

Antenna Test Report

SHENZHEN KURUIJIE

Customer: 图高
Project: X1-S2

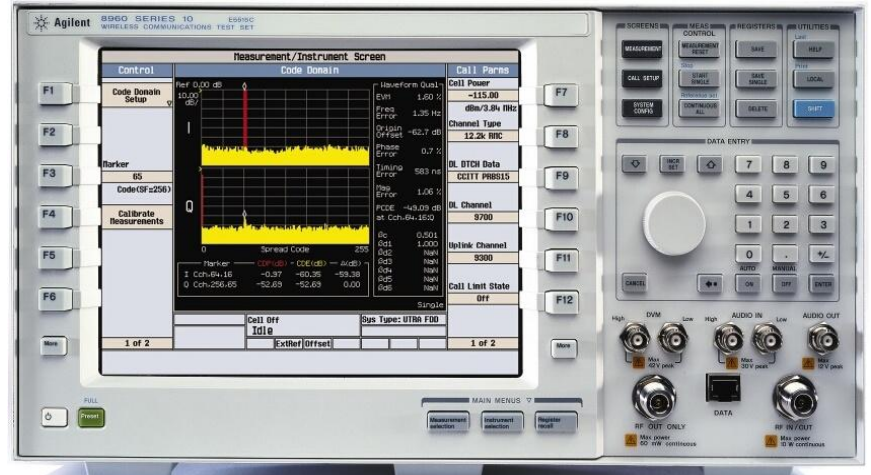
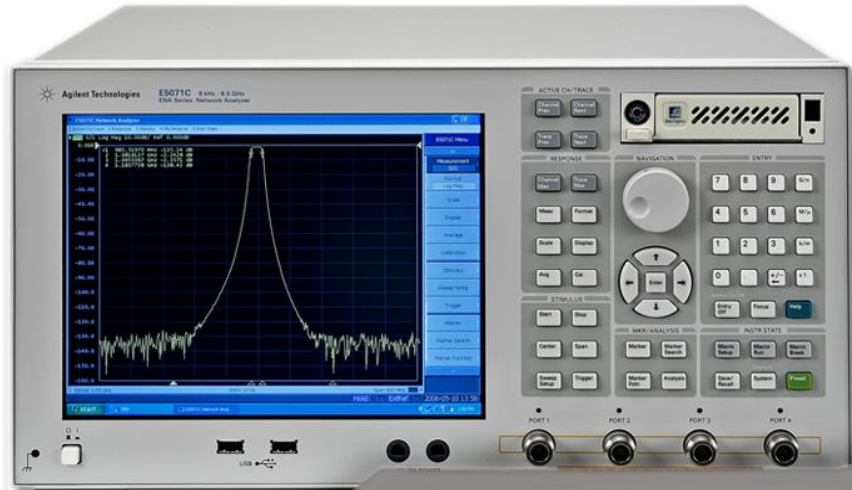
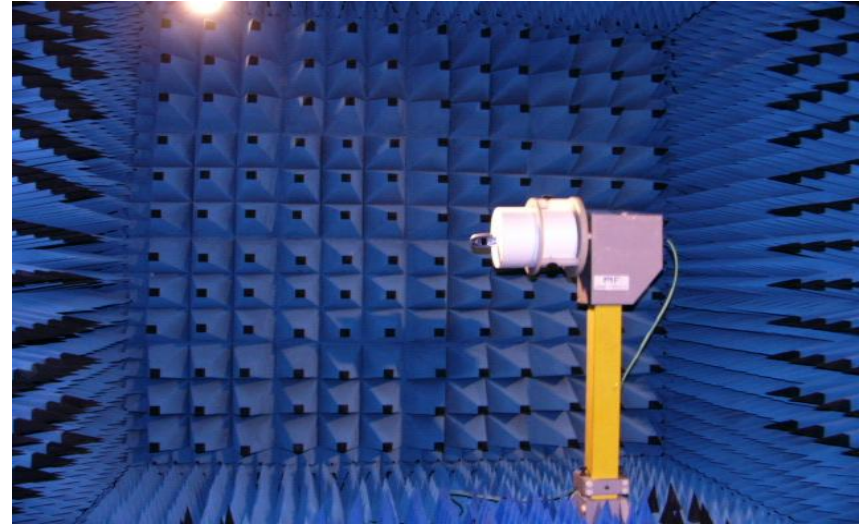
RF Engineer: 安增侠
Testing Date: 2023.12.27

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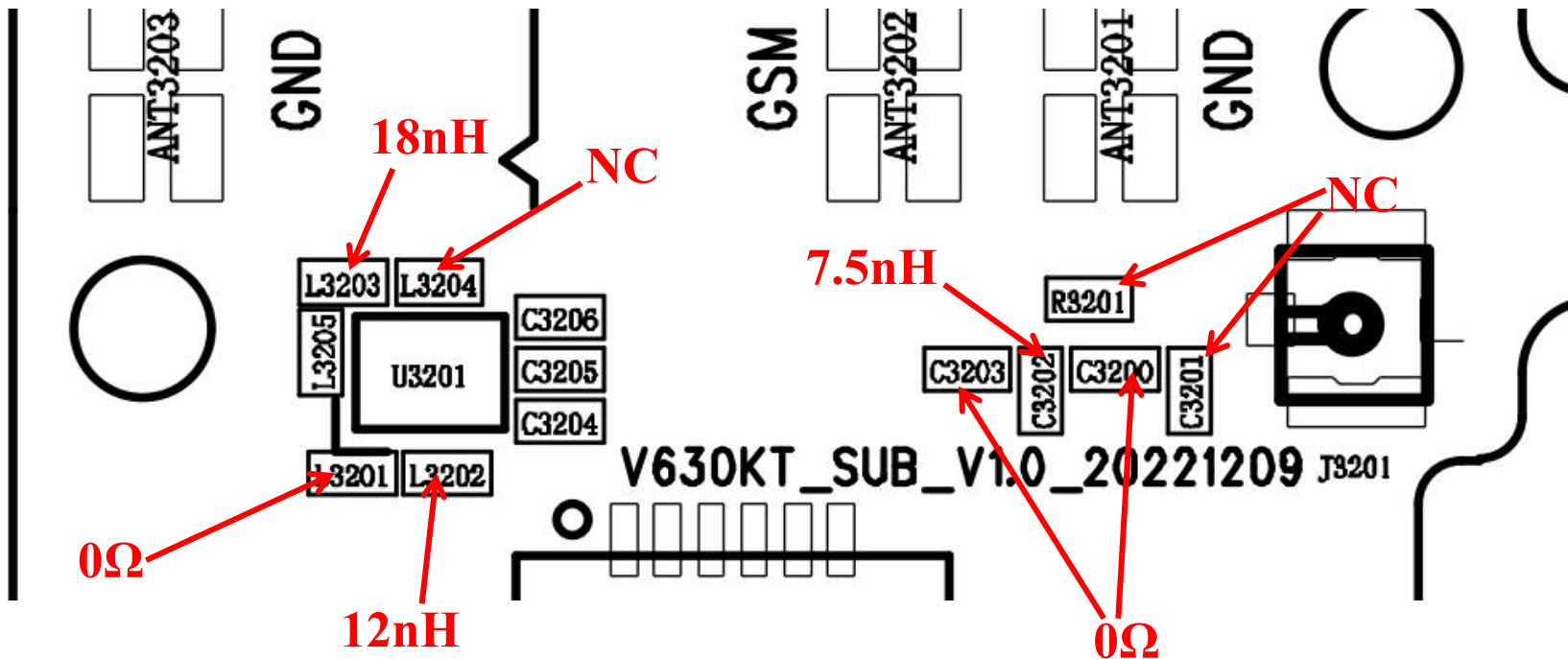
- 1. Testing Item & Equipments**
- 2. Matching Circuits**
- 3. Antenna Conditions**
- 4. Test Data**
- 5. GPS / WIFI / BT Test**
- 6. Passive data Main antenna**
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- 8.drawing sheet**

1. The Equipment of Active Test

- 1: Anechoic Chamber 7x4x3 m (3D)
- 2: Rohde & Schwarz CMW500
- 3: AGILENT 8960 5515C
- 4: Network Analyzer-AGILENT ENA5071B

