

SPECIFICATION



深圳市大显科技有限公司

Shenzhen Daxian Technology Co., Ltd.

国光 RallyBar Gen2-XL BT 天线组件

GGEC RallyBar Gen2-XL BT Antenna assembly

产 品 承 认 书

SPECIFICATION FOR APPROVAL

客 户 connection	国光 GGEC	频 段 frequency range	2400 ~ 2500MHz
项目名称 entry name	RallyBar Gen2-XL	版 本 edition	V01
物料编号 Material No	1L-BGen2-146	颜 色 Color	黑色 Black
客户料号 Customer Item Number			
R F 设计 R F Design	沈 川 Chuan.Shen	结构设计 Structural Design	周锐斌 RuiBin.Zhou
品质经理 Quality Manager	李崇瑞 ChongRui.Li	技术总监 Technical Director	张 磊 Lei.Zhang
日 期 Date	2025-09-17		

客户确认:

Customer confirmation:

装配是否符合贵司要求: ☐OK ☐NGWhether the assembly meets your company's requirements: ☐OK ☐NG

深圳市大显科技有限公司

Shenzhen DaXian Technology Co., Ltd.

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变更履历

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一 项目说明 Project Description

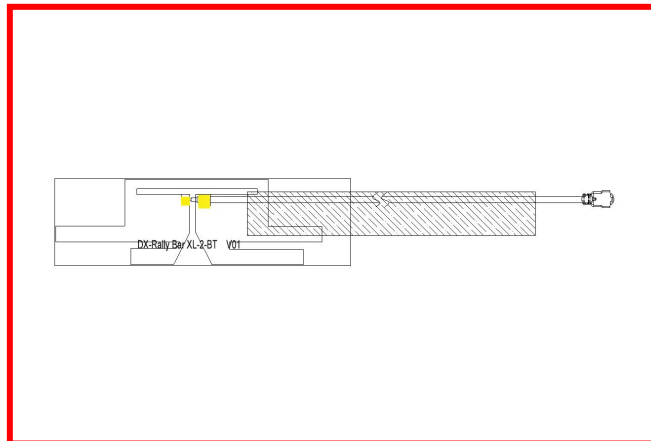
客户名: Customer Name:	国光 GGEC
整机类型: Type of complete machine:	音箱 loudspeaker box
天线频段: Antenna band:	2400 ~ 2500MHz
天线形式: Antenna form:	FPC+同轴线+线材海绵 FPC+coaxial line+wire sponge
馈电形式: Feed form:	焊接 weld
馈脚数量: Number of feed legs:	两个 Two
硬件版本: Hardware version:	/

二 BT 天线组件 Antenna assembly

1 规格 specifications

本报告主要提供 RallyBar Gen2-XL 项目天线的各项电气和结构性能参数的测试状况。下图为大显设计的天线图片。

This report mainly provides the testing status of various electrical and structural performance parameters of the antenna for the RallyBar Gen2-XL project. The following image shows an antenna with a large display design.



天线外观图

antenna appearing diagram

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1.1 电气规格标准 Electrical specifications and standards

1.1.1 电性能指标 Electrical performance index

天线工作频段在 **2400 ~ 2500 MHz**。下表是大显设计和量产天线的电性能的指标。

The operating frequency band of the antenna is between 2400 and 2500 MHz. The following table shows the electrical performance indicators of large display design and mass production antennas.

Frequency Range	Frequency (MHz)	VSWR
BT	2400 ~ 2500	≤ 2

1.1.3 天线位置布局 Antenna Location Layout



2 结构规格标准 Structural specifications and standards

1.2.1 天线组成 Antenna composition

天线主要是由 FPC+同轴线+线材海绵 组成。

The antenna is mainly composed of FPC+coaxial line+wire sponge.

