

# Antenna

# YEMA004AA Datasheet

**Antenna Services**

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# About the Document

## Revision History

Version	Date	Author	Note
-	2021-08-20	Kenny YIN/ Riona HAN	Creation of the document
1.0	2021-08-20	Kenny YIN/ Riona HAN	First official release
1.1	2021-12-03	Kenny YIN/ Riona HAN	Updated the product description in Chapter 1.

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## 1 Product Description

To meet customers' requirements for the high performance, high integration, and integrated appearance of their products, Quectel provides a combined antenna box series. The antenna box can integrate a variety of antennas, such as 5G, 4G, GNSS, Wi-Fi antennas, to achieve communication functions of 5G MIMO, 4G, GNSS, and Wi-Fi. These antenna boxes can be mounted on the surface of devices via screw, adhesive or other methods, supports multiple connector types and cable lengths. It is a more flexible and reliable high-performance antenna solution for outdoor applications.

We provide comprehensive antenna design support such as simulation, testing and manufacturing for custom antenna solutions to meet your specific application needs.

## 2 Product Features

- Cellular LTE/Wi-Fi & Bluetooth
- High efficiency
- Excellent performance



### 3 Product Specifications

#### Passive Electrical Specifications

Frequency Range	4G: 698–960 MHz, 1710–2690 MHz Wi-Fi & Bluetooth: 2400–2500 MHz
Input Impedance	50 Ω
VSWR	4G: ≤ 6.0 Wi-Fi & Bluetooth: ≤ 2.0
Gain	4G: ≤ 2.0 dBi Wi-Fi & Bluetooth: ≤ 0 dBi
Polarization Type	Linear

#### Mechanical Specifications

Antenna Size	Φ 81 mm × 14.5 mm RG174 Cable Length = 900 mm
Casing	ABS + PC
Connector Type	SMA Male (Center Pin)
Working Temperature	-40 °C to +85 °C
Radome Color	Black
Mounting Type	Screw
IP Rating	IP66

## 4 Overall Performance

### 4.1. Test Environment

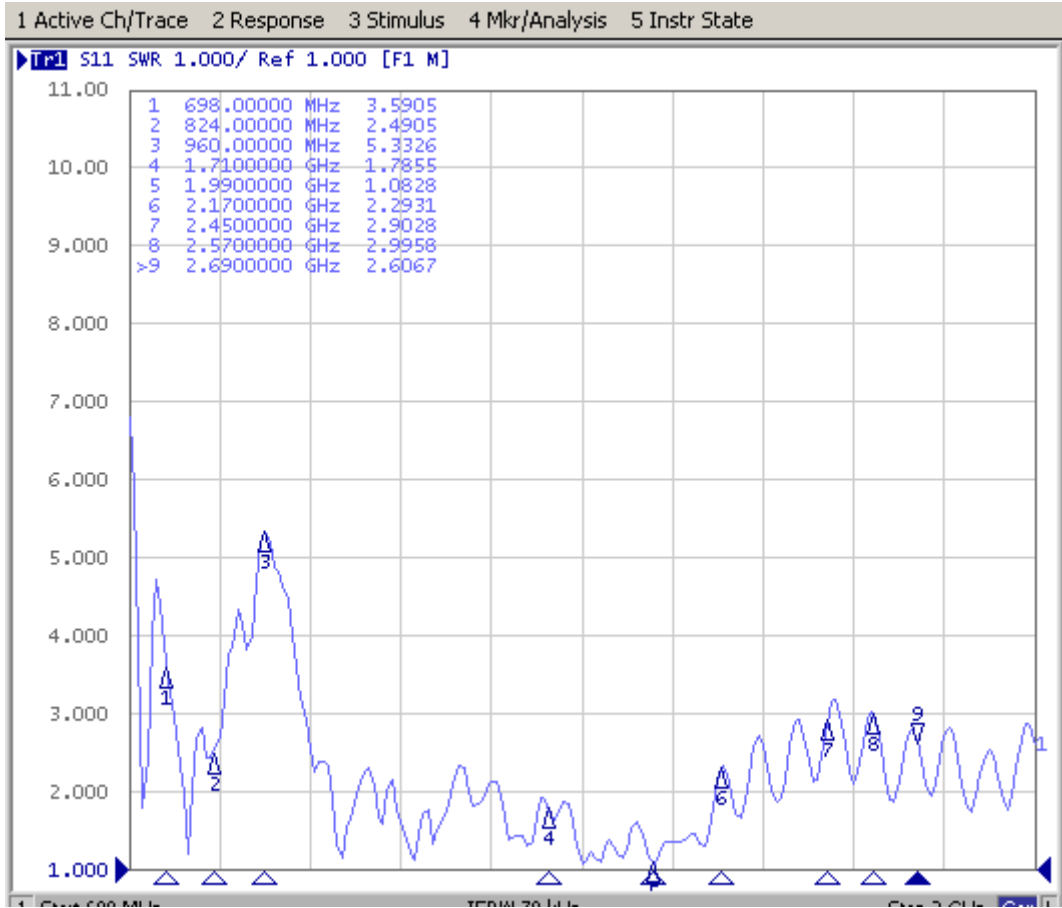
- KEYSIGHT VNA Network Analyzer E5063A 100 kHz – 8.5 GHz
- RayZone® 2800 Chamber 5G (FR1) SISO/MIMO, 400 MHz – 8.0 GHz