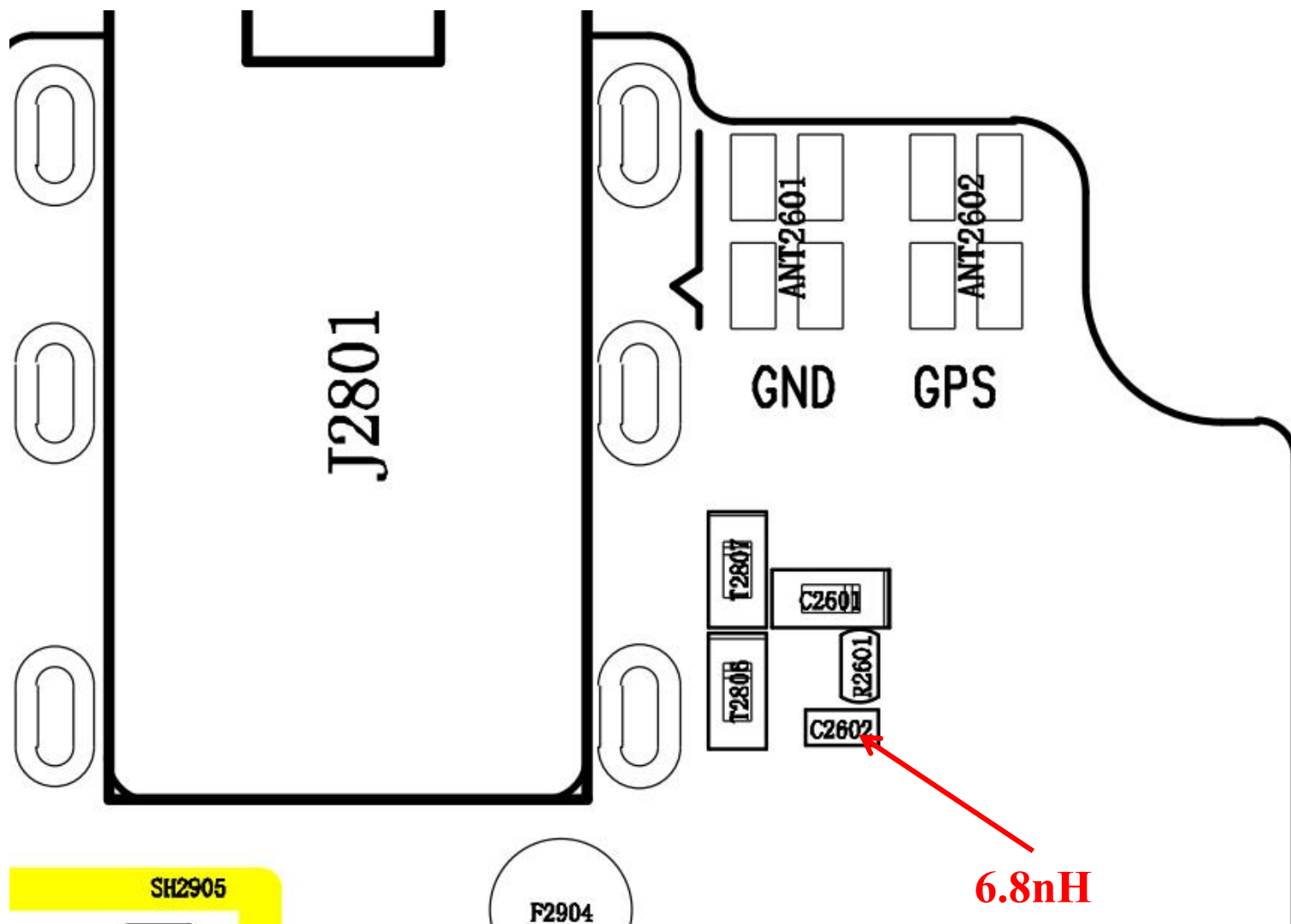


2. Matching Circuits 主天线匹配和逻辑

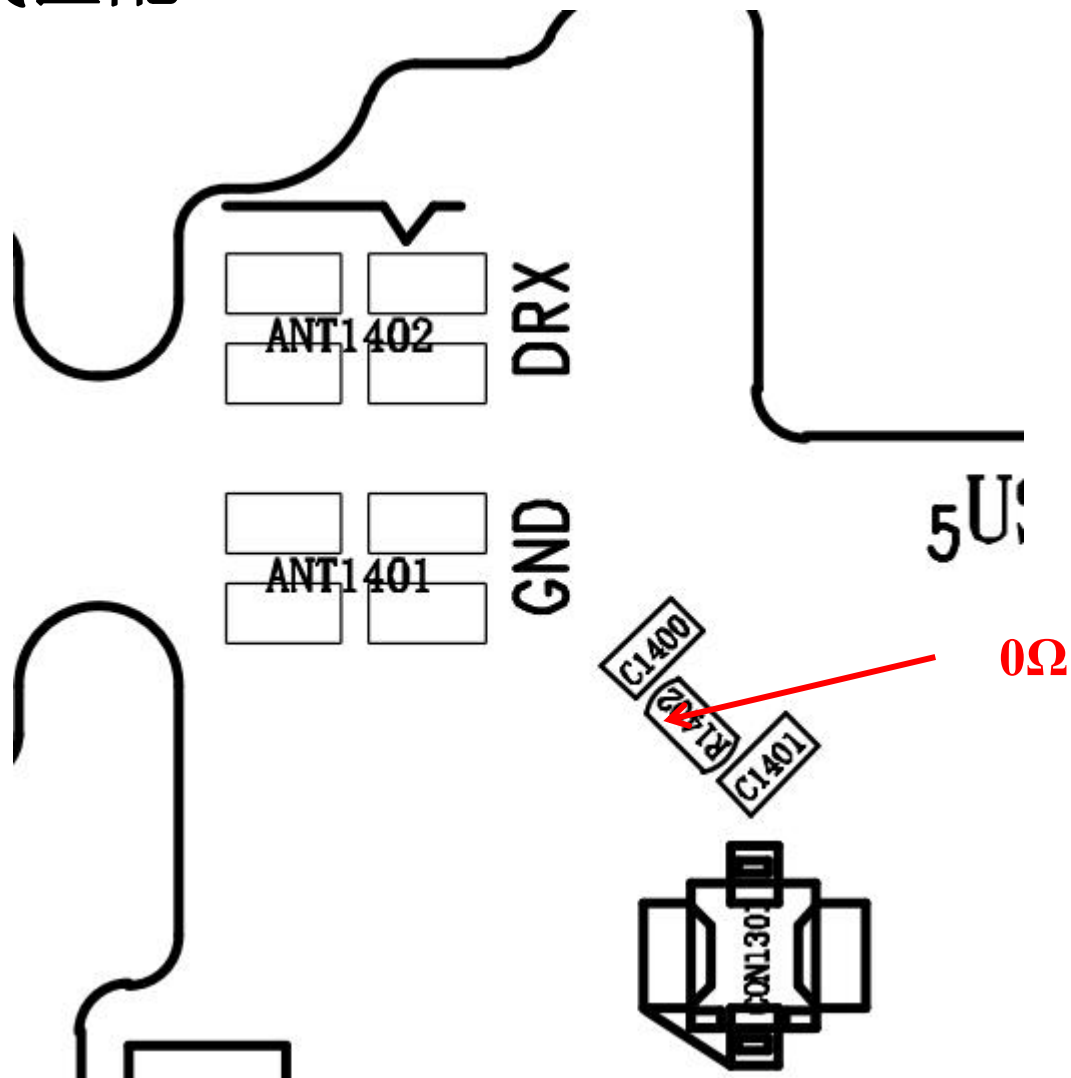


下天线开关匹配逻辑	开关路径	匹配值	2G频率	3G频率	4G频率
	RF1=L3201	0Ω	850	W5	B5
	RF2=L3202	12nH	1900	W2	B2/7/41/12/17
	RF3=L3203	18nH			B71
	RF4=3204	NC	1800	W4	B4/66

