

SPECIFICATION



深圳市大显科技有限公司

Shenzhen Daxian Technology Co., Ltd.

国光 XT5 BT 天线组件

GGEC XT5 BT Antenna assembly

产 品 规 格 书

Product Specification

客 户 connection	国光 GGEC	频 段 frequency range	2400 ~ 2500MHz
项目名称 entry name	XT5	版 本 edition	V02
物料编号 Material No	1X-T5XXX-116	颜 色 Color	黑色 Black
客户料号 Customer Item Number	EAN0053001		
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	潘永杰 YongJie.Pan	技术总监 Technical Director	张 磊 Lei.Zhang
日 期 Date	2025-09-15		

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

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变更履历 Revision history

[illegible]

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一 项目说明 Project Description

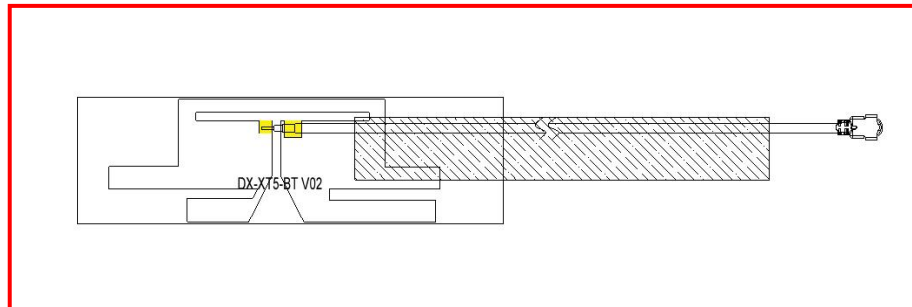
客户名: Customer Name:	国光 GGEC
整机类型: Type of complete machine:	音箱 loudspeaker box
天线频段: Antenna band:	2400 ~ 2500MHz
天线形式: Antenna form:	FPC+同轴线+线材海绵 FPC+coaxial line+wire sponge
馈电形式: Feed form:	焊接 weld
硬件版本: Hardware version:	/

二 BT 天线组件 Antenna assembly

1 规格 specifications

本报告主要提供 XT5 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 XT5 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

