



深圳合立讯科技有限公司

Shenzhen Helixun Technology
Co., Ltd

承 认 书

SPECIFICATION FOR APPROVAL

客户名称 Customer Name	汇蓝电子		
客户项目名Customer Project Name	ZQ01	合立讯项目名 Helixun Project Name	ZQ01
客户编码 Customer P/N		合立讯料号 Helixun P/N	HLX-ZQ01-V3
频段 Band			
版本号 Version			
设计人信息 / Designer Information			
射频工程师 RF Engineer	黄亚飞	电子工程师 EE Engineer	
结构工程师 ME Engineer	黄亚飞		

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	卓子骥				
日期 Date	2025-04-21				

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

地址：深圳市宝安区西乡街道铁仔路56号金环宇大厦1004室

Address: Room 1004, Jinhuan Yu Building, No. 56, Tiezi Road, Xixiang Street, Bao'an District, Shenzhen

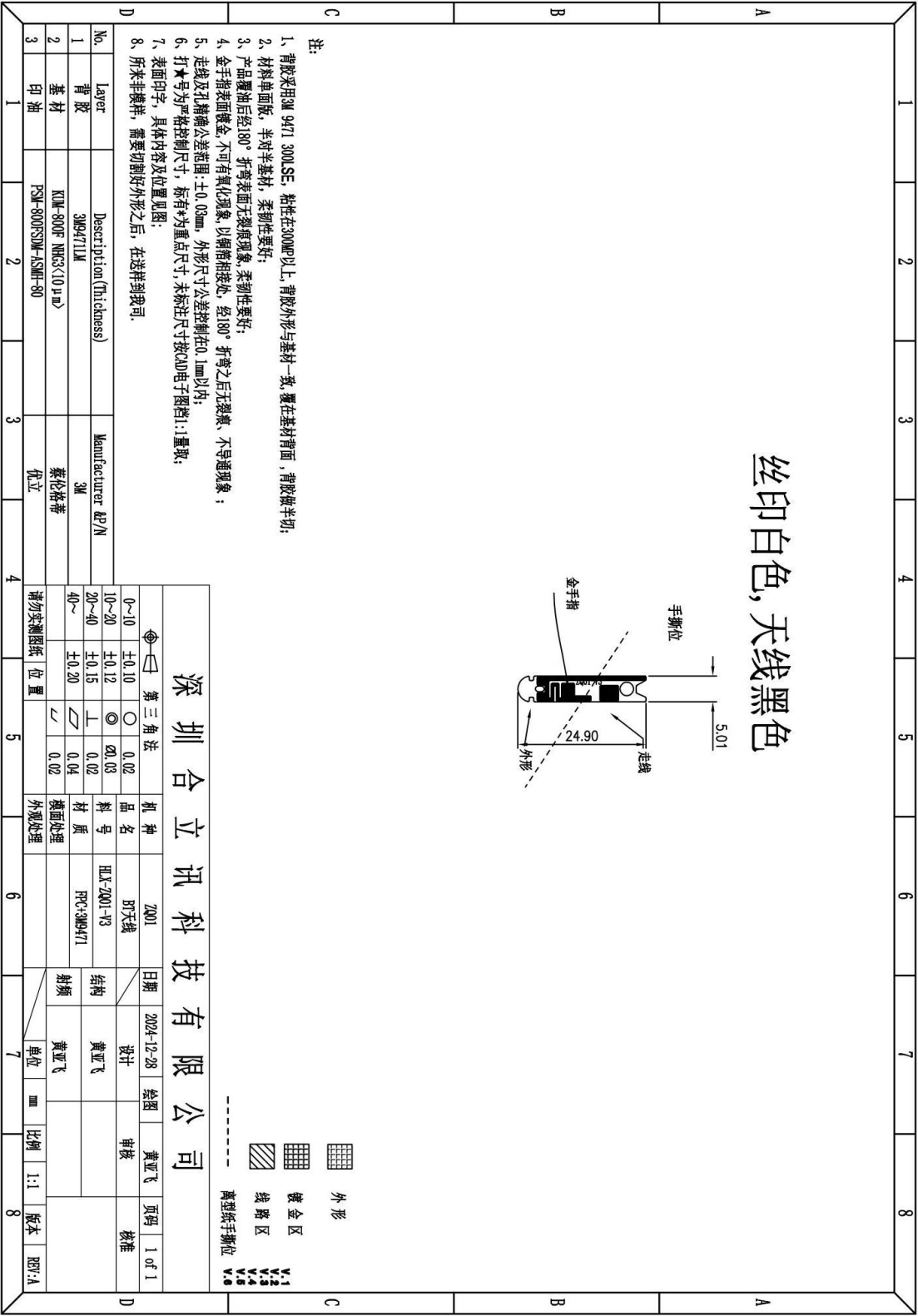
目录/Catalogue

序号 No.	项目 Item	页码 Page No.
1	图纸或实物图片 Drawing or Product Image	3
2	尺寸测量报告 Dimensions Test Report	4
3	增益报告 Electrical Characteristics	5
4	射频性能测试报告 RF Performance Test Report	6-7
