



REPORT No.: SZ23110013E01

# TEST REPORT

**APPLICANT** : Xiamen Hanin Electronic Technology Co.,Ltd.

**PRODUCT NAME** : WIFI Antenna

**MODEL NAME** : WIFI 2.4G

**TRADE NAME** : N/A

**BRAND NAME** : N/A

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

**RECEIPT DATE** : 2023-11-02

**TEST DATE** : 2023-11-02

**ISSUE DATE** : 2023-11-08



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**MORLAB**

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| Change History |            |                   |
|----------------|------------|-------------------|
| Version        | Date       | Reason for change |
| 1.0            | 2023-11-08 | First edition     |

# 1. Technical Information

**Note:** Provide by applicant.

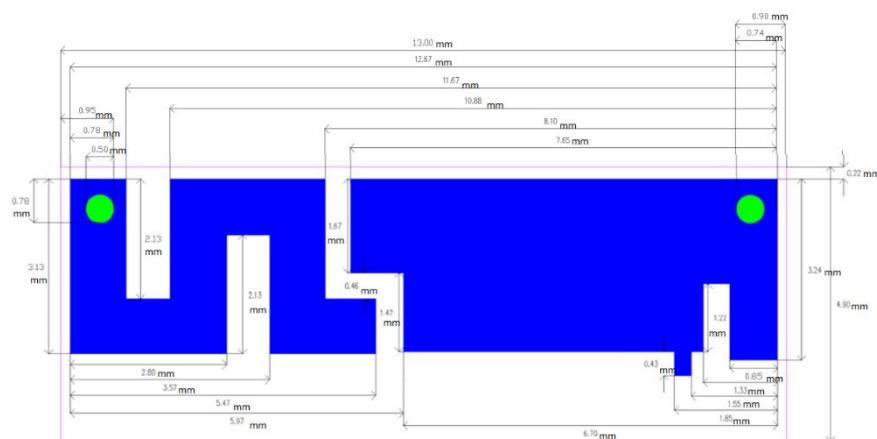
## 1.1. Applicant and Manufacturer Information

|                              |                                                                              |
|------------------------------|------------------------------------------------------------------------------|
| <b>Applicant:</b>            | Xiamen Hanin Electronic Technology Co.,Ltd.                                  |
| <b>Applicant Address:</b>    | Room 305A, Angye Building, Pioneering Park,Torch High-tech,Zone,Xiamen,China |
| <b>Manufacturer:</b>         | N/A                                                                          |
| <b>Manufacturer Address:</b> | N/A                                                                          |

## 1.2. Equipment Under Test (EUT) Description

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

**Dimension:**





## 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(°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. When the test result is a critical value, we will use the measurement uncertainty give the judgment result based on the 95% Confidence intervals.

## 2.4. Test Results lists

### 2.4.1. Gain

| Frequency<br>(MHz) | Gain(dBi) |
|--------------------|-----------|
| 2400               | 1.99      |
| 2410               | 1.69      |
| 2420               | 1.31      |
| 2430               | 0.88      |
| 2440               | 0.74      |
| 2450               | 0.53      |
| 2460               | 0.28      |
| 2470               | -0.03     |
| 2480               | -0.23     |
| 2490               | -0.42     |
| 2500               | -0.57     |

