



## Antenna Test Report

(GA62)

Revision History

| Revision | Note      | Date       |
|----------|-----------|------------|
| V1       | New Issue | 2025.12.16 |
|          |           |            |
|          |           |            |
|          |           |            |
|          |           |            |
|          |           |            |
|          |           |            |

Data Preview

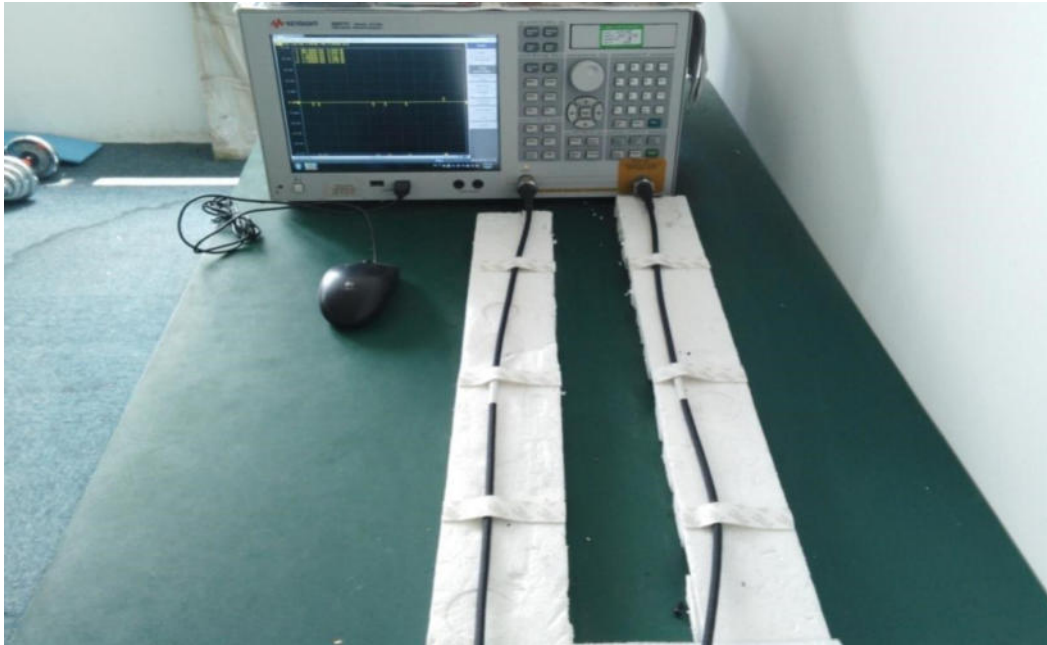
| Freq<br>(MHz) | Gain<br>(dBi) | Effi<br>(%) |
|---------------|---------------|-------------|
| 2400          | 1. 52         | 42%         |
| 2410          | 1. 74         | 47%         |
| 2420          | 1. 96         | 48%         |
| 2430          | 2. 05         | 51%         |
| 2440          | 2             | 51%         |
| 2450          | 2. 15         | 51%         |
| 2460          | 1. 89         | 49%         |
| 2470          | 1. 91         | 51%         |
| 2480          | 1. 38         | 45%         |
| 2490          | 1. 29         | 42%         |
| 2500          | 0. 94         | 38%         |

## 1. RF Fixture Experiment

### 1.1 Test Setup

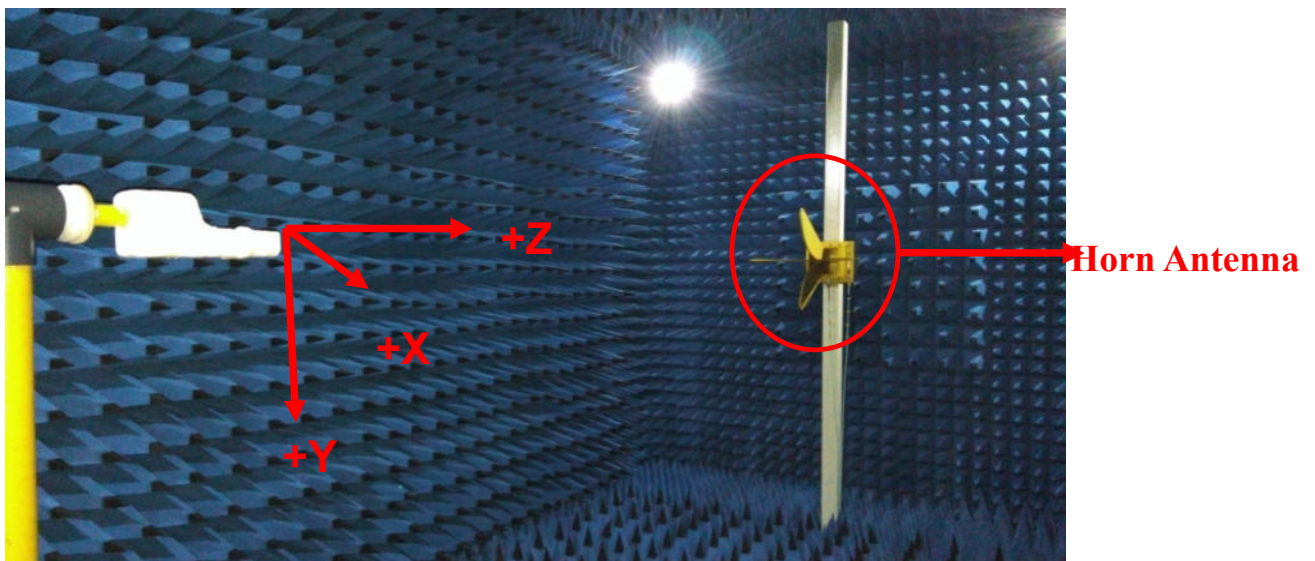
#### 1.1.1 VNA Test Setup

VSWR and Return Loss measurements ( $S_{11}$ ) were performed using an Keysight E5071C Network Analyzer. The isolation between antennas is also tested. The testing was performed with apparatus in free space.

