

# Antenna

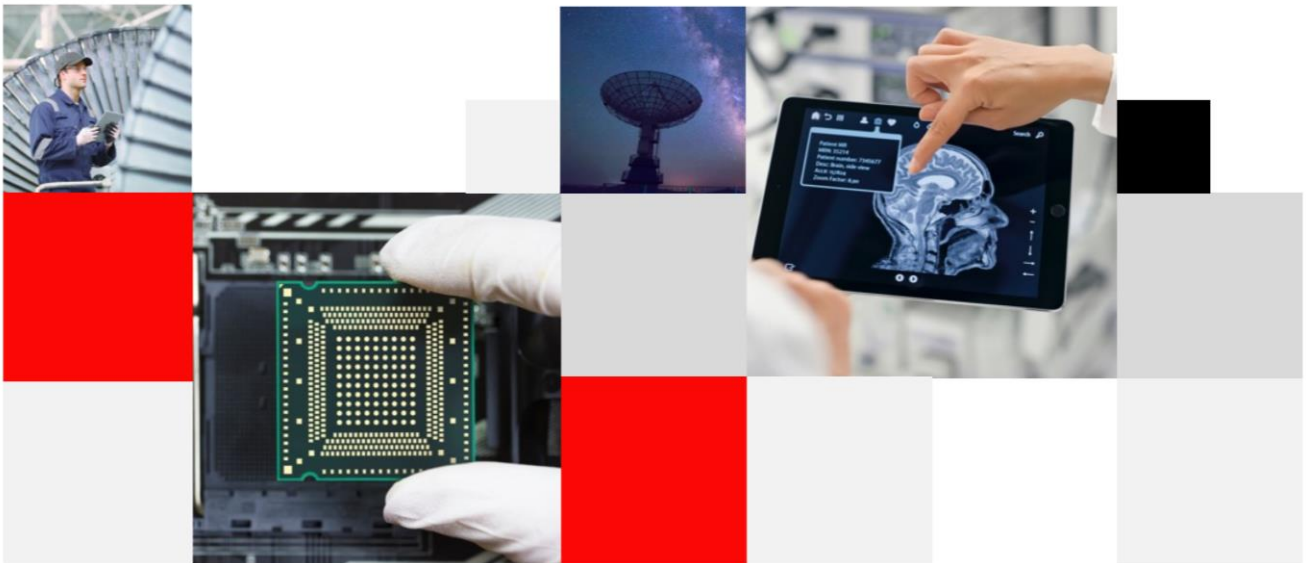
# YB0026AA Datasheet

## Antenna Services

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Status: Released



Build a Smarter World

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# About the Document

## Revision History

Version	Date	Author	Note
-	2020-12-07	Kenny YIN	Creation of the document
1.0	2020-12-07	Kenny YIN	First official release
1.1	2020-12-21	Kenny YIN	Added the laboratory test axes

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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/WIFI/GNSS
- High efficiency
- Excellent performance



### 3 Product Specifications

#### LTE/WIFI Electrical Specifications

Frequency Range	LTE: 700–2700 MHz WIFI: 2400–5850MHz
Input Impedence	50 $\Omega$
VSWR	$\leq 4$
Gain	$\geq -2$ dBi
Polarization Type	Linear

#### GNSS Antenna Electrical Specifications

Frequency Range	1561 MHz/1575.42 MHz/1602 MHz
Working Voltage	3 V
Working Current	9 $\pm$ 3 mA
Gain	20 $\pm$ 3 dB
Noise Figure	$\leq 2$ dB
VSWR	$\leq 2$
Input Impedence	50 $\Omega$
Polarization Type	Circular

#### Mechanical Specifications

Antenna Box Size	$\Phi$ 120 mm x 43 mm
Casing	KIBILAC® ASA
Connector Type	GNSS: FAKRA_C, LTE: FAKRA_D, WIFI: FAKRA_I
Working Temperature	-20 °C to +85 °C
Radome Color	Black
Ingress Protection Rating	IP67

