



Shenzhen CTL Testing Technology Co., Ltd.
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TEST REPORT

Ordinance Article 2 paragraph 1 item (19)

Report Reference No. CTL1904291021-W

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Ivan Xie

Product Name..... Fitness Tracker

Model/Type reference ID132Color HR

List Model(s)..... N/A

Trade Mark LETSCOM, Letsfit

Applicant's name SHENZHEN MIFANG NETWORK TECHNOLOGY CO., LTD.

Address of applicant 305, No.8 BLDG., SUOLING INDUSTRIAL ZONE XIKENG,
GUANLAN, LONGHUA, SHENZHEN, GUANGDONG, CHINA

Test Firm Shenzhen CTL Testing Technology Co., Ltd.

Address of Test Firm Floor 1-A, Baisha Technology Park, No.3011, Shahe Road,
Nanshan District, Shenzhen, China 518055

Test specification

Standard Ordinance Article 2 paragraph 1 item (19)

TRF Originator Shenzhen CTL Testing Technology Co., Ltd.

Master TRF Dated 2011-01

Date of receipt of test item May 07, 2019

Date of sampling May 08, 2019

Date of Test Date May 08, 2019–May 23, 2019

Data of Issue May 23, 2019

Result Pass

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TEST REPORT

Test Report No. : CTL1904291021-W	May 23, 2019 Date of issue
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Equipment under Test : Fitness Tracker

Model /Type : ID132Color HR

Listed Models : N/A

Applicant : SHENZHEN MIFANG NETWORK TECHNOLOGY CO., LTD.

Address : 305, No.8 BLDG., SUOLING INDUSTRIAL ZONE
XIKENG, GUANLAN, LONGHUA, SHENZHEN,
GUANGDONG, CHINA

Manufacturer : SHENZHEN MIFANG NETWORK TECHNOLOGY CO., LTD.

Address : 305, No.8 BLDG., SUOLING INDUSTRIAL ZONE
XIKENG, GUANLAN, LONGHUA, SHENZHEN,
GUANGDONG, CHINA

Test result	Pass *
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* In the configuration tested, the EUT complied with the standards specified page 5.

The test results presented in this report relate only to the object tested.

This report shall not be reproduced, except in full, without the written approval of the issuing testing laboratory.

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1. SUMMARY

1.1. Test Standards

The tests were performed according to following standards:

[MIC Notice No.88 Appendix No.43](#)

1.2. Test Description

Test Item	Result
Frequency Error	Pass
Antenna Output Power and Output Power Tolerance	Pass
Occupied Bandwidth and Spread spectrum bandwidth	Pass
Dwell time	N/A Note 1
Unwanted Emission Strength	Pass
Secondary Radiated Emission Strength	Pass
Construction protection method	Pass
Interference Prevention Function	Pass

Note1: Only applicable to FHSS system.

1.3. Test Facility

1.3.1 Address of the test laboratory

Shenzhen CTL Testing Technology Co., Ltd.

Floor 1-A, Baisha Technology Park, No. 3011, Shaheji Road, Nanshan, Shenzhen 518055 China

There is one 3m semi-anechoic chamber and two line conducted labs for final test. The Test Sites meet the requirements in documents ANSI C63.4 and CISPR 22/EN 55022 requirements.

1.3.2 Laboratory accreditation

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

CNAS-Lab Code: L7497

Shenzhen CTL Testing Technology Co., Ltd. has been assessed and proved to be in compliance with CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC 17025: 2005 General Requirements) for the Competence of Testing and Calibration Laboratories.

A2LA-Lab Cert. No. 4343.01

Shenzhen CTL Testing Technology Co., Ltd. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

IC Registration No.: 9518B

CAB identifier: CN0041

The 3m alternate test site of Shenzhen CTL Testing Technology Co., Ltd. EMC Laboratory has been registered by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements with Registration No.: 9518B on Jan. 22, 2019.

FCC-Registration No.: 399832

Designation No.: CN1216

Shenzhen CTL Testing Technology Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 399832, December 08, 2017.

1.4. Measurement Uncertainty

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

Parameter	Uncertainty
Frequency error / 99%&90% bandwidth	$\pm 1.62 \times 10^{-6}$
Total RF power, conducted	$\pm 0.8\text{dB}$
Spurious emissions, conducted	$\pm 0.8\text{dB}$
DC and low frequency voltages	$\pm 0.05\%$
Humidity	$\pm 5\%$
Temperature	$\pm 1^\circ\text{C}$

2. GENERAL INFORMATION

2.1. Environmental conditions

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

Voltage	Normal Voltage	DC 3.8V
	High Voltage	DC 4.3V
	Low Voltage	DC 3.3V
Other	Normal Temperature	25°C
	Relative Humidity	55 %
	Air Pressure	989 hPa

Note : As the EUT was powered by DC 3.8V from battery, and output voltage float not exceed $\pm 1\%$ when working on extreme voltage, so all test performed at nominal input voltage only.

2.2. General Description of EUT

Product Name:	Fitness Tracker
Model/Type reference:	ID132Color HR
Power supply:	DC 3.8V from battery
Hardware version:	V1.6
Software version:	V23
Bluetooth BLE	
Supported type:	Bluetooth low Energy
Modulation:	GFSK
Operation frequency:	2402MHz to 2480MHz
Channel number:	40
Channel separation:	2 MHz
Antenna type:	FPC Antenna
Antenna gain:	-4.46 dBi

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

2.3. Description of Test Modes

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

Operation Frequency List :

Channel	Frequency (MHz)
00	2402
01	2404
02	2406
⋮	⋮
19	2440
⋮	⋮
37	2476
38	2478
39	2480

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

2.4. Measurement Instruments List

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Institution	Calibration Date	Calibration Due Date
1	Spectrum Analyzer	Agilent	N9020	US46220290	Shenzhen Academy of metrology & Quality Inspection	2019/01/15	2020/01/14

Note: Calibration by the calibration agencies listed in the table correspond to paragraph 4 (ii) (c) of Article 24-2 in the Radio Law".

