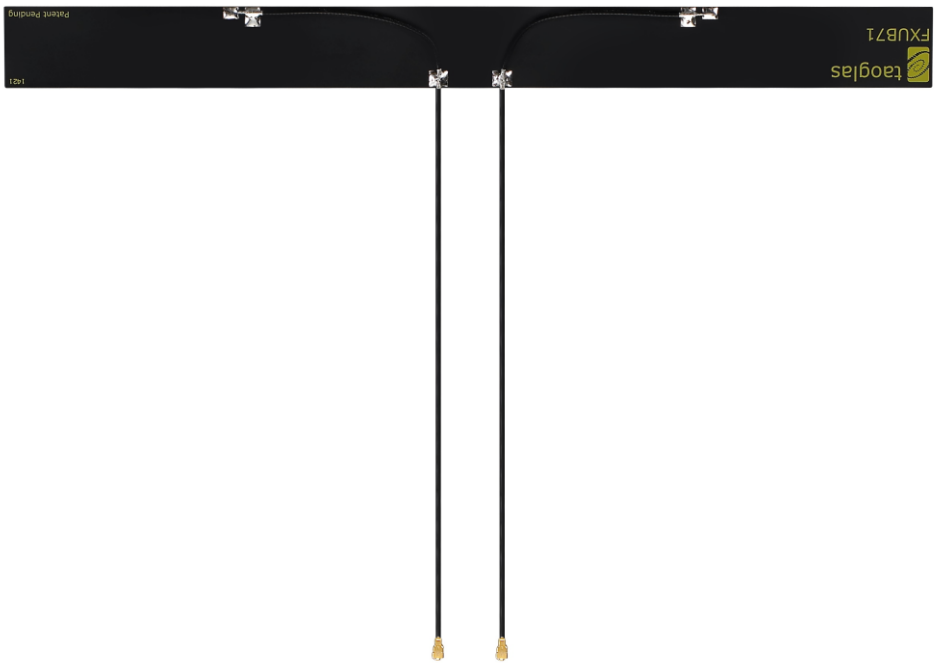
# SPECIFICATION

## Patent Pending

| | | |
|---|---|---|
| Part No. | : | **FXUB71.A.07.C.001** |
| Product Name | : | Embedded Flexible 4G LTE MIMO 2*2 Antenna with 150mm 1.37 IPEX MHFI (U.FL) 698 MHz to 3GHz |
| Features | : | Worldwide LTE Functionality with 3G and 2G (HSPA / GSM / CDMA /DCS /PCS / WCDMA / UMTS / GPRS / EDGE / GPS / 2.4GHz Wi-Fi)<br>240mm*21mm*0.15mm<br>150mm Φ1.37 Coaxial cable<br>I-PEX MHFI HT (U.FL compatible) Connector<br>3M Adhesive Tape for Peel and Stick Mounting<br>Cable and connector are customizable<br>ROHS Compliant |

Photo:



# 1. Introduction

The patent pending FXUB71 antenna is an industry leading embedded LTE 2*2 MIMO flexible polymer monopole type antenna for worldwide LTE applications, which also works equally well on 2G and 3G applications. The antenna comes with a micro coax cable and connector, and has good efficiency and isolation between ports, critical for optimal LTE wireless performance.

Typical applications
- LTE Gateways and Routers
- High speed HD streaming
- LTE Gateways and Routers
- LTE Access Points
- High capacity MIMO networks for Public Transportation

With over 40% efficiency on all bands, isolation performance between the two ports is under -10dB in all bands. The antenna has been designed in a slim rectangular form-factor, with its own automotive quality 3M 467 adhesive backing tape, to ensure good isolation and convenient installation into typical M2M/IOT devices. Simply peel and stick onto your plastic housing.

The antenna is tuned to work on a reference ABS plastic of 2mm of thickness which is a common standard for most device plastics. Cable routing has been carefully planned to ensure no cross-over of cable, and a logical and hassle free installation. Like all such antennas, care should be taken to mount the antenna at least 10mm from metal components or surfaces, and ideally 20mm for best radiation efficiency.

Before integration of the antenna in your device, especially if you require PTCRB or US network approvals, please contact Taoglas regional sales office for technical support.

Cable length and connector type are fully customizable.

# 2. Specification

| ELECTRICAL | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Standard | LTE 700MHz | 850 MHz | 900MHz | GPS/GLONASS | DCS | PCS | WCDMA I/UMTS | Wi-Fi | LTE |
| Frequency (MHz) | 703~803 | 824~894 | 880~960 | 1565~1612 | 1710~1880 | 1850~1990 | 1920~2170 | 2400~2500 | 2500~2700 |
| **Efficiency (%)** | | | | | | | | | |
| MIMO 1 | 50.48 | 61.60 | 50.51 | 76.22 | 83.31 | 76.00 | 72.86 | 65.55 | 62.25 |
| MIMO 2 | 52.83 | 59.36 | 52.90 | 77.38 | 82.85 | 75.06 | 74.71 | 63.25 | 63.56 |
| **Average Gain(dBi)** | | | | | | | | | |
| MIMO 1 | -2.98 | -2.11 | -3.00 | -1.18 | -0.81 | -1.19 | -1.39 | -1.84 | -2.12 |
| MIMO 2 | -2.77 | -2.27 | -2.78 | -1.12 | -0.83 | -1.24 | -1.27 | -1.99 | -2.01 |
| **Peak Gain(dBi)** | | | | | | | | | |
| MIMO 1 | 0.97 | 1.26 | 0.54 | 2.81 | 3.85 | 3.72 | 4.23 | 3.95 | 3.62 |
| MIMO 2 | 1.43 | 1.21 | 0.54 | 2.51 | 4.01 | 4.42 | 4.72 | 4.31 | 3.24 |
| Impedance | | | | | 50Ω | | | | |
| Polarization | | | | | Linear | | | | |
| Radiation Pattern | | | | | Omni-directional | | | | |
| Input Power | | | | | 2 W Max. | | | | |
| MECHANICAL | | | | | | | | | |
| Antenna Dimensions | | | | | 240mm x 21mm x 0.15mm | | | | |
| Antenna Body Material | | | | | Polymer | | | | |
| Cable | | | | | 2* Black Φ1.37 Coaxial cable | | | | |
| Cable Length | | | | | 2*150mm | | | | |
| Connector | | | | | I-PEX MHFHT | | | | |
| Weight | | | | | 5g | | | | |
| ENVIRONMENTAL | | | | | | | | | |
| Temperature Range | | | | | -40° C to 85° C | | | | |
| Storage Temperature | | | | | -40° C to 85° C | | | | |
| Humidity | | | | | Non-condensing 65° C 95% RH | | | | |