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2、测试设备 The Equipment of Active Test

Satimo 3D Chamber $4 \times 4 \times 4$ (m)

CMW500 E5071C

Network analyzer-R&S ZVL

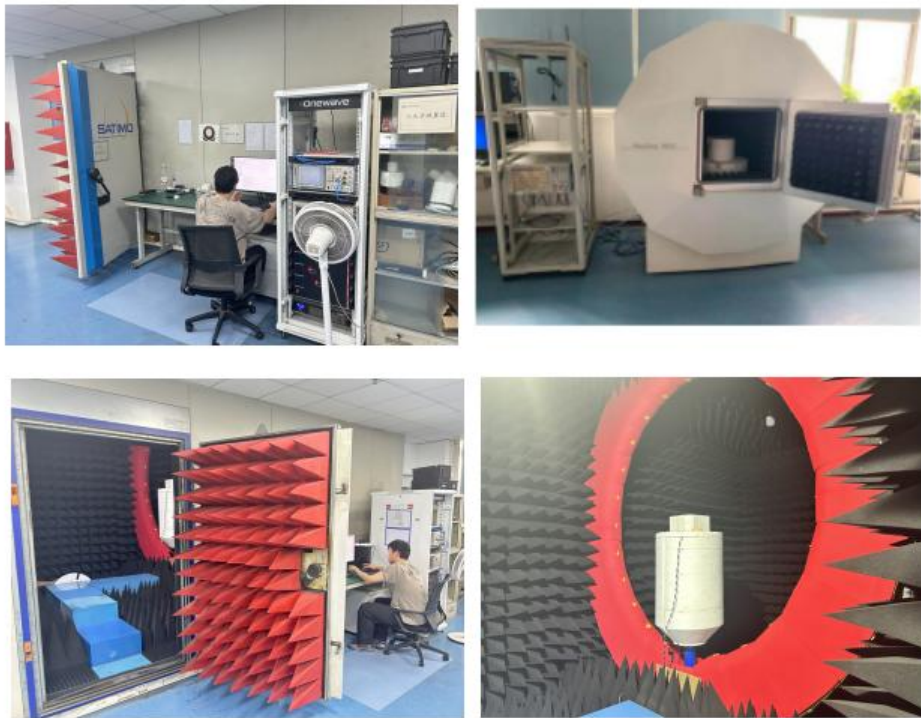


图 2

Figure 2

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3 测试 test

3.1 驻波(VSWR)的测试 Test of standing wave (VSWR)

3.1.1 测试连接: VSWR 测试装置依次的连接为: R&S ZVL 网络分析仪 → 测试线 → 测试治

Test connection: The VSWR test device is sequentially connected as follows: R&S ZVL network analyzer → test line → test fixture

实测(附图)Actual measurement (attached drawing)

3.2 增益及效率、功率 (TRP)、灵敏度 (TIS) 的测试

Gain and efficiency, power (TRP), sensitivity (TIS) testing

3.2.1 测试的场地 Test site:

大显微波暗室。测试频率范围为 400MHz—6GHz, 静区范围为 50cm 圆周, 反射率小于 -50 dB。

Large display microwave anechoic chamber. The test frequency range is 400MHz - 6GHz, the static zone range is 50cm circumferential, and the reflectivity is less than -50dB.

3.2.2 测试的仪表 Tested Instruments:

R&S ZVL 网络分析仪、CMW500 E5071C、标准喇叭天线、法国 SATIMO-SG24SYSTEM 系统、打印机等。

R&S ZVL network analyzer, Agilent 8960 E5515C, standard horn antenna, French SATIMO-SG24SYSTEM system, printer, etc.

3.2.3 测试数据: 在微波暗室中, 测试的功率和灵敏度相关的数值如下表

Test data: In a microwave anechoic chamber, the values related to the power and sensitivity tested are shown in the table below

OTA 有源测试 OTA Active Test:

