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Report Template Version: V05
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中国认可 国际互认 检测 TESTING CNAS L5785

# TEST REPORT

| | |
|---|---|
| **Application No.:** | CQASZ20260300641E |
| **Applicant:** | WELLNESS INTELLIGENT LIMITED |
| **Address of Applicant:** | WORKSHOP 60 3/F BLOCK A EAST SUN INDUSTRIAL CENTRE<br>16 SHING YIP STREET, KL, HONGKONG |
| **Manufacturer:** | Joint Chinese Ltd |
| **Address of Manufacturer:** | Building 4 & 6, Huafeng Tech Park, Guangtian Road, Luotian Industrial Area, Songgang Town, Bao'an District, Shenzhen, China |
| **Factory:** | Joint Chinese Ltd |
| **Address of Factory:** | Building 4 & 6, Huafeng Tech Park, Guangtian Road, Luotian Industrial Area, Songgang Town, Bao'an District, Shenzhen, China |
| **Equipment Under Test (EUT):** | |
| **Product:** | CUDIS 002 |
| **Model No.:** | CUDIS 002-13, CUDIS 002-14 |
| **Test Model No.:** | 2301A-13 |
| **Brand Name:** | N/A |
| **Standards:** | Item 19 of Article 2 Paragraph 1 |
| **Date of Receipt:** | 2024-04-11 |
| **Date of Test:** | 2024-04-11 to 2024-05-07 |
| **Date of Issue:** | 2026-4-9 |
| **Test Result :** | **PASS*** |

Test Method: MIC Notice No.88 Appendix No.43

***Tested By:*** Lewis Zhou

***( Lewis Zhou )***

***Reviewed By:*** Timo Lei

***( Timo Lei )***

***Approved By:***

***( Jack Ai)***

SHENZHEN HUAXIA TESTING TECHNOLOGY CO., LTD. 华夏准测 APPROVED

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# 1 Version

**Revision History Of Report**

| Report No. | Version | Description | Issue Date |
|---|---|---|---|
| CQASZ20240400655E | Rev.01 | Initial report | 2024-05-07 |
| CQASZ20260300641E | Rev.02 | Update report | 2026-4-9 |

Note:

This test report (Ref. No.: CQASZ20260300641E )

All test data comes from source test reports (Ref. No.: CQASZ20240400655E).

Only on the basis of the original report Change EUT Name, model No., Applicant, Address of Applicant, PCB don't change, Add Photographs of EUT, These changes do not affect RF performance.

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## 2 Test Summary

| Test | Test Requirement | Result |
|---|---|---|
| Frequency Error | Item 19 of Article 2-1 | PASS |
| Occupied Bandwidth | Item 19 of Article 2-1 | PASS |
| Spread-spectrum Bandwidth | Item 19 of Article 2-1 | PASS |
| Antenna Power | Item 19 of Article 2-1 | PASS |
| Spurious Emission of Tx | Item 19 of Article 2-1 | PASS |
| Interference prevention capability | Item 19 of Article 2-1 | PASS |
| RF accessibility | Item 19 of Article 2-1 | PASS |
| Spurious Emission of Rx | Item 19 of Article 2-1 | PASS |

**Remark:**
EUT: In this whole report EUT means Equipment Under Test.
Tx: In this whole report Tx (or tx) means Transmitter.
Rx: In this whole report Rx (or rx) means Receiver.
RF: In this whole report RF means Radio Frequency.
Other: NV-Normal voltage, HV-High voltage, LV-Low voltage, NTNV-Normal temperature & normal voltage

# 3 Contents

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# 4 General Information

## 4.1 General Description of E.U.T.

| | |
|---|---|
| Product Name: | CUDIS 002 |
| Model No: | CUDIS 002-13, CUDIS 002-14 |
| Test Model No: | 2301A-13 |
| Trade Mark: | N/A |

## 4.2 Details of E.U.T.

| | |
|---|---|
| Operating Frequency: | 2402 MHZ to 2480 MHZ |
| Type of Modulation: | GFSK |
| Number of Channels: | 40 Channels |
| Bluetooth Version: | 5.0 |
| Software version: | 2301A V0.4.8.6 |
| Hardware version: | 2301A V2 |
| Radio type: | ☐ FHSS ☐ DSSS ☐ OFDM ☒ Other |
| Antenna Type: | Chip antenna |
| Antenna gain: | 0.5dBi |
| Rated power: | 0.09mW |
| Speciality: | BLE |
| Transfer Rate: | 1Mbps |
| Sample Type: | Portable product |
| Power Supply: | ☒ For EUT operation: lithium battery, DC3.7V, 21.5mAh, 0.8Wh<br>☐ For other: Charge by DC5.0V<br>☒ For EUT operation: lithium battery, DC3.7V, 14.5mAh, 0.54Wh<br>☐ For other: Charge by DC5.0V |
| Test Voltage: | ☒ Normal voltage (EUT operation): DC3.7V<br>☐ Low voltage (Normal voltage -10%):<br>☐ High voltage (Normal voltage+10%): |

## 4.3 Description of Support Units

The EUT has been tested independently.

| Description | Manufacturer | Model No. | Remark |
|---|---|---|---|
| / | / | / | / |

## 4.4 Deviation from Standards

None.

## 4.5 Abnormalities from Standard Conditions

None.

## 4.6 Other Information Requested by the Customer

None.

## 4.7 Test Location

All tests were performed at:

Shenzhen Huaxia Testing Technology Co., Ltd.

1F., Block A of Tongsheng Technology Building, Huahui Road, Dalang Street, Longhua District, Shenzhen, China

## 4.8 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

**• CNAS (No. CNAS L5785)**

CNAS has accredited Shenzhen Huaxia Testing Technology Co., Ltd. Shenzhen Branch EMC Lab to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

**• ISED Registration No.: 22984-1**

The 3m Semi-anechoic chamber of Shenzhen Huaxia Testing Technology Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing

**• A2LA (Certificate No. 4742.01)**

Shenzhen Huaxia Testing Technology Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 4742.01.

# 5 Equipment List

| Test Equipment List | | | | | | |
|---|---|---|---|---|---|---|
| **Test Equipment** | **Manufacturer** | **Model No.** | **Serial No.** | **Cal. date (yyyy-mm-dd)** | **Calibration body** | **Classification** |
| Humi/ Temp Indicator | ANPUHUA | HTC-1 | 212066 | 2023/9/8 | DHCT | (c) |
| Spectrum Analyzer | Rohde & Schwarz | FSU26 | 200019 | 2023/9/8 | LiSai | (c) |
| Multimeter | Fluke | 15B | 96710318 | 2023/9/8 | CICC | (c) |
| Signal generator | ANRITSU | MG3692B | 074702 | 2023/9/8 | LiSai | (c) |

Remark:

(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

**Notice: Calibration duration for above equipments is 1 year.**

# 6 Test Results

## 6.1 Radio Technical Requirements Specification

**Table 1: Radio Technical Requirements Specification for 2.4 GHz band wide-band low-power data communication system (Item 19 of Article 2-1)**

| Items | Technical standard |
|---|---|
| Assigned frequency or designated frequency | 2400-2483.5MHz |
| Communication method | One-way communication, simplex, semi-duplex, or duplex operation of digital signal transmission including spread spectrum |
| Tolerance of frequency ($\times 10^{-6}$) | ±50 |
| Tolerance of occupied bandwidth | FH: 83.5MHz or less<br>FH + DS: 83.5MHz or less<br>FH + OFDM: 83.5MHz or less<br>OFDM 40MHz System: 26~40MHz<br>Others: 26MHz or less |
| Antenna power | Designated value<br>(1) FH, FH+DS, FH+OFDM: 3mW/MHz<br>(used in the range of 2427 - 2470.75 MHz)<br>(2) OFDM, DS other than (1) 10mW/MHz<br>(3) Other than (1) & (2) 10mW<br>(4) OFDM OBW 26 - 38MHz: 5mW/MHz<br>Tolerance:+20%,-80% |
| Antenna gain | 1) 12.14 dBi or less in principle<br>2) In case of directional antenna<br>(1) FH, FH+DS or FH+OFDM using 2427-2470.75 MHz<br>EIRP≤ 16.91 dBm/MHz<br>(2) OFDM or DS other than (1) EIRP≤ 22.14 dBm/MHz<br>(3) Other than (1) and (2): 22.14 dBm or less<br>(4) OFDM OBW 26 - 38MHz: 19.14dBm/MHz<br>(5) Half-power angle of directional antenna (e) in case of the item 2):e ≤ 360/A (The A is 10 in maximum.) |
| Tolerance of spurious emission intensity | (1) Below 2387 MHz: 2.5μW/MHz<br>(2) 2387 to 2400 MHz: 25μW/MHz<br>(3) 2483.5 through 2496.5 MHz: 25μW/MHz<br>(4) Over 2496.5 MHz: 2.5μW/MHz |
| Spreading bandwidth | DS,FH,FH+DS,FH+OFDM: 500kHz or more |
| Spreading rate of spectrum | For DS system;(Spreading bandwidth) / (Frequency corresponding to |

| | |
|---|---|
| | transmission rate) ≥ 5 |
| imit of secondary radiated emissions | (1) Below 1 GHz: 4nW<br>(2) 1 GHz or higher: 20nW |
| Interference prevention function | Shall have the function of automatic transmission and reception of identification sign. |
| Structure | Shall be of the structure that the RF and modulator sections excluding antenna cannot easily be opened. |
| Note | DS: Direct spread<br>FH: Frequency hopping<br>OFDM: Orthogonal frequency division multiplexing |

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## 6.2 E.U.T. Test Conditions

**Power Supply:** The fluctuation of input voltage to the circuit of RF unit of test equipment is under ±1%, when input voltage to the test equipment is fluctuated by ±10%, So, all measurement has been conducted by only rated voltage.

| The measurement result of the voltage fluctuation at RF circuit | | |
|---|---|---|
| | EUT Voltage for operation | RF Circuitry Voltage |
| High voltage | 4.07V | 3.25V |
| Normal voltage | 3.7V | 3.25V |
| Low voltage | 3.33V | 3.25V |

**Temperature:** 5 -35.0 °C

**Humidity:** 45-85 % RH

**Atmospheric Pressure:** 1000 -1010 mbar

**Test Frequencies:** If the EUT can be set to 3 of more different (carrier) frequencies in 1 allocated band, testing shall be performed using the Lowest, Middle and the Highest frequency (L, M and H). If there are 2 or fewer frequencies, testing shall be performed with the available frequencies.

**Operation Frequency each of channel**

| Channel | Frequency | Channel | Frequency | Channel | Frequency | Channel | Frequency |
|---|---|---|---|---|---|---|---|
| 0 | 2402MHz | 10 | 2422MHz | 20 | 2442MHz | 30 | 2462MHz |
| 1 | 2404MHz | 11 | 2424MHz | 21 | 2444MHz | 31 | 2464MHz |
| 2 | 2406MHz | 12 | 2426MHz | 22 | 2446MHz | 32 | 2466MHz |
| 3 | 2408MHz | 13 | 2428MHz | 23 | 2448MHz | 33 | 2468MHz |
| 4 | 2410MHz | 14 | 2430MHz | 24 | 2450MHz | 34 | 2470MHz |
| 5 | 2412MHz | 15 | 2432MHz | 25 | 2452MHz | 35 | 2472MHz |
| 6 | 2414MHz | 16 | 2434MHz | 26 | 2454MHz | 36 | 2474MHz |
| 7 | 2416MHz | 17 | 2436MHz | 27 | 2456MHz | 37 | 2476MHz |
| 8 | 2418MHz | 18 | 2438MHz | 28 | 2458MHz | 38 | 2478MHz |
| 9 | 2420MHz | 19 | 2440MHz | 29 | 2460MHz | 39 | 2480MHz |

Test frequencies are the lowest channel: 0 channel(2402MHz), middle channel: 19 channel(2440MHz) and the highest channel:39 channel(2480 MHz).

## 6.3 Test Environment

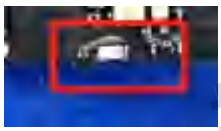
| Operating Environment: | |
|---|---|
| Temperature: | 24.5°C |
| Humidity: | 54 % RH |
| Atmospheric Pressure: | 1009 mbar |

## 6.4 Antenna Requirement

**Standard requirement**

Applicable for equipment with an antenna terminal, including testing terminals) If an antenna connector is available, all relevant tests will be carried out conducted. If not, tests will be carried out in an anechoic room or with a suitable test-fixture.

**EUT Antenna**



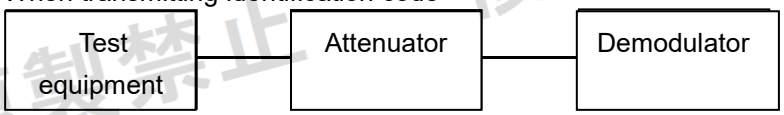
The EUT with Chip antenna, the max peak gain of the antenna is 0.5dBi.

Note: An antenna connector is available, all relevant tests will be carried out conducted.

## 6.5 Interference Prevention Function

1） Measurement system diagram

(1) When transmitting identification code




2) Condition of measuring instrument

(1) Demodulator must be able to demodulate the transmitting signal emitted by test equipment and to indicate the identification code.

3) Condition of test equipment The mode of normal use.

4) Measuring operation procedure

(1) When test equipment has the function to transmit identification code automatically:

A) Transmit the predetermined identification code from test equipment.

B) Confirm the transmitted identification code by demodulator.

5) Test result: Record the identification code and test result.

Test result: PASS

The identification code is 16:1C:6E:1D:B6:05

The unit does meet the requirements.

## 6.6 Frequency Error

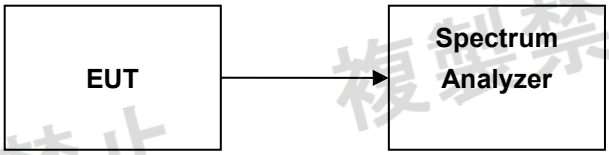
Test Requirement: Item 19 of Article 2-1

Tolerance of frequency: $\pm 50\times10^{-6}$

Test Method: MIC Notice No.88 Appendix No.43

Test Status: Test the EUT in transmitting mode without modulation.

Test Configuration:




Test Procedure:

1. Test Conditions:

   Spectrum Analyzer is used for measurement.

2. EUT conditions:

   Modulation/Spread/Hopping OFF, CW Tx

3. Spectrum Analyzer conditions:

   Frequency: Test Frequency
   Span 1MHz
   RBW 10 kHz (Modulation OFF),
   VBW 10 kHz (Modulation OFF),
   Sweep Time Auto
   Detector mode Positive peak
   Indication mode Max hold

**Test Result:**

**BLE :**

| TestCondition | TestMode | Freq(MHz) | CenterFreq(MHz) | Result[ppm] | Limit[ppm] | Verdict |
|---|---|---|---|---|---|---|
| NTNV | BLE_1M | 2402 | 2402.016 | 6.66112 | ±50 | PASS |
| | | 2440 | 2440.016 | 6.55738 | ±50 | PASS |
| | | 2480 | 2480.017 | 6.85484 | ±50 | PASS |

Note: The nominal frequency shall be confirmed by the applicant and test lab.