# 3. Antenna Characteristics

## 3.1 Testing setup

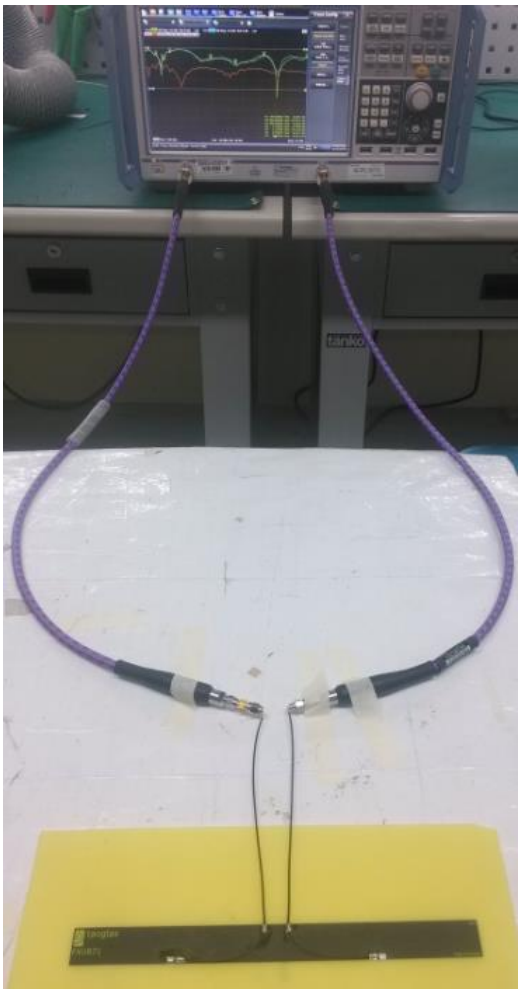


**Figure.1** Test setup on the 2mm ABS

## 3.2 Return loss

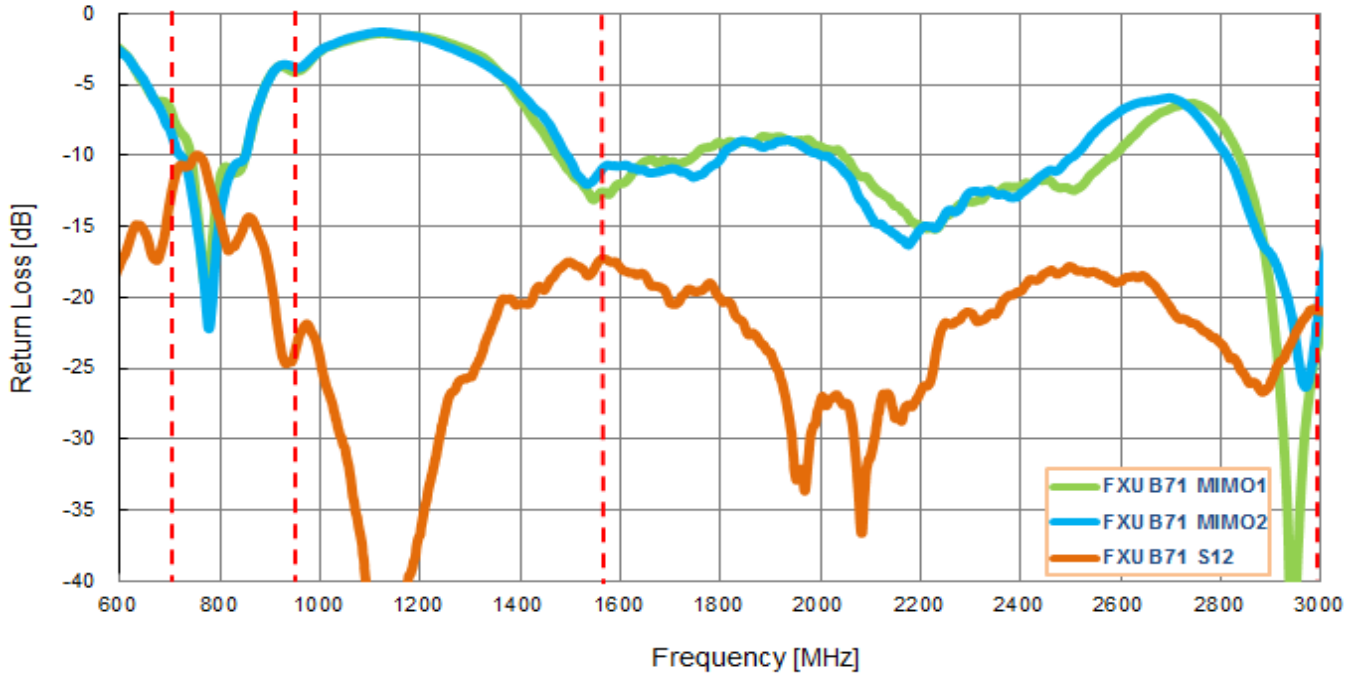



**Figure2.** Return loss with 150 mm cable length and on the 2mm ABS of FXUB71

## 3.3 Efficiency

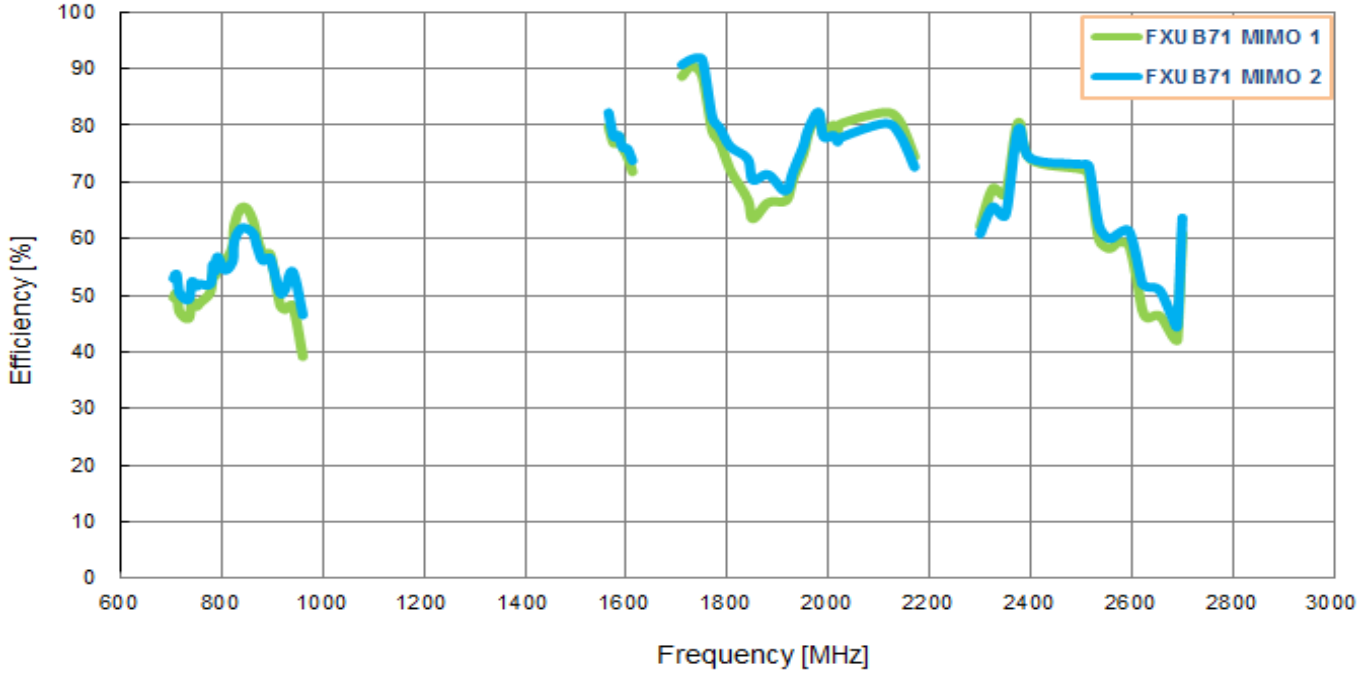



**Figure3.** Efficiency with 150 mm cable length and on the 2mm ABS of FXUB71

## 3.4 Peak gain

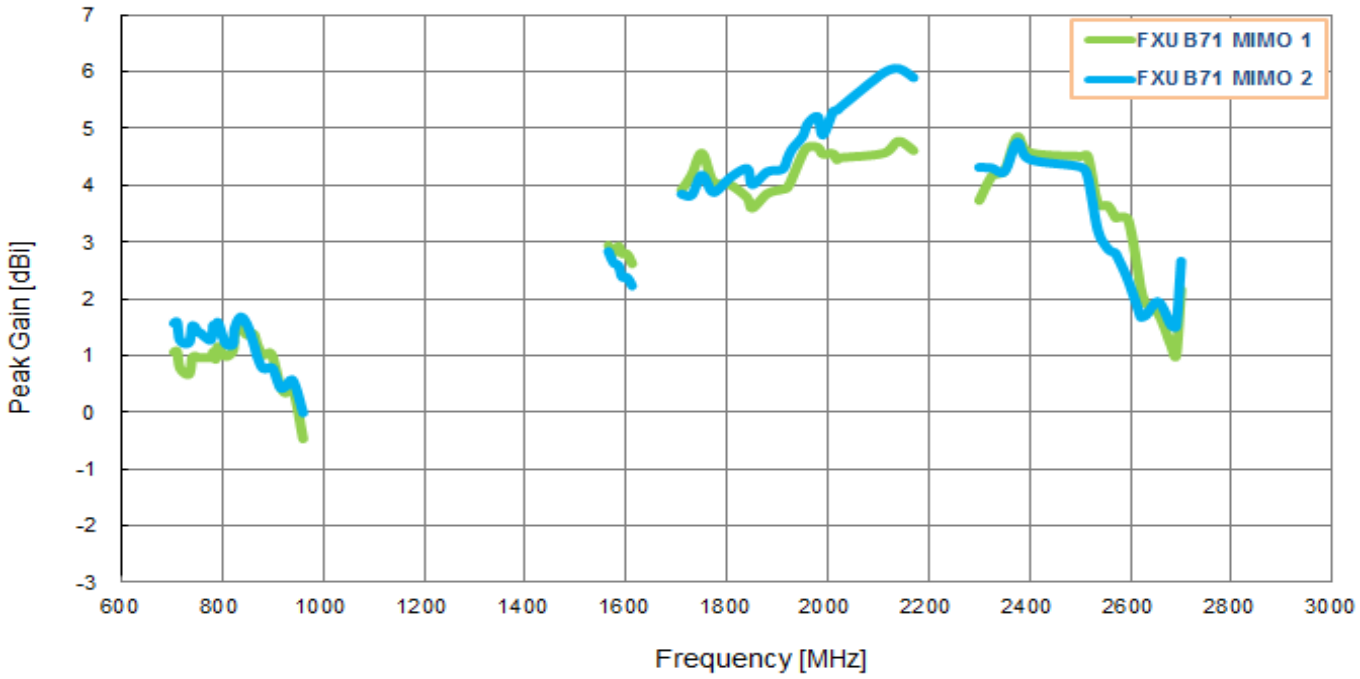



**Figure4.** Peak gain with 150 mm cable length and on the 2mm ABS of FXUB71

## 3.5 Average gain

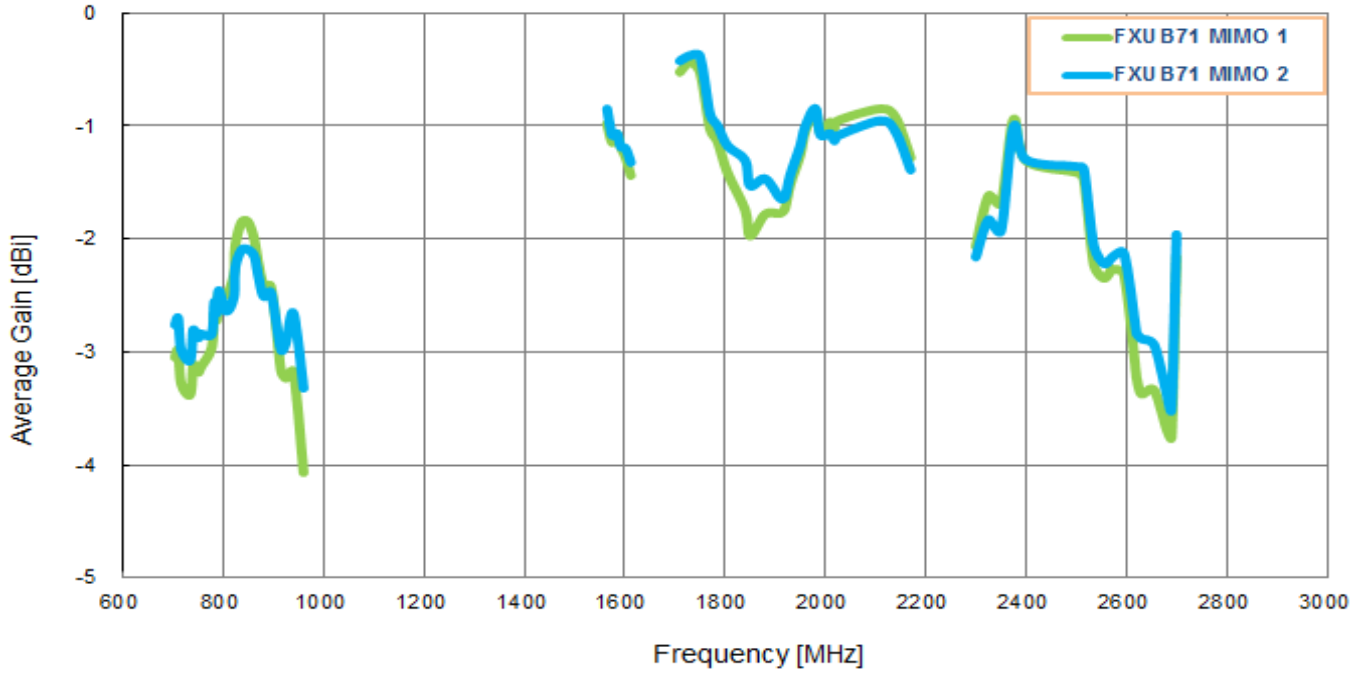



**Figure5.** Average gain with 150 mm cable length and on the 2mm ABS of FXUB71

# 4. Antenna Radiation Patterns

The antenna radiation patterns were measured in ETS Anechoic Chamber. The measurement setup as below,

