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Report No.: SHEM180300175101V01

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1 Cover Page

TEST REPORT

Application No.:	SHEM1803001751HSC
Applicant:	
Equipment under Test (EUT) NOTE: The following sample(s) was/were submitted and identified by the client as.	
Product Name:	Facial Sauna
Model No.(EUT):	MWFS518-3
Add Model No.:	MWFS511, MWFS518-1, MWFS518-2, MWFS518
Standards:	EN 55014-1:2017, EN 55014-2:2015, EN 61000-3-2:2014, EN 61000-3-3:2013.
Date of Receipt:	2015-06-01
Date of Test:	2015-06-05 to 2015-06-09
Date of Issue:	2018-03-20
Test Result:	Pass*

* In the configuration tested, the EUT detailed in this report complied with the standards specified above.

The CE mark as shown below can be used, under the responsibility of the manufacturer, after completion of an EU Declaration of Conformity and compliance with all relevant EU Directives.



Parlam Zhan
E&E Section Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.


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2 Version

Revision Record			
Version	Description	Date	Remark
00	Update standard	2018-03-15	Based on SHEM160400170601
01	Update § 10.2	2018-03-20	Amendment

Remark: The version 01 of the report had replaced the version 00 which was invalid.

Authorized for issue by:			
			
		Leo Xu /Project Engineer	
			
		Zenger Zhang /Reviewer	

3 Test Summary

ELECTROMAGNETIC INTERFERENCE (EMI)			
Test	Test Requirement	Test Method	Result
Conducted Emission on AC (150kHz to 30MHz)	EN 55014-1:2017	EN 55014-1:2017	PASS
Disturbance Power (30MHz to 300MHz)	EN 55014-1:2017	EN 55014-1:2017	PASS♀
Discontinuous Interference on AC (150kHz to 30MHz)	EN 55014-1:2017	EN 55014-1:2017	N/A*
Harmonic Emission on AC (100Hz to 2kHz)	EN 61000-3-2:2014	EN 61000-3-2:2014	PASS
Flicker Emission on AC	EN 61000-3-3:2013	EN 61000-3-3:2013	PASS
Electromagnetic Susceptibility(EMS)			
Test	Test Requirement	Test Method	Result
Immunity	EN 55014-2:2015	N/A	N/A**
Remark			
<p>♀ Disturbance Power 30MHz-300MHz was applied to the EUT first and then Radiated Emission 300MHz-1GHz was conducted since below condition was not fulfilled: All emission readings from the equipment under test shall be lower than the applicable limits (Table 2a) reduced by the margin (Table 2b); the maximum clock frequency shall be less than 30 MHz. Please refer to section 7.2 of this test report for more details.</p> <p>N/A Not applicable</p> <p>Note1:* Please refer to Section 7.3 of this report for details. Note2:** Please refer to Section 8 of this report for details. Note3: There are 5 models mentioned in this report, and they are the similar in electrical and electronic characters. Only the model MWFS518-3 was tested since their differences were the model number, trade name and appearance deviation. Note4: According to the validated standards, the models mentioned in this report are deemed to fulfil the EMC requirements without testing. And update product information.</p>			



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5 General Information

5.1 Client Information

Applicant:

Address of Applicant:

Manufacturer:

Address of Manufacturer:

Factory:

Address of Factory:

5.2 Details of E.U.T.

Power Supply: For model MWFS518, MWFS518-1, MWFS518-2:
AC 220-240V, 50/60Hz
For model MWFS511, MWFS518-3:
AC 220-240V, 50Hz
Test voltage: AC 230V, 50Hz
Cable Type: 1.6m Length (2 wires) for AC cable
Rated power 100W

5.3 E.U.T Operation Mode

Functions/Modes: Running mode
Running mode: Keep EUT running continuously

5.4 E.U.T Operation Environment

Temperature Range: 20-25°C
Humidity Range: 30-60% RH
Atmospheric Pressure Range: 100-102kPa

5.5 Description of Support Units

The EUT has been tested independently.

5.6 Deviation from Standards

None.

5.7 Abnormalities from Standard Conditions

None.

5.8 Modification/Retest Record

None.

5.9 Monitoring of EUT for All Immunity Test

Audio: None.

Visual: None.

5.10 Test Location

All/Part tests were performed at:

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. E&E Lab

588 West Jindu Road, Xinqiao, Songjiang, 201612 Shanghai, China

Tel: +86 21 6191 5666

Fax: +86 21 6191 5678

No tests were sub-contracted.

5.11 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **CNAS (No. CNAS L0599)**

CNAS has accredited SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

- **NVLAP (Certificate No. 201034-0)**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. is accredited by the National Voluntary Laboratory Accreditation Program(NVLAP). Certificate No. 201034-0.

- **FCC –Designation Number: CN5033**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been recognized as an accredited testing laboratory.

Designation Number: CN5033. Test Firm Registration Number: 479755.

- **Industry Canada (IC) – IC Assigned Code: 8617A**

The 3m Semi-anechoic chamber of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 8617A-1.

- **VCCI (Member No.: 3061)**

The 3m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-3868,C-4336,T-12221,G-10830 respectively.

5.12 Measurement Uncertainty

According to CISPR 16-4-2.

Test Item	Frequency Range	Measurement Uncertainty	U _{CISPR}
Conducted Emission at mains port using AMN	9kHz-150kHz	3.2dB	3.8dB
Conducted Emission at mains port using AMN	150kHz-30MHz	2.6dB	3.4dB
Conducted Emission at mains port using VP	9kHz-30MHz	3.9dB	2.9dB
Conducted Emission at telecommunication port using AAN	150kHz-30MHz	4.5dB	5.0dB
Radiated Emission	30MHz-1000MHz	4.3dB	6.3dB
Radiated Emission	1GHz-18GHz	4.5dB	5.2dB(1GHz-6GHz)
			5.5dB(6GHz-18GHz)
Disturbance Power	30MHz-300MHz	2.6dB	4.5dB
Remark: AMN – Artificial Mains Network VP – Voltage Probe ANN – Asymmetric Artificial Network			

Note: The measurement uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

6 Equipment list

Conducted Emission

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal.Due date
1	EMI test receiver	Rohde & Schwarz	ESCS30	100086	2015-01-22	2016-01-21
2	Line impedance stabilization network	SCHWARZBECK	NSLK8127	8127-490	2015-01-22	2016-01-21
3	Line impedance stabilization network	EMCO	3816/2	00034161	2015-01-22	2016-01-21

