

# Antenna Testing Report

**Customer: PAX Computer Technology(Shenzhen)Co.,Ltd.**

**Project Name: A30**

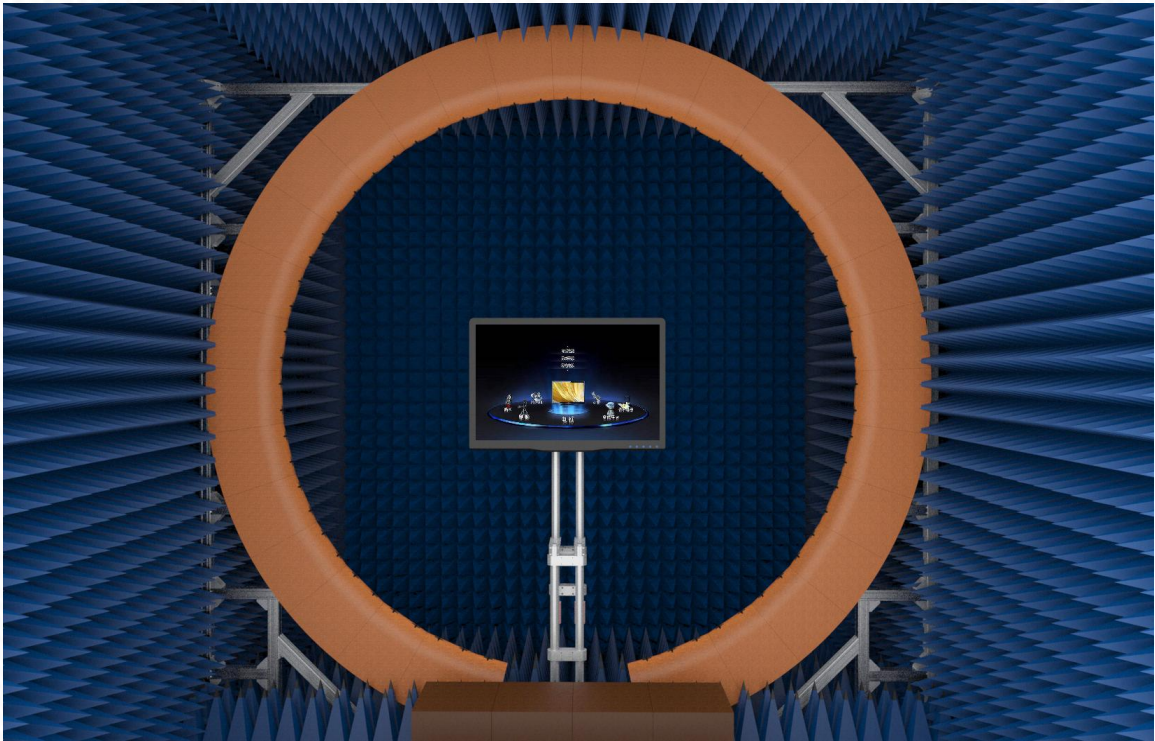
**Report version: July. 07th, 2025 A0**

**Author: Huangzhinan**

| Version | Report date | Remark                        |
|---------|-------------|-------------------------------|
| A0      | 2025.07.07  | Antenna Passive Tuning Report |
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| A2      |             |                               |
| A3      |             |                               |
| A4      |             |                               |
| A5      |             |                               |
| A6      |             |                               |
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|                        |                                                    |
|------------------------|----------------------------------------------------|
| Prototype status       | Debugging machine                                  |
| Device type            | POS                                                |
| Number of antennas     | Main antenna, Diversity antenna,WIFI,GPS,Bluetooth |
| Frequency band         | GSM 850/E-GSM 900/PCS 1900                         |
|                        | WCDMA B2/4/5/8                                     |
|                        | FDD LTE B2/4/5/8/28/66                             |
|                        | TDD LTE B41                                        |
|                        | WiFi 2.4/5.8                                       |
|                        | GPS L1                                             |
| Antenna Type           | FPCB Antenna                                       |
| Environment adjustment | change                                             |
| Matching modification  | No change                                          |



