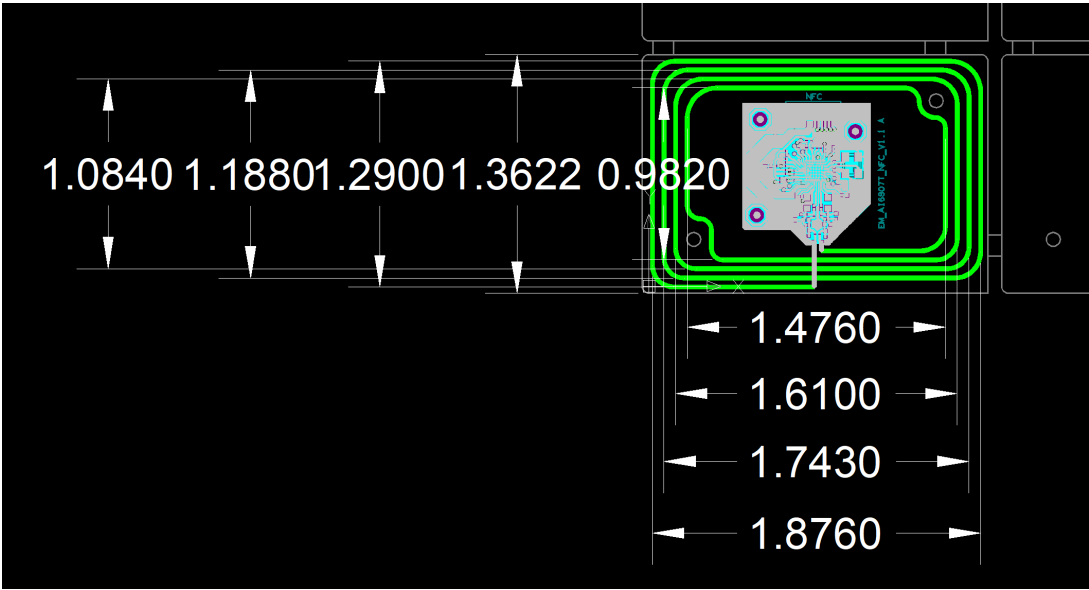


Antenna Specifications

1.1 Specification

Specifications	
Operating frequency (MHz)	13.56MHz
Antenna type	Flex FPC
Antenna gain	0 dBi
Antenna model	E358874

1.2 Dimensions(Unit: cm)



Manufacturer: Emdoor Digital Technology Co., Ltd.
Address: Emdoor Building, No.8 Guangke 1st Road, Pingshan District, Shenzhen, China
We statement that All measurements were performed radiated and therefore additional antenna gain documentation is not required.

承 认 书

SPECIFICATION APPROVAL SHEET

客 户 :

CUSTOMER

客 户 料 号 :

CUS PART NO

版次:

REV X3

品 名 / 规格 :

SPECIFICATION

WIFI+GPS Antenna

单重:

weight

供 方 料 号 :

SUP PART NO

SLEingE100090417

日 期 :

DATE

2024.08.21

厂 商 核 准 :

SUP APPROVED

核准 APPROVED	结构审核 Structure audit	RF审核 RF CHECKED	品保审核 QA CHECKED	承办 DESIGNED
Jouym	H2M	TDM	LSY	Xianf

客 户 核 准 :

CUS APPROVED

核准 APPROVED	审核 CHECKED	品保审核 QA CHECKED	承办 DESIGNED

东莞市森岭智能科技有限公司

DONGGUAN CITY SLEing INTEL-TECH CO., LTD

中国广东省东莞市松山湖工业东路24号现代企业加速器6栋402

Room 402, No. 6 Plant, Accelerator of Modern Enterprise, No. 24 Industry
East Road Songshanlake District, Dongguan City, Guangdong

Tel: +86-076989208968

Fax: +86-0769-89208969

www.sleing.com

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[illegible]



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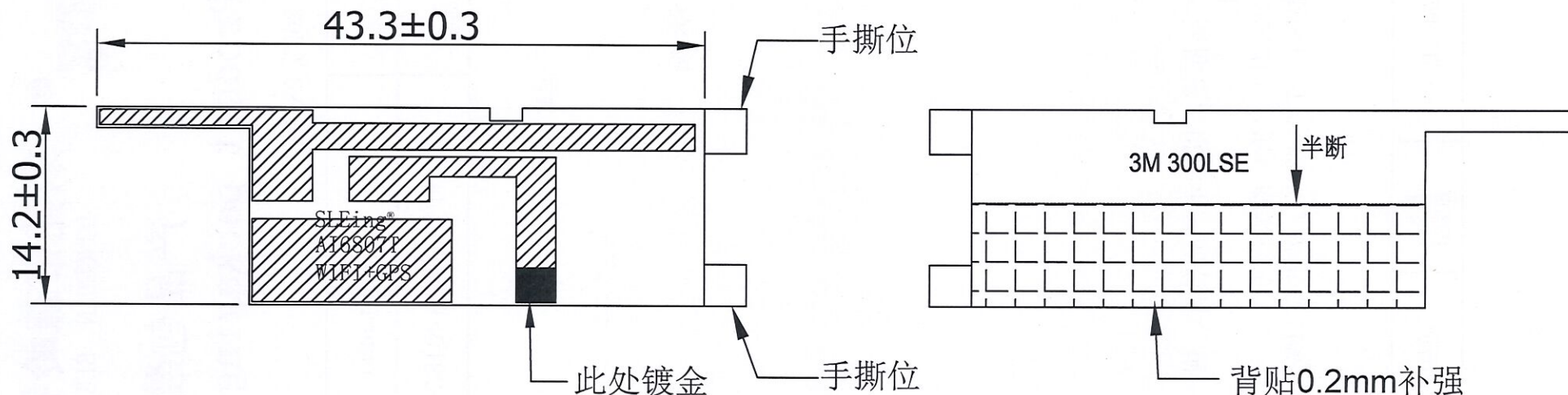
承认书项目表 (Spec Item)

序号 (NO.)	项目 (Project)	备注 (Remark)	页码 (Page)
1	承认书封面 (Spec Cover)		1
2	变更记录 (MODIFICATION RECORD SHEET)		2
3	承认书项目表 (Spec Item)		3
4	工程成品图 (Drawing)		4
5	电性测试报告 (Test Reports)		5
6	天线组装图 (Antenna assembly diagram)		6
7	S参数测试 (S Parameter Test)		7-8
8	测试设备 (Test Setup)		9
9	测试效率 (Test Efficiency)		10

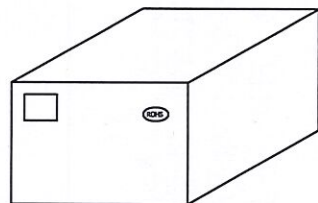
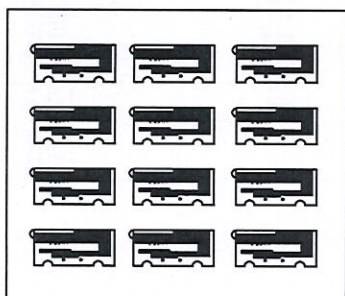
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4. SGS report is valid for one year.
5. According to the contents attached to the actual acknowledgement, check the check form: "Yes" is provided, "no" is provided according to customer requirements.

REV.	CONTENT	DATE
X1	First Sample	2024.07.22
X2	修改FPC	2024.08.03
X3	修改FPC	2024.08.21



Specification:
Frequency Rang: 2.4~2.5/5.15~7.15/1.57542GHz(带机测试)
Return Loss: -10dB or less
VSWR: 1.92 Max



外箱须贴ROHS标签与物料标签各1PCS

SLEing® 森岭 东莞市森岭智能科技有限公司 DONGGUAN SLEing INTEL-TECH CO.,LTD				CUSTOMER			
				PART NO			
				TITLE		WIFI+GPS ANTENNA	
				S.L P/NO		SLEingE100090417	
		TOLERANCE UNLESS OTHERWISE SPECIFIED		SIZE	DRAWN	CHECKED	APPROVED
				A4			
UNIT:mm		ANGLES ±0.5°		X. ±0.3			
SHEET: 1/1		.XX ±0.05		XX. ±0.5			
SCALE: 1/1				XXX. ±2.0			

