CERTIFICATE OF COMPLIANCE

Certificate of Compliance

Certificate Number: ZHT-230306023C

Certificate's Holder **Zertifikatsinhaber**	:	**CIL MARKETING DIRECTO SL - CIF B85987071** **AVDA MANOTERAS 50 28050 MADRID SPAIN**
Manufacturer **Hersteller**	:	**Shenzhen cigara technology Co.,Ltd.** **4F-5F, B4, tianliao yijing industry, yutang street,guangming new district, shenzhen city, china**
Trade Mark **Warenzeichen**	:	**/**
Product **Produkt**	:	**Handy heater**
Model(s) **Modell**	:	**HHT-02-REF 014200720** **HHT-02, HH-02, 608, 609, 701, HN-008, HT-236, HR-667**
Test Standard **Prüfnorm**	:	**EN IEC 55014-1:2021** **EN IEC 55014-2:2021** **EN IEC 61000-3-2:2019** **EN 61000-3-3:2013 + A1:2019**
Test Report No. **Bericht Nr**	:	**ZHT-230306023E**

This Certificate 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.

CE

Guangdong Zhonghan Testing Technology Co., Ltd.

Manager

Apr. 12, 2023

The information of the certificate can be checked through www.zht-lab.cn.
The CE mark which is shown on the certificate can only be used under the conditions that the products complete with all of the relevant Directives of EC Declaration of Conformity.
The Manufacturer should be responsible for the internal production control so that the products complied with the essential requirements of the above mentioned Directive(s). Certificate holder must notify all changes to the original certification laboratory of Guangdong Zhonghan Testing Technology Co., Ltd.

Guangdong Zhonghan Testing Technology Co., Ltd.
Address:Room 104, Building 1, Yibaolai Industrial Park, Qiaotou Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China
Tel.: +86-755-27782934 Http://www.zht-lab.cn E-mail:admin@zht-lab.cn

TEST REPORT

Report No.....	:	ZHT-230306023E
Product.....	:	Handy heater
Trademark.....	:	/
Model(s).....	:	HHT-02-REF 014200720 HHT-02, HH-02, 608, 609, 701, HN-008, HT-236, HR-667
Applicant.....	:	CIL MARKETING DIRECTO SL - CIF B85987071
Address.....	:	AVDA MANOTERAS 50 28050 MADRID SPAIN
Manufacturer.....	:	Shenzhen cigara technology Co.,Ltd.
Address.....	:	4F-5F, B4, tianliao yijing industry, yutang street,guangming new district, shenzhen city, china
Prepared by.....	:	Guangdong Zhonghan Testing Technology Co., Ltd.
Address.....	:	Room 104, Building 1, Yibaolai Industrial Park, Qiaotou Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China
Date of Receipt.....	:	Apr. 04, 2023
Date of Test(s).....	:	Apr. 04, 2023 - Apr. 11, 2023
Date of Issue.....	:	Apr. 12, 2023
Test Standard(s).....	:	EN IEC 55014-1:2021 EN IEC 55014-2:2021 EN IEC 61000-3-2:2019 EN 61000-3-3:2013 + A1:2019

In the configuration tested, the EUT complied with the standards specified above.

Tested by:	Reviewed by:	Approved by:
Kimi Lu/ Engineer	Baret Wu/ Director	Levi Lee/ Manager

Note: The results shown in this test report refer only to the sample(s) tested unless otherwise stated. This test report shall not be reproduced except in full, without prior written approval of ZHT. This document may be altered or revised by ZHT, personnel only, and shall be noted in the revision of the document.

Table of Contents

1. Revision History

Report No.	Issue Date	Description	Approved
ZHT-230306023E	Apr. 12, 2023	Original	Valid

2. Test Summary

Emission			
Requirement - Test	Test Method		Result
Conducted Emission	EN IEC 55014-1:2021		PASS
Discontinuous Disturbance (Clicks)	EN IEC 55014-1:2021		N/A
Disturbance Power Emission	EN IEC 55014-1:2021		N/A
Radiated Electromagnetic Disturbances	EN IEC 55014-1:2021		N/A
Radiated Emission	EN IEC 55014-1:2021		PASS
Immunity			
Requirement - Test	Test Method	Performance criteria	Result
Electrostatic discharges	EN 61000-4-2:2009	B	PASS
Radio-frequency electromagnetic fields	EN 61000-4-3:2020	A	N/A
Fast transients	EN 61000-4-4:2012	B	PASS
Surges	EN 61000-4-5:2014	B	PASS
Injected currents	EN 61000-4-6:2014	A	PASS
Voltage dips	EN 61000-4-11:2020	C & C & C	PASS

Requirement - Test	Test Method	Limit	Result
Harmonic current emissions	EN IEC 61000-3-2:2019	Class A	PASS
Voltage changes, voltage fluctuations and flicker	EN 61000-3-3:2013 + A1:2019	Clause 5	PASS

Remark: N/A is abbreviation for Not Applicable.

3. General Information

3.1. Description of EUT

Product	Handy heater
Model Name	HHT-02-REF 014200720 HHT-02, HH-02, 608, 609, 701, HN-008, HT-236, HR-667
Model Difference	/
Rated Power Supply	Input: AC 220-240 V, 50/60 Hz, 800 W
Normal Testing Voltage	AC 230 V/ 50 Hz
DC Line	/
I/O Ports	Refer to User Manual
Highest Frequency Generated	Below 15 MHz

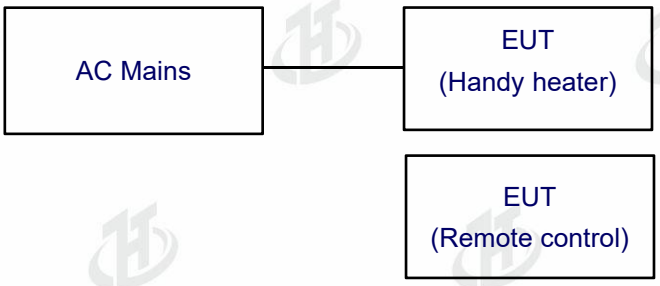
Note:

3.1.1. Other Accessory Device List and Details

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

3.1.2. The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

3.2. Block diagram of EUT configuration



3.3. Test Mode

Pre - Test mode	Mode 1: Working mode		
Final Test mode	Conducted Emission		Mode 1
	Radiated Emission	Below 1 GHz	Mode 1
		Above 1 GHz	N/A
	Harmonic current emissions		Mode 1
	Voltage changes, voltage fluctuations and flicker		Mode 1
	Electrostatic discharges		Mode 1
	Radio-frequency electromagnetic fields		N/A
	Fast transients		Mode 1
	Surges		Mode 1
	Injected currents		Mode 1
	Voltage dips and short interruptions		Mode 1

3.4. Test Site Environment

Test Item	Required		Actual
Conducted Emission	Temperature (°C)	15-35	23.8
	Humidity (%RH)	25-75	54.2
	Barometric pressure (mbar)	860-1060	1014
Radiated Emission	Temperature (°C)	15-35	24.3
	Humidity (%RH)	25-75	54.3
	Barometric pressure (mbar)	860-1060	1014
Harmonic current emissions	Temperature (°C)	--	23.4
	Humidity (%RH)	--	54.2
	Barometric pressure (mbar)	--	1014
Voltage Fluctuations & Flicker	Temperature (°C)	--	23.2
	Humidity (%RH)	--	54.0
	Barometric pressure (mbar)	--	1014
Electrostatic discharges	Temperature (°C)	15-35	24.1
	Humidity (%RH)	25-75	52.3
	Barometric pressure (mbar)	860-1060	1014
Fast transients	Temperature (°C)	15-35	23.9
	Humidity (%RH)	25-75	53.2
	Barometric pressure (mbar)	860-1060	1014
Surges	Temperature (°C)	15-35	23.9
	Humidity (%RH)	25-75	53.2
	Barometric pressure (mbar)	860-1060	1014
Injected currents	Temperature (°C)	15-35	23.9
	Humidity (%RH)	25-75	53.2
	Barometric pressure (mbar)	860-1060	1014
Voltage dips	Temperature (°C)	15-35	23.9
	Humidity (%RH)	25-75	53.2
	Barometric pressure (mbar)	860-1060	1014

4. Facilities

4.1. Test Facility

Test address 1：Guangdong Zhonghan Testing Technology Co., Ltd.

Room 104, Building 1, Yibaolai Industrial Park, Qiaotou Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China

Conducted Emissions Test

Equipment	Manufacturer	Model	Last Cal.	Next Cal.
Receiver	R&S	ESCI	Apr. 27, 2022	Apr. 26, 2023
LISN	R&S	ENV216	Apr. 27, 2022	Apr. 26, 2023
ISN CAT 6	Schwarzbeck	NTFM 8158	Oct. 08, 2022	Oct. 07, 2023
ISN CAT 5	Schwarzbeck	CAT5 8158	Oct. 08, 2022	Oct. 07, 2023
Capacitive Voltage Probe	Schwarzbeck	CVP 9222 C	Aug. 09, 2022	Aug. 08, 2023
Current Transformer Clamp	Schwarzbeck	SW 9605	Aug. 09, 2022	Aug. 08, 2023
CE Shielding Room	EMToni	9m4m3m	Nov. 25, 2021	Nov. 24, 2024

Radiated emissions Test (966 chamber)

Equipment	Manufacturer	Model	Last Cal.	Next Cal.
Receiver	R&S	ESCI	Apr. 27, 2022	Apr. 26, 2023
Amplifier	Schwarzbeck	BBV 9743 B	Apr. 27, 2022	Apr. 26, 2023
Amplifier	Schwarzbeck	BBV 9718 B	Apr. 27, 2022	Apr. 26, 2023
Bilog Antenna	Schwarzbeck	VULB9162	Apr. 27, 2022	Apr. 26, 2023
Horn Antenna	Schwarzbeck	BBHA9120D	Apr. 27, 2022	Apr. 26, 2023
966 Anechoic Chamber	EMToni	9m6m6m	Nov. 25, 2021	Nov. 24, 2024

Harmonic / Flicker Test

Equipment	Manufacturer	Model	Last Cal.	Next Cal.
Power Analyzer	Li	AC2000A	Apr. 27, 2022	Apr. 26, 2023

Electrostatic discharge Test

Equipment	Manufacturer	Model	Last Cal.	Next Cal.
ESD TEST Generator	HTEC	HESD16	Apr. 27, 2022	Apr. 26, 2023

Fast transients and Surges and Voltage dips Test

Equipment	Manufacturer	Model	Last Cal.	Next Cal.
Surge Generator	HTEC	HCOMPACT5/HV1P6T	Apr. 27, 2022	Apr. 26, 2023
DIPS Generator	HTEC	HCOMPACT5/HV1P6T	Apr. 27, 2022	Apr. 26, 2023
EFT/B Generator	HTEC	HCOMPACT5/HV1P6T	Apr. 27, 2022	Apr. 26, 2023
EFT/B Clamp	HTEC	H3C	Apr. 27, 2022	Apr. 26, 2023

Injected Currents Susceptibility Test

Equipment	Manufacturer	Model	Last Cal.	Next Cal.
Signal Generator	Schwarzbeck	CDG 7000-25	Apr. 27, 2022	Apr. 26, 2023
Attenuator	Schwarzbeck	6db	Apr. 27, 2022	Apr. 26, 2023
CDN	Schwarzbeck	CDN M2+M3-16A	Apr. 27, 2022	Apr. 26, 2023

4.2. Testing software

Project	Software name	Edition
Conducted Emission	EZ-EMC	EMC-CON 3A1.1+
Radiated Emission	EZ-EMC	FA-03A2 RE+
Injected currents	IEC/EN 61000-4-6	1.4.1
Voltage changes, voltage fluctuations and flicker	Harmonic	121

4.3. Measurement uncertainty

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

Test item	Value (dB)
Conducted Emission (150kHz-30MHz)	2.60
Radiated Emission(30MHz~1GHz)	4.60

Decision Rule

☒ Uncertainty is not included

☐ Uncertainty is included

5. Emission

5.1. Conducted Emission

5.1.1. Limit

Disturbance voltage limits for induction cooking appliances

Frequency range	Appliances which are 1000 V rated and without an earth connection		All other appliances	
MHz	dBµV Quasi-peak	dBµV Average	dBµV Quasi-peak	dBµV Average
0,009 to 0,050	122	-	110	-
0,050 to 0,150	Decreasing linearly with logarithm of frequency from	-	Decreasing linearly with logarithm of frequency from	-
	102 to 92		90 to 80	
0,150 to 0,5	Decreasing linearly with logarithm of frequency from			
	72 to 62	60 to 52	66 to 56	56 to 46
0,5 to 5	56	46	56	46
5 to 30	60	50	60	50
The lower limit applies at the transition frequencies.				

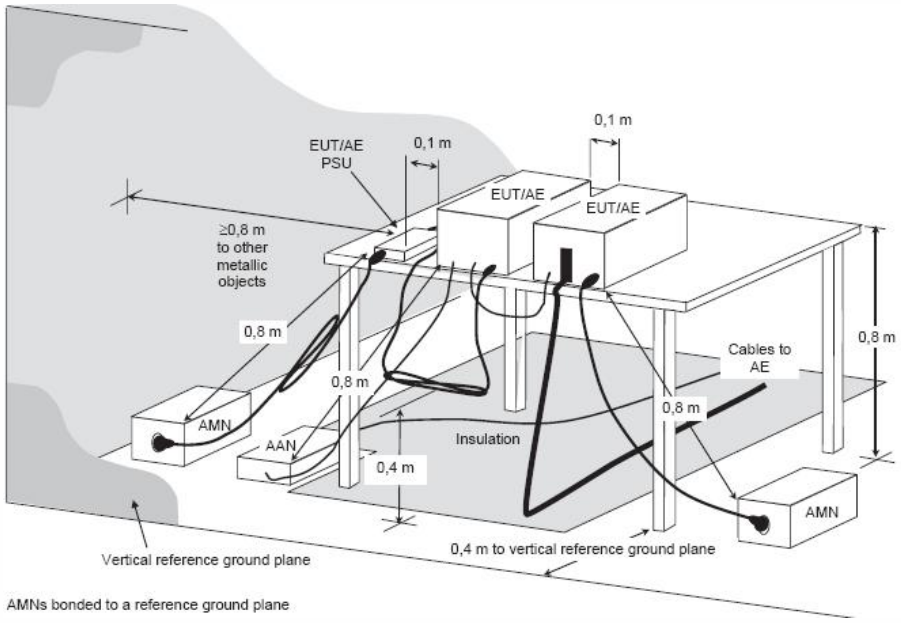
General limits

Frequency range	Mains ports		Associated ports			
	Disturbance voltage		Disturbance voltage		Disturbance current	
MHz	Quasi-peak dBµV	Average dBµV	Quasi-peak dBµV	Average dBµV	Quasi-peak dBµA	Average dBµA
0,15 to 0,50	Decreasing linearly with the logarithm of the frequency from:		80	70	Decreasing linearly with the logarithm of the frequency from:	
	66 to 56	59 to 46			40 to 30	30 to 20
0,50 to 5	56	46	74	64	30	20
5 to 30	60	50	74	64		
The lower limit applies at the transition frequencies. The test report shall state which test method was used and which limits were applied.						

Limits for mains port of tools

Frequency range	P ≤ 700 W		700 W < P ≤ 1 000 W		P > 1 000 W	
MHz	Quasi-peak dBµV	Average dBµV	Quasi-peak dBµV	Average dBµV	Quasi-peak dBµV	Average dBµV
0,15 to 0,35	Decreasing linearly with the logarithm of the frequency from:					
	66 to 59	59 to 49	70 to 63	63 to 53	76 to 69	69 to 59
0,35 to 5	59	49	63	53	69	59
5 to 30	64	54	68	58	74	64
The lower limit applies at the transition frequencies.**Key** P = rated power of the motor only.						

5.1.2. Test setup



5.1.3. Test procedure

a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.

b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

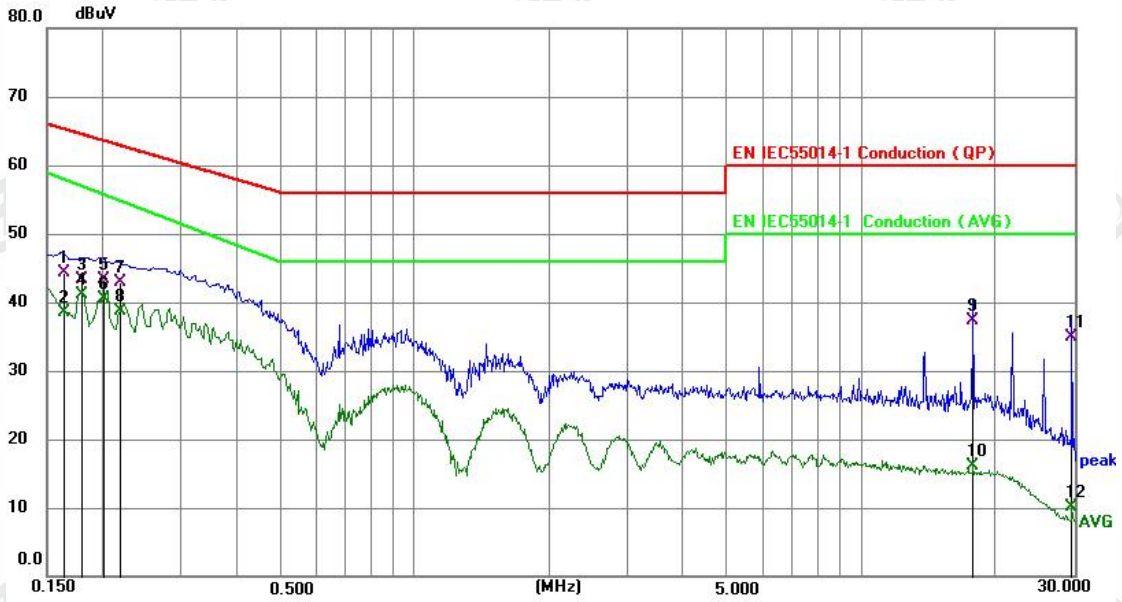
c. The test results of conducted emissions at mains ports are recorded of six worst margins for quasi-peak(mandatory) [and average (if necessary)] values against the limits at frequencies of interest unless the margin is 20 dB or greater.
Note: The resolution bandwidth and video bandwidth of test receiver is 9kHz for quasi-peak detection (QP) and average detection (AV) at frequency 0.15MHz-30MHz.

5.1.4. Test results

PASS

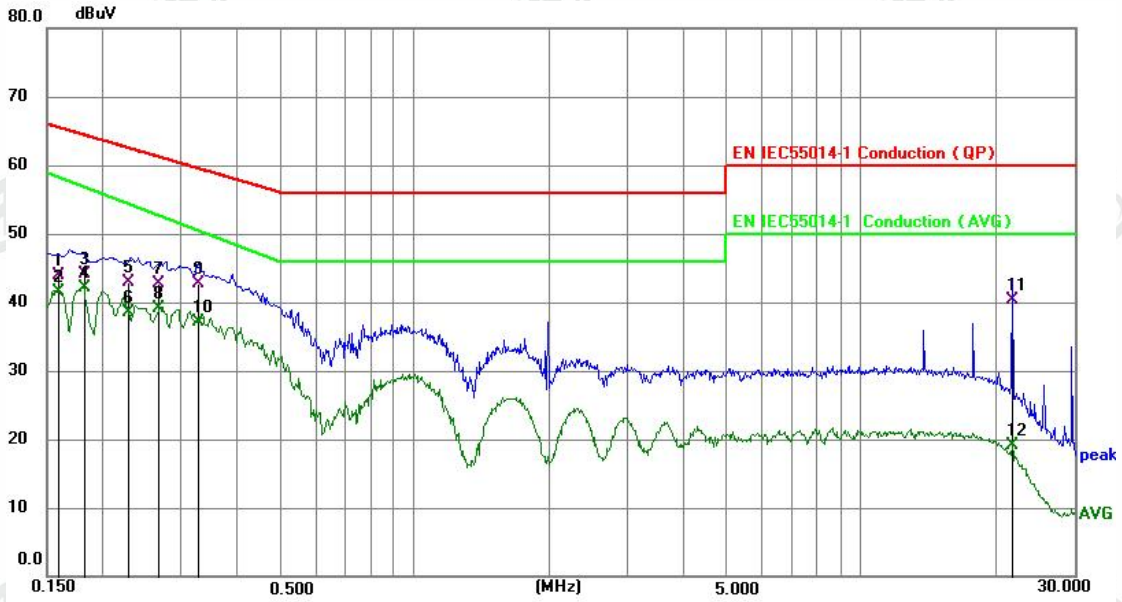
Please refer to pages 14-15 for data.

Phase: Live



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1635	34.11	10.23	44.34	65.28	-20.94	QP	P	
2	0.1635	28.34	10.23	38.57	58.07	-19.50	AVG	P	
3	0.1796	33.16	10.22	43.38	64.50	-21.12	QP	P	
4	0.1796	30.90	10.22	41.12	57.06	-15.94	AVG	P	
5	0.2007	33.09	10.22	43.31	63.58	-20.27	QP	P	
6 *	0.2007	30.24	10.22	40.46	55.86	-15.40	AVG	P	
7	0.2174	32.67	10.22	42.89	62.92	-20.03	QP	P	
8	0.2174	28.41	10.22	38.63	54.99	-16.36	AVG	P	
9	17.7853	26.58	10.72	37.30	60.00	-22.70	QP	P	
10	17.7853	5.41	10.72	16.13	50.00	-33.87	AVG	P	
11	29.6475	23.99	10.90	34.89	60.00	-25.11	QP	P	
12	29.6475	-0.83	10.90	10.07	50.00	-39.93	AVG	P	

Phase: Neutral



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1590	33.89	10.05	43.94	65.52	-21.58	QP	P	
2	0.1590	31.50	10.05	41.55	58.37	-16.82	AVG	P	
3	0.1814	33.95	10.07	44.02	64.42	-20.40	QP	P	
4	0.1814	31.98	10.07	42.05	56.95	-14.90	AVG	P	
5	0.2280	32.90	10.09	42.99	62.52	-19.53	QP	P	
6	0.2280	28.50	10.09	38.59	54.48	-15.89	AVG	P	
7	0.2670	32.69	10.11	42.80	61.21	-18.41	QP	P	
8	0.2670	29.05	10.11	39.16	52.77	-13.61	AVG	P	
9	0.3255	32.46	10.16	42.62	59.57	-16.95	QP	P	
10 *	0.3255	27.02	10.16	37.18	50.63	-13.45	AVG	P	
11	21.7320	29.51	10.76	40.27	60.00	-19.73	QP	P	
12	21.7320	8.26	10.76	19.02	50.00	-30.98	AVG	P	

Note: Level=Reading + Factor
Margin=Level – Limit

5.2. Disturbance Power Emission

5.2.1. Limit

Table A

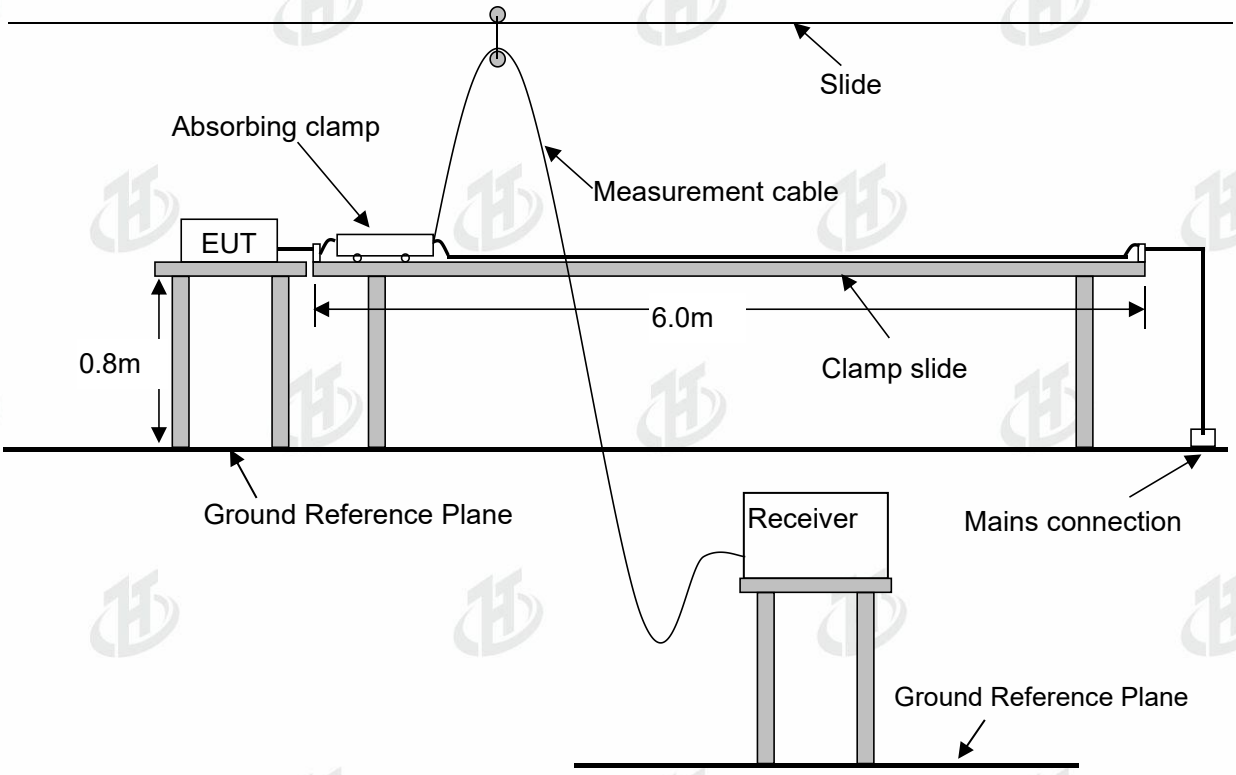
Equipment type	Frequency range	Limits(dB(pW))	
	(MHz)	Quasi-peak	Average
Household and similar appliances	30 to 300	45 to 55	35 to 45

Note: If the limit for the measurement with the average detector is met when using a receiver with a quasi-peak detector, the equipment under test shall be deemed to meet both limits and the measurement using the receiver with an average detector need not be carried out.

Table B

Equipment type	Frequency range	Limits(dB(pW))	
	(MHz)	Quasi-peak	Average
Household and similar appliances	200 to 300	0 to 10 dB	--

5.2.2. Test setup



5.2.3. Test procedure

The EUT was placed on the 0.8 m high table and away from other metallic surface at least 0.8m. It is connected to the power mains through an extension cord of 6m min. The absorber clamp clamps the cord and moves from the far end to the EUT to measure the disturbing energy emitted from the cord.

5.2.4. Test results

Remark:

The radiation method was used for testing,See Chapter 5.3 for details.

5.3. Radiated emissions

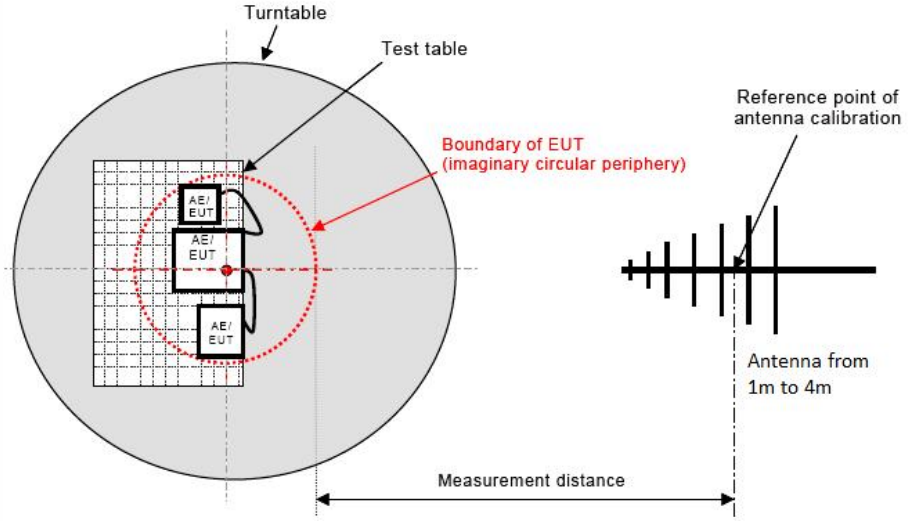
5.3.1. Limit

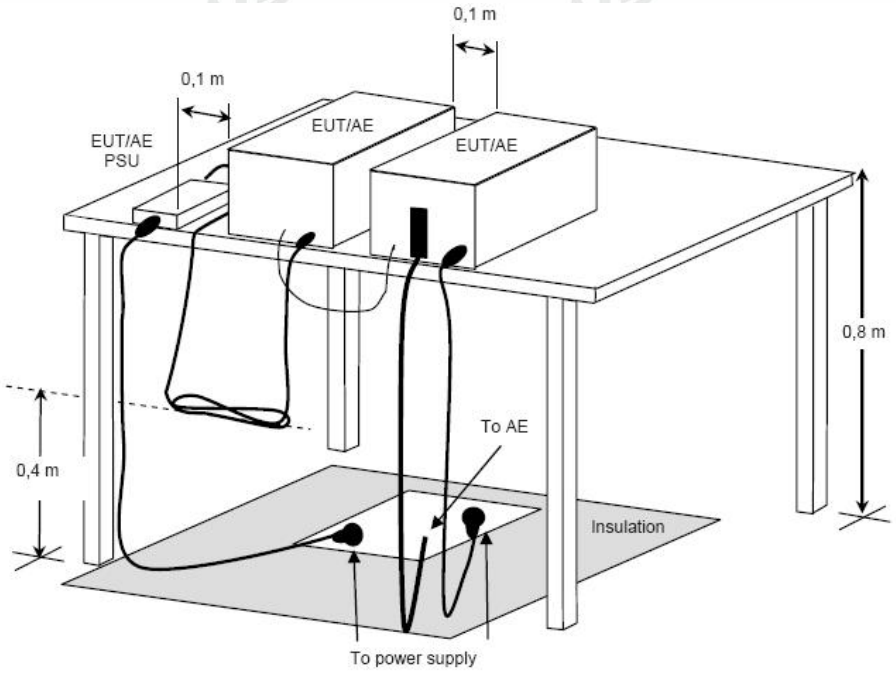
Table 2 - Radiated disturbance limits and testing methods – 30 MHz to 1 000 MHz

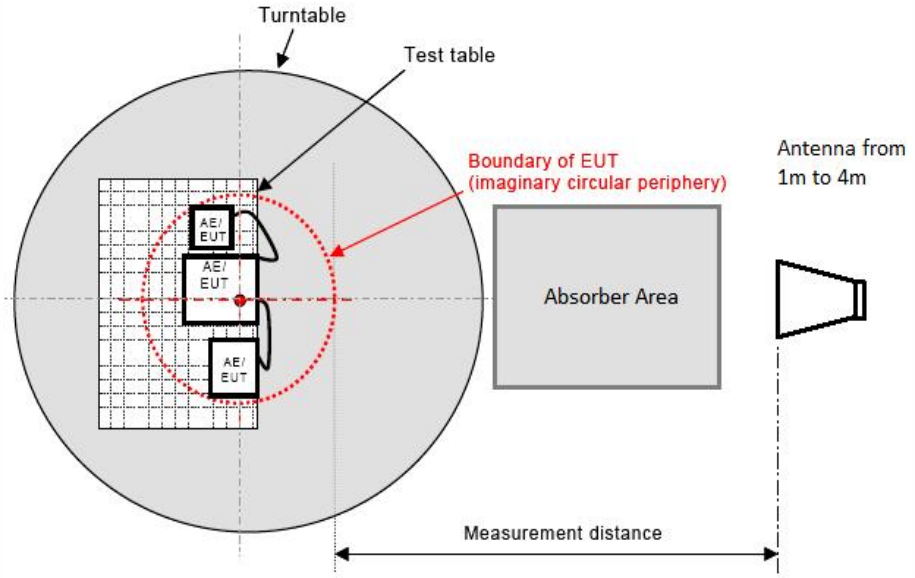
Frequency (MHz)	Quasi-peak limits at 3m dB(μV/m)
30-230	40
230-1000	47

5.3.2. Block diagram of test setup

Measurement distance







5.3.3. Test procedure

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The height of antenna is varied from 1 meter to 4 meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

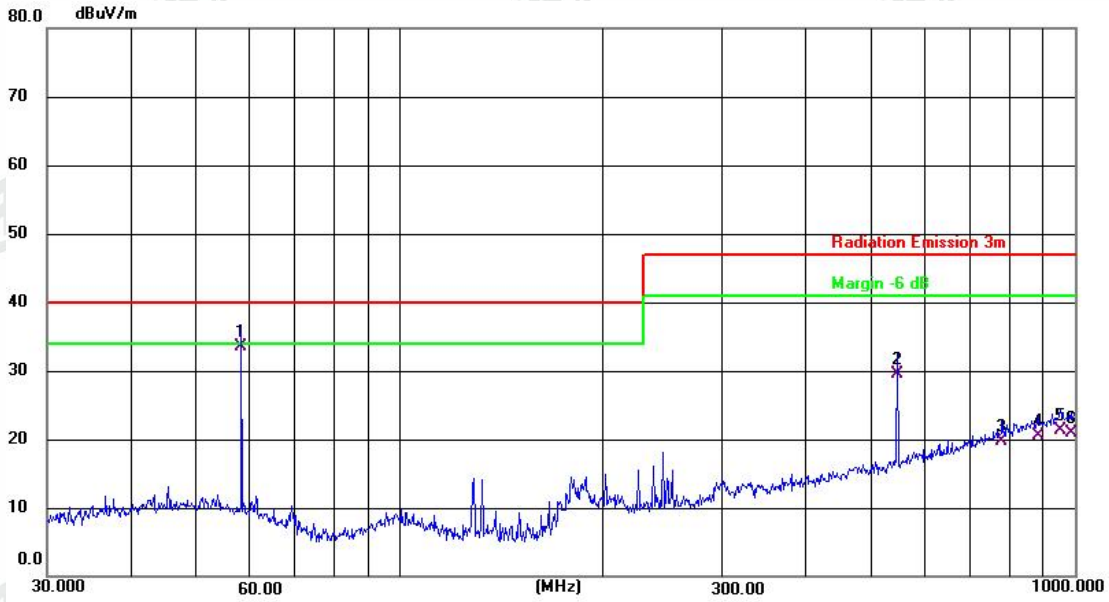
e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1GHz.

5.3.4. Test results

PASS

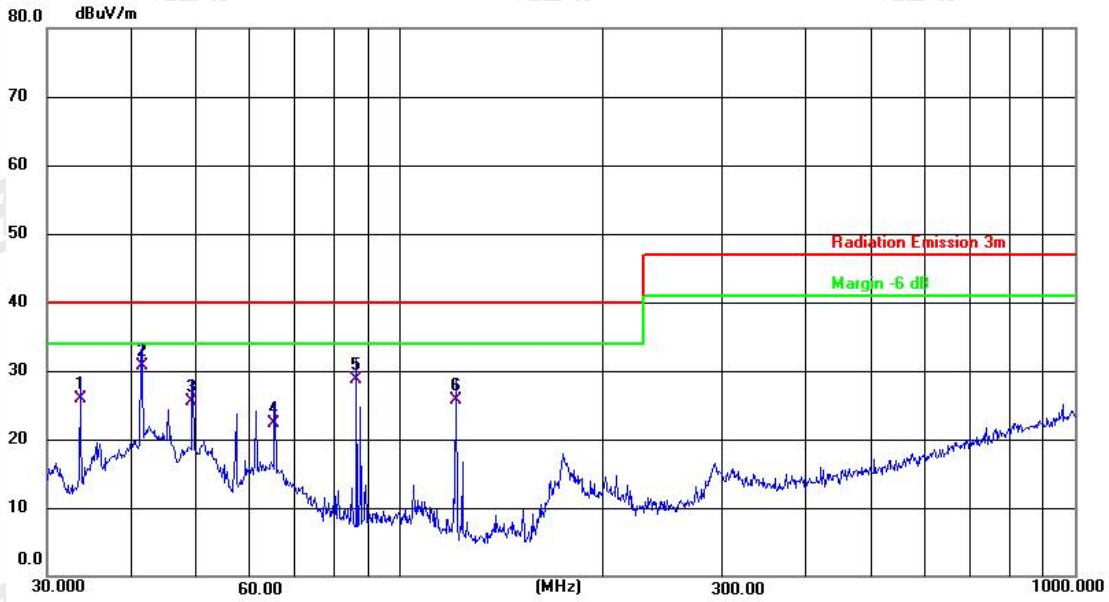
Please refer to pages 20-21 for data.

Polarization: Horizontal



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 *	58.2030	48.49	-15.08	33.41	40.00	-6.59	QP			P	
2	545.1825	38.75	-9.20	29.55	47.00	-17.45	QP			P	
3	779.6067	24.72	-5.05	19.67	47.00	-27.33	QP			P	
4	881.4067	24.14	-3.67	20.47	47.00	-26.53	QP			P	
5	952.0937	24.06	-2.79	21.27	47.00	-25.73	QP			P	
6	986.0716	23.28	-2.36	20.92	47.00	-26.08	QP			P	

Polarization: Vertical



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	33.5624	41.97	-16.07	25.90	40.00	-14.10	QP			P	
2 *	41.4215	45.86	-15.06	30.80	40.00	-9.20	QP			P	
3	49.1865	40.09	-14.49	25.60	40.00	-14.40	QP			P	
4	65.1144	39.19	-16.89	22.30	40.00	-17.70	QP			P	
5	86.2000	47.61	-18.91	28.70	40.00	-11.30	QP			P	
6	121.1231	44.53	-18.73	25.80	40.00	-14.20	QP			P	

Note: Level=Reading + Factor
Margin=Level – Limit

5.4. Harmonic current emissions

5.4.1. Test Procedure

The EUT was placed on the top of a wooden table 0.8 meters above the ground and the EUT is supplied in series with power analyzer from a power source having the same normal voltage and frequency as the rated supply voltage and the equipment under test. And the rated voltage at the supply voltage of EUT of 0.94 times and 1.06 times shall be performed.

A definition of the normal load or of the conditions for adequate heat discharge can usually be found in the EN publication corresponding to the equipment under test.

Equipment may have several separately controlled circuits. Each circuit is considered as a single piece of equipment if it can be operated independently and separately from the other circuits.

5.4.2. Limit

Class A Harmonics Currents

Harmonics Order n	Maximum Permissible harmonic current (A)	Harmonics Order n	Maximum Permissible harmonic current (A)
Odd harmonics		Even harmonics	
3	2.30	2	1.08
5	1.14	4	0.43
7	0.77	6	0.30
9	0.40	8 ≤ n ≤ 40	0.23 * 8/n
11	0.33		
13	0.21		
15 ≤ n ≤ 39	0.15 * 15/n		

Class B Harmonics Currents

For Class B equipment, the harmonic of the input current shall not exceed the maximum permissible values given in table which is the limit of Class A multiplied by a factor of 1.5.

Class C Harmonics Currents

Harmonics Order n	Maximum Permissible harmonic current Expressed as a percentage of the input current at the fundamental frequency (%)
2	2
3	30．λ*
5	10
7	7
9	5
11 ≤ n ≤ 39 (odd harmonics only)	3
* λ is the circuit power factor	

Class D Harmonics Currents

Harmonics Order n	Maximum Permissible harmonic current per watt (mA/W)	Maximum Permissible harmonic current (A)
3	3.4	2.30
5	1.9	1.14
7	1.0	0.77
9	0.5	0.40
11	0.35	0.33
11 ≤ n ≤ 39 (odd harmonics only)	3.85/n	See limit of Class A

5.4.3. Test Result

PASS

Please refer to pages 25 for data.

THC(mA): 493.100 I - THD(%): 17.3 POHC(mA):1.700 POHC Limit(mA):251.353

Parameter values during test:
V_RMS (Volts): 230.3 Frequency(Hz): 50.0
I_RMS(A): 2.9 Crest Factor: 1.616
Power (Watts): 685.0 Power Factor: 0.986

Harm#	Harms(filtered) (mA)	Limit (mA)	Harms(avg) (mA)	100%Limit	Harms(max) (mA)	150%Limit	Status
I_Fund	2849.700						
2	21.900	1080.000	22.200	2.056	23.000	1.420	Pass
3	488.400	2300.000	490.100	21.309	498.100	14.438	Pass
4	18.300	430.000	18.900	4.395	19.000	2.946	Pass
5	55.300	1140.000	55.700	4.886	57.100	3.339	Pass
6	12.900	300.000	13.100	4.367	13.300	2.956	Pass
7	22.600	770.000	22.500	2.922	23.000	1.991	Pass
8	7.900	230.000	7.800	3.391	7.900	2.290	Pass
9	9.700	400.000	9.800	2.450	10.000	1.667	Pass
10	2.800	184.000	2.900	1.576	2.800	1.014	Pass
11	1.400	330.000	1.600	0.485	1.700	0.343	Pass
12	1.400	153.300	1.500	0.978	1.400	0.609	Pass
13	2.500	210.000	2.700	1.286	2.800	0.889	Pass
14	2.100	131.400	2.200	1.674	2.100	1.065	Pass
15	2.800	150.000	3.000	2.000	2.800	1.244	Pass
16	1.700	115.000	1.800	1.565	2.100	1.217	Pass
17	1.000	132.400	0.800	0.604	1.000	0.504	Pass
18	1.000	102.200	0.900	0.881	1.000	0.652	Pass
19	1.000	118.400	1.000	0.845	1.000	0.563	Pass
20	0.300	92.000	0.500	0.543	0.700	0.507	Pass
21	1.000	107.100	1.100	1.027	1.000	0.622	Pass
22	1.000	83.600	0.900	1.077	1.000	0.797	Pass
23	0.700	97.800	0.700	0.716	0.700	0.477	Pass
24	0.700	76.700	0.700	0.913	0.700	0.608	Pass
25	0.700	90.000	0.800	0.889	0.700	0.519	Pass
26	0.300	70.800	0.600	0.847	0.700	0.659	Pass
27	0.300	83.300	0.400	0.480	0.700	0.560	Pass
28	0.000	65.700	0.100	0.152	0.300	0.304	Pass
29	0.300	77.600	0.300	0.387	0.300	0.258	Pass
30	0.300	61.300	0.500	0.816	0.700	0.761	Pass
31	0.300	72.600	0.700	0.964	1.000	0.918	Pass
32	0.300	57.500	0.400	0.696	0.700	0.812	Pass
33	0.300	68.200	0.400	0.587	0.700	0.684	Pass
34	0.300	54.100	0.200	0.370	0.300	0.370	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	0.200	0.413	0.300	0.413	Pass
39	0.300	57.700	0.200	0.347	0.300	0.347	Pass
40	0.000	46.000	0.200	0.435	0.300	0.435	Pass

Note: All harmonics are below the minimum limits and are ignored.

