Jin Taiyi T900-DH8005 Antenna design and test report

telephone：+8613823540870

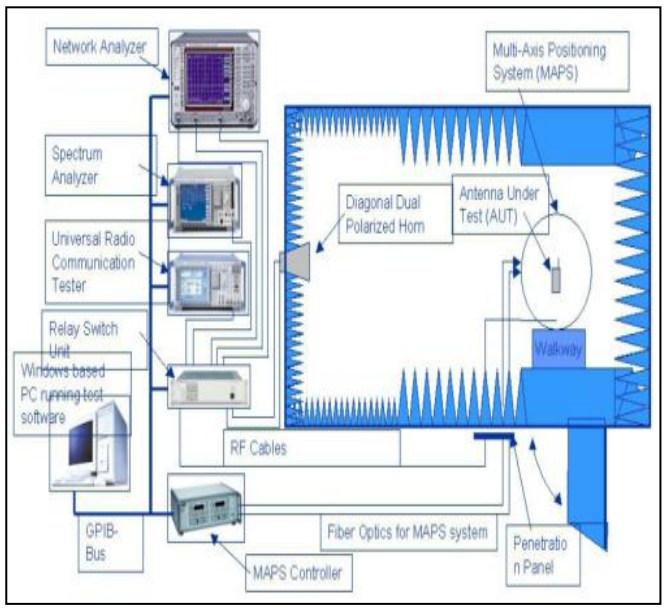
Report date： Wednesday, April 17, 2024

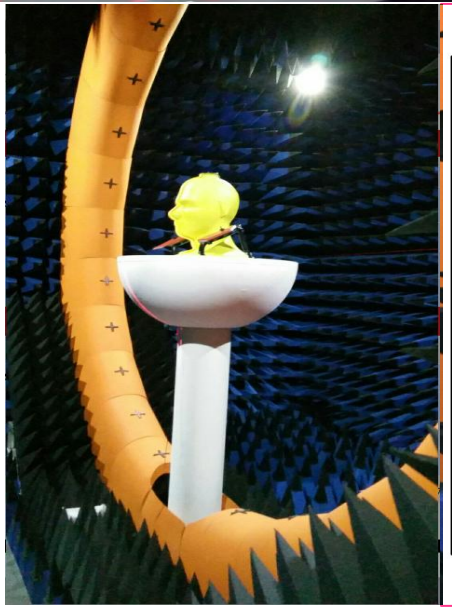
CONTENTS

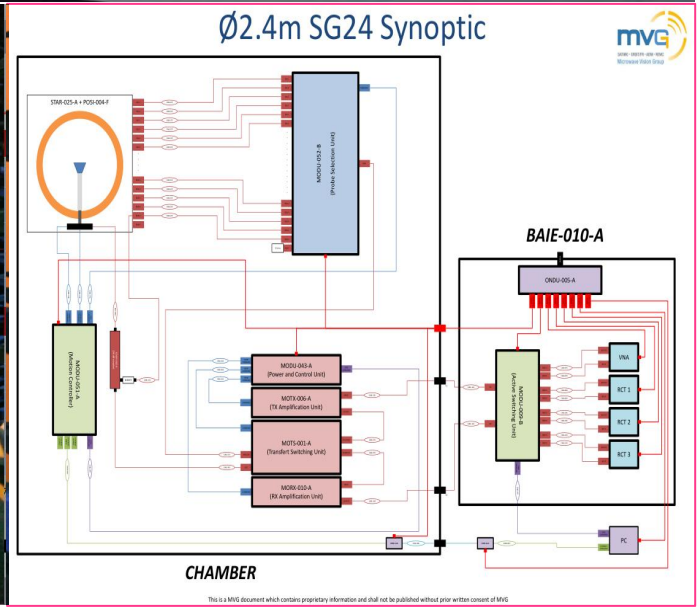
Main antenna design spectrum:	5G
Type of antenna:	PIFA
Deputy antenna design spectrum:	WIFI BT
Type of antenna:	PFIA
Frequency diversity antenna:	5G
Type of antenna:	PFIA

Report version:	**Date:**	**Content**
V3	2022.11.18	Test report of pilot production machine

Test Environment



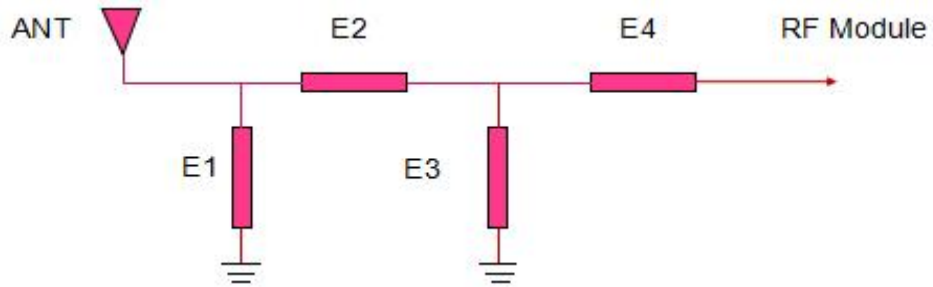


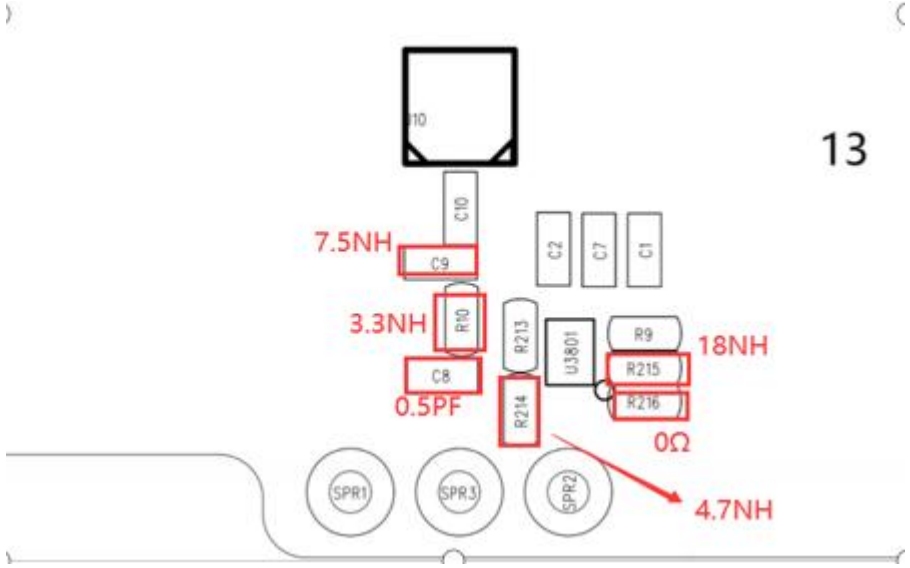


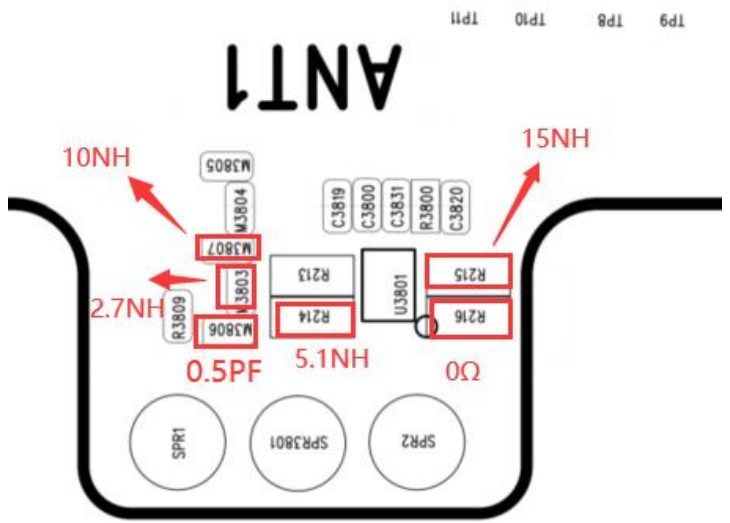
3 far-field 3D all-wave microwave darkroom laboratory systems, 1 MVG SG24LT (Satmio) near-field 3D microwave darkroom laboratory system (synchronized with relevant national laboratories))

Matching Circuit

Main antenna design:		Three-in-one antenna design:		Diversity antenna design:	
Element	Value	Element	Value	Element	Value
E1(0201):	0.5PF	E1(0201):		E1(0201):	0.5PF
E2(0201):	3.3NH	E2(0201):		E2(0201):	2.7NH
E3(0201):	7.5NH	E3(0201):		E3(0201):	10NH
E4(0201):		E4(0201):		E4(0201):	







RF Switch	Normal	Control Band
RF1	0Ω	GSM:900/1800 /1900 WCDMA:B1/B2/B8 LTE:B1/B2/B3/B4/B7/B8/B25/B34/B39/B40 NR: N1/N3/N7/N8
RF2	18NH	NR:N28 LTE:B12/B17/B28
RF3	4.7NH	GSM:850 WCDMA:B5 CDMA:BC0 LTE : B5/B20/B26 NR:N5/N20
RF4		

Matching Circuit

RF Switch	Normal	Control Band
RF1	0Ω	GSM:900/1800 /1900 WCDMA:B1/B2/B8 LTE:B1/B2/B3/B4/B7/B8/B25/B34/B39/B40 NR: N1/N3/N7/N8
RF2	15NH	NR:N28 LTE:B12/B17/B28
RF3	5.1NH	GSM:850 WCDMA:B5 CDMA:BC0 LTE : B5/B20/B26 NR:N5/N20
RF4		

Active Report

Standard	BAND	GSM900			DCS1800		
	CHANNAL	1	62	124	512	699	885
	TRP	28.11	28.27	28.44	24.18	25.27	25.11
	TIS			-103.24			-103.77
	BAND	GSM850			PCS1900		
	CHANNAL	128	192	251	512	661	810
	TRP	26.67	27.25	27.66	25.06	25.17	25.78
	TIS			-104.34			-104.06

