



**SGS-CSTC Standards Technical Services
(Shanghai) Co., Ltd.**

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Report No.: SHEM140800205901

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1 Cover Page

TEST REPORT

Application No.:	SHEM1408002059HS
Applicant:	CIXI RUNSUN ELECTRICAL APPLIANCE CO. LTD.
Product Name:	Mini Washing Machine
Model No.(EUT):	XPB20-800D
Add Model No.:	XPB36-800S, XPB48-800S, XPB52-800S, XPB25-800S, XPB28-800S, XPB32-800S, XPB42-800S, XPB58-800S, XPB60-800S, XPB68-800S, XPB72-800S, XPB78-800S, XPB80-800S, XPB25-800D, XPB38-800D, XPB78-800D, XPB15-800D, XPB18-800D, XPB28-800D, XPB30-800D, XPB35-800D, XPB42-800D, XPB48-800D, XPB52-800D, XPB58-800D, XPB62-800D, XPB68-800D
Standards:	EN 55014-1:2006/A1:2009/A2:2011, EN 55014-2:1997/A1:2001/A2:2008, EN 61000-3-2:2006/A1:2009/A2:2009, EN 61000-3-3:2013.
Date of Receipt:	August 15, 2014
Date of Test:	August 19, 2014 to August 20, 2014
Date of Issue:	September 10, 2014
Test Result:	Pass*

* In the configuration tested, the EUT (Equipment under test) 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 EC Declaration of Conformity and compliance with all relevant EC Directives.



Tony Wu
E&E Section Manager
SGS-CSTC (Shanghai) Co., Ltd.



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.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. All test results in this report can be traceable to National or International Standards.

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2 Version

Revision Record				
Version	Chapter	Date	Modifier	Remark
00		September 10, 2014		Original

Authorized for issue by:				
Engineer				<i>Terry Hou</i>
		Terry Hou		
Clerk				<i>Tricia Jiang</i>
		Tricia Jiang		
Reviewer				<i>Kenx Xu</i>
		Kenx Xu		

3 Test Summary

ELECTROMAGNETIC INTERFERENCE (EMI)			
Test	Test Requirement	Test Method	Result
Conducted Emission on AC (150kHz to 30MHz)	EN 55014-1:2006 /A1:2009/A2:2011	EN 55014-1:2006 /A1:2009/A2:2011	PASS
Disturbance Power (30MHz to 300MHz)	EN 55014-1:2006 /A1:2009/A2:2011	EN 55014-1:2006 /A1:2009/A2:2011	PASS
Discontinuous Interference on AC (150kHz to 30MHz)	EN 55014-1:2006 /A1:2009/A2:2011	EN 55014-1:2006 /A1:2009/A2:2011	PASS
Harmonic Emission on AC (100Hz to 2kHz)	EN 61000-3-2:2006 /A1:2009/A2:2009	EN 61000-3-2:2006 /A1:2009/A2:2009	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 55014-2:1997 /A1:2001/A2:2008	N/A	N/A
Remark:			
♀ 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. N/A Not applicable, Please refer to Section 8 of this report for details. Note: There are 28 models mentioned in this report, and they are the similar in electrical and electronic characters. Only the model XPB20-800D was tested since their differences were the model number and appearance deviation.			

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5 General Information

5.1 Client Information

Applicant: CIXI RUNSUN ELECTRICAL APPLIANCE CO. LTD.
Address of Applicant: LONGTOUCHANG INDUSTRIAL PARK, LONGSHAN TOWN, CIXI, ZHEJIANG, CHINA
Manufacturer: CIXI RUNSUN ELECTRICAL APPLIANCE CO. LTD.
Address of Manufacturer: LONGTOUCHANG INDUSTRIAL PARK, LONGSHAN TOWN, CIXI, ZHEJIANG, CHINA
Factory: CIXI RUNSUN ELECTRICAL APPLIANCE CO. LTD.
Address of Factory: LONGTOUCHANG INDUSTRIAL PARK, LONGSHAN TOWN, CIXI, ZHEJIANG, CHINA

5.2 Details of E.U.T.

Power Supply: AC 220V-240V~ 50/60Hz
Test voltage: AC 230V, 50Hz
Cable Type: About 1.60m Length (3 wires) for AC cable
Rated Power: Washing input Power:170W

5.3 E.U.T Operation Mode

Functions/Modes: On mode
On mode: Keep EUT operating with water continuously but without textiles.

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 tests were performed at:

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

No.588 West Jindu Road, Songjiang District, Shanghai, China. 201612.

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No tests were sub-contracted.

5.11 Test Facility

- **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. Date of expiry: 2017-07-14.

- **FCC – Registration No.: 402683**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered and fully described in a report filed with the Federal Communications Commission (FCC). The acceptance letter from the FCC is maintained in our files. Registration No.: 402683, Expiry Date: 2015-02-22.

- **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. Expiry Date: 2017-06-18.

- **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 and C-4336 respectively. Date of Registration: 2012-05-29. Date of Expiry: 2015-05-28.

