Shenzhen CTL Testing Technical Services Co., Ltd.
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TEST REPORT

Ordinance Article 2 paragraph 1 item (19)

Report Reference No. ..... : **GML2509058031-MIC01**

Compiled by: (position+printed name+signature)	Nice Nong (File administrators)	Nice Nong
Tested by: (position+printed name+signature)	Alec Yuan (Test Engineer)	Alec Yuan
Approved by: (position+printed name+signature)	Jacky Chen (Manager)	Jacky chen

Product Name ..... : Mibro Watch Fit
Model/Type reference ..... : XPAW027
List Model(s)..... : N/A
Trade Mark..... : mibro

Applicant's name ..... : **Zhen Shi Information Technology (Shenzhen) Co., Ltd**
Address of applicant ..... : 1401, Building E, Phase II, Galaxy WORLD, Minle Community, Minzhi Street, Longhua District, Shenzhen, China

Test Firm..... : **Shenzhen CTL Testing Technical Services Co., Ltd.**
Address of Test Firm ..... : No. 101, Building 1, Phase 1, Longbang Industrial Park, No. 8 Tianyuan Road, Shutianpu Community, Matian Street, Guangming District, Shenzhen, China

Test specification..... :
Standard ..... : **Ordinance Article 2 paragraph 1 item (19)**
TRF Originator ..... : Shenzhen CTL Testing Technical Services Co., Ltd.
Master TRF..... : Dated 2011-01

Date of receipt of test item ..... : Sept. 05, 2025
Date of sampling..... : Sept. 05, 2025
Date of Test Date..... : Sept. 05, 2025 –Sept. 19, 2025
Date of Issue ..... : Sept. 22, 2025
Result..... : **Pass**

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TEST REPORT

Test Report No. :	GML2509058031-MIC01	Sept. 22, 2025 Date of issue

Equipment under Test	:	Mibro Watch Fit
Sample No	:	GML2509058031
Model /Type	:	XPAW027
Listed Models	:	N/A
Applicant	:	**Zhen Shi Information Technology (Shenzhen) Co., Ltd**
Address	:	1401, Building E, Phase II, Galaxy WORLD, Minle Community, Minzhi Street, Longhua District, Shenzhen, China
Manufacturer	:	**Zhen Shi Information Technology (Shanghai) Co., Ltd**
Address	:	Room 4015, Building 2, No. 588 Zixing Road, Minhang District, Shanghai, China

Test result	**Pass ***

* 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.

** Modified History **

Revision	Description	Issued Data	Report No.	Remark
Revision 1.0	Initial Test Report Release	2025-09-22	GML2509058031-MIC01	Jacky Chen

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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	Pass
Unwanted Emission Strength	Pass
Secondary Radiated Emission Strength	Pass
Construction protection method	Pass
Interference Prevention Function	Pass

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1.3. Test Facility

1.3.1 Address of the test laboratory

Shenzhen CTL Testing Technical Services Co., Ltd.
No. 101, Building 1, Phase 1, Longbang Industrial Park, No. 8 Tianyuan Road, Shutianpu Community, Matian Street, Guangming District, Shenzhen, 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 32/EN 55032 requirements.

1.3.2 Laboratory accreditation

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

CNAS-Lab Code: L14175

Shenzhen CTL Testing Technical Services 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: 2017 General Requirements) for the Competence of Testing and Calibration Laboratories.

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	±$1.62*10^{-6}$
Total RF power, conducted	±0.8dB
Spurious emissions, conducted	±0.8dB
DC and low frequency voltages	±0.05%
Humidity	±5%
Temperature	±1℃

2. GENERAL INFORMATION

2.1. Environmental conditions

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

Voltage	Input to EUT	Normal Voltage	DC:3.8V
		High Voltage	DC:4.37V
		Low Voltage	DC:3.23V
	DC RF Module	Normal Voltage	DC:3.30V
		High Voltage	DC:3.30V
		Low Voltage	DC:3.30V
Other		Normal Temperature	25°C
		Relative Humidity	55 %
		Air Pressure	989 hPa

Note:
During the input supply voltage to the EUT from the external power source is varied by +/-10%, the fluctuation of input voltage to the circuit of RF unit of test equipment is less than ±1%. so all test performed at normal voltage only.

