

Antenna

YKL001AA Datasheet

Antenna Services

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About the Document

Revision History

Version	Date	Author	Note
1.0	2020-06-02	Kenny YIN	Initial
1.1	2020-12-16	Kenny YIN	Updated the gain data.
2.0	2021-03-29	Kenny YIN	Updated the data (4G).
2.1	2021-07-25	Kenny YIN	Updated working temperature (Chapter 3).
2.2	2021-12-03	Kenny YIN	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/Bluetooth/GNSS
- High efficiency
- Excellent performance



3 Product Specifications

Passive Electrical Specifications

Frequency Range	4G: 700–1000 MHz; 1710–2690 MHz Bluetooth: 2400–2500 MHz GPS & BD: 1575.42 ±10 MHz; 1561 ±10 MHz
Input Impedence	50 Ω
VSWR	≤ 6.0
Gain	4G: ≤ 3 dBi Bluetooth: ≤ 2.65 dBi GNSS: 25 ±3 dB
Polarization Type	Linear (4G Main/Bluetooth); Circular (GNSS)

Mechanical Specifications

Antenna Size	50 mm × 33 mm × 48 mm RG174, Cable Length = 310 mm
Casing	PC + ABS
Connector Type	SMA Male (Center Pin)
Working Temperature	-40 °C to +85 °C
Radome Color	Black
IP Rating	IP66
Mounting Type	Screw