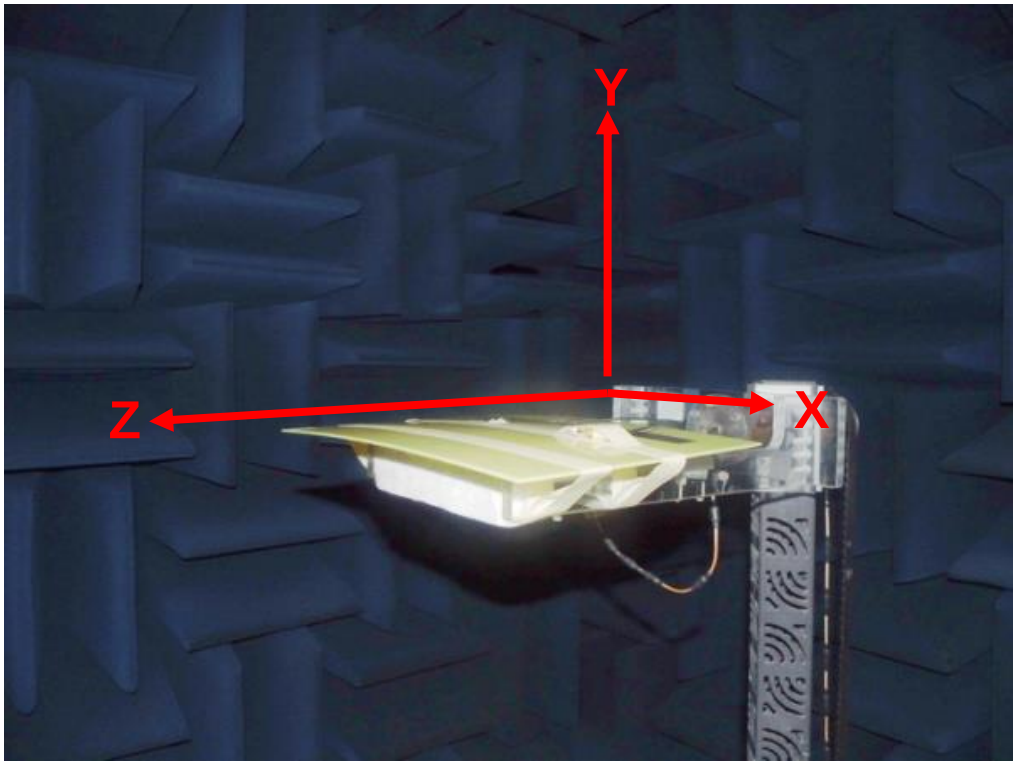
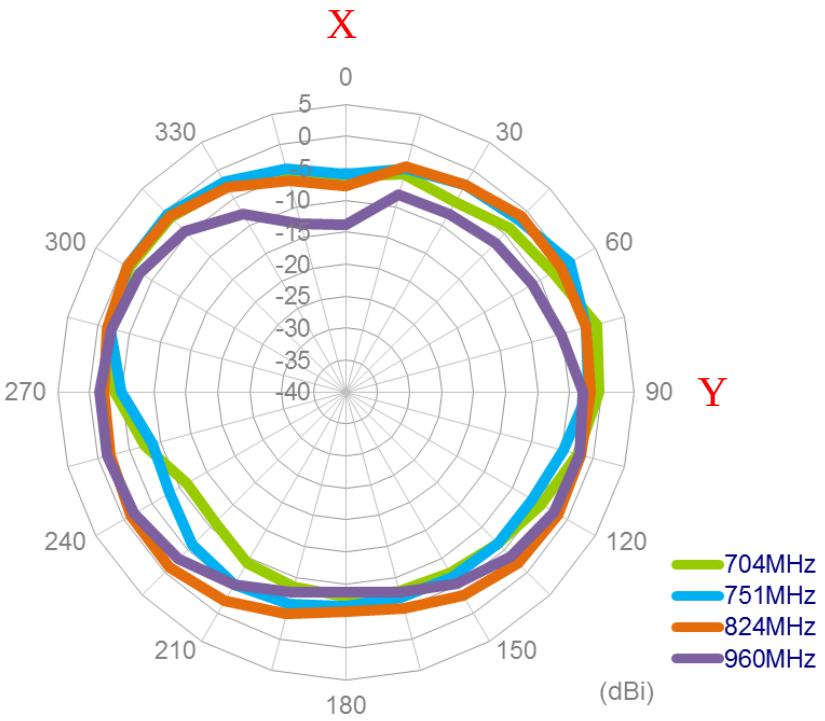



**Figure.6** Testing Setup in ETS Anechoic Chamber

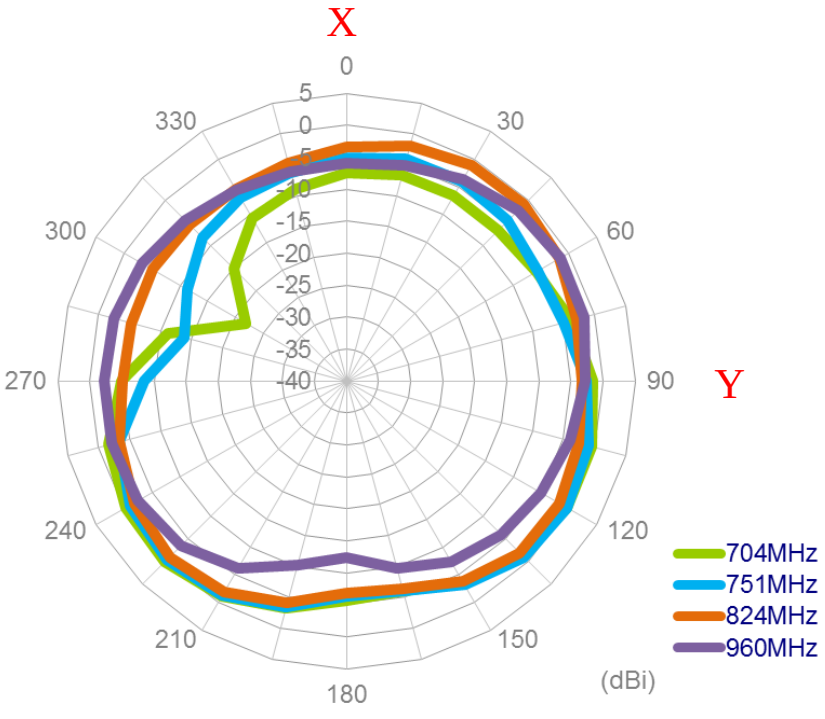
## 4.1 Antenna radiation patterns

### Antenna with 150mm cable length and on the 2mm ABS

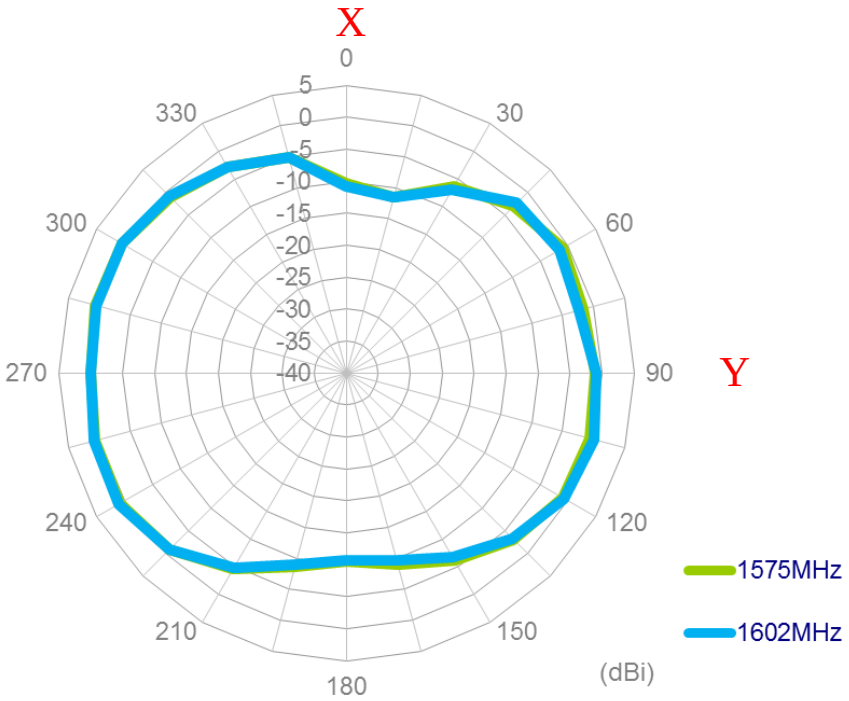
#### X-Y plane MIMO 1 (704MHz~960MHz)




