

SPECIFICATION

深圳市大显科技有限公司

Shenzhen Daxian Technology Co., Ltd.

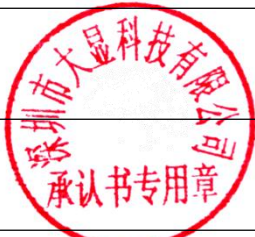


通力 Q95 BT 天线组件

Tonly Q95 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	Q95	版 本 edition	V05
物料编号 Material No	1Q-95XXX-141	颜 色 Color	黑色 +蓝色 Black +Blue
客户料号 Customer Item Number			
环保要求 environmental requirement			
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	李高亮 GaoLiang.Li	技术总监 Technical Director	张 磊 Lei.Zhang
日 期 Date	2026-04-08		

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

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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			2026-01-22	
V2.0	更新 modify	天线丝印 V03 版, 包棉 增加克氯丁防震棉, 管控焊 点高度低于 2mm, 取消 UV 点胶, 增加醋酸胶布和 EVA 泡棉 Antenna Silk Screen V03 Edition: Add chloroprene shock-absorbing cotton to the cotton wrapping. Control solder joint height below 2mm. Eliminate UV dispensing. Add acetate adhesive tape and EVA foam.	DX	2026-02-25	
V2.0	更新 modify	天线丝印 V05 版, 取消醋酸 胶布, EVA 泡棉加宽, 同轴 线颜色改为蓝色, 及电性能 数据更新 Antenna screen printing, Version V05: Remove the acetate tape; widen the EVA foam; change the coaxial cable color to blue, Updated electrical performance data	DX	2026-04-08	

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一 项目说明 Project Description

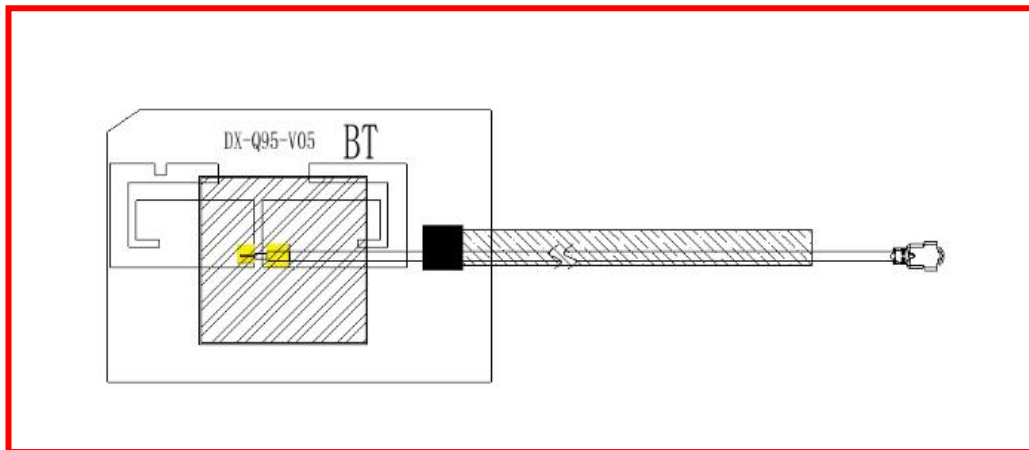
客户名: Customer Name:	通力 Tonly
整机类型: Type of complete machine:	音箱 loudspeaker box
天线频段: Antenna band:	2400~2500MHz
天线形式: Antenna form:	FPC+同轴线+线材海绵+克氯丁防震棉+EVA 泡棉 FPC+coaxial line+wire sponge+Chloroprene Shock-Absorbing Cotton+EVA foam
馈电形式: Feed form:	焊接 weld
硬件版本: Hardware version:	/

二 BT 天线组件 Antenna assembly

1 规格 specifications

本报告主要提供 **Q95** 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 **Q95** 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+克氯丁防震棉+ EVA 泡棉组成。

The antenna is mainly composed of FPC+coaxial line+wire sponge+Chloroprene Shock-Absorbing Cotton+EVA foam .