The industry's top 64 sensors OTA chamber

Frequency range: 400MHz-11GHz

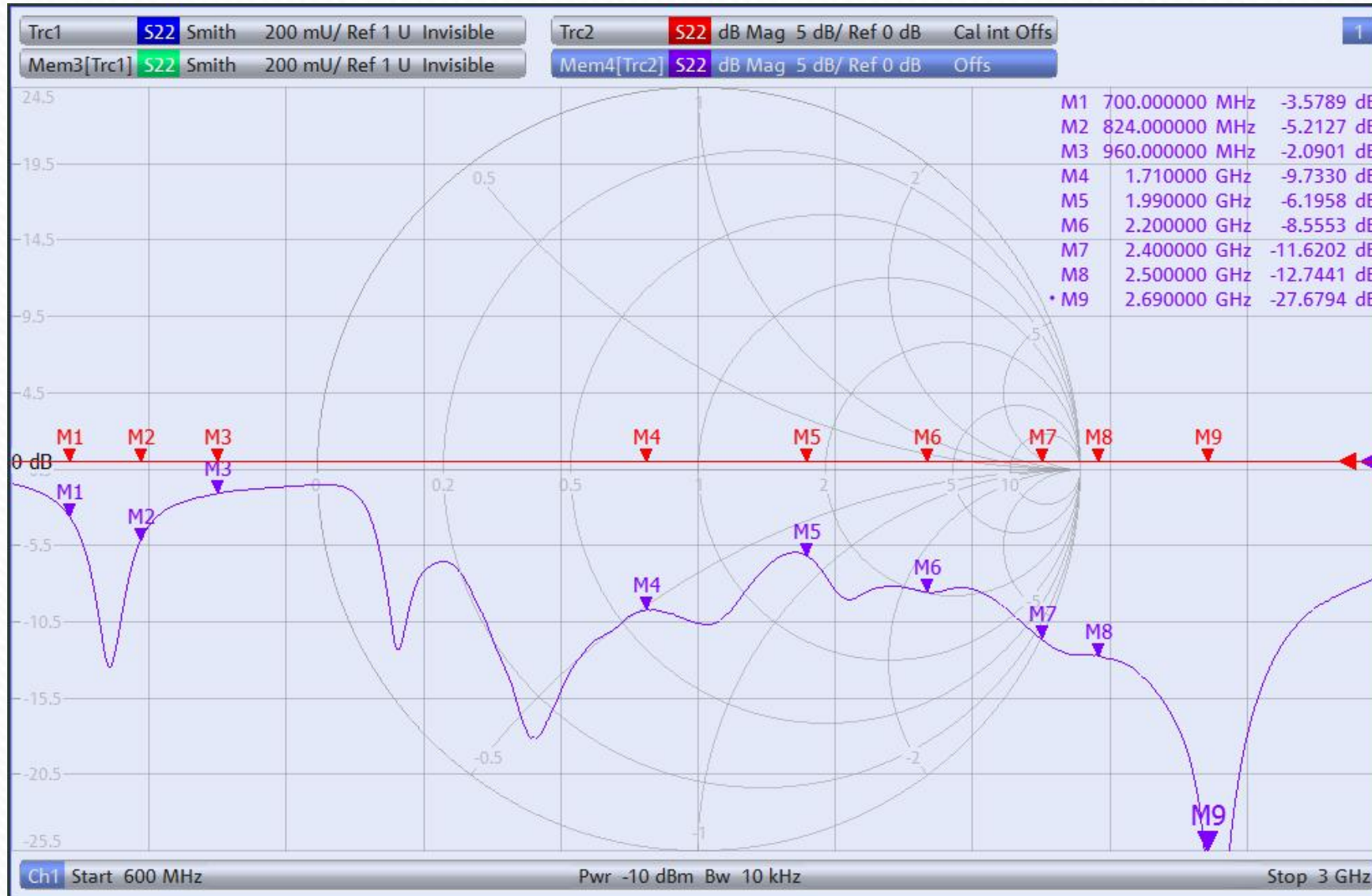
Device Llimitation: 2M

Load-bearing limitation:100KG

| Equipments Items                        | Total Quantity | Quantity for Shanghai R&D | Quantity for Shenzhen R&D | Quantity for ChongQing R&D |
|-----------------------------------------|----------------|---------------------------|---------------------------|----------------------------|
| OTA chamber                             | 10             | 4                         | 5                         | 1                          |
| 5G Tester（SP9500-CTS）                   | 3              | 1                         | 1                         | 1                          |
| R&S Tester（high configuration CMW500）   | 6              | 3                         | 2                         | 1                          |
| Japan Anritsu Tester（Dual Channel 8820） | 4              | 2                         | 2                         | --                         |
| NB-IoT Tester (SP8315)                  | 3              | 1                         | 1                         | 1                          |
| Agilent Tester（8960）                    | 9              | 4                         | 4                         | --                         |
| Agilent Network Analyzer（E5062A）        | 7              | 3                         | 3                         | 1                          |
| Agilent Network Analyzer（E5071C 8.5GHZ） | 11             | 5                         | 5                         | 1                          |
| Agilent Network Analyzer（E5071B 8.5GHZ） | 7              | 3                         | 3                         | 1                          |
| R&S Network Analyzer（ZND）               | 9              | 4                         | 4                         | 1                          |
| R&S Network Analyzer（ZVB）               | 3              | 1                         | 1                         | 1                          |
| OTA head hand / ear hand / arm hand     | 5              | 2                         | 2                         | 1                          |
| GPS/WIFI active test equipment          | 5              | 2                         | 2                         | 1                          |

