Test Report

Applicant's Name.....:	Shenzhen SaiFeng Electronic Technology Co., Ltd
Address.....:	Community, Ban Tin Street, LonggangDistrict, Shenzhen City, China
Manufacturer's Name.....:	Shenzhen SaiFeng Electronic Technology Co., Ltd
Address.....:	Community, Ban Tin Street, LonggangDistrict, Shenzhen City, China

Product Description

Product Name.....:	TWS True Wireless Earbuds
Model Name.....:	SE60, SE-ONE, TWS-SE
Trademark.....:	/
Model difference.....:	SE60 is tested model, other models are derivative models .The models are identical in circuit, only different on the model names , size and shape and color. So the test data of SE60 can represent the remaining models.
Ratings.....:	Input: 5 V ⎓ 1 A or DC 3.7 V power by battery
Standards.....:	**ETSI EN 301 489-1 V2.2.3 (2019-11)** **ETSI EN 301 489-17 V3.2.4 (2020-09)**
Report Version.....:	B01

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Date of Test	Nov. 27, 2024
Date (s) of Performance of Tests :	Nov. 27, 2024 to Dec. 04, 2024
Date of Issue :	Dec. 04, 2024
Test Result :	Pass

Prepared By	:	Wanna (Wanna)
Reviewed by	:	Chopin.Xiao (Chopin Xiao)
Approved by	:	Kind Yang Approved Shenzhen Promise Test Technology Co., Ltd. (Kind Yang)

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1. Revision History

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Dec. 04, 2024	Valid	Original Report

2. Test Summary

The Product has been tested according to the following specifications:

EMISSION		
Standard	**Test Item**	**Test result**
EN 55032:2015 + A11:2020 + A1:2020	Conducted emissions from the AC mains power ports	N/A[5]
EN 55032:2015 + A11:2020 + A1:2020	Asymmetric mode conducted emissions	N/A[1]
EN 55032:2015 + A11:2020 + A1:2020	Conducted differential voltage emissions	N/A[2]
EN 55032:2015 + A11:2020 + A1:2020	Radiated emissions	Pass
EN IEC 61000-3-2:2019 + A1:2021 + A2:2024	Harmonic current emission(H)	N/A[5]
EN 61000-3-3:2013 + A1:2019 + A2:2021	Voltage fluctuations & flicker(F)	N/A[5]

IMMUNITY		
Standard	**Test Item**	**Test result**
EN 61000-4-2:2009	Electrostatic discharge (ESD)	Pass
EN IEC 61000-4-3: 2020	Continuous RF electromagnetic field disturbances(RS)	Pass
EN 61000-4-4:2012	Electrical fast transients/burst (EFT/B)	N/A[5]
EN 61000-4-5:2014 + A1:2017	Surges	N/A[5]
EN IEC 61000-4-6: 2023	Radio frequency, common mode	N/A[5]
EN IEC 61000-4-11:2020	Voltage dips and interruptions (DIPS)	N/A[5]

Remark:

"#"indicates the testing item(s) was (were) fulfilled by subcontracted lab.

1. Applicable to ports listed above and intended to connect to cables longer than 3 m.

2. The Product has no antenna port.

3. The Product belongs to Class A, and its power is less than 75W, so it deems to fulfil this standard without testing.

4.The Product is powered by the DC only, the test item is not applicable.

5.Not applicable to Portable equipment.

3. Product Information And Test Setup

3.1. Product Information

Product Name:	TWS True Wireless Earbuds
Test Model(s):	SE60
Hardware Version:	V1.0
Software Version:	V1.0
Operation Frequency:	BT: 2402MHz-2480MHz, 79 Channels
Type of Modulation:	BT: GFSK, π/4DQPSK, 8DPSK
Antenna installation:	PCB Antenna
Antenna Gain:	0dBi
Ratings:	Input: 5 V⎓ 1 A or DC 3.7 V power by battery

Note: Schematic diagram and layout of right and left earphone are same, we chose the right earphone to test . The detailed information can be referred to the photos and techs which were stated and guaranteed by the applicant.

3.2. Test Setup Configuration

See test photographs attached in EUT TEST SETUP PHOTOGRAPHS for the actual connections between Product and support equipment.

3.3. Support Equipment

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Note

Notes:

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer’s requirements and conditions for the intended use.

3.4. Test Mode

Test item	Test Mode	Test Voltage
Conducted emissions from the AC mains power ports (150KHz-30MHz) Class B	N/A	N/A
Radiated emissions(30MHz-6GHz) Class B	BT mode	DC 3.7 V
Harmonic current emission(H) Class __A___	N/A	N/A
Voltage fluctuations & flicker(F)	N/A	N/A
Electrostatic discharge (ESD) ☒ Air Discharge: ±2,4,8kV ☒ Contact Discharge: ±2,4kV ☒ HCP & VCP: ±2,4kV	BT mode	DC 3.7 V
Continuous RF electromagnetic field disturbances(RS) ☒ 80MHz-6000MHz , 3V/m,80%	BT mode	DC 3.7 V
Electrical fast transients/burst (EFT/B) ☒ 1kV AC(Input) ☐ 0.5kV DC(Input) ☐ 0.5kV signal,Telec,control	N/A	N/A
Surges ☒ 1kV Line-Line, ☐ 2kV Line-PE, N-PE ☐ 0.5kVDC(Input) ☐ 1KV,☐ 4KV signal,Telec, control Line-Line:90°+1kV,270°-1kV Line-PE:90°+2kV,270°-2kV N-PE:90°-2kV,270°+2kV	N/A	N/A
Continuous induced RF disturbances (CS) 0.15MHz to 10MHz 3V,10MHz-30MHz 3 to 1V,30MHz-80MHz 1V ☒ AC(Input) ☐ DC(Input) ☐ signal,control	N/A	N/A
Voltage dips and interruptions (DIPS) ☒ Less 5% 0.5P ☒ 70% 500ms Voltage Interruptions ☒ less5% 5000ms	N/A	N/A
All test mode were tested and passed, only Radiated Emissions shows (*)s the worst case mode which were recorded in this report.		

4. Test Facility And Test Instrument Used

4.1. Test Facility

Shenzhen Promise Test Technology Co., Ltd.

103, Building 1, Yibaolai Industrial City, Qiaotou Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China

4.2. Test Instrument Used

Conducted Emission Test					
Equipment	**Manufacturer**	**Model#**	**Serial#**	**Last Cal.**	**Next Cal**
843 Shielded Room	ChengYu	843 Room	843	May. 20, 2021	May. 19, 2025
EMI Receiver	R&S	ESCI3	100306	May. 11, 2024	May. 10, 2025
LISN	ETS-LINDGREN	3810/2	00045732	May. 11, 2024	May. 10, 2025
Attenuator	SUHNER	ESH3-Z2	100243	May. 11, 2024	May. 10, 2025
843 Cable 1#	FUJIKURA	843C1#	001	May. 11, 2024	May. 10, 2025
Test software	FALA	EZ-EMC	EMC-CON3A1.1		--

Radiation Emission Test					
Equipment	**Manufacturer**	**Model#**	**Serial#**	**Last Cal.**	**Next Cal.**
966 chamber	ChengYu	966 Room	966	May. 20, 2021	May. 19, 2025
Spectrum Analyzer	Agilent	N9020A	MY54440442	May. 11, 2024	May. 10, 2025
Low-Noise Amplifier	HEWLETT PACKARD	8447D	2727A05439	May. 11, 2024	May. 10, 2025
Low-Noise Amplifier	RegalWay	RW-LAN-011 8-45	202209060001	May. 11, 2024	May. 10, 2025
Log-periodic Antenna	SunAR	JB6	A121411	May. 11, 2023	May. 10, 2025
Horn Antenna	SCHWARZBECK	BBHA9120D	02745	May. 11, 2023	May. 10, 2025
EMI Receiver	R&S	ESCI3	100306	May. 11, 2024	May. 10, 2025
966 Cable 1#	CHENGYU	966	003	May. 11, 2024	May. 10, 2025
Test software	FALA	EZ-EMC	FA-03A2 RE+		--

Harmonic/Flicker Test					
Equipment	**Manufacturer**	**Model#**	**Serial#**	**Last Cal.**	**Next Cal.**
Harmonic &Voltage Flicker	LAPLACE	AC 2000A	--	May. 11, 2024	May. 10, 2025
AC Power Source	LAPLACE	DAL40	10003021350179	May. 11, 2024	May. 10, 2025
Testing Software	HTEC	V1.5	--	--	--

For Electrostatic Discharge/ Electrical Fast Transients/ Voltage Dips and Interruptions Test					
Equipment	**Manufacturer**	**Model#**	**Serial#**	**Last Cal.**	**Next Cal.**
Combined interference generator	Prima	EED2005TG	PR210554993	May. 11, 2024	May. 10, 2025
Capacitive coupling clamp	Prima	EFT-CLAMP	EFT-198	May. 11, 2024	May. 10, 2025
ESD generator	Prima	EED2005TG	PR210554993	May. 11, 2024	May. 10, 2025

For Surges Test					
Equipment	**Manufacturer**	**Model#**	**Serial#**	**Last Cal.**	**Next Cal.**
Lightning surge generator	Prima	SUG61005TB	PR210554993	May. 11, 2024	May. 10, 2025

Immunity to conducted disturbances, induced by radio-frequency fields (CS)					
Equipment	**Manufacturer**	**Model#**	**Serial#**	**Last Cal.**	**Next Cal.**
Conducted Immunity Test System	Schloder	CDG-7000-75	126B129012014	May. 11, 2024	May. 10, 2025
CDN	Schloder	CNDM2+M3-16	N/A	May. 11, 2024	May. 10, 2025
EM-Clamp	Schloder	EMCL-20	132A1194/2014	May. 11, 2024	May. 10, 2025
RF Attenuator	Schloder	75w 6dB	N/A	May. 11, 2024	May. 10, 2025

