



## Antenna Test Report

Signal Plus Technology Co.,Ltd  
Adress:Room 201, Building B, No 2163, WanYuan  
Road,MinHang District, Shanghai China 201103

## Data Preview

| Freq.(MHz) | 2400 | 2410 | 2420 | 2430 | 2440 | 2450 | 2460 | 2470  | 2480  |
|------------|------|------|------|------|------|------|------|-------|-------|
| VSWR       | 4.95 | 5.18 | 5.43 | 5.62 | 5.98 | 6.21 | 6.37 | 6.347 | 6.61  |
| Gain(dBi)  | 1.98 | 0.77 | 1.17 | 1.79 | 0.88 | 0.90 | 1.41 | 0.86  | -0.09 |
| Eff.%      | 34.6 | 26.4 | 27.9 | 31.7 | 27.3 | 27.7 | 31.3 | 28.9  | 25.7  |

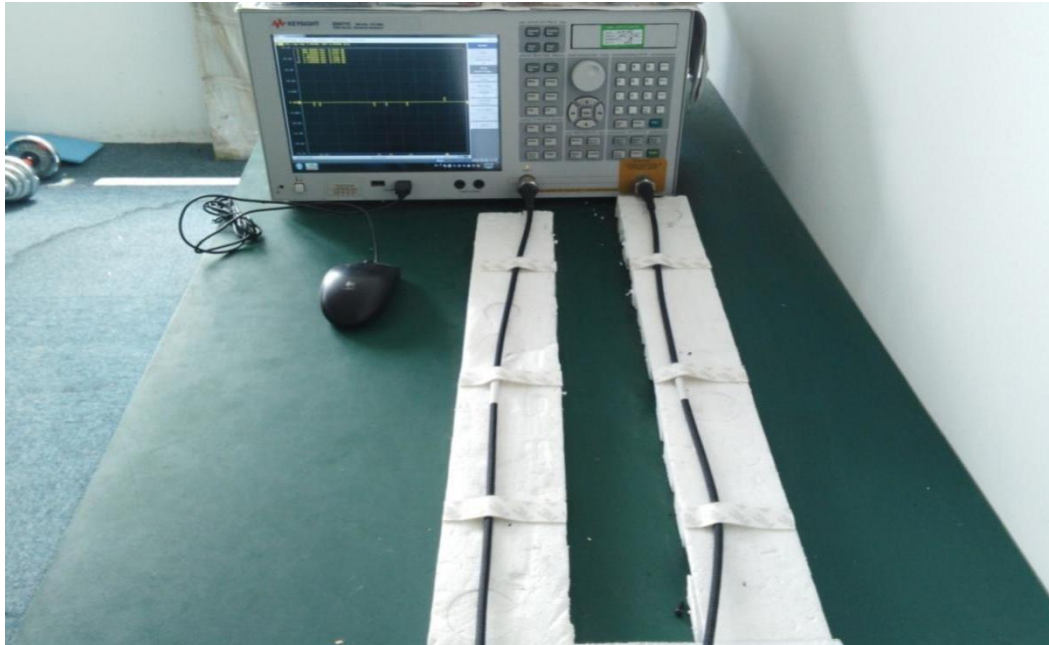
| Freq.(MHz) | 2490 | 2500  |
|------------|------|-------|
| VSWR       | 6.83 | 7.05  |
| Gain(dBi)  | 0.27 | -0.59 |
| Eff.%      | 27.6 | 22.6  |