BAND	CH	TRP (db)	TIS (db)
BT	0	5.24	-90.18
	39	5.61	-90.75
	78	5.36	-90.46

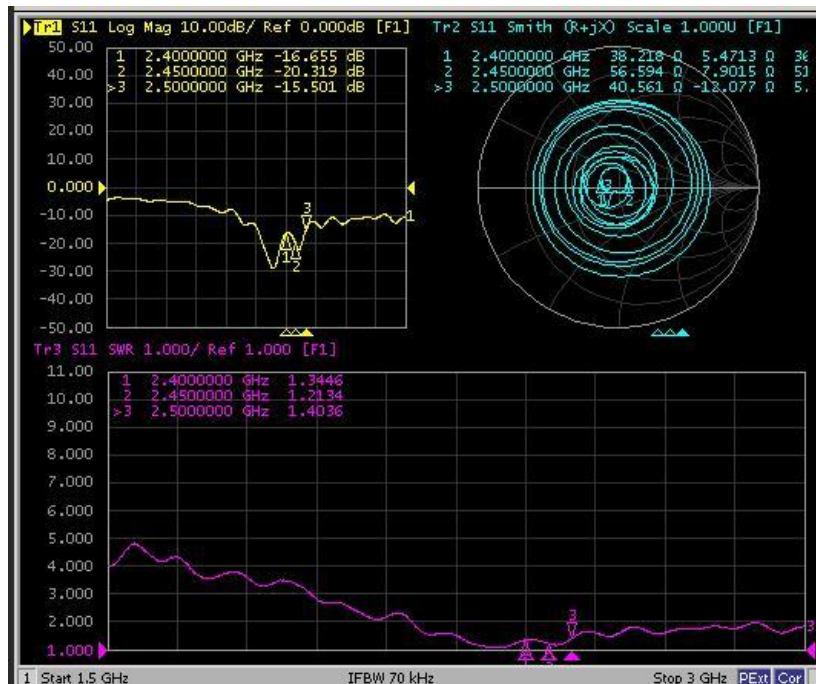
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无源效率&增益 Passive efficiency&gain:

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
2400	36.32	-4.40	1.43
2410	36.33	-4.40	1.54
2420	36.46	-4.38	1.55
2430	36.68	-4.36	1.58
2440	37.16	-4.30	1.65
2450	37.47	-4.29	1.83
2460	37.24	-4.26	1.77
2470	36.97	-4.32	1.67
2480	36.78	-4.34	1.62
2490	36.39	-4.39	1.53
2500	36.29	-4.40	1.21

4、VSWR 参数图 VSWR parameter diagram



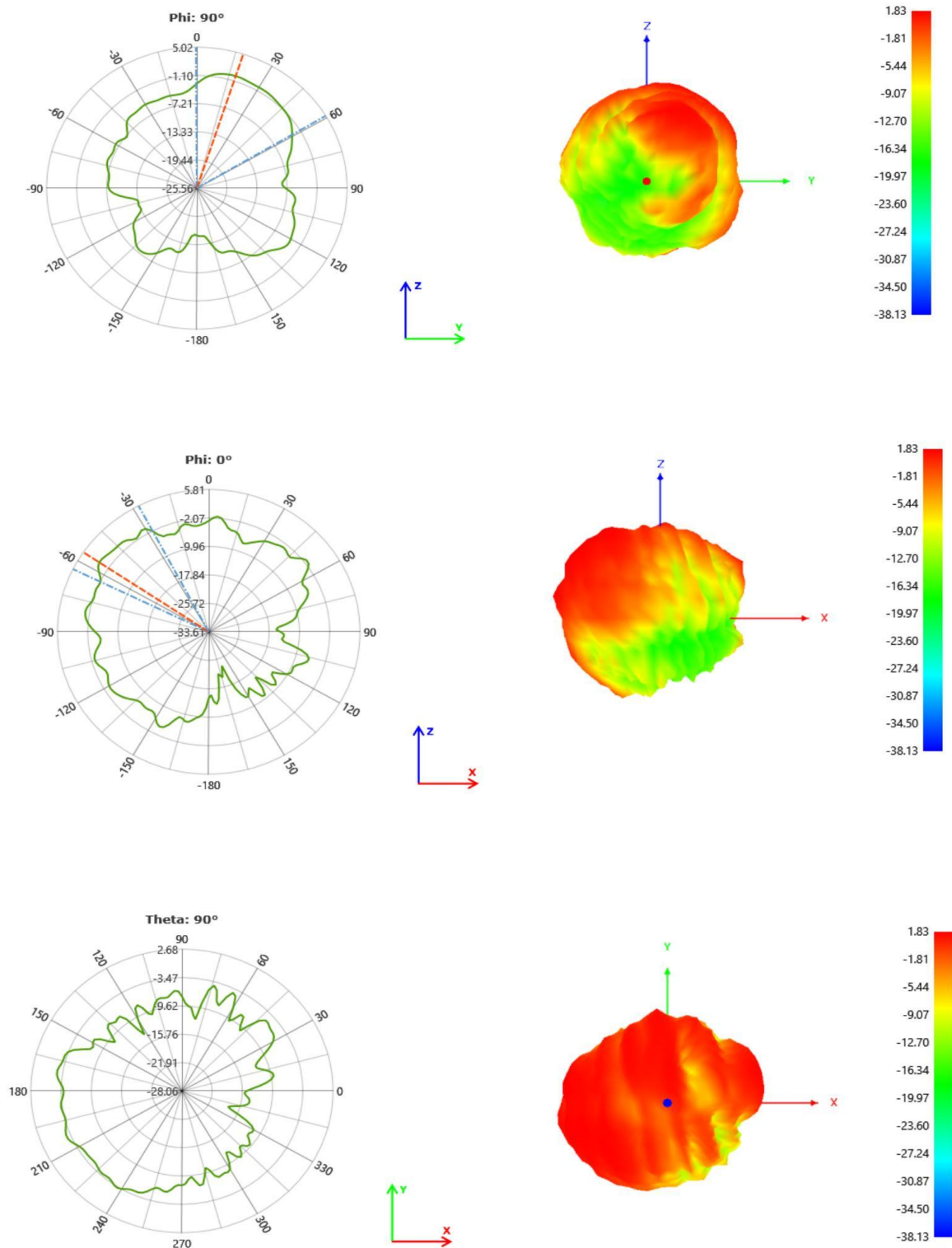
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5、无源场型图-2450MHz

