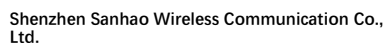


# Sample Approval Form



**Shenzhen Sanhao Wireless Communication Co., Ltd.**

|                                              |                                       |                   |                             |                             |
|----------------------------------------------|---------------------------------------|-------------------|-----------------------------|-----------------------------|
| <b>Custo<br/>mer</b>                         | <b>Client</b>                         | <b>Mangmi</b>     |                             |                             |
| <b>Customer Model</b>                        |                                       | <b>MQ64</b>       |                             |                             |
| <b>Material Code</b>                         |                                       | <b>MM-MQ64</b>    |                             |                             |
| <b>WIFI1 Antenna Coding</b>                  |                                       | <b>MM-MQ64-01</b> |                             |                             |
| <b>V<br/>e<br/>r<br/>s<br/>i<br/>o<br/>n</b> | <b>Copy</b>                           | <b>T:A</b>        |                             |                             |
| <b>Production Date</b>                       |                                       | <b>2026.5.26</b>  |                             |                             |
| <b>Compi<br/>lation</b>                      | <b>Pr<br/>od<br/>uc<br/>tio<br/>n</b> | <b>RF Review</b>  | <b>Structure<br/>Review</b> | <b>Approval /<br/>Stamp</b> |
| Zhu Kun                                      |                                       | Zhao Bing         | He Ye                       | Jiang Jianhong              |
| <b>Customer Confirmation Signature:</b>      |                                       |                   |                             |                             |



## Revision Record

[illegible]

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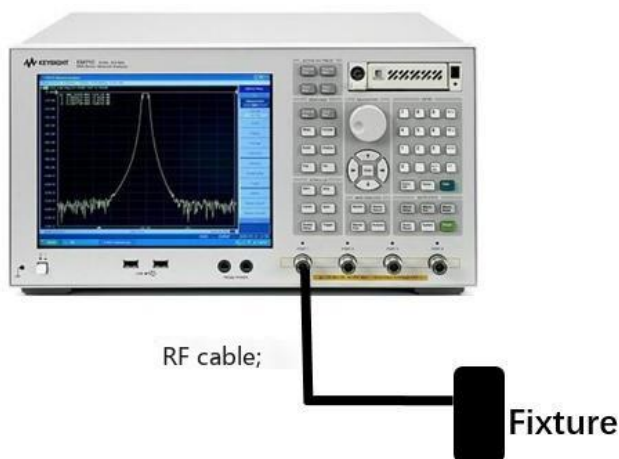
## 2. Electrical Performance Items and Test Environment

### 2.1 Electrical Performance Items

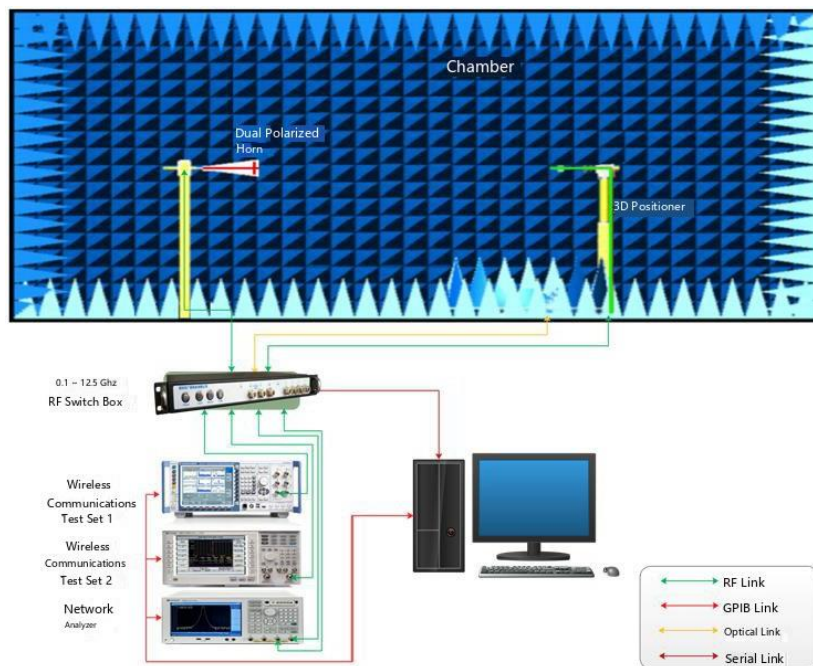
|              |     |                            |
|--------------|-----|----------------------------|
| Passive Test | S11 | VSWR/R.L/Simth Chart       |
|              | S21 | Isolation                  |
|              | S21 | Effi./Gain                 |
| Active Test  | TRP | Total Radiated Power       |
|              | TIS | Total Istropic Sensitivity |

