



承 认 书

SPECIFICATION FOR APPROVAL

客户名称 Customer Name	椰 壳		
客户项目名 Customer Project Name	AI 运动相机	盛邦尔项目名 Surbanner Project Name	AI 运动相机
客户编码 Customer P/N	2. 02. 002. 00055	盛邦尔料号 Surbanner P/N	3160-180-00458
频段 Band	2400-2500MHz/5150-5850MHz		
版本号 Version	V02		
设计人信息/Designer Information			
射频工程师 RF Engineer	吴贤坤	研发主管 R&D Director	林德友
结构工程师 ME Engineer	邹荣凯		

盛邦尔审批/Surbaner 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	刘胜荣				
日期 Date	2023. 07. 10				

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

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深圳市盛邦尔科技有限公司

Shenzhen Surbaner Technology CO.,LTD.

一. 产品图纸或实物图片/Drawing or Product Image

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二. Technical Parameter /技术参数

1. Antenna/天线		
No/序号	Part Name/项目	SPEC/规格
1	Frequency Range/ 频率范围	2400-2500MHz/5150-5850MHz
2	Impedance/阻抗	50 ohm nominal
3	Gain/增益	>2dBi
4	Polarization/极化	LINE
5	VSWR/驻波比	≤2
6	Efficiency/效率	≥55%
7	RF Cable/射频连接线	95mm 1.13 线
8	RF Connector/连接器	一代端子

2. Environmental Characteristics/环境特性		
No/序号	Part Name/项目	SPEC/规格
1	Operation Humidity/ 工作湿度	5~95%不冷凝
2	Operating Temperature/ 工作温度	-20~+60°C
3	Store Temperatuer/ 储存温度	-30~+70°C

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射频性能测量报告

RF Performance Test Report

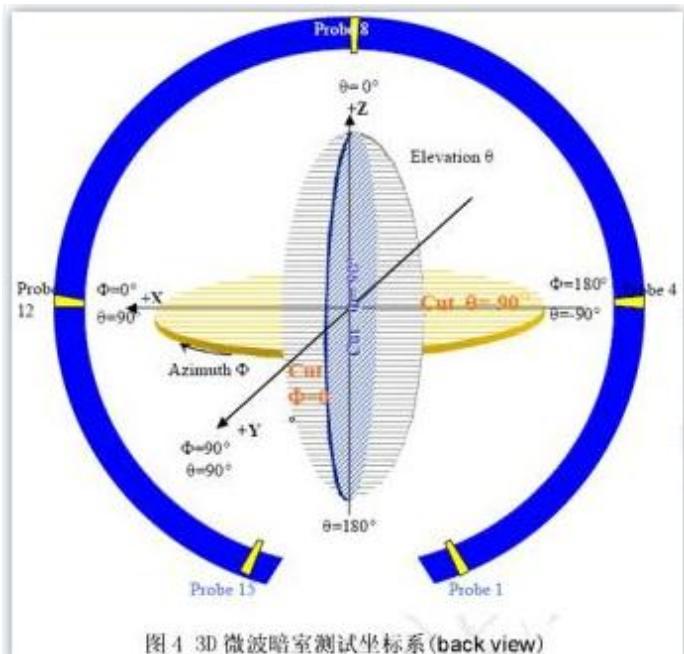
客户名称 Customer Name	椰 壳	项目名称 Project Name	AI 运动相机	盛邦尔料号 Surbaner P/N	3160-180-00458
频段 Band	2400-2500MHz/ 5150-5850MHz	测试日期 Test Date	2022/7/29	测试人 Inspector	吴贤坤

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 5062A 矢量网络分析仪；辐射特性利用 Satimo 三维近场暗室进行测试，并分别使用 8960 E5515 和 Agilent E4438C 进行了分析。暗房的测试坐标如下：

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:



1. S11 参数测量/Passive S11 parameter

使用一根 50Ω 同轴电缆连接到天线，然后该电缆连接到网络分析仪测量 S11 参数，被测量产品远离金属至少 20 厘米。

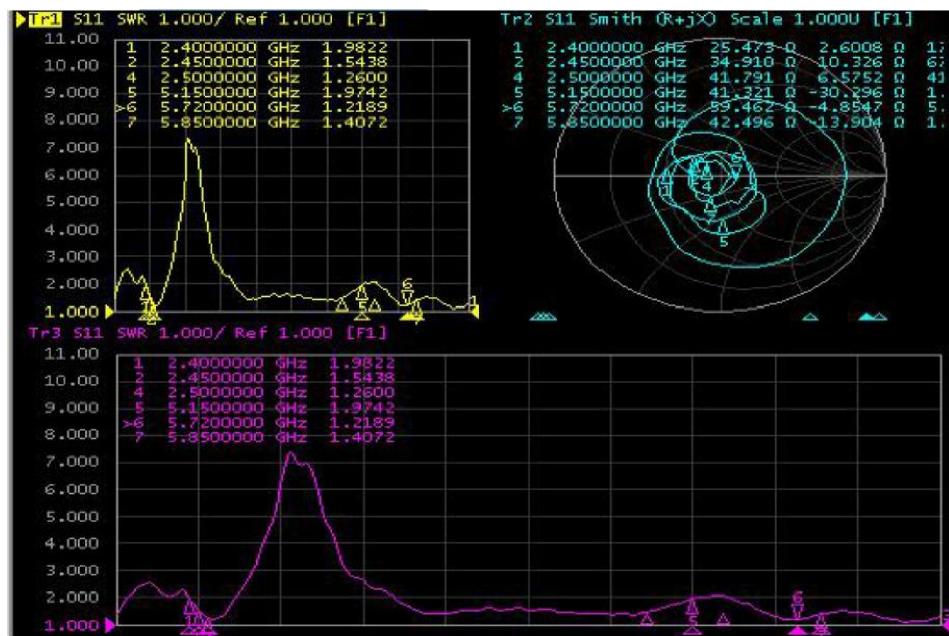
Measuring Method is a 50Ω coaxial cable is connected to the antenna. Then this cable is connected to a network analyzer to measure the S11 parameter, Keeping this fixture away from metal at least 20cm.

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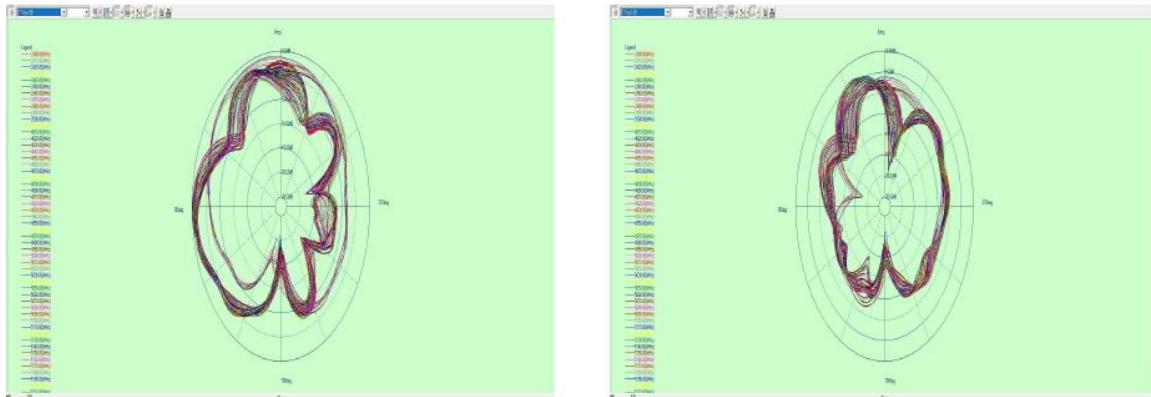
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S11 Parameter-VSWR



1. Test Result



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4. Gain & Efficiency

Frequency (MHz)	Efficiency (%)	Peak GAIN (dBi)
2400	67.55	3.10
2410	66.49	2.76
2420	67.95	2.48
2430	66.34	2.41
2440	63.45	2.56
2450	64.35	2.83
2460	69.42	3.30
2470	69.94	3.64
2480	68.80	3.71
2490	69.07	3.94
2500	72.21	4.13
5150	59.36	3.49
5720	67.59	5.43
5850	68.15	5.76

5.OTA

Test Equipment:	R&S CMW500			
Test Condition:	3D chamber			
Band	Wireless Protocol	Channel	TRP(dBm)	TIS(dBm)
WIFI	802.11 b/11Mbs	1	14.56	-87.44
		6	14.27	-78.28
		11	14.16	-88.11
	802.11 g/54Mbs	1	15.13	-72.51
		6	14.75	-71.02
		11	14.61	-72.14
	802.11 n/65Mbs	1	14.96	-70.48
		6	14.12	-67.99
		11	14.53	-70.19
	802.11a/54Mbs	36	17.02	-75.72
		149	17.45	-77.04
		165	17.47	-74.21

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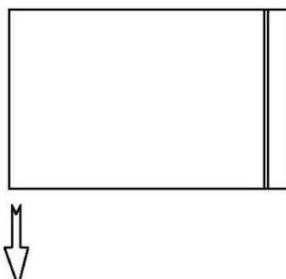
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产品包装规范