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	2014-02-14	2015-02-13
2	Line impedance stabilization network	SCHWARZBECK	NSLK8127	8127-490	2014-02-14	2015-02-13
3	Line impedance stabilization network	EMCO	3816/2	00034161	/	/

Disturbance Power

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal.Due date
1	EMI test receiver	Rohde & Schwarz	ESCS30	100086	2014-02-14	2015-02-13
2	6dB Attenuator	HUAXIANG	TS2-6dB	11051002	2014-02-14	2015-02-13
3	Absorbing clamp	LUTHI	MDS-21	3583	2014-03-10	2015-03-09

Clicks

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal.Due date
1	Click analyzer	SCHAFFNER	DIA1512D	100/05/428	2014-02-13	2015-02-12

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	2014-05-09	2015-05-08
2	AC SOURCE 6KVA	EM test	ACS500	V0507100126	2014-05-09	2015-05-08

General Equipment

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal.Due date
1	Digital pressure meter	YONGZHI	DYM3-01	101012	2013-03-11	2015-03-09
2	Temperature & humidity recorder	ShangHai weather meter work	ZJ 1-2B	803136	2014-08-26	2015-08-25
3	Temperature & humidity recorder	ShangHai weather meter work	ZJ 1-2B	F304020153, 20101201 FS100A6 K	2014-08-26	2015-08-25
4	Digital Multimeter	FLUKE	17B	19720439	2014-01-20	2015-01-19

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

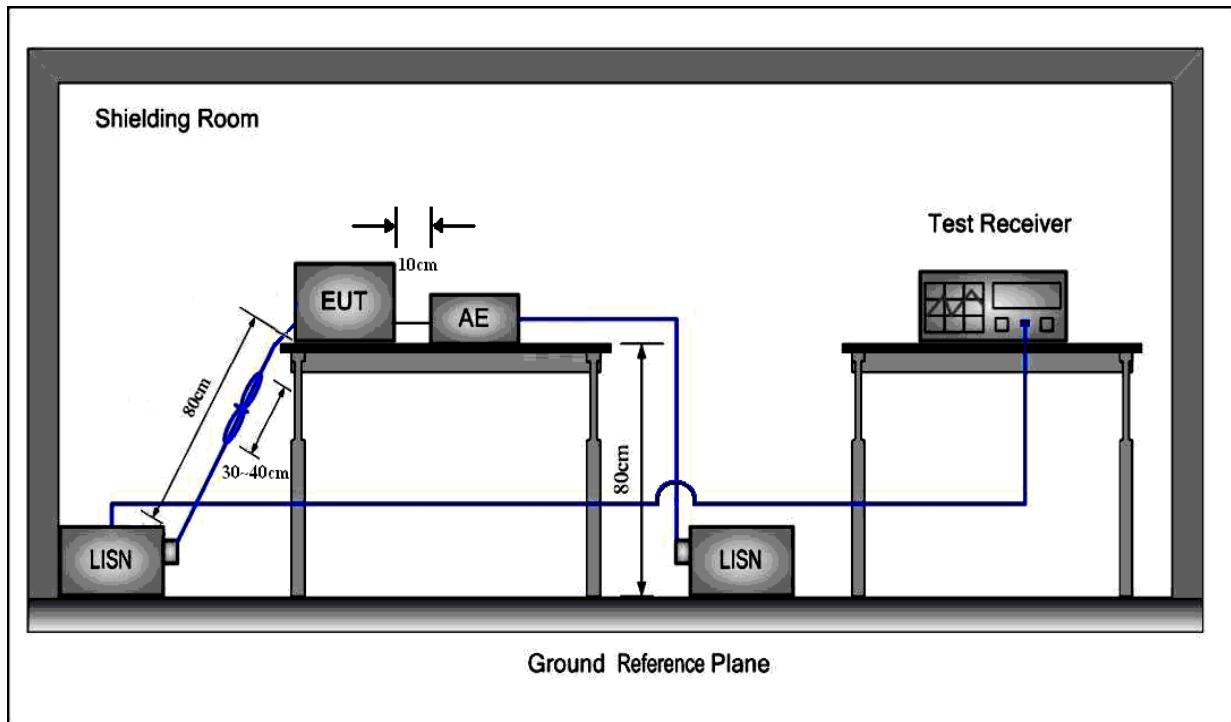
Test mode: On mode

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.

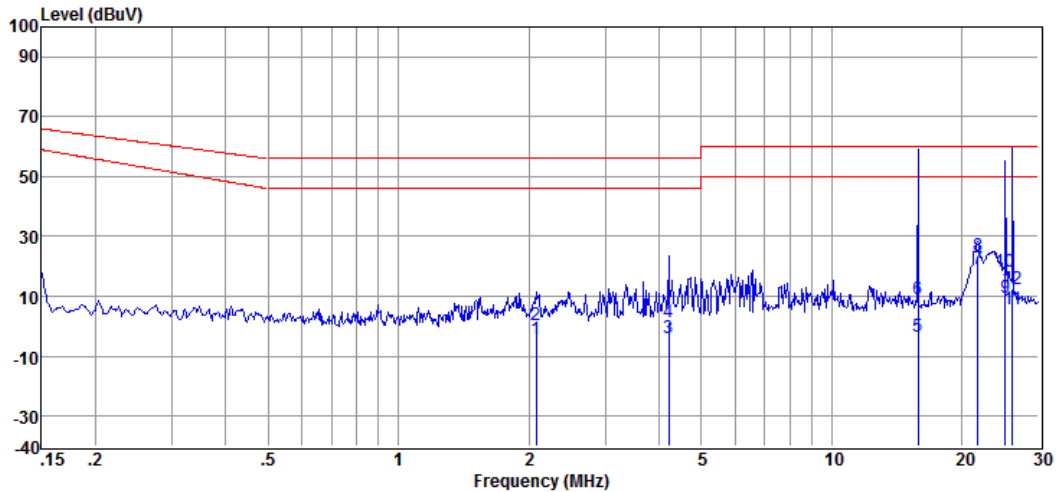
7.1.2 Test Setup and Procedure



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.

