# Antenna test report

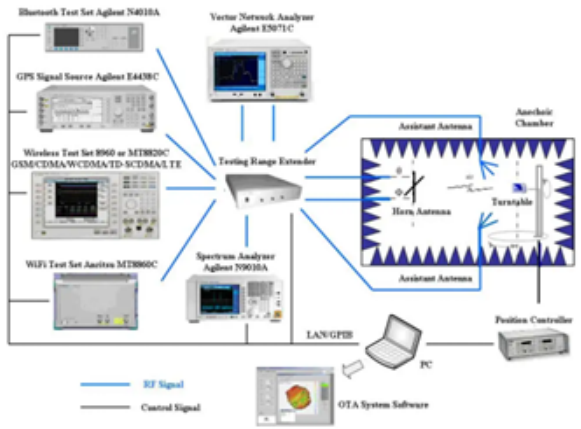
Test standard：

| | | | |
|---|---|---|---|
| Antenna performance | Radiation efficiency | IEEE Standard Test Procedures for Antennas | ANSI/IEEE Std 149-1979 |

Equipment list and calibration date

| Equipment | Manufacturer | Model No. | Last Cal. | Due Date |
|---|---|---|---|---|
| Network Analyzer | Agilent | E5071C | 2025.01.20 | 2027.01.19 |

Test configuration diagram



Test Procedure

Test Step Flow
1. Maintain the test ambient temperature of 23t2 C, the instrument is powered on and preheated for more than 30 minutes
2. Tum on the darkroom power supply, connect the test cable, and set up the sample according to the standard
3. Outline sets the test content objectives and conducts calibration tests
4. Run the EMQuest OTA software, the test is complete, export the corresponding test diagram and test data, and save to the corresponding directory

Test Principle
The test principle can be seen in accordance with the standard ANSI/IEEE std 149-2021

Test Conditions
1.The analyte, the network analyzer for testing, the test equipment and the test cable connector should have good reliability, stability, dynamic range and measurement accuracy to ensure the correctness of the measurement accuracy
2. The measuring instrument should have a certificate of conformity and be within the effective calibration period
3. The analyte should be complete and undamaged, and the test environment should be kept clean

Test Engineer: Liu Deng
Software name and version:GTS_MAX SIGN Libra1.2.7

# Test data

| #1-BT | | | |
|---|---|---|---|
| Freq | Efficiency_dB | Gain | Efficiency_Pcent |
| 2400 | -10.93 | -5.07 | 8.08 |
| 2410 | -10.80 | -4.55 | 8.32 |
| 2420 | -10.48 | -4.4 | 8.95 |
| 2430 | -10.23 | -4.29 | 9.49 |
| 2440 | -9.57 | -3.8 | 11.03 |
| 2450 | -9.46 | -3.41 | 11.32 |
| 2460 | -9.80 | -3.28 | 10.48 |
| 2470 | -9.85 | -3.35 | 10.35 |
| 2480 | -10.00 | -3.59 | 9.99 |
| 2490 | -10.22 | -3.72 | 9.5 |
| 2500 | -10.03 | -3.87 | 9.94 |