三合一天线匹配

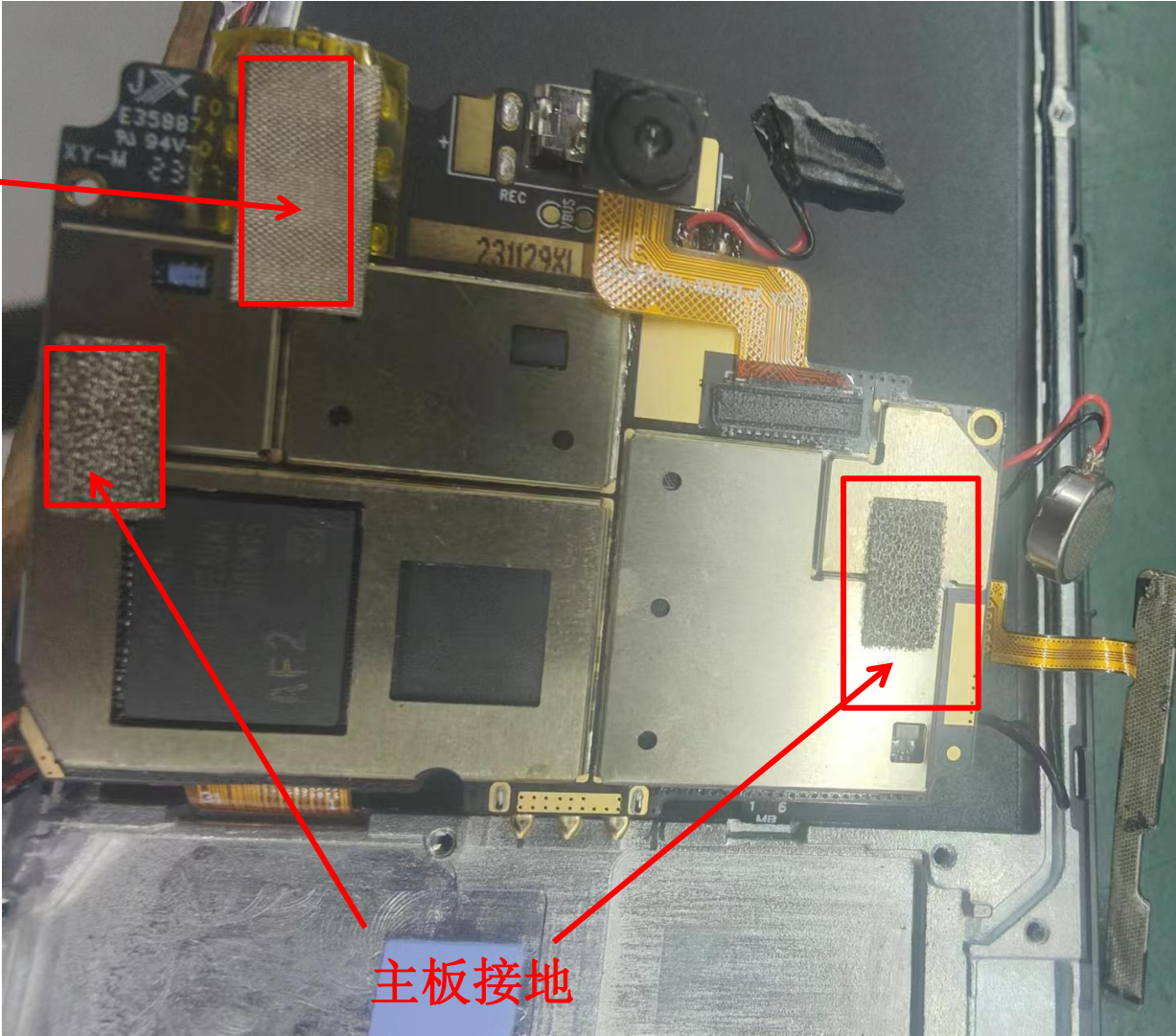


分集天线匹配

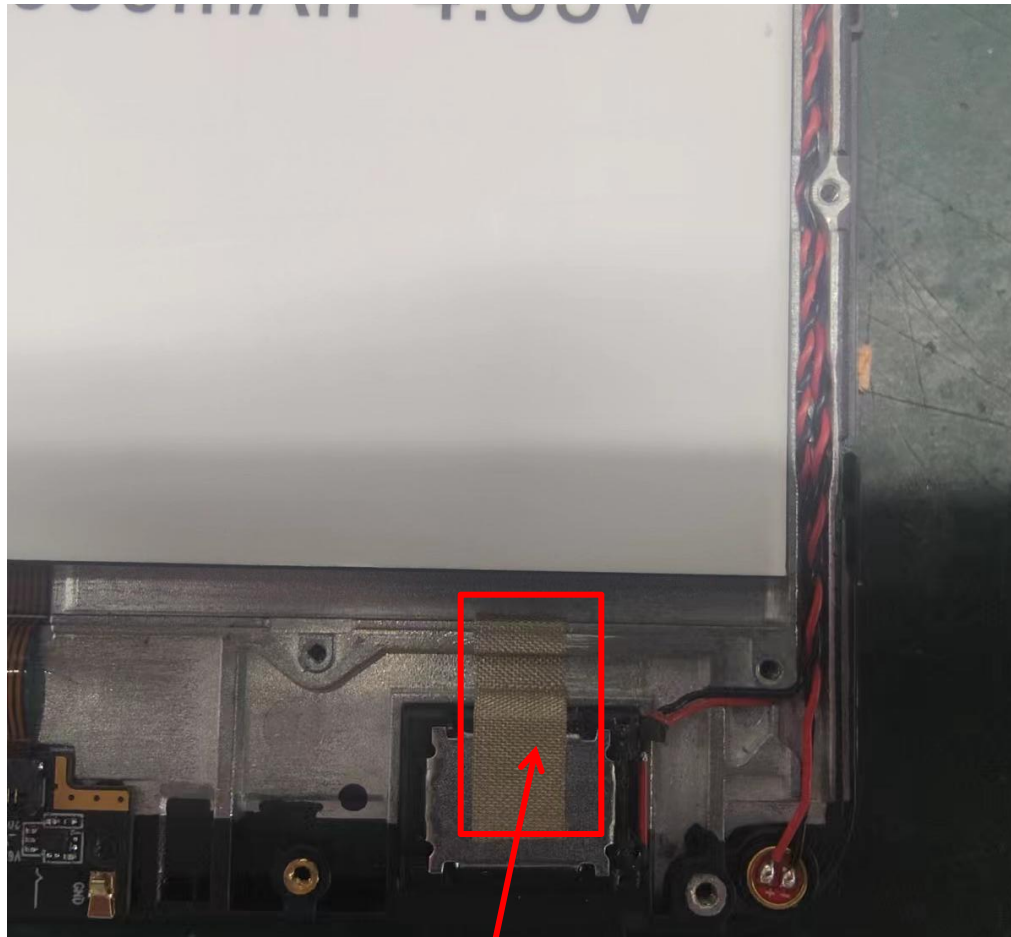


3. Antenna Conditions

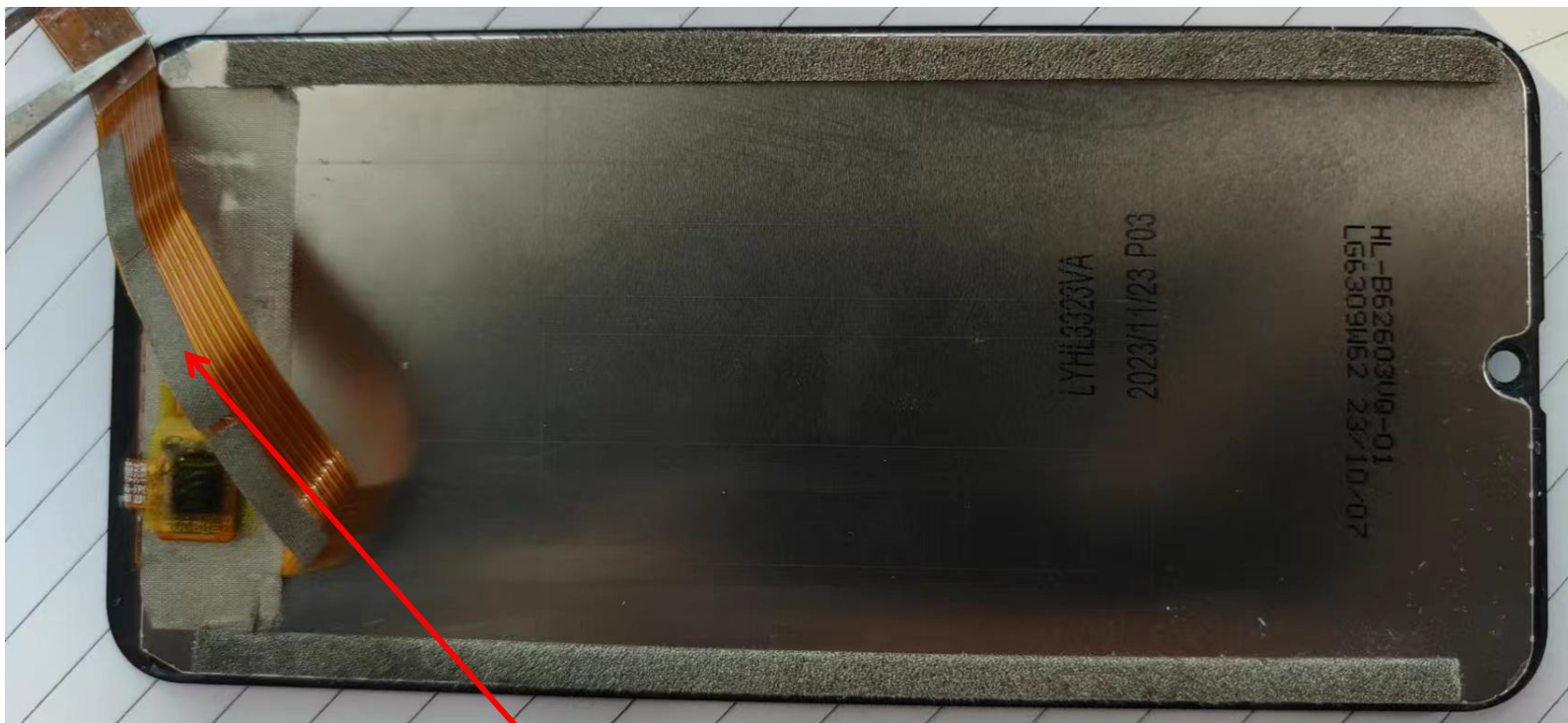
耳机孔接
地处理



主板接地



喇叭接地



排线漏铜区域加双面导电布和屏金属框充分接地，不然影响700M频段亮屏灵敏度

4. Test Data

红色为亮屏数据

	GSM850			DCS1800		
	CH128	CH190	CH251	CH512	CH698	CH885
TRP	25.1	25.3	25.5	24.5	25.2	26.0
TIS			-103.1 -101.4			-104.9 -104.0
	PCS1900			WCDMA 2		
	CH512	CH661	CH810	9662	9800	9938
TRP	26.1	25.5	24.8	18.6	18.8	18.5
TIS			-104.8 -103.9			-105.0 -104.1
	WCDMA 1700			WCDMA 5		
	1312	1410	1513	4357	4408	4458
TRP	18.6	18.4	18.0	17.2	17.1	17.3
TIS			-104.7 -104.2			-104.2 -100.7

	Band2 _(10M)			Band4 _(10M)		
	18650	18900	19150	20000	20175	20350
TRP	18.6	18.4	18.2	18.3	18.0	17.2
TIS			-91.9 -90.3			-92.5 -91.7

	LTE Band5 _(10M)			Band7 _(10M)		
	20450	20525	20600	20800	21100	21400
TRP	17.4	17.8	18.0	17.5	17.6	17.8
TIS			-91.0 -88.9			-92.0 -91.1

	LTE Band12 _(10M)			LTE Band 17 _(10M)		
	23060	23095	23130	23780	23795	23800
TRP	17.6	17.7	17.6	17.5	17.4	17.6
TIS			-92.1 -88.9			-91.8 -89.0

	LTE Band 66 (10M)			LTE Band71 (10M)		
	132022	132322	132622	133172	133297	133422
TRP	18.2	18.1	17.8	16.8	17.3	17.6
TIS			-92.1 -91.0			-91.2 -89.1
	LTE Band41 (20M)					
	40190	40620	41190			
TRP	18.2	17.9	17.6			
TIS			-89.4 -88.5			

5. GPS / WIFI / BT

GPS实测报告	
位置	测试结果
我司窗台	冷启动50秒定位, 最大CN值42可使用星数5颗以上.