5.5. Voltage changes, voltage fluctuations and flicker

5.5.1. Test Procedure

The EUT is supplied in series with power analyzer from a power source having the same normal voltage and frequency as the rated supply voltage and the equipment under test. And the rated voltage at the supply voltage of EUT of 0.94 times and 1.06 times shall be performed.

The EUT was placed on the top of a wooden table 0.8 meters above the ground and operated to produce the most unfavorable sequence of voltage changes under normal operating conditions.

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

5.5.2. Limit

Test Item	Limit
Pst (Short-term flicker indicator.)	1.0
Plt (Long-term flicker indicator.)	0.65
Td(t)(ms) (Maximum time that d(t) exceeds 3.3%)	500
dmax(%) (Maximum relative voltage change.)	4
dc(%) (Relative steady-state voltage change)	3.3

5.5.3. Test Result

PASS

Please refer to pages 26 for data.

Load Power : 0.759 kW Power Factor:0.988
Load Current : 2.909 Arms Crest Factor:1.614
Nominal Voltage : 230.11 Vrms

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 (%):	0.04	Test limit (%):	3.30	Pass
Highest dmax (%):	2.06	Test limit (%):	4.00	Pass
Highest Pst (10 min. period):	0.52	Test limit:	1.00	Pass
Highest Plt (2 hr. period):	0.23	Test limit:	0.65	Pass

6. Immunity

Performance criteria

Performance criterion **A**

The equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss function is allowed below a performance level specified by the manufacturer, when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance. 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 by what the user may reasonably expect from the equipment if used as intended.

Performance criterion **B**

The equipment shall continue to operate as intended after the test. No degradation of performance or loss function is allowed below a performance level specified by the manufacturer, when the equipment is used as intended. During the test, degradation of performance is however allowed. No change of actual operating state or stored data is allowed. If the minimum performance level or the permissible performance loss is specified by the manufacturer, either of these may be derived from the product description and documentation and what the user may reasonably expect from equipment if used as intended.

Performance criterion **C**

Temporary loss of function is allowed, provided the function is self-recoverable or can be restored by operation of the controls.

6.1. Electrostatic discharge

6.1.1. Test Specification

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

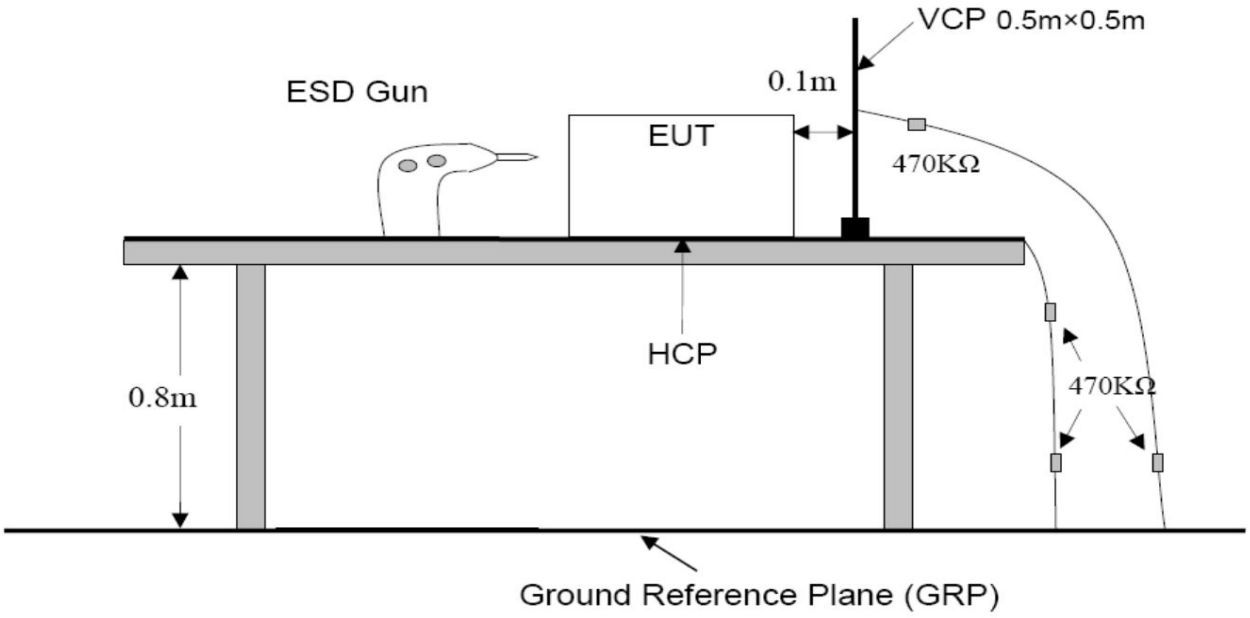
6.1.2. Test Levels and Performance Criterion

Test Standard
EN IEC 55014-2:2021
(EN 61000-4-2: 2009)

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

Performance criterion: **B**

6.1.3. Test setup



6.1.4. Test Procedure

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 of each polarity) for each pre-selected test point. This procedure shall be repeated until all the air discharge completed.

Contact Discharge:

All the procedure shall be same as Section Air Discharge except that the tip of the discharge electrode shall touch the EUT.

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.

Indirect discharge for vertical coupling plane:

At least 10 single discharge (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 completely illuminated.

6.1.5. Test Result

PASS

Test Point	Kind A-Air Discharge C-Contact Discharge	Performance Criterion	Result (Performance Criterion)
Surface of EUT	A	☐A ☒B	A
Indirect Discharge (HCP)	C	☐A ☒B	A
Indirect Discharge (VCP)	C	☐A ☒B	A

6.2. Radio frequency electromagnetic fields

6.2.1. Test Specification

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

6.2.2. Test Levels and Performance Criterion

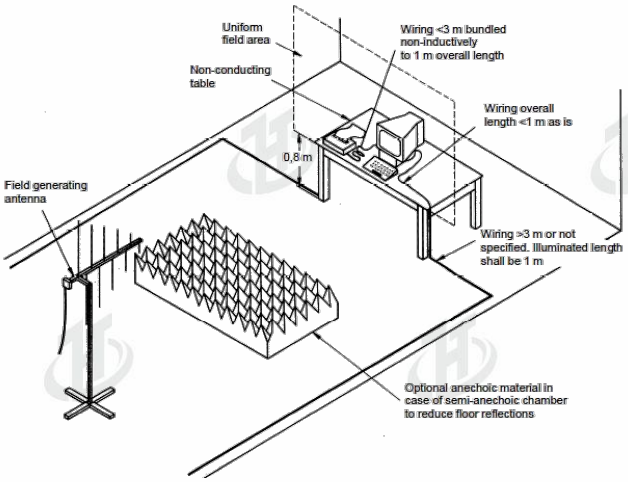
Test Standard
EN IEC 55014-2:2021
(EN 61000-4-3:2020)

Characteristics	Test levels
Frequency range	80 MHz to 1 000 MHz
Test level	3 V/m (unmodulated)
Modulation	1 kHz, 80 % AM, sine wave

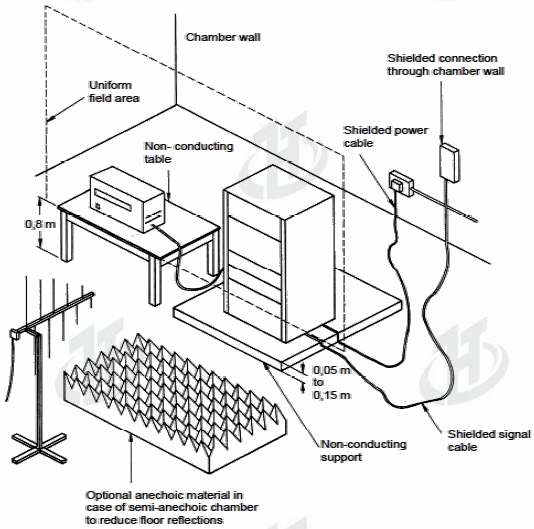
Performance criterion: **A**

6.2.3. Test setup

For table-top equipment



For floor standing equipment



6.2.4. Test Procedure

Measurement was performed in full-anechoic chamber.
Measurement procedure was applied according to EN 61000-4-3 clause 8.
The test method and equipment was specified by EN 61000-4-3.

6.2.5. Test Result

N/A

The operating frequency of EUT is lower than 15MHz, Which can be exempted.

6.3. Fast transients

6.3.1. Test Specification

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

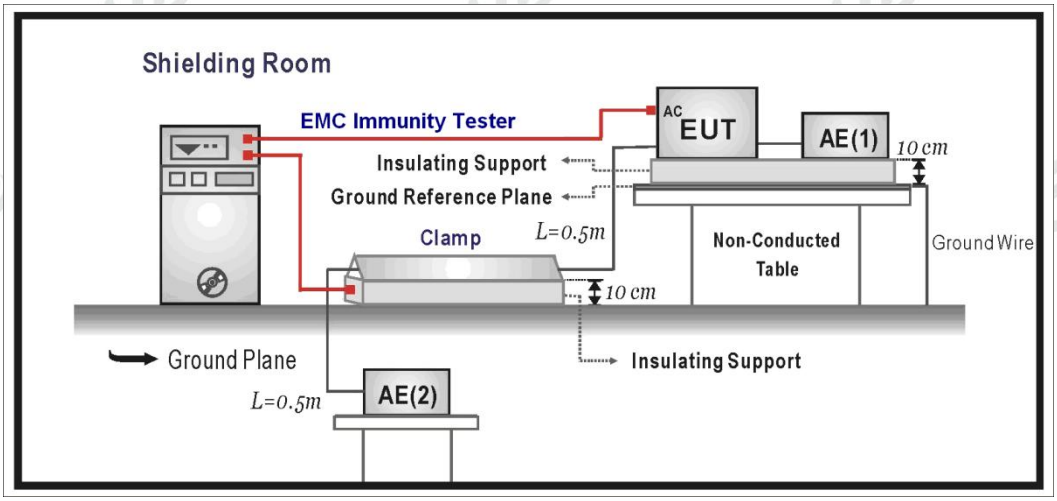
6.3.2. Test Levels and Performance Criterion

Test Standard
EN IEC 55014-2:2021
(EN 61000-4-4: 2012)

Open circuit output test voltage and repetition rate of the impulses				
Level	On power port, PE		On I/O (Input/Output) Signal data and control ports	
	Voltage peak KV	Repetition rate KHz	Voltage peak KV	Repetition rate KHz
1.	0.5	5 or 100	0.25	5 or 100
2.	1.0	5 or 100	0.5	5 or 100
3.	2.0	5 or 100	1.0	5 or 100
4.	4.0	5 or 100	2.0	5 or 100
X	Special	Special	Special	Special
Note 1 Use of 5 KHz repetition rates is traditional; however, 100 KHz is closer to reality. Product committees should determine which frequencies are relevant for specific products or product types. Note 2 With some products, there may be no clear distinction, between power ports and I/O ports, in which case it is up to product committees to make this determination for test purposes. Note 3 "X" is an open level. The level has to be specified in the dedicated equipment specification.				

Performance criterion: **B**

6.3.3. Test setup



6.3.4. Test Procedure

The EUT is put on the table which is 0.8 meter high above the ground. 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.

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 minus.

For signal lines ports:

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

For DC ports:

It's unnecessary to test.

6.3.5. Test Result

PASS

Test Point	Polarity	Test Level (kV)	Inject Time (Second)	Inject Method	Performance Criterion	Result (Performance Criterion)
L	±	1	60	Direct	☐A ☒B	A
N	±	1	60	Direct	☐A ☒B	A
PE	±	1	60	Direct	☐A ☐B	N/A
L+N	±	1	60	Direct	☐A ☒B	A
L+PE	±	1	60	Direct	☐A ☐B	N/A
N+PE	±	1	60	Direct	☐A ☐B	N/A
L+N+PE	±	1	60	Direct	☐A ☐B	N/A

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

6.4. Surges

6.4.1. Test Specification

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

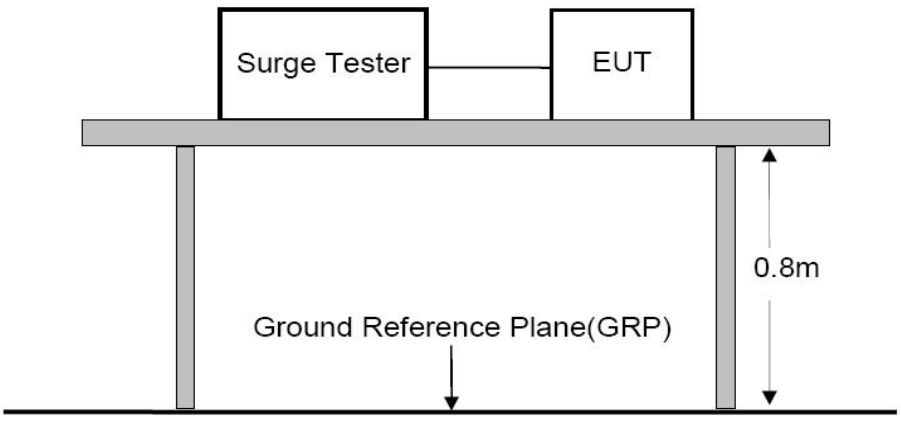
6.4.2. Test Levels and Performance Criterion

Test Standard
EN IEC 55014-2:2021
(EN 61000-4-5: 2014)

Severity Level	Open-Circuit Test Voltage KV
1	0.5
2	1.0
3	2.0
4	4.0
*	Special

Performance criterion: **B**

6.4.3. Test setup



6.4.4. Test Procedure

1. Set up the EUT and test generator as shown on Section 12.1.
2. For line to line coupling mode, provide a 1.0KV 1.2/50us voltage surge (at open-circuit condition) and 8/20us current surge to EUT selected points.
3. Five positive pulses Line-to-neutral at 90°phase,Five negative pulses Line-to-neutral at 270°phase. with a maximum 1/min repetition rate are conducted during test.
4. Different phase angles are done individually.
5. Record the EUT operating situation during compliance test and decide the EUT immunity criterion for above each test.

6.4.5. Test Result

PASS

Angle:		Positive pulses at 90° phase, Negative pulses at 270° phase				
Inject Line	Polarity	Voltage (kV)	Time Interval (Second)	Inject Method	Performance Criterion	Result (Performance Criterion)
L-N	±	1	60	Direct	☐A ☒B	A
L-PE	±	2	60	Direct	☐A ☐B	N/A
N-PE	±	2	60	Direct	☐A ☐B	N/A

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

6.5. Injected currents

6.5.1. Test Specification

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

6.5.2. Test Levels and Performance Criterion

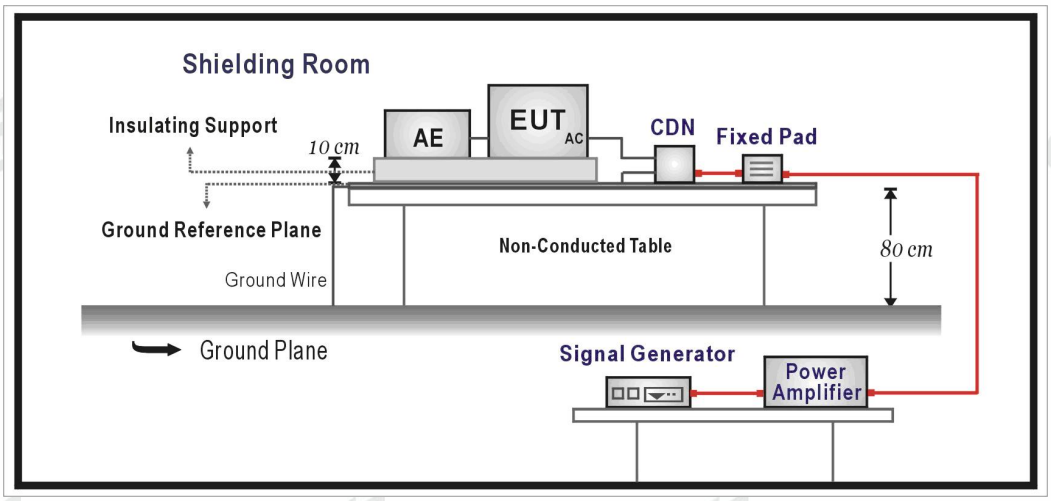
Test Standard
EN IEC 55014-2:2021
(EN 61000-4-6: 2014)

Frequency ranges MHz	Test level V	Modulation	Performance criterion
0,15 to 230	3	80% AM (1kHz)	A

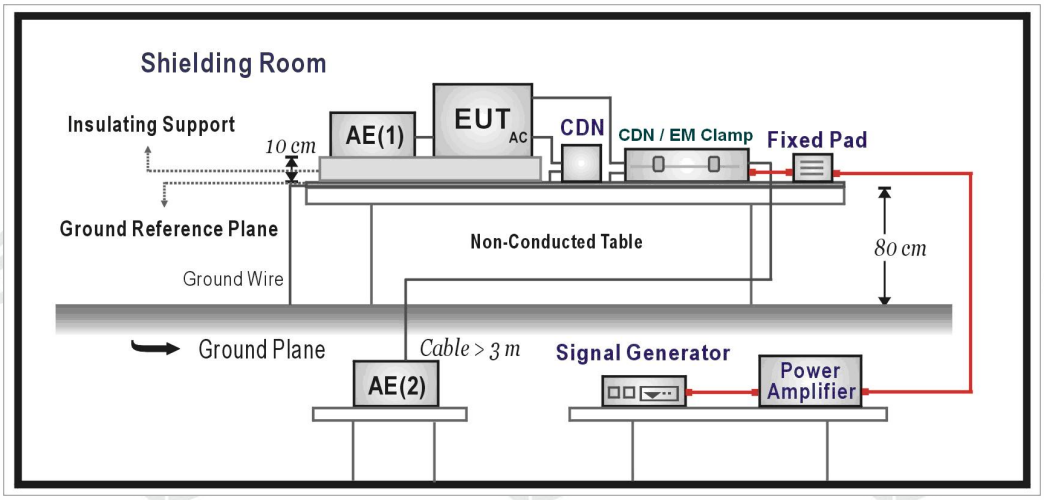
Performance criterion: **A**

6.5.3. Test setup

CDN Method



EM Clamp Method



6.5.4. Test Procedure

1. Set up the EUT, CDN and test generators as shown on Section 5.6.1.
2. Let the EUT work in test mode and measure it.
3. The EUT 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 about 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 150 KHz to 230 MHz 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*10-3decades/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 testing and decide the EUT immunity criterion.

6.5.5. Test Result

PASS

Frequency Band (MHz)	Field Strength (Vrms)	Inject Port	Inject Method	Performance Criterion	Result (Performance Criterion)
0.15 ~ 230	3	AC Mains	CDN	☒A ☐B	A

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

Note 2: The display quality of a display output was evaluated by using a subjective by direct observation.

6.6. Voltage dips

6.6.1. Test Specification

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

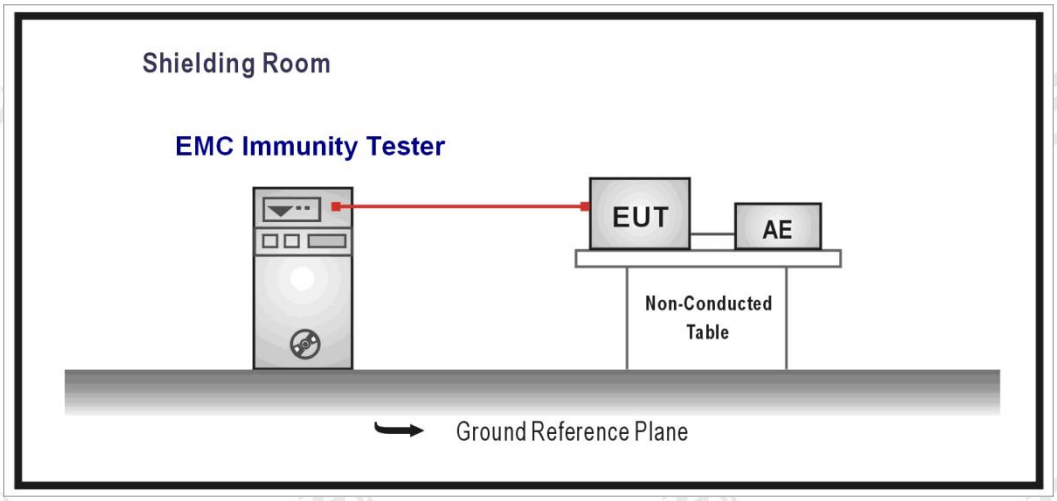
6.6.2. Test Levels and Performance Criterion

Test Standard
EN IEC 55014-2:2021
(EN 61000-4-11: 2020)

Test Level %UT	Voltage dip and short interruptions %UT	Duration (in period)
0	100	0.5
40	60	10
70	30	25

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

6.6.3. Test setup



6.6.4. Test Procedure

The Section of EN 61000-4 defines the immunity test methods and range of preferred test levels for electrical and electronic equipment connected to low-voltage power supply networks for voltage dips. Short interruptions and voltage variations. The standard applies to electrical and electronic equipment having a rated input current not exceeding 16A per phase. It does not apply to electrical and electronic equipment for connection to D.C networks or 400Hz A.C networks. Test for these networks will be covered by future EN standard. A performance criterion is classified as A, B, C, the recommendation is criterion A or B.

The test shall be performed with the EUT connected to the test generator with the shortest power supply cable as specified by EUT manufacturer. If no cable length is specified, it shall be the shortest possible length suitable to the application of the EUT.

The test set-up for the two types of phenomena described in this standard are:

- Voltage dips;

- Voltage variations with gradual transition between the rated voltage and the changed voltage (Option)

Both tests may be implemented with this set-up. Test on the three-phase EUT are accomplished by using three set of equipment mutually synchronized.

The EUT shall be tested for each selected combination of test level and duration with a sequence of three Dip / interruption with intervals of 10 s minimum (between each test event). Each representative mode of operation shall be tested.

6.6.5. Test Result

PASS

Test Voltage (Vac)	Voltage Residual (%)	Test Duration (Periods)	Performance Criterion	Result (Performance Criterion)
230	0	0.5	☐A ☐B ☒C	A
	40	10	☐A ☐B ☒C	B
	70	25	☐A ☐B ☒C	B

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

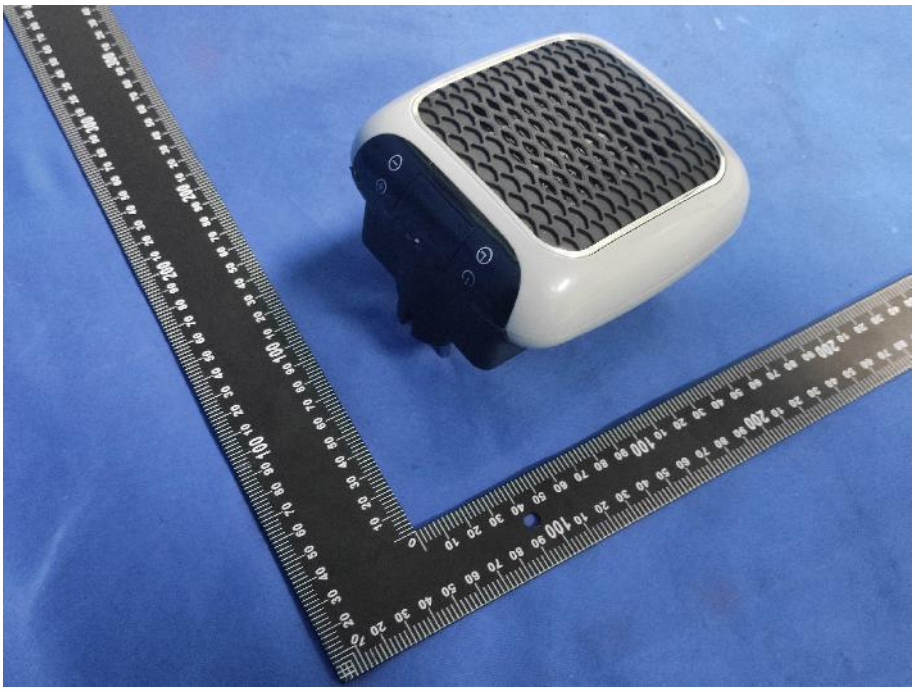
Criterion C: Loss/Error of function

Note2: The power is temporary off and can be reset by the operator.

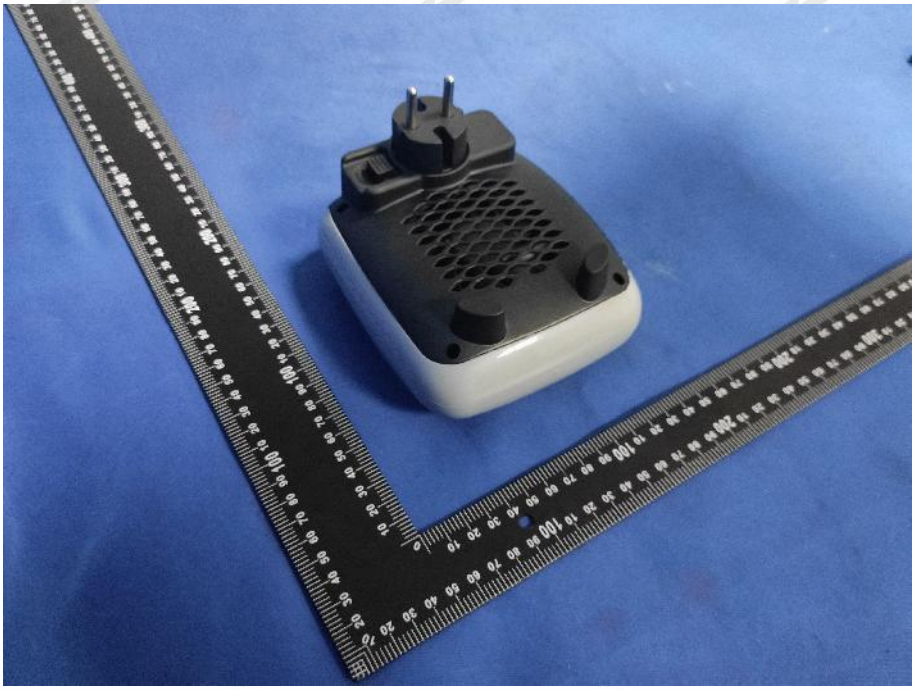
7. Photographs of EUT

EUT Photo 1

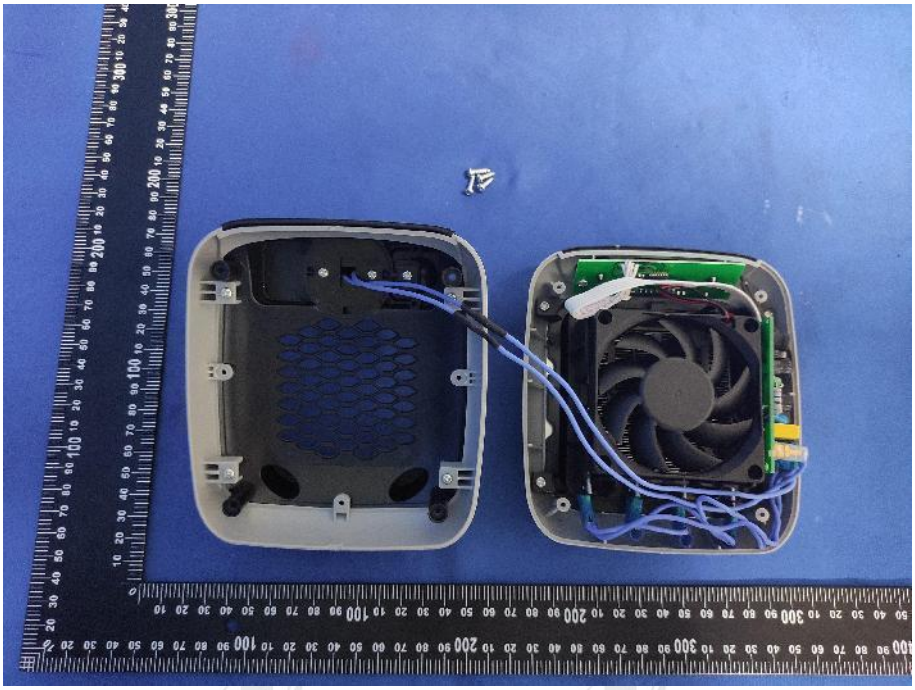
EUT Photo 2



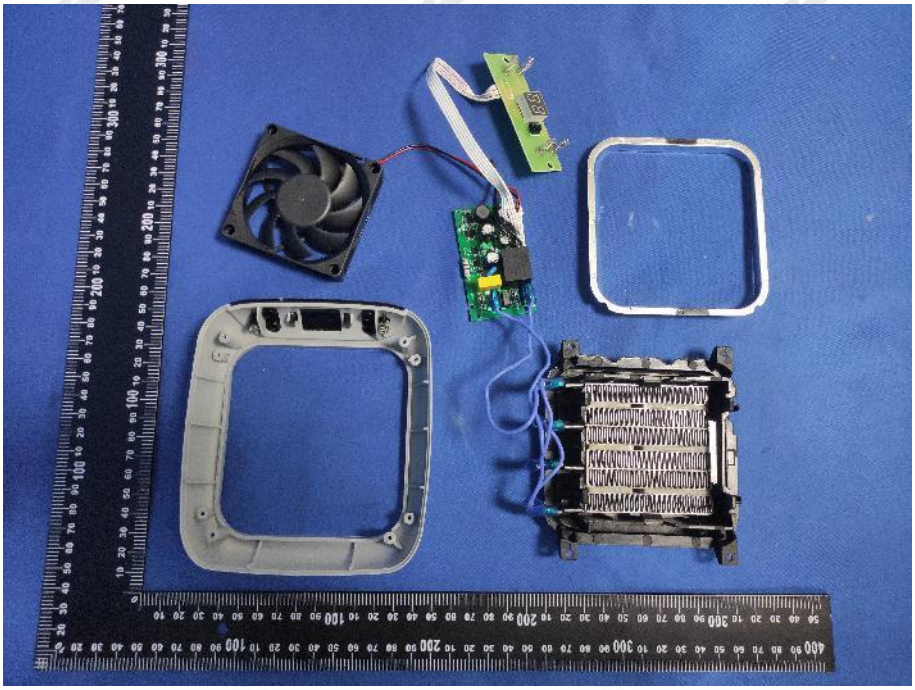
EUT Photo 3



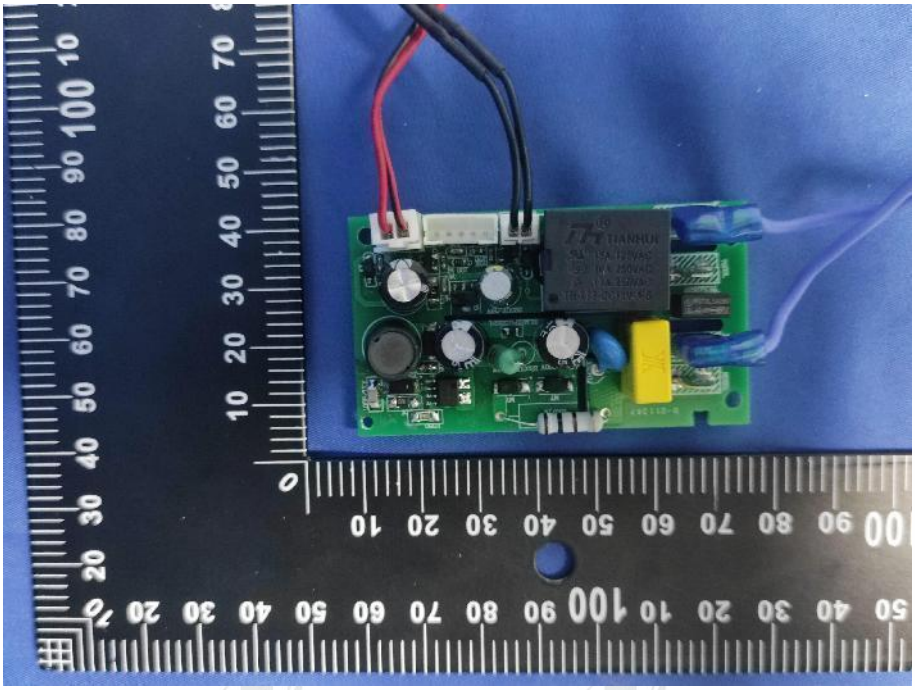
EUT Photo 4



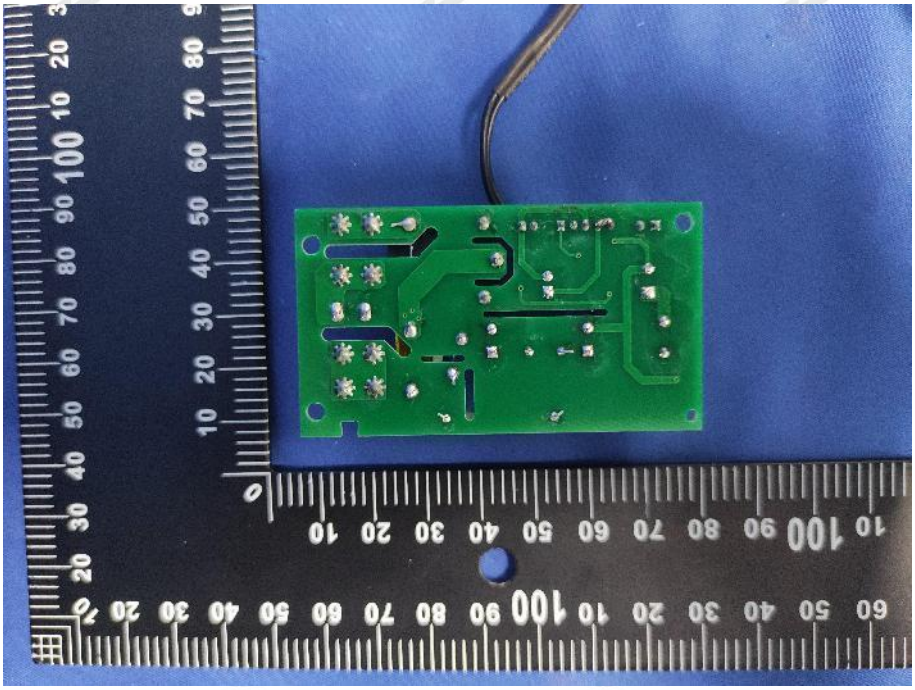
EUT Photo 5



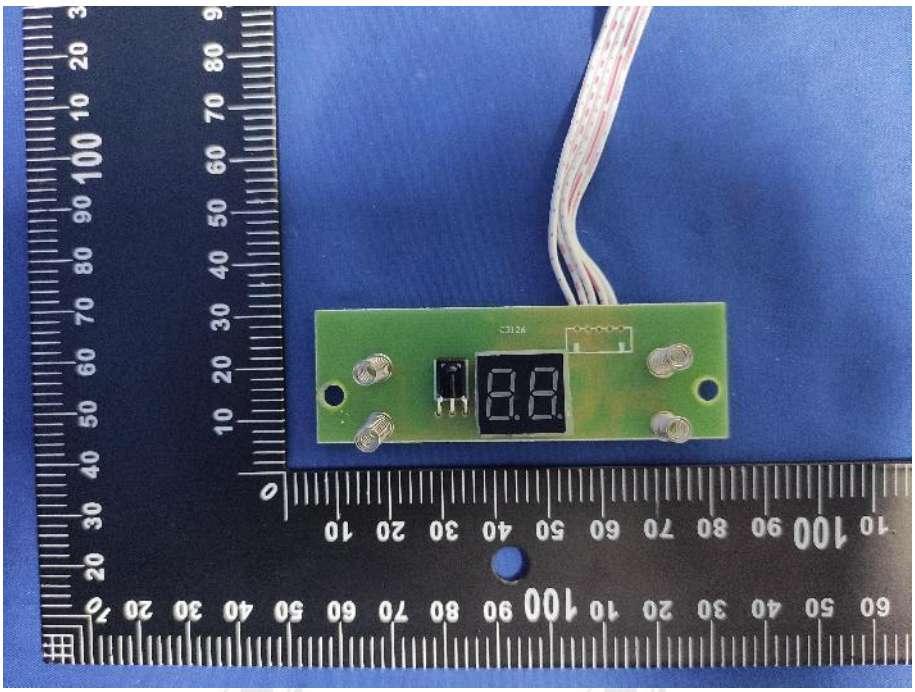
EUT Photo 6



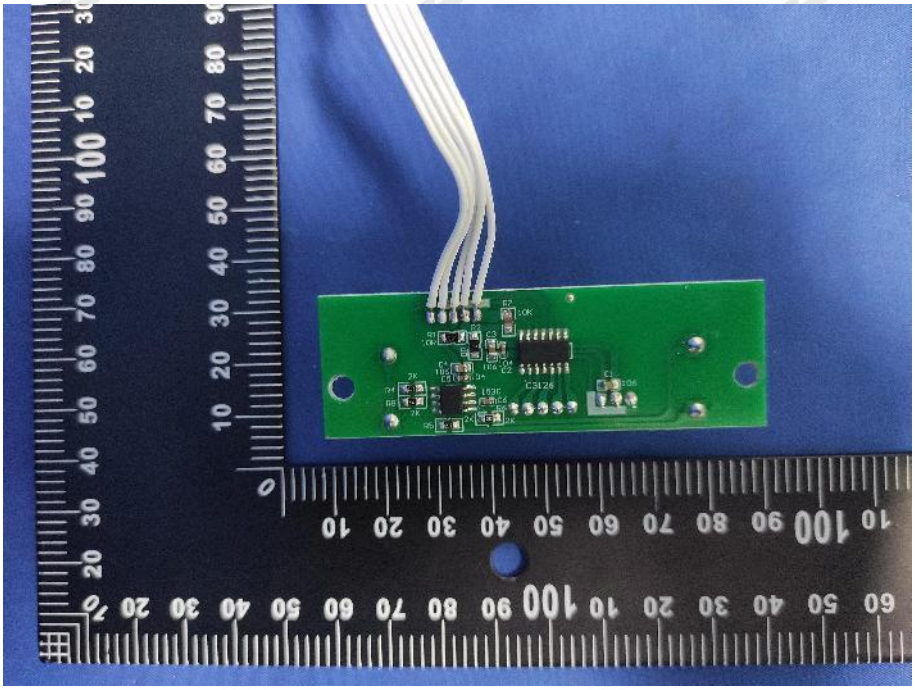
EUT Photo 7



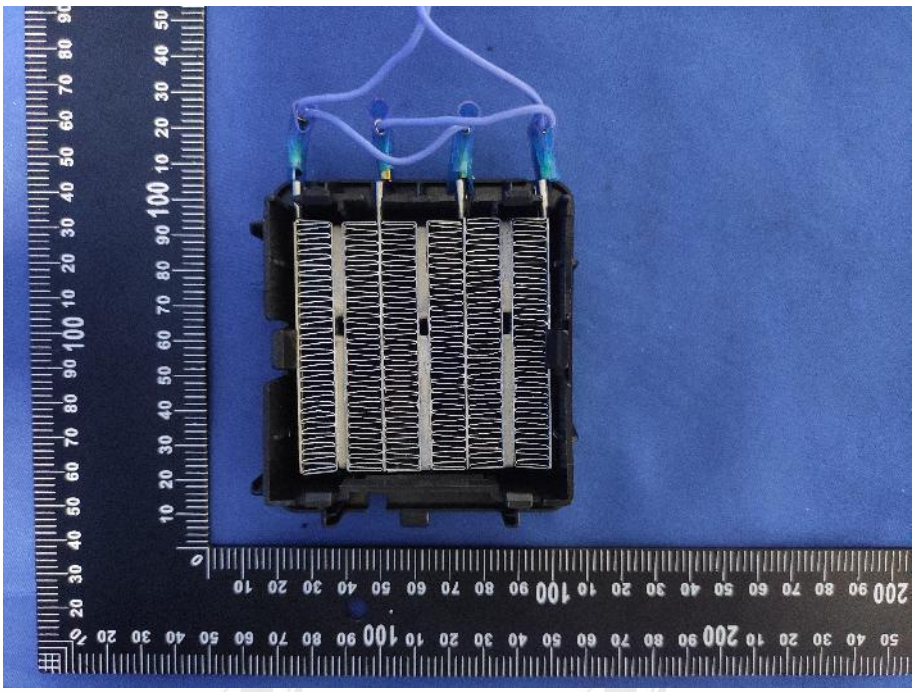
EUT Photo 8



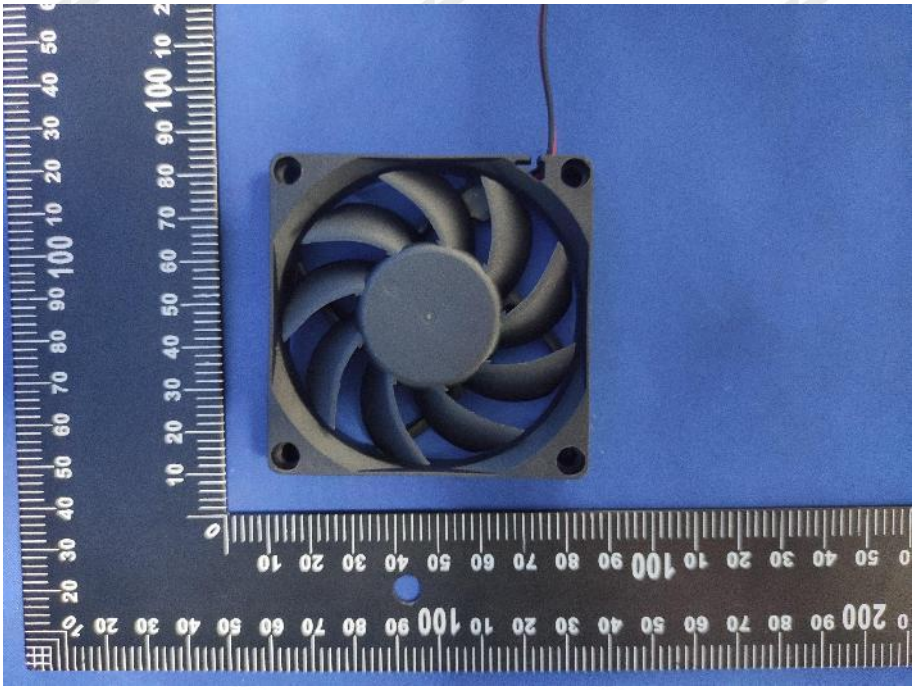
EUT Photo 9



EUT Photo 10



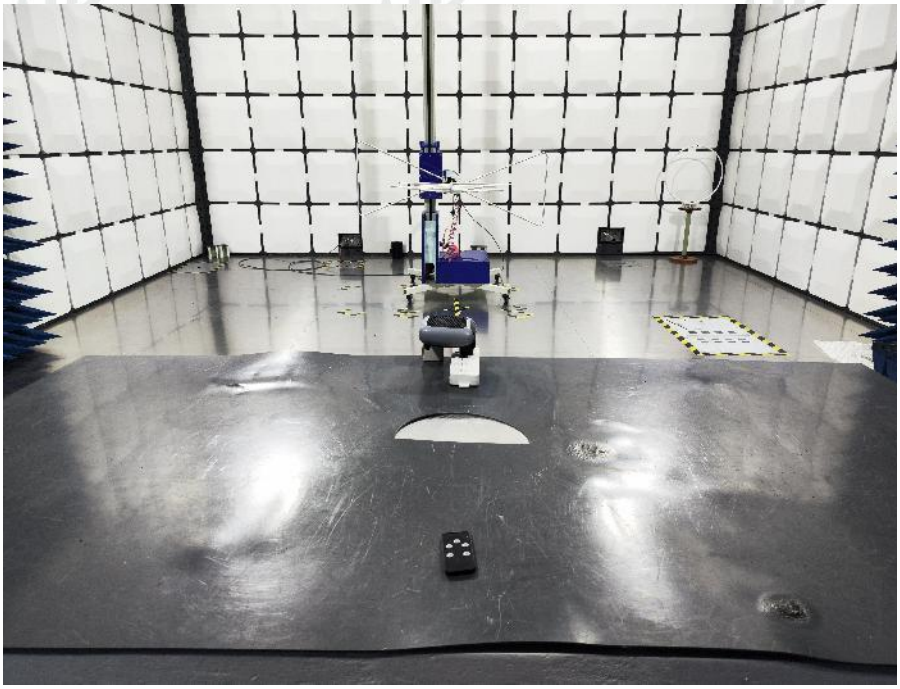
EUT Photo 11



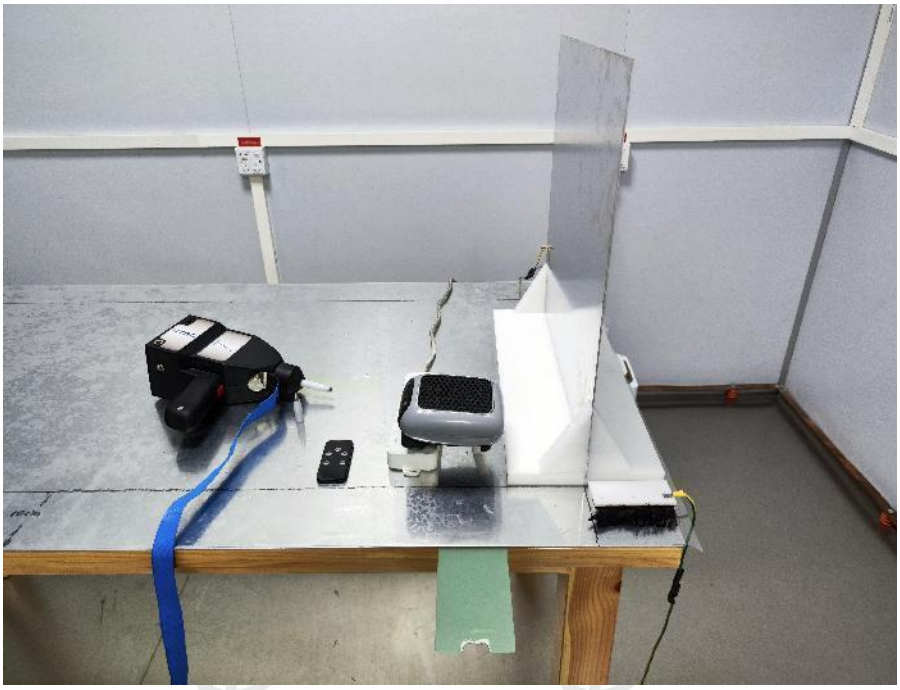
8. Test Setup Photographs

Conducted Emission

Radiated Emission



Electrostatic discharges



Fast transients & Surges & Voltage Dips

Injected currents

End of report

CERTIFICATE OF COMPLIANCE

Certificate of Compliance

Certificate Number: ZHT-230306024C

Certificate's Holder **Zertifikatsinhaber**	:	**CIL MARKETING DIRECTO SL - CIF B85987071** **AVDA MANOTERAS 50 28050 MADRID SPAIN**
Manufacturer **Hersteller**	:	**Shenzhen cigara technology Co.,Ltd.** **4F-5F, B4, tianliao yijing industry, yutang street, guangming new district, shenzhen city, china**
Trade Mark **Warenzeichen**	:	**/**
Product **Produkt**	:	**Handy heater**
Model(s) **Bezeichnung**	:	**HHT-02-REF 014200720** **HHT-02, HH-02, 608, 609, 701, HN-008, HT-236, HR-667**
Test Standard **Geprüft nach**	:	**EN 60335-1:2012+A11:2014+A13:2017+A1:2019+A14:2019+ A2:2019+A15:2021;** **EN 60335-2-30:2009+A11:2012+A1:2020+A12:2020;** **EN 62233: 2008**
Test Report No. **Bericht Nr**	:	**ZHT-230306024S**

This Certificate of Compliance is issued on a voluntary basis for electrical equipment below the voltage limits of LVD directive 2014/35/EU. 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.