Radiated, radio-frequency, electromagnetic field immunity (RS)					
Equipment	**Manufacturer**	**Model#**	**Serial#**	**Last Cal.**	**Next Cal.**
Antenna	SKET	STLP 9129_Plus	/	/	/
Signal Generator	Agilent	N5181A	MY50141997	Feb. 01, 2024	Jan. 31, 2025
Amplifier	SKET	HAP_80M01G-250W	202105183	Jun. 27, 2024	Jun. 26, 2025
Amplifier	SKET	HAP_03G06G-80W	202305501	Jun. 27, 2024	Jun. 26, 2025
Field Probe	Narda	EP-601	811ZX01057	Jun. 29, 2024	Jun. 28, 2025
USB Power Sensor	Agilent	U2001A	MY53410013	Feb. 01, 2024	Jan. 31, 2025
USB Power Sensor	Agilent	U2001A	MZ54330012	Feb. 01, 2024	Jan. 31, 2025

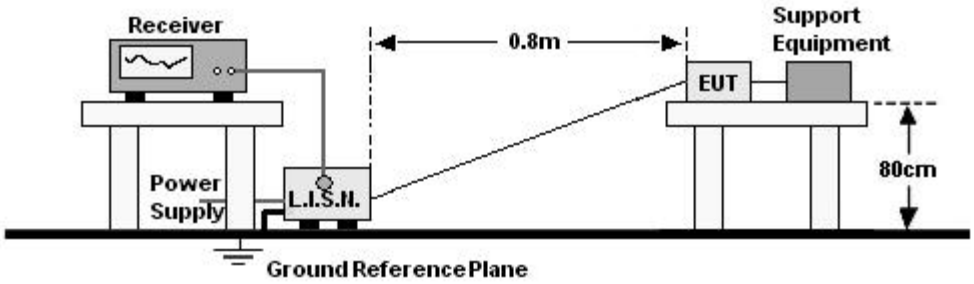
4.3. Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the Product as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Test item	**Value (dB)**
Conducted Emission (150kHz-30MHz)	2.90
Radiated Emission(30MHz~1GHz)	5.19
Radiated Emission(1GHz~6GHz)	4.48

5. Conducted Emissions

5.1. Block Diagram Of Test Setup



5.2. Limit

Limits for Conducted emissions at the mains ports of Class B MME

Frequency range (MHz)	Limits dB(μV)	
	Quasi-peak	Average
0,15 to 0,50	66 to 56*	56 to 46*
0,50 to 5	56	46
5 to 30	60	50

Notes: 1. *Decreasing linearly with logarithm of frequency.

2. The lower limit shall apply at the transition frequencies.

5.3. Test procedure

a. The Product was placed on a nonconductive table 0.8m above the horizontal ground reference plane, and 0.4 m from the vertical ground reference plane, and connected to the main through Line Impedance Stability Network (L.I.S.N).

b. The RBW of the receiver was set at 9 kHz in 150 kHz ~ 30MHz with Peak and AVG detector in Max Hold mode. Run the receiver's pre-scan to record the maximum disturbance generated from Product in all power lines in the full band.

c. For each frequency whose maximum record was higher or close to limit, measure its QP and AVG values and record.

5.4. Test Result

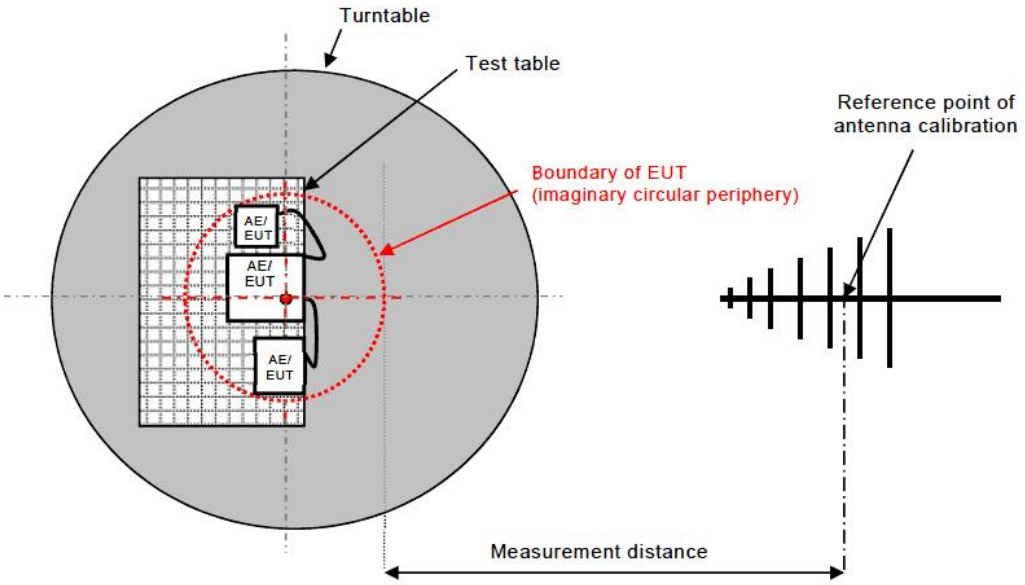
N/A

The Product is powered by the DC only, the test item is not applicable.

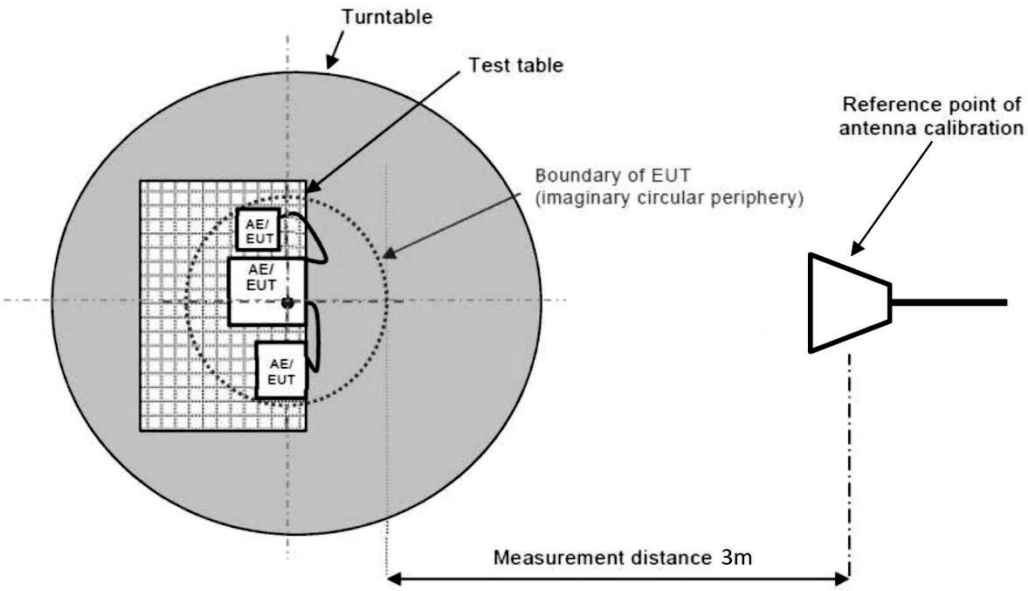
6. Radiated Emissions Test

6.1. Block Diagram Of Test Setup

30MHz ~ 1GHz:



Above 1GHz:



6.2. Limits

Limits for radiated disturbance of Class B MME

Frequency (MHz)	Quasi-peak limits at 3m dB(μV/m)
30-230	40
230-1000	47

Frequency (GHz)	limit above 1G at 3m dB(μV/m)	
	Average	peak
1-3	50	70
3-6	54	74

Note: The lower limit shall apply at the transition frequencies.

6.3. Test Procedure

30MHz ~ 1GHz:

a. The Product was placed on the nonconductive turntable 0.8m above the ground in a semi anechoic chamber.

b. Set the spectrum analyzer/receiver in Peak detector, Max Hold mode, and 120 kHz RBW. Record the maximum field strength of all the pre-scan process in the full band when the antenna is varied between 1~4 m in both horizontal and vertical, and the turntable is rotated from 0 to 360 degrees.

c. For each frequency whose maximum record was higher or close to limit, measure its QP value: vary the antenna's height and rotate the turntable from 0 to 360 degrees to find the height and degree where Product radiated the maximum emission, then set the test frequency analyzer/receiver to QP Detector and specified bandwidth with Maximum Hold Mode, and record the maximum value.

Above 1GHz:

a. The Product was placed on the non-conductive turntable 0.8m above the ground in a full anechoic chamber..

