

Mobile communication terminal antenna

Product design and manufacturing specifications

◆ Customer:

◆ Project: XYD-APM-6125

◆ Name: WIFI Antenna, GPS Antenna

Shrapnel ☐ PCB ☒ support ☐ Ceramic ☒ coaxial ☐

◆ Part no:

◆ Designer:

◆ Check:

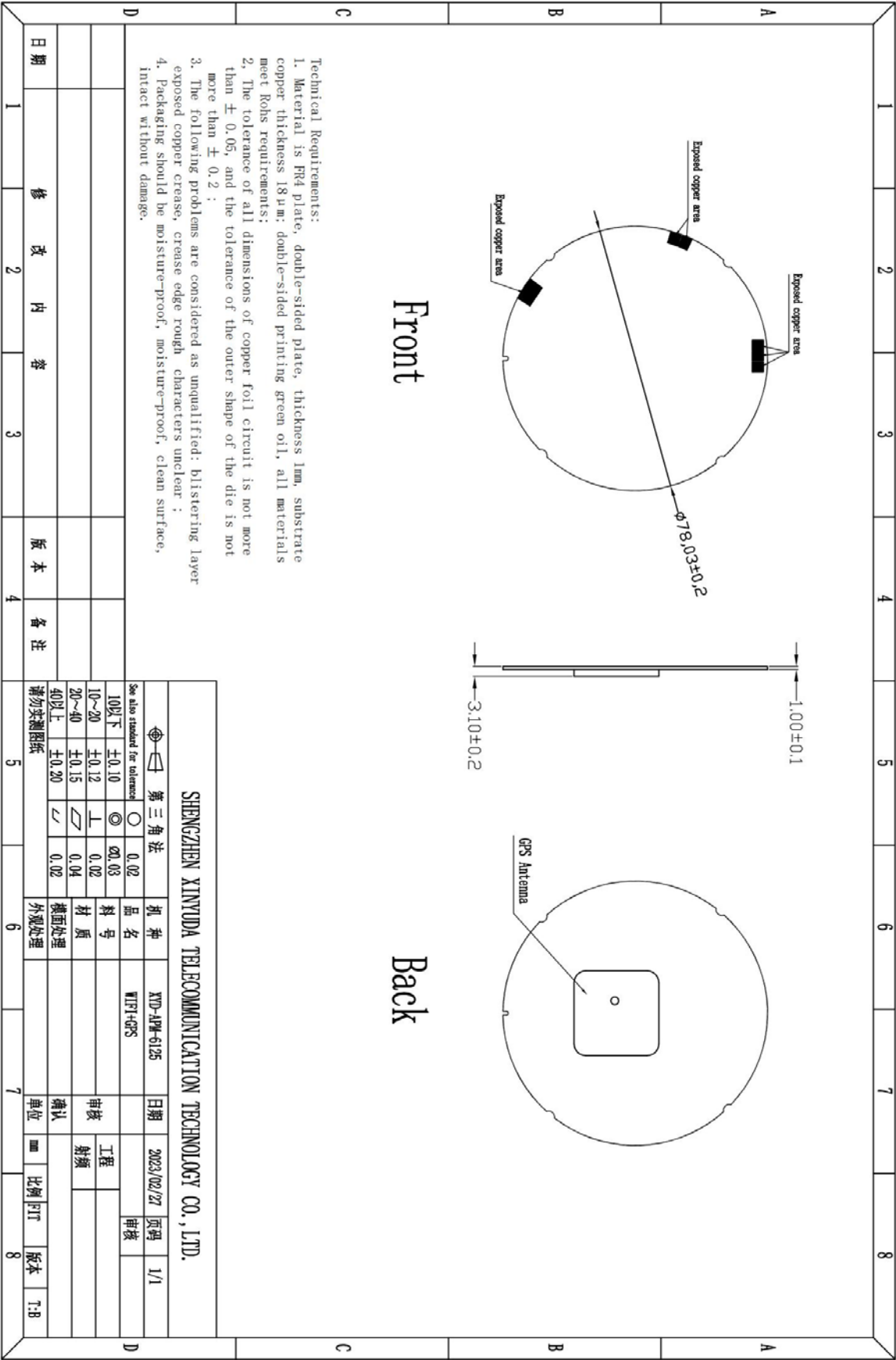
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1. Antenna finished product

