

# 深圳市艾特诺通讯设备有限公司

SHENZHEN ATN COMMUNICATION TECHNOLOGY CO.,LTD.

## 承 认 书

SPECIFICATION FOR APPROVL

|                           |             |
|---------------------------|-------------|
| 客 户:<br>CUSTOMER:         | 勤义          |
| 客 户 编 号:<br>CUSTOMER P/N: | B8 new(新主板) |
| 本 厂 编 号:<br>OUR MODEL NO: | ATN1492     |
| 规 格:<br>SPECIFICATIONS:   | 2.4G 蓝牙天线   |
| 样 品 数:<br>Q' TY:          | 1 PCS       |
| 日 期:<br>DATE:             | 2024-3-25   |

| 深圳市艾特诺通讯设备有限公司<br>A T N |               |                | 客 户<br>CUSTOMER |                   |                |
|-------------------------|---------------|----------------|-----------------|-------------------|----------------|
| 制作<br>make              | 审核<br>examine | 核准<br>Approver | 结构<br>Structure | 电子<br>Electronics | 核准<br>Approver |
|                         |               |                |                 |                   |                |

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### 发行/变更记录

| 发行/变更日期   | 变更原因   | 变更内容   | 版本   | 备注 |
|-----------|--------|--------|------|----|
| 2024-1-18 | 新版发行   | 新版发行   | A1.0 |    |
| 2024-3-25 | 客户结构改动 | 天线图纸更改 | A1.1 |    |
|           |        |        |      |    |

## 一、测试设备 Test Equipment&Conditions

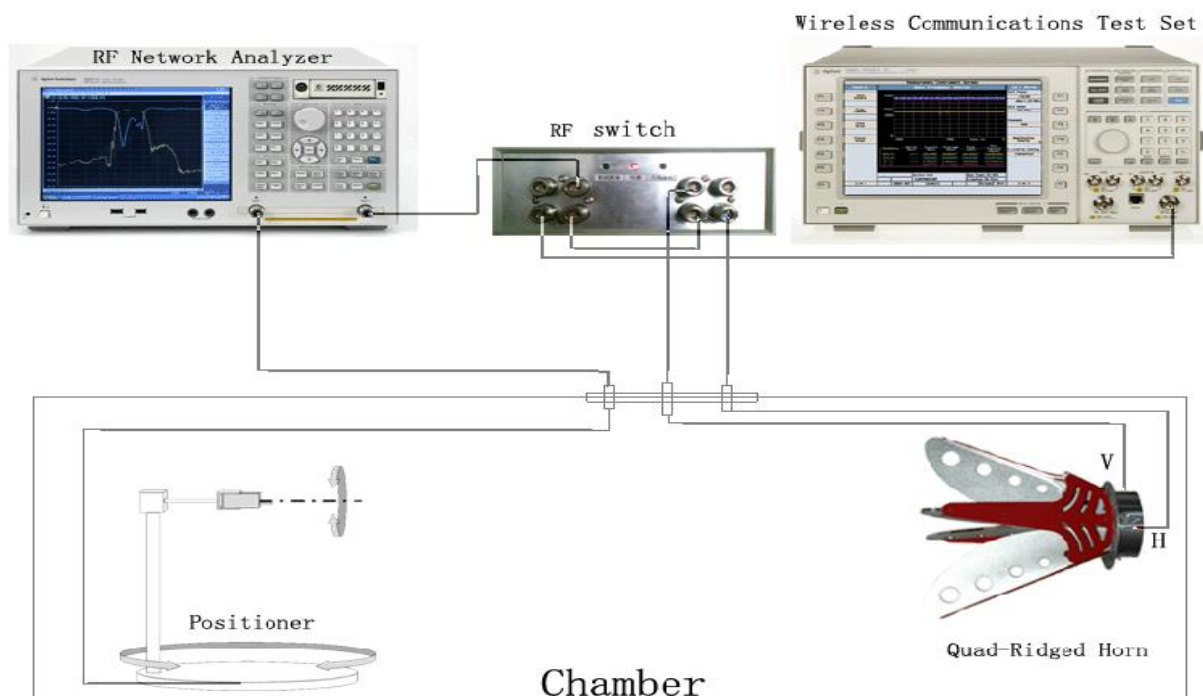
### 1.1 网络分析仪 (Network Analyzers)