Standard	BAND	WCDMA-B1			WCDMA-B2		
	CHANNAL	Low	Medium	High	Low	Medium	High
	TRP	18.58	18.77	18.43	18.52	18.44	18.66
	TIS			-105.35			-105.24
	BAND	WCDMA-B5			WCDMA-B8		
	CHANNAL	Low	Medium	High	Low	Medium	High
	TRP	17.23	17.37	17.11	18.35	18.44	18.22
	TIS			-104.78			-104.19

Standard	BAND	LTE-B1			LTE-B2		
	CHANNAL	Low	Medium	High	Low	Medium	High
	TRP	17.46	17.16	17.23	17.62	17.44	17.1·5
	TIS			-93.26			-92.48
	BAND	LTE-B3			LTE-B4		
	CHANNAL	Low	Medium	High	Low	Medium	High
	TRP	16.57	17.11	17.48	16.66	17.35	17.67
	TIS			-93.45			-93.13

Standard	BAND	LTE-B5			LTE-B7		
	CHANNAL	Low	Medium	High	Low	Medium	High
	TRP	17.49	17.25	18.11	18.14	17.21	17.46
	TIS			-93.1			-93.38
	BAND	LTE-B8			LTE-B12		
	CHANNAL	Low	Medium	High	Low	Medium	High
	TRP	17.58	17.32	17.26	14.34	14.65	15.33
	TIS			-93.19			-90.42

Standard	BAND	LTE-B17			LTE-B20		
	CHANNAL	Low	Medium	High	Low	Medium	High
	TRP	14.65	14.89	15.63	17.78	18.05	18.44
	TIS			-90.12			-90.89

Standard	BAND	LTE-B25			LTE-B26		
	CHANNAL	Low	Medium	High	Low	Medium	High
	TRP	18.15	18.46	18.09	16.65	17.57	18.23
	TIS			-94.67			-91.22
	BAND	LTE-B28			LTE-B34		
	CHANNAL	Low	Medium	High	Low	Medium	High
	TRP	14.45	15.12	15.56	17.87	17.67	17.59
	TIS			-90.56			-94.12

Standard	BAND	LTE-B38			LTE-B39		
	CHANNAL	Low	Medium	High	Low	Medium	High
	TRP	18.11	18.27	18.78	17.34	17.26	17.11
	TIS			-94.55			-93.23
	BAND	LTE-B40			LTE-B41		
	CHANNAL	Low	Medium	High	Low	Medium	High
	TRP	15.27	16.31	16.76	19.42	19.5	19.44
	TIS			-93.56			-93.54

Standard	BAND	NR-N1			NR-N3		
5G	CHANNAL	Low	Medium	High	Low	Medium	High
	TRP	19.33	19.78	19.44	18.76	18.88	18.23
	TIS			-93.22			-94.67

Standard	BAND	NR-N5			NR-N7		
5G	CHANNAL	Low	Medium	High	Low	Medium	High
	TRP	18.14	18.26	18.28	18.44	18.58	18.23
	TIS			-89.25			-90.24

Standard	BAND	NR-N8			NR-N20		
5G	CHANNAL	Low	Medium	High	Low	Medium	High
	TRP	17.54	17.37	17.72	18.45	18.67	18.54
	TIS			-89.67			-87.78

Standard	BAND	NR-N28			NR-N41		
5G	CHANNAL	Low	Medium	High	Low	Medium	High
	TRP	18.23	18.55	18.67	19.78	19.35	19.78
	TIS			-86.56			-86.45

Standard	BAND	NR-N38					
5G	CHANNAL	Low	Medium	High			
	TRP	18.41	18.28	18.69			
	TIS			-93.22			

Active Report

Standard	BAND	NR-N77			NR-N78		
5G	CHANNAL	Low	Medium	High	Low	Medium	High
	TRP	18.43	18.68	19.43	19.26	19.89	19.24
	TIS			-88.51			-88.43

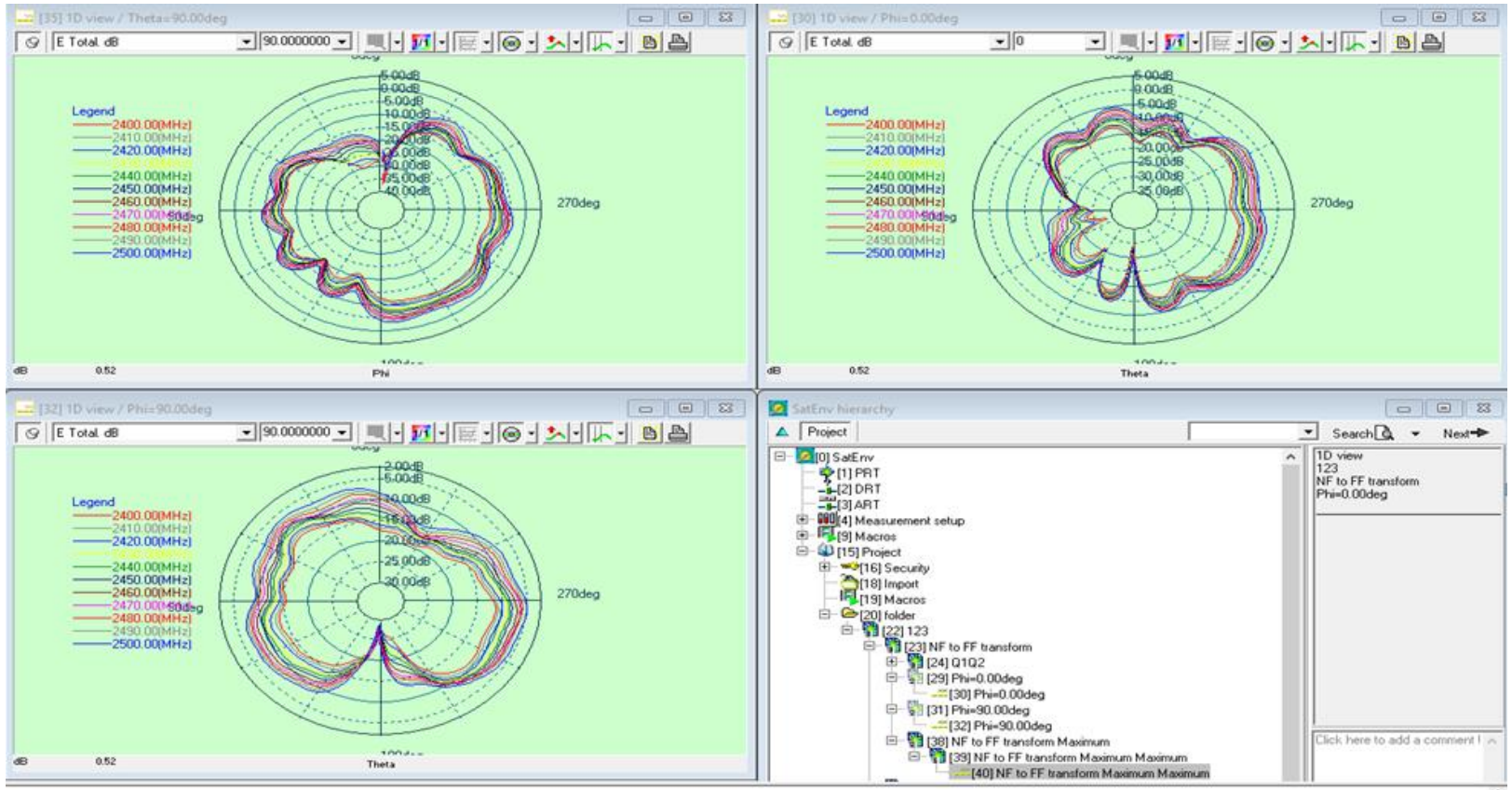
Standard	BAND	NR-N79		
5G	CHANNAL	Low	Medium	High
	TRP	18.34	18.27	18.33
	TIS			-88.46

