

SPECIFICATION



深圳市大显科技有限公司

Shenzhen Daxian Technology Co., Ltd.

通力 Bar300 BT 天线组件

Tonly Bar300 BT Antenna assembly

产 品 规 格 书

Product Specification

客 户 connection	通力 Tonly	频 段 frequency range	2400 ~ 2500MHz
项目名称 entry name	Bar300	版 本 edition	V1.2
物料编号 Material No	2B-ar500-068	颜 色 Color	黑色+蓝色 Black+Blue
客户料号 Customer Item Number	290000-019571		
环保要求 environmental requirement	☒ RoHS ☒ REACH ☒ HF		
R F 设计 R F Design	沈 川 Chuan.Shen	结构设计 Structural Design	周锐斌 Rui Bin.Zhou
品质经理 Quality Manager	杨 进 Jin.Yang	技术总监 Technical Director	张 磊 Lei.Zhang
日 期 Date	2024-10-14		

客户确认:

Customer confirmation:

装配是否符合贵司要求: ☐OK ☐NG

Whether the assembly meets your company's requirements: ☐OK ☐NG

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变更履历
Revision history

版本号 Version number	变更内容 Change content	变更理由 Reason for change	发起变更方 Originating Party	日期 Date	修改人 Modified by
V1.0	创建 found			2024-8-29	
V1.1	更新 modify	电性能数据更新 Electrical Performance Data Update		2024-09-19	
V1.2	更新 modify	电性能数据更新及天线设计变更 Electrical performance data updates and antenna design changes		2024-10-14	

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索引 Indexes

一、项目说明 Project Description.....	4
二、 BT 天线 antenna.....	4
1、 规格 specifications.....	4
1.1 电气规格标准 Electrical specifications and standards.....	5
1.1.1 电性能指标 Electrical performance index.....	5
1.1.2 天线位置图片 Antenna position picture.....	5
1.2 结构规格标准 Structural specifications and standards.....	5
1.2.1 天线组成 Antenna composition..	5
2、测试环境 testing environment.....	6
3、测试 test.	7
3.1 驻波(VSWR)的测试 Test of standing wave (VSWR).....	7
3.1.1 测试连接 Test connection.....	7
3.2 效率、功率（TRP）、灵敏度（TIS）的测试 Testing of efficiency, power (TRP), sensitivity (TIS).....	7
3.2.1 测试的场地 Test site.....	7
3.2.2 测试的仪表 Tested Instruments.....	7
3.2.3 测试数据 test data.....	7
4、VSWR 参数图 Parameter diagram.....	8
5、无源场型图 Passive field pattern diagram.....	9
6、天线测试结果：整机数据-隔离度 Antenna Test Results: Whole Unit Data - Isolation	10
7、拉距测试 Pull distance test:.....	11
8、天线装机注意事项： Antenna mounting notes:.....	12
9、结论 conclusion.....	12
三、工程图 schedule drawing.....	13

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一 项目说明 Project Description

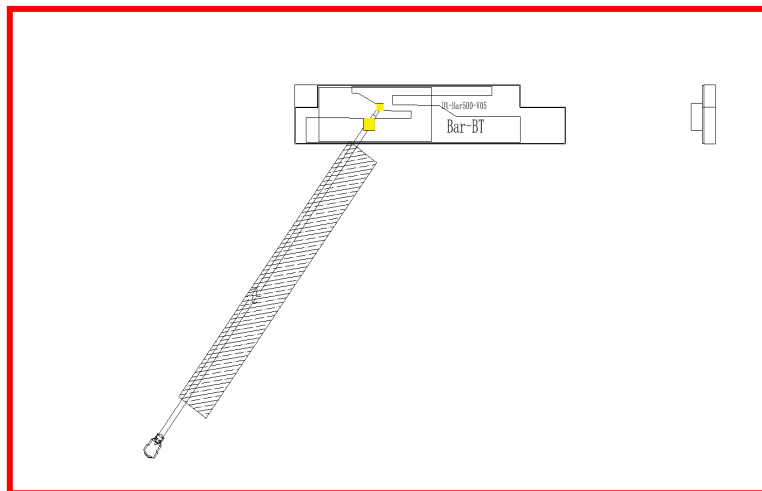
客户名: Customer Name:	通力 Tonly
整机类型: Type of complete machine:	音箱 loudspeaker box
天线频段: Antenna band:	2400 ~ 2500MHz
天线形式: Antenna form:	FPC+同轴线+线材海绵+EVA 泡棉 FPC+coaxial line+wire sponge+EVA
馈电形式: Feed form:	焊接 weld
硬件版本: Hardware version:	/

