



REPORT No.: SZ25060128E01

# TEST REPORT

**APPLICANT** : GP Electronics (SZ) Limited

**PRODUCT NAME** : On-board Chip Antenna of Bluetooth QCC3024 Module

**MODEL NAME** : Walsin RFANT3216120A1T

**TRADE NAME** : N/A

**BRAND NAME** : N/A

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

**RECEIPT DATE** : 2025-06-11

**TEST DATE** : 2025-06-11

**ISSUE DATE** : 2025-06-16

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Chi Shide(Supervisor)

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# DIRECTORY

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| Change History |            |                   |
|----------------|------------|-------------------|
| Version        | Date       | Reason for change |
| 1.0            | 2025-06-16 | First edition     |

# 1. Technical Information

**Note:** Provide by applicant.

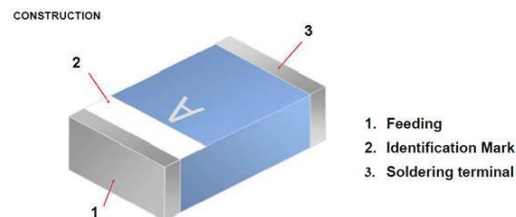
## 1.1. Applicant and Manufacturer Information

|                              |                                                                                                                                                                                        |
|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Applicant:</b>            | GP Electronics (SZ) Limited                                                                                                                                                            |
| <b>Applicant Address:</b>    | 15/F, T1 Building, Shumyip Upperhills, No.5001 Huanggang RD, Futian District, Shenzhen, Guangdong, China (Postal Code: 518038)                                                         |
| <b>Manufacturer:</b>         | GP Electronics (Huizhou) Co., Ltd                                                                                                                                                      |
| <b>Manufacturer Address:</b> | (BOSSMING Technology Park) No.3, Xing Ping East Road, Dong Jiang Science & Technology Park, Zhong Kai Hi-Tech Industrial Development Zone, Huizhou, Guangdong, PRC. Post Code: 516255. |
| <b>Factory:</b>              | N/A                                                                                                                                                                                    |
| <b>Factory Address:</b>      | N/A                                                                                                                                                                                    |

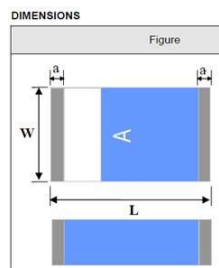
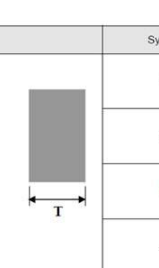
## 1.2. Equipment Under Test (EUT) Description

|                      |                 |
|----------------------|-----------------|
| <b>Wireless Type</b> | Bluetooth       |
| <b>Frequency</b>     | 2400MHz-2500MHz |
| <b>IMEI</b>          | N/A             |
| <b>Sample No.</b>    | 1#              |

**Dimensions:**



DIMENSIONS

| Figure                                                                               | Symbol | Dimension (mm) |
|--------------------------------------------------------------------------------------|--------|----------------|
|   | L      | 3.20 ± 0.20    |
|                                                                                      | W      | 1.60 ± 0.10    |
|   | T      | 1.20 ± 0.10    |
|  | a      | 0.25 ± 0.15    |



## 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 |

Notes: Any additions, deviation, or exclusions from the method shall be noted in the "Remark".

### 2.2. Test Conditions

Test Environment Conditions:

|                       |         |
|-----------------------|---------|
| Relative Humidity(%): | 25 - 75 |
| Temperature(°C):      | 10 - 30 |

### 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.

## 2.4. Test Results lists

### 2.4.1. Gain

| Frequency<br>(MHz) | Gain(dBi) |
|--------------------|-----------|
| 2400               | -9.04     |
| 2410               | -8.83     |
| 2420               | -8.87     |
| 2430               | -9.04     |
| 2440               | -9.14     |
| 2450               | -9.17     |
| 2460               | -9.28     |
| 2470               | -9.55     |
| 2480               | -9.92     |
| 2490               | -10.50    |
| 2500               | -10.82    |