NO	PART NAME	DESCRIPTION	REMARK	Q'TY
1	FPCB	FPC,L43.3*W14.2*T0.4mm,Black		1



东莞市森岭智能科技有限公司

DONGGUAN SLEing INTEL-TECH CO.,LTD

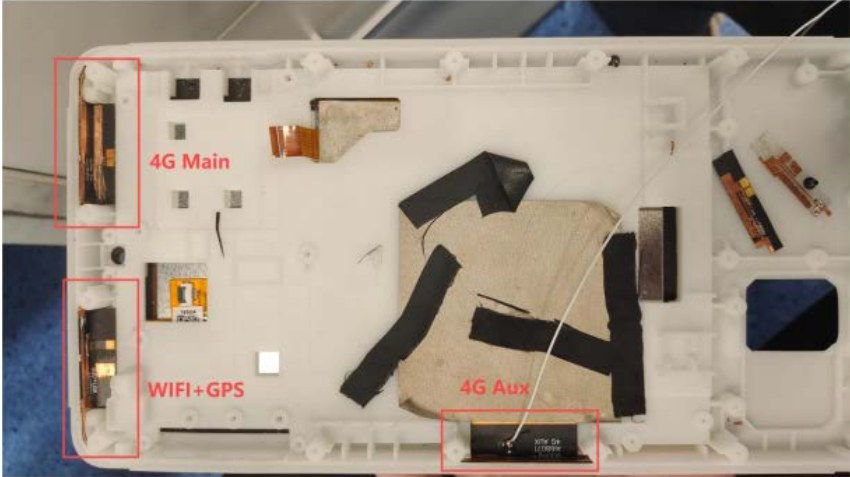
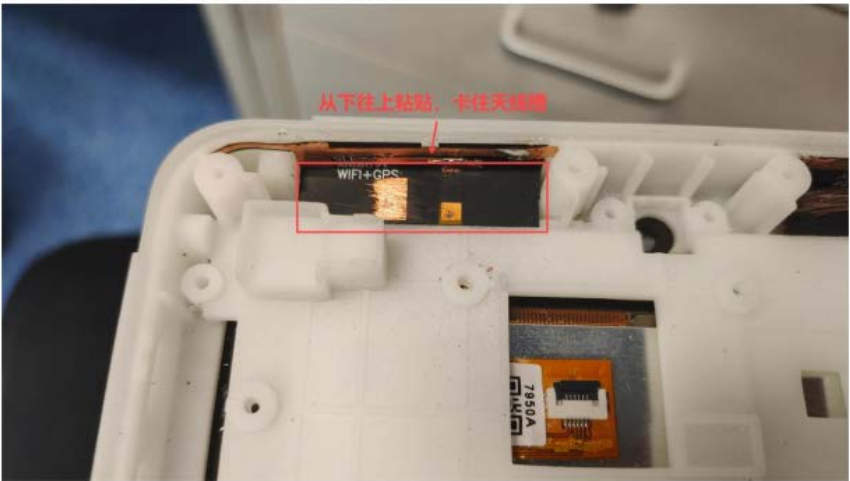
电性测试报告

Test Reports

Electrical Properties	
Frequency	2.4~2.5/5.15~7.15/1.57542GHz (带机测试)
Impedance	50 Ohm Nominal
V.S.W.R	≤ 1.92
Return Loss	-10 dB Max
Radiation	Omni-directional
Gain (Peak)	See test table
Polarization	Linear, Vertical
Admitted Power	2 W
Connector	
Physical Properties	
Antenna Material	FPCB
Cable Type	
Operating Temp.	-40~+85 °C
Storage Temp.	-5~+30 °C

天线组装图

Antenna Profile

<i>Device</i>	1、天线粘贴位置 天线粘贴位置如下图所示 
<i>Antenna</i>	2.天线粘贴 WIFI+GPS 天线的粘贴细节如图所示： 天线从下往上粘贴，卡住天线槽。 注意：天线粘贴时，天线不能粘偏、歪斜、起翘。 

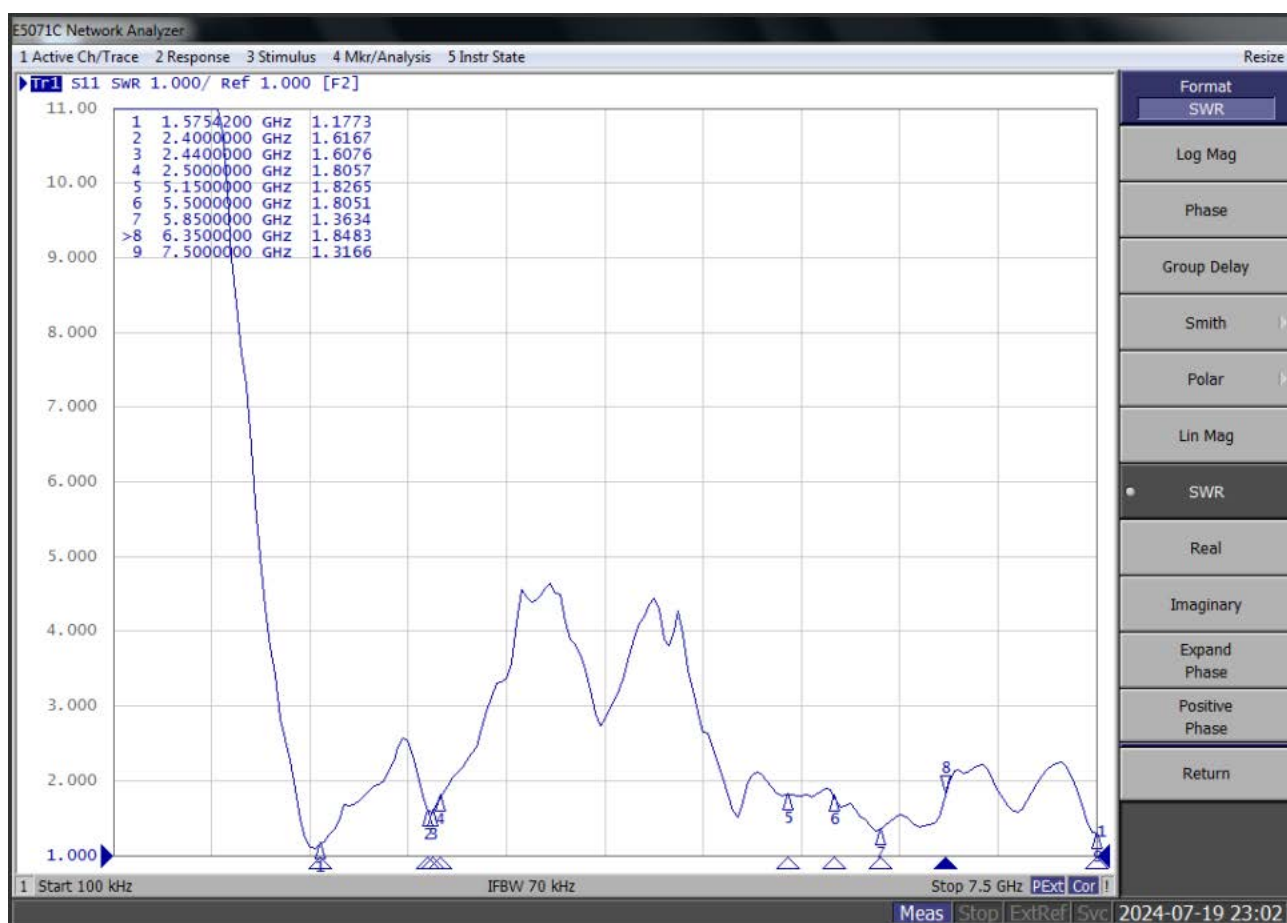
S 参数测试

S Parameter Test

Agilent E5071C Network Analyzer



WiFi+GPS 驻波 Antenna (NO.1)