Disturbance Power

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal.Due date
1	EMI test receiver	Rohde & Schwarz	ESCS30	100086	2015-01-22	2016-01-21
2	6dB Attenuator	HUAXIANG	TS2-6dB	11051002	2014-12-27	2015-12-26
3	Absorbing clamp	LUTHI	MDS-21	3583	2015-03-12	2016-03-11

Harmonic & Flicker

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal.Due date
1	Single phase harmonics & flicker analyzer	EM test	DPA500	V0507100125	2015-01-22	2016-01-21
2	AC SOURCE 6KVA	EM test	ACS500	V0507100126	2015-01-22	2016-01-21



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General Equipment

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal.Due date
1	Digital pressure meter	YONGZHI	DYM3-01	101012	2015-04-13	2016-04-12
2	Temperature& humidity recorder	ShangHai weather meter work	ZJ 1-2B	0804081	2014-08-19	2015-08-18
3	Digital Multimeter	FLUKE	17B	19720439	2015-01-22	2016-01-21
4	Autoformer regulator	Guangzhou bao de	TDGC2-5 KVA-	/	/	/
5.	CLAMP METER	FLUKE	316	25030309 71	2015-01-22	2016-01-21

7 Electromagnetic Interference Test Results

7.1 Conducted Emissions on Mains Terminals, 150 kHz to 30MHz

Detector: Quasi-Peak and Average at frequency with maximum peak
(9kHz resolution bandwidth)

Limit:

Frequency range MHz	At mains terminals dB (μV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	59 to 46
0.50 to 5	56	46
5 to 30	60	50
Note1: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.		
Note2: The lower limit is applicable at the transition frequency.		

7.1.1 E.U.T. Operation

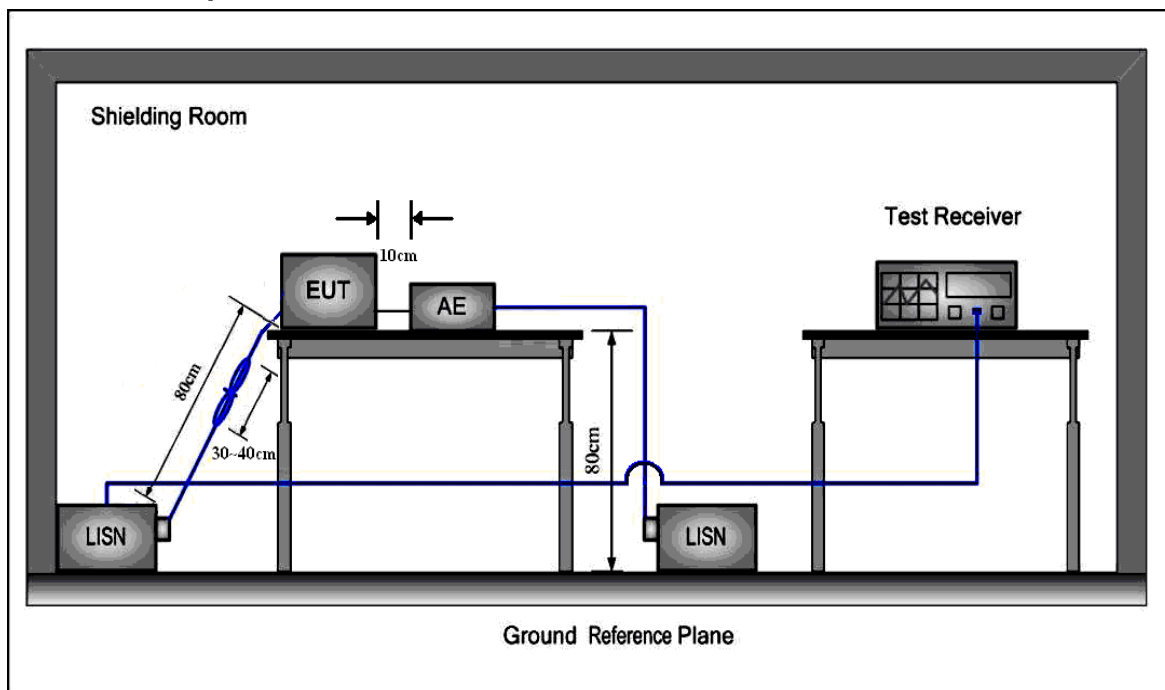
Test mode: Running mode

Note: A pre-test at 160kHz shall be made over a range of 0.9 to 1.1 times the rated voltage in order to check the level of disturbance varies considerably with the supply voltage, compliance test at 230V 50Hz as no worse case was found.

Pre-scan was performed with peak detected on all ports, Quasi-peak & average measurements were performed at the frequencies at which maximum peak emission level were detected.

Please see the attached Quasi-peak and Average test results.

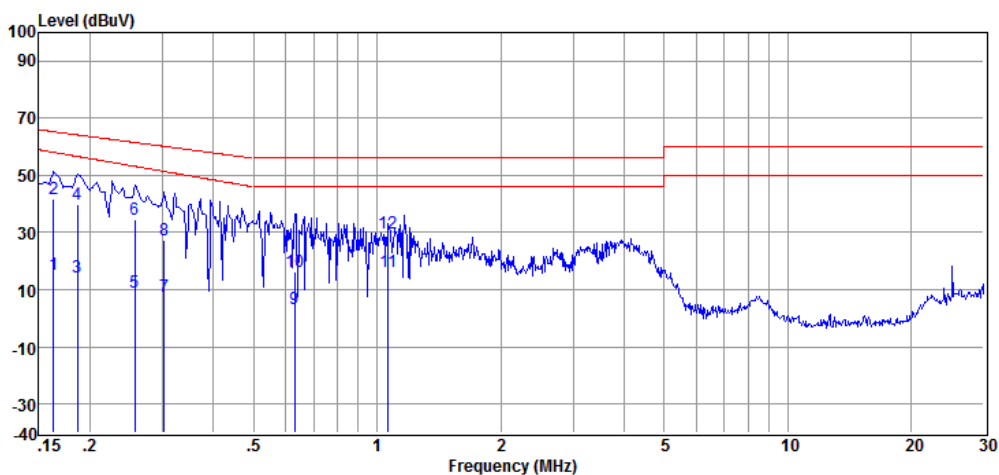
7.1.2 Test Setup and Procedure



1. The mains terminal disturbance voltage was measured with the EUT in a shielded room.
2. The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a $50\Omega/50\mu\text{H} + 5\Omega$ linear impedance. The power cables of all other units of the EUT were connected to a second LISN, which was bonded to the ground reference plane in the same way as the LISN for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.
3. The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane, but separated from metallic contact with the ground reference plane by 0.1m of insulation.
4. The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN was placed 0.8m from the boundary of the unit under test and bonded to a ground reference plane for LISN mounted on top of the ground reference plane. This distance was between the closest points of the LISN and the EUT. The mains lead of EUT excess 0.8m was folded back and forth parallel to the lead so as to form a horizontal bundle with a length between 0.3m and 0.4m. All other units of the EUT and associated equipment were at least 0.8m from the LISN.

