



JAPAN RADIO TEST REPORT

Applicant: Guangzhou Weiye Technology Co., Ltd.

Address: Room 501, No. 12, Lane 2, Xian Street, Huadu District, Guangzhou City

Manufacturer: Guangzhou Weiye Technology Co., Ltd.

Address: Room 501, No. 12, Lane 2, Xian Street, Huadu District, Guangzhou City

EUT: BEAT UP SHAPE

Trade Mark: N/A

Model Number: EM-BU01

Date of Receipt: Jan. 17, 2025

Test Date: Jan. 17, 2025 - Mar. 06, 2025

Date of Report: Mar. 06, 2025

Prepared By: Shenzhen DL Testing Technology Co., Ltd.

Address: 101-201, Comprehensive Building, Tongzhou Electronics Longgang Factory Area, No.1 Baolong Fifth Road, Baolong Community, Baolong Street, Longgang District, Shenzhen, China

Applicable Standards: Article2 Paragraph 1, item 8
ARIB STD T-93 Ver.1.0(2007)
MIC Notice No.88 Appendix No.22-1

Test Result: Pass

Report Number: DL-250117010ER

Prepared (Test Engineer): Alisa Song

Reviewer (Supervisor): Jack Bu

Approved (Manager): Jade Yang



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



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1.. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

Article2 Paragraph 1, item 8 MIC Notice No.88 Appendix No.22-1			
Standard Section	Test Item	Judgment	Remark
Transmitter equipment			
3.2(1)	Antenna Power	PASS	
3.2(2)	Tolerances for Antenna Power	PASS	
3.2(3)	Frequency tolerance	PASS	
3.2(4)	Oscillation method	PASS	
3.2(10)	Occupied Bandwidth (99%)	PASS	
3.2(11)	Transmitter spurious emissions	PASS	
3.2(11)	restriction function of transmission time	PASS	
3.2(11)	Interference Prevention Function	PASS	
Receiving equipment			
3.3(1)	secondary radiated emission	PASS	
4.10 Note 1	Construction Protection Confirmation	PASS	

NOTE:

(1)" N/A" denotes test is not applicable in this Test Report



1.1. TEST FACILITY

Shenzhen DL Testing Technology Co., Ltd.

Add. : 101-201, Comprehensive Building, Tongzhou Electronics Longgang Factory Area, No.1

Baolong Fifth Road, Baolong Community, Baolong Street, Longgang District, Shenzhen, China

1.2. MEASUREMENT UNCERTAINTY

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

No.	Item	Uncertainty
1	Conducted Emission Test	$\pm 3.2\text{dB}$
2	Radiated Emission Test	$\pm 4.7\text{dB}$
3	RF power,conducted	$\pm 0.16\text{dB}$
4	Spurious emissions,conducted	$\pm 0.21\text{dB}$
5	All emissions,radiated(<1G)	$\pm 4.68\text{dB}$
6	All emissions,radiated(>1G)	$\pm 5.0\text{dB}$
7	frequency error ppm	$\pm 0.5\text{ppm}$
8	Occupied Bandwidth	$\pm 0.2\text{MHz}$



2. GENERAL INFORMATION

2.1. GENERAL DESCRIPTION OF EUT

Equipment	BEAT UP SHAPE	
Brand Name	N/A	
Model Name	EM-BU01	
Model Difference	N/A	
Product Description	Operation Frequency:	315.0MHz
	Transmit Power	0.045mW
	Bandwidth:	864.86KHz
	Number of Channels:	1 Channel
	Modulation Type	OOK
	Antenna Type	PCB Antenna
	Antenna Gain(Peak):	2.1dBi
	Based on the application, features, or specification exhibited in User's Manual, the EUT is considered as an ITE/Computing Device. More details of EUT technical specification, please refer to the User's Manual.	
Power Source	DC 3V for battery(CR2025)	
Hardware Version	HV01	
Software Version	V1.0	



2.2. DESCRIPTION OF TEST MODES

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

Pretest Mode	Description
Mode 1	TX(315.00MHz)

2.3. TEST CONDITIONS

The RF module was tested while in a continuous transmitter/receiver mode.
For all test case pre/scans were completed in all Modes to determine worst case levels.

Power Supply Voltage Fluctuation Test

Voltage Fluctuation Test	Normal Voltage	High Voltage +10% of Normal Voltage	Low Voltage -10% of Normal Voltage
Input DC Power	3V	3.3V	2.7V
RF Chip	3V	3V	3V
Voltage Variation (%)	0	0	0

NOTE:

Voltage Variation (%)

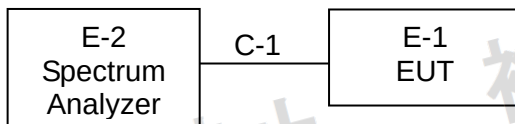
= (Output high or Low Voltage - Output Normal Voltage) / Output Normal Voltage * 100

During the input supply voltage to the EUT from the external power source is varied by +/- 10%, if output voltage had been confirmed that the fluctuation of power supply to the RF circuit of EUT (excluding power source) is equal to or less than +/-1%. Exempt extremely high and low supply voltage condition test, EUT only operated in normal voltage to test all regulations.

The RF Chip voltage on the motherboard inside the product does not change more than 1%.



2.4. TEST SETUP



2.5. DESCRIPTION OF SUPPORT UNITS(CONDUCTED MODE)

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

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Note
E-1	BEAT UP SHAPE	N/A	EM-BU01	N/A	EUT
E-2	Spectrum Analyzer	Agilent	E4407B	MY45108040	
E-3	DC Power	N/A	PS-305D	010952961	

Item	Shielded Type	Ferrite Core	Length	Note
C-1	NO	NO	15cm	RF Cable

Note:

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



2.6. EQUIPMENTS LIST FOR ALL TEST ITEMS

Item	Kind Of Equipment	Manufacturer	Type No.	Serial No.	Last Calibration	Calibrated Until
1	SPECTRUM ANALYZER	AGILENT	E4407B	160400005	2024.12.05	2025.12.04
2	TEST RECEIVER	R&S	ESPI	101318	2024.12.05	2025.12.04
3	BILOG ANTENNA	TESEQ	CBL6111D	31216	2024.12.05	2025.12.04
4	50Ω COAXIAL SWITCH	ANRITSU	MP59B	6200264416	2024.12.05	2025.12.04
5	SPECTRUM ANALYZER	ADVANTEST	R3132	150900201	2024.12.05	2025.12.04
6	HORN ANTENNA	EM	EM-AH-10180	2011071402	2024.12.05	2025.12.04
7	HORN ANT	SCHWARZBECK	BBHA 9170	9170-181	2024.12.05	2025.12.04
8	AMPLIFIER	EM	EM-30180	060538	2024.12.05	2025.12.04
9	LOOP ANTENNA	ARA	PLA-1030/B	1029	2024.12.05	2025.12.04
10	POWER METER	R&S	NRVS	100696	2024.12.05	2025.12.04
11	TEST RECEIVER	R&S	ESCI	101160	2024.12.05	2025.12.04
12	LISN	R&S	ENV216	101313	2024.12.05	2025.12.04
13	LISN	EMCO	3816/2	00042990	2024.12.05	2025.12.04
14	50Ω COAXIAL SWITCH	ANRITSU	MP59B	6200264417	2024.12.05	2025.12.04

