# TEST REPORT

| | |
|---|---|
| **Applicant:** | Shenzhen Boyi Innovation Technology Co., Ltd |
| **Address:** | North, 5 / F, Building 3, Tea West, Zone A, Huafeng First Science Park, Hangcheng Street, Baoan District, Shenzhen |
| **Equipment Type:** | BYKC68MS-AK |
| **Model Name:** | BYKC-FRS8X-VER1.2 |
| **Brand Name:** | Boyi scientific and technological innovation |
| **Test Standard:** | IEEE Std 149-2021 |
| **Sample Arrival Date:** | May 08, 2024 |
| **Test Date:** | May 08, 2024 |
| **Date of Issue:** | May 09, 2024 |

**ISSUED BY:**

Shenzhen BALUN Technology Co., Ltd.

**Tested by:** Mai Jintian **Checked by:** Xia Long **Approved by:** Tolan Tu (Testing Director)

**Revision History**

| Version | Issue Date | Revisions |
|---|---|---|
| Rev. 01 | May 09, 2024 | Initial Issue |

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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 | ☑ Block B, 1/F, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China |
| | ☐ 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 | Shenzhen Boyi Innovation Technology Co., Ltd |
| Address | North, 5 / F, Building 3, Tea West, Zone A, Huafeng First Science Park, Hangcheng Street, Baoan District, Shenzhen |
| Contact Person | Wang Weiyuan |
| Telephone Number | 18675575732 |
| E-mail Address | saparkwang2008@126.com |

## 2.2 Manufacturer Information

| | |
|---|---|
| Manufacturer | Shenzhen Boyi Innovation Technology Co., Ltd |
| Address | North, 5 / F, Building 3, Tea West, Zone A, Huafeng First Science Park, Hangcheng Street, Baoan District, Shenzhen |

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

| | |
|---|---|
| EUT Name | BYKC68MS-AK |
| Model Name Under Test | BYKC-FRS8X-VER1.2 |
| Antenna Type | PCB Antenna |
| Dimensions | 19.0*3.5 mm |

## 2.4 Ancillary Equipment

Note: Not applicable.

## 2.5 Technical Information

| | |
|---|---|
| Frequency Range | 2402MHz ~ 2480MHz |

# 3 SUMMARY OF TEST RESULTS

## 3.1 Test Standards

| No. | Identity | Document Title |
|---|---|---|
| 1 | IEEE Std 149-2021 | 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 |
|---|---|
| VSWR(S11) | ±0.61 |
| Gain | ±1.92dB |

# 4 GENERAL TEST CONFIGURATIONS

## 4.1 Test Condition

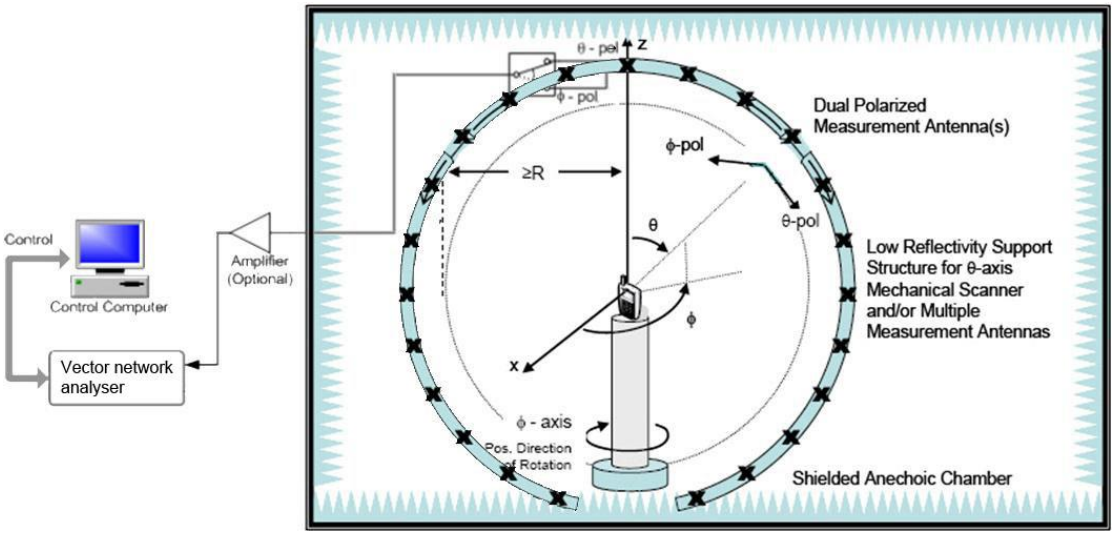
| Environment Parameter | Selected Values During Tests | | | |
|---|---|---|---|---|
| | Ambient Pressure (KPa) | Temperature (℃) | Voltage | Relative Humidity (%) |
| Normal Temperature, Normal Voltage (NTNV) | 101 | 21.5 | N/A | 43 |