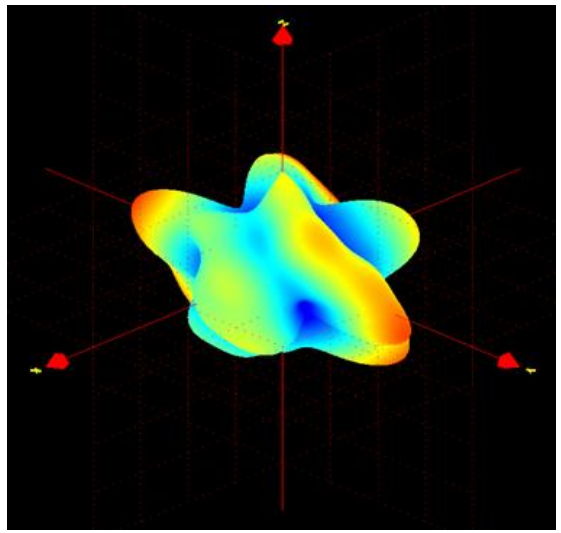
WIFI 1 passive Efficiency, Gain

WIFI 1	三合一								
1			1		1			1	
Frequency	Efficiency	Efficiency . dB	Frequency	Gain . dB	Frequency	Efficiency	Efficiency . dB	Frequency	Gain . dB
1570000000	36.70%	-4.35332	1.57E+09	1.598658	5100000000	23.69%	-6.25452	5.1E+09	0.42284
1571000000	36.34%	-4.39577	1.57E+09	1.477064	5135000000	25.10%	-6.00378	5.14E+09	0.538909
1572000000	35.92%	-4.44653	1.57E+09	1.344914	5170000000	24.56%	-6.0979	5.17E+09	0.878869
1573000000	35.44%	-4.50448	1.57E+09	1.181527	5205000000	25.28%	-5.97283	5.21E+09	2.115655
1574000000	35.04%	-4.55452	1.57E+09	1.057517	5240000000	23.35%	-6.31771	5.24E+09	1.462998
1575000000	34.73%	-4.5926	1.58E+09	0.958681	5275000000	20.60%	-6.86068	5.28E+09	1.588413
1576000000	34.57%	-4.613	1.58E+09	0.916787	5310000000	17.38%	-7.60032	5.31E+09	0.846385
1577000000	34.42%	-4.63155	1.58E+09	0.892612	5345000000	13.61%	-8.66101	5.35E+09	-0.02862
1578000000	34.28%	-4.64915	1.58E+09	0.86985	5380000000	12.61%	-8.99213	5.38E+09	0.066037
1579000000	34.07%	-4.67603	1.58E+09	0.80793	5415000000	11.70%	-9.31654	5.42E+09	-0.67786
1580000000	33.74%	-4.71841	1.58E+09	0.704979	5450000000	11.00%	-9.58418	5.45E+09	-0.79004
					5485000000	9.61%	-10.1744	5.49E+09	-0.87929
					5520000000	9.49%	-10.2287	5.52E+09	-0.71349
1			1		5555000000	8.81%	-10.5523	5.56E+09	-0.62842
Frequency	Efficiency	Efficiency . dB	Frequency	Gain . dB	5590000000	7.78%	-11.0904	5.59E+09	-1.38448
2400000000	3.74%	-14.2723	2.4E+09	-8.77506	5625000000	7.38%	-11.3166	5.63E+09	-2.44991
2410000000	4.27%	-13.6978	2.41E+09	-8.17961	5660000000	6.94%	-11.5876	5.66E+09	-3.06412
2420000000	4.92%	-13.0782	2.42E+09	-7.36502	5695000000	6.97%	-11.5648	5.7E+09	-3.64949
2430000000	5.74%	-12.4074	2.43E+09	-6.50244	5730000000	7.52%	-11.2383	5.73E+09	-3.53215
2440000000	6.60%	-11.8035	2.44E+09	-5.77469	5765000000	8.97%	-10.4734	5.77E+09	-2.53198
2450000000	7.54%	-11.2278	2.45E+09	-5.02708	5800000000	10.01%	-9.99704	5.8E+09	-1.81457
2460000000	9.01%	-10.4509	2.46E+09	-4.16111					
2470000000	10.47%	-9.80111	2.47E+09	-3.57922					
2480000000	11.72%	-9.30912	2.48E+09	-3.21335					
2490000000	13.20%	-8.79318	2.49E+09	-2.77123					
2500000000	15.52%	-8.09097	2.5E+09	-2.02437					

Measuring instrument： Agilent Technologies E5071B 300kHz-8.5GHz ENA Series Network Analyzer Darkroom system： MVG SG24LT（Satmio）

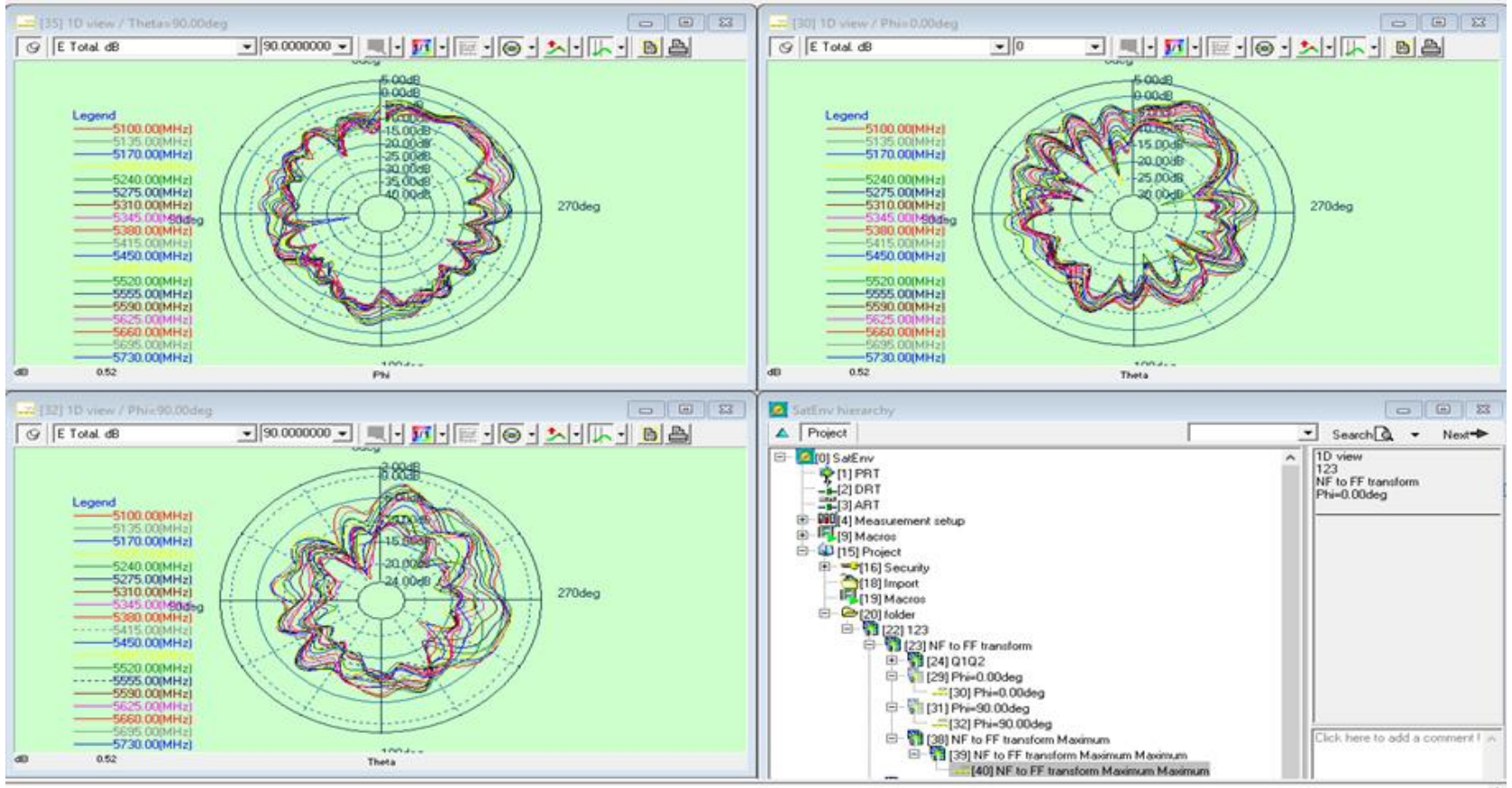
WIFI 1-2.4G WIFI Passive pattern

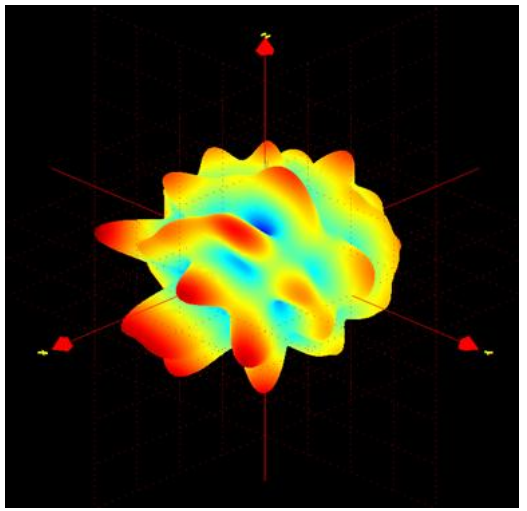




Measuring instrument： Agilent Technologies E5071B 300kHz-8.5GHz ENA Series Network Analyzer Darkroom system： MVG SG24LT（Satmio）

