

# Antenna

# YEMA003AA Datasheet

**Antenna Services**

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**Quectel Wireless Solutions Co., Ltd.**

Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai 200233, China

Tel: +86 21 5108 6236

Email: [info@quectel.com](mailto:info@quectel.com)

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# About the Document

## Revision History

Version	Date	Author	Note
-	2021-03-30	Kenny YIN	Creation of the document
1.0	2021-04-08	Kenny YIN	First official release
2.0	2021-08-02	Kenny YIN/ Aria CHU	Updated all test information in the datasheet.

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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/GNSS
- High efficiency
- Excellent performance



### 3 Product Specifications

#### Passive Electrical Specifications

Frequency Range	4G MAIN: 700–960 MHz, 1710–2690 MHz GNSS: 1575.42 ±5 MHz, 1561.098 ±5 MHz
Input Impedence	50 Ω
VSWR	≤ 3.0
Gain	4G MAIN: ≤ 4.0 dBi GNSS: ≤ 5.0 dBi
Polarization Type	4G MAIN: Linear, GNSS: Circular

#### Detailed Passive Electrical Specifications

Frequency Range (MHz)	698–960	1176–1280	1400–1610	1710–2170	2170–2690	3300–4000	4000–5000	5000–6000
VSWR (Max.)	2.4	-	-	1.8	1.8	-	-	-
Average Efficiency (%)	27.06	-	-	21.07	18.39	-	-	-
Max. Peak Gain (dBi)	3.11	-	-	0.42	-2.08	-	-	-

#### Low Noise Amplifier Electrical Specifications.

Frequency Range	1575.42 ±5 MHz, 1561.098 ±5 MHz
LNA Gain	26 ±3 dB
Noise Figure	≤ 2.0 dB
Output VSWR	≤ 2.0 dB
Voltage Range	3.0–3.6 V
Current	≤ 10 mA
Impedance	50 Ω

#### Mechanical Specifications

Antenna Size	Φ 84 mm × 17.5 mm LMR100, Cable Length = 3000 mm
Casing	ABS + PC

Connector Type	4G: FAKRA D GNSS: FAKRA C
Working Temperature	-40 °C to +85 °C
Radome Color	Black
IP Rating	IP66
Mounting Type	Adhesive

