

SPECIFICATION



深圳市大显科技有限公司

Shenzhen Daxian Technology Co., Ltd.

通力 Z100-SW BT 天线组件

Tonly Z100-SW 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	Z100-SW	版 本 edition	V4.0
物料编号 Material No	2Z-100SW-012	颜 色 Color	黑色 Black
客户料号 Customer Item Number	290000-019633		
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	潘永杰 YongJie.Pan	技术总监 Technical Director	张 磊 Lei.Zhang
日 期 Date	2025-04-23		

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

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	2025-3-13	
V3.0	更新 modify	天线线路及出线方式更新 Antenna wiring and outlets updated	DX	2025-3-19	
V4.0	更新 modify	天线电性能数据更新 Antenna Electrical Performance Data Update	DX	2025-04-23	

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一 项目说明 Project Description

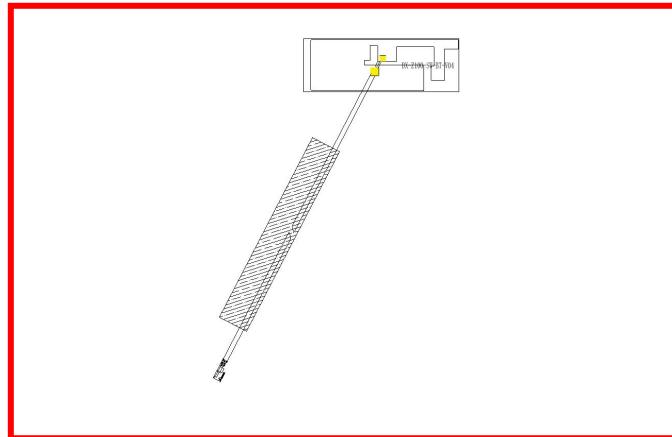
客户名: Customer Name:	通力 Tonly
整机类型: Type of complete machine:	低音箱 subwoofer box
天线频段: Antenna band:	2400 ~ 2500MHz
天线形式: Antenna form:	FPC+同轴线+线材海绵 FPC + coaxial cable + cable sponge
馈电形式: Feed form:	焊接 weld
硬件版本: Hardware version:	/

二 BT 天线组件 Antenna assembly

1 规格 specifications

本报告主要提供 Z100-SW 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 Z100-SW 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

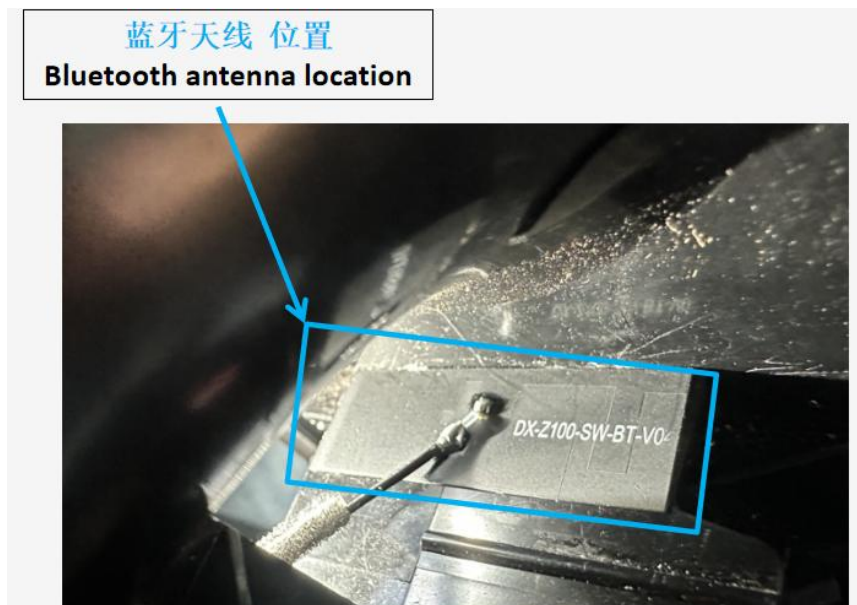
1.1.1 电性能指标 Electrical performance index

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 组成。

The antenna is mainly composed of FPC + coaxial cable + cable sponge.

