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## 一. 产品规格/Product specifications

报告主要提供 P106 天线性能的参数测试。P106 天线为 4G 天线。（如下图 1 所示）

The report mainly provides parameter testing of P106 antenna performance. P106 antenna is a 4G antenna.(As shown in Figure 1 below)

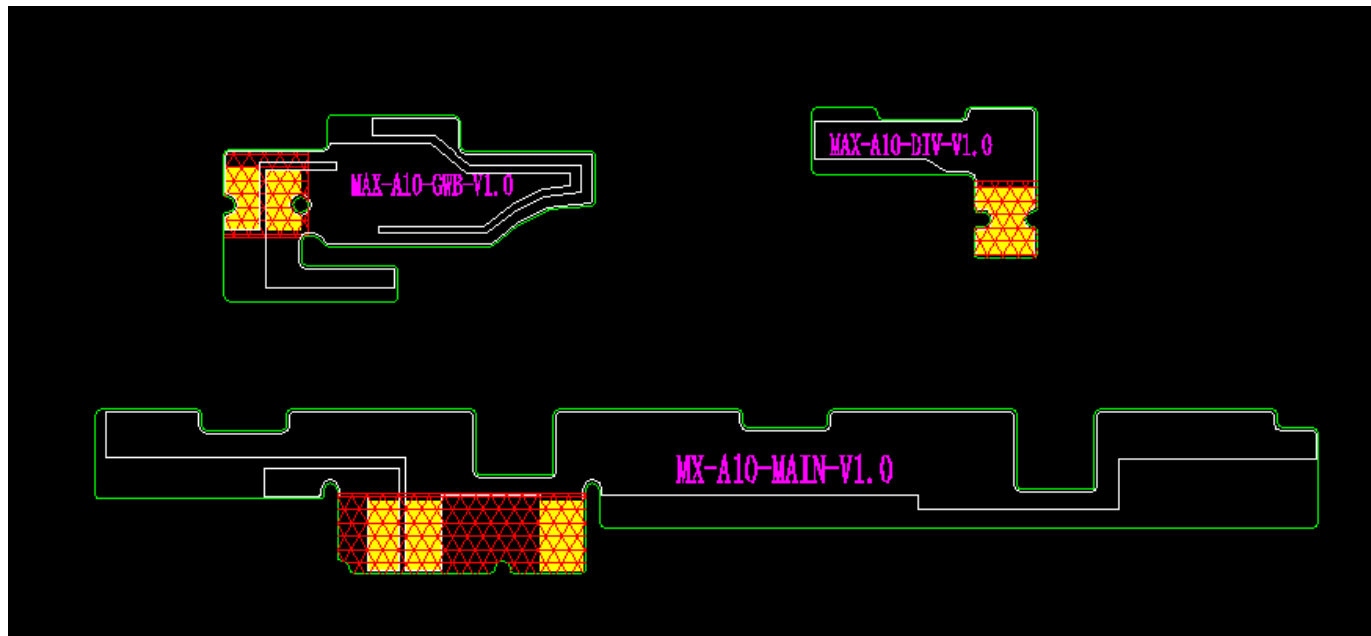


图 1 P106 天线  
Figure 1 P106 antenna

## 二. 电器性能/Electrical performance

### 1.规格标准/Specification standards

P106 天线工作频段在 640--2700mhz，在此频段产生谐振。

The P106 antenna operates in the frequency range of 820-2700 MHz, where resonance occurs.

### 2.天线的匹配电路/Matching circuit of antenna

天线的结构方式：FPC

Structure of antenna: FPC

匹配电路（Matching circuit）

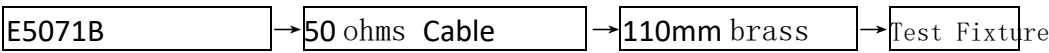
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### 三. 参数的测试/Parameter testing

#### 1.测试的设置/Test settings

VSWR 测试装置依次连接为：

VSWR The connection of the testing device in sequence is:



测试治具的处理：从手机 PCB 上天线 50 欧姆测试点处用一根硬质电缆引出 SMA-J 接头，与套有扼流圈的铜管连接，再依次连接其他装置。

Processing of test fixture: Use a hard cable to lead out the SMA-J connector from the 50 ohm test point of the antenna on the mobile phone PCB, connect it to a copper tube with a choke coil, and then connect other devices in sequence.

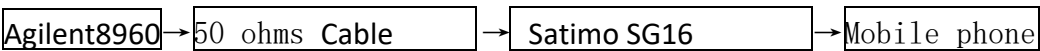
#### 2.测试结果/Test result

一切正常/Business as usual

### 四、有源测试的设置/Settings for active testing

有源测试装置依次连接为：

The active testing device is sequentially connected as follows:



#### 1.测试的场地/Testing site

微波暗室：测试频率范围为 400MHz—6GHz，静区范围为 40cm 圆周，反射率小于-90 dB。  
Microwave darkroom: The testing frequency range is 400MHz-6GHz, the quiet zone range is 40cm circumference, and the reflectivity is less than -90 dB.

#### 2.测试结果/Test result

最大辐射功率和最大接收灵敏度反映了天线在整个辐射空间内最大功率辐射值和最佳接收性能。TRP 和 TIS 反映了天线的平均辐射功率和平均接收灵敏度，即反映了天线的整体接收性能。

The maximum radiated power and maximum receiving sensitivity reflect the maximum

power radiation value and optimal receiving performance of the antenna in the entire radiation space. TRP and TIS reflect the average radiated power and average receiving sensitivity of the antenna, which reflects the overall receiving performance of the antenna.

下面为 P106 GSM 天线有源测试结果:

The following are the active test results of P106 GSM antenna:

