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# MA01 Antenna

| LUXSHARE-ICT TEAM |                 |           |                   |            |           |
|-------------------|-----------------|-----------|-------------------|------------|-----------|
| Checked by        | Name            | Signature | Approved by       | Name       | Signature |
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## REVISION AND UPDATES

| REV                                     | ECN NO. | DESCRIPTION                                | DATE       | BY          |
|-----------------------------------------|---------|--------------------------------------------|------------|-------------|
| MA01                                    |         | Approval Sheet for Microsoft, Project MA01 | 2020-08-31 | Chenlapeng. |
| <b>Customer's Product Specification</b> |         |                                            |            |             |
| <b>Customer:</b> Incase                 |         |                                            |            |             |
| <b>PRODUCT NAME:</b> MA01               |         |                                            |            |             |
| <b>MODEL NO:</b>                        |         |                                            |            |             |
| <b>PART NO:</b> RDNI 908269-001         |         |                                            |            |             |
| <b>REV.:</b> A                          |         |                                            |            |             |

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## Antenna Product Description

This document is issued to describe the specification for MA01 MS Dongle BT ANT.

### 1.1 Antenna Part Number

The antenna part number is RDNI 908269-001

### 1.2 Antenna Picture

The Antenna picture is shown below

### 1.3 Antenna Device Picture

The antenna device picture is shown below

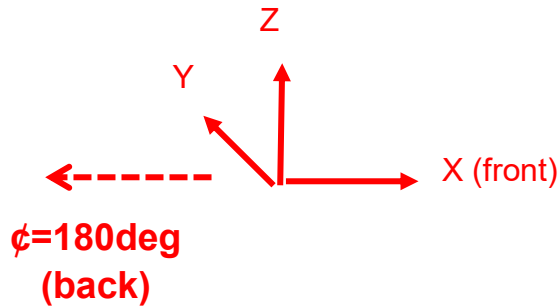
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## 2 ELECTRICAL PERFORMANCE

### 2.1 Electrical Measurement Environment

#### 2.1.1 VSWR and Return Loss

The VSWR and Return Loss measurement (S11) is performed by using Agilent ENA Series Vector Network Analyzer and previously described device fixture. This measurement is taken in free space.

#### 2.1.2 Efficiency Gain and TRP/TIS

The efficiency, gain and TRP/TIS data were measured in LUXSHARE-ICT's 3D Anechoic Chamber. Our chambers are capable of taking both passive and active measurement from 600MHz to 6GHz. Baseband simulator for active TRP/TIS measurement includes Agilent 8960, Anritsu 8820 and CMW 500. Standard head and hand model were used for CTIA phantom measurement.

#### 2.1.3 Input Impedance: 50Ω

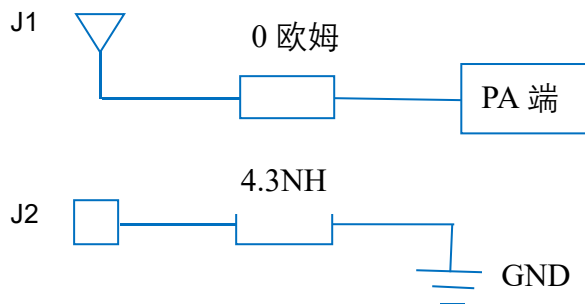
### 2.2 Frequency Bands

The MA01 MS Dongle BT ANT operates in frequency range [2400 – 2480MHz]

