

# 东莞市乔木电子科技有限公司

Dongguan Jomu electronic technology Co., LTD

## 规格书

### SPECIFICATION FOR APPROVAL

客 户 名 称:

客户项目名称: 2.4G WIFI天线

客 户 料 号:

物 料 名 称:

乔 木 料 号:

日 期:

版 别:

|              |                          |                       |
|--------------|--------------------------|-----------------------|
|              | MANUFACTURE<br>SIGNATURE | CUSTOMER<br>SIGNATURE |
| CHECKED BAY: | 周文彬                      |                       |
| AUDITOR BAY: |                          |                       |
| APPROVED BAY | 谭文锋                      |                       |
| DATE:        | 2023-04-27               |                       |

Address: 2nd Floor, Xinhui Building, No.48 Fumin South Road, Dalang Town,  
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Email: 1931648562@qq.com

**Product Number: DF5DBI82564/5-40**

**Product Name: Antenna**

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Product Number: DF5DBI82564/5-40

Product Name: Antenna

## 1. Revision History

| Revision | Date       | Change Notification | Description |
|----------|------------|---------------------|-------------|
| 1.0      | 2023-04-27 | initiate            |             |
|          |            |                     |             |
|          |            |                     |             |
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## 2. Specification

|                                          |                                         |
|------------------------------------------|-----------------------------------------|
| Sample Photo                             |                                         |
|                                          |                                         |
| A. Electrical Characteristics            |                                         |
| Frequency                                | 2400 ~ 2500 MHz                         |
| S.W.R.                                   | $\leq 2.0$                              |
| Antenna Gain                             | 2.dBi@ 2450 MHz                         |
| Polarization                             | Linear                                  |
| Impedance                                | 50 Ohm                                  |
| B. Material & Mechanical Characteristics |                                         |
| Material of Radiator                     |                                         |
| Material of Plastic                      | Body: ABS<br>Hinge: ABS<br>Base: PC+PBT |
| Cable Type                               | 1.13黑色线 120MM一代端子                       |
| Connector Type                           |                                         |
| C. Environmental                         |                                         |
| Operation Temperature                    | - 40 °C ~ + 65 °C                       |
| Storage Temperature                      | - 40 °C ~ + 80 °C                       |
| Antenna Color Storage life               | < 2 year                                |

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### 3. Characteristics and Reliability Test

| Test Items 測試項目 |                                | Test Condition and Procedure 測試方法                                                                                                                               | Requirement s 要求                                                                                    | Result 結果 |
|-----------------|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|-----------|
| C1 V            | .S.W.R.<br>電壓駐波比               | Set DUT on Network Analyzer; make individual calibration to test 設置網路分析儀參數進行測試                                                                                  | Directive DUT specification<br>符合待測物規範                                                              | PASS      |
| C2 In           | sersion<br>Loss 插入損失           | Set DUT on Network Analyzer; make individual calibration to test 設置網路分析儀參數進行測試                                                                                  | Directive DUT specification<br>符合待測物規範                                                              | N/A       |
| C3 Ant          | enna<br>Gain<br>天線增益           | Set DUT on Antenna Chamber; make individual calibration to test 設置天線暗室參數進行測試                                                                                    | Directive DUT specification<br>符合待測物規範                                                              | PASS      |
| C4 V            | oltage<br>Breakdown<br>耐電壓     | Test voltage should be applied between insulated portions, or between ground as specified.<br>在绝缘部分测试电压,或指定接地面之间                                                | Max Voltage $\geq$ 500 V or<br>directive material<br>specification 最大電壓 $\geq$ 500V<br>或符合材料規範      | N/A       |
| C5 In           | sulation<br>Resistance<br>絕緣阻抗 | Set Voltage: 500 $\pm$ 50V; between the insulated portions, or between ground as specified.<br>設置電壓 500 $\pm$ 50V,在绝缘部份測試或指定接地面之间                               | Resistance $\geq$ 500 M ohm<br>or directive material<br>specification 阻抗 $\geq$ 500M ohm<br>或符合材料規範 | N/A       |
| C6 Cont         | act<br>Resistance<br>接觸阻抗      | Air Temp: 26°C; measured with test equipment<br>室溫 26°C, 指定量測設備                                                                                                 | Directive material<br>specification<br>符合材料規範                                                       | N/A       |
| M1 V            | ibration<br>震動                 | GB / T2423.48-2008<br>Amplitude: 0.03 inch (1.5mm); Freq: 20 to 80 to 20 Hz<br>3 directions; 2 hours for each direction<br>振幅 1.5mm ; 頻率 20~80~20Hz ; 3 個方向各 2H | 1. No Visual Damage<br>2. Frequency Tol. $\leq$ 5%<br>無明顯外觀不良; 頻率偏移 $\leq$ 5%                       | PASS      |
| M2 Rand         | om<br>Drop<br>跌落               | GB / T2423.8-1995<br>Single : Height: 1.0 Meter; 3 directions; 1 time for each direction 單支天線, 高 1m ; 3 個方向各 1 次                                                | 1. No parts separated 、 fracture<br>2. Frequency Tol. $\leq$ 5%<br>產品無脫落、斷裂; 頻率偏移 $\leq$ 5%         | PASS      |
|                 |                                | Packing : Height: 0.76 Meter; 1 corner, 3 edges, 6 surface<br>包裝: 高 0.76m , 一角、三棱、六面各一次                                                                         |                                                                                                     | PASS      |
|                 |                                | Antenna+Machine: Height: 0.76 Meter; 1 corner, 3 edges, 6 surface. 整機: 高 0.76m , 一角、三棱、六面各一次                                                                    |                                                                                                     | N/A       |
| M3              | Solderability                  | GB / T2423.28-2005                                                                                                                                              | Tin evenly on full                                                                                  | N/A       |

