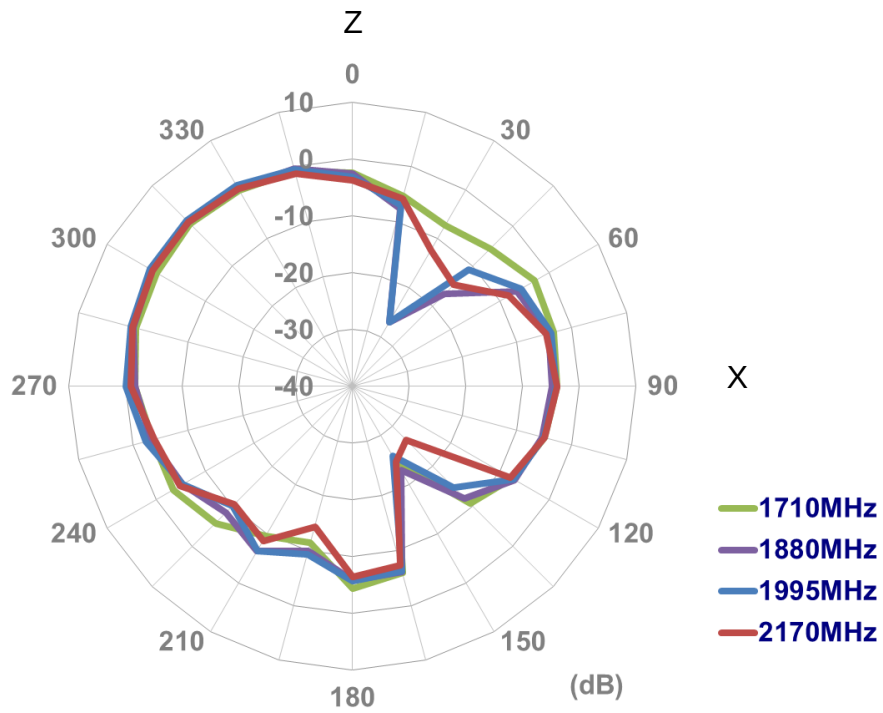




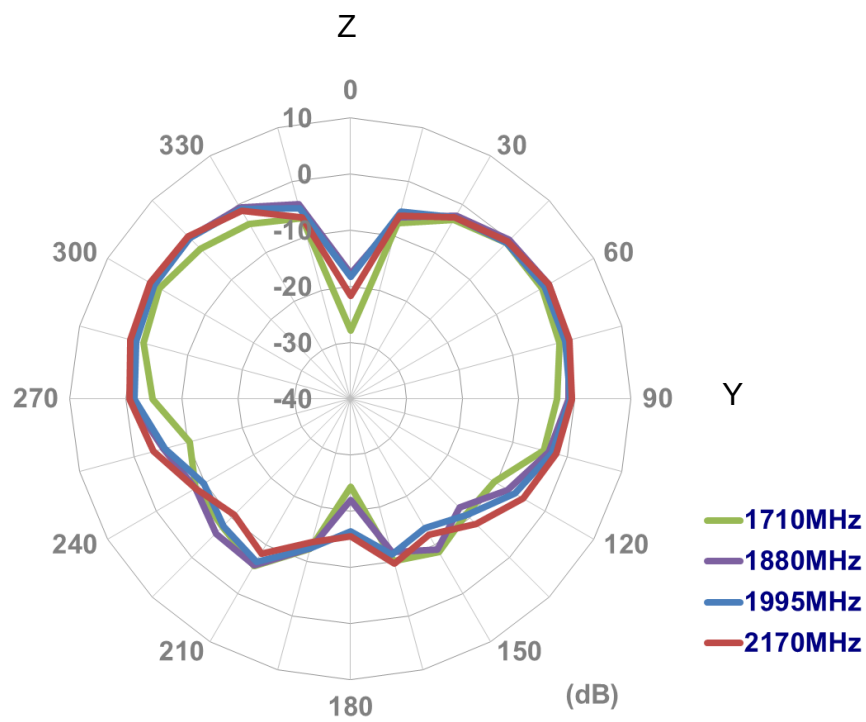
