



REPORT No.: SZ23030483E01

# TEST REPORT

**APPLICANT** : Qingdao Magene Intelligence Technology Co.,Ltd.

**PRODUCT NAME** : PCB Antenna

**MODEL NAME** : E100100214

**TRADE NAME** : N/A

**BRAND NAME** : N/A

**STANDARD(S)** : IEEE Std 149-2021

**RECEIPT DATE** : 2023-03-31

**TEST DATE** : 2023-04-04

**ISSUE DATE** : 2023-04-07

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| Change History |            |                   |
|----------------|------------|-------------------|
| Version        | Date       | Reason for change |
| 1.0            | 2023-04-07 | First edition     |
|                |            |                   |

# 1. Technical Information

**Note:** Provide by applicant.

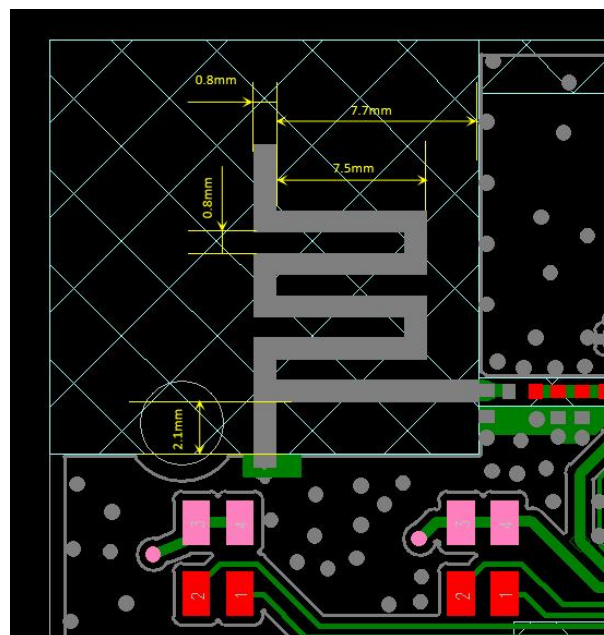
## 1.1. Applicant and Manufacturer Information

|                              |                                                                                                            |
|------------------------------|------------------------------------------------------------------------------------------------------------|
| <b>Applicant:</b>            | Qingdao Magene Intelligence Technology Co.,Ltd.                                                            |
| <b>Applicant Address:</b>    | Room 302,Building 3,No.328A Chengkang Road,Xiazhuang Subdistrict,Chengyang District,Qingdao,Shandong,China |
| <b>Manufacturer:</b>         | Qingdao Magene Intelligence Technology Co.,Ltd.                                                            |
| <b>Manufacturer Address:</b> | Room 302,Building 3,No.328A Chengkang Road,Xiazhuang Subdistrict,Chengyang District,Qingdao,Shandong,China |

## 1.2. Equipment Under Test (EUT) Description

|                     |                 |
|---------------------|-----------------|
| Wireless Type       | N/A             |
| Test frequency band | 2400MHz-2500MHz |
| Brand name          | N/A             |
| Hardware Version    | N/A             |
| Software Version    | N/A             |
| IMEI                | N/A             |
| Sample number       | 1#              |

Dimensions:



## 2. Test Results

### 2.1. Applied Reference Documents

Leading reference documents for testing:

| No. | Identity          | Document Title                                     |
|-----|-------------------|----------------------------------------------------|
| 1   | IEEE Std 149-2021 | IEEE Recommended Practice for Antenna Measurements |

### 2.2. Test Conditions

Test Environment Conditions:

|                    |                  |
|--------------------|------------------|
| Relative Humidity: | 25 ... 75 %      |
| Temperature:       | +10 °C to +30 °C |

### 2.3. Measurement Uncertainty

The uncertainty is calculated using the methods suggested in the "Guide to the Expression of Uncertainty in Measurement" (GUM) published by ISO. When the test result is a critical value, we will use the measurement uncertainty give the judgment result based on the 95% Confidence intervals.

