

Shenzhen ZKT Technology Co., Ltd.  
 1/F, No. 101, Building B, No. 6, Tangwei Community Industrial  
 Avenue, Fuhai Street, Bao'an District, Shenzhen, China



# Certificate of Compliance

**Certificate Number: ZKT-240906L11268C**

**Certificate's Holder** : Shenzhen Little Black Technology Electronics Co., Ltd.  
 Building A2, Jutebu No.3 Industrial Zone, Jutebu Community,  
 Hangcheng Street, Baoan District, Shenzhen  
**Manufacturer** : Shenzhen Little Black Technology Electronics Co., Ltd.  
 Building A2, Jutebu No.3 Industrial Zone, Jutebu Community,  
 Hangcheng Street, Baoan District, Shenzhen  
**Trade Mark** : /  
**Product** : Magnets Hand Warmers  
**Model(s)** : A401  
**Test Standard** : EN IEC 55014-1:2021  
 EN IEC 55014-2:2021,  
 EN IEC 61000-3-2:2019 + A1:2021 + A2:2024  
 EN 61000-3-3:2013 + A1:2019 + A2:2021

This Attestation of Compliance is issued on a voluntary basis for electrical equipment below the voltage limits of EMC Directive 2014/30/EU. The essential requirements are fulfilled accordingly based on the technical specifications applicable at the time of issuance. It is only valid in connection with the test report. See also notes overleaf. It is only valid in connection with the test report number: ZKT-240906L11268E.



This Certificate of Conformity is based on single evaluation of the submitted sample(s) of the above mentioned product. It does not imply an assessment of the whole product and relevant . Directives to be observed.

Shenzhen ZKT Technology Co., Ltd.  
1/F, No. 101, Building B, No. 6, Tangwei Community Industrial  
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# Certificate of Compliance

Certificate Number: ZKT-240906L11269C

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Building A2, Jutebu No.3 Industrial Zone, Jutebu Community,  
Hangcheng Street, Baoan District, Shenzhen

Manufacturer : Shenzhen Little Black Technology Electronics Co., Ltd.  
Building A2, Jutebu No.3 Industrial Zone, Jutebu Community,  
Hangcheng Street, Baoan District, Shenzhen

Trade Mark : /

Product : Magnets Hand Warmers

Model(s) : A401

Test Standard : EN 62321-5:2014  
EN 62321-4:2014/A1:2017  
EN 62321-1:2013

The following products have been tested by us and found in conformity with the (RoHS)Directive 2011/65/EU Annex II amending Annex (EU)2015/863 and amending Annex (EU)2017/2102. It is possible to use CE Marking to demonstrate the conformity with this Directive. It is only valid in connection with the test report number: ZKT-240906L11269R.

# RoHS



This Certificate of Conformity is based on single evaluation of the submitted sample(s) of the above mentioned product. It does not imply an assessment of the whole product and relevant Directives to be observed.

Shenzhen ZKT Technology Co., Ltd.  
1/F, No. 101, Building B, No. 6, Tangwei Community Industrial  
Avenue, Fuhai Street, Bao'an District, Shenzhen, China



## SUPPLIER'S DECLARATION OF CONFORMITY

**Certificate Number: ZKT-240906L11270C**

**Certificate's Holder** : Shenzhen Little Black Technology Electronics Co., Ltd.  
Building A2, Jutebu No.3 Industrial Zone, Jutebu Community,  
Hangcheng Street, Baoan District, Shenzhen

**Manufacturer** : Shenzhen Little Black Technology Electronics Co., Ltd.  
Building A2, Jutebu No.3 Industrial Zone, Jutebu Community,  
Hangcheng Street, Baoan District, Shenzhen

**Trade Mark** : /

**Product** : Magnets Hand Warmers

**Model(s)** : A401

**Test Standard** : 47CFR Part 15 Subpart B  
ANSI C63.4:2014

This Attestation of Compliance is issued on a voluntary basis for electrical equipment below the voltage limits of FCC standard. The essential requirements are fulfilled accordingly based on the technical specifications applicable at the time of issuance. See also notes overleaf. It is only valid in connection with the test report number: ZKT-240906L11270E.



This SDOC is based on single evaluation of the submitted sample(s) of the above mentioned product. It does not imply an assessment of the whole product and relevant Directives to be observed.



# TEST REPORT

<b>Report Number</b> .....	<b>ZKT-240906L11268E</b>
Date of Test.....	Sept. 02, 2024 - Sept. 06, 2024
Date of issue.....	Sept. 06, 2024
Total number of pages.....	38
Test Result .....	PASS
<b>Testing Laboratory</b> .....	<b>Shenzhen ZKT Technology Co., Ltd.</b>
Address .....	1/F, No. 101, Building B, No. 6, Tangwei Community Industrial Avenue, Fuhai Street, Bao'an District, Shenzhen, China
<b>Applicant's name</b> .....	<b>Shenzhen Little Black Technology Electronics Co., Ltd.</b>
Address .....	Building A2, Jutebu No.3 Industrial Zone, Jutebu Community, Hangcheng Street, Baoan District, Shenzhen
<b>Manufacturer's name</b> .....	<b>Shenzhen Little Black Technology Electronics Co., Ltd.</b>
Address .....	Building A2, Jutebu No.3 Industrial Zone, Jutebu Community, Hangcheng Street, Baoan District, Shenzhen
<b>Test specification:</b>	
Standard.....	EN IEC 55014-1:2021 EN IEC 55014-2:2021, EN IEC 61000-3-2:2019 + A1:2021 + A2:2024 EN 61000-3-3:2013 + A1:2019 + A2:2021
Test procedure.....	/
Non-standard test method .....	/
This device described above has been tested by ZKT, and the test results show that the equipment under test (EUT) is in compliance with the 2014/30/EU Directive requirements. And it is applicable only to the tested sample identified in the report. This report shall not be reproduced except in full, without the written approval of ZKT, this document may be altered or revised by ZKT, personal only, and shall be noted in the revision of the document.	
<b>Product name</b> .....	Magnets Hand Warmers
Trademark .....	/
Model/Type reference.....	A401
Ratings.....	Input: 5 V $\overline{=}$ 1 A, 3.7 V $\overline{=}$ powered by battery



**Testing procedure and testing location:**

**Testing Laboratory**.....: **Shenzhen ZKT Technology Co., Ltd.**  
**Address**.....: 1/F, No. 101, Building B, No. 6, Tangwei Community  
Industrial Avenue, Fuhai Street, Bao'an District,  
Shenzhen, China

**Tested by (name + signature)**.....: Jim Liu *Jim Liu*

**Reviewer (name + signature)**.....: Tom Zou *Tom Zou*

**Approved (name + signature)**.....: Lake Xie *Lake Xie*





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## 1. VERSION

Report No.	Version	Description	Approved
ZKT-240906L11268E	Rev.01	Initial issue of report	Sept. 06, 2024



## 2. GENERAL INFORMATION

### 2.1 Description of Device (EUT)

EUT:	Magnets Hand Warmers
Model Number:	A401
Model Difference:	/
Power Supply:	Input: 5 V <sub>DC</sub> 1 A, 3.7 V <sub>DC</sub> powered by battery
Highest Frequency Generated:	Below 15 MHz

### Power Adapter

Product:	/
Model Name:	/
Rated Power Supply:	/
Normal Testing Voltage:	/
DC Line:	/
I/O Ports:	/

### 2.2 Other Accessory Device List and Details

Description	Manufacturer	Model	Note
AC Adapter	HUAWEI	HW-200500C00	AE
/	/	/	/

### 2.3 Test Facility

Site Description	:	
Name of Firm	:	Shenzhen ZKT Technology Co., Ltd.
Site Location	:	1/F, No. 101, Building B, No. 6, Tangwei Community Industrial Avenue, Fuhai Street, Bao'an District, Shenzhen, China



## 2.4 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 (150K-30MHZ)	3.20
Radiated disturbance30MHz-1000MHz	4.80

## 2.5 Test Instrument Used

### Conducted emissions Test

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Firmware Version	Last calibration	Calibrated until
1	LISN	R&S	ENV216	101471	N/A	Nov. 14, 2023	Nov. 13, 2024
2	LISN	CYBERTEK	EM5040A	E1850400149	N/A	Nov. 02, 2023	Nov. 01, 2024
3	Test Cable	N/A	C-01	N/A	N/A	Nov. 02, 2023	Nov. 01, 2024
4	Test Cable	N/A	C-02	N/A	N/A	Nov. 02, 2023	Nov. 01, 2024
5	Test Cable	N/A	C-03	N/A	N/A	Nov. 02, 2023	Nov. 01, 2024
6	EMI Test Receiver	R&S	ESCI3	101393	4.42 SP3	Nov. 02, 2023	Nov. 01, 2024
7	Triple-Loop Antenna	N/A	RF300	N/A	N/A	Nov. 02, 2023	Nov. 01, 2024
8	Absorbing Clamp	DZ	ZN23201	15034	N/A	Nov. 07, 2023	Nov. 06, 2024
9	EMC Software	Frad	EZ-EMC	Ver.EMC-CO N 3A1.1	N/A	\	\

### Radiation emissions& Radio Test equipment

Item	Equipment	Manufacturer	Type No.	Serial No.	Firmware Version	Last calibration	Calibrated until
1	EMI Test Receiver (9kHz-7GHz)	R&S	ESCI7	100969	4.32	Nov. 02, 2023	Nov. 01, 2024
2	Bilog Antenna (30MHz-1500MHz)	Schwarzbeck	VULB9168	N/A	N/A	Nov. 13, 2023	Nov. 12, 2024
3	Horn Antenna (1GHz-18GHz)	Agilent	AH-118	071145	N/A	Nov. 13, 2023	Nov. 12, 2024
4	Horn Antenna (15GHz-40GHz)	A.H.System	SAS-574	588	N/A	Nov. 13, 2023	Nov. 12, 2024
5	Loop Antenna	TESEQ	HLA6121	58357	N/A	Nov. 16, 2023	Nov. 15, 2024
6	Amplifier (30-1000MHz)	EM Electronics	EM330 Amplifier	60747	N/A	Nov. 02, 2023	Nov. 01, 2024
7	Amplifier (1GHz-26.5GHz)	HuiPu	8449B	3008A00315	N/A	Nov. 02, 2023	Nov. 01, 2024
8	Amplifier	QuanJuDa	DLE-161	097	N/A	Nov. 02, 2023	Nov. 01, 2024



	(500MHz-40GHz)						
9	Test Cable	N/A	R-01	N/A	N/A	Nov. 02, 2023	Nov. 01, 2024
10	Test Cable	N/A	R-02	N/A	N/A	Nov. 02, 2023	Nov. 01, 2024
11	Antenna tower	MF	MF-7802BS	N/A	N/A	\	\

### Harmonic / Flicker Test

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Firmware Version	Last calibration	Calibrated until
1	Harmonic & Flicker	HTEC Instruments	AC2000A	548549	1.21	Nov. 02, 2023	Nov. 01, 2024
2	AC Power Source	/	HPHF4010	JN1022090795	DAL40	Nov. 02, 2023	Nov. 01, 2024

### Electrostatic discharge Test

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Firmware Version	Last calibration	Calibrated until
1	ESD TEST GENERATOR	HTEC	HESD16	N/A	004307	Nov. 08, 2023	Nov. 07, 2024

### EFT and Surge and Voltage dips and interruptions Test

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Firmware Version	Last calibration	Calibrated until
1	Surge Generator	HTEC	HCOMPACT5	N/A	V1.3.4	Nov. 02, 2023	Nov. 01, 2024
2	DIPS Generator	HTEC	HV1P16T	202101	V1.3.4	Nov. 02, 2023	Nov. 01, 2024
3	EFT/B Generator	HTEC	HCOMPACT5	N/A	V1.3.4	Nov. 02, 2023	Nov. 01, 2024
4	EFT/B Clamp	HTEC	H3C	N/A	N/A	Nov. 02, 2023	Nov. 01, 2024

### For Magnetic Field Immunity Test

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Firmware Version	Last calibration	Calibrated until
1	Generator	HTEC	HFMG 100	202602	V2.1-182802	Nov. 02, 2023	Nov. 01, 2024

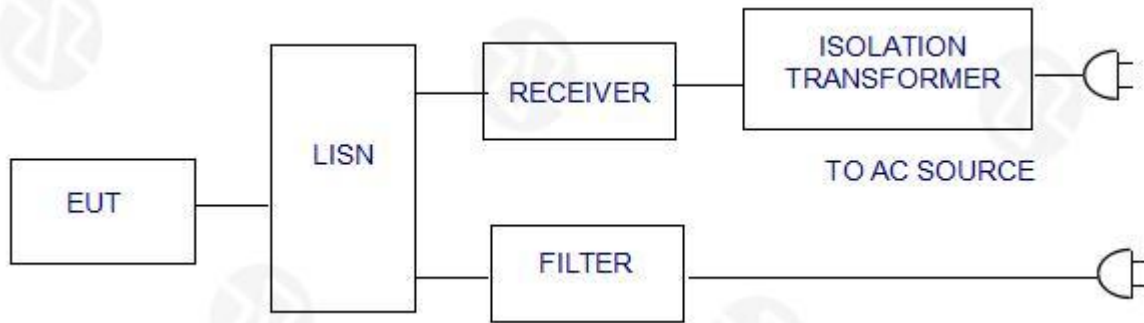
### Radio-frequency fields Immunity Test

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Firmware Version	Last calibration	Calibrated until
1	Signal Generator	TESEQ	NSG4070-75	31477	V1.30	Nov. 02, 2023	Nov. 01, 2024
2	CDN	SCHWARZBECK	CDN M2/M3PE16A	00128	N/A	Nov. 02, 2023	Nov. 01, 2024
3	Attenuator	GuoRenTongXin	SGR-SJQ-6dB-DC-3	N/A	N/A	Nov. 02, 2023	Nov. 01, 2024



### 3. CONDUCTED EMISSION AT THE MAINS TERMINALS TEST

#### 3.1 Block Diagram Of Test Setup



#### 3.2 Test Standard

EN IEC 55014-1:2021

#### 3.3 Power Line Conducted Emission Limit

Frequency MHZ	Limits dB(μV)	
	Quasi-peak Level	Average Level
0.15 ~ 0.50	66 ~ 56*	59 ~ 46*
0.50 ~ 5.00	56	46
5.00 ~ 30.00	60	50

Notes: 1. \*Decreasing linearly with logarithm of frequency.  
2. The lower limit shall apply at the transition frequencies.

#### 3.4 EUT Configuration on Test

The following equipments are installed on conducted emission test to meet EN 55014-1 requirement and operating in a manner which tends to maximize its emission characteristics in a normal application.

#### 3.5 Operating Condition of EUT

- 3.5.1 Setup the EUT and simulators as shown in Section 3.1.
- 3.5.2 Turn on the power of all equipments.
- 3.5.3 Let the EUT work in test modes and test it.

#### 3.6 Test Procedure

The EUT is put on the ground and connected to the AC mains through a Artificial Mains Network (AMN). This provided a 50ohm coupling impedance for the tested equipments. Both sides of AC line are checked to find out the maximum conducted emission levels according to the **EN IEC 55014-1** regulations during conducted emission test.

The bandwidth of the test receiver (R&S Test Receiver ESCI) is set at 10KHz.

The frequency range from 150 KHz to 30 MHz is investigated.

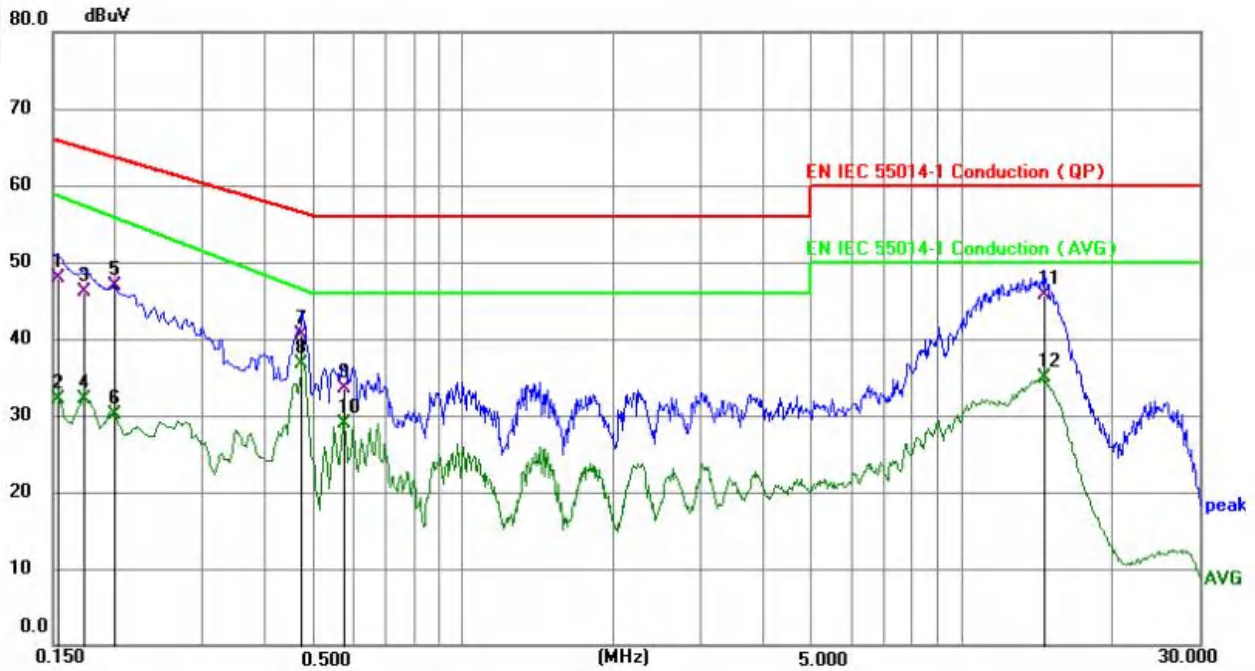
#### 3.7 Test Result

Pass

Please refer to the following page.Only the Worst-case test mode is shown in the report.