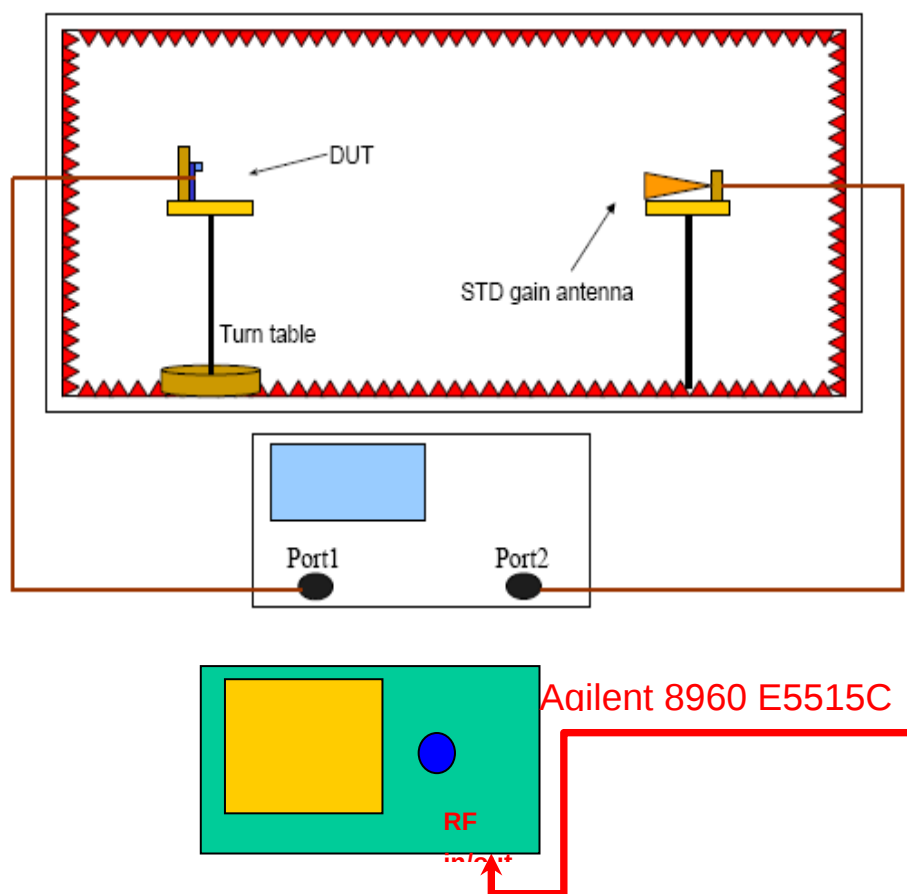


2. Technical indicators

A. Electrical properties	
Operating frequency range	2400 ~ 2500 MHz 5000 ~ 5850 MHz 1575.42 MHz
Standing wave ratio	2400 ~ 2500 MHz: < 2.0 5000 ~ 5850 MHz: < 3.0 1575.42 MHz: < 2.0
Antenna gain	2400 ~ 2500 MHz: 2.6 dBi ± 0.5dBi 5000 ~ 5850 MHz: 2.8 dBi ± 0.5dBi 1575.42 MHz: 2.7 dBi ± 0.5dBi
Radiation efficiency	2400 ~ 2500 MHz: > 40 % 5000 ~ 5850 MHz: >35 % 1575.42 MHz: > 67 %
Input resistance	50 ohm
B. Material	
PCB+Ceramic	
C. Environment	
Operating temperature	- 30°C ~ + 85 °C
Stored temperature	- 30°C ~ + 85 °C

