

产品规格书

Product Specification

客户名称 Customer Name: HanYang

项目名称 Project Name: 2-in-1 long square box antenna

规格描述 Product Spec: ZK-4G-WIFI-SMAJ-170MM

版 本 REV: V1.0

日 期 Date: 2024-07-10

制 作 drawing	审 核 check	批 准 approved
黄勇军	王玉美	蒋振华



客户承认 Customer Approve

审 核 check	批 准 approved	承 认 approval

测试设备及原理 Testing Equipment and Principle

1. Testing equipment:

网络分析仪 Network Analyzers :

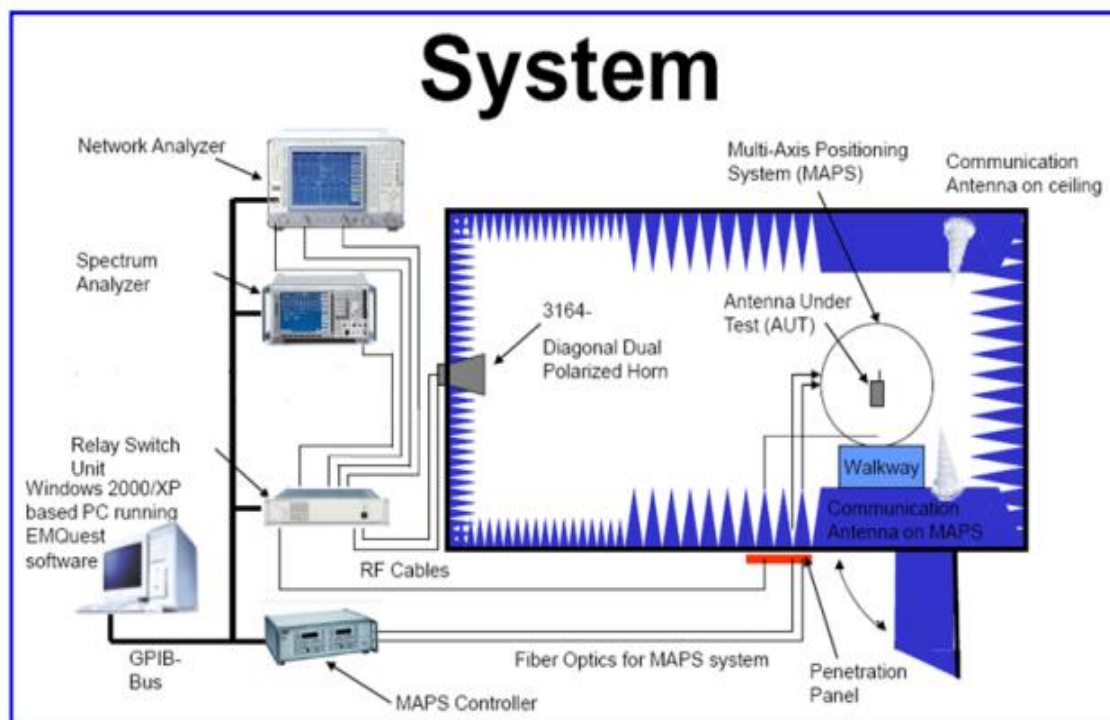
Agilent 8753D 5071B

综合测试仪 Communications Test Set:

Agilent E5515C

3D 暗室测试系统 3D Chamber Test System:

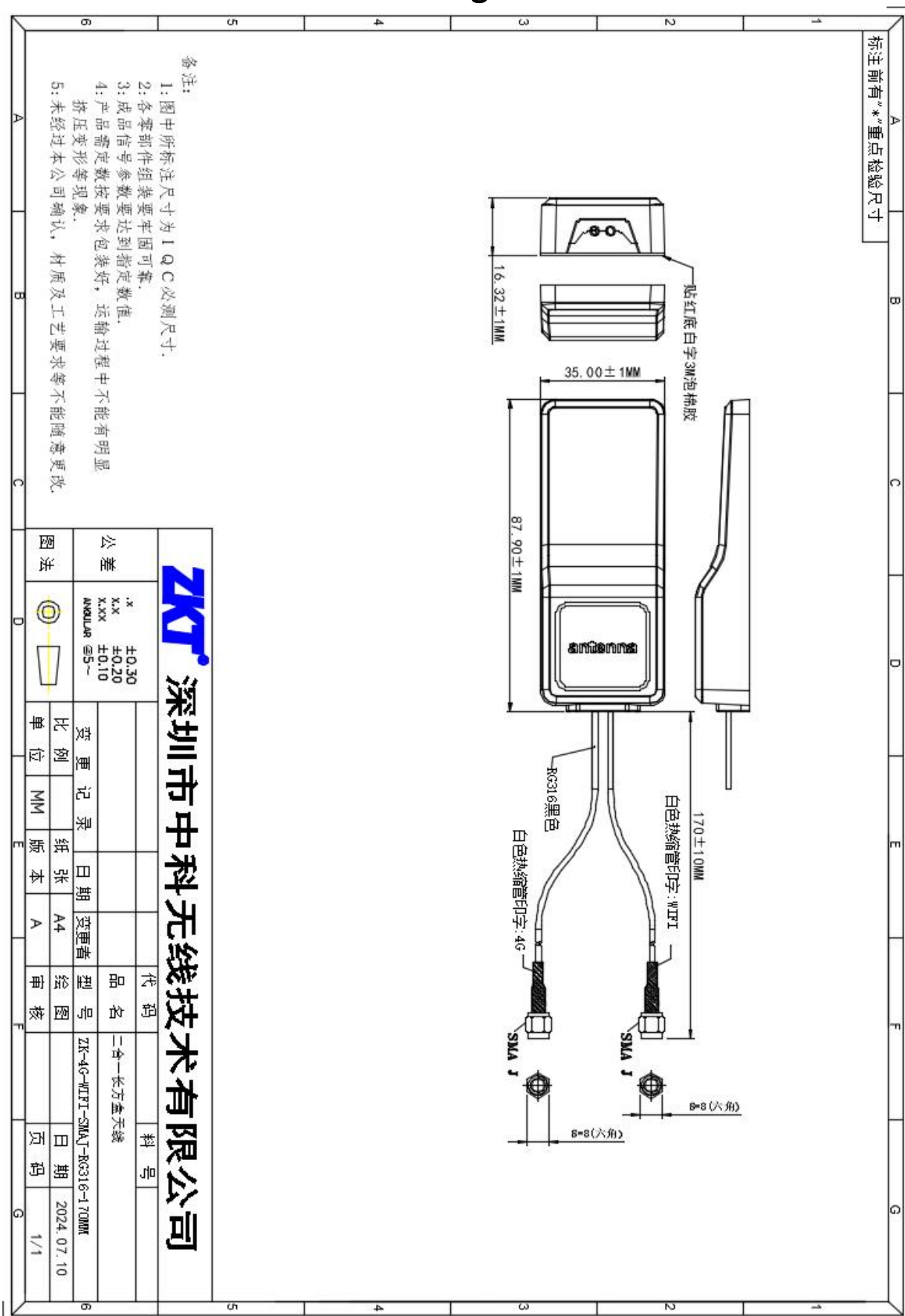
2. Test principle:



1、electrical properties and mechanical properties

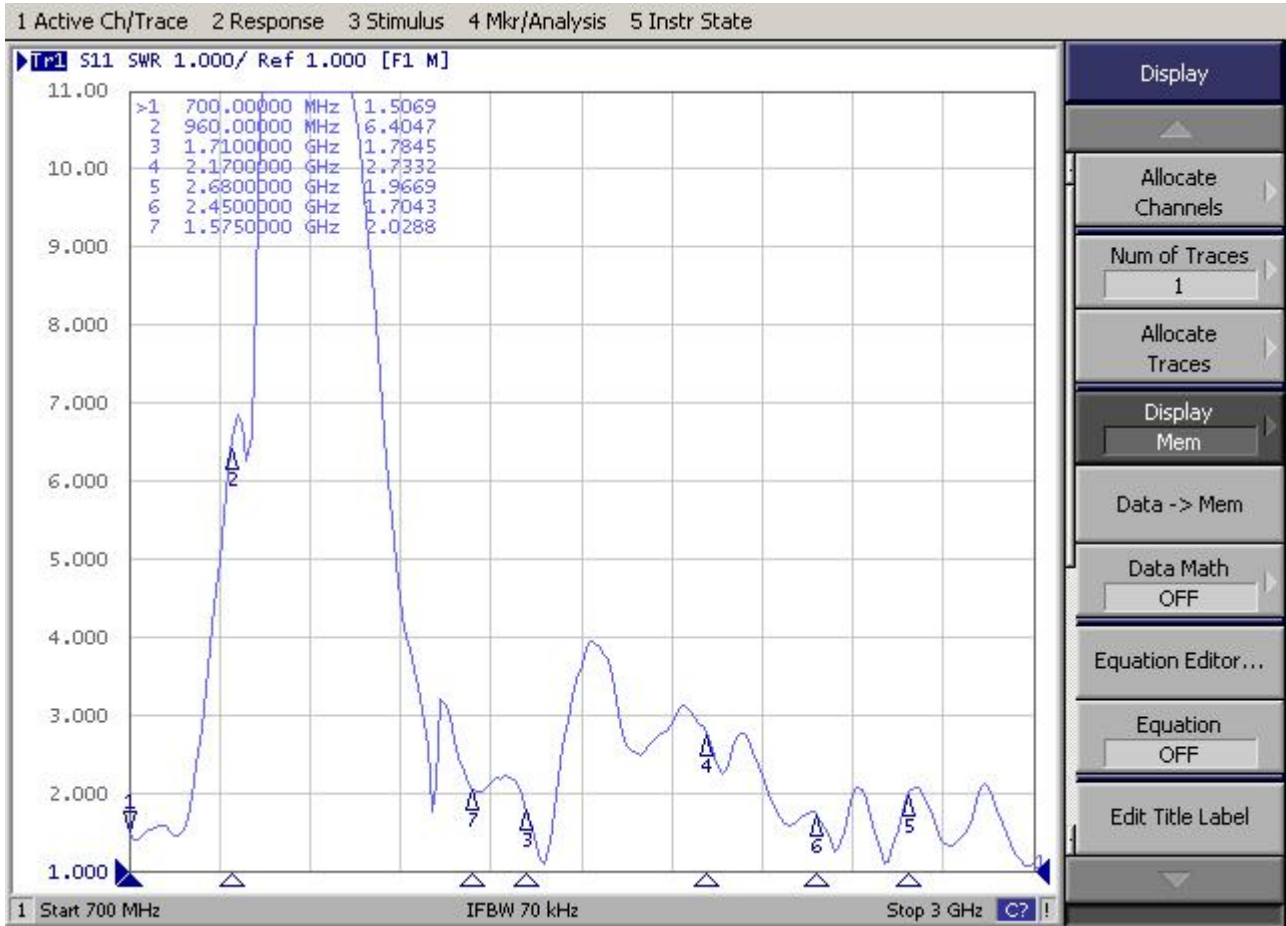
4G 电 性 能 指 标		Electrical Specifications	
频率范围	700-960MHz/1710-2650MHz	Frequency Range	700-960MHz/1710-2650MHz
电压驻波比	≤4.0	VSWR	≤4.0
增益	低频:0-3 DBI 高频:2-6 DBI	GAIN	Low:0-3 DBI high:2-6 DBI
辐射方式	全向	Radiation	OMNI
极化方式	垂直	Polarizatin	LINEAR
输入阻抗	50 Ω	Input Impedance	50 Ω
机 械 指 标		Mechanical Specifications	
接口形式	SMAJ	Input connector	SMAJ
天线材质	ABS & PCB	Antenna materia	ABS & PCB
工作温度	-30℃~+80℃	Working Temperature	-30℃~+80℃
工作湿度	40~85%	Working Humidity	40~85%
天线测试图			