#### X-Y plane MIMO 2 (704MHz~960MHz)



## X-Y plane MIMO 1 (1575MHz/1602MHz)

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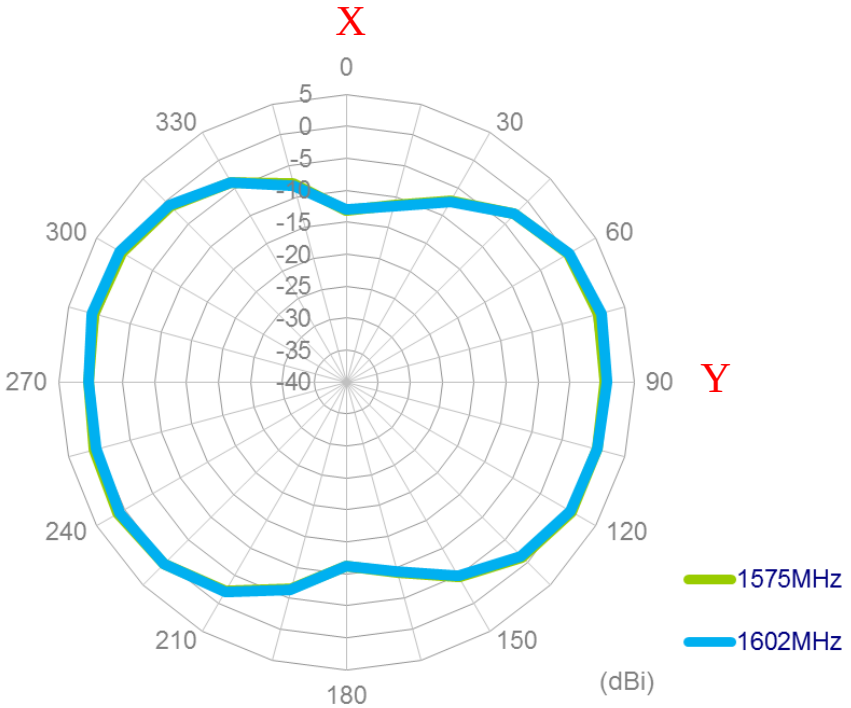
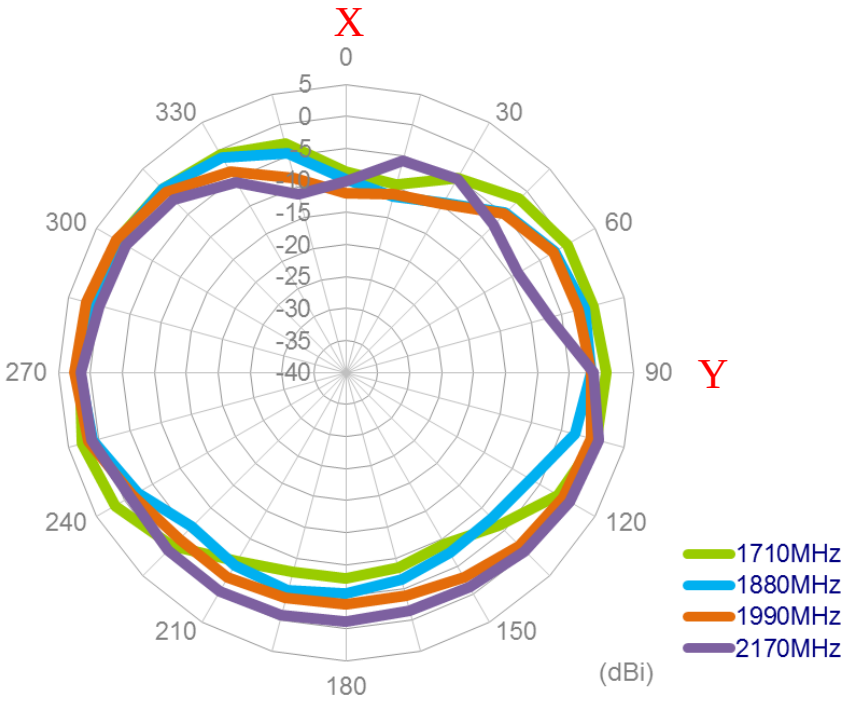


## X-Y plane MIMO 1 (1710MHz~2170MHz)

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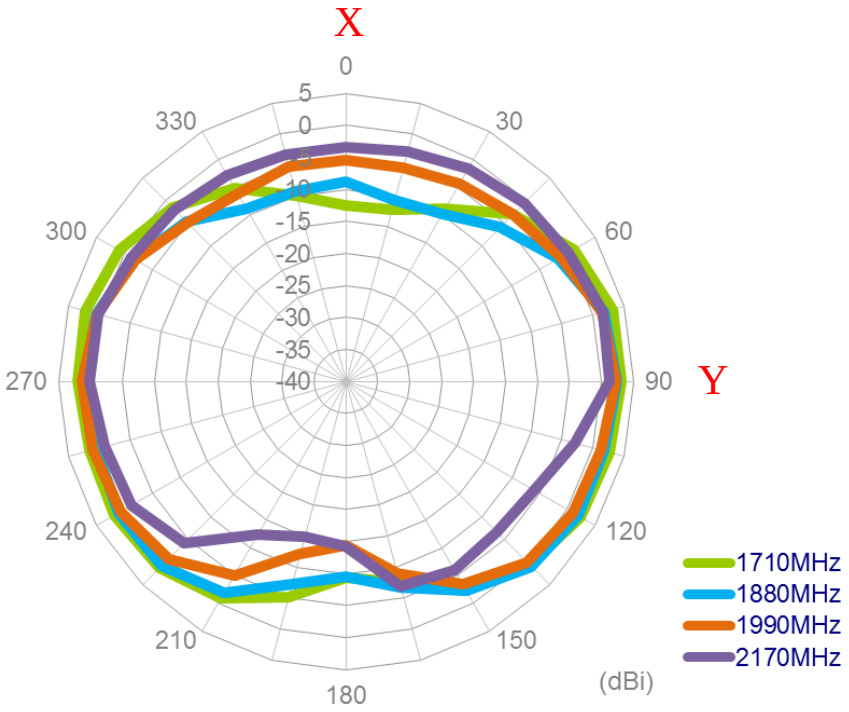
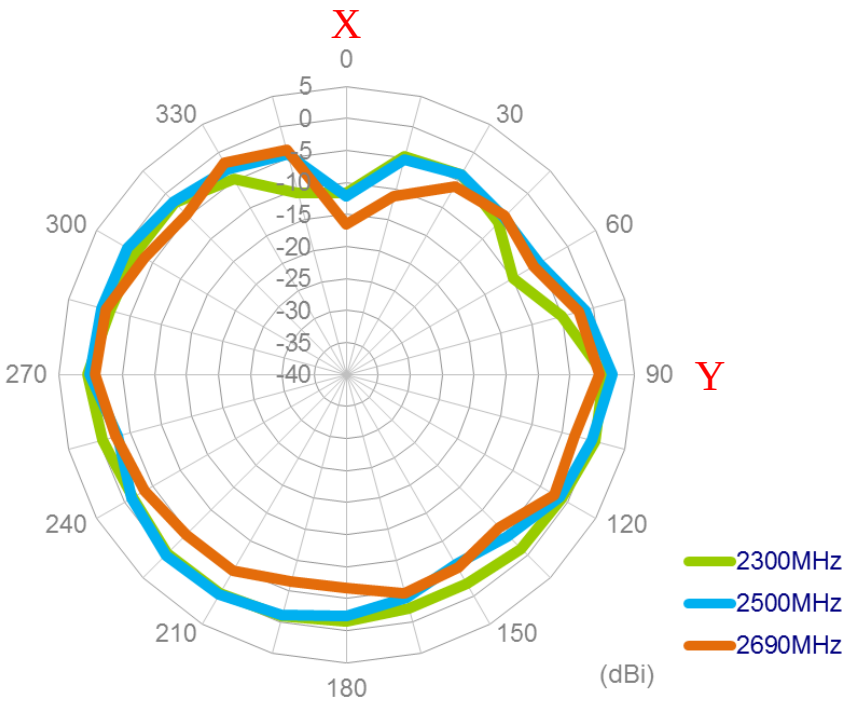
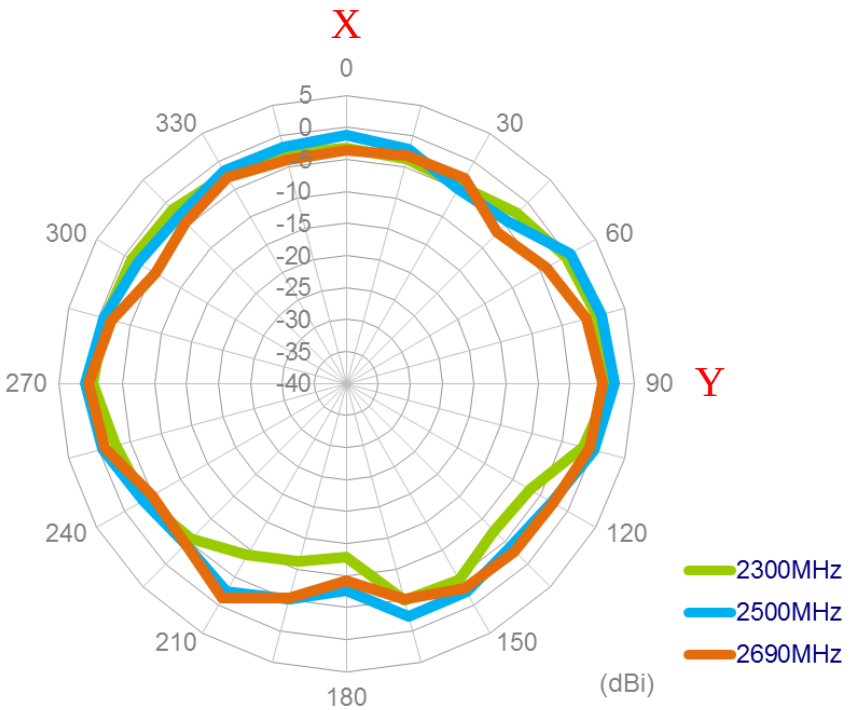


