



TEST REPORT

Report Number..... : **ZKT-250925L23535E**

Date of Test..... Sept. 26, 2025

Date of issue..... : Sept. 26, 2025

Total number of pages..... : 40

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 RUICHENG MECHANICAL POWER CO., LTD**

Address : SHENTANG INDUSTRIAL ZONE, WUYI CITY, ZHEJIANG, CHINA

Manufacturer's name : **ZHEJIANG RUICHENG MECHANICAL POWER CO., LTD**

Address : SHENTANG INDUSTRIAL ZONE, WUYI CITY, ZHEJIANG, CHINA

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.

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Product name..... : **VIBRATION PLATE**

Trademark : /

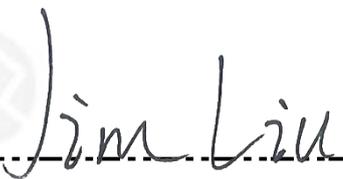
Model/Type reference..... : RC-CFM-V98
RC-CFM-V16, RC-CFM-V71B, RC-CFM-V63, RC-CFM-V66,
RC-CFM-V68, RC-CFM-V70, RC-CFM-V71, RC-CFM-V73,
RC-CFM-V76, RC-CFM-V77, RC-CFM-V79, RC-CFM-V81,
RC-CFM-V67, RC-CFM-V69, S8HF-VPO2, S8HF-VPO1, V16A,
V16B, V16C, V16D, V39A, V63A, V66A, V66B, V66C, V66S, V67A,
V67B, V68A, V69A, V70A, V70B, V70C, V71A, V71B, V71C, V71D,
V71G, V72A, V72-S, V73A, V73B, V76A, V76B, V76C, V76S, V77A,
V77S, V77-SH, V79A, V79B, V79C, V81A, V81B, V86A, V86B, V96A,
V97A, V98A, V99A, V98, V86, V97, V66

Ratings..... : Input: AC 200 - 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 



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1. VERSION

Report No.	Version	Description	Approved
ZKT-250925L23535E	Rev.01	Initial issue of report	Sept. 26, 2025



2. GENERAL INFORMATION

2.1 Description of Device (EUT)

EUT:	VIBRATION PLATE
Model Number:	RC-CFM-V98
Model Difference:	RC-CFM-V98 is the test model, while other models are derivative models. These models are the same on the circuit, only with different model names. Therefore, the test data of RC-CFM-V98 can represent the remaining models.
Power Supply:	Input: AC 200 - 240 V, 50 / 60 Hz
Highest Frequency Generated:	2.4 GHz

2.2 Other Accessory Device List and Details

Description	Manufacturer	Model	Note
Mobile phone	Xiaomi Communications Co., Ltd.	Xiaomi 12S Pro	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 (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. 30, 2024	Sep. 29, 2025
2	LISN	CYBERTEK	EM5040A	E1850400149	N/A	Sep. 30, 2024	Sep. 29, 2025
3	Test Cable	N/A	C-01	N/A	N/A	Sep. 30, 2024	Sep. 29, 2025
4	Test Cable	N/A	C-02	N/A	N/A	Sep. 30, 2024	Sep. 29, 2025
5	Test Cable	N/A	C-03	N/A	N/A	Sep. 30, 2024	Sep. 29, 2025
6	EMI Test Receiver	R&S	ESCI3	101393	4.42 SP3	Sep. 29, 2024	Sep. 28, 2025
7	Triple-Loop Antenna	N/A	RF300	9194	N/A	Sep. 29, 2024	Sep. 28, 2025
8	Absorbing Clamp	DZ	ZN23201	15034	N/A	Oct. 10, 2024	Oct. 09, 2025
9	EMC Software	Frad	EZ-EMC	Ver.EMC-CON 3A1.1	N/A	\	\

Radiation emissions& 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. 29, 2024	Sep. 28, 2025
2	Spectrum Analyzer (10kHz-39.9GHz)	R&S	FSV40-N	100363	1.71 SP2	Sep. 30, 2024	Sep. 29, 2025
3	EMI Test Receiver (9kHz-7GHz)	R&S	ESCI7	100969	4.32	Sep. 29, 2024	Sep. 28, 2025
4	Bilog Antenna (30MHz-1500MHz)	Schwarzbeck	VULB9168	00877	N/A	Sep. 30, 2024	Sep. 29, 2025
5	Horn Antenna (1GHz-18GHz)	Agilent	AH-118	071145	N/A	Sep. 30, 2024	Sep. 29, 2025
6	Horn Antenna (15GHz-40GHz)	A.H.System	SAS-574	588	N/A	Sep. 30, 2024	Sep. 29, 2025
7	Loop Antenna	TESEQ	HLA6121	58357	N/A	Oct. 11, 2024	Oct. 10, 2025
8	Amplifier (30-1000MHz)	EM Electronics	EM330 Amplifier	60747	N/A	Sep. 29, 2024	Sep. 28, 2025
9	Amplifier (1GHz-26.5GHz)	HuiPu	8449B	3008A00315	N/A	Sep. 29, 2024	Sep. 28, 2025
10	Amplifier (500MHz-40GHz)	QuanJuDa	DLE-161	097	N/A	Sep. 30, 2024	Sep. 29, 2025
11	Test Cable	N/A	R-01	N/A	N/A	Sep. 30, 2024	Sep. 29, 2025
12	Test Cable	N/A	R-02	N/A	N/A	Sep. 30, 2024	Sep. 29, 2025
13	Test Cable	N/A	R-03	N/A	N/A	Sep. 30, 2024	Sep. 29, 2025
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. 29, 2024	Sep. 28, 2025
2	AC Power Source	/	HPHF4010	JN1022090795	DAL40	Sep. 29, 2024	Sep. 28, 2025

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. 28, 2024	Sep. 27, 2025

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. 29, 2024	Sep. 28, 2025
2	DIPS Generator	HTEC	HV1P16T	202501	V1.3.4	Sep. 29, 2024	Sep. 28, 2025
3	EFT/B Generator	HTEC	HCOMPACT5	202501	V1.3.4	Sep. 29, 2024	Sep. 28, 2025
4	EFT/B Clamp	HTEC	H3C	/	N/A	Sep. 29, 2024	Sep. 28, 2025

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. 29, 2024	Sep. 28, 2025

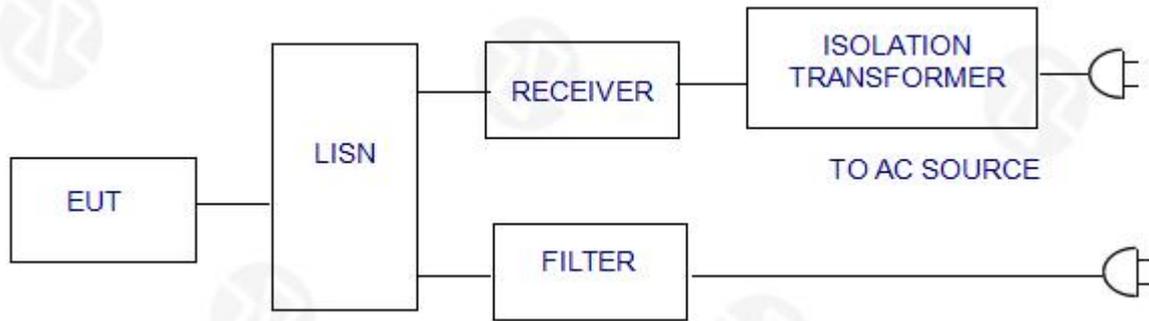
Radio-frequency fields Immunity Test

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. 29, 2024	Sep. 28, 2025
2	CDN	SCHWARZBECK	CDN M2/M3PE 16A	00128	N/A	Sep. 29, 2024	Sep. 28, 2025
3	Attenuator	GuoRenTong Xin	SGR-SJQ-6dB -DC-3	N/A	N/A	Sep. 29, 2024	Sep. 28, 2025



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.

