



Shenzhen CTL Testing Technology Co., Ltd.
Tel: +86-755-89486194 E-mail: ctl@ctl-lab.com

TEST REPORT

Ordinance Article 2 paragraph 1 item (19)

Report Reference No. CTL2510203022-MIC

Compiled by:
(printed name+signature)

Andy Su

Reviewed by:
(printed name+signature)

Happy Guo

Approved by:
(printed name+signature)

Ivan Xie



Product Name Tactile-sensing Interactive System

Model/Type reference Tactile-sensing Interactive System-M1

List Model(s) Tactile-sensing Interactive System-M2,
Tactile-sensing Interactive System-F1,
Tactile-sensing Interactive System-F2

Trade Mark N/A

Applicant's name Mind with Heart Robotics Co., Ltd.

Address of applicant Room 908, Building 7, Qianhai Excellence Finance Center
(Phase I), 5033 Menghai Ave, Qianhai, Shenzhen, China

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 Mar 11, 2026

Date of Test Date Mar 11, 2026-Mar 31, 2026

Date of Issue Apr 03, 2026

Result Pass

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TEST REPORT

Test Report No. :	CTL2510203022-MIC	Apr 03, 2026
		Date of issue

Equipment under Test : Tactile-sensing Interactive System

Sample No : CTL251020302020, CTL251020302019, CTL251020302018

Model /Type : Tactile-sensing Interactive System-M1

Listed Models : Tactile-sensing Interactive System-M2,
Tactile-sensing Interactive System-F1,
Tactile-sensing Interactive System-F2

Applicant : **Mind with Heart Robotics Co., Ltd.**

Address : Room 908, Building 7, Qianhai Excellence Finance Center
(Phase I), 5033 Menghai Ave, Qianhai, Shenzhen, China

Manufacturer : **Mind with Heart Robotics Co., Ltd.**

Address : Room 908, Building 7, Qianhai Excellence Finance Center
(Phase I), 5033 Menghai Ave, Qianhai, Shenzhen, China

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

This device (product name: Tactile-sensing Interactive System) model name:

The electrical, PCB and BOM of
Tactile-sensing Interactive System-M1,
Tactile-sensing Interactive System-M2,
Tactile-sensing Interactive System-F1,
Tactile-sensing Interactive System-F2 are all the same, except for the model name and
appearance color.

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	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 Test laboratory

Company Name:	Shenzhen CTL Testing Technology Co., Ltd.
Address 1:	Zone A, 1/F., Warehouse 2, Baisha Logistics Company, No.3011, Shahe West Road, Nanshan District, Shenzhen, Guangdong, China
Address 2:	Unit 01A&B&C&D-1, Building A3, Guangming Sci-Tech Park, Guan Guang Road, Fenghuang Subdistrict, Guangming District, Shenzhen, China

1.3.2 Test location

All tests were performed at:

Company Name:	Shenzhen CTL Testing Technology Co., Ltd.
☐ Main location	Zone A, 1/F., Warehouse 2, Baisha Logistics Company, No.3011, Shahe West Road, Nanshan District, Shenzhen, Guangdong, China
☒ Satellite location	Unit 01A&B&C&D-1, Building A3, Guangming Sci-Tech Park, Guan Guang Road, Fenghuang Subdistrict, Guangming District, Shenzhen, China

1.3.3 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: 2017 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: 2017 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

IC CAB identifier: CN0041

Main Company Number :9618B

Satellite Company Number:35187

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 Main Company Number:9618B and Satellite Company Number:35187.

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. Designation No.: CN1216. Test Firm Registration 399832.

1.4. Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16 - 4

“Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements” and is documented in the Shenzhen CTL Testing Technology Co., Ltd. quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for CTL laboratory is reported:

Parameter	Uncertainty
Frequency Error	$\pm 1.9\%$
Antenna Power	$\pm 1.18 \text{ dB}$
Occupied Bandwidth	$\pm 1.9\%$
Spread Bandwidth	$\pm 1.9\%$
Transmitter Spurious Emission Strength and Unwanted Emission Intensity	9kHz-7GHz: $\pm 1.09 \text{ dB}$ 7GHz-26.5GHz: $\pm 3.27 \text{ dB}$
Receiver Spurious Emission and Unwanted Emission Intensity	9kHz-7GHz: $\pm 1.09 \text{ dB}$ 7GHz-26.5GHz: $\pm 3.27 \text{ dB}$
Dwell Time	$\pm 0.11\%$
Humidity	$\pm 5\%$
Temperature	$\pm 1^\circ \text{C}$

- (1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2.0$.
- (2) Decision rule for Statement of Conformity: The measurement uncertainty is not taken into account but only measured result.

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:7.40V
		High Voltage	DC:8.14V
		Low Voltage	DC:6.66V
	DC RF Module	Normal Voltage	DC:3.30V
		High Voltage	DC: 3.30V
		Low Voltage	DC: 3.30V
Other		Normal Temperature	24°C
		Relative Humidity	50%
		Air Pressure	1015hPa

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 $\pm 1\%$. so all test performed at normal voltage only.

2.2. General Description of EUT

Product Name:	Tactile-sensing Interactive System
Model/Type reference:	Tactile-sensing Interactive System-M1
Power supply:	DC 7.4V from battery or charging by AC-DC adapter
Hardware version:	V1.0
Software version:	V1.0
Bluetooth low Energy:	
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:	1.11dBi

Note 1: For more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

Note 2: Antenna gain provided by the applicant.

Note 3: This report is for Bluetooth only.

Note 4 : The model Tactile-sensing Interactive System-M1 is selected as representative model for full tests

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.	Calibration agency	Calibration Date	Calibration Due Date
1	Spectrum Analyzer	Agilent	N9020A	US46220290	Guangdong Jingheng Detection Tecanology Co.,Ltd.	2025/07/03	2026/07/02
2	Spectrum Analyzer	Keysight	N9020A	MY53420874	Guangdong Jingheng Detection Tecanology Co.,Ltd.	2025/07/03	2026/07/02
3	Signal generator	Agilent	N5182A	MY50142850	Guangdong Jingheng Detection Tecanology Co.,Ltd.	2025/07/03	2026/07/02
4	Signal Generator	Agilent	N5182A	MY52420355	Guangdong Jingheng Detection Tecanology Co.,Ltd.	2025/07/03	2026/07/02
5	Power Sensor	Agilent	U2021XA	MY55130004	Guangdong Jingheng Detection Tecanology Co.,Ltd.	2025/07/03	2026/07/02

6	Power Sensor	TSTPASS	TSPS2023 R	TSCB220016	Guangdong Jingheng Detection Tecanology Co.,Ltd.	2025/07/03	2026/07/02
7	Dc source	Agilent	E3632A	MY40015577	Guangdong Jingheng Detection Tecanology Co.,Ltd.	2025/07/03	2026/07/02
8	Oscilloscope	Tektronix Inc. Beaverton, OR, U.S.A.	TDS 1012C-SC	C011550	Guangdong Jingheng Detection Tecanology Co.,Ltd.	2025/07/02	2026/07/01
9	Temperature/Hu midity Meter	Shanghai jiyu	MC501	/	Guangdong Jingheng Detection Tecanology Co.,Ltd.	2025/07/03	2026/07/02
Test Software							
Name of Software				Version			
TST-PASS				V2.0.2			

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

☐ (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

$\pm 50\text{ppm}$

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: 1MHz
- RBW: 10 KHz
- VBW: 10 KHz
- Sweep time: Auto
- Detector mode: Positive peak
- Indication mode: max hold

TEST RESULTS

Raw data reference to section 1 from CTL2510203022-MIC_BLE_Appendix.