5	可靠性测试报告 Reliability Test Report1	8
6	产品包装规范 Packing criterion	9
7	环保要求 Environmental requirement	10

地址：深圳市宝安区西乡街道铁仔路56号金环宇大厦1004室5

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产品图纸或实物图片
Drawing or Product Image



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样品尺寸测量报告

Sample Dimensions Test Report

客户名称 Customer Name	汇蓝电子	客户料号 Customer P/N		合立讯料号 Helixun P/N	HLX-ZQ01-V3
测试日期 Test Date	2025-04-21	样品数量 Sample Qty.	3	测试人 Inspector	卓子骥
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	24.90±0.2mm	24.80mm	24.90mm	25.00mm	Pass
②宽度	5.01±0.2mm	5.01mm	5.10mm	4.20mm	Pass
③厚度	0.2±0.05mm	0.2mm	0.21mm	0.22mm	Pass
④					
⑤					
⑥					
⑦					
最终结论 Conclusion					PASS
测试人&日期 Inspector & Date	卓子骥2025-04-21		批准&日期 Approval & Date		

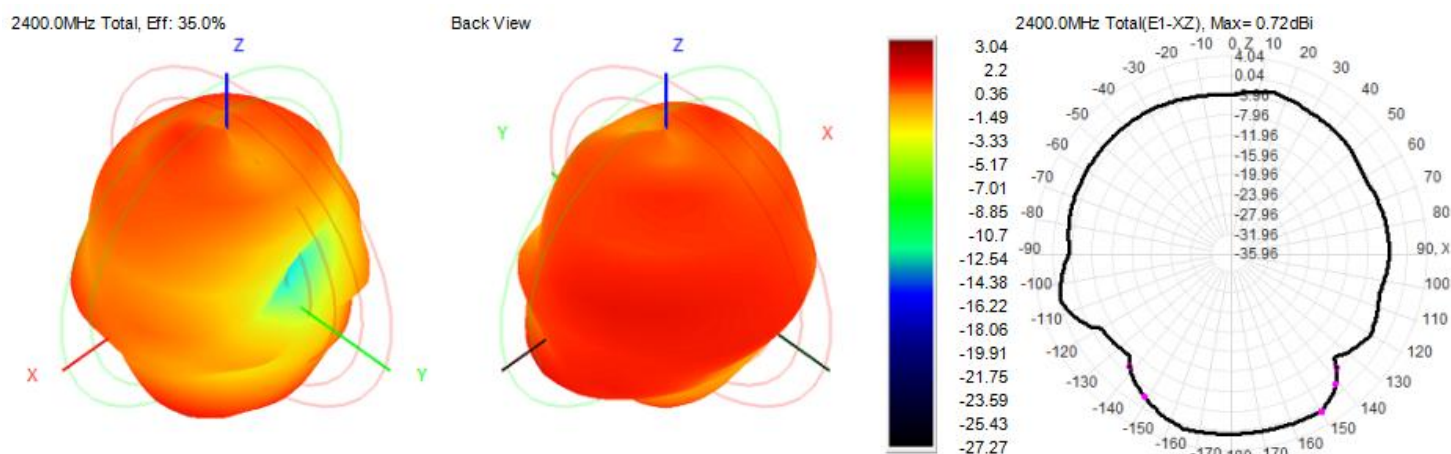
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Test Result1 Gain & Efficiency——ANT

