

承 认 书
SPECIFICATION FOR APPROVAL

客户名称 Customer Name	深圳市佳利得科技有限公司		
客户项目名Customer Project Name	A200	合立讯项目名 Helixun Project Name	A200
客户编码 Customer P/N		合立讯料号 Helixun P/N	HLX0042-A200-FPC-V1
频段 Band	2400-2450MHz		
版本号 Version	A0		
设计人信息/Designer Information			
射频工程师 RF Engineer	黄亚飞	电子工程师 EE Engineer	黄亚飞
结构工程师 ME Engineer	卓子骥		

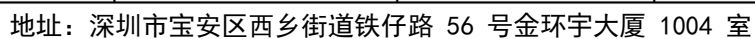
合立讯审批/Helixun Approval				客户批准/Customer Approval	
	制作 Prepared By	审核 Checked By	批准 Approval By	审核 Checked By	批准 Approval By
签章 Signature	李海欣				
日期 Date	2023-4-6				

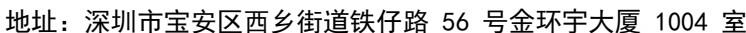
修订履历/Change Log				
版本 Version	修订内容 Change Description	责任人 Person in Charge	核准 Approval By	日期 Date

目录/Catalogue

序号 No.	项目 Item	页码 Page No.
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Drawing or Product Image





样品尺寸测量报告

Sample Dimensions Test Report

客户名称 Customer Name	深圳市佳利得科技有限公司	客户料号 Customer P/N		合立讯料号 Helixun P/N	HLX0042-A200-FPC-V1
测试日期 Test Date	2023-4-6	样品数量 Sample Qty.	3	测试人 Inspector	黄亚飞
尺寸编号 Dimension No.	标准 Standard	样品 1 Sample 1	样品 2 Sample 2	样品 3 Sample 3	Pass/NG
①直径	31±0.2mm	31.1±0.2mm	30.9±0.2mm	31±0.2mm	Pass
②宽度	30±0.2mm	30.2±0.2mm	30±0.2mm	29.8±0.2mm	Pass
③直径宽度	10.09±0.2mm	10.09±0.2mm	9.89±0.2mm	10.28±0.2mm	Pass
④厚度	0.2±0.05mm	0.21±0.05mm	0.22±0.05mm	0.20±0.05mm	Pass
⑤线长	36.5±3mm	34.5±3mm	36.5±3mm	38.5±3mm	Pass
⑥					
⑦					
最终结论 Conclusion					PASS
测试人&日期 Inspector & Date	黄亚飞 2023-4-6		批准&日期 Approval &Date		

可靠性测试报告

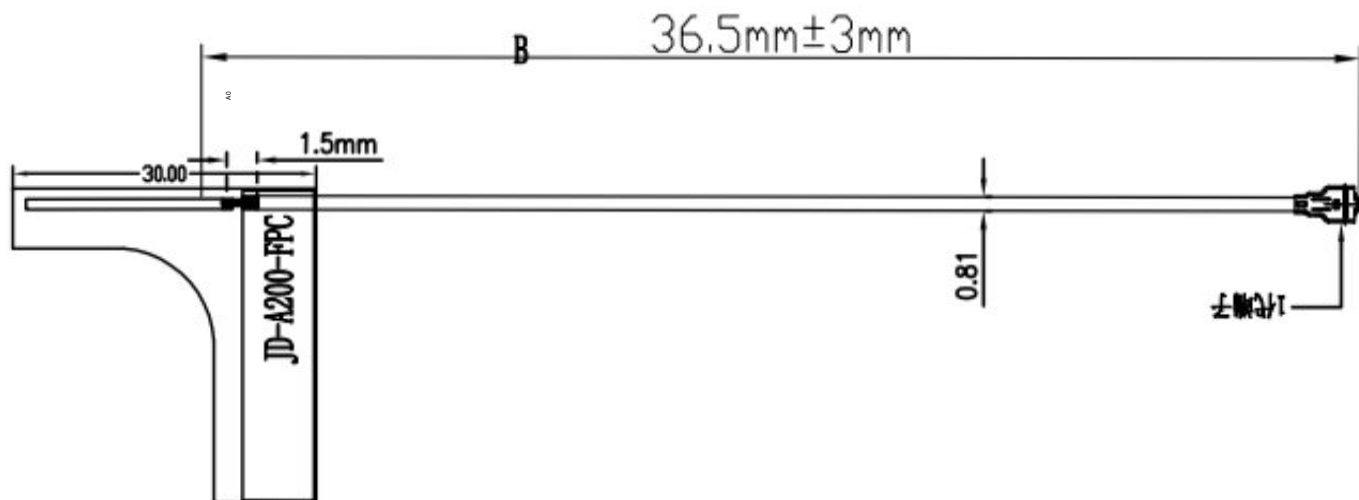
Reliability Test Report

客户名称 Customer Name	深圳市佳利得科技有限公司	客户料号 Customer P/N		合立讯料号 Helixun P/N	HLX0042-A200-FPC-V1	
测试日期 Test Date	2023-4-6	样品数量 Sample Qty.	3	测试人 Inspector	黄亚飞	
测试项目 Test Item	要求 Requirement	试验设备 testing equipment	样品 1 Sample 1	样品 2 Sample 2	样品 3 Sample 3	判定 PASS/NG
高温存储	在+85℃条件下暴露24H, 恢复 2H 后进行测试	恒温恒湿箱	OK	OK	OK	Pass
低温存储	在-40℃条件下暴露24H, 恢复 2H 后进行测试	恒温恒湿箱	OK	OK	OK	Pass
高温工作	在+60℃条件下通电工作 24H	恒温恒湿箱	OK	OK	OK	Pass
低温工作	在-20℃条件下通电工作 24H	恒温恒湿箱	OK	OK	OK	Pass
盐雾试验	(5 ± 0. 5)%氯化钠、pH 值为 6. 5~7. 2, 实验箱 温度 (35±2) °C ☒ 24H ☐ 48H	盐雾试验机	OK	OK	OK	Pass
连接器铆压 拉拔力	1. 13 线径 ≥10N 0. 81 线径 ≥8N RG174 ≥60N RG178 ≥50N	推拉力计	8N	8N	8N	Pass
最终结论 Conclusion						Pass
测试人& 日期 Inspector & Date	黄亚飞 2023-4-6		批准&日期 Approval & Date			