### 2.2 Test Methods and Test Equipment

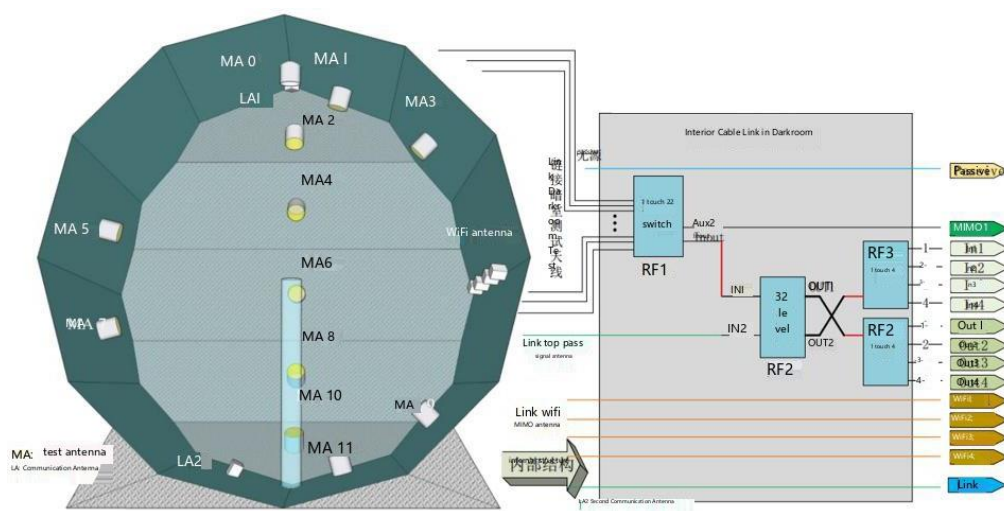
#### 2.2.1 S11 Test



## 2. 2. 2 Gain / Efficiency (Effi./Gain) & Active (Trp/Tis)

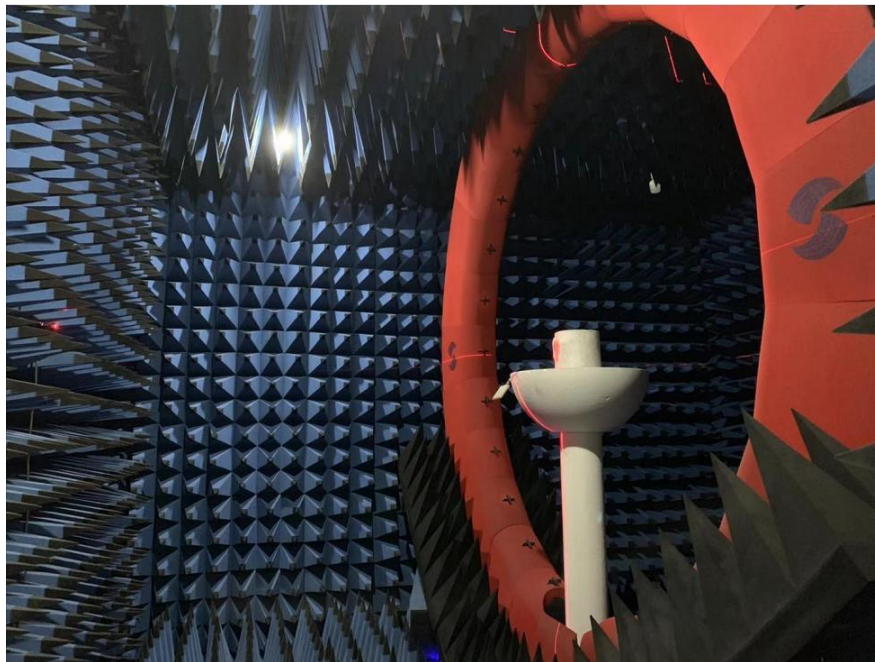


Single-probe measurement system



Multi-probe measurement system

## 2.3 Three Good Testing Darkrooms and Environments



Internal diagram of multi probe microwave darkroom system



