

SPECIFICATION



深圳市大显科技有限公司

Shenzhen Daxian Technology Co., Ltd.

国光 MOTO WiFi 天线组件

GGEC MOTO WiFi Antenna assembly

产 品 规 格 书

Product Specification

客 户 connection	国光 GGEC	频 段 frequency range	2400 ~ 2500MHz、5150~5850MHz		
项目名称 entry name	MOTO	版 本 edition	V08		
物料编号 Material No	3M-0TOXX-076	颜 色 Color	黑色 Black		
客户料号 Customer Item Number	深圳市大显科技有限公司 结构设计 技术总监 设计专用章				
R F 设计 R F Design				刘柱东 ZhuDong.Liu	周锐斌 Ruibin.Zhou
品质经理 Quality Manager				潘永杰 YongJie.Pan	张 磊 Lei.Zhang
日 期 Date	2025-09-26				

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.

深圳市龙岗区布吉镇吉华路 513 号上水径村(国防培训基地
对面) 达成工业园综合楼 7 楼

TEL:0755-28576002

FAX:0755-84276383

上海分部: 上海市张江高科技园区集成电路产业区龙东大道
3000 号 8 号楼 201 室

TEL:021-61630552

FAX:755-84276383

Buji Town, Longgang District, Shenzhen, China Jihua Road 513,
Shangshuijing Village (opposite the national defense
training base) Dacheng Industrial Park, Building 7.

TEL:0755-28576002

FAX:0755-84276383

Room201, Building8, LongDongRoad3000#, Semiconductor Industry
Park, ZhangJiang Hitech Zone, ShangHai

TEL:021-61630552

FAX:755-84276383

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			2025-06-17	
V2.0	更新 modify	天线性能及设计结构 更新 Antenna performance and design structure update	DX	2025-07-21	
V3.0	更新 modify	天线设计结构变更及 同轴线线长改为 127mm 长 Antenna design structure changed and coaxial cable length changed to 127 mm	DX	2025-08-20	
V3.0	更新 modify	天线电性能数据更新 Antenna Electrical Performance Data Update	DX	2025-09-26	

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一 项目说明 Project Description

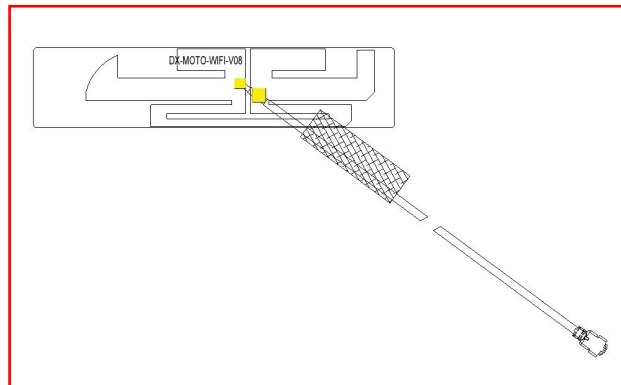
客户名: Customer Name:	国光 GGEC
整机类型: Type of complete machine:	音箱 loudspeaker box
天线频段: Antenna band:	2400 ~ 2500MHz、5150 ~ 5850MHz
天线形式: Antenna form:	FPC+同轴线+线材海绵 FPC+coaxial line+wire sponge
馈电形式: Feed form:	焊接 weld
硬件版本: Hardware version:	/

二 WIFI 天线组件 Antenna assembly

1 规格 specifications

本报告主要提供 MOTO 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 MOTO 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
Wifi	2400 ~ 2500、5150~5850	≤ 2