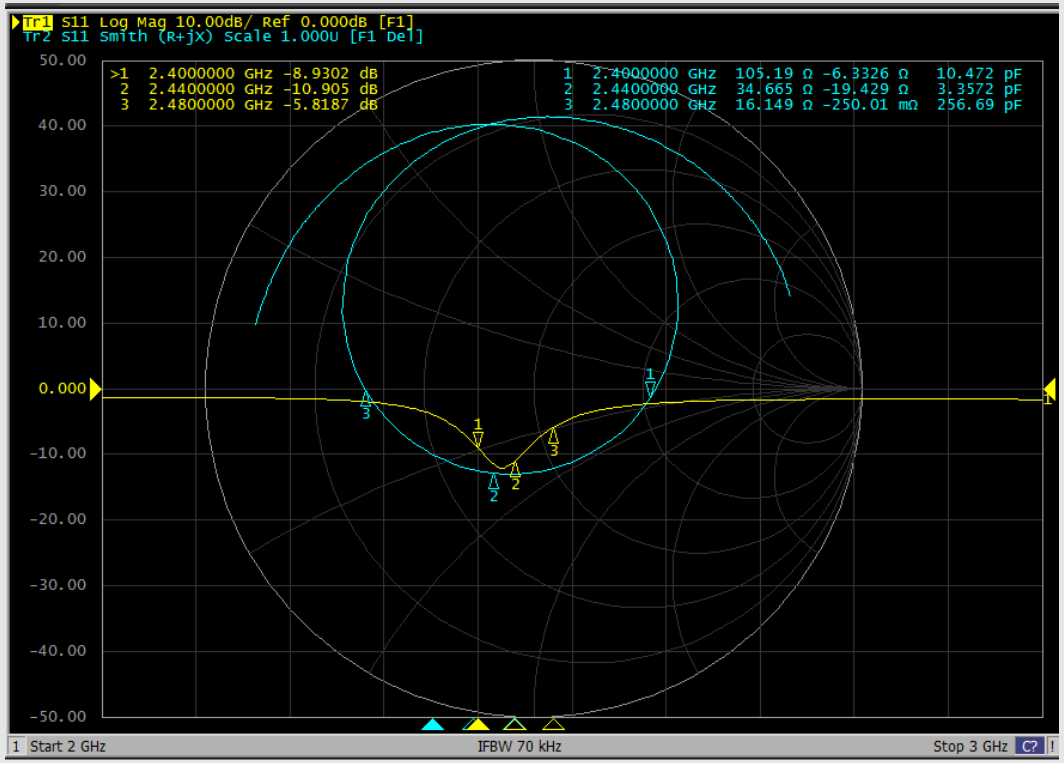
| #1-WF0 | | | |
|---|---|---|---|
| Freq | Efficiency_dB | Gain | Efficiency_Pcent |
| 2400 | -3.92 | 0.95 | 40.54 |
| 2410 | -3.77 | 1.13 | 41.98 |
| 2420 | -3.65 | 1.28 | 43.18 |
| 2430 | -3.66 | 1.3 | 43.01 |
| 2440 | -3.76 | 1.29 | 42.11 |
| 2450 | -3.79 | 1.27 | 41.77 |
| 2460 | -3.84 | 1.2 | 41.31 |
| 2470 | -3.9 | 1.13 | 40.77 |
| 2480 | -4.01 | 0.91 | 39.68 |
| 2490 | -4.21 | 0.71 | 37.95 |
| 2500 | -4.31 | 0.53 | 37.09 |
| 5150 | -4.34 | 0.83 | 36.84 |
| 5200 | -4.11 | 1.21 | 38.78 |
| 5250 | -4.04 | 1.34 | 39.47 |
| 5300 | -4.14 | 1.08 | 38.51 |
| 5350 | -3.73 | 1.23 | 42.35 |
| 5400 | -3.31 | 1.77 | 46.65 |
| 5450 | -3.23 | 1.87 | 47.59 |
| 5500 | -3.48 | 1.36 | 44.83 |
| 5550 | -3.51 | 0.66 | 44.54 |
| 5600 | -3.2 | 0.29 | 47.87 |
| 5650 | -2.9 | 0.35 | 51.3 |
| 5700 | -3.2 | 0.03 | 47.83 |
| 5750 | -3.64 | -0.32 | 43.28 |
| 5800 | -3.93 | 0.19 | 40.45 |
| 5850 | -3.86 | 0.61 | 41.07 |
| 5900 | -3.47 | 1.22 | 45.01 |
| 5950 | -3.43 | 1.46 | 45.42 |
| 6000 | -3.82 | 1.56 | 41.49 |

