

OTA

TEST REPORT

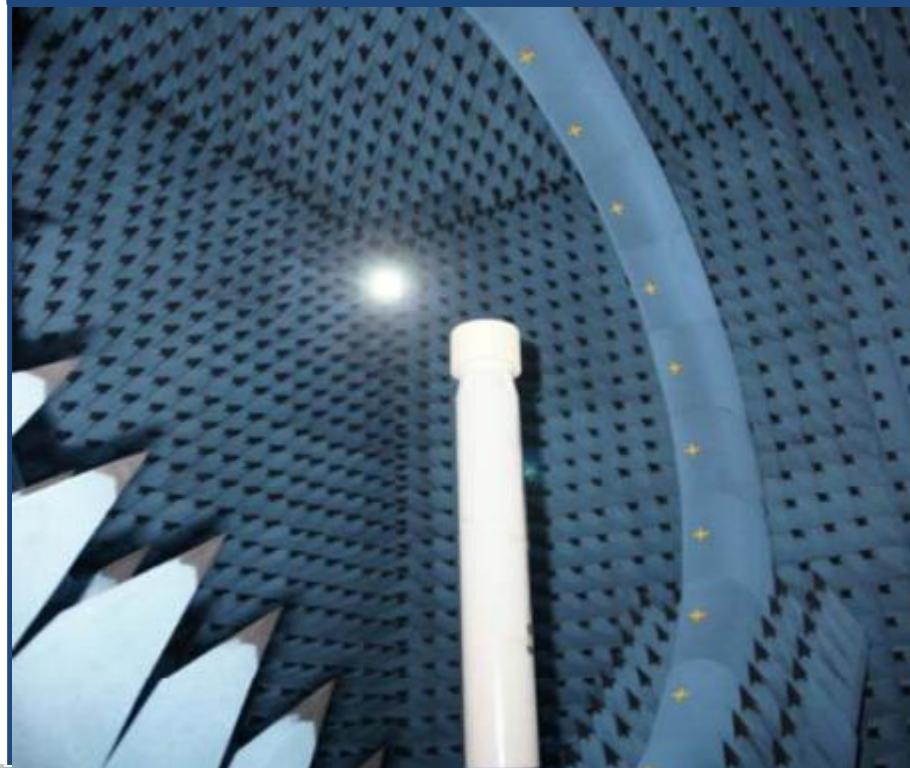
ISSUED BY
Shenzhen BALUN Technology Co., Ltd.



FOR
kb module

ISSUED TO
SHENZH BOYCHUANG TECHNOLOGY CO, LTD

Room 407-408, skyworth semiconductor building, no.18, gaoxin south 4th road, nanshan district, shenzhen



Tested by:

Zong Liyao

Date

Approved by:

Date

Report No: BL-SZ20A0582-901
EUT Name: kb module
Model Name: OM6228
Brand Name: N/A
Test Standard: IEEE149-1979
Maximum: Gain: -0.43 (dBi)
Efficiency: 31%

Test Date: Oct. 30, 2020
Date of Issue: Nov. 02, 2020

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Revision History

| Version | Issue Date | Revisions |
|----------------|----------------------|----------------------|
| <u>Rev. 01</u> | <u>Nov. 02, 2020</u> | <u>Initial Issue</u> |