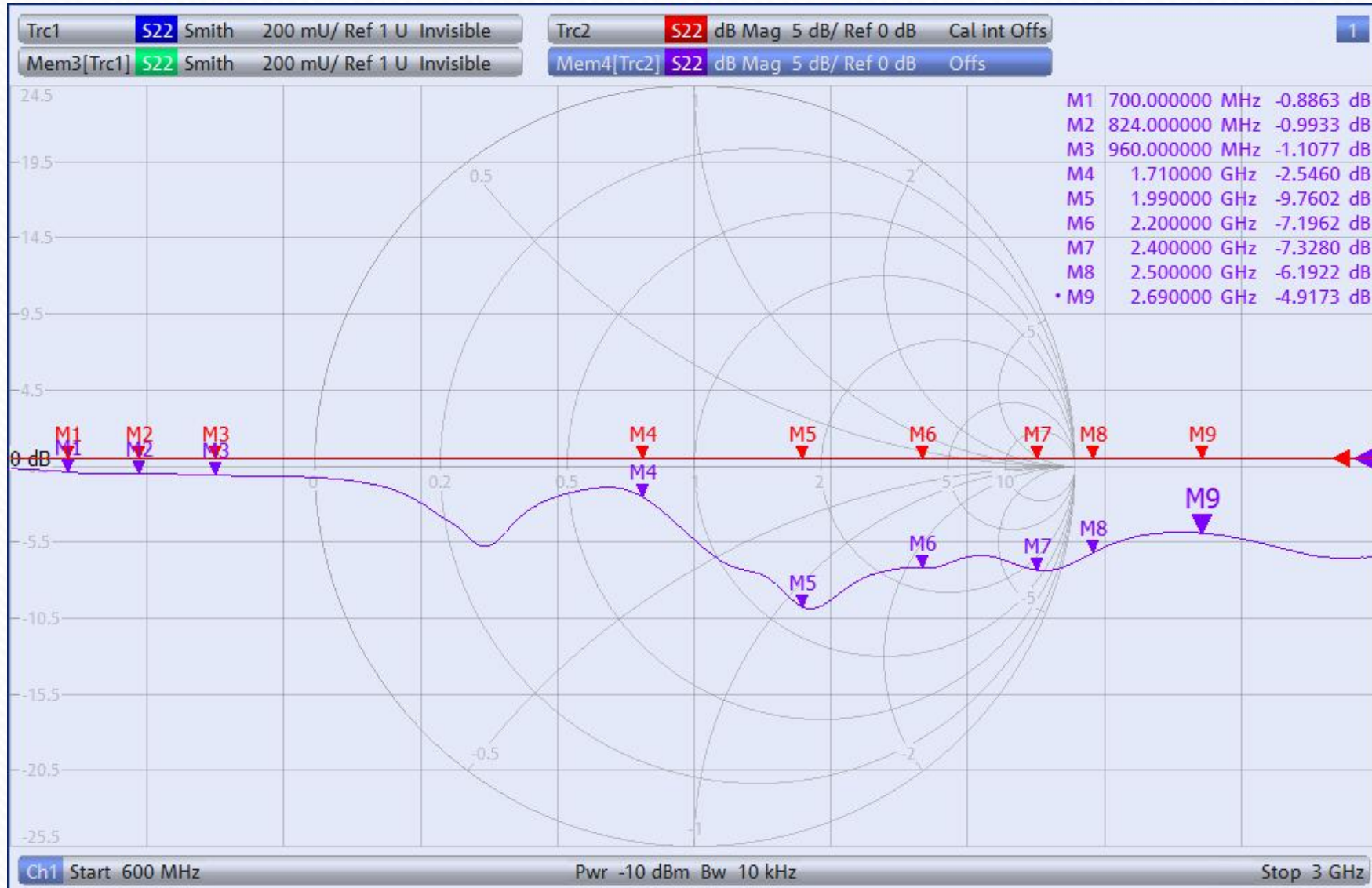
# S11 parameter test

Main Antenna



# S11 parameter test

Diversity Antenna



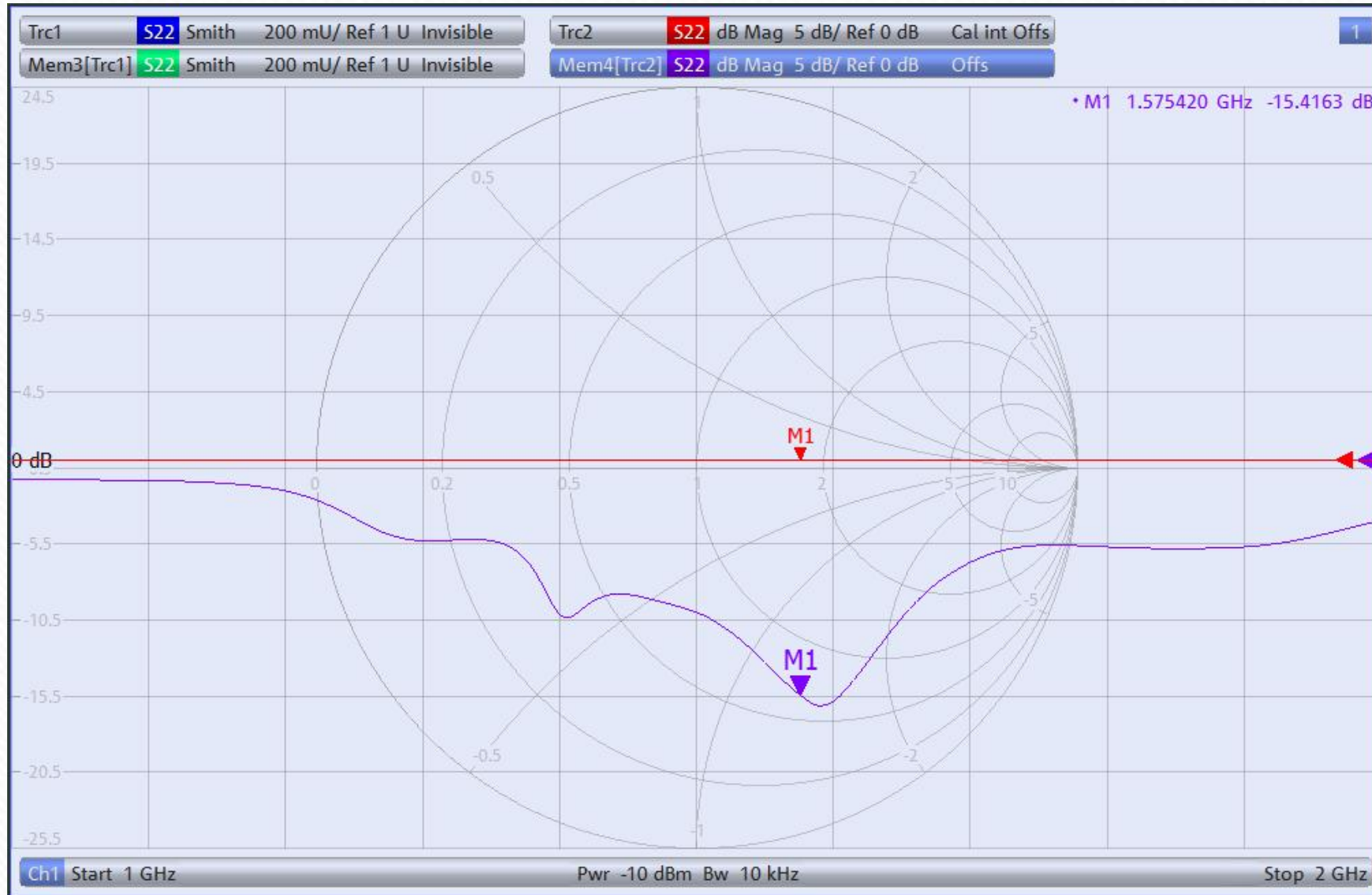
# S11 parameter test

WiFi Antenna



# S11 parameter test

GPS Antenna



## Main Antenna

| Frequency/Mhz | Efficiency / dB | Efficiency / % | Gain/dBi | Frequency/Mhz | Efficiency / dB | Efficiency / % | Gain/dBi | Frequency/Mhz | Efficiency / dB | Efficiency / % | Gain/dBi |
|---------------|-----------------|----------------|----------|---------------|-----------------|----------------|----------|---------------|-----------------|----------------|----------|
| 700           | -8.43           | 14.35          | -5.64    | 1700          | -4.34           | 36.81          | -0.91    | 2240          | -6.83           | 20.75          | 0.13     |
| 710           | -6.88           | 20.51          | -3.39    | 1720          | -4.7            | 33.88          | -2.26    | 2260          | -6.19           | 24.04          | 1.02     |
| 720           | -6.25           | 23.71          | -2.32    | 1740          | -4.28           | 37.33          | -1.71    | 2280          | -5.8            | 26.3           | 1.28     |
| 730           | -4.85           | 32.73          | -0.41    | 1760          | -4.72           | 33.73          | -2.18    | 2300          | -5.74           | 26.67          | 1.12     |
| 740           | -4.28           | 37.33          | 0.61     | 1780          | -4.45           | 35.89          | -1.87    | 2320          | -5.73           | 26.73          | 0.29     |
| 750           | -3.47           | 44.98          | 1.15     | 1800          | -4.44           | 35.97          | -1.41    | 2340          | -5.46           | 28.44          | 0.1      |
| 760           | -2.93           | 50.93          | 1.15     | 1820          | -4.97           | 31.84          | -2.19    | 2360          | -5.3            | 29.51          | 0.19     |
| 770           | -3.03           | 49.77          | 0.96     | 1840          | -5.08           | 31.05          | -1.87    | 2380          | -5.37           | 29.04          | 0.11     |
| 780           | -3.03           | 49.77          | 0.71     | 1860          | -5.58           | 27.67          | -2.06    | 2400          | -5.52           | 28.05          | -0.2     |
| 790           | -3.71           | 42.56          | -0.07    | 1880          | -6.32           | 23.33          | -2.87    | 2420          | -6.16           | 24.21          | -0.96    |
| 800           | -4.02           | 39.63          | -0.51    | 1900          | -6.72           | 21.28          | -2.49    | 2440          | -5.93           | 25.53          | -0.26    |
| 810           | -4.78           | 33.27          | -1.74    | 1920          | -7.23           | 18.92          | -2.58    | 2460          | -5.69           | 26.98          | 0.12     |