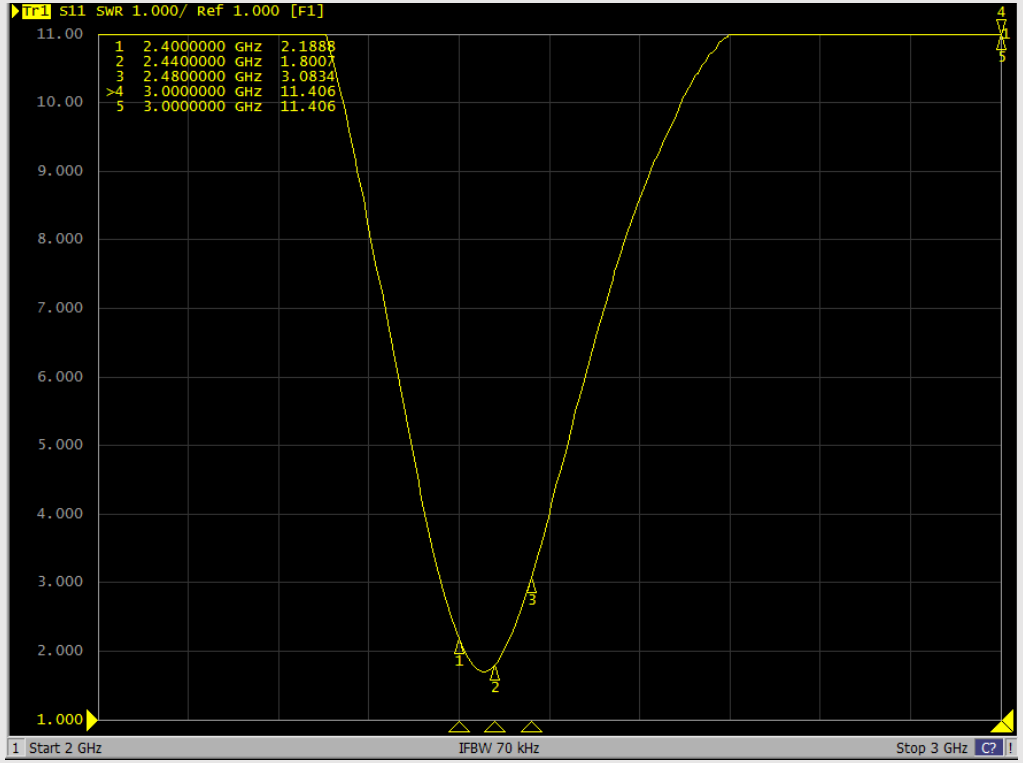
| #1-WF1 | | | |
|---|---|---|---|
| Freq | Efficiency_dB | Gain | Efficiency_Pcent |
| 2400 | -2.56 | 3.65 | 55.42 |
| 2410 | -2.49 | 3.88 | 56.35 |
| 2420 | -2.47 | 3.95 | 56.66 |
| 2430 | -2.5 | 4.01 | 56.24 |
| 2440 | -2.58 | 4 | 55.21 |
| 2450 | -2.68 | 4.02 | 53.9 |
| 2460 | -2.78 | 3.99 | 52.71 |
| 2470 | -2.88 | 3.96 | 51.58 |
| 2480 | -3.05 | 3.9 | 49.51 |
| 2490 | -3.28 | 3.76 | 47.02 |
| 2500 | -3.48 | 3.67 | 44.91 |
| 5150 | -3.28 | 2.19 | 47.02 |
| 5200 | -3.08 | 2.41 | 49.16 |
| 5250 | -3.04 | 2.48 | 49.65 |
| 5300 | -3.38 | 1.79 | 45.91 |
| 5350 | -3.11 | 1.91 | 48.9 |
| 5400 | -2.97 | 2.27 | 50.52 |
| 5450 | -3.13 | 1.83 | 48.62 |
| 5500 | -3.7 | 0.86 | 42.67 |
| 5550 | -3.87 | 0.35 | 41.06 |
| 5600 | -3.43 | 0.6 | 45.37 |
| 5650 | -3.21 | 0.61 | 47.79 |
| 5700 | -3.6 | 0.15 | 43.69 |
| 5750 | -4.03 | 0.46 | 39.51 |
| 5800 | -4.1 | 0.83 | 38.86 |
| 5850 | -3.76 | 0.91 | 42.11 |
| 5900 | -3.44 | 1.31 | 45.24 |
| 5950 | -3.47 | 1.48 | 44.97 |
| 6000 | -3.89 | 1.3 | 40.84 |

