

# TDE台德 部品承认书

## PART FOR APPROVAL

文件编号: JX-RD-04-036

Ver: 1.2

No:

原厂名称 (品牌名称) Vendor Name: INNOWAVE

原厂型号 Vendor Part P/N: F222L5512T11000

原厂规格描述 Part Description: JL55-BT 天线成品

供应商确认签章: 昆山睿翔讯通通信技术有限公司

台德适用机型 Model: BT781

台德 ERP 料号 Part No: E110002976

台德部品名称 Part Name: FPC 天线

台德规格描述 Part Description:

天线,2.4G FPC 44\*10 内置天线 1.13 黑色线材 L=210MM+一代端子, 防震泡棉,品牌: 睿翔,  
字符: BT781 天线-T02, HF,ROHS2.0+REACH

物料购置方式: ☐ 自购物料 ☐ 客供物料

备注 Remarks:

承认签章:

承认日期: 2025.8.20

| RD/研发中心 | QA/品质中心 | APPROVED/批准 |
|---------|---------|-------------|
|         |         |             |

注: 出承认书需要规格书、样品、测试报告验证无误后方可签名。

发放部门: ■研发

■采购

■品质 IQC

# **Contents**

**Electrical Specification**

**Antenna Drawing**

**Full Size Measurement Report**

**CPK Report**

# BT781-Electrical Specification

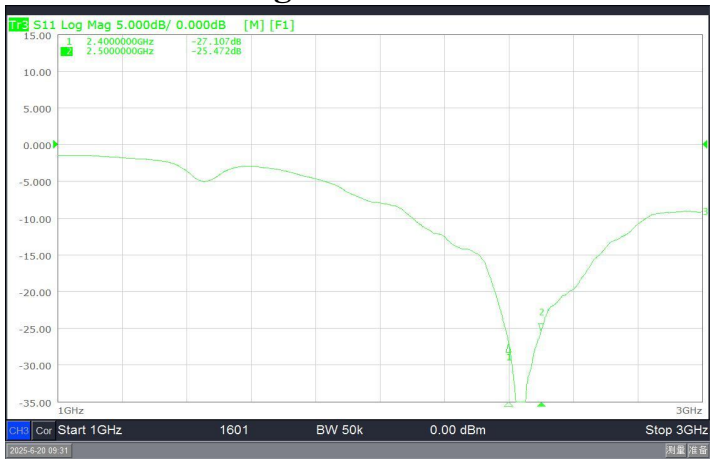
## 1-1 Specification

BT781 - Bluetooth antenna for audio, working band is 2.4-2.5GHz.

## 1-2 Antenna Diagram



## 1-2 Antenna Diagram

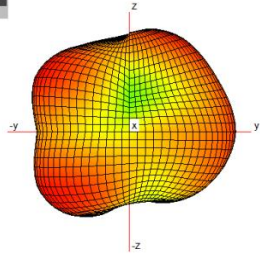


## 1-4 Efficiency and Gain

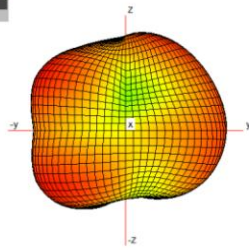
| Fre (MHz) | Eff(dB) | Gain(dB) | Eff(%) |
|-----------|---------|----------|--------|
| 2400      | -2.3    | 1.2      | 59.3   |
| 2410      | -2.5    | 1.0      | 56.9   |
| 2420      | -2.4    | 1.1      | 57.4   |
| 2430      | -2.4    | 1.0      | 57.9   |
| 2440      | -2.4    | 1.1      | 57.8   |
| 2450      | -2.3    | 1.1      | 58.5   |
| 2460      | -2.2    | 1.2      | 59.7   |
| 2470      | -2.2    | 1.3      | 59.8   |
| 2480      | -2.2    | 1.5      | 60.8   |
| 2490      | -2.0    | 1.4      | 62.5   |
| 2500      | -2.1    | 1.4      | 61.8   |