4 Overall Performance

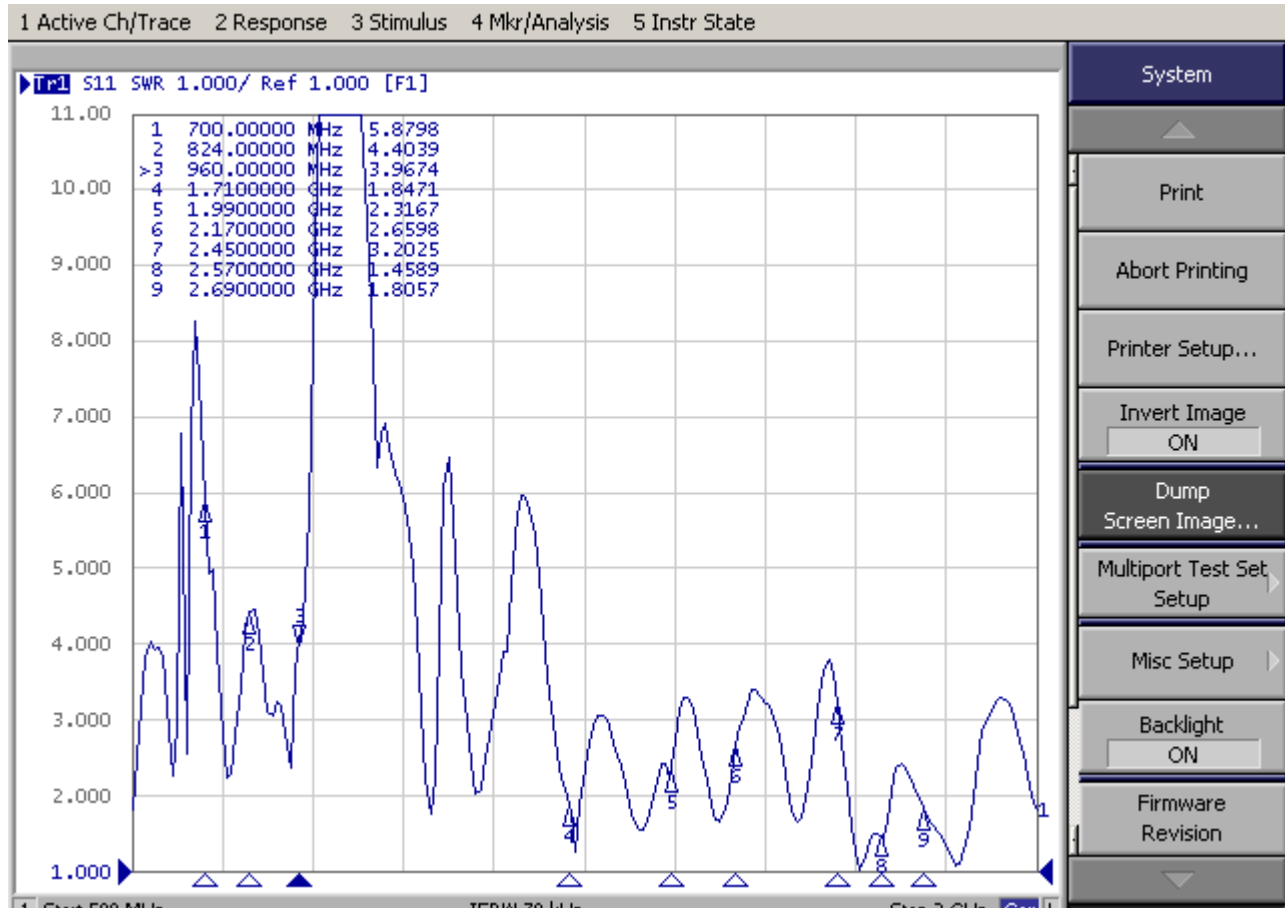
4.1. Test Environment

- 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



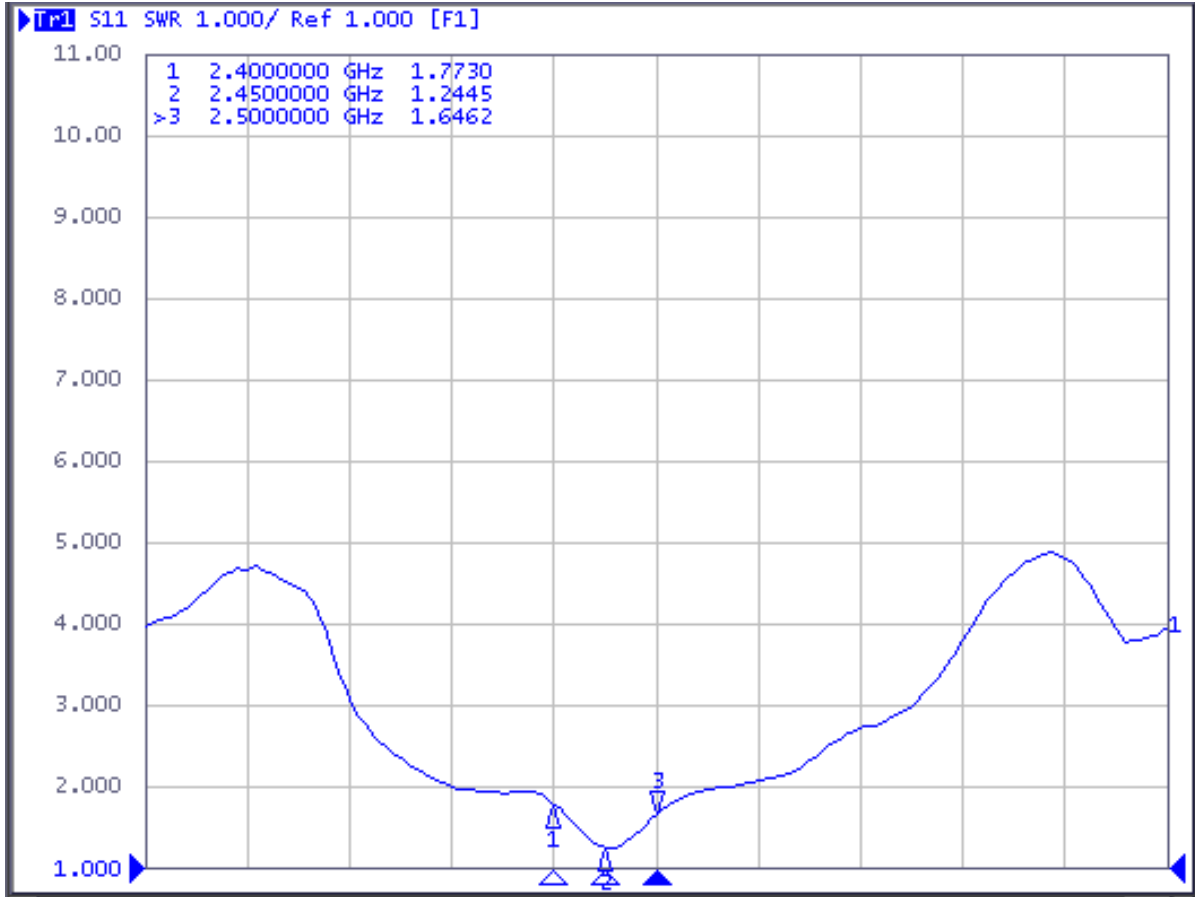
Frequency (MHz)	700	824	960	1710	1990	2170	2450	2570	2690
VSWR	5.88	4.40	3.97	1.85	2.32	2.66	3.20	1.46	1.81

