



# JAPAN RADIO TEST REPORT

Applicant: ComNav Technology Ltd.

Address: Building 2, No.618 Chengliu Middle Rd. Shanghai, China

Manufacturer: ComNav Technology Ltd.

Address: Building 2, No.618 Chengliu Middle Rd. Shanghai, China

EUT: Surveying System

Trade Mark: SinoGNSS

Model Number: LS600

Date of Receipt: Oct. 09, 2025

Test Date: Oct. 09, 2025 - Oct. 29, 2025

Date of Report: Oct. 29, 2025

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Applicable Standards: ARIB STD T-66 Ver.3.7(2014)  
Item 19 of Article 2 Paragraph 1  
MIC Notice No.88 Appendix No.43

Test Result: Pass

Report Number: DLE-250922057R

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Reviewer (Supervisor): Jack Bu

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*This test report is based on a single evaluation of one sample of above mentioned products. It is not permitted to be duplicated in extracts without written approval of Shenzhen DL Testing Technology Co., Ltd.*



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## 1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

| Notice No. 88 of Annex 43               |                                                                                   |                      |        |
|-----------------------------------------|-----------------------------------------------------------------------------------|----------------------|--------|
| Standard Section                        | Test Item                                                                         | Judgment             | Remark |
| <b>General provisions</b>               |                                                                                   |                      |        |
| 5                                       | Frequency Error                                                                   | PASS                 |        |
| 6                                       | Occupied Bandwidth                                                                | PASS                 |        |
| 7                                       | Spurious Emissions Intensity                                                      | PASS                 |        |
| 8                                       | Carrier Sense Capability                                                          | N/A <sup>Note1</sup> |        |
| 9                                       | Radio Interference Prevention Capability Measurement                              | PASS                 |        |
| <b>Transmitting equipment</b>           |                                                                                   |                      |        |
| 14                                      | Antenna Power                                                                     | PASS                 |        |
| <b>Transmitting antenna</b>             |                                                                                   |                      |        |
| 20                                      | Type, Configuration, etc., of Transmitting Antenna                                | PASS                 |        |
| 22                                      | Direction Pattern of Transmitting Antenna (Provided at Individual Antenna Report) | PASS                 |        |
| <b>Receiving antenna</b>                |                                                                                   |                      |        |
| 24                                      | Limitation of Collateral Emission of Receiver                                     | PASS                 |        |
| 26                                      | Refer to All Articles for Transmitting Antenna                                    | PASS                 |        |
| <b>Operating frequency 2400~2483MHz</b> |                                                                                   |                      |        |
| 49.20(1);a                              | RF Shielding Method                                                               | PASS                 |        |
| 49.20(1);a                              | Communication Method                                                              | PASS                 |        |
| 49.20(1);b                              | Spread-spectrum Method                                                            | PASS                 |        |
| 49.20(1);c                              | Antenna Power                                                                     | PASS                 |        |
| 49.20(1); d                             | EIRP power                                                                        | PASS                 |        |
| 4.10                                    | Construction Protection Confirmation                                              | PASS                 |        |
| 4.7                                     | Transmission Radiation Angle Width (3dB Bandwidth)                                | N/A <sup>Note2</sup> |        |

### NOTE:

Application to transmitting devices which EIRP is less than (2.14dBi+ antenna power limit)

1 and the shortage of EIRP is compensated by the antenna power. Not applicable to this product.

2 Not applicable since the EIRP Power is less than 12.14dBm.

### 1.1 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement  $y \pm U$ , where expanded uncertainty  $U$  is based on a standard uncertainty multiplied by a coverage factor of  $k=2$ , providing a level of confidence of approximately 95 %.

| No. | Item                         | Uncertainty         |
|-----|------------------------------|---------------------|
| 1   | RF power,conducted           | $\pm 0.16\text{dB}$ |
| 2   | Spurious emissions,conducted | $\pm 0.21\text{dB}$ |
| 3   | frequency error ppm          | $\pm 0.5\text{ppm}$ |
| 4   | Occupied Bandwidth           | $\pm 0.2\text{MHz}$ |



## 2. GENERAL INFORMATION

### 2.1 GENERAL DESCRIPTION OF EUT

|                     |                                                                                                                                                                                                                    |                    |
|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| Equipment           | Surveying System                                                                                                                                                                                                   |                    |
| Trademark:          | SinoGNSS                                                                                                                                                                                                           |                    |
| Model Name          | LS600                                                                                                                                                                                                              |                    |
| Test Model:         | LS600                                                                                                                                                                                                              |                    |
| Model Difference    | N/A                                                                                                                                                                                                                |                    |
| Product Description | Operation Frequency:                                                                                                                                                                                               | 2402~2480 MHz      |
|                     | Modulation:                                                                                                                                                                                                        | GFSK               |
|                     | Number Of Channel:                                                                                                                                                                                                 | 40 CH              |
|                     | BT Version:                                                                                                                                                                                                        | V5.2               |
|                     | Antenna Designation:                                                                                                                                                                                               | Please see Note 3. |
|                     | Based on the application, features, or specification exhibited in User's Manual, the EUT is considered as an ITE/Computing Device. More details of EUT technical specification, please refer to the User's Manual. |                    |
| Channel List        | Please refer to the Note 2.                                                                                                                                                                                        |                    |
| Power Supply:       | DC 14.4V from battery<br>TYPE-C Port from adapter                                                                                                                                                                  |                    |
| Adapter:            | Model:GS-W45A0948<br>Input: 100-240V~50/60Hz,1.2A<br>Output: 5V/3A or 9V/3A or 12V/3A or 15V/3A or 20V/2.25A (PPS)3.3V-20V/2.25A 45W Max<br>Manufacturer: Shenzhen good-she technology Co., Ltd.                   |                    |
| Hardware Version    | HV01                                                                                                                                                                                                               |                    |
| Software Version    | SV01                                                                                                                                                                                                               |                    |

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.
- 2.

| Channel List |                 |         |                 |         |                 |
|--------------|-----------------|---------|-----------------|---------|-----------------|
| Channel      | Frequency (MHz) | Channel | Frequency (MHz) | Channel | Frequency (MHz) |
| 01           | 2402            | 11      | 2422            | 21      | 2442            |
| 02           | 2404            | 12      | 2424            | 22      | 2444            |
| 03           | 2406            | 13      | 2426            | 23      | 2446            |
| ~            | ~               | ~       | ~               | ~       | ~               |
| 09           | 2418            | 19      | 2438            | 20      | 2440            |
| 10           | 2420            | 20      | 2440            | 40      | 2480            |

#### 3. Table for Filed Antenna

| Ant. | Brand | Model Name | Antenna Type     | Connector | Gain (dBi) | NOTE |
|------|-------|------------|------------------|-----------|------------|------|
| 1    | N/A   | 2.4G       | Internal Antenna | N/A       | 0.56       |      |



## 2.2 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

| Pretest Mode | Description |      |
|--------------|-------------|------|
| Mode1        | CH01        | GFSK |
| Mode2        | CH20        |      |
| Mode3        | CH40        |      |
| Mode4        | RX          |      |

| Pretest Mode | Conducted Emission |      |
|--------------|--------------------|------|
| Mode1        | CH01               | GFSK |
| Mode2        | CH20               |      |
| Mode3        | CH40               |      |
| Mode4        | RX                 |      |

## 2.3 TEST CONDITIONS

The EUT tested while in a continuous transmitter/receiver mode.

The EUT was tuned to a low, middle, and high channel for all tests. For all test case pre/scans were completed in all Modes to determine worst case levels.

**Power Supply Voltage Fluctuation Test**

| Voltage Fluctuation Test | Normal Voltage (Normal temperature) | High Voltage +10% of Normal Voltage(High temperature) | Low Voltage -10% of Normal Voltage(Low temperature) |
|--------------------------|-------------------------------------|-------------------------------------------------------|-----------------------------------------------------|
| Input DC Power           | 14.4V                               | 15.84V                                                | 12.96V                                              |
| RF module's voltage      | 3.3V                                | 3.3V                                                  | 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.

When the input voltage of the product changes within -10% and +10%, the voltage of the module does not change, so the test is only tested under normal voltage.

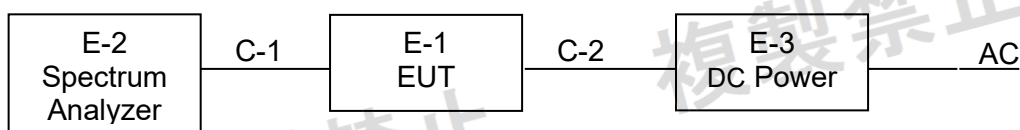


## 2.4 TABLE OF PARAMETERS OF TEXT SOFTWARE SETTING

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 of BLE

| Test software Name                              | BT RF Test |          |          |
|-------------------------------------------------|------------|----------|----------|
| Frequency                                       | 2402 MHz   | 2440 MHz | 2480 MHz |
| Max output power parameters setting of software | 4          | 4        | 4        |

## 2.5 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED





## 2.6 DESCRIPTION OF SUPPORT UNITS(CONDUCTED MODE)

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

| Item | Equipment         | Mfr/Brand | Model/Type No. | Series No. | Note |
|------|-------------------|-----------|----------------|------------|------|
| E-1  | Surveying System  | SinoGNSS  | LS600          | N/A        | EUT  |
| E-2  | Spectrum Analyzer | Agilent   | N9020A         | 108040     |      |
| E-3  | DC Power          | N/A       | PS-305D        | 010952961  |      |
|      |                   |           |                |            |      |
|      |                   |           |                |            |      |

| Item | Shielded Type | Ferrite Core | Length | Note           |
|------|---------------|--------------|--------|----------------|
| C-1  | NO            | NO           | 10cm   | RF Cable       |
| C-2  | NO            | NO           | 30cm   | Mini USB Cable |
|      |               |              |        |                |
|      |               |              |        |                |

Note:

- (1) The support equipment was authorized by Declaration of Confirmation.
- (2) For detachable type I/O cable should be specified the length in cm in 『Length』 column.
- (3) “YES” is means “shielded” “with core”; “NO” is means “unshielded” “without core”.



## 2.7 EQUIPMENTS LIST FOR ALL TEST ITEMS

| Item | Kind of Equipment                   | Manufacturer | Type No.    | Serial No. | Last Calibration | Calibrated until |
|------|-------------------------------------|--------------|-------------|------------|------------------|------------------|
| 1    | SPECTRUM ANALYZER                   | AGILENT      | E4407B      | 160400005  | Nov. 01, 2024    | Oct. 31, 2025    |
| 2    | TEST RECEIVER                       | R&S          | ESPI        | 101318     | Nov. 01, 2024    | Oct. 31, 2025    |
| 3    | BILOG ANTENNA                       | TESEQ        | CBL6111D    | 31216      | Nov. 01, 2024    | Oct. 31, 2025    |
| 4    | 50Ω COAXIAL SWITCH                  | ANRITSU      | MP59B       | 6200264416 | Nov. 01, 2024    | Oct. 31, 2025    |
| 5    | SPECTRUM ANALYZER                   | ADVANTEST    | R3132       | 150900201  | Nov. 01, 2024    | Oct. 31, 2025    |
| 6    | HORN ANTENNA                        | EM           | EM-AH-10180 | 2011071402 | Nov. 01, 2024    | Oct. 31, 2025    |
| 7    | HORN ANT                            | SCHWARZBECK  | BBHA 9170   | 9170-181   | Nov. 01, 2024    | Oct. 31, 2025    |
| 8    | AMPLIFIER                           | EM           | EM-30180    | 060538     | Nov. 01, 2024    | Oct. 31, 2025    |
| 9    | LOOP ANTENNA                        | ARA          | PLA-1030/B  | 1029       | Nov. 01, 2024    | Oct. 31, 2025    |
| 10   | POWER METER                         | R&S          | NRVS        | 100696     | Nov. 01, 2024    | Oct. 31, 2025    |
| 11   | TEST RECEIVER                       | R&S          | ESCI        | 101160     | Nov. 01, 2024    | Oct. 31, 2025    |
| 12   | SPECTRUM ANALYZER                   | AGILENT      | N9020A      | MY55370280 | Nov. 01, 2024    | Oct. 31, 2025    |
| 13   | WIDEBAND RADIO COMMUNICATION TESTER | R&S          | CMW500      | 106504     | Nov. 01, 2024    | Oct. 31, 2025    |
| 14   | 50Ω COAXIAL SWITCH                  | ANRITSU      | MP59B       | 6200264417 | Nov. 01, 2024    | Oct. 31, 2025    |

Note: 1. All Equipments Calibration In Guangzhou GRE Metrology & Test Co., Ltd,

2. Regarding the measuring device, Article 24-2, Paragraph 4 of the Radio Law.

3. (a) Calibration conducted by the National Institute of Information and Communications Technology (NICT) in Japan (hereinafter referred to as "NICT") 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).

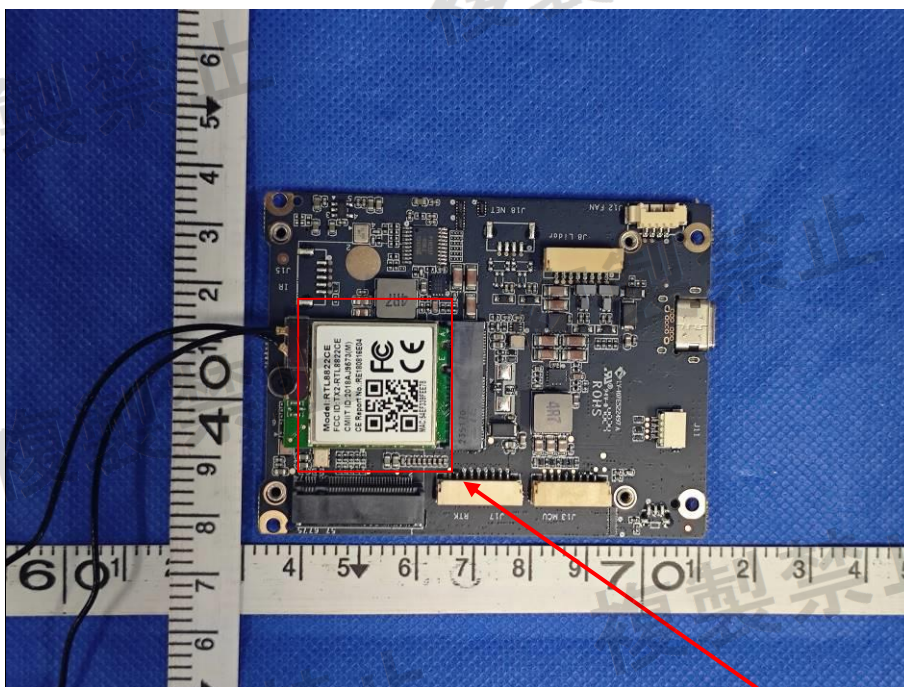
(c) Calibration conducted in countries except Japan, which shall be equivalent to the calibration conducted by the NICT or a designated calibration agency under Article 102-18 paragraph (1).

(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

### 3. RF SHIELDING METHOD

Enclosure:

the product structure is stuck by Special shielding cover, If you do not use a special tool, you will not be able to open it. See below the structure:



Special shielding cover is used on red line for cannot be open easily structure.



Special shielding cover name: RTL8822CE

shielding cover type: Aluminum alloy structure

Manufacturer: ComNav Technology Ltd.



## 4. TEST RESULT FOR BLUETOOTH

### 4.1 FREQUENCY ERROR

### 4.2 LIMIT

| Item            | Limits                  |
|-----------------|-------------------------|
| Frequency Error | $\leq \pm 50\text{ppm}$ |

### 4.3 MEASURING INSTRUMENTS AND SETTING

The following table is the setting of Spectrum Analyzer.

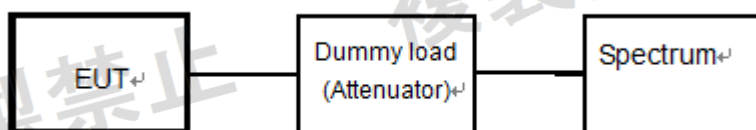
| Spectrum Parameter | Setting  |
|--------------------|----------|
| Attenuation        | Auto     |
| RB / VB            | 10KHz    |
| Detector           | Peak     |
| Trace              | Max Hold |
| Sweep Time         | Auto     |

### 4.4 TEST PROCEDURES

- (1) In the case of unmodulated signal (continuous or continuous burst), measure the frequency directly by a frequency meter.
- (2) In the case of burst waves, the measurement shall be done for enough time in order to obtain the enough measuring accuracy, and the average of the measured values becomes the final value.
- (3) In the case of a test mode with a specific frequency spectrum, measure the frequency of the specific spectrum by a spectrum analyzer.
- (4) In the cases above, if the frequency equivalent to the test frequency is not directly measured in principle, it shall be obtained by necessary calculation.

In the case of modulated signal, if there is no specific spectrum measurable by a spectrum analyzer but a specific dip is observed, it is allowed to measure the frequency with the signal generator (synthesized). That is, observe a signal of the signal generator concurrently (or alternately) with the tested signal using the spectrum analyzer while setting the frequency of the signal generator to the position of the dip on the screen of the spectrum analyzer, and determine the frequency of the signal generator at the time as a measured value.

