



天线规格承認書

APPROVAL SHEET

客戶名称: CUSTOMER NAME:	科伦特				
客戶物料编码: Customer Material Code:	/				
产品编号: TYPE NAME:	FS-WZ-PCB-042				
产品规格: SPECIFICATON:	内置 PCB-2. 4G/5G 天线-1. 78IPEX 端子-1. 78 线-棕色-双银 L=400/L=450/L=500/L=550/L=600MM				
一、 新品承认 (Newly Approved) ☒					
二、 材料变更再承认 (Material Approved) ☐					
三、 规格变更再承认 (SPEC Approved) ☐					
制造厂商/供应商研发承认			客 戶 确 认		
深圳市飞胜电子有限公司 承認章: (APPROVAL BY):			承認章: (APPROVAL BY):		
承認日期: (APPROVAL DATE): 2024 年 03 月 08 日			承認日期: (APPROVAL DATE): 2024 年 月 日		
供應商 (SUPPLIER)			客戶 (CUSTOMER)		
研发 Q. Dept	工程 E. Dept	业务 S. Dept	经办 TESTED	审核 CHECKED	核准 APPROVED
郭曦	许龙	李胜			

飞胜电子有限公司

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电话: 0755-85218289 传真: 0755-85223189

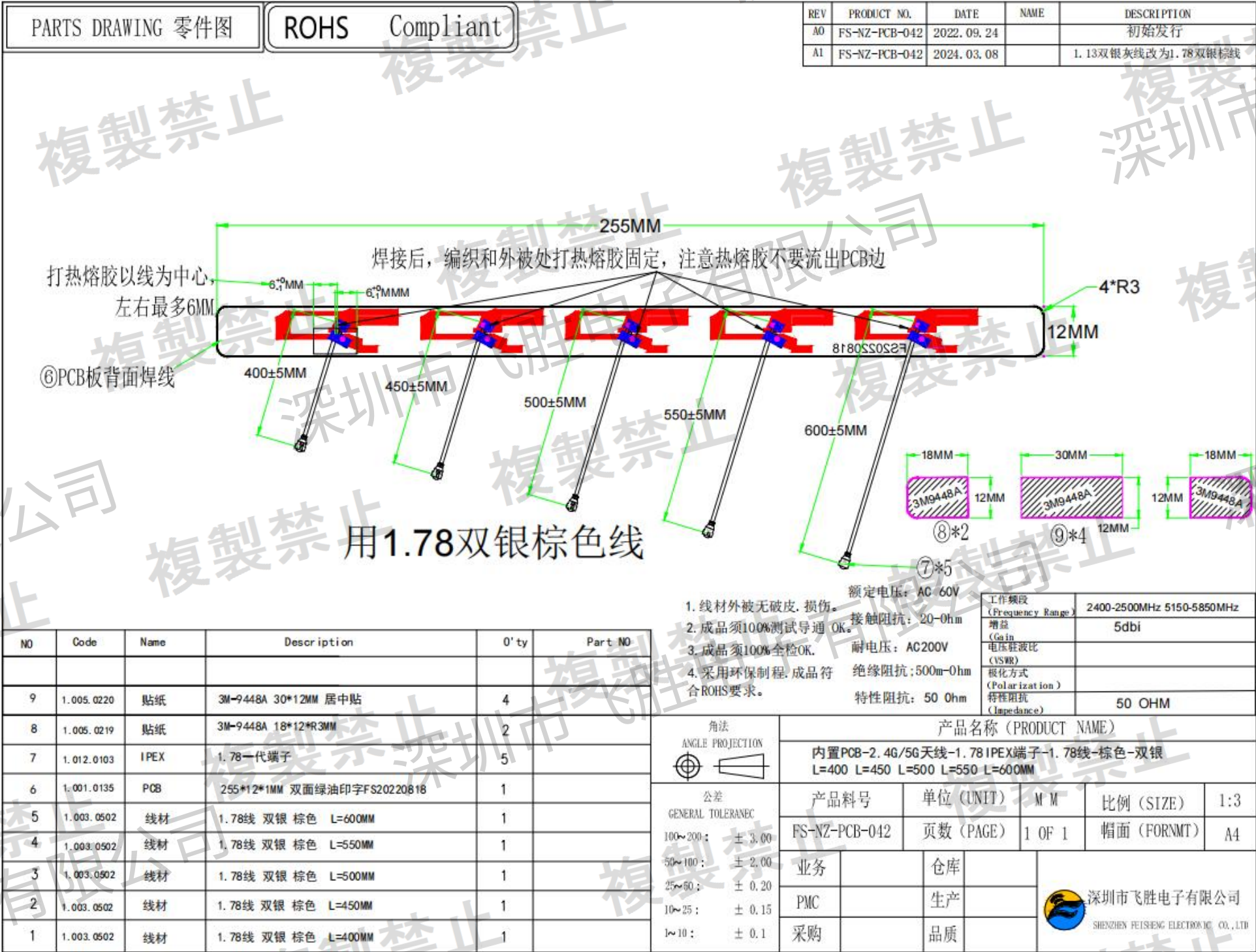
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修改记录

版本	日期	工程师	修改内容
A0	2024-03-08	胡咏琪	



产品特性规格表

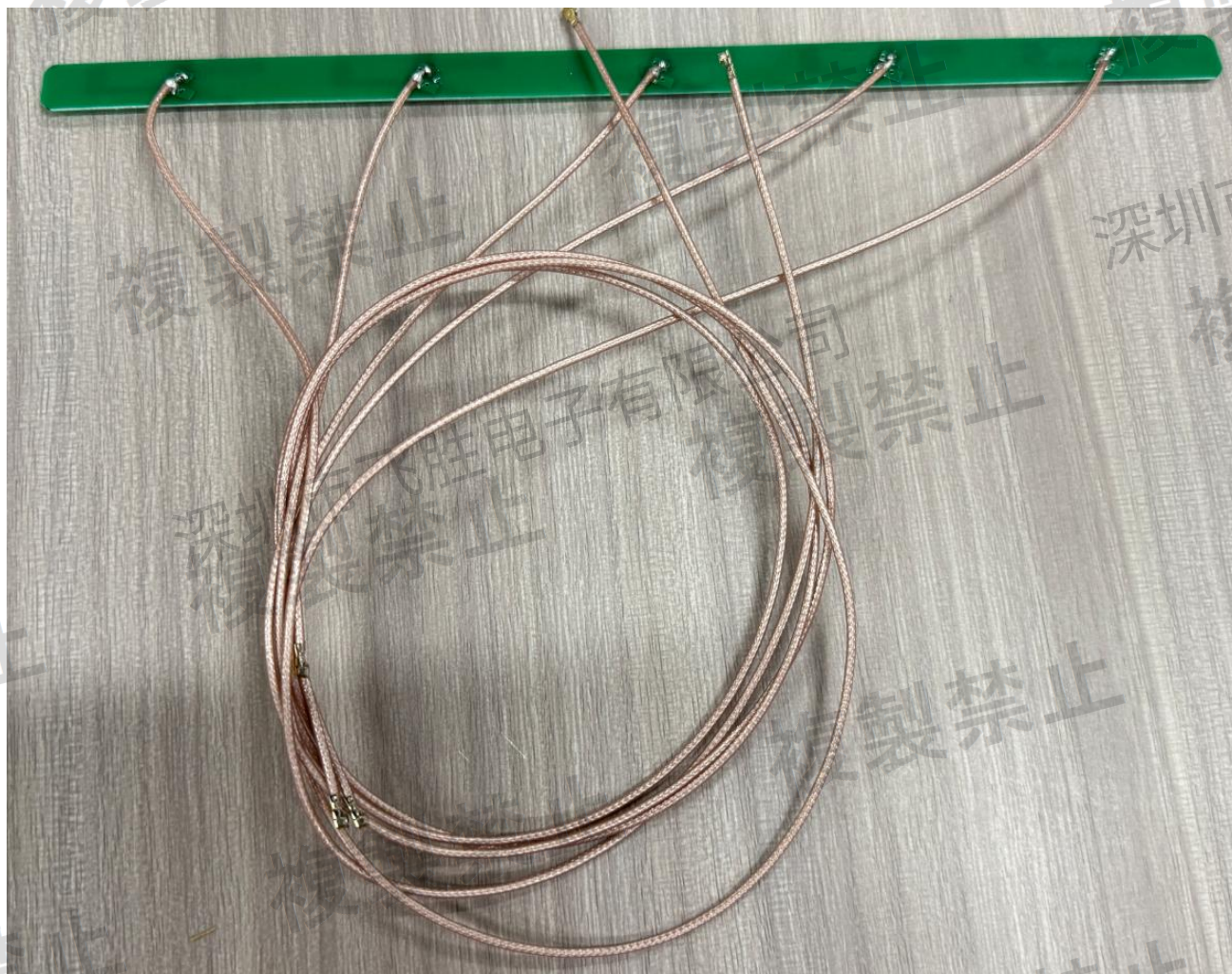
一、天线整体性能指标:

DESCRIPTION	VALUE
Frequency range (工作频段)	2400-2500MHz/5150-5850MHz
Impedance (特性阻抗)	50 Ω
V.S.W.R (电压驻波比)	对比样品波形
Gain (增益)	5dBi
Radiation (方向性)	Omni-directional
Polarization (线化方式)	linear Vertical
Connector (接头型号)	1 代 IPEX
Operating temp (工作温度)	-45℃~+85℃
Storage temp (储存温度)	-45℃~+85℃

二、产品尺寸

外型尺寸(mm)	255*12	固定方式	粘贴
PCB 材质	表面绿油 基材采 FR4	连接器型号	1.78 一代端子
电缆	1.78 线-棕色-双银 L=400/L=450/L=500/L=550/L=600MM		

天线实物:



测试数据及曲线图

1. Summary 概要:

This report to account for the measurement setup and result of the Antenna. The measurement setup includes s-parameter, The measured data for Antenna are presented and analysis.

这份报告用以说明量测的天线的结果，该测量设置包括 S 参数的 电压驻波比及反射系数，为量测天线的数据表示及分析

2. S-Parameter Measurement S 参数的量测:

A. Reflection coefficient 反射系数:

(a) Instrument (仪器): Network Analyzer (网络分析仪).

(b) Setup 建立:

(1) Calibrate the Network Analyzer by one port calibration using O.S.L. calibration kits.

仪器的校正通过 OSL 校准套件进行一个端口的校正.

(2) Connect the antenna under test to the Network Analyzer.

连接待测天线至网络分析仪.

(3) Measure the S11(reflection coefficient) shown in Fig. 1.

测量 S11 如图一所示.

(4) Generally, the S11 is less than -10dB to ensure the 90% VSWR 2.0:1 power into antenna and only less than 10% power back to system.

一般来说, S11 小于 -10dB VSWR 小于 2.0: 1, 以确保 90% 的功率转换成天线和只有不到 10% 的功率反射回系统.

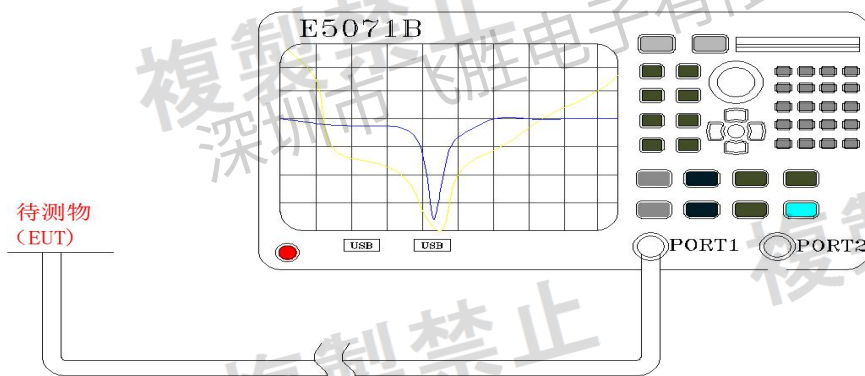


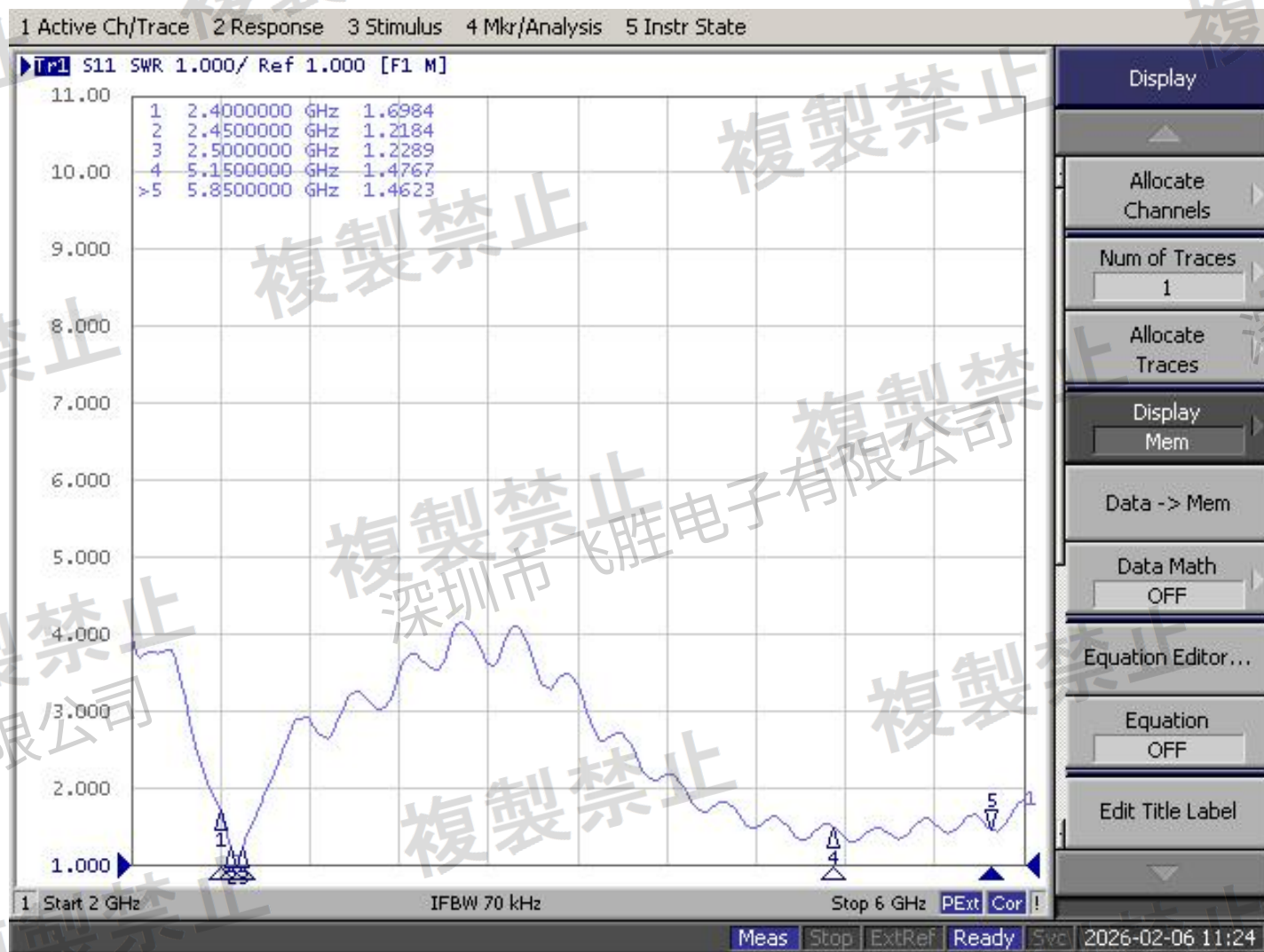
Fig.1 Antenna measured in Network Analyzer 图 1 天线测量网络分析仪

