

Antenna

YB0015AA Datasheet

Antenna Services

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Status: Released



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About the Document

Revision History

Version	Date	Author	Note
-	2020-10-22	Kenny YIN	Creation of the document
1.0	2020-10-22	Kenny YIN	Initial
1.1	2021-01-18	Kenny YIN	Updated the antenna image in Chapter 2.

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1 Product Description

The antenna is designed for superior performance, and can be widely used for wireless 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/GPS&BD/WIFI
- High efficiency
- Excellent performance



3 Product Specifications

Electrical Specifications

Frequency Range	LTE: 698–960 MHz; 1700–2700 MHz WIFI&BT: 2400–2500 MHz GNSS: 1561 ±5 MHz; 1575 ±5 MHz;
Input Impedence	50 Ω
VSWR	LTE: ≤ 4.0
Gain	LTE: 698-960 MHz: < 4.0 dBi; 1700-2700 MHz: < 5.0 dBi WIFI&BT: 2400-2500 MHz: < 2.5 dBi; GNSS (GPS&BD): 28 ±3 dB (LNA)
Polarization Type	Linear: LTE/WIFI&BT RHCP: GNSS

Mechanical Specifications

Antenna Size	54 mm × 91 mm, RG174 Length = 300 mm
Casing	ABS + PC
Connector Type	SMA Male (with center pin)
Working Temperature	-20 °C to +85 °C
Radome Color	Black
Ingress Protection Rating	IP66

4 Overall Performance

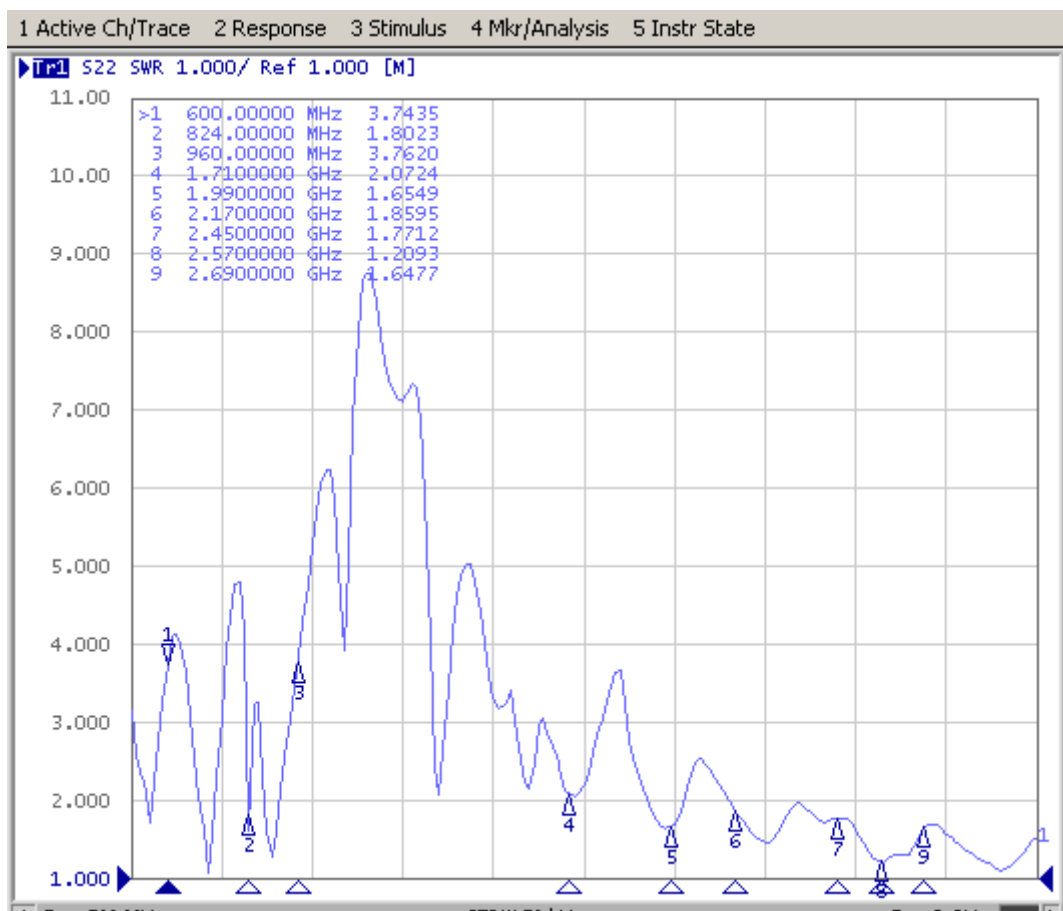
4.1. Test Environment

- KEYSIGHT VNA Network Analyzer E5063A 100 kHz – 6.5 GHz
- RayZone® 2800 Chamber 5G (FR1) SISO/MIMO, 400 MHz – 6.0 GHz



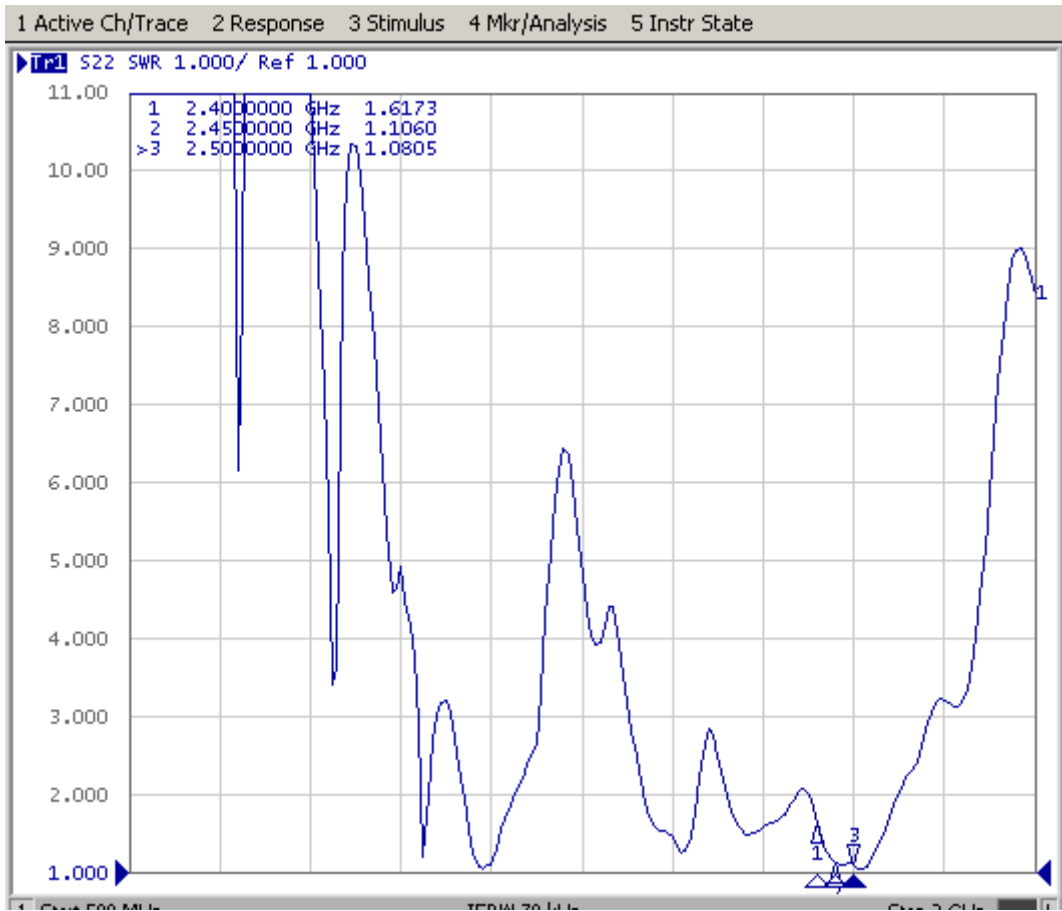
4.2. VSWR

4G



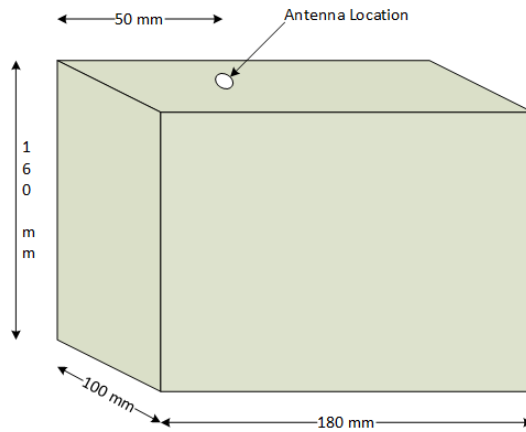
Frequency (MHz)	698	824	960	1710	1990	2170	2450	2570	2690
VSWR	3.74	1.80	3.76	2.07	1.65	1.86	1.77	1.21	1.65