### 2.3 The matching circuit for this antenna is as below

Antenna matching circuit

|                                                                                   |                                   |                                   |                                       |                        |
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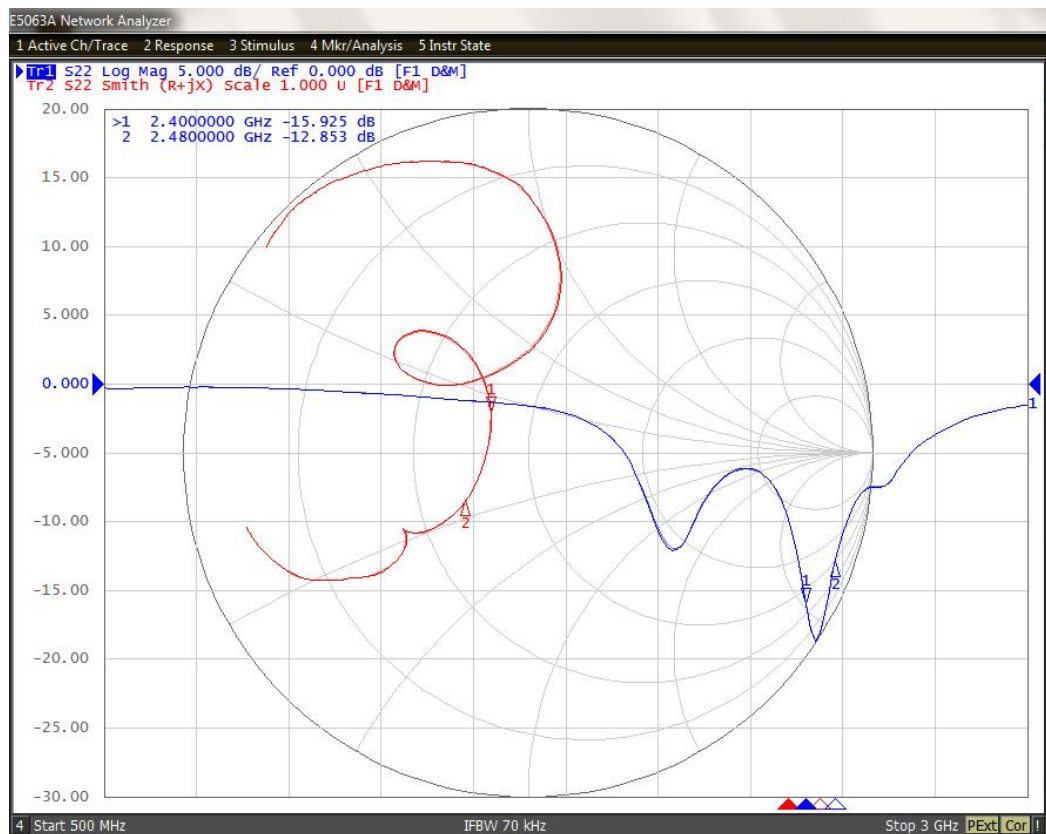
注：1.主路匹配为串联 0 欧姆电阻；

2.地线匹配串 4.3NH 电感。

## 2.4 Electrical Measurement Data

### 2.4.1 Antenna Return Loss Plot

BT antenna return loss



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#### 2.4.2 Antenna Efficiency Data

| Dongle is in Laptop Testing |                |                             |                     |
|-----------------------------|----------------|-----------------------------|---------------------|
| Freq                        | Efficiency (%) | Efficiency=Average gain(dB) | Gain=Peak gain(dBi) |
| 2400                        | 39.18          | -4.07                       | 2.22                |
| 2410                        | 40.13          | -3.97                       | 2.30                |
| 2420                        | 40.16          | -3.96                       | 2.28                |
| 2430                        | 41.10          | -3.86                       | 2.23                |
| 2440                        | 42.18          | -3.75                       | 2.40                |
| 2450                        | 43.47          | -3.62                       | 2.64                |
| 2460                        | 45.77          | -3.33                       | 4.00                |
| 2470                        | 43.54          | -3.61                       | 3.80                |
| 2480                        | 42.58          | -3.71                       | 3.74                |
| AVG                         | 41.90          | -3.78                       | 2.83                |