Passive Field Pattern Diagram - 2450MHz



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6、户外拉距测试 Outdoor pull distance test:

测试时间 Testing time: 2025/09/01

测试场地 test site: 深圳铁岗水库附近 Near Shenzhen Tiegang Reservoir

测试手机 Test Cell Phones: Iphone 16 Pro

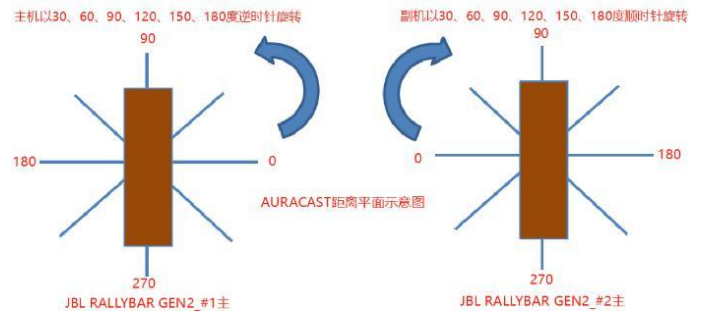
测试方向 Test direction	前 ahead	后 empress	左 left	右 right
	测试距离Test Distance			
BT	100M	100M	100M	100M

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Aura Cast 测试



苹果手机 16 Pro							
1#为主机 2#为副机							
	主机0°	主机30°	主机60°	主机90°	主机120°	主机150°	主机180°
副机0°	50米	50米	50米	55米	60米	60米	60米
副机30°	50米	50米	50米	55米	60米	60米	60米
副机60°	50米	50米	50米	55米	60米	60米	60米
副机90°	55米	55米	55米	60米	60米	60米	60米
副机120°	60米	60米	60米	60米	60米	60米	60米
副机150°	60米	60米	60米	60米	60米	60米	60米
副机180°	60米	60米	60米	60米	60米	60米	60米