TABLE OF CONTENTS

| | | |
|---------|--|----|
| 1 | Administrative Data (GENERAL INFORMATION) | 3 |
| 1.1 | Identification of the Testing Laboratory | 3 |
| 1.2 | Identification of the Responsible Testing Location | 3 |
| 1.3 | Laboratory Condition | 3 |
| 1.4 | Announce | 3 |
| 2 | PRODUCT INFORMATION | 4 |
| 2.1 | Applicant Information | 4 |
| 2.2 | Manufacturer Information | 4 |
| 2.3 | Factory Information | 4 |
| 2.4 | General Description for Equipment under Test (EUT) | 4 |
| 2.5 | Ancillary Equipment | 4 |
| 2.6 | Technical Information | 4 |
| 3 | SUMMARY OF TEST RESULTS..... | 5 |
| 3.1 | Test Standards | 5 |
| 3.2 | Test Verdict | 5 |
| 3.3 | Test Uncertainty | 5 |
| 4 | GENERAL TEST CONFIGURATIONS | 6 |
| 4.1 | Test Condition | 6 |
| 4.2 | Test Equipment List | 6 |
| 4.3 | Test Setup | 6 |
| ANNEX A | TEST RESULTS..... | 7 |
| A.1 | Gain and Efficiency | 7 |
| ANNEX B | RADIATION PATTERN | 8 |
| ANNEX C | TEST SETUP PHOTO | 11 |
| ANNEX D | EUT PHOTO | 12 |

1 Administrative Data (GENERAL INFORMATION)

1.1 Identification of the Testing Laboratory

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

1.2 Identification of the Responsible Testing Location

| | |
|---------------------------|--|
| Test Location | Shenzhen BALUN Technology Co., Ltd. |
| Address | Block B, 1st FL, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China |
| Accreditation Certificate | The laboratory is a testing organization accredited by China National Accreditation Service for Conformity Assessment (CNAS) according to ISO/IEC 17025. The accreditation certificate number is L6791. The laboratory is a testing organization accredited by China Metrology Accreditation (CMA). The accreditation certificate number is 2017192290Z. |
| Description | All measurement facilities used to collect the measurement data are located at Block B, FL 1, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China 518055 |

1.3 Laboratory Condition

| | |
|---------------------------|--------------------|
| Ambient Temperature | 19°C to 25°C |
| Ambient Relative Humidity | 45% to 55% |
| Ambient Pressure | 100 kPa to 102 kPa |

1.4 Announce

- (1) The test report reference to the report template version v2.2.
- (2) The test report is invalid if not marked with the signatures of the persons responsible for preparing and approving the test report.
- (3) The test report is invalid if there is any evidence and/or falsification.
- (4) The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein.
- (5) This document may not be altered or revised in any way unless done so by BALUN and all revisions are duly noted in the revisions section.
- (6) Content of the test report, in part or in full, cannot be used for publicity and/or promotional purposes without prior written approval from the laboratory.
- (7) The laboratory is only responsible for the data released by the laboratory, except for the part provided by the applicant.

2 PRODUCT INFORMATION

2.1 Applicant Information

| | |
|------------------|---|
| Applicant | SHENZH BOYCHUANG TECHNOLOGY CO, LTD |
| Address | Room 407-408, skyworth semiconductor building, no.18, gaoxin south 4th road, nanshan district, shenzhen |
| Contact Person | QIAN.YI |
| Telephone Number | Mobile: 13612864217 |
| E-mail Address | qian.yi@onmicro.com.cn |

2.2 Manufacturer Information

| | |
|--------------|---|
| Manufacturer | SHENZH BOYCHUANG TECHNOLOGY CO, LTD |
| Address | Room 407-408, skyworth semiconductor building, no.18, gaoxin south 4th road, nanshan district, shenzhen |

2.3 Factory Information

| | |
|---------|-----|
| Factory | N/A |
| Address | N/A |

2.4 General Description for Equipment under Test (EUT)

| | |
|-----------------------|-------------|
| EUT Name | kb module |
| Model Name Under Test | OM6228 |
| Antenna Type | PCB Antenna |
| Dimensions | 15mm*5mm |

2.5 Ancillary Equipment

N/A

2.6 Technical Information

| | |
|------------------|---------------------------|
| Frequency Range | 2402MHz ~2480MHz |
| Test Frequencies | 2402MHz, 2441MHz, 2480MHz |

3 SUMMARY OF TEST RESULTS

3.1 Test Standards

| No. | Identity | Document Title |
|-----|--------------|--|
| 1 | IEEE149-1979 | IEEE Standard Test Procedures for Antennas |

