

# TEST REPORT

**Applicant:** CONTOUR (GUANGZHOU) DESIGN, INC.  
**Address:** Building B21-2F, Huachuang Animation Park,  
Panyu, GuangZhou, China  
**Equipment Type:** Antenna  
**Model Name:** N52  
**Brand Name:** CONTOUR  
**Test Standard:** ANSI/IEEE Std 149-1979  
**Test Date:** Oct. 14, 2022  
**Date of Issue:** Oct. 17, 2022

**ISSUED BY:**

Shenzhen BALUN Technology Co., Ltd.

**Tested by:** Mai Jintian**Checked by:** Tolan Tu**Approved by:** Wei Yanquan  
(Chief Engineer)*Mai Jintian**Tolan Tu**Wei Yanquan*

### Revision History

| Version        | Issue Date           | Revisions            |
|----------------|----------------------|----------------------|
| <u>Rev. 01</u> | <u>Oct. 17, 2022</u> | <u>Initial Issue</u> |

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# 1 GENERAL INFORMATION

## 1.1 Test Laboratory

|              |                                                                                                                              |
|--------------|------------------------------------------------------------------------------------------------------------------------------|
| Name         | Shenzhen BALUN Technology Co., Ltd.                                                                                          |
| Address      | Block B, 1/F, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China |
| Phone Number | +86 755 6685 0100                                                                                                            |

## 1.2 Test Location

|          |                                                                                                                                                                                                                         |
|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Name     | Shenzhen BALUN Technology Co., Ltd.                                                                                                                                                                                     |
| Location | <input checked="" type="checkbox"/> Block B, 1/F, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China                                                        |
|          | <input type="checkbox"/> 1/F, Building B, Ganghongji High-tech Intelligent Industrial Park, No. 1008, Songbai Road, Yangguang Community, Xili Sub-district, Nanshan District, Shenzhen, Guangdong Province, P. R. China |

## 2 PRODUCT INFORMATION

### 2.1 Applicant Information

|           |                                                                    |
|-----------|--------------------------------------------------------------------|
| Applicant | CONTOUR (GUANGZHOU) DESIGN, INC.                                   |
| Address   | Building B21-2F, Huachuang Animation Park, Panyu, GuangZhou, China |

### 2.2 Manufacturer Information

|              |                                                                    |
|--------------|--------------------------------------------------------------------|
| Manufacturer | CONTOUR (GUANGZHOU) DESIGN, INC.                                   |
| Address      | Building B21-2F, Huachuang Animation Park, Panyu, GuangZhou, China |

### 2.3 General Description for Equipment under Test (EUT)

|                       |             |
|-----------------------|-------------|
| EUT Name              | Antenna     |
| Model Name Under Test | N52         |
| Antenna Type          | PCB Antenna |
| Dimensions            | 10.1*3.7 mm |

### 2.4 Ancillary Equipment

Note: Not applicable.

### 2.5 Technical Information

|                  |                                                                                                   |
|------------------|---------------------------------------------------------------------------------------------------|
| Test Frequencies | 2400MHz, 2410MHz, 2420MHz, 2430MHz, 2440MHz, 2450MHz, 2460MHz, 2470MHz, 2480MHz, 2490MHz, 2500MHz |
|------------------|---------------------------------------------------------------------------------------------------|

### 3 SUMMARY OF TEST RESULTS

#### 3.1 Test Standards

| No. | Identity               | Document Title                             |
|-----|------------------------|--------------------------------------------|
| 1   | ANSI/IEEE Std 149-1979 | IEEE Standard Test Procedures for Antennas |

#### 3.2 Test Verdict

| Report Section | Description         | Remark |
|----------------|---------------------|--------|
| ANNEX A.1      | Gain and Efficiency | --     |
| ANNEX B        | Radiation Pattern   | --     |

#### 3.3 Test Uncertainty

The uncertainty is calculated using the methods suggested in the "Guide to the Expression of Uncertainty in Measurement" (GUM) published by ISO.

| Item | Uncertainty         |
|------|---------------------|
| Gain | $\pm 1.92\text{dB}$ |

