Shenzhen Yishengbang Technology Co., Ltd

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Antenna Test Report

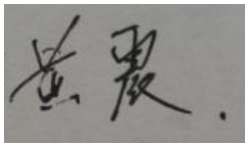
Customer: 迈迪杰

Project: NUCAL02

Product: WIFI Antenna

Report date: 2023.6.27

Prepared by : 范新竹



Checked by : Eason Huang

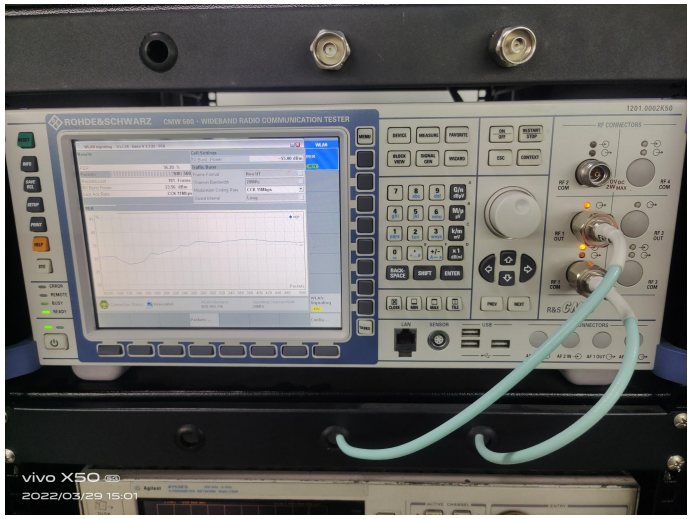
Approved by :

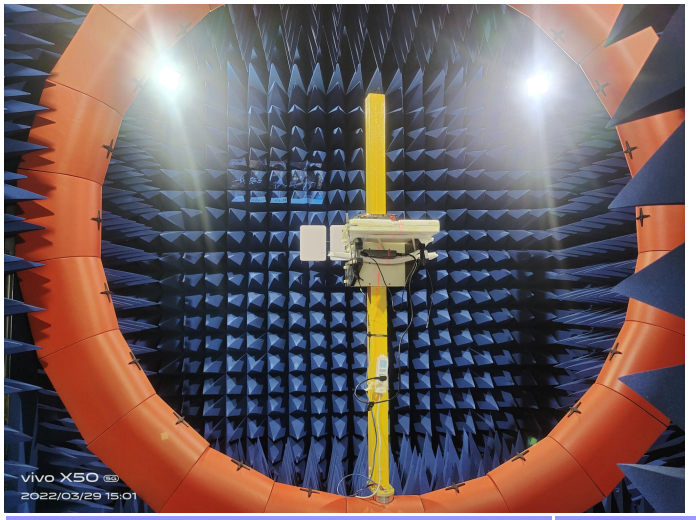
Purpose

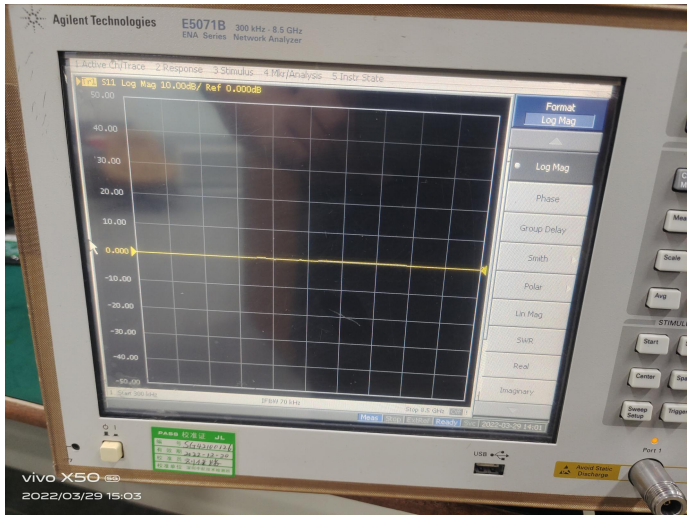
This report is to measure the performance of SLK for Master Antenna on 迈迪杰. All measure data are showed below.

