

SPECIFICATION

深圳市大显科技有限公司

Shenzhen Daxian Technology Co., Ltd.

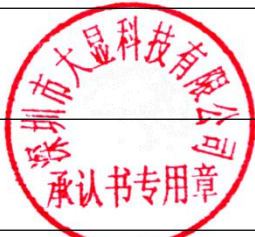


通力 Bar1300XMK2 Dongle WIFI 1 天线组件

Tonly Bar1300XMK2 Dongle WIFI 1 Antenna assembly

产 品 规 格 书

Product Specification

客 户 connection	通力 Tonly	频 段 frequency range	2400 ~ 2500MHz、5150 ~ 5850MHz
项目名称 entry name	Bar1300XMK2 Dongle	版 本 edition	V2.0
物料编号 Material No	3B-ar1300X-104	颜 色 Color	黑色+蓝色 Black+Blue
客户料号 Customer Item Number			
环保要求 environmental requirement			
	☒ RoHS ☒ REACH ☒ HF		
R F 设计 R F Design	刘柱东 ZhuDong.Liu	结构设计 Structural Design	周锐斌 Rui Bin.Zhou
品质经理 Quality Manager	潘帅帅 ShuaiShuai.Pan	技术总监 Technical Director	张 磊 Lei.Zhang
日 期 Date	2025-04-07		

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

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			2025-02-26	
V2.0	更新 modify	天线性能及设计结构更新 Antenna performance and design structure update	DX	2025-04-07	

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一 项目说明 Project Description

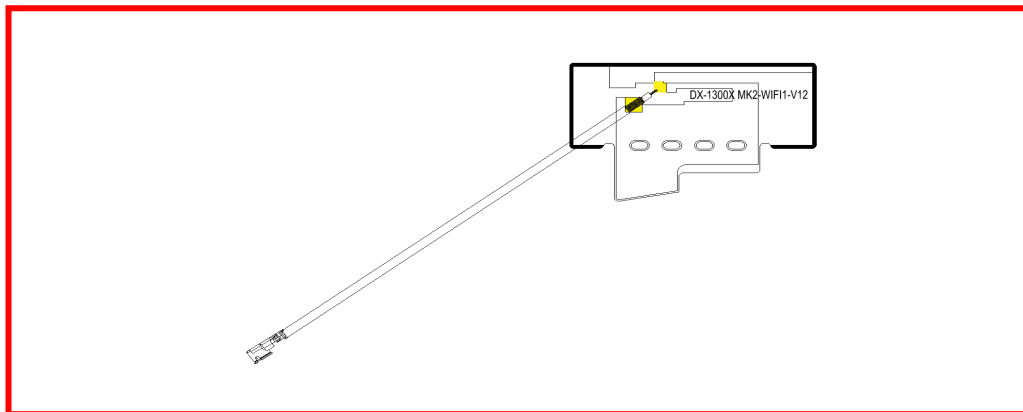
客户名: Customer Name:	通力 Tonly
整机类型: Type of complete machine:	音箱 loudspeaker box
天线频段: Antenna band:	2400~2500MHz、5150~5850MHz
天线形式: Antenna form:	FPC+同轴线 FPC + coaxial cable
馈电形式: Feed form:	焊接 weld
硬件版本: Hardware version:	/

二 WIFI 1 天线组件 Antenna assembly

1 规格 specifications

本报告主要提供 Bar1300XMK2 Dongle 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 Bar1300XMK2 Dongle 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 ~ 2500MHz、5150 ~ 5850 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 2500MHz、5150 and 5850 MHz. The following table shows the electrical performance indicators of large display design and mass production antennas.

Frequency Range	Frequency (MHz)	VSWR
WIFI 1	2400 ~ 2500、5150 ~5850	≤ 2

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 组成。

The antenna is mainly composed of FPC + coaxial cable .