## 4.2 Test Equipment List

| Description | Manufacturer | Model | Serial No. | Cal. Date | Cal. Due |
|---|---|---|---|---|---|
| SG24 Multi-probe Antenna Measurement System | SATIMO | SG24-L | 1101855-0001 | 2021.11.12 | 2024.11.11 |
| Vector Network Analyzer | Agilent | E5071B | MY42404001 | 2024.01.16 | 2025.01.15 |
| 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




## 4.4 Test Frequencies

| | |
|---|---|
| Test Frequencies | 2402MHz, 2440MHz, 2480MHz |

# ANNEX A TEST RESULTS

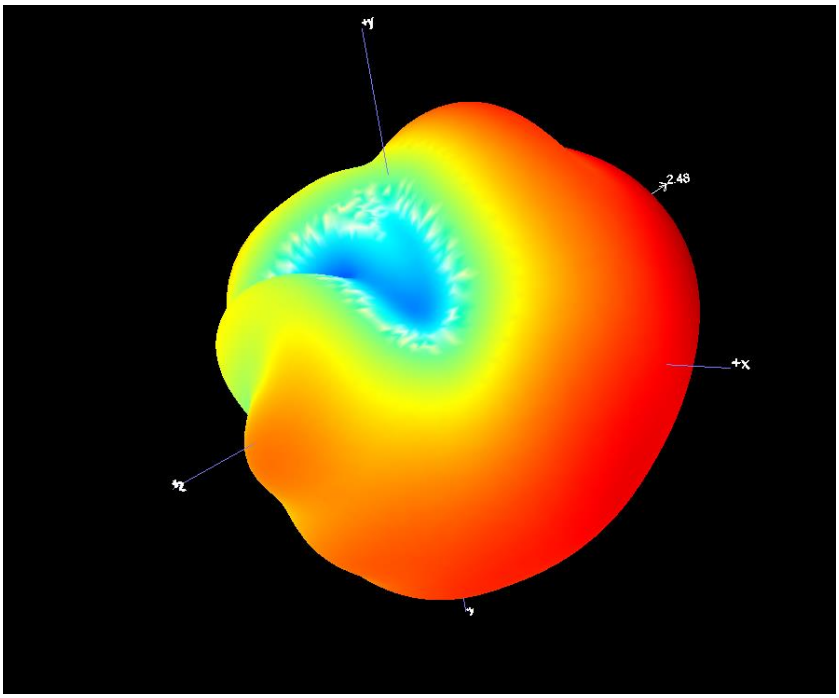
## A.1 Gain and Efficiency

| Frequency | Gain (dBi) | Efficiency (%) |
|---|---|---|
| 2402MHz | **2.48** | **41** |
| 2440MHz | 2.31 | 38 |
| 2480MHz | 1.55 | 36 |

