

1.1 Test principle

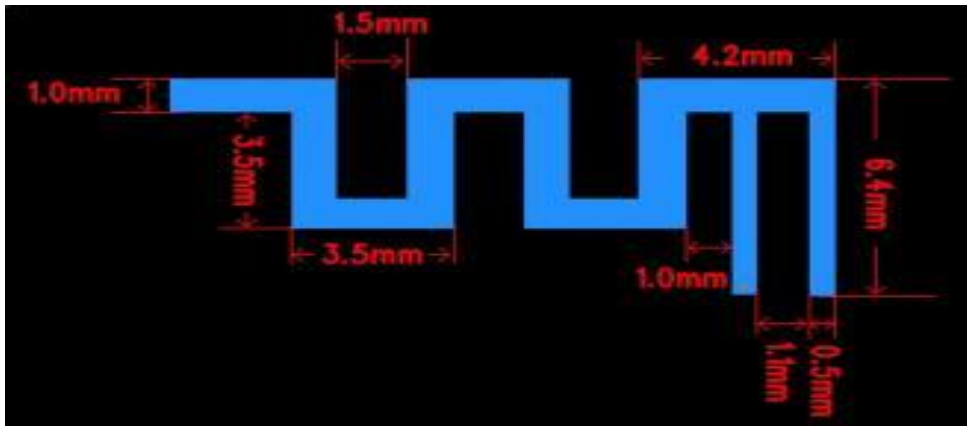
1.2 Test Equipment

Name	Type	Equipment No.	Manufacturer	Calibration date	Next calibration date
OTA test 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 Test Environment

Environment temperature	23.7℃
Relative humidity	58%RH
Atmospheric pressure	100.14kPa

2.Sample drawing



3.Test setup

front view



3.Test result

3.1 Test standard

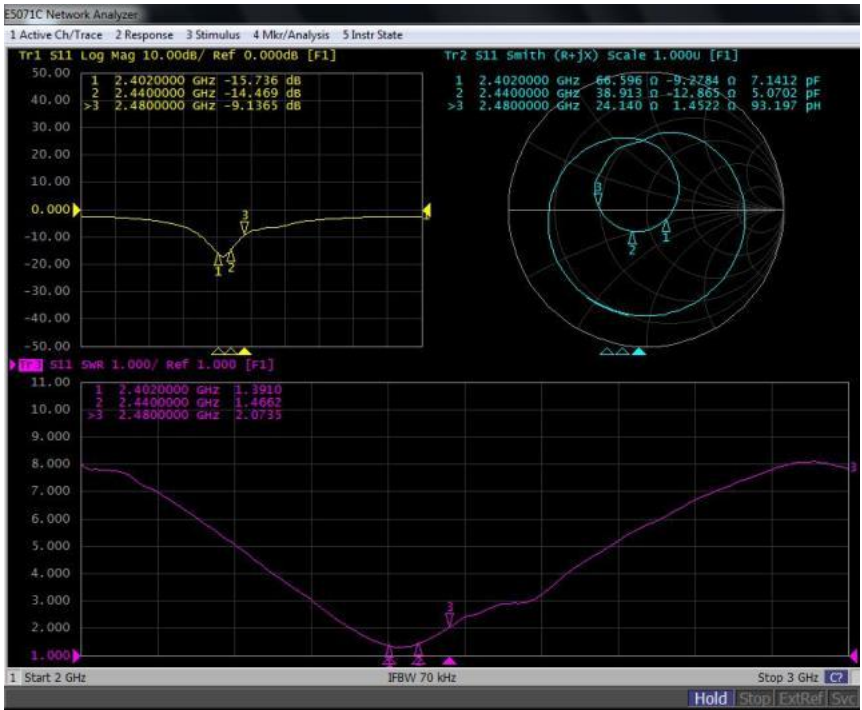
Object	Name of parameter	Method	Standard number
Mobile communication antenna	Directional pattern	General technical specification for mobile communication antennas	GB/T 9410-2008
	Antenna gain		
	Voltage (SVWR)		
	Roundness of the directional graph		
Antenna	Gain and directivity	IEEE Standard procedure for antenna testing	ANSI/IEEE Std 149-1979
	Radiant efficiency		
	Impedance		