| Item                                                 | Measurement Uncertainty(dB) |
|------------------------------------------------------|-----------------------------|
| Gain                                                 | ±0.5                        |
| VSWR                                                 | ±0.2                        |
| Measurement Uncertainty(95% Confidence Interval) K=2 |                             |

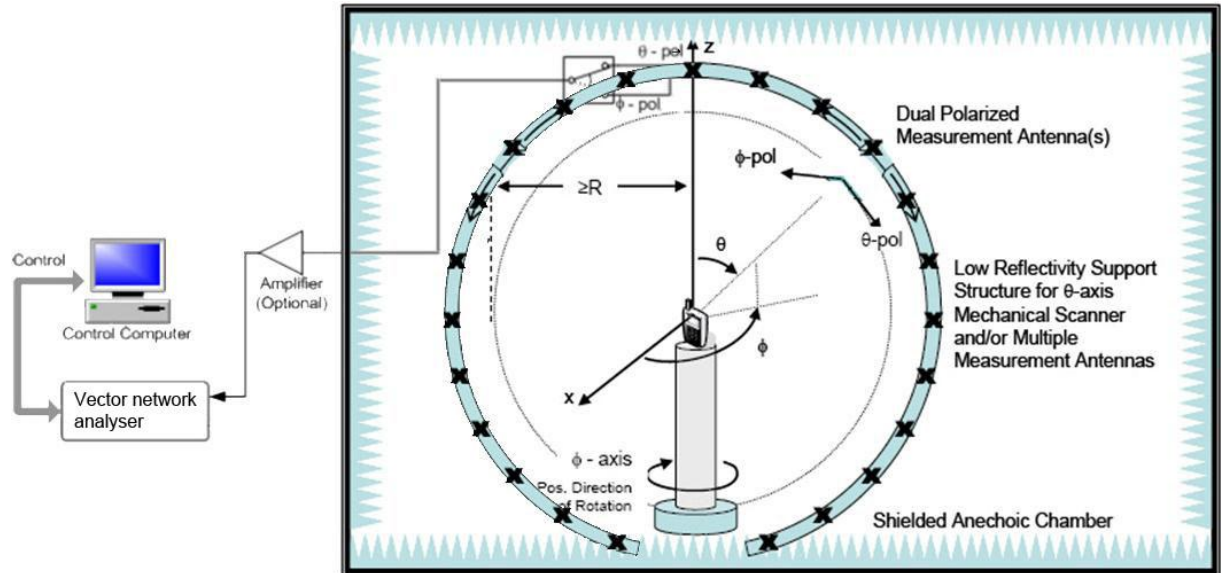


## 2.4. Test Results lists

### 2.4.1. Gain

| Frequency | Gain(dBi) |
|-----------|-----------|
| 2400MHz   | -1.23     |
| 2410MHz   | -0.98     |
| 2420MHz   | -0.81     |
| 2430MHz   | -0.68     |
| 2440MHz   | -0.65     |
| 2450MHz   | -0.53     |
| 2460MHz   | -0.66     |
| 2470MHz   | -0.63     |
| 2480MHz   | -0.45     |
| 2490MHz   | -0.57     |
| 2500MHz   | -0.45     |