External diagram of microwave darkroom (darkroom+cabinet equipment)

### 3. Whole machine environment processing and matching circuit

3.1 Whole machine environment treatment  
The existing environment of the machine

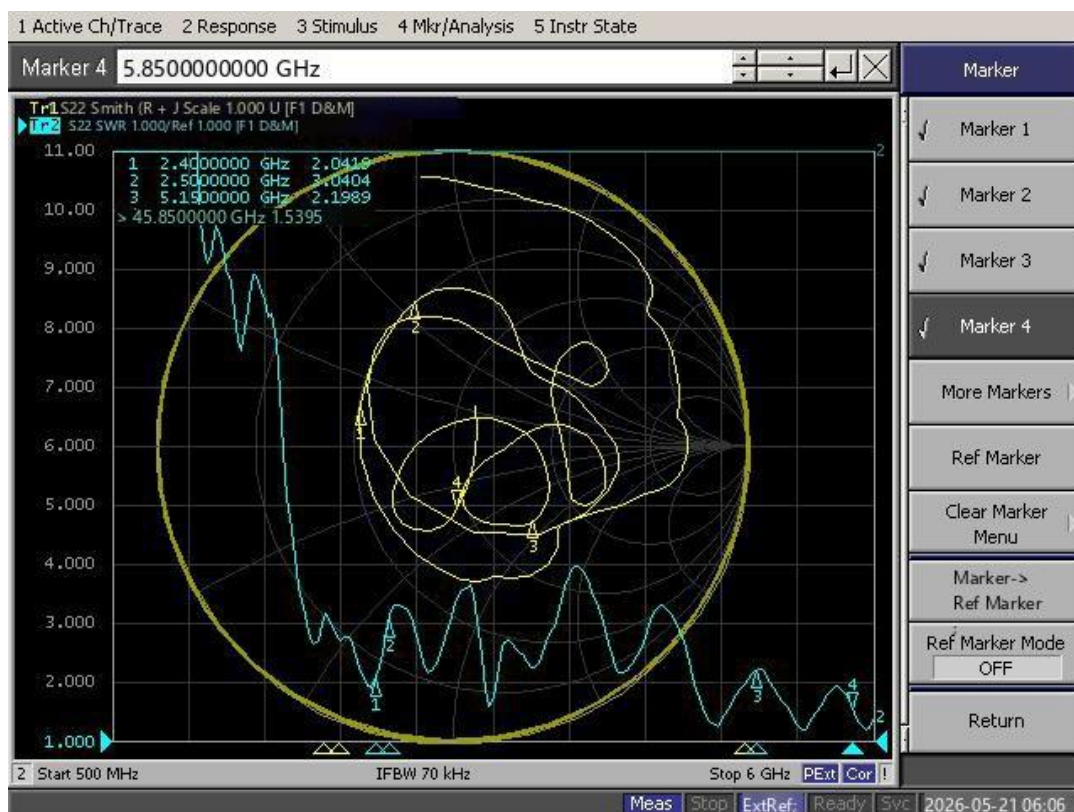
3.2 Antenna Matching Circuit  
No match found

