

# *Antenna Test Report*

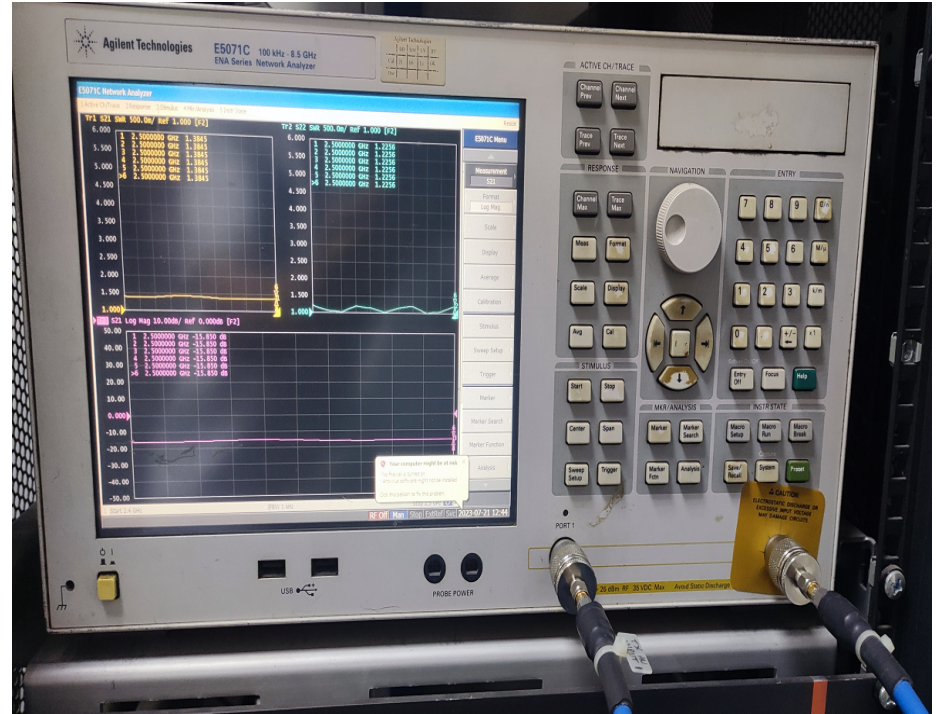
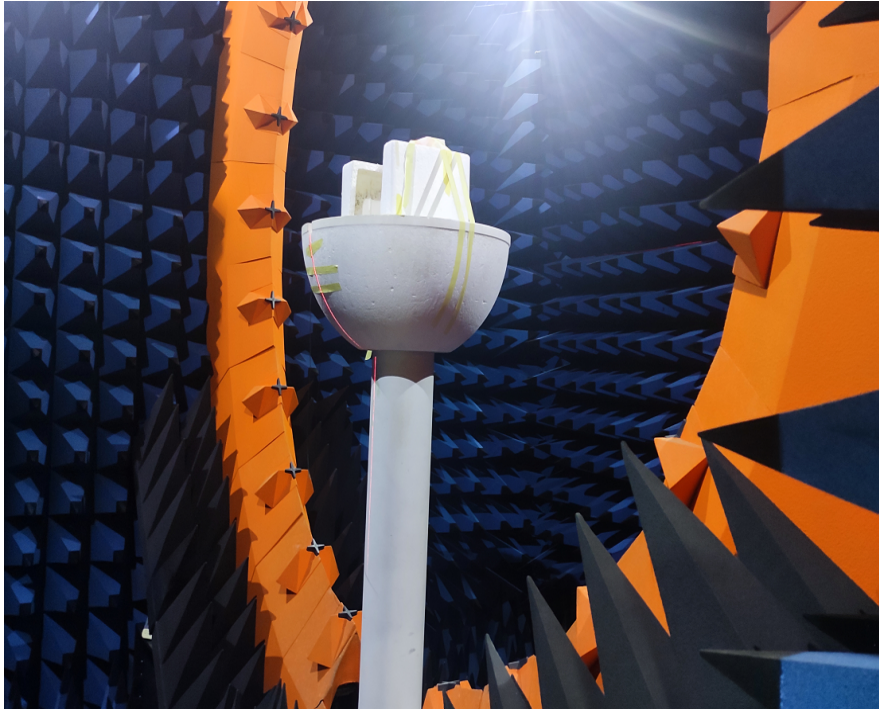
*Test Lab:Exceltek Electronics Technology  
(Dongguan) Co.,Ltd*

*manufacturer:Exceltek Electronics Technology  
(Dongguan) Co.,Ltd*

# 1. The Equipment of Active Test

1: SATIMO SG24S 4x4x4 m (3D)