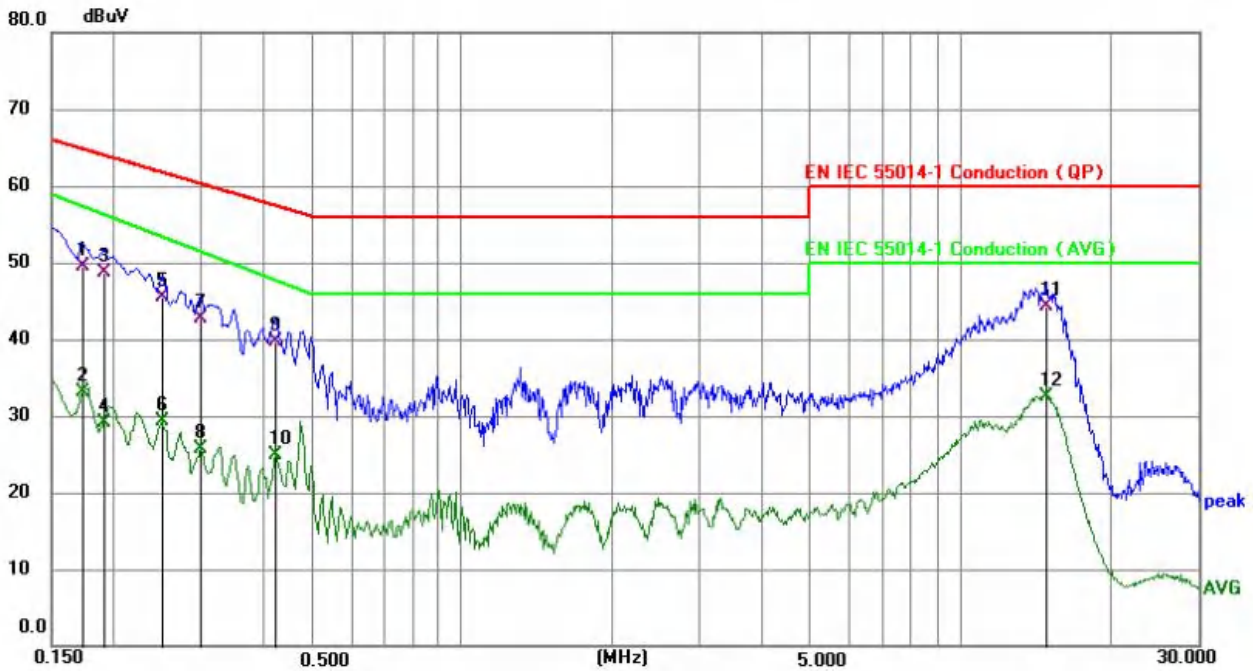
Conducted Emission At The Mains Terminals Test Data			
Temperature:	23.8°C	Relative Humidity:	54%
Pressure:	1014hPa	Phase :	Live
Test Voltage :	AC 230V/50Hz	Test Mode:	Charging mode



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1532	37.95	9.89	47.84	65.82	-17.98	QP	P	
2	0.1532	22.30	9.89	32.19	58.77	-26.58	AVG	P	
3	0.1724	36.11	9.90	46.01	64.84	-18.83	QP	P	
4	0.1724	22.21	9.90	32.11	57.50	-25.39	AVG	P	
5	0.1995	36.98	9.91	46.89	63.63	-16.74	QP	P	
6	0.1995	20.17	9.91	30.08	55.92	-25.84	AVG	P	
7	0.4740	30.54	10.01	40.55	56.44	-15.89	QP	P	
8 *	0.4740	26.71	10.01	36.72	46.58	-9.86	AVG	P	
9	0.5775	23.53	10.03	33.56	56.00	-22.44	QP	P	
10	0.5775	18.83	10.03	28.86	46.00	-17.14	AVG	P	
11	14.6445	35.57	10.09	45.66	60.00	-14.34	QP	P	
12	14.6445	24.72	10.09	34.81	50.00	-15.19	AVG	P	



Conducted Emission At The Mains Terminals Test Data			
Temperature:	23.8°C	Relative Humidity:	54%
Pressure:	1014hPa	Phase :	Neutral
Test Voltage :	AC 230V/50Hz	Test Mode:	Charging mode



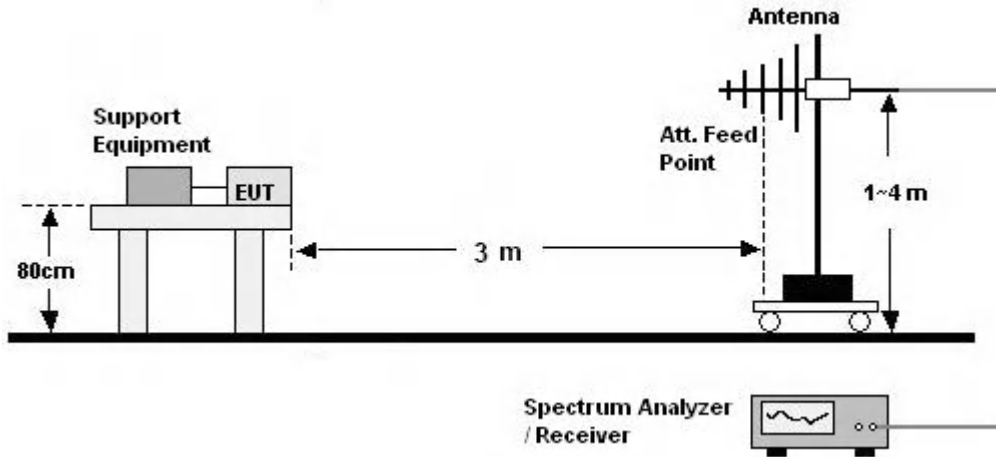
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1 *	0.1724	39.67	9.90	49.57	64.84	-15.27	QP	P	
2	0.1724	23.14	9.90	33.04	57.50	-24.46	AVG	P	
3	0.1905	38.72	9.91	48.63	64.01	-15.38	QP	P	
4	0.1905	19.16	9.91	29.07	56.42	-27.35	AVG	P	
5	0.2490	35.51	9.93	45.44	61.79	-16.35	QP	P	
6	0.2490	19.30	9.93	29.23	53.53	-24.30	AVG	P	
7	0.2983	32.78	9.95	42.73	60.29	-17.56	QP	P	
8	0.2983	15.77	9.95	25.72	51.58	-25.86	AVG	P	
9	0.4200	29.73	9.99	39.72	57.45	-17.73	QP	P	
10	0.4200	14.85	9.99	24.84	47.88	-23.04	AVG	P	
11	14.8650	34.16	10.09	44.25	60.00	-15.75	QP	P	
12	14.8650	22.34	10.09	32.43	50.00	-17.57	AVG	P	



## 4. RADIATED EMISSIONS TEST

### 4.1 Block Diagram Of Test Setup

30MHz ~ 1GHz:



### 4.2 Limits

Limits for radiated disturbance of Class B MME

Frequency (MHz)	Quasi-peak limits at 3m dB( $\mu$ V/m)
30-230	40
230-1000	47

### 4.3 Test Procedure

30MHz ~ 1GHz:

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

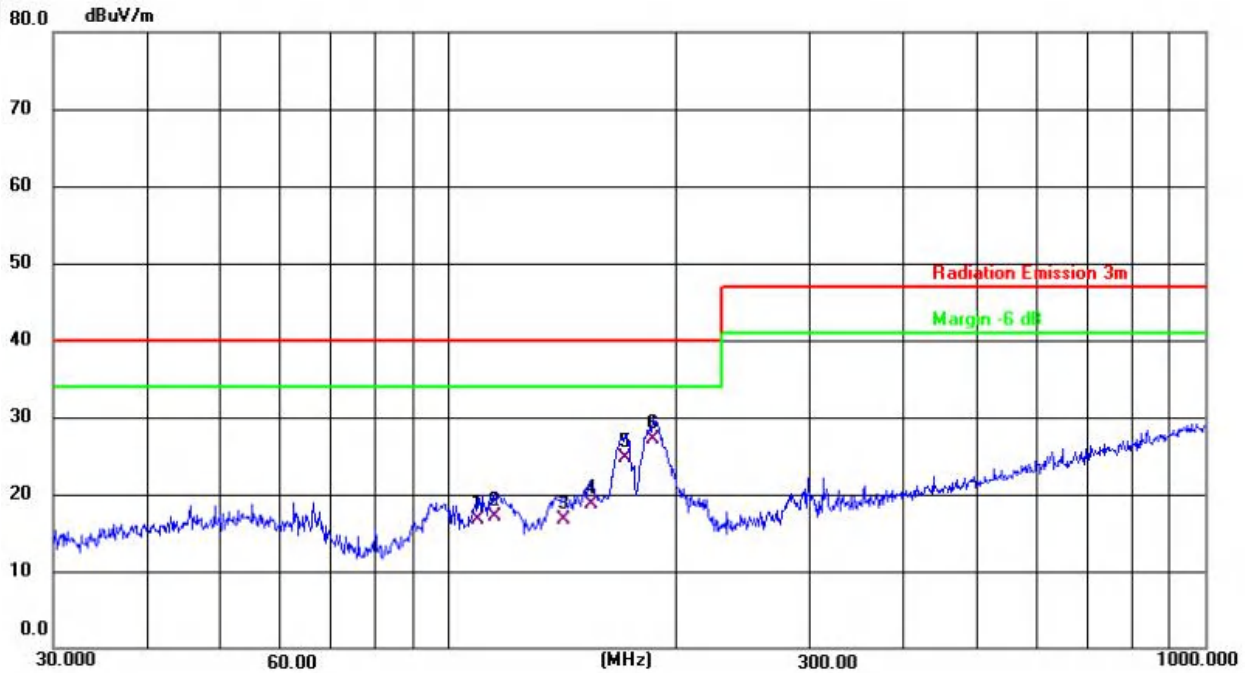
### 4.4 Test Results

Pass

Please refer to the following page. Only the Worst-case test mode is shown in the report.



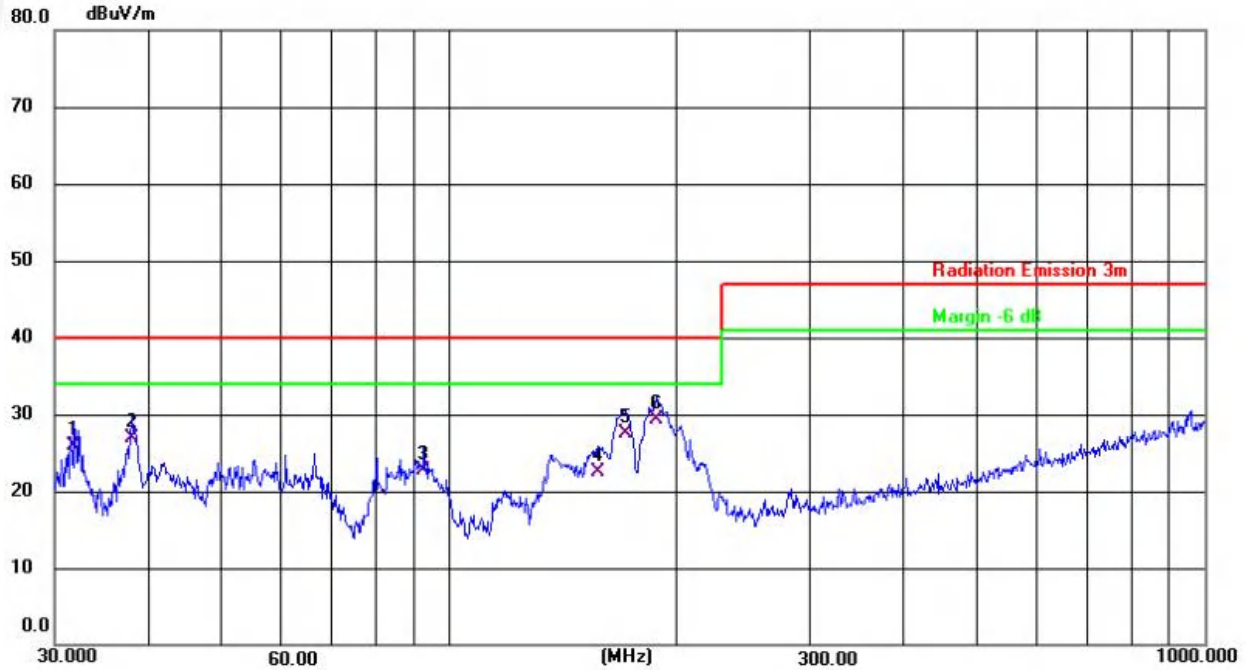
Radiated Emissions Test Data			
Temperature:	24.1°C	Relative Humidity:	54%
Pressure:	1014hPa	Polarization :	Horizontal
Test Voltage :	DC 3.7V	Test Model:	Charging mode



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	109.0286	28.58	-11.86	16.72	40.00	-23.28	QP			P	
2	114.9168	29.56	-12.46	17.10	40.00	-22.90	QP			P	
3	141.8262	30.50	-13.73	16.77	40.00	-23.23	QP			P	
4	154.2785	32.56	-13.77	18.79	40.00	-21.21	QP			P	
5	170.7926	37.56	-12.85	24.71	40.00	-15.29	QP			P	
6 *	186.4408	38.95	-11.87	27.08	40.00	-12.92	QP			P	



Radiated Emissions Test Data			
Temperature:	24.1°C	Relative Humidity:	54%
Pressure:	1014hPa	Polarization :	Vertical
Test Voltage :	DC 3.7V	Test Model:	Charging mode

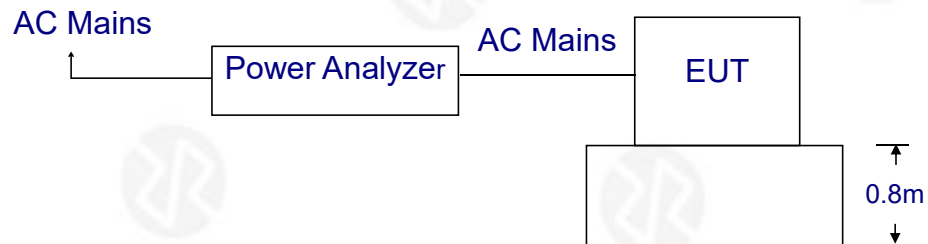


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	31.8427	37.04	-11.13	25.91	40.00	-14.09	QP			P	
2	37.9450	36.86	-10.05	26.81	40.00	-13.19	QP			P	
3	92.4624	34.81	-12.14	22.67	40.00	-17.33	QP			P	
4	157.0073	36.20	-13.62	22.58	40.00	-17.42	QP			P	
5	170.7926	40.31	-12.85	27.46	40.00	-12.54	QP			P	
6 *	187.7530	41.17	-11.78	29.39	40.00	-10.61	QP			P	



## 5. HARMONIC CURRENT EMISSION TEST

### 5.1 Block Diagram of Test Setup



### 5.2 Test Standard

EN IEC 61000-3-2:2019/A1:2021

### 5.3 Operating Condition of EUT

- 5.3.1 Setup the EUT as shown in Section 5.1.
- 5.3.2 Turn on the power of all equipments.
- 5.3.3 Let the EUT work in test mode and test it.

### 5.4 Test Procedure

The power cord of the EUT is connected to the output of the test system. Turn on the power of the EUT and use the test system to test the harmonic current level.

### 5.5 Test Results

**N/A**

This product is not defined as lighting equipment, and has rated power less than 75W, therefore, no limit applies according to EN IEC 61000-3-2



## 6. VOLTAGE FLUCTUATIONS & FLICKER TEST

### 6.1 Block Diagram of Test Setup

Same as Section 6.1.

### 6.2 Test Standard

EN 61000-3-3:2013/A2:2021

### 6.3 Operating Condition of EUT

Same as Section 5.3.. The power cord of the EUT is connected to the output of the test system. Turn on the power of the EUT and use the test system to test the harmonic current level.

#### Flicker Test Limit

Test items	Limits
Pst	1.0
dc	3.3%
Tmax	4.0%
dt	Not exceed 3.3% for 500ms

### 6.4 Test Procedure

The power cord of the EUT is connected to the output of the test system. Turn on the power of the EUT and use the test system to test the harmonic current level.

### 6.5 Test Results

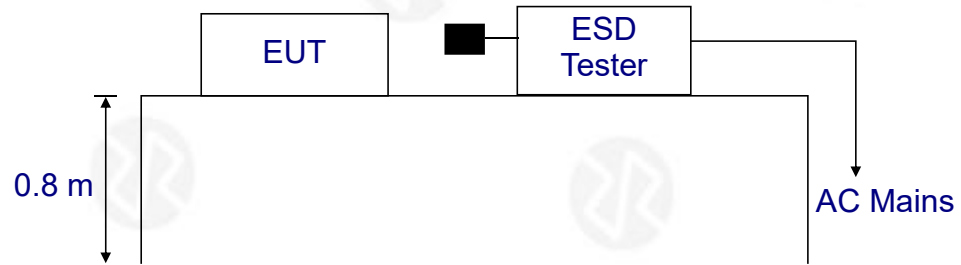
#### **PASS**

The EUT is unlikely to produce significant voltage fluctuations or flicker by technical analysis and evaluation. So it is deemed to fulfil the requirements without testing.



## 7. ELECTROSTATIC DISCHARGE IMMUNITY TEST

### 7.1 Block Diagram of Test Setup



### 7.2 Test Standard

EN IEC 55014-2:2021, EN 61000-4-2:2009

Severity Level: 3 / Air Discharge:  $\pm 8$  KV  
Level: 2 / Contact Discharge:  $\pm 4$  KV

### 7.3 Severity Levels and Performance Criterion

#### 7.3.1 Severity level

Level	Test Voltage Contact Discharge (KV)	Test Voltage Air Discharge (KV)
1.	$\pm 2$	$\pm 2$
2.	$\pm 4$	$\pm 4$
3.	$\pm 6$	$\pm 8$
4.	$\pm 8$	$\pm 15$
X	Special	Special

#### 7.3.2 Performance criterion : B

- A. The apparatus shall continue to operate as intended during the test. No degradation of performance or loss of function is allowed below a performance level (or permissible loss of performance) specified by the manufacturer, when the apparatus is used as i
- B. The apparatus shall continue to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level (or permissible loss of performance) specified by the manufacturer, when the apparatus is used as intended. During the test, degradation of performance is allowed, however, no change of actual operating state or stored data is allowed. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and from what the user may reasonably expect from the apparatus if used as intended.
- C. Temporary loss of function is allowed, provided the function is self-recoverable or can be restored by the operation of the controls, or by any operation specified in the instructions for use.



#### 7.4 EUT Configuration

The following equipments are installed on Electrostatic Discharge Immunity test to meet EN IEC 55014-2:2021, EN 61000-4-2:2009, requirement and operating in a manner which tends to maximize its emission characteristics in a normal application. The configuration of EUT is the same as used in conducted emission test. Please refer to Section 2.4.

#### 7.5 Operating Condition of EUT

Same as conducted emission measurement, which is listed in Section 3.5 except the test setup replaced by Section 7.1.2.

#### 7.6 Test Procedure

##### 8.6.1 Air Discharge:

This test is done on a non-conductive surface. The round discharge tip of the discharge electrode shall be approached as fast as possible to touch the EUT. After each discharge, the discharge electrode shall be removed from the EUT. The generator is then re-triggered for a new single discharge and repeated 10 times for each pre-selected test point. This procedure shall be repeated until all the air discharge completed.

##### 8.6.2 Contact Discharge:

All the procedure shall be same as Section 7.6.1. Except that the tip of the discharge electrode shall touch the EUT before the discharge switch is operated.

##### 7.6.3 Indirect discharge for horizontal coupling plane

At least 10 single discharges (in the most sensitive polarity) shall be applied at the front edge of each HCP opposite the center point of each unit (if applicable) of the EUT and 0.1m from the front of the EUT. The long axis of the discharge electrode shall be in the plane of the HCP and perpendicular to its front edge during the discharge.

##### 8.6.4 Indirect discharge for vertical coupling plane

At least 10 single discharges (in the most sensitive polarity) shall be applied to the center of one vertical edge of the coupling plane. The coupling plane, of dimensions 0.5m X 0.5m, is placed parallel to, and positioned at a distance of 0.1m from the EUT. Discharges shall be applied to the coupling plane, with this plane in sufficient different positions that the four faces of the EUT are complete illuminated.

#### 7.7 Test Results

PASS

Please refer to the following page.