### 4.5 TEST SETUP LAYOUT



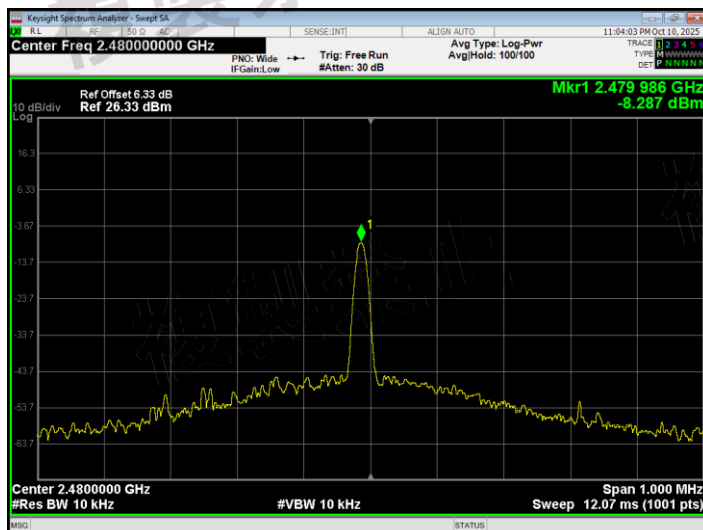
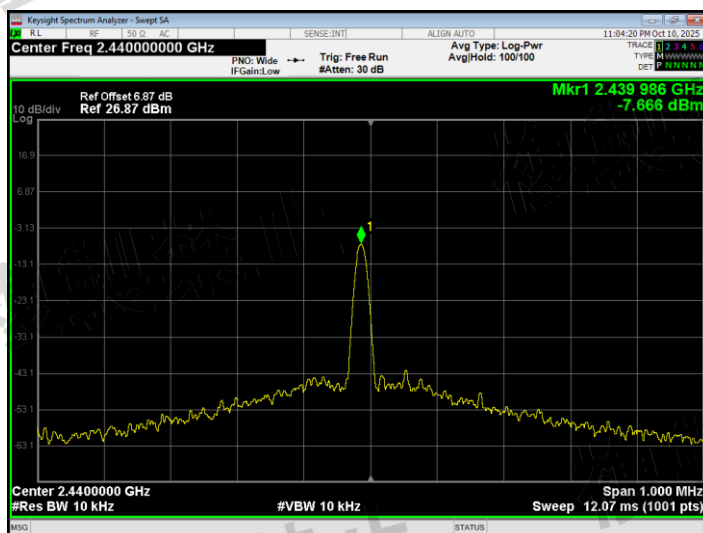
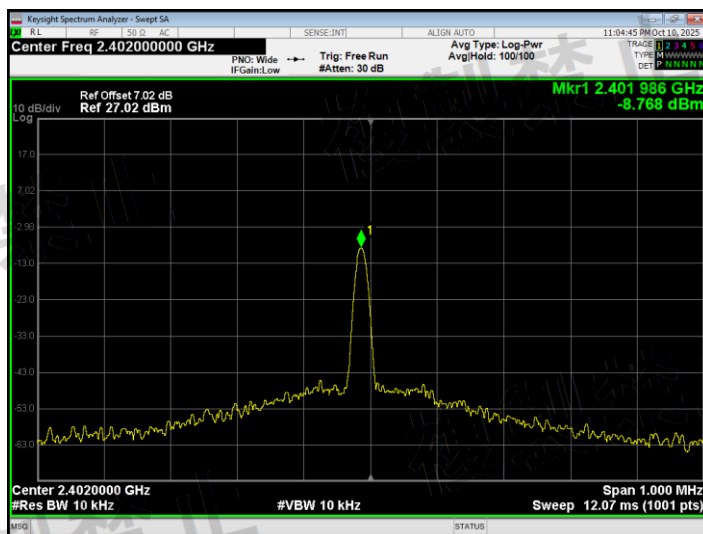
**4.5.1 TEST RESULT**

|              |         |                    |       |           |          |
|--------------|---------|--------------------|-------|-----------|----------|
| Temperature: | 25.6 °C | Relative Humidity: | 55.8% | Pressure: | 1010mbar |
|--------------|---------|--------------------|-------|-----------|----------|

| Voltage | Frequency | Reading  | Tolerance | Limit   |
|---------|-----------|----------|-----------|---------|
| Normal  | MHz       | MHz      | ppm       | (ppm)   |
|         | 2402      | 2401.986 | -5.83     | ≤±50ppm |
|         | 2440      | 2439.986 | -5.74     | ≤±50ppm |
|         | 2480      | 2479.986 | -5.65     | ≤±50ppm |



Normal volatge





## 5. ANTENNA POWER

### 5.1 LIMIT

| Item                  | Limits                                                                                                                                                       |
|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Antenna Power Density | $\leq 3\text{mW/MHz}$ (FH form 2427 - 2470.75 MHz)<br>$\leq 10\text{mW/MHz}$ (OFDM,DS from 2400~2483.5MHz)<br>$\leq 10\text{mW}$ (Other from 2400~2483.5MHz) |
| Antenna Power Error   | +20%(Base on manufacturer declare antenna power density)                                                                                                     |

### 5.2 MEASURING INSTRUMENTS AND SETTING

Please refer to section 5 in this report. The following table is the setting of Spectrum Analyzer.

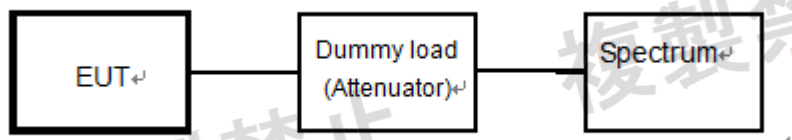
| Spectrum Parameter | Setting  |
|--------------------|----------|
| Attenuation        | Auto     |
| RB / VB            | 2 MHz    |
| Detector           | Peak     |
| Trace              | Max Hold |
| Sweep Time         | Auto     |

### 5.3 TEST PROCEDURES

1. The EUT is connected on the spectrum analyzer.
2. Adjust the spectrum analyzer to have the center frequency the same with the measured carrier. RBW=VBW=2MHz, detector mode is positive peak. Turn off the averaging function and use zero span.
3. The calibrating signal power shall be reduced to 0 dBm and it shall be verified that the power meter reading also reduces by 10 dB.
4. Connect the equipment to be measured. Using the following settings of the spectrum analyzer in combination with "max hold" function, find the frequency of highest power output in the power envelope: center frequency equal to operating frequency; RBW & VBW: 2 MHz; detector mode: positive peak; averaging: off; span: 5 times the spectrum width; amplitude: adjust for middle of the instrument' range. The frequency found shall be recorded.
5. Antenna Power Error is definition that actual measure antenna power tolerance between + 20% power range that base on manufacturer declare the conducted power density.



#### 5.4 TEST SETUP LAYOUT



#### 5.5 TEST DEVIATION

There is no deviation with the original standard.

#### 5.6 TEST DEVIATION

The EUT was programmed to be in continuously transmitting mode.

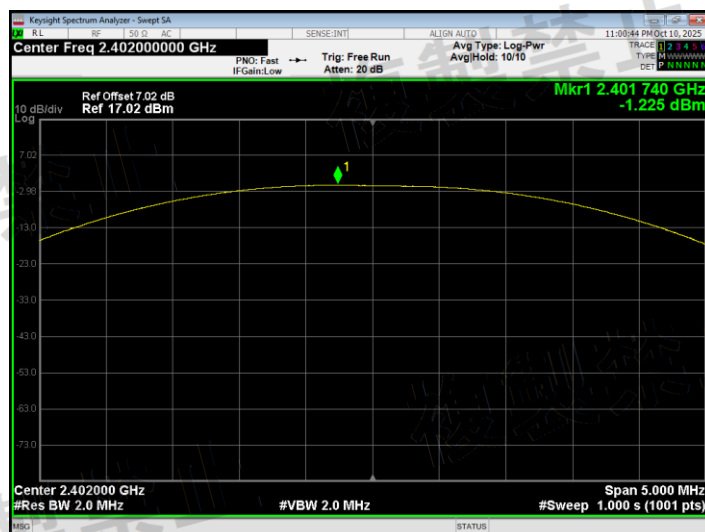
#### 5.7 TEST RESULT

|              |         |                    |       |           |          |
|--------------|---------|--------------------|-------|-----------|----------|
| Temperature: | 25.4 °C | Relative Humidity: | 55.3% | Pressure: | 1010mbar |
|--------------|---------|--------------------|-------|-----------|----------|

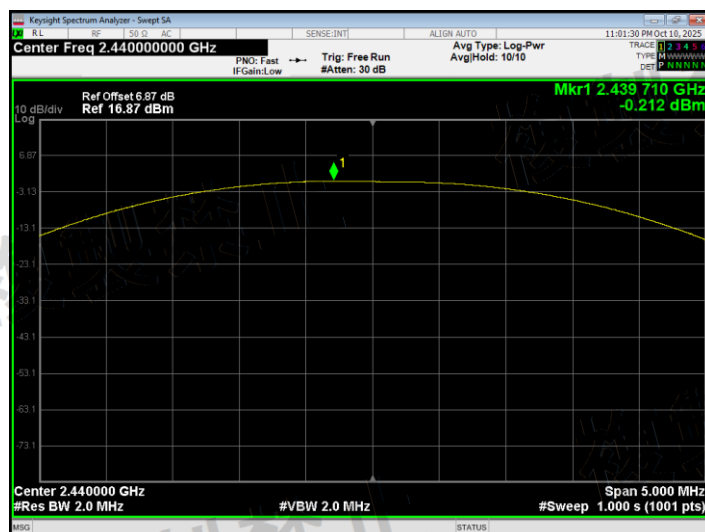
| Voltage                                                         | Test Frequency MHz | Conducted RF output power density (mW) | Rated power density (mW) | Limits (mW) | Antenna Power Error (%) |
|-----------------------------------------------------------------|--------------------|----------------------------------------|--------------------------|-------------|-------------------------|
| Normal                                                          | 2402               | 0.754                                  | 1.5                      | 10          | -49.73                  |
|                                                                 | 2440               | 0.952                                  | 1.5                      | 10          | -36.53                  |
|                                                                 | 2480               | 0.822                                  | 1.5                      | 10          | -45.2                   |
| Limit: +20%(Base on manufacturer declare antenna power density) |                    |                                        |                          |             |                         |



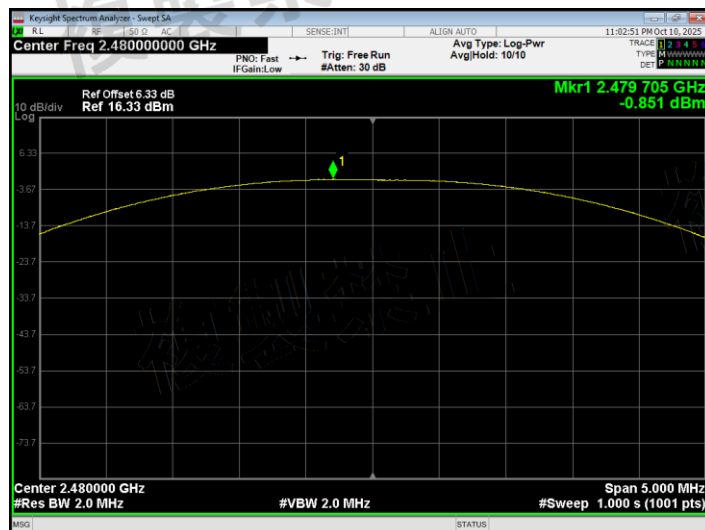
Normal voltage  
2402MHz



2440MHz



2480MHz





## 6. EIRP POWER

### 6.1 LIMIT

| Item                 | Limits                                                                                                                                                                                                                                                                         |
|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Radiation power EIRP | FH form 2427-2470,75 MHz, $EIRP \leq 6.91\text{dBm}$<br>CCK/OFDM/DBPSK(2400-2483.5MHz)<br>OFDM or DS other than(802.11b/g/n HT20) $EIRP \leq 12.14\text{dBm}$<br>OFDM or DS other than(802.11n HT40) $EIRP \leq 9.13\text{dBm}$<br>other than 2400-2483.5MHz: 12.14dBm or less |

The EIRP power= Conducted RF output power density(dBm/MHz) + Antenna Gain

### 6.2 TEST RESULT

|              |         |                    |       |           |          |
|--------------|---------|--------------------|-------|-----------|----------|
| Temperature: | 25.5 °C | Relative Humidity: | 55.8% | Pressure: | 1010mbar |
|--------------|---------|--------------------|-------|-----------|----------|

| Test Frequency<br>MHz                                             | Conducted RF output<br>power density |        | Antenna<br>Gain | EIRP   | Limits  |
|-------------------------------------------------------------------|--------------------------------------|--------|-----------------|--------|---------|
|                                                                   | (mW)                                 | (dBm)  | dBi             | (dBm)  | (dBm)   |
| 2402                                                              | 0.754                                | -1.225 | 0.56            | -0.665 | ≦ 12.14 |
| 2440                                                              | 0.952                                | -0.212 | 0.56            | 0.348  |         |
| 2480                                                              | 0.822                                | -0.851 | 0.56            | -0.291 |         |
| Limit : +20% (Base on manufacturer declare antenna power density) |                                      |        |                 |        |         |



## 7. OCCUPIED BANDWITH

### 7.1 TEST PROCEDURES

| Spectrum Parameter | Setting                                                                       |
|--------------------|-------------------------------------------------------------------------------|
| Attenuation        | Auto                                                                          |
| Span Frequency     | > Measurement Bandwidth or Channel Separation                                 |
| RB                 | 300KHz                                                                        |
| VB                 | $\geq$ RBW                                                                    |
| Detector           | Peak                                                                          |
| Trace              | Max Hold                                                                      |
| Sweep Time         | Auto                                                                          |
| Limit              | Occupied Band Width: FH 83.5MHz; OFDM,DS $\leq$ 26MHz;<br>Others $\leq$ 26MHz |

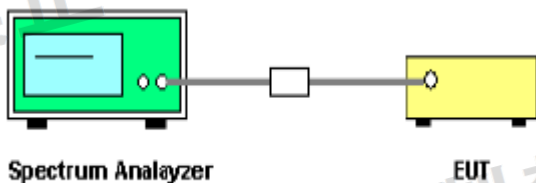
1. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,

2.Spectrum Setting : RBW= 300KHz, VBW $\geq$  RBW, Sweep time = Auto.

### 7.2 DEVIATION FROM STANDARD

No deviation.

### 7.3 TEST SETUP LAYOUT



### 7.4 TEST RESULT

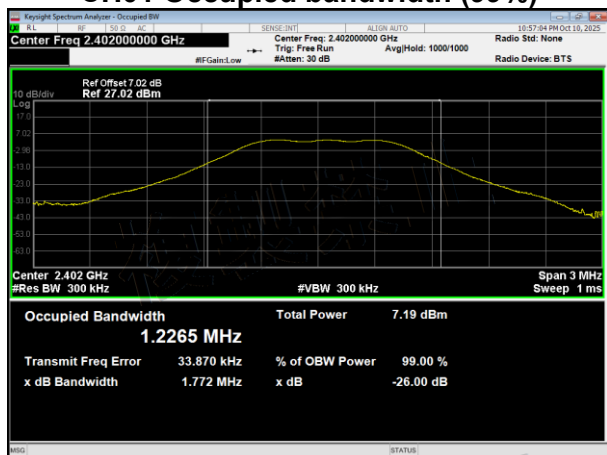
|              |         |                    |       |           |          |
|--------------|---------|--------------------|-------|-----------|----------|
| Temperature: | 25.4 °C | Relative Humidity: | 55.2% | Pressure: | 1010mbar |
|--------------|---------|--------------------|-------|-----------|----------|

| Voltage | Frequency MHz | 99%Occupied bandwidth MHz | 90%Occupied bandwidth MHz |
|---------|---------------|---------------------------|---------------------------|
| Normal  | 2402          | 1.227                     | 0.825                     |
|         | 2440          | 1.226                     | 0.822                     |
|         | 2480          | 1.227                     | 0.823                     |

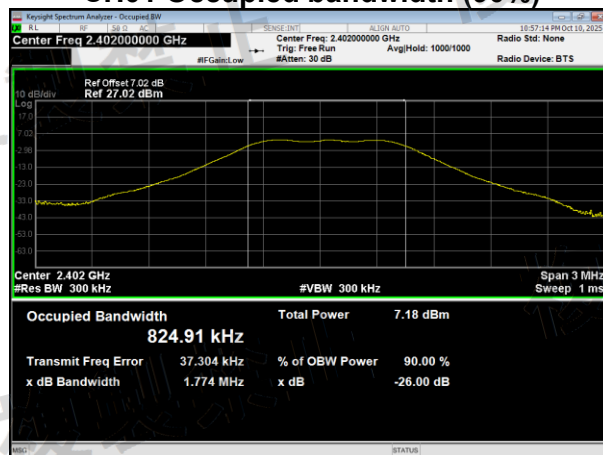


Normal volatge

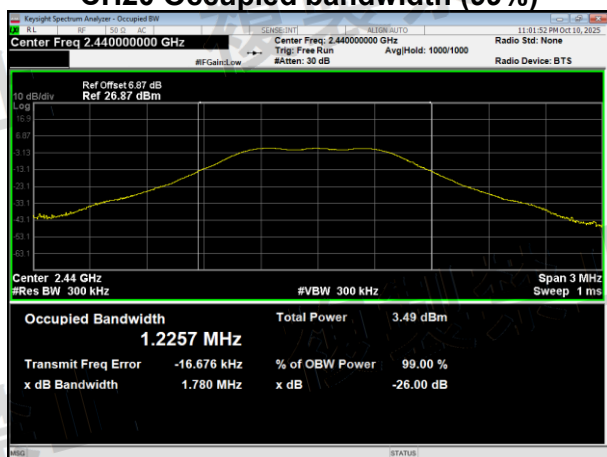
## CH01 Occupied bandwidth (99%)



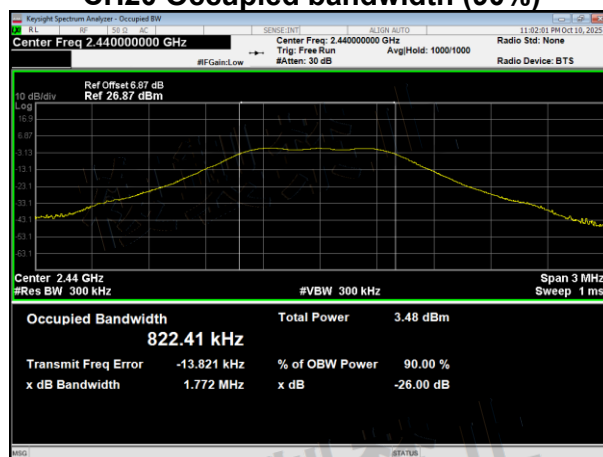
## CH01 Occupied bandwidth (90%)