3.2 Test Verdict

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

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 | ±0.5dB |

4 GENERAL TEST CONFIGURATIONS

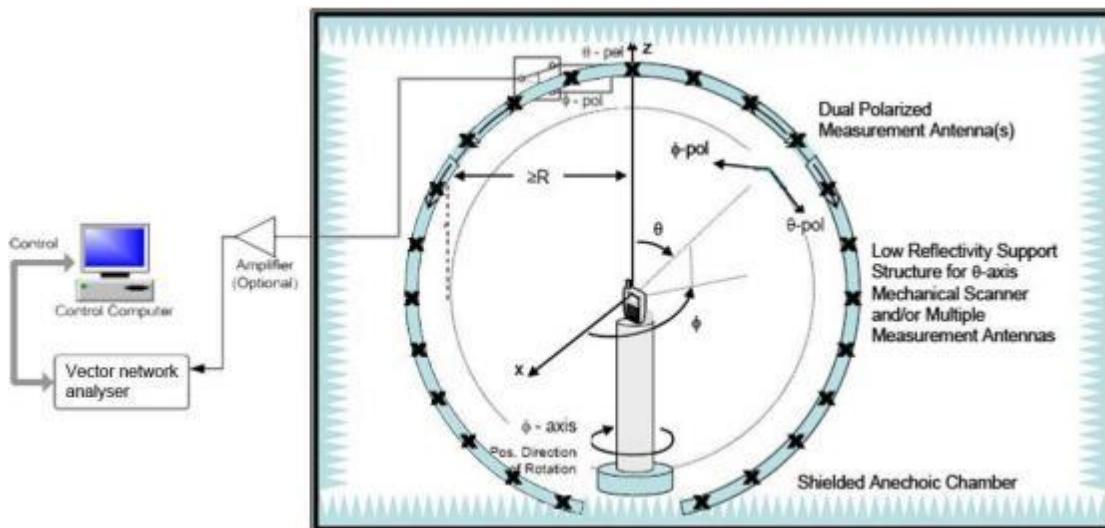
4.1 Test Condition

| Environment Parameter | Selected Values During Tests | | | |
|---|------------------------------|-----------------|---------|-----------------------|
| | Ambient Pressure (kPa) | Temperature(°C) | Voltage | Relative Humidity (%) |
| Normal Temperature, Normal Voltage (NTNV) | 100 to 102 | 19 to 25 | N/A | 45 to 55 |

4.2 Test Equipment List

| Description | Manufacturer | Model | Serial No. | Cal. Date | Cal. Due |
|---|--------------|--------|--------------|------------|------------|
| Vector Network Analyzer | Agilent | E5071C | MY46103472 | 2020.02.19 | 2021.02.18 |
| SG24 Multi-probe Antenna Measurement System | SATIMO | SG24-L | 1101855-0001 | 2020.06.22 | 2021.06.21 |