3. Test conditions and Results

3.1. Frequency Error

LIMIT

50ppm

TEST CONFIGURATION



TEST PROCEDURE

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

EUT Condition: non-modulation

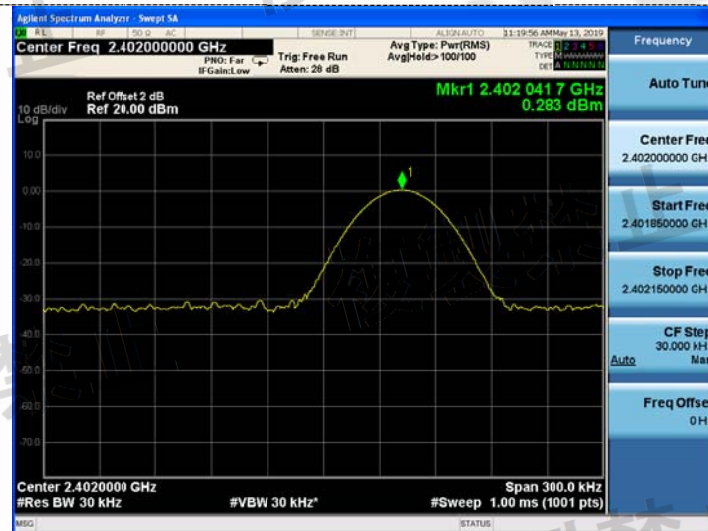
Spectrum Condition:

- Frequency: test frequency
- Span: 300 KHz
- RBW: 30 KHz
- VBW: 30 KHz
- Sweep time: Auto
- Detector mode: Positive peak
- Indication mode: max hold

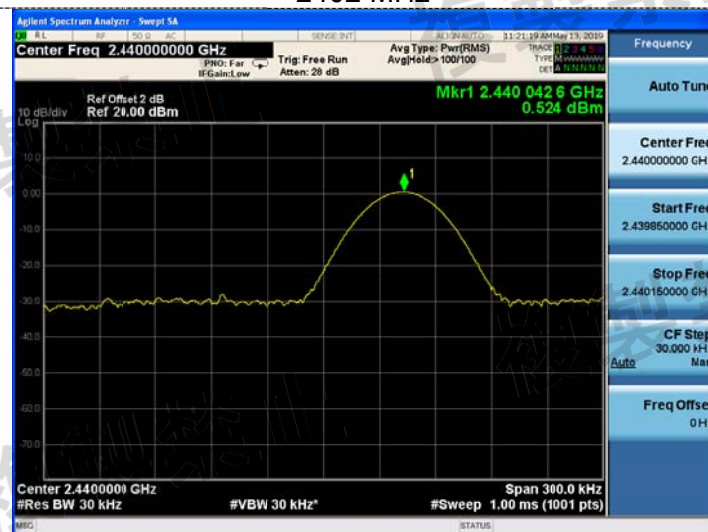
TEST RESULTS

Test Condition	Frequency (MHz)	Read (MHz)	Deviation (MHz)	Tolerance (ppm)	Limit (ppm)	Result
Non-modulation	2402.00	2402.0417	0.0417	17.36	± 50.00	Pass
	2440.00	2440.0426	0.0426	17.46		
	2480.00	2480.0432	0.0432	17.42		

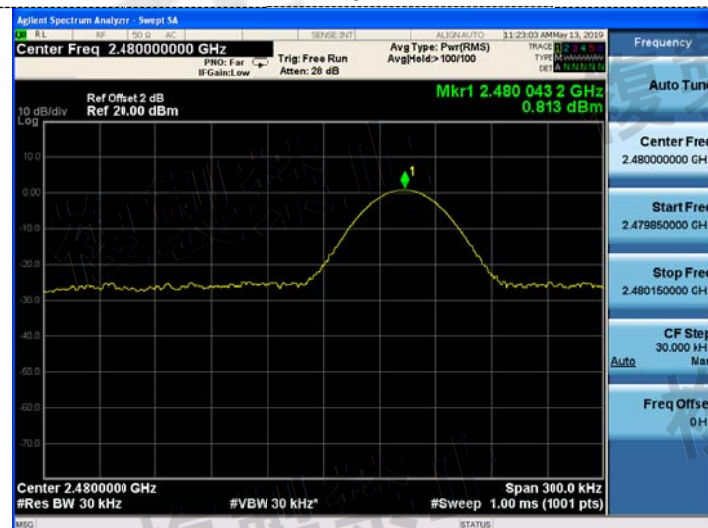
Non-modulation carrier



2402 MHz



2440MHz



2480MHz

3.2. Antenna Output Power and Output Power Tolerance

LIMIT

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

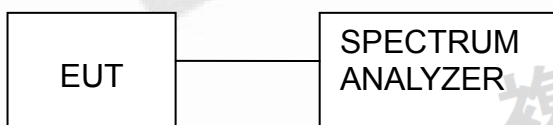
The Output Power Tolerance must be within +20%, -80%.

E.i.r.p:

- $\leq 12.14 \text{ dBm/MHz}$ (OFDM, DS form 2400-2483.5 MHz)

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

TEST CONFIGURATION



TEST PROCEDURE

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: Clear Write

TEST RESULTS

Mode	Channel (MHz)	Average burst power(dBm)	Output power (mW)	Limit (mW)	Rated output power (mW)	Tolerance (%)	Limit	Result
GFSK	2402	0.339	1.08	10.00	2.00	-45.94%	-80%~20%	Pass
	2440	0.588	1.14	10.00	2.00	-42.75%		
	2480	0.860	1.22	10.00	2.00	-39.05%		

3.3. OCCUPIED BANDWIDTH AND SPREADING BANDWIDTH

LIMIT

- Occupied bandwidth: FH $\leq$ 83.5 MHz; OFDM $\leq$ 38 MHz; DS $\leq$ 26 MHz; Others $\leq$ 26 MHz
- Spread Bandwidth: $\geq$ 500 kHz(FH,DS)
- Spread factor $>$ 5.

TEST CONFIGURATION



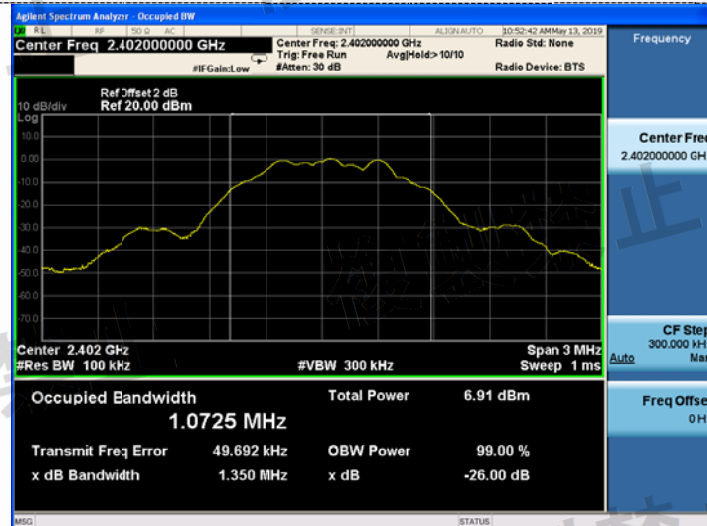
TEST PROCEDURE

1. Setting of SA is following as follow:
 - RBW: under 3% of OBW
 - VBW: = RBW
 - Sweep time: Auto
 - Sweep Mode: Continuous sweep
 - Detect mode: Positive peak
 - Trace mode: Max hold
2. EUT have transmitted the maximum modulation signal and fixed channelize. SA set to 99% of occupied bandwidth to measure occupied bandwidth.
3. EUT have transmitted the maximum modulation signal and fixed channelize. SA set to 90% of occupied bandwidth to measure spread bandwidth.
4. Spread Factor=Spread Bandwidth/modulation rate. The modulation rate: MR=1Mbps (declare by client)