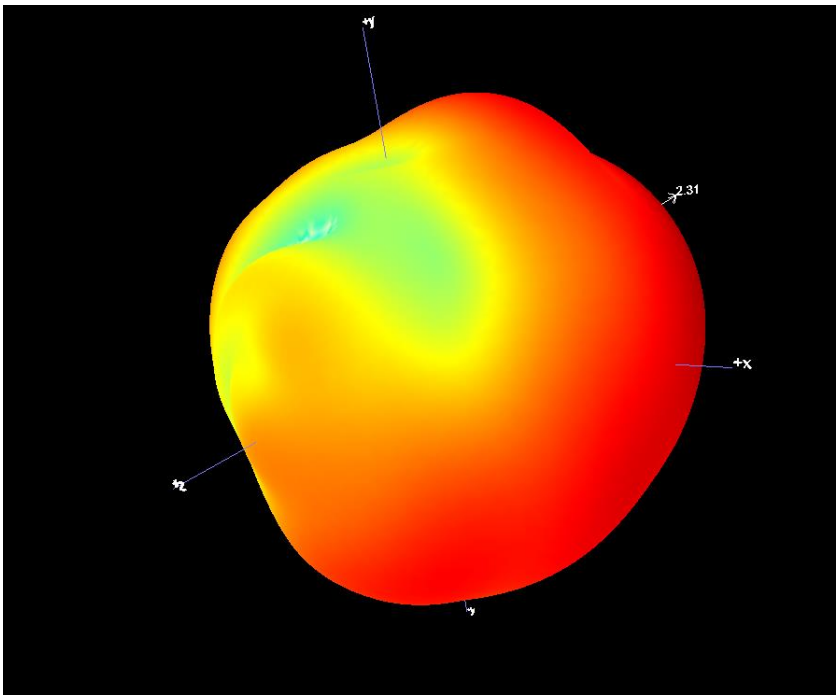
# ANNEX B RADIATION PATTERN

## B.1 3D Pattern

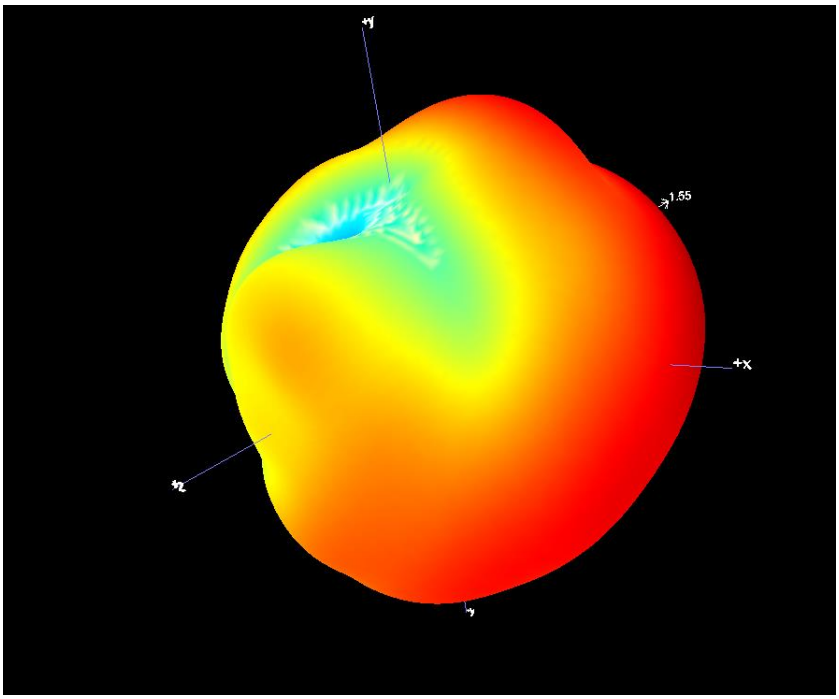
B1.1 3D Pattern for 2402MHz




B1.2 3D Pattern for 2440MHz

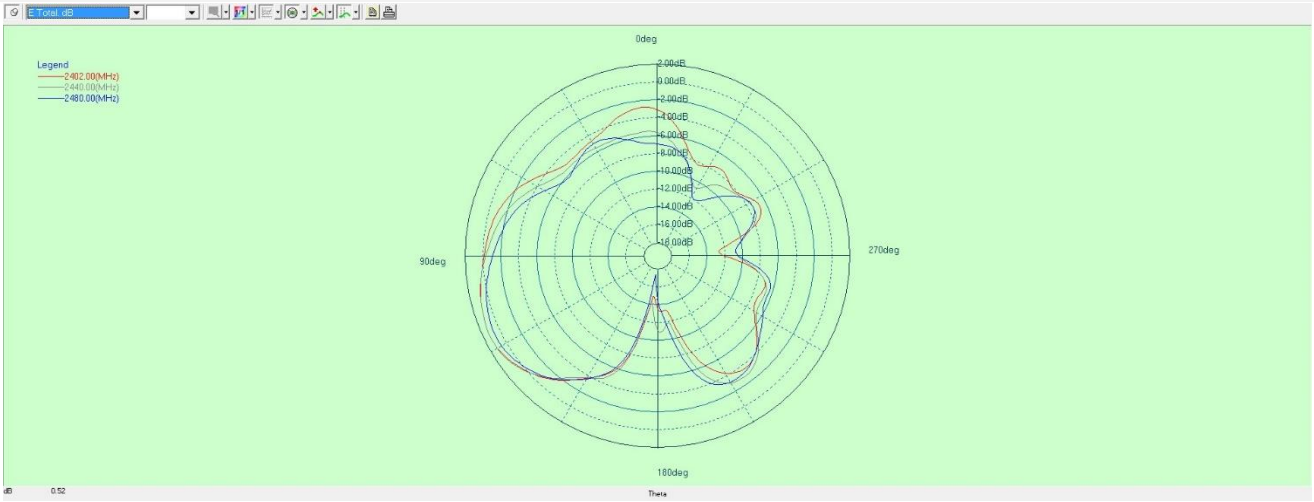


B1.3 3D Pattern for 2480MHz

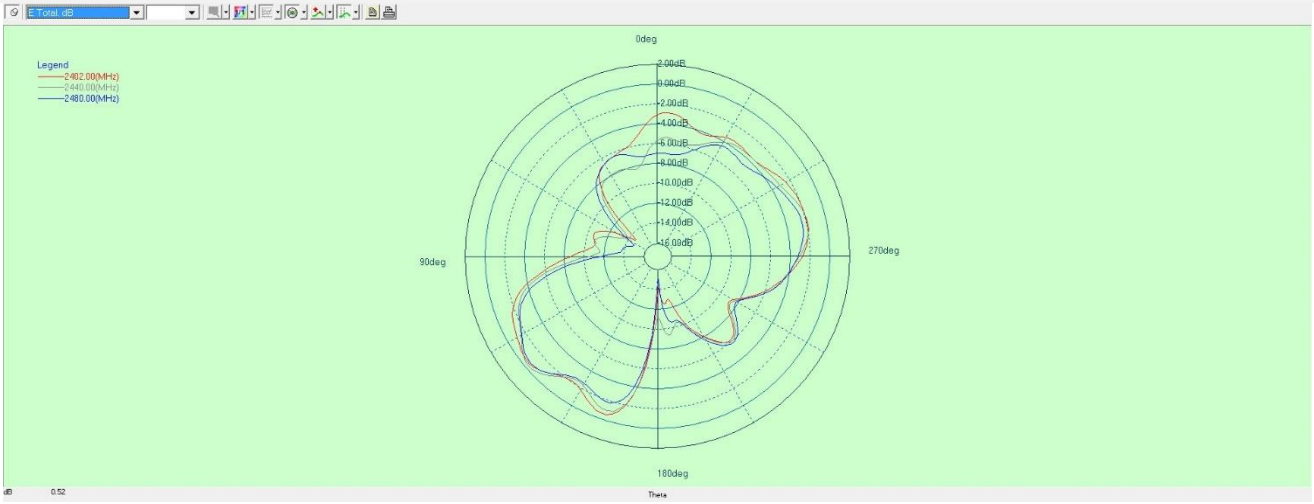


## B.2 1D Radiation Pattern

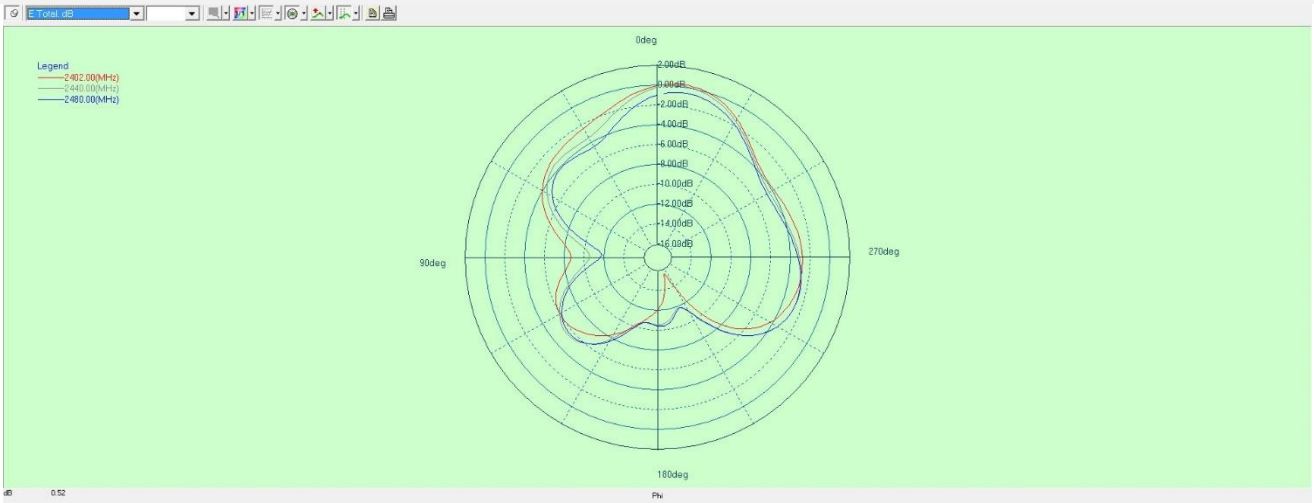