4.3 Test Setup



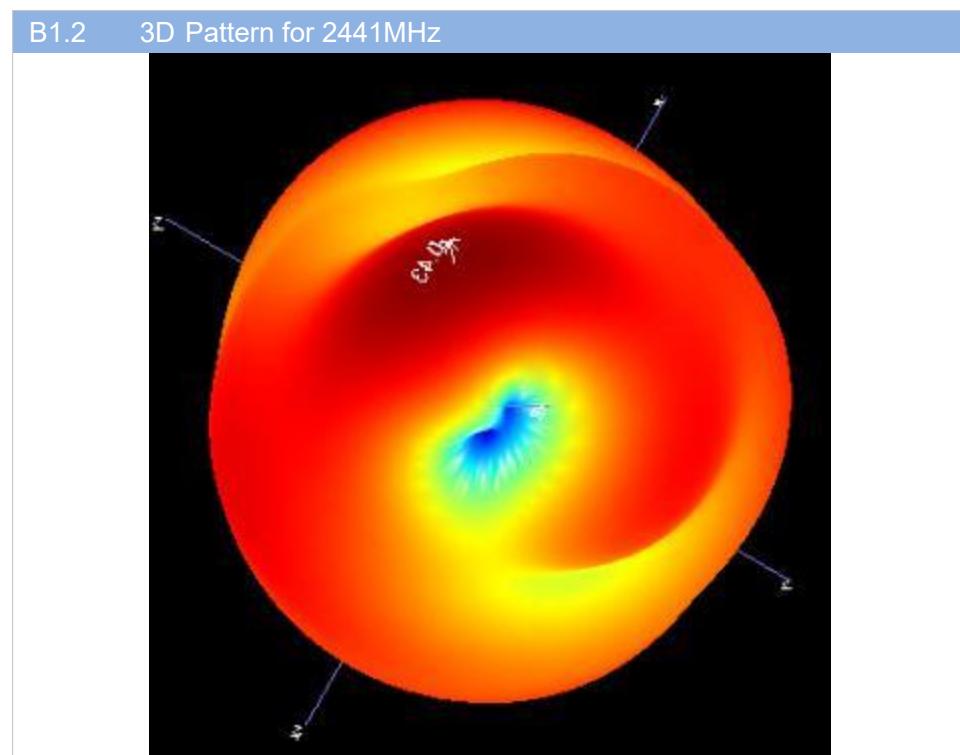
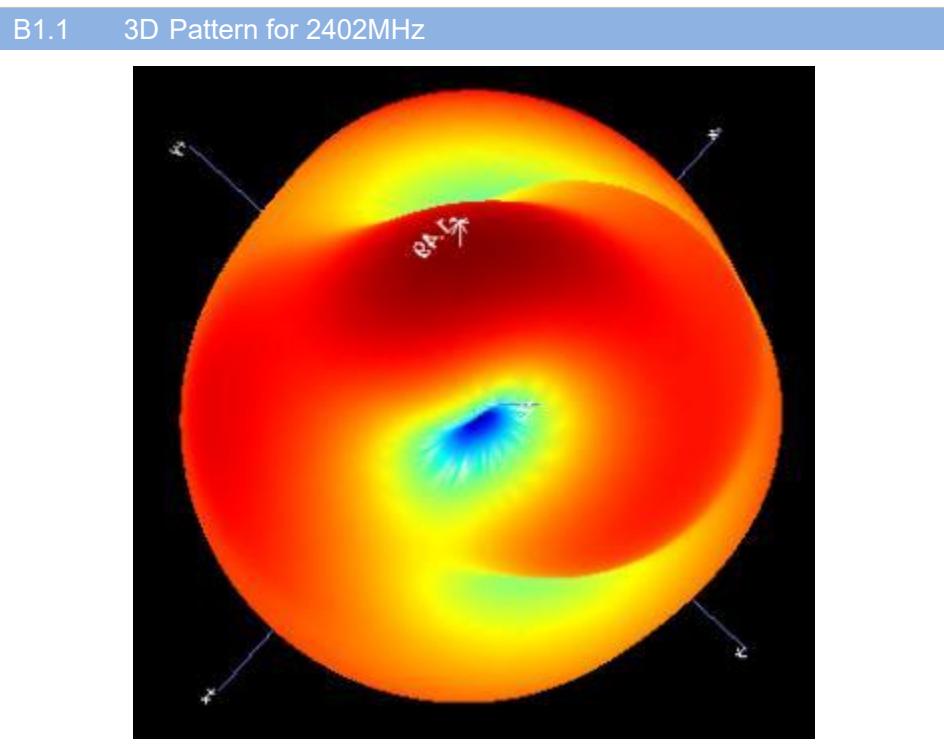
ANNEX A TEST RESULTS