WIFI&BT

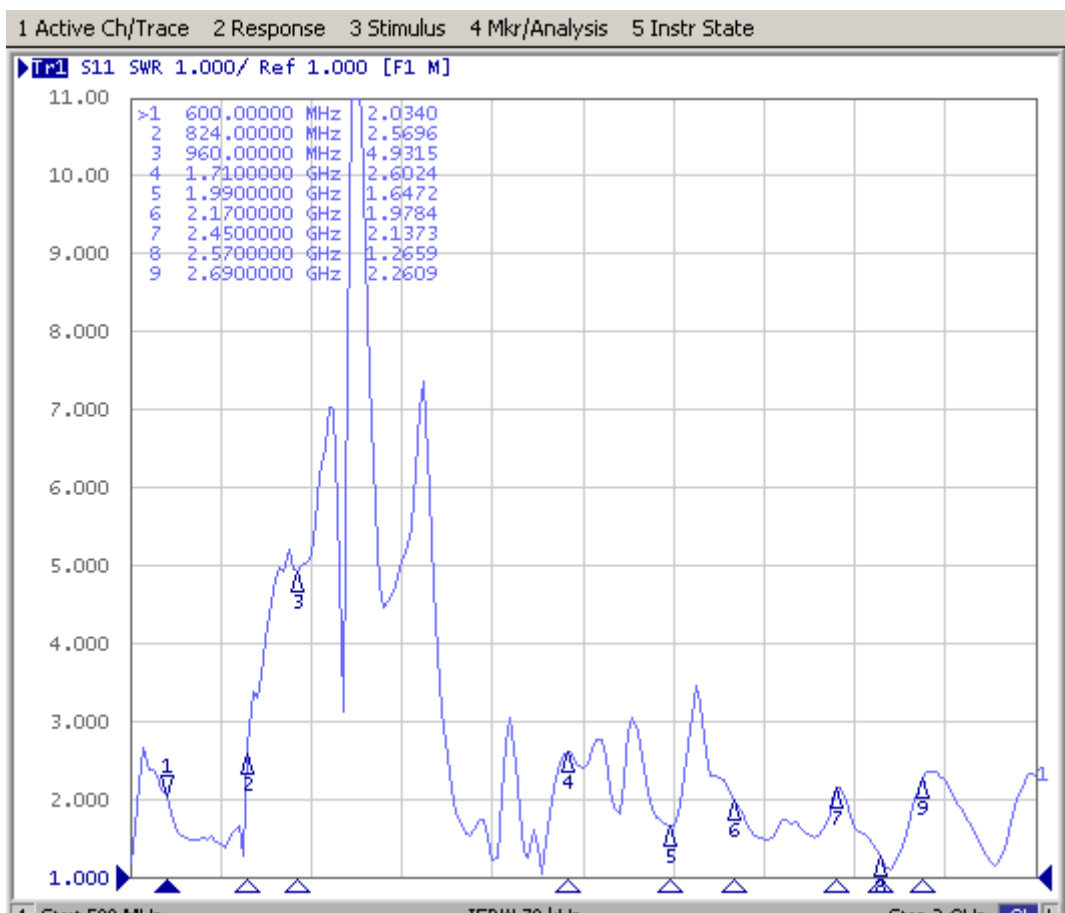


Frequency (MHz)	2400	2450	2500
VSWR	1.62	1.11	1.08

Add metal mounting plate (180 × 100 × 160 mm):

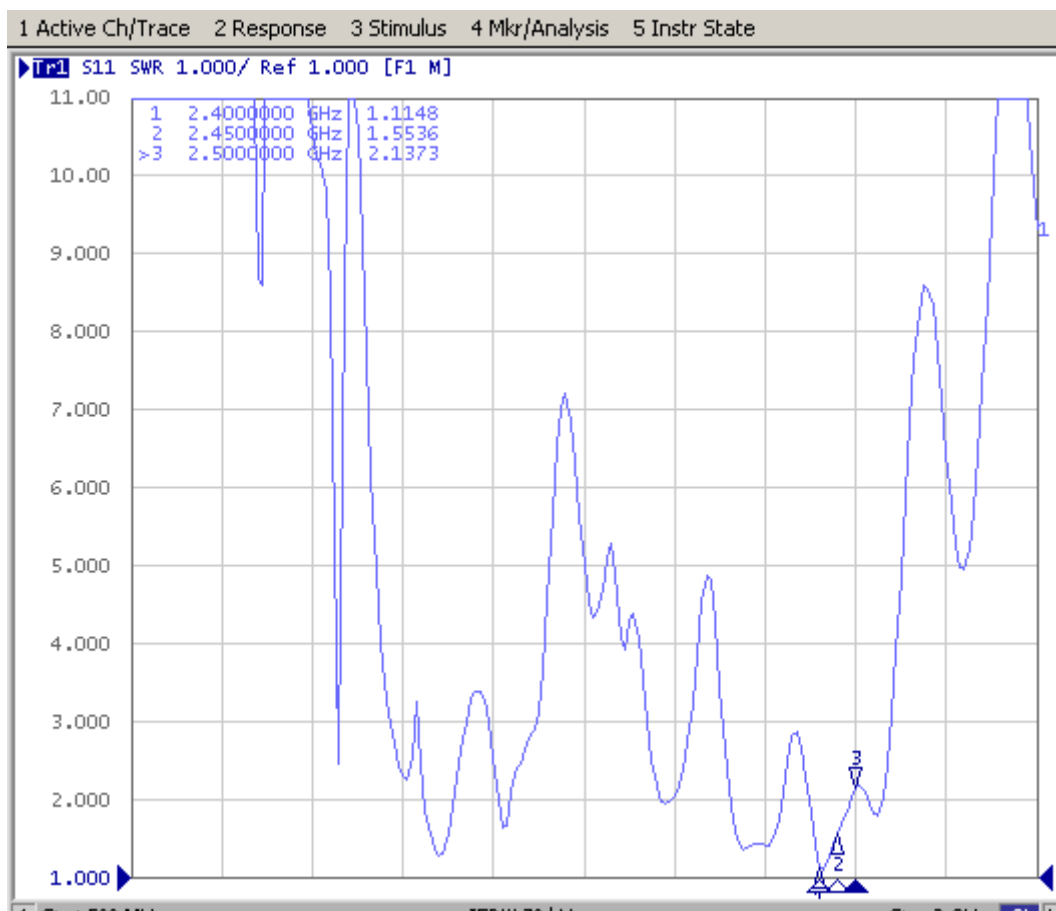


4G



Frequency (MHz)	600	824	960	1710	1990	2170	2450	2570	2690
VSWR	2.03	2.57	4.93	2.60	1.65	1.98	2.14	1.27	2.26