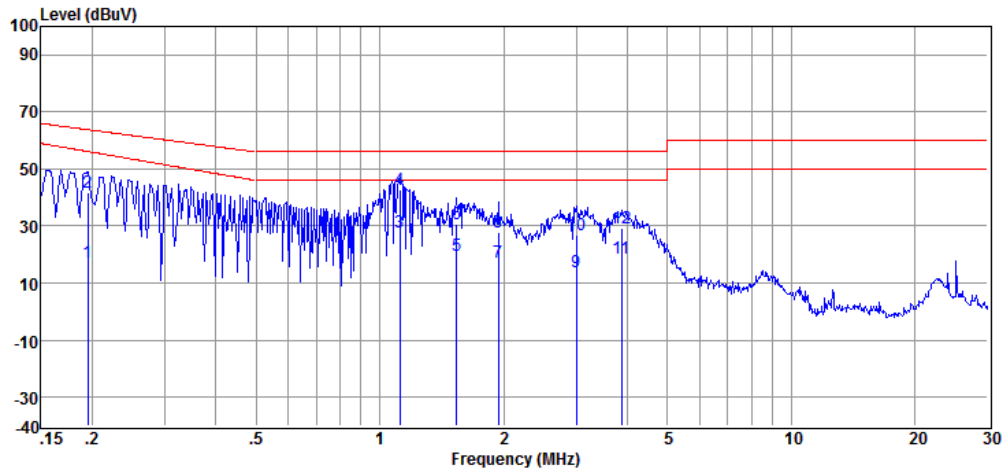
7.1.3 Measurement Data

Live Line:



Item	Freq.	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Detector
(Mark)	(MHz)	(dBμV)	(dB)	(dB)	(dBμV)	(dBμV)	(dB)	
1	0.163	15.14	0.31	0.10	15.55	58.08	-42.53	Average
2	0.163	41.29	0.31	0.10	41.70	65.30	-23.60	QP
3	0.186	14.02	0.28	0.10	14.40	56.65	-42.25	Average
4	0.186	39.32	0.28	0.10	39.70	64.20	-24.50	QP
5	0.258	8.68	0.26	0.10	9.04	53.16	-44.12	Average
6	0.258	34.06	0.26	0.10	34.42	61.51	-27.09	QP
7	0.303	7.26	0.26	0.10	7.62	51.39	-43.77	Average
8	0.303	27.05	0.26	0.10	27.41	60.15	-32.74	QP
9	0.630	2.76	0.23	0.10	3.09	46.00	-42.91	Average
10	0.630	16.02	0.23	0.10	16.35	56.00	-39.65	QP
11	1.065	16.09	0.19	0.10	16.38	46.00	-29.62	Average
12	1.065	29.42	0.19	0.10	29.71	56.00	-26.29	QP

Neutral Line:



Item	Freq.	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Detector
(Mark)	(MHz)	(dBμV)	(dB)	(dB)	(dBμV)	(dBμV)	(dB)	
1	0.196	17.09	0.29	0.10	17.48	56.14	-38.66	Average
2	0.196	41.35	0.29	0.10	41.74	63.80	-22.06	QP
3	1.117	27.61	0.35	0.10	28.06	46.00	-17.94	Average
4	1.117	42.26	0.35	0.10	42.71	56.00	-13.29	QP
5	1.535	18.75	0.71	0.10	19.56	46.00	-26.44	Average
6	1.535	30.13	0.71	0.10	30.94	56.00	-25.06	QP
7	1.939	16.34	0.96	0.10	17.40	46.00	-28.60	Average
8	1.939	26.88	0.96	0.10	27.94	56.00	-28.06	QP
9	3.009	12.99	0.74	0.15	13.88	46.00	-32.12	Average
10	3.009	26.00	0.74	0.15	26.89	56.00	-29.11	QP
11	3.860	17.93	0.58	0.17	18.68	46.00	-27.32	Average
12	3.860	28.50	0.58	0.17	29.25	56.00	-26.75	QP

Level = Read Level + LISN/ISN Factor + Cable Loss.

7.2 Disturbance Power Test, 30MHz to 300MHz

Detector: Peak for pre-scan Quasi-Peak and Average at frequency with maximum peak(120kHz resolution bandwidth)

Limit: Table 2a, Columns 2&3 for household and similar appliances

Disturbance power limits for the frequency range 30 MHz to 300 MHz

Frequency range MHz	At mains terminals (dB (pW))	
	Quasi-peak	Average
30 to 300	45 to 55	35 to 45
Note1: The limit increases linearly with the frequency in the range 30 MHz to 300 MHz.		

Table 2b, Columns 2&3 for household and similar appliances

Margin when performing disturbance power measurement in the frequency range 30 MHz to 300 MHz

Frequency range MHz	Margin (dB)	
	Quasi-peak	Average
200 to 300	0 to 10 dB	-
<p>NOTE 1: Appliances are deemed to comply in the frequency range from 300 MHz to 1 000 MHz if both of the following conditions (1) and 2)) are fulfilled:</p> <p>1) all the measurement result are lower than the applicable limits (Table 2a) minus the corresponding margin (Table 2b); or the limit for the measurement with the average detector is met when using a receiver with a quasi-peak detector;</p> <p>2) No clock frequency or oscillator frequency of the EUT is more than or equal to 30 MHz.</p> <p>NOTE 2: The measured result at a particular frequency shall be less than the relevant limit minus the corresponding margin (at that frequency).</p>		