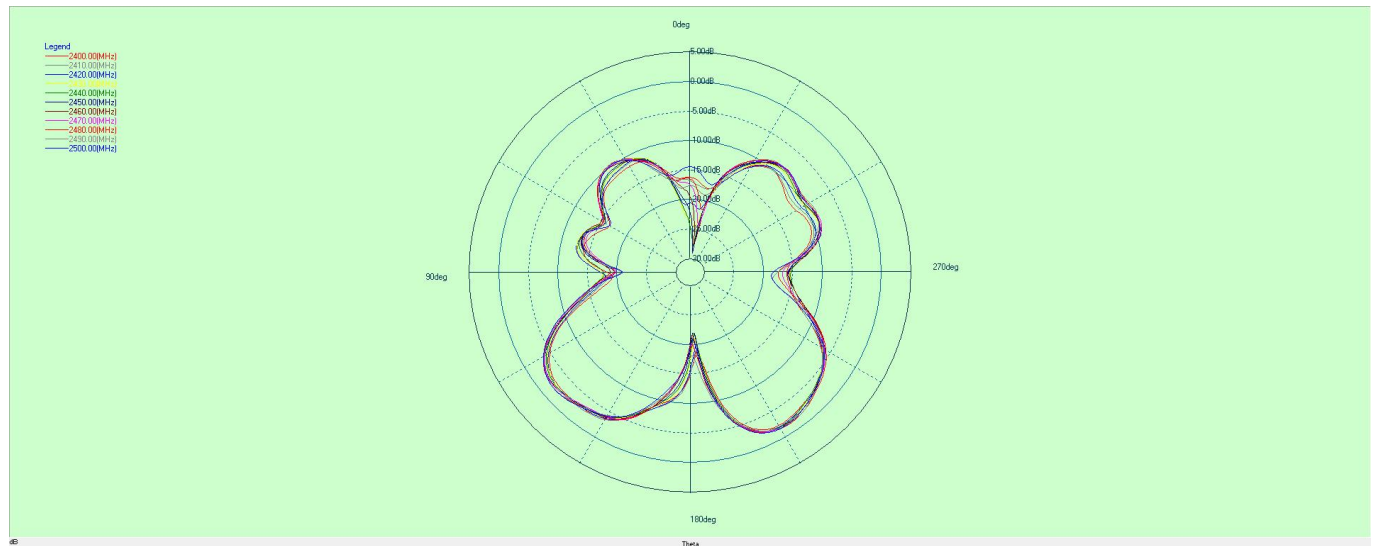
## Annex A Test Setup Photos



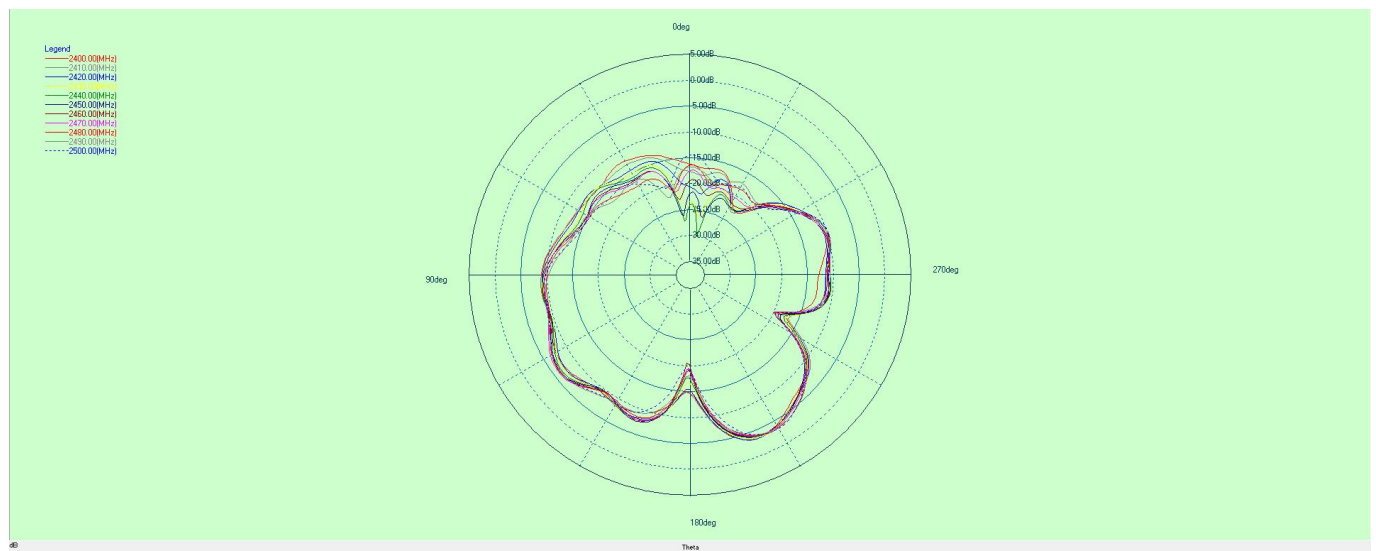