#### 2.4.3 Antenna TRP&TIS Data

无法测试 TRP 和 TIS

#### 2.4.4 Antenna radiation pattern Plot 2D Radiation Pattern Results

XZ 面

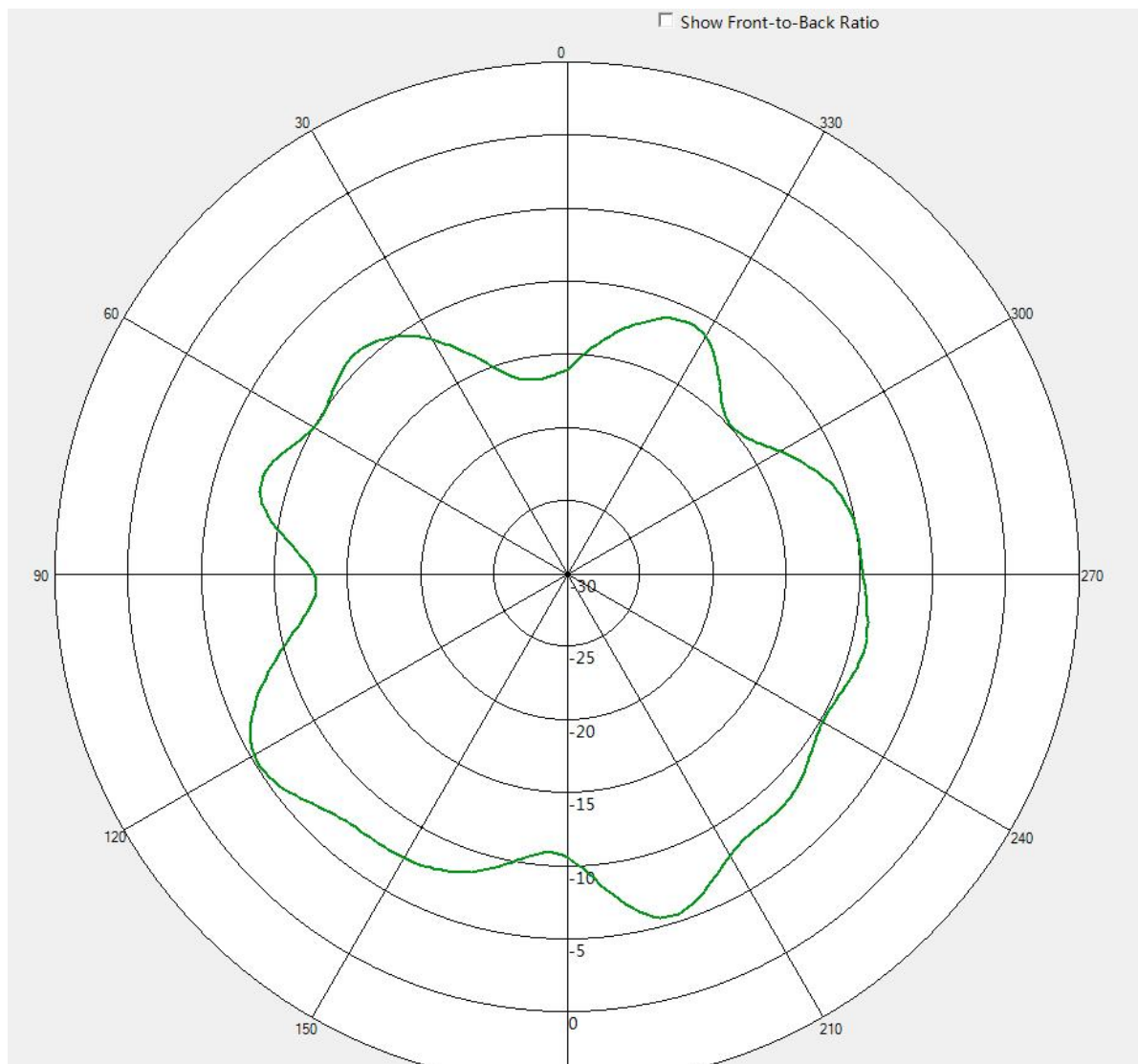
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2400MHz

