Shanghai Shangyuan Communication Technology Co.Ltd

Antenna Recognition

Client Name: Yunga	**Project name:** P102
Operating band: WiFi2.4G WiFi5.8G	
Hardware version: PAD01_V0.2_20230809	
Shangyuan Material Specifications	

Specification	Chinese character indicating that the number of unknowns is significant	Customer number
WiFi-1 Antenna	SZ23423IB74-1	2.1.09.12.002003

Change of curriculum vitae			
Date of preparation/change	Changes	change agent	releases
2023.09.24	New Releases	Xu Wei (1969-), Chinese palaeontologist	A

Signature bar at Sunrise				
research develop	Structure:	Audit:	Quality Engineer:	Approval:
	RF:	Audit:		

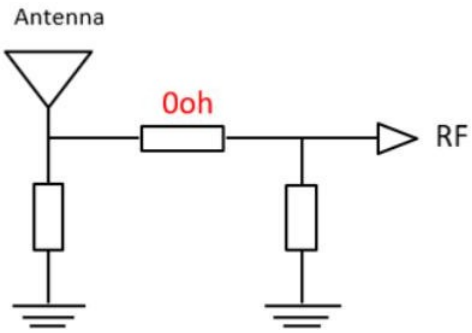
Client countersign bar			
electronics engineer	project manager	Structural Engineer	Quality Engineer

I. Project information

1.1 prototype

1.2 Antenna Product Diagram

Antenna matching circuit



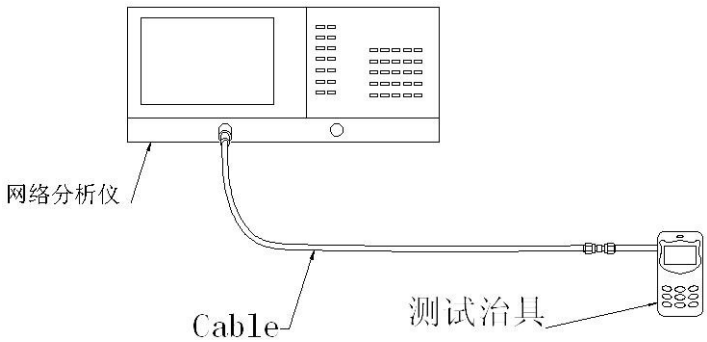
III. Overall test data

3.1 S11 Description of Test Methods

Test Equipment: Network Analyzer (Agilent E5071C)

Test Method: A 50-ohm CABLE cable is routed from the instrument's test port, calibrated with a calibration kit and connected to the SMA connector of the test fixture to record the return loss and VSWR at the relevant frequency point.

The test schematic is shown below:



Test Schematic

3.2 test environment

Test System: MPS6450 Multi-Probe OTA

Measurement System (XH-IoT) Test Environment:

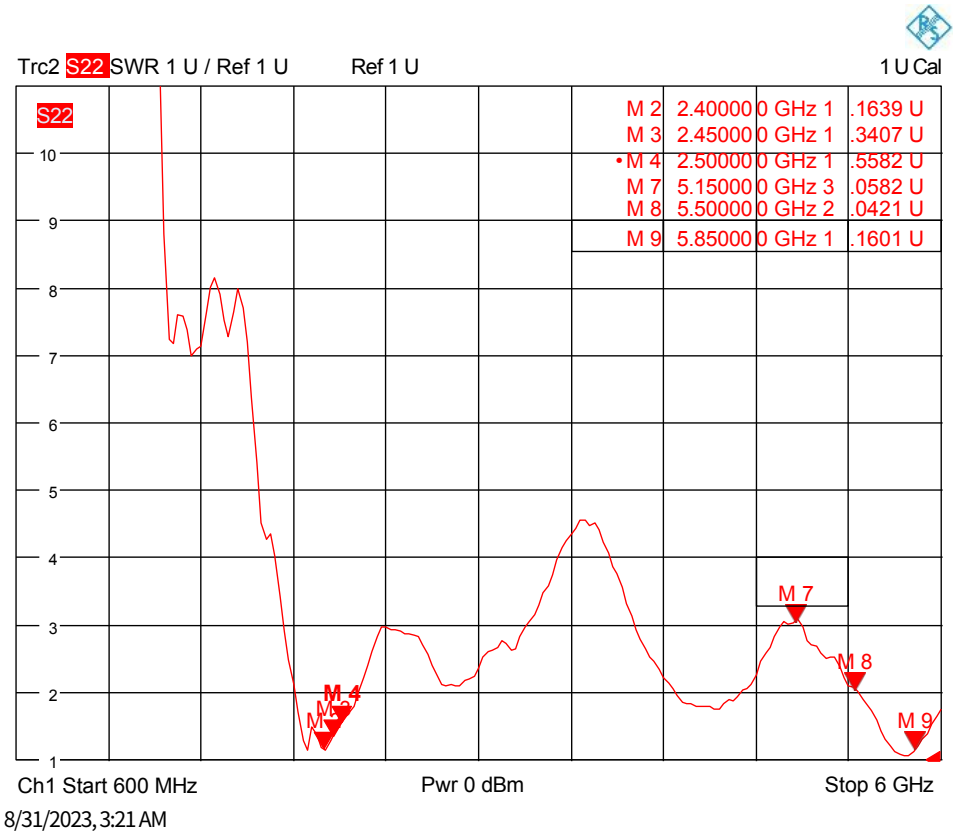
Temperature 22℃±3℃, Humidity 50%±15

Test equipment: For testing passive data, use a network analyzer R&S ZND/Agilent E5071C.

When testing active data, use the synthesizer Agilent 8960 /CMW500/SP9500E/SP8315