4.2.2. GPS & BD



Frequency (MHz)	1561	1575
VSWR	1.68	1.23

4.2.3. Bluetooth

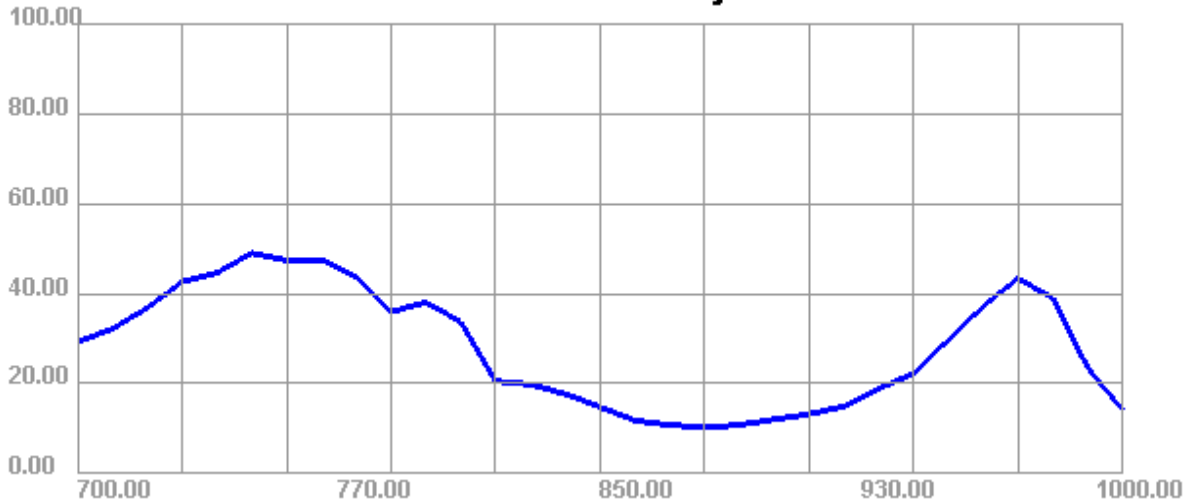


Frequency (MHz)	2400	2450	2500
VSWR	1.77	1.24	1.65

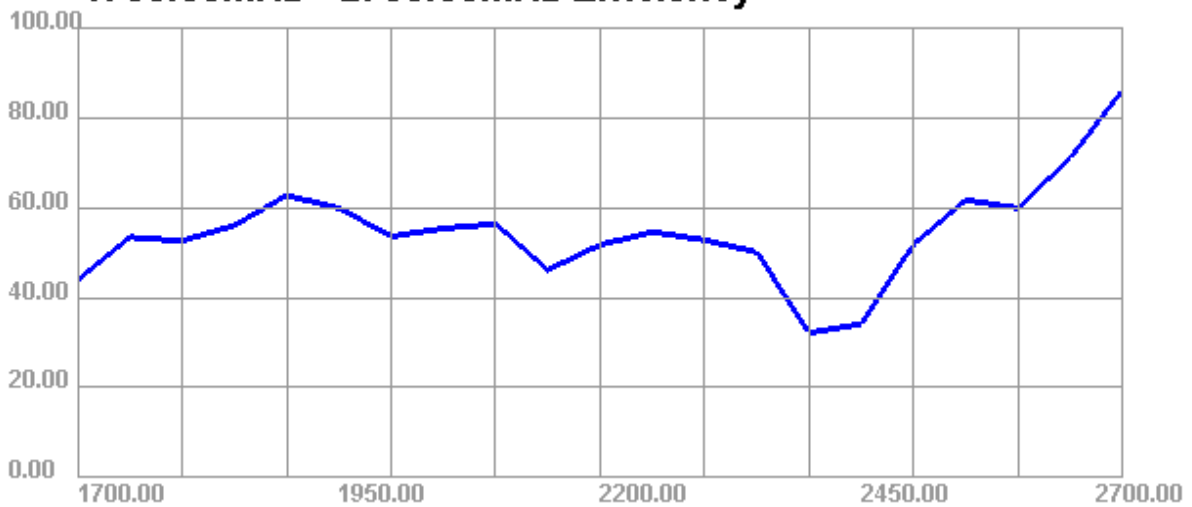
4.3. Efficiency

4.3.1. 4G

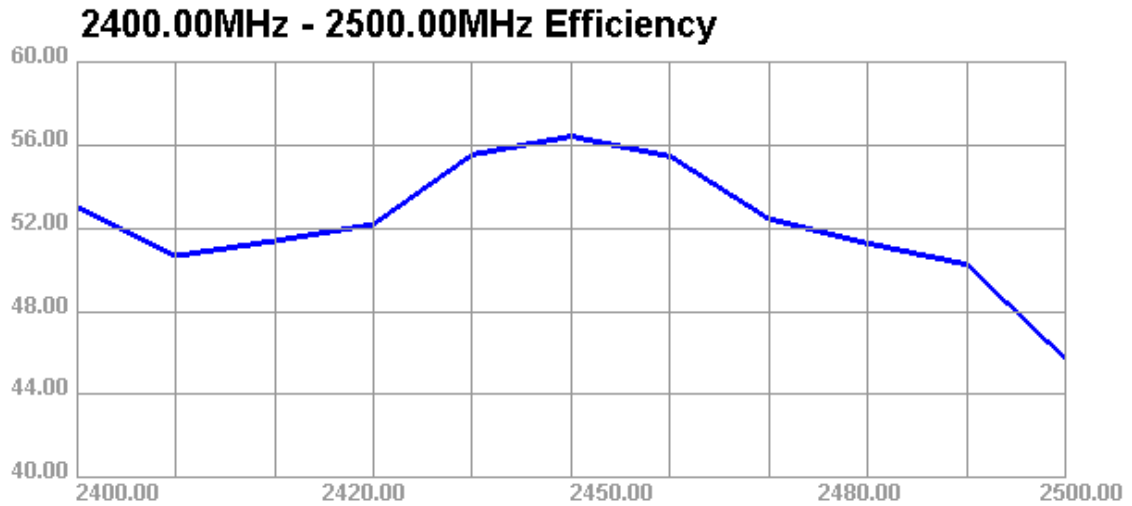
700.00MHz - 1000.00MHz Efficiency



1700.00MHz - 2700.00MHz Efficiency



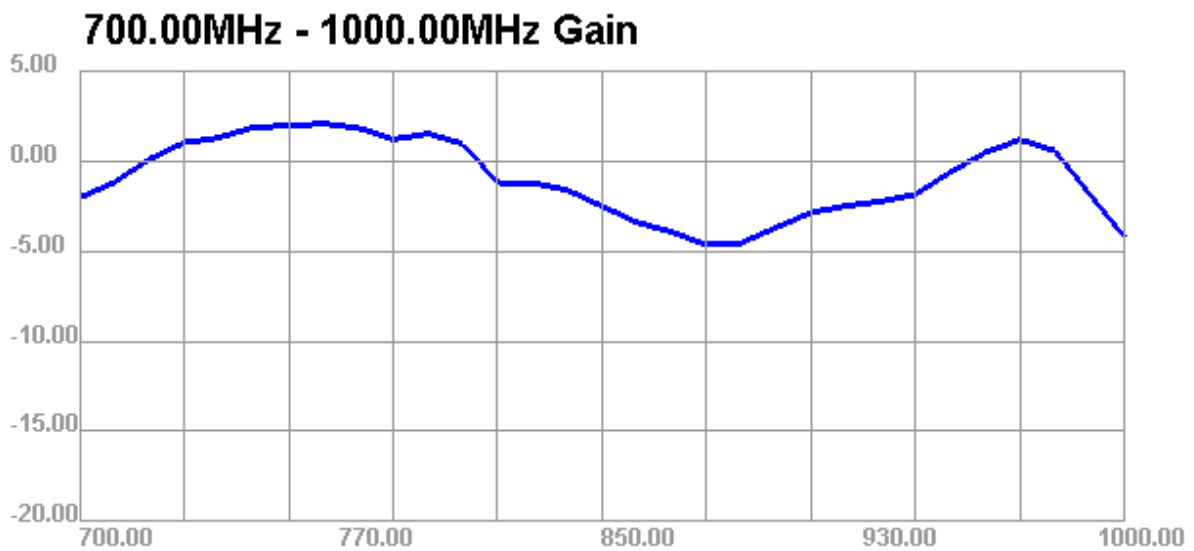
Frequency (MHz)	700	820	860	900	940	960	1700	1950	2200	2450	2700
Efficiency (%)	29.32	20.58	11.81	12.08	22.35	37.2	43.92	59.93	51.75	34.13	86.1