	WIFI2.4(b/11M)		
	1	7	13
TRP	9.52	10.21	10.52
TIS	-79.8	-80.1	-80.3

	WIFI5(a/54M)		
	36		165
TRP	12.2		10.5
TIS	-71.6		-71.1

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Status

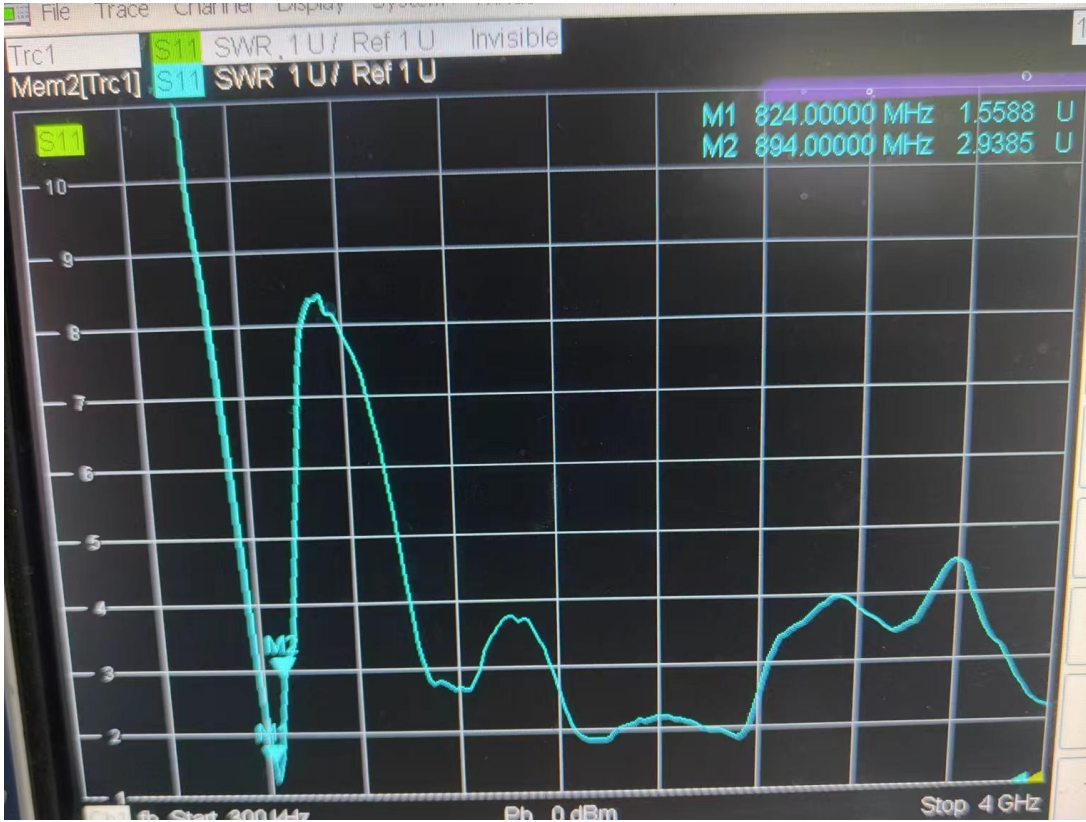
Lat: 22.7414533°	Time: 10:57:57 PM
Long: 113.9519283°	TTFF: 1 sec
Alt: 88.4 m	E H/V Acc: 2.6/60.3 m
Alt (MSL): 91.3 m	# Sats: 14/18/26
Speed: 0.0 m/s	Bearing: 239.0°
S. Acc: 0.9 m/s	B. Acc: 179.9°
PDOP: 1.2	H/V DOP: 0.8/0.9

ID	GNSS	CF	C/N0	Flags	Elev	Azim
3		L1			4°	36°
4		L1	20.6		11°	75°
6		L1	37.3	U	51°	323°
9		L1	14.2	U	23°	110°
11		L1	31.5	U	35°	280°
14		L1	42.1	U	36°	168°
19		L1	30.1	U	56°	17°
20		L1	25.9	U	33°	219°
22		L1	40.0	U	59°	183°
1		L1			9°	34°
2		L1	22.8	U	40°	79°
3		L1	22.9	U	33°	148°
14		L1	30.4		14°	186°
15		L1	13.7		43°	236°
17		L1	19.1	U	34°	19°
18		L1	30.0	U	28°	321°
19		L1			5°	285°
24		L1	25.5	U	8°	67°
9		E1			15°	161°
12		E1			21°	46°
24		E1	30.0	U	49°	179°
194		L1	38.0	U	48°	154°
195		L1			60°	43°
196		L1	29.0		54°	121°
199		L1			36°	150°

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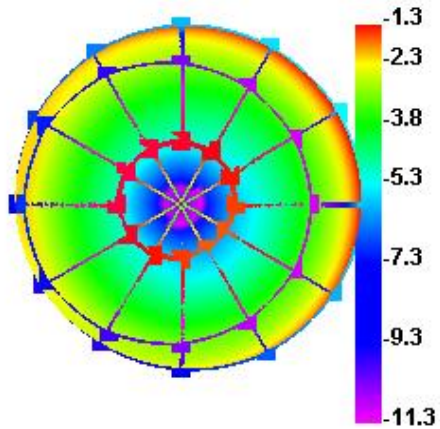
6. Passive data