3.2. Antenna Output Power And Output Power Tolerance

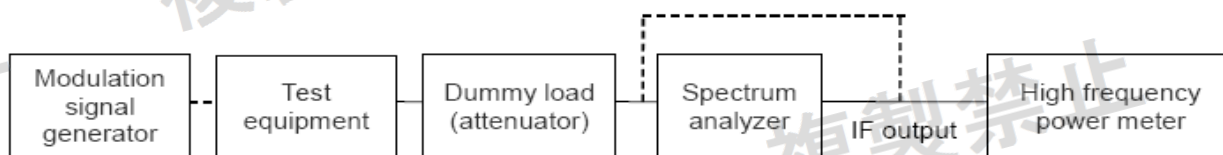
LIMIT

Type	Limit
Antenna Power	10mW
Tolerance	+20%

Upper Limit of EIRP for Modulation Systems

変調方式	使用周波数帯	空中線電力 (最大)	EIRP (最大)	
			無指向性	ビーム指向性
DS	2,400～2,483.5MHz	10mW/MHz	12.14dBm/MHz	22.14dBm/MHz
OFDM1	2,400～2,483.5MHz	10mW/MHz	12.14dBm/MHz	22.14dBm/MHz
OFDM2	2,400～2,483.5MHz	5mW/MHz	9.14dBm/MHz	19.14dBm/MHz
FH、DS－FH	2,400～2,483.5MHz	3mW/MHz	6.91dBm/MHz	16.91dBm/MHz
FH－OFDM	2,427～2,470.75MHz を除く	10mW/MHz	12.14dBm/MHz	22.14dBm/MHz
上記以外	2,400～2,483.5MHz	10mW	12.14dBm	22.14dBm

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: 2MHz or 3MHz
- VBW: 6MHz or 8MHz
- 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: 2MHz or 3MHz
- VBW: 2MHz or 8MHz
- Detector: RMS
- Trace Mode: Clear Write

TEST RESULTS

Raw data reference to section 3 from CTL2510203022-MIC_BLE_Appendix.

3.3. Occupied Bandwidth

LIMIT

- **Occupied bandwidth:**

Permissible value for occupied bandwidth using the FH system, a hybrid system combining DS and FH systems, or a hybrid system combining FH and OFDM systems shall be 83.5 MHz or less, while necessary bandwidth (minimum occupied bandwidth sufficient to ensure information transmission of required quality at a required transmission rate for the system used under specified conditions for a given emission type) using a system other than any of the above shall be 26 MHz or less.

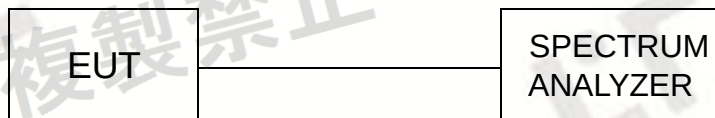
- **Spread Bandwidth:**

In spread spectrum systems, spread bandwidth (which refers to a frequency bandwidth with an upper limit and lower limit such that each of the mean powers radiated above the upper frequency limit and below the lower frequency limit is equal to 5 % of the total mean power radiated; this also applies hereafter) shall be 500 kHz or more.

The OFDM system shall have one or more carriers per 1 MHz bandwidth.

- 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

Raw data reference to section 2 from CTL2510203022-MIC_BLE_Appendix.

3.4. Unwanted Emission Strength

LIMIT

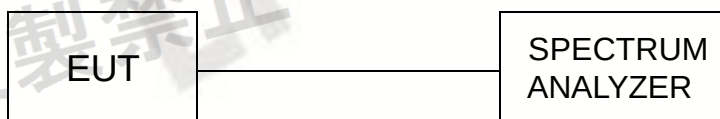
30 to 2387MHz: 2.5 μ W/MHz or less

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

TEST RESULTS

Raw data reference to section 4 from CTL2510203022-MIC_BLE_Appendix.

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

Raw data reference to section 5 from CTL2510203022-MIC_BLE_Appendix.

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

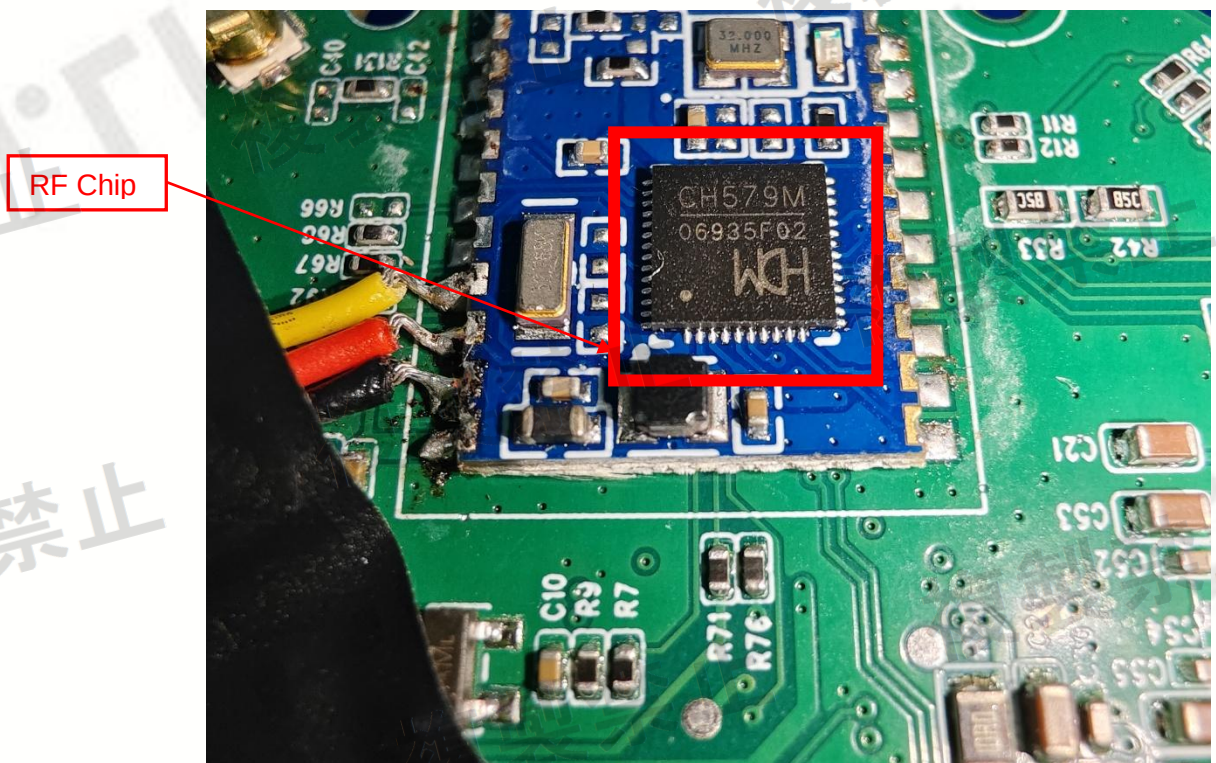
Confirmation method

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

The CH579M package dimensions is shown below, as we can see:

- Number of terminals: 40
- Terminal pitch: 0.5mm

It can meet the requirements of MIC structure protection.