WIFI&BT



Frequency (MHz)	2400	2450	2500
VSWR	1.11	1.55	2.14

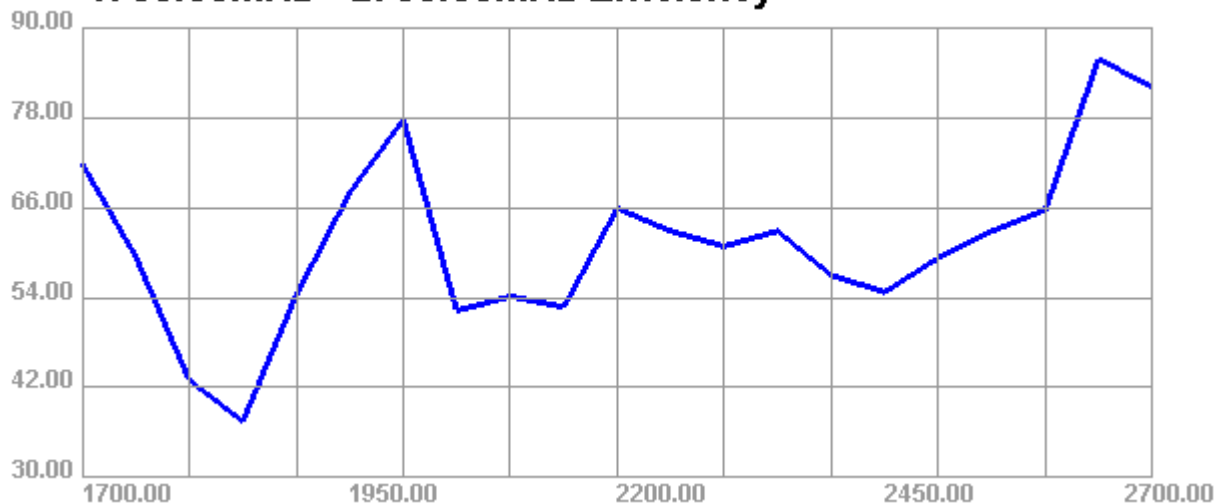
4.3. Efficiency

4G

700.00MHz - 1000.00MHz Efficiency



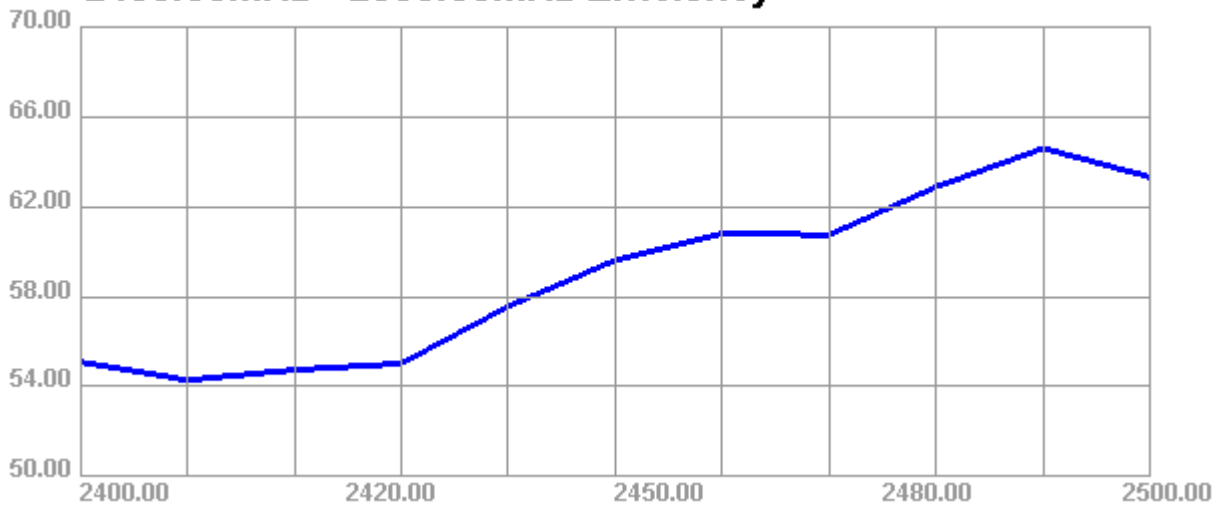
1700.00MHz - 2700.00MHz Efficiency



Frequency (MHz)	700	780	840	960	1000	1700	1950	2150	2450	2650
Efficiency (%)	40.53	56.33	41.07	39.21	42.12	71.84	68.01	52.73	54.76	85.84

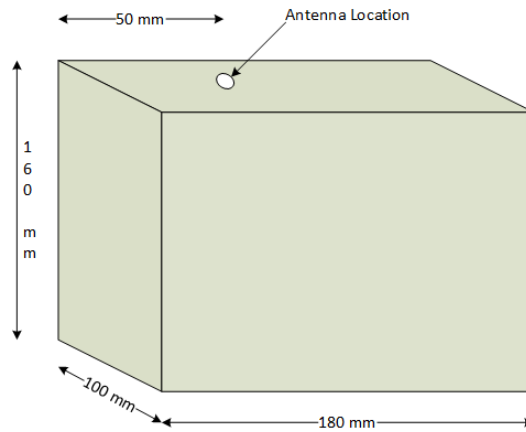
WIFI&BT

2400.00MHz - 2500.00MHz Efficiency



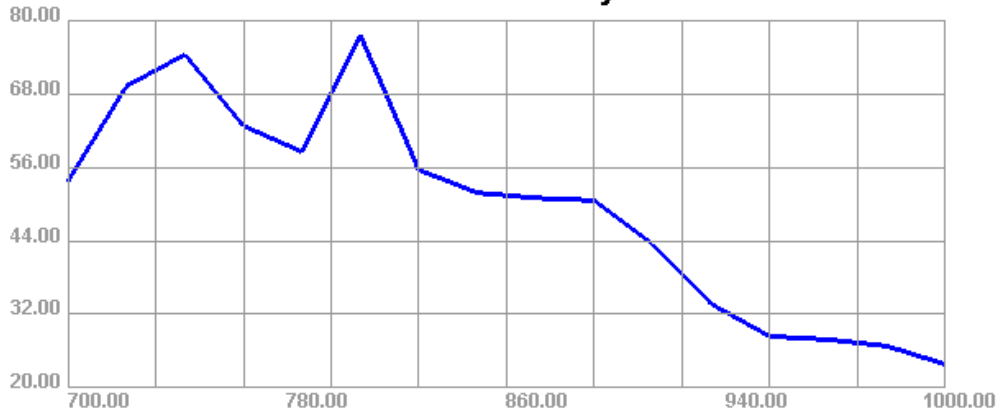
Frequency (MHz)	2400	2420	2450	2500
Efficiency (%)	55.09	54.75	59.62	63.32

Add metal mounting plate (180 × 100 × 160 mm):

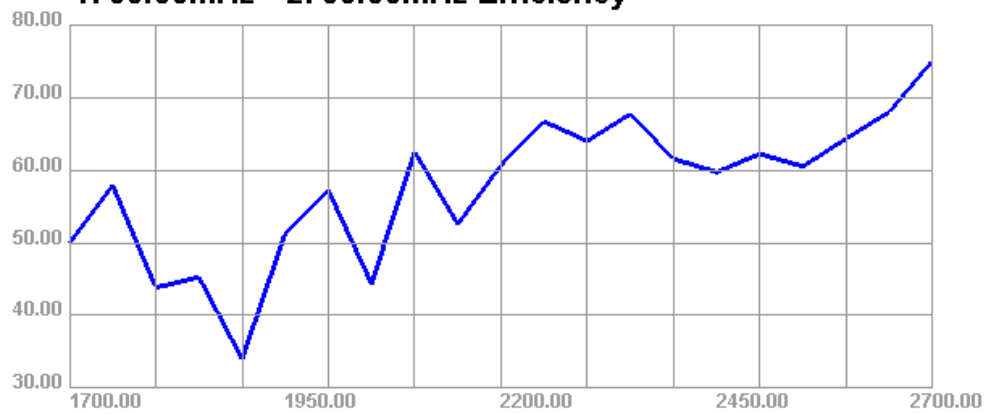


4G

700.00MHz - 1000.00MHz Efficiency

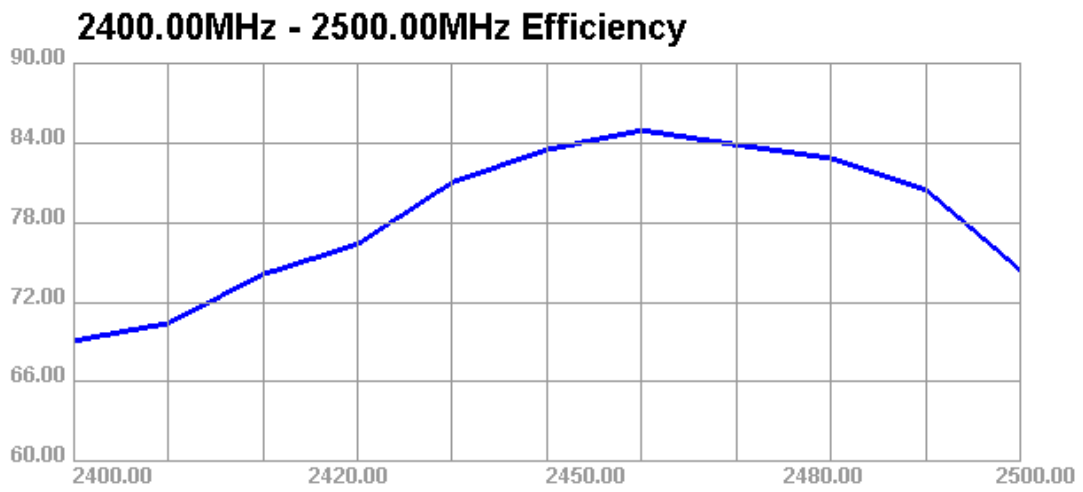


1700.00MHz - 2700.00MHz Efficiency



Frequency (MHz)	700	780	840	960	1000	1700	1950	2150	2450	2650
Efficiency (%)	53.76	58.58	51.86	27.87	23.85	49.96	51.29	52.58	59.73	68.02