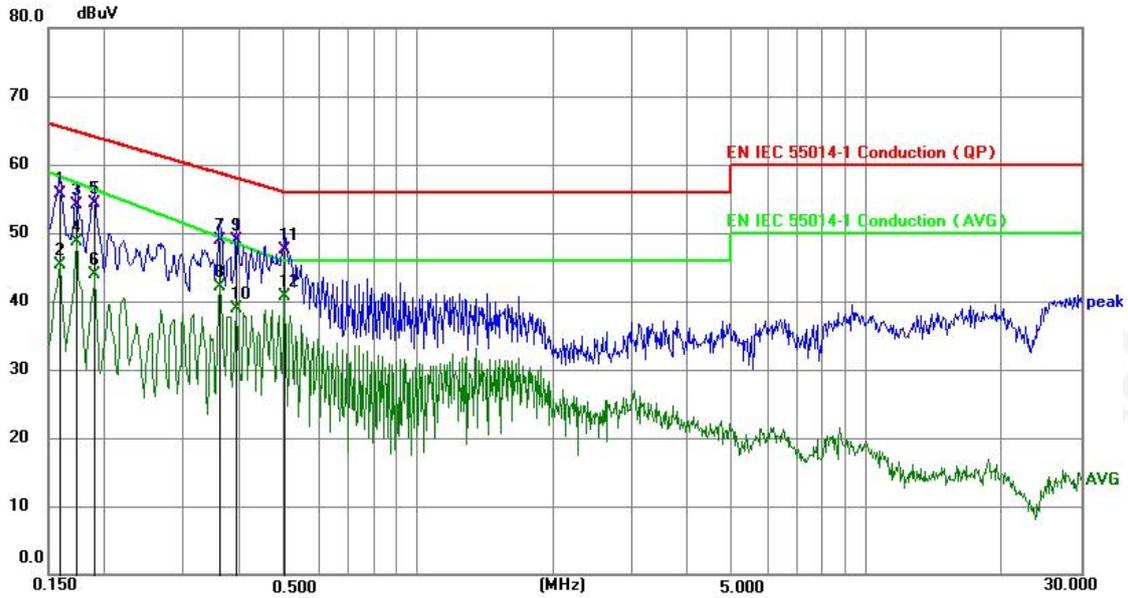
The frequency range from 150 KHz to 30 MHz is investigated.

3.7 Test Result

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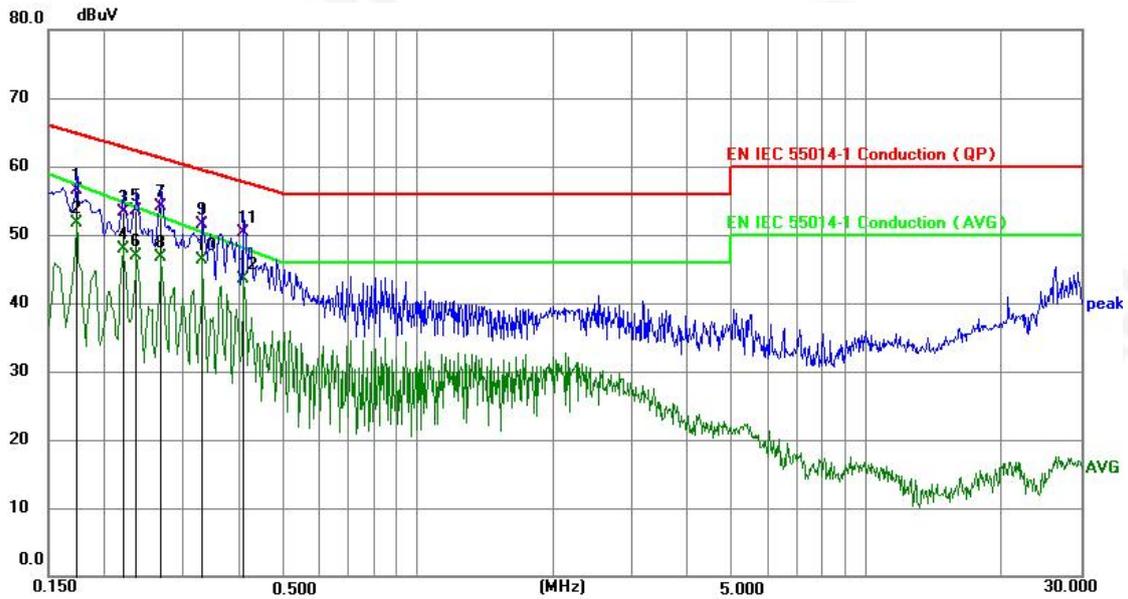
Conducted Emission At The Mains Terminals Test Data			
Temperature:	23.8°C	Relative Humidity:	54%
Pressure:	1014hPa	Phase :	Live
Test Voltage :	AC 230V/50Hz	Test Mode:	Working mode



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1590	45.75	9.89	55.64	65.52	-9.88	QP	P	
2	0.1590	35.50	9.89	45.39	58.37	-12.98	AVG	P	
3	0.1723	44.27	9.90	54.17	64.85	-10.68	QP	P	
4	0.1723	38.79	9.90	48.69	57.50	-8.81	AVG	P	
5	0.1901	44.33	9.91	54.24	64.03	-9.79	QP	P	
6	0.1901	33.91	9.91	43.82	56.44	-12.62	AVG	P	
7	0.3613	38.87	9.97	48.84	58.70	-9.86	QP	P	
8	0.3613	32.17	9.97	42.14	49.51	-7.37	AVG	P	
9	0.3930	38.94	9.99	48.93	58.00	-9.07	QP	P	
10	0.3930	28.93	9.99	38.92	48.60	-9.68	AVG	P	
11	0.5052	37.47	10.02	47.49	56.00	-8.51	QP	P	
12 *	0.5052	30.69	10.02	40.71	46.00	-5.29	AVG	P	