2、 antenna structure size diagram



3、Passive test data

1.4G standing wave chart

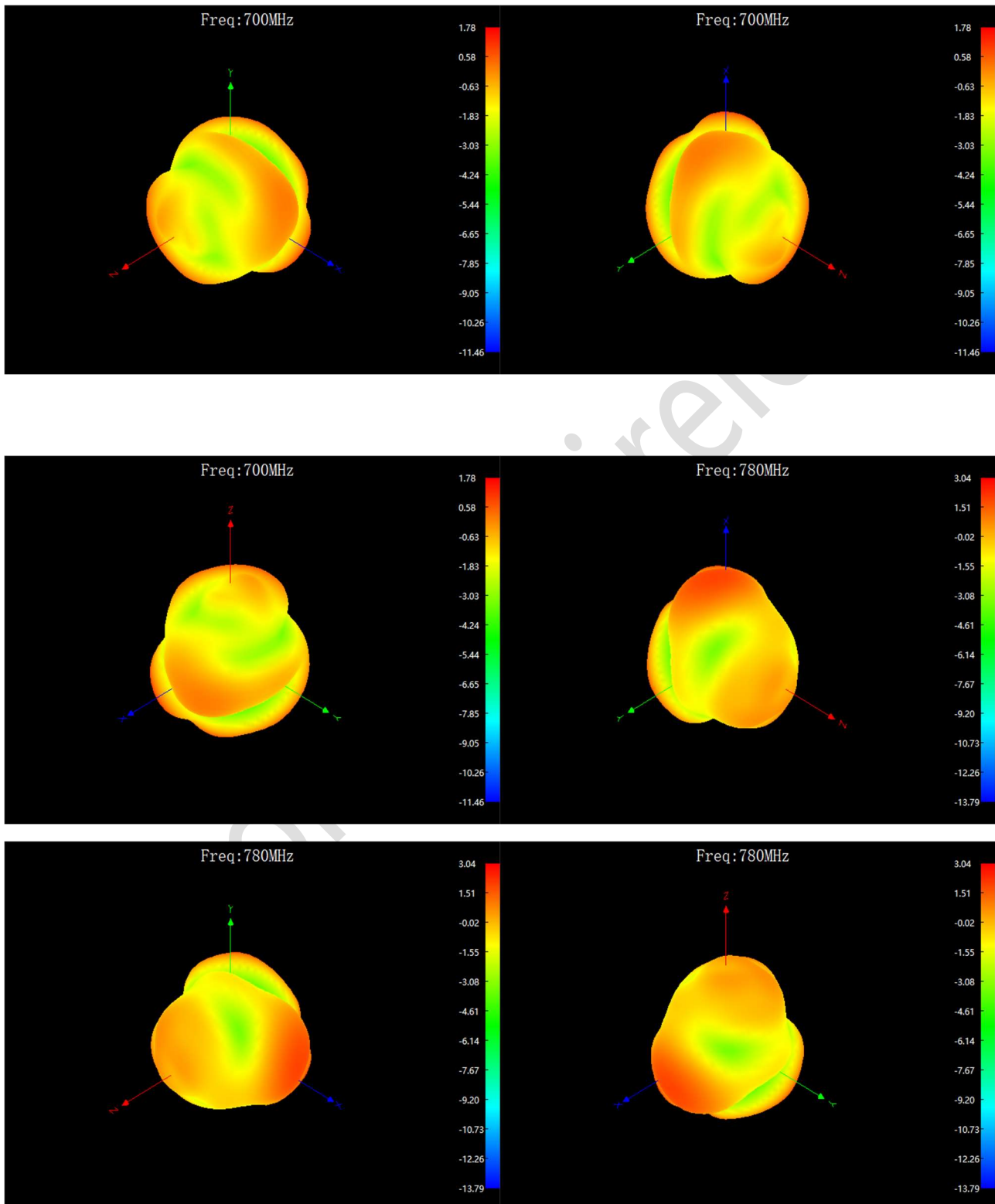


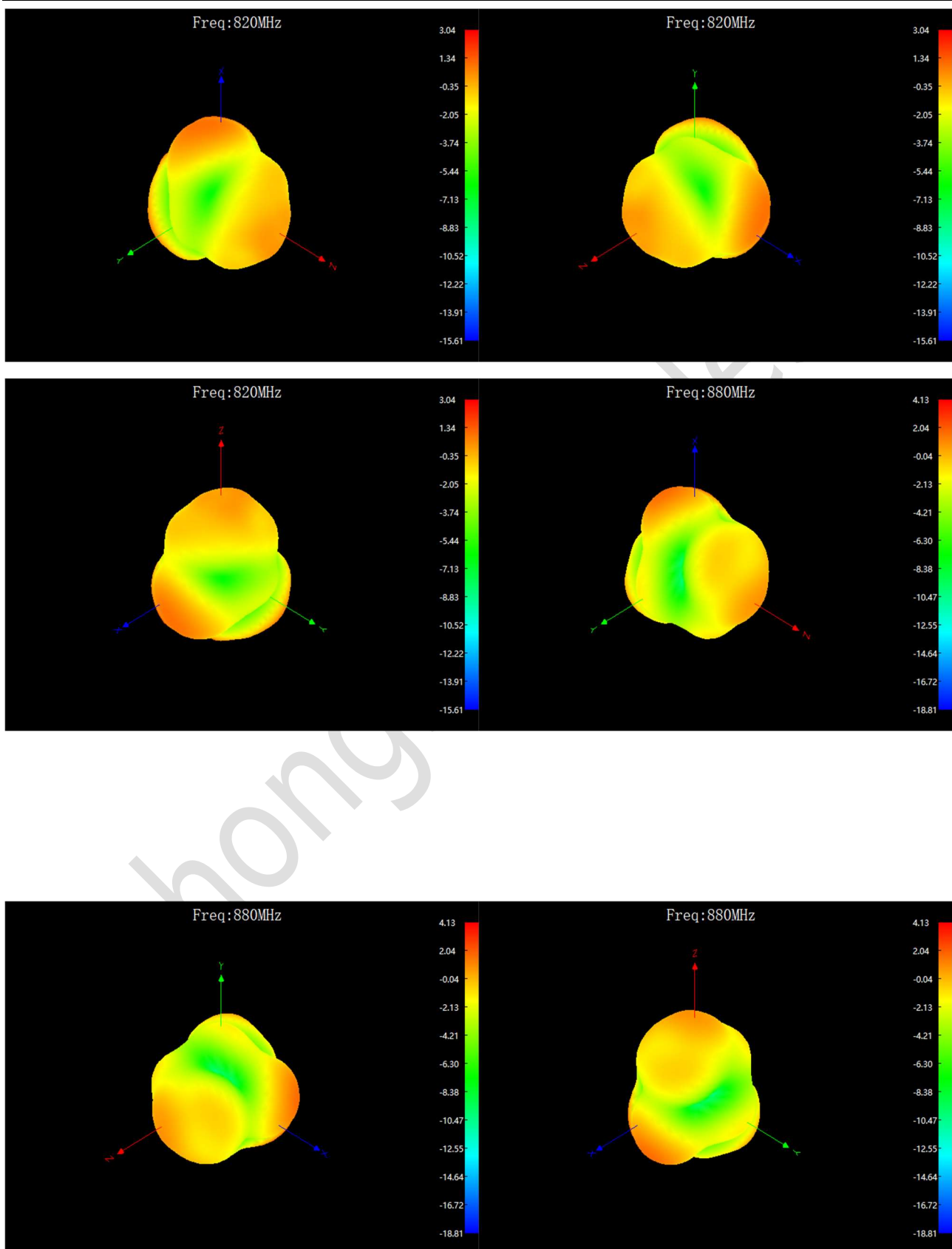
4、Gain efficiency test data

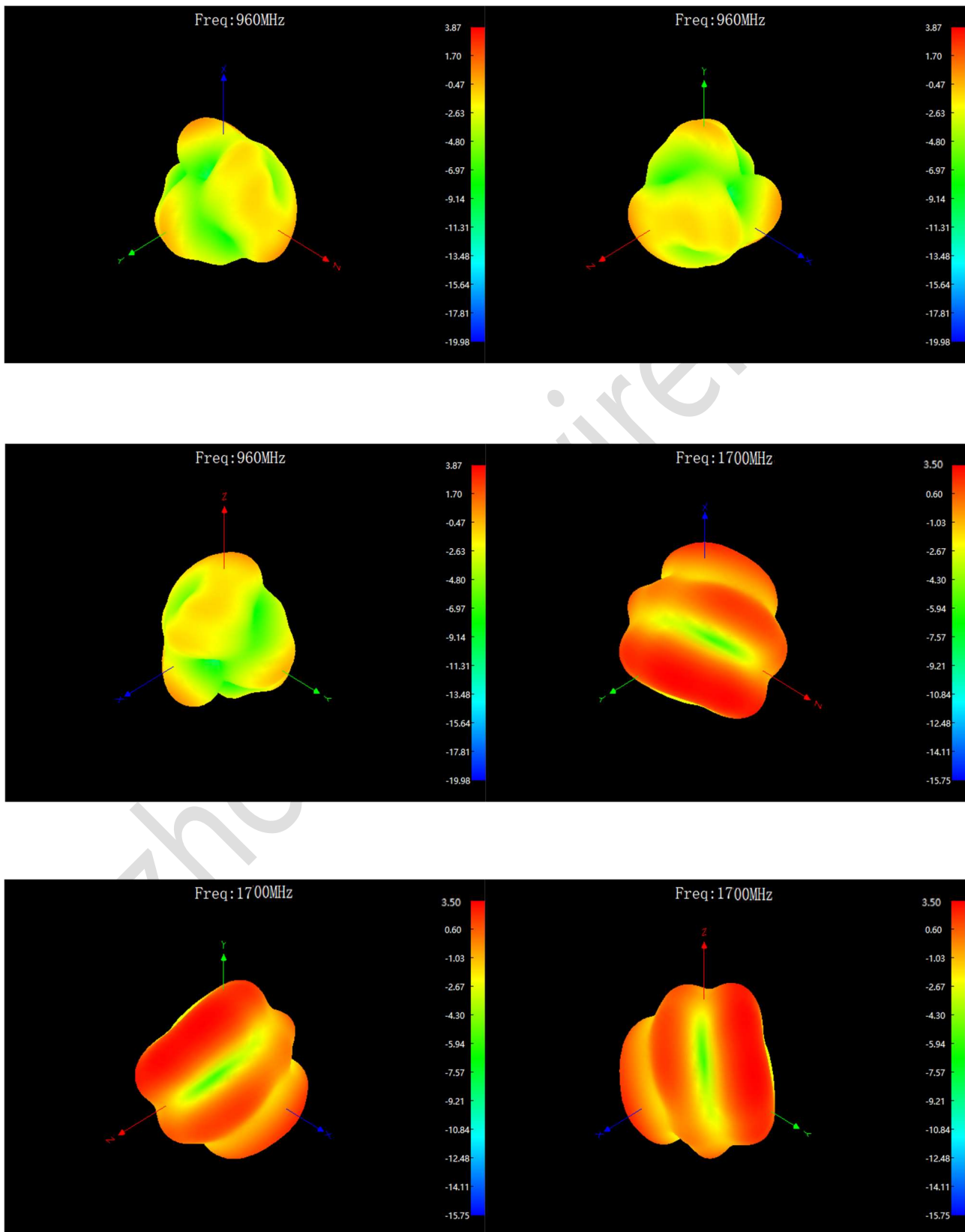
1.4G antenna gain efficiency

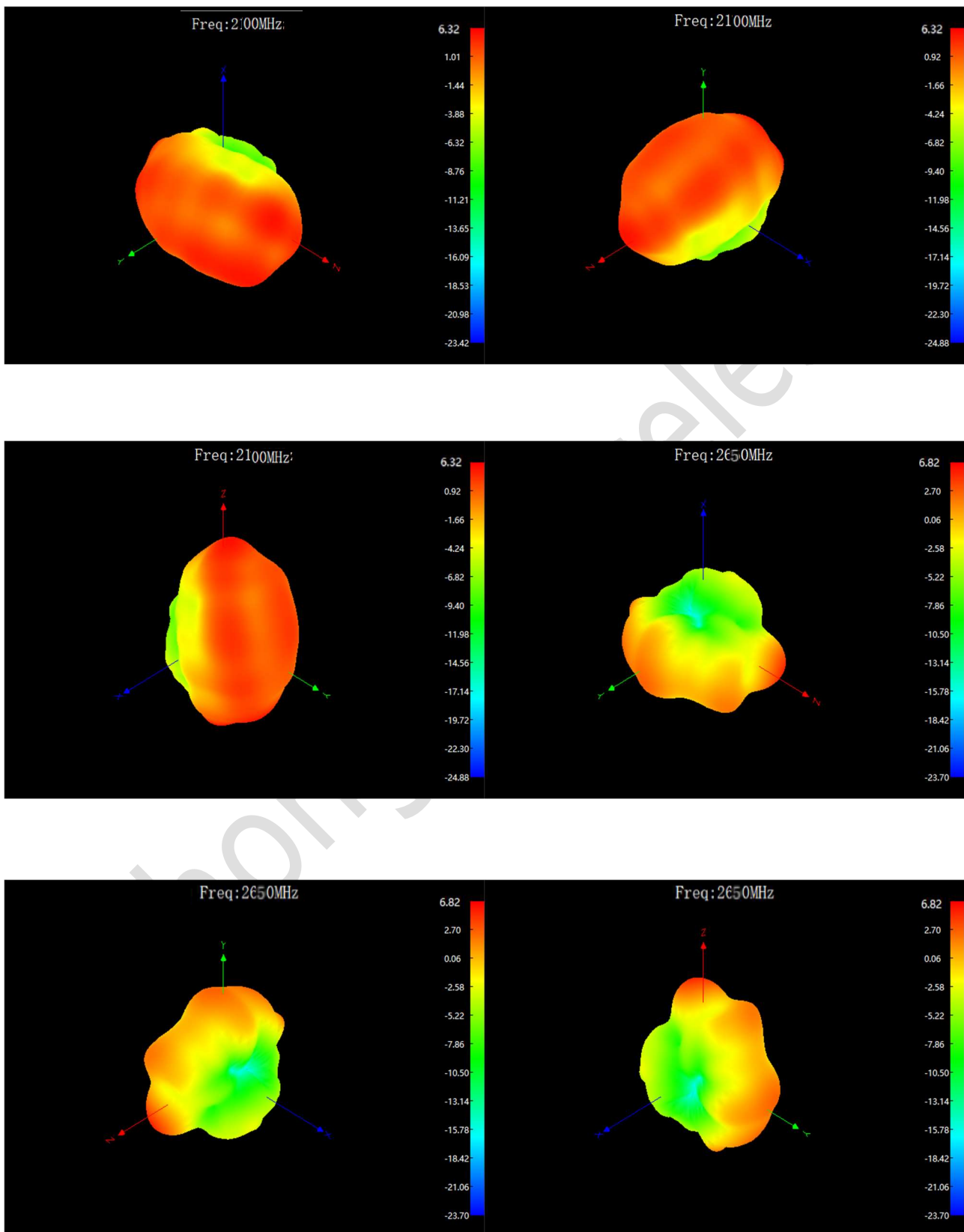
Frequency/Mhz	MaxGain/dBi	Efficiency / %
700	1.22	31.48
710	2.67	31.55
720	3.75	30.48
730	2.92	31.26
740	2.98	32.73
750	2.79	32.43
760	2.86	34.67
770	2.48	36.81
780	2.35	38.11
790	2.25	39.72
800	0.41	38.11
810	1.96	38.73
820	1.87	38.55
830	1.85	39.63
840	1.78	39.17
850	1.96	47.1
860	1.94	48.19
870	1.41	44.57
880	1.1	43.45
890	0.8	42.56
900	0.41	40.18
910	0.72	41.69
920	0.4	40.74
930	0.63	40.27
940	0.35	39.36
950	0.6	37.67
960	0.09	32.58
1700	3.34	65.92
1750	3.61	67.92
1800	2.72	46.03
1850	3.56	37.93
1900	4.26	37.76
1950	3.77	47.1
2000	5.24	52.97
2050	5.55	50.93
2100	5.55	51.4
2150	5.68	49.66
2200	5.87	54.08
2250	4.73	58.61
2300	5.05	56.62
2350	5.89	65.01
2400	6.52	64.42
2450	6.56	65.31
2500	6.34	66.99
2550	6.23	62.66
2600	4.34	50.58
2650	5.56	60.53