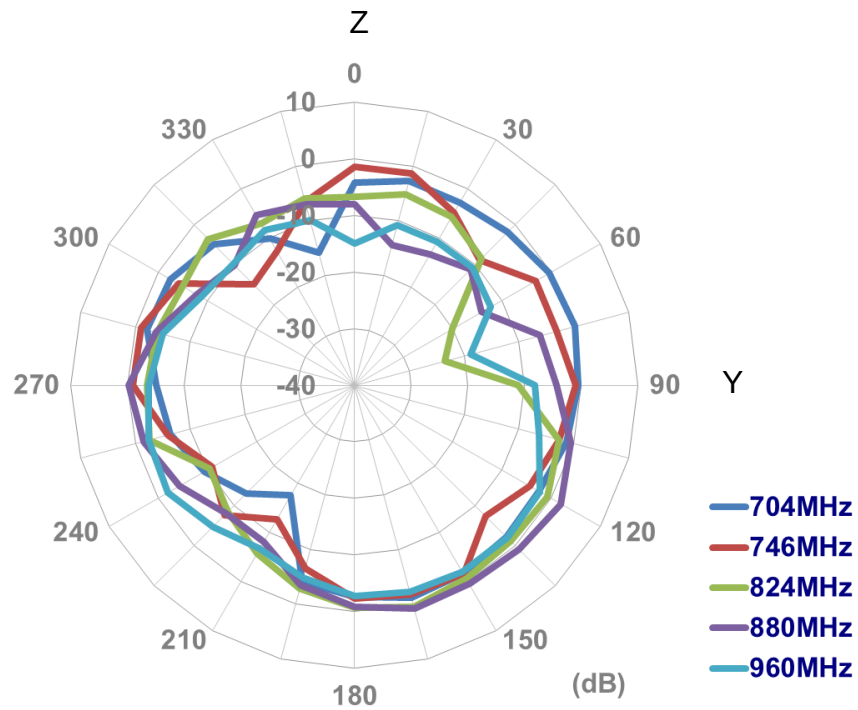
XZ plane