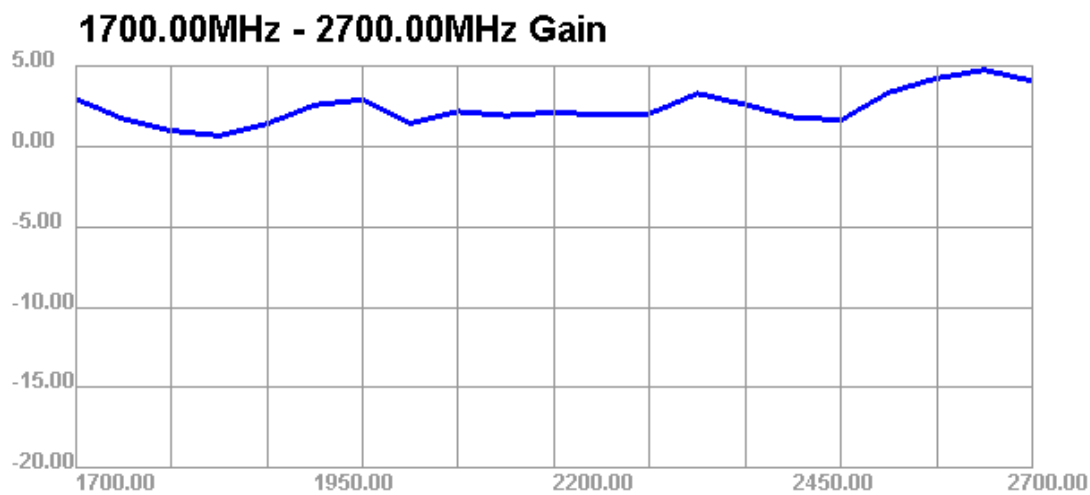
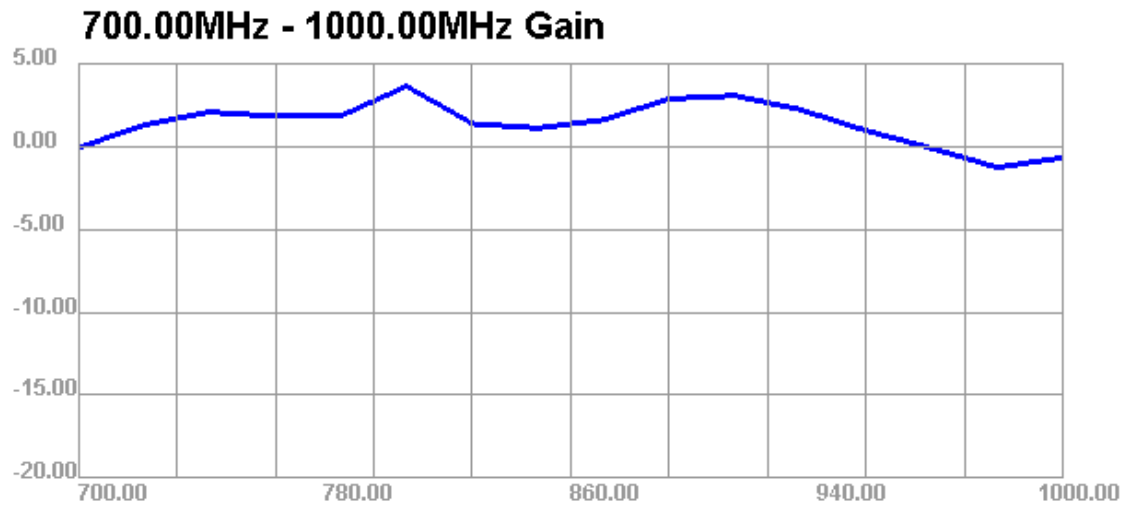
WIFI&BT



Frequency (MHz)	2400	2420	2450	2500
Efficiency (%)	69.09	74.09	83.48	74.41

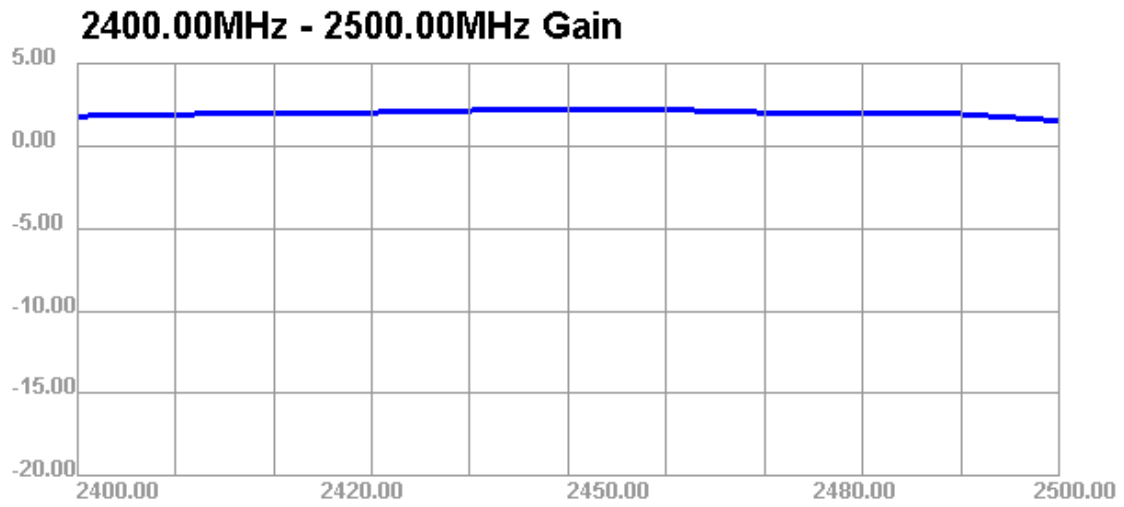
4.4. Gain

4G



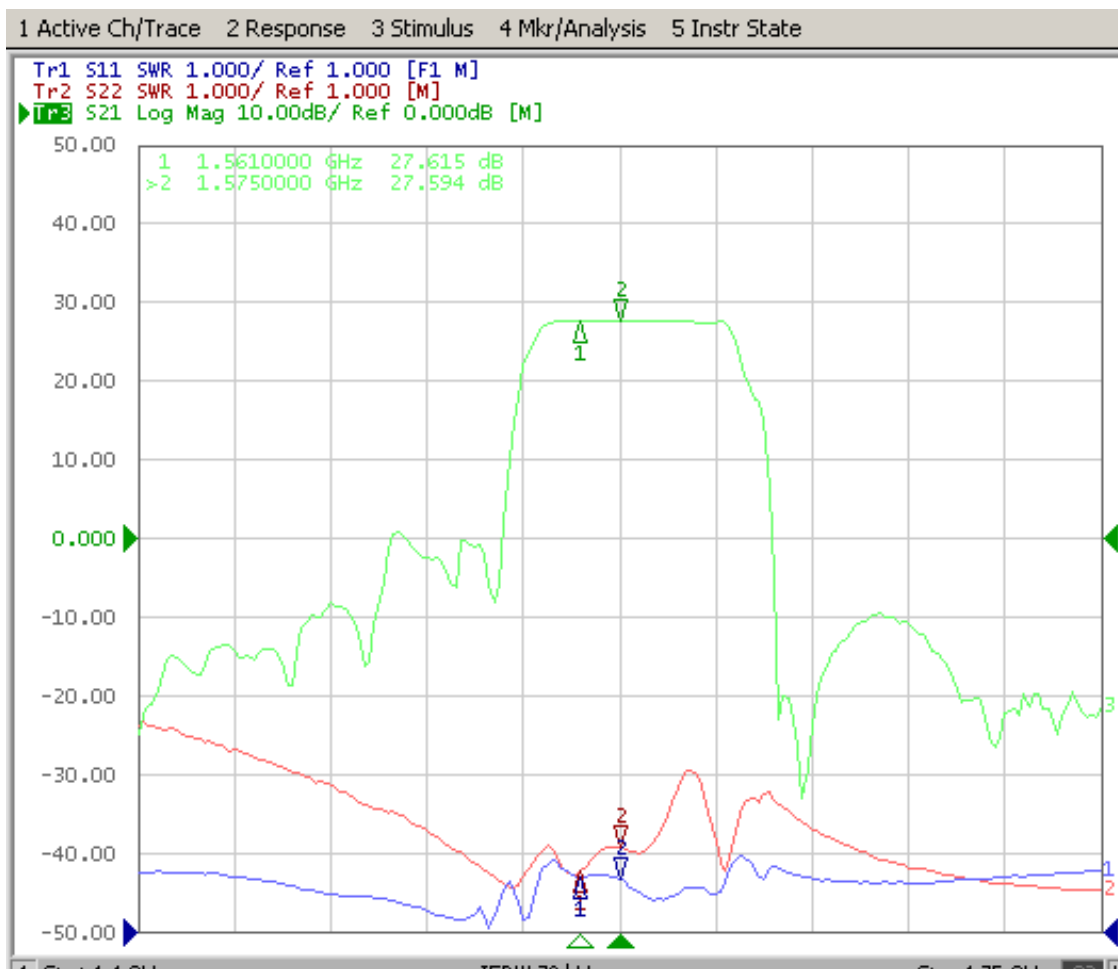
Frequency (MHz)	700	780	840	960	1000	1700	1950	2150	2450	2650
Gain (dBi)	-0.08	1.84	1.1	-0.11	-0.67	2.95	2.55	1.9	1.8	4.73

