

深圳市合拓科技有限公司

样品承认书

Sample Approved Sheet

客户名称	深圳市同达科技有限公司		
客户项目名	XZX-SBA-TDKJ-对讲机	产品名称	2.4G 天线
客户编码		料号	007.0009
规格描述	2.4G 天线：HT-WIFI-XZX-SBA-TDKJ, 1.13 黑色线长 L=60mm		
研发审核			
制订	审核	批准	承认书完成时间
李瑶娜	胡雪文	戴庭庭	2023.9.26

客户判定审核组

承认	审核	批准	承认日期
评审项目： ☐ 承认书 3 份 ☐ 规格书/图纸 ☐ 检测报告 ☐ 样品__PCS ☐ 安规 ☐ HSF			
评审结果： ☐ 接受 ☐ 有条件接受 ☐ 拒绝			

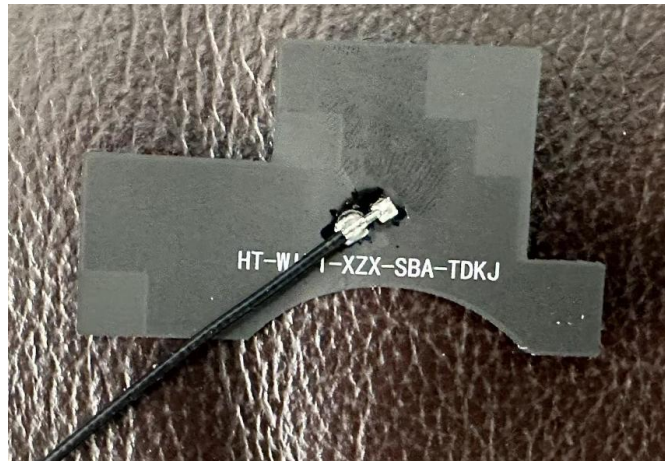
修订履历				
版本	修订内容	责任人	核准	日期

目录/Catalogue

序号 No.	项目 Item	页码 Page No.
1	射频性能测试报告	3-6
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1. Antenna picture

The report mainly provides the test status of the electrical properties parameters of **XZX-SBA-TDKJ 对讲机**. The **XZX-SBA-TDKJ 对讲机** antenna is a **2.4~2.5GHz** Band . The antenna Picture and assembly are shown below. Antenna picture & assembly picture



2. Antenna Test Equipment Introduction

Test of antenna input characteristics using **Agilent E5071C** and **Agilent 5062A** vector network analyzer; The radiation pattern of the antenna are tested using the Satimo starlab 3D near field Anechoic Chamber , and the instrument is used to agilent8960 E5515 and Agilent E4438C. The test coordinates of the darkroom are as follows:

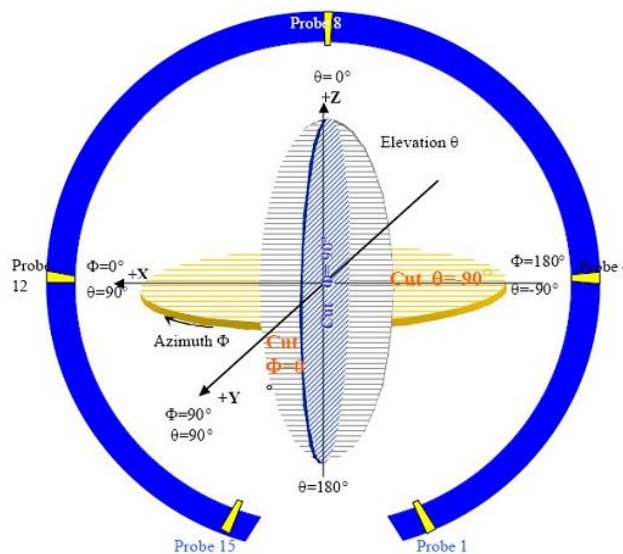


图 4 3D 微波暗室测试坐标系 (back view)