## 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

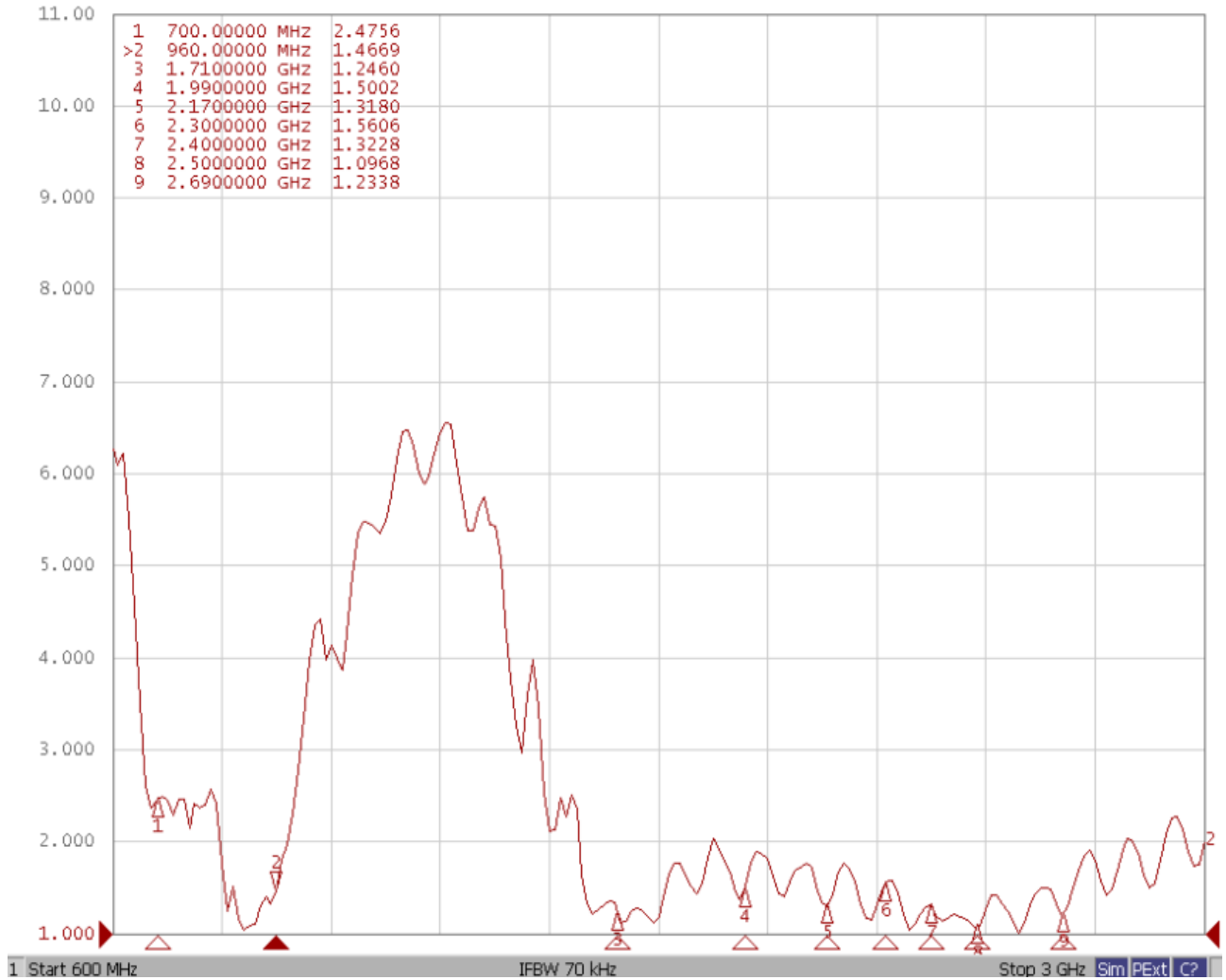




**4.2. VSWR**

**4G Main Antenna**

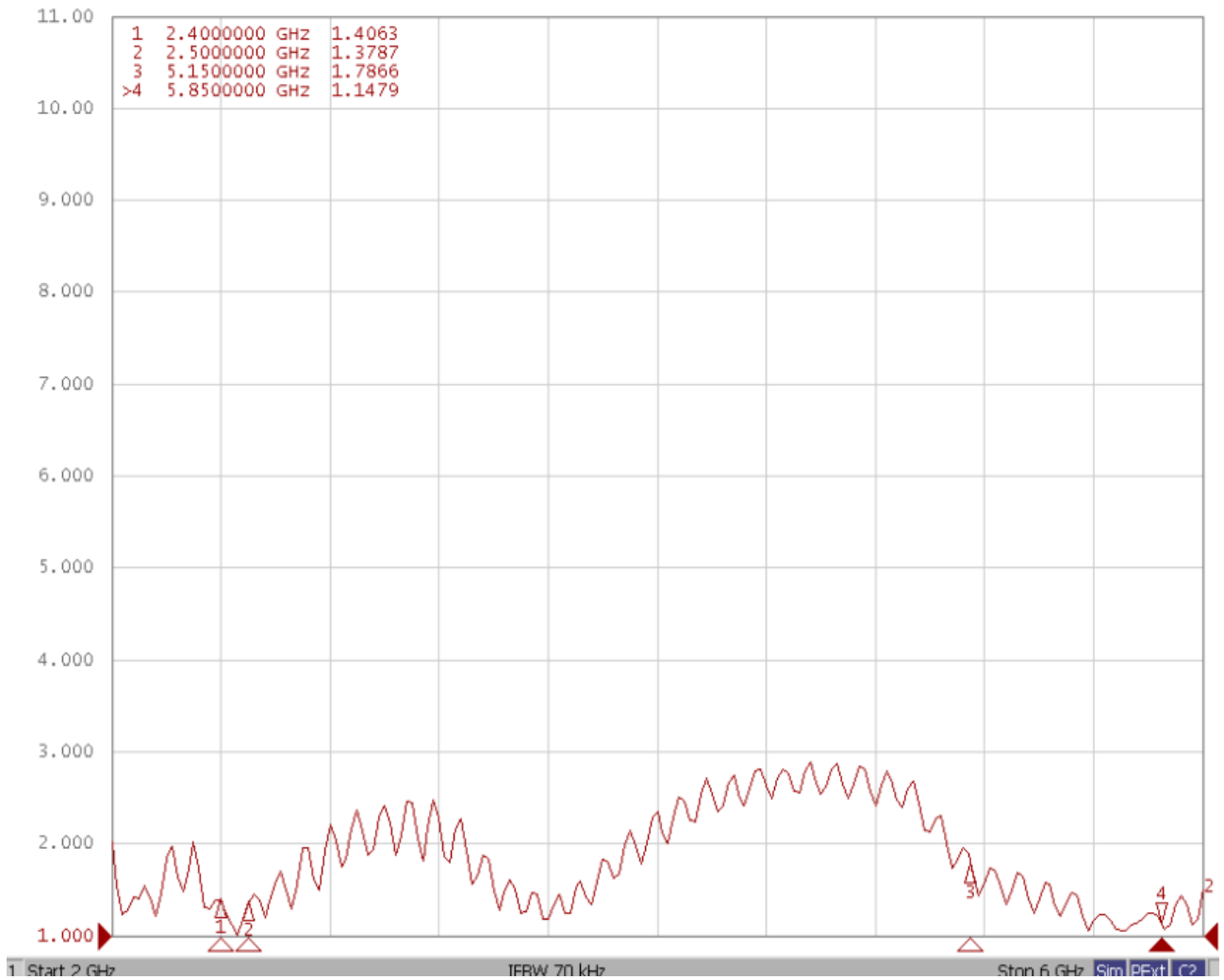
▶ **F2** S22 SWR 1.000/ Ref 1.000 [F2]



Frequency (MHz)	700	960	1710	2170	2300	2400	2500	2690
VSWR	2.47	1.46	1.24	1.31	1.56	1.32	1.09	1.23

**WIFI-1**

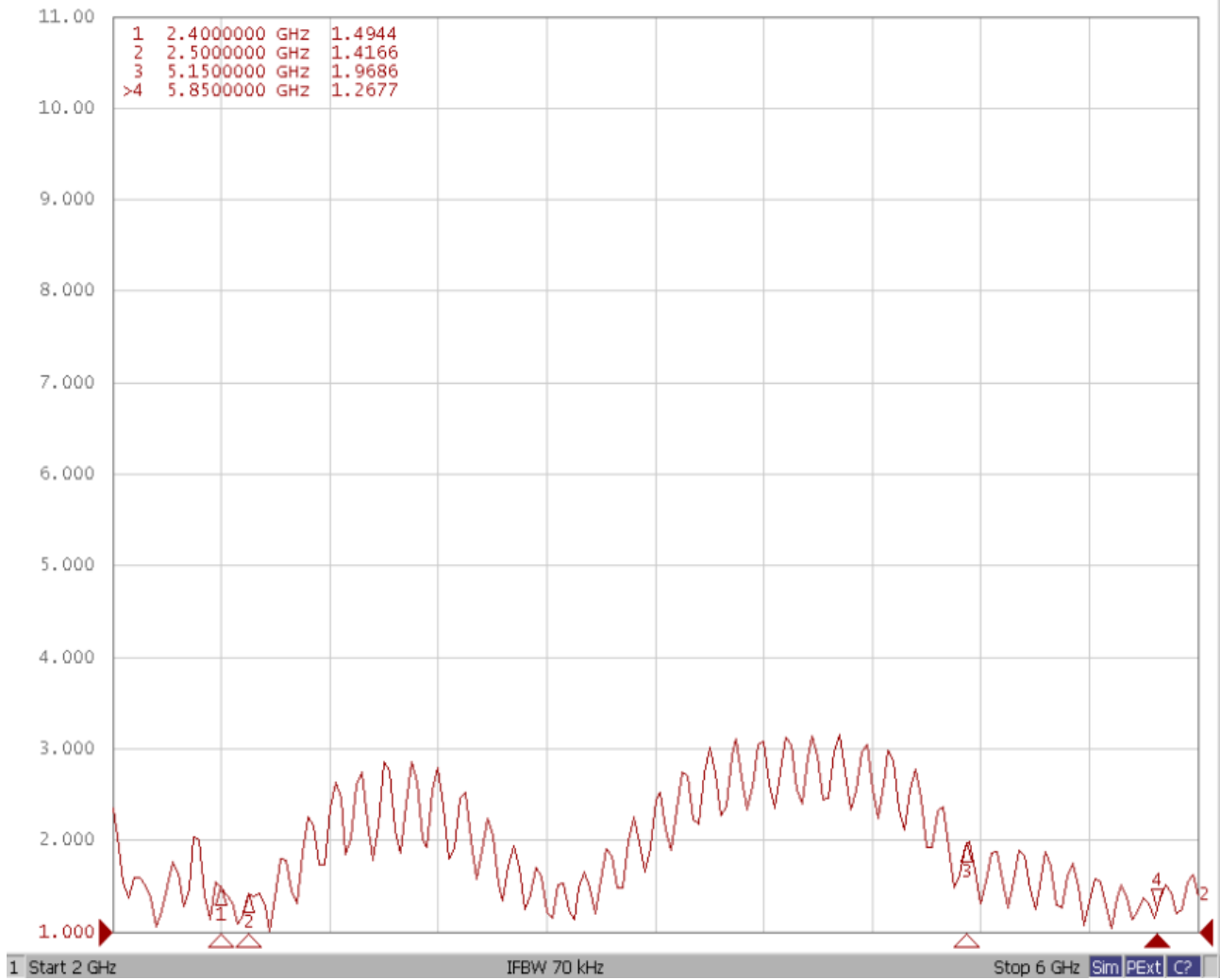
▶ **Tr2** S22 SWR 1.000/ Ref 1.000 [F2]



<b>Frequency (MHz)</b>	2400	2500	5150	5850
<b>VSWR</b>	1.40	1.37	1.78	1.14

**WIFI-2**

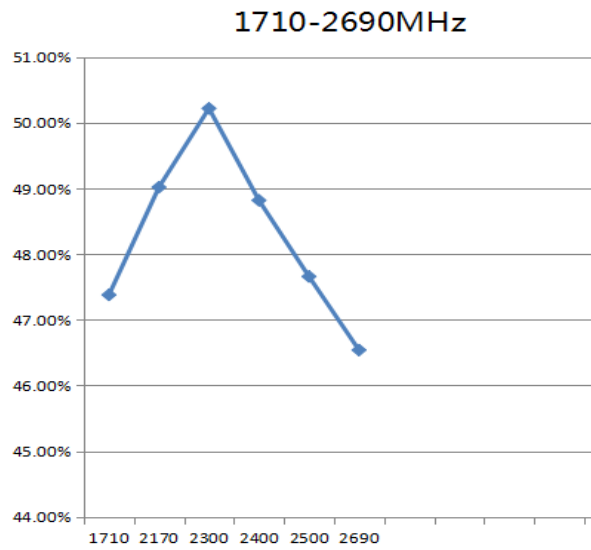
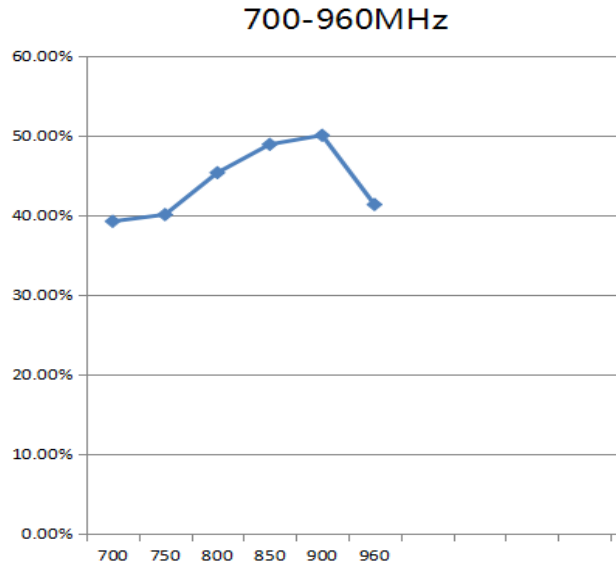
▶ **Tr2** S22 SWR 1.000/ Ref 1.000 [F2]