3. Antenna Pattern









Reliability test report

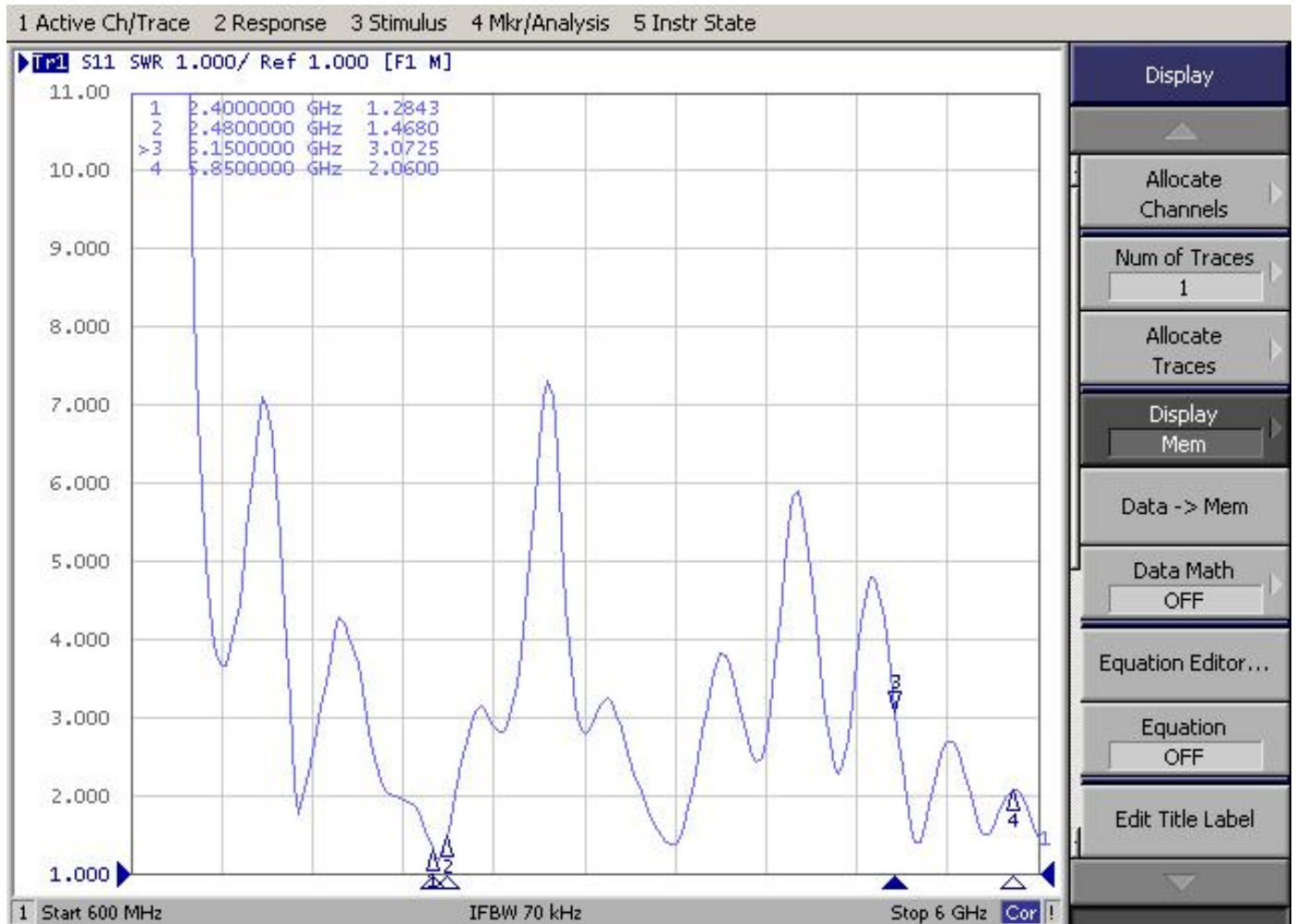
E-mail : abcant@126.com[Http: //www.zkant.com](http://www.zkant.com)

Address: 1st Floor, Building A, Dalang Nuclear Industrial Park, Longhua District, Shenzhen