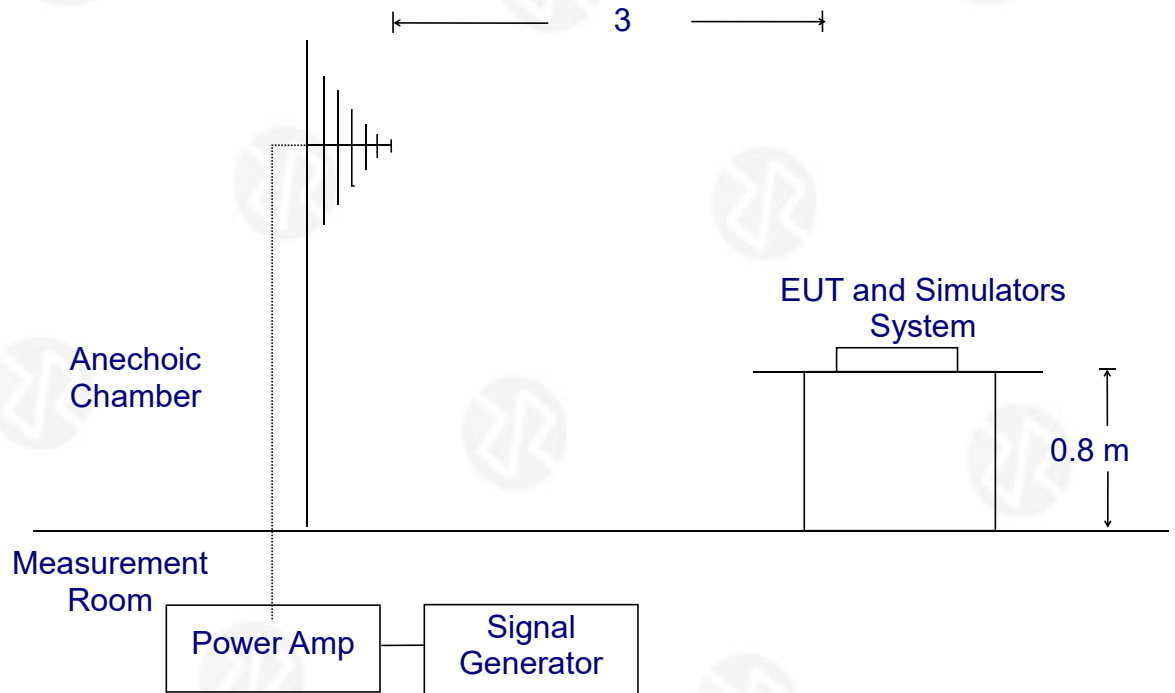


ESD Test Data				
Temperature:	26°C	Humidity:	52%	
Power Supply :	AC 230V/50Hz, DC 3.7 V	Test Mode:	Charging mode, Working mode	
Air Discharge: ± 8KV Contact Discharge: ± 4KV				
Test Points	Air Discharge	Contact Discharge	Performance Criterion	Result
Enclosure	±2,4,8KV	N/A	B	PASS
Slit	±2,4,8KV	N/A	B	PASS
Ports	N/A	±2,4 KV	B	PASS
VCP	N/A	±2,4 KV	B	PASS
HCP	N/A	±2,4 KV	B	PASS
Note: N/A				



## 8. RF FIELD STRENGTH SUSCEPTIBILITY TEST

### 8.1 Block Diagram of Test Setup



### 8.2 Test Standard

EN IEC 55014-2:2021,  
EN IEC 61000-4-3:2020  
Severity Level 2, 3V / m

### 8.3 Severity Levels and Performance Criterion

#### 8.3.1. Severity level

Level	Field Strength V/m
1.	1
2.	3
3.	10
X.	Special

#### 8.3.2. Performance criterion: A

- The apparatus shall continue to operate as intended during the test. No degradation of performance or loss of function is allowed below a performance level (or permissible loss of performance) specified by the manufacturer, when the apparatus is used as i
- The apparatus shall continue to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level (or permissible loss of performance) specified by the manufacturer, when the apparatus is used as intended.



During the test, degradation of performance is allowed, however, no change of actual operating state or stored data is allowed. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and from what the user may reasonably expect from the apparatus if used as intended.

- C. Temporary loss of function is allowed, provided the function is self-recoverable or can be restored by the operation of the controls, or by any operation specified in the instructions for use.

#### 8.4 EUT Configuration on Test

The following equipments are installed on Electrical Fast Transient/Burst Immunity test to meet EN IEC 55014-2:2021, EN 61000-4-4:2012, requirement and operating in a manner which tends to maximize its emission characteristics in a normal application. The configuration of EUT is the same as used in conducted emission test. Please refer to Section 3.4.

#### 8.5 Operating Condition of EUT

Same as conducted emission measurement, which is listed in Section 2.5 except the test setup replaced by Section 8.1.

#### 8.6 Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. EUT is set 3 meter away from the transmitting antenna which is mounted on an antenna tower. Both horizontal and vertical polarization of the antenna are set on test. Each of the four sides of EUT must be faced this transmitting antenna and measured individually.

All the scanning conditions are as follows :

Condition of Test	Remarks
1. Fielded Strength	3 V/m (Severity Level 2)
2. Radiated Signal	Modulated
3. Scanning Frequency	80 – 1000 MHz
4. Dwell time of radiated	0.0015 decade/s
5. Waiting Time	1 Sec.

#### 8.7 Test Results

PASS  
Please refer to the following page.



R/S Test Data			
Temperature : 24.1℃		Humidity : 52.2%	
Field Strength: 3 V/m		Criterion: A	
Power Supply: AC 230V/50Hz, DC 3.7 V		Frequency Range: 80 MHz to 1000 MHz	
Modulation: <input checked="" type="checkbox"/> AM <input type="checkbox"/> Pulse <input type="checkbox"/> none 1 KHz 80%			
Test Mode : Charging mode, Working mode			
Frequency Range : 80-1000MHz			
Steps	1 %		
	Horizontal	Vertical	Result
Front	A	A	PASS
Right	A	A	PASS
Rear	A	A	PASS
Left	A	A	PASS
Note:The EUT is the testing item(s) was (were) fulfilled by subcontracted lab SHENZHEN HAIYUN TESTING CO.,LTD			



## 9. ELECTRICAL FAST TRANSIENT/BURST IMMUNITY TEST

### 9.1 Block Diagram of EUT Test Setup



### 9.2 Test Standard

EN IEC 55014-2:2021, EN 61000-4-4:2012

### 9.3 Severity Levels and Performance Criterion

Severity Level 2 at 1KV, Pulse Rise time & Duration: 5 nS / 50 nS

Severity Level:

Open Circuit Output Test Voltage $\pm 10\%$		
Level	On power ports	On I/O(Input/Output) Signal data and control ports
1.	0.5KV	0.25KV
2.	1KV	0.5KV
3.	2KV	1KV
4.	4KV	2KV
X.	Special	Special

#### Performance criterion: B

- A. The apparatus shall continue to operate as intended during the test. No degradation of performance or loss of function is allowed below a performance level (or permissible loss of performance) specified by the manufacturer, when the apparatus is used as i
- B. The apparatus shall continue to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level (or permissible loss of performance) specified by the manufacturer, when the apparatus is used as intended. During the test, degradation of performance is allowed, however, no change of actual operating state or stored data is allowed. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and from what the user may reasonably expect from the apparatus if used as intended.
- C. Temporary loss of function is allowed, provided the function is self- recoverable or can be restored by the operation of the controls, or by any operation specified in the instructions for use.



#### 9.4 EUT Configuration on Test

The following equipments are installed on Electrical Fast Transient/Burst Immunity test to meet EN IEC 55014-2:2021, EN 61000-4-4:2012, requirement and operating in a manner which tends to maximize its emission characteristics in a normal application. The configuration of EUT is the same as used in conducted emission test. Please refer to Section 3.4.

#### 9.5 Operating Condition of EUT

Same as conducted emission measurement, which is listed in Section 2.6 except the test setup replaced by Section 9.1.

#### 9.6 Test Procedure

EUT shall be placed 0.8m high above the ground reference plane which is a min.1m\*1m metallic sheet with 0.65mm minimum thickness. This reference ground plane shall project beyond the EUT by at least 0.1m on all sides and the minimum distance between EUT and all other conductive structure, except the ground plane beneath the EUT, shall be more than 0.5m

10.6.1. For input and output AC power ports:

The EUT is connected to the power mains by using a coupling device which couples the EFT interference signal to AC power lines. Both polarities of the test voltage should be applied during compliance test and the duration of the test is 2 minutes.



9.7 Test Results

PASS

EFT Test Data				
Temperature:	26°C	Humidity:	52%	
Power Supply :	AC 230V/50Hz	Test Mode:	Charging mode	
Coupling Line	Test Voltage		Performance Criterion	Result
	±0.5kV	±1kV		
L	±0.5kV	±1kV	B	PASS
N	±0.5kV	±1kV	B	PASS
PE	±0.5kV	±1kV	B	PASS
L-N	±0.5kV	±1kV	B	PASS
L-PE	±0.5kV	±1kV	B	PASS
N-PE	±0.5kV	±1kV	B	PASS
L-N-PE	±0.5kV	±1kV	B	PASS
DC Line	/	/		/
Note: N/A				



## 10. SURGE TEST

### 10.1 Block Diagram of EUT Test Setup



### 10.2 Test Standard

EN IEC 55014-2:2021, EN 61000-4-5:2014+A1:2017

### 10.3 Severity Levels and Performance Criterion

Severity Level: Line to Line, Level 2 at 1KV;

Severity Level: Line to Earth, Level 3 at 2KV.

Severity Level	Open-Circuit Test Voltage (KV)
1.	0.5
2.	1.0
3.	2.0
4.	4.0
X.	Special

#### Performance criterion: B

- A. The apparatus shall continue to operate as intended during the test. No degradation of performance or loss of function is allowed below a performance level (or permissible loss of performance) specified by the manufacturer, when the apparatus is used as i
- B. The apparatus shall continue to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level (or permissible loss of performance) specified by the manufacturer, when the apparatus is used as intended. During the test, degradation of performance is allowed, however, no change of actual operating state or stored data is allowed. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and from what the user may reasonably expect from the apparatus if used as intended.
- C. Temporary loss of function is allowed, provided the function is self-recoverable or can be restored by the operation of the controls, or by any operation specified in the instructions for use.



#### 10.4 EUT Configuration on Test

The following equipments are installed on Electrical Fast Transient/Burst Immunity test to meet EN IEC 55014-2:2021, EN61000-4-5:2014, requirement and operating in a manner which tends to maximize its emission characteristics in a normal application

The configuration of EUT is the same as used in conducted emission test.  
Please refer to Section 3.4.

#### 10.5 Operating Condition of EUT

Same as conducted emission measurement, which is listed in Section 2.7 except the test setup replaced by Section 10.1.

#### 10.6 Test Procedure

- 1) Set up the EUT and test generator as shown on section 10.1
- 2) For line to line coupling mode, provide a 1KV 1.2/50us voltage surge (at open-circuit condition) and 8/20us current surge to EUT selected points.
- 3) At least 5 positive and 5 negative (polarity) tests with a maximum 1/min repetition rate are conducted during test.
- 4) Different phase angles are done individually.
- 5) Repeat procedure 2) to 4) except the open-circuit test voltage change from 1KV to 2KV for line to earth coupling mode test.
- 6) Record the EUT operating situation during compliance test and decide the EUT immunity criterion for above each test.

#### 10.7 Test Result

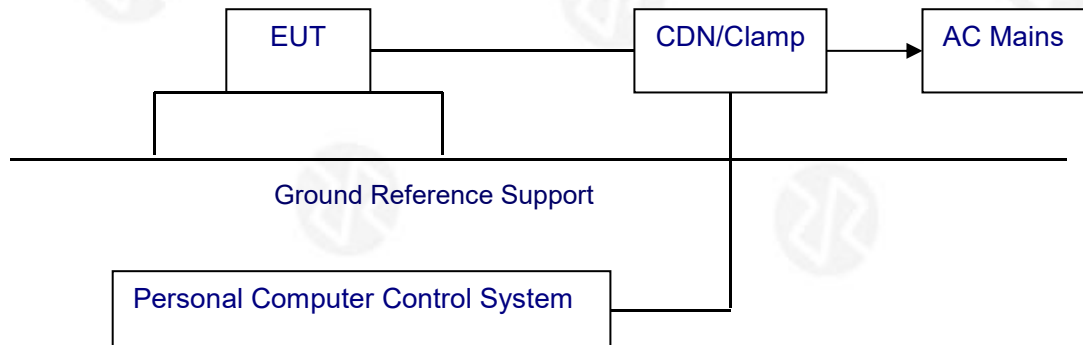
PASS

Surge Test Data						
Temperature:		26°C		Humidity:		52%
Power Supply:		AC 230V/50Hz		Test Mode:		Charging mode
Location	Polarity	Phase Angle	No of Pulse	Pulse Voltage (KV)	Performance Criterion	Result
L-N	±	90	5	1	B	PASS
	±	270	5	1		PASS
L-PE	±	90	5	2		PASS
	±	270	5	2		PASS
N-PE	±	90	5	2		PASS
	±	270	5	2		PASS
Note: N/A						



## 11. INJECTED CURRENTS SUSCEPTIBILITY TEST

### 11.1 Block Diagram of EUT Test Setup



### 11.2 Test Standard

EN IEC 55014-2:2021, EN61000-4-6:2014

### 11.3 Severity Levels and Performance Criterion

Severity Level 2: 3V( rms ), 150KHz ~ 80MHz

Severity Level:

Level	Field Strength V
1.	1
2.	3
3.	10
X.	Special

#### Performance criterion: A

- A. The apparatus shall continue to operate as intended during the test. No degradation of performance or loss of function is allowed below a performance level (or permissible loss of performance) specified by the manufacturer, when the apparatus is used as i
- B. The apparatus shall continue to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level (or permissible loss of performance) specified by the manufacturer, when the apparatus is used as intended. During the test, degradation of performance is allowed, however, no change of actual operating state or stored data is allowed. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and from what the user may reasonably expect from the apparatus if used as intended.
- C. Temporary loss of function is allowed, provided the function is self- recoverable or can be restored by the operation of the controls, or by any operation specified in the instructions for use.

### 11.4 EUT Configuration on Test

The configuration of EUT is the same as used in conducted emission test.  
Please refer to Section 2.8.



### 11.5 Operating Condition of EUT

Same as conducted emission test, which is listed in Section 2.8 except the test set up replaced as Section 11.1.

### 11.6 Test Procedure

- 1) Set up the EUT, CDN and test generator as shown on section 11.1
- 2) Let EUT work in test mode and measure.
- 3) The EUT and supporting equipments are placed on an insulating support 0.1m high above a ground reference plane. CDN (coupling and decoupling device) is placed on the ground plane at above 0.1-0.3m from EUT. Cables between CDN and EUT are as short as possible, and their height above the ground reference plane shall be between 30 and 50 mm (where possible).
- 4) The disturbance signal described below is injected to EUT through CDN.
- 5) The EUT operates within its operational mode(s) under intended climatic conditions after power on.
- 6) The frequency range is swept from 150KHz to 80MHz using 3V signal level, and with the disturbance signal 80% amplitude modulated with a 1KHz sine wave
- 7) The rate of sweep shall not exceed  $1.5 \times 10^{-3}$  decades/s. Where the frequency is swept incrementally, the step size shall not exceed 1% of the start and thereafter 1% of the preceding frequency value.
- 8) Recording the EUT operating situation during compliance test and decide the EUT immunity criterion for above each test.

### 11.7 Test Result

PASS

CS Test Data						
Temperature:		26°C		Humidity:		52%
Power Supply:		AC 230V/50Hz		Test Mode:		Charging mode
Frequency Range(MHz)	Injected Position	Strength	Modulation Signal	Freq. Step	Performance Criterion	Result
150KHz ~ 80MHz	AC Line	3V(rms), Unmodulated	AM 80%, 1kHz sine wave	1%	A	PASS
150KHz ~ 80MHz	DC Line	1V(rms), Unmodulated	AM 80%, 1kHz sine wave	1%	/	/
Note:The EUT is the testing item(s) was (were) fulfilled by subcontracted lab SHENZHEN HAIYUN TESTING CO.,LTD						



## 12. POWER FREQUENCY MAGNETIC FIELDS

### 12.1 Test Levels and Performance Criterion

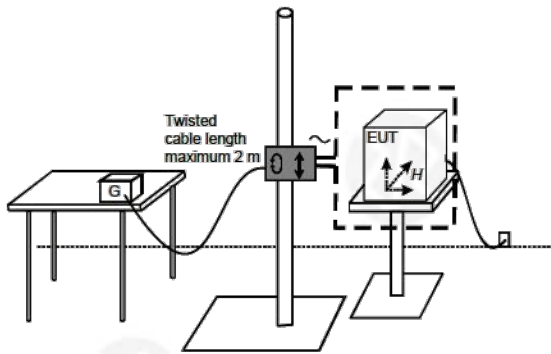
Test Standard  
EN 55035:2017+A11:2020  
(EN 61000-4-8:2010)

Characteristics	Test levels
Field frequency	50/60 Hz
Test level	1 A/m

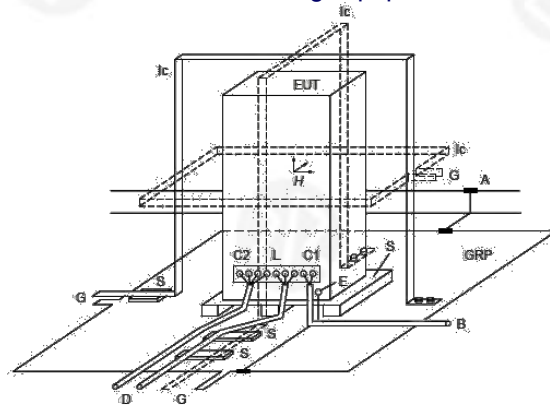
Performance criterion: **A**

### 12.2 Test setup

For table-top equipment



For floor standing equipment



### 12.3 Test Procedure

Measurement was performed in shielded room.  
Measurement procedure was applied according to EN 61000-4-8 clause 8.  
The test method and equipment was specified by EN 61000-4-8.

### 12.4 Test Result

**PASS**

Polarization	Magnetic Strength(A/m)	Performance Criterion	Result
X Orientation	1A	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	PASS
Y Orientation	1A	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	PASS
Z Orientation	1A	<input checked="" type="checkbox"/> A <input type="checkbox"/> B	PASS

Note 1: The testing performed is from lowest level up to the highest level as required by standard, but only highest level is shown on the report.

Criterion A: Operate as intended during and after the test

Criterion B: Operate as intended after the test

Criterion C: Loss/Error of function

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## 13. VOLTAGE DIPS AND INTERRUPTIONS TEST

### 13.1 Block Diagram of EUT Test Setup



### 13.2 Test Standard

EN IEC 55014-2:2021, EN IEC 61000-4-11:2020

### 13.3 Severity Levels and Performance Criterion

Severity Level:

Input and Output AC Power Ports.

- Voltage Dips.
- Voltage Interruptions.

Environmental Phenomena	Test Specification	Units	Performance Criterion
Voltage Dips	70	% Reduction period	C
	25		
Voltage Interruptions	40	% Reduction period	C
	10		
Voltage Interruptions	0	% Reduction period	C
	0.5		

**Performance criterion:** B, C, C

- A. The apparatus shall continue to operate as intended during the test. No degradation of performance or loss of function is allowed below a performance level (or permissible loss of performance) specified by the manufacturer, when the apparatus is used as i
- B. The apparatus shall continue to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level (or permissible loss of performance) specified by the manufacturer, when the apparatus is used as intended. During the test, degradation of performance is allowed, however, no change of actual operating state or stored data is allowed. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and from what the user may reasonably expect from the apparatus if used as intended.
- C. Temporary loss of function is allowed, provided the function is self-recoverable or can be restored by the operation of the controls, or by any operation specified in the instructions for use.

### 13.4 EUT Configuration on Test

The configuration of EUT is the same as used in conducted emission test.  
Please refer to Section 2.10.



### 13.5 Operating Condition of EUT

Same as conducted emission test, which is listed in Section 2.10 except the test set up replaced as Section 13.1.

### 13.6 Test Procedure

- 1) Set up the EUT and test generator as shown on section 13.1
- 2) The interruption is introduced at selected phase angles with specified duration. There is a 3mins minimum interval between each test event.
- 3) After each test a full functional check is performed before the next test.
- 4) Repeat procedures 2 & 3 for voltage dips, only the level and duration is changed.
- 5) Record any degradation of performance.