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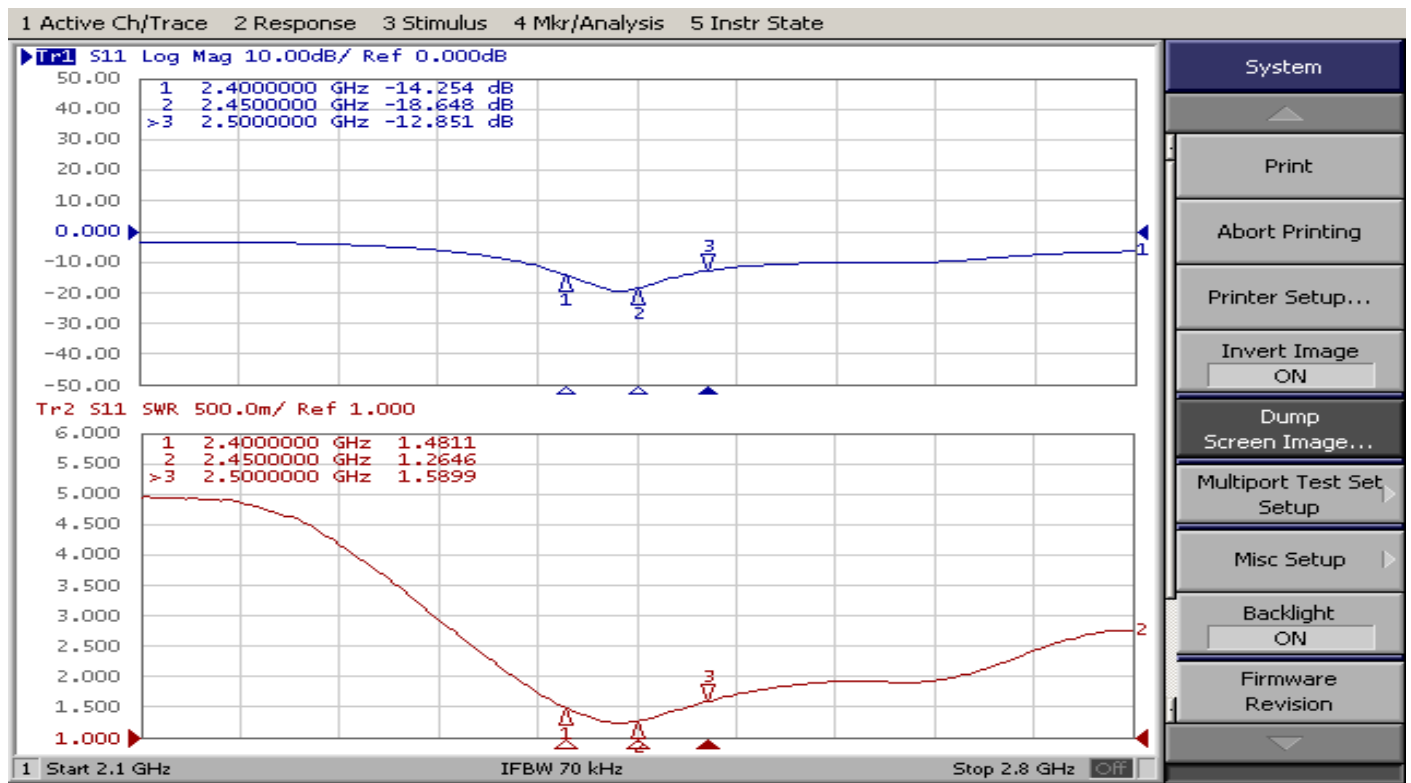
**Product Name: Antenna**