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## 4 Overall Performance

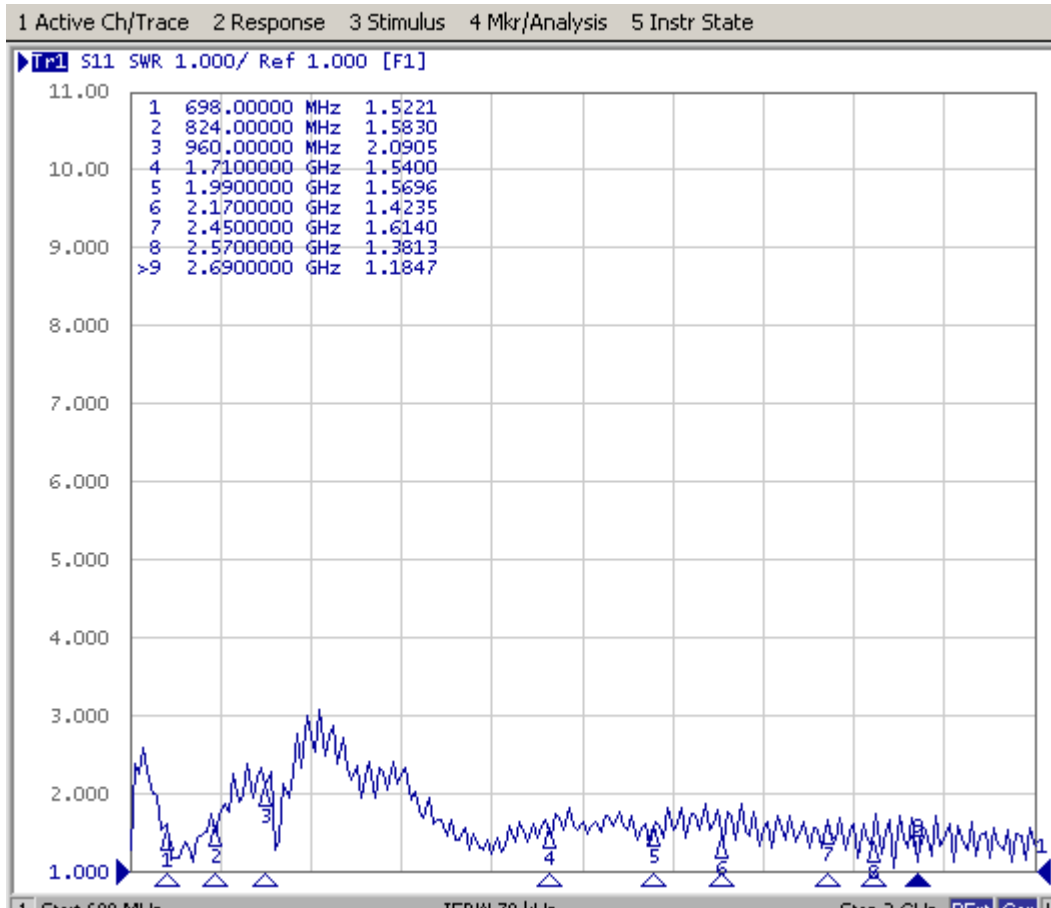
### 4.1. Test Environment

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



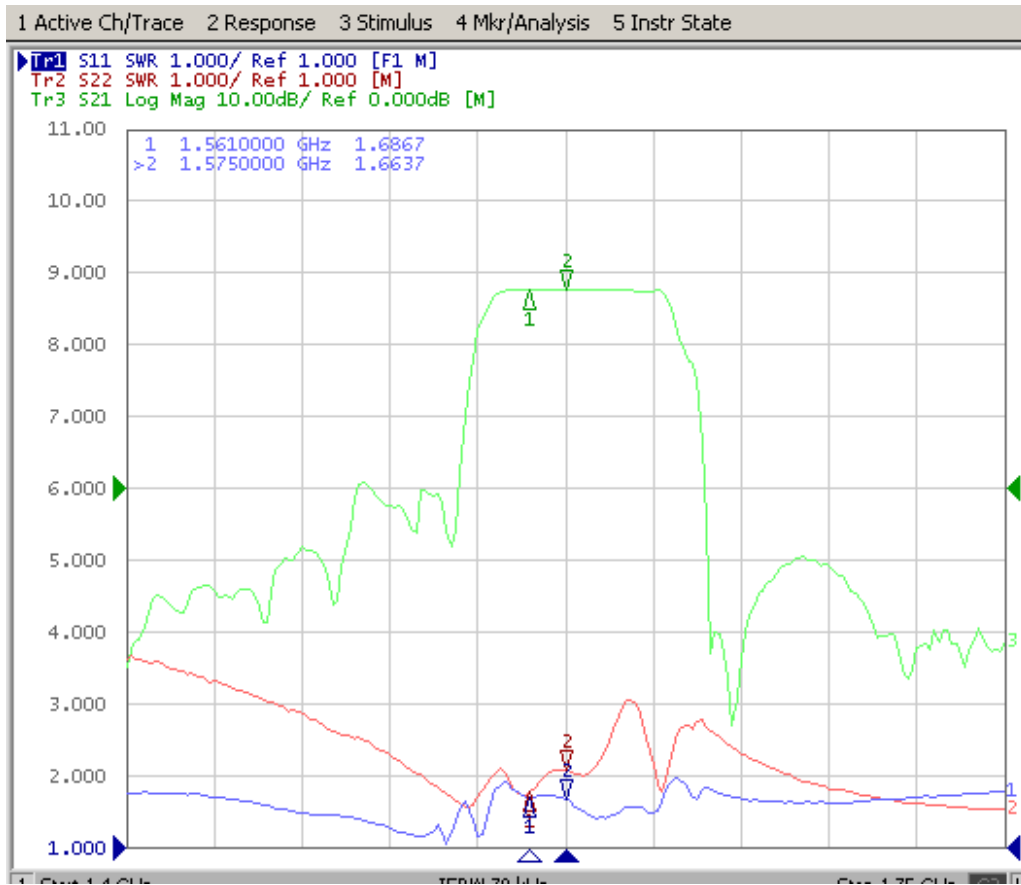
## 4.2. VSWR

### 4.2.1. 4G



<b>Frequency (MHz)</b>	698	824	960	1710	1990	2170	2450	2570	2690
<b>VSWR</b>	1.52	1.58	2.09	1.54	1.57	1.42	1.61	1.38	1.18