2: Network Analyzer-AGILENT E5071C



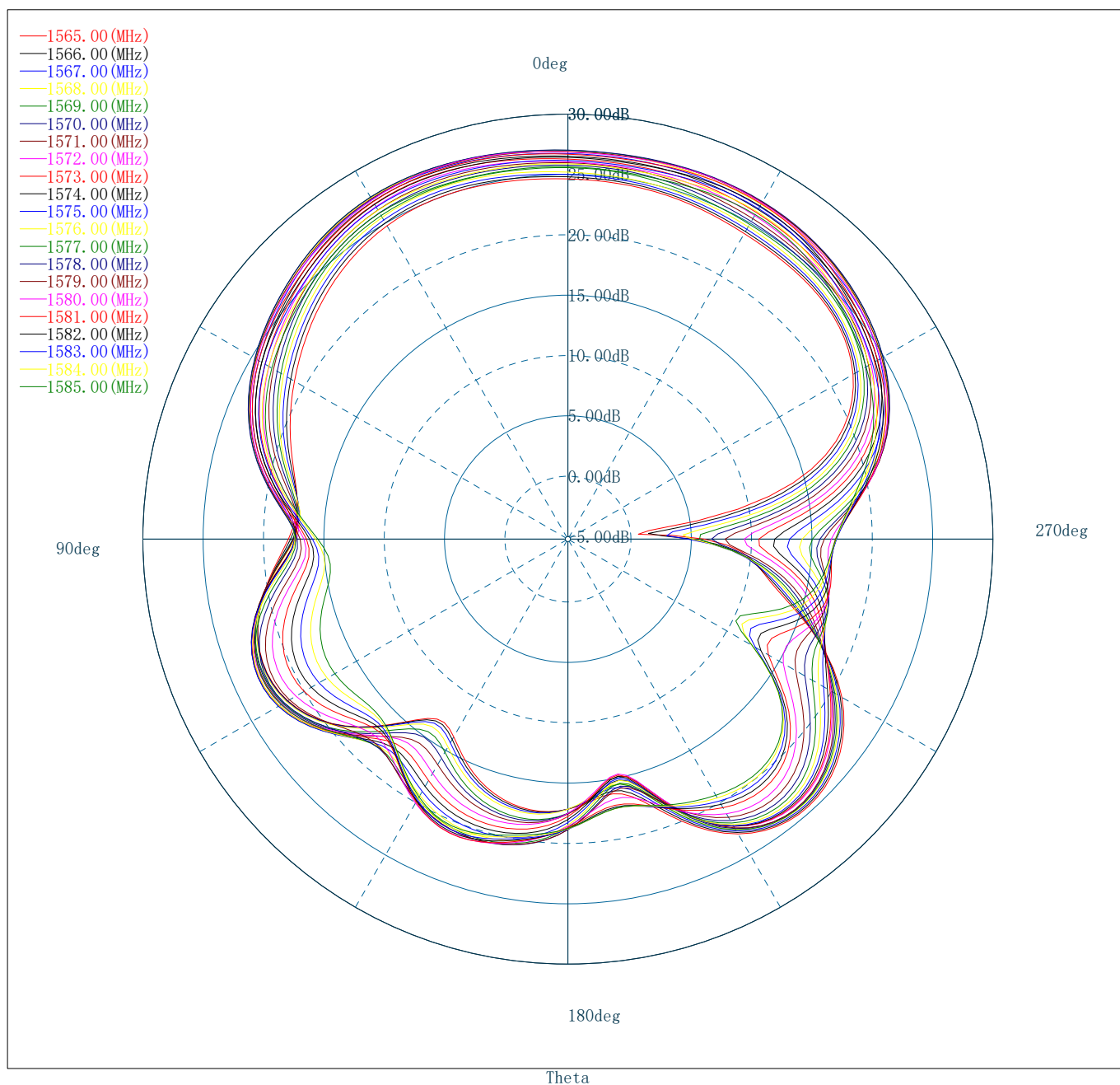
## **2 .GPS antenna Efficiency and Gain**