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



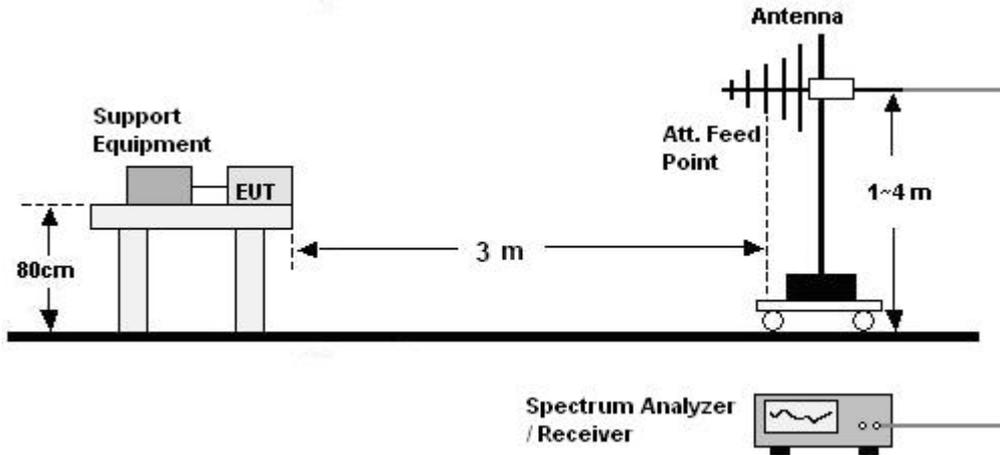
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1723	46.61	9.90	56.51	64.85	-8.34	QP	P	
2	0.1723	41.72	9.90	51.62	57.50	-5.88	AVG	P	
3	0.2195	43.35	9.92	53.27	62.84	-9.57	QP	P	
4	0.2195	38.02	9.92	47.94	54.89	-6.95	AVG	P	
5	0.2353	43.56	9.92	53.48	62.26	-8.78	QP	P	
6	0.2353	36.91	9.92	46.83	54.14	-7.31	AVG	P	
7	0.2670	44.07	9.94	54.01	61.21	-7.20	QP	P	
8	0.2670	36.73	9.94	46.67	52.77	-6.10	AVG	P	
9	0.3300	41.57	9.97	51.54	59.45	-7.91	QP	P	
10 *	0.3300	36.25	9.97	46.22	50.49	-4.27	AVG	P	
11	0.4062	40.32	9.98	50.30	57.73	-7.43	QP	P	
12	0.4062	33.56	9.98	43.54	48.24	-4.70	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(μ 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.

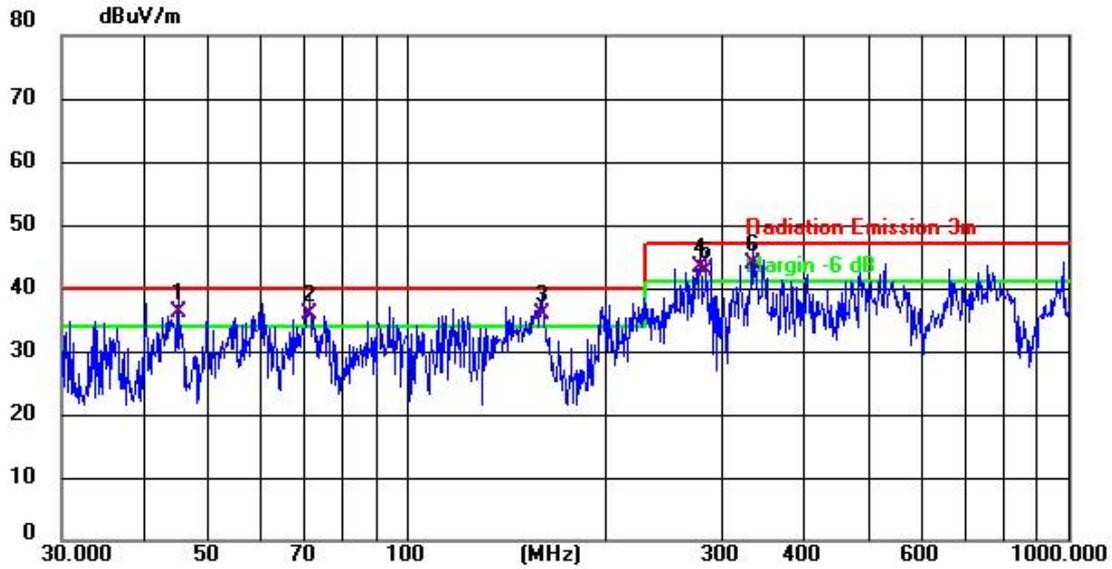
4.4 Test Results

Pass

Please refer to the following page.



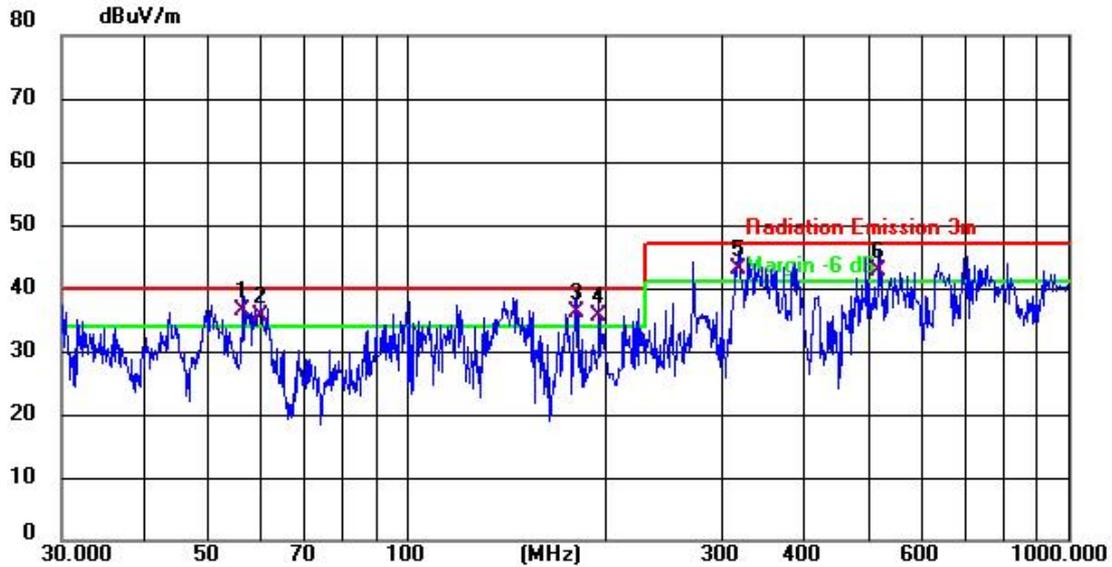
Radiated Emissions Test Data(30 MHz - 1000 MHz)			
Temperature:	24.1°C	Relative Humidity:	54%
Pressure:	1014hPa	Polarization :	Horizontal
Test Voltage :	AC 230V/50Hz	Test Model:	Working mode