## Annex B Figures

### 1. 2D Radiation Pattern

Phi=0°

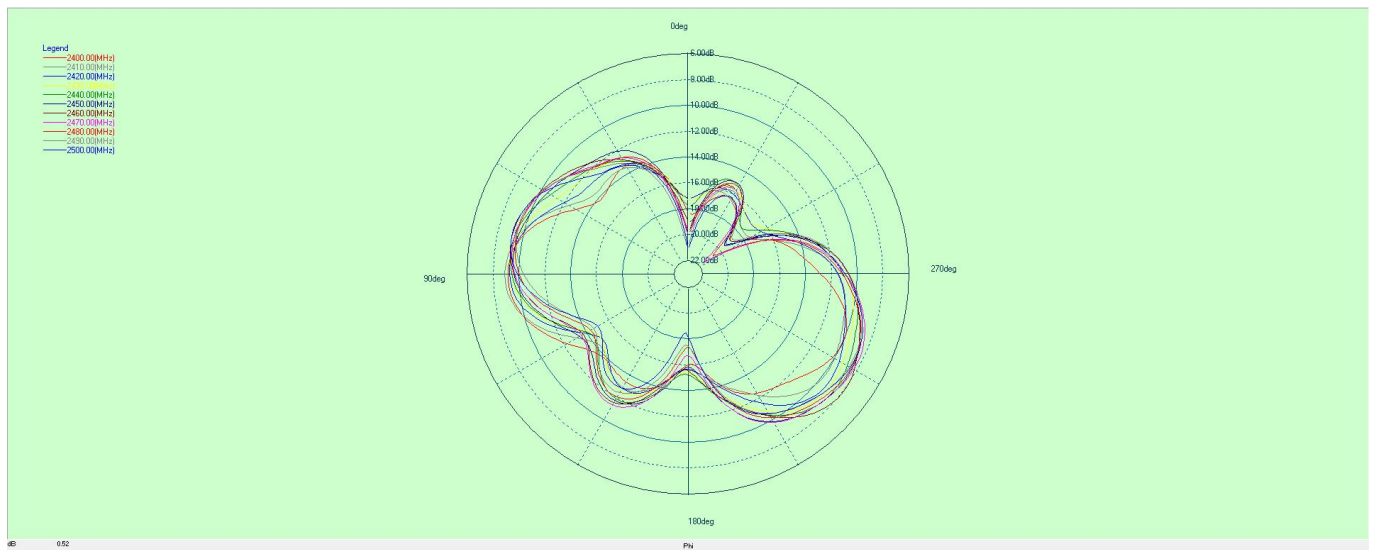


Phi=90°

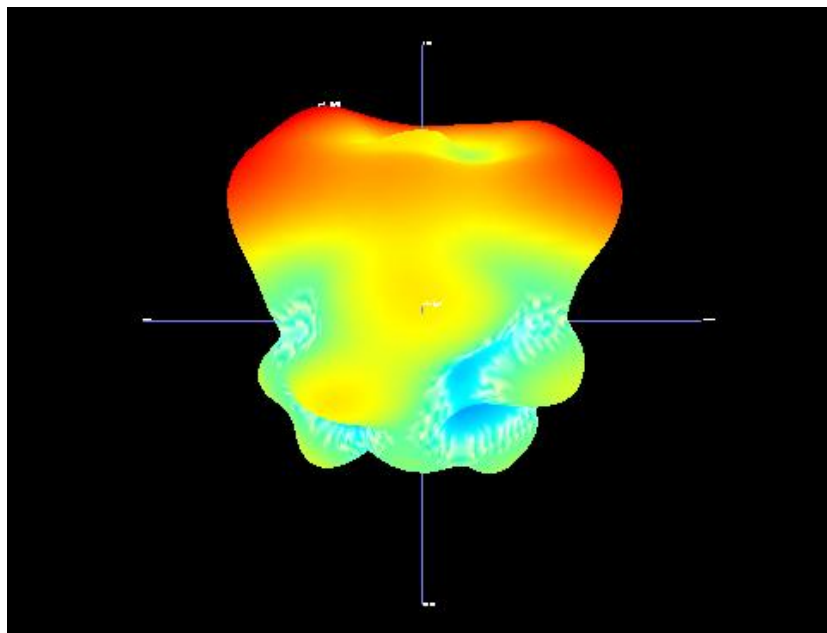