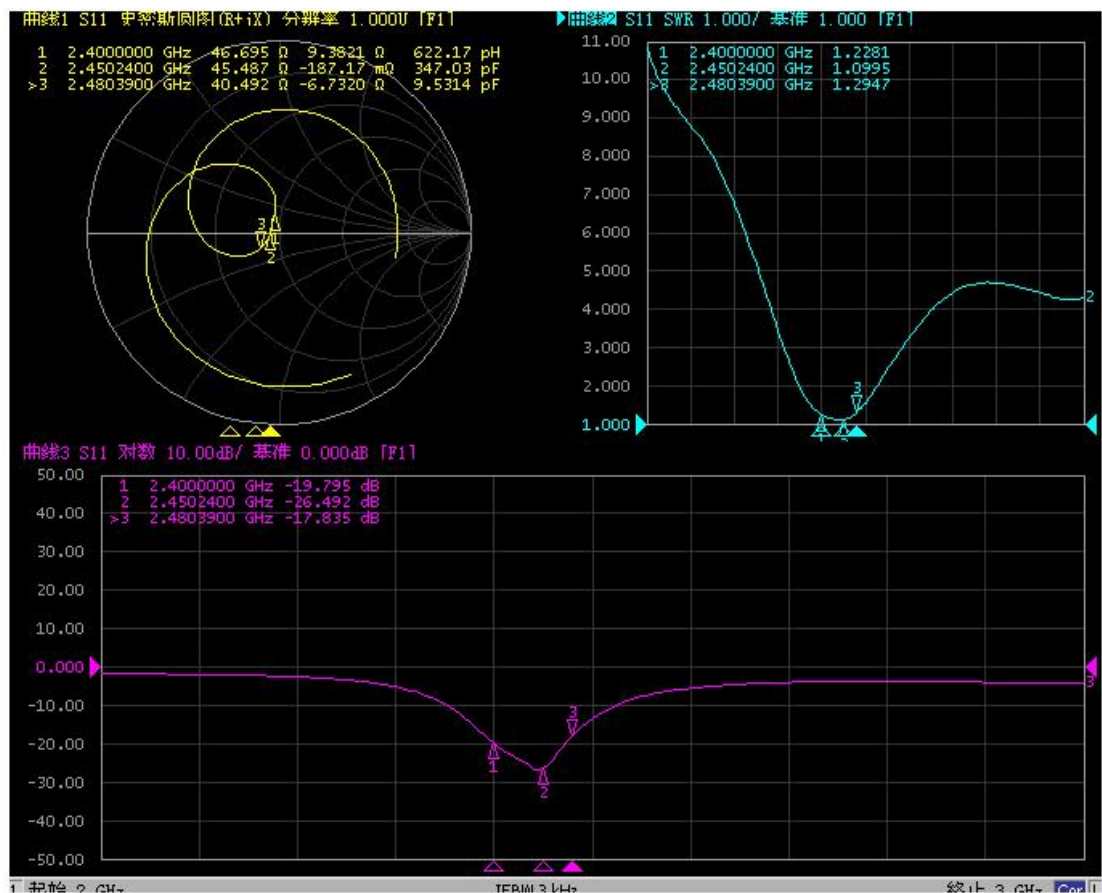
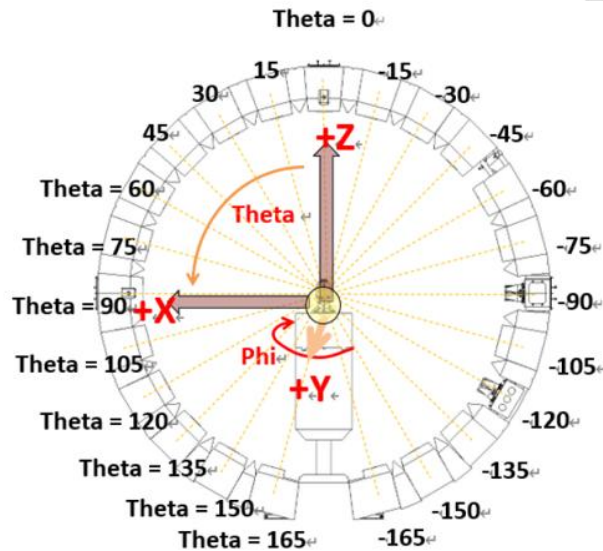
3. Electrical Specification