A.1 Gain and Efficiency

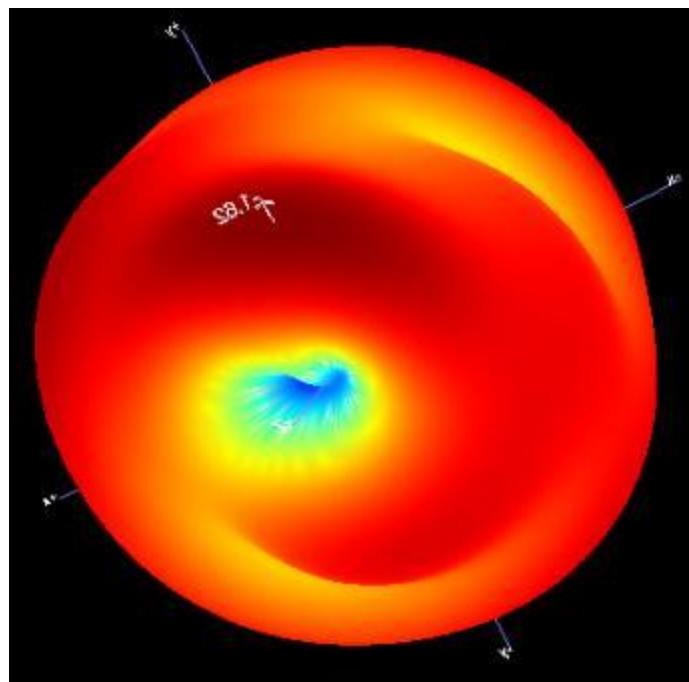
| Frequency | Gain (dBi) | Efficiency (%) |
|-----------|------------|----------------|
| 2402MHz | -1.49 | 26 |
| 2441MHz | -0.43 | 29 |
| 2480MHz | -1.62 | 31 |