3.3 Passive test parameters

VSWR VSWR -WiFi1

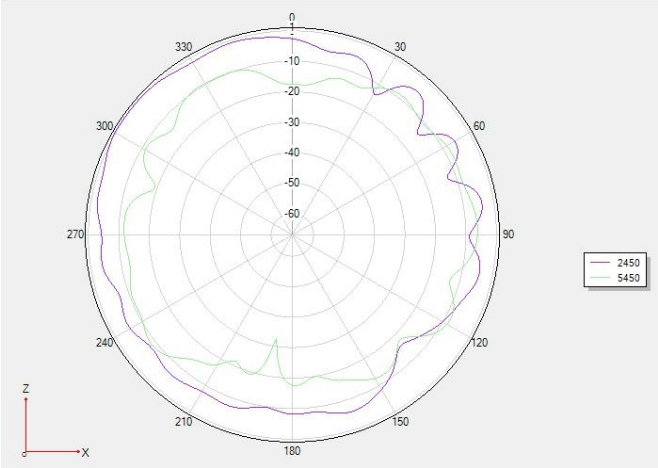


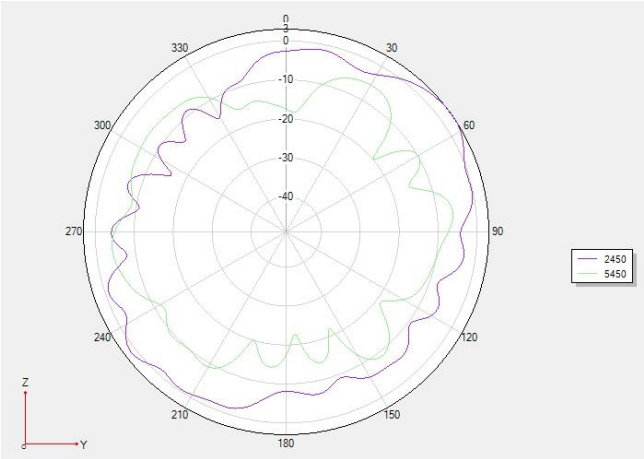
Passive efficiency WiFi1

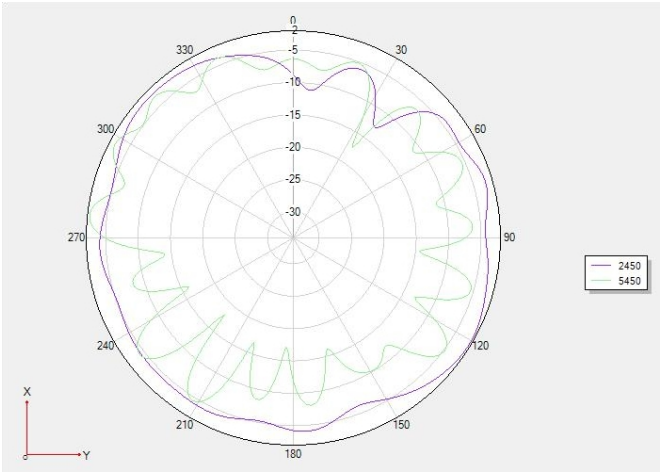
Frequency/Mhz	MaxGain/dBi	Efficiency / %	Frequency/Mhz	MaxGain/dBi	Efficiency / %
2400	2.95	45.29	5390	1.96	24.69
2410	3.1	45.29	5410	1.88	24.42
2420	3.16	44.36	5430	1.91	24.69
2430	3.32	45.39	5450	1.94	24.66
2440	3.45	46.56	5470	1.72	24.49
2450	3.33	45.08	5490	1.39	24.19
2460	3.25	43.55	5510	1.01	23.96
2470	3.23	42.36	5530	0.68	24.79
2480	3.27	41.88	5550	0.29	25.31
2490	3.16	40.18	5570	0.49	25.78
2500	2.94	40.84	5590	0.77	26.11
5150	-0.19	24.69	5610	1.32	28.2
5170	-0.22	24.35	5630	1.39	28.88

5190	-0.15	24.72	5650	1.75	29.91
5210	-0.24	24.83	5670	2.06	31.13
5230	0.02	25.03	5690	2.04	31.58
5250	0.52	25.42	5710	2.09	32.13
5270	0.61	24.55	5730	1.65	31.38
5290	0.8	24.69	5750	1.3	32.08
5310	1.08	24.96	5770	1.17	32.96
5330	1.25	24.55	5790	1.05	31.78
5350	1.23	24.03	5810	1.48	33.33
5370	1.45	23.68	5830	1.4	32.44
			5850	1.81	34.21