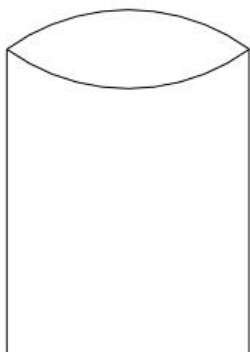
产品包装规范

PACKING CRITERION

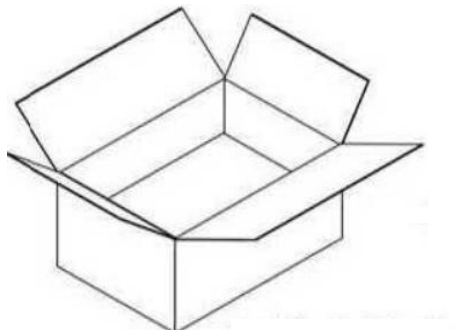
1、单个产品（以实际包装为准）



2、大PE袋包装（整版/单90pcs）（以实际包装为准）



3、封箱，外箱贴我司生产标签和ROHS标签。（以实际包装为准）



环保要求

Environmental requirements

MSDS（材料安全数据表）	☒ 提供	☐ 不提供	☐ N/A
COC(环保协议)	☒ 提供	☐ 不提供	☐ N/A
环保有害物质云仕技术标准	☒ 提供	☐ 不提供	☐ N/A
具体环保要求	☒ 符合ROHS2.0 ☒ 符合REACH ☒ 符合无卤素 ☒ 符合加州65		

安装事宜或其它

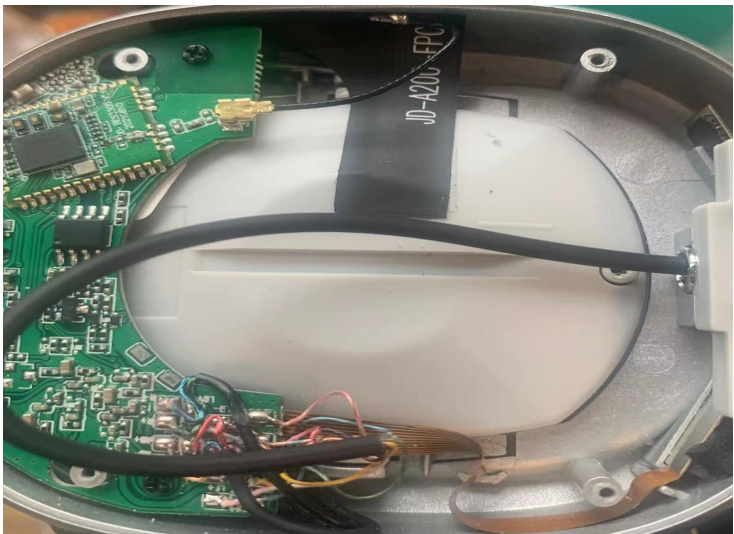
Install Wizard or Other

安装过程：

取 1PCS 产品，用手撕下 FPC 背面的离型纸，然后将 FPC 定位孔位置与外壳定位孔位置（定位筋位或定位线）对齐，平整的贴附与外壳上，具体位置如下图所示：

安装过程注意事项：

- ☒粘贴天线后保证 FPC 完整贴附于外壳；
- ☒定位孔与外壳定位柱位置对齐；
- ☒FPC 边缘与外壳边缘对其
- ☐带端子天线在将端子扣合到主板 PCBA 端时请首先对其端子，然后垂直扣合；
- ☐拆卸天线端子时需使用工具（如专用撬棍）垂直翘起端子，不可直接拽线拆卸。



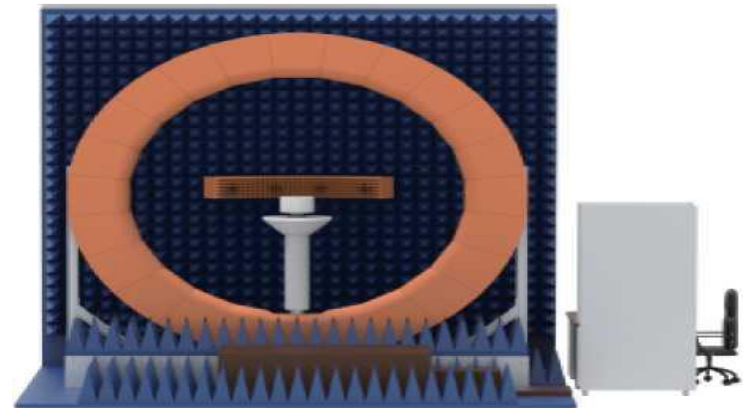
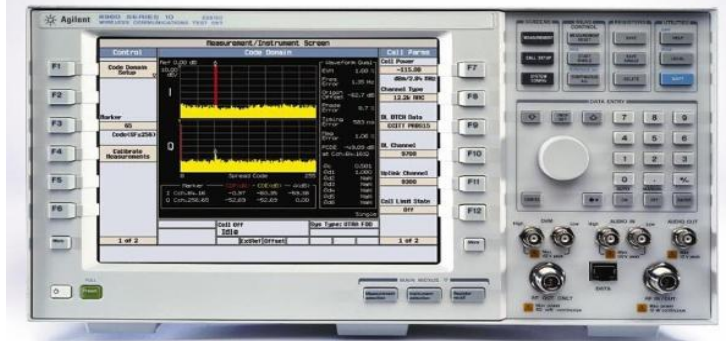
地址：深圳市宝安区西乡街道铁仔路 56 号金环宇大厦 1004 室