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

2.8 ENVIRONMENTAL CONDITIONS

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

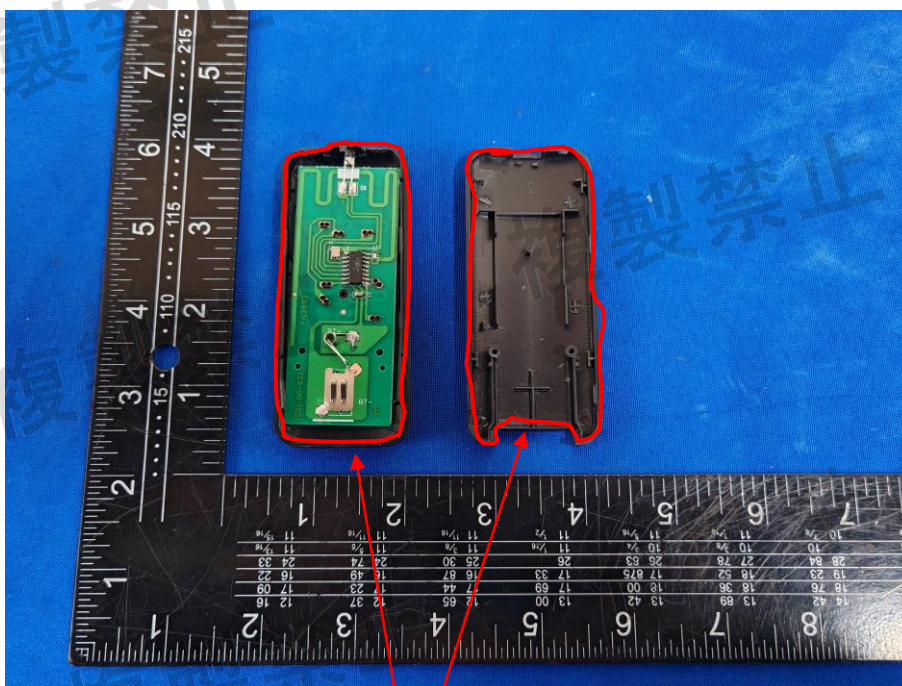
- Temperature: 15-35°C
- Humidity: 45-85%
- Atmospheric pressure: 86-106 kPa



3. RF SHIELDING METHOD

Enclosure:

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



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



Glue name: SA0097

Glue type: Acrylic tree structure

Manufacturer: supreme resources Inc



4. TEST RESULT

4.1. ANTENNA POWER AND TOLERANCE

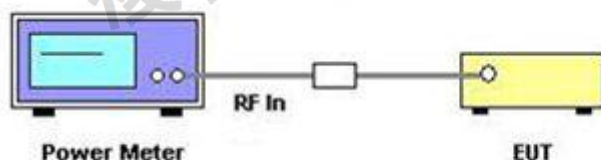
4.2. LIMIT

Item	Limits
Antenna Power	312-315.25MHz : 25uW EIRP/ 312-315.05MHz : 250uW EIRP
Tolerance	Permissible deviation from rated power: upper limit: +20%, lower limit: not specified

4.3. TEST PROCEDURES

- (1) A power meter is connected on the EUT
- (2) The power meter indicates the measured power density "E".
- (3) Calculate antenna power density by the formula below $PD = Pt + 10 \cdot \log(1/x)$.
x: The duty cycle of the EUT in continuously transmitting mode (there the is duty cycle is 100%)
Pt: Output power of the SSG
- (4) Antenna Power Error is definition that actual measure antenna power tolerance
upper limit: +20%, lower limit: not specified, power range that base on manufacturer declare the conducted power density.

4.4. TEST SETUP LAYOUT



**4.4.1. TEST RESULT**

Operation Mode:	Transmitting
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Voltage Normal	Frequency	Conducted RF Output power density	Antenna Gain	EIRP POWER	Conducted RF Output power density	Rated power density	Limits	Antenna Power Error
	MHz	(dBm)	(dBi)	(dBm)	(uW)	(uW)	(uW)	(%)
DC 3.0V	315.00	-16.80	2.1	-14.7	33.9	45.0	250	-24.44



5. FREQUENCY TOLERANCE

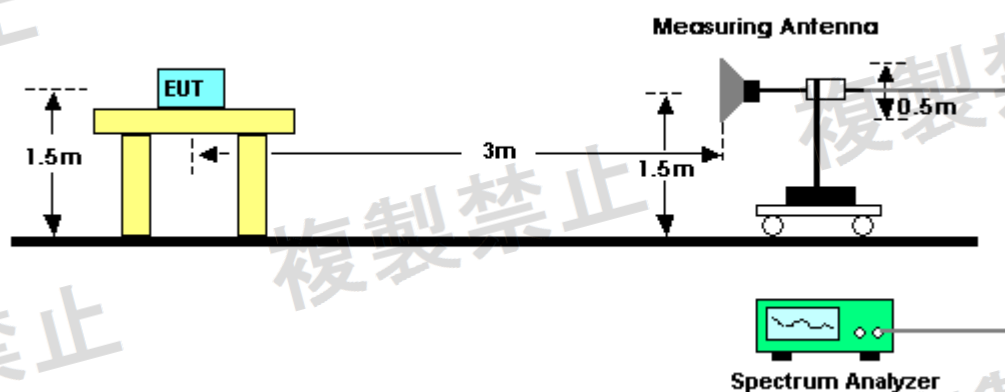
5.1. LIMIT

Item	Limits
Frequency Tolerance	312.00MHz-315.25MHz

5.2. TEST PROCEDURES

1. Frequency accuracy of SA shall be less than 10% of limits tolerance (5ppm)
2. Setting of SA is following as: RB:10kHz / VB:30kHz / SPAN: 1MHz / AT: 20dB / Ref: 10dBm
3. Center Frequency: The center frequency of testing for EUT
4. Sweep time: Auto
5. Sweep mode: Continuous sweep
6. Detect mode: Positive peak
7. Mark function: Frequency Counter (Resolution 100Hz)

5.3. TEST SETUP LAYOUT



5.4. TEST DEVIATION

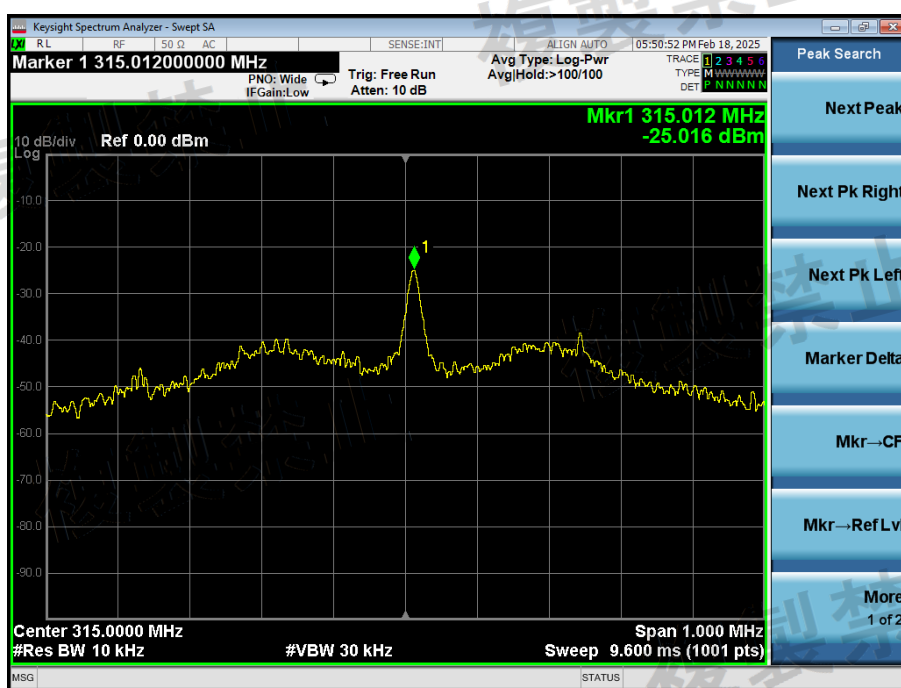
There is no deviation with the original standard.