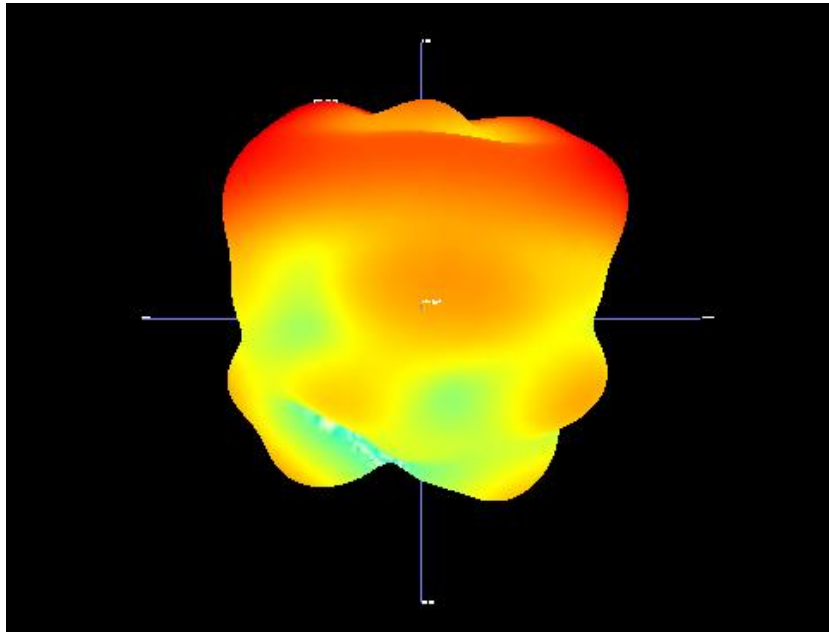
Theta=90°



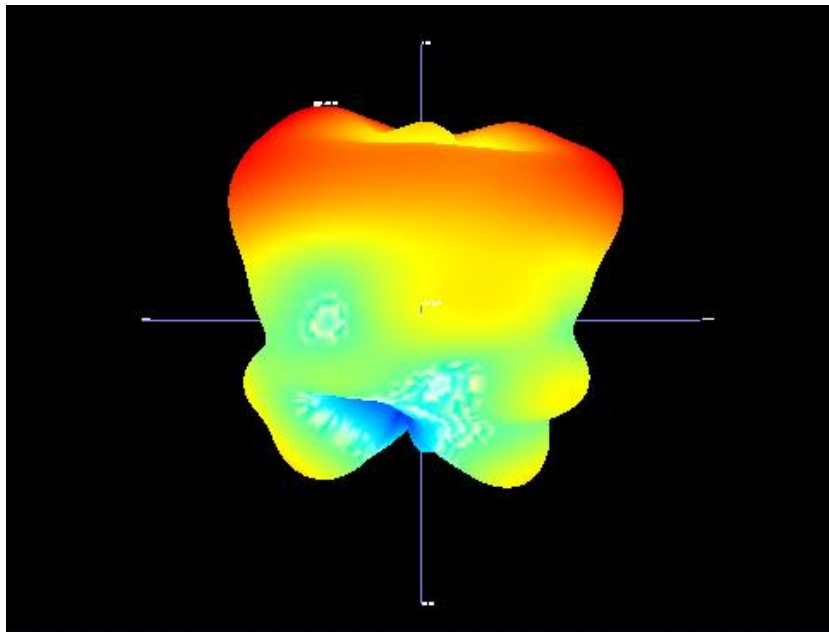