Customer	佳利得
Project	A200
Antenna Revision	A0
Prepared by	18814303605
Checked by	
Date :	2025. 11. 03

2. Test System

Sequence Number	Test Item	equipment
S parameter	VSWR	Agilent 5071C & Agilent 5071B
OTA Test	TRP&TIS	Agilent 8960 & CMW500 STIMO
Gain & Efficiency	Gain & Efficiency	SATIMO Agilent 5071C



Purpose

This report is to measure the performance of antenna for **A200** The antenna operating frequency at 2400MHz-2500MHz 。 All test data are showed as below.

Content

1. Product Overview & Dimension
2. Test system
3. Test Result
4. OTA

4.1 Test Result

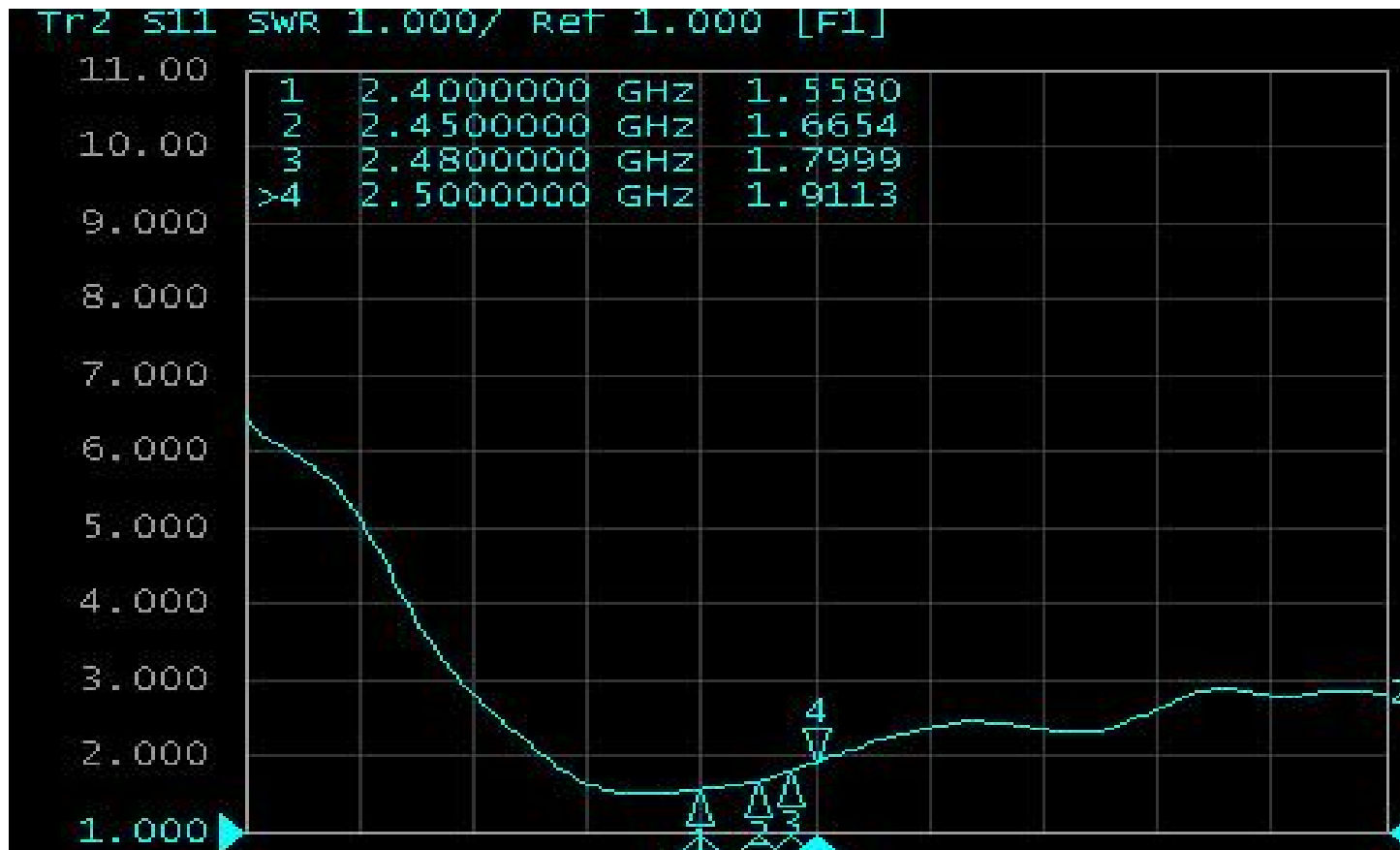
4.2 2D Pattern

HELIX 合立讯



3.1 Test Result

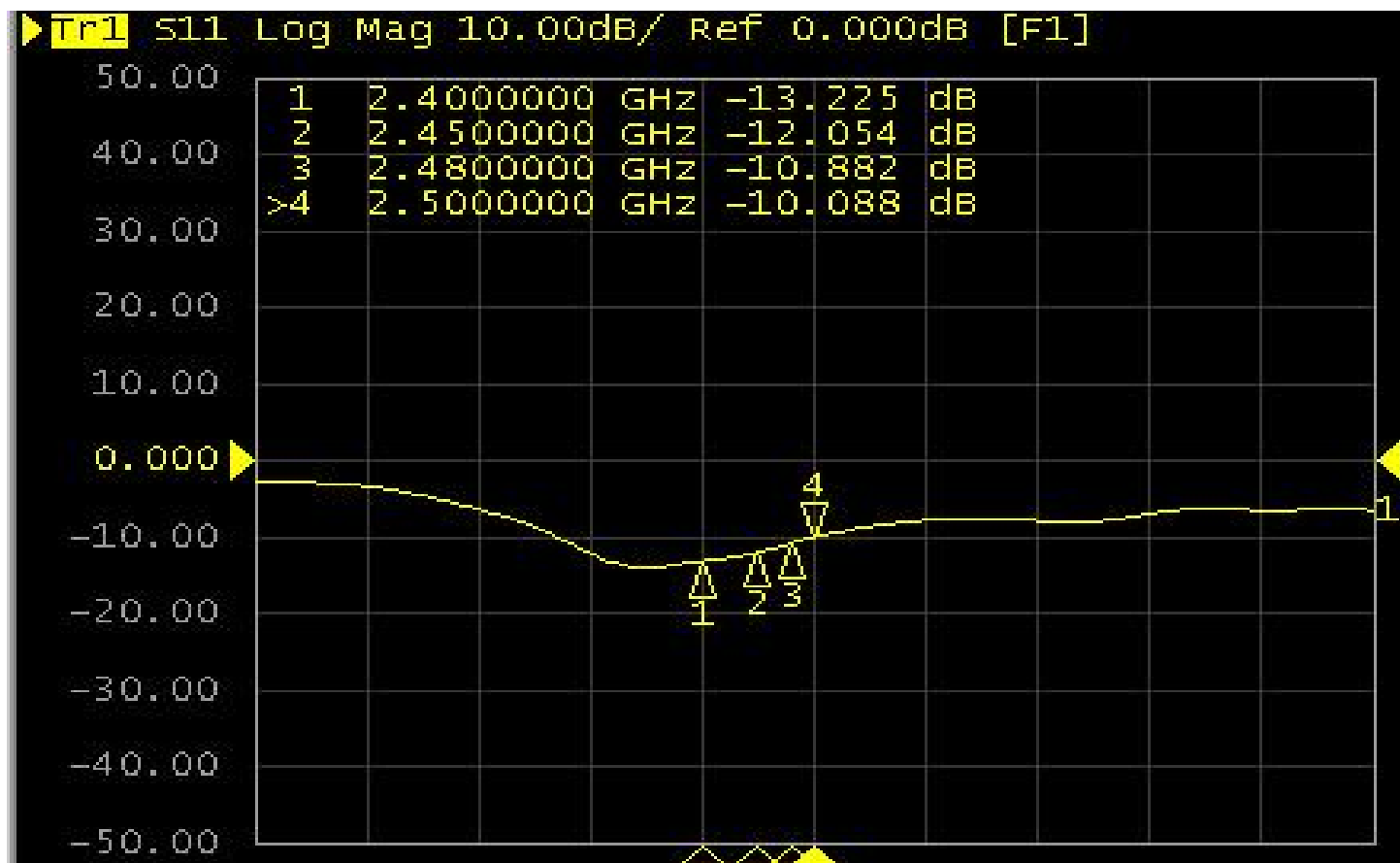
1 .S11 Parameter-VSWR



Frequency (MHz)	2400	2450	2480	2500
VSWR	1.55	1.66	1.79	1.91

3.1 Test Result

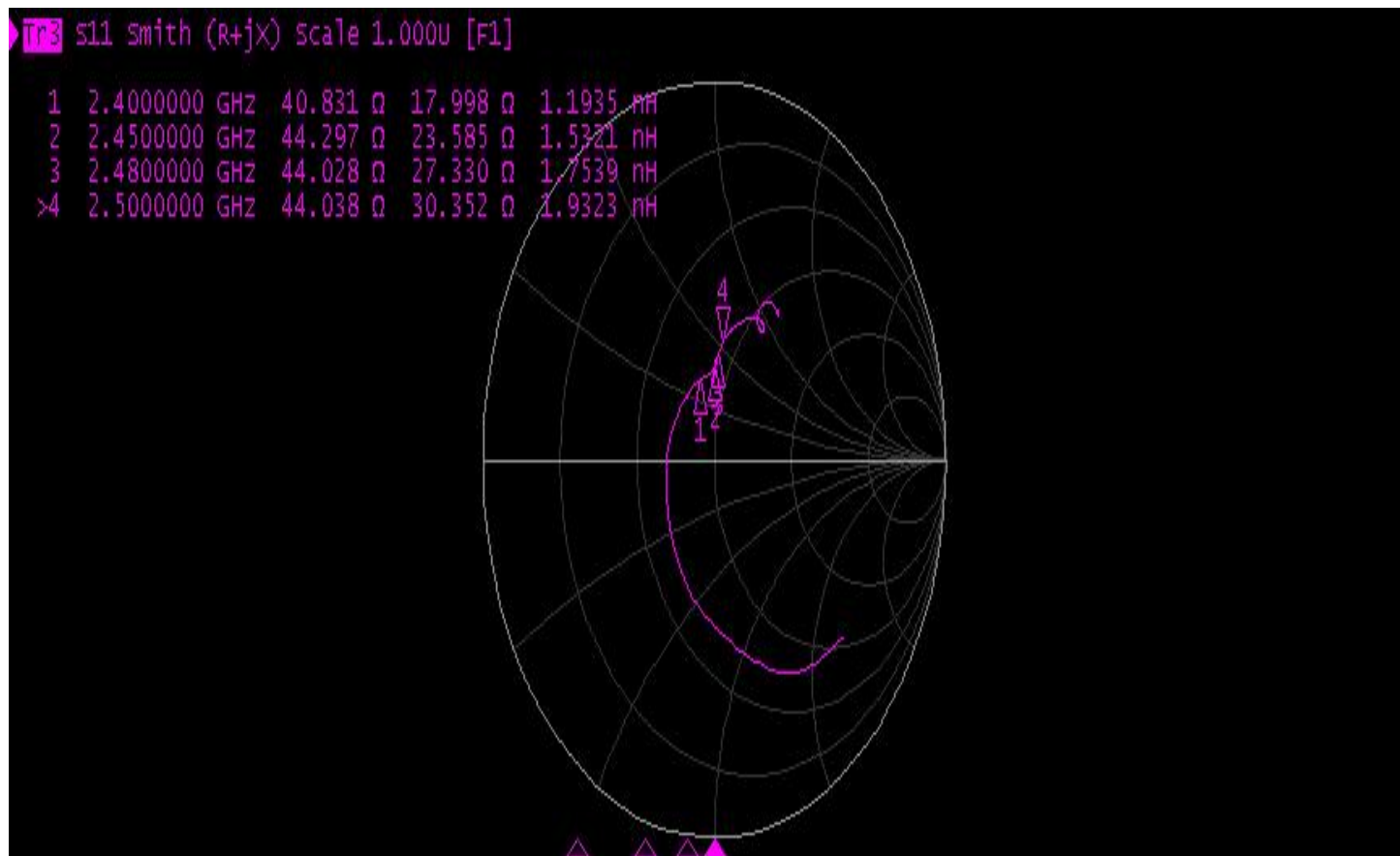
2. S11 Parameter-Log Mag



Frequency (MHz)	2400	2450	2480	2500
Log Mag	-13.22	-12.05	-10.88	-10.08

3.1 Test Result