4.2.2. GNSS Antenna



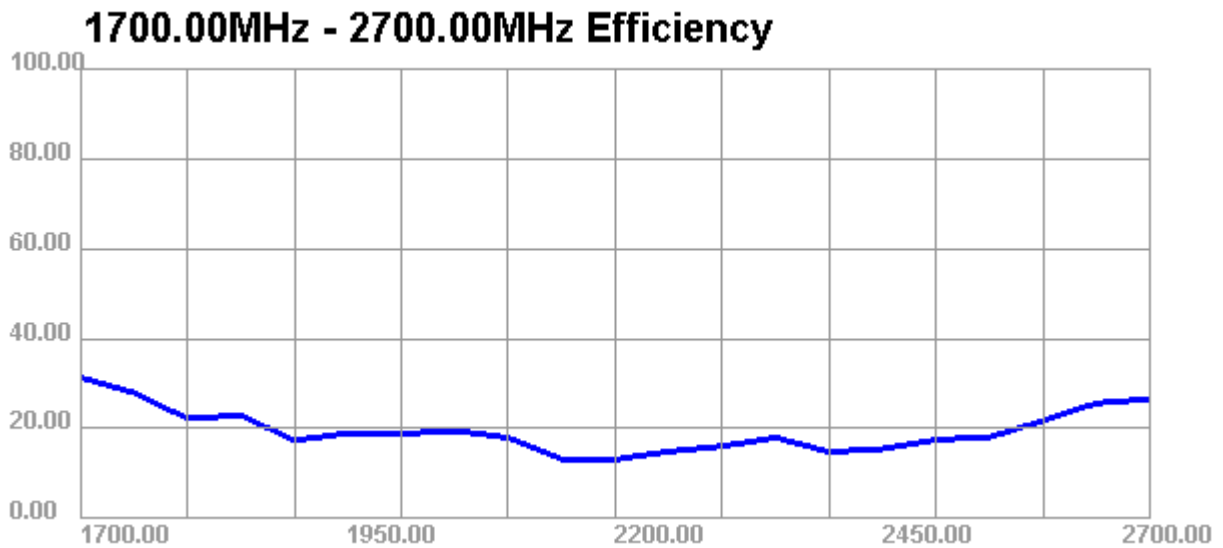
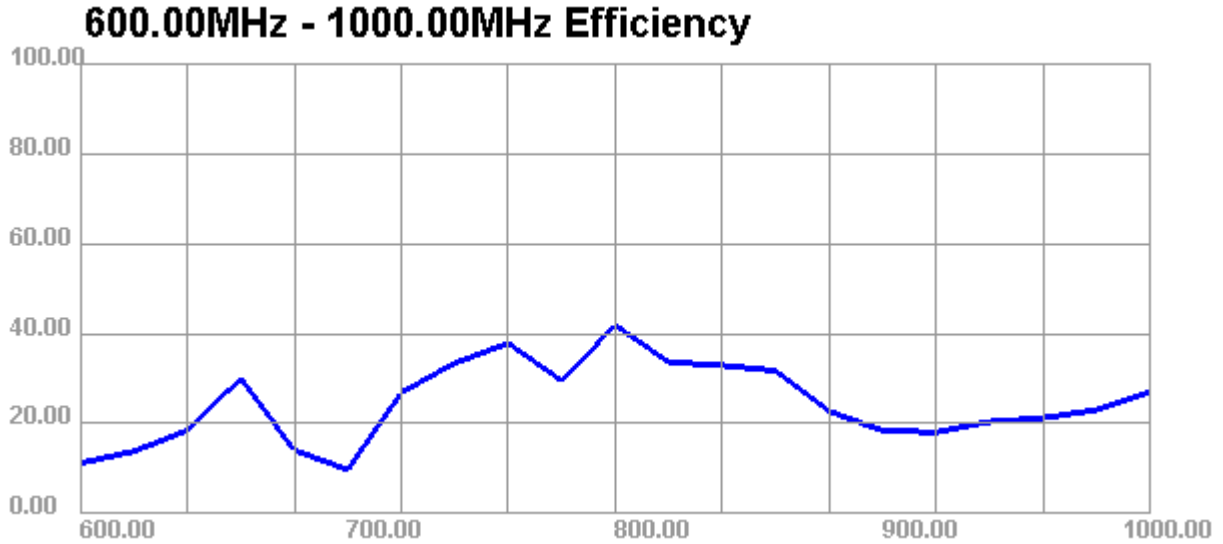
Frequency (MHz)	1561	1575
VSWR	1.68	1.66



