



Research and development of Shenzhen Ruifeng Electronic Technology Co., LTD

Acknowledgment Letter

SPECIFICATION FOR APPROVAL

| | | | |
|-----------------------|---------------|--------------|----------------|
| Customer Name | Shiyutong | | |
| Customer Project Name | PM | Project Name | PM |
| Customer P/N | | SDC P/N | WF4584B-B45R-A |
| Band | WIFI2. 4G/BT | | |
| Version | A0 | | |
| Designer Information | | | |
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| ME Engineer | Huang Zongbao | | |

| Approval | | | | Customer Approval | |
|-----------|---------------|-------------|--------------|-------------------|-------------|
| | Prepared By | Checked By | Approval By | Checked By | Approval By |
| Signature | Huang Zongbao | Fu Xuerong | Xia Chenglei | | |
| Date | 2023. 5. 26 | 2023. 5. 26 | 2023. 5. 26 | | |

| Change Log | | | | |
|------------|--------------------|------------------|-------------|------|
| Version | Change Description | Person in Charge | Approval By | Date |
| | | | | |
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| A | | B | | C | | D | | A | | B | | C | | D | |
| 1 | | 2 | | 3 | | 4 | | 5 | | 6 | | 7 | | 8 | |
| A | | B | | C | | D | | A | | B | | C | | D | |
| 1 | | 2 | | 3 | | 4 | | 5 | | 6 | | 7 | | 8 | |
| A | | B | | C | | D | | A | | B | | C | | D | |
| 1 | | 2 | | 3 | | 4 | | 5 | | 6 | | 7 | | 8 | |
| A | | B | | C | | D | | A | | B | | C | | D | |
| 1 | | 2 | | 3 | | 4 | | 5 | | 6 | | 7 | | 8 | |
| A | | B | | C | | D | | A | | B | | C | | D | |
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| A | | B | | C | | D | | A | | B | | C | | D | |
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| A | | B | | C | | D | | A | | B | | C | | D | |
| 1 | | 2 | | 3 | | 4 | | 5 | | 6 | | 7 | | 8 | |
| A | | B | | C | | D | | A | | B | | C | | D | |
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| A | | B | | C | | D | | A | | B | | C | | D | |
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| A | | B | | C | | D | | A | | B | | C | | D | |
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| A | | B | | C | | D | | A | | B | | C | | D | |
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| A | | B | | C | | D | | A | | B | | C | | D | |
| 1 | | 2 | | 3 | | 4 | | 5 | | 6 | | 7 | | 8 | |
| A | | B | | C | | D | | A | | B | | C | | D | |
| 1 | | 2 | | 3 | | 4 | | 5 | | 6 | | 7 | | 8 | |
| A | | B | | C | | D | | A | | B | | C | | D | |
| 1 | | 2 | | 3 | | 4 | | 5 | | 6 | | 7 | | 8 | |
| A | | B | | C | | D | | A | | B | | C | | D | |
| 1 | | 2 | | 3 | | 4 | | 5 | | 6 | | 7 | | 8 | |
| A | | B | | C | | D | | A | | B | | C | | D | |
| 1 | | 2 | | 3 | | 4 | | 5 | | 6 | | 7 | | 8 | |
| A | | B | | C | | D | | A | | B | | C | | D | |
| 1 | | 2 | | 3 | | 4 | | 5 | | 6 | | 7 | | 8 | |
| A | | B | | C | | D | | A | | B | | C | | D | |
| 1 | | 2 | | 3 | | 4 | | 5 | | 6 | | 7 | | 8 | |
| A | | B | | C | | D | | A | | B | | C | | D | |
| 1 | | 2 | | 3 | | 4 | | 5 | | 6 | | 7 | | 8 | |
| A | | B | | C | | D | | A | | B | | C | | D | |
| 1 | | 2 | | 3 | | 4 | | 5 | | 6 | | 7 | | 8 | |
| A | | B | | C | | D | | A | | B | | C | | D | |
| 1 | | 2 | | 3 | | 4 | | 5 | | 6 | | 7 | | 8 | |
| A | | B | | C | | D | | A | | B | | C | | D | |
| 1 | | 2 | | 3 | | 4 | | 5 | | 6 | | 7 | | 8 | |
| A | | B | | C | | D | | A | | B | | C | | D | |
| 1 | | 2 | | 3 | | 4 | | 5 | | 6 | | 7 | | 8 | |
| A | | B | | C | | D | | A | | B | | C | | D | |
| 1 | | 2 | | 3 | | 4 | | 5 | | 6 | | 7 | | 8 | |
| A | | B | | C | | D | | A | | B | | C | | | |