7.2.1 E.U.T. Operation

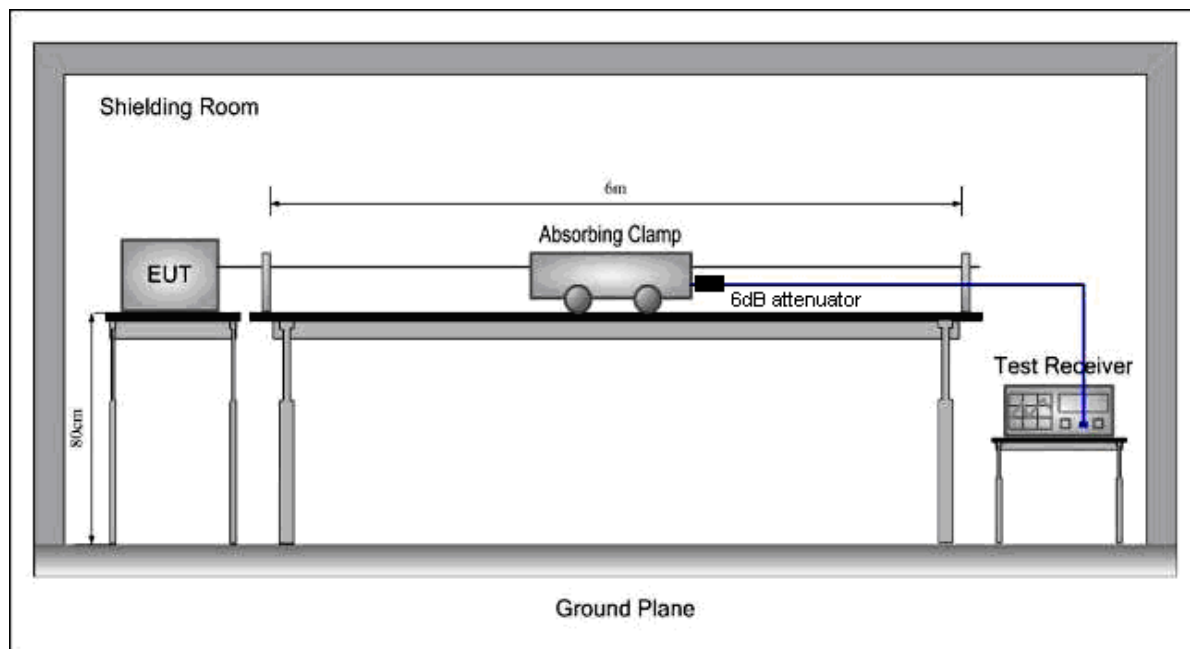
Test mode: Running mode

Note: A pre-test at 50MHz shall be made over a range of 0.9 to 1.1 times the rated voltage in order to check the level of disturbance varies considerably with the supply voltage, compliance test at AC 230V as no worse case was found.

Pre-scan was performed with peak detected on all ports, Quasi-peak & average measurements were performed at the frequencies at which maximum peak emission level were detected.

Please see the attached Quasi-peak and Average test results.

7.2.2 Test Setup

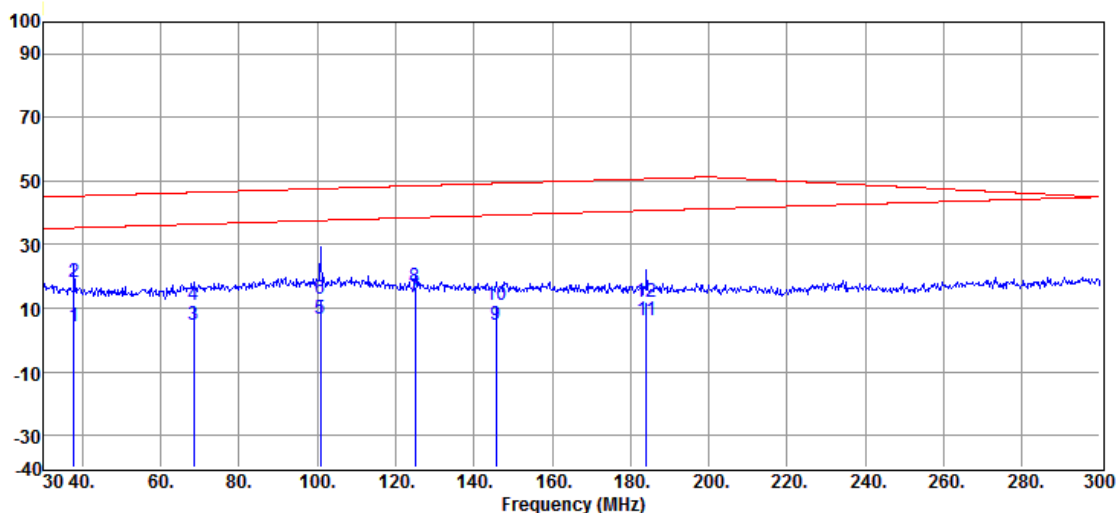


1. The disturbance power was measured with the EUT in a shielded room.
2. The distance between the clamp test set-up (the appliance, the lead to be measured and the absorbing clamp) and any other conductive objects (including persons, walls and ceiling, but excluding the floor) shall be at least 0,8 m. The appliance to be tested shall be placed on a non-metallic support table parallel to the floor. The height of the table shall be $0,1\text{ m} \pm 0,025\text{ m}$ for appliances primarily intended to be positioned on the floor in normal use, and $0,8\text{ m} \pm 0,05\text{ m}$ for other appliances.
3. Auxiliary leads normally extendible by the user, for instance with a loose end or leads fitted with a (by the user) easily replaceable plug or socket on one or both ends, shall in accordance with 6.2.3 be extended to a length of about 6 m. Any plug or socket which will not pass through the absorbing clamp due to its size shall be removed (see 6.2.3).
4. If the auxiliary lead is permanently fixed to the appliance and to the auxiliary apparatus and:
 - is shorter than 0,25 m, measurement are not to be made on these leads;
 - is longer than 0,25 m but shorter than twice the length of the absorbing clamp, it shall be extended to twice the length of the absorbing clamp;
 - is longer than twice the length of the absorbing clamp, measurements shall be made using the original lead.
5. The absorbing clamp was moved along the lead to obtain maximum disturbance.

