



# 深圳市尚远科技有限公司

Shenzhen Sunnyway Technology Co.Ltd.

## Antenna SPEC

|                             |                  |                      |
|-----------------------------|------------------|----------------------|
| Customer: YUNJIA            |                  | Project Name: v113   |
| Working Band: WiFi2.4 B/G/N |                  |                      |
| Mainboard Version:          |                  |                      |
| Sunnyway BOM                |                  |                      |
| SPEC-Type                   | Sunnyway Antenna | Customer Part Number |
| WIFI Antenna                | SZ233071B77      | 2. 1. 09. 12. 005801 |

| Change history          |                |            |         |
|-------------------------|----------------|------------|---------|
| Preparation/change date | change content | Changed by | version |
| 2024.07.23              | First edition  | XU         | A       |
|                         |                |            |         |
|                         |                |            |         |

| Sunnyway Countersign Column |                 |        |                     |                  |
|-----------------------------|-----------------|--------|---------------------|------------------|
| R&D                         | ME:             | Audit: | Quality Engineer:   | Approval:        |
|                             | RF:             | Audit: |                     |                  |
| Customer Countersign Column |                 |        |                     |                  |
| Electronic Engineer         | Project Manager |        | Structural Engineer | Quality Engineer |
|                             |                 |        |                     |                  |

Tel: +86-021-64842326 (Shanghai) ; +86-0755-82504258 (Shenzhen)

Fax: +86-021-64842328

Shanghai R & D center: Room 302, building 65, No.421, Hong Cao Road, Caohejing Development Zone, Shanghai.

Shenzhen R&D Center: Room 405, 4th Floor, Jinke Building, No.8 Qiongyu Road, Nanshan District, Shenzhen

## ITEM

### **1 PROJECT PICTURES**

### **2 TEST FIXTURE**

### **3 MATCHING CIRCUIT**

### **4 S11 TEST**

4.0 S11 test method

4.1 S11 parameter

4.2 Efficiency&Gain

### **5 CHAMBER TEST DATA**

5.0 test equipment

5.1 active data

### **6 GROUND HANDLING**

### **7 MASS PRODUCTION ANTENNA SPEC**

### **8 Structural drawings**

### **9.Environmental testing report**

## 1. PROJECT PICTURES

project pictures shown below:



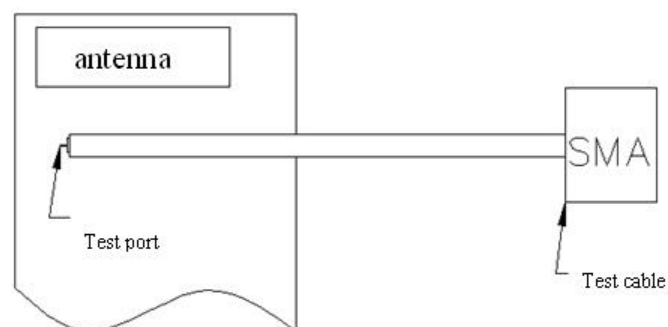
PS:

To ensure that the antenna shipment quality, the final prototype Clients validated the antenna's performance, should be kept in our company for at least a year time, facilitate solving antenna amount during abnormal situation,

## 2. TEST FIXTURE

Purpose: To test antenna passive parameters as accurately as possible.

methods: the fixture is to use a 50 ohm coaxial cable, one end is connected to the pad after the antenna's matching circuit (the front of the antenna switch) , and the other end is connected to the SMA connector.



