Shenzhen Qianmu Communication Technology Co.,Ltd.

Focusing on antenna solutions, design, and production

Customer: Xinzhilian
project
Date: 2024.2.1
radio frequency: IU CHU SHENG

Catalogue

1. Testing environment

2. Explanation of Previous Debugging Records

3. Matching circuit description

4. Active testing data

5. Conduction test data

6. Telephone current sound simulation test

7. Environmental treatment instructions

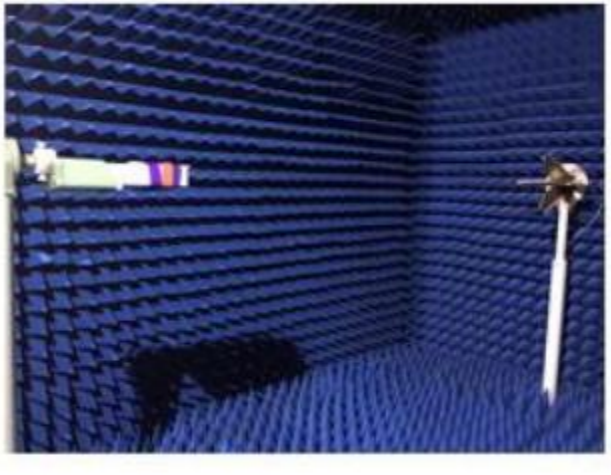
8. GPS/WIFI/BT passive parameters

9. GPS/WIFI/BT measured results

10. Summary

Testing environment

	Test items	Equipment
1. S-parameter	1. （Return Loss） 2. （VSWR）	: Agilent E5071B HP 8753D
2. （Active ）	1 （TRP） 2. （TIS）	1. : ETS 7x4x3 m (3D) Chamber ETS 5x3x3 m (3D) Chamber 2.: Agilent 8960 E5515B ×2 StarPoint SP6011
3. （Passive）	1. （Gain） 2. （Efficiency）	1. : ETS 7x4x3 m (3D) Chamber ETS 5x3x3 m (3D) Chamber 2. : Agilent E5071B HP 8753D