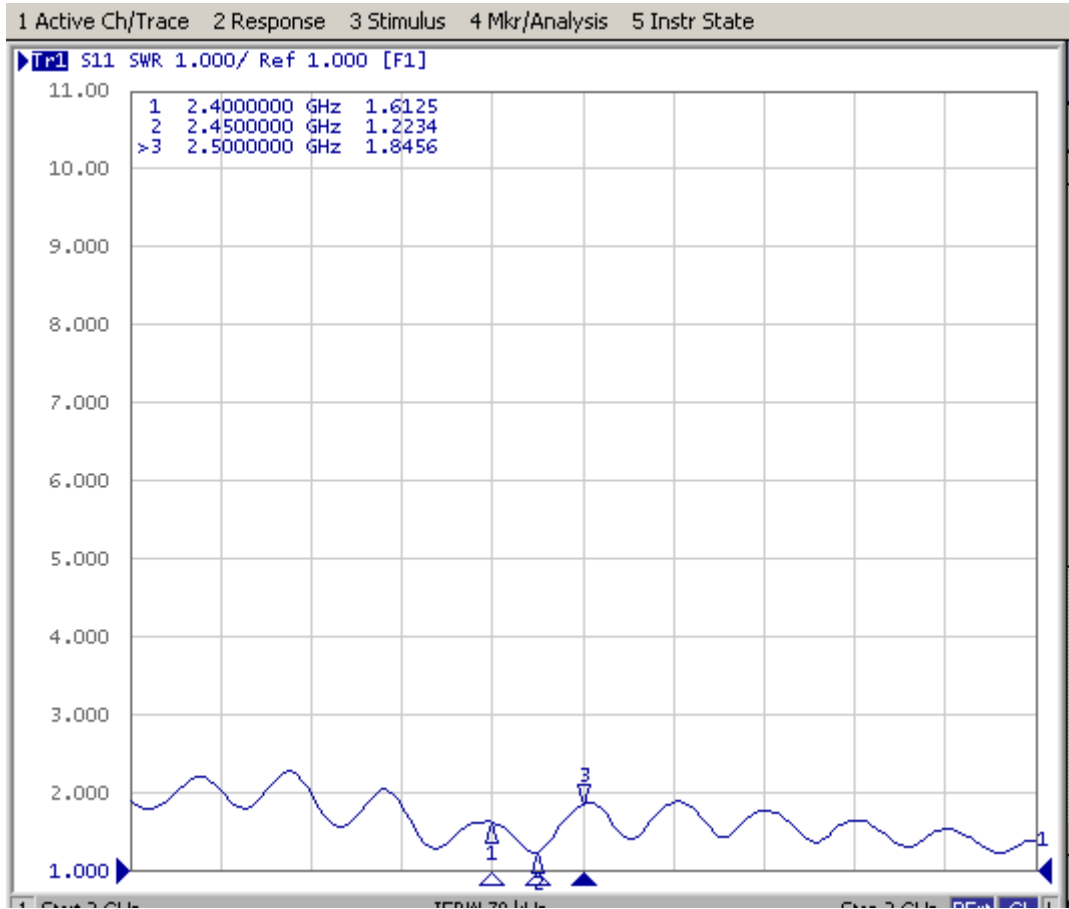
## 4.2. VSWR

### 4.2.1. 4G



Frequency (MHz)	698	824	960	1710	1990	2170	2450	2570	2690
VSWR	3.59	2.49	5.33	1.79	1.08	2.29	2.9	2.99	2.61

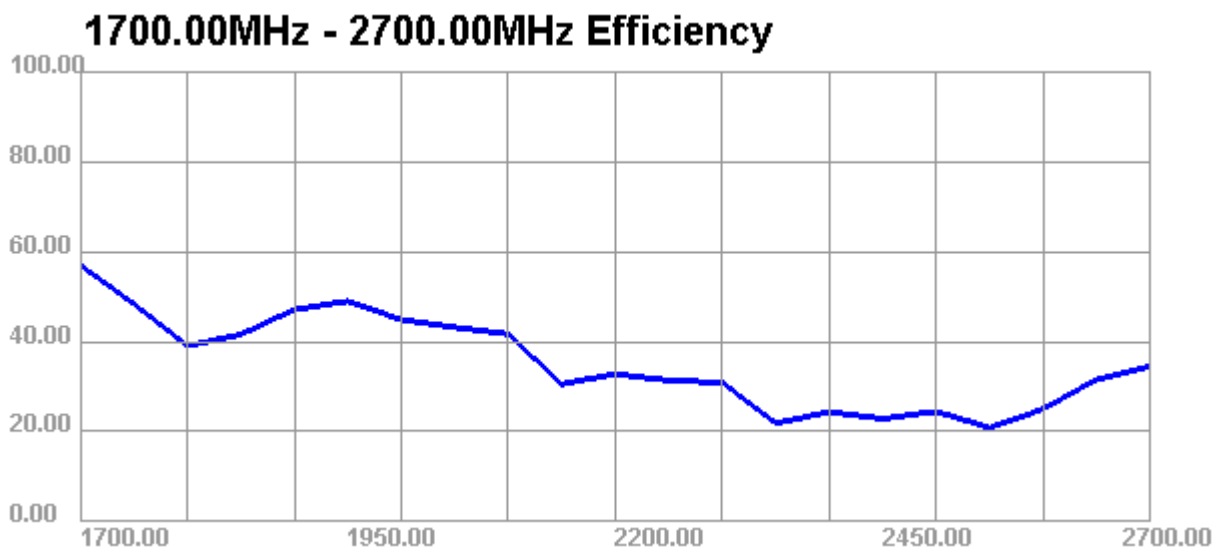
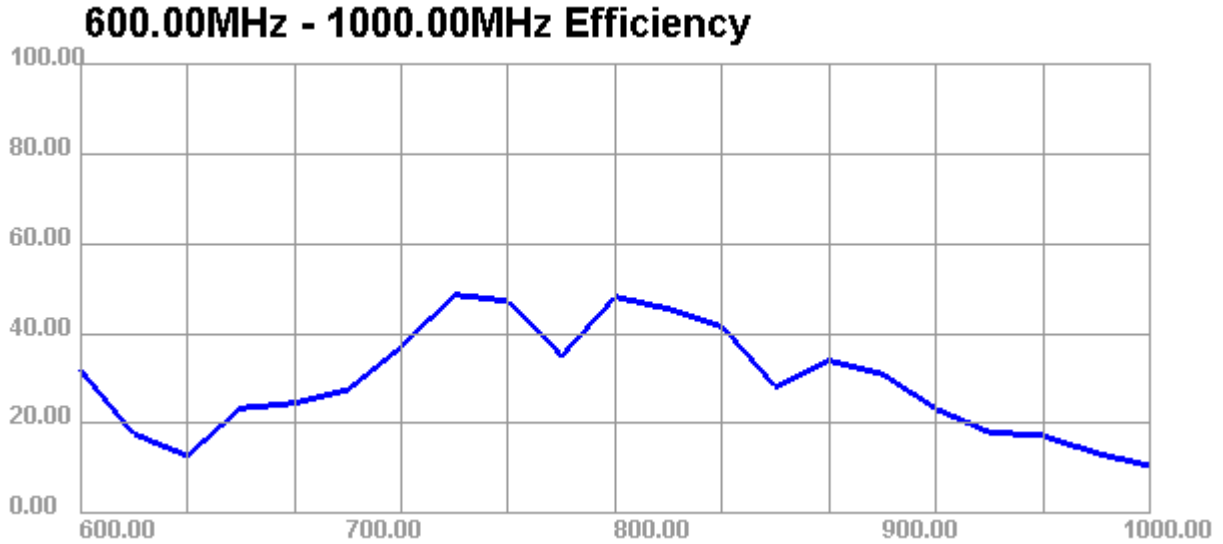
4.2.2. Wi-Fi & Bluetooth