3.Dynamic test data

Test equipment: Agilent 8960 E5515B+ Chamber



4. WIFI antenna test data



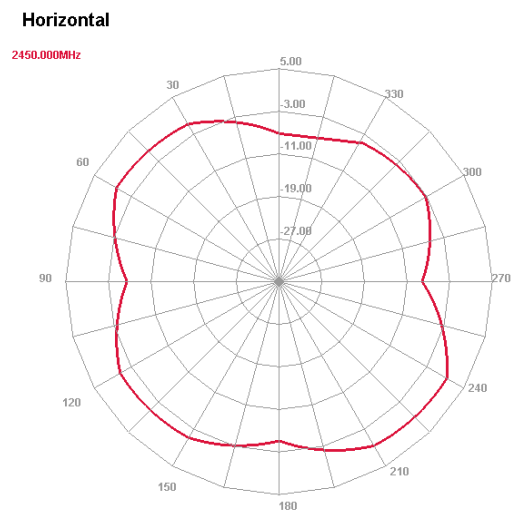
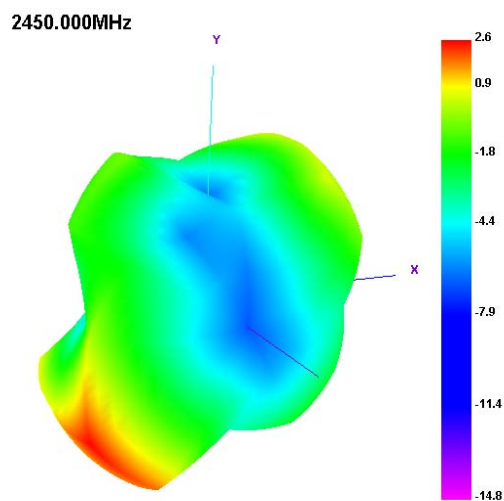
(WIFI antenna size icon)

WIFI antenna efficiency/gain

2.4G		
Freq (MHz)	Effi (%)	Gain (dBi)
2400	42.55	1.89
2410	36.76	1.48
2420	42.62	1.96
2430	43.21	2.12
2440	45.98	2.45
2450	49.06	2.61
2460	45.25	2.28
2470	43.73	2.15
2480	49.09	2.42
2490	47.52	2.31
2500	49.01	2.55

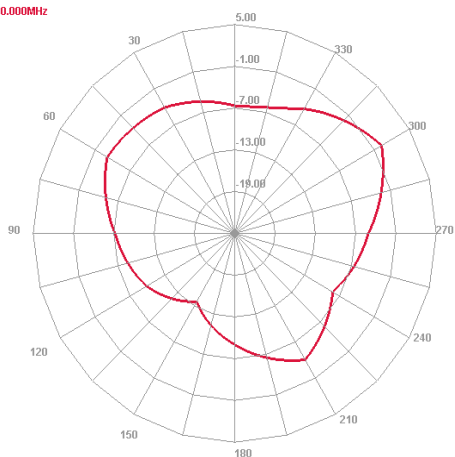
5.8G		
Freq (MHz)	Effi (%)	Gain (dBi)
5000	37.5	0.56
5100	36.13	0.29
5200	33.76	-0.34
5300	31.07	-1.41
5400	30.51	-2.23
5500	35.43	1.1
5600	40.32	1.63
5700	44.16	2.8
5800	38.18	0.57

