

# APPROVAL SHEET

**Metal Antenna**

**2.4/5.x GHz Working Frequency**

**P/N: RFMTA170900NNLB003**

Customer : Sichuan AI-Link Technology Co.,Ltd.

Customer 's Part No. :

Approval No. :

Issue Date :

| Version | Date         | Description | Author |
|---------|--------------|-------------|--------|
| V01     | 2020<br>Feb. | New Release | HWCHAN |
|         |              |             |        |
|         |              |             |        |
|         |              |             |        |
|         |              |             |        |
|         |              |             |        |

## ELECTRICAL CHARACTERISTICS

| Item                    | Specification                                          |
|-------------------------|--------------------------------------------------------|
| Working Frequency Range | 2.4 ~ 2.5 / 5.15 ~ 5.85 GHz (Note-1)                   |
| Return Loss             | -10dB(Max)                                             |
| Peak Gain               | 3.68 dBi(@2.4 ~ 2.5 GHz)<br>2.88 dBi(@5.15 ~ 5.85 GHz) |
| VSWR                    | < 2.0                                                  |
| Polarization            | Linear Vertical                                        |
| Admitted Power          | 1W                                                     |
| Operation Temperature   | -20°C ~ +65°C                                          |

\*Note 1. Central Frequency should be defined after customers' application approval.

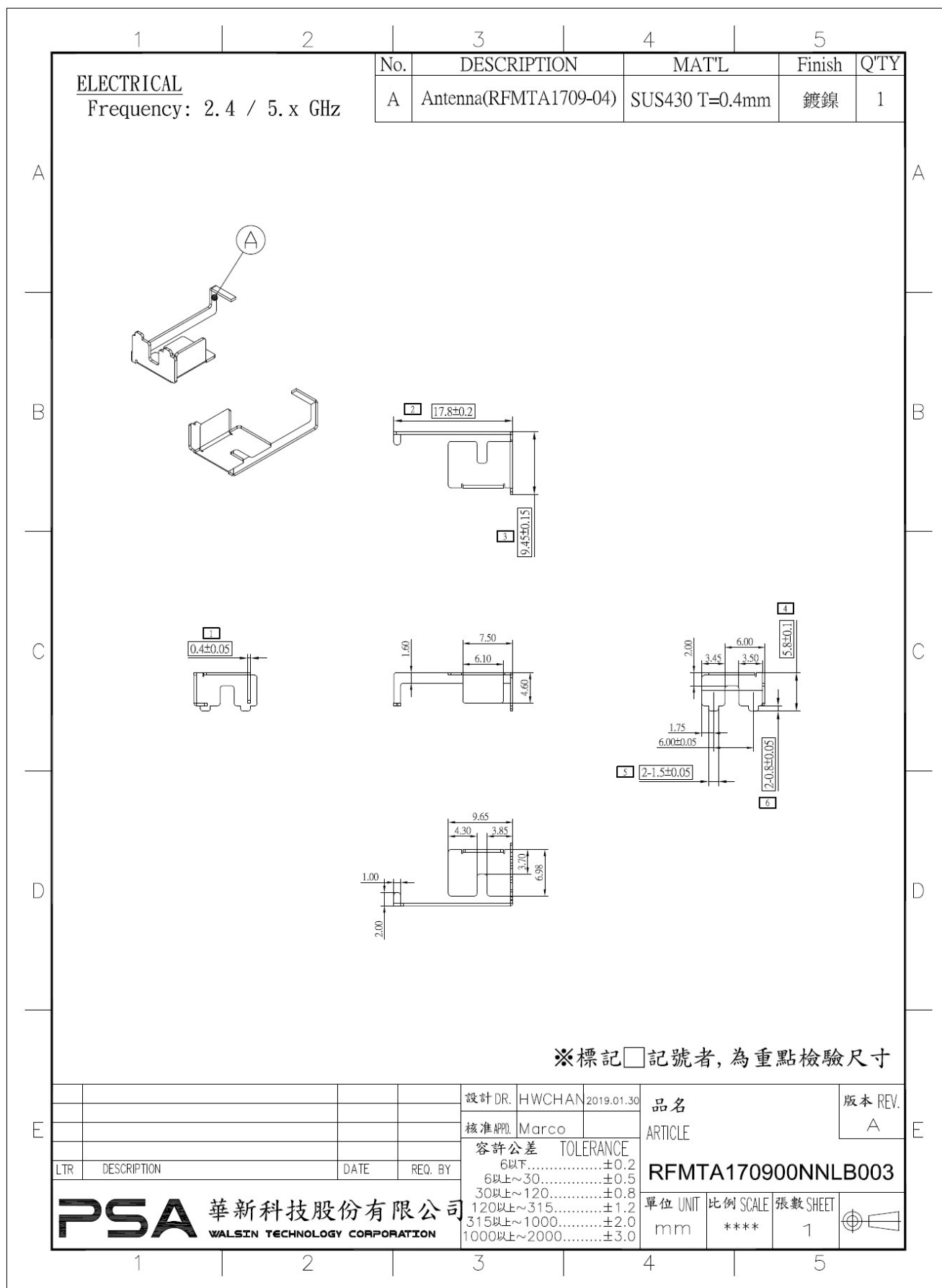
## MATERIAL TABLE

| Items | Description         |
|-------|---------------------|
| Metal | SUS 430 T=0.4mm(鍍鎳) |