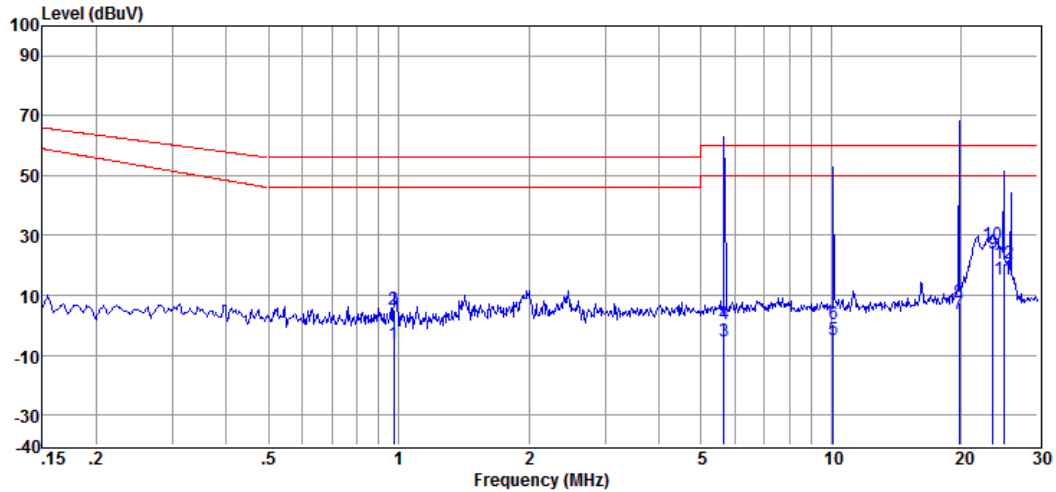
7.1.3 Measurement Data

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	2.077	-4.74	0.36	0.10	-4.28	46.00	-50.28	Average
2	2.077	0.01	0.36	0.10	0.47	56.00	-55.53	QP
3	4.202	-4.54	0.38	0.18	-3.98	46.00	-49.98	Average
4	4.202	1.02	0.38	0.18	1.58	56.00	-54.42	QP
5	15.801	-3.90	0.35	0.12	-3.43	50.00	-53.43	Average
6	15.801	8.66	0.35	0.12	9.13	60.00	-50.87	QP
7	21.715	18.58	0.42	0.20	19.20	50.00	-30.80	Average
8	21.715	22.95	0.42	0.20	23.57	60.00	-36.43	QP
9	25.188	9.10	0.41	0.20	9.71	50.00	-40.29	Average
10	25.188	17.40	0.41	0.20	18.01	60.00	-41.99	QP
11	26.139	4.96	0.44	0.20	5.60	50.00	-44.40	Average
12	26.139	12.00	0.44	0.20	12.64	60.00	-47.36	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	0.974	-6.41	0.23	0.10	-6.08	46.00	-52.08	Average
2	0.974	4.88	0.23	0.10	5.21	56.00	-50.79	QP
3	5.653	-5.78	0.43	0.20	-5.15	50.00	-55.15	Average
4	5.653	-0.02	0.43	0.20	0.61	60.00	-59.39	QP
5	10.125	-5.50	0.37	0.10	-5.03	50.00	-55.03	Average
6	10.125	0.00	0.37	0.10	0.47	60.00	-59.53	QP
7	19.740	3.07	0.45	0.19	3.71	50.00	-46.29	Average
8	19.740	7.08	0.45	0.19	7.72	60.00	-52.28	QP
9	23.636	23.35	0.47	0.20	24.02	50.00	-25.98	Average
10	23.636	26.27	0.47	0.20	26.94	60.00	-33.06	QP
11	25.055	14.59	0.47	0.20	15.26	50.00	-34.74	Average
12	25.055	19.81	0.47	0.20	20.48	60.00	-39.52	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	-
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: 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; 2) No clock frequency or oscillator frequency of the EUT is more than or equal to 30 MHz. NOTE 2: The measured result at a particular frequency shall be less than the relevant limit minus the corresponding margin (at that frequency).		