6.1 Main antenna VSWR/efficiency/ Gain (824-894MHz)

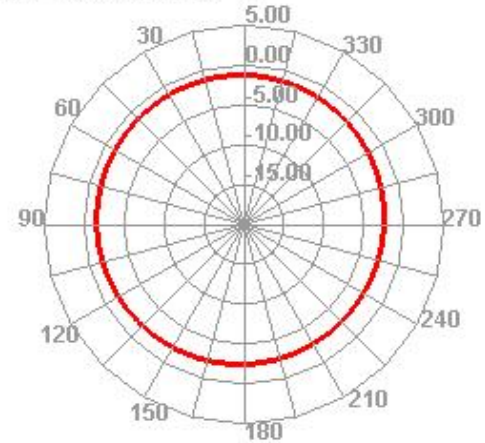


Passive Test For 824-894		
Freq (MHz)	Effi (%)	Gain (dBi)
850	33.06	-1.12

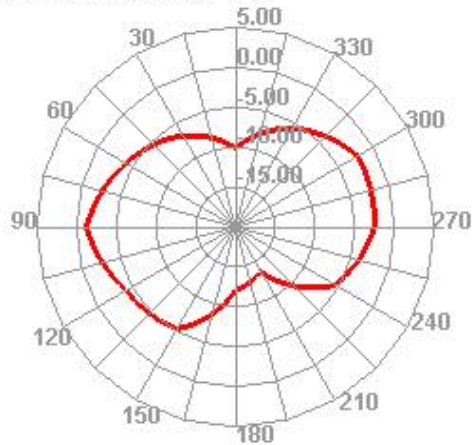
850.000MHz



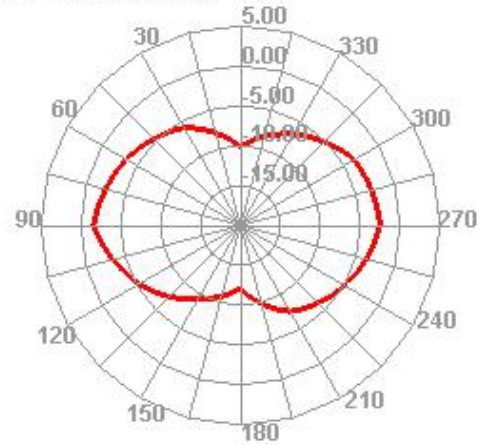
850.000MHz H



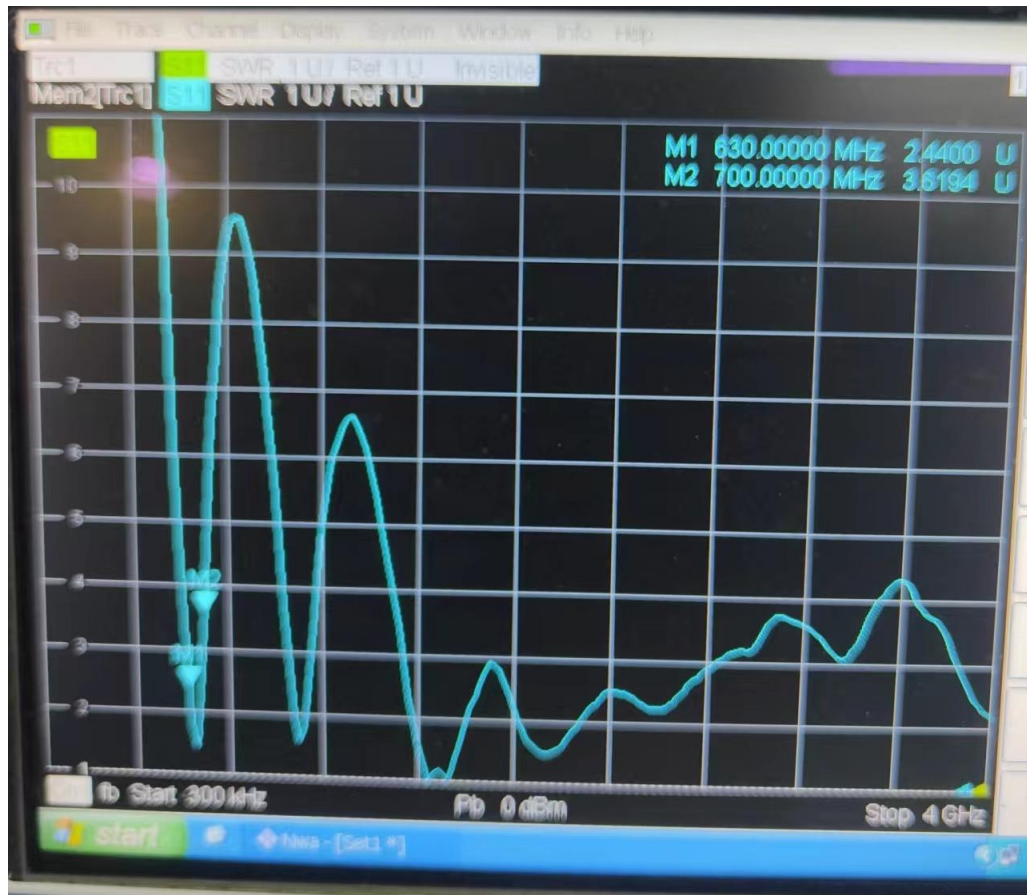
850.000MHz E1



850.000MHz E2

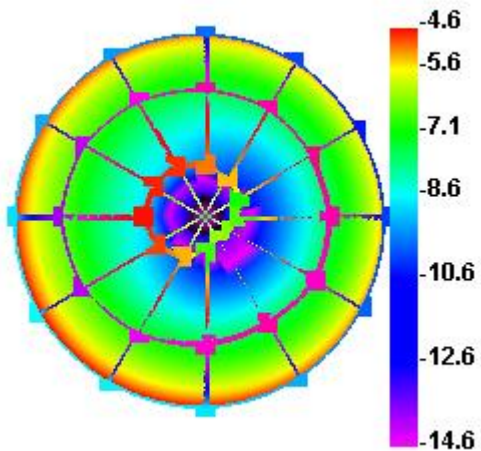


6.2 Main antenna VSWR (630-700MHz)

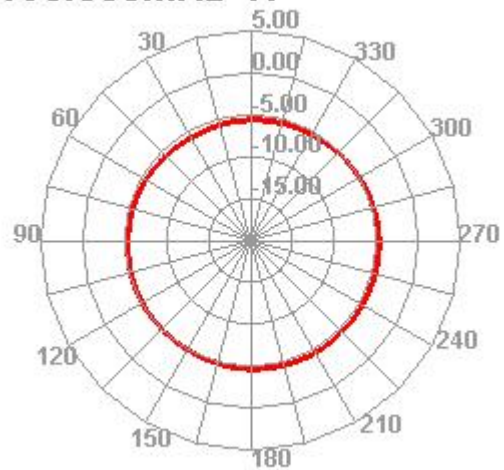


Passive Test For 630-700		
Freq (MHz)	Effi (%)	Gain (dBi)
690	20.1	-3.21

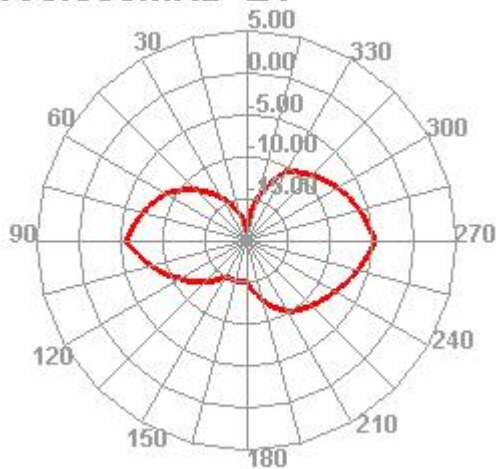
690.000MHz



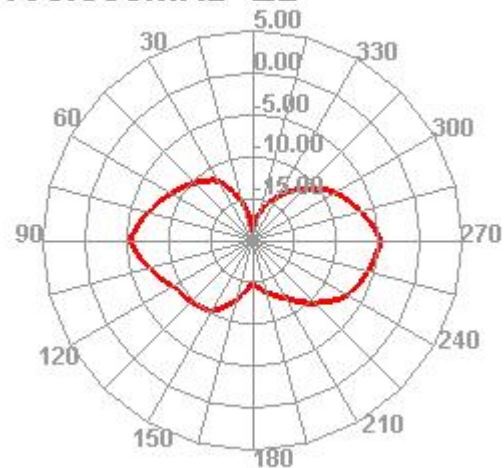
690.000MHz H



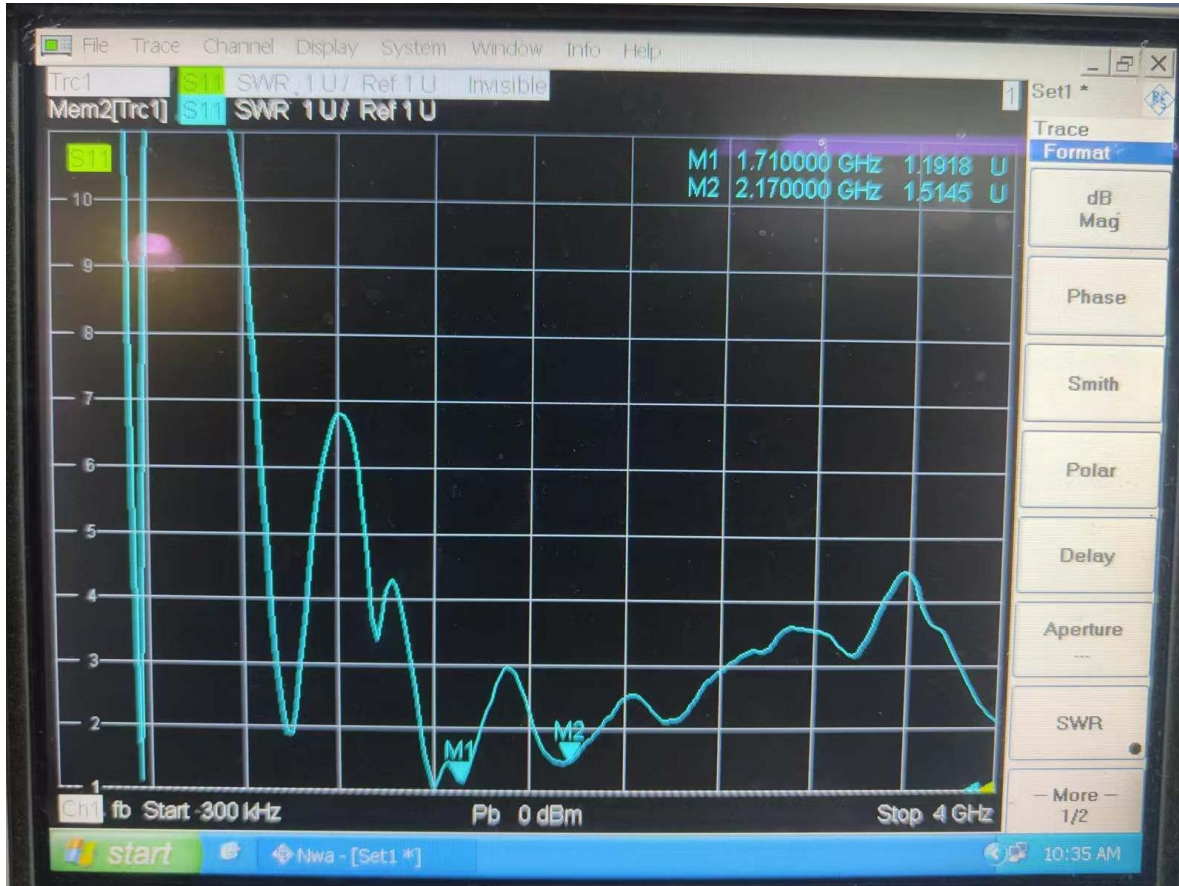
690.000MHz E1



690.000MHz E2

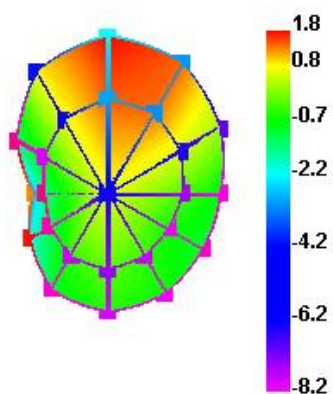


6.3 Main antenna VSWR (1710-2170MHz)

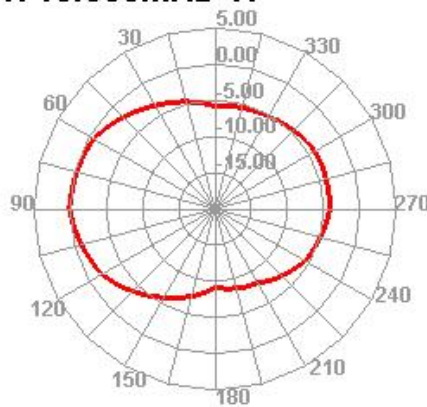


Passive Test For 1710-2170		
Freq (MHz)	Effi (%)	Gain (dBi)
1710	47.68	1.85
2040	56.71	1.66