**(Test results at 1.5m RG174 Length)**

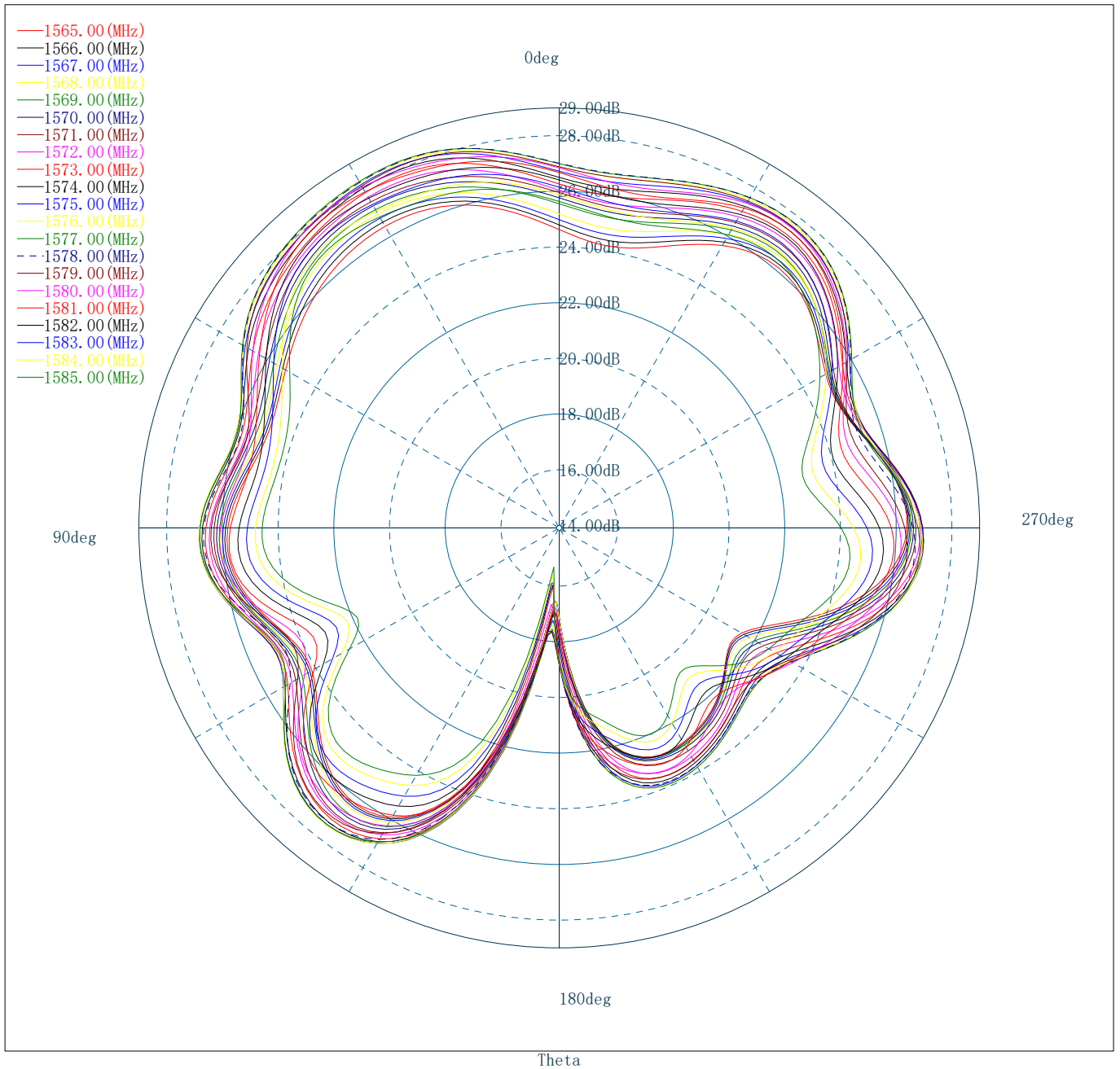
# GPS Antenna

| Frequency(MHz) | Efficiency (%) | Peak GAIN (dBi) |
|----------------|----------------|-----------------|
| 1565           | 25             | 27              |
| 1566           | 26             | 27              |
| 1567           | 27             | 27              |
| 1568           | 28             | 27              |
| 1569           | 29             | 27              |
| 1570           | 30             | 27              |
| 1571           | 31             | 28              |
| 1572           | 33             | 28              |
| 1573           | 34             | 28              |
| 1574           | 36             | 28              |
| 1575           | 37             | 28              |
| 1576           | 38             | 28              |
| 1577           | 38             | 28              |
| 1578           | 38             | 28              |
| 1579           | 36             | 28              |
| 1580           | 34             | 28              |
| 1581           | 32             | 28              |
| 1582           | 30             | 28              |
| 1583           | 28             | 28              |

|      |    |    |
|------|----|----|
| 1583 | 25 | 27 |
| 1584 | 25 | 27 |
| 1585 | 24 | 27 |