### 13.7 Test Result

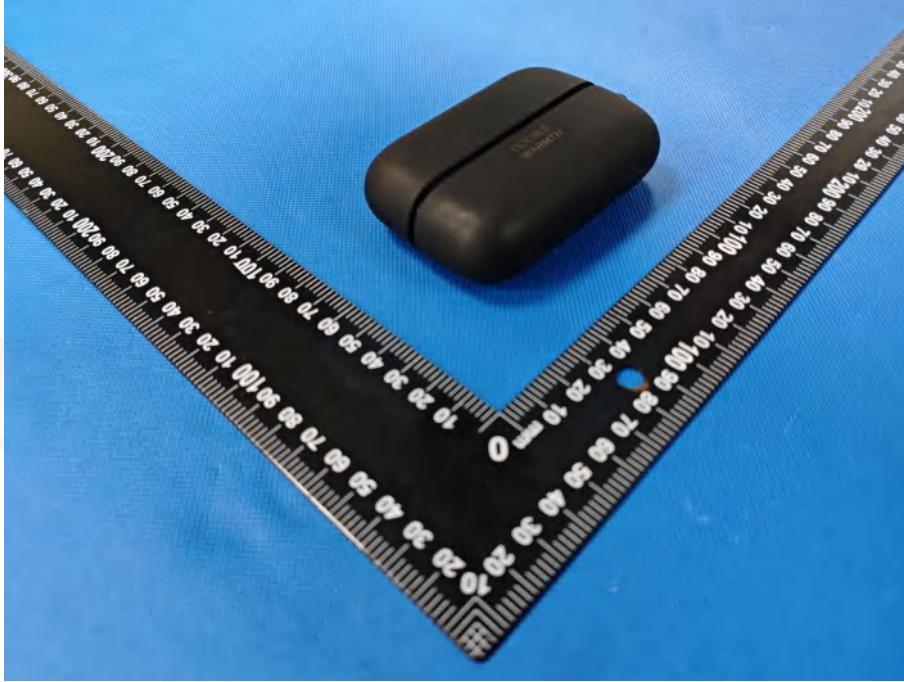
PASS

DIPS Test Data			
Temperature:	26°C	Humidity:	52%
Power Supply:	AC 230V/50Hz	Test Mode:	Charging mode
Environmental Phenomena	Test Specification	Units	Performance Criterion
Voltage Dips	70	% Reduction period	C
	25		
	40	% Reduction period	C
10			
Voltage Interruptions	0	% Reduction period	C
	0.5		

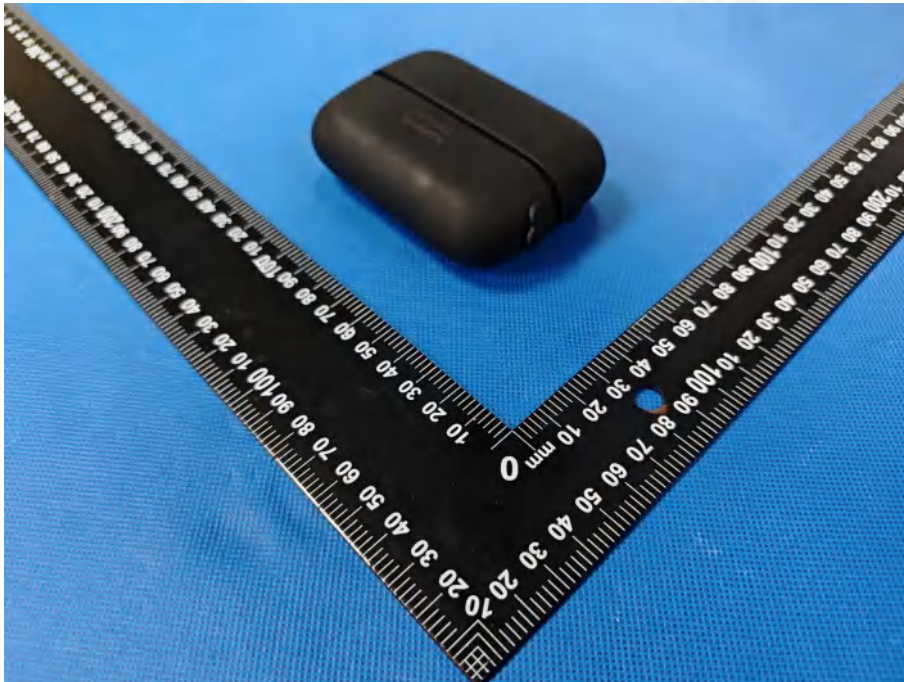


## 14. EUT PHOTOGRAPHS

EUT Photo 1



EUT Photo 2

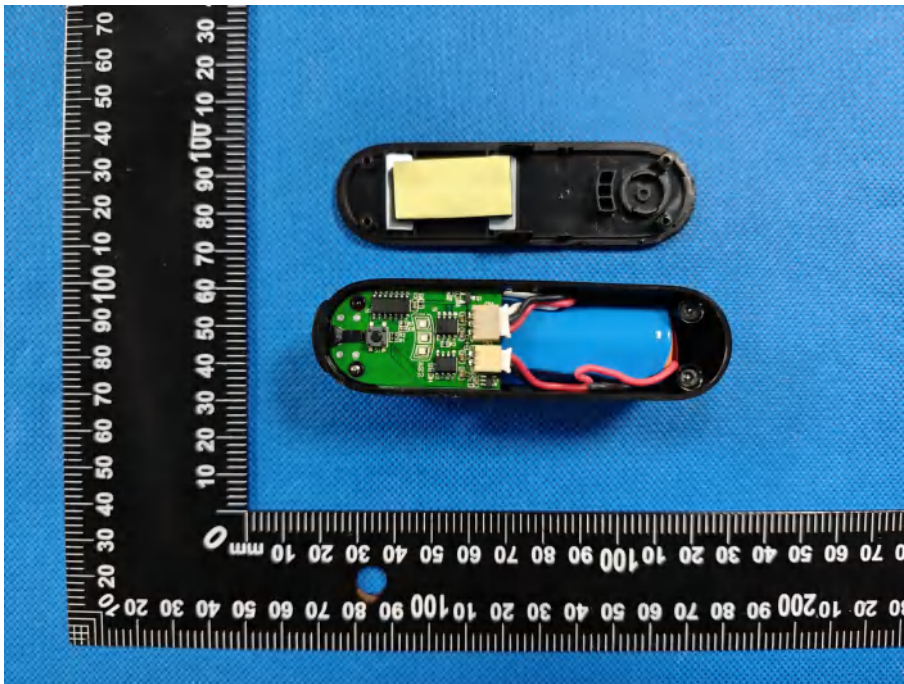




EUT Photo 3

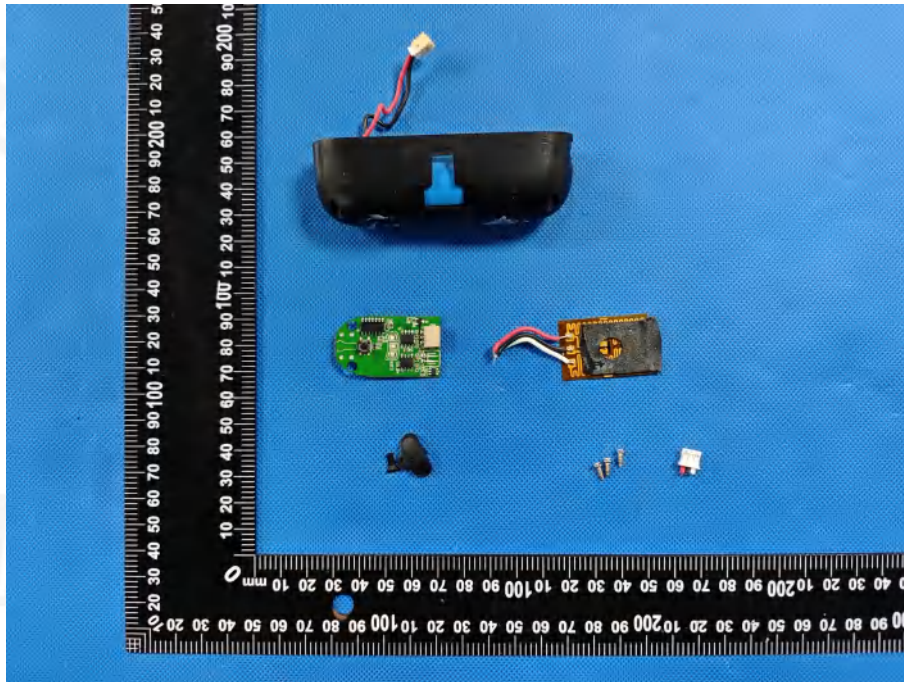


EUT Photo 4





EUT Photo 5

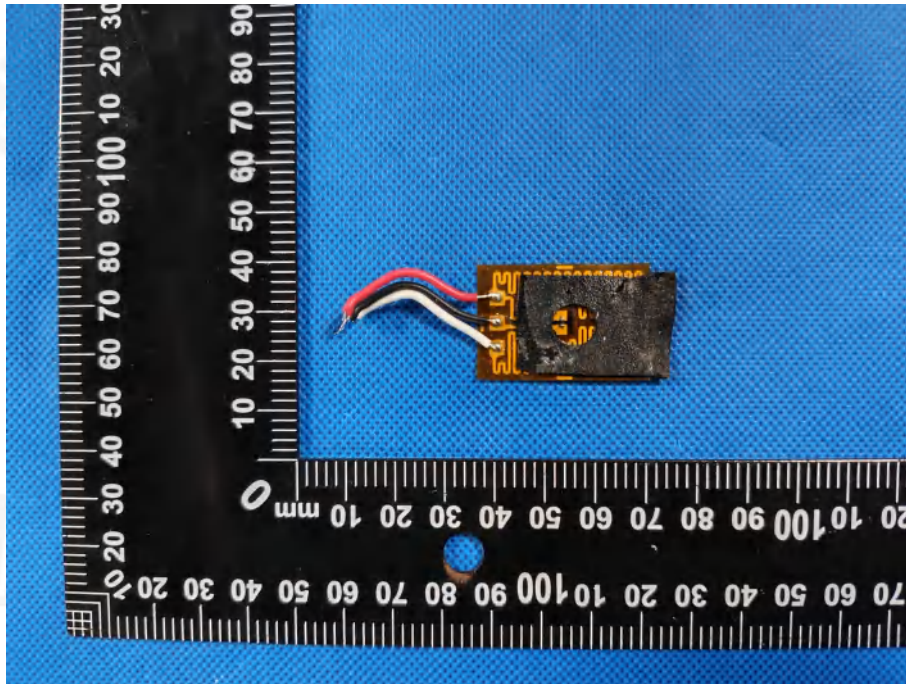


EUT Photo 6

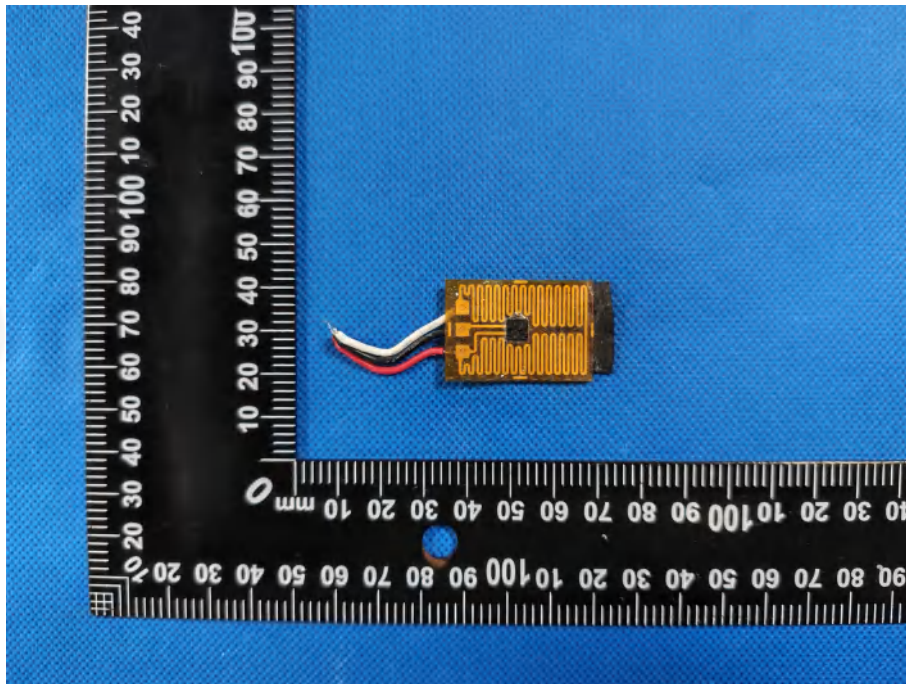




EUT Photo 7

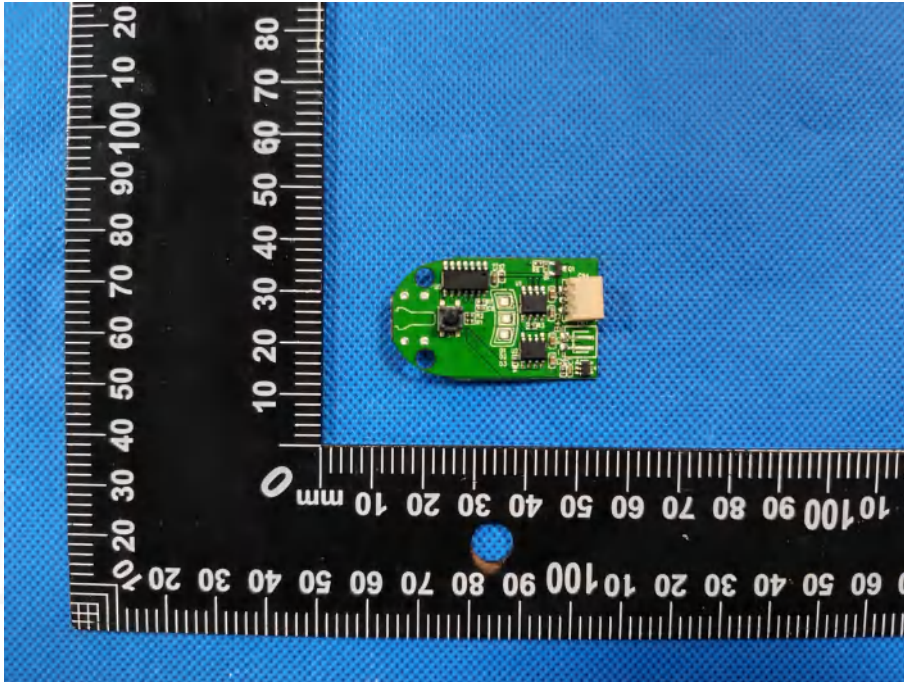


EUT Photo 8

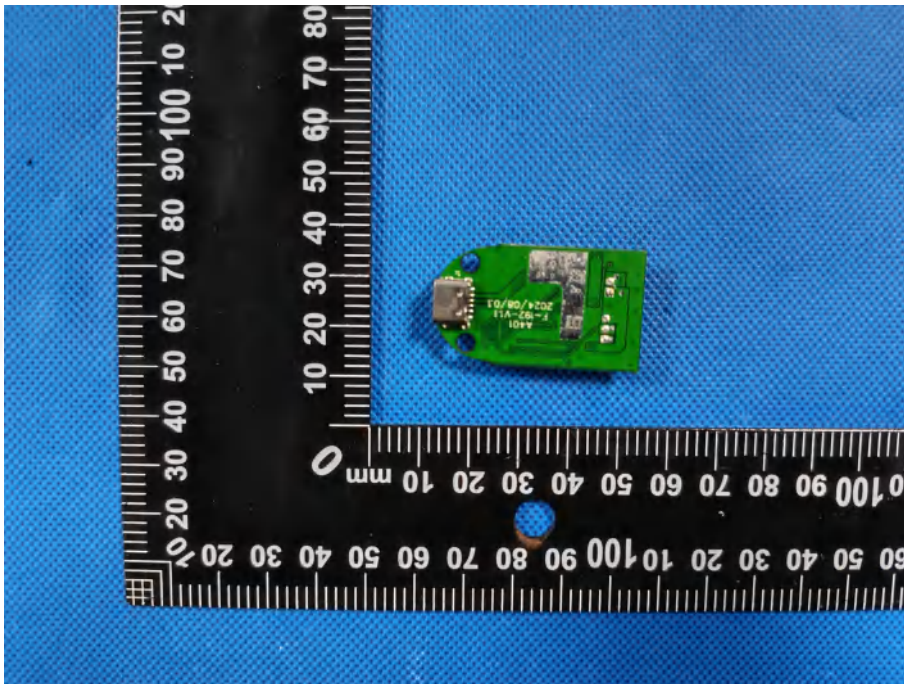




EUT Photo 9



EUT Photo 10



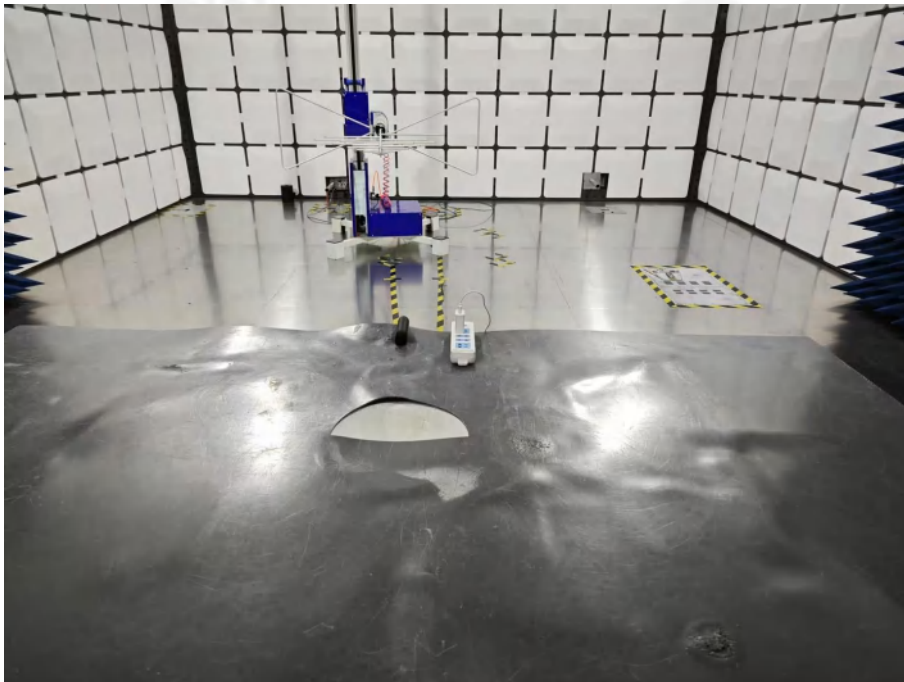


## 15. EUT TEST PHOTOGRAPHS

Conducted Emission



Radiated Emission



\*\*\*\*\* END OF REPORT \*\*\*\*\*



## ROHS TEST REPORT

**Report Reference No**..... : ZKT-240906L11269R

**Date of issue**..... : Sept. 06, 2024

**Total number of pages**..... 15 pages

**Testing Laboratory**..... : **Shenzhen ZKT Technology Co., Ltd.**

**Address**..... : 1/F, No. 101, Building B, No. 6, Tangwei Community Industrial Avenue, Fuhai Street, Bao'an District, Shenzhen, China

**Applicant's name**..... : **Shenzhen Little Black Technology Electronics Co., Ltd.**

**Address**..... : Building A2, Jutebu No.3 Industrial Zone, Jutebu Community, Hangcheng Street, Baoan District, Shenzhen