Phone : 0755-29588096 18975422013

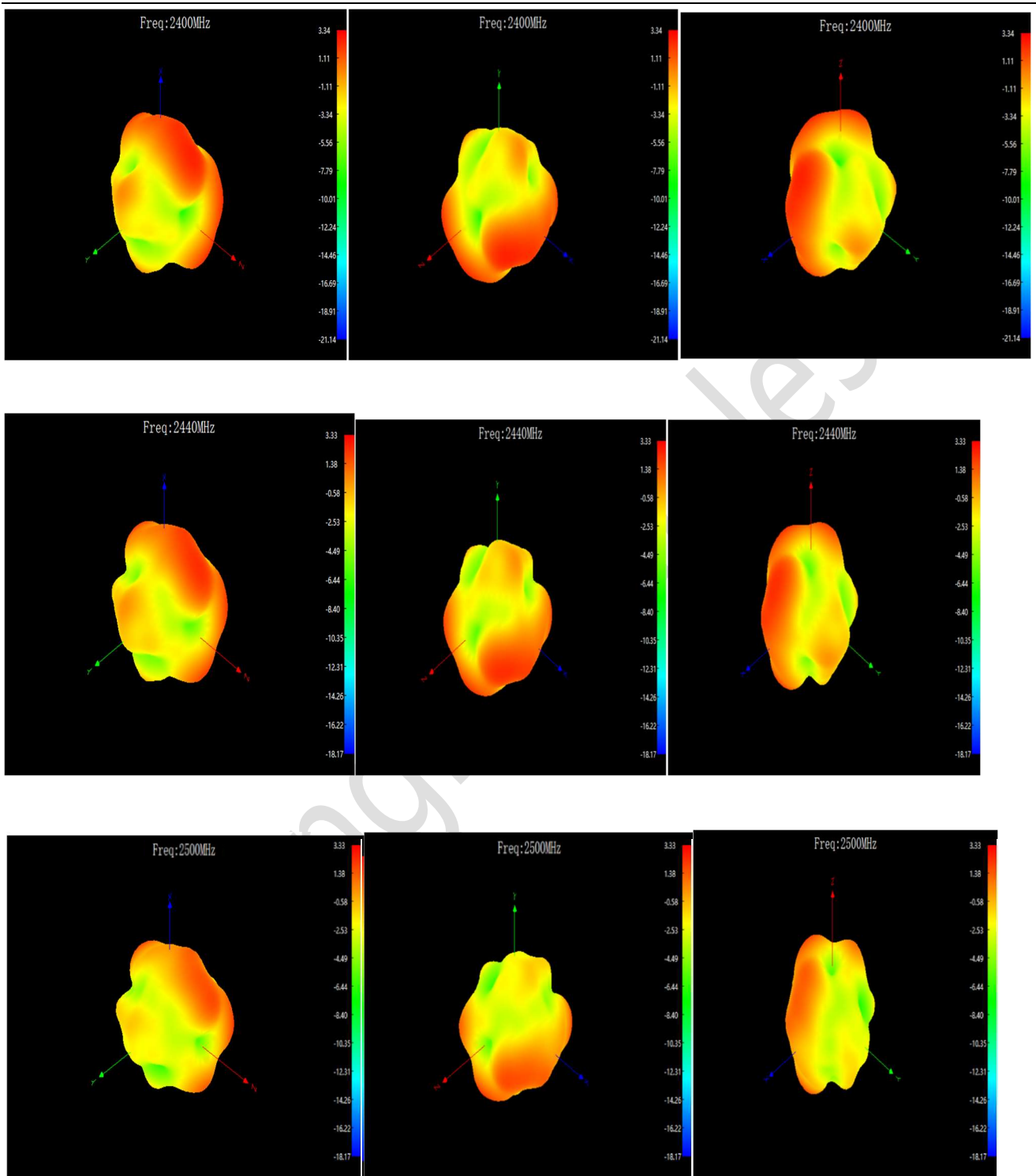
5、WIFI passive electrical indicators

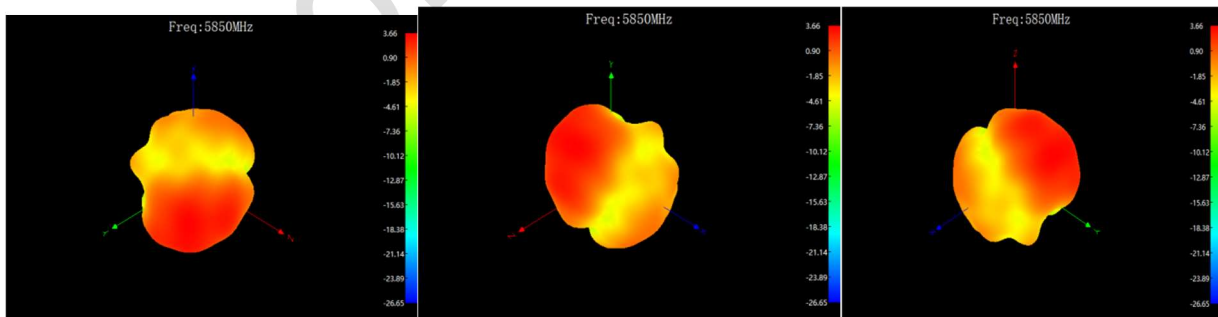
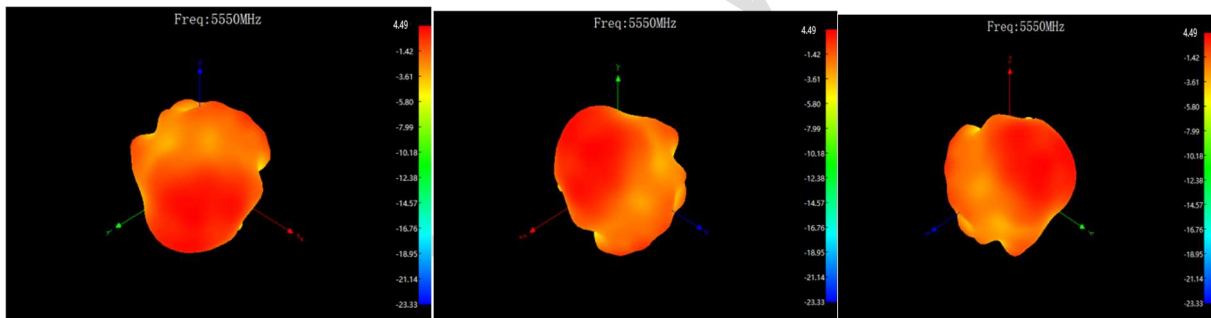
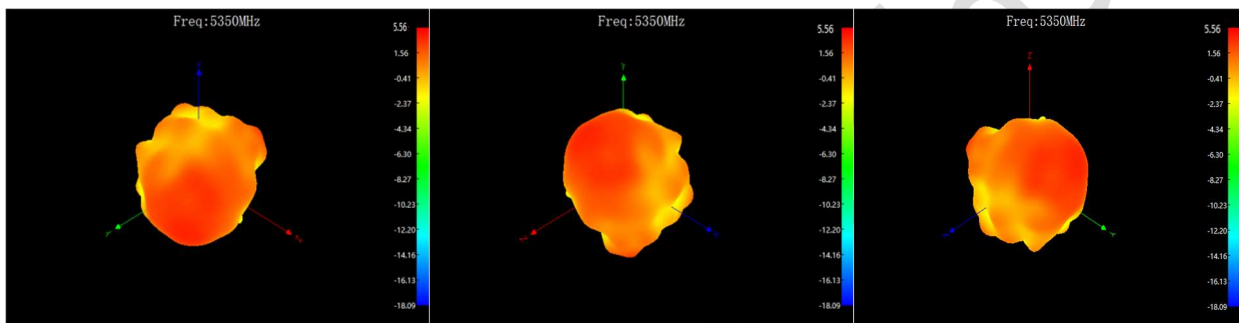
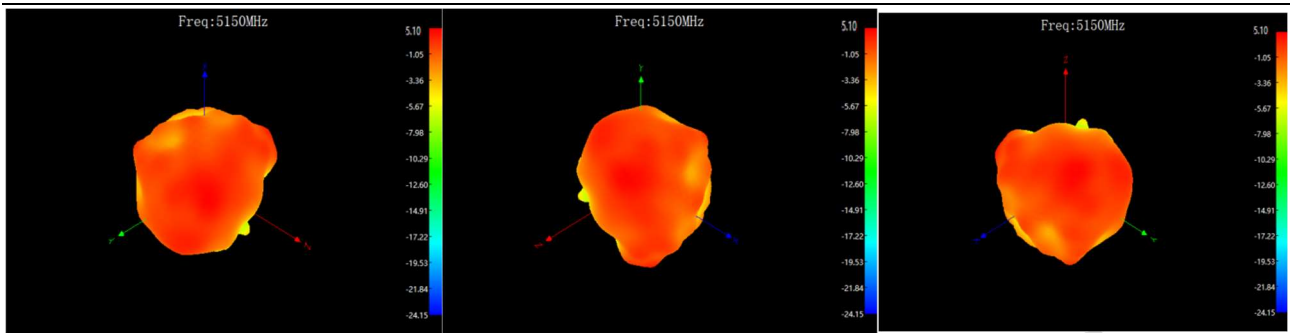
电 器 性 能 指 标		Electrical Specifications	
频率范围		2400-2500/5000-5850MHZ	
电压驻波比	≤ 3.5	VSWR	≤ 3.5
增益	1.4-4.6DBI	GAIN	1.4-4.6DBI
辐射方式	全向	Radiation	OMNI
极化方式	线极化	Polarizatin	LINEAR
输入阻抗	50 Ω	Input Impedance	50 Ω
机 械 性 能 指 标		Mechanical Specifications	
接口形式	SMA-J	Input connector	SMA-J
天线材质	PCB	Antenna materia	PCB
工作温度	-30℃~+80℃	Working Temperature	-30℃~+80℃
工作湿度	40~85%	Working Humidity	40~85%