## 3. MATCHING CIRCUIT

Antenna matching did not modify

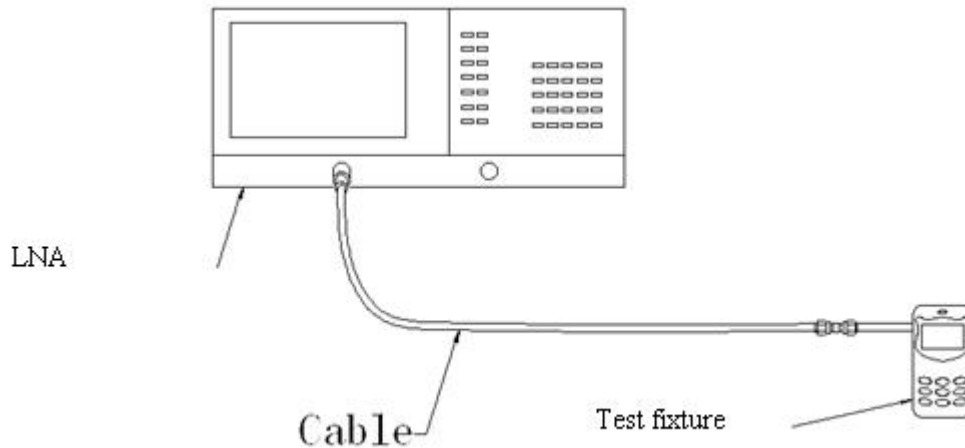
## 4. S11 test

### 4.0 S11 test method instructions

Test equipment: LNA (Agilent E5071B)

Test method: With a 50 ohm CABLE ,CABLE export from instrument testing port , After the calibration with calibration Key, connected to the SMA connector, Records the return loss and VSWR of the related frequency points.

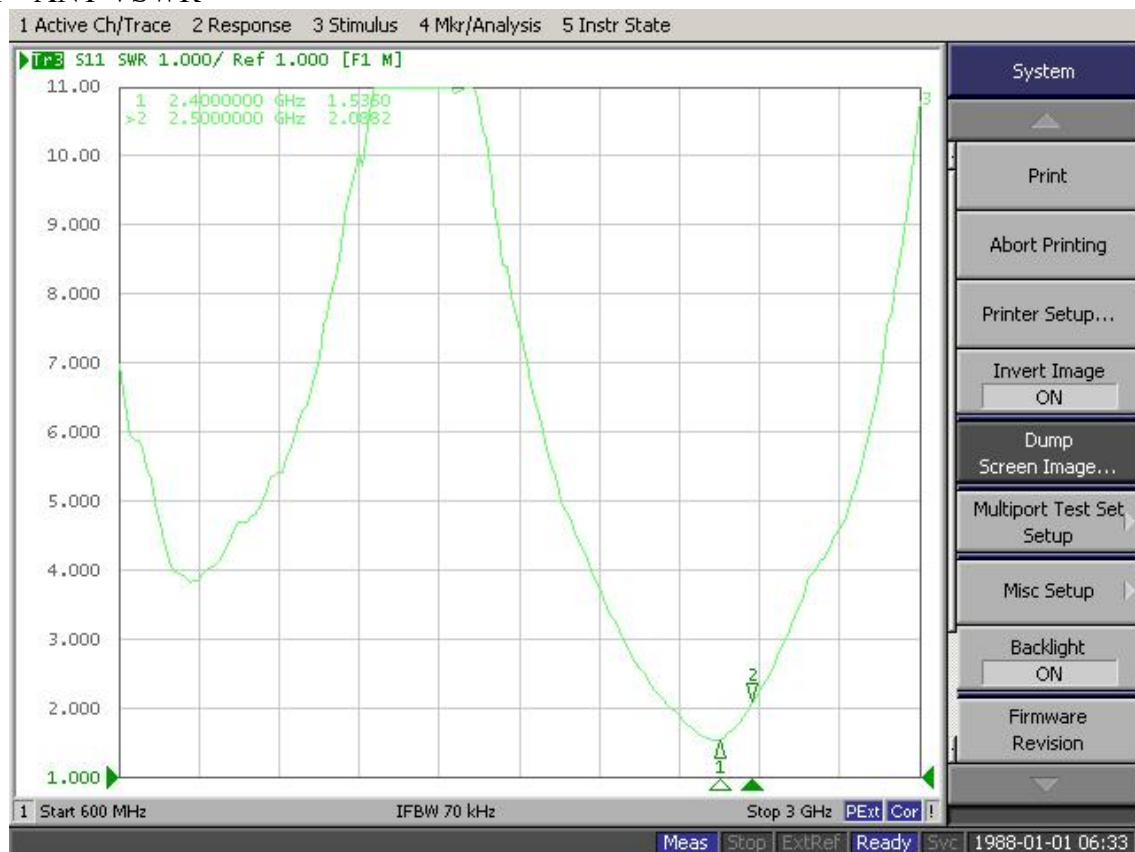
Test schematic diagram is as follows:



