

TEST REPORT ELECTROMAGNETIC COMPATIBILITY (EMC)

Report Reference No. 365246

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Approved by (name & signature).....: Juno Wong

Date of issue.....: 2018-12-11

Report issued by: Nemko Shanghai Ltd Shenzhen Branch

Address: Unit C&D, Floor 10, Tower 2, Financial Base, Kefa Road 8#,
Hi-Technology Park, Nanshan District, Shenzhen 518057,
China

Testing procedure.....: Tested at N and ELA laboratory

Testing location/ address: See page 8

Applicant's name.....: New Nanfang Electrical Appliance Co., Ltd.

Address: NO.213, WENZHANG CUN, CUNJING ROAD, CHIKAN
DISTRICT, ZHANJIANG, GUANGDONG, CHINA

Test specification:

Standards for Emission: EN 55014-1:2017

EN 61000-3-3:2013

EN 61000-3-2:2014

Standards for Immunity: EN 55014-2:2015

Arrival of EUT: 2010-07-07, 2015-10-12, 2017-06-25

Test date of EUT: 2010-07-07 to 2010-07-08, 2015-10-13 to 2015-10-19,
2017-06-28 to 2017-07-12

Test item description: Rice Cooker

Trade Mark: 

Manufacturer: New Nanfang Electrical Appliance Co., Ltd.

Address: NO.213, WENZHANG CUN, CUNJING ROAD, CHIKAN
DISTRICT, ZHANJIANG, GUANGDONG, CHINA

Type.....: RC-XXXX, RCD-8, RCD-10, DRC-5

Serial number: See page 7

Index of the test report:

1	Summary Emission	5
1.1	Standards	5
1.2	Results.....	5
2	Summary Immunity	6
2.1	Standards	6
2.2	Results.....	6
2.3	Performance criteria according to product or product family standards.....	6
3	General information	7
3.1	Description of Equipment under test (EUT).....	7
3.2	Test Mode (TM)	8
3.3	Measurement uncertainty	8
3.4	Climatic conditions.....	8
3.5	Testing location	8
4	Measurement of Conducted disturbance	9
4.1	Standards	9
4.2	Measurement equipment.....	9
4.3	Test set-up.....	9
4.4	Test result.....	10
4.5	Diagrams and tables.....	11
4.5.1	Diagram 001	11
4.5.2	Diagram 002	12
4.5.3	Diagram 003	13
4.5.4	Diagram 004	14
4.5.5	Diagram 005	15
4.5.6	Diagram 006	16
5	Measurement of Discontinuous Disturbance	17
5.1	Standards	17
5.2	Measurement equipment.....	17
5.3	Test set-up.....	17
5.4	Test result.....	17
5.5	Diagrams	18
5.5.1	Diagram 007	18
5.5.2	Diagram 008	19
5.5.3	Diagram 009	20
6	Measurement of Disturbance Power.....	21
6.1	Standards	21

6.2	Measurement equipment.....	21
6.3	Test set-up.....	21
6.4	Test result.....	22
6.5	Diagrams and tables.....	22
6.5.1	Diagram 010	22
6.5.2	Diagram 011	23
6.5.3	Diagram 012	24
7	Harmonic Current	25
7.1	Standard	25
7.2	Measurement equipment.....	25
7.3	Test set-up.....	25
7.4	Test results	25
7.5	Diagrams	26
7.5.1	Diagram 013	26
7.5.2	Diagram 014	29
7.5.3	Diagram 015	32
8	Voltage fluctuations and flicker	35
8.1	Standard	35
8.2	Measurement equipment.....	35
8.3	Test set-up.....	35
8.4	Test results	35
8.5	Diagram	36
8.5.1	Diagram 016	36
8.5.2	Diagram 017	37
8.5.3	Diagram 018	38
9	Electrostatic discharge.....	39
9.1	Standard	39
9.2	Measurement equipment.....	39
9.3	Test set-up.....	39
9.4	Test results	39
9.5	Table.....	39
9.5.1	Table 019.....	39
10	Electrical Fast Transients/Bursts Immunity	40
10.1	Standard	40
10.2	Measurement equipment.....	40
10.3	Test set-up.....	40
10.4	Test results	40
10.5	Table.....	41
10.5.1	Table 020	41