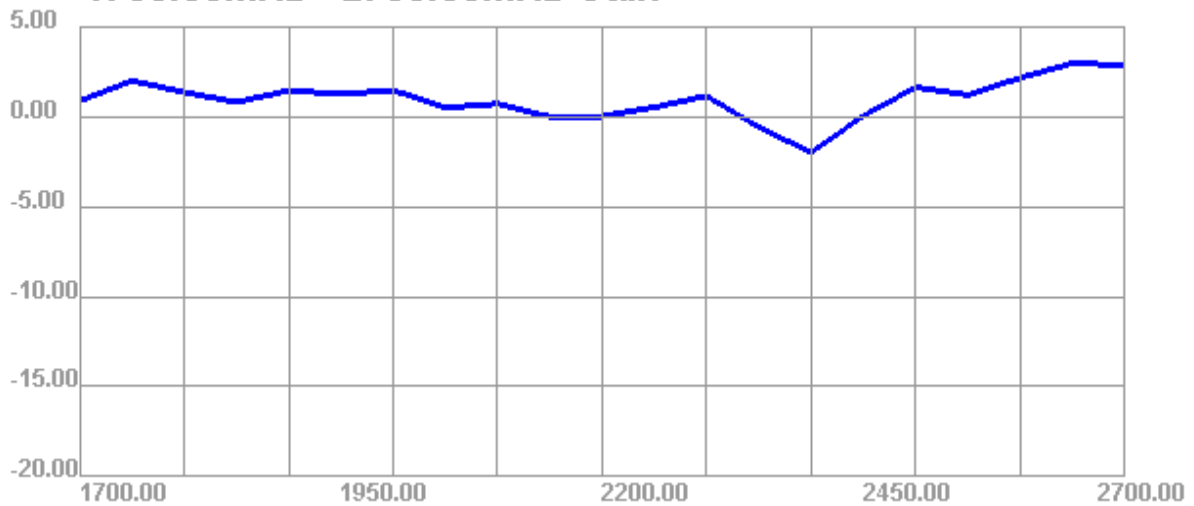
Frequency (MHz)	2400	2420	2450	2480	2500
Efficiency (%)	53.04	51.39	56.42	51.27	45.72

4.4. Gain

4.4.1. 4G



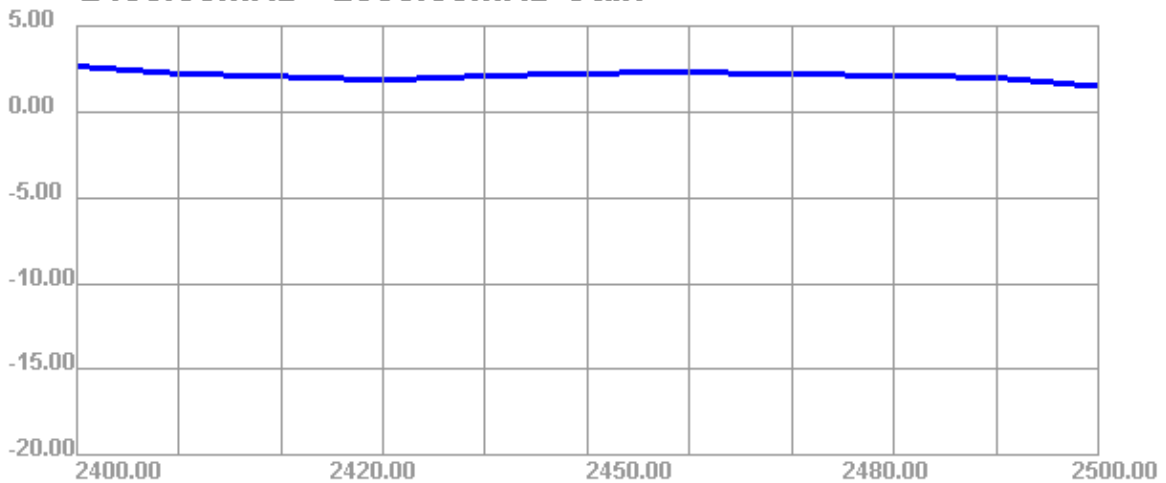
1700.00MHz - 2700.00MHz Gain



Frequency (MHz)	700	820	860	900	940	960	1700	1950	2200	2450	2700
Gain (dBi)	-2.03	-1.2	-3.4	-3.69	-1.85	0.47	0.87	1.26	0.02	0.04	2.87