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 FunctionConfirm

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

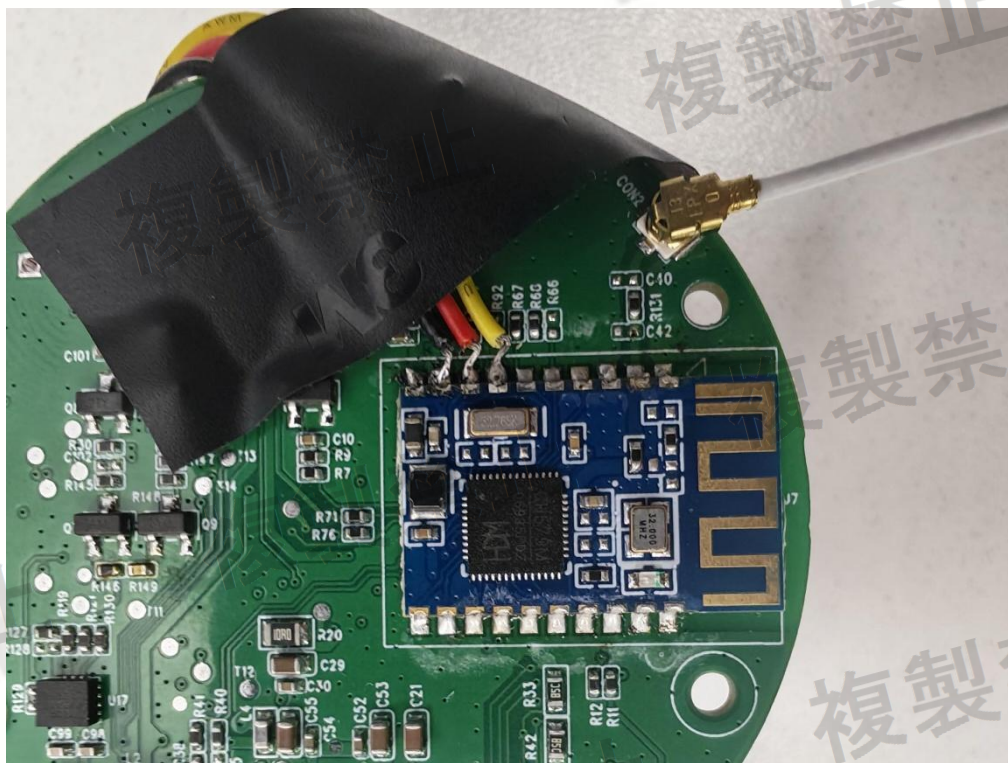
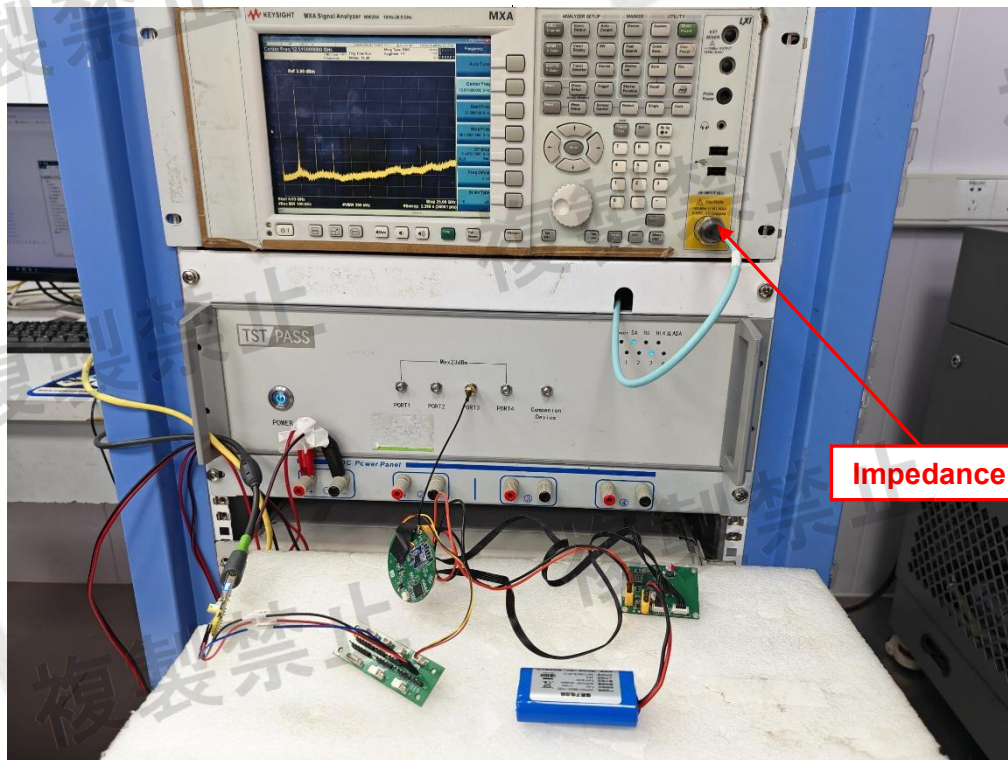
TEST PROCEDURE

