



# TEST REPORT

**Report Number**..... : **ZKT-251118L27617E**

Date of Test..... Nov. 13, 2025 - Nov. 21, 2025

Date of issue..... : Nov. 21, 2025

Total number of pages..... : 38

Test Result ..... : PASS

**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** ..... : **Zhejiang Lijujia Sports Equipment Co., Ltd.**

Address ..... : No.58, Dangui South Road, Xicheng Street, Yongkang City

**Manufacturer's name** ..... : **Zhejiang Lijujia Sports Equipment Co., Ltd.**

Address ..... : No.58, Dangui South Road, Xicheng Street, Yongkang City

**Test specification:**

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.

**Product name**..... : **Walking treadmill**

Trademark ..... : /

Model/Type reference..... : 3827, 3827W

Ratings..... : AC 220 V - 240 V, 50 / 60 Hz



**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

**Reviewer (name + signature)**.....: Jackson Fang

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





## TABLE OF CONTENT

	Page
<b>1. VERSION .....</b>	<b>5</b>
<b>2. GENERAL INFORMATION .....</b>	<b>6</b>
2.1 Description of Device (EUT) .....	6
2.2 Other Accessory Device List and Details .....	6
2.3 Test Facility .....	6
2.4 MEASUREMENT UNCERTAINTY .....	6
2.5 Test Instrument Used .....	7
<b>3. CONDUCTED EMISSION AT THE MAINS TERMINALS TEST .....</b>	<b>9</b>
3.1 Block Diagram Of Test Setup .....	9
3.2 Test Standard .....	9
3.3 Power Line Conducted Emission Limit .....	9
3.4 EUT Configuration on Test .....	9
3.5 Operating Condition of EUT .....	9
3.6 Test Procedure .....	9
3.7 Test Result .....	9
<b>4. RADIATED EMISSIONS TEST .....</b>	<b>12</b>
4.1 Block Diagram Of Test Setup .....	12
4.2 Limits .....	12
4.3 Test Procedure .....	12
4.4 Test Results .....	12
<b>5. HARMONIC CURRENT EMISSION TEST .....</b>	<b>15</b>
5.1 Block Diagram of Test Setup .....	15
5.2 Test Standard .....	15
5.3 Operating Condition of EUT .....	15
5.4 Test Procedure .....	15
5.5 Test Results .....	15
<b>VOLTAGE FLUCTUATIONS &amp; FLICKER TEST .....</b>	<b>17</b>
6.1 Block Diagram of Test Setup .....	17
6.2 Test Standard .....	17
6.3 Operating Condition of EUT .....	17
6.4 Test Procedure .....	17
6.5 Test Results .....	17
<b>ELECTROSTATIC DISCHARGE IMMUNITY TEST .....</b>	<b>19</b>
7.1 Block Diagram of Test Setup .....	19
7.2 Test Standard .....	19
7.3 Severity Levels and Performance Criterion .....	19
7.4 EUT Configuration .....	20
7.5 Operating Condition of EUT .....	20
7.6 Test Procedure .....	20
7.7 Test Results .....	20
<b>RF FIELD STRENGTH SUSCEPTIBILITY TEST .....</b>	<b>22</b>
8.1 Block Diagram of Test Setup .....	22
8.2 Test Standard .....	22
8.3 Severity Levels and Performance Criterion .....	22
8.4 EUT Configuration on Test .....	23
8.5 Operating Condition of EUT .....	23
8.6 Test Procedure .....	23
8.7 Test Results .....	24
<b>ELECTRICAL FAST TRANSIENT/BURST IMMUNITY TEST .....</b>	<b>25</b>
9.1 Block Diagram of EUT Test Setup .....	25



9.2 Test Standard .....	25
9.3 Severity Levels and Performance Criterion .....	25
9.4 EUT Configuration on Test .....	26
9.5 Operating Condition of EUT .....	26
9.6 Test Procedure .....	26
9.7 Test Results .....	27
<b>10. SURGE TEST .....</b>	<b>28</b>
10.1 Block Diagram of EUT Test Setup .....	28
10.2 Test Standard .....	28
10.3 Severity Levels and Performance Criterion .....	28
10.4 EUT Configuration on Test .....	29
10.5 Operating Condition of EUT .....	29
10.6 Test Procedure .....	29
10.7 Test Result .....	29
<b>11. INJECTED CURRENTS SUSCEPTIBILITY TEST .....</b>	<b>30</b>
11.1 Block Diagram of EUT Test Setup .....	30
11.2 Test Standard .....	30
11.3 Severity Levels and Performance Criterion .....	30
11.4 EUT Configuration on Test .....	30
11.5 Operating Condition of EUT .....	31
11.6 Test Procedure .....	31
11.7 Test Result .....	31
<b>12. VOLTAGE DIPS AND INTERRUPTIONS TEST .....</b>	<b>32</b>
12.1 Block Diagram of EUT Test Setup .....	32
12.2 Test Standard .....	32
12.3 Severity Levels and Performance Criterion .....	32
12.4 EUT Configuration on Test .....	32
12.5 Operating Condition of EUT .....	33
12.6 Test Procedure .....	33
12.7 Test Result .....	33
<b>13. EUT PHOTOGRAPHS .....</b>	<b>34</b>
<b>14. EUT TEST PHOTOGRAPHS .....</b>	<b>38</b>



## 1. VERSION

Report No.	Version	Description	Approved
ZKT-251118L27617E	Rev.01	Initial issue of report	Nov. 21, 2025



## 2. GENERAL INFORMATION

### 2.1 Description of Device (EUT)

EUT:	Walking treadmill
Model Number:	3827
Model Difference:	3827 is the test model, while other models are derivative models. These models are the same on the circuit, only with different model names and appearance colors. Therefore, the test data of 3827 can represent the remaining models.
Power Supply:	AC 220 V - 240 V, 50 / 60 Hz
Highest Frequency Generated:	Below 15 MHz

### 2.2 Other Accessory Device List and Details

Description	Manufacturer	Model	Note
/	/	/	/
/	/	/	/

### 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 (150 KHz-30 MHz)	3.20
Radiated disturbance(30 MHz-1000 MHz)	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	Sep. 27, 2025	Sep. 28, 2026
2	LISN	CYBERTEK	EM5040A	E1850400149	N/A	Sep. 27, 2025	Sep. 28, 2026
3	Test Cable	N/A	C-01	N/A	N/A	Sep. 27, 2025	Sep. 28, 2026
4	Test Cable	N/A	C-02	N/A	N/A	Sep. 27, 2025	Sep. 28, 2026
5	Test Cable	N/A	C-03	N/A	N/A	Sep. 27, 2025	Sep. 28, 2026
6	EMI Test Receiver	R&S	ESCI3	101393	4.42 SP3	Sep. 27, 2025	Sep. 28, 2026
7	Triple-Loop Antenna	N/A	RF300	9194	N/A	Sep. 27, 2025	Sep. 28, 2026
8	Absorbing Clamp	DZ	ZN23201	15034	N/A	Sep. 27, 2025	Sep. 28, 2026
9	EMC Software	Frad	EZ-EMC	Ver.EMC-CON 3A1.1	N/A	\	\