Test schematic diagram

### 4.1 S11 parameter

WIFI ANT VSWR



## 5 CHAMBER TEST DATA

Test equipment

Test system: chamber

Test environment: the temperature of 22 °C + 3 °C, humidity of 50% plus or minus 15%

Test equipment: to test passive status , use Agilent 8960 Agilent E5071B to  
test active status, use CMW500

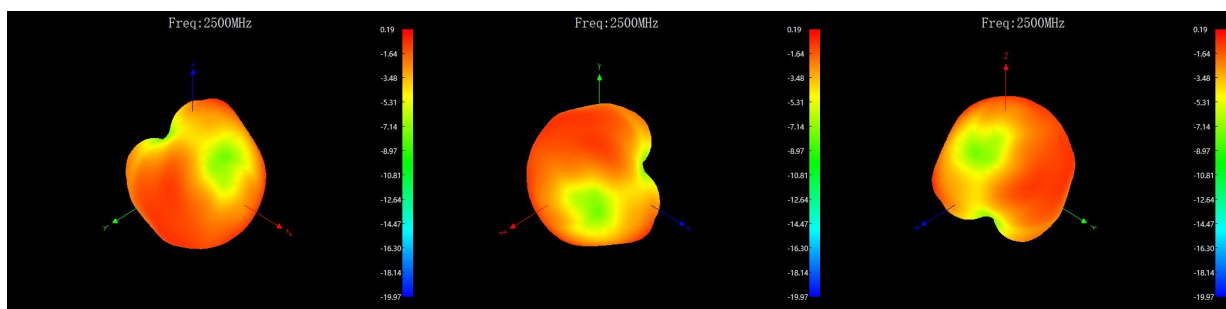
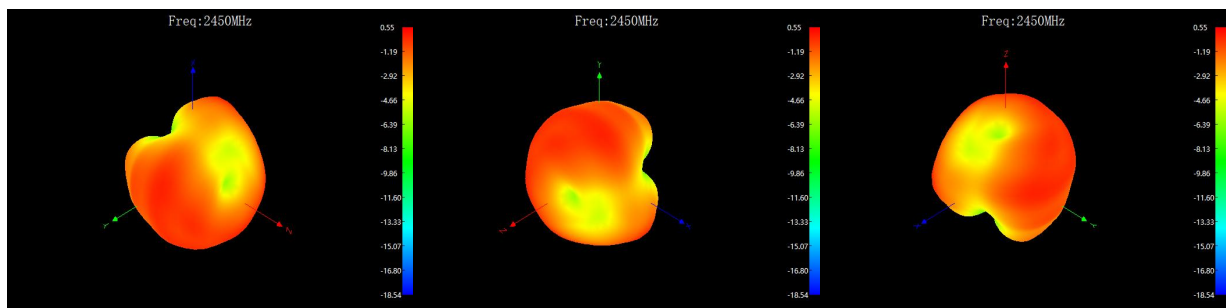
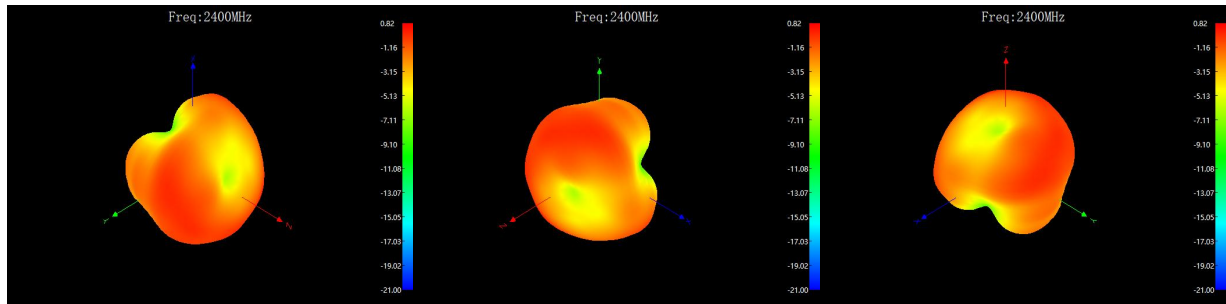
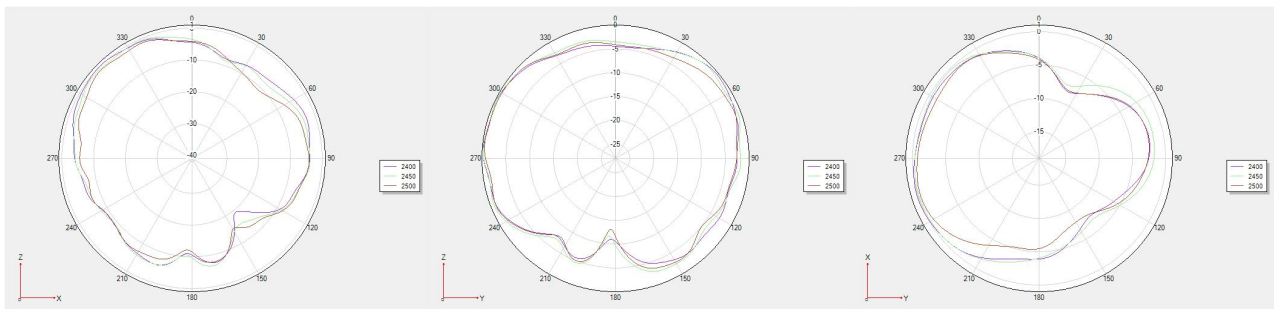
Test data