| 820           | -5.39           | 28.91          | -2.38    | 1940          | -7.83           | 16.48          | -3.62    | 2480          | -5.71           | 26.85          | 0.21     |
| 830           | -4.97           | 31.84          | -1.46    | 1960          | -7.63           | 17.26          | -4.06    | 2500          | -5.65           | 27.23          | 0.73     |
| 840           | -5.05           | 31.26          | -1.4     | 1980          | -7.66           | 17.14          | -4.35    | 2520          | -5.12           | 30.76          | 2.13     |
| 850           | -5.36           | 29.11          | -1.8     | 2000          | -7.87           | 16.33          | -4.11    | 2540          | -5.34           | 29.24          | 2.61     |
| 860           | -5.91           | 25.64          | -2.79    | 2020          | -6.9            | 20.42          | -2.09    | 2560          | -5.41           | 28.77          | 3.16     |
| 870           | -5.84           | 26.06          | -2.85    | 2040          | -5.99           | 25.18          | -0.34    | 2580          | -5.67           | 27.1           | 3.24     |
| 880           | -6.54           | 22.18          | -3.29    | 2060          | -6.07           | 24.72          | 1        | 2600          | -6.01           | 25.06          | 3.24     |
| 890           | -6.18           | 24.1           | -2.69    | 2080          | -5.7            | 26.92          | 1.09     | 2620          | -5.77           | 26.49          | 3.75     |
| 900           | -6.7            | 21.38          | -3.15    | 2100          | -5.35           | 29.17          | 1.52     | 2640          | -5.73           | 26.73          | 3.46     |
| 910           | -6.85           | 20.65          | -2.75    | 2120          | -5.44           | 28.58          | 1.36     | 2660          | -5.73           | 26.73          | 3.87     |
| 920           | -7.34           | 18.45          | -2.73    | 2140          | -5.41           | 28.77          | 1.23     | 2680          | -5.5            | 28.18          | 4.66     |
| 930           | -7.48           | 17.86          | -2.15    | 2160          | -5.59           | 27.61          | 0.98     | 2700          | -5.34           | 29.24          | 5.11     |
| 940           | -8.6            | 13.8           | -3.07    | 2180          | -5.84           | 26.06          | 0.71     |               |                 |                |          |
| 950           | -9.2            | 12.02          | -3.91    | 2200          | -5.55           | 27.86          | 0.76     |               |                 |                |          |
| 960           | -9.28           | 11.8           | -4.42    | 2220          | -6.27           | 23.6           | 0.24     |               |                 |                |          |