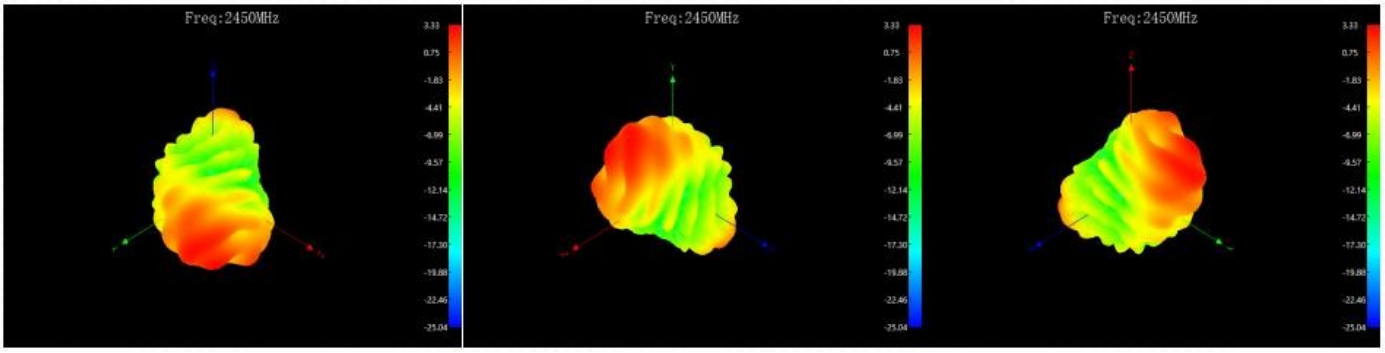
WiFi1 Direction Map



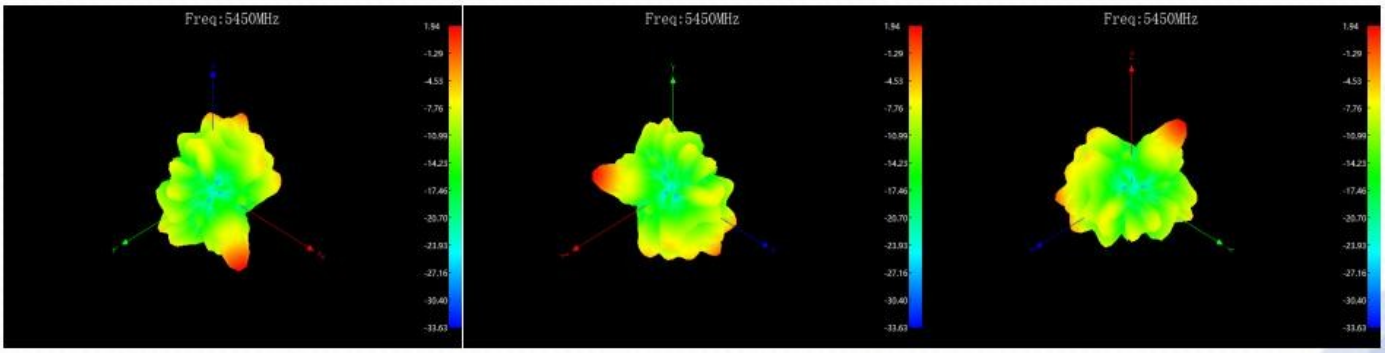



0
-5
-10
-15
-20
-25
-30
30
60
90
120
150
180
210
240
270
300
330
2450
5450
X
Y

2.4G


Freq:2450MHz
Freq:2450MHz
Freq:2450MHz

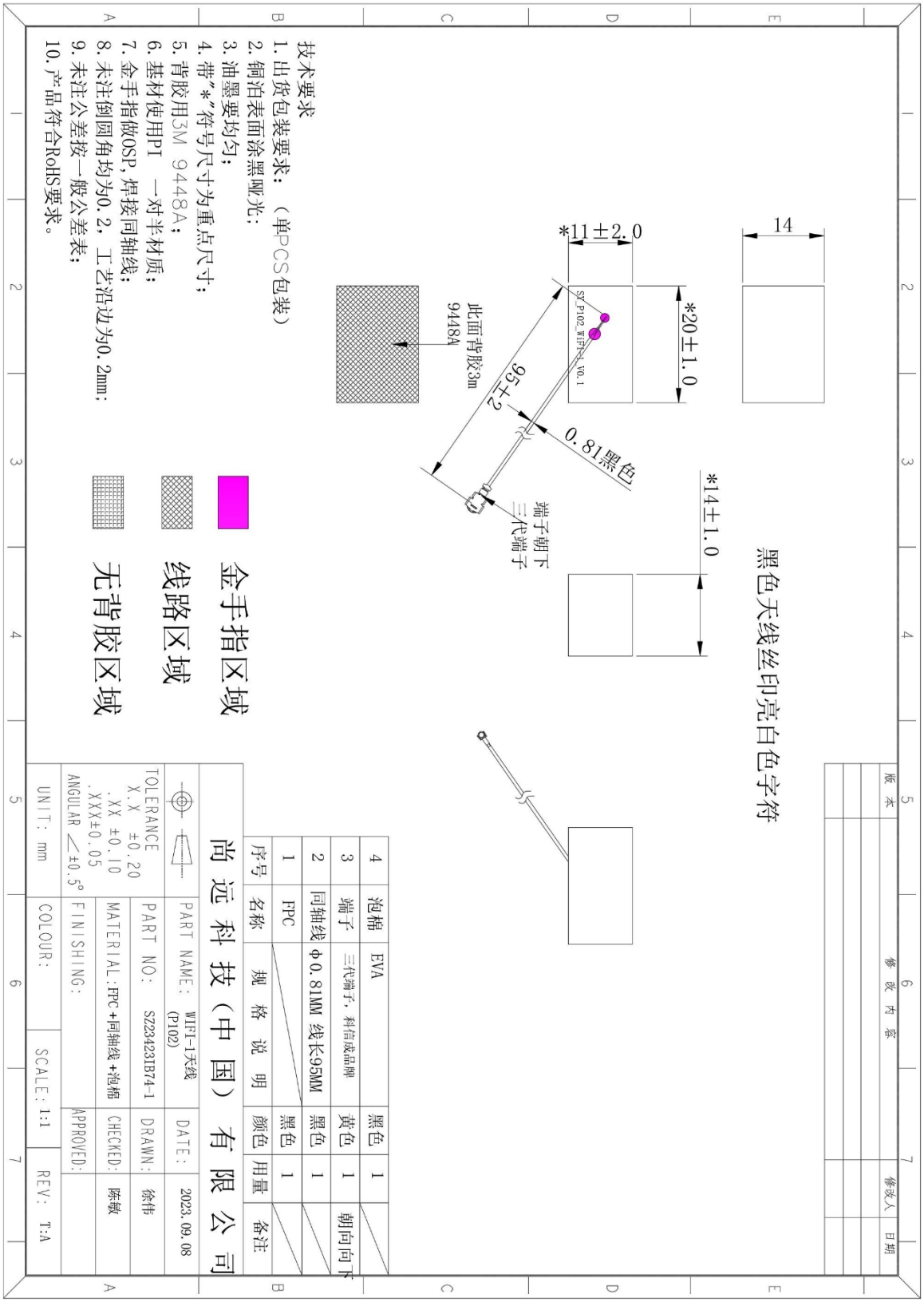
5.8G


Freq:5450MHz
Freq:5450MHz
Freq:5450MHz

3.4 Active Test Data

				blackout	light up the screen
Measurement	Band	Channel	Frequency	Total	Total
TRP	WIFI_B (11M)	1	2412	12.14	
TRP	WIFI_B (11M)	6	2437	12.63	
TRP	WIFI_B (11M)	11	2462	13.57	
TIS (EIRP)	WIFI_B (11M)	11	2462	-86.18	-84.84
TRP	WIFI_G (54M)	1	2412	12.79	
TRP	WIFI_G (54M)	6	2437	12.6	
TRP	WIFI_G (54M)	11	2462	12.93	
TIS (EIRP)	WIFI_G (54M)	11	2462	-73.35	-70.96
TRP	WIFI_N_ISM (65M)	1	2412	11.92	
TRP	WIFI_N_ISM (65M)	6	2437	11.71	
TRP	WIFI_N_ISM (65M)	11	2462	11.57	
TIS (EIRP)	WIFI_N_ISM (65M)	11	2462	-71.25	-68
TRP	WIFI_A (54M)	36	5180	9.14	
TRP	WIFI_A (54M)	149	5745	11.06	
TRP	WIFI_A (54M)	165	5825	12.97	