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 !	45.0583	45.43	-9.34	36.09	40.00	-3.91	QP			P	
2 !	71.3300	49.10	-13.13	35.97	40.00	-4.03	QP			P	
3 !	159.7844	49.30	-13.31	35.99	40.00	-4.01	QP			P	
4 !	277.0935	51.77	-8.41	43.36	47.00	-3.64	QP			P	
5 !	282.9849	51.06	-8.29	42.77	47.00	-4.23	QP			P	
6 *	332.5187	51.00	-7.21	43.79	47.00	-3.21	QP			P	



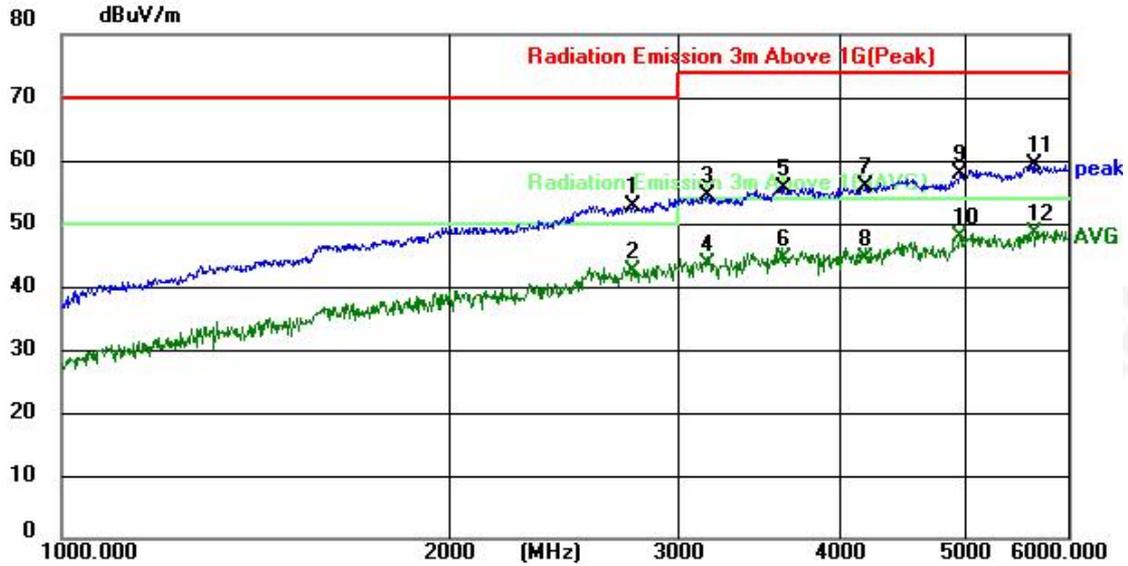
Radiated Emissions Test Data(30 MHz - 1000 MHz)			
Temperature:	24.1°C	Relative Humidity:	54%
Pressure:	1014hPa	Polarization :	Vertical
Test Voltage :	AC 230V/50Hz	Test Model:	Working mode



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 *	56.3947	46.20	-9.65	36.55	40.00	-3.45	QP			P	
2 !	60.0690	45.72	-10.13	35.59	40.00	-4.41	QP			P	
3 !	180.0164	48.45	-12.19	36.26	40.00	-3.74	QP			P	
4 !	195.1363	46.81	-11.18	35.63	40.00	-4.37	QP			P	
5 !	317.7010	50.43	-7.54	42.89	47.00	-4.11	QP			P	
6 !	517.2480	46.25	-3.53	42.72	47.00	-4.28	QP			P	



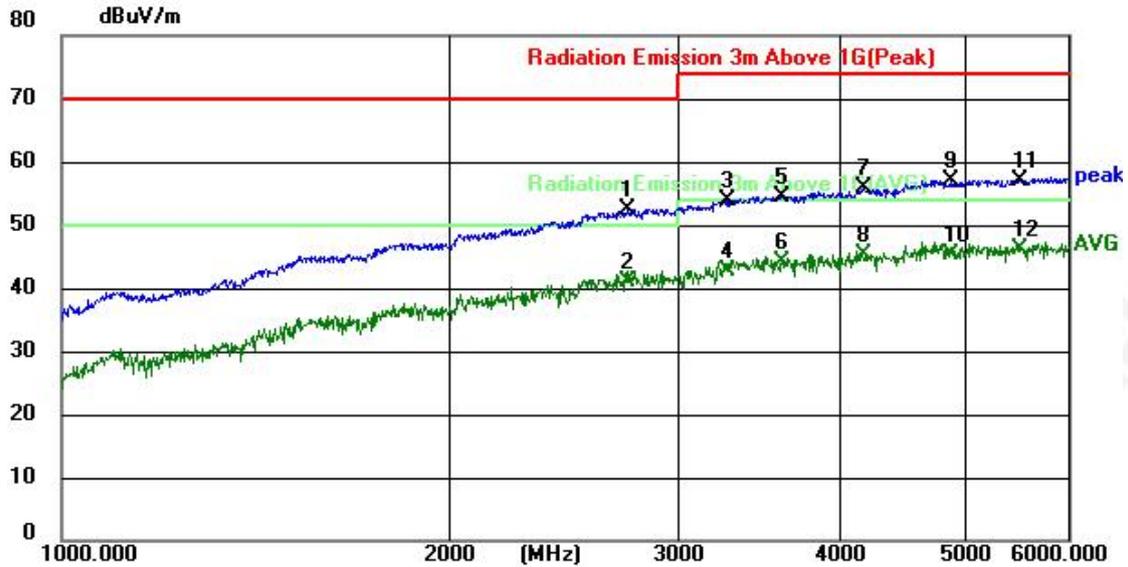
Radiated Emissions Test Data(1000 MHz - 6000 MHz)			
Temperature:	24.1℃	Relative Humidity:	54%
Pressure:	1014hPa	Polarization :	Horizontal
Test Voltage :	AC 230V/50Hz	Test Model:	Working mode



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	2766.8773	38.43	14.30	52.73	70.00	-17.27	peak			P	
2	2766.8773	27.99	14.30	42.29	50.00	-7.71	AVG			P	
3	3159.1707	38.11	16.23	54.34	74.00	-19.66	peak			P	
4	3159.1707	27.31	16.23	43.54	54.00	-10.46	AVG			P	
5	3613.5531	37.28	18.20	55.48	74.00	-18.52	peak			P	
6	3613.5531	26.30	18.20	44.50	54.00	-9.50	AVG			P	
7	4185.4566	35.67	20.19	55.86	74.00	-18.14	peak			P	
8	4185.4566	24.12	20.19	44.31	54.00	-9.69	AVG			P	
9	4953.2362	35.80	22.12	57.92	74.00	-16.08	peak			P	
10	4953.2362	25.69	22.12	47.81	54.00	-6.19	AVG			P	
11	5645.3920	34.95	24.21	59.16	74.00	-14.84	peak			P	
12 *	5645.3920	24.16	24.21	48.37	54.00	-5.63	AVG			P	