## 1. RF Fixture Experiment

### 1.1 Test Setup

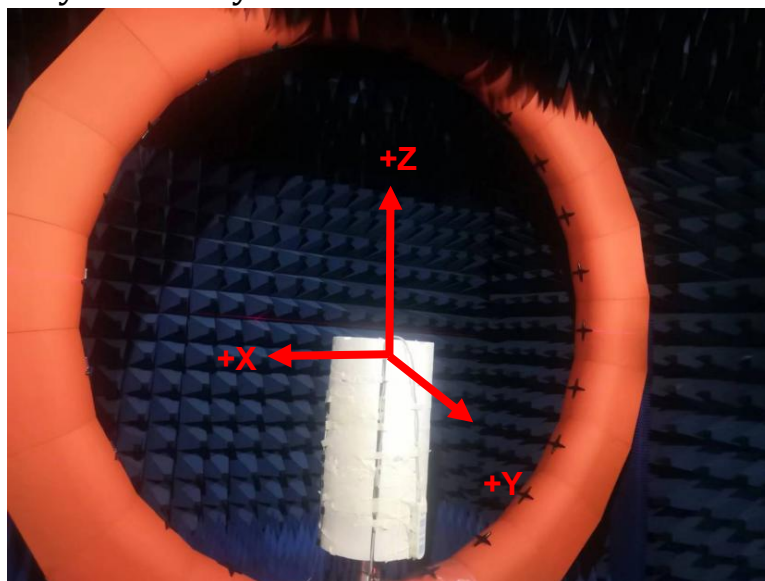
#### 1.1.1 VNA Test Setup

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

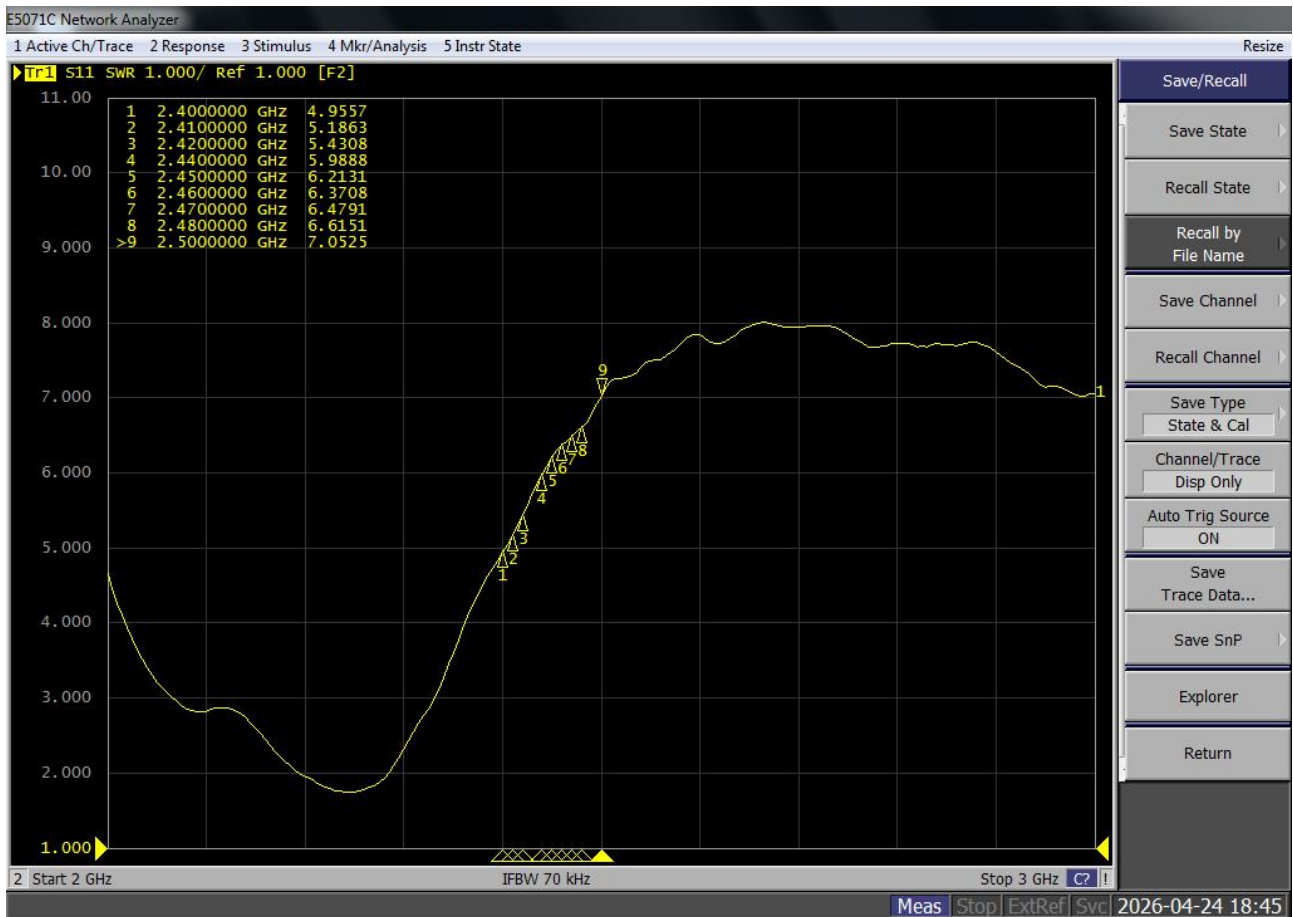
The gain of the antenna was measured in the anechoic chamber. The chamber provides less than  $-30$  dB reflectivity from 400 MHz through 6 GHz. The chamber size is: 7m\*4m\*3m. The measurement results are calibrated using a leaky wave horn standard. We can measure the antenna gain and efficiency accurately.