## ORDERING RULE

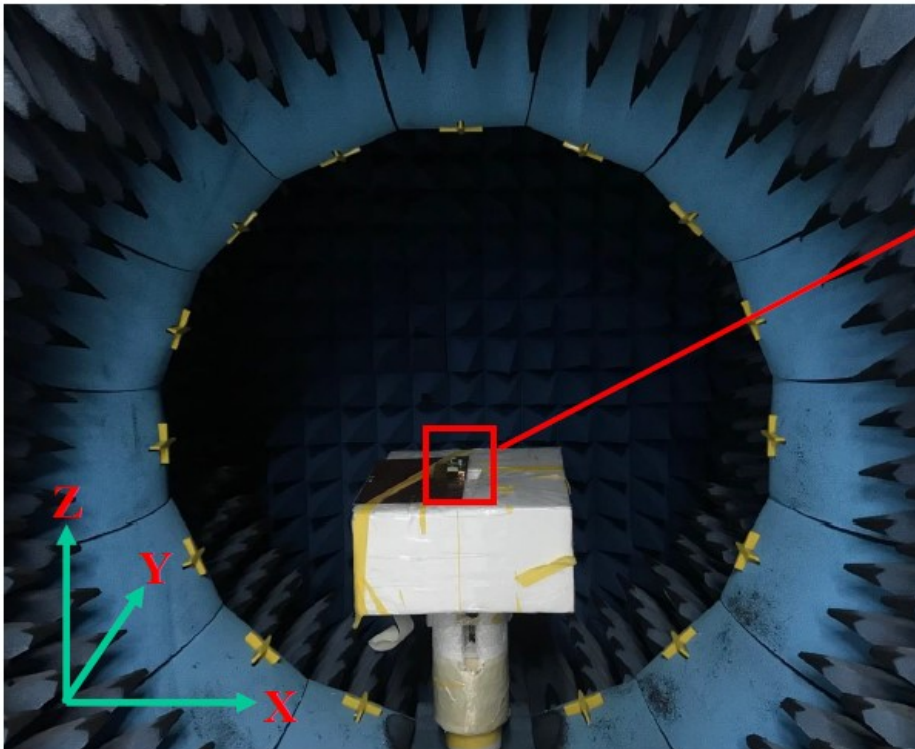
| RF               | MTA           | 1709                                                                     | 00                                               | N                                                                                                                                         | N                                                                       | L                                                                                                                                                                        | B                                      | 0                                                                                                                                                                                                                               | 03                  |
|------------------|---------------|--------------------------------------------------------------------------|--------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| Type Code        | Product Code  | Metal Dimension (Unit: mm)                                               | Cable Length (unit: cm)                          | Connector Brand                                                                                                                           | Type of Connector                                                       | Application                                                                                                                                                              | Project status                         | Wire Diameter                                                                                                                                                                                                                   | Project             |
| Walsin RF Device | Metal Antenna | Per 2 digits of length, width<br>e.g.: 1709 Length 17.80mm, Width 9.45mm | 2 digits for cable length<br>e.g.: 00 None Cable | A: N<br>C: MCX<br>D: IPEX III<br>E: IPEX IV<br>F: IPEX A13<br>H: Hirose<br>I: IPEX<br>M: MMCX<br>S: SMA<br>T: TNC<br>U: MURATA<br>N: None | A: Reverse Female<br>B: Reverse Male<br>F: Female<br>M: Male<br>N: None | 0: 0GHz<br>3: 3GHz<br>6: 6GHz<br>A: 2.4GHz ISM band<br>B: GSM 900/1800 dual band<br>G: GPS band<br>L: 2.4/5.2/5.8 GHz tri-band<br>N: NFC<br>T: LTE band<br>W: WCDMA band | B: MP<br>T: During Test<br>X: Pile Run | 0: None<br>1: $\varnothing$ 0.81<br>2: $\varnothing$ 1.32<br>3: $\varnothing$ 1.13<br>4: Low Loss $\varnothing$ 1.13<br>5: $\varnothing$ 0.5<br>6: RG316<br>7: $\varnothing$ 1.37<br>8: RG178<br>9: Low Loss $\varnothing$ 1.37 | 01~99 series number |