Frequency (MHz)	2400	2450	2500
VSWR	1.61	1.22	1.85

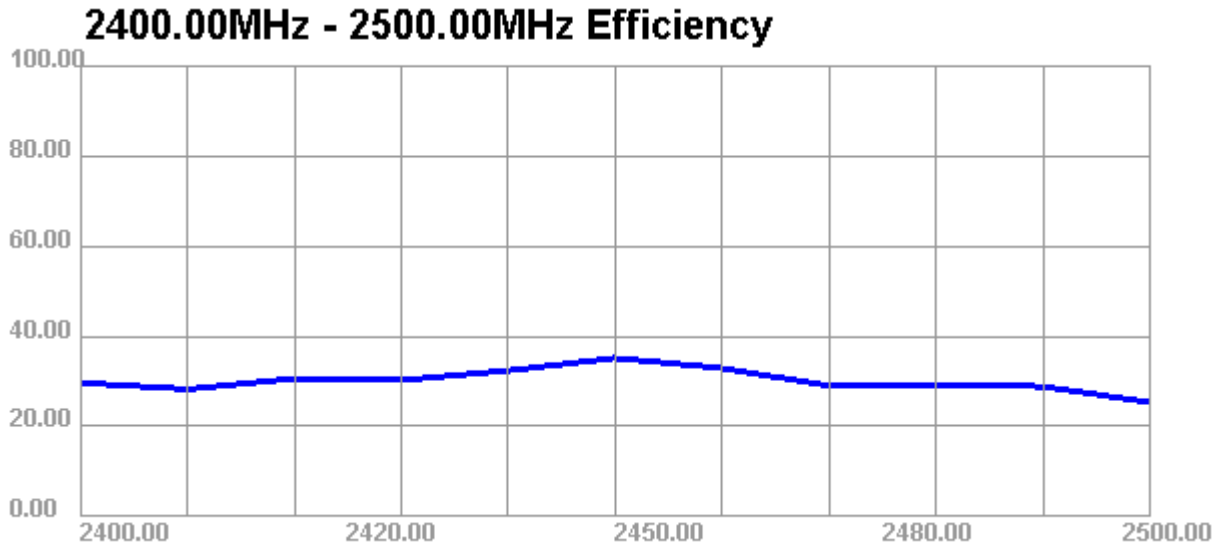
### 4.3. Efficiency

#### 4.3.1. 4G



<b>Frequency (MHz)</b>	700	840	960	1700	1950	2150	2450	2700
<b>Efficiency (%)</b>	27.55	41.58	17.32	57.03	49.02	30.6	22.89	34.59

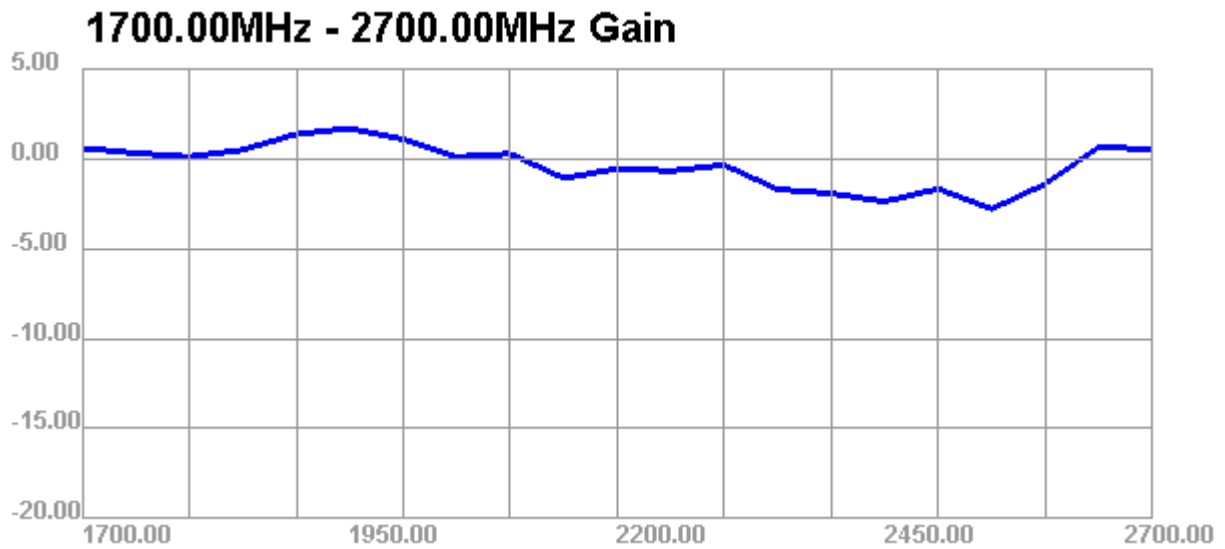
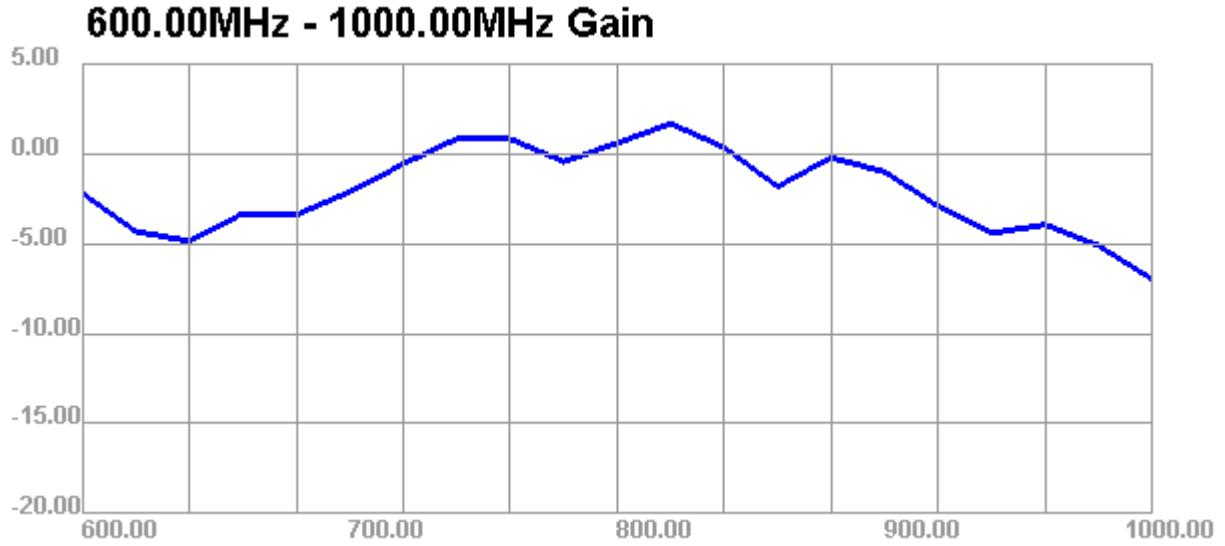
4.3.2. Wi-Fi & Bluetooth