7.2.3 Measurement Data

AC Mains:

Level (dBpW)



Item	Freq.	Read Level	Clamp Factor	Cable Loss	Result Level	Limit Line	Over Limit	Detector
(Mark)	(MHz)	(dBμV)	(dB)	(dB)	(dBpW)	(dBpW)	(dB)	(dB)
1	37.830	-2.57	5.85	1.20	4.48	35.29	-30.81	Average
2	37.830	11.11	5.85	1.20	18.16	45.29	-27.13	QP
3	68.340	-2.39	5.58	1.50	4.69	36.42	-31.73	Average
4	68.340	3.79	5.58	1.50	10.87	46.42	-35.55	QP
5	100.740	-2.02	7.19	1.70	6.87	37.62	-30.75	Average
6	100.740	4.12	7.19	1.70	13.01	47.62	-34.61	QP
7	125.040	5.31	6.15	1.86	13.32	38.52	-25.20	Average
8	125.040	8.97	6.15	1.86	16.98	48.52	-31.54	QP
9	145.560	-2.64	5.39	2.06	4.81	39.28	-34.47	Average
10	145.560	3.77	5.39	2.06	11.22	49.28	-38.06	QP
11	184.170	-1.21	5.08	2.25	6.12	40.71	-34.59	Average
12	184.170	4.71	5.08	2.25	12.04	50.71	-38.67	QP

Level = Read Level + EM Factor + Cable Loss.

7.3 Discontinuous Interference, 150kHz to 30MHz

Class/Severity: Clause 4.2 of EN 55014-1

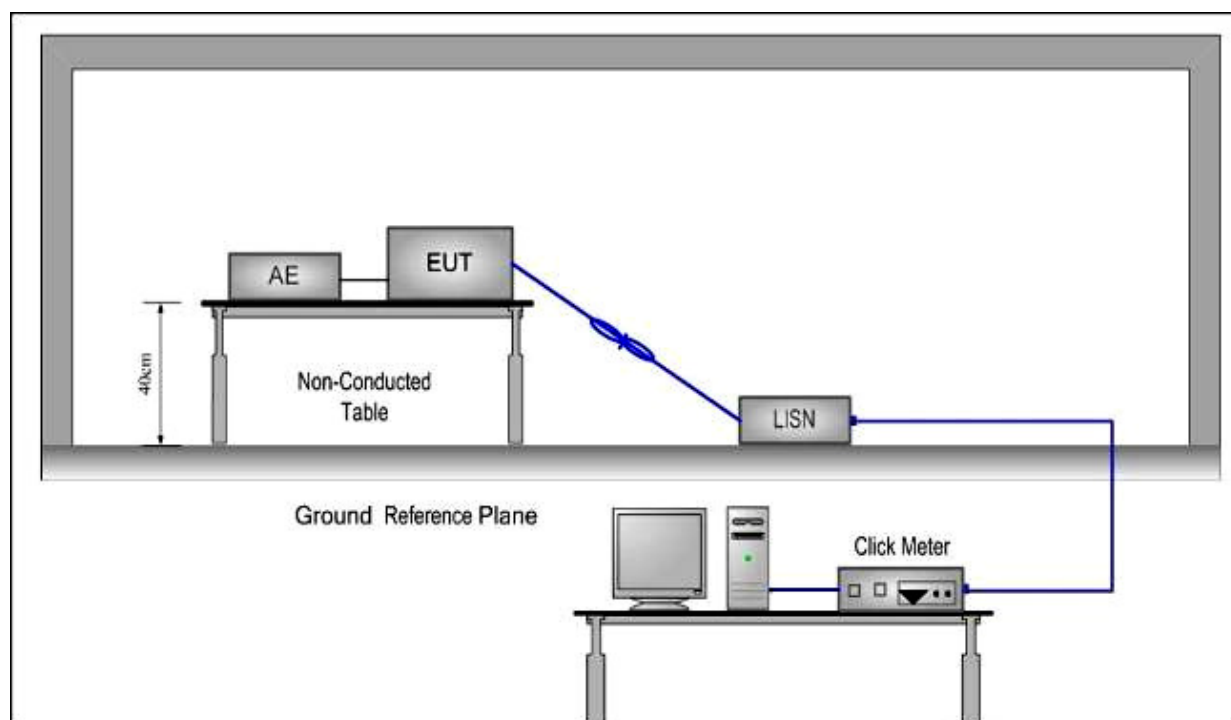
Limit

Frequency range MHz	Limit dB (μV)
0.15	66
0.5	56
1.4	56
30	60

7.3.1 E.U.T. Operation

Test mode: N/A

7.3.2 Test Setup and Procedure



1. The EUT was placed on a 0.4m high non-metallic table in shielded room, the ground of shielded room used as Ground Reference Plane (GRP), and keeps a distance of at least 0.8m from any of the other metallic surface. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane, but separated from metallic contact with the ground reference plane by 0.1m of insulation.
2. The EUT was connected to an artificial mains network and at a distance of 0.8m from it, the excess lead of

EUT was bundled with a length of 0.3m to 0.4m parallel to the main lead.

3. The number of counted clicks above the permitted limit for continuous interference and their duration, spacing and rate were measured during the observation time. When relevant, a permitted(relaxed) limit for clicks were calculated and a second measurement was performed. Determination of compliance with the permitted limit according to the upper quartile method.

7.3.3 Measurement Data

Conclusion: The EUT couldn't generate discontinuous disturbance, because it isn't thermostatically controlled appliances, automatic programme controlled machines and other electrically controlled or operated appliances.