Agilent Technologies E5071B

### 1.2 综合测试仪 (Communications Test Set)

CMW500

### 1.3 3D 暗室测试系统 (3D Chanber Test System)



## 二、产品规格 Product Specification

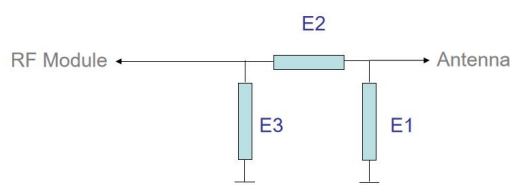
### 2.1、Material&Mechanical Characteristics

|              |     |
|--------------|-----|
| 材质 Material  | FPC |
| 尺寸 Dimension | mm  |

### 2.2、储存条件 Storage conditions

|                          |        |
|--------------------------|--------|
| 储存温度 Storage Temperature | 22℃±5℃ |
| 相对湿度 relative humidity   | 35-65% |
| 储存期限 Storage life        | 360 天  |

## 三、匹配电路 Matching circuit

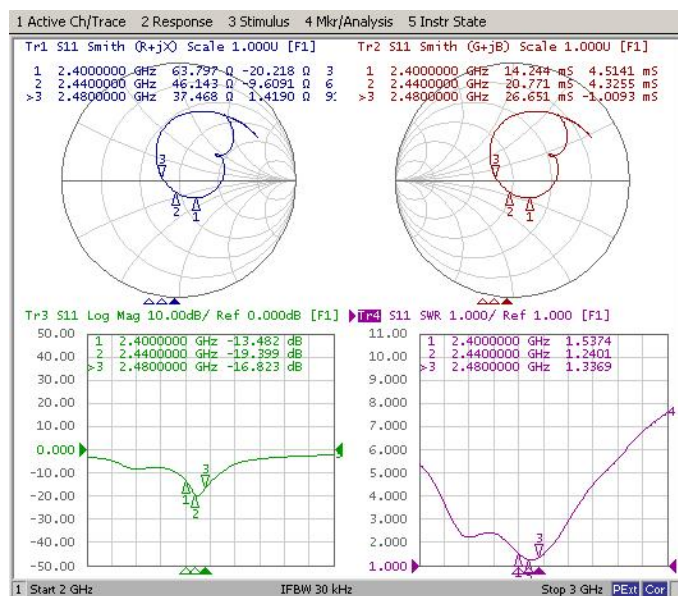


| Element  | Value |
|----------|-------|
| E1(0201) | NC    |
| E2(0201) | 0Ω    |
| E3(0201) | NC    |