2.2. General Description of EUT

Product Name:	Mibro Watch Fit
Model/Type reference:	XPAW027
Power supply:	DC 3.8V from battery
Charging parameters	Input: 5V⎓1A Minimum charging power: 0.1W Maximum charging power: 0.75W
Hardware version:	MB-P0.3
Software version:	V017
Bluetooth	
Version:	Supported BR/EDR
Modulation:	GFSK, π/4DQPSK, 8DPSK
Operation frequency:	2402MHz~2480MHz
Channel number:	79
Channel separation:	1MHz
Antenna type:	Integral Antenna
Antenna gain:	-7.33 dBi

Note 1: 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 BT3.0：

Channel	Frequency (MHz)
00	**2402**
01	2403
⋮	⋮
38	2440
39	**2441**
40	2442
⋮	⋮
77	2479
78	**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.	Calibration Date	Calibration Due Date
1	Spectrum Analyzer	Keysight	N9020A	MY53281830	2025/08/06	2026/08/05
2	RF control Unit	Tonscend	JS0806-2	20J8060323	2025/08/06	2026/08/05
3	Signal generator	Agilent	N5182A	MY50140030	2025/08/06	2026/08/05
4	DC power supply	Agilent	E3632A	MY51350447	2025/08/06	2026/08/05
5	Oscilloscope	Tektronix	DPO4101	/	2025/08/06	2026/08/05

Test Software

Name of Software	Version
JS1120-3	V3.6.21

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

Calibration agency: Guangzhou Lisai Calibration and Testing Co.,Ltd.

☐(a) Calibration conducted by the National Institute of Information and Communications Technology (NICT) or a designated calibration agency under Article 102-18-1 of the Radio Act.

☐(b) Calibration conducted based on the regulations of Article 135 or 144 of the Measurement Act.

☒(c) Calibration conducted in foreign countries, which is equivalent to calibration conducted by the NICT or a designated calibration agency under Article 102-18-1 of the Radio Act.

☐(d) Calibration, etc. conducted by using measuring instruments and other facilities listed at the bottom of appended table 3 of the Radio Act, which is to have been calibrated as described in (a) through (c) above.

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: 10 KHz
- VBW: 10 KHz
- Sweep time: Auto
- Detector mode: Positive peak
- Indication mode: max hold

TEST RESULTS

Raw data reference to Annex for MIC BT Appendix A

3.2. Antenna Output Power and Output Power Tolerance

LIMIT

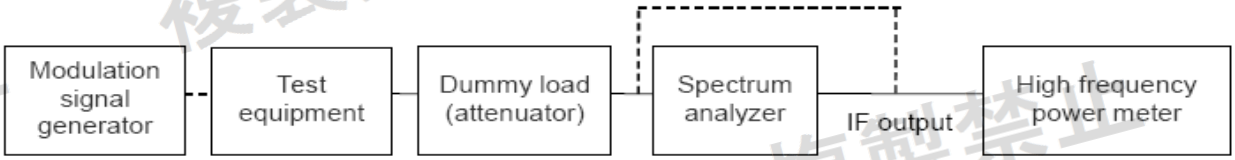
- ≤ 3 mW /MHz(FHSS from 2402-2480 MHz)
- ≤ 10 mW/MHz (OFDM, DSSS from 2400-2483.5 MHz)
- ≤ 10 mW (other from 2400-2483.5 MHz)

The Output Power Tolerance must be within +20%, -∞%.
E.i.r.p:

- 6.91dBm/MHz(FHSS from 2402-2480 MHz)
- 12.14-22.14dBm (other from 2400-2483.5 MHz)
  - DS:12.14-22.14dBm/MHz
  - OFDM 20MHz: 12.14-22.14dBm/MHz
    40MHz: 9.13-19.13 dBm/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 set the UUT in FHSS mode, use the following settings:

• Setting of SA is following as fellow:

• RBW=1MHz

• VBW=1MHz

• Sweep time: 20ms

• Sweep point:: 30001

• Detect mode: Sample

• Trace mode: Clear

Step 2: UUT have transmitted the maximum modulation signal and fixed channelize. SA set to 90% of occupied bandwidth to measure spread bandwidth. When the trace is complete record spread bandwidth in MHz.