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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:

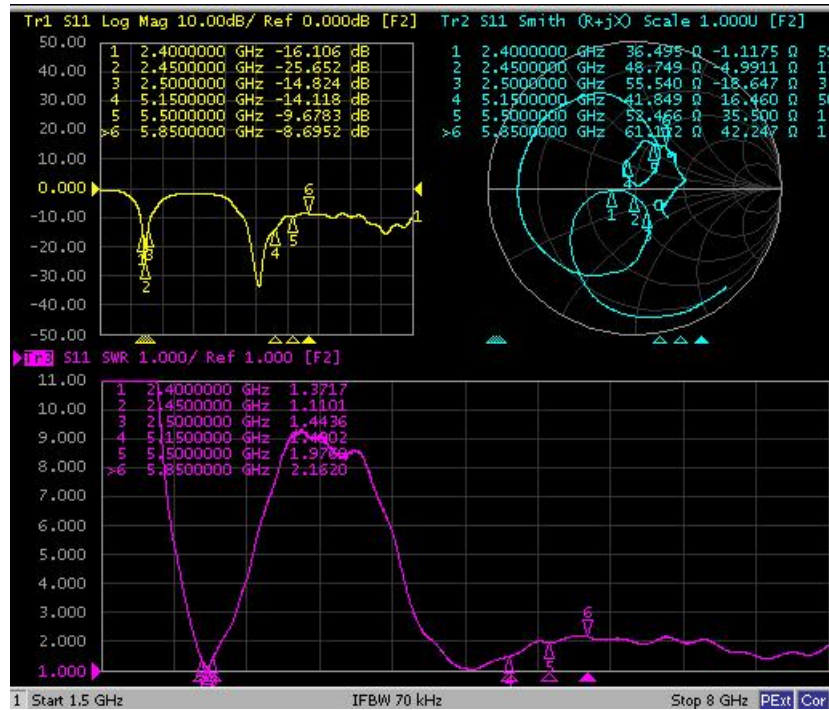
Frequency (MHz)	Gain (dBi)	Efficiency (dB)	Efficiency (%)
2400	0.75	-2.89	51.42
2450	0.79	-2.88	52.93
2500	0.78	-2.91	51.15
5150	2.44	-3.01	50.04
5250	2.47	-2.85	51.9
5350	2.54	-2.38	57.78
5450	2.53	-2.56	55.46
5550	2.6	-2.63	54.58
5650	2.49	-2.59	55.13
5750	2.59	-2.44	56.97
5850	2.52	-2.47	56.65

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4、VSWR 参数图 VSWR parameter diagram



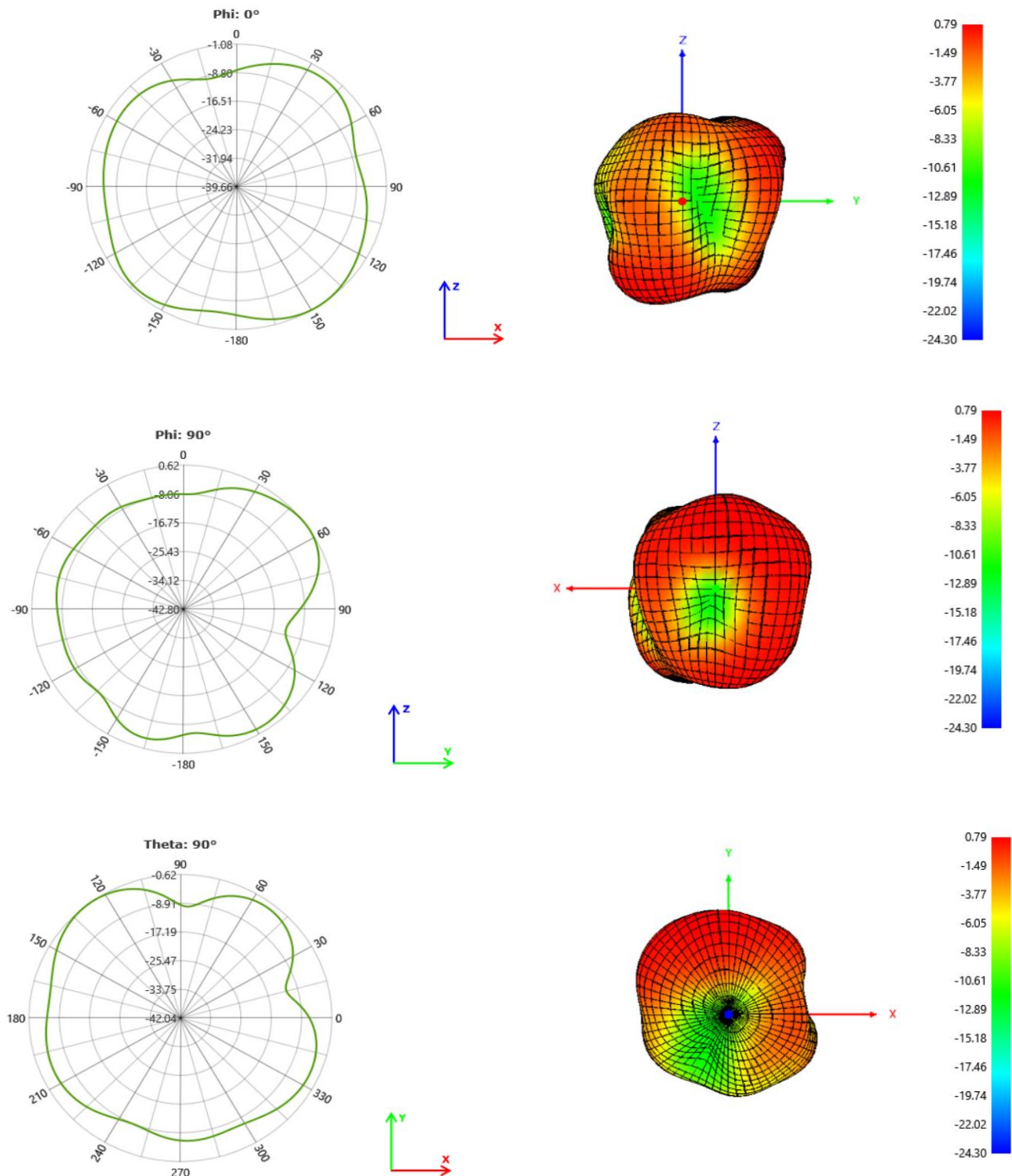
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5、无源场型图 Passive Field Pattern Diagram