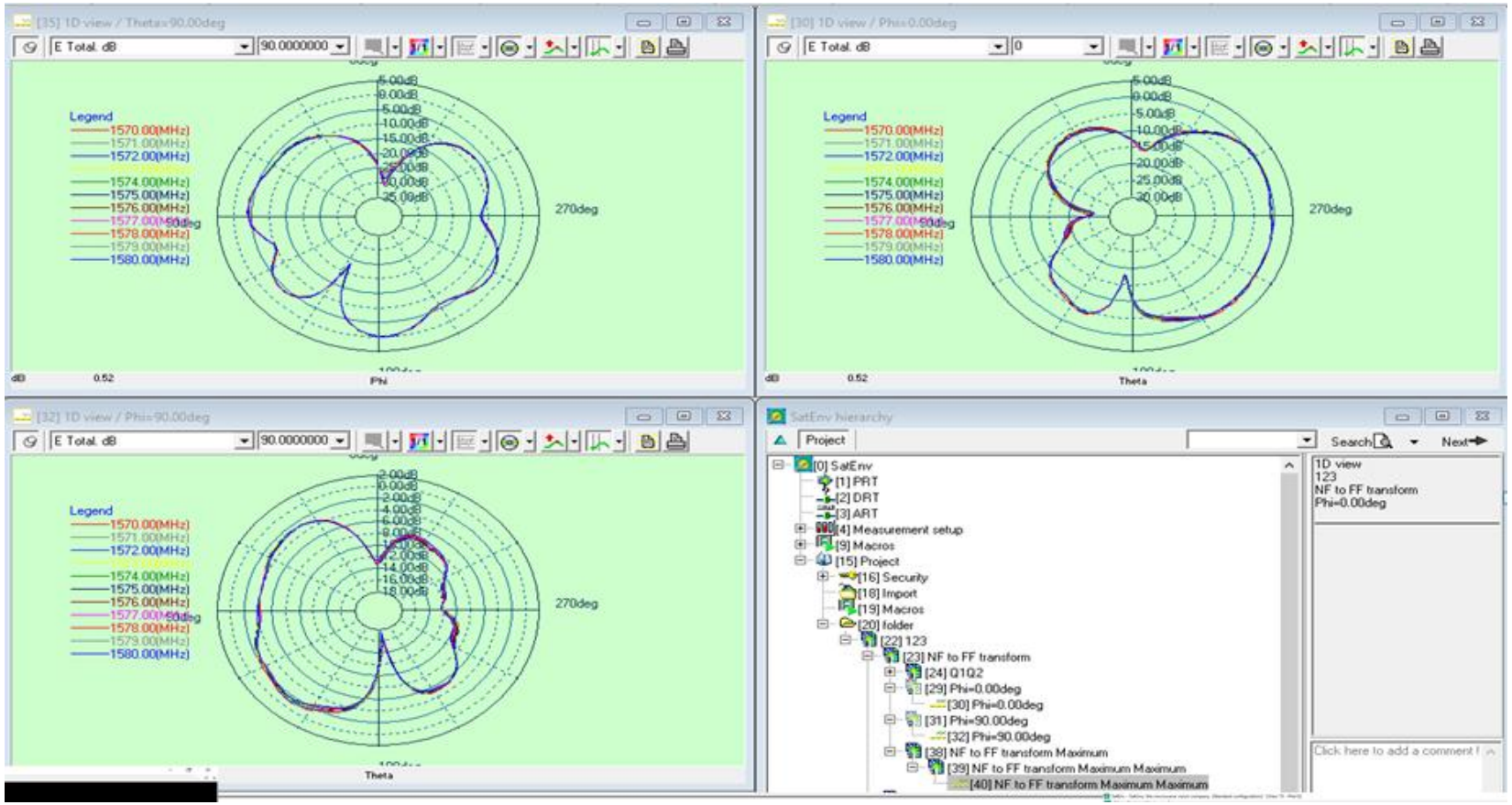
WIFI 1-5.8G WIFI Passive pattern

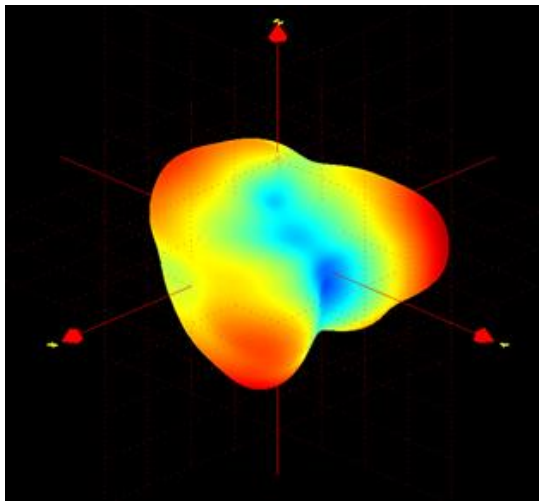




Measuring instrument： Agilent Technologies E5071B 300kHz-8.5GHz ENA Series Network Analyzer Darkroom system： MVG SG24LT（Satmio）

GPS Passive pattern





Measuring instrument： Agilent Technologies E5071B 300kHz-8.5GHz ENA Series Network Analyzer Darkroom system： MVG SG24LT（Satmio）

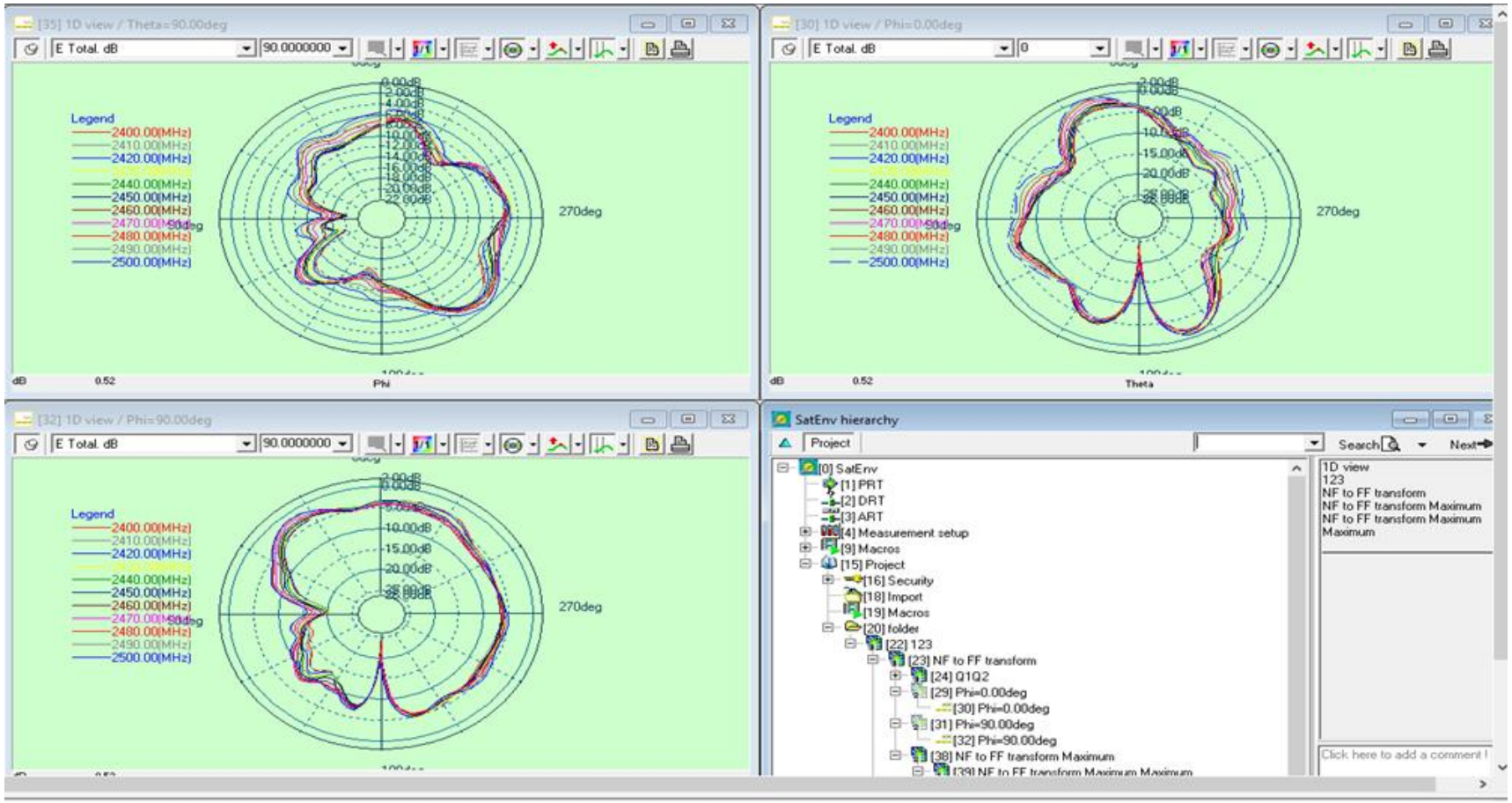
WIFI 2 passive Efficiency, Gain

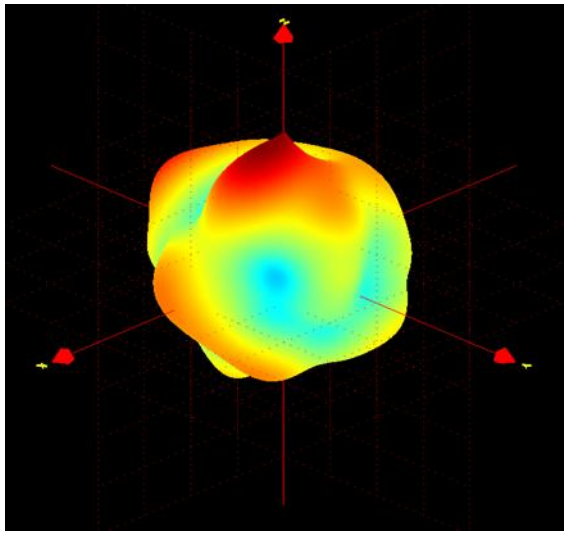
WIFI 2

1			1		1			1	
Frequency	Efficiency	Efficiency . dB	Frequency	Gain . dB	Frequency	Efficiency	Efficiency . dB	Frequency	Gain . dB
5100000000	24.93%	-6.03338	5100000000	1.44525	2400000000	16.57%	-7.80624	2400000000	-0.87131
5135000000	24.81%	-6.05394	5135000000	1.83169	2410000000	16.65%	-7.78525	2410000000	-0.81447
5170000000	23.43%	-6.30213	5170000000	1.955779	2420000000	17.41%	-7.59303	2420000000	-0.73612
5205000000	25.24%	-5.97939	5205000000	2.719687	2430000000	17.83%	-7.48803	2430000000	-1.15398
5240000000	24.20%	-6.16231	5240000000	2.369657	2440000000	17.18%	-7.65005	2440000000	-1.90078
5275000000	24.12%	-6.17639	5275000000	2.340637	2450000000	16.90%	-7.72013	2450000000	-2.07816
5310000000	23.80%	-6.23424	5310000000	2.143718	2460000000	17.85%	-7.48384	2460000000	-2.03914
5345000000	22.69%	-6.44127	5345000000	2.128132	2470000000	19.49%	-7.10207	2470000000	-1.51497
5380000000	23.79%	-6.23545	5380000000	2.134457	2480000000	20.34%	-6.91695	2480000000	-0.93872
5415000000	26.64%	-5.74426	5415000000	2.092212	2490000000	21.57%	-6.66081	2490000000	-0.55466
5450000000	29.30%	-5.33199	5450000000	2.383589	2500000000	23.34%	-6.31912	2500000000	-0.17192
5485000000	28.95%	-5.38277	5485000000	2.478912					
5520000000	31.03%	-5.08245	5520000000	3.494673					
5555000000	31.51%	-5.01484	5555000000	4.124924					
5590000000	28.70%	-5.42107	5590000000	3.855016					
5625000000	26.68%	-5.73766	5625000000	3.373713					
5660000000	23.78%	-6.23733	5660000000	2.849967					
5695000000	23.38%	-6.31233	5695000000	2.264548					
5730000000	23.80%	-6.23368	5730000000	2.218189					
5765000000	26.54%	-5.76149	5765000000	2.887818					
5800000000	26.88%	-5.70526	5800000000	3.265847					

