



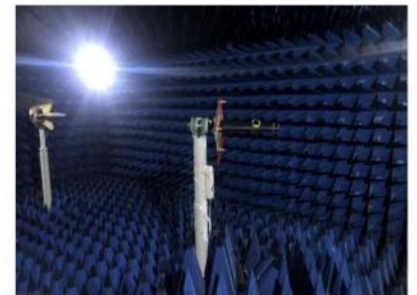
深圳市昱晟通讯设备有限公司
Yusheng Communications-equipment Co.,LTD

Yishunxing Huaxing-A1 Antenna Test Report

RF: Hong

Yuankai Date:

2025-5-21 Contact: 15119409299



Project Debugging Introduction

model				
Plate type	Motherboard			
Frequency band and antenna material	Main Antenna	Frequency band		Material
		2G	GSM850/900/1800/1900	FPC
		3G	WCDMA B1/2/4/5/8	
		4G	LTE B1/2/3/5/7/8/12/13/17/20/25/26/28AB/34/ 38/39/40/41/66/71	
	Other Antennas	GWB	1575.42MHz/2.45GHz/5.8GHz	FPC
		DRX	have	FPC
Performance requirements	Execute according to customer requirements			

Report Version Outline

Report Version	Reporting time	Problems solved by this antenna development
V0.1	20250313	Switch Logic Report
V0.2	20250318	Active test report
V0.3	20250321	Sample test report
V0.4	20250510	Machine test report (switch matching has been changed)
V0.5	20250521	Machine test report (add standing wave diagram, gain, dimension diagram, etc.)

Main Antenna Switch Logic

RF1 (C123: 0V)	EGSM900,DCS1800,PCS1900, WCDMA B1/2/4/8, LTE-B1/2/3/4/7/8/25/34/38/39/40/41/66
RF2 (C121: 8.2nH)	GSM850, WCDMA B5, LTE-B5/20/26
RF3 (C131: 33nH)	LTE-B12/13/17/28AB
RF4 (C122: 68nH)	LTE-B71

Main antenna active parameters

频段	CH	TRP (db)	TIS (dbm)	频段	CH	TRP (db)	TIS (dbm)
GSM850	CH(Low)	27.02		WCDMA B1	CH(Low)	19.04	
	CH(Chinese)	27.27			CH(Chinese)	19.13	
	CH(High)	27.05	-96.02		CH(High)	19.18	-103.57
EGSM900	CH(Low)	27.01		WCDMA B2	CH(Low)	19.05	
	CH(Chinese)	26.02			CH(Chinese)	19.01	
	CH(High)	25.10	-98.05		CH(High)	19.32	-103.65
DCS1800	CH(Low)	25.02		WCDMA B4	CH(Low)	18.03	
	CH(Chinese)	25.12			CH(Chinese)	18.12	
	CH(High)	25.07	-103.08		CH(High)	18.04	-103.14
PCS1900	CH(Low)	25.06		WCDMA B5	CH(Low)	17.03	
	CH(Chinese)	25.03			CH(Chinese)	17.54	
	CH(High)	25.19	-103.01		CH(High)	17.02	-97.13

Main antenna active parameters

频段	CH	TRP (db)	TIS (dbm)	频段	CH	TRP (db)	TIS (dbm)
WCDMA B8	CH(Low)	17.13		LTE B4	CH(Low)	19.05	
	CH(Chinese)	16.01			CH(Chinese)	19.16	
	CH(High)	15.02	-99.04		CH(High)	19.07	-92.03
LTE B1	CH(Low)	19.65		LTE B5	CH(Low)	17.59	
	CH(Chinese)	19.70			CH(Chinese)	18.05	
	CH(High)	19.70	-92.53		CH(High)	17.51	-85.03
LTE B2	CH(Low)	19.21		LTE B7	CH(Low)	20.53	
	CH(Chinese)	19.18			CH(Chinese)	21.08	
	CH(High)	19.68	-92.62		CH(High)	21.40	-92.62
LTE B3	CH(Low)	19.01		LTE B8	CH(Low)	17.72	
	CH(Chinese)	19.47			CH(Chinese)	16.11	
	CH(High)	19.41	-93.19		CH(High)	15.05	-87.08

Main antenna active parameters

频段	CH	TRP (db)	TIS (dbm)	频段	CH	TRP (db)	TIS (dbm)
LTE B12	CH(Low)	15.75		LTE B25	CH(Low)	19.05	
	CH(Chinese)	15.51			CH(Chinese)	19.32	
	CH(High)	16.02	-85.06		CH(High)	19.10	-92.56
LTE B13	CH(Low)			LTE B26	CH(Low)	17.54	
	CH(Chinese)	16.01	-85.11		CH(Chinese)	18.02	
	CH(High)				CH(High)	17.53	-85.19
LTE B17	CH(Low)	15.74		LTE B28A	CH(Low)	16.01	
	CH(Chinese)	16.03			CH(Chinese)	16.29	
	CH(High)	15.69	-85.13		CH(High)	16.13	-85.07
LTE B20	CH(Low)	17.65		LTE B28B	CH(Low)	16.20	
	CH(Chinese)	18.12			CH(Chinese)	16.02	
	CH(High)	17.61	-86.04		CH(High)	15.81	-84.12

Main antenna active parameters

频段	CH	TRP (db)	TIS (dbm)	频段	CH	TRP (db)	TIS (dbm)
LTE B34	CH(Low)	19.53		LTE B41	CH(Low)		
	CH(Chinese)	19.60			CH(Chinese)	21.52	-92.52
	CH(High)	19.60	-92.25		CH(High)		
LTE B38	CH(Low)	21.45		LTE B66	CH(Low)	19.21	
	CH(Chinese)	21.38			CH(Chinese)	19.66	
	CH(High)	21.33	-92.51		CH(High)	18.79	-93.03
LTE B39	CH(Low)	19.12		LTE B71	CH(Low)	14.72	
	CH(Chinese)	19.07			CH(Chinese)	15.27	
	CH(High)	19.50	-92.63		CH(High)	15.61	-87.03
LTE B40	CH(Low)	20.66					
	CH(Chinese)	20.83					
	CH(High)	20.86	-91.27				

Four-in-one antenna active parameters

	802. 11	信道号	TRP (db)	TIS (dbm)
WIFI	11B	CH1	11.02	
		CH7	11.55	
		CH13	11.28	-81.15
	11G	CH1	10.81	
		CH7	11.23	
		CH13	11.02	-68.10
	11N	CH1	10.03	
		CH7	10.35	
		CH13	10.12	-65.03
	11A	CH36	9.02	
		CH64	10.05	
		CH165	10.23	-69.07

Antenna gain

Band	Gain (MAX)
GSM850	0.65
EGSM900	0.61
DCS1800	1.07
PCS1900	1.11
WCDMA B1	1.15
WCDMA B2	1.11
WCDMA B5	0.65
WCDMA B8	0.61
Band1	1.15
Band2	1.11
Band3	1.07
Band4	1.02
Band5	0.65
Band7	1.21
Band8	0.61
Band12	0.52

Band	Gain (MAX)
Band17	0.53
Band20	0.65
Band28A	0.54
Band28B	0.54
Band34	1.11
Band38	1.21
Band39	1.11
Band40	1.18
Band41	1.21
GPS	1.01
2.4G WiFi	1.18
BT	1.18
5.8G WiFi	1.29

Main antenna passive parameters

Passive Test

Freq (MHz)	Effi (%%)
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600.0	20.1%
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700.0	24.2%
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800.0	28.7%
-------	-------

900.0	30.4%
-------	-------

960.0	22.1%
-------	-------

1700.0	45.7%
--------	-------

1800.0	50.2%
--------	-------

1900.0	52.1%
--------	-------

2000.0	54.3%
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2100.0	55.1%
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2200.0	53.2%
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2300.0	54.5%
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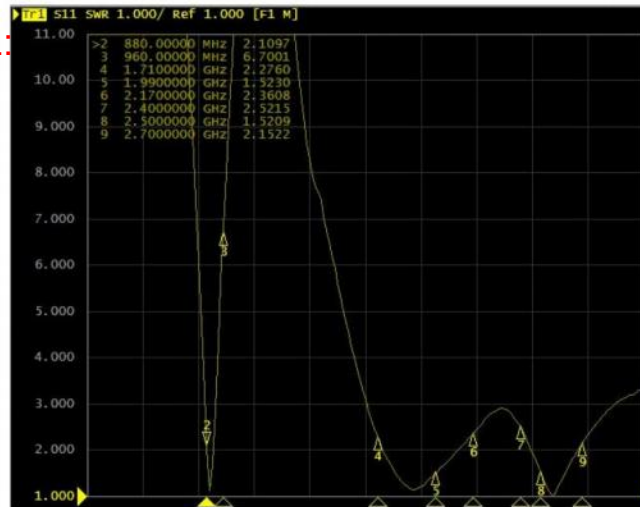
2400.0	54.1%
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2500.0	55.3%
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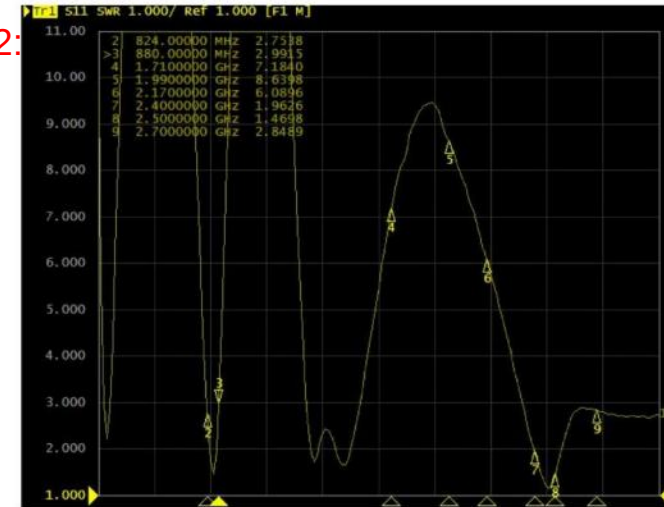
2600.0	55.9%
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2700.0	55.7%
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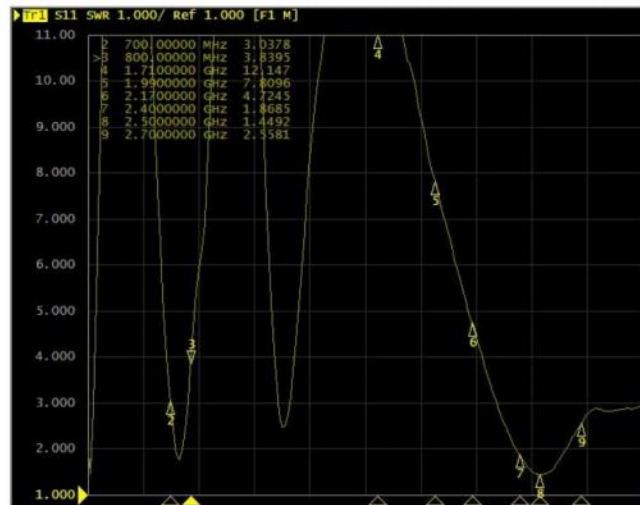
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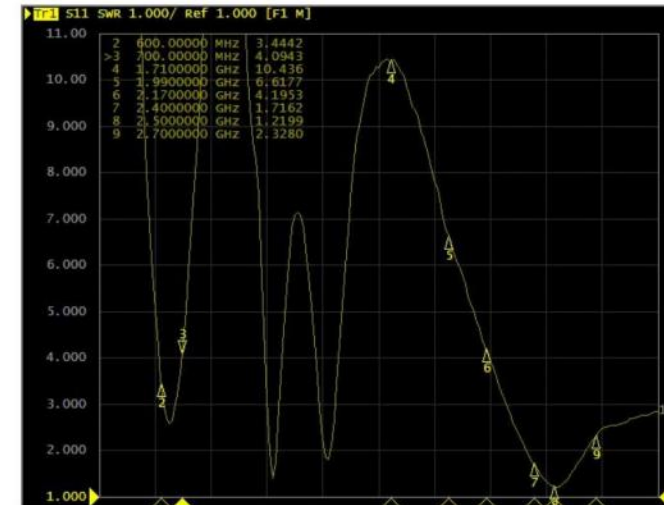
RF2:



RF3:



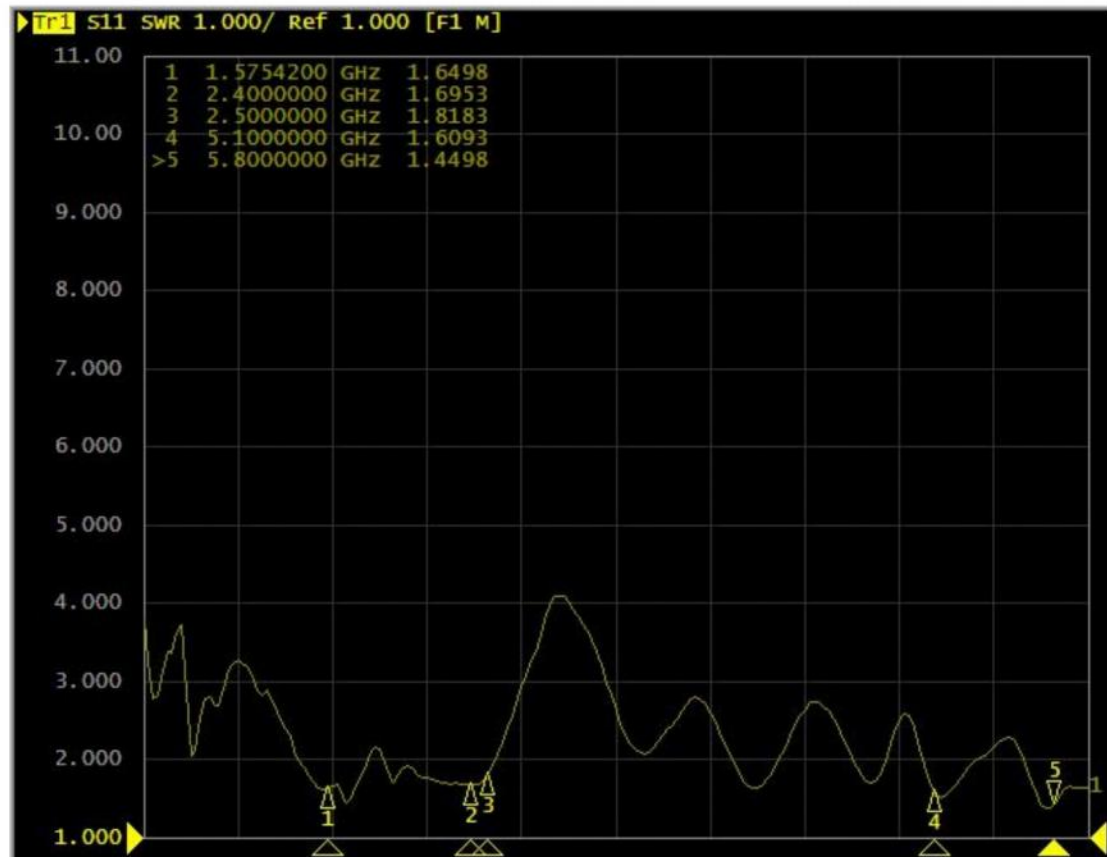
RF4:



Four-in-one antenna passive parameters

Passive Test

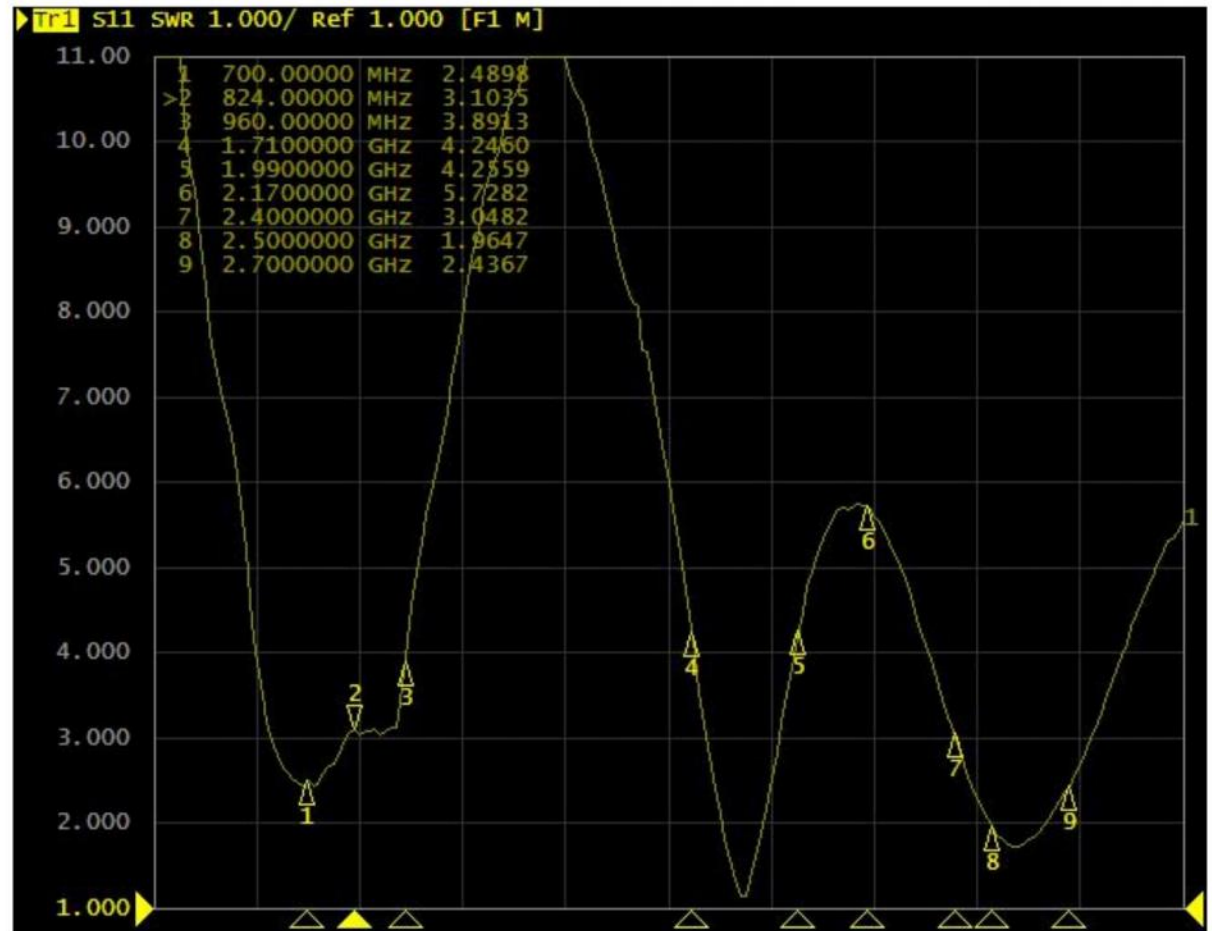
Freq	Effi	Freq	Effi
(MHz)	(%%)	(MHz)	(%%)
1550.0	26.2%	5100.0	31.5%
1560.0	27.5%	5160.0	31.9%
1570.0	28.9%	5220.0	32.2%
1575.0	30.1%	5280.0	32.7%
1580.0	28.5%	5340.0	32.6%
1590.0	27.3%	5400.0	33.6%
		5460.0	33.7%
2400.0	27.3%	5520.0	34.1%
2420.0	28.8%	5580.0	33.0%
2440.0	29.4%	5640.0	32.8%
2460.0	30.5%	5700.0	31.6%
2480.0	29.3%	5760.0	31.1%
2500.0	28.2%		



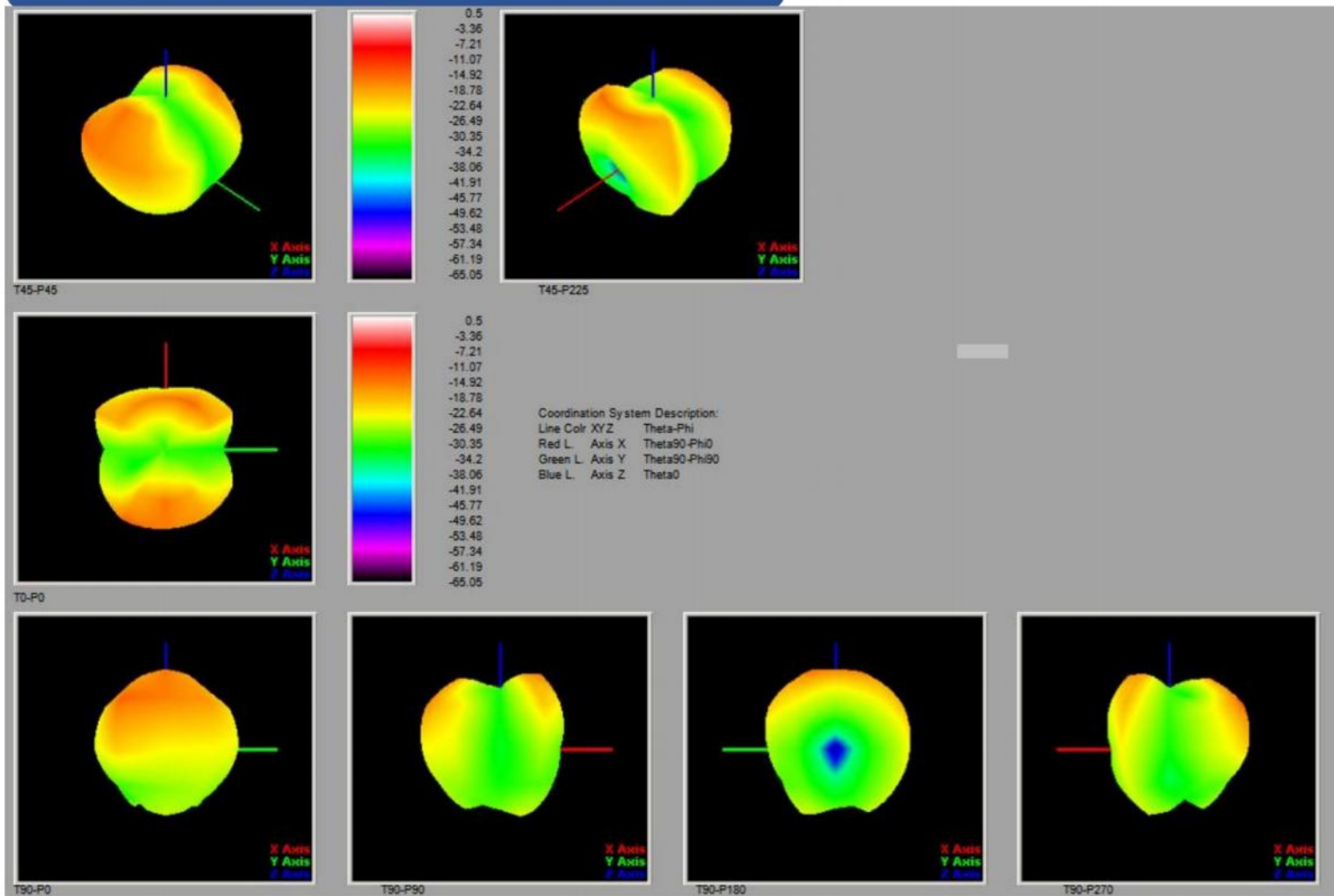
Diversity antenna passive parameters

Passive Test

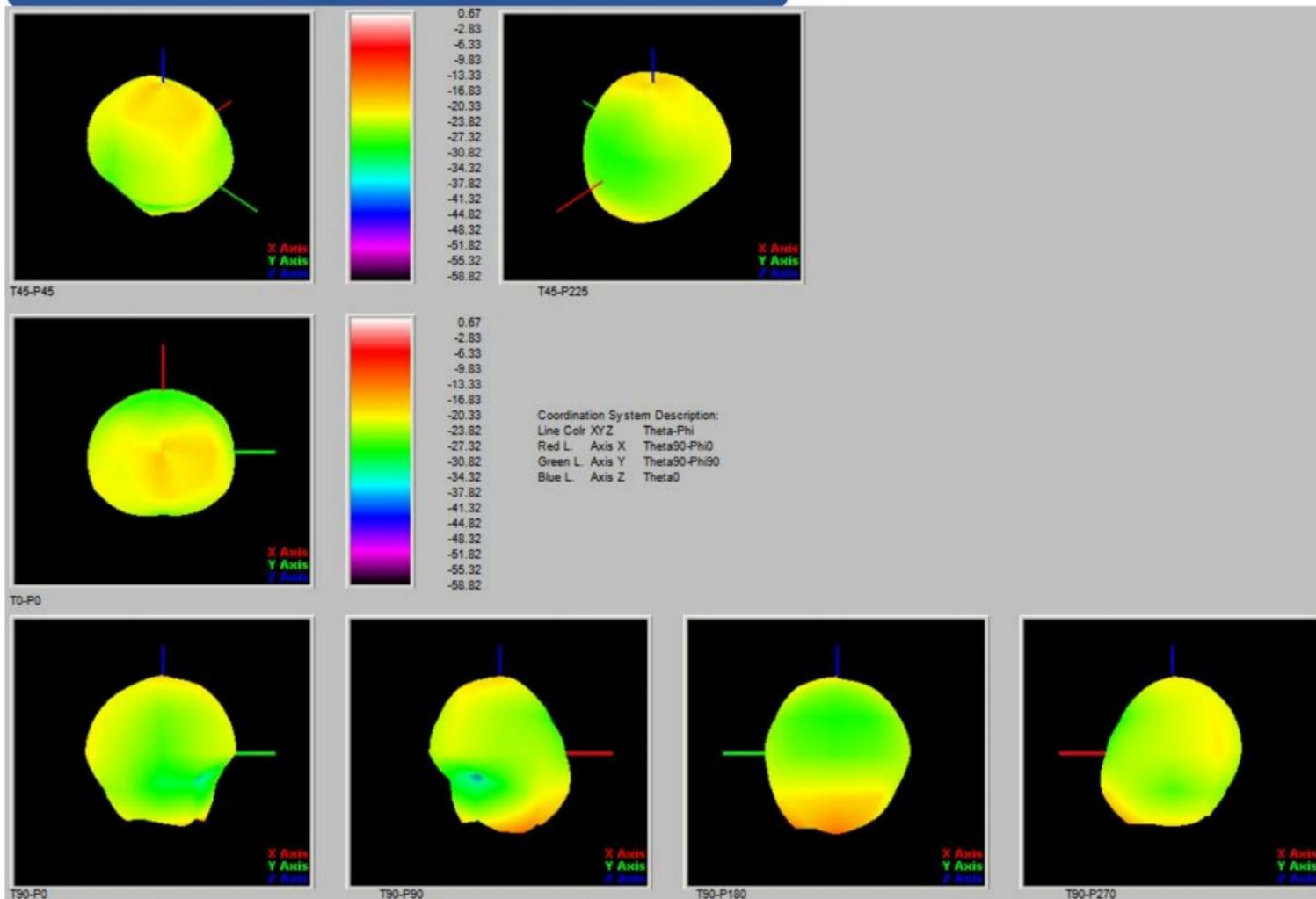
Freq	Effi
(MHz)	(%%)
600.0	18.5%
700.0	21.1%
800.0	23.6%
900.0	25.2%
960.0	20.5%
1700.0	25.3%
1800.0	27.1%
1900.0	30.3%
2000.0	28.4%
2100.0	27.0%
2200.0	25.5%
2300.0	26.2%
2400.0	28.1%
2500.0	29.5%
2600.0	30.9%
2700.0	30.2%