<b>Frequency (MHz)</b>	2400	2450	2500
<b>Efficiency (%)</b>	29.69	35.18	25.32

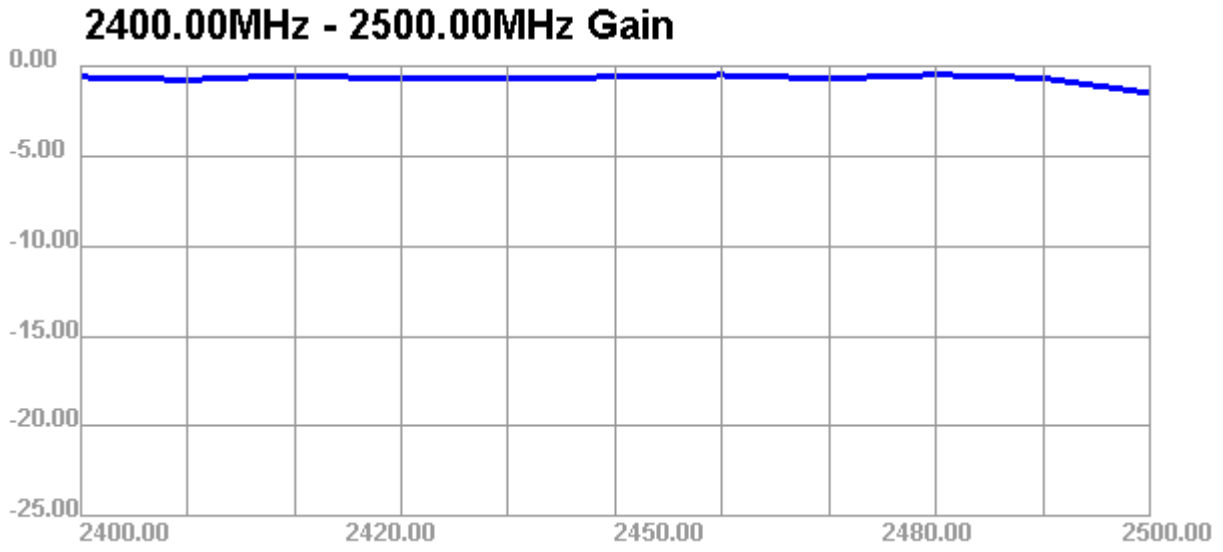
## 4.4. Gain

### 4.4.1. 4G



<b>Frequency (MHz)</b>	700	840	960	1700	1950	2150	2450	2700
<b>Gain (dBi)</b>	-2.13	0.34	-3.95	0.59	1.69	-1.08	-2.38	0.54

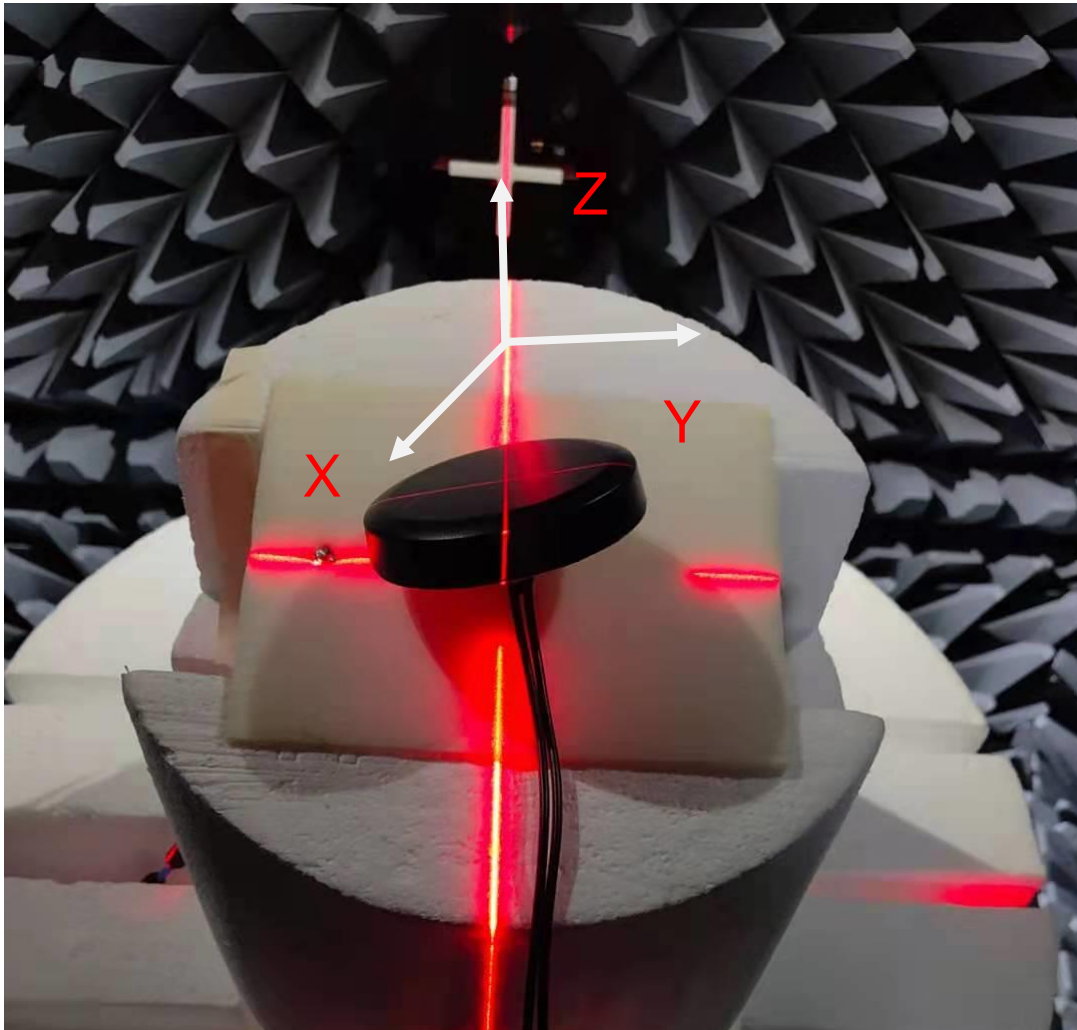
4.4.2. Wi-Fi & Bluetooth



Frequency (MHz)	2400	2450	2500
Gain (dBi)	-0.62	-0.63	-1.52

## 4.5. Radiation Pattern

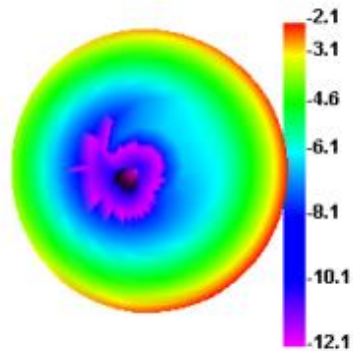
- Test condition: free space state.