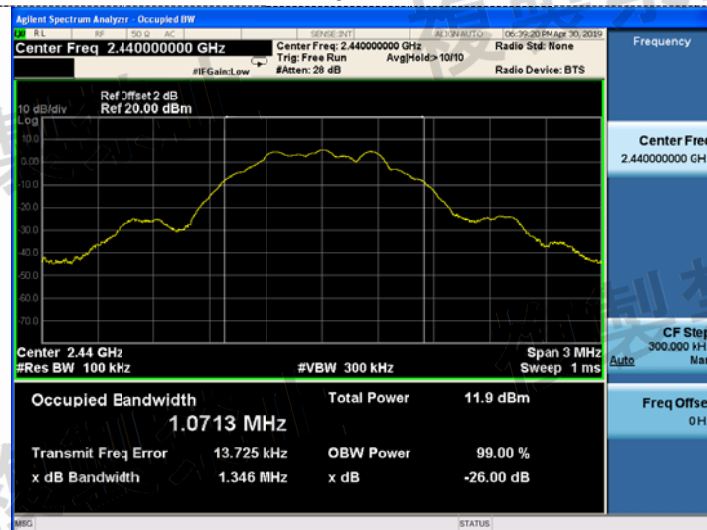
TEST RESULTS

Type	Channel (MHz)	Occupy Bandwidth (MHz)	Limit (MHz)	Result
GFSK	2402	1.0725	<26	Pass
	2440	1.0713		
	2480	1.0766		

GFSK



2402MHz



2440MHz



2480MHz

Type	Channel (MHz)	Spread Bandwidth (MHz)	Spread Factor	Spread Bandwidth Limit (MHz)	Spread Factor Limit	Result
GFSK	2402	0.68904	N/A	≥0.5	N/A	Pass
	2440	0.68968				
	2480	0.69303				

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

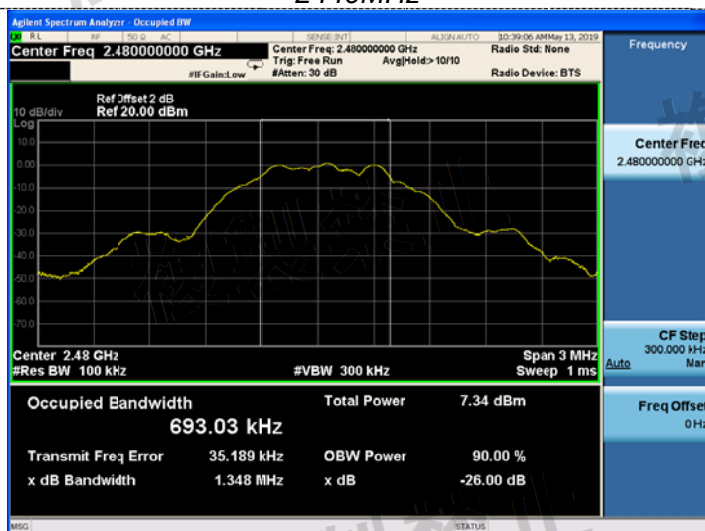
GFSK



2402MHz



2440MHz



2480MHz

3.4. Unwanted Emission Strength

LIMIT

Below 2387 MHz: 2.5 μ W/MHz or less

2387 to 2400 MHz: 25 μ W/MHz or less

2483.5 Through 2496.5 MHz: 25 μ W/MHz or less

Over 2496.5 MHz: 2.5 μ W/MHz or less

TEST CONFIGURATION



TEST PROCEDURE

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

EUT Condition: modulation

Spectrum Condition:

- Frequency: 30MHz-13GHz
- RBW: 100 KHz (30MHz-1GHz), 1MHz (1GHz-12.5GHz)
- VBW: 100 KHz (30MHz-1GHz), 1MHz (1GHz-12.5GHz)
- Sweep time: Auto
- Detector mode: Positive peak
- Indication mode: max hold

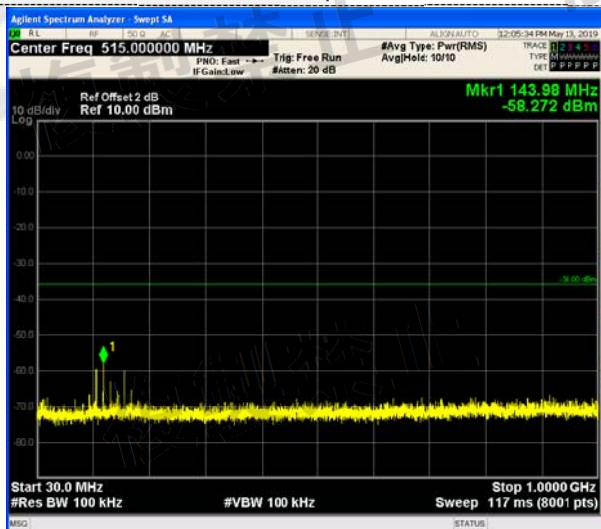
TEST RESULTS

Test mode:

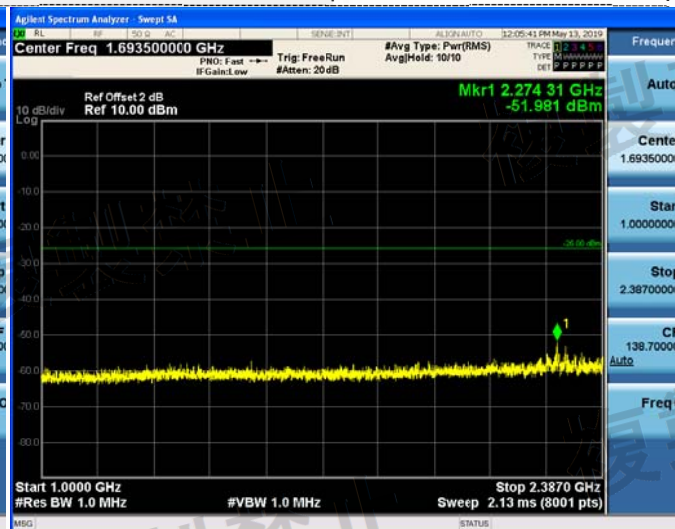
GFSK

Test channel:

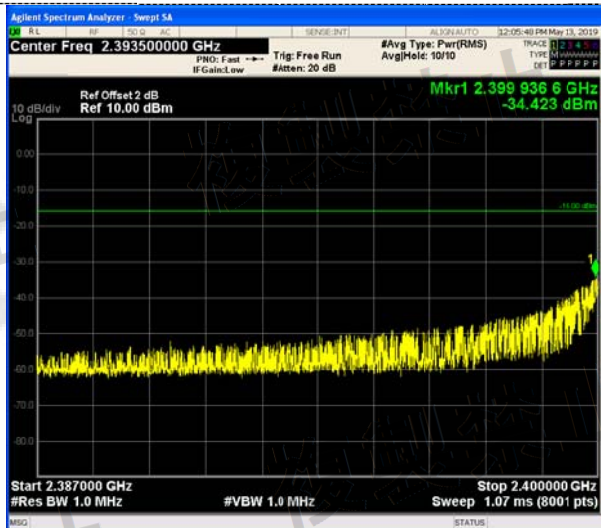
2402MHz



30MHz~1GHz



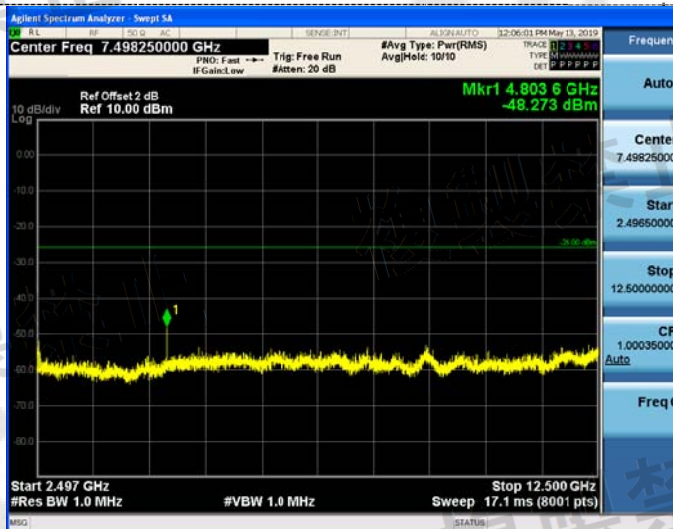
1GHz~2.387GHz



2.387GHz~2.4 GHz



2.4835GHz~2.4965GHz



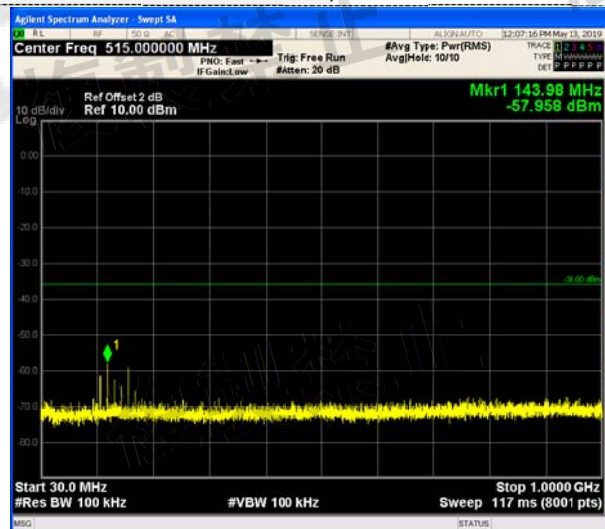
2.4965GHz~12.5GHz

Test mode:

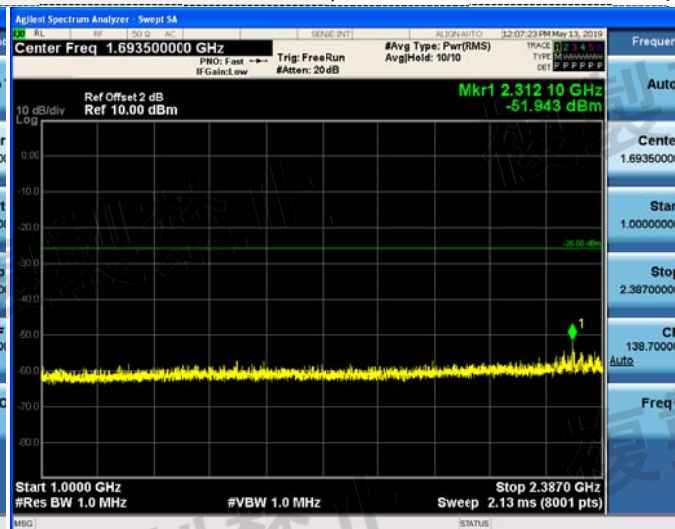
GFSK

Test channel:

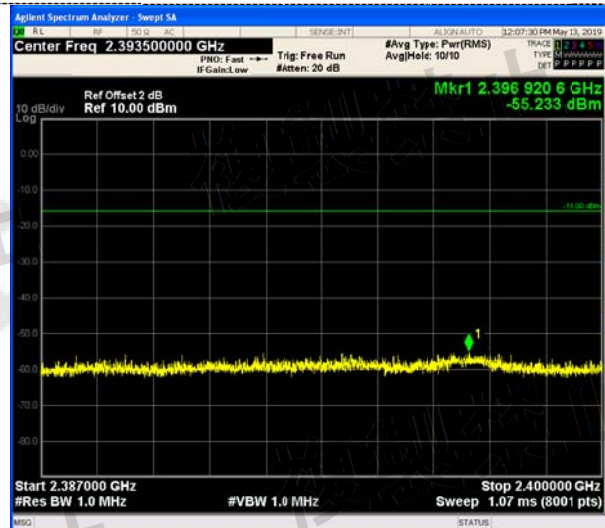
2440MHz



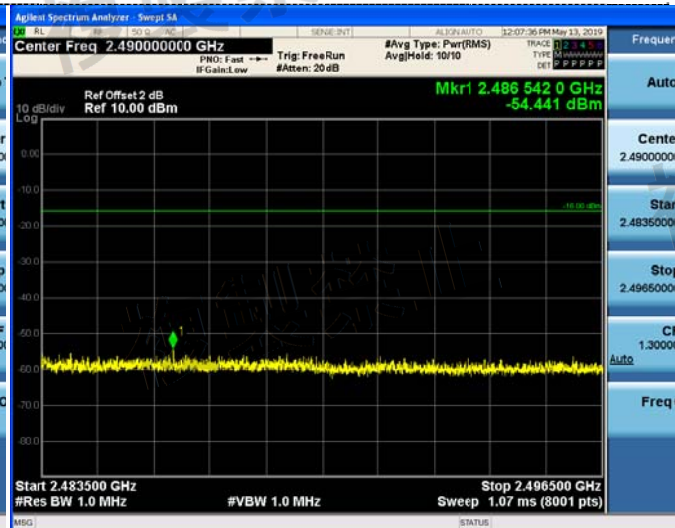
30MHz~1GHz



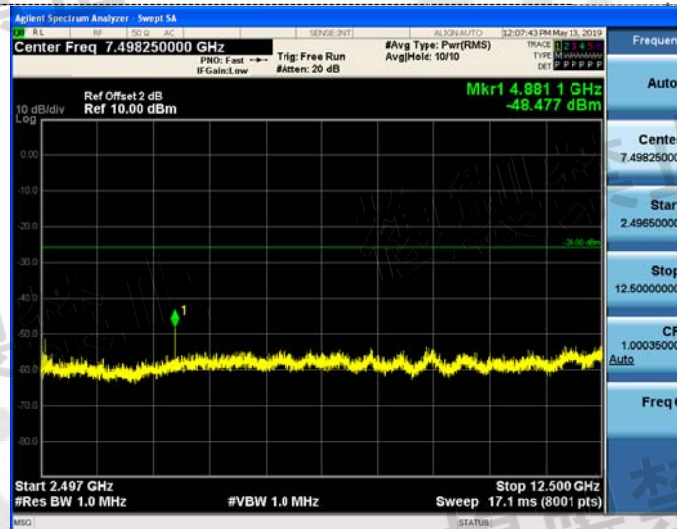
1GHz~2.387GHz



2.387GHz~2.4 GHz



2.4835GHz~2.4965GHz



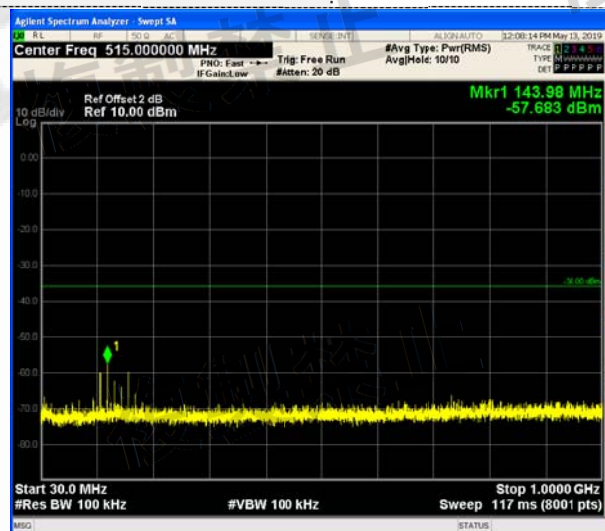
2.4965GHz~12.5GHz

Test mode:

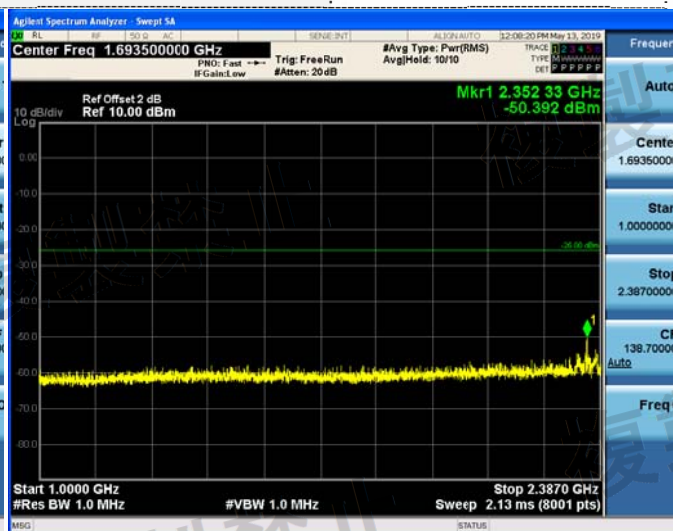
GFSK

Test channel:

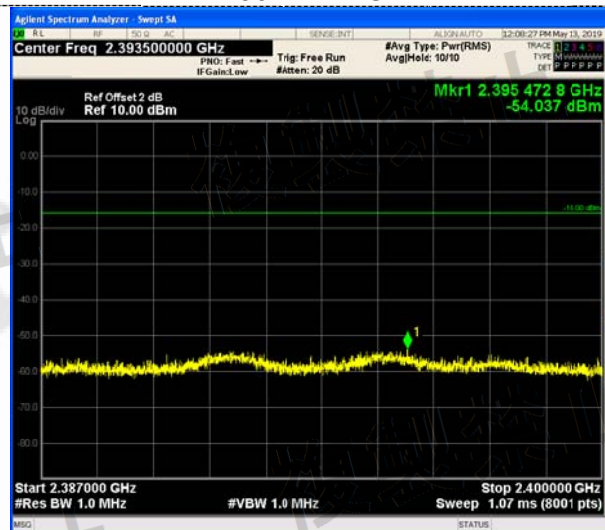
2480MHz



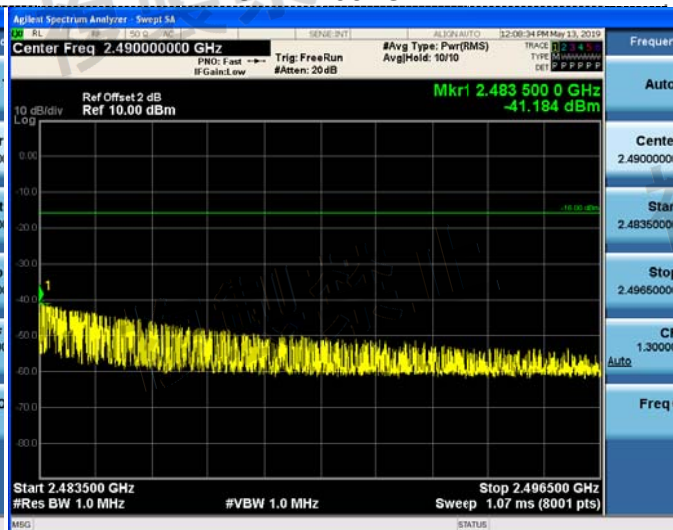
30MHz~1GHz



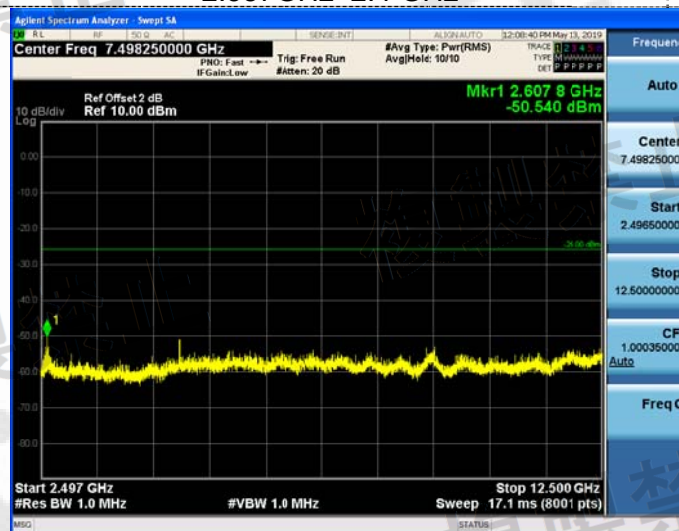
1GHz~2.387GHz



2.387GHz~2.4 GHz



2.4835GHz~2.4965GHz



2.4965GHz~12.5GHz

3.5. Secondary Radiated Emission Strength

LIMIT

Below 1GHz: 4.0nW or less

Above 1GHz: 20nW or less

TEST CONFIGURATION



TEST PROCEDURE

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

EUT Condition: modulation

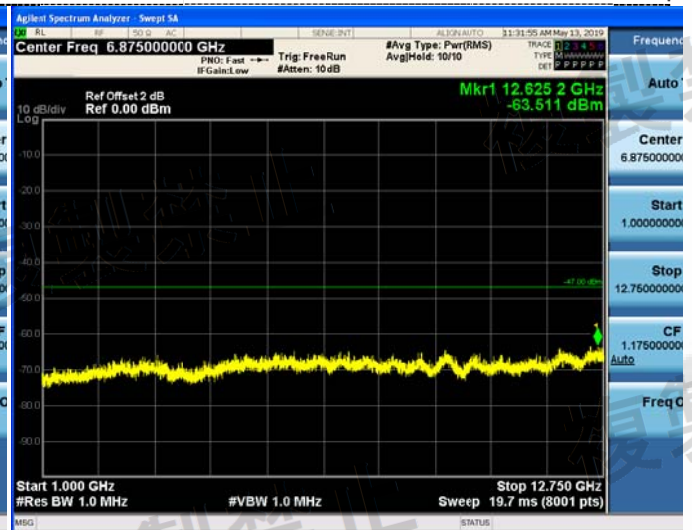
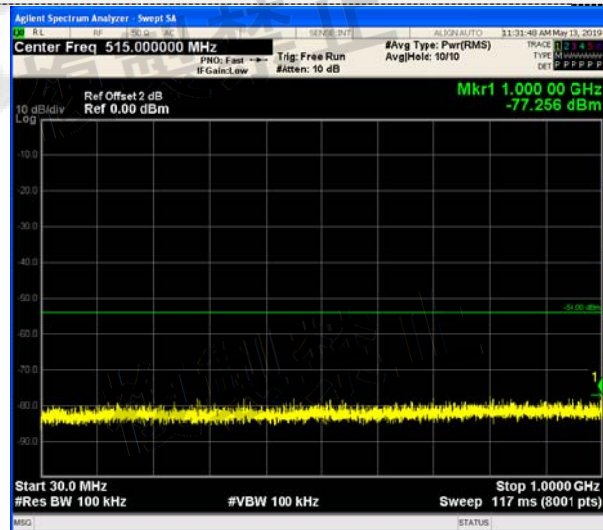
Spectrum Condition:

- Frequency: 30MHz-13GHz
- RBW: 100 KHz (30MHz-1GHz), 1MHz (1GHz-12.5GHz)
- VBW: 100 KHz (30MHz-1GHz), 1MHz (1GHz-12.5GHz)
- Sweep time: Auto
- Detector mode: Positive peak
- Indication mode: max hold

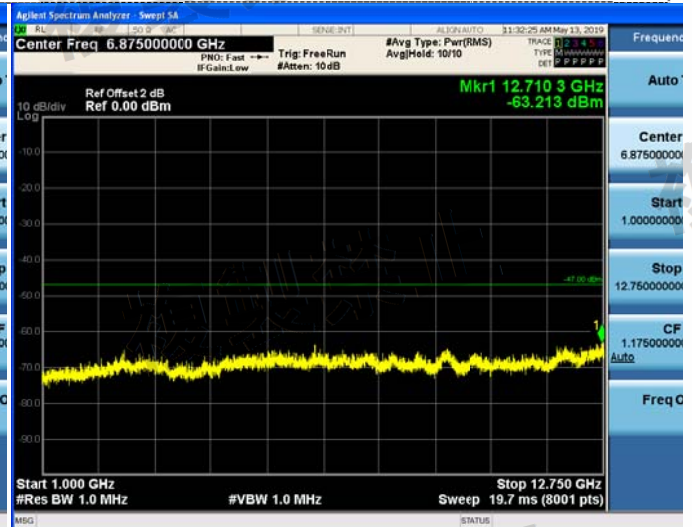
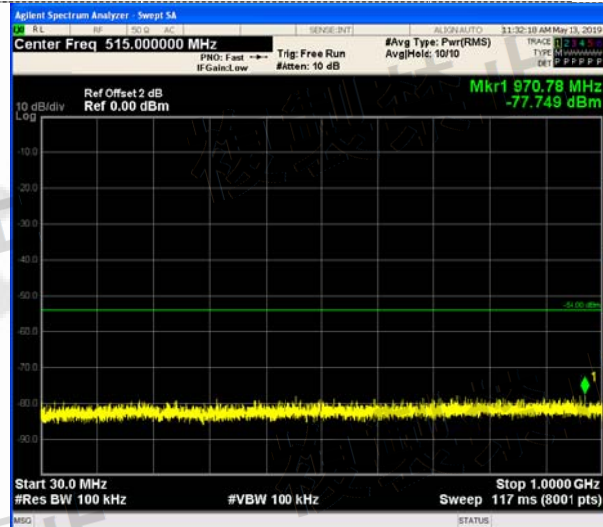
TEST RESULTS

Test mode:

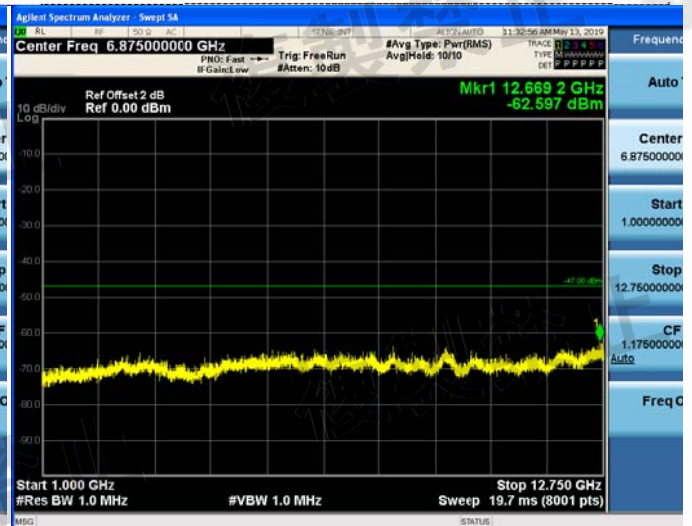
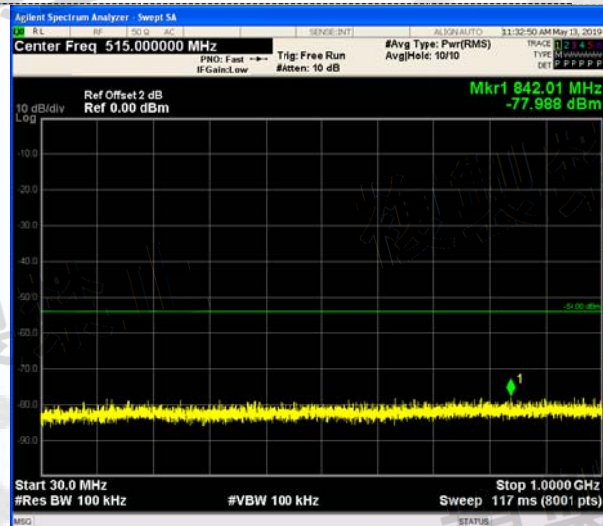
GFSK



2402MHz



2440MHz



2480MHz

3.6. Construction protection method

Requirement

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

Confirmation method

And all high-frequency section and modulation section was packaged in one IC.