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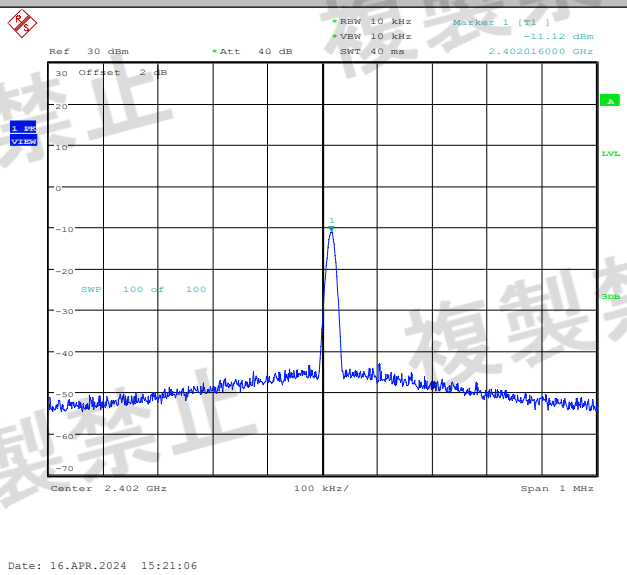
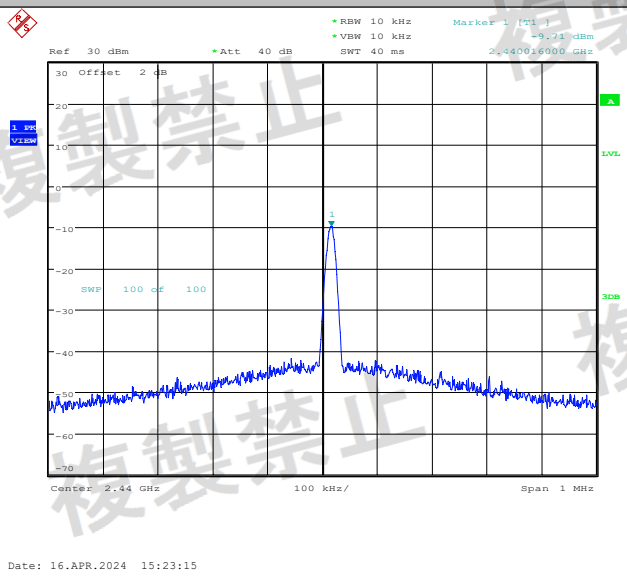
**Result plot as follows:**

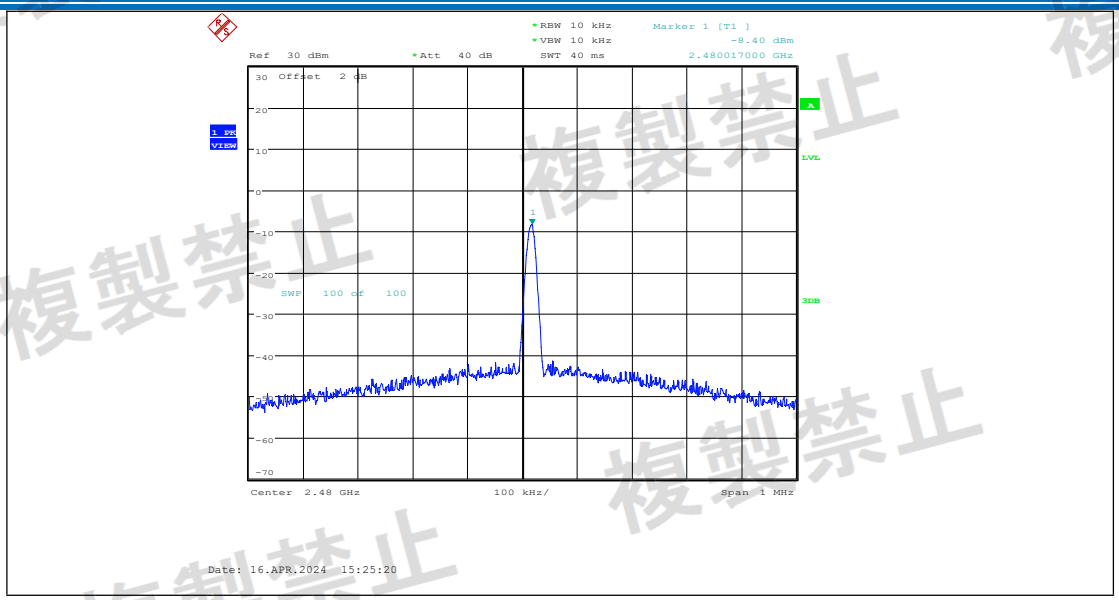
NTNV_BLE_1M_Ant1_2402




NTNV_BLE_1M_Ant1_2440




NTNV_BLE_1M_Ant1_2480




**Test Result: The unit does meet the requirements.**

## 6.7 Occupied Bandwidth (99%)

Test Requirement: Item 19 of Article 2-1

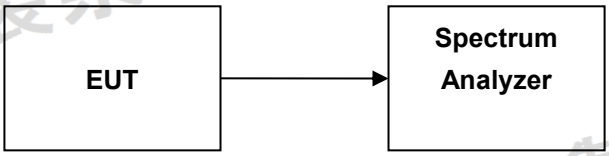
26MHz or less

Test Method: MIC Notice No.88 Appendix No.43

Test Status: Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

Following channel(s) was (were) selected for the final test as listed below.

Test Configuration:




Test Procedure:

1. Test Conditions:

   Spectrum Analyzer is used for measurement.

2. EUT conditions:

   Modulation/Spread/Hopping ON, Modulation Tx

   For equipment using diffusion code, set to the test diffusion code and modulate with standard coding test signal.

3. Spectrum Analyzer conditions:

   Frequency: Lowest, Middle and Highest Test Frequency

   Span 4 MHz

   RBW 300 KHz

   VBW 300 KHz

   Sweep Time Auto

   detector mode Positive peak

   Indication mode Max hold

   OBW 99%

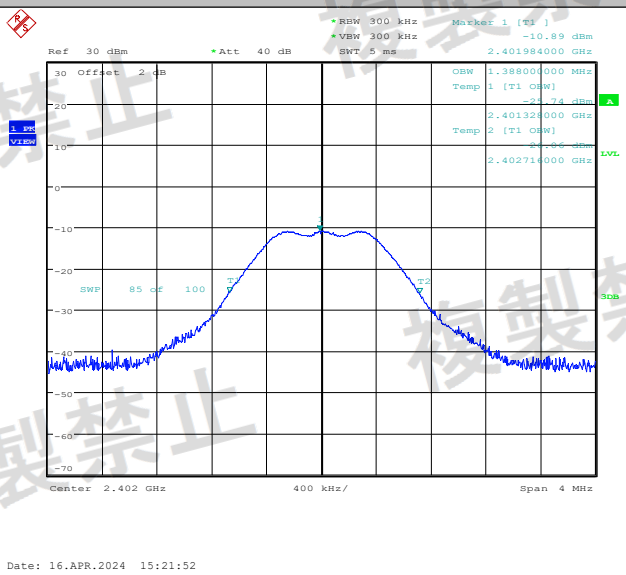
**Test Result:**

**BLE :**

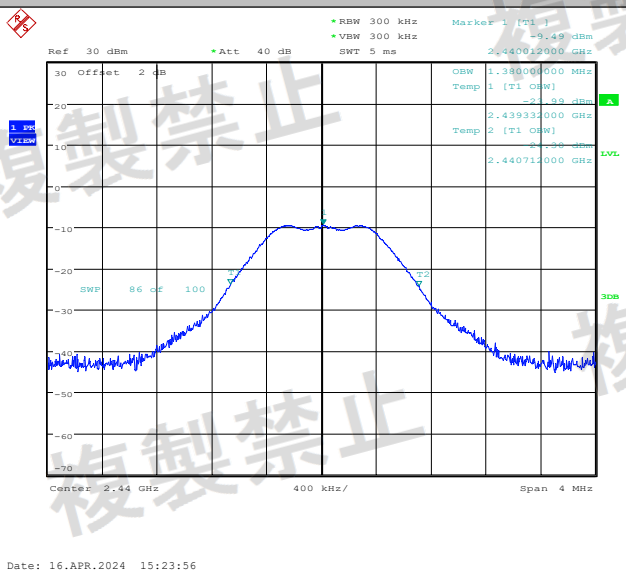
| TestCondition | TestMode | Freq(MHz) | Result [MHz] | Limit [MHz] | Verdict |
|---|---|---|---|---|---|
| NTNV | BLE_1M | 2402 | 1.388 | ≤26 | PASS |
| | | 2440 | 1.380 | ≤26 | PASS |
| | | 2480 | 1.372 | ≤26 | PASS |

**Result plot as follows:**

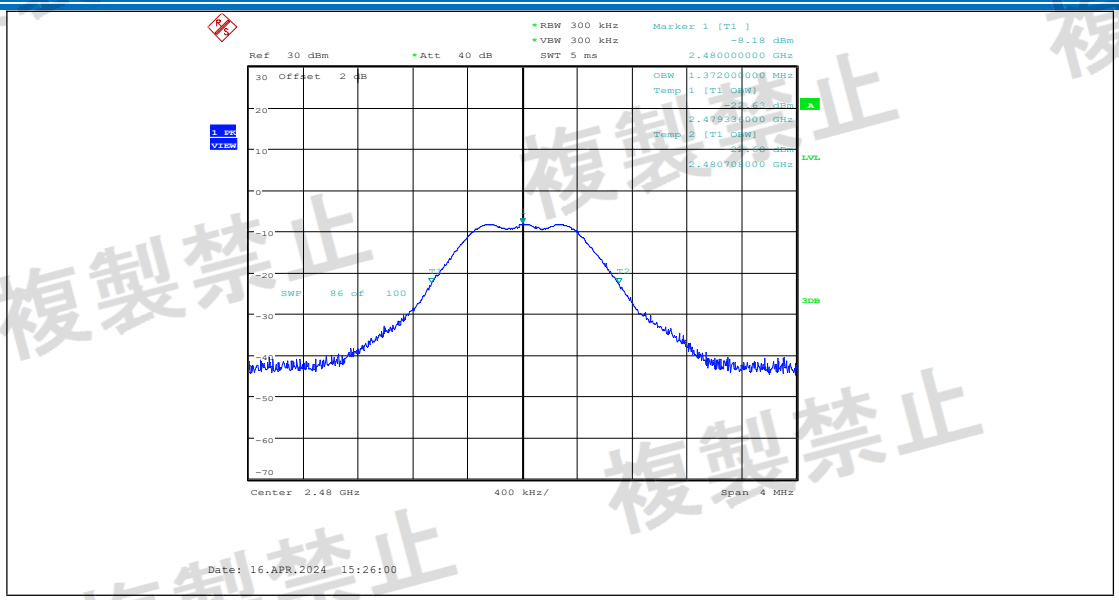
NTNV_BLE_1M_Ant1_2402




NTNV_BLE_1M_Ant1_2440




NTNV_BLE_1M_Ant1_2480




**Test Result: The unit does meet the requirements.**

## 6.8 Spread spectrum Bandwidth (90%)

Test Requirement: Item 19 of Article 2-1

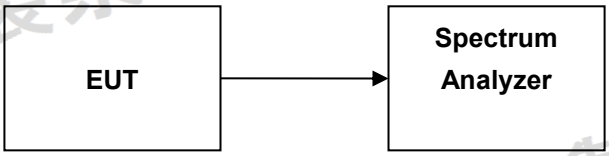
500 kHz or more

Test Method: MIC Notice No.88 Appendix No.43

Test Status: Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

Following channel(s) was (were) selected for the final test as listed below.

Test Configuration:




Test Procedure:

1. Test Conditions:

   Spectrum Analyzer is used for measurement.

2. EUT conditions:

   Modulation/Spread/Hopping ON, Modulation Tx

   For equipment using diffusion code, set to the test diffusion code and modulate with standard coding test signal.

3. Spectrum Analyzer conditions:

   Frequency: Lowest, Middle and Highest Test Frequency

   Span 4 MHz

   RBW 300 KHz

   VBW 300 KHz

   Sweep Time Auto

   detector mode Positive peak

   Indication mode Max hold

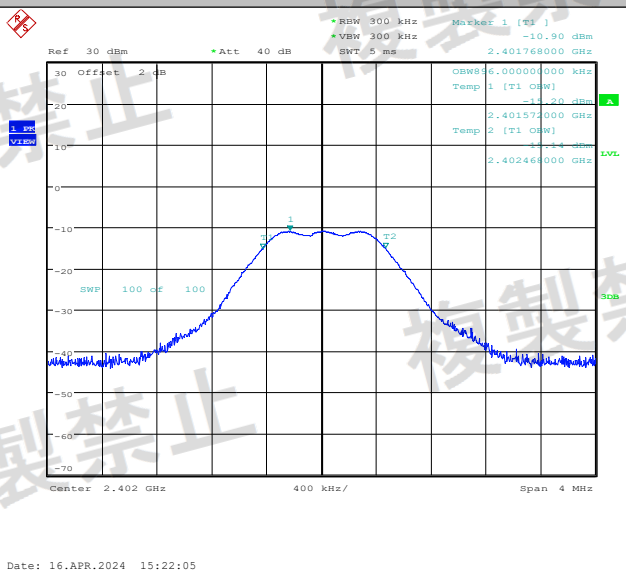
   OBW 90%

**Test Result:**

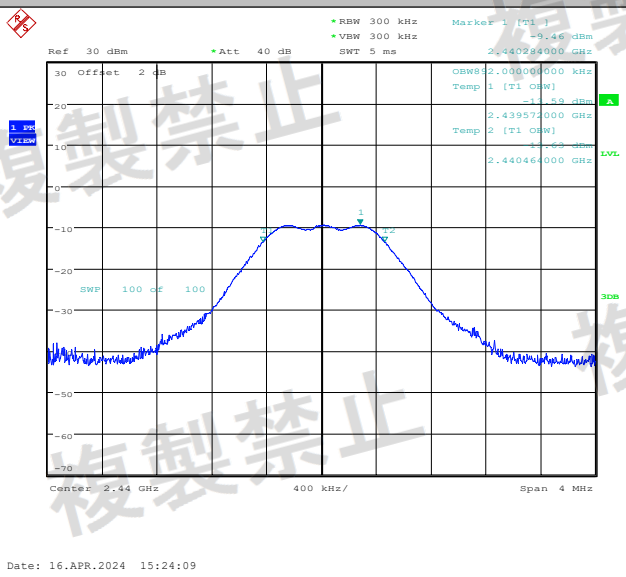
| TestCondition | TestMode | Freq(MHz) | Result [MHz] | Limit [MHz] | Verdict |
|---|---|---|---|---|---|
| NTNV | BLE_1M | 2402 | 0.896 | ≥0.5 | PASS |
| | | 2440 | 0.892 | ≥0.5 | PASS |
| | | 2480 | 0.892 | ≥0.5 | PASS |