ANNEX B RADIATION PATTERN

B.1 3D Pattern

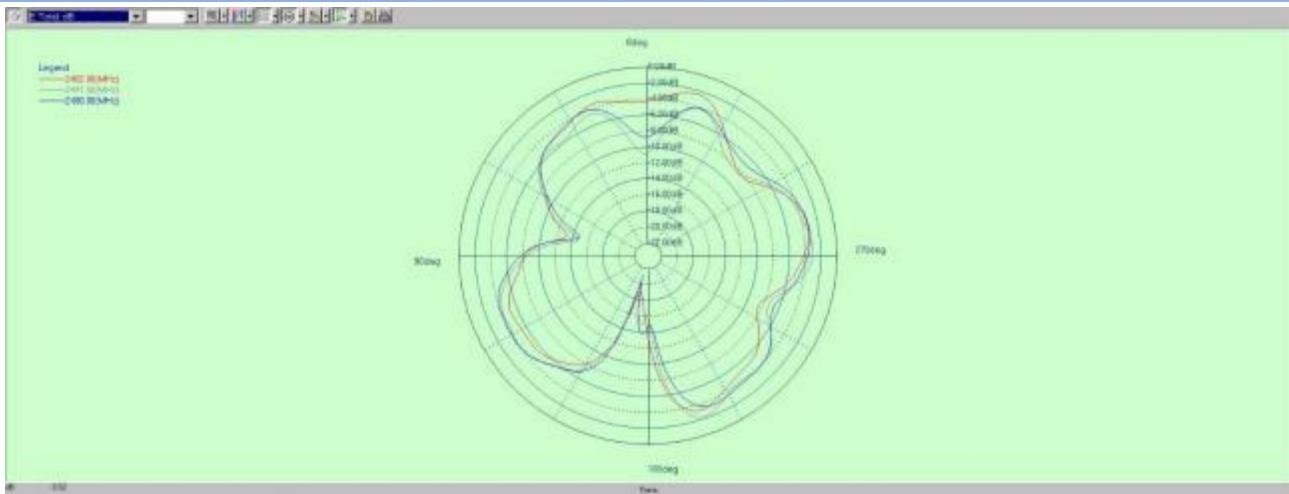


B1.3 3D Pattern for 2480MHz

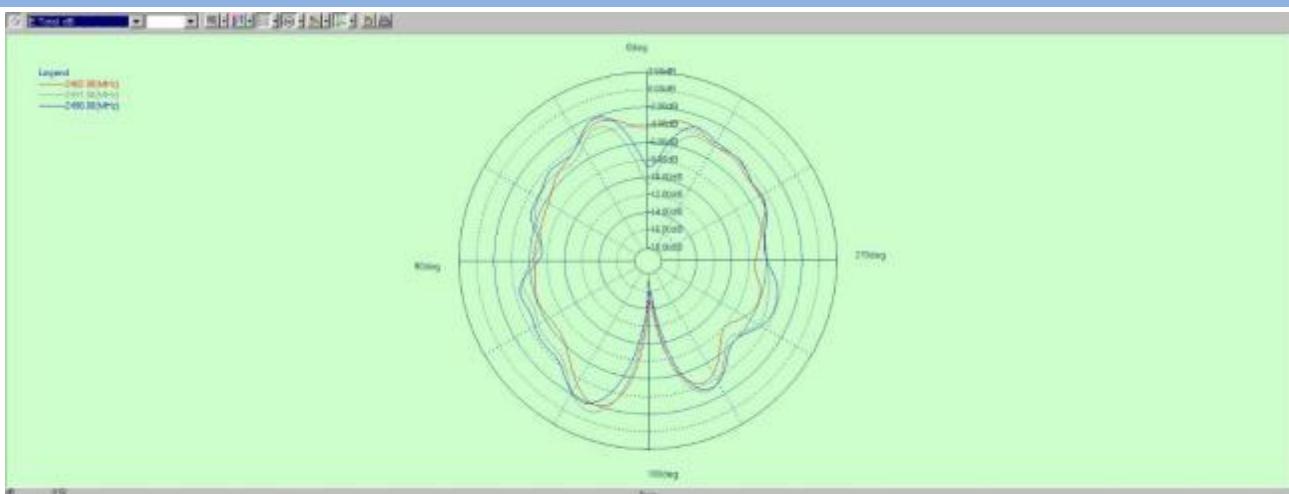