## 2. 3D Radiation Pattern



2400MHz



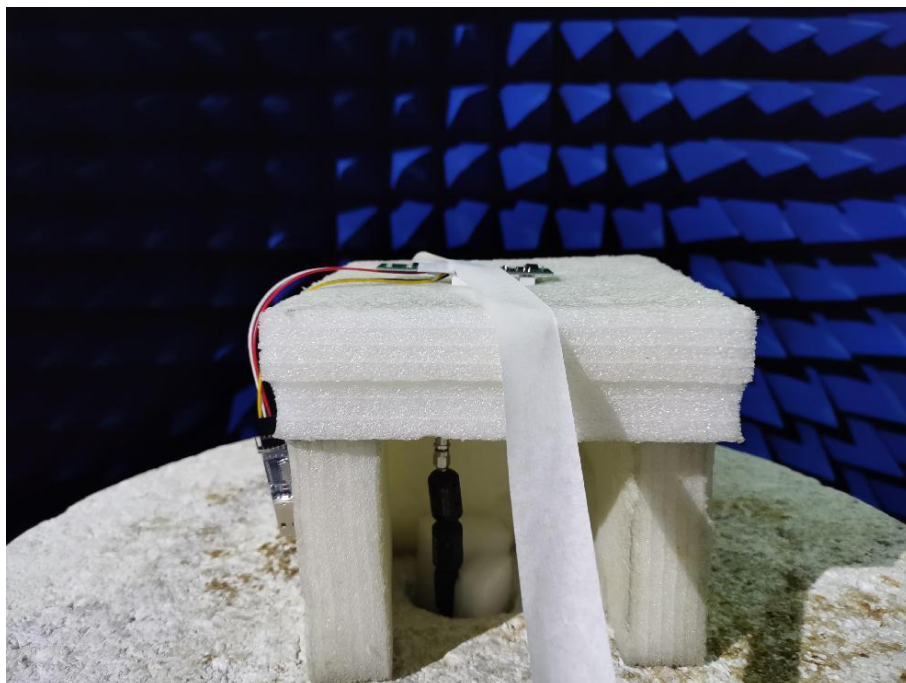
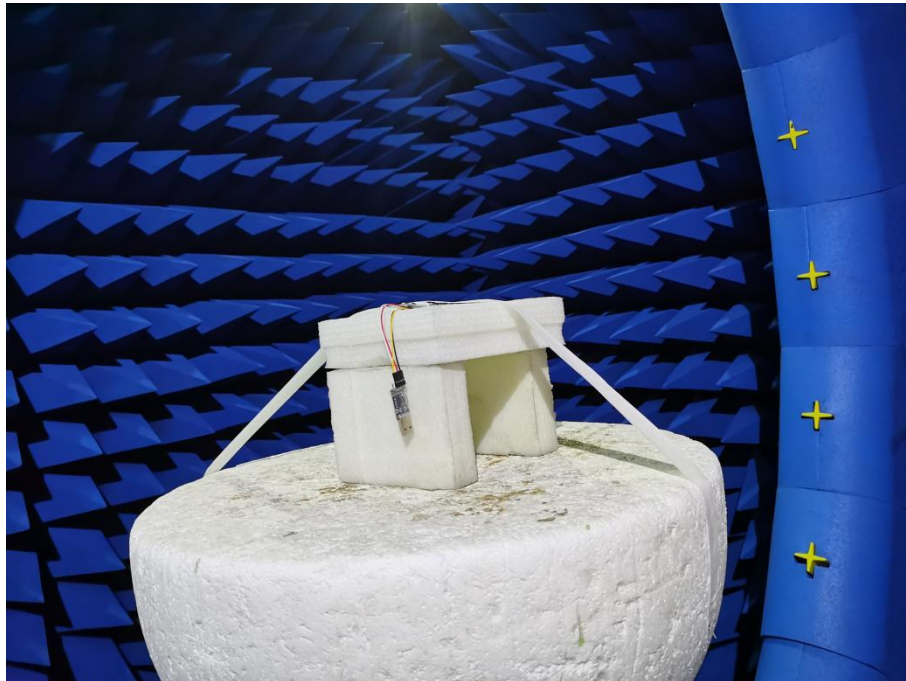
2440MHz