# #1-BT-Antenna standing wave diagram

## Log Mag- Smith & SWR

BT-2.4G

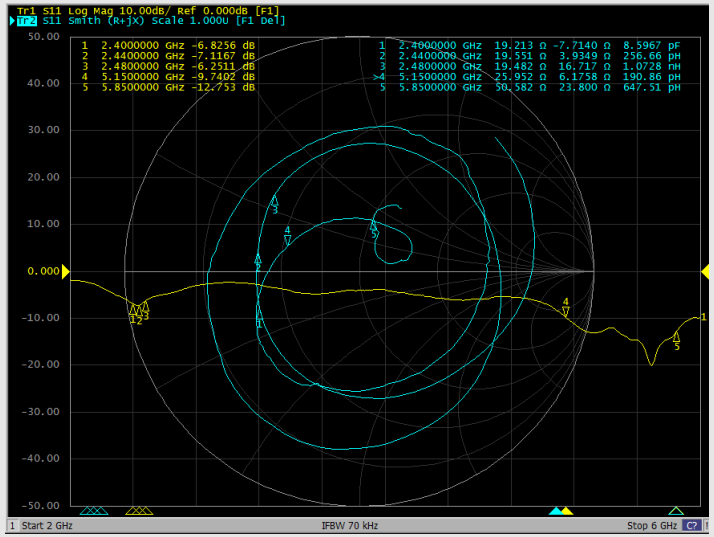


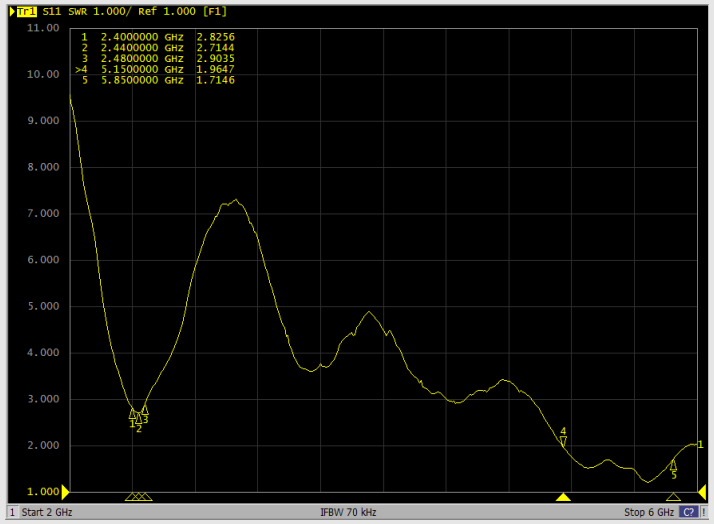



# #1-WIFI-Antenna standing wave diagram

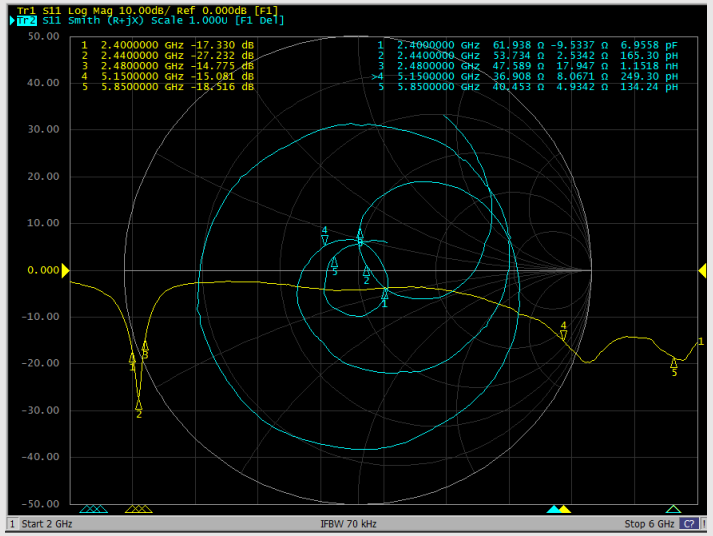
## Log Mag- Smith & SWR

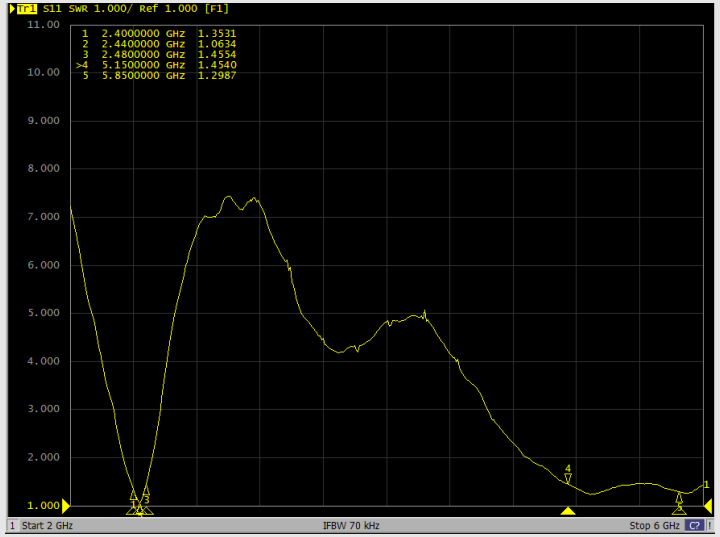