CE

Guangdong Zhonghan Testing Technology Co., Ltd.

Manager

Apr. 12, 2023

The information of the certificate can be checked through www.zht-lab.cn.
The CE mark which is shown on the certificate can only be used under the conditions that the products complete with all of the relevant Directives of EC Declaration of Conformity.
The Manufacturer should be responsible for the internal production control so that the products complied with the essential requirements of the above mentioned Directive(s). Certificate holder must notify all changes to the original certification laboratory of Guangdong Zhonghan Testing Technology Co., Ltd.

Guangdong Zhonghan Testing Technology Co., Ltd.
Address:Room 104, Building 1, Yibaolai Industrial Park, Qiaotou Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China
Tel.: +86-755-27782934 Http://www.zht-lab.cn E-mail:admin@zht-lab.cn

TEST REPORT
IEC 60335-1& IEC 60335-2-30
Safety of household and similar electrical appliances
Part 2-30: Particular requirements for room heaters

Report Number.....	ZHT-230306024S
Date of issue.....	Apr. 12, 2023
Total number of pages.....	89
Testing Laboratory.....	**Guangdong Zhonghan Testing Technology Co., Ltd.**
Address.....	Room 104, Building 1, Yibaolai Industrial Park, Qiaotou Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China
Applicant's name.....	**CIL MARKETING DIRECTO SL - CIF B85987071**
Address.....	AVDA MANOTERAS 50 28050 MADRID SPAIN
Test specification:	
Standard.....	EN 60335-1:2012+A11:2014+A13:2017+A1:2019+A14:2019+A2:2019+A15:2021; EN 60335-2-30:2009+A11:2012+A1:2020+A12:2020; EN 62233: 2008
Test procedure.....	CE-LVD
Non-standard test method……..:	N/A
Test Report Form No.....	6033501E/00-10
Test Report Form(s) Originator.....	ZKT
Master TRF.....	Dated 2021- 12

Test item description.....	**Handy heater**
Trade Mark.....	/
Manufacturer.....	Shenzhen cigara technology Co.,Ltd. 4F-5F, B4, tianliao yijing industry, yutang street, guangming new district, shenzhen city, china
Model/Type reference.....	HHT-02-REF 014200720 HHT-02, HH-02, 608, 609, 701, HN-008, HT-236, HR-667
Ratings.....	220-240V~, 50/60Hz, 800W

Testing procedure and testing location:

Testing Laboratory.....:	**Guangdong Zhonghan Testing Technology Co., Ltd.**
Address.....:	Room 104, Building 1, Yibaolai Industrial Park, Qiaotou Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China
Date of Test.....:	Apr. 03, 2023- Apr. 11, 2023
Tested by (name + signature).....:	Laney Xie
Reviewed by (name + signature).....:	Summer Yang
Approved by (name + signature).....:	Levi Lee

List of Attachments (including a total number of pages in each attachment):

-- Attachment I : 14 pages for EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES

-- Attachment II: 5 pages for Photo documentation.

Summary of testing:

Tests performed (name of test and test clause):	**Testing location:**
-EN 60335-1:2012+A11:2014+A13:2017+A1:2019 +A14:2019+A2:2019+A15:2021; -EN 60335-2-30:2009+A11:2012+A1:2020 +A12:2020; -EN 62233: 2008 The submitted samples were found to comply with the requirements of above specification.	Room 104, Building 1, Yibaolai Industrial Park, Qiaotou Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China

Copy of marking plate

The artwork below may be only a draft.

Handy heater
Model No.: HHT-02-REF 014200720
220-240V~, 50/60Hz, 800W

Importer: XXXX
Address: XXXX
Manufacturer: Shenzhen cigara technology Co.,Ltd.
Address: 4F-5F, B4, tianliao yijing industry, yutang street, guangming new district, shenzhen city, china
Made in China

Remark on above marking:

1, The height of CE symbols is more than 5 mm;

2, The height of WEEE symbols is more than 7 mm;

Test item particulars.....:	
Classification of installation and use.....:	Portable appliance
Supply Connection.....:	Plug
Possible test case verdicts:	
- test case does not apply to the test object.....:	N/A(or N)
- test object does meet the requirement.....:	P (Pass)
- test object does not meet the requirement.....:	F (Fail)
Testing.....:	
Date of receipt of test item.....:	Apr. 03, 2023
Date (s) of performance of tests.....:	Apr. 03, 2023- Apr. 11, 2023

General remarks:

"(See Enclosure #)" refers to additional information appended to the report.
"(See appended table)" refers to a table appended to the report.

Throughout this report a ☐ comma / ☒ point is used as the decimal separator.

Manufacturer's Declaration per sub-clause 4.2.5 of IECEE 02:

The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided.....:	☐ **Yes** ☒ **Not applicable**

When differences exist; they shall be identified in the General product information section.

General product information:

1. The equipment is a Handy heater for general use.
2. All models are same as HHT-02-REF 014200720 except model name only, all tests are carried out on HHT-02-REF 014200720.

IEC 60335-1& IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
5	GENERAL CONDITIONS FOR THE TESTS		—
	Tests performed according to cl. 5, e.g. nature of supply, sequence of testing, etc.		P
5.2	Heaters intended to be installed adjacent to each other, tests made with sufficient number. (IEC 60335-2-30)		N/A
5.3	Appliance used for tests of Cl. 19 also used for the test of Cl. 22.24 (IEC 60335-2-30)		N/A
	Test of Cl. 22.24 carried out after test of Cl. 29 (IEC 60335-2-30)		N/A
5.6	Thermostats short-circuited if sensible to room air temperature (IEC 60335-2-30)		P
	However, if the thermostat can be set so that it does not cycle, it is not short-circuited, unless otherwise specified (IEC 60335-2-30)		N/A
5.10	Heaters intended to be installed adjacent to each other, installed in accordance with instructions (IEC 60335-2-30)		N/A
5.101	Heaters intended to be used as both portable and fixed appliances are subjected to the tests applicable to both types (IEC 60335-2-30)		N/A
5.102	If the heater is a combination of two or more types, tests relevant for each type (IEC 60335-2-30)		N/A
	Heaters for wall-mounting are tested both as heaters for mounting high level and as heaters for mounting other than at high level (IEC 60335-2-30)		N/A
	Unless the installation instructions state that the heater has to be installed at least 1,8m above the floor. (IEC 60335-2-30)		N/A
6	CLASSIFICATION		—
6.1	Protection against electric shock: Class 0, 0I, I, II, III ..... :	Class II	P
6.2	Protection against harmful ingress of water	IPX0	N/A
	Heaters intended for use in greenhouses or building sites shall be at least IPX4 (IEC 60335-2-30)		N/A
7	MARKING AND INSTRUCTIONS		—
7.1	Rated voltage or voltage range (V)..... :	220-240V	P
	Symbol for nature of supply, or..... :	~	P
	Rated frequency (Hz)..... :	50/60Hz	P
	Rated power input (W):..... :	See marking label	P
	Rated current (A) ..... :		N/A

IEC 60335-1& IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
	Manufacturer's or responsible vendor's name, trademark or identification mark.....:	See marking label	P
	Model or type reference..... :	See marking label	P
	Symbol 5172 of IEC 60417, for Class II appliances		N/A
	IP number, other than IPX0..... :	IPX0	N/A
	Symbol IEC 60417-5180, for class III appliances, unless		N/A
	the appliance is operated by batteries only		N/A
	Symbol IEC 60417-5036, for the enclosure of electrically-operated water valves in external hose-sets for connection of an appliance to the water mains, if the working voltage exceeds extra-low voltage		N/A
	Symbol IEC 60417-5036, for the enclosure of electrically-operated water valves in external hose-sets for connection of an appliance to the water mains		N/A
	Heaters intended to be filled with liquid by the user shall be marked with max. and min. levels (IEC 60335-2-30)		N/A
	Heaters shall be marked: WARNING "Do not cover" - or with the symbol 5641 of IEC 60417-1 except for colours (IEC 60335-2-30)	 Colour: red.	P
	This Marking is not required for-(IEC 60335-2-30)		N/A
	- Heaters for mounting high level;(IEC 60335-2-30)		N/A
	- visible glowing radiant heaters (IEC 60335-2-30)		N/A
	- heaters constructed so that they cannot be covered: (IEC 60335-2-30)		N/A
	- heaters also intended to dry clothes and witch comply with IEC 60335-2-43(IEC 60335-2-30)		N/A
	- heaters for mounting under benches (IEC 60335-2-30)		N/A
	Heaters having a fireguard that is intended to be removed for transportation or storage shall be marked to state that the heater must not be operated without this guard in place (IEC 60335-2-30)		N/A
	For ceiling mounting heat lamp appliances, the maximum rated wattage and type of each lamp shall be marked (IEC 60335-2-30)		N/A
7.2	Warning for stationary appliances for multiple supply		N/A

IEC 60335-1& IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
	Warning placed in vicinity of terminal cover		N/A
7.3	Range of rated values marked with the lower and upper limits separated by a hyphen		P
	Different rated values marked with the values separated by an oblique stroke		N/A
7.4	Appliances adjustable for different rated voltages, the voltage setting is clearly discernible		N/A
	Requirement met if frequent changes are not required and the rated voltage to which the appliance is to be adjusted is determined from a wiring diagram		N/A
7.5	Appliances with more than one rated voltage or one or more rated voltage ranges, marked with rated input or rated current for each rated voltage or range, unless		N/A
	the power input is related to the arithmetic mean value of the rated voltage range		P
	Relation between marking for upper and lower limits of rated power input or rated current and voltage is clear		N/A
7.6	Correct symbols used		P
	Symbol for nature of supply placed next to rated voltage		P
	Symbol for class II appliances placed unlikely to be confused with other marking		P
	Units of physical quantities and their symbols according to international standardized system		P
	Symbol 5641 of IEC 60417-1 (do not cover) is used except for colours (IEC 60335-2-30)		P
7.7	Connection diagram fixed to appliances to be connected to more than two supply conductors and appliances for multiple supply		N/A
7.8	Except for type Z attachment, terminals for connection to the supply mains indicated as follows:		P
	- marking of terminals exclusively for the neutral conductor (N)		N/A
	- marking of protective earthing terminals (symbol 5019 of IEC 60417)		P
	- marking not placed on removable parts		P
7.9	Marking or placing of switches which may cause a hazard		P

IEC 60335-1& IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
7.10	Indications of switches on stationary appliances and controls on all appliances by use of figures, letters or other visual means.....:	By words and figures	P
	This applies also to switches which are part of a control		P
	If figures are used, the off position indicated by the figure 0		P
	The figure 0 indicates only OFF position, unless no confusion with the OFF position		P
7.11	Indication for direction of adjustment of controls		P
7.12	Instructions for safe use provided		P
	Details concerning precautions during user maintenance		P
	The instructions state that:		P
	- the appliance is not to be used by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction		P
	- children being supervised not to play with the appliance		P
	For a part of class III construction supplied from a detachable power supply unit, the instructions state that the appliance is only to be used with the unit provided		N/A
	Instructions for class III appliances state that it must only be supplied at SELV, unless		N/A
	it is a battery-operated appliance, the battery being charged outside the appliance		N/A
	Instructions for safe use provided: (IEC 60335-2-30)		P
	- If Symbol 5641 of IEC 60417-1 (do not cover) is marked on the appliance, its meaning is explained. (IEC 60335-2-30)		P
	- For heaters marked ”Do not cover” (or with symbol) contain the substance of: In order to avoid overheating, do not cover the heater (IEC 60335-2-30)		P
	- Statement: heater is not located immediately below a socket-outlet (IEC 60335-2-30)		P

IEC 60335-1& IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
	- Statement for heaters with heating elements in direct contact with accessible panel made of glass, ceramic or similar material , includes the following warning: The heater must not be used if the glass *(or ceramic or similar material*) panels are damaged (IEC 60335-2-30)		N/A
	- Statements for visibly glowing radiant heaters, other than heaters for mounting at high level, includes the substance of following: Do not use the heater with a programmer, timer or any other device that switches the heater on automatically (IEC 60335-2-30)		N/A
	- have a fireguard that can be partly removed without the aid of a tool includes the substance of following:..... (IEC 60335-2-30)		N/A
	The fireguard of this heater is intended to prevent direct access to heating elements and must be in place when the heater is used.		N/A
	The fireguard does not give full protection for young people and infirm persons		N/A
	- Statements for portable heaters : Do not use this heater in the immediate surroundings of a bath, a shower or a swimming pool (IEC 60335-2-30)		P
	- Statements for visibly glowing radiant heaters: shall be provided for cleaning the reflector, if appropriate (IEC 60335-2-30)		N/A
	- Statement: shall be provided for replacing the lamps of fuel-effect heaters (IEC 60335-2-30)		N/A
	- Statements for oil-filled radiators: ..... (IEC 60335-2-30)		N/A
	- this heater is filled with a precise quantity of special oil. Repairs requiring opening of the oil container are only to be made by the manufacturer or his service agent who should be contacted if there is an oil leakage		N/A
	- regulations concerning the disposal of oil when scrapping the appliance have to be followed		N/A
	Instructions shall be provided for routine cleaning of ceiling mounted heat lamp appliances including removal of covers if applicable (IEC 60335-2-30)		N/A

IEC 60335-1& IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
	The instructions for room heaters without a built-in room thermostat or thermal control limiting the room temperature shall include the substance of the following: WARNING: This heater is not equipped with a device to control the room temperature. Do not use this heater in small rooms when they are occupied by persons not capable of leaving the room on their own, unless constant supervision is provided.		N/A
7.12.1	Sufficient details for installation supplied		N/A
	For an appliance intended to be permanently connected to the water mains and not connected by a hose-set, this is stated		N/A
	Instructions for heaters intended to be fixed by screws or other give details on the method of fixing (IEC 60335-2-30)		N/A
	Instructions for visibly glowing radiant heaters warn about the possible danger of installation close to curtains and other combustible materials (IEC 60335-2-30)		N/A
	Instructions for heaters for mounting at high level state that the heater must be installed at least 1,8 m above the floor (IEC 60335-2-30)		N/A
	Instructions for fixed heaters likely to be used in a bathroom: that the heater is to be installed so that switches and other controls cannot be touched by a person in the bath or shower (IEC 60335-2-30)		N/A
	Statement for heaters with rollers or feet delivered separately: how they have to be fixed (IEC 60335-2-30)		N/A
	Statement for heaters intended to be installed in wardrobes or ceiling: for proper installation in a wardrobe or in the ceiling (IEC 60335-2-30)		N/A
	The installation instructions for ceiling mounted heat lamp appliances, recessed into a ceiling place or cavity shall give details for proper installation in the ceiling and shall state the substance of the following:..... (IEC 60335-2-30)		N/A
	- The appliance shall, under no circumstances, be covered with insulating material or similar material.		N/A
	- Regulations concerning the discharge of air have to be fulfilled.		N/A
	- Joists, beams and rafters shall not be cut or notched to install the appliance		N/A
	The installation instructions for heaters for mounting under church benches shall state:..... (IEC 60335-2-30)		N/A
	-The heater is intended for installation under benches that are fixed in position		N/A

IEC 60335-1& IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
	- The minimum distance between the underside of the installed heater and the floor		N/A
	- The minimum distances of the relevant surfaces of the heaters to the front and rear edge of the underside of the bench which shall be not less than 50 mm		N/A
	The installation instructions for heaters intended to be built into the floor and that incorporate a floor level grille shall state the substance of the following: (IEC 60335-2-30) After installation, ensure that any drain holes are free from obstruction.		N/A
	Ensure that any floor level grille has a mechanical strength consistent with the national building codes. (IEC 60335-2-30)		N/A
7.12.2	Stationary appliances not fitted with means for disconnection from the supply mains having a contact separation in all poles that provide full disconnection under overvoltage category III, the instructions state that means for disconnection must be incorporated in the fixed wiring in accordance with the wiring rules		N/A
7.12.3	Insulation of the fixed wiring in contact with parts exceeding 50 K during clause 11; instructions stating that the fixed wiring must be protected		N/A
7.12.4	Instructions for built-in appliances:		N/A
	- dimensions of space		N/A
	- dimensions and position of supporting means		N/A
	- minimum distances between parts and surrounding structure		N/A
	- minimum dimensions of ventilating openings and arrangement		N/A
	- connection to supply mains and interconnection of separate components		N/A
	- allow disconnection of the appliance after installation, by accessible plug or a switch in the fixed wiring, unless		N/A
	a switch complying with 24.3		N/A
7.12.5	Replacement cord instructions, type X attachment with a specially prepared cord		N/A
	Replacement cord instructions, type Y attachment		N/A
	Replacement cord instructions, type Z attachment		N/A

IEC 60335-1& IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
7.12.6	Caution in the instructions for appliances incorporating a non-self-resetting thermal cut-out that is reset by disconnection of the supply mains, if this cut-out is required to comply with the standard		N/A
7.12.7	Instructions for fixed appliances stating how the appliance is to be fixed		N/A
7.12.8	Instructions for appliances connected to the water mains:		N/A
	- max. inlet water pressure (Pa):		N/A
	- min. inlet water pressure, if necessary (Pa):		N/A
	Instructions concerning new and old hose-sets for appliances connected to the water mains by detachable hose-sets		N/A
7.13	Instructions and other texts in an official language		P
7.14	Marking clearly legible and durable		P
	The height of the “Do not cover “ symbol shall be at least 15 mm (IEC 60335-2-30)		P
	The height of the words “Do not cover “ shall be at least 3 mm (IEC 60335-2-30)		N/A
	The height of the words relating to the maximum rated wattage and type of heat lamp shall be at last 6mm (IEC 60335-2-30)		N/A
7.15	Marking on a main part		P
	Marking clearly discernible from the outside, if necessary after removal of a cover		P
	For portable appliances, cover can be removed or opened without a tool		N/A
	For stationary appliances, name, trademark or identification mark and model or type reference visible after installation		N/A
	For fixed appliances, name, trademark or identification mark and model or type reference visible after installation according to the instructions		N/A
	Indications for switches and controls placed on or near the components. Marking not on parts which can be positioned or repositioned in such a way that the marking is misleading		P
	Heaters for mounting at high level, indication of the different positions of switches visible from a distance of 1 m (IEC 60335-2-30)		N/A
	Marking concerning covering visible shall be visible after the heater has been installed. It shall not be placed on the bottom of, or on the back of, portable heaters. (IEC 60335-2-30)		P

IEC 60335-1& IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
	Marking not placed on the back of portable heaters (IEC 60335-2-30)		P
	Marking concerning removable fireguards visible before fitting the fireguard (IEC 60335-2-30)		N/A
	For ceiling mounted heat lamp appliances, the marking relating to the maximum rated wattage and type of heat lamp shall be visible when replacing a lamp in accordance with the instructions (IEC 60335-2-30)		N/A
7.16	Marking of a possible replaceable thermal link or fuse link clearly visible with regard to replacing the link		N/A
8	PROTECTION AGAINST ACCESS TO LIVE PARTS		—
8.1	Adequate protection against accidental contact with live parts		P
	This requirement does not apply to live parts of screw-type or bayonet-type lampholders incorporated in ceiling mounted heat lamp appliances that are only accessible when the heat lamp is extracted (IEC 60335-2-30)		N/A
8.1.1	Requirement applies for all positions, detachable parts removed		P
	Lamps behind a detachable cover not removed, if conditions met		N/A
	Insertion or removal of lamps, protection against contact with live parts of the lamp cap		N/A
	Use of test probe B of IEC 61032: no contact with live parts		P
	Detachable fireguards not removed if their removal requires the use of a tool, provided that (IEC 60335-2-30)		N/A
	- the instructions state that the plug must be removed from the socket-outlet before cleaning the reflector, or		N/A
	- the heater incorporates a switch having contact separation all poles that provides full disconnection under overvoltage category III conditions		N/A
8.1.2	Use of test probe 13 of IEC 61032 through openings in class 0 appliances and class II appliances/ constructions: no contact with live parts		P
	Test probe 13 also applied through openings in earthed metal enclosures having a non-conductive coating: no contact with live parts		P
8.1.4	Accessible part not considered live if:		N/A
	- safety extra-low a.c. voltage: peak value not exceeding 42.4 V		N/A
	- safety extra-low d.c. voltage: not exceeding 42.4 V		N/A

IEC 60335-1& IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
	- or separated from live parts by protective impedance		N/A
	If protective impedance: d.c. current not exceeding 2 mA, and		N/A
	a.c. peak value not exceeding 0.7 mA		N/A
	- for peak values over 42.4 V up to and including 450 V, capacitance not exceeding 0,1 μF		N/A
	- for peak values over 450 V up to and including 15 kV, discharge not exceeding 45 μC		N/A
	-for peak values over 15kV, the energy in the discharge not exceeding 350 mJ		N/A
8.1.5	Live parts protected at least by basic insulation before installation or assembly:		N/A
	- built-in appliances		N/A
	- fixed appliances		N/A
	- appliances delivered in separate units		N/A
8.2	Class II appliances and constructions constructed so that there is adequate protection against accidental contact with basic insulation and metal parts separated from live parts by basic insulation only		P
	Only possible to touch parts separated from live parts by double or reinforced insulation		P
	During user maintenance and after the removal of detachable parts during replacement of heat lamp, the basic insulation of internal wiring may be touched provided electrically equivalent to the insulation of cords complying with IEC 60227 or IEC 60245 (IEC 60335-2-30)		N/A
10	POWER INPUT AND CURRENT		—
10.1	Power input at normal operating temperature, rated voltage and normal operation not deviating from rated power input by more than shown in table 1	(see appended table)	P
	Test carried out at upper and lower limits of the ranges for appliances with one or more rated voltage ranges, unless		N/A
	the rated power input is related to the arithmetic mean value		P
10.2	Current at normal operating temperature, rated voltage and normal operation not deviating from rated current by more than shown in table 2		N/A
	Test carried out at upper and lower limits of the ranges for appliances with one or more rated voltage ranges, unless		N/A

IEC 60335-1& IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
	the rated current is related to the arithmetic mean value of the range		N/A
11	HEATING		—
11.1	No excessive temperatures in normal use		P
11.2	Placing and mounting of appliance	(IEC 60335-2-30)	P
	- Portable fan heaters		P
	- Other heaters normaly placed on a floor		N/A
	- Fixed heater for mounting at high level		N/A
	- Other fixed heaters for wall mounting		N/A
	- Heaters for ceiling mounting		N/A
	- Heaters for mounting under benches		N/A
	- Built-in heaters		N/A
	- Fixed heater with opening at floor level, felt pad pushed flat into the opening		N/A
	- Heaters having an air-outlet grille intended to be recessed in a floor, a window-sill or similar		N/A
	- Appliance provided with an automatic cord reel		N/A
	- Appliance with cord storage devices, other than automatic cord reel intended to accommodate supply cord partially while the appliance is in operation		N/A
	- Ceiling mounted heat lamp appliances		N/A
	- Recessed ceiling mounted heat lamp appliances are mounted as near as possible to the walls		N/A
11.3	Temperature rises, other than of windings, determined by thermocouples		P
	Temperature rises of windings determined by resistance method, unless		P
	the windings makes it difficult to make the necessary connections		N/A
	Temperature rise of the felt pad (IEC 60335-2-30)		N/A
11.4	Heating appliances operated under normal operation at 1.15 times rated power input .....:		N/A
	If the temperature rise limits are exceeded in appliances incorporating motors, transformers or electronic circuits and the power input is lower than the rated power input, the test is repeated with the appliance supplied at 1.06 times rated voltage .....(IEC 60335-2-30)		N/A

IEC 60335-1& IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
11.5	Motor-operated appliances operated under normal operation at most unfavourable voltage between 0.94 and 1.06 times rated voltage..... :		N/A
11.6	Combined appliances are operated as heating appliances.....(IEC 60335-2-30)	(see appended tables)	P
11.7	Operation until steady conditions established (IEC 60335-2-30)		P
11.8	Temperature rises monitored continuously and not exceeding the values in table 3 .....:	(see appended tables)	P
	If the temperature rise of a motor winding exceeds the value of table 3, or		N/A
	if there is doubt with regard to classification of insulation,		N/A
	tests of Annex C are carried out		N/A
	Protective devices do not operate, except		P
	components in protective electronic circuits tested for the number of cycles specified in 24.1.4		N/A
	Sealing compound does not flow out		N/A
	Modification of temperature rise in table 3 (IEC 60335-2-30)		P
	Temperature rise limits of motors, transformers or components of electronic circuits and other parts may be exceed by 1.15 times rated power input (IEC 60335-2-30)		N/A
	Outer surface of liquid container of unvested liquid-filled radiators shall be at least 50 K less than the boiling point of liquid (IEC 60335-2-30)		N/A
	Temperature rise of surfaces shall not exceed the values in table 101 (IEC 60335-2-30)	(see appended table)	P
	- Heaters intended to be mounted under church benches, the temperature rise of surfaces accessible to the test rod shall not exceed 70K (IEC 60335-2-30)		N/A
	- For heaters intended to be mounted under other benches, temperature rises not exceeding values in table 3, for parts that are held for short periods only (IEC 60335-2-30)		N/A
13	LEAKAGE CURRENT AND ELECTRIC STRENGTH AT OPERATING TEMPERATURE		—
13.1	Leakage current not excessive and electric strength adequate		P
	Heating appliances operated at 1.15 times rated power input.....:		N/A

IEC 60335-1& IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
	Motor-operated appliances and combined appliances supplied at 1.06 times rated voltage.....:	1,06×240 = 254,4V	P
	Protective impedance and radio interference filters disconnected before carrying out the tests		N/A
13.2	For class 0, class II and class III appliances, leakage current measured by means of the circuit described in figure 4 of IEC 60990		P
	For other appliances, a low impedance ammeter may be used		N/A
	Leakage current measurements	(see appended table)	P
13.3	The appliance is disconnected from the supply		P
	Electric strength tests according to table 4	(see appended table)	P
	No breakdown during the tests		P
14	TRANSIENT OVERVOLTAGES		—
	Appliances withstand the transient overvoltages to which they may be subjected		N/A
	Clearances having a value less than specified in table 16 subjected to an impulse voltage test, the test voltage specified in table 6		N/A
	No flashover during the test, unless of functional insulation		N/A
	In case of flashover of functional insulation, the appliance complies with clause 19 with the clearance short circuited		N/A
15	MOISTURE RESISTANCE		—
15.1	Enclosure provides the degree of moisture protection according to classification of the appliance		--
	Compliance checked as specified in 15.1.1, taking into account 15.1.2, followed by the electric strength test of 16.3		N/A
	No trace of water on insulation which can result in a reduction of clearances and creepage distances below values specified in clause 29		N/A
15.1.1	Appliances, other than IPX0, subjected to tests as specified in IEC 60529.....:	IPX0	N/A
	Water valves containing live parts and that are incorporated in external hoses for connection of an appliance to the water mains tested as specified for IPX7 appliances		N/A
15.1.2	Hand-held appliance turned continuously through the most unfavourable positions during the test		N/A
	Built-in appliances installed according to the instructions		N/A

IEC 60335-1& IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
	Appliances placed or used on the floor or table placed on a horizontal unperforated support		N/A
	Appliances normally fixed to a wall and appliances with pins for insertion into socket-outlets are mounted on a wooden board		N/A
	For IPX3 appliances, the base of wall mounted appliances is placed at the same level as the pivot axis of the oscillating tube		N/A
	For IPX4 appliances, the horizontal centre line of the appliance is aligned with the pivot axis of the oscillating tube		N/A
	However, for appliances normally used on the floor or table, the movement is limited to two times 90° for a period of 5 min, the support being placed at the level of the pivot axis of the oscillating tube		N/A
	Wall-mounted appliances, take into account the distance to the floor stated in the instructions		N/A
	Appliances normally fixed to a ceiling are mounted underneath a horizontal unperforated support, the pivot axis of the oscillating tube located at the level of the underside of the support		N/A
	For IPX4 appliances, the movement of the tube is limited to two times 90° from the vertical for a period of 5 min		N/A
	Appliances with type X attachment fitted with a flexible cord as described		N/A
	Detachable parts subjected to the relevant treatment with the main part		N/A
	However, if a part has to be removed for user maintenance and a tool is needed, this part is not removed		N/A
15.2	Spillage of liquid does not affect the electrical insulation		N/A
	Appliances with type X attachment fitted with a flexible cord as described		N/A
	Appliances incorporating an appliance inlet tested with or without an connector, whichever is most unfavourable		N/A
	Detachable parts removed		N/A
	Overfilling test with additional amount of water, over a period of 1 min (l).....:		N/A
	The appliance withstands the electric strength test of 16.3		N/A

IEC 60335-1& IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
	No trace of water on insulation that can result in a reduction of clearances and creepage distances below values specified in clause 29		N/A
	Heaters intended to be built into the floor and having a grille or opening at or near to the floor level shall be constructed so that such spillage does not affect their electrical insulation..... (IEC 60335-2-30)		N/A
	The heater is installed as specified in 11.2, however the felt pad is not applied. The content of a container filled with approximately 10 l of water containing 1 % NaCl and 0,6 % rinsing agent as specified in Annex AA of IEC 60335-2-5 is poured steadily over the grille of the appliance at the most unfavourable place over a period of approximately 10 s.		N/A
	The appliance withstands the electric strength test of 16.3		N/A
	No trace of water on insulation that can result in a reduction of clearances and creepage distances below values specified in clause 29		N/A
15.3	Appliances proof against humid conditions		P
	Checked by test Cab: Damp heat steady state in IEC 60068-2-78		P
	Detachable parts removed and subjected, if necessary, to the humidity test with the main part		N/A
	Humidity test for 48 h in a humidity cabinet	30°C; 93% R.H.	P
	Reassembly of those parts that may have been removed		N/A
	The appliance withstands the tests of clause 16		P
16	LEAKAGE CURRENT AND ELECTRIC STRENGTH		—
16.1	Leakage current not excessive and electric strength adequate		P
	Protective impedance disconnected from live parts before carrying out the tests		N/A
	Tests carried out at room temperature and not connected to the supply		P
16.2	Single-phase appliances: test voltage 1.06 times rated voltage..... :	1,06×240=254,4V	P
	Three-phase appliances: test voltage 1.06 times rated voltage divided by √3..... :		N/A
	Leakage current measurements	(see appended table)	P
	Limit values doubled if:		N/A
	- all controls have an off position in all poles, or		N/A
	- the appliance has no control other than a thermal cut-out, or		N/A

IEC 60335-1& IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
	- all thermostats, temperature limiters and energy regulators do not have an off position, or		N/A
	- the appliance has radio interference filters		N/A
	With the radio interference filters disconnected, the leakage current do not exceed limits specified.....:		N/A
16.3	Electric strength tests according to table 7	(see appended table)	P
	Test voltage applied between the supply cord and inlet bushing and cord guard and cord anchorage as specified.....:		P
	No breakdown during the tests		P
17	OVERLOAD PROTECTION OF TRANSFORMERS AND ASSOCIATED CIRCUITS		—
	No excessive temperatures in transformer or associated circuits in event of short-circuits likely to occur in normal use		P
	Appliance supplied with 1.06 or 0.94 times rated voltage and the most unfavourable short-circuit or overload likely to occur in normal use applied.....:		P
	Basic insulation is not short-circuited		N/A
	Temperature rise of insulation of the conductors of safety extra-low voltage circuits not exceeding the relevant value specified in table 3 by more than 15 K		N/A
	Temperature of the winding not exceeding the value specified in table 8,		P
	however limits do not apply to fail-safe transformers complying with sub-clause 15.5 of IEC 61558-1		N/A
18	ENDURANCE		—
	Requirements and tests are specified in part 2 when necessary		N/A
19	ABNORMAL OPERATION		—
19.1	The risk of fire or mechanical damage under abnormal or careless operation obviated		P
	Electronic circuits so designed and applied that a fault will not render the appliance unsafe		P
	Heaters compliance is checked by the tests of Cl. 19.5, 19.6, 19.11, 19.12, 19.101 to 19.115, as applicable (IEC 60335-2-30)		P
	Appliances incorporating contactors or relays subjected to the test of 19.14, being carried out before the tests of 19.11		N/A
19.2	Test of appliance with heating elements with restricted heat dissipation; test voltage (V): power input of 0.85 times rated power input.....:		P

IEC 60335-1& IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
19.3	Test of 19.2 repeated; test voltage (V): power input of 1.24 times rated power input..... :		P
19.4	Test conditions as in cl. 11, any control limiting the temperature during tests of cl. 11 short-circuited		N/A
19.5	Test of 19.4 repeated on Class 0I and I appliances with tubular sheathed or embedded heating elements. No short-circuiting, but one end of the element connected to the elements sheath		N/A
	The test repeated with reversed polarity and the other end of the heating element connected to the sheath		N/A
	The test is not carried out on appliances intended to be permanently connected to fixed wiring and on appliances where an all-pole disconnection occurs during the test of 19.4		N/A
19.6	Appliances with PTC heating elements tested at rated voltage, establishing steady conditions		N/A
	The working voltage of the PTC heating element is increased by 5% and the appliance is operated until steady conditions are re-established. The voltage is then increased in similar steps until 1.5 times working voltage or until the PTC heating element ruptures		N/A
19.7	Stalling test by locking the rotor if the locked rotor torque is smaller than the full load torque or locking moving parts of other appliances		P
	Locked rotor, motor capacitors open-circuited or short-circuited, if required		P
	Locked rotor, capacitors open-circuited one at a time		N/A
	Test repeated with capacitors short-circuited one at a time, unless		N/A
	capacitor is of class P2 of IEC 60252-1		N/A
	Appliances with timer or programmer supplied with rated voltage for each of the tests, for a period equal to the maximum period allowed		N/A
	Other appliances supplied with rated voltage for a period as specified		N/A
	Winding temperatures not exceeding values specified in table 8		P
19.8	Multi-phase motors operated at rated voltage with one phase disconnected		N/A
19.9	Running overload test on appliances incorporating motors intended to be remotely or automatically controlled or liable to be operated continuously		N/A

IEC 60335-1& IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
	Motor-operated and combined appliances for which 30.2.3 is applicable and that use overload protective devices relying on electronic circuits to protect the motor windings, are also subjected to the test		N/A
	Winding temperatures not exceeding values as specified		N/A
19.10	Series motor operated at 1.3 times rated voltage for 1 min..... :		N/A
	During the test, parts not being ejected from the appliance		N/A
19.11	Electronic circuits, compliance checked by evaluation of the fault conditions specified in 19.11.2 for all circuits or parts of circuits, unless they comply with the conditions specified in 19.11.1		P
	Appliances incorporating an electronic circuit that relies upon a programmable component to function correctly, subjected to the test of 19.11.4.8, unless		P
	restarting does not result in a hazard		N/A
	Appliances having a device with an off position obtained by electronic disconnection, or a device placing the appliance in a stand-by mode, subjected to the tests of 19.11.4		P
	If the safety of the appliance under any of the fault conditions depends on the operation of a miniature fuse-link complying with IEC 60127, the test of 19.12 is carried out		P
	During and after each test the following is checked:		P
	- the temperature of the windings do not exceed the values specified in table 8		P
	- the appliance complies with the conditions specified in 19.13		P
	- any current flowing through protective impedance not exceeding the limits specified in 8.1.4		N/A
	If a conductor of a printed board becomes open-circuited, the appliance is considered to have withstood the particular test, provided both of the following conditions are met:		N/A
	- the base material of the printed circuit board withstands the test of Annex E		N/A
	- any loosened conductor does not reduce clearance or creepage distances between live parts and accessible metal parts below the values specified in clause 29		N/A
19.11.1	Fault conditions a) to g) in 19.11.2 are not applied to circuits or parts of circuits meeting both of the following conditions:		N/A

IEC 60335-1& IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
	- the electronic circuit is a low-power circuit, that is, the maximum power at low-power points does not exceed 15 W according to the tests specified		N/A
	- the protection against electric shock, fire hazard, mechanical hazard or dangerous malfunction in other parts of the appliance does not rely on the correct functioning of the electronic circuit		N/A
19.11.2	Fault conditions applied one at a time, the appliance operated under conditions specified in cl. 11, but supplied at rated voltage, the duration of the tests as specified:		P
	a) short circuit of functional insulation if clearances or creepage distances are less than the values specified in 29		P
	b) open circuit at the terminals of any component		N/A
	c) short circuit of capacitors, unless they comply with IEC 60384-14		P
	d) short circuit of any two terminals of an electronic component, other than integrated circuits. This fault condition is not applied between the two circuits of an optocoupler		P
	e) failure of triacs in the diode mode		N/A
	f) failure of an integrated circuit		N/A
	g) failure of an electronic power switching device		N/A
	Each low power circuit is short-circuited by connecting the low-power point to the pole of the supply source from which the measurements were made		N/A
19.11.3	If the appliance incorporates a protective electronic circuit which operates to ensure compliance with clause 19, the relevant test is repeated with a single fault simulated, as indicated in a) to f) of 19.11.2		N/A
19.11.4	Appliances having a device with an off position obtained by electronic disconnection, or		N/A
	a device that can be placed in the stand-by mode,		P
	subjected to the tests of 19.11.4.1 to 19.11.4.7, the device being set in the off position or in the stand-by mode		P
	Appliances incorporating a protective electronic circuit subjected to the tests of 19.11.4.1 to 19.11.4.7, the tests being carried out after the protective electronic circuit has operated, except that		N/A
	appliances operated for 30 s or 5 min during the test of 19.7 are not subjected to the tests for electromagnetic phenomena.		N/A
	Surge protective devices disconnected, unless		P