WIFI antenna 3D pattern



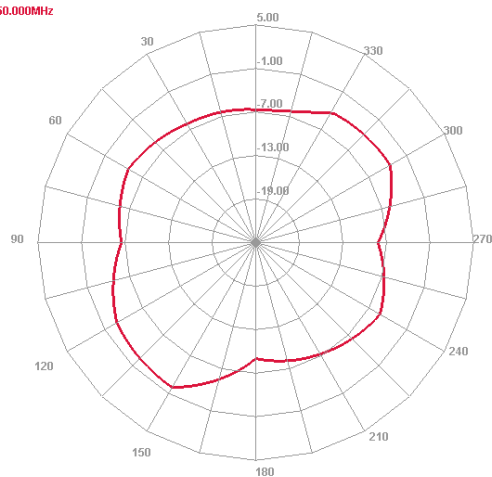
E1 Face

2450.000MHz

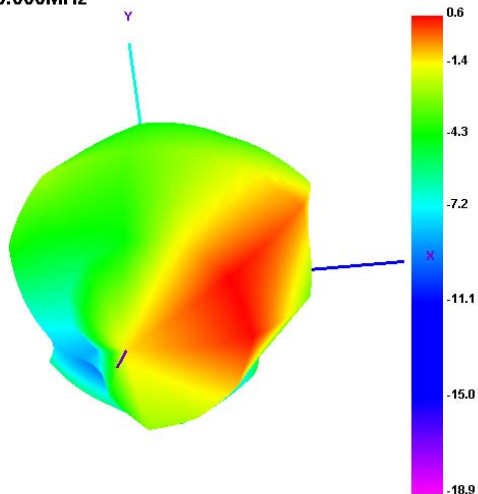


E2 Face

2450.000MHz

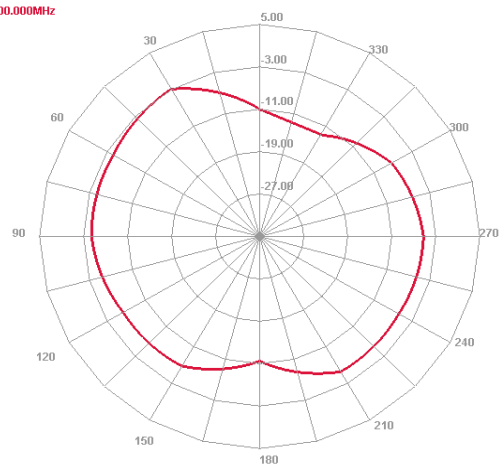