Explanation of Previous Debugging Records

date	version	Debugging Record Description
2024-2-1	A	Debugging the prototype

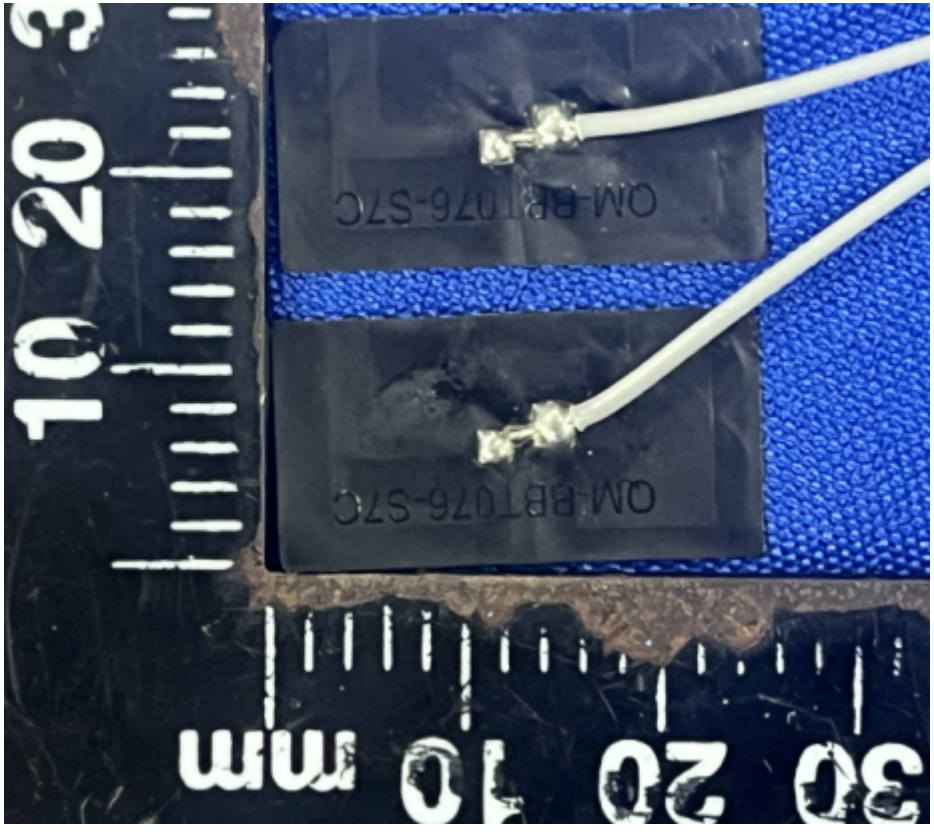
Complete machine debugging instructions

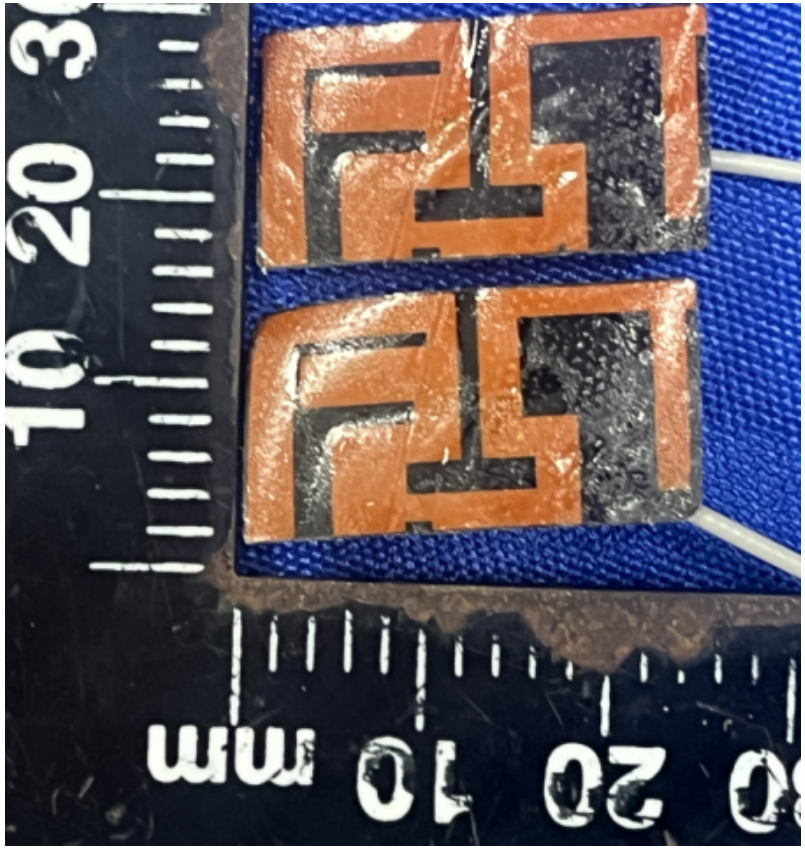
model	projector					
Pattern						
Antenna Overview	Main antenna	Frequency band	Antenna status	Antenna form	Design area	Matching changes
		WIFI2.4G-2.5G/5.0G-5.8G	FPC	PIFA	Shell material	/

Active power test data

Antenna status	FPC		
	WIFI 2400~2500Mz 802.11b 11MBps		
Channel	1	6	11
TRP	15.7	15.49	15.37
TIS	-81.07	-81.78	-81.08
	WIFI 5000~5800Mz 802.11a 54MBps		
Channel	36	161	165
TRP	11.27	11.06	11.53
TIS	-68.9	-69.51	-69.58