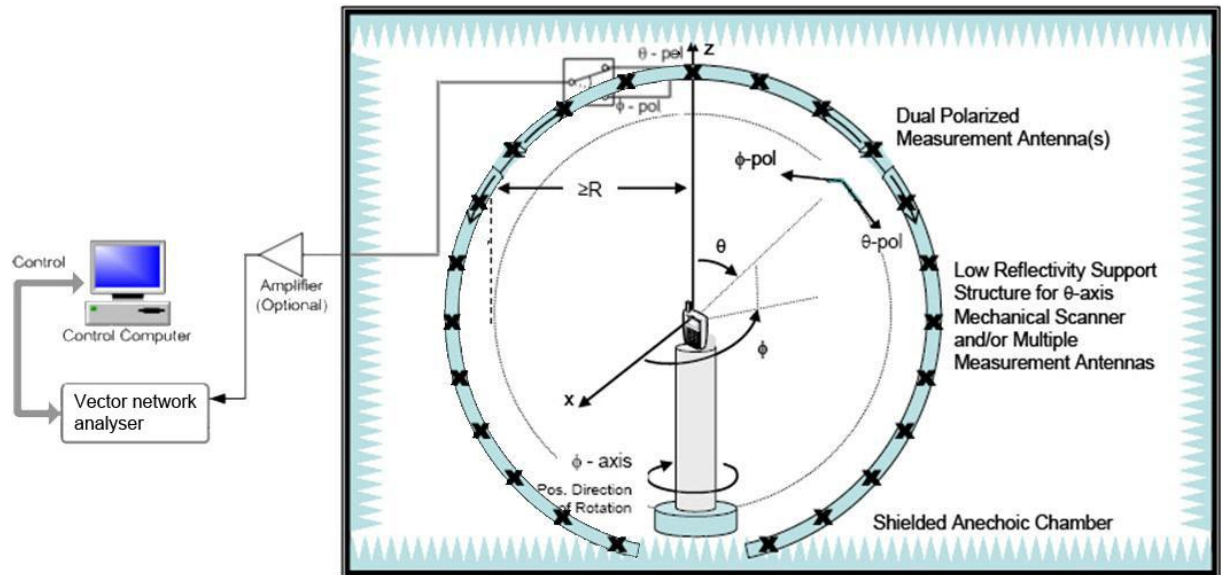
### 2.4.2. Return Loss

| Frequency<br>(MHz) | Return Loss(dB) |
|--------------------|-----------------|
| 2400               | -2.66           |
| 2450               | -2.84           |
| 2500               | -2.72           |

### 2.4.3. VSWR

| Frequency<br>(MHz) | VSWR |
|--------------------|------|
| 2400               | 6.58 |
| 2450               | 6.15 |
| 2500               | 6.42 |