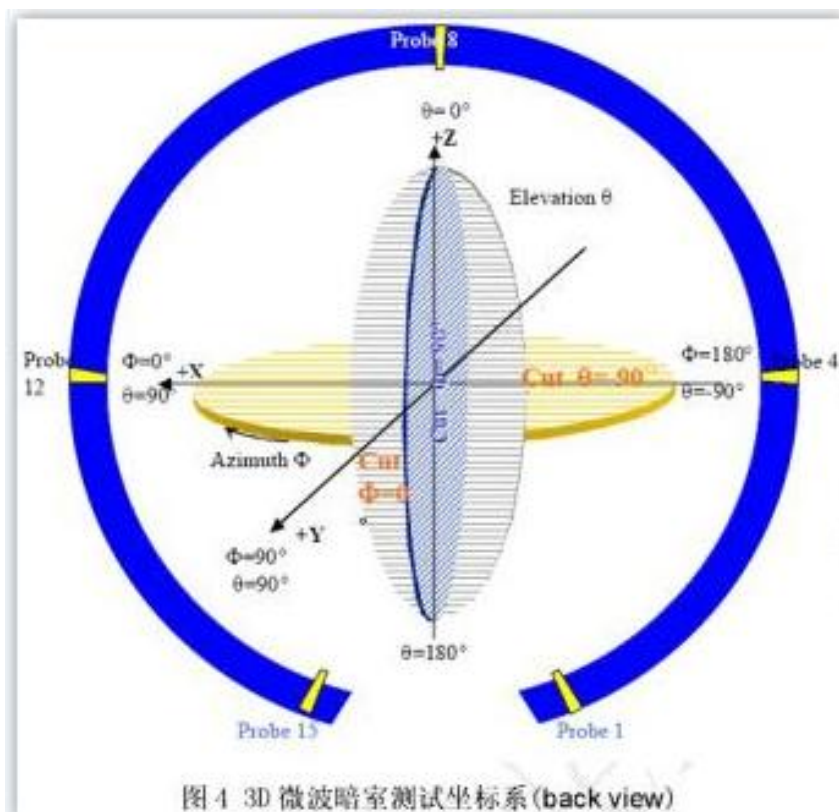
Sample Dimensions Test Report

| | | | | | |
|------------------|------------------------|-------------|-----------------|-----------|------------|
| Test Date | 2023. 5. 26 | Sample Qty. | 3 | Inspector | Xu Yanfang |
| Dimension No. | Standard | Sample 1 | Sample 2 | Sample 3 | Pass/NG |
| ①length | 18. 8±0. 2mm | 18. 8 | 18. 9 | 18. 8 | Pass |
| ②width | 14. 52±0. 2mm | 14. 52 | 14. 62 | 14. 52 | Pass |
| ③thickness | 0. 1±0. 03mm | 0. 1 | 0. 1 | 0. 1 | Pass |
| ④Line length | 45±2mm | 45 | 46 | 46 | Pass |
| ⑤ | | | | | |
| ⑥ | | | | | |
| ⑦ | | | | | |
| | | | | | |
| | | | | | |
| Conclusion | | | | | PASS |
| Inspector & Date | Xu Yanfang 2023. 5. 26 | | Approval & Date | | |

