



Pantheon

MA741.A.BI.001

## Specification

|                     |                                                                                                                                                                                                                                                                        |
|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Part No.</b>     | <b>MA741.A.BI.001</b>                                                                                                                                                                                                                                                  |
| <b>Product Name</b> | <b>Pantheon</b><br>Pantheon Antenna 2in1 MA.741<br>Screw-Mount (Permanent Mount)<br>LTE Cellular 2G/3G/4G 2*2 MIMO                                                                                                                                                     |
| <b>Feature</b>      | <b>2 x LTE Cellular (2G/3G/4G) Antennas (MIMO)</b><br><b>Works for LTE/GSM/GPRS/CDMA/UMTS/HSPA</b><br>698~960MHz, 1710~2170MHz,<br>2300~2700MHz, 2900~3500MHz<br>IP67 Waterproof<br>High Efficiency / Peak Gain Outdoor Antenna<br>3M CFD-200 SMA(M)<br>RoHS Compliant |

## 1. Introduction

The MA.741 Pantheon LTE 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, 2900-3500MHz.

The housing is an extremely robust IP67 direct mount antenna package with excellent isolation (20dB+).

The antenna has its own ground-plane and can radiate on any mounting environment like metal or plastic without affecting performance.

The connectors and cable length are customizable.

It is also available in White.

## 2. Specification

### 2G/3G/4G MIMO 1

|                     | LTE            | GSM 850        | GSM 900        | DCS              | PCS              | WCDMA I           | ISM              | LTE              |     |
|---------------------|----------------|----------------|----------------|------------------|------------------|-------------------|------------------|------------------|-----|
| <b>Frequency</b>    | <b>698~787</b> | <b>824~896</b> | <b>880~960</b> | <b>1710~1880</b> | <b>1850~1990</b> | <b>1920~ 2170</b> | <b>2400~2500</b> | <b>2600~3500</b> | MHz |
| <b>Return Loss</b>  | <-6            | <-6            | <-5            | <-6              | <-7              | <-6               | <-5              | <-6              | dBi |
| <b>Efficiency</b>   | 66.17          | 51.88          | 47.87          | 39.97            | 47.67            | 45.97             | 28.74            | 38.35            | %   |
| <b>Peak Gain</b>    | 2.52           | 1.48           | 1.15           | 1.03             | 1.22             | 1.27              | 0.152            | 3.20             | dBi |
| <b>Polarization</b> | Vertical       |                |                |                  |                  |                   |                  |                  |     |
| <b>Impedance</b>    | 50             |                |                |                  |                  |                   |                  |                  | Ω   |

### 2G/3G/4G MIMO 2

|                     | LTE            | GSM 850        | GSM 900        | DCS              | PCS              | WCDMA I           | ISM              | LTE              |     |
|---------------------|----------------|----------------|----------------|------------------|------------------|-------------------|------------------|------------------|-----|
| <b>Frequency</b>    | <b>698~787</b> | <b>824~896</b> | <b>880~960</b> | <b>1710~1880</b> | <b>1850~1990</b> | <b>1920~ 2170</b> | <b>2400~2500</b> | <b>2600~3500</b> | MHz |
| <b>Return Loss</b>  | <-4            | <-4            | <-4            | <-7              | <-7              | <-7               | <-9              | <-6              | dBi |
| <b>Efficiency</b>   | 35.98          | 18.41          | 20.25          | 40.85            | 35.42            | 37.68             | 42.27            | 35.23            | %   |
| <b>Peak Gain</b>    | 1.56           | -2.08          | -2.31          | 1.68             | 0.86             | 2.07              | 2.99             | 2.97             | dBi |
| <b>Polarization</b> | Vertical       |                |                |                  |                  |                   |                  |                  |     |
| <b>Impedance</b>    | 50             |                |                |                  |                  |                   |                  |                  | Ω   |

### Mechanical

|                           |                                  |
|---------------------------|----------------------------------|
| <b>Antenna Dimensions</b> | Height 85.7mm x Diameter 145.6mm |
| <b>Casing</b>             | Wonderloy PC-540 PC/ABS Alloy    |
| <b>Waterproof</b>         | IP67                             |
| <b>2G/3G/4G MIMO 1</b>    | 3M CFD-200 SMA(M)                |
| <b>2G/3G/4G MIMO 2</b>    | 3M CFD-200 SMA(M)                |

### Environmental

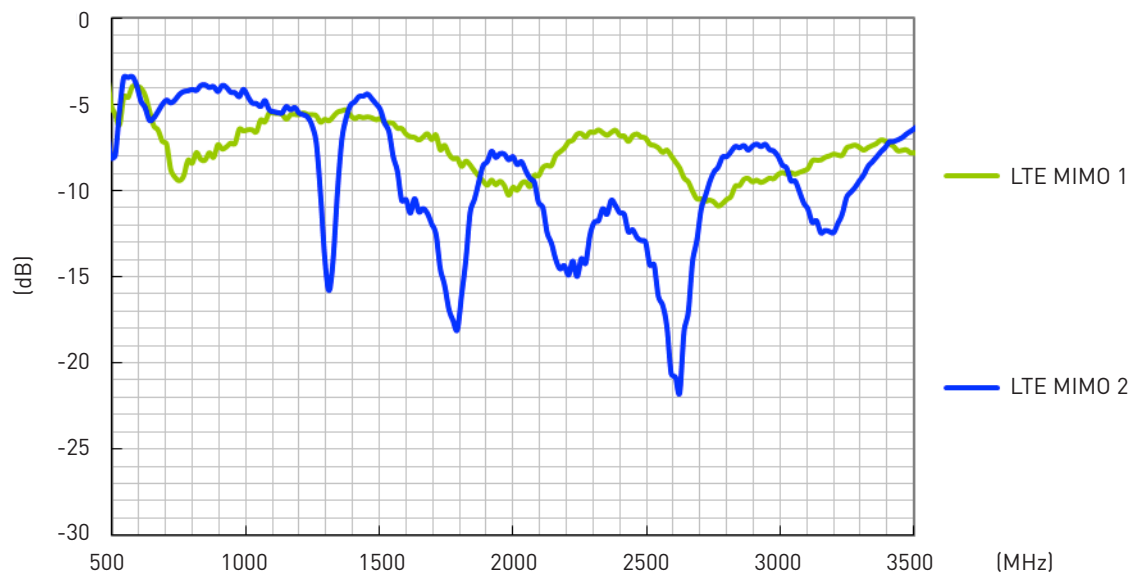
|                        |                            |
|------------------------|----------------------------|
| <b>Operation Temp.</b> | -40°C to 85°C              |
| <b>Storage Temp.</b>   | -40°C to 90°C              |
| <b>Humidity</b>        | Non-condensing 65°C 95% RH |