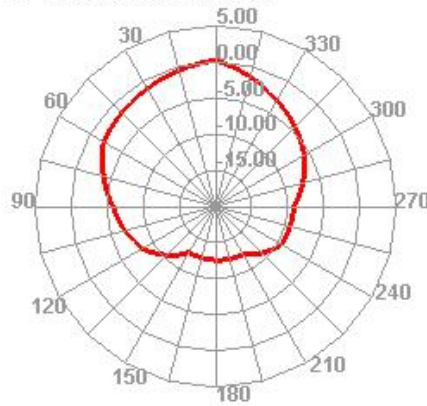
1710.000MHz



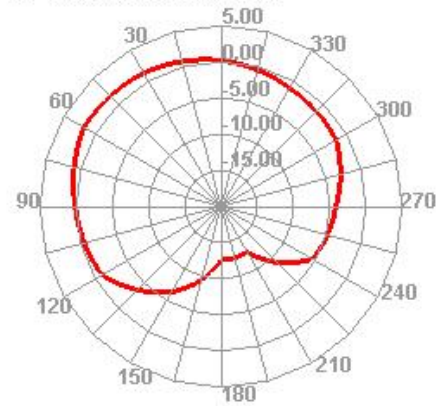
1710.000MHz H



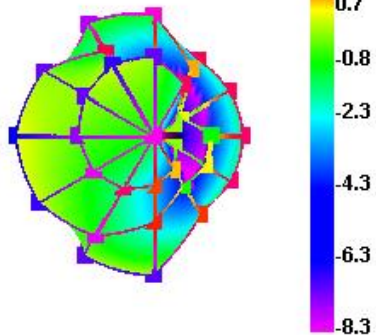
1710.000MHz E1



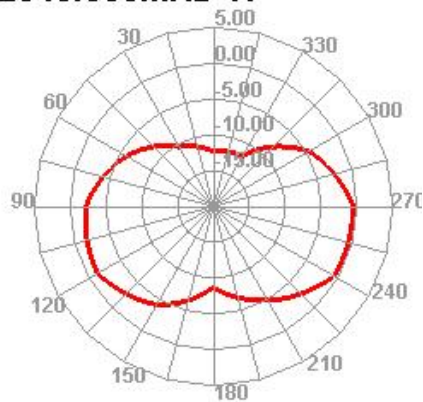
1710.000MHz E2



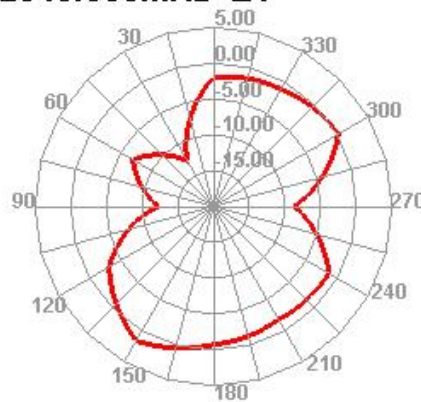
2040.000MHz



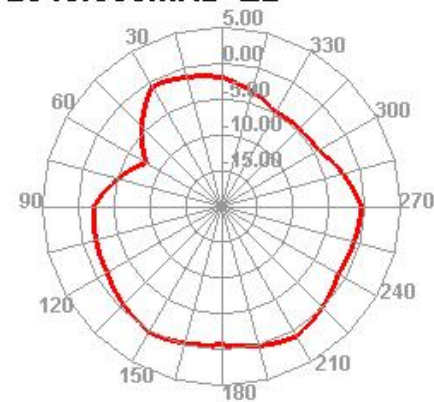
2040.000MHz H



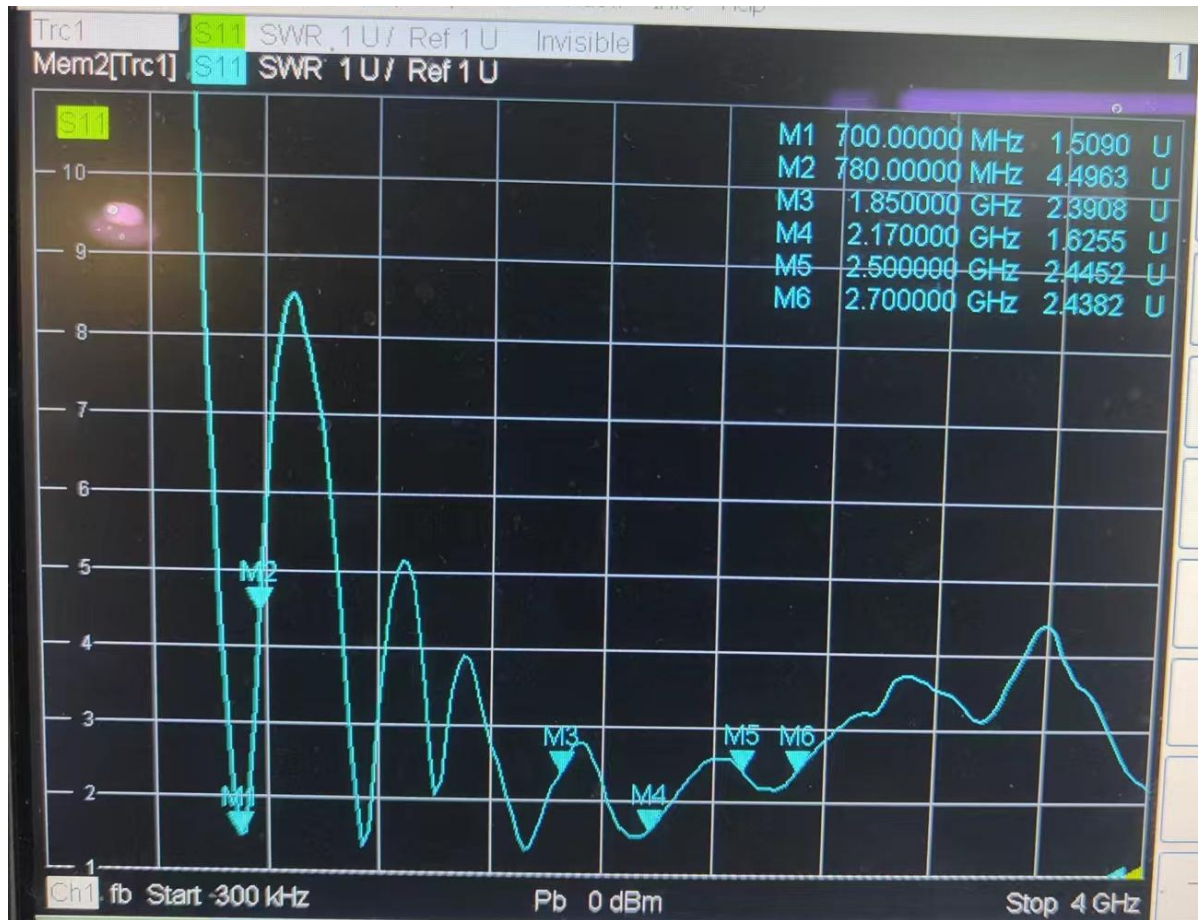
2040.000MHz E1



2040.000MHz E2

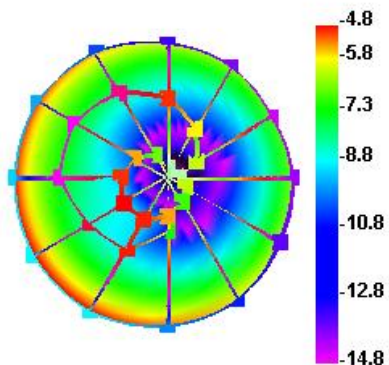


6.4 Main antenna VSWR (700-760/-1850-2700MHz)

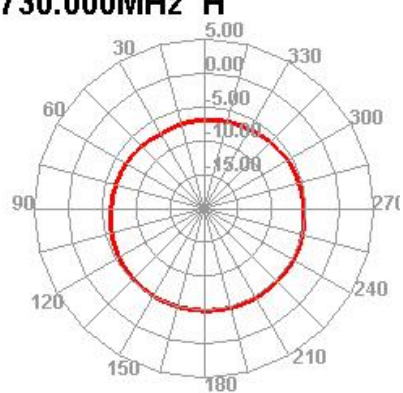


Passive Test For 700-760/-1850-2700		
Freq (MHz)	Effi (%)	Gain (dBi)
730	22.52	-3.01
1990	56.71	1.66
2550	41.74	1.15