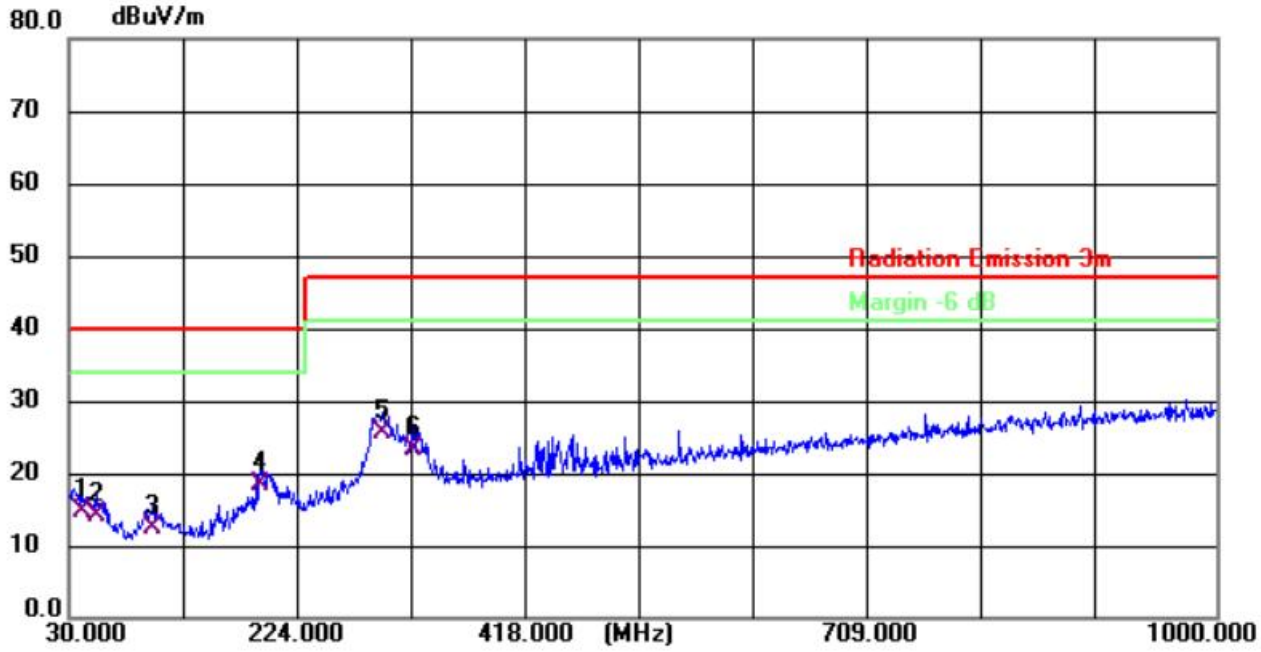
b. Set the spectrum analyzer/receiver in Peak detector, Max Hold mode, and 1MHz RBW. Record the maximum field strength of all the pre-scan process in the full band when the antenna is varied in both horizontal and vertical, and the turntable is rotated from 0 to 360 degrees.

c. For each frequency whose maximum record was higher or close to limit, measure its AV value: rotate the turntable from 0 to 360 degrees to find the degree where Product radiated the maximum emission, then set the test frequency analyzer/receiver to AV value and specified bandwidth with Maximum Hold Mode, and record the maximum value.

6.4. Test Results

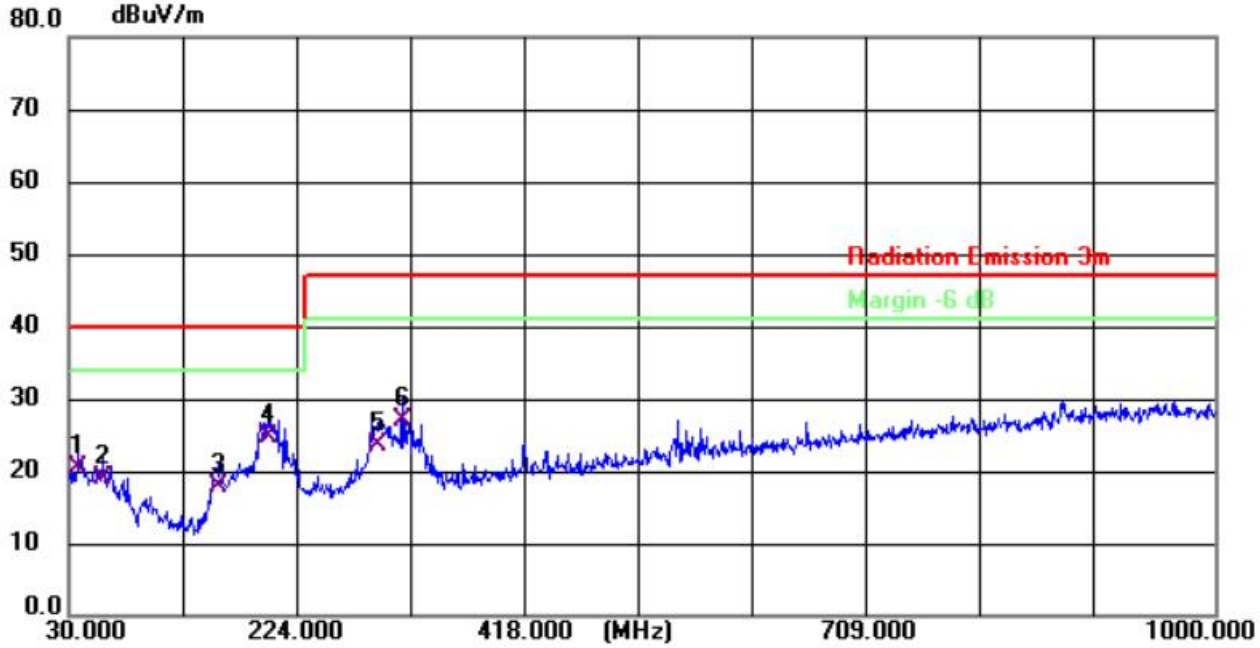
30MHz-1GHz

Temperature:	24.2 ℃	Relative Humidity:	53.1%
Pressure:	101.4kPa	Polarization :	Horizontal
Test Mode	BT mode	Remark:	N/A



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	40.670	23.19	-8.60	14.59	40.00	-25.41	QP
2	54.250	23.95	-9.92	14.03	40.00	-25.97	QP
3	101.780	23.91	-11.40	12.51	40.00	-27.49	QP
4	191.990	30.20	-11.69	18.51	40.00	-21.49	QP
5 *	294.810	33.87	-8.35	25.52	47.00	-21.48	QP
6	321.970	31.04	-7.75	23.29	47.00	-23.71	QP

Temperature:	24.2 ℃	Relative Humidity:	53.1%
Pressure:	101.4kPa	Polarization :	Vertical
Test Mode	BT mode	Remark:	N/A



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	38.730	28.87	-8.51	20.36	40.00	-19.64	QP
2	58.130	29.31	-10.44	18.87	40.00	-21.13	QP
3	156.100	31.70	-13.81	17.89	40.00	-22.11	QP
4 *	199.750	35.92	-11.17	24.75	40.00	-15.25	QP
5	290.930	32.13	-8.43	23.70	47.00	-23.30	QP
6	312.270	35.05	-7.97	27.08	47.00	-19.92	QP

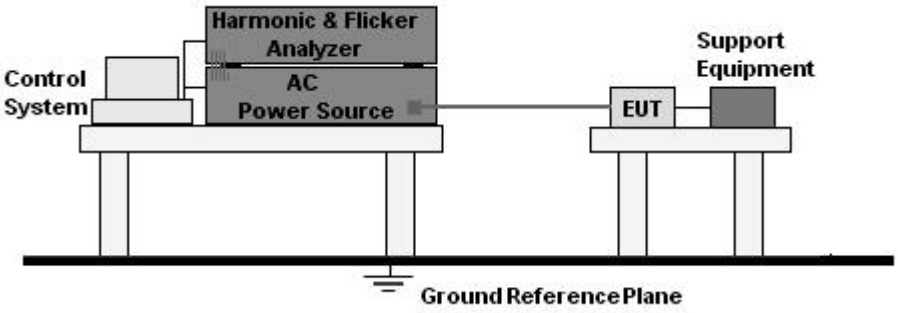
Remark: Level=Reading +Factor
Margin=Level -Limit

Above 1G

The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

7. Harmonic Current Emission(H)

7.1. Block Diagram of Test Setup



7.2. Limit

EN IEC 61000-3-2: 2019 + A1: 2021.

7.3. Test Procedure

a. The Product was placed on the top of a non-conductive table above the ground and operated to produce the maximum harmonic components under normal operating conditions for each successive harmonic component in turn.

b. The correspondent test program of test instrument to measure the current harmonics emanated from Product was chosen. The measure time shall be not less than the time necessary for the Product to be exercised.

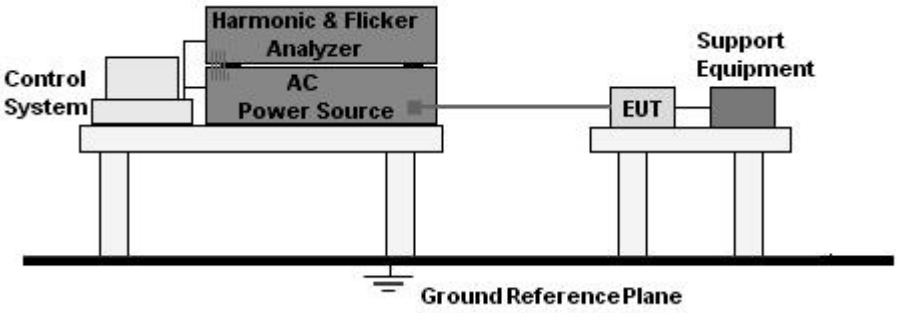
7.4. Test Results

N/A

Not applicable to Portable equipment.

8. Voltage Fluctuations & Flicker(F)

8.1. Block Diagram of Test Setup



8.2. Limit

EN 61000-3-3: 2013 + A1:2019 + A2: 2021.

8.3. Test Procedure

a. The Product was placed on the top of a non-conductive table above the ground and operated to produce the most unfavorable sequence of voltage changes under normal operating conditions.

b. During the flick test, the measure time shall include that part of whole operation cycle in which the Product produce the most unfavorable sequence of voltage changes. The observation period for short-term flicker indicator is 10 minutes and the observation period for long-term flicker indicator is 2 hours.

8.4. Test Results

N/A

Not applicable to Portable equipment.