Frequency (MHz)	Efficiency (%)	Peak GAIN (dBi)
2400	34.98	3.04
2410	35.51	3.30
2420	36.02	3.66
2430	36.88	4.02
2440	37.87	4.37
2450	38.85	4.67
2460	39.86	4.81
2470	40.97	4.76
2480	41.90	4.60

Test Result 2D Pattern——BTANT



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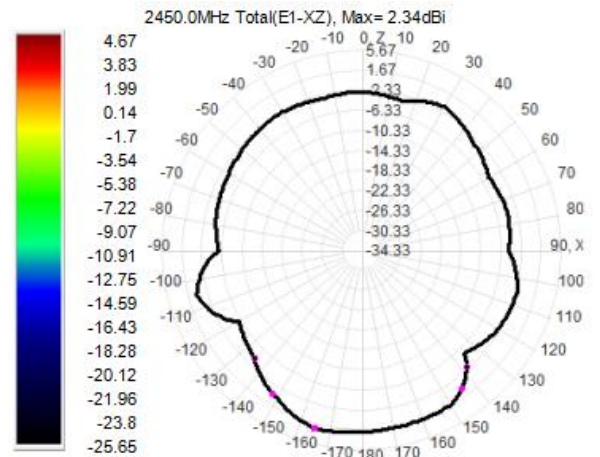
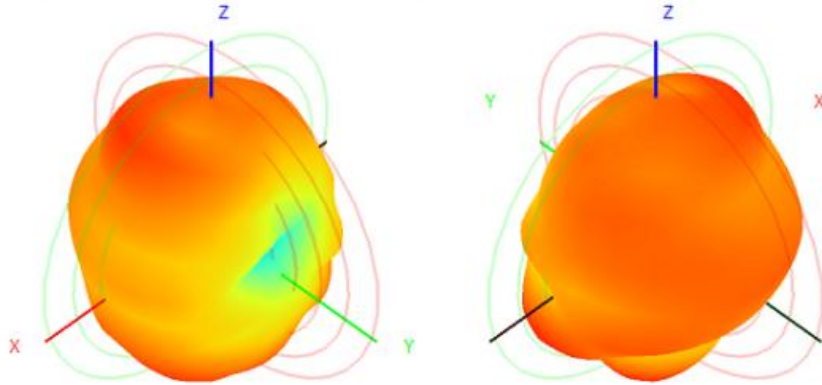
Address: Room 1004, Jinhuan Yu Building, No. 56, Tiezi Road, Xixiang Street, Bao'an District, Shenzhen