WIFI&BT



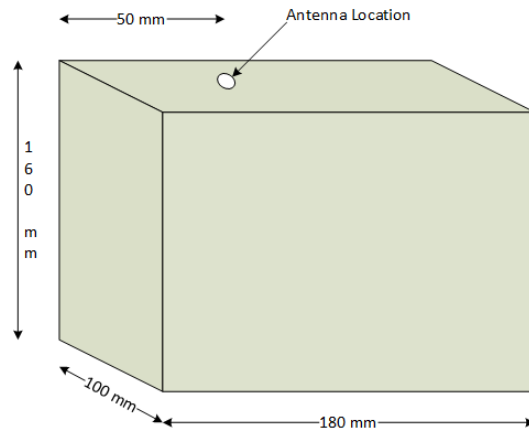
Frequency (MHz)	2400	2420	2450	2500
Gain (dBi)	1.8	2	2.22	1.52

GNSS



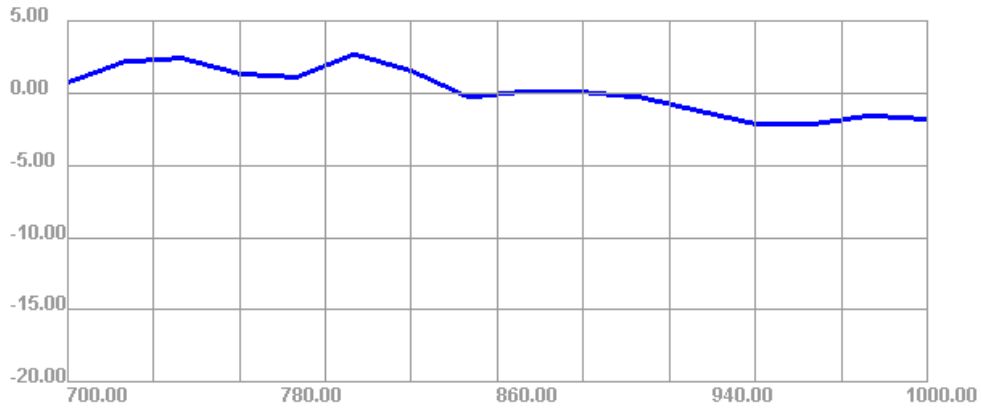
Frequency (MHz)	1561	1575
Gain (dB)	27.62	27.59

Add metal mounting plate (180 × 100 × 160 mm):

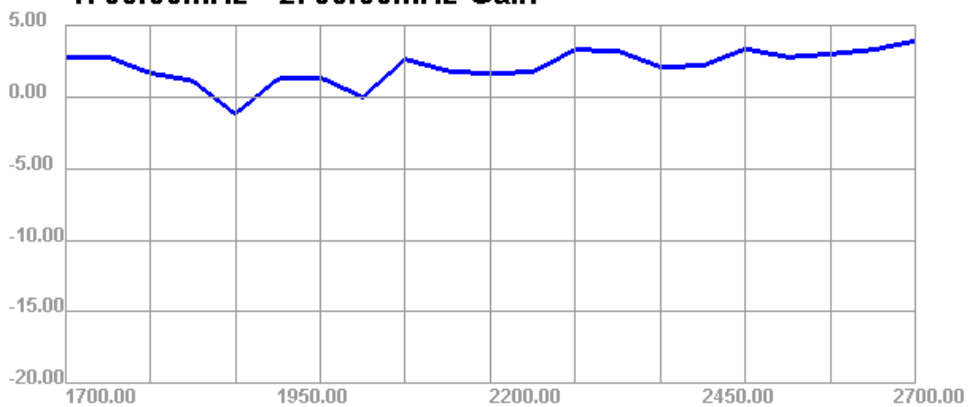


4G

700.00MHz - 1000.00MHz Gain

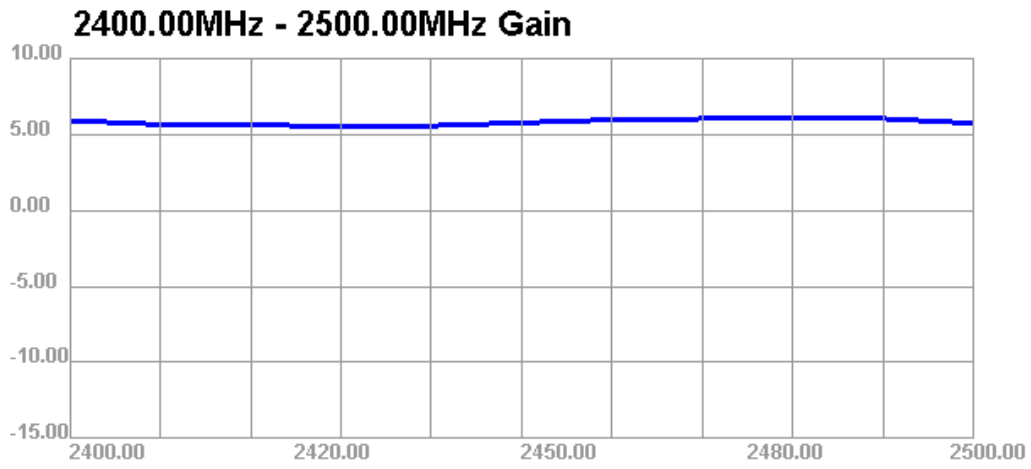


1700.00MHz - 2700.00MHz Gain



Frequency (MHz)	700	780	840	960	1000	1700	1950	2150	2450	2650
Gain (dBi)	0.71	1.08	-0.3	-2.14	-1.82	2.76	1.25	1.8	2.18	3.28