## Radiation emissions&amp; Radio Test equipment

Item	Equipment	Manufacturer	Type No.	Serial No.	Firmware Version	Last calibration	Calibrated until
1	Spectrum Analyzer (9kHz-26.5GHz)	KEYSIGHT	N9020A	MY55370835	A.17.05	Sep. 27, 2025	Sep. 28, 2026
2	Spectrum Analyzer (10kHz-39.9GHz)	R&S	FSV40-N	100363	1.71 SP2	Sep. 27, 2025	Sep. 28, 2026
3	EMI Test Receiver (9kHz-7GHz)	R&S	ESCI7	100969	4.32	Sep. 27, 2025	Sep. 28, 2026
4	Bilog Antenna (30MHz-1500MHz)	Schwarzbeck	VULB9168	00877	N/A	Sep. 27, 2025	Sep. 28, 2026
5	Horn Antenna (1GHz-18GHz)	Agilent	AH-118	071145	N/A	Sep. 27, 2025	Sep. 28, 2026
6	Horn Antenna (15GHz-40GHz)	A.H.System	SAS-574	588	N/A	Sep. 27, 2025	Sep. 28, 2026
7	Loop Antenna	TESEQ	HLA6121	58357	N/A	Oct. 9, 2025	Oct. 10, 2026
8	Amplifier (30-1000MHz)	EM Electronics	EM330 Amplifier	60747	N/A	Sep. 27, 2025	Sep. 28, 2026
9	Amplifier (1GHz-26.5GHz)	HuiPu	8449B	3008A00315	N/A	Sep. 27, 2025	Sep. 28, 2026
10	Amplifier (500MHz-40GHz)	QuanJuDa	DLE-161	097	N/A	Sep. 27, 2025	Sep. 28, 2026
11	Test Cable	N/A	R-01	N/A	N/A	Sep. 27, 2025	Sep. 28, 2026
12	Test Cable	N/A	R-02	N/A	N/A	Sep. 27, 2025	Sep. 28, 2026
13	Test Cable	N/A	R-03	N/A	N/A	Sep. 27, 2025	Sep. 28, 2026
14	D.C. Power Supply	LongWei	TPR-6405D	N/A	N/A	\	\
15	EMC Software	Frad	EZ-EMC	Ver.EMC-CO N 3A1.1	N/A	\	\
16	Turntable	MF	MF-7802BS	N/A	N/A	\	\
17	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	Sep. 27, 2025	Sep. 28, 2026
2	AC Power Source	/	HPHF4010	JN1022090795	DAL40	Sep. 27, 2025	Sep. 28, 2026

## Electrostatic discharge Test

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Firmware Version	Last calibration	Calibrated until
1	ESD TEST GENERATOR	HTEC	HESD16	/	004307	Sep. 26, 2025	Sep. 27, 2026

## 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	202501	V1.3.4	Sep. 27, 2025	Sep. 28, 2026
2	DIPS Generator	HTEC	HV1P16T	202501	V1.3.4	Sep. 27, 2025	Sep. 28, 2026
3	EFT/B Generator	HTEC	HCOMPACT5	202501	V1.3.4	Sep. 27, 2025	Sep. 28, 2026
4	EFT/B Clamp	HTEC	H3C	/	N/A	Sep. 27, 2025	Sep. 28, 2026

## 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	Sep. 27, 2025	Sep. 28, 2026

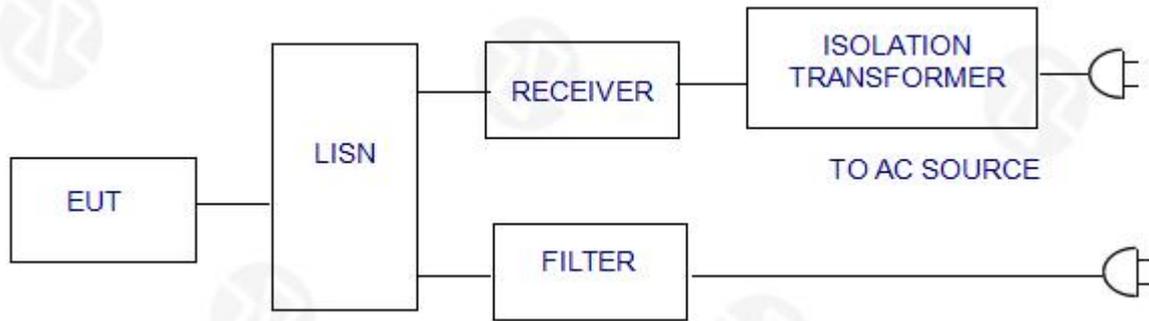
## Radio-frequency fields Immunity Test

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Firmware Version	Last calibration	Calibrated until
1	Signal Generator	TESEQ	NSG4070-75	31477	V1.30	Sep. 27, 2025	Sep. 28, 2026
2	CDN	SCHWARZBECK	CDN M2/M3PE 16A	00128	N/A	Sep. 27, 2025	Sep. 28, 2026
3	Attenuator	GuoRenTong Xin	SGR-SJQ-6dB -DC-3	N/A	N/A	Sep. 27, 2025	Sep. 28, 2026