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

TEST RESULTS

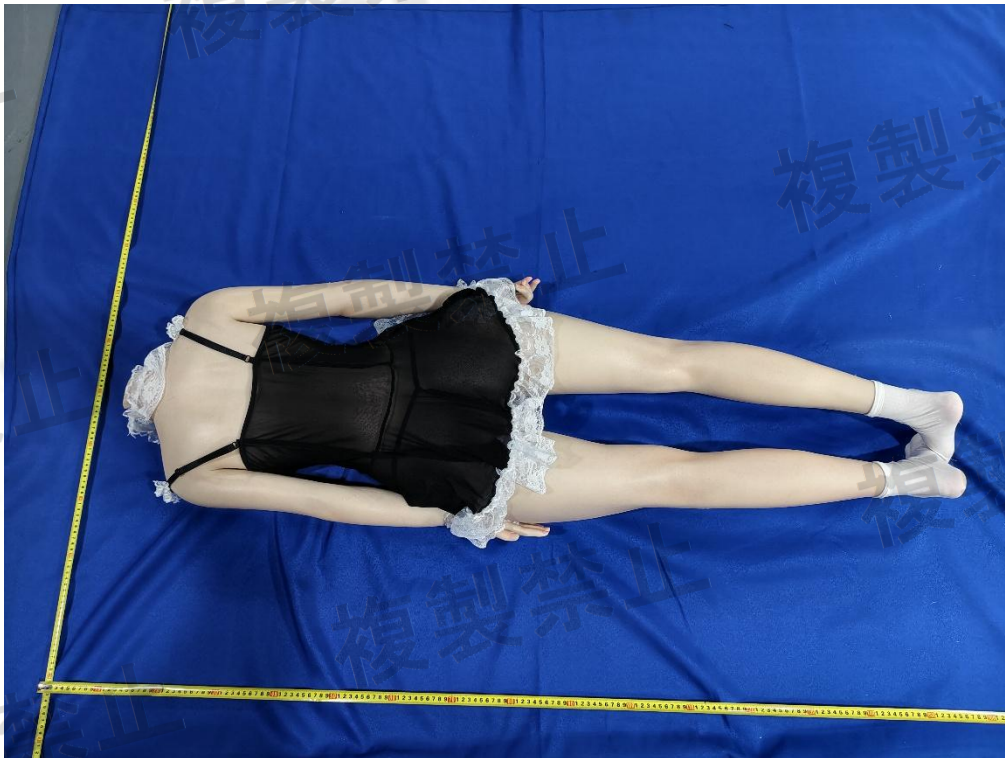
BT MAC: 88:1F:62:A3:0B:93

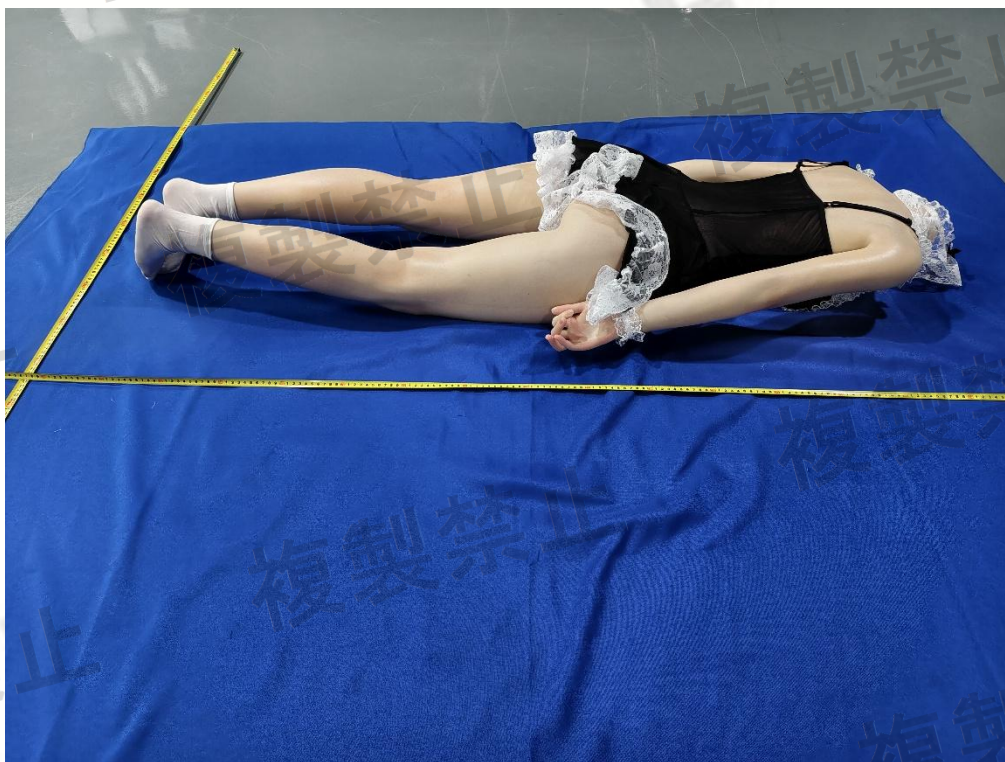
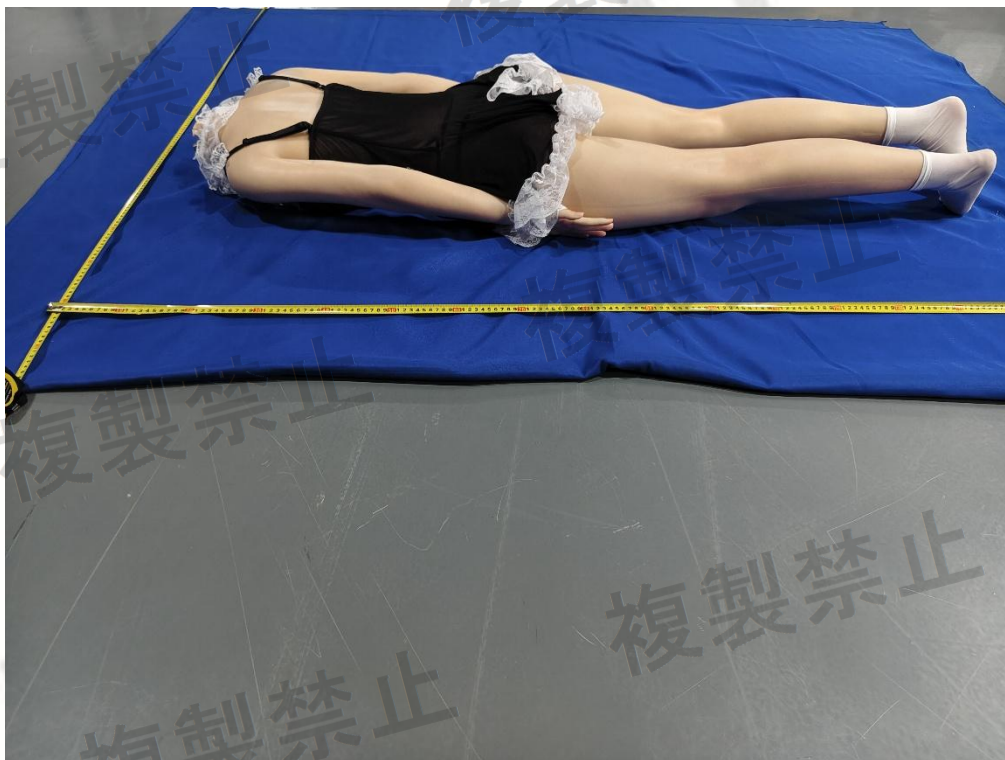
4. Test Setup Photos of the EUT

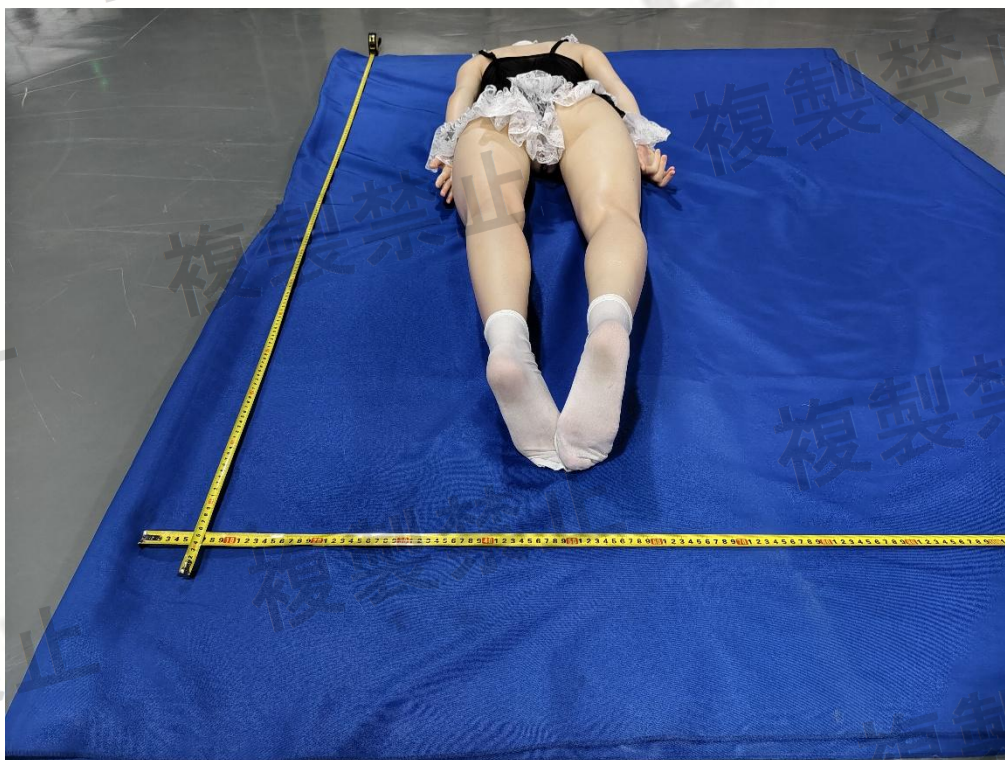
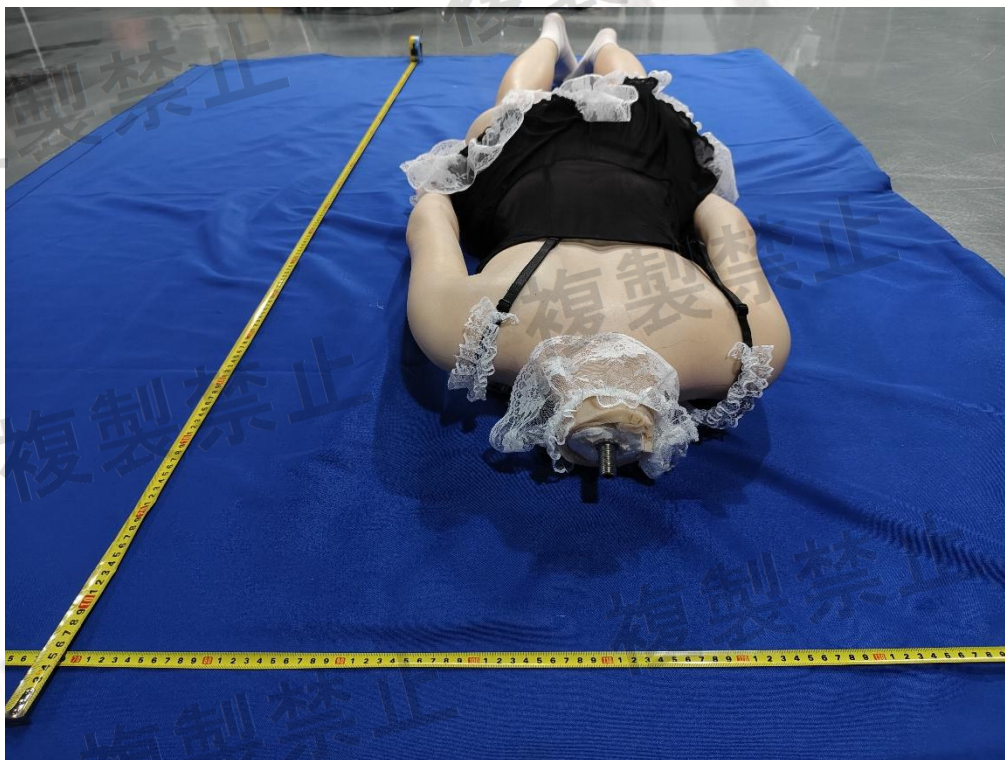