\* All measurements were conducted with 3m CFD200 cable

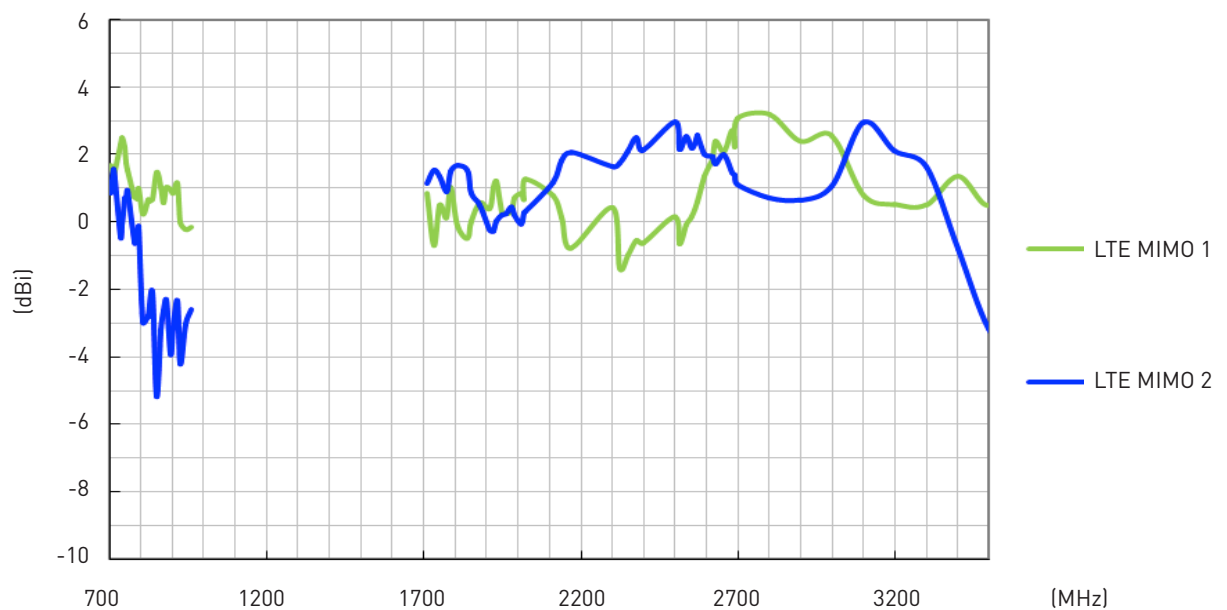
## 3. LTE MIMO

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

#### 3.1.1 Return Loss



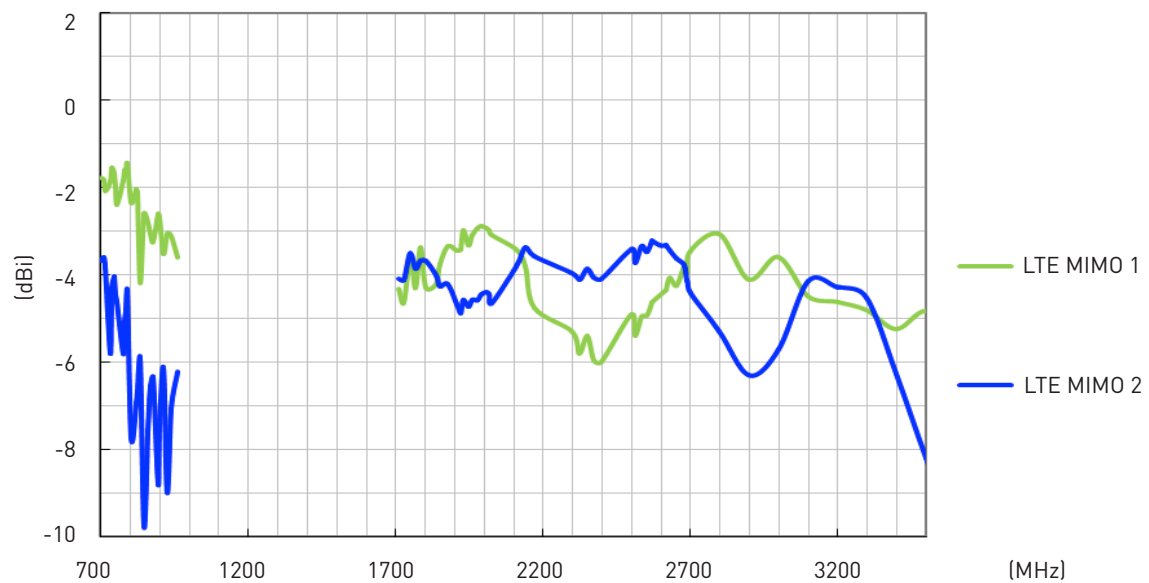
#### 3.1.2 Maximum Gain



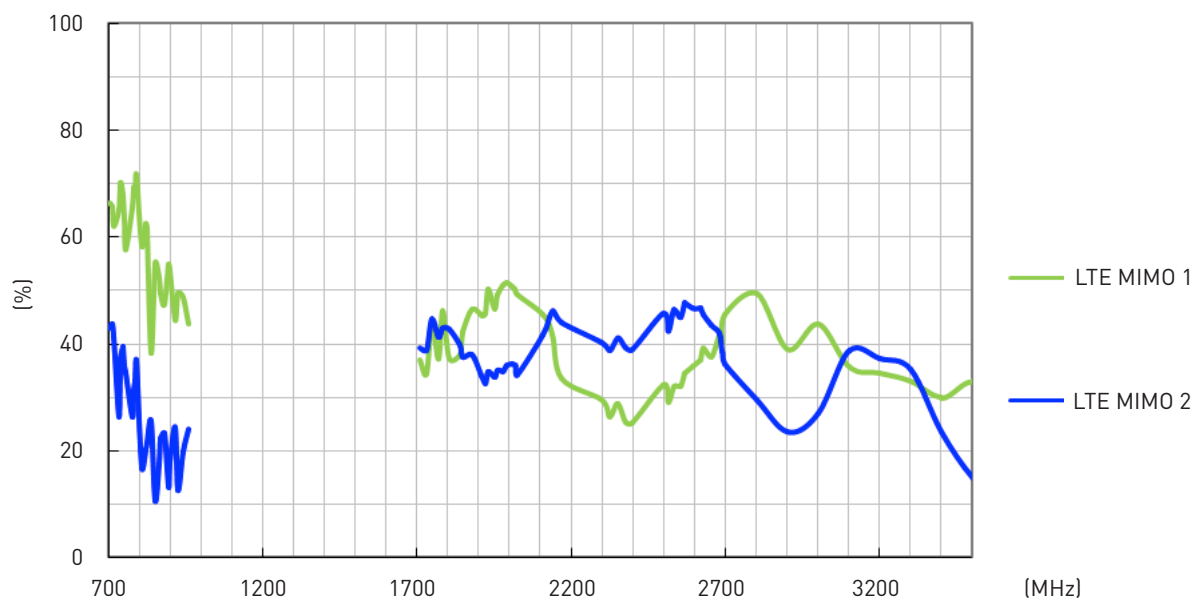
### 3. LTE MIMO

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