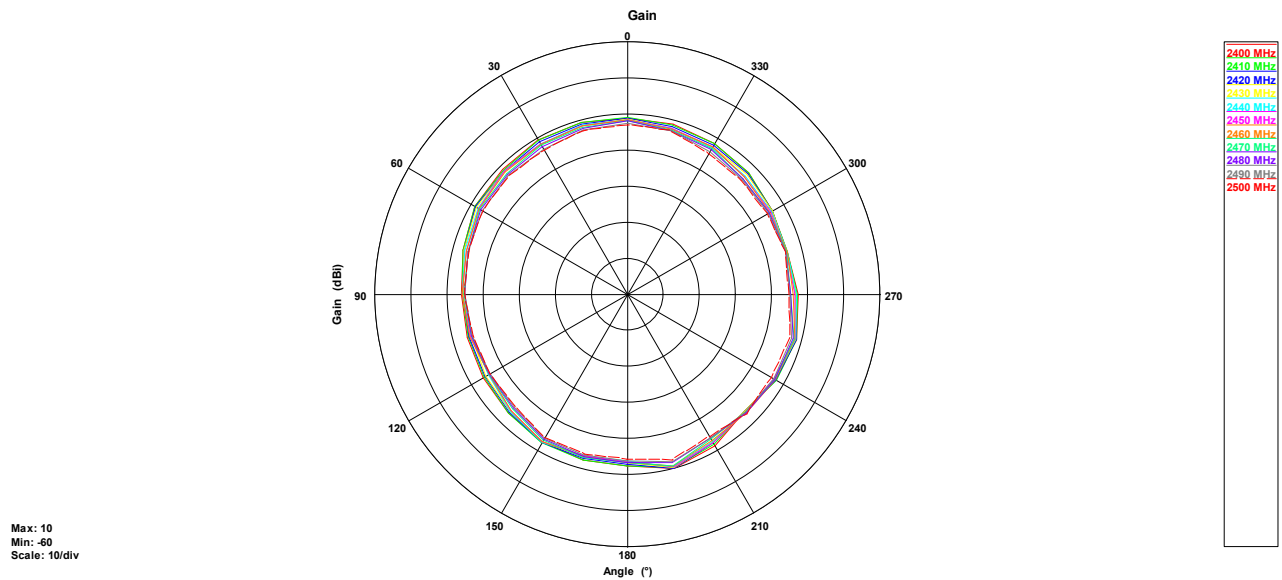
## Annex A Test Setup Photos



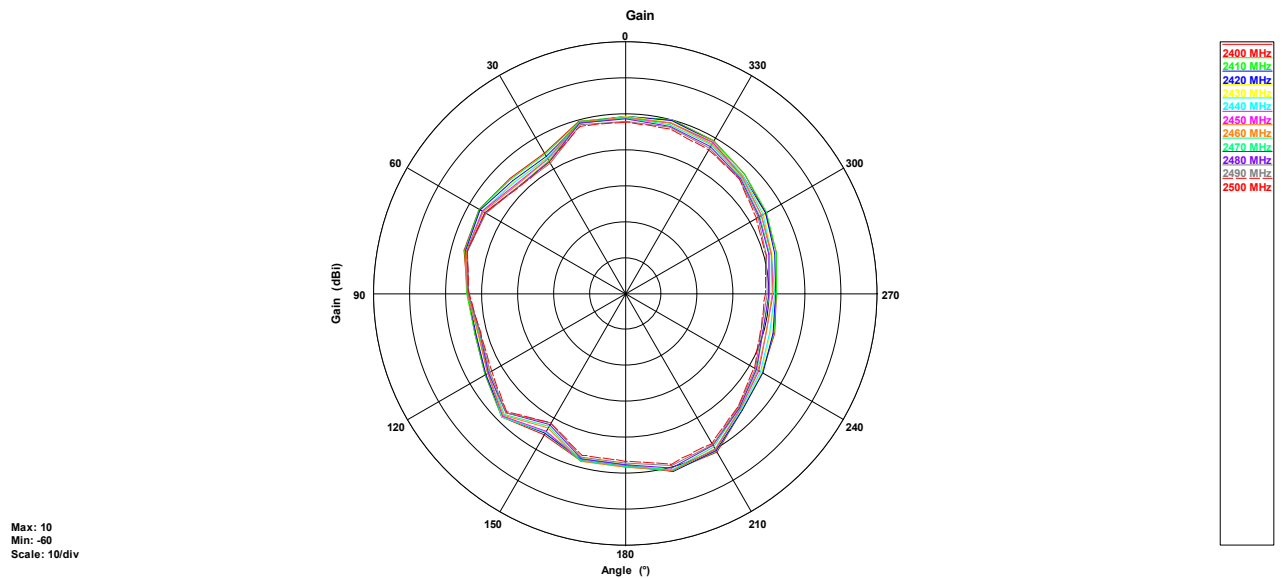


## Annex B Figures

### 1. 2D Radiation Pattern



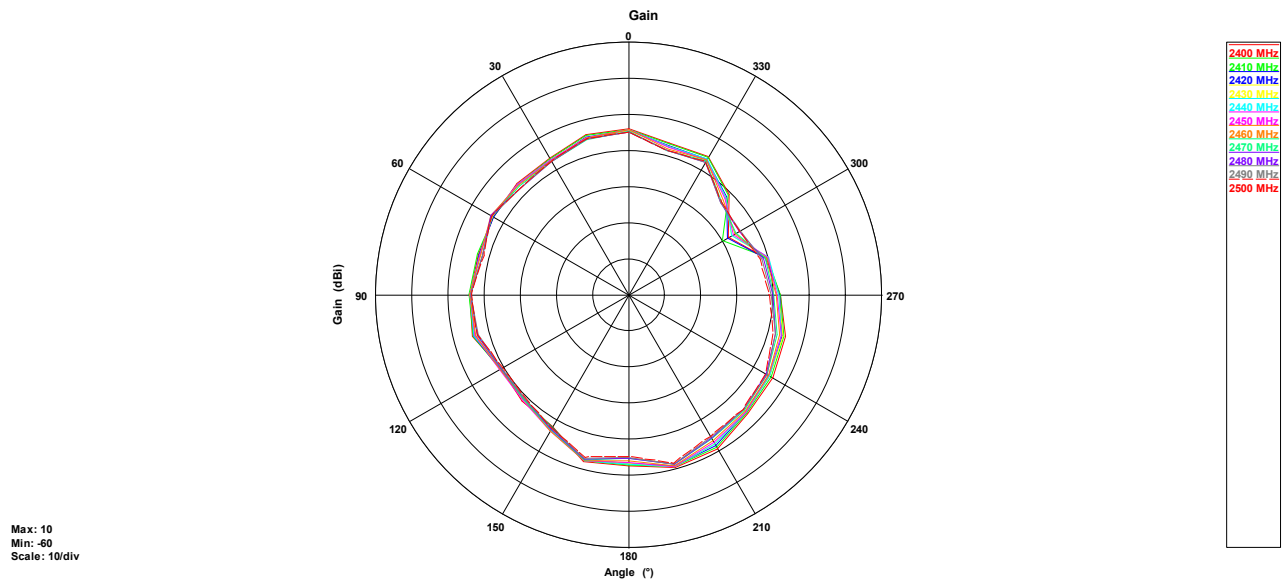