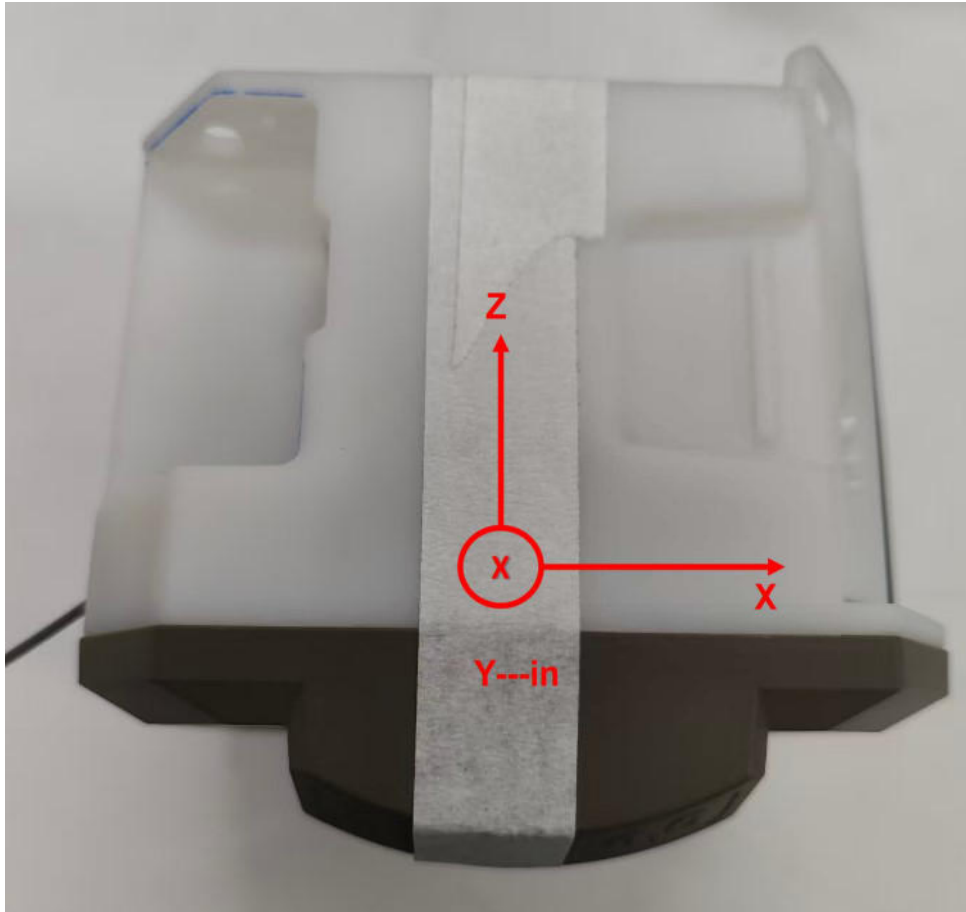


#### 1.1.2 Anechoic Chamber Test Setup

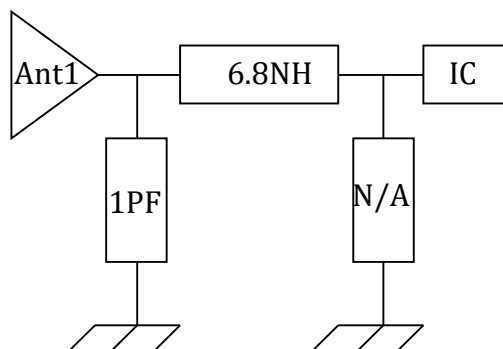
The gain of the antenna was measured in the anechoic chamber. The chamber provides less than  $-30$  dB reflectivity from 400 MHz through 6 GHz. The chamber size is: 7m\*4m\*3m. The measurement results are calibrated using a leaky wave horn standard. We can measure the antenna gain and efficiency accurately.



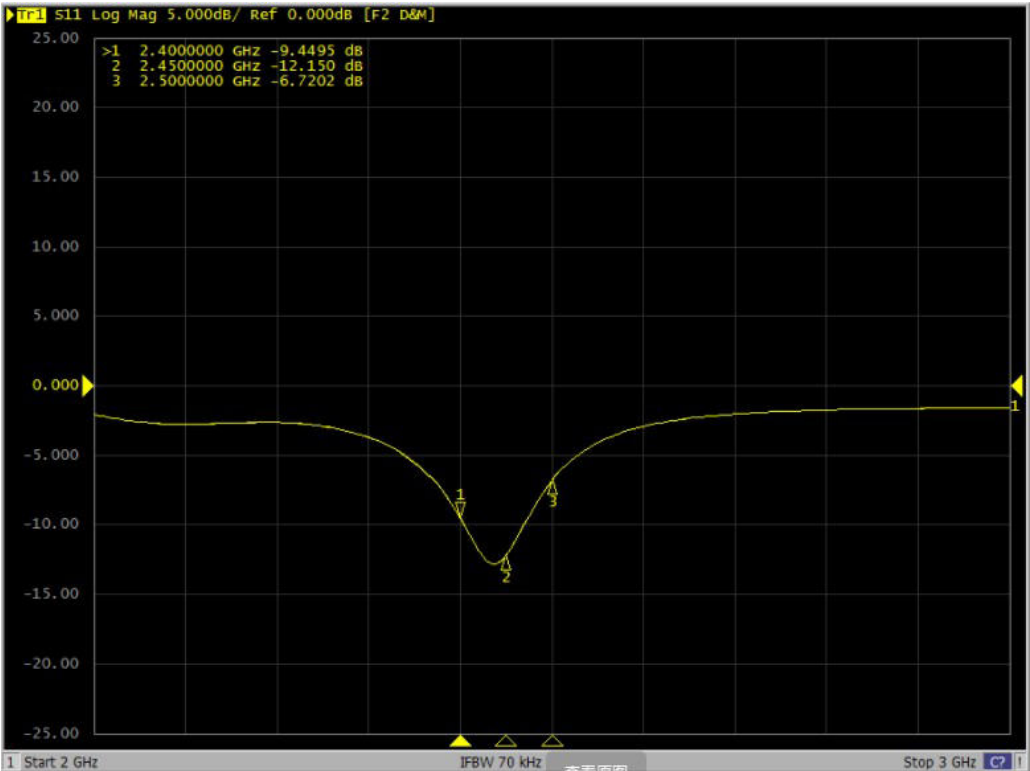
## 2. Antenna Solution



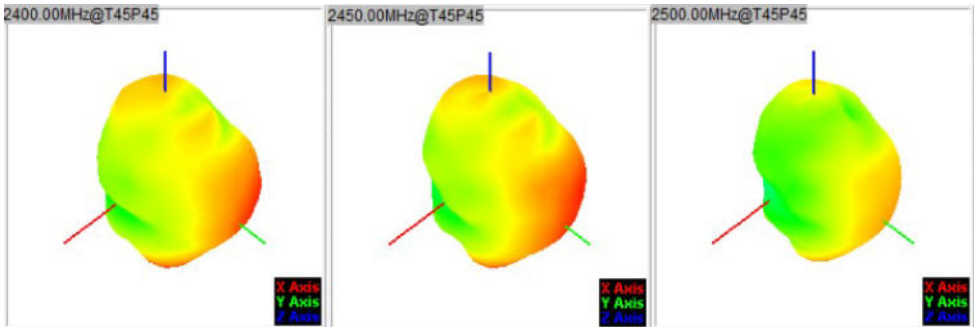
### 2. RF matching circuit for different antennas



S11(BT)