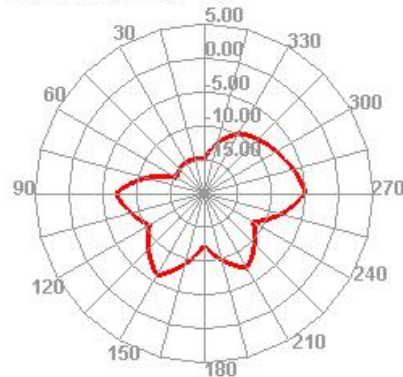
730.000MHz



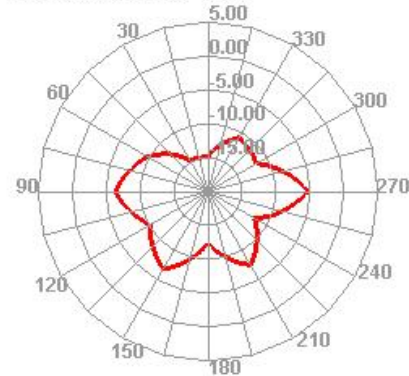
730.000MHz H



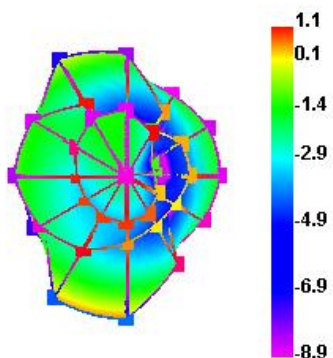
730.000MHz E1



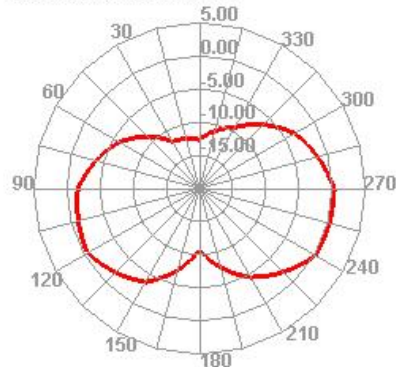
730.000MHz E2



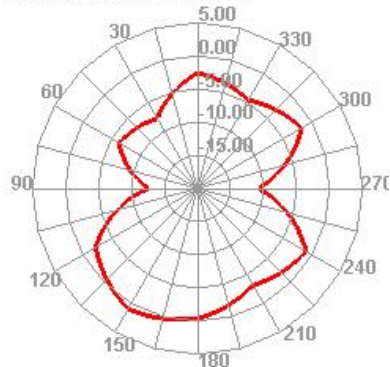
1990.000MHz



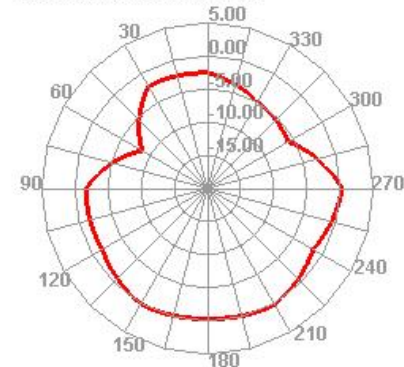
1990.000MHz H



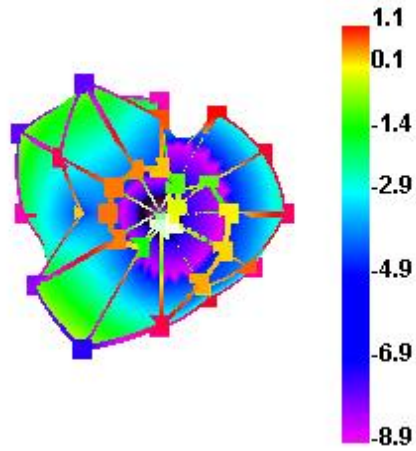
1990.000MHz E1



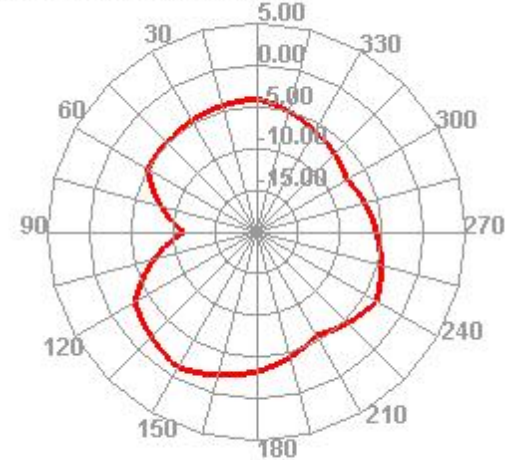
1990.000MHz E2



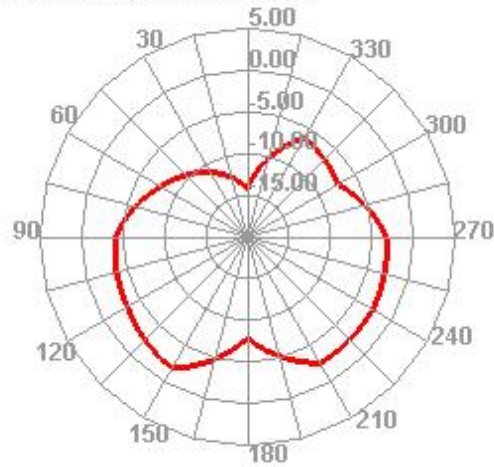
2550.000MHz



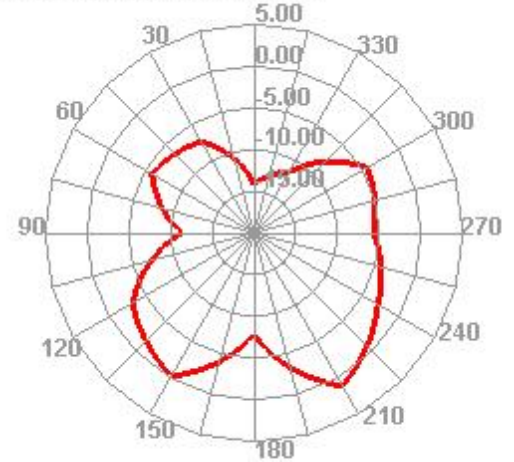
2550.000MHz H



2550.000MHz E1

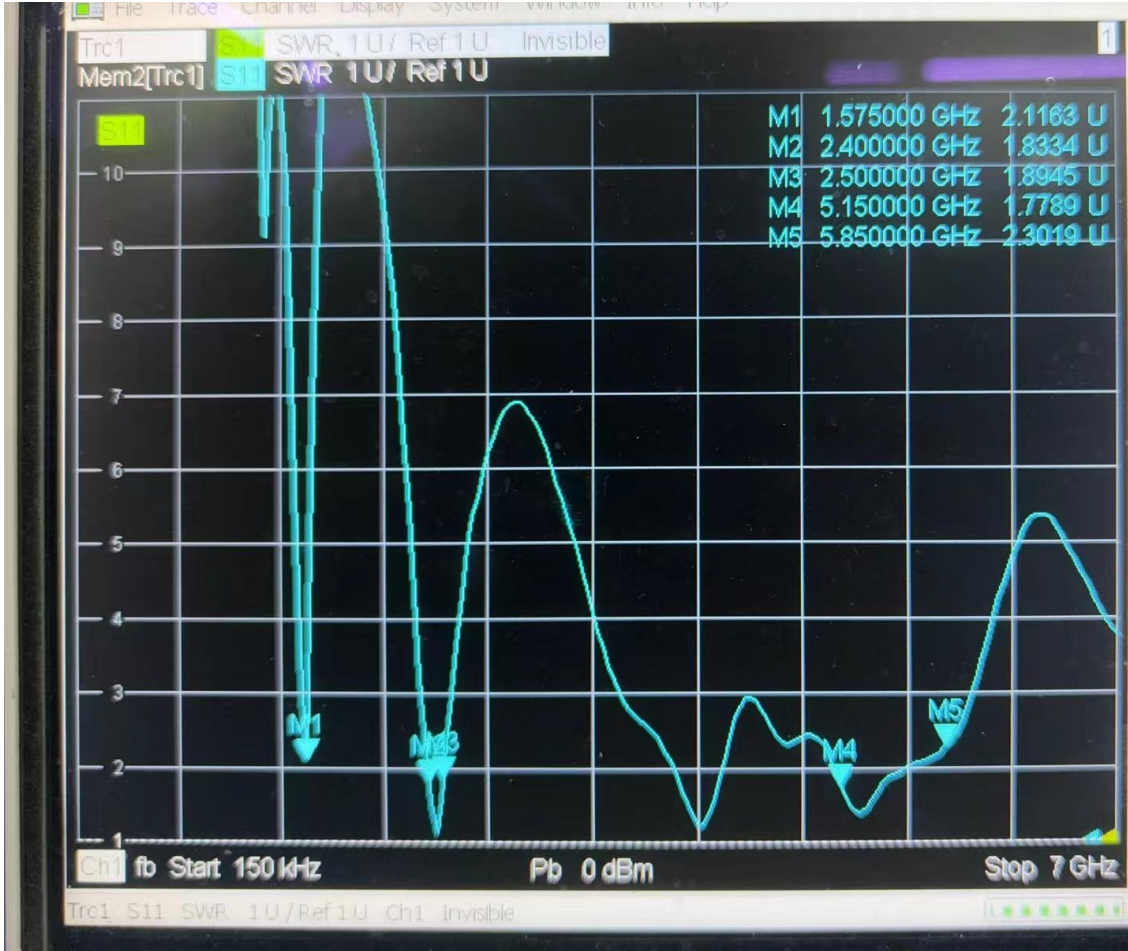


2550.000MHz E2



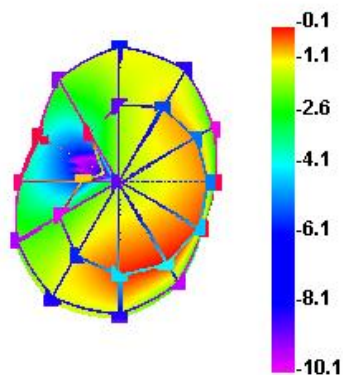
7. Passive data

6.1 GPS/WIFI/BT VSWR/efficiency/ Gain (824-894MHz)

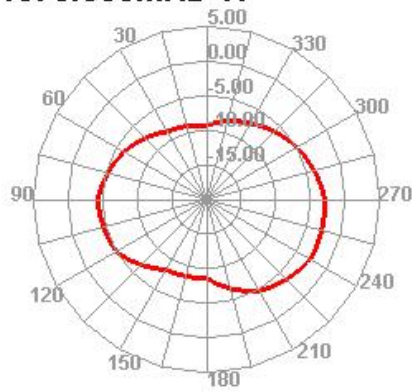


Passive Test For 824-2700		
Freq (MHz)	Effi (%)	Gain (dBi)
1575	33.5	0.12
2450	43.49	1.0
5150	40.21	0.34
5850	42.51	0.72