IEC 60335-1& IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
	They incorporate spark gaps		N/A
19.11.4.1	The appliance is subjected to electrostatic discharges in accordance with IEC 61000-4-2, test level 4		P
19.11.4.2	The appliance is subjected to radiated fields in accordance with IEC 61000-4-3, test level 3		P
19.11.4.3	The appliance is subjected to fast transient bursts in accordance with IEC 61000-4-4, test level 3 or 4 as specified		P
19.11.4.4	The power supply terminals of the appliance subjected to voltage surges in accordance with IEC 61000-4-5, test level 3 or 4 as specified		P
	Earthed heating elements in class I appliances disconnected		N/A
19.11.4.5	The appliance is subjected to injected currents in accordance with IEC 61000-4-6, test level 3		P
19.11.4.6	The appliance is subjected to voltage dips and interruptions in accordance with IEC 61000-4-11		P
19.11.4.7	The appliance is subjected to mains signals in accordance with IEC 61000-4-13, test level class 2		P
19.11.4.8	The appliance ins supplied at rated voltage and operated under normal operation. After 60s the power supply ins reduces to a level such that the appliance ceases to respond or a programmable component cease to operate		P
	The appliance continues to operate normally, or		N/A
	requires a manual operation to restart		P
19.12	If the safety of the appliance for any of the fault conditions specified in 19.11.2 depends on the operation of a miniature fuse-link complying with IEC 60127, the test is repeated, measuring the current flowing through the fuse-link; measured current (A); rated current of the fuse-link (A)..... :		N/A
19.13	During the tests the appliance does not emit flames, molten metal, poisonous or ignitable gas in hazardous amounts		P
	Temperature rises not exceeding the values shown in table 9	(see appended table)	P
	Compliance with clause 8 not impaired		P
	If the appliance can still be operated it complies with 20.2		P
	During Cl. 19.106, the temperature of motor windings shall not exceed the values in table 8 (IEC 60335-2-30)		P

IEC 60335-1& IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
	Insulation, other than of class III appliance, withstand the electric strength test of 16.3, the test voltage specified in table 4:		P
	- basic insulation.....:	1000 V	P
	- supplementary insulation..... :		N/A
	- reinforced insulation..... :	3000 V	P
	After operation or interruption of a control, clearances and creepage distances across the functional insulation withstanding the electric strength test of 16.3. the test voltage being twice the working voltage		P
	The appliance does not undergo a dangerous malfunction, and		P
	no failure of protective electronic circuits, if the appliance is still operable		N/A
	Appliances tested with an electronic switch in the off position or in the stand-by mode, do not become operational		P
	- do not become operational, or		N/A
	- if they become operational, do not result in a dangerous malfunction during or after the tests of 19.11.4		P
	If the appliance contains lids or doors that are controlled by one or more interlocks, one of the interlocks may be released provided that:		N/A
	- the lid or door does not move automatically to an open position when the interlock is released, and		N/A
	- the appliance does not start after the cycle in which the interlock was released		N/A
19.14	Appliances operated under the conditions of Clause 11. Contactors or relays contacts operating under the conditions of clause 11 short-circuited		N/A
	For a relay or contactor with more than one contact, all contacts are short-circuited at the same time		N/A
	A relay or contactor operating only to ensure the appliance is energized for normal use is not short-circuited		N/A
	If more than one relay or contactor operates in clause 11, they are short-circuited in turn		N/A
19.15	For appliances with a mains voltage selector switch, the switch is set to the lowest rated voltage position and the highest value of rated voltage is applied		N/A
19.101	Heaters operated at 1.24 times rated power input, all thermal controls operated during the test of Cl. 11 short-circuited simultaneously (IEC 60335-2-30)		P

IEC 60335-1& IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
19.102	Circular and similar portable heaters which emit heat in several directions are placed as close as possible to one of the walls of the test corner at 1.24 times rated power input (IEC 60335-2-30)		N/A
19.103	Tests specified for heaters, other than (IEC 60335-2-30)		N/A
	- heaters for mounting at high level except those intended to be installed in wardrobes (IEC 60335-2-30)		N/A
	- visibly glowing radiant heater(IEC 60335-2-30)		N/A
	- portable fan heaters (IEC 60335-2-30)		P
	Heaters operated as specified in Cl. 11 but covered with felt strips (IEC 60335-2-30)		P
	The temperature rise of the strips not exceeds 150 K . An over-shoot of 25K is allowed during the first hour ..... (IEC 60335-2-30)		P
	Heaters intended to be installed in wardrobes, including heaters for mounting at high level, comply with the test with any self-resetting thermal cut-out short-circuited.....(IEC 60335-2-30)		N/A
19.104	Built-in heaters, having air outlet in the floor, window-sill or similar locations, special conditions as specified, thermal controls operated during the test of Cl. 11 short-circuited .....(IEC 60335-2-30)		N/A
	The temperature rise of the strips not exceeds 150 K . An over-shoot of 25K is allowed during the first hour ..... (IEC 60335-2-30)		N/A
19.105	Heaters having a liquid container to be filled by the user, tests specified in Cl. 11 but container empty (IEC 60335-2-30)		N/A
19.106	Fan heaters and other heaters, incorporating motors, tests specified in Cl. 11 but locked rotor and heaters supplied at rated voltage(IEC 60335-2-30)		P
19.107	Fan heaters with an enclosure substantially of non-metallic material, tests specified in Cl. 11 but the voltage at the terminal of the motor is supplied separately at its working voltage, thermal controls operated during the test of Cl. 11 short-circuited ..... (IEC 60335-2-30)		P
19.108	Portable fan heaters, tests specified in Cl. 11. But a sheet of paper covered the air inlets for 4 h (IEC 60335-2-30)		P

IEC 60335-1& IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
19.109	Portable fan heaters, tests specified in Cl. 11 but air flow directed against a wall, thermal controls operated during the test of Cl. 11 short-circuited (IEC 60335-2-30)		P
	Maximum temperature rise (K) on the wall does not exceed 150 K (IEC 60335-2-30)		P
19.110	Portable visibly glowing radiant heaters, tests specified in Cl. 11 but radiation directed against a wall (IEC 60335-2-30)		N/A
	Maximum temperature rise (K) on the wall does not exceed 70 K (IEC 60335-2-30)		N/A
19.111	Visibly glowing radiant heaters, other than heaters for mounting at high level, tests specified in Cl. 11 but rated power input and a piece flannelette in contact with the fireguard. The flannelette shall not smoulder or ignite within 10 s (IEC 60335-2-30)		N/A
19.112	Portable heaters, tests specified in Cl. 11 but overturned position on a soft wood surface covered with a double layer cotton gauze. The cotton gauze or the wood surface shall not smoulder or ignite (IEC 60335-2-30)		P
	Surface of oil-filled radiators shall be at least 40 K lower than the boiling point (°C) of the oil, no deformation of container, leakage of oil or emission of flames (IEC 60335-2-30)		N/A
	Pressure in liquid-filled radiators (IEC 60335-2-30)		N/A
	Fuel effect heaters intended to be placed in a fireplace not subjected to this test (IEC 60335-2-30)		N/A
19.113	Fan heaters having an enclosure substantially of non-metallic material, tests specified in Cl.11 but all self-resetting thermal cut-outs and controls which operated during the test of Cl. 11 short-circuited and the fan motor is stalled (IEC 60335-2-30)		P
19.114	Oil filled radiators, tests specified in Cl. 11 but at rated power input, the oil level is approximately 10 mm above the heating element and the container resealed (IEC 60335-2-30)		N/A
	Surface of container shall be at least 40 K lower than the boiling point of the oil (IEC 60335-2-30)		N/A
19.115	Ceiling mounted heat lamp appliances tests specified in Cl. 11 but at the highest rated wattage heat lamps fitted as allowed by the construction. (IEC 60335-2-30)		N/A

IEC 60335-1& IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
20	STABILITY AND MECHANICAL HAZARDS		—
20.1	Portable heaters shall have adequate stability (IEC 60335-2-30)		P
	Portable heaters placed: (IEC 60335-2-30)		P
	- most unfavourable normal position of use on a inclined plane of 15 °. The heater shall not overturn (IEC 60335-2-30)		P
	- on a horizontal plane with 5 N applied to the top. The heater shall not overturn (IEC 60335-2-30)		N/A
20.2	Moving parts adequately arranged or enclosed as to provide protection against personal injury		P
	Protective enclosures, guards and similar parts are non-detachable, and		P
	have adequate mechanical strength		P
	Enclosures that can be opened by overriding an interlock are considered to be detachable parts		N/A
	Self-resetting thermal cut-outs and overcurrent protective devices not causing a hazard, by unexpected reclosure		P
	Not possible to touch dangerous moving parts with test probe		P
21	MECHANICAL STRENGTH		—
21.1	Appliance has adequate mechanical strength and is constructed as to withstand rough handling		P
	Checked by applying 3 blows to every point of the enclosure like to be weak, in accordance with test Ehb of IEC 60068-2-75, spring hammer test, with an impact energy of 0,5 J		P
	The appliance shows no damage impairing compliance with this standard, and		P
	compliance with 8.1, 15.1 and clause 29 not impaired		P
	If doubt, supplementary or reinforced insulation subjected to the electric strength test of 16.3		N/A
	Compliance also checked by the tests of 21.101 and 21.102 (IEC 60335-2-30)		N/A
	For appliances with heating elements that are in direct contact with accessible glass panels, the impact energy of the blows applied to the panel is 2 J (IEC 60335-2-30)		N/A
	If necessary, repetition of groups of three blows on a new sample		N/A

IEC 60335-1& IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
21.2	Accessible parts of solid insulation having strength to prevent penetration by sharp implements		P
	The insulation is tested as specified, unless		N/A
	the thickness of supplementary insulation is at least 1 mm and reinforced insulation is at least 2 mm		P
21.101	Visibly glowing radiant heaters, other than heaters for mounting at high level, placed that the central part of the fireguard is horizontal - a mass of 5 kg having a flat base 100 mm placed for 1 min on the central part of the fireguard. The fireguard show no significant permanent deformation (IEC 60335-2-30)		N/A
21.102	Heaters having a part fixed to the wall or ceiling and another part hinged to it, fixed in accordance with the instructions - the hinged part fall away under its own weight five times - after test the heater compliance with Cl. 8.1 and Cl. 29.1 and show no damage(IEC 60335-2-30)		N/A
21.103	Panel heaters for ceiling mounting, suspension means shall have adequate strength - a load equal four times the mass of appliance suspended from the centre for 1 h - if suspension means rigid, torque of 2.5 Nm applied for 1 min in each direction – after tests suspension means shall show no significant deformation (IEC 60335-2-30)		N/A
22	CONSTRUCTION		—
22.1	Appliance marked with the first numeral of the IP system, relevant requirements of IEC 60529 are fulfilled		N/A
22.2	Stationary appliance: means to provide all-pole disconnection from the supply provided, the following means being available:		N/A
	- a supply cord fitted with a plug		N/A
	- a switch complying with 24.3		N/A
	- a statement in the instruction sheet that a disconnection incorporated in the fixed wiring is to be provided		N/A
	- an appliance inlet		N/A
	Single-pole switches and single-pole protective devices for the disconnection of heating elements in single-phase, permanently connected class 01 and class I appliances, connected to the phase conductor		N/A
22.3	Appliance provided with pins: no undue strain on socket-outlets		P

IEC 60335-1& IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
	Applied torque not exceeding 0.25 Nm	0.21Nm	P
	Pull force of 50 N to each pin after the appliance has being placed in the heating cabinet; when cooled to room temperature the pins are not displaced by more than 1mm	0.01mm	P
	Each pin subjected to a tork of 0.4Nm; the pins are not rotating unless rotating does not impair compliance with the standard		P
22.4	Appliance for heating liquids and appliance causing undue vibration not provided with pins for insertion into socket-outlets		P
22.5	No risk of electric shock when touching the pins of the plug, for appliances having a capacitor with rated capacitance exceeding 0,1μF, the appliance being disconnected from the supply at the instant of voltage peak		N/A
	Voltage not exceeding 34 V (V) :		N/A
22.6	Electrical insulation not affected by condensing water or leaking liquid		N/A
	Electrical insulation of Class II appliances not affected in case of a hose rupture or seal leak		N/A
	In case of doubt, test as described		N/A
22.7	Heaters containing liquid or gas shall be constructed that they withstand the pressure to occur during use -appliance subjected to twice the highest pressure during the tests of Cl. 19.101, 19.103 or 19.112 -after test there shall be no leakage of liquid or gas (IEC 60335-2-30)		N/A
22.8	Electrical connections not subject to pulling during cleaning of compartments to which access can be gained without the aid of a tool, and that are likely to be cleaned in normal use		N/A
22.9	Insulation, internal wiring, windings, commutators and slip rings not exposed to oil, grease or similar substances, unless		P
	the substance has adequate insulating properties		N/A
22.10	Not possible to reset voltage-maintained non-self-resetting thermal cut-outs by the operation of an automatic switching device incorporated within the appliance ,if:		N/A
	- a non-self-resetting thermal cut-out is required by the standard, and		N/A
	- a voltage maintained non-self-resetting thermal cut-out is used to meet it		N/A

IEC 60335-1& IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
	Non-self-resetting thermal motor protectors have a trip-free action, unless		N/A
	they are voltage maintained		N/A
	Reset buttons of non-self-resetting controls so located or protected that accidental resetting is unlikely		N/A
22.11	Reliable fixing of non-detachable parts that provide the necessary degree of protection against electric shock, moisture or contact with moving parts		P
	Obvious locked position of snap-in devices used for fixing such parts		N/A
	No deterioration of the fixing properties of snap-in devices used in parts that are likely to be removed during installation or servicing		N/A
	Tests as described		P
22.12	Handles, knobs etc. fixed in a reliable manner		P
	Fixing in wrong position of handles, knobs etc. indicating position of switches or similar components not possible		P
	Axial force 15 N applied to parts, the shape being so that an axial pull is unlikely to be applied		N/A
	Axial force 30 N applied to parts, the shape being so that an axial pull is likely to be applied		P
22.13	Unlikely that handles, when gripped as in normal use, make the operators hand touch parts having a temperature rise exceeding the value specified for handles which are held for short periods only		P
22.14	No ragged or sharp edges creating a hazard for the user in normal use, or during user maintenance		P
	No exposed pointed ends of self-tapping screws etc., liable to be touched by the user in normal use or during user maintenance		P
22.15	Storage hooks and the like for flexible cords smooth and well rounded		N/A
22.16	Automatic cord reels cause no undue abrasion or damage to the sheath of the flexible cord, no breakage of conductors strands, no undue wear of contacts		N/A
	Cord reel tested with 6000 operations, as specified		N/A
	Electric strength test of 16.3, voltage of 1000 V applied		N/A
22.17	Spacers not removable from the outside by hand or by means of a screwdriver or a spanner		N/A

IEC 60335-1& IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
	Requirement does not apply to rollers or feet, meets requirements of Cl. 19 without rollers or feet (IEC 60335-2-30)		N/A
22.18	Current-carrying parts and other metal parts resistant to corrosion under normal conditions of use		P
22.19	Driving belts not used as electrical insulation		N/A
22.20	Direct contact between live parts and thermal insulation effectively prevented, unless material used is non-corrosive, non-hygroscopic and non-combustible		P
	Compliance is checked by inspection and, if necessary, by appropriate test		P
22.21	Wood, cotton, silk, ordinary paper and fibrous or hygroscopic material not used as insulation, unless impregnated		P
	This requirement does not apply to magnesium oxide and mineral ceramic fibres used for the electrical insulation of heating elements		N/A
22.22	Appliances not containing asbestos		P
22.23	Oils containing polychlorinated biphenyl (PCB) not used		P
22.24	Bare heating elements shall be supported to prevent excessive displacement occurring during normal use. The rupture of the heating element shall not give rise to a hazard. Compliance is checked by inspection, after the bare heating conductor has been cut in the most unfavourable place. The string shall not break (IEC 60335-2-30)		N/A
22.25	Sagging heating conductors cannot come into contact with accessible metal parts		N/A
22.26	The insulation between parts operating at safety extra-low voltage and other live parts complies with the requirements for double or reinforced insulation		N/A
22.27	Parts connected by protective impedance separated by double or reinforced insulation		N/A
22.28	Metal parts of Class II appliances conductively connected to gas pipes or in contact with water: separated from live parts by double or reinforced insulation		N/A
22.29	Class II appliances permanently connected to fixed wiring so constructed that the required degree of access to live parts is maintained after installation		N/A

IEC 60335-1& IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
22.30	Parts serving as supplementary or reinforced insulation fixed so that they cannot be removed without being seriously damaged, or		N/A
	so constructed that they cannot be replaced in an incorrect position, and so that if they are omitted, the appliance is rendered inoperable or manifestly incomplete		P
22.31	Neither clearances nor creepage distances over supplementary and reinforced insulation reduced below values specified in clause 29 as a result of wear		P
	Neither clearances nor creepage distances between live parts and accessible parts reduced below values for supplementary insulation if wires, screws etc. become loose		P
22.32	Supplementary and reinforced insulation constructed or protected against pollution so that clearances or creepage distances are not reduced below the values in clause 29 and reinforced insulation designed or protected against deposition of dirt or dust		P
	Supplementary insulation of natural or synthetic rubber resistant to ageing, or arranged and dimensioned so that creepage distances are not reduced below values specified in 29.2		N/A
	Ceramic material not tightly sintered, similar material or beads alone not used as supplementary or reinforced insulation		N/A
	Oxygen bomb test at 70 °C for 96 h and 16 h at room temperature		N/A
	Insulating material in which heating conductors are embedded is considered to be basic insulation and not reinforced insulation		N/A
22.33	Conductive liquids that are or may become accessible in normal use are not in direct contact with live parts		N/A
	Electrodes not used for heating liquids		N/A
	For class II constructions, conductive liquids that are or may become accessible in normal use and conductive liquids that are in contact with unearthed accessible metal parts, not in direct contact with basic or reinforced insulation, unless		N/A
	the reinforced insulation consists of at least 3 layers		N/A
	For class II constructions, conductive liquids which are in contact with live parts, not in direct contact with reinforced insulation, unless		N/A

IEC 60335-1& IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
	the reinforced insulation consists of at least 3 layers		N/A
	An air layer not used as basic or supplementary insulation in a double insulation system if likely to be bridged by leaking liquid		N/A
22.34	Shafts of operating knobs, handles, levers etc. not live, unless the shaft is not accessible when the part is removed		P
22.35	For other than class III constructions, handles, levers and knobs, held or actuated in normal use, not becoming live in the event of a failure of basic insulation		P
	Such parts being of metal, and their shafts or fixings are likely to become live in the event of an insulation fault, they are either adequately covered by insulation material, or their accessible parts are separated from their shafts or fixings by supplementary insulation		N/A
	This requirement does not apply to handles, levers and knobs on stationary appliances other than those of electrical components, provided they are either reliably connected to an earthing terminal or earthing contact, or separated from live parts by earthed metal		N/A
	Insulating material covering metal handles, levers and knobs withstand the electric strength test of 16.3 for supplementary insulation		N/A
22.36	Handles continuously held in the hand in normal use are so constructed that when gripped as in normal use, the operators hand is not likely to touch metal parts, unless they are separated from live parts by double or reinforced insulation		N/A
22.37	Capacitors in Class II appliances not connected to accessible metal parts and their casings, if of metal, separated from accessible metal parts by supplementary insulation, unless		N/A
	the capacitors comply with 22.42		N/A
22.38	Capacitors not connected between the contacts of a thermal cut-out		P
22.39	Lamp holders used only for the connection of lamps		N/A
	For ceiling mounted lam appliances, the insulating parts of lampholders used for the connection of replaceable heat lamp shall be ceramic (IEC 60335-2-30)		N/A
22.40	Motor-operated appliances and combined appliances intended to be moved while in operation, or having accessible moving parts, fitted with a switch to control the motor. The actuating member of the switch being easily visible and accessible		N/A

IEC 60335-1& IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
	Unless the appliance can operate continuously, automatically or remotely without giving rise to a hazard, appliances for remote operation being fitted with a switch. The actuating member of the switch being easily visible and accessible		N/A
22.41	No components, other than lamps, containing mercury		P
22.42	Protective impedance consisting of at least two separate components		N/A
	Values specified in 8.1.4 not exceeded if any one of the components are short-circuited or open-circuited		N/A
	Resistors checked by the test of 14.1 a) in IEC 60065		N/A
	Capacitors checked by the tests for class Y capacitors in IEC 60384-14		N/A
22.43	Appliances adjustable for different voltages, accidental changing of the setting of the voltage unlikely to occur		N/A
22.44	Appliances not having an enclosure that is shaped or decorated like a toy		P
22.45	When air is used as reinforced insulation, clearances not reduced below the values specified in 29.1.4 due to deformation as a result of an external force applied to the enclosure		P
22.46	For programmable protective electronic circuits used to ensure compliance with the standard, the software contains measures to control the fault/error conditions in table R.1		N/A
	Software that contains measures to control the fault/error conditions specified in table R.2 is to be specified in parts 2 for particular constructions or to address specific hazards		N/A
	These requirements are not applicable to software used for functional purpose or compliance with clause 11		N/A
22.47	Appliances connected to the water mains withstand the water pressure expected in normal use		N/A
	No leakage from any part, including any inlet water hose		N/A
22.48	Appliances connected to the water mains constructed to prevent backsiphonage of non-potable water		N/A
22.49	For remote operation, the duration of operation shall be set before the appliance can be started, unless		N/A
	the appliance switches off automatically or can operate continuously without hazard		N/A

IEC 60335-1& IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
22.50	Controls incorporated in the appliance take priority over controls actuated by remote operation		N/A
22.51	A control on the appliance being manually adjusted to the setting for remote operation before the appliance can be operated in this mode		N/A
	There is a visual indication showing that the appliance is adjusted for remote operation		N/A
	Manual setting and visual indication not necessary on appliances that can operate as follows, without giving rise to a hazard:		N/A
	- operate continuously,		N/A
	- operate automatically, or		N/A
	- be operated remotely		N/A
22.52	Socket-outlets on appliances accessible to the user in accordance with the socket-outlet system used in the country in which the appliance is sold		N/A
22.101	Heaters other than heaters for mounting at high level, shall be guarded in order to prevent contact with heating elements (IEC 60335-2-30)		P
	Test probe 41 IEC 61032 applied with a force not exceeding 5N not touch the heating elements		P
	Fireguards shall have no openings which exceed		P
	- a major dimension of 126 mm and a corresponding minor dimension of 12 mm, or		P
	- a major dimension of 53 mm and a corresponding minor dimension of 20 mm		P
	These dimensions also apply to any gap between the fireguard and its immediate surround. However, any apertures having a minor dimension of less than 5 mm are ignored.		P
22.102	Fireguards shall have a total open area not less than 50% of the surface area of the fireguard (IEC 60335-2-30)		N/A
22.103	Fireguards not completely removable without use of a tool (IEC 60335-2-30)		N/A
22.104	Appliance for wall mounting so constructed That they can be securely fixed to a wall (IEC 60335-2-30)		N/A

IEC 60335-1& IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
22.105	Accessible panels made of glass, ceramic or similar material in direct contact with heating elements shall withstand thermal shock (1 l water (15 ± 5)°C is directed onto the central part of the panel at a rate of 10 ml/s through a 5 mm diameter tube) The panel shall not be damaged (IEC 60335-2-30)		N/A
22.106	Portable appliances not have openings on the underside that would allow small items to penetrate and touch live parts (IEC 60335-2-30)		P
22.107	Visibly glowing radiant heaters, after fixing to a wall or ceiling direction of radiation cannot be changed without the aid of a tool (IEC 60335-2-30)		N/A
22.108	Visibly glowing radiant heaters other than heaters for mounting at high level, incorporates not thermostats, timers or similar means which switch on heating elements automatically, unless at least one heating element is already visibly glowing. (IEC 60335-2-30)		N/A
22.109	Disconnection of supply by a switch in the OFF position shall not rely on electronic components (IEC 60335-2-30)		P
22.110	Heaters intended to be mounted under church benches: metal surfaces accessible to the 75mm diameter test rod shall have a non-metallic coating with a thickness of at least 50 microns (IEC 60335-2-30)		N/A
23	INTERNAL WIRING		—
23.1	Wireways smooth and free from sharp edges		P
	Wires protected against contact with burrs, cooling fins etc.		P
	Wire holes in metal well rounded or provided with bushings		N/A
	Wiring effectively prevented from coming into contact with moving parts		P
23.2	Beads etc. on live wires cannot change their position, and are not resting on sharp edges or corners		N/A
	Beads inside flexible metal conduits contained within an insulating sleeve		N/A
23.3	Electrical connections and internal conductors movable relatively to each other not exposed to undue stress		N/A
	Flexible metallic tubes not causing damage to insulation of conductors		N/A
	Open-coil springs not used		N/A

IEC 60335-1& IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
	Adequate insulating lining provided inside a coiled spring, the turns of which touch one another		N/A
	No damage after 10 000 flexings for conductors flexed during normal use or 100 flexings for conductors flexed during user maintenance		N/A
	Electric strength test, 1000 V between live parts and accessible metal parts		N/A
	Not more than 10% of the strands of any conductor broken, and		N/A
	not more than 30% for wiring supplying circuits that consume no more than 15W		N/A
23.4	Bare internal wiring sufficiently rigid and fixed		N/A
23.5	The insulation of internal wiring withstanding the electrical stress likely to occur in normal use		P
	Basic insulation electrically equivalent to the basic insulation of cords complying with IEC 60227 or IEC 60245, or		P
	No breakdown when a voltage of 2000 V is applied for 15 min between the conductor and metal foil wrapped around the insulation		P
23.6	Sleeving used as supplementary insulation on internal wiring retained in position by clamping at both ends, or		N/A
	be such that it can only be removed by breaking or cutting		N/A
23.7	The colour combination green/yellow used only for earthing conductors		P
23.8	Aluminium wires not used for internal wiring		P
23.9	Stranded conductors not consolidated by soldering where they are subjected to contact pressure, unless		N/A
	the contact pressure is provided by spring terminals		P
23.10	The insulation and sheath of internal wiring, incorporated in external hoses for the connection of an appliance to the water mains, at least equivalent to that of light polyvinyl chloride sheathed flexible cord (60227 IEC 52)		N/A
24	COMPONENTS		—
24.1	Components comply with safety requirements in relevant IEC standards		P
	List of components	(see appended table)	P

IEC 60335-1& IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
	Components not tested and found to comply with relevant IEC standard for the number of cycles specified are tested in accordance with 24.1.1 to 24.1.6		P
	Components not tested and found to comply with relevant IEC standard, components not marked or not used in accordance with its marking, tested under the conditions occurring in the appliance		N/A
	Lampholders and starterholders not being tested and found to comply with the relevant IEC standard, tested as a part of the appliance and additionally according to the gauging and interchangeability requirements of the relevant IEC standard		N/A
	No additional tests specified for nationally standardized plugs such as those detailed in IEC/TR 60083 or connectors complying with the standard sheets of IEC 60320-1 and IEC 60309		P
24.1.1	Capacitors likely to be permanently subjected to the supply voltage and used for radio interference suppression or for voltage dividing, complying with IEC 60384-14, or		P
	tested according to annex F		N/A
24.1.2	Safety isolating transformers complying with IEC 61558-2-6, or		N/A
	tested according to annex G		N/A
24.1.3	Switches complying with IEC 61058-1, the number of cycles of operation being at least 10 000, or		P
	tested according to annex H		P
	If the switch only operates a motor staring relay complying with IEC 60730-2-10 with the number of cycles of a least 10 000 as specified, the complete switching system need not be tested		N/A
	Switches operating during the test of Cl. 19.112: 300 (IEC 60335-2-30)		P
24.1.4	Automatic controls complying with IEC 60730-1 with relevant part 2. The number of cycles of operation being:		P
	- thermostats 10 000		P
	- temperature limiters 1 000		N/A
	- self-resetting thermal cut-outs (IEC 60335-2-30) 10 000		N/A
	-non-self-resetting thermal cut-outs operating during 19.112 (IEC 60335-2-30) 300		N/A

IEC 60335-1& IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
	-for other non-self-resetting thermal cut-outs (IEC 60335-2-30) 1 000		N/A
	- voltage maintained non-self-resetting thermal cut-outs: 1 000		N/A
	- timers: 3 000		N/A
	- energy regulators: 10 000		N/A
	thermostats of liquid-filled radiators which operate during Cl. 11 to limit the surface temperature rise to 85 K: (IEC 60335-2-30) 100.000		N/A
	The number of cycles for controls operating during clause 11 need not be declared, if the appliance meets the requirements of this standard when they are short-circuited		N/A
	Thermal motor protectors are tested in combination with their motor under the conditions specified in Annex D		N/A
	For water valves containing live parts and that are incorporated in external hoses for connection of an appliance to the water mains, the degree of protection declared for subclause 6.5.2 of IEC 60730-2-8 is IPX7		N/A
24.1.5	Appliance couplers complying with IEC 60320-1		N/A
	However, appliances classified higher than IPX0, the appliance couplers complying with IEC 60320-2-3		N/A
	Interconnection couplers complying with IEC 60320-2-2		N/A
24.1.6	Small lamp holders similar to E10 lampholders complying with IEC 60238, the requirements for E10 lampholders being applicable		N/A
24.1.7	If the remote operation of the appliance is via a telecommunication network, the relevant standard for the telecommunication interface circuitry in the appliance is IEC 62151		N/A
24.1.8	The relevant standard for thermal links is IEC 60691. Thermal links not complying with IEC 60691 are considered to be an intentionally weak part for the purposes of Clause 19		P
24.1.9	Contactors and relays, other than motor starting relays, tested as part of the appliance		P
	They are also tested in accordance with Clause 17 of IEC 60730-1, the number of cycles of operations in 24.1.4 selected according to the contactor or relay function in the appliance.....:	(see appended table 24.1)	P
24.2	Appliances not fitted with:		P

IEC 60335-1& IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
	- switches or automatic controls in flexible cords		P
	- devices causing the protective device in the fixed wiring to operate in the event of a fault in the appliance		P
	- thermal cut-outs that can be reset by soldering, unless		P
	the solder has a melding point of at least 230 ˚C		N/A
24.3	Switches intended for all-pole disconnection of stationary appliances are directly connected to the supply terminals and having a contact separation in all poles, providing full disconnection under overvoltage category III conditions		N/A
24.4	Plugs and socket-outlets for extra-low voltage circuits and heating elements, not interchangeable with plugs and socket-outlets listed in IEC/TR 60083 or IEC 60906-1 or with connectors and appliance inlets complying with the standard sheets of IEC 60320-1		N/A
24.5	Capacitors in auxiliary windings of motors marked with their rated voltage and capacitance and used accordingly		N/A
	Voltage across capacitors in series with a motor winding does not exceed 1,1 times rated voltage, when the appliance is supplied at 1,1 times rated voltage under minimum load		N/A
24.6	Working voltage of motors connected to the supply mains and having basic insulation that is inadequate for the rated voltage of the appliance, not exceeding 42V.		N/A
	In addition, the motors are complying with the requirements of Annex I		N/A
24.7	Detachable hose-sets for connection of appliances to the water mains comply with IEC 61770		N/A
	They are supplied with the appliance		N/A
	Appliances intended to be permanently connected to the water mains not connected by a detachable hose-set		N/A
24.8	Motor running capacitors in appliances for which 30.2.3 is applicable and that are permanently connected in series with a motor winding, not causing a hazard in event of a failure		N/A
	One or more of the following conditions are to be met:		N/A
	- the capacitors are of class P2 according to IEC 60252-1		N/A

IEC 60335-1& IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
	- the capacitors are housed within a metallic or ceramic enclosure		N/A
	- the distance of separation of the outer surface to adjacent non-metallic parts exceeds 50 mm		N/A
	- adjacent non-metallic parts within 50 mm withstand the needle-flame test of Annex E		N/A
	- adjacent non-metallic parts within 50 mm classified as at least V-1 according to IEC 60695-11-10		N/A
24.101	Oil-filled radiators, devices incorporated to comply with Cl. 19.114 shall be non-self-resetting (IEC 60335-2-30)		N/A
25	SUPPLY CONNECTION AND EXTERNAL FLEXIBLE CORDS		—
25.1	Appliance not intended for permanent connection to fixed wiring, means for connection to the supply:		P
	- supply cord fitted with a plug		P
	- an appliance inlet having at least the same degree of protection against moisture as required for the appliance		N/A
	- pins for insertion into socket-outlets		N/A
25.2	Appliance not provided with more than one means of connection to the supply mains		P
	Stationary appliance for multiple supply may be provided with more than one means of connection, provided electric strength test of 1250 V for 1 min between each means of connection causes no breakdown		N/A
25.3	Connection of supply conductors for appliance intended to be permanently connected to fixed wiring possible after the appliance has been fixed to its support		N/A
	Appliance provided with a set of terminals for the connection of cables or fixed wiring, cross-sectional areas specified in 26.6		N/A
	Appliance provided with a set of terminals allowing the connection of a flexible cord		N/A
	Appliance provided with a set of supply leads accommodated in a suitable compartment		N/A
	Appliance provided with a set of terminals and cable entries, conduit entries, knock-outs or glands, allowing connection of appropriate type of cable or conduit		N/A
25.4	Cable and conduit entries, rated current of appliance not exceeding 16 A, dimensions according to table 10		N/A

IEC 60335-1& IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
	Introduction of conduit or cable does not reduce clearances or creepage distances below values specified in 29		N/A
25.5	Method for assemble supply cord with the appliance:		P
	- type X attachment		N/A
	- type Y attachment		P
	- type Z attachment, if allowed in part 2		N/A
	Type X attachment, other than those with a specially prepared cord, not used for flat twin tinsel cords		N/A
25.6	Plugs fitted with only one flexible cord		P
25.7	Supply cords being one of the following types:		P
	- rubber sheathed (at least 60245 IEC 53)		N/A
	- polychloroprene sheathed (at least 60245 IEC 57)		N/A
	- cross-linked polyvinyl chloride sheathed (at least 60245 IEC 87)		N/A
	Polyvinyl chloride sheathed: Not used if they are likely to touch metal parts having a temperature rise exceeding 75K during the test of Clause 11.		P
	- light polyvinyl chloride sheathed cord (at least 60227 IEC 52), appliances not exceeding 3 kg		N/A
	- ordinary polyvinyl chloride sheathed cord (at least 60227 IEC 53), other appliances		P
	Heat resistant polyvinyl chloride sheathed: Not used for type X attachment other than specially prepared cords.		N/A
	- Heat-resistant light polyvinyl chloride sheathed cord (at least 60227 IEC 56), appliances not exceeding 3 kg		N/A
	- heat-resistant polyvinyl chloride sheathed cord (60227 IEC 57), other appliances		N/A
	Supply cords for class III appliances adequately insulated		N/A
	Test with 500 V for 2 min for supply cords of class III appliances that contain live parts		N/A
	Supply cords of portable heaters intended to be used in greenhouses shall not be lighter than ordinary polychloroprene sheathed flexible cord (IEC 60335-2-30)		N/A
	Supply cords of heaters intended to be used on building sites shall not be lighter than heavy ordinary polychloroprene sheathed flexible cord (60245 IEC 66) (IEC 60335-2-30)		N/A

IEC 60335-1& IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
	For portable oil-filled radiators fitted with polyvinyl chloride sheathed cords (code designation 60227 IEC 52 or code designation 60227 IEC 53), metal parts likely to touch the supply cord in normal use include those parts that are inaccessible to the 75 mm diameter test rod specified in Table 101 but that may come into contact with the cord when it is wrapped around the heater. This does not apply if storage means for the cord are provided. (IEC 60335-2-30)		N/A
25.8	Nominal cross-sectional area of supply cords according to table 11; rated current (A); cross-sectional area (mm²).....:		P
25.9	Supply cord not in contact with sharp points or edges		P
25.10	Green/yellow core for earthing purposes in Class I appliance		P
25.11	Conductors of supply cords not consolidated by lead-tin soldering where they are subject to contact pressure, unless		N/A
	the contact pressure is provided by spring terminals		P
25.12	Insulation of the supply cord not damaged when moulding the cord to part of the enclosure		N/A
25.13	Inlet openings so constructed as to prevent damage to the supply cord		P
	If the enclosure at the inlet opening is not of insulating material, a non-detachable lining or bushing complying with 29.3 for supplementary insulation provided		N/A
	If unsheathed supply cord, a similar additional bushing or lining is required, unless the appliance is		N/A
	class 0, or		N/A
	a class III appliance not containing live parts		N/A
25.14	Supply cords adequately protected against excessive flexing		N/A
	Flexing test:		N/A
	- applied force (N).....:		N/A
	- number of lexing..... :		N/A
	The test does not result in:		N/A
	- short circuit between the conductors		N/A
	- breakage of more than 10% of the strands of any conductor		N/A
	- separation of the conductor from its terminal		N/A
	- loosening of any cord guard		N/A

IEC 60335-1& IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
	- damage, within the meaning of the standard, to the cord or the cord guard		N/A
	- broken strands piercing the insulation and becoming accessible		N/A
25.15	For appliances with supply cord and appliances to be permanently connected to fixed wiring by a flexible cord, conductors of the supply cord relieved from strain, twisting and abrasion by use of cord anchorage		P
	The cord cannot be pushed into the appliance to such an extent that the cord or internal parts of the appliance can be damaged		P
	Pull and torque test of supply cord, values shown in table 12: mass (kg); pull (N); torque (not on automatic cord reel) (Nm)..... :	Pull: 60 N Torque: 0,25 Nm	P
	Cord not damaged and max. 2 mm displacement of the cord	0.68mm	P
	For appliances with supply cord and appliances to be permanently connected to fixed wiring by a flexible cord, conductors of the supply cord relieved from strain, twisting and abrasion by use of cord anchorage		P
25.16	Cord anchorages for type X attachments constructed and located so that:		N/A
	- replacement of the cord is easily possible		N/A
	- it is clear how the relief from strain and the prevention of twisting are obtained		N/A
	- they are suitable for different types of cord		N/A
	- cord cannot touch the clamping screws of cord anchorage if these screws are accessible, unless separated from accessible metal parts by supplementary insulation		N/A
	they are separated from accessible metal parts by supplementary insulation		N/A
	- the cord is not clamped by a metal screw which bears directly on the cord		N/A
	- at least one part of the cord anchorage securely fixed to the appliance, unless		N/A
	it is part of a specially prepared cord		N/A
	- screws which have to be operated when replacing the cord do not fix any other component, unless		N/A
	the appliance becomes inoperative or incomplete or the parts cannot be removed without a tool		N/A
	- if labyrinths can be bypassed the test of 25.15 is nevertheless withstood		N/A

IEC 60335-1& IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
	- for class 0, 0I and I appliances they are of insulating material or are provided with an insulating lining, unless		N/A
	failure of the insulation of the cord does not make accessible metal parts live		N/A
	- for class II appliances they are of insulating material, or		N/A
	if of metal, they are insulated from accessible metal parts by supplementary insulation		N/A
	After the test of 25.15, under the conditions specified, the conductors have not moved by more than 1 mm in the terminals		N/A
25.17	Adequate cord anchorages for type Y and Z attachment	Type Y attachment	P
25.18	Cord anchorages only accessible with the aid of a tool, or		P
	so constructed that the cord can only be fitted with the aid of a tool		N/A
25.19	Type X attachment, glands not used as cord anchorage in portable appliances		N/A
	Tying the cord into a knot or tying the cord with string not used		N/A
25.20	Conductors of the supply cord for type Y and Z attachment adequately additionally insulated	Type Y attachemnt	P
25.21	Space for supply cord for type X attachment or for connection of fixed wiring constructed:		N/A
	- to permit checking of conductors with respect to correct positioning and connection before fitting any cover		N/A
	- so there is no risk of damage to the conductors or their insulation when fitting the cover		N/A
	- for portable appliances, so that the uninsulated end of a conductor, if it becomes free from the terminal, prevented from contact with accessible metal parts		N/A
	2 N test to the conductor for portable appliances; no contact with accessible metal parts		N/A
25.22	Appliance inlet:		N/A
	- live parts not accessible during insertion or removal. Requirement not applicable to appliance inlets complying with IEC 60320-1		N/A
	- connector can be inserted without difficulty		N/A
	- the appliance is not supported by the connector		N/A

IEC 60335-1& IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
	- not for cold conditions if temp. rise of external metal parts exceeds 75 K during clause 11, unless		N/A
	the supply cord is unlikely to touch such metal parts		N/A
25.23	Interconnection cords comply with the requirements for the supply cord, except as that		N/A
	- the cross-sectional area of the conductors is determined on the basis of the maximum current during clause 11		N/A
	- the thickness of the insulation may be reduced		N/A
	If necessary, electric strength test of 16.3		N/A
25.24	Interconnection cords not detachable without the aid of a tool if compliance with the standard is impaired when they are disconnected		N/A
25.25	Dimensions of pins that are inserted into socket-outlets compatible with the dimensions of the relevant socket-outlet.		N/A
	Dimensions of pins and engagement face in accordance with the dimensions of the relevant plug in IEC/TR 60083		N/A
26	TERMINALS FOR EXTERNAL CONDUCTORS		—
26.1	Appliances provided with terminals or equally effective devices for connection of external conductors		P
	Terminals only accessible after removal of a non-detachable cover		P
	for class III appliances that do not contain live parts		N/A
	Earthing terminals may be accessible if a tool is required to make the connections and means are provided to clamp the wire independently from its connection		P
26.2	Appliances with type X attachment and appliances for connection to fixed wiring provided with terminals in which connections are made by means of screws, nuts or similar devices, unless the connections are soldered		N/A
	Screws and nuts serve only to clamp supply conductors, except		N/A
	internal conductors, if so arranged that they are unlikely to be displaced when fitting the supply conductors		N/A
	If soldered connections used, the conductor so positioned or fixed that reliance is not placed on soldering alone, unless		N/A

IEC 60335-1& IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
	barriers provided so that neither clearances nor creepage distances between live parts and other metal parts reduced below the values for supplementary insulation if the conductor becomes free at the soldered joint		N/A
26.3	Terminals for type X attachment and for connection to fixed wiring so constructed that the conductor is clamped between metal surfaces with sufficient contact pressure and without damaging the conductor		N/A
	Terminals for type X attachment and those for connection to fixed wiring so fixed that when tightening or loosening the clamping means:		N/A
	- the terminal does not become loose		N/A
	- internal wiring is not subjected to stress		N/A
	- neither clearances nor creepage distances are reduced below the values in clause 29		N/A
	Compliance checked by inspection and by the test of subclause 9.6 of IEC 60999-1, the torque applied being equal to two-thirds of the torque specified (Nm).....:		N/A
	No deep or sharp indentations of the conductors		N/A
26.4	Terminals for type X attachment, except those having a specially prepared cord and those for the connection of cables of fixed wiring, no special preparation of conductors such as by soldering, use of cable lugs, eyelets or similar, and		N/A
	so constructed or placed that conductors prevented from slipping out when clamping screws or nuts are tightened		N/A
26.5	Terminals for type X attachment so located or shielded that if a wire of a stranded conductor escapes, no risk of accidental connection to other parts that result in a hazard		N/A
	Stranded conductor test, 8 mm insulation removed		N/A
	No contact between live parts and accessible metal parts and, for class II constructions, between live parts and metal parts separated from accessible metal parts by supplementary insulation only		N/A
26.6	Terminals for type X attachment and for connection to fixed wiring suitable for connection of conductors with required cross-sectional area according to table 13; rated current (A); nominal cross-sectional area (mm^2):		N/A
	Terminals only suitable for a specially prepared cord		N/A
26.7	Terminals for type X attachment accessible after removal of a cover or part of the enclosure		N/A