5800.000MHz



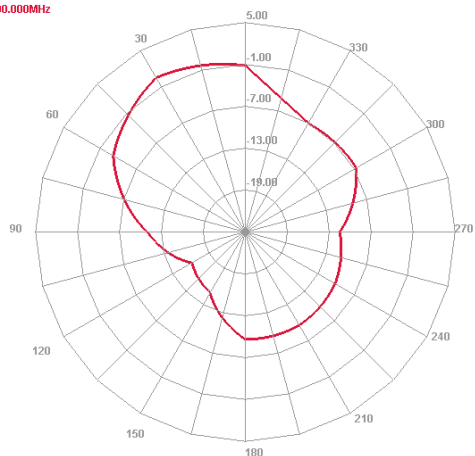
Horizontal

5800.000MHz



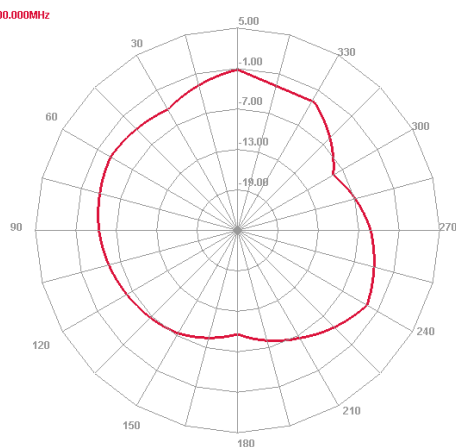
E1 Face

5800.000MHz



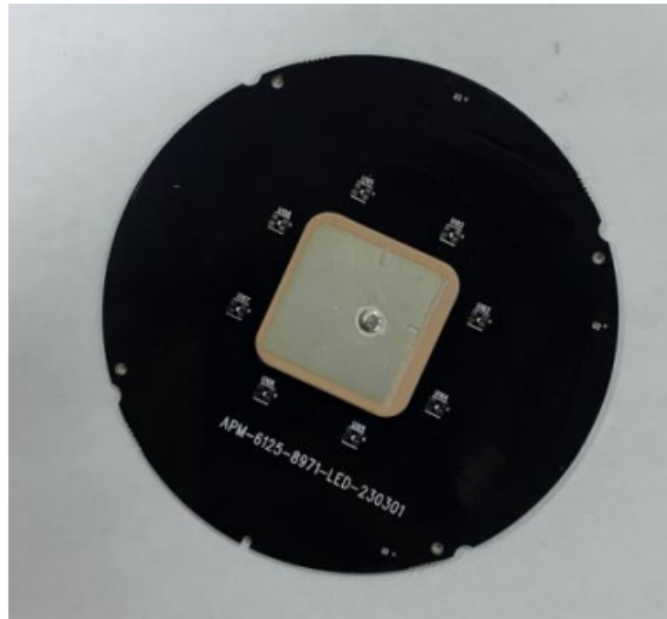