二 BT 天线组件 Antenna assembly

1 规格 specifications

本报告主要提供 **Bar300** 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 **Bar300** 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

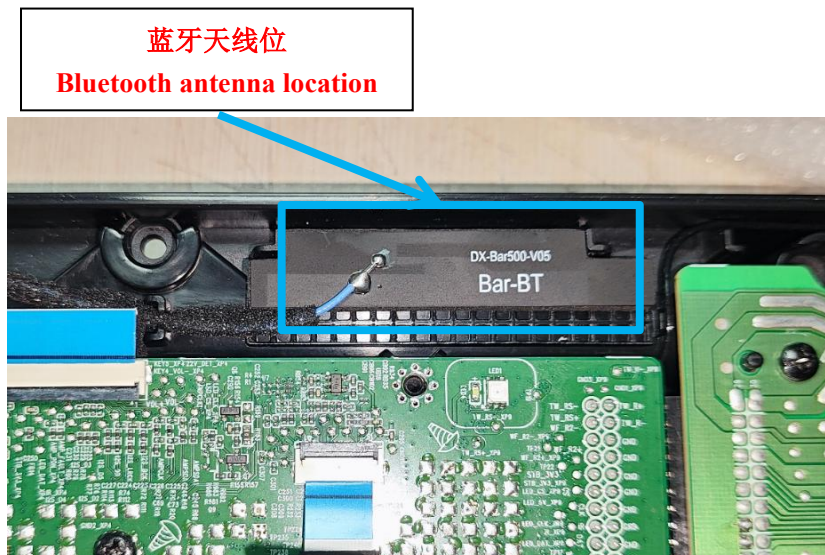
1.1.1 电性能指标 Electrical performance index

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 天线位置图片 Antenna position picture



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+EVA 泡棉 组成。

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

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2、测试设备 The Equipment of Active Test

Satimo 3D Chamber $6 \times 4 \times 4$ (m)

Agilent 8960 E5515c

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、Agilent8960 E5515C、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

无源效率&增益 Passive efficiency&gain:

BT 天线:

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
2400	45.15	-3.45	1.42
2410	45.79	-3.39	1.86
2420	46.03	-3.37	1.38
2430	46.29	-3.35	1.24
2440	46.56	-3.32	1.47
2450	46.95	-3.31	1.91
2460	46.71	-3.28	1.58
2470	46.42	-3.33	1.69
2480	45.98	-3.37	1.73
2490	45.61	-3.41	1.47
2500	45.09	-3.46	1.56

