

# Product specification

**PRODUCT NAME** SC162-WCE3

**CUSTOMER NAME**

**MATERIAL CODE** 003-088-1A

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1.Aim

The product specifications and test methods of the mobile communication terminal antenna produced by Shenzhen Jingsong Technology Co., Ltd. are standardized to avoid errors caused by different test conditions and methods.

2.Product category and product model overview

2.1 Product model overview

This report provides an overview of the electrical results of the antenna designed for the SC162 -WCE3 project. The antenna design frequency band is: 2.4G/ WIFI segment.

3.Description of basic parameters and experimental equipment

3.1 Basic parameter

| Product electrical performance index |                        |
|--------------------------------------|------------------------|
| Operating frequency range            | 2400-2480MHz           |
| Standing-wave ratio                  | 2400-2480 MHz: < 1.5   |
| Antenna gain                         | 2400-2480 MHz: 2.16dBi |
| Radiation efficiency                 | 2400-2480 MHz: > 50%   |
| Impedance                            | 50 ohm                 |
| Product material description         |                        |
| FPC                                  | Coaxial line           |
|                                      |                        |
| Product environment description      |                        |
| Operating temperature                | - 30℃ ~ + 85 ℃         |
| Storage temperature                  | - 30℃ ~ + 85 ℃         |

3.2 Description of experimental equipment

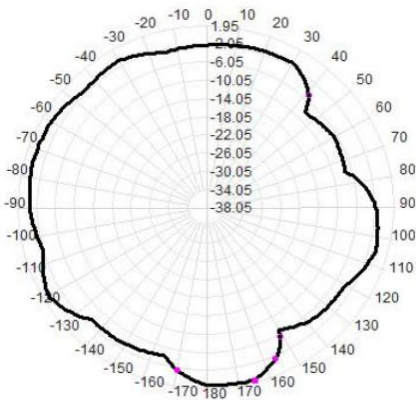
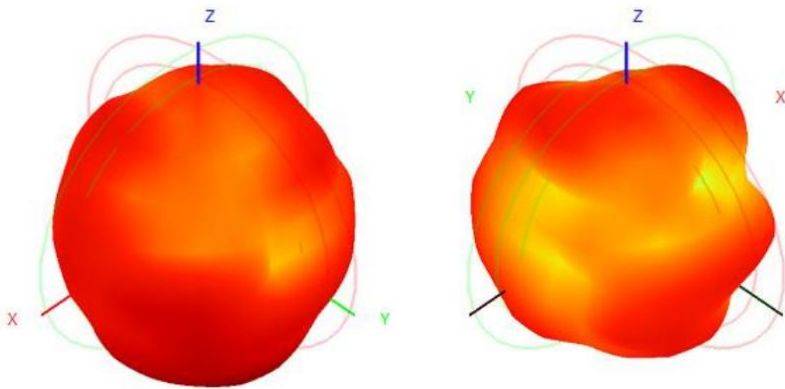
| List                          | Testing project                                   | Equipment                                                         |
|-------------------------------|---------------------------------------------------|-------------------------------------------------------------------|
| 1. S Parameters               | 1.Return loss<br>2. VSWR at                       | Network analyzer: Agilent 8753ES                                  |
| 2. Coupling power test        | 1. Transmission power<br>2. Receiving sensitivity | Comprehensive tester: Agilent 8960 E5515C                         |
| 3. Radiation pattern and gain | 1. Radiation pattern<br>2. Antenna gain           | 1. Darkroom: 7x4x3 m (3D)<br>2. Network analyzer : Agilent 8753ES |