### 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.

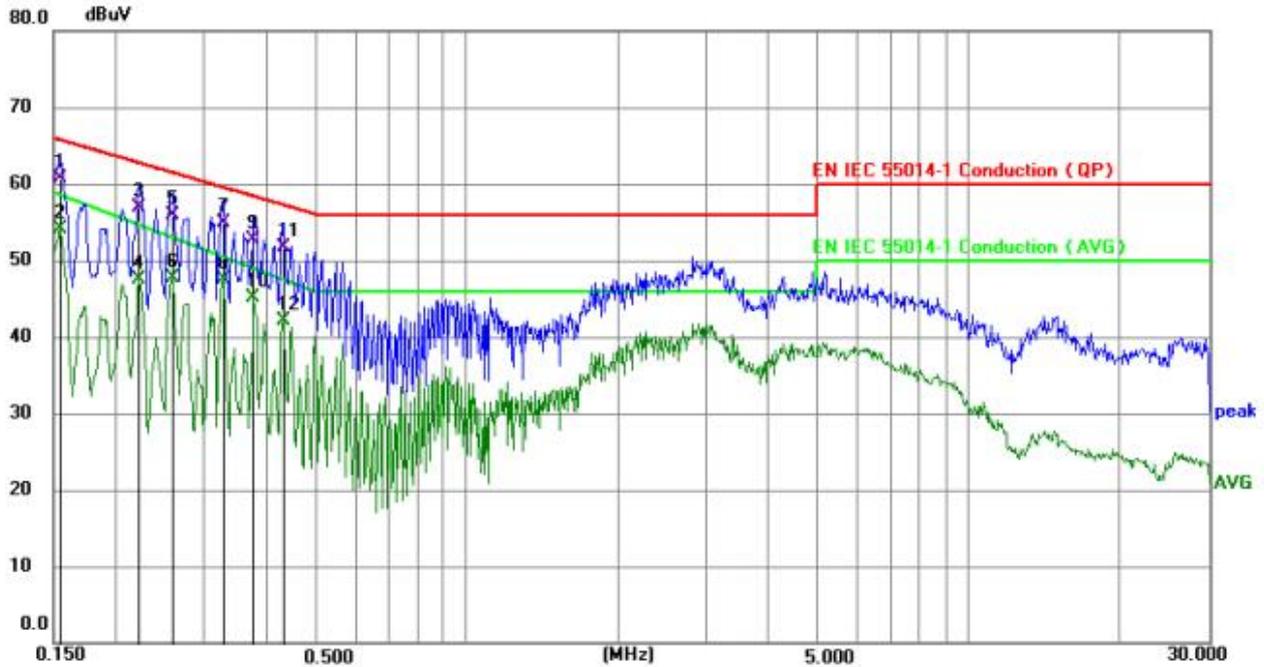
#### 3.7 Test Result

Pass

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



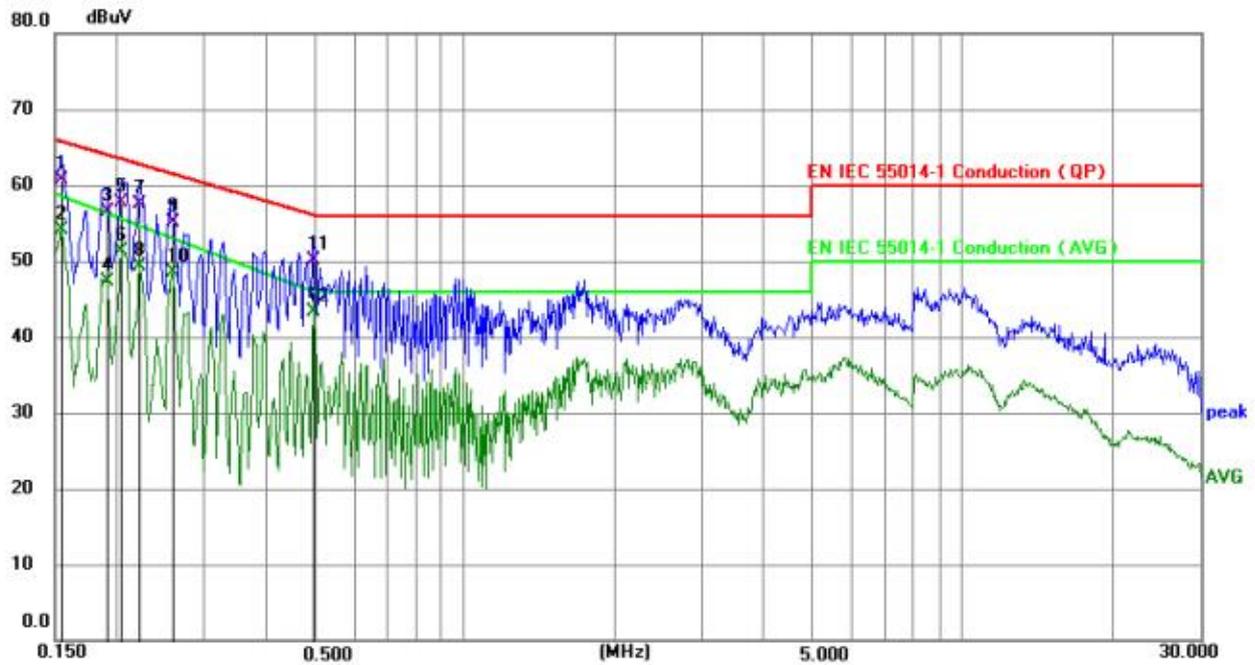
Conducted Emission At The Mains Terminals Test Data			
Temperature:	23.8°C	Relative Humidity:	54%
Pressure:	1014hPa	Phase :	Live
Test Voltage :	AC 230V/50Hz	Test Mode:	Working mode



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1544	50.83	9.89	60.72	65.76	-5.04	QP	P	
2	0.1544	44.27	9.89	54.16	58.69	-4.53	AVG	P	
3	0.2220	47.00	9.92	56.92	62.74	-5.82	QP	P	
4	0.2220	37.64	9.92	47.56	54.77	-7.21	AVG	P	
5	0.2580	45.97	9.93	55.90	61.50	-5.60	QP	P	
6	0.2580	37.74	9.93	47.67	53.14	-5.47	AVG	P	
7	0.3255	44.93	9.96	54.89	59.57	-4.68	QP	P	
8 *	0.3255	37.56	9.96	47.52	50.63	-3.11	AVG	P	
9	0.3750	42.69	9.98	52.67	58.39	-5.72	QP	P	
10	0.3750	35.05	9.98	45.03	49.11	-4.08	AVG	P	
11	0.4290	41.81	9.99	51.80	57.27	-5.47	QP	P	
12	0.4290	32.03	9.99	42.02	47.65	-5.63	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:	Working mode



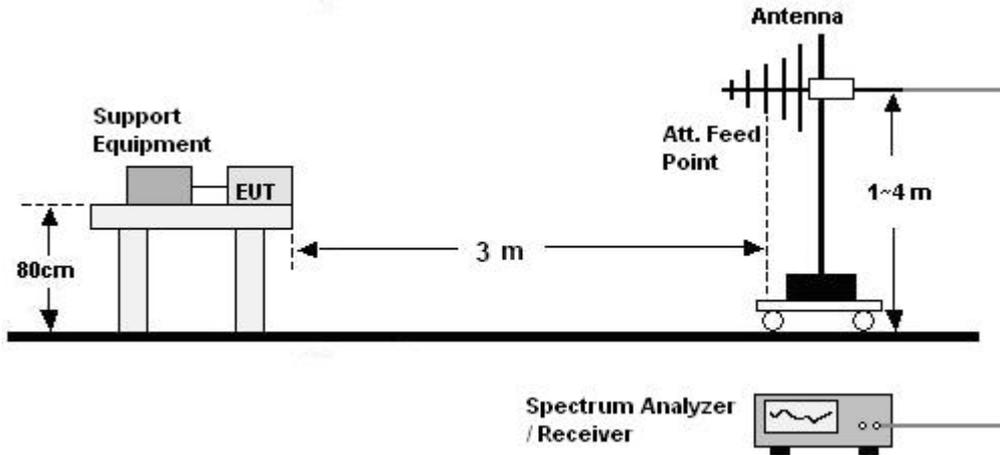
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1544	50.83	9.89	60.72	65.76	-5.04	QP	P	
2	0.1544	44.14	9.89	54.03	58.69	-4.66	AVG	P	
3	0.1905	46.67	9.91	56.58	64.01	-7.43	QP	P	
4	0.1905	37.39	9.91	47.30	56.42	-9.12	AVG	P	
5	0.2040	47.76	9.91	57.67	63.45	-5.78	QP	P	
6	0.2040	41.49	9.91	51.40	55.68	-4.28	AVG	P	
7	0.2220	47.59	9.92	57.51	62.74	-5.23	QP	P	
8	0.2220	39.35	9.92	49.27	54.77	-5.50	AVG	P	
9	0.2580	45.16	9.93	55.09	61.50	-6.41	QP	P	
10	0.2580	38.49	9.93	48.42	53.14	-4.72	AVG	P	
11	0.4964	40.17	10.02	50.19	56.06	-5.87	QP	P	
12 *	0.4964	33.30	10.02	43.32	46.08	-2.76	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:

- a. The Product was placed on the nonconductive turntable 0.8 m 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.