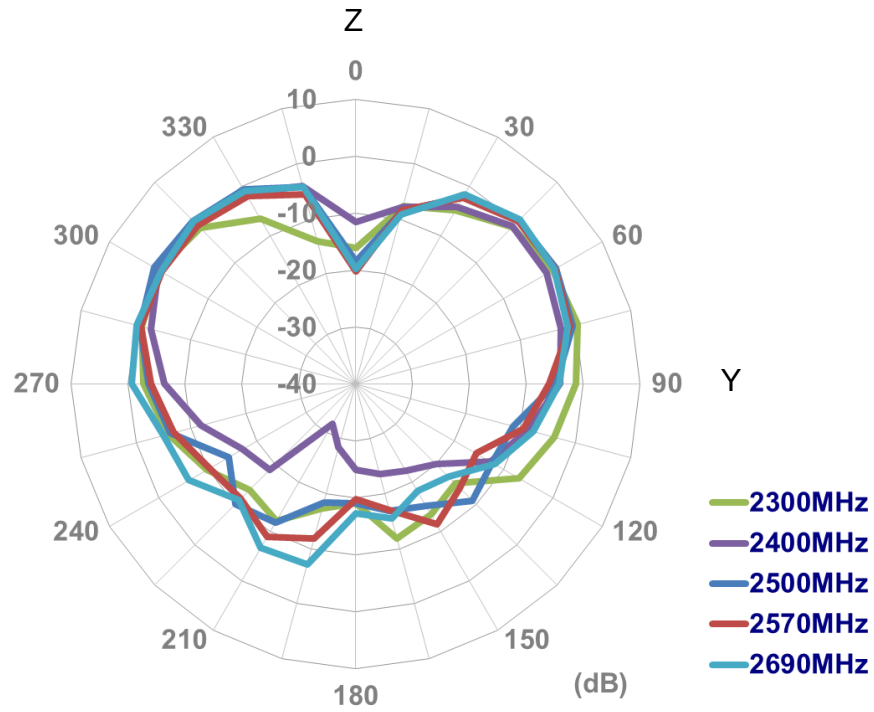






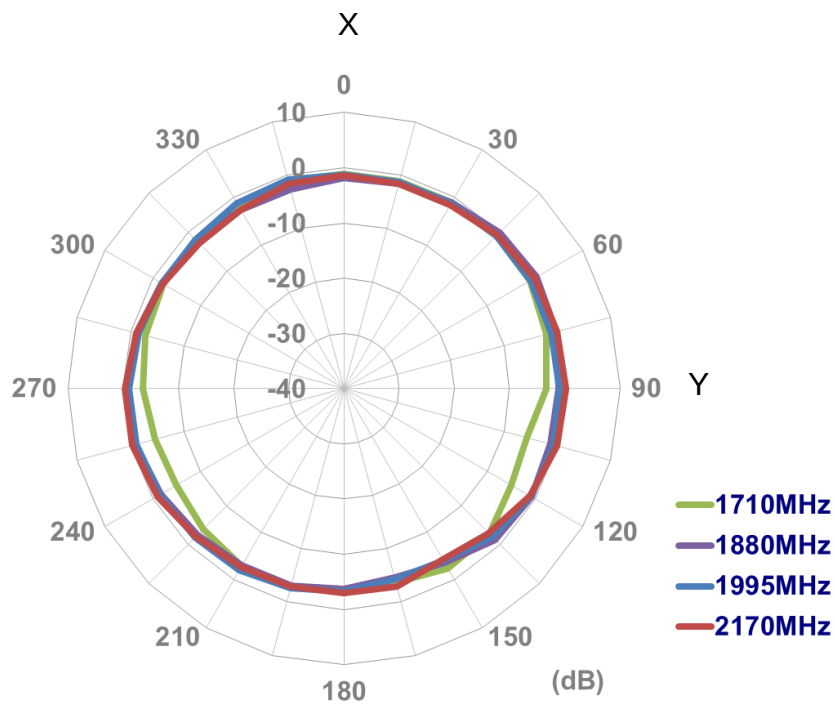
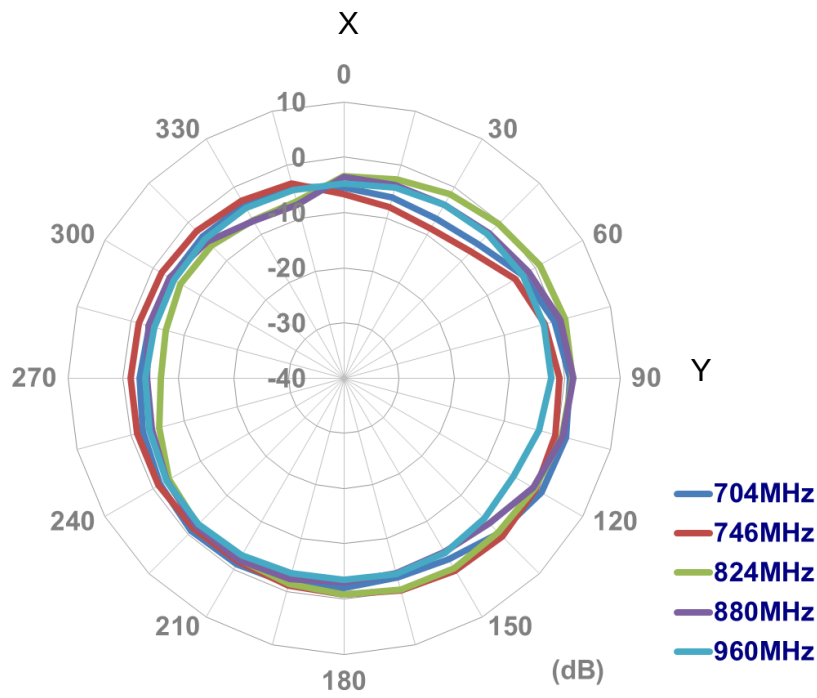
YZ plane