Content

1. Test equipment

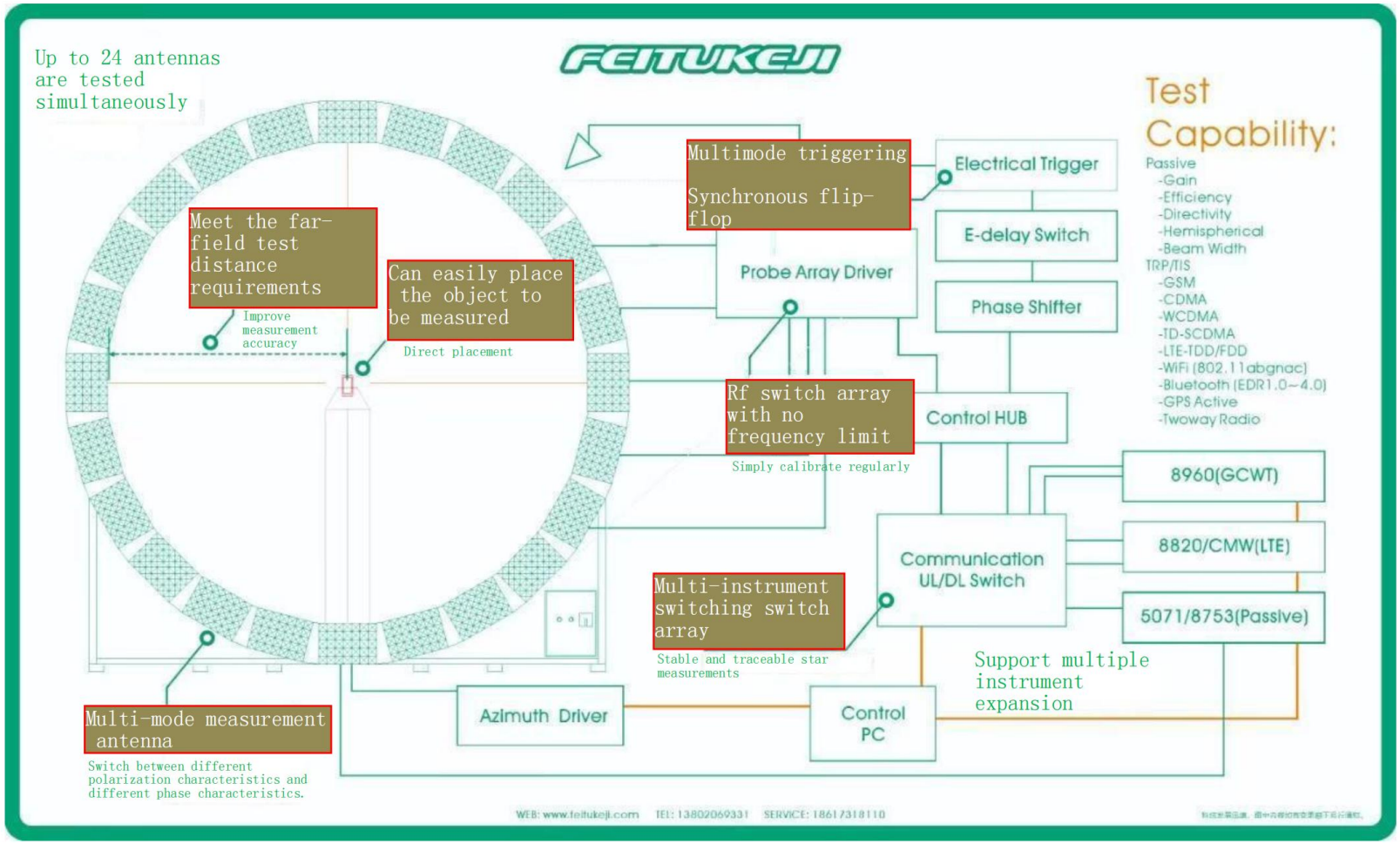






Test equipment	Test content
network analyzer：5071B	1.VSWR 2.Return loss 3.Smith
network analyzer：5071B chamber：4*4*4M24 probe anechoic chamber	1.Antenna efficiency 2.Antenna gain 3.3D field pattern of antenna
Comprehensive measuring instrument：CMW500 chamber：4*4*4M 24 probe anechoic chamber	1.TRP 2.TIS

2. Test setup


Up to 24 antennas are tested simultaneously
FEITUKEJI
Test Capability:
Passive
-Gain
-Efficiency
-Directivity
-Hemispherical
-Beam Width
TRP/TIS
-GSM
-CDMA
-WCDMA
-TD-SCDMA
-LTE-TDD/FDD
-WiFi (802.11abgnac)
-Bluetooth (EDR1.0~4.0)
-GPS Active
-Twoway Radio
Meet the far-field test distance requirements
Improve measurement accuracy
Can easily place the object to be measured
Direct placement
Multimode triggering
Synchronous flip-flop
Electrical Trigger
E-delay Switch
Probe Array Driver
Phase Shifter
Rf switch array with no frequency limit
Simply calibrate regularly
Control HUB
8960(GCWT)
8820/CMW(LTE)
5071/8753(Passive)
Communication UL/DL Switch
Multi-instrument switching switch array
Stable and traceable star measurements
Support multiple instrument expansion
Azimuth Driver
Control PC
Multi-mode measurement antenna
Switch between different polarization characteristics and different phase characteristics.
WEB: www.feitukeji.com TEL: 13802069331 SERVICE: 18617318110

3. Test site

Test site:Shenzhen Yishengbang Technology Co., Ltd

101, Building C, Qianwan Hard Technology Industrial Park, Xixiang Street, Bao'an District, Shenzhen City, Guangdong Province, China

24 probe anechoic chamber.

