



# Antenna Test Report

|            |           |             |              |
|------------|-----------|-------------|--------------|
| Project No | CS24243I  | PCB Version | MS52SF1_V1.1 |
| Tester     | ZHU WANLI | Date        | 2025/01/02   |
| Auditing   | LI JINBEI | Date        | 2025/01/02   |
| Approval   |           | Date        |              |

## Contents

|                                           |     |
|-------------------------------------------|-----|
| 一、Project Information .....               | 3rd |
| 二、Technical Specification .....           | 4th |
| 三、The shape and size of the antenna ..... | 5th |
| 四、The result of the test .....            | 5th |
| 1 .VSWR & Return loss & Smith .....       | 5th |
| 2. Antenna Testing Environment .....      | 6th |
| 3 .Gain and Efficiency .....              | 7th |
| 4 .3D Radiation Pattern .....             | 8th |
| 5. 2D Radiation Pattern .....             | 9th |

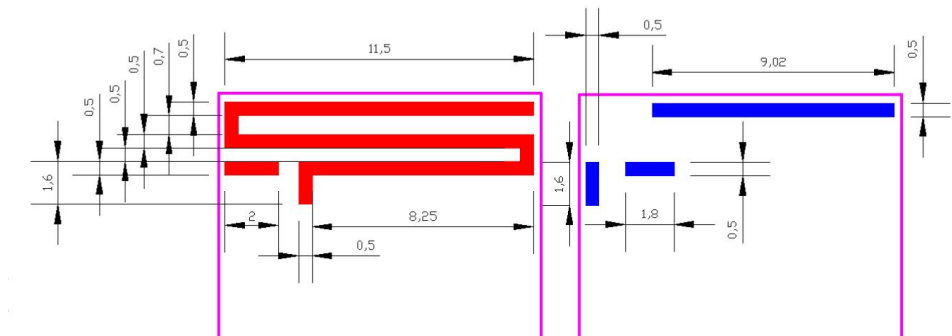
## 一、Project Information

1. Antenna Coding: ANT-BBNCNC24028
2. Antenna Type: PCB onboard Antenna
3. Model of the DUT: MS52SF1\_V1.1
4. Test Data : 2025.01.02

## 二、Technical Specification

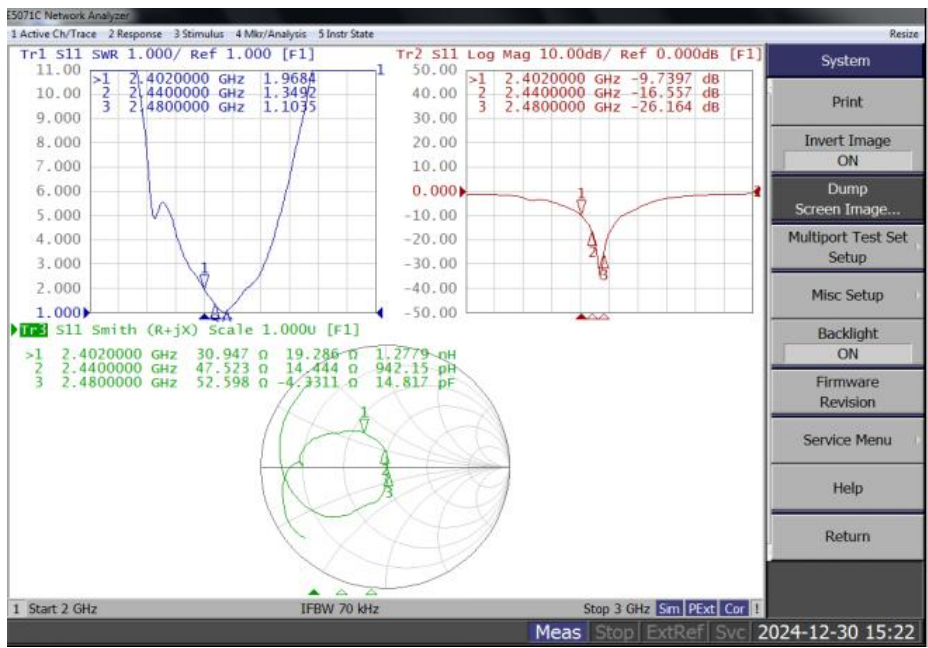
| Electrical Specifications     |                   |
|-------------------------------|-------------------|
| Frequency Range               | 2400-2480 MHz     |
| Peak Gain                     | 1.12 dBi          |
| Efficiency                    | 61.13%            |
| Return Loss                   | $\leq -9.73$ dB   |
| VSWR                          | $\leq 1.96$       |
| Bandwidth (S11 $\leq -10$ dB) | 120 MHz           |
| Input Impedance               | 50 $\Omega$       |
| Radiation direction           | Omni              |
| Polarization Type             | Linear            |
| Lightning Protection          | DC grounding      |
| Power Capacity                | 1000mW (30dBm)    |
| Mechanical Specifications     |                   |
| Antenna Size                  | 11.54 x3.8mm      |
| Core Radiator                 | Copper            |
| Substrate material            | FR4               |
| Substrate thickness           | 0.6 mm            |
| Substrate Size (mm)           | 12mm*4.11mm*0.6mm |
| Coaxial wire                  | 无                 |
| Connect Type                  | 无                 |
| Operating Temperature         | -40 to +85° C     |
| Storage Temperature           | -40 to +85° C     |