### 4. Test data

4.1 Passive testing

4.1.1 S11(VSWR/RL/Simth Chart) test data

WIFI 1 antenna

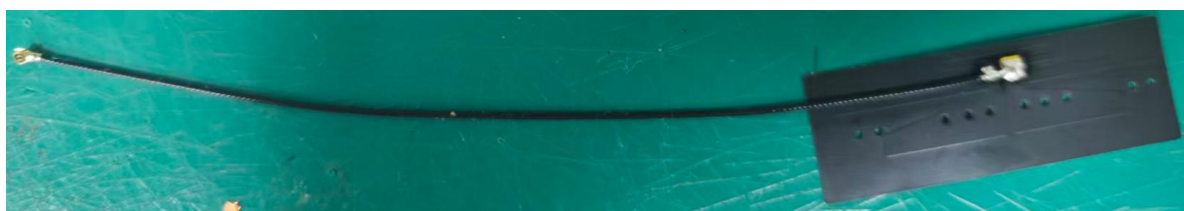


## 1. 项目基本信息和图片：

### 1.1 项目基本信息

|      |                                    |
|------|------------------------------------|
| 整机类型 | 游戏掌机                               |
| 天线材质 | FPC                                |
| 天线频段 | WiFi2.4G/5G                        |
| 工作频率 | 2400Mhz-2500Mhz<br>5150Mhz-5850Mhz |