RF Performance Test Report

Antenna Test Equipment Introduction

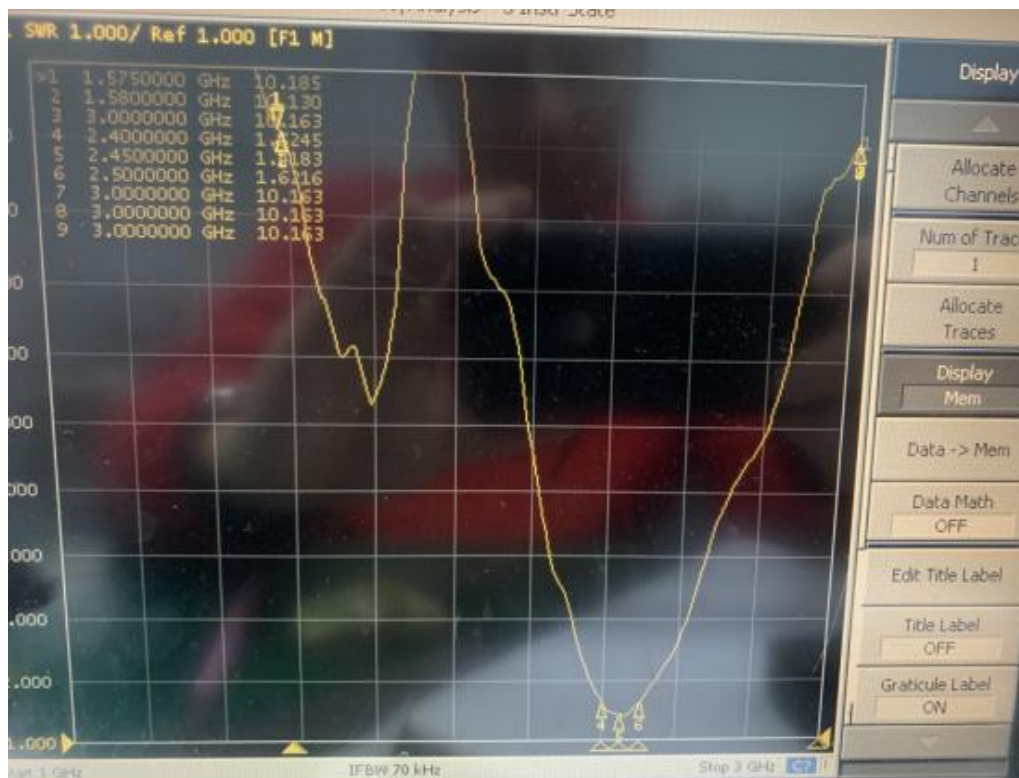
Test of antenna input characteristics using **Agilent E5071C** and **Agilent 5062A** vector network analyzer; The radiation pattern of the antenna are tested using the guangping 3D near field Anechoic Chamber, and the instrument is used to agilent8960 E5515 and Agilent E4438C. The test coordinates of the darkroom are as follows:

1. **S11 Parameter-VSWR**

Measuring Method is a 50Ω coaxial cable is connected to the antenna. Then this cable is connected to a network analyzer to measure the S11 parameter, Keeping this fixture away from metal at least 20cm.

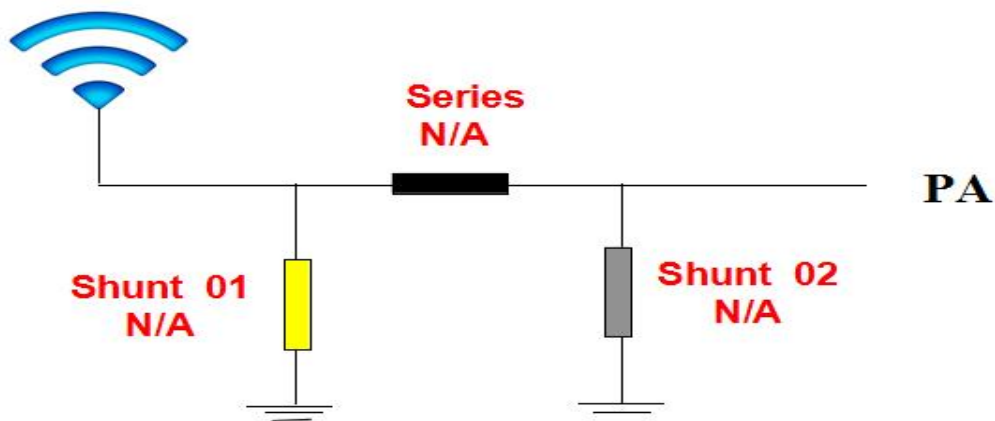
S11 Parameter-VSWR

| frequency (MHZ) | 2400 | 2450 | 2500 |
|---------------------|------|------|------|
| standing-wave ratio | 1.62 | 1.41 | 1.62 |