| Item | Measurement | Band         | Channel | Total  |
|------|-------------|--------------|---------|--------|
| 1    | TRP         | WIFI_B (11M) | 1       | 13.3   |
| 2    | TRP         | WIFI_B (11M) | 6       | 13.52  |
| 3    | TRP         | WIFI_B (11M) | 11      | 13.4   |
| 4    | TIS(EIRP)   | WIFI_B (11M) | 11      | -84.83 |
| 5    | TRP         | WIFI_G (54M) | 1       | 13.78  |
| 6    | TRP         | WIFI_G (54M) | 6       | 13.65  |
| 7    | TRP         | WIFI_G (54M) | 11      | 12.97  |
| 8    | TIS(EIRP)   | WIFI_G (54M) | 11      | -71.52 |

Passive efficiency

| Frequency/Mhz | MaxGain/dBi | Efficiency / % |
|---------------|-------------|----------------|
| 2400          | 0.82        | 47.7           |
| 2410          | 0.62        | 47.58          |
| 2420          | 0.61        | 48.83          |
| 2430          | 0.57        | 48.33          |
| 2440          | 0.56        | 49.08          |
| 2450          | 0.55        | 48.33          |
| 2460          | 0.53        | 47.95          |
| 2470          | 0.48        | 45.88          |
| 2480          | 0.43        | 46.58          |
| 2490          | 0.38        | 45.42          |
| 2500          | 0.19        | 44.13          |

Radiation Apple Figure 2.4G



## 6. Antenna loading position



## 7. Mass production antenna Spec

During Mass production, to test VSWR as production test standard

According to the difference of the project itself, the following specification:

| Frequency    | SPEC , Mass Production                               |
|--------------|--|
| 2400-2500MHz | VSWR (MP performance) < VSWR(Verify performance)+0.5 |
|              |  |



The figure is a technical drawing of a PCB assembly. It includes a top view and a side view. The top view shows a rectangular board with a central circular feature. Dimensions are given in millimeters. Callouts point to specific features like the 'End facing TAP' and 'No. ANCZ113L-3C1'. The side view shows the board's profile with a central circular feature. Dimensions are given in millimeters. Callouts point to specific features like the 'End facing TAP' and 'No. ANCZ113L-3C1'.