**Result plot as follows:**

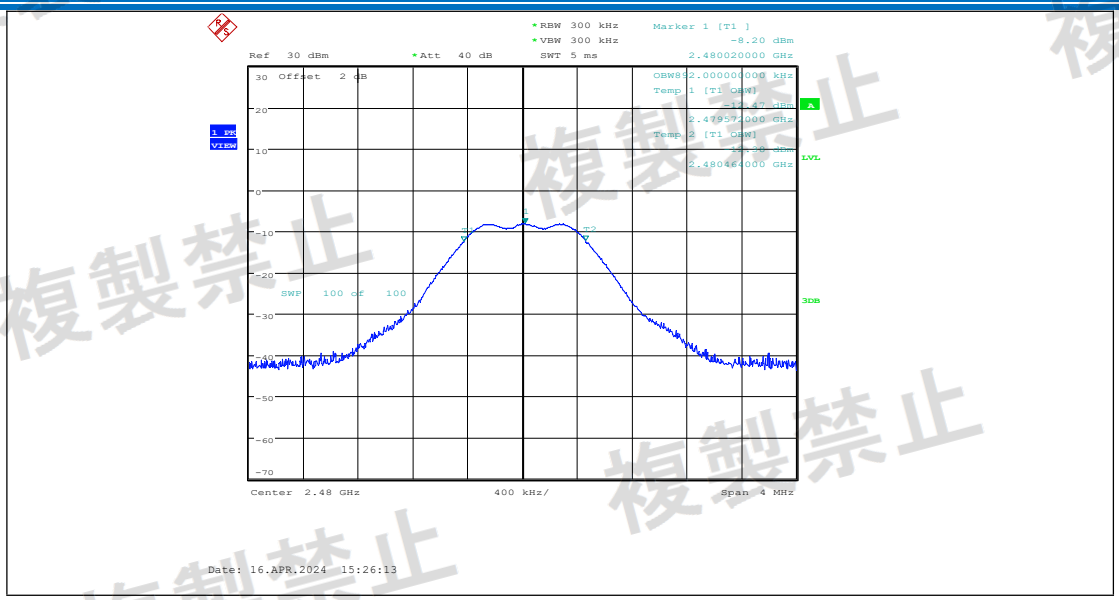
NTNV_BLE_1M_Ant1_2402




NTNV_BLE_1M_Ant1_2440




NTNV_BLE_1M_Ant1_2480




**Test Result: The unit does meet the requirements.**

## 6.9 Antenna Power

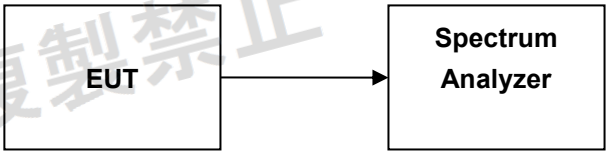
Test Requirement: Item 19 of Article 2-1

Test Method: MIC Notice No.88 Appendix No.43

Test Status: Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

Following channel(s) was (were) selected for the final test as listed below.

Test Configuration:




Test Procedure:

1. Test Conditions:

   Spectrum Analyzer is used for measurement.

2. EUT conditions:

   Modulation/Spread/Hopping ON, Modulation Tx

   For equipment using diffusion code, set to the test diffusion code and modulate with standard coding test signal.

3. Spectrum Analyzer conditions:

Step 1:

Connect the UUT to the spectrum analyzer as TEST CONFIGURATION and use the following settings:

- Centre Frequency: The centre frequency of the channel under test.
- RBW: 1 MHz
- VBW: 1 MHz
- Span: Wide enough to cover the complete power envelope of the signal of the UUT.
- Detector: Peak
- Trace Mode: Max Hold

Step 2:

When the trace is complete, find the peak value of the power envelope and record the frequency.

Step 3:

Make the following changes to the settings of the spectrum analyzer:

- Centre Frequency: Equal to the frequency recorded in step 2.
- Span: 0 MHz
- RBW: 1 MHz
- VBW: 1 MHz
- Detector: RMS
- Trace Mode: Max Hold

**Test Result:**

| Antenna Power | | | | | | | |
|---|---|---|---|---|---|---|---|
| TestCondition | TestMode | Antenna | Freq(MHz) | Result(dBm) | Result(mW) | Limit(mW) | Verdict |
| NTNV | BLE_1M | Ant1 | 2402 | -13.57 | 0.04 | ≤10 | PASS |
| | | | 2440 | -12.49 | 0.06 | ≤10 | PASS |
| | | | 2480 | -11.30 | 0.08 | ≤10 | PASS |

| Tolerance | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Test Condition | Test Mode | Antenna | Freq(MHz) | Power (mW) | RatedPower (mW) | Result (%) | Limit (%) | Verdict |
| NTNV | BLE_1M | Ant1 | 2402 | 0.04 | 0.09 | -55.56 | -80 to +20 | PASS |
| | | | 2440 | 0.06 | 0.09 | -33.33 | -80 to +20 | PASS |
| | | | 2480 | 0.08 | 0.09 | -11.11 | -80 to +20 | PASS |

| Factor | | | | |
|---|---|---|---|---|
| TestCondition | TestMode | Antenna | Freq(MHz) | duty cycle factor |
| NTNV | BLE_1M | Ant1 | 2402 | 2.02 |
| | | | 2440 | 2.02 |
| | | | 2480 | 2.02 |

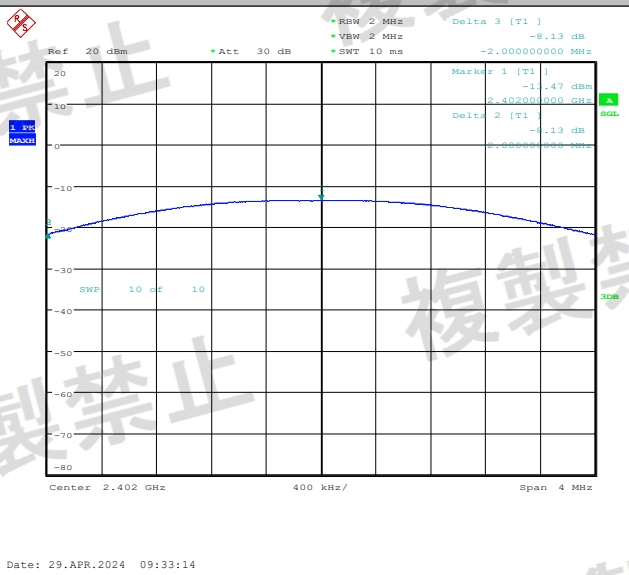
Note:

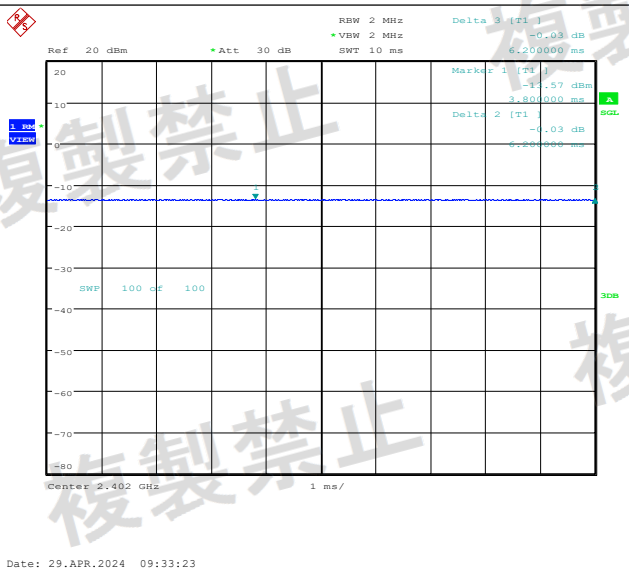
Antenna Power adds a duty cycle factor

Rated power: 0.09mW

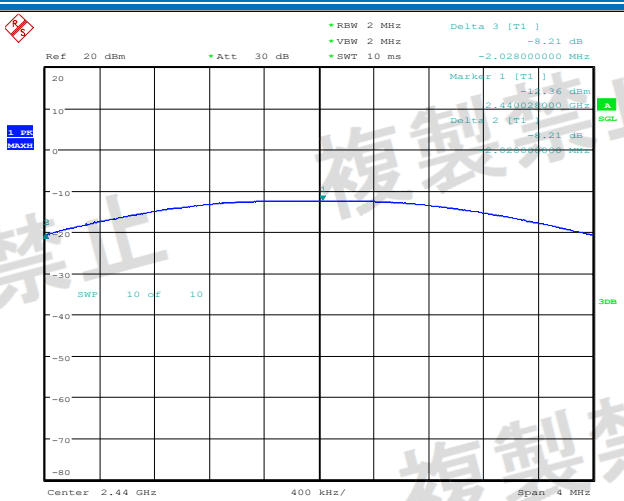
**Result plot as follows:**

NTNV_BLE_1M_Ant1_2402

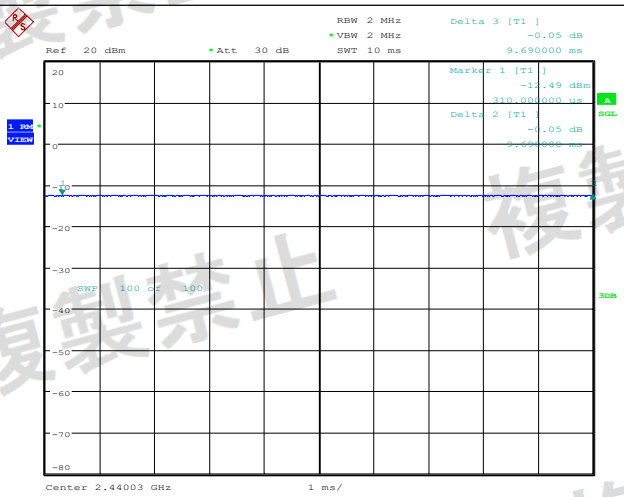



NTNV_BLE_1M_Ant1_2440

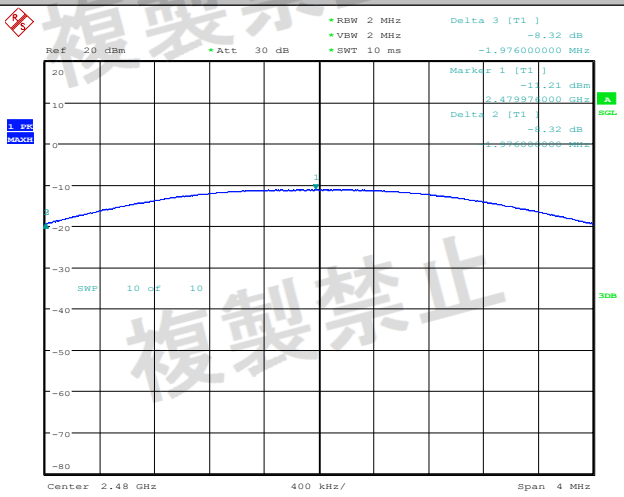



Date: 29.APR.2024 09:33:54

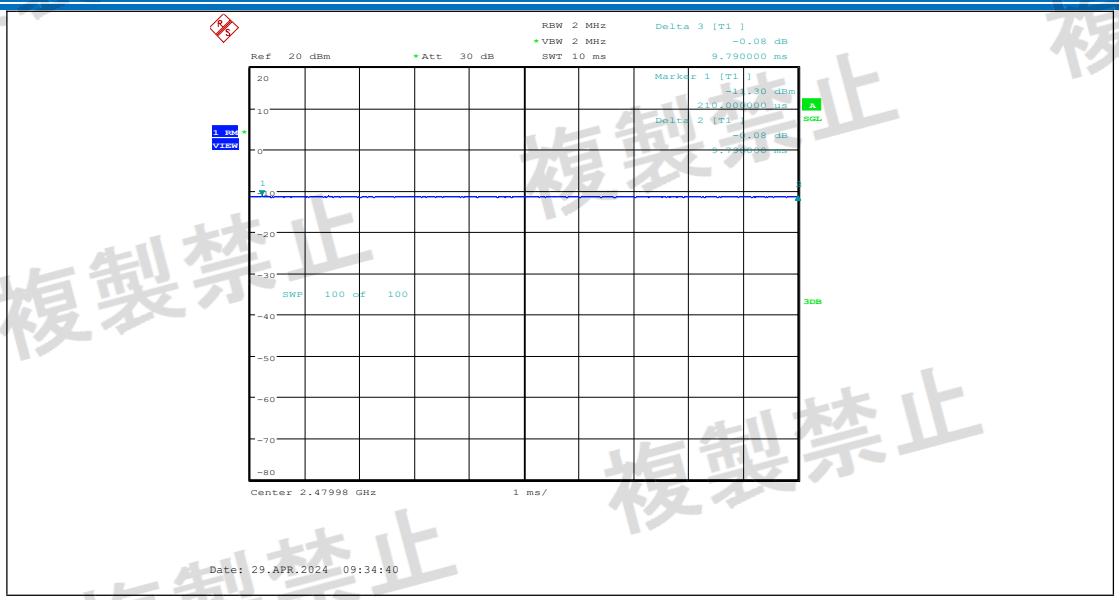



Date: 29.APR.2024 09:34:03

NTNV_BLE_1M_Ant1_2480




Date: 29.APR.2024 09:34:32


RBW 2 MHz
VBW 2 MHz
SWT 10 ms
Delta 3 [T1 ]
-0.08 dB
9.790000 ms
Ref 20 dBm
Att 30 dB
Marker 1 [T1 ]
-13.30 dBm
210.000000 us
Delta 2 [T1 ]
-0.08 dB
9.790000 ms
1 pk
VIEW
A
SGL
3DB
SWP 100 of 100
Center 2.47998 GHz
1 ms/
Date: 29.APR.2024 09:34:40

## 6.10 Spurious Emissions of Tx

Test Requirement: Item 19 of Article 2-1

Test Method: MIC Notice No.88 Appendix No.43

(1) Below 2387 MHz: 2.5μW/MHz
(2) 2387 to 2400 MHz: 25μW/MHz
(3) 2483.5 through 2496.5 MHz: 25μW/MHz
(4) Over 2496.5 MHz: 2.5μW/MHz

Test Status: Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
Following channel(s) was (were) selected for the final test as listed below.

Test Configuration:

Test Procedure:

1. Test Conditions:
   Spectrum Analyzer is used for measurement.
2. EUT conditions:
   Modulation/Spread/Hopping ON, , Modulation Tx
   For equipment using diffusion code, set to the test diffusion code and modulate with standard coding test signal.
3. Spectrum Analyzer conditions:
   Step 1
   All spurious are measured from 30 MHz to 13 GHz by peak mode.
   Step 2
   IF the value measured by Step1 is 2 dB or less, measure in average mode.