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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

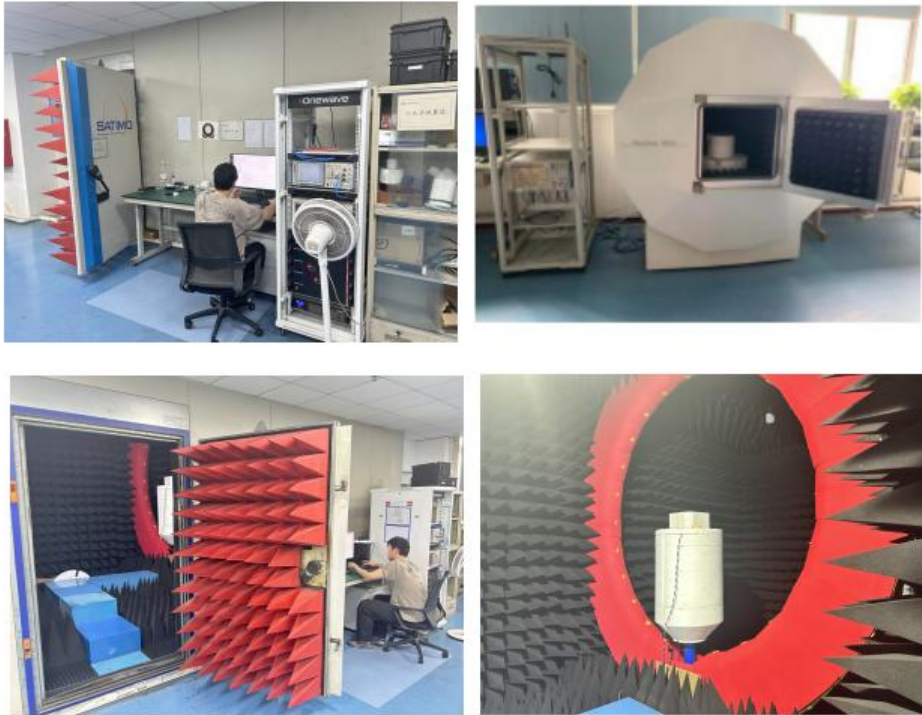


图 2

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 有源测试数据 OTA Active Test Data:

BAND	CH	TRP (dBm)	TIS (dBm)
BT	0	1.32	-88.42
	39	2.35	-88.67
	78	1.67	-88.58

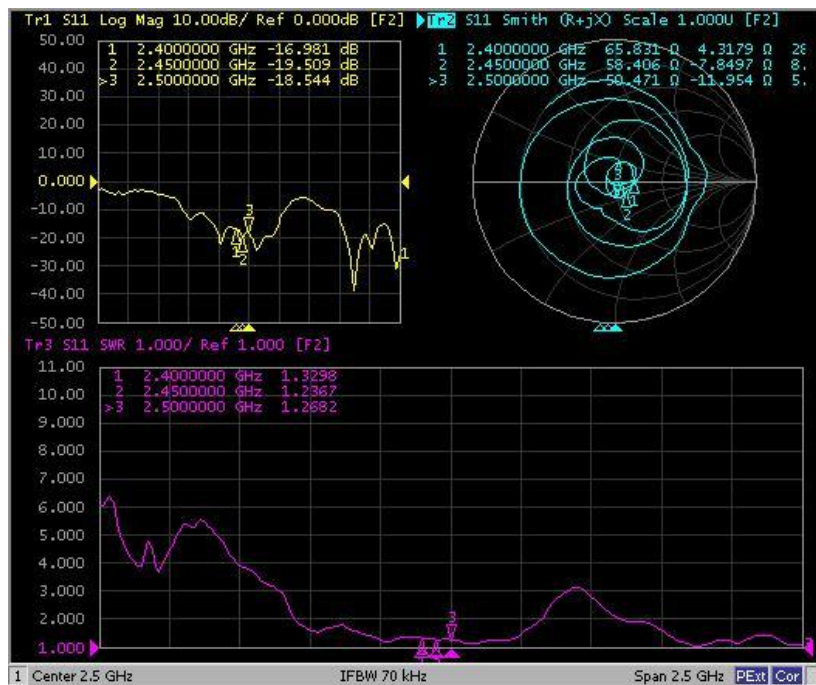
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无源效率&增益 Passive efficiency&gain:

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
2400	45.66	-3.40	2.8
2410	46.64	-3.31	2.96
2420	46.62	-3.31	3.39
2430	46.83	-3.29	3.61
2440	46.63	-3.31	3.64
2450	46.06	-3.37	3.66
2460	46.66	-3.32	3.08
2470	46.07	-3.37	3.02
2480	45.97	-3.38	3.11
2490	45.22	-3.45	3.16
2500	45.43	-3.43	3.33

4、VSWR 参数图 VSWR parameter diagram



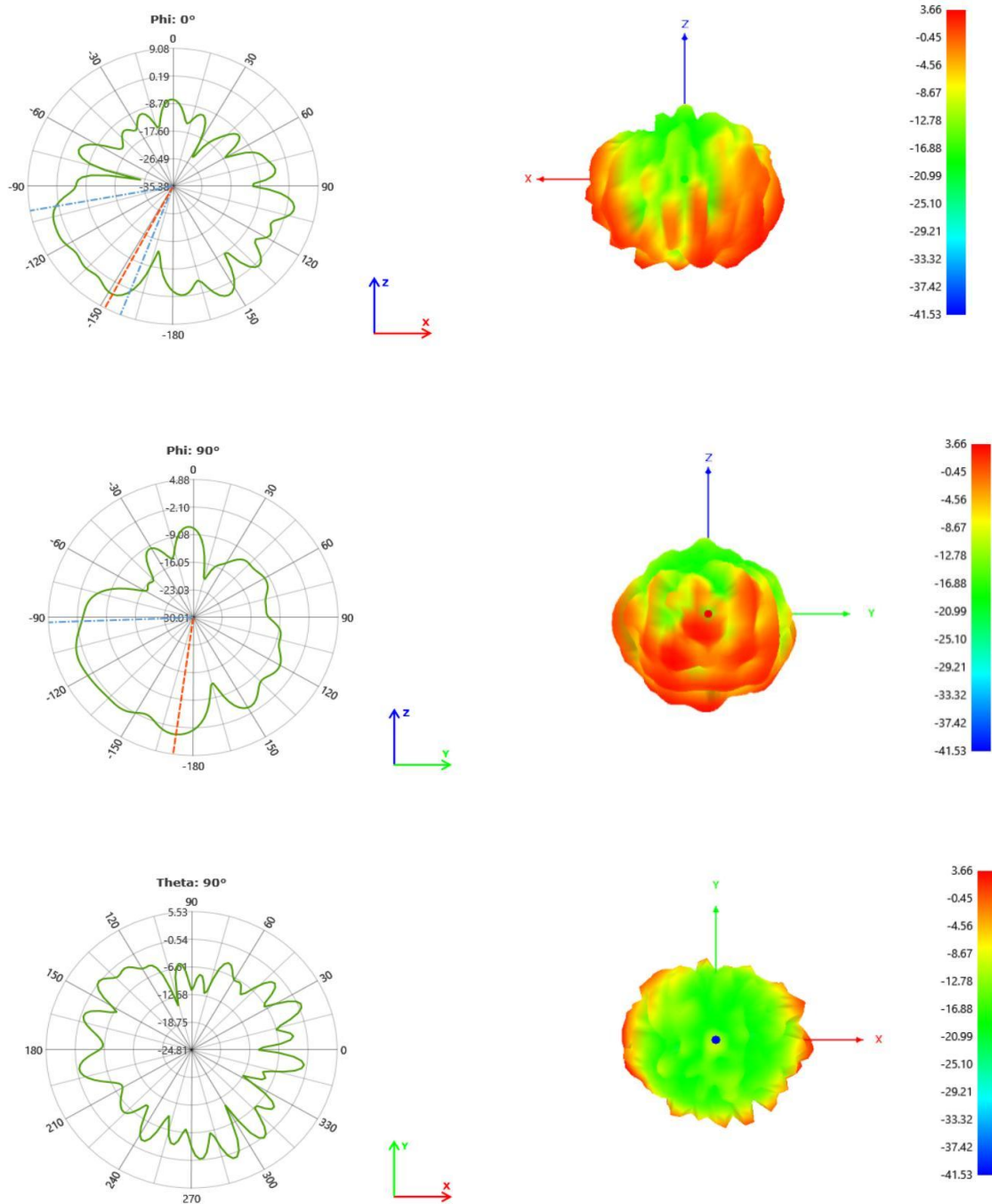
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5、无源场型图 Passive Field Pattern Diagram