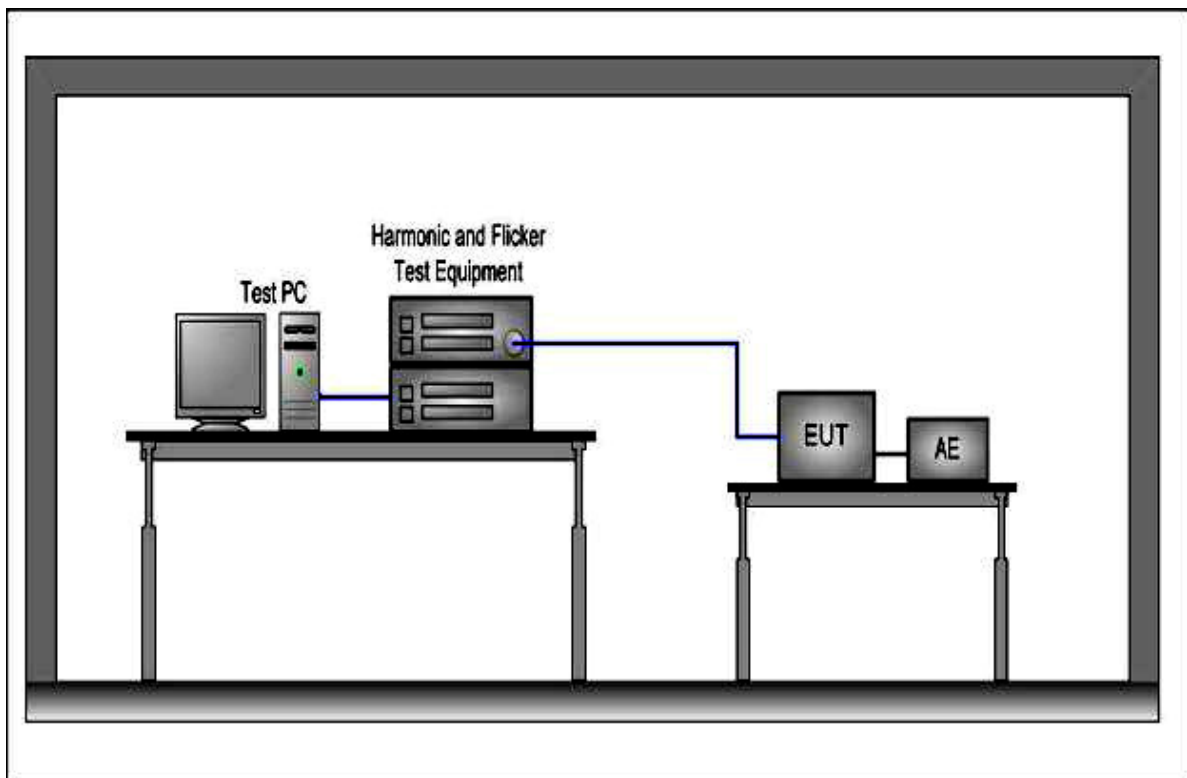
7.4 Harmonics Test Result

Measurement Time: 2.5mins
Class / Severity: Class A

7.4.1 E.U.T. Operation

Test mode: Running mode

7.4.2 Test Setup and Procedure



1. The EUT was tested with the equipment configured to its rated current.
2. The measurements were carried out under steady conditions. When a piece of EUT is brought into operation or is taken out of operation, manually or automatically, harmonic currents and power are not taken into account at first 10s following the switching event. EUT shall not be in standby mode for more than 10% of any observation period.
3. Harmonics of the fundamental current were measured using a digital power meter with an analogue output and frequency analyser which was integrated in the harmonic & flicker test system.
4. For each harmonic order, measure the 1.5 s smoothed r.m.s. harmonic current in each DFT time window and calculate the arithmetic average of the measured values from the DFT time windows, over the entire observation period. Each harmonic order, all 1.5 s smoothed r.m.s. harmonic current values and the average values for the individual harmonic currents, taken over the entire test observation period shall be less than or equal to the applicable limits.



7.4.3 Measurement Data

Power Factor: 0.975

Average harmonic current results

Hn	I _{eff} [A]	% of Limit	Limit [A]	Result
1	427.558E-3			
2	718.546E-6	0.067	1.08	PASS
3	98.040E-3	4.263	2.30	PASS
4	2.153E-3	0.501	430.00E-3	PASS
5	8.914E-3	0.782	1.14	PASS
6	678.885E-6	0.226	300.00E-3	PASS
7	2.457E-3	0.319	770.00E-3	PASS
8	790.142E-6	0.344	230.00E-3	PASS
9	1.299E-3	0.325	400.00E-3	PASS
10	712.667E-6	0.387	184.00E-3	PASS
11	694.602E-6	0.210	330.00E-3	PASS
12	756.137E-6	0.493	153.33E-3	PASS
13	1.138E-3	0.542	210.00E-3	PASS
14	710.148E-6	0.540	131.43E-3	PASS
15	776.061E-6	0.517	150.00E-3	PASS
16	708.505E-6	0.616	115.00E-3	PASS
17	1.124E-3	0.849	132.35E-3	PASS
18	760.572E-6	0.744	102.22E-3	PASS
19	708.029E-6	0.598	118.42E-3	PASS
20	731.940E-6	0.796	92.00E-3	PASS
21	1.038E-3	0.646	160.71E-3	PASS
22	758.786E-6	0.907	83.64E-3	PASS
23	684.173E-6	0.466	146.74E-3	PASS
24	706.211E-6	0.921	76.66E-3	PASS
25	670.113E-6	0.496	135.00E-3	PASS
26	0.999E-3	1.412	70.77E-3	PASS
27	745.415E-6	0.596	124.99E-3	PASS
28	666.898E-6	1.015	65.71E-3	PASS
29	732.434E-6	0.629	116.39E-3	PASS
30	945.637E-6	1.542	61.33E-3	PASS
31	698.608E-6	0.642	108.87E-3	PASS
32	666.869E-6	1.160	57.50E-3	PASS
33	746.225E-6	0.730	102.27E-3	PASS
34	898.411E-6	1.660	54.12E-3	PASS
35	765.890E-6	0.794	96.44E-3	PASS
36	650.329E-6	1.272	51.11E-3	PASS
37	688.835E-6	0.755	91.21E-3	PASS
38	732.304E-6	1.512	48.42E-3	PASS
39	822.890E-6	0.951	86.53E-3	PASS
40	672.346E-6	1.462	46.00E-3	PASS