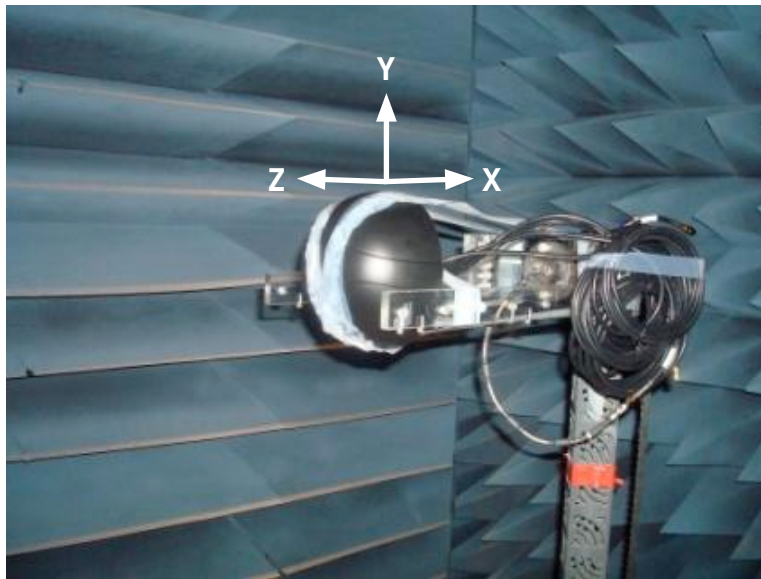
##### 3.1.3 Average Gain



##### 3.1.4 Efficiency

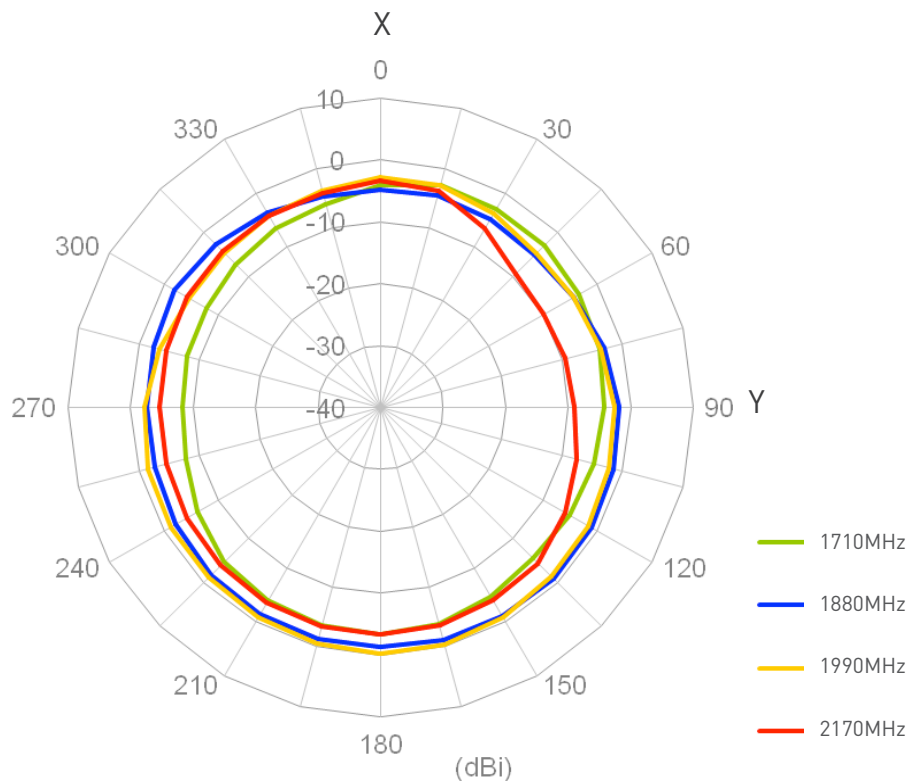
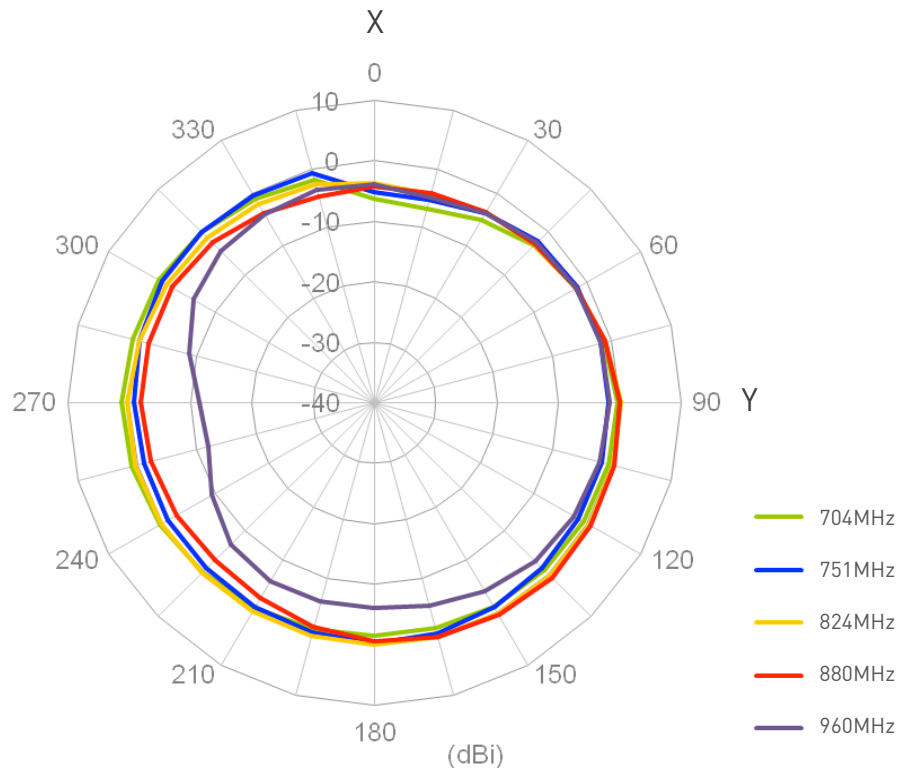


## 3.2 Radiation Patterns



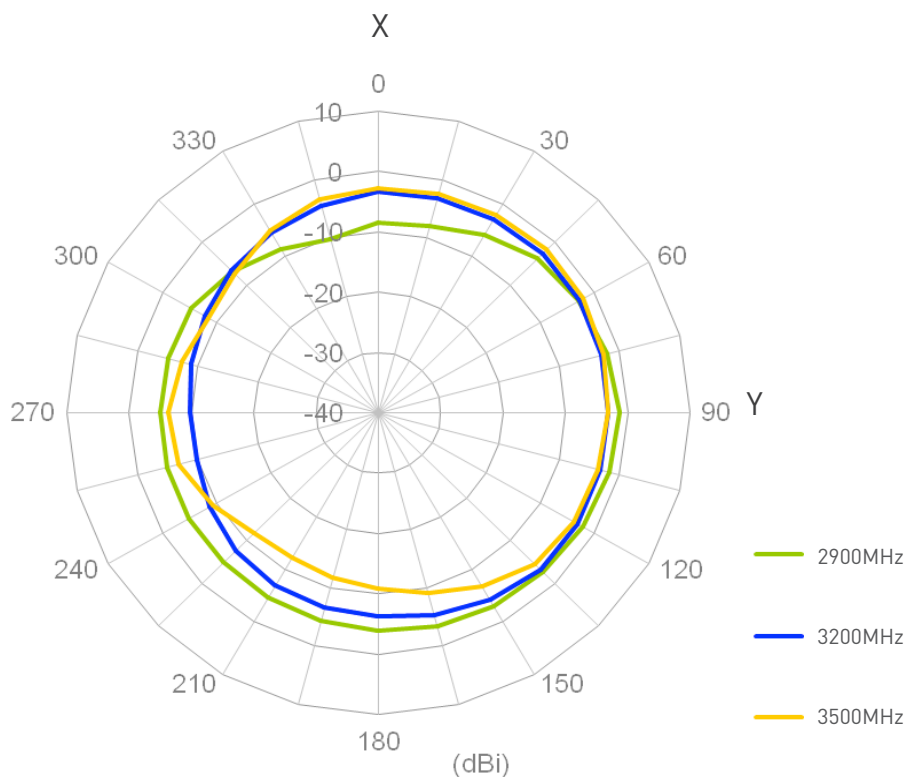
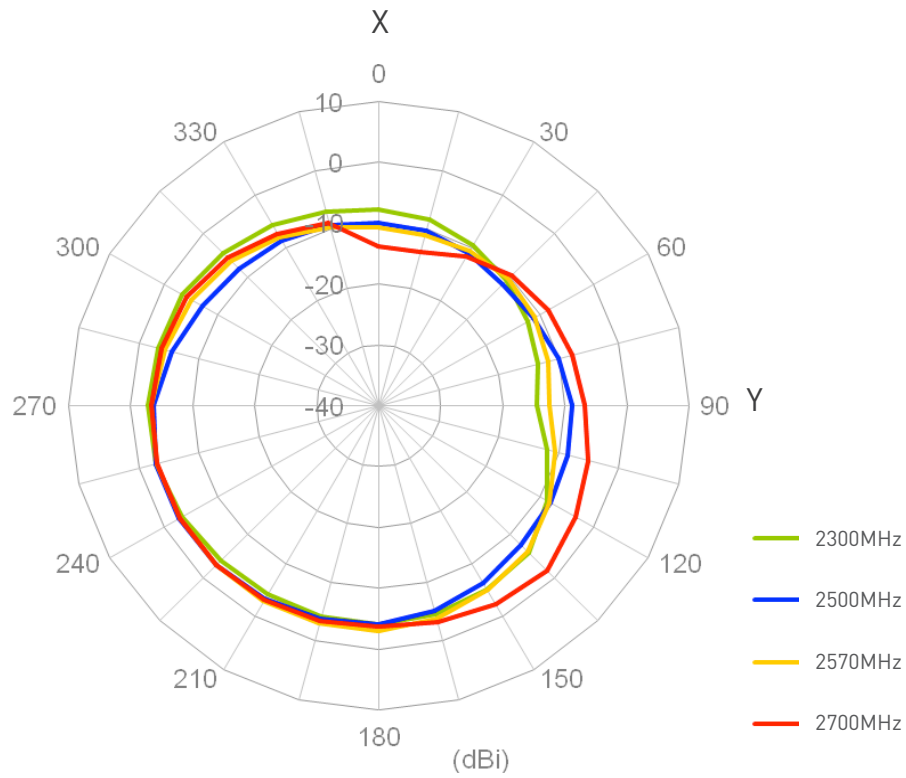
### 3.2.1 LTE MIMO 1 Radiation Pattern