IEC 60335-1& IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
26.8	Terminals for the connection to fixed wiring, including the earthing terminal, located close to each other		N/A
26.9	Terminals of the pillar type constructed and located as specified		N/A
26.10	Terminals with screw clamping and screwless terminals not used for flat twin tinsel cords, unless conductors ends fitted with a device suitable for screw terminals		N/A
	Pull test of 5 N to the connection		N/A
26.11	For type Y and Z attachment: soldered, welded, crimped and similar connections may be used	Type Y attachment	P
	For Class II appliances: the conductor so positioned or fixed that reliance is not placed on soldering, welding or crimping alone		P
	For Class II appliances: soldering, welding or crimping alone used, barriers provided, clearances and creepage distances satisfactory if the conductor becomes free		N/A
27	PROVISION FOR EARTHING		—
27.1	Accessible metal parts of Class 0I and I appliances, permanently and reliably connected to an earthing terminal or contact of the appliance inlet		N/A
	Earthing terminals not connected to neutral terminal		N/A
	Class 0, II and III appliance have no provision for earthing		N/A
	Safety extra-low voltage circuits not earthed, unless protective extra-low voltage circuits		N/A
27.2	Clamping means adequately secured against accidental loosening		N/A
	Terminals used for the connection of external equipotential bonding conductors allow connection of conductors of 2.5 to 6 mm², and		N/A
	do not provide earthing continuity between different parts of the appliance		N/A
	Conductors cannot be loosened without the aid of a tool		N/A
27.3	For detachable parts that are plugged into another part of the appliance, and having an earth connection, the earth connection made before and separated after current-carrying connections when removing the part		N/A
	For appliances with supply cord, current-carrying conductors become taut before earthing conductor, if the cord slips out of the cord anchorage		N/A

IEC 60335-1& IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
27.4	No risk of corrosion resulting from contact between parts of the earthing terminal and the copper of the earthing conductor or other metal		N/A
	Parts providing earthing continuity, other than parts of a metal frame or enclosure, have adequate resistance to corrosion		N/A
	If of steel, these parts provided with an electroplated coating with a thickness at least 5 µm		N/A
	Adequate protection against rusting of parts of coated or uncoated steel, only intended to provide or transmit contact pressure		N/A
	In the body of the earthing terminal is a part of a frame or enclosure of aluminium or aluminium alloys, precautions taken to avoid risk of corrosion		N/A
27.5	Low resistance of connection between earthing terminal and earthed metal parts		N/A
	This requirement does not apply to connections providing earthing continuity in the protective extra-low voltage circuit, provided that clearances of basic insulation are based on the rated voltage of the appliance		N/A
	Resistance not exceeding 0,1 Ω at the specified low-resistance test		N/A
27.6	The printed conductors of printed circuit boards shall not be used to provide earthing continuity in hand-held appliances.		N/A
	They may be used to provide earthing continuity in other appliances if at least two tracks are used with independent soldering points and the appliance complies with 27.5 for each circuit		N/A
28	SCREWS AND CONNECTIONS		—
28.1	Fixings, electrical connections and connections providing earthing continuity withstand mechanical stresses		P
	Screws not of soft metal liable to creep, such as zinc or aluminium		P
	Diameter of screws of insulating material min. 3 mm		N/A
	Screws of insulating material not used for any electrical connection or connections providing earthing continuity		N/A
	Screws used for electrical connections or connections providing earthing continuity screw into metal		P
	Screws not of insulating material if their replacement by a metal screw can impair supplementary or reinforced insulation		N/A

IEC 60335-1& IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
	Type X attachment, screws to be removed for replacement of supply cord or for user maintenance, not of insulating material if their replacement by a metal screw can impair basic insulation		N/A
	For screws and nuts; torque-test as specified in table 14.....:	(see appended tables)	P
28.2	Electrical connections and connections providing earthing continuity constructed so that contact pressure is not transmitted through non-ceramic insulating material liable to shrink or distort, unless		P
	there is resiliency in the metallic parts to compensate for shrinkage or distortion of the insulating material		N/A
	This requirement does not apply to electrical connections in circuits of appliances for which:		N/A
	• 30.2.2 is applicable and that carry a current not exceeding 0,5 A		N/A
	• 30.2.3 is applicable and that carry a current not exceeding 0,2 A		N/A
28.3	Space-threaded (sheet metal) screws only used for electrical connections if they clamp the parts together		N/A
	Thread-cutting (self-tapping) screws only used for electrical connections if they generate a full form standard machine screw thread		N/A
	Thread-cutting (self-tapping) screws not used if they are likely to be operated by the user or installer		N/A
	Thread-cutting, thread rolling and space threaded screws may be used in connections providing earthing continuity provided it is not necessary to disturb the connection:		N/A
	- in normal use,		N/A
	- during user maintenance,		N/A
	- when replacing a supply cord having a type X attachment, or		N/A
	- during installation		N/A
	At least two screws being used for each connection providing earthing continuity, unless		N/A
	the screw forms a thread having a length of at least half the diameter of the screw		N/A
28.4	Screws and nuts that make mechanical connection secured against loosening if they also make electrical connections or connections providing earthing continuity		N/A
	This requirement does not apply to screws in the earthing circuit if at least two screws are used, or		N/A

IEC 60335-1& IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
	if an alternative earthing circuit is provided		N/A
	Rivets for electrical connections or connections providing earthing continuity secured against loosening if the connections are subjected to torsion		N/A
29	CLEARANCES, CREEPAGE DISTANCES AND SOLID INSULATION		—
	Clearances, creepage distances and solid insulation withstand electrical stress		P
	For coatings used on printed circuits boards to protect the microenvironment (Type 1) or to provide basic insulation (Type 2), annex J applies.....:		N/A
	The microenvironment is pollution degree 1 under type 1 protection		N/A
	For type 2 protection, the spacing between the conductors before the protection is applied is not less than the values specified in Table 1 of IEC 60664-3		N/A
	These values apply to functional, basic, supplementary and reinforced insulation.....:		N/A
29.1	Clearances not less than the values specified in table 16, taking into account the rated impulse voltage for the overvoltage categories of table 15, unless	(see appended table)	P
	for basic insulation and functional insulation they comply with the impulse voltage test of clause 14		N/A
	However, if the construction is affected by wear, distortion, movement of the parts or during assembly, the clearances for rated impulse voltages of 1500V and above are increased by 0,5 mm and the impulse voltage test is not applicable		N/A
	Impulse voltage test not applicable:		N/A
	- when the microenvironment is pollution degree 3		N/A
	- for basic insulation of class 0 and class 01 appliances		N/A
	Appliances are in overvoltage category II		P
	A force of 2 N is applied to bare conductors, other than heating elements		P
	A force of 30 N is applied to accessible surfaces		P
29.1.1	Clearances of basic insulation withstand the overvoltages, taking into account the rated impulse voltage		P
	The values of table 16 or the impulse voltage test of clause 14 are applicable.....:	(see appended table)	P
	Clearance at the terminals of tubular sheathed heating elements may be reduced to 1,0 mm if the microenvironment is pollution degree 1		N/A

IEC 60335-1& IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
	Lacquered conductors of windings considered to be bare conductors		P
29.1.2	Clearances of supplementary insulation not less than those specified for basic insulation in table 16	(see appended table)	P
29.1.3	Clearances of reinforced insulation not less than those specified for basic insulation in table 16, but using the next higher step for rated impulse voltage	(see appended table)	P
	For double insulation, with no intermediate conductive part between basic and supplementary insulation, clearances are measured between live parts and the accessible surface, and the insulation system is treated as reinforced insulation		P
29.1.4	Clearances for functional insulation are the largest values determined from:		P
	- table 16 based on the rated impulse voltage.....:	(see appended table)	P
	- table F.7a in IEC 60664-1, frequency not exceeding 30 kHz	Considered	N/A
	- clause 4 of IEC 60664-4, frequency exceeding 30 kHz		N/A
	If values of table 16 are largest, the impulse voltage test of clause 14 may be applied instead, unless		N/A
	the microenvironment is pollution degree 3, or		N/A
	the distances can be affected by wear, distortion, movement of the parts or during assembly		N/A
	However, clearances are not specified if the appliance complies with clause 19 with the functional insulation short-circuited		N/A
	Lacquered conductors of windings considered to be bare conductors		P
	However, clearances at crossover points are not measured		P
	Clearance between surfaces of PTC heating elements may be reduced to 1mm		P
29.1.5	Appliances having higher working voltages than rated voltage, clearances for basic insulation are the largest values determined from:		N/A
	- table 16 based on the rated impulse voltage.....:		N/A
	- table F.7a in IEC 60664-1, frequency not exceeding 30 kHz		N/A
	- clause 4 of IEC 60664-4, frequency exceeding 30 kHz		N/A
	If clearances for basic insulation are selected from Table F.7a of IEC 60664-1 or Clause 4 of IEC 60664-4, the clearances of supplementary insulation are not less than those specified for basic insulation		N/A

IEC 60335-1& IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
	If clearances for basic insulation are selected from Table F.7a of IEC 60664-1, the clearances of reinforced insulation dimensioned as specified in Table F.7a are to withstand 160% of the withstand voltage required for basic insulation		N/A
	If clearances for basic insulation are selected from Clause 4 of IEC 60664-4, the clearances of reinforced insulation are twice the value required for basic insulation		N/A
	If the secondary winding of a step-down transformer is earthed, or if there is an earthed screen between the primary and secondary windings, clearances of basic insulation on the secondary side not less than those specified in table 16, but using the next lower step for rated impulse voltage		N/A
	Circuits supplied with a voltage lower than rated voltage, clearances of functional insulation are based on the working voltage used as the rated voltage in table 15		N/A
29.2	Creepage distances not less than those appropriate for the working voltage, taking into account the material group and the pollution degree	(see appended table)	P
	Pollution degree 2 applies, unless		N/A
	-precautions taken to protect the insulation; pollution degree 1		N/A
	-insulation subjected to conductive pollution; pollution degree 3		P
	A force of 2 N is applied to bare conductors, other than heating elements		P
	A force of 30 N is applied to accessible surfaces		P
	In a double insulation system, the working voltage for both the basic and supplementary insulation is taken as the working voltage across the complete double insulation system		P
	For fan heaters, the microenvironment is pollution degree 3 unless the insulation is enclosed or located so that it is unlikely to be exposed to pollution during normal use of the appliance. (IEC 60335-2-30)		P
29.2.1	Creepage distances of basic insulation not less than specified in table 17	(see appended table)	P
	However, if the working voltage is periodic and has a frequency exceeding 30 kHz, the creepage distances are also determined from table 2 of IEC 60664-4, these values being used if exceeding the values in table 17.....:		N/A

IEC 60335-1& IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
	Except for pollution degree 1, corresponding creepage distance not less than the minimum specified for the clearance in table 16, if the clearance has been checked according to the test of clause 14.....:		N/A
29.2.2	Creepage distances of supplementary insulation at least as specified for basic insulation in table 17 or	(see appended table)	P
	Table 2 of IEC 60664-4, as applicable.....:		N/A
29.2.3	Creepage distances of reinforced insulation at least double as specified for basic insulation in table 17 or	(see appended table)	P
	Table 2 of IEC 60664-4, as applicable.....:		N/A
29.2.4	Creepage distances of functional insulation not less than specified in table 18	(see appended table)	P
	However, if the working voltage is periodic and has a frequency exceeding 30 kHz, the creepage distances are also determined from table 2 of IEC 60664-4, these values being used if exceeding the values in table 18.....:		N/A
	Creepage distances may be reduced if the appliance complies with clause 19 with the functional insulation short-circuited		P
29.3	Supplementary and reinforced insulation having adequate thickness, or a sufficient number of layers, to withstand the electrical stresses		P
	Compliance checked by:		P
	- measurement, in accordance with 29.3.1, or		P
	- an electric strength test in accordance with 29.3.2, or		N/A
	- an assessment of the thermal quality of the material combined with an electric strength test, in accordance with 29.3.3 and		N/A
	for accessible parts of reinforced insulation consisting of a single layer, by measurement in accordance with 29.3.4, or		N/A
	- as specified in subclause 6.3 of IEC 60664-4 for insulation that is subjected to any periodic voltage having a frequency exceeding 30 kHz		N/A
29.3.1	Supplementary insulation having a thickness of at least 1 mm		P
	Reinforced insulation having a thickness of at least 2 mm		P
29.3.2	Each layer of material withstand the electric strength test of 16.3 for supplementary insulation		N/A

IEC 60335-1& IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
	Supplementary insulation consisting of at least 2 layers		N/A
	Reinforced insulation consisting of at least 3 layers		N/A
29.3.3	The insulation is subjected to the dry heat test Bb of IEC 60068-2-2, followed by		N/A
	the electric strength test of 16.3		N/A
	If the temperature rise during the tests of Clause 19 does not exceed the value specified in Table 3, the test of IEC 60068-2-2 is not carried out		N/A
29.3.4	Thickness of accessible parts of reinforced insulation consisting of a single layer not less than specified in table 19..... :		N/A
30	RESISTANCE TO HEAT AND FIRE		—
30.1	External parts of non-metallic material,		P
	parts supporting live parts, and		P
	thermoplastic material providing supplementary or reinforced insulation,		P
	sufficiently resistant to heat		P
	For portable fan heaters, the temperature rises determined during the tests of clause 19 are not taken into account (IEC 60335-2-30)		P
	Ball-pressure test according to IEC 60695-10-2		P
	External parts: at 40 °C plus the maximum temperature rise determined during the test of clause 11, or at 75 °C, whichever is the higher; temperature (°C).....:	(see appended table)	P
	Parts supporting live parts: at 40°C plus the maximum temperature rise determined during the test of clause 11, or at 125°C, whichever is the higher; temperature (°C).....:	(see appended table)	P
	Parts of thermoplastic material providing supplementary or reinforced insulation, 25°C plus the maximum temperature rise determined during clause 19, if higher; temperature (°C)..... :		N/A
30.2	Parts of non-metallic material adequately resistant to ignition and spread of fire		P
	This requirement does not apply to:		P
	parts having a mass not exceeding 0,5 g, provided the cumulative effect is unlikely to propagate flames that originate inside the appliance by propagating flames from one part to another, or		N/A

IEC 60335-1& IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
	decorative trims, knobs and other parts unlikely to be ignited or to propagate flames that originate inside the appliance		P
	Compliance checked by the test of 30.2.1, and in addition:		P
	- for attended appliances, 30.2.2 applies		N/A
	- for unattended appliances, 30.2.3 applies		P
	For appliances for remote operation, 30.2.3 applies		N/A
	For base material of printed circuit boards, 30.2.4 applies		N/A
30.2.1	The Glow-wire test is carried out on enclosures at a temperature of 650°C (IEC 60335-2-30)		P
	Parts of non-metallic material subjected to the glow-wire test of IEC 60695-2-11 at 550 °C		P
	However, test not carried out if the material is classified as having a glow-wire flammability index according to IEC 60695-2-12 of at least 550 °C, or		N/A
	the material is classified at least HB40 according to IEC 60695-11-10		N/A
	Parts for which the glow-wire test cannot be carried out need to meet the requirements in ISO 9772 for material classified HBF		N/A
30.2.3	Appliances operated while unattended, tested as specified in 30.2.3.1 and 30.2.3.2		P
	Tests not applicable to conditions as specified		P
30.2.3.1	Parts of non-metallic material supporting connections carrying a current exceeding 0.2A during normal operation, and		P
	parts of non-metallic material within a distance of 3mm,		P
	subjected to the glow-wire test of IEC 60695-2-11 with a test severity of 850°C		P
	Glow-wire applied to an interposed shielding material, if relevant		P
	The glow-wire test is not carried out on parts of material classified as having a glow-wire flammability index according to IEC 60695-2-12 of at least 850 °C		N/A
30.2.3.2	Parts of non-metallic material supporting current-carrying connections, and		P
	parts of non-metallic material within a distance of 3mm,		P
	subjected to glow-wire test of IEC 60695-2-11		P

IEC 60335-1& IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
	The test severity is:		P
	- 750 °C, for connections carrying a current exceeding 0,2 A during normal operation		P
	- 650 °C, for other connections		N/A
	Glow-wire applied to an interposed shielding material, if relevant		P
	However, the glow-wire test of 750 °C or 650 °C as appropriate, is not carried out on parts of material fulfilling both or either of the following classifications		N/A
	- a glow-wire ignition temperature according to IEC 60695-2-13 of at least:		N/A
	• 775 °C, for connections carrying a current exceeding 0,2 A during normal operation		N/A
	• 675 °C, for other connections		N/A
	- a glow-wire flammability index according to IEC 60695-2-12 of at least:		N/A
	- 750 °C, for connections carrying a current exceeding 0,2 A during normal operation		N/A
	- 650 °C, for other connections		N/A
	the material is classified as V-0 or V-1 according to IEC 60695-11-10		N/A
	The glow-wire test is also not carried out on small parts. These parts are to:		N/A
	- comprise material having a glow-wire ignition temperature of at least 775 °C or 675 °C as appropriate, or		N/A
	- comprise material having a glow-wire flammability index of at least 750 °C or 650 °C as appropriate, or		N/A
	- comply with the needle-flame test of Annex E, or		N/A
	- comprise material classified as V-0 or V-1 according to IEC 60695-11-10		N/A
	The consequential needle-flame test of Annex E applied to non-metallic parts that encroach within the vertical cylinder placed above the centre of the connection zone and on top of the non-metallic parts supporting current-carrying connections, and parts of non-metallic material within a distance of 3 mm of such connections if these parts are those:		N/A
	- parts that withstood the glow-wire test of IEC 60695-2-11 of 750 °C or 650 °C as appropriate, but produce a flame that persist longer than 2 s, or		N/A
	- parts that comprised material having a glow-wire flammability index of at least 750 °C or 650 °C as appropriate, or		N/A
	- small parts, that comprised material having a glow-wire flammability index of at least 750 °C or 650 °C as appropriate, or		N/A

IEC 60335-1& IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
	- small parts for which the needle-flame test of Annex E was applied, or		N/A
	- small parts for which a material classification of V-0 or V-1 was applied		N/A
	However, the consequential needle-flame test is not carried out on non-metallic parts, including small parts, within the cylinder that are:		N/A
	- parts having a glow-wire ignition temperature of at least 775 °C or 675 °C as appropriate, or		N/A
	- parts comprising material classified as V-0 or V-1 according to IEC 60695-11-10, or		N/A
	- parts shielded by a flame barrier that meets the needle-flame test of Annex E or that comprises material classified as V-0 or V-1 according to IEC 60695-11-10		N/A
30.2.4	Base material of printed circuit boards subjected to needle-flame test of annex E		N/A
	Test not applicable to conditions as specified	PCB: V-0 material used	P
30.101	Fan heaters having an enclosure of substantially non-metallic material shall be resistant to fire. The needle test flame of Annex E is carried out on the enclosure of the appliance. This test is not carried out on fan heaters that are also intended to be operated at maximum heat output with the fan switched off. (IEC 60335-2-30)		P
31	RESISTANCE TO RUSTING		—
	Relevant ferrous parts adequately protected against rusting		P
	Tests specified in part 2 when necessary		N/A
32	RADIATION, TOXICITY AND SIMILAR HAZARDS		—
	Appliance does not emit harmful radiation or present a toxic or similar hazard due to their operation in normal use		P
	Compliance is checked by the limits or tests specified in part 2, if relevant		N/A
A	ANNEX A (INFORMATIVE) ROUTINE TESTS		—
	Description of routine tests to be carried out by the manufacturer		N/A
B	ANNEX B (NORMATIVE) APPLIANCES POWERED BY RECHARGEABLE BATTERIES		N/A
	Requriements not applicable to the evaluated product		—
C	ANNEX C (NORMATIVE) AGEING TEST ON MOTORS		N/A

IEC 60335-1& IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
	Requriements not applicable to the evaluated product		—
D	ANNEX D (NORMATIVE) THERMAL MOTOR PROTECTORS (IEC 60335-1/A1 : 2004)		N/A
	Requriements not applicable to the evaluated product		—
E	ANNEX E (NORMATIVE) NEEDLE-FLAME TEST (IEC 60335-1/A2: 2006)		—
	Needle-flame test carried out in accordance with IEC 60695- 11-5, with the following modifications:		P
7	Severities		P
	The duration of application of the test flame is 30 s ± 1 s		P
9	Test procedure		P
9.1	The specimen so arranged that the flame can be applied to a vertical or horizontal edge as shown in the examples of figure 1		P
9.2	The first paragraph does not apply		P
9.3	The test is carried out on one specimen		P
	If the specimen does not withstand the test, the test may be repeated on two additional specimens, both withstanding the test		N/A
11	Evaluation of test results		P
	The duration of burning not exceeding 30 s		P
	However, for printed circuit boards, the duration of burning not exceeding 15 s		N/A
F	ANNEX F (NORMATIVE) CAPACITORS		N/A
	Requirements not applicable to the evaluated product		—
G	ANNEX G (NORMATIVE) SAFETY ISOLATING TRANSFORMERS		N/A
	Requirements not applicable to the evaluated product		—
H	ANNEX H (NORMATIVE) SWITCHES		—
	Switches comply with the following clauses of IEC 61058-1, as modified:		P
	-The tests of IEC 61058-1 carried out under the conditions occurring in the appliance		P
	-Before being tested, switches are operated 20 times without load		P
8	Marking and documentation		P

IEC 60335-1& IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
	Switches are not required to be marked		P
	However, switches that can be tested separately from the appliance marked with the manufacturer's name or trade mark and the type reference		N/A
13	Mechanism		P
	The tests may be carried out on a separate sample		P
15	Insulation resistance and dielectric strength		P
15.1	Not applicable		N/A
15.2	Not applicable		N/A
15.3	Applicable for full disconnection and micro-disconnection		P
17	Endurance		P
	Compliance is checked on three separate appliances or switches		P
	For 17.2.4.4, the number of cycles is 10 000, unless otherwise specified in 24.1.3 of the relevant part 2 of IEC 60335		P
	Switches for operation under no load and which can be operated only by a tool and switches operated by hand that are interlocked so that they cannot be operated under load, are not subjected to the tests		N/A
	However, switches without this interlock are subjected to the test of 17.2.4.4 for 100 cycles of operation		N/A
	Subclauses 17.2.2 and 17.2.5.2 not applicable		N/A
	The ambient temperature during the test is that occurring in the appliance during the test of Clause 11 in IEC 60335-1		P
	Temperature rise of the terminals not more than 30 K above the temperature rise measured in clause 11 of IEC 60335-1		P
20	Clearances, creepage distances, solid insulation and coatings of rigid printed board assemblies		P
	This clause is applicable to clearances and creepage distances for functional insulation, across full disconnection and micro-disconnection, as stated in table 24		P
I	ANNEX I (NORMATIVE) MOTORS HAVING BASIC INSULATION THAT IS INADEQUATE FOR THE RATED VOLTAGE OF THE APPLIANCE		N/A
	Requirements not applicable to the evaluated product		—

IEC 60335-1& IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
J	ANNEX J (NORMATIVE) COATED PRINTED CIRCUIT BOARDS		N/A
	Requirements not applicable to the evaluated product		—
K	ANNEX K (NORMATIVE) OVERVOLTAGE CATEGORIES		—
	The information on overvoltage categories is extracted from IEC 60664-1		P
	Overvoltage category is a numeral defining a transient overvoltage condition		P
	Equipment of overvoltage category IV is for use at the origin of the installation		N/A
	Equipment of overvoltage category III is equipment in fixed installations and for cases where the reliability and the availability of the equipment is subject to special requirements		N/A
	Equipment of overvoltage category II is energy consuming equipment to be supplied from the fixed installation		P
	If such equipment is subjected to special requirements with regard to reliability and availability, overvoltage category III applies		N/A
	Equipment of overvoltage category I is equipment for connection to circuits in which measures are taken to limit transient overvoltages to an appropriate low level		N/A
L	ANNEX L (INFORMATIVE) GUIDANCE FOR THE MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES		—
	Sequences for the determination of clearances and creepage distances		P
M	ANNEX M (NORMATIVE) POLLUTION DEGREE		—
	The information on pollution degrees is extracted from IEC 60664-1		P
	Pollution		P
	The microenvironment determines the effect of pollution on the insulation, taking into account the microenvironment		P
	Means may be provided to reduce pollution at the insulation by effective enclosures or similar		P
	Minimum clearances specified where pollution may be present in the microenvironment		P
	Degrees of pollution in the microenvironment		P

IEC 60335-1& IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
	For evaluating creepage distances, the following degrees of pollution in the microenvironment are established:		P
	- pollution degree 1: no pollution or only dry, non-conductive pollution occurs. The pollution has no influence		N/A
	- pollution degree 2: only non-conductive pollution occurs, except that occasionally a temporary conductivity caused by condensation is to be expected		N/A
	- pollution degree 3: conductive pollution occurs or dry non-conductive pollution occurs that becomes conductive due to condensation that is to be expected		P
	- pollution degree 4: the pollution generates persistent conductivity caused by conductive dust or by rain or snow		N/A
N	ANNEX N (NORMATIVE) PROOF TRACKING TEST		—
	The proof tracking test is carried out in accordance with IEC 60112 with the following modifications:		P
7	Test apparatus		P
7.3	Test solutions		P
	Test solution A is used		P
10	Determination of proof tracking index (PTI)		P
10.1	Procedure		P
	The proof voltage is 100V, 175V, 400V or 600V :	175V	P
	The last paragraph of Clause 3 applies		P
	The test is carried out on five specimens		P
	In case of doubt, additional test with proof voltage reduced by 25V, the number of drops increased to 100		N/A
10.2	Report		P
	The report stating if the PTI value was based on a test using 100 drops with a test voltage of (PTI-25) V		P
O	ANNEX O (INFORMATIVE) SELECTION AND SEQUENCE OF THE TESTS OF CLAUSE 30		—
	Description of tests for determination of resistance to heat and fire		P
P	ANNEX P (INFORMATIVE) GUIDANCE FOR THE APPLICATION OF THIS STANDARD TO APPLIANCES USED IN WARM DAMP EQUABLE CLIMATES (IEC 60335-1/A1 : 2004)		N/A
	Requirements not applicable to the evaluated product		—

IEC 60335-1& IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
Q	ANNEX Q (INFORMATIVE) SEQUENCE OF TESTS FOR THE EVALUATION OF ELECTRONIC CIRCUITS		—
	Description of tests for appliances incorporating electronic circuits		P
R	ANNEX R (NORMATIVE) SOFTWARE EVALUATION		N/A
	Requirements not applicable to the evaluated product		—

10.1	TABLE: Power input deviation				P
Input deviation of/at:	P rated (W)	P measured (W)	dP	Required dP	Remark
AC230V/50Hz	800	730.1	-8.74%	+5% or 20W(Whichever is the greater) /-10%	P
AC230V/60Hz	800	732.4	-8.45%	+5% or 20W(Whichever is the greater) /-10%	P

10.2	TABLE : Current deviation				N/A
Current deviation of/at:	I rated (A)	I measured (A)	dI	Required dI	Remark
-	-	-	-	-	-

11.8	TABLE: Heating test, thermocouples		P
	Test voltage (V)..... :	254.4V	—
	Ambient (°C)..... :	24.5	—

Thermocouple locations	dT (K)	Max. dT (K)
Plug holder	11.3	See Cl.30
Plastic enclosure	34.5	See Cl.30
Plastic enclosure near heating plate	102.0	See Cl.30
Switch	6.4	60
PCB near U1	31.7	105
EC1 body	20.0	80
Heating plate	105.0	Ref.
Internal wire	27.2	175
Motor	32.8	85
Test corner	8.5	65

13.2	TABLE: Leakage current		P
	Heating appliances: 1.15 x rated input..... :	-	—
	Motor-operated and combined appliances: 1.06 x rated voltage..... :	254.4V	—

Leakage current between	I (mA)	Max. allowed I (mA)
Live parts and accessible parts	0.148	0.35Peak

13.3	TABLE: Electric strength		P
Test voltage applied between:		Voltage (V)	Breakdown (Yes/No)
Live parts and accessible parts		3000	No

16.2	TABLE: Leakage current	P

	Single phase appliances: 1.06 x rated voltage.....:	254.4V	—
	Three phase appliances 1.06 x rated voltage divided by √3:..... :	-	—

Leakage current between	I (mA)	Max. allowed I (mA)
Live parts and accessible parts	0.036	0.25

16.3	TABLE: Electric strength	P

Test voltage applied between:	Voltage (V)	Breakdown (Yes/No)
Live parts and accessible parts	3000	No

17	TABLE: Overload protection	N/A

Thermocouple locations:	Max. temperature rise measured, Δ T (K)	Max. temperature rise limit, Δ T (K)
--	--	--
--	--	--
--	--	--
Supplementary information:		

19.13	TABLE: Abnormal operation, temperature rises	P

Thermocouple locations	dT (K)	(°C)	Max. dT (K)	Max. (°C)
Test corner	9.1	34.1	150	--
Plug holder	20.6	44.8	150	--
Plastic enclosure near heating plate	95.5	119.7	See Cl.30	--
Ambient	--	24.2	--	--

28.1	TABLE: Threaded part torque test	P

Threaded part identification:	Diameter of thread (mm)	Column number (I, II, or III)	Applied torque (Nm)
Enclosure screws	2.85	II	0.5
Supplementary information:			

24.1	TABLE: Components				P
object part No.	manufacturer/trade mark	type/model	technical data	standard	mark(s) of conformity
Internal wire	DONGGUAN XIEHE WIRE CO LTD	1007	300V 80℃	UL 758	UL
PCB	FAI WONG ELECTRONIC P C B CO	FW	V-0	UL 94	UL

FUSE F1	Various	Various	250V,6.3A	UL248-1 UL248-14	UL
Fan motor	Various	Various	Cl. 130 (B)	EN 60335-1 EN 60335-2-80	Tested with appliance
Winding	GUANGDONG WELLKEY ELECTRIAL CO LTD	1UEW	130℃	UL 1446	UL
Heating element	Various	Various	220-240V~ 700W	EN 60335-1 EN 60335-2-80	Tested with appliance
Thermostat	Stiebel Eltron GmbH & Co. KG	AFK1-*	400Vac, 10000 cycle	IEC 60730-1	VDE 124966

29.1	TABLE: Clearances Overvoltage category					P
Rated impulse voltage (V)	Min. cl (mm)	Type of insulation				Verdict
		Basic	Functional	Supplementary	Reinforced	
330	0.5	-	-	-	-	N/A
550	0.5	-	-	-	-	N/A
800	0.5	-	-	-	-	N/A
1500	0.5	-	-	-	-	N/A
2500	1.5	P	P	P	-	P
4000	3.0	-	-	-	P	P
6000	5.5	-	-	-	-	N/A
8000	8.0	-	-	-	-	N/A
10000	11	-	-	-	-	N
supplementary information:						

29.2	TABLE: Creepage distances, basic, supplementary and reinforced insulation										P
Working voltage (V):	Creepage distance (mm) Pollution degree										
	1	2			3			Type of insulation			
		Material group			Material group						
		I	II	IIIa/IIIb	I	II	IIIa/IIIb*	B**	S**	R**	Verdict
≤50	0,18	0,6	0,85	1,2	1,5	1,7	1,9	--	--	--	N/A
≤50	0,18	0,6	0,85	1,2	1,5	1,7	1,9	--	--	--	N/A
≤50	0,36	1,2	1,7	2,4	3,0	3,4	3,8	--	--	--	N/A
125	0,28	0,75	1,05	1,5	1,9	2,1	2,4	--	--	--	N/A
125	0,28	0,75	1,05	1,5	1,9	2,1	2,4	--	--	--	N/A
125	0,56	1,5	2,1	3,0	3,8	4,2	4,8	--	--	--	N/A
250	0,56	1,25	1,8	2,5	3,2	3,6	4,0	P	--	--	P

250	0,56	1,25	1,8	2,5	3,2	3,6	4,0	--	P	--	P
250	1,12	2,5	3,6	5,0	6,4	7,2	8,0	--	--	P	P
400	1,0	2,0	2,8	4,0	5,0	5,6	6,3	--	--	--	N/A
400	1,0	2,0	2,8	4,0	5,0	5,6	6,3	--	--	--	N/A
400	2,0	4,0	5,6	8,0	10,0	11,2	12,6	--	--	--	N/A
500	1,3	2,5	3,6	5,0	6,3	7,1	8,0	--	--	--	N/A
500	1,3	2,5	3,6	5,0	6,3	7,1	8,0	--	--	--	N/A
500	2,6	5,0	7,2	10,0	12,6	14,2	16,0	--	--	--	N/A
>630 and £800	1,8	3,2	4,5	6,3	8,0	9,0	10,0	--	--	--	N/A
>630 and £800	1,8	3,2	4,5	6,3	8,0	9,0	10,0	--	--	--	N/A
>630 and £800	3,6	6,4	9,0	12,6	16,0	18,0	20,0	--	--	--	N/A
>800 and £1000	2,4	4,0	5,6	8,0	10,0	11,0	12,5	--	--	--	N/A
>800 and £1000	2,4	4,0	5,6	8,0	10,0	11,0	12,5	--	--	--	N/A
>800 and £1000	4,8	8,0	11,2	16,0	20,0	22,0	25,0	--	--	--	N/A
>1000 and £1250	3,2	5,0	7,1	10,0	12,5	14,0	16,0	--	--	--	N/A
>1000 and £1250	3,2	5,0	7,1	10,0	12,5	14,0	16,0	--	--	--	N/A
>1000 and £1250	6,4	10,0	14,2	20,0	25,0	28,0	32,0	--	--	--	N/A
>1250 and £1600	4,2	6,3	9,0	12,5	16,0	18,0	20,0	--	--	--	N/A
>1250 and £1600	4,2	6,3	9,0	12,5	16,0	18,0	20,0	--	--	--	N/A
>1250 and £1600	8,4	12,6	18,0	25,0	32,0	36,0	40,0	--	--	--	N/A
>1600 and £2000	5,6	8,0	11,0	16,0	20,0	22,0	25,0	--	--	--	N/A
>1600 and £2000	5,6	8,0	11,0	16,0	20,0	22,0	25,0	--	--	--	N/A
>1600 and £2000	11,2	16,0	22,0	32,0	40,0	44,0	50,0	--	--	--	N/A
>2000 and £2500	7,5	10,0	14,0	20,0	25,0	28,0	32,0	--	--	--	N/A
>2000 and £2500	7,5	10,0	14,0	20,0	25,0	28,0	32,0	--	--	--	N/A
>2000 and £2500	15,0	20,0	28,0	40,0	50,0	56,0	64,0	--	--	--	N/A
>2500 and £3200	10,0	12,5	18,0	25,0	32,0	36,0	40,0	--	--	--	N/A
>2500 and £3200	10,0	12,5	18,0	25,0	32,0	36,0	40,0	--	--	--	N/A
>2500 and £3200	20,0	25,0	36,0	50,0	64,0	72,0	80,0	--	--	--	N/A
>3200 and £4000	12,5	16,0	22,0	32,0	40,0	45,0	50,0	--	--	--	N/A
>3200 and £4000	12,5	16,0	22,0	32,0	40,0	45,0	50,0	--	--	--	N/A
>3200 and £4000	25,0	32,0	44,0	64,0	80,0	90,0	100,0	--	--	--	N/A
>4000 and £5000	16,0	20,0	28,0	40,0	50,0	56,0	63,0	--	--	--	N/A
>4000 and £5000	16,0	20,0	28,0	40,0	50,0	56,0	63,0	--	--	--	N/A
>4000 and £5000	32,0	40,0	56,0	80,0	100,0	112,0	126,0	--	--	--	N/A

>5000 and £6300	20,0	25,0	36,0	50,0	63,0	71,0	80,0	--	--	--	N/A
>5000 and £6300	20,0	25,0	36,0	50,0	63,0	71,0	80,0	--	--	--	N/A
>5000 and £6300	40,0	50,0	72,0	100,0	126,0	142,0	160,0	--	--	--	N/A
>6300 and £8000	25,0	32,0	45,0	63,0	80,0	90,0	100,0	--	--	--	N/A
>6300 and £8000	25,0	32,0	45,0	63,0	80,0	90,0	100,0	--	--	--	N/A
>6300 and £8000	50,0	64,0	90,0	126,0	160,0	180,0	200,0	--	--	--	N/A
>8000 and £10000	32,0	40,0	56,0	80,0	100,0	110,0	125,0	--	--	--	N/A
>8000 and £10000	32,0	40,0	56,0	80,0	100,0	110,0	125,0	--	--	--	N/A
>8000 and £10000	64,0	80,0	112,0	160,0	200,0	220,0	250,0	--	--	--	N/A
>10000 and £12500	40,0	50,0	71,0	100,0	125,0	140,0	160,0	--	--	--	N/A
>10000 and £12500	40,0	50,0	71,0	100,0	125,0	140,0	160,0	--	--	--	N/A
>10000 and £12500	80,0	100,0	142,0	200,0	250,0	280,0	320,0	--	--	--	N/A

Supplementary information:
*) Material group IIIb is allowed if the working voltage does not exceed 50 V
**) B = Basic insulation, S = Supplementary insulation, R = Reinforced insulation

29.2	TABLE: Creepage distances, functional insulation							P
Working voltage (V):		Creepage distance (mm) Pollution degree						
		1	2			3		
			Material group			Material group		
			I	II	IIIa/IIIb	I	II	IIIa/IIIb *	Verdict / Remark
£10	0,08	0,4	0,4	0,4	1,0	1,0	1,0	N/A
50	0,16	0,56	0,8	1,1	1,4	1,6	1,8	N/A
125	0,25	0,71	1,0	1,4	1,8	2,0	2,2	N/A
250	0,42	1,0	1,4	2,0	2,5	2,8	3,2	P
400	0,75	1,6	2,2	3,2	4,0	4,5	5,0	N/A
500	1,0	2,0	2,8	4,0	5,0	5,6	6,3	N/A
>630 and ≤800	1,8	3,2	4,5	6,3	8,0	9,0	10,0	N/A
>800 and ≤1000	2,4	4,0	5,6	8,0	10,0	11,0	12,5	N/A
>1000 and ≤1250	3,2	5,0	7,1	10,0	12,5	14,0	16,0	N/A
>1250 and ≤1600	4,2	6,3	9,0	12,5	16,0	18,0	20,0	N/A
>1600 and ≤2000	5,6	8,0	11,0	16,0	20,0	22,0	25,0	N/A
>2000 and ≤2500	7,5	10,0	14,0	20,0	25,0	28,0	32,0	N/A
>2500 and ≤3200	10,0	12,5	18,0	25,0	32,0	36,0	40,0	N/A
>3200 and ≤4000	12,5	16,0	22,0	32,0	40,0	45,0	50,0	N/A

>4000 and ≤5000	16,0	20,0	28,0	40,0	50,0	56,0	63,0	N/A
>5000 and ≤6300	20,0	25,0	36,0	50,0	63,0	71,0	80,0	N/A
>6300 and ≤8000	25,0	32,0	45,0	63,0	80,0	90,0	100,0	N/A
>8000 and ≤10000	32,0	40,0	56,0	80,0	100,0	110,0	125,0	N/A
>10000 and ≤12500	40,0	50,0	71,0	100,0	125,0	140,0	160,0	N/A
Supplementary information: *) Material group IIIb is allowed if the working voltage does not exceed 50 V								

30.1	TABLE: Ball Pressure Test of Thermoplastics		P
Allowed impression diameter (mm) :		2mm	¾
Object/ Part No./ Material	Manufacturer/ trademark	Test temperature (°C)	Impression diameter (mm)
Plastic enclosure	See table 24.1	75	0.21
Brush holder	--	125	1.1
Supplementary information:			

30.2	TABLE: Resistance to heat and fire - Glow wire tests							P
Object/ Part No./ Material	Manufacturer/ trademark	Glow wire test (GWT); (°C)						Verdict
		550	650		750		850	
			te	ti	te	ti		
Plastic enclosure	See table 24.1	NI	--	--	--	--	--	P
Brush holder	--	--	--	--	NI	NI	--	P
Object/ Part No./ Material	Manufacturer/ trademark	Glow-wire flammability index (GWFI), °C				GW ignition temp. (GWIT), °C		Verdict
		550	650	750	850	675	775	
--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--
The test specimen passed the glow wire test (GWT) with no ignition [(te – ti) ≤ 2s] (Yes/No) :								Yes
If no, then surrounding parts passed the needle-flame test of annex E (Yes/No) :								N/A
The test specimen passed the test by virtue of most of the flaming material being withdrawn with the glow-wire (Yes/No)? :								Yes
Ignition of the specified layer placed underneath the test specimen (Yes/No) :								No
Supplementary information: - 550 °C GWT not relevant (or applicable) to parts of material classified at least HB40 or if relevant HBF - The GWIT pre-selection option, the 850 °C GWFI pre-selection option, and the 850 °C GWT are not relevant (or applicable) for attended appliance -NI: no ignition								

IEC60335_2_30R ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
ATTACHMENT TO TEST REPORT **IEC 60335-2-30** **EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES** (Part 2: Particular requirements for room heaters)			
Differences according to.....:	EN 60335-2-30:2009 +A11:2012 + A1:2020 + A12:2020 used in conjunction with EN 60335-1:2012 + AC:2014 + A11:2014 +A13:2017 + A1:2019 + A14:2019 + A2:2019 + A15:2021 EN 62233:2008 + AC:2008		
TRF template used.....:	IECEE OD-2020-F2:2020, Ed. 1.1		
Attachment Form No.....:	EU_GD_IEC60335_2_30R		
Attachment Originator.....:	LCIE		
Master Attachment.....:	Dated 2021-04-19		
	CENELEC COMMON MODIFICATIONS (EN)		--
6.1	Delete “class 0” and “class 01”		N/A
7.1	Single-phase appliances to be connected to the supply mains: 230 V covered		P
	Multi-phase appliances to be connected to the supply mains: 400 V covered		N/A
7.12	The instructions include the substance of the following:		P
	- this appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved		P
	- children shall not play with the appliance		P
	- cleaning and user maintenance shall not be made by children without supervision		P
	The instructions shall include the substance of the following: (EN 60335-2-30)		P
	Children of less than 3 years should be kept away unless continuously supervised.		P
	- children shall not play with the appliance		P
	- cleaning and user maintenance shall not be made by children without supervision		P