## 1-5 Antenna 3D Radiation Pattern

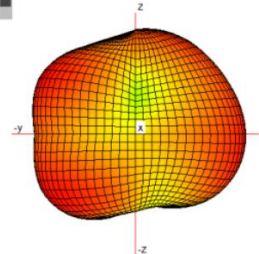
2.4G



2.45G



2.5G

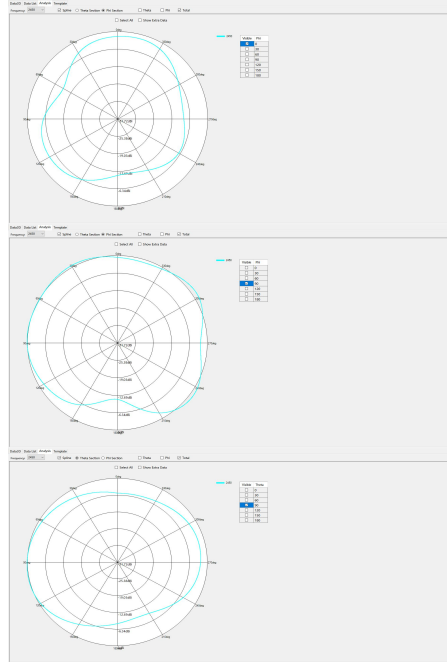


# 1-6 Antenna 2D Radiation Pattern

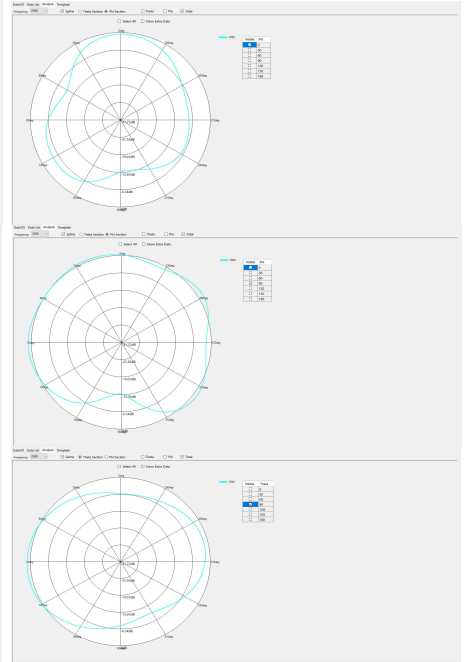
## 2.4G



## 2.45G

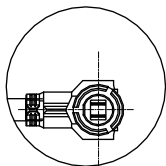


## 2.5G

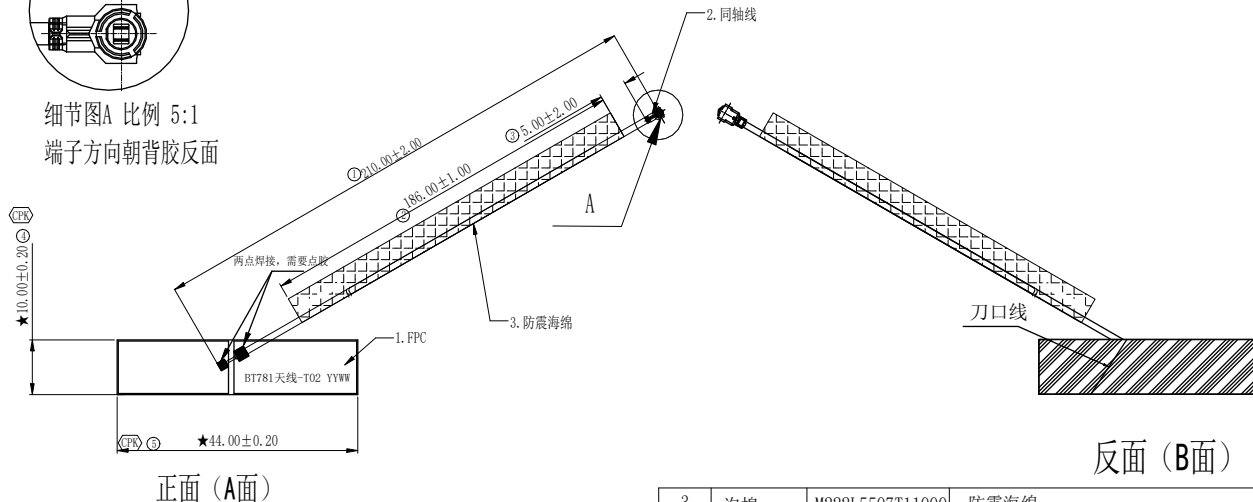


# 装配图

| 版 本 | 标 记 | 更 改 内 容        | 签 名 | 日 期        |
|-----|-----|----------------|-----|------------|
| T01 |     | 初版发行           | 马录  | 2025.05.14 |
| T02 |     | 线路调整，线长增加      | 马录  | 2025.06.26 |
| V01 |     | 丝印不变，图纸版本改为V01 | 马录  | 2025.08.19 |
|     |     |                |     |            |
|     |     |                |     |            |