Antenna placement position

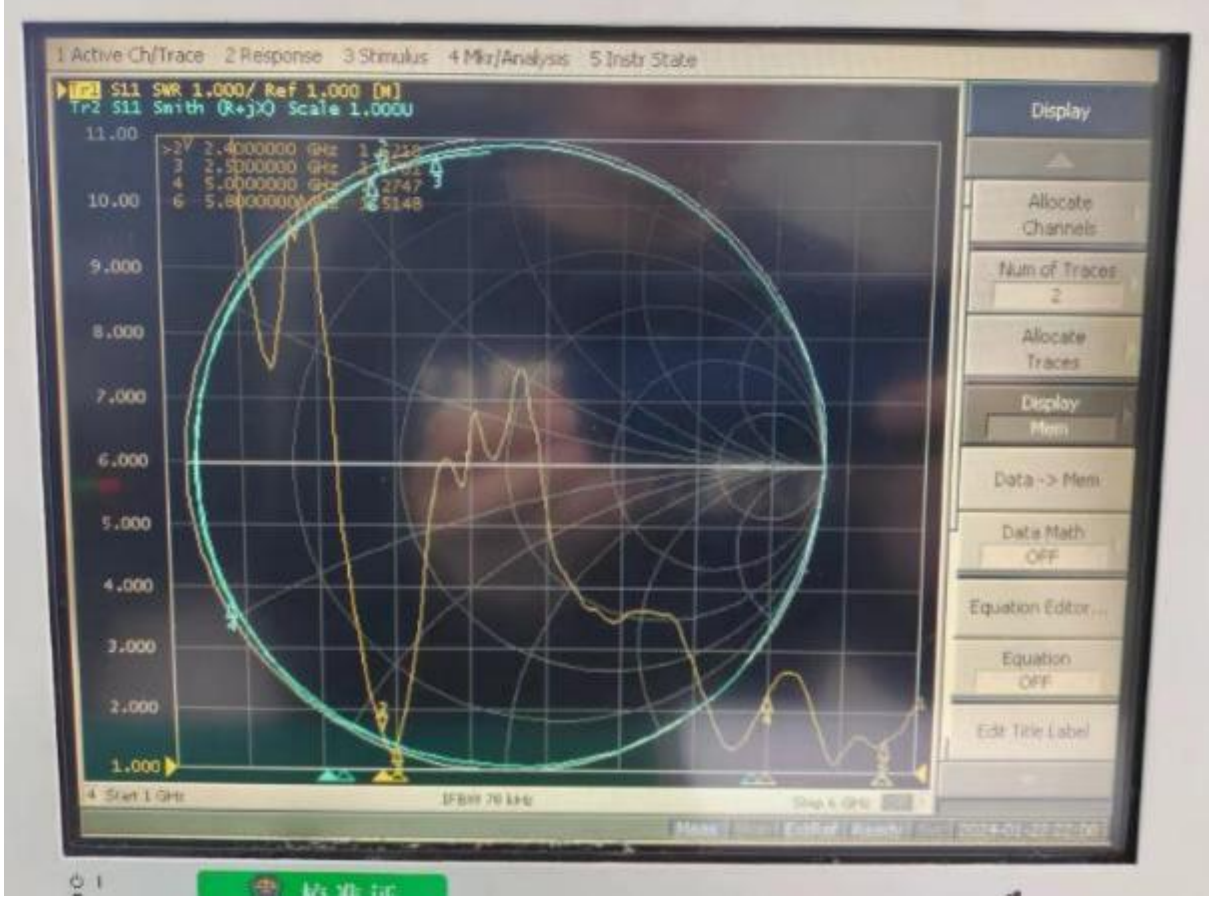




2 # The antenna should not be close to the screw column to avoid damaging the antenna solder joint

WIFI passive standing wave:

1#



WIFI passive standing wave:

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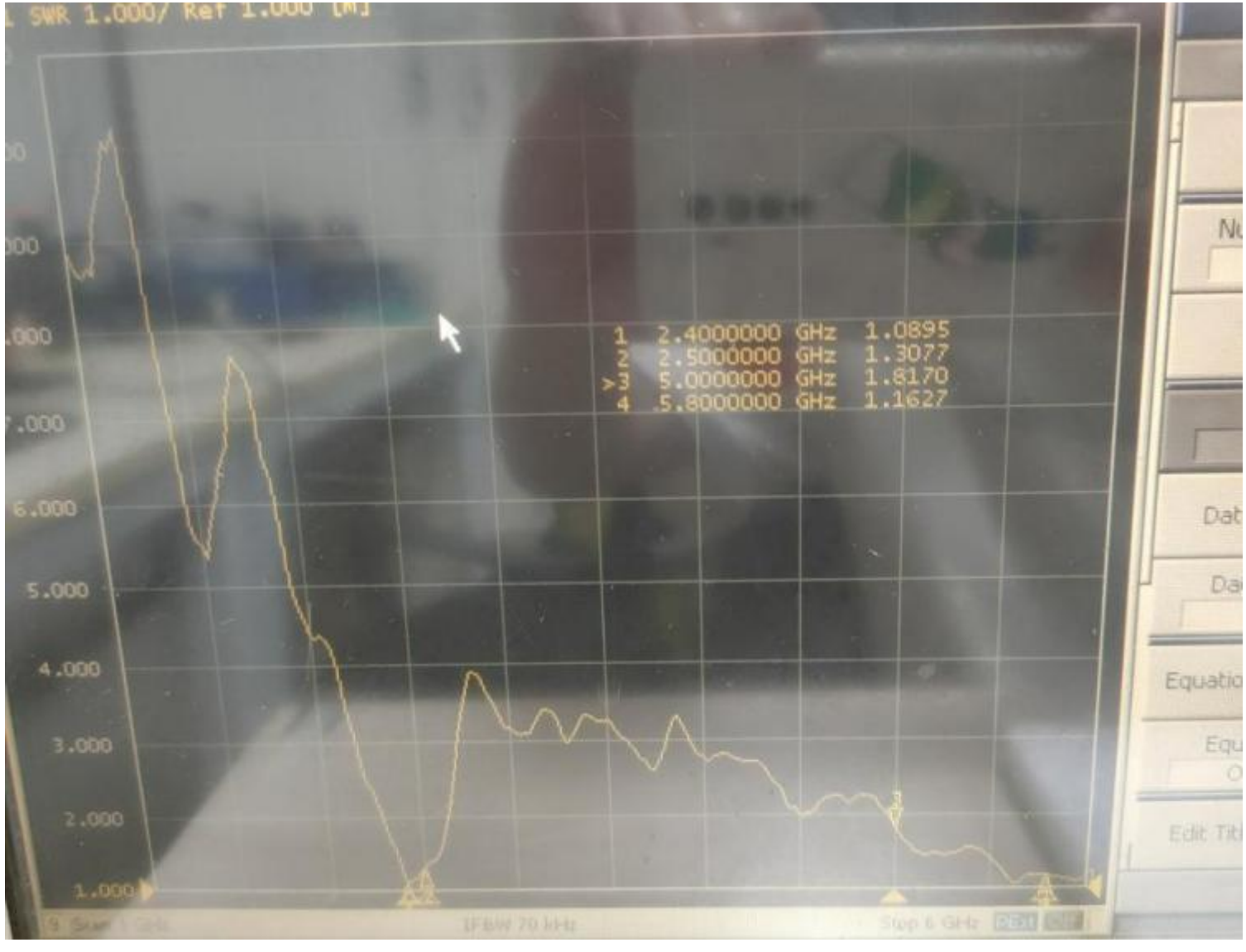