Test setup for Step 1:
Frequency: 30 MHz – 1000 MHz
RBW 100 KHz
VBW 100 KHz
Sweep Time Auto
detector mode Positive peak
Indication mode Max hold

Frequency: 1000 MHz – 2400 MHz , 2483.5 MHz –13 GHz
RBW 1 MHz
VBW 1 MHz
Sweep Time Auto
detector mode Positive peak
Indication mode Max hold

Test setup for Step 2:
Frequency: Spurious Frequency
RBW 1 MHz
VBW 1 MHz
Sweep Time Auto
detector mode Sample
Indication mode Max hold

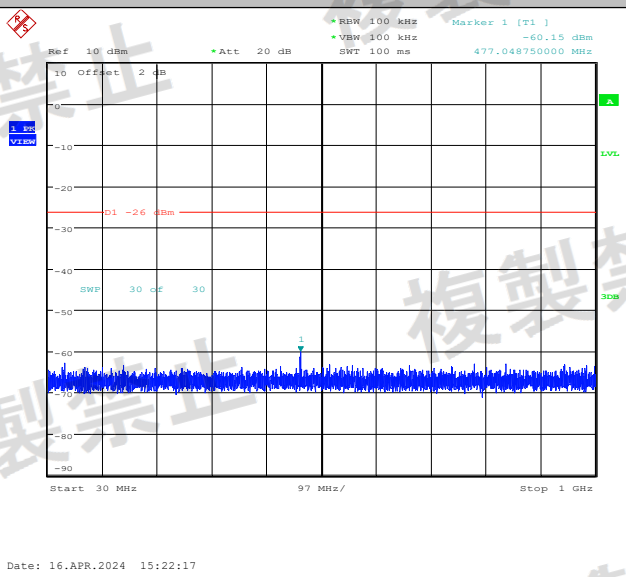
### 6.10.1 Test Result

| TestMode | Freq (MHz) | Freq.Range [MHz] | Freq [MHz] | Result [dBm/MHz] | Limit [dBm/MHz] | Result [μW/MHz] | Limit [μW/MHz] | Verdict |
|---|---|---|---|---|---|---|---|---|
| BLE_1M | 2402 | 30~1000 | 477.05 | -60.15 | ≤-26 | 0.00097 | ≤2.5 | PASS |
| | | 1000~2387 | 2259.40 | -45.28 | ≤-26 | 0.02965 | ≤2.5 | PASS |
| | | 2387~2400 | 2399.98 | -33.78 | ≤-16 | 0.41879 | ≤25 | PASS |
| | | 2483.5~2496.5 | 2492.27 | -44.48 | ≤-16 | 0.03565 | ≤25 | PASS |
| | | 2496.5~13000 | 11377.73 | -55.94 | ≤-26 | 0.00255 | ≤2.5 | PASS |
| | 2440 | 30~1000 | 477.05 | -60.00 | ≤-26 | 0.00100 | ≤2.5 | PASS |
| | | 1000~2387 | 2195.25 | -46.23 | ≤-26 | 0.02382 | ≤2.5 | PASS |
| | | 2387~2400 | 2394.17 | -44.44 | ≤-16 | 0.03597 | ≤25 | PASS |
| | | 2483.5~2496.5 | 2494.42 | -44.30 | ≤-16 | 0.03715 | ≤25 | PASS |
| | | 2496.5~13000 | 10521.17 | -56.44 | ≤-26 | 0.00227 | ≤2.5 | PASS |
| | 2480 | 30~1000 | 477.05 | -60.64 | ≤-26 | 0.00086 | ≤2.5 | PASS |
| | | 1000~2387 | 1811.05 | -46.04 | ≤-26 | 0.02489 | ≤2.5 | PASS |
| | | 2387~2400 | 2396.20 | -45.61 | ≤-16 | 0.02748 | ≤25 | PASS |
| | | 2483.5~2496.5 | 2485.74 | -44.14 | ≤-16 | 0.03855 | ≤25 | PASS |
| | | 2496.5~13000 | 3295.82 | -55.85 | ≤-26 | 0.00260 | ≤2.5 | PASS |