7.2.1 E.U.T. Operation

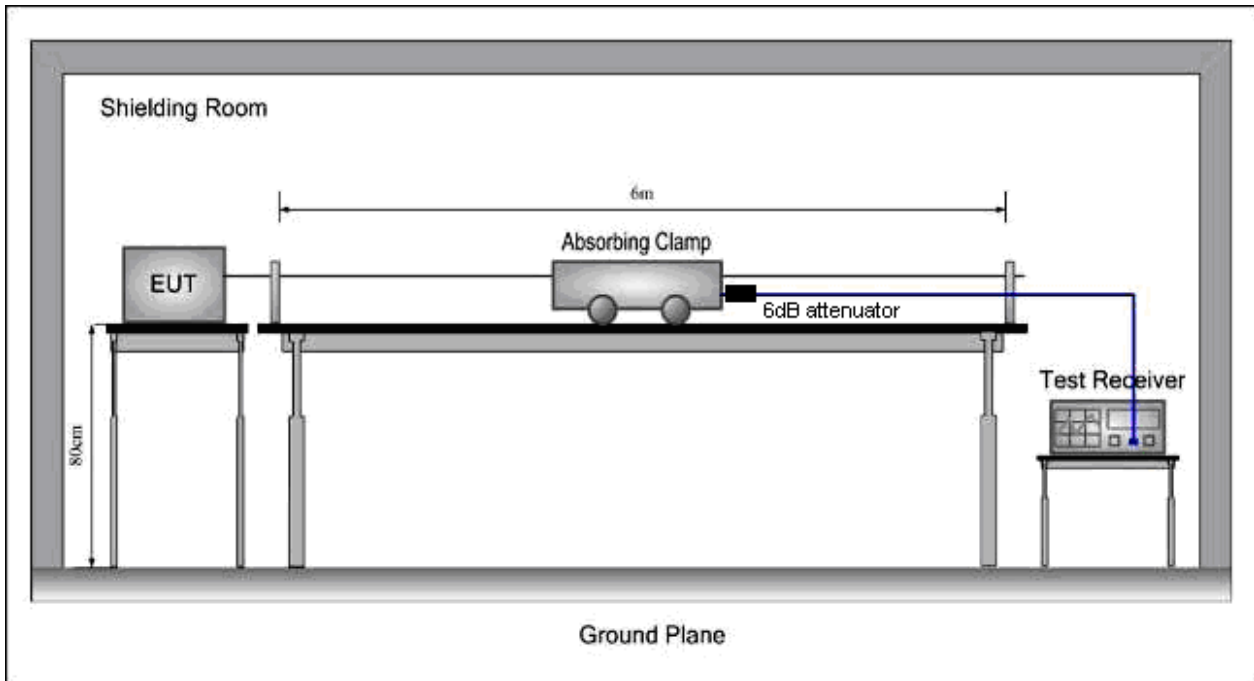
Test mode: On mode

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

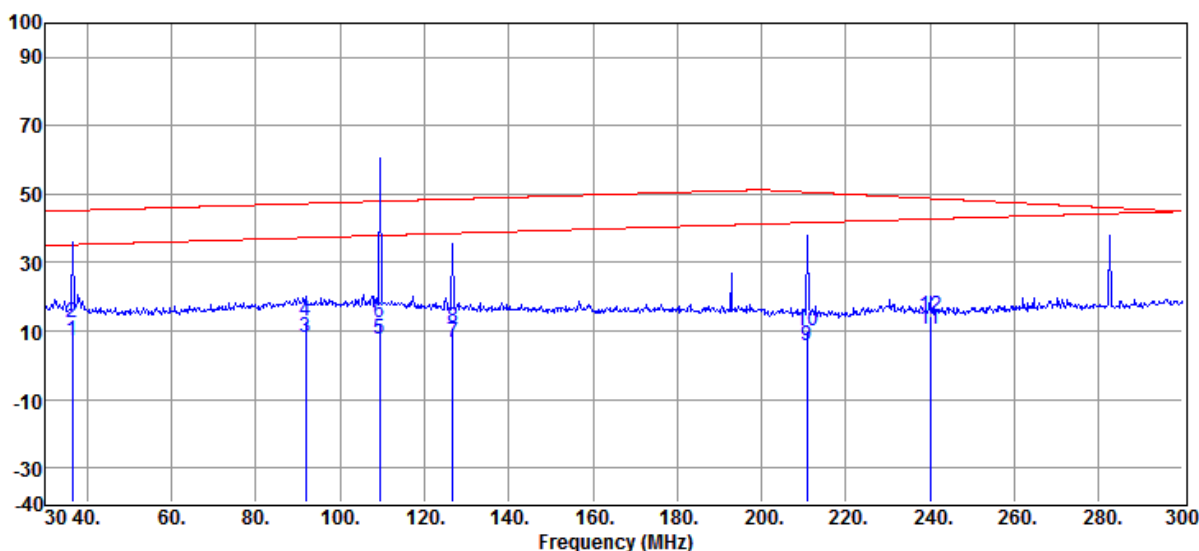


1. The disturbance power was measured with the EUT in a shielded room.
2. The distance between the clamp test set-up (the appliance, the lead to be measured and the absorbing clamp) and any other conductive objects (including persons, walls and ceiling, but excluding the floor) shall be at least 0,8 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	36.480	-0.27	6.13	1.20	7.06	35.24	-28.18	Average
2	36.480	5.04	6.13	1.20	12.37	45.24	-32.87	QP
3	91.830	-0.97	7.50	1.62	8.15	37.29	-29.14	Average
4	91.830	3.64	7.50	1.62	12.76	47.29	-34.53	QP
5	109.380	-1.27	7.26	1.75	7.74	37.94	-30.20	Average
6	109.380	3.58	7.26	1.75	12.59	47.94	-35.35	QP
7	126.660	-1.37	6.09	1.87	6.59	38.58	-31.99	Average
8	126.660	2.94	6.09	1.87	10.90	48.58	-37.68	QP
9	210.900	-1.68	4.83	2.41	5.56	41.70	-36.14	Average
10	210.900	2.70	4.83	2.41	9.94	50.61	-40.67	QP
11	240.060	3.23	4.47	2.64	10.34	42.78	-32.44	Average
12	240.060	7.12	4.47	2.64	14.23	48.78	-34.55	QP

Level = Read Level + EM Factor + Cable Loss.