XY Plane



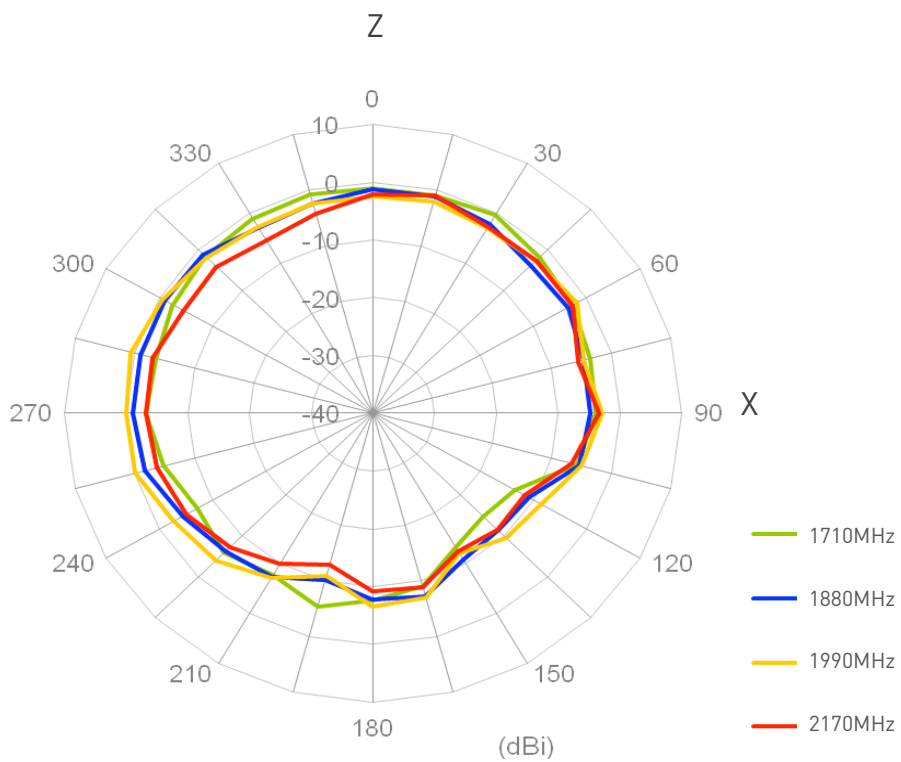
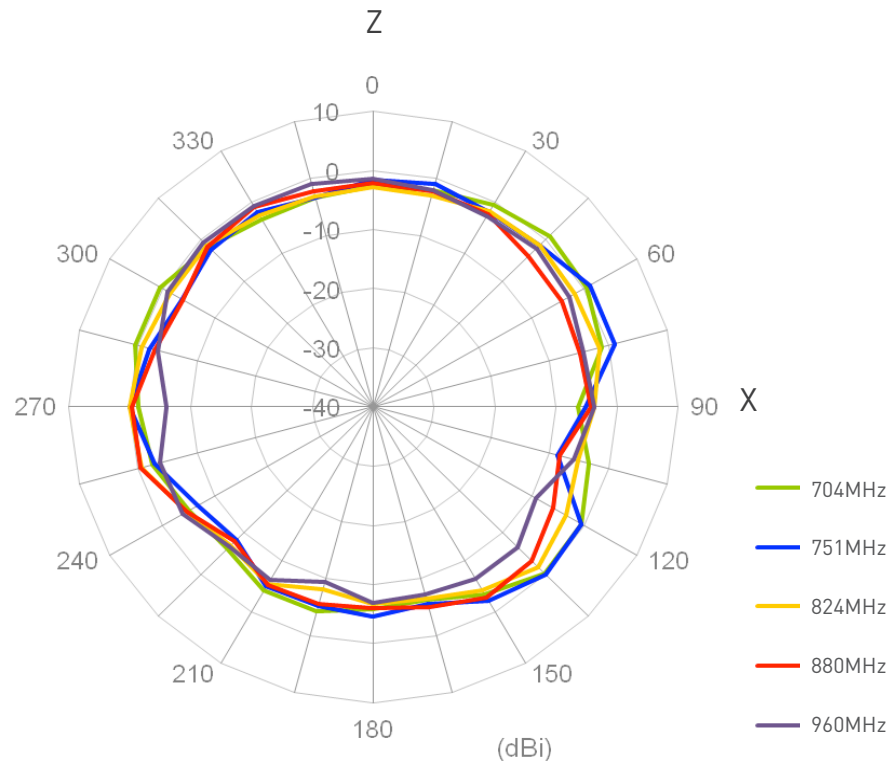
### 3.2.1 LTE MIMO 1 Radiation Pattern