3-2 Passive S11 parameter

Measuring Method is a 50 Ω coaxial cable is connected to the antenna. Then this cable is connected to a network analyzer to measure the S11 parameter, Keeping this fixture away from metal at least 20cm.

VSWR

Sample status & coordinates



3-3 Antenna Matching Network



深圳市合拓科技有限公司

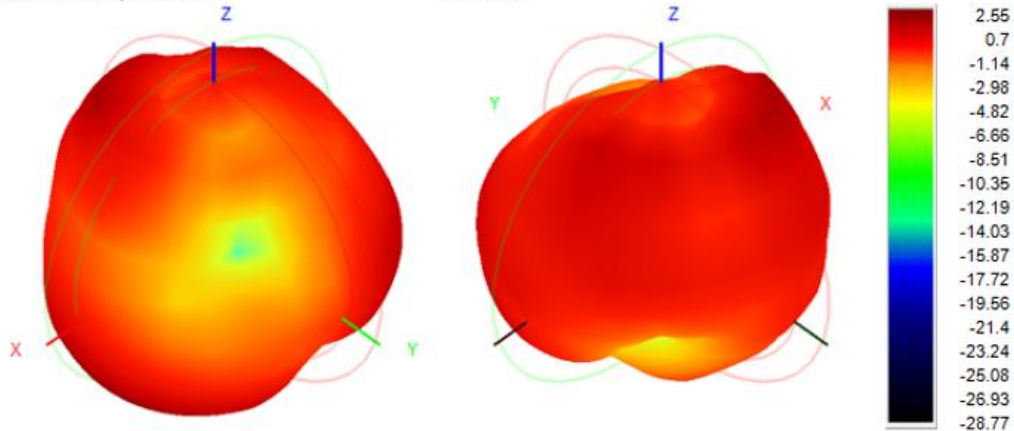
Frequency ID	1	2	3	4	5	6	7	8	9	10	11
Frequency (MHz)	2400.0	2410.0	2420.0	2430.0	2440.0	2450.0	2460.0	2470.0	2480.0	2490.0	2500.0
Efficiency (dBi)	-2.35	-2.26	-2.39	-2.33	-2.36	-2.54	-2.64	-2.74	-2.89	-2.89	-3.06
Gain (dBi)	2.55	2.65	2.82	2.71	2.37	2.39	2.17	2.05	1.76	1.82	1.42
Efficiency (%)	58.18	59.37	57.68	58.45	58.04	55.73	54.44	53.24	51.42	51.39	49.49
Directivity (dB)	4.90	4.92	5.21	5.04	4.73	4.93	4.81	4.78	4.65	4.72	4.47
Peak Gain Position (Theta)	120.00	120.00	120.00	120.00	120.00	120.00	150.00	150.00	150.00	150.00	150.00
Peak Gain Position (Phi)	345.00	345.00	345.00	345.00	345.00	345.00	30.00	30.00	30.00	30.00	30.00
Efficiency ThetaPol (%)	24.78	25.29	24.42	24.65	24.65	23.86	23.67	23.69	23.26	23.73	23.32
Efficiency PhiPol (%)	33.41	34.08	33.26	33.81	33.39	31.88	30.77	29.56	28.16	27.66	26.17
Upper Hem. Efficiency (%)	25.64	25.86	25.10	25.45	25.94	25.28	25.43	25.43	25.37	25.38	24.65
Lower Hem. Efficiency (%)	32.54	33.51	32.58	33.01	32.10	30.45	29.01	27.81	26.04	26.01	24.84