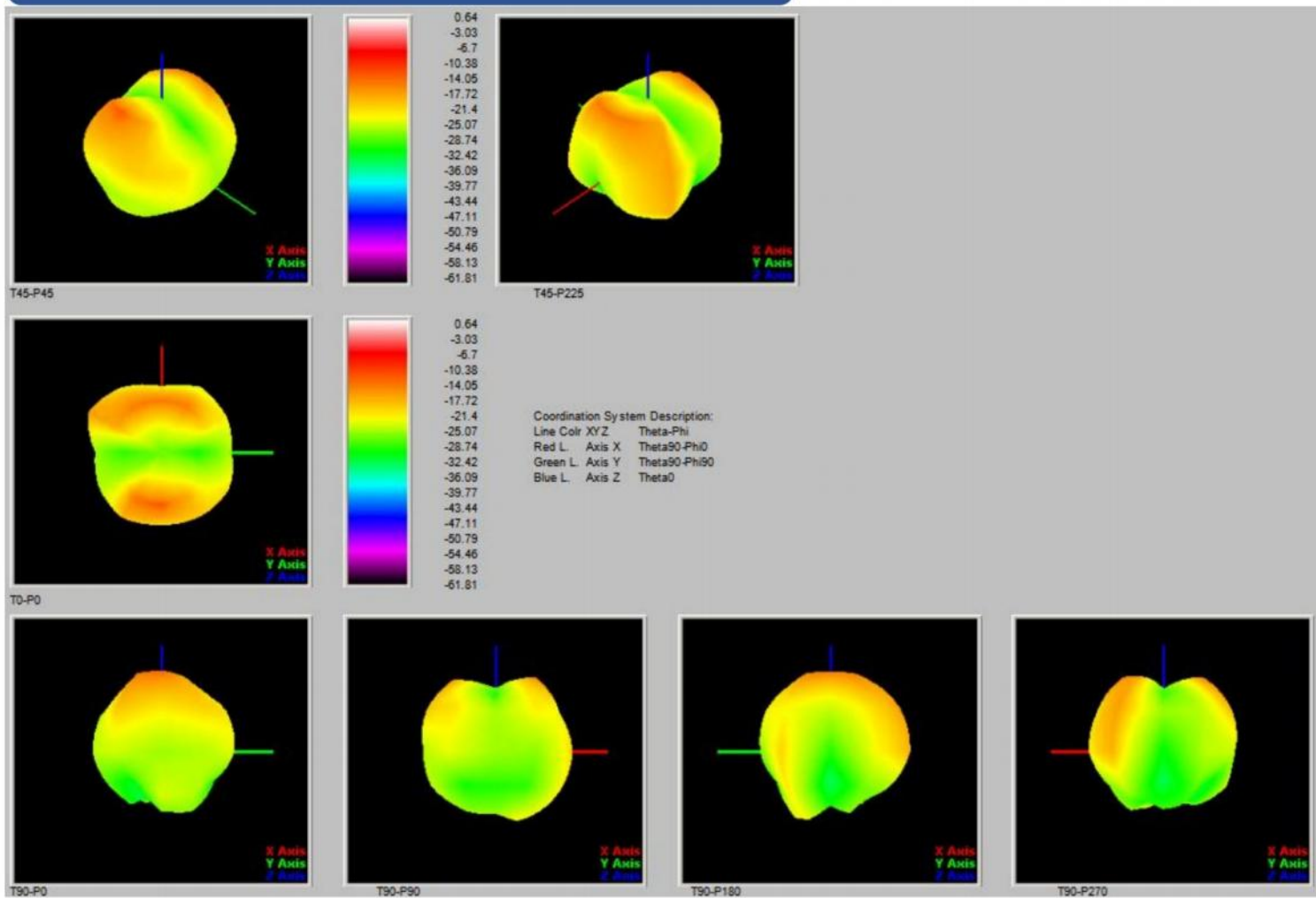
Passive parameters-Apple diagram-600MHz-824MHz



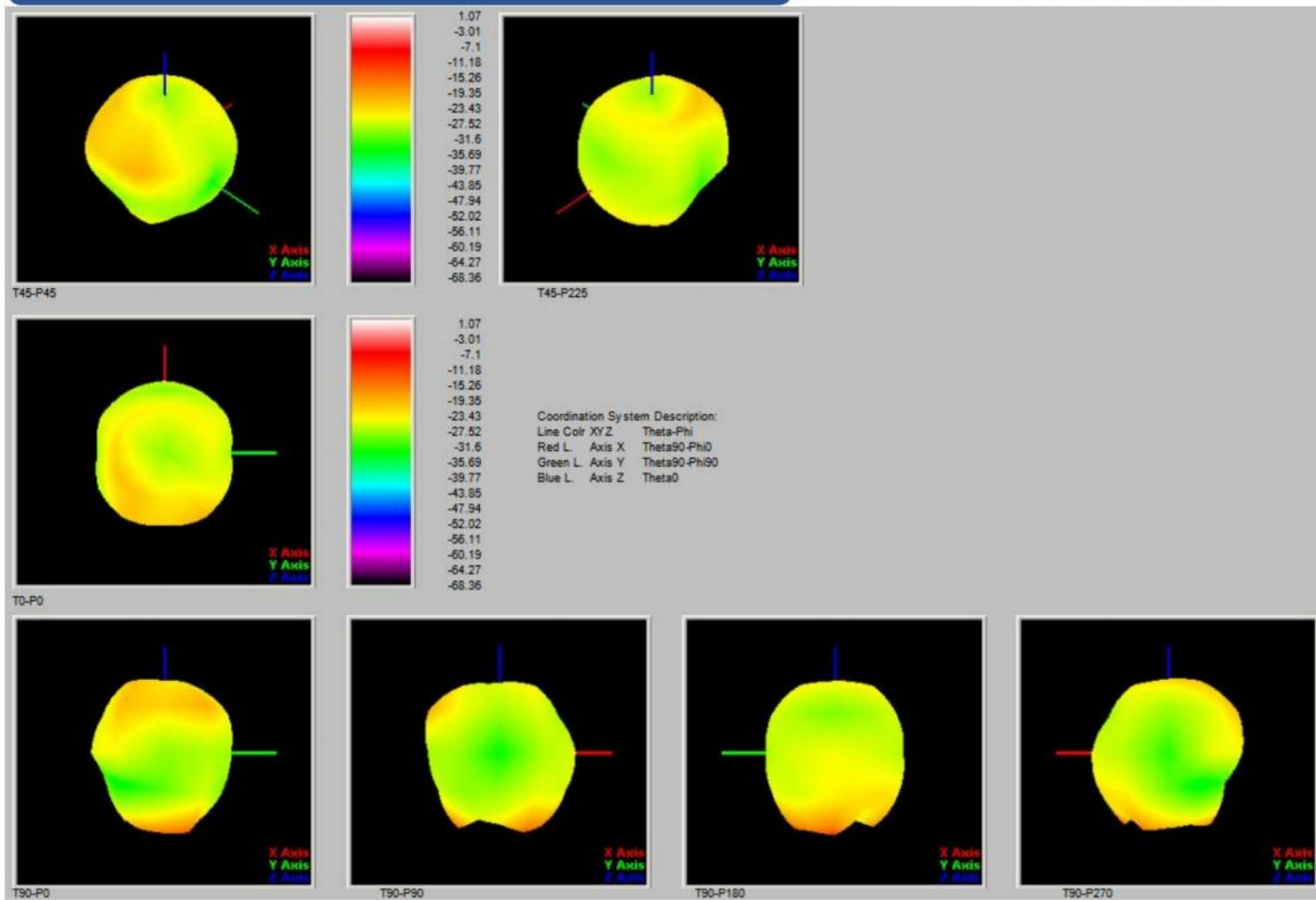
Passive parameters-Apple diagram-824MHz-880MHz



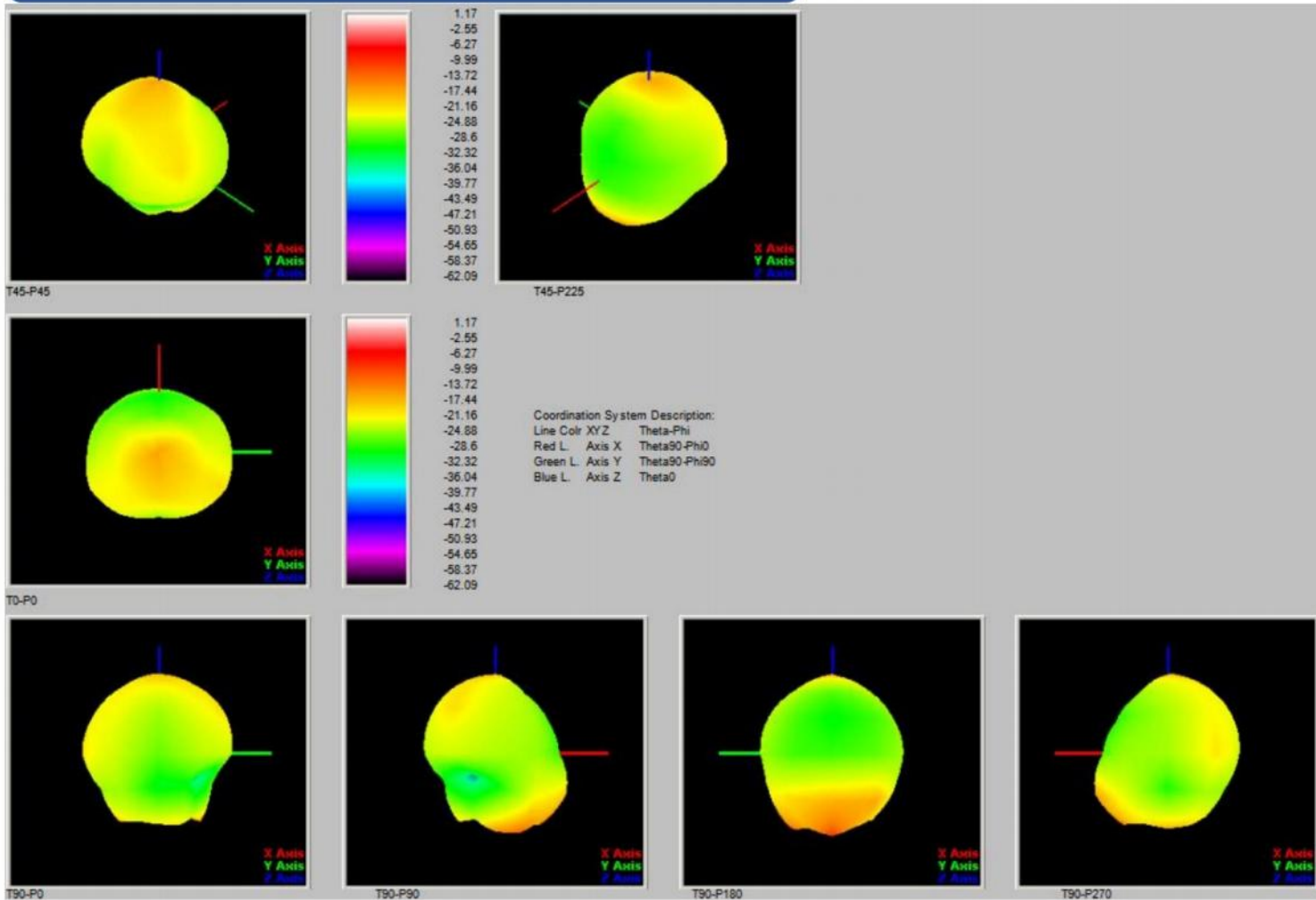
Passive parameters-Apple diagram-880MHz-960MHz



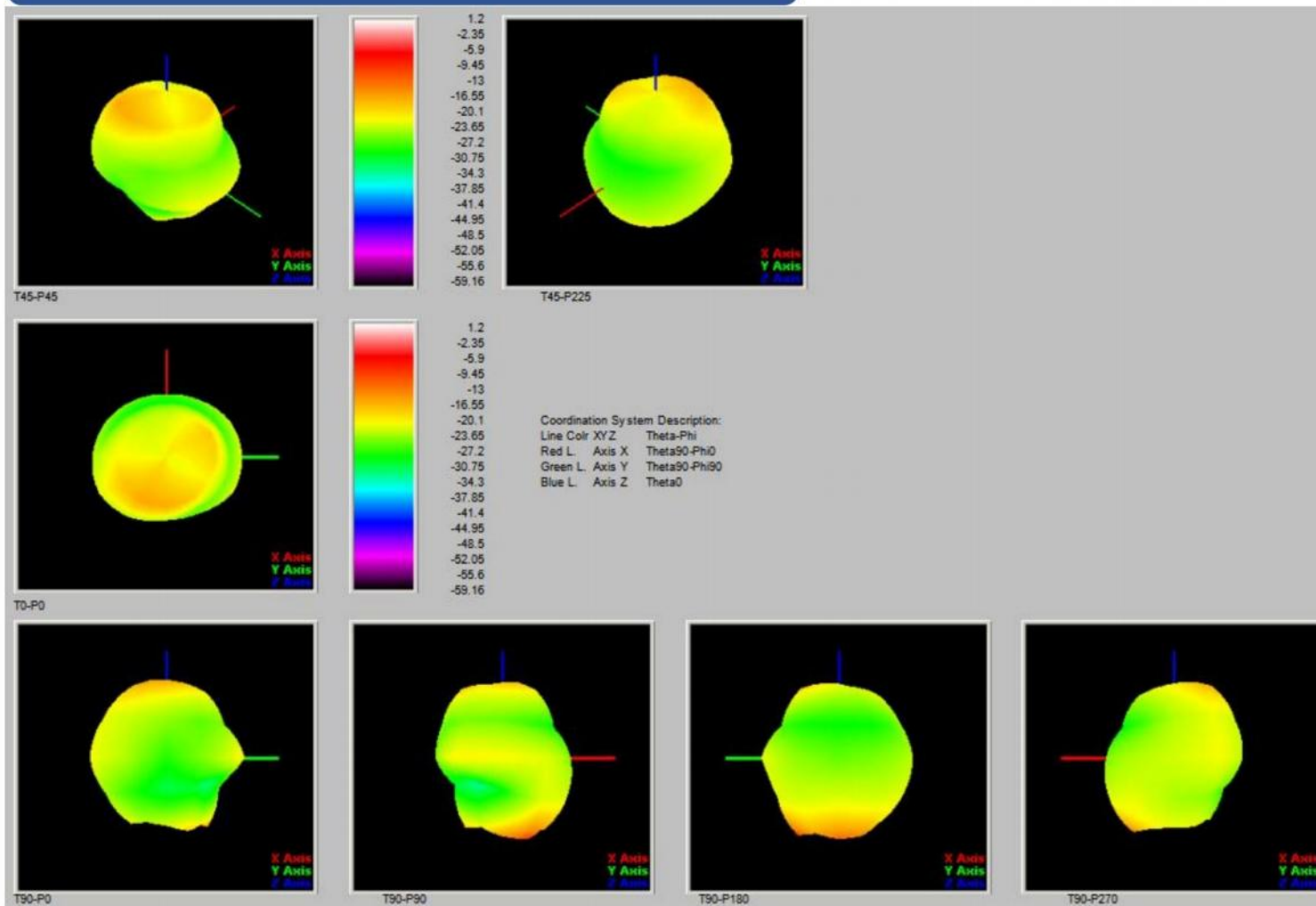
Passive parameters-Apple diagram-1710MHz-1880MHz