Radiated Emissions Test Data(1000 MHz - 6000 MHz)			
Temperature:	24.1°C	Relative Humidity:	54%
Pressure:	1014hPa	Polarization :	Vertical
Test Voltage :	AC 230V/50Hz	Test Model:	Working mode

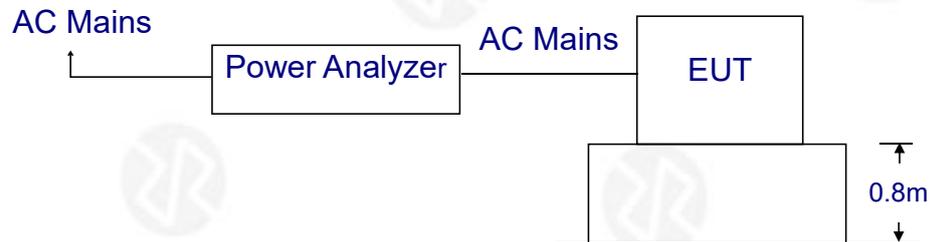


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	2742.2001	38.29	14.16	52.45	70.00	-17.55	peak			P	
2	2742.2001	26.89	14.16	41.05	50.00	-8.95	AVG			P	
3	3274.4331	37.18	16.76	53.94	74.00	-20.06	peak			P	
4	3274.4331	26.04	16.76	42.80	54.00	-11.20	AVG			P	
5	3607.0841	36.38	18.18	54.56	74.00	-19.44	peak			P	
6	3607.0841	25.96	18.18	44.14	54.00	-9.86	AVG			P	
7	4170.4848	35.62	20.14	55.76	74.00	-18.24	peak			P	
8	4170.4848	25.26	20.14	45.40	54.00	-8.60	AVG			P	
9	4865.2767	34.94	21.96	56.90	74.00	-17.10	peak			P	
10	4865.2767	23.34	21.96	45.30	54.00	-8.70	AVG			P	
11	5515.4143	33.12	23.92	57.04	74.00	-16.96	peak			P	
12 *	5515.4143	22.34	23.92	46.26	54.00	-7.74	AVG			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

Please refer to the following page.



Parameter values during test:
V_RMS (Volts): 230.0
I_RMS (A): 0.8
Power (Watts): 96.9

Frequency(Hz): 50.0
Crest Factor: 3.731
Power Factor: 0.492

Harm#	Harms(filtered) (mA)	Limit (mA)	Harms(avg) (mA)	100%Limit	Harms(max) (mA)	150%Limit	Status
I_Fund	459.500						
2	56.100	1080.000	55.900	5.176	57.100	3.525	Pass
3	428.500	2300.000	425.800	18.513	439.800	12.748	Pass
4	56.200	430.000	55.100	12.814	56.800	8.806	Pass
5	369.000	1140.000	367.200	32.211	375.400	21.953	Pass
6	56.400	300.000	54.400	18.133	57.700	12.822	Pass
7	294.700	770.000	294.100	38.195	296.300	25.654	Pass
8	56.600	230.000	53.900	23.435	58.800	17.043	Pass
9	220.400	400.000	220.500	55.125	222.800	37.133	Pass
10	56.800	184.000	53.700	29.185	59.700	21.630	Pass
11	158.900	330.000	159.200	48.242	161.800	32.687	Pass
12	56.800	153.300	53.400	34.834	60.000	26.093	Pass
13	118.100	210.000	117.700	56.048	118.600	37.651	Pass
14	56.100	131.400	52.700	40.107	59.500	30.188	Pass
15	93.800	150.000	93.100	62.067	94.200	41.867	Pass
16	55.000	115.000	51.100	44.435	58.000	33.623	Pass
17	76.600	132.400	76.000	57.402	76.900	38.721	Pass
18	52.600	102.200	48.600	47.554	55.300	36.073	Pass
19	60.400	118.400	60.400	51.014	62.000	34.910	Pass
20	49.200	92.000	45.500	49.457	51.600	37.391	Pass
21	47.200	107.100	47.500	44.351	49.600	30.875	Pass
22	45.300	83.600	41.900	50.120	46.900	37.400	Pass
23	40.400	97.800	40.600	41.513	42.400	28.903	Pass
24	40.600	76.700	37.900	49.413	41.700	36.245	Pass
25	38.100	90.000	37.900	42.111	39.500	29.259	Pass
26	35.900	70.800	33.800	47.740	36.500	34.369	Pass
27	35.000	83.300	34.800	41.777	36.300	29.052	Pass
28	31.200	65.700	29.700	45.205	31.400	31.862	Pass
29	29.100	77.600	29.200	37.629	30.900	26.546	Pass
30	26.900	61.300	25.800	42.088	26.900	29.255	Pass
31	22.100	72.600	22.400	30.854	23.900	21.947	Pass
32	23.000	57.500	22.400	38.957	23.300	27.014	Pass
33	17.000	68.200	17.200	25.220	18.500	18.084	Pass
34	19.200	54.100	19.200	35.490	20.800	25.632	Pass
35	15.400	64.300	15.200	23.639	16.900	17.522	Pass
36	16.100	51.100	16.500	32.290	18.300	23.875	Pass
37	15.200	60.800	15.000	24.671	16.000	17.544	Pass
38	13.400	48.400	14.100	29.132	16.000	22.039	Pass
39	14.900	57.700	14.500	25.130	14.900	17.215	Pass
40	11.500	46.000	12.000	26.087	13.800	20.000	Pass



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 + 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

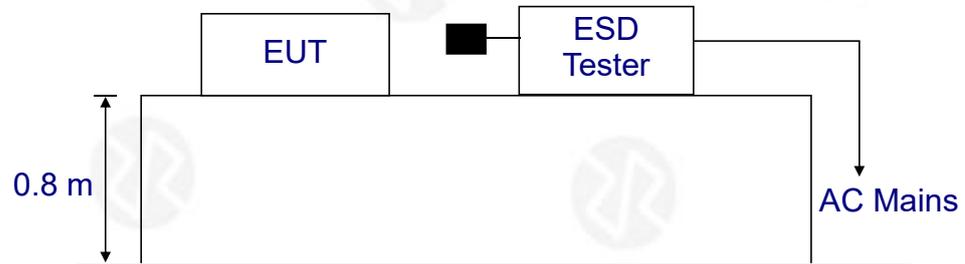
Pass

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:±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.