| Version | Revision | Change Content | Revised By | Date |
|---------|----------|----------------|------------|------|
|         |          |                |            |      |
|         |          |                |            |      |
|         |          |                |            |      |

| Part Name    | Part No.    | Material         | Finishing | Unit | Colour | Scale | Rev |
|--------------|-------------|------------------|-----------|------|--------|-------|-----|
| 尚远科技(中国)有限公司 | SZ233071B77 | FPC+Coaxial line | APPROVED: | mm   | BLACK  | 1:1   | TA  |

| Part Name    | Part No.    | Material         | Finishing | Unit | Colour | Scale | Rev |
|--------------|-------------|------------------|-----------|------|--------|-------|-----|
| 尚远科技(中国)有限公司 | SZ233071B77 | FPC+Coaxial line | APPROVED: | mm   | BLACK  | 1:1   | TA  |

| Part Name    | Part No.    | Material         | Finishing | Unit | Colour | Scale | Rev |
|--------------|-------------|------------------|-----------|------|--------|-------|-----|
| 尚远科技(中国)有限公司 | SZ233071B77 | FPC+Coaxial line | APPROVED: | mm   | BLACK  | 1:1   | TA  |

| Part Name    | Part No.    | Material         | Finishing | Unit | Colour | Scale | Rev |
|--------------|-------------|------------------|-----------|------|--------|-------|-----|
| 尚远科技(中国)有限公司 | SZ233071B77 | FPC+Coaxial line | APPROVED: | mm   | BLACK  | 1:1   | TA  |

| Part Name    | Part No.    | Material         | Finishing | Unit | Colour | Scale | Rev |
|--------------|-------------|------------------|-----------|------|--------|-------|-----|
| 尚远科技(中国)有限公司 | SZ233071B77 | FPC+Coaxial line | APPROVED: | mm   | BLACK  | 1:1   | TA  |

| Part Name    | Part No.    | Material         | Finishing | Unit | Colour | Scale | Rev |
|--------------|-------------|------------------|-----------|------|--------|-------|-----|
| 尚远科技(中国)有限公司 | SZ233071B77 | FPC+Coaxial line | APPROVED: | mm   | BLACK  | 1:1   | TA  |

| Part Name    | Part No.    | Material         | Finishing | Unit | Colour | Scale | Rev |
|--------------|-------------|------------------|-----------|------|--------|-------|-----|
| 尚远科技(中国)有限公司 | SZ233071B77 | FPC+Coaxial line | APPROVED: | mm   | BLACK  | 1:1   | TA  |

| Part Name    | Part No.    | Material         | Finishing | Unit | Colour | Scale | Rev |
|--------------|-------------|------------------|-----------|------|--------|-------|-----|
| 尚远科技(中国)有限公司 | SZ233071B77 | FPC+Coaxial line | APPROVED: | mm   | BLACK  | 1:1   | TA  |

| Part Name    | Part No.    | Material         | Finishing | Unit | Colour | Scale | Rev |
|--------------|-------------|------------------|-----------|------|--------|-------|-----|
| 尚远科技(中国)有限公司 | SZ233071B77 | FPC+Coaxial line | APPROVED: | mm   | BLACK  | 1:1   | TA  |

| Part Name    | Part No.    | Material         | Finishing | Unit | Colour | Scale | Rev |
|--------------|-------------|------------------|-----------|------|--------|-------|-----|
| 尚远科技(中国)有限公司 | SZ233071B77 | FPC+Coaxial line | APPROVED: | mm   | BLACK  | 1:1   | TA  |

| Part Name    | Part No.    | Material         | Finishing | Unit | Colour | Scale | Rev |
|--------------|-------------|------------------|-----------|------|--------|-------|-----|
| 尚远科技(中国)有限公司 | SZ233071B77 | FPC+Coaxial line | APPROVED: | mm   | BLACK  | 1:1   | TA  |

| Part Name    | Part No.    | Material         | Finishing | Unit | Colour | Scale | Rev |
|--------------|-------------|------------------|-----------|------|--------|-------|-----|
| 尚远科技(中国)有限公司 | SZ233071B77 | FPC+Coaxial line | APPROVED: | mm   | BLACK  | 1:1   | TA  |

| Part Name    | Part No.    | Material         | Finishing | Unit | Colour | Scale | Rev |
|--------------|-------------|------------------|-----------|------|--------|-------|-----|
| 尚远科技(中国)有限公司 | SZ233071B77 | FPC+Coaxial line | APPROVED: | mm   | BLACK  | 1:1   | TA  |