**Test Requested:**

RoHS Directive 2011/65/EU Annex II amending Annex (EU)2015/863 and amending Annex (EU)2017/2102  
—Lead, Cadmium, Mercury, Hexavalent Chromium, PBBs and PBDEs Content  
—Di-(2-ethylhexyl) phthalate(DEHP), Benzylbutyl phthalate(BBP), Dibutyl phthalate (DBP), Diisobutyl phthalate(DIBP) Content

**Conclusion**

PASS

**Test Report Form No**..... : --

**Test Report Form(s) Originator**..... : ZKT Testing

**Master TRF**..... : Dated: 2017-06

**This test report is specially limited to the above client company and product model only. It may not be duplicated without prior written consent of ZKT Test.**

**Test item description**..... : Magnets Hand Warmers

**Trade Mark**..... : /

**Manufacturer**..... : Shenzhen Little Black Technology Electronics Co., Ltd.  
Building A2, Jutebu No.3 Industrial Zone, Jutebu Community, Hangcheng Street, Baoan District, Shenzhen

**Model/Type reference**..... : A401



**Testing procedure and testing location:**

**Testing Laboratory.....: Shenzhen ZKT Technology Co., Ltd.**

**Address.....: 1/F, No. 101, Building B, No. 6, Tangwei Community  
Industrial Avenue, Fuhai Street, Bao'an District,  
Shenzhen,China**

---

**Date of Test.....: Sept. 02, 2024 - Sept. 06, 2024**

---

**Tested by (name + signature).....: Abby Long**

**Reviewed by (name + signature).....: Jason Wang**

**Approved by (name + signature).....: Awen He**





### Test Method:

Heavy Metals and Flame Retardants Content – European Council Directive 2011/65/EU on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS)

Testing item	Pretreatment method	Measuring instrument	MDL
Lead(Pb)	EN 62321-5:2014	ICP-OES	2 mg/kg
Cadmium(Cd)	EN 62321-5:2014	ICP-OES	2 mg/kg
Mercury(Hg)	EN 62321-4:2014/A1:2017	ICP-OES	2 mg/kg
Chromium(Cr VI)	EN 62321-1:2013	UV-Vis	2 mg/kg
PBBs/ PBDEs	EN 62321-1:2013	PY-GC-MS	5 mg/kg

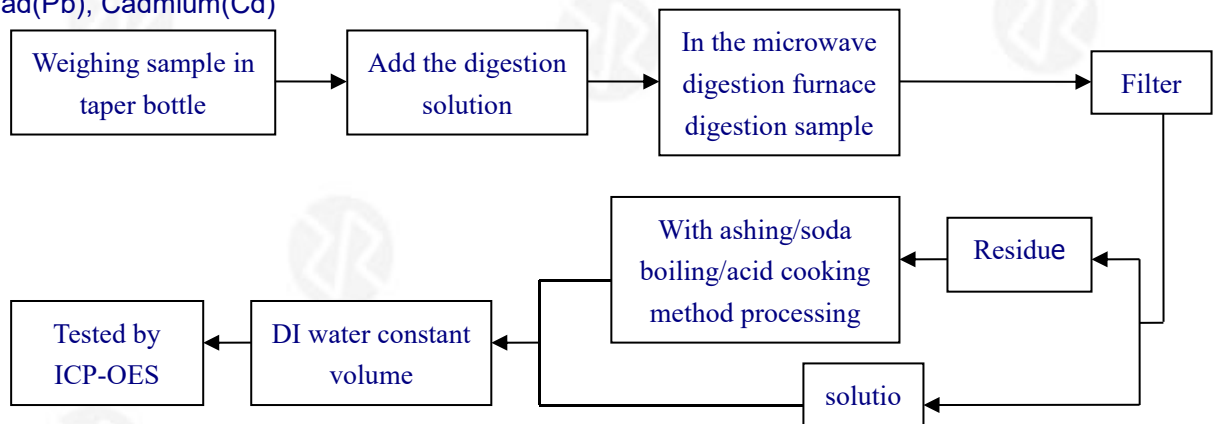
Phthalates content – European Council Directive 2011/65/EU and Change-Directive (EU) 2015/863 on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS) Test Method: Sample was extracted with organic solvent and then analyzed by Gas Chromatograph Mass Spectrometer.

Testing item	Pretreatment method	Measuring instrument	MDL
DEHP/DBP/BBP/ DIBP	EN 14372:2004	GC-MS	30 mg/kg

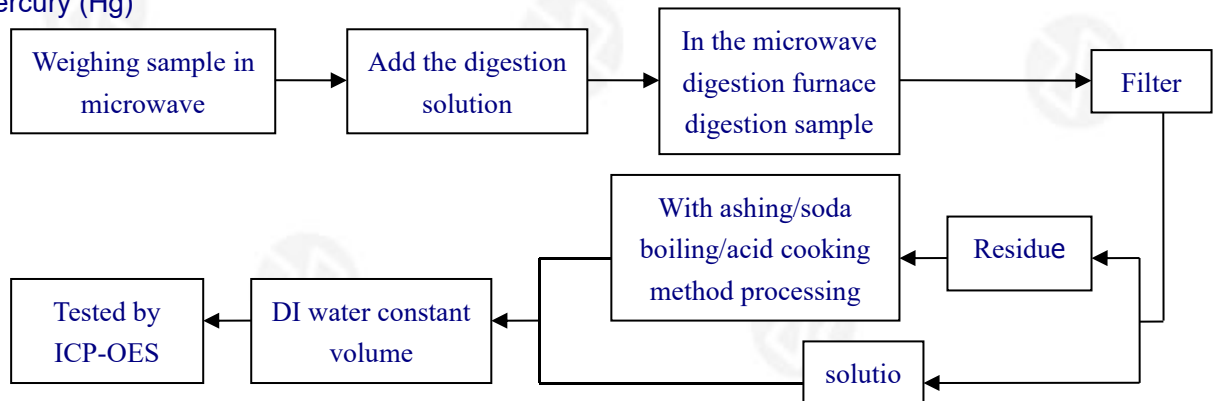


## Test Flow:

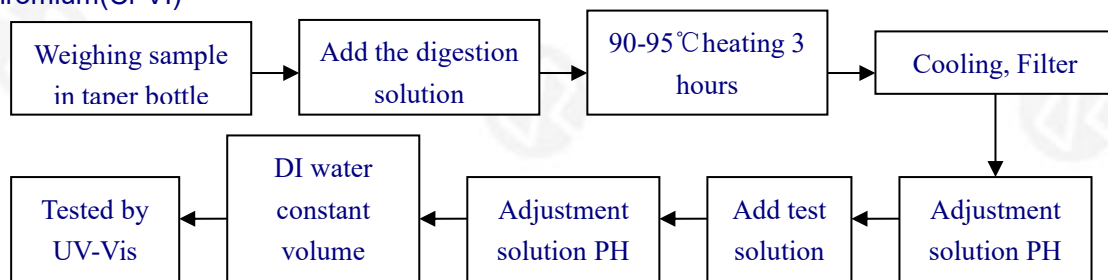
### 1. Lead(Pb), Cadmium(Cd)



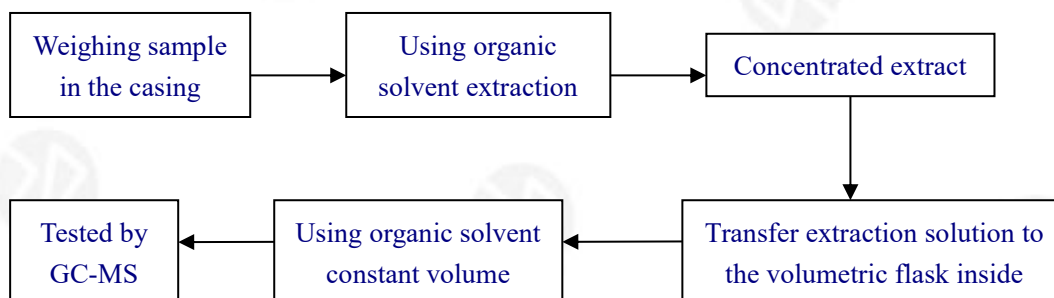
### 2. Mercury (Hg)



### 3. Chromium(Cr VI)

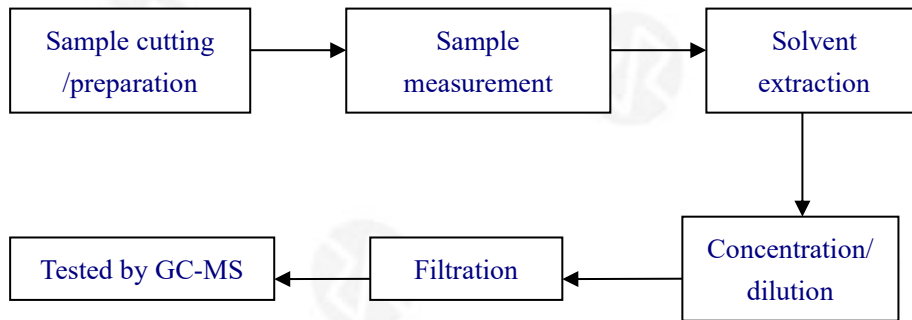


### 4. PBBs/ PBDEs





### 5. DEHP/ BBP/ DBP/ DIBP





Sample Description:

- 1 Black plastic
- 2 Black plastic
- 3 Yellow sponge
- 4 Red plastic wire jacket
- 5 Silver metal
- 6 White plastic
- 7 Black sponge
- 8 Soldering tin
- 9 PCB
- 10 IC
- 11 Triode
- 12 Cream-coloured plastic
- 13 Black plastic
- 14 Silver metal
- 15 Soldering tin
- 16 PCB

**Test Results:**

Testing Item	Unit	ROHS Limit	Result						
			1	2	3	4	6	7	
Lead(Pb)	mg/kg	1000	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	
Cadmium(Cd)	mg/kg	100	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	
Mercury(Hg)	mg/kg	1000	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	
Chromium(Cr VI)	mg/kg	1000	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	
Sum of PBBs/ PBDEs	mg/kg	1000	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	
Monobromobiphenyl	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	
Dibromobiphenyl	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	
Tribromobiphenyl	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	
Tetrabromobiphenyl	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	
Pentabromobiphenyl	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	
Hexabromobiphenyl	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	
Heptabromobiphenyl	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	
Octabromobiphenyl	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	
Nonabromobiphenyl	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	
Decabromobiphenyl	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	
Monobromodiphenyl ether	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	
Dibromodiphenyl ether	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	
Tribromodiphenyl ether	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	
Tetrabromodiphenyl ether	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	
Pentabromodiphenyl ether	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	
Hexabromodiphenyl ether	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	
Heptabromodiphenyl ether	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	
Octabromodiphenyl ether	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	
Nonabromodiphenyl ether	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	
Decabromodiphenyl ether	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	
Bis-(2-ethylhexyl) Phthalate (DEHP)	mg/kg	1000	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	
Benzylbutyl Phthalate (BBP)	mg/kg	1000	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	
Dibutyl Phthalate (DBP)	mg/kg	1000	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	
Di-isobutyl phthalate (DIBP)	mg/kg	1000	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	



Testing Item	Unit	ROHS Limit	Result					
			9	10	11	12	13	16
Lead(Pb)	mg/kg	1000	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Cadmium(Cd)	mg/kg	100	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Mercury(Hg)	mg/kg	1000	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Chromium(Cr VI)	mg/kg	1000	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Sum of PBBs/ PBDEs	mg/kg	1000	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Monobromobiphenyl	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Dibromobiphenyl	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Tribromobiphenyl	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Tetrabromobiphenyl	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Pentabromobiphenyl	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Hexabromobiphenyl	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Heptabromobiphenyl	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Octabromobiphenyl	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Nonabromobiphenyl	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Decabromobiphenyl	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Monobromodiphenyl ether	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Dibromodiphenyl ether	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Tribromodiphenyl ether	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Tetrabromodiphenyl ether	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Pentabromodiphenyl ether	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Hexabromodiphenyl ether	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Heptabromodiphenyl ether	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Octabromodiphenyl ether	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Nonabromodiphenyl ether	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Decabromodiphenyl ether	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Bis-(2-ethylhexyl) Phthalate (DEHP)	mg/kg	1000	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Benzylbutyl Phthalate (BBP)	mg/kg	1000	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Dibutyl Phthalate (DBP)	mg/kg	1000	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Di-isobutyl phthalate (DIBP)	mg/kg	1000	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.



Testing Item	Unit	ROHS Limit	Result					
			5	8	14	15	/	/
Lead(Pb)	mg/kg	1000	N.D.	N.D.	N.D.	N.D.	/	/
Cadmium(Cd)	mg/kg	100	N.D.	N.D.	N.D.	N.D.	/	/
Mercury(Hg)	mg/kg	1000	N.D.	N.D.	N.D.	N.D.	/	/
Chromium(Cr VI)	mg/kg	1000	N.D.	N.D.	N.D.	N.D.	/	/
Sum of PBBs/ PBDEs	mg/kg	/	/	/	/	/	/	/
Monobromobiphenyl	mg/kg	/	/	/	/	/	/	/
Dibromobiphenyl	mg/kg	/	/	/	/	/	/	/
Tribromobiphenyl	mg/kg	/	/	/	/	/	/	/
Tetrabromobiphenyl	mg/kg	/	/	/	/	/	/	/
Pentabromobiphenyl	mg/kg	/	/	/	/	/	/	/
Hexabromobiphenyl	mg/kg	/	/	/	/	/	/	/
Heptabromobiphenyl	mg/kg	/	/	/	/	/	/	/
Octabromobiphenyl	mg/kg	/	/	/	/	/	/	/
Nonabromobiphenyl	mg/kg	/	/	/	/	/	/	/
Decabromobiphenyl	mg/kg	/	/	/	/	/	/	/
Monobromodiphenyl ether	mg/kg	/	/	/	/	/	/	/
Dibromodiphenyl ether	mg/kg	/	/	/	/	/	/	/
Tribromodiphenyl ether	mg/kg	/	/	/	/	/	/	/
Tetrabromodiphenyl ether	mg/kg	/	/	/	/	/	/	/
Pentabromodiphenyl ether	mg/kg	/	/	/	/	/	/	/
Hexabromodiphenyl ether	mg/kg	/	/	/	/	/	/	/
Heptabromodiphenyl ether	mg/kg	/	/	/	/	/	/	/
Octabromodiphenyl ether	mg/kg	/	/	/	/	/	/	/
Nonabromodiphenyl ether	mg/kg	/	/	/	/	/	/	/
Decabromodiphenyl ether	mg/kg	/	/	/	/	/	/	/
Bis-(2-ethylhexyl) Phthalate (DEHP)	mg/kg	/	/	/	/	/	/	/
Benzylbutyl Phthalate (BBP)	mg/kg	/	/	/	/	/	/	/
Dibutyl Phthalate (DBP)	mg/kg	/	/	/	/	/	/	/
Di-isobutyl phthalate (DIBP)	mg/kg	/	/	/	/	/	/	/

## Notes:

1mg/kg=1ppm = 0.0001%

N.D. = Not Detected (&lt;MDL)