9. Immunity Test Of General The Performance Criteria

Product Standard	ETSI EN 301 489-1
The performance criteria are used to take a decision on whether a radio equipment passes or fails immunity tests. For the purpose of the present document two categories of performance criteria apply: • Performance criteria for continuous phenomena. • Performance criteria for transient phenomena. NOTE: Normally, the performance criteria depends upon the type of radio equipment and/or its intended application. Thus, the present document only contains general performance criteria commonly used for the assessment of radio equipment.	
Performance criteria for continuous phenomena	During the test, the equipment shall: • continue to operate as intended; • not unintentionally transmit; • not unintentionally change its operating state; • not unintentionally change critical stored data.
Performance criteria for transient phenomena	For all ports and transient phenomena with the exception described below, the following applies: • The application of the transient phenomena shall not result in a change of the mode of operation (e.g. unintended transmission) or the loss of critical stored data. • After application of the transient phenomena, the equipment shall operate as intended. For surges applied to symmetrically operated wired network ports intended to be connected directly to outdoor lines the following criteria applies: • For products with only one symmetrical port intended for connection to outdoor lines, loss of function is allowed, provided the function is self-recoverable, or can be otherwise restored. Information stored in non-volatile memory, or protected by a battery backup, shall not be lost. • For products with more than one symmetrical port intended for connection to outdoor lines, loss of function on the port under test is allowed, provided the function is self-recoverable. Information stored in non-volatile memory, or protected by a battery backup, shall not be lost.

According To EN 301489 -17 standard, The General Performance Criteria As Following:

General performance criteria

The performance criteria are:

• performance criteria A for immunity tests with phenomena of a continuous nature;

• performance criteria B for immunity tests with phenomena of a transient nature;

• performance criteria C for immunity tests with power interruptions exceeding a certain time.

The equipment shall meet the minimum performance criteria as specified in the following clauses.

Table 1: Performance criteria

Criteria	During the test	After test (i.e. as a result of the application of the test)
A	Shall operate as intended. (see note). Shall be no loss of function. Shall be no unintentional transmissions.	Shall operate as intended. Shall be no degradation of performance. Shall be no loss of function. Shall be no loss of critical stored data.
B	May be loss of function.	Functions shall be self-recoverable. Shall operate as intended after recovering. Shall be no loss of critical stored data.
C	May be loss of function.	Functions shall be recoverable by the operator Shall operate as intended after recovering Shall be no degradation of performance.
NOTE: Operate as intended during the test allows a level of degradation in accordance with clause 6.2.2.		

Minimum performance level

For equipment that supports a PER or FER, the minimum performance level shall be a PER or FER less than or equal to 10 %.

For equipment that does not support a PER or a FER, the minimum performance level shall be no loss of the wireless transmission function needed for the intended use of the equipment.

Performance criteria for Continuous phenomena applied to Transmitters (CT)

The performance criteria B shall apply, except for voltage dips of 100 ms and voltage The performance criteria A shall apply.

Tests shall be repeated with the EUT in standby mode (if applicable) to ensure that unintentional transmission does not occur. In systems using acknowledgement signals, it is recognized that an ACKnowledgement (ACK) or Not ACKnowledgement (NACK) transmission may occur, and steps should be taken to ensure that any transmission

resulting from the application of the test is correctly interpreted.

Performance criteria for Transient phenomena applied to Transmitters (TT)

The performance criteria B shall apply, except for voltage dips of 100 ms and voltage interruptions of 5 000 ms duration, for which performance criteria C shall apply.

Tests shall be repeated with the EUT in standby mode (if applicable) to ensure that unintentional transmission does not occur. In systems using acknowledgement signals, it is recognized that an acknowledgement (ACK) or not-acknowledgement (NACK) transmission may occur, and steps should be taken to ensure that any transmission resulting from the application of the test is correctly interpreted.

Performance criteria for Continuous phenomena applied to Receivers (CR)

The performance criteria A shall apply.

Where the EUT is a transceiver, under no circumstances, shall the transmitter operate unintentionally during the test. In systems using acknowledgement signals, it is recognized that an ACK or NACK transmission may occur, and steps should be taken to ensure that any transmission resulting from the application of the test is correctly interpreted.

Performance criteria for Transient phenomena applied to Receivers (TR)

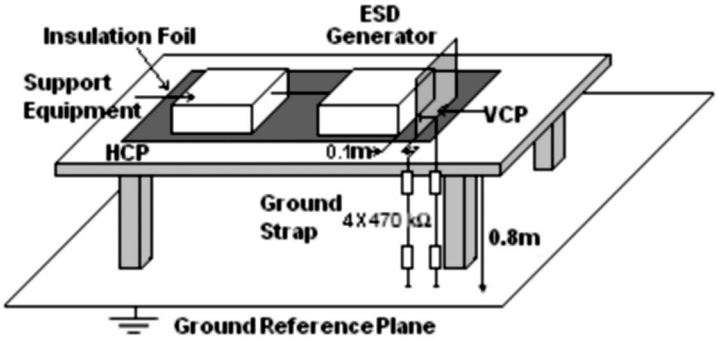
The performance criteria B shall apply, except for voltage dips of 100 ms and voltage interruptions of 5 000 ms duration for which performance criteria C shall apply.
Where the EUT is a transceiver, under no circumstances, shall the transmitter operate unintentionally during the test. In systems using acknowledgement signals, it is recognized that an ACK or NACK transmission may occur, and steps should be taken to ensure that any transmission resulting from the application of the test is correctly interpreted.

10. Electrostatic Discharge (ESD)

10.1. Test Specification

Test Port	:	Enclosure port
Discharge Impedance	:	330 ohm / 150 pF
Discharge Mode	:	Single Discharge
Discharge Period	:	one second between each discharge

10.2. Block Diagram of Test Setup



10.3. Test Procedure

a. Electrostatic discharges were applied only to those points and surfaces of the Product that are accessible to users during normal operation.

b. The test was performed with at least ten single discharges on the pre-selected points in the most sensitive polarity.

c. The time interval between two successive single discharges was at least 1 second.

d. The ESD generator was held perpendicularly to the surface to which the discharge was applied and the return cable was at least 0.2 meters from the Product.

e. Contact discharges were applied to the non-insulating coating, with the pointed tip of the generator penetrating the coating and contacting the conducting substrate.

f. Air discharges were applied with the round discharge tip of the discharge electrode approaching the Product as fast as possible (without causing mechanical damage) to touch the Product. After each discharge, the ESD generator was removed from the Product and re-triggered for a new single discharge. The test was repeated until all discharges were complete.

g. At least ten single discharges (in the most sensitive polarity) were applied to the Horizontal Coupling Plane at points on each side of the Product. The ESD generator was positioned vertically at a distance of 0.1 meters from the Product with the discharge electrode touching the HCP.

h. At least ten single discharges (in the most sensitive polarity) were applied to the center of one vertical edge of the Vertical Coupling Plane in sufficiently different positions that the four faces of the Product were completely illuminated. The VCP (dimensions 0.5m x 0.5m) was placed vertically to and 0.1 meters from the Product.

10.4. Test Results

Temperature：	24.0℃	Relative Humidity：	54.1%
Pressure：	101.4kPa	Test Mode：	BT mode

Discharge Method	Discharge Position	Voltage (kV)	Min. No. of Discharge per polarity (Each Point)	Performance Criterion	Result
Contact Discharge	Conductive Surfaces	±2, ±4	10	B	A
	Indirect Discharge HCP	±2, ±4	10	B	A
	Indirect Discharge VCP	±2, ±4	10	B	A
Air Discharge	Slots, Apertures, and Insulating Surfaces	±2, ±4, ±8	10	B	A
Note: A: No performance degradation during test. B: During the test, the EUT shut down, after the test, it reset by itself. C: During the test, the EUT shut down, after the test, it reset by user.					

11. Continuous RF Electromagnetic Field Disturbances(RS)

11.1. Test Specification

Test Port	:	Enclosure port
Step Size	:	1%
Modulation	:	1kHz, 80% AM
Dwell Time	:	1 second
Polarization	:	Horizontal & Vertical

11.2. Block Diagram of Test Setup

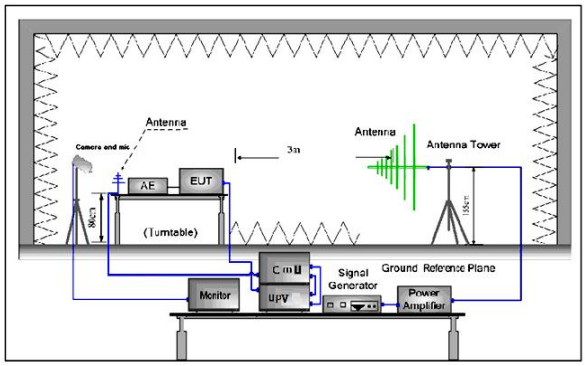


Figure 1. 80MHz to 1GHz

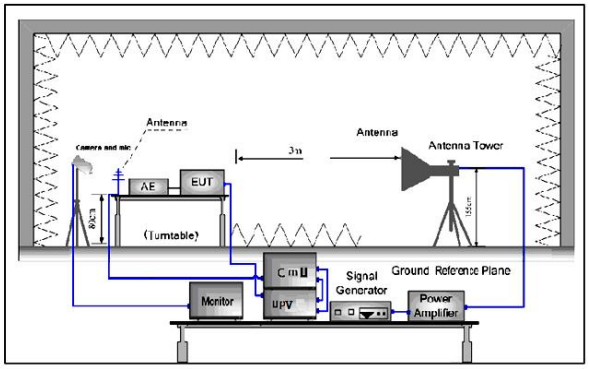


Figure 2. 1GHz to 6GHz

11.3. Test Procedure

a. The testing was performed in a fully-anechoic chamber. The transmit antenna was located at a distance of 3 meters from the Product.

b. The frequency range is swept from 80MHz to 6000MHz,with the signal 80% amplitude modulated with a 1 kHz sine wave,and the step size was 1%.

c. The dwell time at each frequency shall not be less than the time necessary for the EUT to be exercised and to be able to respond, but should not exceed 5 s at each of the frequencies during the scan.

d. The test was performed with the Product exposed to both vertically and horizontally polarized fields on each of the four sides.

e. For Broadcast reception function:Group 2 not apply in this test.