## 4 GENERAL TEST CONFIGURATIONS

### 4.1 Test Condition

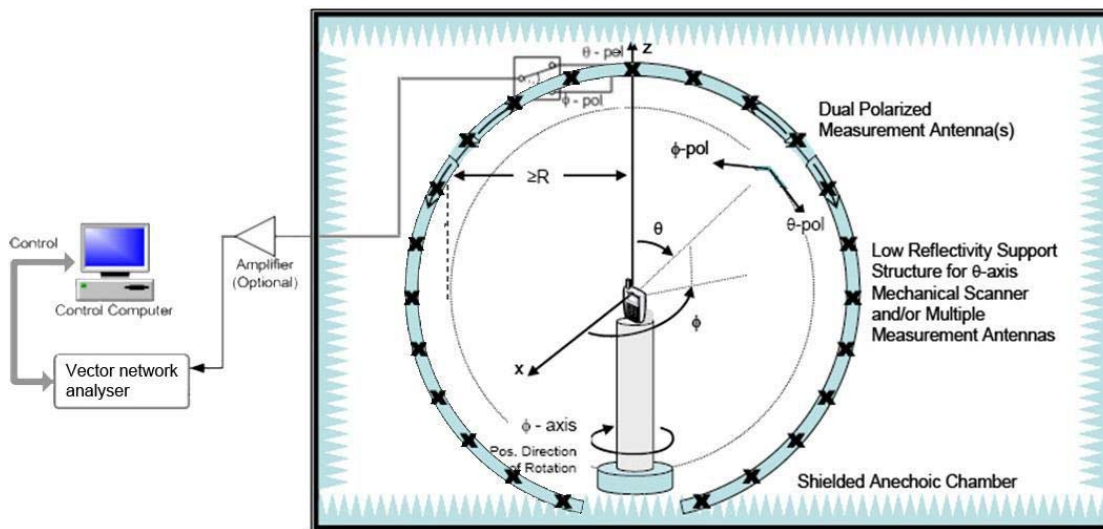
| Environment<br>Parameter                           | Selected Values During Tests |                 |         |                          |
|----------------------------------------------------|------------------------------|-----------------|---------|--------------------------|
|                                                    | Ambient<br>Pressure(KPa)     | Temperature(°C) | Voltage | Relative<br>Humidity (%) |
| Normal<br>Temperature,<br>Normal Voltage<br>(NTNV) | 101                          | 25              | N/A     | 50                       |

### 4.2 Test Equipment List

| Description                                       | Manufacturer | Model  | Serial No.       | Cal. Date  | Cal. Due   |
|---------------------------------------------------|--------------|--------|------------------|------------|------------|
| SG24 Multi-probe<br>Antenna Measurement<br>System | SATIMO       | SG24-L | 1101855-<br>0001 | 2021.11.12 | 2024.11.11 |
| Vector Network<br>Analyzer                        | Agilent      | E5071B | MY42404001       | 2022.04.02 | 2023.04.01 |
| Description                                       | Manufacturer | Name   |                  | Version    |            |
| Test Software                                     | MVG          | SPM    |                  | V 1.8      |            |