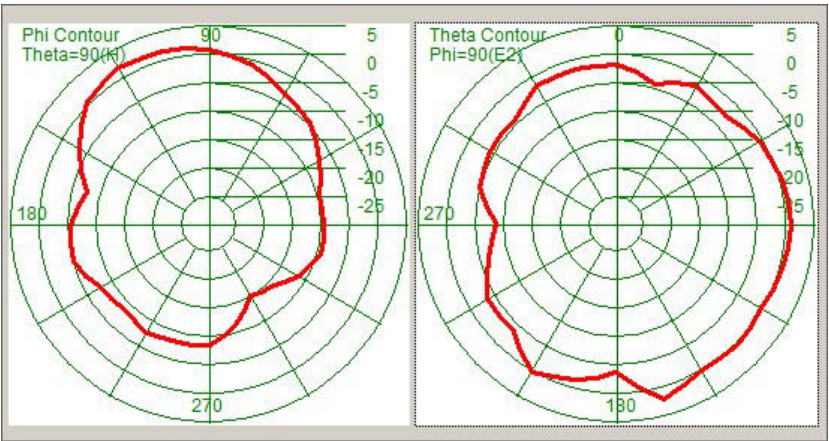


Radiation patterns:3D

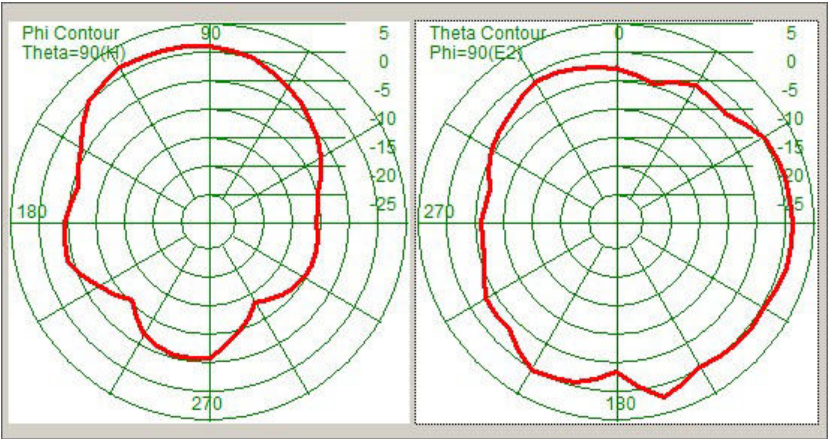


Radiation patterns:2D

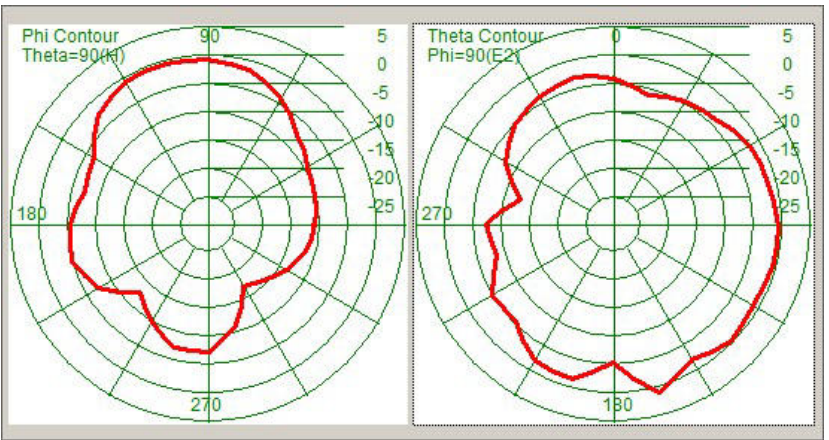
2400MHz



2450MHz



2500MHz





# 规格承认书

## SPECIFICATION FOR APPROVAL

日期  
**DATE:** 2026.3.9

版本  
**REV.:** V1.0

客 户  
**CUSTOMER:** Asiatelco Technologies Co.

客 户 料 号  
**CUSTOMER P/N:**

品 名  
**PART NAME:** GA61-LTE Antenna

供 方 料 号  
**SUPPLIER P/N:**

|                                  |                |                   |            |
|----------------------------------|----------------|-------------------|------------|
| 送样日期 <b>Date:</b>                |                | 送样数量 <b>Q'TY:</b> | <b>Pcs</b> |
| 客户确认 <b>CUSTOMER APPROVED BY</b> |                |                   |            |
| 工程研发部                            | 生产采购部          | 承认                |            |
| ENGINEER R&D DEPT                | BUSSINESS DEPT | APPROVED BY       |            |
|                                  |                |                   |            |

|                                |                   |          |
|--------------------------------|-------------------|----------|
| 供方确认 <b>SUPPLIER SIGNATURE</b> |                   |          |
| 研发部                            | 工程部               | 批准       |
| ENGINEER R&D DEPT              | ENGINEER R&D DEPT | APPROVAL |
| 宋旭辉                            | 周俊                | 傅以成      |

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# 1. RF Fixture Experiment

## 1.1 Test Setup

### 1.1.1 VNA Test Setup

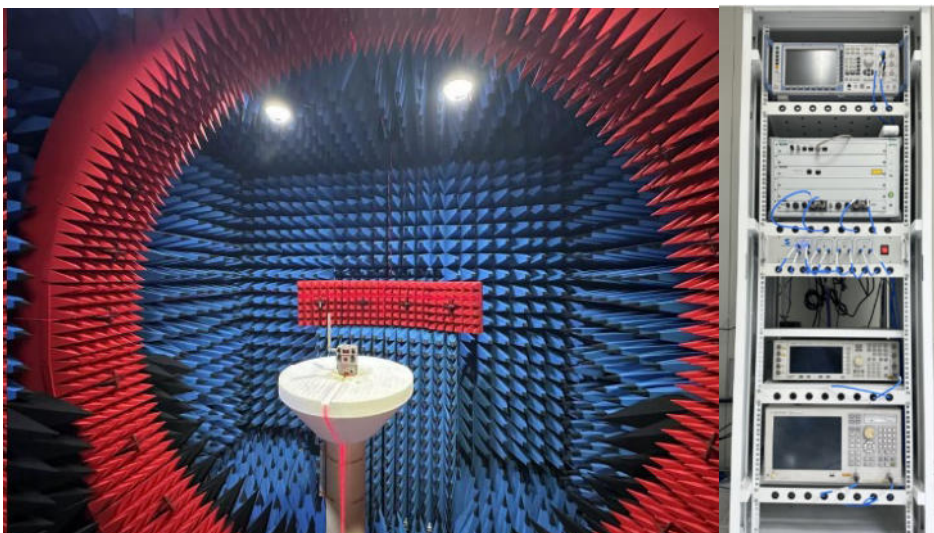
VSWR and Return Loss measurements ( $S_{11}$ ) were performed using an Keysight E5071C Network Analyzer. The isolation between antennas is also tested. The testing was performed with apparatus in free space.

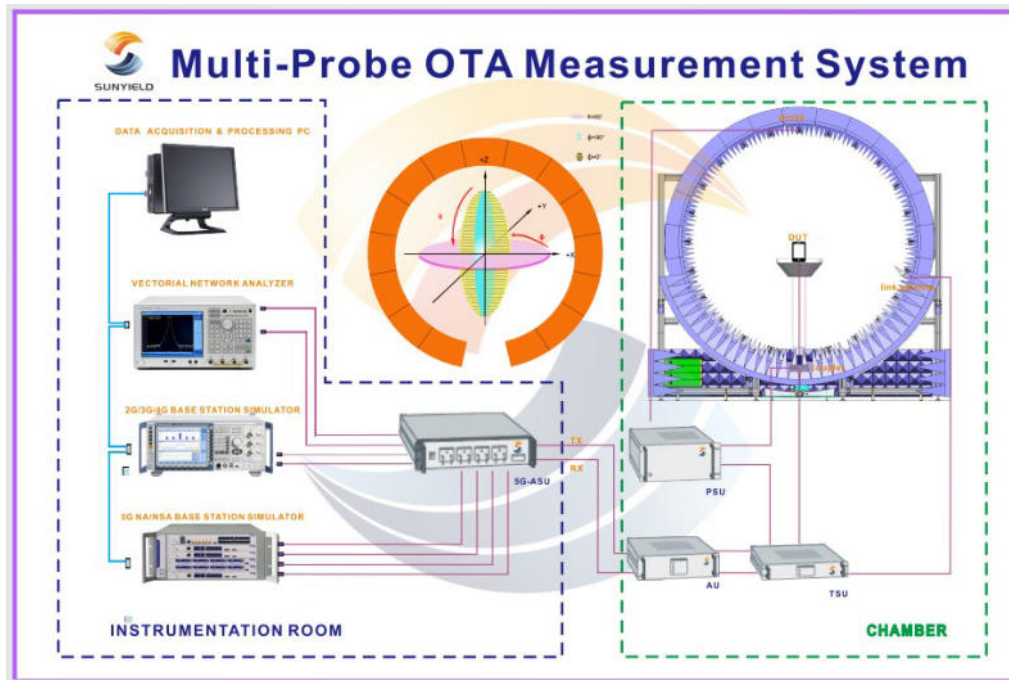


### 1.1.2 Anechoic Chamber Test Setup

When we test Gain and Efficiency of the antenna, we will use the Multi-Probe OTA Measurement System 3D chamber.