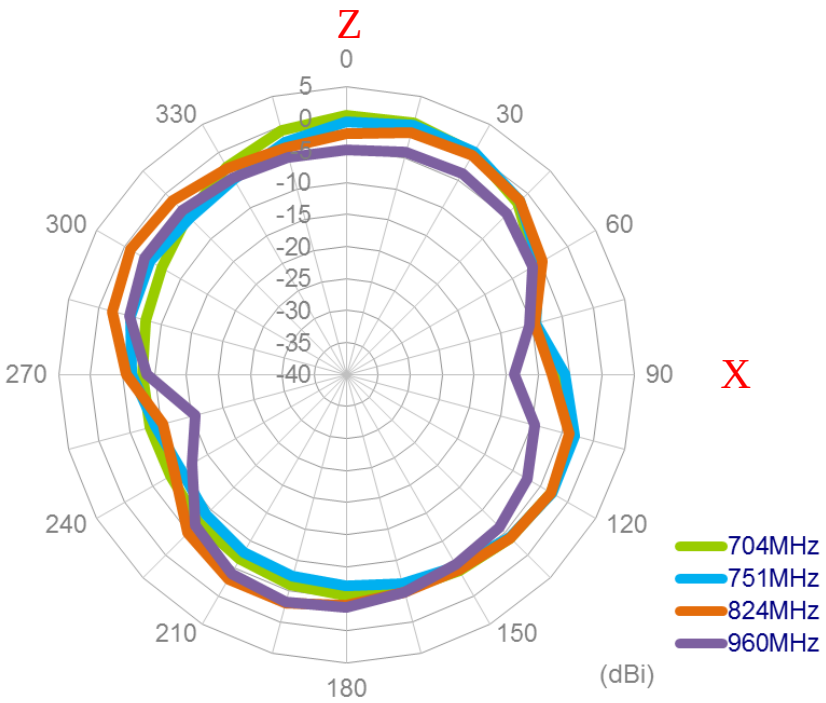
## X-Y plane MIMO 1 (2300MHz~2700MHz)



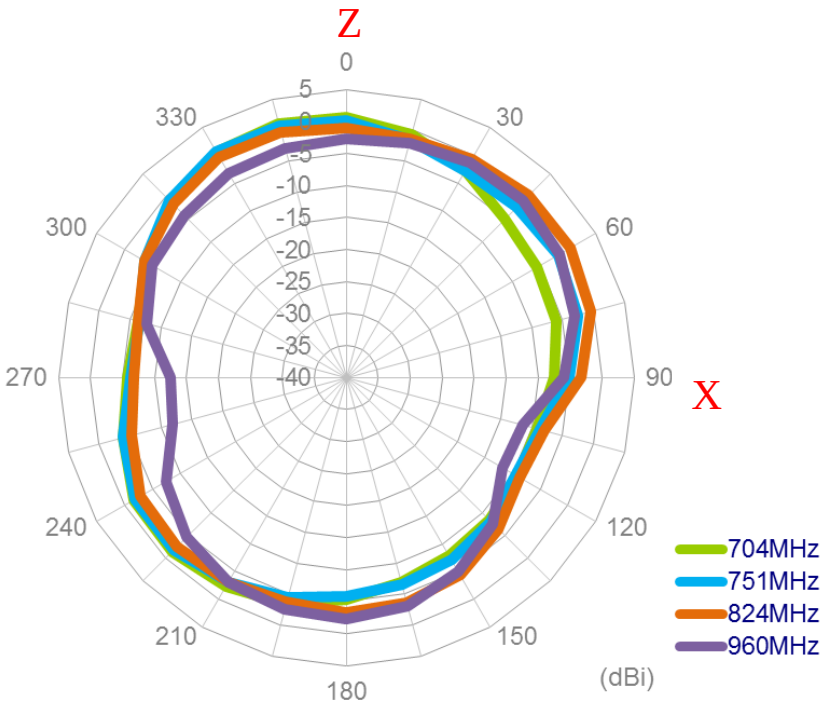

## X-Y plane MIMO 2 (2300MHz~2700MHz)



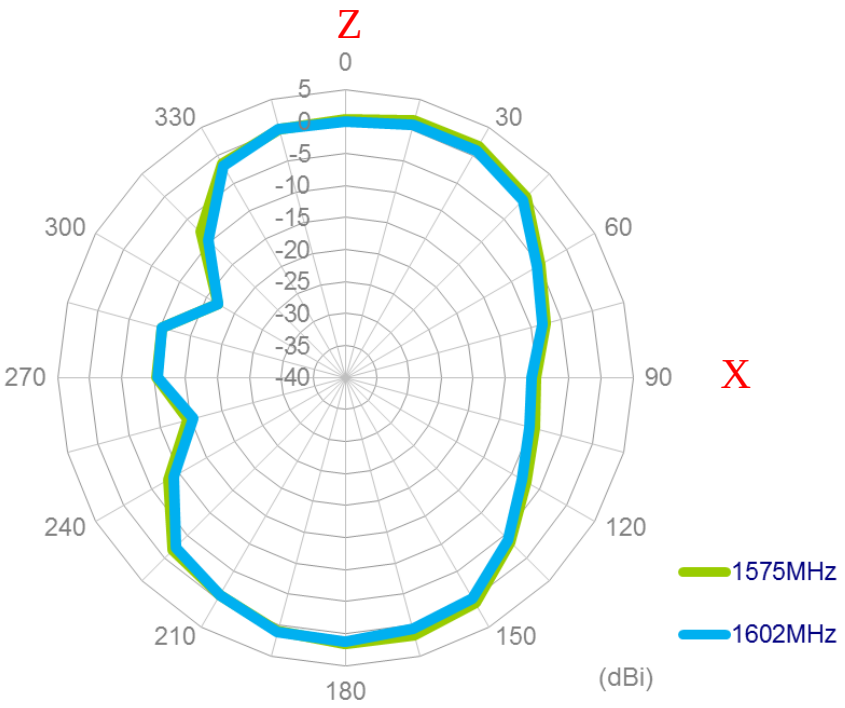
## X-Z plane MIMO 1 (704MHz~960MHz)



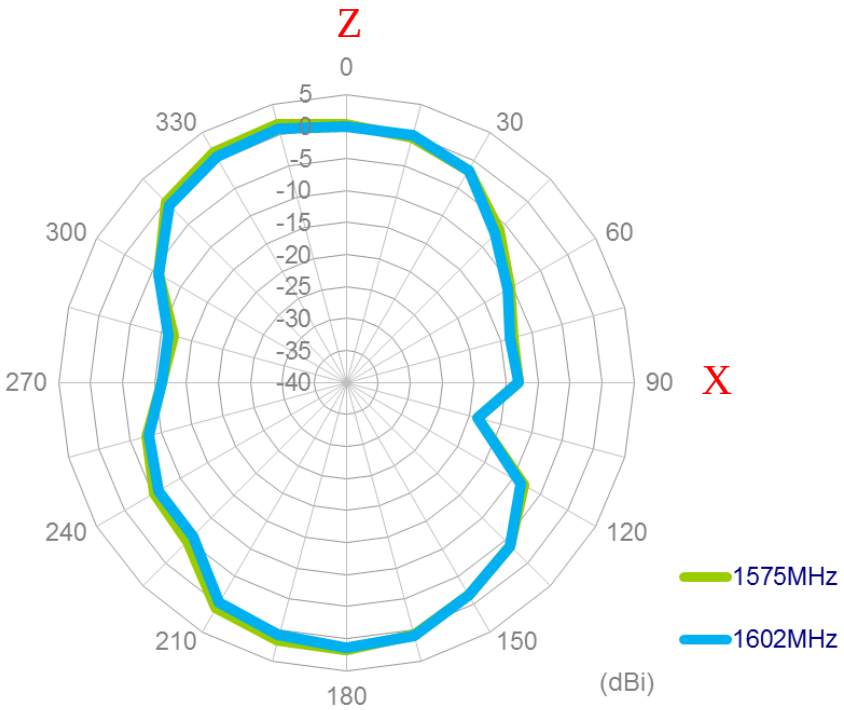

## X-Z plane MIMO 2 (704MHz~960MHz)



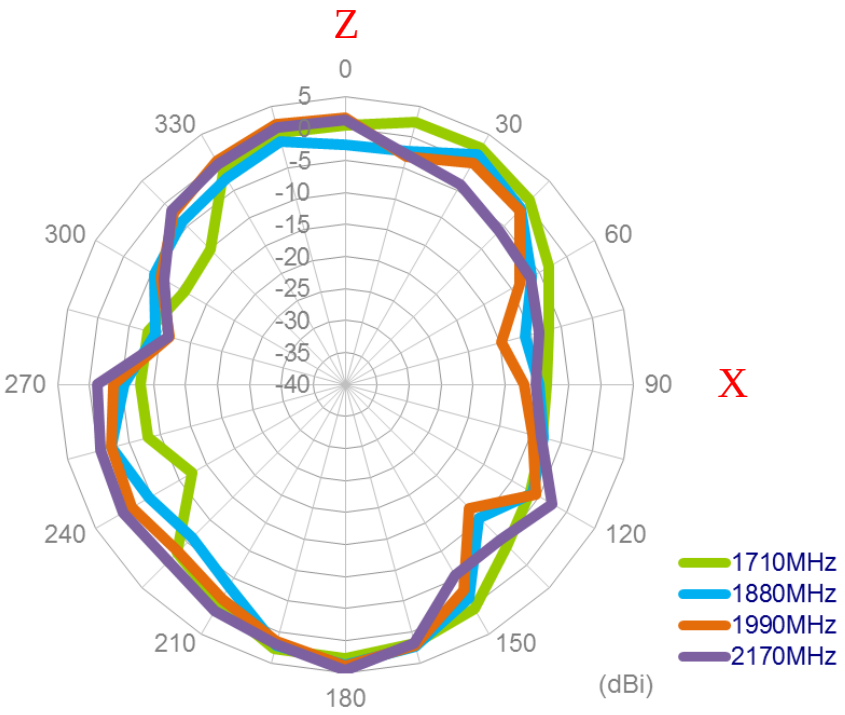
## X-Z plane MIMO 1 (1575MHz/1602MHz)