## DIMENSIONS

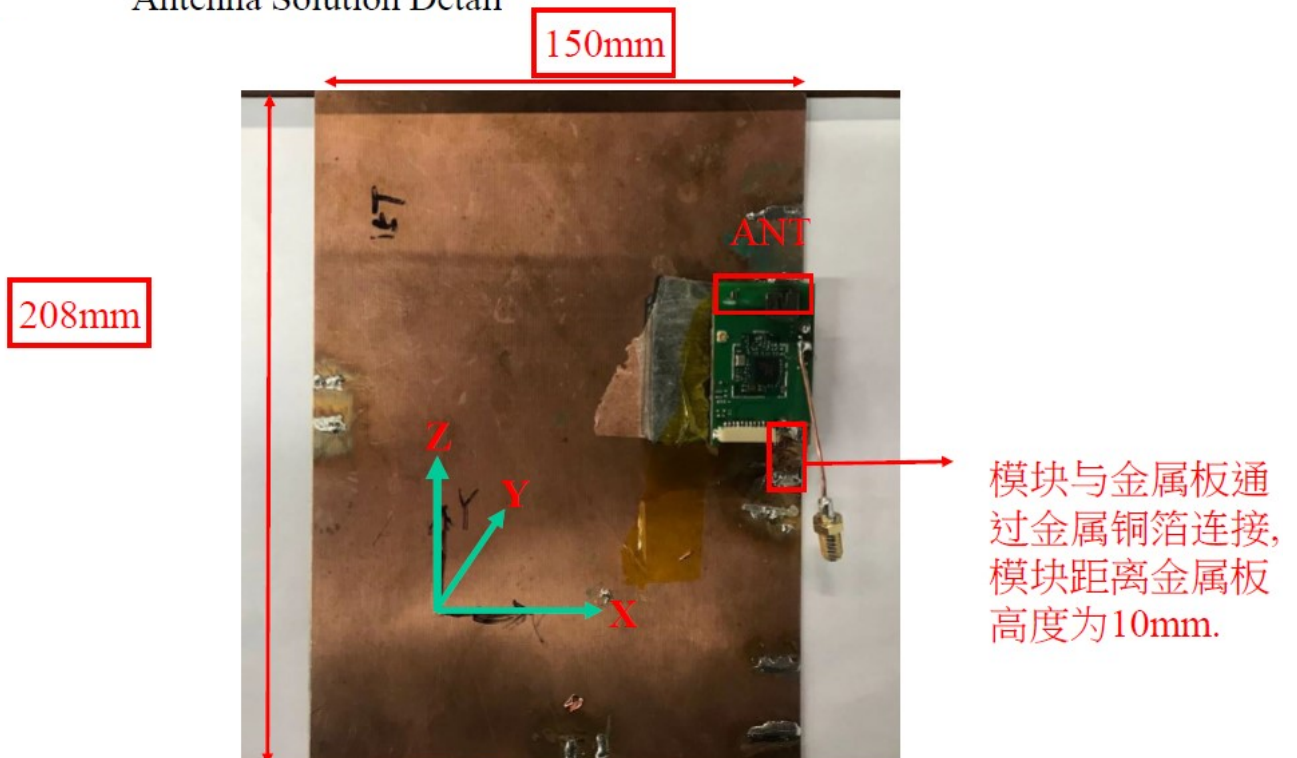


# Test Report

## Experimental Setup

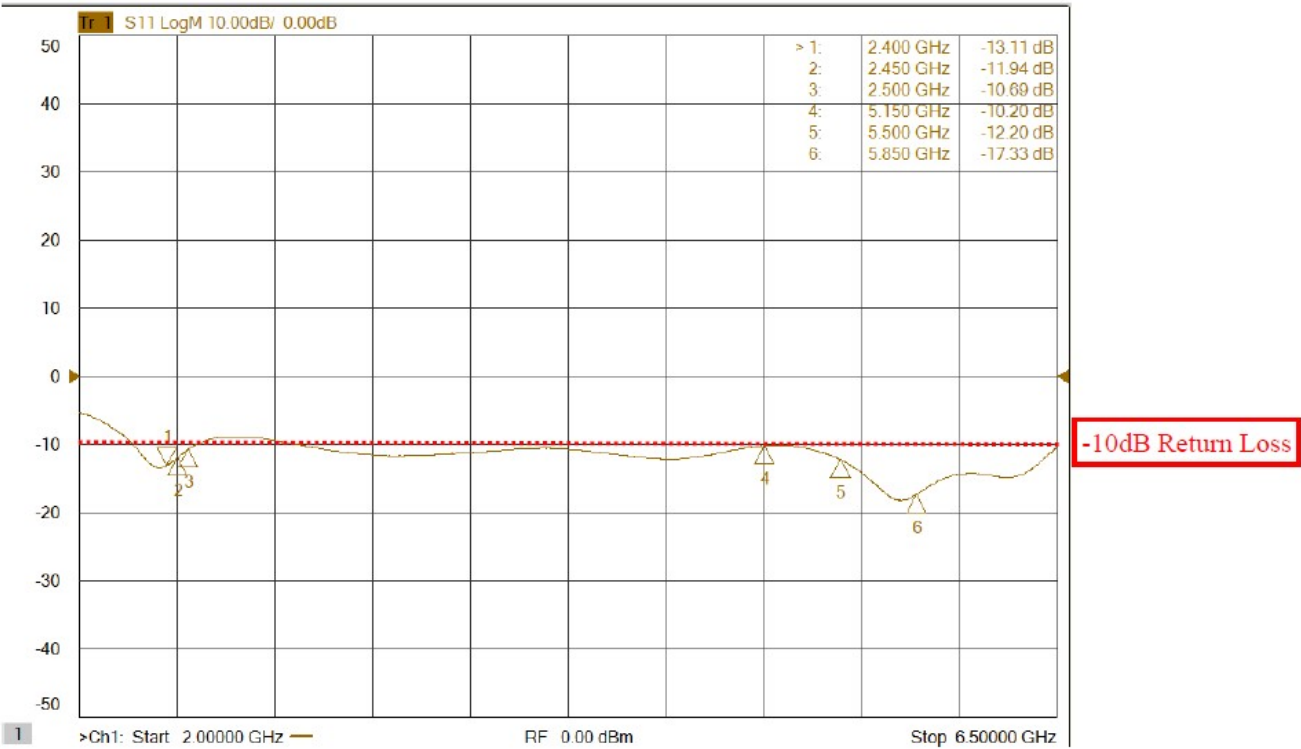