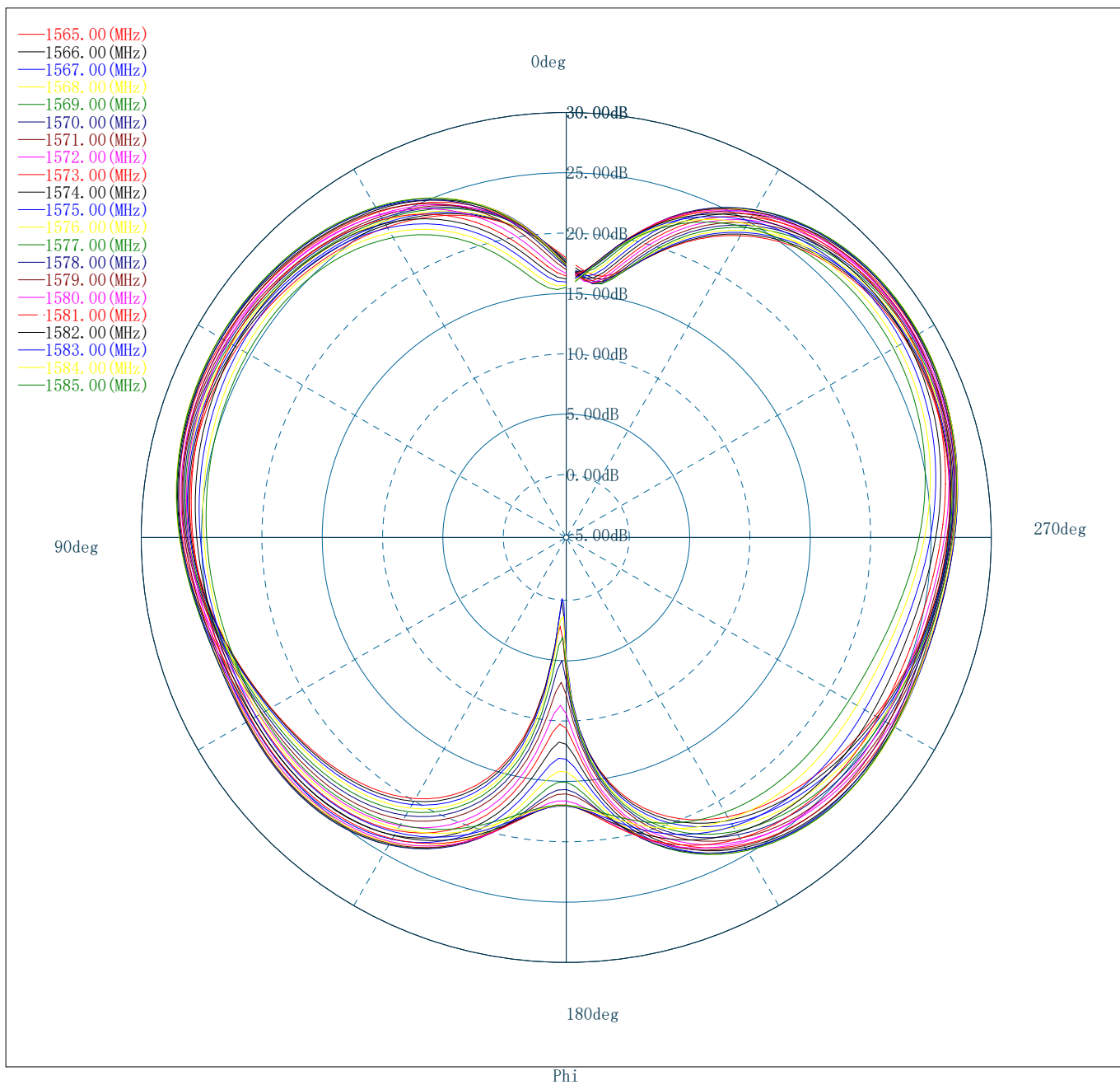


## GPS Antenna Radiation Pattern



## GPS Antenna Radiation Pattern

## GPS+4G+wifi\_GPS Theta90



## GPS Antenna Radiation Pattern

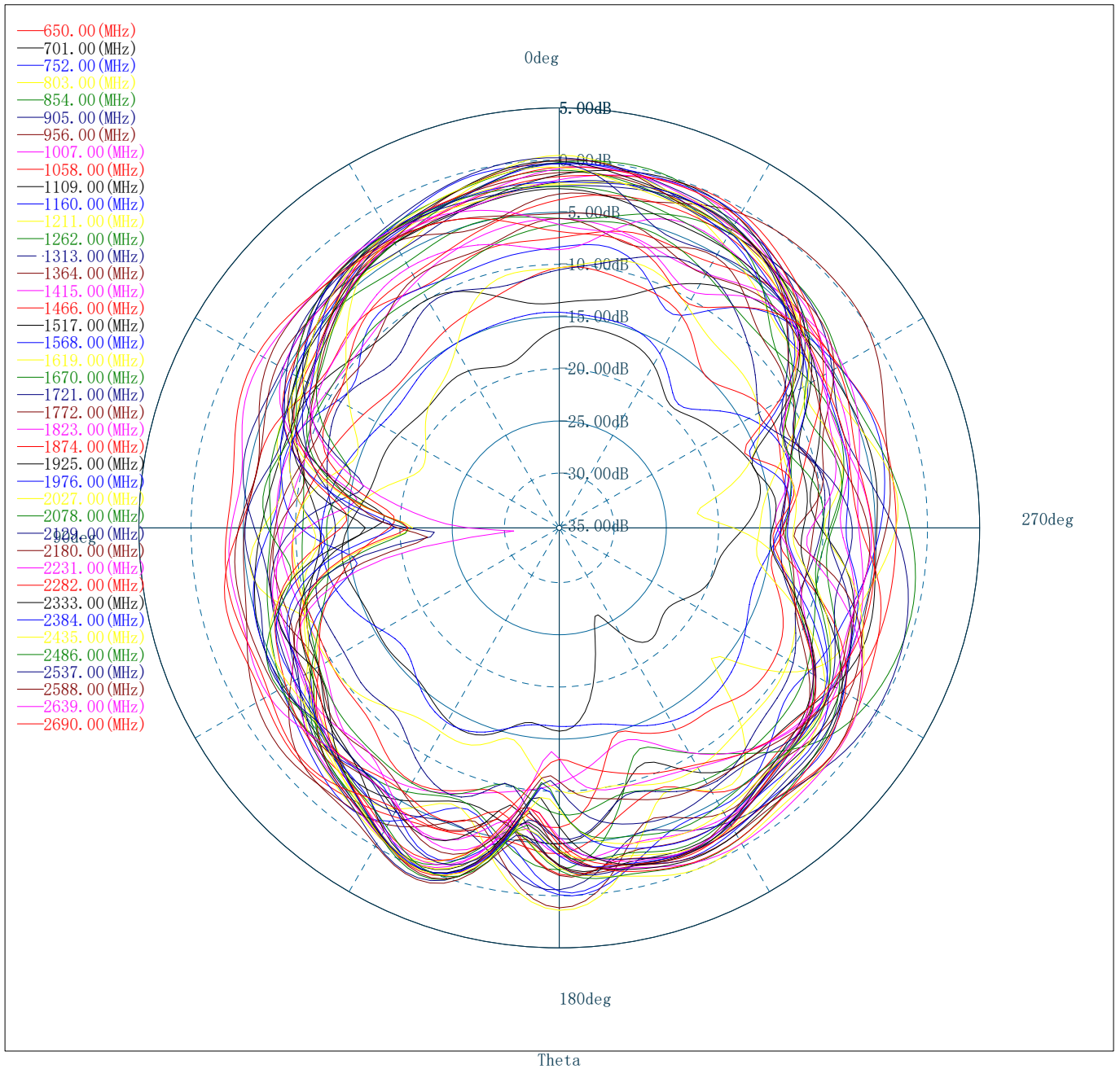
### **3. 44G antenna Efficiency and Gain**

**(Test results at 1.5m RG174 length)**

# 4G antenna

| Frequency(Hz) | Efficiency (%) | Peak GAIN (dBi) |
|---------------|----------------|-----------------|
| 650000000     | 27%            | -1.06           |
| 701000000     | 19%            | -3.02           |
| 752000000     | 27%            | 0.05            |
| 803000000     | 39%            | 1.74            |
| 854000000     | 36%            | -0.51           |
| 905000000     | 48%            | 0.09            |
| 956000000     | 41%            | 1.15            |
| 1007000000    | 21%            | -3.17           |
| 1058000000    | 7%             | -6.24           |
| 1109000000    | 2%             | -13.49          |
| 1160000000    | 4%             | -10.78          |
| 1211000000    | 7%             | -7.39           |
| 1262000000    | 15%            | -5.44           |
| 1313000000    | 11%            | -5.39           |
| 1364000000    | 22%            | -1.78           |
| 1415000000    | 26%            | -1.38           |
| 1466000000    | 31%            | -0.86           |
| 1517000000    | 33%            | -1.61           |
| 1568000000    | 46%            | -0.07           |
| 1619000000    | 51%            | 0.78            |
| 1670000000    | 48%            | 0.27            |
| 1721000000    | 49%            | 1.20            |
| 1772000000    | 48%            | 1.50            |
| 1823000000    | 46%            | -0.05           |
| 1874000000    | 48%            | 0.28            |
| 1925000000    | 47%            | 0.64            |
| 1976000000    | 46%            | 0.69            |
| 2027000000    | 45%            | 0.37            |
| 2078000000    | 43%            | 0.63            |
| 2129000000    | 46%            | 0.94            |
| 2180000000    | 46%            | 0.62            |
| 2231000000    | 44%            | 0.57            |
| 2282000000    | 45%            | 0.86            |
| 2333000000    | 44%            | 0.34            |
| 2384000000    | 42%            | 0.43            |
| 2435000000    | 43%            | 0.99            |
| 2486000000    | 42%            | 1.09            |
| 2537000000    | 39%            | 1.29            |
| 2588000000    | 37%            | 1.11            |
| 2639000000    | 36%            | 0.15            |
| 2690000000    | 37%            | 0.76            |