Phi=0°



Phi=90°

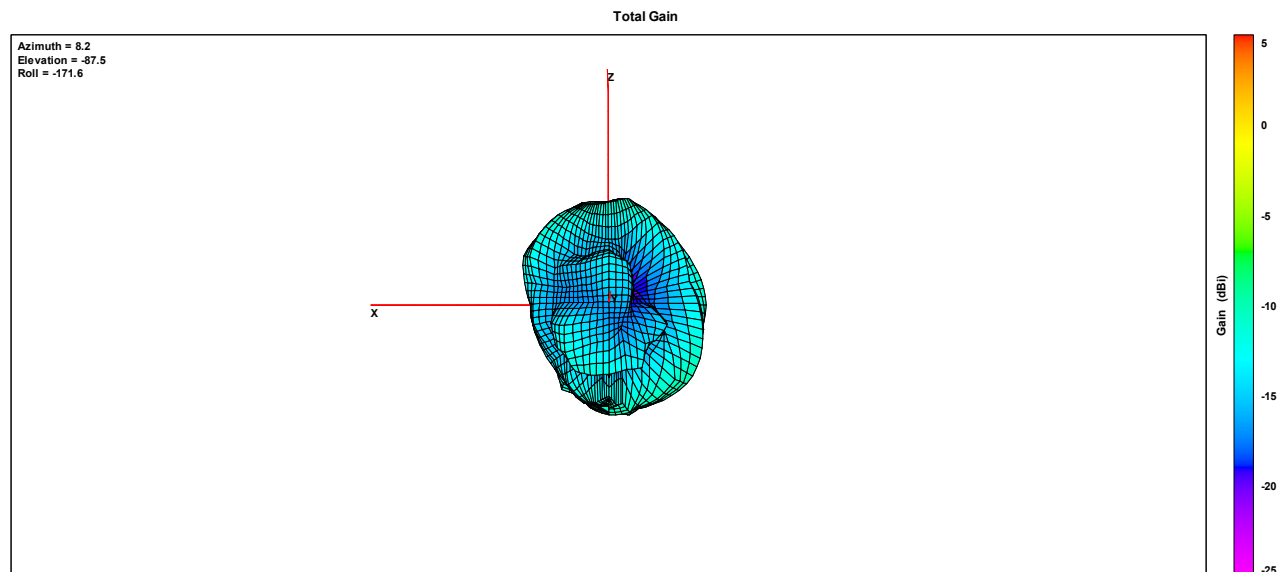


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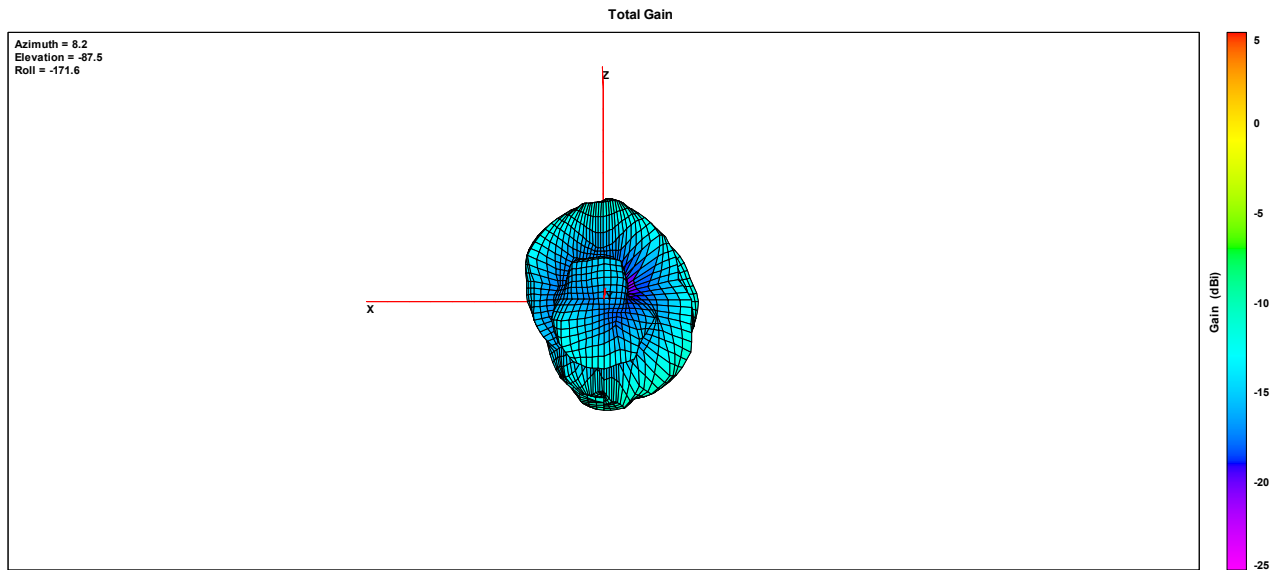
Theta=90°