Efficiency (dBi)	58.18	59.37	57.68	58.45	58.04	55.73	54.44	53.24	51.42	51.39	49.49
Gain (dBi)	2.55	2.65	2.82	2.71	2.37	2.39	2.17	2.05	1.76	1.82	1.42

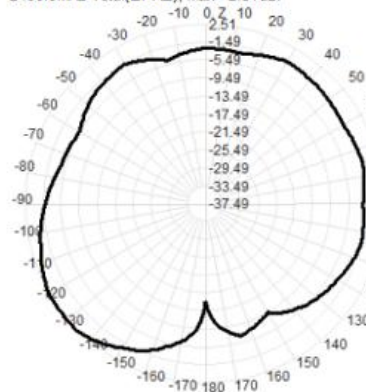
2D&3D — 2.4G- ANT

2400.0MHz H+V, Eff: 58.2%

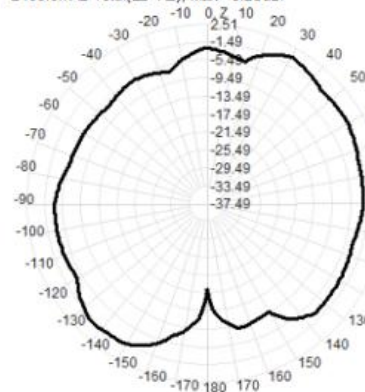
Back View



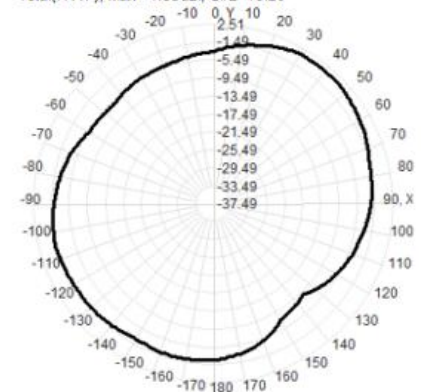
2400.0MHz Total(E1-XZ), Max= 2.51dBi



2400.0MHz Total(E2-YZ), Max= 0.23dBi



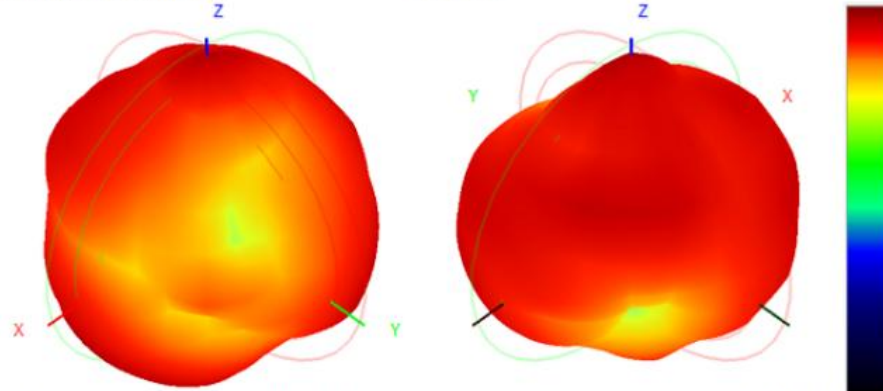
Total(H-XY), Max= 1.05dBi, CirD=10.28



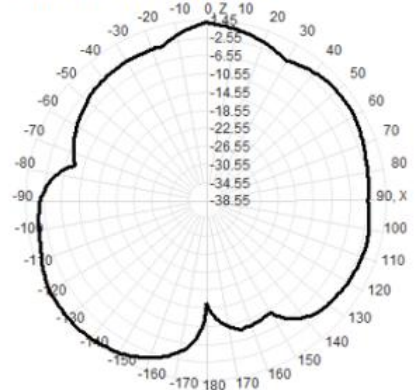
2D&3D — 2.4G- ANT

2450.0MHz H+V, Eff: 55.7%

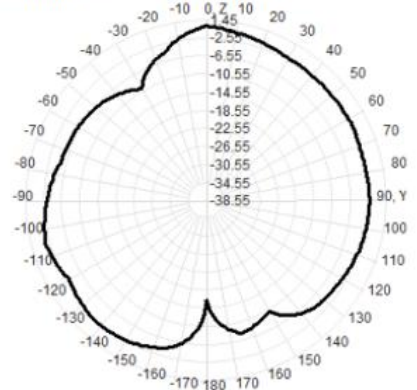
Back View



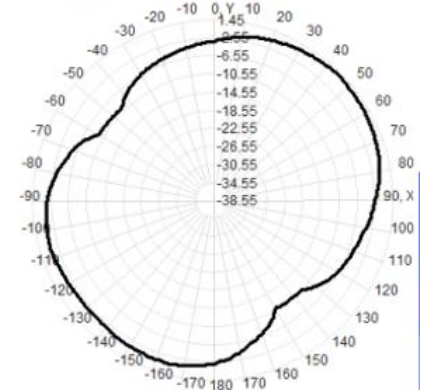
2450.0MHz Total(E1-XZ), Max= 1.45dBi



2450.0MHz Total(E2-YZ), Max= 0.06dBi



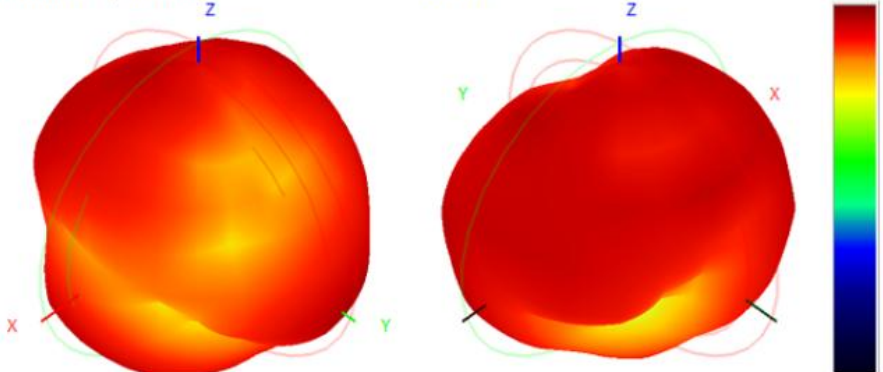
Total(H-XY), Max= 0.64dBi, CirD=11.71



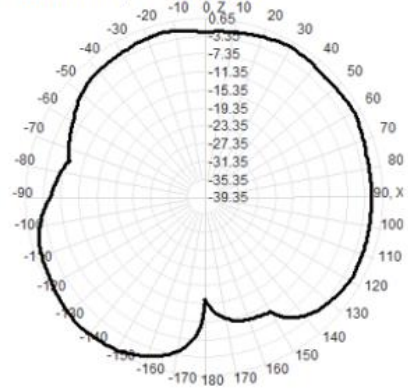
2D&3D — 2.4G- ANT

2500.0MHz H+V, Eff: 49.5%

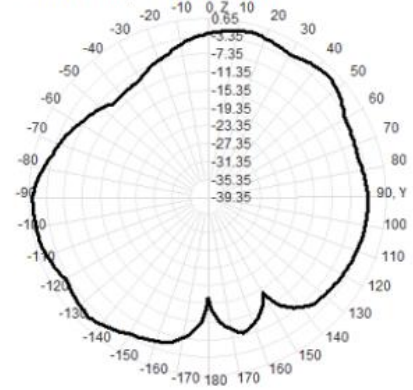
Back View



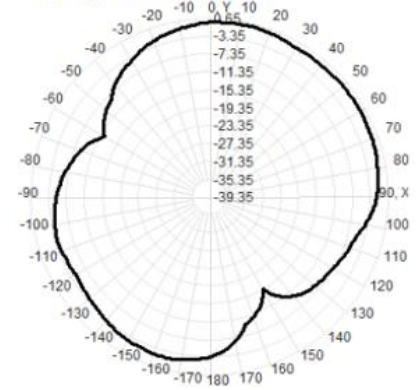
2500.0MHz Total(E1-XZ), Max= 0.65dBi



2500.0MHz Total(E2-YZ), Max= -0.24dBi