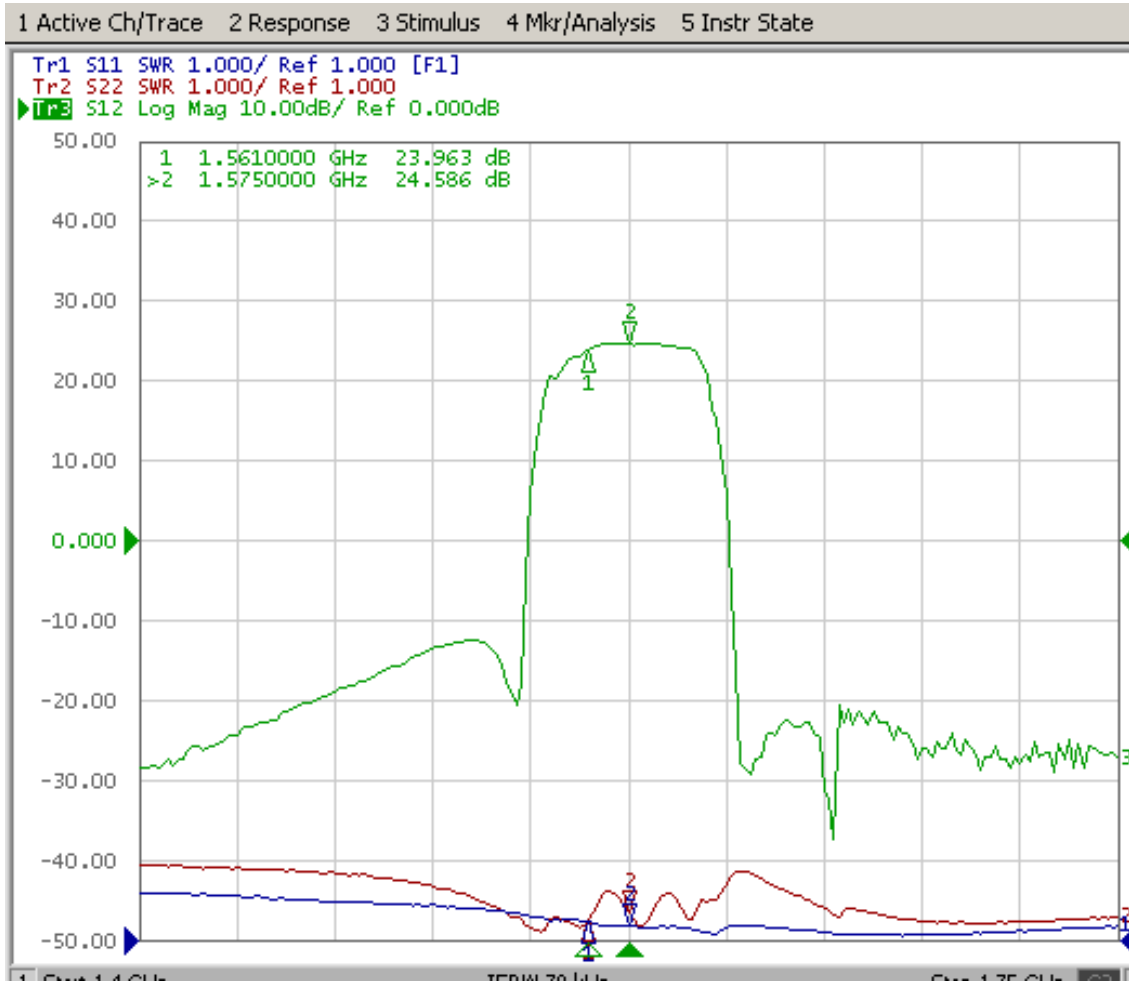
4.4.2. Bluetooth

2400.00MHz - 2500.00MHz Gain



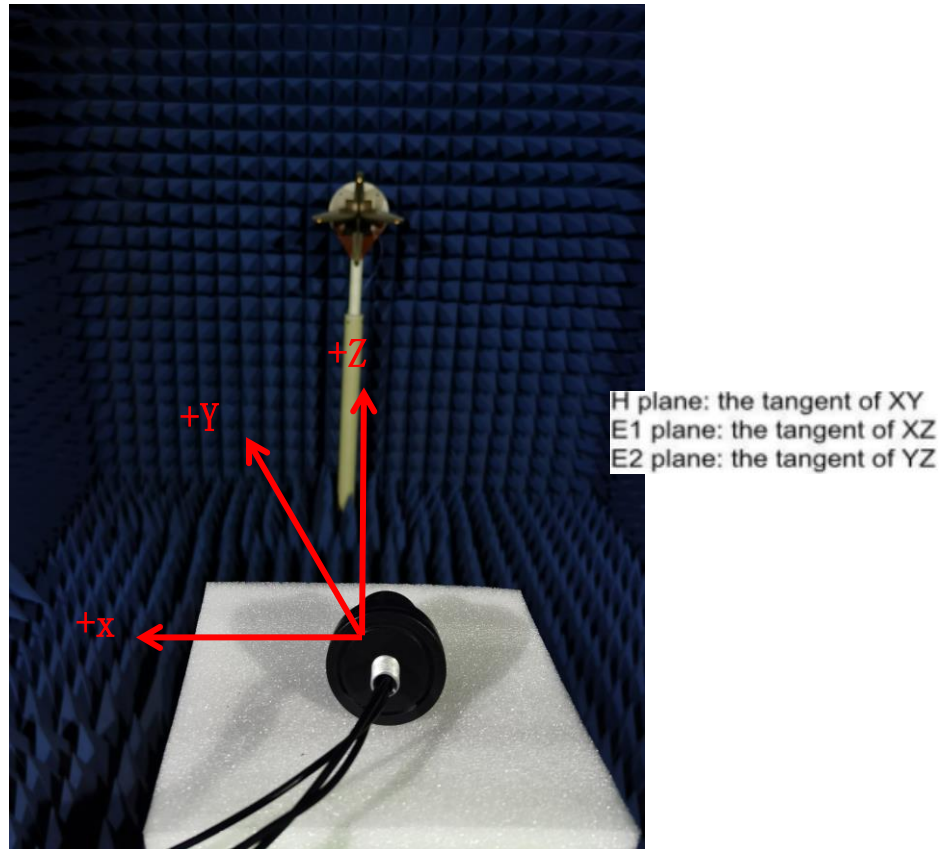
Frequency (MHz)	2400	2420	2450	2480	2500
Gain(dBi)	2.65	2.04	2.23	2.11	1.47

4.4.3. GNSS



Frequency (MHz)	1561	1575
Gain (dB)	23.96	24.58

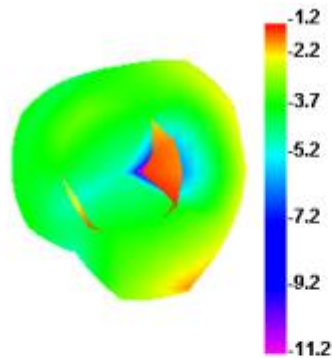
4.5. Radiation Pattern



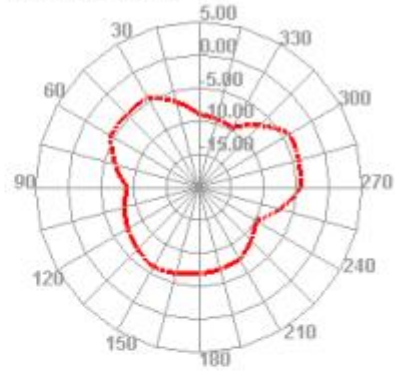
Note: The Z-axis faces the reflector antenna, the Y-axis faces the sky, and the X-axis faces the direction of the darkroom door.