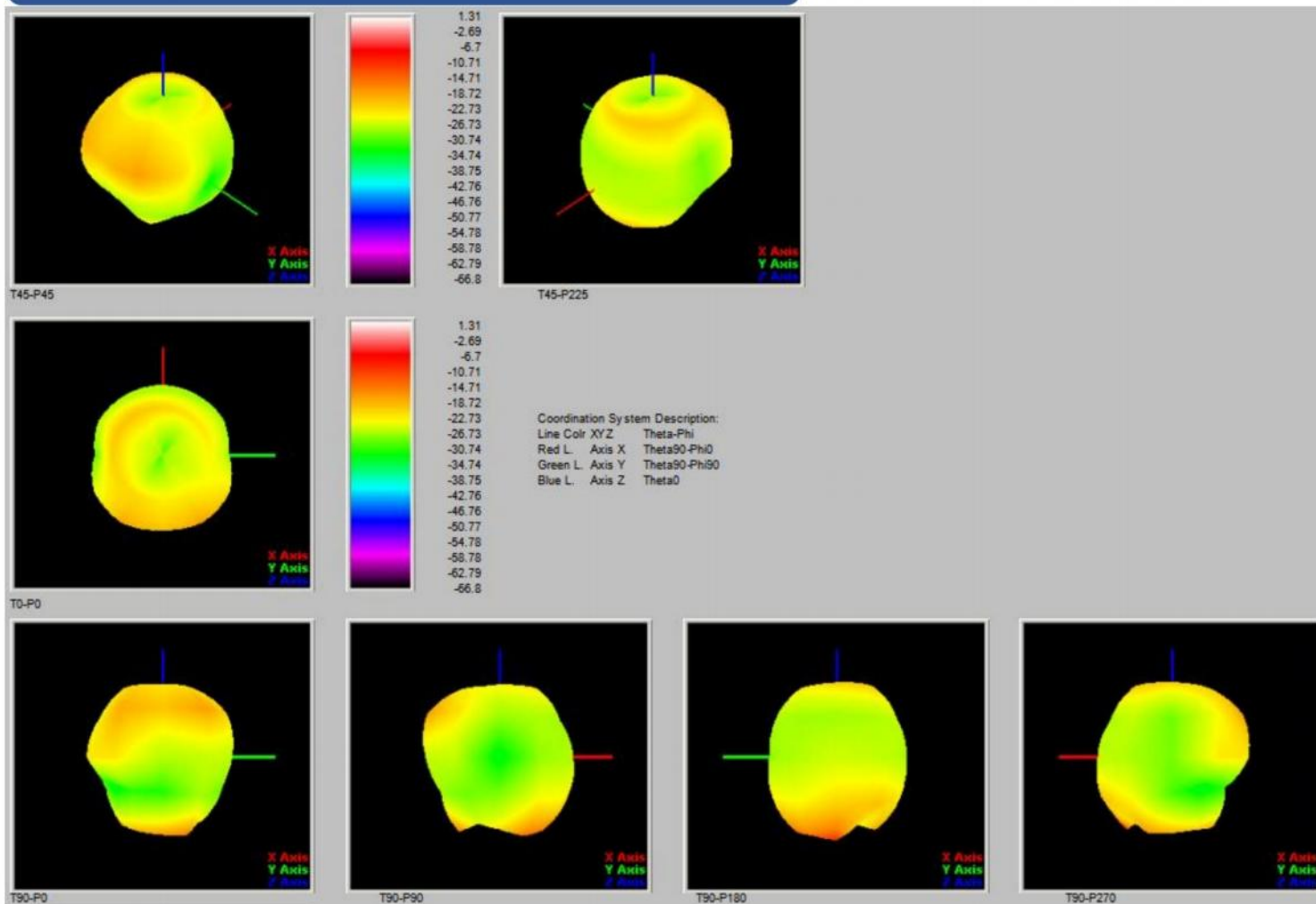
Passive parameters-Apple diagram-1880MHz-1990MHz



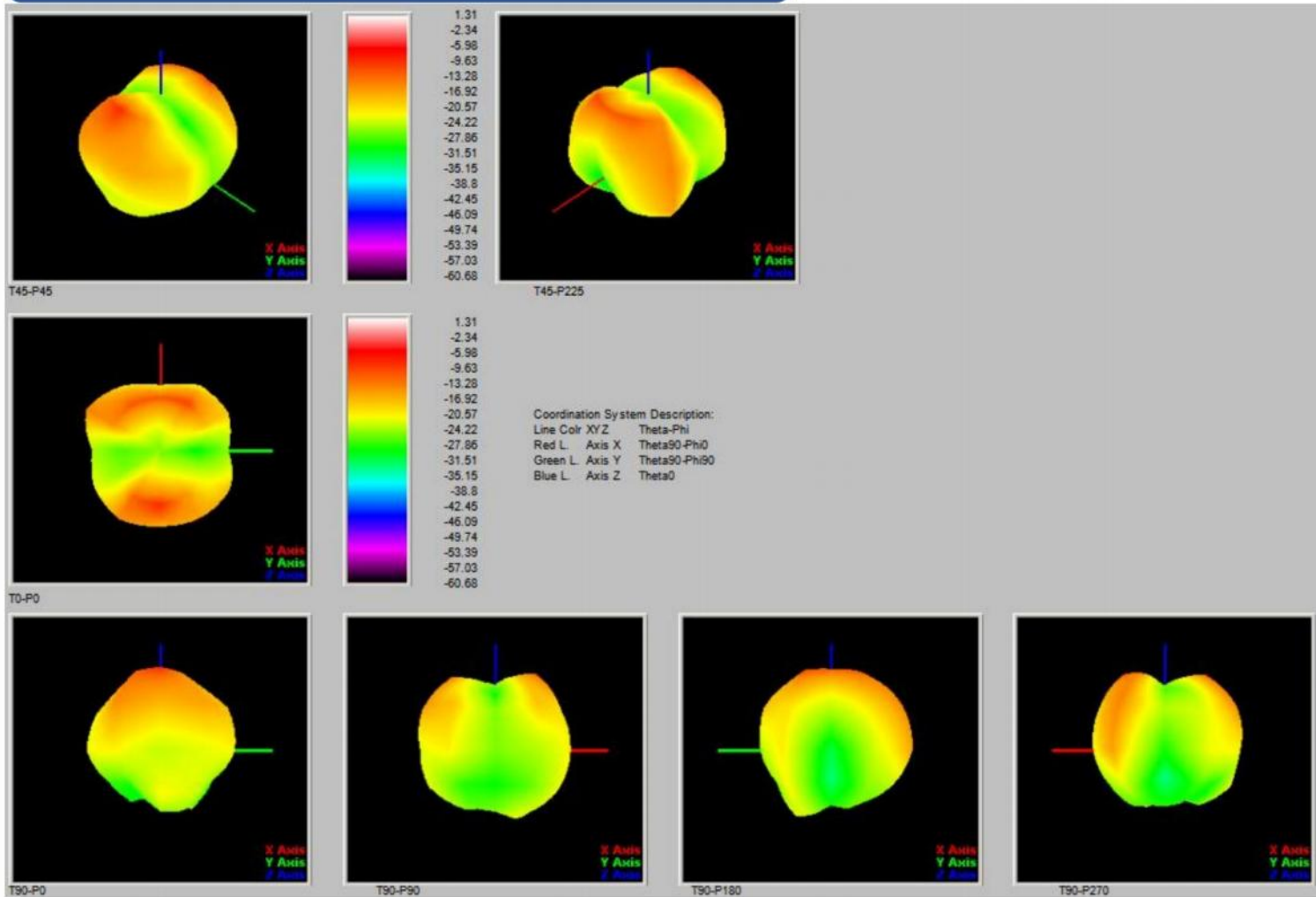
Passive parameters-Apple diagram-1990MHz-2170MHz



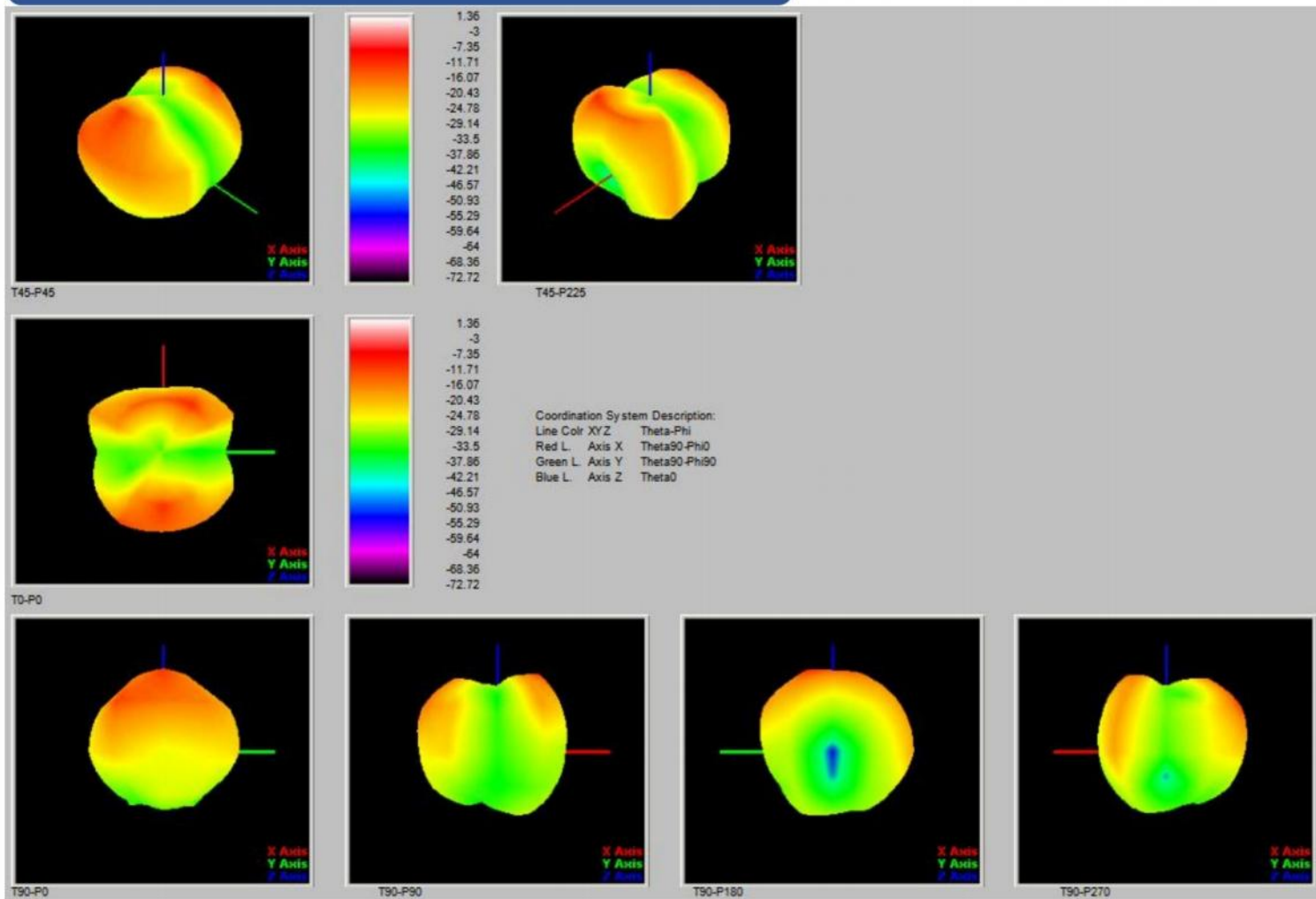
Passive parameters-Apple diagram-2300MHz-2400MHz



Passive parameters-Apple diagram-2400MHz-2500MHz

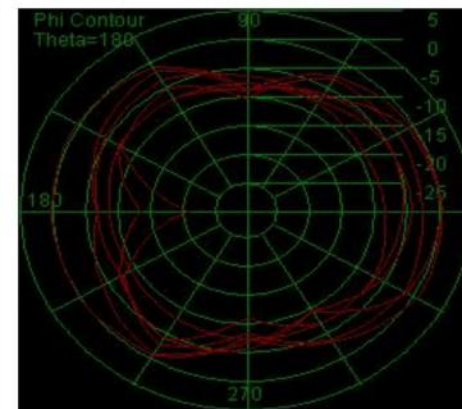
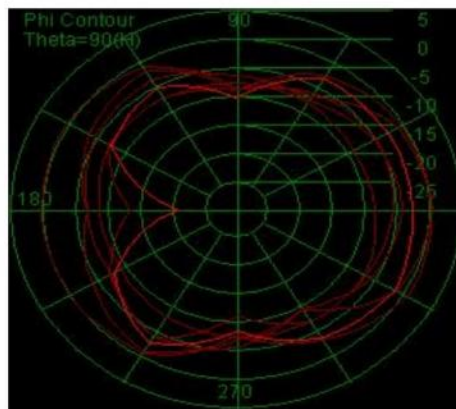
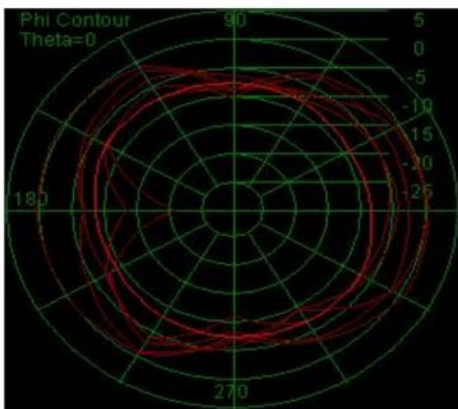


Passive parameters-Apple diagram-2500MHz-2700MHz

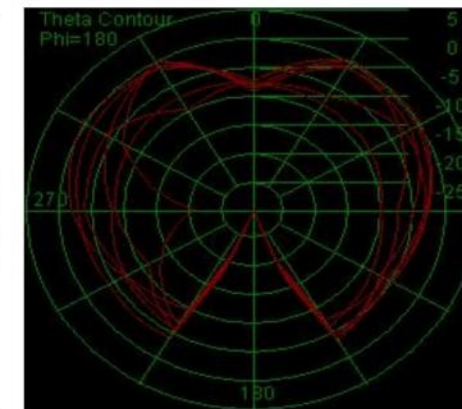
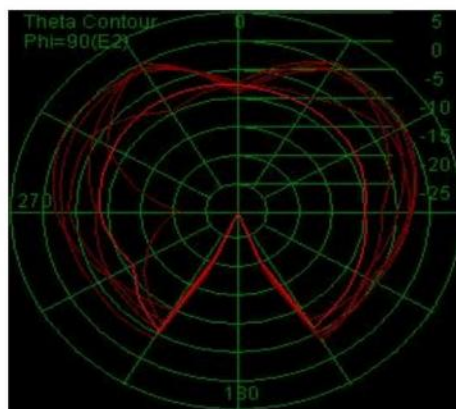
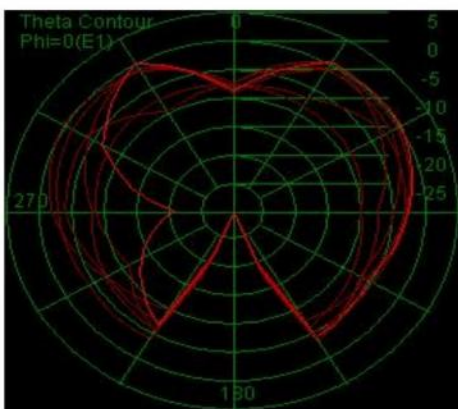