7.3 Discontinuous Interference, 150kHz to 30MHz

Class/Severity: Clause 4.2 of EN 55014-1

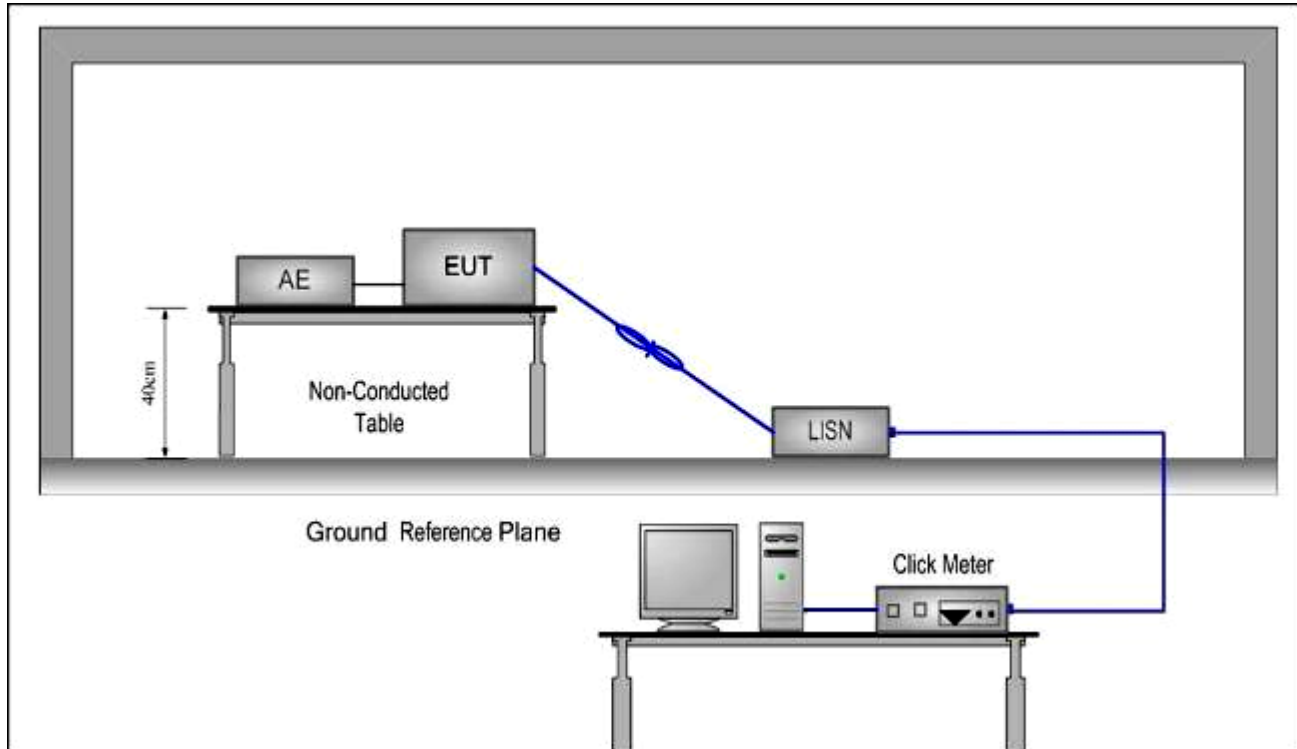
Limit

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

7.3.1 E.U.T. Operation

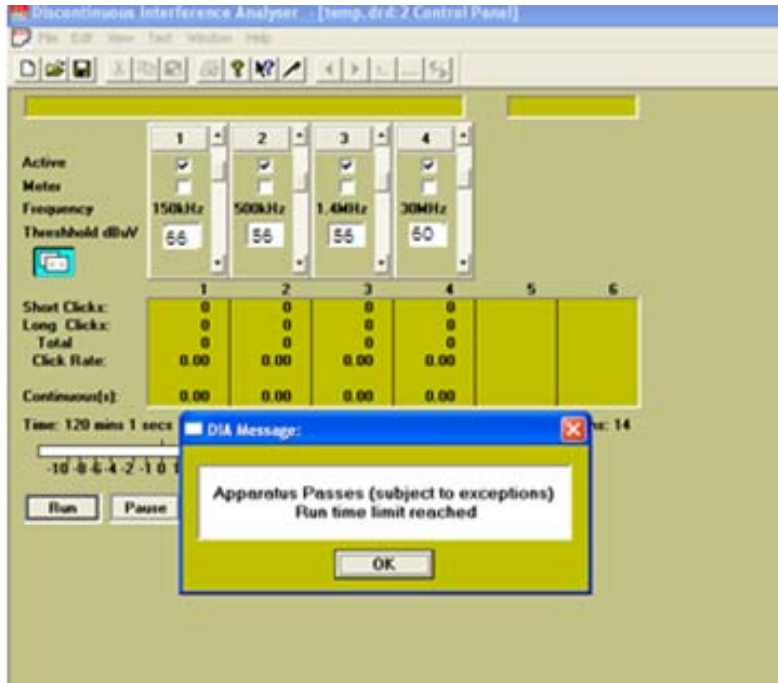
Test mode: On mode

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



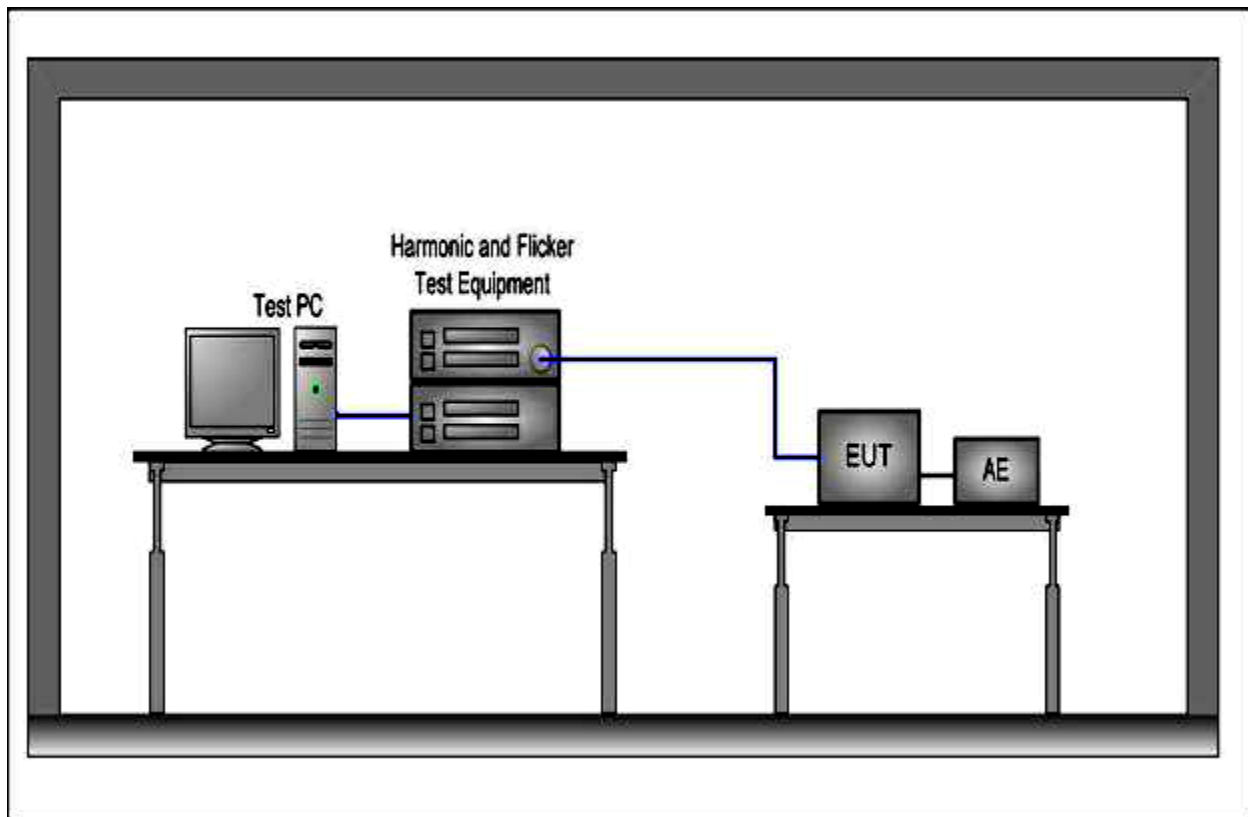
7.4 Harmonics Test Result

Measurement Time: 30mins
Class / Severity: Class A

7.4.1 E.U.T. Operation

Test mode: On 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: 0.763

Average harmonic current results

Hn	I _{eff} [A]	% of Limit	Limit [A]	Result
1	467.904E-3			
2	1.206E-3	0.112	1.08	PASS
3	34.071E-3	1.481	2.30	PASS
4	581.392E-6	0.135	430.00E-3	PASS
5	9.790E-3	0.859	1.14	PASS
6	367.396E-6	0.122	300.00E-3	PASS
7	944.551E-6	0.123	770.00E-3	PASS
8	281.339E-6	0.122	230.00E-3	PASS
9	1.216E-3	0.304	400.00E-3	PASS
10	232.040E-6	0.126	184.00E-3	PASS
11	708.599E-6	0.215	330.00E-3	PASS