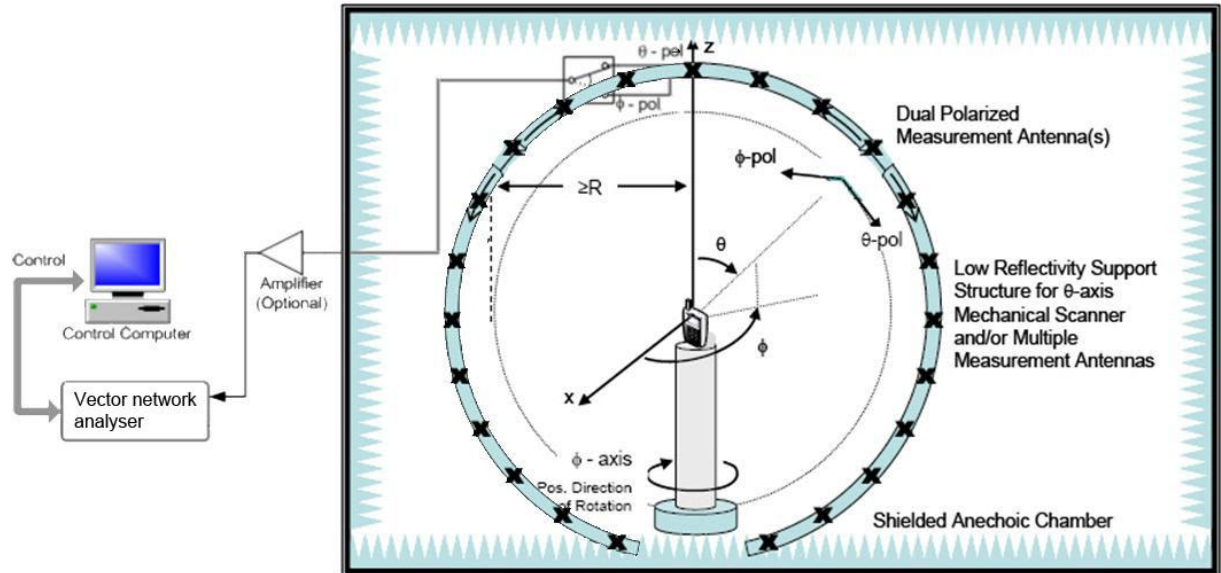
### 2.4.2. VSWR

| Frequency<br>(MHz) | VSWR |
|--------------------|------|
| 2400               | 2.91 |
| 2450               | 4.43 |
| 2500               | 6.05 |

### 2.4.3. Return Loss

| Frequency<br>(MHz) | Return Loss<br>(dB) |
|--------------------|---------------------|
| 2400               | -6.20               |
| 2450               | -3.98               |
| 2500               | -2.89               |