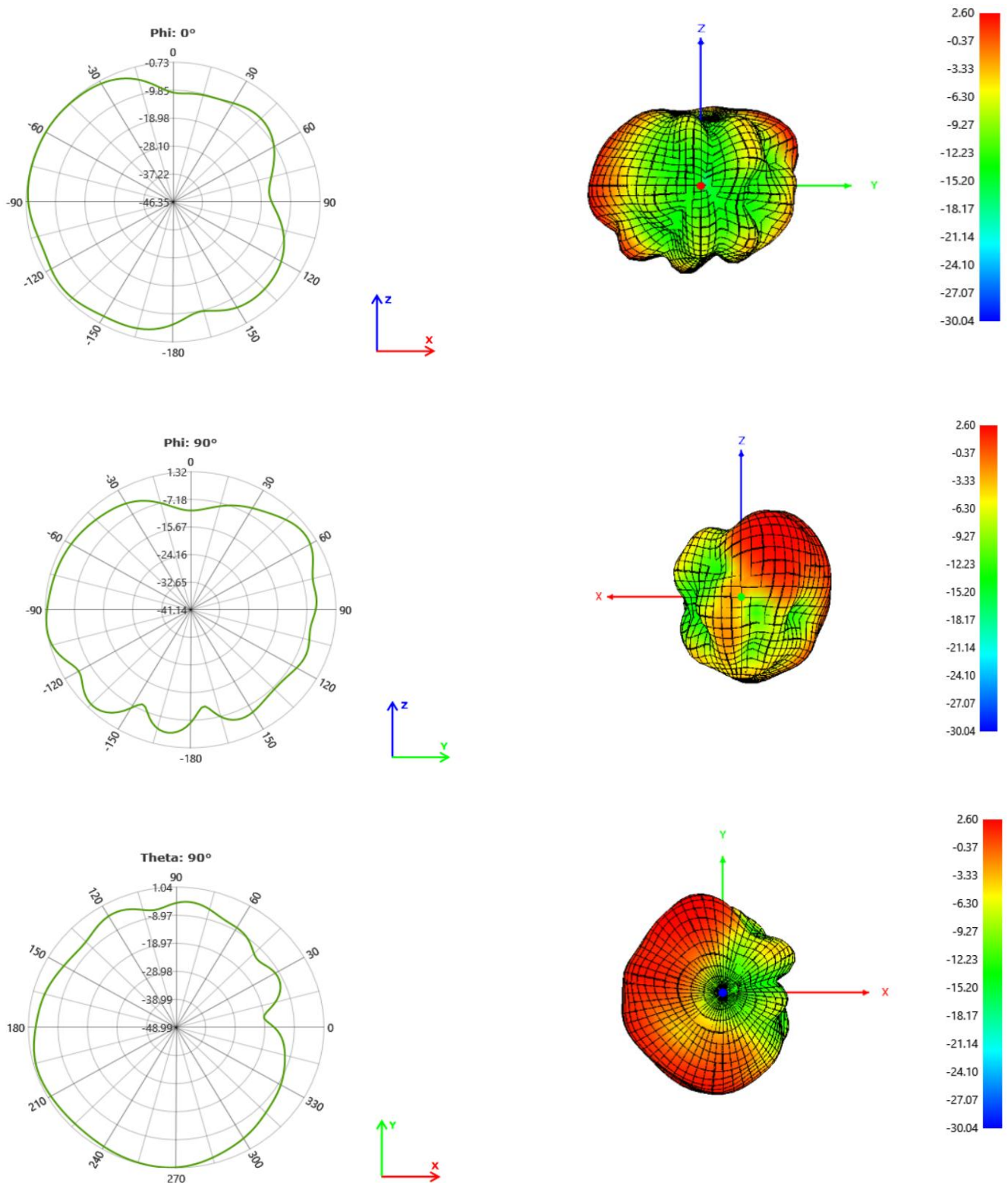
2.4G



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5G

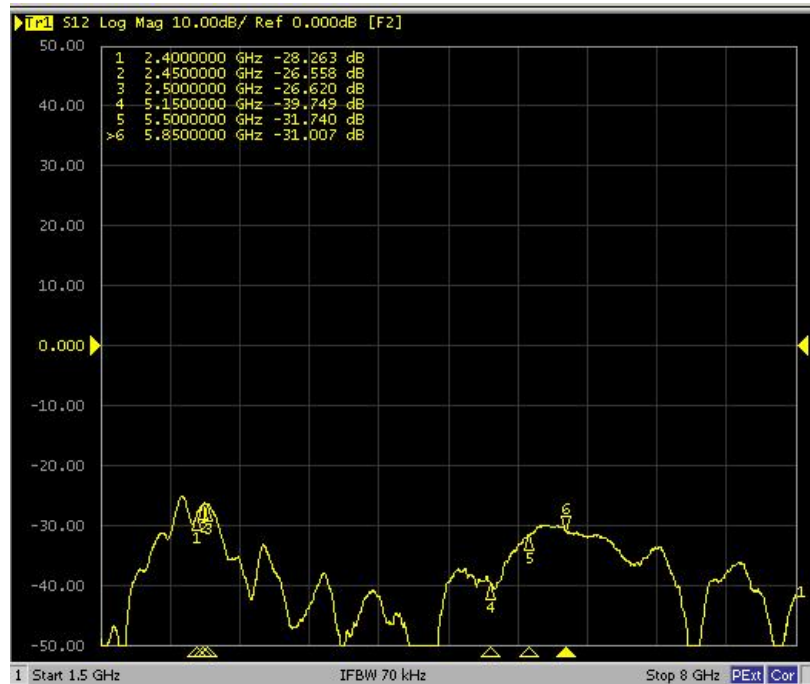


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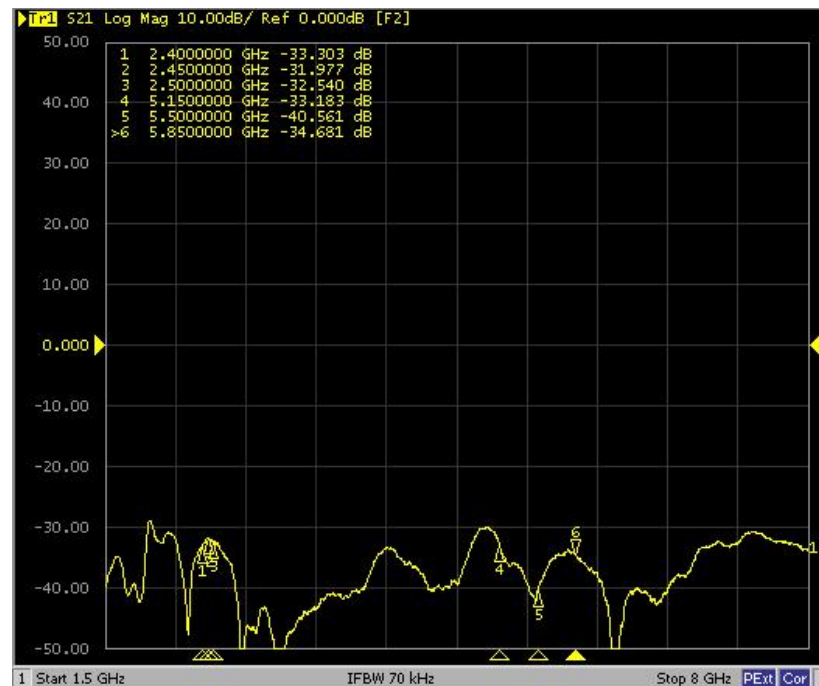