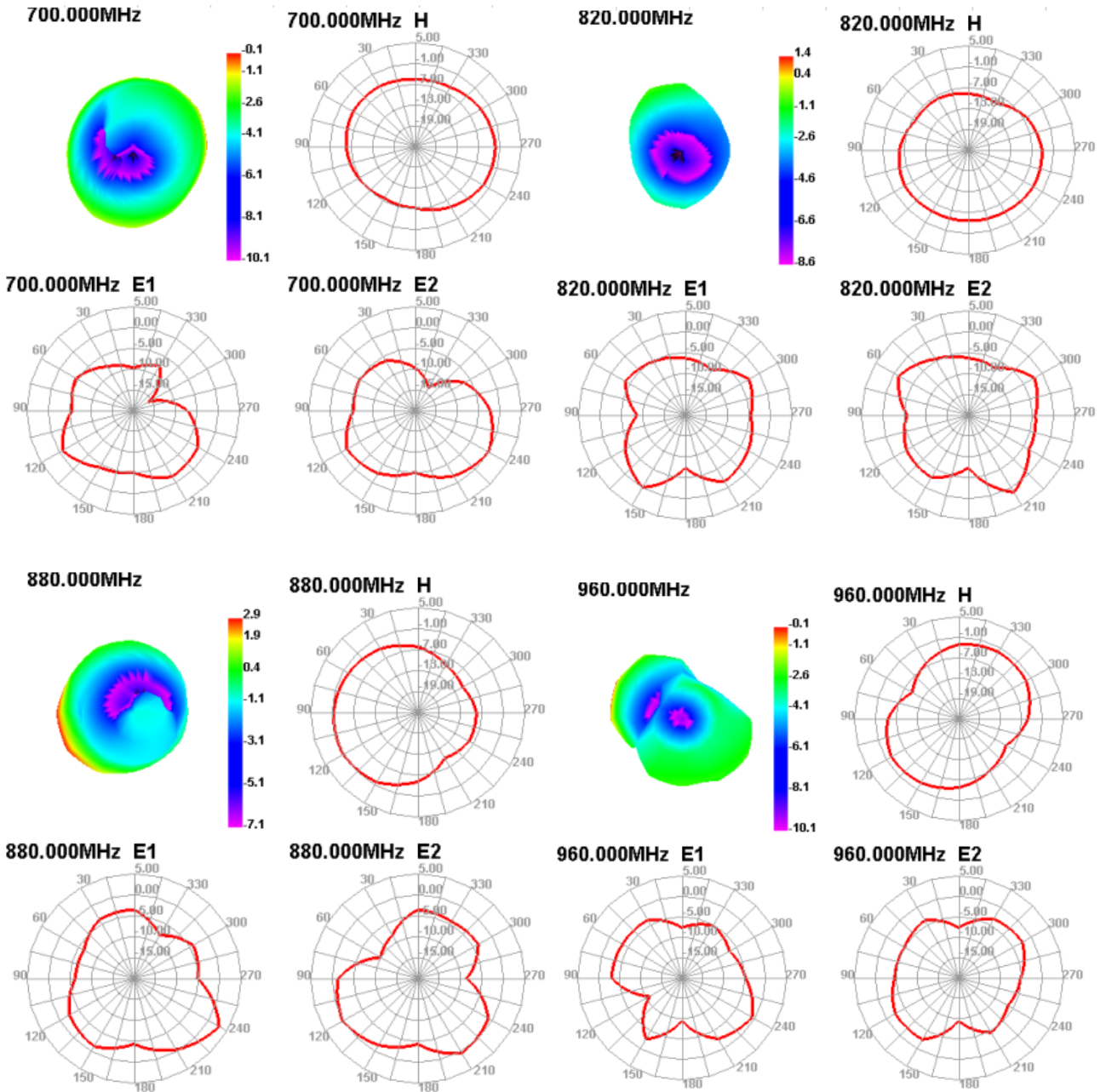
WIFI&BT



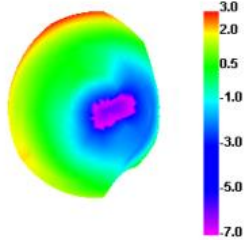
Frequency (MHz)	2400	2420	2450	2500
Gain (dBi)	5.91	5.65	5.77	5.73

4.5. Radiation Patterns

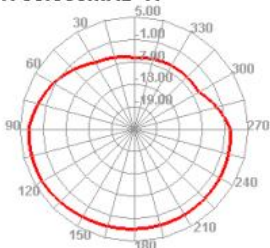
4G



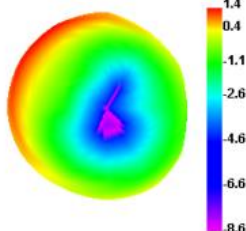
1700.000MHz



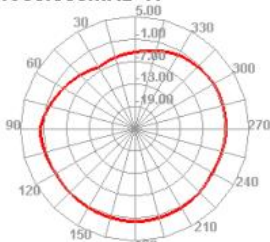
1700.000MHz H



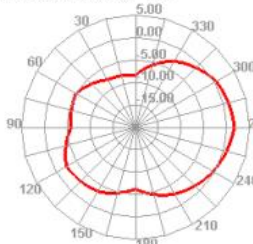
1900.000MHz



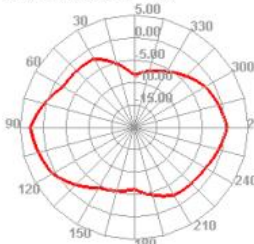
1900.000MHz H



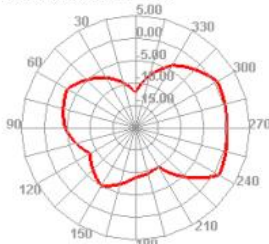
1700.000MHz E1



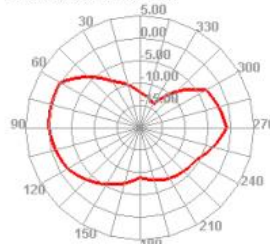
1700.000MHz E2



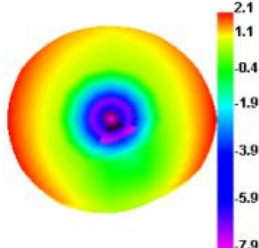
1900.000MHz E1



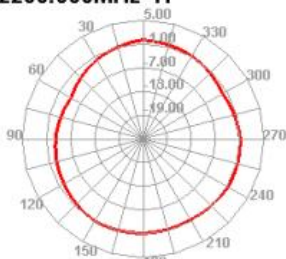
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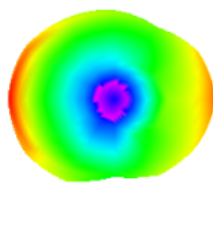
2200.000MHz