E2 Face

5800.000MHz



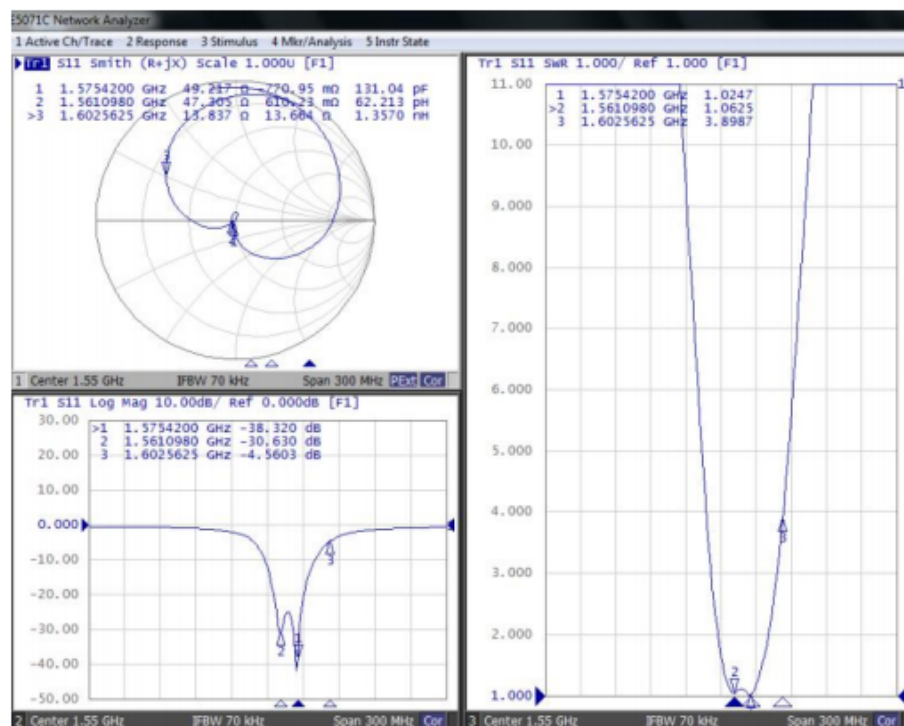
5. GPS antenna test data

Proof-type plant / antenna structure

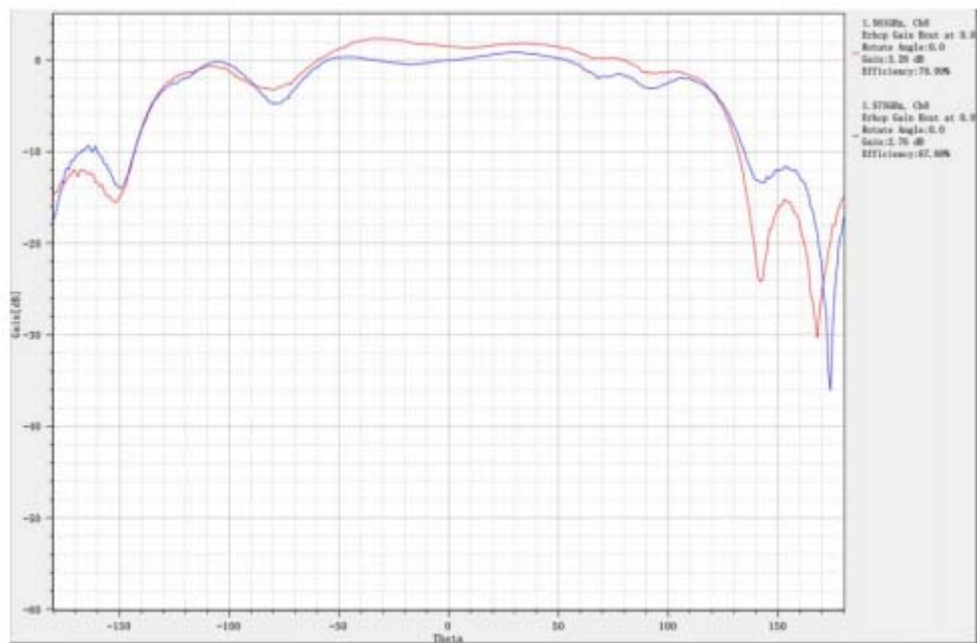