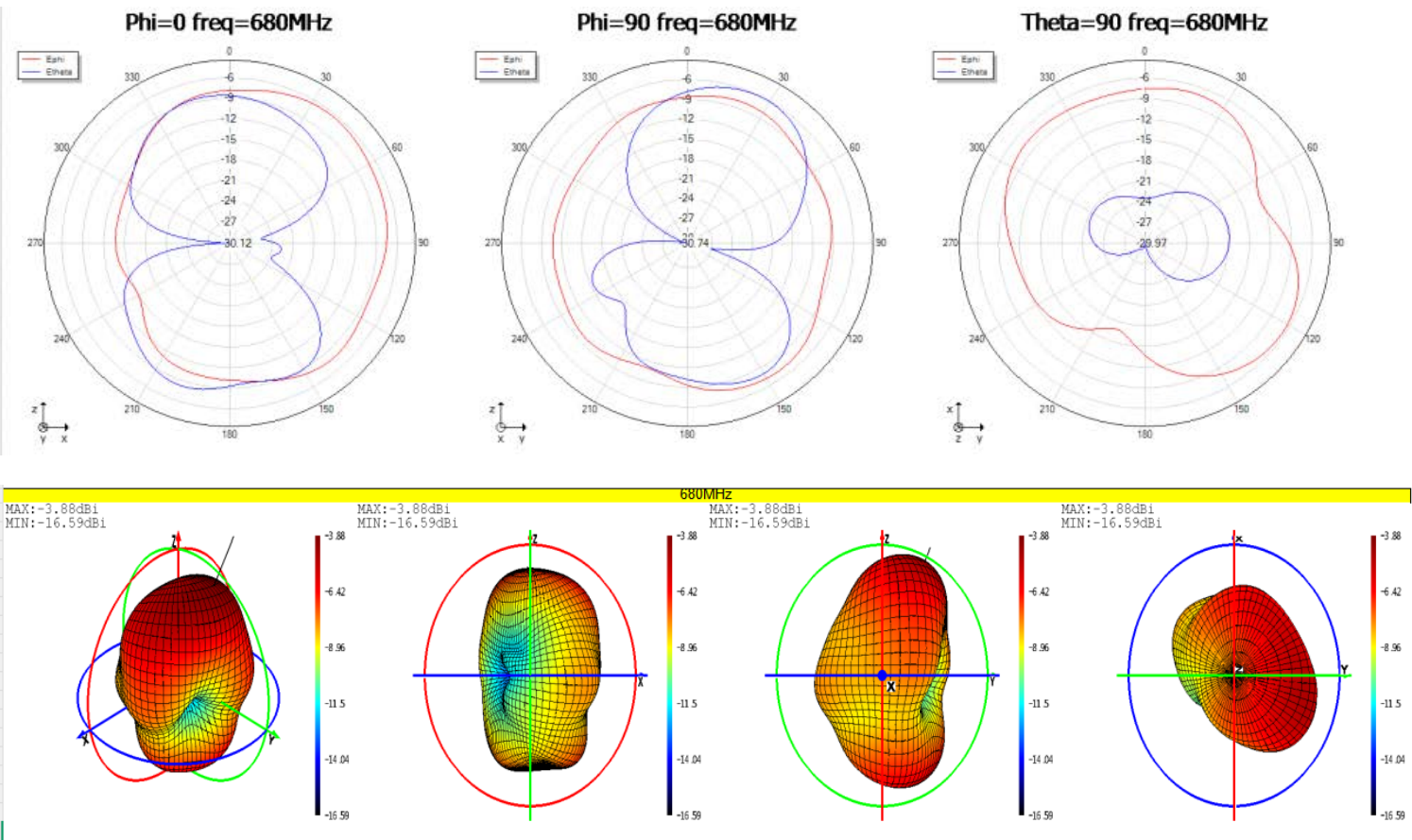
|         | Channel | TRP (dBm) | TIS (dBm) |         |   | Channel | TRP (dBm) | TIS (dBm)              |     |       | Channel | TRP (dBm) | TIS (dBm) |
|---------|---------|-----------|-----------|---------|---|---------|-----------|------------------------|-----|-------|---------|-----------|-----------|
| GSM 850 | 128     | 28.67     |           | FDD B2  | L | 19      |           | WIFI_B_11<br>M         | 1   | 14.22 | -79.57  |           |           |
|         | 190     | 29.38     |           |         | M | 20.89   |           |                        | 6   | 12.12 | -75.47  |           |           |
|         | 251     | 29.84     | -107.21   |         | H | 20.19   | -93.96    |                        | 11  | 14.34 | -72.82  |           |           |
| GSM900  | 1       | 29.6      |           | FDD B4  | L | 20.77   |           | WIFI_A_54<br>M         | 36  | 14.69 | -71.42  |           |           |
|         | 62      | 29.02     |           |         | M | 20.32   |           |                        | 64  | 14.56 | -68.57  |           |           |
|         | 124     | 28.72     | -103.84   |         | H | 21.21   | -93.29    |                        | 165 | 13.14 | -70.83  |           |           |
| G 1800  | 512     | 28.88     |           | FDD B5  | L | 18.98   |           | WIFI_B_11<br>M<br>(灭屏) | 1   | 14.22 | -81.92  |           |           |
|         | 698     | 28.43     |           |         | M | 19.86   |           |                        | 6   | 12.12 | -80.47  |           |           |
|         | 885     | 28.88     | -106.89   |         | H | 20.89   | -94.15    |                        | 11  | 14.34 | -77.77  |           |           |
| G 1900  | 512     | 28.03     |           | FDD B7  | L | 17.53   |           |                        |     |       |         |           |           |
|         | 661     | 27.87     |           |         | M | 16.96   |           |                        |     |       |         |           |           |
|         | 810     | 26.42     | -105.48   |         | H | 16.09   | -93.57    |                        |     |       |         |           |           |
| W2      | L       | 21.29     |           | FDD B12 | L | 17.71   |           |                        |     |       |         |           |           |
|         | M       | 21.42     |           |         | M | 18      |           |                        |     |       |         |           |           |
|         | H       | 20.27     | -107.07   |         | H | 18.46   | -93.49    |                        |     |       |         |           |           |
| W4      | L       | 19.15     |           | FDD B17 | L | 18.14   |           |                        |     |       |         |           |           |
|         | M       | 19.78     |           |         | M | 18.65   |           |                        |     |       |         |           |           |
|         | H       | 20.72     | -105.67   |         | H | 18.6    | -93.27    |                        |     |       |         |           |           |
| W5      | L       | 17.87     |           | FDD B66 | L | 18.88   |           |                        |     |       |         |           |           |
|         | M       | 19.11     |           |         | M | 19.37   |           |                        |     |       |         |           |           |
|         | H       | 19.98     | -107.2    |         | H | 20.63   | -94.51    |                        |     |       |         |           |           |
|         |         |           |           | FDD B71 | L | 16.63   |           |                        |     |       |         |           |           |
|         |         |           |           |         | M | 16.99   |           |                        |     |       |         |           |           |
|         |         |           |           |         | H | 17.93   | -93.83    |                        |     |       |         |           |           |