Frequency (MHz)	1561	1575
VSWR	1.76	2.08

### 4.3. Efficiency

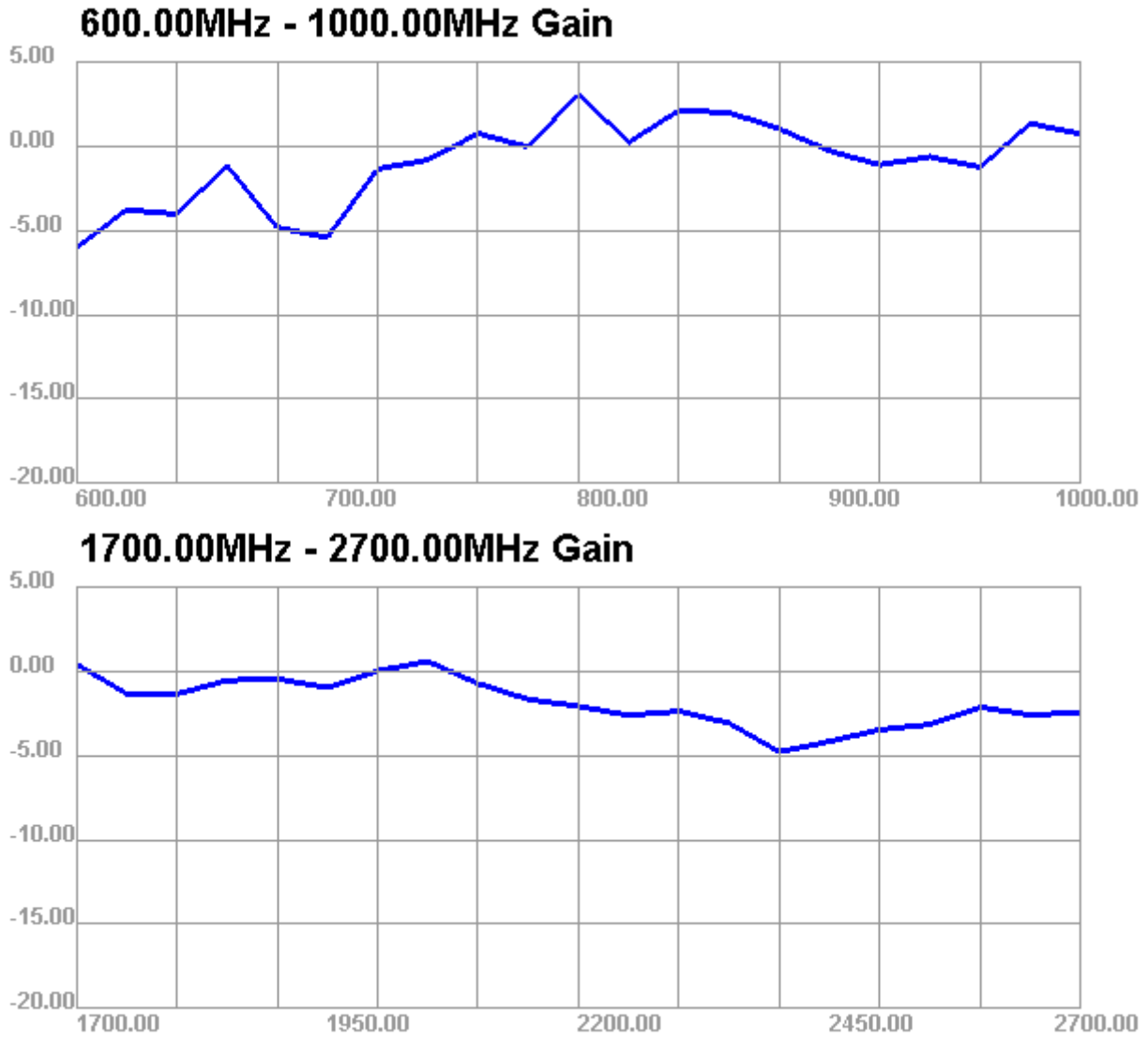
#### 4.3.1. 4G



<b>Frequency (MHz)</b>	700	840	960	1700	1950	2150	2450	2700
<b>Efficiency (%)</b>	9.79	32.96	21.26	31.44	18.96	13.22	15.51	26.56

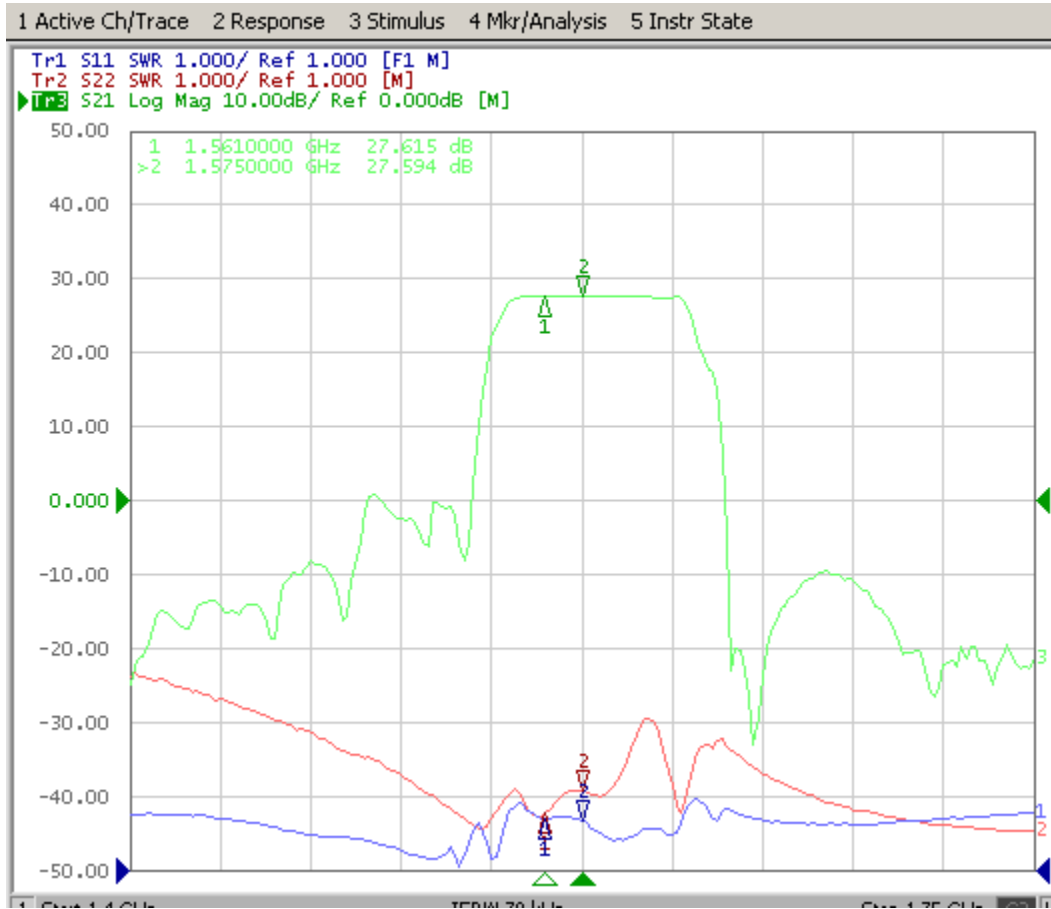
### 4.4. Gain

#### 4.4.1. 4G



<b>Frequency (MHz)</b>	700	840	960	1700	1950	2150	2450	2700
<b>Gain (dBi)</b>	-5.42	2.11	-1.25	0.42	-0.98	-1.67	-4.17	-2.44