Step 3: Connect the UUT to the Power meter as TEST CONFIGURATION and set the UUT in FHSS mode to measure max measured power in dBm and record.

Step 4: Converting max measured power(in Step 3) from dBm to mW and divided by spread bandwidth, then record this value as antenna output power.

TEST RESULTS

Raw data reference to Annex for MIC BT Appendix B

3.3. Occupied Bandwidth And Spreading Bandwidth

LIMIT

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

TEST CONFIGURATION

TEST PROCEDURE

1. Setting of SA is following as fellow:
   - RBW: under 3% of OBW
   - RBW=1MHz
   - VBW=1MHz
   - Sweep time: 1ms
   - Sweep point:: 1001
   - 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

Raw data reference to Annex for MIC BT Appendix C and Appendix D.

3.4. Dwell time

LIMIT

0.4 second or less

NOTE: Dwell time only applicable to FHSS system device.

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: test channel
- RBW: 1MHz
- VBW: 1MHz
- Sweep point: 8000
- Sweep time: 10.13ms
- Trace:Clear
- Detector mode: Positive peak

TEST RESULTS

Raw data reference to Annex for MIC BT Appendix G.

3.5. Unwanted Emission Strength

LIMIT

Below 2387 MHz: 2.5μW/MHz or less
2387 to 2400 MHz: 25μW/MHz or less
2483.5 Through 2496.5 MHz: 25μW/MHz or less
Over 2496.5 MHz: 2.5μW/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-12.5GHz
- 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

Raw data reference to Annex for MIC BT Appendix E.

-Note:SA set to from 2.4965GHz to 13GHz, plot shows from 2.497GHz to 13GHz as of SA's default format.

3.6. 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-12.75GHz
- RBW: 100 KHz (30MHz-1GHz), 1MHz (1GHz-12.75GHz)
- VBW: 100 KHz (30MHz-1GHz), 1MHz (1GHz-12.75GHz)
- Sweep time: Auto
- Detector mode: Positive peak
- Indication mode: max hold

TEST RESULTS

Raw data reference to Annex for MIC BT Appendix F.

3.7. 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

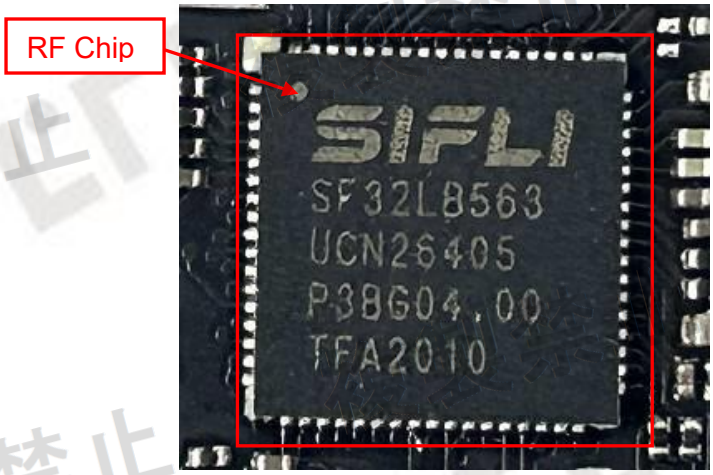
All high-frequency section and modulation section packet in one IC, End user can not modify easily.

The SF32LB563 package dimensions is shown below, as we can see:

- Number of terminals: 68

- Terminal pitch: 0.35mm

It can meet the requirements of MIC structure protection.