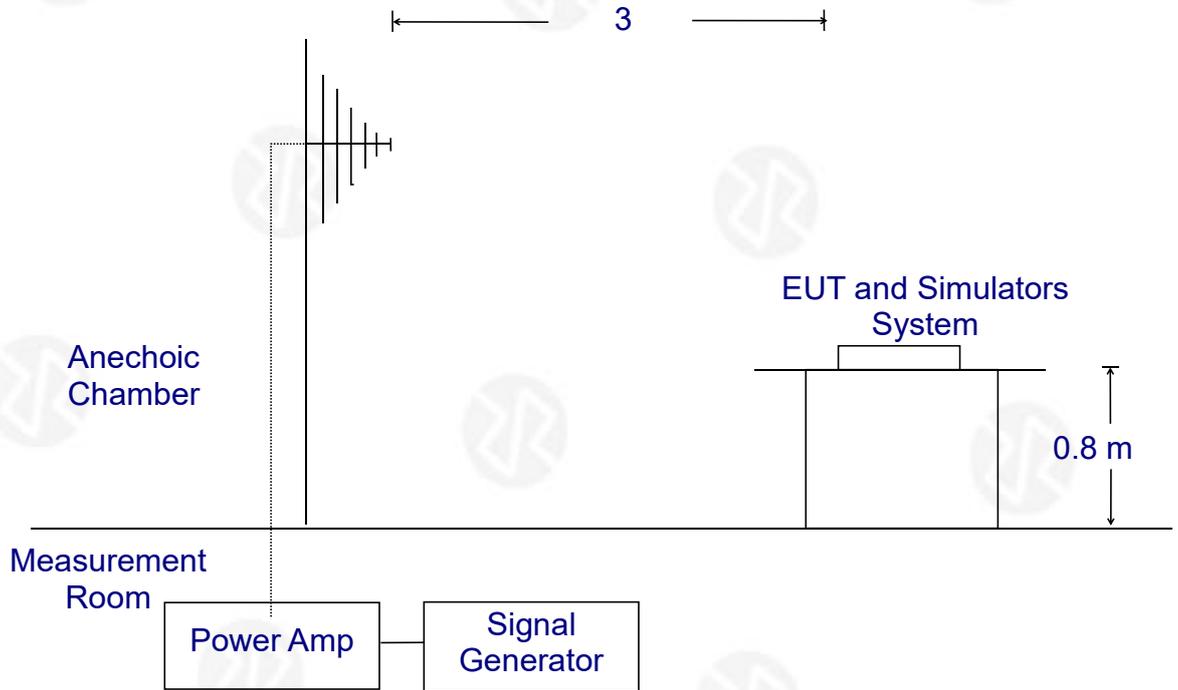


ESD Test Data				
Temperature:	26°C	Humidity:	52%	
Power Supply :	AC 230V/50Hz	Test Mode:	Working mode	
Air Discharge: ± 8KV Contact Discharge: ± 4KV				
Test Points	Air Discharge	Contact Discharge	Performance Criterion	Result
Enclosure	±2,4,8KV	N/A	B	PASS
Slit	±2,4,8KV	N/A	B	PASS
Ports	N/A	±2,4 KV	B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

- 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.

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		Frequency Range: 80 MHz to 6000 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:	Working 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

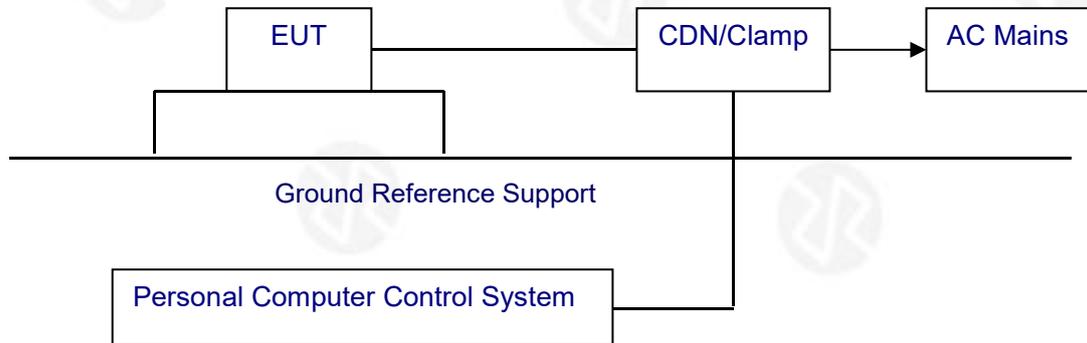
PASS

Surge Test Data						
Temperature:		26°C		Humidity:		52%
Power Supply:		AC 230V/50Hz		Test Mode:		Working 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 1.5×10^{-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℃		Humidity:		52%
Power Supply:		AC 230V/50Hz		Test Mode:		Working 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: N/A						



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		
	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:	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		