4.Antenna test data

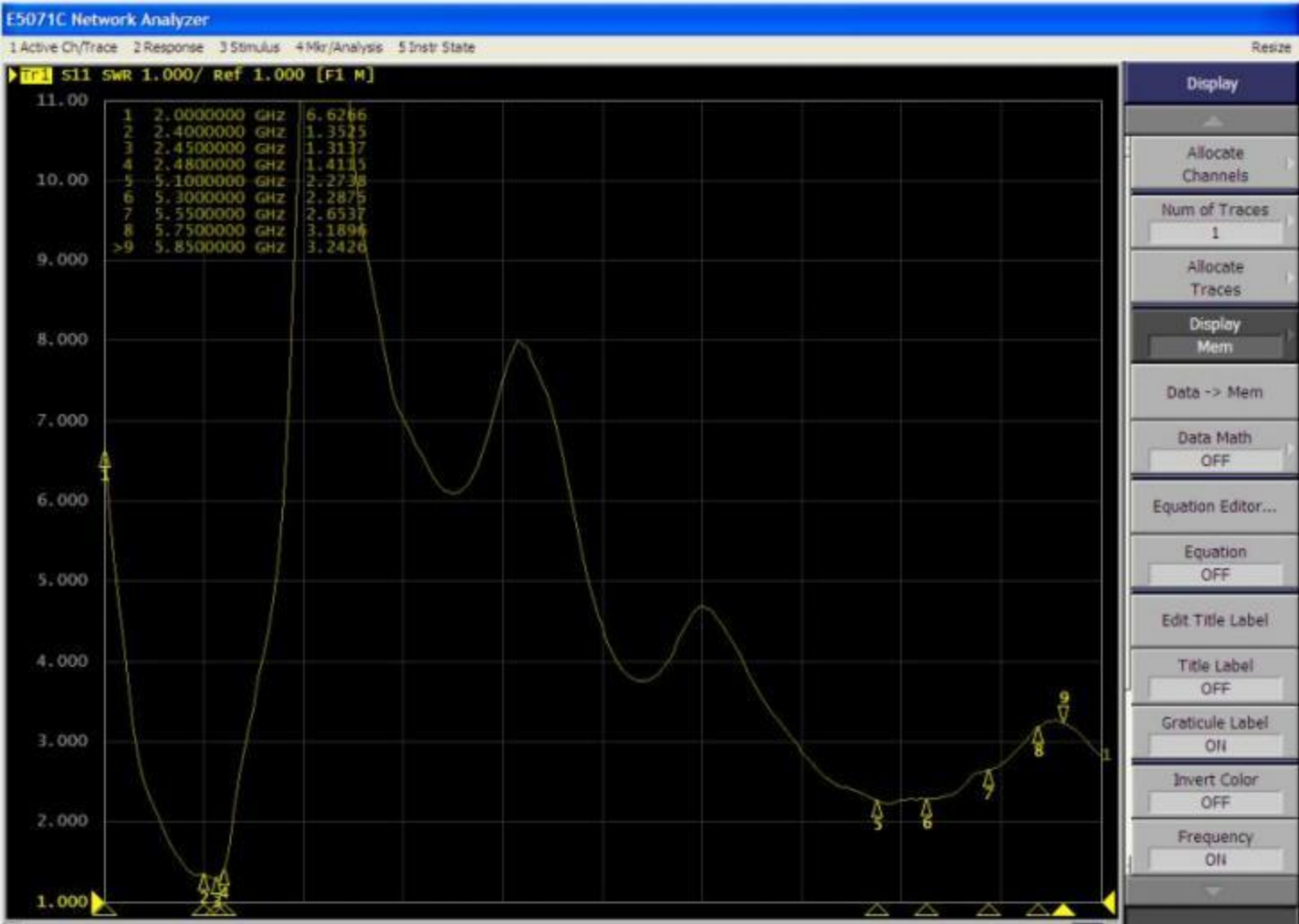
4.1 Wifi:2.4G Efficiency/gain

| WIFI 2.4G |                |            |
|-----------|----------------|------------|
| Freq(MHz) | Efficiency (%) | Gain (dBi) |
| 2400      | 58.3           | 1.78       |
| 2410      | 57.8           | 1.73       |
| 2420      | 58.2           | 1.92       |
| 2430      | 57.4           | 1.71       |
| 2440      | 59.6           | 1.96       |
| 2450      | 60.2           | 2.11       |
| 2460      | 60.5           | 2.16       |
| 2470      | 58.7           | 1.86       |
| 2480      | 59.4           | 1.94       |