## 2. 3D Radiation Pattern

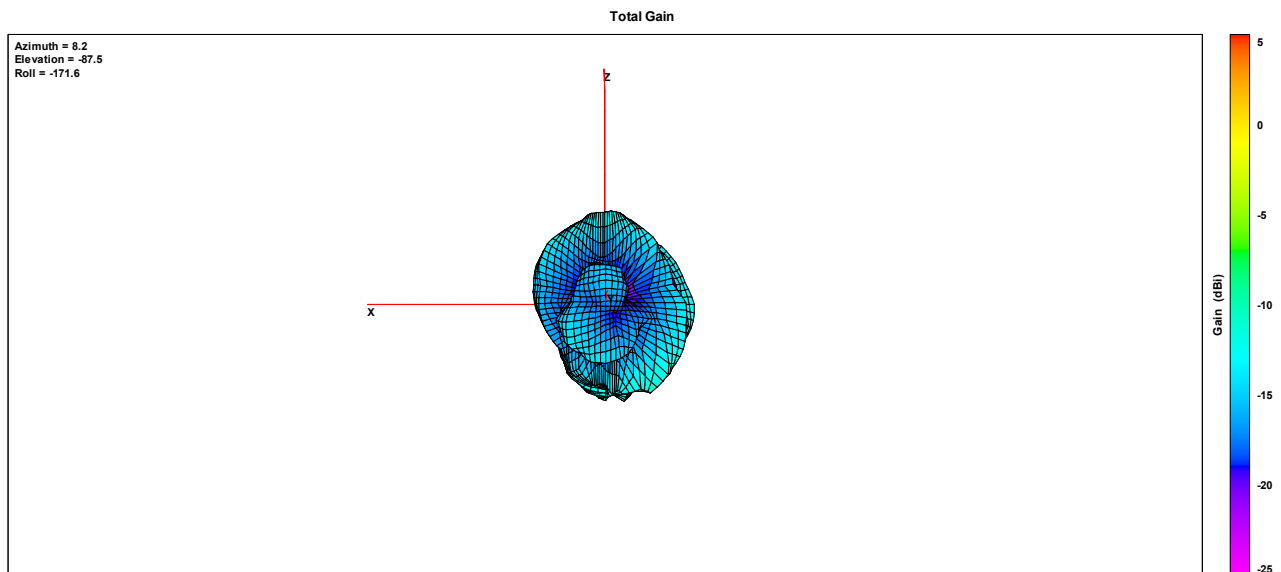


2400MHz





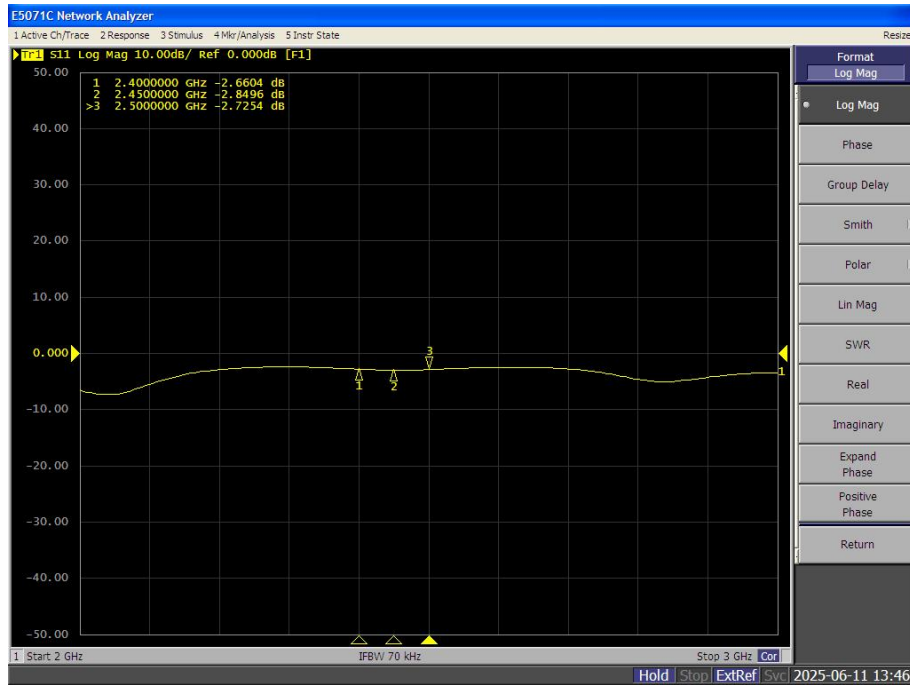