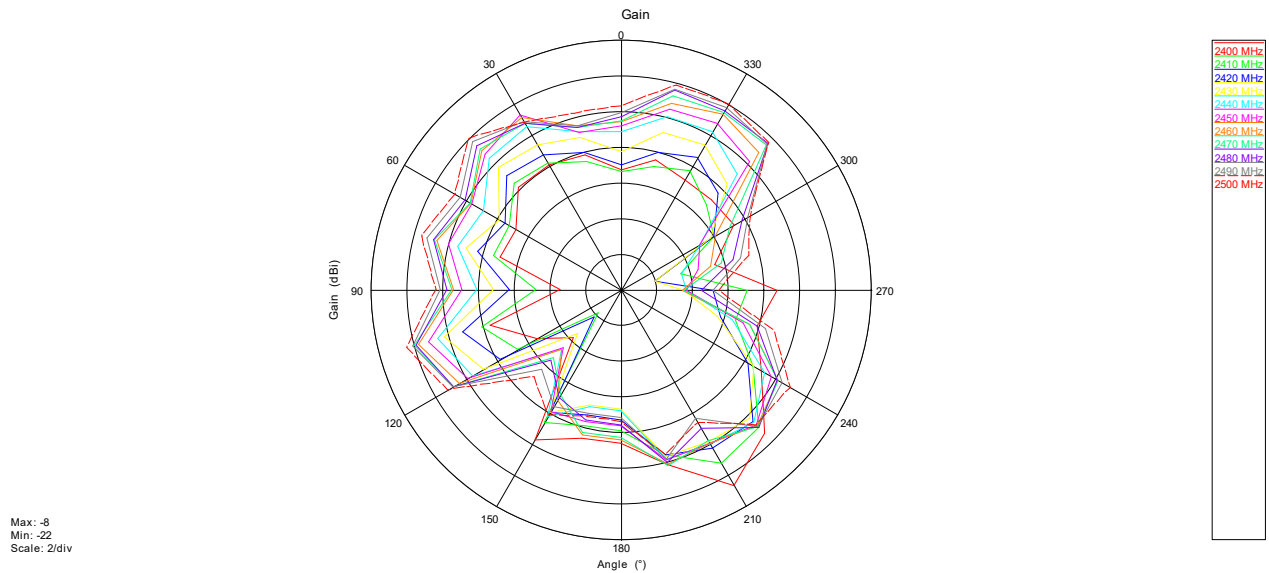
## Annex A Test Setup Photos



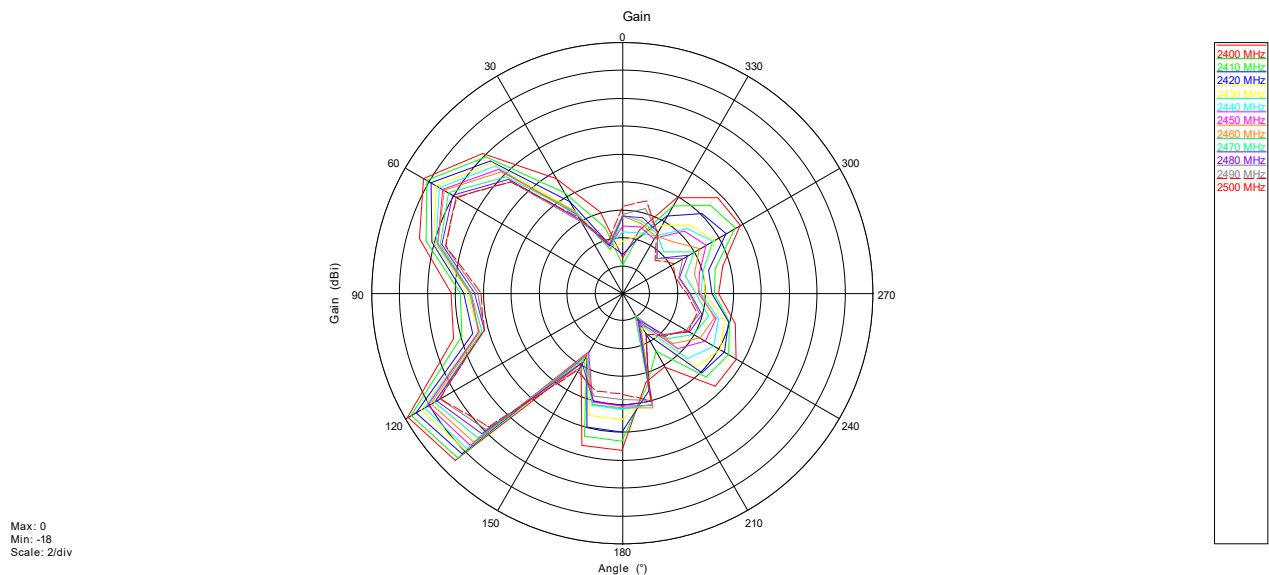


## Annex B Figures

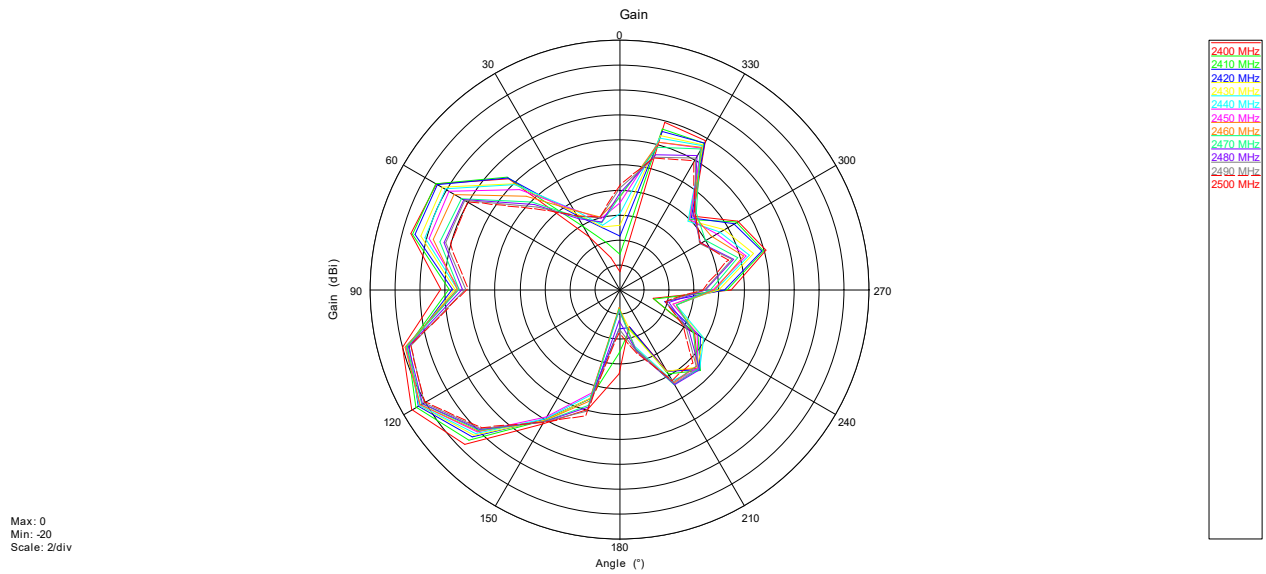
### 1. 2D Radiation Pattern



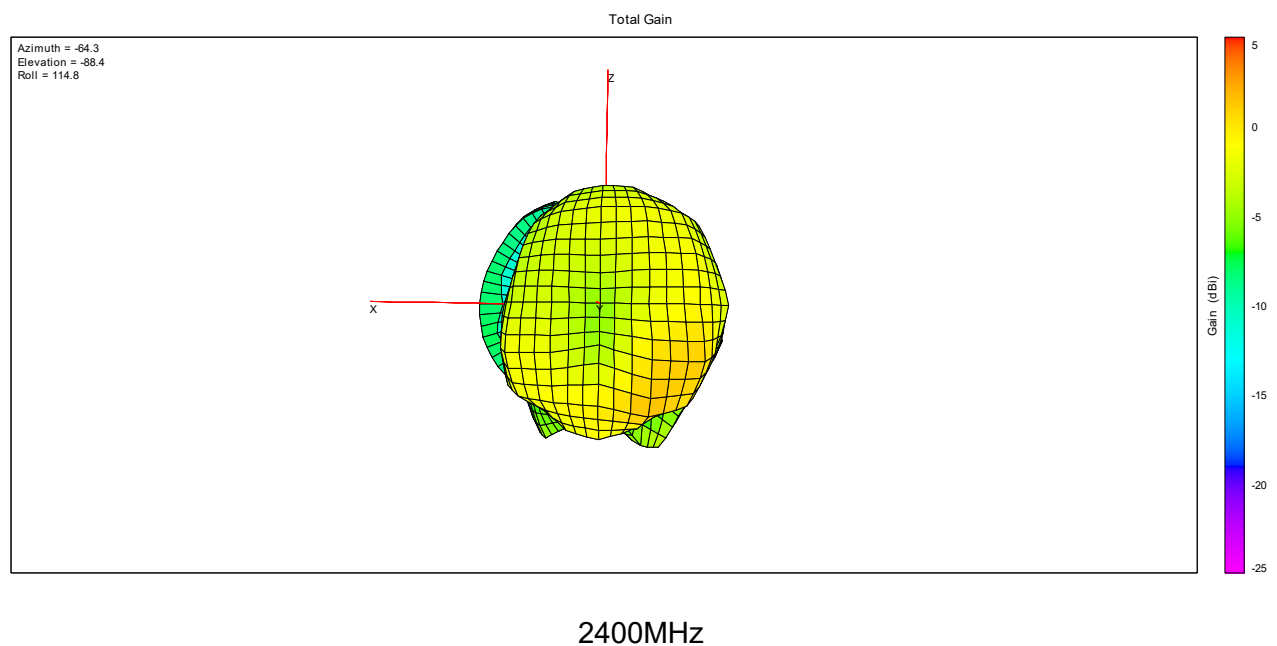
Phi=0°

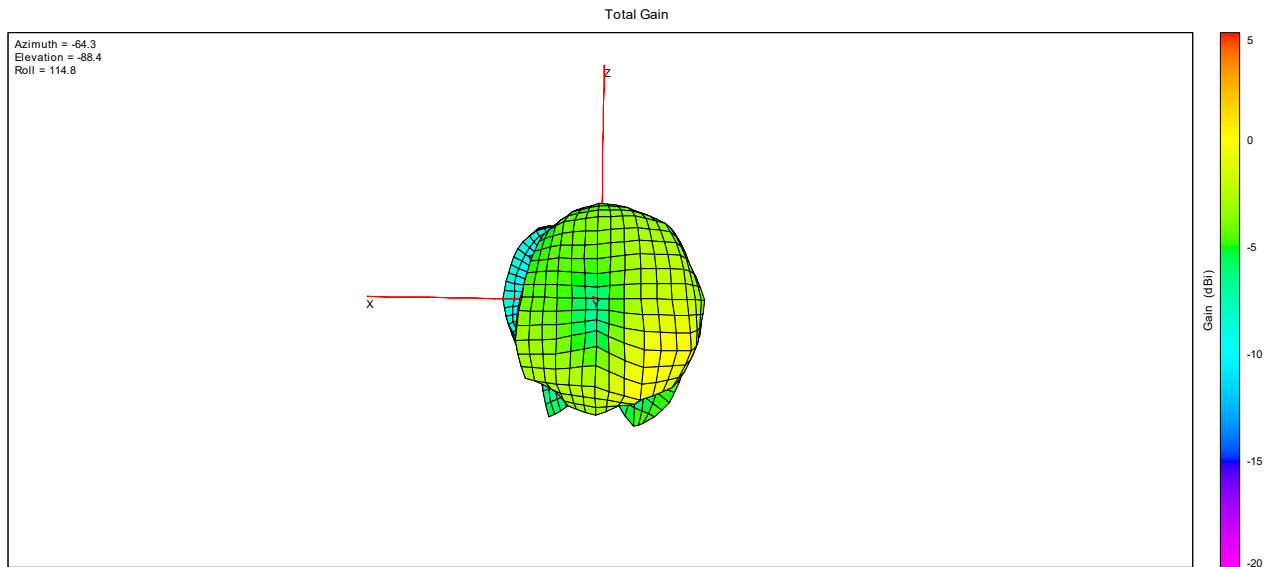


Phi=90°