3.7. Interference Prevention Function

Requirement

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

Interference Prevention Function Confirm

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

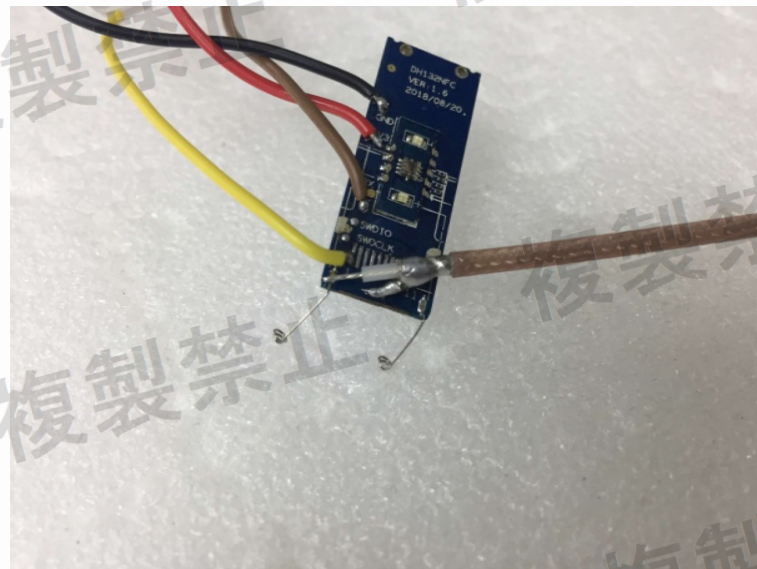
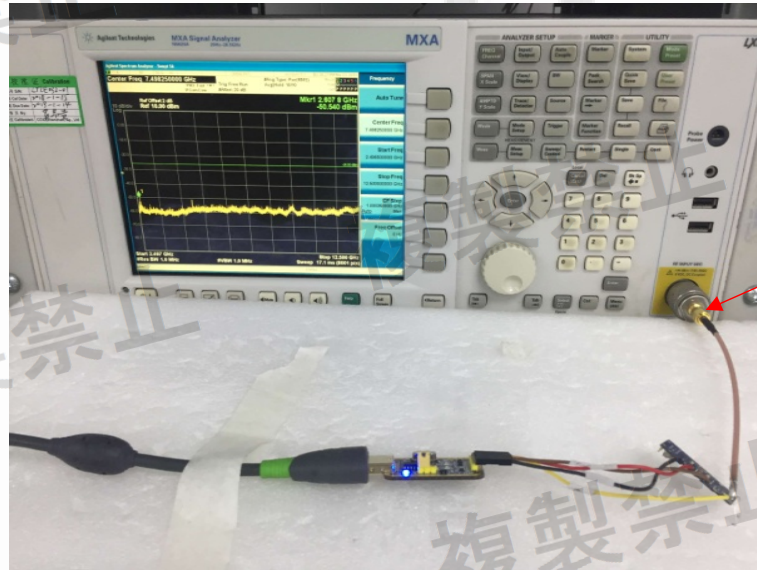
TEST PROCEDURE

1. Connect the EUT in network
2. Open the software
3. We can get the information as follows:

TEST RESULTS

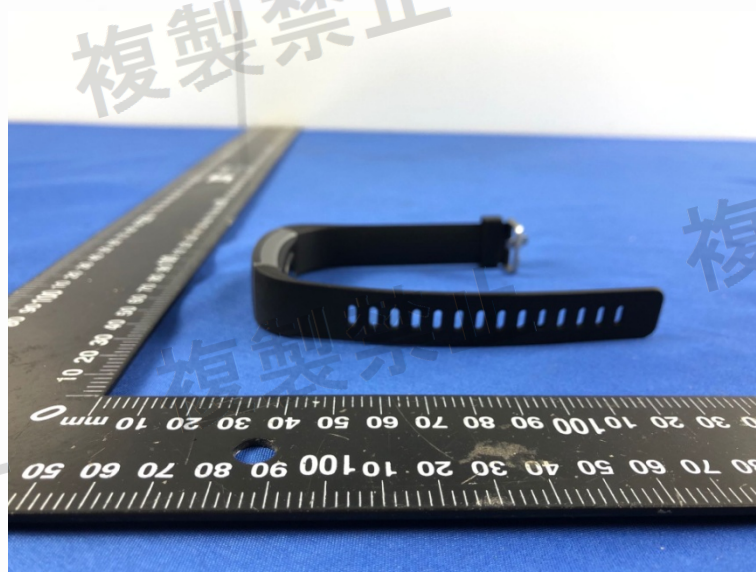
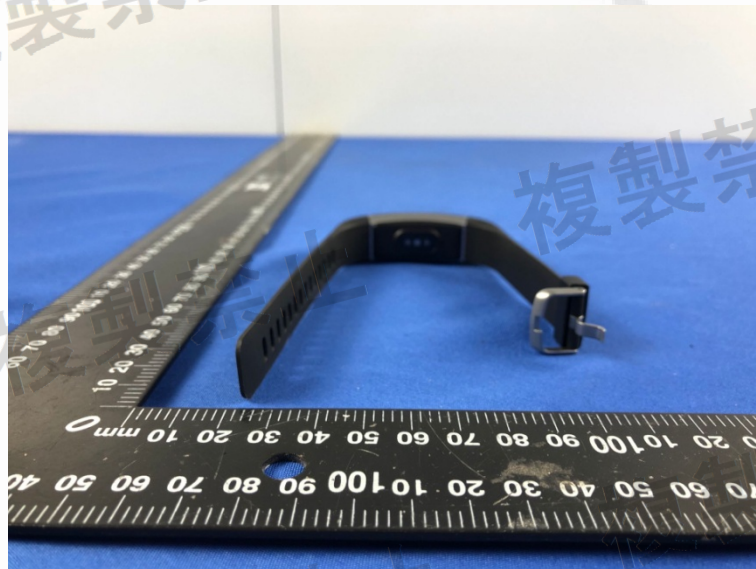
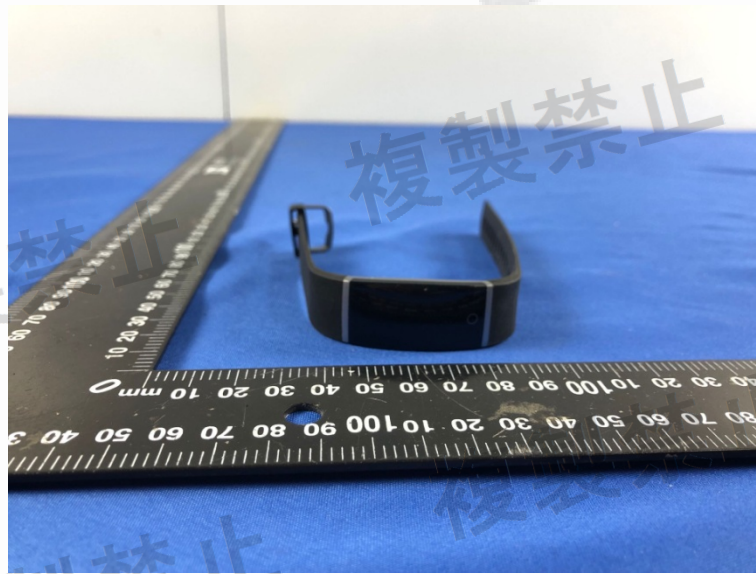
MAC: 3D:F4:A6:D3:CA:2E