5.5. TEST RESULT

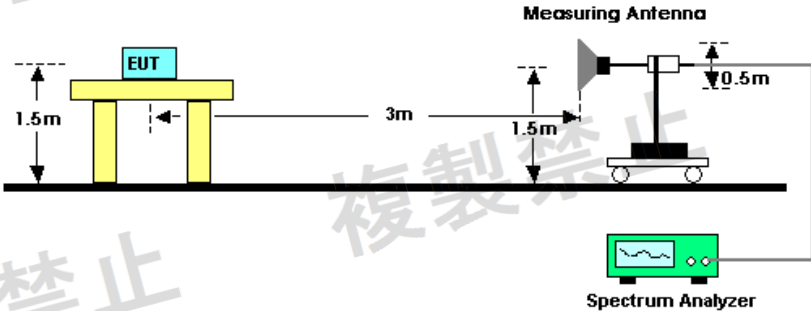
Voltage	Test Frequency (MHz)	Measured Frequency (MHz)	Limits (MHz)	Result
DC 3.0V	315.00	315.012	312.00MHz -315.25MHz	Pass

3.0V





6. OCCUPIED BANDWIDTH

Limit:	- Within 1000kHz
Test procedures	Setting of SA is following as: RB:10kHz / VB:30kHz / SPAN: 1MHz / AT: 10dB Ref:0dBm / Sweep time: Auto / Sweep Mode: Continuous sweep / Detect mode: Positive peak / Trace mode: Max hold EUT have transmitted the maximum modulation signal and fixed channelize or continuous maximum power of hopping mode.SA set to 99% of occupied bandwidth to measure occupied bandwidth. The limit is less than 1MHz
Test setup:	
Test Instruments:	Refer to section 2.7 for details

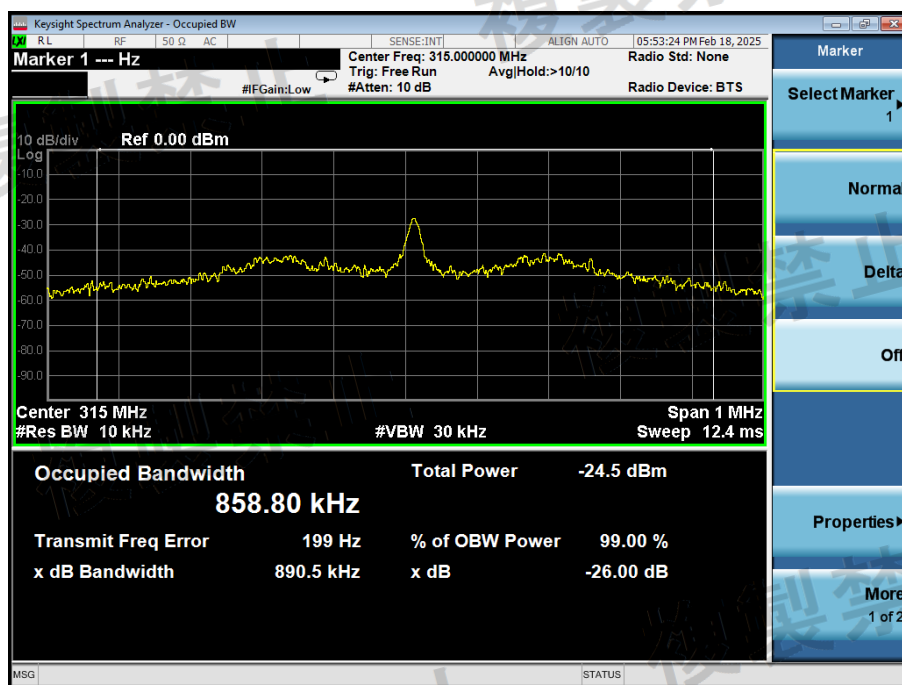


6.1. TEST RESULT

Voltage	Test Frequency (MHz)	Occupied Bandwidth (kHz)	Limits (kHz)	Result
DC 3.0V	315.00	858.80	<1000kHz	Pass

Test Plot

DC 3.0V





7. UNWANTED EMISSION INTENSITY MEASUREMENT

7.1. LIMIT

Item	Limits
TX Spurious Emission	$\leq 250\text{nW}$ ($30\text{MHz} \leq f \leq 1000\text{MHz}$)
	$\leq 1\mu\text{W}$ ($1000\text{MHz} < f \leq 5000\text{MHz}$)

7.2. MEASURING INSTRUMENTS AND SETTING

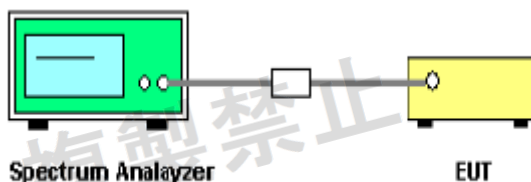
Please refer to section 5 in this report. The following table is the setting of Spectrum Analyzer.

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

7.3. TEST PROCEDURES

- EUT have transmitted the maximum modulation signal and fixed channelize.
- Setting of SA is following as: Below 1GHz RB:100KHz / VB:100KHz
Above 1GHz RB:1MHz / VB:1MHz / AT: 10dB Ref: 0dBm / Sweep time: Auto
Sweep Mode: Continuous sweep / Detect mode: Positive peak
Trace mode: Max hold
- Setting of SA is following as 30MHz and stop frequency 1000MHz Then to mark peak reading value + cable loss shall be less than 250nW.
- Setting of SA is following as 1000MHz and stop frequency 5000MHz Then to mark peak reading value + cable loss shall be less than 1 μ W.
- If the Result_Value is over the requirement, take total sum of 1MHz band centered at the spur frequency like ACLP measurement as Result_Value.