Frequency (MHz)	2400	2500	5150	5850
VSWR	1.49	1.41	1.96	1.26

### 4.3. Efficiency

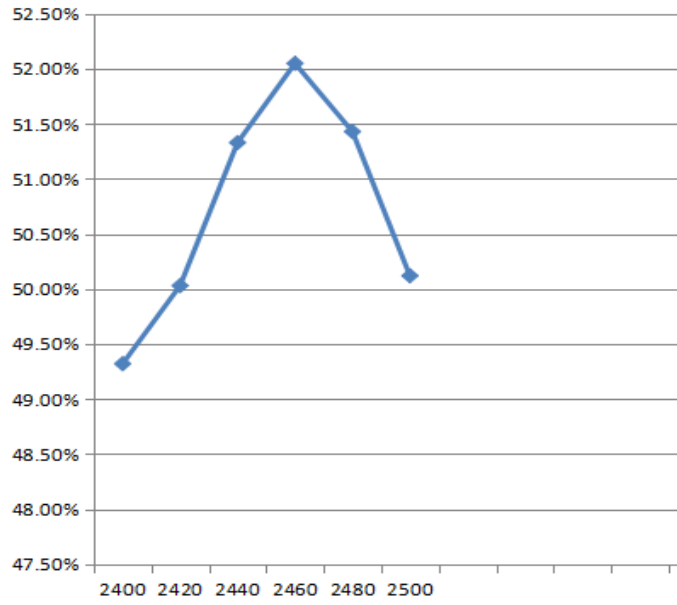
## 4G Main Antenna



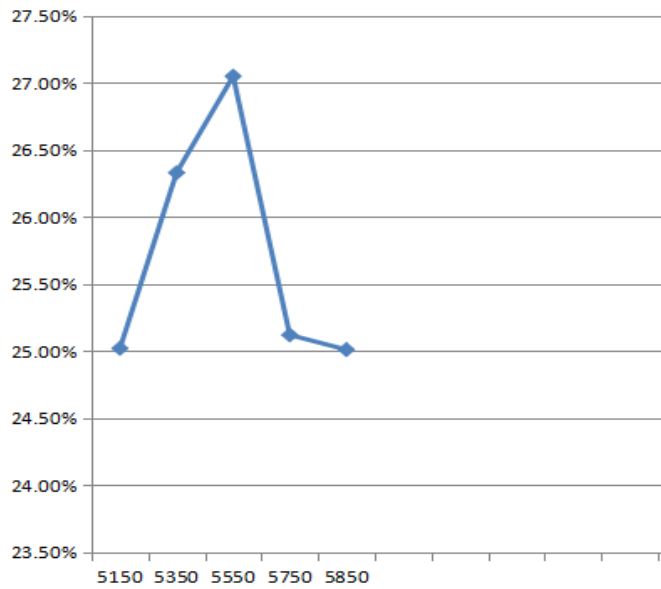
Frequency (MHz)	700	960	1710	2170	2300	2400	2500	2690
Efficiency (%)	39.21	41.32	47.38	49.02	50.22	48.82	47.66	46.54

**WIFI-1**

**2400-2500MHz**



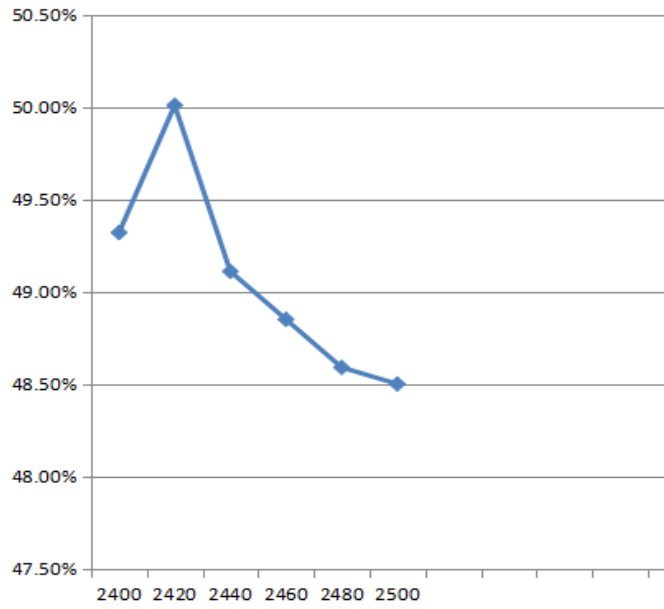
**5150-5850MHz**



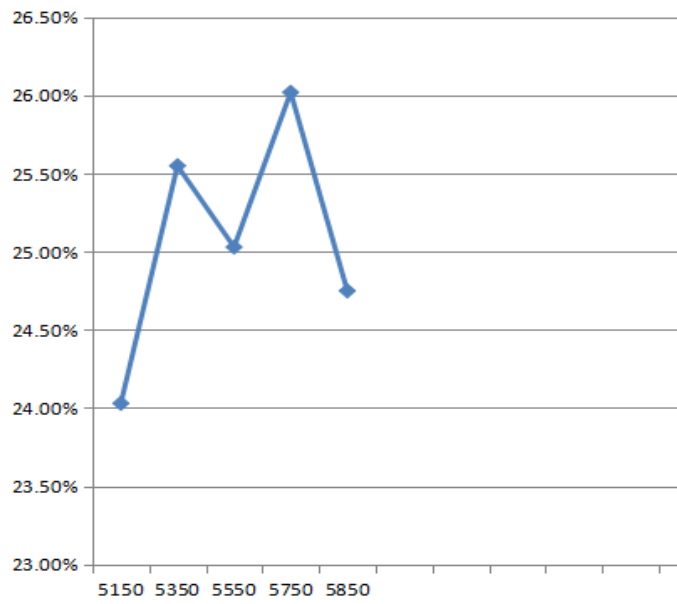
Frequency (MHz)	2400	2460	2500	5150	5350	5550	5750	5850
Efficiency (%)	50.46	52.16	50.09	25.02	26.33	27.05	25.12	25.01

**WIFI-2**

**2400-2500MHz**



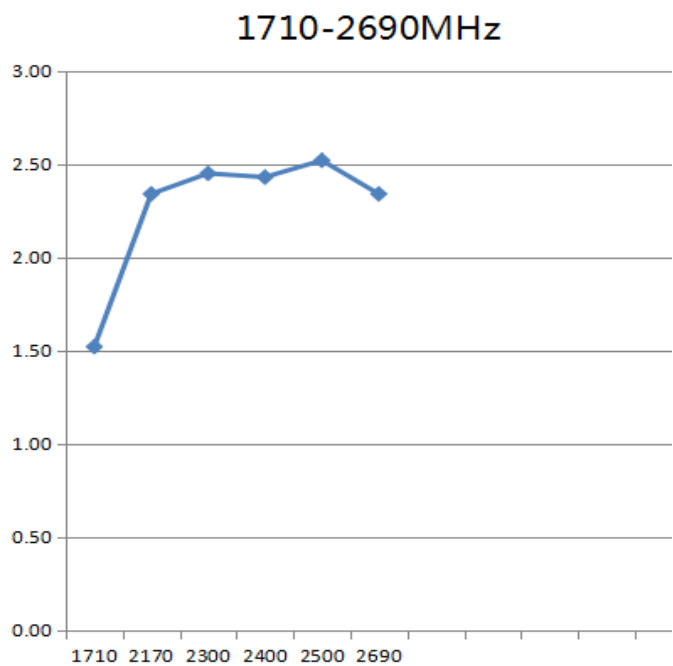
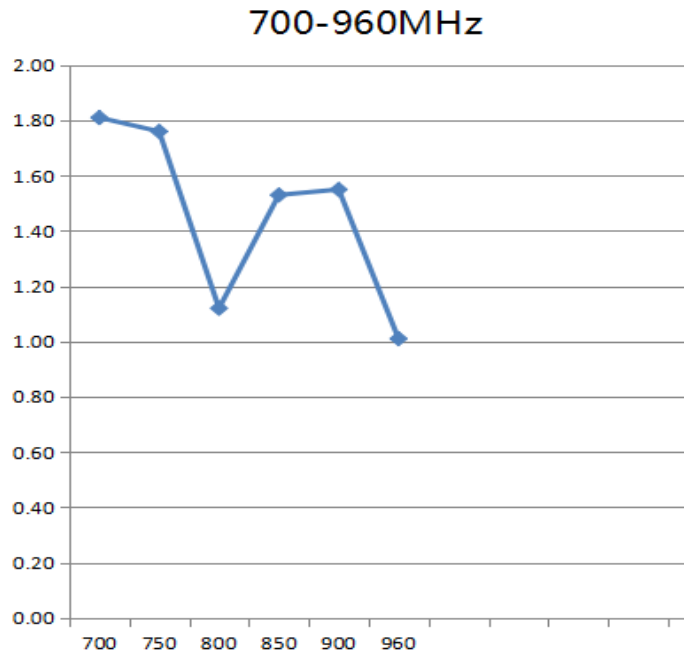
**5150-5850MHz**



<b>Frequency (MHz)</b>	2400	2460	2500	5150	5350	5550	5750	5850
<b>Efficiency (%)</b>	49.32	48.85	48.50	24.03	25.55	25.03	26.02	24.75

### 4.4. Gain

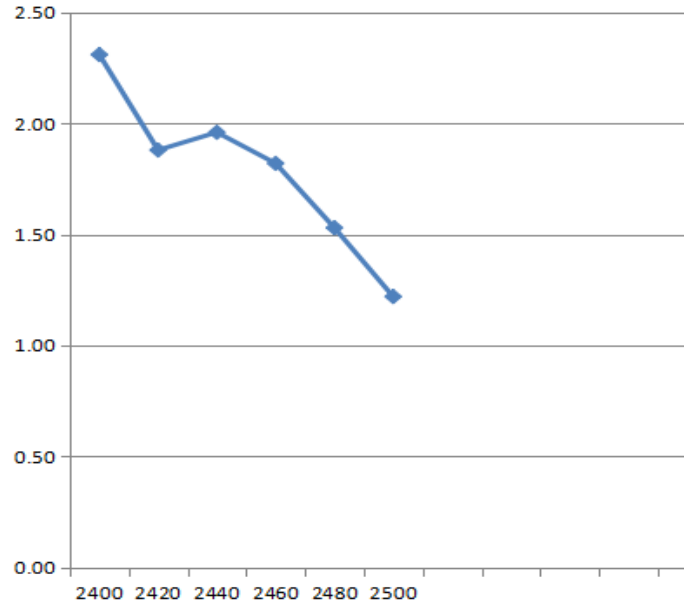
#### 4G Main Antenna



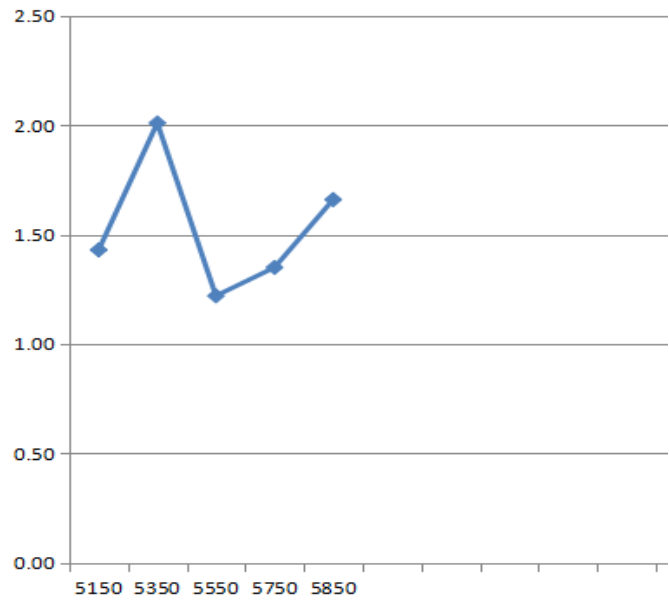
<b>Frequency (MHz)</b>	700	960	1710	2170	2300	2400	2500	2690
<b>Gain (dBi)</b>	1.81	1.01	1.52	2.34	2.45	2.43	2.52	2.34