Antenna Solution Detail



ELECTRICAL CHARACTERISTICS

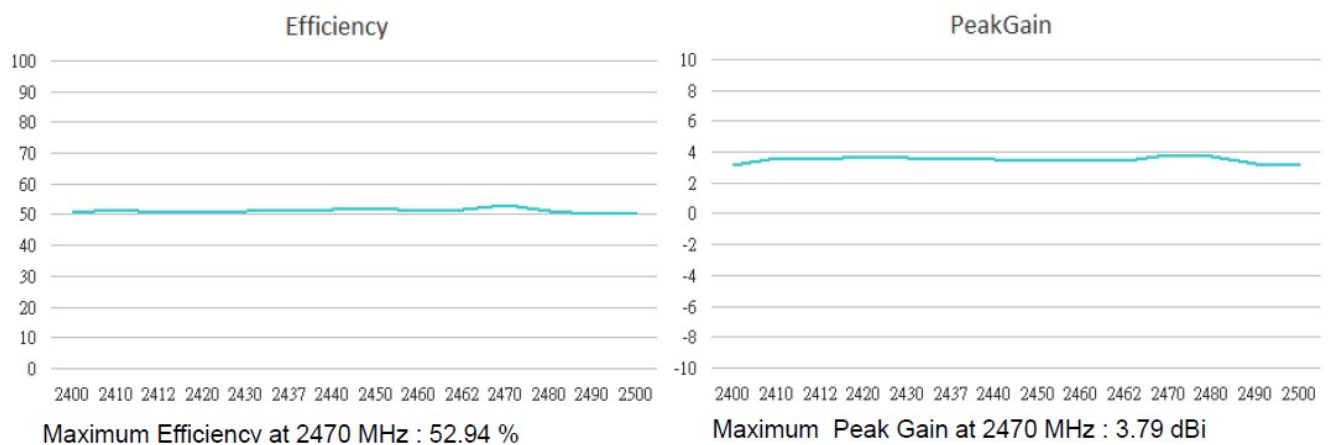
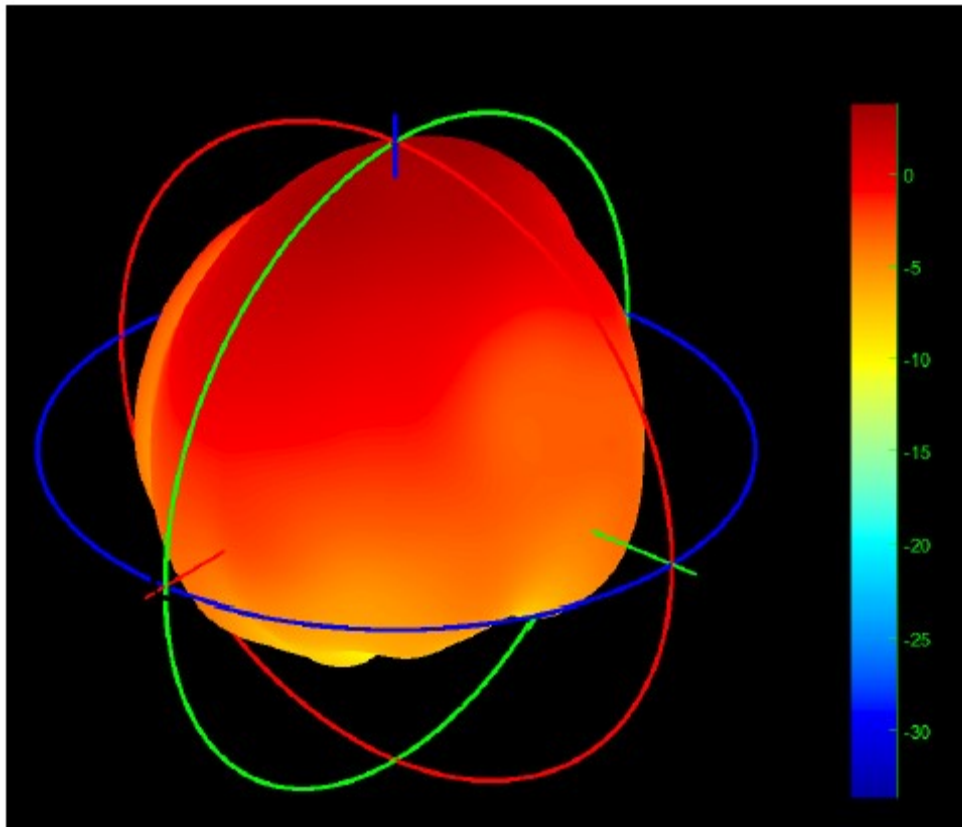
Return Loss