3.3 Test Result

1 2D Pattern——BTANT

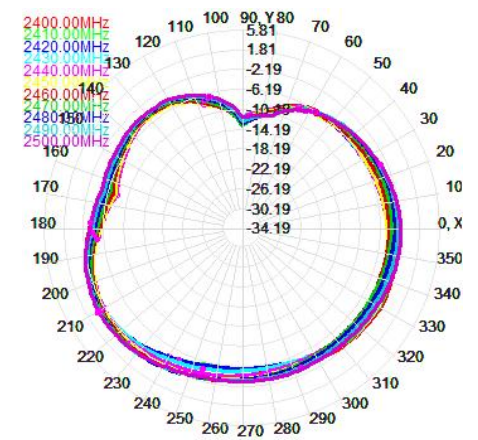
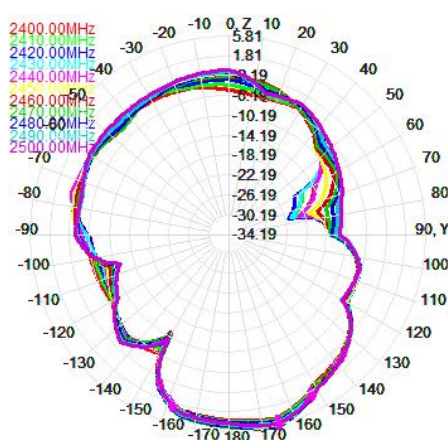
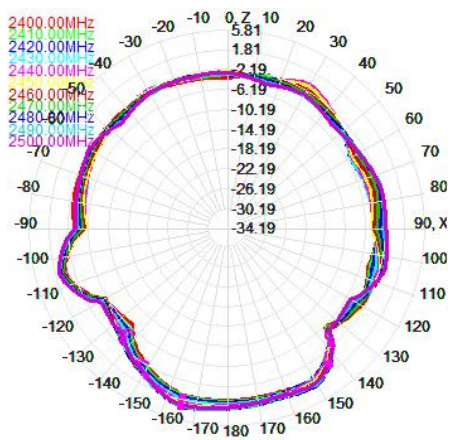
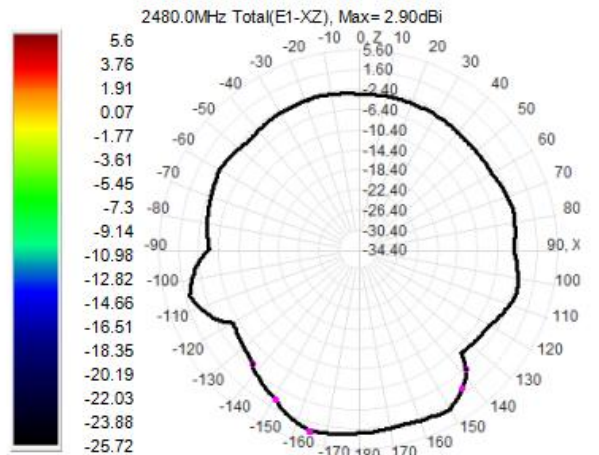
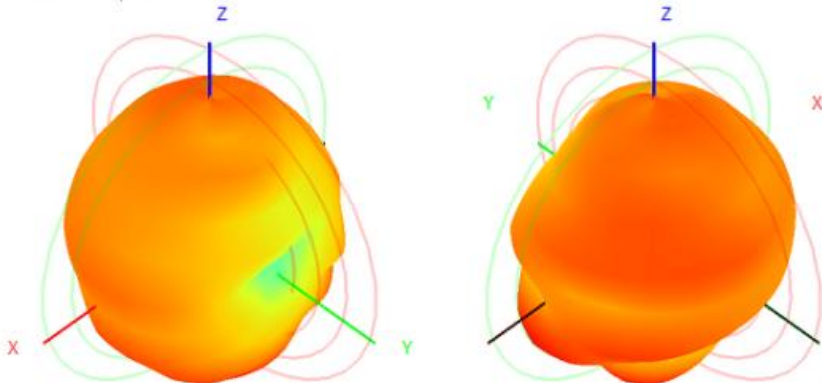
2450.0MHz Total, Eff: 38.9%

Back View



2480.0MHz Total, Eff: 41.9%

Back View



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射频性能测量报告

RF Performance Test Report

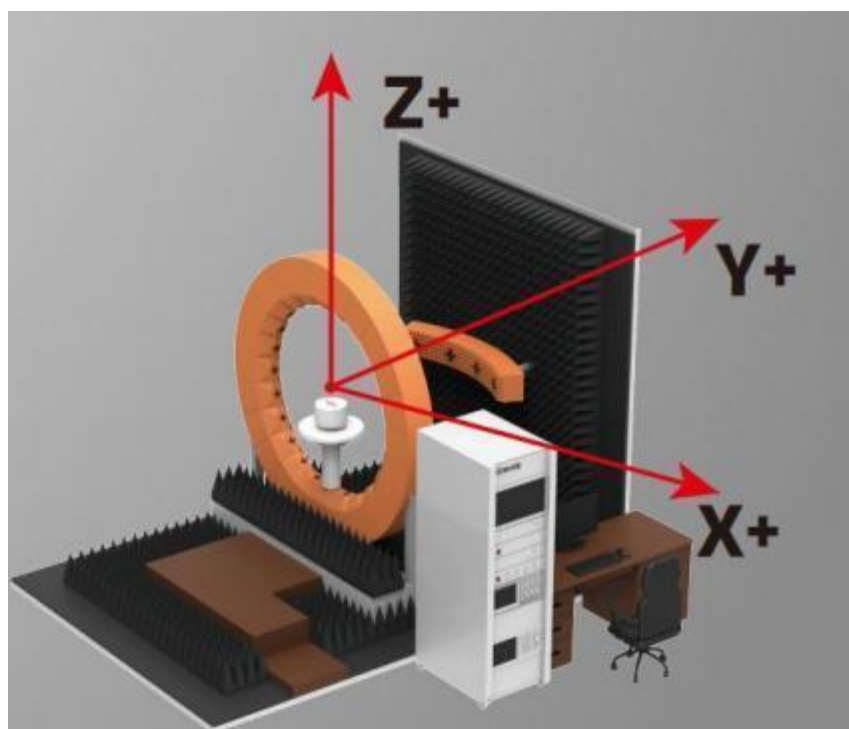
客户名称 Customer Name	汇蓝电子	项目名称 Project Name	ZQ01	合立讯料号 Helixun P/N	HLX-ZQ01-V3
频段 Band	2400-2500MHz	测试日期 Test Date	2025-04-21	测试人 Inspector	卓子骥