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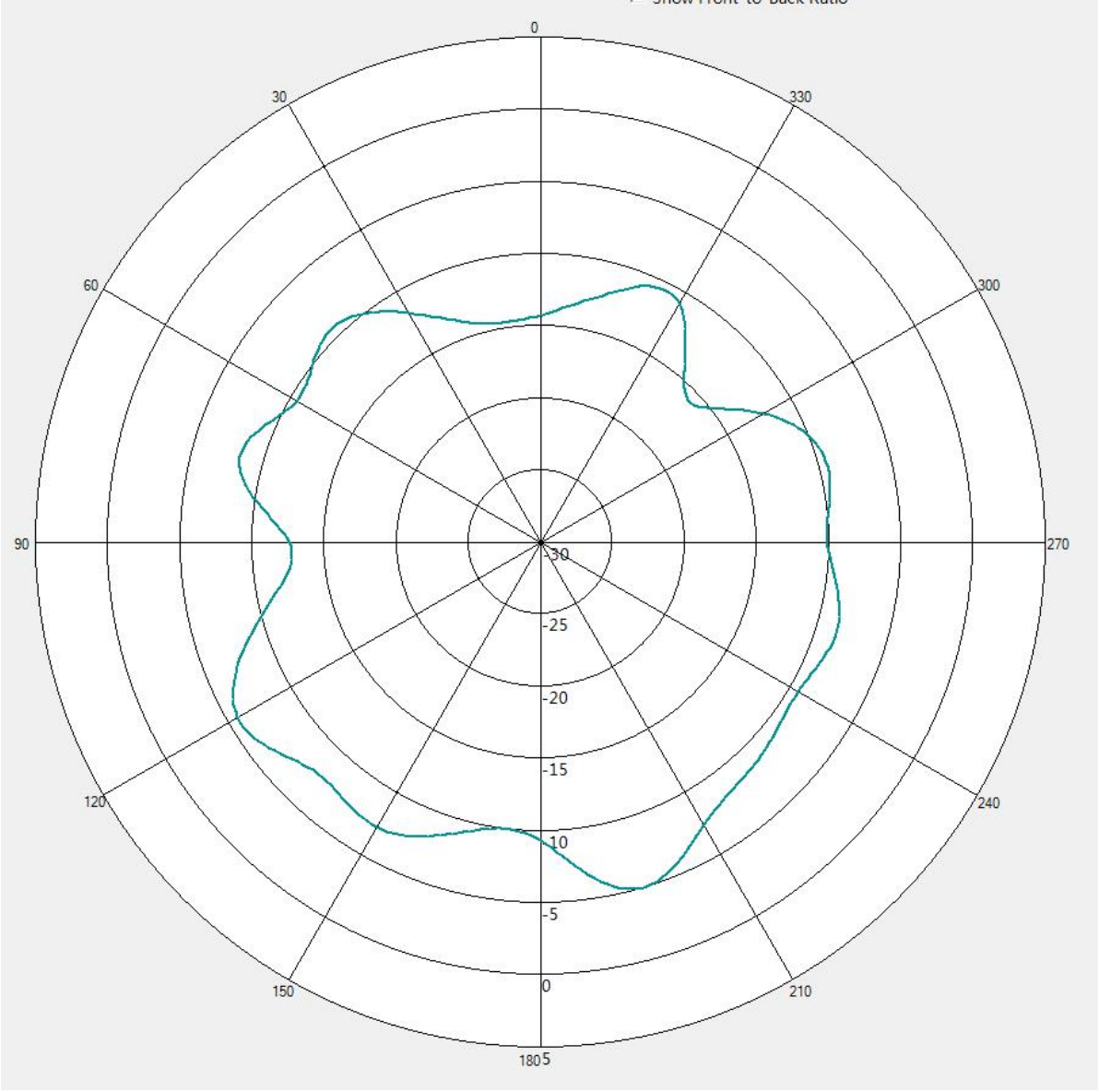