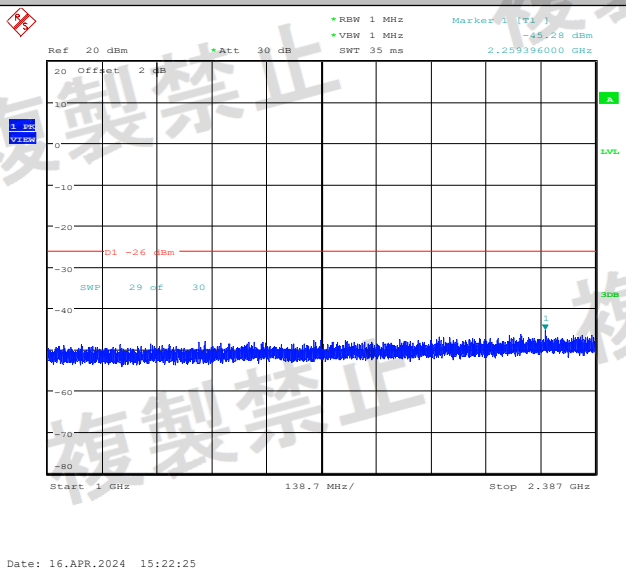
**Result plot as follows:**

## 6.10.2 Test Graphs

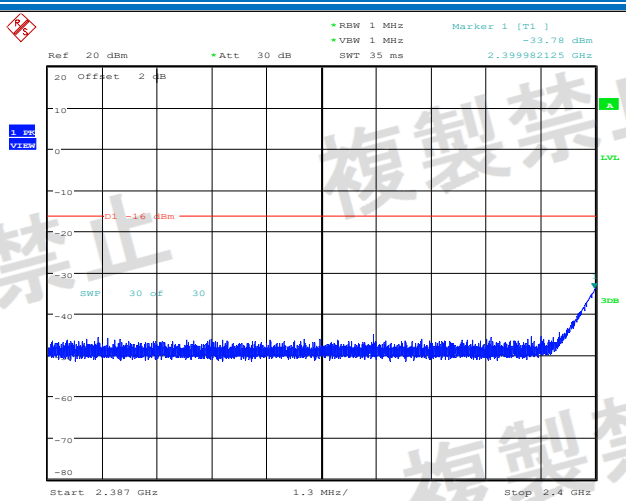
NTNV_BLE_1M_Ant1_2402_30~1000



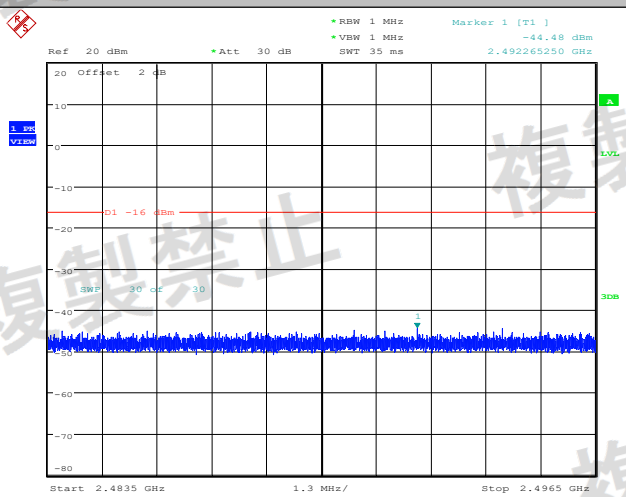

NTNV_BLE_1M_Ant1_2402_1000~2387



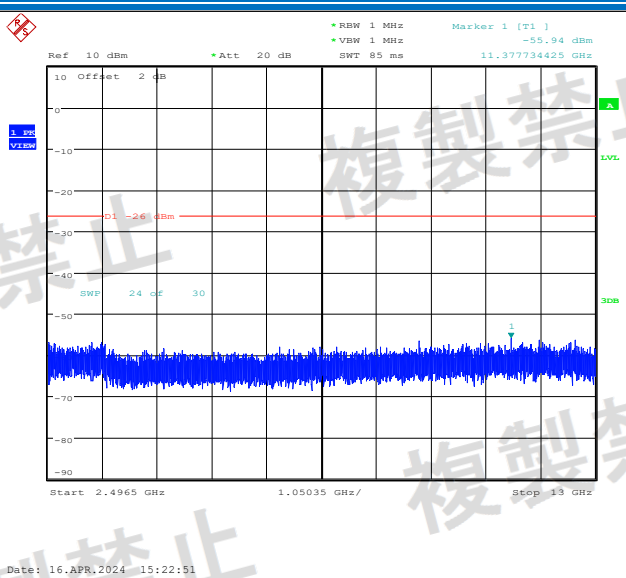

NTNV_BLE_1M_Ant1_2402_2387~2400



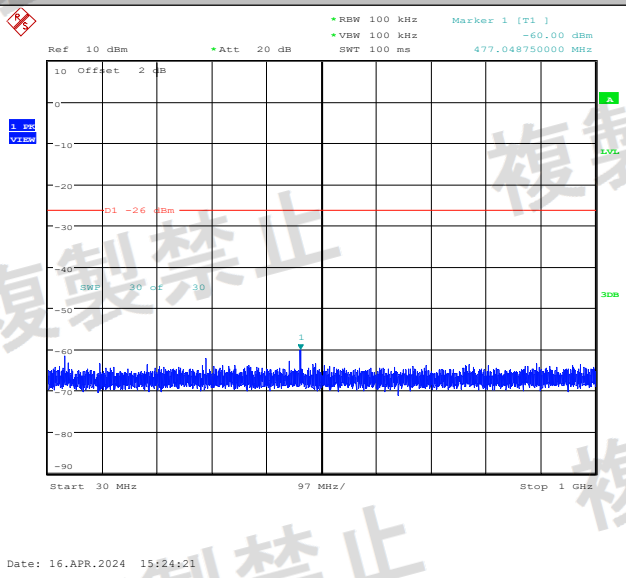

NTNV_BLE_1M_Ant1_2402_2483.5~2496.5



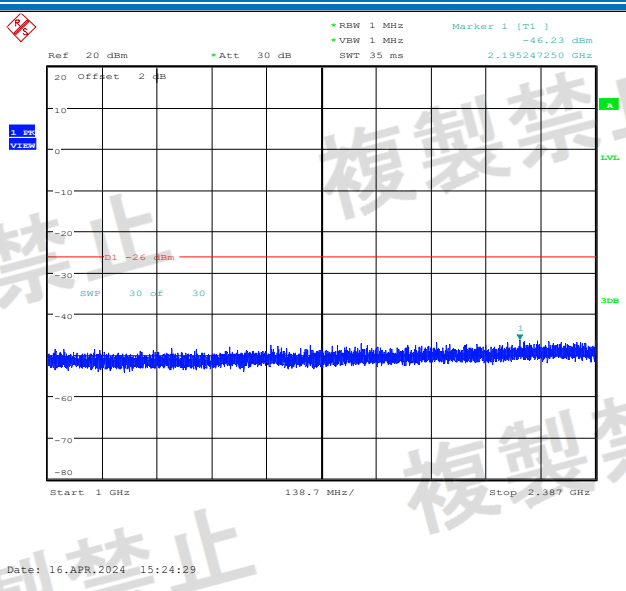

NTNV_BLE_1M_Ant1_2402_2496.5~13000



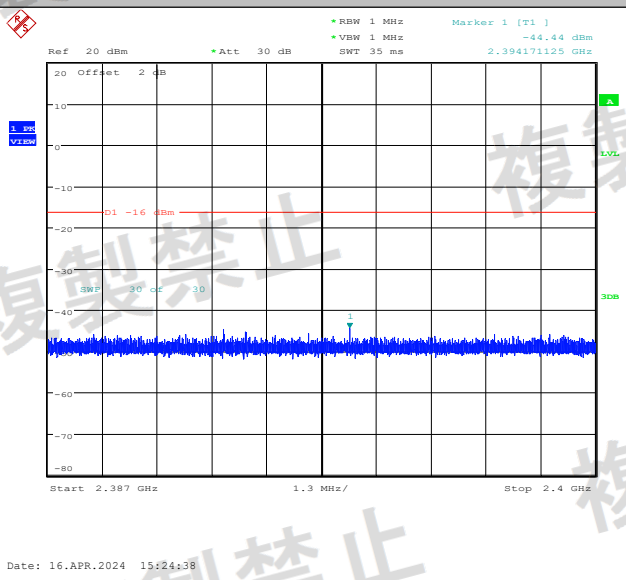

NTNV_BLE_1M_Ant1_2440_30~1000



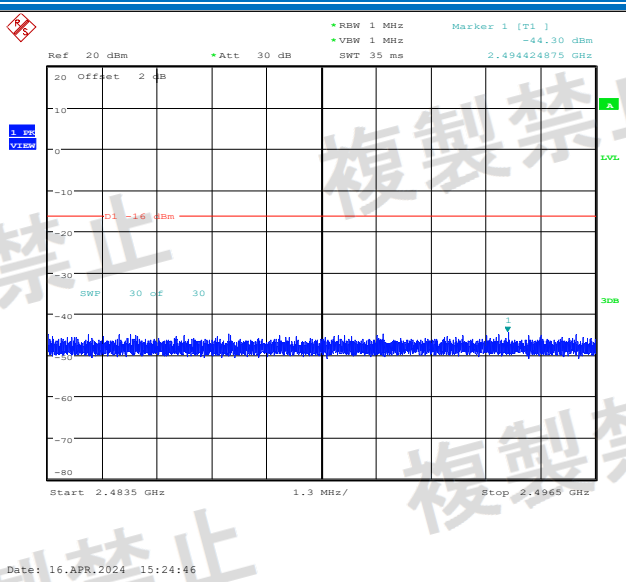

NTNV_BLE_1M_Ant1_2440_1000~2387



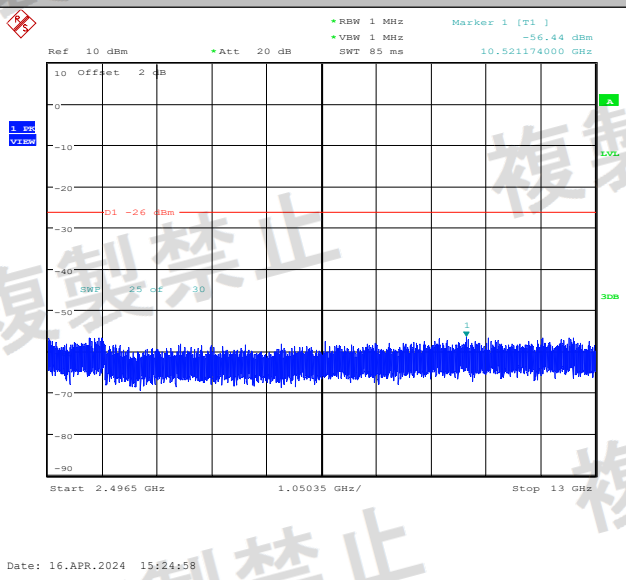

NTNV_BLE_1M_Ant1_2440_2387~2400



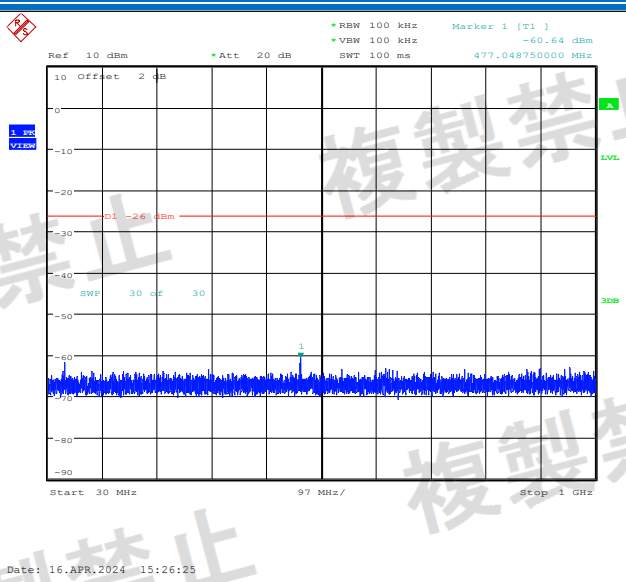

NTNV_BLE_1M_Ant1_2440_2483.5~2496.5



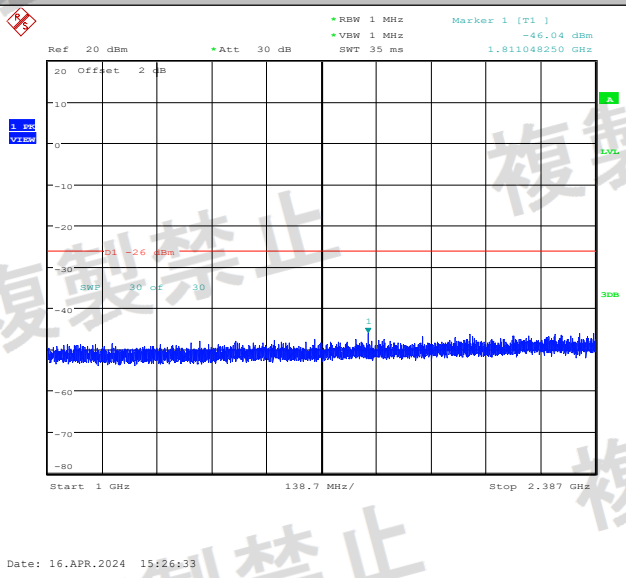

NTNV_BLE_1M_Ant1_2440_2496.5~13000



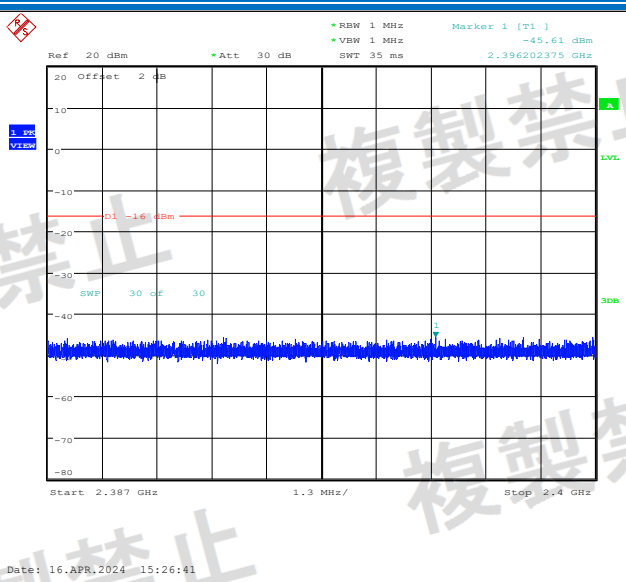

NTNV_BLE_1M_Ant1_2480_30~1000



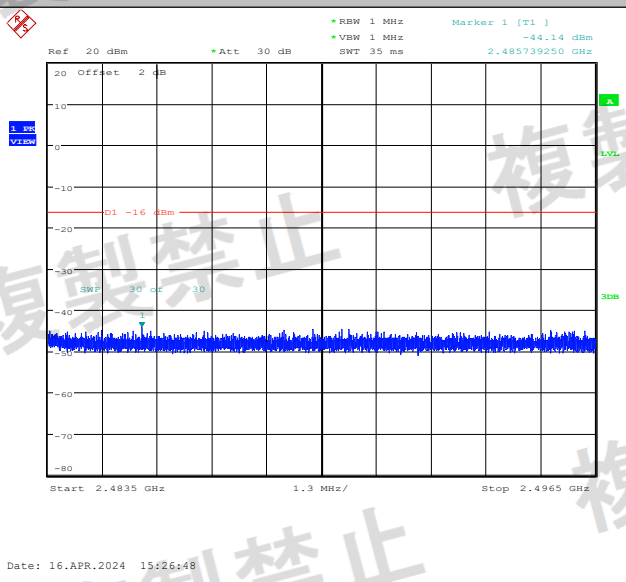

NTNV_BLE_1M_Ant1_2480_1000~2387



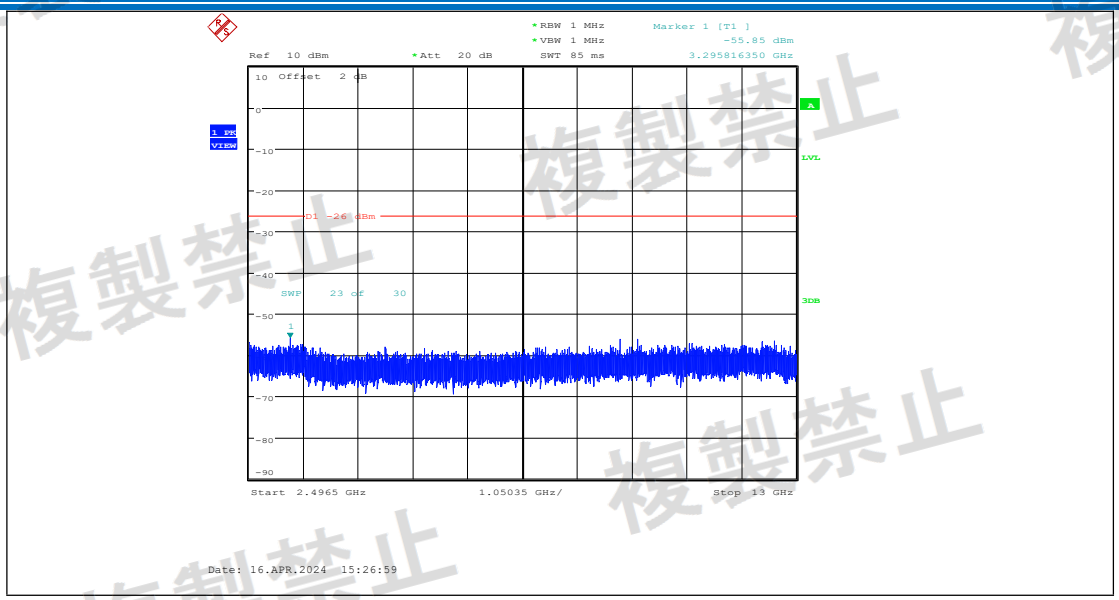

NTNV_BLE_1M_Ant1_2480_2387~2400




NTNV_BLE_1M_Ant1_2480_2483.5~2496.5




NTNV_BLE_1M_Ant1_2480_2496.5~13000




**Test Result: The unit does meet the requirements.**

## 6.11 RF accessibility

**Standard requirement**

Article 49-20, paragraph 1 (a)

The EUT shall be constructed in such a way that sensitive RF parts, (like modulation and oscillator parts) cannot be reached easily by the user. These parts shall be covered by soldered metal caps or glue or by other mechanical covers. If the covers are fixed with screws, these shall be not the common type(s) like a Phillips, but special versions like Torx, so that the user cannot open the device with common tools.

**Tamper proof Declaration:**

☐ 1. Sealed with special screws.

☐ 2. Plastic chassis is being welded using ultrasonic waves.

☐ 3. Chassis is glued using a special adhesive.

☐ 4. Metal covers are spot-fused.

☐ 5. Cover is specially interlocked.

☐ 6. RF and Modulation components are covered with shielding case and this shielding case is soldered.

☐ 7. Shield case is welded at RF and modulation parts, and ID-ROM is welded using the BGA Method.

☐ 8. Shield case is welded at RF and modulation parts, and ID-ROM is glued at its lead with a special adhesive.

☐ 9. Shield case is welded at RF and modulation parts, and ID-ROM is glued with a non-transparent laminating agent.

☒ 10. RF and Modulation parts are mounted on PCB with surface mount technology, and there is no any adjustable parts on PCB or adjustable parts are not exposed.

The method used to meet the "cannot be opened easily" is to use a shielding cover to seal it.

Any attempt to modify the RF chip will invalidate the normal operation of the device.

## 6.12 Spurious Emissions of Rx

Test Requirement: Item 19 of Article 2-1

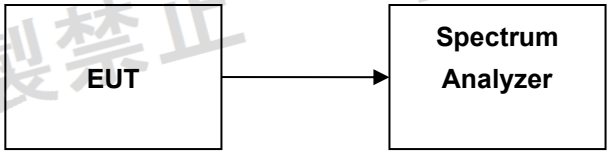
Test Method: MIC Notice No.88 Appendix No.43

(1) Below 1 GHz : 4 nW or less

(2) 1 GHz and over : 20 nW or less

Test Status: Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture). Following channel(s) was (were) selected for the final test as listed below.

Test Configuration:




Test Procedure:

1. Test Conditions:

   Spectrum Analyzer is used for measurement.

2. EUT conditions:

   Modulation/Spread/Hopping ON

   For equipment using diffusion code, set to the test diffusion code and modulate with standard coding test signal.

3. Spectrum Analyzer conditions:

   Step 1

   All spurious are measured from 30 MHz to 13 GHz by peak mode.

   Step 2

   IF the value measured by Step1 is 2 dB or less, measure in average mode.

   Test setup for Step 1:

   Frequency: 30 MHz – 2400 MHz , 2483.5 MHz –13 GHz

   RBW 100 kHz (30 – 1GHz) , 1 MHz (over 1GHz)

   VBW 100 kHz (30 – 1GHz) , 1 MHz (over 1GHz)

   Sweep Time Auto

   detector mode Positive peak

   Indication mode Max hold

   Test setup for Step 2:

   Frequency: Spurious Frequency

   Span 0 Hz

   RBW 100 kHz (30 – 1GHz) , 1 MHz (over 1GHz)

   VBW 100 kHz (30 – 1GHz) , 1 MHz (over 1GHz)

   Sweep Time Auto

   detector mode Sample

   Indication mode Max hold

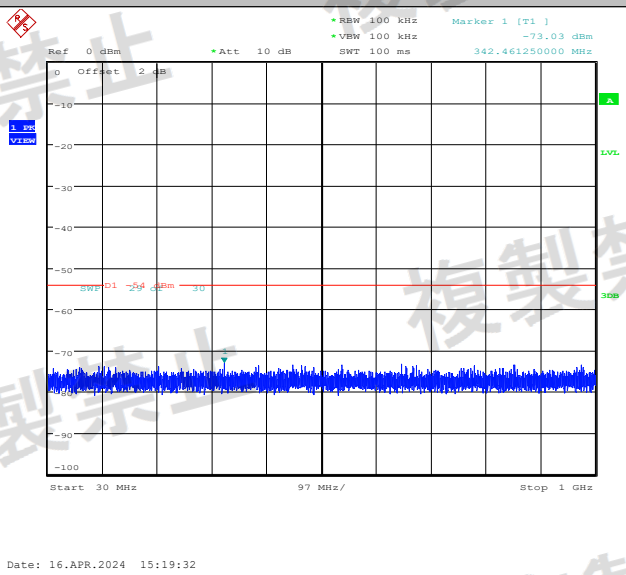
### 6.12.1 Test Result

| TestMode | Freq (MHz) | Freq.Range [MHz] | Freq [MHz] | Result [dBm] | Limit [dBm] | Result [nW] | Limit [nW] | Verdict |
|---|---|---|---|---|---|---|---|---|
| BLE_1M | 2402 | 30~1000 | 342.46 | -73.03 | ≤-54 | 0.04977 | ≤4 | PASS |
| | | 1000~13000 | 10468.00 | -75.83 | ≤-47 | 0.02612 | ≤20 | PASS |
| | 2440 | 30~1000 | 356.41 | -73.35 | ≤-54 | 0.04624 | ≤4 | PASS |
| | | 1000~13000 | 2533.00 | -75.32 | ≤-47 | 0.02938 | ≤20 | PASS |
| | 2480 | 30~1000 | 558.17 | -72.45 | ≤-54 | 0.05689 | ≤4 | PASS |
| | | 1000~13000 | 12044.80 | -76.12 | ≤-47 | 0.02443 | ≤20 | PASS |