三、The shape and size of the antenna



四、The result of the test

1 .VSWR & Return loss & Smith



| Frequency (MHz)       | Return Loss (dB) | VSWR |
|-----------------------|------------------|------|
| 2402                  | -9.73            | 1.96 |
| 2440                  | -16.55           | 1.34 |
| 2480                  | -26.16           | 1.10 |
| Bandwidth (S11≤-10dB) | 120              |      |

## 2. Antenna Testing Environment

(1).Test Equipment : SATIMO, SY-24M, Agilent-E5071C

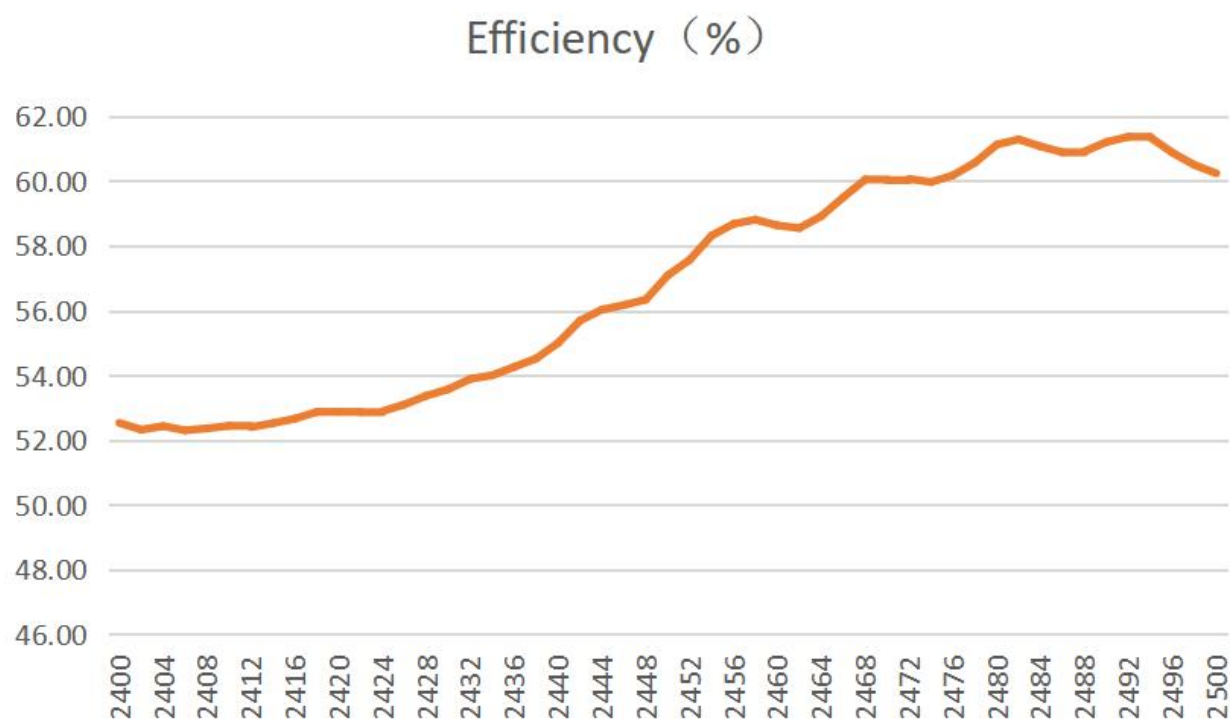
(2).Test Environment : The microwave unreflected chamber