3.S11 Parameter-Smith



Frequency (MHz)	2400	2450	2480	2500
Smi th(Ω)	40.83	44.29	44.02	44.03

3.2 Test Result

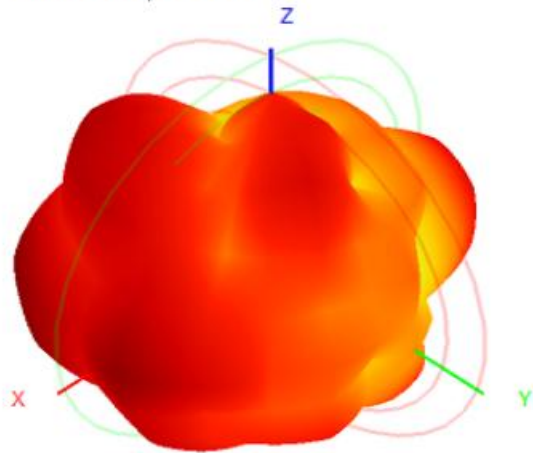
1 Gain & Efficiency——**ANT**

Frequency (MHz)	Efficiency (%)	Peak GAIN (dBi)
2400	42.26%	1.72
2410	41.77%	1.63
2420	41.26%	1.48
2430	41.07%	1.28
2440	41.29%	1.15
2450	41.90%	1.63
2460	43.15%	2.08
2470	44.90%	2.43
2480	47.32%	2.68

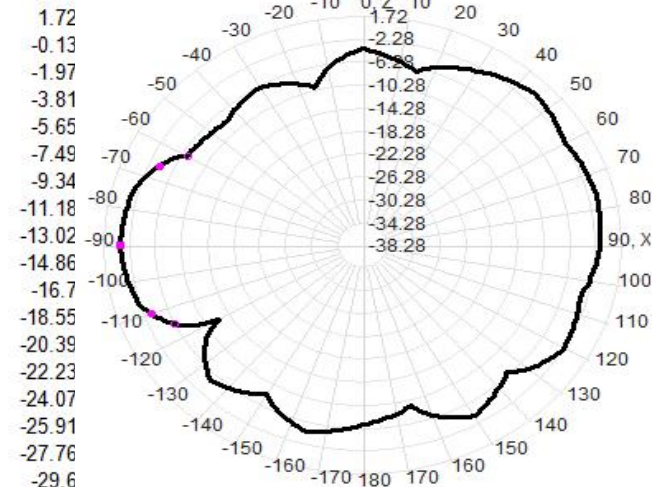
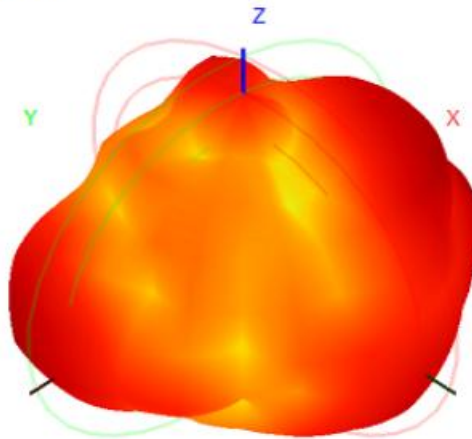
3.3 Test Result