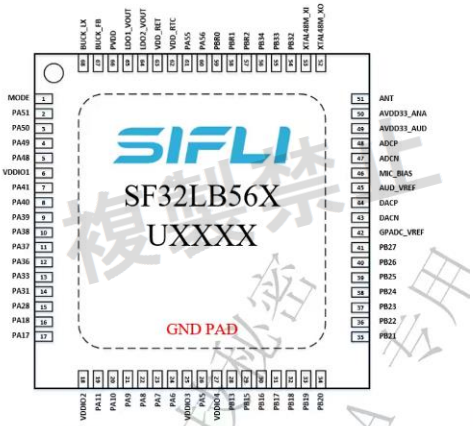
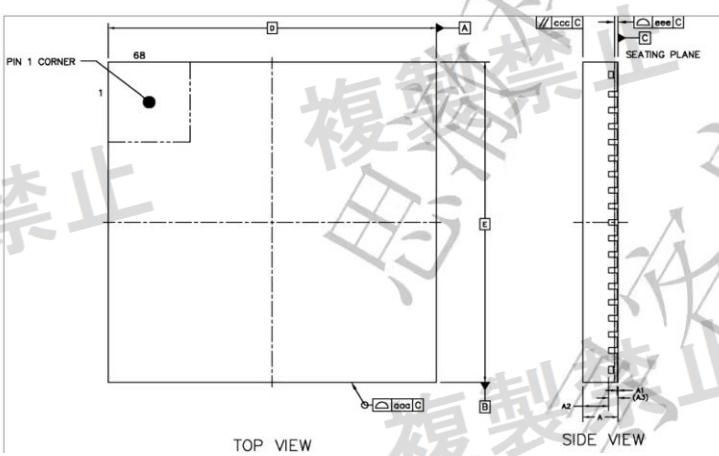


图 5-2: SF32LB561/SF32LB563（QFN68L）管脚分布



		SYMBOL	MIN	NOM	MAX
TOTAL THICKNESS		A	0.7	0.75	0.8
STAND OFF		A1	0	0.02	0.05
MOLD THICKNESS		A2	---	0.55	---
L/F THICKNESS		A3	0.203 REF		
LEAD WIDTH		b	0.1	0.15	0.2
BODY SIZE	X	D	7 BSC		
	Y	E	7 BSC		
LEAD PITCH		e	0.35 BSC		
EP SIZE	X	D2	5.39	5.49	5.59
	Y	E2	5.39	5.49	5.59
LEAD LENGTH		L	0.35	0.4	0.45
LEAD TIP TO EXPOSED PAD EDGE		K	0.355 REF		
PACKAGE EDGE TOLERANCE		aaa	0.1		
MOLD FLATNESS		ccc	0.1		
COPLANARITY		eee	0.08		
LEAD OFFSET		bbb	0.07		
EXPOSED PAD OFFSET		fff	0.1		

3.8. 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).