### 3 .Gain and Efficiency

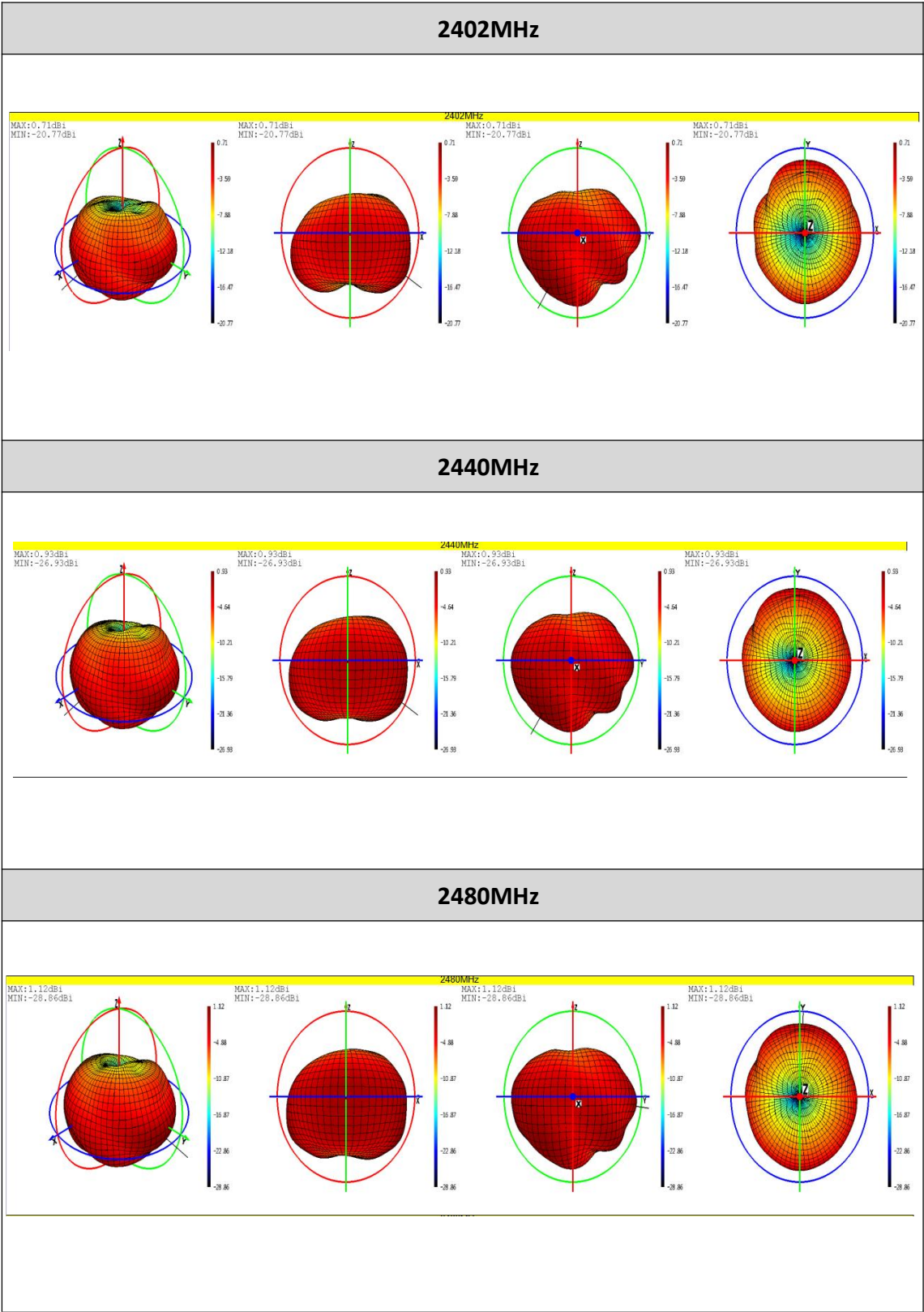
#### (1).Antenna Efficiency



#### (2).Antenna Gain

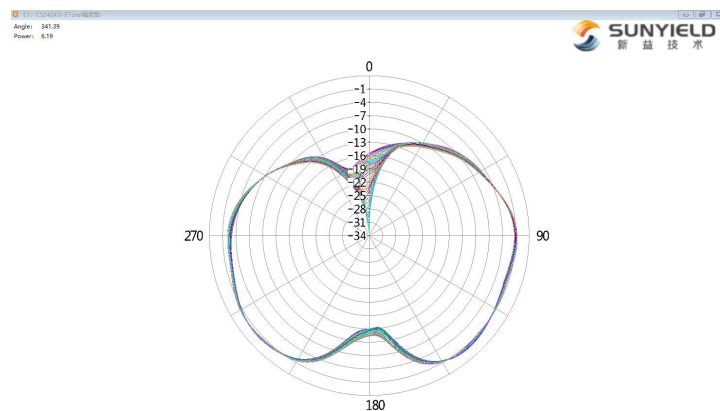
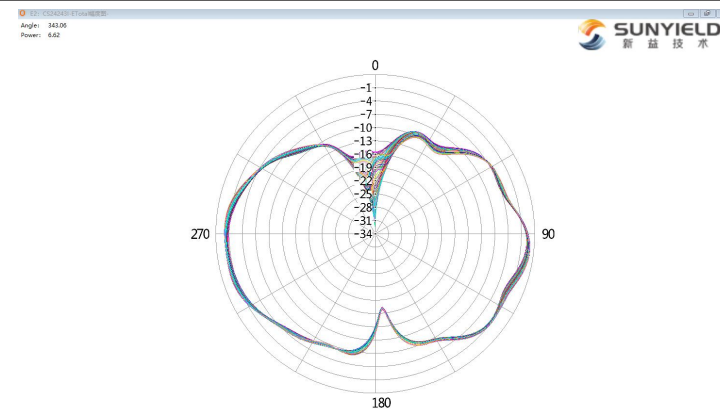


4 .3D Radiation Pattern





## 5.2D Radiation Pattern

E1, XZ-Face,  $\phi=0^\circ$  ; (E1,  $\theta=0\sim360^\circ$  ,  $\phi=0^\circ$  )E2, YZ-Face,  $\phi=90^\circ$  ; (E2,  $\theta=0\sim360^\circ$  ,  $\phi=90^\circ$  )H, XY-Face,  $\theta=90^\circ$  ; (H,  $\phi=0\sim360^\circ$  ,  $\theta=90^\circ$  )