



Shenzhen GUOREN Certification Technology Service Co., Ltd.

101#, Building K & Building T, The Second Industrial Zone, Jiazitang Community,  
Fenghuang Street, Guangming District, Shenzhen, China

## TEST REPORT

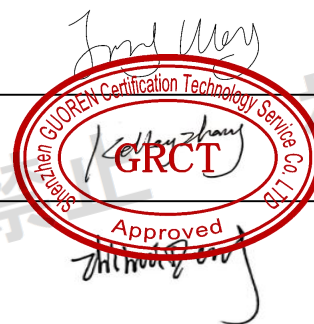
### Ordinance Article 2 paragraph 1 item (19)

Report Reference No..... : GRCTR251202012-01

Compiled by  
( position+printed name+signature)..: Testing Engineer Jimmy Wang

Supervised by  
( position+printed name+signature)..: Project Engineer Kelley Zhang

Approved by  
( position+printed name+signature)..: Manager ZhiHui Deng



Date of issue..... : Mar. 18, 2026

Testing Laboratory Name ..... : Shenzhen GUOREN Certification Technology Service Co., Ltd.

Address..... : 101#, Building K & Building T, The Second Industrial Zone, Jiazitang Community, Fenghuang Street, Guangming District, Shenzhen, China

Applicant's name..... : DONWA HOTEL MANAGEMENT CO.,LTD

Address..... : 2-14-2, EBISUNISHI, NANIWA-KU, OSAKA-SHI OSAKA, 556-0003, JAPAN

Test specification..... :

Standard..... : Ordinance Article 2 paragraph 1 item (19)

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Test item description..... : Smart lock

Trade Mark..... : /

Manufacturer..... : Shaoguan Innovate Technology Equipment Co., Ltd.

Model/Type reference..... : QRA-10S

Listed Models ..... : /

Firmware Version..... : V1.0

Hardware Version..... : V1.0

Modulation ..... : GFSK

Frequency..... : From 2402MHz-2480MHz

Ratings..... : DC 6.0V

Result..... : PASS

**TEST REPORT**

Equipment under Test : Smart lock

Model /Type : QRA-10S

Listed Models : /

**Applicant** : **DONWA HOTEL MANAGEMENT CO.,LTD**

Address : 2-14-2, EBISUNISHI, NANIWA-KU, OSAKA-SHI OSAKA, 556-0003, JAPAN

**Manufacturer** : **Shaoguan Innovate Technology Equipment Co., Ltd.**

Address : Floor 3 integration building, Section A, Industry Transfer Area, Zhenjiang Distric, Shaoguan City, Guangdong Province, China

|              |      |
|--------------|------|
| Test Result: | PASS |
|--------------|------|

The test report merely corresponds to the test sample.  
It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

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# 1 SUMMARY

## 1.1 Test Standards

The tests were performed according to following standards:

[ARIB STD-T66](#): Second-Generation Low-Power Data Communication System/Wireless LAN System  
[MIC Notice No.88 Appendix No. 43](#): 2.4 GHz band wide-band low-power data communication system

## 1.2 Test Description

| ARIB STD-T66        |                                                    |          |
|---------------------|----------------------------------------------------|----------|
| CLAUSE              | Description of Test (Transmitter Parameters)       | Result   |
| 3.2 (2)             | Antenna Power                                      | Complies |
| 3.2 (3)             | Tolerances for Antenna Power                       | Complies |
| 3.2 (4)             | Frequency Tolerance                                | Complies |
| 3.2 (5)             | Transmission Rate                                  | Complies |
| 3.2 (7)             | Occupied Frequency Bandwidth                       | Complies |
| 3.2 (8)             | Spread Bandwidth                                   | Complies |
| 3.2 (11)            | Dwell Time                                         | N/A      |
| 3.2 (6)             | Spurious Emissions                                 | Complies |
| 3.6                 | Transmission Antenna Gain (EIRP Antenna Power)     | N/A      |
| 3.6                 | Transmission Radiated Angle Width (3dB Beam width) | N/A      |
| /                   | Interference prevention function                   | Complies |
| /                   | Carrier Sensing function                           | N/A      |
| Receiver Parameters |                                                    |          |
| 3.3 (1)             | Secondary Radiated Emissions                       | Complies |

Note: (1) N/A is an abbreviation for Not Applicable.  
 (2) N/T means this test item is not tested.

Note: 1: "N/A" denotes test is not applicable in this Test Report

2: MIC Public Notice 88:2004, annex 1 and annex 43

3: MIC Ordinance Regulating Radio Equipment Section 4.17 of Article 49.20

4: Referenced in the standard ARIB STD-T66

## 1.3 TEST ENVIRONMENT

### 1.3.1 Address of the test laboratory

**Shenzhen GUOREN Certification Technology Service Co., Ltd.**

101#, Building K & Building T, The Second Industrial Zone, Jiazitang Community, Fenghuang Street, Guangming District, Shenzhen, China

### 1.3.2 Test Facility

**FCC-Registration No.: 920798    Designation Number: CN1304**

Shenzhen GUOREN Certification Technology Service Co., Ltd. has been listed on the US Federal Communications Commission list of test facilities recognized to perform electromagnetic emissions measurements.

**A2LA-Lab Cert. No.: 6202.01**

Shenzhen GUOREN Certification Technology Service Co., Ltd. has been listed by American Association for Laboratory Accreditation to perform electromagnetic emission measurement.

**ISED#: 27264    CAB identifier: CN0115**

Shenzhen GUOREN Certification Technology Service Co., Ltd. has been listed by Innovation, Science and Economic Development Canada to perform electromagnetic emission measurement.

**CNAS-Lab Code: L15631**

Shenzhen GUOREN Certification Technology Service Co., Ltd. has been assessed and proved to be in compliance with CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories for the Competence of Testing and Calibration Laboratories.

The 3m-Semi anechoic test site fulfils CISPR 16-1-4 according to ANSI C63.10 and CISPR 16-1-4:2010.

**1.4 Measurement Uncertainty**

For the test methods, according to the present document, the measurement uncertainty figures shall be calculated in accordance with TR100028-1 [2] and shall correspond to an expansion factor (coverage factor)  $K=1.96$  or  $K=2$  (which provide confidence levels of respectively 95% and 95.5% in the case where the distributions characterizing the actual measurement uncertainties are normal).

| Parameter                           | Uncertainty               |
|-------------------------------------|---------------------------|
| Frequency error / 99%&90% bandwidth | $\pm 1.58 \times 10^{-6}$ |
| Total RF power, conducted           | $\pm 0.7\text{dB}$        |
| Spurious emissions, conducted       | $\pm 0.7\text{dB}$        |
| DC and low frequency voltages       | $\pm 0.04\%$              |
| Humidity                            | $\pm 5\%$                 |
| Temperature                         | $\pm 1^\circ\text{C}$     |

## 2 GENERAL INFORMATION

### 2.1 General Remarks

|                                |   |               |
|--------------------------------|---|---------------|
| Date of receipt of test sample | : | Dec. 12, 2025 |
| Testing commenced on           | : | Dec. 12, 2025 |
| Testing concluded on           | : | Mar. 18, 2026 |

### 2.2 Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

|         |                    |         |
|---------|--------------------|---------|
| Voltage | Normal Voltage     | DC 6.0V |
|         | High Voltage       | DC 6.6V |
|         | Low Voltage        | DC 5.4V |
| Other   | Normal Temperature | 25°C    |
|         | Relative Humidity  | 55 %    |
|         | Air Pressure       | 989 hPa |

Note: As the EUT was powered by DC 6.0V , and with the voltage stabilizing circuit used, the chip voltage received floating not exceed  $\pm 1\%$  of nominal condition when working on extreme voltage, so all test performed at nominal voltage only.

### 2.3 General Description of EUT

|                       |                          |
|-----------------------|--------------------------|
| Product Name:         | Smart lock               |
| Model/Type reference: | QRA-10S                  |
| Listed Models:        | /                        |
| Power supply:         | DC 6.0V                  |
| Bluetooth BLE         |                          |
| Supported type:       | Bluetooth for low Energy |
| Modulation:           | GFSK                     |
| Operation frequency:  | 2402MHz to 2480MHz       |
| Channel number:       | 40                       |
| Channel separation:   | 2 MHz                    |
| Rated power           | 0.45 mW                  |
| Antenna type:         | PCB antenna              |
| Antenna gain:         | 1.80 dBi                 |
| Remark:               |                          |

Note: For more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

### 2.4 Description of Test Modes

The EUT has been tested under typical operating condition. The Applicant provides communication tools software to control the EUT for staying in continuous transmitting and receiving mode for testing.

Operation Frequency List BLE:

| Channel | Frequency (MHz) |
|---------|-----------------|
| 00      | 2402            |
| 01      | 2404            |
| 02      | 2406            |
| ⋮       | ⋮               |
| 19      | 2440            |
| ⋮       | ⋮               |

|    |      |
|----|------|
| 37 | 2476 |
| 38 | 2478 |
| 39 | 2480 |

Note: Test performed at the lowest/middle/highest frequencies selected in the list above for EUT supported while working on specified mode.

## 2.5 Measurement Instruments List

| Item | Test Equipment       | Manufacturer                                         | Model No.  | Equipment No. | Cal. Institution | Calibration Date | Calibration Due Date |
|------|----------------------|------------------------------------------------------|------------|---------------|------------------|------------------|----------------------|
| 1    | Spectrum Analyzer    | Agilent                                              | N9020A     | GRCTEE002     | Lisai            | 2025/09/11       | 2026/09/10           |
| 2    | DC Power Supply      | Hong Kong longwei instrumentation Co., Ltd           | LW-3010KDS | GRCTES031     | CEMT             | 2025/10/09       | 2026/10/08           |
| 3    | Power Meter          | Agilent                                              | U2021X     | GRCTEE063     | Lisai            | 2025/09/11       | 2026/09/10           |
| 4    | RF controller switch | Tonscend                                             | JS0806-F   | GRCTES051     | Lisai            | 2025/09/11       | 2026/09/10           |
| 5    | Signal Generator     | R&S                                                  | SML03      | GRCTEE006     | Lisai            | 2025/09/11       | 2026/09/10           |
| 6    | Digital multimeter   | Shenzhen Shengli High Electronic Technology Co., Ltd | VICTOR 203 | GRCTES024     | CEMT             | 2025/09/11       | 2026/09/10           |
| 7    | Digital oscillograph | Tektronix                                            | TDS1012    | GRCTES003     | CEMT             | 2025/10/09       | 2026/10/08           |

Calibration by the calibration agencies listed in the table correspond to Article 102-18 paragraph(1) in the Radio Law".

Lisai-Guangzhou Lisai Metrology & Test Co., Ltd.

CEMT-Shenzhen Zhongdian Metrology and Testing Technology Co., Ltd.

Remark:

(a) Calibration conducted by Guangzhou Lisai Metrology & Test Co., Ltd.(hereinafter referred to as "Lisai") and Shenzhen Zhongdian Metrology and Testing Technology Co., Ltd.(hereinafter referred to as "CEMT") or a designated calibration agency under Article 102-18 paragraph(1) in JRL.

(b) Correction conducted pursuant to the provisions of Article 135 or Article 144 of the Measurement Act (Act No. 51 of 1992).

(c) Calibration conducted in countries except Japan, which shall be equivalent to the calibration conducted by the GRG and CEMT or a designated calibration agency under Article 102-18 paragraph (1).(d) Calibration, etc. conducted by using measuring instruments and other equipment listed in the right column of appended table No. 3, which shall have been given any type of calibration, etc. listed above from (a) to (c)

From JRL Article 24-2, paragraph 4, Item 2.

Notice: Calibration duration for above equipments is 1 year.

## 2.6 Table for Parameters of Test Software Setting

During testing, Channel & Power Controlling Software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.