TIS (EIRP)	WIFI_A (54M)	165	5825	-72.72	-71.74

VII. Engineering drawings



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Operating band: WiFi2.4G	
Hardware version: PAD01_V0.2_20230809	
Shangyuan Material Specifications	

Specification	Chinese character indicating that the number of unknowns is significant	Customer number
WiFi-2 Antenna	SZ23423IB74-2	2.1.09.12.002103

Change of curriculum vitae			
Date of preparation/change	Changes	change agent	releases
2023.09.24	New Releases	Xu Wei (1969-), Chinese palaeontologist	A
	m		

Signature bar at Sunrise				
research develop	Structure:	Audit:	Quality Engineer:	Approval:
	RF:	Audit:		

Client countersign bar			
electronics engineer	project manager	Structural Engineer	Quality Engineer

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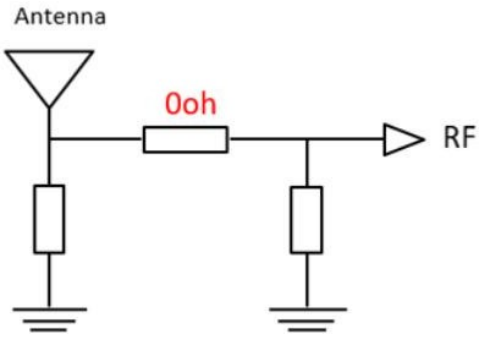

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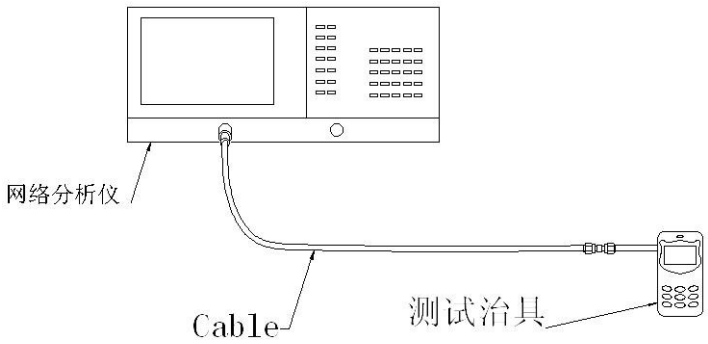