3.2 Test uncertainty

Item	Uncertainty
SWR	± 0.3
Gain, efficiency	$\pm 0.72\text{dB}$

3.3 Test data

3.3.1 Network analyzer test



3.3.2 SWR

Frequency/MHz	2402	2440	2480
Voltage standing wave ratio	1.3910	1.4662	2.0735

3.3.3 Gain and efficiency

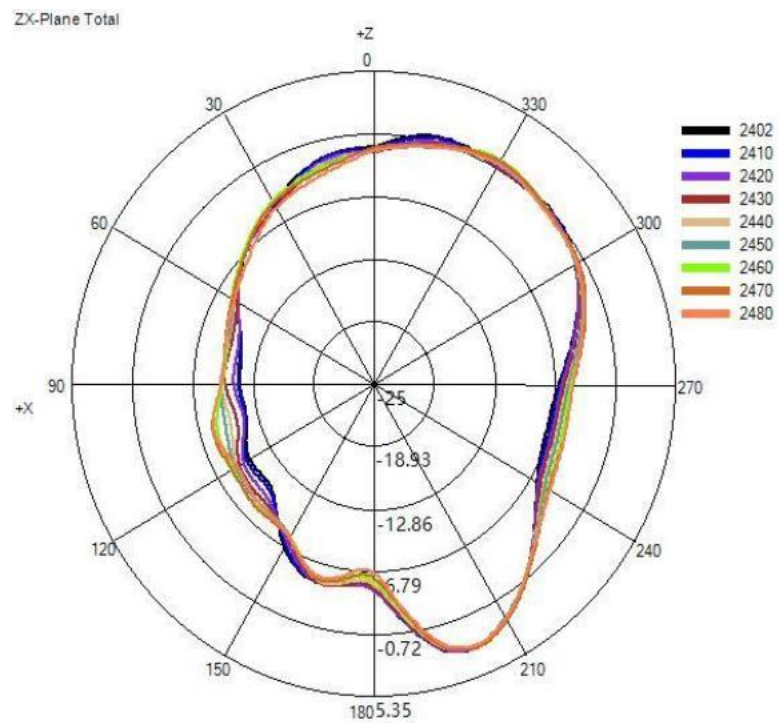
Frequency/MHz	2402	2410	2420	2430	2440	2450	2460	2470	2480
Gain(Peak)/dBi	2.85	2.88	2.79	2.77	2.69	2.52	2.46	2.41	2.03
Efficiency/%	44.98	45.34	44.93	45.74	46.00	45.14	45.56	44.49	40.81

3.3.4 Roundness of the directional graph

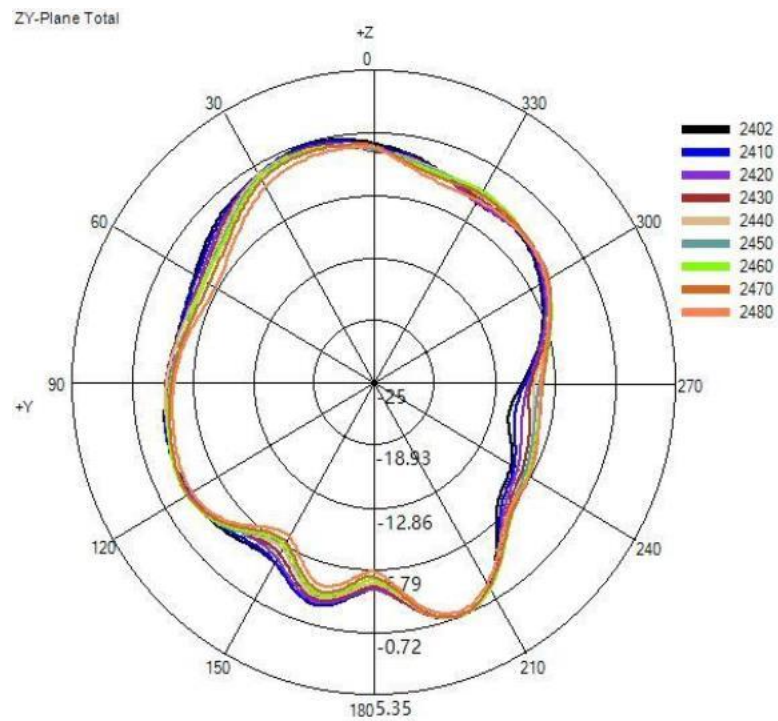
Frequency/MHz	2402	2410	2420	2430	2440	2450	2460	2470	2480
H Theta=90/dB	14.22	14.43	14.31	13.68	13.38	13.30	13.18	13.31	13.58