## Diversity Antenna

| Frequency/Mhz | Efficiency / dB | Efficiency / % | Gain/dBi | Frequency/Mhz | Efficiency / dB | Efficiency / % | Gain/dBi | Frequency/Mhz | Efficiency / dB | Efficiency / % | Gain/dBi |
|---------------|-----------------|----------------|----------|---------------|-----------------|----------------|----------|---------------|-----------------|----------------|----------|
| 700           | -19.44          | 1.14           | -16.34   | 1700          | -17.25          | 1.88           | -14.35   | 2240          | -7.92           | 16.14          | -1.55    |
| 710           | -18.1           | 1.55           | -13.9    | 1720          | -15.15          | 3.05           | -13.21   | 2260          | -7.32           | 18.54          | -1.35    |
| 720           | -19.26          | 1.19           | -14.91   | 1740          | -12.13          | 6.12           | -9.33    | 2280          | -7.16           | 19.23          | -2.02    |
| 730           | -19.23          | 1.19           | -14.76   | 1760          | -9.54           | 11.12          | -6.15    | 2300          | -7.05           | 19.72          | -2.37    |
| 740           | -19.28          | 1.18           | -14.89   | 1780          | -7.59           | 17.42          | -4.76    | 2320          | -7.02           | 19.86          | -2.54    |
| 750           | -18.78          | 1.32           | -14.71   | 1800          | -6.91           | 20.37          | -3.95    | 2340          | -6.86           | 20.61          | -2.61    |
| 760           | -18.46          | 1.43           | -14.91   | 1820          | -6.5            | 22.39          | -3.38    | 2360          | -6.71           | 21.33          | -2.28    |
| 770           | -18.13          | 1.54           | -14.26   | 1840          | -6.08           | 24.66          | -2.96    | 2380          | -6.83           | 20.75          | -2.2     |
| 780           | -18.26          | 1.49           | -14.34   | 1860          | -6.33           | 23.28          | -2.63    | 2400          | -7.07           | 19.63          | -2.46    |
| 790           | -19.15          | 1.22           | -14.86   | 1880          | -6.33           | 23.28          | -2.98    | 2420          | -7.57           | 17.5           | -3.03    |
| 800           | -19.24          | 1.19           | -14.72   | 1900          | -6.45           | 22.65          | -2.52    | 2440          | -7.07           | 19.63          | -2.42    |
| 810           | -19.99          | 1              | -16.1    | 1920          | -6.75           | 21.13          | -2.38    | 2460          | -6.65           | 21.63          | -1.99    |
| 820           | -20.49          | 0.89           | -17.45   | 1940          | -6.61           | 21.83          | -2.74    | 2480          | -6.61           | 21.83          | -1.54    |
| 830           | -19.77          | 1.05           | -16.85   | 1960          | -6.57           | 22.03          | -3.11    | 2500          | -6.44           | 22.7           | -0.83    |
| 840           | -19.77          | 1.05           | -16.94   | 1980          | -7.22           | 18.97          | -3.89    | 2520          | -5.93           | 25.53          | 0.48     |
| 850           | -19.69          | 1.07           | -16.98   | 2000          | -8.14           | 15.35          | -5.29    | 2540          | -6.16           | 24.21          | 0.63     |
| 860           | -19.51          | 1.12           | -16.89   | 2020          | -9.16           | 12.13          | -5.82    | 2560          | -6.09           | 24.6           | 0.77     |
| 870           | -19.35          | 1.16           | -16.53   | 2040          | -9.72           | 10.67          | -4.91    | 2580          | -6.15           | 24.27          | 0.64     |
| 880           | -19.69          | 1.07           | -16.94   | 2060          | -9.52           | 11.17          | -2.84    | 2600          | -6.49           | 22.44          | 0.46     |
| 890           | -19.1           | 1.23           | -16.24   | 2080          | -8.45           | 14.29          | -2.41    | 2620          | -6.06           | 24.77          | 0.99     |
| 900           | -19.81          | 1.04           | -16.95   | 2100          | -7.7            | 16.98          | -1.53    | 2640          | -5.87           | 25.88          | 1.18     |
| 910           | -19.58          | 1.1            | -16.2    | 2120          | -7.17           | 19.19          | -1.06    | 2660          | -5.98           | 25.23          | 1.44     |
| 920           | -19.52          | 1.12           | -15.84   | 2140          | -7.11           | 19.45          | -0.88    | 2680          | -5.64           | 27.29          | 2.08     |
| 930           | -19.51          | 1.12           | -15.39   | 2160          | -7.36           | 18.37          | -0.71    | 2700          | -5.43           | 28.64          | 2.49     |
| 940           | -20.28          | 0.94           | -15.62   | 2180          | -7.42           | 18.11          | -0.45    |               |                 |                |          |
| 950           | -20.34          | 0.92           | -15.6    | 2200          | -7.1            | 19.5           | -0.37    |               |                 |                |          |
| 960           | -20.91          | 0.81           | -16.07   | 2220          | -7.72           | 16.9           | -1.39    |               |                 |                |          |