1.1.2 天线位置布局 Antenna Location Layout



1.2 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

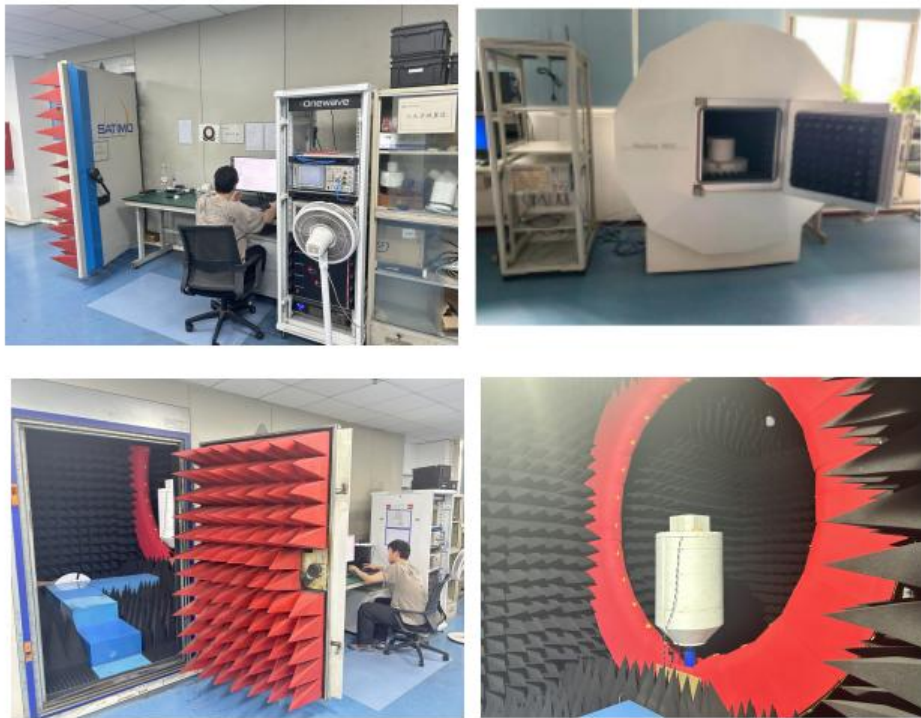


图 2

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 bel

OTA 有源测试 OTA active testing

传导数据 Transmit data

BAND	CH	TRP (dBm)	TIS (dBm)
BT	0	6.61	-92.39
	39	6.24	-92.43
	78	6.36	-92.69

BAND	CH	TRP (dBm)	TIS (dBm)
BT	0	9.37	-95
	39	9.65	-95
	78	9.42	-95

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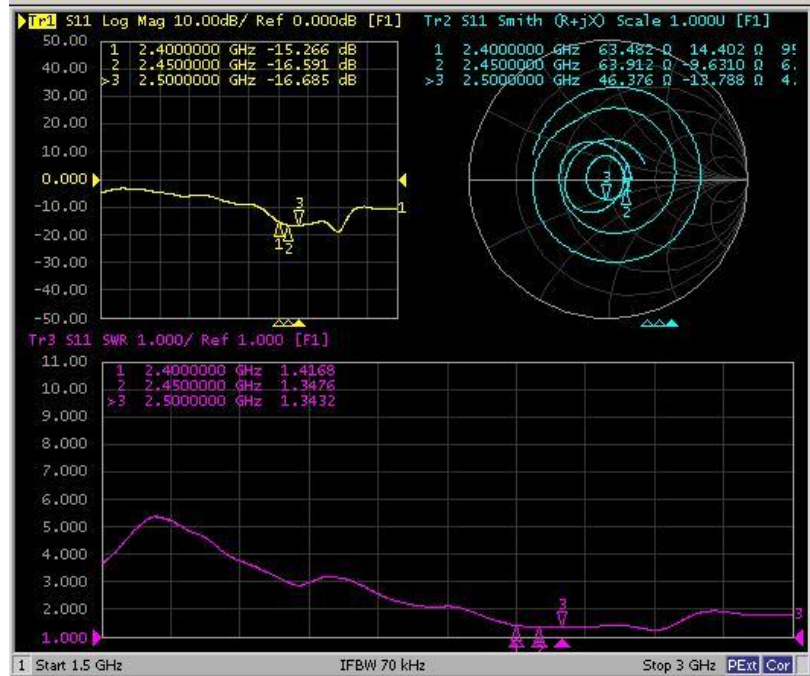
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无源效率&增益 Passive efficiency&gain:

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
2400	54.42	-2.64	1.56
2410	54.69	-2.62	1.66
2420	55.26	-2.58	1.73
2430	55.88	-2.53	1.83
2440	56.09	-2.51	1.86
2450	56.03	-2.53	1.92
2460	55.89	-2.52	1.89
2470	55.37	-2.57	1.78
2480	54.96	-2.60	1.63
2490	54.69	-2.62	1.51
2500	54.03	-2.67	1.42