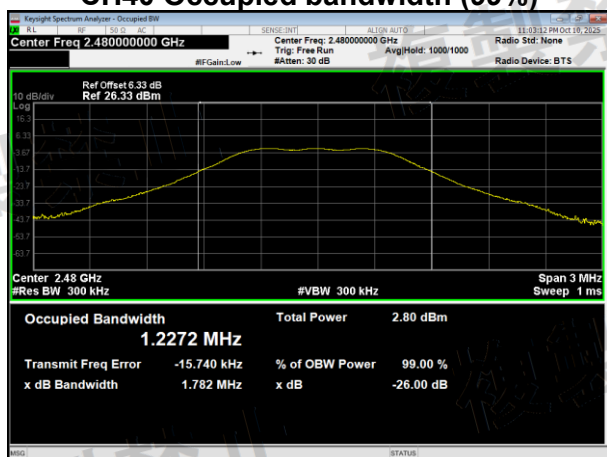
## CH20 Occupied bandwidth (99%)



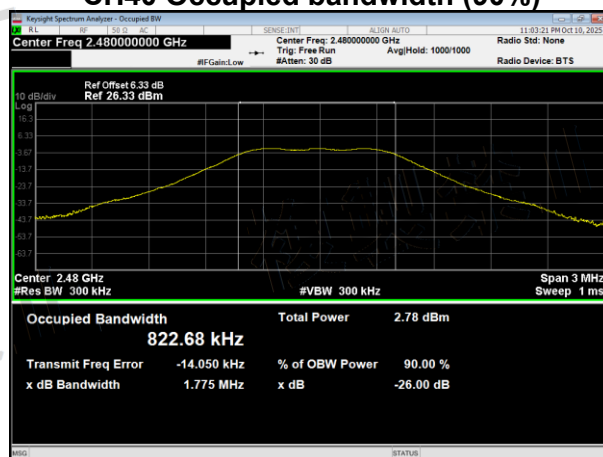
## CH20 Occupied bandwidth (90%)



## CH40 Occupied bandwidth (99%)



## CH40 Occupied bandwidth (90%)





## 7. RADIO INTERFERENCE PREVENTION CAPABILITY MEASUREMENT

### 7.1. LIMIT

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

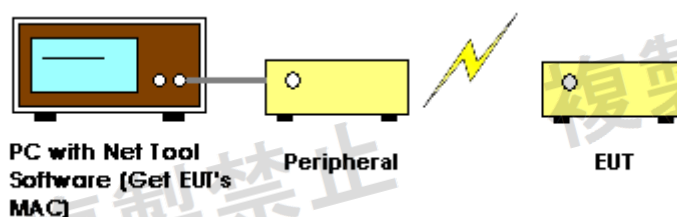
### 7.2. MEASURING ID CODE SOFTWARE

| Item        | Limits   |
|-------------|----------|
| MAC IP List | MAC Scan |

### 7.3. TEST PROCEDURES

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 signals other 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.

### 7.4. TEST SETUP LAYOUT



### 7.5. TEST DEVIATION

There is no deviation with the original standard.

### 7.6. EUT OPERATION DURING TEST

The EUT was programmed to be in normal transmitting mode.

### 7.7. TEST RESULT OF RADIO INTERFERENCE PREVENTION CAPABILITY

|              |                                          |                    |       |           |          |
|--------------|------------------------------------------|--------------------|-------|-----------|----------|
| Temperature: | 25.2 °C                                  | Relative Humidity: | 55.4% | Pressure: | 1010mbar |
| Test result: | CONFORM<br>MAC Address:90:2B:D2:6C:5B:7A |                    |       |           |          |



## 8. UNWANTED EMISSION INTENSITY MEASUREMENT

### 8.1 LIMIT

| Item                 | Limits                                                                               |
|----------------------|--------------------------------------------------------------------------------------|
| TX Spurious Emission | $\leq 2.5 \mu\text{W}/-26\text{dBm}$ ( $30\text{MHz} \leq f \leq 1000\text{MHz}$ )   |
|                      | $\leq 2.5 \mu\text{W}/-26\text{dBm}$ ( $1000\text{MHz} < f \leq 2387\text{MHz}$ )    |
|                      | $\leq 25 \mu\text{W}/-16\text{dBm}$ ( $2387\text{MHz} < f \leq 2400\text{MHz}$ )     |
|                      | $\leq 25 \mu\text{W}/-16\text{dBm}$ ( $2483.5\text{MHz} \leq f < 2496.5\text{MHz}$ ) |
|                      | $\leq 2.5 \mu\text{W}/-26\text{dBm}$ ( $2496.5\text{MHz} \leq f < 12500\text{MHz}$ ) |

### 8.2. MEASURING INSTRUMENTS AND SETTING

Please refer to section 5 in this report. The following table is the setting of Spectrum Analyzer.

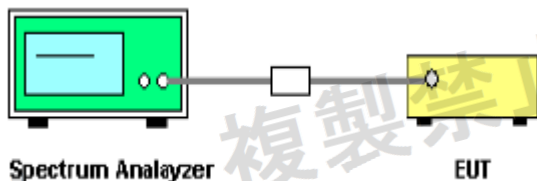
| Spectrum Parameter | Setting  |
|--------------------|----------|
| Attenuation        | Auto     |
| RB / VB            | 1 MHz    |
| Detector           | Peak     |
| Trace              | Max Hold |
| Sweep Time         | Auto     |

### 8.3 TEST PROCEDURES

1. EUT have transmitted the maximum modulation signal and fixed channelize.
2. Setting of SA is following as: Below 1GHz RB:1MHz / VB:1MHz  
Above 1GHz RB:1MHz / VB:1MHz / AT: 10dB Ref: 0dBm / Sweep time: Auto  
Sweep Mode: Continuous sweep / Detect mode: Positive peak  
Trace mode: Max hold
3. Setting of SA is following as 30MHz and stop frequency 1000MHz Then to mark peak reading value + cable loss shall be less than 0.25  $\mu\text{W}/-26\text{dBm}$ .
4. Setting of SA is following as 1000MHz and stop frequency 2387MHz Then to mark peak reading value + cable loss shall be less than 2.5  $\mu\text{W}/-26\text{dBm}$ .
5. SA adjusted to start frequency 2387MHz and stop frequency 2400MHz. Then to mark peak reading value + cable loss shall be less than 25  $\mu\text{W}/-16\text{dBm}$ .
6. SA adjusted to start frequency 2483.5MHz and stop frequency 2496.5MHz Then to mark peak reading value + cable loss shall be less than 25  $\mu\text{W}/-16\text{dBm}$
7. SA adjusted to start frequency 2496.5MHz and stop frequency 12500MHz Then to mark peak reading value + cable loss shall be less than 2.5  $\mu\text{W}/-26\text{dBm}$
8. Measure side band spurious as follows: For 2.4GHz band: 2374MHz~2400MHz and 2483.5MHz~2509.5MHz RBW = VBW = 30kHz, Result\_Value = Measured\_Value + 15.2 [dBm]
9. If the Result\_Value is over the requirement, take total sum of 1MHz band centered at the spur frequency like ACLP measurement as Result\_Value.



#### 8.4. TEST SETUP LAYOUT



#### 8.5. TEST DEVIATION

There is no deviation with the original standard.

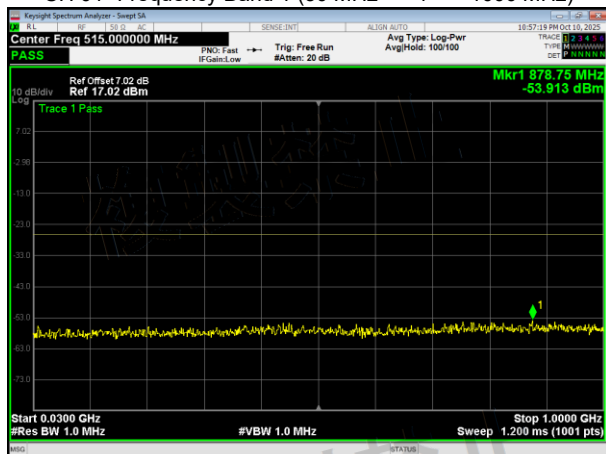
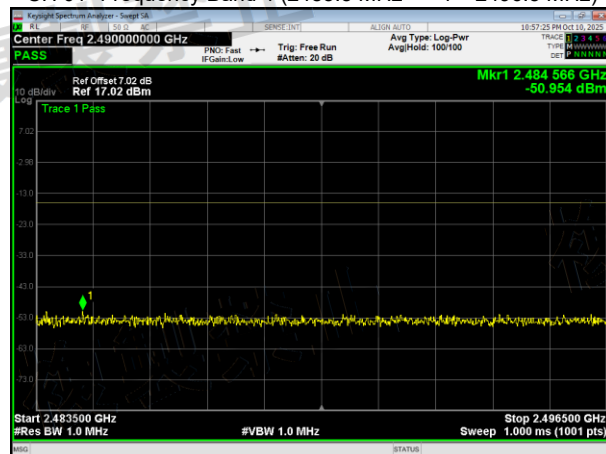
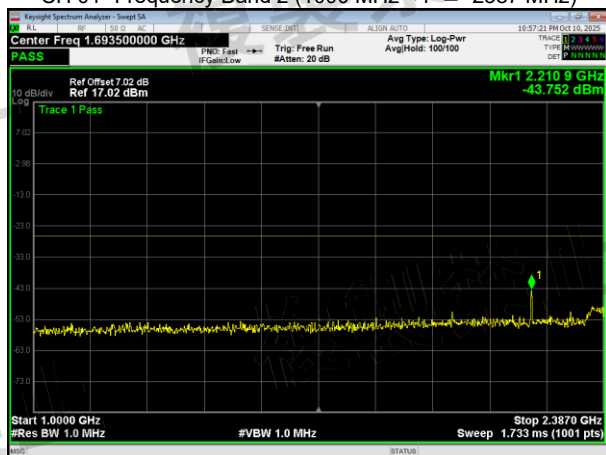
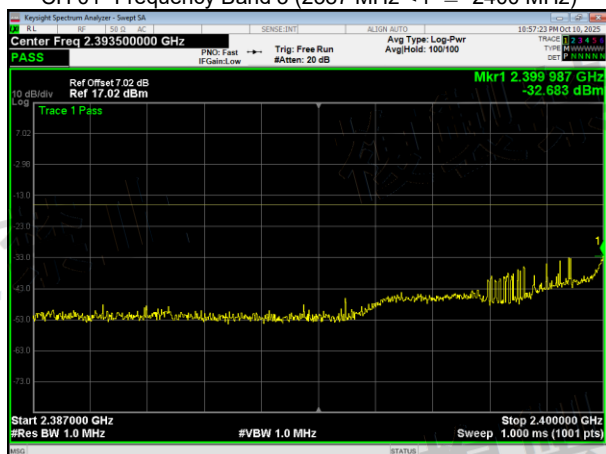
#### 8.6. TEST RESULT

|              |         |                    |       |           |          |
|--------------|---------|--------------------|-------|-----------|----------|
| Temperature: | 25.4 °C | Relative Humidity: | 55.3% | Pressure: | 1010mbar |
|--------------|---------|--------------------|-------|-----------|----------|

| Frequency (MHz) | Antenna | Range (MHz)   | Emission Frequency (MHz) | Max Value (dBm/MHz) | Max Value (uW/MHz) | Limit Start (uW/MHz) | Limit Stop (uW/MHz) | Verdict |
|-----------------|---------|---------------|--------------------------|---------------------|--------------------|----------------------|---------------------|---------|
| 2402            | Ant1    | 30-1000       | 878.75                   | -53.91              | 0.0041             | 2.5                  | 2.5                 | Pass    |
| 2402            | Ant1    | 1000-2387     | 2210.85                  | -43.75              | 0.0422             | 2.5                  | 2.5                 | Pass    |
| 2402            | Ant1    | 2387-2400     | 2399.99                  | -32.68              | 0.5395             | 25                   | 25                  | Pass    |
| 2402            | Ant1    | 2483.5-2496.5 | 2484.57                  | -50.95              | 0.008              | 25                   | 25                  | Pass    |
| 2402            | Ant1    | 2496.5-13000  | 2612.04                  | -36.76              | 0.2109             | 2.5                  | 2.5                 | Pass    |
| 2440            | Ant1    | 30-1000       | 973.81                   | -53.87              | 0.0041             | 2.5                  | 2.5                 | Pass    |
| 2440            | Ant1    | 1000-2387     | 2120.7                   | -51.47              | 0.0071             | 2.5                  | 2.5                 | Pass    |
| 2440            | Ant1    | 2387-2400     | 2392.51                  | -49.8               | 0.0105             | 25                   | 25                  | Pass    |
| 2440            | Ant1    | 2483.5-2496.5 | 2488.01                  | -50.12              | 0.0097             | 25                   | 25                  | Pass    |
| 2440            | Ant1    | 2496.5-13000  | 2538.51                  | -33.44              | 0.4529             | 2.5                  | 2.5                 | Pass    |
| 2480            | Ant1    | 30-1000       | 789.51                   | -54.63              | 0.0034             | 2.5                  | 2.5                 | Pass    |
| 2480            | Ant1    | 1000-2387     | 2364.81                  | -52.1               | 0.0062             | 2.5                  | 2.5                 | Pass    |
| 2480            | Ant1    | 2387-2400     | 2388                     | -52.01              | 0.0063             | 25                   | 25                  | Pass    |
| 2480            | Ant1    | 2483.5-2496.5 | 2483.59                  | -43.24              | 0.0474             | 25                   | 25                  | Pass    |
| 2480            | Ant1    | 2496.5-13000  | 2612.04                  | -28.29              | 1.4825             | 2.5                  | 2.5                 | Pass    |

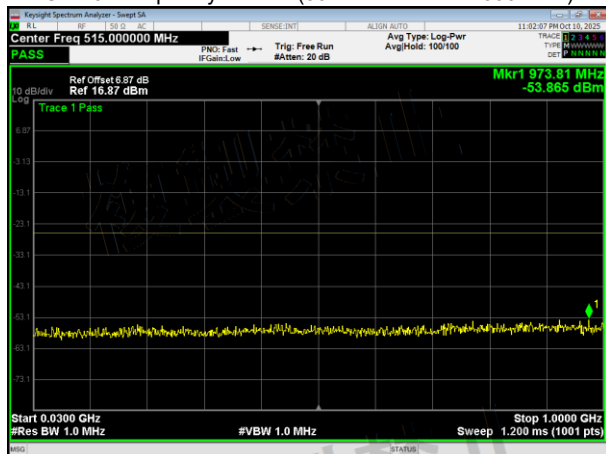
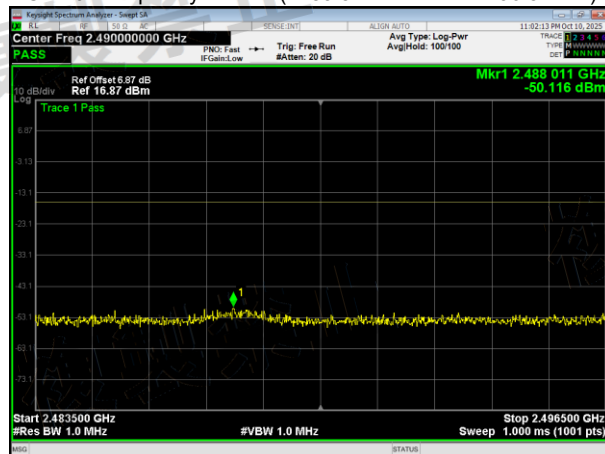
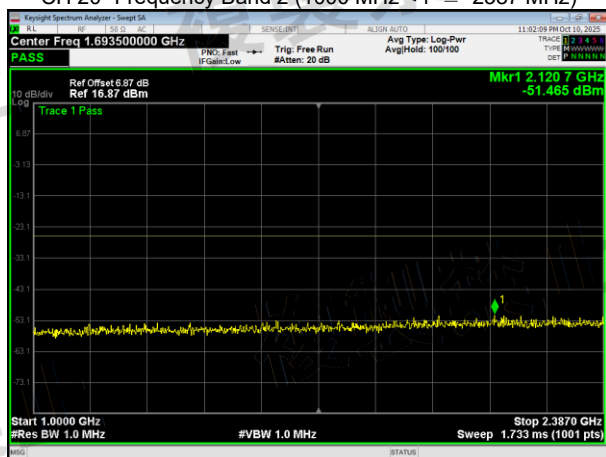
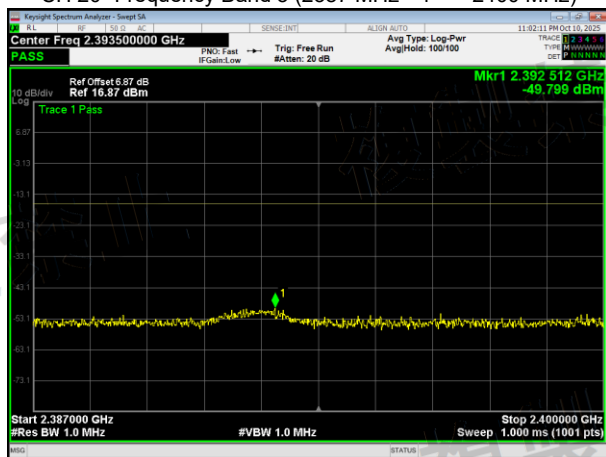


## Normal volatge

CH 01- Frequency Band 1 ( $30 \text{ MHz} \leq f \leq 1000 \text{ MHz}$ )CH 01- Frequency Band 4 ( $2483.5 \text{ MHz} \leq f < 2496.5 \text{ MHz}$ )CH 01- Frequency Band 2 ( $1000 \text{ MHz} < f \leq 2387 \text{ MHz}$ )CH 01- Frequency Band 5 ( $2496.5 \text{ MHz} \leq f < 12.5 \text{ GHz}$ )CH 01- Frequency Band 3 ( $2387 \text{ MHz} < f \leq 2400 \text{ MHz}$ )