2.4G

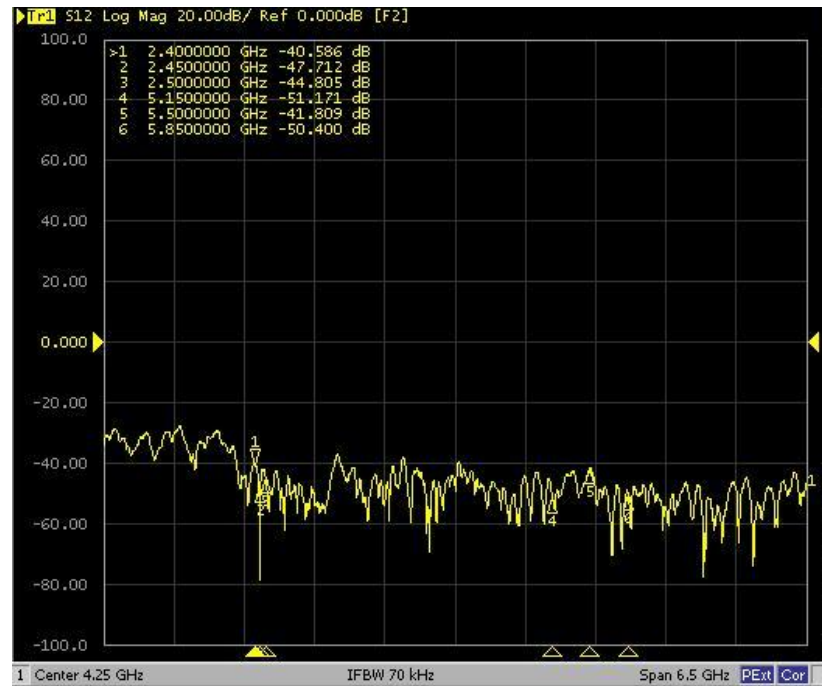


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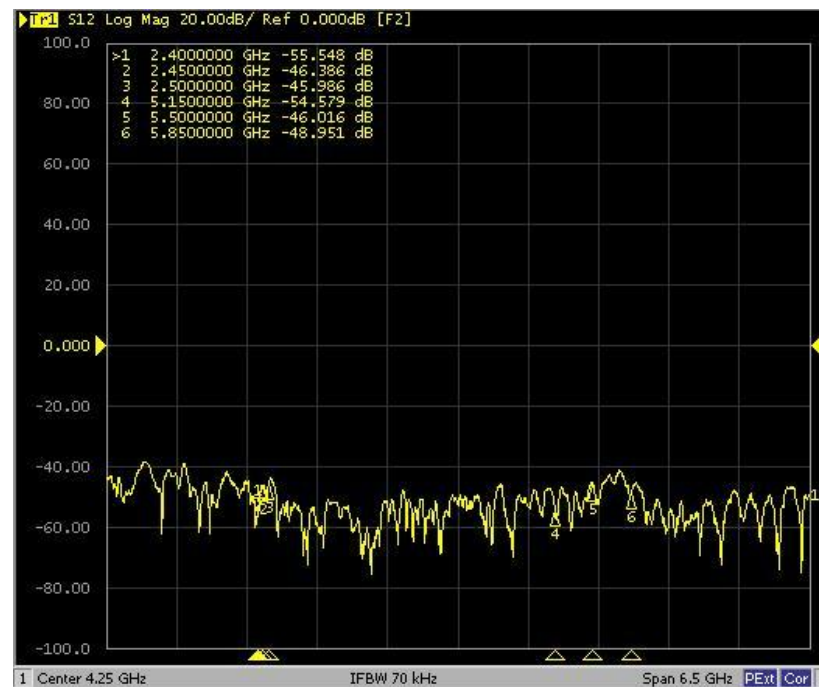
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6、天线隔离度 Antenna isolation degree