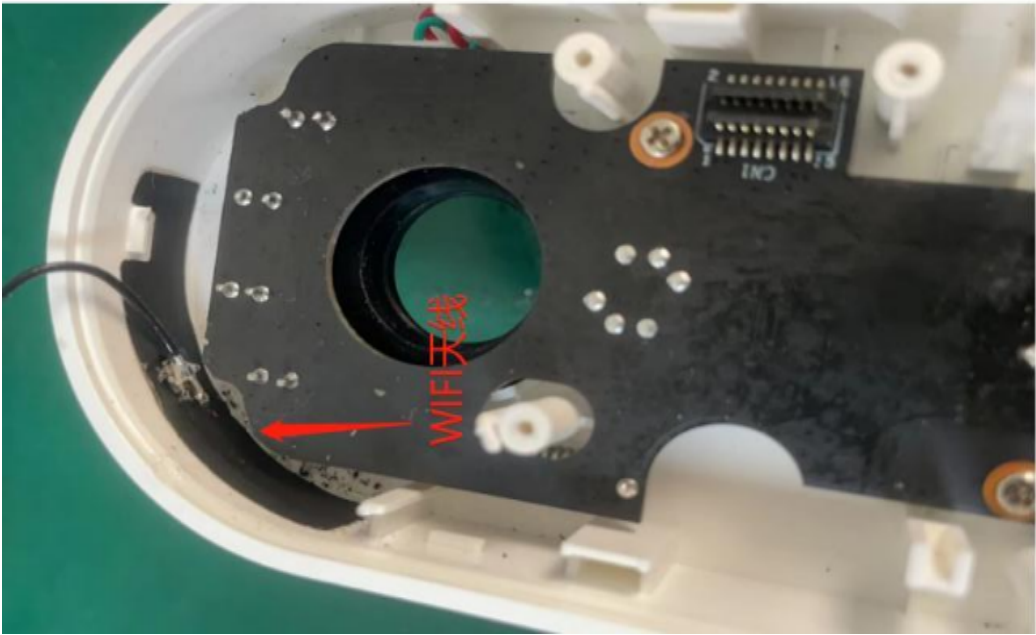
5.1 Antenna 2.4G apple diagram



6.1 Standing-wave ratio



7.1 Antenna assembly drawing

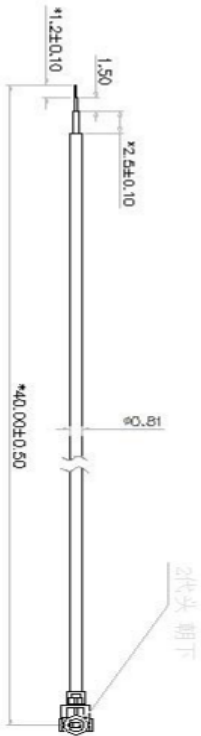
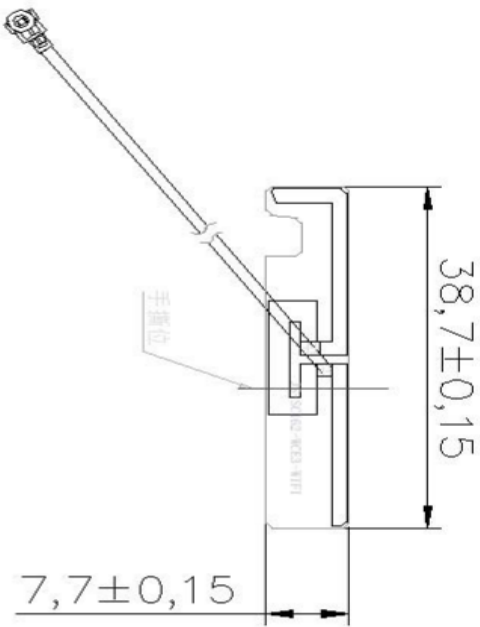


8.1 Active data

| 天线测试报告           | 802. 11B Antenna Performance Table |        |        | 802. 11G Antenna Performance Table |        |        |
|------------------|------------------------------------|--------|--------|------------------------------------|--------|--------|
| Channel          | CH 1                               | CH 6   | CH11   | CH 1                               | CH 6   | CH 11  |
| Max Power(dBm)   | 18. 6                              | 19. 3  | 19. 5  | 18. 8                              | 18. 6  | 19. 4  |
| TRP(dBm)         | 16. 7                              | 17. 1  | 17. 4  | 16. 5                              | 16. 8  | 16. 9  |
| Sensitivity(dBm) | -89. 3                             | -89. 6 | -89. 4 | -79. 3                             | -78. 5 | -78. 3 |
| TIS(dBm)         | -86. 3                             | -86. 7 | -86. 1 | -76. 3                             | -75. 8 | -75. 4 |

| 天线测试报告           | 802. 11N Antenna Performance Table |        |        |
|------------------|------------------------------------|--------|--------|
| Channel          | CH1                                | CH6    | CH11   |
| Max Power(dBm)   | 17. 3                              | 17. 7  | 17. 5  |
| TRP(dBm)         | 15. 8                              | 15. 5  | 15. 4  |
| Sensitivity(dBm) | -74. 6                             | -74. 2 | -73. 5 |
| TIS(dBm)         | -71. 5                             | -71. 3 | -70. 8 |

