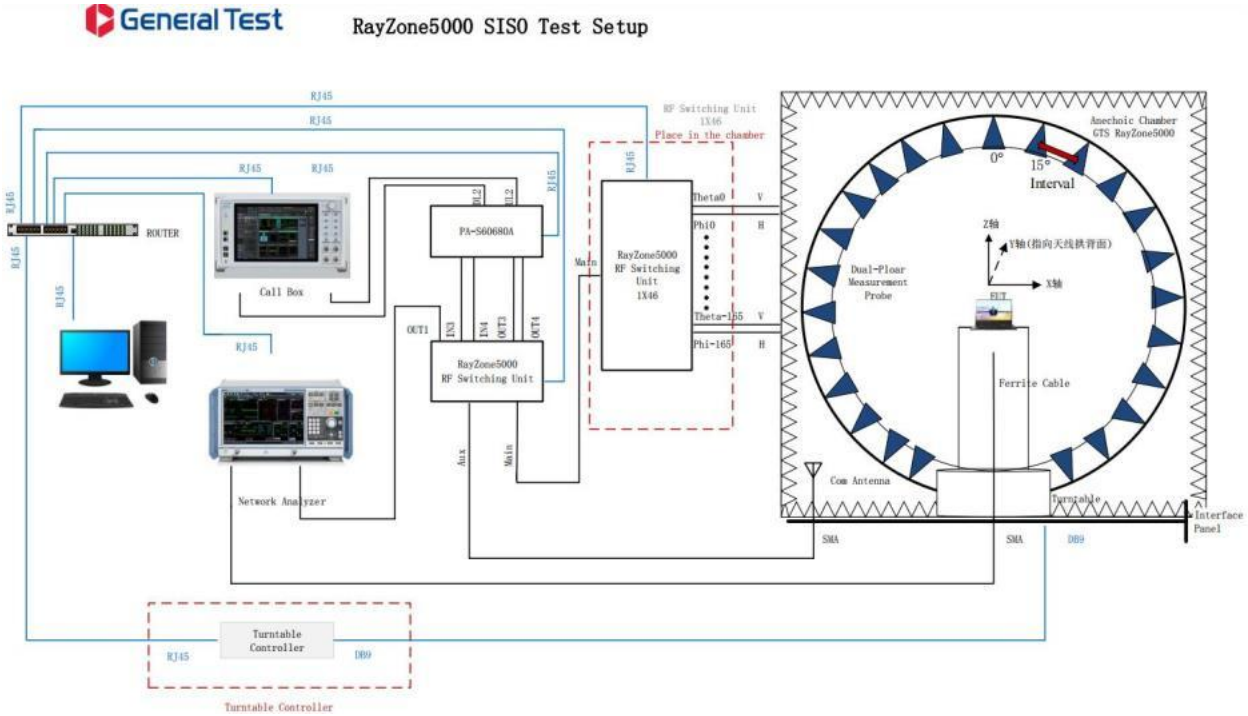
ShenZhen ShanWan Technology Co., Ltd

Antenna report

1、essential information

1.1 test philosophy



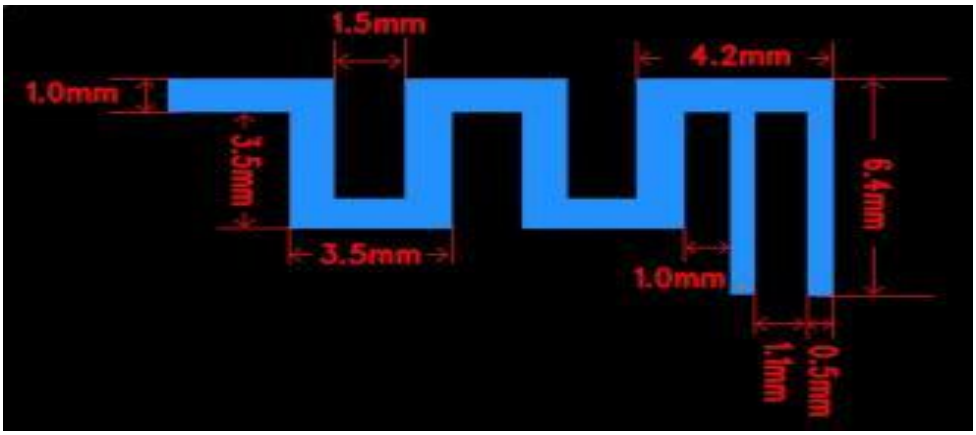
1.2 test equipment

name	model	equipment number	manufacturer	calibration date	next calibration date
OTAtest system	RayZone-5000	RFI-LAB-RF-D00	GTS	2021.3.22	2023.3.21
network analyzer	E5071C	RFI-LAB-RF-C02	KEYSIGHT	2022.5.13	2023.5.12
network analyzer	E5071C	RFI-LAB-RF-D01	KEYSIGHT	2022.5.13	2023.5.12

1.3 testing environment

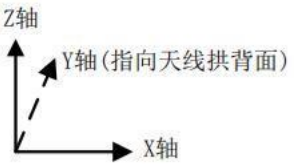
environment temperature	23.7℃
relative humidity	58%RH
atmospheric pressure	100.14kPa

2. Sample drawing



3 Sample layout diagram

front view



3. front view

3.1 detection principle

Object name	name of parameter	Method name	By standard number