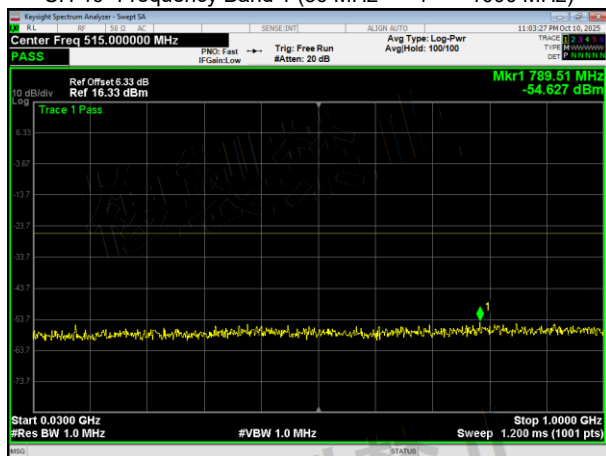
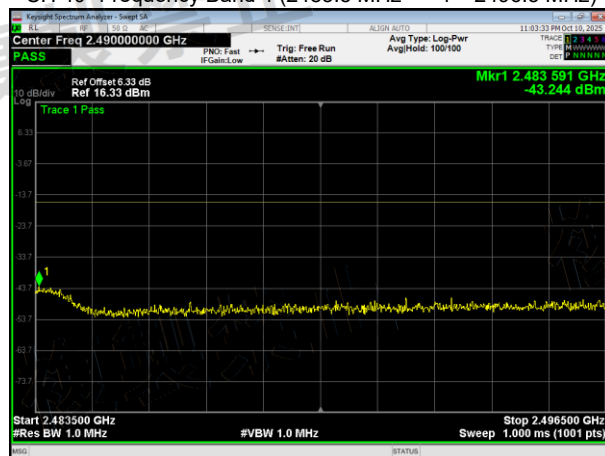
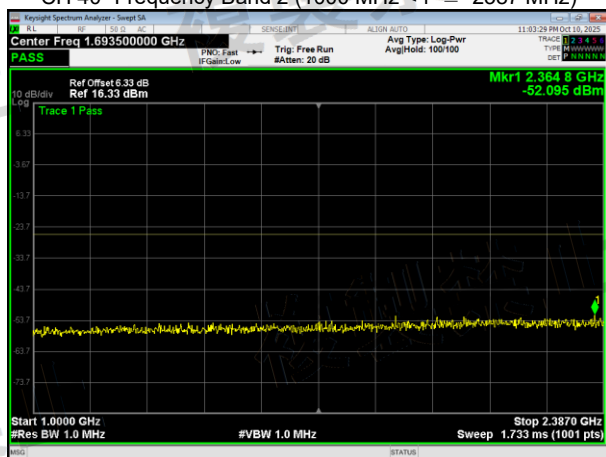
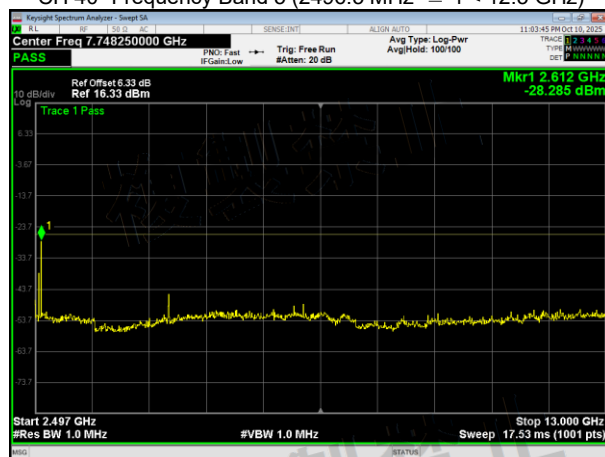
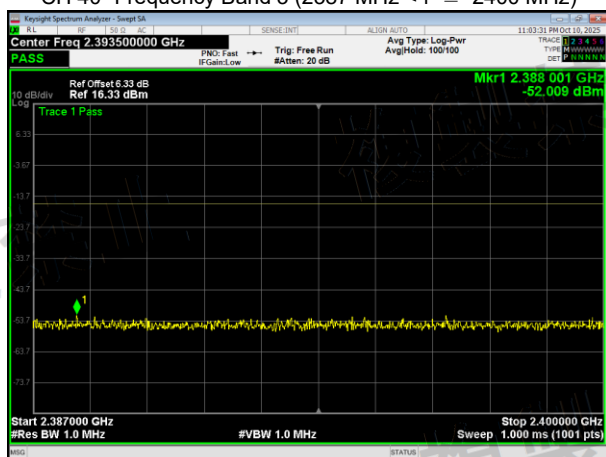


## Normal volatge

CH 20- Frequency Band 1 ( $30 \text{ MHz} \leq f \leq 1000 \text{ MHz}$ )CH 20- Frequency Band 4 ( $2483.5 \text{ MHz} \leq f < 2496.5 \text{ MHz}$ )CH 20- Frequency Band 2 ( $1000 \text{ MHz} < f \leq 2387 \text{ MHz}$ )CH 20- Frequency Band 5 ( $2496.5 \text{ MHz} \leq f < 12.5 \text{ GHz}$ )CH 20- Frequency Band 3 ( $2387 \text{ MHz} < f \leq 2400 \text{ MHz}$ )



## Normal volatge

CH 40- Frequency Band 1 ( $30 \text{ MHz} \leq f \leq 1000 \text{ MHz}$ )CH 40- Frequency Band 4 ( $2483.5 \text{ MHz} \leq f < 2496.5 \text{ MHz}$ )CH 40- Frequency Band 2 ( $1000 \text{ MHz} < f \leq 2387 \text{ MHz}$ )CH 40- Frequency Band 5 ( $2496.5 \text{ MHz} \leq f < 12.5 \text{ GHz}$ )CH 40- Frequency Band 3 ( $2387 \text{ MHz} < f \leq 2400 \text{ MHz}$ )



## 9. CARRIER SENSE

Not apply to the test item, since EIRP does not require compensation through Antenna Power.

## 10. IMITATION OF COLLATERAL EMISSION OF RECEIVER MEASUREMENT

### 10.1 LIMIT

| Item                  | Limits                                             |
|-----------------------|----------------------------------------------------|
| RX Spurious Emission: | $\leq 4\text{nW/-54dBm}$ ( $f < 1\text{GHz}$ )     |
|                       | $\leq 20\text{nW/-47dBm}$ ( $1\text{GHz} \leq f$ ) |

### 10.2 MEASURING INSTRUMENTS AND SETTING

Please refer to section 5 in this report. The following table is the setting of Spectrum Analyzer.

| Spectrum Parameter | Setting                                                        |
|--------------------|----------------------------------------------------------------|
| Attenuation        | Auto                                                           |
| RB                 | 100 kHz (below 1GHz emissions)<br>1 MHz (above 1GHz emissions) |
| VB                 | 100 kHz (below 1GHz emissions)<br>1 MHz (above 1GHz emissions) |
| Detector           | Peak                                                           |
| Trace              | Max Hold                                                       |
| Sweep Time         | Auto                                                           |

### 10.3 TEST PROCEDURES

1. EUT have the continuous reception mode and fixed only one channelize.
2. Setting of SA is following as RB / VB: 100 kHz (below 1GHz emissions) / 1 MHz (above 1GHz emissions) /  
AT: 10dB / Ref: 0dBm / Sweep time: Auto / Sweep Mode: Continuous sweep / Detect mode: Positive peak / Trace mode: Max hold
3. SA set RB: 100kHz and VB: 100kHz. Then adjust to start frequency 30MHz and stop frequency 1000MHz. Search to mark peak reading value + cable loss shall be less than 4nW/-54dBm
4. SA set RB: 1MHz and VB: 1MHz. Then adjust to start frequency 1000MHz and stop frequency 12500MHz. Search to mark peak reading value + cable loss shall be less than 20nW/-47dBm
5. If power level of lower emissions are more than 1/10 of limit (4nW/-54dBm for  $f < 1\text{GHz}$ , 20nW/-47dBm for  $f \geq 1\text{GHz}$ ), all those are to be indicated in the 2nd and 3rd lines. If others are 1/10 or less more of the limit, no necessary to be indicated.

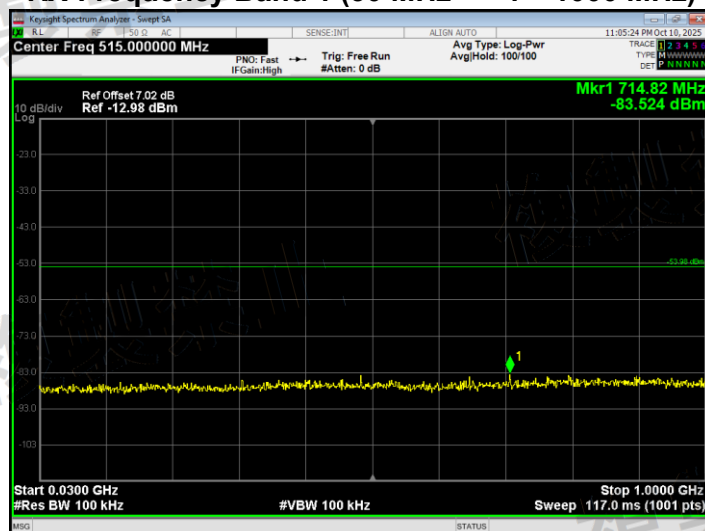
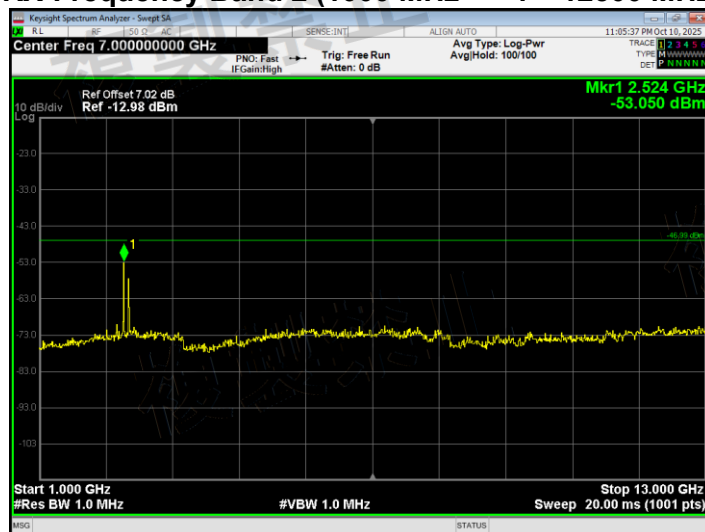


## 10.4 TEST RESULT

|              |         |                    |       |           |          |
|--------------|---------|--------------------|-------|-----------|----------|
| Temperature: | 25.3 °C | Relative Humidity: | 55.5% | Pressure: | 1010mbar |
|--------------|---------|--------------------|-------|-----------|----------|

| Frequency (MHz) | Antenna | Range (MHz) | Emission Frequency (MHz) | Max Value (dBm/MHz) | Max Value (nW/MHz) | Limit (nW/MHz) | Verdict |
|-----------------|---------|-------------|--------------------------|---------------------|--------------------|----------------|---------|
| 2402            | Ant1    | 30-1000     | 714.82                   | -83.52              | 0.0044             | 4              | Pass    |
| 2402            | Ant1    | 1000-13000  | 2524                     | -53.05              | 4.9545             | 20             | Pass    |
| 2440            | Ant1    | 30-1000     | 918.52                   | -83.96              | 0.004              | 4              | Pass    |
| 2440            | Ant1    | 1000-13000  | 2524                     | -52.06              | 6.223              | 20             | Pass    |
| 2480            | Ant1    | 30-1000     | 791.45                   | -84.61              | 0.0035             | 4              | Pass    |
| 2480            | Ant1    | 1000-13000  | 2476                     | -63.41              | 0.456              | 20             | Pass    |

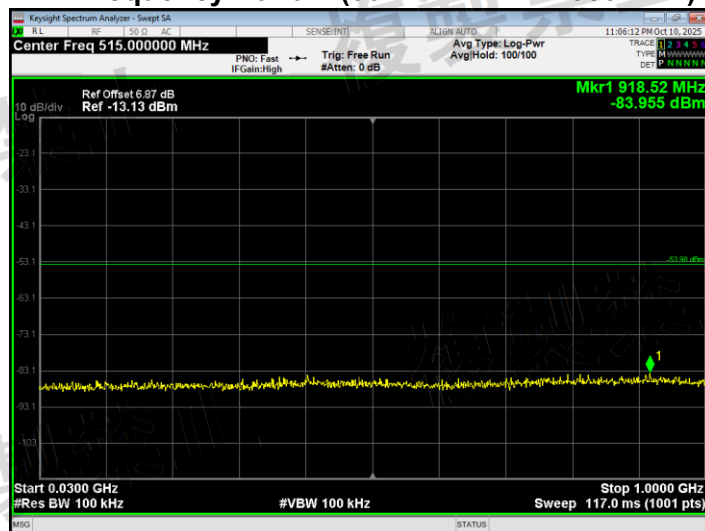
Operation Mode: Low Channel Normal voltage

RX-Frequency Band 1 (30 MHz  $\leq$  f < 1000 MHz)RX-Frequency Band 2 (1000 MHz  $\leq$  f < 12500 MHz)

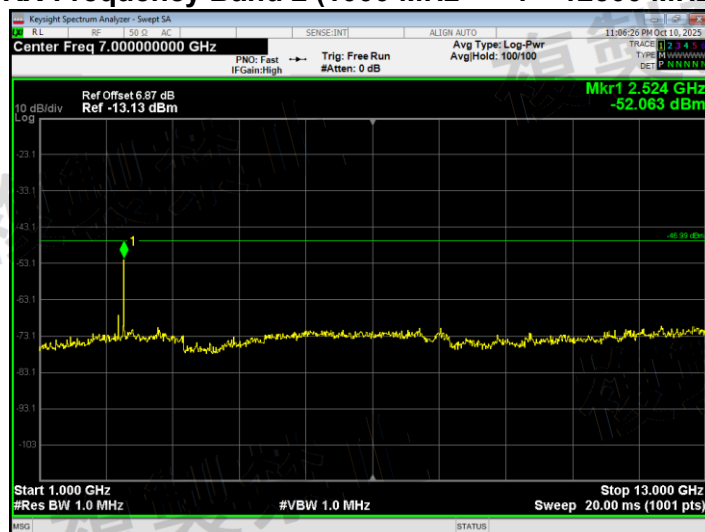


Operation Mode: Middle Channel Normal voltage

### RX-Frequency Band 1 (30 MHz $\leq f < 1000$ MHz)



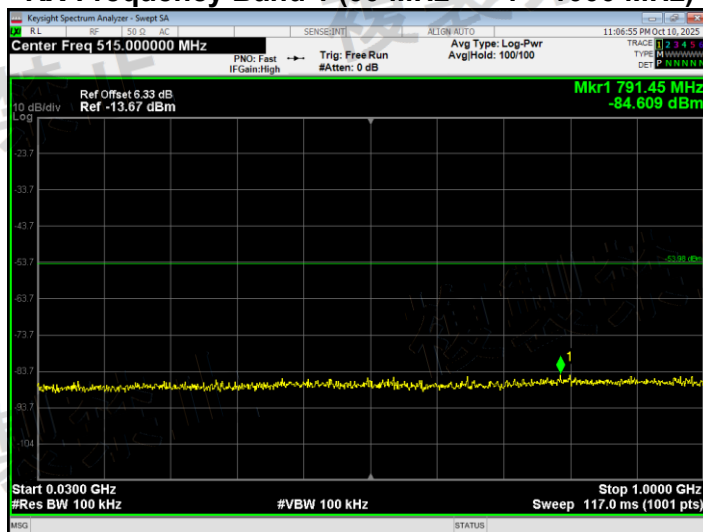
### RX-Frequency Band 2 (1000 MHz $\leq f < 12500$ MHz)



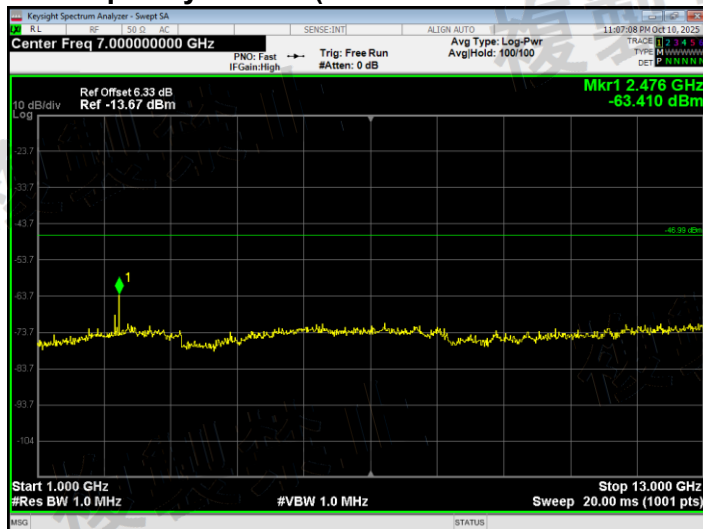


Operation Mode: High Channel Normal voltage

RX-Frequency Band 1 (30 MHz  $\leq$  f < 1000 MHz)