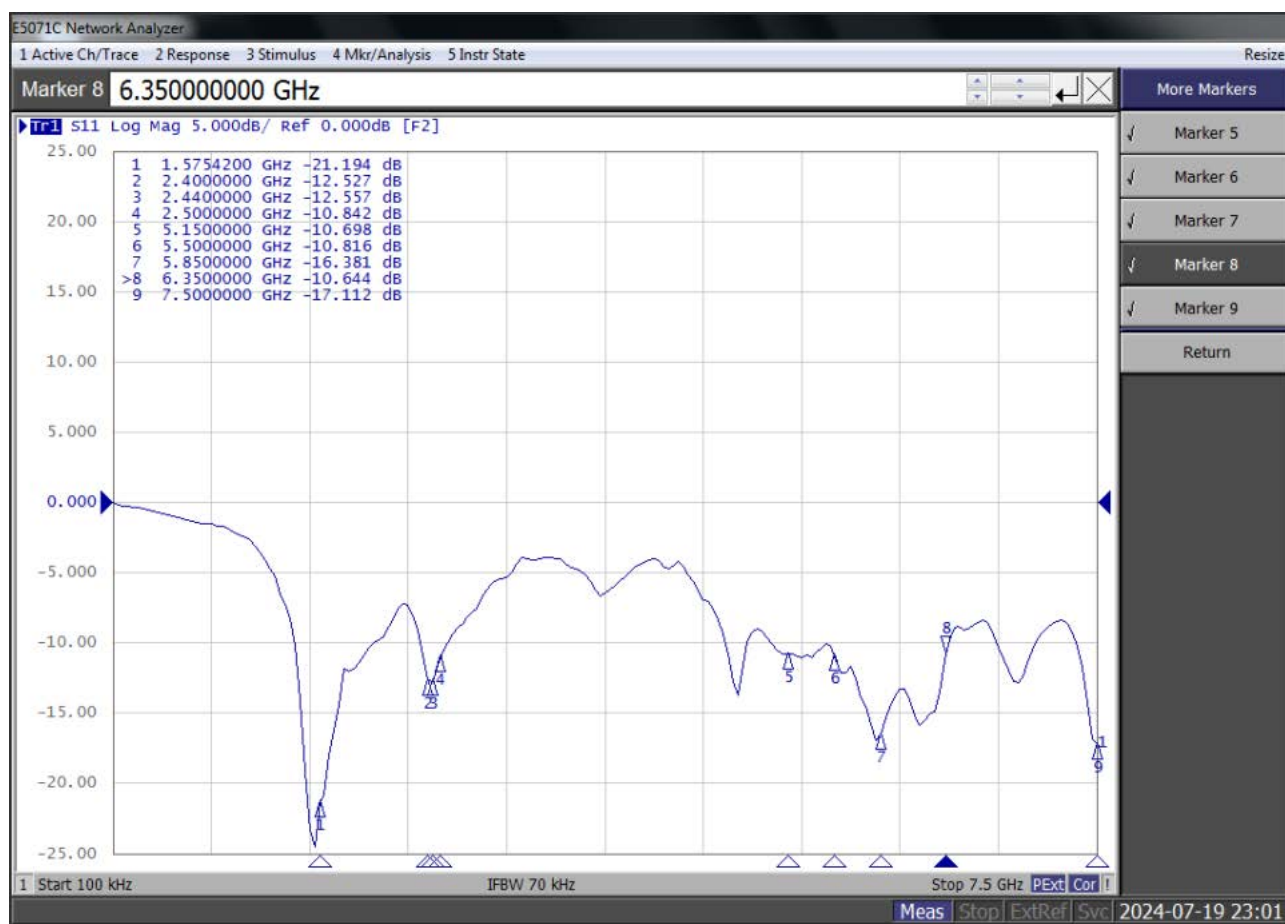
S 参数测试

S Parameter Test

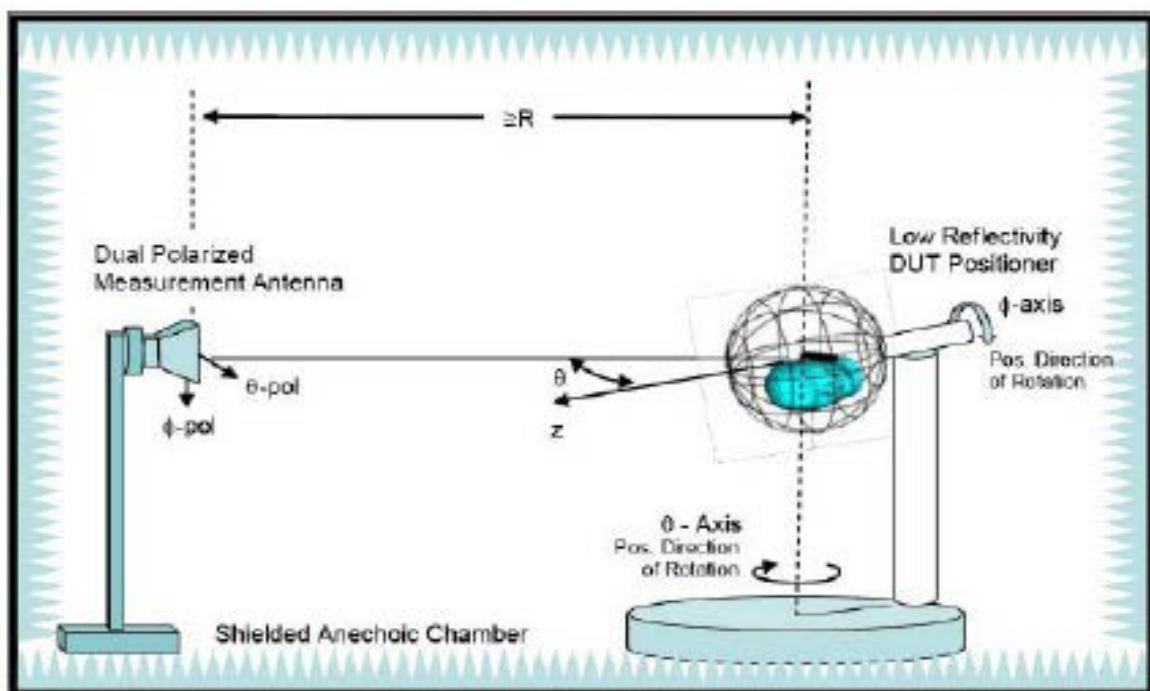
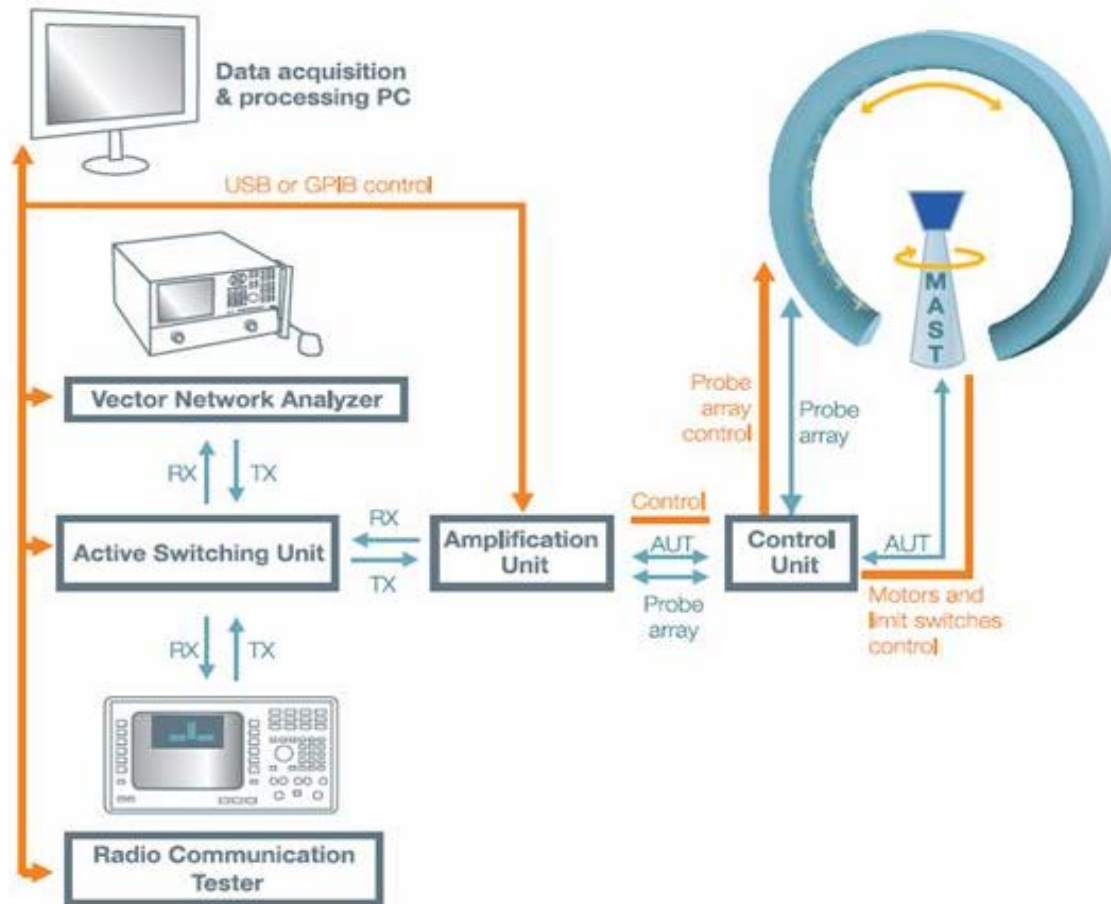
Agilent E5071C Network Analyzer



WiFi+GPS 回波损耗 Antenna (NO.1)