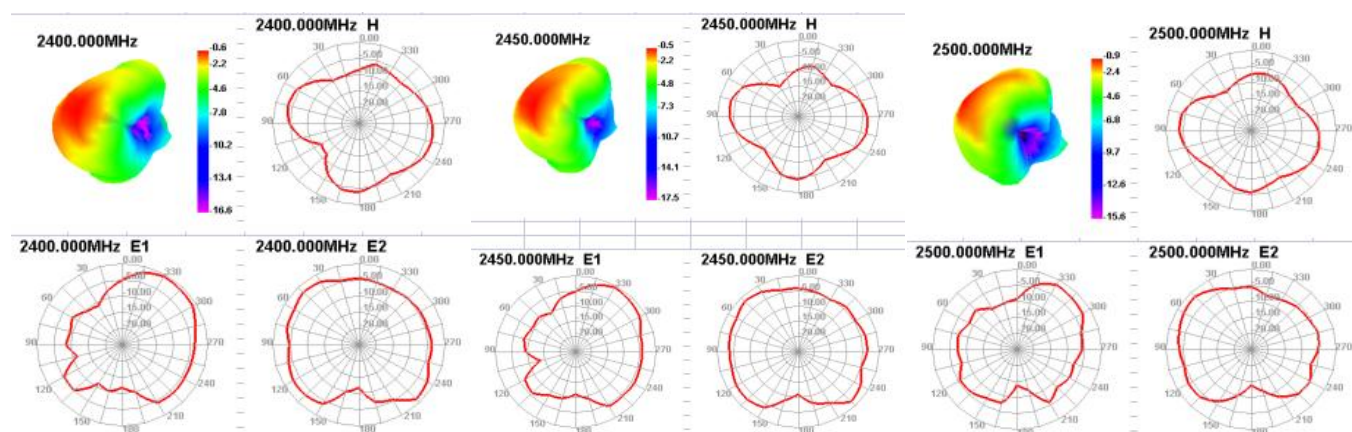
2. Antenna Matching Network

Antenna



3. Gain & Efficiency

| Frequency (MHz) | Efficiency (%) | Peak GAIN (dBi) |
|-----------------|----------------|-----------------|
| 2400 | 31.74 | -0.59 |
| 2450 | 29.65 | -0.51 |
| 2500 | 28.15 | -0.93 |



Reliability Test Report

| Test Date | 2023. 5. 26 | Sample Qty. | 3 | Inspector | Xu Yanfang | |
|--------------------------------------|---|---------------------------------------|-----------------|-----------|------------|---------|
| Test Item | Requirement | testing equipment | Sample 1 | Sample 2 | Sample 3 | PASS/NG |
| high temperature storage | Expose to +85 °C for 24 hours, recover for 2 hours, and conduct testing | Constant temperature and humidity box | OK | OK | OK | Pass |
| low temperature storage | Expose to -40 °C for 24 hours, recover for 2 hours, and perform testing | Constant temperature and humidity box | OK | OK | OK | Pass |
| High temperature operation | Powered on for 24 hours at +60 °C | Constant temperature and humidity box | OK | OK | OK | Pass |
| Low temperature operation | Powered on for 24 hours at -20 °C | Constant temperature and humidity box | OK | OK | OK | Pass |
| Salt spray test | (5 ± 0. 5)% sodium chloride, pH Value is 6. 5~7. 2, Temperature of experimental chamber (35 ± 2) °C <input type="checkbox"/> 24H <input checked="" type="checkbox"/> 48H | Salt spray testing machine | OK | OK | OK | Pass |
| Connector riveting and pulling force | 1. 13 Wire diameter ≥ 10N 0. 81 Wire diameter ≥ 8N RG174 ≥ 60N RG178 ≥ 50N | Push-pull force gauge | ≥ 10N | ≥ 10N | ≥ 10N | Pass |
| Conclusion | | | | | | Pass |
| Inspector & Date | Xu Yanfang 2023. 5. 26 | | Approval & Date | | | |

Product ROHS Composition Declaration Form

| product name | Uniform material | Harmful substance content(PPM) | | | | | HS test report number | Date of HS test report |
|--------------------------|------------------|----------------------------------|----|----|----|----|-----------------------|------------------------|
| | | Pb | Cd | Hg | Cr | Br | | |
| WIFI&BT antenna terminal | FPC | ND | ND | ND | ND | ND | UNIB21042707HR-01 | 2023. 5. 26 |
| | | ND | ND | ND | ND | ND | | |
| | | ND | ND | ND | ND | ND | | |
| | | ND | ND | ND | ND | ND | | |
| | | ND | ND | ND | ND | ND | | |
| | wire rod | ND | ND | ND | ND | ND | | |
| | | ND | ND | ND | ND | ND | | |
| | | ND | ND | ND | ND | ND | | |
| | terminal | ND | ND | ND | ND | ND | | |

Install Wizard or Other

setup script:

Take 1 PCS of product, tear off the release paper on the back of the FPC by hand, and then align the FPC positioning hole position with the shell positioning hole position (positioning rib position or positioning line), and attach it flat to the shell, as shown in the following figure:

Installation process precautions:

- ☐Ensure that the FPC is fully attached to the housing after pasting the antenna;
- ☐Align the positioning hole with the position of the casing positioning column;
- ☐Align FPC edge with shell edge;
- ☐When attaching the terminal to the PCBA end of the motherboard, please first align the terminals and then snap them vertically;
- ☐When disassembling antenna terminals, it is necessary to use a tool (such as a special pry bar) to vertically lift the terminals and not directly pull the wires for disassembly