MDL = Method Detection Limit

/=Not Regulated

---=Not Applicable

## Breakdown of product

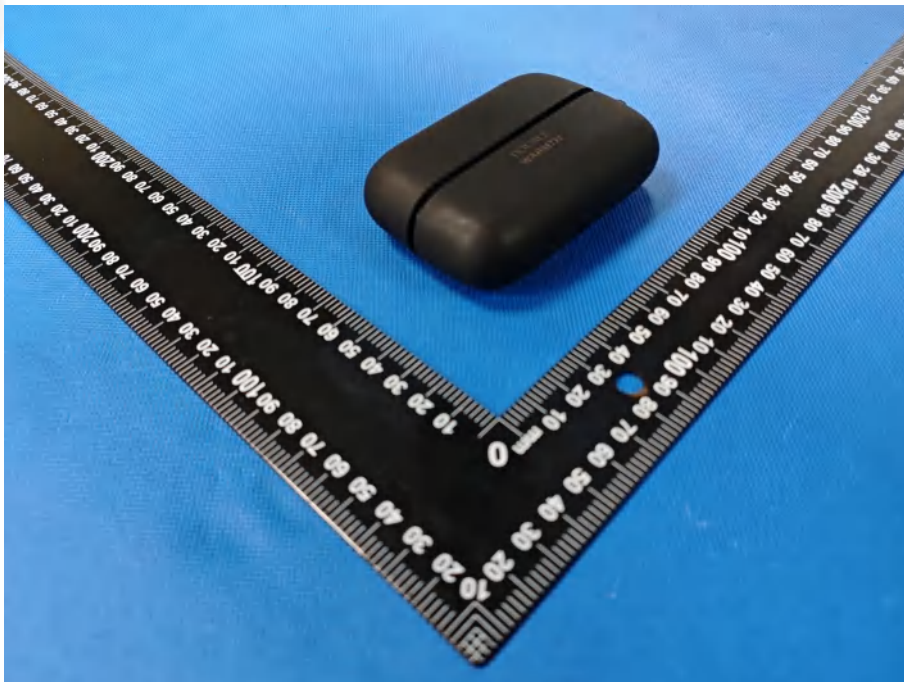


## ANNEX A: Photo-documentation

EUT Photo 1



EUT Photo 2

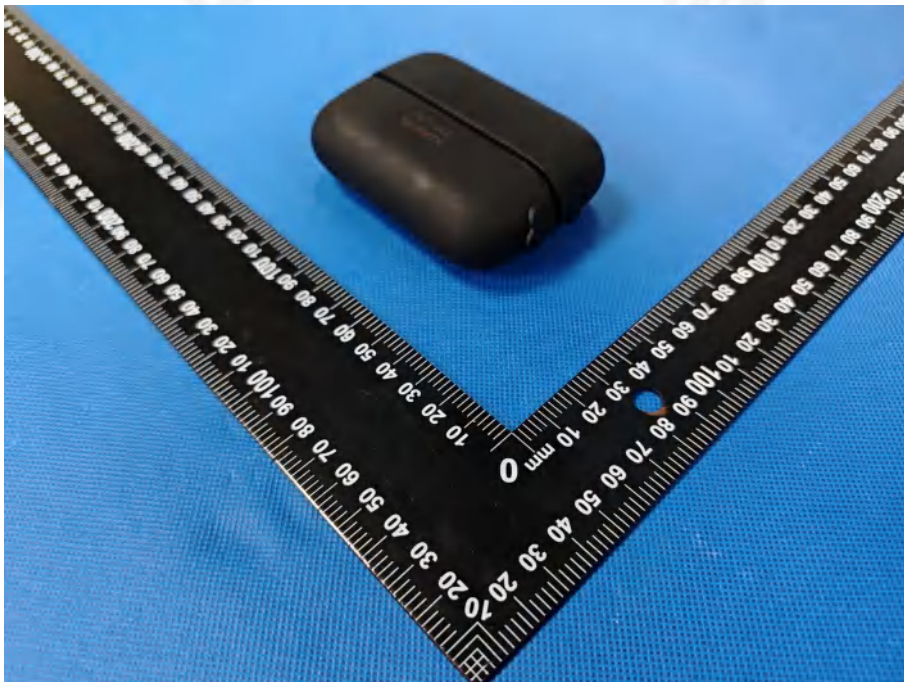




EUT Photo 3

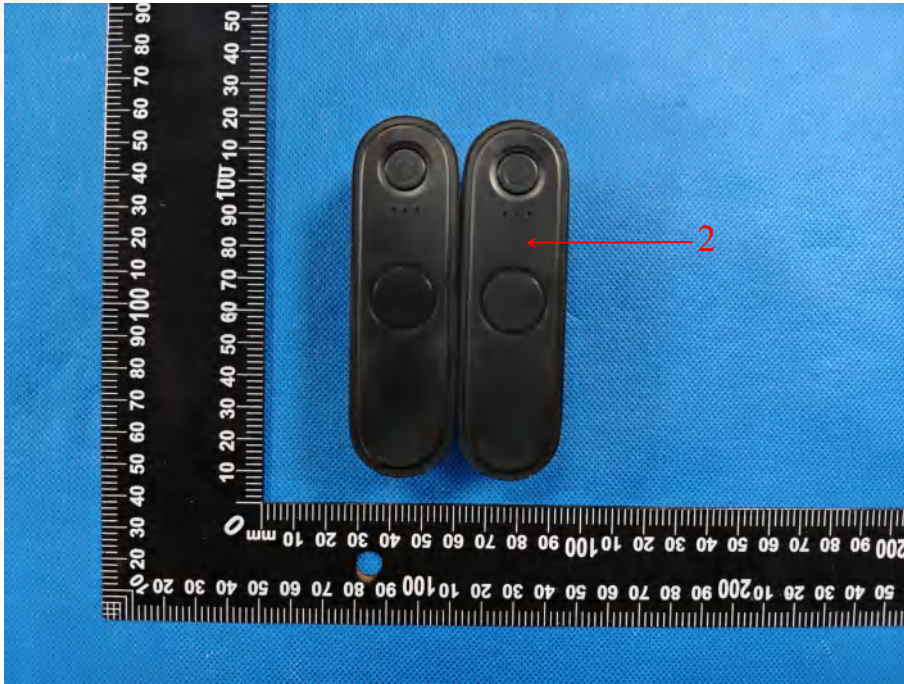


EUT Photo 4





EUT Photo 5

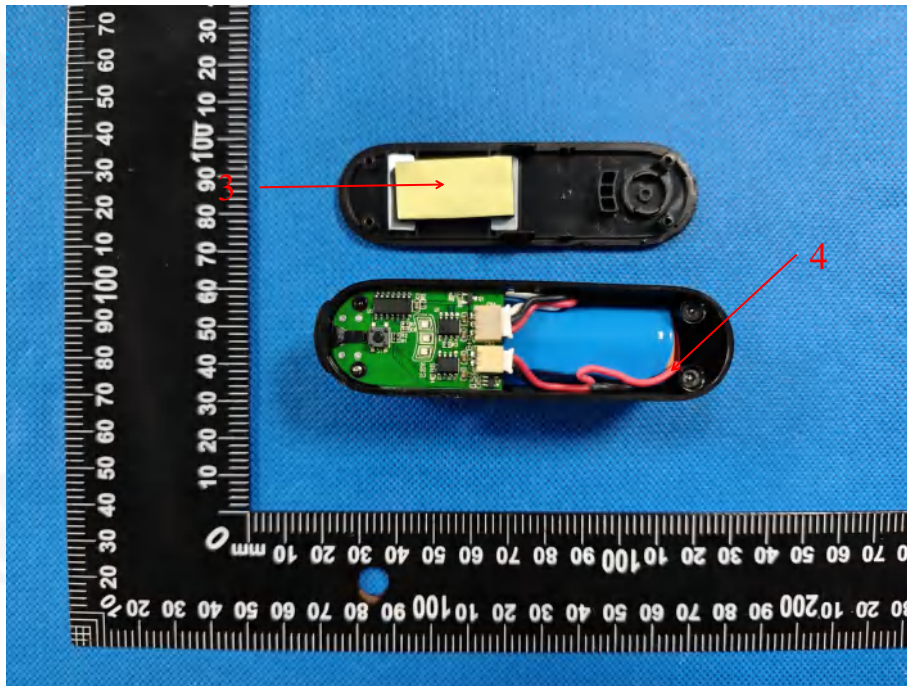


EUT Photo 6

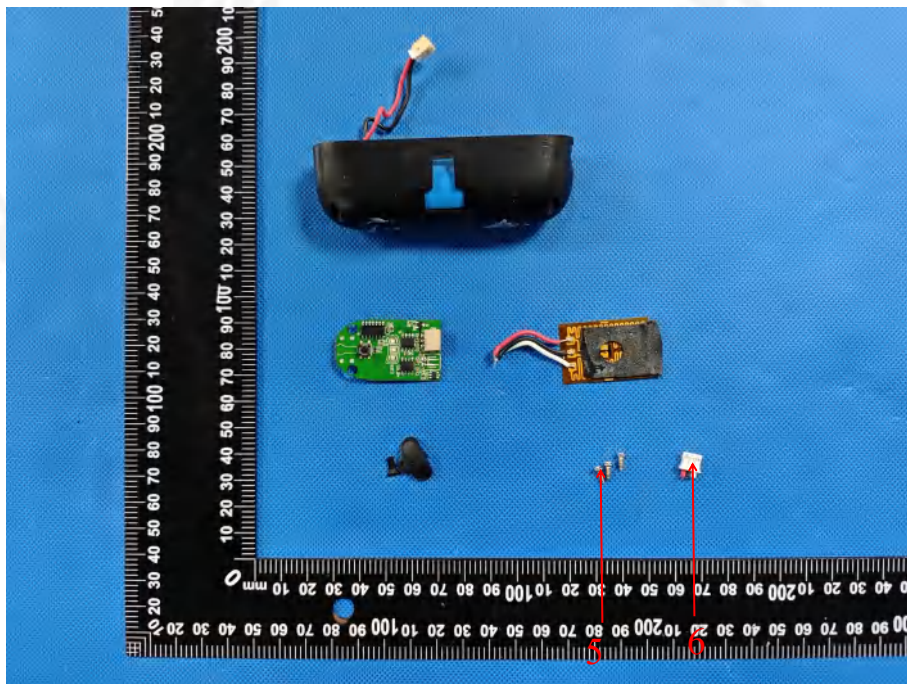




EUT Photo 7

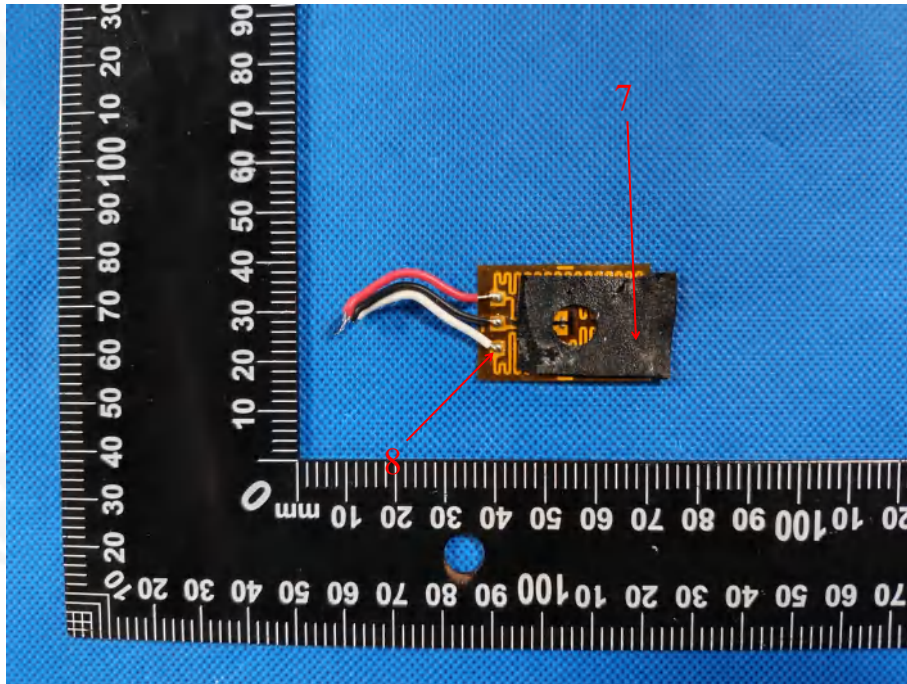


EUT Photo 8

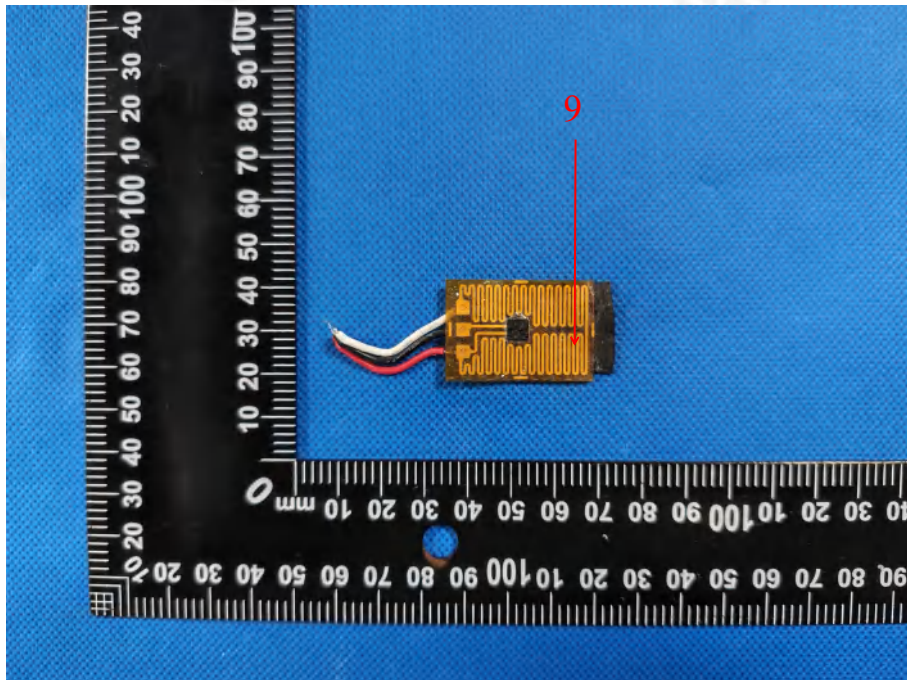




EUT Photo 9

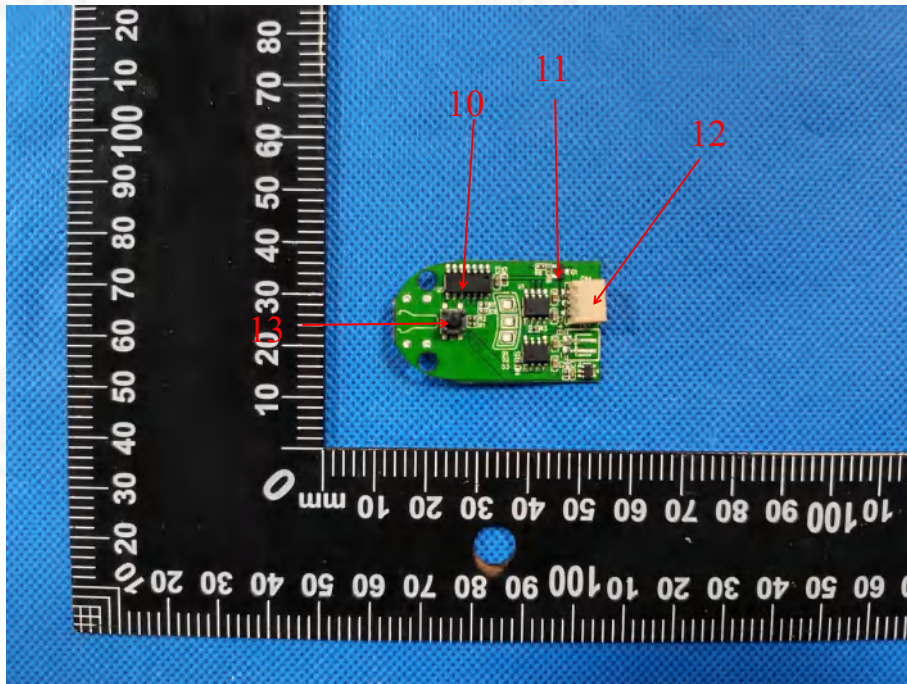


EUT Photo 10

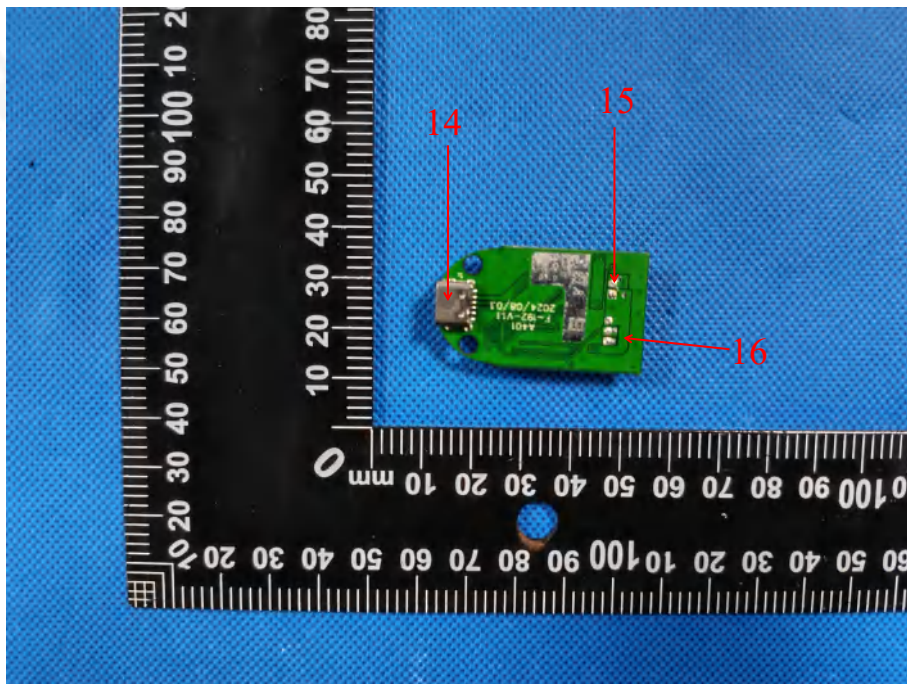




EUT Photo 11



EUT Photo 12



\*\*\*\*\* END OF REPORT \*\*\*\*\*



## FCC TEST REPORT

<b>Report Reference No</b> .....	ZKT-240906L11270E
<b>Date of issue</b> .....	Sept. 06, 2024
<b>Total number of pages</b> .....	19
<b>Testing Laboratory</b> .....	<b>Shenzhen ZKT Technology Co., Ltd.</b>
<b>Address</b> .....	1/F, No. 101, Building B, No. 6, Tangwei Community Industrial Avenue, Fuhai Street, Bao'an District, Shenzhen, China
<b>Applicant's name</b> .....	<b>Shenzhen Little Black Technology Electronics Co., Ltd.</b>
<b>Address</b> .....	Building A2, Jutebu No.3 Industrial Zone, Jutebu Community, Hangcheng Street, Baoan District, Shenzhen
<b>Test specification:</b>	
<b>Standards</b> .....	47CFR Part 15 Subpart B ANSI C63.4:2014
<b>Test procedure</b> .....	N/A
<b>Non-standard test method</b> .....	N/A
<b>Test Report Form No</b> .....	--
<b>Test Report Form(s) Originator</b> .....	ZKT Testing
<b>Master TRF</b> .....	Dated: 2017-06
<b>This test report is specially limited to the above client company and product model only. It may not be duplicated without prior written consent of ZKT Test.</b>	
<b>Test item description</b> .....	Magnets Hand Warmers
<b>Trade Mark</b> .....	/
<b>Manufacturer</b> .....	Shenzhen Little Black Technology Electronics Co., Ltd. Building A2, Jutebu No.3 Industrial Zone, Jutebu Community, Hangcheng Street, Baoan District, Shenzhen
<b>Model/Type reference</b> .....	A401
<b>Ratings</b> .....	Input: 5 V $\text{---}$ 1 A, 3.7 V $\text{---}$ powered by battery



**Testing procedure and testing location:**

**Testing Laboratory**.....: **Shenzhen ZKT Technology Co., Ltd.**  
**Address**.....: 1/F, No. 101, Building B, No. 6, Tangwei Community  
Industrial Avenue, Fuhai Street, Bao'an District,  
Shenzhen, China

**Date of Test**.....: Sept. 02, 2024 - Sept. 06, 2024

**Tested by (name + signature)**.....: Jim Liu *Jim Liu*

**Reviewer (name + signature)**.....: Tom Zou *Tom Zou*

**Approved (name + signature)**.....: Lake Xie *Lake Xie*





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## 1. GENERAL INFORMATION

### 1.1. Description of Device (EUT)

EUT:	Magnets Hand Warmers
Model Number:	A401
Model Difference:	/
Power Supply:	Input: 5 V <sub>DC</sub> 1 A, 3.7 V <sub>DC</sub> powered by battery
Highest Frequency Generated:	Below 15 MHz

### 1.2. Other Accessory Device List and Details

Description	Manufacturer	Model	Note
Adapter	HUAWEI	HW-059200CHQ	AE
/	/	/	/

### 1.3. Test Uncertainty

Conducted Emission Uncertainty :  $\pm 1.82$  dB

Radiated Emission Uncertainty :  $\pm 2.51$  dB



## 2.TEST INSTRUMENT USED

### Conducted emissions Test

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Firmware Version	Last calibration	Calibrated until
1	LISN	R&S	ENV216	101471	N/A	Nov. 14, 2023	Nov. 13, 2024
2	LISN	CYBERTEK	EM5040A	E1850400149	N/A	Nov. 02, 2023	Nov. 01, 2024
3	Test Cable	N/A	C-01	N/A	N/A	Nov. 02, 2023	Nov. 01, 2024
4	Test Cable	N/A	C-02	N/A	N/A	Nov. 02, 2023	Nov. 01, 2024
5	Test Cable	N/A	C-03	N/A	N/A	Nov. 02, 2023	Nov. 01, 2024
6	EMI Test Receiver	R&S	ESCI3	101393	4.42 SP3	Nov. 02, 2023	Nov. 01, 2024
9	EMC Software	Frad	EZ-EMC	Ver.EMC-CO N 3A1.1	N/A	\	\

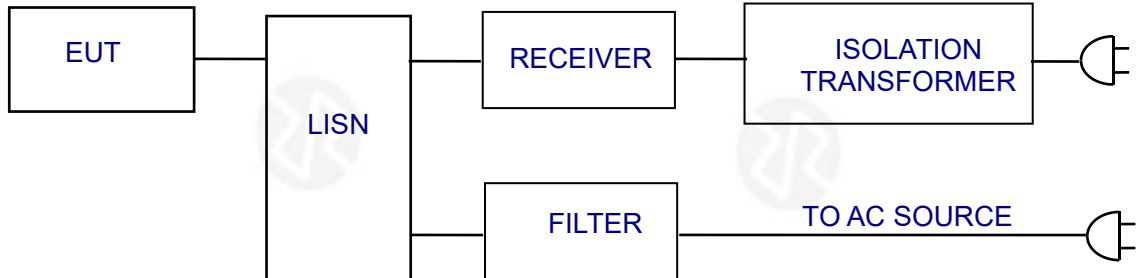
### Radiation emissions& Radio Test equipment

Item	Equipment	Manufacturer	Type No.	Serial No.	Firmware Version	Last calibration	Calibrated until
1	EMI Test Receiver (9kHz-7GHz)	R&S	ESCI7	100969	4.32	Nov. 02, 2023	Nov. 01, 2024
2	Bilog Antenna (30MHz-1500MHz)	Schwarzbeck	VULB9168	N/A	N/A	Nov. 13, 2023	Nov. 12, 2024
3	Horn Antenna (1GHz-18GHz)	Agilent	AH-118	071145	N/A	Nov. 13, 2023	Nov. 12, 2024
4	Loop Antenna	TESEQ	HLA6121	58357	N/A	Nov. 16, 2023	Nov. 15, 2024
5	Amplifier (30-1000MHz)	EM Electronics	EM330 Amplifier	60747	N/A	Nov. 02, 2023	Nov. 01, 2024
6	Amplifier (1GHz-26.5GHz)	HuiPu	8449B	3008A00315	N/A	Nov. 02, 2023	Nov. 01, 2024
7	Test Cable	N/A	R-01	N/A	N/A	Nov. 02, 2023	Nov. 01, 2024
8	Test Cable	N/A	R-02	N/A	N/A	Nov. 02, 2023	Nov. 01, 2024
9	ESG Signal Generator	Agilent	E4421B	N/A	B.03.84	Nov. 02, 2023	Nov. 01, 2024
10	Signal Generator	Agilent	N5182A	N/A	A.01.87	Nov. 02, 2023	Nov. 01, 2024
11	EMC Software	Frad	EZ-EMC	Ver.EMC-C ON 3A1.1	N/A	\	\
12	Turntable	MF	MF-7802BS	N/A	N/A	\	\
13	Antenna tower	MF	MF-7802BS	N/A	N/A	\	\



### 3.CONDUCTED EMISSION TEST

#### 3.1. Block Diagram Of Test Setup



#### 3.2. Test Standard

FCC PART 15 B

#### 3.3. Power Line Conducted Emission Limit

Frequency MHz	Limits dB(μV)	
	Quasi-peak Level	Average Level
0.15 ~ 0.50	66 ~ 56*	56 ~ 46*
0.50 ~ 5.00	56	46
5.00 ~ 30.00	60	50

Notes: 1. \*Decreasing linearly with logarithm of frequency.  
2. The lower limit shall apply at the transition frequencies.