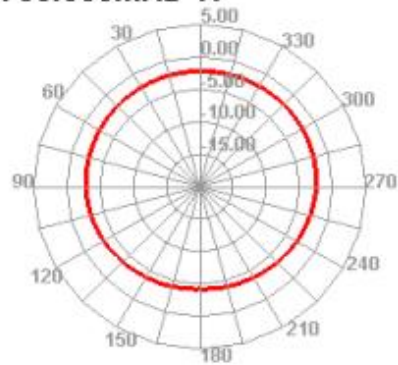
H plane: the tangent of XY  
E1 plane: the tangent of XZ  
E2 plane: the tangent of YZ

4.5.1. 4G

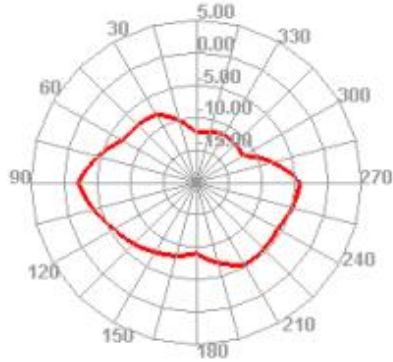
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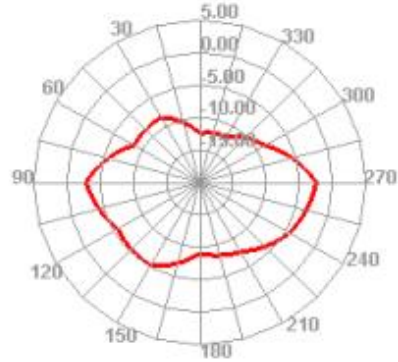
700.000MHz H



700.000MHz E1

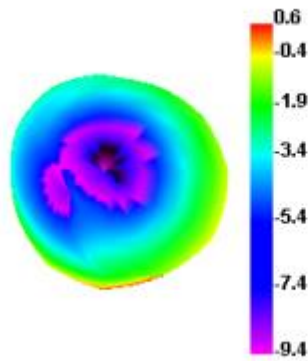


700.000MHz E2

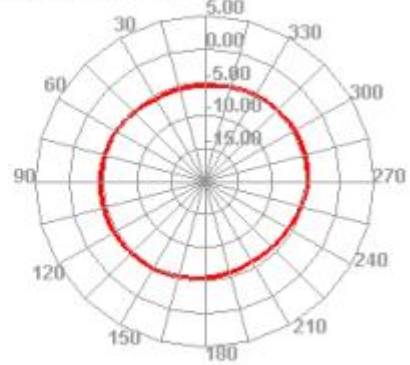




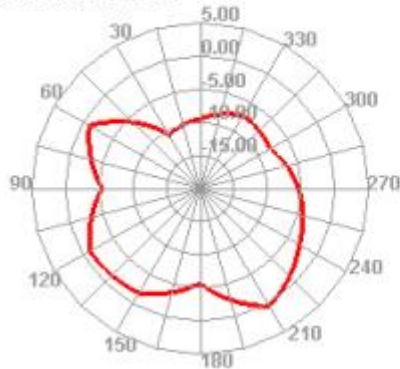
**800.000MHz**



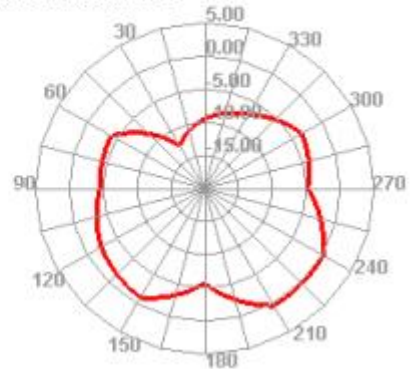
**800.000MHz H**



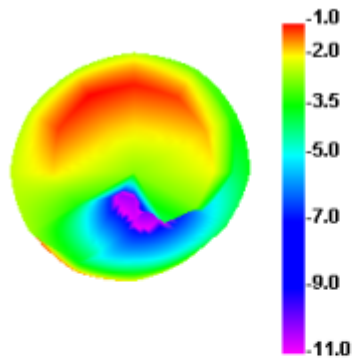
**800.000MHz E1**



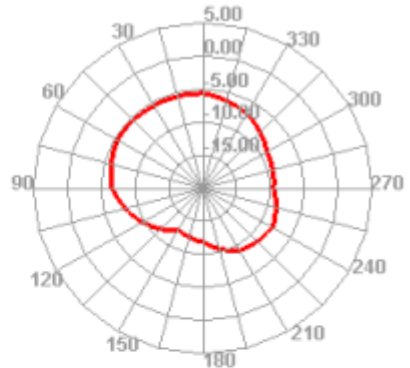
**800.000MHz E2**



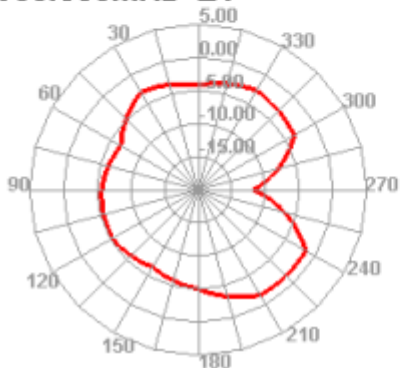
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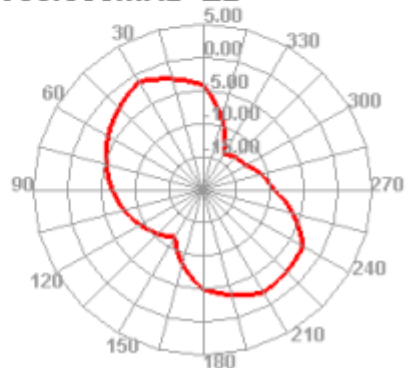
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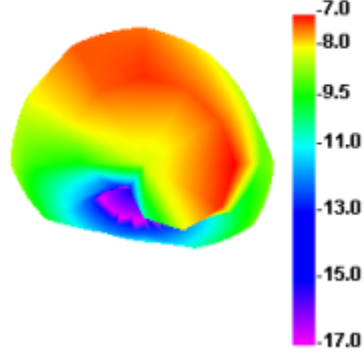
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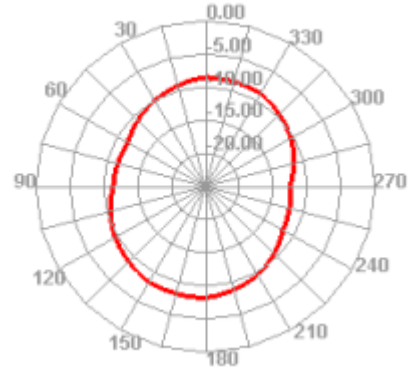
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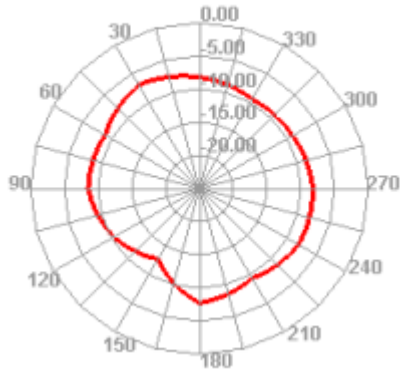
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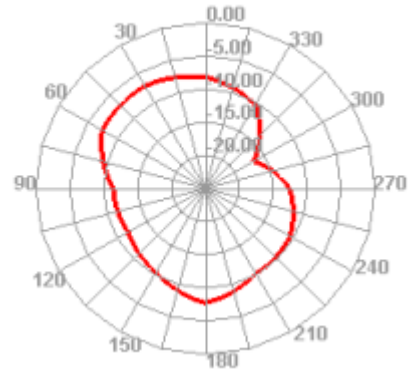
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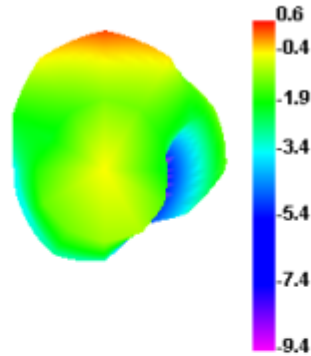
**1000.000MHz E1**