Measuring instrument： Agilent Technologies E5071B 300kHz-8.5GHz ENA Series Network Analyzer Darkroom system： MVG SG24LT（Satmio）

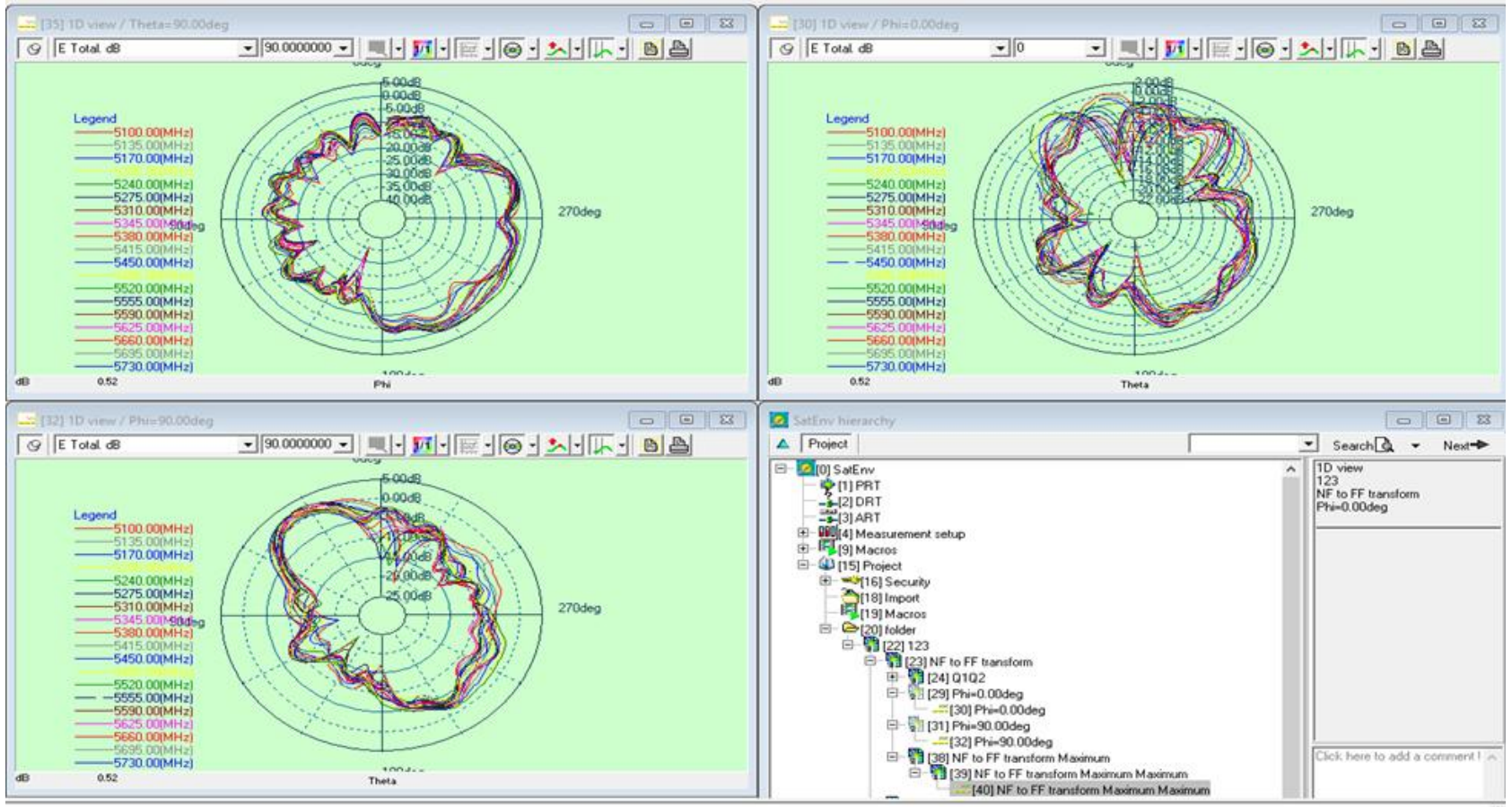
WIFI 2-2.4G WIFI Passive pattern

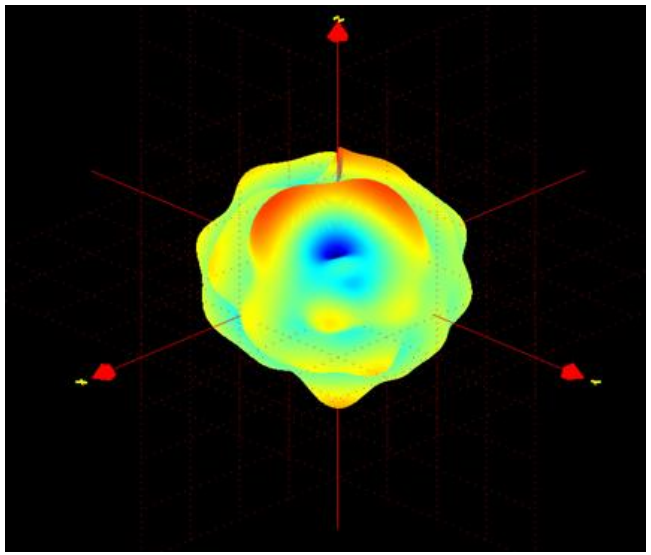




Measuring instrument： Agilent Technologies E5071B 300kHz-8.5GHz ENA Series Network Analyzer Darkroom system： MVG SG24LT（Satmio）