5. External and Internal Photos of the EUT

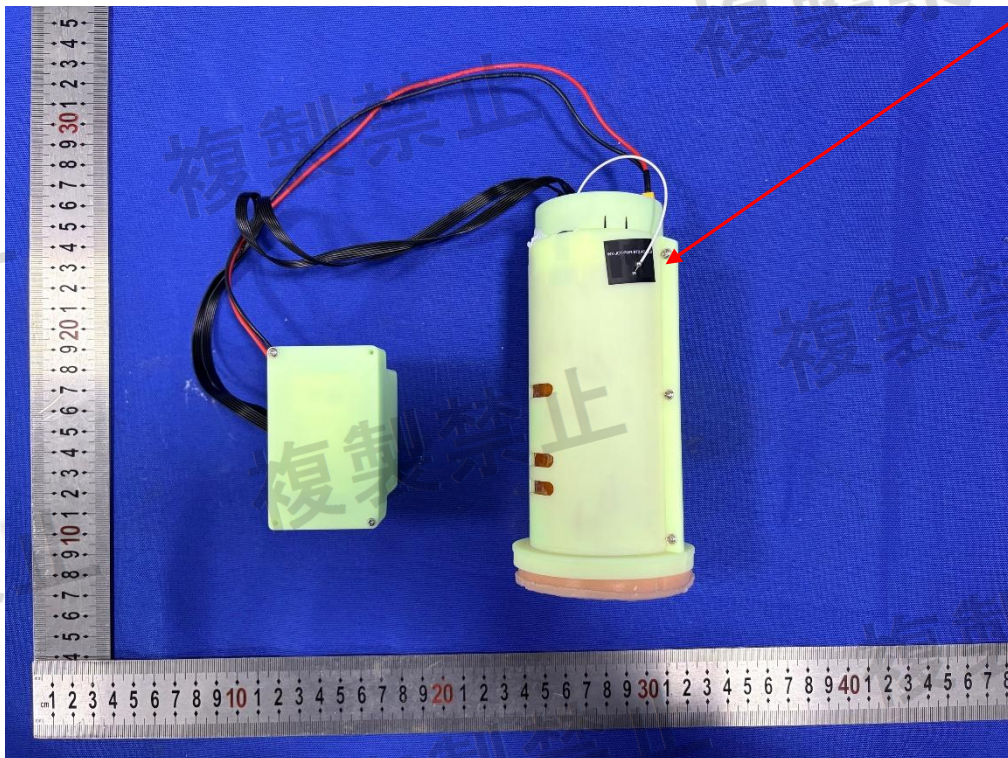
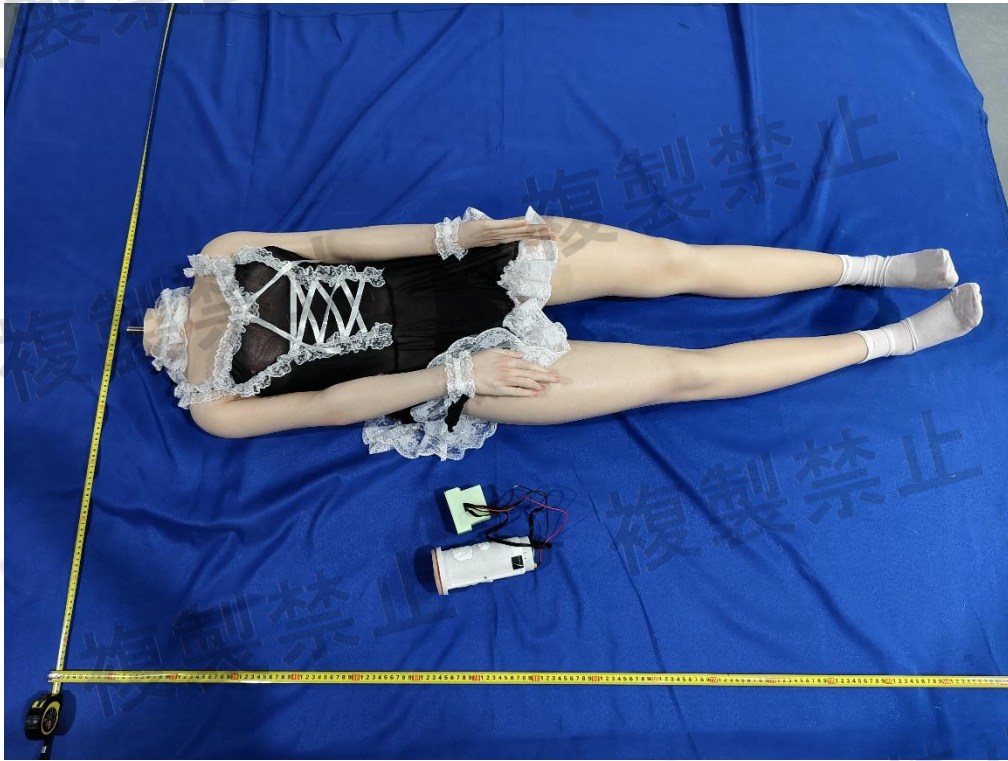
External Photos