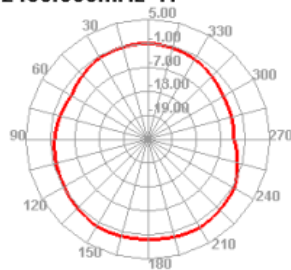
2200.000MHz H



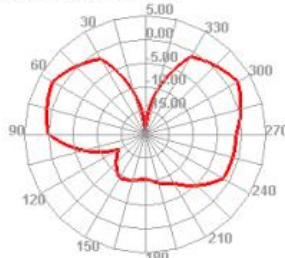
2450.000MHz



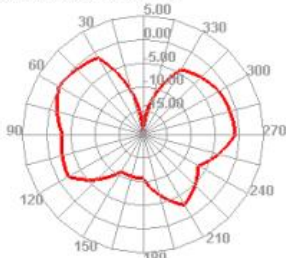
2450.000MHz H



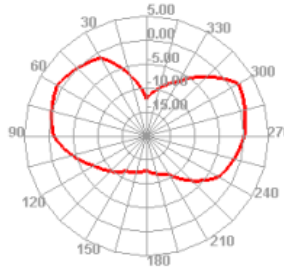
2200.000MHz E1



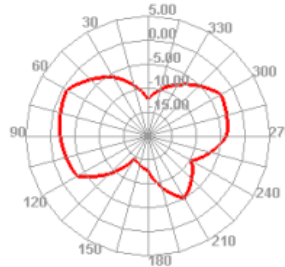
2200.000MHz E2



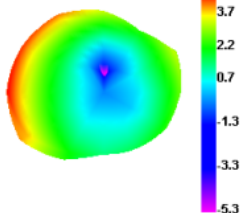
2450.000MHz E1



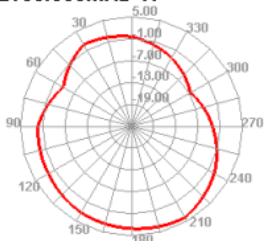
2450.000MHz E2



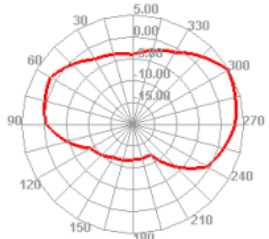
2650.000MHz



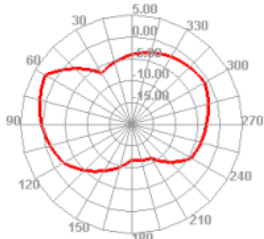
2650.000MHz H



2650.000MHz E1

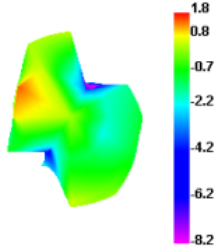


2650.000MHz E2

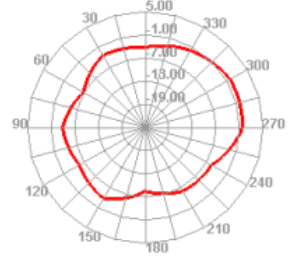


WiFi&BT

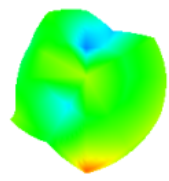
2400.000MHz



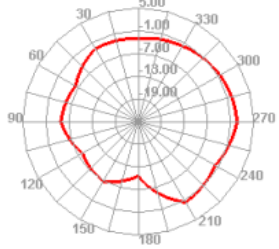
2400.000MHz H



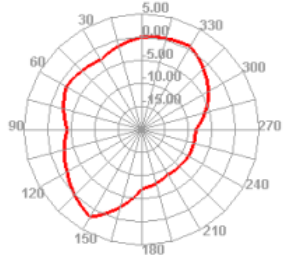
2450.000MHz



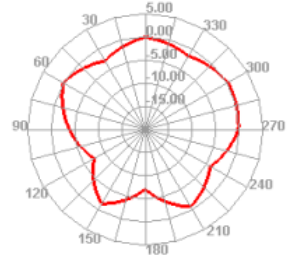
2450.000MHz H



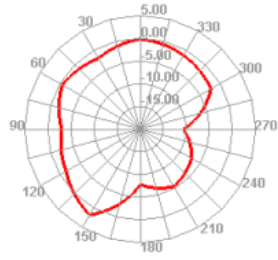
2400.000MHz E1



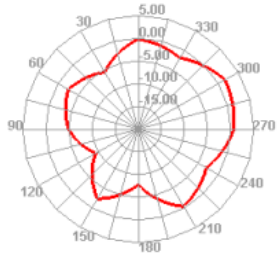
2400.000MHz E2



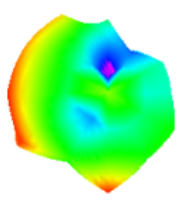
2450.000MHz E1



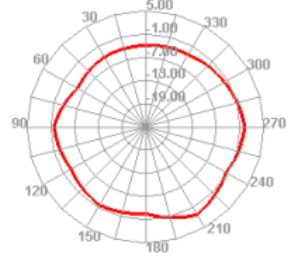
2450.000MHz E2



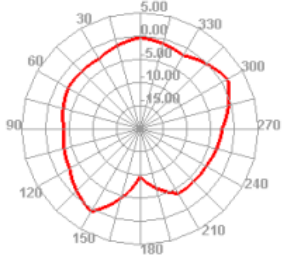
2500.000MHz



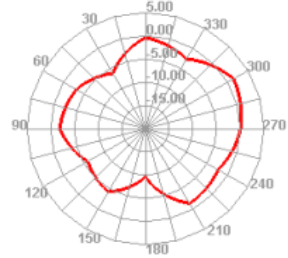
2500.000MHz H



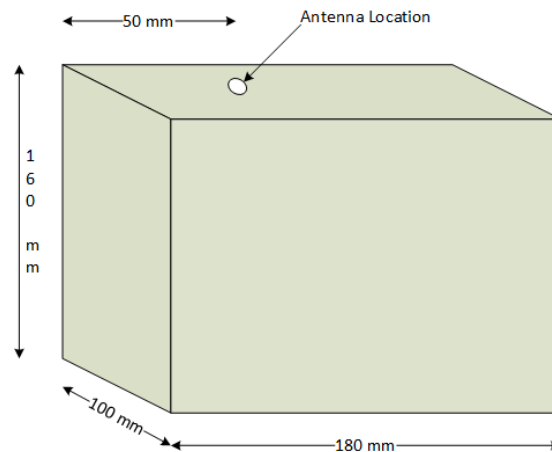
2500.000MHz E1



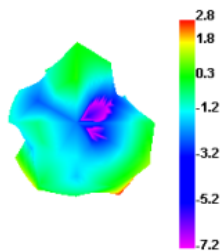
2500.000MHz E2



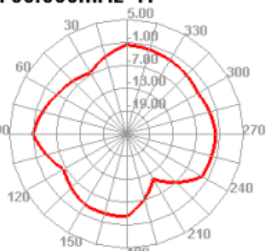
Add metal mounting plate (180 × 100 × 160 mm):