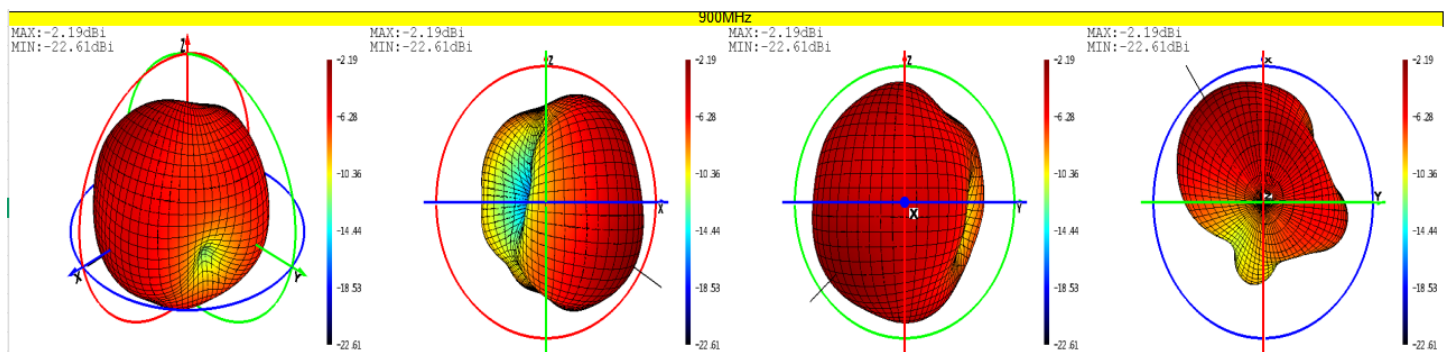
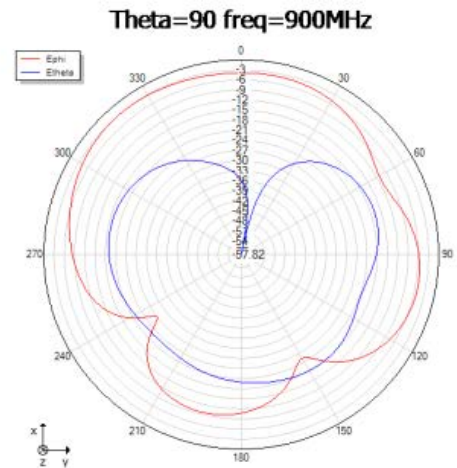
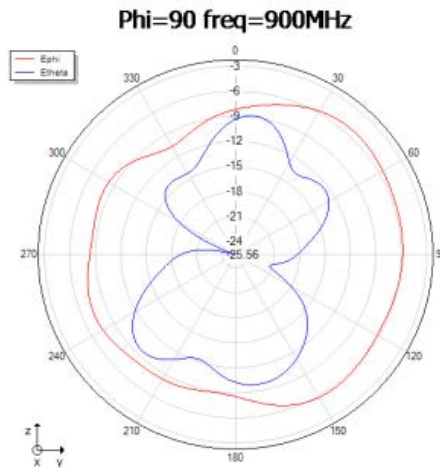
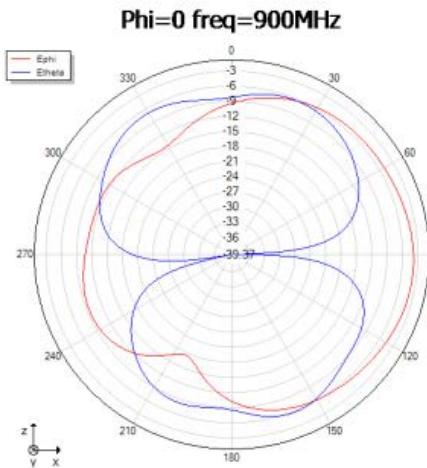
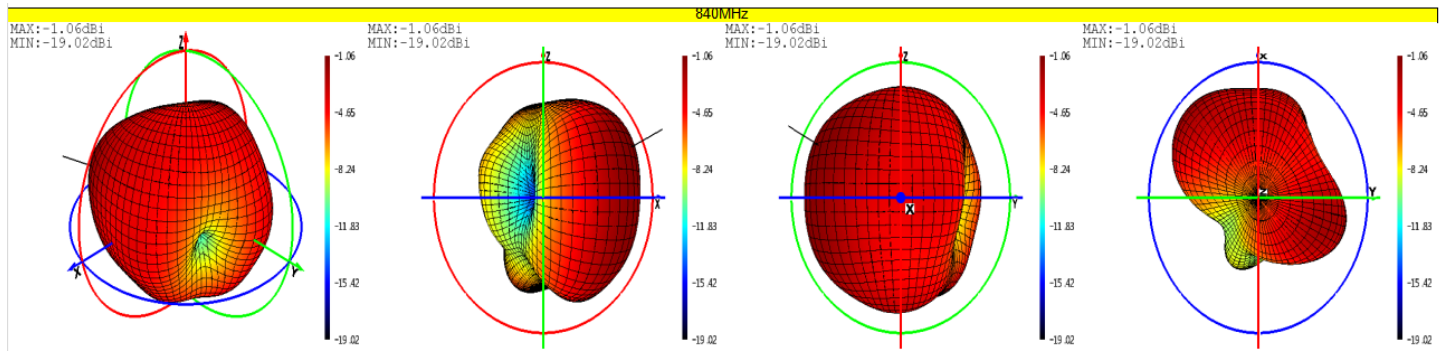
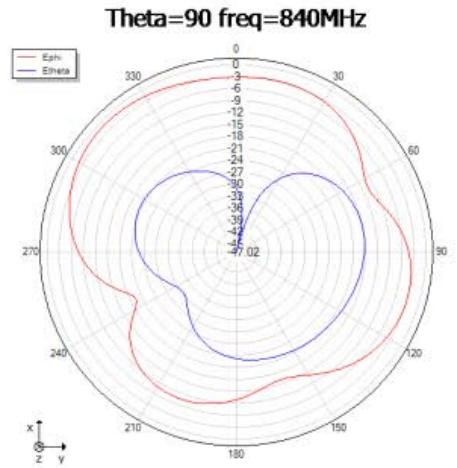
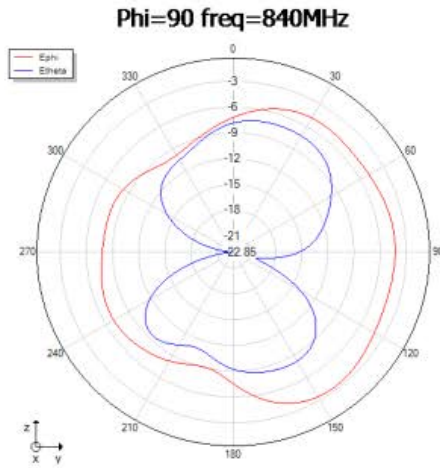
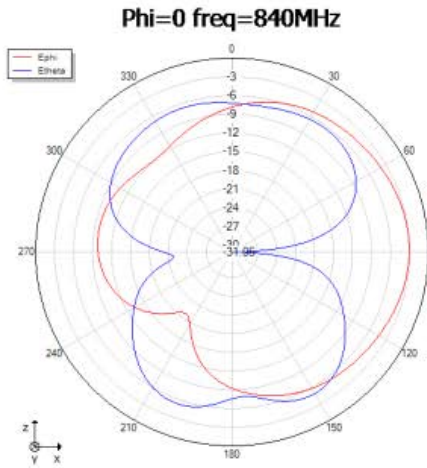
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# Antenna gain