4.5.1. 4G

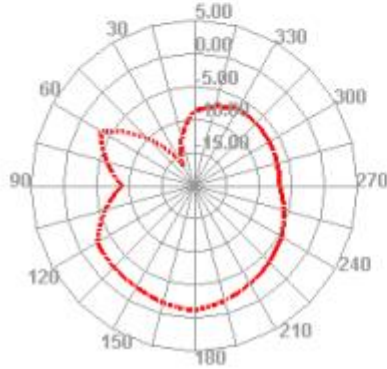
710.000MHz



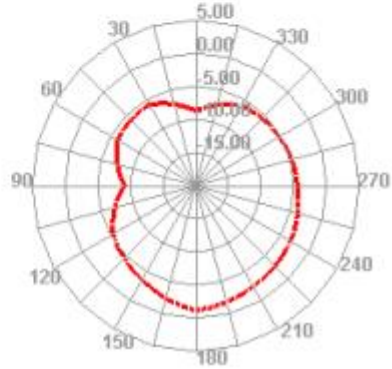
710.000MHz H



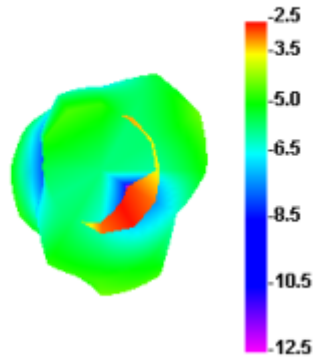
710.000MHz E1



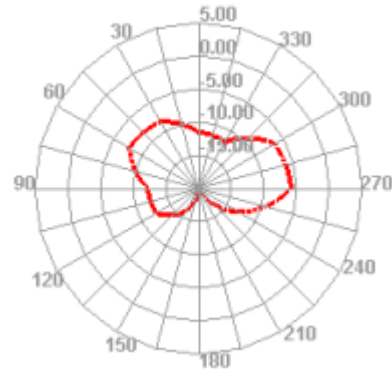
710.000MHz E2



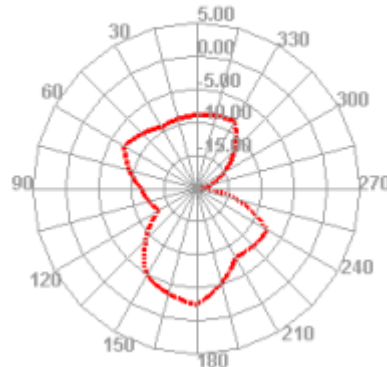
850.000MHz



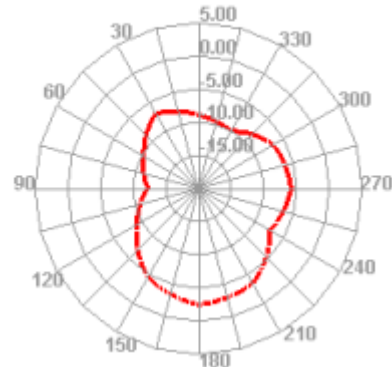
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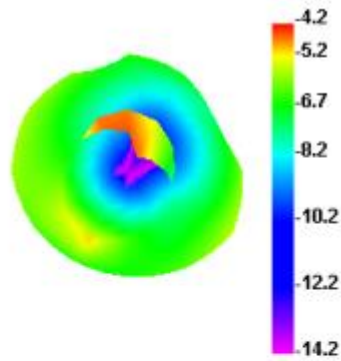
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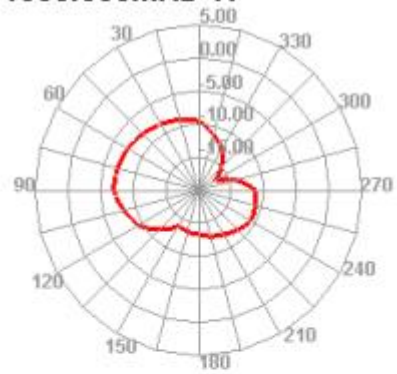
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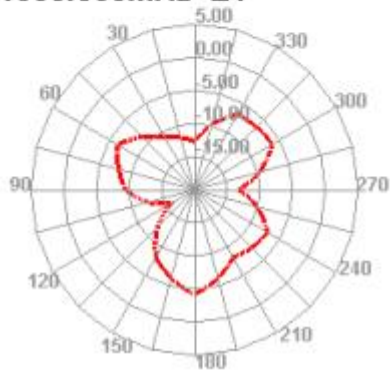
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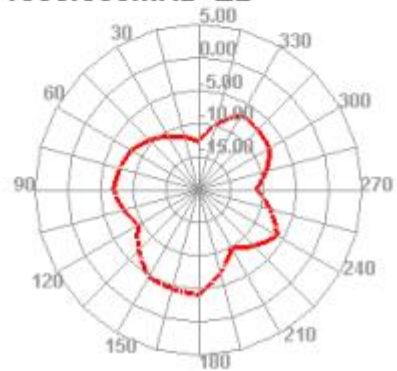
1000.000MHz H