Mobile communication antenna	antenna pattern	General technical specification for mobile communication antennas	GB/T 9410-2008
	antenna gain		
	voltage standing wave ratio		
	Roundness of the directional graph		
antenna	Gain and directivity	IEEE Standard Procedure for antenna testing	ANSI/IEEE Std 149-1979
	emission efficiency		
	impedance:		

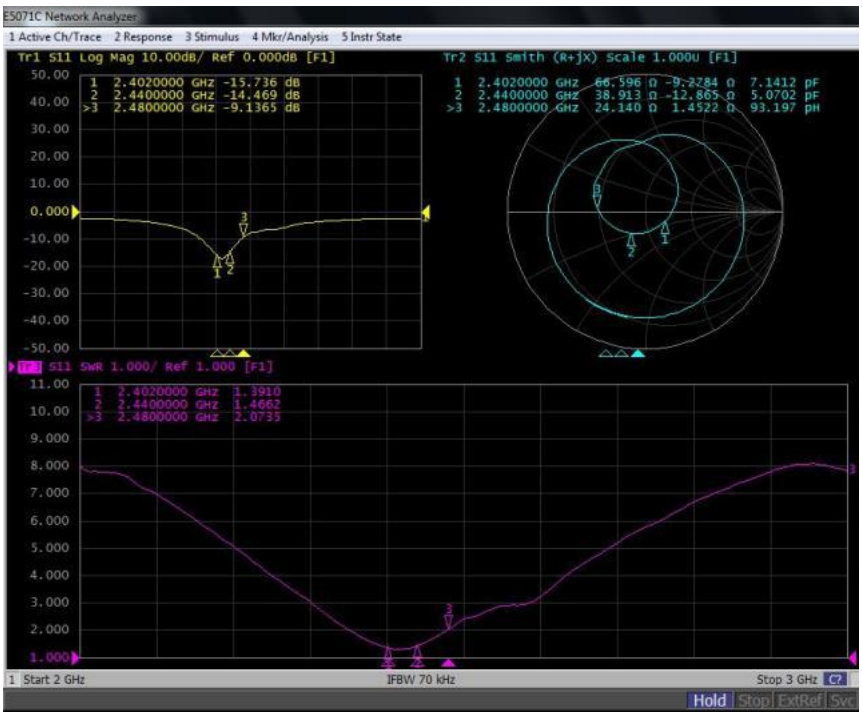
3.2Test uncertainty

the calculation of Uncertainty is based on the "Guide to the Expression of Uncertainty in Measurement" (GUM) published by ISO, which uses K=2 inclusion factor and 95% confidence level to represent extended uncertainty.

item	uncertainty
standing-wave ratio	±0.3
Gain, efficiency	±0.72dB

3.3test data

3.3.1Network analyzer test



3.3.2standing-wave ratio

frequency/MHz	2402	2440	2480
voltage standing wave ratio /MHz	1.3910	1.4662	2.0735