**WIFI-1**

**2400-2500MHz**



**5150-5850MHz**

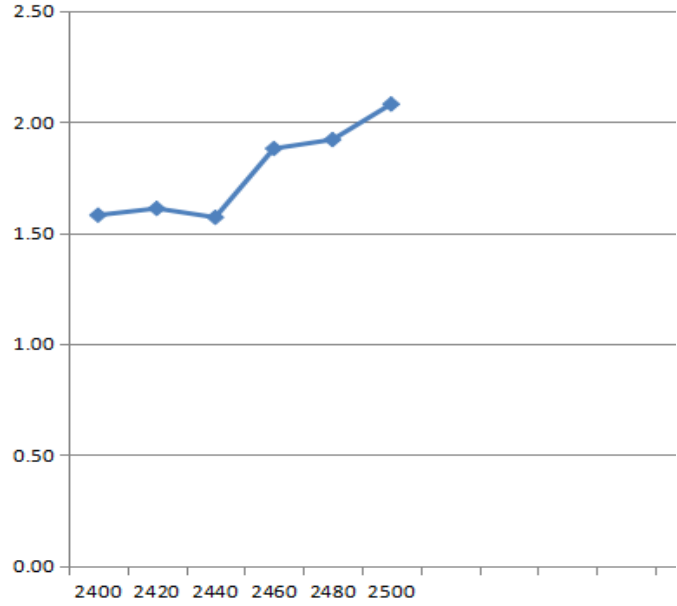


<b>Frequency (MHz)</b>	2400	2460	2500	5150	5350	5550	5750	5850
<b>Gain (dBi)</b>	2.31	1.82	1.22	1.43	2.01	1.22	1.35	1.66