## ■ Antenna Efficiency and Peak Gain

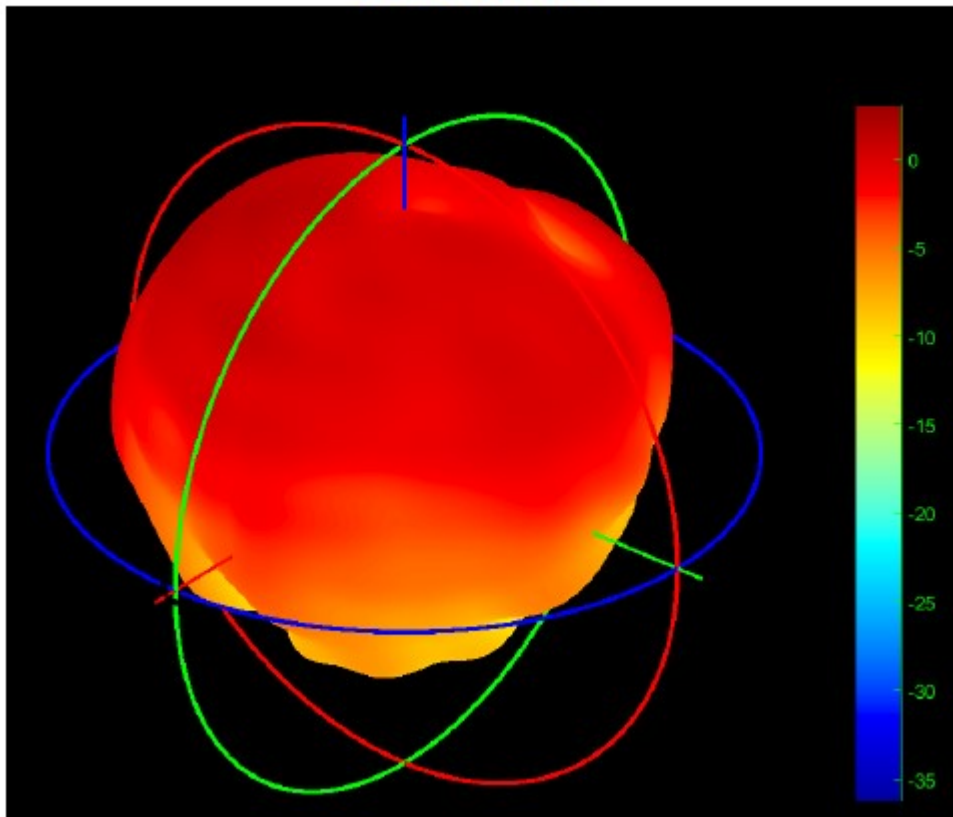
ANTENNA\_2G

2450 MHz

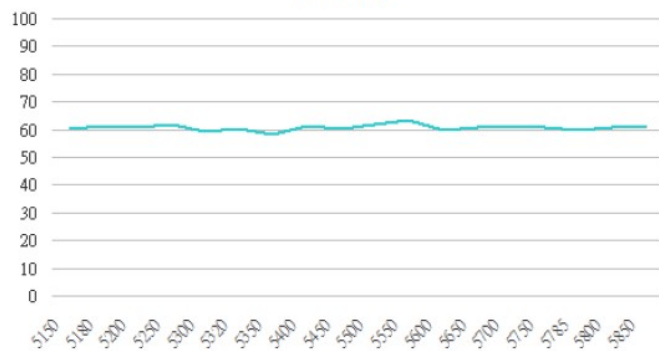


## ANTENNA\_5G

5500 MHz

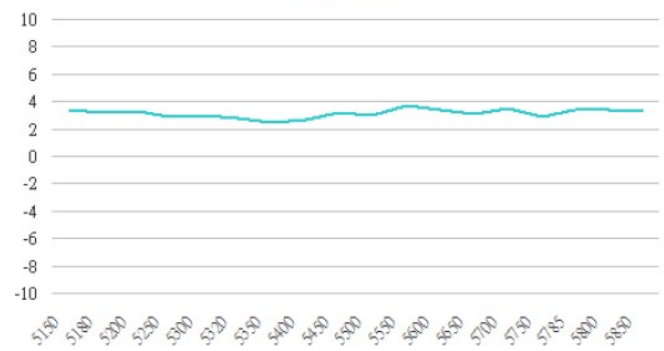


Efficiency



Maximum Efficiency at 5550 MHz : 63.53 %

PeakGain



Maximum Peak Gain at 5550 MHz : 3.68 dBi

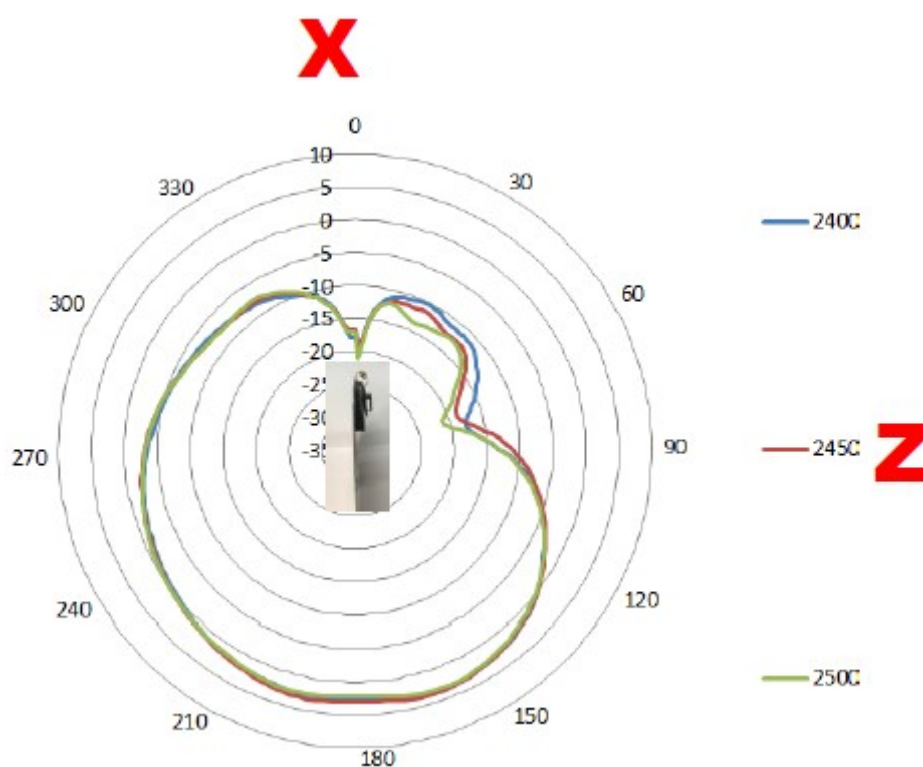
## ■ RADIATION PATTERN

## ANTENNA\_2G

X-Z Plane

Phi=0.00deg