3.3Gain and efficiency

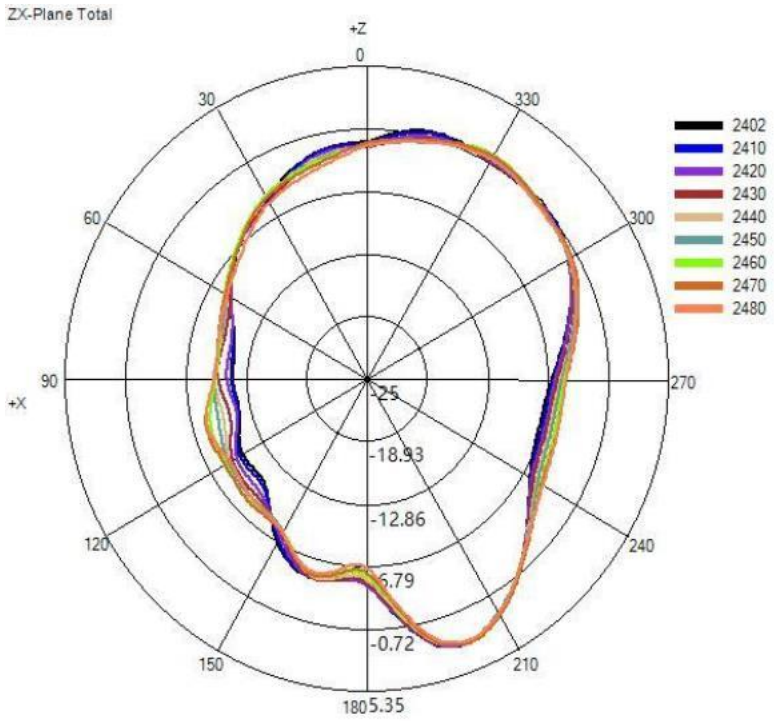
frequency/MHz /	2402	2410	2420	2430	2440	2450	2460	2470	2480
maximum gaindBi	2.85	2.88	2.79	2.77	2.69	2.52	2.46	2.41	2.03
efficiency/%	44.98	45.34	44.93	45.74	46.00	45.14	45.56	44.49	40.81

3.3.4Roundness of the directional graph

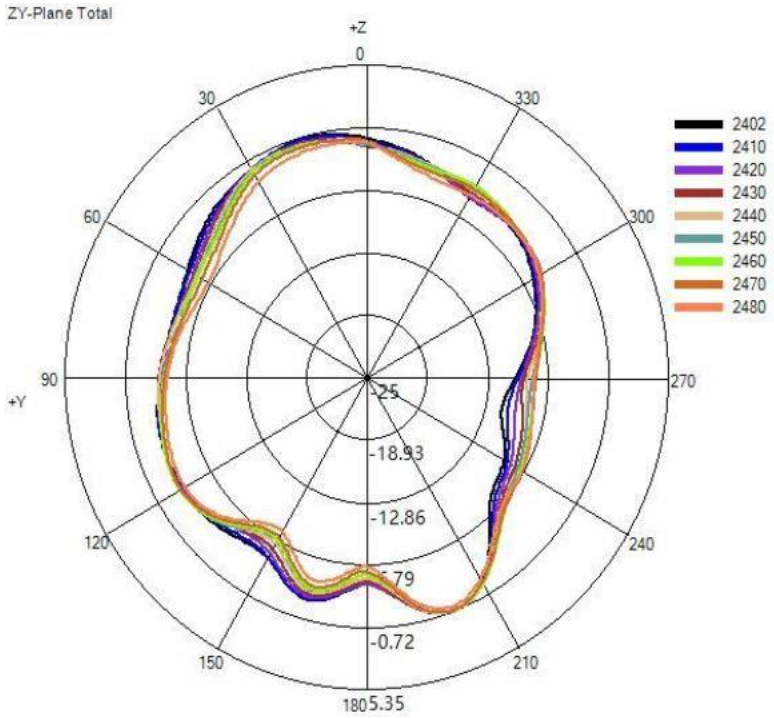
frequency/MHz	2402	2410	2420	2430	2440	2450	2460	2470	2480
H Theta=90/dB	14.22	14.43	14.31	13.68	13.38	13.30	13.18	13.31	13.58