Sample pictures

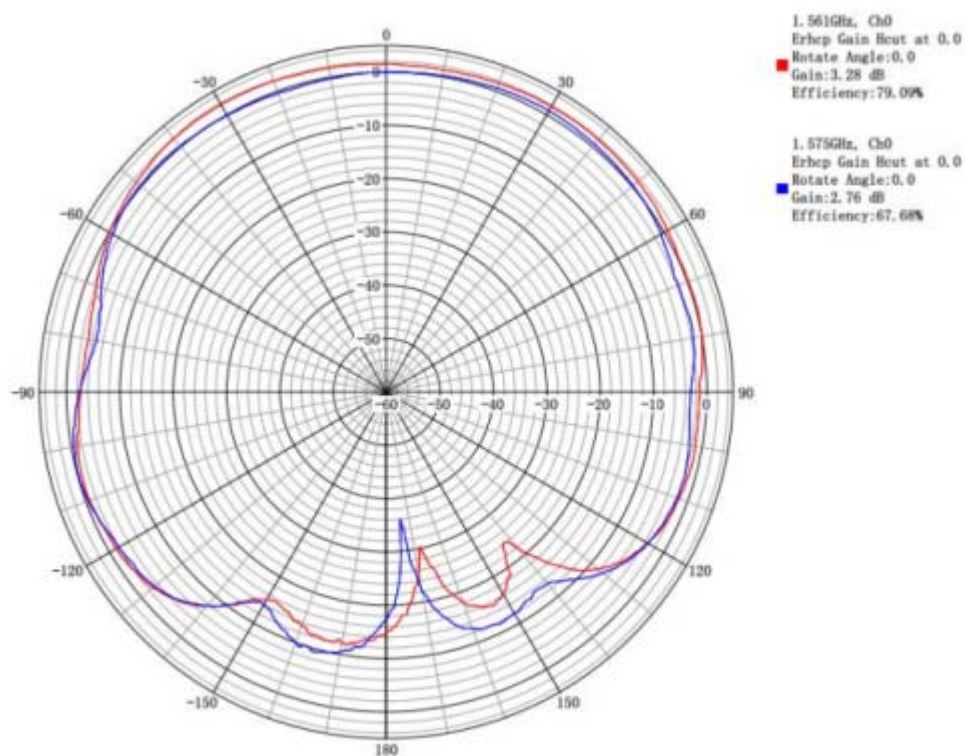
Passive commissioning test results



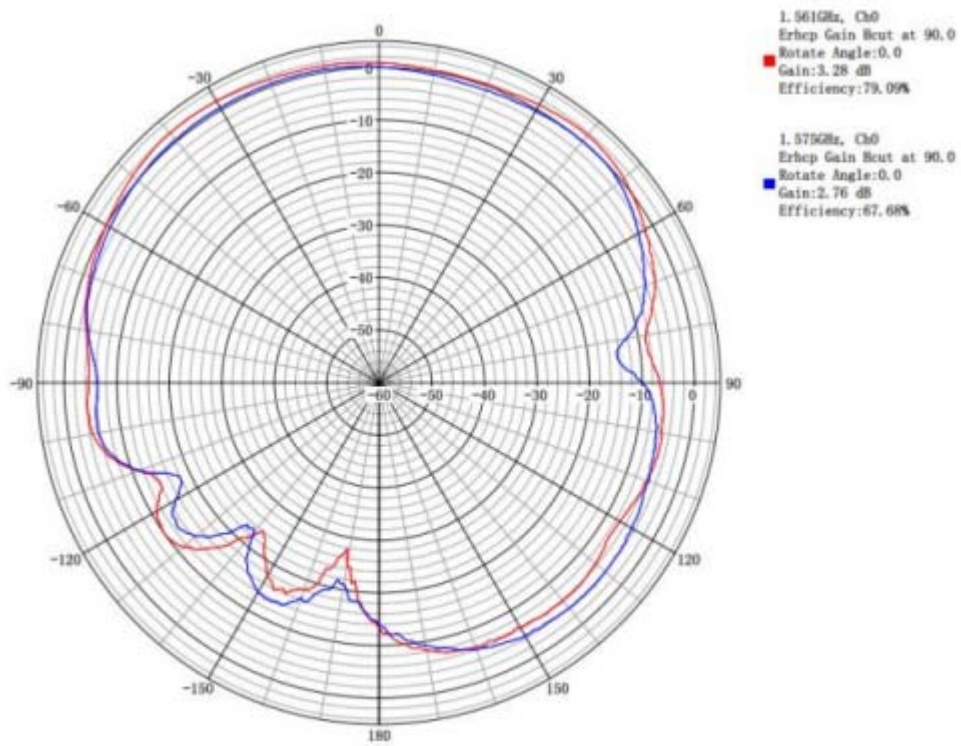
Ceramic antennas S mi th, SWR, and Log Mag