### B2.1 PHI=0



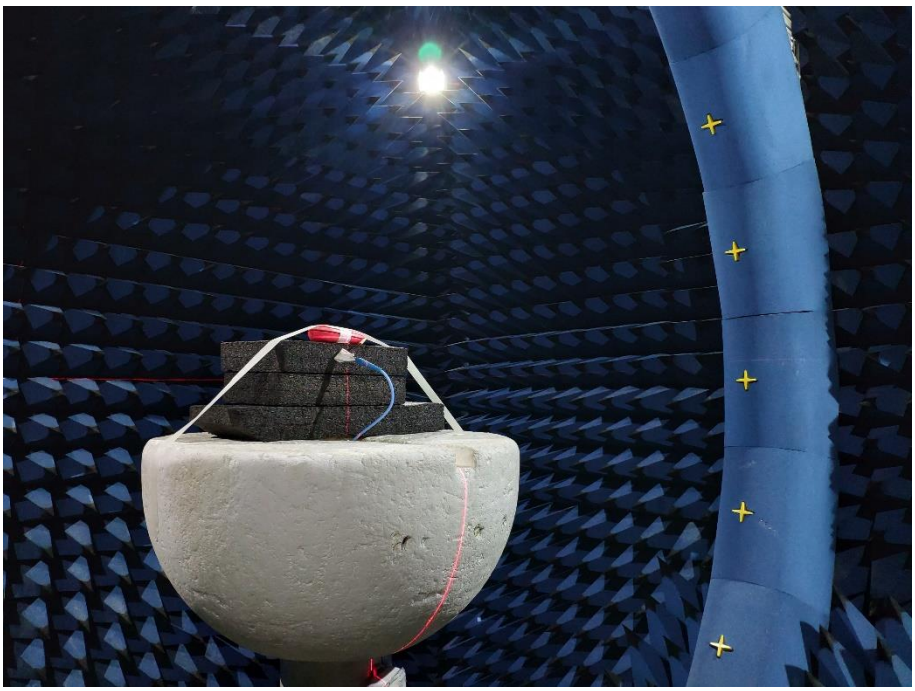

### B2.2 PHI=90




### B2.3 THETA=90



# ANNEX C TEST SETUP PHOTO



# ANNEX D EUT PHOTO

# Statement

1. The laboratory guarantees the scientificity, accuracy and impartiality of the test, and is responsible for all the information in the report, except the information provided by the customer. The customer is responsible for the impact of the information provided on the validity of the results.
2. The report without China inspection body and laboratory Mandatory Approval (CMA) mark has no effect of proving to the society.
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--END OF REPORT--