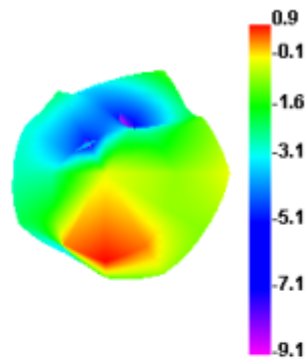
1000.000MHz E1



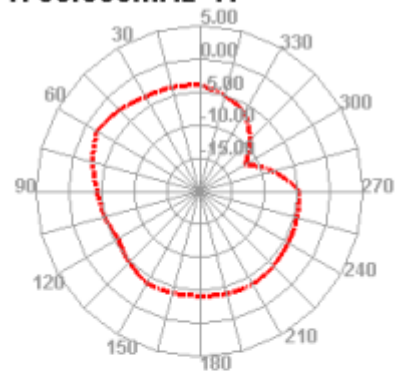
1000.000MHz E2



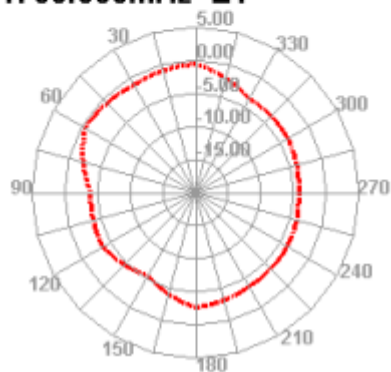
1700.000MHz



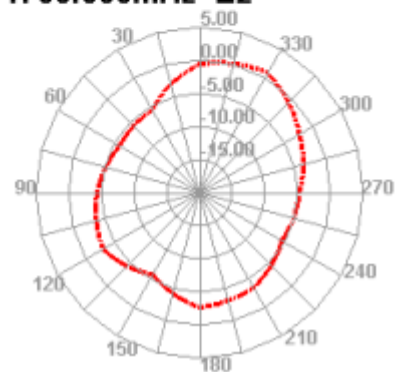
1700.000MHz H



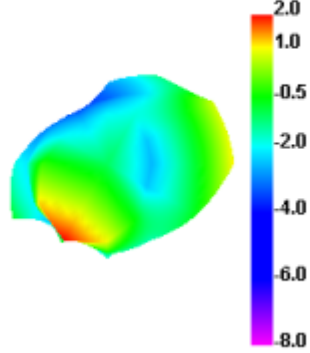
1700.000MHz E1



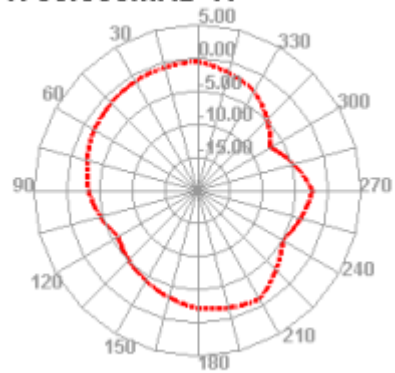
1700.000MHz E2



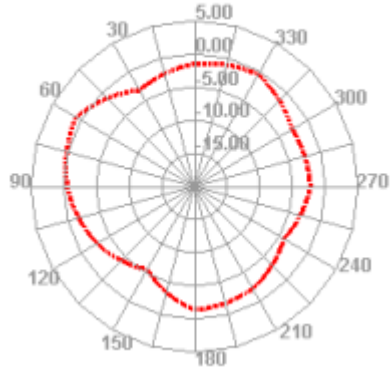
1750.000MHz



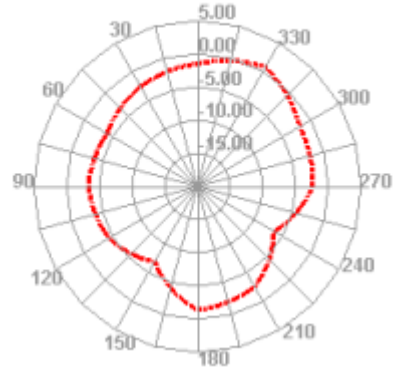
1750.000MHz H



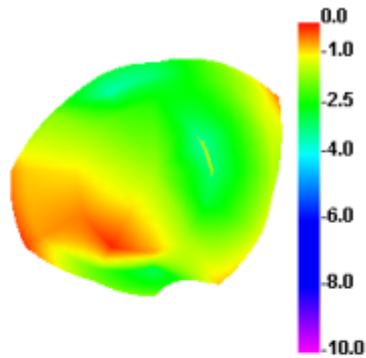
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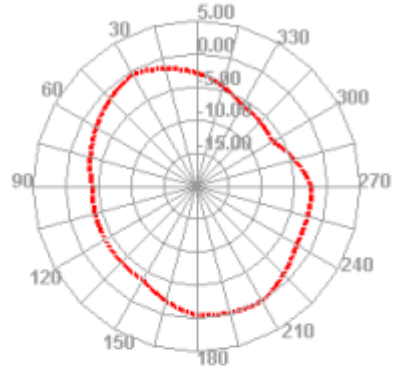
1750.000MHz E2