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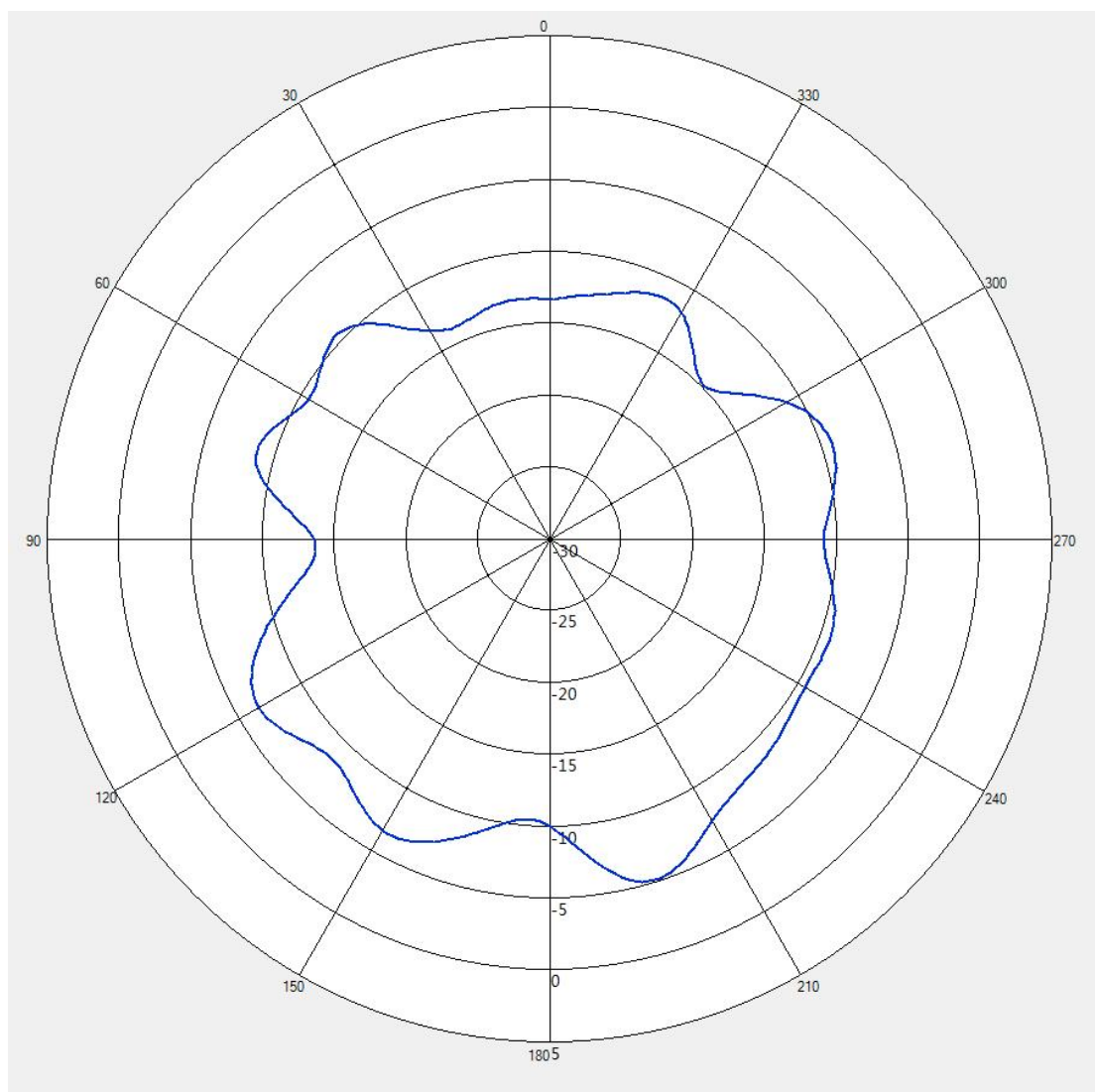