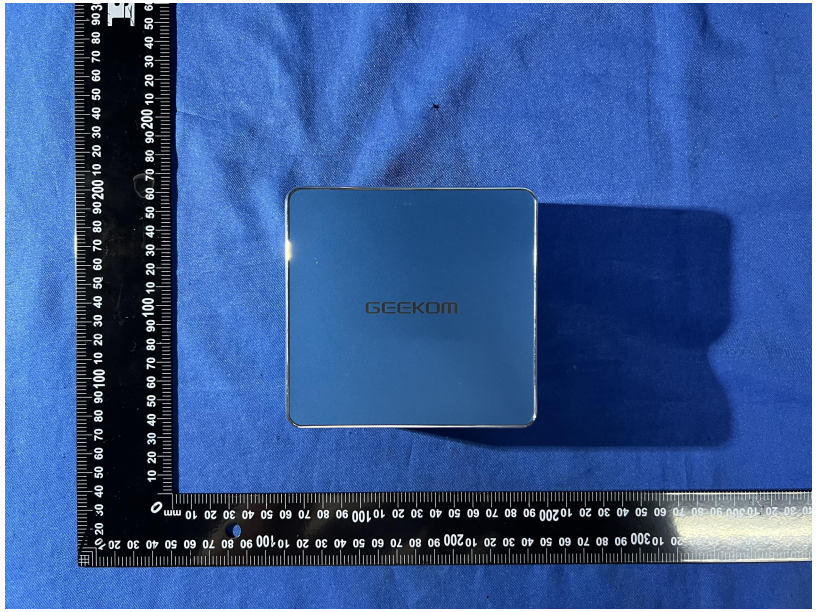
4. Test equipment list

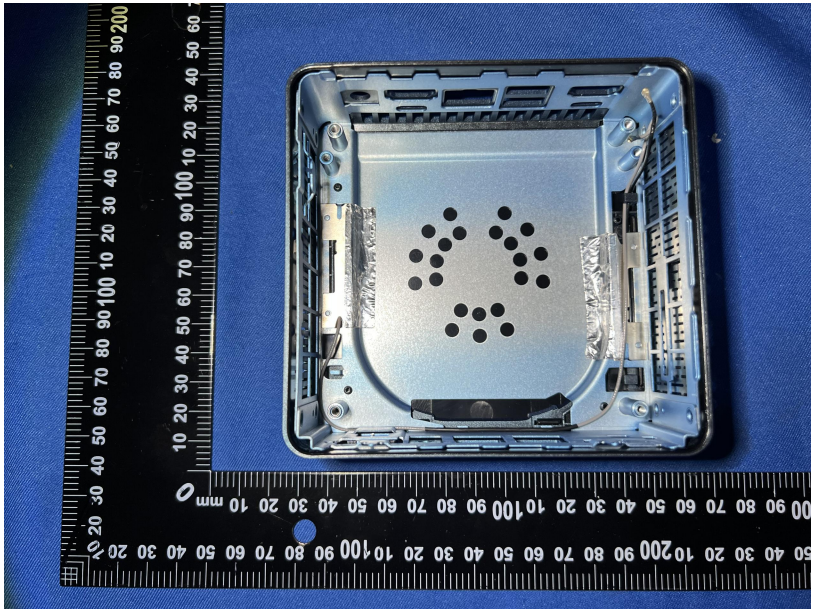
	Test equipment	Equipment model	Manufacturer	Calibration time	Remarks
1	network analyzer	agilent E5071B	Agilent	2022-11-9	
2	anechoic chamber	4*4*4M 24 probe anechoic chamber	FEITUKEJI	2022-11-9	
3	computer	Lenovo desktop computer	Lenovo	2022-11-9	

5. Measurement procedure

	Procedure	Remarks
1	Calibrate network analyzer	
2	Analyze the overall situation of the machine and select a suitable location for antenna debugging	
3	Optimize antenna standing wave ratio to ensure meeting customer needs	
4	Testing items such as passive efficiency and gain of antennas	
5	Provide antenna samples to customers based on debugging specifications	