3.3.5
directional diagram

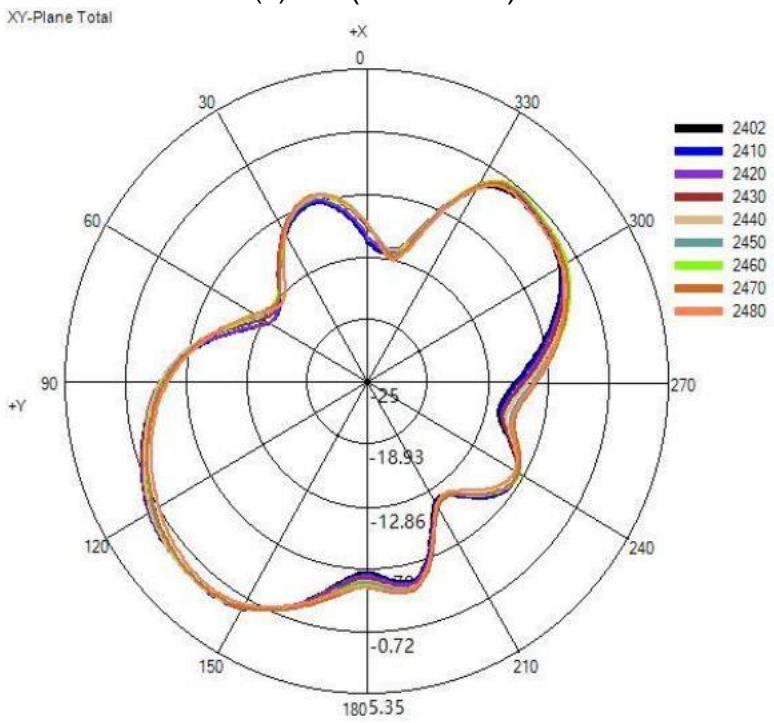
(1) X-Z(unit：dBi)：



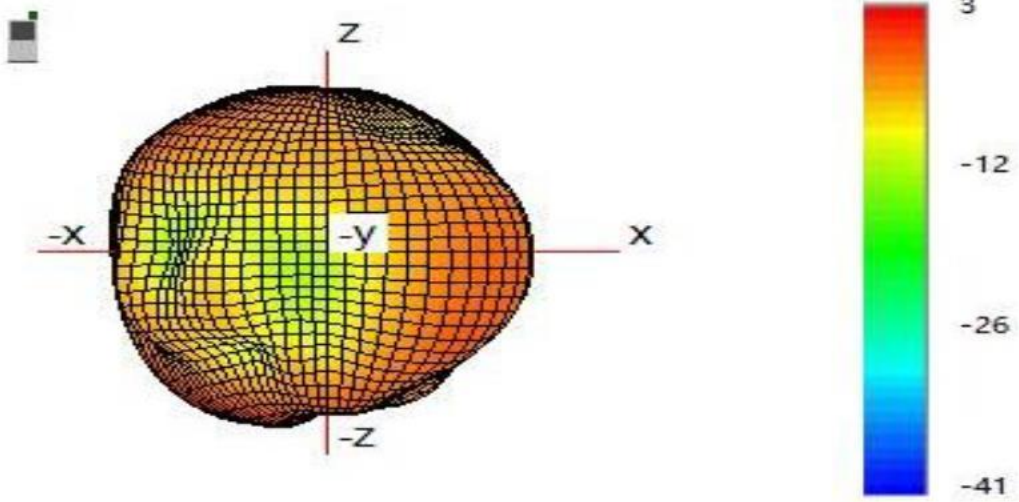
(2) Y-Z(unit：dBi)：



(3) X-Y(unit：dBi)：



(4) 2410MHz的 3D directional diagram（unit：dBi)：



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