11.4. Test Results

Temperature：	23.9 ℃	Relative Humidity：	51.6%
Pressure：	101.4kPa	Test Mode：	BT mode

Frequency	Position	Field Strength (V/m)	Performance Criterion	Result
80 - 6000MHz	Front, Right, Back, Left	3	A	A
Note: A: No performance degradation during test. B: This item is tested by Shenzhen Haiyun Testing Co., Ltd.				

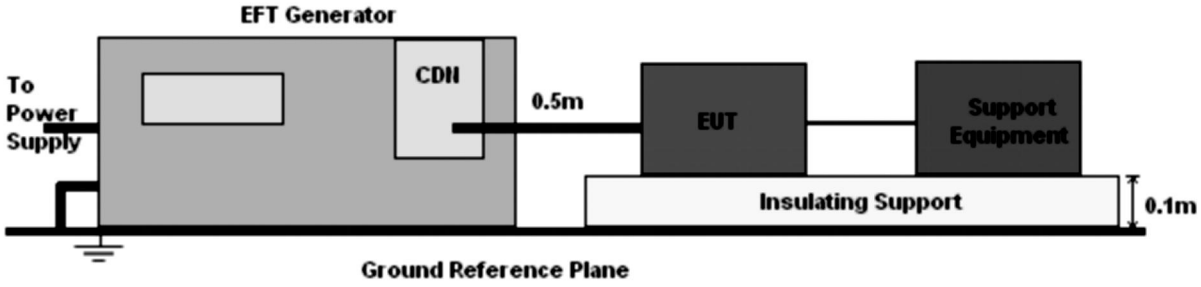
12. Electrical Fast Transients/Burst (EFT/B)

12.1. Test Specification

Test Port	:	input a.c. power port
Impulse Frequency	:	5 kHz
Impulse Wave-shape	:	5/50 ns
Burst Duration	:	15 ms
Burst Period	:	300 ms
Test Duration	:	2 minutes per polarity

12.2. Block Diagram of EUT Test Setup

For input a.c. power port:



12.3. Test Procedure

a. The Product and support units were located on a non-conductive table above ground reference plane.

b. A 0.5m-long power cord was attached to Product during the test.

12.4. Test Results

N/A

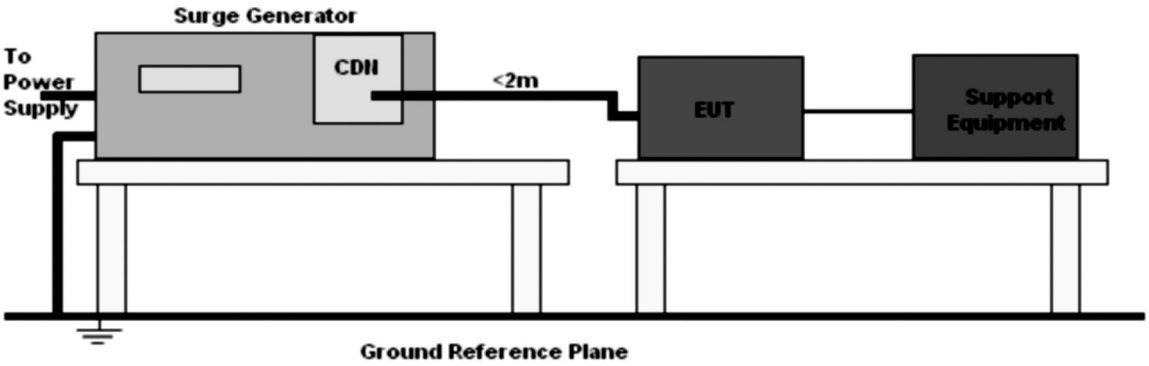
Not applicable to Portable equipment.

13. Surges Immunity Test

13.1. Test Specification

Test Port	:	input a.c. power port
Wave-Shape	:	Open Circuit Voltage - 1.2 / 50 us
		Short Circuit Current - 8 / 20 us
Pulse Repetition Rate	:	1 pulse / min.
Phase Angle	:	0° / 90° / 180° / 270°
Test Events	:	5 pulses (positive & negative) for each polarity

13.2. Block Diagram of EUT Test Setup



13.3. Test Procedure

a. The surge is to be applied to the Product power supply terminals via the capacitive coupling network. Decoupling networks are required in order to avoid possible adverse effects on equipment not under test that may be powered by the same lines, and to provide sufficient decoupling impedance to the surge wave.

b. The power cord between the Product and the coupling/decoupling networks shall be 2 meters in length (or shorter). Interconnection line between the Product and the coupling/decoupling networks shall be 2 meters in length (or shorter).

13.4. Test Result

N/A

Not applicable to Portable equipment.

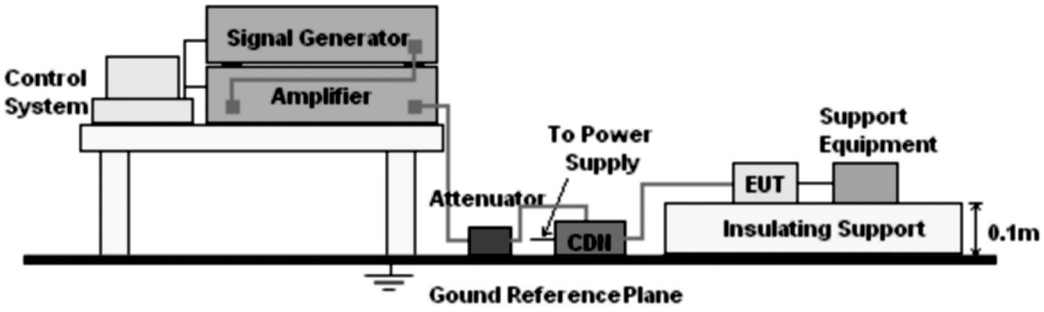
14. Continuous Induced RF Disturbances (CS)

14.1. Test Specification

Test Port	:	input a.c. power port
Step Size	:	1%
Modulation	:	1kHz, 80% AM
Dwell Time	:	1 second

14.2. Block Diagram of EUT Test Setup

For input a.c. power port:



14.3. Test Procedure

For input a.c. power port:

a. The Product and support units were located at a ground reference plane with the interposition of a 0.1 m thickness insulating support and the CDN was located on GRP directly.

b. The frequency range is swept from 150 kHz to 10MHz, 10MHz to 30MHz, 30MHz to 80MHz with the signal 80% amplitude modulated with a 1 kHz sine wave, and the step size was 1% of fundamental.

c. The dwell time at each frequency shall be not less than the time necessary for the Product to be able to respond.

14.4. Test Results

N/A

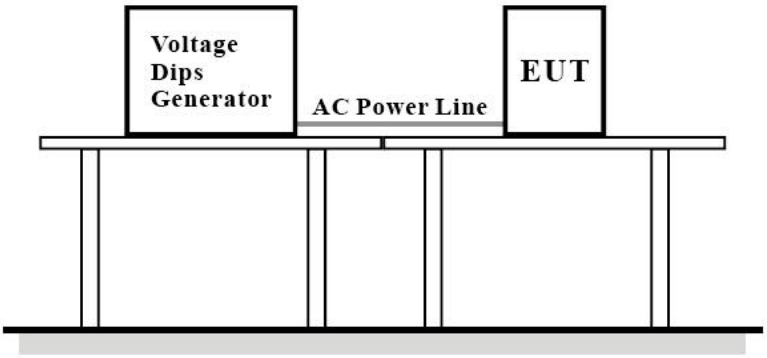
Not applicable to Portable equipment.

15. Voltage Dips And Interruptions (DIPS)

15.1. Test Specification

Test Port	:	input a.c. power port
Phase Angle	:	0°, 180°
Test cycle	:	3 times

15.2. Block Diagram of EUT Test Setup



15.3. Test Procedure

a. The Product and support units were located on a non-conductive table above ground floor.

b. Set the parameter of tests and then perform the test software of test simulator.

c. Conditions changes to occur at 0 degree crossover point of the voltage waveform.