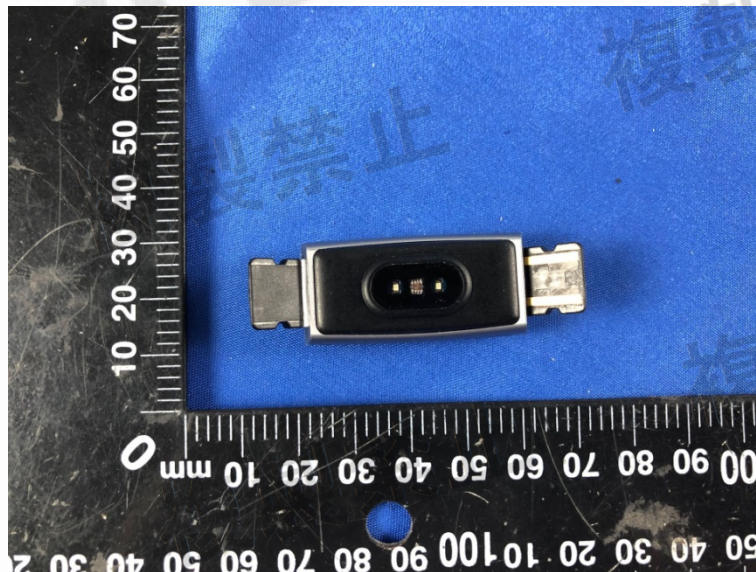
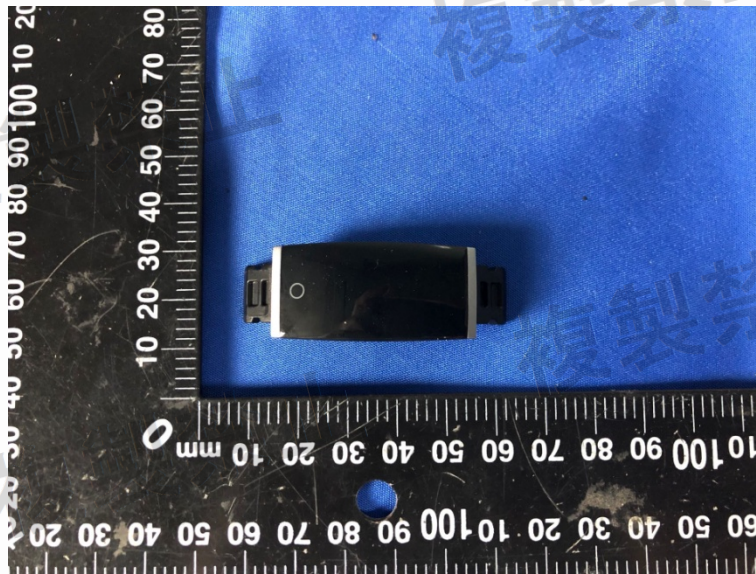
4. Test Setup Photos of the EUT

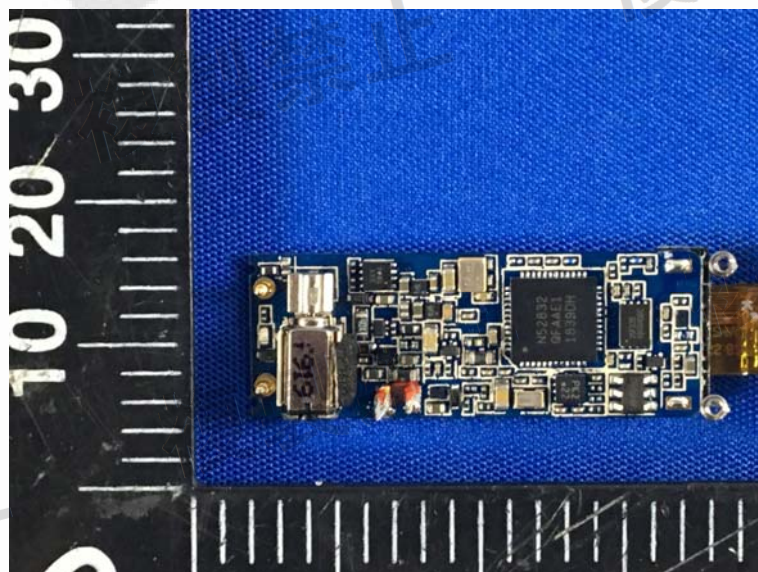


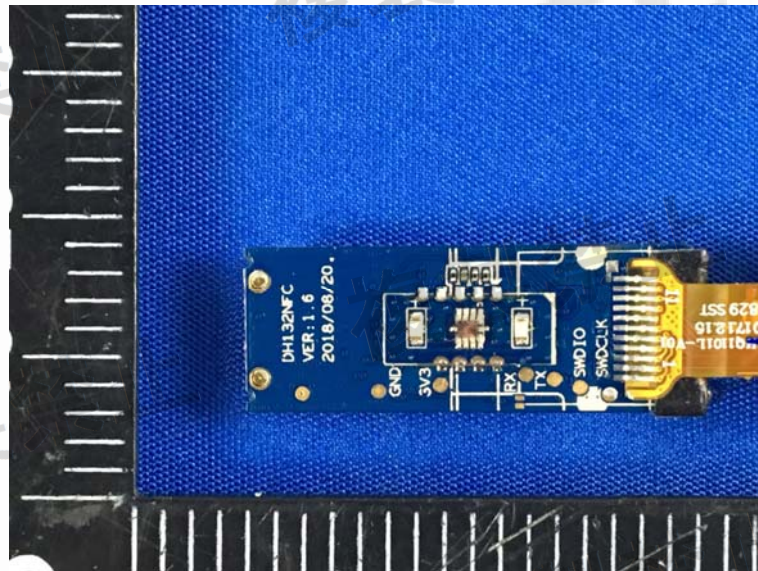
5. External and Internal Photos of the EUT

External Photos of EUT





Internal Photos of EUT



*****THE END*****