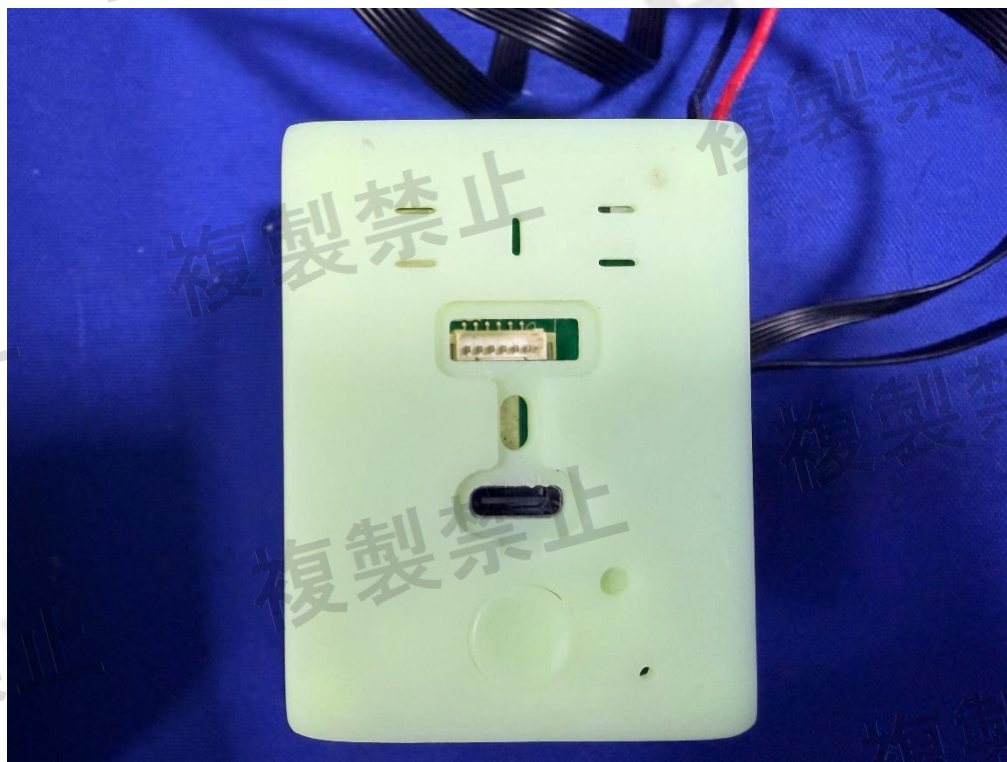
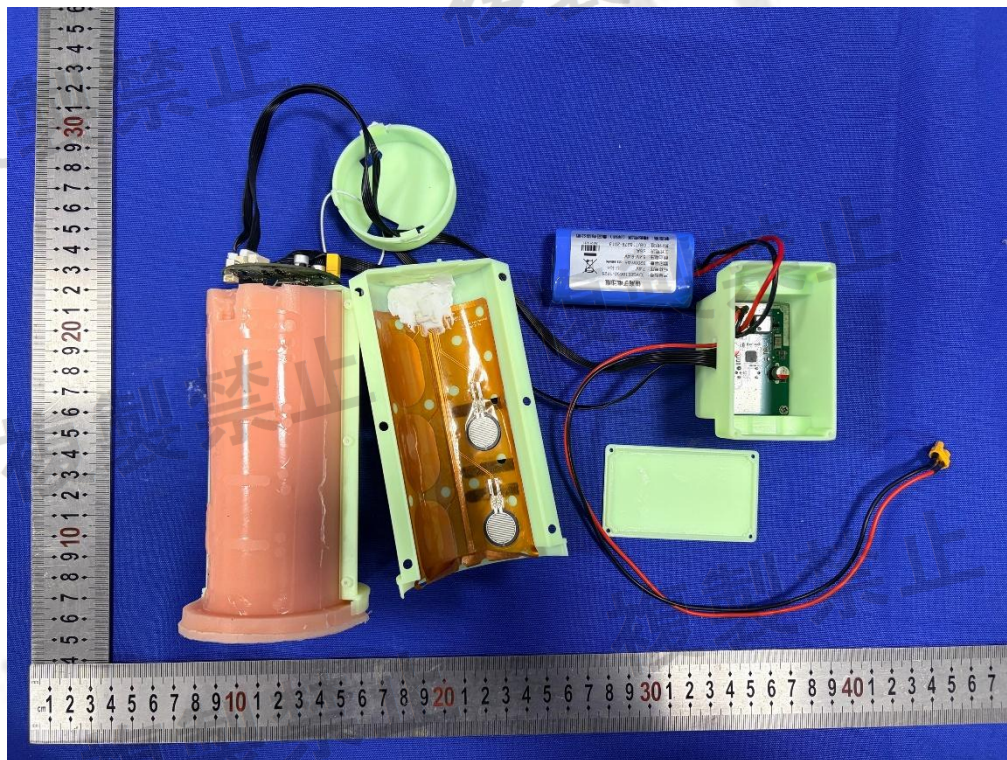


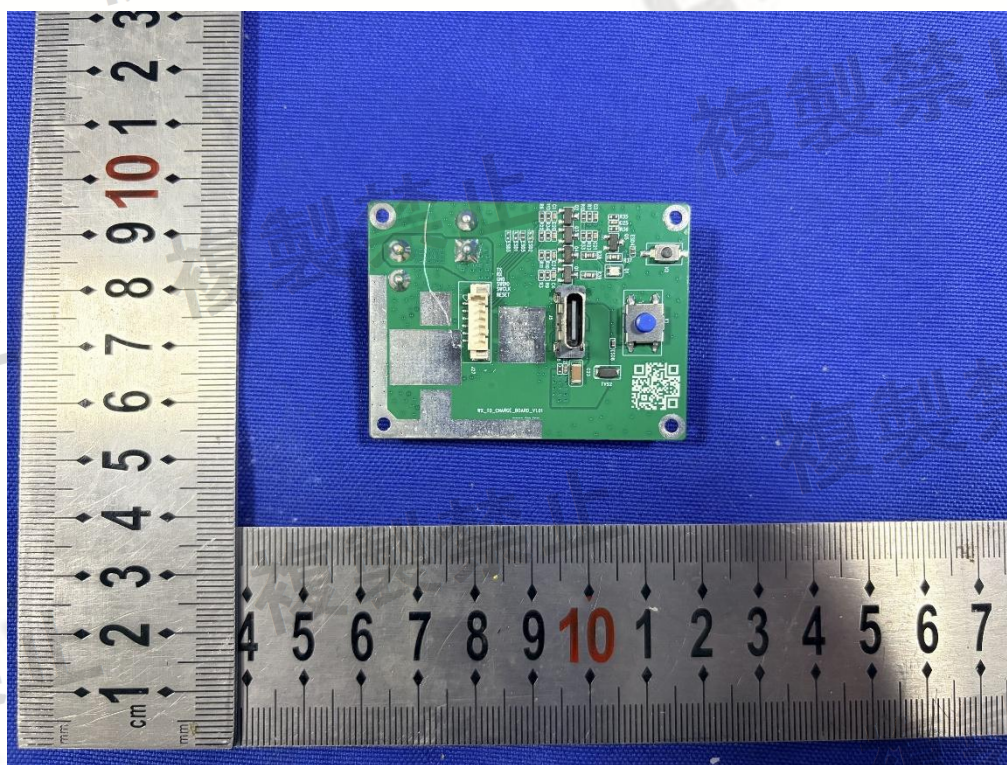
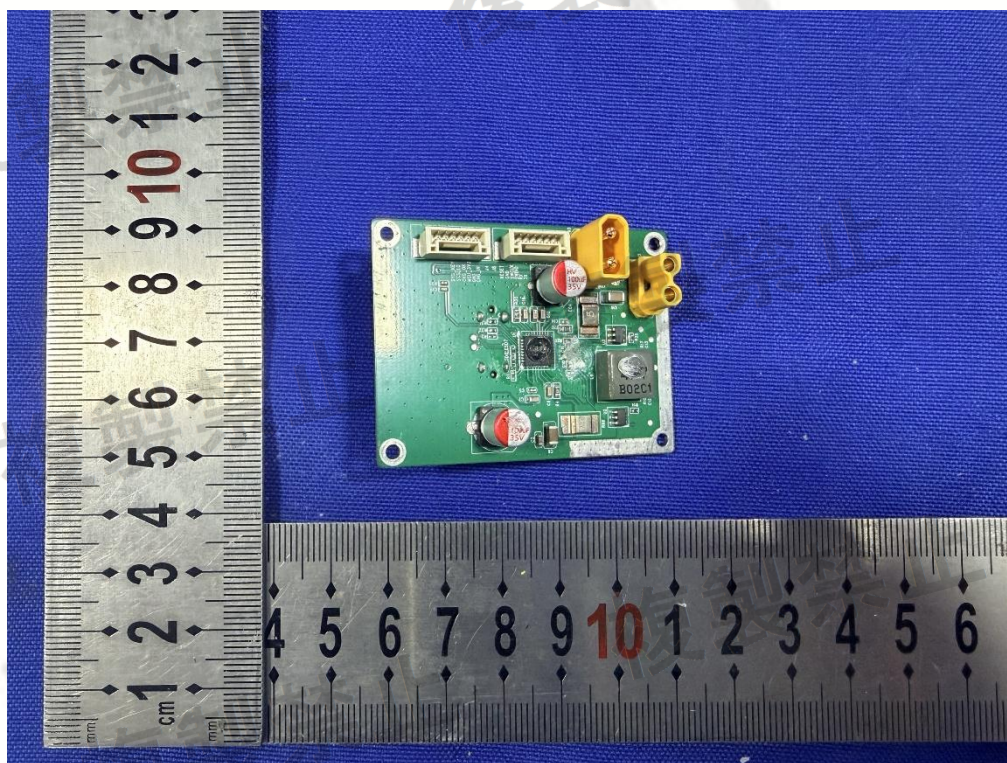