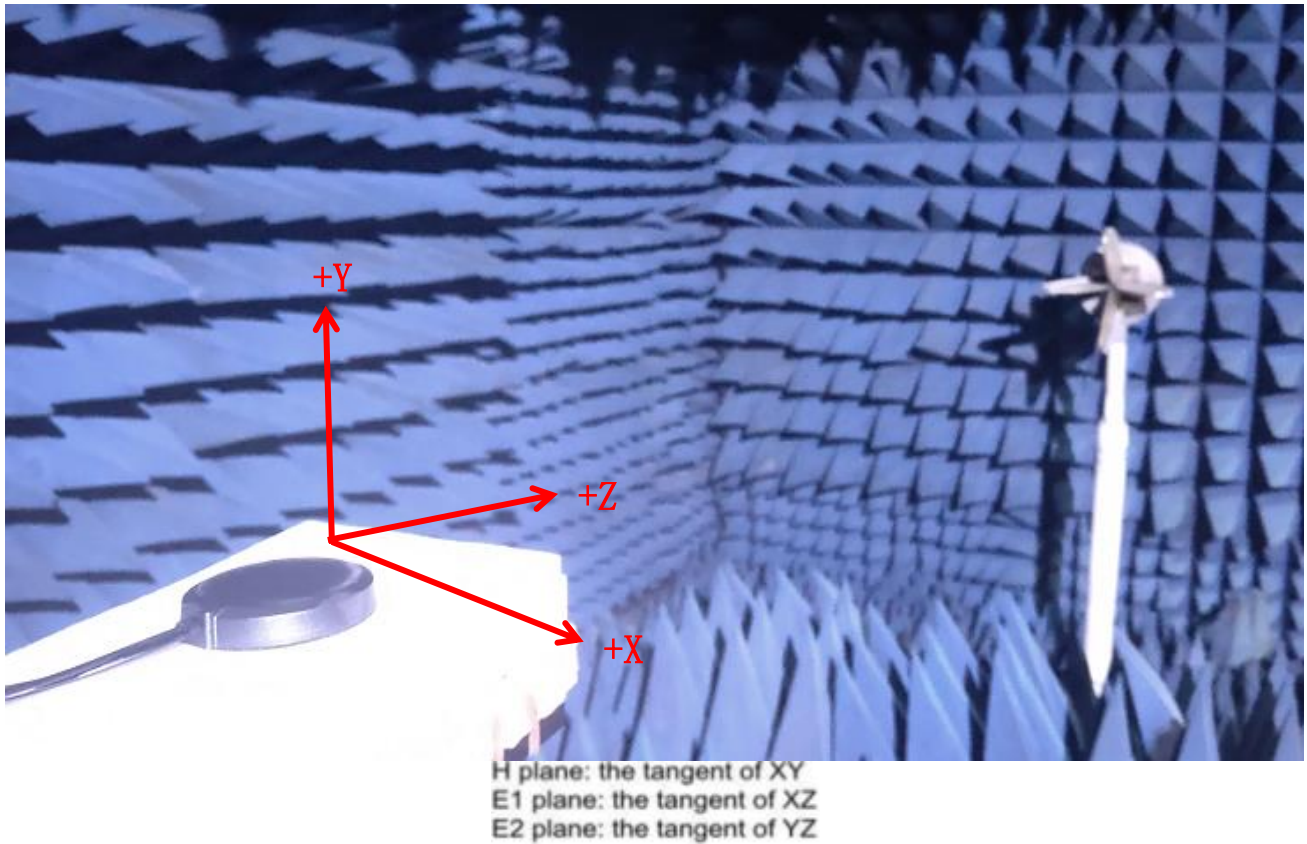
4.4.2. GNSS Antenna LNA Data



Frequency (MHz)	1561	1575
Gain (dBi)	27.61	27.59

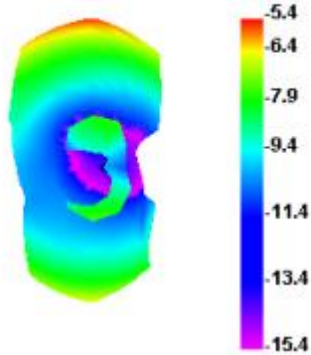
## 4.5. Radiation Pattern

- Test condition: free space.