Maximum harmonic current results

Hn	I _{eff} [A]	% of Limit	Limit [A]	Result
1	485.492E-3			
2	929.155E-6	0.057	1.62	PASS
3	108.284E-3	3.139	3.45	PASS
4	2.691E-3	0.417	645.00E-3	PASS
5	10.893E-3	0.637	1.71	PASS
6	812.920E-6	0.181	450.00E-3	PASS
7	3.450E-3	0.299	1.15	PASS
8	973.715E-6	0.282	345.00E-3	PASS
9	1.819E-3	0.303	600.00E-3	PASS
10	1.031E-3	0.373	276.00E-3	PASS
11	1.012E-3	0.205	495.00E-3	PASS
12	1.035E-3	0.450	229.99E-3	PASS
13	1.398E-3	0.444	315.00E-3	PASS
14	852.802E-6	0.433	197.15E-3	PASS
15	1.092E-3	0.485	225.00E-3	PASS
16	877.653E-6	0.509	172.50E-3	PASS
17	1.421E-3	0.716	198.52E-3	PASS
18	985.541E-6	0.643	153.33E-3	PASS
19	1.004E-3	0.565	177.63E-3	PASS
20	943.183E-6	0.683	138.00E-3	PASS
21	1.262E-3	0.785	160.71E-3	PASS
22	934.098E-6	0.745	125.46E-3	PASS
23	924.403E-6	0.630	146.74E-3	PASS
24	873.596E-6	0.760	114.99E-3	PASS
25	899.067E-6	0.666	135.00E-3	PASS
26	1.247E-3	1.175	106.16E-3	PASS
27	1.013E-3	0.810	124.99E-3	PASS
28	862.278E-6	0.875	98.57E-3	PASS
29	1.043E-3	0.896	116.39E-3	PASS
30	1.078E-3	1.171	92.00E-3	PASS
31	970.217E-6	0.891	108.87E-3	PASS
32	822.861E-6	0.954	86.25E-3	PASS
33	988.280E-6	0.966	102.27E-3	PASS
34	1.091E-3	1.344	81.18E-3	PASS
35	1.043E-3	1.082	96.44E-3	PASS
36	791.811E-6	1.033	76.66E-3	PASS
37	938.626E-6	1.029	91.21E-3	PASS
38	865.870E-6	1.192	72.63E-3	PASS
39	1.017E-3	1.175	86.53E-3	PASS
40	906.502E-6	1.314	69.00E-3	PASS



Maximum harmonic voltage results

Hn	Ueff [V]	Ueff [%]	Limit [%]	Result
1	231.05	100.457		
2	91.13E-3	0.040	0.2	PASS
3	104.35E-3	0.045	0.9	PASS
4	16.94E-3	0.007	0.2	PASS
5	30.64E-3	0.013	0.4	PASS
6	11.75E-3	0.005	0.2	PASS
7	50.47E-3	0.022	0.3	PASS
8	14.81E-3	0.006	0.2	PASS
9	41.84E-3	0.018	0.2	PASS
10	13.81E-3	0.006	0.2	PASS
11	85.36E-3	0.037	0.1	PASS
12	14.35E-3	0.006	0.1	PASS
13	24.05E-3	0.010	0.1	PASS
14	13.04E-3	0.006	0.1	PASS
15	78.15E-3	0.034	0.1	PASS
16	14.59E-3	0.006	0.1	PASS
17	28.67E-3	0.012	0.1	PASS
18	16.43E-3	0.007	0.1	PASS
19	76.01E-3	0.033	0.1	PASS
20	16.66E-3	0.007	0.1	PASS
21	49.31E-3	0.021	0.1	PASS
22	17.82E-3	0.008	0.1	PASS
23	66.43E-3	0.029	0.1	PASS
24	19.01E-3	0.008	0.1	PASS
25	53.59E-3	0.023	0.1	PASS
26	17.13E-3	0.007	0.1	PASS
27	61.65E-3	0.027	0.1	PASS
28	15.89E-3	0.007	0.1	PASS
29	55.19E-3	0.024	0.1	PASS
30	18.75E-3	0.008	0.1	PASS
31	56.44E-3	0.025	0.1	PASS
32	15.03E-3	0.007	0.1	PASS
33	58.66E-3	0.026	0.1	PASS
34	15.38E-3	0.007	0.1	PASS
35	46.98E-3	0.020	0.1	PASS
36	13.12E-3	0.006	0.1	PASS
37	60.68E-3	0.026	0.1	PASS
38	16.57E-3	0.007	0.1	PASS
39	41.46E-3	0.018	0.1	PASS
40	14.70E-3	0.006	0.1	PASS

7.5 Flicker Test Result

Measurement Time: 120 mins
Class / Severity: Clause 5 of EN 61000-3-3

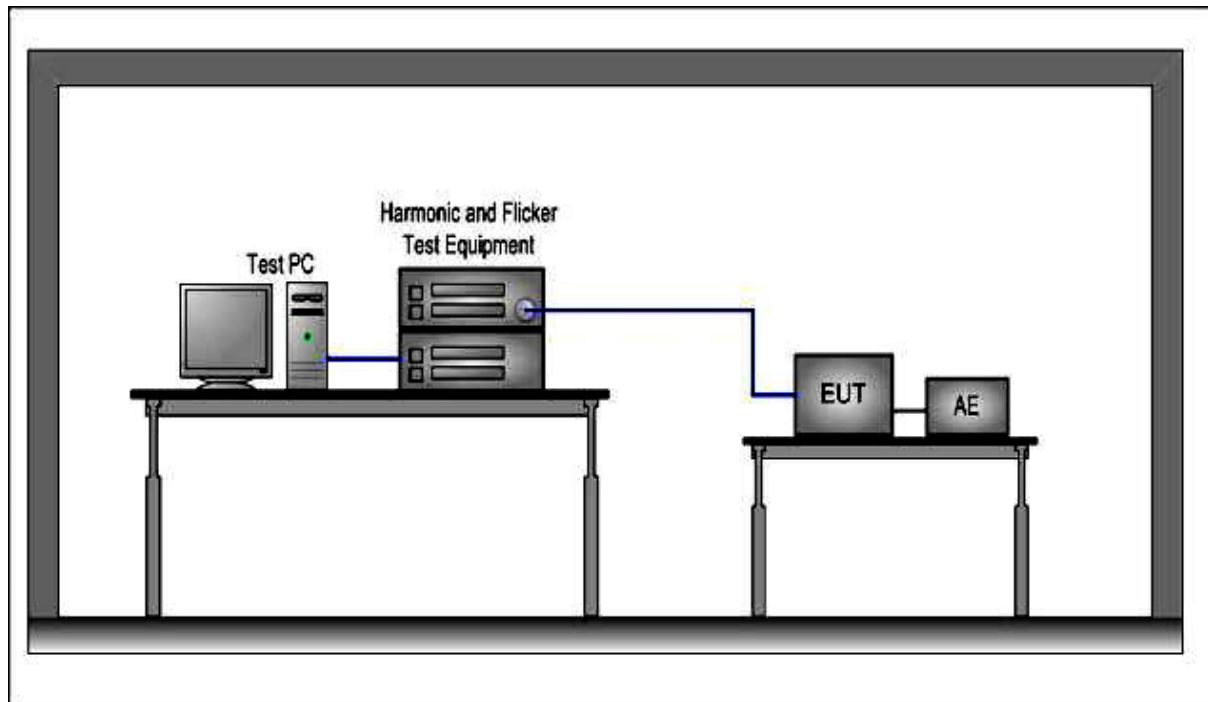
7.5.1 E.U.T. Operation

Test mode: Running mode

Note: "Pst and Plt requirements shall not be applied to voltage changes caused by manual switching. The limits shall not be applied to voltage changes associated with emergency switching or emergency interruptions."