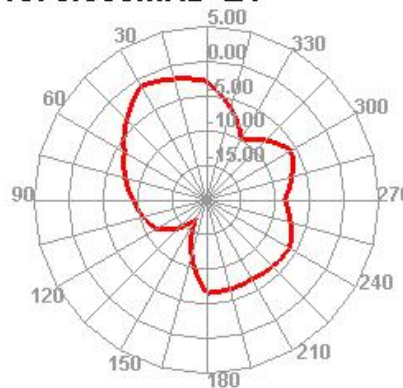
1575.000MHz



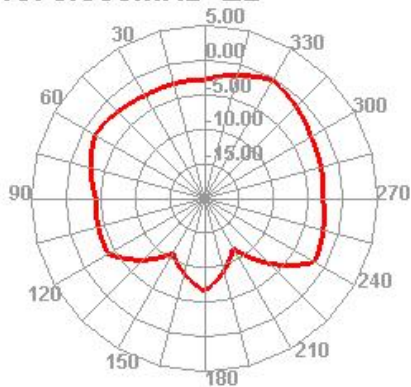
1575.000MHz H



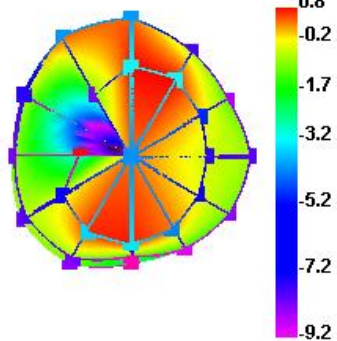
1575.000MHz E1



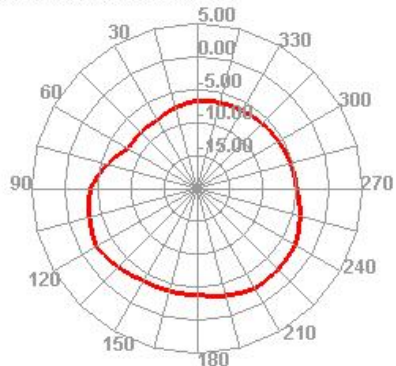
1575.000MHz E2



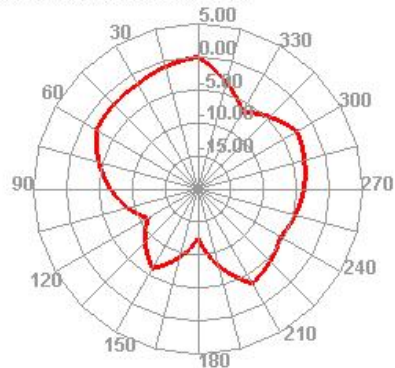
2450.000MHz



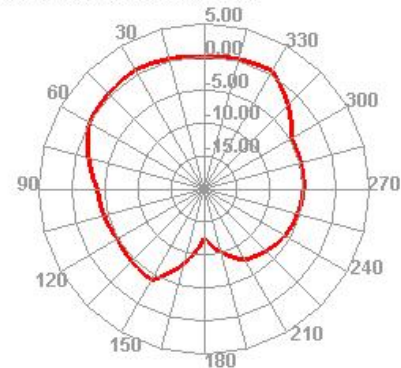
2450.000MHz H



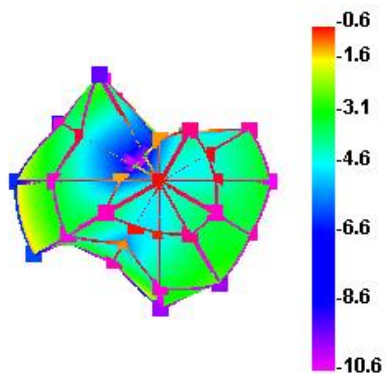
2450.000MHz E1



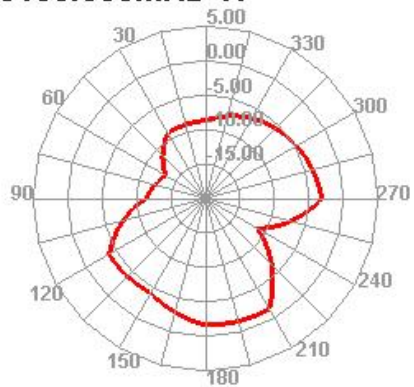
2450.000MHz E2



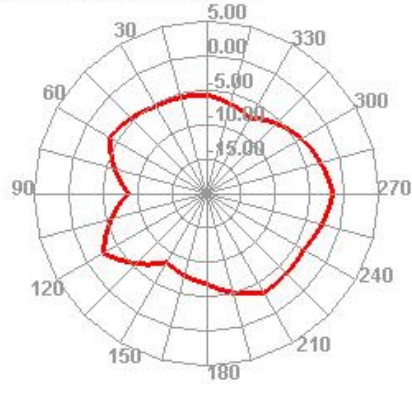
5150.000MHz



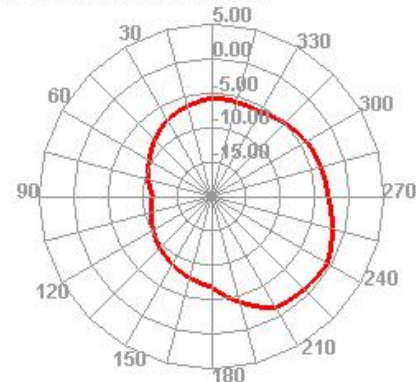
5150.000MHz H



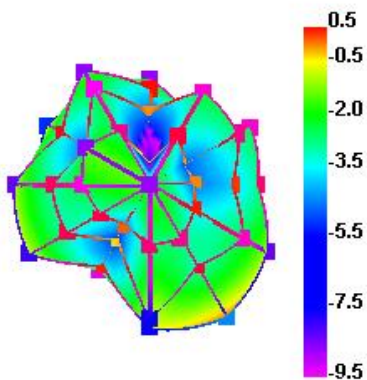
5150.000MHz E1



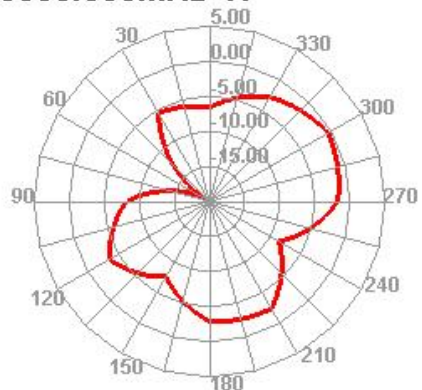
5150.000MHz E2



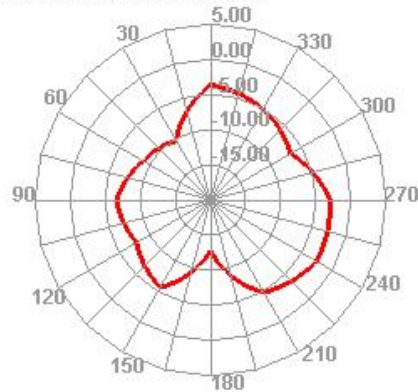
5850.000MHz



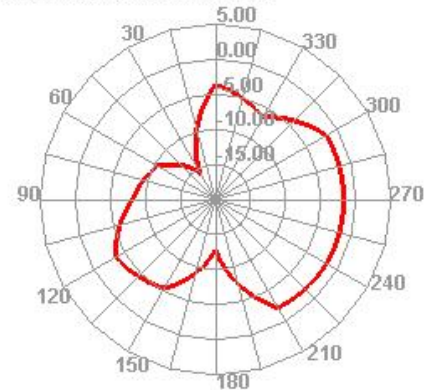
5850.000MHz H



5850.000MHz E1

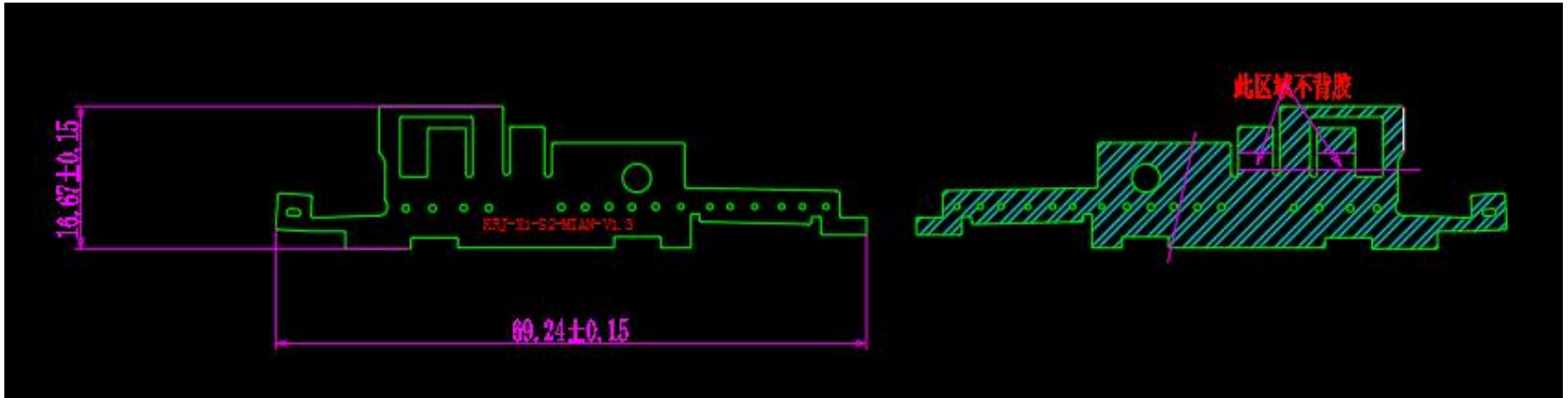


5850.000MHz E2

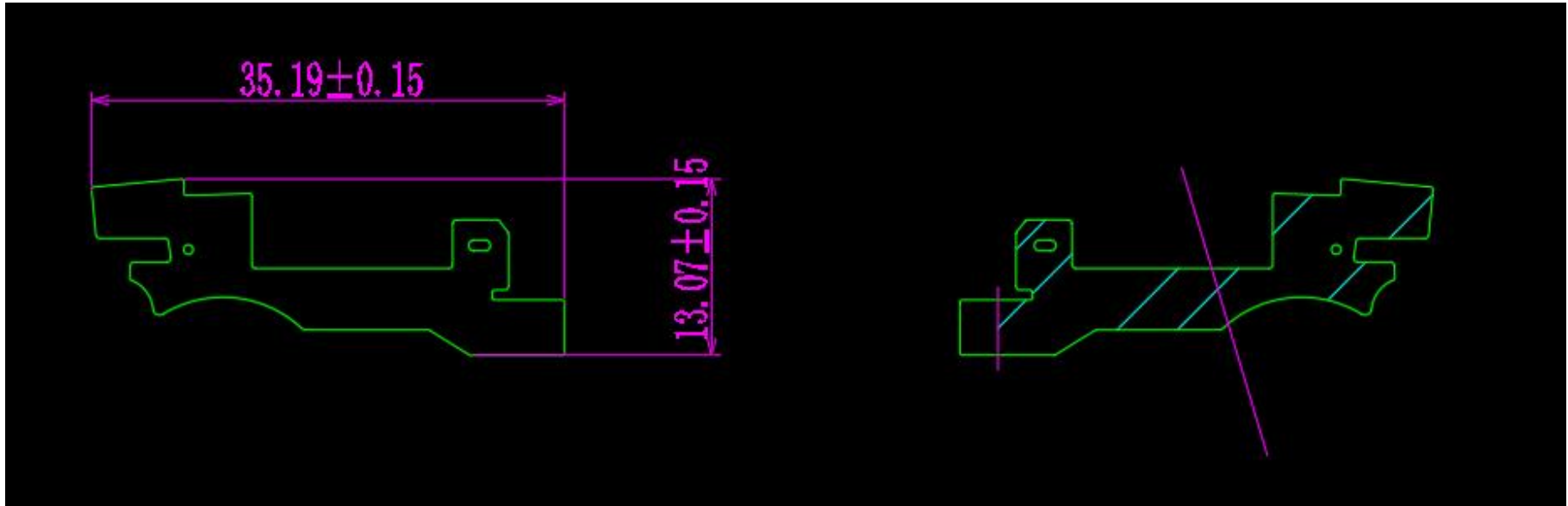


8.drawing sheet

主天线



分集天线



三合一天线