Total(H-XY), Max= -0.09dBi, CirD=15.77



Technical drawing of a PCB assembly showing dimensions and components.

Dimensions:

- Overall width: 45.4 ± 0.2
- Overall height: 26.05 ± 0.2
- Distance from top edge to component center: 60 ± 1
- Distance from bottom edge to component center: 1.13
- Distance from left edge to component center: 1.5
- Distance from right edge to component center: 1.5
- Distance from top edge to component center: 1.5
- Distance from bottom edge to component center: 1.5

Components:

- HT-MUE1-KZX-SBA-TDKJ
- 1.13黑色线

Labels:

- 焊接端 (Soldering end)
- 客户端 (Customer end)

Technical Requirements:

1. 材质: FPC 1 Mil pi 基材 / 0.50oz 铜 背面要求背胶
2. 背胶: 3M9471 焊接 cable 1.13 黑色线材
3. 表面黑色哑光油墨 丝印白色字符
4. 需符合最新环保要求: ROHS&REACH

Header Information:

REV	DESCRIPTION	DATE	ENGINEER
1			

Footer Information:

REV	DESCRIPTION	DATE	ENGINEER
1			

深圳市合拓科技有限公司

DESIGNED: [Name] CHECKED: [Name] DATE: 2022.12.12

SCALE: 1:1

SHEET 1 OF 1

样品尺寸测量报告

Sample Dimensions Test Report

测试日期 Test Date	2023. 9. 26	样品数量 Sample Qty.	3	测试人 Inspector	李瑶娜
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长度	45. 4±0. 2mm	45. 4	45. 5	45. 4	Pass