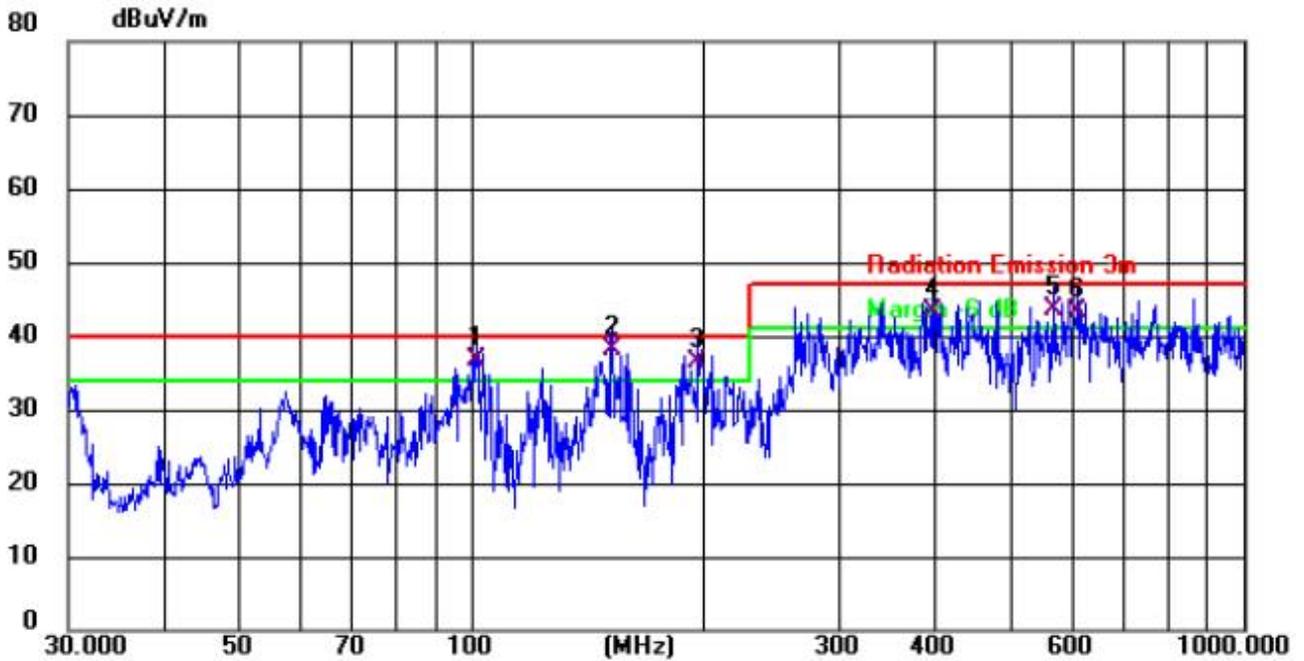
### 4.4 Test Results

Pass

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



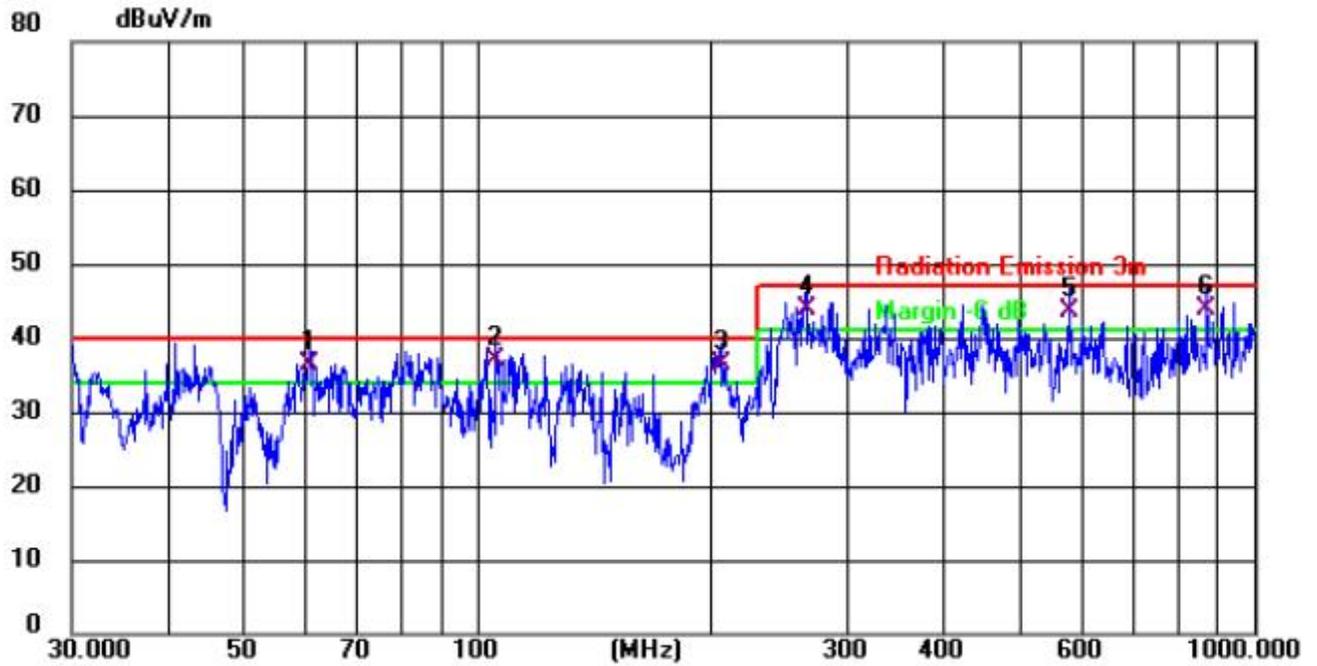
Radiated Emissions Test Data			
Temperature:	24.1°C	Relative Humidity:	54%
Pressure:	1014hPa	Polarization :	Horizontal
Test Voltage :	AC 230V/50Hz	Test Mode:	Working mode