Power Parameters:

| Test Software Version | Bluetooth MP Tool |         |         |
|-----------------------|-------------------|---------|---------|
| Frequency             | 2402MHz           | 2440MHz | 2480MHz |
| Bluetooth             | Default           | Default | Default |

## 2.7 Description of Test Modes

| Tested channel, Frequency and Modulation Information                                                                                                                     |         |                   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|-------------------|
| CH00                                                                                                                                                                     | 2402MHz | GFSK(1Mbps&2Mbps) |
| CH19                                                                                                                                                                     | 2440MHz | GFSK(1Mbps&2Mbps) |
| CH39                                                                                                                                                                     | 2480MHz | GFSK(1Mbps&2Mbps) |
| Note: According exploratory test, EUT has maximum output power for GFSK modulation, All the test modes were tested, but only the worst case was recorded in this report. |         |                   |

## 2.8 Test Voltage

### POWER SUPPLY VOLTAGE FLUCTUATION TEST

| Voltage Fluctuation Test | Normal Voltage | High Voltage +10% of Normal Voltage | Low Voltage -10% of Normal Voltage |
|--------------------------|----------------|-------------------------------------|------------------------------------|
| Input To EUT             | DC 6.0V        | DC 6.6V                             | DC 5.4V                            |
| Output To RF Module      | DC 3.3V        | DC 3.3V                             | DC 3.3V                            |
| Voltage Variation (%)    | 0              | 0                                   | 0                                  |

Note:

Voltage Variation (%)

= (Output high or Low Voltage - Output Normal Voltage)/ Output Normal Voltage\* 100

During the input supply voltage to the EUT from the external power source is varied by +/- 10%, if output voltage had been confirmed that the fluctuation of power supply to the RF circuit of EUT (excluding power source) is equal to or less than +/-1%. Exempt extremely high and low supply voltage condition test, EUT only operated in normal voltage to test all regulations.

The sample power supply was confirmed that input voltage variation at the radio unit in the radio equipment to be tested is less than +1% against a variation of +10% at the input voltage from the external power supply to the radio equipment, and the radio equipment was designed so as to be operated in a specified voltage variation limit within +10%, Radio can only tested at rated voltage.

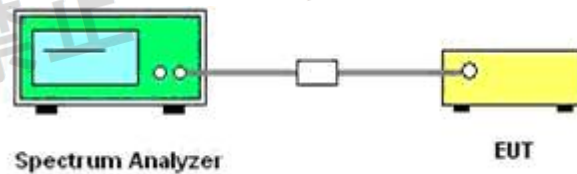
### 3 Test conditions and Results

#### 3.1 Frequency Error

##### LIMIT

Tolerance of frequency shall be  $\pm 50 \times 10^{-6}$ .

##### TEST CONFIGURATION



##### TEST PROCEDURE

The EUT was directly connected to the spectrum analyser and antenna output port as show in the block diagram as TEST CONFIGURATION shows.

EUT Condition: non-modulation

Spectrum Condition:

Frequency: test frequency

Span: 300 KHz

RBW: 10 KHz

VBW: 10 KHz

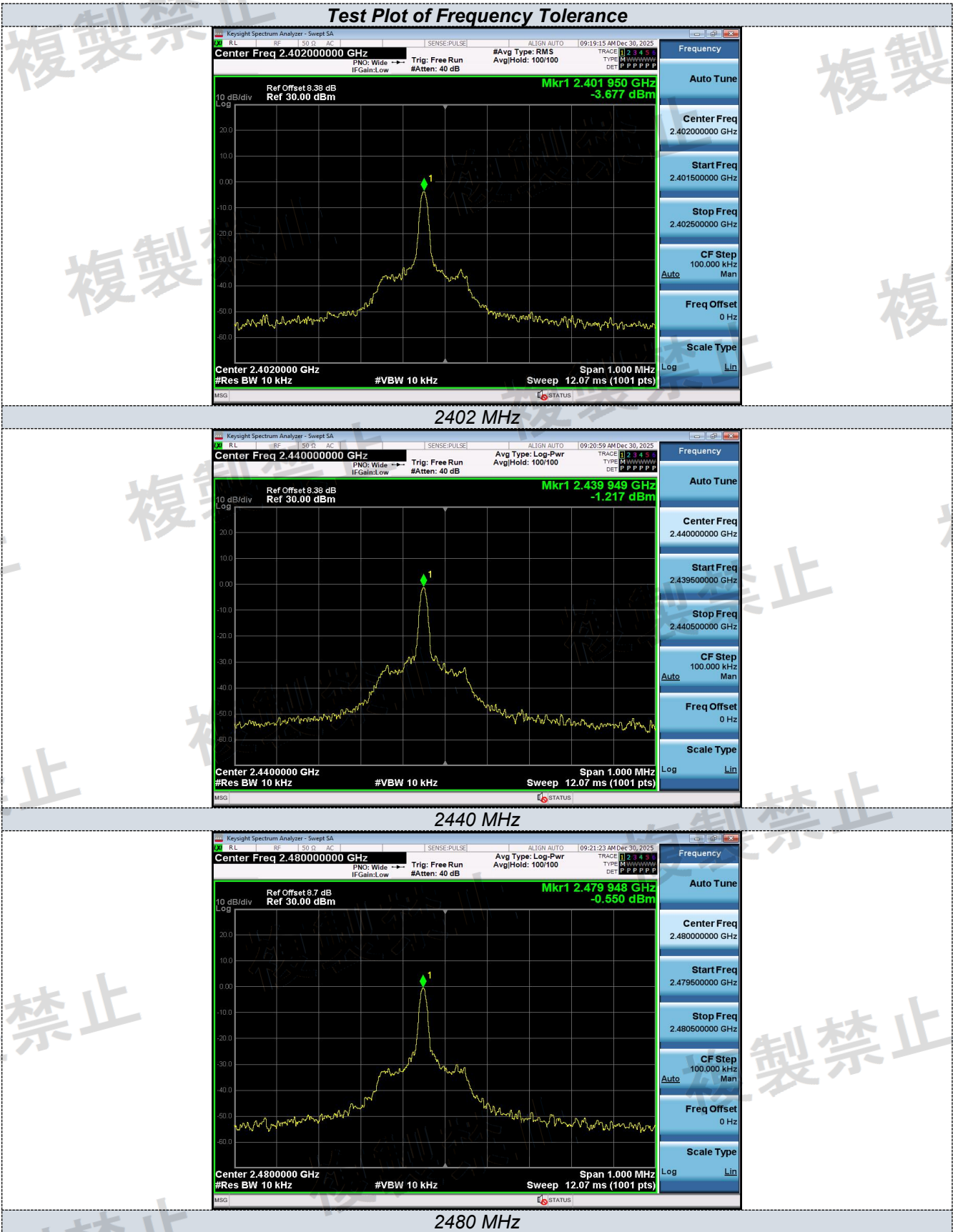
Sweep time: Auto

Detector mode: Positive peak

Indication mode: max hold

##### TEST RESULTS

| Test Condition | Frequency (MHz) | Read (MHz) | Deviation (MHz) | Tolerance (ppm) | Limit (ppm) | Result |
|----------------|-----------------|------------|-----------------|-----------------|-------------|--------|
| Non-modulation | 2402.00         | 2401.950   | -0.050          | -20.82          | ±50.00      | Pass   |
|                | 2440.00         | 2439.949   | -0.051          | -20.90          |             |        |
|                | 2480.00         | 2479.948   | -0.052          | -20.97          |             |        |



### 3.2 Antenna Output Power and Output Power Tolerance

#### LIMIT

- $\leq 3 \text{ mW /MHz}$  (FHSS from 2402-2480 MHz)
- $\leq 10 \text{ mW/MHz}$  (OFDM, DSSS from 2400-2483.5 MHz)
- $\leq 10 \text{ mW}$  (other from 2400-2483.5 MHz)

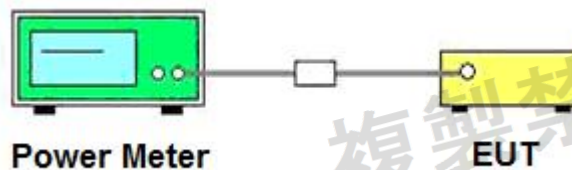
The Output Power Tolerance must be less than +20%.

E.i.r.p:

- $\leq 12.14 \text{ dBm}$  (other from 2400-2483.5 MHz)

Note: E.I.R.P will not be applied to the transmission antenna which has a gain of 2.14dBi or less.

#### TEST CONFIGURATION



#### TEST PROCEDURE

- EUT have transmitted continuous maximum power
- Antenna Power Error is definition that actual measure antenna power tolerance less than +20% power range that base on manufacturer declare the conducted power density.

#### TEST RESULTS

##### Conducted Antenna Power

| Mode       | Channel (MHz) | Average burst power (dBm) | Output power (mW) | Limit (mW) | Rated output power (mW) | Tolerance (%) | Limit | Result |
|------------|---------------|---------------------------|-------------------|------------|-------------------------|---------------|-------|--------|
| GFSK 1Mbps | 2402          | -3.28                     | 0.4699            | 10         | 0.45                    | 4.42%         | 20%   | Pass   |
|            | 2440          | -3.61                     | 0.4355            | 10         | 0.45                    | -3.22%        |       |        |
|            | 2480          | -2.73                     | 0.5333            | 10         | 0.45                    | 18.51%        |       |        |
| GFSK 2Mbps | 2402          | -4.09                     | 0.3899            | 10         | 0.45                    | -13.36%       | 20%   | Pass   |
|            | 2440          | -4.50                     | 0.3548            | 10         | 0.45                    | -21.16%       |       |        |
|            | 2480          | -3.58                     | 0.4385            | 10         | 0.45                    | -2.56%        |       |        |

Note:

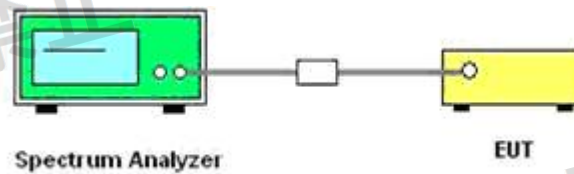
- 1). Test Result: Pass.

### 3.3 Occupied Bandwidth and Spreading Bandwidth

#### LIMIT

- Occupied bandwidth: FH  $\leq$  83.5 MHz; OFDM  $\leq$  40 MHz; DS  $\leq$  26 MHz; Others  $\leq$  26 MHz
- Spread Bandwidth:  $\geq$  500 kHz (FH, DS)
- Spread factor  $>5$ .

#### TEST CONFIGURATION



#### TEST PROCEDURE

Setting of SA is following as follow:

RBW: 300 kHz

VBW: 300 kHz

Sweep time: Auto

Sweep Mode: Continuous sweep

Detect mode: Positive peak

Trace mode: Max hold

EUT have transmitted the maximum modulation signal and fixed channelize. SA set to 99% of occupied bandwidth to measure occupied bandwidth.

EUT have transmitted the maximum modulation signal and fixed channelize. SA set to 90% of occupied bandwidth to measure spread bandwidth.

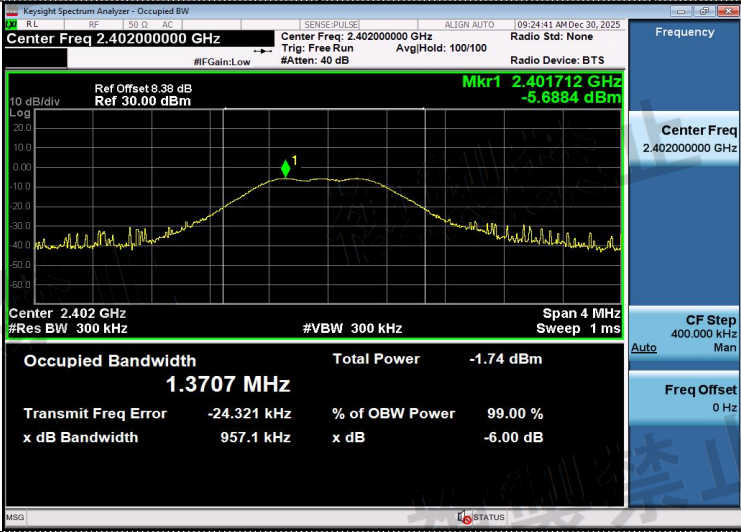
Spread Factor=Spread Bandwidth/modulation rate.