2450MHz



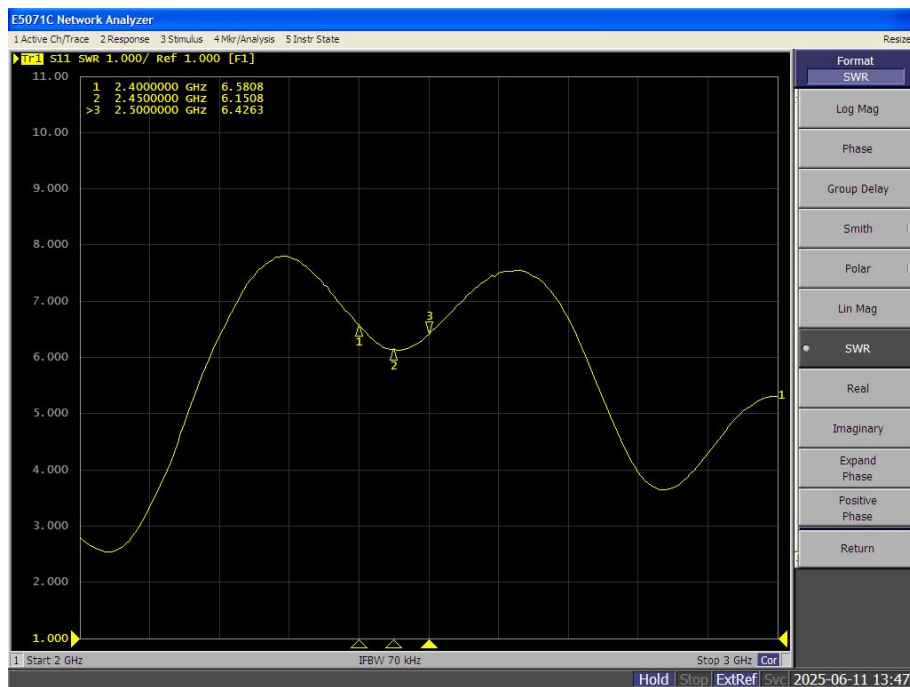
2500MHz



### 3. Return Loss

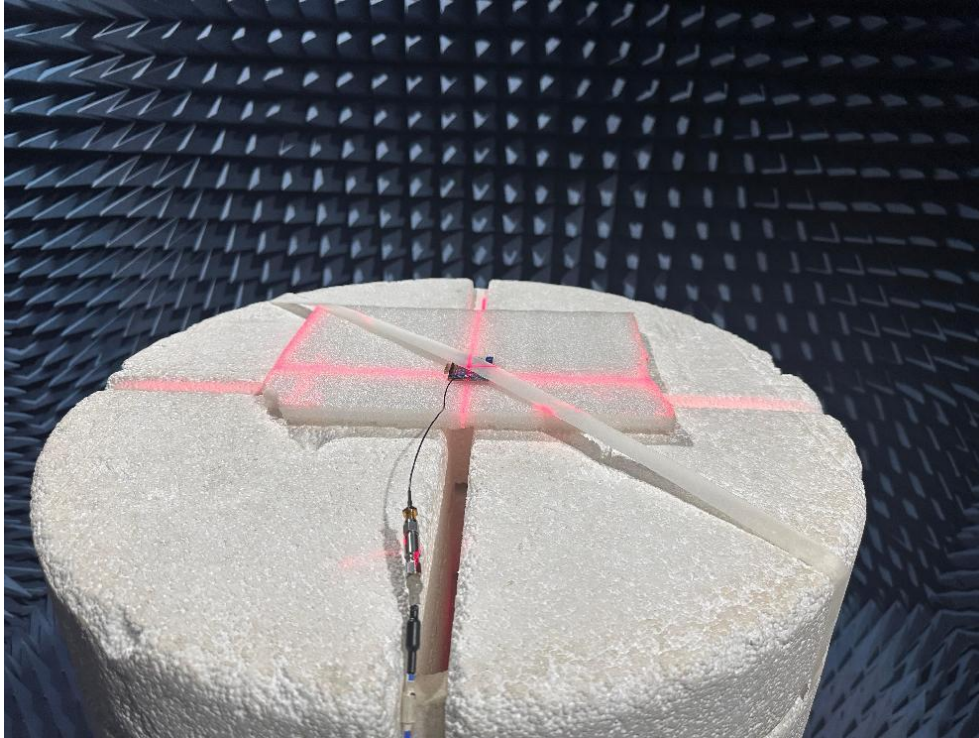