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 !	101.6443	46.83	-10.01	36.82	40.00	-3.18	QP			P	
2 *	152.1297	50.86	-12.81	38.05	40.00	-1.95	QP			P	
3 !	196.5098	46.77	-10.22	36.55	40.00	-3.45	QP			P	
4 !	396.2414	48.44	-5.12	43.32	47.00	-3.68	QP			P	
5 !	568.6126	45.71	-2.02	43.69	47.00	-3.31	QP			P	
6 !	609.9215	44.64	-1.22	43.42	47.00	-3.58	QP			P	



Radiated Emissions Test Data			
Temperature:	24.1°C	Relative Humidity:	54%
Pressure:	1014hPa	Polarization :	Vertical
Test Voltage :	AC 230V/50Hz	Test Mode:	Working mode

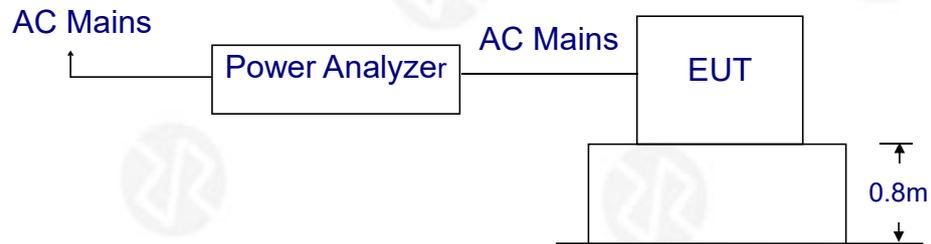


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1 !	60.9174	45.97	-9.65	36.32	40.00	-3.68	QP			P	
2 *	105.6414	47.49	-10.37	37.12	40.00	-2.88	QP			P	
3 !	205.6750	46.16	-9.78	36.38	40.00	-3.62	QP			P	
4 !	264.7456	51.70	-7.87	43.83	47.00	-3.17	QP			P	
5 !	576.6443	45.48	-1.86	43.62	47.00	-3.38	QP			P	
6 !	869.1301	40.87	2.97	43.84	47.00	-3.16	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 + A2:2024

### 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

**PASS**



Parameter values during test:

V\_RMS (Volts): 229.8  
I\_RMS(mA): 1241.1  
Power (Watts): 285.2  
Frequency(Hz): 0.0  
Crest Factor: 0.121  
Power Factor: 1.000

Harm#	Harms(filtered) (mA)	Limit (mA)	Harms(avg) (mA)	100%Limit	Harms(max) (mA)	150%Limit	Status
I_Fund	1241.000						
2	0.000	1080.000	0.100	0.009	0.000	0.000	Pass
3	5.400	2300.000	5.500	0.239	5.500	0.159	Pass
4	0.100	430.000	0.200	0.047	0.100	0.016	Pass
5	0.000	1140.000	0.100	0.009	0.100	0.006	Pass
6	0.200	300.000	0.200	0.067	0.200	0.044	Pass
7	0.700	770.000	0.700	0.091	0.800	0.069	Pass
8	0.000	230.000	0.100	0.043	0.100	0.029	Pass
9	0.000	400.000	0.000	0.000	0.000	0.000	Pass
10	0.000	184.000	0.000	0.000	0.000	0.000	Pass
11	0.100	330.000	0.200	0.061	0.100	0.020	Pass
12	0.000	153.300	0.100	0.065	0.000	0.000	Pass
13	0.000	210.000	0.100	0.048	0.000	0.000	Pass
14	0.000	131.400	0.100	0.076	0.000	0.000	Pass
15	0.100	150.000	0.100	0.067	0.100	0.044	Pass
16	0.000	115.000	0.000	0.000	0.000	0.000	Pass
17	0.000	132.400	0.000	0.000	0.000	0.000	Pass
18	0.000	102.200	0.000	0.000	0.000	0.000	Pass
19	0.000	118.400	0.100	0.084	0.000	0.000	Pass
20	0.000	92.000	0.000	0.000	0.000	0.000	Pass
21	0.000	107.100	0.000	0.000	0.000	0.000	Pass
22	0.000	83.600	0.000	0.000	0.000	0.000	Pass
23	0.100	97.800	0.200	0.204	0.100	0.068	Pass
24	0.000	76.700	0.000	0.000	0.000	0.000	Pass
25	0.100	90.000	0.100	0.111	0.100	0.074	Pass
26	0.000	70.800	0.000	0.000	0.000	0.000	Pass
27	0.000	83.300	0.000	0.000	0.000	0.000	Pass
28	0.000	65.700	0.000	0.000	0.000	0.000	Pass
29	0.000	77.600	0.000	0.000	0.000	0.000	Pass
30	0.000	61.300	0.000	0.000	0.000	0.000	Pass
31	0.000	72.600	0.100	0.138	0.100	0.092	Pass
32	0.000	57.500	0.000	0.000	0.000	0.000	Pass
33	0.000	68.200	0.000	0.000	0.000	0.000	Pass
34	0.000	54.100	0.000	0.000	0.000	0.000	Pass
35	0.000	64.300	0.000	0.000	0.000	0.000	Pass
36	0.000	51.100	0.000	0.000	0.000	0.000	Pass
37	0.000	60.800	0.000	0.000	0.000	0.000	Pass
38	0.000	48.400	0.000	0.000	0.000	0.000	Pass
39	0.000	57.700	0.000	0.000	0.000	0.000	Pass
40	0.000	46.000	0.000	0.000	0.000	0.000	Pass



## 6. VOLTAGE FLUCTUATIONS & FLICKER TEST

### 6.1 Block Diagram of Test Setup

Same as Section 5.1.

### 6.2 Test Standard

EN 61000-3-3:2013 + A1:2019 + 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**

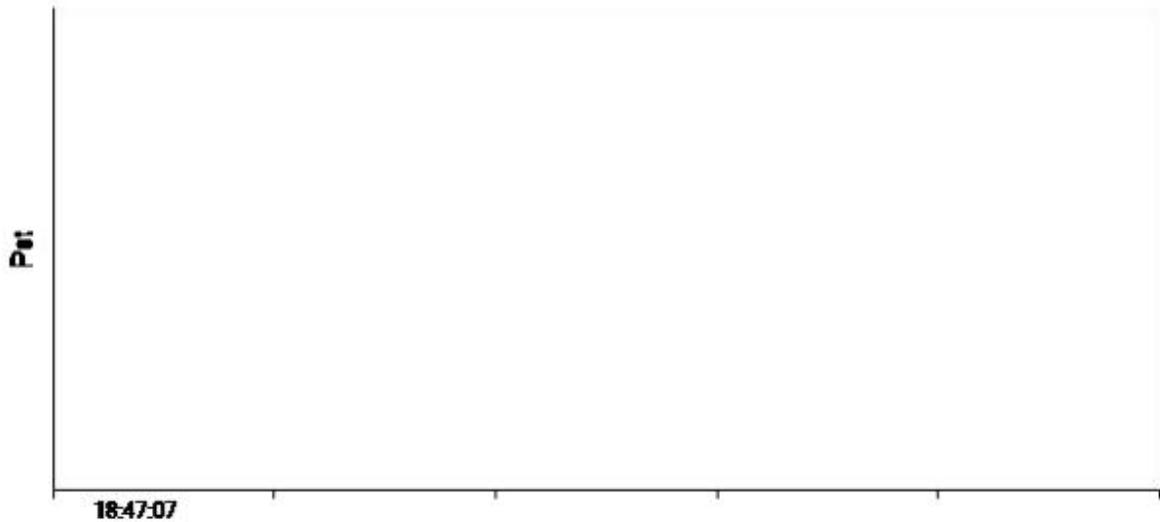


Load Power : 0.285 kW  
Load Current : 1.242 Arms  
Nominal Voltage : 229.80 Vrms