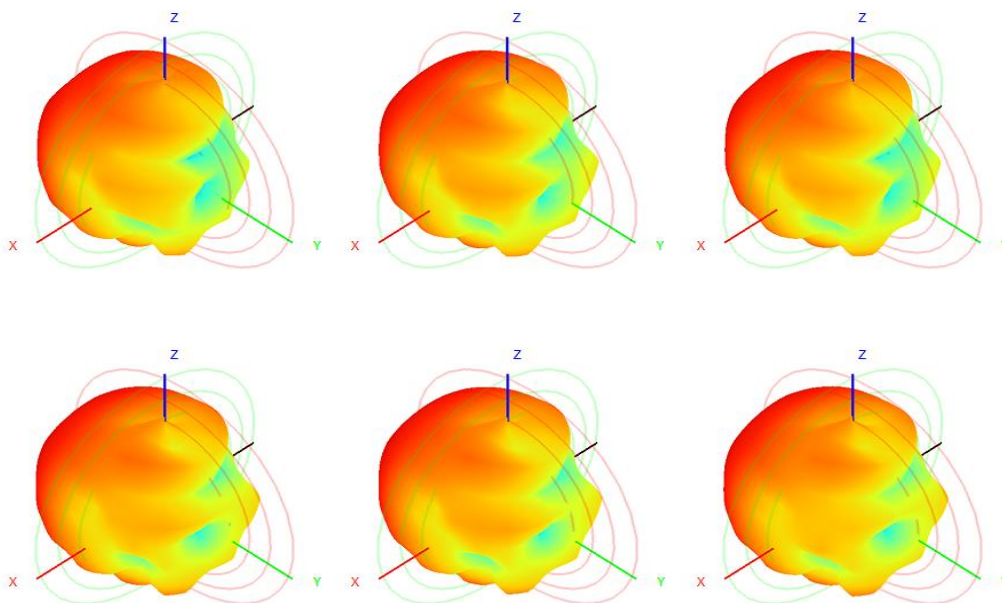
## 2. Antenna Solution



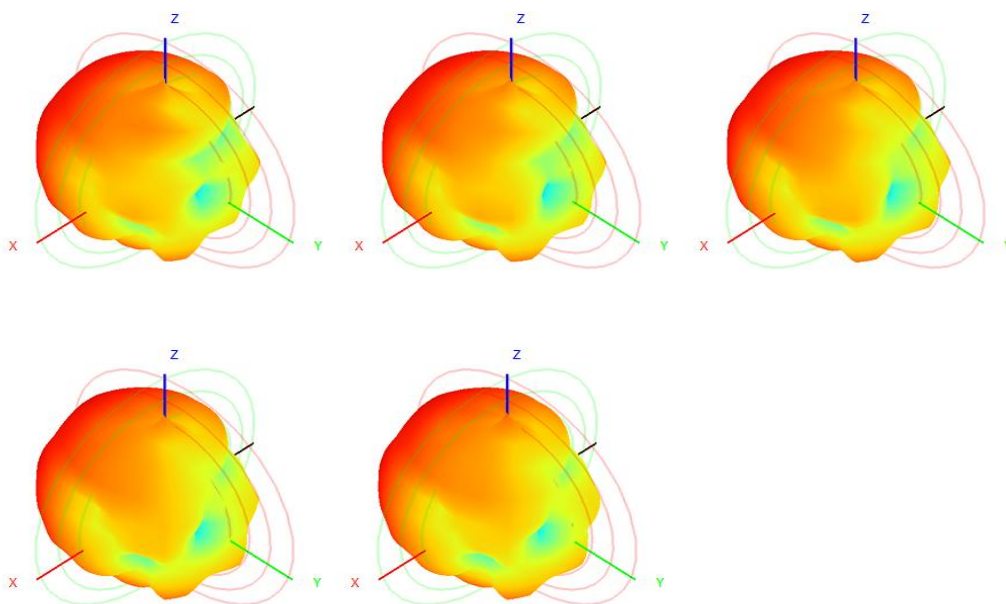
S11



Radiation patterns: 3D(22400/2410/2420/2430/2440/2450/2460/2470/2480/2490/2500MHz)