WIFI 0-2.4G-5G



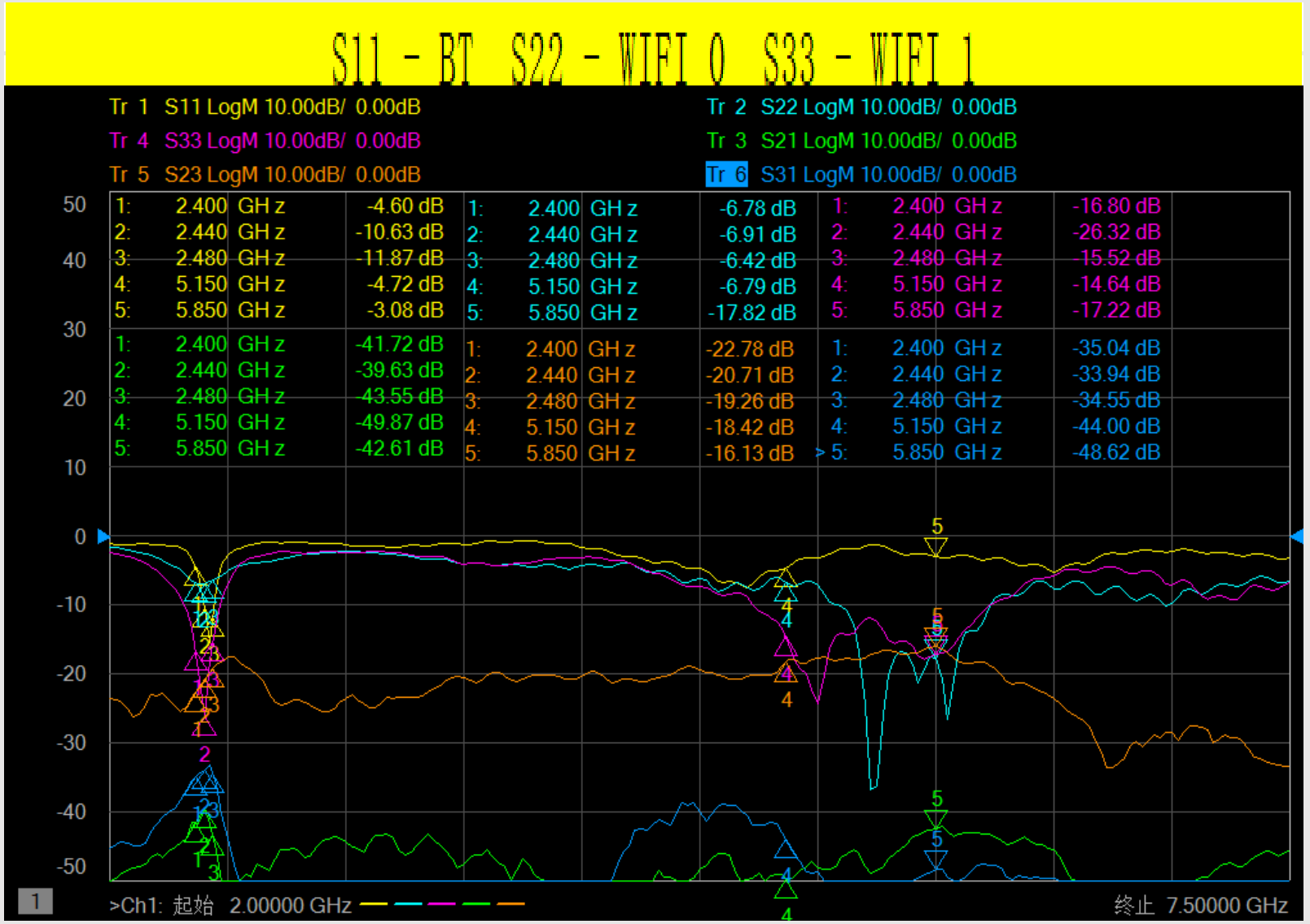




WIFI 1-2.4G-5G



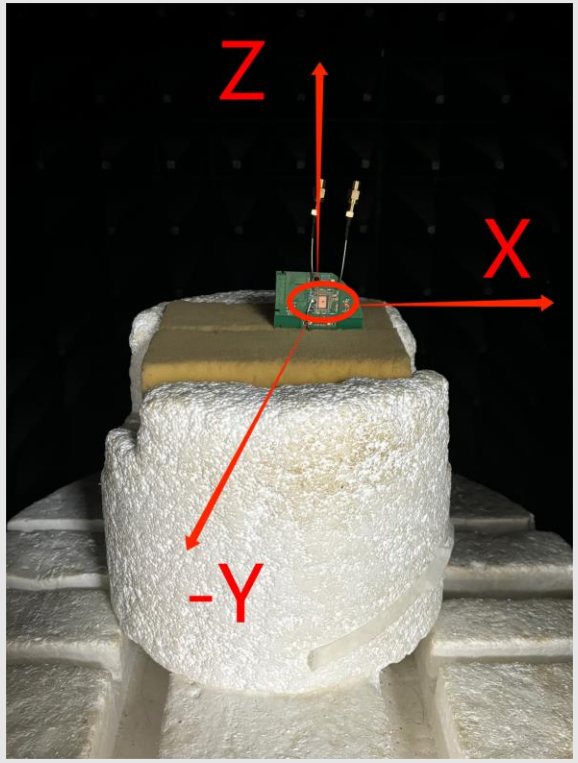



# #1-antenna isolation

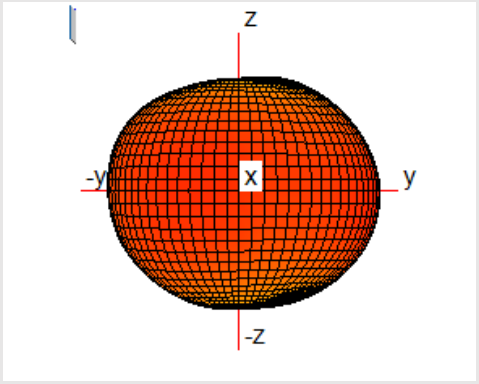


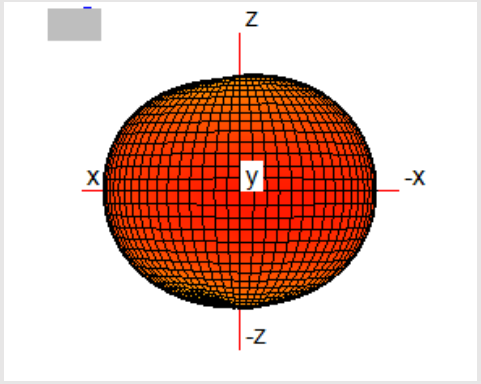