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6、天线隔离度 Antenna isolation degree

WIFI 1&BT



WIFI 0&WIFI1



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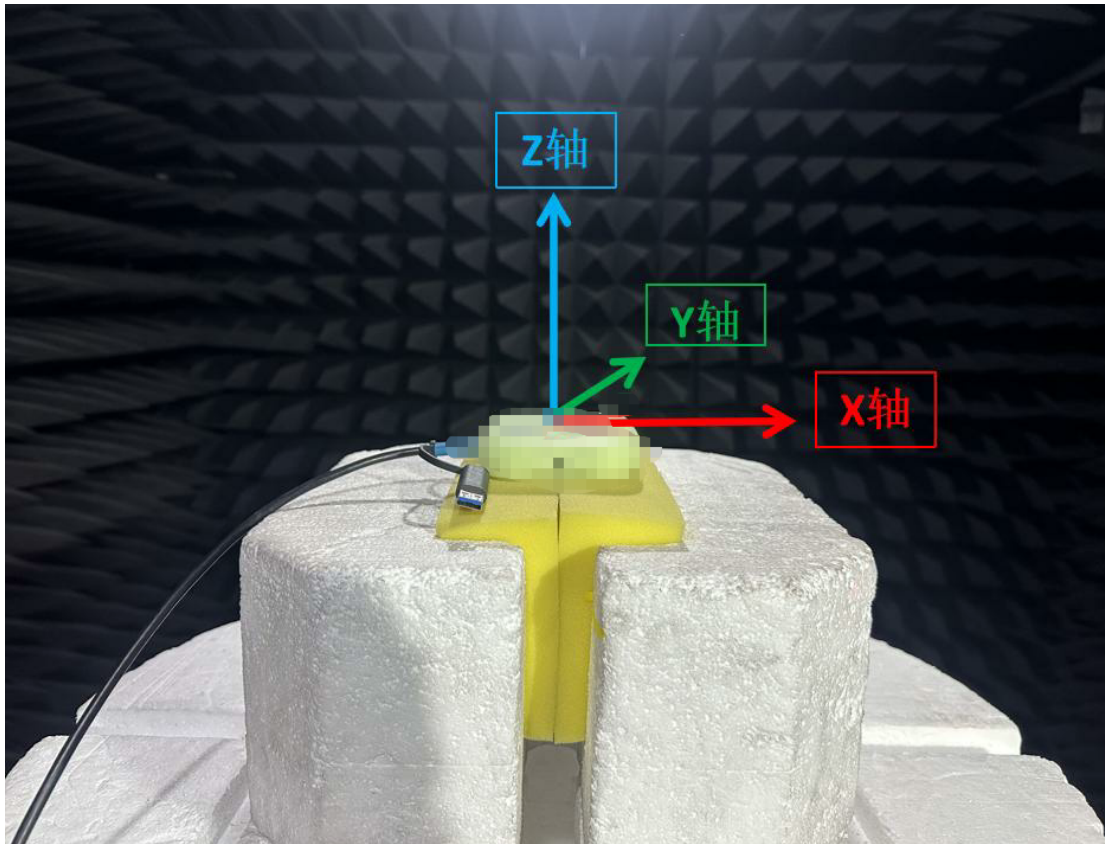
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7、整机环境处理 Environmental treatment of the whole machine

各天线之间的隔离达到客户的使用需求，不过需要整机进行两个环境处理（方式如下图），经过硬件确认，可以实现。

The isolation between each antenna meets the customer's usage requirements, but requires the whole machine to undergo two environmental treatments (as shown in the figure below). After hardware confirmation, it can be achieved.