#### TEST RESULTS

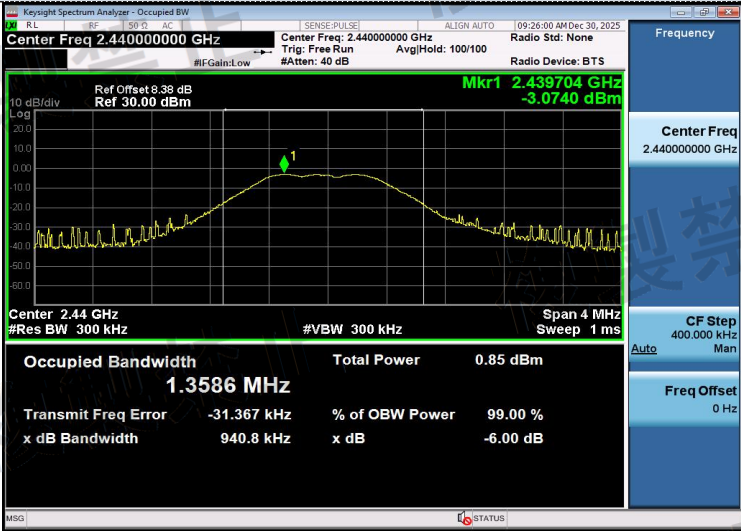
##### **99% Occupied Bandwidth**

| Type       | Channel (MHz) | Occupied Bandwidth (MHz) | Limit (MHz) | Result |
|------------|---------------|--------------------------|-------------|--------|
| GFSK 1Mbps | 2402          | 1.371                    | <26         | Pass   |
|            | 2440          | 1.359                    |             |        |
|            | 2480          | 1.390                    |             |        |
| GFSK 2Mbps | 2402          | 2.240                    | <26         | Pass   |
|            | 2440          | 2.240                    |             |        |
|            | 2480          | 2.206                    |             |        |

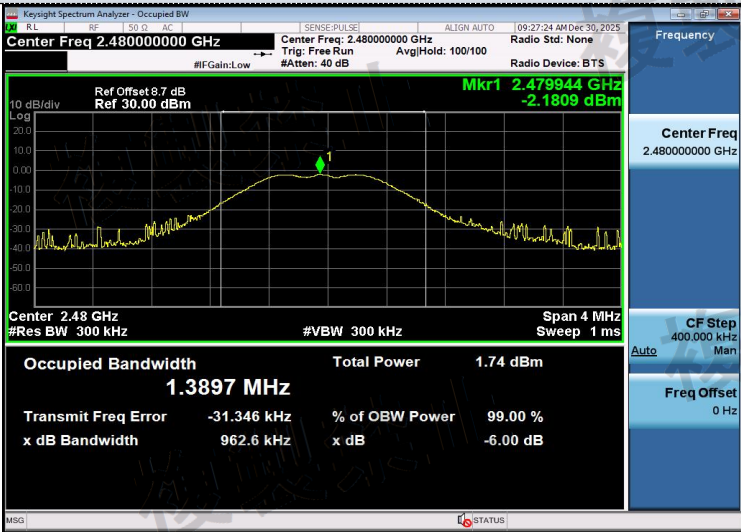
Test Plot of 99% Occupied Bandwidth (GFSK 1Mbps)



2402 MHz

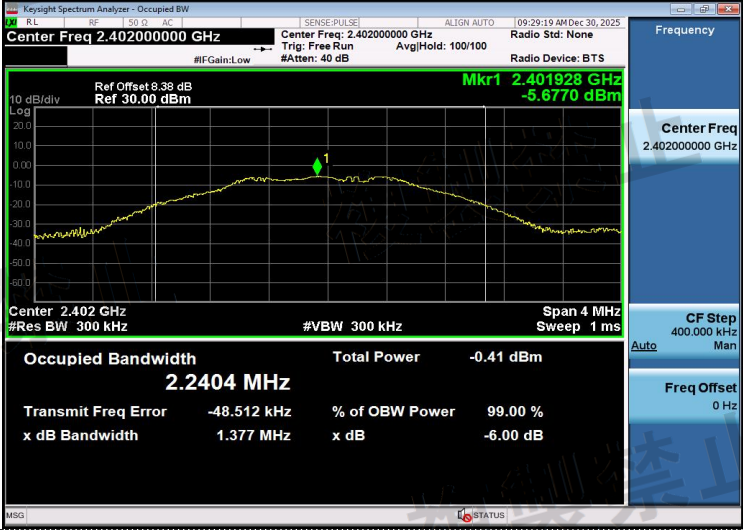


2440 MHz



2480 MHz

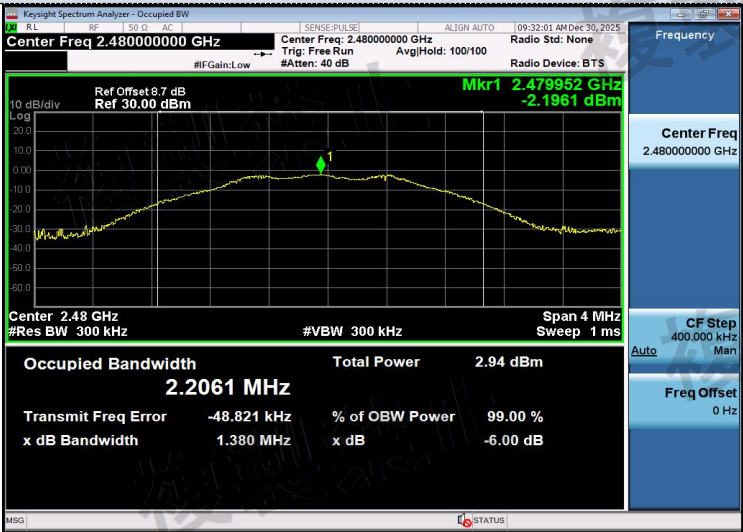
Test Plot of 99% Occupied Bandwidth (GFSK 2Mbps)



2402 MHz



2440 MHz



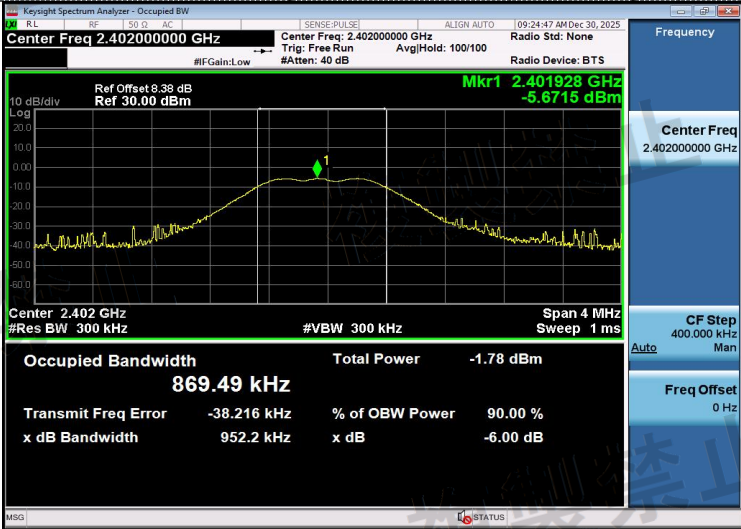
2480 MHz

**90% Spread Bandwidth**

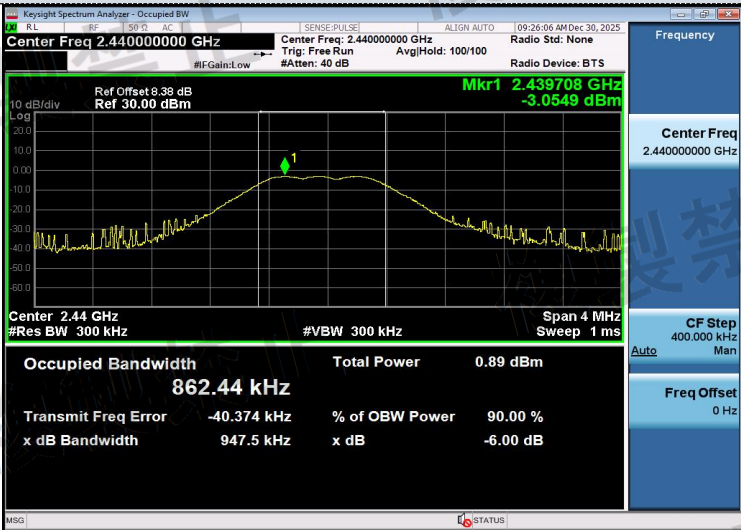
| Type       | Channel (MHz) | Spread Bandwidth (MHz) | Spread Factor | Spread Bandwidth Limit (MHz) | Spread Factor Limit | Result |
|------------|---------------|------------------------|---------------|------------------------------|---------------------|--------|
| GFSK 1Mbps | 2402          | 0.869                  | N/A           | $\geq 0.5$                   | N/A                 | Pass   |
|            | 2440          | 0.862                  |               |                              |                     |        |
|            | 2480          | 0.877                  |               |                              |                     |        |
| GFSK 2Mbps | 2402          | 1.374                  | N/A           | $\geq 0.5$                   | N/A                 | Pass   |
|            | 2440          | 1.376                  |               |                              |                     |        |
|            | 2480          | 1.371                  |               |                              |                     |        |

Note: N/A means not applicable to this modulation type.

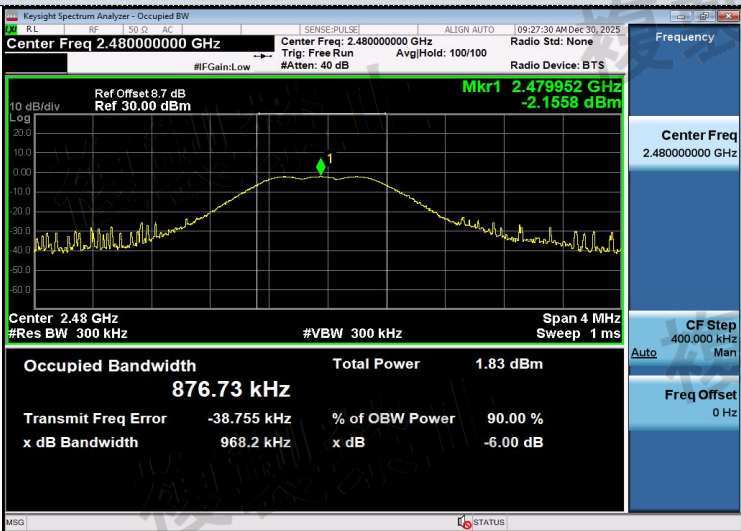
Test Plot of 90% Spread Bandwidth(GFSK 1Mbps)