| Part Name    | Part No.    | Material         | Finishing | Unit | Colour | Scale | Rev |
|--------------|-------------|------------------|-----------|------|--------|-------|-----|
| 尚远科技(中国)有限公司 | SZ233071B77 | FPC+Coaxial line | APPROVED: | mm   | BLACK  | 1:1   | TA  |

| Part Name    | Part No.    | Material         | Finishing | Unit | Colour | Scale | Rev |
|--------------|-------------|------------------|-----------|------|--------|-------|-----|
| 尚远科技(中国)有限公司 | SZ233071B77 | FPC+Coaxial line | APPROVED: | mm   | BLACK  | 1:1   | TA  |

| Part Name    | Part No.    | Material         | Finishing | Unit | Colour | Scale | Rev |
|--------------|-------------|------------------|-----------|------|--------|-------|-----|
| 尚远科技(中国)有限公司 | SZ233071B77 | FPC+Coaxial line | APPROVED: | mm   | BLACK  | 1:1   | TA  |

| Part Name    | Part No.    | Material         | Finishing | Unit | Colour | Scale | Rev |
|--------------|-------------|------------------|-----------|------|--------|-------|-----|
| 尚远科技(中国)有限公司 | SZ233071B77 | FPC+Coaxial line | APPROVED: | mm   | BLACK  | 1:1   | TA  |

| Part Name    | Part No.    | Material         | Finishing | Unit | Colour | Scale | Rev |
|--------------|-------------|------------------|-----------|------|--------|-------|-----|
| 尚远科技(中国)有限公司 | SZ233071B77 | FPC+Coaxial line | APPROVED: | mm   | BLACK  | 1:1   | TA  |

| Part Name    | Part No.    | Material         | Finishing | Unit | Colour | Scale | Rev |
|--------------|-------------|------------------|-----------|------|--------|-------|-----|
| 尚远科技(中国)有限公司 | SZ233071B77 | FPC+Coaxial line | APPROVED: | mm   | BLACK  | 1:1   | TA  |

| Part Name    | Part No.    | Material         | Finishing | Unit | Colour | Scale | Rev |
|--------------|-------------|------------------|-----------|------|--------|-------|-----|
| 尚远科技(中国)有限公司 | SZ233071B77 | FPC+Coaxial line | APPROVED: | mm   | BLACK  | 1:1   | TA  |

| Part Name    | Part No.    | Material         | Finishing | Unit | Colour | Scale | Rev |
|--------------|-------------|------------------|-----------|------|--------|-------|-----|
| 尚远科技(中国)有限公司 | SZ233071B77 | FPC+Coaxial line | APPROVED: | mm   | BLACK  | 1:1   | TA  |

| Part Name    | Part No.    | Material         | Finishing | Unit | Colour | Scale | Rev |
|--------------|-------------|------------------|-----------|------|--------|-------|-----|
| 尚远科技(中国)有限公司 | SZ233071B77 | FPC+Coaxial line | APPROVED: | mm   | BLACK  | 1:1   | TA  |

| Part Name    | Part No.    | Material         | Finishing | Unit | Colour | Scale | Rev |
|--------------|-------------|------------------|-----------|------|--------|-------|-----|
| 尚远科技(中国)有限公司 | SZ233071B77 | FPC+Coaxial line | APPROVED: | mm   | BLACK  | 1:1   | TA  |

| Part Name    | Part No.    | Material         | Finishing | Unit | Colour | Scale | Rev |
|--------------|-------------|------------------|-----------|------|--------|-------|-----|
| 尚远科技(中国)有限公司 | SZ233071B77 | FPC+Coaxial line | APPROVED: | mm   | BLACK  | 1:1   | TA  |

| Part Name    | Part No.    | Material         | Finishing | Unit | Colour | Scale | Rev |
|--------------|-------------|------------------|-----------|------|--------|-------|-----|
| 尚远科技(中国)有限公司 | SZ233071B77 | FPC+Coaxial line | APPROVED: | mm   | BLACK  | 1:1   | TA  |

| Part Name    | Part No.    | Material         | Finishing | Unit | Colour | Scale | Rev |
|--------------|-------------|------------------|-----------|------|--------|-------|-----|
| 尚远科技(中国)有限公司 | SZ233071B77 | FPC+Coaxial line | APPROVED: | mm   | BLACK  | 1:1   | TA  |