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

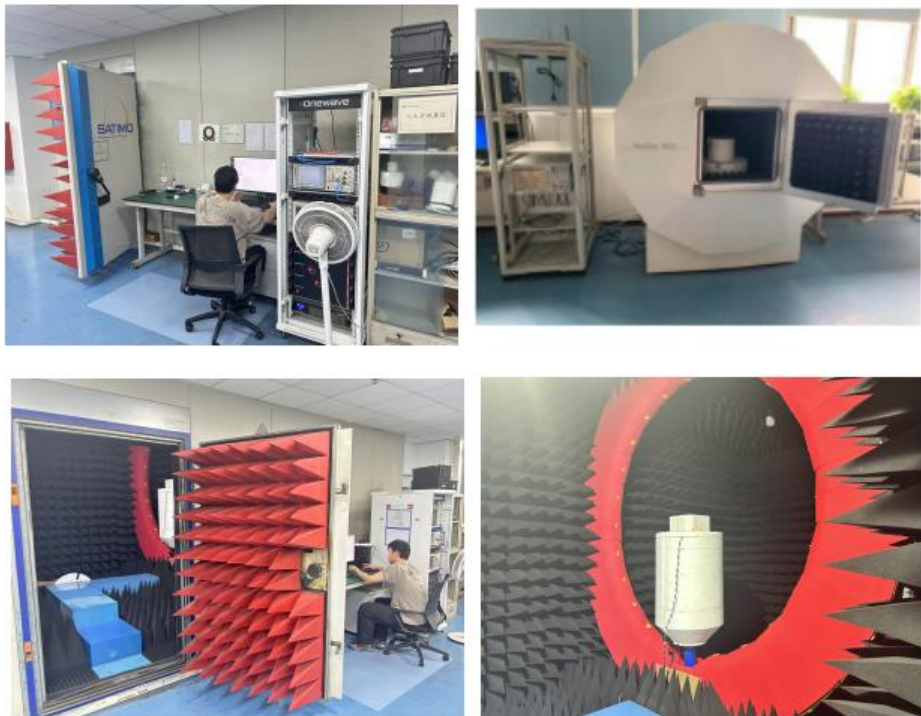


图 2

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 below

OTA 有源测试 OTA active testing

		TPR	TIS
802.11b 11M	1	13.35	-82.46
	6	14.32	-82.66
	11	13.84	-82.25
802.11g 54M	1	11.69	-70.29
	6	12.05	-70.49
	11	11.57	-70.69
802.11n MCS7	1	11.63	-69.15
	6	11.77	-69.67
	11	11.46	-69.23
802.11a 54M	36	12.15	-72.58
	100	12.77	-72.76
	161	12.45	-72.39

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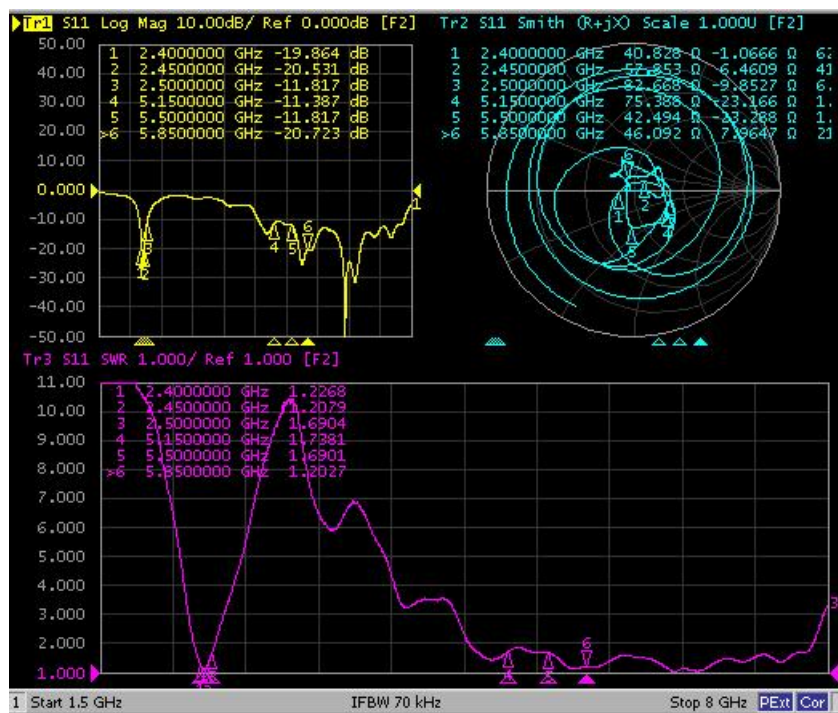
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无源效率&增益 Passive efficiency&gain:

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
2400	51.85	-2.85	2.1
2450	52.81	-2.77	2.23
2500	50.63	-2.96	2.17
5150	48.64	-3.13	2.12
5250	50.35	-2.98	2.08
5350	50.45	-2.97	2
5450	51.87	-2.85	2.22
5550	51.85	-2.85	2.27
5650	52.72	-2.78	2.22
5750	52.58	-2.79	2.15
5850	54.02	-2.67	2.15