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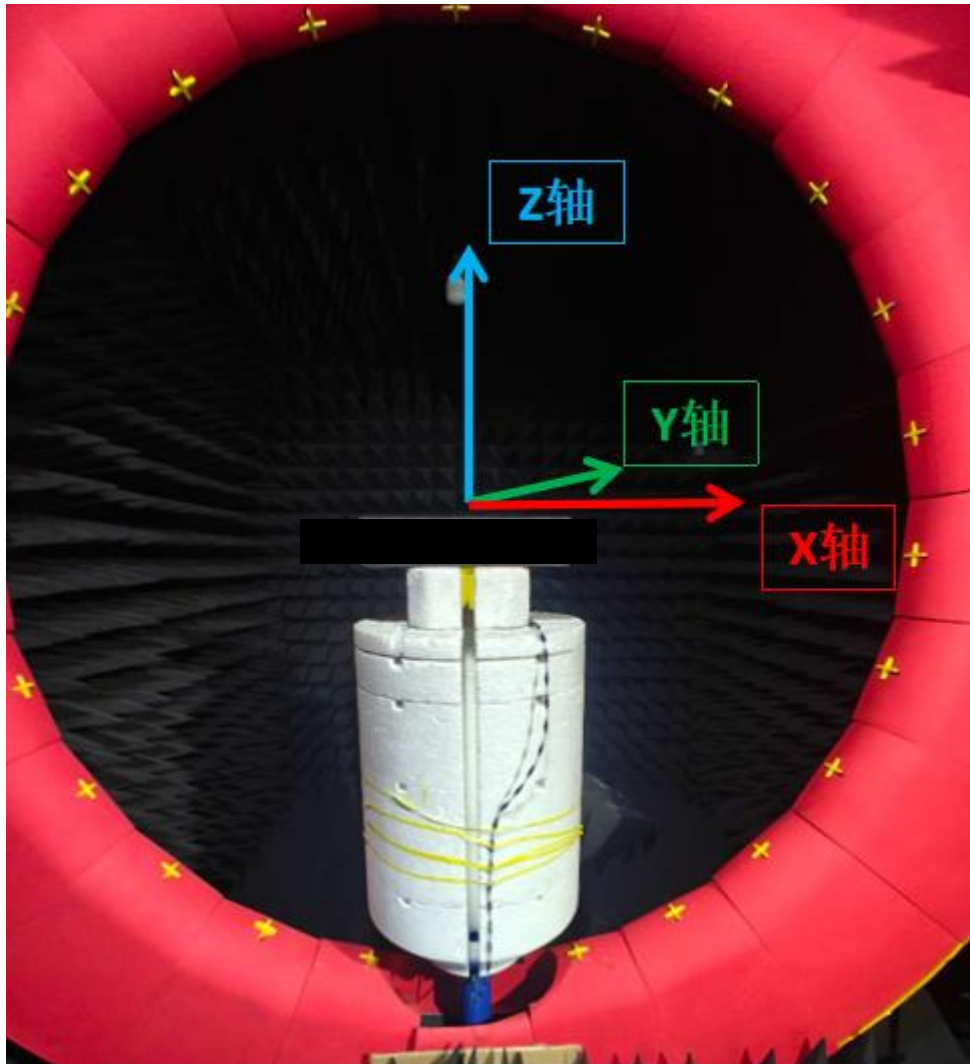
7、天线装配注意事项 **Precautions for Antenna Assembly**

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8、暗室坐标系 Darkroom coordinate system



9、结论 conclusion

此天线是在客户提供样机基础上设计，电参数和结构性能已达到技术要求，请确认！

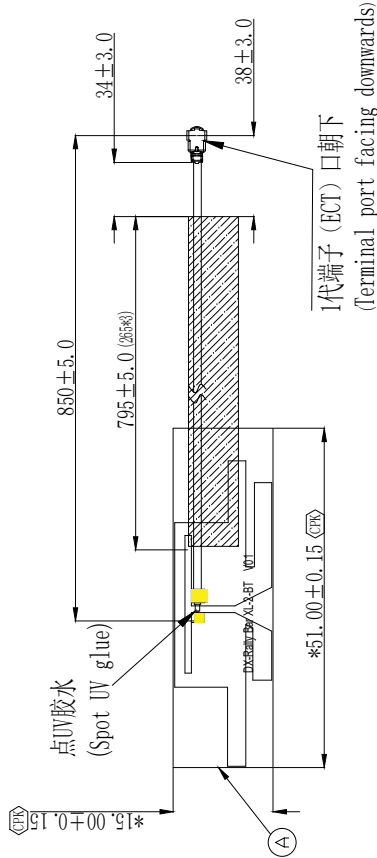
This antenna is designed based on the prototype provided by the customer. The electrical parameters and structural performance have met the technical requirements, please confirm!