4、VSWR 参数图 VSWR parameter diagram



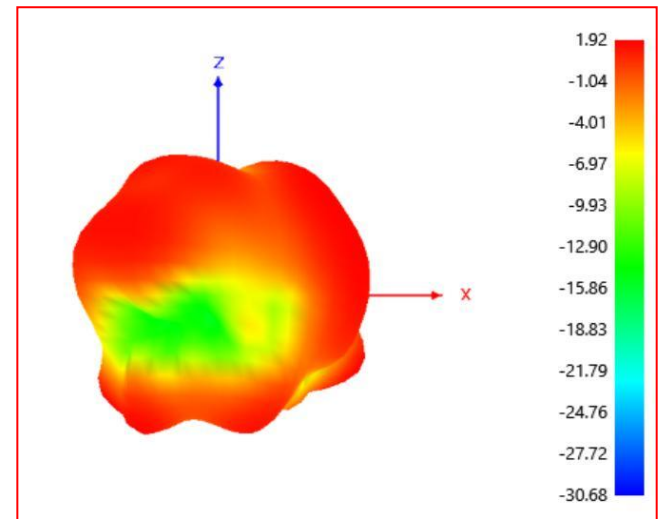
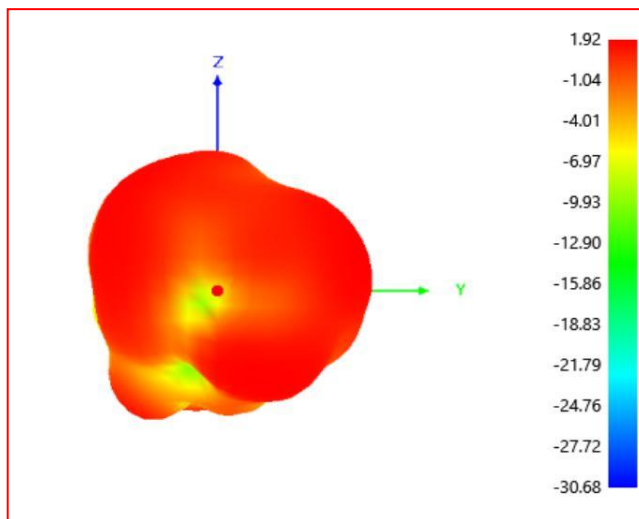
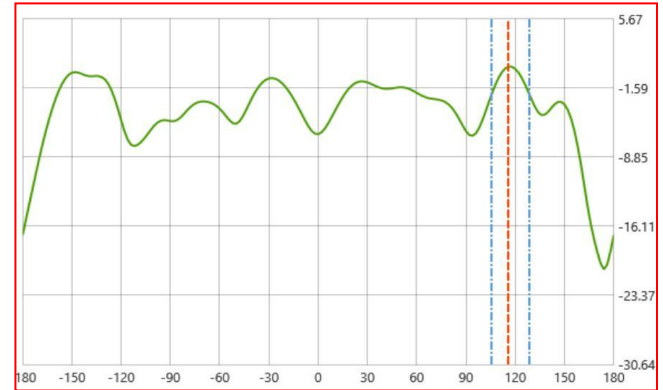
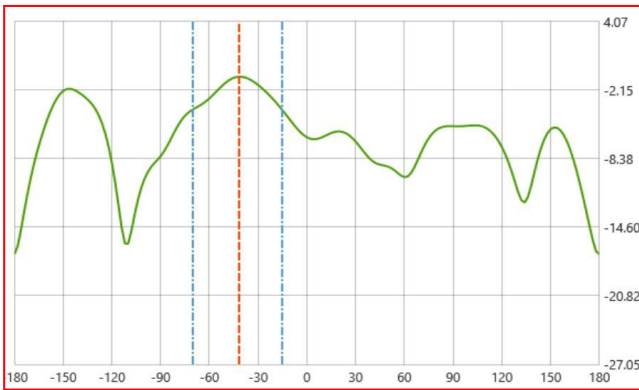