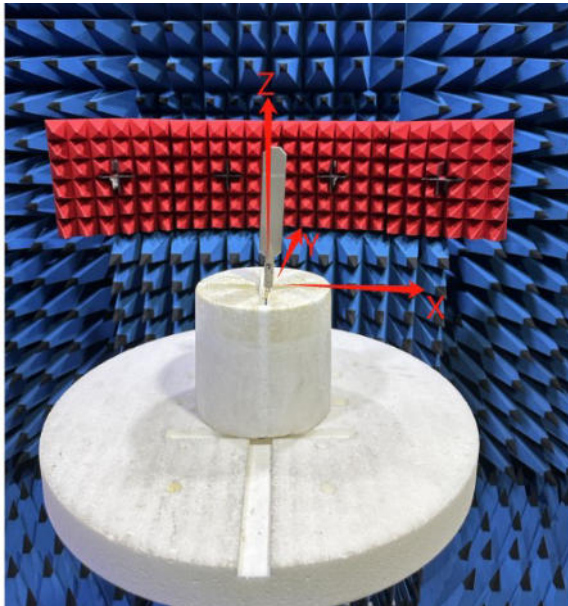
The chamber provides test frequency from 400MHz to 6GHz. The real test environment is showing as following picture



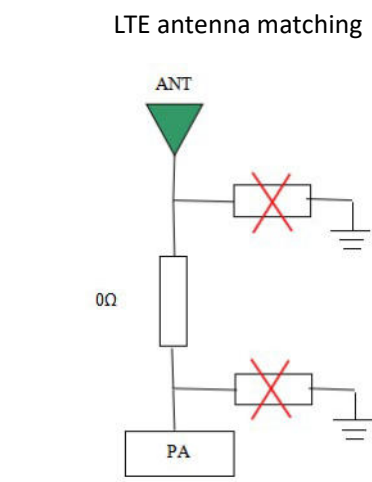


## 1.2 UE configuration

### 1.2.1 Antenna location pictures



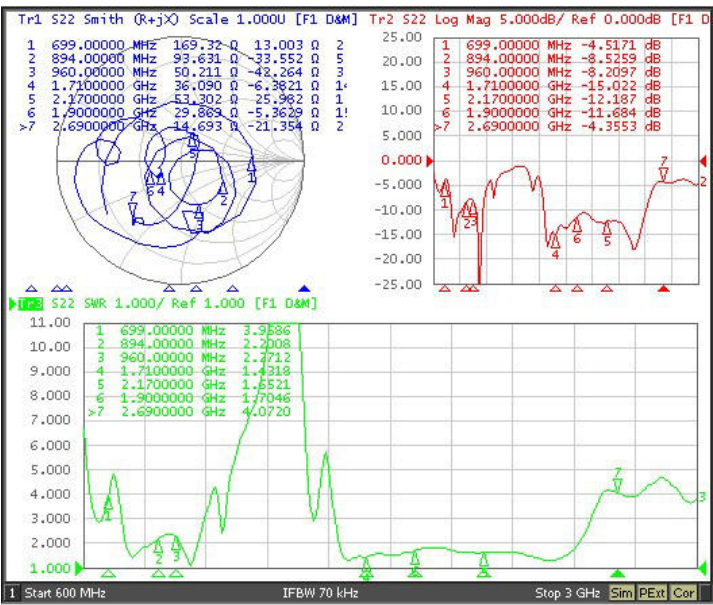
## 1.2.2 RF matching for different antennas



## 2. Test Result

### 2.1 Passive Test Result(S parameters)

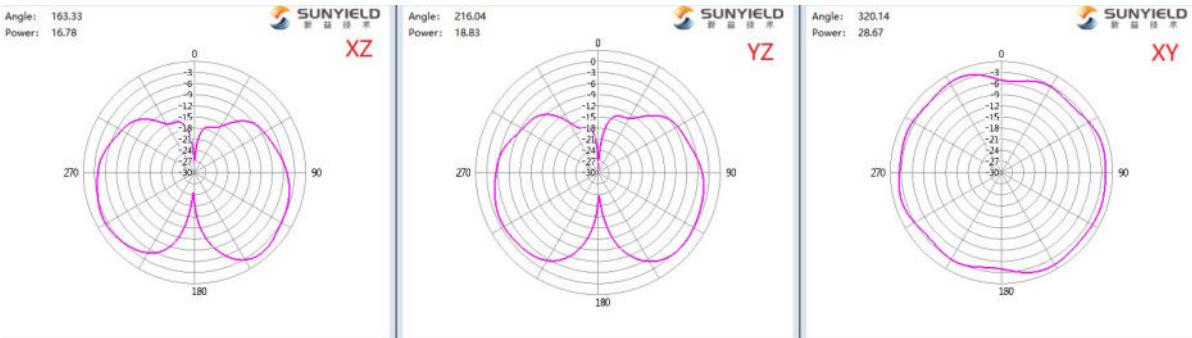
LTE antenna S11



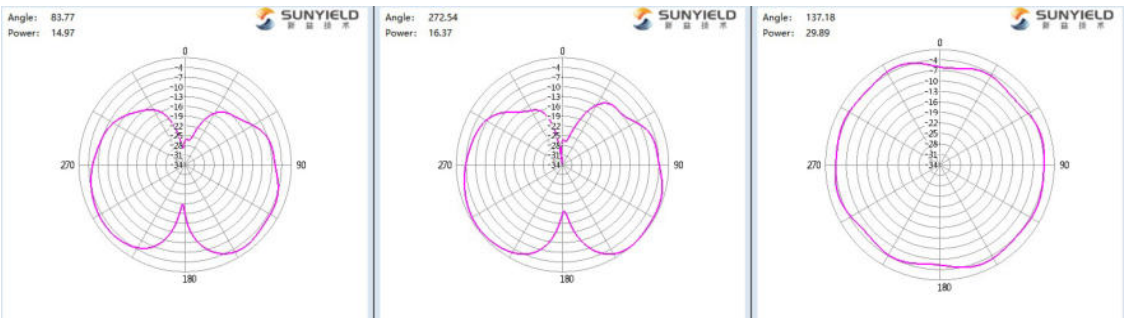
|                |       |       |       |       |       |       |       |       |
|----------------|-------|-------|-------|-------|-------|-------|-------|-------|
| Frequency(MHz) | 700   | 750   | 800   | 850   | 900   | 950   | 1700  |       |
| Gain(dBi)      | 0.2   | -0.75 | 0.2   | 0.76  | 1.73  | 1.42  | 2.93  |       |
| Efficiency(%)  | 54.58 | 45.98 | 46.08 | 37.25 | 34.82 | 37.59 | 64.21 |       |
| Frequency(MHz) | 1800  | 1900  | 2000  | 2100  | 2200  | 2500  | 2600  | 2700  |
| Gain(dBi)      | 3.78  | 4.28  | 1.92  | 1.68  | 2.1   | 2.48  | 2.49  | 1.93  |
| Efficiency(%)  | 64.32 | 65.88 | 51.59 | 57.11 | 62.74 | 68.18 | 69.46 | 71.41 |