1 2D Pattern——BTANT

2400.0MHz Total, Eff. 42.3%



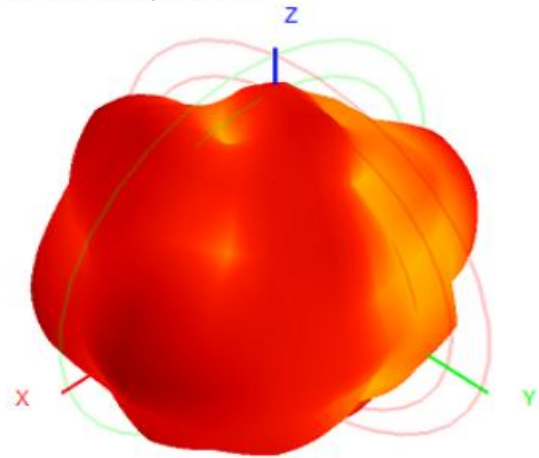
Back View



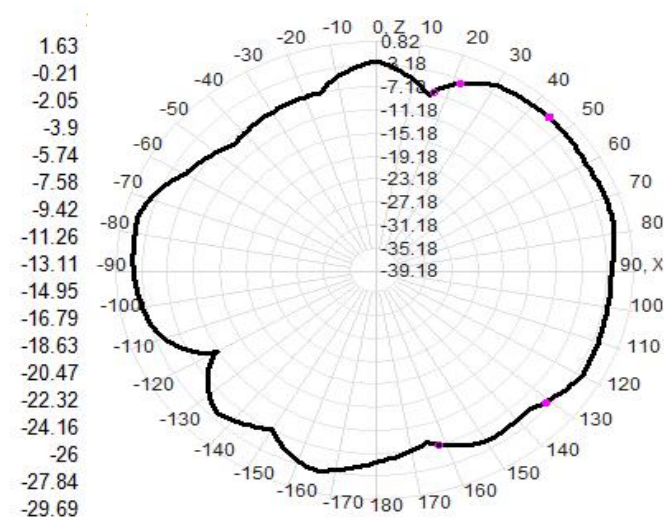
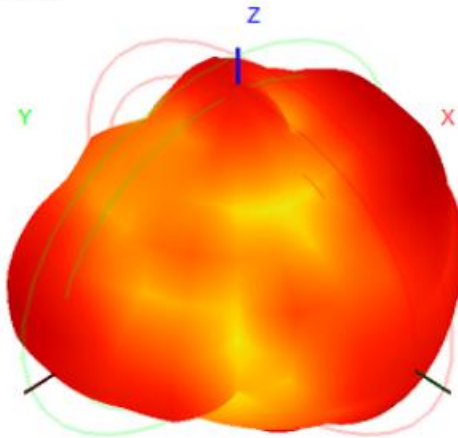
3.3 Test Result

2 2D Pattern—BTANT

2450.0MHz Total, Eff. 41.9%



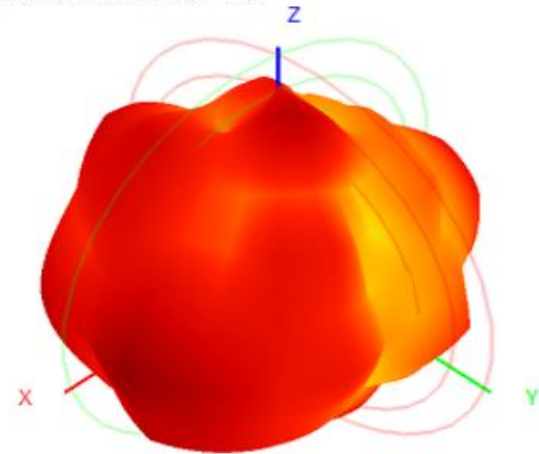
Back View



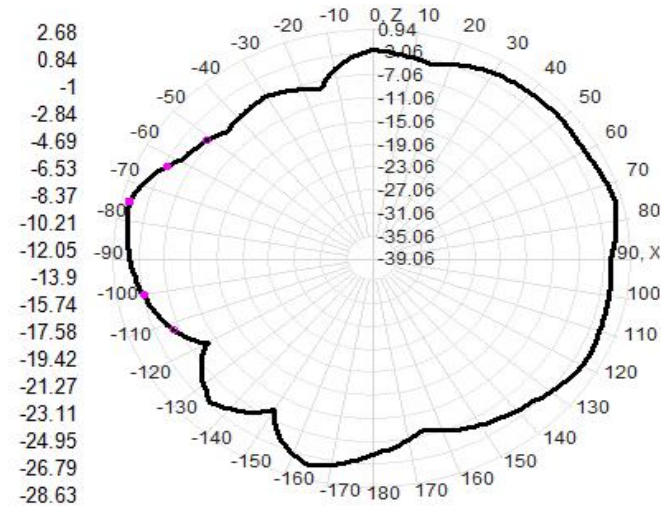
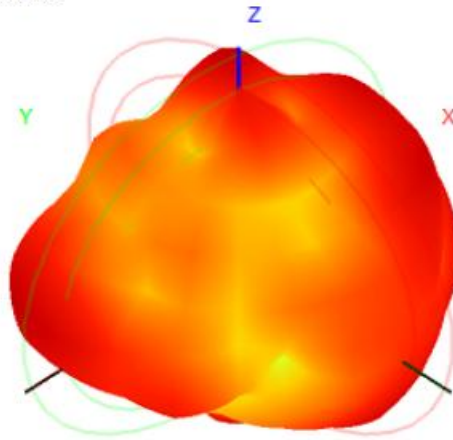
3.3 Test Result