Passive 2.4G test results1#

FEITUKEJI

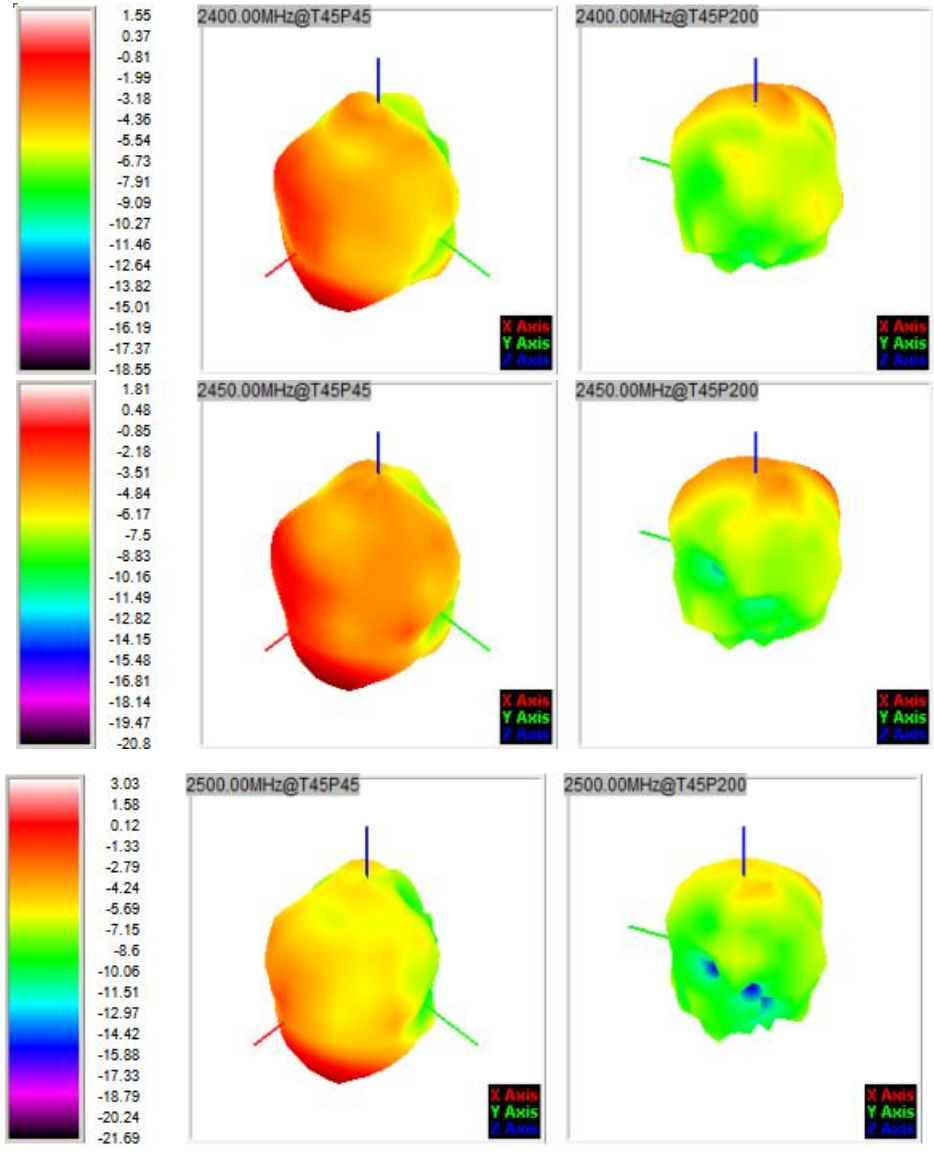
Frequency ID	1	2	3	4	5	6	7	8	9	10	11
Frequency (MHz)	2400.0	2410.0	2420.0	2430.0	2440.0	2450.0	2460.0	2470.0	2480.0	2490.0	2500.0
Point Values											
Ant. Port Input Pwr. (dBm)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tot. Rad. Pwr. (dBm)	-5.65	-5.54	-5.39	-5.37	-5.25	-5.13	-4.89	-4.85	-4.84	-4.77	-4.70
Peak EIRP (dBm)	1.55	1.57	1.54	1.52	1.70	1.81	2.12	2.33	2.56	2.83	3.03
Directivity (dBi)	7.20	7.11	6.93	6.89	6.95	6.94	7.01	7.18	7.41	7.60	7.73
Efficiency (dB)	-5.65	-5.54	-5.39	-5.37	-5.25	-5.13	-4.89	-4.85	-4.84	-4.77	-4.70
Efficiency (%)	27.20	27.90	28.90	29.00	29.90	30.70	32.50	32.70	32.80	33.30	33.90
Gain (dBi)	1.55	1.57	1.54	1.52	1.70	1.81	2.12	2.33	2.56	2.83	3.03
NHPRP ±Pi/4 (dBm)	-6.94	-6.85	-6.73	-6.73	-6.64	-6.51	-6.25	-6.20	-6.16	-6.06	-5.98
NHPRP ±Pi/6 (dBm)	-8.51	-8.43	-8.31	-8.32	-8.23	-8.10	-7.81	-7.74	-7.69	-7.59	-7.50
NHPRP ±Pi/8 (dBm)	-9.86	-9.78	-9.66	-9.67	-9.56	-9.42	-9.11	-9.01	-8.95	-8.82	-8.74
Upper Hem. PRP (dBm)	-8.71	-8.53	-8.35	-8.34	-8.28	-8.18	-8.04	-8.06	-8.11	-8.09	-8.08
Lower Hem. PRP (dBm)	-8.61	-8.58	-8.45	-8.42	-8.24	-8.11	-7.76	-7.68	-7.61	-7.49	-7.37
Upper Hem. PRP (%)	13.45	14.04	14.61	14.66	14.86	15.20	15.70	15.64	15.45	15.51	15.57
Lower Hem. PRP (%)	13.79	13.88	14.28	14.37	15.00	15.47	16.75	17.08	17.32	17.84	18.33