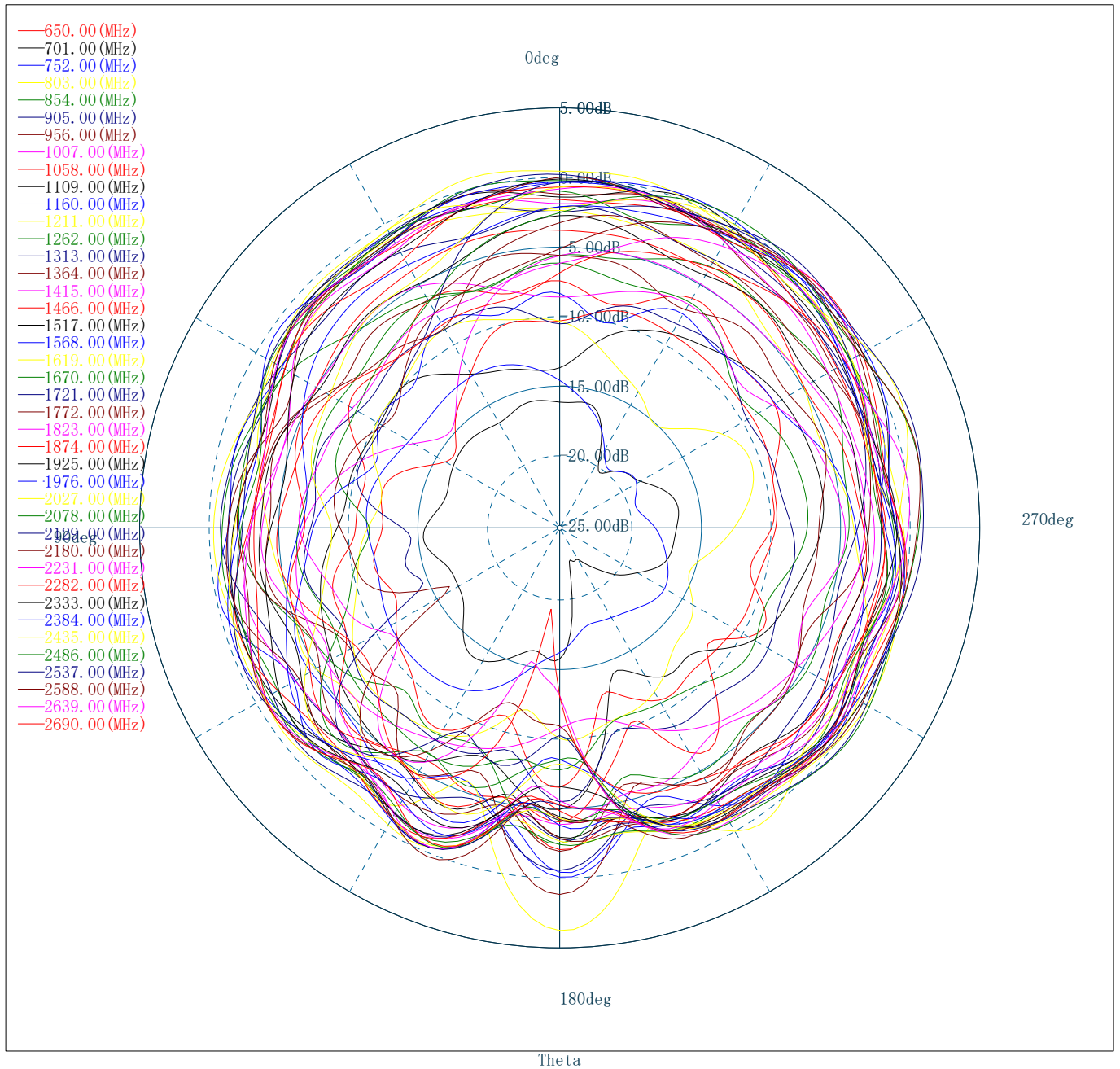
## GPS+4G+wifi\_4G Phi0



## 4G Antenna Radiation Pattern

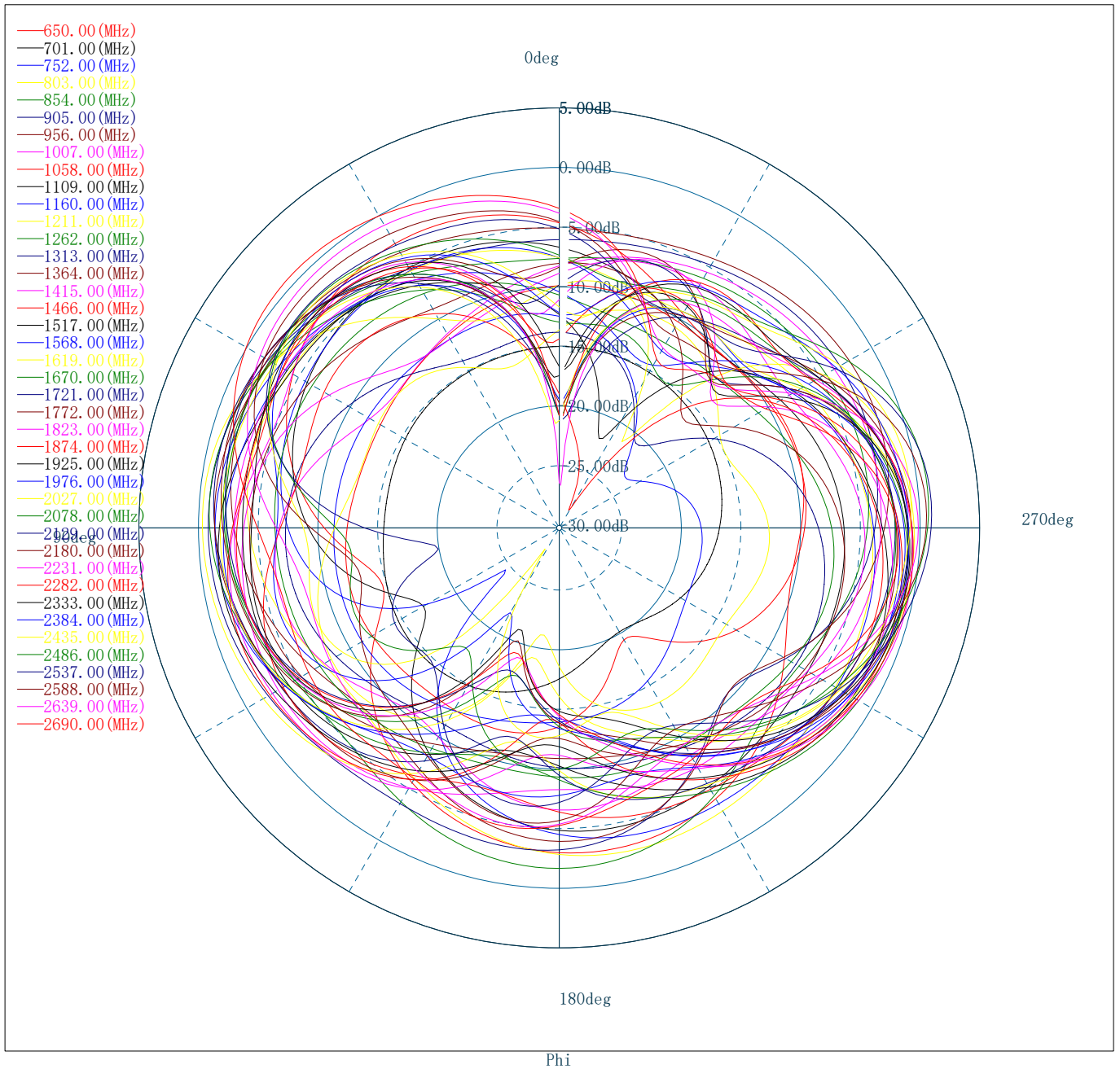
Exceltek Electronics Technology (Dongguan) Co.,Ltd