# #1-3D image of antenna

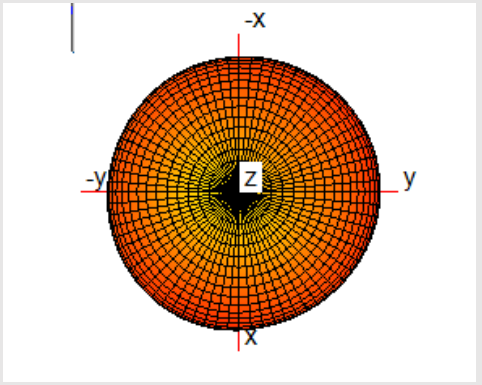
## BT




## 2450MHZ

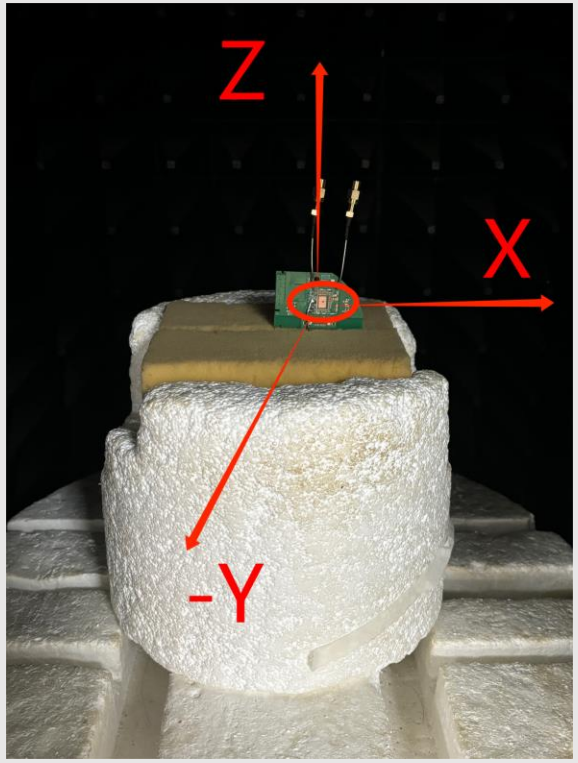


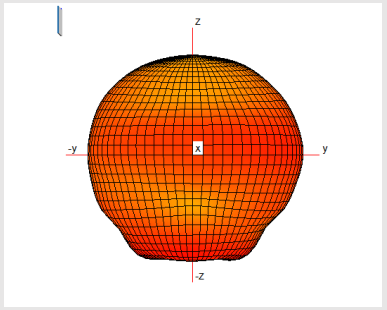
# #1-3D image of antenna

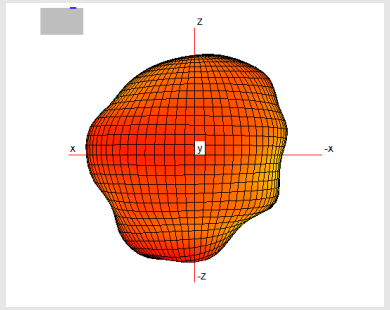
## WIFI 0-2.4G-5G

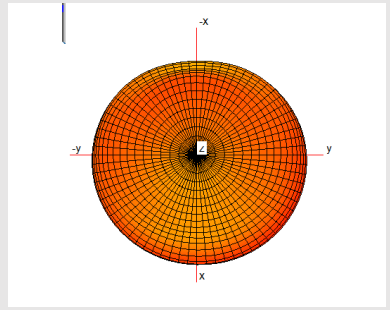