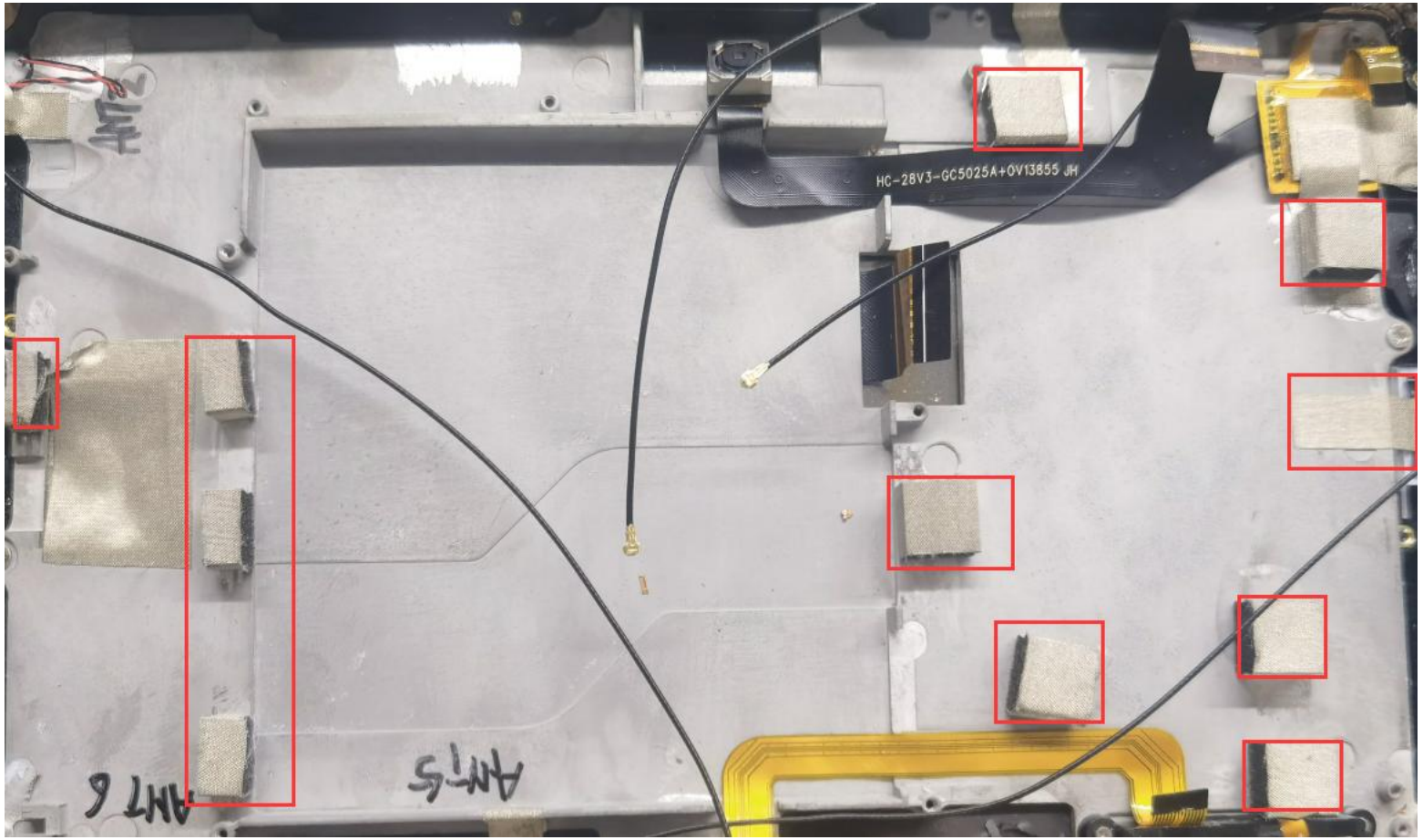
WIFI 2-5.8G WIFI Passive pattern





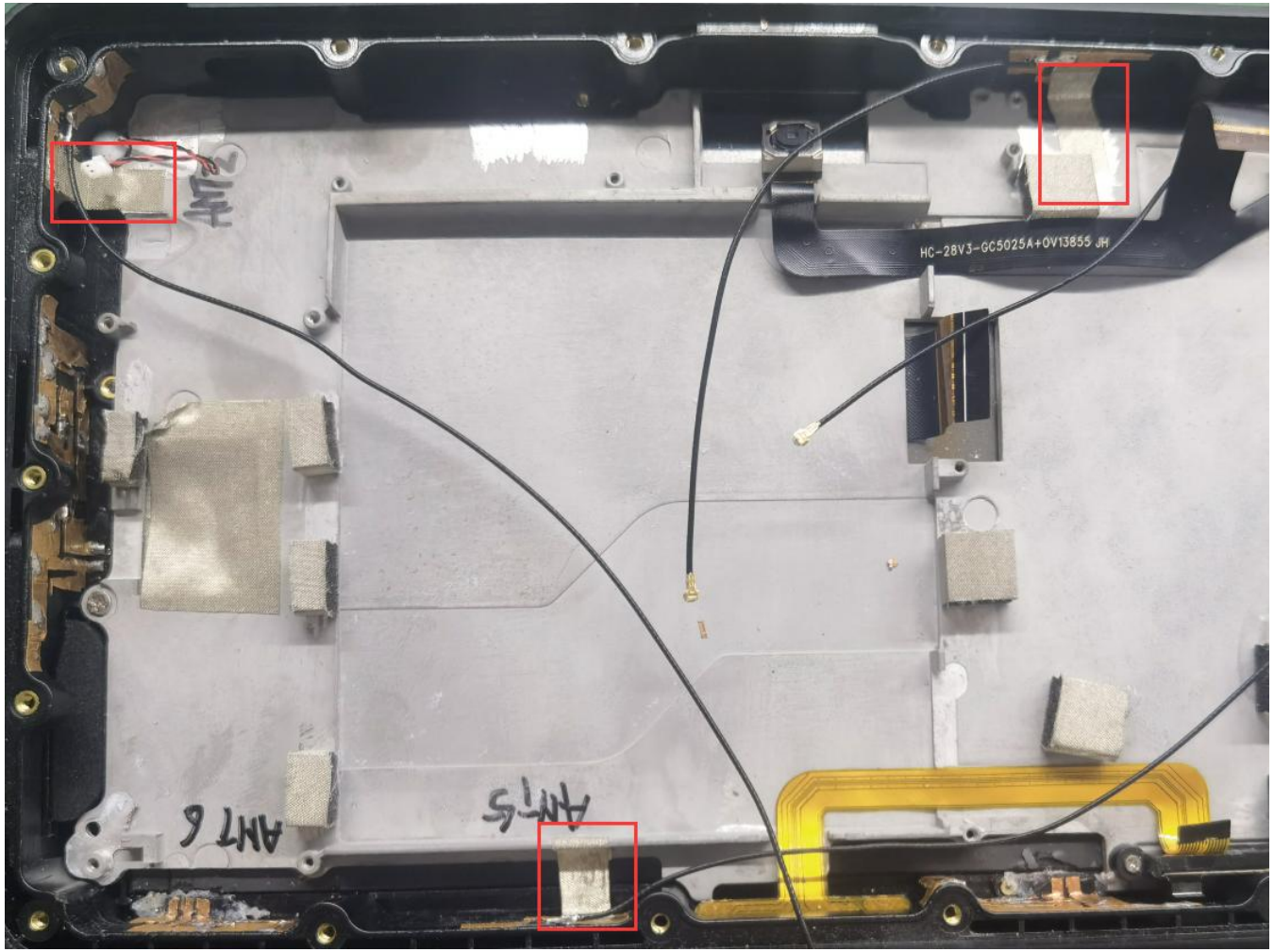
Measuring instrument： Agilent Technologies E5071B 300kHz-8.5GHz ENA Series Network Analyzer Darkroom system： MVG SG24LT（Satmio）

Environmental Treatment



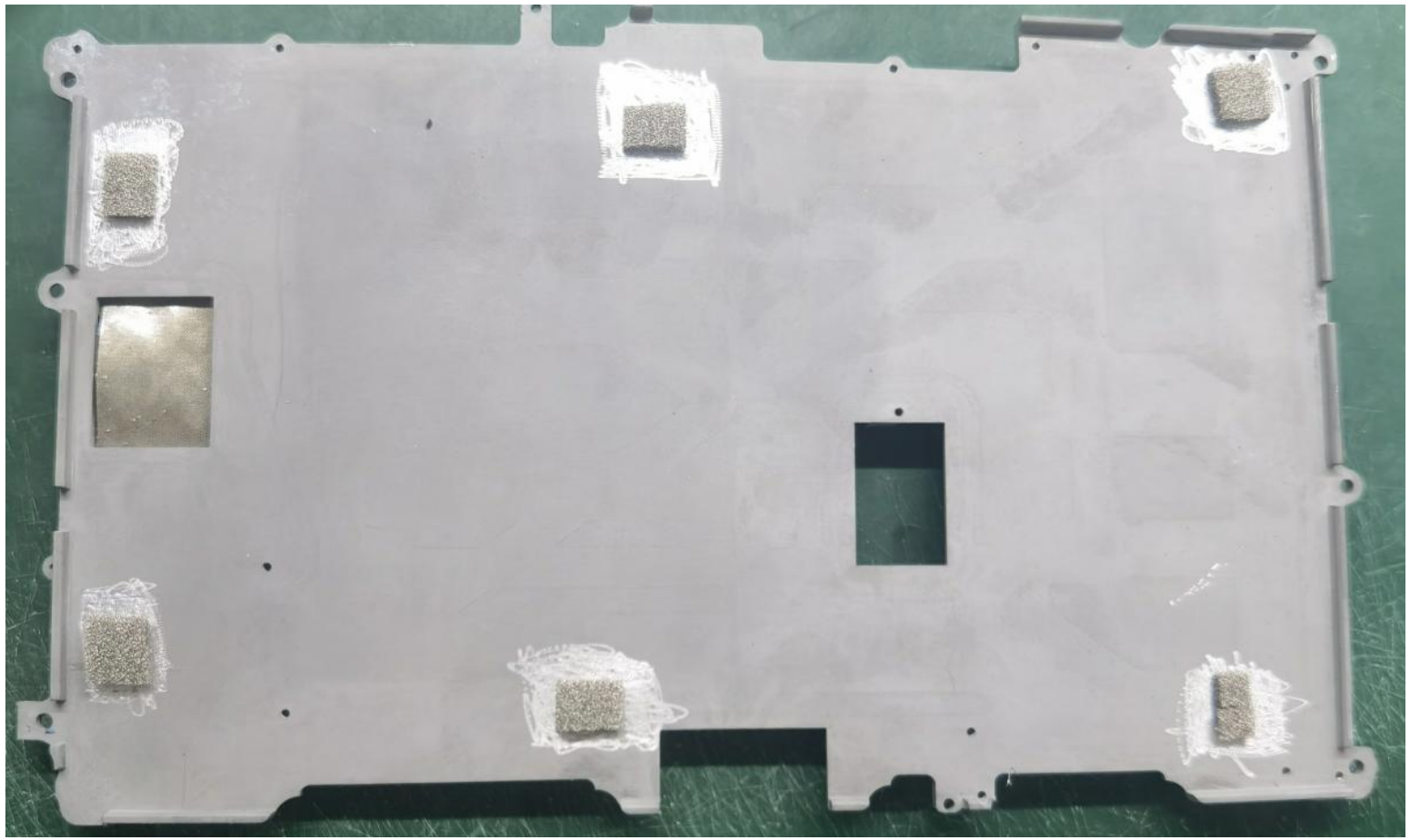
As shown in the figure, conductive foam is attached to the position of zinc alloy to ground the small board of the main board, and the corresponding position is made of radium carving. The radium carving position needs to be handled well, which has a great impact on the low frequency sensitivity.

Environmental Treatment

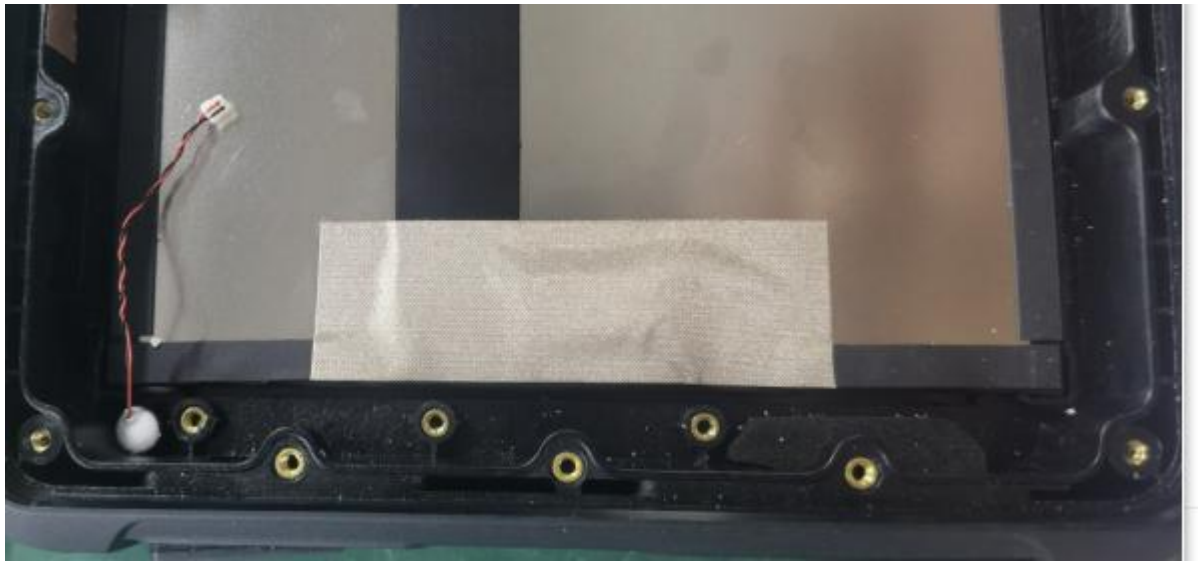


As shown in the figure, ANT2 ANT4 ANT5 needs to be grounded with conductive cloth.