3.3.5 Directional diagram

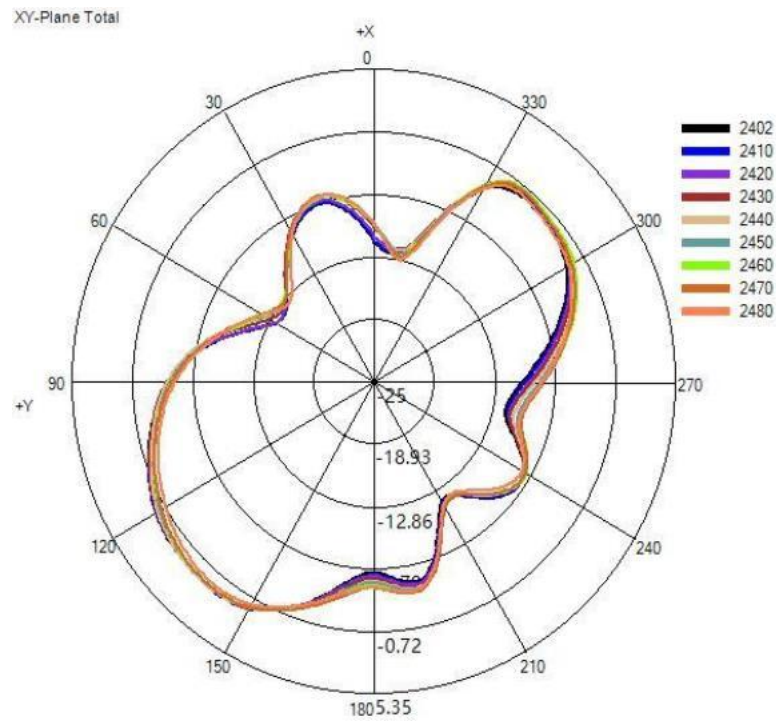
(1) X-Z(Unit: dBi):



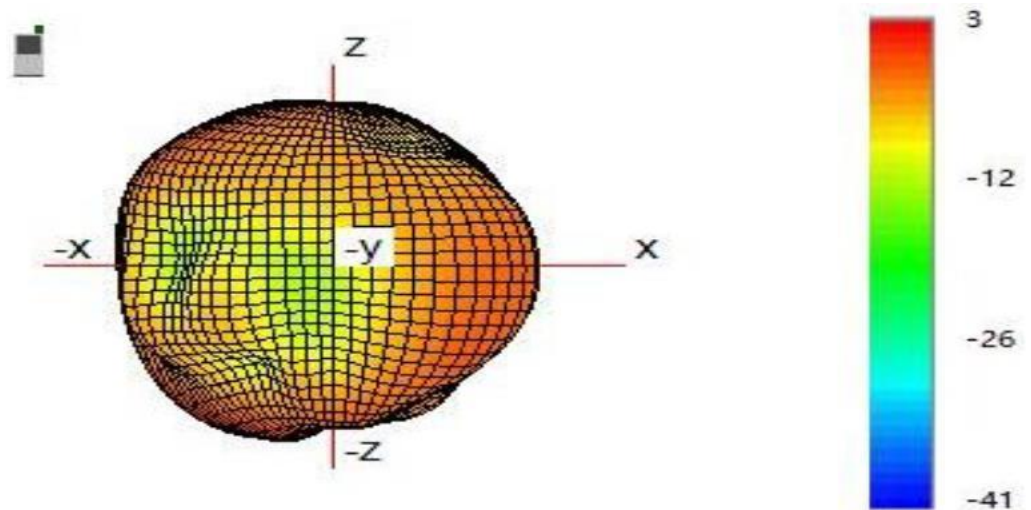
(2) Y-Z(Unit: dBi):



(3) X-Y(Unit: dBi):



(4) 2410MHz 3D directional diagram(Unit: dBi):



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