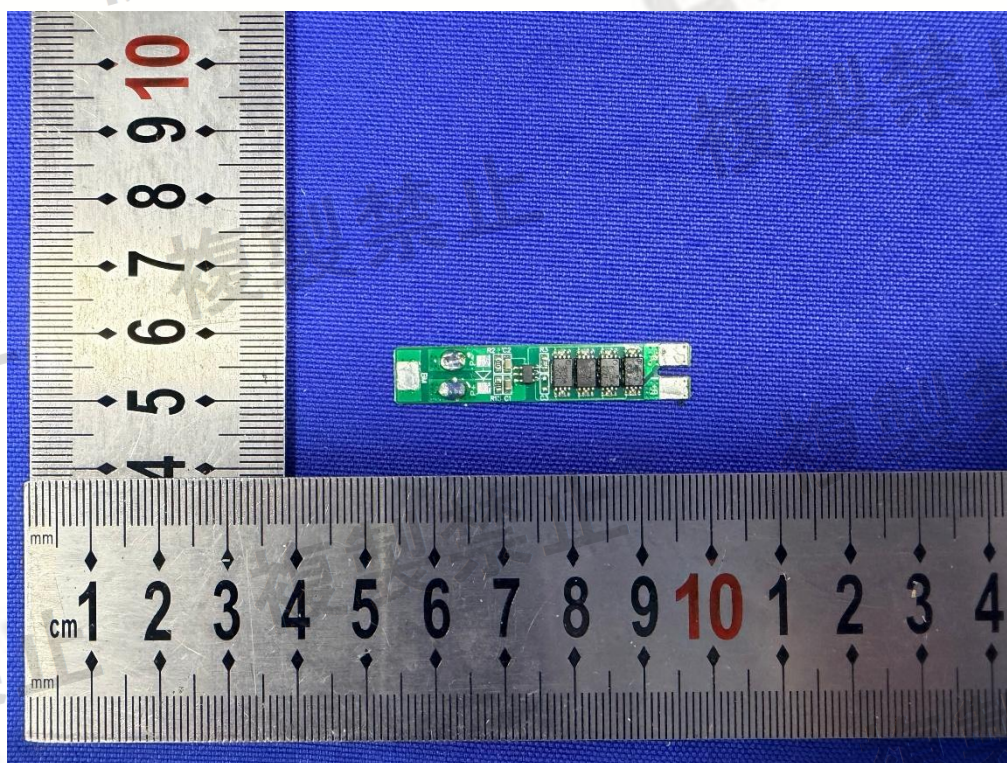
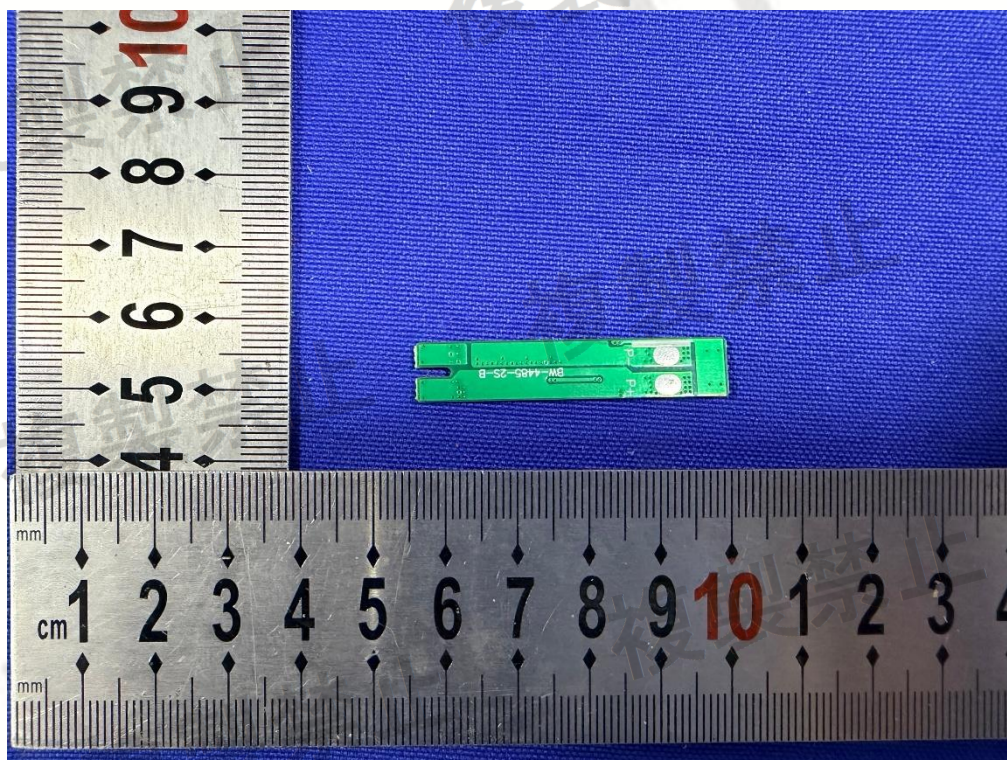