## 2.2 Radiation Patterns:2D

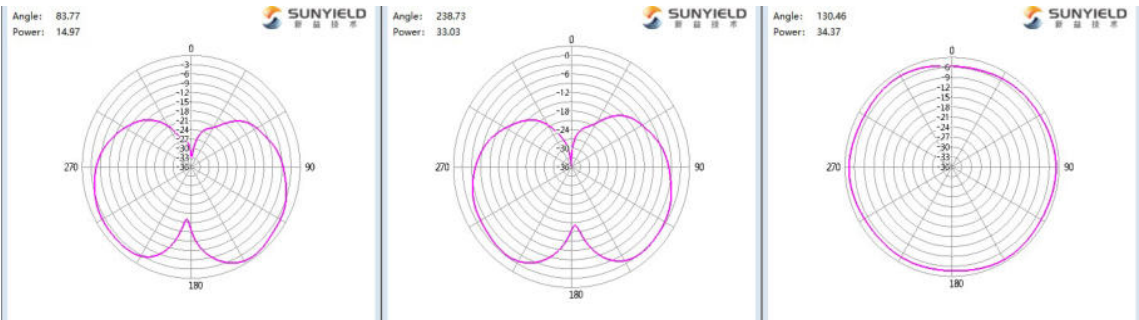
700M



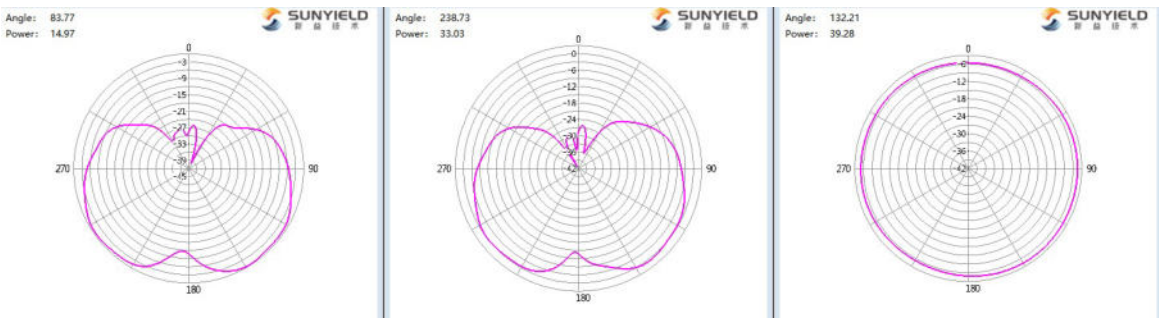
750M



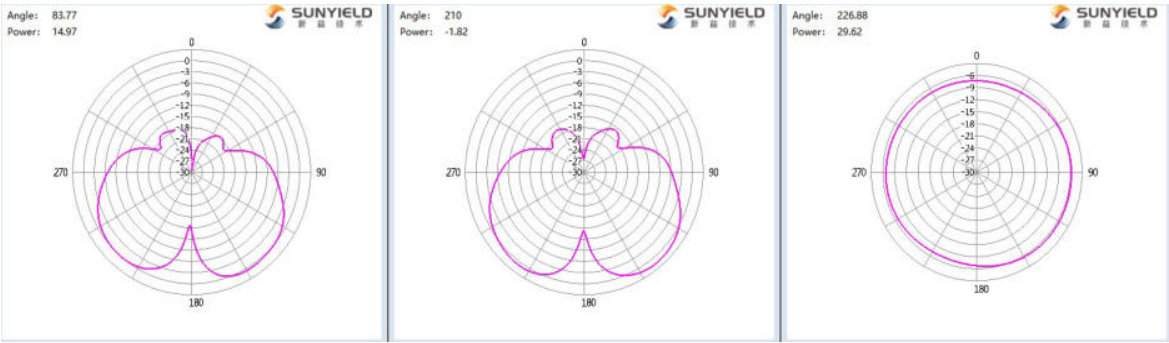
800M



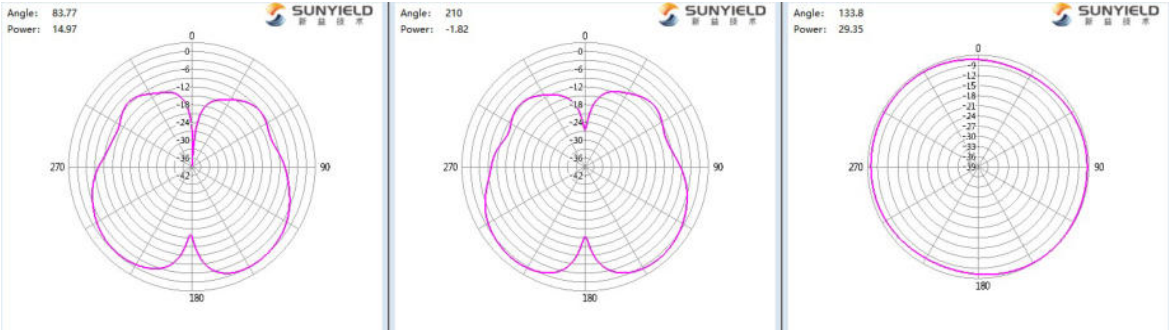
850M



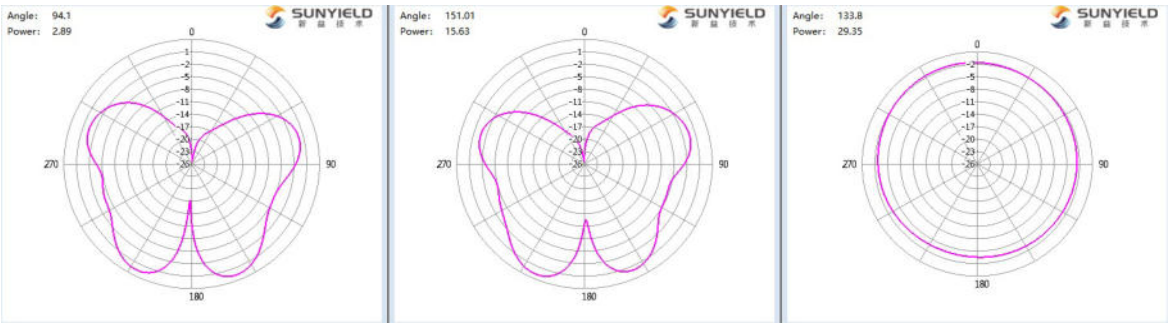
900M



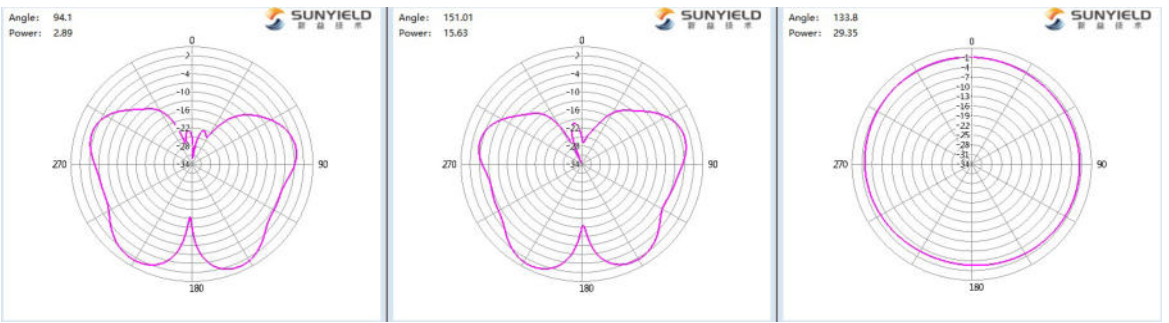