Z轴为天线正上方

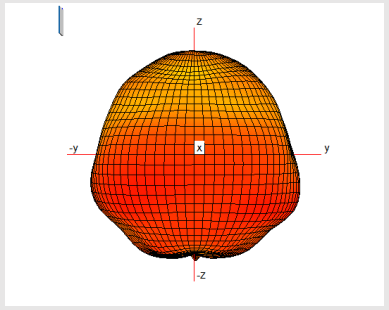
### 2450MHZ

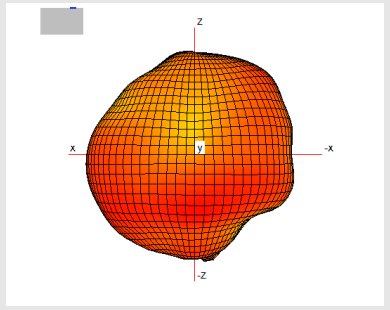


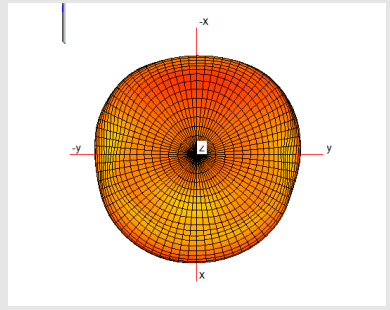




### 5500MHZ

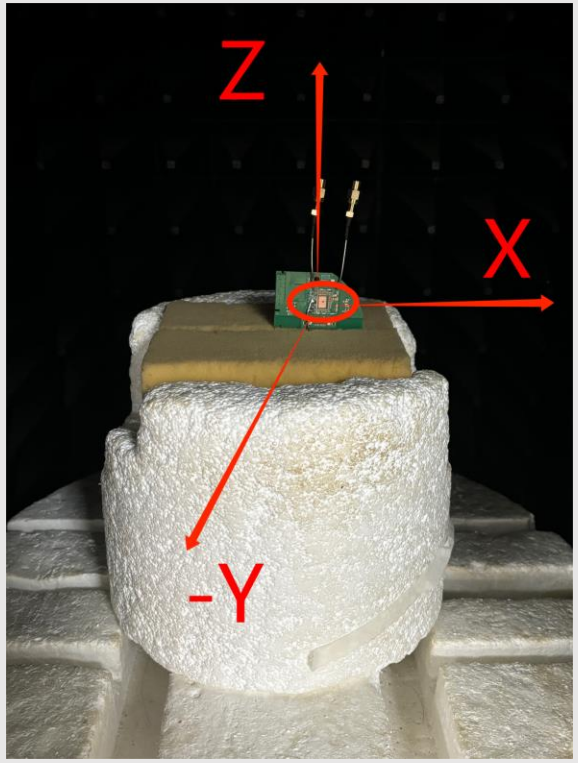


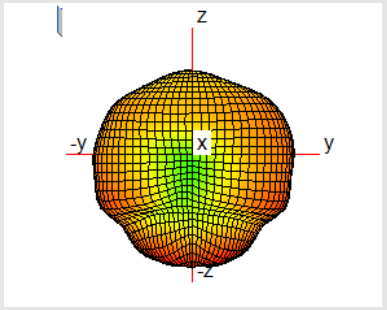