天线测试设备简介

Antenna Test Equipment Introduction

测试天线输入特性使用 **Agilent E5071C and Agilent 5071B** 矢量网络分析仪；辐射特性利用 ETS 三维近场暗室进行测试，并分别使用 CMW500 和 Agilent 5071C 进行了分析。暗房的测试坐标如下：

Test of antenna input characteristics using **Agilent E5071C and Agilent 5071B** vector network analyzer ; The radiation pattern of the antenna are tested using the ETS star lab 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 :

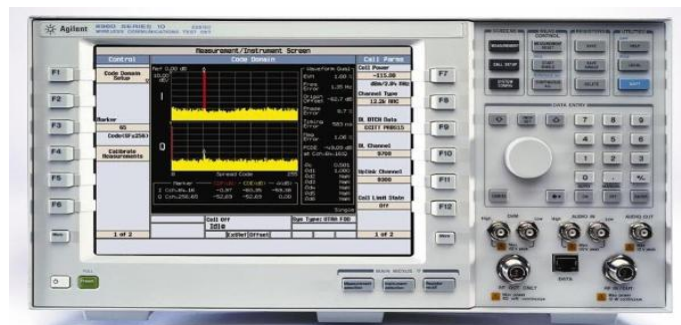


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Tst S y stem

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



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可靠性测试报告

Reliability Test Report

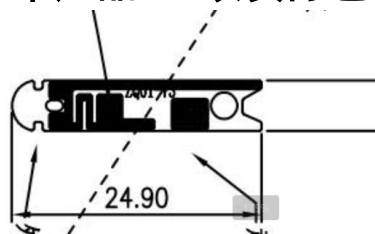
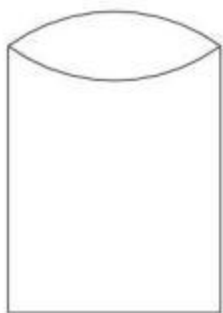
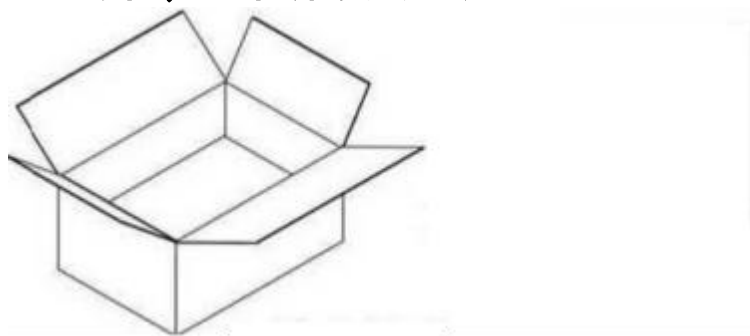
客户名称 Customer Name	汇蓝电子	客户料号 Customer P/N		合立讯料号 Helixun P/N	HLX-ZQ01-V3	
测试日期 Test Date	2025-04-21	样品数量 Sample Qty.	3	测试人 Inspector	卓子骥	
测试项目 Test Item	要求 Requirement	试验设备 testing equipment	样品 1 Sample 1	样品 2 Sample 2	样品 3 Sample 3	判定 PASS/NG
高温存储	在+85℃条件下暴露24H, 恢复 2H 后进行测试	恒温恒湿箱	OK	OK	OK	Pass
低温存储	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	/	/	/	/
最终结论 Conclusion						Pass
测试人& 日期 Inspector & Date	卓子骥2025-04-21		批准&日期 Approval & Date			

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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100pcs）（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）**

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环保要求

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 边缘与外壳边缘对齐
- ☐ 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。

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