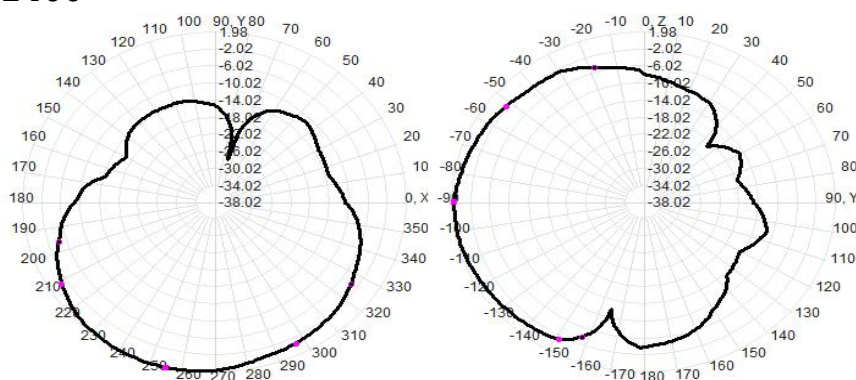




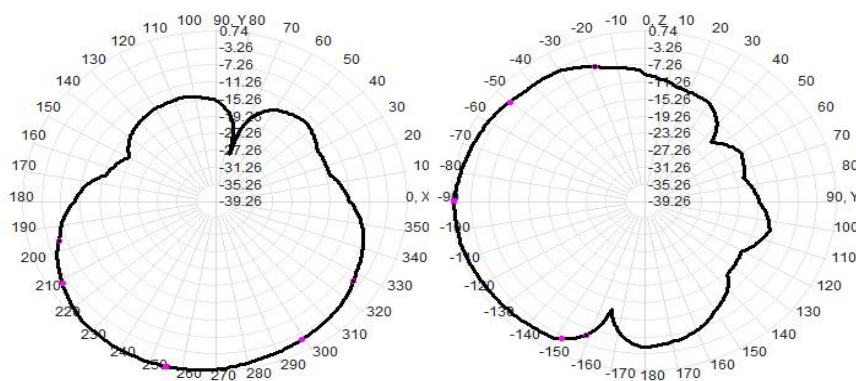


Radiation patterns: 2D(22400/2410/2420/2430/2440/2450/2460/2470/2480/2490/2500MHz)