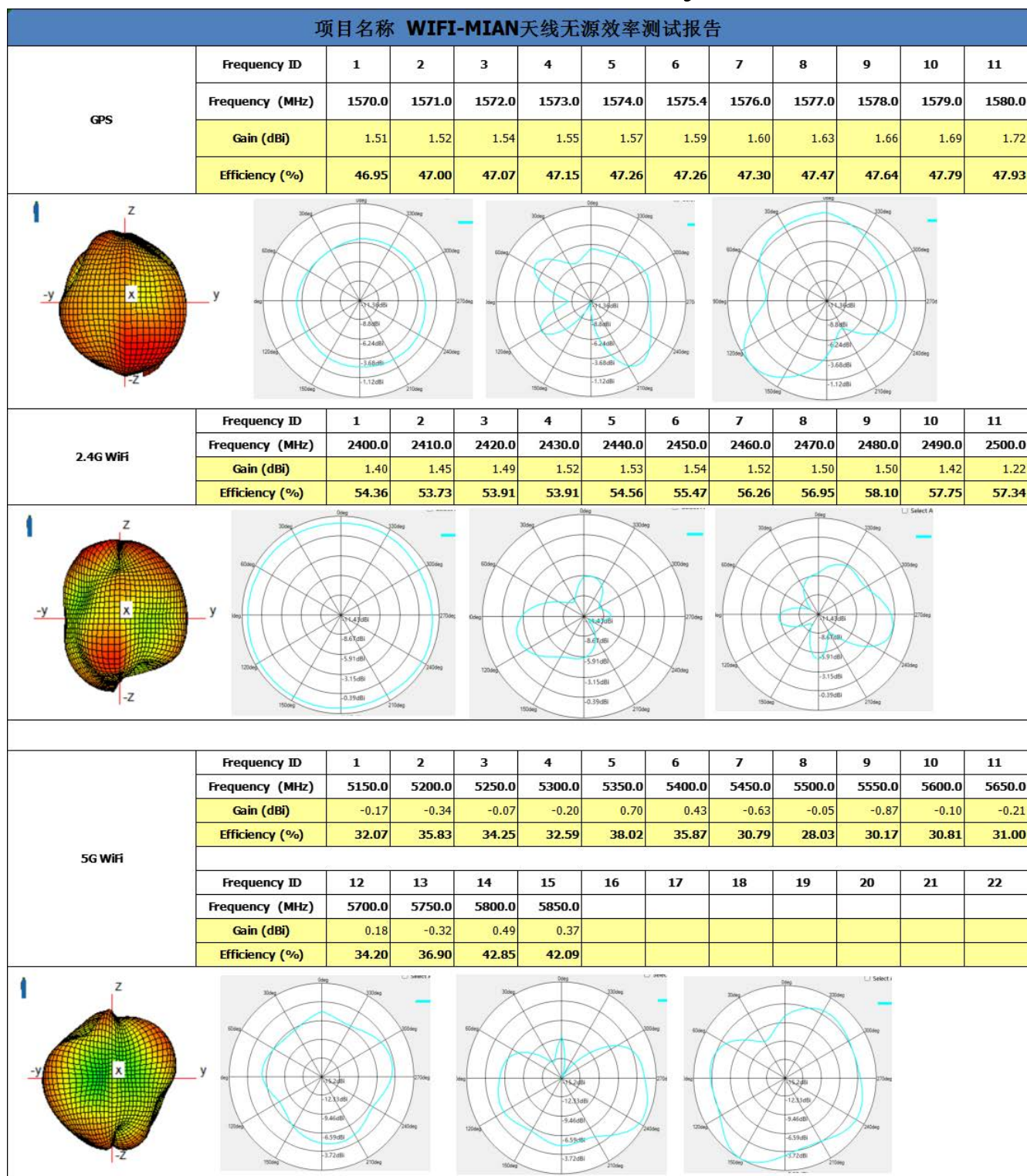


测试设备 Test Setup



测试效率

Test Efficiency



承 认 书

SPECIFICATION APPROVAL SHEET

客 户 :

CUSTOMER

客 户 料 号 :

CUS PART NO

版次:

REV

X3

品 名 / 规格 :

SPECIFICATION

4G MAIN Antenna

单重:

weight

供 方 料 号 :

SUP PART NO

SLEingE100090416

日 期 :

DATE

2024.08.21

厂 商 核 准 :

SUP APPROVED

核准 APPROVED	结构审核 Structure audit	RF审核 RF CHECKED	品保审核 QA CHECKED	承办 DESIGNED
Jouyann	H2M	70M	LSY	Xicun

客 户 核 准 :

CUS APPROVED

核准 APPROVED	审核 CHECKED	品保审核 QA CHECKED	承办 DESIGNED

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Fax: +86-0769-89208969

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[illegible]



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DONGGUAN SLEing INTEL-TECH CO., LTD

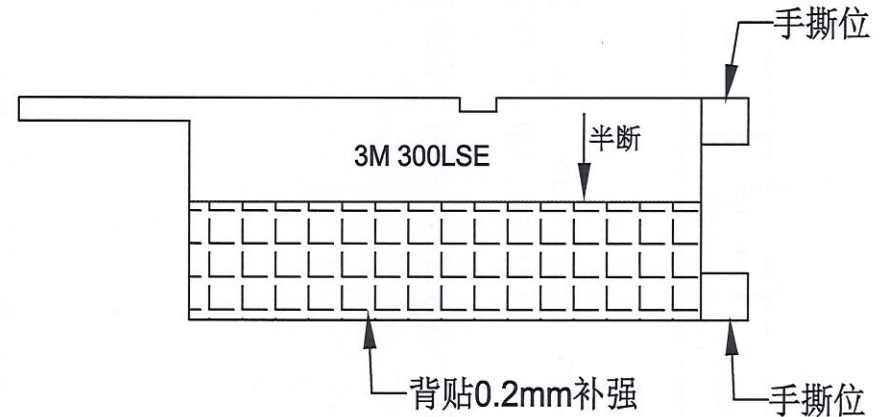
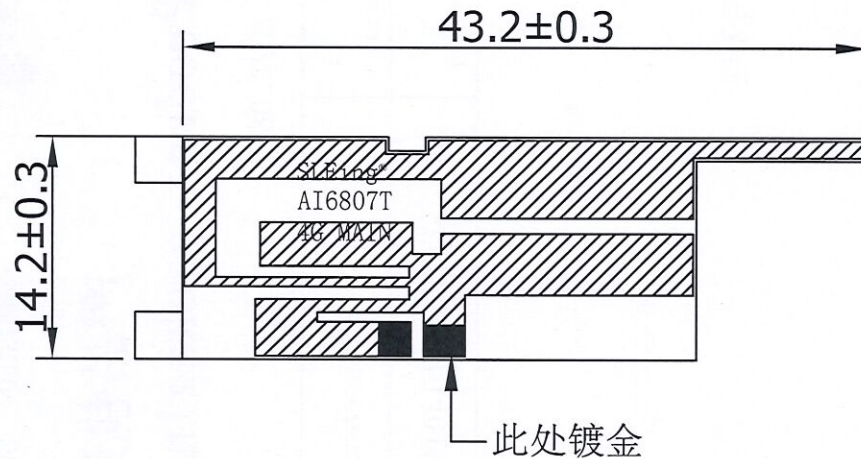
承认书项目表 (Spec Item)

序号 (NO.)	项目 (Project)	备注 (Remark)	页码 (Page)
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5	电性测试报告 (Test Reports)		5
6	天线组装图 (Antenna assembly diagram)		6
7	S参数测试 (S Parameter Test)		7
8	测试设备 (Test Setup)		8
9	测试效率 (Test Efficiency)		9

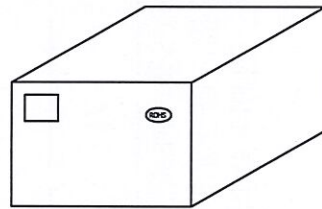
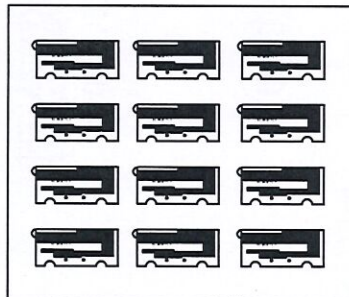
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REV.	CONTENT	DATE
X1	First Sample	2024.07.22
X2	修改FPC	2024.08.03
X3	修改FPC	2024.08.21

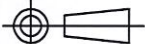
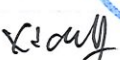


Specification:
Frequency Rang:824~960/1710~2700MHz(带机测试)
Return Loss:-6 dB Max
VSWR:3.0 Max



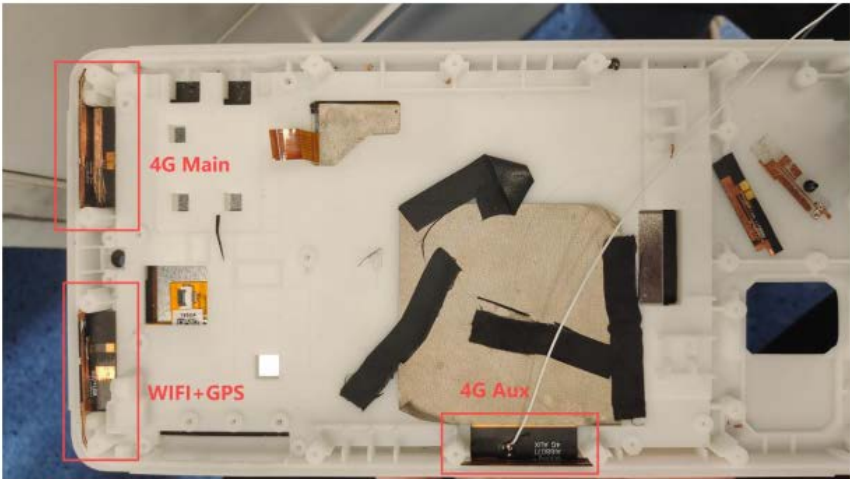
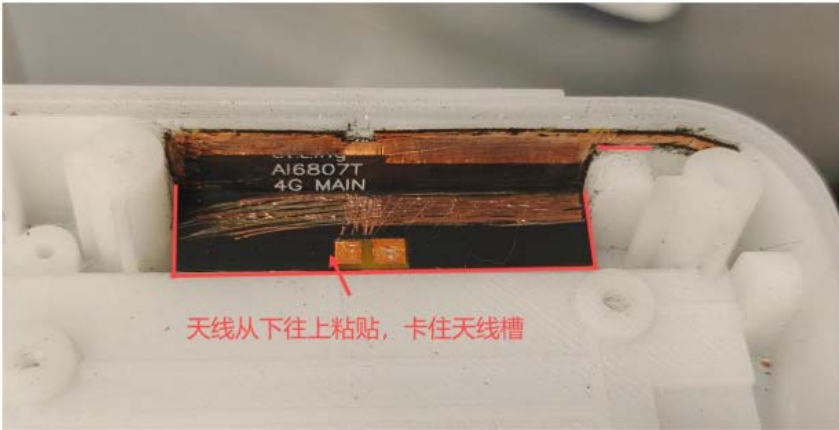
外箱须贴ROHS标签与物料标签各1PCS