Passive parameters-Floor plan-600MHz-824MHz

Horizontal:

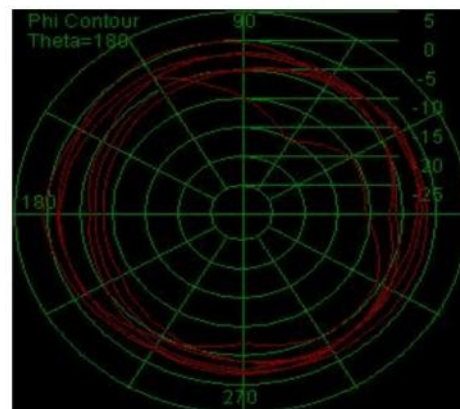
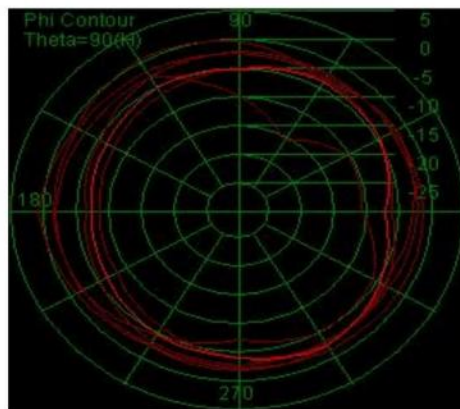
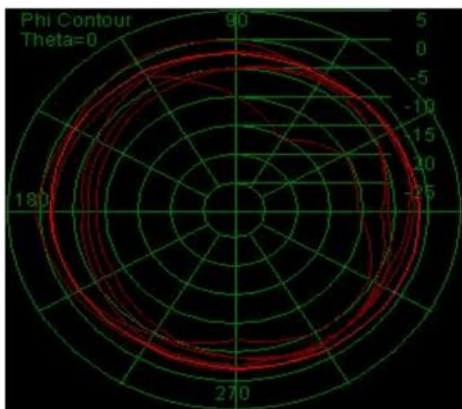


Vertical:

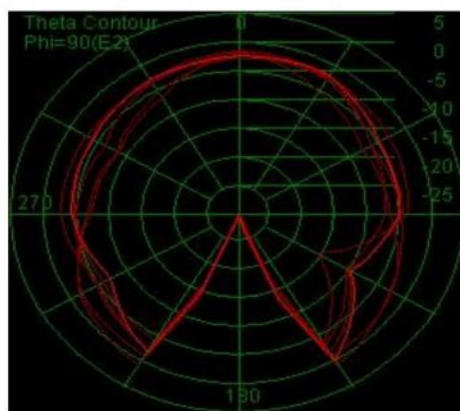
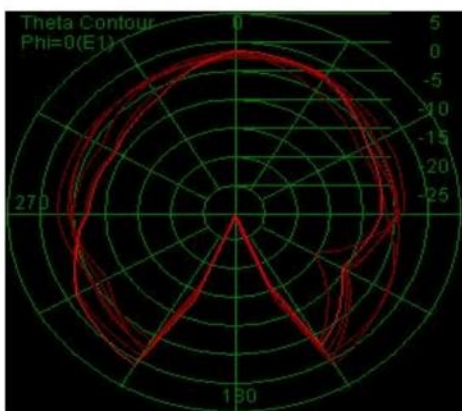


Passive parameters-Plan view-824MHz-880MHz

Horizontal:

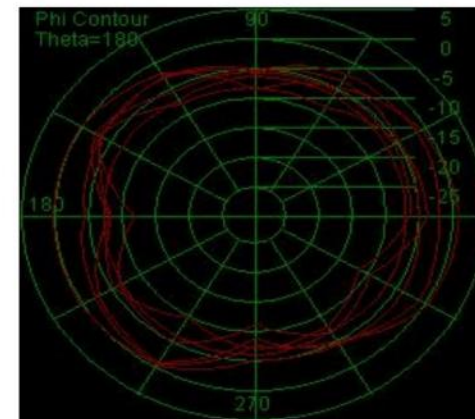
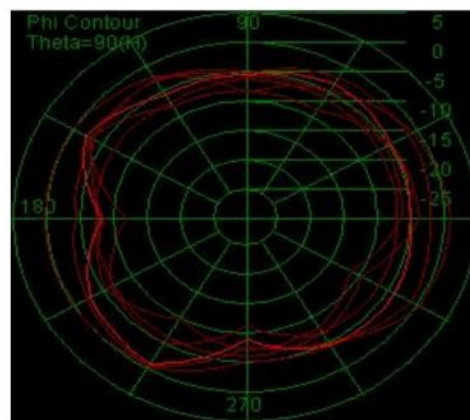
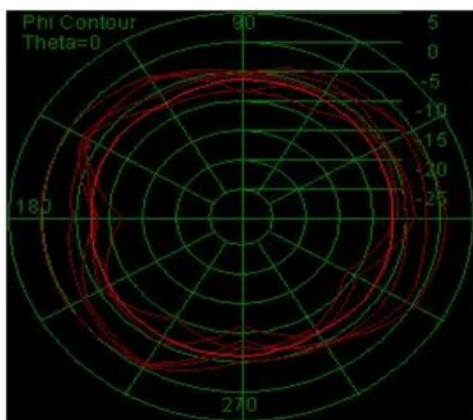


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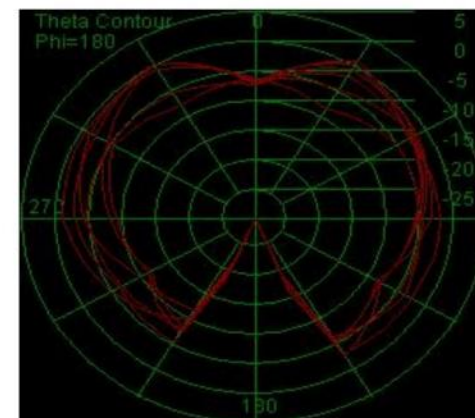
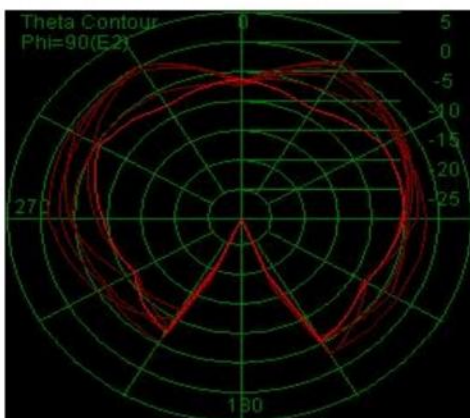
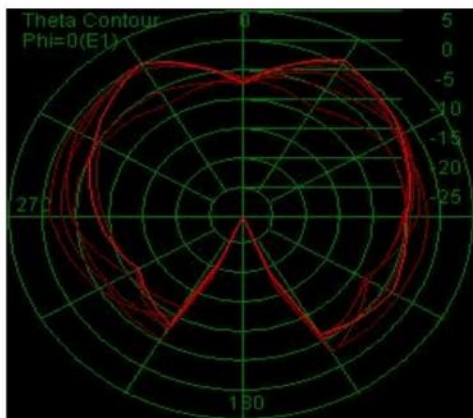


Passive parameters-Plan view-880MHz-960MHz

Horizontal:

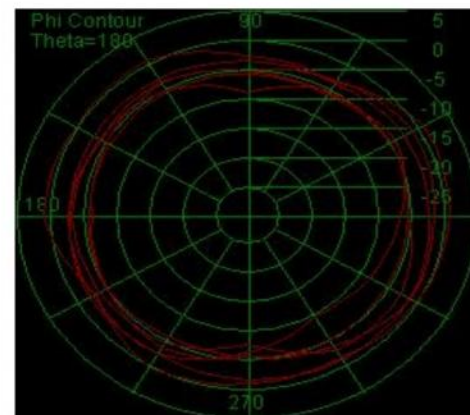
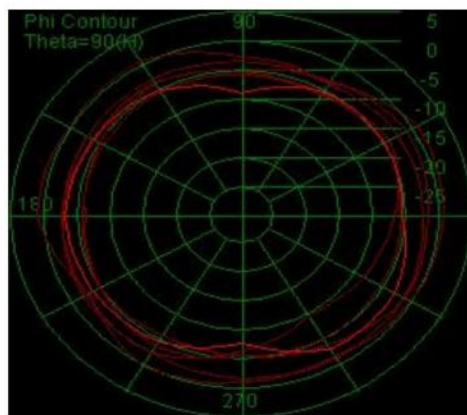
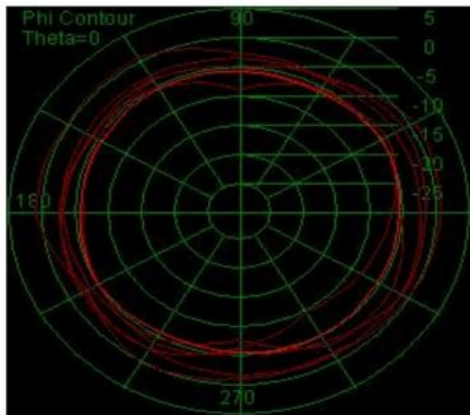


Vertical:

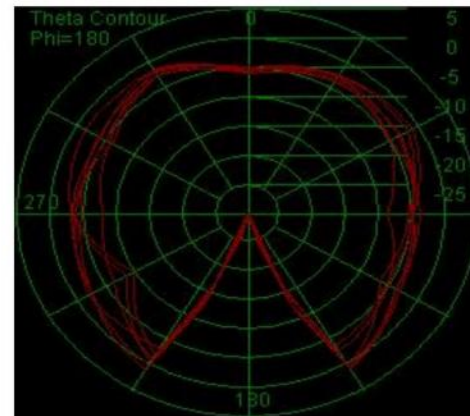
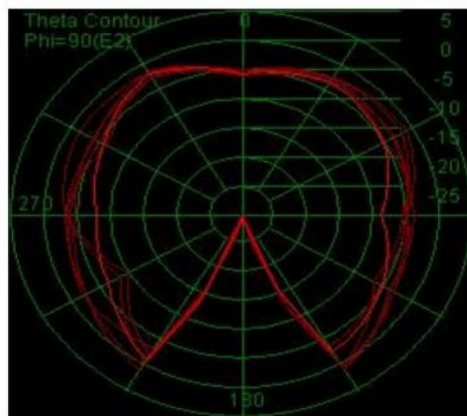
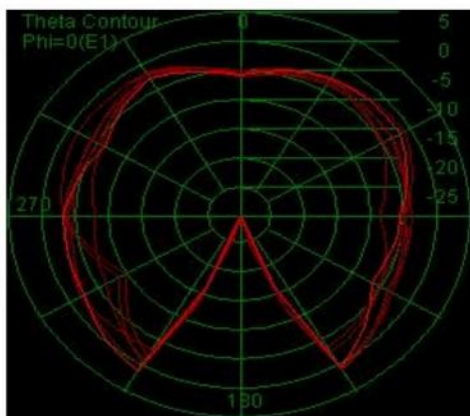


Passive parameters-Plan view-1710MHz-1880MHz

Horizontal:

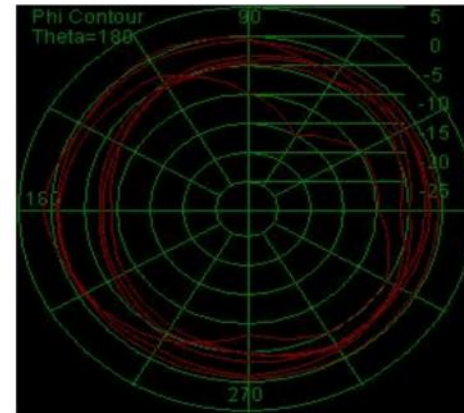
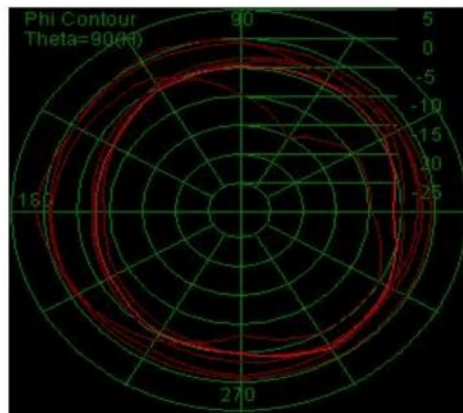
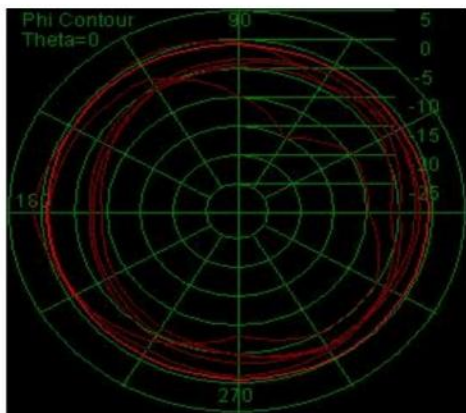


Vertical:

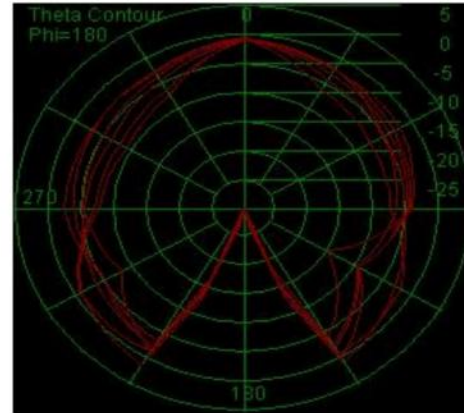
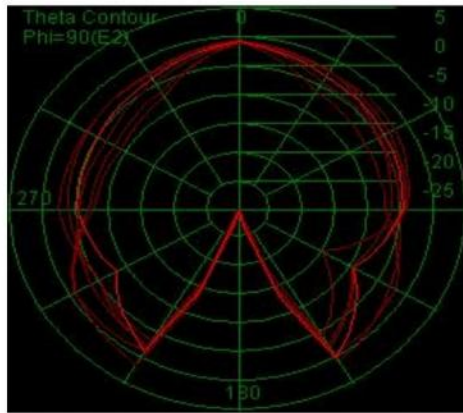
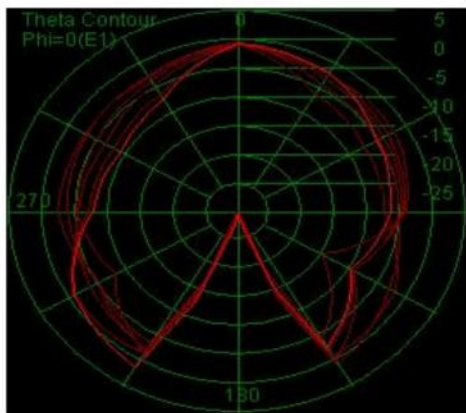