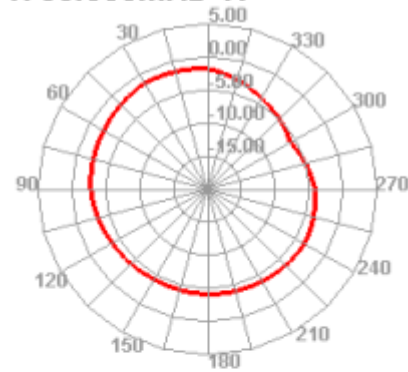
**1000.000MHz E2**



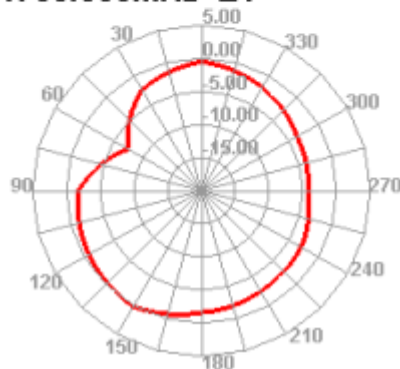
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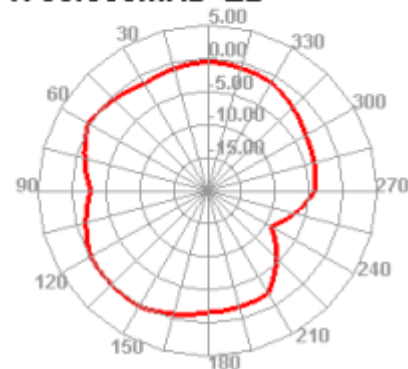
**1700.000MHz H**



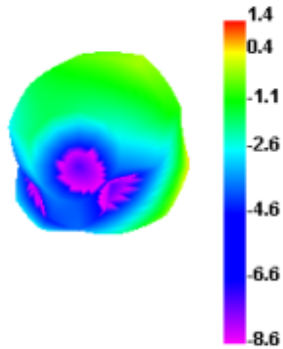
**1700.000MHz E1**



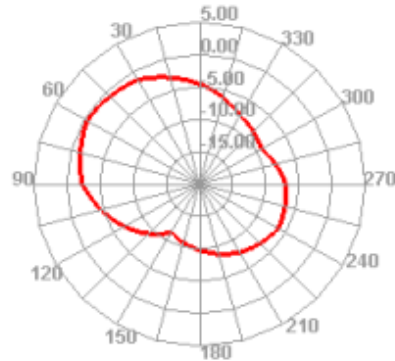
**1700.000MHz E2**



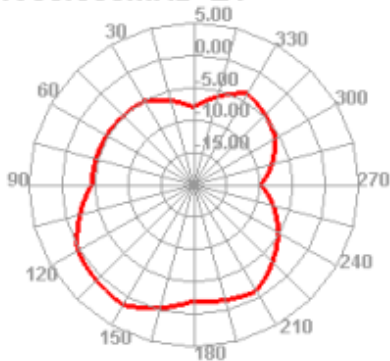
**1900.000MHz**



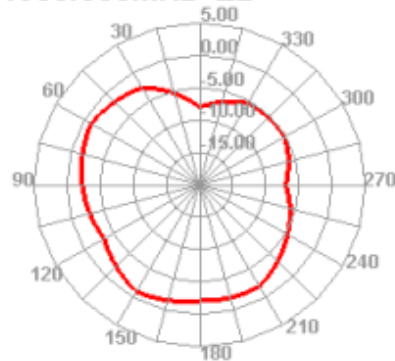
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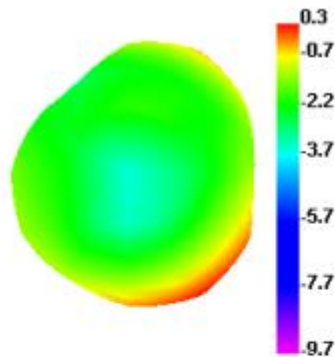
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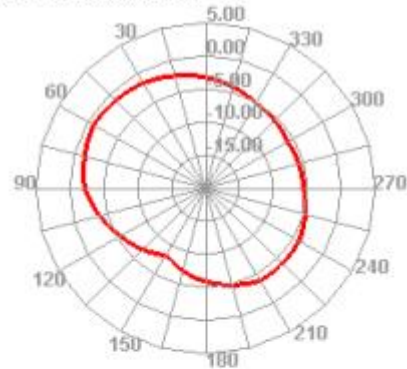
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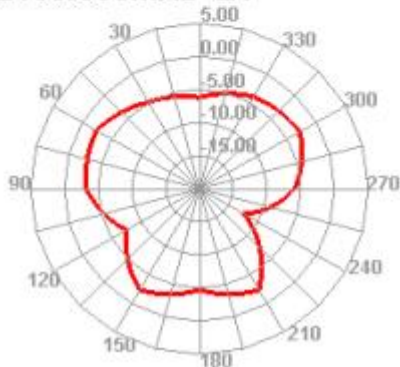
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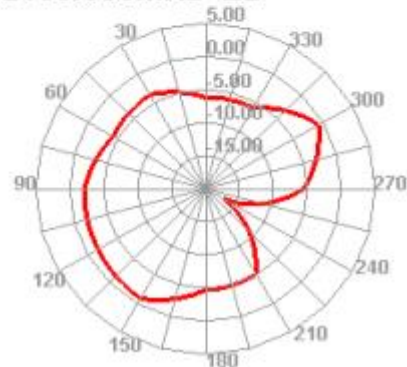
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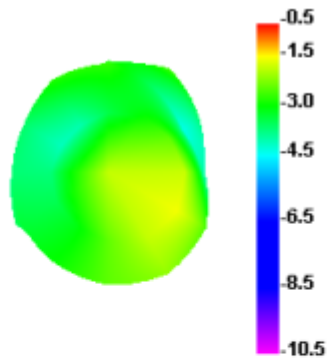
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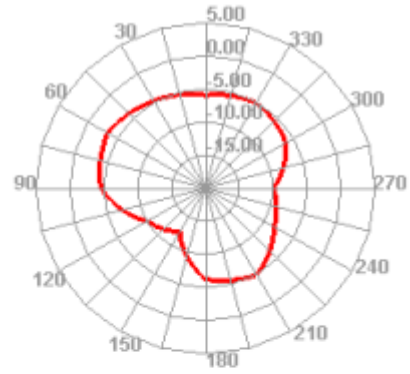
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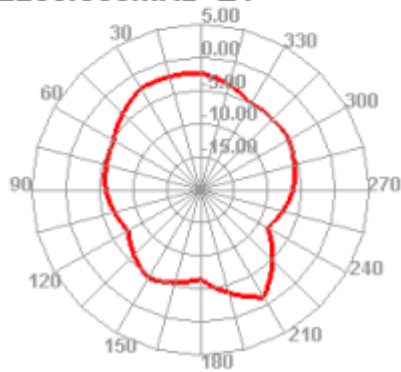
**2200.000MHz**