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1		2		3		4		5		6	
	0~10	10~30	30~50	50~	角度	⊙	⊥				∠
	0.05	0.10	0.15	0.20	1°	0.02	0.03	0.02	0.02	0.03	0.05



C	线材海绵 (Cable sponge)	PIF	黑色 (black)	
B	端子引线 (RF connector)	Cable	黑色 (black)	
A	FPC	Electrolytic copper PI	黑色 (black)	
序号 (serial number) 零件名称 (Part Name)		材质 (material)	颜色 (colour)	备注 (Note)

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Shenzhen Topant Technology Co., Ltd.

机型 (Machine model)	RallyBar Gen2-XL	产品颜色 (Product Color)	黑色 (black)	日期 (date)	2025/09/17
项目编码 (Project Code)	RL-BGen2-146	表面处理 (Mold surface treatment)	NA	结构 (MD)	周锐斌
零件名称 (Part Name)	BT天线 (BT antenna)	单位 (unit)	mm	比例 (scale)	1:1
零件编码 (Part Number)	1L-BGen2-146	第三视角 (Third perspective)	审核 (check)	射频 (RF)	沈川
材质 (material)	FPC+sponge+RF connector		批准 (ratify)		周康
保存路径 (Save Path)			当前版本 (current version)		张磊

技术要求:

(technical requirement:)

1. "*"为重点尺寸;
 2. 未标注尺寸请依图纸;
 3. 不可有虚焊、漏焊、短线、断线等操作不良;
 4. 符合 RoHS 要求.
- (1. "*" is the key dimension;
(2. Please refer to the drawing for unspecified dimensions;
(3. There should be no poor operation such as faulty soldering, missing soldering, short wires, broken wires, etc.);
(4. Meet RoHS requirements.)

深圳大显科技有限公司

Shenzhen Topant Technology Co., Ltd.

CPK Report							
Part Number(料号)	1L-BGen2-146			Vendor(供应商)		大显	
Description(零件名称)	RallyBar Gen2-XL			Inspected(确认者)		李崇瑞	
Tool Number(模号)	/			Inches/MM(英寸/毫米)		mm	
Cavity(穴号)	/			Material Name(材质名称)		FPC+泡棉+端子+线材	
				Material Code(材质牌号)		/	
Revision(版本)	V01			Date(日期)		2025.09.11	
Dim. Designator(尺寸序号)	1	2					
Nominal(公称尺寸)	51.00	15.00					
+ Tolerance(正公差)	0.15	0.15					
- Tolerance(负公差)	-0.15	-0.15					
Upper Limit(规格上限)	51.15	15.15					
Lower Limit(规格下限)	50.85	14.85					
1	51.02	15.05					
2	51.04	15.01					
3	51.06	15.00					
4	51.05	15.06					
5	51.02	15.04					
6	51.04	15.06					
7	51.03	15.08					
8	51.01	15.02					
9	51.06	15.02					
10	51.08	15.07					
11	51.03	14.98					
12	51.01	15.02					
13	51.03	14.98					
14	51.00	14.98					
15	50.98	15.06					
16	50.97	14.99					
17	51.09	15.00					
18	51.06	15.03					
19	51.04	14.97					
20	51.02	15.03					
21	51.05	15.07					
22	50.99	15.01					
23	51.04	15.04					
24	50.99	15.05					
25	51.02	15.06					
26	51.07	15.05					
27	51.07	15.03					
28	51.05	15.06					
29	51.02	15.02					
30	51.04	15.07					
31	51.03	15.02					
32	51.06	15.01					
MAX.	51.09	15.08					
MIN.	50.97	14.97					
AVERAGE	51.03	15.03					
STDEV	0.03	0.03					
CP	1.74	1.62					
Cpk	1.35	1.31					
TOOLING(测量工具)	2.5次元	2.5次元					