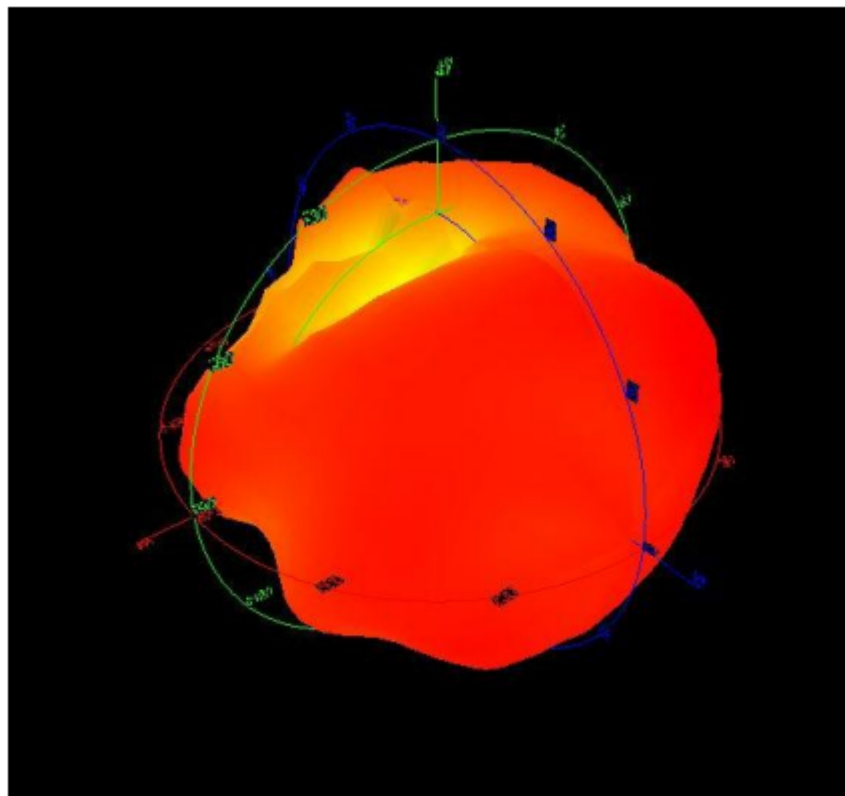
Ceramic antenna gain and efficiency



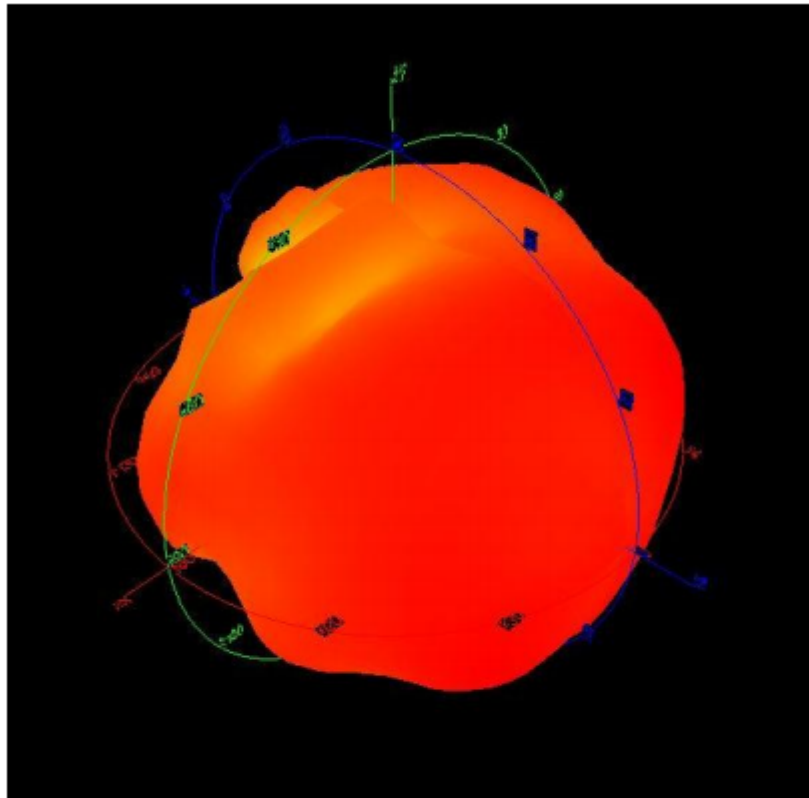
The H-plane direction diagram of the ceramic antennaFig.



Direction diagram of the E surface of the ceramic antenna



Ceramic antenna 1575-3D drawing



Ceramic antenna 1561-3D drawing

Conclusion and analysis

25 * 25 * 2 Media antenna is installed in the prototype and placed on the network analyzer to see the parameters shown in Figure 4, where the standing wave ratio of the medium antenna at 1575.42MHz is 1.02 and the impedance is 49.2 Ω ; at 1561.098MHz the standing wave ratio is 1.06 and the impedance is 47.3 Ω .

The antenna is placed on the prototype and tested in the microwave dark chamber. The test data are summarized in the following table:

Summary of data from the ceramic antenna darkchamber

project	gain /dB	productiveness /%
1575.42MHz	2.76	67.68
1561.098MHz	3.28	79.09

For the record:

This kind of antenna design, research and development intellectual property rights for our company, if found that the same product without our permission to supply to your company, we will pursue the corresponding legal responsibility, please respect the intellectual property rights, your support is our infinite power, thank you for your cooperation!