端子方向朝背胶反面



技术要求:

1. 带“★”尺寸为重点尺寸,带“CPK”需要做CPK的尺寸,“( )”为实配尺寸,“△”为设计变更,未注公差参考公差表;
  2. 要求焊点光滑无凸刺,无虚焊,堆锡,短路等现象;
  3. 图面尺寸用以检验外形功能和装配;
  4. 满足盐雾实验/附自力测试等相关可靠性测试,按我司内部 RX-WI-QAC-014可靠性试验标准执行,所有物料均符合我司RX-WI-QAC-008符合HF&ROHS&Reach要求。
  5. PE袋包装。
6. 此图档属于商业秘密,仅限于指定的个人或组织使用,未经许可不得泄露给任何第三方。

|    |     |                 |                          |    |
|----|-----|-----------------|--------------------------|----|
| 3  | 泡棉  | M222L5507T11000 | 防震海绵                     |    |
| 2  | 同轴线 | S222L5502T11000 | 普通线径1.13MM, 黑色, 国产1代端子   | 1  |
| 1  | FPC | M222L5501T11000 | 一对半电解铜基材+背胶3M9471 T=50um | 1  |
| 序号 | 名 称 | 料 号             | 描 述                      | 用量 |

|         |        |        |      |                 |     |                                                                                          |     |                     |    |            |
|---------|--------|--------|------|-----------------|-----|------------------------------------------------------------------------------------------|-----|---------------------|----|------------|
| 未注尺寸公差表 |        |        | 机 种  | JL55(BT781)     |     |                                                                                          | 设 计 | 马 录                 | 日期 | 2025.08.19 |
| >200    | ± 0.20 | ANGLES | 名 称  | JL55-BT天线成品     |     |                                                                                          | R F | 李 清                 | 日期 | 2025.08.19 |
| 100-200 | ± 0.15 |        | 料 号  | F222L5512T11000 |     |                                                                                          | 审 核 | 谢雨晴                 | 日期 | 2025.08.19 |
| 50-100  | ± 0.12 |        | ± 1' | 版 本             | V01 | 图框                                                                                       | A4  | <div>INNOWAVE</div> |    |            |
| 10-50   | ± 0.10 | 比 例    |      | FIT             |     | 第三视角  |     |                     |    |            |
| 0-10    | ± 0.05 | 单 位    |      | mm              |     |                                                                                          |     |                     |    |            |



Kunshan Innwave Communication Technology Co.,Ltd.  
Full Size Measurement Report

| Vendor(供应商)                                                        |           | Material Name (材质名称) |        | FPC+泡棉+同轴线 |        | Part NO(料号)              |          | F222L5512T11000 |          |          | Tool Number(模号)           |       | Cav. Number(穴数) |         | Unit(单位)                                                                        |          |                     | Comments(设计者签字)<br><br>李 宁 |                      |           |        |        |
|--------------------------------------------------------------------|-----------|----------------------|--------|------------|--------|--------------------------|----------|-----------------|----------|----------|---------------------------|-------|-----------------|---------|---------------------------------------------------------------------------------|----------|---------------------|----------------------------|----------------------|-----------|--------|--------|
| Kunshan Innwave Communication Technology Co.,Ltd. (昆山睿翔讯通通信技术有限公司) |           | Material Code (材质牌号) |        | /          |        | Part Name (零件名称)         |          | JL55-BT天线-成品    |          |          |                           |       |                 |         | <input type="checkbox"/> INCHES <input checked="" type="checkbox"/> MILLIMETERS |          |                     |                            |                      |           |        |        |
| Date(日期)                                                           |           | 2025-8-19            |        |            |        | MEASURED DIMENSION(实测尺寸) |          |                 |          |          | % TOLERANCE USED(公差使用百分比) |       | Rev(版本)         |         | V01                                                                             |          | ACCEPTABLE VARIANCE |                            |                      |           |        |        |
| DIM. #                                                             | DIMENSION | DRAWING ZONE         | + TOL. | - TOL.     | NOTE   | SAMPLE 1                 | SAMPLE 2 | SAMPLE 3        | SAMPLE 4 | SAMPLE 5 | UPPER                     | LOWER | 0%-25%          | 25%-50% | 50%-75%                                                                         | 75%-100% | ReMeasure           | Fix Tool                   | Accept With Variance | DIMENSION | + TOL. | - TOL. |
| 1                                                                  | 210.00    | 212.00               | 2.00   | 2.00       | 208.00 | 210.00                   | 210.02   | 209.98          | 209.99   | 210.00   | 1%                        | 1%    | X               |         |                                                                                 |          |                     |                            | √                    |           |        |        |
| 2                                                                  | 186.00    | 187.00               | 1.00   | 1.00       | 185.00 | 186.00                   | 185.99   | 185.99          | 186.20   | 186.00   | 20%                       | 1%    | X               |         |                                                                                 |          |                     |                            | √                    |           |        |        |
| 3                                                                  | 5.00      | 7.00                 | 2.00   | 2.00       | 3.00   | 5.00                     | 5.00     | 5.00            | 4.99     | 5.00     | 0%                        | 0%    | X               |         |                                                                                 |          |                     |                            | √                    |           |        |        |
| 4                                                                  | 10.00     | 10.20                | 0.20   | 0.20       | 9.80   | 9.98                     | 10.00    | 10.00           | 10.01    | 10.00    | 5%                        | 10%   | X               |         |                                                                                 |          |                     |                            | √                    |           |        |        |
| 5                                                                  | 44.00     | 44.20                | 0.20   | 0.20       | 43.80  | 44.00                    | 44.00    | 44.00           | 44.00    | 44.00    | 0%                        | 0%    | X               |         |                                                                                 |          |                     |                            | √                    |           |        |        |