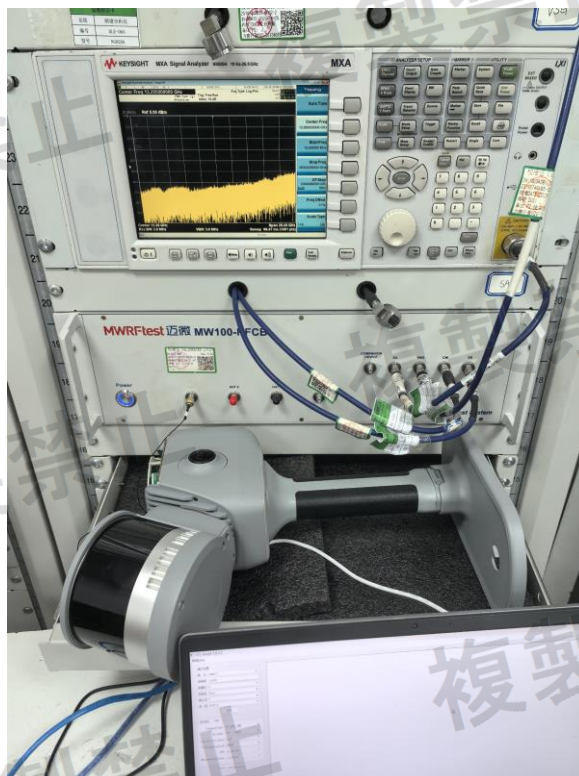
RX-Frequency Band 2 (1000 MHz  $\leq$  f < 12500 MHz)





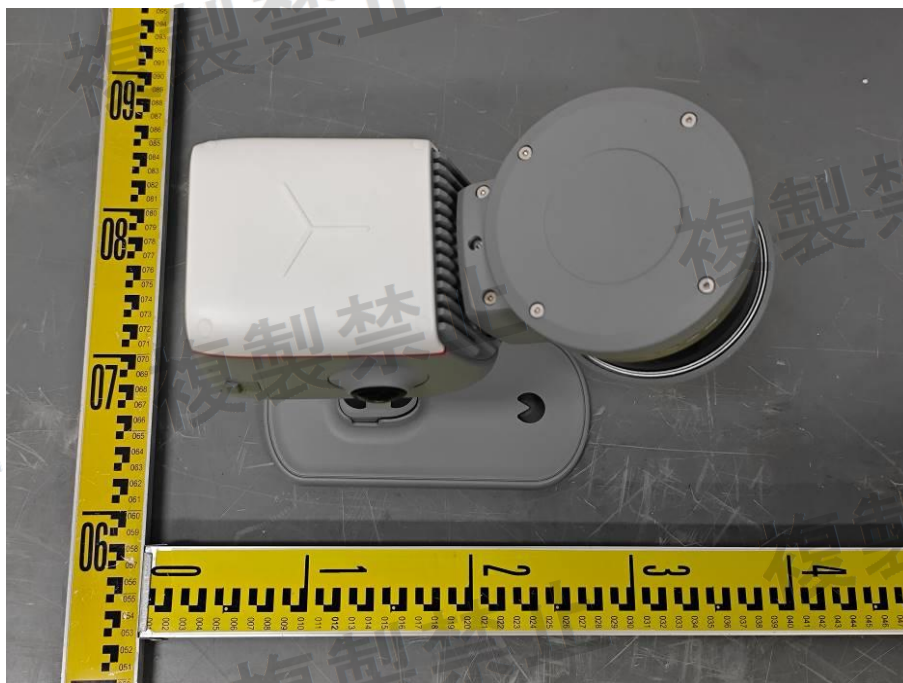
## 11. EUT TEST PHOTO

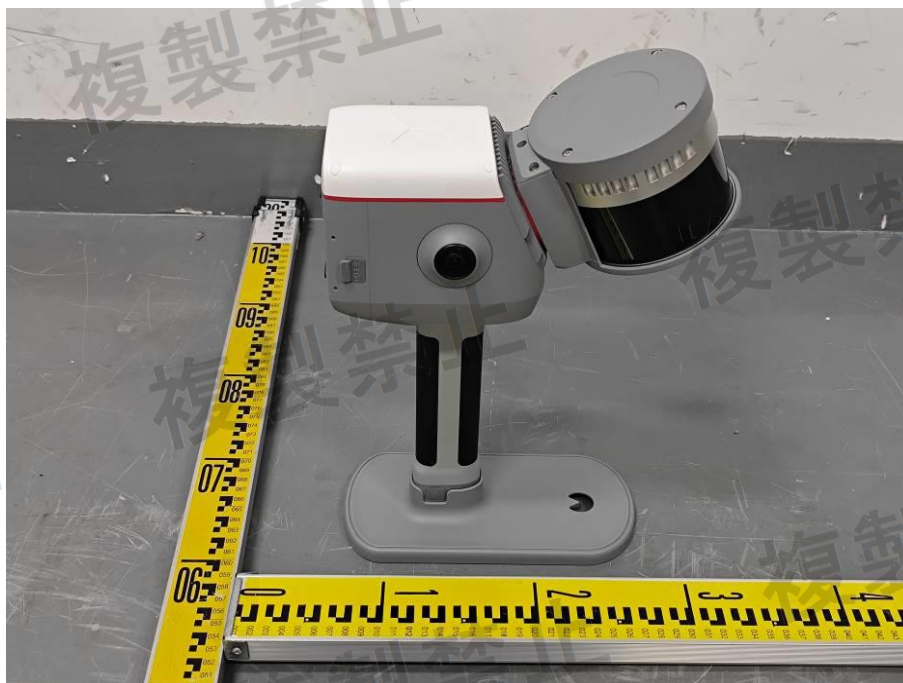
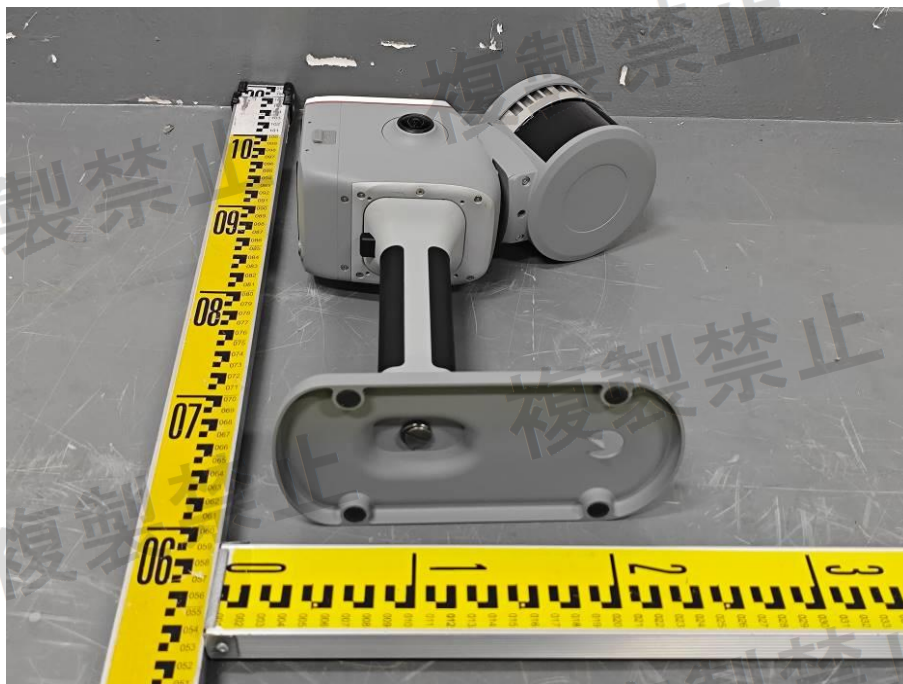
### Measurement Photos

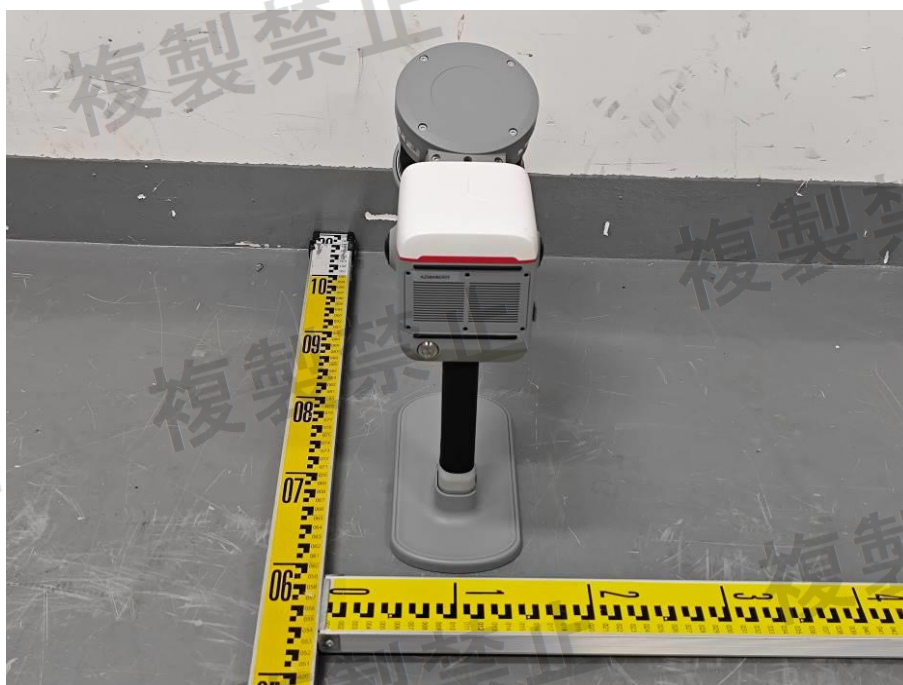
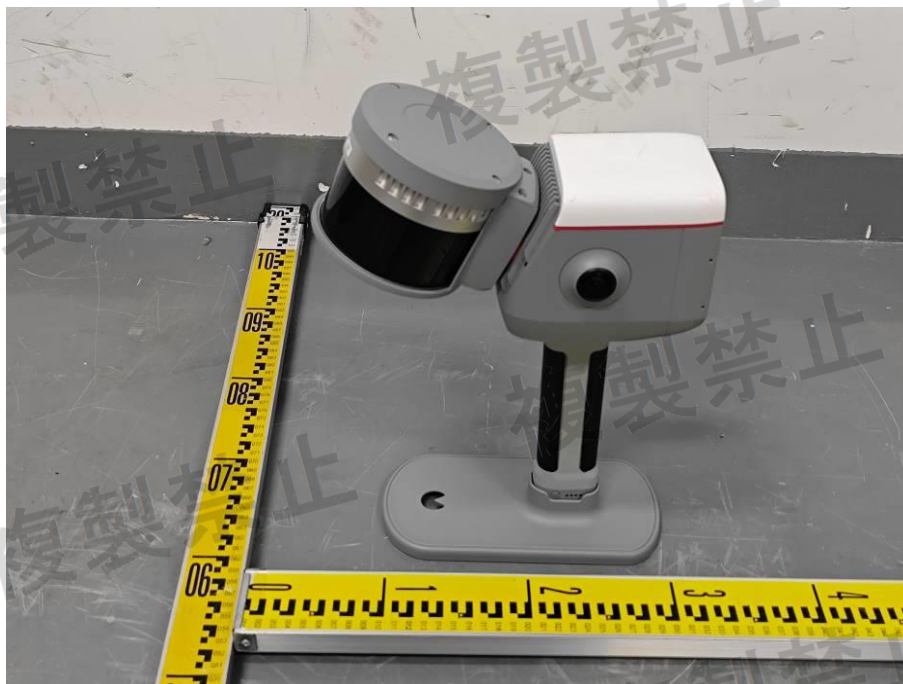


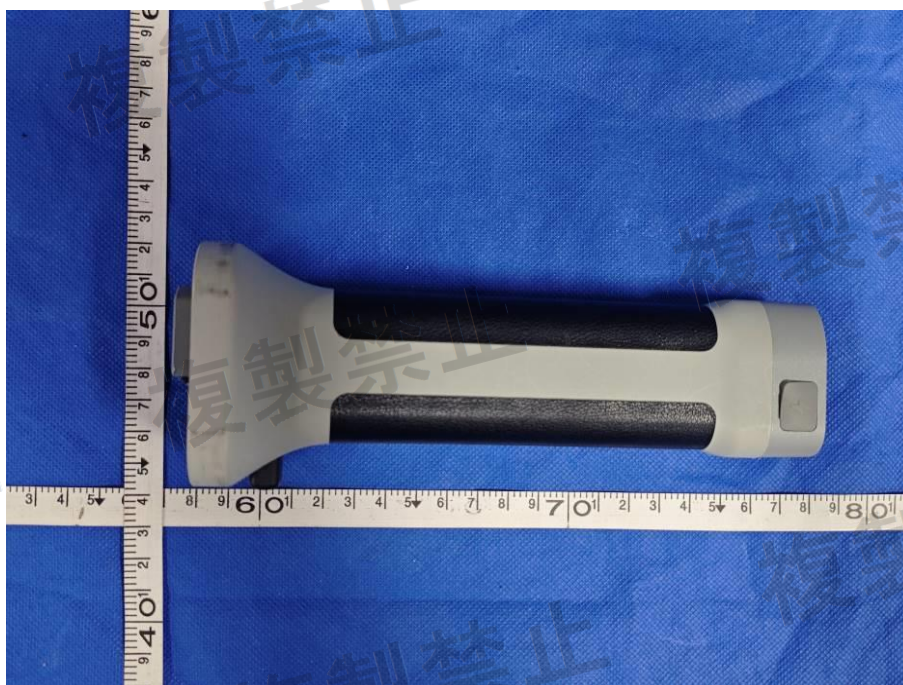
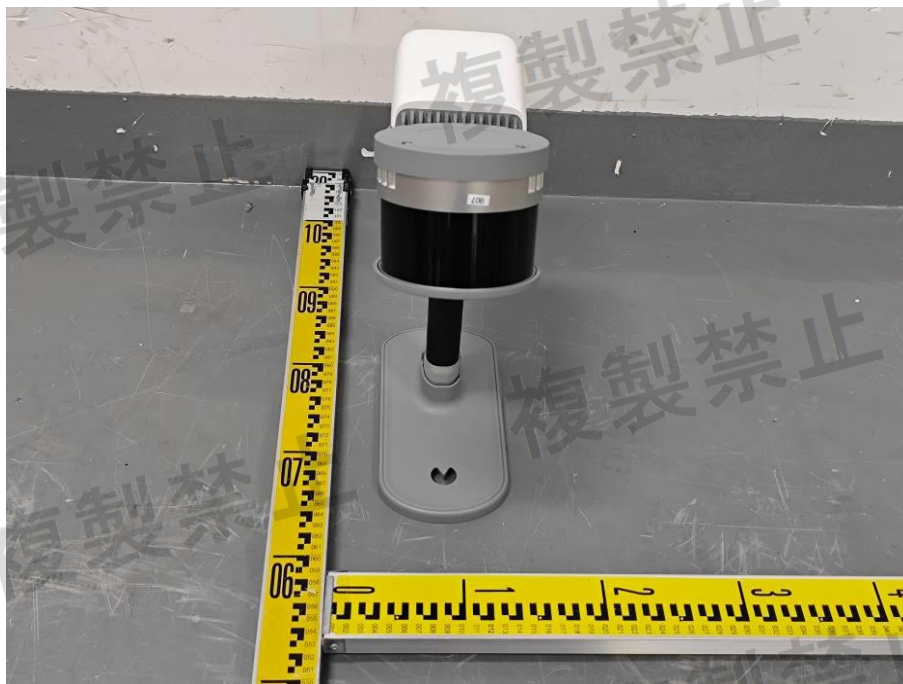


## 12. EUT PHOTOS

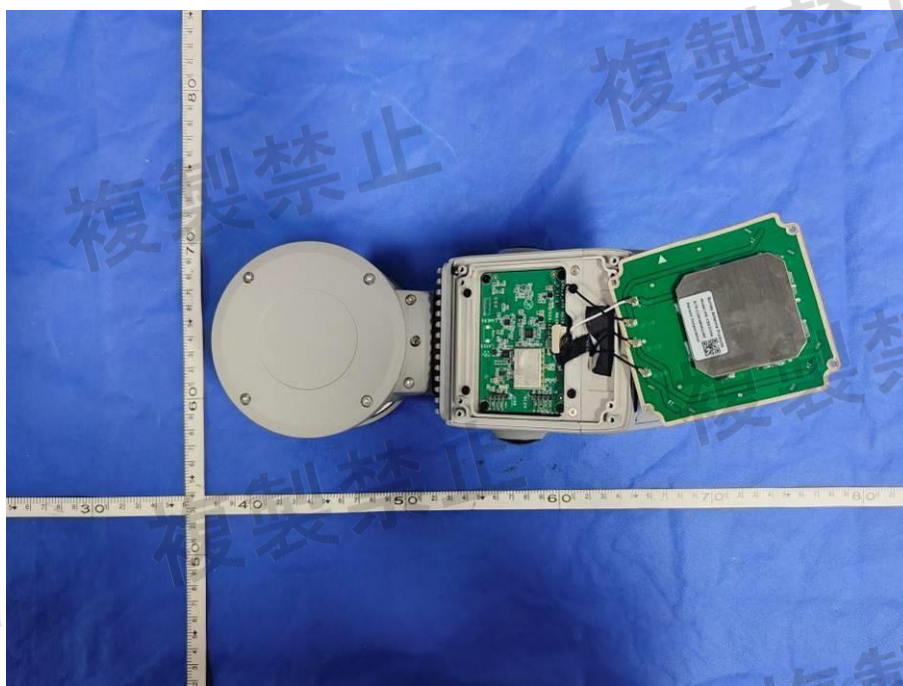
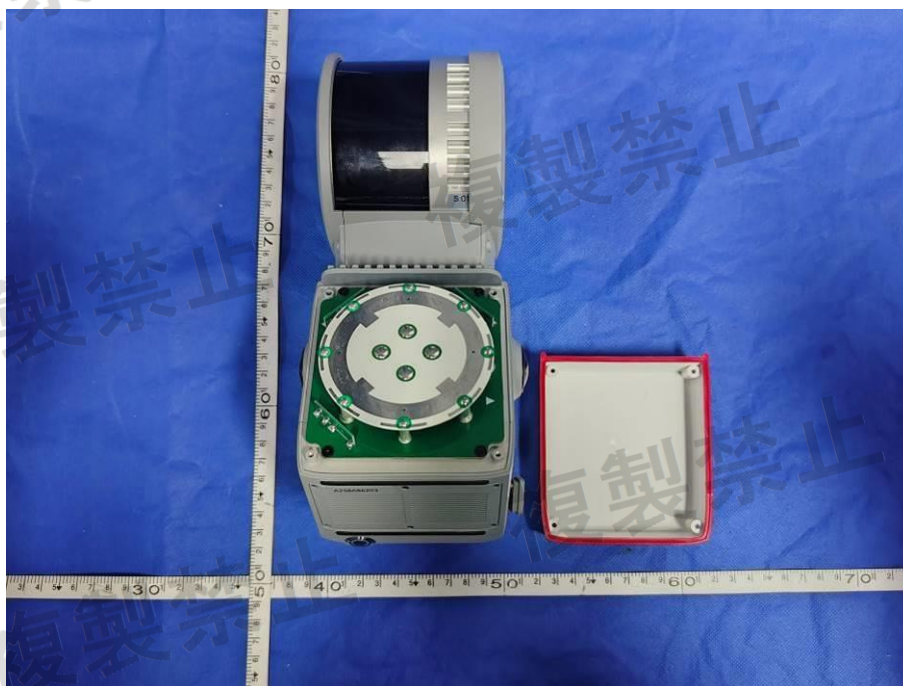