Please also refer to Annex A (Application of limits and type test conditions) for details in EN 61000-3-3.

7.5.2 Test Setup and Procedure



1. The test supply voltage (open-circuit voltage) was the rated voltage of the EUT. The test voltage was maintained within $\pm 2\%$ of the nominal value. The frequency was 50 Hz $\pm 0.5\%$.
2. The voltage fluctuations and flicker were measured at the supply terminals of the EUT.
3. The observation period, T_p , for the assessment of flicker values by flicker measurement, flicker simulation, or analytical method was:
 - for Pst, $T_p = 10$ min;
 - for Plt, $T_p = 2$ h.

The observation period included that part of the whole operation cycle in which the EUT produces the most unfavorable sequence of voltage changes.



7.5.3 Measurement Data

Maximum Flicker results

	EUT values	Limit	Result
Pst	0.028	1.00	PASS
Plt	0.028	0.65	PASS
dc [%]	0.000	3.30	PASS
dmax [%]	0.169	4.00	PASS
Tmax [s]	0.000	0.50	PASS

8 Electromagnetic Susceptibility Test Results

Test Requirement: EN 55014-2

Test Method: Hence the EUT is defined as category I of EN 55014-2 and see the below

There is no need for immunity tests to be performed on this product in accordance with clause 7.2.1 of EN 55014-2 which states:

“Category I apparatus is deemed to fulfil the relevant immunity requirement without testing.”

For further details, please refer to clause 4.2 of EN 55014-2 which states:

“Category I: apparatus containing no electronic control circuitry.

All appliances having no electronic control circuitry are considered to be category I.

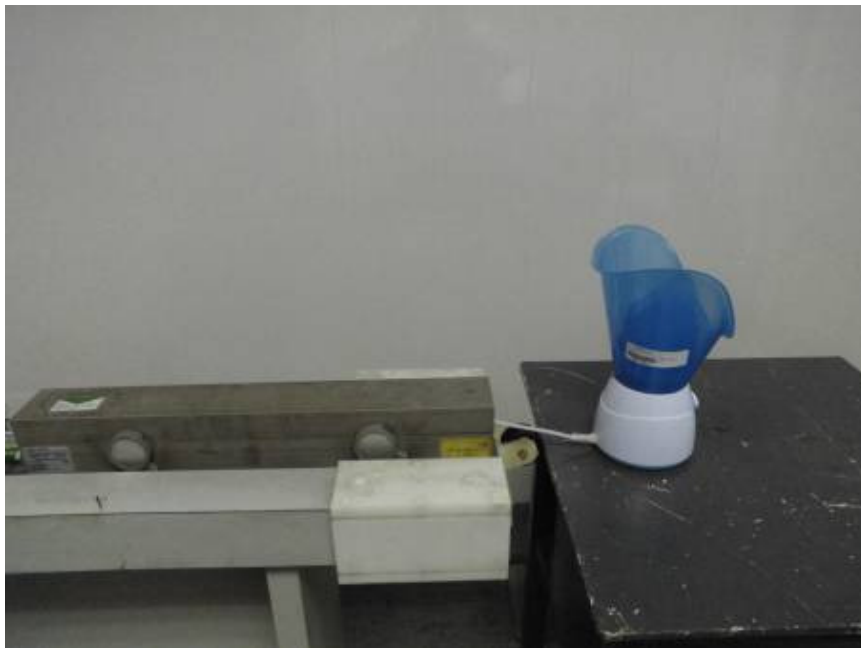
Electric circuits consisting of passive components (such as radio interference suppression capacitors or inductors, mains transformers, mains frequency rectifiers and heating elements) are not considered to be electronic control circuitry. EXAMPLES Appliances operated with a motor and mechanical switch only; lighting toys with a battery and a LED or incandescent lamp without additional electronic control circuitry; track sets without electronic control circuitry; heating or cooling appliances without electronic control circuitry; tools without electronic controls and all other apparatus containing only electromechanical components (e. g. switches or thermostats).”

9 Photographs

9.1 Conducted Emissions on Mains Terminals Test Setup



9.2 Disturbance Power Test Setup



9.3 Harmonics & Flicker Test Setup

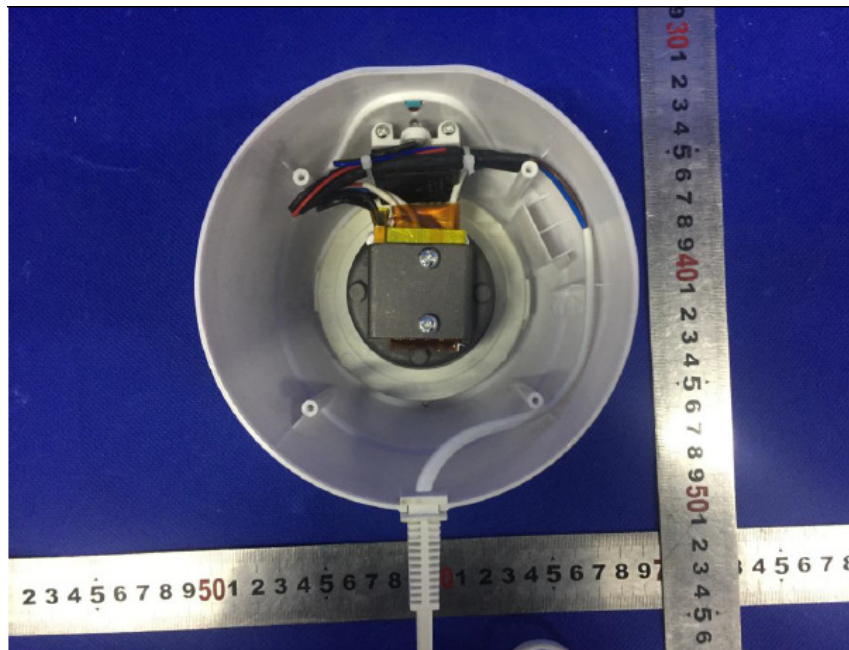


10 EUT Constructional Details

10.1 Exterior of EUT



10.2 Interior of EUT



--End of the Report--