6. Product Overview

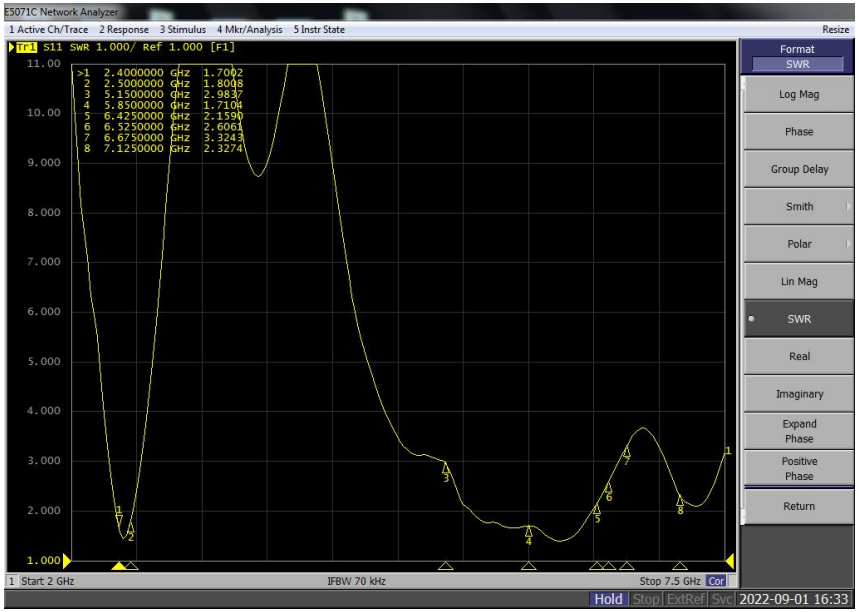


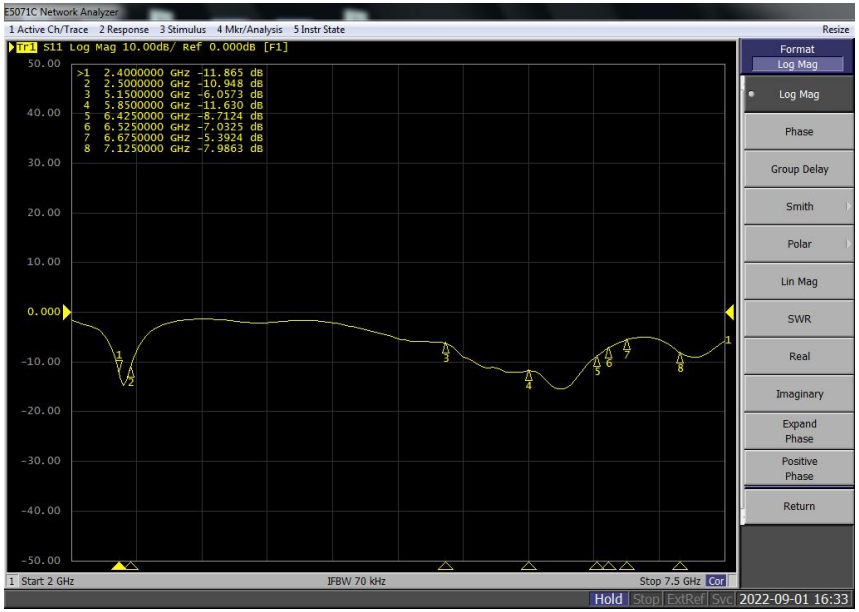


7. Test Result

7.1 VSWR/S11

MAIN



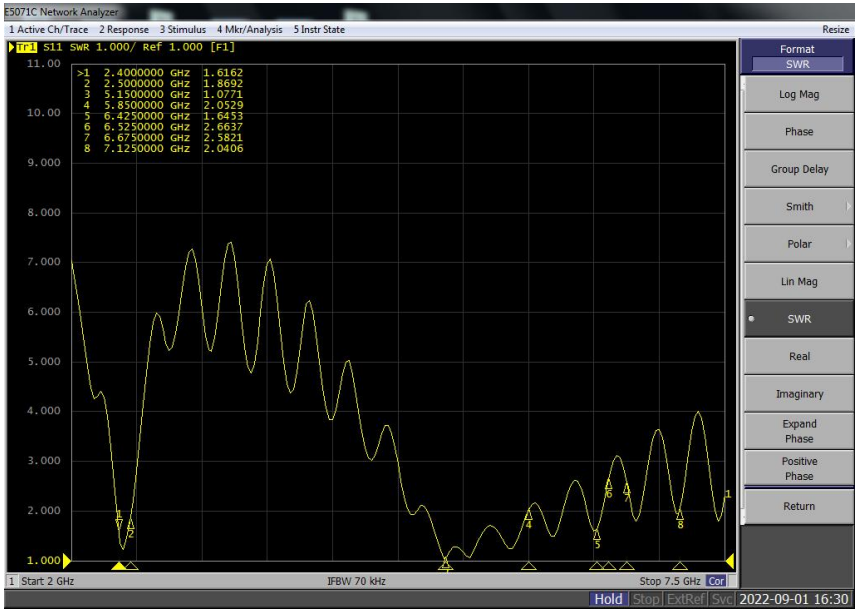


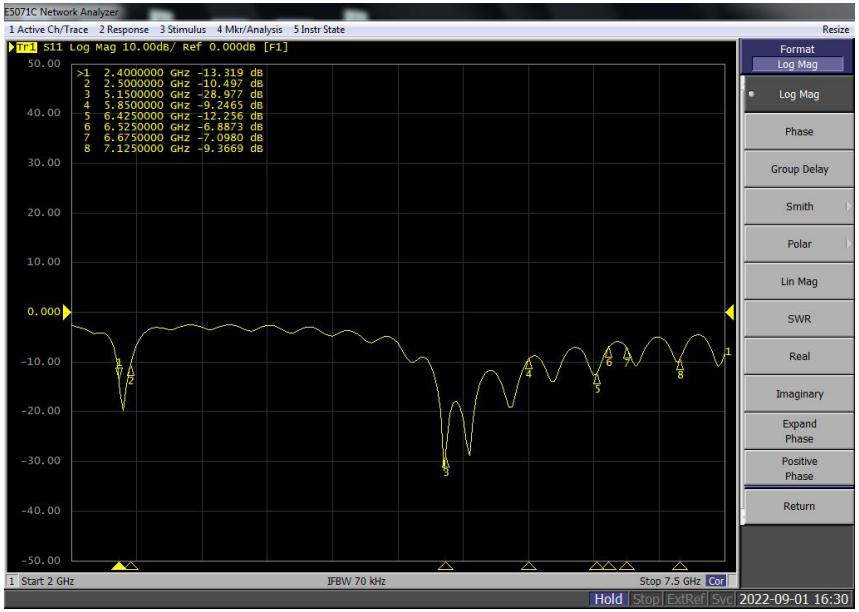
Note: Use the network analyzer E5071B to connect the connector on the antenna RF line