1	FPCB	FPC,L43.2*W14.2*T0.4mm,Black	1
NO	PART NAME	DESCRIPTION	REMARK

SLEing® 森岭 东莞市森岭智能科技有限公司 DONGGUAN SLEing INTEL-TECH CO.,LTD				CUSTOMER			
				PART NO			
				TITLE		4G MAIN ANTENNA	
				S.L P/NO		SLEingE100090416	
		TOLERANCE UNLESS OTHERWISE SPECIFIED		SIZE	DRAWED	CHECKED	APPROVED
UNIT:mm		ANGLES ±0.5°	X. ±0.3	A4			
SHEET: 1/1		.XX ±0.05	XX. ±0.5				
SCALE: 1/1			XXX. ±2.0				

天线组装图

Antenna Profile

<i>Device</i>	1、天线粘贴位置 天线粘贴位置如下图所示 
<i>Antenna</i>	4G Main 天线的粘贴细节如图所示： 天线从下往上粘贴，插入天线槽上，左右两边对齐支架两边。 注意：天线粘贴时，天线不能粘偏、歪斜、起翘。  天线从下往上粘贴，卡住天线槽

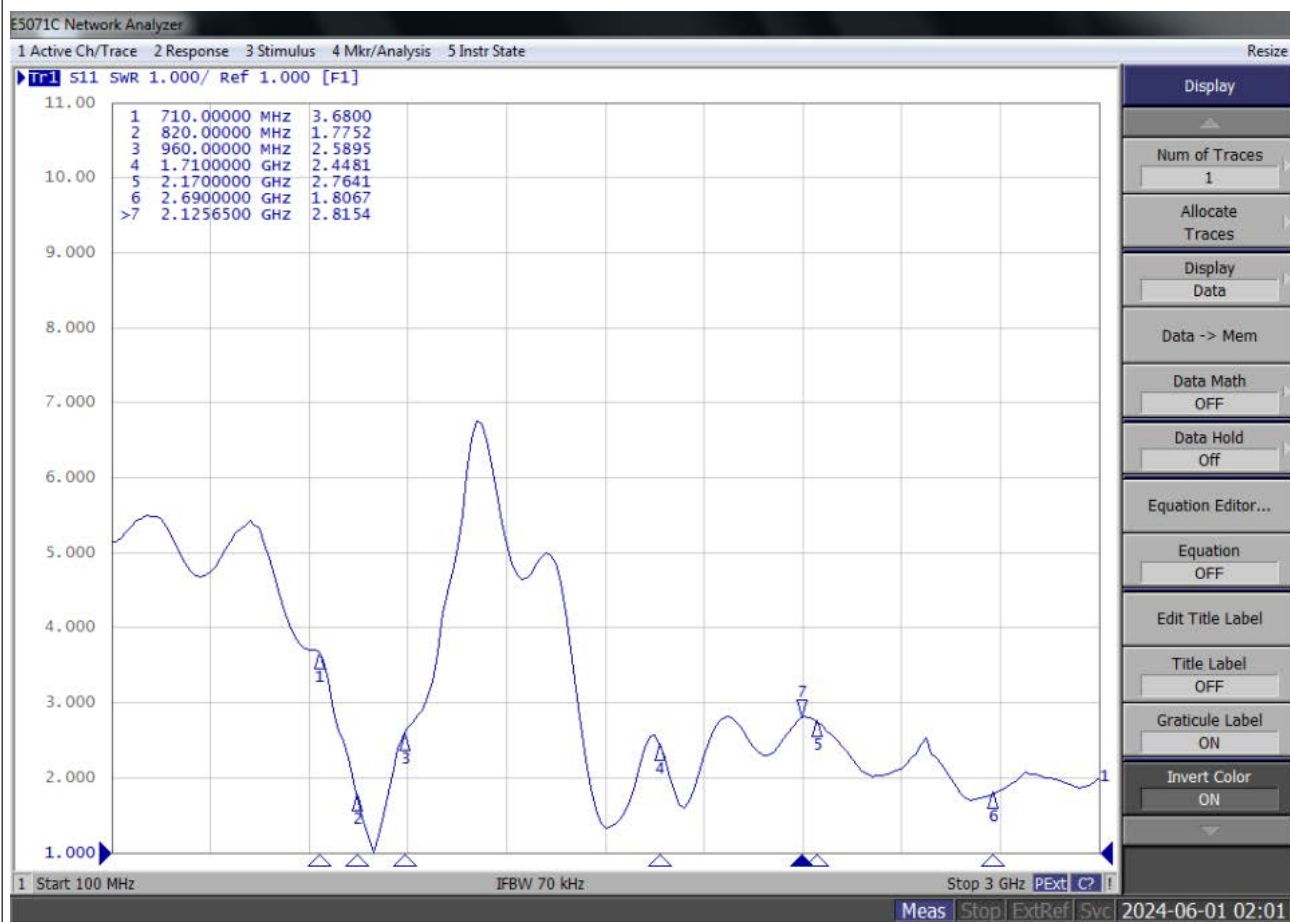
S 参数测试

S Parameter Test

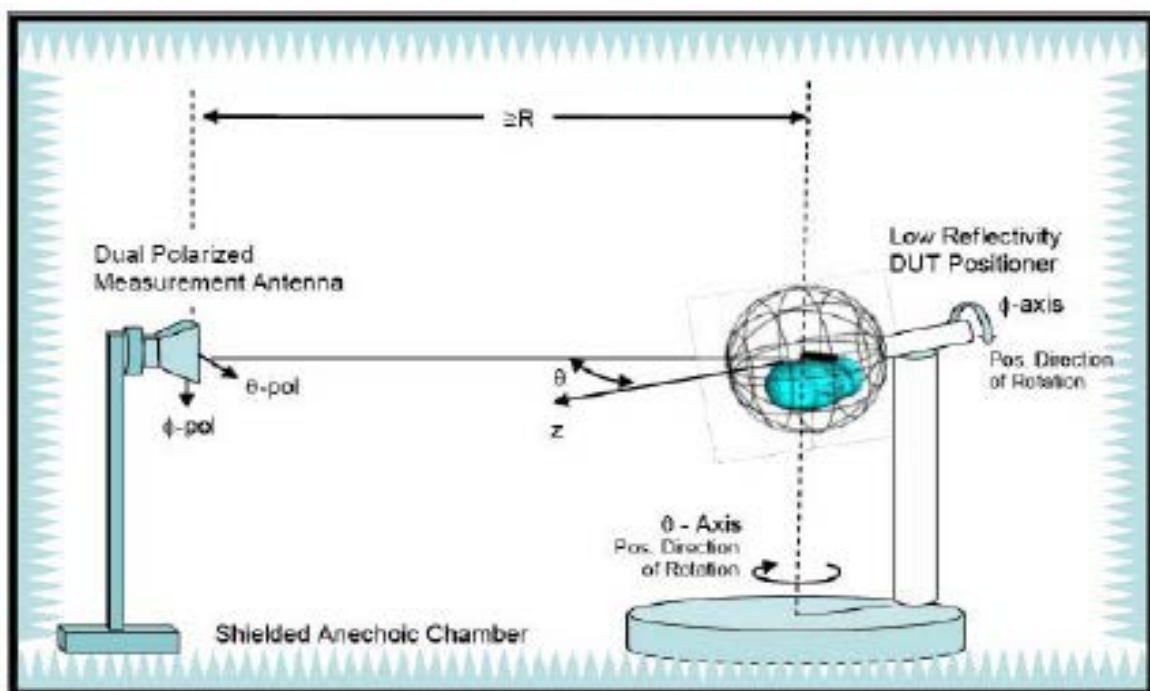
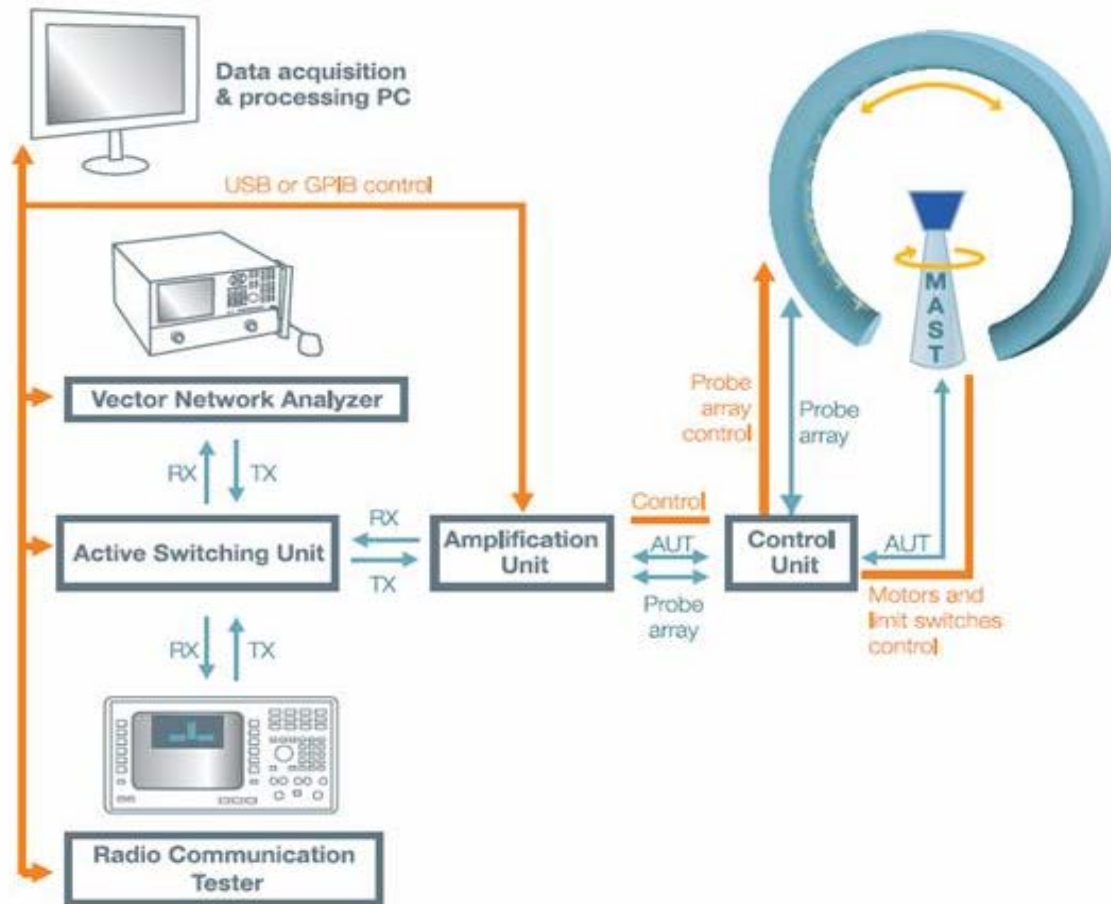
Agilent E5071C Network Analyzer