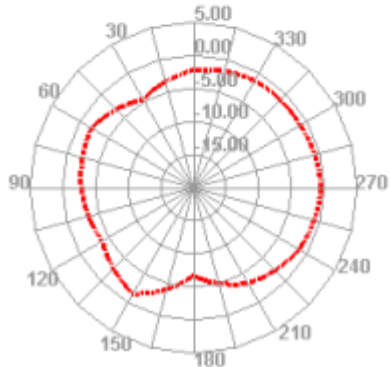
2200.000MHz



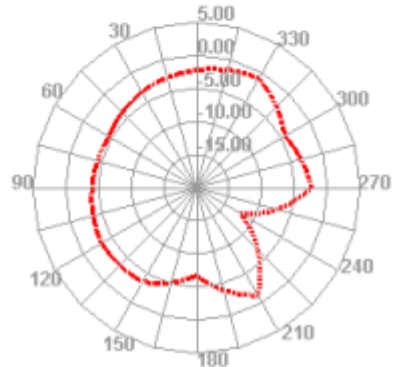
2200.000MHz H



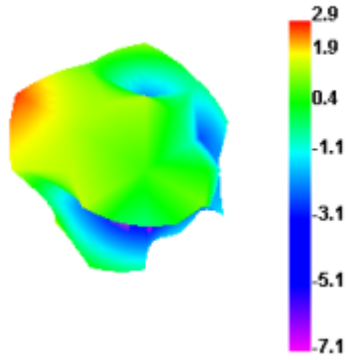
2200.000MHz E1



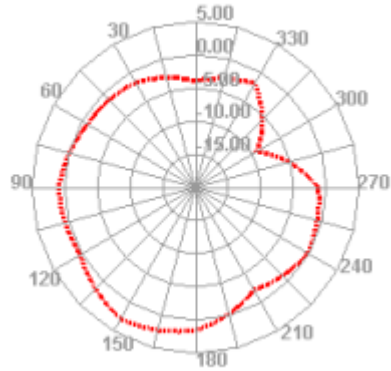
2200.000MHz E2



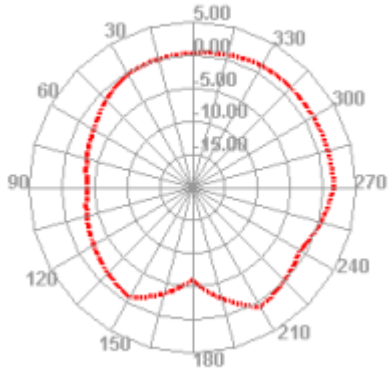
2700.000MHz



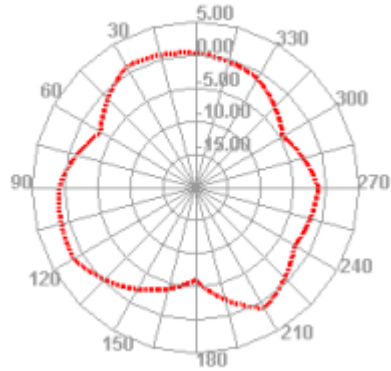
2700.000MHz H



2700.000MHz E1

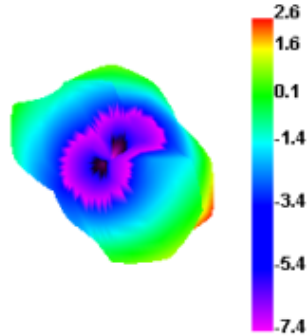


2700.000MHz E2

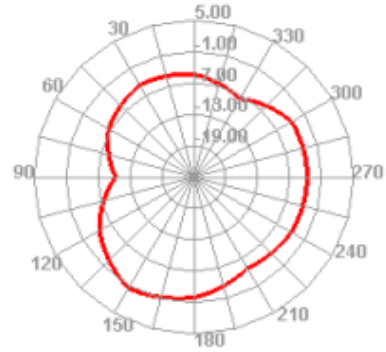


4.5.2. Bluetooth

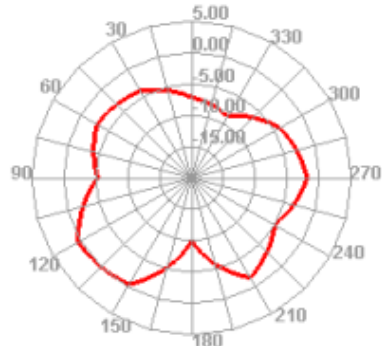
2400.000MHz



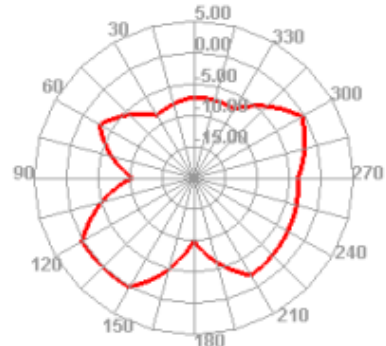
2400.000MHz H



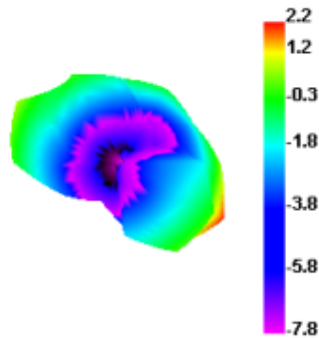
2400.000MHz E1



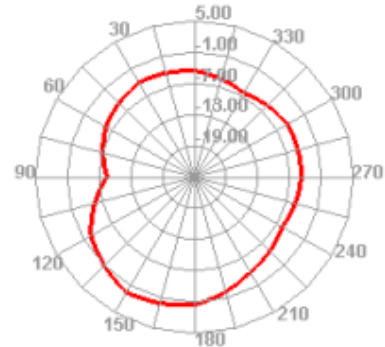
2400.000MHz E2



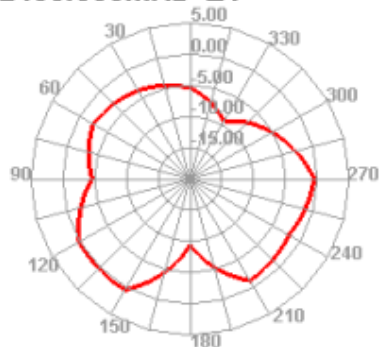
2450.000MHz



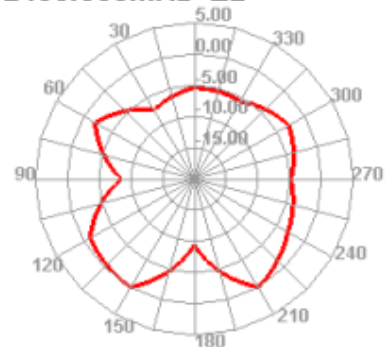
2450.000MHz H



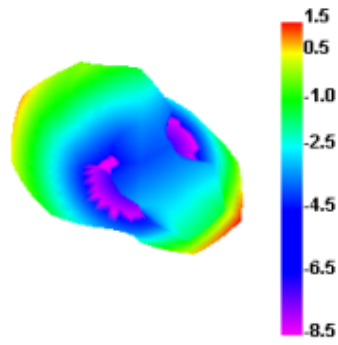
2450.000MHz E1



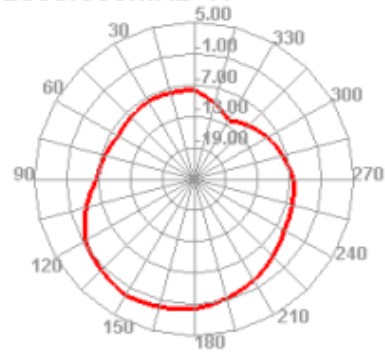
2450.000MHz E2



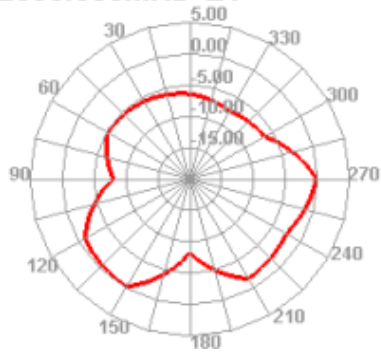
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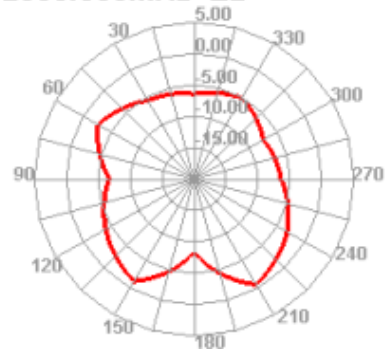
2500.000MHz H



2500.000MHz E1



2500.000MHz E2



5 Product Size