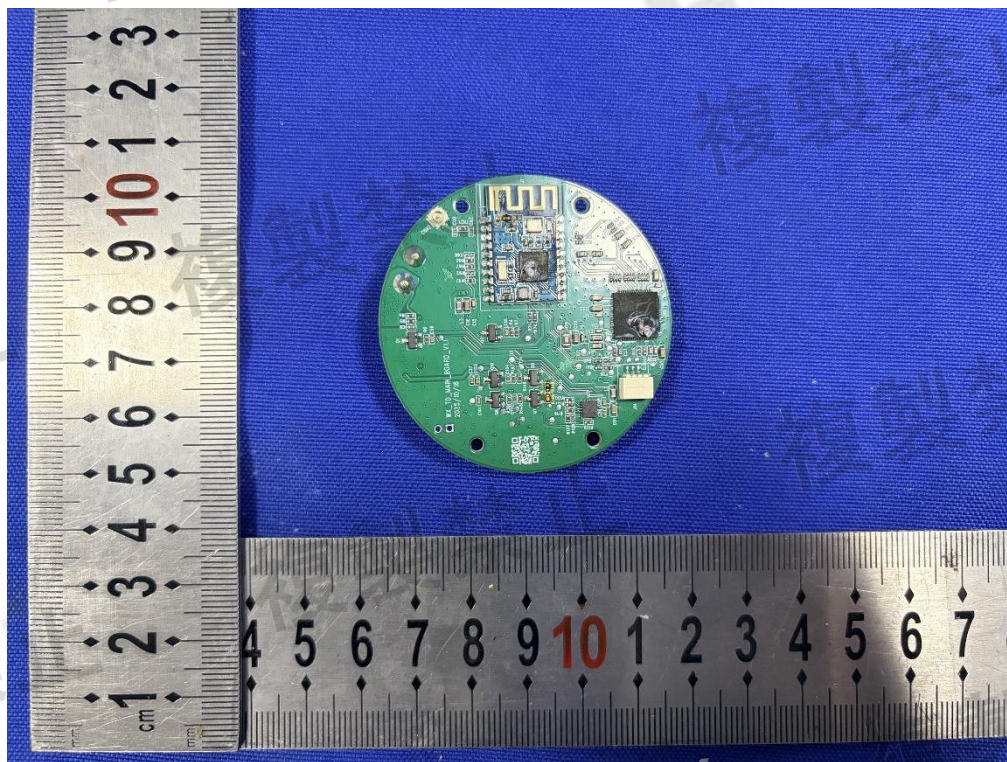
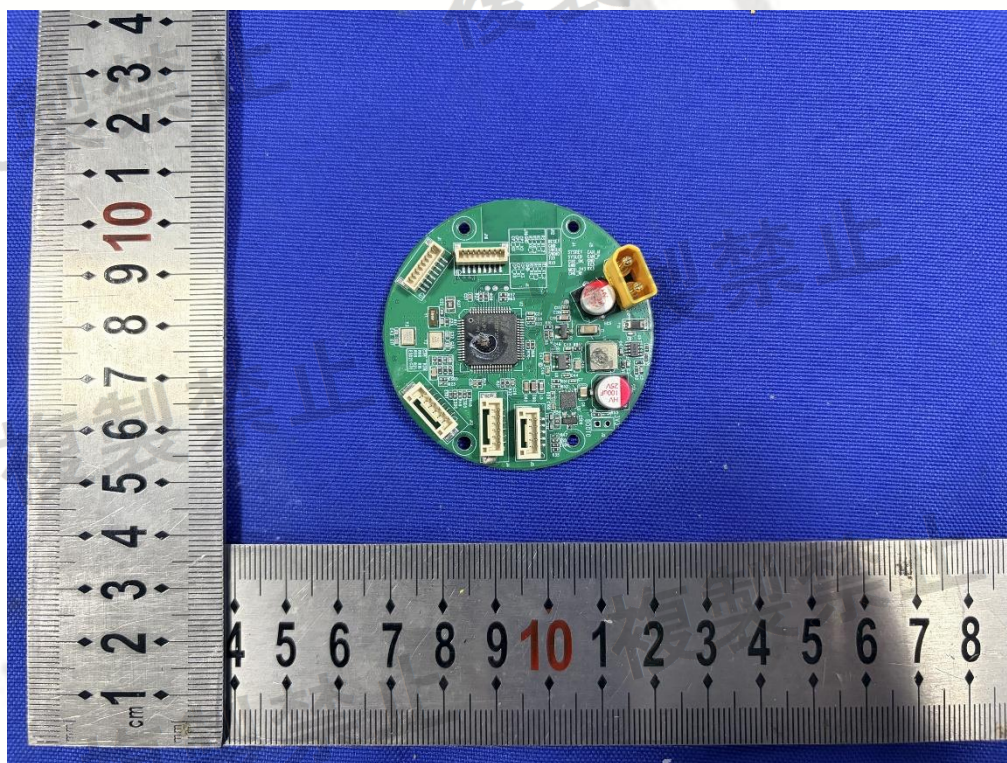
Internal Photos

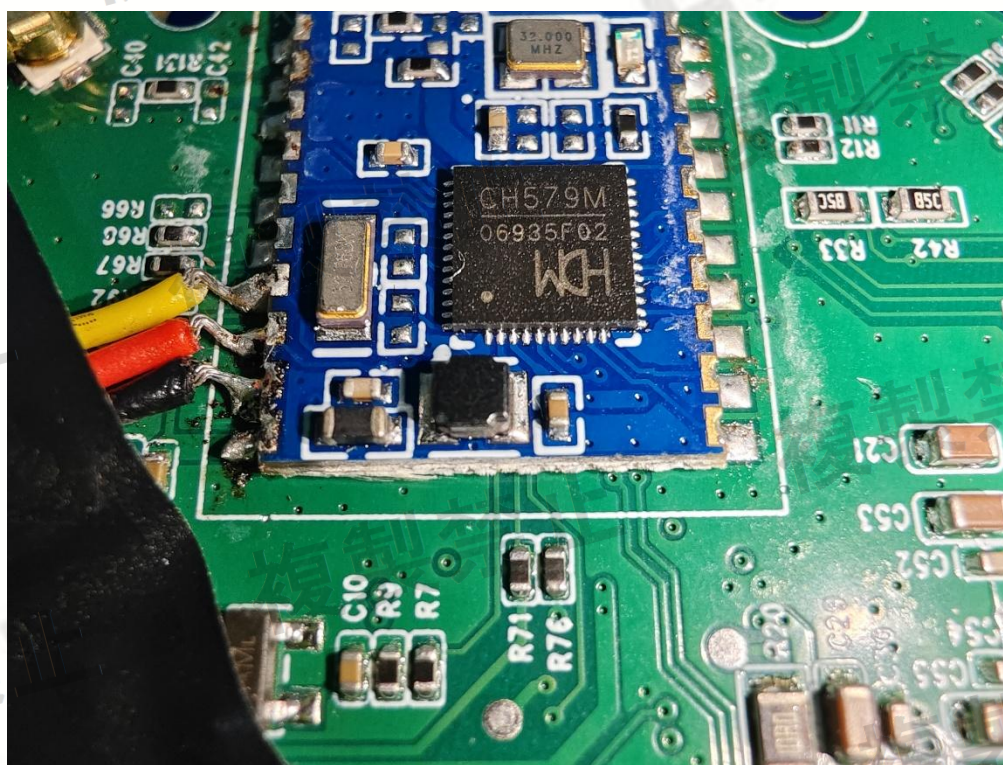
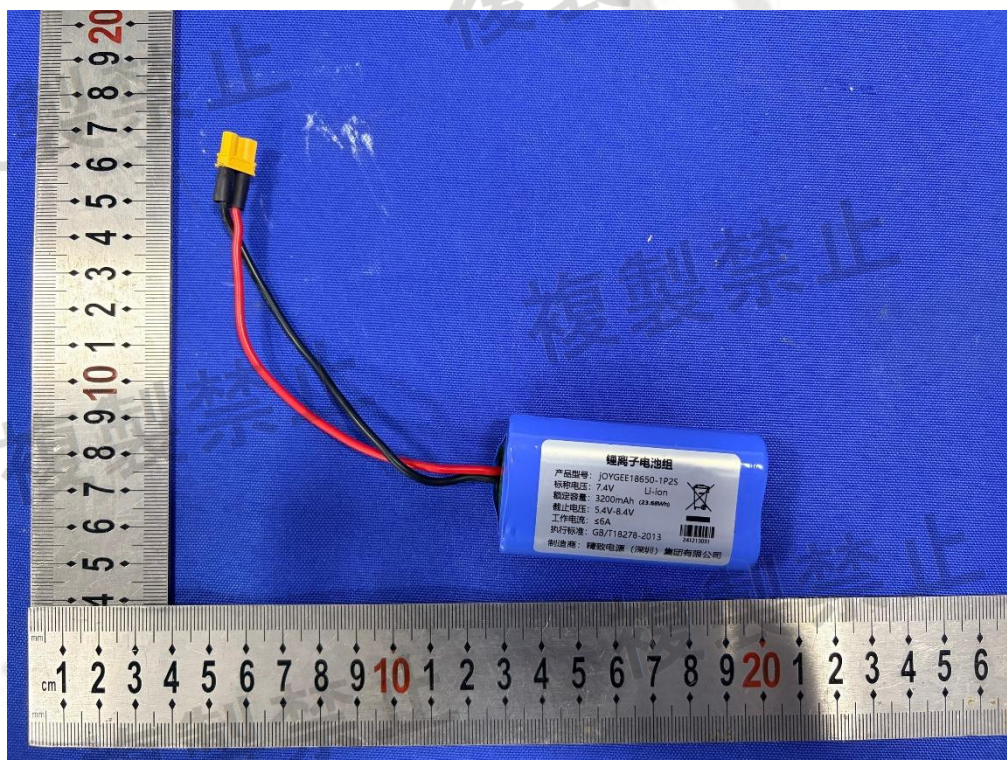












*****THE END*****