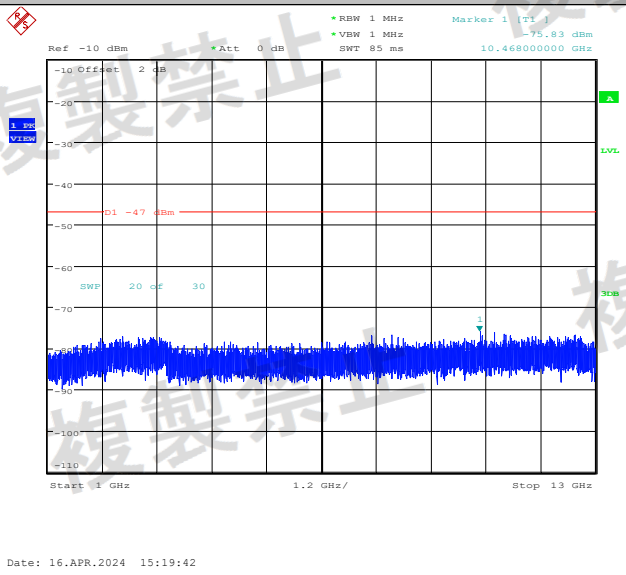
**Result plot as follows:**

## 6.12.2 Test Graphs

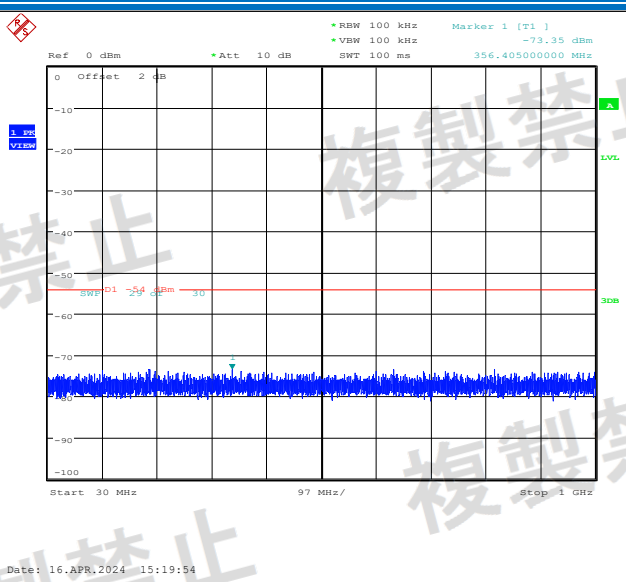
NTNV_BLE_1M_Ant1_2402_30~1000



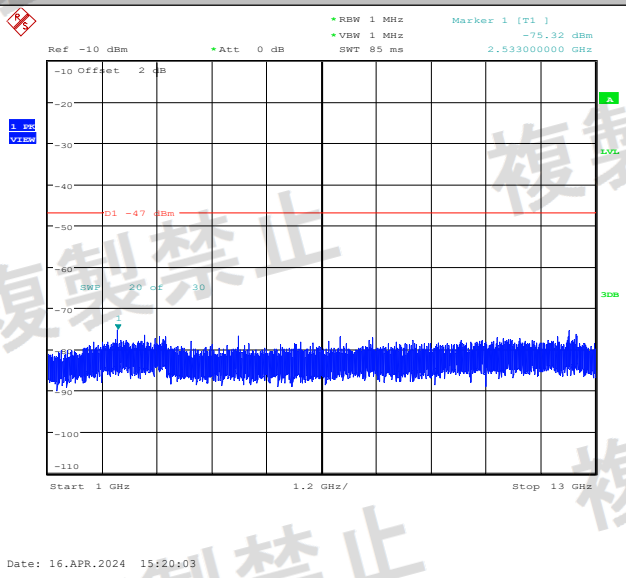

NTNV_BLE_1M_Ant1_2402_1000~13000



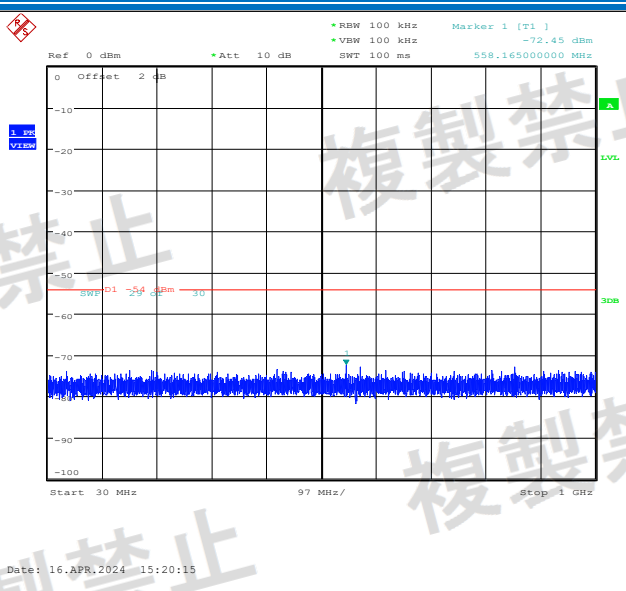

NTNV_BLE_1M_Ant1_2440_30~1000



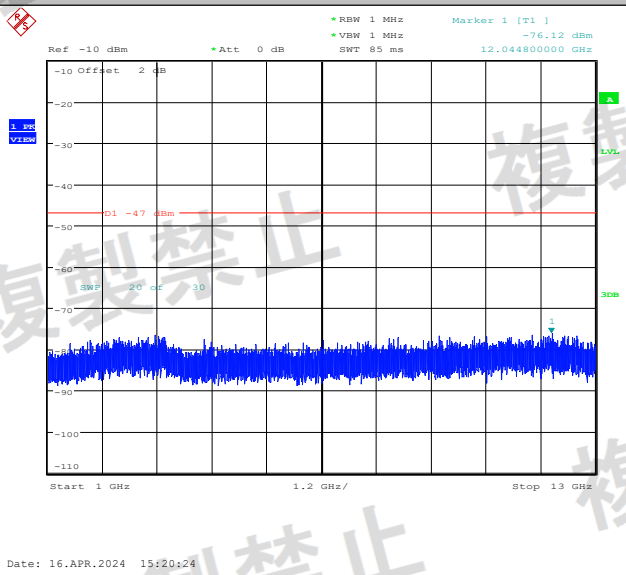

NTNV_BLE_1M_Ant1_2440_1000~13000




NTNV_BLE_1M_Ant1_2480_30~1000



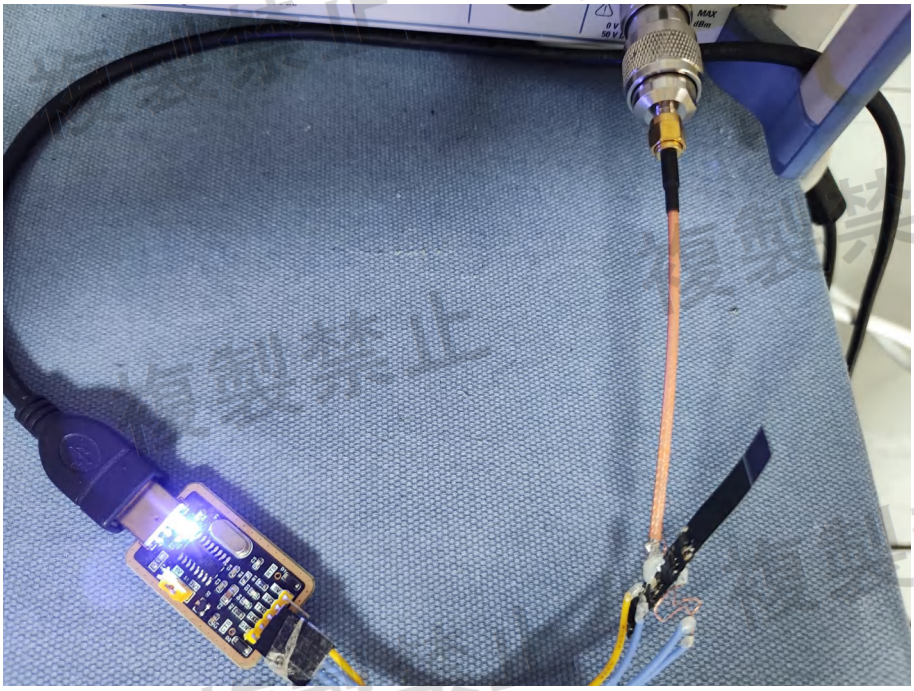

NTNV_BLE_1M_Ant1_2480_1000~13000




**Test Result: The unit does meet the requirements.**

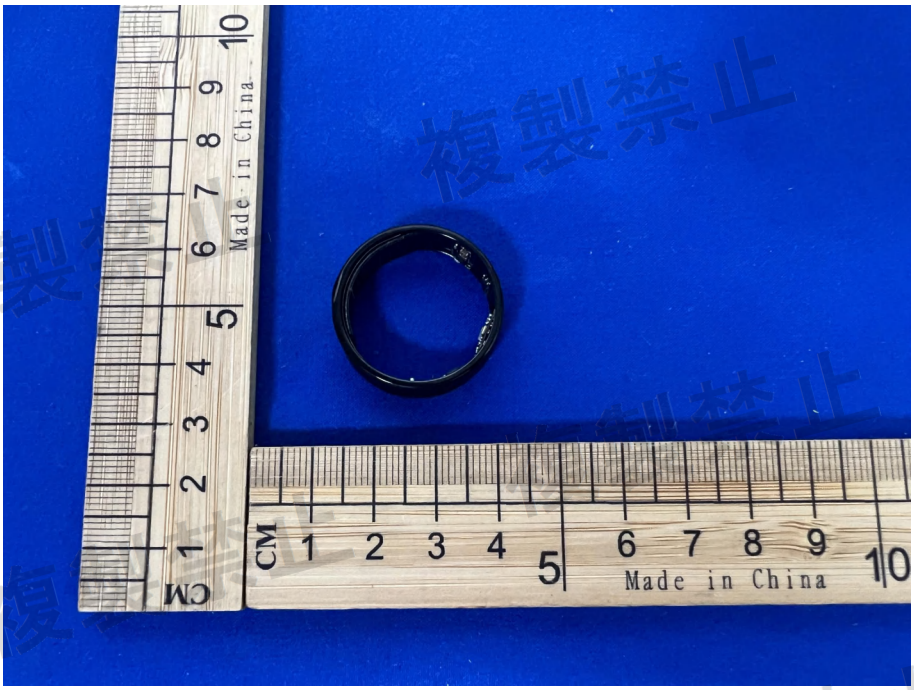
# 7 Photographs

## 7.1 EUT Test Setup

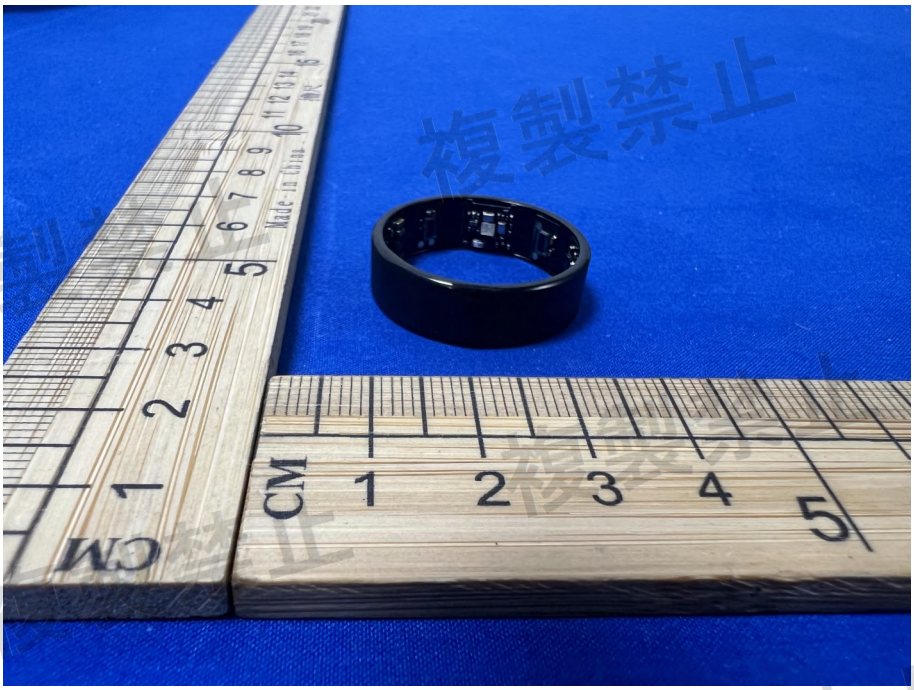


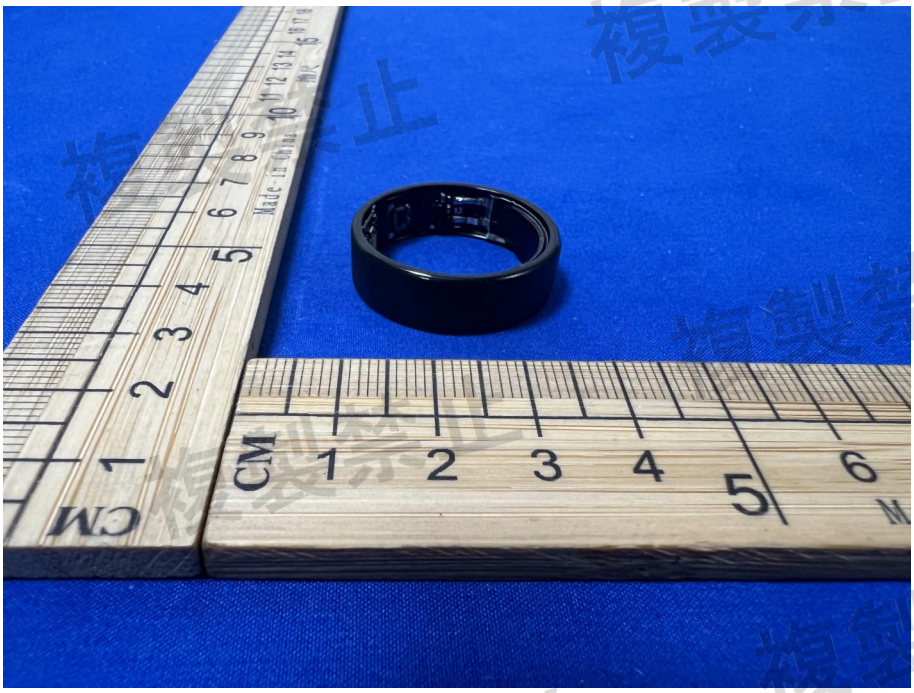
# 8 Photographs - EUT Constructional Details

Original:2301A-13

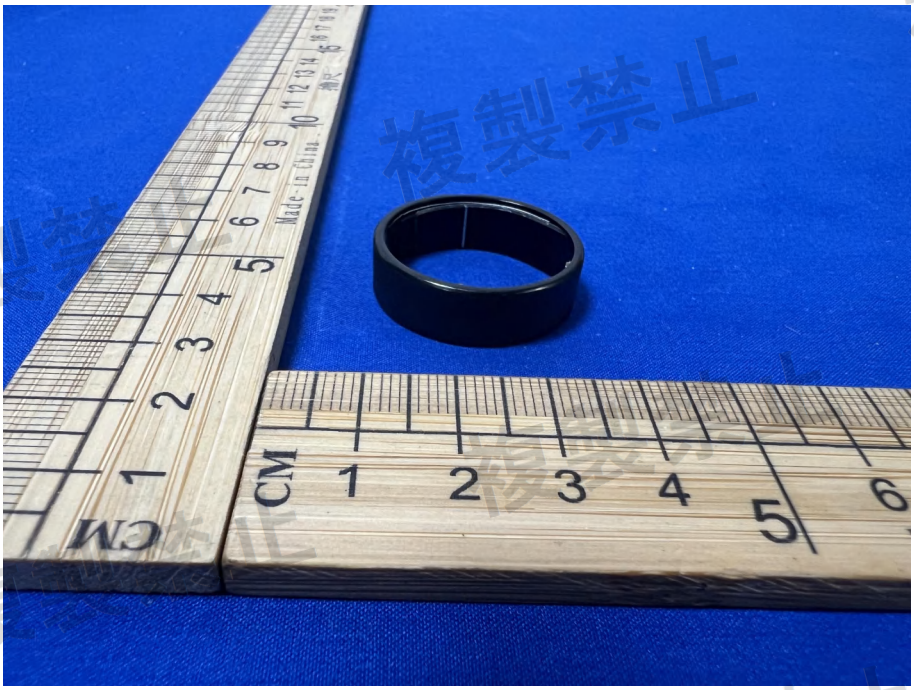


複製禁止




複製禁止




New model：CUDIS 002-13

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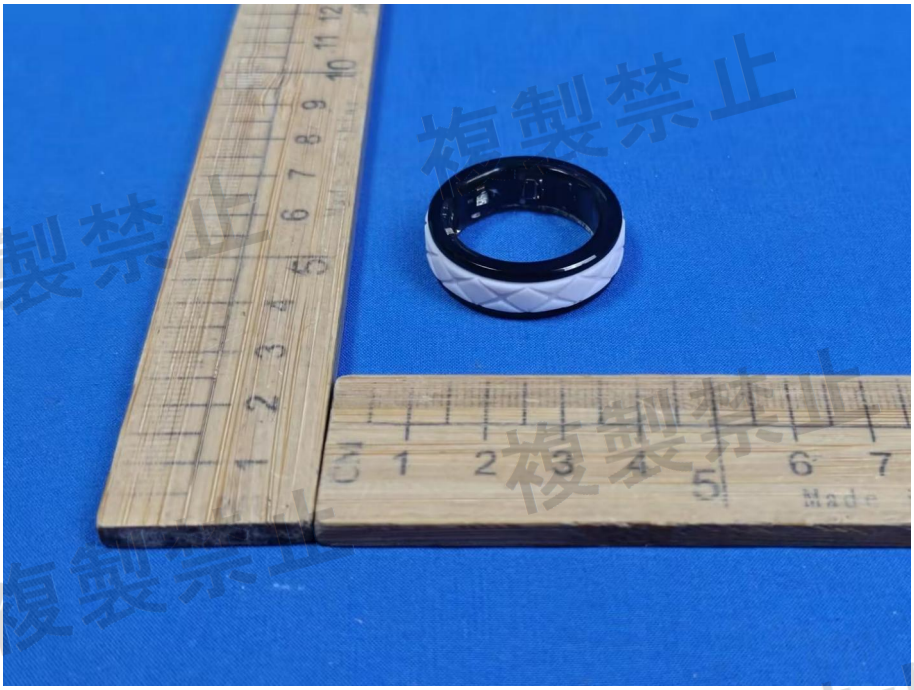