#### 3.4. EUT Configuration on Test

The following equipments are installed on conducted emission test to meet FCC PART 15 B requirement and operating in a manner which tends to maximize its emission characteristics in a normal application.

#### 3.5. Operating Condition of EUT

- 3.5.1 Setup the EUT and simulators as shown in Section 3.1.
- 3.5.2 Turn on the power of all equipments.
- 3.5.3 Let the EUT work in test modes and test it.



### 3.6. Test Procedure

The EUT is put on the ground and connected to the AC mains through a Artificial Mains Network (AMN). This provided a 50ohm coupling impedance for the tested equipments. Both sides of AC line are checked to find out the maximum conducted emission levels according to the **FCC PART 15 B** regulations during conducted emission test.

The bandwidth of the test receiver (R&S Test Receiver ESCI) is set at 10KHz.

The frequency range from 150 KHz to 30 MHz is investigated.

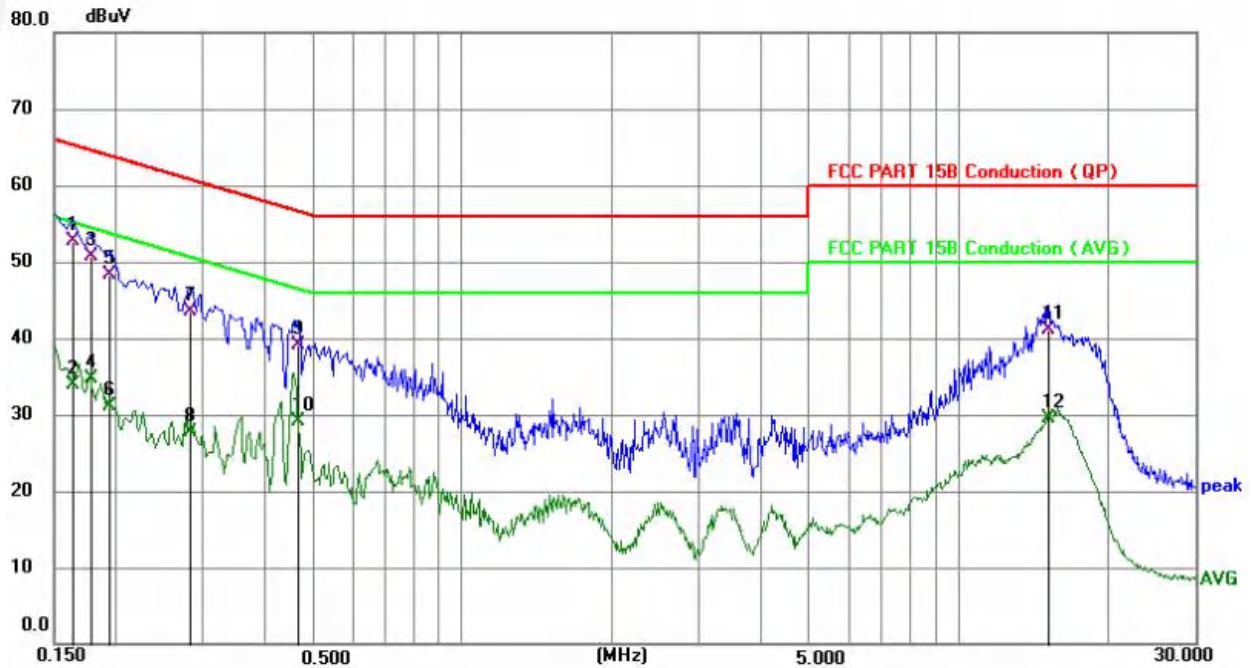
### 3.7. Test Result

**PASS**

Please refer to the following page.Only the Worst-case test mode is shown in the report.



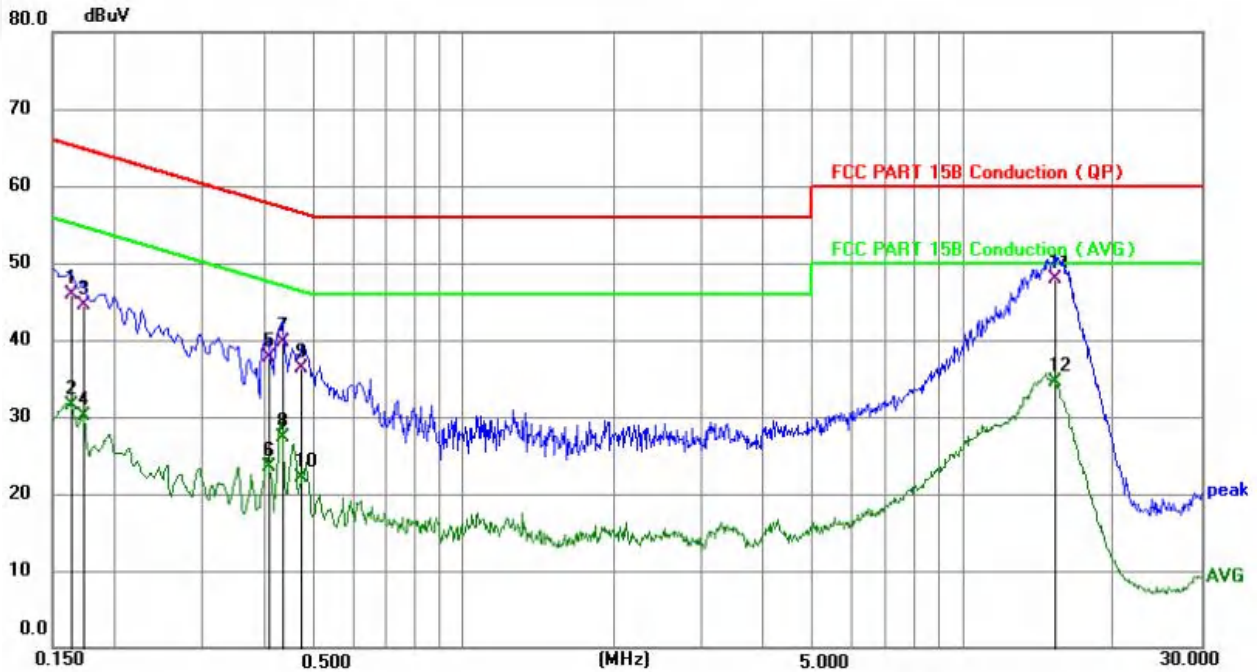
Conducted Emission At The Mains Terminals Test Data			
Temperature:	23.3°C	Relative Humidity:	54%
Pressure:	1012hPa	Phase :	Live
Test Voltage :	AC 120V/60Hz	Test Mode:	Charging mode



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1 *	0.1635	42.77	9.90	52.67	65.28	-12.61	QP	P	
2	0.1635	23.99	9.90	33.89	55.28	-21.39	AVG	P	
3	0.1770	40.71	9.90	50.61	64.63	-14.02	QP	P	
4	0.1770	24.86	9.90	34.76	54.63	-19.87	AVG	P	
5	0.1949	38.43	9.91	48.34	63.83	-15.49	QP	P	
6	0.1949	21.12	9.91	31.03	53.83	-22.80	AVG	P	
7	0.2805	33.60	9.94	43.54	60.80	-17.26	QP	P	
8	0.2805	17.83	9.94	27.77	50.80	-23.03	AVG	P	
9	0.4650	29.14	10.01	39.15	56.60	-17.45	QP	P	
10	0.4650	19.04	10.01	29.05	46.60	-17.55	AVG	P	
11	15.1800	31.00	10.10	41.10	60.00	-18.90	QP	P	
12	15.1800	19.50	10.10	29.60	50.00	-20.40	AVG	P	



Conducted Emission At The Mains Terminals Test Data			
Temperature:	23.3°C	Relative Humidity:	54%
Pressure:	1012hPa	Phase :	Neutral
Test Voltage :	AC 120V/60Hz	Test Mode:	Charging mode

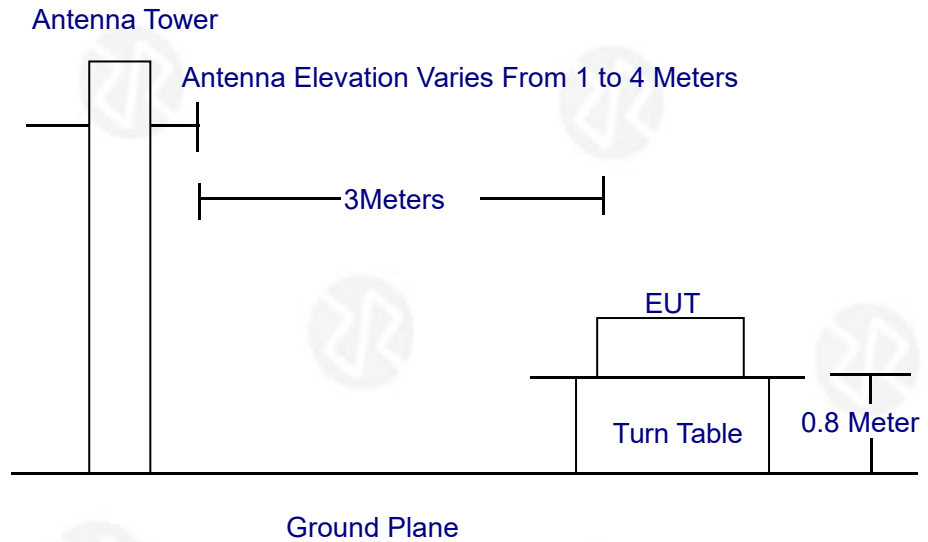


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1635	36.00	9.90	45.90	65.28	-19.38	QP	P	
2	0.1635	21.58	9.90	31.48	55.28	-23.80	AVG	P	
3	0.1725	34.57	9.90	44.47	64.84	-20.37	QP	P	
4	0.1725	20.26	9.90	30.16	54.84	-24.68	AVG	P	
5	0.4065	27.72	9.98	37.70	57.72	-20.02	QP	P	
6	0.4065	13.55	9.98	23.53	47.72	-24.19	AVG	P	
7	0.4335	29.64	10.00	39.64	57.19	-17.55	QP	P	
8	0.4335	17.38	10.00	27.38	47.19	-19.81	AVG	P	
9	0.4740	26.30	10.01	36.31	56.44	-20.13	QP	P	
10	0.4740	12.07	10.01	22.08	46.44	-24.36	AVG	P	
11 *	15.2835	37.71	10.10	47.81	60.00	-12.19	QP	P	
12	15.2835	24.37	10.10	34.47	50.00	-15.53	AVG	P	



## 4. RADIATION EMISSION TEST

### 4.1. Block Diagram of Test Setup



### 4.2. Test Standard

FCC PART 15 B

### 4.3. Radiation Limit

FREQUENCY (MHz)	DISTANCE (Meters)	FIELD STRENGTHS LIMITS (dB $\mu$ V/m)
30 ~ 88	3	40.0
88 ~ 216	3	43.5
216 ~ 960	3	46.0
960 ~ 1000	3	54.0

### 4.4. EUT Configuration on Test

The FCC PART 15 B regulations test method must be used to find the maximum emission during radiated emission test.

The configuration of EUT is the same as used in conducted emission test.

Please refer to Section 2.2.

### 4.5. Operating Condition of EUT

Same as conducted emission test, which is listed in Section 2.2 except the test set up replaced as Section 4.1.



#### 4.6. Test Procedure

The EUT and its simulators are placed on a turned table that is 0.8 meter above the ground. The turned table can rotate 360 degrees to determine the position of the maximum emission level. The EUT is set 3 meters away from the receiving antenna that is mounted on the antenna tower. The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated biconical and log periodical antenna) is used as receiving antenna. Both horizontal and vertical polarization of the antenna is set on test. In order to find the maximum emission levels, the interface cable must be manipulated according to FCC PART 15 B on radiated emission test.

The bandwidth setting on the field strength meter (R&S Test Receiver ESCI) is set at 120KHz below 1GHz, set at 1MHz above 1GHz

The frequency range from 30MHz to 1000MHz is checked.

The highest frequency of the internal sources of the EUT was below 108MHz, so the measurement was only made up to 1GHz.

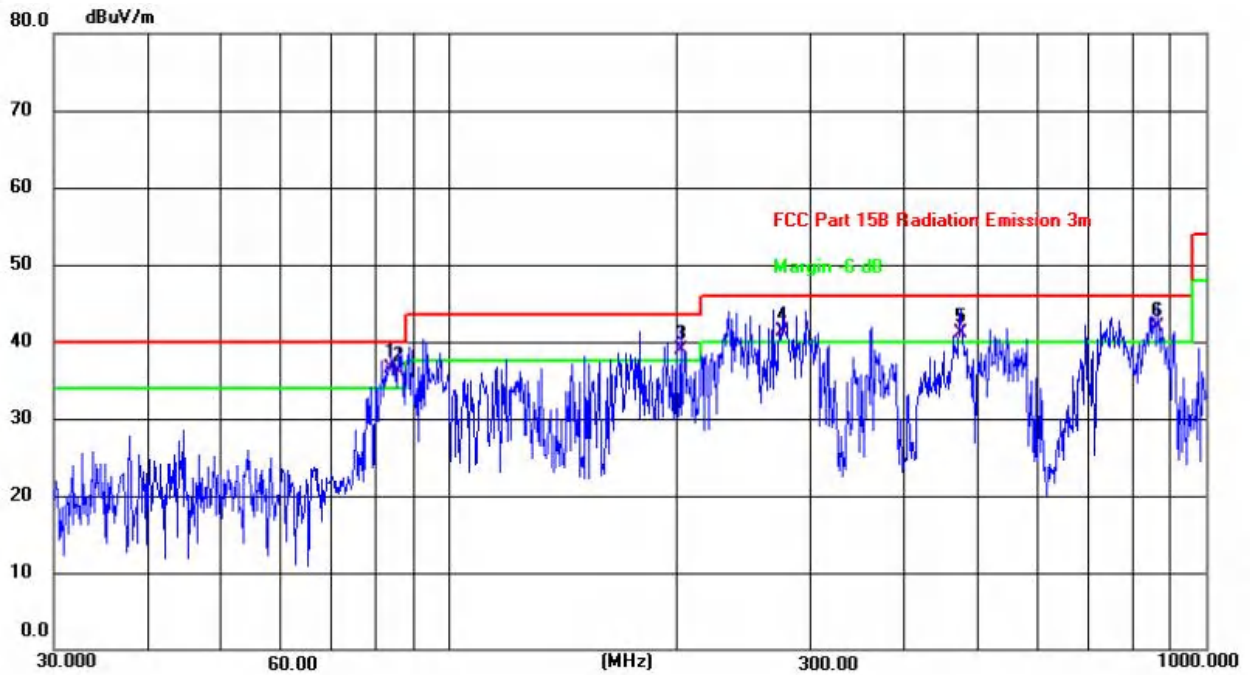
#### 4.7. Test Result

**PASS**

Please refer to the following page. Only the Worst-case test mode is shown in the report



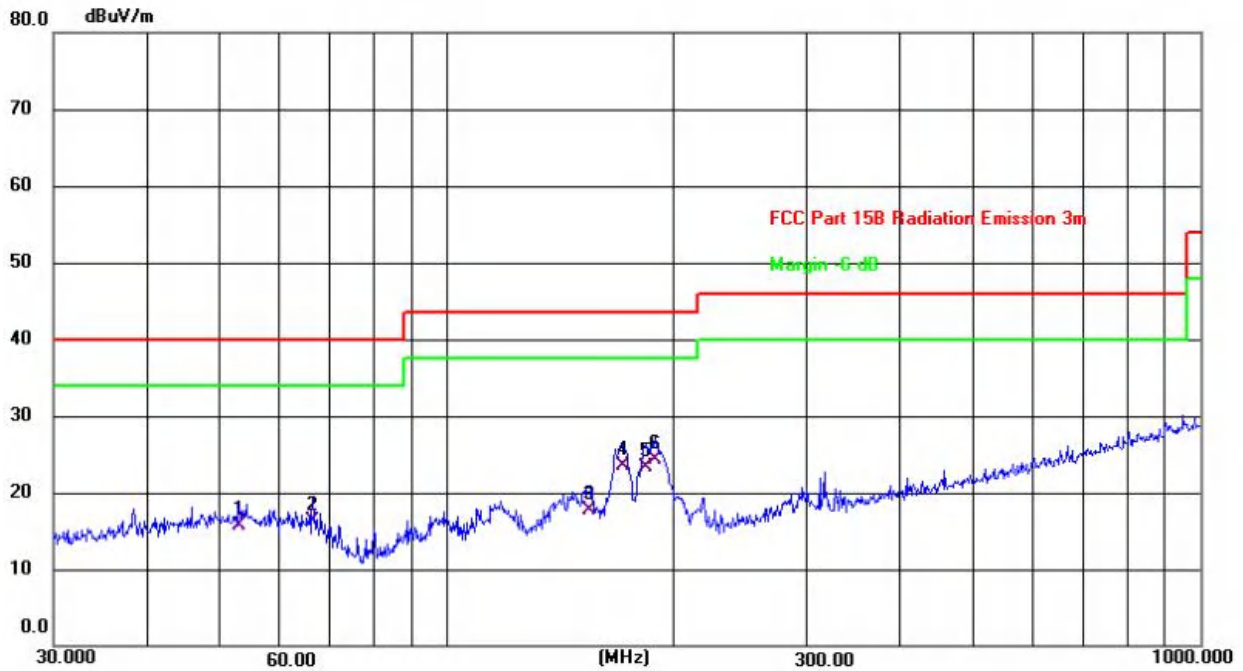
Radiation Emission Test Data			
Temperature:	26.1°C	Relative Humidity:	52%
Pressure:	1012hPa	Phase :	Horizontal
Test Voltage :	AC 120V/60Hz	Test Mode:	Charging mode