to test the passive standing wave ratio and return loss of the antenna.

7. Test Result

7.1 VSWR/S11

AUX

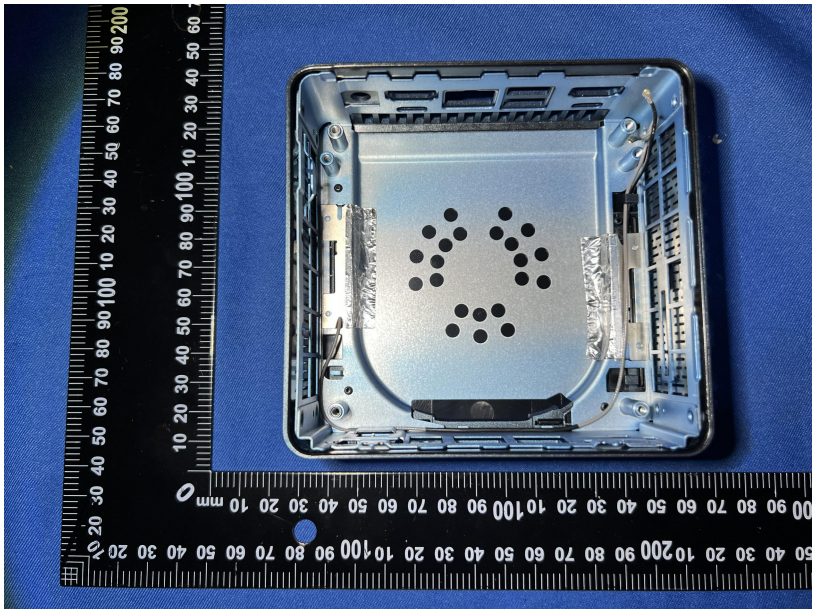




Note: Use the network analyzer E5071B to connect the connector on the antenna RF line to test the passive standing wave ratio and return loss of the antenna.