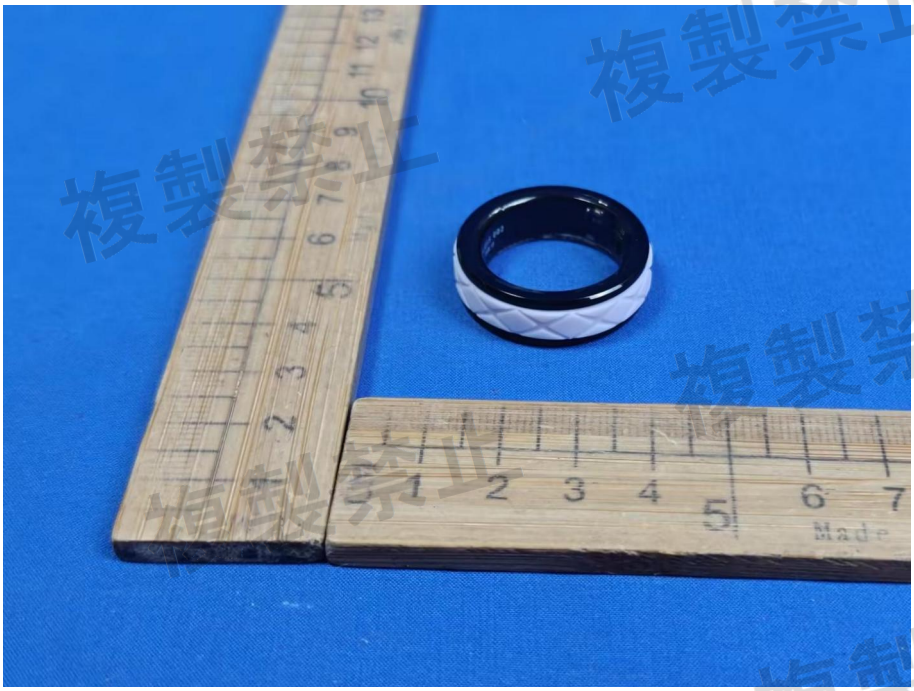

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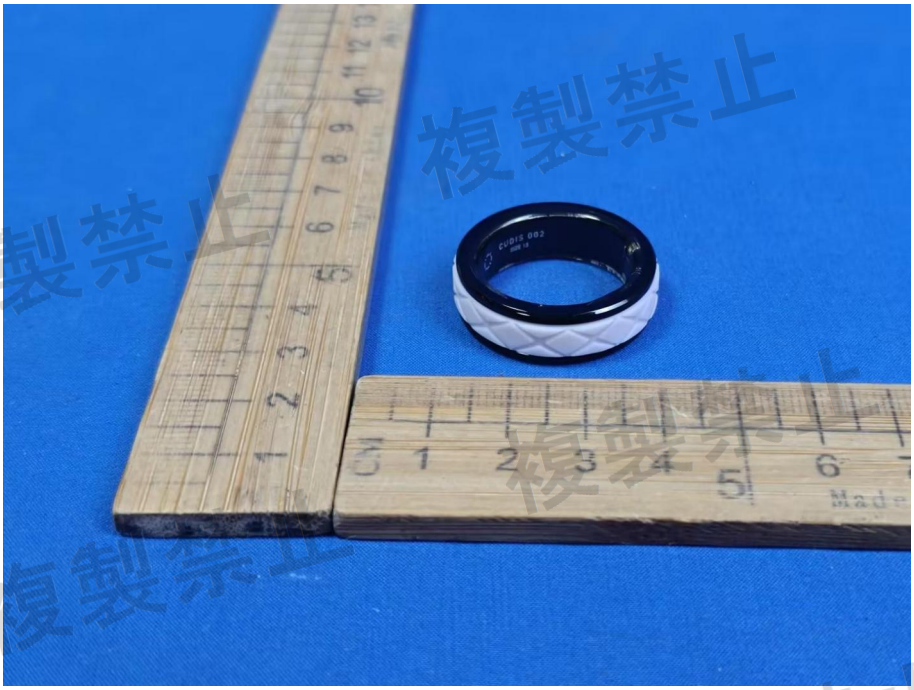

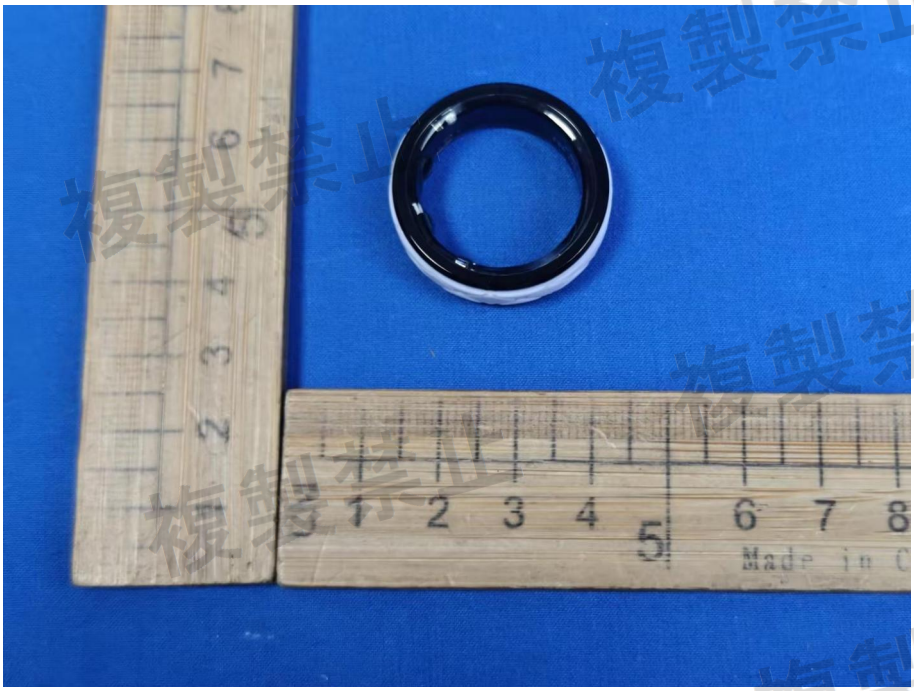

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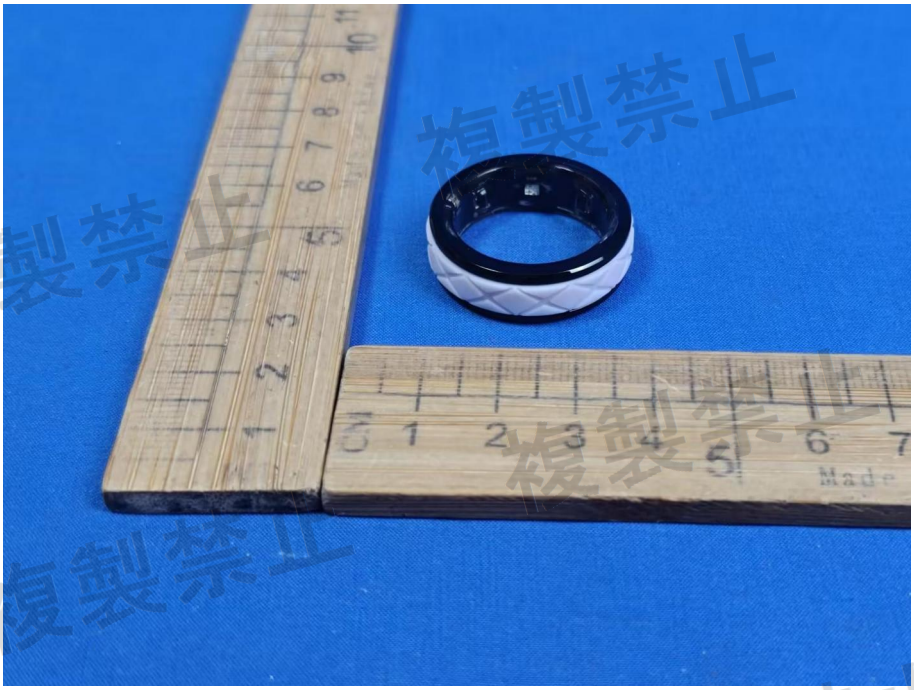

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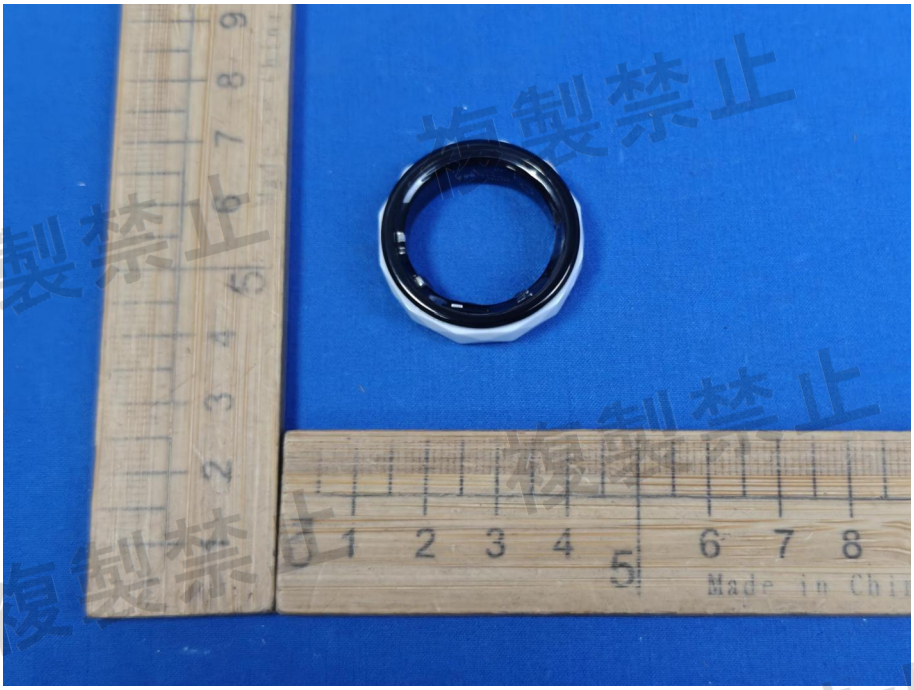
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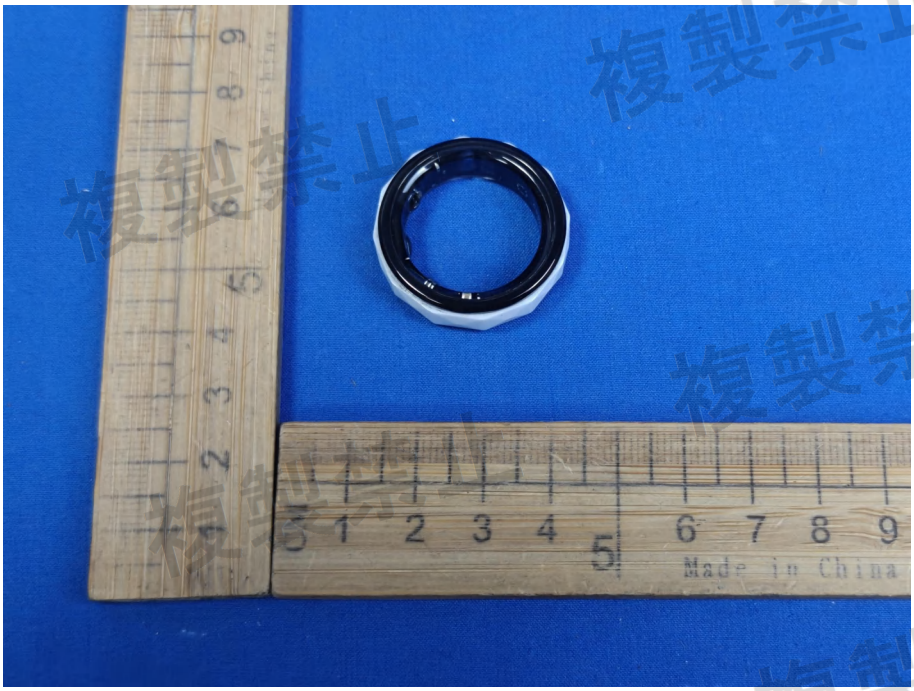
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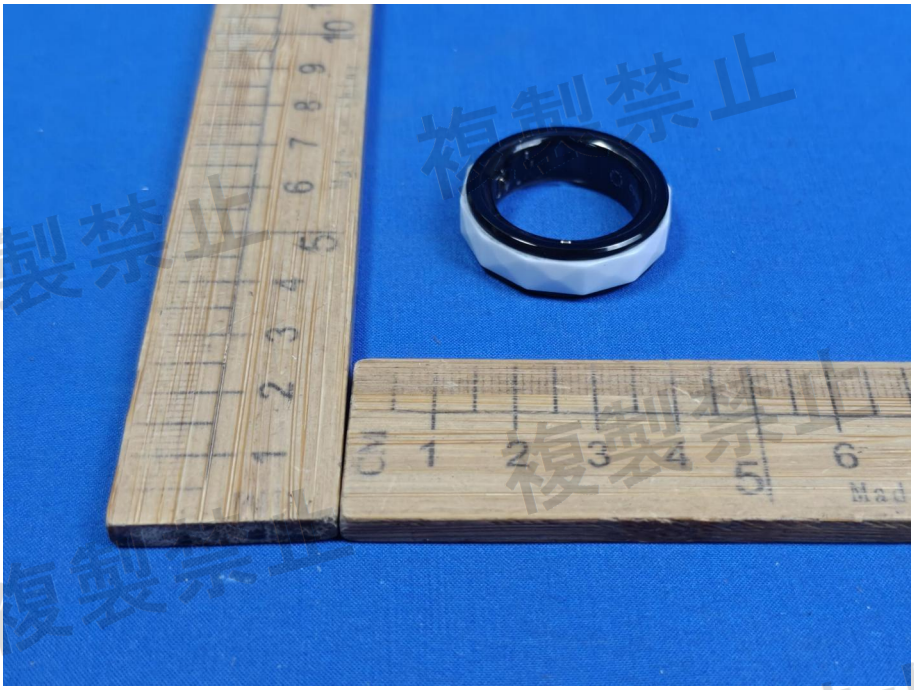