L/R匹配电路相同

## 四、测试数据报告 Test Data Report

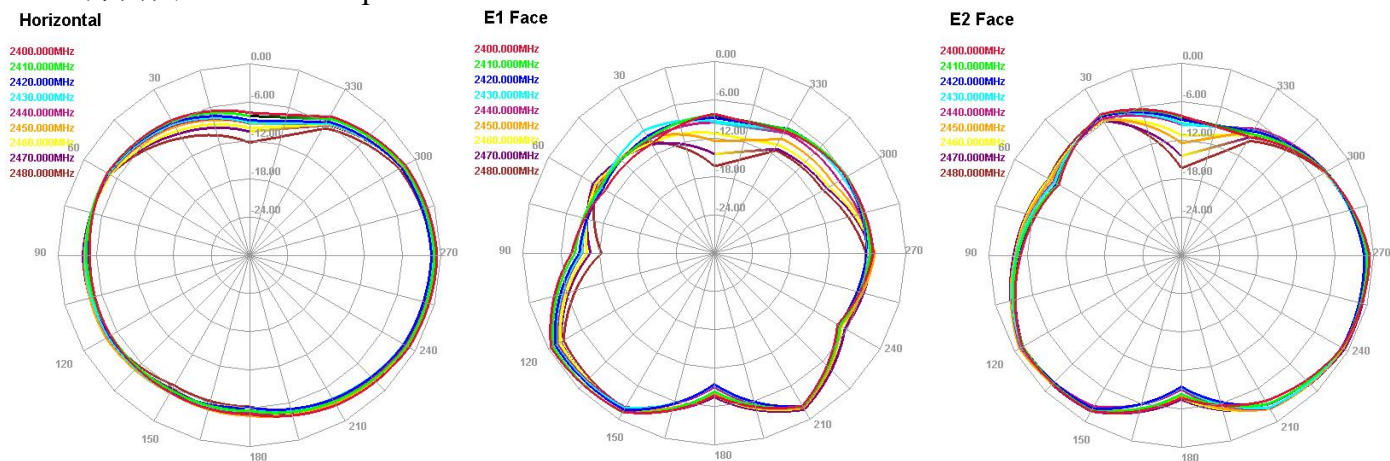
### 4.1 S11 Parameter



## 4.2 增益和效率 Gain & Efficiency

| Freq<br>(MHz) | Effi<br>(%) | Effi<br>(dB) | Gain<br>(dBi) |
|---------------|-------------|--------------|---------------|
| 2400          | 41.4        | -3.83        | -0.07         |
| 2410          | 40.68       | -3.91        | -0.26         |
| 2420          | 38.88       | -4.1         | -0.49         |
| 2430          | 39.31       | -4.06        | -0.62         |
| 2440          | 38.66       | -4.13        | -0.78         |
| 2450          | 40.32       | -3.94        | -0.82         |
| 2460          | 38.87       | -4.1         | -0.91         |
| 2470          | 39.58       | -4.03        | -0.65         |
| 2480          | 37.78       | -4.23        | -0.64         |

## 4.3 方向图 Radiation pattern



## 4.4 OTA 测试数据 OTA Test Data

| band             | channel | TRP (dBm) | TIS (dBm) |
|------------------|---------|-----------|-----------|
| Bluetooth BR (L) | 0       | 3.5       | -83.8     |
|                  | 39      | 4.6       | -86.5     |
|                  | 78      | 5.7       | -87.1     |
| band             | channel | TRP (dBm) | TIS (dBm) |
| Bluetooth BR (R) | 0       | 4.8       | -88.5     |
|                  | 39      | 5.4       | -89.3     |
|                  | 78      | 5.8       | -89.8     |

## 4.5 实测数据 Measured data

测试地点：美生创谷南门隆昌路

|           |       |
|-----------|-------|
| 测试手机      | 三星 S8 |
| 听音乐全向 (m) | 11    |

## 五、装配要求 Assembly requirements

|   |       |
|---|-------|
| 1 | 无特别要求 |
|---|-------|

[illegible]