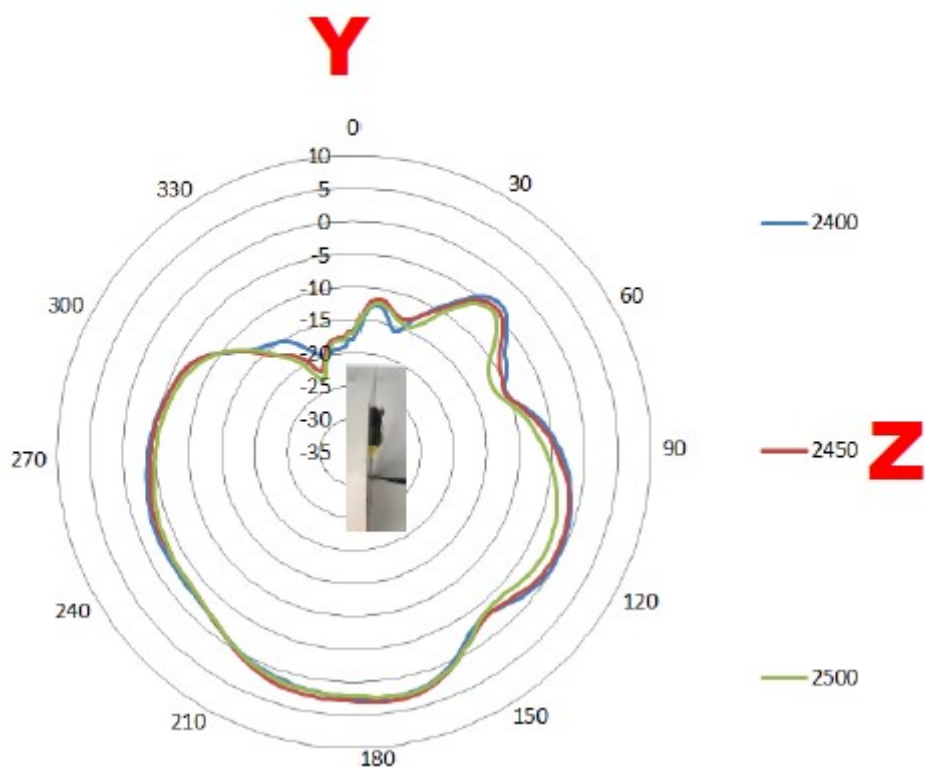
Gain . dB



## Y-Z Plane

Phi=90.00deg

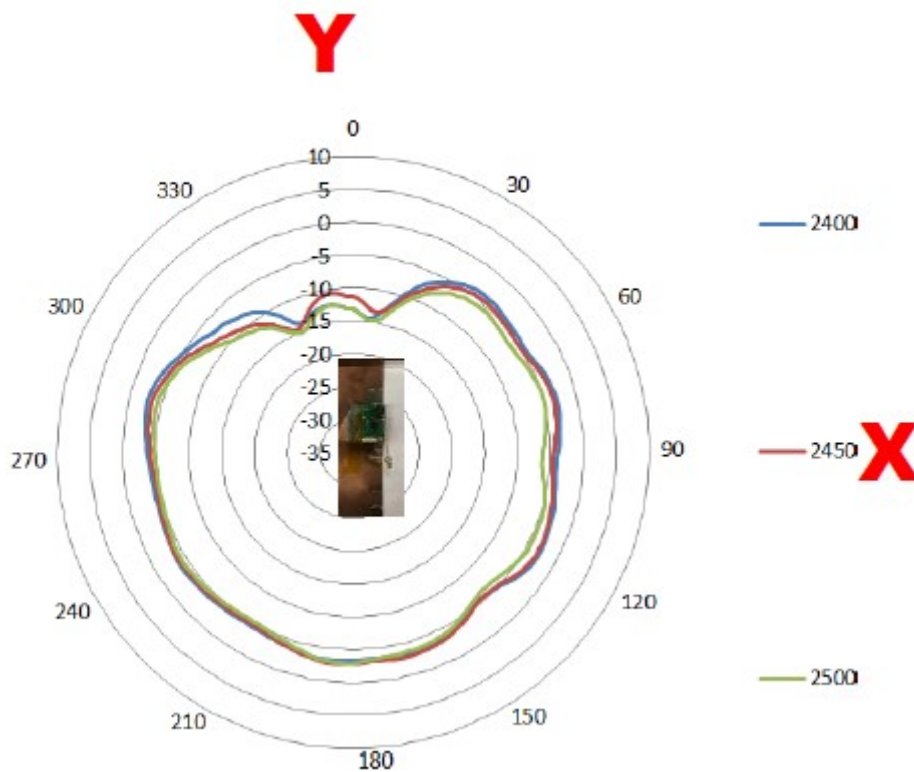
Gain . dB



## X-Y Plane

Theta=90.00deg

Gain . dB



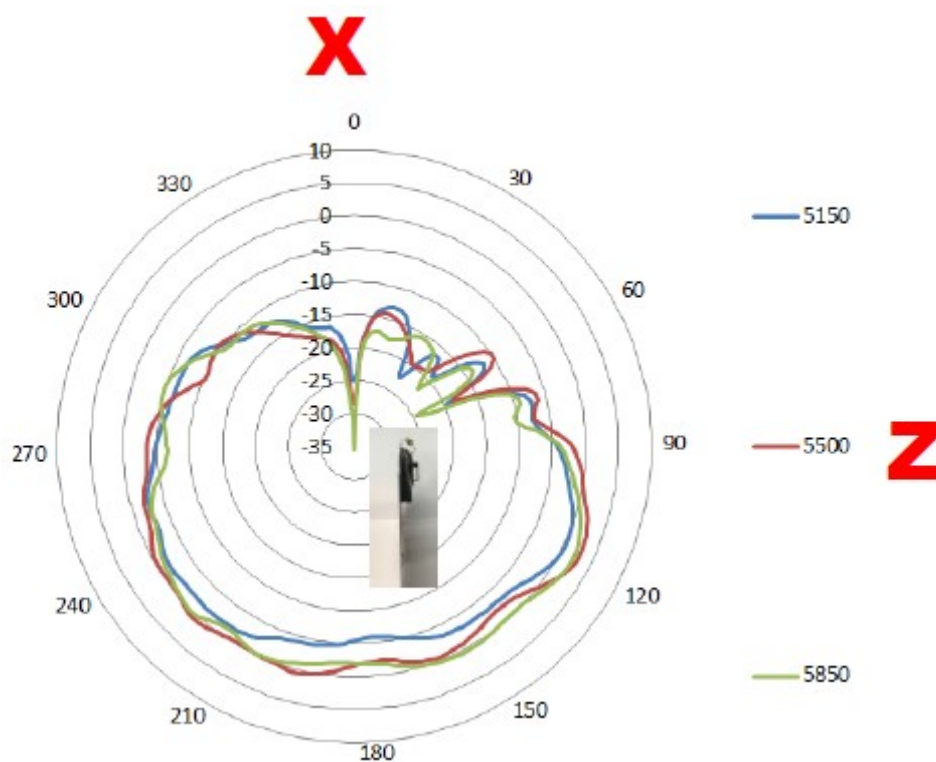
|                 | ZX plane       |              | ZY plane       |              | XY plane       |              |
|-----------------|----------------|--------------|----------------|--------------|----------------|--------------|
| Frequency [MHz] | Max Value [dB] | Average [dB] | Max Value [dB] | Average [dB] | Max Value [dB] | Average [dB] |
| 2400            | 3.57           | -1.78        | 2.75           | -2.71        | -2.69          | -4.61        |
| 2450            | 3.68           | -1.56        | 3.25           | -2.59        | -2.73          | -4.90        |
| 2500            | 3.25           | -1.91        | 2.67           | -3.27        | -2.91          | -5.73        |