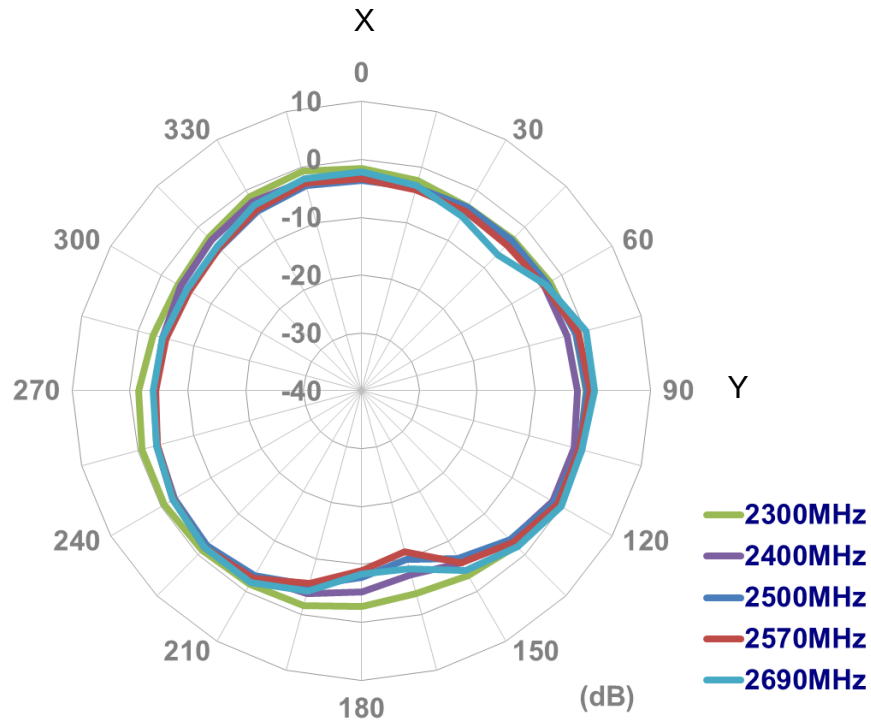




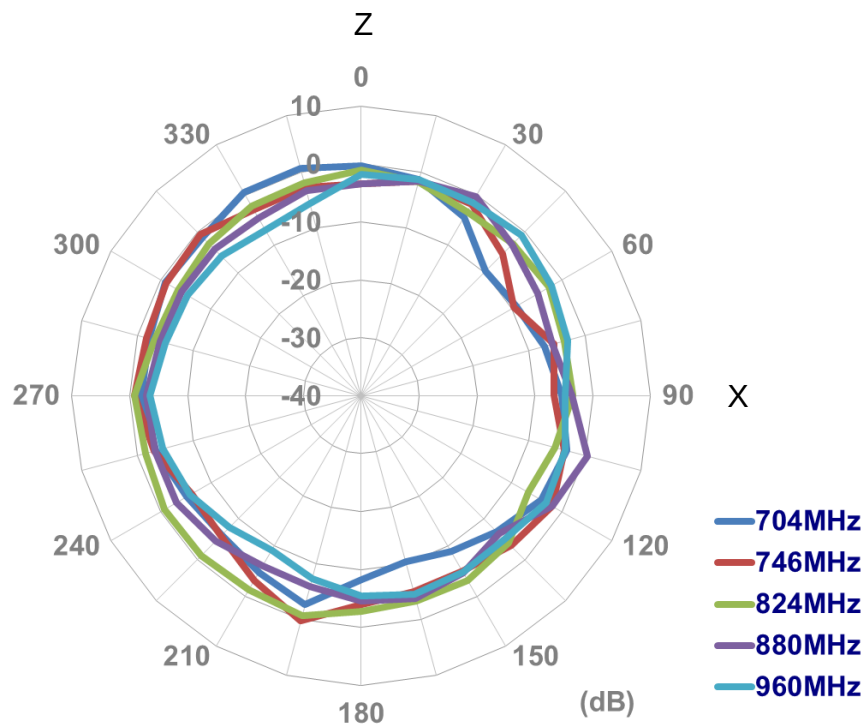
### 3.2.2 LTE