7. Test Result

7.2 Antenna Parameters

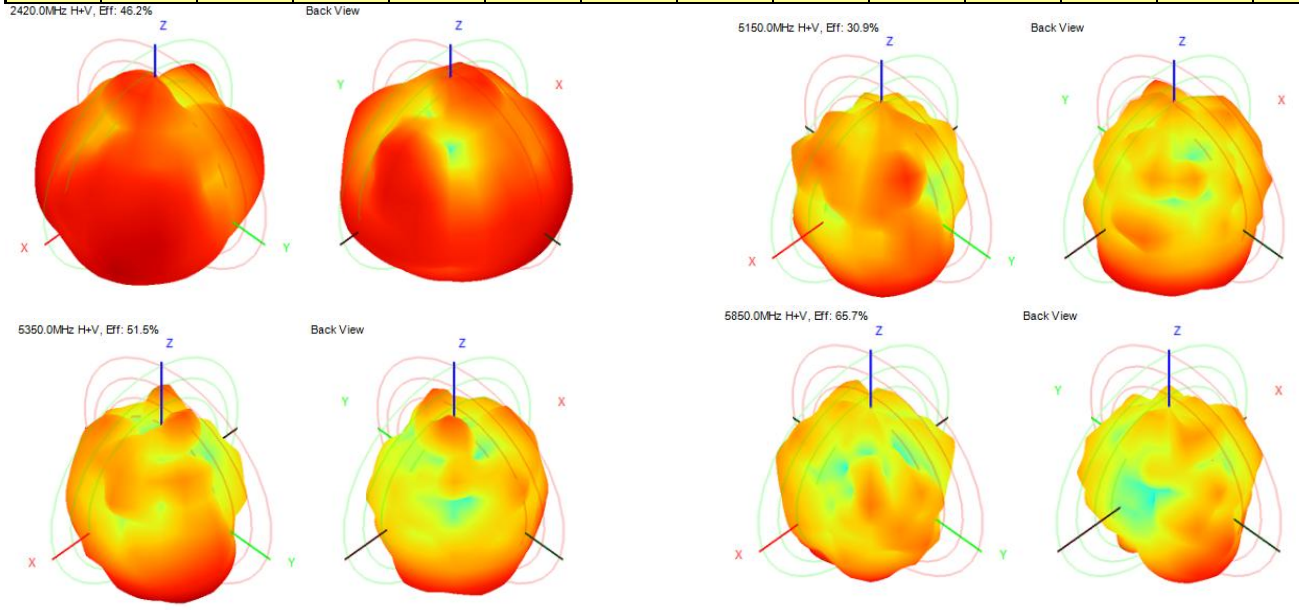


7. Test Result

7.3 Gain/Efficiency/3D DATA

MAIN

Frequency (MHz)	2400.0	2410.0	2420.0	2430.0	2440.0	2450.0	2460.0	2470.0	2480.0	5230.0	5350.0	5690.0	5820.0	6010.0	6450.0	6550.0	6890.0
Efficiency (dBi)	-3.41	-3.36	-3.35	-3.30	-3.32	-3.38	-3.17	-3.67	-4.32	-4.18	-2.88	-1.80	-1.71	-1.90	-3.49	-3.40	-4.22
Gain (dBi)	1.01	1.16	1.23	1.15	0.91	0.97	1.21	0.77	0.09	3.28	4.83	6.60	7.53	8.35	5.55	4.55	3.86
Efficiency (%)	45.56	46.15	46.22	46.77	46.51	45.90	48.14	42.99	37.01	38.16	51.48	66.08	67.50	64.50	44.77	45.72	37.88



Note: Use the network analyzer E5071B and microwave anechoic chamber to test the passive efficiency, gain, and 3D field pattern of the antenna.

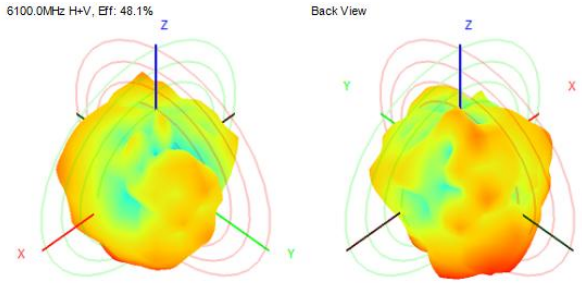
5230mhz is the maximum gain point of 5150-5250mhz

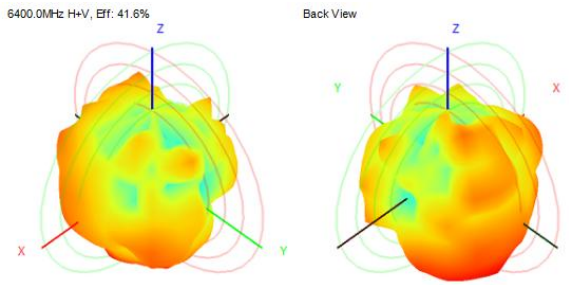
5820mhz is the maximum gain point of 5.8G segment