|                                                                                                                                                        |              |                 |  |  |  |                            |  |  |  |                |  |  |  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|-----------------|--|--|--|----------------------------|--|--|--|----------------|--|--|--|
| <div> <b>Kunshan Innowave Communication Technology Co.,Ltd.</b></div> |              |                 |  |  |  |                            |  |  |  |                |  |  |  |
| <b>CPK Report</b>                                                                                                                                      |              |                 |  |  |  |                            |  |  |  |                |  |  |  |
| <b>Part Number(料号)</b>                                                                                                                                 |              | F222L5512T11000 |  |  |  | <b>Vendor(供应商)</b>         |  |  |  | 昆山睿翔讯通通信技术有限公司 |  |  |  |
| <b>Description(零件名称)</b>                                                                                                                               |              | JL55-BT天线-成品    |  |  |  | <b>Inspected(确认者)</b>      |  |  |  | 李宁             |  |  |  |
| <b>Tool Number(模号)</b>                                                                                                                                 |              | /               |  |  |  | <b>Inches/MM(英寸/毫米)</b>    |  |  |  | MM             |  |  |  |
| <b>Cavity(穴号)</b>                                                                                                                                      |              | /               |  |  |  | <b>Material Name(材质名称)</b> |  |  |  | FPC+泡棉+同轴线     |  |  |  |
|                                                                                                                                                        |              |                 |  |  |  | <b>Material Code(材质牌号)</b> |  |  |  | /              |  |  |  |
| <b>Revision(版本)</b>                                                                                                                                    |              | V01             |  |  |  | <b>Date(日期)</b>            |  |  |  | 2025-8-19      |  |  |  |
| <b>Dim. Designator(尺寸序号)</b>                                                                                                                           | <b>4</b>     | <b>5</b>        |  |  |  |                            |  |  |  |                |  |  |  |
| <b>Nominal(公称尺寸)</b>                                                                                                                                   | <b>10.00</b> | <b>44.00</b>    |  |  |  |                            |  |  |  |                |  |  |  |
| <b>+ Tolerance(正公差)</b>                                                                                                                                | <b>0.20</b>  | <b>0.20</b>     |  |  |  |                            |  |  |  |                |  |  |  |
| <b>- Tolerance(负公差)</b>                                                                                                                                | <b>-0.20</b> | <b>-0.20</b>    |  |  |  |                            |  |  |  |                |  |  |  |
| <b>Upper Limit(规格上限)</b>                                                                                                                               | <b>10.20</b> | <b>44.20</b>    |  |  |  |                            |  |  |  |                |  |  |  |
| <b>Lower Limit(规格下限)</b>                                                                                                                               | <b>9.80</b>  | <b>43.80</b>    |  |  |  |                            |  |  |  |                |  |  |  |
| 1                                                                                                                                                      | 9.90         | 44.00           |  |  |  |                            |  |  |  |                |  |  |  |
| 2                                                                                                                                                      | 10.00        | 44.05           |  |  |  |                            |  |  |  |                |  |  |  |
| 3                                                                                                                                                      | 10.00        | 44.00           |  |  |  |                            |  |  |  |                |  |  |  |
| 4                                                                                                                                                      | 9.99         | 43.95           |  |  |  |                            |  |  |  |                |  |  |  |
| 5                                                                                                                                                      | 10.02        | 44.00           |  |  |  |                            |  |  |  |                |  |  |  |
| 6                                                                                                                                                      | 9.91         | 44.03           |  |  |  |                            |  |  |  |                |  |  |  |
| 7                                                                                                                                                      | 9.93         | 43.95           |  |  |  |                            |  |  |  |                |  |  |  |
| 8                                                                                                                                                      | 10.04        | 43.96           |  |  |  |                            |  |  |  |                |  |  |  |
| 9                                                                                                                                                      | 9.93         | 44.01           |  |  |  |                            |  |  |  |                |  |  |  |
| 10                                                                                                                                                     | 10.01        | 43.92           |  |  |  |                            |  |  |  |                |  |  |  |
| 11                                                                                                                                                     | 9.98         | 43.98           |  |  |  |                            |  |  |  |                |  |  |  |
| 12                                                                                                                                                     | 9.91         | 43.96           |  |  |  |                            |  |  |  |                |  |  |  |