## GPS+4G+wifi\_4G Phi90



## 4G Antenna RRadiation Pattern

## GPS+4G+wifi\_4G Theta90



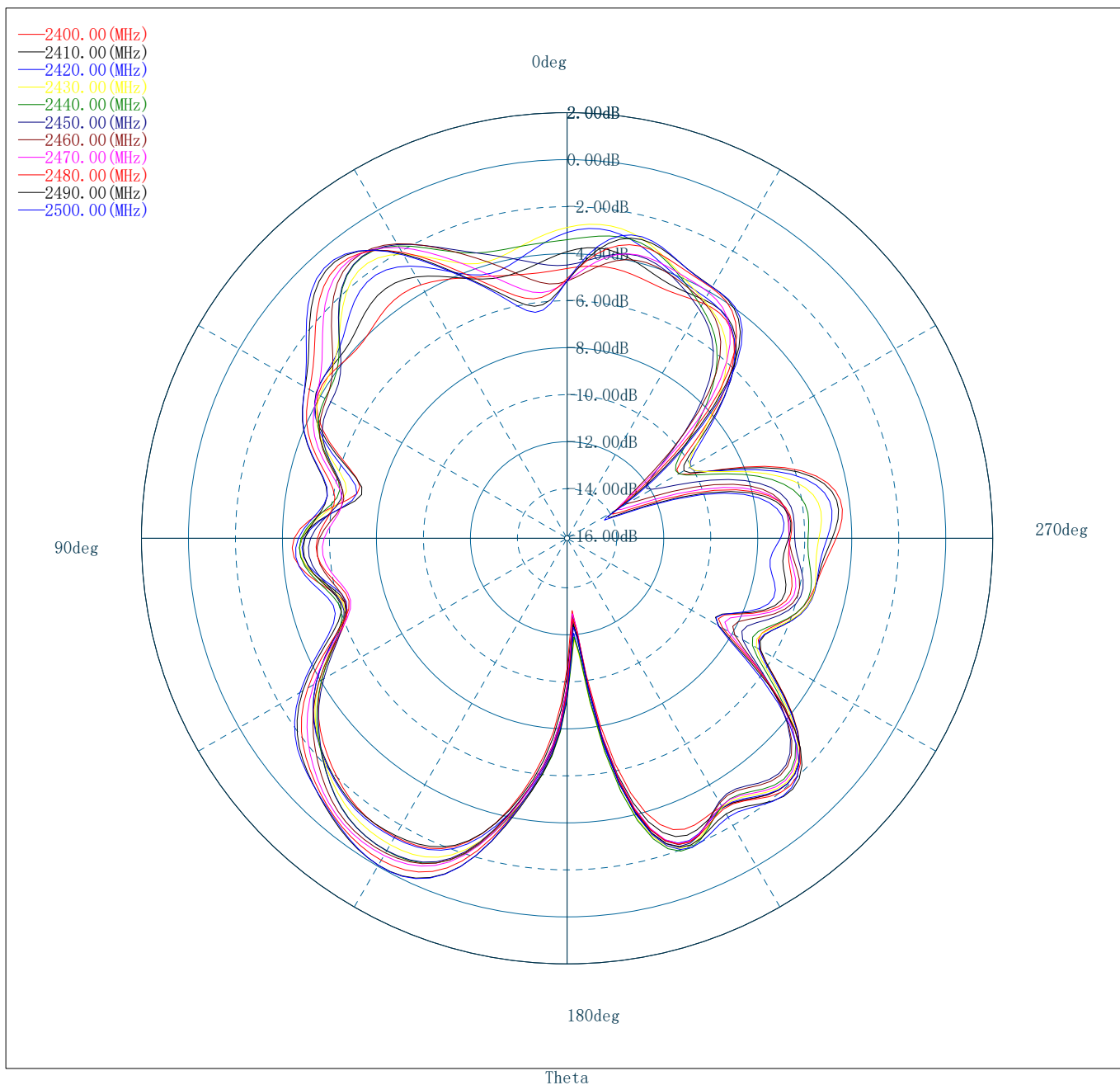
## 4G Antenna RRadiation Pattern

## **4.WIFI antenna Efficiency and Gain**

**(Test results at 1.5 m RG174 length)**

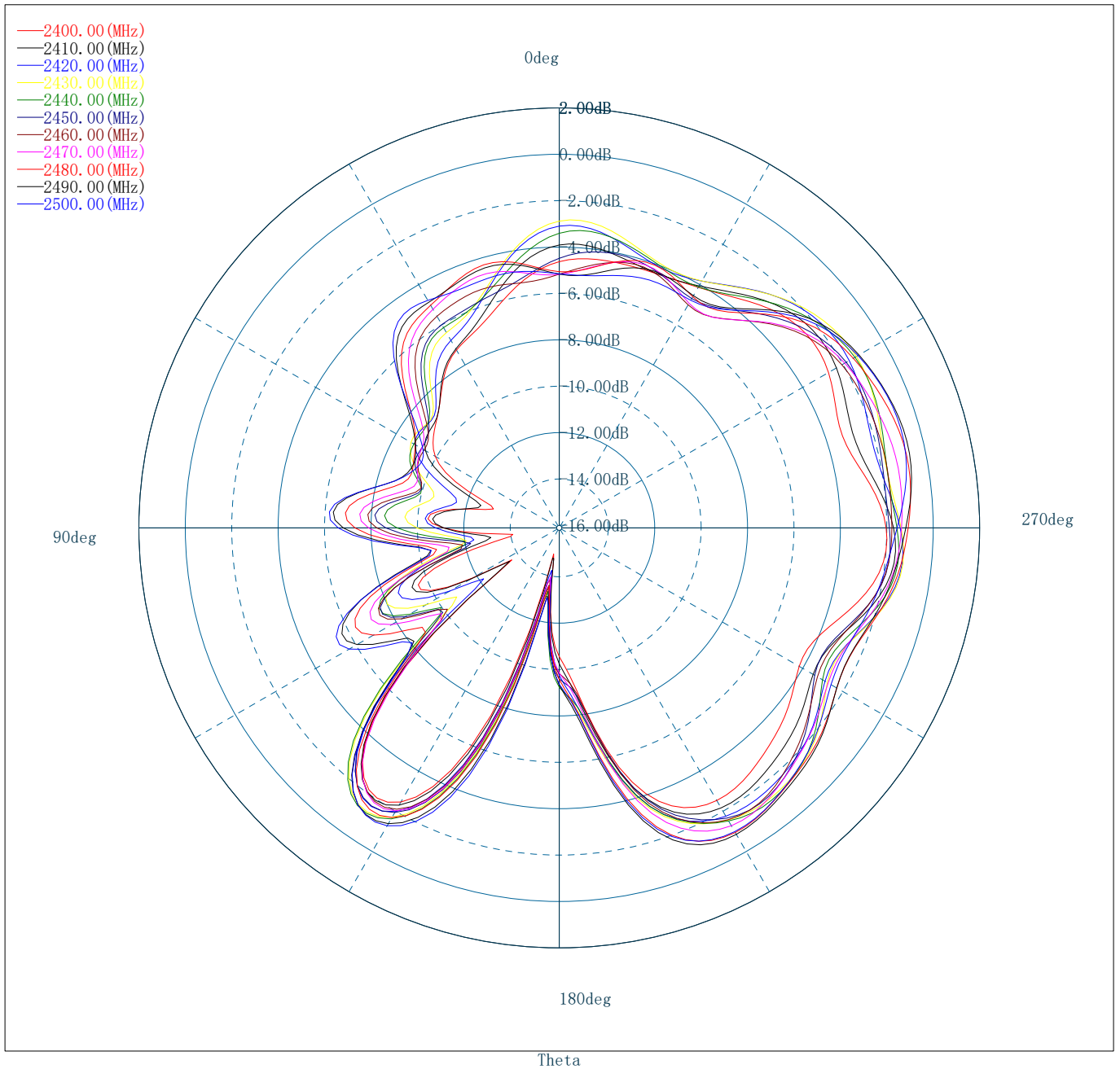
# WIFI Antenna

| Frequency(Hz) | Efficiency (%) | Peak GAIN (dBi) |
|---------------|----------------|-----------------|
| 2400000000    | 31%            | 0.01            |
| 2410000000    | 33%            | 0.36            |
| 2420000000    | 35%            | 0.64            |
| 2430000000    | 36%            | 0.82            |
| 2440000000    | 36%            | 0.83            |
| 2450000000    | 34%            | 0.65            |
| 2460000000    | 35%            | 0.71            |
| 2470000000    | 36%            | 0.89            |
| 2480000000    | 38%            | 1.11            |
| 2490000000    | 39%            | 1.11            |
| 2500000000    | 38%            | 0.88            |