### 4. VSWR



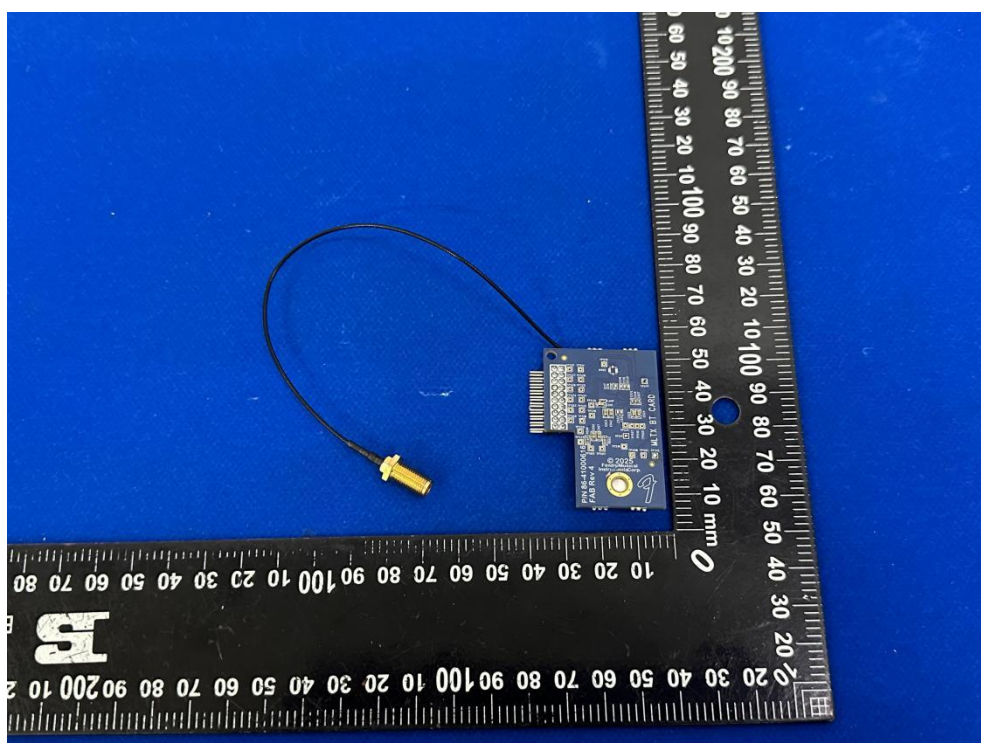
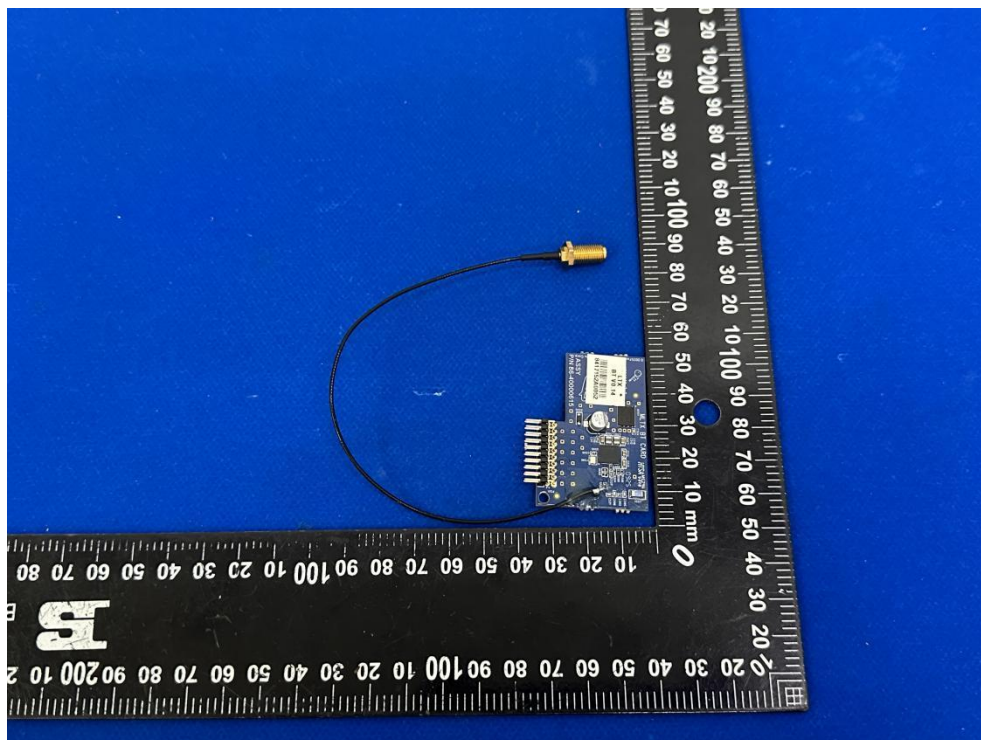
## Annex C EUT Photos