XY Plane



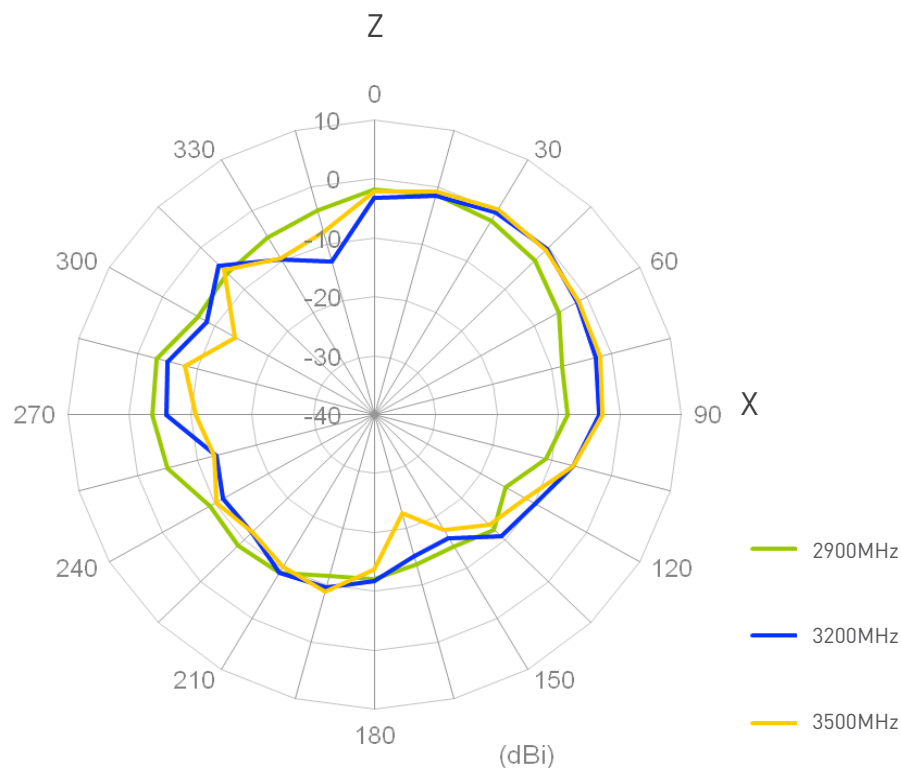
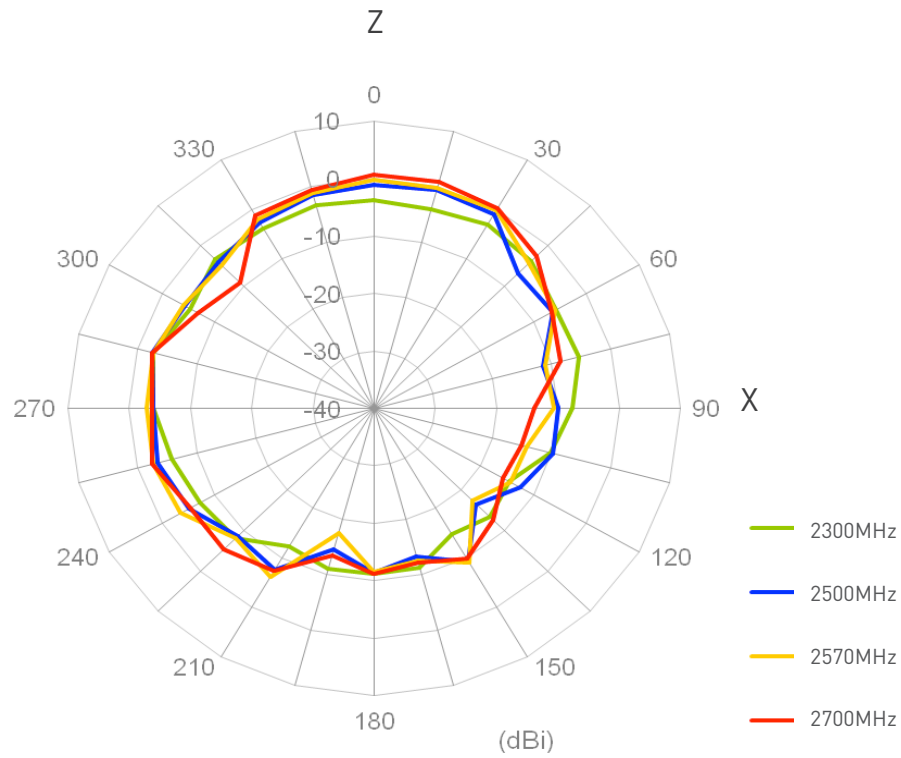
### 3.2.1 LTE MIMO 1 Radiation Pattern

XZ Plane



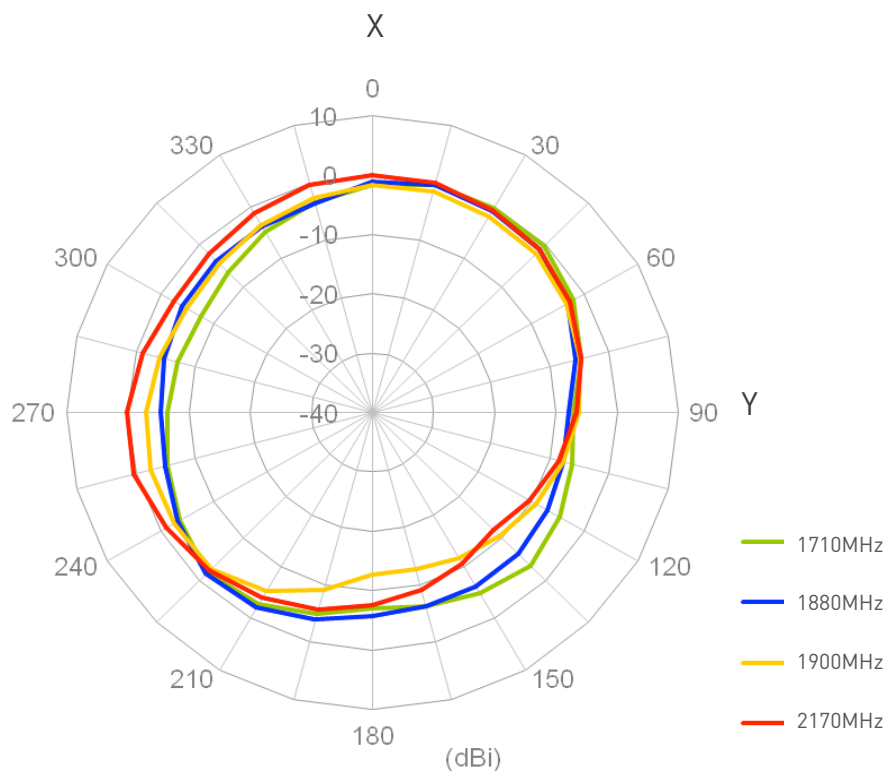
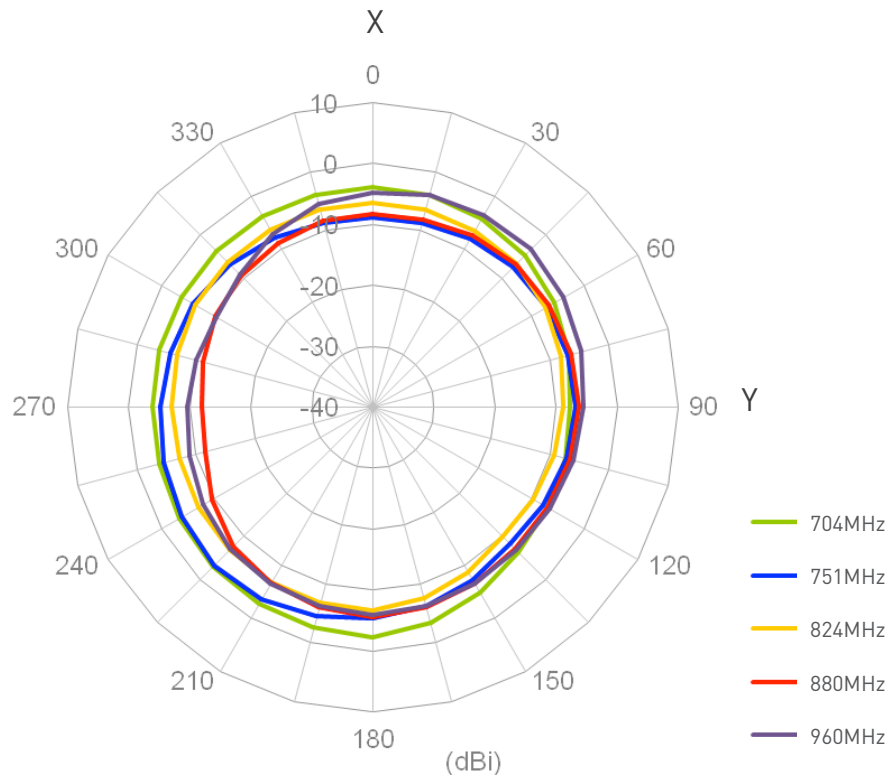
### 3.2.1 LTE MIMO 1 Radiation Pattern