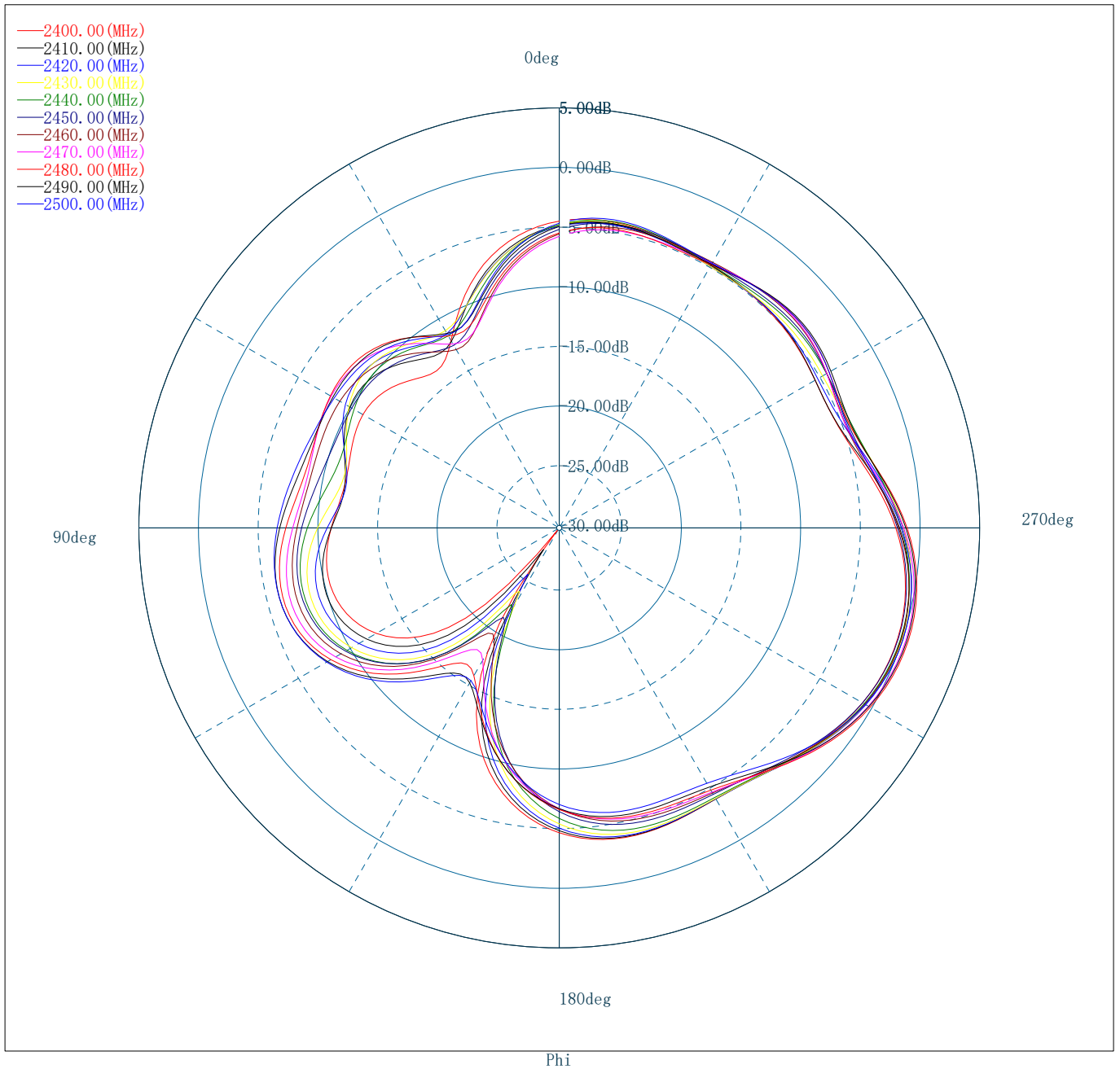
## WIFI Antenna RRadiation Pattern

## GPS+4G+wifi\_wifi Phi90



## WIFI Antenna RRadiation Pattern

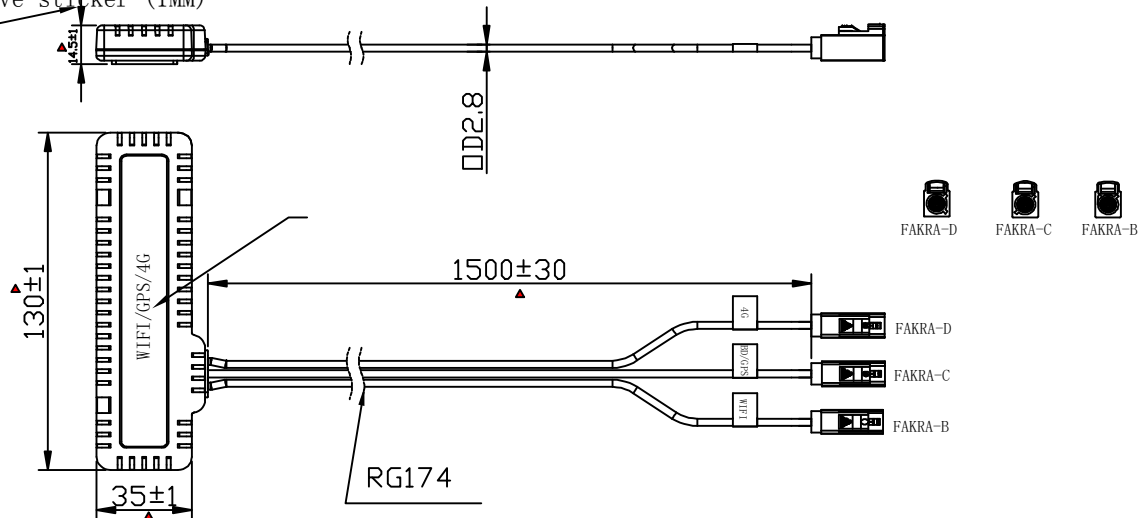
## GPS+4G+wifi\_wifi Theta90



## WIFI Antenna RRadiation Pattern

| REV | DESCRIPTION      | DATE     | ECN   | ENG   |
|-----|------------------|----------|-------|-------|
| 01  | DRAWING RECEIVED | 20230625 | ***** | HENRY |

This size includes a thickness of 3M adhesive sticker (1MM)



technical requirement:

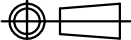
1. GNSS Antenna characteristics:

- 1) GPS:  $1575.42 \pm 1.023\text{MHz}$ ; BD:  $1561 \pm 2.046\text{MHz}$ ;
- 2) 3.0-3.6V;
- 3) Max 14mA@3.3V;
- 4)  $28 \pm 3\text{dB}$ ;
- 5) VSWR: 2.0 Max;
- 6)  $< 1.5\text{dB}$ ;

2. 4824-960MHz&1710-2690MHz, VSWR: 3.0 Max,  
WIFI: 2400-2500MHz: VSWR  $\leq 2.0$

3. Appearance: The surface of the plastic shell is smooth, and the surface of the surface and bottom shell are treated with material spark marks, without scratches, sharp edges, scratches, and other phenomena;

Storage temperature:  $-40-90^{\circ}\text{C}$ ; operation temperature:  $-40-85^{\circ}\text{C}$ , Complies with ROHS requirements.

|                                                                                                                 |                      |                                       |                                                                                                                                             |                      |
|-----------------------------------------------------------------------------------------------------------------|----------------------|---------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| THIRD ANGLE PROJECTION<br> | DRAWING APPROVAL     |                                       |  <b>Exceltek</b><br>Electronics Technology(DG) Co.,Ltd |                      |
|                                                                                                                 | DWN: 陈海明             |                                       |                                                                                                                                             |                      |
|                                                                                                                 | CHK: 刘松              |                                       |                                                                                                                                             |                      |
| TOLERANCES UNLESS<br>OTHERWISE SPECIFIED                                                                        | APPD: 刘松             |                                       | CUS:                                                                                                                                        | CUS P/N: B0508016645 |
|                                                                                                                 |                      |                                       | EXC P/N: RT12006                                                                                                                            |                      |
| ONE PLACE DECIMAL .X $\pm 0.30$                                                                                 | SIZE: A4<br>UNIT: mm | TITLE: RG174*1.5M/FAKRA-B-C-D         |                                                                                                                                             |                      |
| TWO PLACE DECIMAL .XX $\pm 0.30$                                                                                |                      |                                       |                                                                                                                                             |                      |
| THREE PLACE DECIMAL .XXX N/A                                                                                    |                      |                                       |                                                                                                                                             |                      |
| HOLE DIA. VARIATION .XX N/A                                                                                     |                      |                                       |                                                                                                                                             |                      |
| ANGULAR DIMENSION (ENG) N/A                                                                                     | SCALE: - : -         | SHEET: 1 OF 1 CUS REV: NA EXC REV: 01 |                                                                                                                                             |                      |

BILL OF MATERIAL