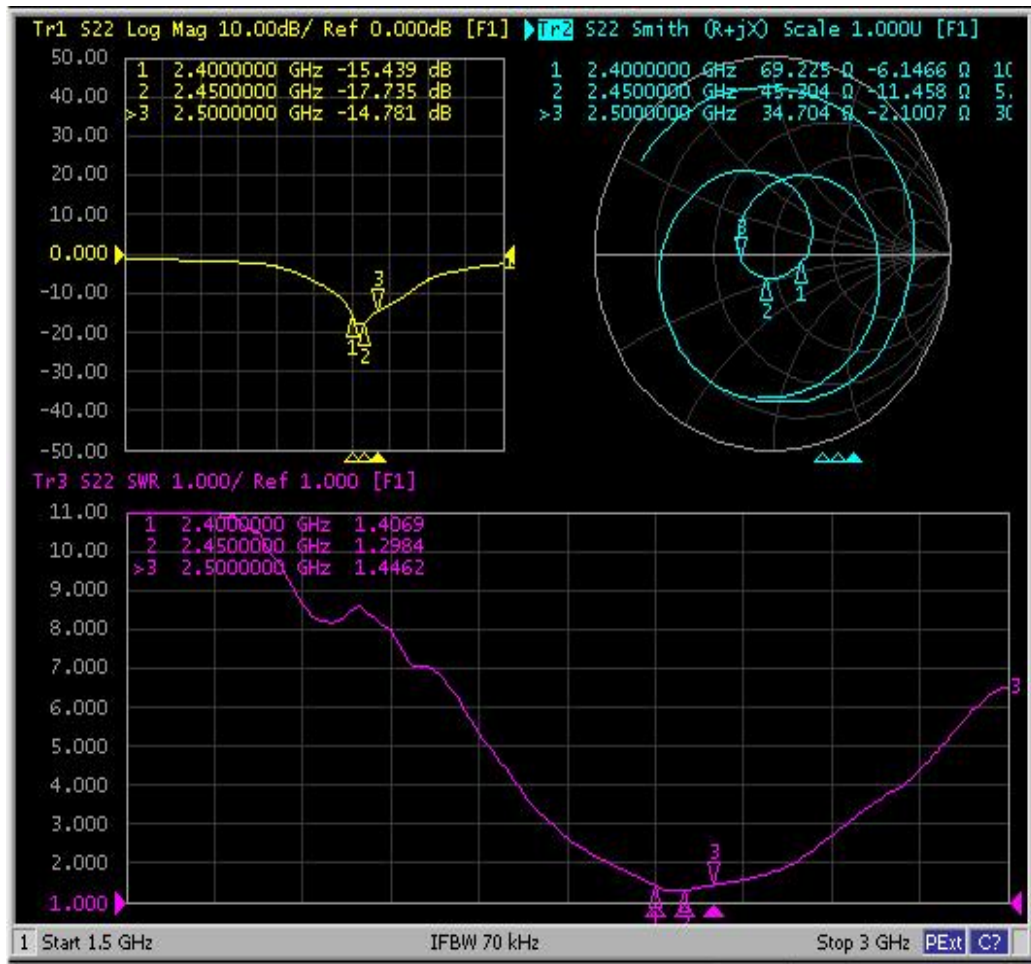
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4、VSWR 参数图 VSWR parameter diagram

BT 天线:



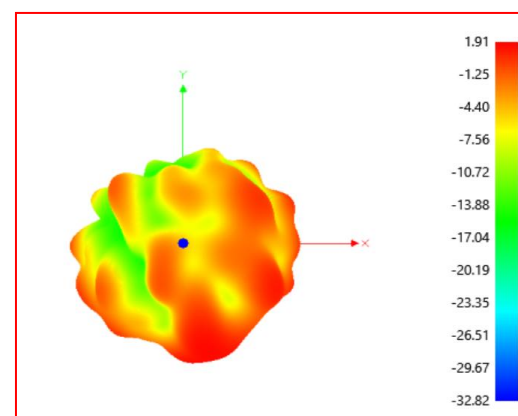
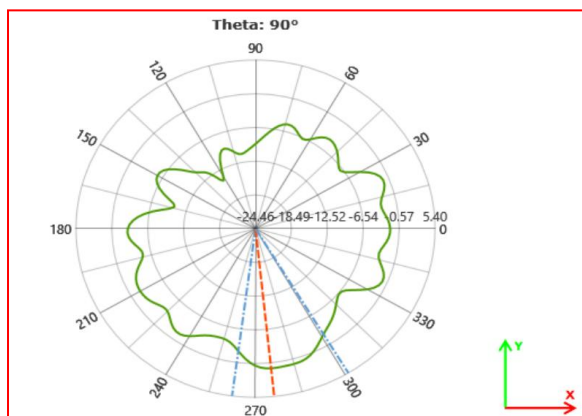
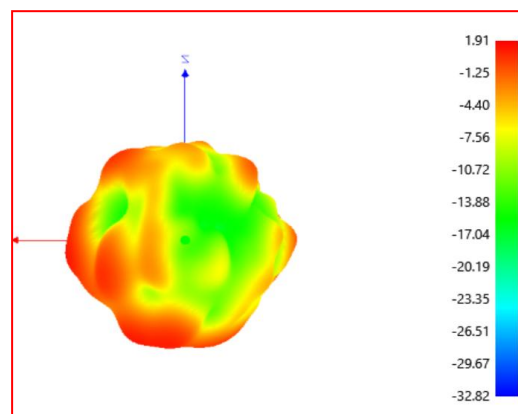
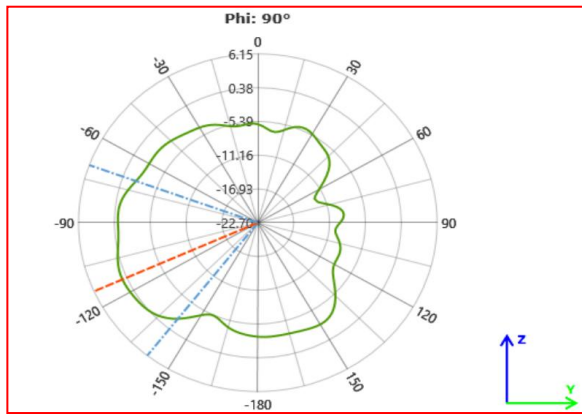
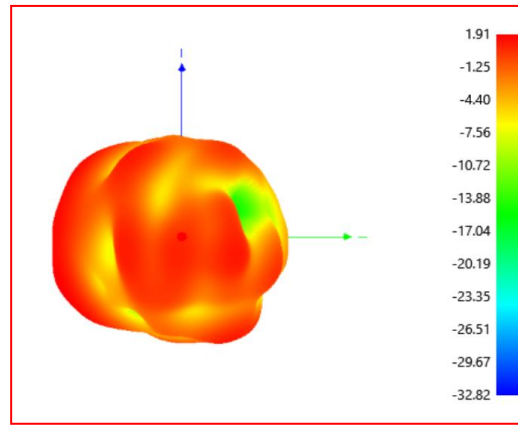
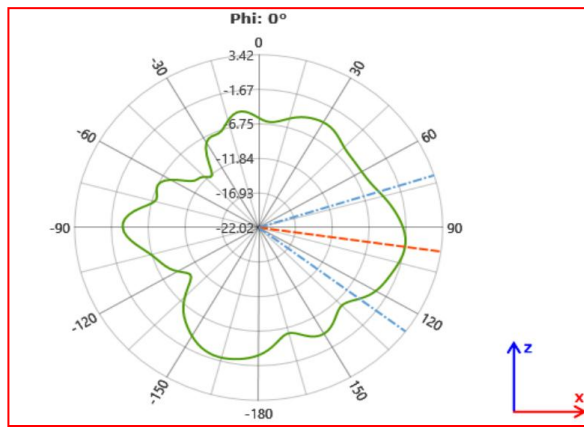
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5、无源场型图 Passive Field Pattern Diagram