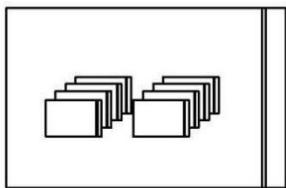
page: 1 of 1

项目名: AI运动相机	版本: A
客户: 椰壳	成品名称: 2.4+5.8G天线

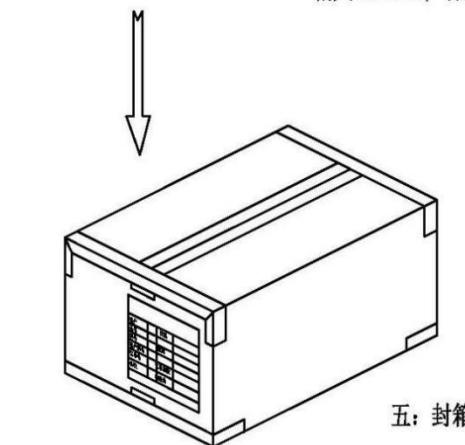
一: 成品天线 → 二: 每PE袋装50PCS产品(以实际包装为准)。



三: 每10袋装一大袋, (以实际包装为准)。



四: 装箱, 每10袋装一箱,
一箱共5000PCS产品(以实际包装为准)。



五: 封箱, 外箱贴我司生产标签和ROHS标签。

批准: _____

确认: _____

拟制: 邹荣凯

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Shenzhen Surbaner Technology CO.,LTD.

样品尺寸测量报告

Sample Dimensions Test Report

客户名称 Customer Name	椰壳	客户料号 Customer P/N	2.02.002.00055	盛邦尔料号 Surbanner P/N	3160-180-00458
测试日期 Test Date	2023/07/10	样品数量 Sample Qty.	3	测试人 Inspector	曾心荣
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	37.0±0.2mm	37.01	37.02	36.98	Pass
②宽度	11.2±0.2mm	11.22	11.20	11.19	Pass
③线长	95±3mm	93	95	94	Pass
④					
⑤					
⑥					
⑦					
最终结论 Conclusion					PASS
测试人&日期 Inspector & Date	曾心荣 2023/07/10	批准&日期 Approval & Date			

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可靠性测试报告

Reliability Test Report

客户名称 Customer Name	椰壳	客户料号 Customer P/N	2.02.002.00055	盛邦尔料号 Surbanner P/N	3160-180-00458	
测试日期 Test Date	2023/07/09	样品数量 Sample Qty.	3	测试人 Inspector	何春辉	
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+70°C条件下暴露 24H, 恢复 2H 后进行测试 电气性能正常	恒温恒湿箱	OK	OK	OK	Pass
低温存储	在-30°C条件下暴露 24H, 恢复 2H 后进行测试 电气性能正常	恒温恒湿箱	OK	OK	OK	Pass
高温工作	在+60°C条件下通电工作 24H 电气性能正常	恒温恒湿箱	OK	OK	OK	Pass
低温工作	在-20°C条件下通电工作 24H 电气性能正常	恒温恒湿箱	OK	OK	OK	Pass
端子 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 <input checked="" type="checkbox"/> 24H <input type="checkbox"/> 48H	盐雾试验机	OK	OK	OK	Pass
端子 铆压拉拔力	1.13 线径接 1 代 IPEX 端 子 ≥10N	推拉力计	13N	15N	14N	Pass
最终结论 Conclusion						Pass
测试人& 日期 Inspector & Date	何春辉 2023/07/10	批准&日期 Approval & Date				

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产品 ROHS 成分宣告表

产品名称	均匀物质材料	有害物质含量(PPM)										HS 测试报告编号	HS 测试报告日期
		Pb	Cd	Hg	Cr6+	PBBs	PBDEs	DEHP	BBP	DBP	DIBP		
2.4+	FPC	文字油墨	ND	ND	ND	ND	ND	ND	ND	ND	ND	ETR22A01347M01	22/10/17
		3M 胶	ND	ND	ND	ND	ND	ND	ND	ND	ND	SHAEC2217569205	23/1/4
		基材	ND	ND	ND	ND	ND	ND	ND	ND	ND	SHAEC23001049106	23/2/15
		防焊油墨	ND	ND	ND	ND	ND	ND	ND	ND	ND	ETR22705905	22/8/5
		抗氧剂	ND	ND	ND	ND	ND	ND	ND	ND	ND	SZXEC23000119402	23/2/27
5.8G 天线	线材	氟化物	ND	ND	ND	ND	ND	ND	ND	ND	ND	NGBMR23000169901	23/2/6
		镀锡铜线	ND	ND	ND	ND	ND	ND	ND	ND	ND	SHAEE22000472905	22/8/10
		灰色色母	ND	ND	ND	ND	ND	ND	ND	ND	ND	A2230222421101003C	23/5/23
	端子	C5210	ND	ND	ND	ND	ND	ND	ND	ND	ND	CANEC2301145810	23/2/8
		塑胶	ND	ND	ND	ND	ND	ND	ND	ND	ND	ETR22800771	22/8/10
	镀金	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	A2220404860101001C	22/9/17

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 端时请首先对齐端子，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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