## 七、样品尺寸检测报告 Size test report

### 尺寸检验报告 Dimension test report

|                                       |              |           |                                                                                                                                                          |      |                     |      |      |                   |
|---------------------------------------|--------------|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------|------|---------------------|------|------|-------------------|
| 项目 project: B8 NEW                    |              |           | 品名 Product Name: 天线                                                                                                                                      |      |                     |      |      |                   |
| 类别 category: FPC                      |              |           | 数量 Quantity: 5 个                                                                                                                                         |      | 日期 Date: 2024.01.18 |      |      |                   |
| 检验依据标准: Inspection basis and standard |              |           | <input checked="" type="checkbox"/> 工程图纸 Engineering drawings<br><input type="checkbox"/> 标准样板 Standard template <input type="checkbox"/> 其它 Other _____ |      |                     |      |      |                   |
| 检验项目 Inspection items                 |              |           | 样品测验值 test value                                                                                                                                         |      |                     |      |      | 判定结果<br>determine |
|                                       |              |           | 1                                                                                                                                                        | 2    | 3                   | 4    | 5    |                   |
| 外观检验<br>Appearance<br>inspectio       | 1.油污划痕、压伤等不良 |           | √                                                                                                                                                        | √    | √                   | √    | √    | OK                |
|                                       | 2、其它 Other   |           |                                                                                                                                                          |      |                     |      |      | OK                |
| 尺寸检验<br>Dimensional inspection        | L            | 9.59±0.15 | 9.62                                                                                                                                                     | 9.62 | 9.64                | 9.6  | 9.62 | OK                |
|                                       | L            | 9.46±0.15 | 9.5                                                                                                                                                      | 9.48 | 9.46                | 9.48 | 9.5  | OK                |
|                                       | L            | 2.0±0.15  | 1.94                                                                                                                                                     | 1.96 | 1.94                | 1.94 | 1.96 | OK                |
|                                       | R            | 9.59±0.15 | 9.64                                                                                                                                                     | 9.66 | 9.62                | 9.62 | 9.64 | OK                |
|                                       | R            | 9.46±0.15 | 9.48                                                                                                                                                     | 9.52 | 9.5                 | 9.48 | 9.5  | OK                |
|                                       | R            | 2.0±0.15  | 1.96                                                                                                                                                     | 1.96 | 1.94                | 1.96 | 1.91 | OK                |
|                                       | /            |           |                                                                                                                                                          |      |                     |      |      |                   |
|                                       |              |           |                                                                                                                                                          |      |                     |      |      |                   |

## 八、盐雾测试报告 Salt spray test report

|                                                                                                                                                     |                                                                                                  |                                   |      |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|-----------------------------------|------|
| 项目 project                                                                                                                                          | B8 new                                                                                           | 规格 SPECIFICATIONS                 | 2.4G |
| 试验情况 Test information                                                                                                                               | 试验数量 Number of tests: 5 PCS                                                                      |                                   |      |
|                                                                                                                                                     | 基材 base material: 单面/一对半/电解铜                                                                     | 镀层 Gold plating: 镀金 1U"           |      |
| 试验条件 Test conditions                                                                                                                                | 盐溶液: 5%                                                                                          | PH:7.0                            |      |
|                                                                                                                                                     | 箱内温度 Box temperature: 35℃                                                                        | 相对湿度 relative humidity: 5%        |      |
|                                                                                                                                                     | 喷雾方式:   ■ 连续                   □ 间歇                                                              | 压缩空气压力: 1kg/cm²                   |      |
|                                                                                                                                                     | 盐雾沉降率:                                                                                           | 雾液收集 Mist collection:<br>PH7.0nac |      |
|                                                                                                                                                     | 试验周期: __1__个循环                                                                                   | 喷雾时间 Spray time:  48 h            |      |
| 试验结果 test result                                                                                                                                    | 试验后的外观: 外观完整无损, 无明显变化。<br>Appearance after test: the appearance is intact without obvious change |                                   |      |
|                                                                                                                                                     | 镀层: 无剥落、无锈蚀<br>Coating: no peeling and corrosion                                                 |                                   |      |
|                                                                                                                                                     | 表面喷涂、丝印: 无脱落、无气泡。<br>Surface spraying and silk screen printing: no falling off and bubble        |                                   |      |
| 试验判定 Test judgment                                                                                                                                  | OK                                                                                               |                                   |      |
| 说明:<br><br>1、盐雾试验作业标准依照中华人民共和国国家标准 GB/T2423.17-2008 执行<br><br>1. The operation standard of salt spray test shall be in accordance with the national |                                                                                                  |                                   |      |