2402 MHz

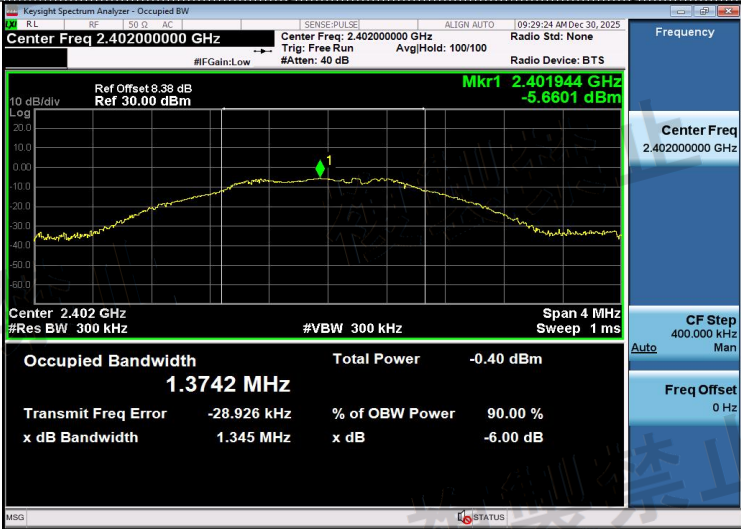


2440 MHz

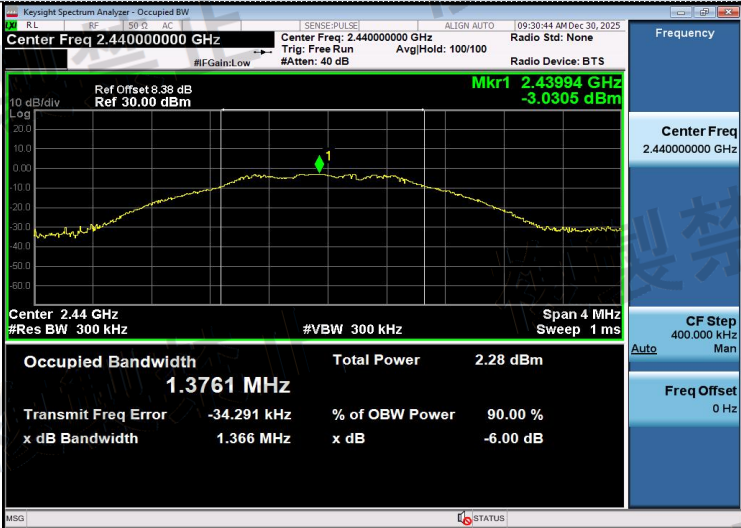


2480 MHz

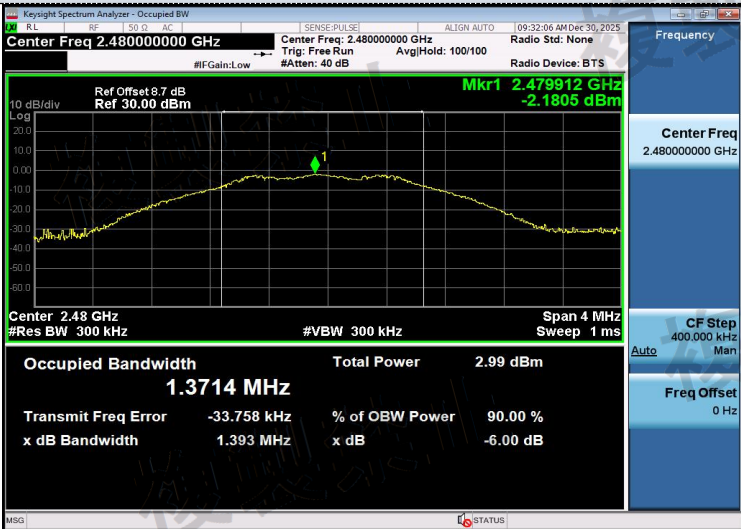
Test Plot of 90% Spread Bandwidth(GFSK 2Mbps)



2402 MHz



2440 MHz



2480 MHz

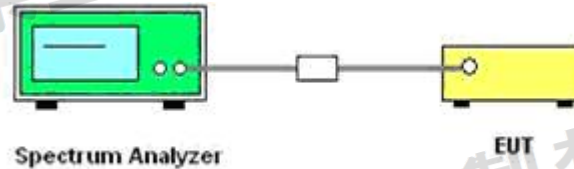
### 3.4 Unwanted Emission Strength

#### LIMIT

Permissible mean power of spurious emission of each frequency supplied to a feeder, that is, mean power of spurious emission in the 1 MHz bandwidth at frequency  $f$  other than frequency band used shall be as follows:

- a.  $2,387\text{MHz} \leq f \leq 2,400\text{MHz}$  and  $2,483.5\text{MHz} < f \leq 2,496.5\text{MHz}$      $25 \mu\text{W}$  or less  
 b.  $2,387\text{MHz} > f$  and  $2,496.5\text{MHz} < f$      $2.5 \mu\text{W}$  or less

#### TEST CONFIGURATION



#### TEST PROCEDURE

The EUT was directly connected to the spectrum analyser and antenna output port as show in the block diagram as TEST CONFIGURATION shows.

EUT Condition: modulation

Spectrum Condition:

Frequency: 30MHz-13.0GHz

RBW: 1MHz (30MHz-13.0GHz)

VBW: 1MHz (30MHz-13.0GHz)