8、测试环境示意图 Schematic diagram of testing environment



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！

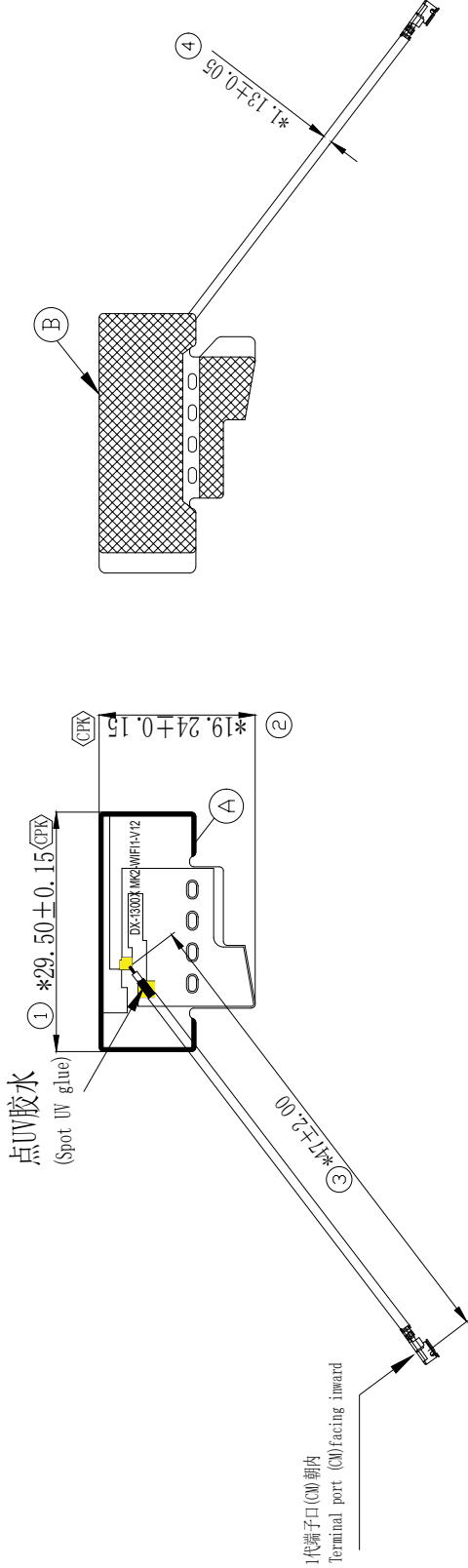
This antenna is designed based on the prototype provided by the customer. The electrical parameters and structural performance have met the technical requirements, please confirm!

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

A



B

C

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.)

B	端子引线(RF connector)	Cable	蓝色 (Blue)
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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1. 机壳 (Machine model)
2. 项目编码 (Project Code)
3. 零件名称 (Part Name)
4. 零件编码 (Part Number)
5. 材质 (material)
6. 保存路径 (Save Path)

1300X MK2-Dongle	产品颜色 (Product Color)	黑色 (black)	日期 (date)	2025/05/29
BB-ar1300X-104	表面处理 (Mold surface treatment)	NA	结构 (MD)	周锐斌
WIFI天线 (WIFI antenna)	单位 (unit)	mm	比例 (scale)	1:1
3B-ar1300X-104	第三视角 (Third perspective)	射频 (RF)	审核 (check)	刘柱东
FPC+HF connector	第三视角 (Third perspective)	射频 (RF)	批准 (ratify)	吴锡欢
保存路径 (Save Path)		当前版本 (current version)	A	

版本 (edition)	描述 (describe)	日期 (date)	备注 (Note)
1			

D