11	Surge Immunity.....	42
11.1	Standard	42
11.2	Measurement equipment.....	42
11.3	Test set-up.....	42
11.4	Test results	42
11.5	Table.....	42
11.5.1	Table 021	42
12	Conducted Immunity	43
12.1	Standard	43
12.2	Measurement equipment.....	43
12.3	Test set-up.....	43
12.4	Test results	43
12.5	Table.....	43
12.5.1	Table 022	43
13	Voltage dips and interruptions Immunity	44
13.1	Standard	44
13.2	Measurement equipment.....	44
13.3	Test set-up.....	44
13.4	Test results	44
13.5	Table.....	44
13.5.1	Table 023.....	44
Annex A	45
EUT / technical data	45
Annex B	55
EUT set-up -details-	55

1 Summary Emission

1.1 Standards

Generic standard

EN 61000-3-3:2013

EN 61000-3-2:2014

Product or product family standard

EN 55014-1:2017

Product category

Household Appliance

1.2 Results

Environmental phenomena	Port / Test module	Basic standard and test setup	Limit class	Result
Conducted Emission	AC input power ports	CISPR 16-2-1	Table 5 of EN 55014-1	Pass
Discontinuous disturbance	AC input power ports	CISPR 16-2-1	Clause 4.4 of EN 55014-1	Pass
Disturbance power	AC input power port	CISPR 16-2-3	Table 7 of EN 55014-1	Pass
Radiated emission	Enclosure	CISPR 16-2-3	Table 9 of EN 55014-1	N/A*)
Harmonic current emission	AC input power ports	EN 61000-3-2:2014	Class A	Pass**)
Voltage fluctuations and flicker	AC input power ports	EN 61000-3-3:2013	Clause 5 of EN 61000-3-3	Pass***)

Remarks: N/A-Not Applicable

- *) Appliances are deemed to comply in the frequency range from 300 MHz to 1 000 MHz:
- 1) all emission readings from the equipment under test are lower than the applicable limits (Table 2a) reduced by the margin (Table 2b), see the disturbance power data;
 - 2) the maximum clock frequency is less than 30 MHz.
- ***) For devices with a rated power of 75 W or less, not being lighting equipment, no limit values are effective. (EN61000-3-2)
- For professionally used devices with a total rated power exceeding 1 kW no limit values are effective. (EN61000-3-2)
- ***) There is no testing required if the device does not generate any significant voltage fluctuations or flicker. (EN61000-3-3)
- A short time measurement confirmed the assumption that this is the fact. The details in the test module are representing the results of the short time measurement.

2 Summary Immunity

2.1 Standards

Generic standard	/
Product or product family standard	EN 55014-2:2015
Product category:	Category I & Category II
Performance criteria:	As below

2.2 Results

Environmental phenomena	Port / Test module	Basic standard and test setup	Performance criteria	Result (C.I)	Result (C.II)
Electrostatic Discharge	Enclosure port	EN 61000-4-2:2009	B	N/A	Pass
Radiated Electromagnetic field Susceptibility Test	Enclosure port	EN 61000-4-3:2006/A1:2008/A2:2010	A	N/A	N/A
Electrical Fast Transient /Burst Test	Input AC Power port	EN 61000-4-4:2012	B	N/A	Pass
Surge Test	Input AC Power port	EN 61000-4-5:2014	B	N/A	Pass
Conducted Susceptibility Test	Input AC Power port	EN 61000-4-6:2014	A	N/A	Pass
Voltage Dips and Interruptions Test	Input AC Power port	EN 61000-4-11:2004+A1:2017	C	N/A	Pass

Remarks: N/A-Not Applicable

- *) The EUT contains no electronic control circuitry, category I.
Category I apparatus is deemed to fulfil the relevant immunity requirements without testing.

2.3 Performance criteria according to product or product family standards

Performance criterion A

The apparatus shall continue to operate as intended during the test. No degradation of performance or loss of function is allowed below a performance level (or permission loss of performance) specified by the manufacturer, when the apparatus is used as intended. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and from what the user may reasonably expect from the apparatus if used as intended.

Performance criterion B

The apparatus shall continue to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level (or permission loss of performance) specified by the manufacturer, when the apparatus is used as intended. During the test, degradation of performance is allowed, however, no change of actual operating state or stored data is allowed. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and from what the user may reasonably expect from the apparatus if used as intended.

Performance criterion C

Temporary loss of function is allowed, provided the function is self-recoverable or can be restored by the operation of the controls, or by any operation specified in the instructions for use.