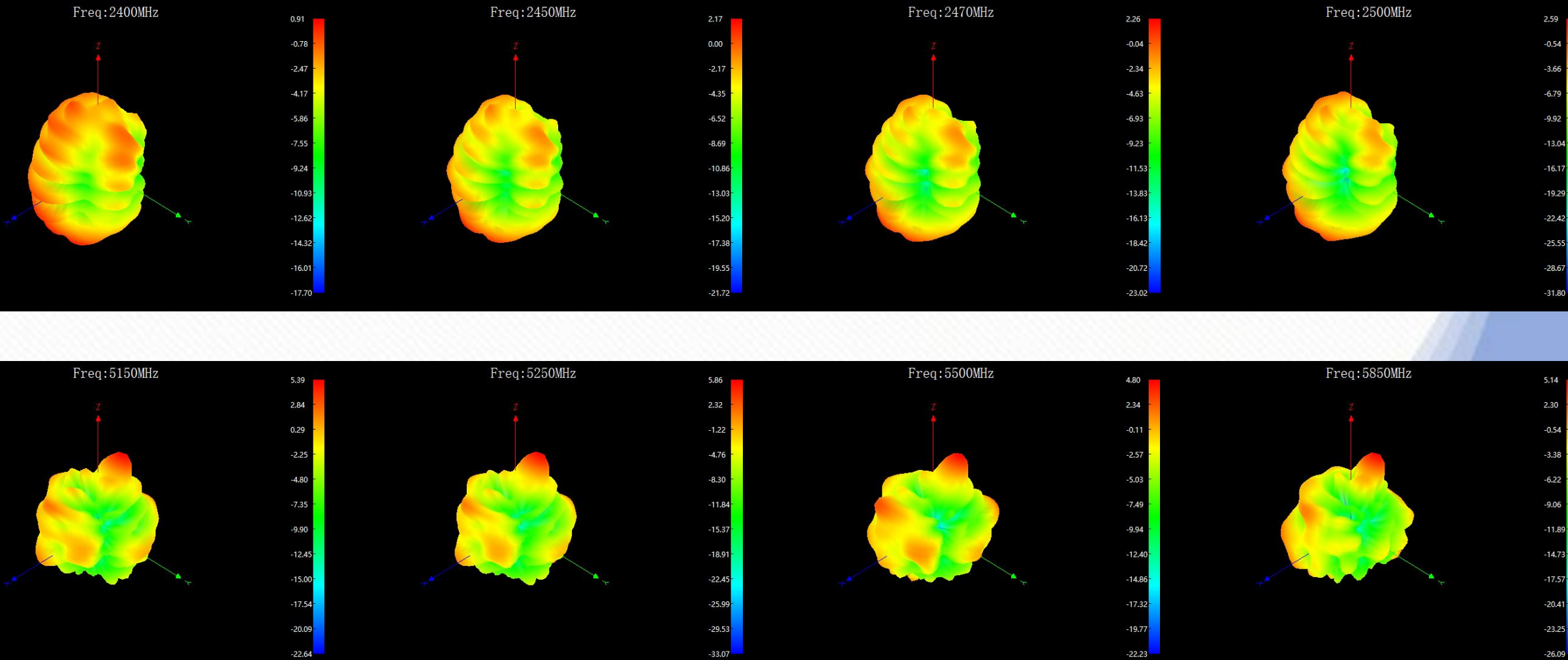
## GPS Antenna

| Frequency/Mhz | Efficiency / dB | Efficiency / % | Gain/dBi |
|---------------|-----------------|----------------|----------|
| 1550          | -8.05           | 15.67          | -5.81    |
| 1555          | -8.44           | 14.32          | -6.04    |
| 1560          | -7.37           | 18.32          | -4.6     |
| 1565          | -7.35           | 18.41          | -4.38    |
| 1570          | -7.47           | 17.91          | -4.4     |
| 1575          | -8.14           | 15.35          | -4.82    |
| 1580          | -7.48           | 17.86          | -4.08    |
| 1585          | -7.65           | 17.18          | -4.26    |
| 1590          | -8.06           | 15.63          | -4.89    |
| 1595          | -8.66           | 13.61          | -5.34    |
| 1600          | -7.51           | 17.74          | -4.18    |