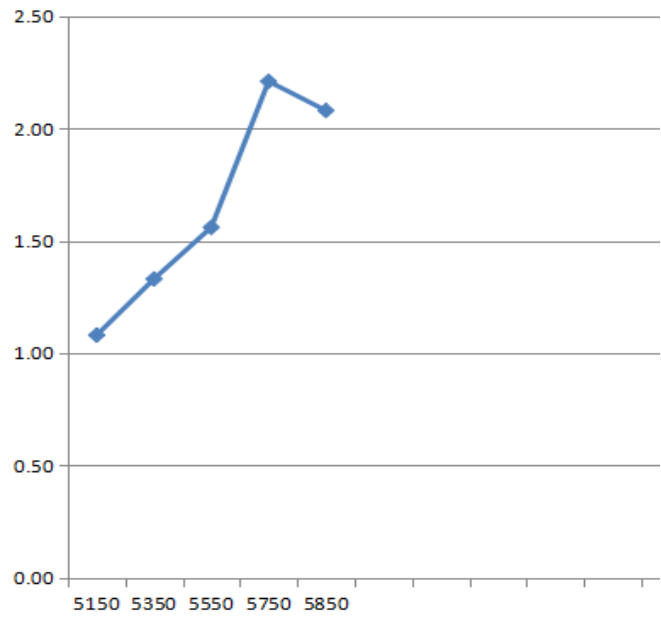


**WIFI-2**

**2400-2500MHz**

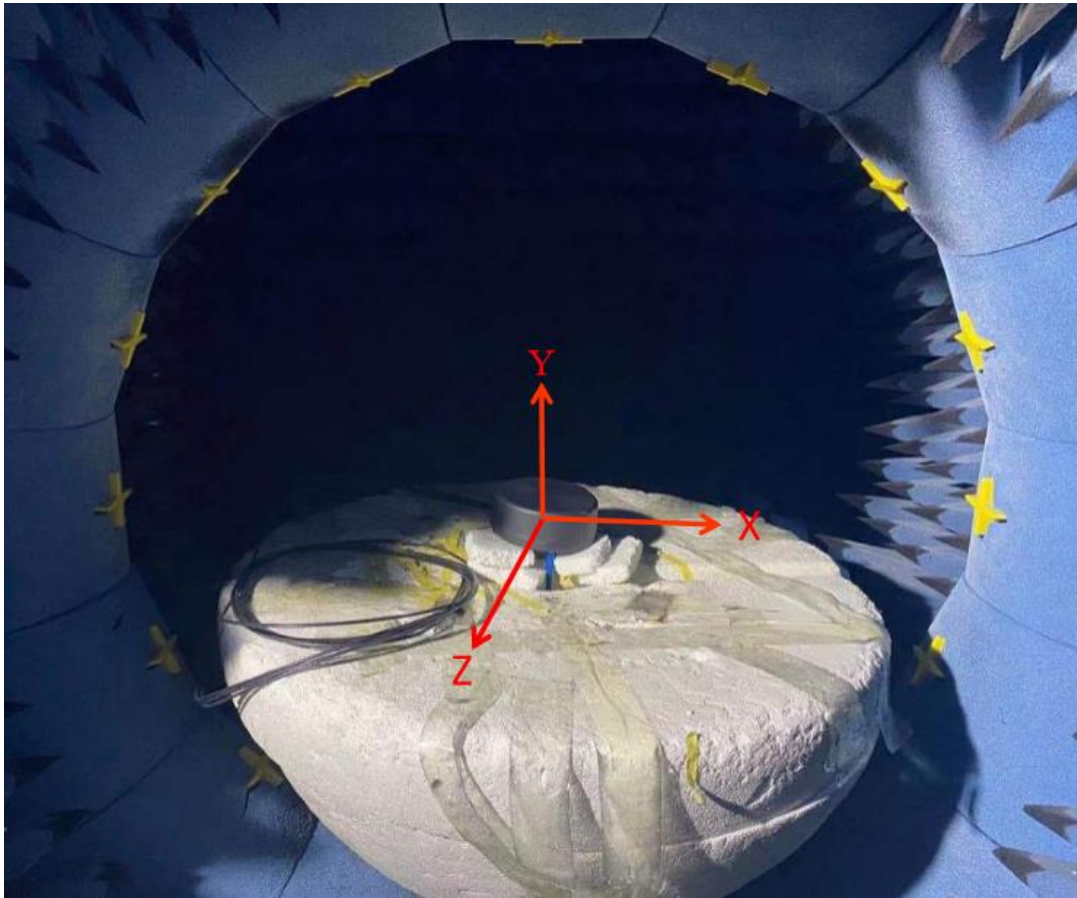


**5150-5850MHz**

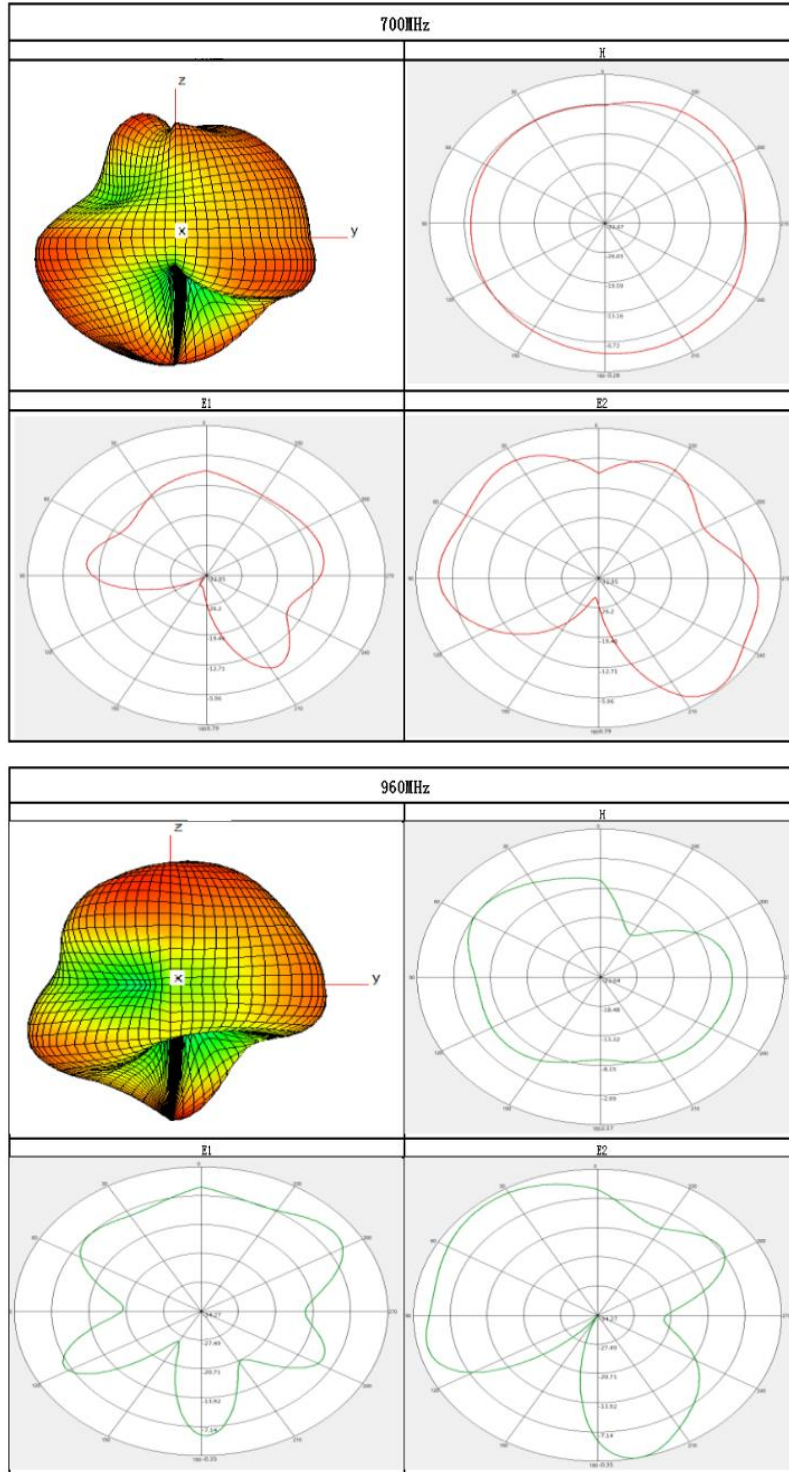


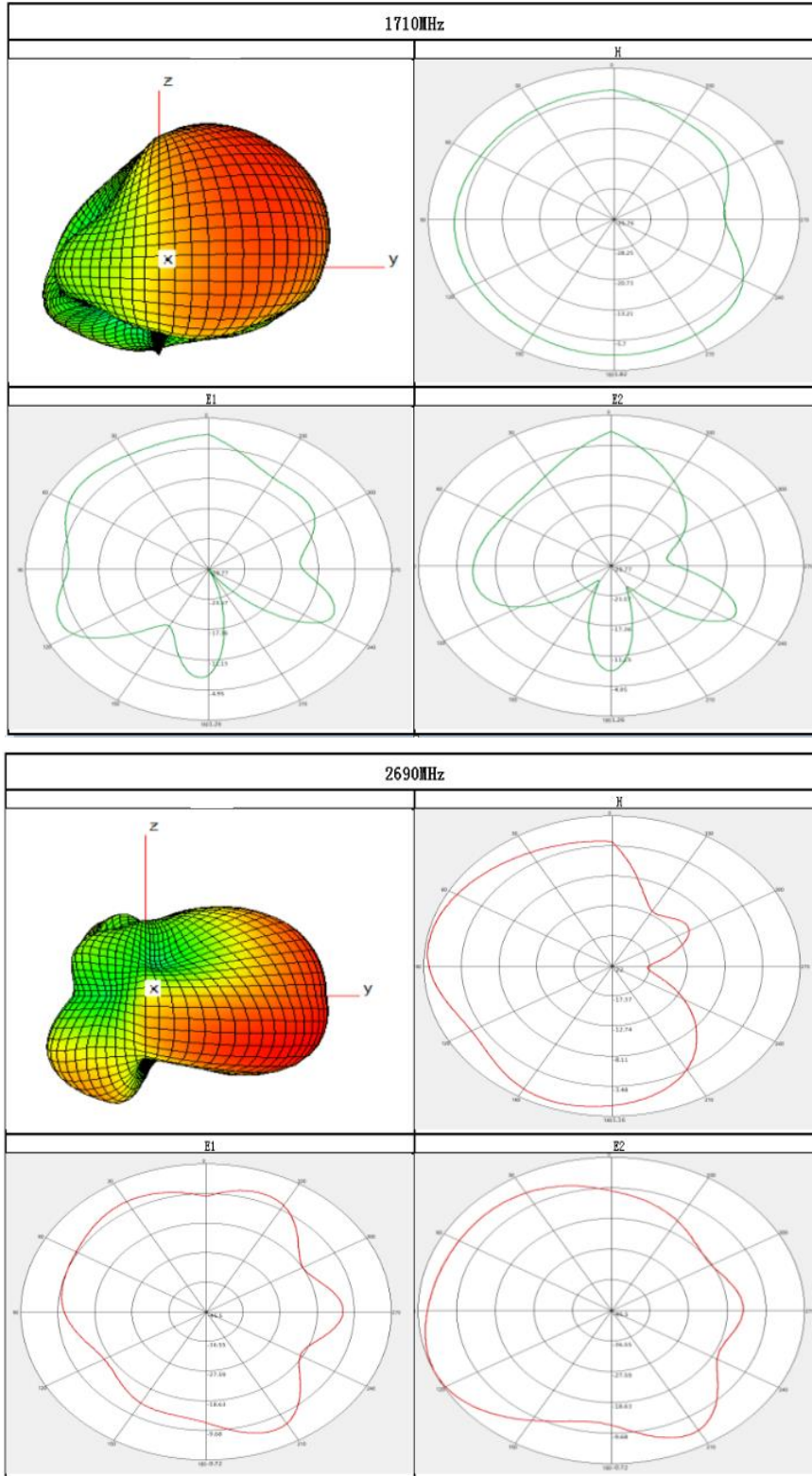
<b>Frequency (MHz)</b>	2400	2460	2500	5150	5350	5550	5750	5850
<b>Gain (dBi)</b>	1.58	1.88	2.08	1.08	1.33	1.56	2.21	2.08

## 4.5. Radiation Patterns

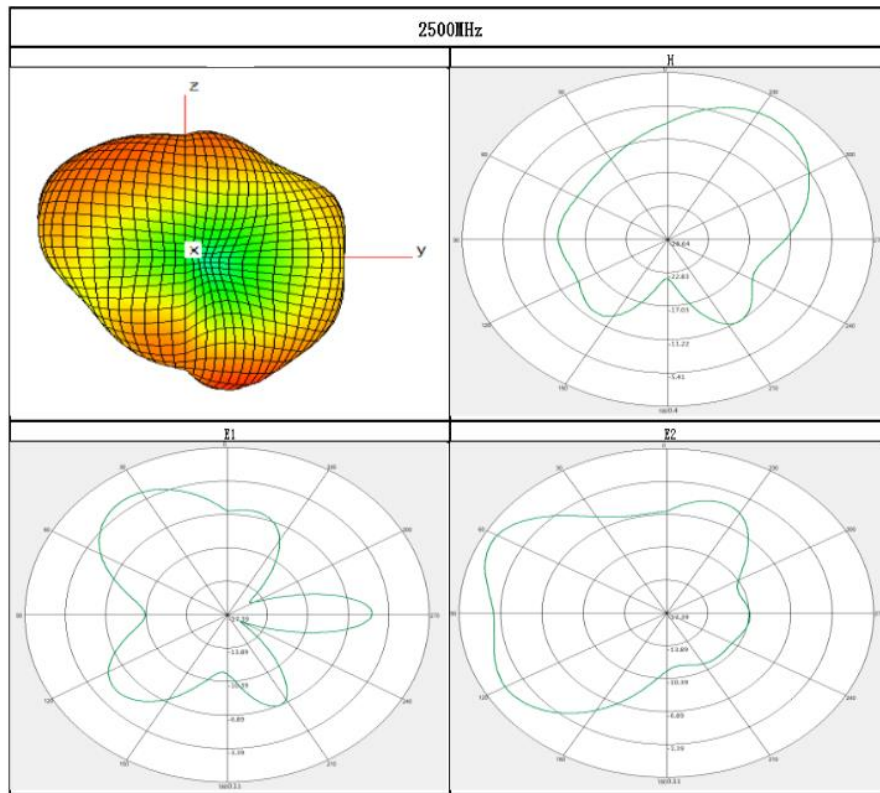
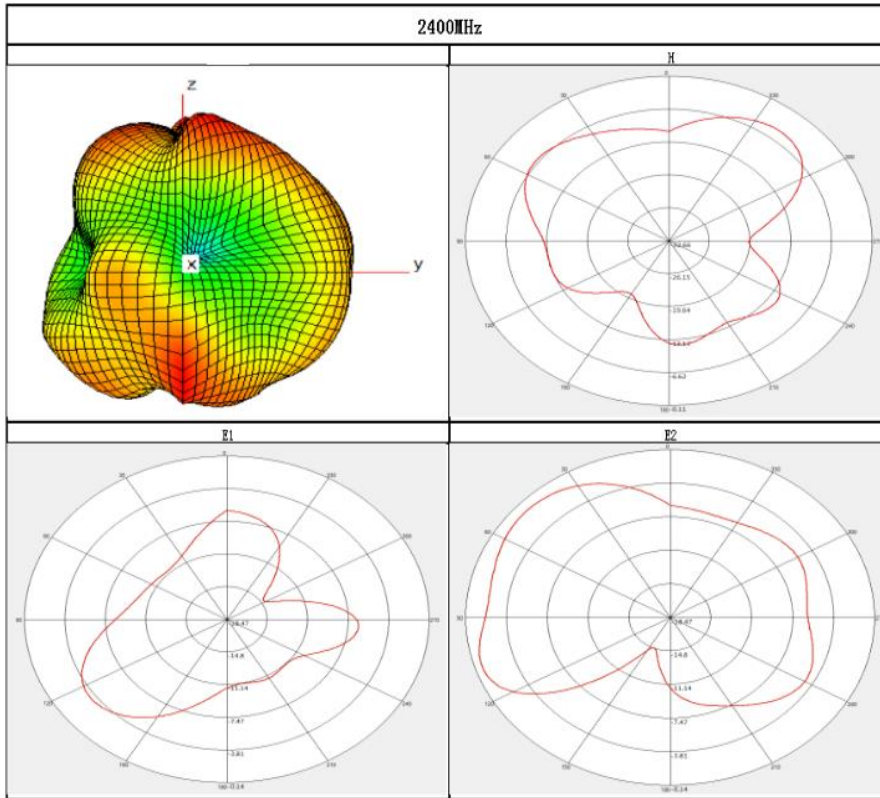