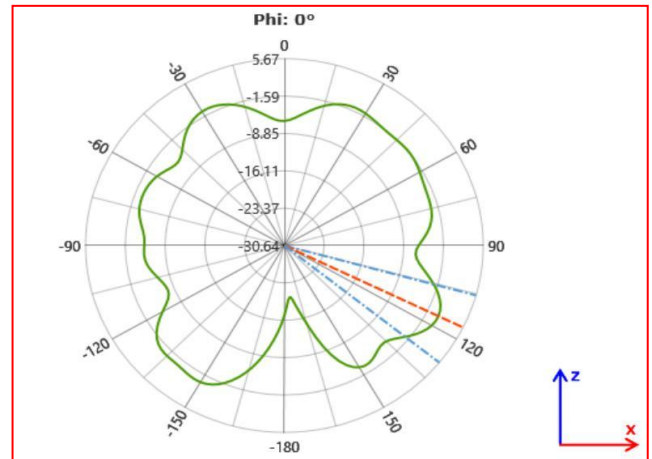
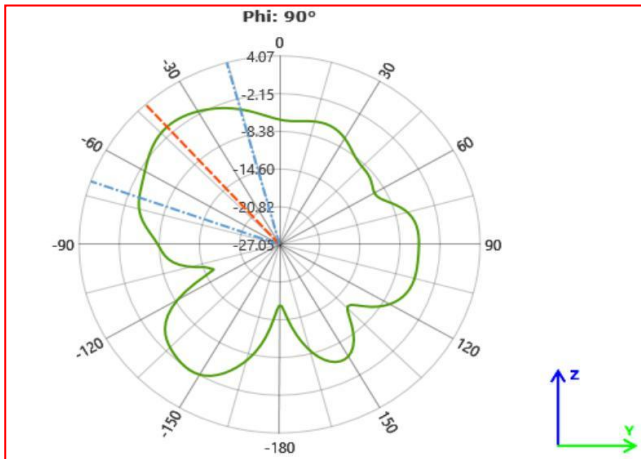
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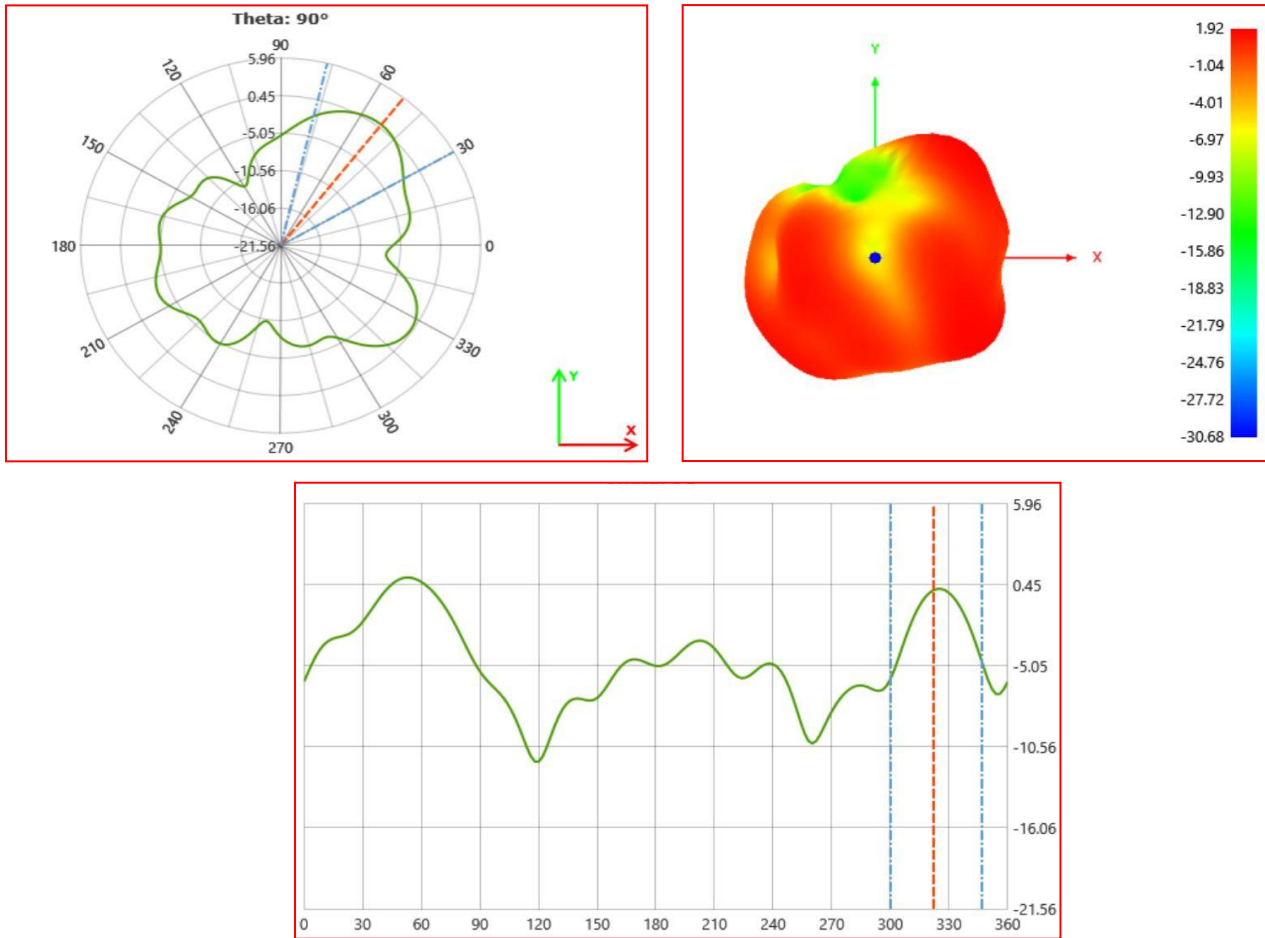
5、无源效率场型图 Passive efficiency field pattern diagram