12	237.235E-6	0.155	153.33E-3	PASS
13	460.474E-6	0.219	210.00E-3	PASS
14	220.377E-6	0.168	131.43E-3	PASS
15	301.132E-6	0.201	150.00E-3	PASS
16	194.031E-6	0.169	115.00E-3	PASS
17	189.015E-6	0.143	132.35E-3	PASS
18	190.308E-6	0.186	102.22E-3	PASS
19	200.449E-6	0.169	118.42E-3	PASS
20	171.478E-6	0.186	92.00E-3	PASS
21	210.769E-6	0.131	160.71E-3	PASS
22	817.266E-6	0.977	83.64E-3	PASS
23	198.008E-6	0.135	146.74E-3	PASS
24	156.707E-6	0.204	76.66E-3	PASS
25	180.888E-6	0.134	135.00E-3	PASS
26	159.732E-6	0.226	70.77E-3	PASS
27	173.064E-6	0.138	124.99E-3	PASS
28	153.252E-6	0.233	65.71E-3	PASS
29	166.712E-6	0.143	116.39E-3	PASS
30	147.979E-6	0.241	61.33E-3	PASS
31	188.089E-6	0.173	108.87E-3	PASS
32	145.973E-6	0.254	57.50E-3	PASS
33	152.644E-6	0.149	102.27E-3	PASS
34	150.807E-6	0.279	54.12E-3	PASS
35	176.904E-6	0.183	96.44E-3	PASS
36	141.059E-6	0.276	51.11E-3	PASS
37	141.211E-6	0.155	91.21E-3	PASS
38	135.334E-6	0.280	48.42E-3	PASS
39	140.332E-6	0.162	86.53E-3	PASS
40	136.610E-6	0.297	46.00E-3	PASS