IEC60335_2_30R ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	Children aged from 3 years and less than 8 years shall only switch on/off the appliance provided that it has been placed or installed in its intended normal operating position and they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children aged from 3 years and less than 8 years shall not plug in, regulate and clean the appliance or perform user maintenance		P
	CAUTION — Some parts of this product can become very hot and cause burns. Particular attention has to be given where children and vulnerable people are present.		P
7.12.Z1	The specific instructions related to the safe operation of this appliance (as given in 7.12 of this standard) shall be collated together in the front section of the user instructions. The height of the characters, measured on the capital letters, shall be at least 3 mm. These instructions shall also be available in an alternative format, e.g. on a website		P
8.1.1	Also test probe 18 of EN 61032 is applied		P
	The appliance being in every possible position during the test, except that		N/A
	appliances normally used on the floor and having a mass exceeding 40 kg are not tilted		N/A
	The force on the probe in the straight position is increased to 10 N when probe 18 is used		N/A
	When using test probe 18 the appliance is fully assembled as in normal use without any parts removed, and		N/A
	parts intended to be removed for user maintenance are also not removed		N/A
8.1.3	Instead of test probe B, test probe 18 and test probe 13, for appliances other than those of class II, test probe 41 of IEC 61032 is applied with a force not exceeding 1 N to live parts of visibly glowing heating elements, all poles of which can be disconnected by a single switching action		P
8.2	Compliance is checked by applying the test probes of EN 61032		P
	For built-in appliances and fixed appliances, the test probe B and probe 18 of EN 61032 are applied only after installation		P
11.8	The temperature rise of surfaces of heaters shall not exceed the values shown in Table 101..... . ..... (EN 60335-2-30)		P

IEC60335_2_30R ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
11.Z101	For the measurement of temperature rises the instructions from the manufacturer on where the appliance has to be situated during normal operations have to be followed..... (EN 60335-2-30)		N/A
15.1.2	Appliances with an automatic cord reel tested with the cord in the most unfavourable position so that the reeling of the wet cord may affect electrical insulation during operation, the cord not being dried before reeling		N/A
20.2	Parts that are intended to be removed only for user maintenance are not removed..... (EN 60335-2-30)		N/A
	For appliances having dangerous moving parts, due to their working function, e.g. the needle of a sewing machine, tools of kitchen machines or the blade of an electrical knife, full protection is not possible for performing their intended use		N/A
	When using the test probe similar to test probe B with a circular stop face, the accessories and detachable covers are removed		N/A
	Test probe 18 applied with a force of 2,5N on the appliance fully assembled		N/A
22.12	Other parts intended to be detached during use, maintenance or cleaning (e.g. batteries, battery covers, lids, attachments, steam nozzles) are not considered as parts providing a similar function as handles, knobs, grips, levers		N/A
22.17	The requirement is not applicable to built-in appliances		N/A
22.Z101	Stationary appliances part or all of the body of which are positioned at a height below 850 mm from the floor and portable appliances that can be used on the floor shall not have accessible openings with a minor dimension exceeding 5,5mm.....(EN 60335-2-30)		N/A
24.1	The requirements of Clause 29 of this standard apply between live parts of components and accessible parts of the appliance		N/A
	Components may comply with the requirements for clearances and creepage distances for functional insulation as specified in the relevant component standard		N/A
	The requirements of 30.2 of this standard apply to parts of non-metallic material in components including parts of non-metallic material supporting current-carrying connections inside components		N/A

IEC60335_2_30R ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	Components that have not been tested and shown to comply with the EN standard for the relevant component are tested according to the requirements of 30.2 of this standard		N/A
	The requirements of Clause 29 of this standard apply between live parts of components and accessible parts of the appliance		N/A
	Components may comply with the requirements for clearances and creepage distances for functional insulation as specified in the relevant component standard		N/A
	The requirements of 30.2 of this standard apply to parts of non-metallic material in components including parts of non-metallic material supporting current-carrying connections inside components		N/A
	Components that have not been tested and shown to comply with the EN standard for the relevant component are tested according to the requirements of 30.2 of this standard		N/A
	Components that have been previously tested and shown to comply with the resistance to fire requirements in the EN standard for the relevant component need not be retested provided that:		N/A
	- the severity specified in the component standard is not less than the severity specified in 30.2, and		N/A
	- unless the pre-selection alternatives in 30.2 are used, the test report for the component states the values of t_e and t_i acc. to EN 60695-2-11		N/A
	If the above two conditions are not satisfied, the component is tested as part of the appliance		N/A
	Power electronic converter circuits are not required to comply with EN 62477-1, but tested as part of the appliance according to this standard		N/A
	Unless components have been tested and found to comply with the relevant EN standard for the number of cycles specified, they are tested in accordance with 24.1.1 to 24.1.9		N/A
	For components mentioned in 24.1.1 to 24.1.9, no additional tests specified in the relevant EN standard for the component are necessary other than those specified in 24.1.1 to 24.1.9		N/A
	Components that have not been separately tested and found to comply with the relevant EN standard, and		N/A
	components that are not marked or not used in accordance with their marking,		N/A
	are tested in accordance with the conditions occurring in the appliance, the number of samples being that required by the relevant standard		N/A

IEC60335_2_30R ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	Lamp holders and starter holders that have not been previously tested and found to comply with the relevant standard are tested as a part of the appliance and additionally comply with the gauging and interchangeability requirements of the relevant EN standard under the conditions occurring in the appliance		N/A
	Where the relevant EN standard specifies these gauging and interchangeability requirements at elevated temperatures, the temperatures measured during the tests of Clause 11 are used		N/A
	There are no additional tests specified for nationally standardized plugs such as those detailed in IEC/TR 60083 or connectors complying with the standard sheets of EN 60320-1 and EN 60309, unless they are specifically mentioned in the text of this standard		N/A
	Plugs and socket-outlets and other connecting devices of interconnection cords are not interchangeable with plugs and socket-outlets listed in IEC/TR 60083 or IEC 60906-1, or		N/A
	with connectors and appliance inlets complying with the standard sheets of EN 60320-1,		N/A
	if direct supply to these parts from the supply mains gives rise to a hazard		N/A
	For plugs used in CENELEC countries Annex ZH applies		N/A
24.1.7	If the remote operation of the appliance is via a telecommunication network, the relevant standard for the telecommunication interface circuitry in the appliance is EN 41003		N/A
	Compliance with Clause 8 of this standard is not impaired by connecting the appliance to a device covered by EN 41003		N/A
24.Z1	Type S2 and S3 capacitors according to EN 60252-1 are not required to undergo the testing as required by 30.2.2 and 30.2.3.1		N/A
25.1	Plugs and pins for insertion into socket outlets follow the relevant standards sheets in Annex ZH		N/A
25.7	Rubber sheathed cords (60245 IEC 53) are not suitable for appliances intended to be used outdoors, or		N/A
	when they are liable to be exposed to significant amount of ultraviolet radiation		N/A
25.25	Instead of IEC/TR 60083, dimensions of the pins and engagement face of plugs of appliances that are inserted into socket-outlets are in accordance with the dimensions of the relevant plug standard		N/A

IEC60335_2_30R ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	Common plugs and socket-outlets types in CENELEC countries as shown in Annex ZH		N/A
26.11	Conductors connected by soldering are not considered to be positioned or fixed so that reliance is not placed upon the soldering alone to maintain them in position,		N/A
	unless they are held in place near the terminals independently of the solder		N/A
29.3.Z1	Appliance constructed so that if there is a possibility of damaging the insulation during installation, the insulation withstands the scratch and penetration test of 21.2		N/A
32	Compliance regarding electromagnetic fields is checked according to EN 62233		N/A
Annex I, 19.I.101	The appliance is supplied at rated voltage and operated under normal operation with each of the fault conditions specified		N/A
ZA	**ANNEX ZA (**NORMATIVE) **SPECIAL NATIONAL CONDITIONS (EN)**		N/A
	Denmark, Sweden, Norway and Finland		N/A
7.12.8	The maximum inlet water pressure is at least 1,0 MPa ..... :		N/A
	Norway		N/A
19.5	The test is also applicable to appliances intended to be permanently connected to fixed wiring		N/A
	Norway		N/A
22.2	The second paragraph of this subclause, dealing with single-phase, permanently connected class I appliances having heating elements, is not applicable due to the supply system		N/A
	Ireland and United Kingdom		N/A
25.8	In the table, the line >10 A and ≤16 A is replaced with:		N/A
	> 10 and ≤ 13 1,25 (1,0)[b]		N/A
	> 13 and ≤ 16 1,5 (1,0)[b]		N/A

IEC60335_2_30R ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
ZB	**ANNEX ZB (INFORMATIVE)** **A-DEVIATIONS**		N/A
	Ireland		N/A
25.6	These regulations apply to all plugs for domestic use at a voltage of not less than 200 V and in general allow only plugs complying with I.S. 401:1997, or equivalent, to be fitted to domestic appliances		N/A
	United Kingdom		N/A
25.6	These regulations apply to all plugs for domestic use at a voltage of not less than 200 V and in general allow only plugs to BS 1363 to be fitted to domestic appliances.		N/A
	It also allows plugs to BS 4573 and EN 50075 to be fitted to shavers and toothbrushes		N/A
ZC	**ANNEX ZC** (NORMATIVE) **NORMATIVE REFERENCES TO INTERNATIONAL PUBLICATIONS WITH THEIR CORRESPONDING EUROPEAN PUBLICATIONS**		N/A
	A list of documents referred to in the text of this standard in such a way that some or all of their content constitutes requirements of this document		N/A
ZD	**ANNEX ZD** (INFORMATIVE) **IEC and CENELEC CODE DESIGNATIONS FOR FLEXIBLE CORDS**		N/A
	List of IEC and CENELEC code designations for flexible cords		N/A
ZE	**ANNEX ZE** (INFORMATIVE) **SPECIFIC ADDITIONAL REQUIREMENTS FOR APPLIANCES AND MACHINES INTENDED FOR COMMERCIAL USE**		N/A
7.1	Business name and full address of the manufacturer and, where applicable, his authorized representative.....:		N/A
	Model or type reference.....:		N/A
	Serial number, if any		N/A
	Production year		N/A
	Designation of the appliance..... :		N/A
7.12	Instructions provided with the appliance so that the appliance can be used safely		N/A

IEC60335_2_30R ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	The instructions contain at least the following information:		N/A
	- the business name and full address of the manufacturer and, where applicable, his authorized representative		N/A
	- model or type reference of the appliance as marked on the appliance itself, except for the serial number		N/A
	- the designation of the appliance together with its explanation in case it is given by a combination of letters and/or numbers		N/A
	- the general description of the appliance, when needed due to the complexity of the appliance		N/A
	- specific precautions required during installation, operation, adjusting, user maintenance, cleaning, repairing or moving		N/A
	- when needed drawings, diagrams, descriptions and explanations necessary for the safe use and user maintenance of the appliance		N/A
	- the possible reasonably foreseeable misuse and, whenever relevant, a warning against the effects it may have on the safe use of the appliance		N/A
	The words “Original instructions” appear on the language version(s) verified by the manufacturer or by the authorized representative		N/A
	When a translation of the original instructions has been provided by a person introducing the appliance on the market; the meaning of the sentence “Translation of the original instructions” appear in the relevant instructions delivered with the appliance		N/A
	The instructions for maintenance/service to be done by specialized personnel, mandated by the manufacturer or the authorized representative may be supplied in only one Community language which the specialized personnel understand		N/A
	The instructions indicate the type and frequency of inspections and maintenance required for safe operation including the preventive maintenance measures		N/A
7.12.ZE1	If needed for specific appliances, the following information to be given:		N/A
	- on use, transportation, assembly, dismantling when out of service, testing or foreseeable breakdowns, if these operations have consequences on stability of the appliance in order to avoid overturning, falling or uncontrolled movements of the appliance or of its component parts		N/A

IEC60335_2_30R ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	- on how to maintain adequate mechanical stability when in use, during transportation, assembly, dismantling, scrapping and any other action involving the appliance		N/A
	- on the protective measures to be taken by the user, including, where appropriate, the personal protective equipment to be provided		N/A
	- on the operating method to be followed in the event of accident or breakdown; if a blockage is likely to occur the operating method to safely unblock the appliance		N/A
	- on the specifications on the spare parts to be used, when these affect the health and safety of the operator		N/A
	- on airborne noise emissions, determined and declared in accordance with the relevant Part 2, which includes:		N/A
	- the A-weighted emission sound pressure level at workstations, where this exceeds 70 dB(A)..... ;		N/A
	- where this level does not exceed 70 dB(A), this fact is indicated		N/A
	- the peak C-weighted instantaneous sound pressure value at workstations, where this exceeds 63 Pa (130 dB in relation to 20 µPa)..... :		N/A
	- the A-weighted sound power level emitted by the machinery, where the A-weighted emission sound pressure level at workstations exceeds 80 dB(A)..... :		N/A
7.12.ZE2	The instructions include a warning to disconnect the appliance from its power source during service and when replacing parts		N/A
	If the removal of the plug is foreseen, it is clearly indicated that the removal of the plug is such that an operator can check from any of the points to which he has access that the plug remains removed		N/A
19.11.4.8	The appliance continues to operate, without causing any hazard to the user, from the same point in its operating cycle at which the voltage fluctuation occurred, or		N/A
	a manual operation is required to restart it		N/A
20.1	Appliances and their components and fittings have adequate mechanical stability during transportation, assembly, dismantling and any other action involving the appliance		N/A
20.2	Dangerous moving transmission parts safeguarded either by design or guards		N/A

IEC60335_2_30R ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	When guards are used, they are fixed guards, interlocking movable guards or protective devices		N/A
	Moving parts directly involved in the function of the appliance which cannot be made completely inaccessible fitted with:		N/A
	- fixed guards or interlocking movable guards preventing access to those sections of the parts that are not used in the work, and		N/A
	- adjustable guards restricting access to those sections of the moving parts where access is necessary		N/A
	Interlocking movable guards used where frequent access is required		N/A
21.1	Appliances and their components and fittings have adequate mechanical strength and is constructed to withstand such rough handling that may be expected in normal use, during transportation, assembly, dismantling, scrapping and any other action involving the appliance		N/A
22.ZE.1	For appliances provided with a seat, the seat gives adequate stability		N/A
	The distance between the seat and the control devices capable of being adapted to the operator		N/A
22.ZE.2	For appliances provided with separate devices for the start and the stop functions, the stop function is unambiguously identifiable and does always override the start function		N/A
	For appliances provided with one device performing the start and the stop function, the stop function is unambiguously identifiable and does always override the start function		N/A
22.ZE.3	Appliances designed in such a way that incorrect mounting is avoided, if this can lead to an unsafe situation		N/A
	If this is not possible, information on the correct mounting is given directly on the part and/or the enclosure		N/A
22.ZE.4	Where the weight, size or shape prevents appliances from being moved manually, they are fitted with attachments for lifting gear, or		N/A
	so designed that they can be fitted with such attachments, or		N/A
	be shaped in such a way that standard lifting gear can easily be used		N/A
	Appliances to be moved manually are constructed or equipped so that they can be moved easily and safely		N/A

IEC60335_2_30R ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
22.ZE.5	The fixing systems of fixed guards which prevent access to dangerous moving transmission parts only removable with the use of tools		N/A
	If such guards have to be removed by the user for routine cleaning or maintenance their fixing systems remain attached to the fixed guards or to the machine after removal		N/A
	Where possible, guards are incapable of remaining in place without their fixings		N/A
	This does not apply if, after removal of the screws, or if the component is incorrectly repositioned, the appliance becomes inoperative		N/A
	Movable guards are interlocked		N/A
	The interlocking devices prevent the start of hazardous appliance functions until the guards are fixed in their position, and give a stop command whenever they are no longer closed		N/A
	Where it is possible for an operator to reach the danger zone before the risk due to hazardous appliance functions has ceased, movable guards associated with a guard locking device in addition to an interlocking device that:		N/A
	- prevents the start of hazardous appliance functions until the guard is closed and locked, and		N/A
	- keeps the guard closed and locked until the risk of injury from the hazardous appliance functions has ceased		N/A
	Interlocking movable guards remain attached to the appliance when open, and		N/A
	they are designed and constructed in such a way that they can be adjusted only by means of an intentional action		N/A
22.ZE.6	Interlocking movable guards designed in such a way that the absence or failure of one of their components prevents starting or stops the hazardous appliance functions		N/A
	The guard is opened to the extent needed to cause the interlocking to operate and is then closed, the number of operations being defined in the specific Part 2.....:		N/A
	After this test any defect that may be expected in normal use is applied to the interlock system, including interruption of the supply, only one defect being simulated at a time		N/A
22.ZE.7	Adjustable guards restricting access to areas of the moving parts strictly necessary for the work are:		N/A
	- adjustable manually or automatically, depending on the type of work involved, and		N/A
	- readily adjustable without the use of tools		N/A

IEC60335_2_30R ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
22.ZE.8	In case of interruption, re-establishment after an interruption or fluctuation in whatever manner of the power supply, the appliance does not restart		N/A
	However, automatic restarting of the operation is allowed if the appliance may continue to operate, without causing any hazard to the user, from the same point in its operating cycle at which the voltage interruption or fluctuation occurred		N/A
22.ZE.9	Appliances fitted with means to isolate them from all energy sources		N/A
	Such isolators are clearly identified, and		N/A
	they are capable of being locked if reconnection endanger persons		N/A
	After the energy source is disconnected, it is possible to dissipate any energy remaining or stored in the circuits of the appliance without risk to persons		N/A
ZF	**ANNEX ZF** (INFORMATIVE) **CRITERIA APPLIED FOR THE ALLOCATION OF PRODUCTS COVERED BY STANDARDS IN THE EN 60335 SERIES UNDER LVD OR MD**		N/A
	List of standards under CENELEC/TC61 with the allocation under the LVD (Low Voltage Directive) or the MD (Machinery Directive)..... :	N/A	
ZG	**ANNEX ZG** (NORMATIVE) **UV APPLIANCES**		N/A
	The following modifications to this standard apply to appliances having UV emitters		N/A
	This annex is not applicable to appliances covered by the scopes of IEC 60335-2-27, IEC 60335-2-59 or IEC 60335-2-109		N/A
7.12.ZG	The instructions for appliances incorporating UVC emitters include the substance of the following: WARNING — This appliance contains a UV emitter. Do not stare at the light source		N/A
ZH	**ANNEX ZH** (INFORMATIVE) **Common plug and socket-outlet types in CENELEC countries**		N/A
	In general, supply cords of single-phase appliances having a rated current not exceeding 16 A are fitted with a plug complying with the following standard sheets:		N/A
	- for class I appliances or class II appliances with functional earth, standard sheet EU2, EU3 or EU4 .....:		N/A

IEC60335_2_30R ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	- for class II appliances, standard sheet EU5, EU6 or EU7..... :		N/A
	There are exemptions or differences in certain CENELEC countries		N/A
ZI	**ANNEX ZI** (INFORMATIVE) **Information on the application of A11:2014 to EN 60335-1:2012 CENELEC CLC/TC 61(SEC)2096A**		N/A
	Clarification of the application of parts 2 in conjunction with the 2002 or 2012 version of EN 60335-1		N/A
ZZA	**ANNEX ZZA** (INFORMATIVE) **RELATIONSHIP BETWEEN THIS EUROPEAN STANDARD AND THE SAFETY OBJECTIVES OF DIRECTIVE 2014/35/EU [2014 OJ L96} AIMED TO BE COVERED**		N/A
	This standard provides one means of conforming to safety objectives of Directive 2014/35/EU		N/A
	When cited in the Official Journal under that Directive, compliance with the normative clauses of this standard given in Table ZZA.1 confers a presumption of conformity with the safety objectives of that Directive and associated EFTA regulations		N/A
ZZB	**ANNEX ZZB** (INFORMATIVE) **RELATIONSHIP BETWEEN THIS EUROPEAN STANDARD AND THE ESSENTIAL REQUIREMENTS OF DIRECTIVE 2006/42/EC AIMED TO BE COVERED**		N/A
	This standard provides one means of conforming to essential requirements of EU Directive 2006/42/EC		N/A
	When cited in the Official Journal under that Directive, compliance with the normative clauses of this standard given in Table ZZB.1 confers a presumption of conformity with the essential requirements of that Directive and associated EFTA regulations		N/A
	Compliance with this Part 1 when used together with the relevant Part 2 provides one means of conformity with the essential health and safety requirements		N/A
	ANNEX EN 62233:2008 + AC:2008 **EMF- ELECTROMAGNETICS FIELDS**		P

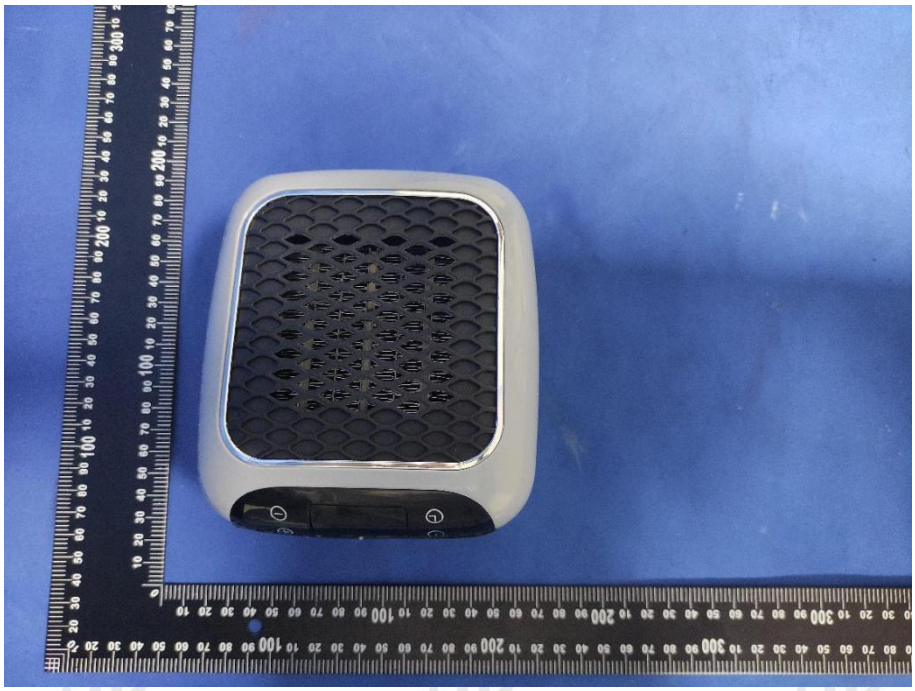
IEC60335_2_30R ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	The tested product also complies with the requirements of EN 62233:2008		P
	Limit ……100%	Measured max. :7.24%	P

ANNEX II:

Photo-documentation

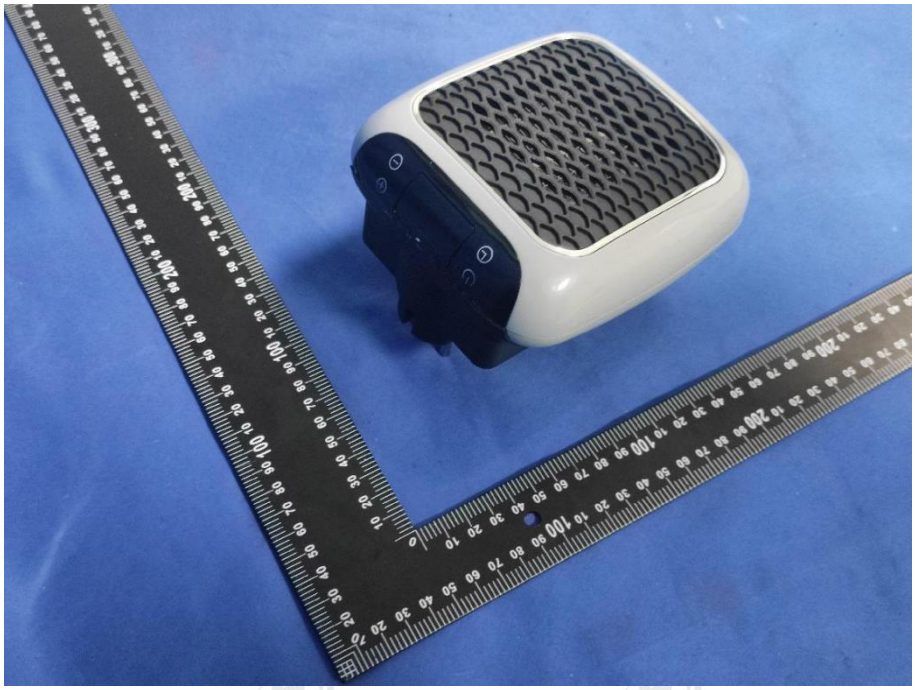
EUT Photo 1

EUT Photo 2

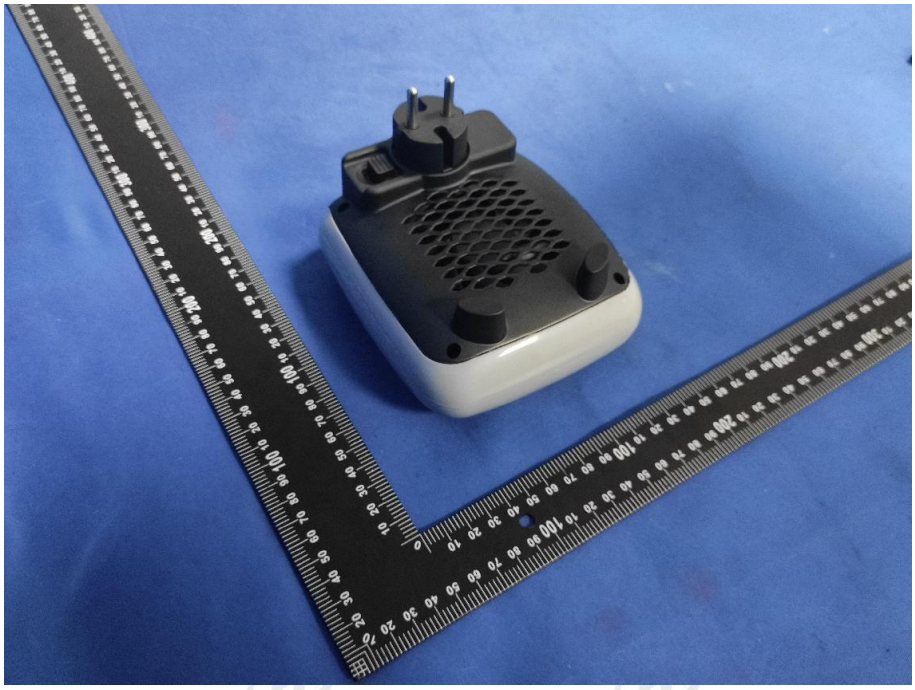


EUT Photo 3

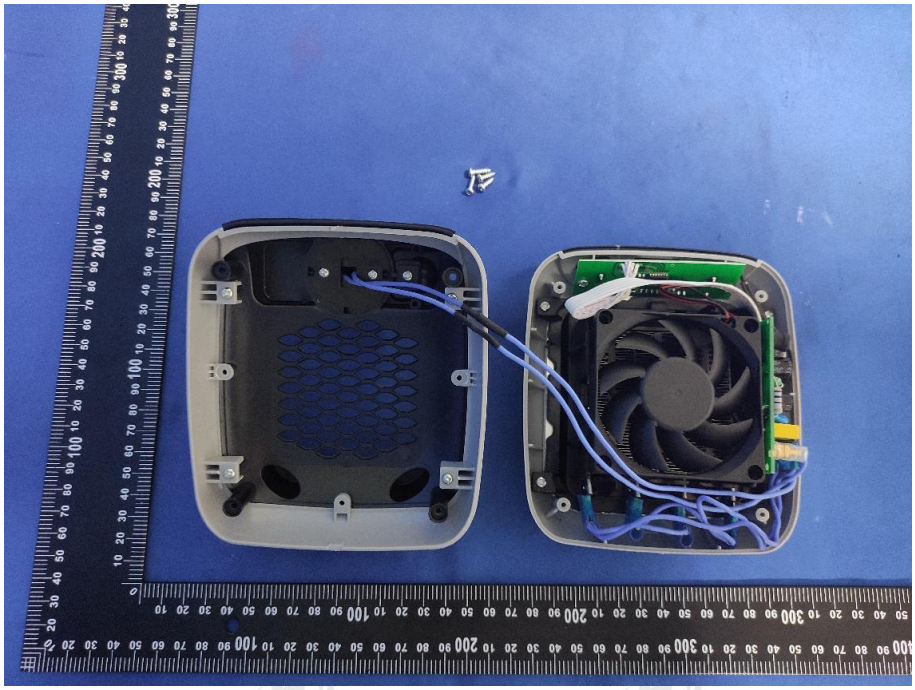
EUT Photo 4



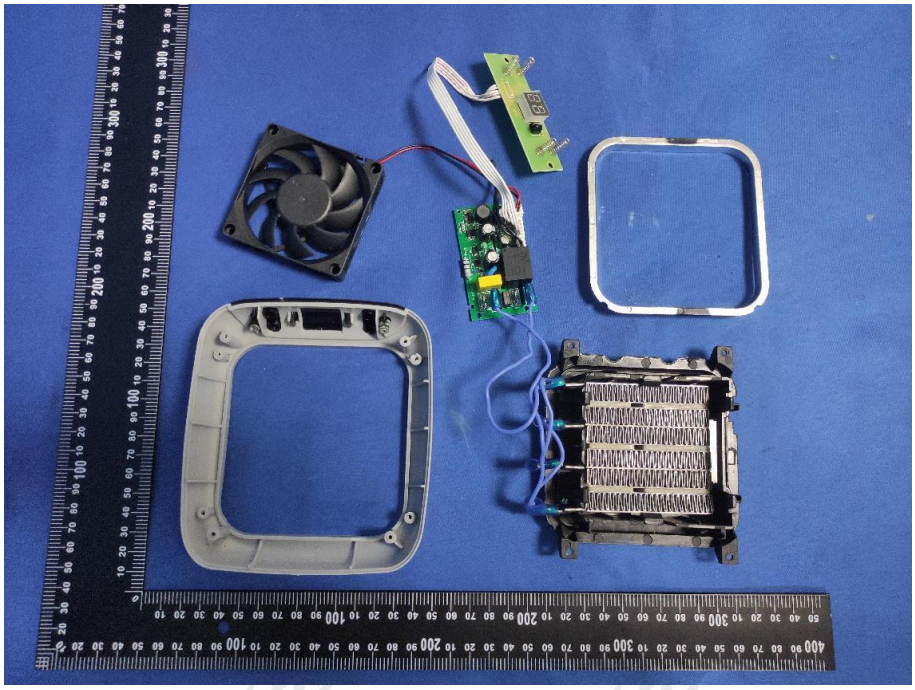
EUT Photo 5



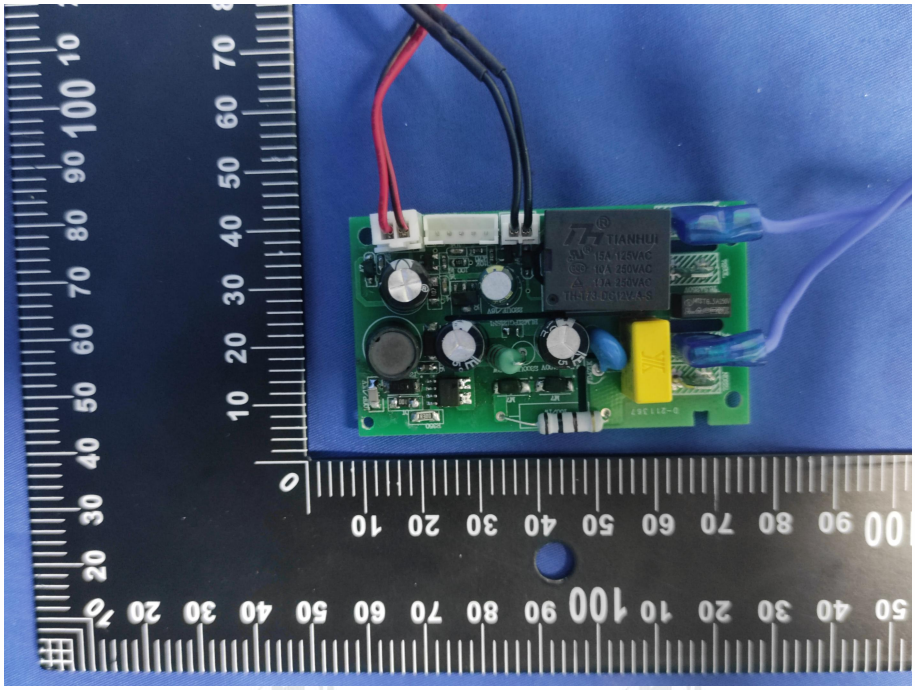
EUT Photo 6



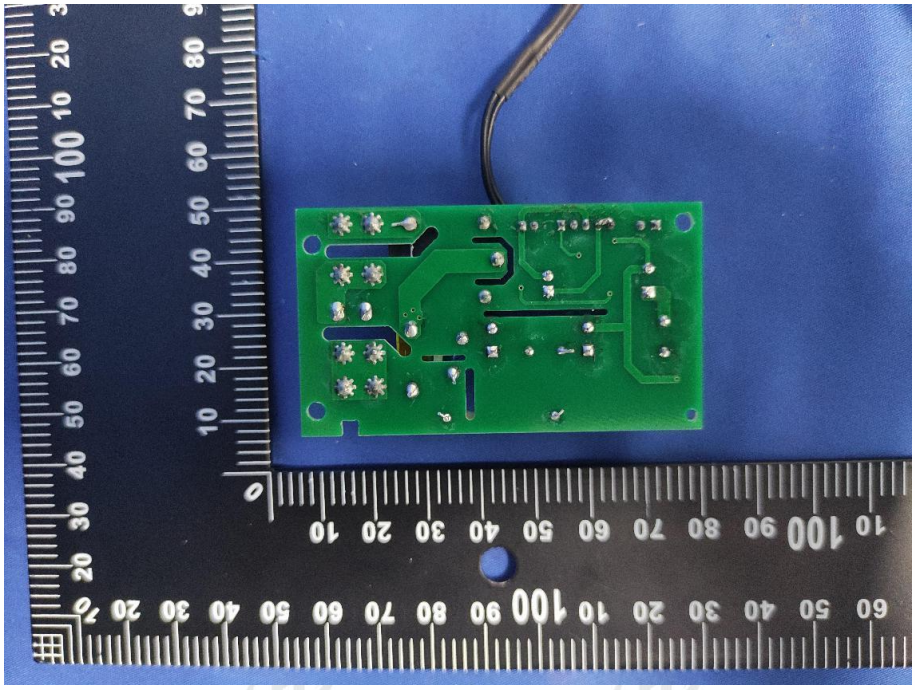
EUT Photo 7



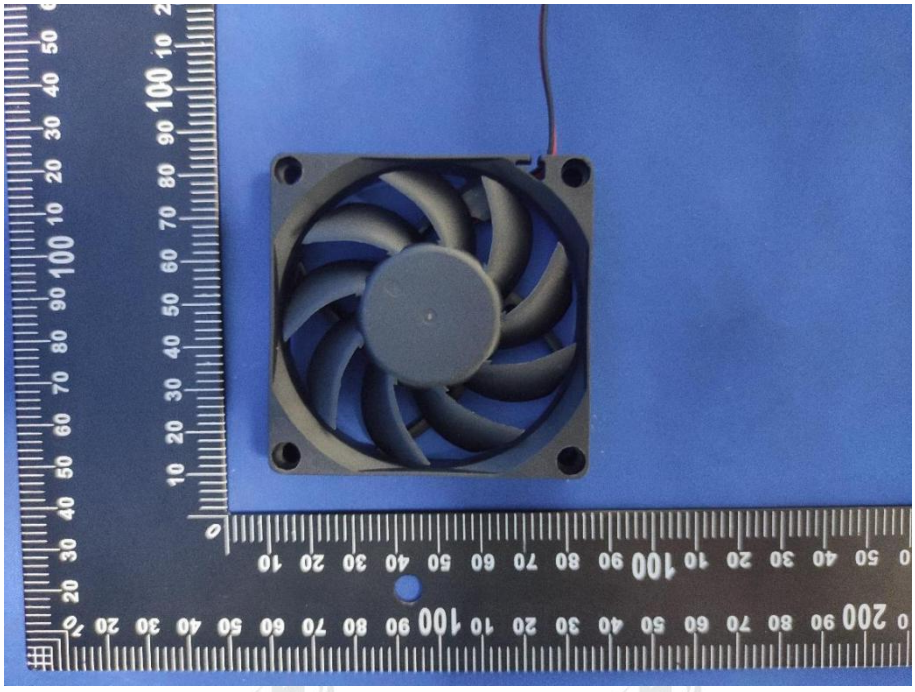
EUT Photo 8



EUT Photo 9



EUT Photo 10



※※※※※ END OF REPORT ※※※※※

CERTIFICATE OF COMPLIANCE

Certificate of Compliance

Certificate Number: ZHT-230306025C

Certificate's Holder Zertifikatsinhaber	:	CIL MARKETING DIRECTO SL - CIF B85987071 AVDA MANOTERAS 50 28050 MADRID SPAIN
Manufacturer Hersteller	:	shenzhen cigara technology Co., Ltd. 4F-5F, B4, tianliao yijing industry, yutang street, guangming new district, shenzhen city, china
Trade Mark Warenzeichen	:	/
Product Produkt	:	Handy heater
Model(s) Bezeichnung	:	HHT-02-REF 014200720 HH-02, 608, 609, 701, HN-008, HT-236, HR-667, HHT-02
Test Standard Geprüft nach	:	IEC 62321-3-1:2013, IEC 62321-5:2013, IEC 62321-4:2013+A1:2017, IEC 62321-7-1:2015, IEC 62321-7-2: 2017, IEC 62321-1:2013, IEC 62321-6:2015, IEC 62321-8:2017
Test Report No. Bericht Nr	:	ZHT-230306025R

The EUT described above has been consolidated by us and found in compliance with the council 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 compliance with this RoHS Directive. It is only valid in connection with the test report.

RoHS

Guangdong Zhonghan Testing Technology Co., Ltd.

Manager

Apr. 11, 2023

The information of the certificate can be checked through www.zht-lab.cn.
The ROHS mark which is shown on the certificate can only be used under the conditions that the products complete with all of the relevant Directives of ROHS Declaration of Conformity. The Manufacturer should be responsible for the internal production control so that the products complied with the essential requirements of the above mentioned Directive(s). Certificate holder must notify all changes to the original certification laboratory of Guangdong Zhonghan Testing Technology Co., Ltd.

Guangdong Zhonghan Testing Technology Co., Ltd.
Address:Room 104, Building 1, Yibaolai Industrial Park, Qiaotou Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China
Tel.: +86-755-27782934 Http://www.zht-lab.cn E-mail:admin@zht-lab.cn

RoHS TEST REPORT

Product.....:	**Handy heater**
Model.....:	HHT-02-REF 014200720 HH-02, 608, 609, 701, HN-008, HT-236, HR-667, HHT-02
Trademark.....:	/
Prepared For.....:	**CIL MARKETING DIRECTO SL - CIF B85987071** AVDA MANOTERAS 50 28050 MADRID SPAIN
Prepared By .....:	**Guangdong Zhonghan Testing Technology Co., Ltd.** Room 104, Building 1, Yibaolai Industrial Park, Qiaotou Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China Mail:admin@zht-lab.com Web: http://www.zht-lab.com Tel.:0755-27782934

RoHS TEST REPORT

Report Number.....:	ZHT-230306025R
Date of issue.....:	Apr. 11, 2023
Total number of pages.....:	17 pages
Testing Laboratory.....:	**Guangdong Zhonghan Testing Technology Co., Ltd.**
Address.....:	Room 104, Building 1, Yibaolai Industrial Park, Qiaotou Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China
Applicant's name.....:	**CIL MARKETING DIRECTO SL - CIF B85987071**
Address.....:	AVDA MANOTERAS 50 28050 MADRID SPAIN
Test specification:	
Test Requested.....:	Selected test(s) as requested by client
Test Method.....:	Please refer to next page(s).
Test Result.....:	Please refer to next page(s).
Conclusion.....:	Based on the performed tests on submitted sample(s), the results of Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs) and Phthalates such as Bis(2-ethylhexyl) phthalate (DEHP) , Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP) , and Diisobutyl phthalate (DIBP) comply with the limits as set by RoHS Directive 2011/65/EU Annex II amending Annex (EU)2015/863and amending Annex (EU)2017/2102

Test item description.....:	Handy heater
Trademark.....:	/
Manufacturer.....:	shenzhen cigara technology Co., Ltd. 4F-5F, B4, tianliao yijing industry, yutang street, guangming new district, shenzhen city, china
Model/Type reference.....:	HHT-02-REF 014200720 HH-02, 608, 609, 701, HN-008, HT-236, HR-667, HHT-02

Name and address of the testing laboratory:

Guangdong Zhonghan Testing Technology Co., Ltd.
Room 104, Building 1, Yibaolai Industrial Park,
Qiaotou Community, Fuhai Street, Bao'an
District, Shenzhen, Guangdong, China

Date of Test..... : Mar. 06, 2023 -Apr. 11, 2023

Tested by (name + signature).....: Cindy Su

Reviewed by (name + signature).....: Laney Xie

Approved by (name + signature).....: Levi Lee

Report Record			
Report No.	**Issue Date**	**Description**	**Approved**
ZHT-230306025R	Apr. 11, 2023	Original	valid

Remark: All models are same as HHT-02-REF 014200720 except model name only, all tests are carried out on HHT-02-REF 014200720.