### 1.2 整机外观及天线样品图





## WIFI 1 效率

## 无源测试数据

Frequency / Efficiency / Efficiency / %

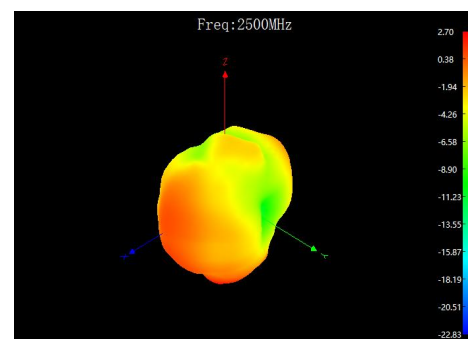
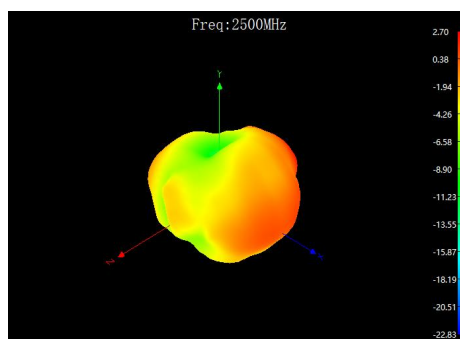
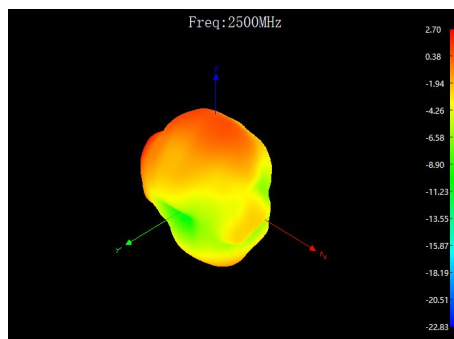
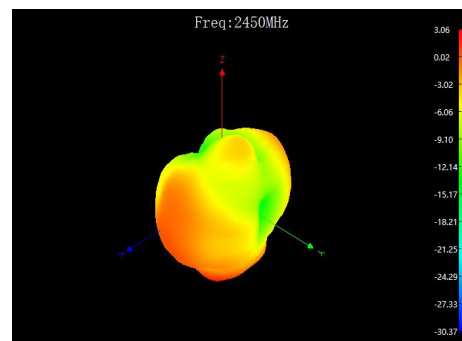
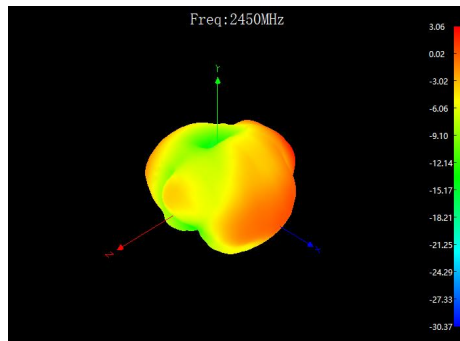
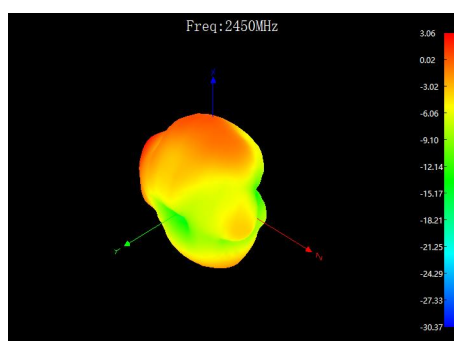
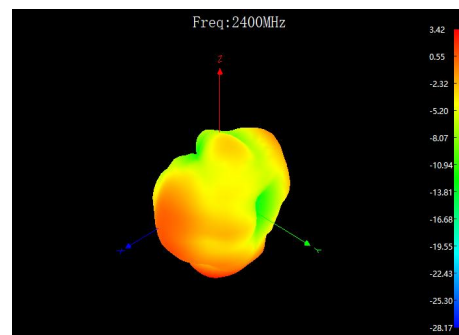
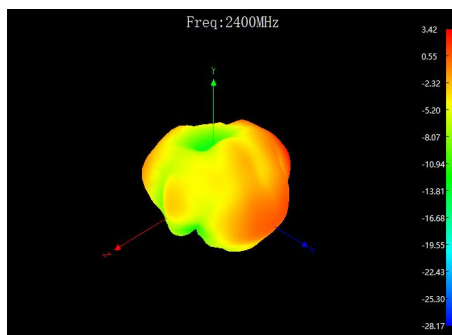
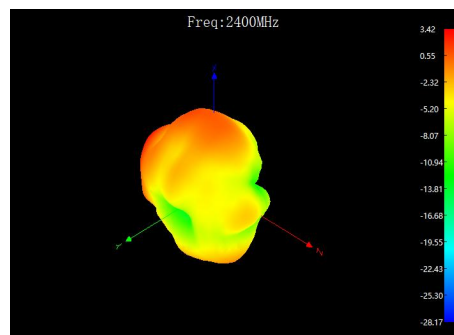
|      |       |       |
|------|-------|-------|
| 2400 | -3.53 | 44.36 |
| 2410 | -3.41 | 45.6  |
| 2420 | -3.3  | 46.77 |
| 2430 | -3.26 | 47.21 |
| 2440 | -3.5  | 44.67 |
| 2450 | -3.83 | 41.4  |
| 2460 | -4.02 | 39.63 |
| 2470 | -4.01 | 39.72 |
| 2480 | -4    | 39.81 |
| 2490 | -4    | 39.81 |
| 2500 | -4.12 | 38.73 |
| 5150 | -4.55 | 35.08 |
| 5160 | -4.45 | 35.89 |
| 5170 | -4.62 | 34.51 |
| 5180 | -4.68 | 34.04 |
| 5190 | -4.77 | 33.34 |
| 5200 | -4.76 | 33.42 |
| 5210 | -4.56 | 34.99 |
| 5220 | -4.39 | 36.39 |
| 5230 | -4.27 | 37.41 |