|      |                                         |                                                                                                                                |                                                                                             |      |
|------|-----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|------|
|      | 可焊性                                     | Temp: 260±5° C;Duration: 5 seconds 溫度 260±5° C;持續 5 秒                                                                          | 上錫均勻飽滿                                                                                      |      |
| M4 P | ull Test<br>拉力                          | Holding with individual specification; force applied to axis of terminal .單獨定義產品端子拉力                                           | Directive DUT specification<br>Frequency Tol.≤5%<br>符合待測物規範;頻率偏移≤5%                         | PASS |
| M5 T | o rque<br>Test<br>扭力                    | Holding with individual specification; applied clockwise and counterclockwise to the axis of terminal<br>單獨定義產品端子之順時針及逆時針扭力    | Directive DUT specification<br>Frequency Tol.≤ 5%<br>符合待測物規範;頻率偏移≤5%                        | N/A  |
| M6 D | imension<br>尺寸                          | Inspection of dimension, color, material, package, surface process.检查尺寸,颜色,材料,包装,表面處理                                          | Directive DUT specification<br>符合待測物規範                                                      | PASS |
| E1 W | aterproof<br>防水                         | With Reference to IEC 60529 // IP Code Definition<br>參考 IEC60529 IP 定義                                                         | Directive DUT specification<br>符合待測物規範                                                      | N/A  |
| E2   | Salt Spray 鹽霧                           | GB / T 2423.17-2008<br>Temp: 35°C; RH: ≥ 95%; NaCl solution: ≥ 5%;Time: 24H<br>溫度 35°C; 濕度≥95%;鹽水濃度≥5%; 測試 24H                 | No Visual Damage<br>Frequency Tol.≤5%<br>無明顯外觀不良;頻率偏移≤5%                                    | PASS |
| E3 T | emperature and Humidity Chamber<br>恒溫恒濕 | GB / T 2423.3-2006<br>Temp: 80°C / 12 H; -40°C / 12H RH: ≥ 90 %; Time: 24H<br>溫度 80°C 測試 12H 轉-40°C 測試 12H; 濕度≥90 %;<br>時間 24H | After 2 Hours Recovery<br>No Visual Damage<br>Frequency Tol.≤5%<br>恢復 2H 后, 無明顯外觀不良;頻率偏移≤5% | PASS |
| E4 T | ermal Shock<br>冷熱衝擊                     | GB / T 2423.22 - 2008<br>40° C (30 minutes) to + 80° C (30 minutes); Cycles: 24<br>40° C 測試 30 分轉 80° C 測試 30 分為一個週期; 共 24 週期  | After 2 Hours Recovery<br>No Visual Damage<br>Frequency Tol.≤5%<br>恢復 2H 后, 無明顯外觀不良;頻率偏移≤5% | PASS |
| E5 A | ging test<br>老化                         | GB / T 2423.2 - 2008<br>Temp: 80°C; Time: 24 hours<br>溫度 80° C, 測試 24H                                                         | After 2 Hours Recovery<br>No Visual Damage<br>Frequency Tol.≤5%<br>無明顯外觀不良;頻率偏移≤5%          | PASS |
| E6 H | igh Temp.<br>高溫                         | Temp. 270±10° C; Times: 120 seconds<br>溫度 270±10° C, 測試時間 120 秒                                                                | No Visual Damage<br>無明顯外觀不良                                                                 | N/A  |
| R1   | RoHS                                    | With Reference to IEC 62321:2008 with flow chart<br>參考 IEC 62321 測試流程                                                          | Directive RoHS 2011/65/EU<br>符合 RoHS 2011/65/EU 標準                                          | PASS |
| R2   | PFOS                                    | With Reference to USA EPA 3550C:1996 by LC/MS<br>參考 USA EPA 3550C 測試流程                                                         | Directive RoHS 2006/122/EC<br>符合 RoHS 2011/65/EU 標準                                         | PASS |