Sample Description

No.	Name
1	Gray plastic (housing)
2	Black plastic
3	Silver metal
4	Operation panel
5	Remote control
6	Black plastic (power switch)
7	Silver metal (plug)
8	Black plastic
9	Silver metal (screw)
10	Black plastic
11	Mica plate
12	Black plastic
13	SMD resistance
14	Tin
15	White line
16	IC
17	SMD capacitance
18	PCB
19	Triode
20	Digit tube

21	**Spring**
22	**IC**
23	**SMD resistance**
24	**SMD capacitance**
25	**Inductance**
26	**Diode**
27	**Red line**
28	**Aluminum electrolytic capacitance**
29	**Black line**
30	**Relay**
31	**Blue rubber**
32	**Blue line**
33	**capacitance**
34	**Ceramic capacitor**
35	**Color ring resistance**
36	**Color ring inductance**
37	**Triode**
38	**Tin**
39	**PCB**
40	**Black plastic (fan)**

Test Result(No.1, No.2, No.4, No.5, No.6, No.8, No.10, No.11, No.12, No.13, No.15, No.16, No.17, No.18, No.19, No.20, No.22, No.23, No.24, No.25, No.26, No.27, No.29, No.30, No.31, No.32, No.33, No.34, No.35, No.36, No.37, No.39, No.40):

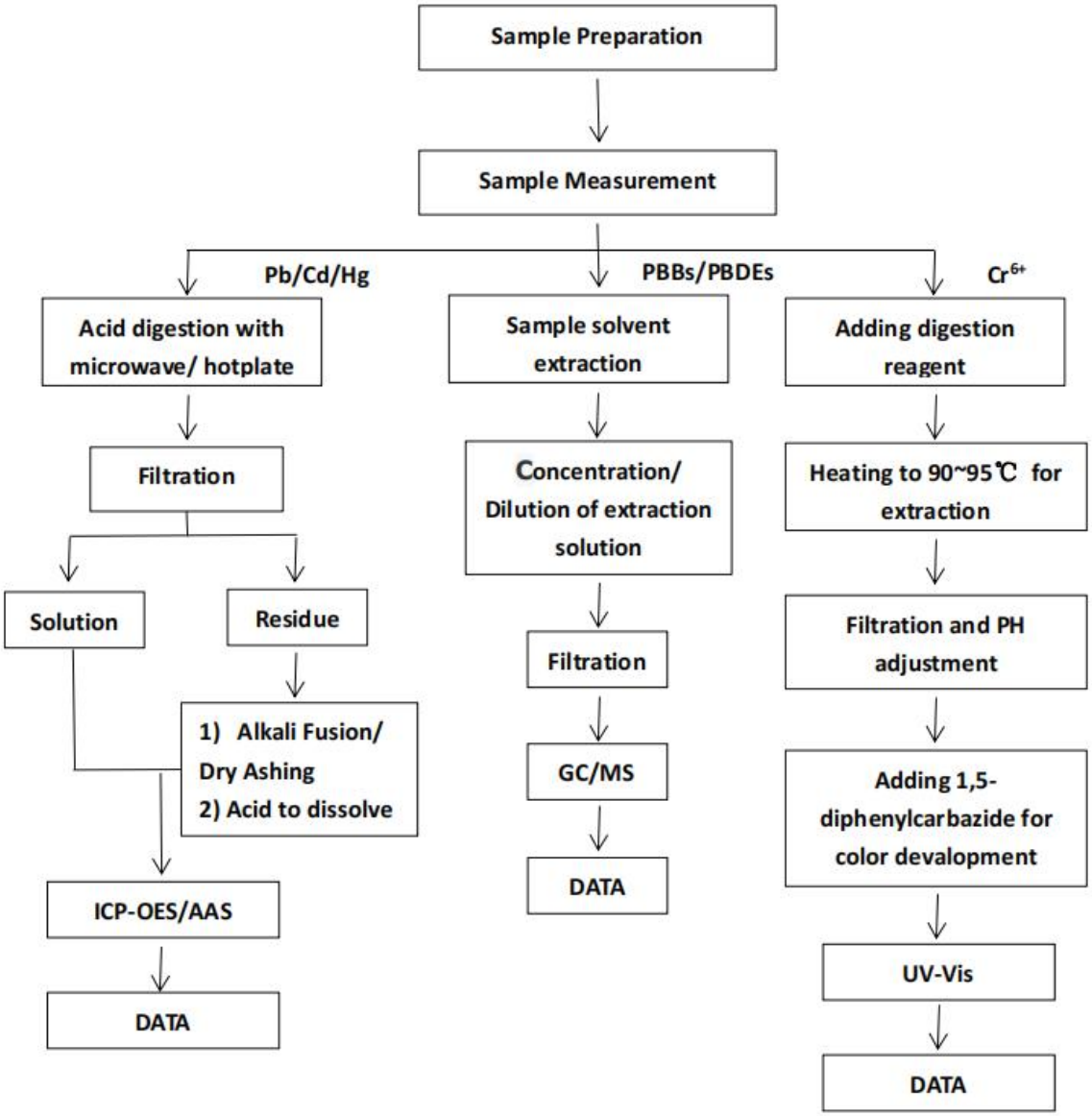
Test Item(s)	Unit	Test Method (Reference)	Result	MDL	Limit
Cadmium(Cd)	mg/kg	IEC 62321-5:2013, ICP-OES	N.D.	2	100
Lead(Pb)	mg/kg	IEC 62321-5:2013, ICP-OES	N.D.	2	1000
Mercury(Hg)	mg/kg	IEC 62321-4:2013+A1:2017, ICP-OES	N.D.	2	1000
Hexavalent Chrormium(CrVI)	mg/kg	IEC 62321:2008, IEC62321-7-1:2015, IEC62321-7-2: 2017, UV-Vis	N.D.	2	1000
Sum of PBBs	mg/kg	IEC 62321-6:2015, GC-MS	N.D.	--	1000
Monobromobiphenyl	mg/kg	IEC 62321-6:2015, GC-MS	N.D.	5	--
Dibromobiphenyl	mg/kg	IEC 62321-6:2015, GC-MS	N.D.	5	--
Tribromobiphenyl	mg/kg	IEC 62321-6:2015, GC-MS	N.D.	5	--
Tetrabromobiphenyl	mg/kg	IEC 62321-6:2015, GC-MS	N.D.	5	--
Pentabromobiphenyl	mg/kg	IEC 62321-6:2015, GC-MS	N.D.	5	--
Hexabromobiphenyl	mg/kg	IEC 62321-6:2015, GC-MS	N.D.	5	--
Heptabromobiphenyl	mg/kg	IEC 62321-6:2015, GC-MS	N.D.	5	--
Octabromobiphenyl	mg/kg	IEC 62321-6:2015, GC-MS	N.D.	5	--
Nonabromobiphenyl	mg/kg	IEC 62321-6:2015, GC-MS	N.D.	5	--
Decabromobiphenyl	mg/kg	IEC 62321-6:2015, GC-MS	N.D.	5	--
Sum of PBDEs	mg/kg	IEC 62321-6:2015, GC-MS	N.D.	5	1000
Monobromodiphenyl ether	mg/kg	IEC 62321-6:2015, GC-MS	N.D.	5	--
Dibromodiphenyl ether	mg/kg	IEC 62321-6:2015, GC-MS	N.D.	5	--
Tribromodiphenyl ether	mg/kg	IEC 62321-6:2015, GC-MS	N.D.	5	--
Tetrabromodiphenyl ether	mg/kg	IEC 62321-6:2015, GC-MS	N.D.	5	--
Pentabromodiphenyl ether	mg/kg	IEC 62321-6:2015, GC-MS	N.D.	5	--
Hexabromodiphenyl ether	mg/kg	IEC 62321-6:2015, GC-MS	N.D.	5	--
Heptabromodiphenyl ether	mg/kg	IEC 62321-6:2015, GC-MS	N.D.	5	--
Octabromodiphenyl ether	mg/kg	IEC 62321-6:2015, GC-MS	N.D.	5	--
Nonabromodiphenyl ether	mg/kg	IEC 62321-6:2015, GC-MS	N.D.	5	--
--Decabromodiphenyl ether	mg/kg	IEC 62321-6:2015, GC-MS	N.D.	5	--
Dibutyl Phthalate(DBP)	mg/kg	IEC 62321-8:2017, GC-MS	N.D.	50	1000
Benzylbutyl Phthalate(BBP)	mg/kg	IEC 62321-8:2017, GC-MS	N.D.	50	1000
Di-(2-ethylhexyl) Phthalate(DEHP)	mg/kg	IEC 62321-8:2017, GC-MS	N.D.	50	1000
Diisobutyl phthalate (DIBP)	mg/kg	IEC 62321-8:2017, GC-MS	N.D.	50	1000

Test Result(No.3, No.7, No.9, No.14, No.21, No.28, No.38):

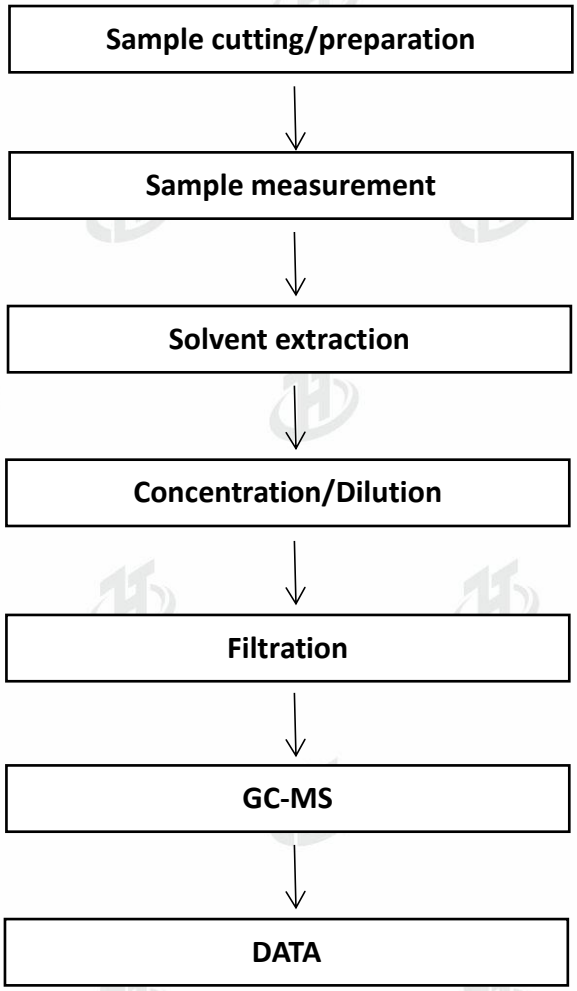
Test Item(s)	Unit	Test Method (Reference)	Result	MDL	Limit
Cadmium(Cd)	mg/kg	IEC 62321-5:2013, ICP-OES	N.D.	2	100
Lead(Pb)	mg/kg	IEC 62321-5:2013, ICP-OES	N.D.	2	1000
Mercury(Hg)	mg/kg	IEC 62321-4:2013+A1:2017, ICP-OES	N.D.	2	1000
Hexavalent Chrormium(CrVI)	mg/kg	IEC 62321:2008, IEC62321-7-1:2015, IEC62321-7-2: 2017, UV-Vis	N.D.	2	1000
Sum of PBBs	mg/kg	IEC 62321-6:2015, GC-MS	--	--	--
Monobromobiphenyl	mg/kg	IEC 62321-6:2015, GC-MS	--	--	--
Dibromobiphenyl	mg/kg	IEC 62321-6:2015, GC-MS	--	--	--
Tribromobiphenyl	mg/kg	IEC 62321-6:2015, GC-MS	--	--	--
Tetrabromobiphenyl	mg/kg	IEC 62321-6:2015, GC-MS	--	--	--
Pentabromobiphenyl	mg/kg	IEC 62321-6:2015, GC-MS	--	--	--
Hexabromobiphenyl	mg/kg	IEC 62321-6:2015, GC-MS	--	--	--
Heptabromobiphenyl	mg/kg	IEC 62321-6:2015, GC-MS	--	--	--
Octabromobiphenyl	mg/kg	IEC 62321-6:2015, GC-MS	--	--	--
Nonabromobiphenyl	mg/kg	IEC 62321-6:2015, GC-MS	--	--	--
Decabromobiphenyl	mg/kg	IEC 62321-6:2015, GC-MS	--	--	--
Sum of PBDEs	mg/kg	IEC 62321-6:2015, GC-MS	--	--	--
Monobromodiphenyl ether	mg/kg	IEC 62321-6:2015, GC-MS	--	--	--
Dibromodiphenyl ether	mg/kg	IEC 62321-6:2015, GC-MS	--	--	--
Tribromodiphenyl ether	mg/kg	IEC 62321-6:2015, GC-MS	--	--	--
Tetrabromodiphenyl ether	mg/kg	IEC 62321-6:2015, GC-MS	--	--	--
Pentabromodiphenyl ether	mg/kg	IEC 62321-6:2015, GC-MS	--	--	--
Hexabromodiphenyl ether	mg/kg	IEC 62321-6:2015, GC-MS	--	--	--
Heptabromodiphenyl ether	mg/kg	IEC 62321-6:2015, GC-MS	--	--	--
Octabromodiphenyl ether	mg/kg	IEC 62321-6:2015, GC-MS	--	--	--
Nonabromodiphenyl ether	mg/kg	IEC 62321-6:2015, GC-MS	--	--	--
--Decabromodiphenyl ether	mg/kg	IEC 62321-6:2015, GC-MS	--	--	--
Dibutyl Phthalate(DBP)	mg/kg	IEC 62321-8:2017, GC-MS	--	--	--
Benzylbutyl Phthalate(BBP)	mg/kg	IEC 62321-8:2017, GC-MS	--	--	--
Di-(2-ethylhexyl) Phthalate(DEHP)	mg/kg	IEC 62321-8:2017, GC-MS	--	--	--
Diisobutyl phthalate (DIBP)	mg/kg	IEC 62321-8:2017, GC-MS	--	--	--

Note： 1. mg/kg= ppm
2. N.D.= No Detection(<MDL)
3. MDL = Method Detection Limit
4. -- = No Testing

ATTACHMENT: Cd/Pb/Hg/Cr6+/PBBs&PBDEs Flow Chart



ATTACHMENT: Phthalate Testing Flow Chart



Attachment : Photo document.

Photo 1

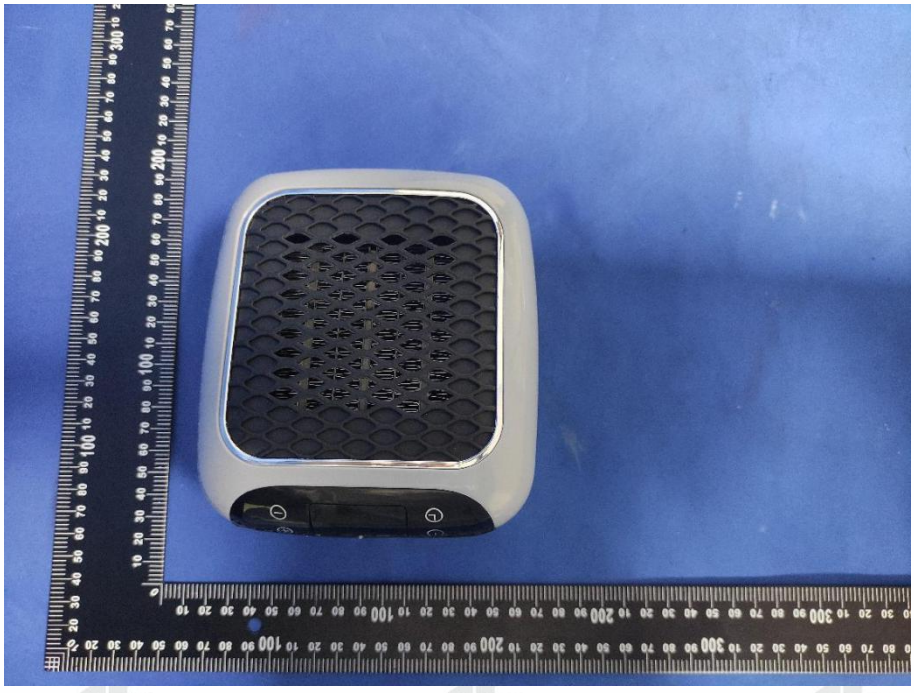


Photo 2

Photo 3

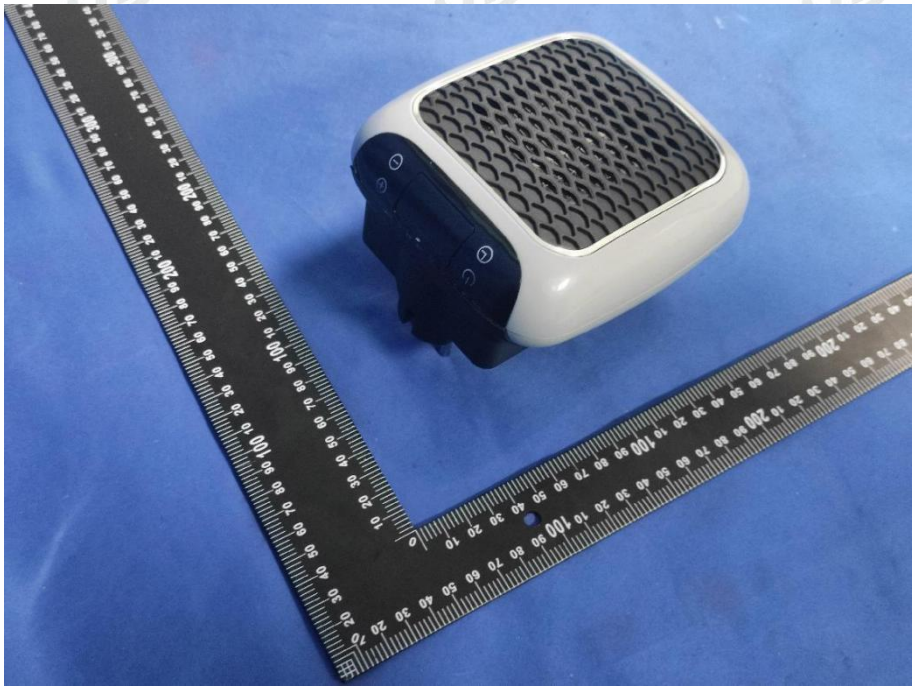


Photo 4

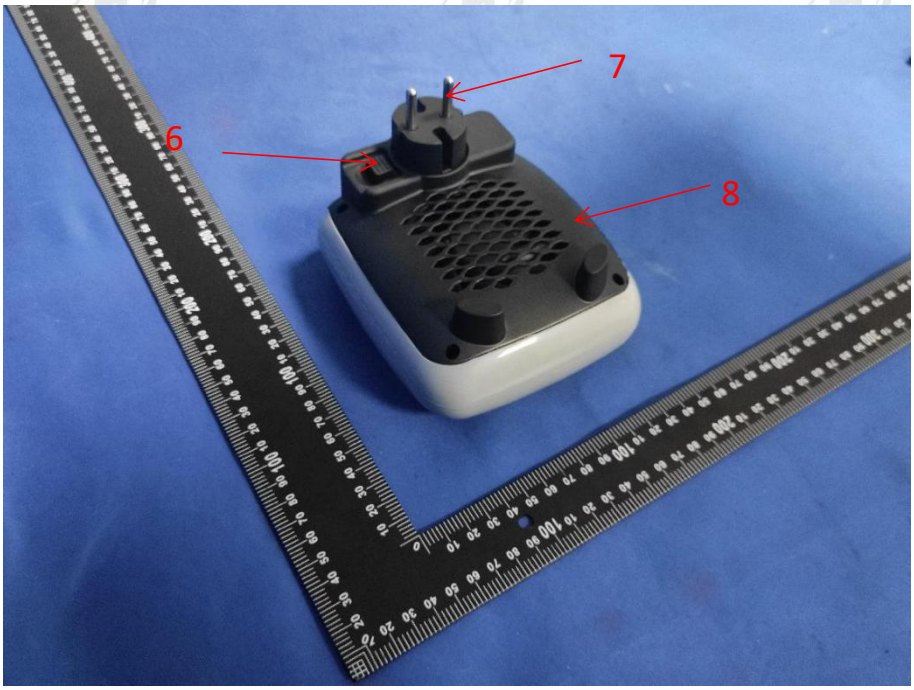


Photo 5

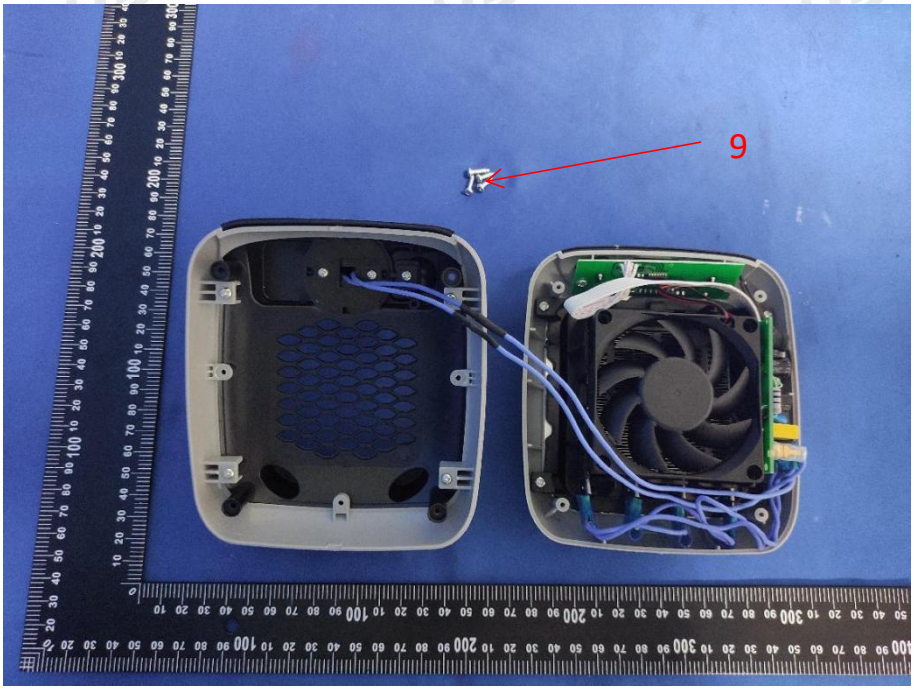


Photo 6

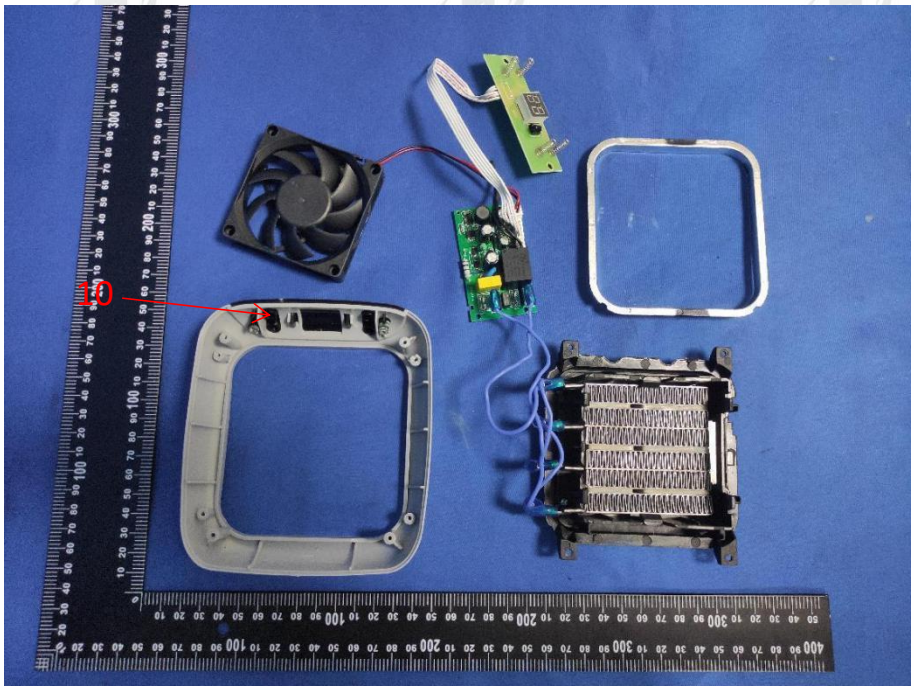


Photo 7

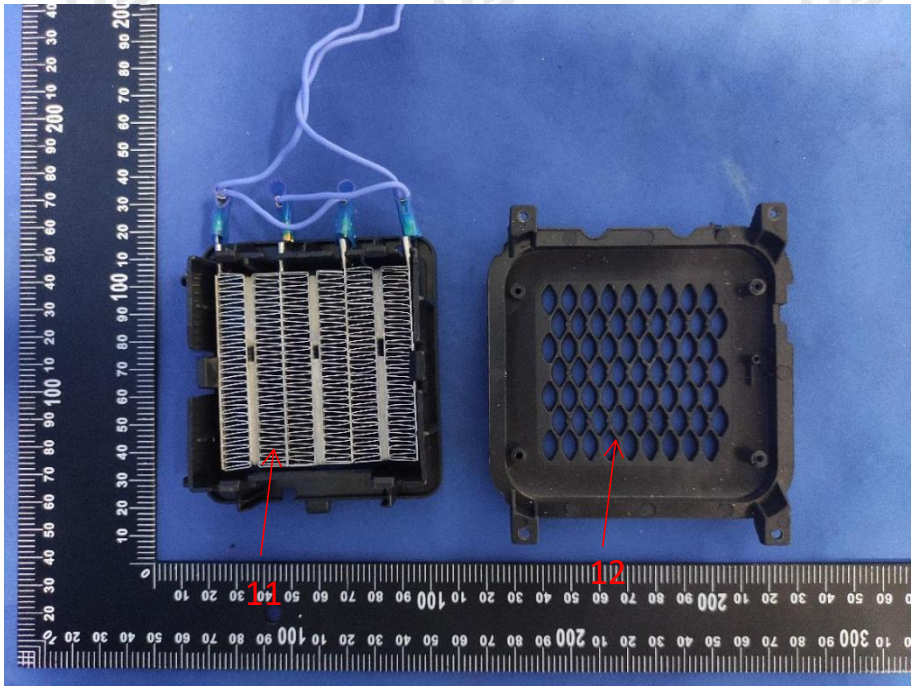


Photo 8

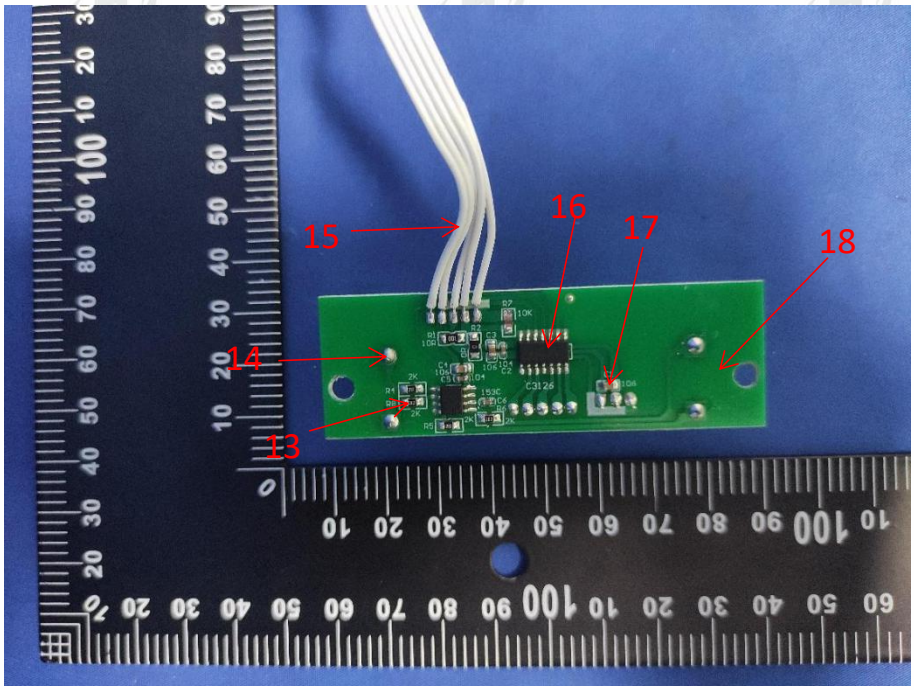


Photo 9

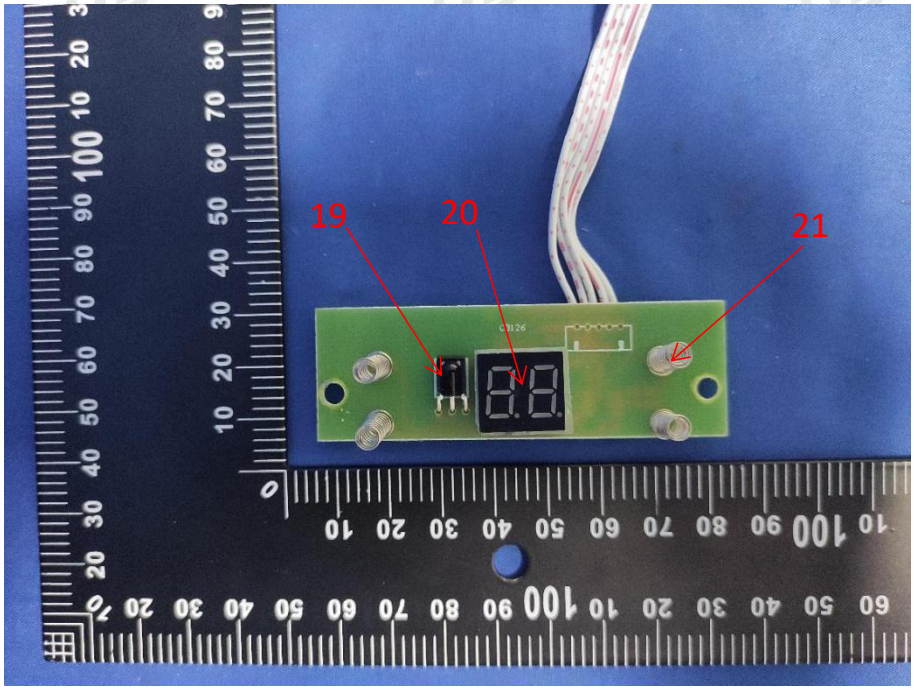


Photo 10

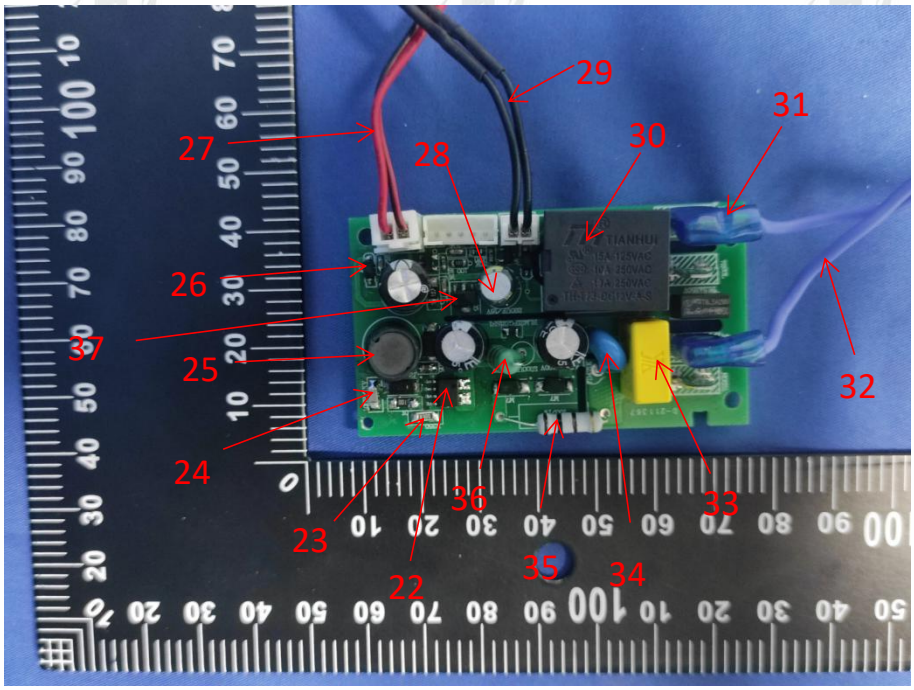


Photo 11

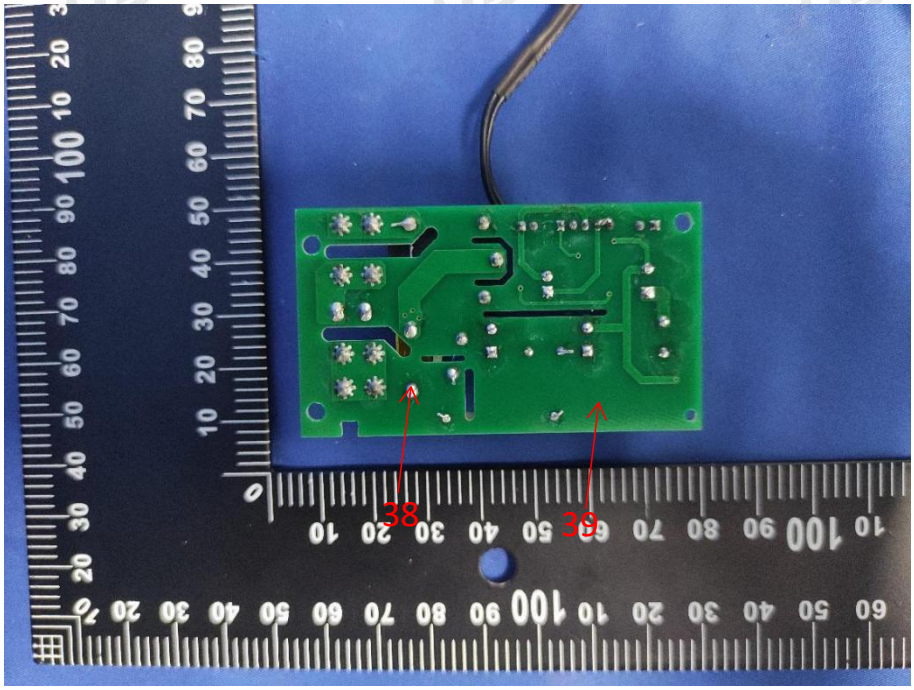


Photo 12

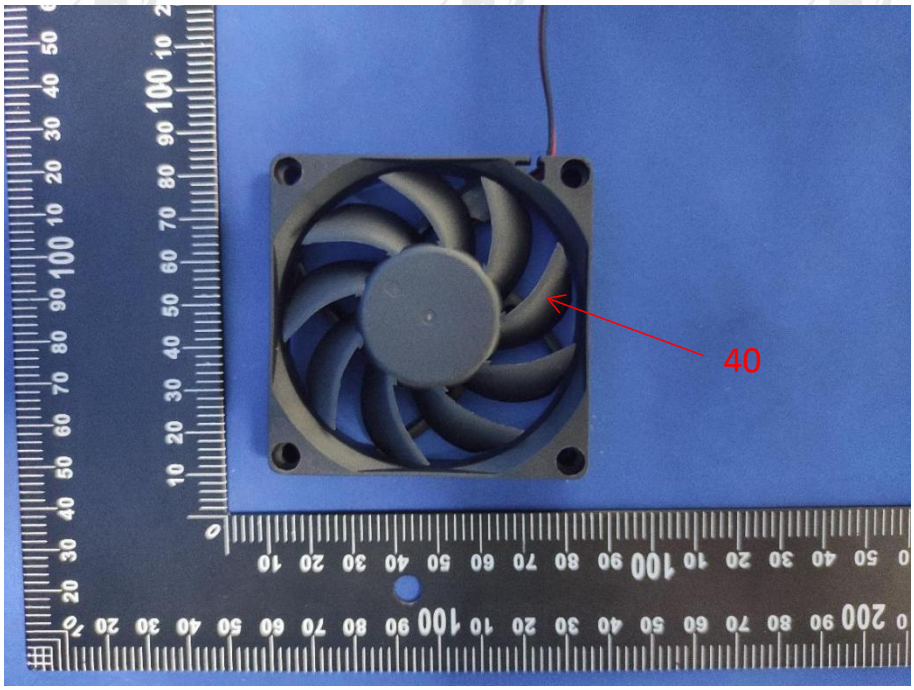


Photo 13

End of report

TEST REPORT

for

COMMISSION REGULATION (EC) No 1275/2008 of 17 December 2008 implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for standby and off mode electric power consumption of electrical and electronic household and office equipment

Report reference No.....:	ZHT-230306026S
Date of issue .....:	April 12, 2023
Testing Laboratory Name .....:	**Guangdong Zhonghan Testing Technology Co., Ltd.**
Address .....:	Room 104, Building 1, Yibaolai Industrial Park, Qiaotou Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China
Testing location .....:	Guangdong Zhonghan Testing Technology Co., Ltd.
Applicant's Name .....:	**CIL MARKETING DIRECTO SL - CIF B85987071**
Address .....:	AVDA MANOTERAS 50 28050 MADRID SPAIN
Manufacturer .....:	**shenzhen cigara technology Co., Ltd.**
Address .....:	4F-5F, B4, tianliao yijing industry, yutang street, guangming new district, shenzhen city, china
Test specification	
Standard.....:	COMMISSION REGULATION (EC) No 1275/2008 of 17 December 2008 and its underlying frame directive 2009/125/EC
Test method .....:	IEC62087-1:2015
Test item description .....:	Handy heater
Trademark .....:	--
Model and/or type reference .....:	HHT-02-REF 014200720
Other model.....:	HHT-02,HH-02, 608, 609, 701, HN-008, HT-236, HR-667
Serial number .....:	N/A
Rating(s).....:	230V
Date of sample received.....:	April 08, 2023
Date of testing.....:	April 10, 2023

Remark: The test result presented in this report relate only to the object(s) tested.

This report shall not be reproduced, duplicated, except in full, without the written approval of the issuing testing laboratory.

All models are same as HHT-02-REF 014200720 except model name. all tests are carried out on model HHT-02-REF 014200720.

Name and address of the testing laboratory:

Guangdong Zhonghan Testing Technology Co., Ltd.
Room 104, Building 1, Yibaolai Industrial Park, Qiaotou Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China

Date of Test.....: April 10, 2023

Tested by (name + signature)..... : Cindy Su

Reviewed by (name + signature).....: Laney Xie

Approved by (name + signature).....: Levi Lee

1. General Details

1.1 Rating of Products

Rating of Handy heater

Model Number	Nameplate Specification							
	Input				Output			
	Voltage (V)	Current (A)	Power (W)	Frequency (Hz)	Voltage (V)	Current (A)	Power (W)	Frequency (Hz)
HHT-02-REF 014200720	230	--	--	50/60	--	--	--	--

2. List of Measurement Equipment

Name	Model No.	Serial No.	Manufacturer	Calibration Date	Calibration Cycle
Power Harmonics & Leakage Tester	21	07300008	PROVA	2022-04-21	One year
Digital Voltage Meter	WT210	91K217878	YOKOGAWA	2022-04-21	One year
Temperature and Humidity Cabinet	EL-02AGP	0205082	GZ-ESPEC	2022-04-21	One year

3. Technical Details

3.1 Investigations Requested

Perform Energy efficient tests for Commission Regulation 2009/125/EC

3.2 Test Standards

IEC62087-1:2015

4. Test Data and result

4.1 Test Data and result of the Handy heater

4.1.1 Test Model HHT-02-REF 014200720 at 230V/50Hz

Item/Mode	Off	Standby	Limit of Off/Standby
AC Input Power (W)	--	0.48*	0.5/--
Note: 1, AC Input Voltage (V):230.00, no information show on off mode, 2, No off mode.			

EUT: Equipment Under Test

According to EUT, Test result comply with the requirement of (EC) No 1275/2008 implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for standby and off mode electric power consumption of electrical and electronic household and office equipment.

stage（Ⅰ）: One year after this Regulation has come into force:

(a) Power consumption in 'off mode':
Power consumption of equipment in any off-mode condition shall not exceed 1,00 W.
(b) Power consumption in 'standby mode(s)':
The power consumption of equipment in any condition providing only a reactivation function, or providing only a reactivation function and a mere indication of enabled reactivation function, shall not exceed 1,00 W.
The power consumption of equipment in any condition providing only information or status display, or providing only a combination of reactivation function and information or status display, shall not exceed 2,00 W.

stage（Ⅱ）: Four years after this Regulation has come into force:

(a) Power consumption in 'off mode':
Power consumption of equipment in any off-mode condition shall not exceed 0,50 W.
(b) Power consumption in 'standby mode(s)':
The power consumption of equipment in any condition providing only a reactivation function, or providing only a reactivation function and a mere indication of enabled reactivation function, shall not exceed 0,50 W.
The power consumption of equipment in any condition providing only information or status display, or providing only a combination of reactivation function and information or status display shall not exceed 1,00 W.

Result: The EUT complying with the requirement of (EC) No 1275/2008 stage（Ⅱ）.

5. Photos of EUT

EUT Photo 1

※※※※※ END OF REPORT ※※※※※

Wenzhou Jianrong Electronics Co., Ltd

LVD TEST REPORT

Prepared For:	Wenzhou Jianrong Electronics Co., Ltd No. 699, Minxin Road, Feiyun Street, Rui'an City, Zhejiang Province
Manufacturer:	Wenzhou Jianrong Electronics Co., Ltd No. 699, Minxin Road, Feiyun Street, Rui'an City, Zhejiang Province
Product Name:	heater
Trade Mark:	/
Main Test Model:	602
Additional Models:	601，603，605，604
Prepared By:	BST Testing (Shenzhen) Co., Ltd. No.7, New Era Industrial Zone, Guantian, Bao'an District,Shenzhen, Guangdong, China
Test Date:	Sep. 10, 2023 - Sep. 20, 2023
Date of Report:	Sep.20, 2023
Report No.:	XD457235002092040SR

BSL Testing (Shenzhen) Co.,Ltd APPROVED

bXXsqd mTcXVF

TEST REPORT
UL 1278
Safety of Household and Similar Appliance-Part 1: General Requirements Household and Similar Electrical Appliances

Testing laboratory	
Name..... :	BST Testing (Shenzhen) Co., Ltd.
Address..... :	No. 7 , New Era Industrial Zone, Guantian, Bao' an District, Shenzhen, Guangdong, China
Testing location..... :	BST Testing (Shenzhen) Co., Ltd.
Applicant	
Name..... :	Wenzhou Jianrong Electronics Co., Ltd
Address..... :	No. 699, Minxin Road, Feiyun Street, Rui'an City, Zhejiang Province
Test specification	
Standard.....:	UL 1278-2014
Test procedure ..... :	UL 1278-2014
Procedure deviation..... :	/
Non-standard test method..... :	/
Test item	
Description..... :	heater
Trademark..... :	Wenzhou Jianrong Electronics Co., Ltd
Model and/or type reference..... :	602, 601，603，605，604
Manufacturer..... :	Wenzhou Jianrong Electronics Co., Ltd
Address..... :	No. 699, Minxin Road, Feiyun Street, Rui'an City, Zhejiang Province
Rating(s)..... :	220V，50HZ，500W

Test case verdicts	
Test case does not apply to the test object..... :	N(.A.)
Test item does meet the requirement..... :	P(ass)
Test item does not meet the requirement..... :	F(ail)
Class of protection against electrical shock..... :	Class I appliance

General remarks

This test report shall not be reproduced except in full without the written approval of the testing laboratory.

The test results presented in this report relate only to the item tested.

"(see remark #)" refers to a remark appended to the report.

"(see appended table)" refers to a table appended to the report.