4、VSWR 参数图 VSWR parameter diagram



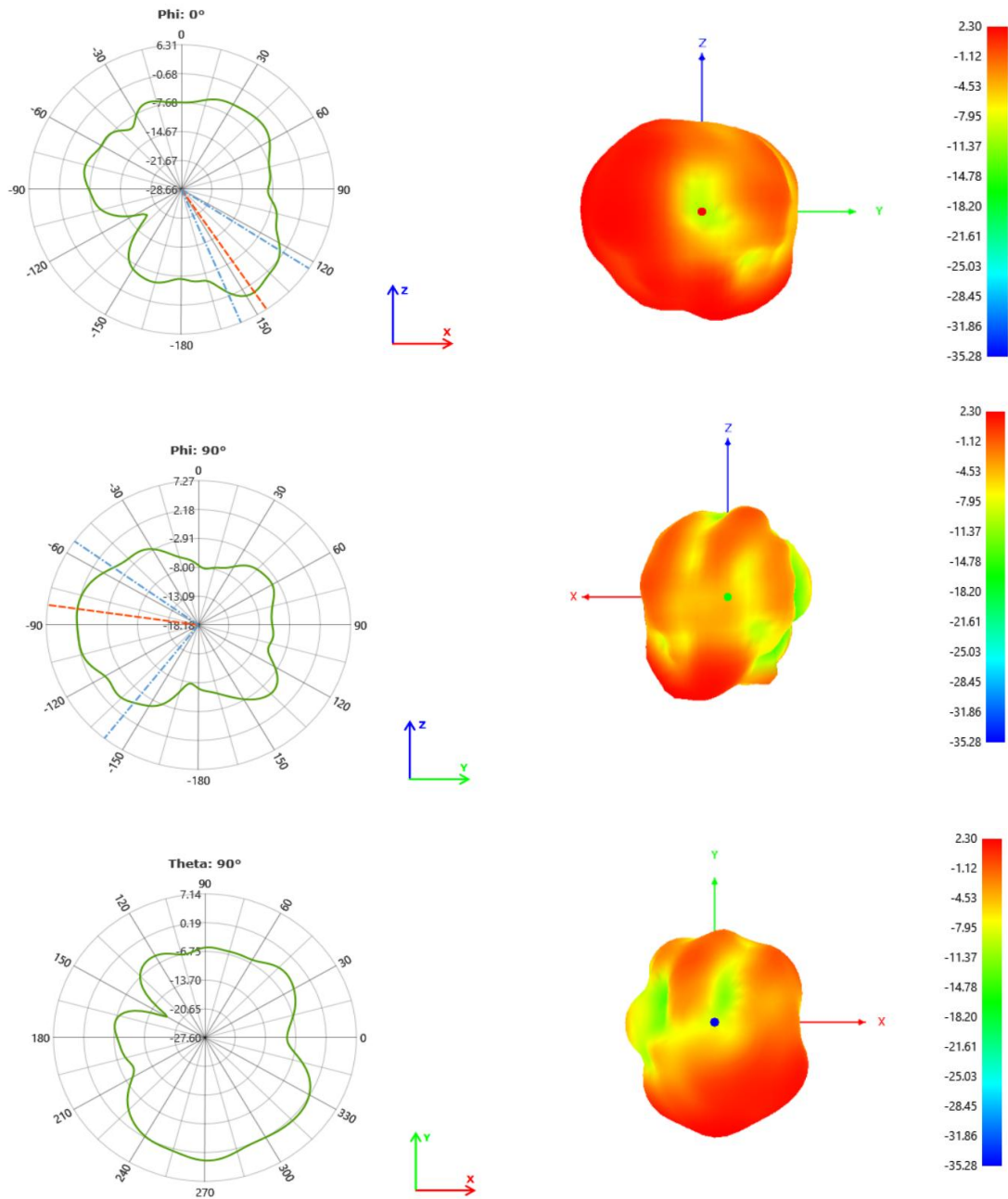
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5、无源效率场型图 Passive efficiency field pattern diagram