7.4. TEST SETUP LAYOUT



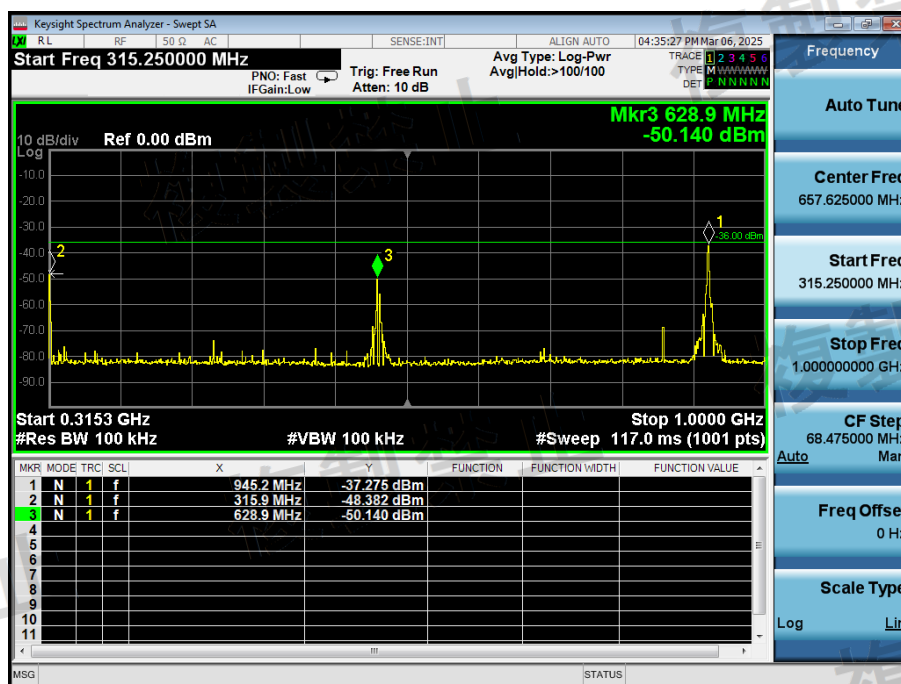
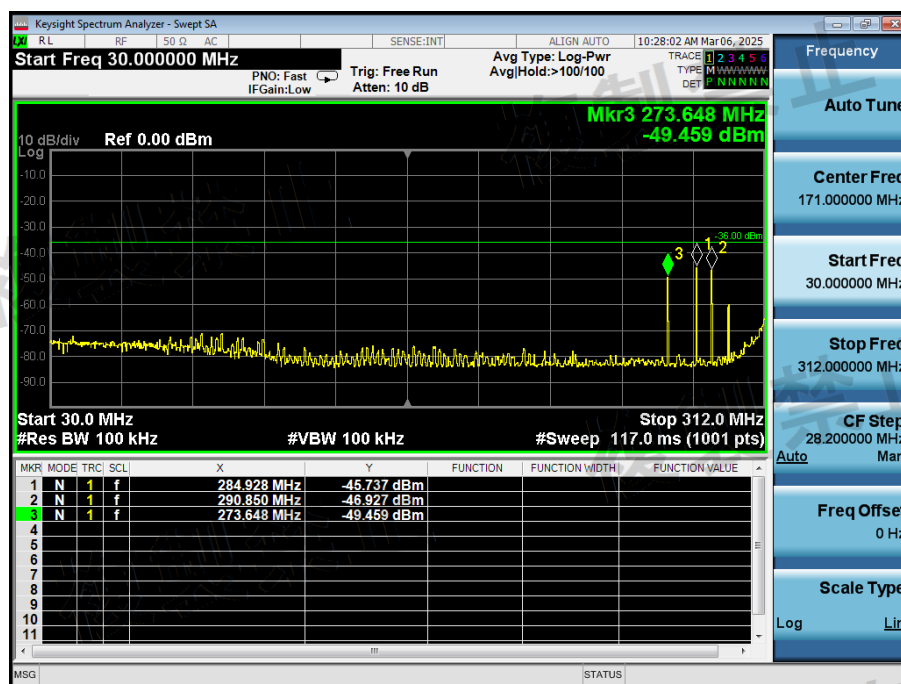
7.5. TEST DEVIATION

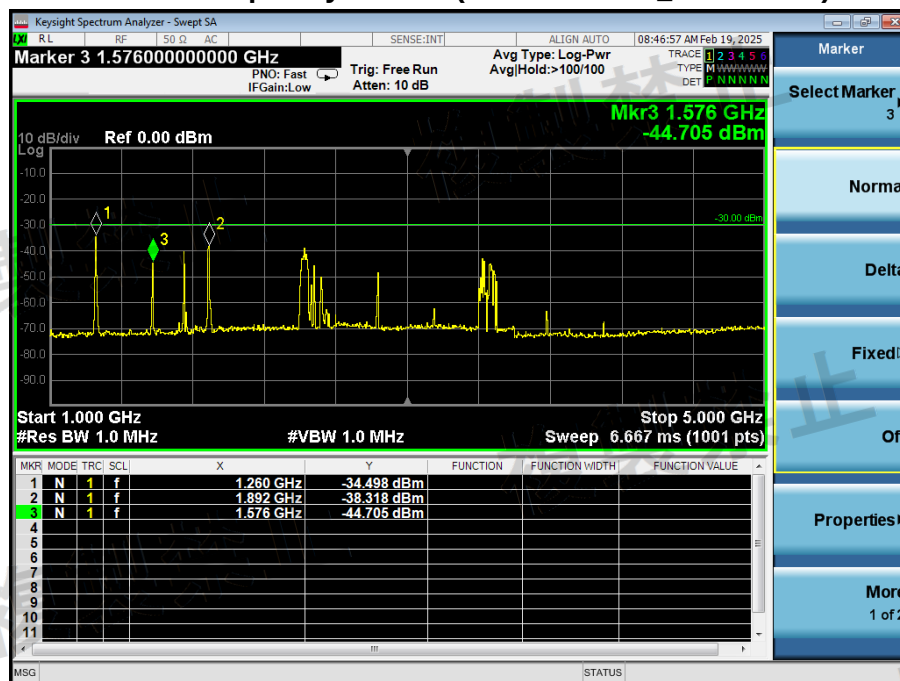
There is no deviation with the original standard.



7.6. TEST RESULT

Temperature:	25°C		
Humidity:	55 % RH	Test Voltage	DC 3.0V
Operation Mode:	TX		

CH 00- Frequency Band 1 ($30 \text{ MHz} \leq f \leq 1000 \text{ MHz}$)

CH 00- Frequency Band 2 ($1000 \text{ MHz} < f \leq 5000 \text{ MHz}$)



8. TRANSMISSION TIME RESTRICTION

8.1. LIMIT

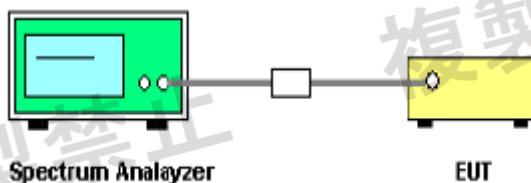
Limits
Not transmit cyclically
One transmission ON time: 5 sec.or less
One transmission ON time (Manual Case): 90 sec.or less

8.2. MEASURING INSTRUMENTS AND SETTING

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

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

8.3. TEST SETUP LAYOUT

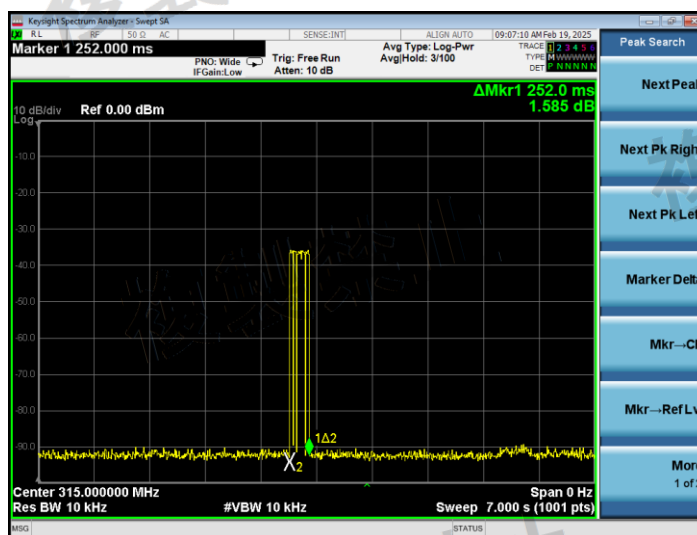


8.4. TEST DEVIATION

There is no deviation with the original standard.