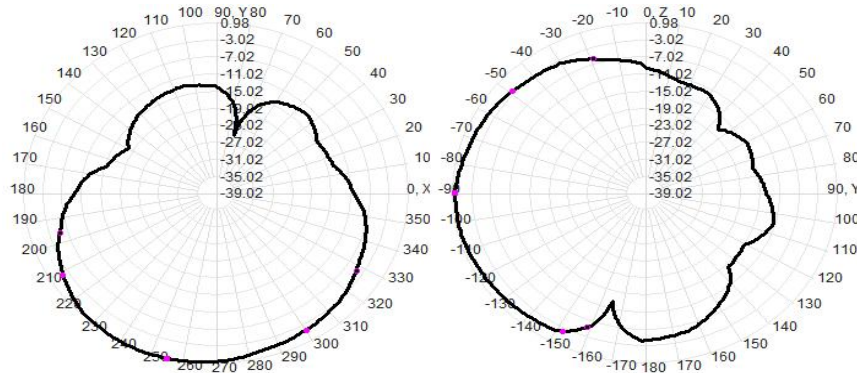
2400



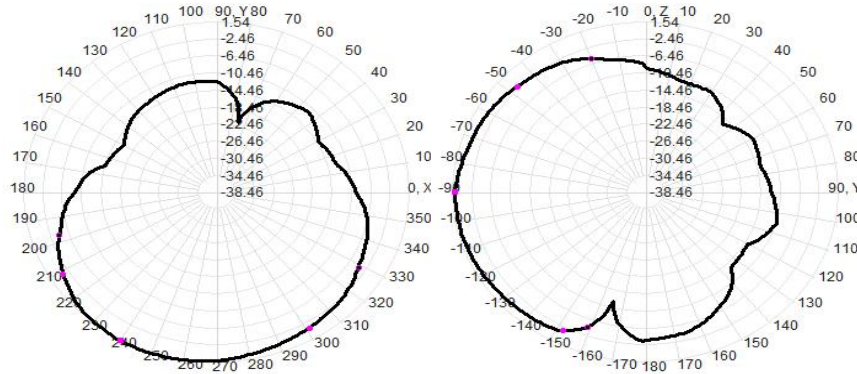
2410



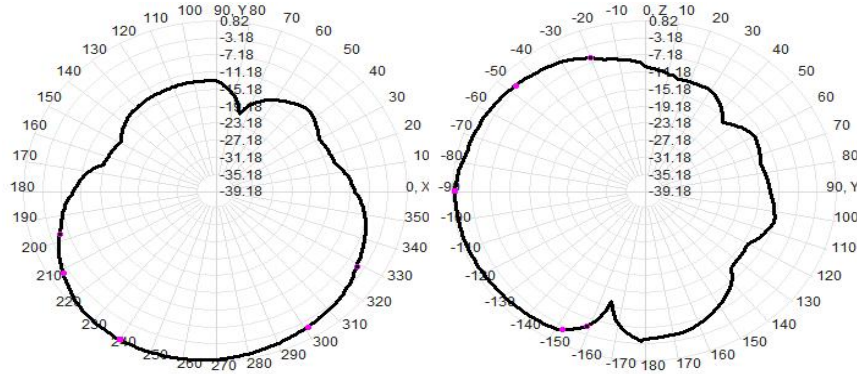
2420



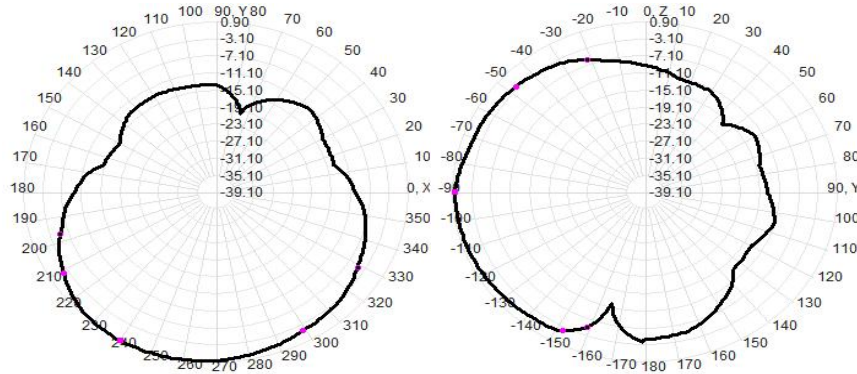
2430