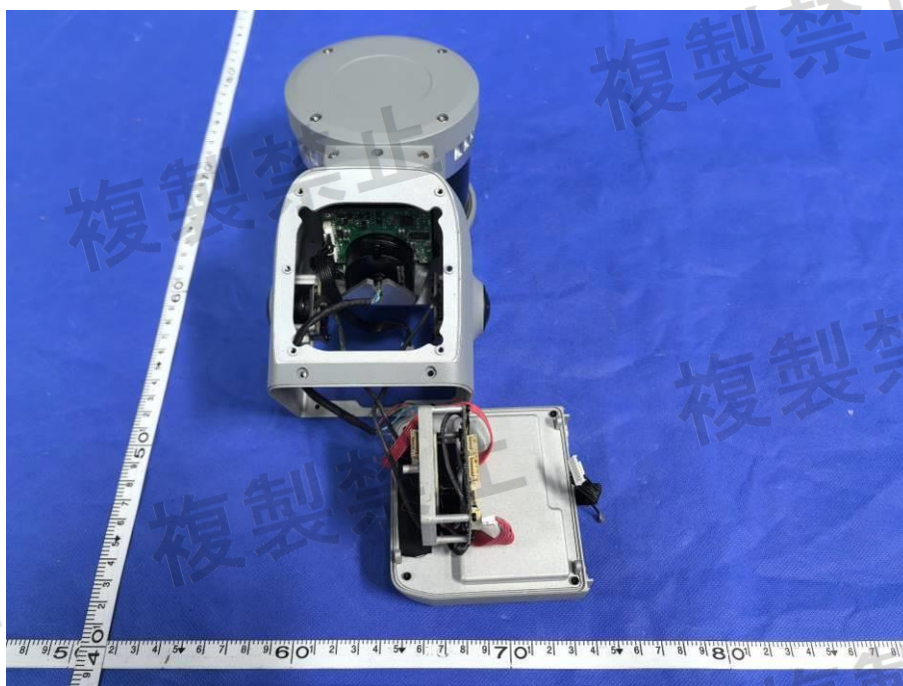
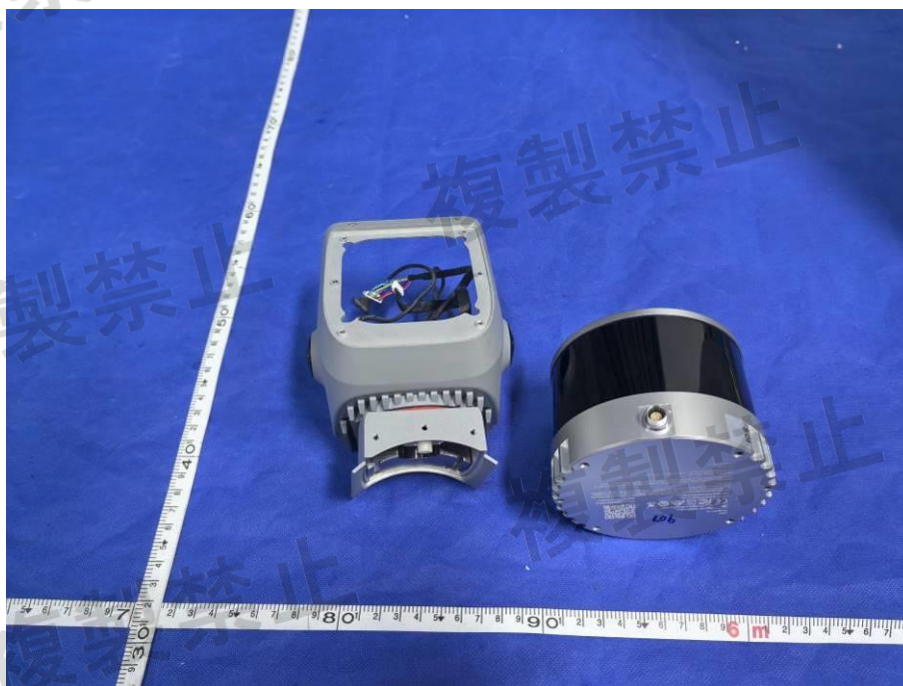


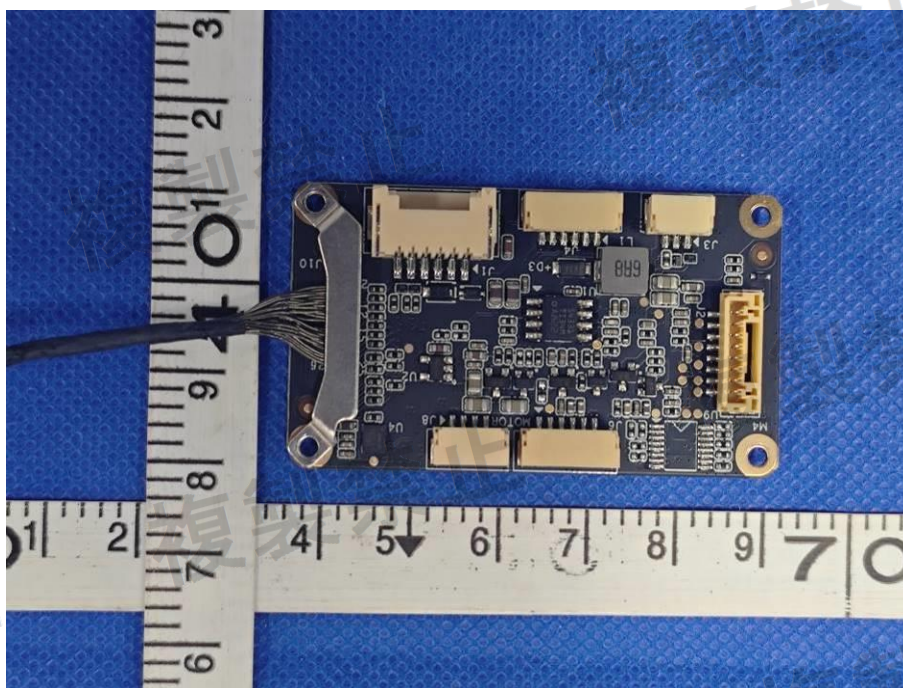
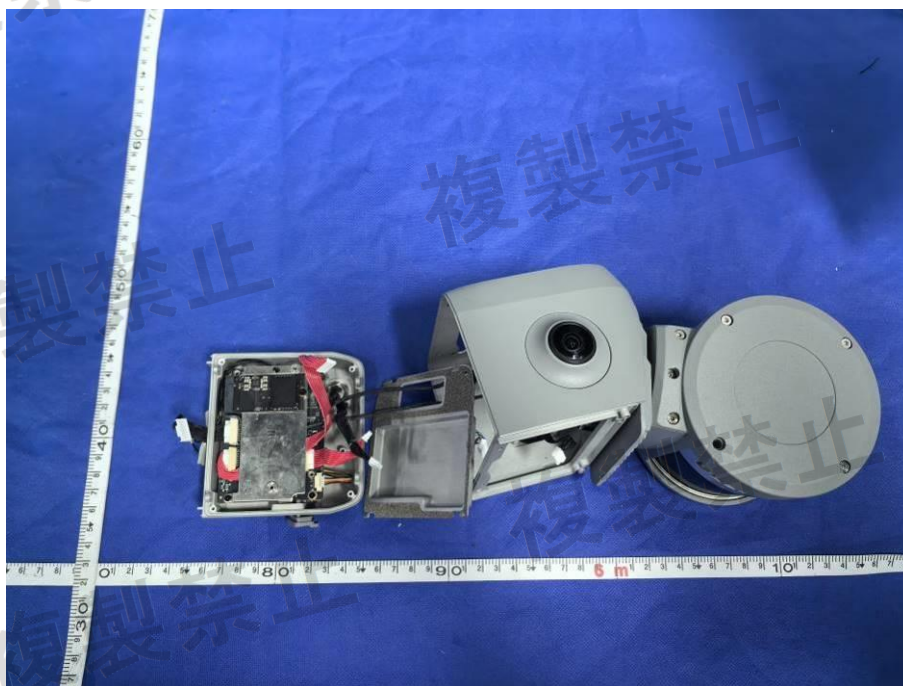


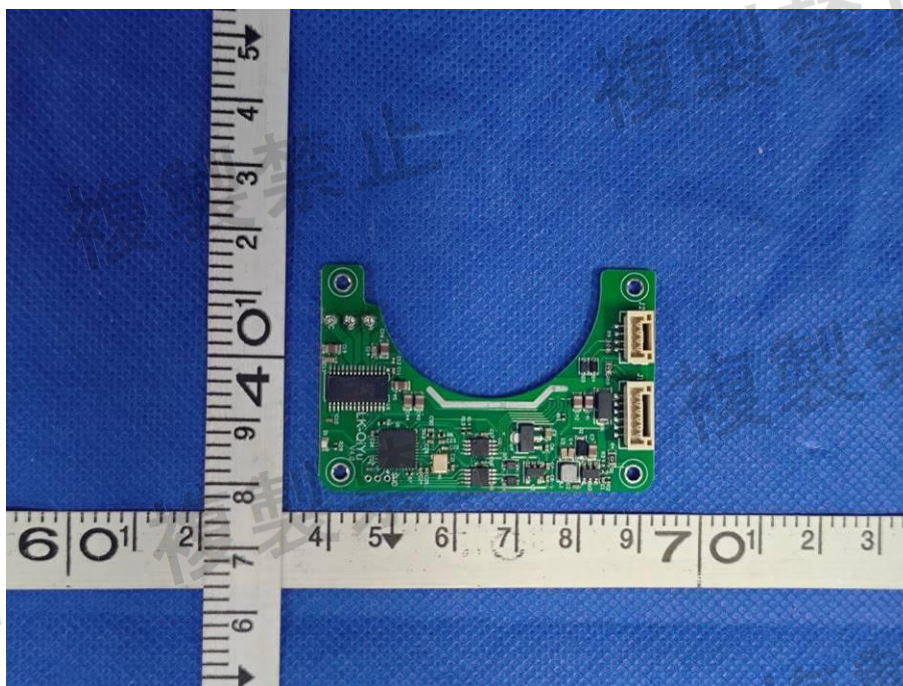
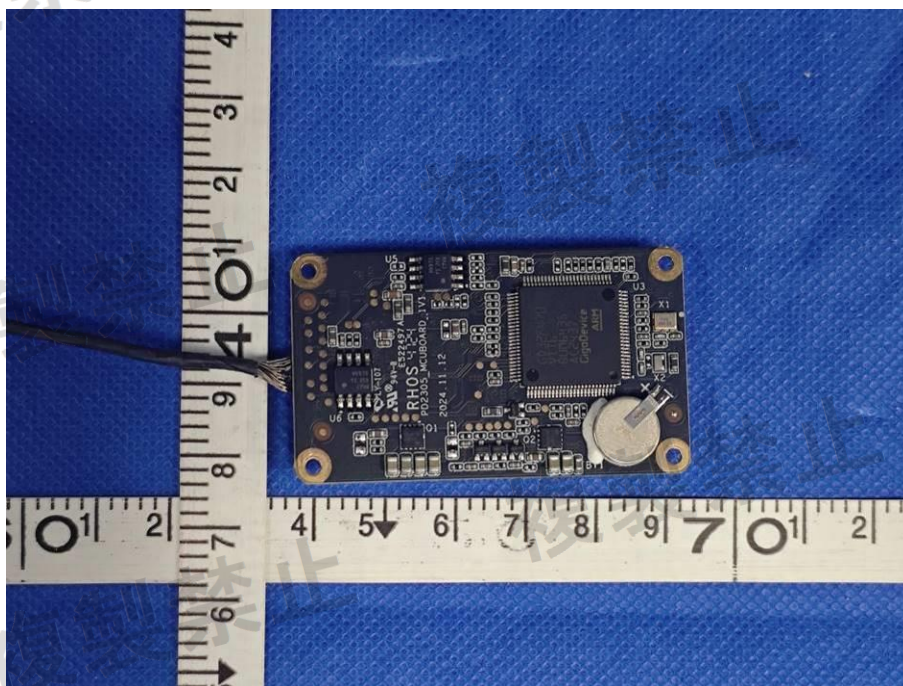


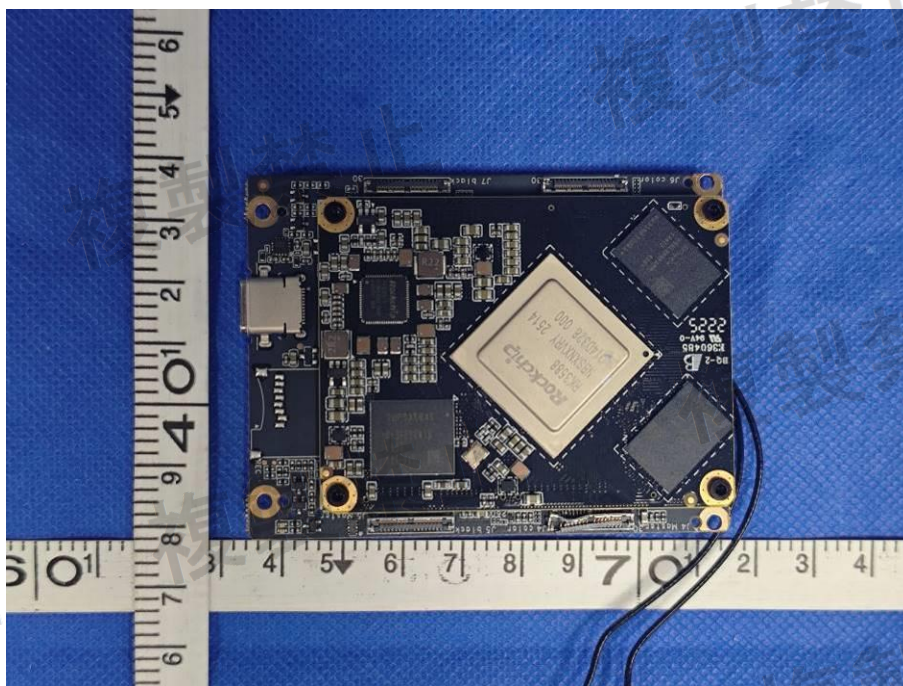
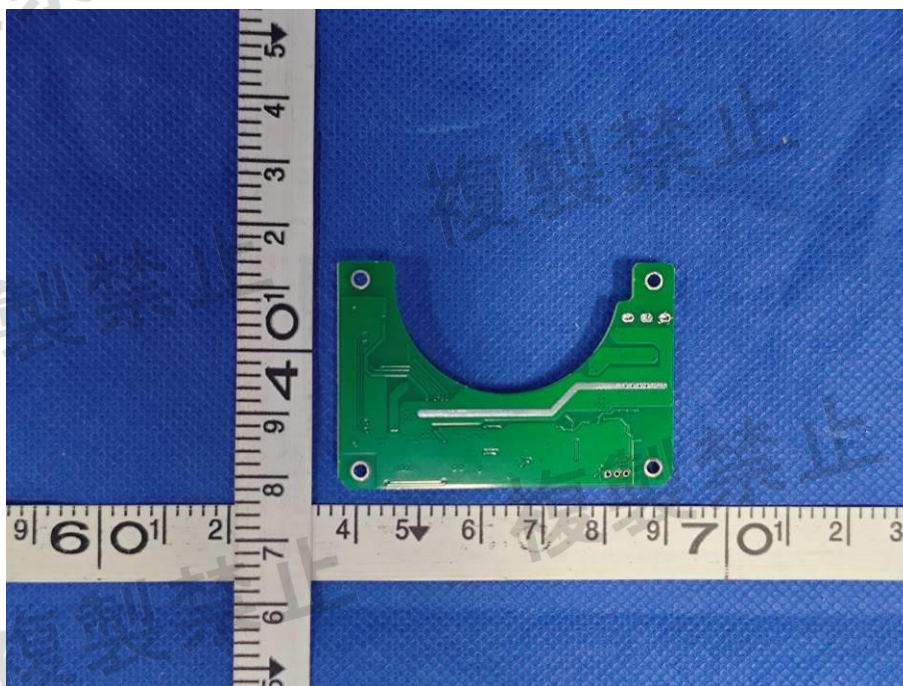