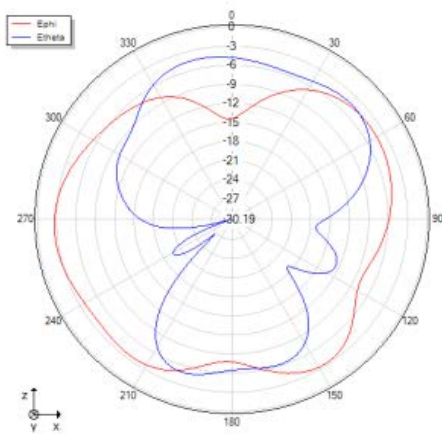
| Band         | GAIN(dBi) |
|--------------|-----------|
| GSM 850      | -1.06     |
| GSM 900      | -2.19     |
| GSM 1800     | 1.05      |
| GSM 1900     | 1.4       |
| WCDMA 1900   | 1.4       |
| WCDMA 1700   | 0.58      |
| WCDMA 850    | -1.06     |
| FDD B2       | 1.4       |
| FDD B4       | 0.58      |
| FDD B5       | -1.06     |
| FDD B7       | 2.29      |
| FDD B12      | -2.56     |
| FDD B17      | -2.56     |
| FDD B66      | 1.05      |
| FDD B71      | -3.88     |
| GPS          | -2.21     |
| BT/2.4G WIFI | 0.44      |
| 5G WIFI      | -1.54     |

Main Antenna 2D/3D:

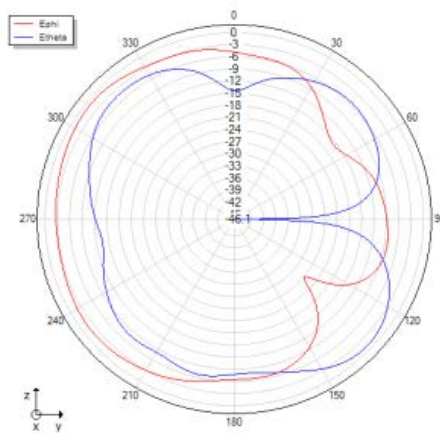




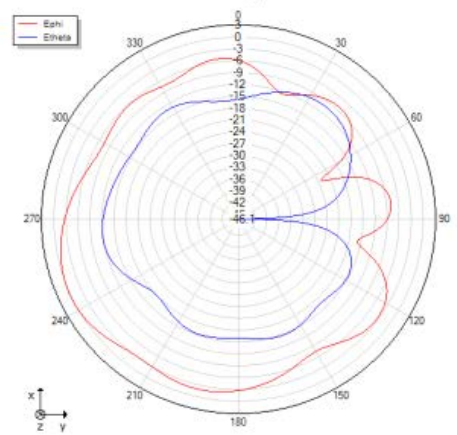
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Phi=90 freq=1740MHz

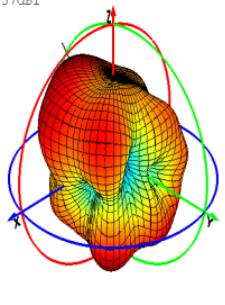


Theta=90 freq=1740MHz

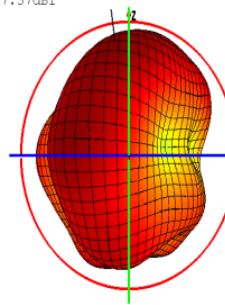


1740MHz

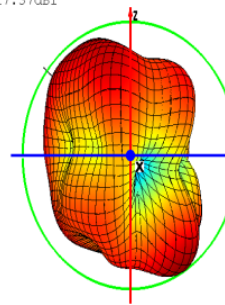
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MIN:-17.37dBi



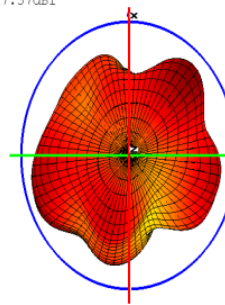
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MIN:-17.37dBi