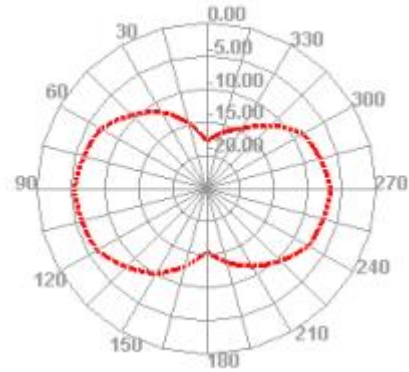




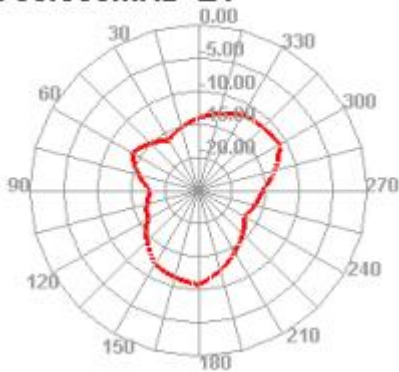
**700.000MHz**



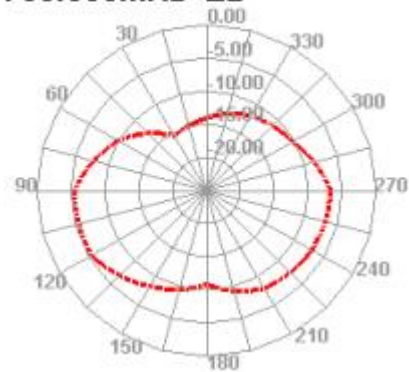
**700.000MHz H**



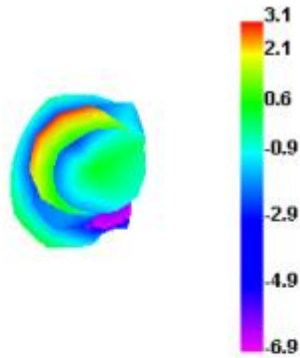
**700.000MHz E1**



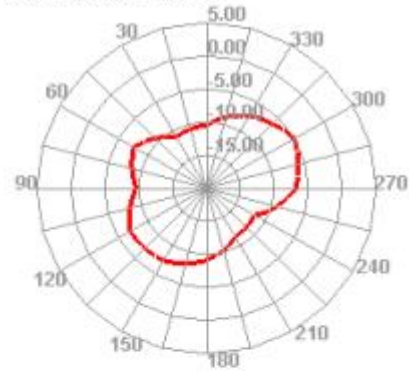
**700.000MHz E2**



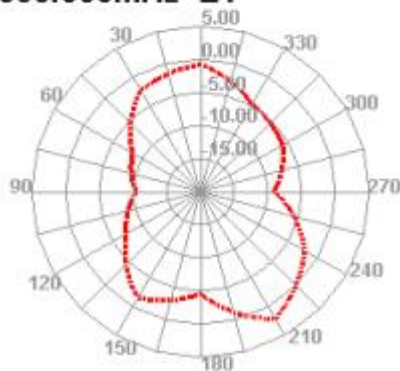
**800.000MHz**



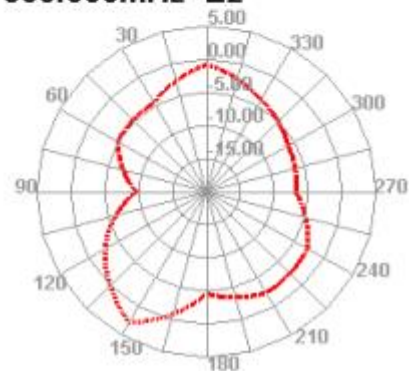
**800.000MHz H**



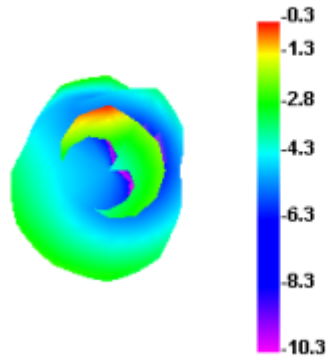
**800.000MHz E1**



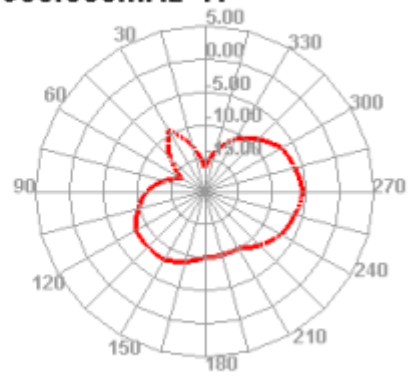
**800.000MHz E2**



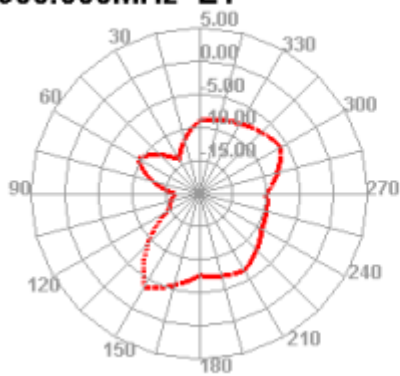
**900.000MHz**



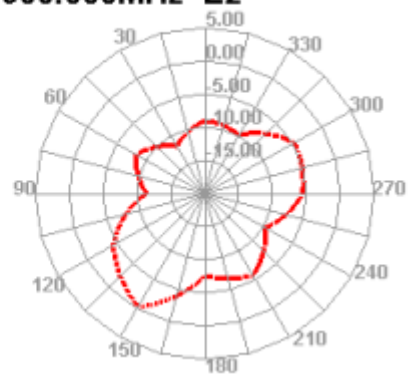