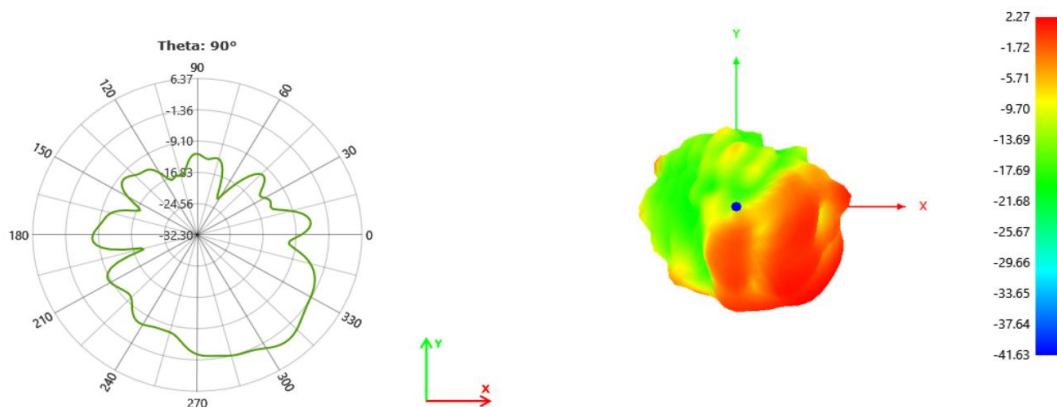
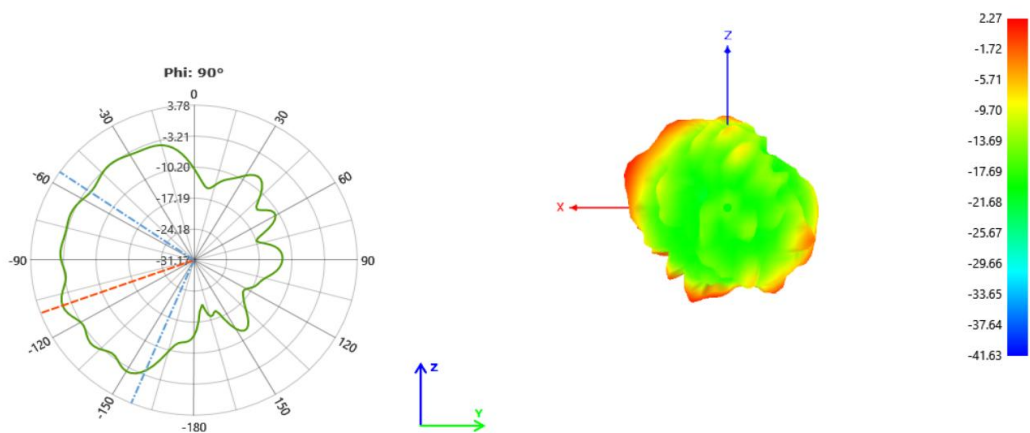
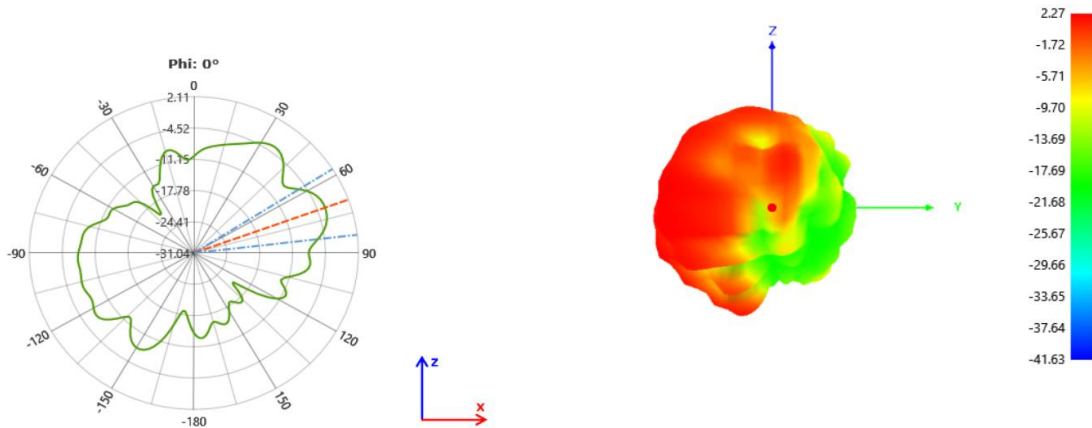
2450MHz