WIFI 0&BT



BT&Wieleess

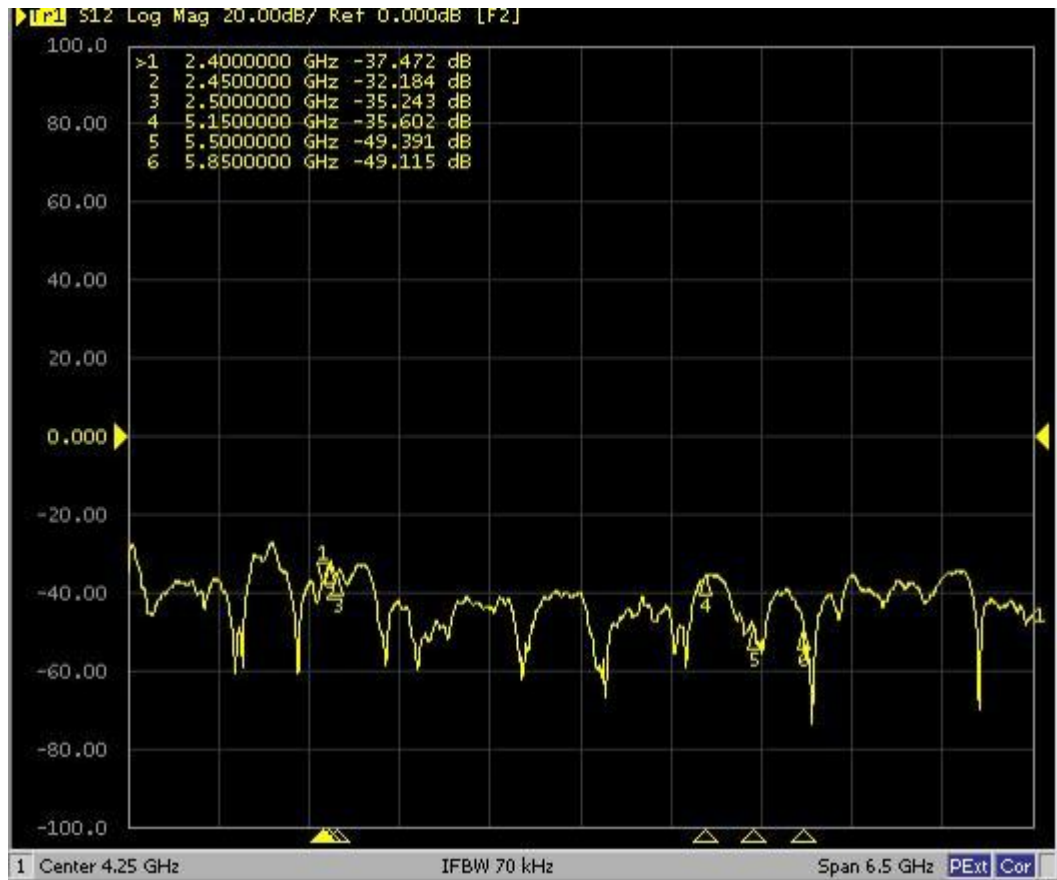


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WIFI1&BT