3. S-Parameter Measurement Result S 参数的量测结果:

S-Parameter test data S-参数量测数据-L=400:

Frequency MHz 工作频段	2400	2450	2500	5150	5850
V.S.W.R 驻波比	1.69	1.21	1.22	1.47	1.46

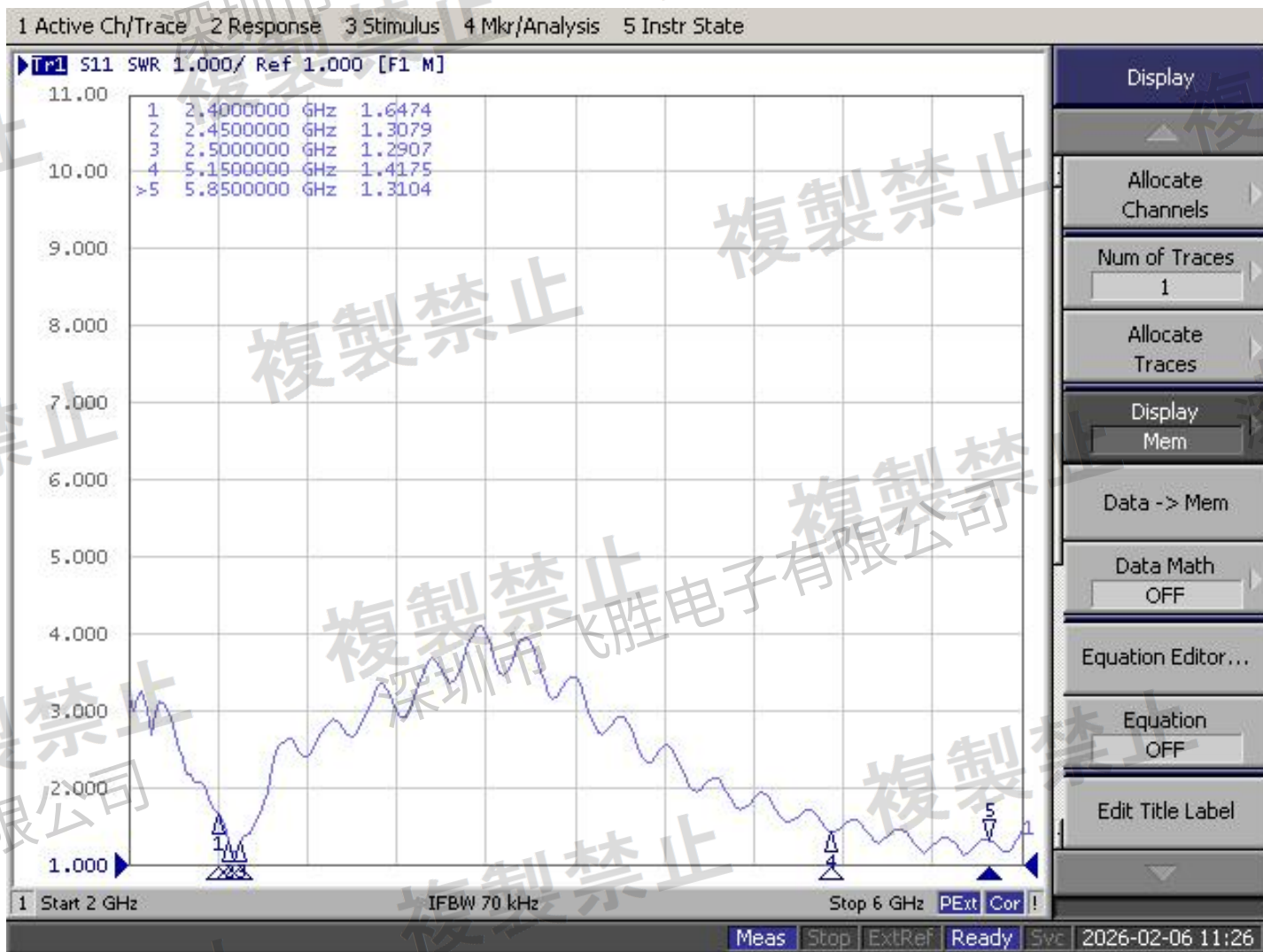
S-Parameter test image S-参数量测图片-L=400:



S-Parameter test data S-参数量测数据-L=450:

Frequency MHz 工作频段	2400	2450	2500	5150	5850
V.S.W.R 驻波比	1.64	1.30	1.29	1.41	1.31

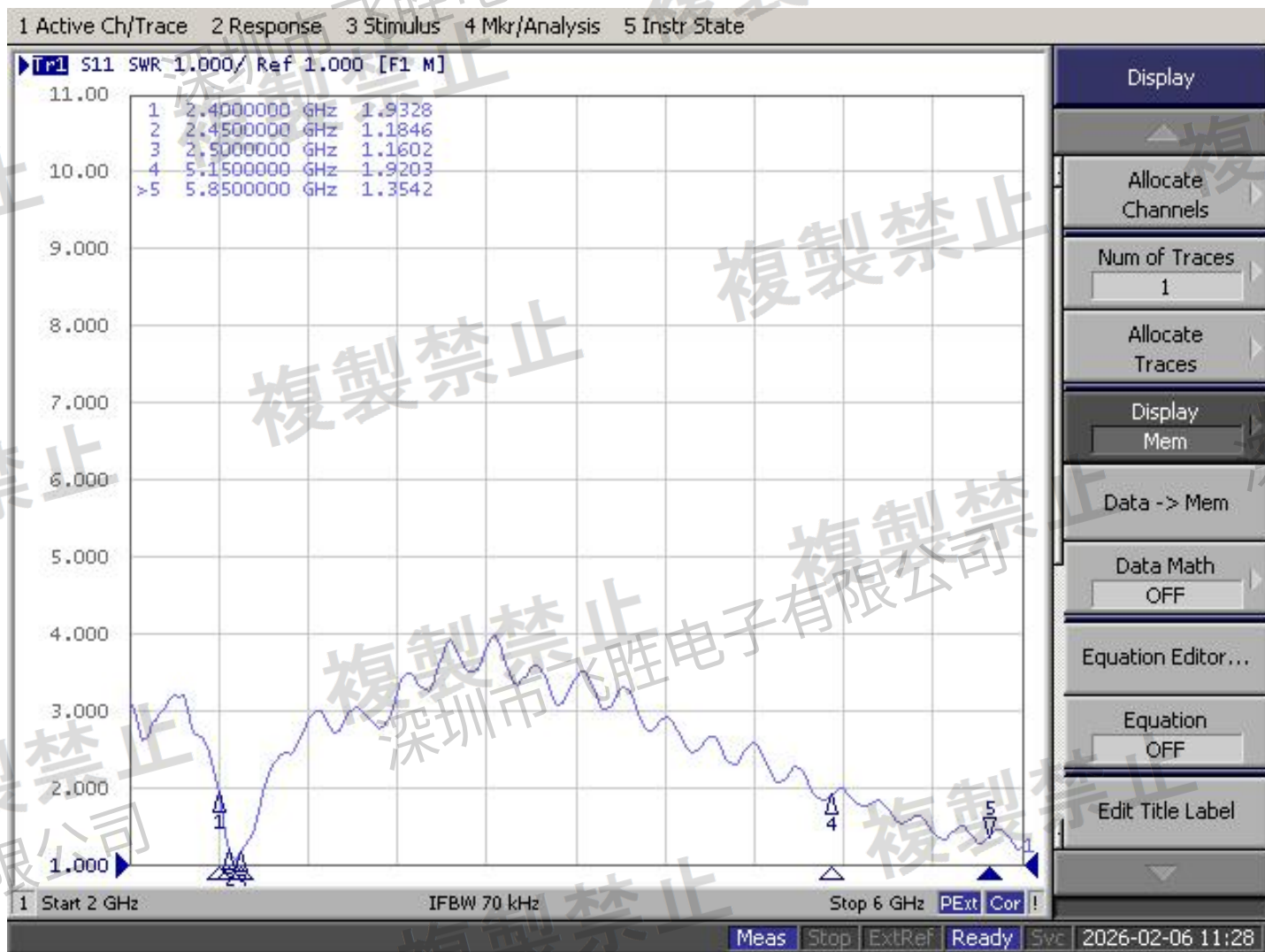
S-Parameter test image S-参数量测图片-L=450:



S-Parameter test data S-参数量测数据-L=500:

Frequency MHz 工作频段	2400	2450	2500	5150	5850
V.S.W.R 驻波比	1.93	1.18	1.16	1.92	1.35

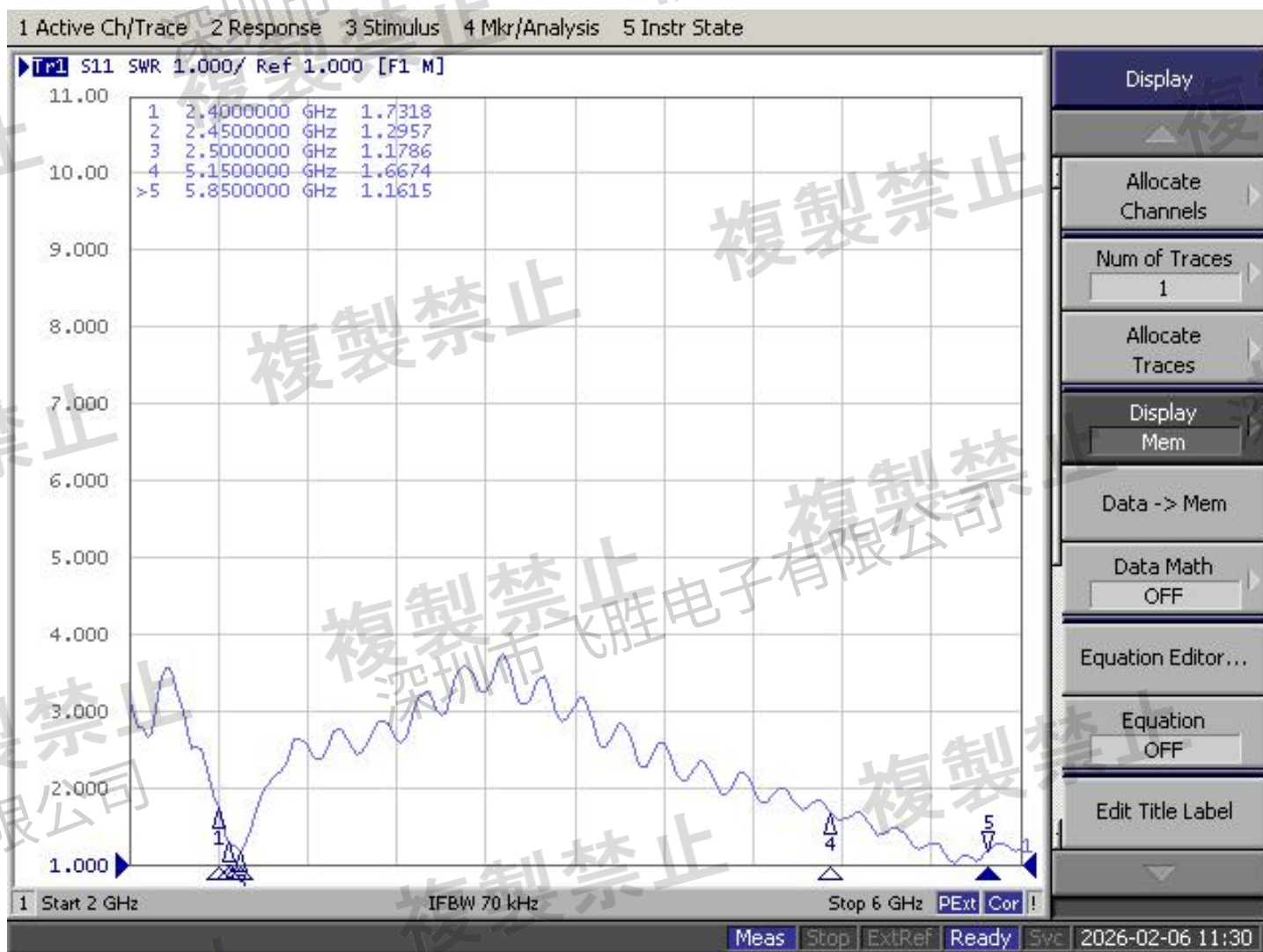
S-Parameter test image S-参数量测图片-L=500:



S-Parameter test data S-参数量测数据-L=550:

Frequency MHz 工作频段	2400	2450	2500	5150	5850
V.S.W.R 驻波比	1.73	1.29	1.17	1.66	1.16

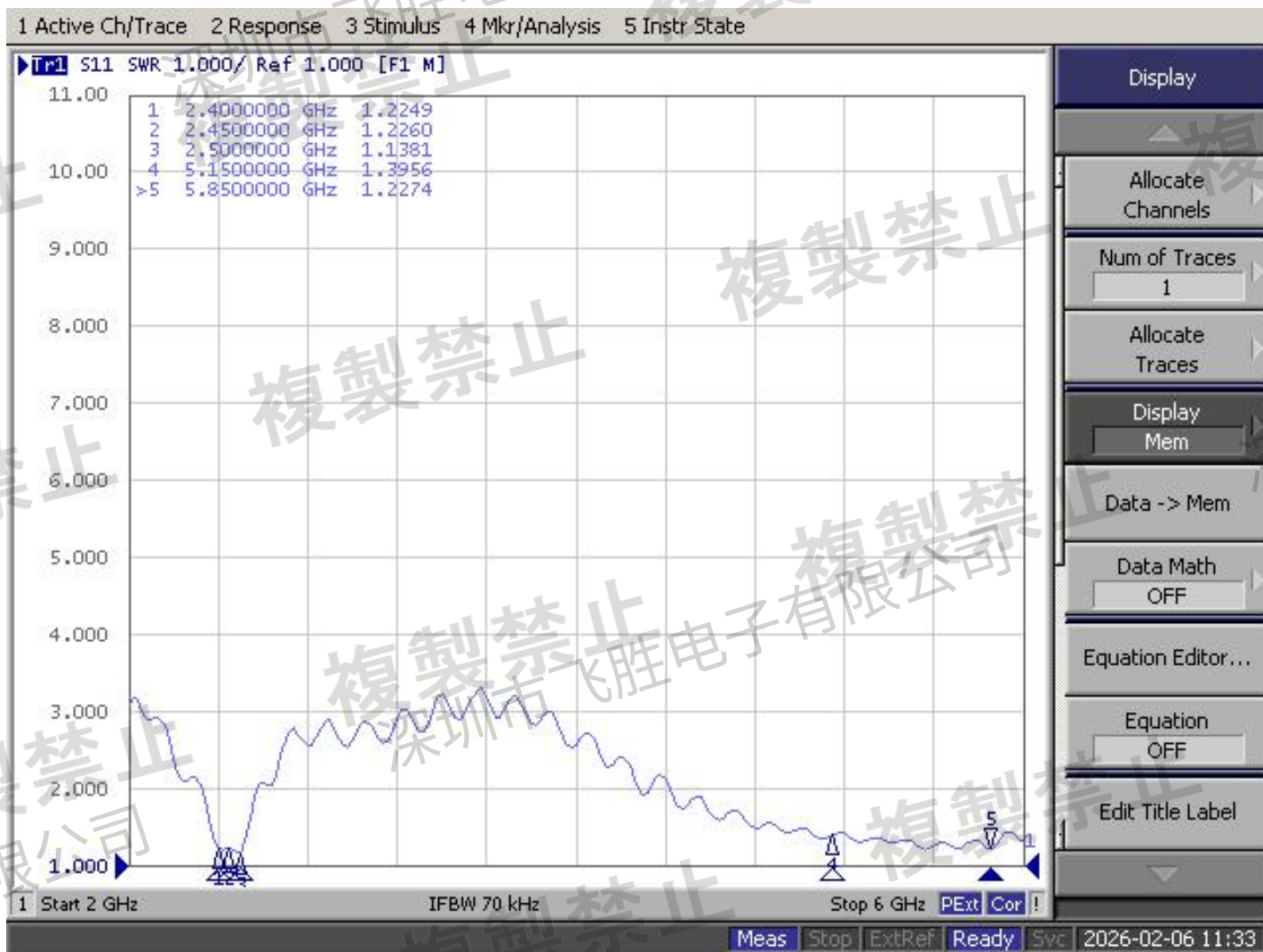
S-Parameter test image S-参数量测图片-L=550:



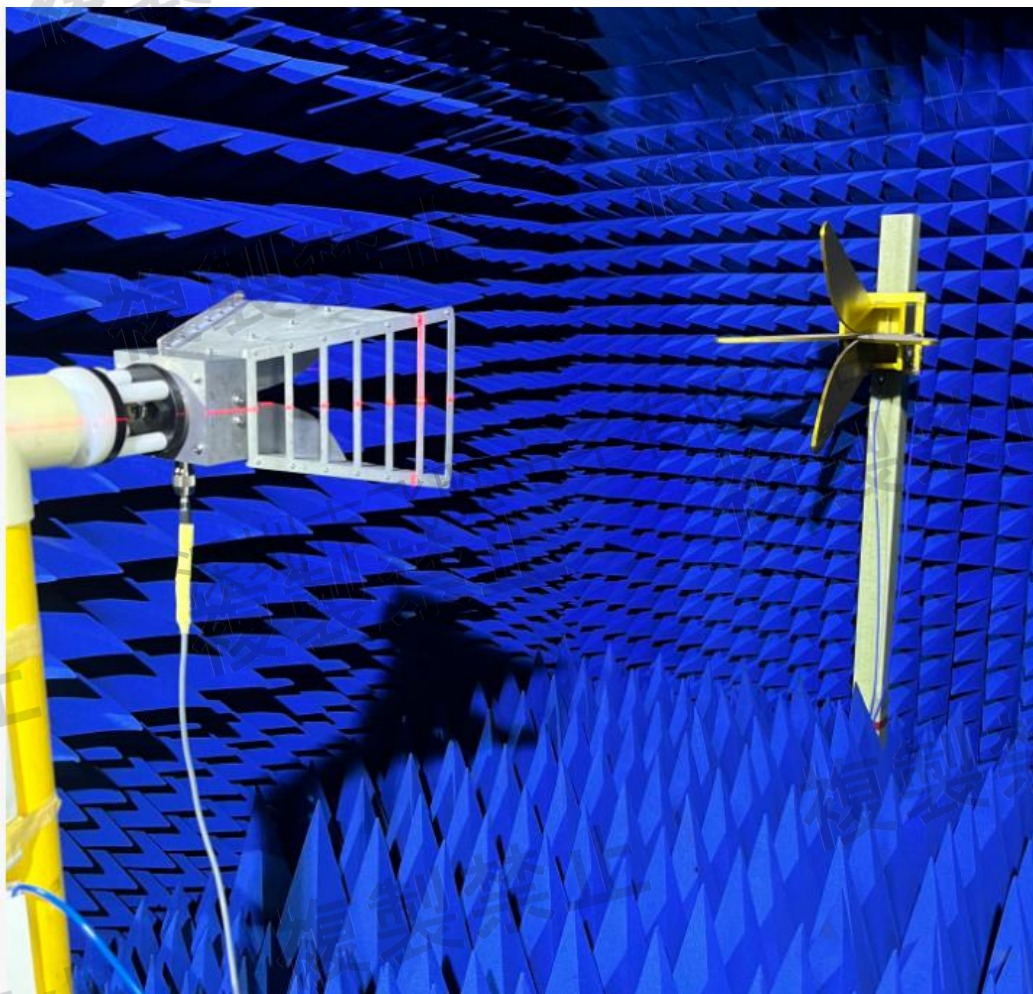
S-Parameter test data S-参数量测数据-L=600:

Frequency MHz 工作频段	2400	2450	2500	5150	5850
V.S.W.R 驻波比	1.22	1.22	1.13	1.39	1.22

S-Parameter test image S-参数量测图片-L=600:



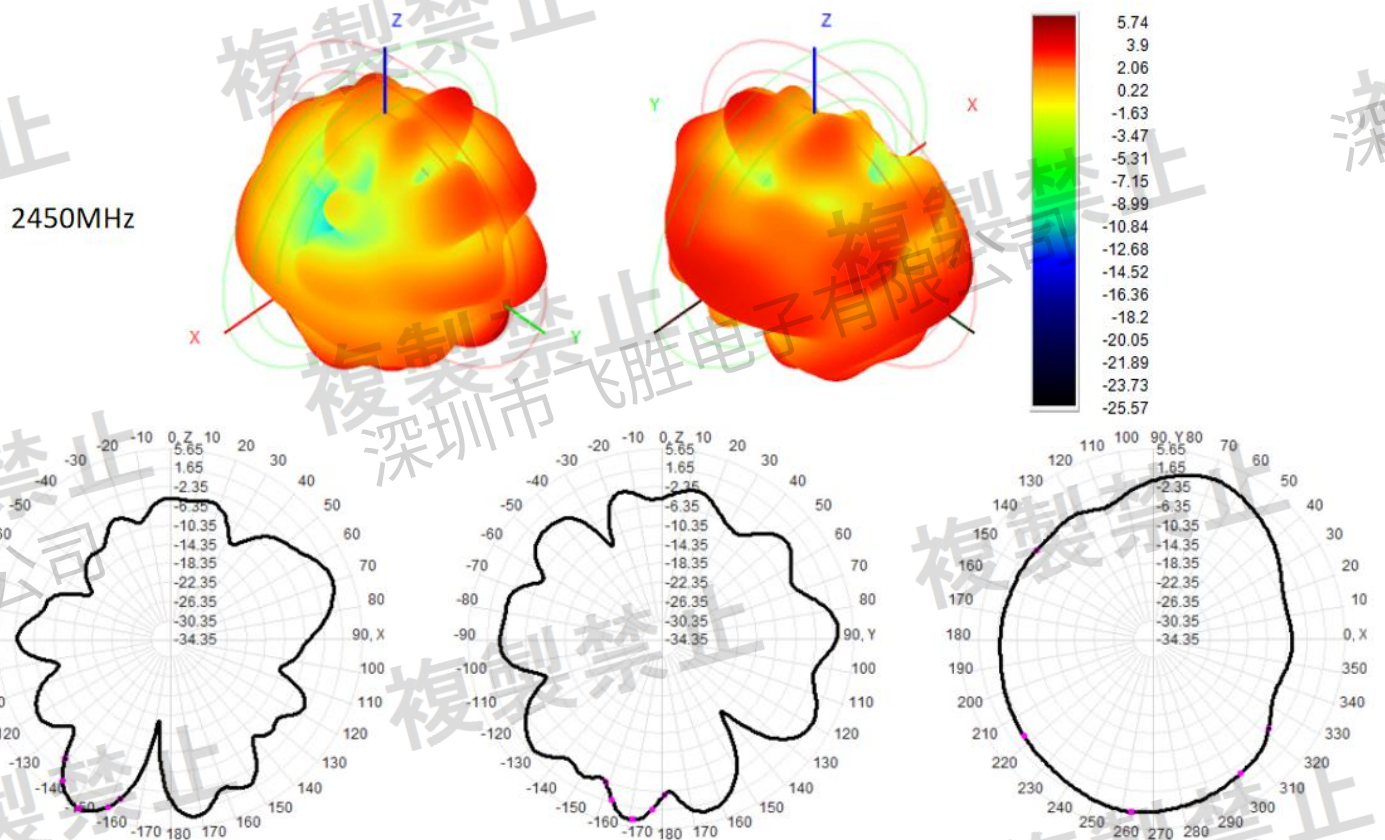
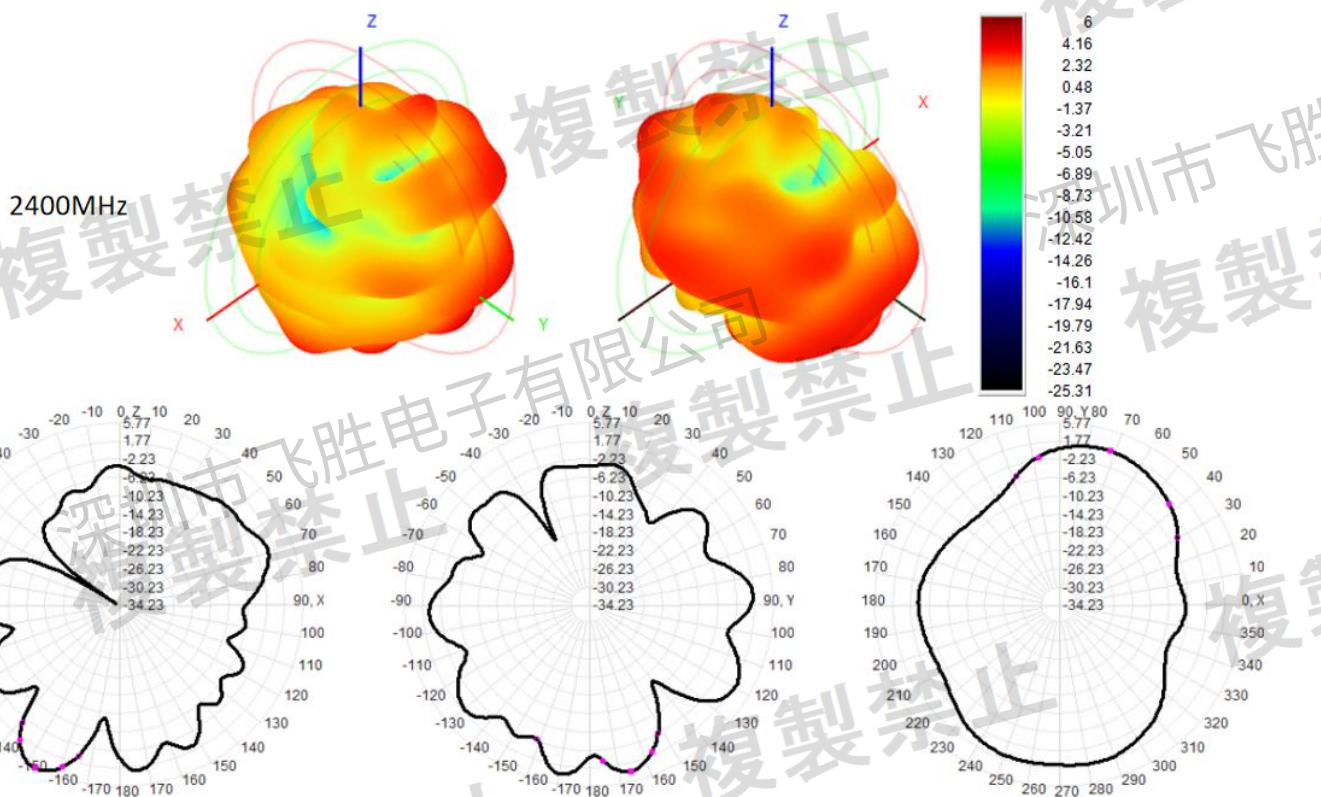
测试环境:



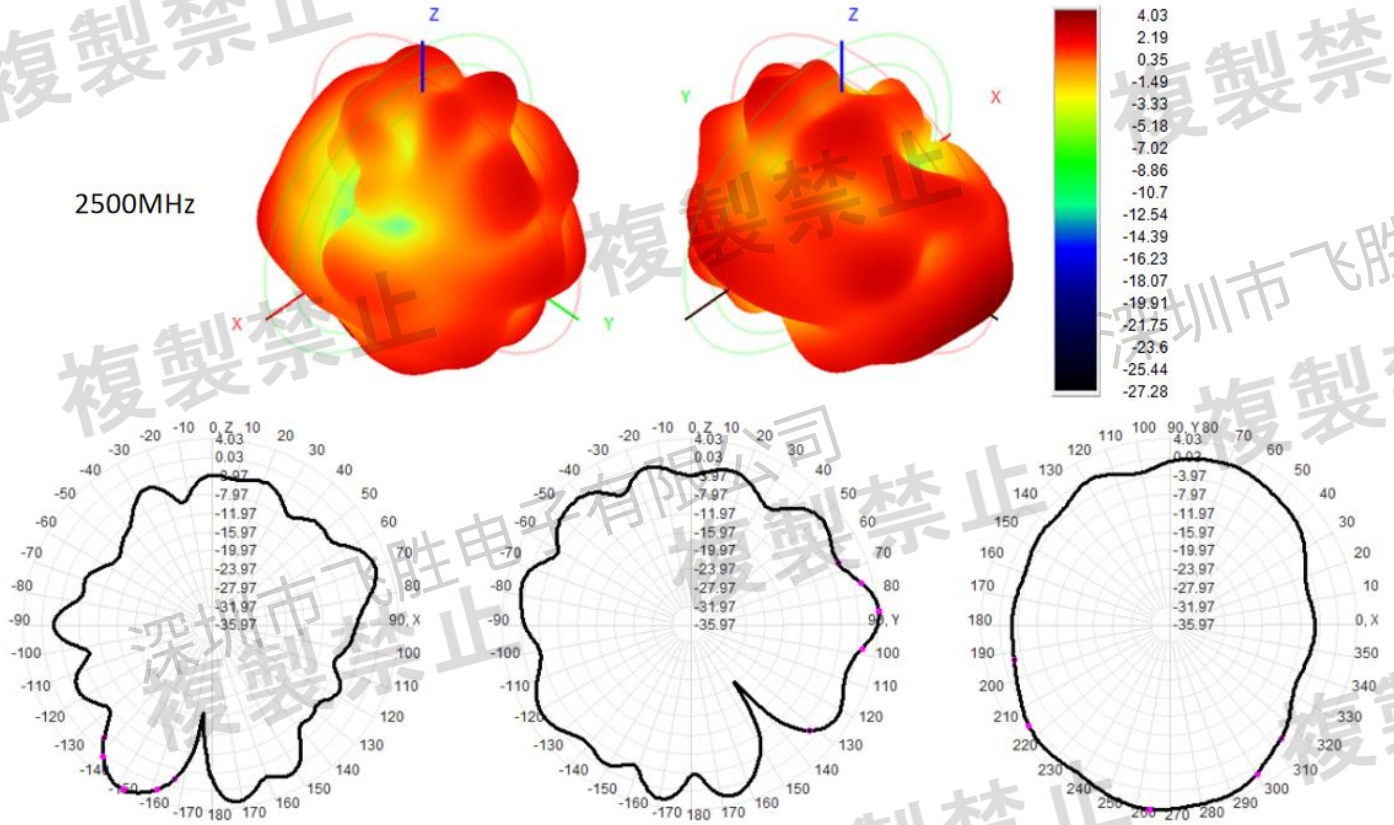
无源数值-L=400:

Frequency (MHz) (工作频段)	Efficiency (%) (效率)	Peak GAIN (dBi) (增益)
2400	56.78	6.00
2450	61.84	5.74
2500	65.20	4.03
5150	42.55	3.75
5850	48.09	3.83

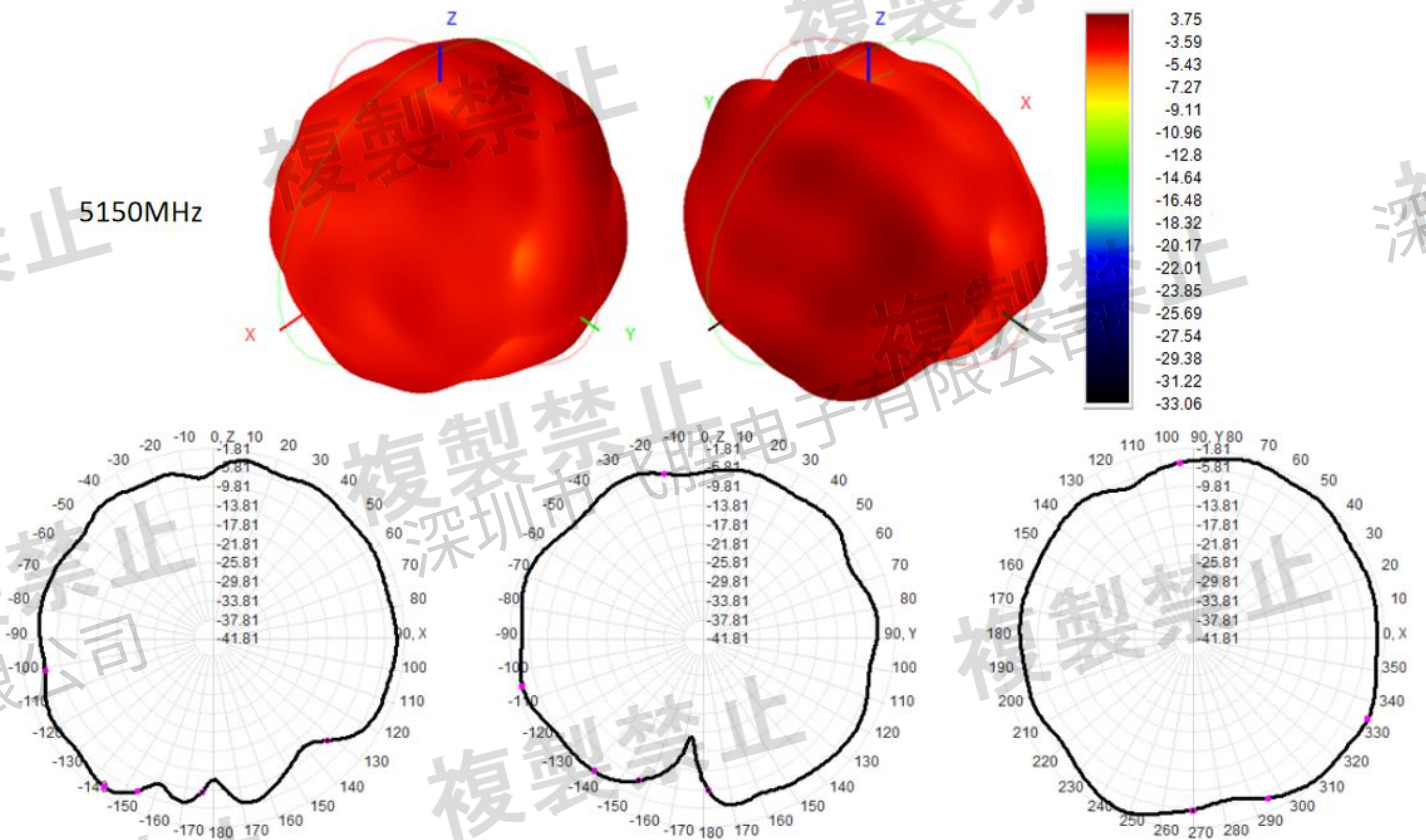
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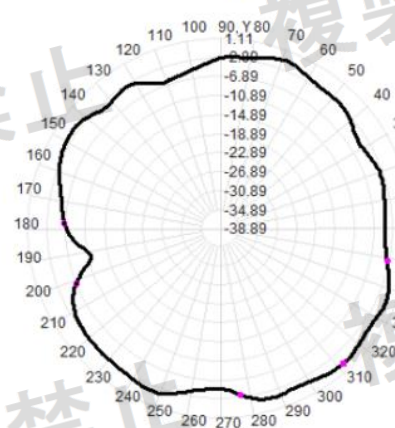
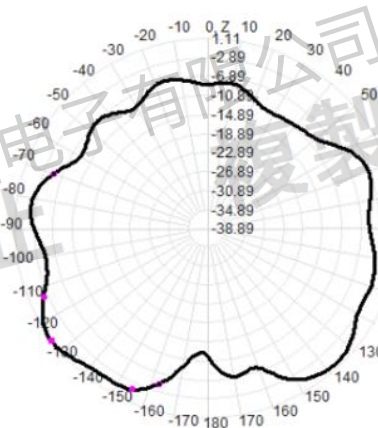
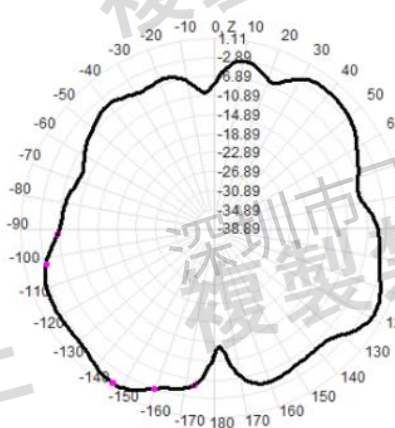
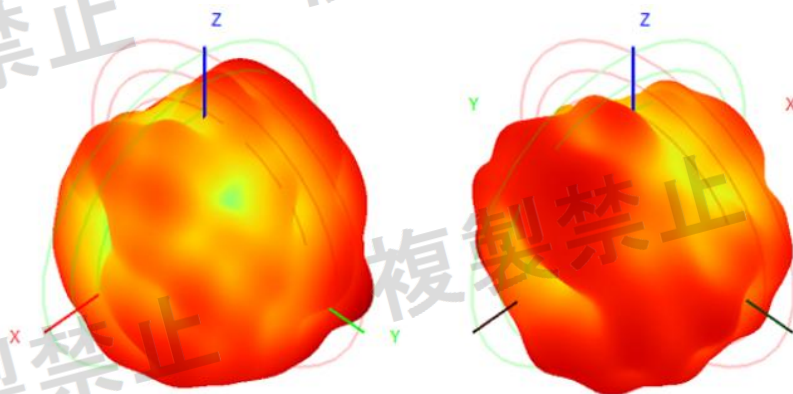
2500MHz



5150MHz



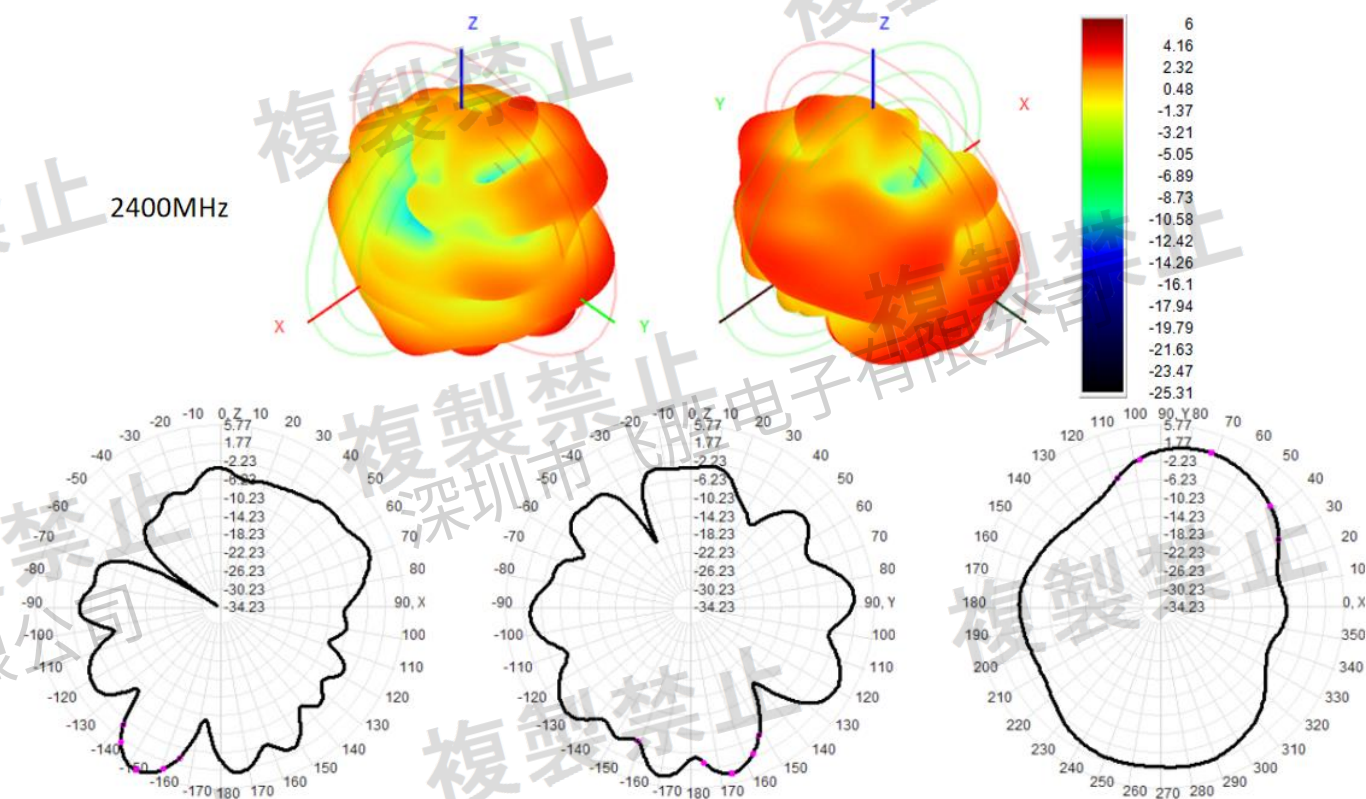
5850MHz



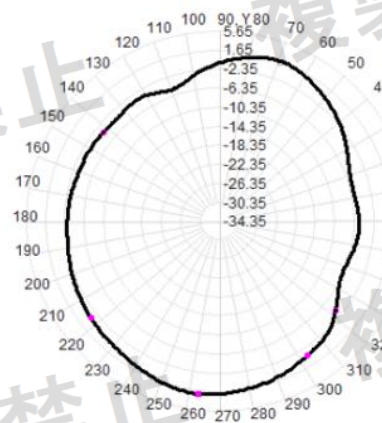
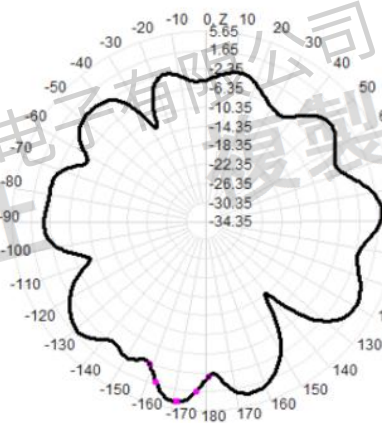
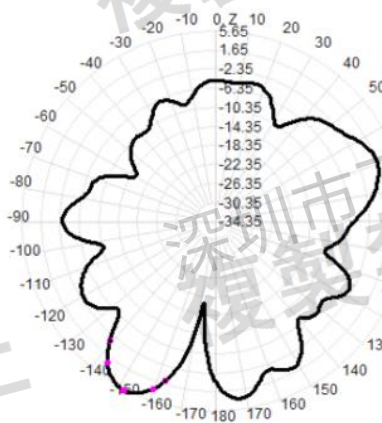
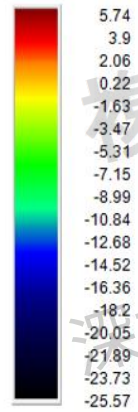
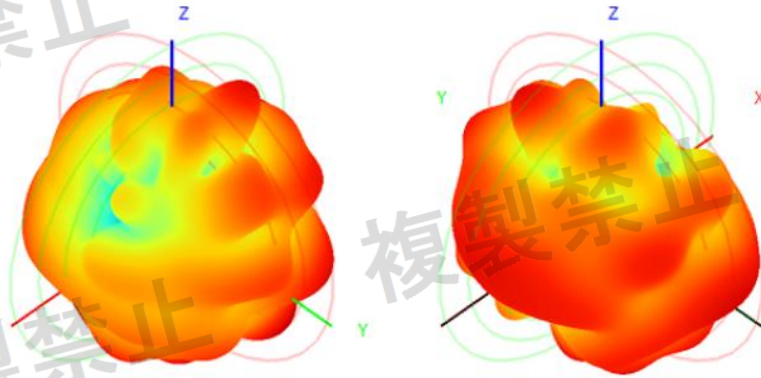
无源数值-L=450:

Frequency (MHz) (工作频段)	Efficiency (%) (效率)	Peak GAIN (dBi) (增益)
2400	53.60	5.86
2450	59.24	5.34
2500	61.65	3.83
5150	40.43	3.35
5850	45.31	3.52

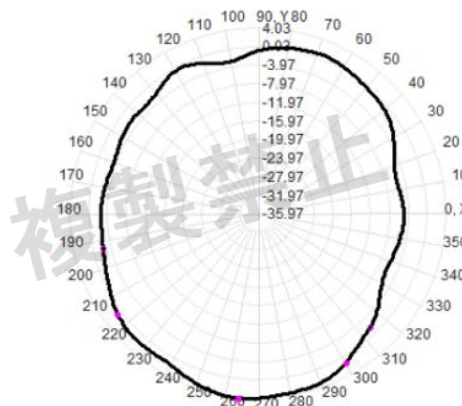
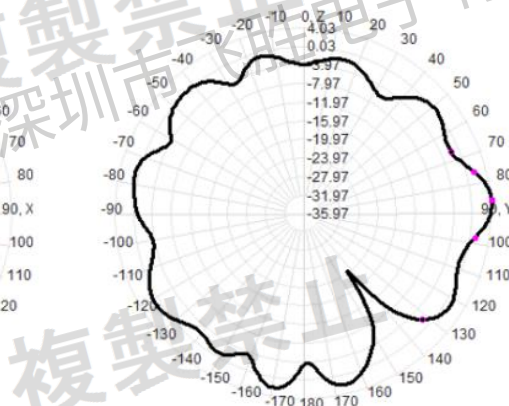
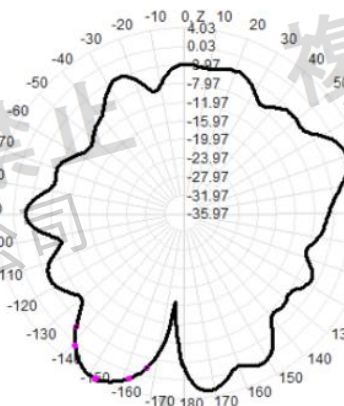
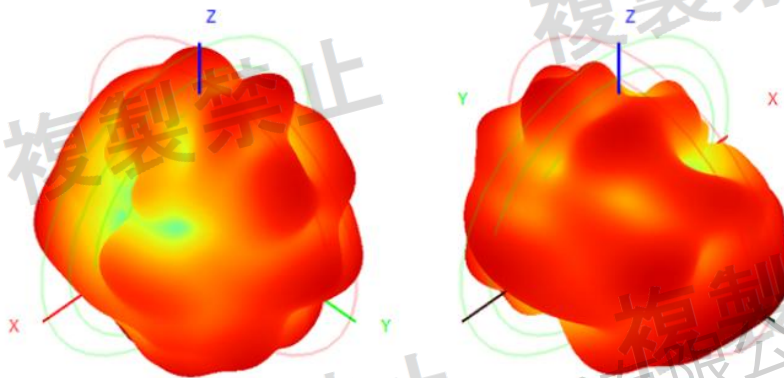
2D\3D 图-L=450:



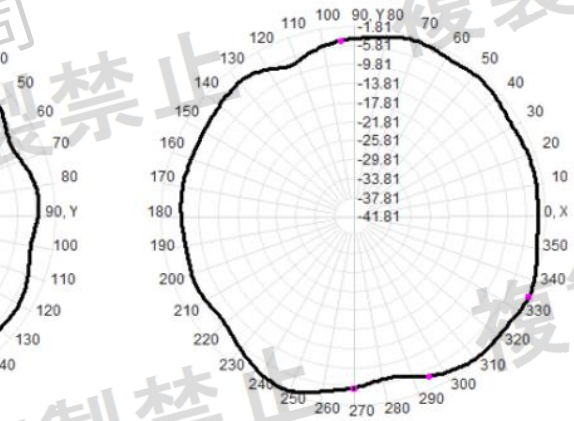
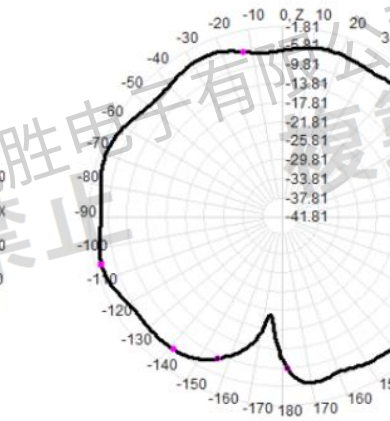
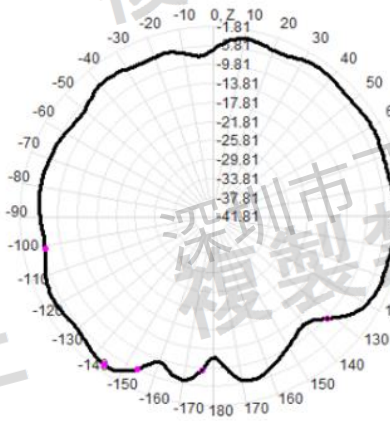
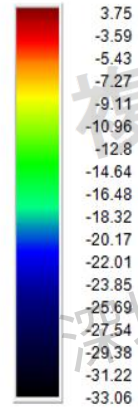
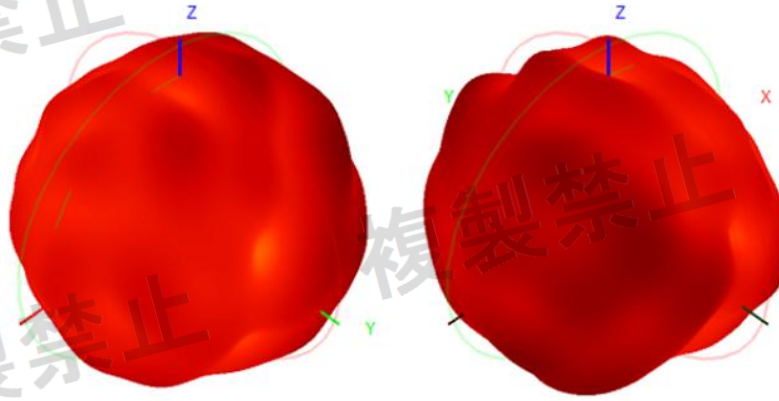
2450MHz



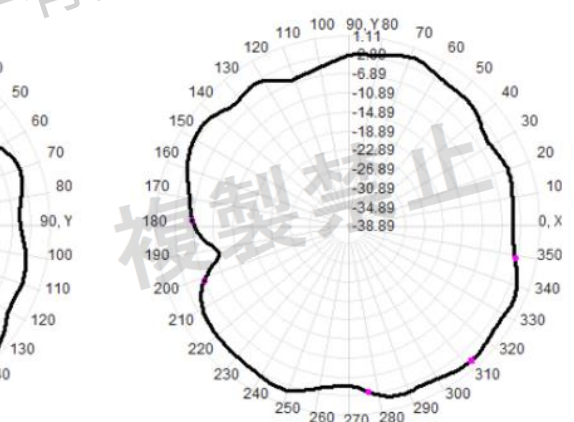
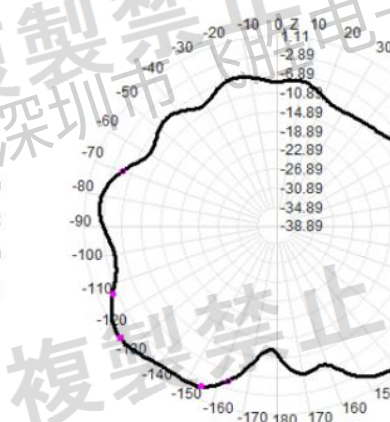
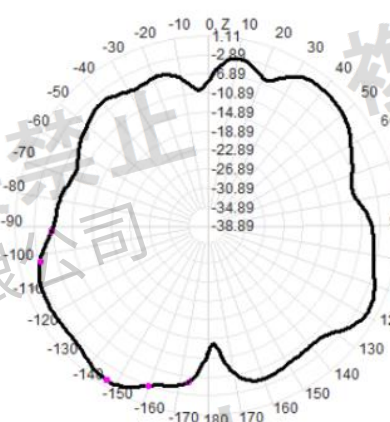
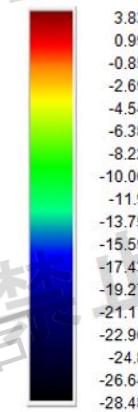
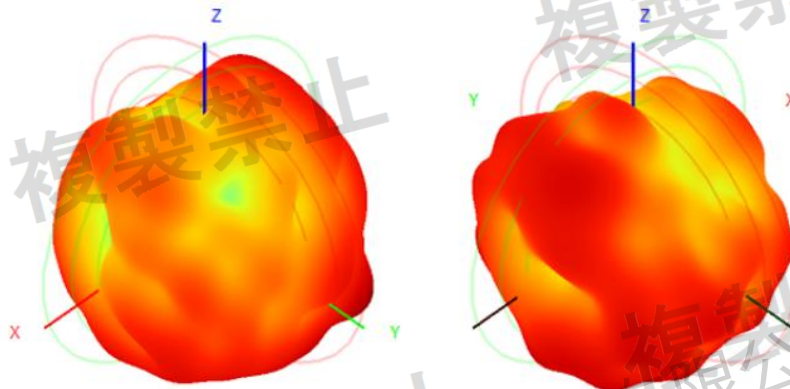
2500MHz



5150MHz



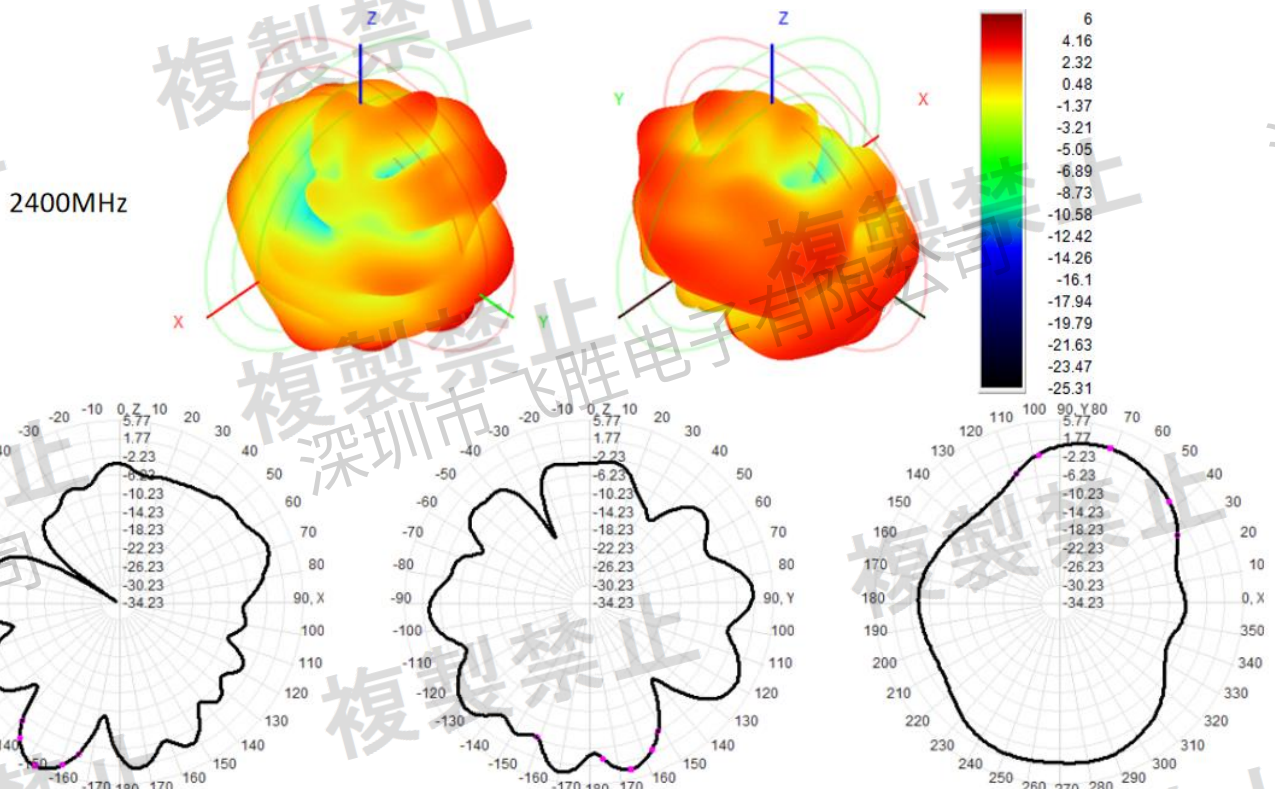
5850MHz



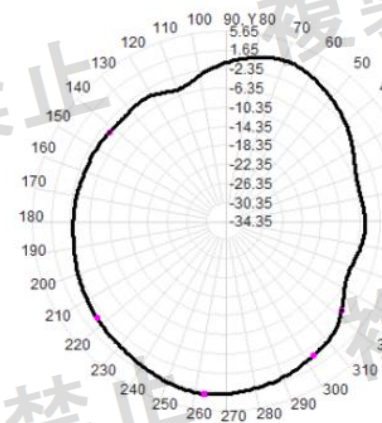
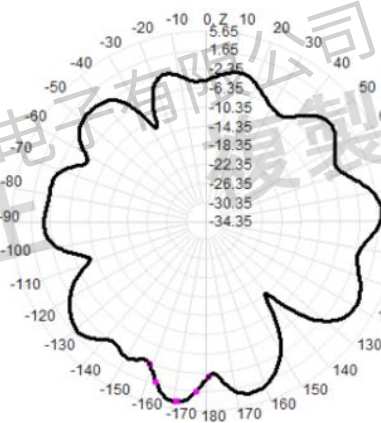
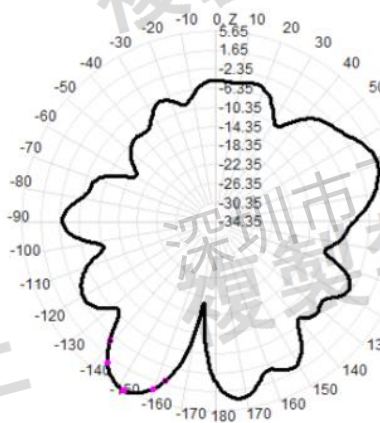
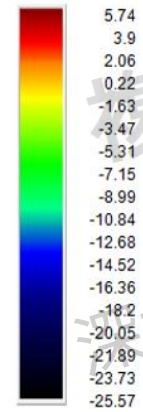
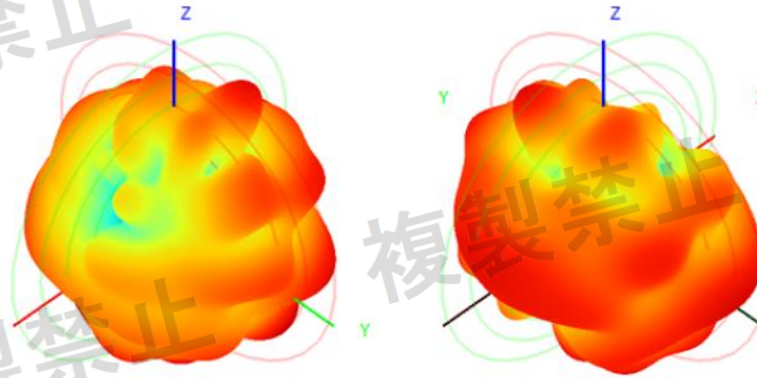
无源数值-L=500:

Frequency (MHz) (工作频段)	Efficiency (%) (效率)	Peak GAIN (dBi) (增益)
2400	50.60	5.06
2450	57.24	4.34
2500	59.65	3.53
5150	40.43	3.15
5850	42.31	3.22

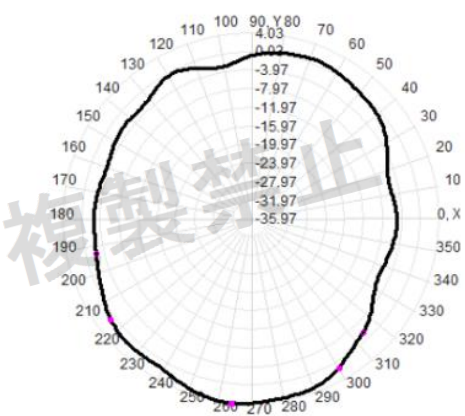
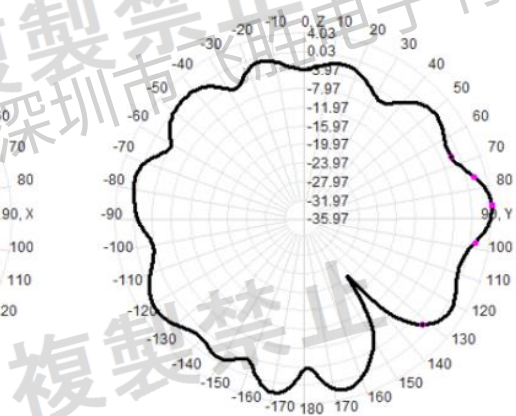
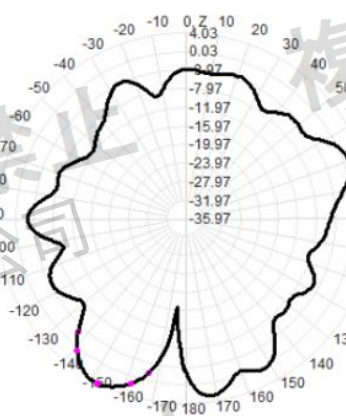
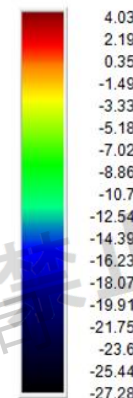
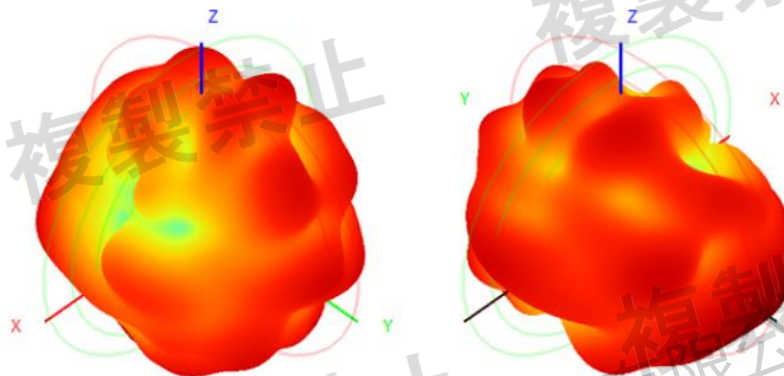
2D\3D 图-L=500:



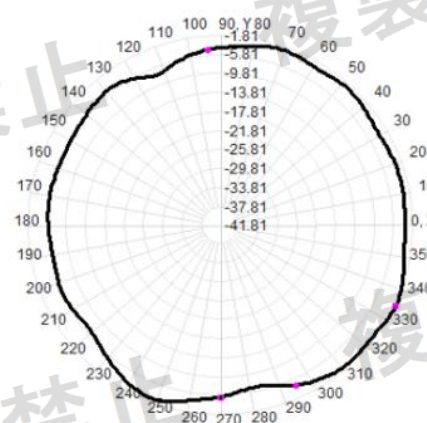
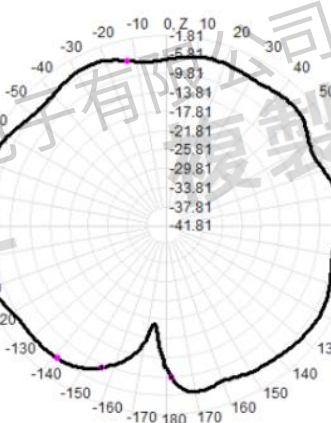
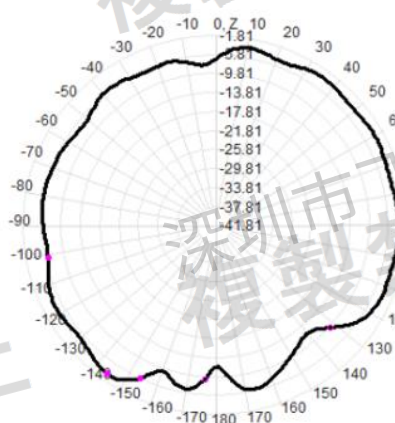
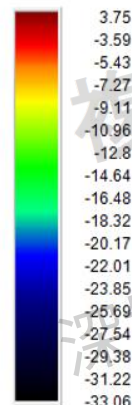
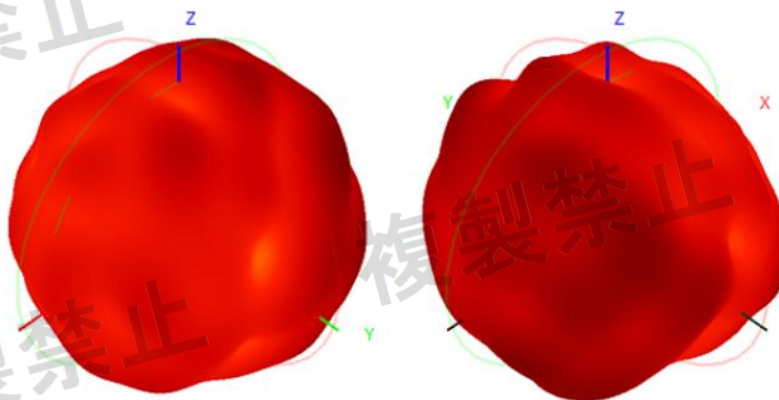
2450MHz



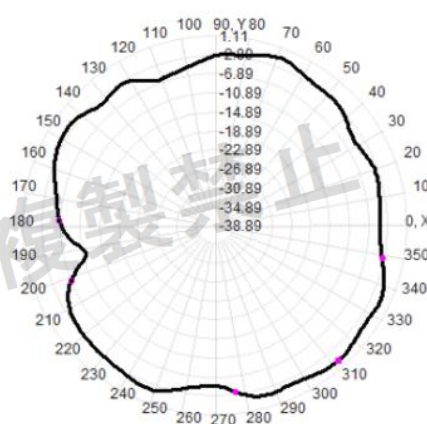
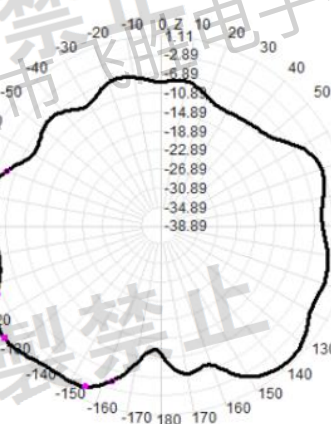
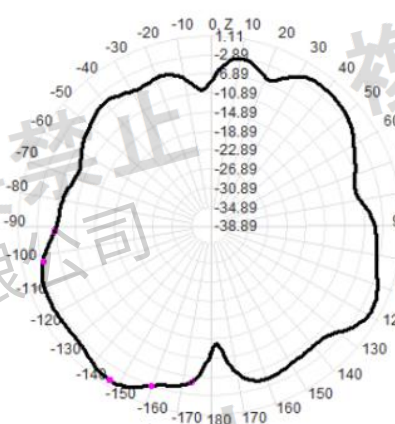
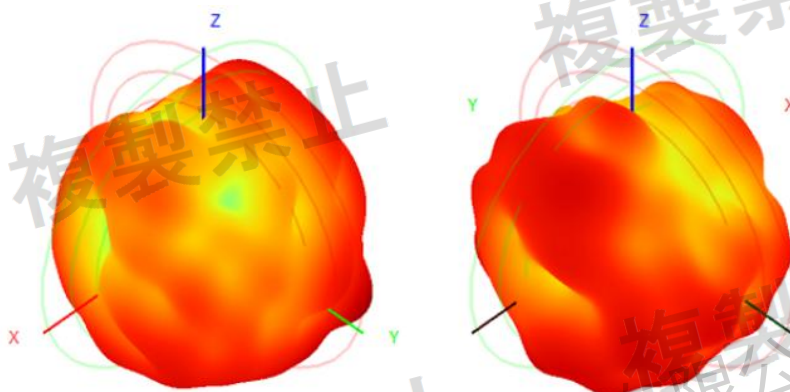
2500MHz



5150MHz



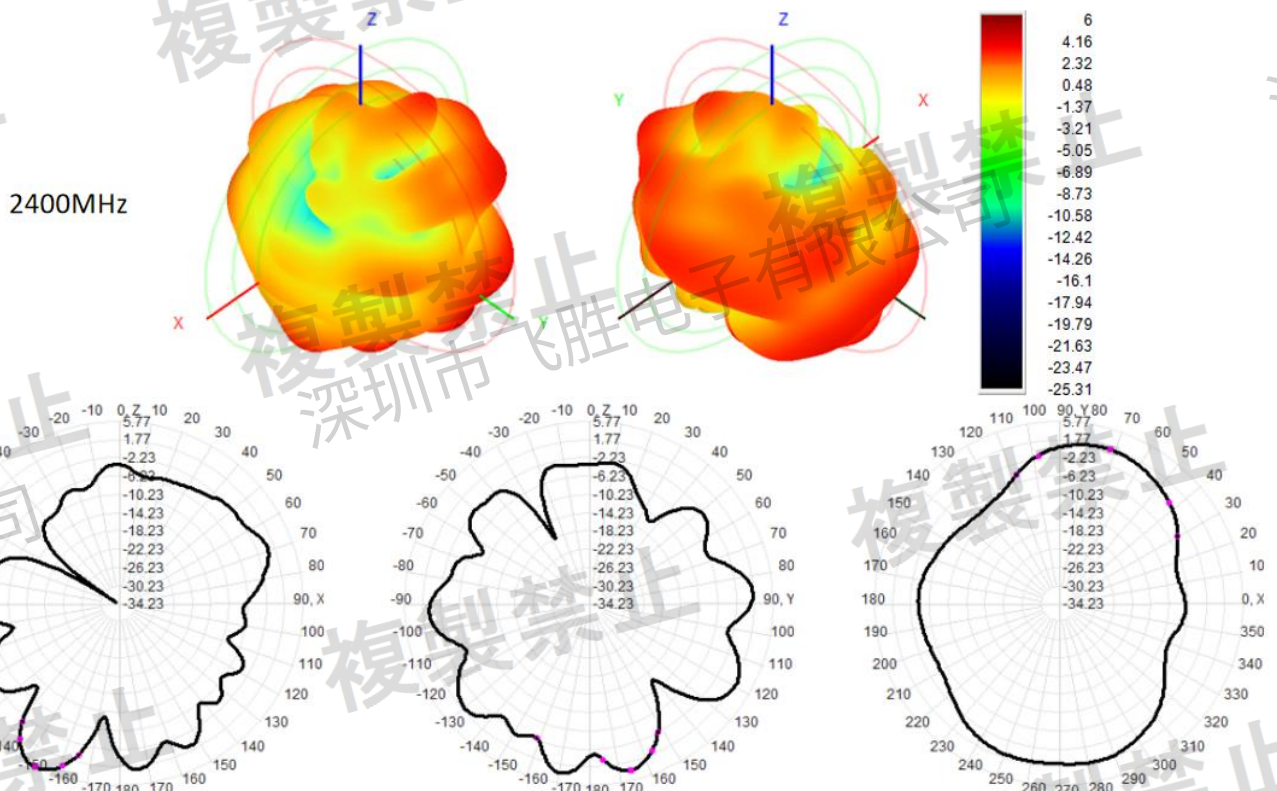
5850MHz



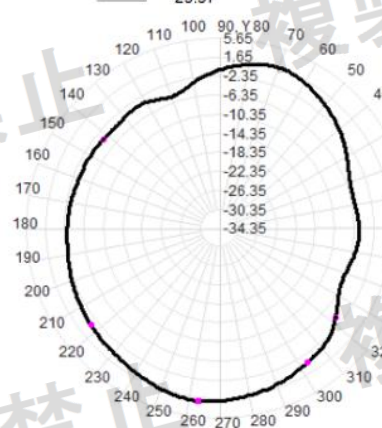
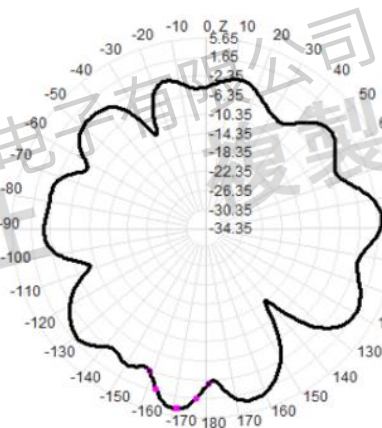
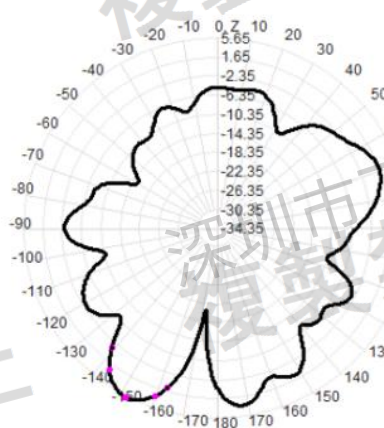
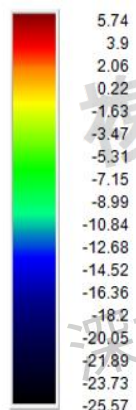
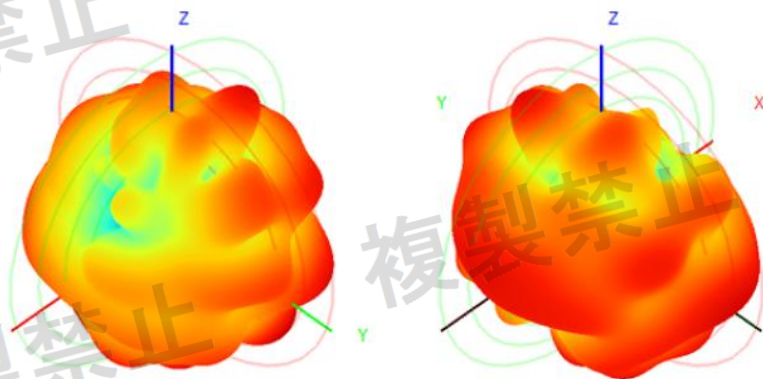
无源数值-L=550:

Frequency (MHz) (工作频段)	Efficiency (%) (效率)	Peak GAIN (dBi) (增益)
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2450	54.24	4.34
2500	55.65	3.23
5150	40.43	3.05
5850	42.31	3.22

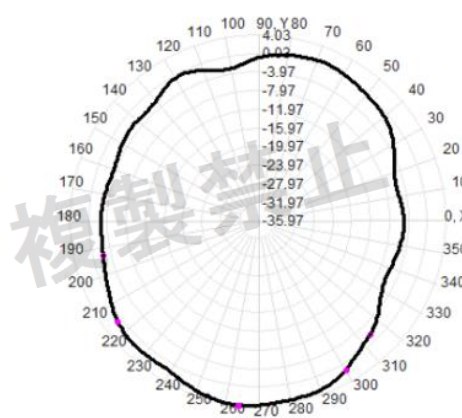
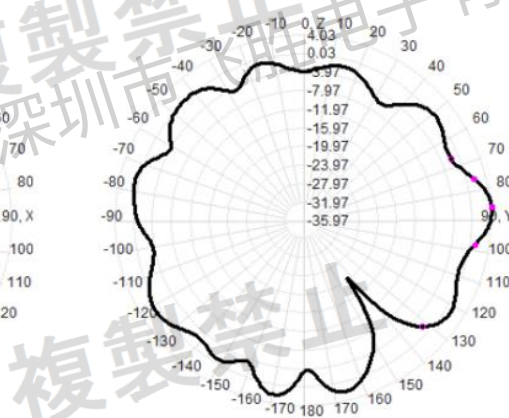
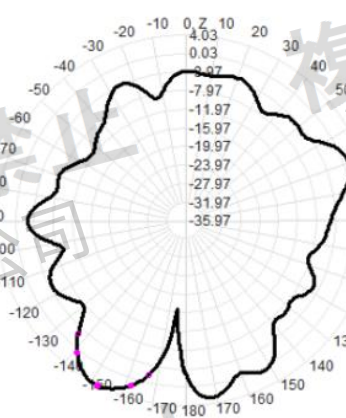
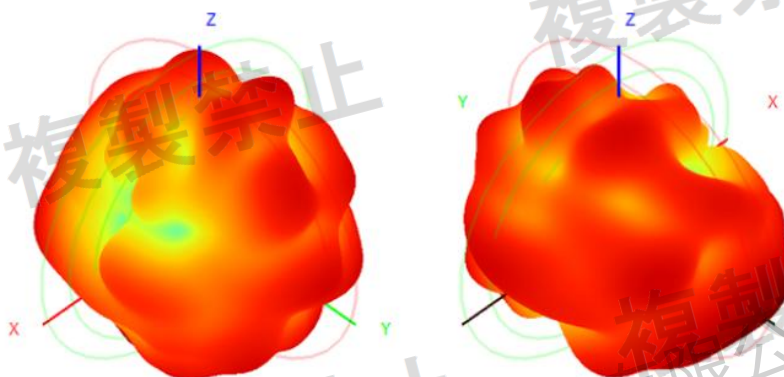
2D\3D 图-L=550:



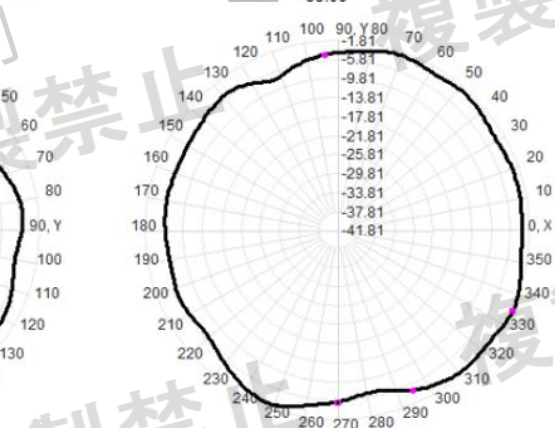
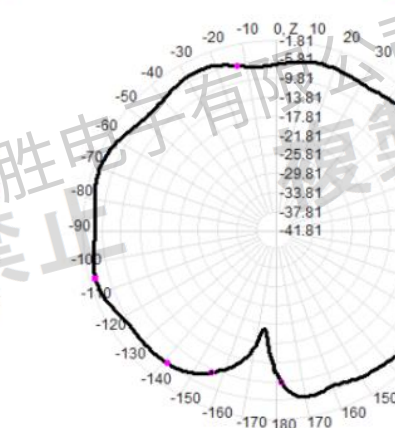
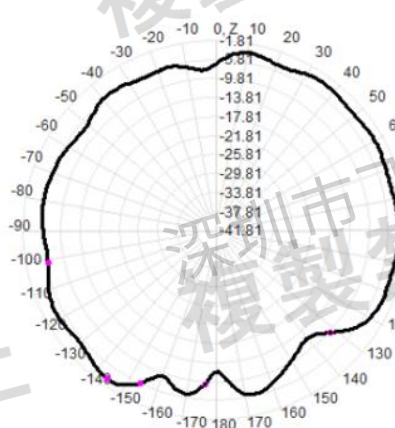
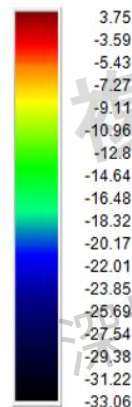
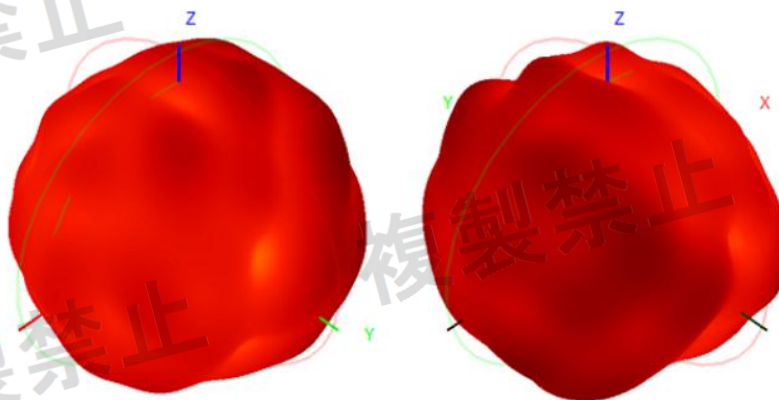
2450MHz



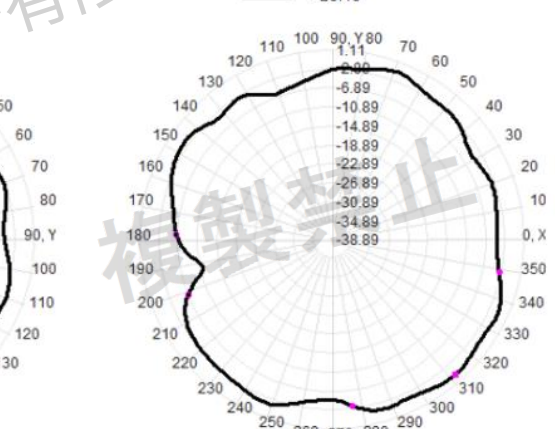
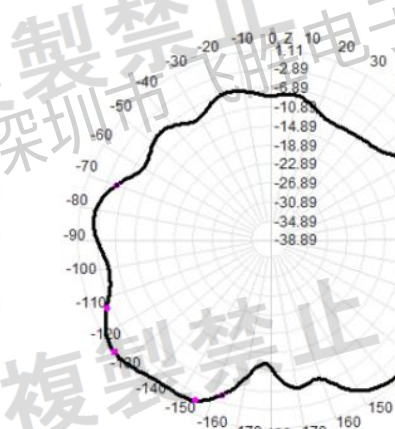
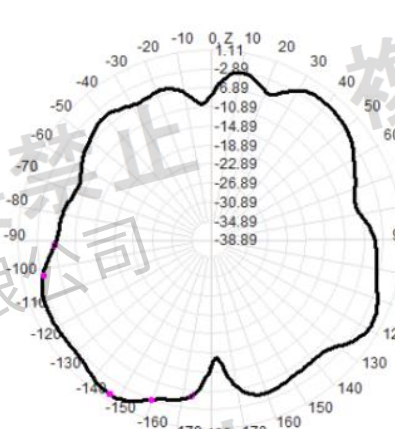
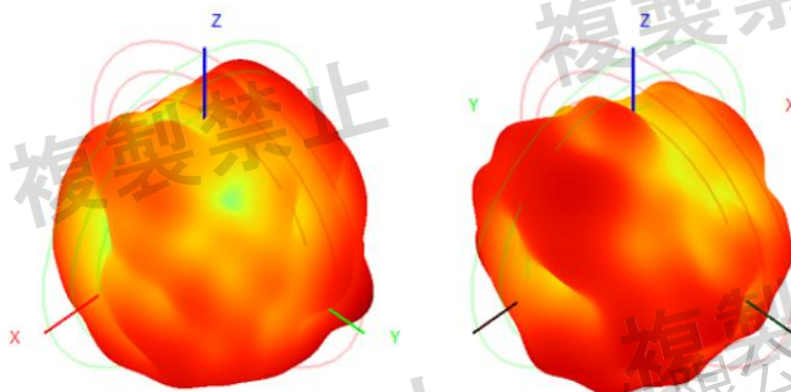
2500MHz



5150MHz



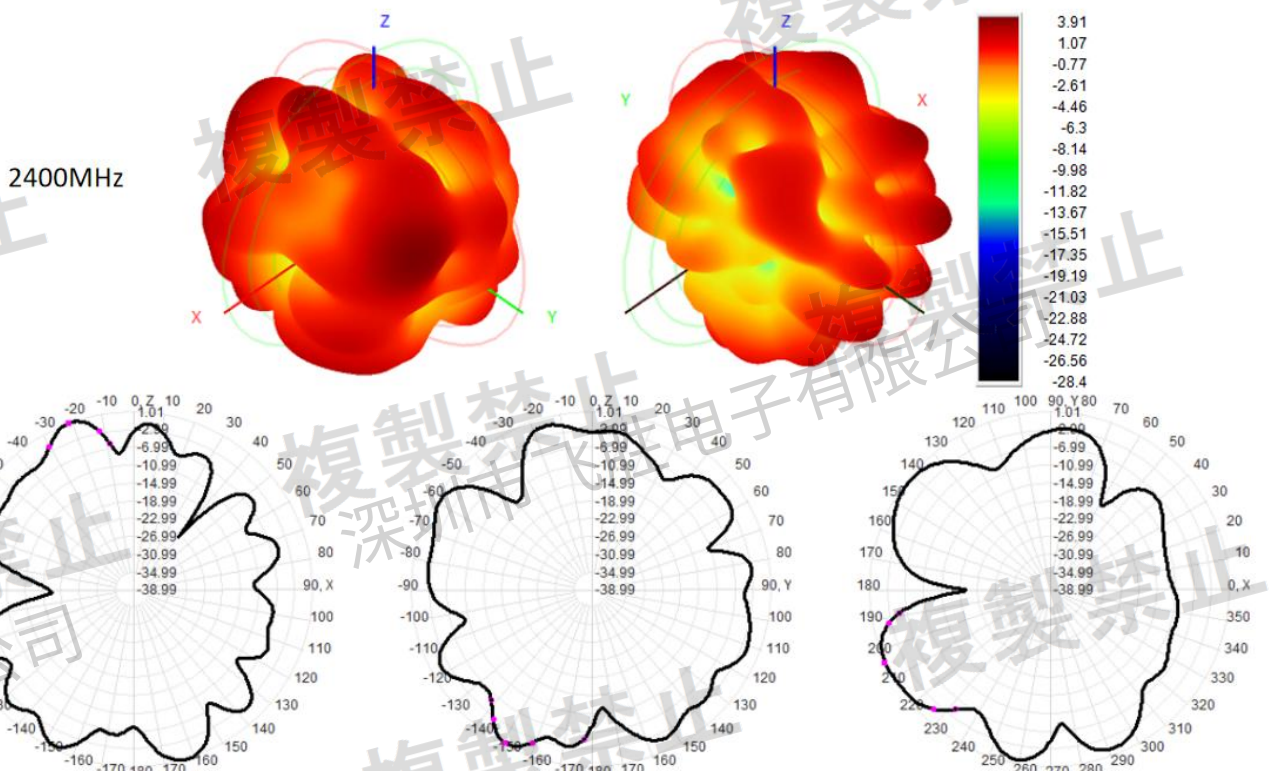
5850MHz



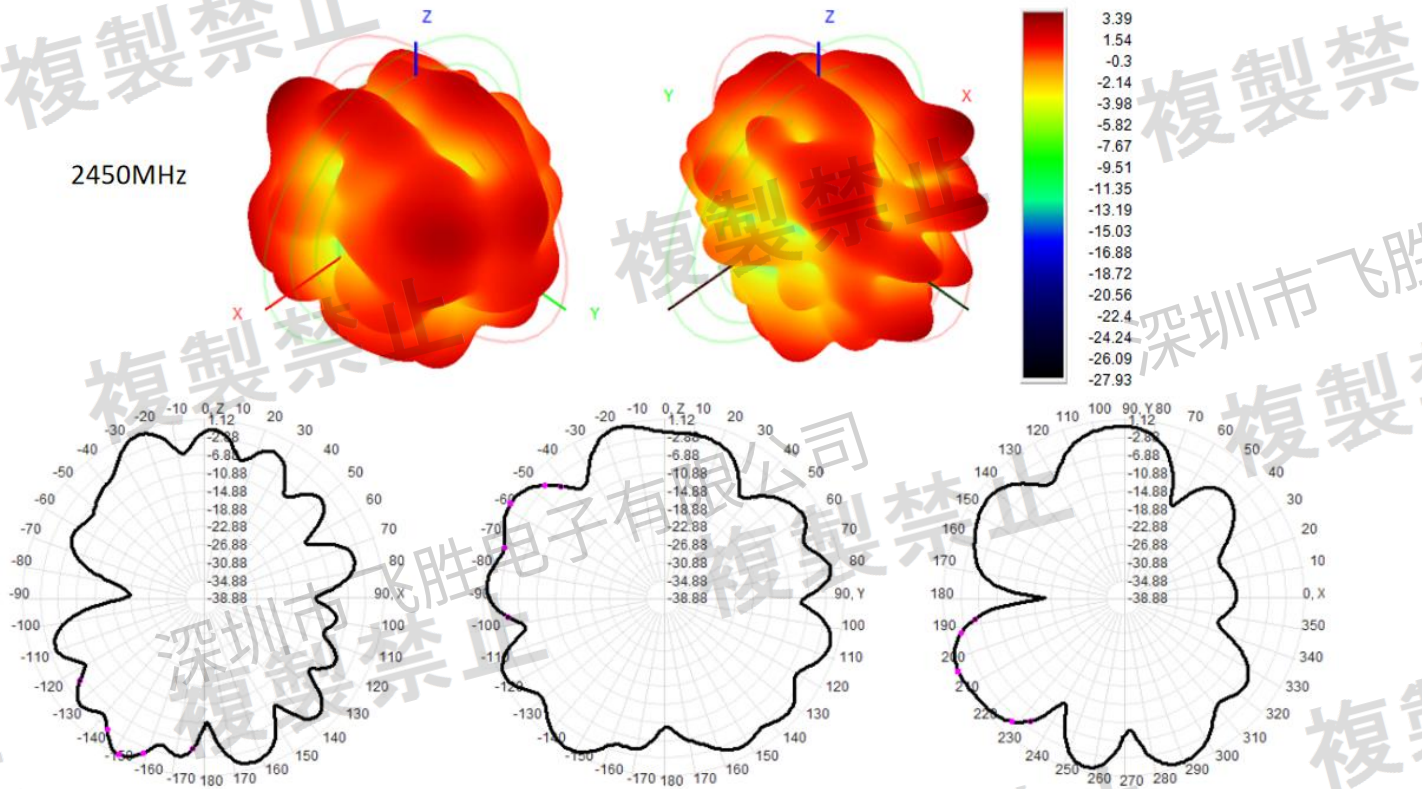
无源数值-L=600:

Frequency (MHz) (工作频段)	Efficiency (%) (效率)	Peak GAIN (dBi) (增益)
2400	58.85	3.91
2450	58.40	4.39
2500	58.48	4.17
5150	40.23	3.75
5850	52.31	4.90

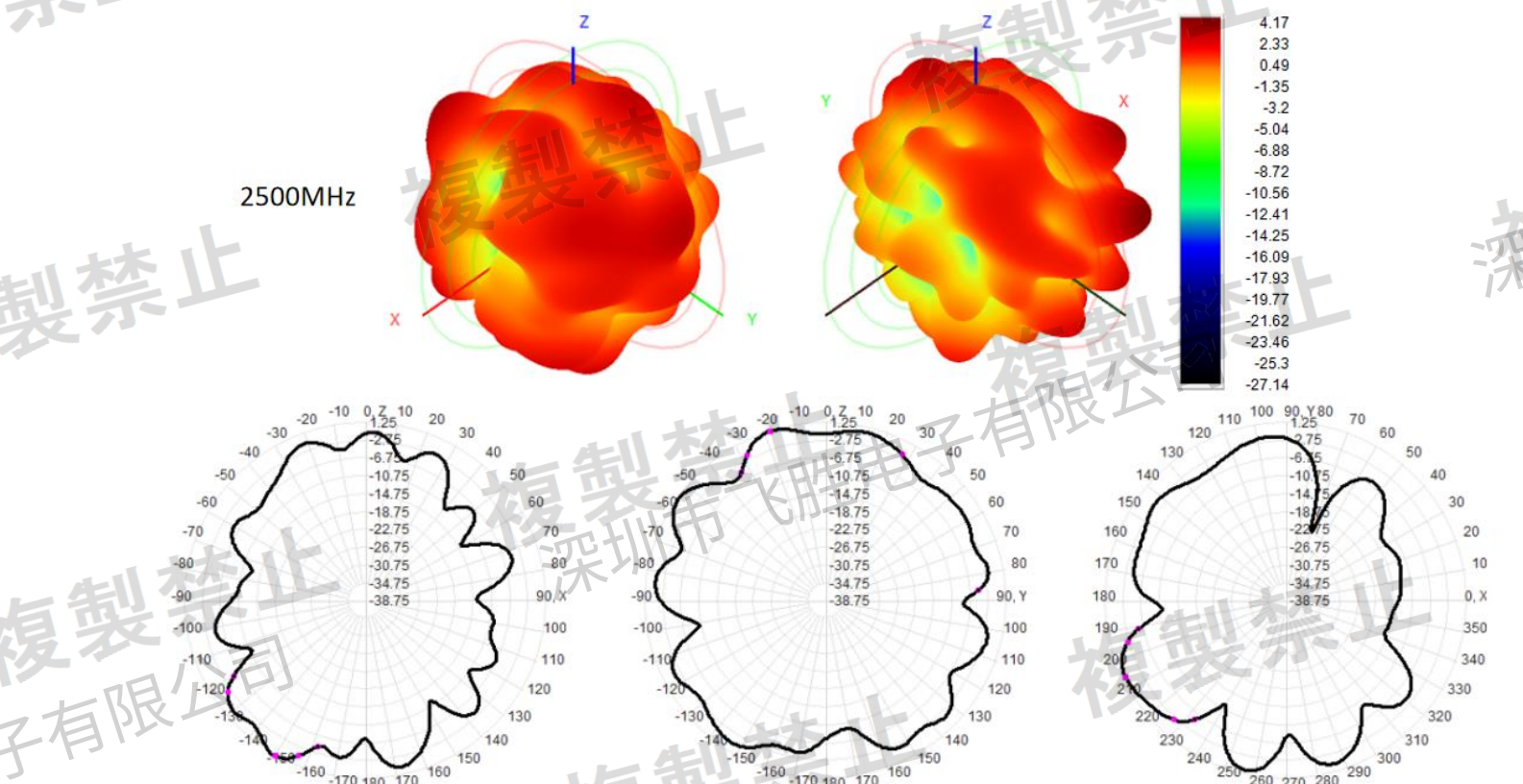
2D\3D 图-L=600:



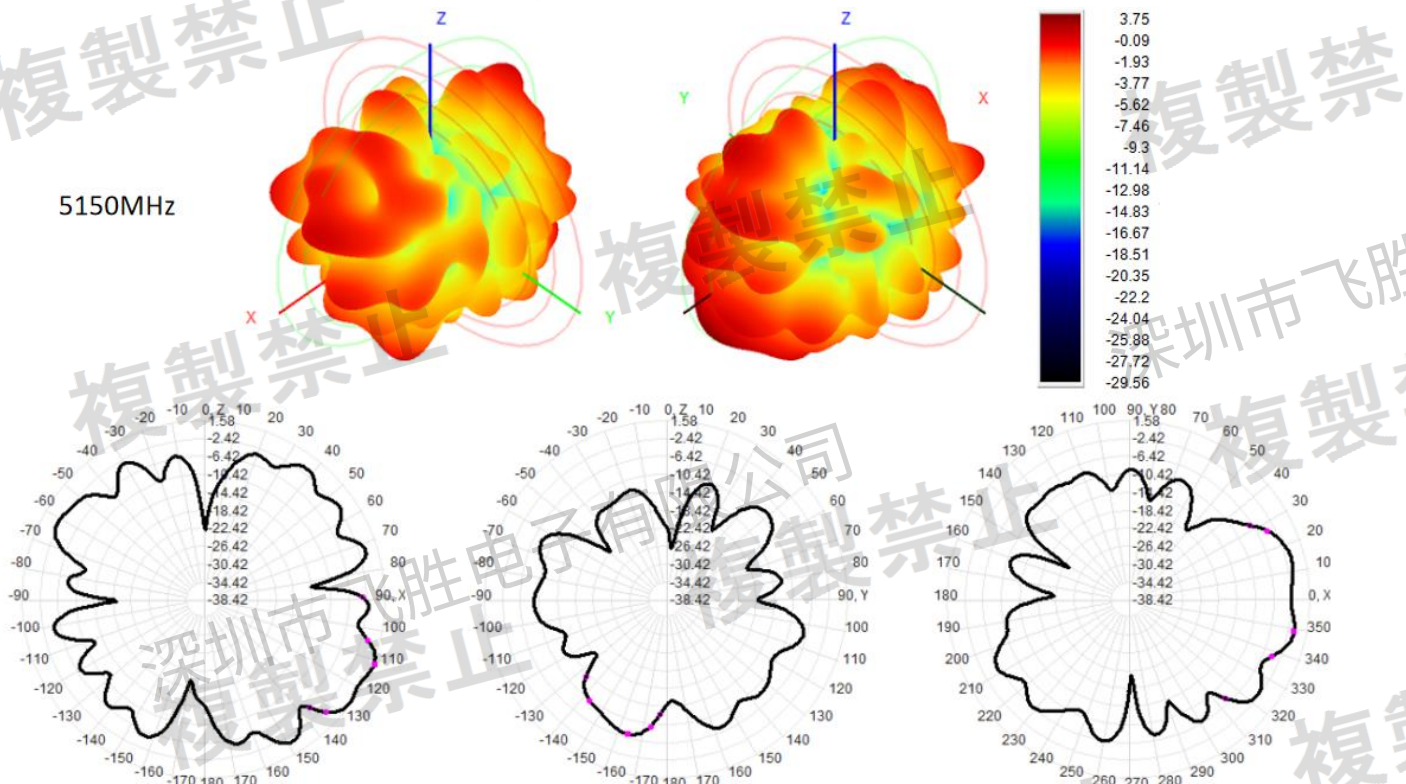
2450MHz



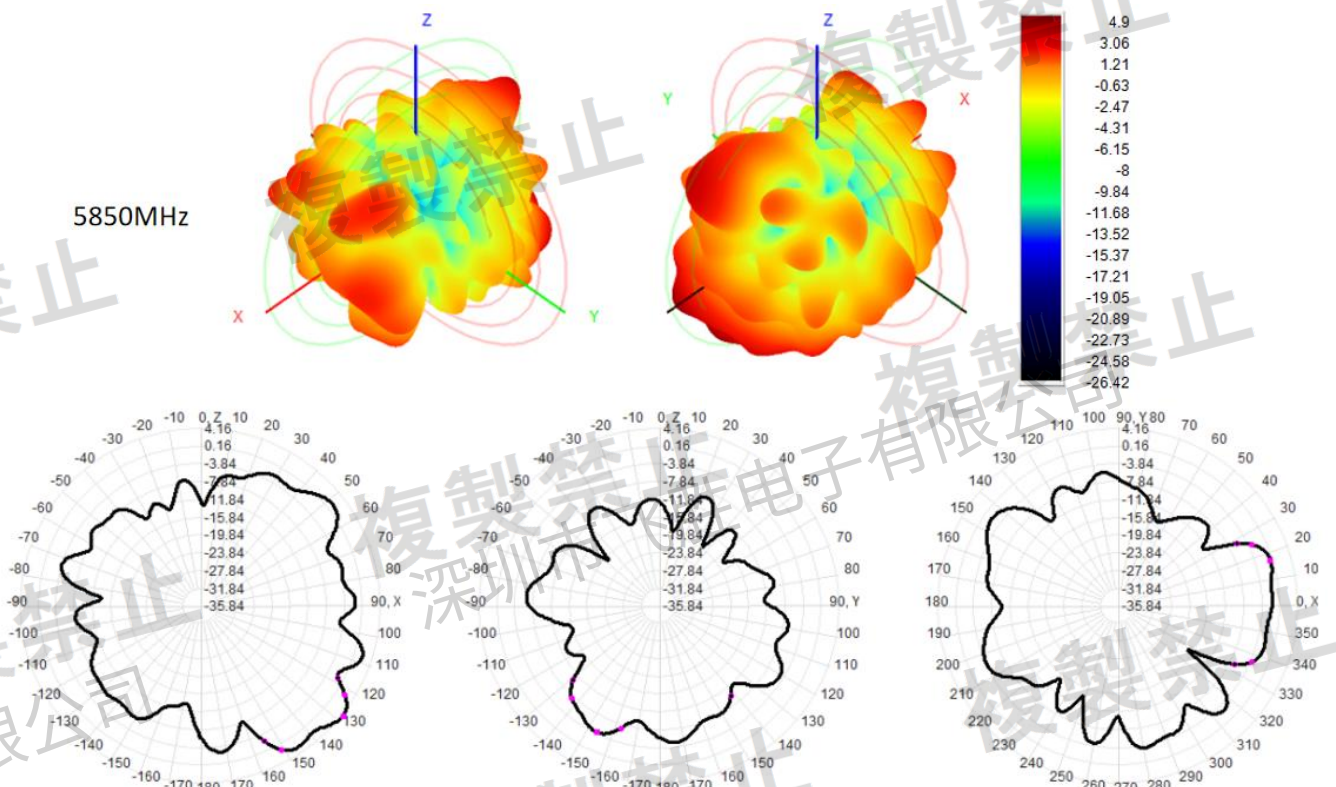
2500MHz



5150MHz



5850MHz



环境测试要求

序	测试项目	测试方法及条件	测试设备	测试结果
1	温湿测试	参考 EIA 364-31 方法三，测试条件 A 本测试程序的目的是，详细的标准试验方法中所用的产品，它们由高湿度和热的影响，影响材料的性能进行评价。 要求： 温度：85℃ 湿度：90~95% (R.H) 时间：72 小时	K. SON INS THS-A4L-150	合格
2	低温测试	参考测试规范： 所测样品应放置于一个恒温环境中，其温度设定在-45℃ 要求： 时间：24 小时	K. SON INS THS-A4L-150	合格
3	高温测试	参考测试规范： 所测样品应放置于一个恒温环境中，其温度设定在 85℃。 要求： 时间：24 小时	K. SON INS THS-A4L-150	合格
4	冷热冲击	参考测试规范： 所测样品应放置于一个固定环境中，其温度设定为-45~85℃。 要求： 8 小时以上。(30 分钟/次，12 周期)	K. SON INS THS-A4L-150	合格
5	盐雾测试	参考测试规范： 所测样品应放置于一个固定环境中其要求下： NaCL 浓度：40-60g/1Kg PH 值：6.5-7.2 测试时间：24H 1. 镀金产品不准有锈斑脱皮 2. 其它镀镍 镀锡 镀锌产品在同一轴或面不得有超过二点以上锈点.	盐雾测试机	合格

机械测试要求

序	测试项目	测试方法及条件	测试设备	测试结果
1	振动测试	测试条件 A 本测试程序的目的是，详细的标准试验方法中所用的产品，它们由运动或搬动，影响材料的性能进行评价。 要求： 振动范围：10-55HZ 位移幅值：0.35mm 加速度幅值：50.0M/S 扫频循环次数：30 次	振动测试机	合格
2	跌落测试	参考测试规范： 所测样品应放置于一定的高度，其高度设定为1M，按照 6 个面的方向自由跌落 3 次 要求： 跌落测试后产品机械特性正常	跌落测试治具	合格
3	拉力测试	参考测试规范： 通过治具固定被测物件，使用一定的力向反方向施力后，产品装配不可脱落。 要求： 1. 产品装配不可脱落。 2. 最小拉力：1.2KG	拉力测试机	合格

注：在研发及试产前执行以上机械及环境参数测试。