Sweep time: Auto

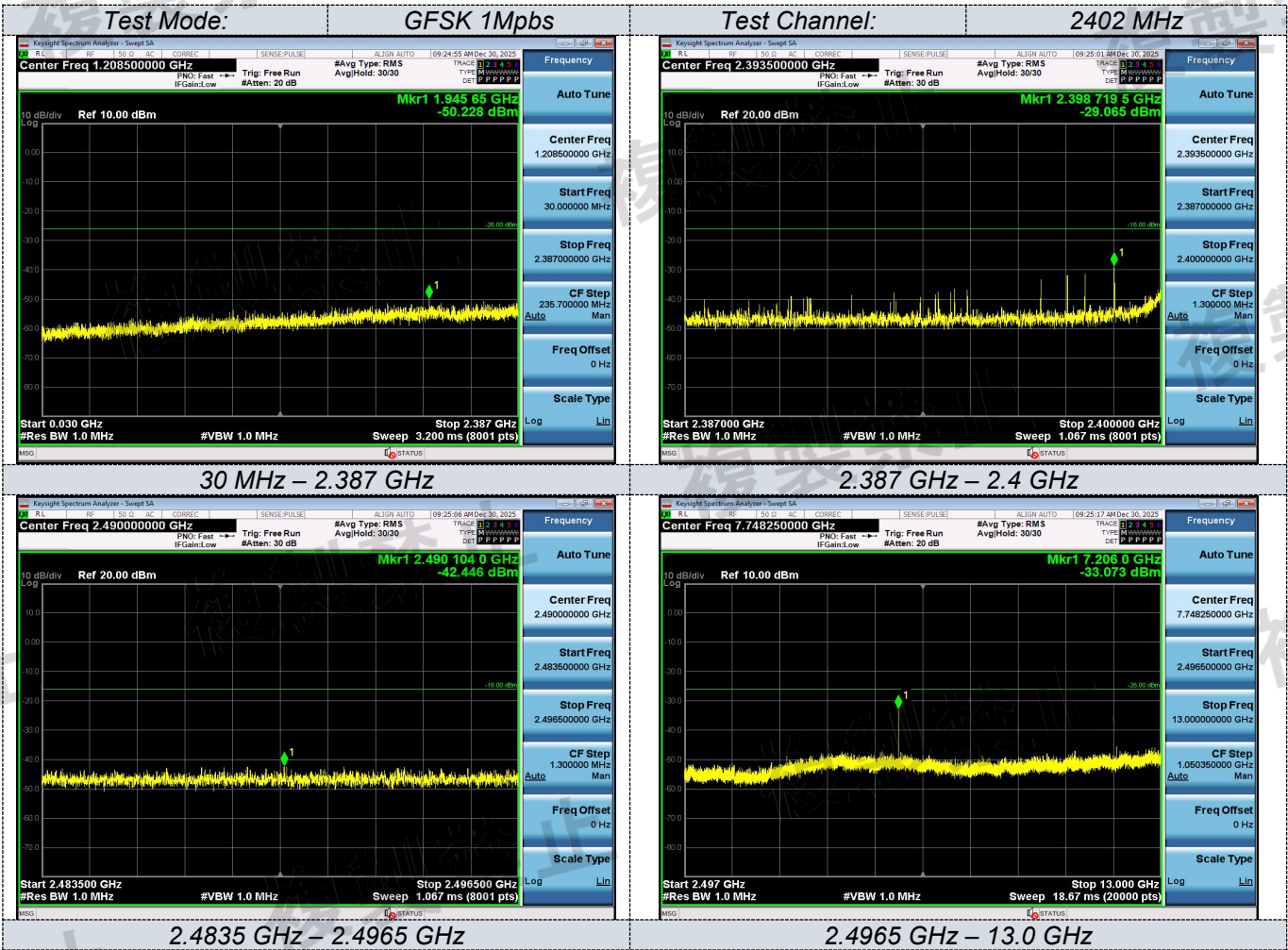
Detector mode: Positive peak

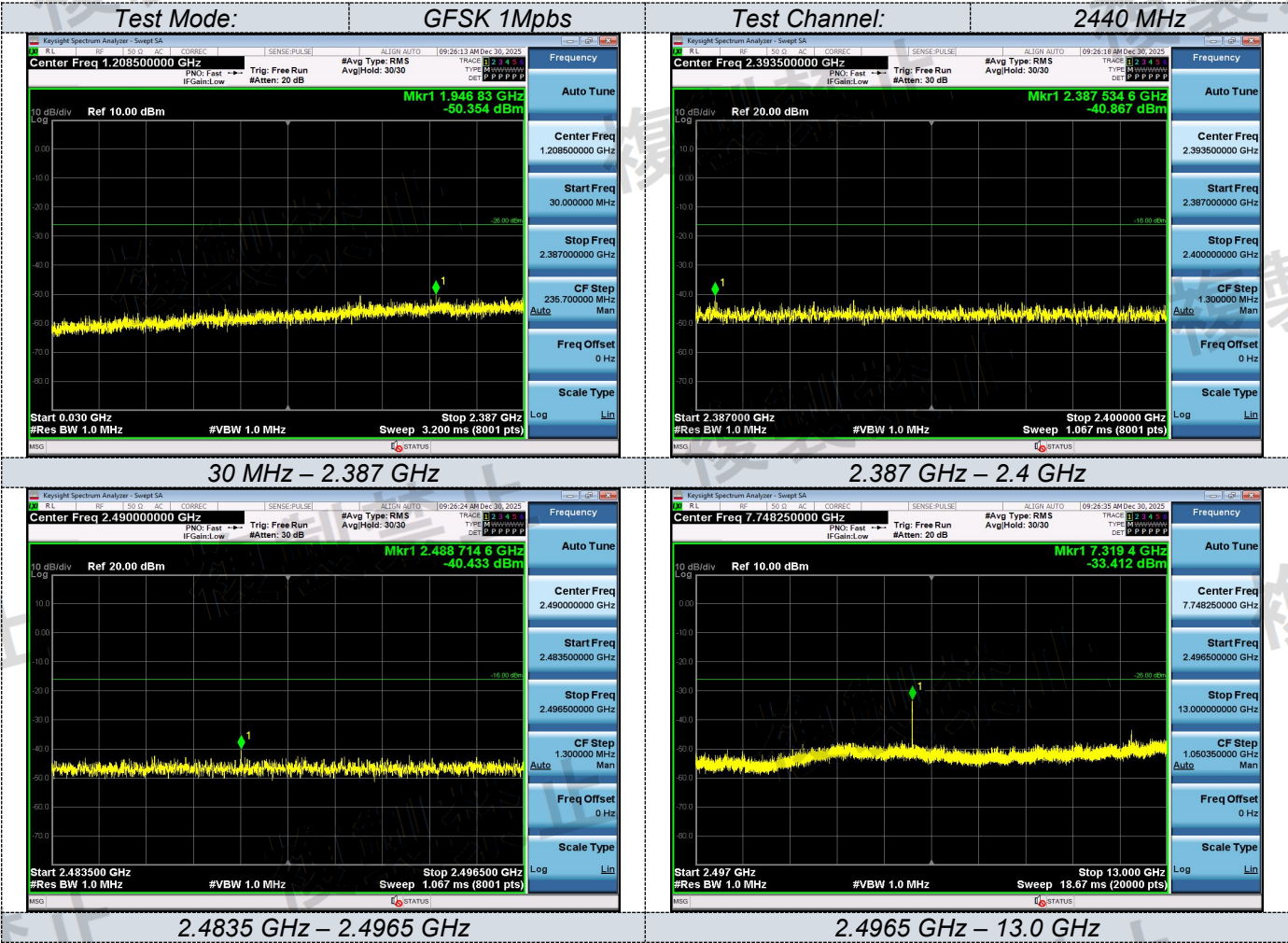
Indication mode: max hold

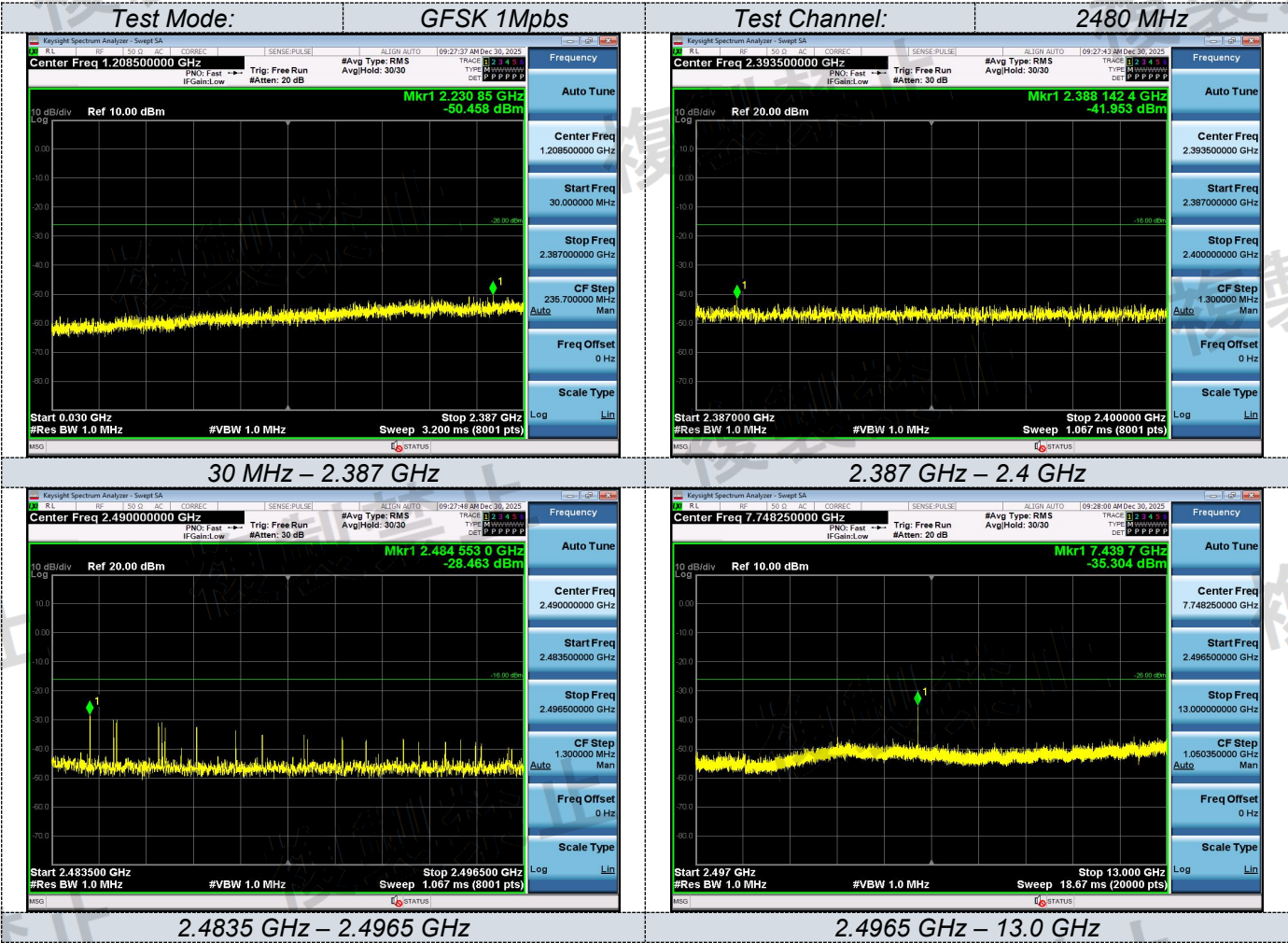
#### TEST RESULTS

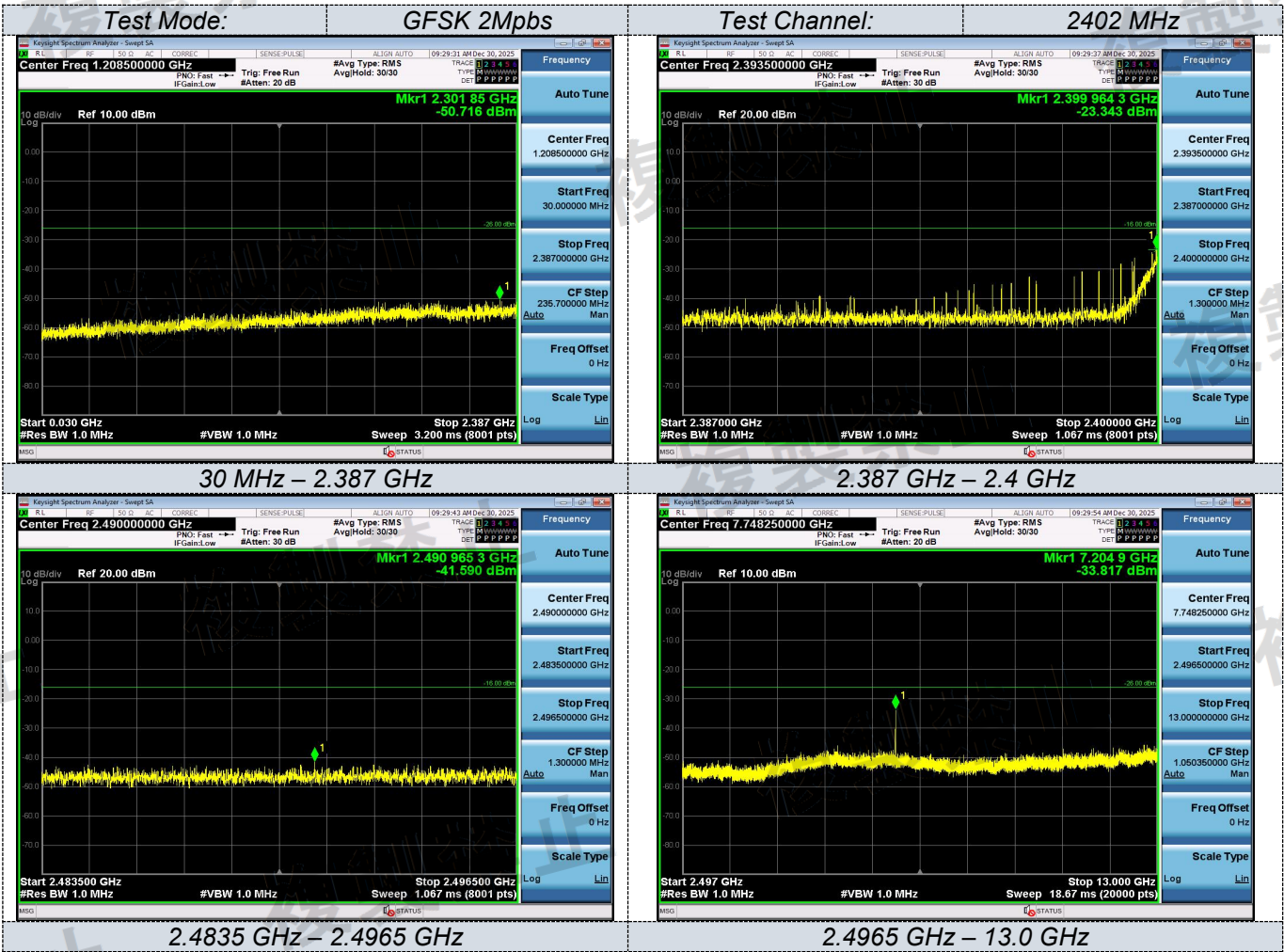
Note:SA set to from 2.4965GHz to 13.0GHz, plot shows from 2.497GHz to 13.0GHz as of SA's default format.

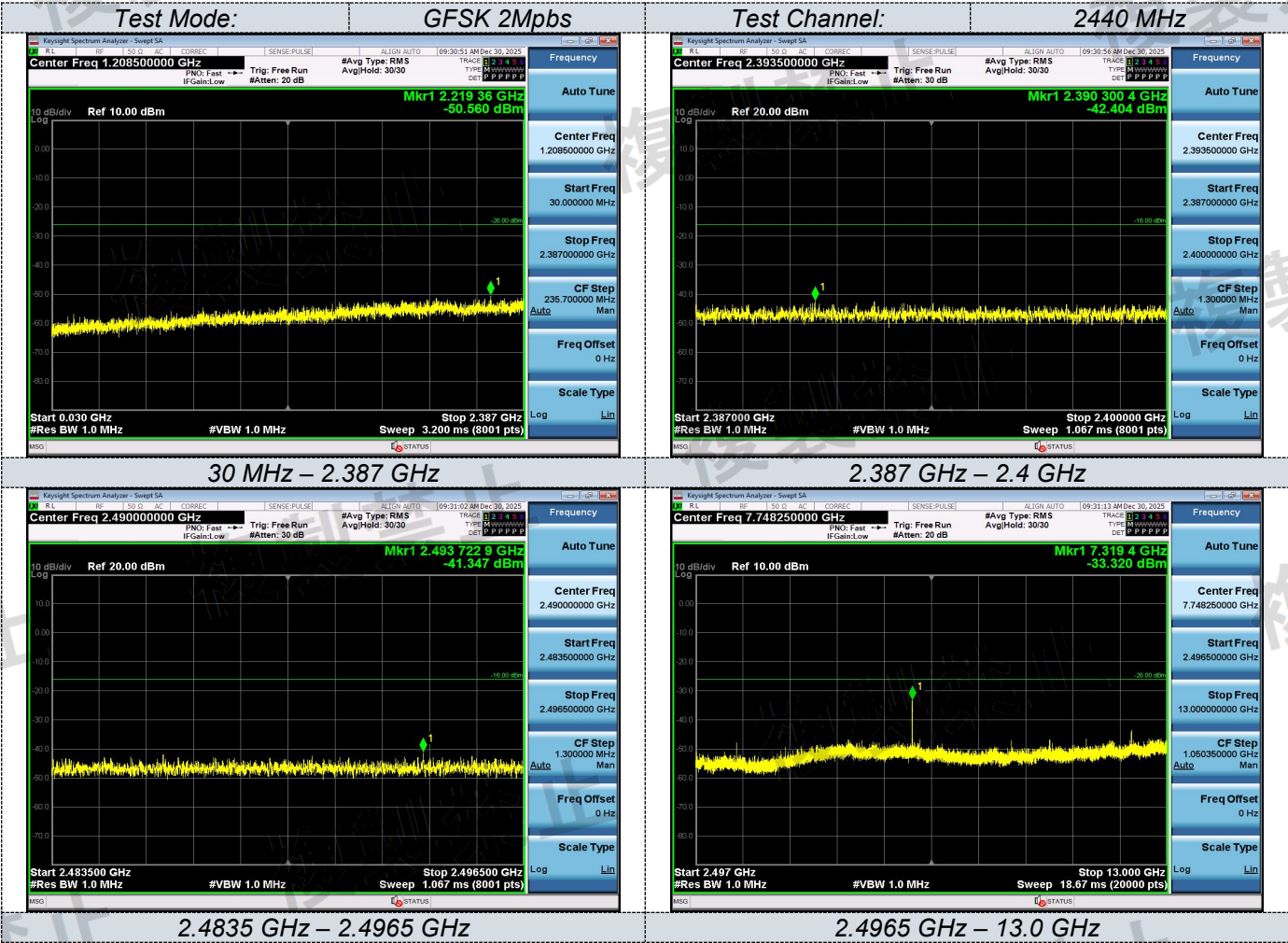
| Test Mode  | Freq(MHz) | Freq.Range [MHz] | MAX Freq. [MHz] | Result [dBm] | Limit [dBm] | Verdict |
|------------|-----------|------------------|-----------------|--------------|-------------|---------|
| GFSK 1Mbps | 2402      | 30~2387          | 1945.65         | -50.23       | $\leq -26$  | PASS    |
| GFSK 1Mbps | 2402      | 2387~2400        | 2398.72         | -29.07       | $\leq -16$  | PASS    |
| GFSK 1Mbps | 2402      | 2483.5~2496.5    | 2490.10         | -42.45       | $\leq -16$  | PASS    |
| GFSK 1Mbps | 2402      | 2496.5~13000     | 7205.98         | -33.07       | $\leq -26$  | PASS    |
| GFSK 1Mbps | 2440      | 30~2387          | 1946.83         | -50.35       | $\leq -26$  | PASS    |
| GFSK 1Mbps | 2440      | 2387~2400        | 2387.53         | -40.87       | $\leq -16$  | PASS    |
| GFSK 1Mbps | 2440      | 2483.5~2496.5    | 2488.71         | -40.43       | $\leq -16$  | PASS    |
| GFSK 1Mbps | 2440      | 2496.5~13000     | 7319.42         | -33.41       | $\leq -26$  | PASS    |
| GFSK 1Mbps | 2480      | 30~2387          | 2230.85         | -50.46       | $\leq -26$  | PASS    |
| GFSK 1Mbps | 2480      | 2387~2400        | 2388.14         | -41.95       | $\leq -16$  | PASS    |
| GFSK 1Mbps | 2480      | 2483.5~2496.5    | 2484.55         | -28.46       | $\leq -16$  | PASS    |
| GFSK 1Mbps | 2480      | 2496.5~13000     | 7439.69         | -35.30       | $\leq -26$  | PASS    |
| GFSK 2Mbps | 2402      | 30~2387          | 2301.85         | -50.72       | $\leq -26$  | PASS    |
| GFSK 2Mbps | 2402      | 2387~2400        | 2399.96         | -23.34       | $\leq -16$  | PASS    |
| GFSK 2Mbps | 2402      | 2483.5~2496.5    | 2490.97         | -41.59       | $\leq -16$  | PASS    |
| GFSK 2Mbps | 2402      | 2496.5~13000     | 7204.93         | -33.82       | $\leq -26$  | PASS    |
| GFSK 2Mbps | 2440      | 30~2387          | 2219.36         | -50.56       | $\leq -26$  | PASS    |
| GFSK 2Mbps | 2440      | 2387~2400        | 2390.30         | -42.40       | $\leq -16$  | PASS    |
| GFSK 2Mbps | 2440      | 2483.5~2496.5    | 2493.72         | -41.35       | $\leq -16$  | PASS    |
| GFSK 2Mbps | 2440      | 2496.5~13000     | 7319.42         | -33.32       | $\leq -26$  | PASS    |
| GFSK 2Mbps | 2480      | 30~2387          | 1920.02         | -51.35       | $\leq -26$  | PASS    |
| GFSK 2Mbps | 2480      | 2387~2400        | 2396.45         | -43.02       | $\leq -16$  | PASS    |
| GFSK 2Mbps | 2480      | 2483.5~2496.5    | 2484.52         | -28.35       | $\leq -16$  | PASS    |
| GFSK 2Mbps | 2480      | 2496.5~13000     | 7441.80         | -35.95       | $\leq -26$  | PASS    |