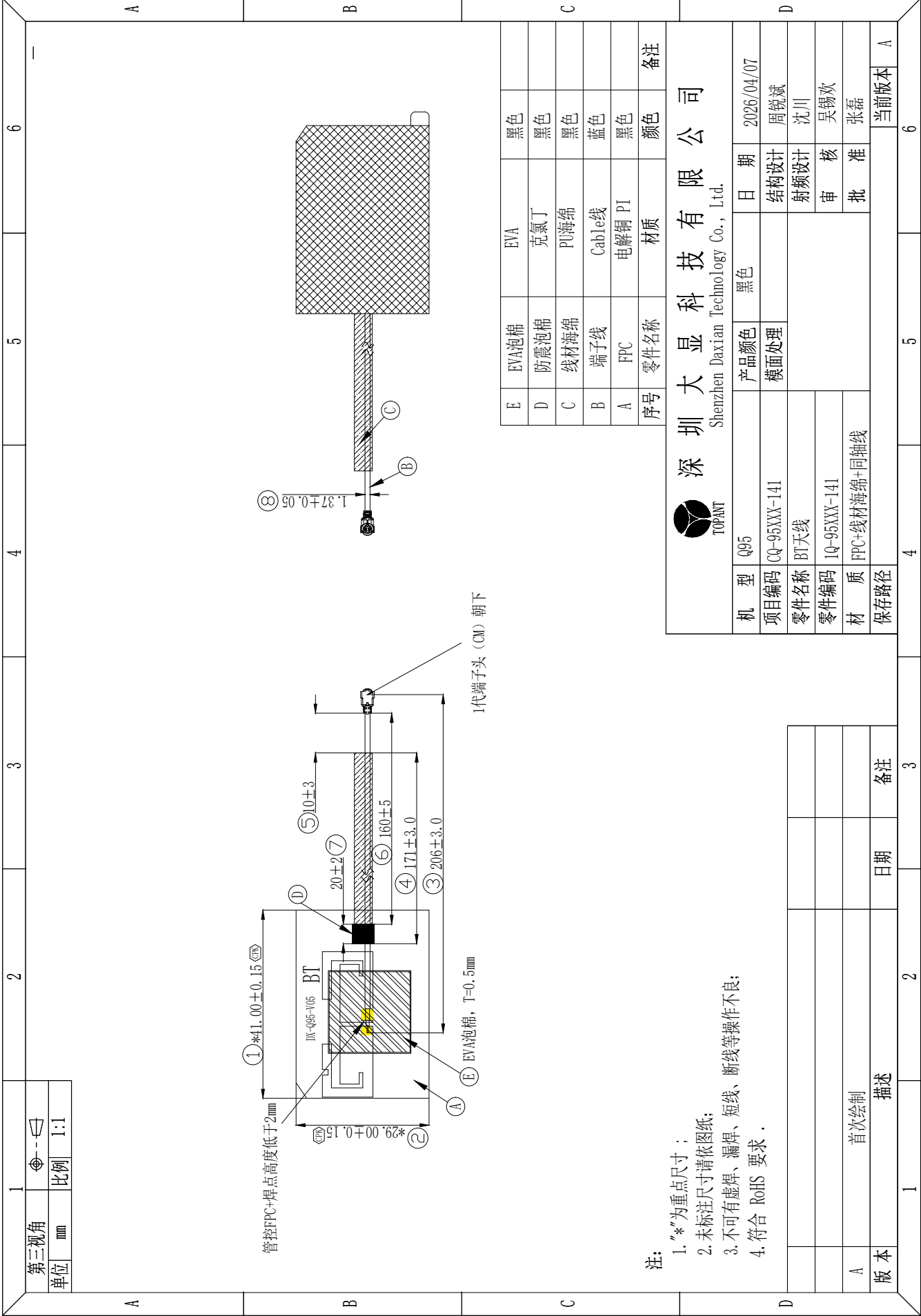
7、结论 conclusion

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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