Passive parameters-Plan view-1880MHz-1990MHz

Horizontal:

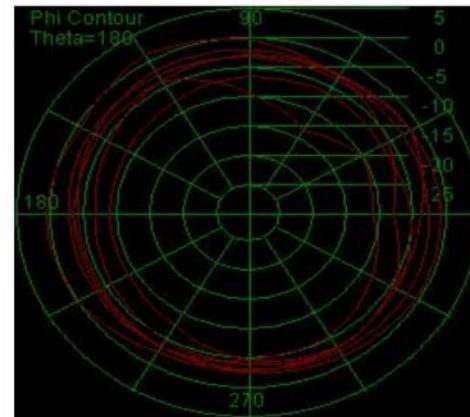
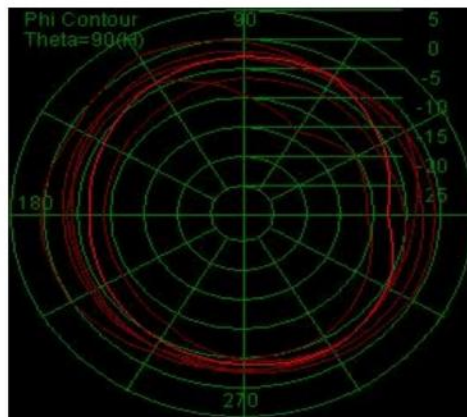
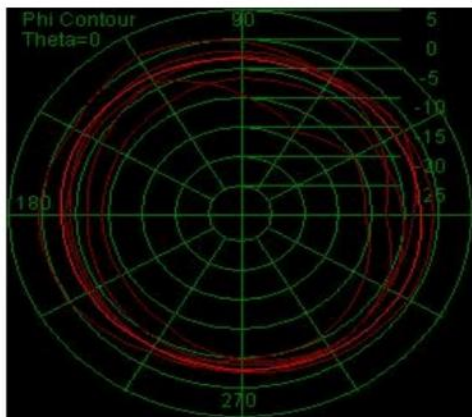


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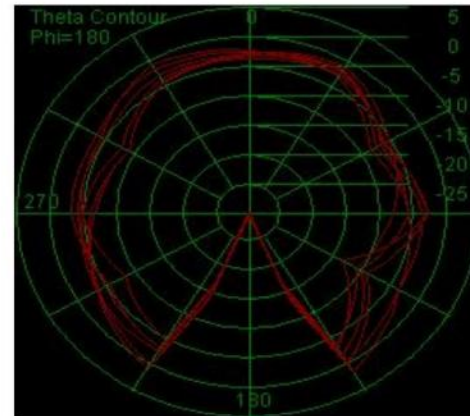
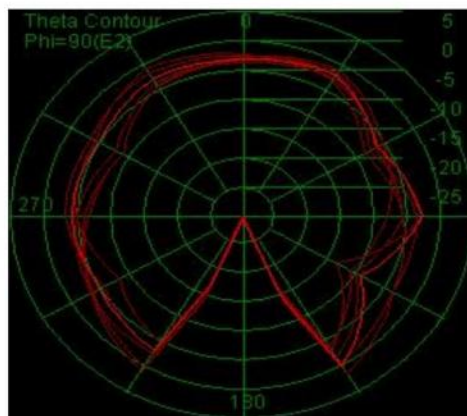
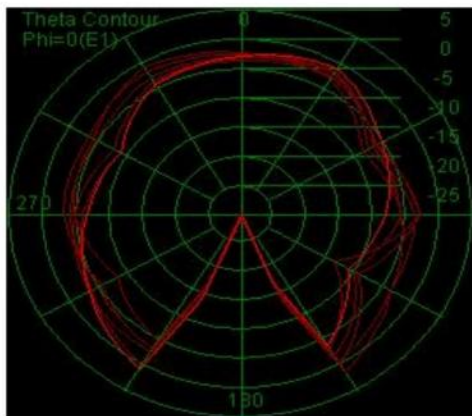


Passive parameters-Plan view-1990MHz-2170MHz

Horizontal:

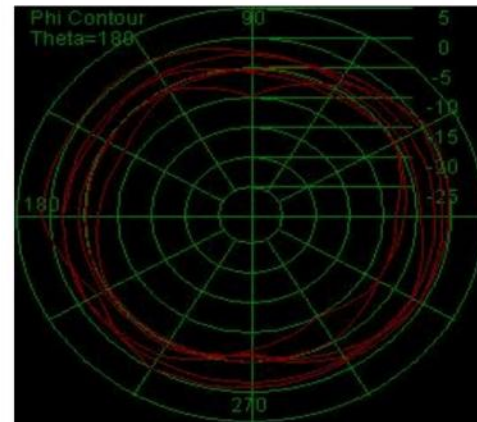
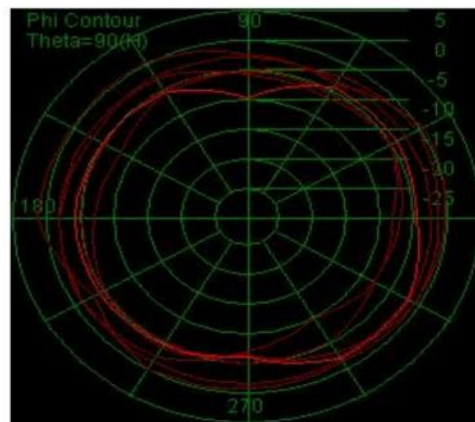
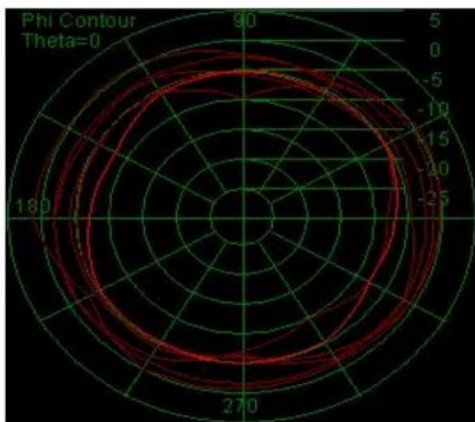


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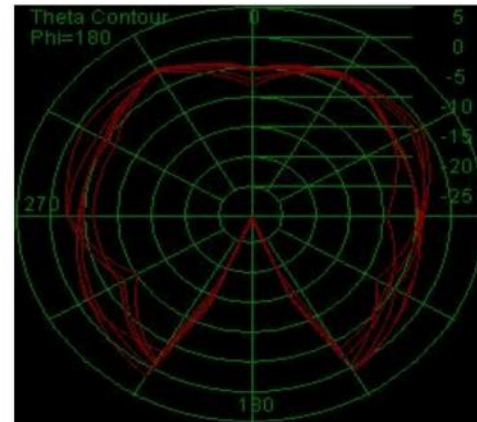
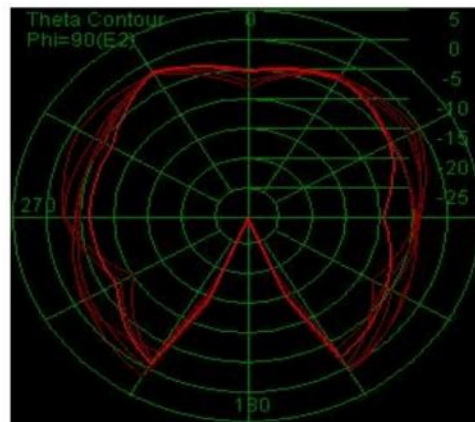
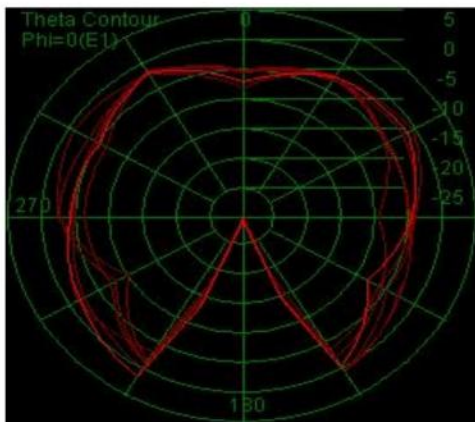


Passive parameters-Floor plan-2300MHz-2400MHz

Horizontal:

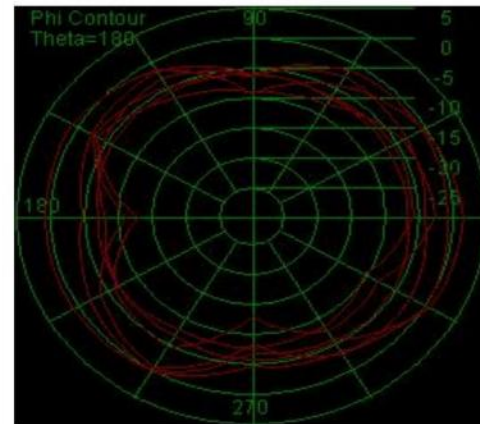
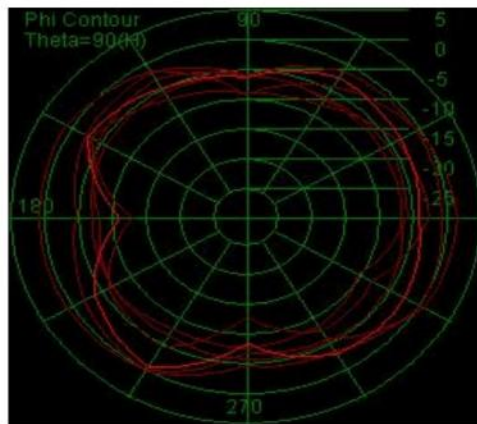
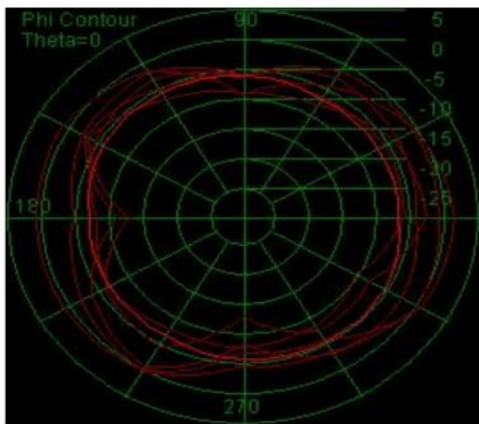


Vertical:

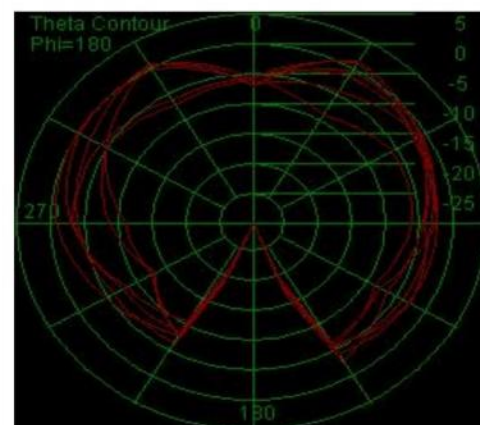
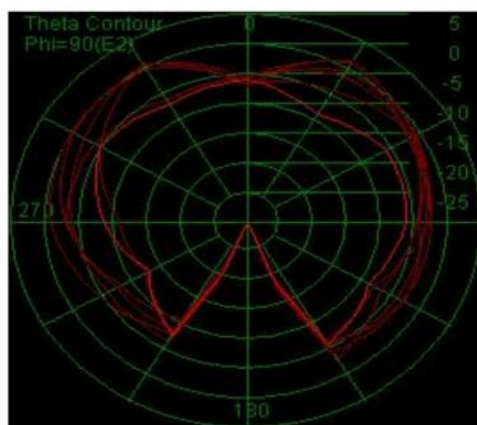
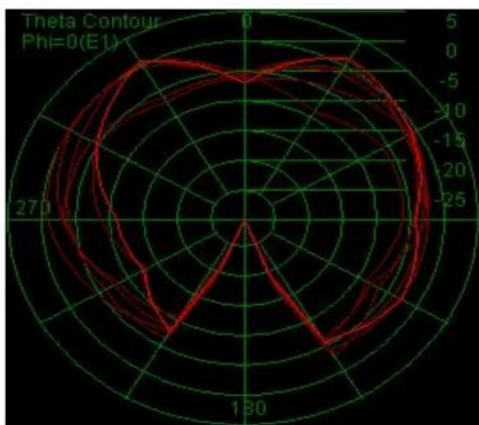


Passive parameters-Floor plan-2400MHz-2500MHz

Horizontal:

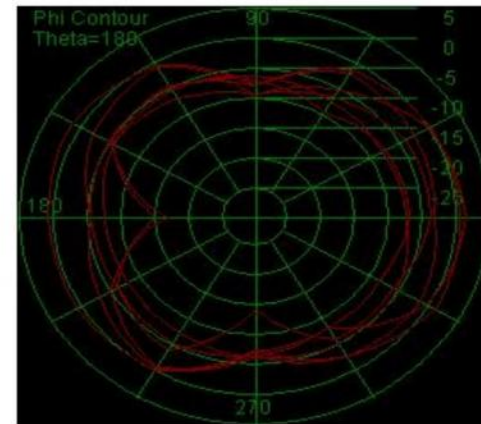
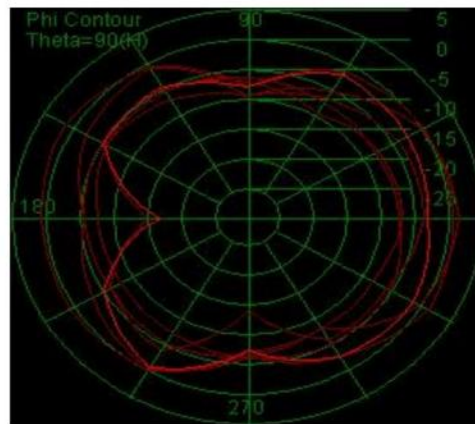
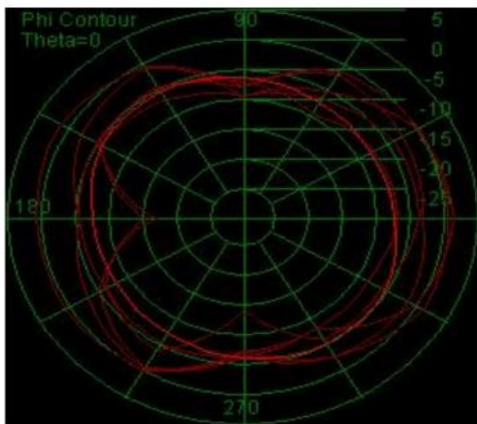