Test Schematic

3.2 test environment

Test System: MPS6450 Multi-Probe OTA

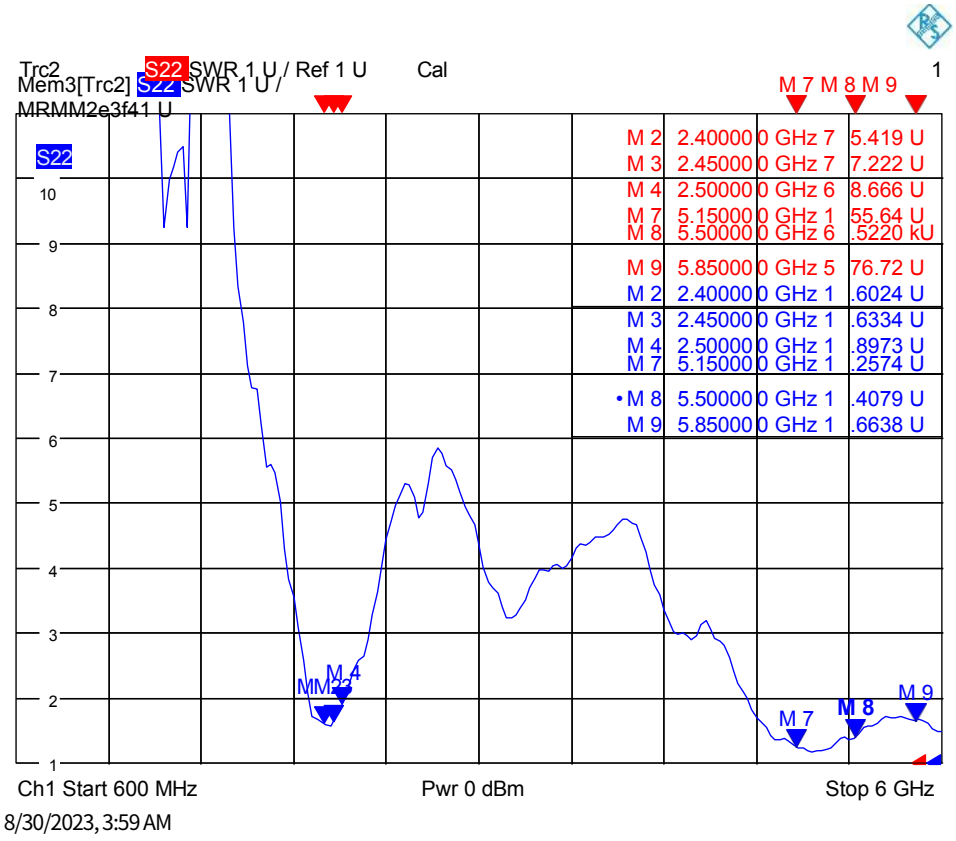
Measurement System (XH-IoT) Test Environment:

Temperature 22°C±3°C, Humidity 50%±15

Test equipment: For testing passive data, use a network analyzer R&S ZND/Agilent E5071C.