| 5240 | -4.34 | 36.81 |
| 5250 | -4.43 | 36.06 |
| 5260 | -4.65 | 34.28 |
| 5270 | -4.56 | 34.99 |
| 5280 | -4.72 | 33.73 |
| 5290 | -4.68 | 34.04 |
| 5300 | -4.71 | 33.81 |
| 5310 | -4.56 | 34.99 |
| 5320 | -4.67 | 34.12 |
| 5330 | -4.46 | 35.81 |
| 5340 | -4.43 | 36.06 |
| 5350 | -4.35 | 36.73 |
| 5360 | -4.27 | 37.41 |
| 5370 | -4.29 | 37.24 |
| 5380 | -4.38 | 36.48 |
| 5390 | -4.14 | 38.55 |
| 5400 | -3.92 | 40.55 |
| 5410 | -3.93 | 40.46 |
| 5420 | -4.06 | 39.26 |
| 5430 | -4.2  | 38.02 |
| 5440 | -4.05 | 39.36 |
| 5450 | -3.99 | 39.9  |
| 5460 | -3.94 | 40.36 |
| 5470 | -4    | 39.81 |
| 5480 | -3.91 | 40.64 |
| 5490 | -3.89 | 40.83 |
| 5500 | -3.88 | 40.93 |
| 5510 | -3.95 | 40.27 |
| 5520 | -3.91 | 40.64 |
| 5530 | -3.81 | 41.59 |
| 5540 | -3.75 | 42.17 |
| 5550 | -3.79 | 41.78 |
| 5560 | -3.68 | 42.85 |
| 5570 | -3.7  | 42.66 |
| 5580 | -3.63 | 43.35 |
| 5590 | -3.7  | 42.66 |
| 5600 | -3.71 | 42.56 |
| 5610 | -3.77 | 41.98 |
| 5620 | -3.71 | 42.56 |
| 5630 | -3.7  | 42.66 |
| 5640 | -3.71 | 42.56 |