Maximum harmonic current results

Hn	I _{eff} [A]	% of Limit	Limit [A]	Result
1	609.802E-3			
2	7.520E-3	0.464	1.62	PASS
3	46.405E-3	1.345	3.45	PASS
4	3.540E-3	0.549	645.00E-3	PASS
5	13.804E-3	0.807	1.71	PASS
6	2.302E-3	0.511	450.00E-3	PASS
7	1.834E-3	0.159	1.15	PASS
8	1.491E-3	0.432	345.00E-3	PASS
9	1.956E-3	0.326	600.00E-3	PASS
10	1.100E-3	0.399	276.00E-3	PASS
11	1.309E-3	0.264	495.00E-3	PASS
12	1.145E-3	0.498	229.99E-3	PASS
13	1.161E-3	0.368	315.00E-3	PASS
14	922.127E-6	0.468	197.15E-3	PASS
15	873.579E-6	0.388	225.00E-3	PASS
16	742.421E-6	0.430	172.50E-3	PASS
17	660.871E-6	0.333	198.52E-3	PASS
18	716.948E-6	0.468	153.33E-3	PASS
19	743.616E-6	0.419	177.63E-3	PASS
20	669.747E-6	0.485	138.00E-3	PASS
21	621.041E-6	0.386	160.71E-3	PASS
22	1.238E-3	0.987	125.46E-3	PASS
23	592.226E-6	0.404	146.74E-3	PASS
24	514.603E-6	0.448	114.99E-3	PASS
25	612.019E-6	0.453	135.00E-3	PASS
26	536.363E-6	0.505	106.16E-3	PASS
27	537.952E-6	0.430	124.99E-3	PASS
28	500.764E-6	0.508	98.57E-3	PASS
29	538.340E-6	0.463	116.39E-3	PASS
30	426.657E-6	0.464	92.00E-3	PASS
31	474.195E-6	0.436	108.87E-3	PASS
32	468.077E-6	0.543	86.25E-3	PASS
33	476.886E-6	0.466	102.27E-3	PASS
34	437.044E-6	0.538	81.18E-3	PASS
35	457.396E-6	0.474	96.44E-3	PASS
36	440.272E-6	0.574	76.66E-3	PASS
37	388.275E-6	0.426	91.21E-3	PASS
38	357.741E-6	0.493	72.63E-3	PASS
39	387.458E-6	0.448	86.53E-3	PASS
40	374.042E-6	0.542	69.00E-3	PASS

Maximum harmonic voltage results

Hn	Ueff [V]	Ueff [%]	Limit [%]	Result
1	231.10	100.477		
2	93.60E-3	0.041	0.2	PASS
3	95.77E-3	0.042	0.9	PASS
4	14.94E-3	0.006	0.2	PASS
5	28.80E-3	0.013	0.4	PASS
6	11.16E-3	0.005	0.2	PASS
7	55.69E-3	0.024	0.3	PASS
8	12.86E-3	0.006	0.2	PASS
9	30.62E-3	0.013	0.2	PASS
10	11.80E-3	0.005	0.2	PASS
11	87.57E-3	0.038	0.1	PASS
12	16.50E-3	0.007	0.1	PASS
13	66.23E-3	0.029	0.1	PASS
14	13.88E-3	0.006	0.1	PASS
15	77.62E-3	0.034	0.1	PASS
16	13.85E-3	0.006	0.1	PASS
17	75.72E-3	0.033	0.1	PASS
18	15.88E-3	0.007	0.1	PASS
19	67.16E-3	0.029	0.1	PASS
20	14.96E-3	0.007	0.1	PASS
21	70.06E-3	0.030	0.1	PASS
22	17.41E-3	0.008	0.1	PASS
23	64.24E-3	0.028	0.1	PASS
24	17.94E-3	0.008	0.1	PASS
25	51.92E-3	0.023	0.1	PASS
26	20.25E-3	0.009	0.1	PASS
27	64.86E-3	0.028	0.1	PASS
28	14.37E-3	0.006	0.1	PASS
29	55.61E-3	0.024	0.1	PASS
30	17.01E-3	0.007	0.1	PASS
31	57.19E-3	0.025	0.1	PASS
32	14.21E-3	0.006	0.1	PASS
33	56.42E-3	0.025	0.1	PASS
34	14.31E-3	0.006	0.1	PASS
35	46.28E-3	0.020	0.1	PASS
36	15.04E-3	0.007	0.1	PASS
37	52.01E-3	0.023	0.1	PASS
38	14.61E-3	0.006	0.1	PASS
39	31.71E-3	0.014	0.1	PASS
40	13.94E-3	0.006	0.1	PASS