Passive 5.8G test results1#

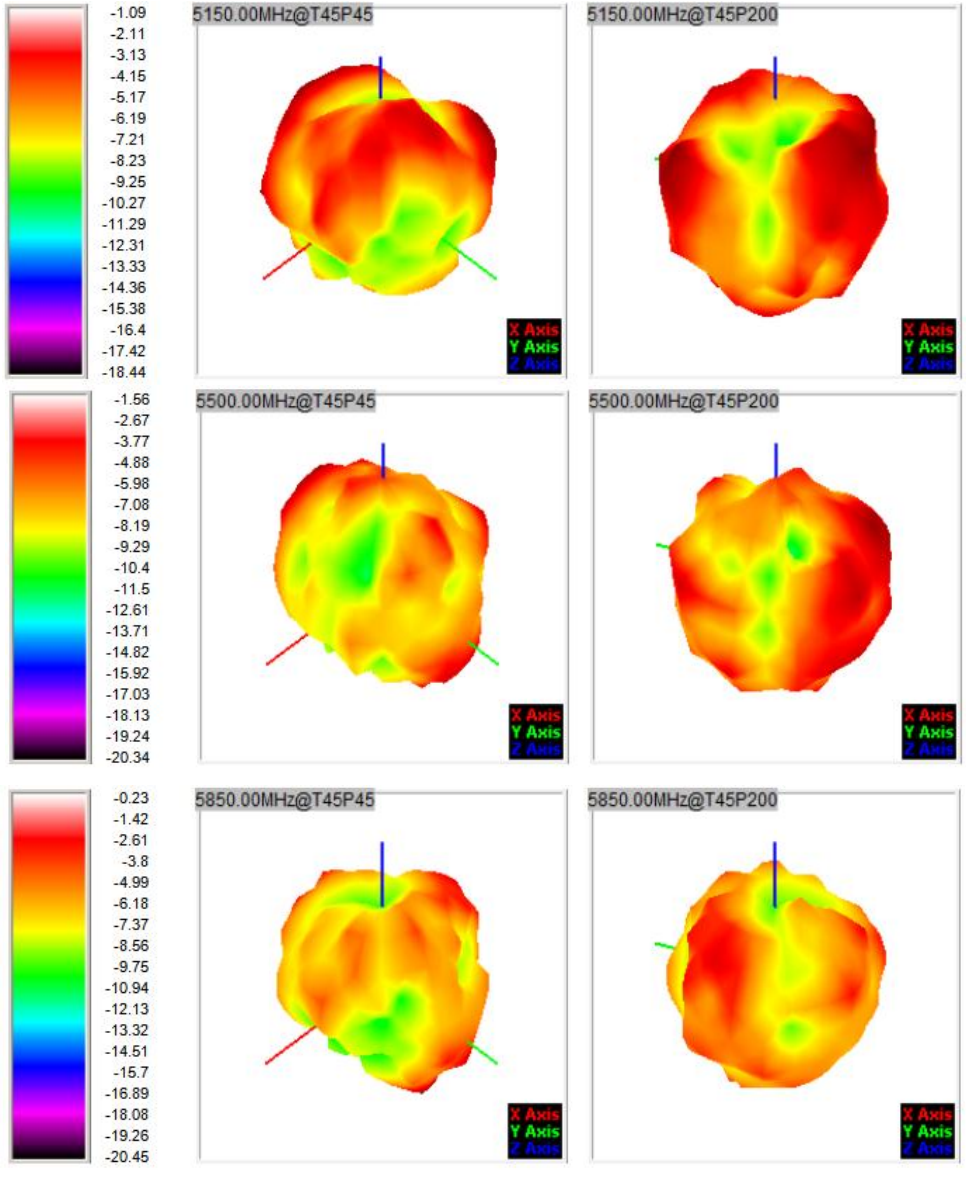
FEITUKEJI

Frequency ID	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
Frequency (MHz)	5150.0	5200.0	5250.0	5300.0	5350.0	5400.0	5450.0	5500.0	5550.0	5600.0	5650.0	5700.0	5750.0	5800.0	5850.0
Point Values															
Ant. Port Input Pwr. (dBm)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tot. Rad. Pwr. (dBm)	-6.02	-5.96	-6.06	-5.70	-6.18	-6.69	-6.41	-6.58	-6.54	-6.13	-6.15	-6.12	-6.21	-6.43	-6.35
Peak EIRP (dBm)	-1.09	-0.54	-0.45	0.15	-0.52	-1.91	-2.08	-1.56	-1.29	-0.93	-0.59	-0.66	-0.71	-1.23	-0.23
Directivity (dBi)	4.93	5.41	5.61	5.85	5.66	4.79	4.34	5.02	5.24	5.20	5.56	5.46	5.50	5.20	6.12
Efficiency (dB)	-6.02	-5.96	-6.06	-5.70	-6.18	-6.69	-6.41	-6.58	-6.54	-6.13	-6.15	-6.12	-6.21	-6.43	-6.35
Efficiency (%)	25.00	25.40	24.80	26.90	24.10	21.40	22.80	22.00	22.20	24.40	24.30	24.40	23.90	22.70	23.20
Gain (dBi)	-1.09	-0.54	-0.45	0.15	-0.52	-1.91	-2.08	-1.56	-1.29	-0.93	-0.59	-0.66	-0.71	-1.23	-0.23
NHPRP ±Pi/4 (dBm)	-7.54	-7.51	-7.57	-7.10	-7.57	-8.14	-7.70	-7.81	-7.77	-7.28	-7.36	-7.43	-7.59	-7.89	-7.79
NHPRP ±Pi/6 (dBm)	-9.26	-9.36	-9.43	-8.84	-9.23	-9.77	-9.11	-9.23	-9.22	-8.66	-8.84	-8.91	-9.07	-9.45	-9.40
NHPRP ±Pi/8 (dBm)	-10.52	-10.74	-10.85	-10.17	-10.52	-11.04	-10.20	-10.31	-10.36	-9.77	-10.05	-10.06	-10.15	-10.58	-10.49
Upper Hem. PRP (dBm)	-8.36	-8.12	-8.34	-8.07	-8.53	-9.18	-9.09	-9.24	-9.26	-8.96	-8.84	-8.80	-8.94	-9.08	-9.03