3.3 Passive test parameters

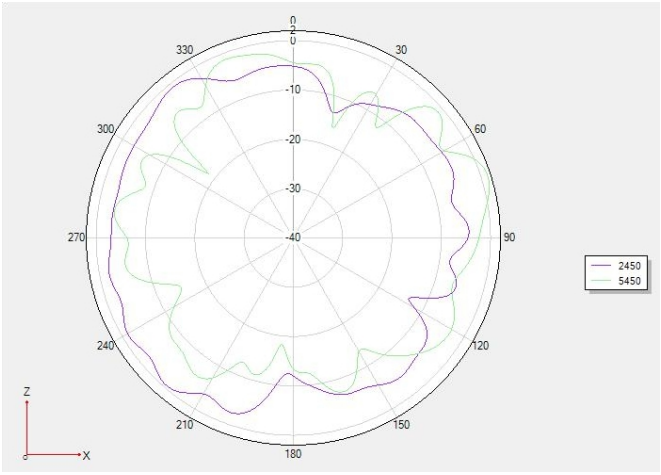
VSWR VSWR -WiFi2

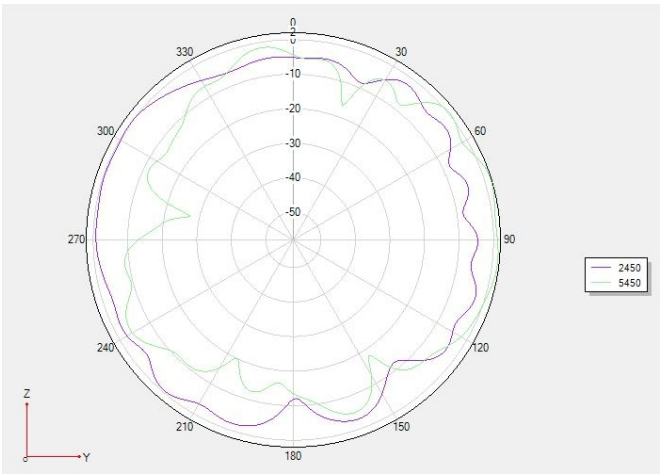


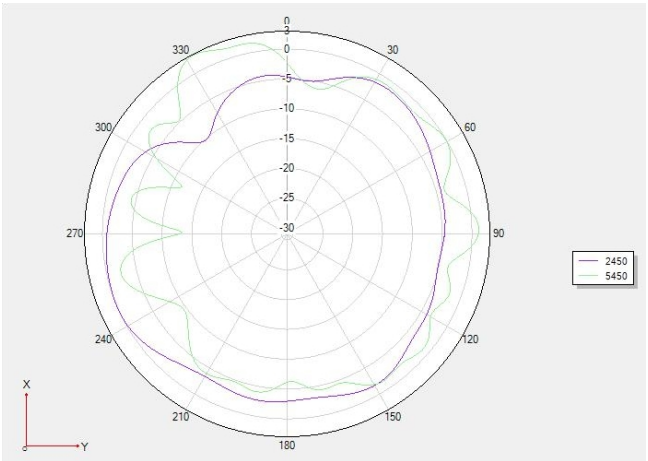
Passive efficiency WiFi2

Frequency/Mhz	MaxGain/dBi	Efficiency / %
2400	1.47	49.66
2410	1.53	49.66
2420	1.53	48.31
2430	1.62	49.55
2440	1.81	51.29
2450	1.64	50
2460	1.5	48.19
2470	1.74	49.55
2480	1.81	50
2490	1.68	48.75
2500	1.41	48.08

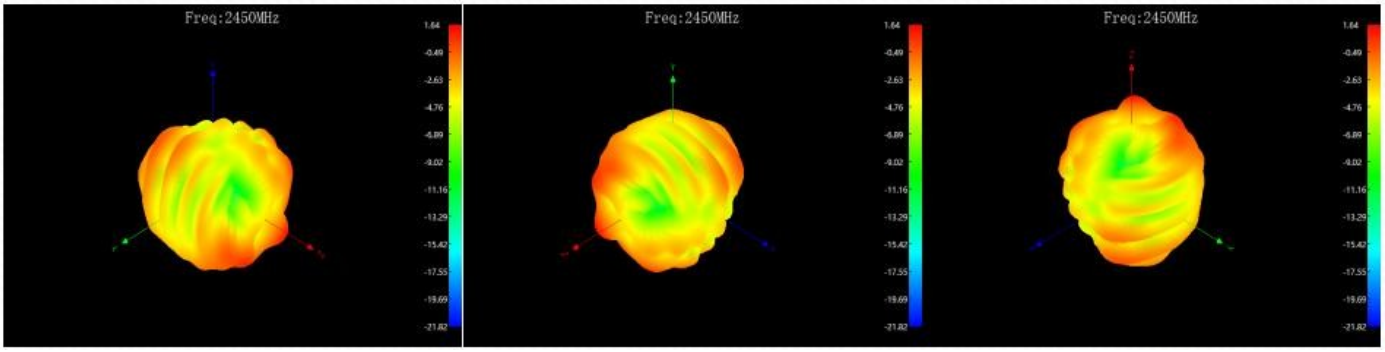
WiFi2 Direction Map







2.4G



3.4 Active Test Data

Measurement	Band	Channel	Frequency	Total
TRP	WIFI_B (11M)	1	2412	15.11
TRP	WIFI_B (11M)	6	2437	15.95
TRP	WIFI_B (11M)	11	2462	16.66
TIS (EIRP)	WIFI_B (11M)	11	2462	-85.53
TRP	WIFI_G (54M)	1	2412	15.47
TRP	WIFI_G (54M)	6	2437	16.08
TRP	WIFI_G (54M)	11	2462	16.78
TIS (EIRP)	WIFI_G (54M)	11	2462	-71.77

TRP	WIFI_N_ISM (65M)	1	2412	15.49
TRP	WIFI_N_ISM (65M)	6	2437	15.12
TRP	WIFI_N_ISM (65M)	11	2462	16.85
TIS (EIRP)	WIFI_N_ISM (65M)	11	2462	-70.39

IV. Environmental treatment of the prototype

No increase in environmental treatment

VII. Engineering drawings