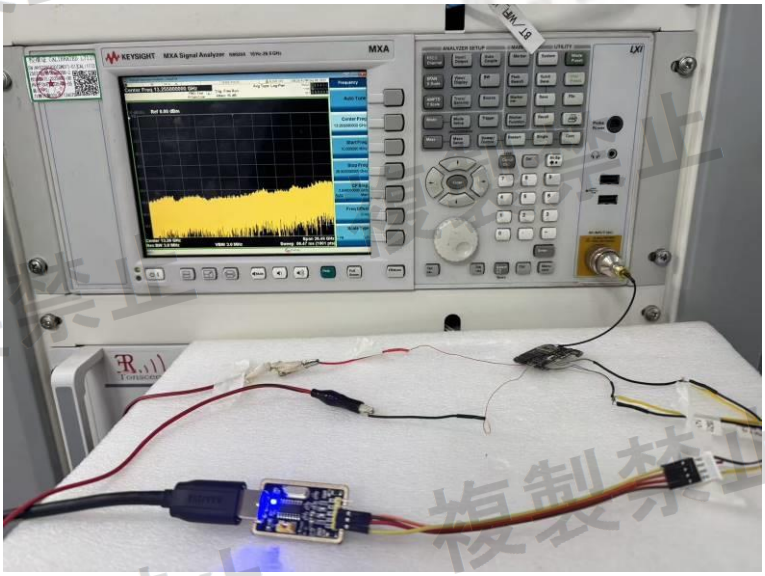
TEST PROCEDURE

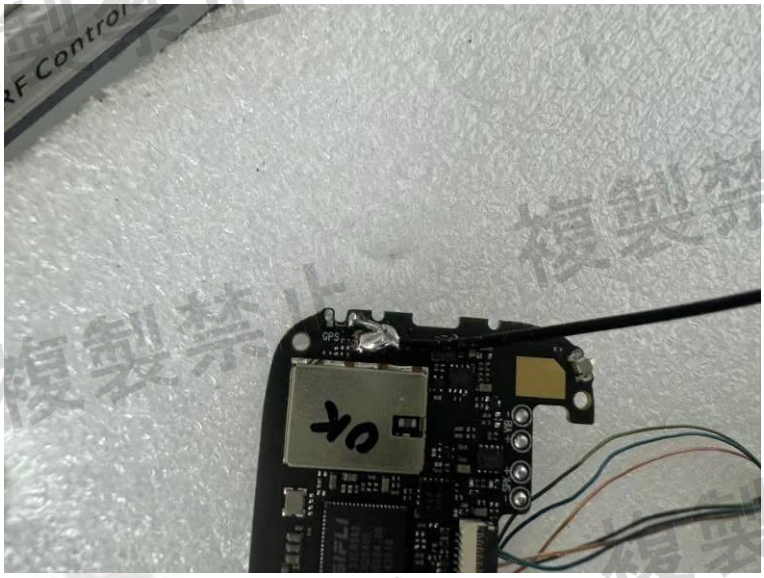
1. Connect the EUT in network
2. Open the software
3. We can get the information as follows:

TEST RESULTS

MAC: 30:C9:1B:88:19:06

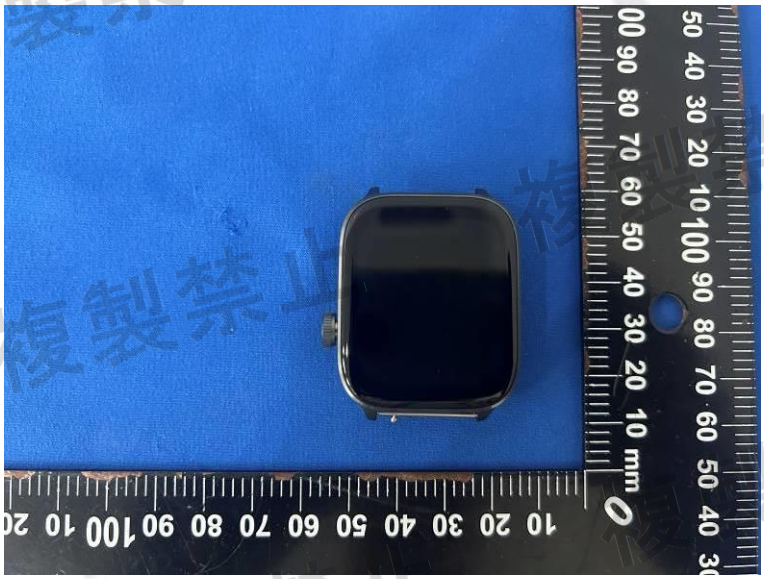
4. Test Setup Photos of the EUT



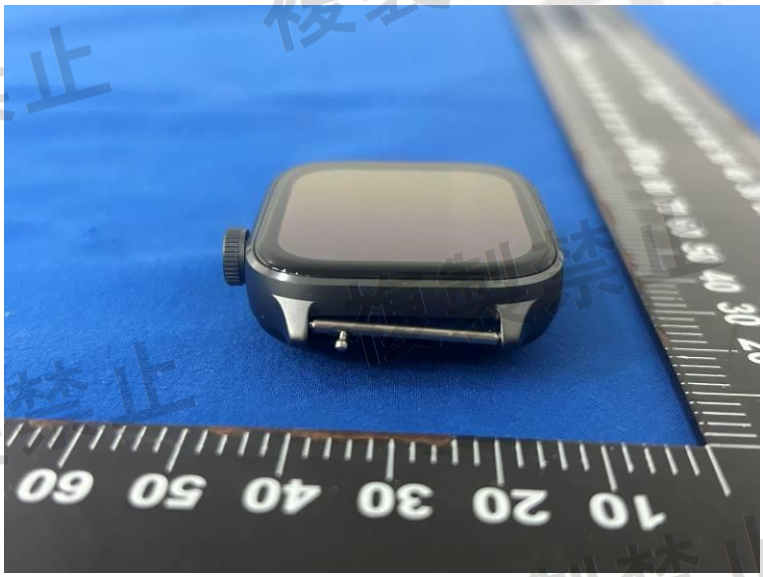


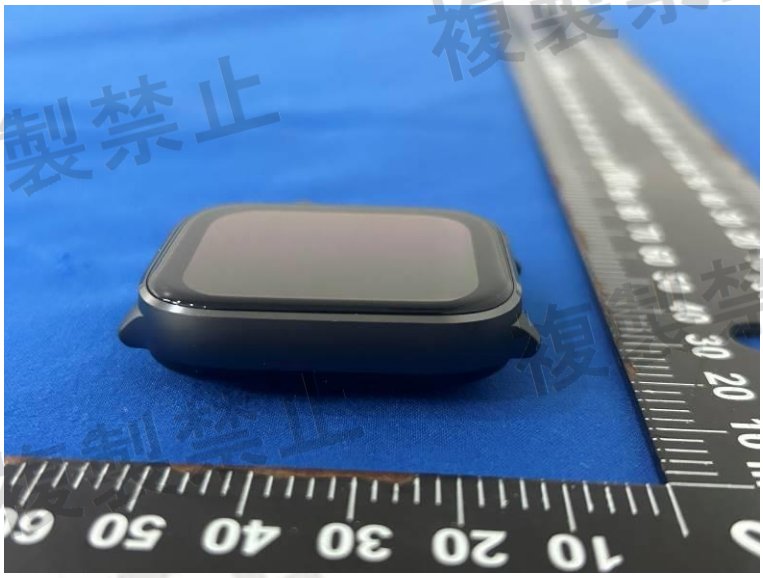
5. External and Internal Photos of the EUT