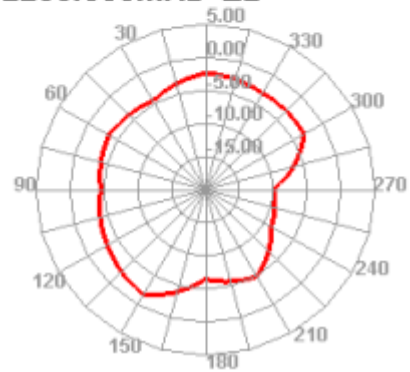
**2200.000MHz H**



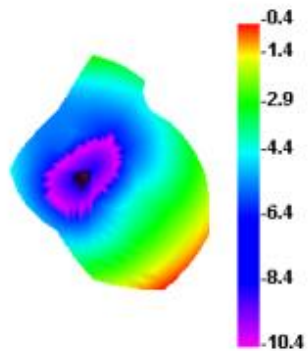
**2200.000MHz E1**



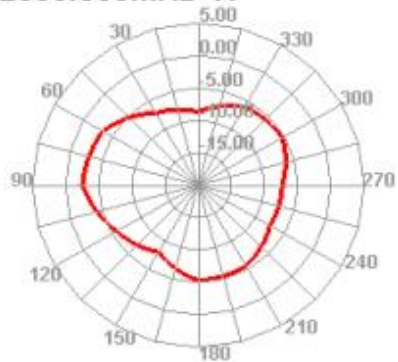
**2200.000MHz E2**



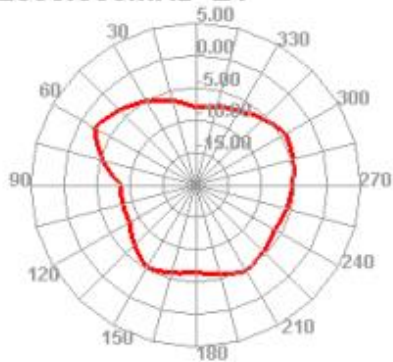
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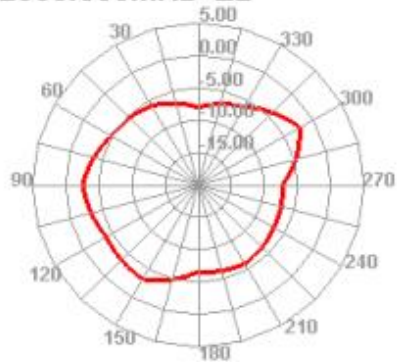
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**2300.000MHz E1**

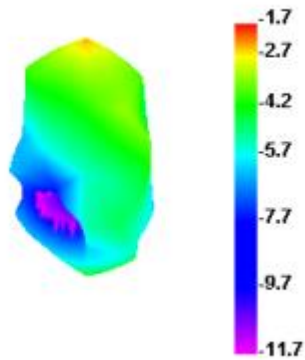


**2300.000MHz E2**

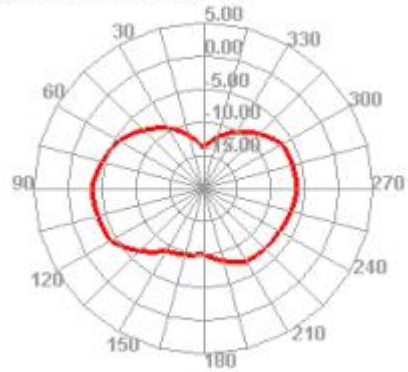




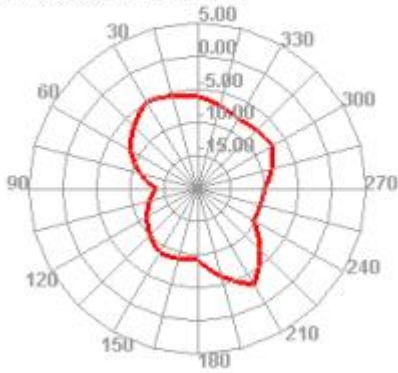
**2500.000MHz**



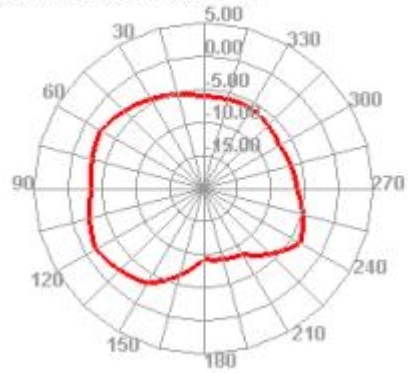
**2500.000MHz H**



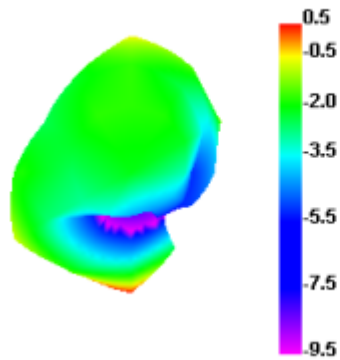
**2500.000MHz E1**



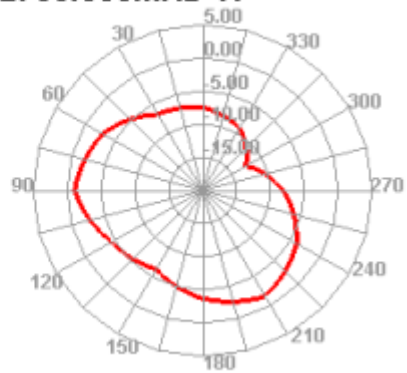
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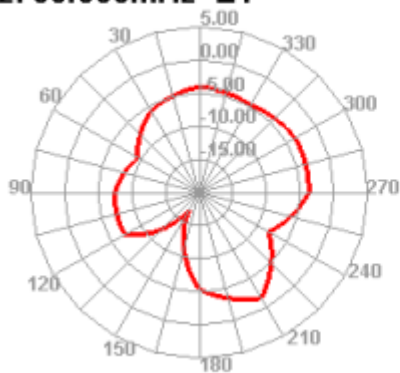
**2700.000MHz**