| 13                                                                                                                                                     | 10.07        | 44.03           |  |  |  |                            |  |  |  |                |  |  |  |
| 14                                                                                                                                                     | 9.99         | 44.06           |  |  |  |                            |  |  |  |                |  |  |  |
| 15                                                                                                                                                     | 10.03        | 43.94           |  |  |  |                            |  |  |  |                |  |  |  |
| 16                                                                                                                                                     | 10.00        | 43.99           |  |  |  |                            |  |  |  |                |  |  |  |
| 17                                                                                                                                                     | 10.00        | 43.96           |  |  |  |                            |  |  |  |                |  |  |  |
| 18                                                                                                                                                     | 9.97         | 43.99           |  |  |  |                            |  |  |  |                |  |  |  |
| 19                                                                                                                                                     | 9.95         | 43.99           |  |  |  |                            |  |  |  |                |  |  |  |
| 20                                                                                                                                                     | 10.01        | 43.95           |  |  |  |                            |  |  |  |                |  |  |  |
| 21                                                                                                                                                     | 10.06        | 44.05           |  |  |  |                            |  |  |  |                |  |  |  |
| 22                                                                                                                                                     | 9.95         | 44.04           |  |  |  |                            |  |  |  |                |  |  |  |
| 23                                                                                                                                                     | 9.97         | 44.05           |  |  |  |                            |  |  |  |                |  |  |  |
| 24                                                                                                                                                     | 9.99         | 44.02           |  |  |  |                            |  |  |  |                |  |  |  |
| 25                                                                                                                                                     | 9.95         | 44.02           |  |  |  |                            |  |  |  |                |  |  |  |
| 26                                                                                                                                                     | 10.00        | 43.99           |  |  |  |                            |  |  |  |                |  |  |  |
| 27                                                                                                                                                     | 9.97         | 44.01           |  |  |  |                            |  |  |  |                |  |  |  |
| 28                                                                                                                                                     | 9.94         | 43.96           |  |  |  |                            |  |  |  |                |  |  |  |
| 29                                                                                                                                                     | 9.94         | 43.99           |  |  |  |                            |  |  |  |                |  |  |  |
| 30                                                                                                                                                     | 9.97         | 43.94           |  |  |  |                            |  |  |  |                |  |  |  |
| 31                                                                                                                                                     | 9.94         | 43.93           |  |  |  |                            |  |  |  |                |  |  |  |
| 32                                                                                                                                                     | 9.98         | 44.08           |  |  |  |                            |  |  |  |                |  |  |  |
| MAX.                                                                                                                                                   | 10.07        | 44.08           |  |  |  |                            |  |  |  |                |  |  |  |
| MIN.                                                                                                                                                   | 9.90         | 43.92           |  |  |  |                            |  |  |  |                |  |  |  |
| AVERAGE                                                                                                                                                | 9.98         | 43.99           |  |  |  |                            |  |  |  |                |  |  |  |
| STDEV                                                                                                                                                  | 0.04         | 0.04            |  |  |  |                            |  |  |  |                |  |  |  |
| CP                                                                                                                                                     | 1.58         | 1.60            |  |  |  |                            |  |  |  |                |  |  |  |
| Cpk                                                                                                                                                    | 1.41         | 1.55            |  |  |  |                            |  |  |  |                |  |  |  |
| TOOLING(测量工具)                                                                                                                                          | 二次元          | 二次元             |  |  |  |                            |  |  |  |                |  |  |  |

审核： 李宁

日期： 2025-8-19