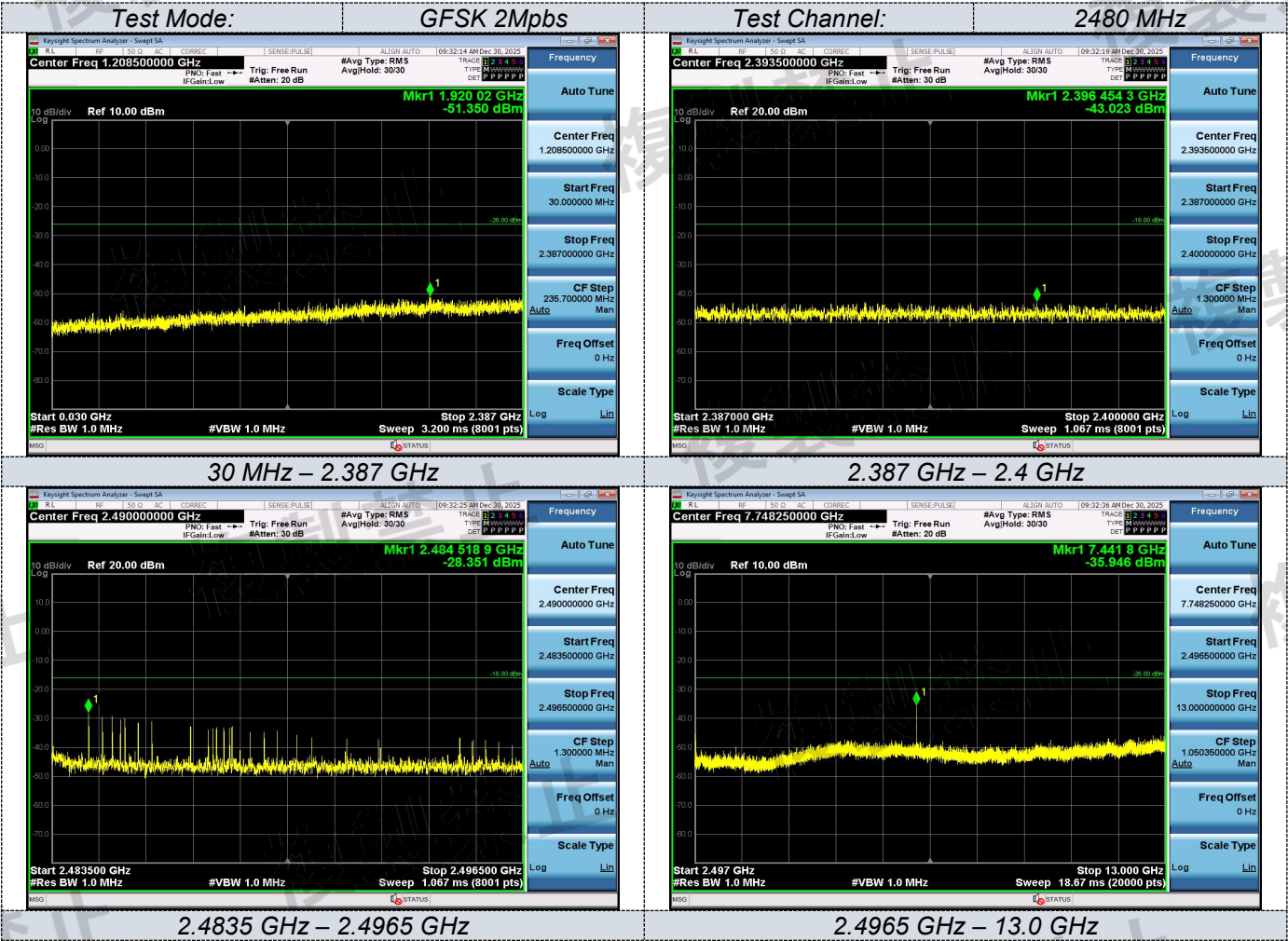










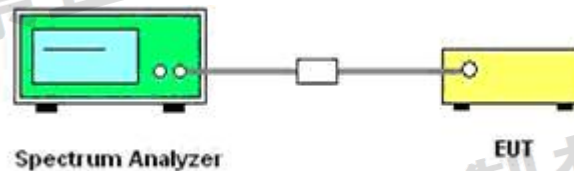


### 3.5 Secondary Radiated Emission Strength

#### LIMIT

The limit on secondary emissions radiated from the receiving equipment within which the function of other radio equipment will not be impaired shall be, in terms of the power of a dummy antenna circuit that has the same electrical constant as the receiving antenna, 4nW or less at a frequency below 1 GHz and 20 nW or less at a frequency of 1 GHz or higher as measured using the circuit.

#### TEST CONFIGURATION



#### TEST PROCEDURE

The EUT was directly connected to the spectrum analyser and antenna output port as show in the block diagram as TEST CONFIGURATION shows.

EUT Condition: modulation

Spectrum Condition:

Frequency: 30MHz-13.0GHz

RBW: 100 KHz (30MHz-1GHz), 1MHz (1GHz-13.0GHz)

VBW: 100 KHz (30MHz-1GHz), 1MHz (1GHz-13.0GHz)