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2440MHz

|                                                                                   |                                   |                                   |                                       |                         |
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2480MHz  
YZ 面

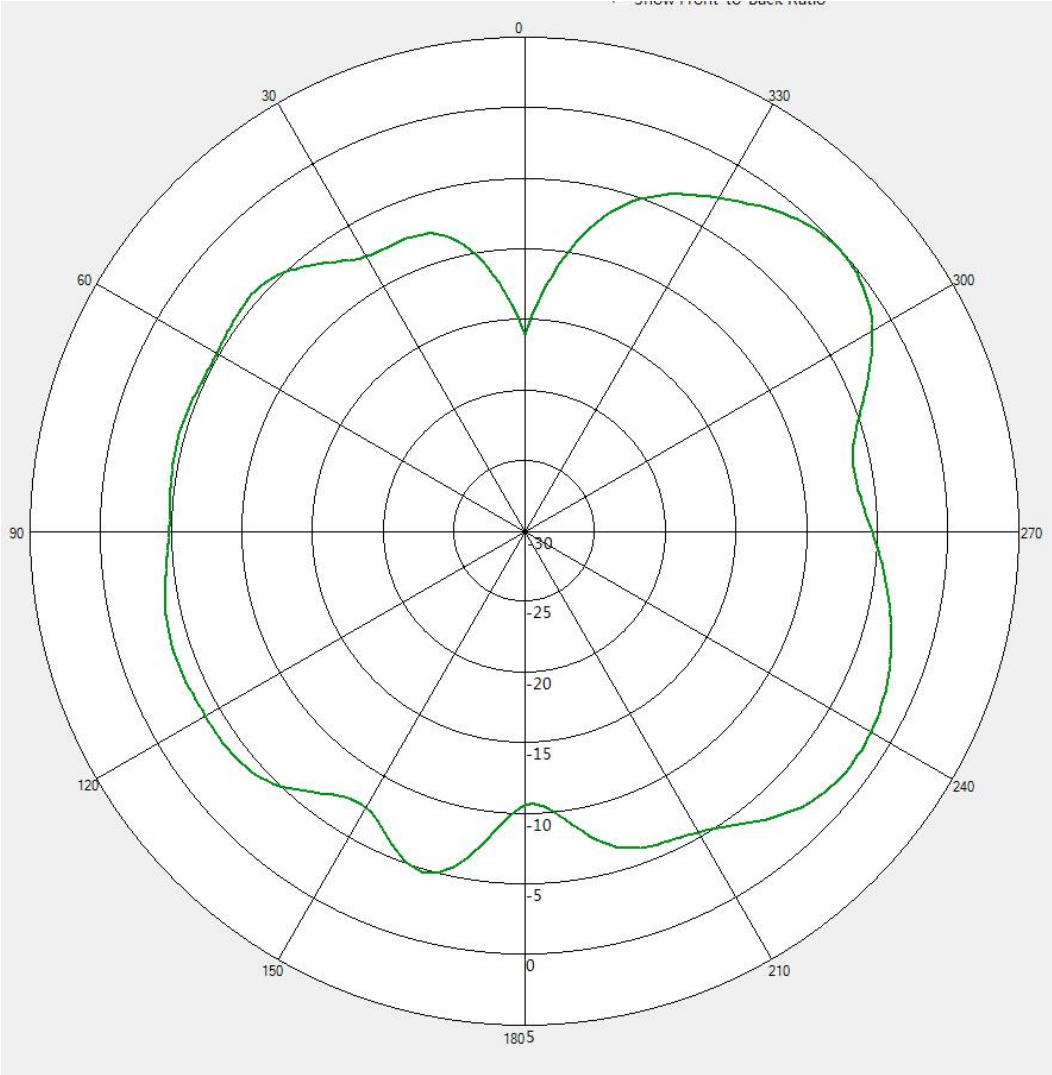
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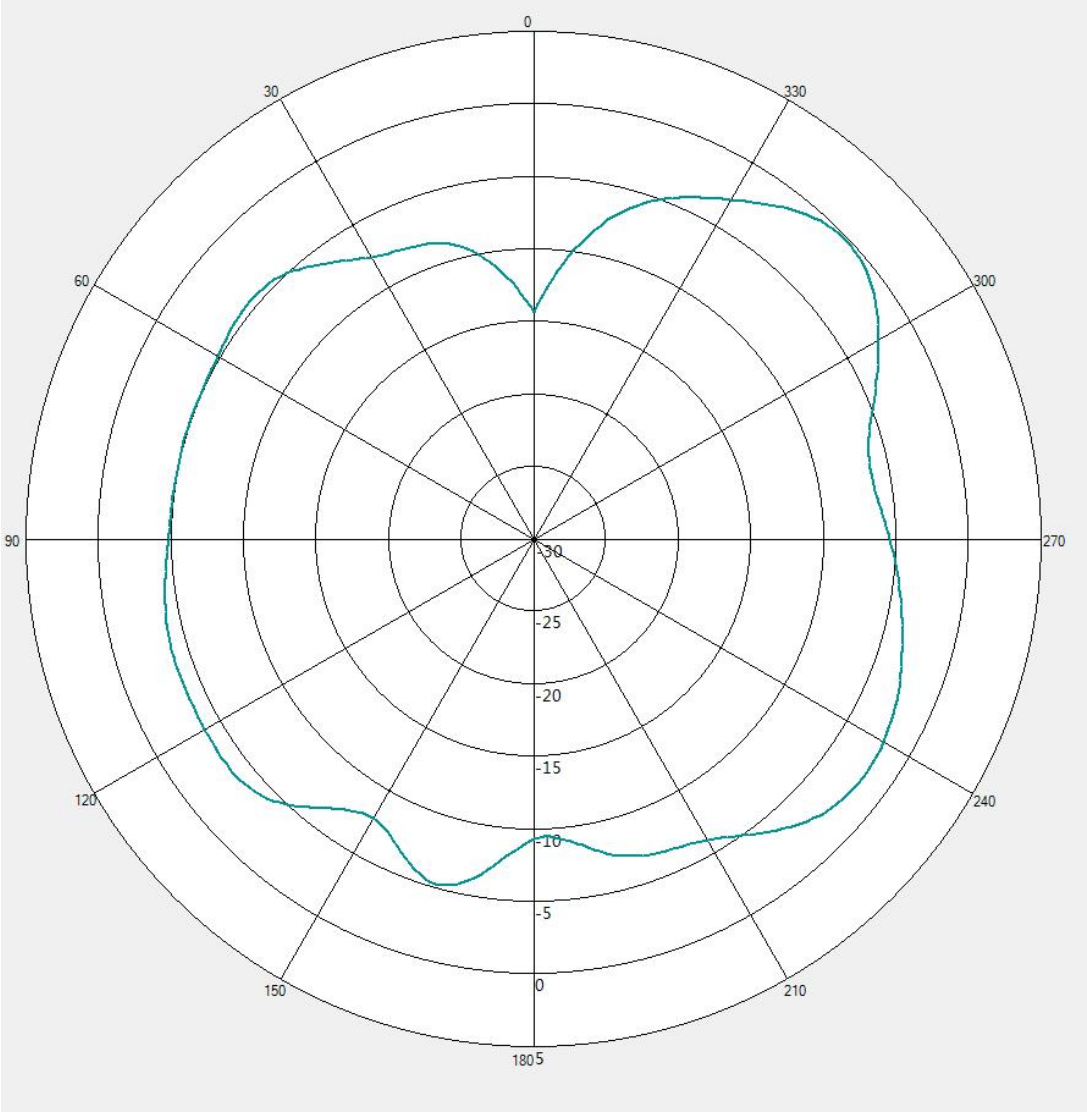
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