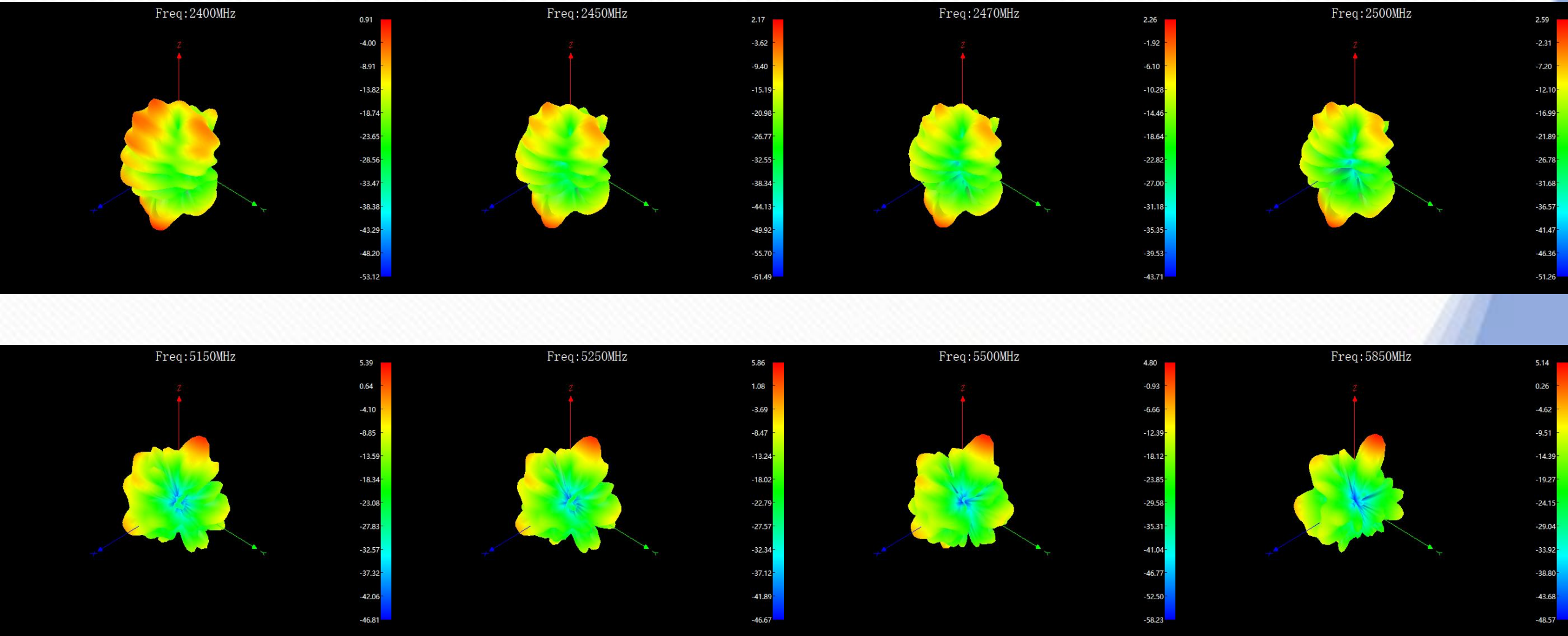
## Wifi Antenna

| Frequency/Mhz | Efficiency / dB | Efficiency / % | Gain/dBi | Frequency/Mhz | Efficiency / dB | Efficiency / % | Gain/dBi |
|---------------|-----------------|----------------|----------|---------------|-----------------|----------------|----------|
| 2400          | -3.62           | 43.45          | 0.91     | 5150          | -2.96           | 50.58          | 5.39     |
| 2410          | -3.3            | 46.77          | 1.59     | 5200          | -3.04           | 49.66          | 5.7      |
| 2420          | -4.23           | 37.76          | 0.36     | 5250          | -2.93           | 50.93          | 5.86     |
| 2430          | -4.16           | 38.37          | 0.91     | 5300          | -2.91           | 51.17          | 5.68     |
| 2440          | -4.02           | 39.63          | 1.05     | 5350          | -3.08           | 49.2           | 5.43     |
| 2450          | -3.44           | 45.29          | 2.17     | 5400          | -2.8            | 52.48          | 5.6      |
| 2460          | -3.82           | 41.5           | 1.76     | 5450          | -3.02           | 49.89          | 5.16     |
| 2470          | -3.76           | 42.07          | 2.26     | 5500          | -3.03           | 49.77          | 4.8      |
| 2480          | -3.83           | 41.4           | 2.22     | 5550          | -2.98           | 50.35          | 4.72     |
| 2490          | -3.75           | 42.17          | 2.7      | 5600          | -3.28           | 46.99          | 4.32     |
| 2500          | -3.87           | 41.02          | 2.59     | 5650          | -3.02           | 49.89          | 4.47     |
|               |                 |                |          | 5700          | -3.28           | 46.99          | 4.46     |
|               |                 |                |          | 5750          | -3.17           | 48.19          | 4.6      |
|               |                 |                |          | 5800          | -2.86           | 51.76          | 4.92     |
|               |                 |                |          | 5850          | -2.92           | 51.05          | 5.14     |