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5550MHz



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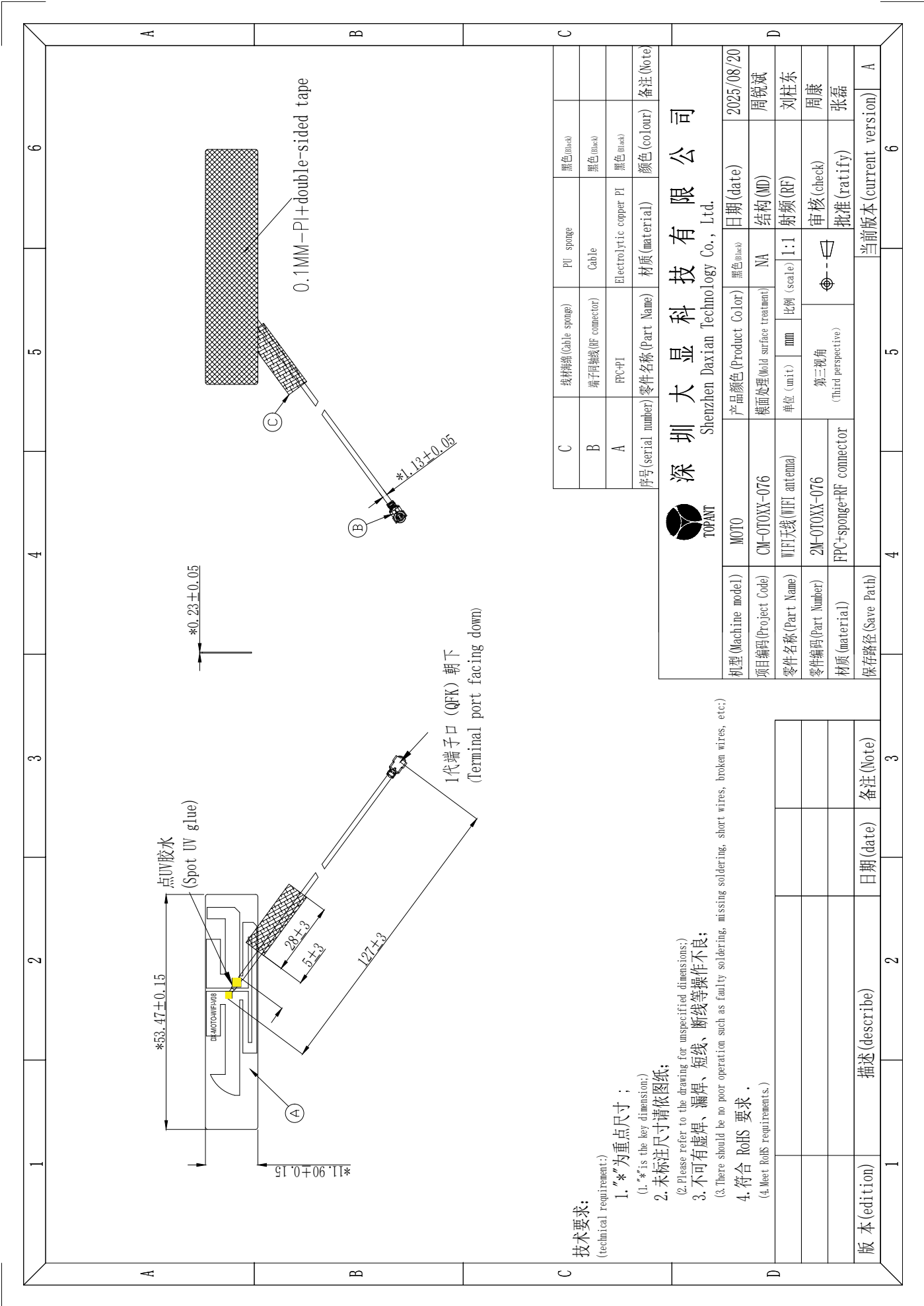
7、结论 conclusion

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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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)	PU sponge	黑色 (Black)	
B	端子引线 (RF connector)	Cable	黑色 (Black)	
A	FPC+PI	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 Daxian Technology Co., Ltd.

机型 (Machine model)	MOTO	产品颜色 (Product Color)	黑色 (Black)	日期 (date)	2025/08/20
项目编码 (Project Code)	CM-0T0XX-076	表面处理 (Mold surface treatment)	NA	结构 (MD)	周锐斌
零件名称 (Part Name)	WiFi天线 (WiFi antenna)	单位 (unit)	mm	比例 (scale)	1:1
零件编码 (Part Number)	2M-0T0XX-076	第三视角 (Third perspective)	审核 (check)	射频 (RF)	刘柱东
材质 (material)	FPC+sponge+RF connector		批准 (ratify)		周康
保存路径 (Save Path)					张磊

版本 (edition)	描述 (describe)	日期 (date)	备注 (Note)
1		2	3
当前版本 (current version)		5	6