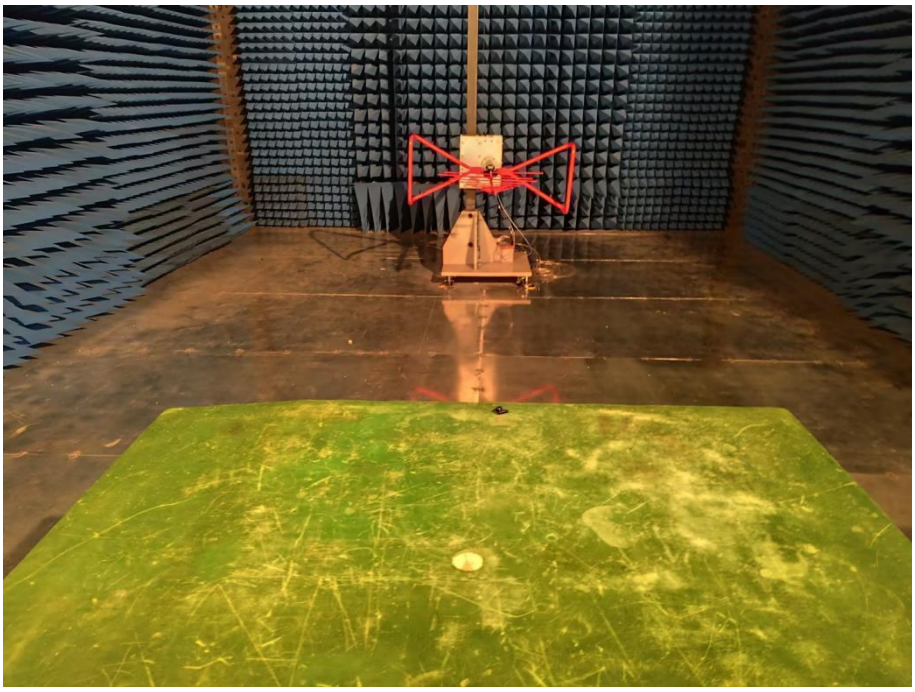
15.4. Test Result

N/A

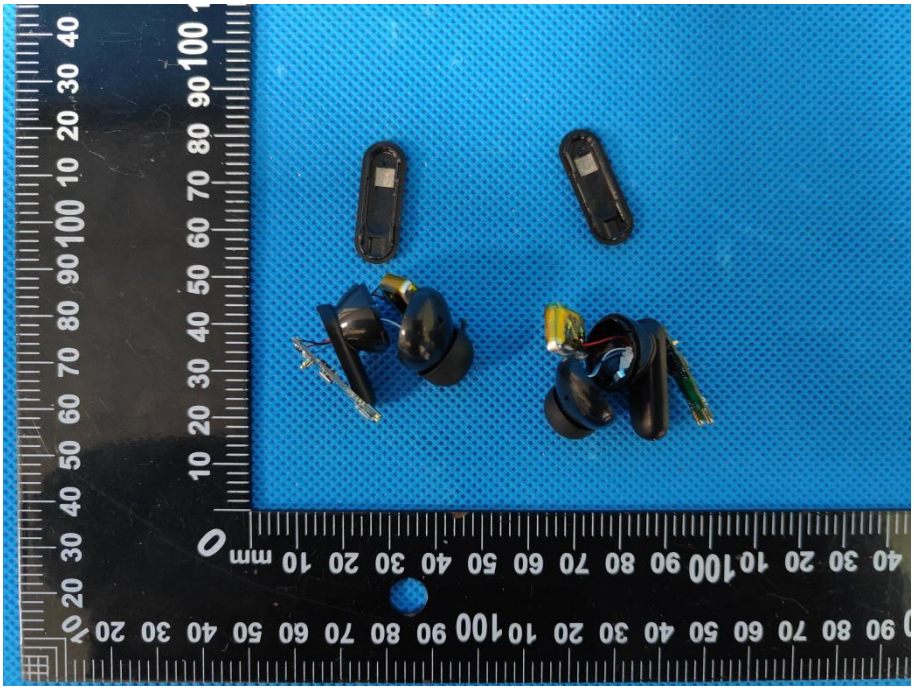
Not applicable to Portable equipment.