13. EUT PHOTOGRAPHS

EUT Photo 1



EUT Photo 2

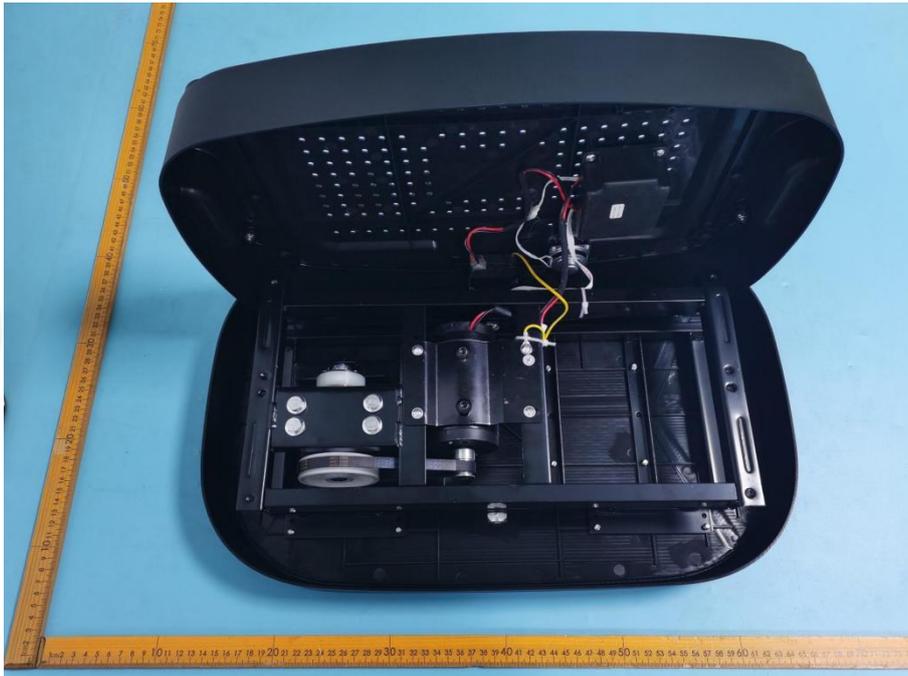




EUT Photo 3

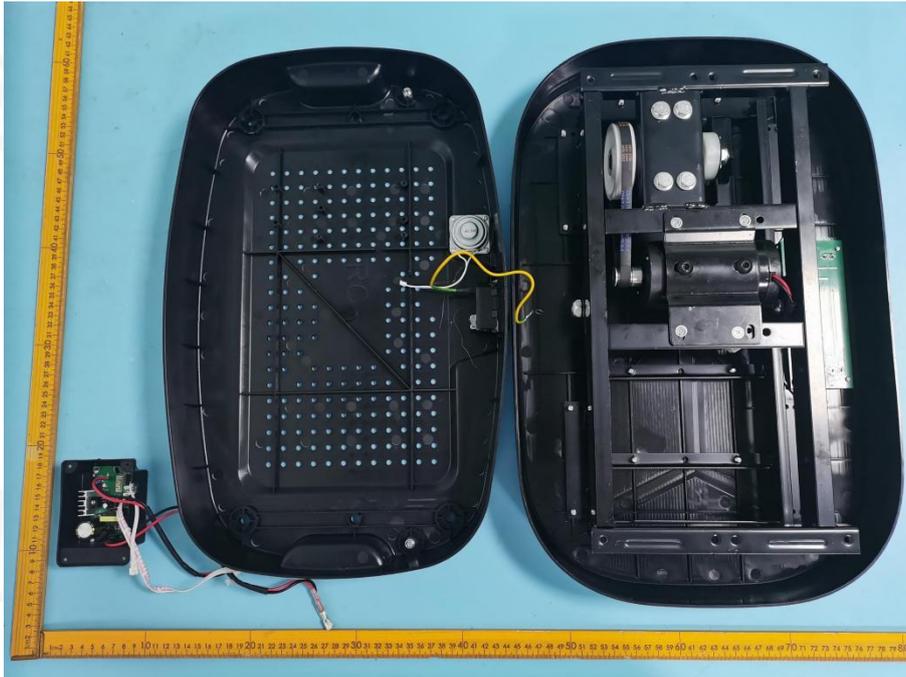


EUT Photo 4

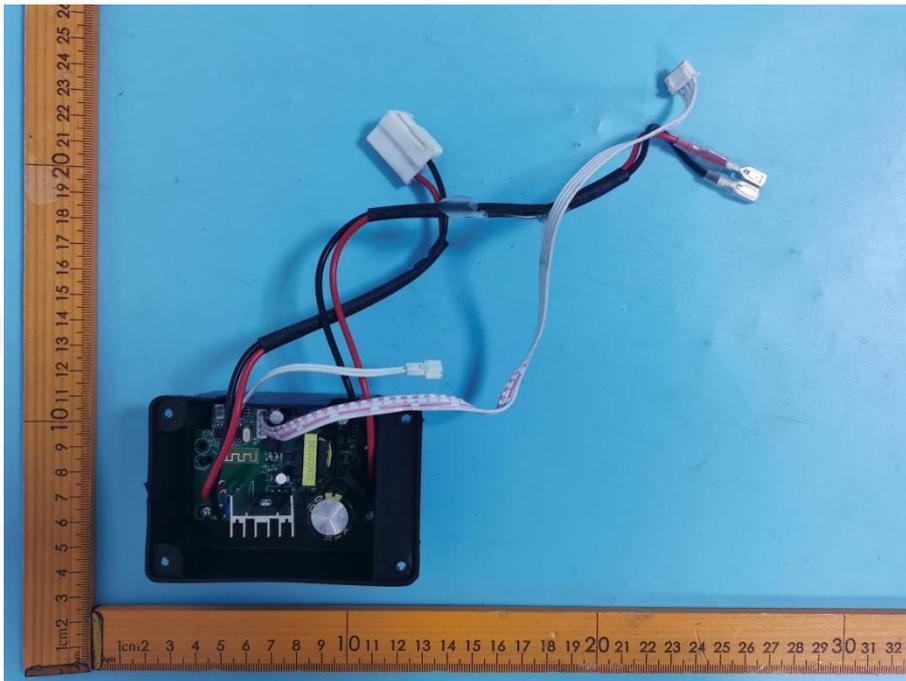




EUT Photo 5

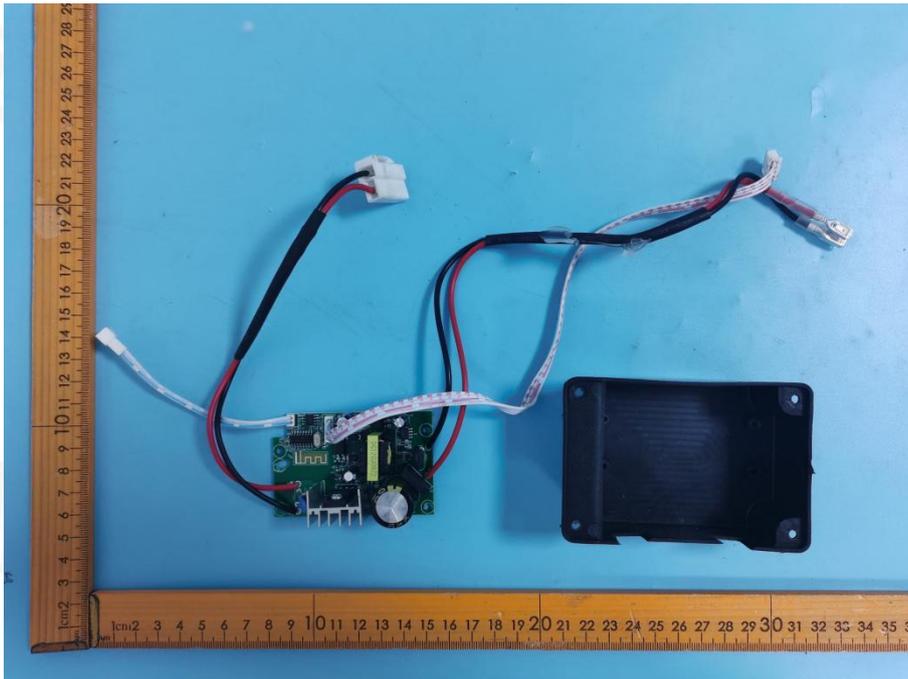


EUT Photo 6

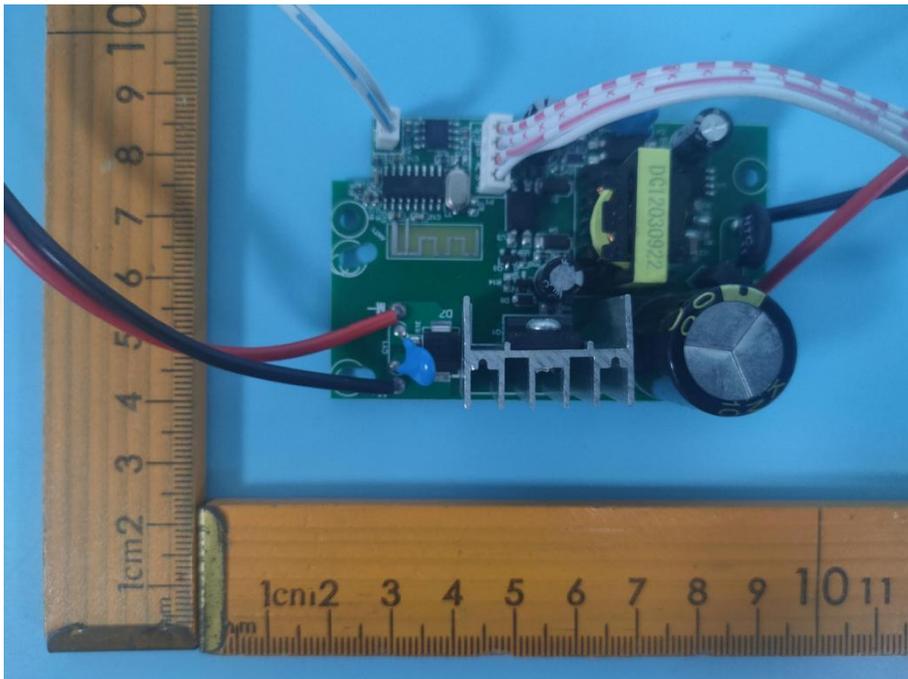




EUT Photo 7