950M



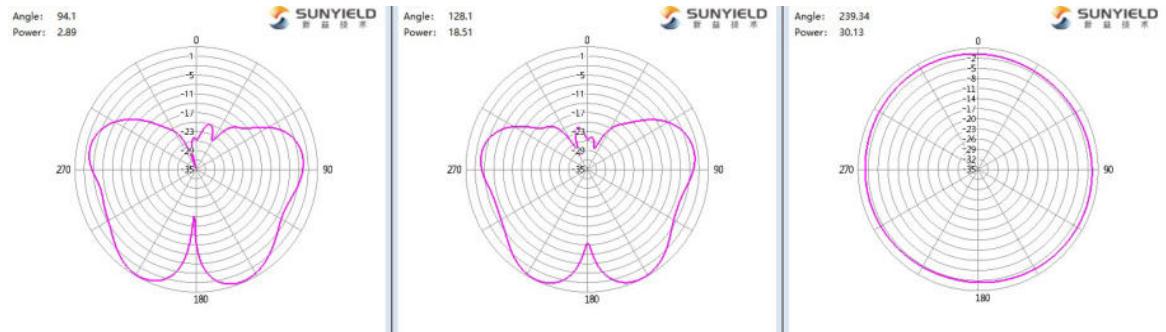
1700M



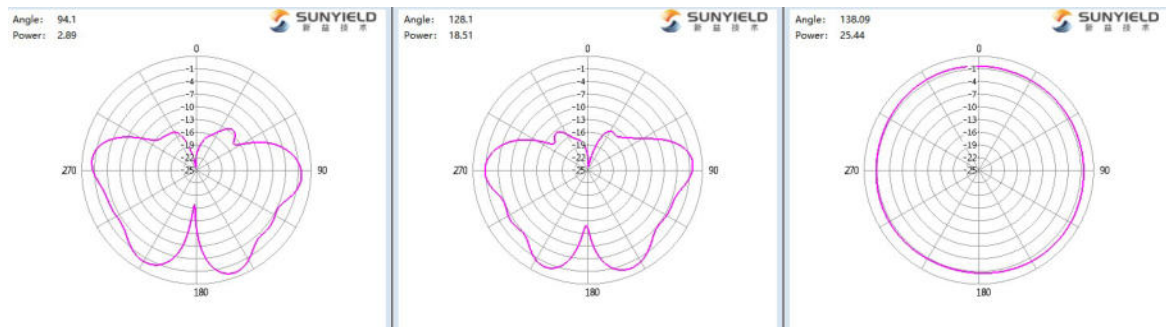
1800M



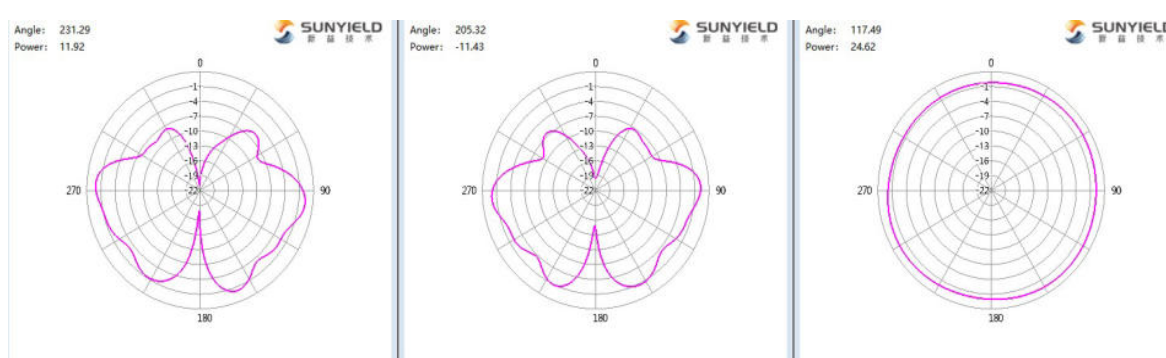
## 1900M



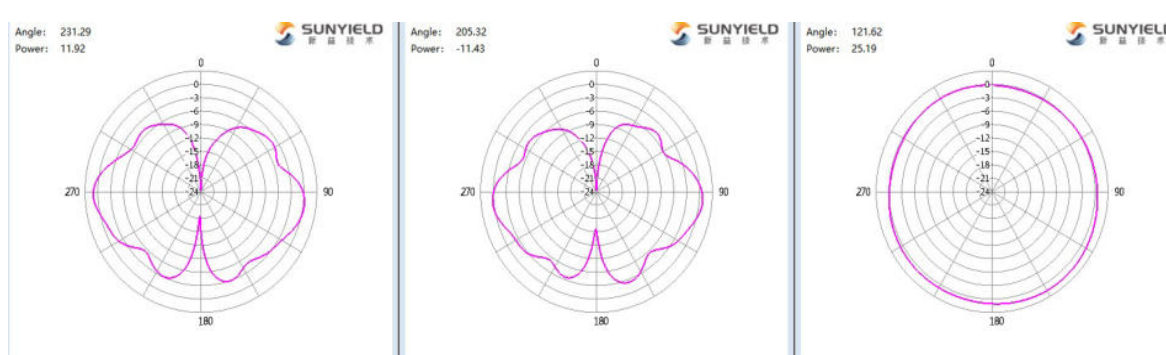
## 2000M



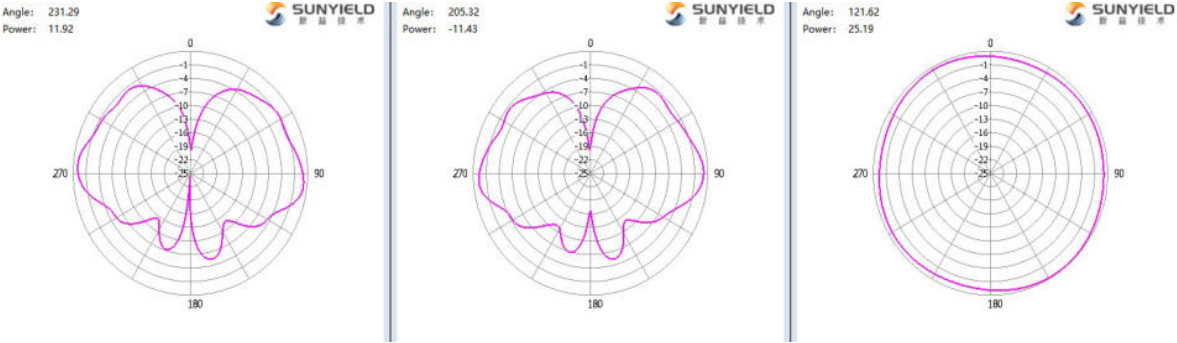
## 2100M



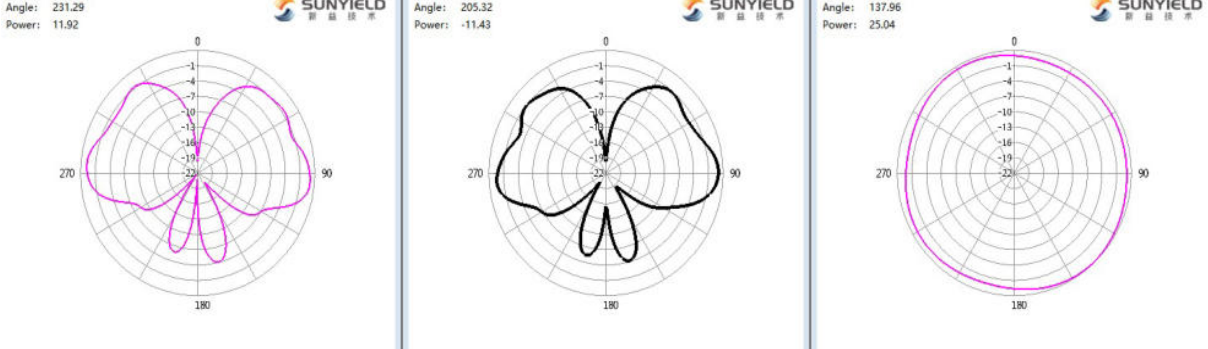