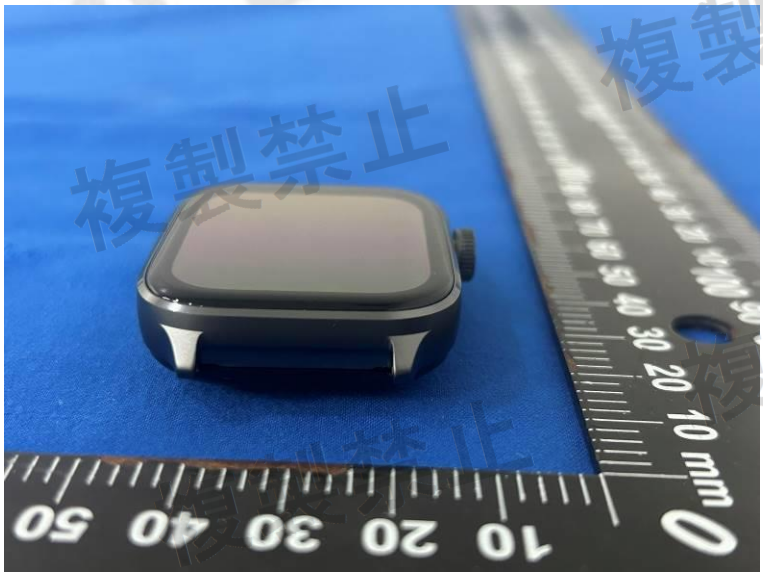
External Photos of EUT



複製禁止

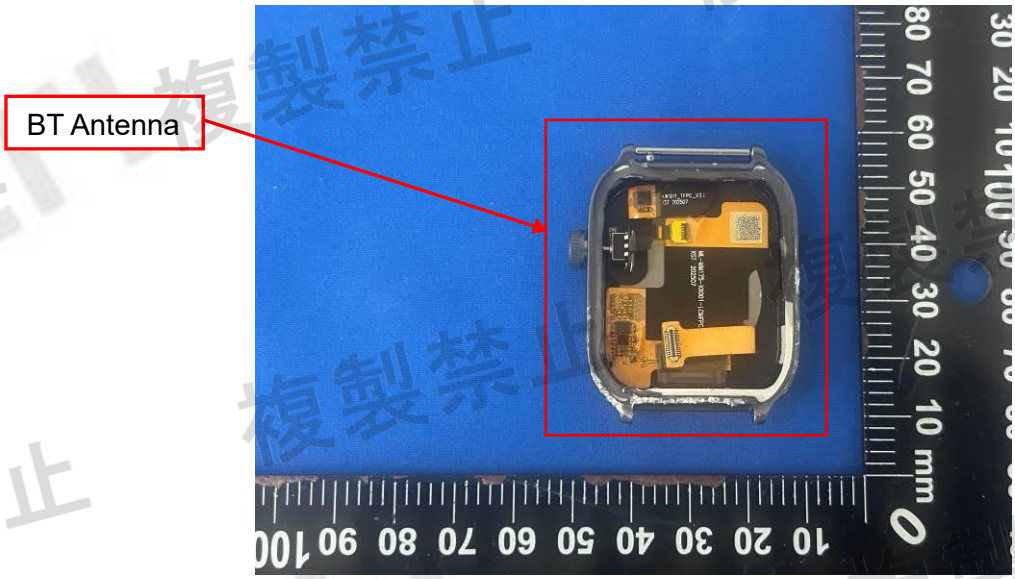


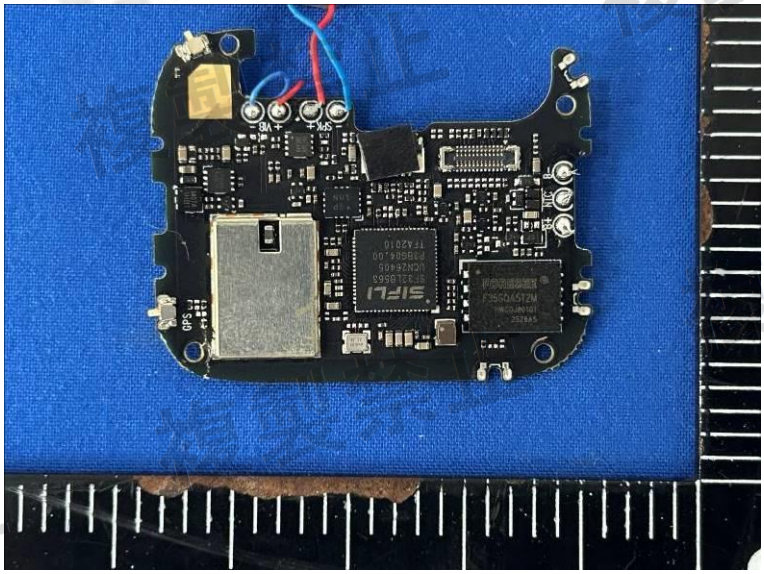




複製禁止

Internal Photos of EUT





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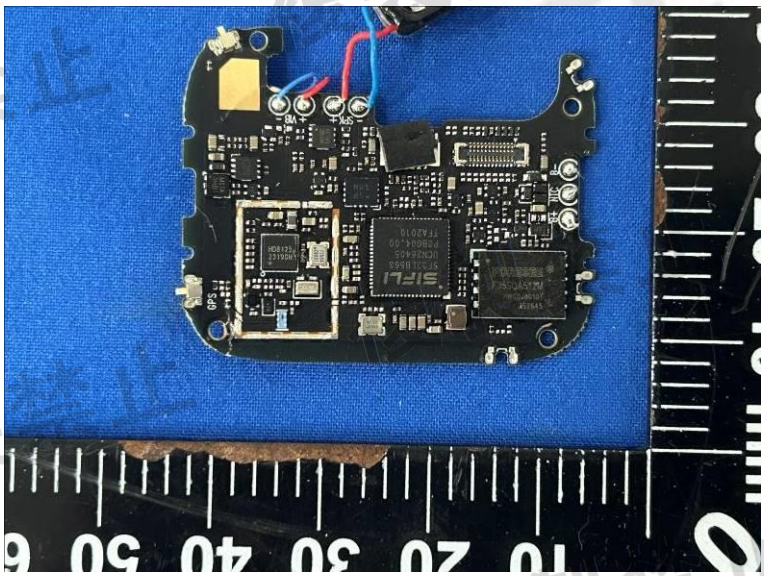