MIMO 2 Radiation Pattern

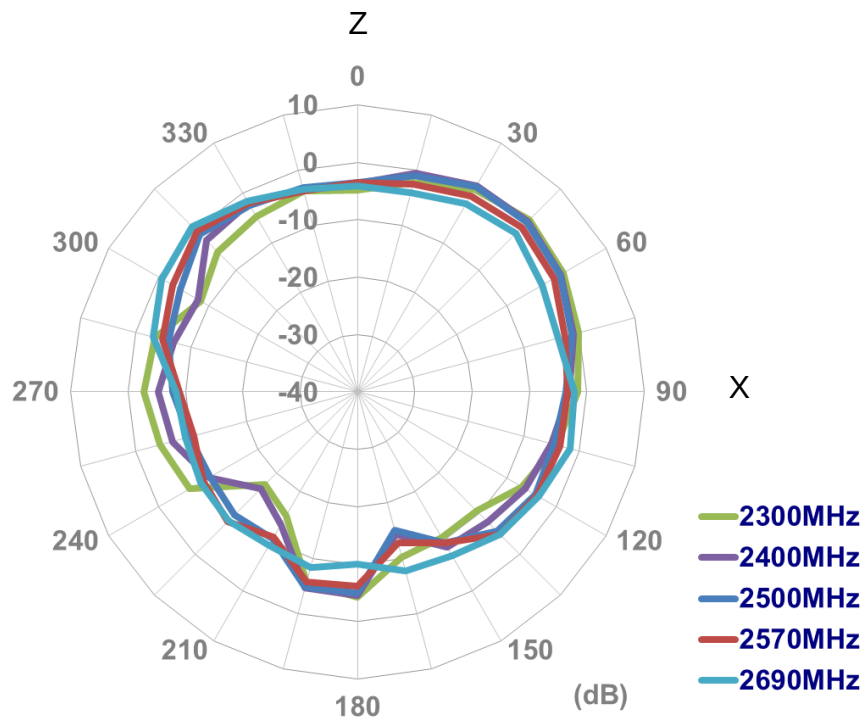
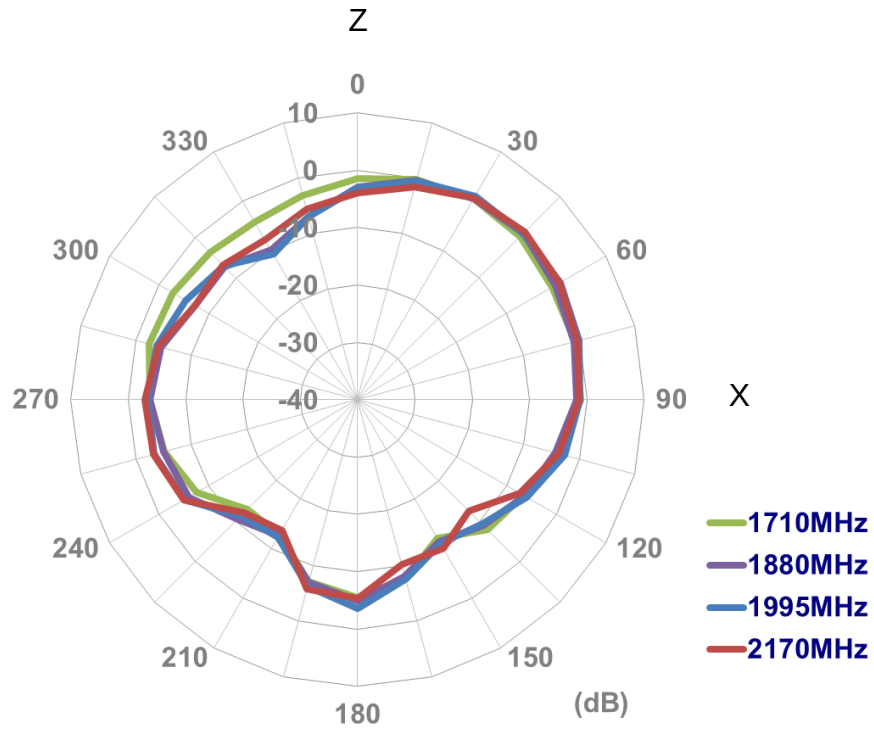