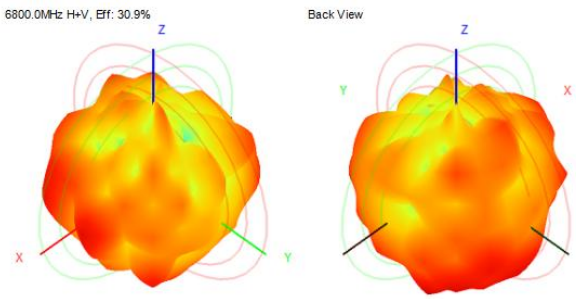
7. Test Result

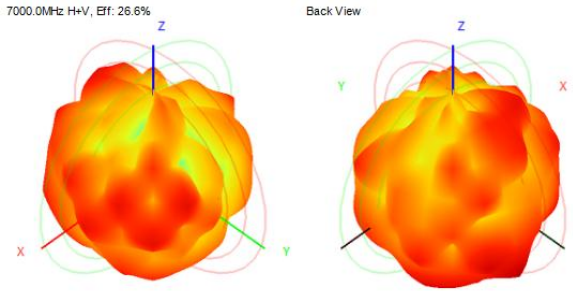
7.3 Gain/Efficiency/3D DATA

MAIN







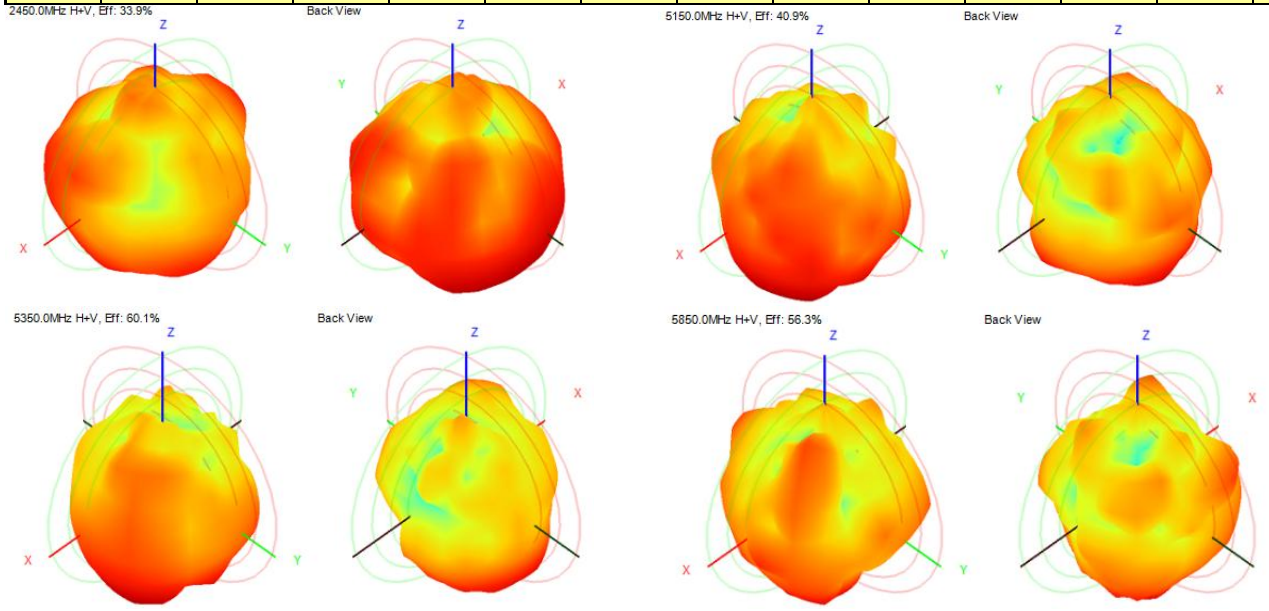


Note: Use the network analyzer E5071B and microwave anechoic chamber to test the passive efficiency, gain, and 3D field pattern of the antenna.

7. Test Result

7.3 Gain/Efficiency/3D DATA AUX

Frequency (MHz)	2400.0	2410.0	2420.0	2430.0	2440.0	2450.0	2460.0	2470.0	2480.0	5250.0	5350.0	5520.0	5820.0	6010.0	6450.0	6550.0	6890.0
Efficiency (dBi)	-5.45	-5.34	-5.17	-4.99	-4.75	-4.70	-4.58	-4.55	-4.70	-2.90	-2.21	-2.02	-2.21	-2.99	-4.39	-4.20	-4.90
Gain (dBi)	0.57	0.62	0.81	1.14	1.43	1.47	1.43	1.25	1.07	4.39	5.80	7.24	5.95	6.54	5.00	3.53	2.53
Efficiency (%)	28.51	29.27	30.41	31.67	33.51	33.91	34.80	35.06	33.91	51.30	60.10	62.84	60.09	50.21	36.37	38.02	32.35



Note: Use the network analyzer E5071B and microwave anechoic chamber to test the passive efficiency, gain, and 3D field pattern of the antenna.