Environmental Treatment

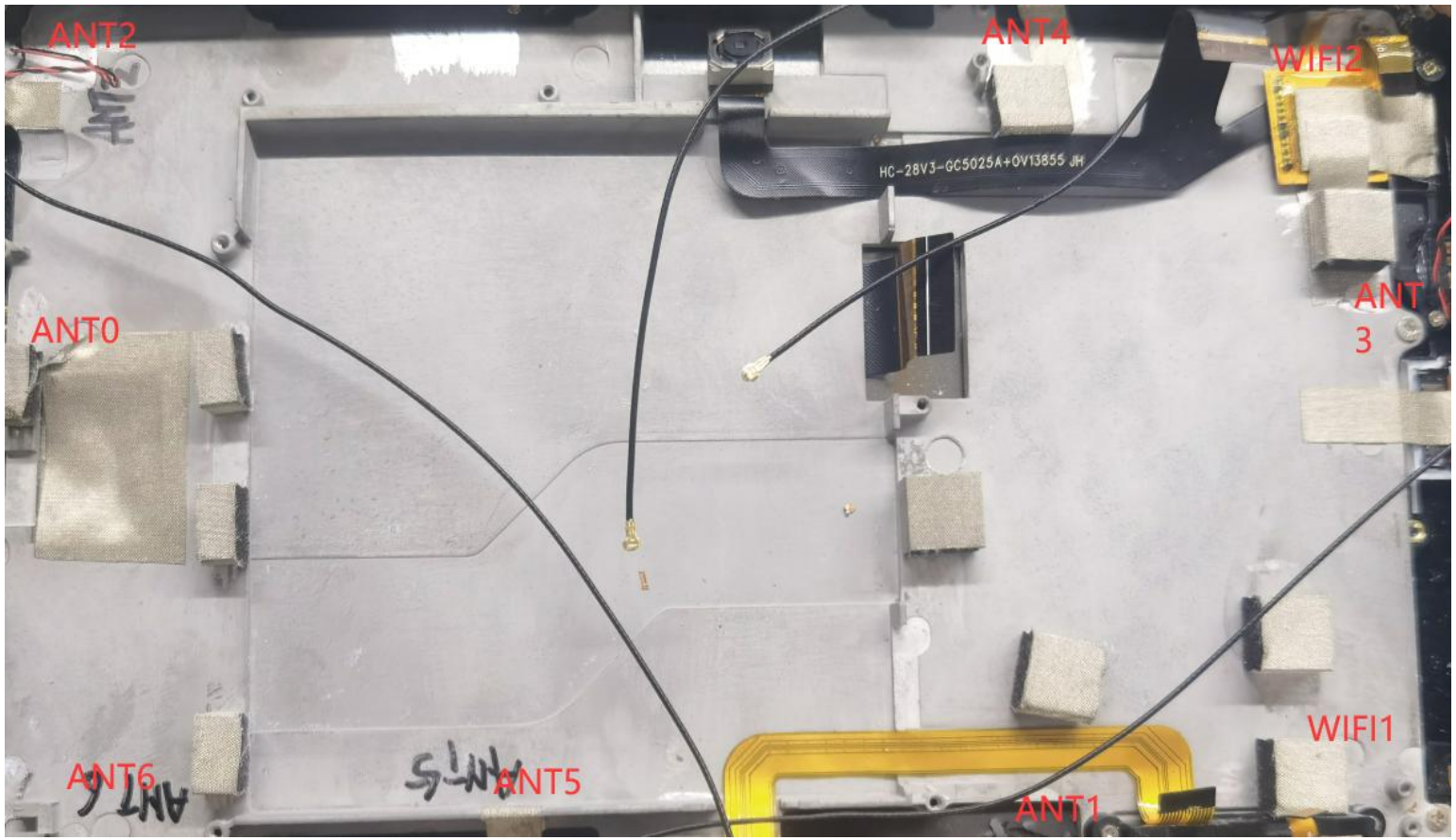


As shown in the picture, zinc alloy makes radium carving paste conductive sponge to ground the screen.



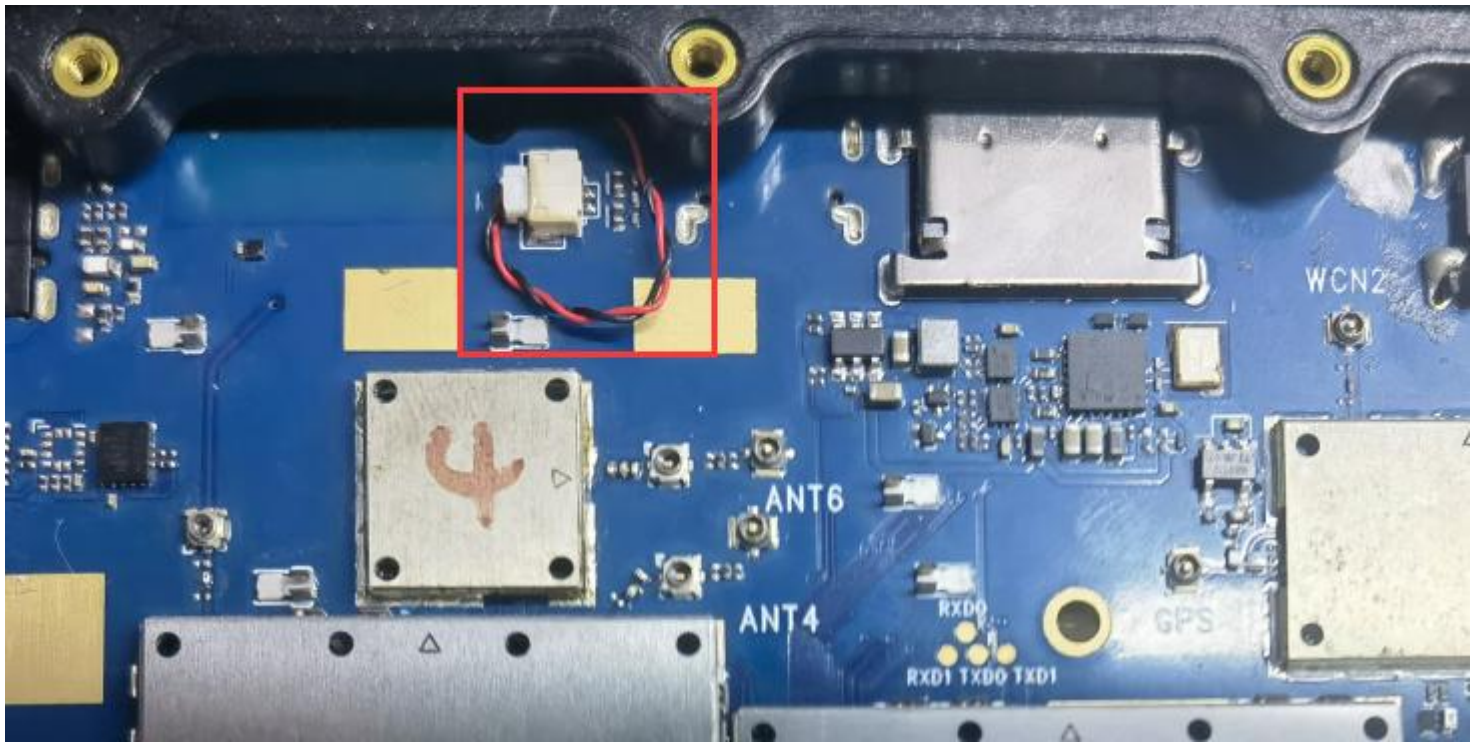
As shown in the figure, cable shielding ground

Environmental Treatment



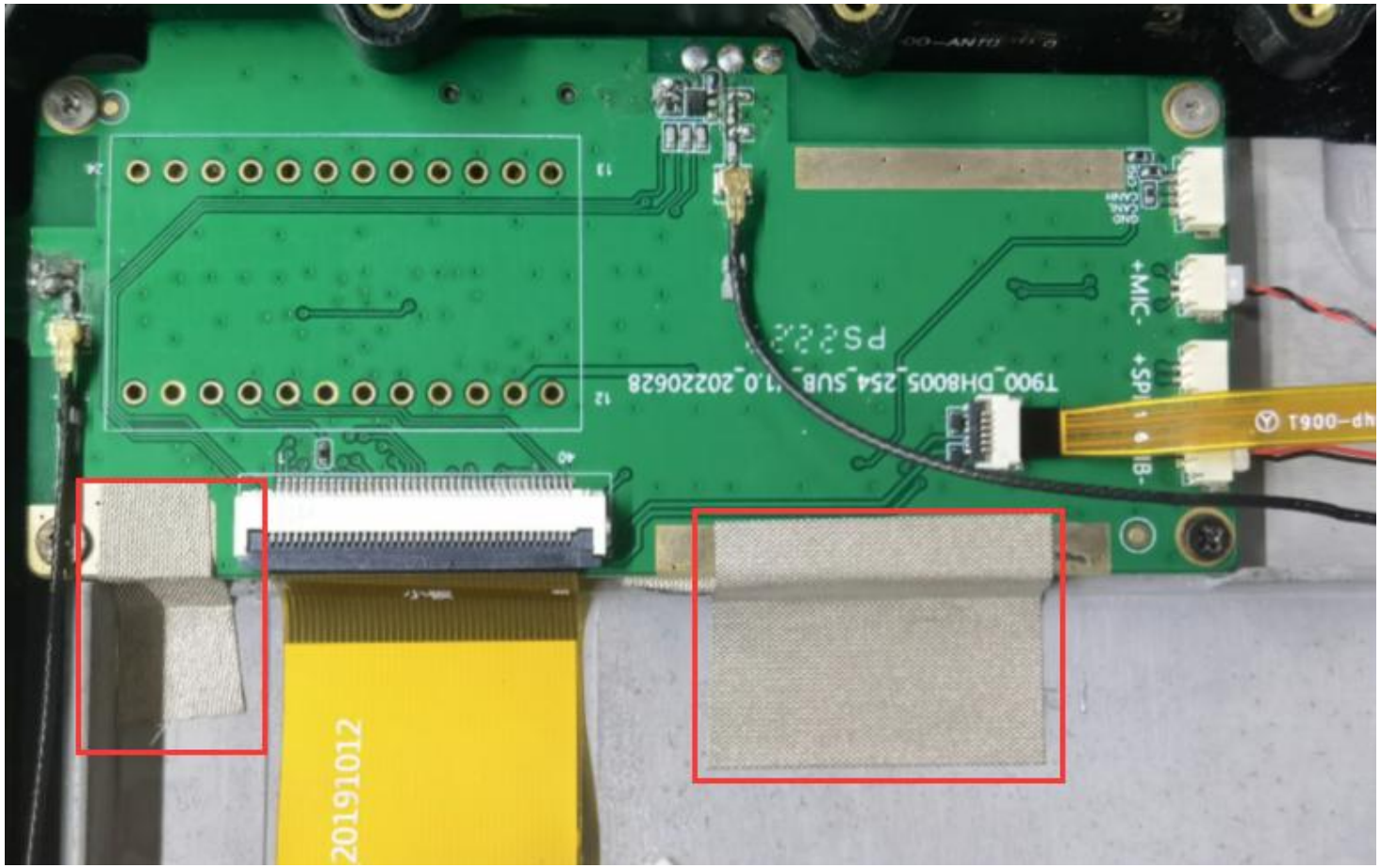
As shown in the figure, cable shielding ground