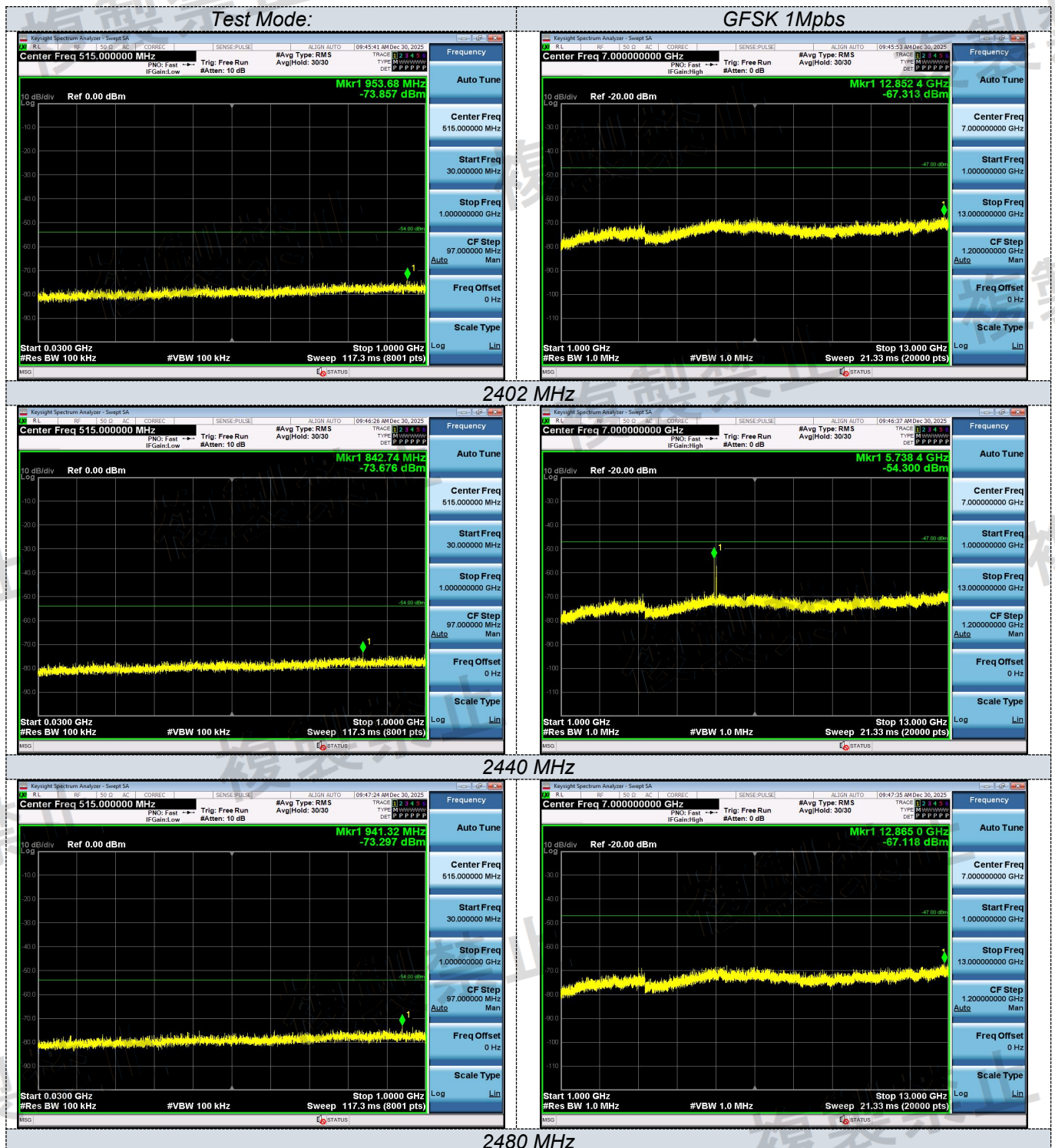
Sweep time: Auto

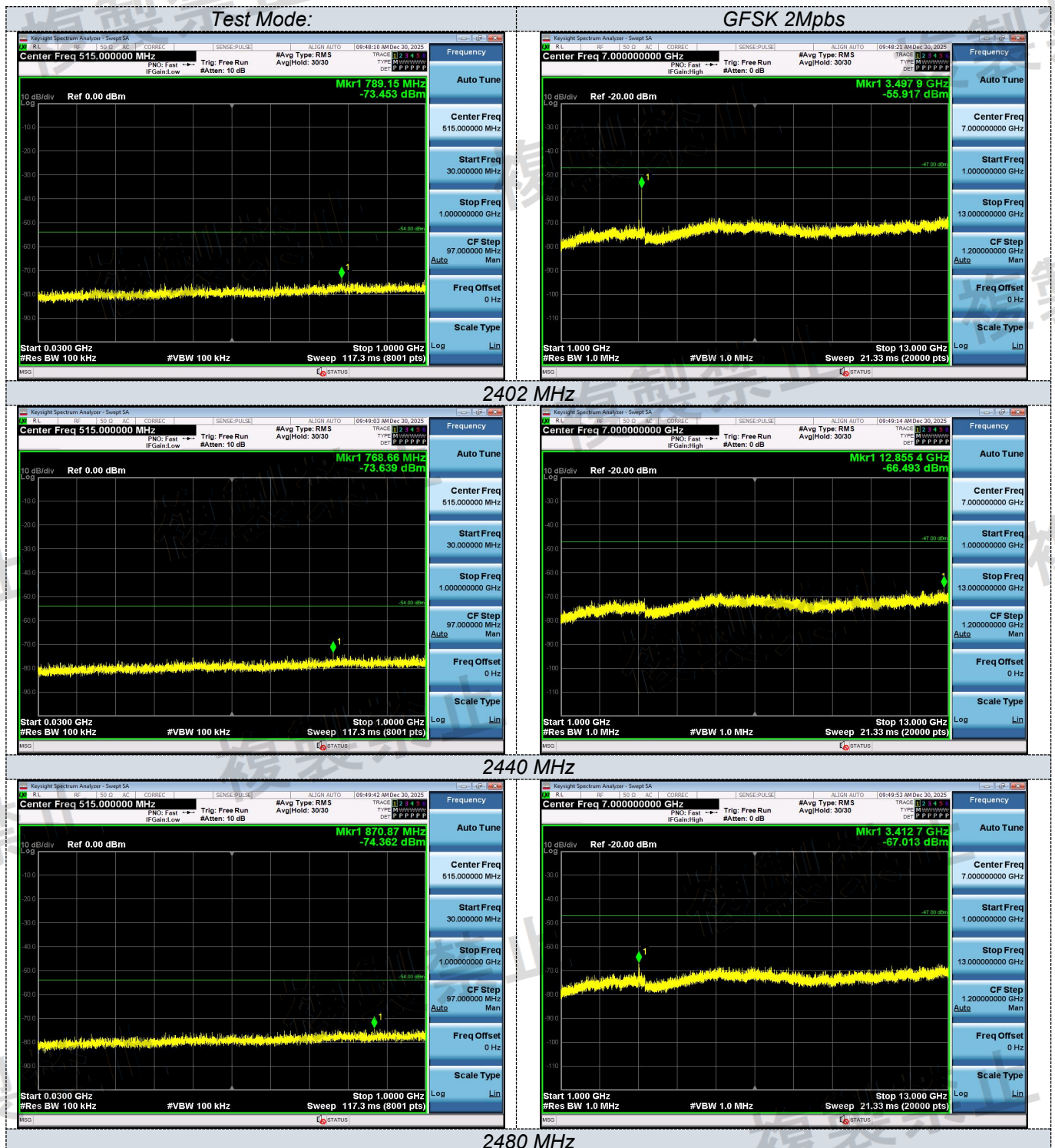
Detector mode: Positive peak

Indication mode: max hold

#### TEST RESULTS

| TestMode   | Freq(MHz) | Freq.Range [MHz] | MAX Freq. [MHz] | Result [dBm] | Limit [dBm] | Verdict |
|------------|-----------|------------------|-----------------|--------------|-------------|---------|
| GFSK 1Mbps | 2402      | 30~1000          | 953.68          | -73.86       | ≤-54        | PASS    |
| GFSK 1Mbps | 2402      | 1000~13000       | 12852.39        | -67.31       | ≤-47        | PASS    |
| GFSK 1Mbps | 2440      | 30~1000          | 842.74          | -73.68       | ≤-54        | PASS    |
| GFSK 1Mbps | 2440      | 1000~13000       | 5738.44         | -54.30       | ≤-47        | PASS    |
| GFSK 1Mbps | 2480      | 30~1000          | 941.32          | -73.30       | ≤-54        | PASS    |
| GFSK 1Mbps | 2480      | 1000~13000       | 12864.99        | -67.12       | ≤-47        | PASS    |
| GFSK 2Mbps | 2402      | 30~1000          | 789.15          | -73.45       | ≤-54        | PASS    |
| GFSK 2Mbps | 2402      | 1000~13000       | 3497.92         | -55.92       | ≤-47        | PASS    |
| GFSK 2Mbps | 2440      | 30~1000          | 768.66          | -73.64       | ≤-54        | PASS    |
| GFSK 2Mbps | 2440      | 1000~13000       | 12855.39        | -66.49       | ≤-47        | PASS    |
| GFSK 2Mbps | 2480      | 30~1000          | 870.87          | -74.36       | ≤-54        | PASS    |
| GFSK 2Mbps | 2480      | 1000~13000       | 3412.72         | -67.01       | ≤-47        | PASS    |





### 3.6 Construction Protection Method

#### REQUIREMENT

The high-frequency section and modulation section of the radio equipment except for the antenna system shall not be capable of being opened easily.

#### CONFIRMATION METHOD

RF chip is welded directly to PCB board. So the end user can not to modify or change the RF Parts easily.

### 3.7 Interference Prevention Function

#### REQUIREMENT

Clarify the one automatically to transmit and to receive identification code with the wireless equipment of the wireless station used in the same premises.

| Item                | Limits         |
|---------------------|----------------|
| Identification code | $\geq 48$ bits |

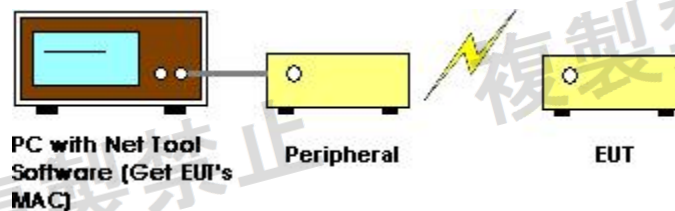
#### CONFIRMATION METHOD

A communication link was made where the ID code is correct (Identical).

#### TEST PROCEDURE

1. In the case that the EUT has the function of automatically transmitting the identification code: a. Transmit the predetermined identification codes from EUT. b. Check the transmitted identification codes with the demodulator.
2. In the case of receiving the identification code: a. Transmit the predetermined identification codes from the counterpart. b. Check if communication is normal. c. Transmit the other signals than predetermined ID codes from the counterpart. d. check if the EUT stops the transmission, or if it displays that identification codes are different from the predetermined ones.

#### TEST CONFIGURATION



#### TEST RESULTS

PASS

MAC: 3A-6B-26-07-C4-EF

### 3.8 Carrier Sensing Function

#### LIMIT

| Item          | Limits                                                                                                                                        |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| Carrier Sense | Good – EUT stop RF transmission signal after carrier inject to EUT.<br>(On $22.79 + Gr - 20 \cdot \log(f)$ [dBm] (Gr: dB; f: MHz) or 100mV/m) |

#### INSTRUMENTS SETTING

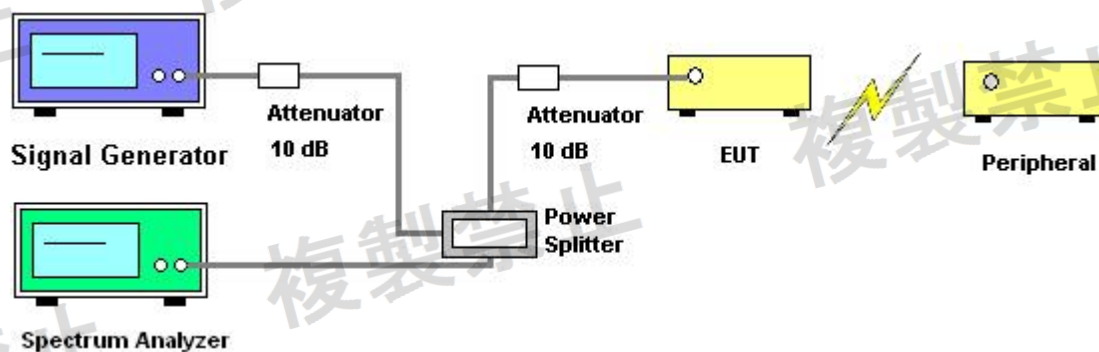
The following table is the setting of spectrum analyser and receiver.

| Spectrum Parameter | Setting    |
|--------------------|------------|
| Attenuation        | Auto       |
| RB / VB            | 1 MHz      |
| Span               | 0 MHz      |
| Sweep              | Continuous |
| Detector           | Peak       |
| Trigger mode       | Video      |

#### TEST PROCEDURE

1. SSG adjusted the frequency as same as the EUT transmitted signal and emitted the absence of modulation from SSG and power level is (On  $22.79 + Gr - 20 \cdot \log(f)$  [dBm] (Gr: dB; f: MHz). Then turn off the RF signal of SSG.
2. EUT have transmitted the maximum modulation signal and fixed channelize.
3. Setting of SA is following as: RB: 1MHz / VB: 1MHz / SPAN: 50MHz / AT: 10dB / Ref: 0dBm / Sweep time: Auto / Sweep Mode: Continuous sweep / Detect mode: Positive peak.
4. SSG RF Signal On.
5. EUT shall be stop the transmitted any signal and SSG RF Signal Off. Then EUT will be continuous transmitted signal.

#### TEST CONFIGURATION

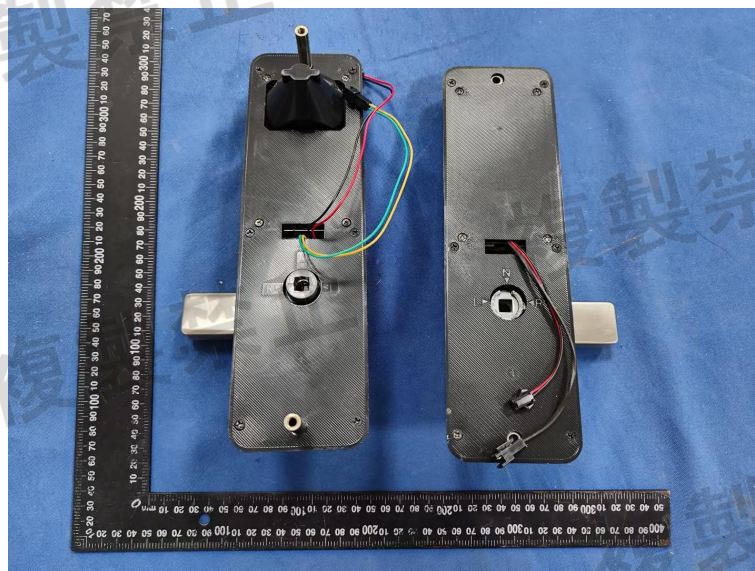


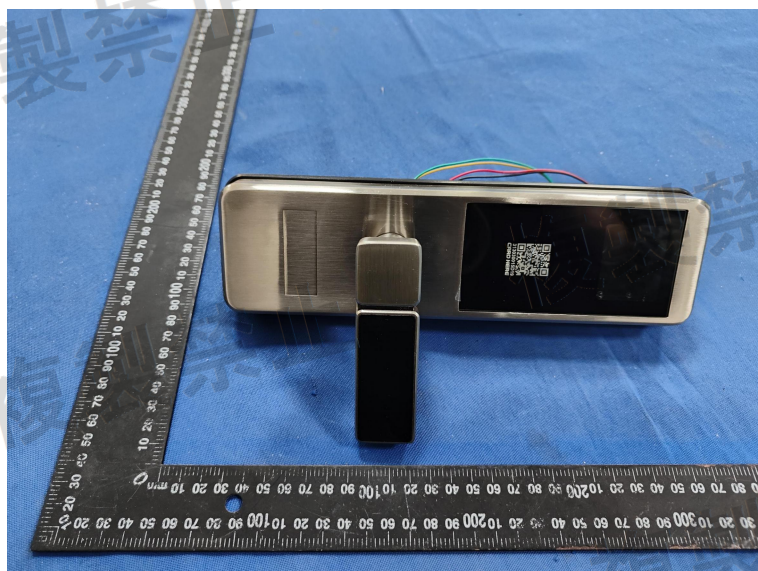
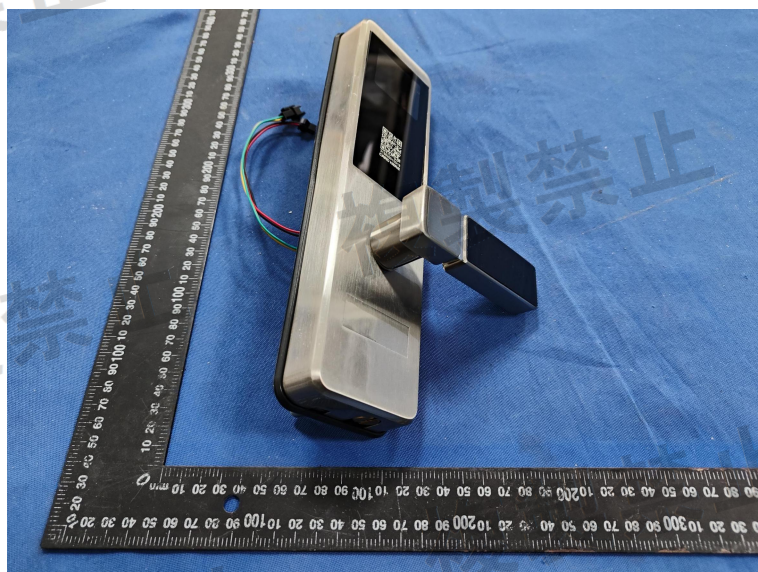
#### TEST RESULTS