4G MAIN 驻波 Antenna (NO.1)



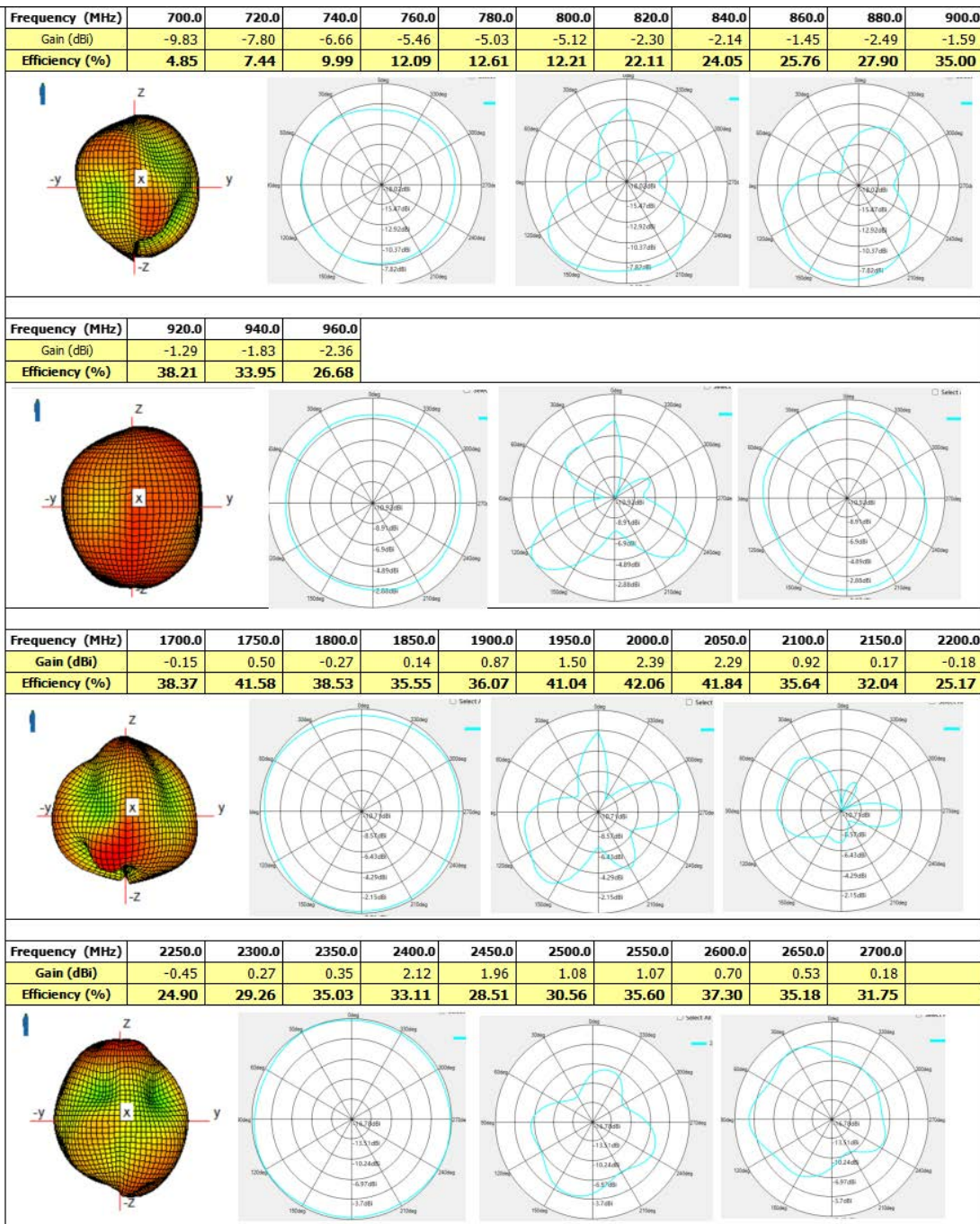
测试设备 Test Setup



测试效率

Test Efficiency

4G_Main Antenna



承 认 书

SPECIFICATION APPROVAL SHEET

客 户 :

CUSTOMER

客 户 料 号 :

CUS PART NO

版次:

REV

X4

品 名 / 规格 :

SPECIFICATION 4G AUX Antenna L=167mm(Ø1.13+MHF)

单重:

weight

供 方 料 号 :

SUP PART NO

SLEingB247470175

日 期 :

DATE

2024.08.21

厂 商 核 准 :

SUP APPROVED

核准 APPROVED	结构审核 Structure audit	RF审核 RF CHECKED	品保审核 QA CHECKED	承办 DESIGNED
<i>Jouyuan</i>	<i>H2U</i>	<i>TOM</i>	<i>LSY</i>	<i>Xiaoyu</i>

客 户 核 准 :

CUS APPROVED

核准 APPROVED	审核 CHECKED	品保审核 QA CHECKED	承办 DESIGNED

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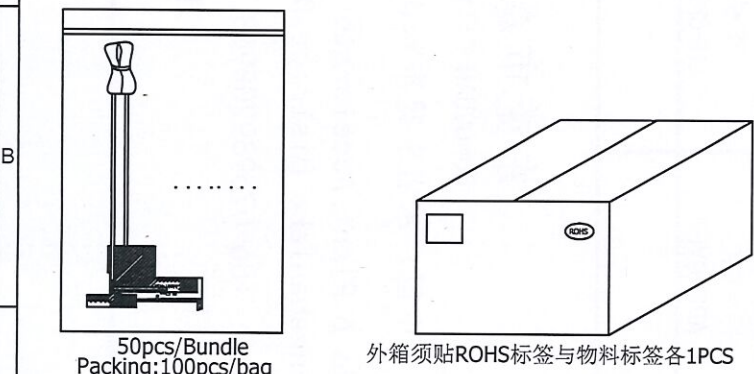
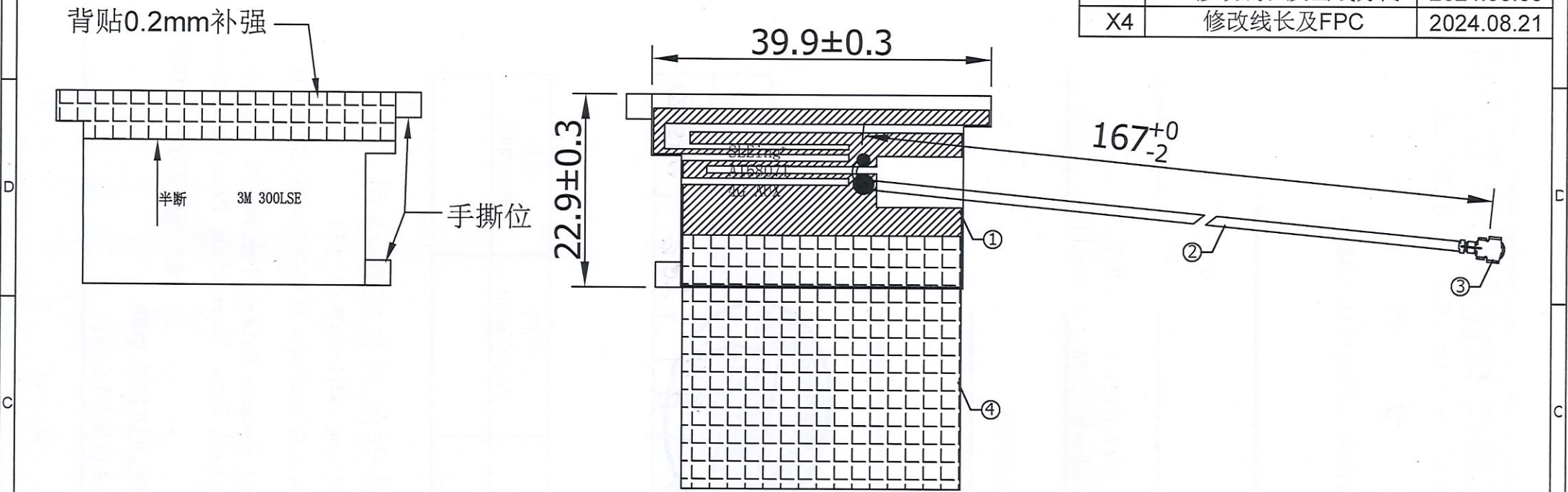
承认书项目表 (Spec Item)

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6	天线组装图 (Antenna assembly diagram)		6
7	S参数测试 (S Parameter Test)		7
8	测试设备 (Test Setup)		8
9	测试效率 (Test Efficiency)		9

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5. According to the contents attached to the actual acknowledgement, check the check form: "Yes" is provided, "no" is provided according to customer requirements.