Power Factor:1.000  
Crest Factor:1.409

Test Result: Pass Status: Test Completed

Psti and limit line European Limits



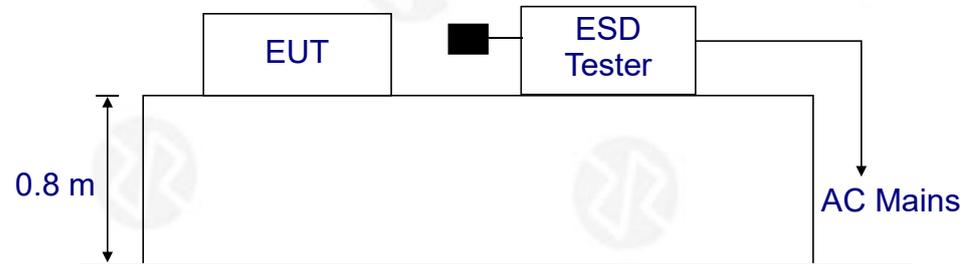
**Result:**

T-max (ms):	0.00	Test limit (ms):	500.00	Pass
Highest dc (%):	0.00	Test limit (%):	3.30	Pass
Highest dmax (%):	0.00	Test limit (%):	4.00	Pass
Highest Pst (10 min. period):	0.00	Test limit:	1.00	Pass



## 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:±8KV  
Level: 2 / Contact Discharge:±4KV

### 7.3 Severity Levels and Performance Criterion

#### 7.3.1 Severity level

Level	Test Voltage Contact Discharge (KV)	Test Voltage Air Discharge (KV)
1.	±2	±2
2.	±4	±4
3.	±6	±8
4.	±8	±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.

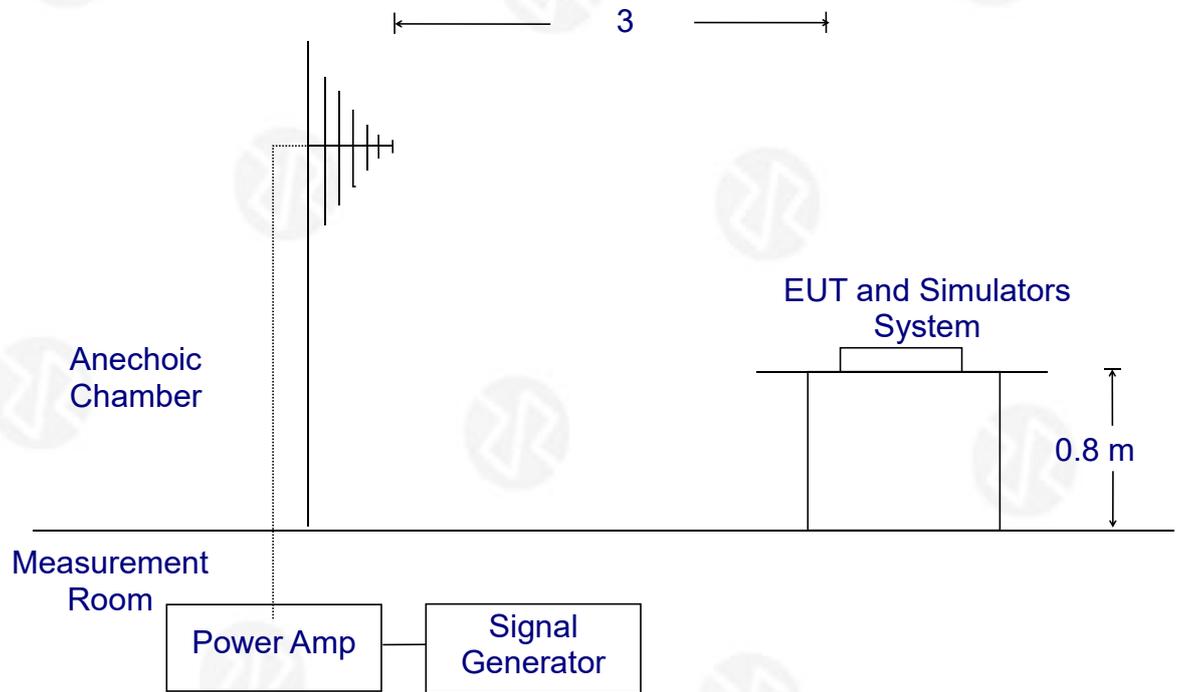


ESD Test Data				
Temperature:	26°C	Humidity:	52%	
Power Supply :	AC 230V/50Hz	Test Mode:	Mode 1	
Air Discharge: ± 8KV Contact Discharge: ± 4KV				
Test Points	Air Discharge	Contact Discharge	Performance Criterion	Result
Enclosure	±2,4,8KV	N/A	B	PASS
Slit	±2,4,8KV	N/A	B	PASS
Ports	N/A	±2,4 KV	B	PASS
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 °C		Humidity : 52.2 %	
Field Strength: 3 V/m		Criterion: A	
Power Supply: DC 5 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 : 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:

Level	Open Circuit Output Test Voltage $\pm 10\%$	
	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:	Mode 1	
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

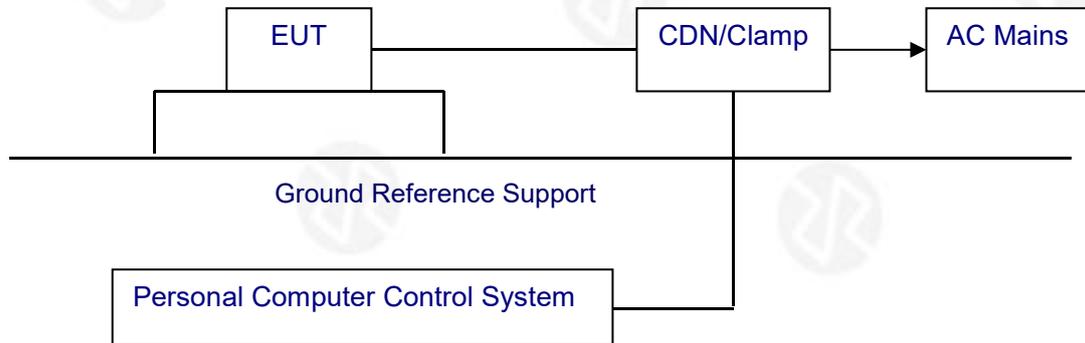
PASS

Surge Test Data						
Temperature:		26°C		Humidity:		52%
Power Supply:		AC 230V/50Hz		Test Mode:		Mode 1
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:		Mode 1
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						