XZ Plane



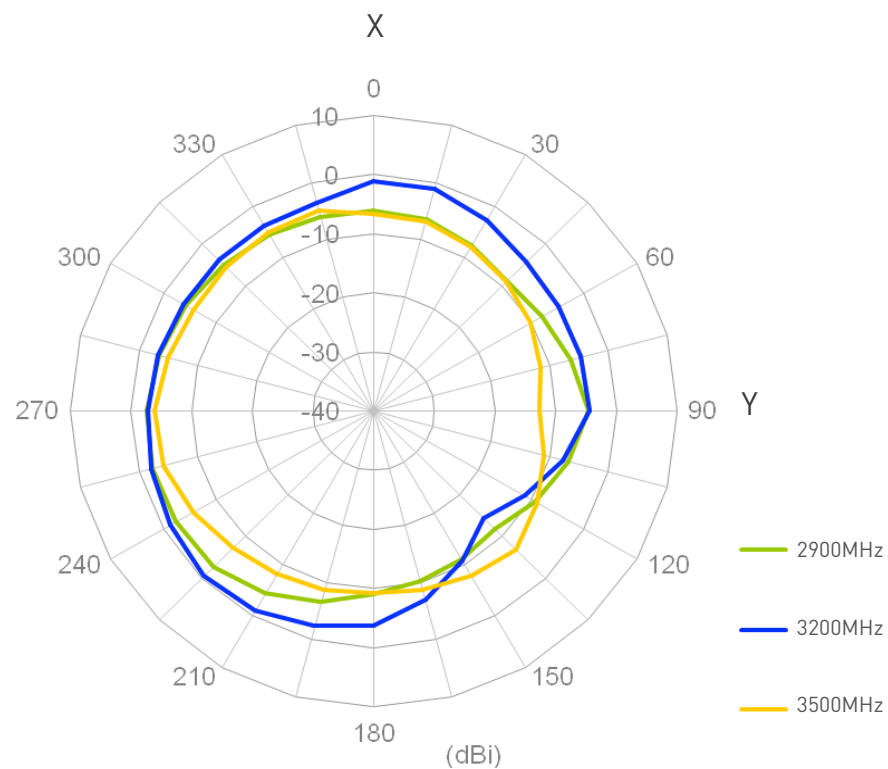
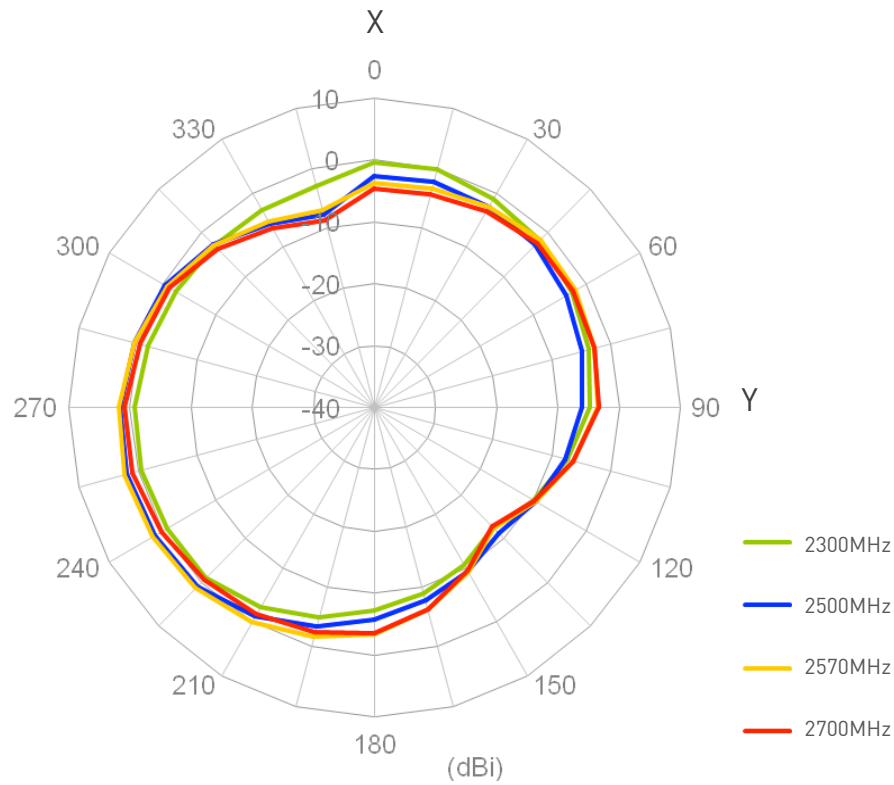
### 3.2.2 LTE MIMO 2 Radiation Pattern

XY Plane



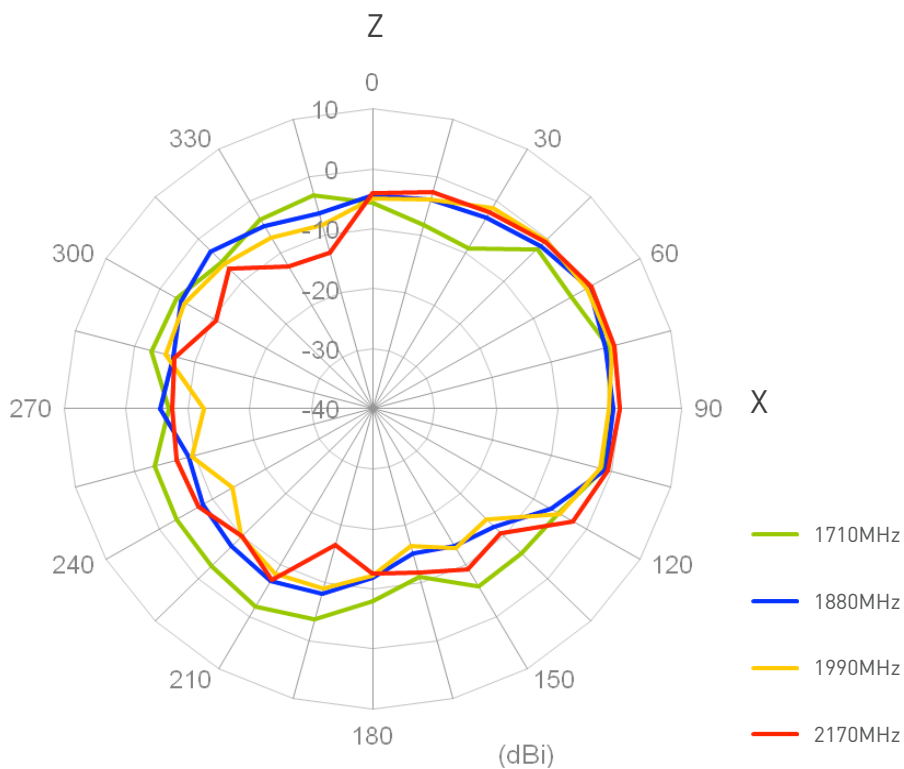
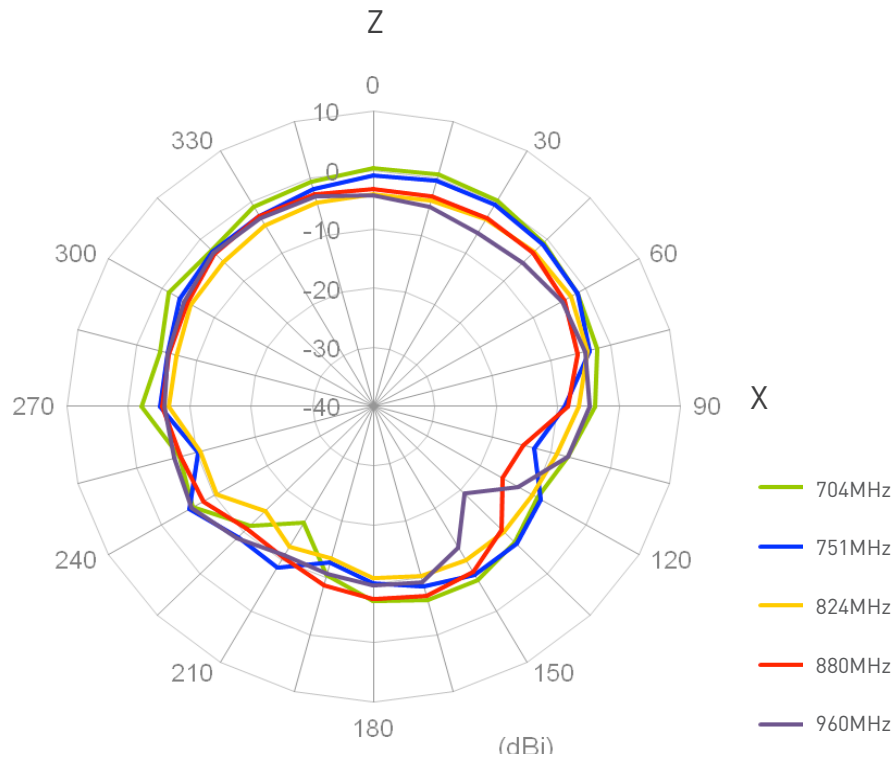
### 3.2.2 LTE MIMO 2 Radiation Pattern