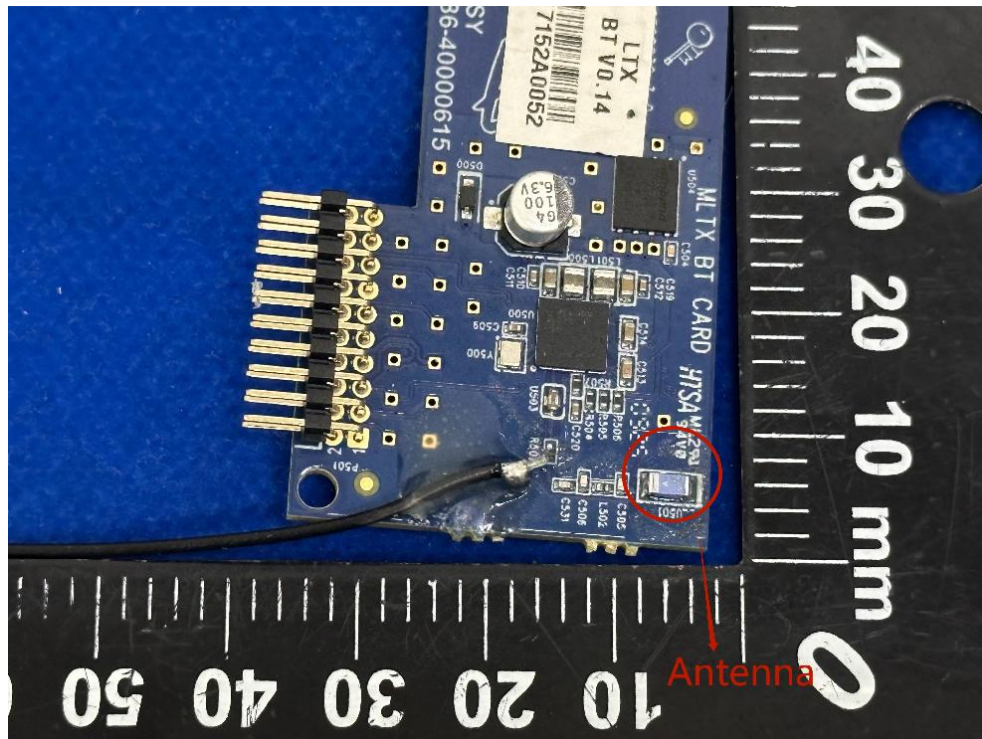
### 1. Test environment





## 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 LongChang Road, Block67, BaoAn District, ShenZhen , 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 LongChang Road, Block67, BaoAn District, ShenZhen , Guangdong Province, P. R. China |

### 1.3 Test Equipments Utilized

| No. | Equipment Name   | Serial No.   | Type          | Manufacturer | Cal.Date   | Cal.Due Date |
|-----|------------------|--------------|---------------|--------------|------------|--------------|
| 1   | Network Analyzer | MY46110140   | E5071C        | Agilent      | 2025.05.13 | 2026.05.12   |
| 2   | OTA Chamber      | TJ2235-Q1793 | AMS-8923 -150 | ETS          | 2022.11.30 | 2025.11.29   |

### 1.4 Test Software Utilized

| No. | Software Name              | Serial No. | Version                            | Manufacturer |
|-----|----------------------------|------------|------------------------------------|--------------|
| 1   | Antenna Measurement System | 1685       | EMQuest EMQ-100 V 1.13 Build 21267 | ETS          |

————— END OF REPORT —————