| Part Name    | Part No.    | Material         | Finishing | Unit | Colour | Scale | Rev |
|--------------|-------------|------------------|-----------|------|--------|-------|-----|
| 尚远科技(中国)有限公司 | SZ233071B77 | FPC+Coaxial line | APPROVED: | mm   | BLACK  | 1:1   | TA  |

| Part Name    | Part No.    | Material         | Finishing | Unit | Colour | Scale | Rev |
|--------------|-------------|------------------|-----------|------|--------|-------|-----|
| 尚远科技(中国)有限公司 | SZ233071B77 | FPC+Coaxial line | APPROVED: | mm   | BLACK  | 1:1   | TA  |

| Part Name |
|-----------|
|-----------|



9. Environmental testing report



Sunnyway Technology (China) Co., Ltd.

Antenna Environment Test Report

Customer Name: YUJIA      entry name: V113      sunnyway NO: SZ233071B77

| Number of samples: 5PCS |                                   | Test time: 2024/07/10  |                                   |                    |                 |            |            |            |            |  |  |  |
|-------------------------|-----------------------------------|--|-----------------------------------|--------------------|-----------------|------------|------------|------------|------------|--|--|--|
| Test time               | 测试项目Test items                    | 测试条件和需求Test conditions and requirements  |                                   | 测试设备Test equipment | 测试结果test result |            |            |            |            |  |  |  |
| 2024.07.10              | low temperature storage           | Store in a incubator (-40 ℃ ± 5) for 24 hours, and then let it dry at room temperature for 2 hours before testing. The electrical performance (VSWR) and structural appearance are good      | Standard temperature and humidity |                    | 1               | 2          | 3          | 4          | 5          |  |  |  |
| 2024.07.11              |                                   |  |                                   | RF                 | -40℃ OK         | -40℃ OK    | -40℃ OK    | -40℃ OK    | -40℃ OK    |  |  |  |
| 2024.07.10              | 高温存储high temperature              | Store in a temperature box (80 ℃ ± 5) for 24 hours, and then let it dry at room temperature for 2 hours before testing. The electrical performance (VSWR) and structural appearance are      | Standard temperature and humidity |                    | 1               | 2          | 3          | 4          | 5          |  |  |  |
| 2024.07.11              |                                   |  |                                   | RF                 | +85℃ OK         | +85℃ OK    | +85℃ OK    | +85℃ OK    | +85℃ OK    |  |  |  |
| 2024.07.11              | Constant temperature and humidity | The temperature is 60 ℃ ± 5, the humidity is 90%~95% RH, and after 24 hours, it is required that the structure is undamaged and the electrical performance remains unchanged.                | Standard temperature and humidity | 外观                 | OK              | OK         | OK         | OK         | OK         |  |  |  |
| 2024.07.11              |                                   |  |                                   |                    | 1               | 2          | 3          | 4          | 5          |  |  |  |
| 2024.07.11              | Constant temperature and humidity | The temperature is 60 ℃ ± 5, the humidity is 90%~95% RH, and after 24 hours, it is required that the structure is undamaged and the electrical performance remains unchanged.                | Standard temperature and humidity |                    | 60℃/95% OK      | 60℃/95% OK | 60℃/95% OK | 60℃/95% OK | 60℃/95% OK |  |  |  |
| 2024.07.12              |                                   |  |                                   | RF                 | OK              | OK         | OK         | OK         | OK         |  |  |  |
| 2024.07.13              | 耐盐雾实验Salt spray                   | NaCl solution with salt spray concentration of 5%, spray the antenna for 24 hours continuously at 35 ℃, then remove it for cleaning and dry it. The surface of the antenna should be free of | Salt mist machine                 |                    | 1               | 2          | 3          | 4          | 5          |  |  |  |
| 2024.07.14              |                                   |  |                                   | RF                 | 35℃/5% OK       | 35℃/5% OK  | 35℃/5% OK  | 35℃/5% OK  | 35℃/5% OK  |  |  |  |
|                         | resistant                         |  |                                   | 外观                 | OK              | OK         | OK         | OK         | OK         |  |  |  |

审核 to examine: 林长青

确认confirm: 陈小平

测试 test: 韦月丽