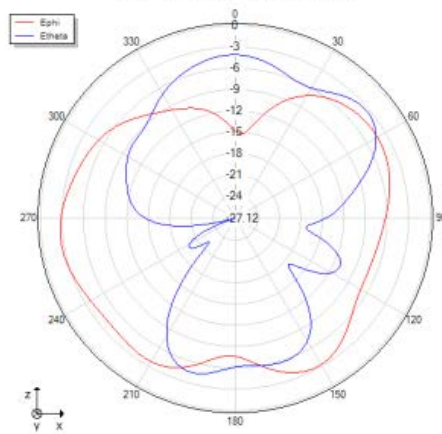
MAX:0.58dBi  
MIN:-17.37dBi



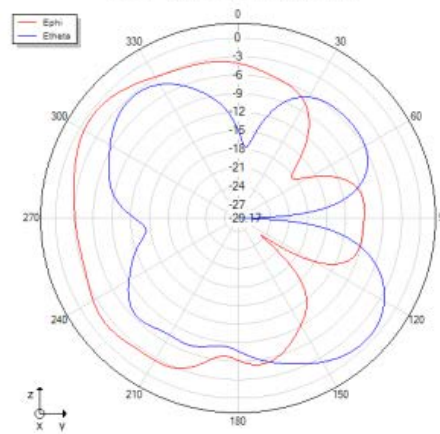
MAX:0.58dBi  
MIN:-17.37dBi



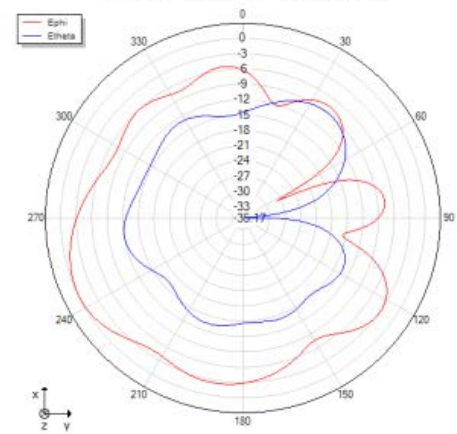
Phi=0 freq=1760MHz



Phi=90 freq=1760MHz

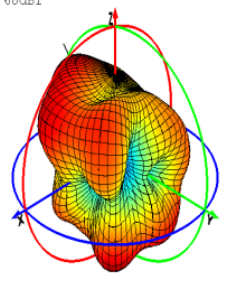


Theta=90 freq=1760MHz

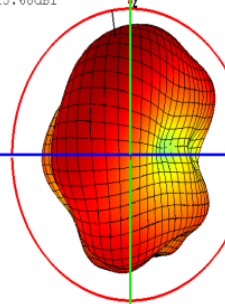


1760MHz

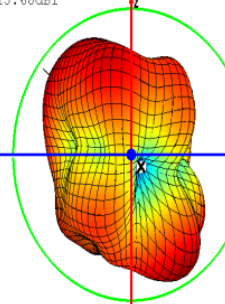
MAX:1.05dBi  