### 4.3 Test Setup

#### 4.3.1 Antenna gain, efficiency and radiation pattern test setup



## ANNEX A TEST RESULTS

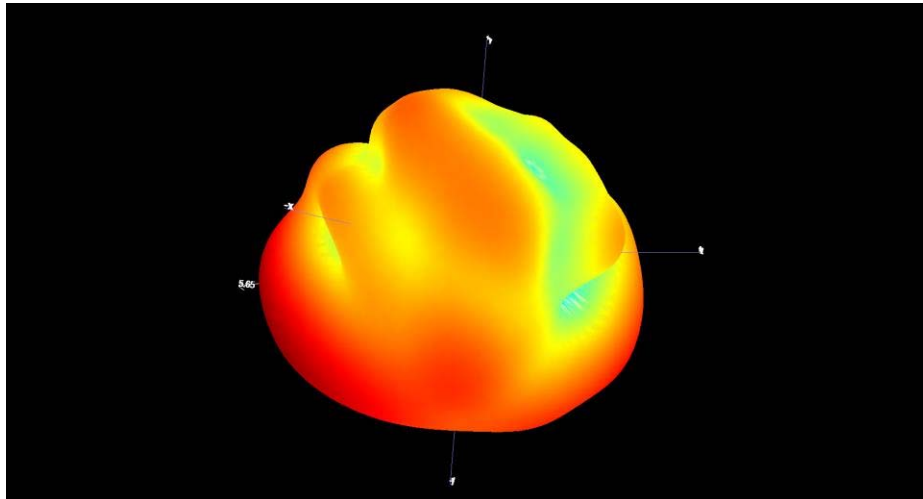
### A.1 Gain and Efficiency

| Frequency | Gain (dBi)  | Efficiency (%) |
|-----------|-------------|----------------|
| 2400MHz   | 5.65        | 54             |
| 2410MHz   | <b>5.66</b> | 55             |
| 2420MHz   | 5.49        | 54             |
| 2430MHz   | 5.41        | 53             |
| 2440MHz   | 5.51        | 53             |
| 2450MHz   | 5.22        | 55             |
| 2460MHz   | 5.20        | 55             |
| 2470MHz   | 5.47        | 57             |
| 2480MHz   | 5.51        | <b>58</b>      |
| 2490MHz   | 5.35        | 57             |
| 2500MHz   | 5.48        | 57             |