XY Plane



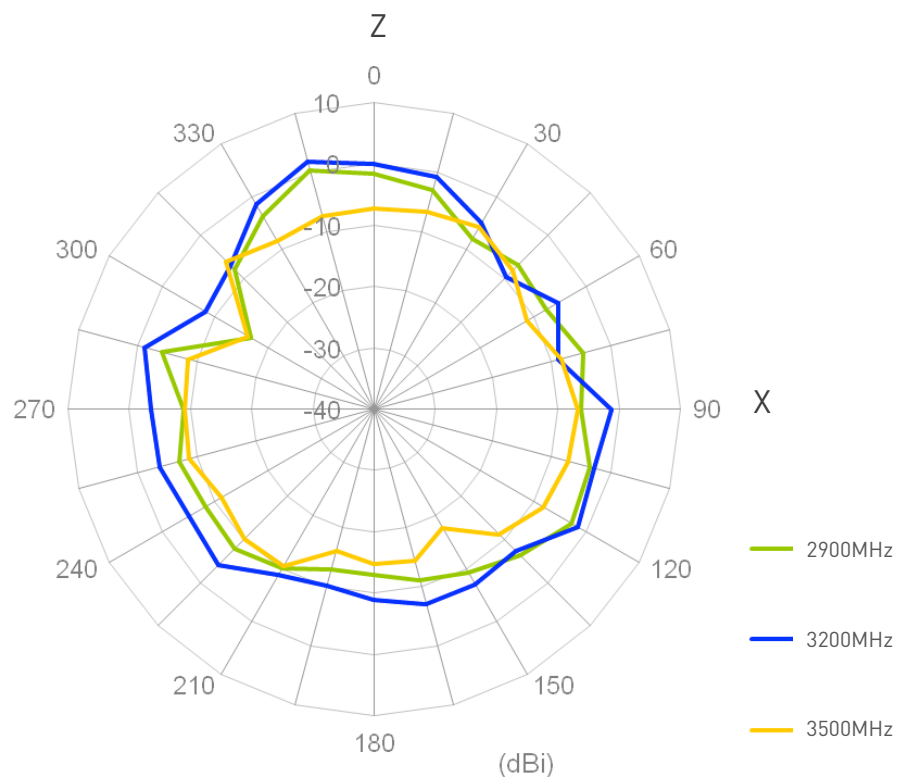
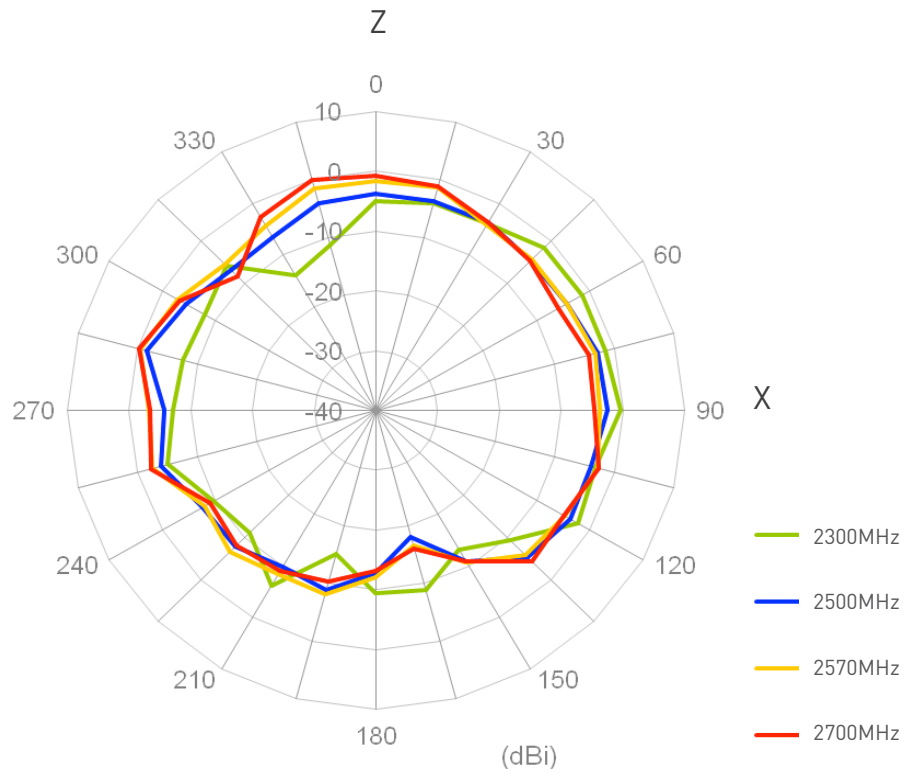
### 3.2.2 LTE MIMO 2 Radiation Pattern