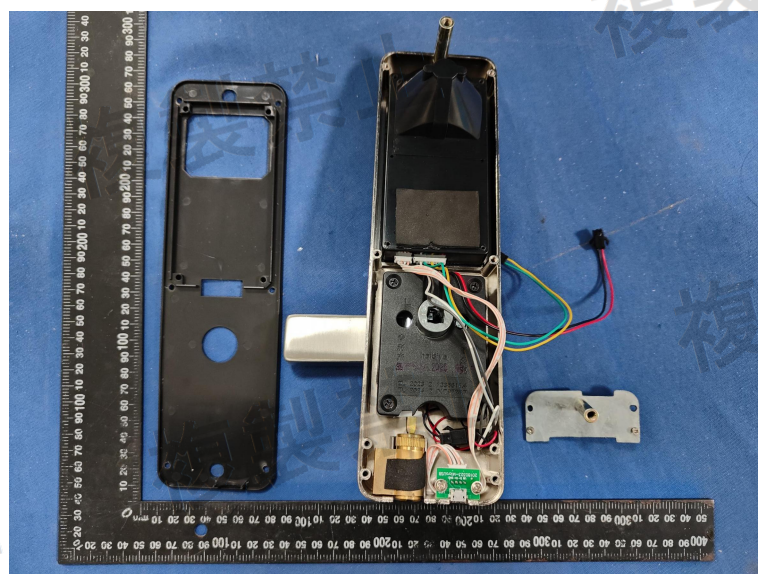
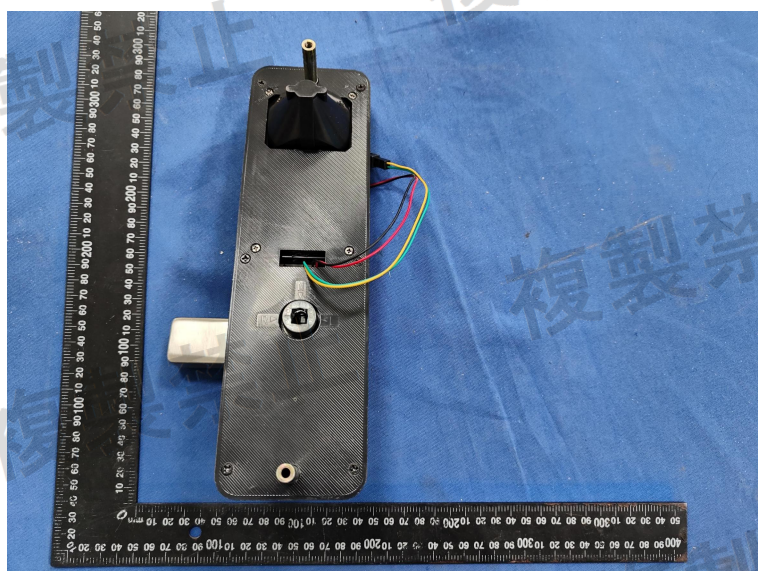
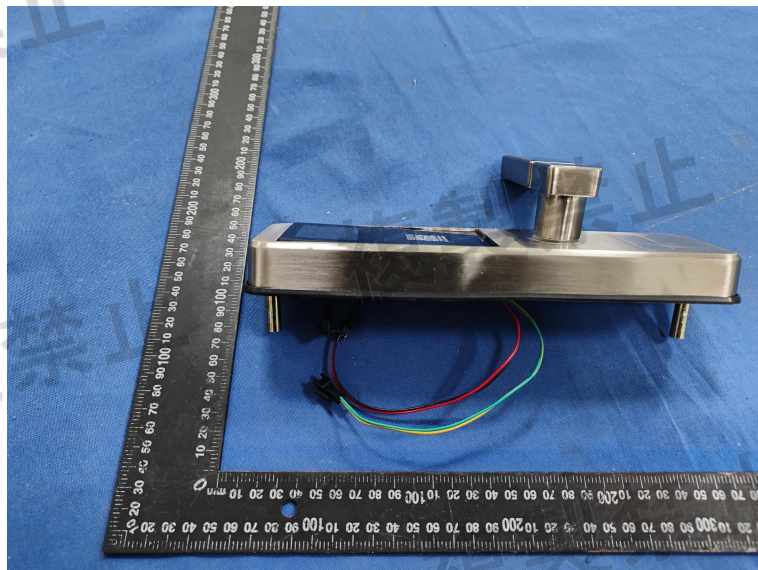
Not Applicable.

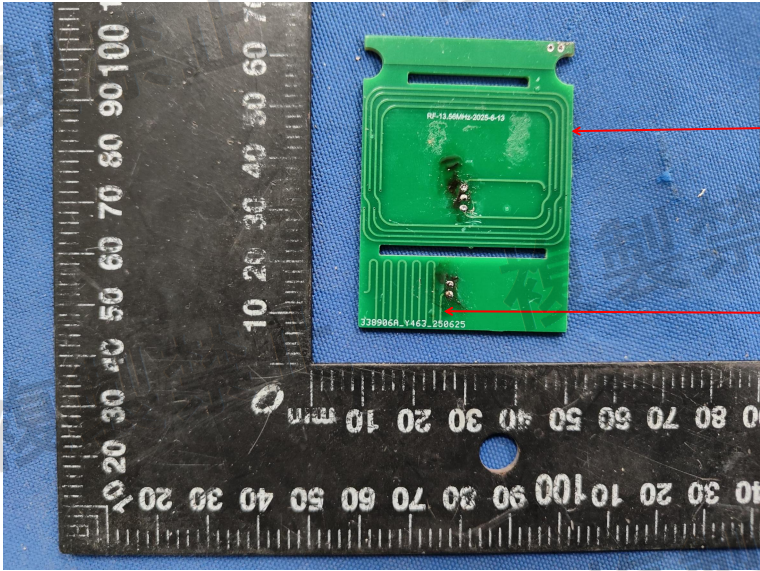
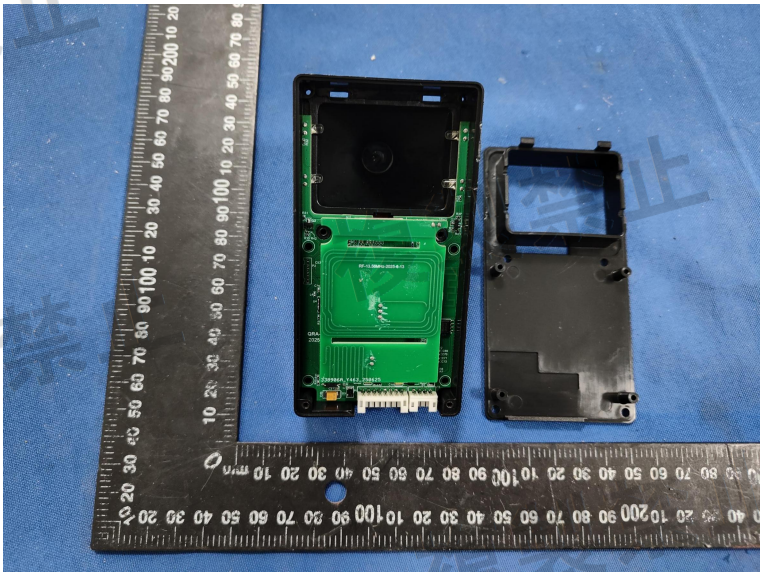


## 5 Photos of the EUT



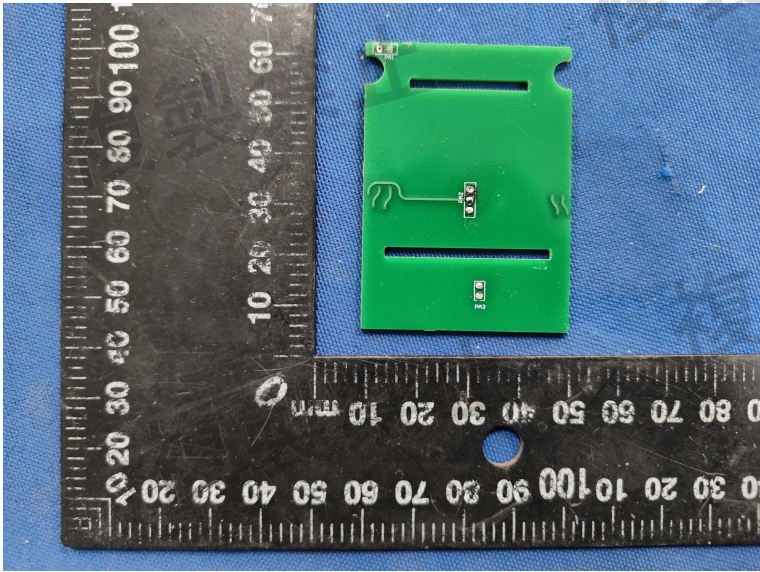


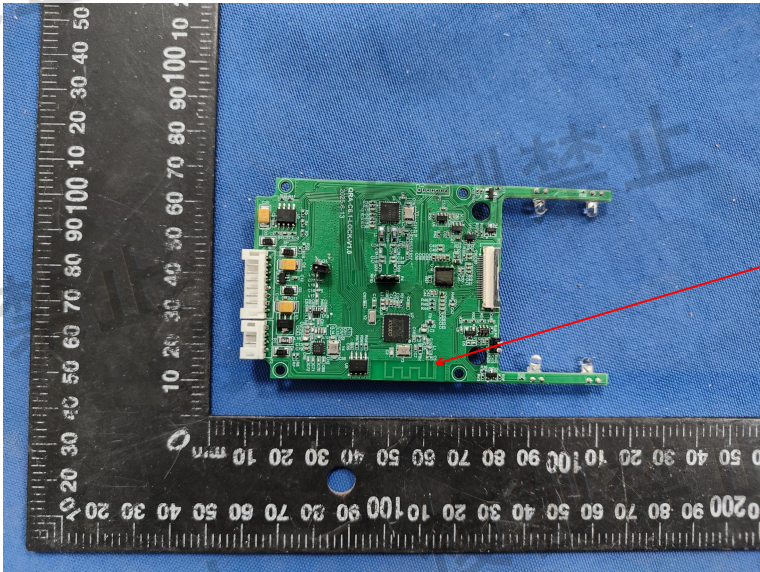




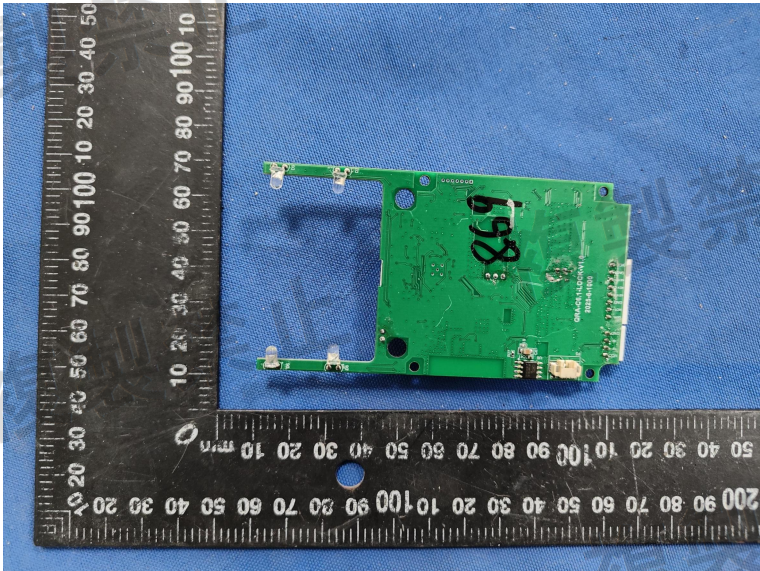
NFC  
Antenna

433 Receive  
Antenna





Bluetooth  
Antenna





\*\*\*\*\* End of Report \*\*\*\*\*