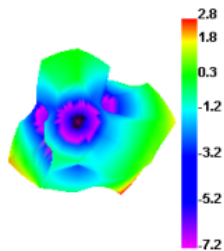
1700.000MHz



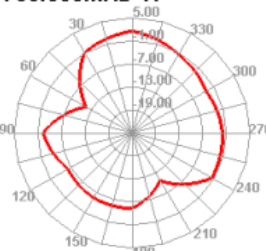
1700.000MHz H



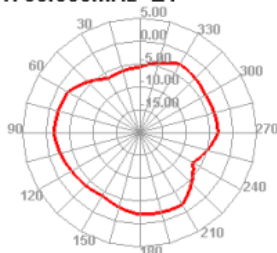
1750.000MHz



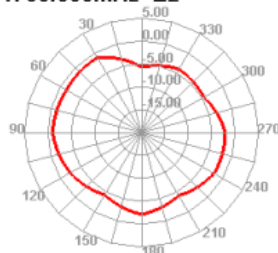
1750.000MHz H



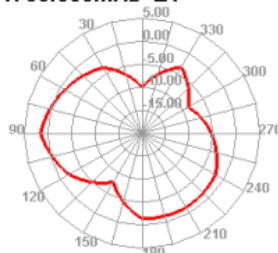
1700.000MHz E1



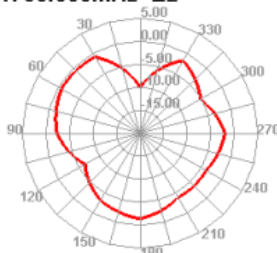
1700.000MHz E2



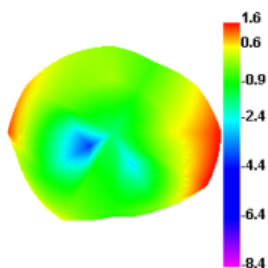
1750.000MHz E1



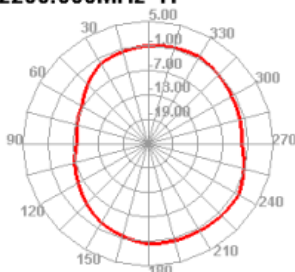
1750.000MHz E2



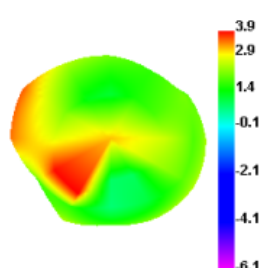
2200.000MHz



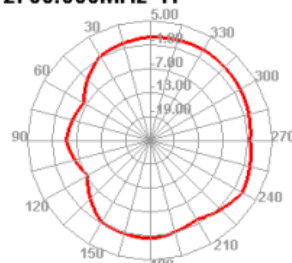
2200.000MHz H



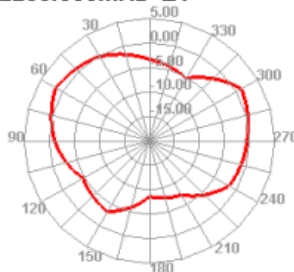
2700.000MHz



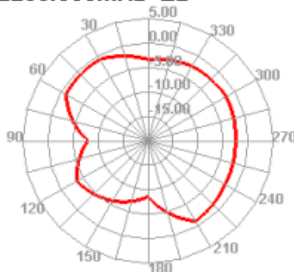
2700.000MHz H



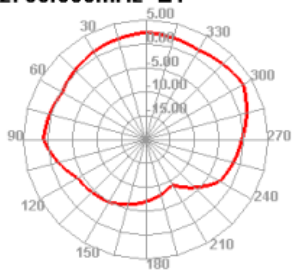
2200.000MHz E1



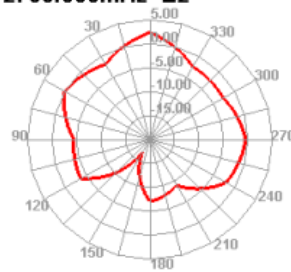
2200.000MHz E2



2700.000MHz E1

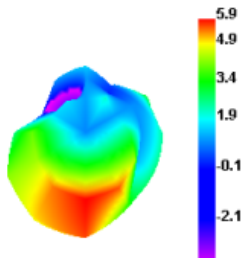


2700.000MHz E2

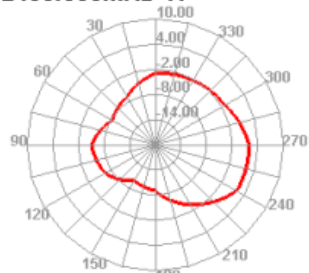


WIFI&BT

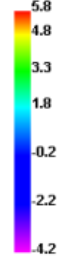
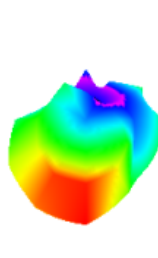
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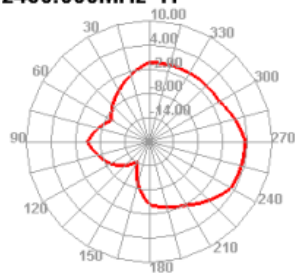
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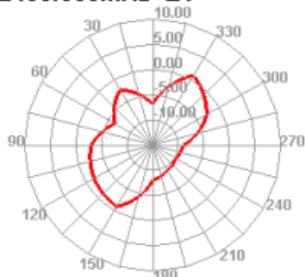
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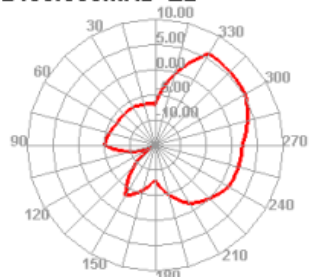
2450.000MHz H



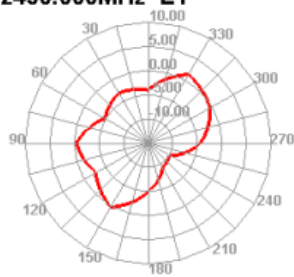
2400.000MHz E1



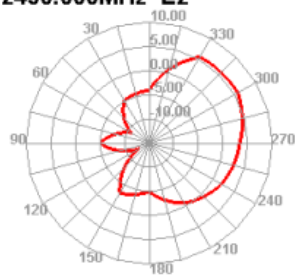
2400.000MHz E2



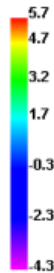
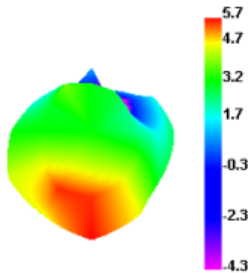
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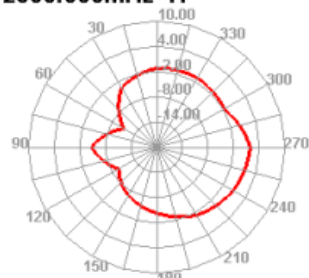
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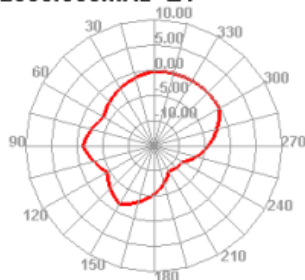
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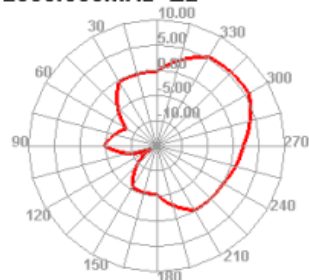
2500.000MHz H



2500.000MHz E1

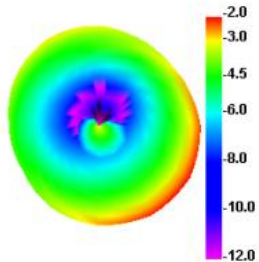


2500.000MHz E2

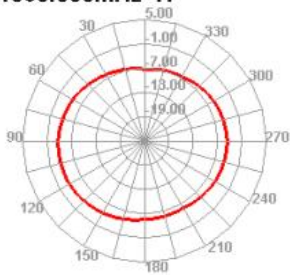


GNSS

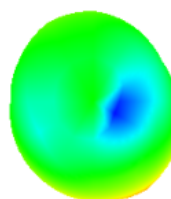
1560.000MHz



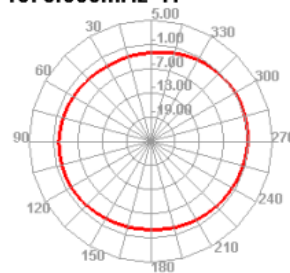
1560.000MHz H



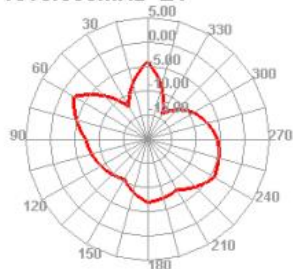
1575.000MHz



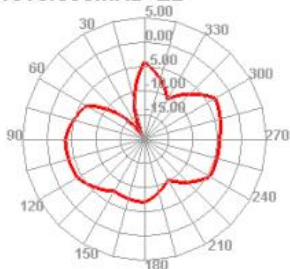
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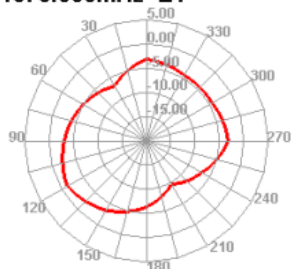
1560.000MHz E1



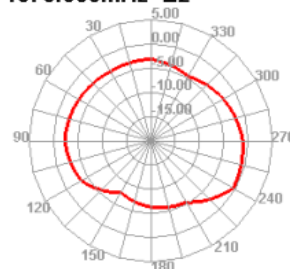
1560.000MHz E2



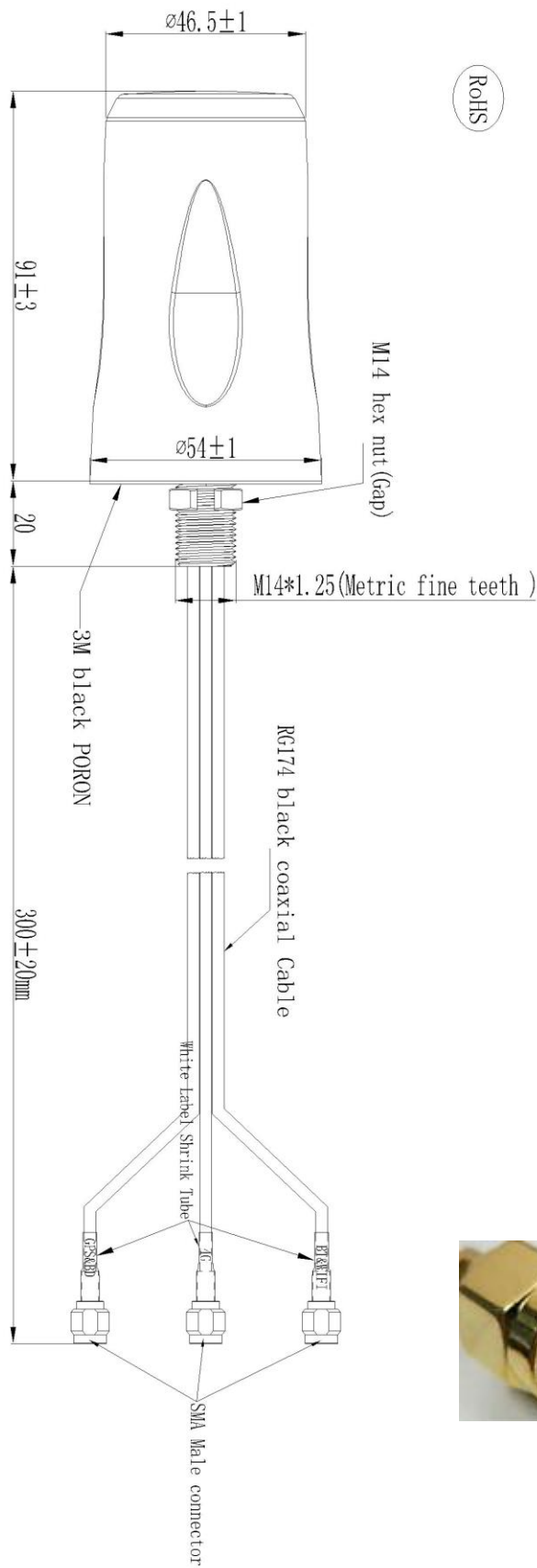
1575.000MHz E1



1575.000MHz E2



5 Product Size



Unit: mm