## X-Z plane MIMO 2 (1575MHz/1602MHz)



## X-Z plane MIMO 1 (1710MHz/2170MHz)

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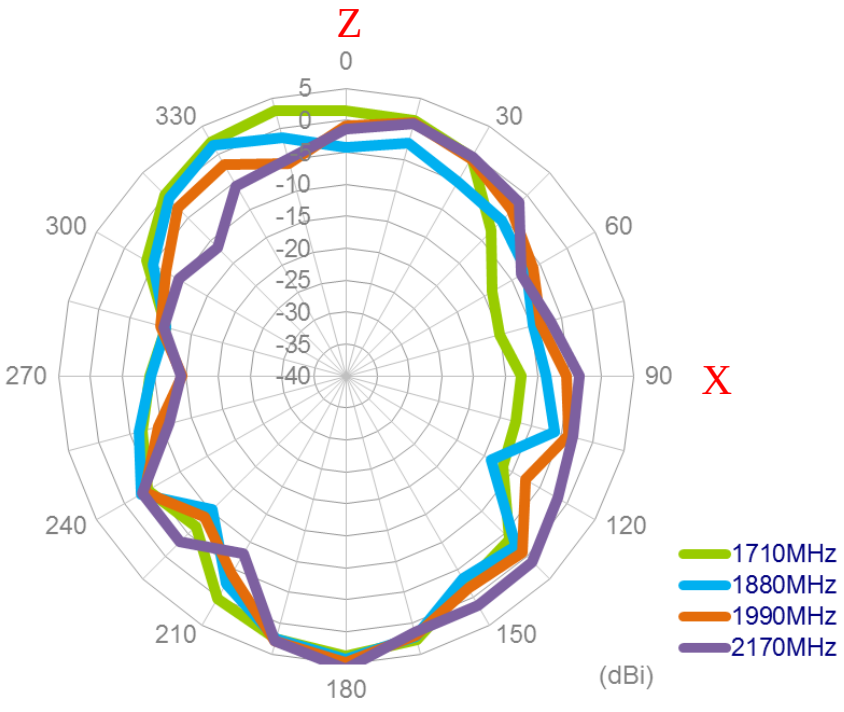

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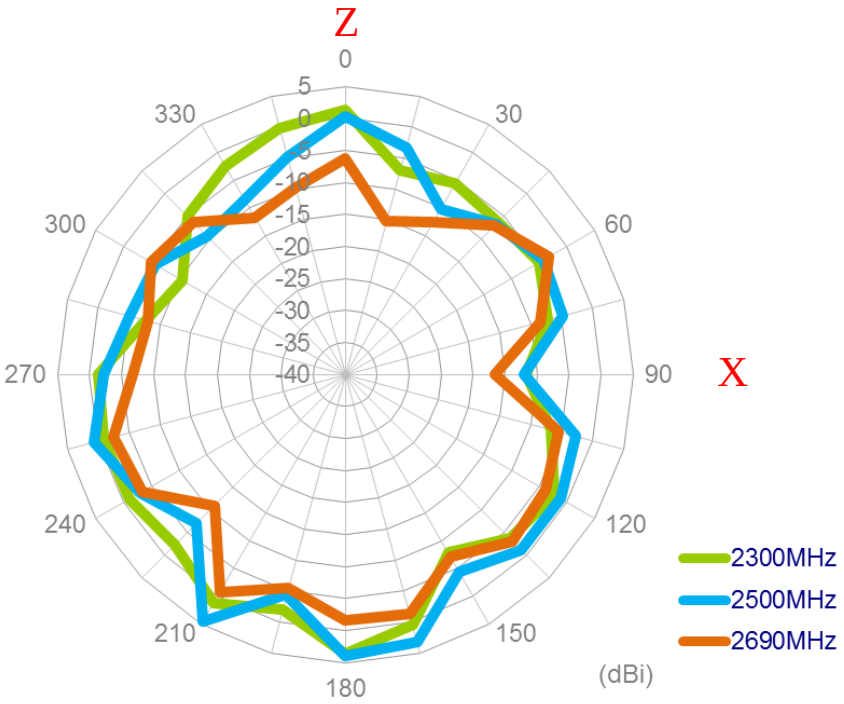
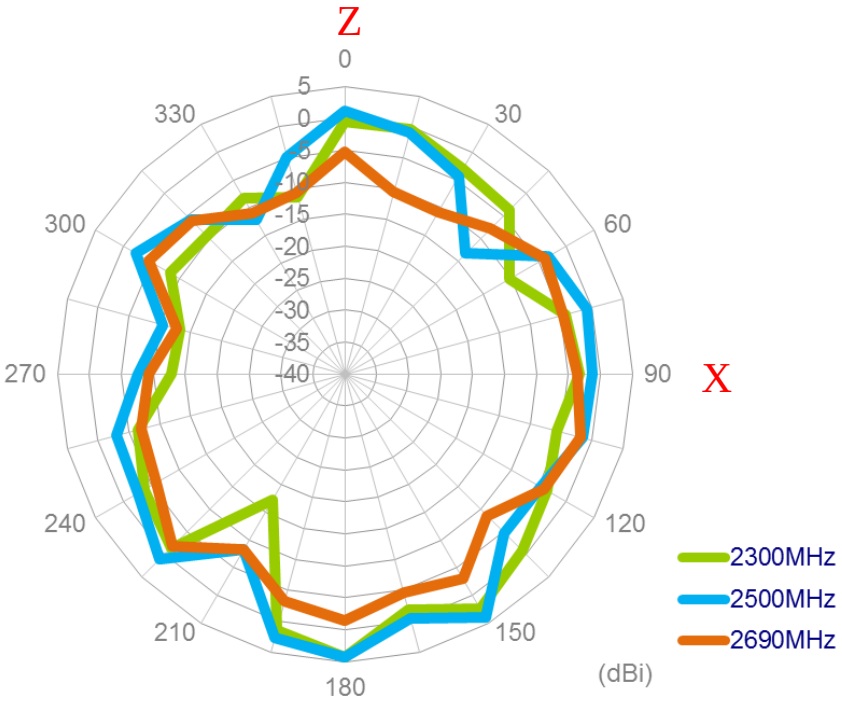
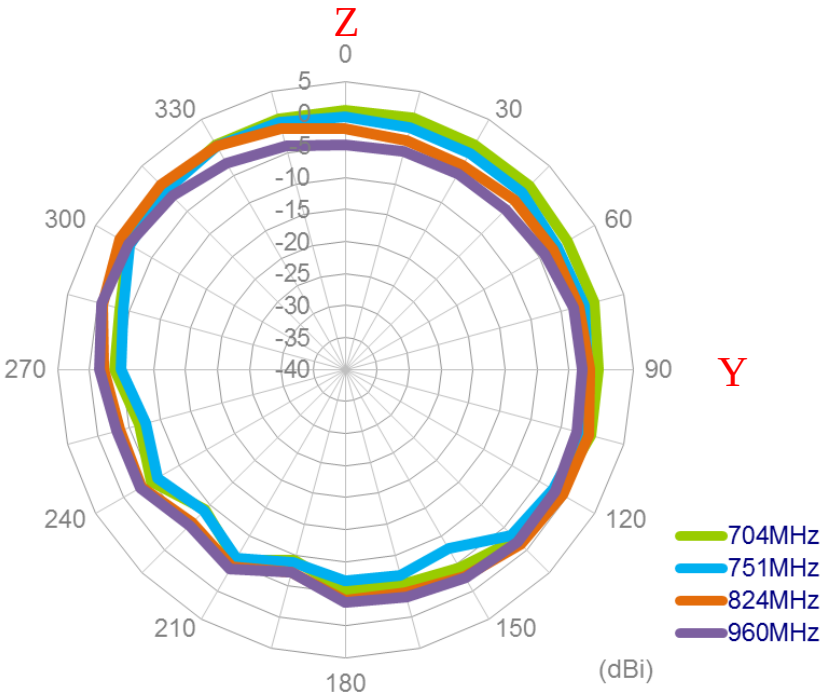