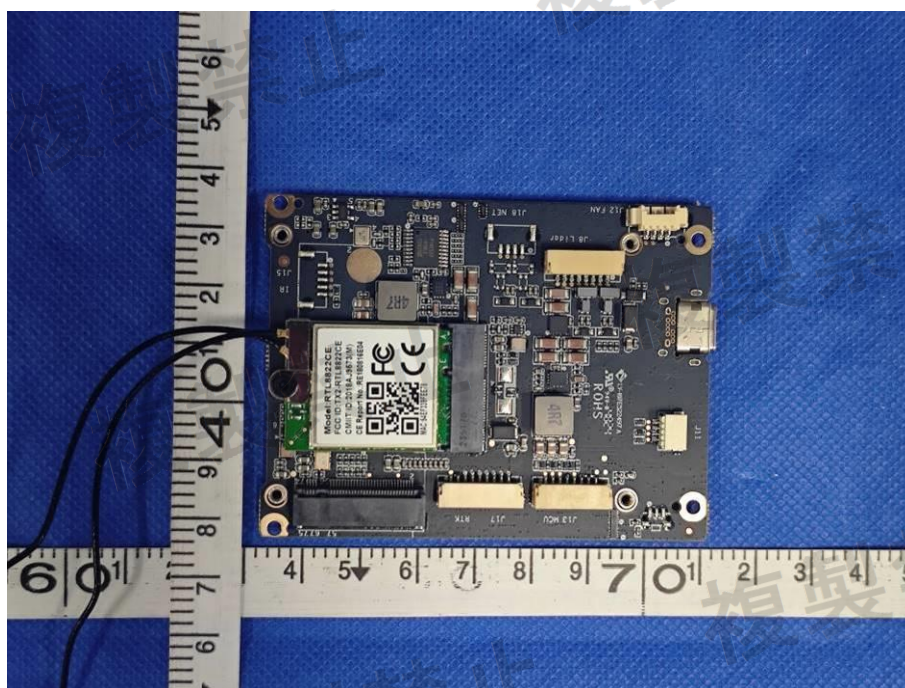
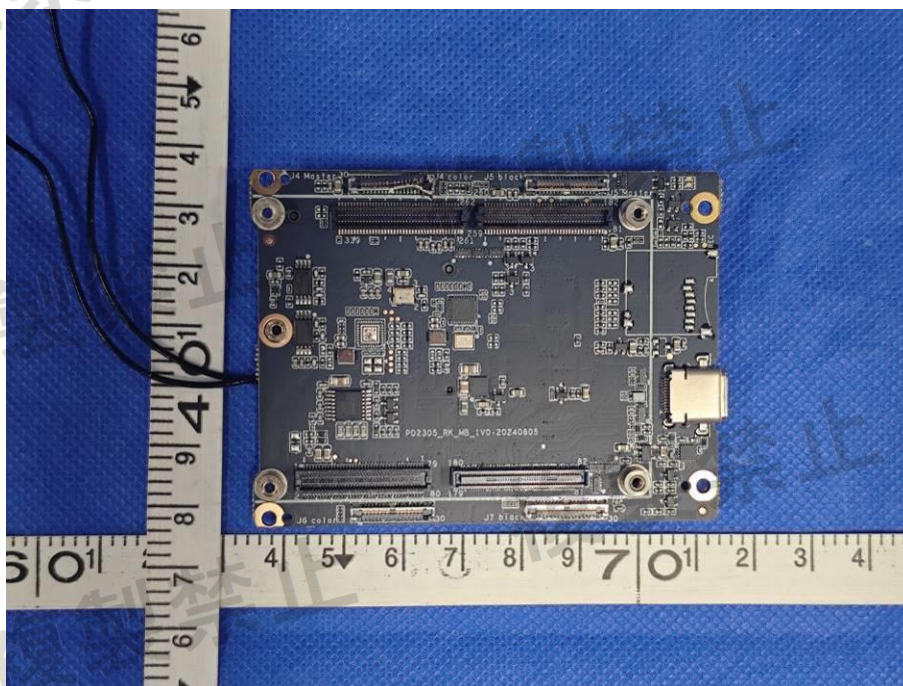


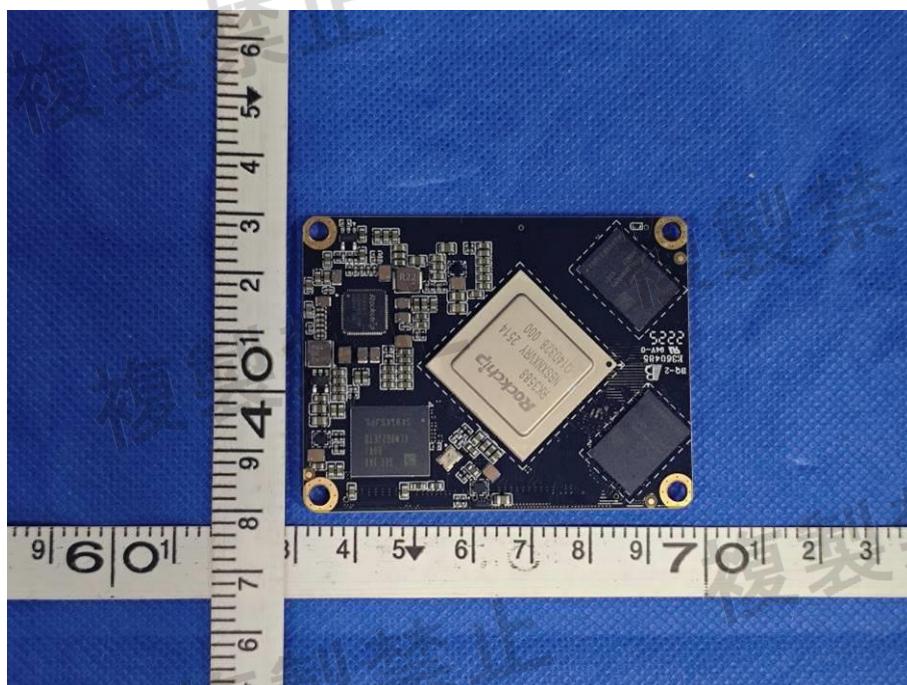
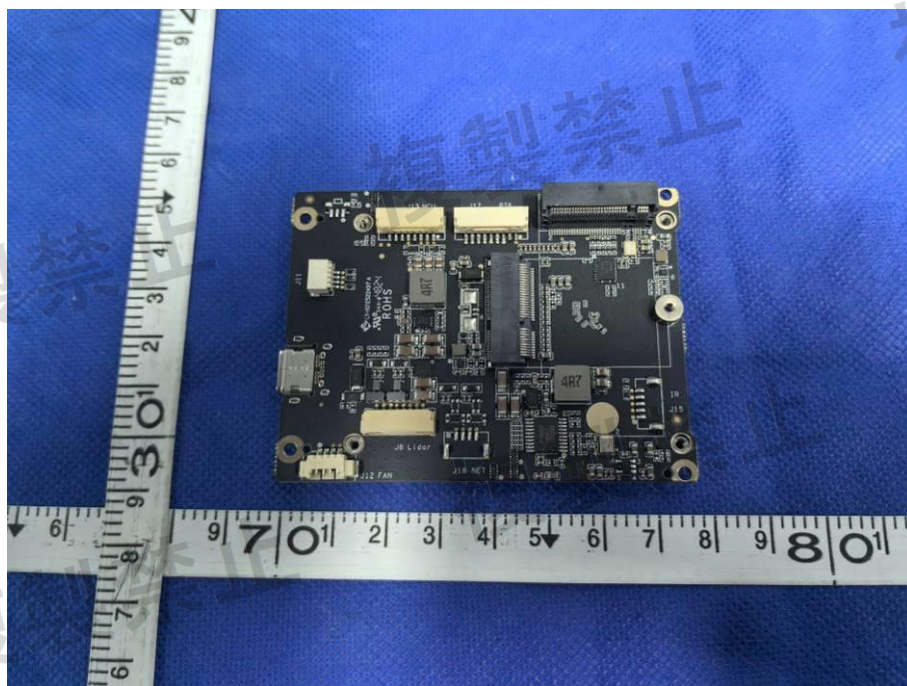


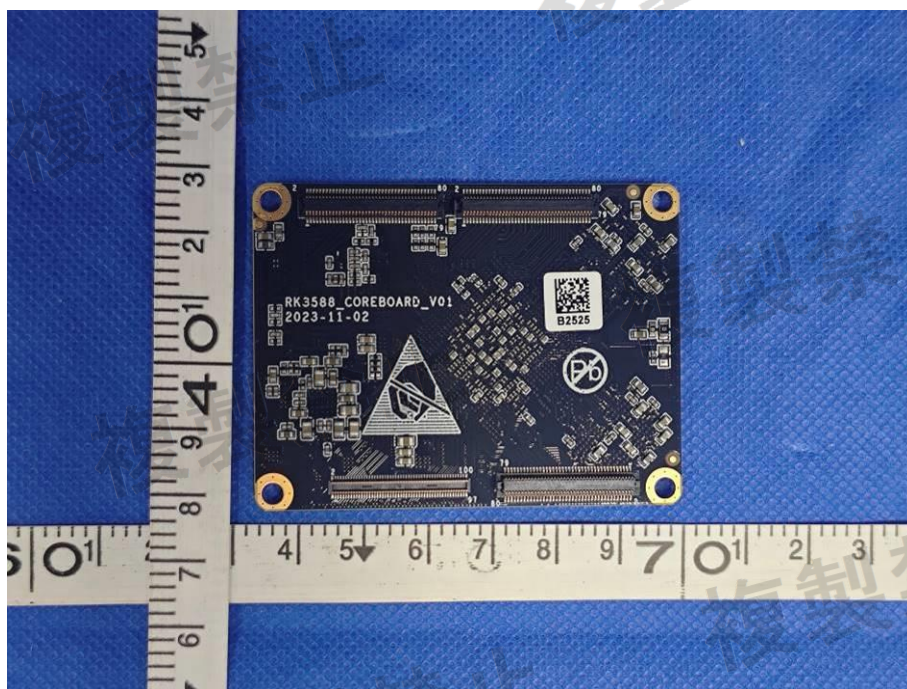
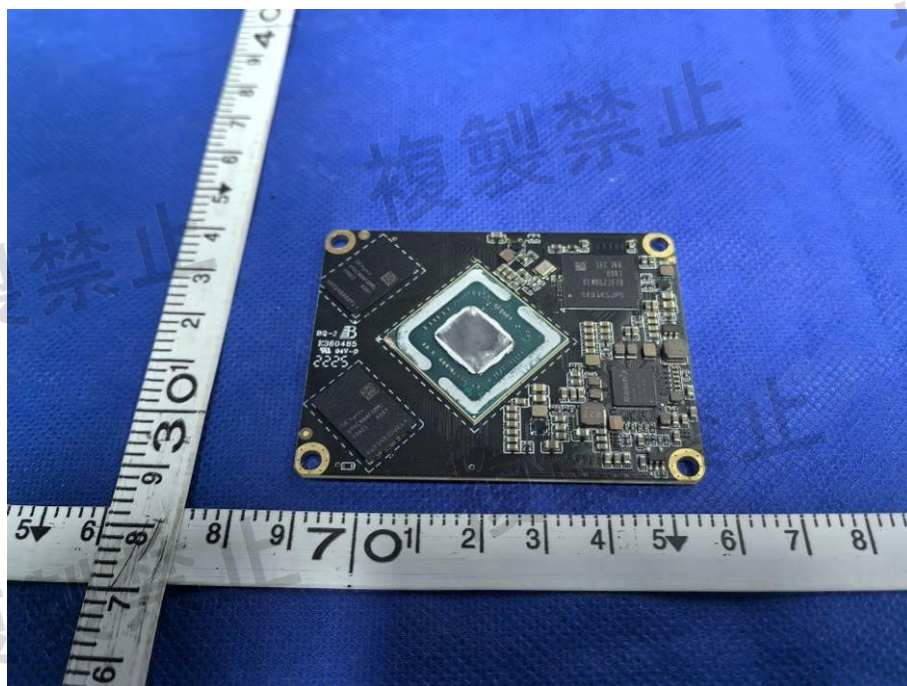


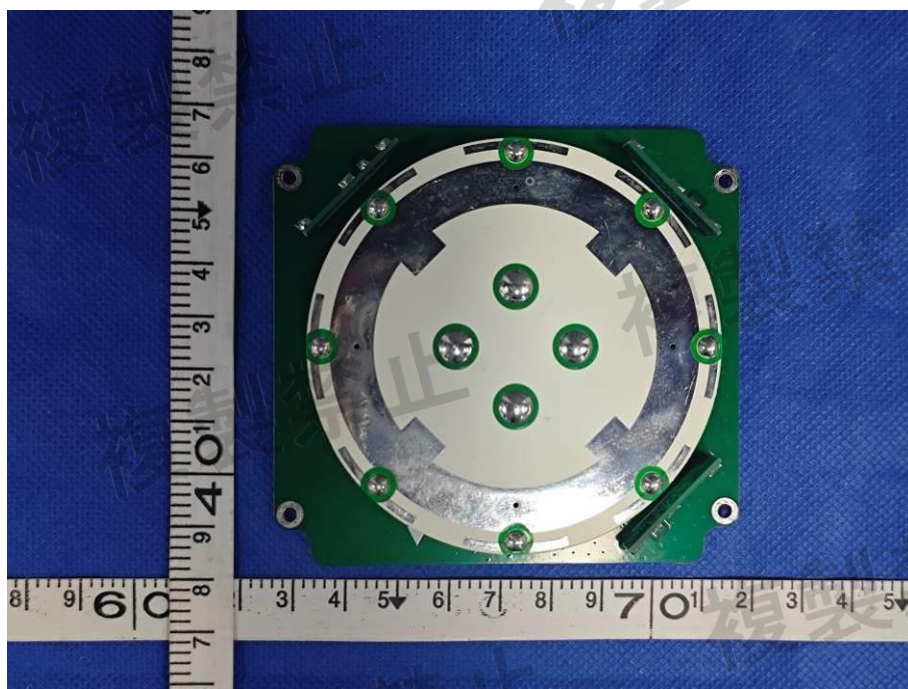
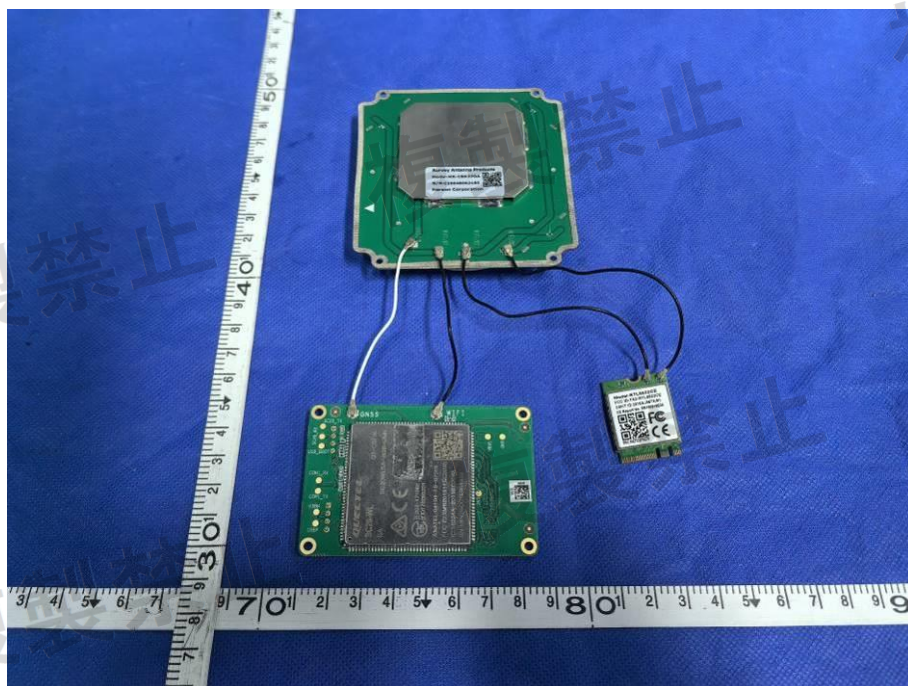


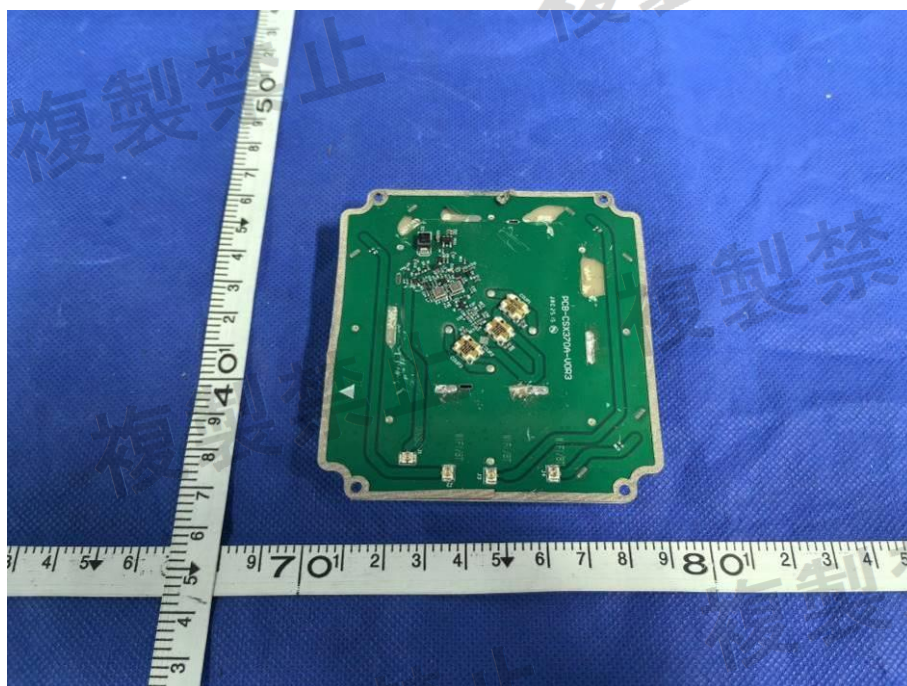
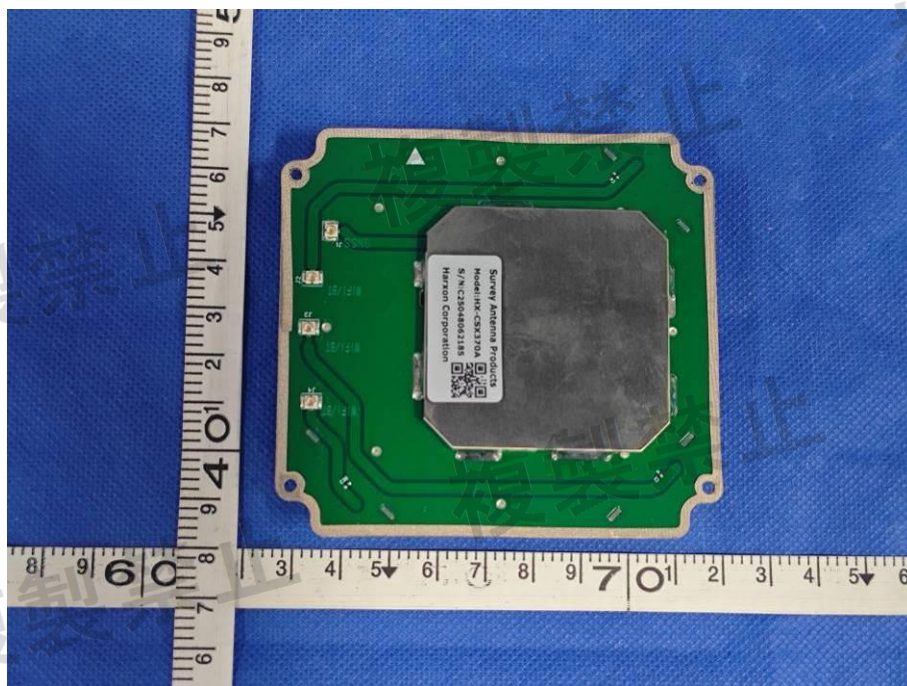