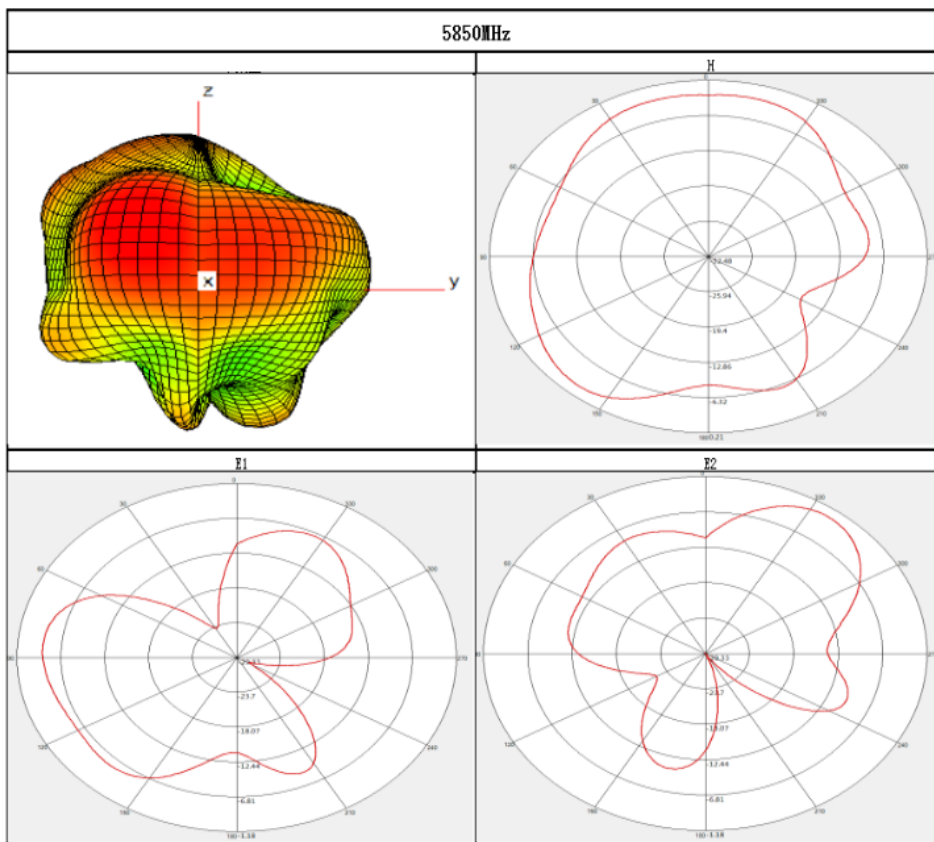
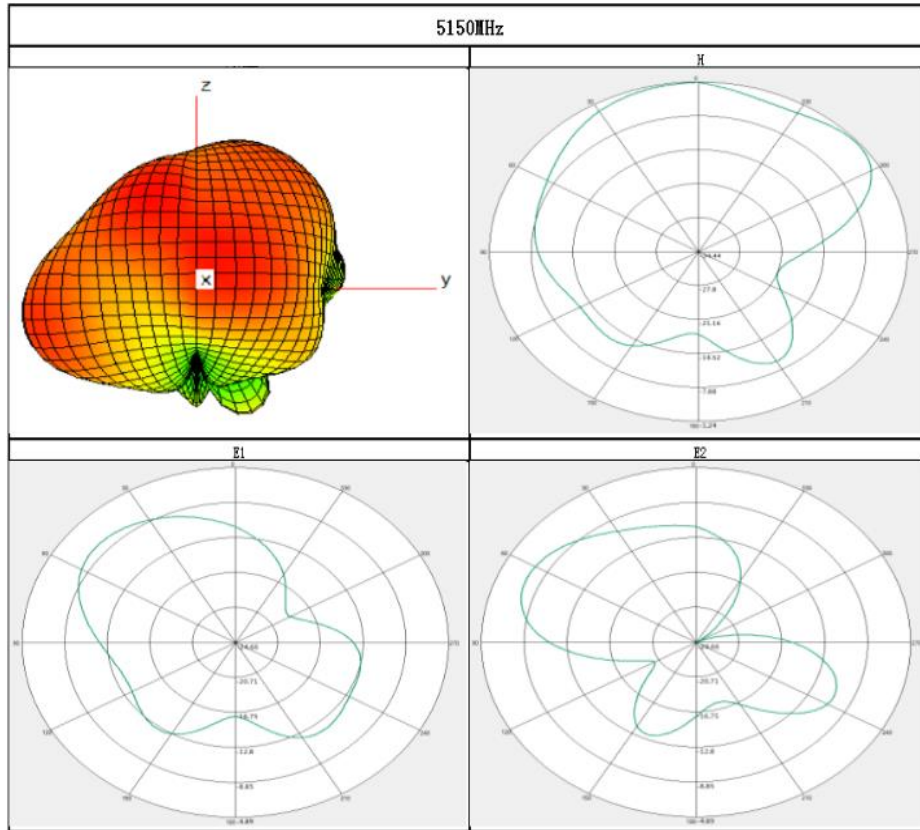
**4G Main Antenna**