9.1 Product 2D structure diagram and remarks



NOTE

- 1 打\*为重点检测尺寸, 孔位尺寸以实配为准。
- 2 未注圆角R=0.30mm, 图中尺寸做到中间值为佳, 其它未标公差参见图框内说明。
3. 材料为电解铜+PI(半对半), 整体厚度小于0.10 MM (不包括3M胶)。
4. 表面黑色, 背面背整块 3M 300 L SE胶。
5. 十字剖面部分为铜皮线路, 绿色斜线剖面部分不布铜, 留基材, 起连接作用。
- 整体外形随着剖面外形轮廓走。
6. 表面不能刮伤露铜, 电镀不良, 氧化, 缺口, 压痕, 气泡, 裂纹, 毛边; 以及不允许有异物, 脏点, 偏位等现象。
7. 对照工程封样。
8. 注意端子端口方向。

| 材质说明 |       | LOJASON |      | 深 圳 市 景 松 科 技 有 限 公 司 |            |    |            |
|------|-------|---------|------|-----------------------|------------|----|------------|
| ①    | FPC天线 | ⌀       | 0.02 | 机 种                   | SCI62-WCE3 | 日期 | 2023/08/30 |
| ②    | 同轴线   | ⊙       | 0.03 | 品 名                   | WiFi天线     | 设计 |            |
| ③    |       | ⊙       | 0.02 | 料 号                   | 003-088-1A | 审核 |            |
| ④    |       | ⊙       | 0.04 | 材 质                   | FPC+同轴线    | 结构 |            |
|      |       | ∇       | 0.02 | 模面处理                  |            | 射频 |            |
|      |       | ∇       |      | 外观处理                  |            | 确认 |            |
|      |       |         |      |                       |            | 单位 | mm         |
|      |       |         |      |                       |            | 比例 | 1:1        |
|      |       |         |      |                       |            | 版本 | R: A       |

10.1 Environmental Characteristic

| Test Item           | Test description                                                         |
|---------------------|--------------------------------------------------------------------------|
| 1. Low Temperature  | Temp.: -20 °C<br>Time: 24 hours                                          |
| 2. High Temperature | Temp.: 80℃<br>Time: 24 hours                                             |
| 3. Salt Fog         | 5±0.1% Nad salt fog<br>PH Value: 6.5-7.2<br>Temp: 35±1℃<br>Time:24 hours |

## 11.1 Characteristics and Reliability Test

| Test Items |                                  | Test Condition and Procedure                                                                                      | Requirements                                                     | Result |
|------------|----------------------------------|-------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|--------|
| C1         | V.S.W.R.                         | Set DUT on Network Analyzer; make individual calibration to test                                                  | Directive specification DUT                                      | PASS   |
| C3         | Antenna Gain                     | Set DUT on Antenna Chamber; make individual calibration to test                                                   | Directive specification DUT                                      | PASS   |
| M1         | Vibration                        | GB / T2423.48-2008 Amplitude: 0.03 inch (1.5mm); Freq: 20 to 80 to 20 Hz 3 directions; 2 hours for each direction | 1. No Visual Damage 2. Frequency Tol. ≤5%                        | PASS   |
| M4         | Pull Test                        | Holding with individual specification; force applied to axis of Connector .                                       | 1. Directive specification DUT 2. Frequency Tol. ≤5%             | PASS   |
| M5         | Magnetic force                   | The separate definition of retention product magnetic surface magnets and adsorption on the iron                  | 1. Directive specification DUT 2. Frequency Tol. ≤ 5%            | PASS   |
| M6         | Sway test                        | Holding with individual specification; the swing joint and wire,wire and plastic body test.                       | 1. Directive specification DUT 2. Frequency Tol. ≤ 5%            | PASS   |
| M7         | Dimension                        | Inspection of dimension, color, material, package, surface process.                                               | Directive specification DUT                                      | PASS   |
| E2         | Salt Spray                       | GB / T 2423.17-2008 Temp: 35°C; RH: ≥ 95%; NaCl solution: ≥ 5%;Time: 24H                                          | 1. No Visual Damage 2. Frequency Tol. ≤5%                        | PASS   |
| E3         | Temperature and Humidity Chamber | GB / T 2423.3-2006 Temp: 80°C / 12 H; -40°C / 12H RH: ≥ 90%; Time: 24H                                            | After 2 Hours Recovery 1. No Visual Damage 2. Frequency Tol. ≤5% | PASS   |
| E4         | Thermal Shock                    | GB / T 2423.22 - 2008 - 40°C (30 minutes) to + 80° C (30 minutes); Cycles: 24                                     | After 2 Hours Recovery 1. No Visual Damage 2. Frequency Tol. ≤5% | PASS   |