XY plane



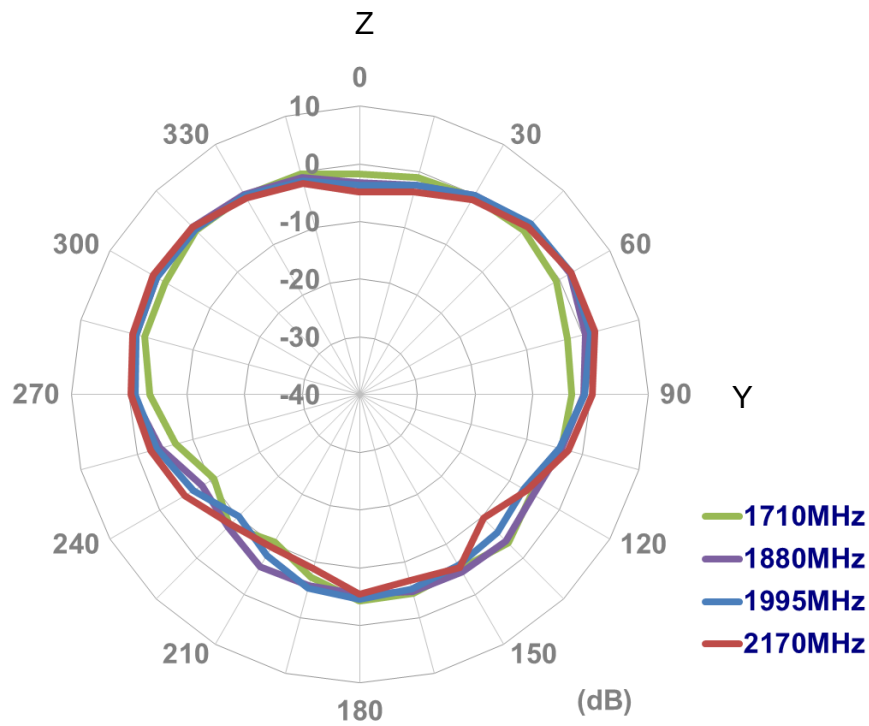
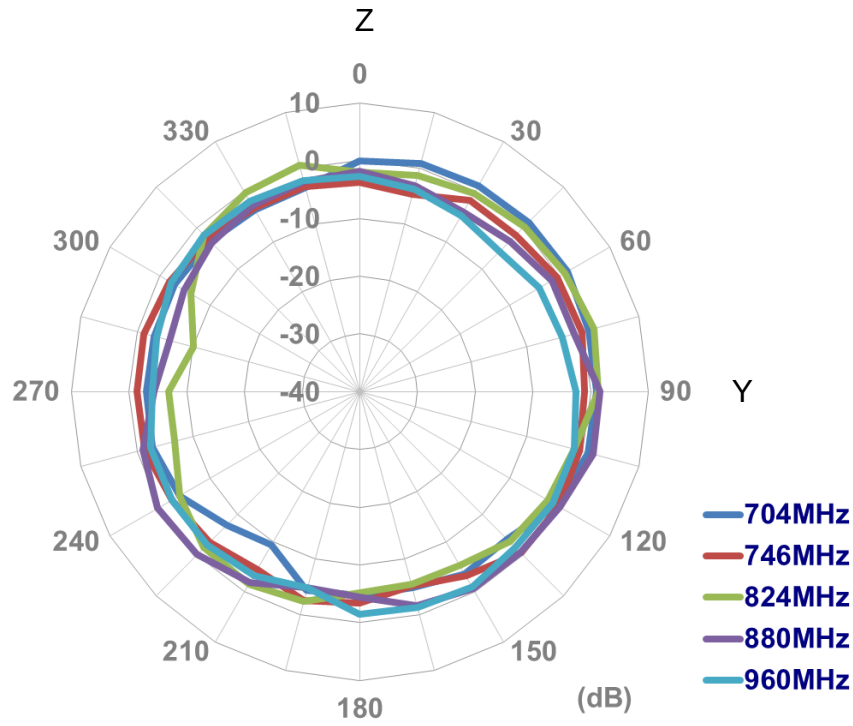