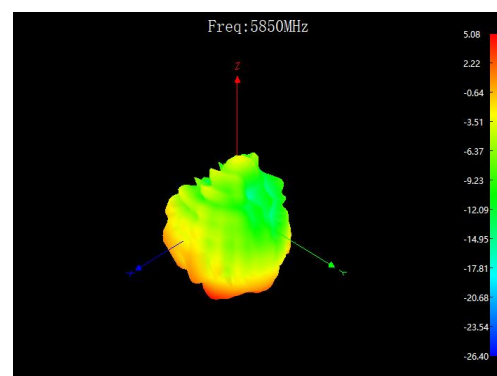
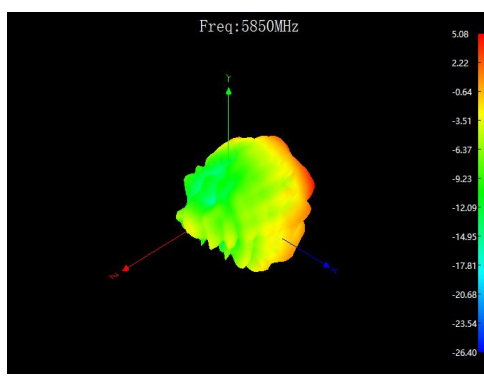
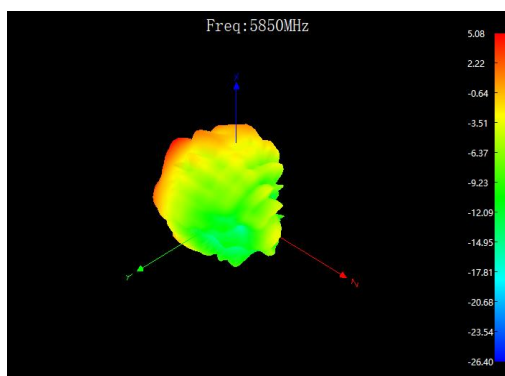
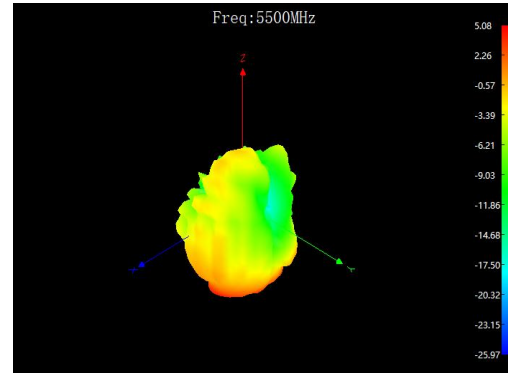
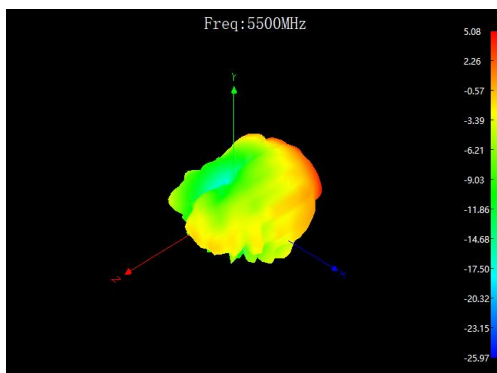
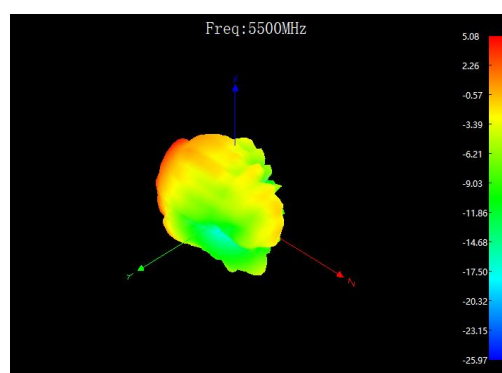
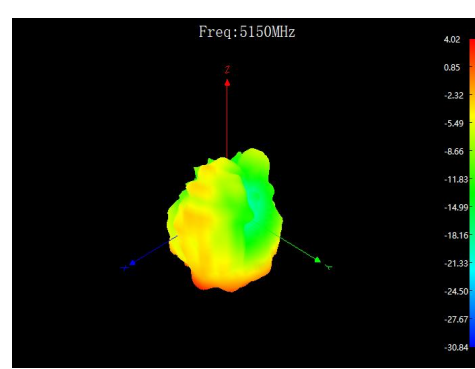
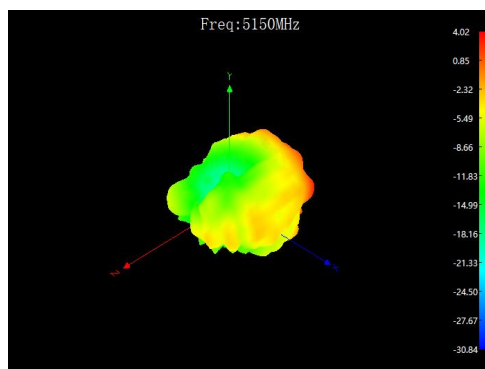
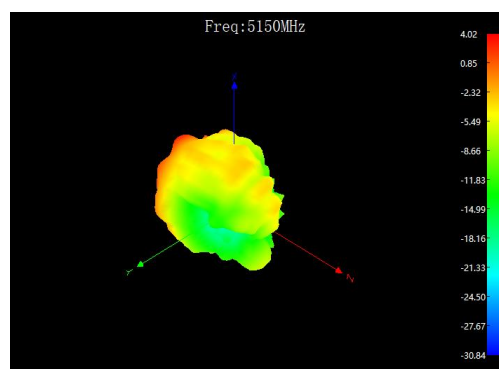
|      |       |       |
|------|-------|-------|
| 5650 | -3.8  | 41.69 |
| 5660 | -3.78 | 41.88 |
| 5670 | -3.85 | 41.21 |
| 5680 | -3.82 | 41.5  |
| 5690 | -3.95 | 40.27 |
| 5700 | -3.99 | 39.9  |
| 5710 | -3.88 | 40.93 |
| 5720 | -3.92 | 40.55 |
| 5730 | -3.99 | 39.9  |
| 5740 | -4.27 | 37.41 |
| 5750 | -4.58 | 34.83 |
| 5760 | -4.6  | 34.67 |
| 5770 | -4.49 | 35.56 |
| 5780 | -4.46 | 35.81 |
| 5790 | -4.25 | 37.58 |
| 5800 | -4.13 | 38.64 |
| 5810 | -4.18 | 38.19 |
| 5820 | -4.28 | 37.33 |
| 5830 | -4.14 | 38.55 |
| 5840 | -4.1  | 38.9  |
| 5850 | -3.99 | 39.9  |