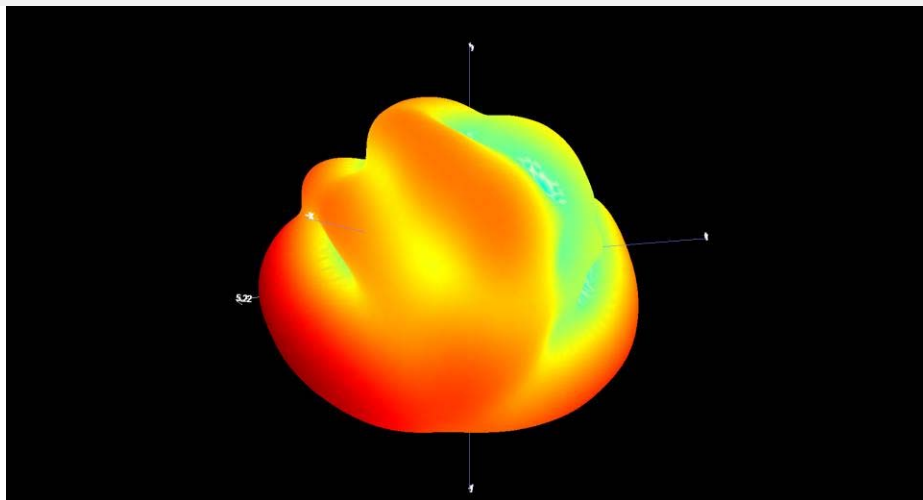
## ANNEX B RADIATION PATTERN

### B.1 3D Pattern

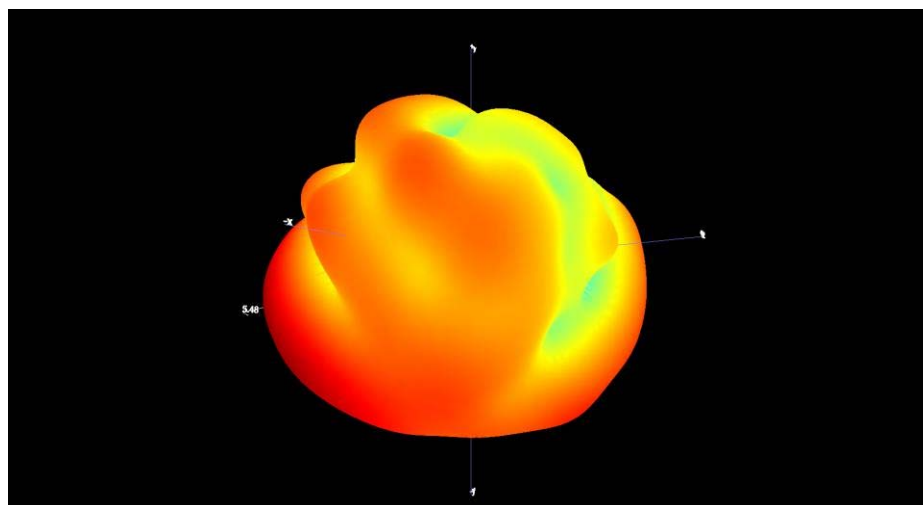
B1.1 3D Pattern for 2400MHz



B1.2 3D Pattern for 2450MHz

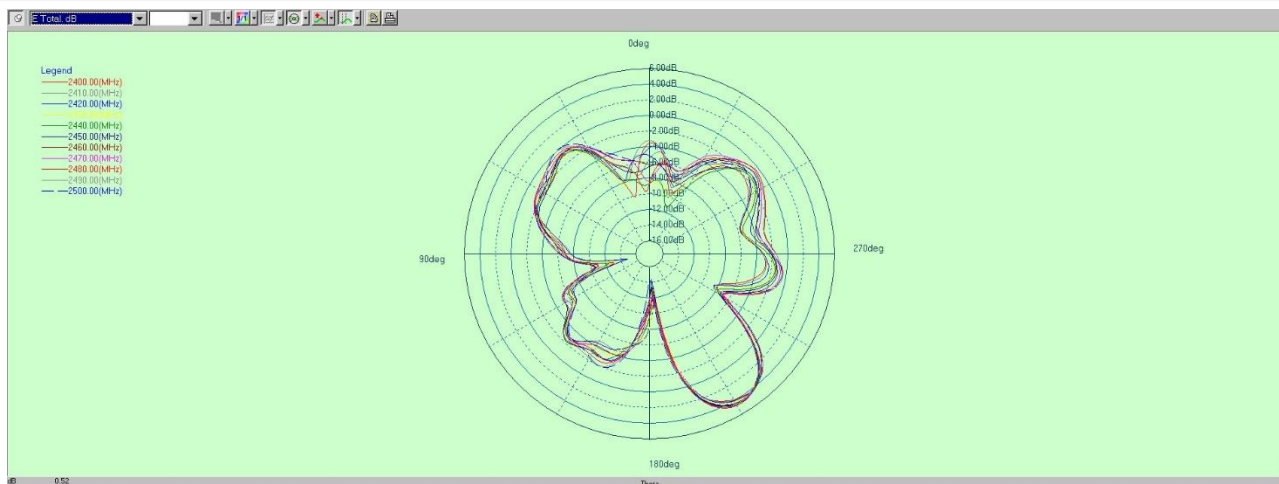


B1.3 3D Pattern for 2500MHz

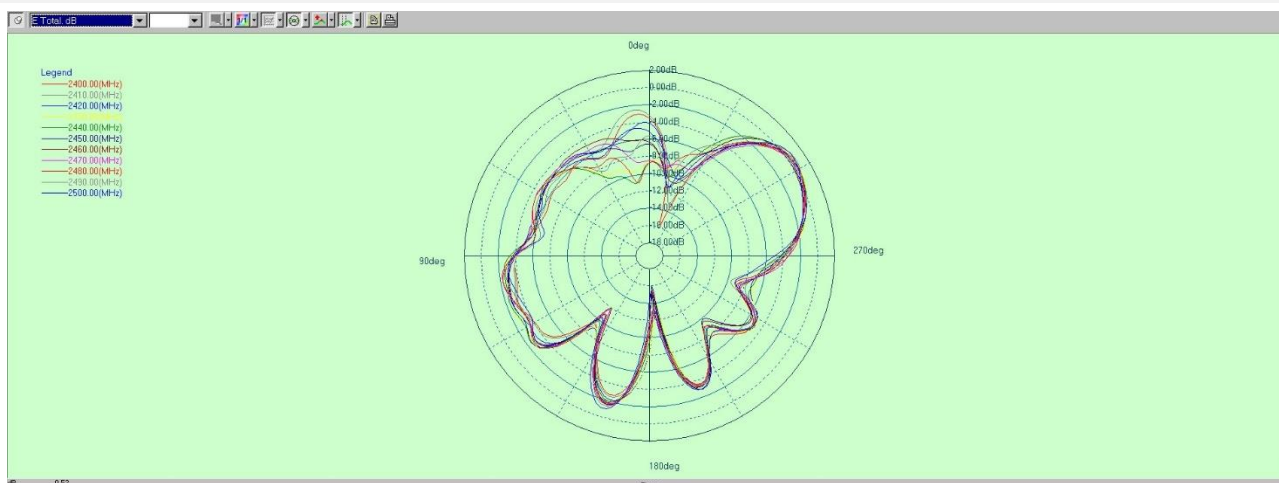


## B.2 1D Radiation Pattern

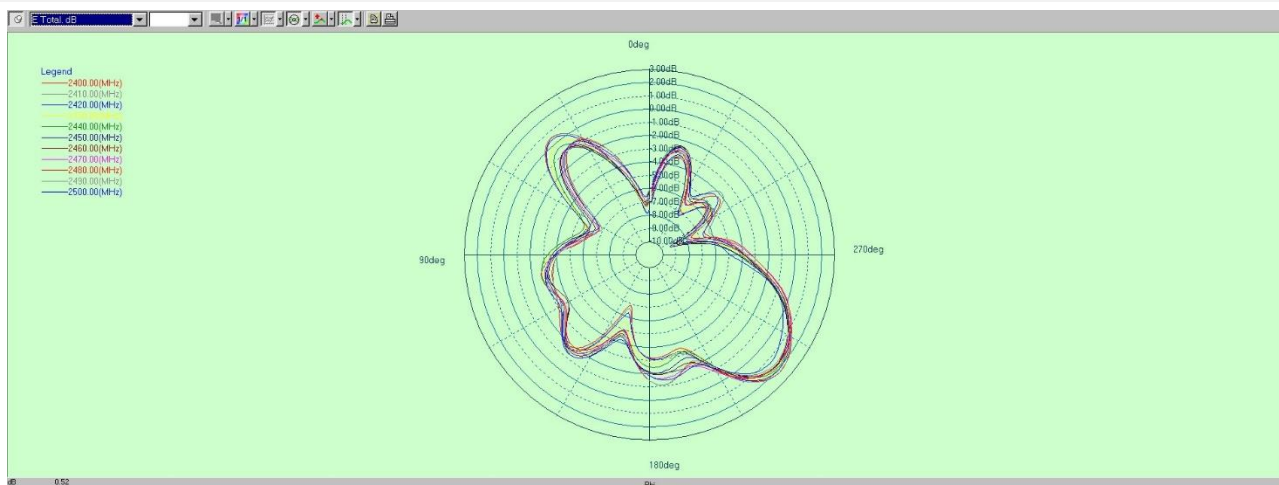
### B2.1 PHI=0



### B2.2 PHI=90



### B2.3 THETA=90



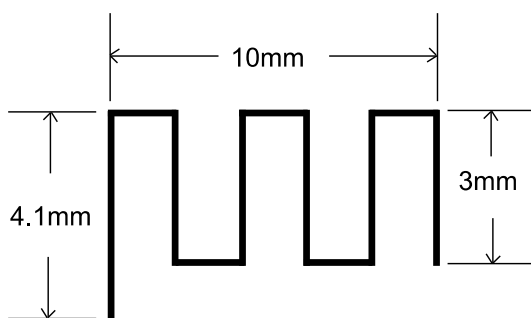
## ANNEX C TEST SETUP PHOTOS

Please refer the document “BL-SZ22A0409-AO.PDF”.

## ANNEX D EUT PHOTO

Please refer the document “BL-SZ22A0409-AA.PDF”.

## ANTENNA PHOTO



## Statement

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--END OF REPORT--