Environmental Treatment

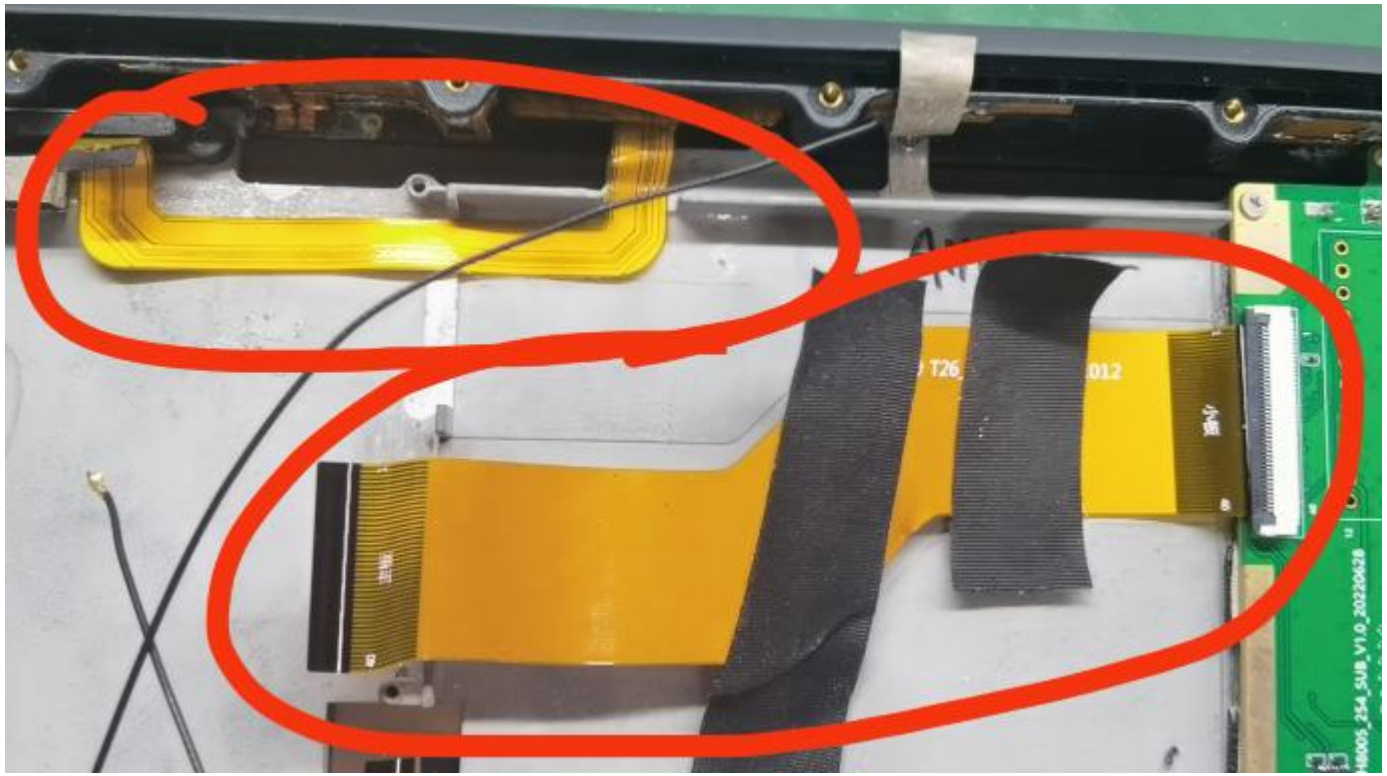


The receiver wire is placed as shown

Environmental Treatment



As shown in the figure, the conductive cloth is used to ground the small plate fully, and the position where the conductive cloth touches the zinc alloy needs to be carved with radium



As shown in the figure, the back of the two rows of wires should be grounded with copper leakage

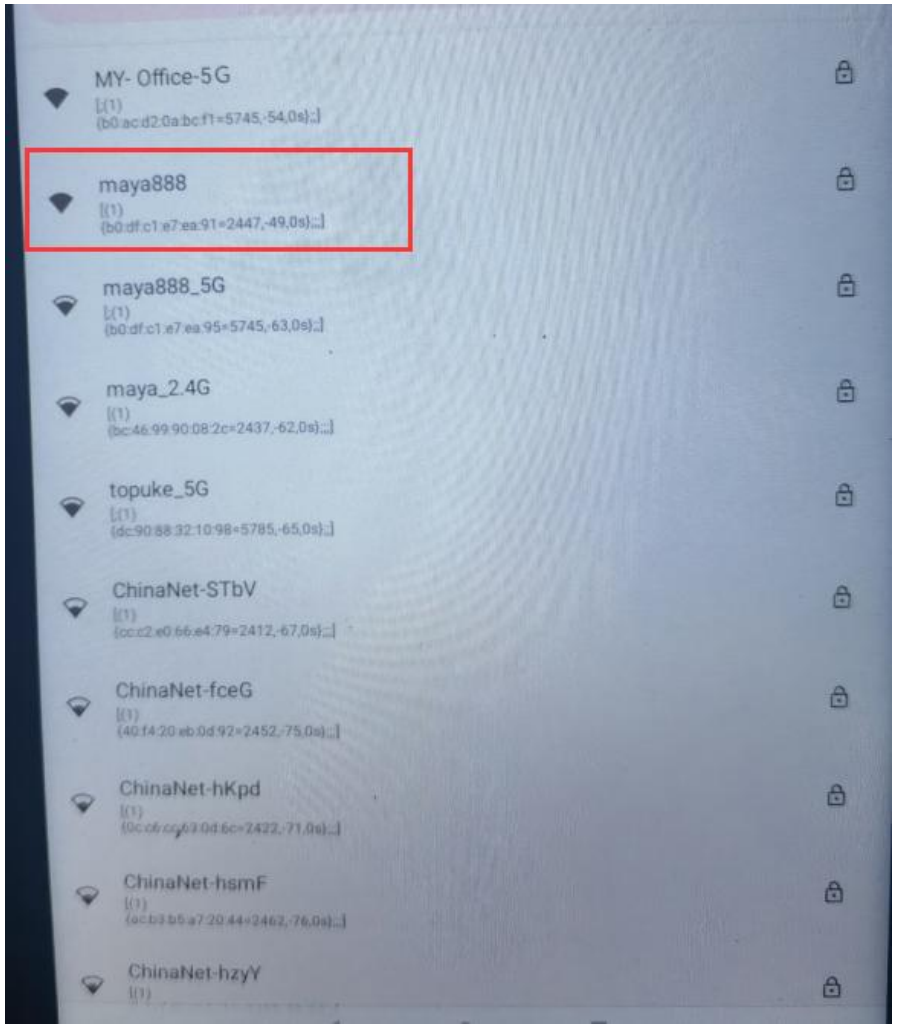
Environmental Treatment

As shown in the figure, a ground position is reserved at the switch Angle to improve the 700 Mhz,channel data

GPS


33.8
24.9
39.9
29.2
35.8
17.9
42.2
40.1
36.7
35.4
37.2
38.8
36.6
0.0
0.0
42.4
23.1
22.6
21.1
16.0
0.0
22.7
26.2
29.6
28.4
19.6
24.9
35.4
35.4
21.4

WIFI



Test 15 meters from the router. Full signal.

Sum up

1. The above is the preliminary debugging data.
2. The mainboard needs to be properly disposed of.
3. If you have any questions, please contact us by phone. Thank you

Additional Notes

01

Whether the antenna matching circuit is changed in the report and whether the environmental treatment related to the antenna is increased will directly affect the antenna performance. Please confirm it carefully.

02

If your company has the latest trial production or updated products (such as software, ESD, materials, etc.), please provide us as soon as possible for verification, to confirm whether the antenna performance has changed.

03

If your company needs to send a third-party testing institution for retest or customer test, please be sure to conduct antenna related test with our company first to confirm, because the consistency of motherboard and assembly, as well as the difference of antenna assembly and other factors may lead to the deviation of antenna parameters.

THANK YOU

Please contact us if you have any questions
Daily service hours: Monday to Saturday 9:00-18:00
Switchboard hotline: 0755-36615535 Sales hotline: 0755-36615535
Transmission: 0755-82916227
Website: www.mayaant.com