Vertical:

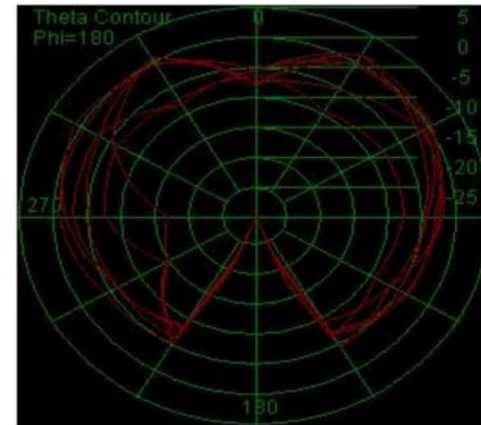
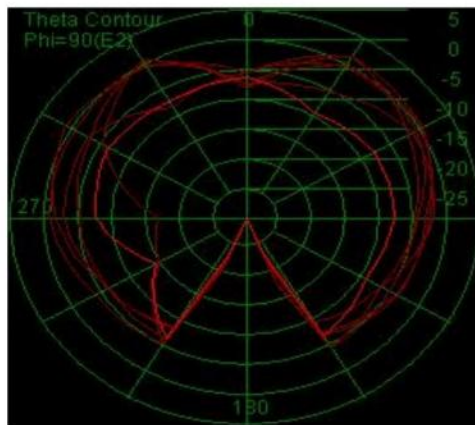
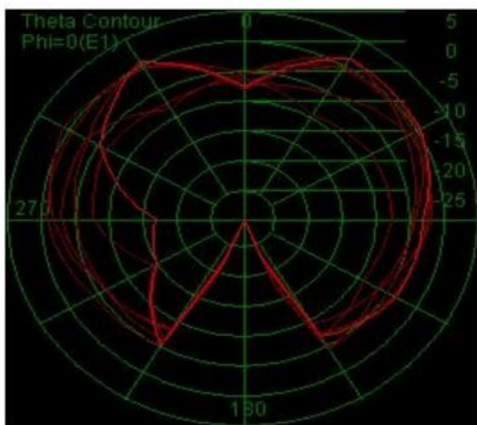


Passive parameters-Floor plan-2500MHz-2700MHz

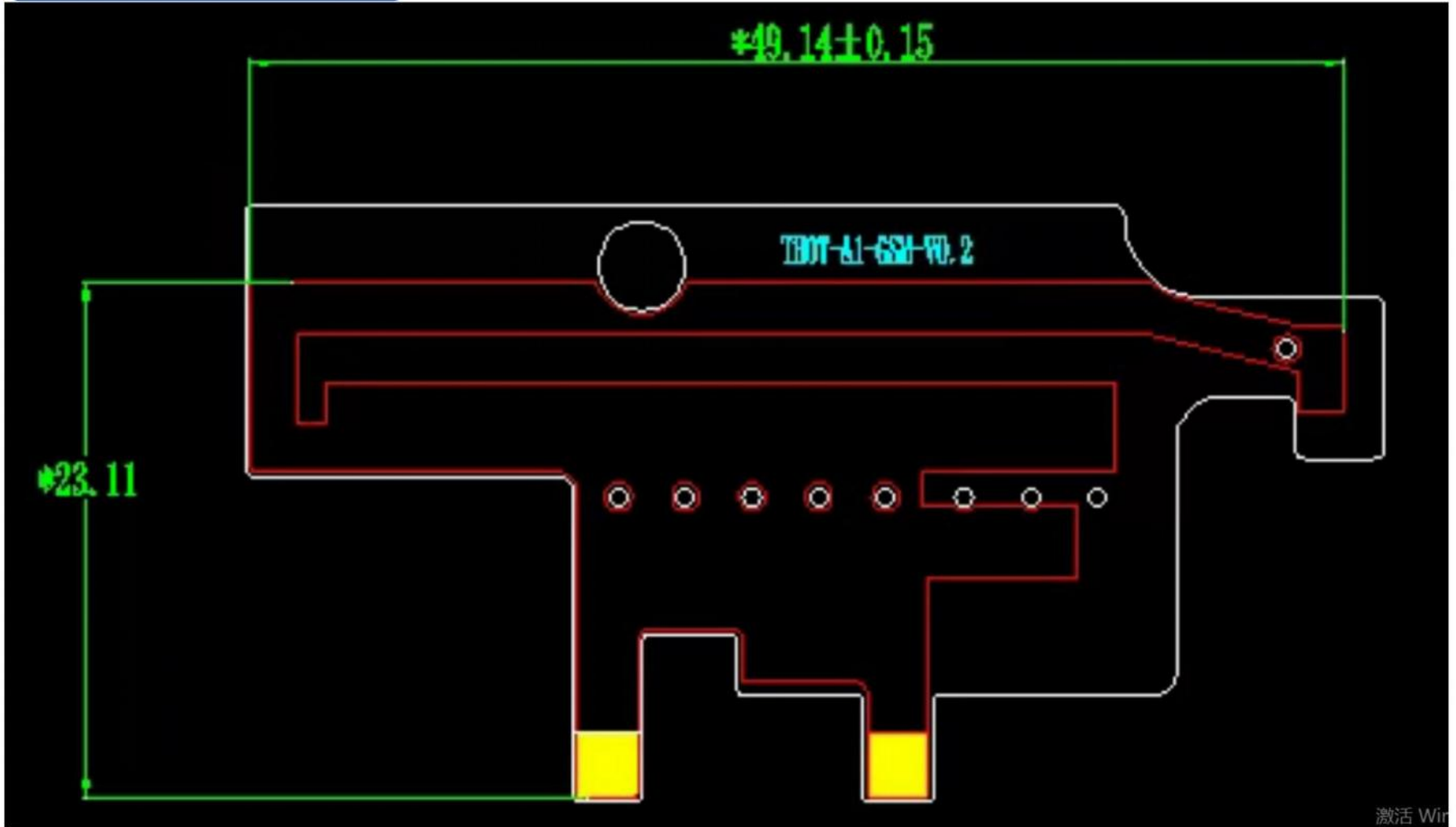
Horizontal:



Vertical:

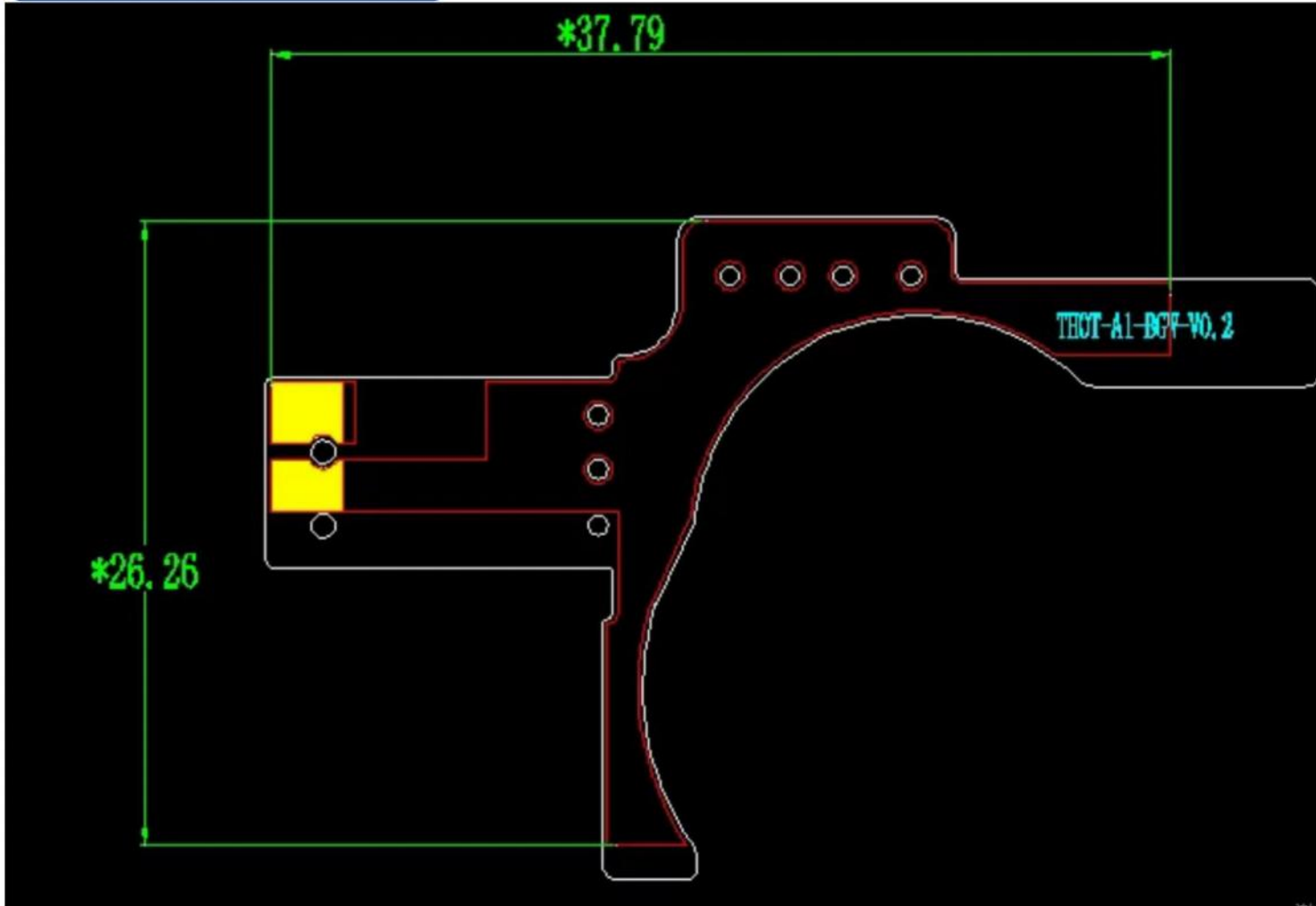


Main antenna dimensions



激活 Wir

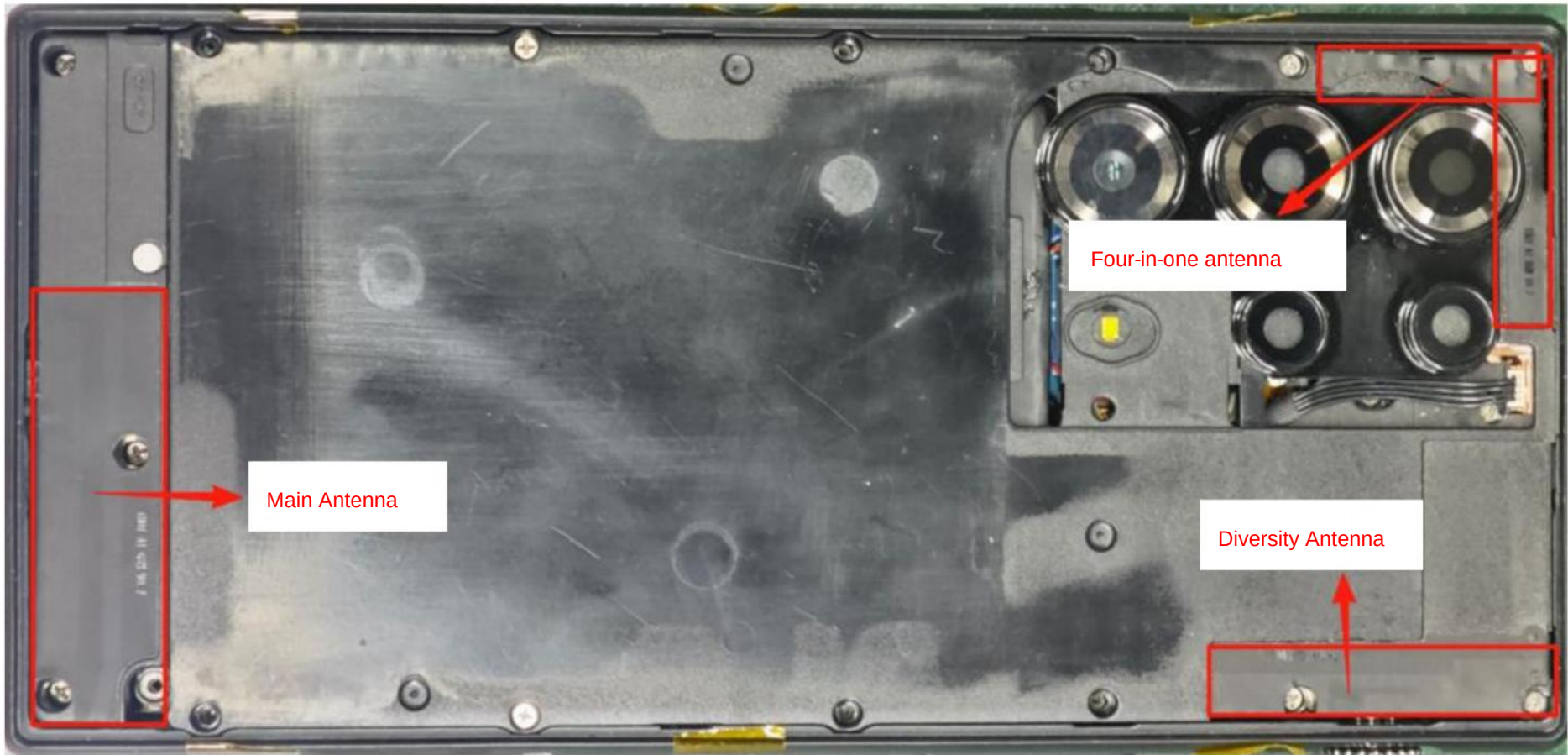
Dimensions of 4-in-1 antenna



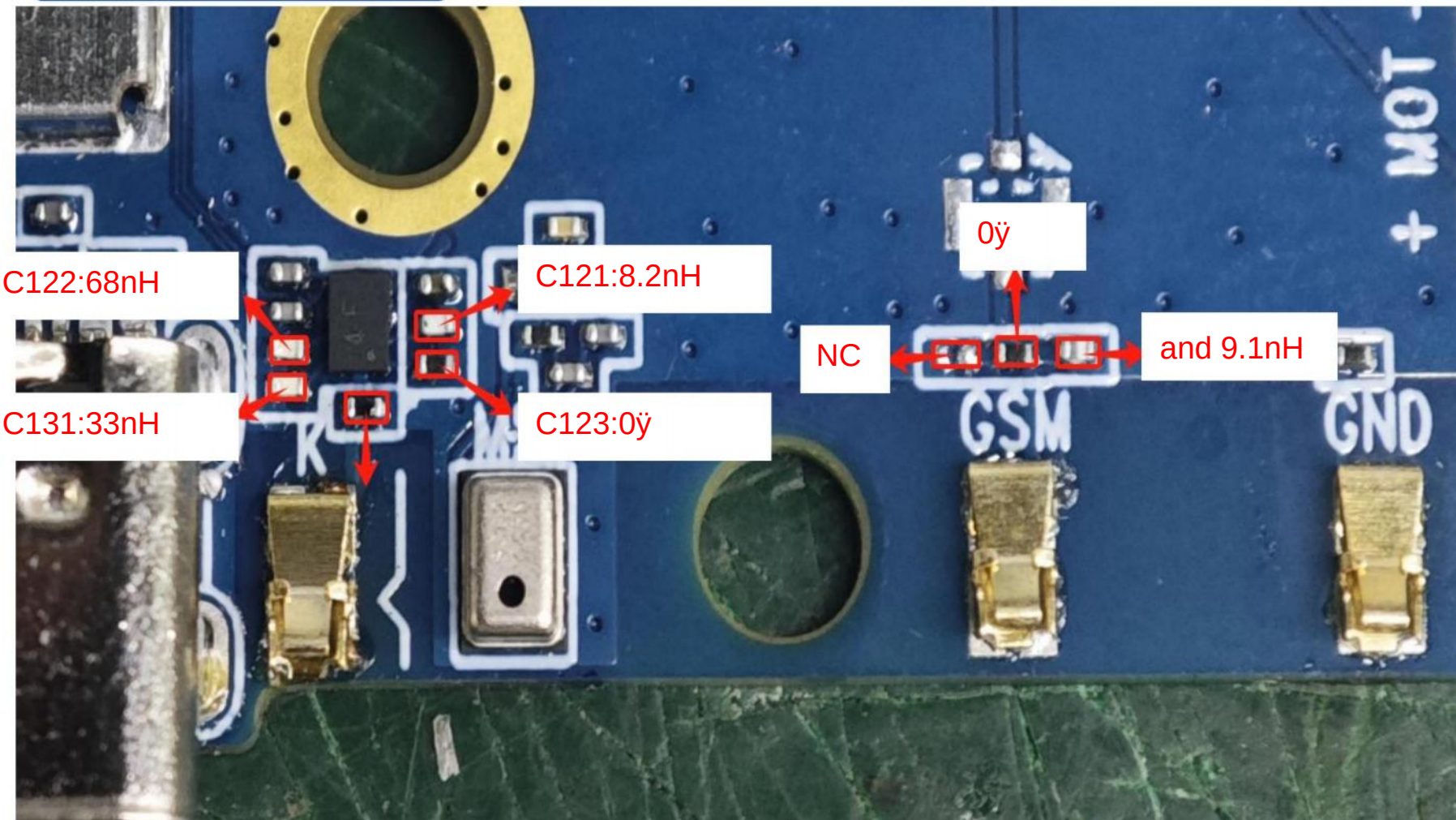
Diversity Antenna Dimensions



Antenna location



Main Antenna Matching

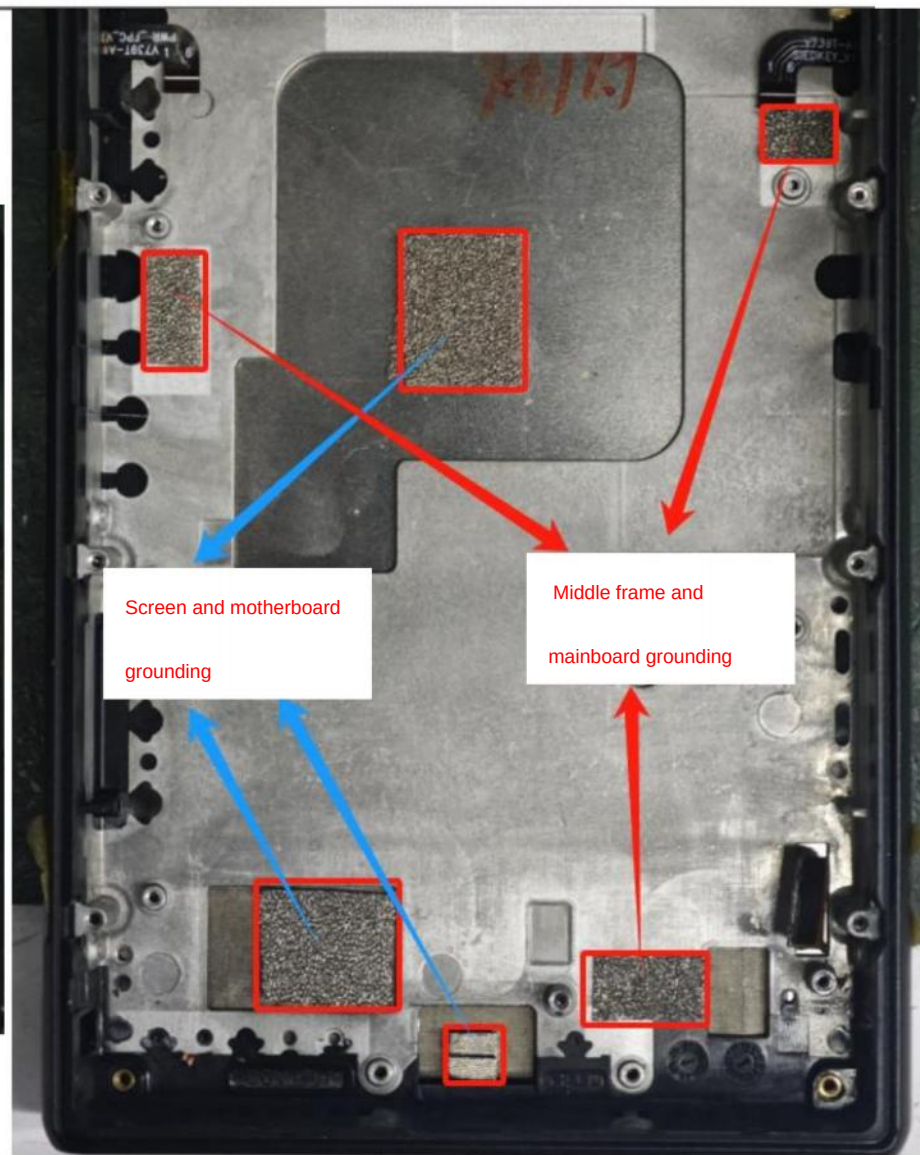
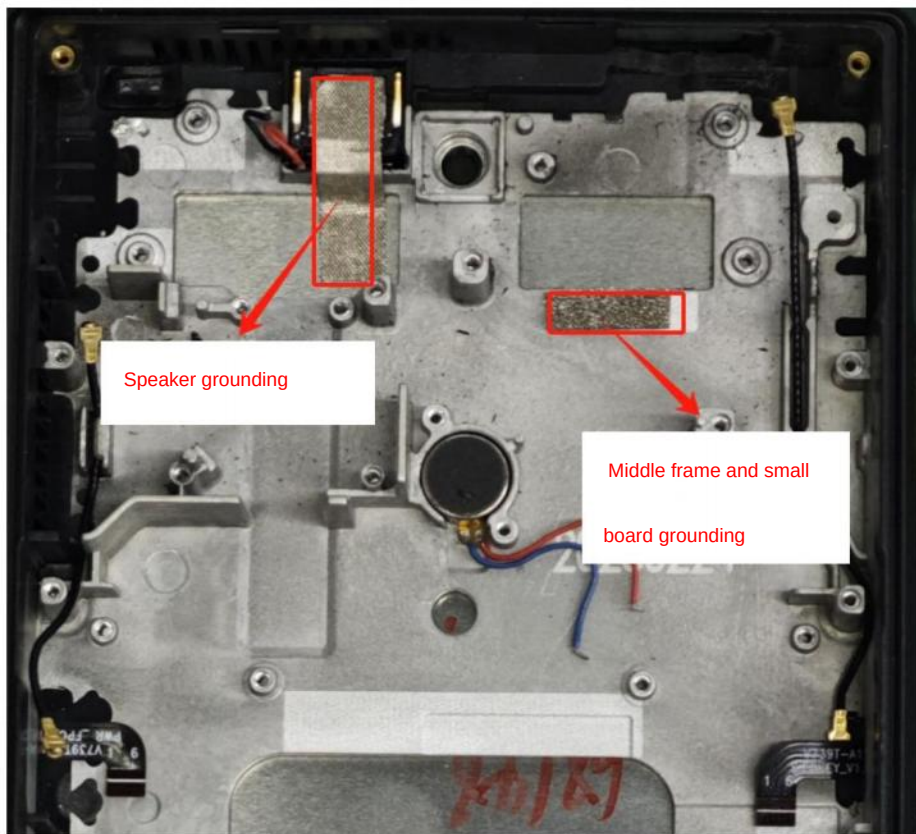


GPS Test Star Chart

SAT EL L1/L2	SAT EL L1/L2	INFO RMA1 ION	NMEA LOG	GPS TEST	MPS STAT
Show Incomplete Data					
SVID	Fq	CNR	Elevation	Azimuth	
1 L1	37.3		24.00	37.00	
3 L1	44.5		39.00	68.00	
9 L1	0.0		1.00	153.00	
11 L1	0.0		10.00	234.00	
14 L1	19.6		82.00	346.00	
17 L1	43.2		47.00	348.00	
19 L1	36.4		33.00	312.00	
22 L1	38.1		60.00	332.00	
30 L1	26.5		4.00	182.00	
75 L1	40.1		38.00	325.00	
84 L1	28.3		34.00	11.00	
85 L1	0.0		44.00	302.00	
86 L1	0.0		10.00	251.00	
3 L1	23.2		62.00	189.00	
3 L1	0.0		32.00	110.00	
3 L1	0.0		22.00	252.00	

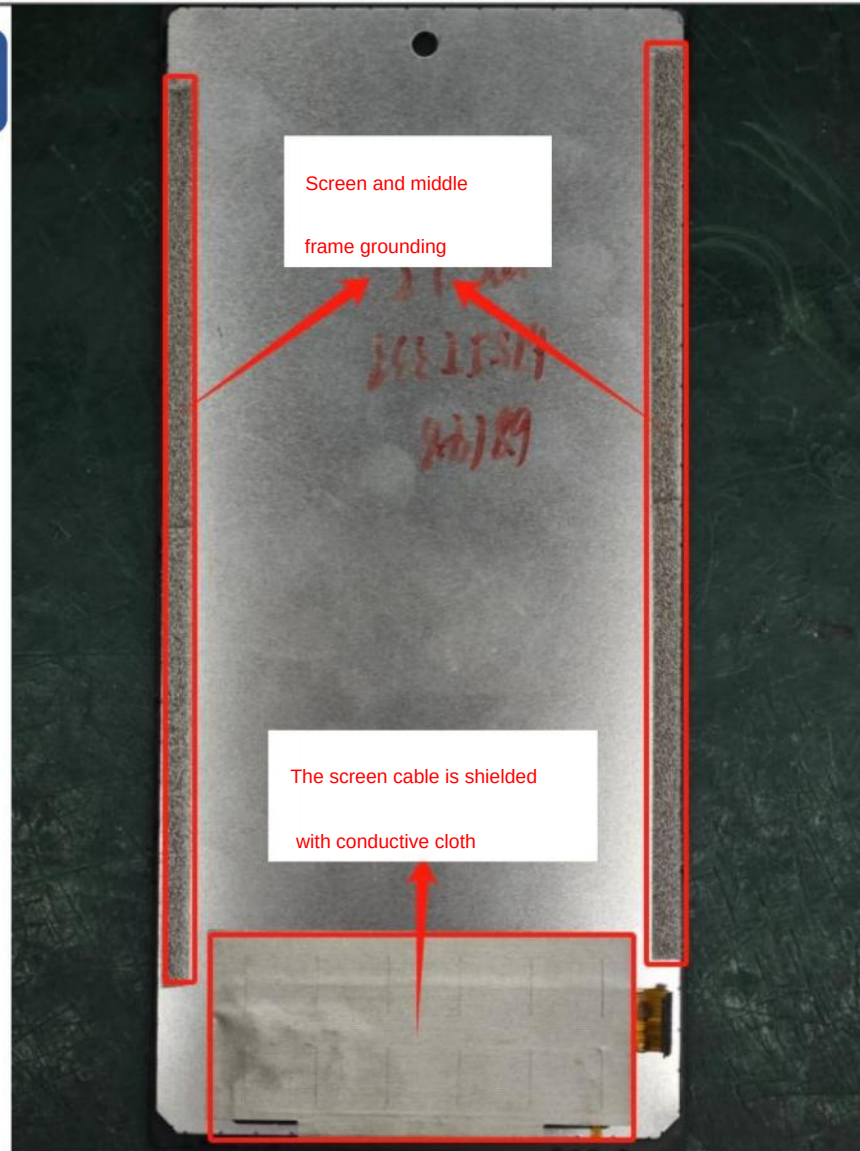
SVID	Fq	CNR	Elevation	Azimuth
75 L1	39.4		39.00	325.00
84 L1	17.9		34.00	12.00
85 L1	33.3		44.00	302.00
86 L1	0.0		10.00	251.00
3 L1	0.0		62.00	189.00
4 L1	0.0		33.00	110.00
5 L1	0.0		22.00	252.00
6 L1	26.4		31.00	203.00
7 L1	29.9		61.00	352.00
10 L1	31.4		54.00	332.00
27 L1	39.0		24.00	47.00
29 L1	40.3		28.00	281.00
30 L1	33.7		53.00	349.00
32 L1	31.5		24.00	115.00
2 L1	36.0		64.00	102.00
2 L1	29.0		62.00	50.00

Environmental treatment



Environmental treatment

Pay attention to the height of the conductive
foam on both sides to avoid unstable
grounding





深圳市昱晟通讯设备有限公司

Yusheng Communications-equipment Co.,LTD

Summarize

1. Please pay attention to the environment in the report to ensure the consistency of the whole machine
2. The low frequency sensitivity is currently low, please be aware

Thank you!



Shenzhen Address: 4th Floor, Building 2, Nantai Yunchuanggu, Guangming Avenue, Guangming New District, Shenzhen

Tel: 0755-23984257

Fax: 0755-86090455