MIN:-15.68dBi



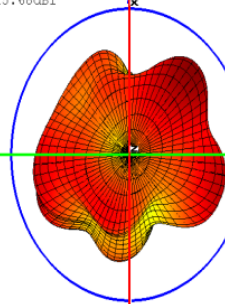
MAX:1.05dBi  
MIN:-15.68dBi

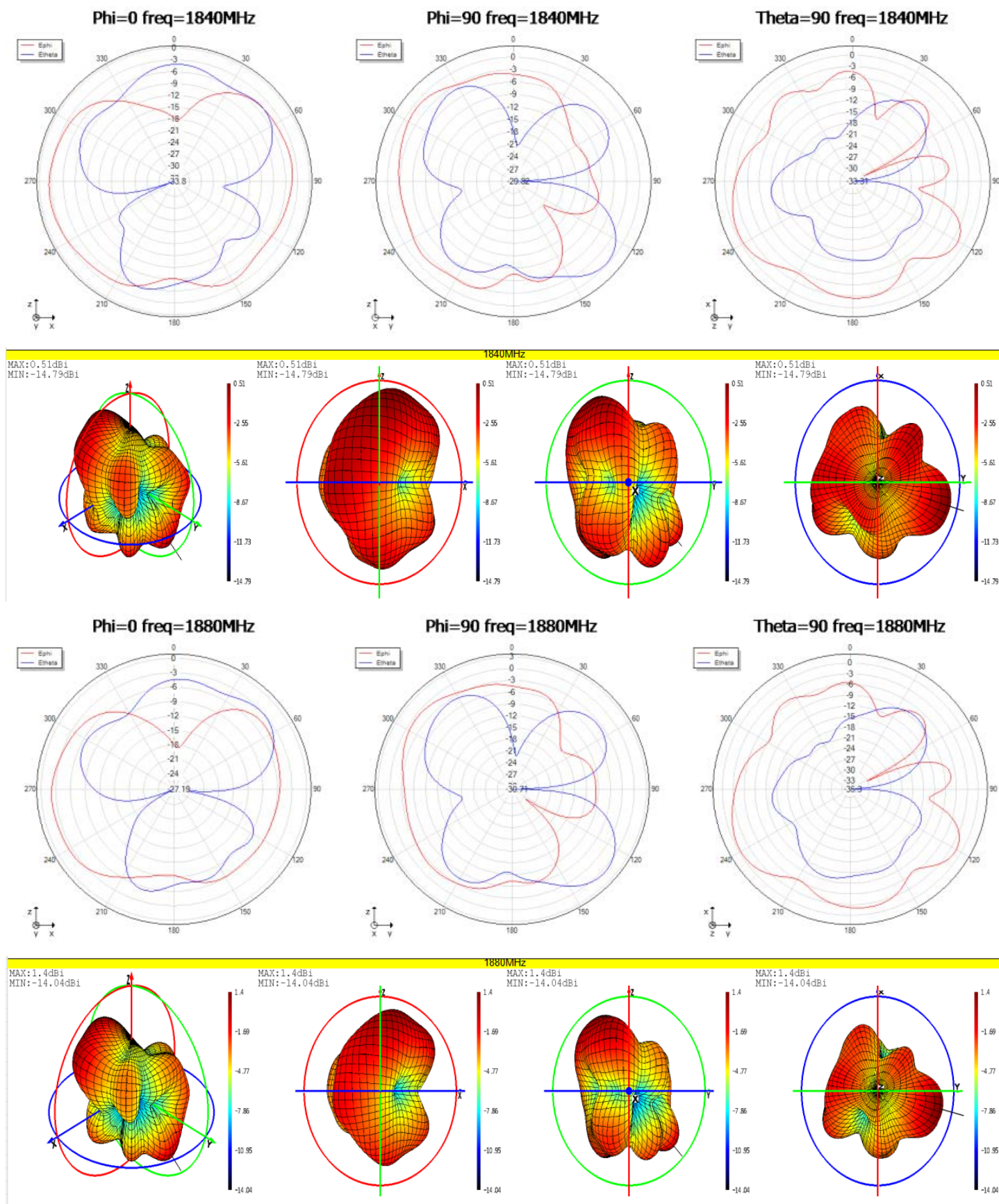


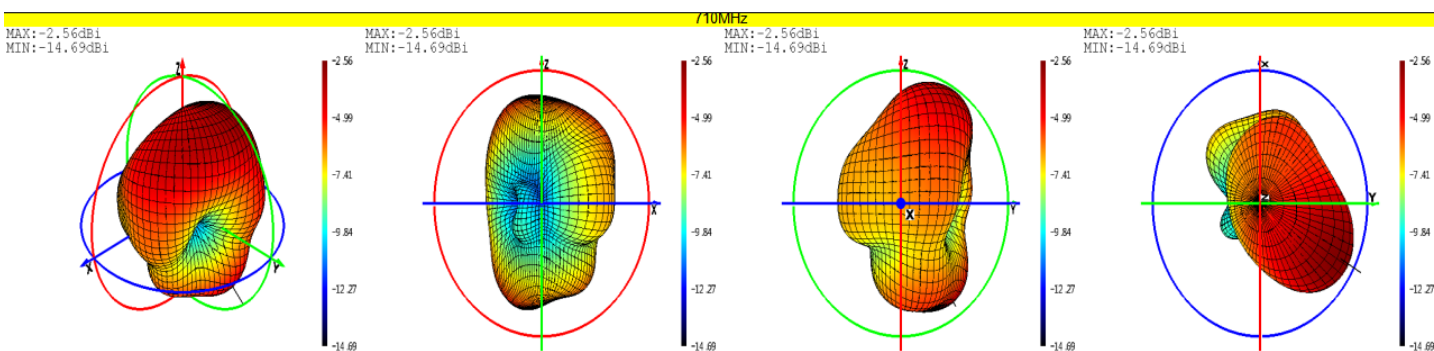
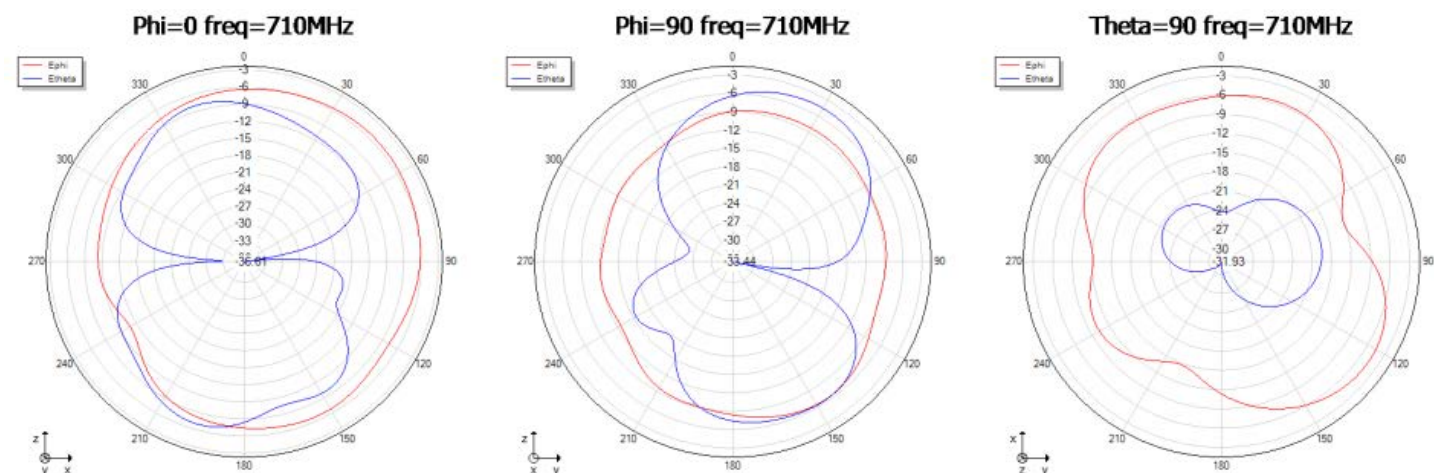
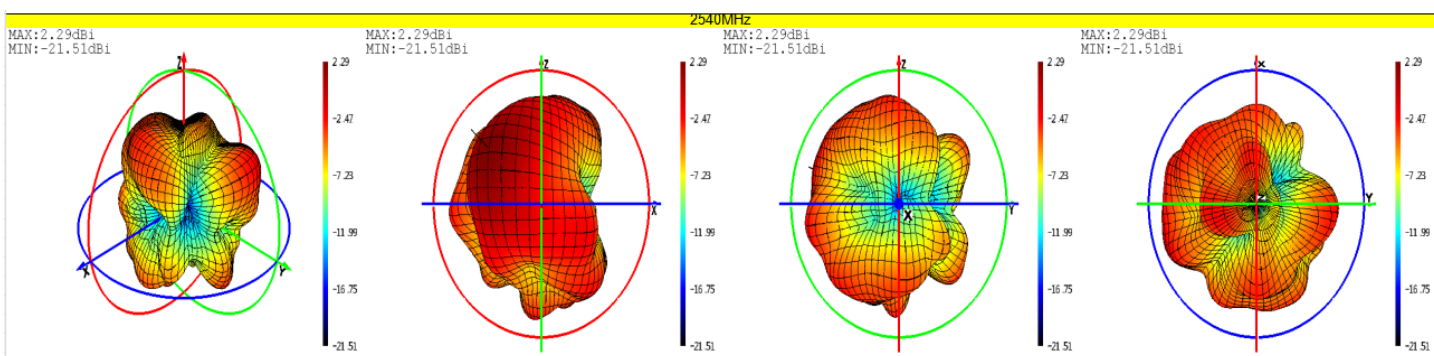
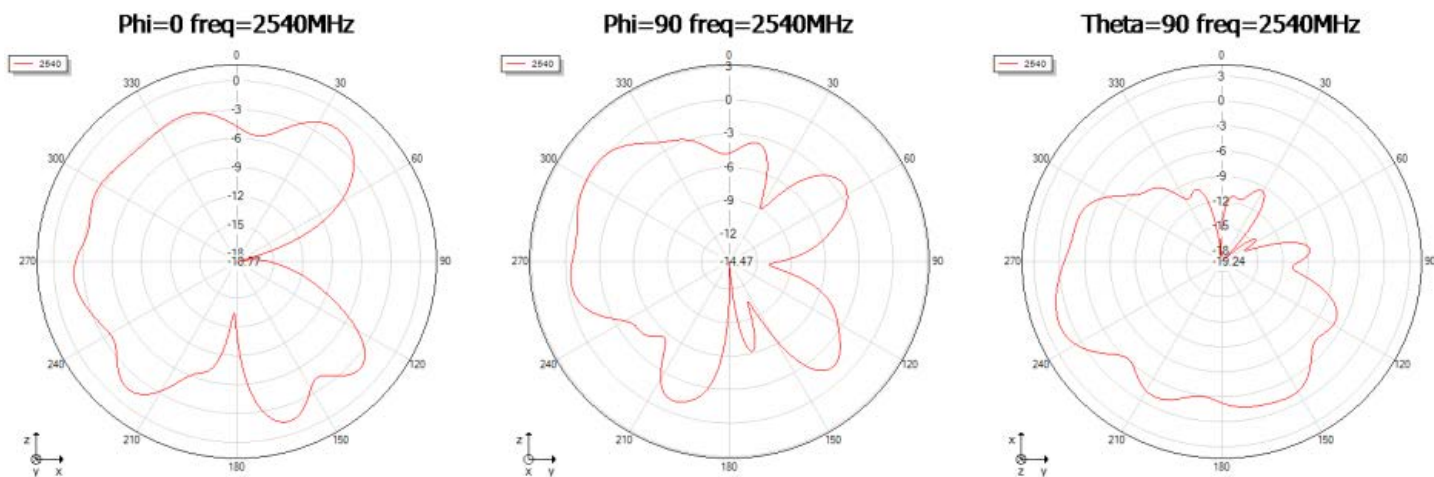
MAX:1.05dBi  
MIN:-15.68dBi

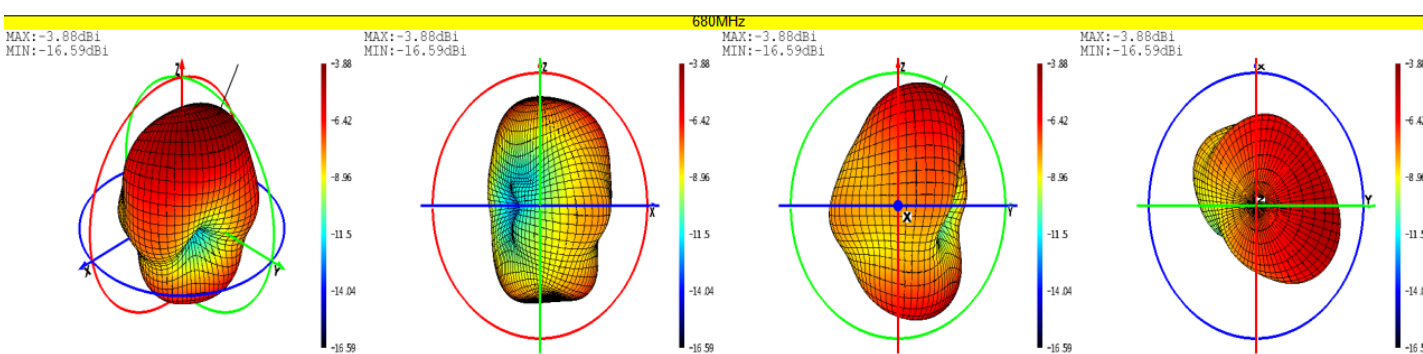
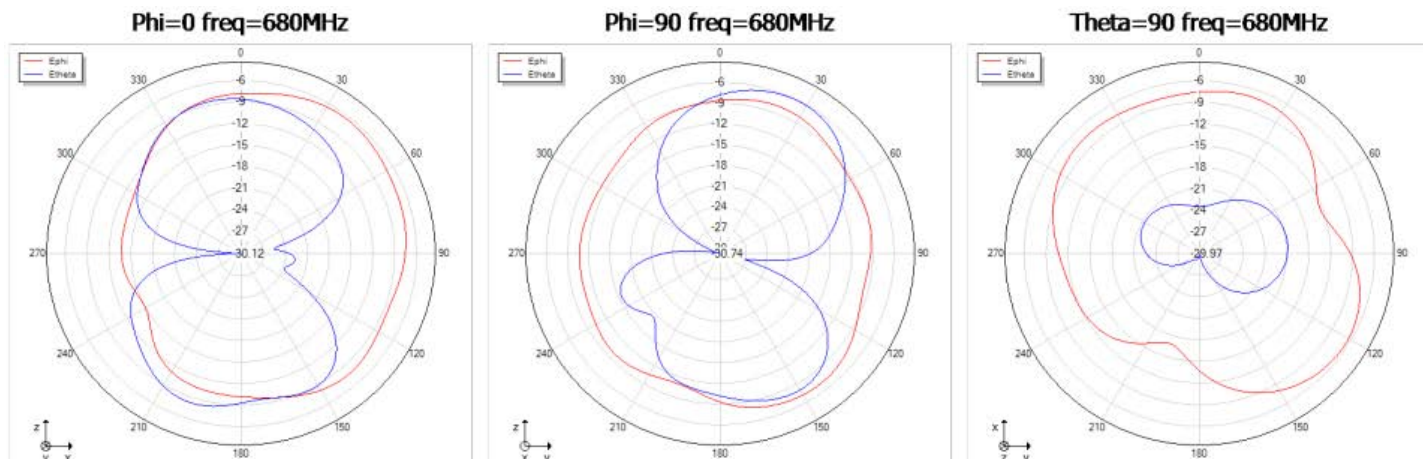