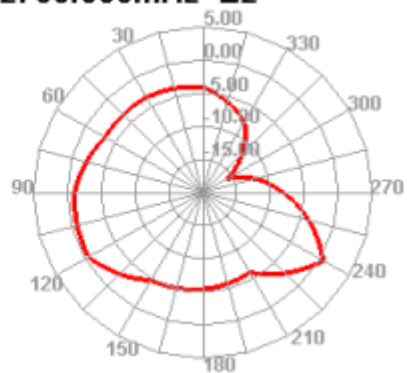
**2700.000MHz H**



**2700.000MHz E1**

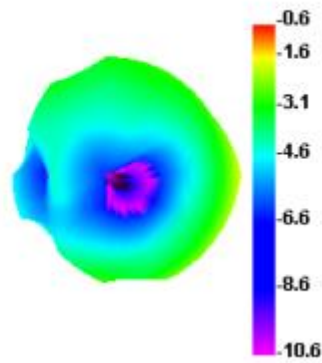


**2700.000MHz E2**

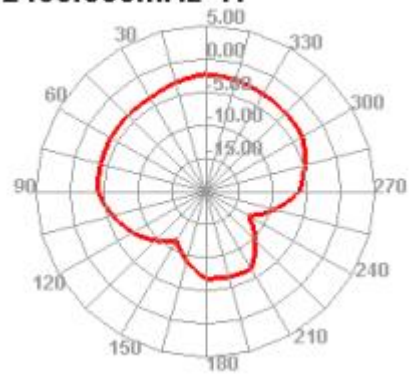


4.5.2. Wi-Fi & Bluetooth

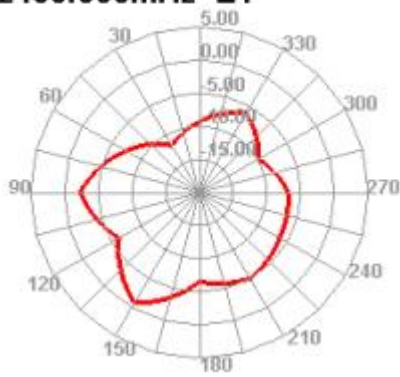
**2400.000MHz**



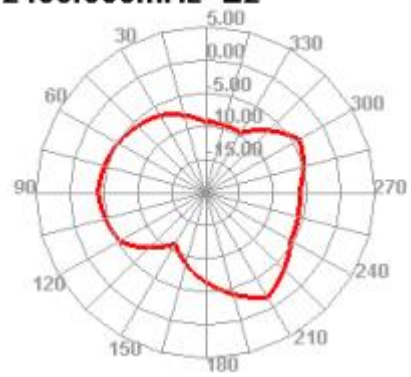
**2400.000MHz H**



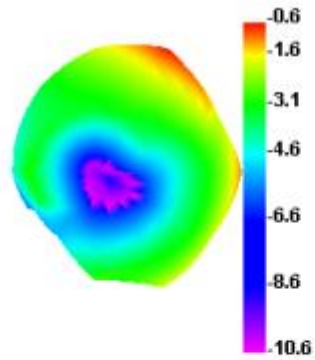
**2400.000MHz E1**



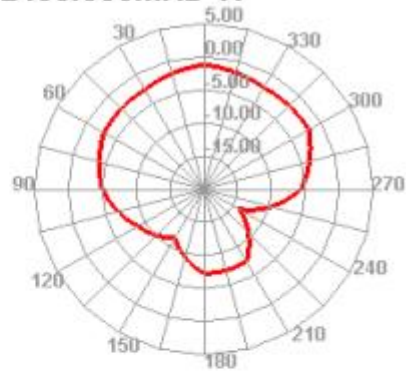
**2400.000MHz E2**



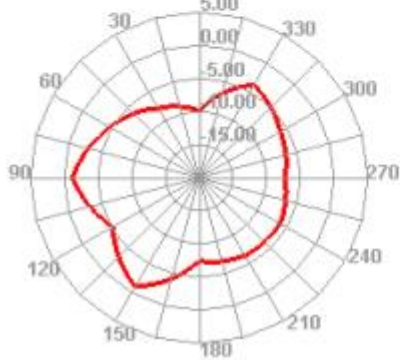
**2450.000MHz**



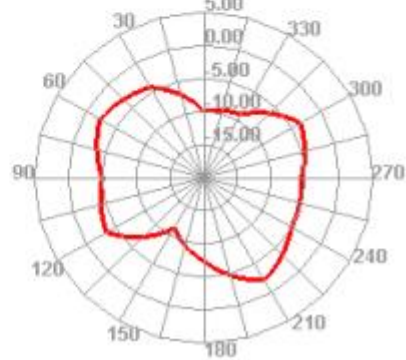
**2450.000MHz H**



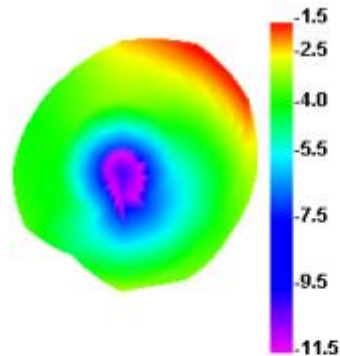
**2450.000MHz E1**



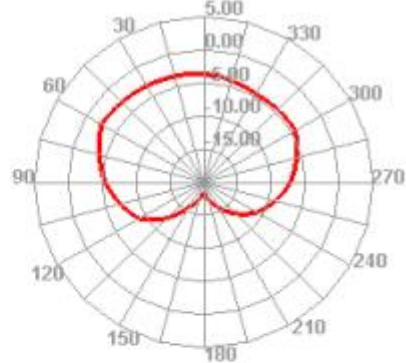
**2450.000MHz E2**



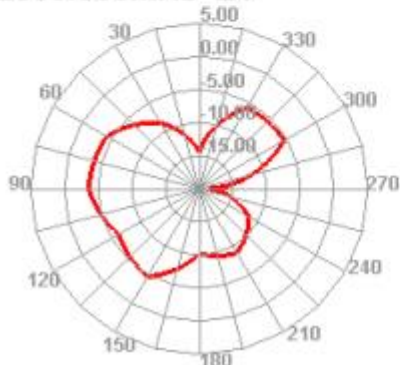
**2500.000MHz**



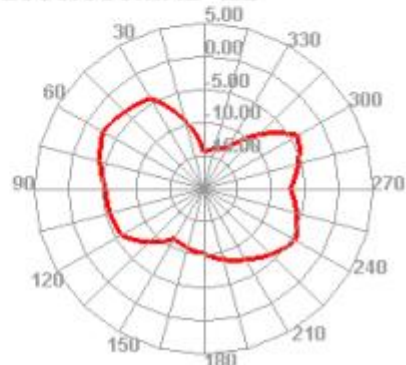
**2500.000MHz H**



**2500.000MHz E1**



**2500.000MHz E2**



## 5 Product Size