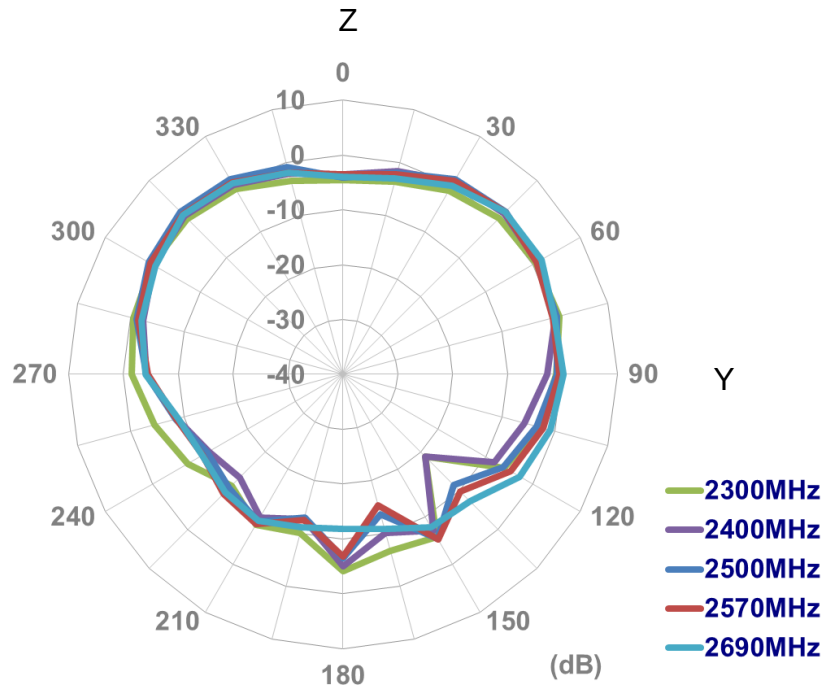
XZ plane





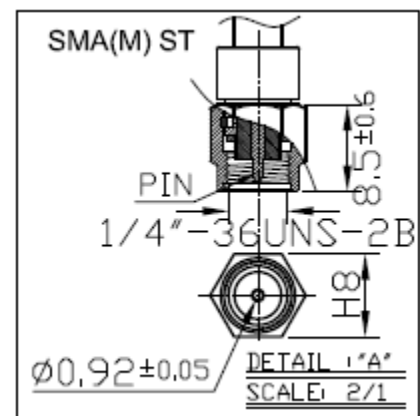
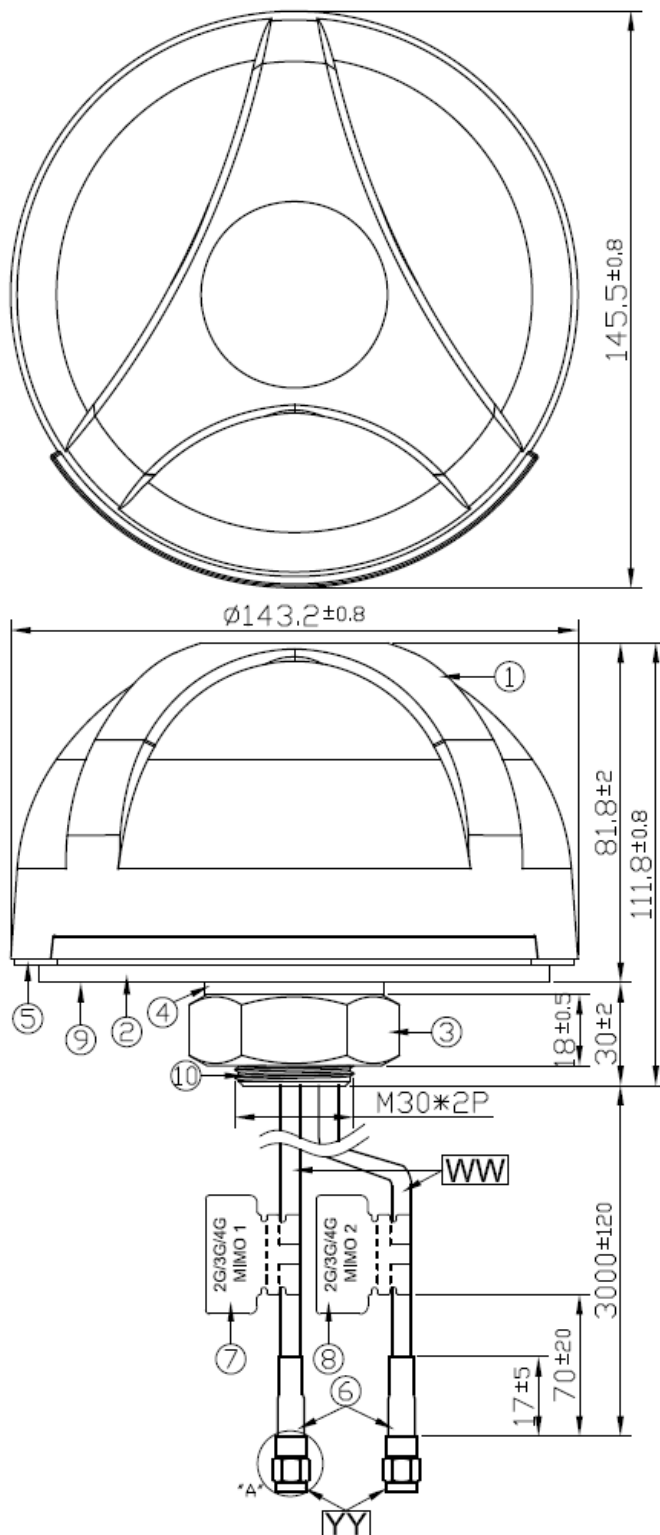
YZ plane