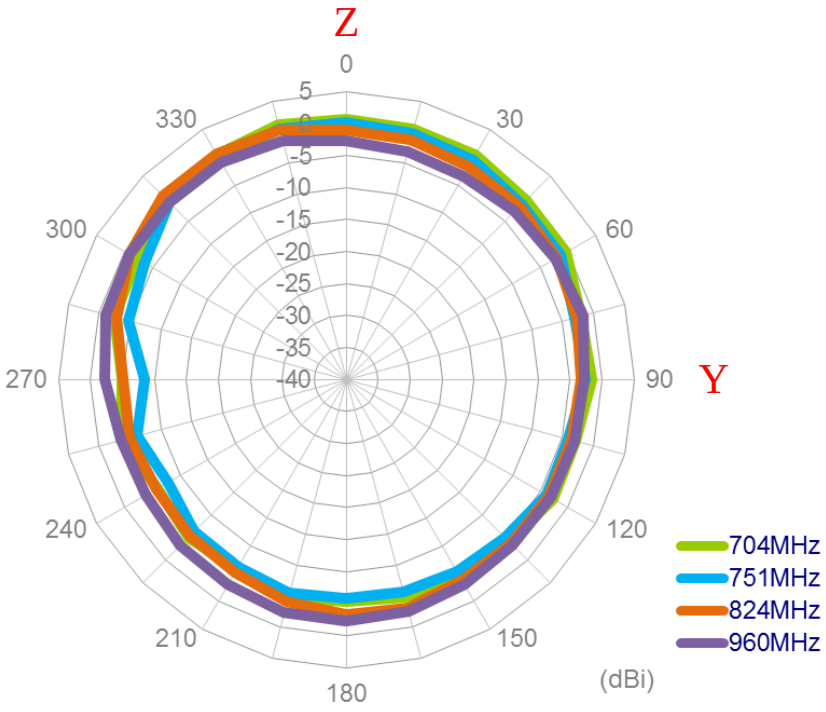

## X-Z plane MIMO 2 (2300MHz~2700MHz)



## Y-Z plane MIMO 1 (704MHz~960MHz)




## Y-Z plane MIMO 2 (704MHz~960MHz)



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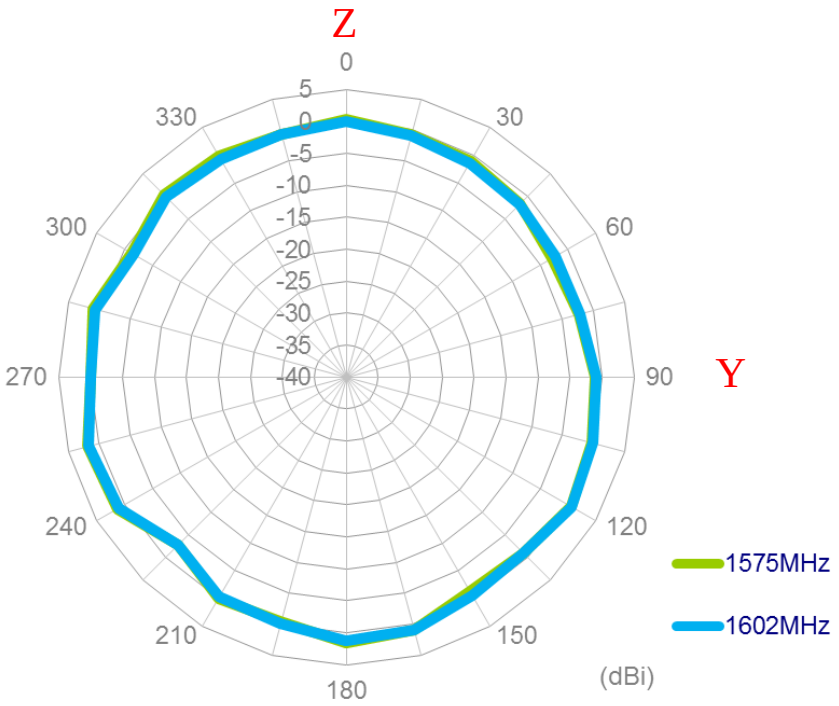


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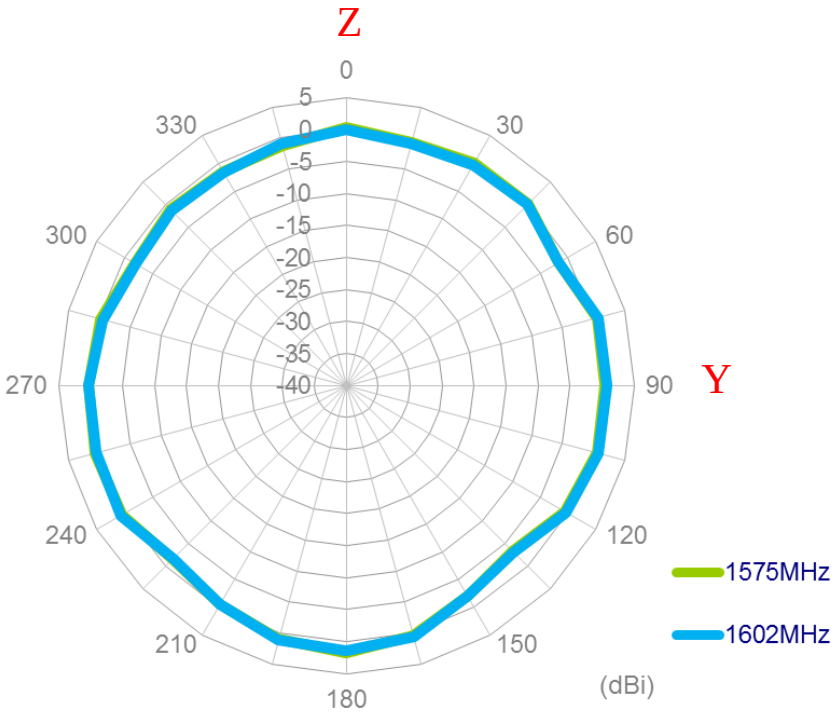
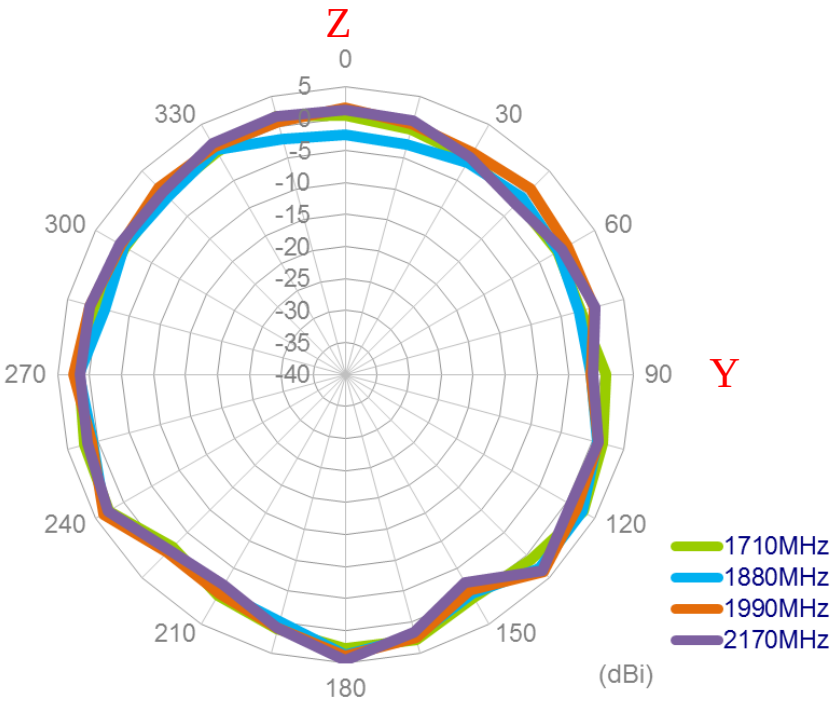
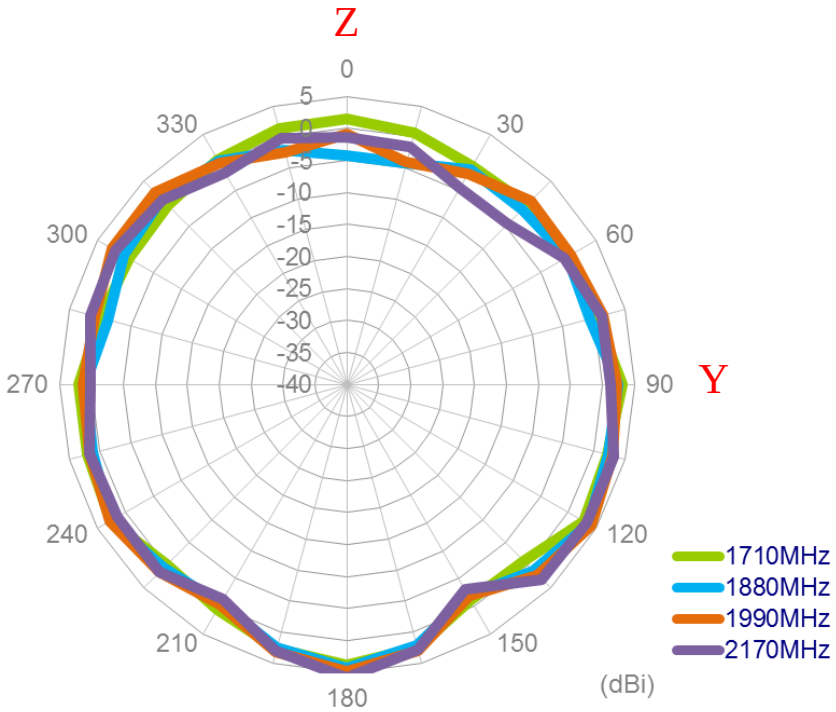