8.5. TEST RESULT

Center frequency (MHz)	On Time(s)	Limit (s)	Result
315	0.252	5	PASS





9. MEASUREMENTS OF CONTROLLER FUNCTION

9.1. LIMIT

- a. When connected to a telecommunications circuit Function for automatically transmitting or receiving an identification sign (sign designed to identify the remote party of communication but which is not an identification signal as prescribed in Article 8.1.3 of the Radio Law; hereinafter) in the radio equipment of a radio station used primarily on the same premises
- b. When not connected to a telecommunications circuit Function of 1) or 2) below: 1) Function for automatically transmitting or receiving an identification sign in the radio equipment of a radio station used primarily on the same premises 2) Function for enabling the user to switch frequencies or easily deactivate radio-frequency transmission

9.2. MEASURING ID CODE SOFTWARE

Item	Limits
MAC IP List	MAC Scan

9.3. TEST RESULT OF RADIO INTERFERENCE PREVENTION CAPABILITY

Item	Test Voltage	Test Mode	MAC address	Result
Identification code	Normal voltage	transmitting	3a:2b:6c:7d:12:e3	Pass



10. SECONDARY RADIATED EMISSION STRENGTH

10.1 LIMIT

Item	Limits
Secondary Radiated Emission Strength	30-1000MHz:4nW/100kHz(EIRP)
	1000-4000MHz:4nW/1MHz(EIRP)

10.2 MEASURING INSTRUMENTS AND SETTING

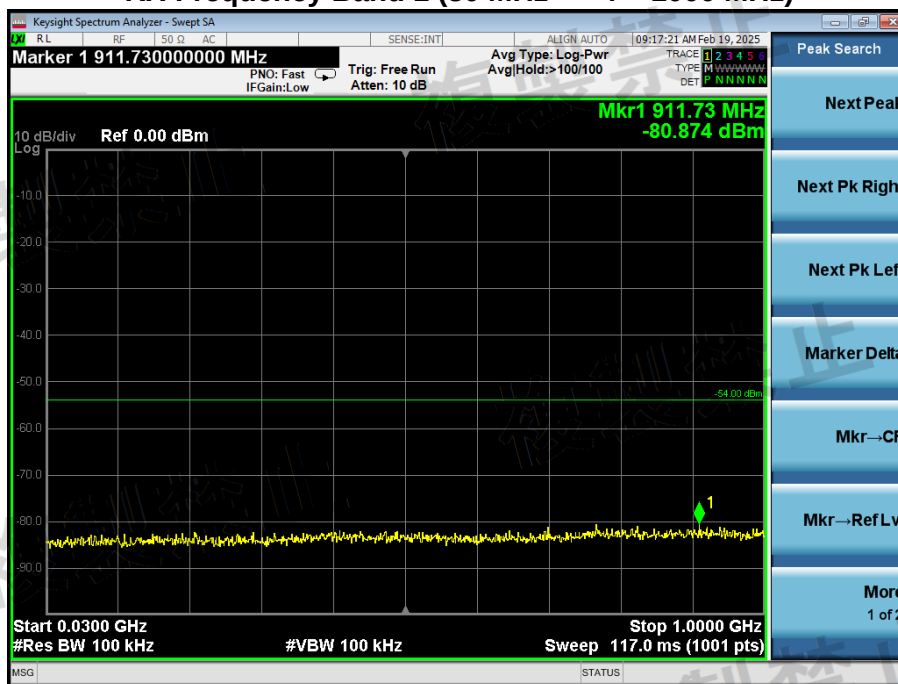
Please refer to section 5 in this report. The following table is the setting of Spectrum Analyzer.

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

10.3 TEST PROCEDURES

- EUT have the continuous reception mode and fixed only one channelize.
- Setting of SA is following as RB / VB: 100 kHz (below 1GHz emissions) / 1 MHz (above 1GHz emissions) /
AT: 10dB / Ref: 0dBm / Sweep time: Auto / Sweep Mode: Continuous sweep / Detect mode: Positive peak / Trace mode: Max hold
- SA set RB: 100kHz and VB: 100kHz. Then adjust to start frequency 30MHz and stop frequency 1000MHz. Search to mark peak reading value + cable loss shall be less than 4nW
- SA set RB: 1MHz and VB: 1MHz. Then adjust to start frequency 1000MHz and stop frequency 12500MHz. Search to mark peak reading value + cable loss shall be less than 20nW
- If power level of lower emissions are more than 1/10 of limit (.0.4nW for $f < 1\text{GHz}$, 2nW for $f \geq 1\text{GHz}$), all those are to be indicated in the 2nd and 3rd lines. If others are 1/10 or less more of the limit, no necessary to be indicated.

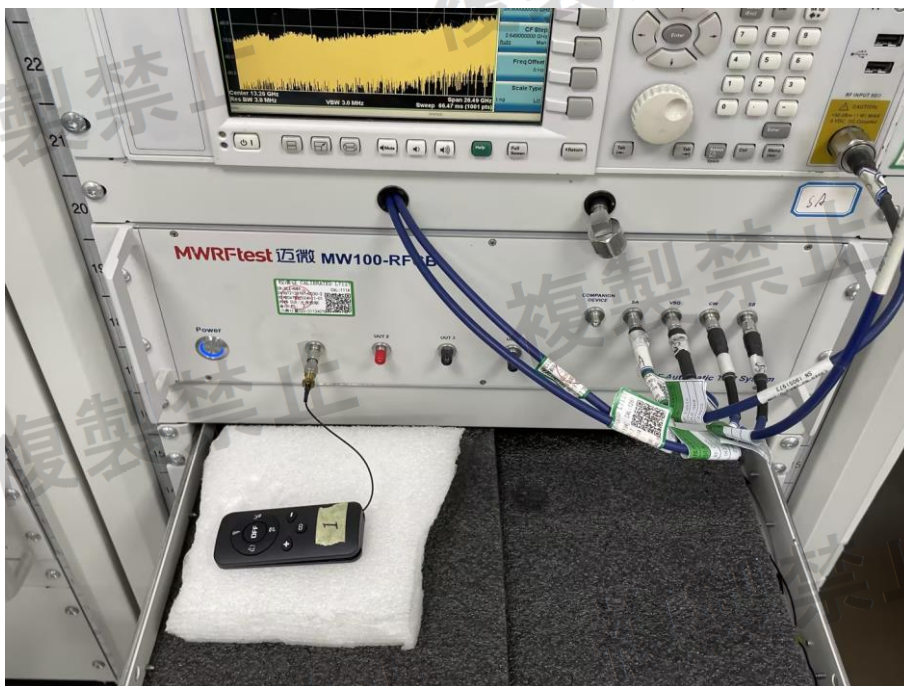
10.4 TEST RESULT

RX-Frequency Band 1 (30 MHz $\leq$ f < 1000 MHz)RX-Frequency Band 2 (1000 MHz $\leq$ f < 4000 MHz)