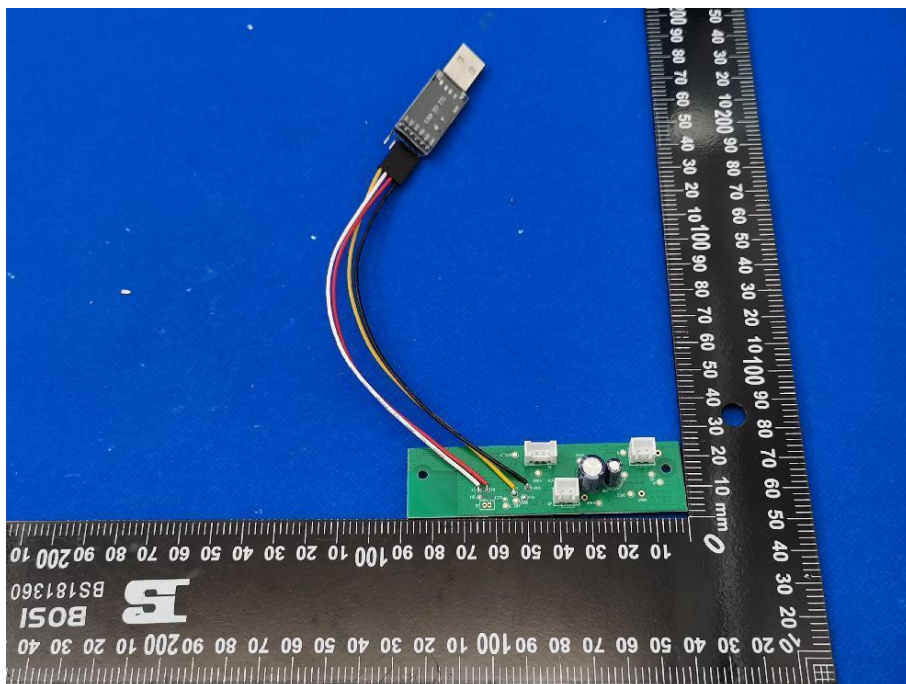
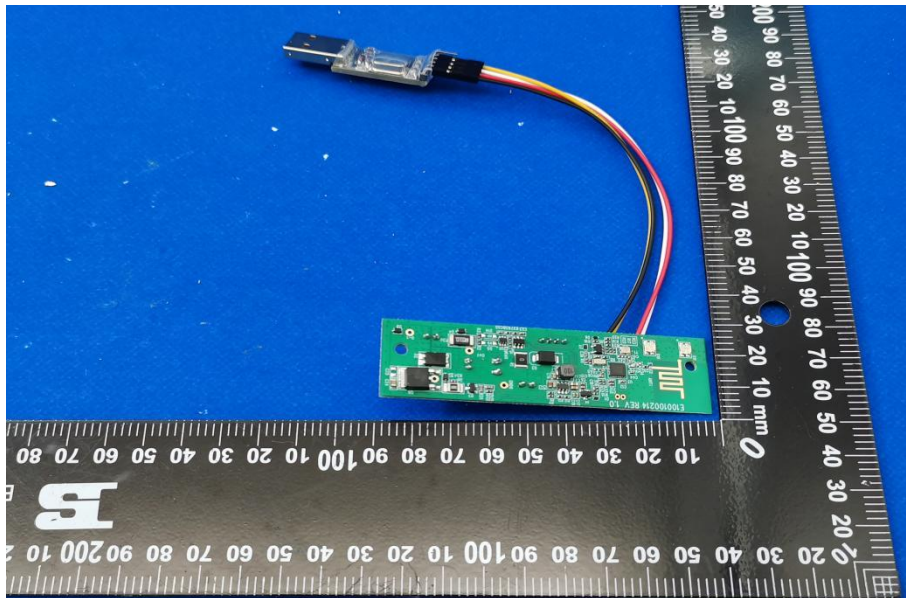
2480MHz