**900.000MHz H**



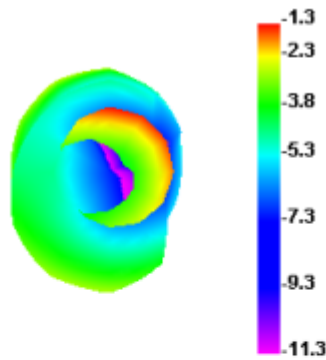
**900.000MHz E1**



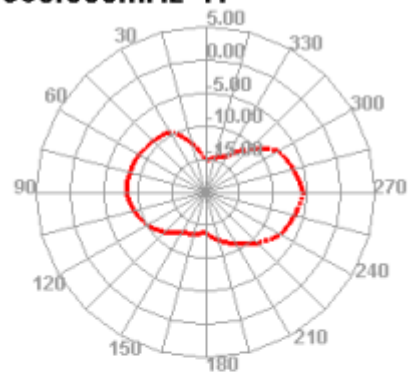
**900.000MHz E2**



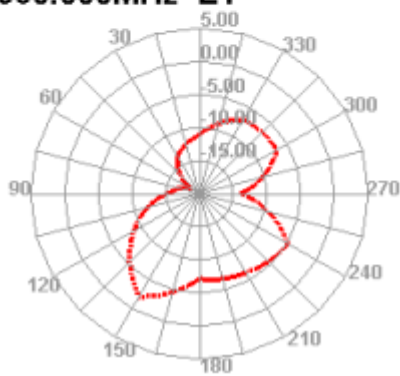
**960.000MHz**



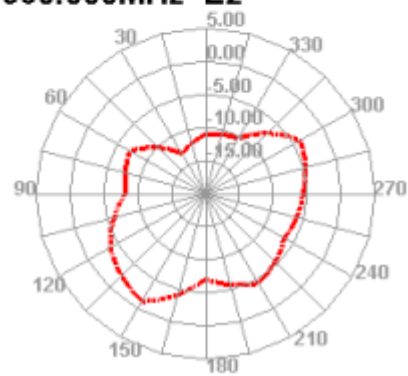
**960.000MHz H**



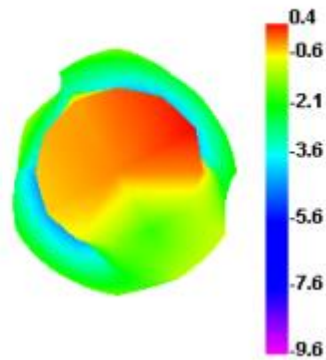
**960.000MHz E1**



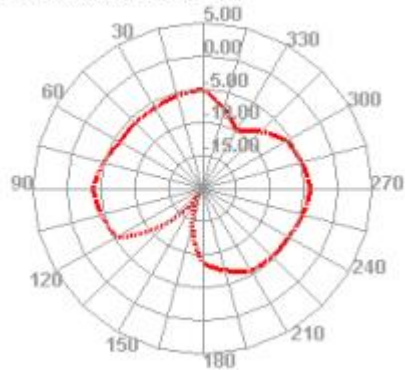
**960.000MHz E2**



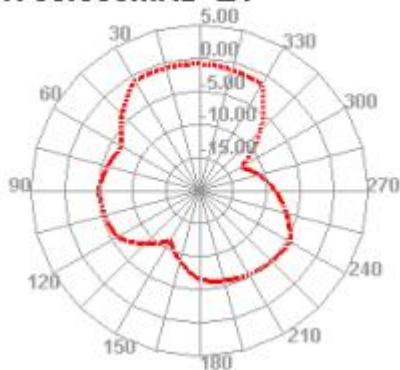
**1700.000MHz**



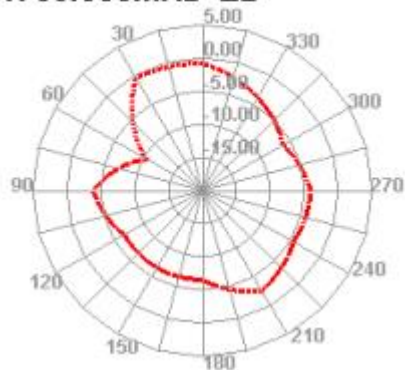
**1700.000MHz H**



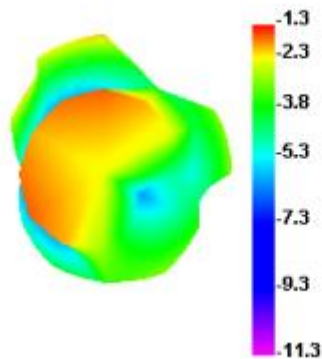
**1700.000MHz E1**



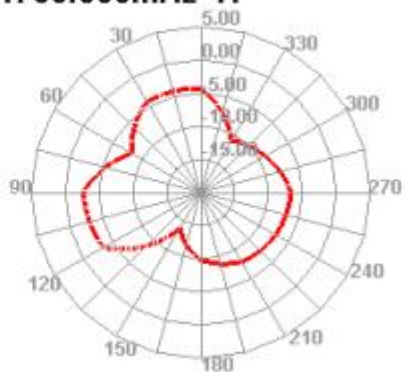
**1700.000MHz E2**



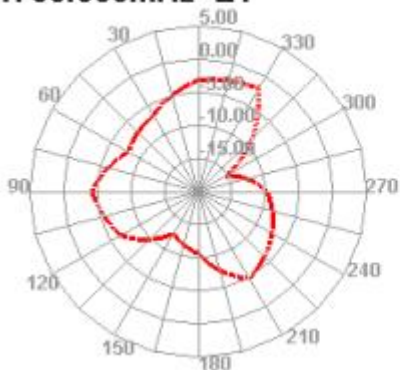