Lower Hem. PRP (dBm)	-9.84	-10.02	-9.94	-9.46	-9.97	-10.30	-9.79	-9.97	-9.86	-9.33	-9.51	-9.48	-9.52	-9.84	-9.71
Upper Hem. PRP (%)	14.60	15.42	14.66	15.59	14.03	12.07	12.34	11.91	11.87	12.71	13.06	13.17	12.76	12.37	12.49
Lower Hem. PRP (%)	10.38	9.94	10.14	11.32	10.06	9.34	10.50	10.07	10.33	11.67	11.20	11.27	11.17	10.38	10.69

2.4G 3D test results 1#



5.8G 3D test results 1#



Prompt explanation

Tip:

1、 This data is only applicable to the data generated by the prototype provided by the customer and does not represent the final mass production status of the customer;

2、 Please ask the customer to carefully confirm the instructions for modifying the matching circuit and handling the environment in our company's report;

3、 Please cooperate to provide a trial production prototype for our company's secondary verification before mass production; Please inform us in advance if there are any changes to materials, software updates, or environmental handling;

4、 If the customer requires third-party retesting or sending the customer for testing please come to our company for verification before sending the prototype; Prevent differences between the machine and the debugging machine;

5： Our company does not accept machine data and data from other darkroom tests outside of our debugging, but can be used as a reference. Except for certified darkrooms, if there are any differences in data, the debugging machine shall prevail and the cause shall be found.

Thank you!

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