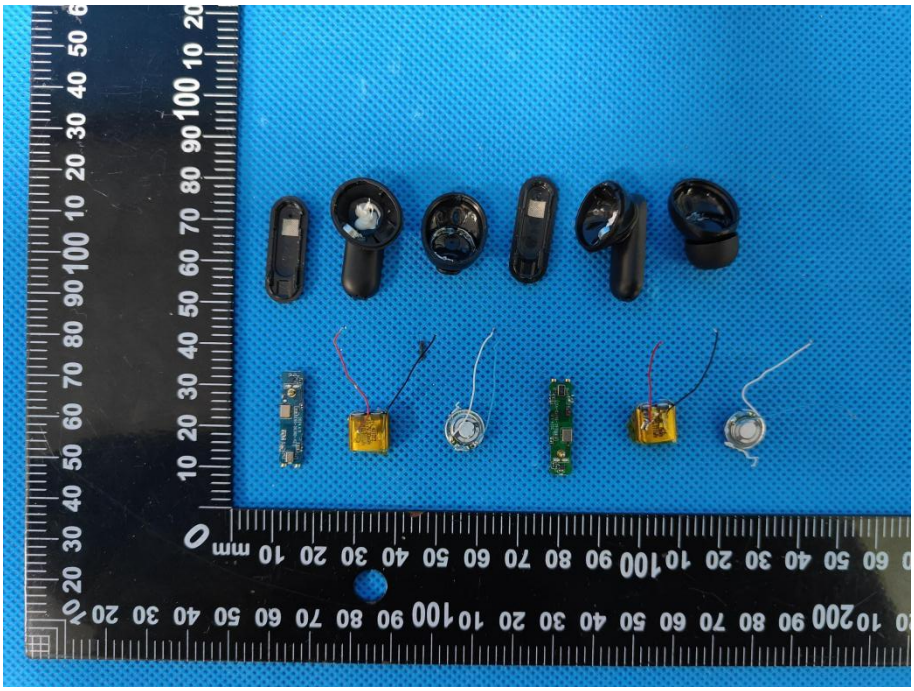
16. Photos Of Test Setup

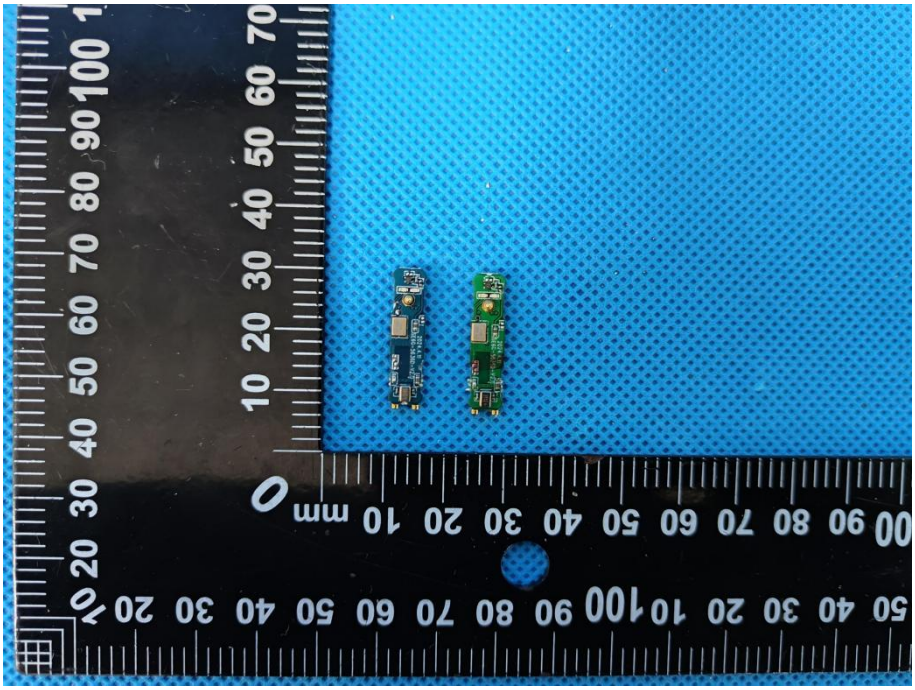
RE

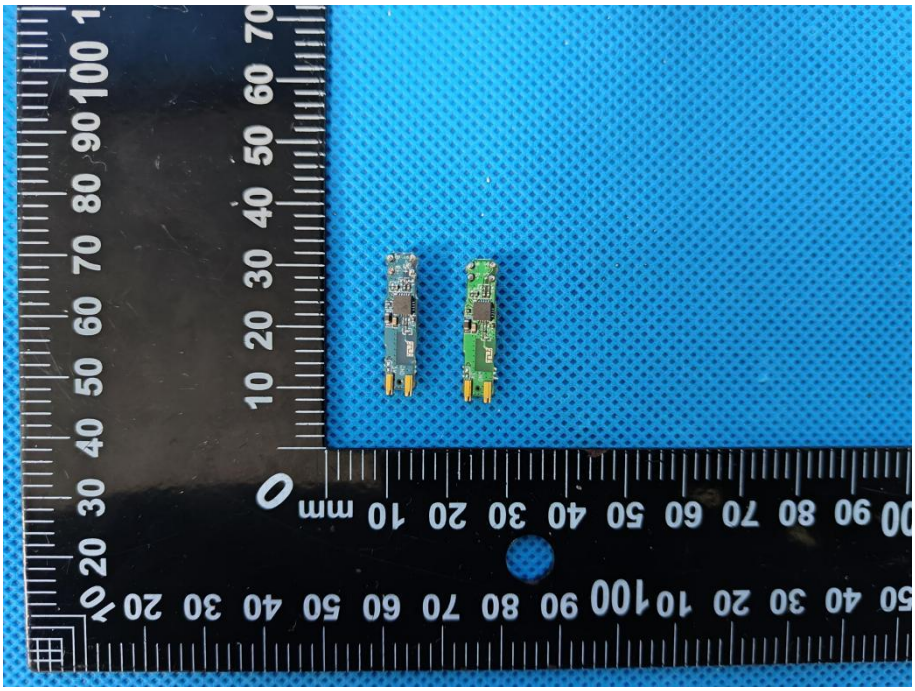


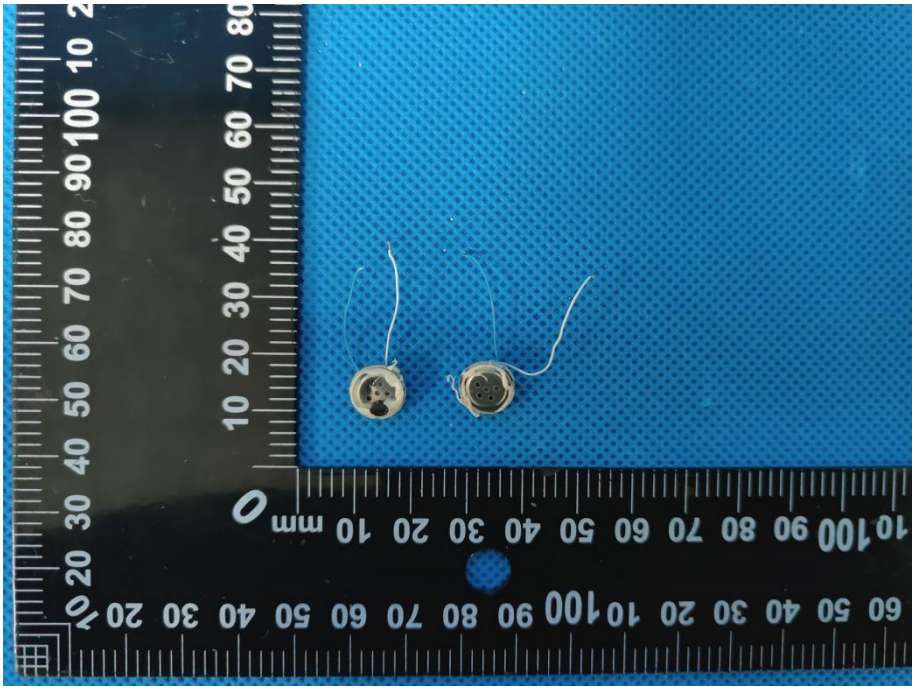
17. EUT Photographs

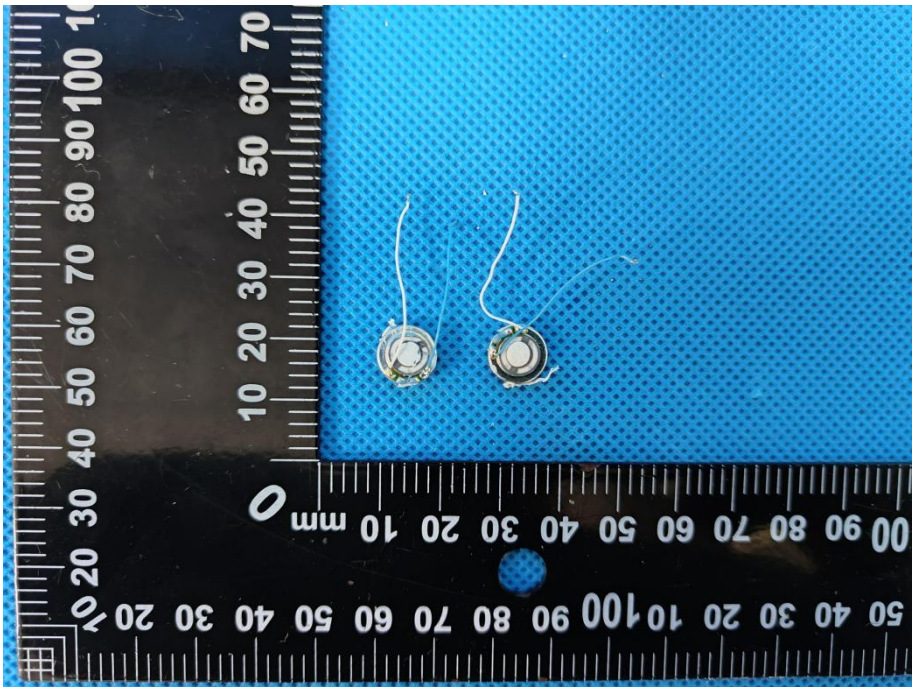


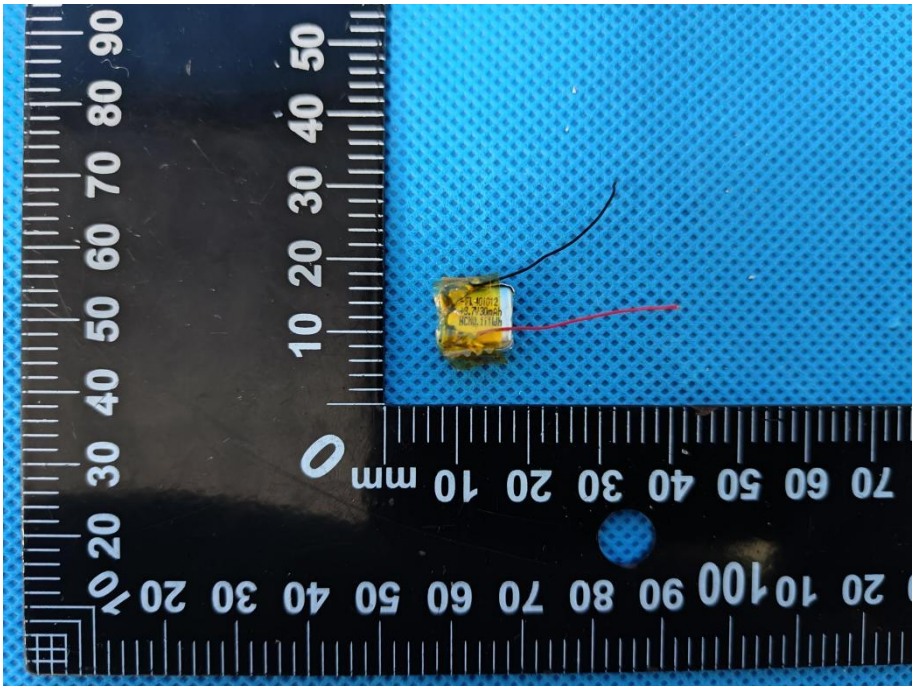