General product information:

Copy of marking plate

Prepared by : Lanya Li

Reviewer : Supervisor

Approved & Authorized Signer : Manager

7	Enclosure		N
7. 1	The enclosure of a heater shall be so formed and assembled that it will have the strength and rigidity necessary to resist the abuses likely to be encountered during its intended service. The degree of resistance inherent in the appliance shall preclude total or partial collapse with the attendant reduction of spacings, loosening or displacement of parts, and other serious defects which alone or in combination constitute a risk of fire, electric shock, explosion, or injury to persons.		P
7. 2	Among the factors taken into consideration if an enclosure is being judged for acceptability are its:		P
	Mechanical strength, Resistance to impact, Moisture- absorption properties, Flammability, Resistance to corrosion, and Resistance to distortion at temperatures to which the enclosure may be subjected under conditions of intended or abnormal use. For the requirements for a polymeric enclosure or part of an enclosure of a polymeric material, see Polymeric Materials, Section 12.		P
7. 3	The encosure of a heater shall preven molten metal, burning insulation, flaming particles, or similar material from falling on combustible materials, including the surface upon which the heater is supported.		P
7. 4	The requirement in 7. 3 necessitates use of a barrier:		P
	a) Under a motor unless:		N
	1) The structural parts of the motor or of the heater provide the equivalent of such a barrier.		P
	2) The protection provided with the motor is such that no burning insulation or molten material falls to the surface that supports the heater if the motor is energized under each of the following fault conditions: i) Open main winding, ii) Open starting winding, and		P

	iii) Starting switch short-circuited		
	3) The motor is provided with a thermal motor protector (a protective device that is sensitive to both temperature and current) that will prevent the temperature of the motor windings from becoming more than 125 ° C (257 ° F) under the maximum load under which the motor will run without causing the protector to cycle, and from becoming more than 150°C (302°F) with the rotor of the motor locked, or		P
	4) The motor is impedance protected and the locked - rotor temperature of the motor winding is not more than 150°C (302°F) with the heater otherwise operating as intended.		N
	b) Under wiring, unless the wire insulation is of the fl ame- retardant type, VW-1 (FR-1) or the equivalent.		N
	It will also necessitate that a switch, transformer, relay, solenoid, or similar device be individually and completely enclosed except at terminals, unless it can be shown that malfunction of the component would not result in a risk of fi re or unless there are no openings in the bottom of the enclosure. An opening in the bottom of the enclosure is not acceptable if it is located directly below fi eld- or factory- made connections (splices) or overload or overcurrent protective devices.		
7. 5	Except as noted in 7.6, an opening for ventilation in the enclosure, other than in the bottom, of a heater and an opening associated with the dissipation of heated air from the element shall be provided with one or more baffles that will prevent the emission of flame, molten metal, burning insulation, or similar material from the heater.		P
7. 6	In a compartment other than one that houses an overload or overcurrent protective device, the baffles mentioned in 7.5 may be omitted if:		N
	a)No ventilating opening in a vertical wall, other than one associated with the dissipation of heated air from the elements during intended operation of the heater, is more than 3/8 inch (9.5mm) in width, or		P
	b)The heater is constructed to be acceptable for the purpose, as shown by appropriate investigation.		P
7. 7	Cast- and sheet-metal portions of the enclosure shall not be thinner than indicated in Table 7.1 unless the enclosure is found to be acceptable when judged under considerations such as are mentioned in 7.2 and 7.8 .		N

7. 8	In addition to being considered with reference to the factors mentioned in 7.2, an enclosure of sheet metal is to be judged with respect to its size and shape, the thickness of metal, and its acceptability for the particular application, considering the intended use of the heater.		P
7. 9	At points where the face of an attachment-plug receptacle projects through it, the enclosure of a		P

	heater shall have a thickness not less than:		
	a)0.032 inch (0.81mm) if of ferrous metal,		N
	b)0.045 inch (1.14mm) if of nonferrous metal, and		N
	c)0.10 inch (2.5mm) if of insulating material, except that an enclosure of insulating material may be of lesser thickness if formed or reinforced to provide physical strength. The insulating material shall be noncombustible.		P

8	Accessibility of Live Parts		P
8. 1	An electrical part of a heater shall be so located or enclosed that protection against unintentional contact with uninsulated live parts will be provided, except that this requirement does not apply to a visibly glowing open- wire element and the connections immediately adjacent to the element. See 3.1, 8.2, 32.7 and 32.14 .Insulated motor brush caps do not require additional enclosures		P
8. 2	The requirement in 8. 1 does not apply to the sheath of an isolated metal- clad element in a heater having provision for grounding the enclosure, although such a sheath is considered to be a bare live part when spacings are being measured.		P
8. 3	In determining if an opening in an enclosure is acceptable, consideration is to be given to:		N
	a)The proximity of uninsulated live parts (as determined by applying 8.1, 8.2, 8.4, 8.5, and 8. 15 and		N
	b)The possibility of the emission of burning insulation, molten metal, and similar materials through the opening (as determined by applying 7.3-7.6.)		P
8. 4	To reduce the likelihood of unintentional contact that may involve a risk of electric shock from an uninsulated live part or fi lm- coated wire, an opening in an enclosure shall comply with either (a) or (b)		N
	a)For an opening that has a minor dimension (see 8.8) less than 1 inch (25. 4 mm), such a part or wire shall not be contacted by the probe illustrated in Figure 8.3.		N

	b) For an opening that has a minor dimension of 1 inch or more, such a part or wire shall be spaced from the opening as specified in Table 8 1		N
8. 5	With respect to a part or wire as mentioned in 8. 4, in an integral enclosure of a motor as mentioned in the exception to 8.4:		N
	a) An opening that has a minor dimension (see 8.8) less than 3/4 inch (19.1 mm) is acceptable if:		N
	1) Film-coated wire cannot be contacted by the probe illustrated in Figure 8.2; 2) In a directly accessible motor (see 8.9), an uninsulated live part cannot be contacted by the probe illustrated in Figure 8.4; or 3) In an indirectly accessible motor (see 8.9), an uninsulated live part cannot be contacted by the probe illustrated in Figure 8.1 .		N
	b) An opening that has a minor dimension of 3/4 inch (15. 1 mm) or more is acceptable if a part or wire is spaced from the opening as specified in Table 8 1		P
8. 6	The probes mentioned in 8.4 and 8.5 and illustrated in Figures 8.1, 8.2, 8.3, and 8.4 shall be applied to any depth that the opening will permit; and shall be rotated or angled before, during, and after insertion through the opening to any position that is necessary to examine the enclosure. The probes illustrated in Figures 8.3 and 8.4 shall be applied in any possible confi guration; and, if necessary, the configuration shall be changed after insertion through the opening.		N
8.7	The probes mentioned in 8.6 an 8.8 shall be used as measuring instruments to judge the accessibility provided by an opening, and not as instruments to judge the strength of a material; they shall be applied with a force of 1 lb (4.4 N) through any opening		N
8. 8	With reference to the requirements in 8.4 and 8.5, the minor dimension of an opening is the diameter of the largest cylindrical probe having a hemispherical tip that can be inserted through the opening.		N
8. 9	With reference to the requirements in 8. 5, an indirectly accessible motor is a motor:		N
	a) That is accessible only by opening or removing a part of the outer enclosure, such as a guard or panel, that can be opened or removed without using a tool, or		P
	b) That is located at such a height or is otherwise guarded or enclosed so that it is unlikely to be contacted.		N

	A directly accessible motor is a motor:		N
	c) That can be contacted without opening or removing any part, or		P
	d) That is located so as to be accessible to contact.		N
8. 10	During the examination of a heater in connection with the requirements in 8.1-8.9, a part of the outer enclosure that may be removed without the use of tools by the user of the heater (to permit the		P

	attachment of accessories, to allow access to means for making operating adjustments, or for other reasons) is to be disregarded-that is, it will not be assumed that the part in question affords protection against the risk of electric shock. A warning marking such as that specifi ed in 6 4.5 is not considered to adequately protect against this risk of electric shock.		
8. 11	With reference to the requirements in 8 .4 and 8. 5, insulated brush caps are not required to be additionally enclosed.		N
8. 12	During the examination of a heater in connection with the requirements in 8.1-8.9, a part of the outer enclosure that is removed with the use of tools by the user of the heater to permit resetting of the resettable temperature control is to be disregarded-that is, it will not be assumed that the part in question affords protection against the risk of electric shock, or injury to persons. A warning marking such as that specified in 64.5 is not considered to adequately protect against this risk of electric shock, or injury to persons		N
	Exception: A heater marked in accordance with 64.4 and that complies with 8.13 need not comply with this requirement		N
8. 13	A product may employ a resettable temperature control when the reset means is inaccessible if designed in a manner that the product cannot be disassembled with readily available tools, such as screw drivers, wrenches, and similar tools, and the product is marked in accordance with 64. 4. Such fasteners as rivets, one way screws, fasteners not readily accessible after assembly, and similar fasteners would be considered as causing the product to be not readily disassembled		N
8. 14	Any manual adjustable controls shall be resettable or adjustable so that electrical or moving parts will not cause a risk of fire, or electric shock, to occur during the resetting or adjustment procedure. See Figure 8.5 and 8.10 and 8.12.		N

8. 15	An uninsulated live part shall not be located behind an opening that may be used to make a user service function such as adjusting or resetting a manual limit control if a 1/ 8 - inch (3. 2 - mm) diameter straight rod can be made to touch the live part when the rod is inserted through the opening and moved to all positions possible without producing an angle of more than 30 degrees between the rod and the line drawn between the center of the opening and the center of the face of the part to be adjusted. The length of the rod beyond the opening is not to exceed the distance between the opening and the face of the adjustable mechanism by more than 3 inches (76mm) See Figure 8.5		N

8. 16	The door or cover of an enclosure shall be provided with means for holding it securely in place in the closed position		P
8. 17	The door or cover of an enclosure shall be hinged if it gives access to any fuse, circuit breaker, or manually resettable temperature control and if uninsulated live parts are exposed during the replacement of the fuse or resetting of the manually resettable temperature control. Such a door or cover shall also be vided with a latch or the equivalent and a captive screw to secure the door or cover in place.		P
8. 18	A door or cover giving access to any overload-protective device in other than a low- voltage circuit shall be tight fi tting and shall suitably overlap the surface of the enclosure around the opening.		P
8. 19	A spring latch, a magnetic latch, a dimple, or any other mechanical arrangement that will hold the door in place and would require some effort on the user’ s part to open it is considered to be an acceptable means for holding the door in place as required in 8.17		P
8. 20	A component of a heater that is likely to need inspection, replacement, cleaning, or other servicing shall be as accessible as practicable, and shall be accessible without the use of special tools if it is intended to be manually operated or adjusted or if it will defi nitely require periodic servicing.		N

10	Guarding of Heating Elements		N
10. 1	General		P

10. 1. 1	The heating element and any part of the element assembly (such as an element support, sheath, and similar parts) shall be so guarded that fl ammable material as well as persons will be protected against contacting it.		P
10. 1. 2	Any heater projections such as guards or grilles that are intended to guard hot heater surfaces shall be positively secured to the heater such as by screws, rivets or welding or being engaged in slots so that they cannot be removed without the use of tools, breaking or permanent bending or distortion.		P
10 1 3	The acceptability of a guard is judged with respect to its general serviceability and with respect to the shape and size or both of the openings in it, in conjunction with the distance of the guard from the heating element and the other high-temperature parts mentioned in 10. 1. 1. Except as noted in 10. 1. 5, an opening in a guard is considered to be acceptable if, with the heater in any intended operating position, the following conditions are met:		P
	a) The shape and size of an opening are such that a test gauge in the form of a right- circular cone having a base diameter of 2-3/4 inches (69.9 mm) and an altitude of 5-1/2 inches (139.7mm), see Figure 10.1, is prevented from touching the heating element and the other high-temperature parts when the cone probe is inserted, apex first, in any manner. See 10.1.4 .		N
	b) The shape and size of an opening which permits the vertically downward entrance of a bar probe 1/2 inch (12.7 mm) wide and 1/16 inch (1.6 mm) thick, see Figure 10.2, are such that a triangle probe 1/16 inch thick and in the form of an isosceles triangle having a base of 2 - 3/4 inches and an altitude of 5-1/2 inches, see Figure 10.3, is prevented from touching the heating element and the other high- temperature parts when the triangle probe is inserted, apex fi rst, in any manner. The testing of an opening with the triangle probe applies also where the vertically downward insertion of the bar is prevented by the construction of the guard, the use of an additional barrier, or both, unless the vertically applied bar tends to be defl ected outward -that is, away from the guard		N

	c) The area o an open ng n a su s an a y ver ca face of a guard is not more than 3 - 1/ 4 square inches (2 1 0 0 mm2) if the size and/ or shape of the opening permits the entrance from any horizontal direction of a vertically oriented rod probe 1/16 inch in diameter and 2 - 3/ 4 inch long, see Figure 10.4. Also, see Figure 10.5.		P
10. 1. 4	The fins of a metal-clad element are considered to be element- guarding members, and need not comply with the provisions in 10.1.3 (a) if the temperature of the exposed edges (outer perimeter) of the fins is not more than 280° C (536° F).		N
10. 1. 5	Openings in the guard complying only with of 10.1.3(a) are acceptable for the following:		P
	a) Except for a panel-type heater (see 10.2.1), an air heater in which the temperature of the heating element is not higher than 280°C(536°F) under conditions of intended operation, or		P

	b) A fan- type heater in which the fan is always in operation when the heating element is on (energized) and the air current prevents clothing and the like from entering the guard.		P
10. 1. 6	A guard shall comply with one of the following if the switching arrangement on a grounded heater does not comply with 32.14 or the design employs a through-cord switch as described in 32.15.		P
	a) No opening in the guard will permit passage of a rod having a diameter of 3/8 inch (9.5mm)		N
	b) No opening in the guard will permit passage of a rod having a diameter of 3/4 inch (19.1mm) and no uninsulated live part or isolated metal- clad element is less than 4 inches (102 mm) from the nearest point on the guard at any opening which will permit the entrance of a rod having a diameter of 3/8 inch (9.5 mm).		P
10. 1. 7	If a heater is required to have a guard, and if the guard is readily removable, the heater and the guard shall be contained in the same carton as shipped from the factory See also 64.17		P

10.1.8	A heater in which the heating element is constructed for use only in an air current shall be so wired or controlled that the element can be operated only while under the cooling effect of the air stream. A heater in which the cooling effect of the motion of a part is necessary to limit temperatures shall be so wired or controlled that the element cannot be operated without such motion.		N
10.2	Panel-type heaters		P
10.2.1	A panel- type heater shall be provided with a guard that will prevent a test surface, in the form of a 6 - inch square (a square 152 mm on a side) parallel to the element panel, from being brought closer than 1/2 inch (12.7 mm) to the plane of the front of the heater, excluding the guard.		P

15	Protection Against Corrosion		P
15.1	Except as noted in 15.2, iron and steel parts shall be protected against corrosion by enameling, galvanizing, plating, or other equivalent means if the deterioration of such unprotected parts would be likely to result in risk of fire, electric shock, explosion, or injury to persons.		P
15.2	In certain equipment where the oxidation of steel is not likely to be accelerated due to the exposure of metal to air and moisture or other oxidizing influence-thickness of metal and temperature also being factors-surfaces of sheet steel within an enclosure may not be required to be protected against corrosion. Cast- iron parts are not required to be protected against corrosion. A sheath employed on a heating element operating in air and terminal parts attached directly to the heating element need not be protected against corrosion.		P
15.3	The aging characteristics of plating or other finish used in a heater shall be such that deterioration of the finish will not result in unacceptable performance of the heater.		P
15.4	The sheath of an immersion- type heating element shall be of a metal resistant to corrosion by the liquid in which the element is intended to be immersed.		P

16	Supply Connections		P
16.1	The mass of a wall or ceiling hung heater shall not exceed 50 pounds (22.7 kg) .		P

16.2	Hanging brackets and any necessary fasteners required for hanging the heater shall be provided as part of the product. Optional hanging kits may be available if marked in accordance with 64.10 .		P
16.3	A wall- hung heater shall not have provisions for permanent mounting. Keyhole slots, not accessible for tightening of screws, or provisions for hanging on a bracket furnished with a heater would be acceptable for mounting such heaters.		P
16.4	A heater shall be provided with a length of attached flexible cord and an attachment plug for connection to the supply circuit, or shall have male pin terminals that accommodate a detachable power-supply cord. The length of the detachable power- supply cord or attached power- supply cord (including fittings) shall not be less than 6 feet (1.8 m) and not more than 8 feet (2.4 m). All detachable power- supply cords and attached power- supply cords shall comply with the requirements of the Standard for Cord Sets and Power-Supply Cords, UL 817 .		N
16.5	The size of the flexible cord, based on the current rating of the heater, shall be in accordance with Table 16.2.		P
16.6	The current rating of the attachment plug shall not be less than 125 percent of the current rating of the heater except that a 15 - ampere attachment plug is acceptable for a heater rated at not more than 1500 watts at 120 volts, or 3000 watts at 240 volts, and a 20 - ampere attachment plug is acceptable for a heater rated at not more than 2000 watts at 120 volts or 4000 watts at 240 volts.		P
16.7	The flexible cord shall be as indicated in Table 16.1 or shall be of type having such properties that it will be at least equally serviceable for the particular application		P
16.8	The flexible cord provided with a heater intended for outdoor use shall be marked with the suffix letter $^{2}W^{2}$.		P
16.9	The attachment plug (of a permanently attached cord or of a cord set) shall be acceptable for its intended use. Some of the more common plug configurations are shown in Figure 16.1		P
16.10	Supplementary insulation on a flexible cord shall not extend more than 1/2 inch (12.7 mm) outside the heater (unless provided with additional mechanical protection), shall be prevented from fraying or unraveling, and shall not affect adversely the means for providing strain relief.		P

16. 11	Strain relief shall be provided to prevent a mechanical stress on a fl exible supply cord from being transmitted to terminals, splices, or interior wiring		P
16. 12	Means shall be provided to prevent the fl exible cord from being pushed into the enclosure of a heater through the cord- entry hole if such displacement is likely to subject the cord to mechanical damage or to expose the cord to a temperature higher than that for which it is acceptable, or if it is likely to reduce spacings (such as to a metal strain- relief clamp) below the minimum acceptable values.		P
16. 13	If a knot serves as strain relief in an attached fl exible cord, any surface with which the knot may come in contact shall be free from projections, sharp edges, burrs, fins, and the like, which may cause abrasion of the insulators on the conductors		P
16. 14	If a heater is provided with pin terminals, the heater shall be constructed so that no live parts will be exposed to unintentional contact when the intended plug is in place on the pins.		P
16. 15	A pin guard is required, such that:		P
	a) A straight edge placed in any position, across and in contact with edges of the plug opening without the plug in place, cannot be made to contact any current - carrying pin		P
	b) With the plug aligned with the pins and the face of the plug in a plane located perpendicular to the end or ends of the farthest projecting current- carrying pin, the probe shown in Figure 8. 3 shall not touch any current-carrying pin while the probe is inserted through any opening with the heater in any position		P

16. 16	A pin terminal shall be securely and rigidly mounted and shall be prevented from shifting in position by means other than friction between surfaces		P
16. 17	The requirement in 16.16 is intended primarily to provide for the maintenance of spacings in accordance with 34.1-34.6 and Table 34.1, and for spacings between pin-type terminals as indicated in Table 16.3. Under this requirement, consideration is also to be given to the means for locking terminals in position to maintain tightness		P

16. 18	If a heater employs three or more pin terminals intended for use with a plug that covers all the pins, the terminals shall be so spaced that they will not accommodate a fl atiron or appliance plug or a cord connector; and the plug that these pins will accommodate shall be acceptable for the particular application.		P
16. 19	The dimensions of pins and their center-to-center spacings (including the corresponding spacings of the female contacts of general- use plugs which will accommodate these arrangement of pins) are as indicated in Table 16.3.		P
16 .20	At point where a fl exible cord passes through an opening in a wall, barrier, or enclosing case, there shall be a bushing or the equivalent that shall be secured in place, and shall have a smooth, rounded surface against which the cord may bear. If Type SP- 2, SPT- 2, or other cord lighter than Type HSJ is employed, if the wall or barrier is of metal, and if the construction is such that the cord may be subjected to strain or motion, an insulating bushing shall be provided. The heat and moisture-resistant properties of the bushing material shall be acceptable for the particular application		P
16. 21	If the cord hole is in wood, porcelain, phenolic composition, or other nonconducting material, a smooth, rounded surface is considered to be equivalent to a bushing.		P
16. 22	Ceramic materials and some molded compositions are acceptable generally for insulating bushings; but a separate bushing of wood, hot- molded shellac- and- tar composition, or rubber material (other than in a motor) is not acceptable Vulcanized fiber may be employed if the bushing is not less than 3/64 inch (1.2 mm) thick and if it is so formed and secured in place that it will not be affected adversely by conditions of ordinary moisture.		P

18	Internal Wiring		P
18 1	General		P
18. 1. 1	The internal wiring of a heater shall consist of wires of a size and type or types that are acceptable for the particular application, when considered with respect to:		P
	a) The temperature and voltage to which the wiring is likely to be subjected,		P
	b) Its exposure to oil or grease, and		P
	c) Other conditions of service to which it is likely to be subjected.		P

18. 1. 2	For the purpose of these requirements, the internal wiring of an appliance is considered to be all the interconnecting wiring beyond the point where the power- supply cord enters the enclosure.		P
18. 1. 3	There is no temperature limit applicable to a conductor (except as noted in 17. 1) provided with beads of noncarbonizable material or the equivalent.		P
18. 2	Protection of wiring		P
18. 2. 1	The wiring and connections between parts of a heater shall be protected or enclosed, except that a length of flexible cord may be employed for external connections, or for internal connections that may be exposed during servicing, if fl exibility of the wiring is essential.		P
18. 2. 2	The internal wiring of a heater in the vicinity of a lampholder that accepts either an infrared lamp or an ordinary lamp:		P
	a) Shall be a jacketed type at least equivalent to Type SP-2 flexible cord. Asbestos- insulated wiring and appliance wiring material is not acceptable unless provided with sleeving or tubing.		P
	b) Shall be routed along the metal surface of the heater enclosure and shall be so secured as to minimize the likelihood of its being hooked or grasped		P
18. 2. 3	A conductor utilizing beads for insulation shall not be used outside an enclosure.		P
18. 2. 4	Internal wiring that is exposed through an opening in the enclosure of a heater is considered to be protected as required in 18.2.1 - 18.2.3 if, when judged as though it were fi lm- coated wire, the wiring would be acceptable according to 82-8 4 Internal wiring within an enclosure is acceptable if, even though it can be touched with the probe, it is so protected or guarded that it cannot be grasped or hooked in such a manner that it could be subjected to stress.		P

18. 2. 5	If the wiring of a heater is located where it may be in proximity to combustible material or may be subjected to physical damage, it shall be in armored cable, rigid metal conduit, electrical metallic tubing, metal raceway, or shall otherwise be protected		P
18. 2. 6	Wiring shall be protected from sharp edges (including male screw threads), burrs, fi ns, moving parts, and other agencies that might abrade the insulation on conductors.		P
18. 2. 7	A hole by means of which insulated wires pass through a sheet- metal wall within the overall enclosure of a heater shall be provided with a smooth, rounded bushing or shall have smooth, rounded surfaces upon which the wires may bear, to prevent abrasion of the insulation. A fl exible cord used for external interconnection as mentioned in 18.2.1 shall be provided with strain relief and bushings in accordance with 16.11-16.13 and 16.20-16.22 unless the construction is such that the cord will be protected from stress or motion.		P
18. 2. 8	Insulated wires may be bunched and passed through a single opening in a metal wall within the enclosure of heater.		P
18 3	Wire connectors		P
18. 3. 1	All splices and connections shall be mechanically secure and shall provide good electrical contact. A soldered connection shall be made mechanically secure before being soldered if breaking or loosening of the connection may result in risk of fi re or electric shock.		P
18. 3. 2	A splice shall be provided with insulation equivalent to that of the wires involved if permanence of spacing between the splice and other metal parts is not provided		P
18. 3. 3	Insulation consisting of two layers of friction tape, of two layers of thermoplastic tape, or of one layer of friction tape wrapped over one layer of rubber tape is acceptable on a splice. In determining if splice insulation consisting of coated-fabric, thermoplastic, or other type of tubing is acceptable, consideration is to be given to such factors as its dielectric properties, heat- resistant and moisture-resistant characteristics, and the like. Thermoplastic tape wrapped over a sharp edge is not acceptable.		P

18. 3. 4	The means of connecting stranded internal wiring to a wire- binding screw shall be such that loose strands of wire will be prevented from contacting other live parts not always of the same polarity as the wire and from contacting noncurrent- carrying conductive parts. This may be accomplished by use of pressure terminal connectors, soldering lugs, crimped eyelets, soldering all strands of the wire, or other equivalent means.		P
18. 4	Separation of circuits		P
18.4. 1	Conductors of different circuits used in internal wiring shall either be:		P
	a) Provided with insulation rated for the highest voltage involved or		P
	b) Shall be separated by a barrier or segregated by adequate spacing from an uninsulated live part connected to a different circuit.		P
18. 4. 2	Low- voltage and high- voltage circuits, for example, are considered to be different circuits with reference to the requirement in 18.4.1.		P
18 .4 .3	Segregation, separation, or both, of insulated conductors may be accomplished by clamping, routing, or an equivalent means that provide permanent separation from insulated or uninsulated live parts of a different circuit.		P
18. 4. 4	A barrier used to provide separation between the wiring of different circuits shall be of metal or of insulating material, of acceptable physical strength if exposed or otherwise likely to subjected to mechanical damage, and secured in place. Unclosed openings in a barrier for the passage of conductors shall not be larger in diameter than 1/4 inch (6 .4 mm) and shall not exceed in number, on the basis of one opening per conductor, the number of wires that will need to pass through the barrier. The closure for any other opening shall present a smooth surface wherever an insulated wire may be in contact with it; and the area of any such opening, with the closure removed, shall not be larger than required for the passage of the necessary wires		P
18. 4. 5	A metal barrier shall have a thickness at least as great as the required thickness of the enclosure metal. A barrier of insulating material shall not be less than 0.028 inch (0.71mm) thick and shall be of greater thickness if its deformation may be readily accomplished to defeat its purpose		P

19	Heating Elements		P
19 1	A heating element shall be securely supported		P

21	Electrical Insulation		P
21. 1	Insulating washers, bushings, and the like that are integral parts of a heater, and bases or supports for the mounting of live parts shall be of a moisture- resistant material that will not be damaged by the temperatures to which they will be subjected under conditions of actual use. Molded parts shall be constructed so that they will have the mechanical strength and rigidity necessary to withstand the stresses of actual service.		P
21. 2	Insulating material a employed in a heating appliance is to be judged with respect to its particular application. Materials such as mica, some molded compounds, and certain refractory materials are usually acceptable for use as the sole support of live parts; and some other materials that are not for general use, such as magnesium oxide, may be acceptable if used in conjunction with other less hygroscopic insulating materials or if located and protected so that they are not subject to mechanical damage and are resistant to the absorption of moisture. When it is necessary to investigate a material to determine whether or not it is acceptable, consideration is to be given to its mechanical strength, dielectric properties, insulation resistance (see 4 8. 1), heat-resistant qualities, the degree to which it is enclosed or protected and any other features having a bearing on the likelihood that a risk of fi re, electric shock, or injury to persons may occur, under conditions of actual service. All of these factors are considered with respect to thermal aging		N
21. 3	In the mounting or supporting of small, fragile, insulating parts, screw or other fastenings shall not be tight enough to cause cracking or breaking of these parts with expansion and contraction. Generally, such parts should be slightly loose.		P

22	Thermal Insulation		P
22. 1	Thermal insulation shall be of such nature and located and mounted or supported so that it will not be adversely affected by any intended operation of the heater		P
22. 2	Thermal insulation that is not rigid shall be mounted or supported so that it will not sag. Adhesive material employed for mounting thermal insulation shall be acceptable for use at the temperature to which it may be		P

	subjected.		
22. 3	Determination of the acceptability of an adhesive may be omitted if the thermal insulation is mechanically supported by at least one rivet or the equivalent per square foot of material (at least 1 1 rivets or the equivalent per square meter of material).		P
22. 4	Unless it has been investigated for the purpose, fl ammable thermal insulation or other fl ammable material is not acceptable if it is located in the heated air stream of a heater.		P
22. 5	Flammable or electrically conductive thermal insulation shall not make contact with uninsulated live parts of a heater.		P
22. 6	Some types of mineral- wool thermal insulation contain conductive impurities in the form of slag that make its use unacceptable if in contact with uninsulated live parts. See 48.1.		P
23	Materials in an Air- Handling Compartment		P
23. 1	Exposed unimpregnated asbestos material shall not be used in an air handling compartment of a fan- forced air heater. The unprotected edge of a gasket sandwiched between two parts is considered to be exposed.		P
24	Motors		N
24. 1	A motor shall be acceptable for the application, and shall be capable of handling its maximum intended load without introducing a risk of fi re, electric shock, or injury to persons.		N
24. 2	A motor winding shall be such as to resist the absorption of moisture.		N
24. 3	With reference to the requirement in 24. 2, film- coated wire is not required to be additionally treated to resist absorption of moisture, but fiber slot liners, cloth coil wrap, and similar moisture- absorptive materials shall be provided with impregnation or be otherwise treated to resist moisture absorption.		P
24. 4	A rubber or neoprene boot over the terminal of a motor capacitor that is accessible during user- servicing shall not be less than 1/ 32 - inch (0. 79 mm) thick, shall resist thermal degradation, and shall incorporate means to secure the boot in place, such as a molded lip that fi ts over the fl ange of the capacitor case.		P
24. 5	A separate soft- rubber, neoprene, or polyvinyl chloride bushing may be employed in the frame of a motor or in the enclosure of a capcitor attached to a motor (but not elsewhere in a heater, except as indicated in 24.6) provided that:		N

	a) The thickness of the bushing is not less than 3/64 inch (1.2 mm) thick, and		N
	b) The bushing is so located that it will not be exposed to oil, grease, oily vapor, or other substances having a deleterious effect on the compound employed.		N
24. 6	A bushing of any of the materials mentioned in 24.5 may be employed at any point in a heater if used with a cord of a type for which an insulating bushing is not required, and if the edges of the hole in which the bushing is mounted are smooth and free from burrs, fins, and similar.		N
24. 7	An insulated metal grommet may be accepted in place of an insulating bushing if the insulating material used is not less than 1/32 inch (0.8 mm) thick and fills completely the space between the grommet and the metal in which it is mounted.		N

28	Temperature Limiting Controls		P
28. 1	With respect to the Normal Temperature Test, Section 39, and Abnormal Operation Tests, Section 41, if operation of the heater in accordance with Subsection 39.2 could result in a risk of fi re or electric shock due to overheating of the heater, a thermal cutoff or a manual reset type temperature limiting control shall be provided. The manual reset type temperature limiting control shall be of a type that will not operate as an automatic reset control when the reset means is held in the reset position.		N
	a) For a heater complies with the abnormal ambient test, 41.9, and is provided with an alarm in accordance with Alarms, Section 29.		P
	b) For a heater in which the average”on”time per cycle over four cycles of operation on the temperature limiting control during each abnormal operation temperature test does not exceed 5 percent and the average”on”time does not exceed 1 minute. The control used shall withstand an endurance test consisting of 100,000 cycles of operation making and breaking its rated load		N
	c) For a heater in which the manual reset control reset means is arranged such that it:		P
	1) Is recessed within the overall appliance enclosure,		P
	2) Cannot be forced to remain in the reset position by likely methods, such as taping down a pushbutton or wedging a pushbutton in an opening through which it protrudes, and		P

	3) Is notjammed in the reset position during the Element Support Impact Tests, Section 51 and Drop Test, Section 52, or		
	d) For a commercial/industrial heater.		P
28. 2	A thermal cutoff shall be secured in place. A thermal cut-off that is fi eld- replaceable shall be used only in a commercial/ industrial heater.		P
28. 3	If an appliance is provided with a replaceable overcurrent and/or over- temperature protective device, the device shall be secured in place and shall be so located that it will be accessible for replacement without damaging other connections or internal wiring See 64 5		P
28. 4	A thermal cutoff shall open the circuit in the intended manner without causing the short- circuiting of live parts and without causing live parts to become grounded to the enclosure when the heater is connected to a circuit of voltage in accordance with 3 9. 1. 9 and operated in a normal position to cause abnormal heating		P
28. 5	To determine if a thermal cutoff complies with the requirement in 28. 4, the heater is to be operated with separate cutoffs fi ve times with any other thermally operated control devices in the heater short- circuited. Each cutoff is required to perform acceptably. During the test, the enclosure is to be connected through a 3 - ampere fuse to ground.		P
28. 6	With respect to 28 .4, for heaters employing open- type heating elements or series-connected metal- sheathed heating elements, thermal cutoffs shall be used in all ungrounded supply conductors if the thermal cutoff in one side of the supply circuit could be rendered ineffective by faults such as shorting of the heating element or its connection wire to metal parts that are or may become grounded. In determining the likelihood of occurrence of such a fault, conditions such as sagging or breakage of an open- type heating element and breakage or loosening of the connection to a heating element are to be considered. For a 1 2 0 - volt heater with an unpolarized plug, both sides of the supply circuit are to be considered as being ungrounded.		N
28. 7	A temperature-limiting control that is depended upon to reduce a risk of fire or electric shock shall be a calibrated control that is either:		P
	a) A control complying with the Standard for Limit Controls, UL 353, or		P
	b) A temperature- limiting control complying with the Standard for Temperature- Indicating and - Regulating Equipment, UL 873 .		P

	See the Endurance Test, Section 43, also		N

31	Pilot Lights		N
31. 1	A movable heater shall be provided with a pilot light having a lamp or lens that glows red or amber. The light shall:		N
	a) Be located on the front or top surface of the heater; and		N
	b) Comply with 31 .2 .		N
	The light shall be connected to the heater circuit so that it is energized whenever the on- off switch (see 32. 12) is in the on position. Compliance of the light shall be determined only when the on- off switch is in the on position.		N
	Exception No. 1 : A pilot light is not required ifavisibly glowing heating element can be consideredto serve as an indicator that the heater is energized. A heating element is considered to serve as an indicator if:		N
	a) The heating element for the heater consists of a single element,		N
	b) The element is not cycled by an automatic control,		N
	c) The element cannot be operated by either a manual or automatic control, at a reduced rating so, that it can no longer be considered a visibly glowing element in accordance with 3 15, and		N
	d)The heater complies with the visibility requirement of 31.2 .		N
	Exception No.2:A pilot light is not required on a commercial/industrial heater		N
31 .2	The light from a pilot light mentioned in 31.1 shall be visible from a point 10 feet (3 m) in front of the center of the heater and 5 feet (1.5 m) above the fl oor. Compliance with this requirement shall be determined while the heater is:		N
	a) Standing on the fl oor if the heater is intended for placement on the fl oor while in operation, or		N
	b) Elevated from the fl oor by 3 feet (0. 91 m) if the heater is intended for use at an elevated location (see 3. 6).		N
	For a heater intended to be used either on the fl oor or at an elevated location, the light shall be visible while the heater is mounted on the fl oor and also when it is elevated by 3 feet.		

32	Switches		P

32. 1	A switch or other control device shall be rated for the particular application and shall have a current and voltage rating not less than that of the circuit (load) which it controls.		P
32. 2	A switching device shall be so located or protected that it will not be subjected to physical damage in use.		P
32. 3	A switching device or manual mode control shall be of the indicating type or the switch function, such as ”on-off ”, ”high-low”, and the like, shall be otherwise indicated. The switch or manual control position indications shall be visible when the heater is located and positioned in the intended use position.		P
	Exception: For a movable heater that may be used in an elevated location, the markings of manual control positions need not be visible for the following controls when the heater is located higher than 2 .5 feet above the floor:		P
	a) For a control whose sole function is to regulate the fan speed or the heat output.		P
	b) For a direct-acting on-off control whose actuation position to and from the offposition becomes immediately evident to the operator through perception of change in the heater output.		P
32. 4	For a movable heater of other than the commercial/ industrial type that employs a fan only operating control and that is unlikely to be moved to view the controls when operating the controls, the indications for the fan only selection position and the various heat selector positions shall be visible from a point 5 feet (1. 5 m) above the fl oor and between 1 and 4 feet (0. 3 and 1 .2 m) away from the front surface of the heater with the lower edge of the heater located at any point between and including 2. 5 and 5 feet (0. 75 and 1. 5 m) above the fl oor. Heaters complying with the dimensions of 3. 6 are considered as likely to be moved to view the control markings when operating the control		P
32. 5	If a switching device (or the pilot device that controls the switching device) has a marked on or offposition, when open, it shall disconnect all ungrounded conductors of the power- supply circuit to a heater. See 32.6 and 32.7 .		P
32. 6	With respect to 32.5, 32.7, and 32.14, for a 120 - volt rated heater having a two-prong unpolarized attachment plug, both sides of the supply circuit are to be considered as being ungrounded.		P
32. 7	A switching device as described in 32. 5, except a		P

	it does not have a marked on or off position, shall comply with the requirement in 32 5 unless:		
	a) There is no uninsulated live part exposed to unintentional contact when the switching device is open, or		P
	b) The fact that such part is live is defi nitely apparent, such as a visibly glowing open coil heating element		P
32. 8	With respect to 3 2. 3 and 3 2. 5, a removable knob, button, or pointer on a switching device that includes an indicated off position shall be keyed to its operating shaft so that it can be installed only in the intended position and it shall be secured in accordance with Knob Securement Test, Section 5 5 .		P
32. 9	A switching device or other means of control intended to provide for the use of a limited number of elements at one time shall be so located or of such a type that the user cannot readily change the connections to provide for the use of more elements than intended.		P
32. 10	A switching device that controls a medium- base lampholder or other than a pilot or indicating light shall be rated for use with tungsten- fi lament lamps.		P
32. 11	A heater shall be provided with means other than the cord and plug arrangement to manually interrupt all heating elements. This means may be either a manual on- off switch or included as an offposition on a temperature regulating control or an operation selector switch. The switch or control used shall comply with 32. 1-32. 10. If included as an off position on a temperature regulating control or on an operation selector switch, the construction shall also comply with 32. 12. See also 31.1.		P
32. 12	W respec o 32. 1 1, e o pos on s nc u e as part of a temperature operating control or an operation selector switch, the off position shall be mechanically defi ned, such as by a detent feature or as an extreme position against a mechanical stop		P
32. 13	A heater intended for connection to the power- supply circuit by fl exible cord and an attachment plug, and a cord- connected heater employing a motor rated at more than 1/ 3 horsepower (249 W output) shall be provided with a manually operable motor- control switch		P
32. 14	A switching device on a heater that controls an open (uninsulated) heating element or an isolated metal- clad element in a grounded heater shall be such that, n e o pos on, w sconnec e e emen		P
	from all conductors of the supply circuit, unless the guard is such that it complies with 10 1 6		

32. 15	The requirement in 32. 14 also applies to a through- cord switch and to a plug with switch comprising a part of a cord set provided with the heater or of a power- supply cord.		P
32. 16	A through- cord switch used on the power supply cord of a floor supported heater shall not be located where there is a likelihood of the switch resting upon the fl oor and being stepped on.		P
32. 17	A through-cord switch used on a wall-hung or ceiling-hung heater shall be located on the power- supply cord so that it does not contact the floor when the heater is installed as intended.		P
32. 18	A switch employed in a heater to de-energize the heating elements in the event the heater is tipped over shall function before the heater has tipped in any direction beyond the angle of critical balance (see 3.2) if compliance with the requirements in 41.4.1-41.4.4 is dependent on operation of the switch.		P

35	Grounding		P
35. 1	A heater intended for operation on a circuit involving a potential of more than 15 0 volts to ground shall have provision for grounding, in accordance with 35. 2, of all exposed noncurrent- carrying parts, and all noncurrent-carrying metal parts exposed during any servicing operation (including maintenance and repair), that are likely to be energized		P
35. 2	On a heater where grounding is required or provided, the power- supply cord or cord set shall include a grounding conductor which shall be:		P
	a) Green, with or without one or more yellow stripes,		P
	b) Connected to the grounding blade of an attachment plug of a grounding type, and		P
	c) Connected to the enclosure of the appliance by means of a screw not likely to be removed during ordinary servicing, or by other equivalent means. Solder alone is not acceptable for making this connection. See 35.4.		P
35. 3	If a heater intended for operation on a circuit involving a potential of 150 volts or less to ground has provision (alt hough not required) for grounding noncurrent- carrying metal parts by means of a conductor of the cord, a directly attached fl exible cord or a cord set provided with the heater shall comply with the requirement in 35.2 .		P
35 .4	With reference to 35.2(c), a grounding connection that is mechanically crimped before being soldered is to be tested for acceptability as a connection without the solder in place.		P

35.5	A2 - wire heater, having a voltage rating within the range of 220 to 250 volts is considered as requiring provision for grounding in accordance with 35.1, unless the marked rating on the heater is 120/240 volts or unless the heater is otherwise marked to indicate that it is to be connected only to a 120/240-volt circuit with grounded neutral.		P

37	Power Input Test		P
37.1	The power input to a heater shall not be more than 105 percent of its marked rating.		P
37.2	To determine if a heater complies with the requirement in 37.1, the power input is to be measured at the temperature developed under intended operating conditions and under full- load conditions and while connected to a supply circuit of rated voltage in accordance with 39.1.9. If a heater employs a nonmetallic element (such as carbon), the power input is to be determined when the element is new		P

38	Leakage Current Test		P
38	The leakage current of a heater rated for a nominal 120 -, 208 -, or 240 - volt supply when tested in accordance with 38.3-38.6 shall not be more than:		P
	a) 0.5milliampere for a movable heater, and		P
	b) 0.75 milliampere for other than a movable heater employing a standard attachment plug rated 20 amperes or less		P

Photo-documentation

Photo 1 General Appearance of the EUT

Photo 2 General Appearance of the EUT

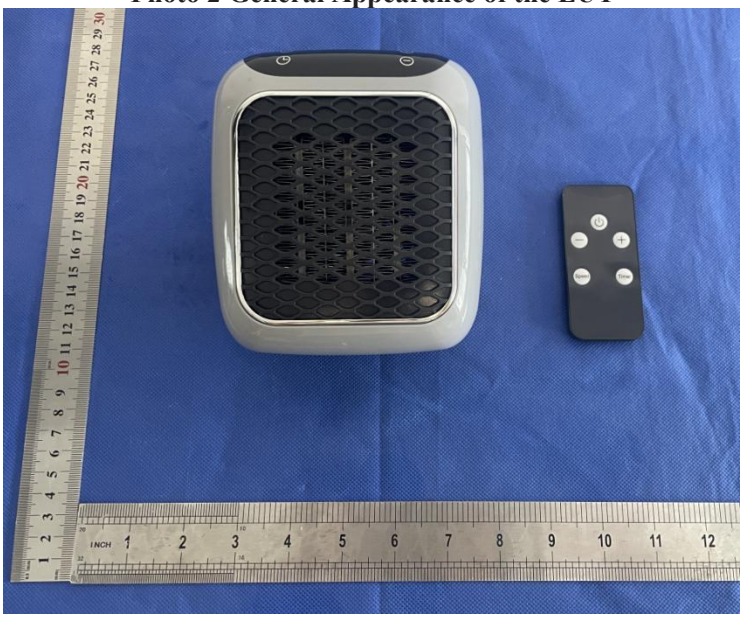


Photo 3 Generl Appearance of the EUT

Photo 4 General Appearance of the EUT

********End of Report********