2450MHz


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6、户外拉距测试 Outdoor Pull distance test

拉距测试 (Pull distance test) :

测试时间 (Testing time) : 2025/09/11

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

测试手机 (Test Cell Phones) : Iphone 16 Pro

测试路由器 (Tested on) : Asus-RT-AC86U Router

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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

Aura Cast 测试

苹果手机 16 Pro							
1#为主机 2#为副机							
	主机0°		主机90°		主机180°		主机270°
副机0°	68米	副机0°	70米	副机0°	70米	副机0°	70米
副机90°	70米	副机90°	70米	副机90°	70米	副机90°	70米
副机180°	70米	副机180°	70米	副机180°	70米	副机180°	70米
副机270°	70米	副机270°	70米	副机270°	70米	副机270°	70米

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7、装机注意事项 **Installation Notes**



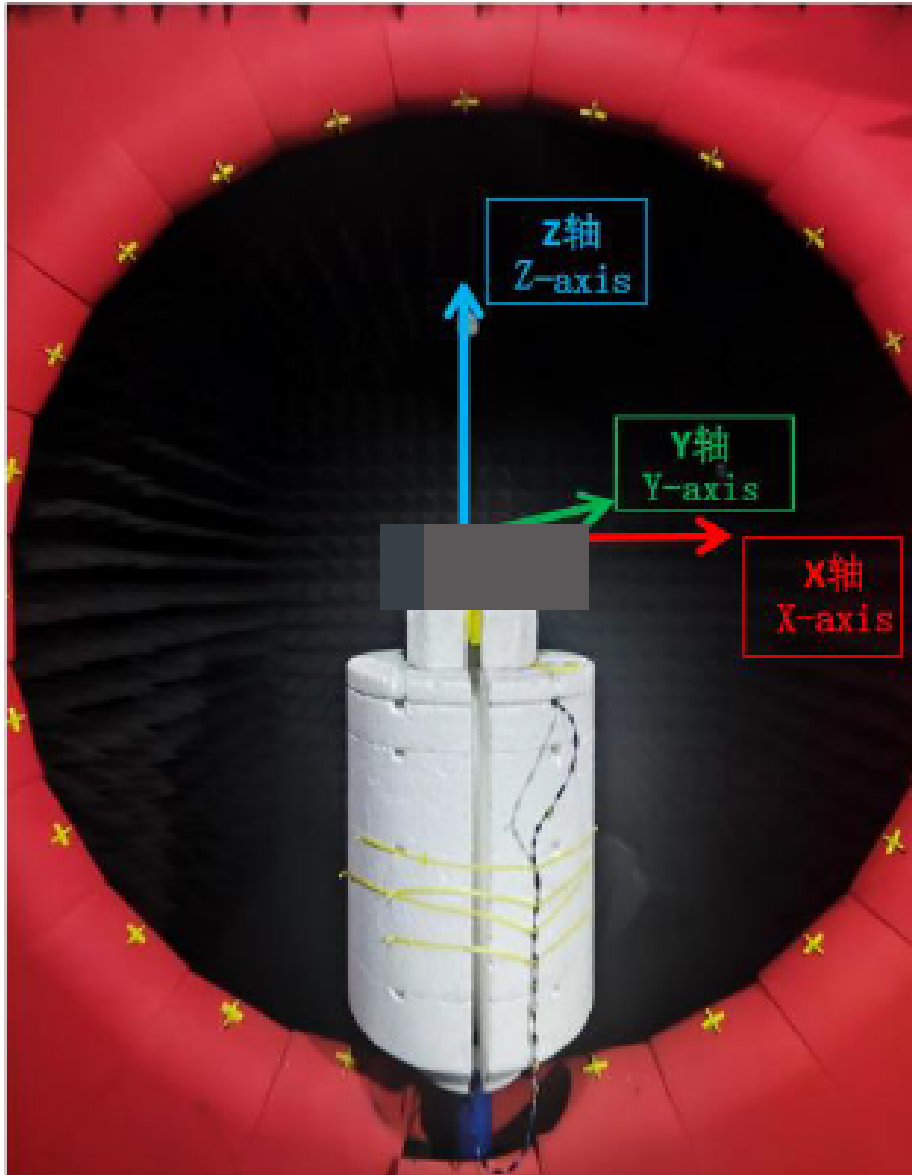
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8、暗室坐标系 Darkroom coordinate system