MAX:1.05dBi  
MIN:-15.68dBi

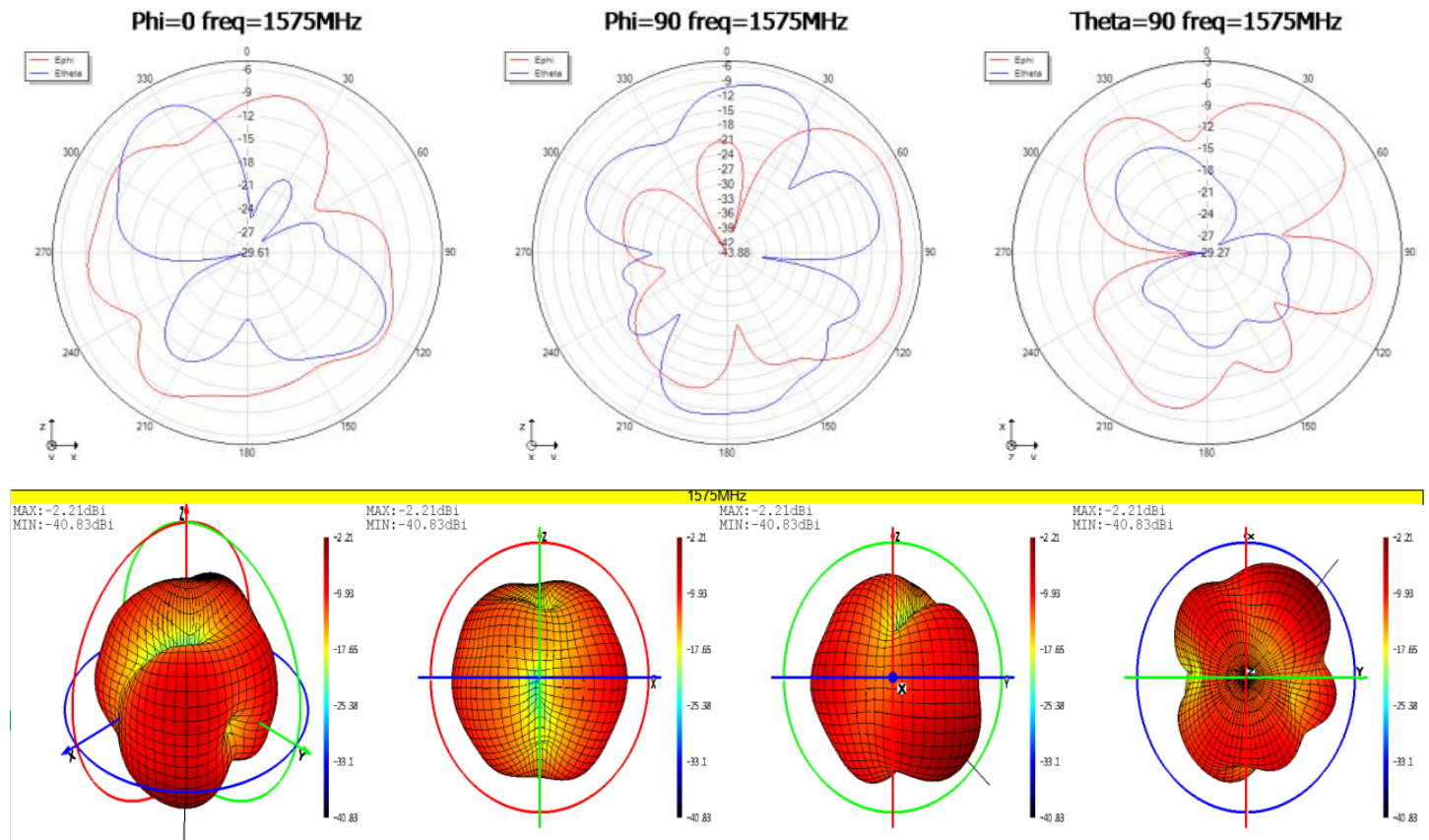


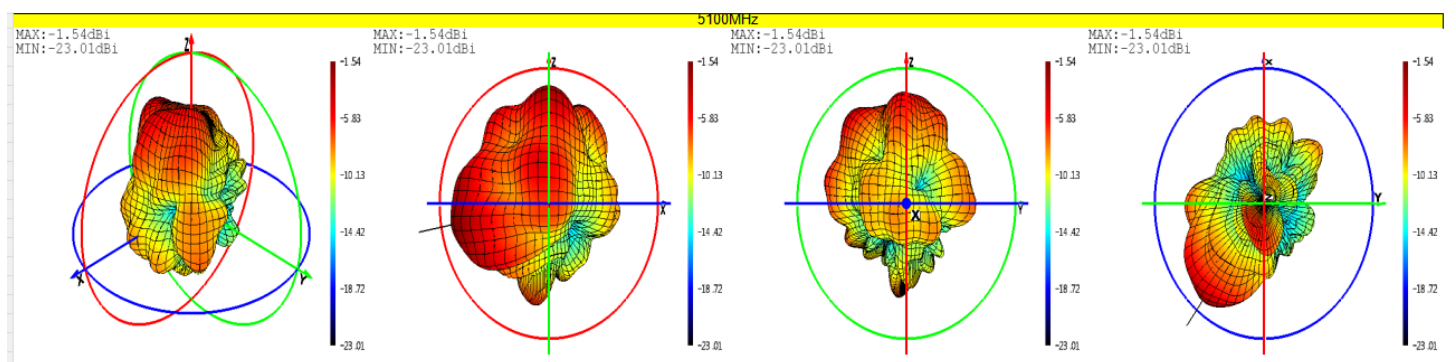
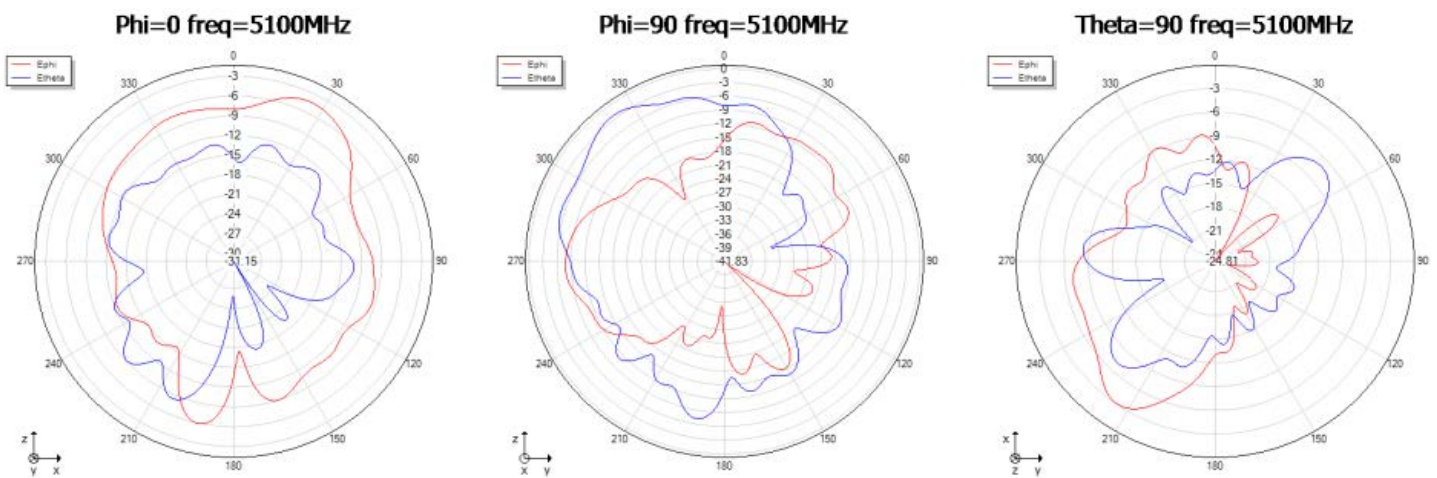
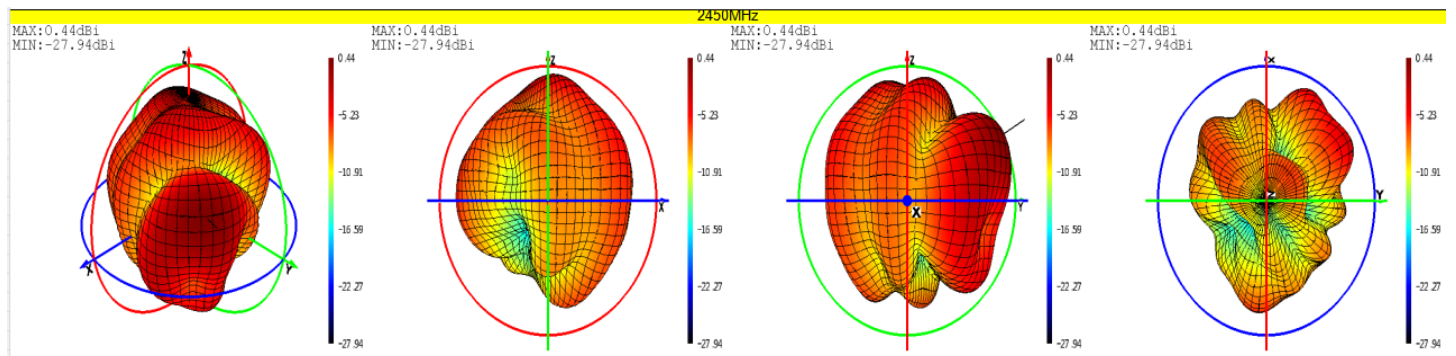
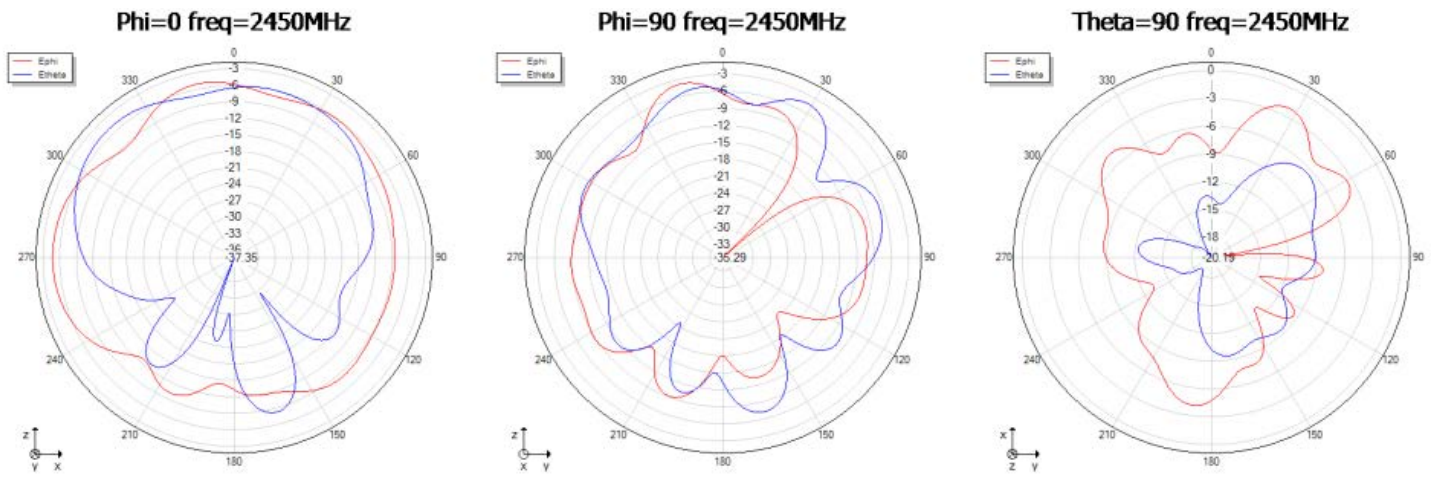






## GPS/WIFI/BT Antenna 2D/3D:





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## 五、建议与结论/Suggestion and Conclusion

此报告是根据客户提供的机器测得的天线电器性能,请贵公司认真查阅。

This report is based on the antenna electrical performance measured by the machine provided by the customer. Please carefully review it.

## 六、结构图纸/Structural drawings