XZ Plane

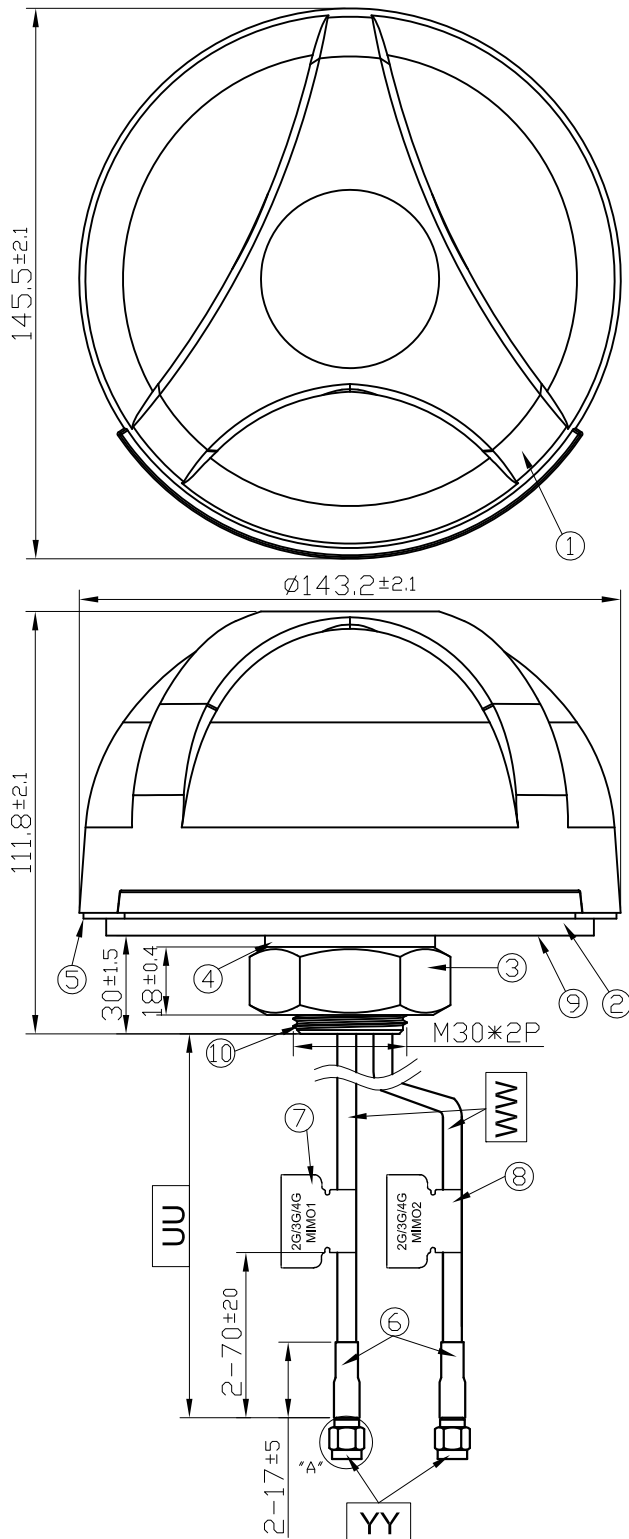


### 3.2.2 LTE MIMO 2 Radiation Pattern

XZ Plane



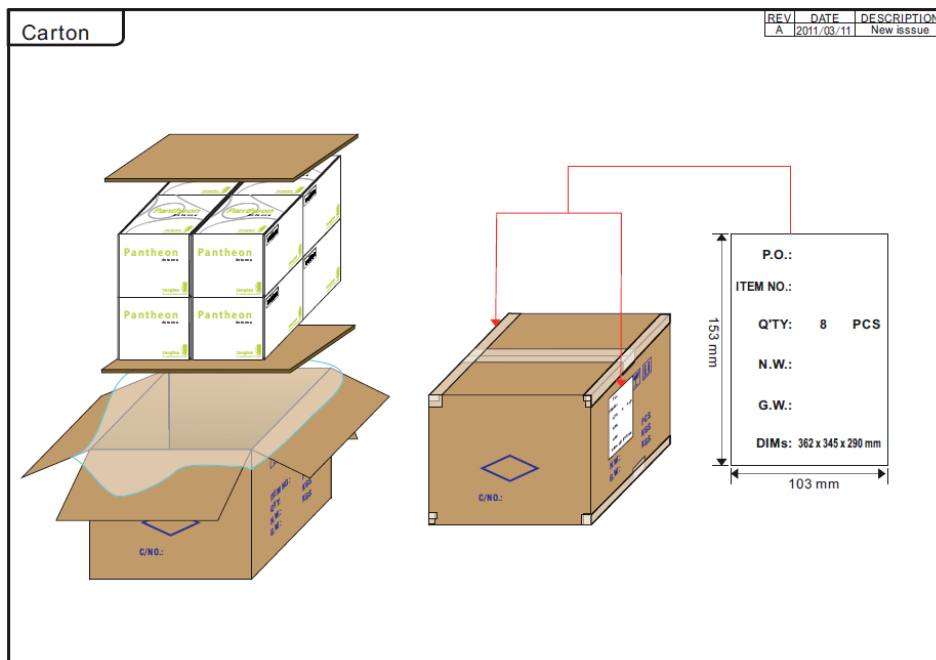
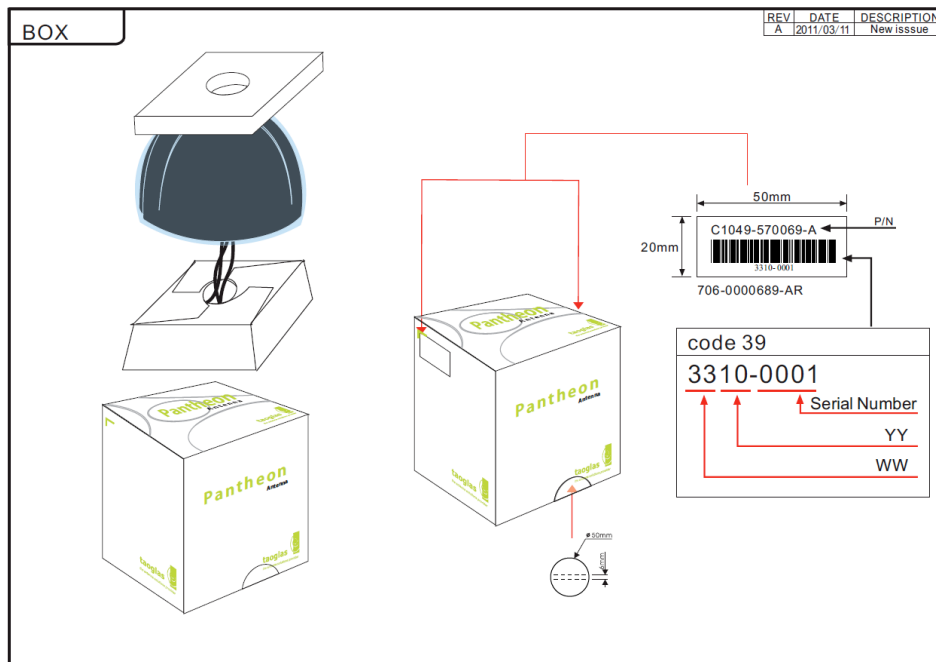
## 4. Drawing



|    | 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  | Silicone Rubber | Black       | 1   |
| 6  | Heat Shrink Tube   | PE (CFD200)     | Black       | 1   |
| 7  | 2G/3G/4G MIMO1     | Coated Paper    | Gray        | 1   |
| 8  | 2G/3G/4G MIMO2     | Coated Paper    | White       | 1   |
| 9  | 3M Double Adhesive | 3M 9448 HK      | White Liner | 1   |
| 10 | M30 x 2 Thread 32L | Zinc Alloy      | Ni Plated   | 1   |

|    | Name           | Material           | Finish | QTY |
|----|----------------|--------------------|--------|-----|
| UU | Cable Length   | 3000mm $\pm$ 120mm |        | 2   |
| WW | Cable Type     | CFD200             | Black  | 2   |
| YY | Connector Type | SMA(M) ST          | Gold   | 2   |

## 5. Packaging



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