## 2200M



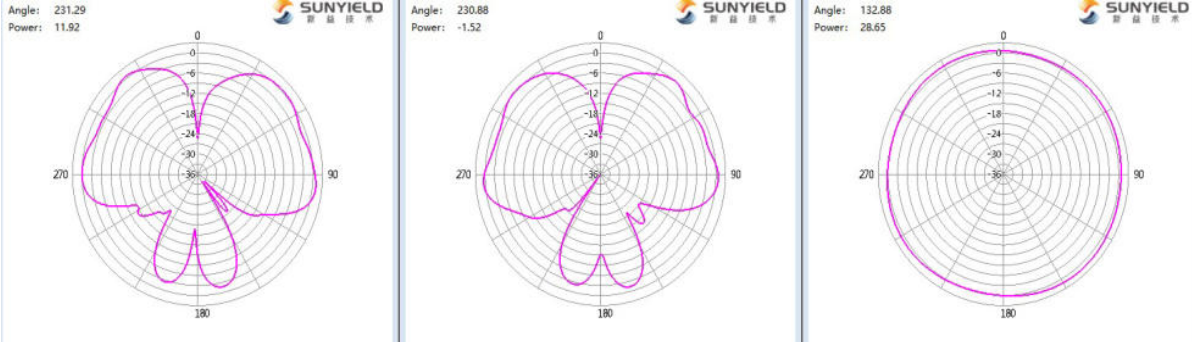
2500M



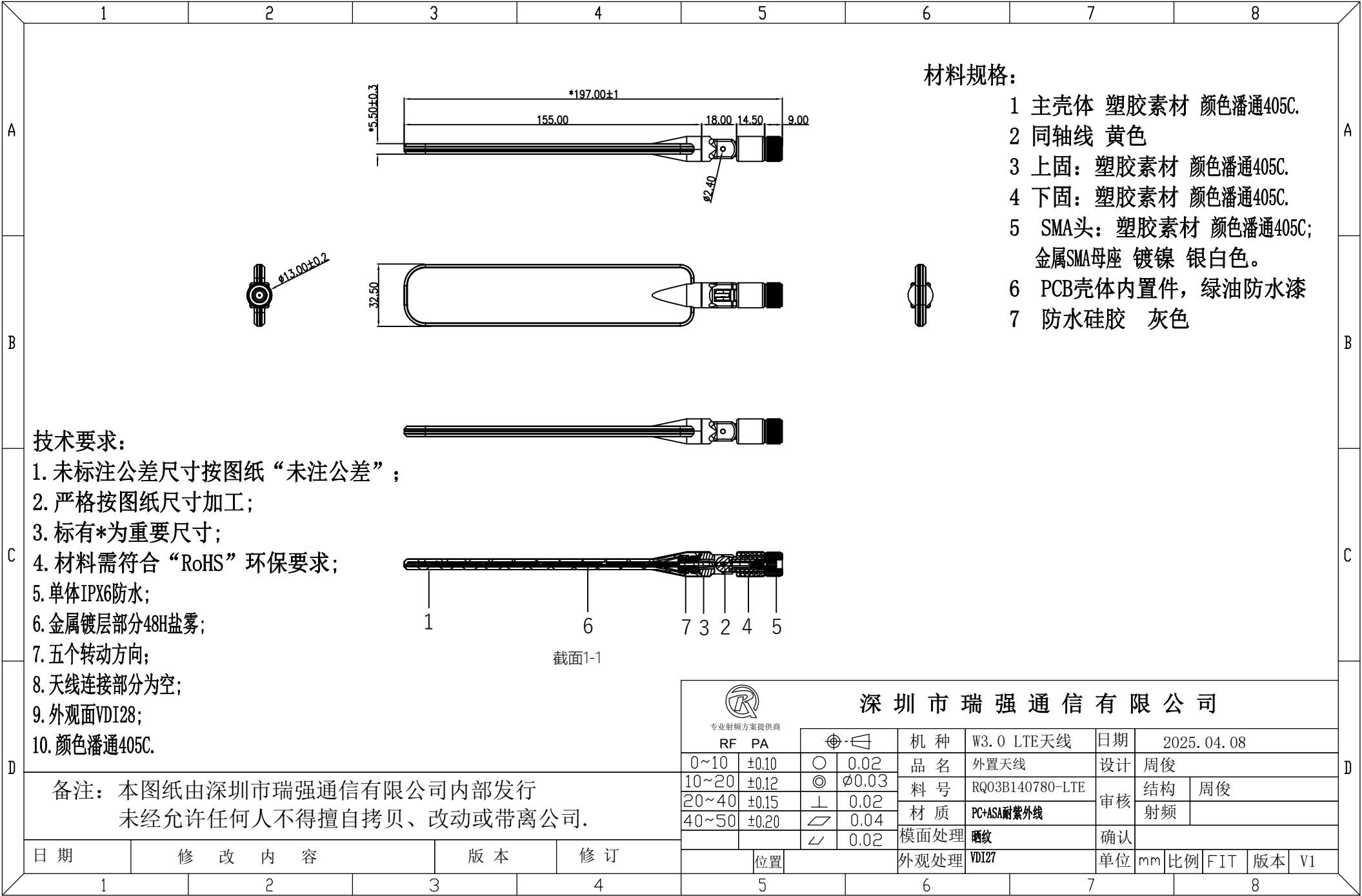
2600M



2700M



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# 规格承认书

## SPECIFICATION FOR APPROVAL

日期  
**DATE:** 2026.03.09

版本  
**REV.:** V1.0

客 户  
**CUSTOMER:** Asiatelco Technologies Co.