3 2D Pattern—BTANT

2480.0MHz Total, Eff. 47.3%



Back View



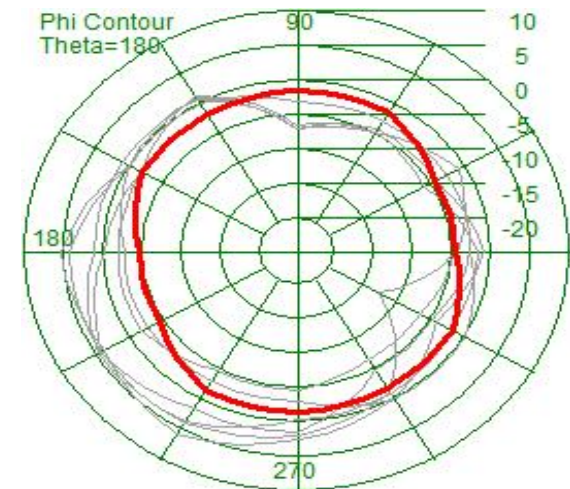
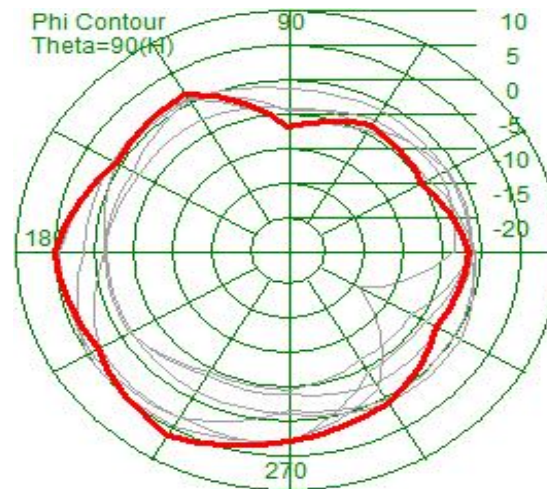
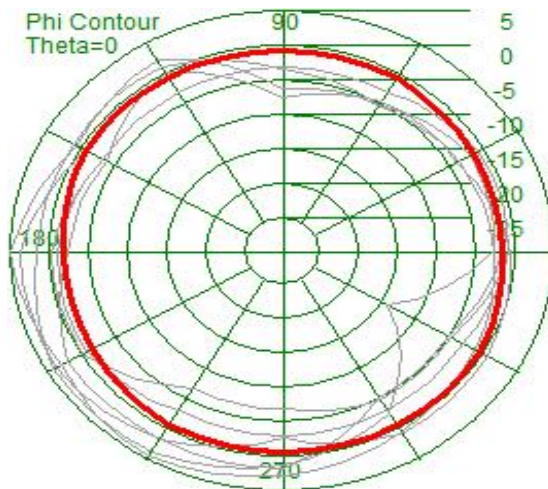
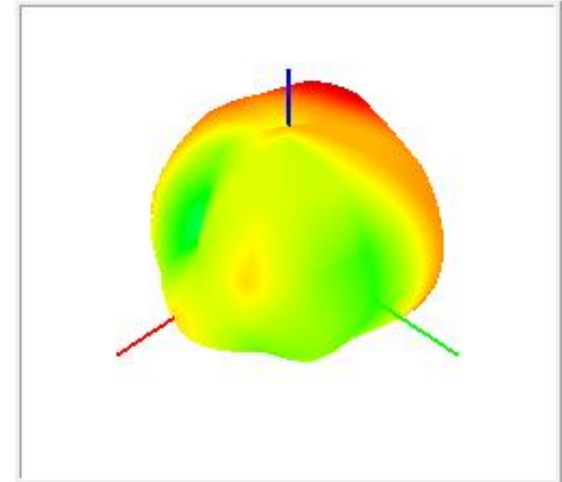
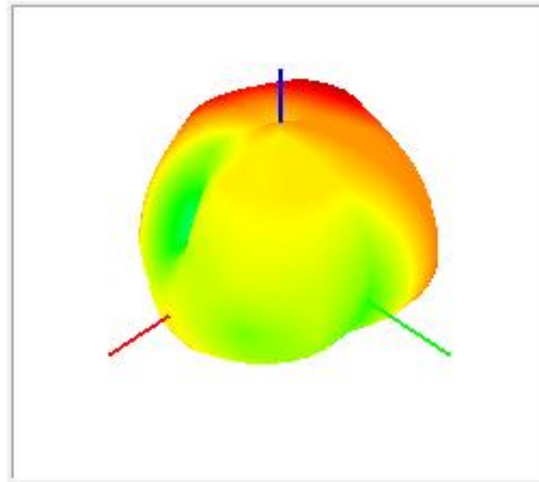
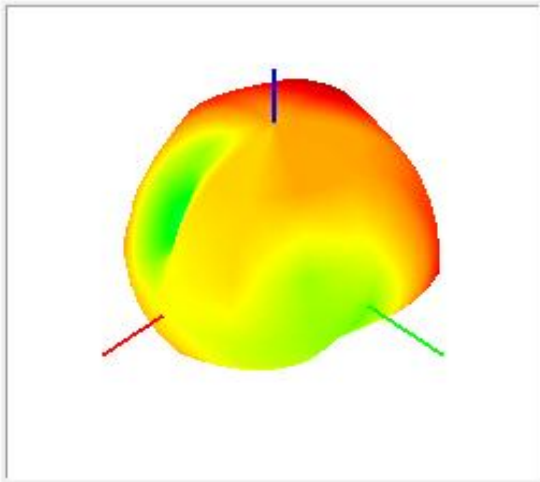
4.1 OTA Data

Test Equipment:	R&S CMW500		
Test Condition:	2 D chamber		
Band	Channel	TRP(dBm)	TIS(dBm)
BT	0	-0.18	-84.96
	39	0.25	-84.45
	78	0.04	-84.62