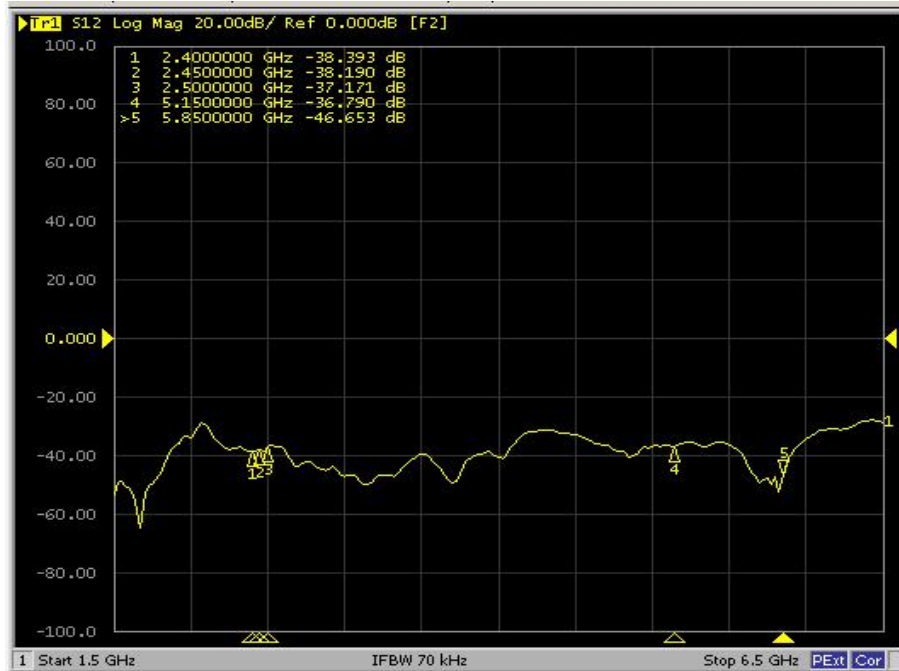
BT 天线:



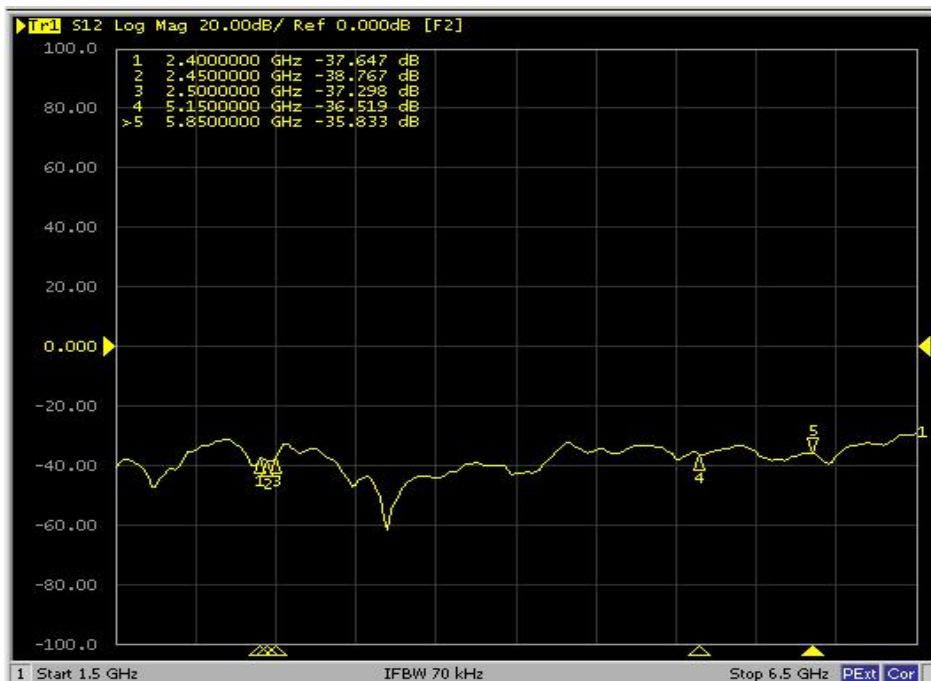
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6、天线测试结果: 整机数据--隔离度 Antenna Test Results: Whole Unit Data - Isolation WIFI0--BT



WIFI1-BT

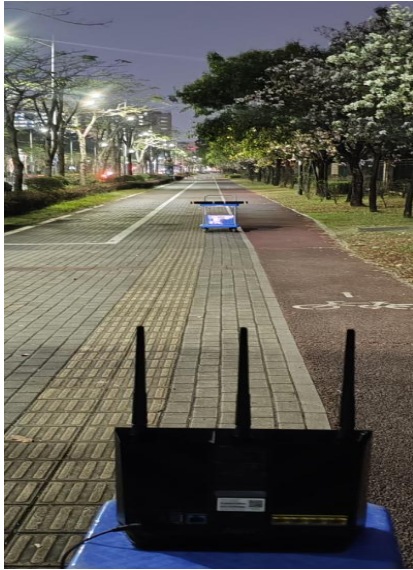


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7、拉距测试 Pull distance test



测试时间 Testing time: 2024/10/08

测试场地 Test site: 深圳鹤洲劲拓股份公司附近

Near Shenzhen Hezhou Jintuo Co.

测试手机 Test Cell Phones: Iphone 14 Pro

测试路由器 Test Router: 华硕-RT-AC86UA SUS-RT-AC86U

后 empess

左 Left



右 Right

前 ahead

测试方向 Test direction	前 ahead	后 empess	左 Left	右 Right
	测试距离Test Distance			
BT	100M	100M	100M	100M
WIFI 2.4G	200M	200M	200M	200M
WIFI 5.8G	255M	255M	255M	255M

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8、天线装机注意事项 Antenna mounting precautions

BT 天线出线方式如下使用胶带固定，
不与 WIFI0 天线同轴线有交叉

The BT antenna outlet is fixed with tape as follows, and does not cross with the WIFI0 antenna coaxial cable.