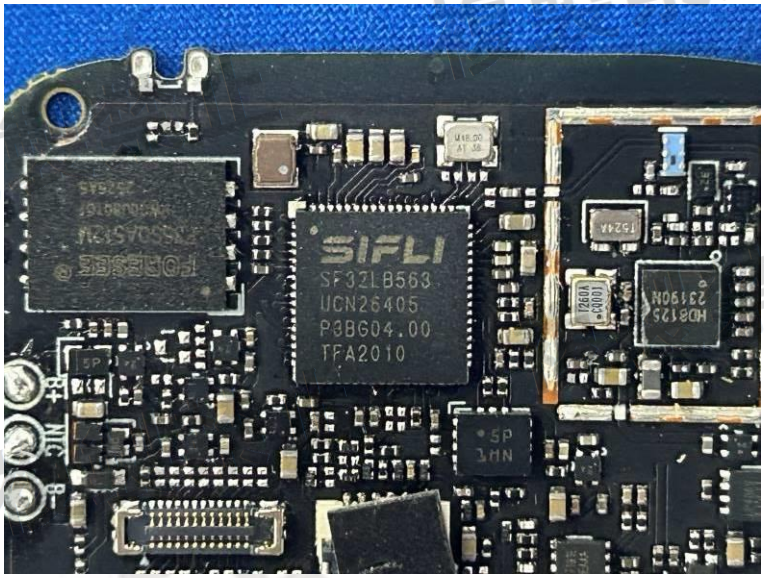
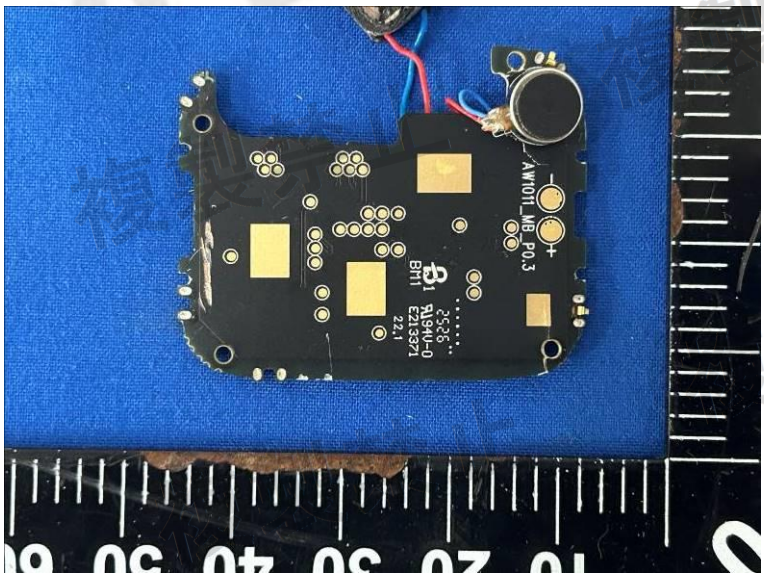
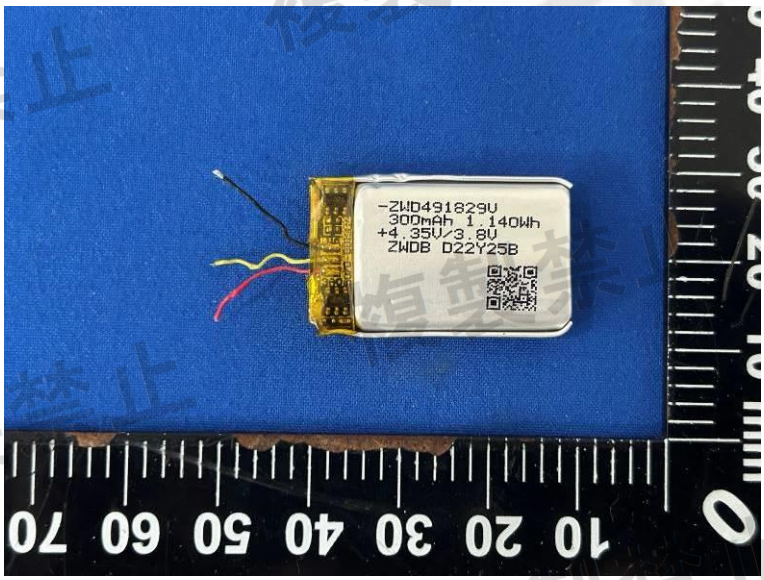






複製禁止


70 60 50 40 30 20 10 0
-ZWD491829V
300mAh 1.140Wh
+4.35V/3.8V
ZWDB D22Y25B

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

複製禁止