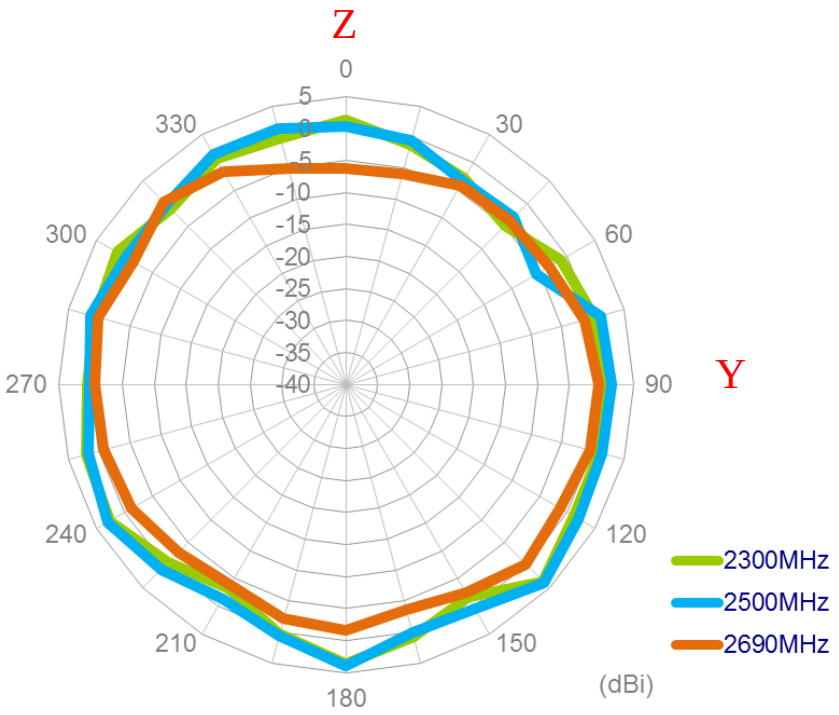
## Y-Z plane MIMO 1 (1710MHz/2170MHz)




## Y-Z plane MIMO 2 (1710MHz/2170MHz)



## Y-Z plane MIMO 1 (2300MHz~2700MHz)

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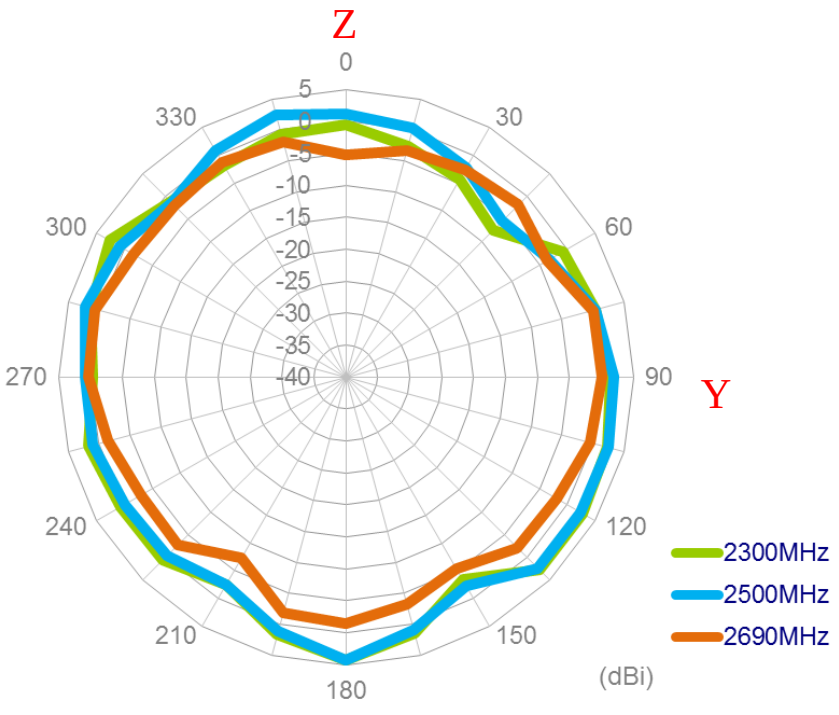
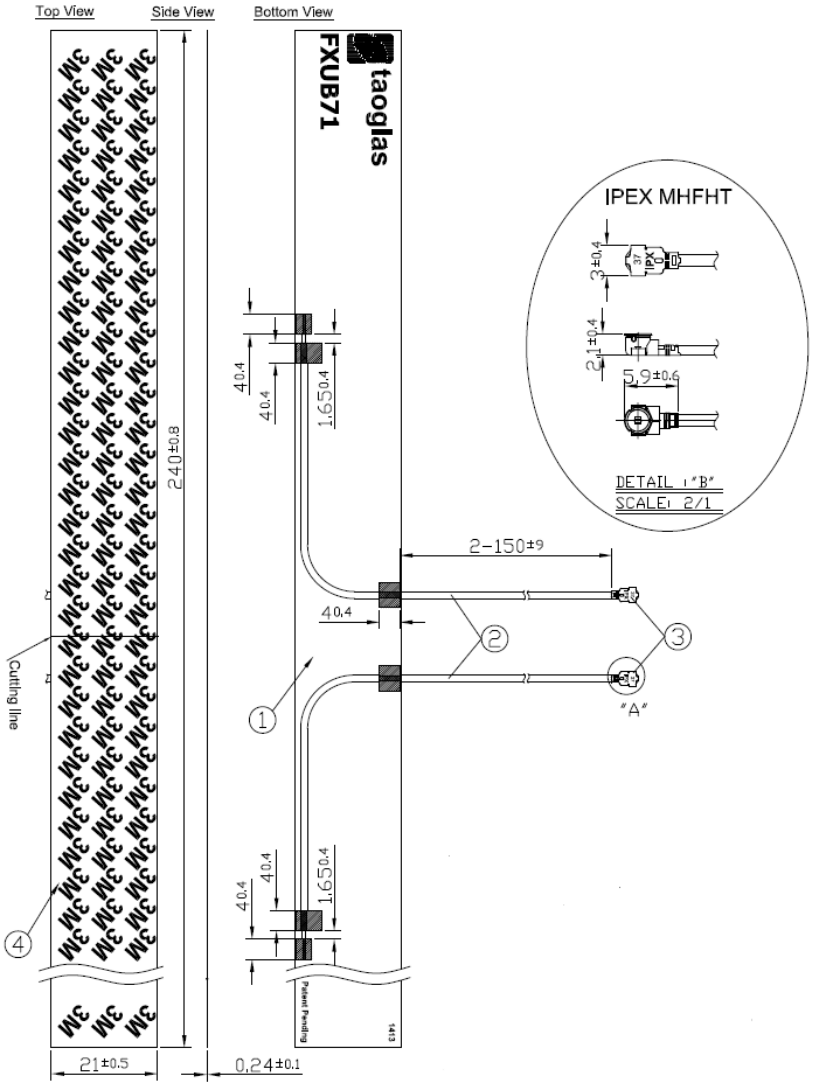


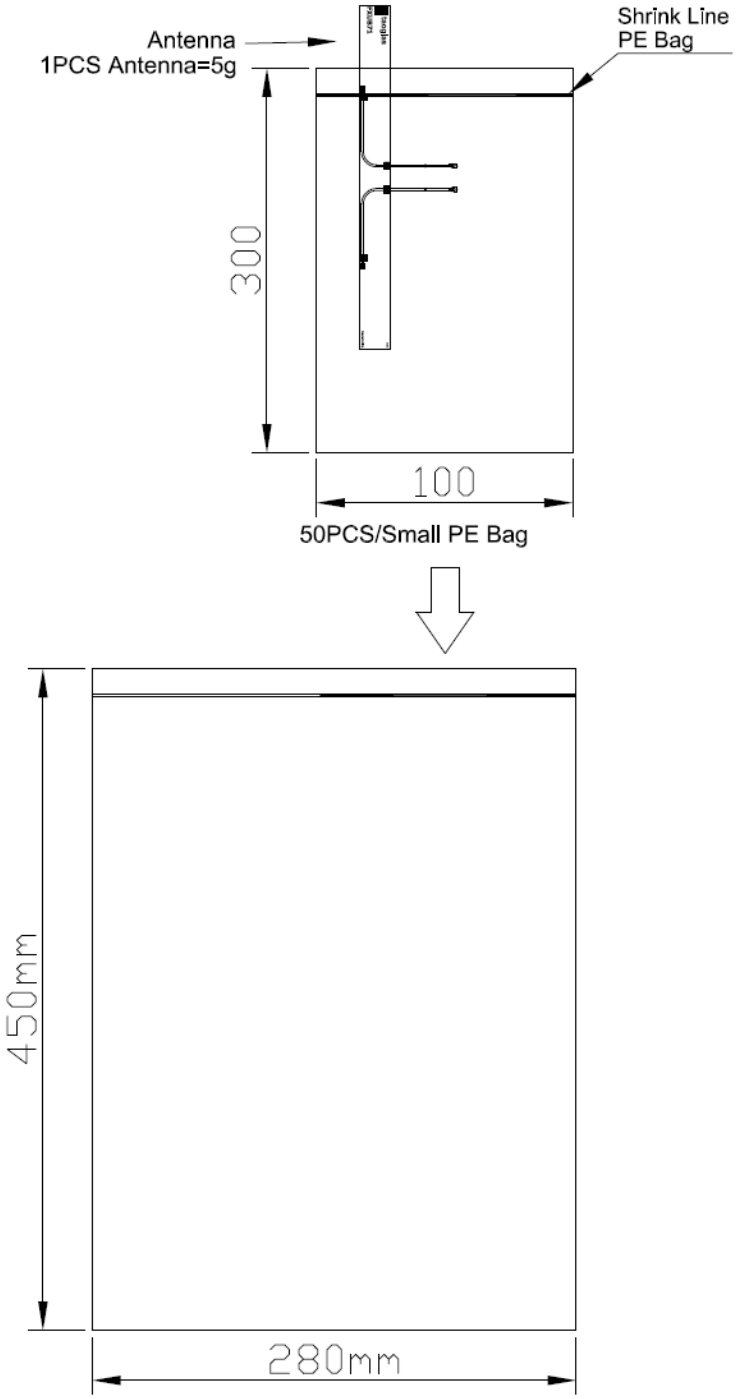
# 5. DRAWING




| | Name | Material | Finish | QTY |
|---|---|---|---|---|
| 1 | FXUB71 FPCB | FPCB 0.15t | Black | 1 |
| 2 | 1.37 Mini-Coaxial Cable | FEP | Black | 2 |
| 3 | IPEX MHFHT | Brass | Gold | 2 |
| 4 | Double-Sided Adhesive | 3M 467 | Liner | 1 |

# 6. PACKAGING

Package:




10 Small PE Bag / Bag PE Bag =500 PCS Antenna