REV.	CONTENT	DATE
X1	First Sample	2024.07.22
X2	修改FPC及增加导电布	2024.08.03
X3	修改线长及出线方向	2024.08.09
X4	修改线长及FPC	2024.08.21



Specification:
Frequency Rang:824~960/1710~2700MHz(带机测试)
Return Loss:-6dB or less
VSWR:3.0 Max

SLEing® 森岭 东莞市森岭智能科技有限公司 DONGGUAN SLEing INTEL-TECH CO.,LTD					CUSTOMER	
					PART NO	
					TITLE	
					4G AUX ANTENNA	
					S.L P/NO	
					SLEingB247470175	
					SIZE	DRAWN
					2024.08.21	CHECKED
					A4	APPROVED
					X. 2024.08.21	
					Jouphu	

4	导电布	L32.8*W30.0*T0.1mm	第一代端子	1		TOLERANCE UNLESS OTHERWISE SPECIFIED		
3	Connector	MHF Plug for Φ1.13 Cable	低损耗线	1		UNIT:mm	ANGLES ±0.5°	X. ±0.3
2	Cable	Φ1.13mm Cable,Black,50Ω	300LSE Adhesive	1		SHEET: 1/1	.XX ±0.05	XX. ±0.5
1	FPCB	FPC,L39.9*W22.9*T0.4mm,Color:Black		1		SCALE: 1/1		XXX. ±2.0
NO	PART NAME	DESCRIPTION	REMARK	Q'TY				

电性测试报告

Test Reports

Electrical Properties	
Frequency	824-960/1710-2700MHz(带机测试)
Impedance	50 Ohm Nominal
V.S.W.R	≤3.0
Return Loss	-6 dB Max
Radiation	Omni-directional
Gain (Peak)	2±0.5 dBi
Polarization	Linear, Vertical
Admitted Power	2 W
Connector	MHF
Physical Properties	
Antenna Material	FPCB
Cable Type	Φ1.13mm Black
Operating Temp.	-40~+85 °C
Storage Temp.	-5~+30 °C