此圆柱体 BT 天线同轴线位于最下方，WIFI0 天线同轴线位于上方，
BT 天线同轴线和 WIFI0 同轴线，没有触碰到一起

This cylinder BT antenna coaxial line is located at the bottom, WIFI0 antenna coaxial line is located with the top, BT antenna coaxial line and WIFI0 coaxial line, did not touch each other

9、结论 conclusion

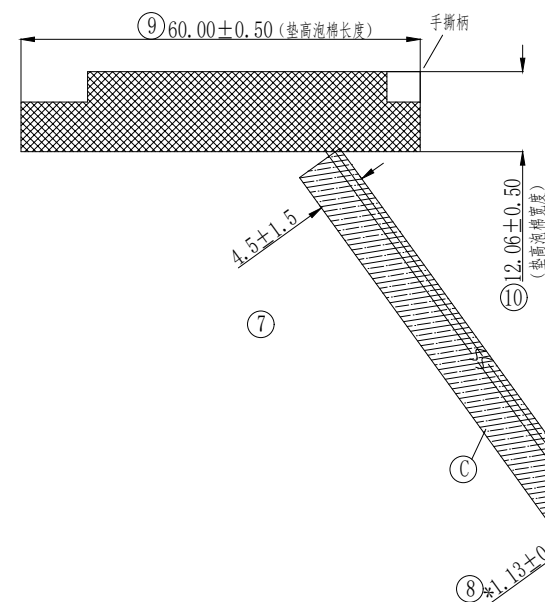
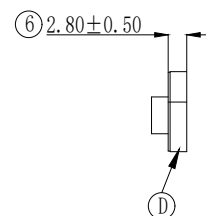
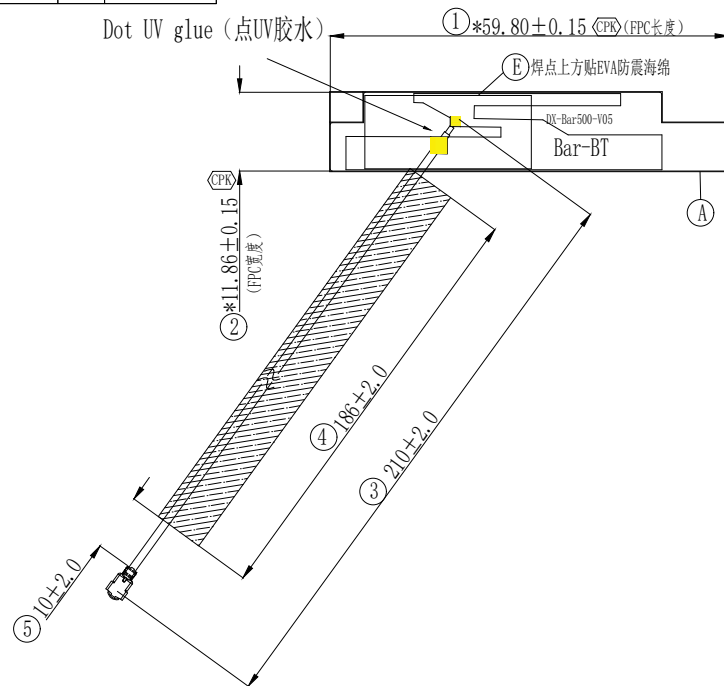
此天线是在客户提供样机基础上设计，电参数和结构性能已达到技术要求，请确认！

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			
第三视角								0~10	10~30	30~50	50~	角度	○	◎	⊥	∕
单位	mm	比例					1:1		0.05	0.10	0.15	0.20	1°	0.02	0.02	0.03



E	防震海绵	EVA 38度 T=1mm	黑色	
D	EVA泡绵	EVA 38度 T=2.5mm	黑色	
C	线材海绵	PU海绵 T=1.5mm	黑色	
B	端子线	Cable线	蓝色	
A	FPC(带补强)	电解铜 PI	黑色	
序号	零件名称	材质	颜色	备注

注:

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；

A	首次绘制		
版 本	描述	日期	备注



深 圳 大 显 科 技 有 限 公 司

Shenzhen Daxian Technology Co., Ltd.

机 型	Bar500	产品颜色	黑色	日 期	2024/10/14
项目编码	BB-ar500-068	模面处理		结构设计	周锐斌
零件名称	Bar-BT天线			射频设计	沈川
零件编码	2B-ar500-068			审 核	周康
材 质	FPC+线材海绵+同轴线+EVA泡棉			批 准	张磊
保存路径				当前版本	A