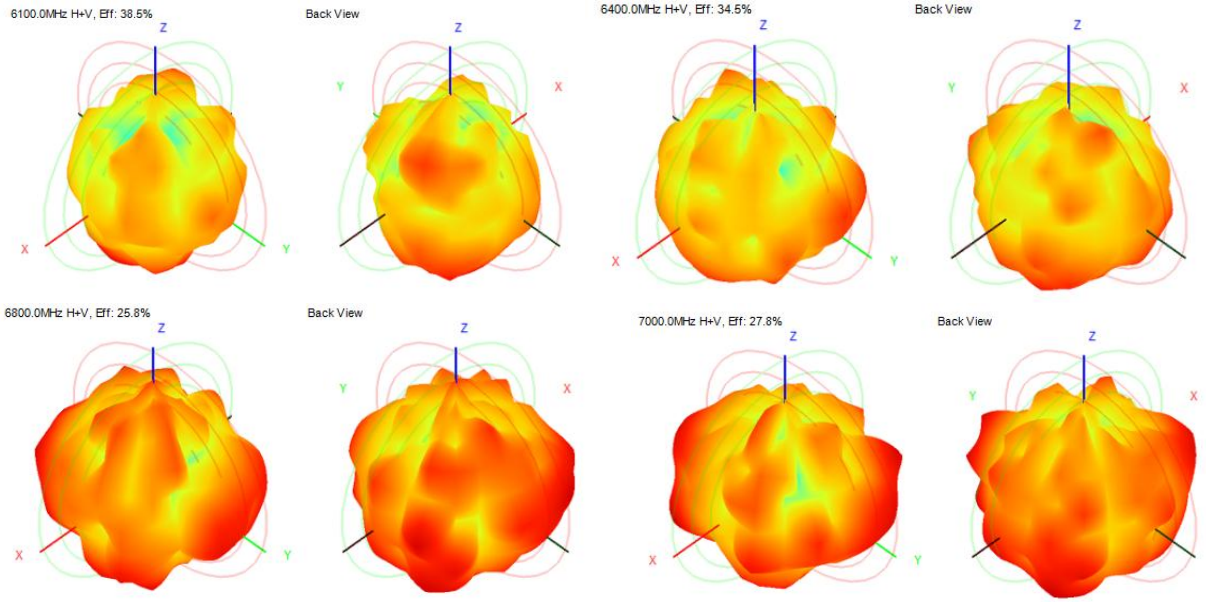
5250mhz is the maximum gain point of 5150-5250mhz

5820mhz is the maximum gain point of 5.8G segment

7. Test Result

7.3 Gain/Efficiency/3D DATA

AUX

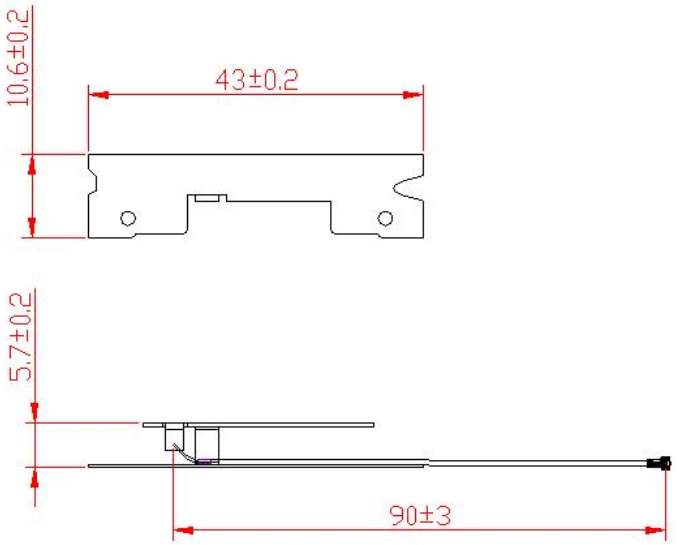


Note: Use the network analyzer E5071B and microwave anechoic chamber to test the passive efficiency, gain, and 3D field pattern of the antenna.

7. Test Result

7.4 Schematic Diagram Of Antenna Size

MAIN



7. Test Result

7.4 Schematic Diagram Of Antenna Size

AUX