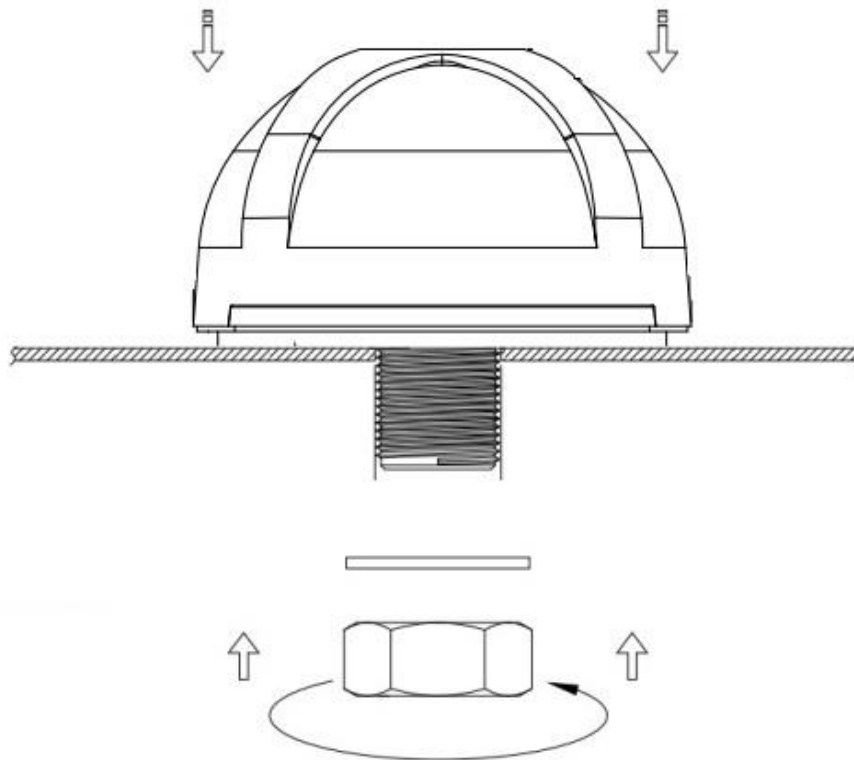
## 4. Drawing



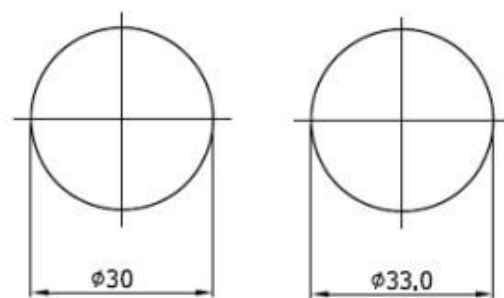
|    | Name                 | Material        | Finish      | QTY |
|----|----------------------|-----------------|-------------|-----|
| 1  | Housing              | PC 540          | Black       | 1   |
| 2  | Closed Cell Foam     | CR 4305         | Black       | 1   |
| 3  | M30 Nut              | Steel AISI 1215 | Ni Plated   | 1   |
| 4  | Washer               | Steel AISI 1215 | Ni Plated   | 1   |
| 5  | Waterproof Gasket    | Silicon Rubber  | Black       | 1   |
| 6  | Heat Shrink Tube     | PE              | Black       | 1   |
| 7  | 2G/3G/4G MIMO1 Label | Coated Paper    | Gray        | 1   |
| 8  | 2G/3G/4G MIMO2 Label | Coated Paper    | White       | 1   |
| 9  | 3M Double Adhesive   | 3M 9448 HK      | White Liner | 1   |
| 10 | M30x 2 Thread 32L    | Zinc Alloy      | Ni Plated   | 1   |

|    | Name           | Spec      | Finish | QTY |
|----|----------------|-----------|--------|-----|
| WW | Cable Type     | CFD200    | Black  | 2   |
| YY | Connector Type | SMA(M) ST | Gold   | 2   |

## 5. Installation



Recommended Torque for Mounting 49 N·m  
Maximum Torque for Mounting 58.8 N·m



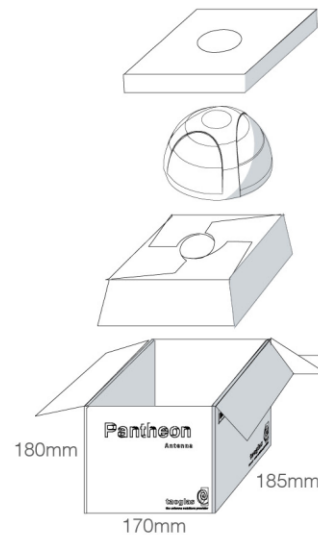
**Thread  
Diameter**

**Recommended  
Mounting Hole**

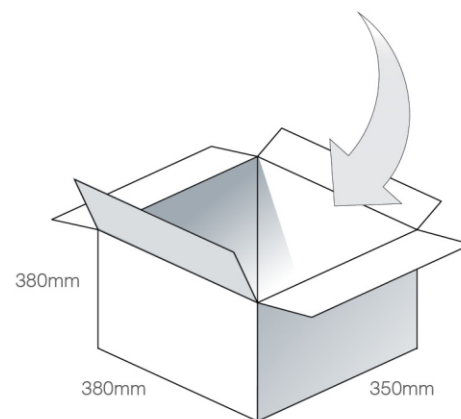
Unit: mm

## 6. Packaging

1 MA741.B.BI.001 per box  
Box Dimensions - 185\*170\*180 mm  
Total Weight - 1.26Kg



8 boxes per carton  
Carton Dimensions - 380\*350\*380mm  
Total Weight - 11Kg



Pallet Dimensions 1100\*1100\*1290mm  
24 Cartons per pallet  
6 Cartons per layer  
4 Layers