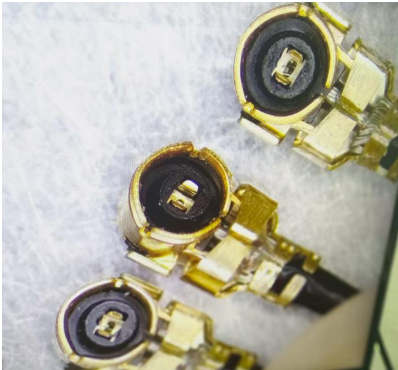
审核：李崇瑞

制表：李朝花

日期:2025.09.11

深圳大显科技有限公司
Shenzhen Topant Technology Co., Ltd.
盐雾测试报告

编号：QR/QC-WI09-01版本B

试验时间：2025年9月10日11:00 至9月12日11:00 共计 48 H					
(喷雾时间) 试验若有中断，其原因为：					
☒ 盐水试验法：试验室温度35℃，饱和空气桶温度47℃ ☐ 腐蚀试验法：试验室温度35℃，饱和空气桶温度47℃					
1. 氯化钠品质	99.50%		2. 纯净水品质	纯净水	
3. 喷雾采取PH值	雾化前6.5~7.2		4. 试验液PH值	6.0	
5. 压力表	1.0 Kgf/cm		6. 试验室相对湿度	30%	
7. 试验室温度	35 ℃		8. 压力桶温度	47 ℃	
9. 盐水浓度	5±0.1 %		10. 其他		
供应商名称	产品品名	试样数量	试验样品		判定依据
大显	RallyBar Gen2-XL天线	3PCS			合格 依GB6461-2002标准判定（外观无氧化、无镀层脱落、无腐蚀）
判定： 1. 依标准样品判定 2. 依GB6461-2002标准判定					
3. 依不良限度样品判定 4. 依其他方法判定					
备注：试验结束后, 如果试样状态允许, 可不经清洗进行检查。如果污垢和盐类沉积物等掩盖了缺陷而使检查难以进行时, 宜用蘸有中性肥皂液的海绵对表面进行擦拭, 然后用水漂洗。但在此过程中不应施加压力, 以免洗掉腐蚀产物而造成评级偏高。清洗液不应覆盖层产生任何破坏。中途或定期检查时不允试清洗试样, 否则影响测试结果					

深圳大显科技有限公司

Shenzhen Topant Technology Co., Ltd.

端子拉力测试报告

试验日期 Date:	2025.9.11	测试项目 test item:	端子拉力测试	试验编号No.	QC20250912001			
试验时间 Time:	9月11日12:00							
试验过程有无端子脱落不良								
1	客户 Customer	国光	示图: 					
2	品名 Item name	RallyBar Gen2-XL (一代端子)						
3	料号 Product number	\						
4	数量 Quantity	3PCS						
5	试验条件 Test Conditions							
5.1	基准	端子公母对插拉力≥1.2kg			判断			
					PASS			
拉力测试数据		样品1	样品2	样品3	Max	Min	AVG	判定
		1.45	1.38	1.47	1.47	1.38	1.43	OK
备注:								

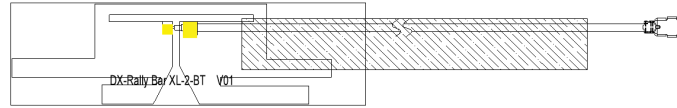
表单编号: QR\QC-P02-05

核准: 李崇瑞

试验员: 李朝花

一、包装方式 Packing method:

1 . FPC+同轴线+线材海绵 FPC + coaxial cable + cable sponge:



2、装袋，每袋装100cs ;每10袋 装 1pcs 纸箱（根据订单数量可调整）.

Bagging, each bag is 100cs; Packed in 1pcs carton per 10 bags (adjustable according to the order quantity).



每 10 小袋装入 1pcs纸箱
Every 10 small bags are
packed into a 1pcs carton.



所附图片仅供参考， 以实物为准

The attached pictures are for reference only, subject to the real thing.

二、运输要求 Transport requirements:

产品包装件运输时，应防潮、防破损、防污染。

When the product package is transported, it should be moisture-proof, damage-proof and pollution-proof.

三、存储要求 Storage requirements:

产品包装件应在仓库内堆放，库房应干燥、通风、清洁。

Product packages should be stacked in the warehouse, which should be dry, ventilated and clean.

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