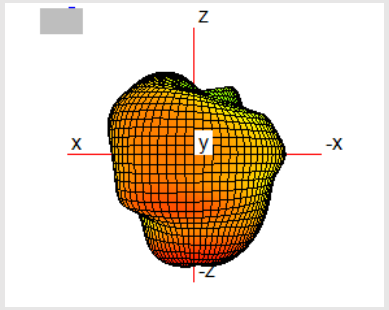
# #1-天线3D图

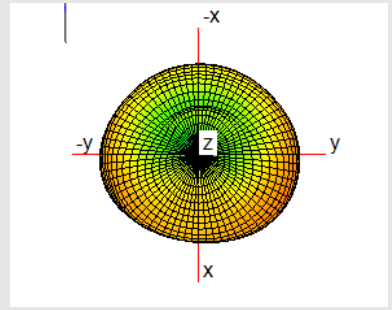
## WIFI 1-2.4G-5G 3D辐射图



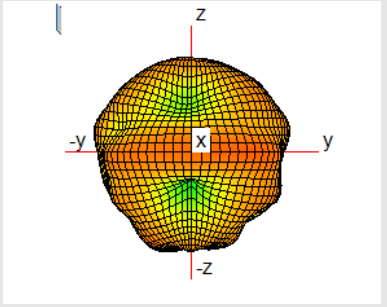

### 2450MHZ

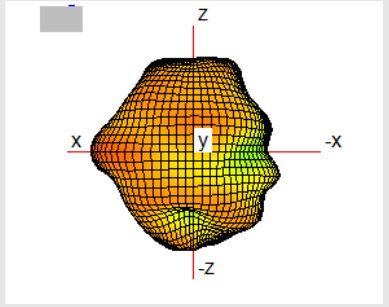


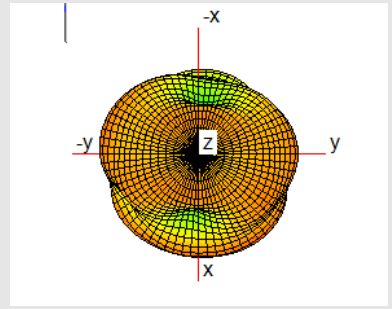




### 5500MHZ



# Thank You!