## 增益

| Frequency | MaxGain/c | AvgGain/dBi |      |      |       |
|-----------|-----------|-------------|------|------|-------|
| 2400      | 3.42      | -3.53       |      |      |       |
| 2410      | 3.5       | -3.41       |      |      |       |
| 2420      | 3.68      | -3.3        |      |      |       |
| 2430      | 3.84      | -3.26       | 5530 | 5.08 | -3.81 |
| 2440      | 3.55      | -3.5        | 5540 | 5.11 | -3.75 |
| 2450      | 3.06      | -3.83       | 5550 | 5.05 | -3.79 |
| 2460      | 2.75      | -4.02       | 5560 | 5.29 | -3.68 |
| 2470      | 2.64      | -4.01       | 5570 | 5.26 | -3.7  |
| 2480      | 2.65      | -4          | 5580 | 5.47 | -3.63 |
| 2490      | 2.72      | -4          | 5590 | 5.32 | -3.7  |
| 2500      | 2.7       | -4.12       | 5600 | 5.45 | -3.71 |
| 5150      | 4.02      | -4.55       | 5610 | 5.31 | -3.77 |
| 5160      | 4.22      | -4.45       | 5620 | 5.45 | -3.71 |
| 5170      | 4.14      | -4.62       | 5630 | 5.41 | -3.7  |
| 5180      | 4.18      | -4.68       | 5640 | 5.53 | -3.71 |
| 5190      | 4.14      | -4.77       | 5650 | 5.42 | -3.8  |
| 5200      | 4.2       | -4.76       | 5660 | 5.53 | -3.78 |
| 5210      | 4.47      | -4.56       | 5670 | 5.35 | -3.85 |
| 5220      | 4.57      | -4.39       | 5680 | 5.43 | -3.82 |
| 5230      | 4.81      | -4.27       | 5690 | 5.19 | -3.95 |
| 5240      | 4.79      | -4.34       | 5700 | 5.17 | -3.99 |
| 5250      | 4.82      | -4.43       | 5710 | 5.23 | -3.88 |
| 5260      | 4.6       | -4.65       | 5720 | 5.29 | -3.92 |
| 5270      | 4.8       | -4.56       | 5730 | 5.14 | -3.99 |
| 5280      | 4.6       | -4.72       | 5740 | 4.99 | -4.27 |
| 5290      | 4.71      | -4.68       | 5750 | 4.63 | -4.58 |
| 5300      | 4.65      | -4.71       | 5760 | 4.66 | -4.6  |
| 5310      | 4.79      | -4.56       | 5770 | 4.69 | -4.49 |
| 5320      | 4.54      | -4.67       | 5780 | 4.73 | -4.46 |
| 5330      | 4.8       | -4.46       | 5790 | 4.87 | -4.25 |
| 5340      | 4.75      | -4.43       | 5800 | 4.98 | -4.13 |
| 5350      | 4.97      | -4.35       | 5810 | 4.88 | -4.18 |
| 5360      | 5.03      | -4.27       | 5820 | 4.78 | -4.28 |
| 5370      | 5.13      | -4.29       | 5830 | 4.85 | -4.14 |
| 5380      | 4.94      | -4.38       | 5840 | 4.97 | -4.1  |
| 5390      | 5.21      | -4.14       | 5850 | 5.08 | -3.99 |
| 5400      | 5.26      | -3.92       |      |      |       |
| 5410      | 5.29      | -3.93       |      |      |       |
| 5420      | 5.04      | -4.06       |      |      |       |
| 5430      | 4.98      | -4.2        |      |      |       |
| 5440      | 5.06      | -4.05       |      |      |       |
| 5450      | 5.11      | -3.99       |      |      |       |
| 5460      | 5.09      | -3.94       |      |      |       |
| 5470      | 5.06      | -4          |      |      |       |
| 5480      | 5.06      | -3.91       |      |      |       |
| 5490      | 5.11      | -3.89       |      |      |       |
| 5500      | 5.08      | -3.88       |      |      |       |
| 5510      | 5         | -3.95       |      |      |       |
| 5520      | 5         | -3.91       |      |      |       |
| ----      | ----      | ----        |      |      |       |

## 3d 方向图





### 4.3 测试结论

WIFI 实际测试性能 OK

注意：本天线只适用于调试样机，任何主板版本有变更或者射频物料更改，配件（如麦克，屏，喇叭，马达等）有变动，都必须经过我司测试验证后方可使用