B.2 1D Radiation Pattern

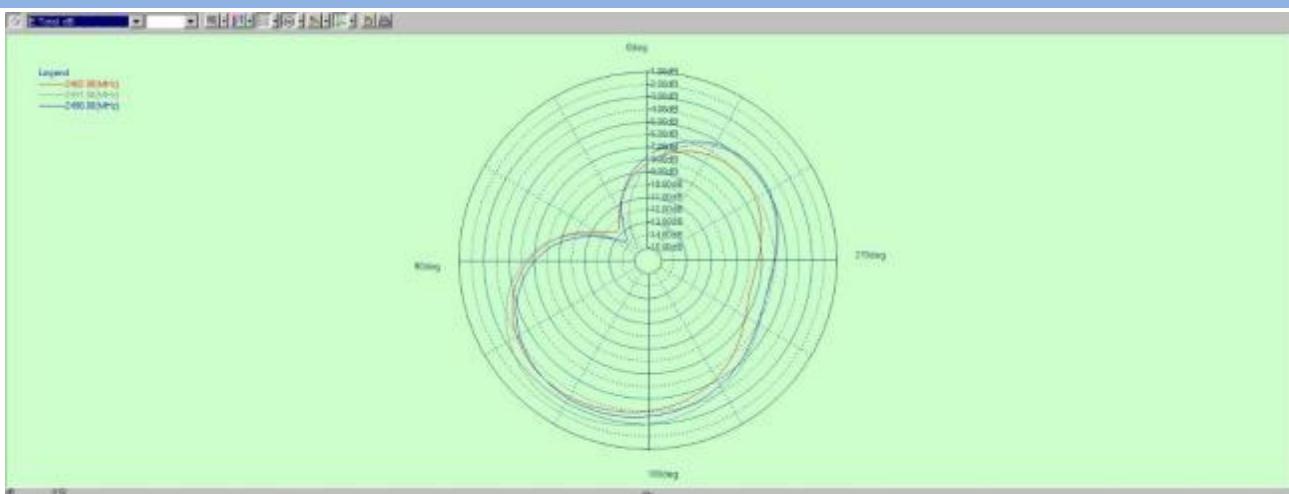
B2.1 PHI=0



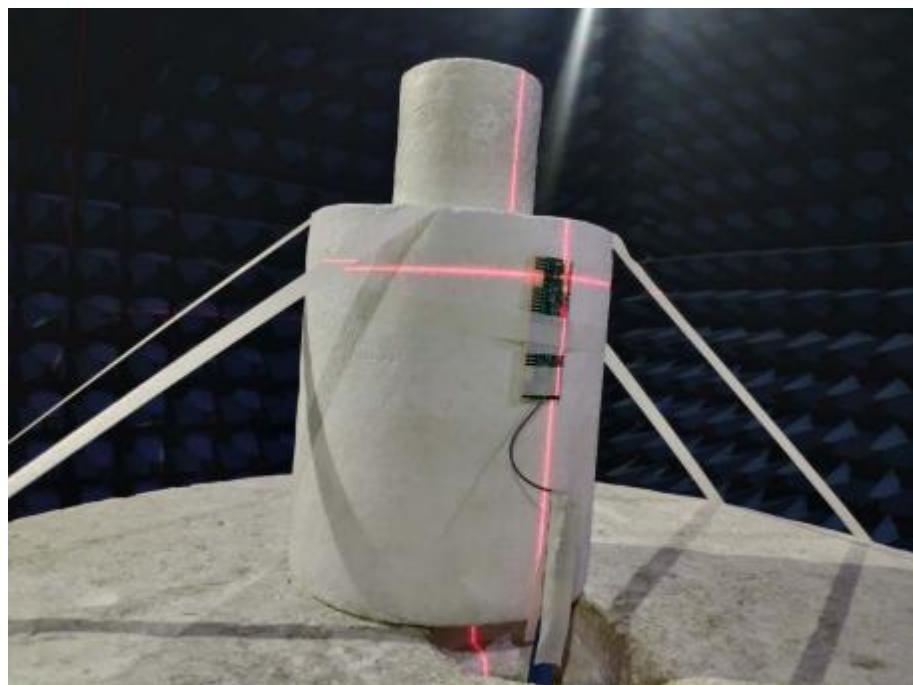
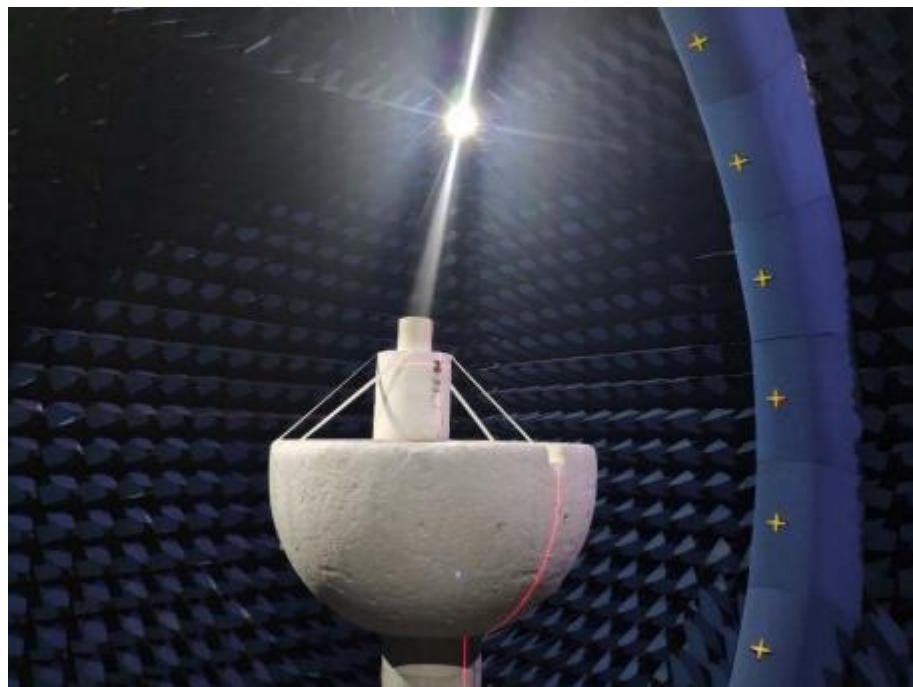
B2.2 PHI=90