9、结论 conclusion

此天线是在客户提供样机基础上，电参数和结构性能已达到技术要求，请确认！

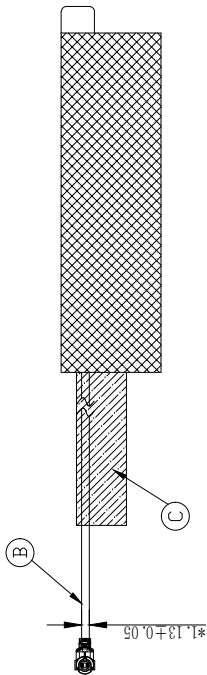
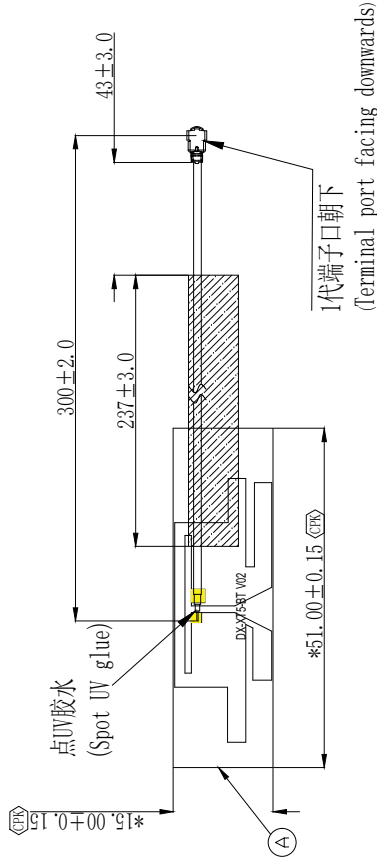
This antenna is designed based on the prototype provided by the customer. The electrical parameters and structural performance have met the technical requirements, please confirm!

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1		2		3		4		5		6	
						0~10		30~50		50~	
						0.05		0.10		0.15	
								1°		0.02	
										0.03	
										0.05	



技术要求:

(technical requirement:)

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

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)	XT5	产品颜色 (Product Color)	黑色 (black)	日期 (date)	2025/09/05
项目编码 (Project Code)	CX-T5XXX-116	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)	1X-T5XXX-116	第三视角 (Third perspective)	审核 (check)	射频 (RF)	沈川
材质 (material)	FPC+sponge+RF connector	第三视角 (Third perspective)	批准 (ratify)	周康	
保存路径 (Save Path)		当前版本 (current version)	张磊		

1	2	3	4	5	6
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深圳大显科技有限公司

Shenzhen Topant Technology Co., Ltd.

CPK Report							
Part Number(料号)	1X-T5XXX-116			Vendor(供应商)		大显	
Description(零件名称)	XT5			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

测试员： 李朝花

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	XT5 BT天线 (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:								

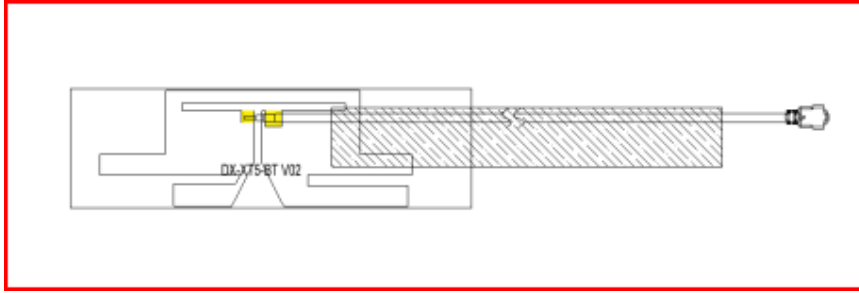
表单编号: QR\QC-P02-05

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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