**1750.000MHz**



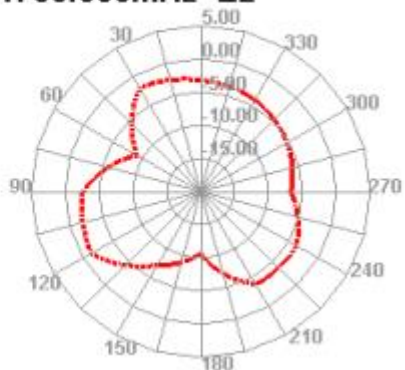
**1750.000MHz H**



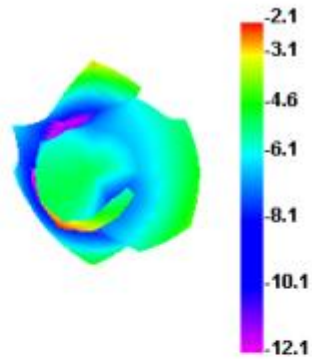
**1750.000MHz E1**



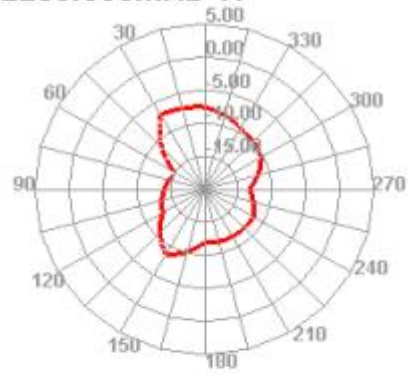
**1750.000MHz E2**



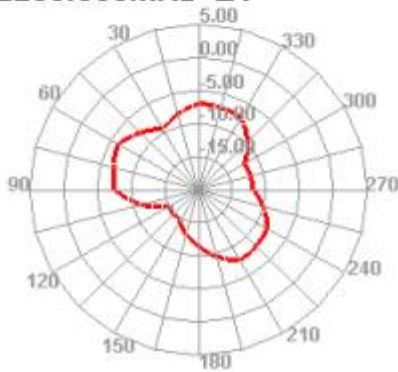
**2200.000MHz**



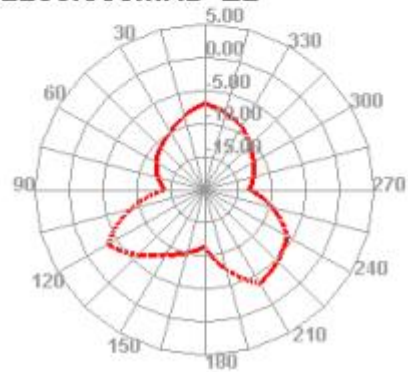
**2200.000MHz H**



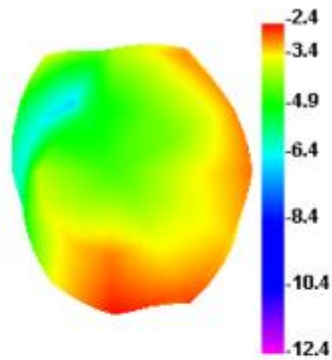
**2200.000MHz E1**



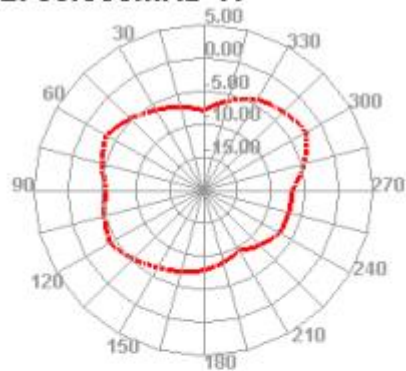
**2200.000MHz E2**



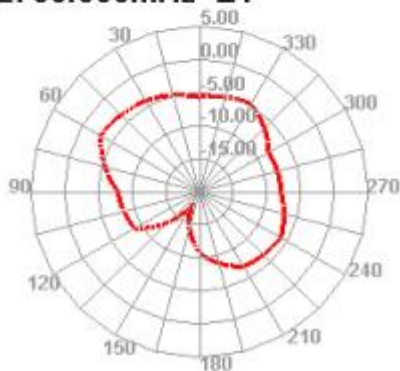
**2700.000MHz**



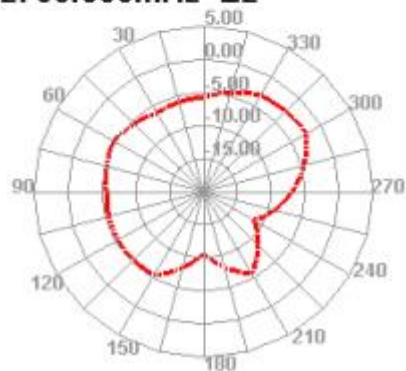
**2700.000MHz H**



**2700.000MHz E1**



**2700.000MHz E2**



## 5 Product Size