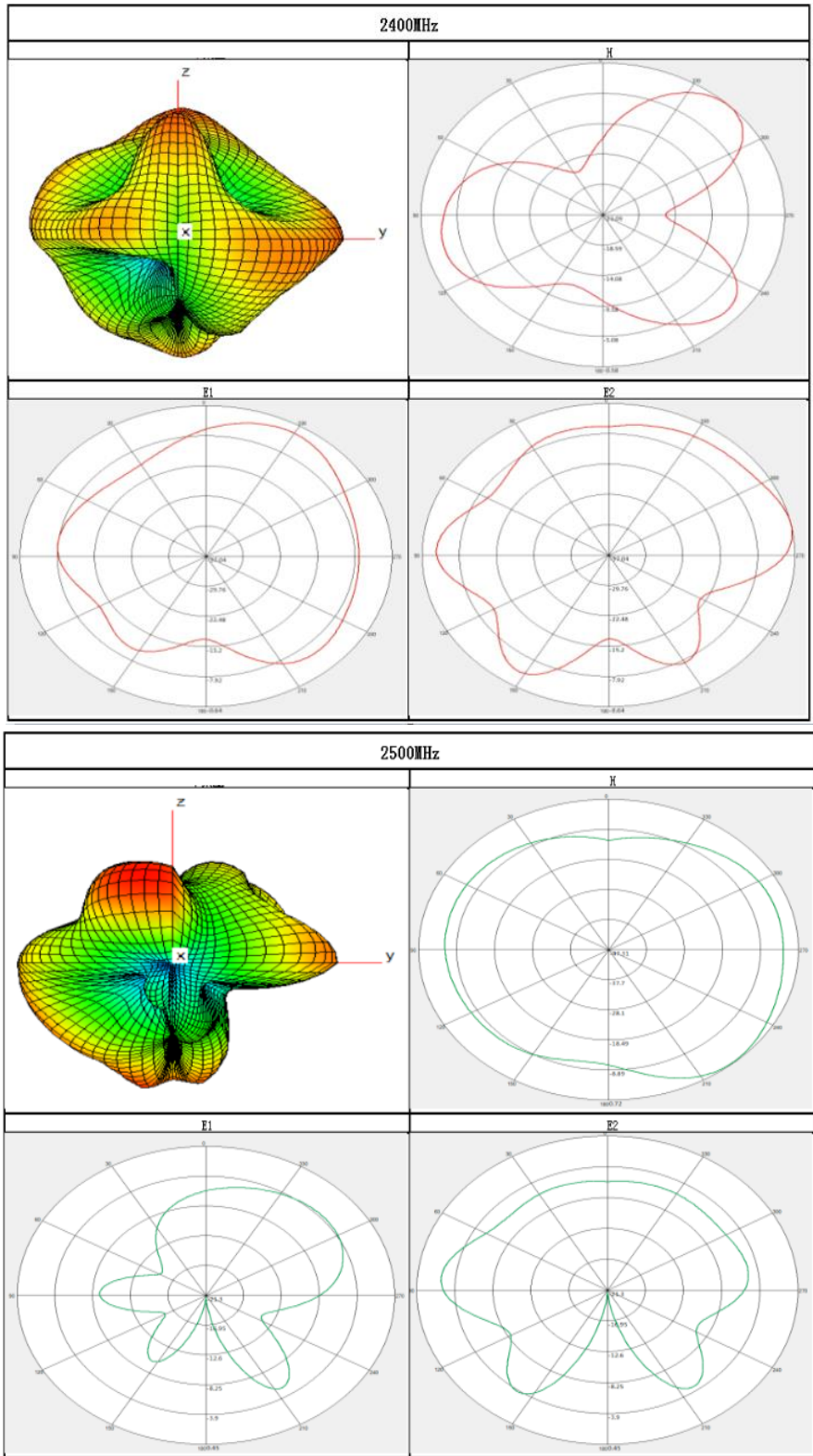


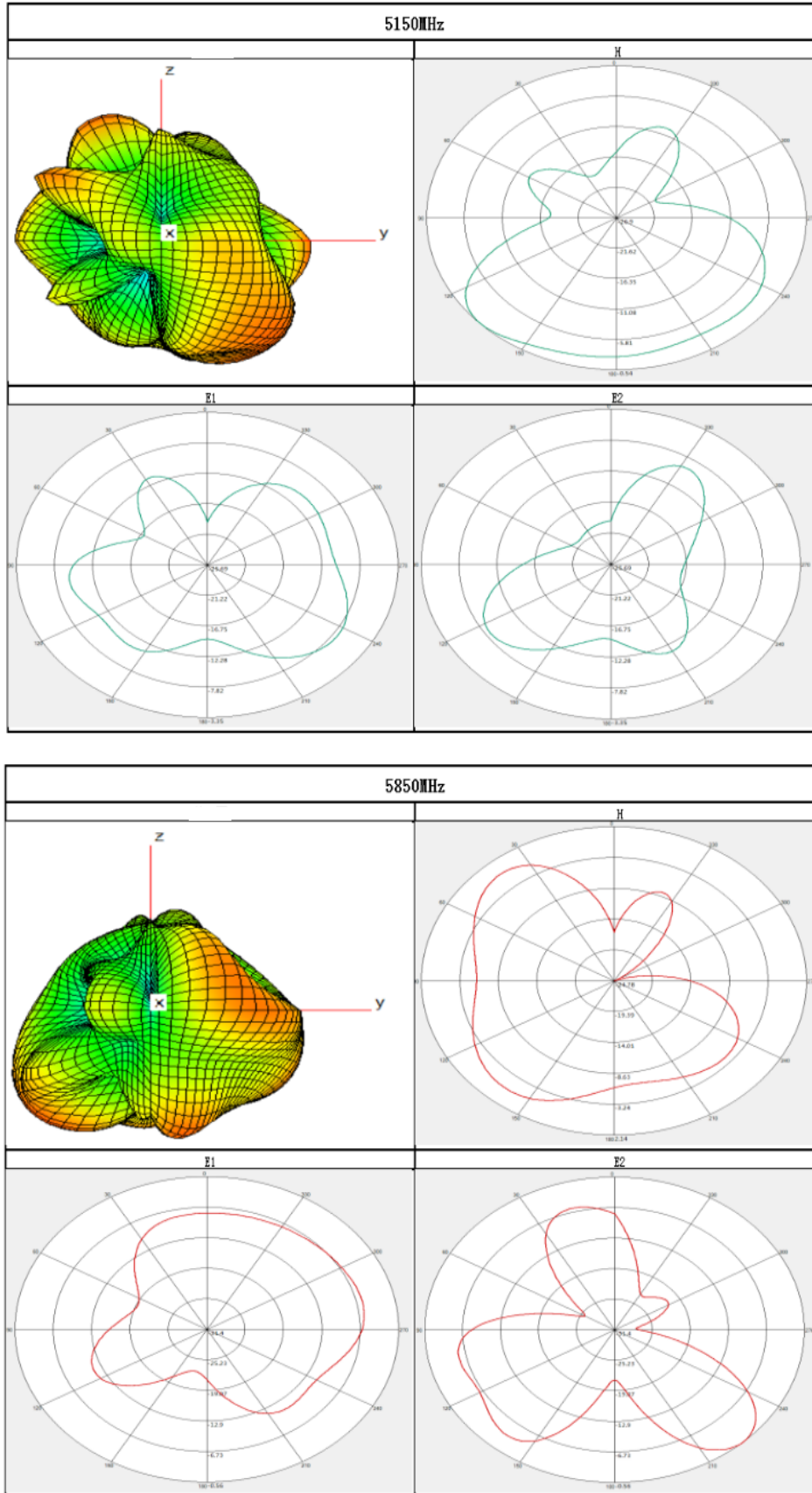
**WiFi-1**





**WiFi-2**

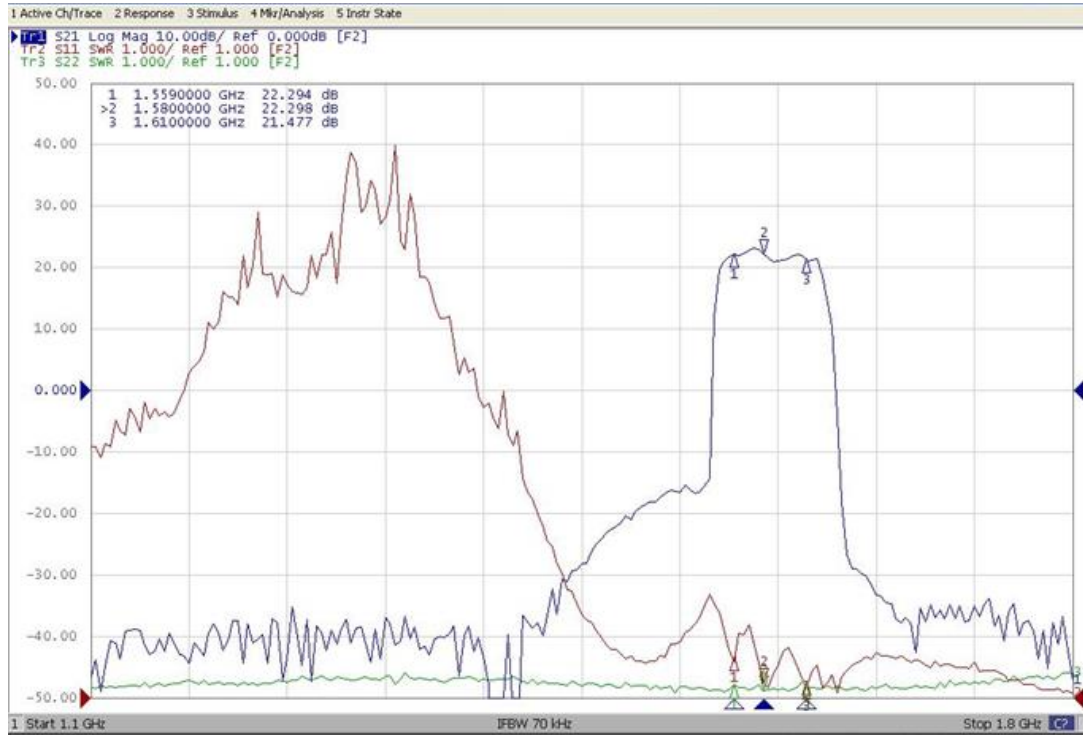






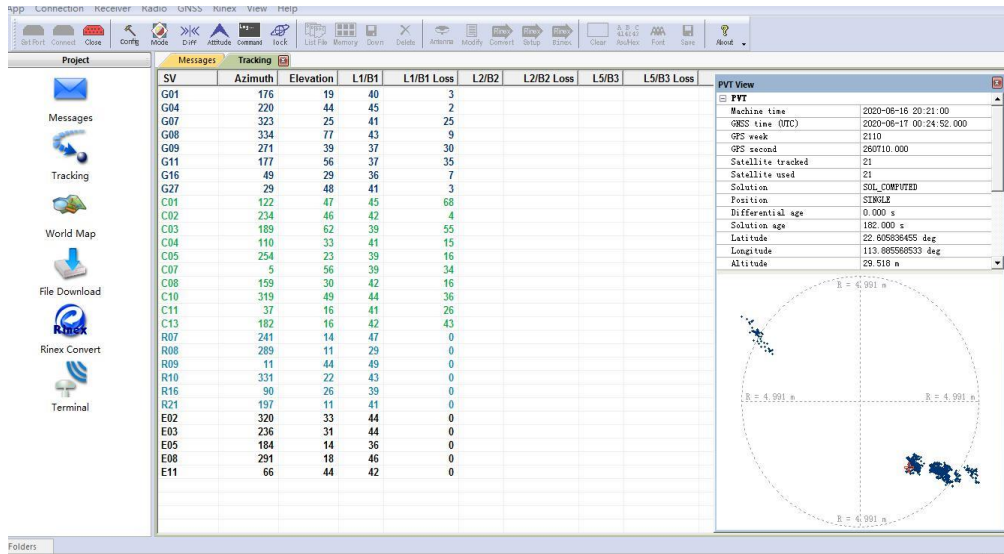
## 4.6. GNSS Antenna

### 4.6.1. GNSS Antenna gain (LNA)

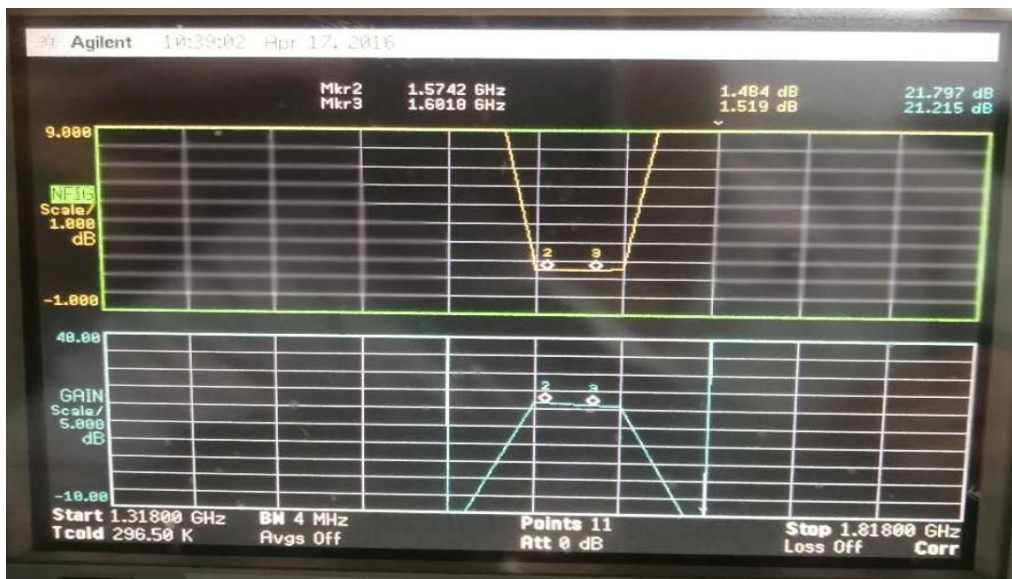


GNSS Relative Gain Test Data			
MARKER	Frequency (MHz)	Peak Gain (dBi)	VSWR
1	1559	22.2	1.86
2	1580	22.2	1.67
3	1610	21.4	1.59