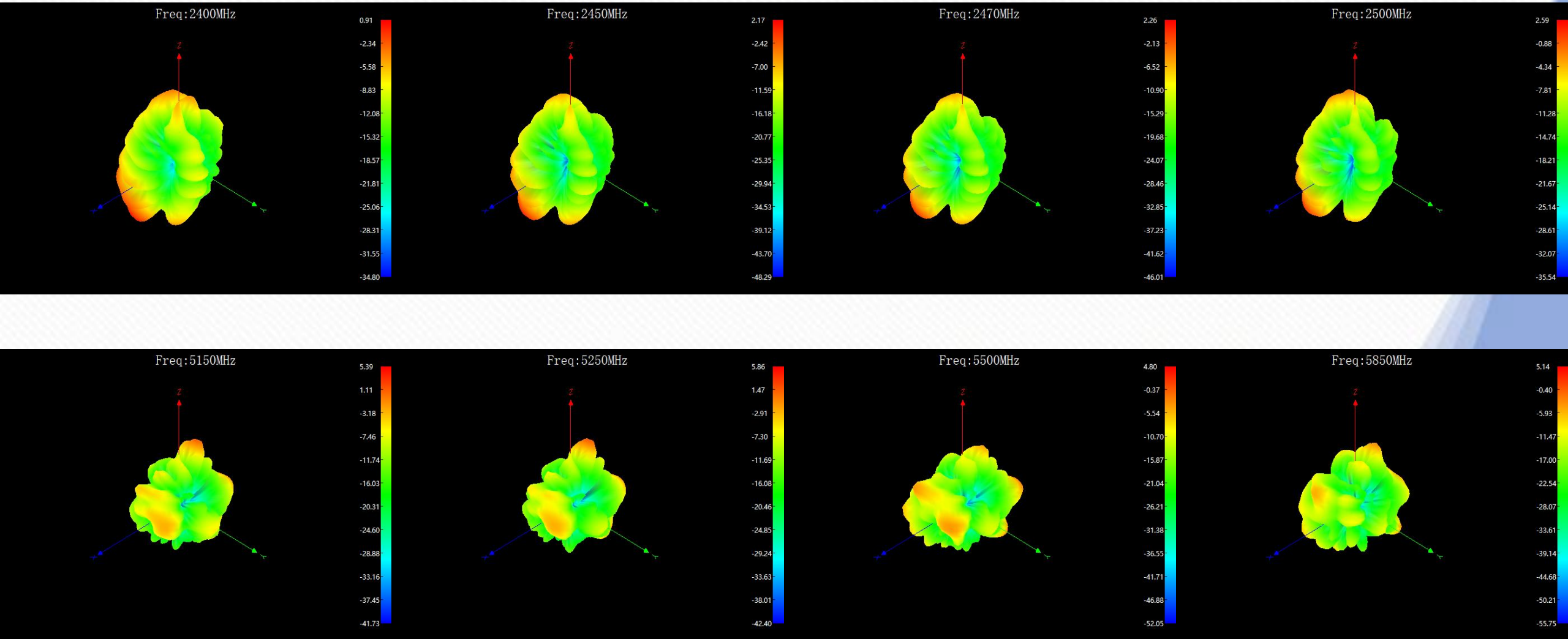
WiFi Antenna-Total



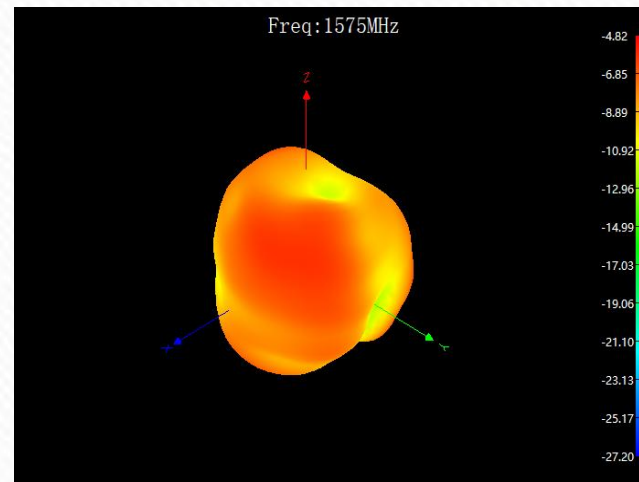
WiFi Antenna-Theta



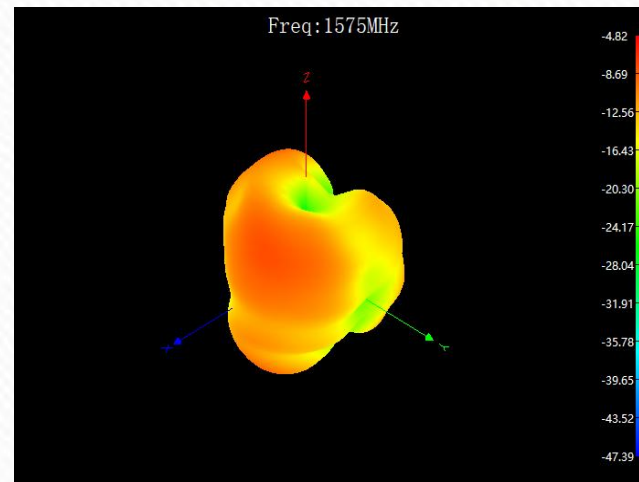
WiFi Antenna-Phi



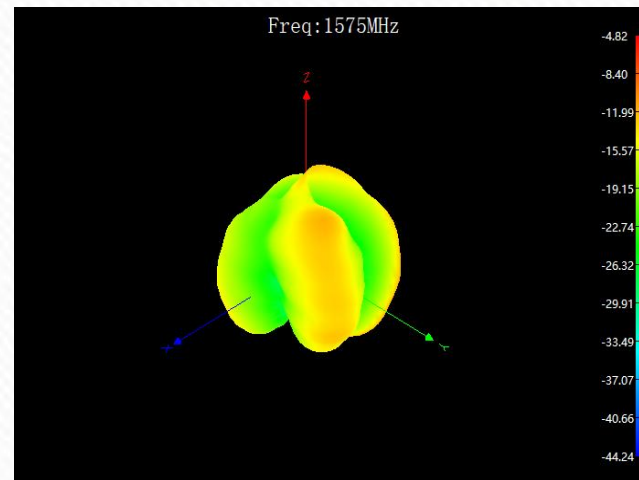
GPS Antenna-Total

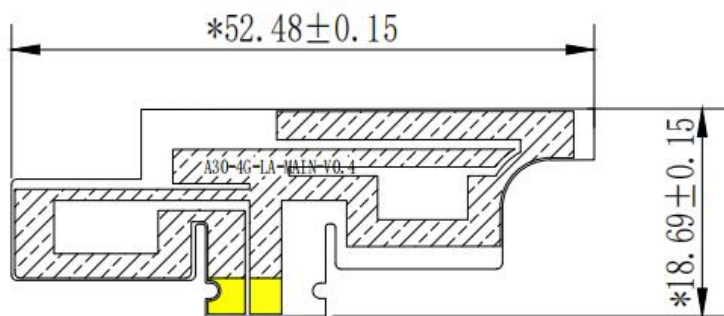


GPS Antenna-Theta

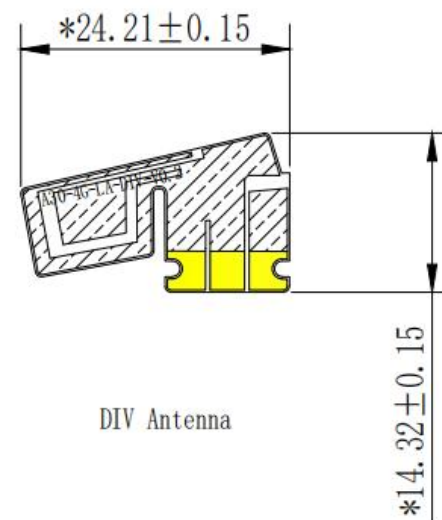


GPS Antenna-Phi

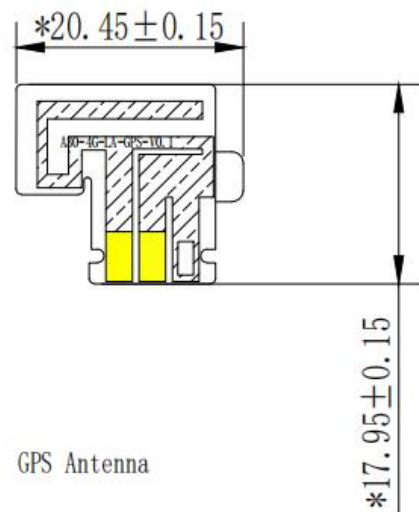




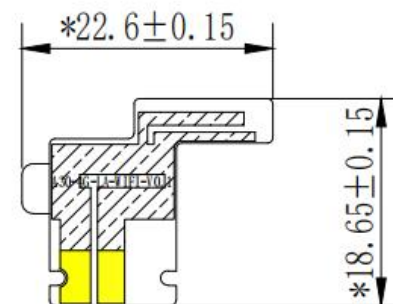
MAIN Antenna



DIV Antenna



GPS Antenna



WIFI Antenna

- 1: For A30 project, the antenna has good performance, and the parameters such as efficiency, gain and active test can achieve the use requirements
- 2: In terms of structure, the antenna is installed on the inside of the casing, which can well meet the requirements of production and assembly

# Thank You

**Shanghai R&D Center:** 1F, Building 4, No.99, Lane 215, Gaoguang Road, Qingpu District, Shanghai, 201799, PRC

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