4.2 Test Result

1 2D Pattern——**BTANT**

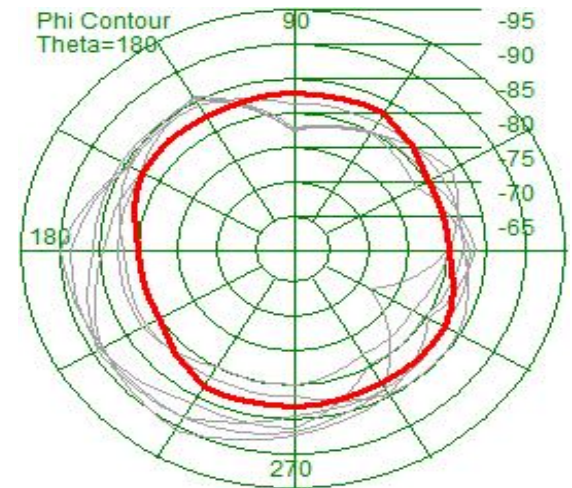
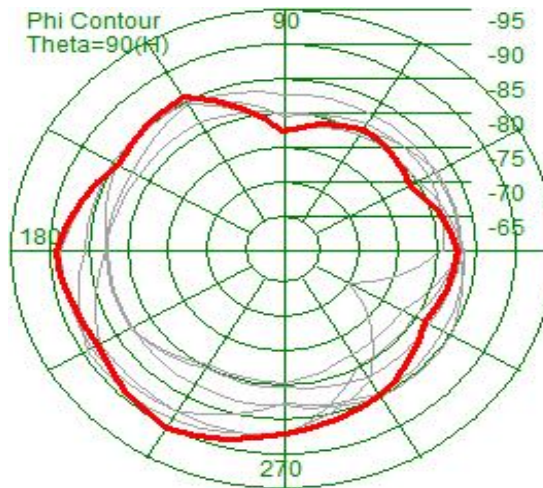
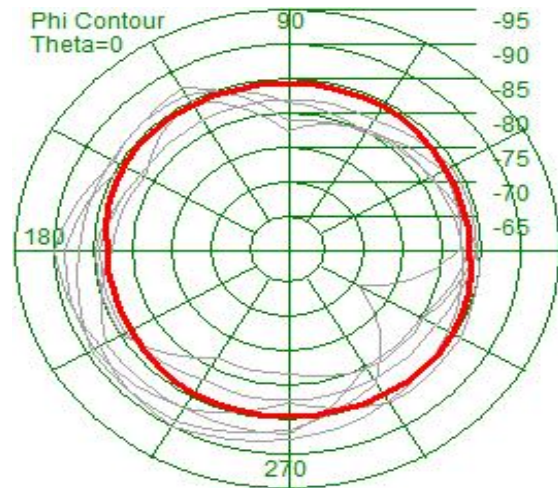
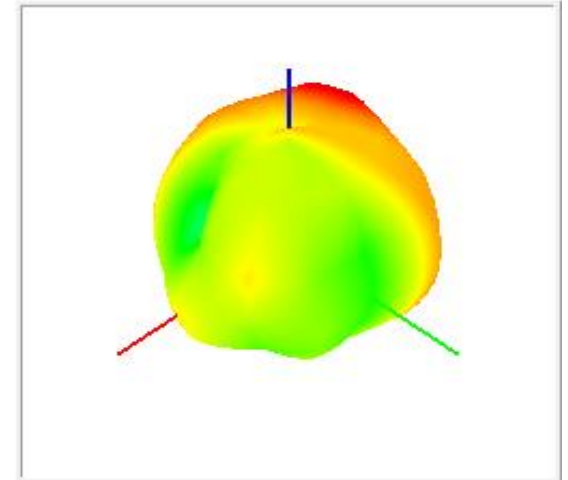
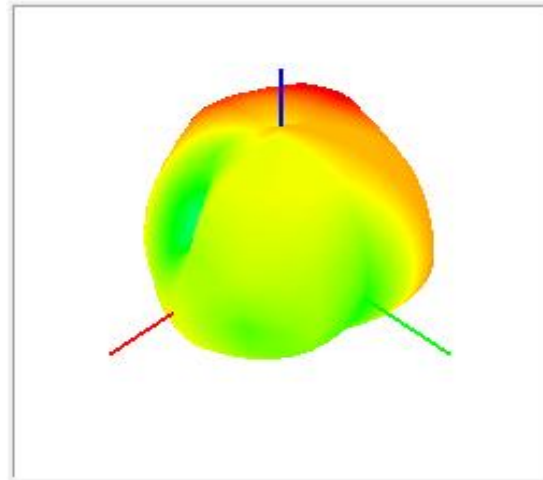
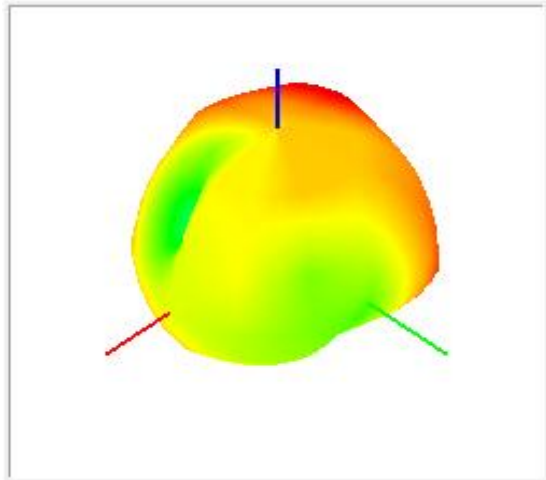
TRP



4.2 Test Result

2 2D Pattern——**BTANT**

TIS



Thank you!