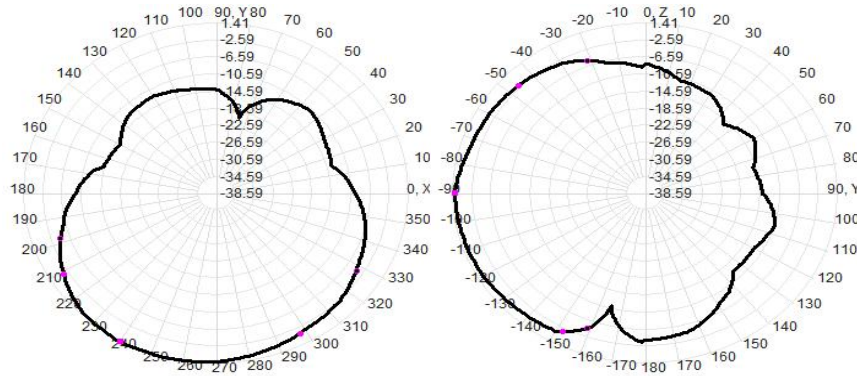
2440



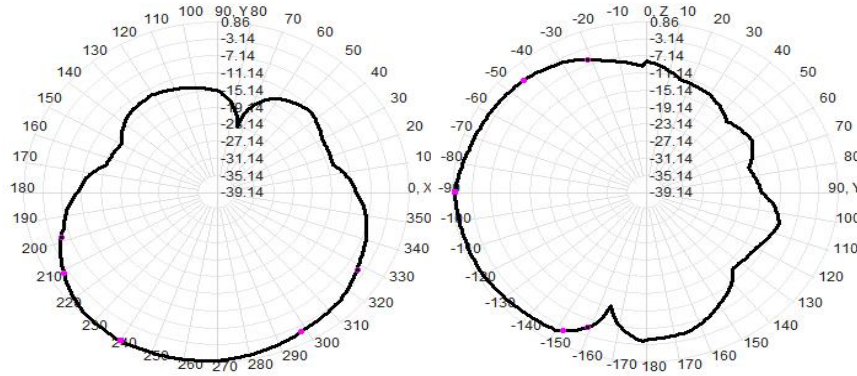
2450



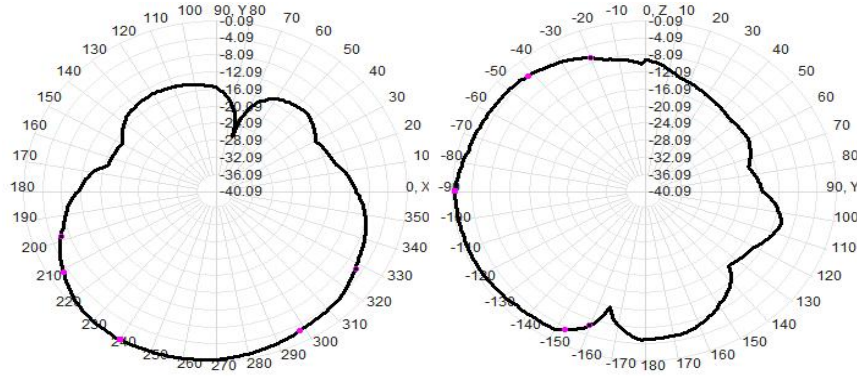
2460



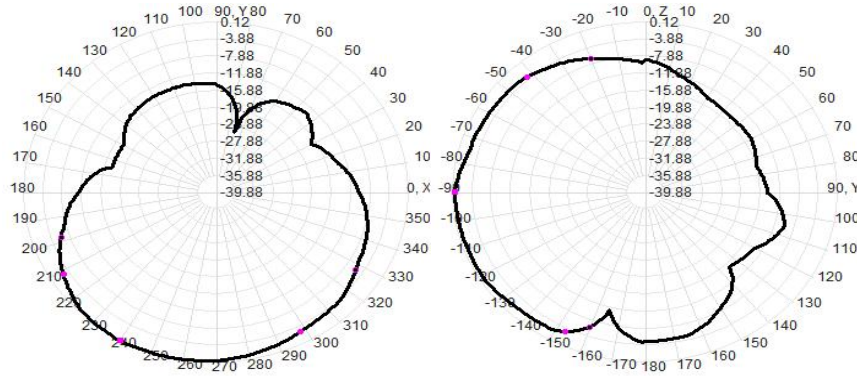
2470



2480



2490





2500