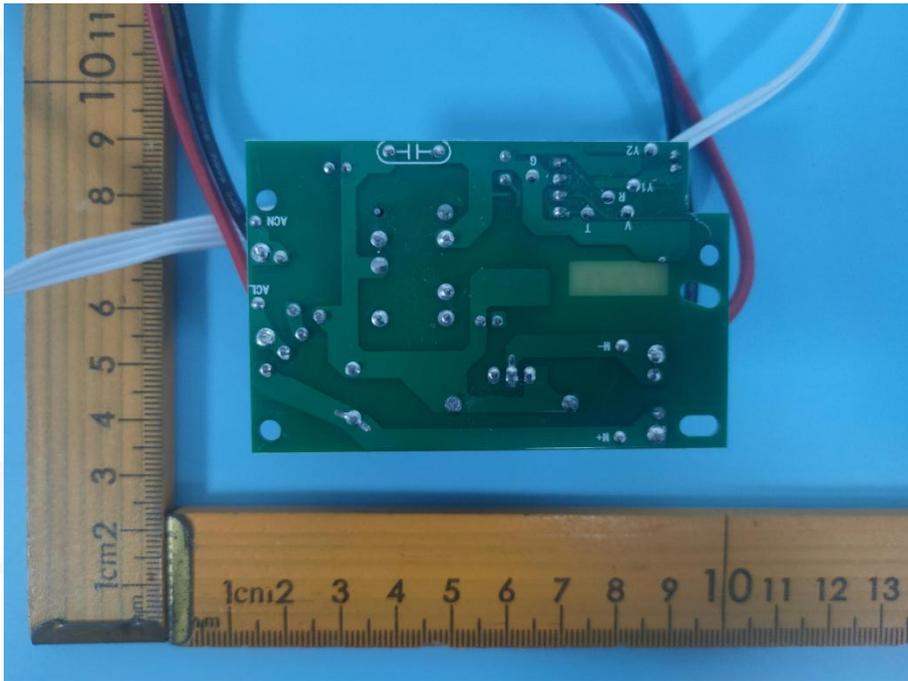


EUT Photo 8





EUT Photo 9



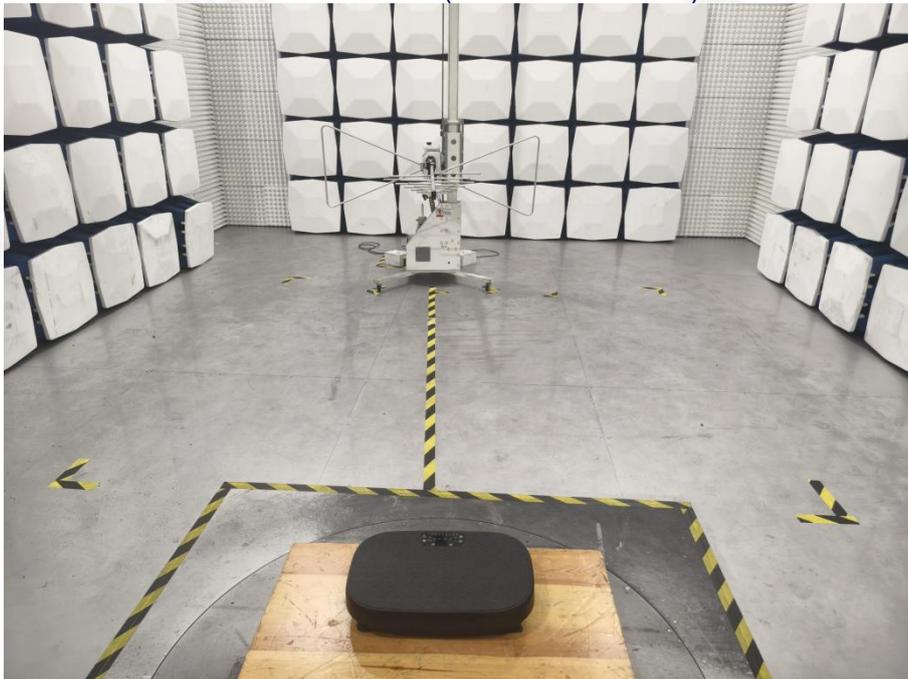


14. EUT TEST PHOTOGRAPHS

Conducted Emission

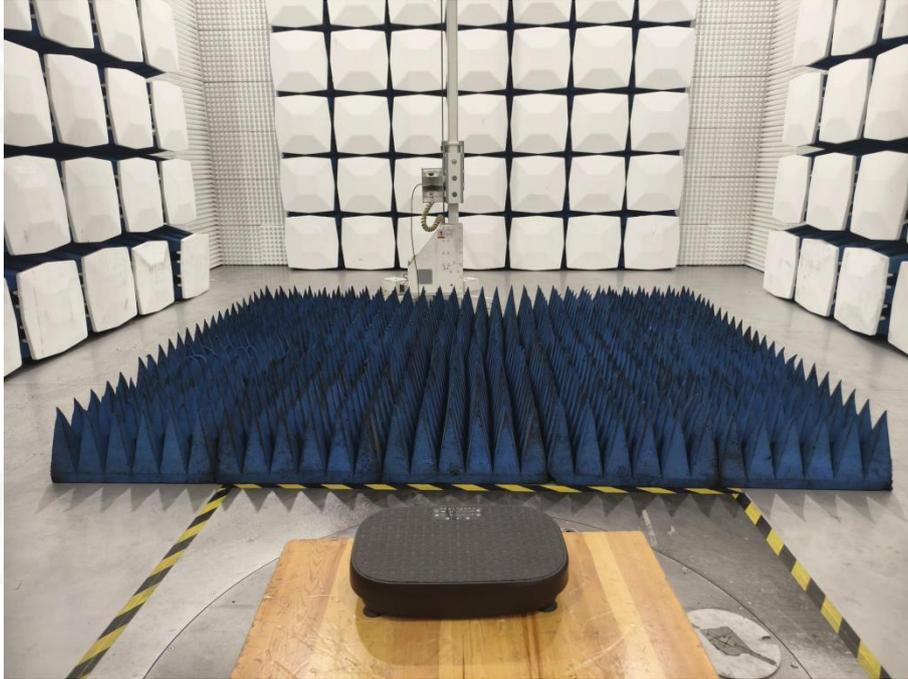


Radiated Emission(30 MHz - 1000 MHz)





Radiated Emission(1000 MHz - 6000 MHz)



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