①WIFI antenna passive standing wave diagram

②Antenna passive efficiency

Frequency/Mhz	MaxGain/dBi	Efficiency / %
2400	2.09	37.93
2405	1.7	38.37
2410	1.49	34.91
2415	1.65	35.24
2420	1.95	36.98
2425	1.79	34.99
2430	1.8	33.5
2435	2.16	35.56
2440	2.18	35.56
2445	2.06	35.16
2450	2.42	36.81
2455	2.23	34.67
2460	2.3	34.51
2465	2.49	37.07
2470	2.53	37.15
2475	2.33	35.08
2480	2.71	38.11
2485	2.73	39.08
2490	2.63	38.9
2495	2.73	39.63
2500	2.9	40.46
5000	3.75	61.8
5050	3.55	60.12
5100	3.83	61.66
5150	4.67	65.31
5200	5.1	67.92
5250	4.94	65.01
5300	5.01	63.53
5350	4.92	62.95
5400	4.8	59.98
5450	4.71	56.49
5500	4.69	54.83
5550	4.29	59.57
5600	4.3	60.26
5650	3.99	59.02
5700	3.9	57.15
5750	3.75	56.1
5800	3.69	53.95
5850	3.64	51.52





五、4G Passive electrical performance index

Electrical signifier	Electrical Specifications	
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可靠性测试报告 Reliability test report

测试项目		测试方法	要求	结果
C1	V.S.W.R. 电性驻波比	设计网路分析仪参数进行测试	符合待测物规范	pass
M1	天线增益	设计天线暗室参数进行测试	符合待测物规范	pass
M2	Vibration 震动	GB / T2423.48-2008 Amplitude: 0.03 inch (1.5mm); Freq: 20 to 80to 20 Hz3 directions; 2 hours for each direction 振幅 1.5mm; 频率 20~80~20Hz; 3 个方向各 2H	1. No Visual Damage 2. Frequency Tol. ≤5% 无明显外观不良; 频率偏移 ≤5%	pass
M6	Random Drop 跌落	GB / T2423.8-1995 Single: Height: 1.0 Meter; 3 directions; 1 time for each direction 单支天线, 高 1m; 3 个方向各 1 次	1. No parts separated、fracture 2. Frequency Tol. ≤5% 产品无脱落、断裂; 频率偏移 ≤5%	pass
E3	Dimension 尺寸	Inspection of dimension, color, material, package, surface process. 检查尺寸, 颜色, 材料, 包装, 表面处理	Directive DUT specification 符合待测物规范	pass
E4	Temperature and Humidity Chamber 恒温恒湿	GB / T 2423.3-2006 Temp: 80° C / 12 H; -40° C / 12H RH: ≥ 90%; Time: 24H 温度 80° C 测试 12H 转 -40° C 测试 12H; 湿度 ≥ 90%; 时间 24H	After 2 Hours Recovery 1. No Visual Damage 2. Frequency Tol. ≤5% 恢复 2H 后, 无明显外观不良; 频率偏移 ≤5%	pass
E5	Thermal Shock 冷热冲击	GB / T 2423.22 - 2008 - 40° C (30 minutes) to + 80° C (30 minutes); Cycles: 24 - 40° C 测试 30 分转 80° C 测试 30 分为一个周期; 共 24 周期	After 2 Hours Recovery 1. No Visual Damage 2. Frequency Tol. ≤5% 恢复 2H 后, 无明显外观不良; 频率偏移 ≤5%	pass
R1	Aging test 老化	GB / T 2423.2 - 2008 Temp: 80° C; Time: 24 hours 温度 80° C, 测试 24H	After 2 Hours Recovery 1. No Visual Damage 2. Frequency Tol. ≤5% 無明顯外觀不良; 频率偏移 ≤5%	pass
M1	RoHS	With Reference to IEC 62321:2008 with flow chart 参考 IEC 62321 测试流程	Directive RoHS 2015/863/EU 符合 RoHS 2015/863/EU 标准	pass

产品名称/规

一、标签要求

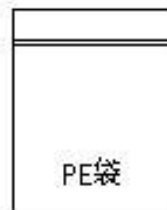
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物料编码	*****
品名规格	*****
数量/单位	*****
备注	*****

采购单号	*****
物料编码	*****
品名规格	*****
数量/单位	*****
备注	*****

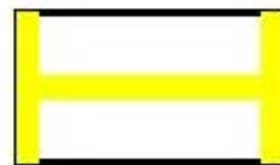
二、装箱要求

作业说明:

1. 内包装:

产品 1 PCS 一小袋

2. 外包装:

根据实际数量定数量/箱

纸箱



注意事项:

1. 是否要增设隔板、珍珠棉;
2. 标签的贴附, 如 ROHS 等;