### 4.6.2. GNSS Antenna measurement (static state)



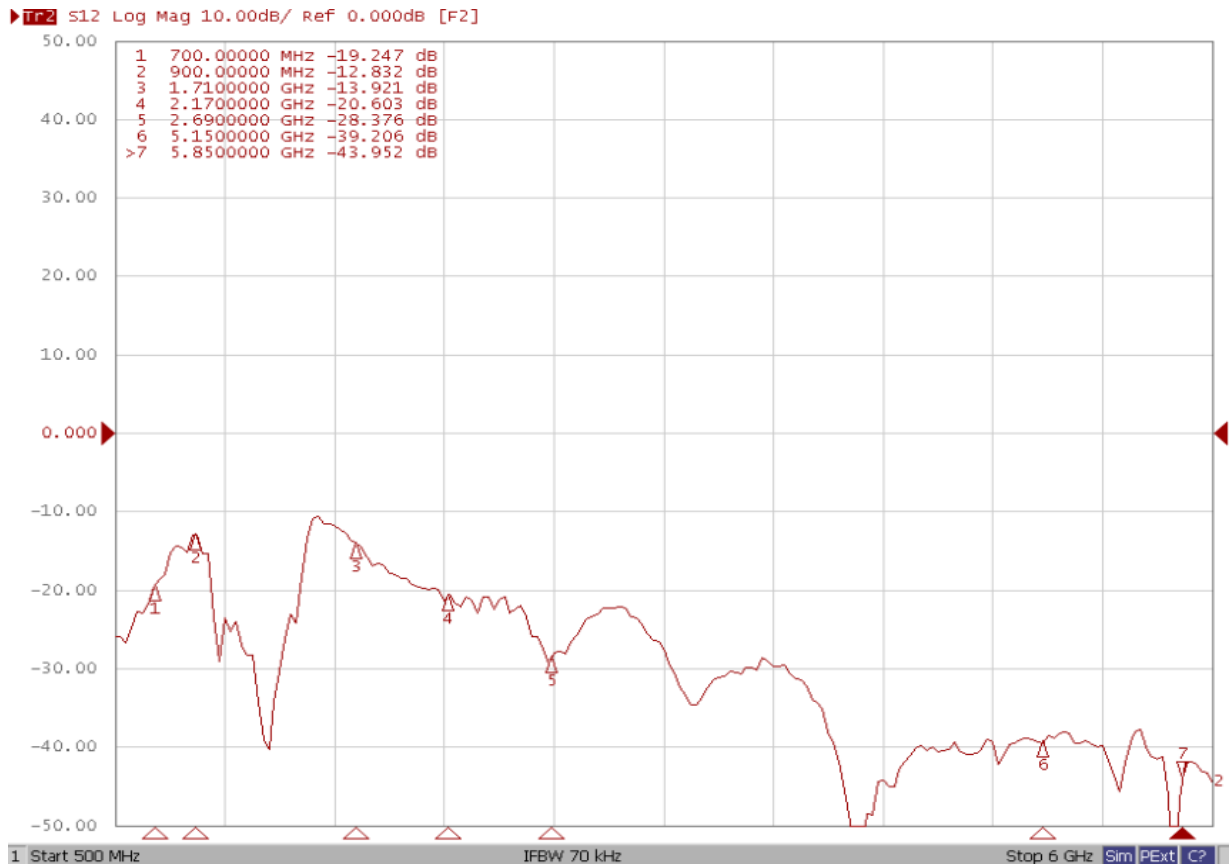
### 4.6.3. GNSS Antenna noise figure (LNA)



GNSS Noise Test Date		
MARKER	Frequency (MHz)	Noise figure(dB)
1	1575	1.48
2	1601	1.51

### 4.7. Insulation

#### 4G Main & WIFI-1



**4G Main & WIFI-2**

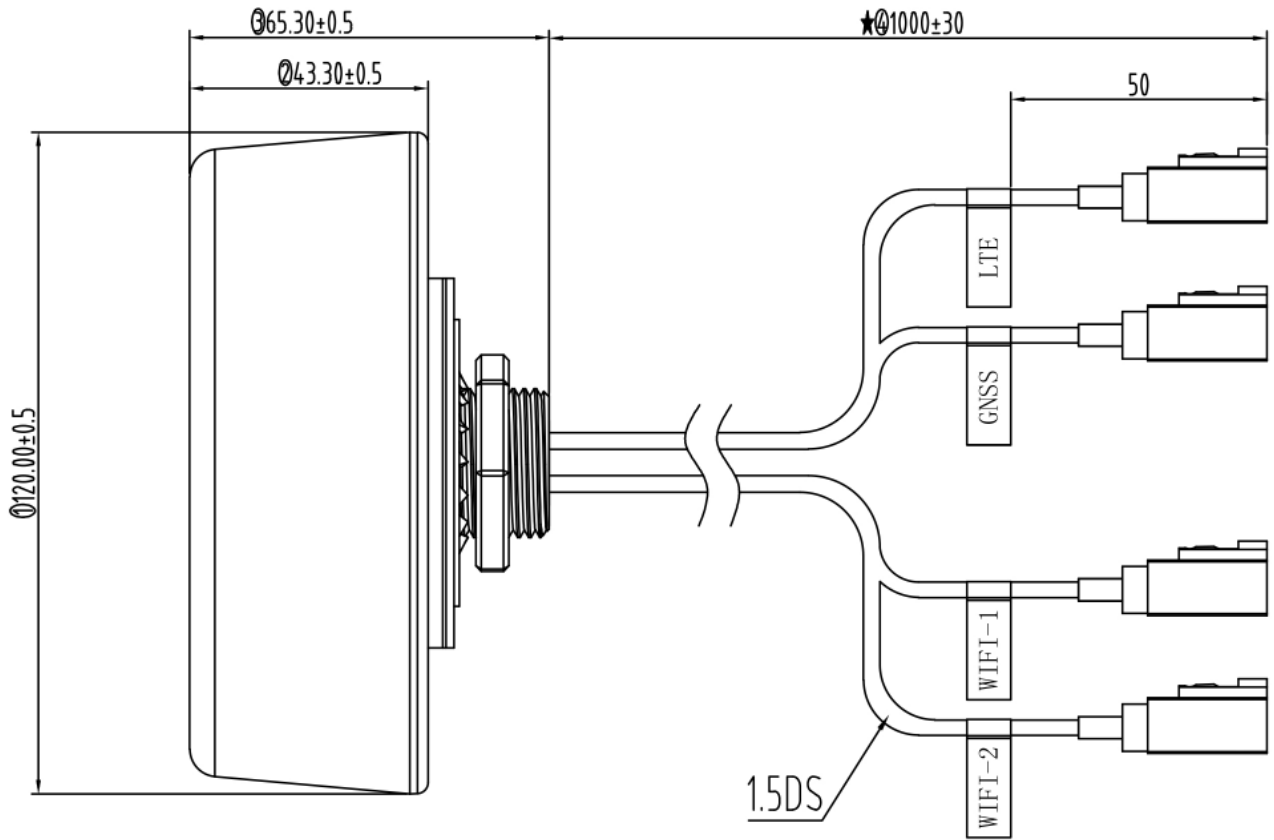


**WIFI-2 & WIFI-1**

▶ **S12** Log Mag 10.00dB/ Ref 0.000dB [F2]

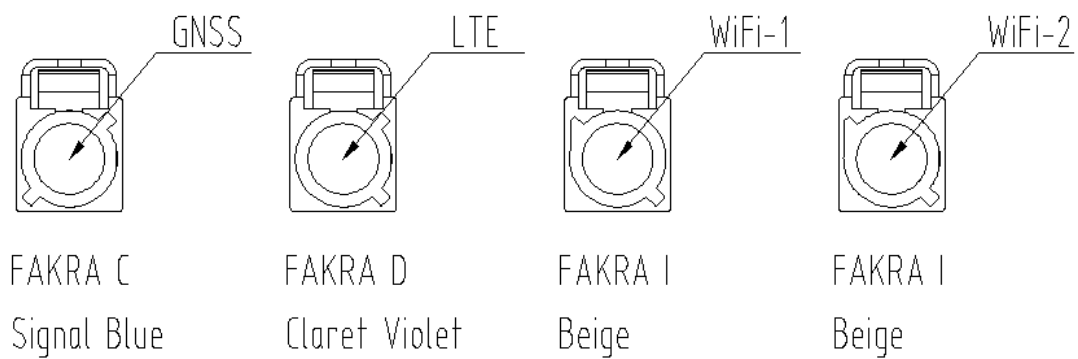


## 5 Product Size



## 6 Connect Description

As follows, the connector on the product is Fakra\_C、 Fakra\_D、 Fakra\_I Connector.



## 7 Installation

- Recommended hole size:  $\varnothing 28.0 \pm 0.5$  mm;
- Recommended wall thickness size:  $3.0 \pm 1.0$  mm;