7.5 Flicker Test Result

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

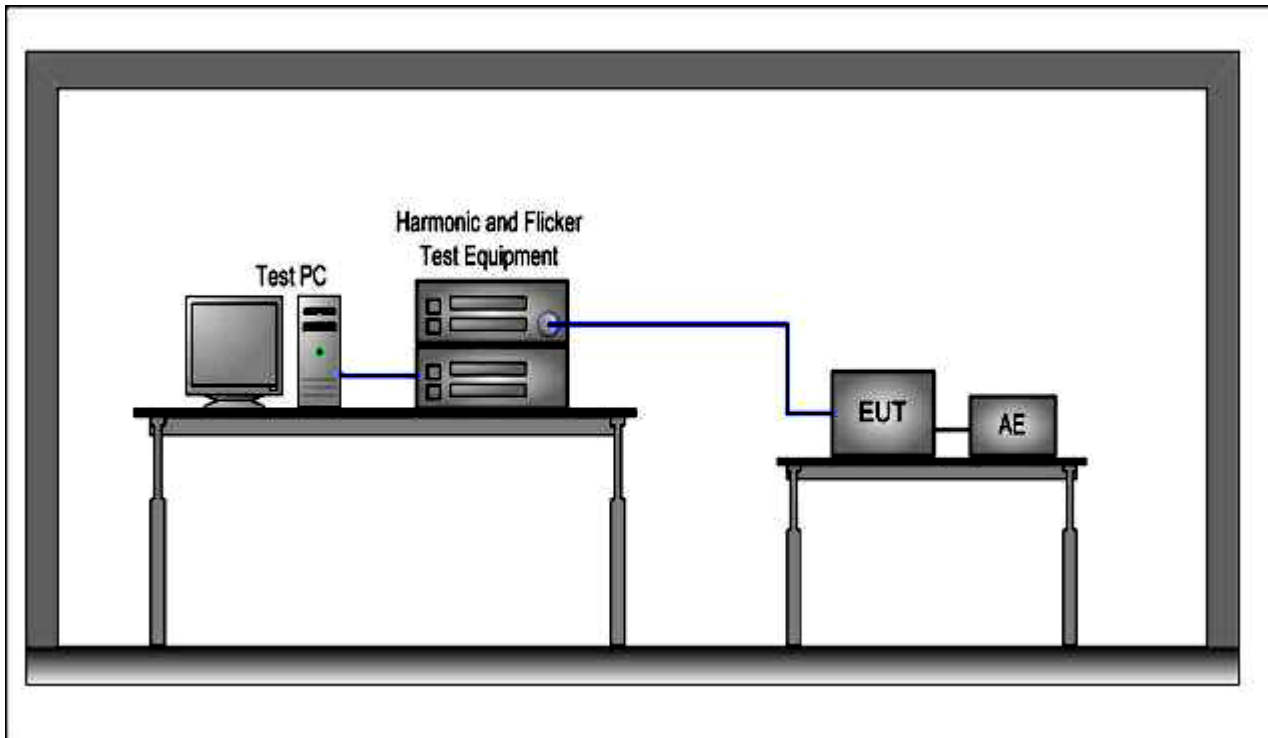
7.5.1 E.U.T. Operation

Test mode: On 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 $50\text{ Hz} \pm 0.5\%$.
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, $T_p = 10\text{ min}$;
 - for Plt, $T_p = 2\text{ h}$.

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	0.160	1.00	PASS
Plt	0.160	0.65	PASS
dc [%]	0.144	3.30	PASS
dmax [%]	0.389	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 4.1 of EN 55014-2 which states:

“Category I: apparatus containing no electronic control circuitry.

Example: motor operated appliances, lighting toys, track sets without electronic control units, tools, heating appliances UV and IR radiators and apparatus containing components such as electromechanical switches and thermostats.

Electric circuits consisting of passive components (such as radio interference suppression capacitors or inductors, mains transformers and mains frequency rectifiers) are not considered to be electronic control circuitry.”

9 Photographs

9.1 Conducted Emissions on Mains Terminals Test Setup



9.2 Disturbance Power Test Setup



9.3 Click Test Setup



9.4 Harmonics & Flicker Test Setup



10 EUT Constructional Details

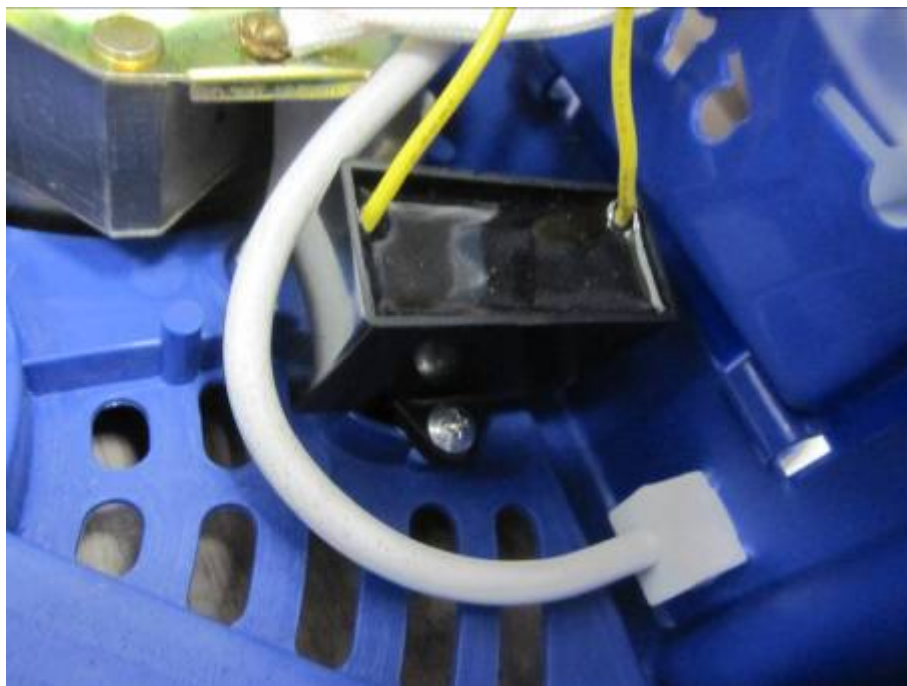
10.1 Exterior of EUT





10.2 Interior of EUT





--End of the Report--