standard of the people's Republic of China GB / t2423 17-2008 implementation

2、试件结果判定标准依照中华人民共和国国家标准 GB/T6461-02 执行

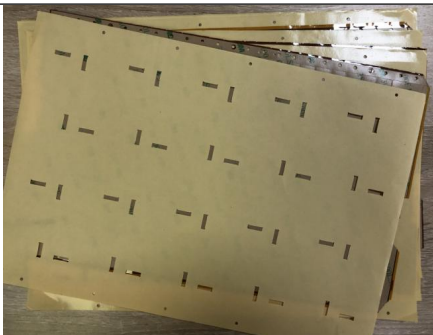
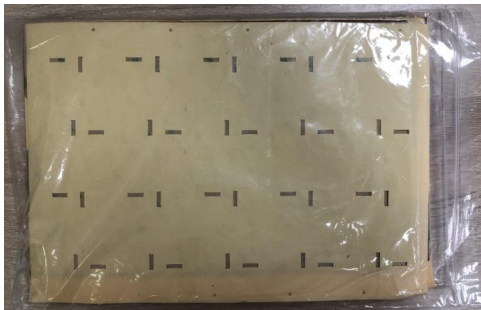
2. The judgment standard of test piece results shall be in accordance with the national standard of the people's Republic of China GB / t6461-02

## 九、包装信息 Manner of packing

### 深圳市艾特诺通讯设备有限公司

SHENZHEN ATN COMMUNICATION EQUIPMENT CO.LTD

### 产品包装 Product packaging

|                                                                                      |                                                                                      |
|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| 版本 edition: : V1.0                                                                   | 页码 Page: 1/1                                                                         |
| 1. 离型纸隔层摆放保护天线<br>Barrier paper protection products                                  | 2. 密封袋封装效果<br>Sealing bag packaging effect                                           |
|   |  |
| 3. 纸箱封箱效果（贴出货标签和 ROHS 标签） Carton sealing effect                                      |                                                                                      |
|  |                                                                                      |

## 十、环保报告 Environmental reporting

| No. | 供应商            | 产品名称           | 测试项目  | 测试机构<br>Test<br>Laboratory | 测试报告号码<br>Test Report No. | 测试期日<br>Report<br>Date |
|-----|----------------|----------------|-------|----------------------------|---------------------------|------------------------|
| 1   | 蔡伦格蒂           | 基材             | RoHS  | SGS                        | SHAEC24000428806          | 2024/1/12              |
|     |                |                | HF    | SGS                        | SHAEC24000428806          | 2024/1/12              |
|     |                |                | REACH | SGS                        | SHAEC24000428808          | 2024/1/12              |
| 2   | 优立             | 阻焊油墨           | RoHS  | SGS                        | ETR23701480               | 2023/7/13              |
|     |                |                | HF    | SGS                        | ETR23701481               | 2023/7/13              |
|     |                |                | REACH | SGS                        | ETR23202417               | 2024/1/17              |
| 3   | 川裕             | 字符白油           | RoHS  | SGS                        | ETR23A00862M01            | 2023/10/13             |
|     |                |                | HF    | SGS                        | ETR23A00862M01            | 2023/10/13             |
|     |                |                | REACH | SGS                        | ETR23A00862M01            | 2023/10/13             |
| 4   | 3M 代理商<br>(向鸿) | 3M 胶<br>3M9471 | RoHS  | SGS                        | CANEC2227657306           | 2023/5/30              |
|     |                |                | HF    | SGS                        | CANEC2227657305           | 2023/5/30              |
|     |                |                | REACH | SGS                        | SHAEC2217569403           | 2023/5/30              |
| 5   | 鑫达昇            | 镍金             | RoHS  | CTI                        | A2230153997101001E        | 2023/4/12              |
|     |                |                | HF    | CTI                        | A2230153997101001E        | 2023/4/12              |
|     |                |                | REACH | CTI                        | A22301539971010100201E    | 2023/4/12              |