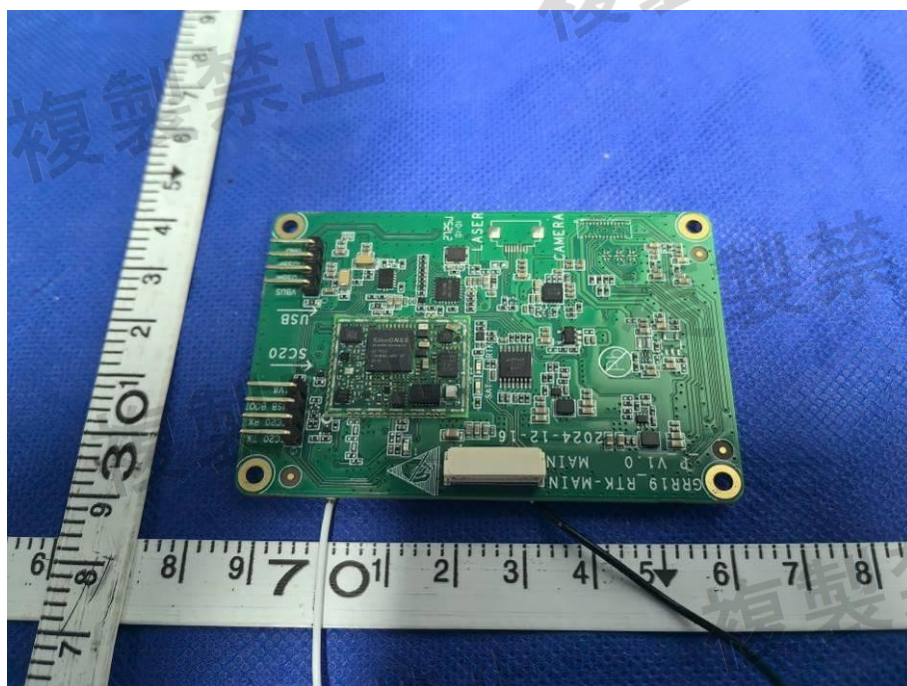
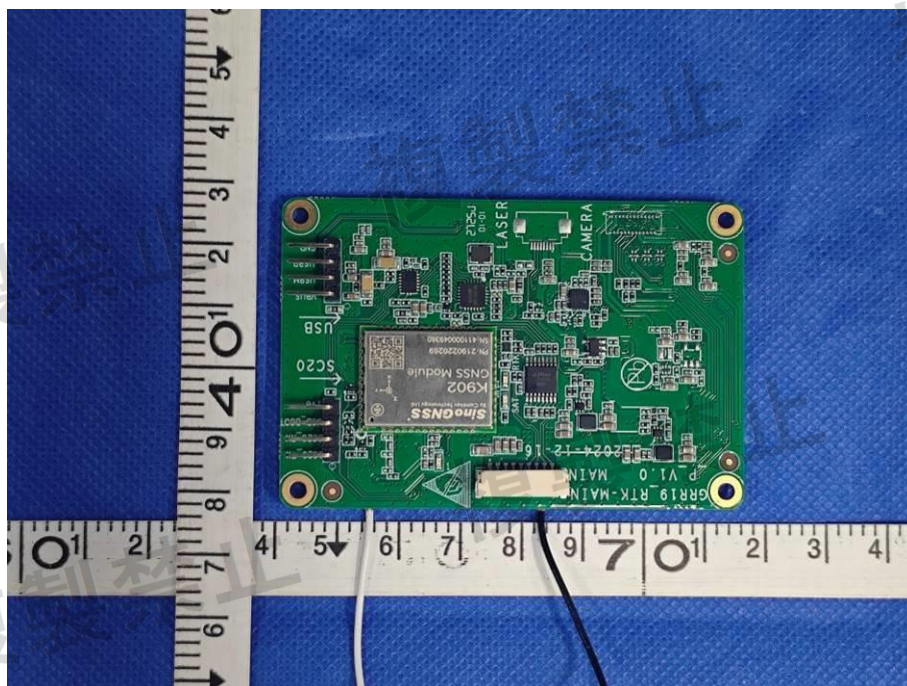


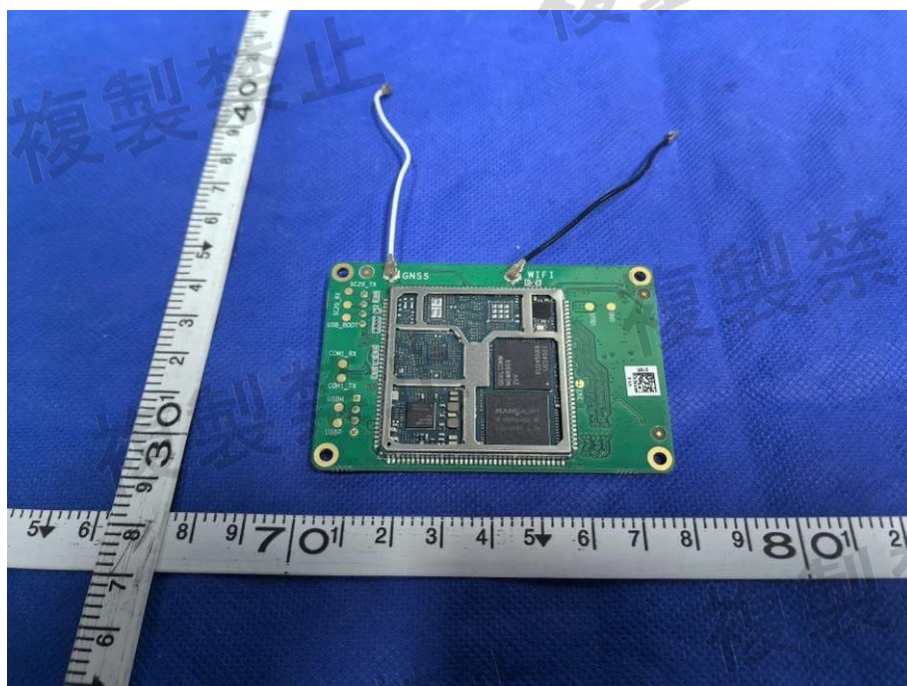
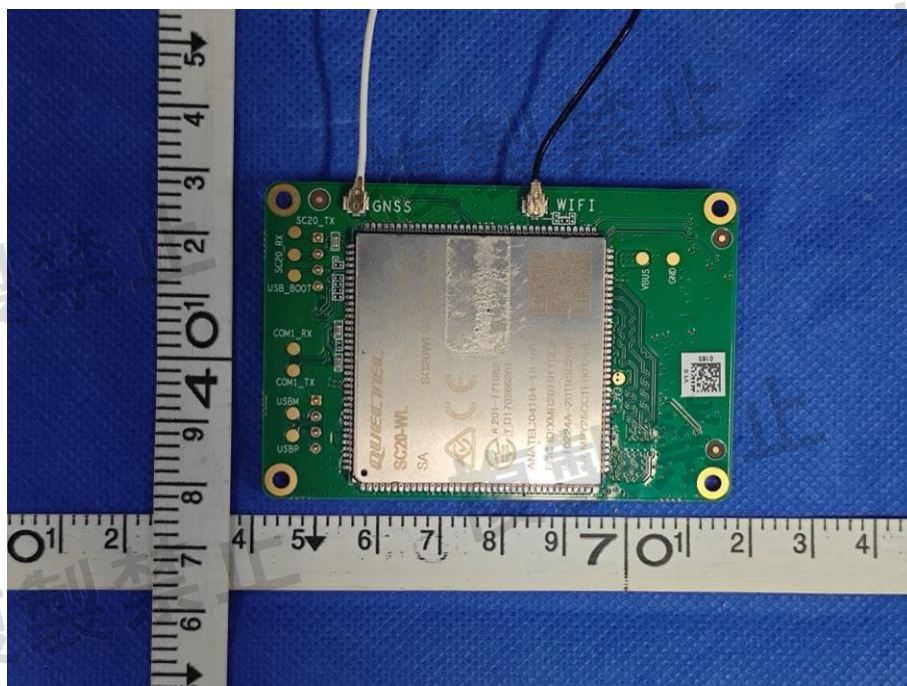


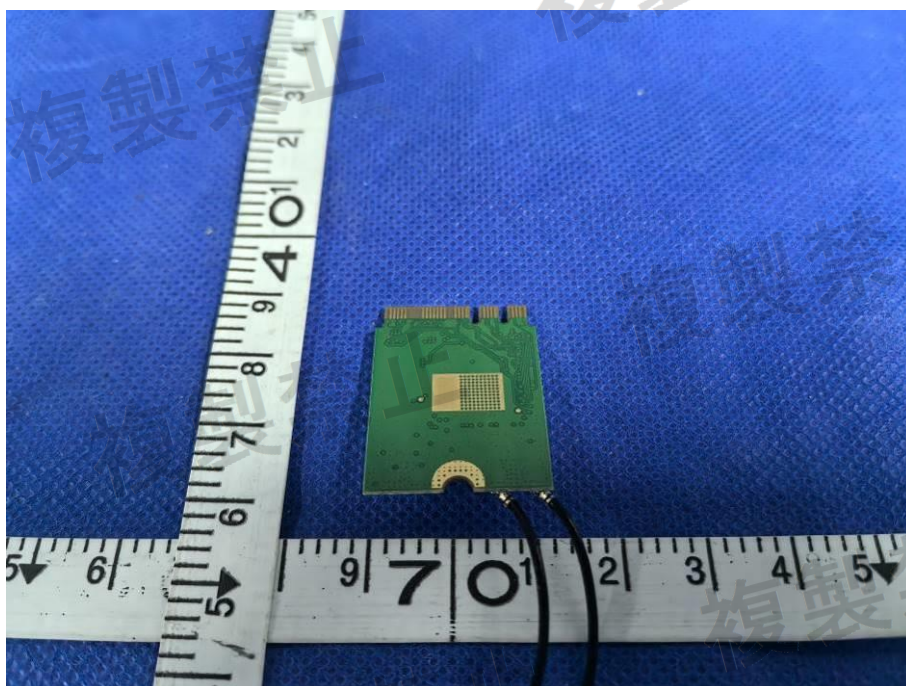
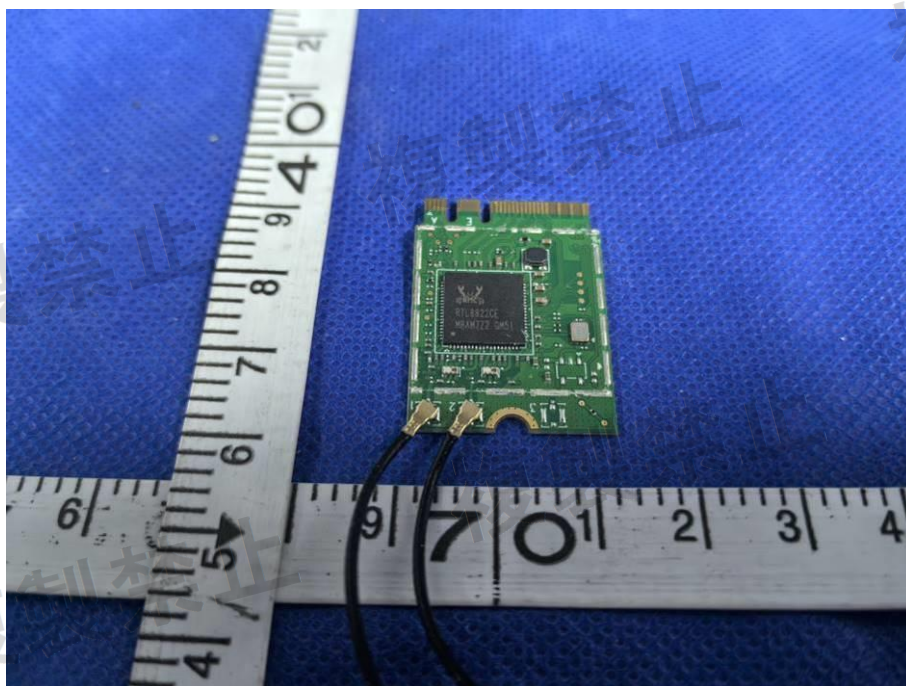


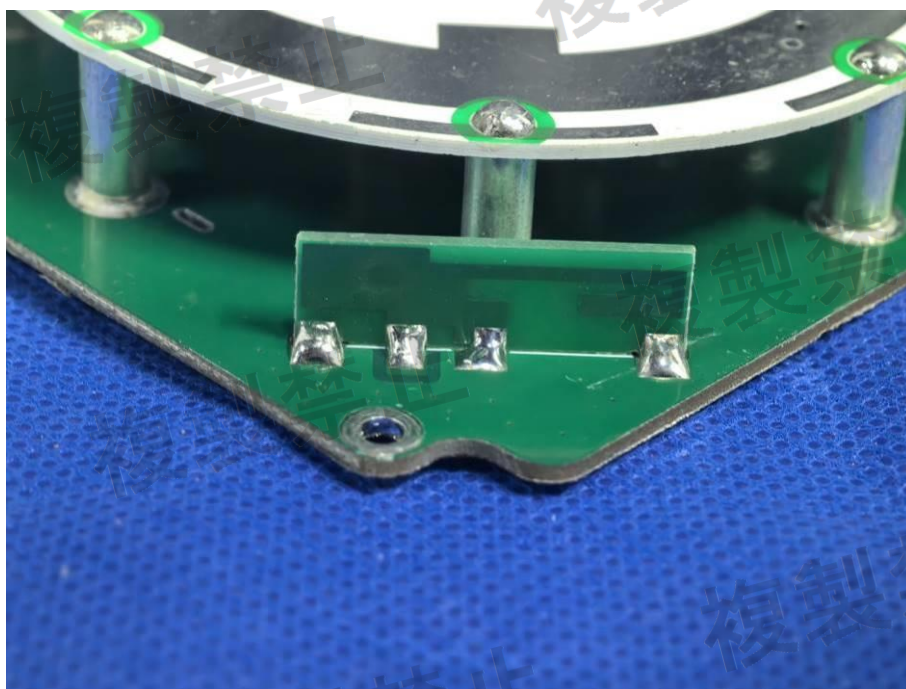
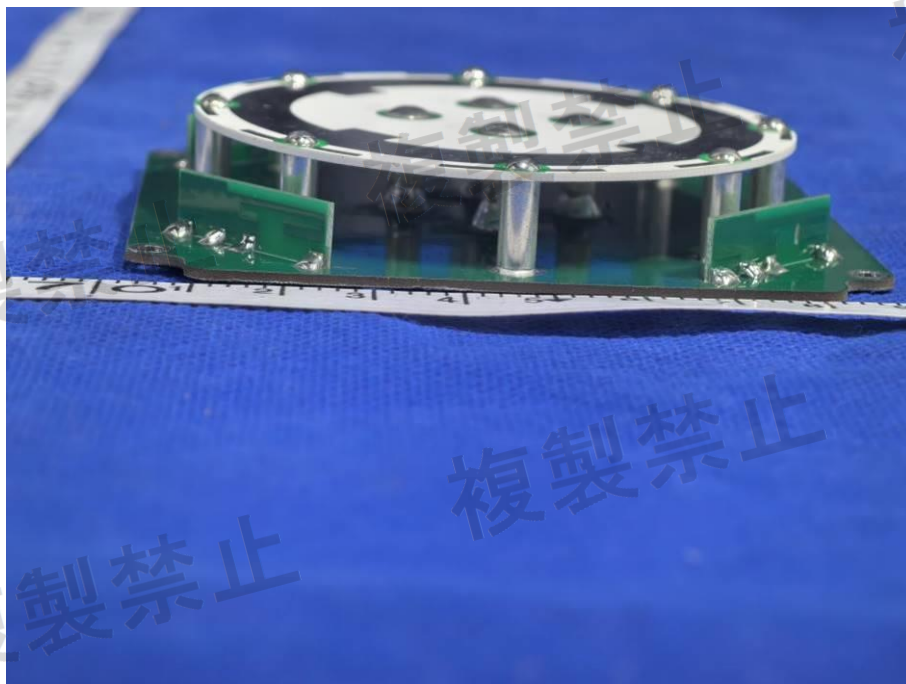












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