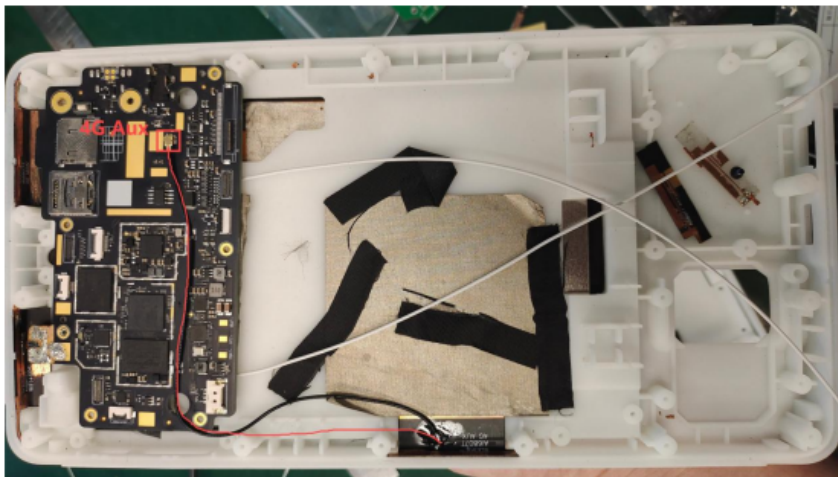
东莞市森岭智能科技有限公司

DONGGUAN SLEing INTEL-TECH CO., LTD

天线组装图

Antenna Profile

Device



红线为 4G Aux 天线走线，天线线长 167mm，直径 1.13mm，1 代端子（黑色低损同轴线）

Antenna



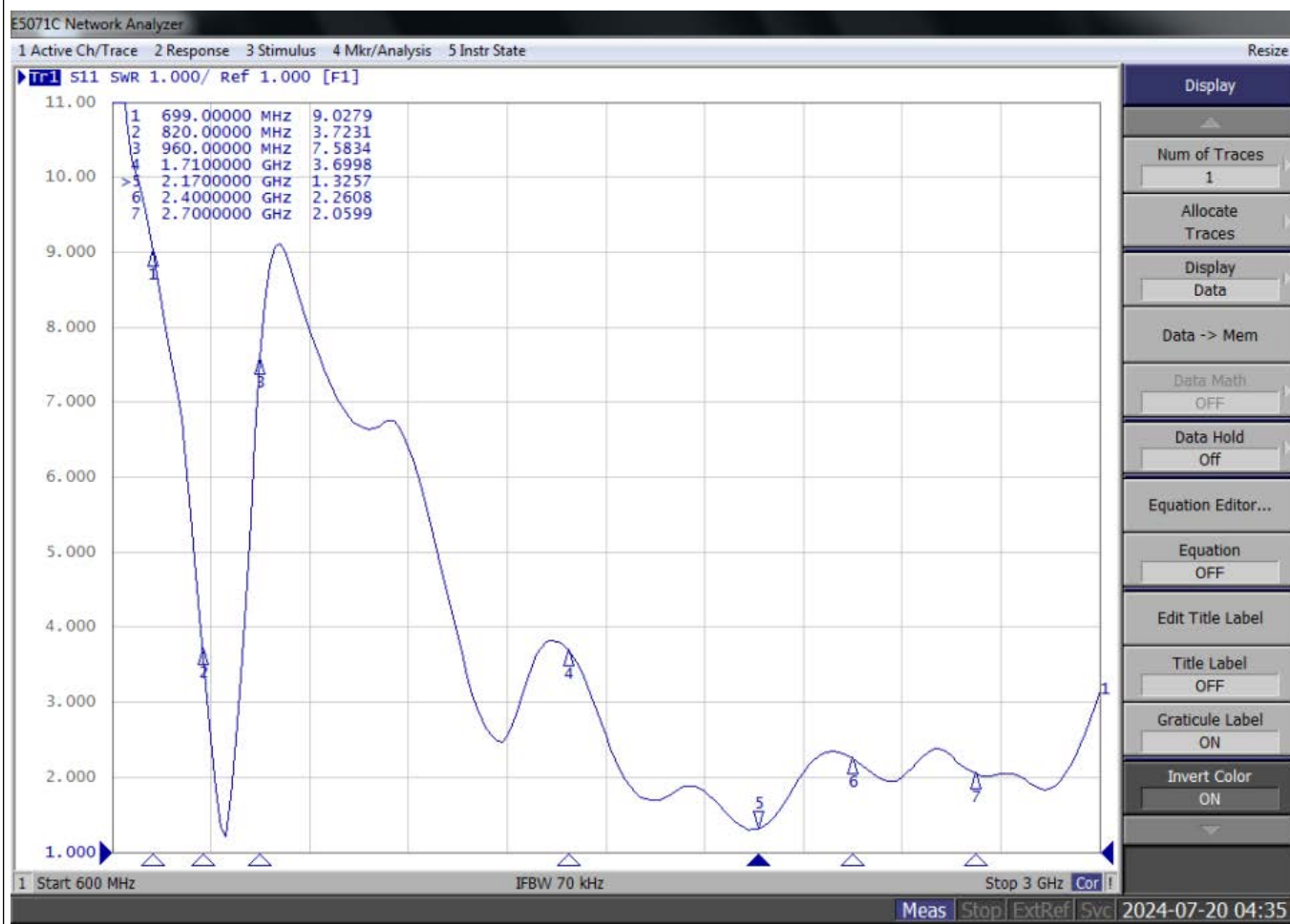
S 参数测试

S ParameterTest

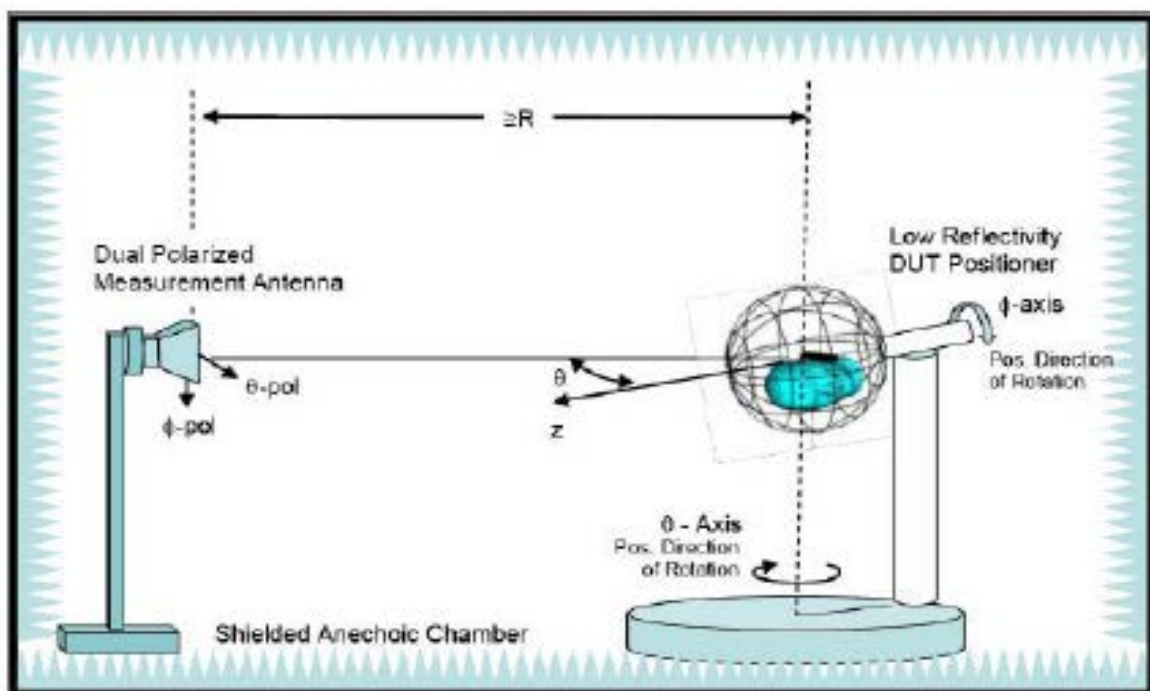
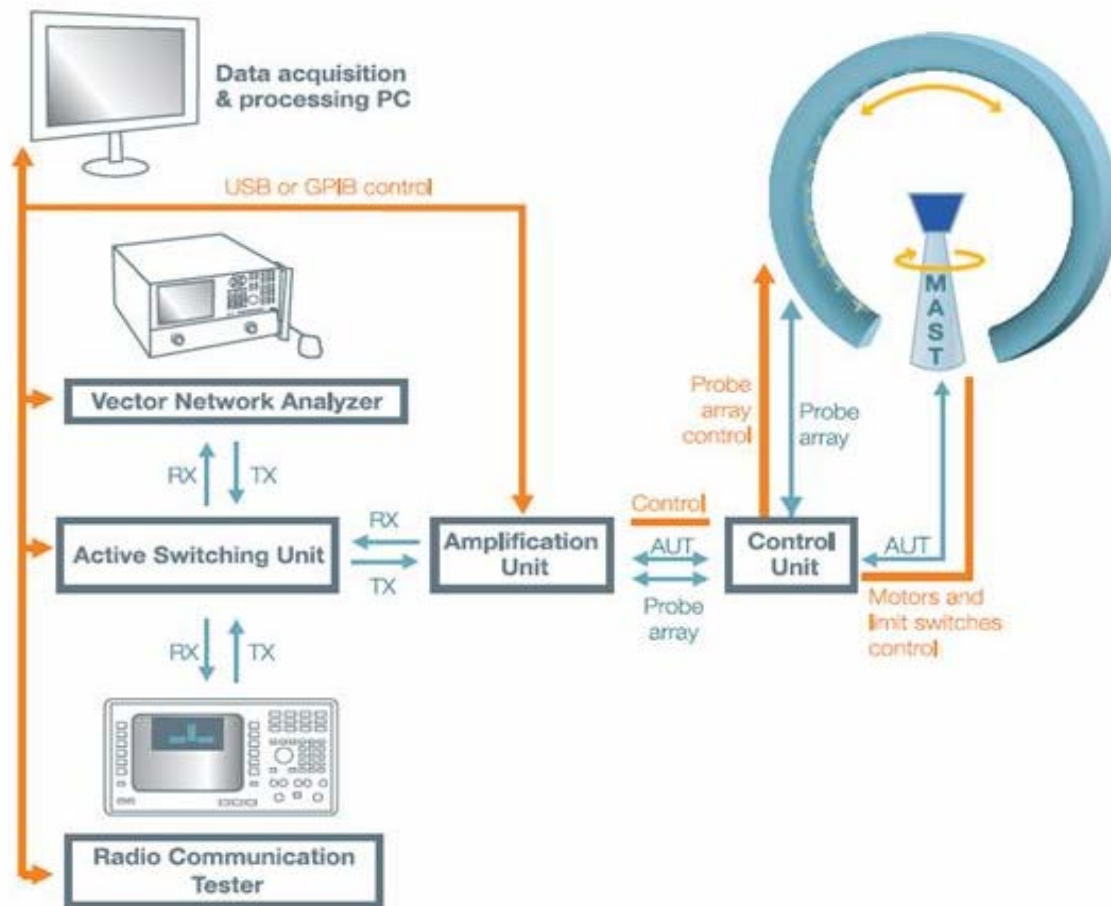
Agilent E5071C Network Analyzer



4G 驻波 Antenna (NO.1)



测试设备 Test Setup

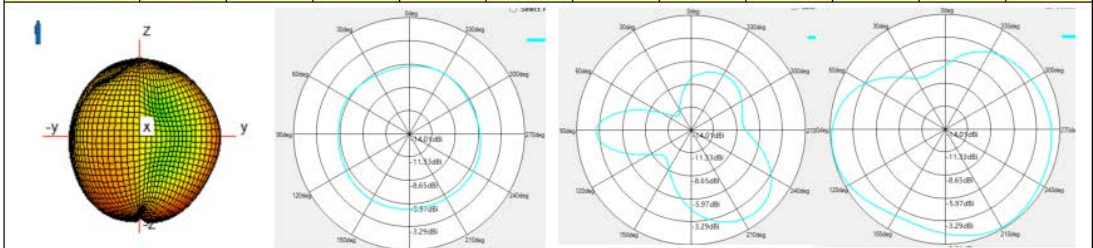


测试效率

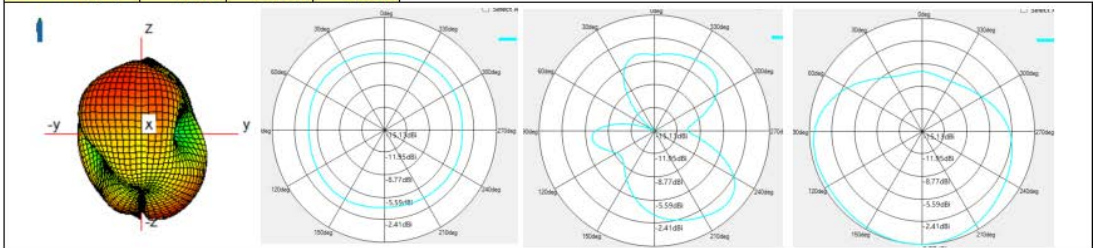
Test Efficiency

4G_AUX Antenna

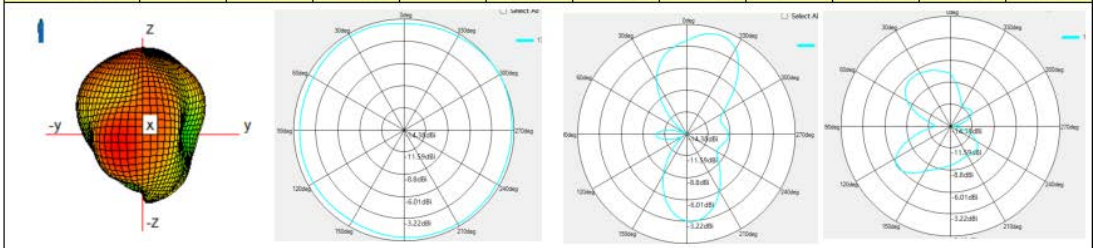
Frequency (MHz)	700.0	720.0	740.0	760.0	780.0	800.0	820.0	840.0	860.0	880.0	900.0
Gain (dBi)	-10.29	-9.46	-8.68	-7.58	-6.23	-5.22	-4.04	-3.03	-2.06	-0.54	0.23
Efficiency (%)	4.49	5.73	7.02	8.49	11.13	14.52	18.58	26.58	36.92	48.87	53.55



Frequency (MHz)	920.0	940.0	960.0
Gain (dBi)	0.06	-1.27	-2.87
Efficiency (%)	47.98	35.46	24.17



Frequency (MHz)	1700.0	1750.0	1800.0	1850.0	1900.0	1950.0	2000.0	2050.0	2100.0	2150.0	2200.0
Gain (dBi)	0.62	0.21	0.36	0.44	0.45	-0.47	-0.39	1.86	2.09	2.06	0.77
Efficiency (%)	33.95	37.31	44.34	45.43	43.70	39.23	35.02	40.14	49.09	54.57	46.97



Frequency (MHz)	2250.0	2300.0	2350.0	2400.0	2450.0	2500.0	2550.0	2600.0	2650.0	2700.0
Gain (dBi)	0.09	-0.25	-0.65	-0.53	-0.27	-0.84	-0.89	-1.06	-1.49	-1.31
Efficiency (%)	41.84	39.90	39.39	37.55	33.38	30.17	26.68	24.63	24.57	25.97