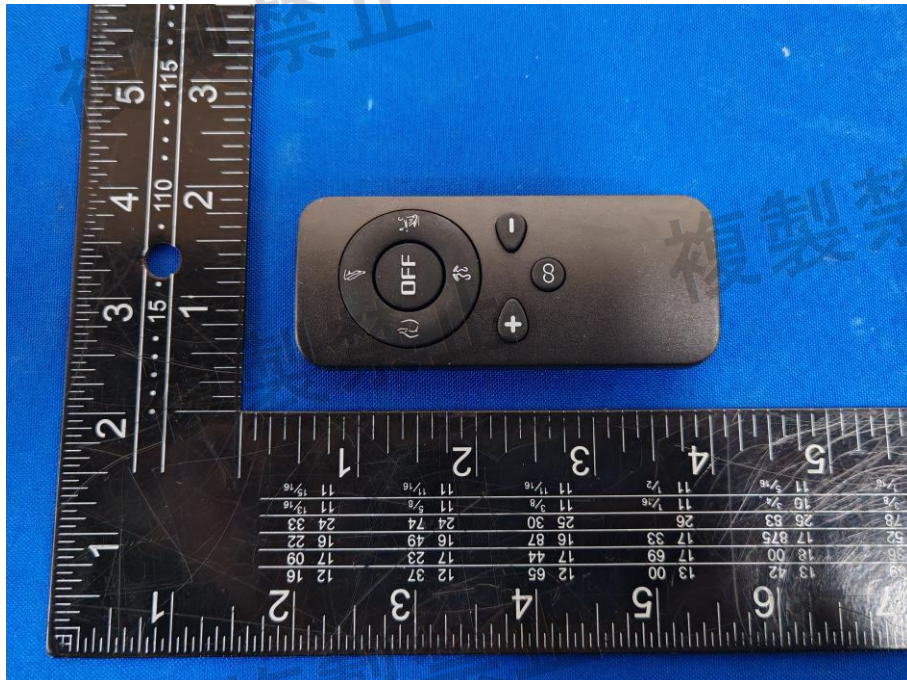
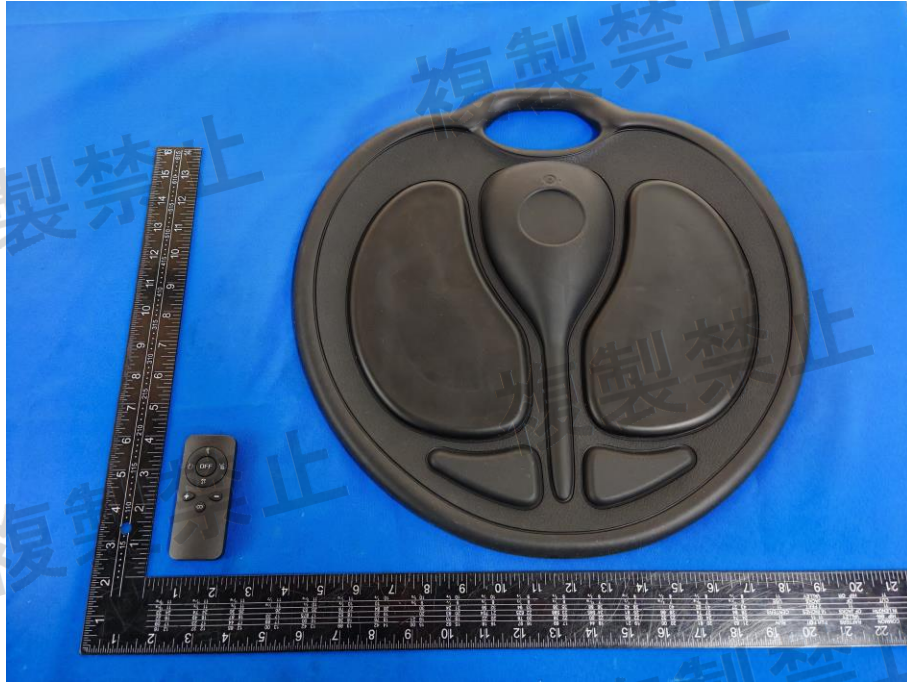
11. EUT TEST PHOTO