客 户 料 号  
**CUSTOMER P/N:**

品 名  
**PART NAME:** GA61-WIFI Antenna

供 方 料 号  
**SUPPLIER P/N:** RQ03B140836B-WIFI

送样日期 **Date:** 送样数量 **Q'TY:** Pcs

| 客户确认 <b>CUSTOMER APPROVED BY</b> |                |             |
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| 工程研发部                            | 生产采购部          | 承认          |
| ENGINEER R&D DEPT                | BUSSINESS DEPT | APPROVED BY |
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| 供方确认 <b>SUPPLIER SIGNATURE</b> |                   |          |
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| 宋旭辉                            | 周俊                | 傅以成      |

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| 2.1 Passive Test Result(S parameters)..... | 5 |
| 3. Mechanical instruction.....             | 7 |

# 1. RF Fixture Experiment

## 1.1 Test Setup

### 1.1.1 VNA Test Setup

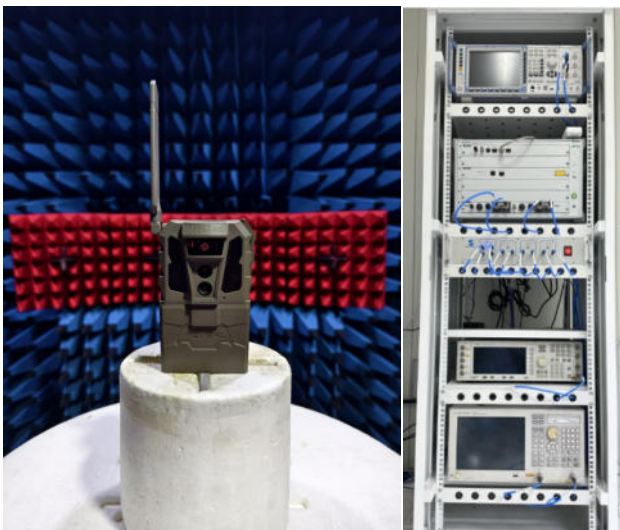
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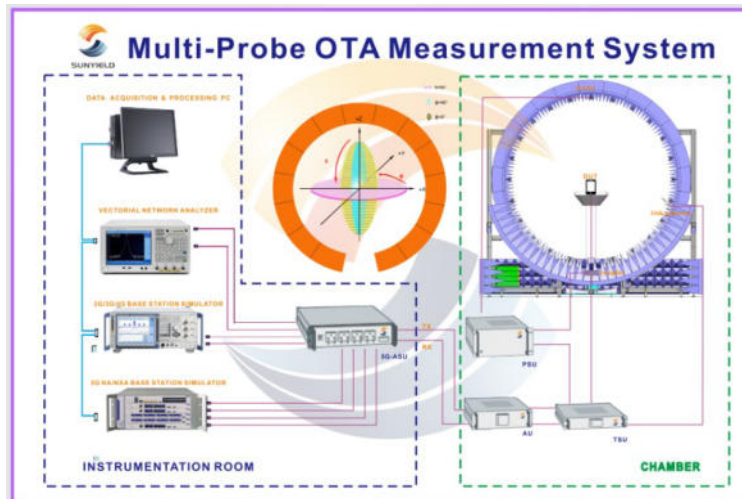


### 1.1.2 Anechoic Chamber Test Setup

When we test Gain and Efficiency of the antenna, we will use the Multi-Probe OTA Measurement System 3D chamber.

The chamber provides test frequency from 400MHz to 6GHz. The real test environment is showing as following picture





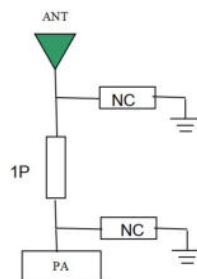
## 1.2 UE configuration

### 1.2.1 Antenna location pictures



### 1.2.2 RF matching for different antennas

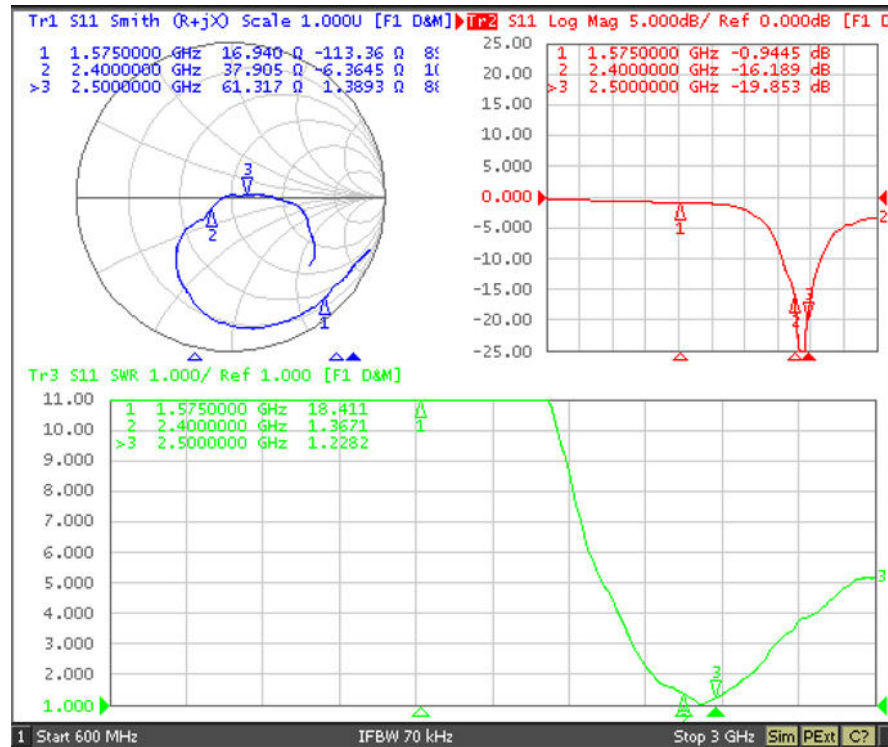
Antenna matching



## 2. Test Result

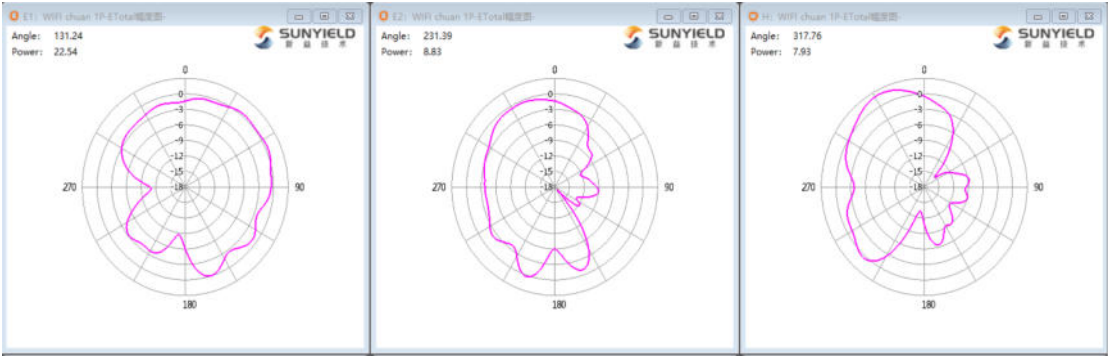
### 2.1 Passive Test Result(S parameters)

Antenna S11



| WIFI                        |                     |                      |                     |
|-----------------------------|---------------------|----------------------|---------------------|
| Gain&Efficiency&PhaseCenter |                     |                      |                     |
| 增益、效率和相位中心                  |                     |                      |                     |
| frequency<br>频率<br>(MHz)    | gain<br>增益<br>(dBi) | efficiency<br>效率(dB) | efficiency<br>效率(%) |
| 2400                        | 2.02                | -3.39                | 45.77               |
| 2410                        | 2.25                | -2.91                | 51.14               |
| 2420                        | 2.34                | -2.64                | 54.51               |
| 2430                        | 1.85                | -3.07                | 49.31               |
| 2440                        | 1.91                | -2.94                | 50.84               |
| 2450                        | 2.29                | -2.44                | 56.97               |
| 2460                        | 2.22                | -2.44                | 57.07               |
| 2470                        | 2.24                | -2.48                | 56.44               |
| 2480                        | 2.01                | -2.76                | 52.99               |
| 2490                        | 2.35                | -2.6                 | 55.01               |
| 2500                        | 2.64                | -2.32                | 58.63               |

Frequency: 2500



D

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\*6.70±0.30

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