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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

OTA有源传导数据 : OTA active conduction data :

BAND	CH	TRP (dBm)	TIS (dBm)
BT	0	9.52	-94
	39	9.65	-94
	78	9.37	-94

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OTA 有源数据: OTA active data:

BAND	CH	TRP (dBm)	TIS (dBm)
BT	0	6. 32	-90. 52
	39	6. 41	-90. 66
	78	6. 12	-90. 34

无源效率&增益 Passive efficiency&gain:

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
2400	44. 39	-3. 53	2. 11
2410	44. 91	-3. 48	2. 14
2420	45. 65	-3. 41	2. 17
2430	45. 82	-3. 39	2. 19
2440	45. 78	-3. 39	2. 18
2450	46. 1	-3. 36	2. 35
2460	45. 51	-3. 42	2. 19
2470	45. 18	-3. 45	2. 17
2480	44. 99	-3. 47	2. 13
2490	44. 81	-3. 49	2. 09
2500	44. 27	-3. 54	2. 1

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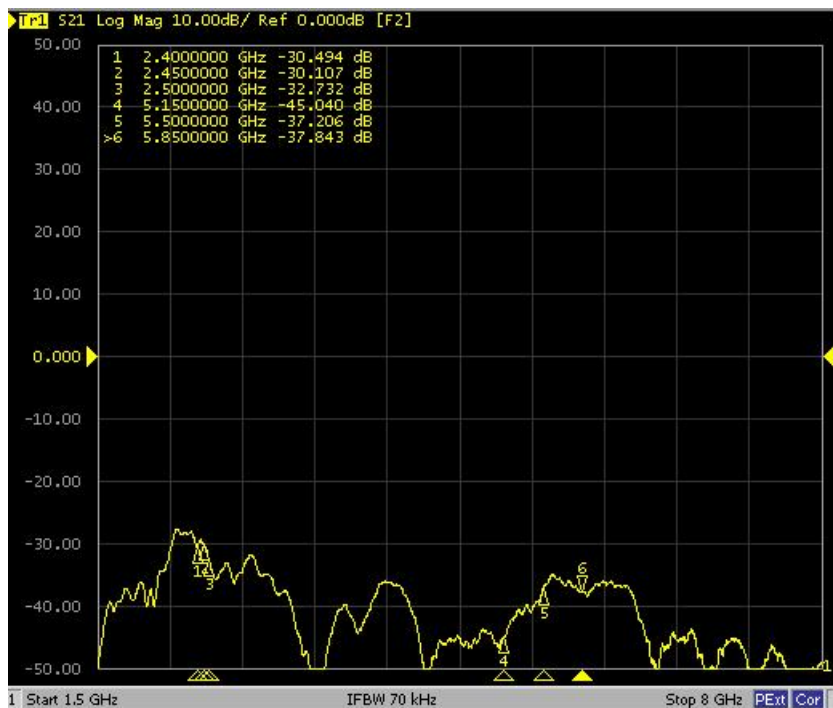
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4、VSWR 参数图 VSWR parameter diagram