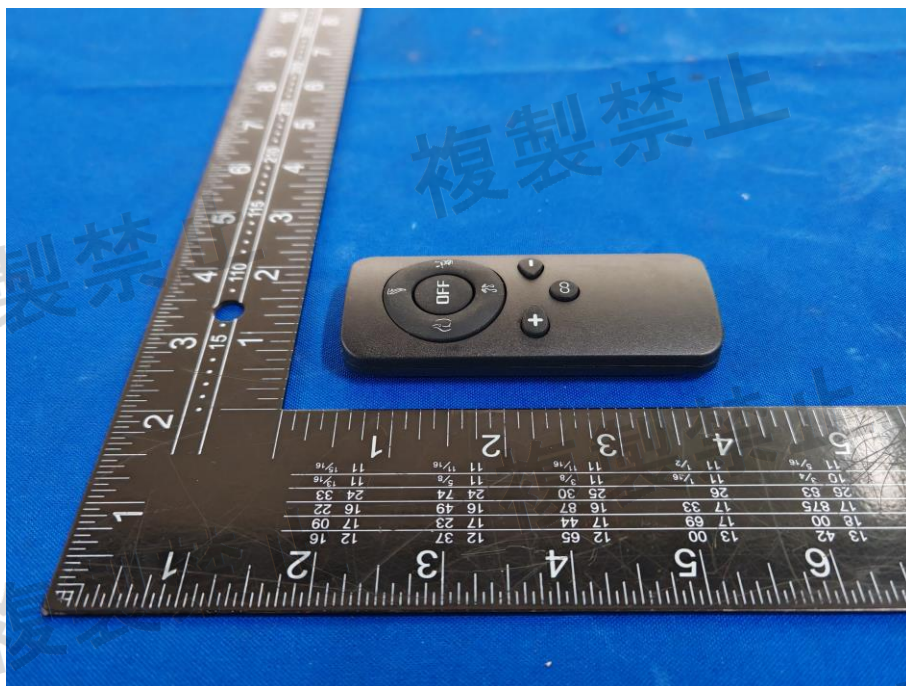
Measurement Photos



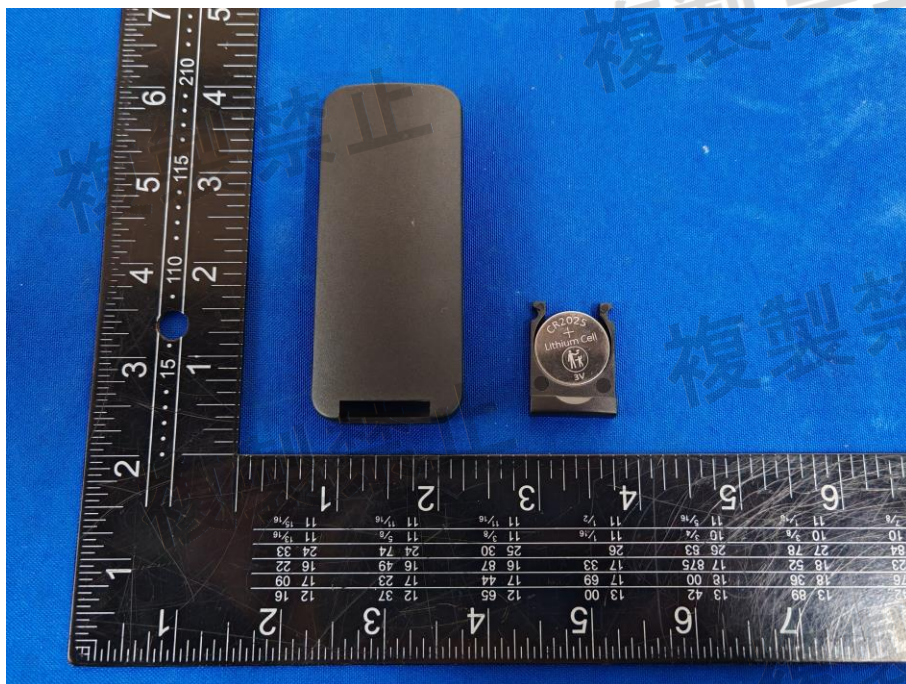
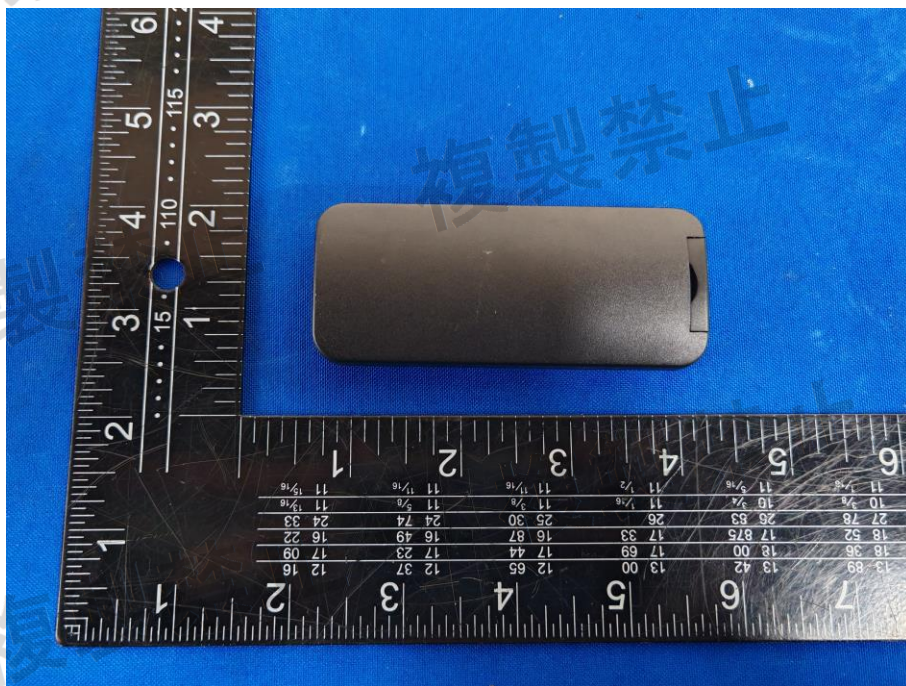


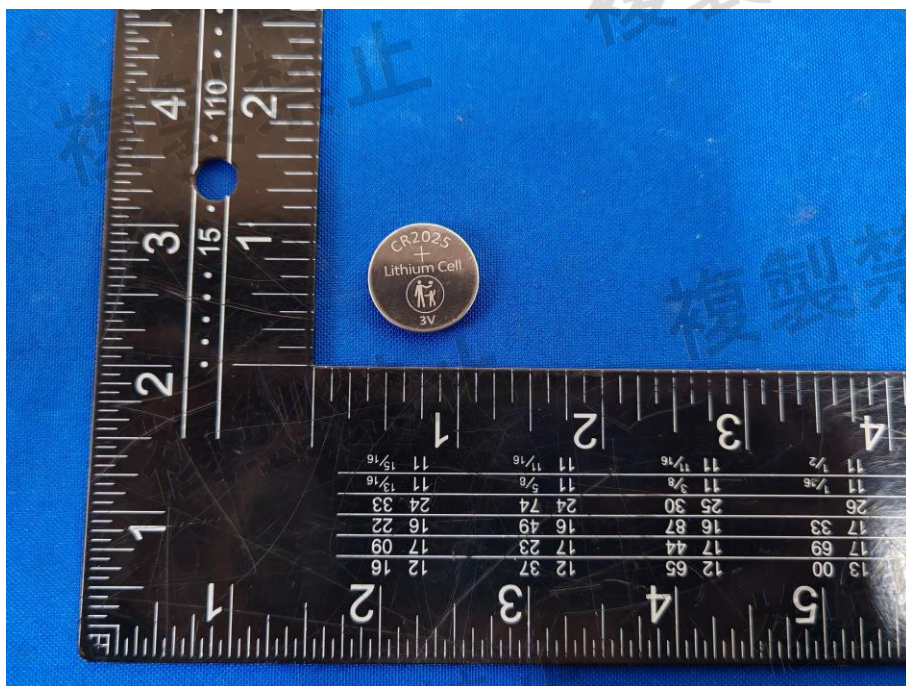
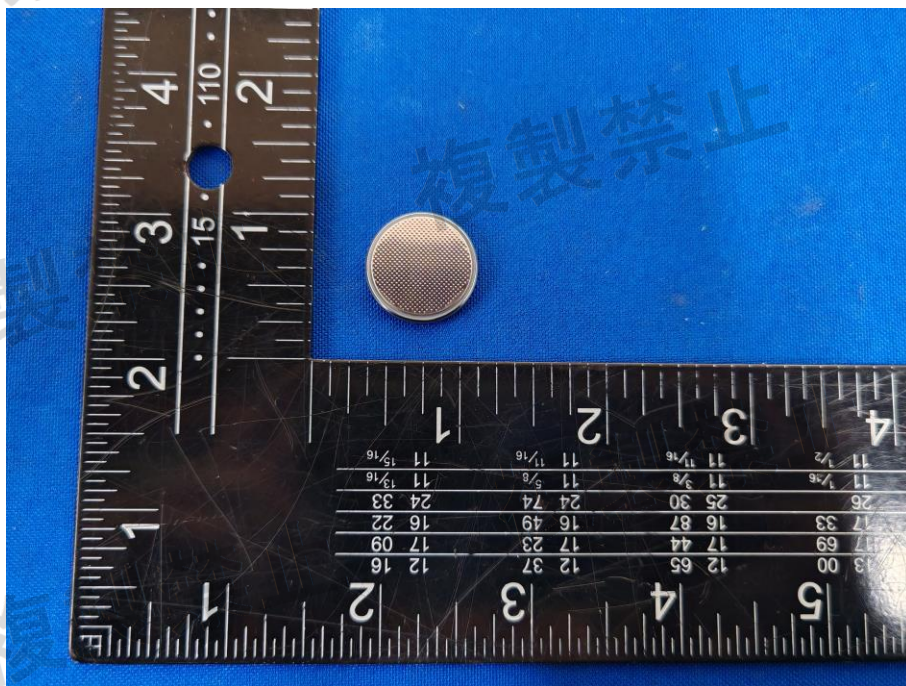
12. EUT PHOTOS