②宽度	26. 05±0. 2mm	26. 05	26. 09	26. 08	Pass
③厚度	0. 1±0. 05mm	0. 1	0. 1	0. 1	Pass
④线长	60±1mm	60. 4	60. 7	60	Pass
⑤					
⑥					
⑦					
最终结论 Conclusion					PASS
测试人&日期 Inspector & Date	李瑶娜/2023. 9. 26		批准&日期 Approval & Date		

可靠性测试报告

Reliability Test Report

测试日期 Test Date	2022. 9. 25	样品数量 Sample Qty.	3	测试人 Inspector	李瑶娜	
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+80℃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, 试验箱温度 (35±2)℃ ☐ 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	/	/	/	Pass
最终结论 Conclusion						Pass
测试人& 日期 Inspector & Date	李瑶娜 2023. 9. 26		批准&日期 Approval & ate			

包 装 规 范

客户：同达科技	成品名称：FPC天线												
FPC成品天线（一） （二） 每PE袋装100pcs产品（以实际包装为准） （三） 再将装好的天线小包装袋整齐放入（图三）装10小袋（以实际包装为准） （四） 包装好的天线放入纸箱，可装5大袋，每箱可装5000PCS（图四）。（以实际包装为准） <table><tr><td>供应商</td><td></td></tr><tr><td>采购单号</td><td></td></tr><tr><td>物料编码</td><td></td></tr><tr><td>规格型号</td><td></td></tr><tr><td>数量</td><td></td></tr><tr><td>日期</td><td></td></tr></table> （五） 包装完成后需贴上出货标签（图五）。		供应商		采购单号		物料编码		规格型号		数量		日期	
供应商													
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