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

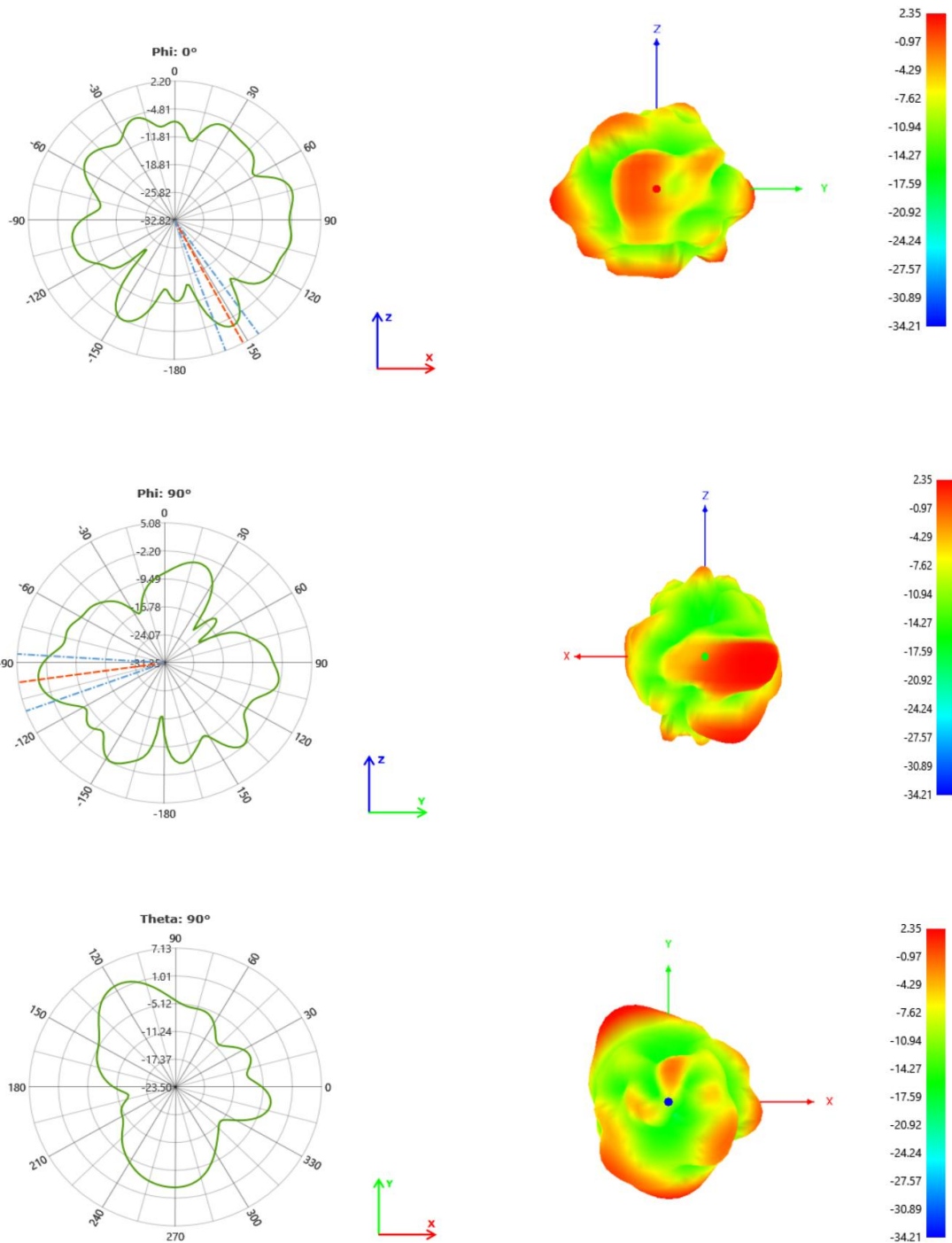
WIFI--BT



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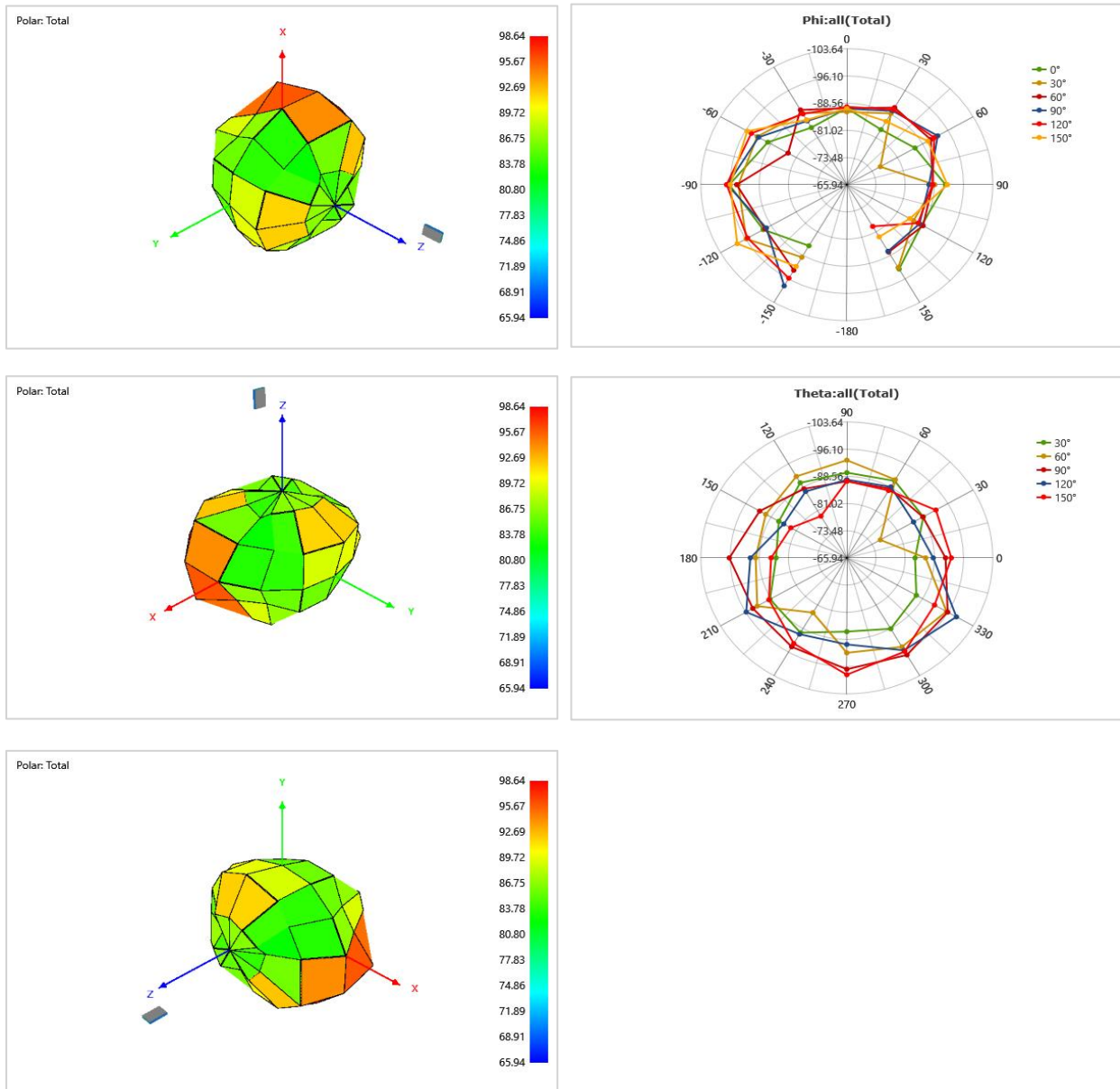
6、无源场型图 Passive Field Pattern Diagram



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7、OTA 场型图 OTA Field pattern diagram:



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8、天线安装方式 Antenna mounting method:



9、环境处理 Environmental treatment:



10、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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第三视角		比例	
单位	mm	比例	1:1

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

A

B

C

D

背面加0.2mm-PI补强

离型纸手撕位

② *13.00±0.15 (TR)

Dot UV glue
(点UV胶水)

③ 112±3.0

④ 82±3.0

⑤ 10±3.0

⑥ 90°0'±3'1"

1代端子头 (QIU 朝内)

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.

序号	零件名称	材质	颜色	备注
C	线材海绵	PU海绵	黑色	
B	端子线	Cable线	黑色	
A	FPC	电解铜 PI	黑色	

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机 型	Z100-SW	产品颜色	黑色	日 期	2025/03/19
项目编码	CZ-100SW-012	模面处理		结构设计	周锐斌
零件名称	BT天线			射频设计	刘柱东
零件编码	2Z-100SW-012			审 核	吴锡欢
材 质	FPC+线材海绵+同轴线			批 准	张磊
保存路径					当前版本 A

版 本	描述	日期	备注
A	首次绘制		