## 12. VOLTAGE DIPS AND INTERRUPTIONS TEST

### 12.1 Block Diagram of EUT Test Setup



### 12.2 Test Standard

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

### 12.3 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.

### 12.4 EUT Configuration on Test

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



### 12.5 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.

### 12.6 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.

### 12.7 Test Result

PASS

DIPS Test Data			
Temperature:	26°C	Humidity:	52%
Power Supply:	AC 230V/50Hz	Test Mode:	Mode 1
Environmental Phenomena	Test Specification	Units	Performance Criterion
Voltage Dips	70 25	% Reduction period	C
	40 10	% Reduction period	C
Voltage Interruptions	0 0.5	% Reduction period	C



### 13. EUT PHOTOGRAPHS

EUT Photo 1



EUT Photo 2





EUT Photo 3

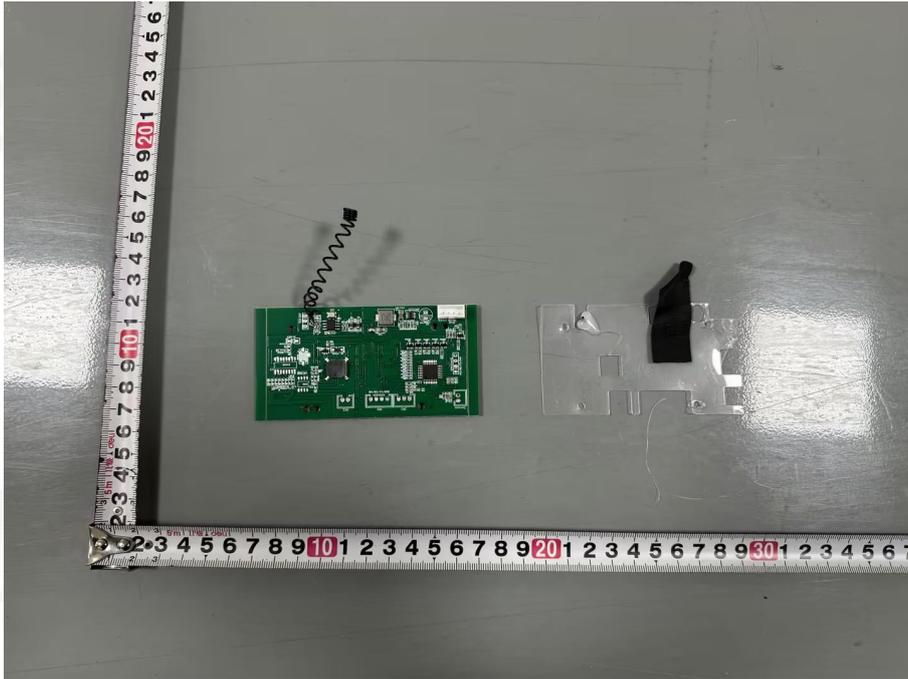


EUT Photo 4

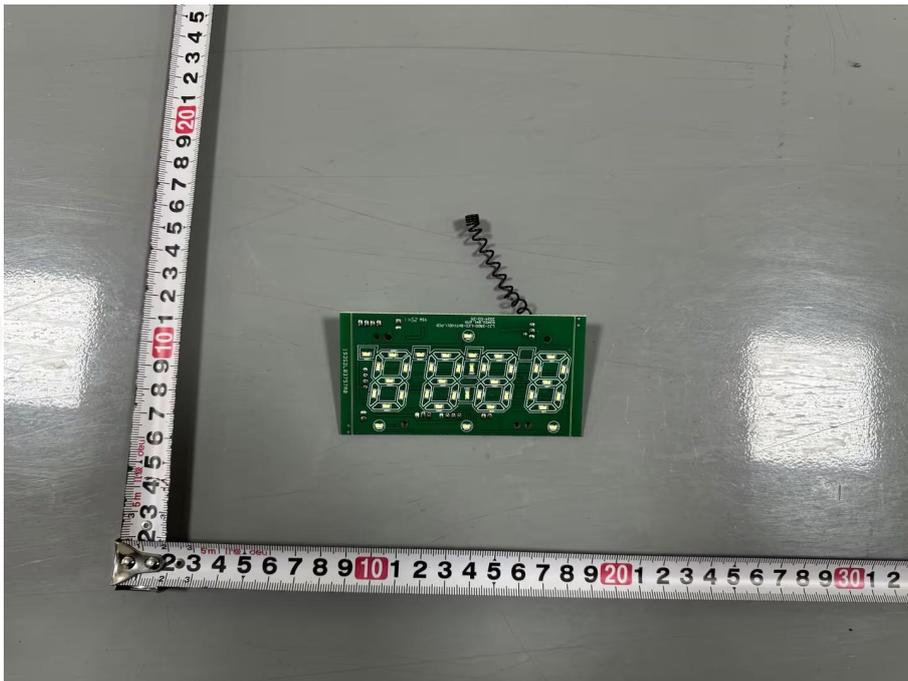




EUT Photo 5

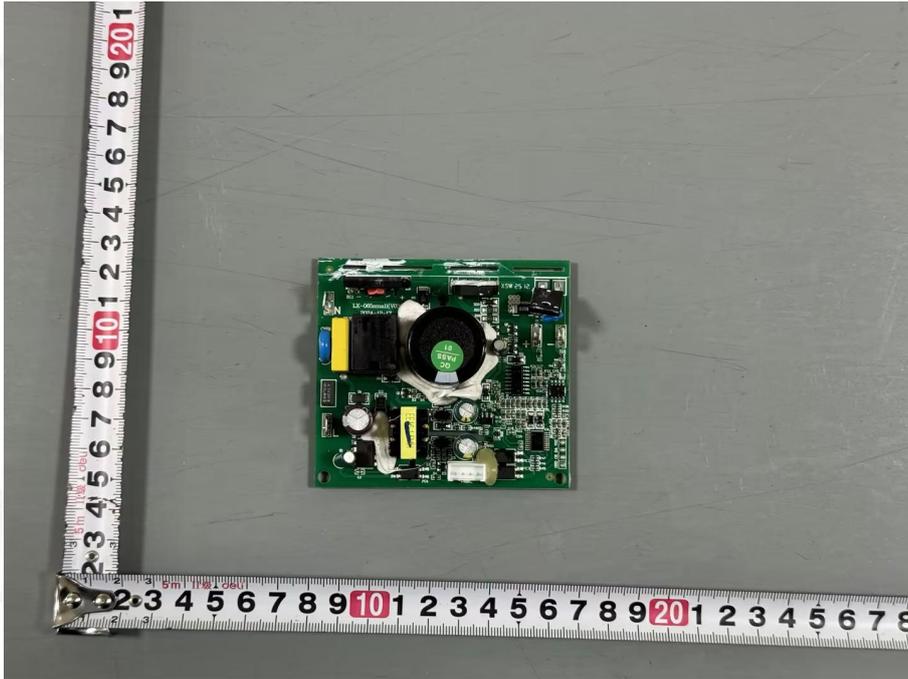


EUT Photo 6

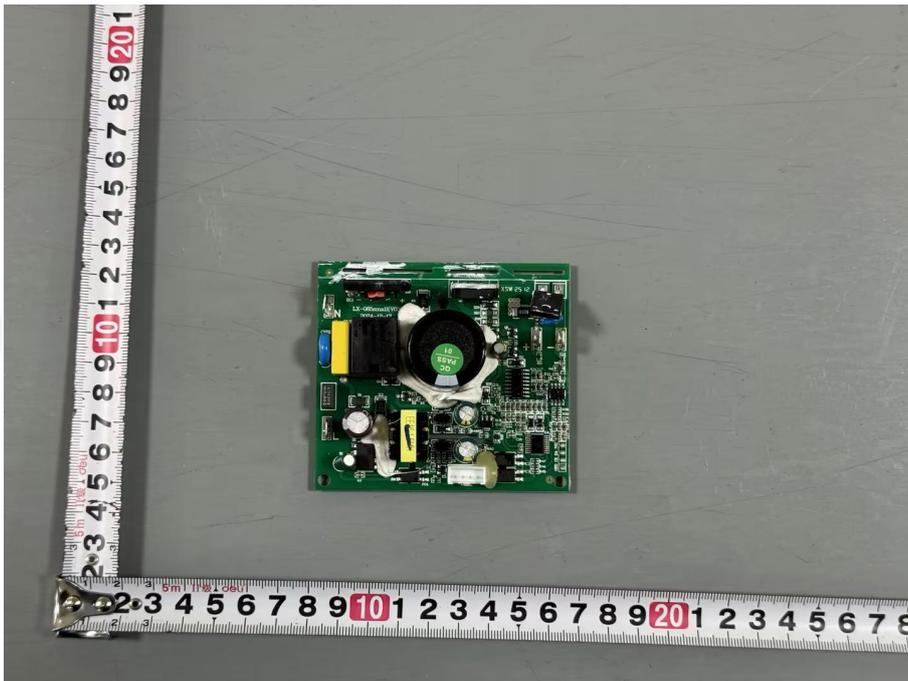




EUT Photo 7



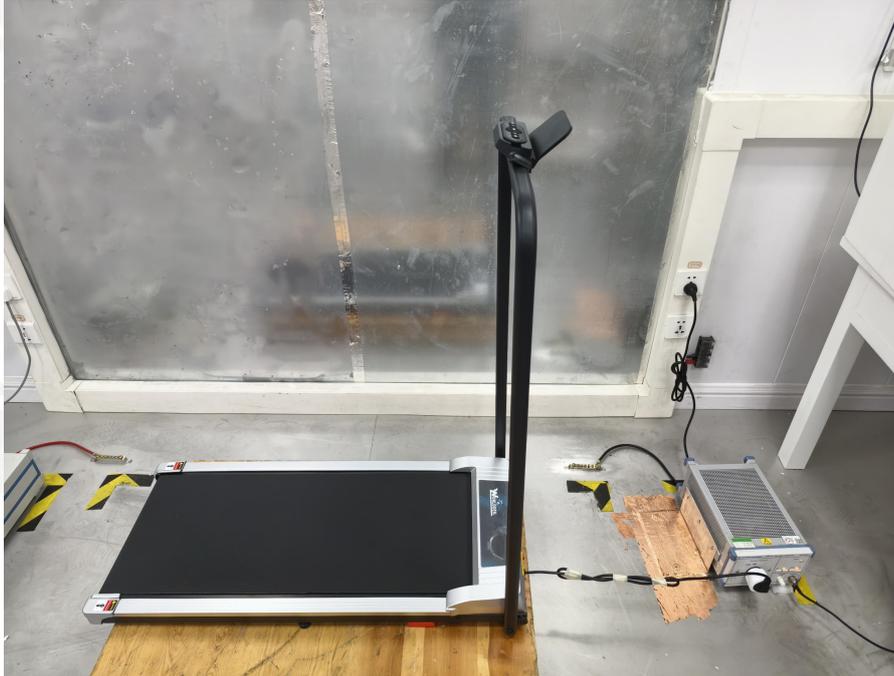
EUT Photo 8



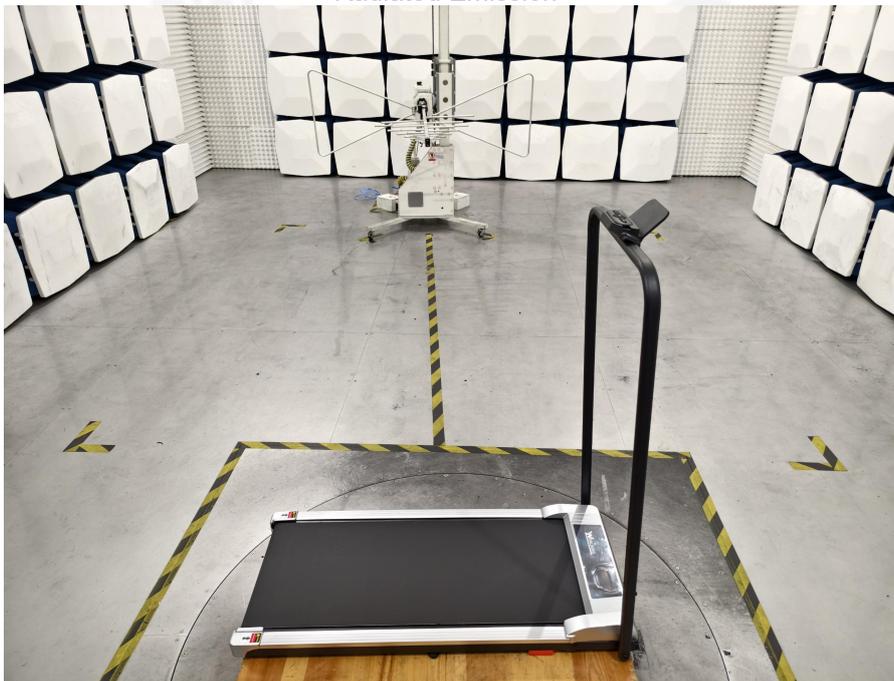


## 14. EUT TEST PHOTOGRAPHS

Conducted Emission



Radiated Emission



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