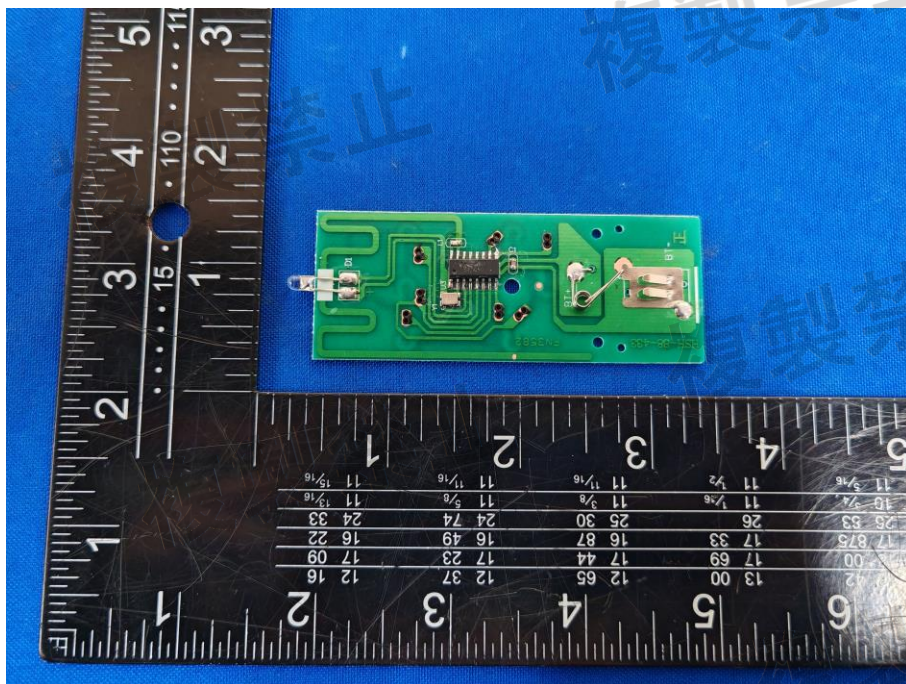
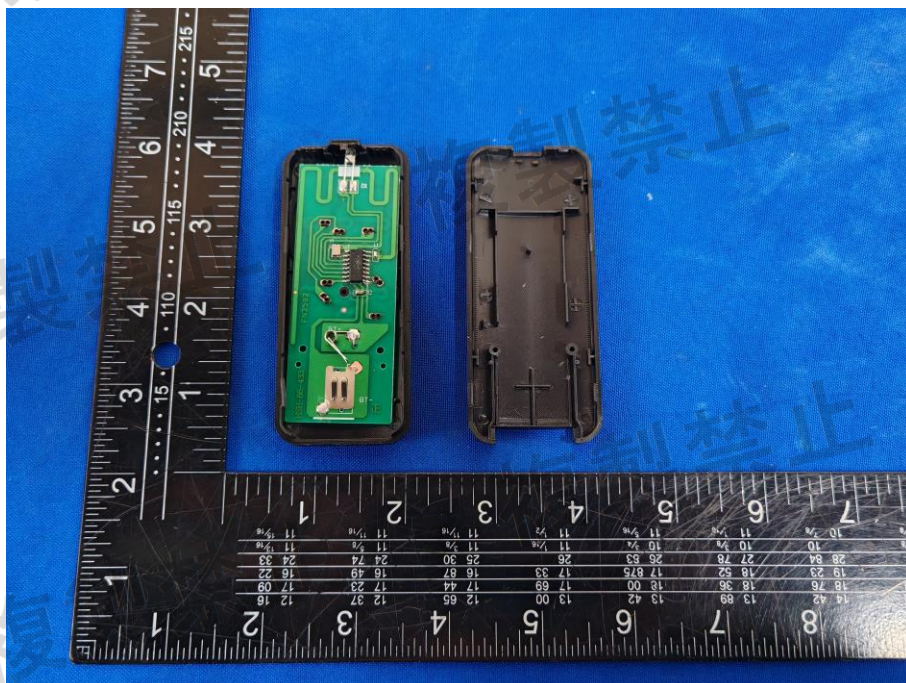


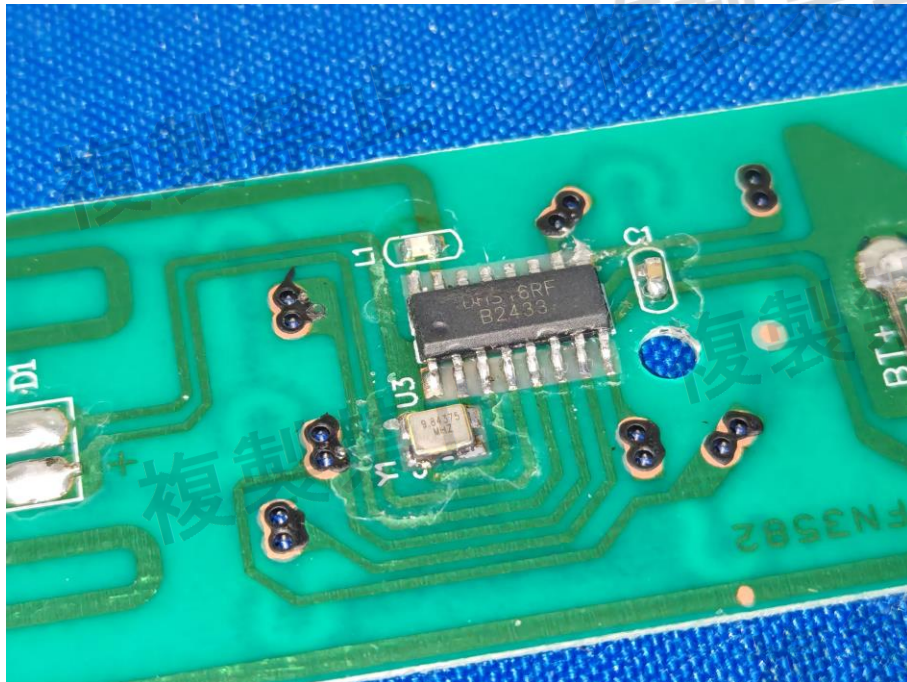
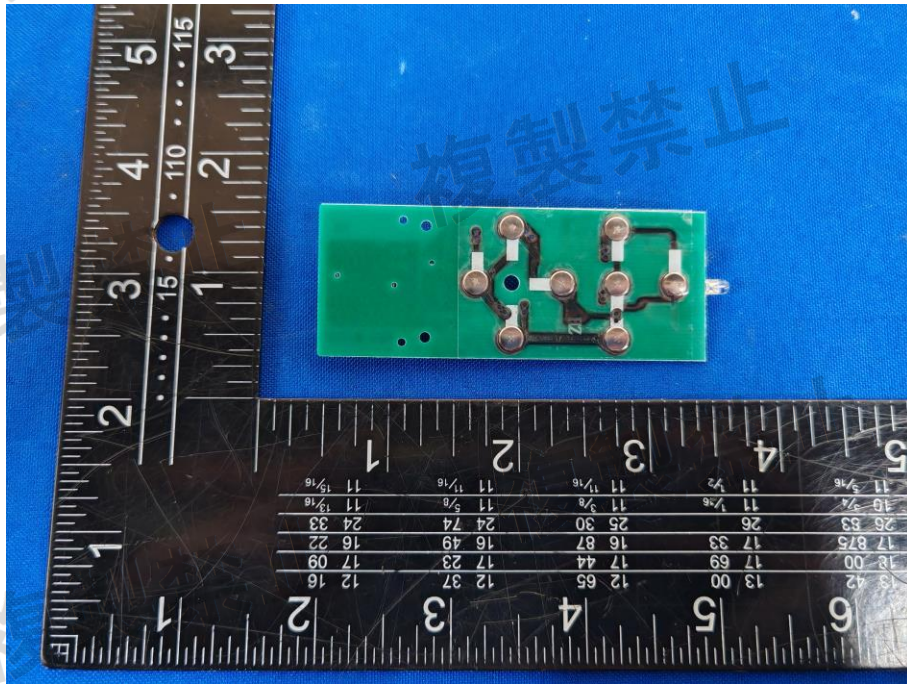












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