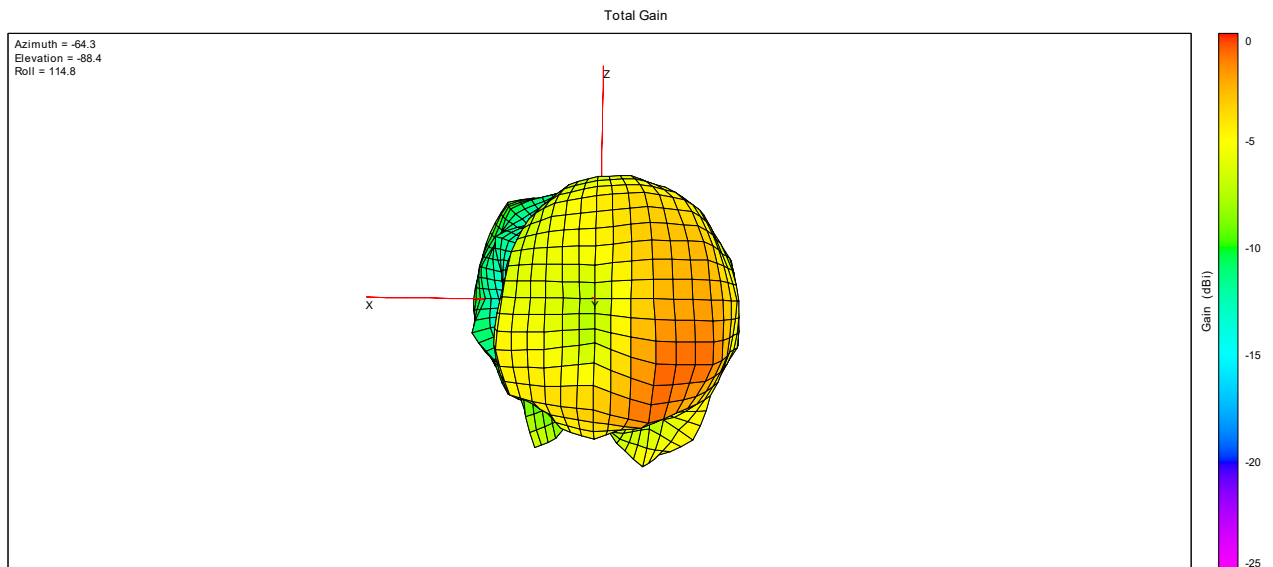


## 2. 3D Radiation Pattern





2450MHz



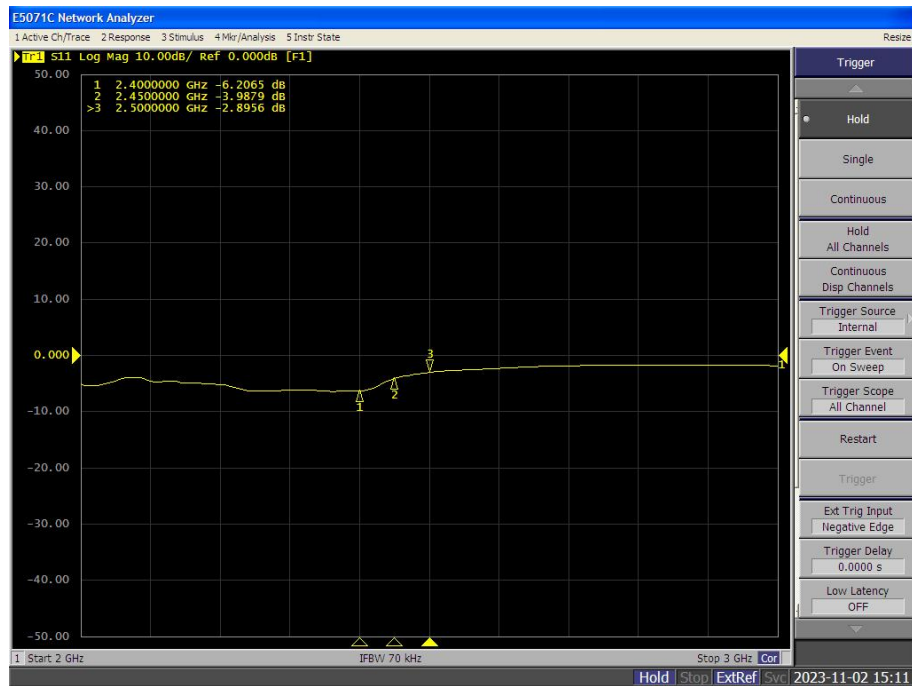
2500MHz



### 3. VSWR



### 4. Return Loss





## Annex C 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. | Equipement Name            | Serial No.   | Type                               | Manufacturer | Cal.Date   | Cal.Due Date |
|-----|----------------------------|--------------|------------------------------------|--------------|------------|--------------|
| 1   | Network Analyzer           | MY46110140   | E5071C                             | Agilent      | 2023.06.21 | 2024.06.20   |
| 2   | OTA Chamber                | TJ2235-Q1793 | AMS-8923 -150                      | ETS          | 2022.11.30 | 2025.11.29   |
| 3   | Antenna Measurement System | 1685         | EMQuest EMQ-100 V 1.13 Build 21267 | ETS          | N/A        | N/A          |

**Note:**The Main report is end here and the other Annex D will be submitted separately.

————— END OF REPORT —————