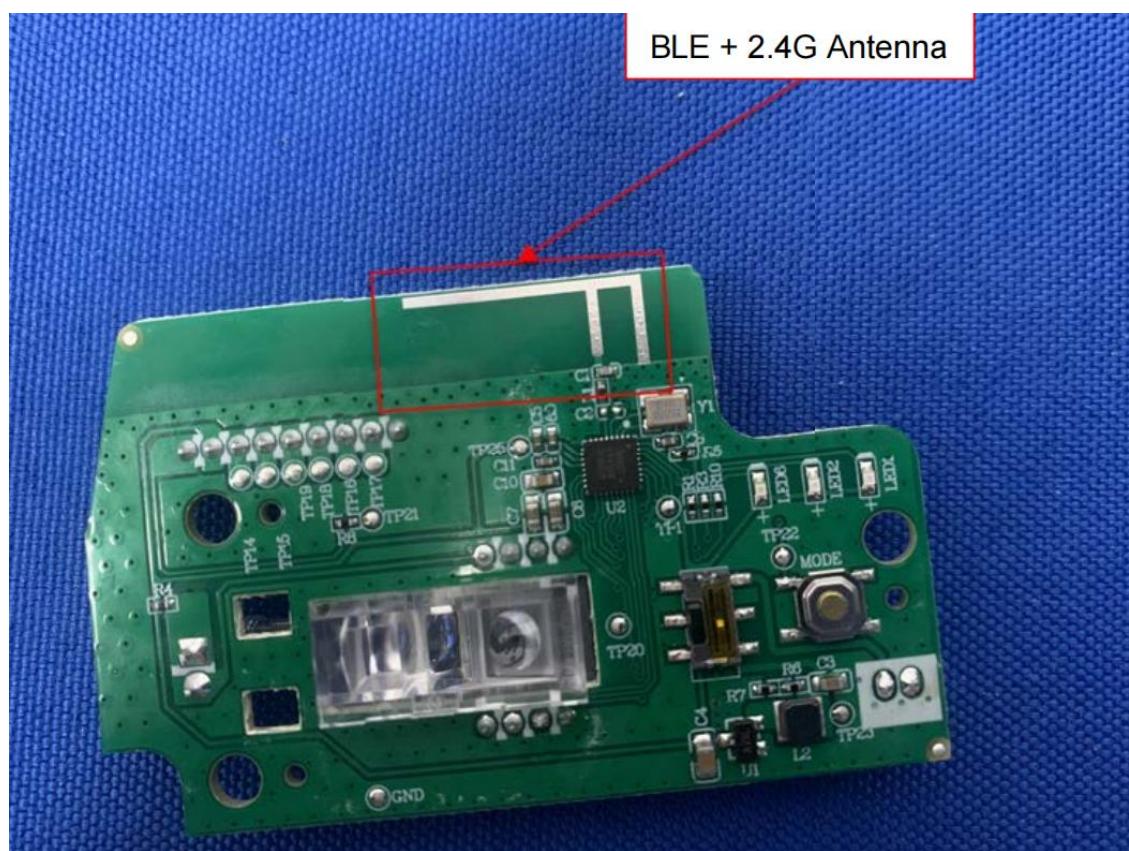
B2.3 THETA=90



ANNEX C TEST SETUP PHOTO



ANNEX D EUT PHOTO



--END OF REPORT--