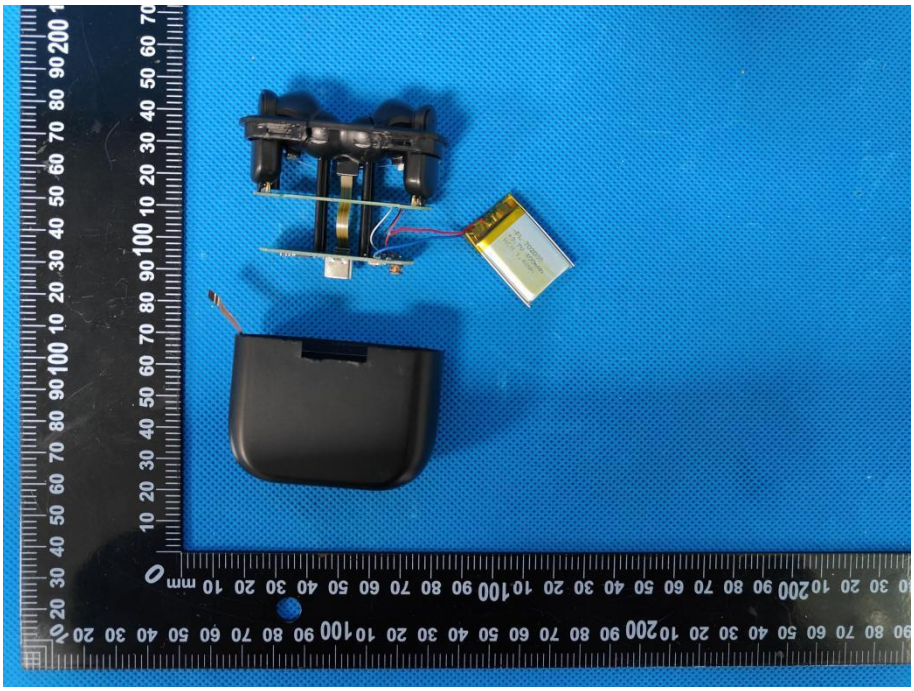


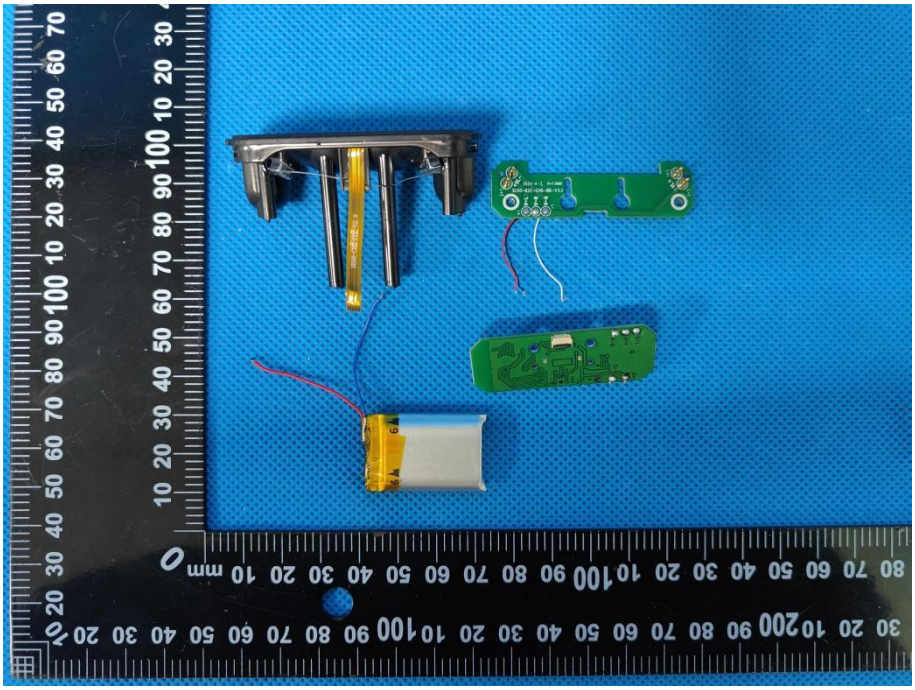


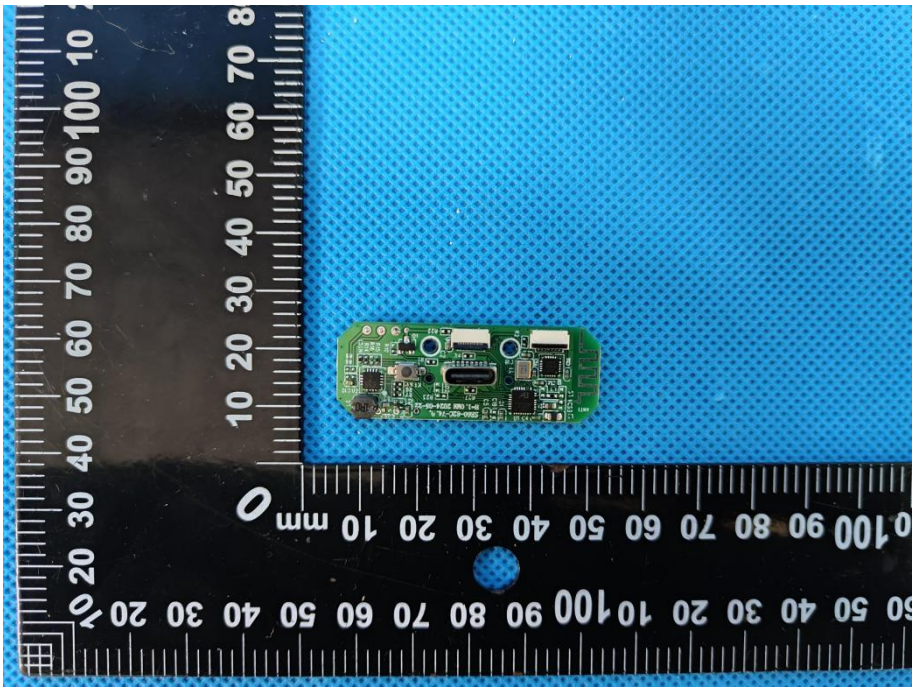


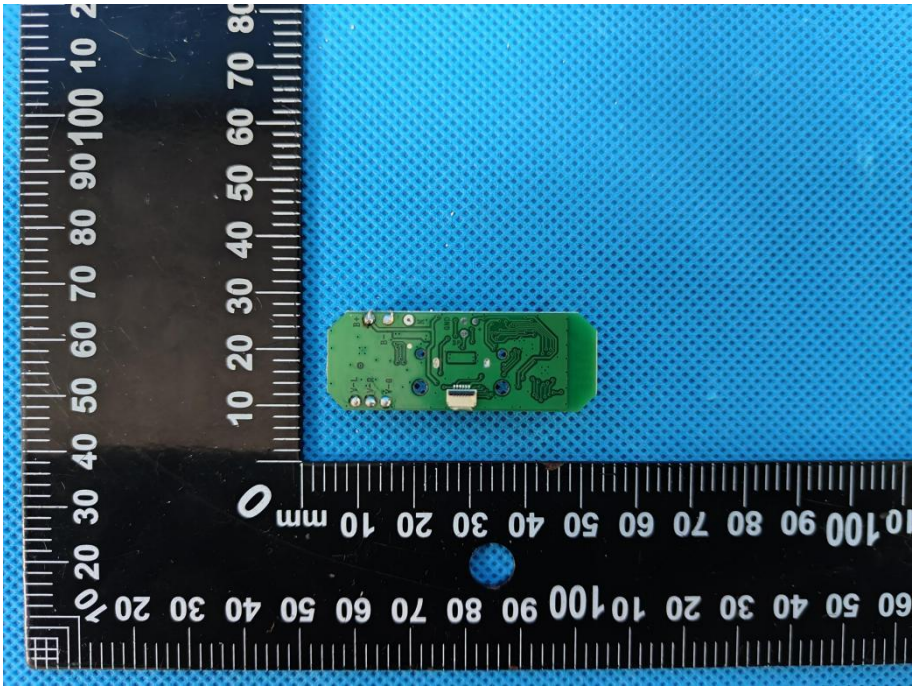


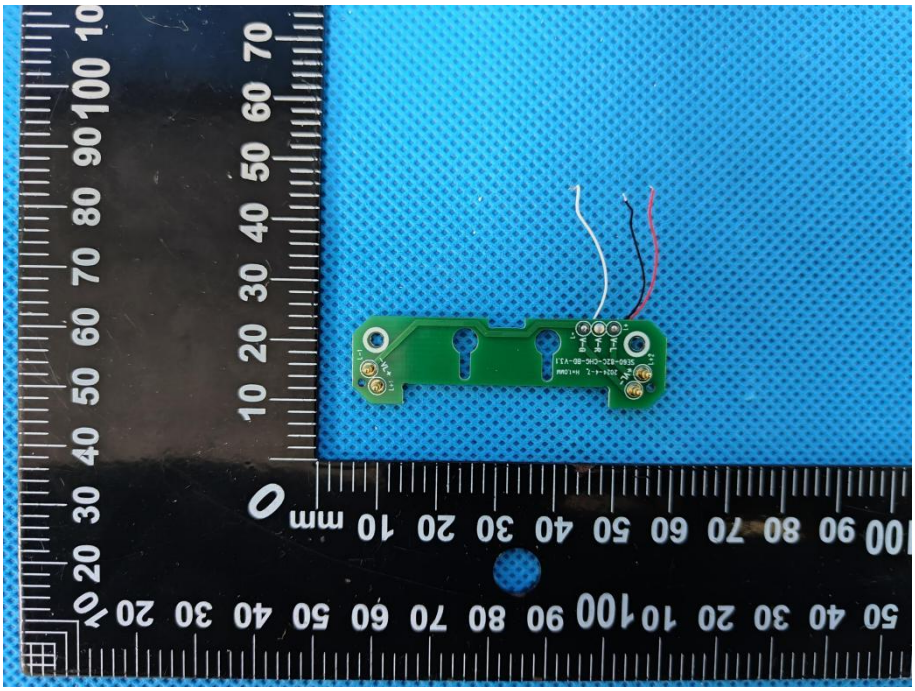


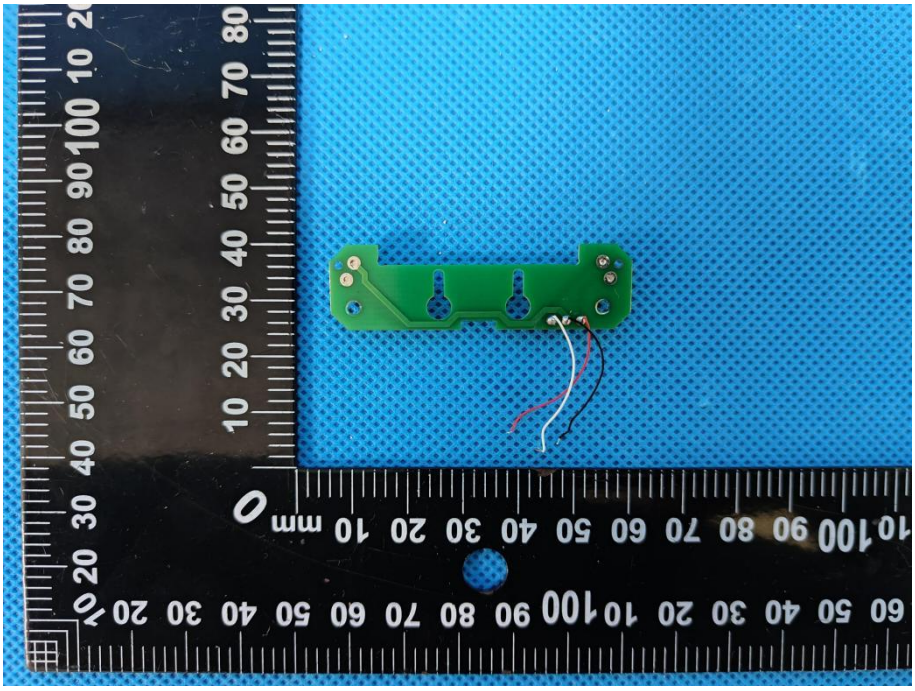


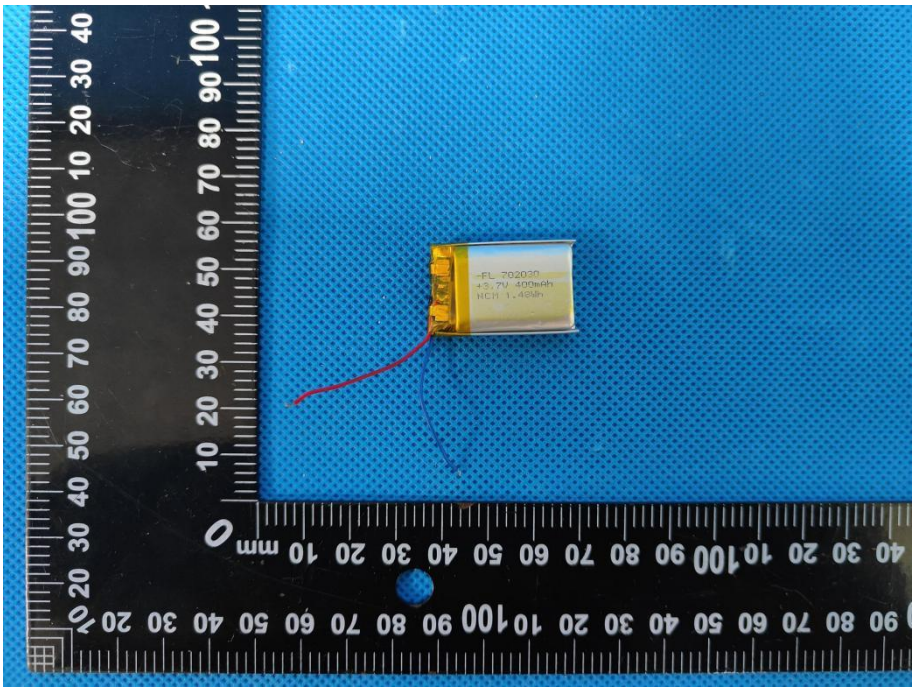












End of report