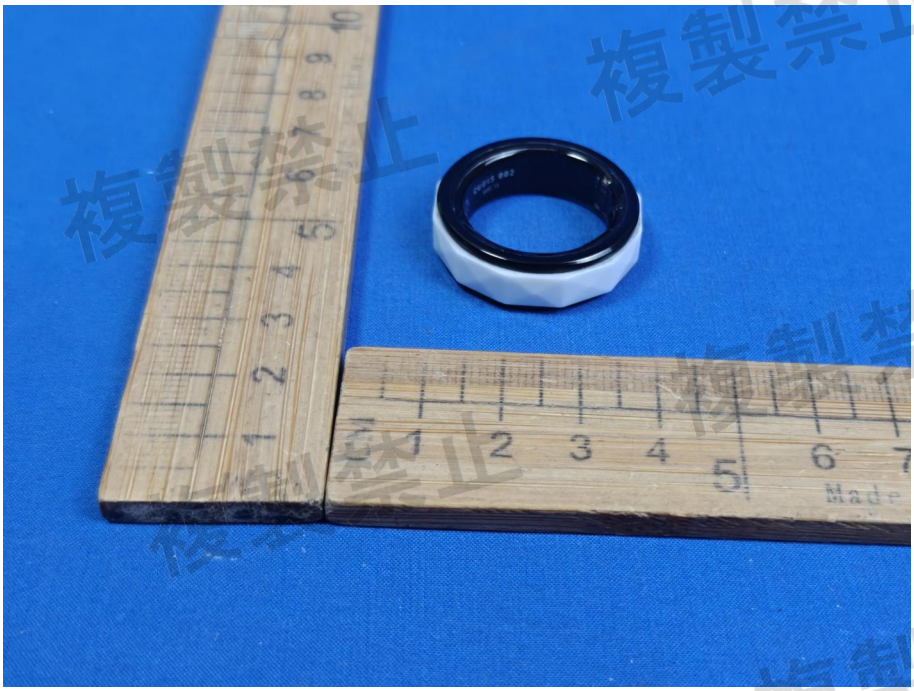

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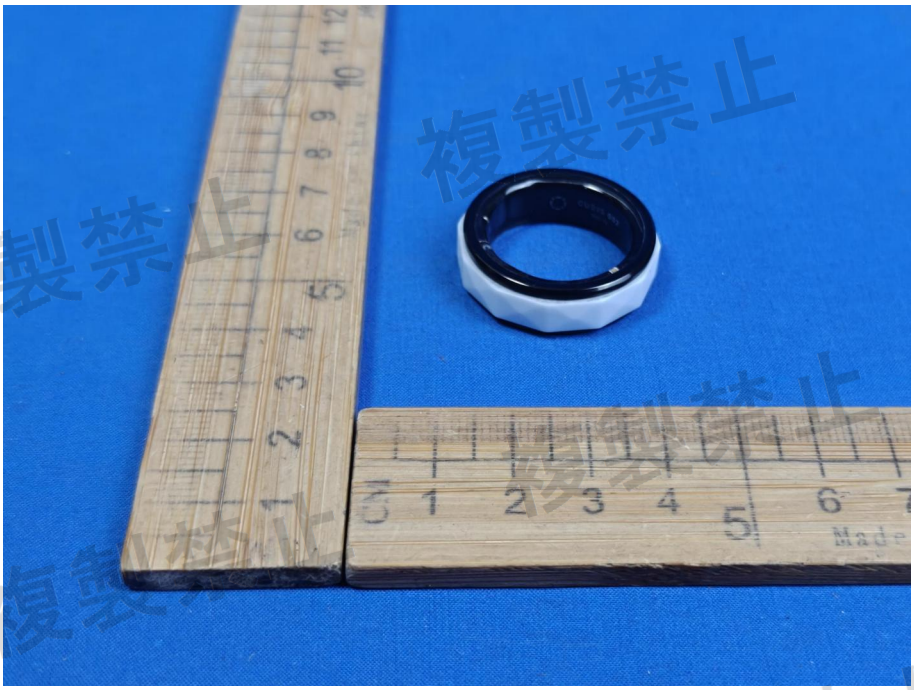

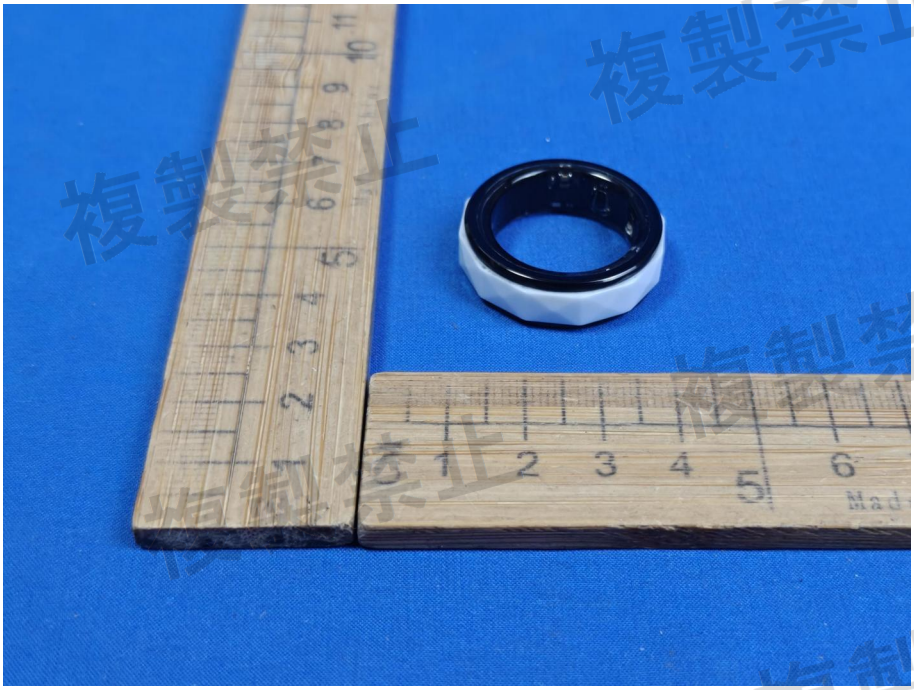

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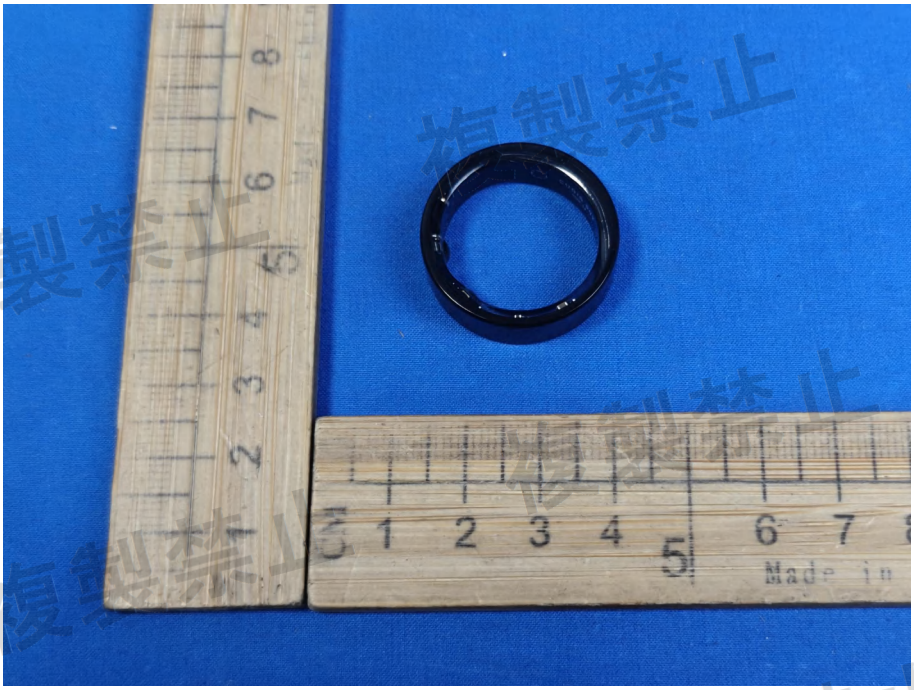
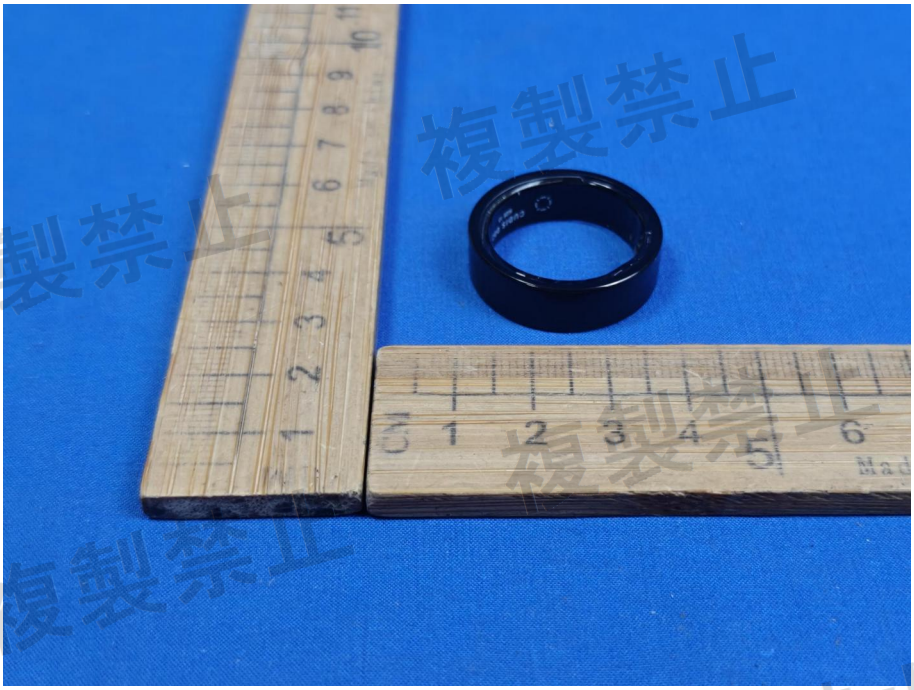

1 2 3 4 5 6 7
Made in

1 2 3 4 5 6 7
Made in



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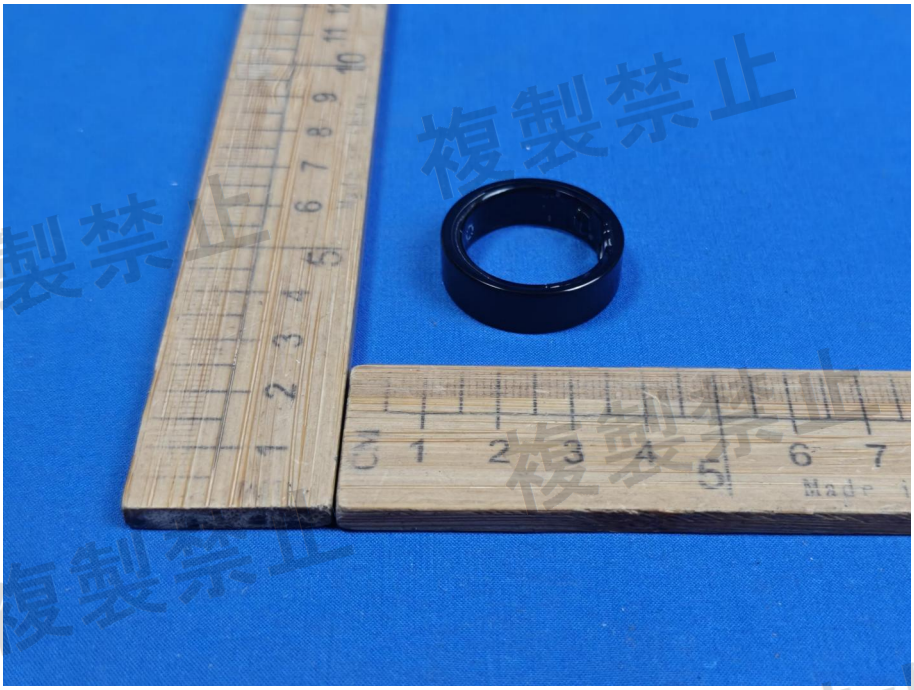

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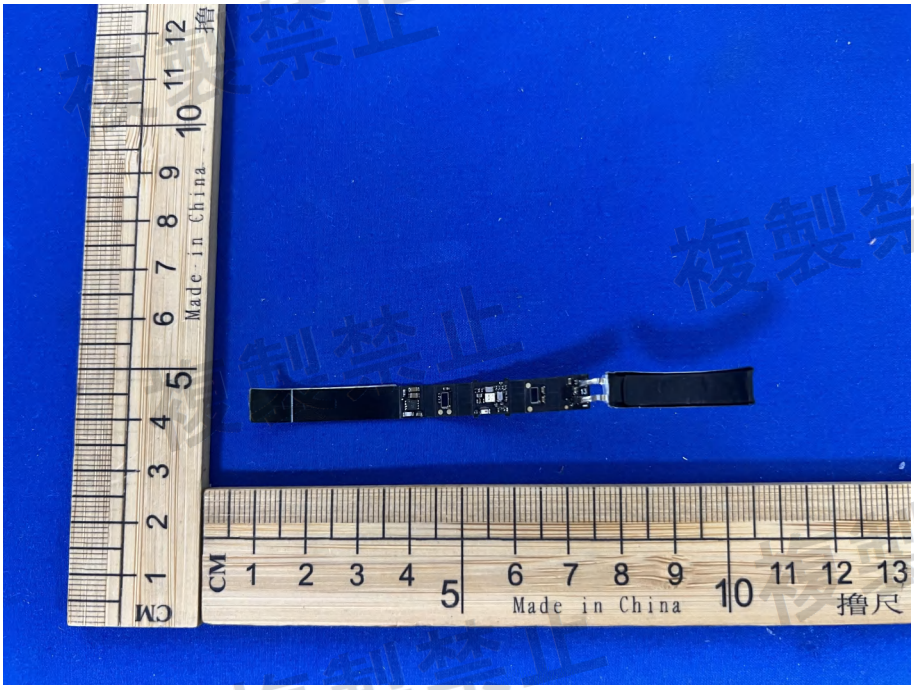
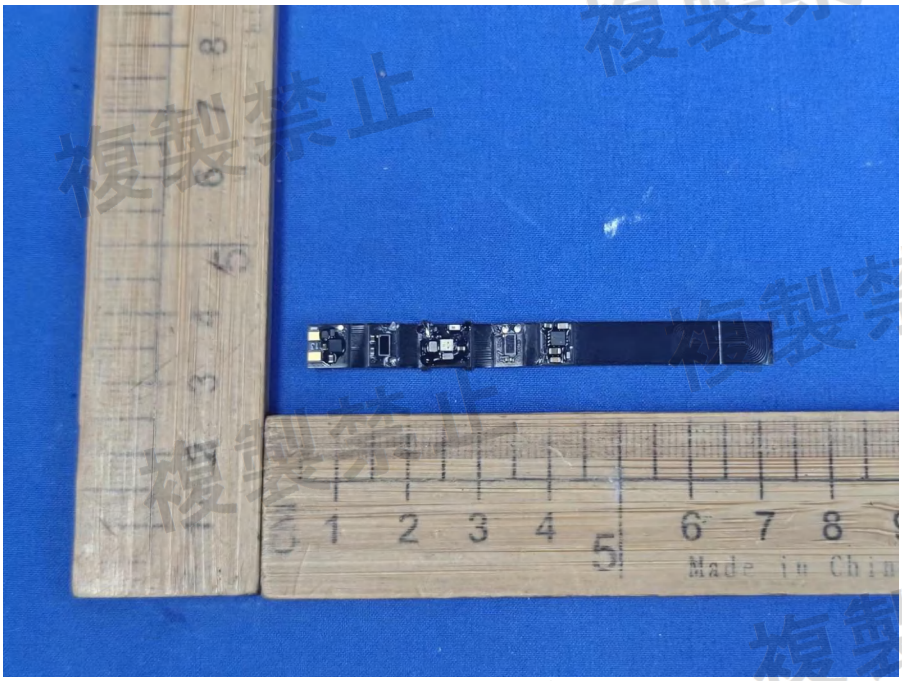



複製禁止

複製禁止

**New model：CUDIS 002-13**



*** END OF REPORT ***