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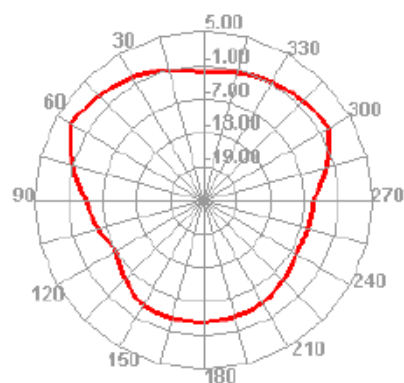
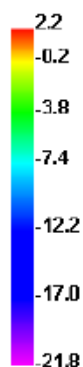
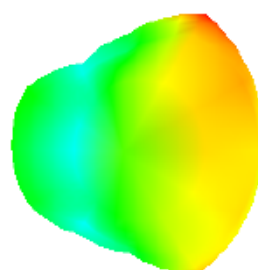
#### 4. Antenna - S Parameter Test Data



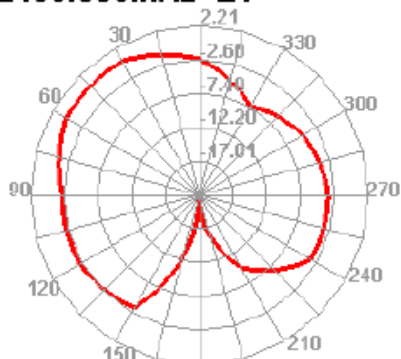
## 5. Antenna - Radiation Pattern Test Data

| Fred<br>(MHz) | Effi<br>(%) | Effi<br>(%) | Gain<br>(dBi) |
|---------------|-------------|-------------|---------------|
| 2400          | 41.07       | -2.09       | 1.63          |
| 2410          | 41.62       | -2.50       | 1.59          |
| 2420          | 41.98       | -2.69       | 1.75          |
| 2430          | 41.81       | -2.09       | 1.38          |
| 2440          | 41.54       | -2.34       | 1.75          |
| 2450          | 41.83       | -2.42       | 1.55          |
| 2460          | 41.15       | -2.49       | 1.69          |
| 2470          | 41.26       | -2.88       | 1.89          |
| 2480          | 41.78       | -2.87       | 1.94          |
| 2490          | 41.05       | -2.07       | 2.00          |
| 2500          | 41.07       | -2.09       | 1.71          |

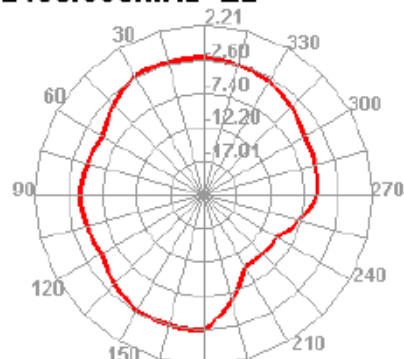
2450.000MHz



2450.000MHz E1



2450.000MHz E2





**6. Antenna drawing (mm) :**