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1 *	83.8155	50.41	-13.83	36.58	40.00	-3.42	QP			P	
2 !	85.5973	49.60	-13.45	36.15	40.00	-3.85	QP			P	
3 !	202.1004	49.73	-10.81	38.92	43.50	-4.58	QP			P	
4 !	276.1234	49.82	-8.53	41.29	46.00	-4.71	QP			P	
5 !	473.8346	45.68	-4.52	41.16	46.00	-4.84	QP			P	
6 !	863.0561	40.28	1.63	41.91	46.00	-4.09	QP			P	



Radiation Emission Test Data			
Temperature:	26.1°C	Relative Humidity:	52%
Pressure:	1012hPa	Phase :	Vertical
Test Voltage :	AC 120V/60Hz	Test Mode:	Charging mode

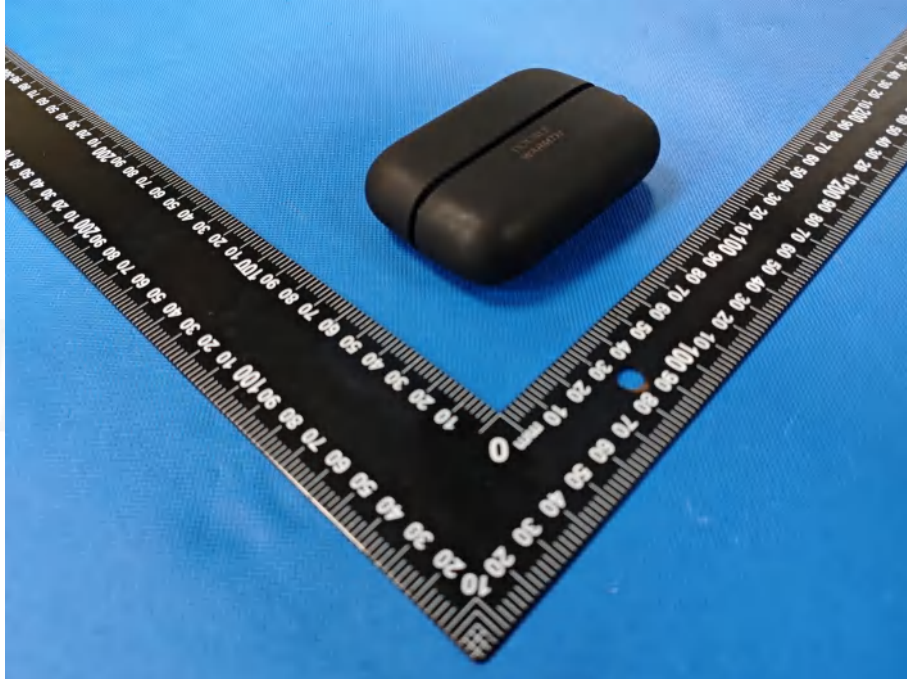


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	52.9453	24.69	-9.06	15.63	40.00	-24.37	QP			P	
2	66.2661	28.24	-11.84	16.40	40.00	-23.60	QP			P	
3	154.2785	31.56	-13.77	17.79	43.50	-25.71	QP			P	
4	170.7926	36.29	-12.85	23.44	43.50	-20.06	QP			P	
5	183.8440	35.31	-12.05	23.26	43.50	-20.24	QP			P	
6 *	188.4125	36.09	-11.72	24.37	43.50	-19.13	QP			P	

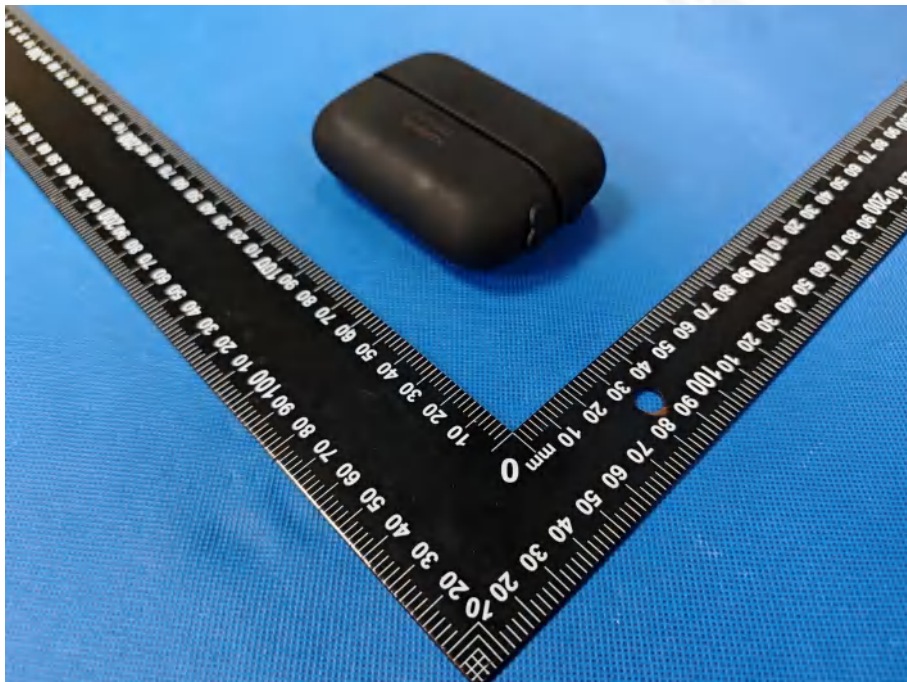


## 5.EUT PHOTOGRAPHS

EUT Photo 1



EUT Photo 2

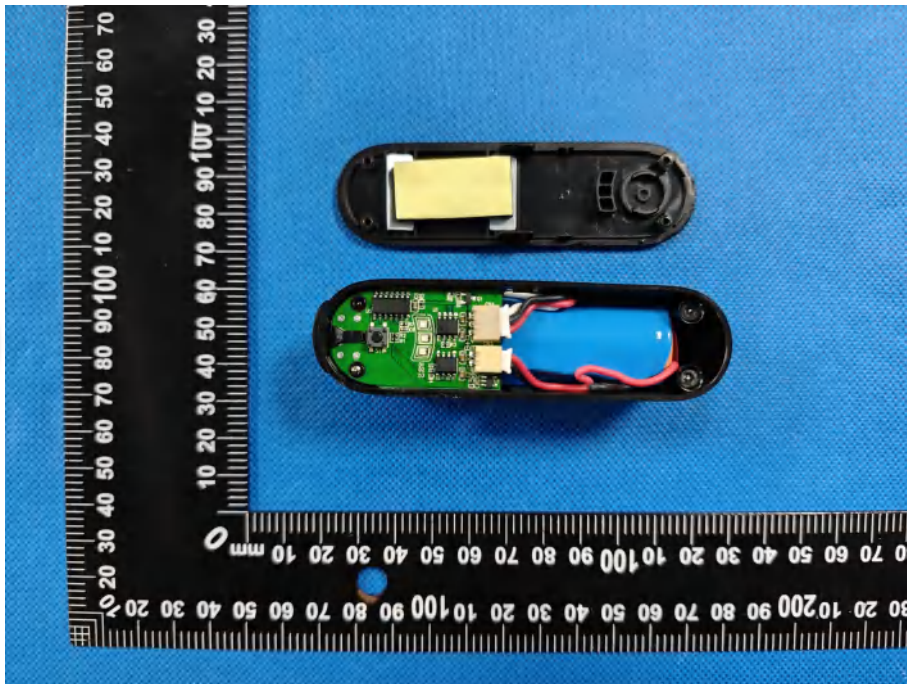




EUT Photo 3

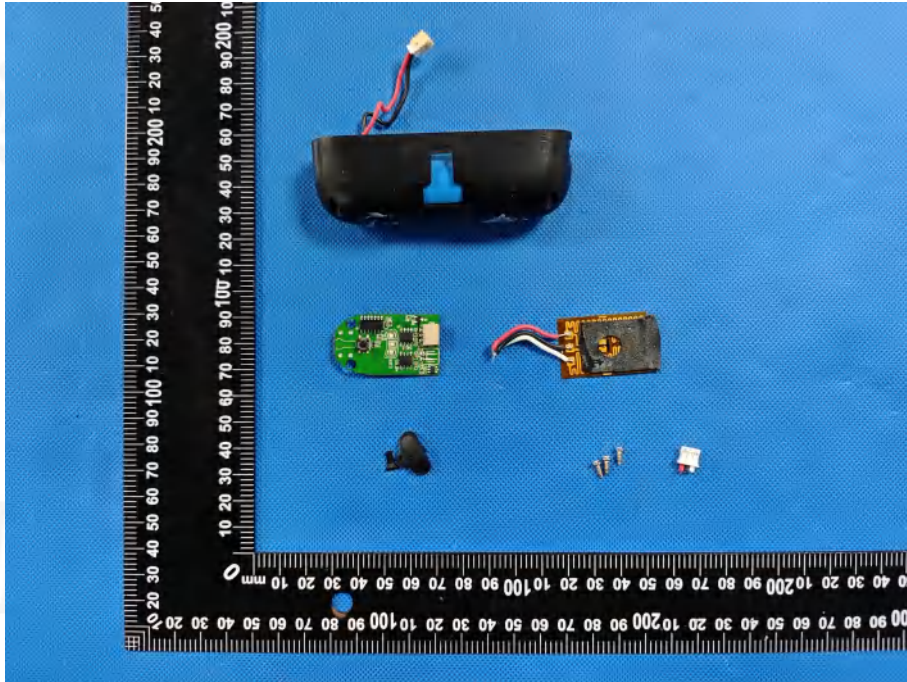


EUT Photo 4





EUT Photo 5

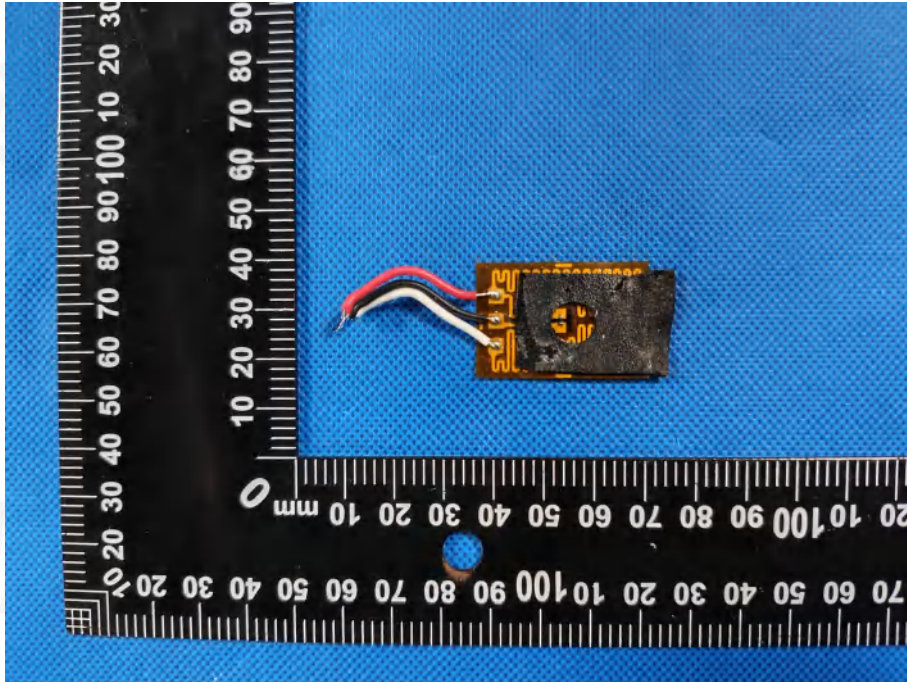


EUT Photo 6

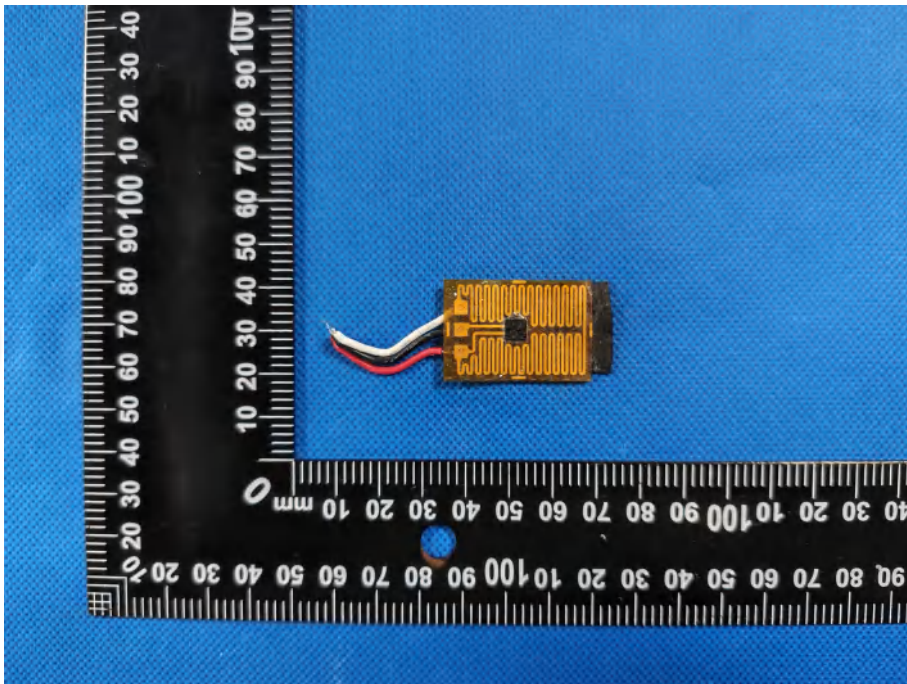




EUT Photo 7

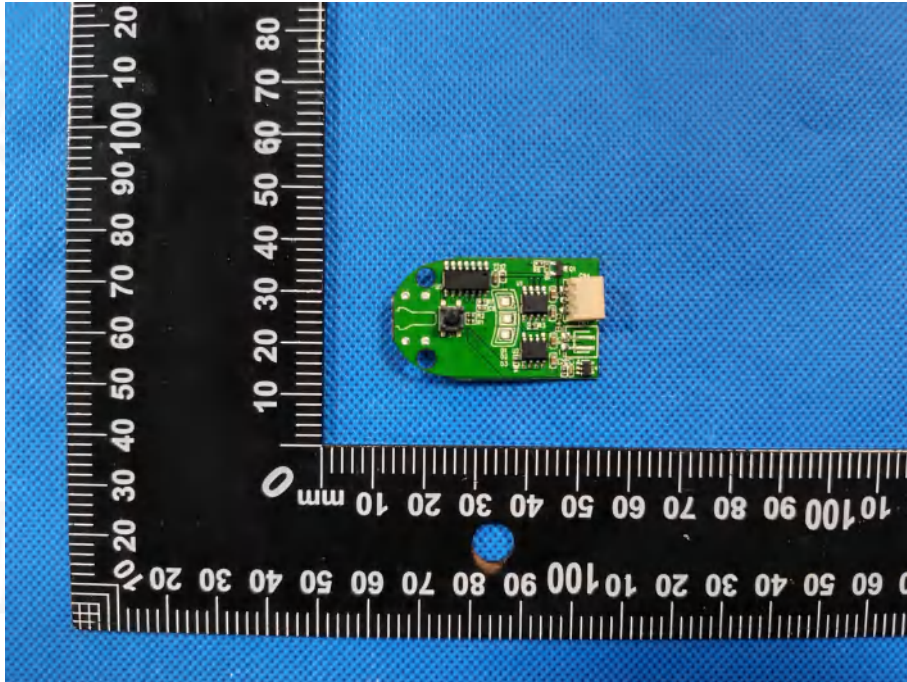


EUT Photo 8

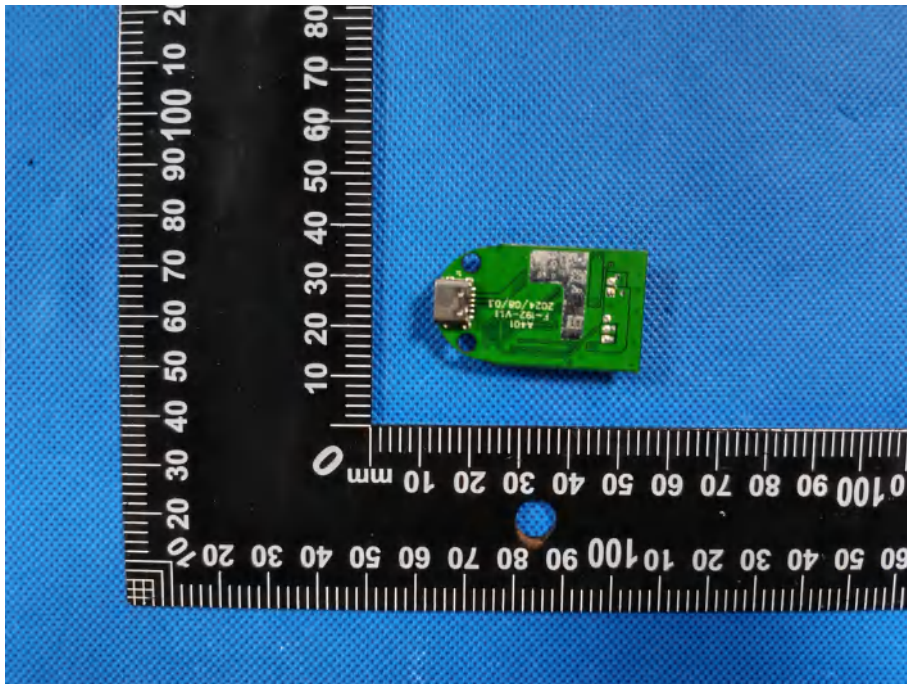




EUT Photo 9



EUT Photo 10



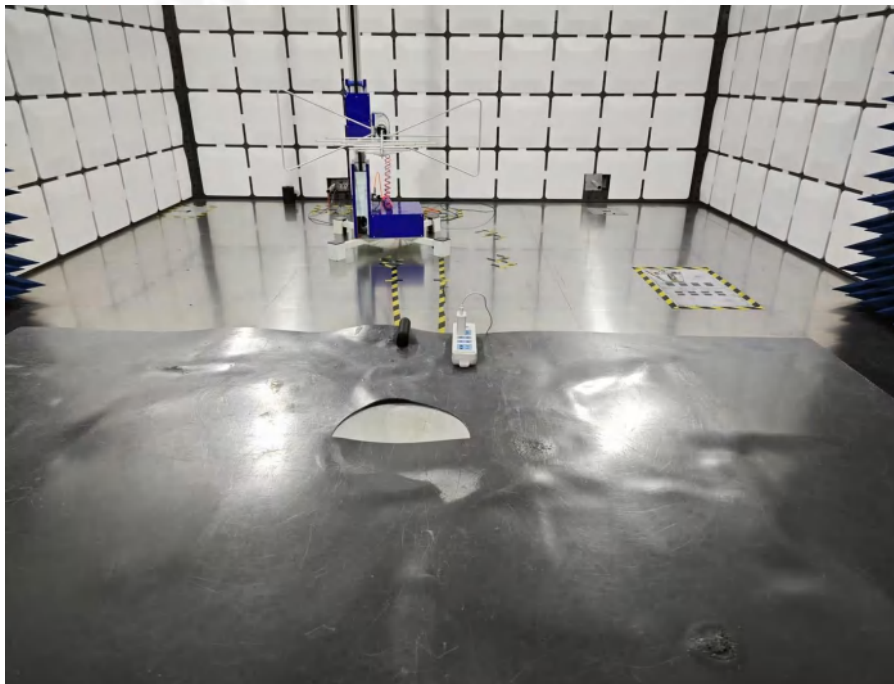


## 6. TEST SETUP PHOTOGRAPHS

CE



RE



\*\*\*\*\* END OF REPORT \*\*\*\*\*