# ANTENNA\_5G

X-Z Plane

Phi=0.00deg

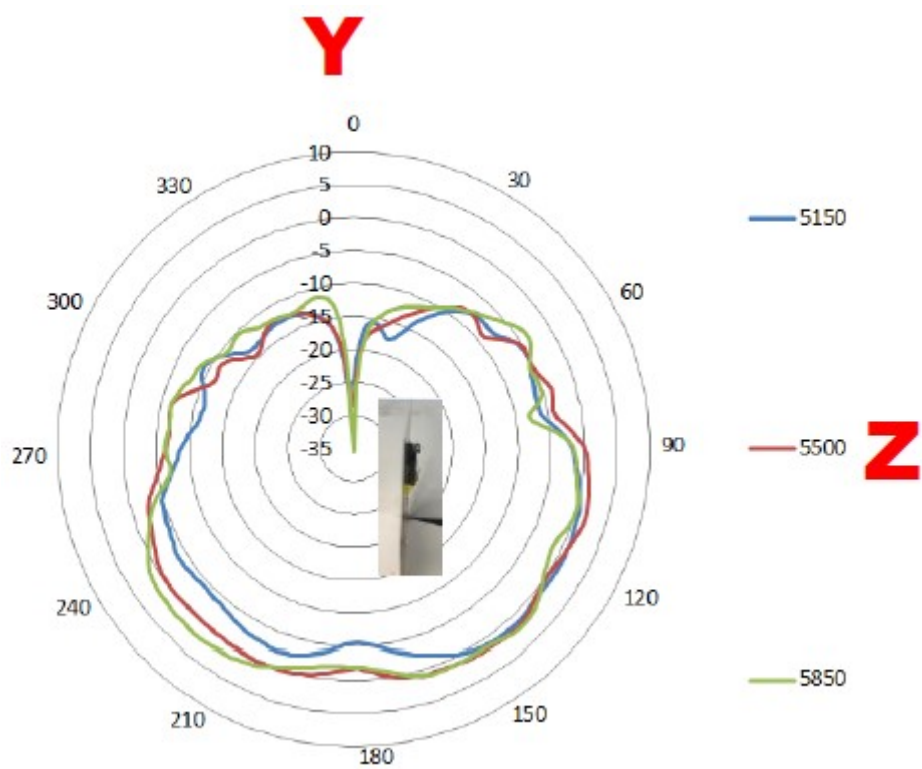
Gain . dB



## Y-Z Plane

Phi=90.00deg

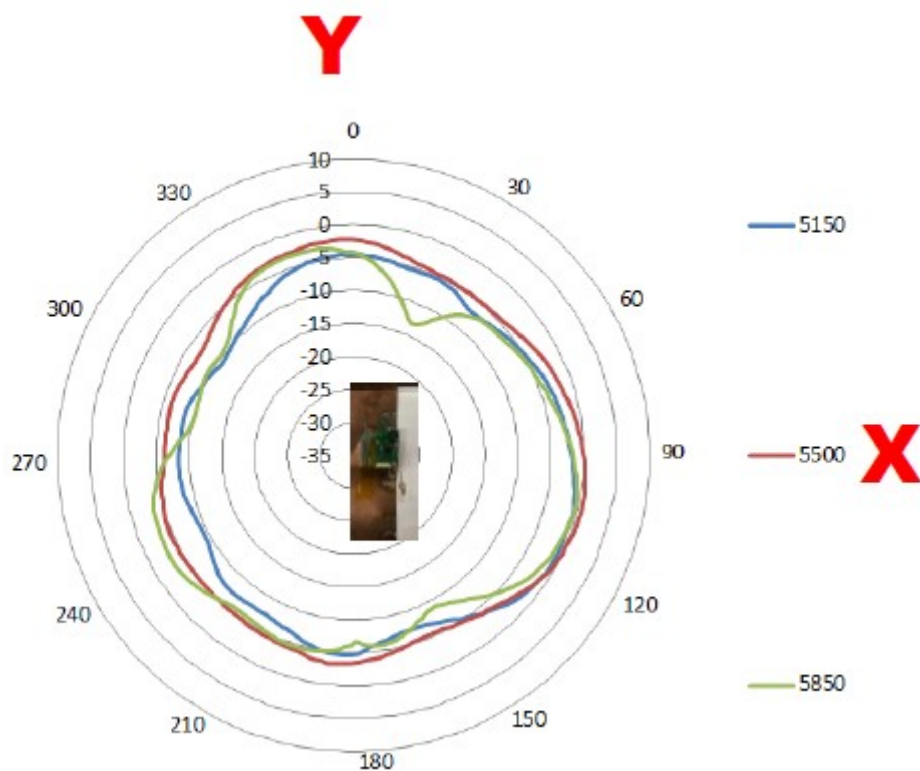
Gain . dB



## X-Y Plane

Theta=90.00deg

Gain . dB



|                 | ZX plane       |              | ZY plane       |              | XY plane       |              |
|-----------------|----------------|--------------|----------------|--------------|----------------|--------------|
| Frequency [MHz] | Max Value [dB] | Average [dB] | Max Value [dB] | Average [dB] | Max Value [dB] | Average [dB] |
| 5150            | 0.37           | -14.93       | 1.24           | -13.98       | -0.54          | -15.05       |
| 5500            | 2.88           | -12.86       | 1.87           | -12.30       | 0.65           | -13.31       |
| 5850            | 2.25           | -13.19       | 2.18           | -12.27       | -0.38          | -14.79       |