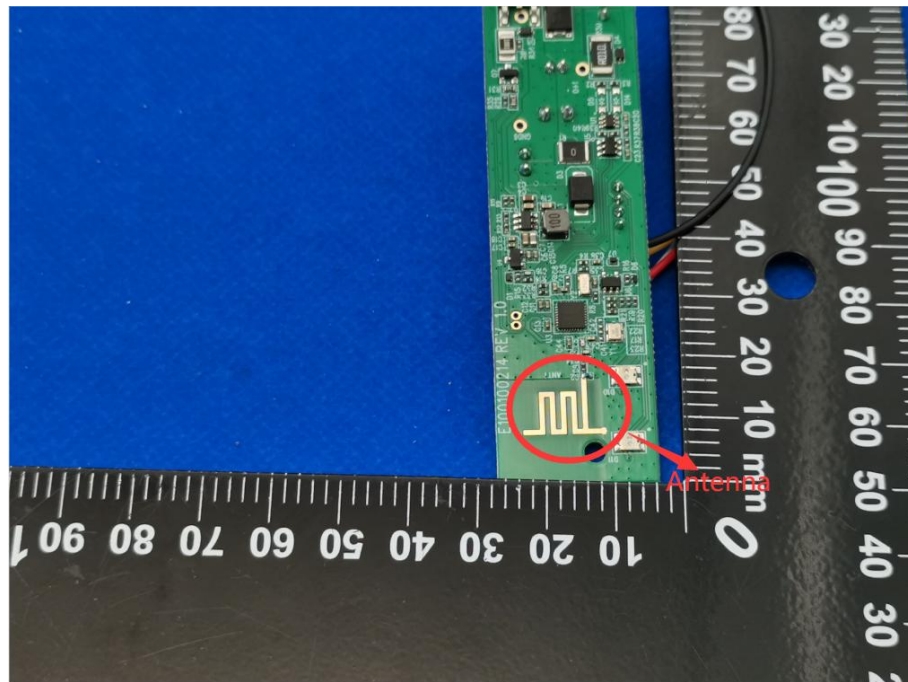
## Annex C Photographs

### 1. Test environment



## 2. EUT







## Annex D General Information

### 1.1 Identification of the Responsible Testing Laboratory

|                     |                                                                                                                                          |
|---------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| Laboratory Name:    | Shenzhen Morlab Communications Technology Co., Ltd.                                                                                      |
| Laboratory Address: | FL.1-3, Building A, FeiYang Science Park, No.8<br>LongChang Road, Block67, BaoAn District, ShenZhen ,<br>GuangDong Province, P. R. China |
| Telephone:          | +86 755 36698555                                                                                                                         |
| Facsimile:          | +86 755 36698525                                                                                                                         |

### 1.2 Identification of the Responsible Testing Location

|          |                                                                                                                                          |
|----------|------------------------------------------------------------------------------------------------------------------------------------------|
| Name:    | Shenzhen Morlab Communications Technology Co., Ltd.                                                                                      |
| Address: | FL.1-3, Building A, FeiYang Science Park, No.8<br>LongChang Road, Block67, BaoAn District, ShenZhen ,<br>GuangDong Province, P. R. China |

### 1.3 Test Equipments Utilized

| NO. | Equipment Name          | Serial NO. | Type             | Manufacturer | Cal.Date   | Cal.Due Date |
|-----|-------------------------|------------|------------------|--------------|------------|--------------|
| 1   | Vector Network Analyzer | MY46214666 | E5071C           | Agilent      | 2023.02.09 | 2024.02.08   |
| 2   | OTA Chamber             | N/A        | SG24             | Satimo       | 2021.01.12 | 2024.01.11   |
| 3   | SatEnv                  | N/A        | 2.0.1.5 build 12 | Satimo       | N/A        | N/A          |
| 4   | SPM                     | N/A        | 1.11             | Satimo       | N/A        | N/A          |

————— END OF REPORT —————