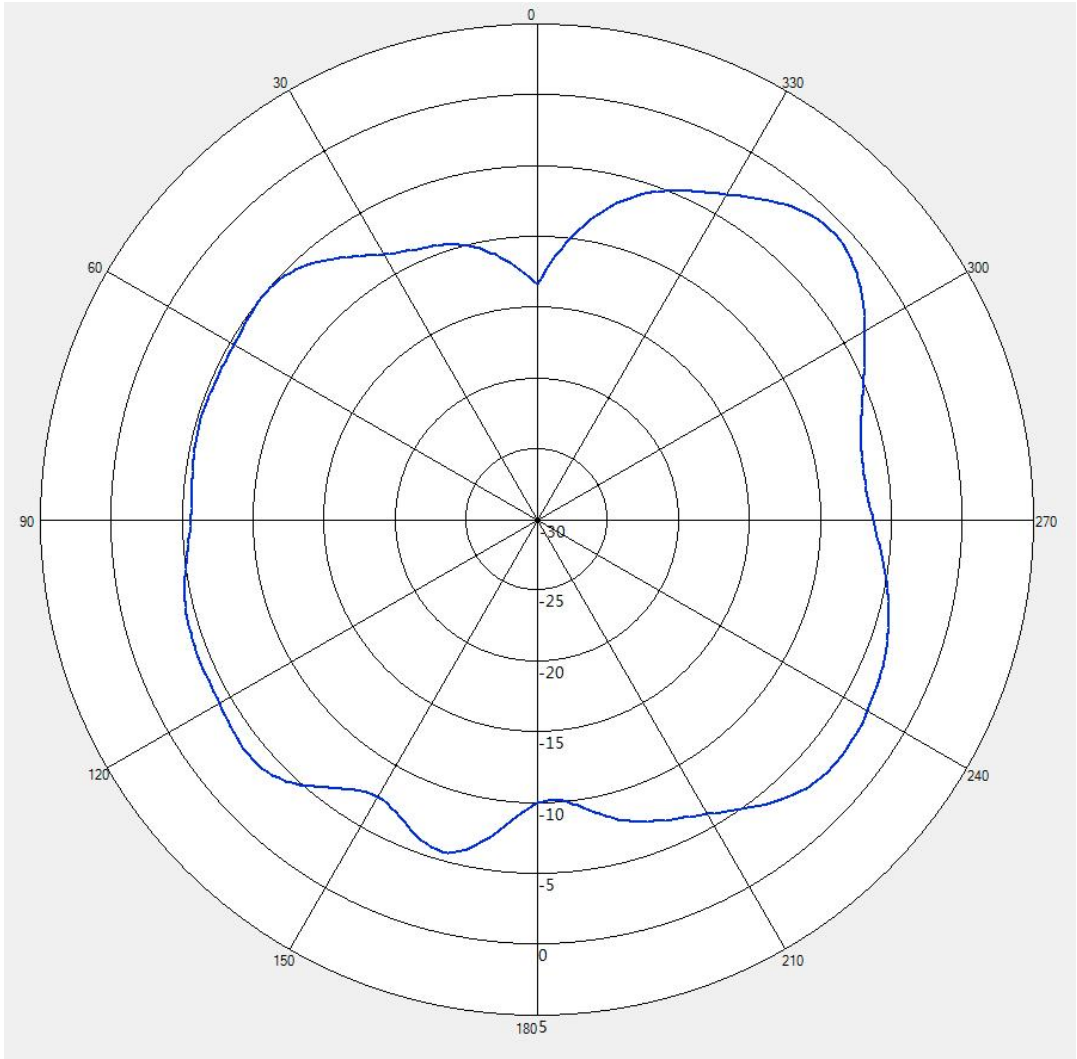


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2440MHz

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2480MHz



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3D Radiation Pattern Results

2450MHz