3 General information

3.1 Description of Equipment under test (EUT)

Type of equipment	Table top	<input checked="" type="checkbox"/>
	Floor standing	<input type="checkbox"/>
	Combination	<input type="checkbox"/>
	Hand held EUT	<input type="checkbox"/>

General product information:

The EUT is a rice cooker.

Main model: RC-XXXX.

The XXXX can be 2, 2A, 2B, 2C, 2D, 2E, 2F, 2M, 2AM, 2BM, 2CM, 2DM, 2EM, 2FM, 3, 3A, 3B, 3C, 3D, 3E, 3F, 3M, 3AM, 3BM, 3CM, 3DM, 3EM, 3FM, 4, 4A, 4B, 4C, 4D, 4E, 4F, 4M, 4AM, 4BM, 4CM, 4DM, 4EM, 4FM, 5, 5A, 5B, 5C, 5D, 5E, 5F, 5M, 5AM, 5BM, 5CM, 5DM, 5EM, 5FM, 5GM, 8, 8A, 8B, 8C, 8D, 8E, 8F, 8M, 8AM, 8BM, 8CM, 8DM, 8EM, 8FM, 10, 10A, 10B, 10C, 10D, 10E, 10F, 10M, 10AM, 10BM, 10CM, 10DM, 10EM, 10FM, 10GM, 15, 15A, 15B, 15C, 15D, 15E, 15F, 15M, 15AM, 15BM, 15CM, 15DM, 15EM, 15FM, 16, 16A, 16B, 16C, 16D, 16E, 16F, 16M, 16AM, 16BM, 16CM, 16DM, 16EM, 16FM, **W-2**

Rating:

200W, 300W, 350W, 400W, 500W, 700W, 900W or 1000W 220-240V~ 50-60Hz

Variant 1: RCD-YY.

The Y can be 8 or 10.

Rating: 500 or 700W 220-240V~ 50-60Hz

All models are same except the capacity, size, power rating. Model with M represent for the appliance has micro switch as part of temperature limiter.

For more information, see below table:

Model	Micro switch	Power rating	Rated capacity	Control
RC-2, RC-2A, RC-2B, RC-2C, RC-2D, RC-2E, RC-2F, RCW-2	No	200W	0.4L	Mechanical
RC-2M, RC-2AM, RC-2BM, RC-2CM, RC-2DM, RC-2EM, RC-2FM	Yes			
RC-3, RC-3A, RC-3B, RC-3C, RC-3D, RC-3E, RC-3F	No	300W	0.6L	
RC-3M, RC-3AM, RC-3BM, RC-3CM, RC-3DM, RC-3EM, RC-3FM	Yes			
RC-4, RC-4A, RC-4B, RC-4C, RC-4D, RC-4E, RC-4F	No	350W	0.8L	
RC-4M, RC-4AM, RC-4BM, RC-4CM, RC-4DM, RC-4EM, RC-4FM	Yes			
RC-5, RC-5A, RC-5B, RC-5C, RC-5D, RC-5E, RC-5F	No	400W	1.0L	
RC-5M, RC-5AM, RC-5BM, RC-5CM, RC-5DM, RC-5EM, RC-5FM, RC-5GM	Yes			
RC-8, RC-8A, RC-8B, RC-8C, RC-8D, RC-8E, RC-8F	No	500W	1.5L	
RC-8M, RC-8AM, RC-8BM, RC-8CM, RC-8DM, RC-8EM, RC-8FM	Yes			
RC-10, RC-10A, RC-10B, RC-10C, RC-10D, RC-10E, RC-10F	No	700W	1.8L	
RC-10M, RC-10AM, RC-10BM, RC-10CM, RC-10DM, RC-10EM, RC-10FM, RC-10GM	Yes			
RC-15, RC-15A, RC-15B, RC-15C, RC-15D, RC-15E, RC-15F	No	900W	2.5L	

RC-15M, RC-15AM, RC-15BM, RC-15CM, RC-15DM, RC-15EM, RC-15FM	Yes			
RC-16, RC-16A RC-16B, RC-16C, RC-16D, RC-16E, RC-16F	No	1000 W	2.8L	
RC-16M, RC-16AM, RC-16BM, RC-16CM, RC-16DM, RC-16EM, RC-16FM	Yes			
RCD-8	No	500W	1.5L	Electronic
RCD-10	No	700W	1.8L	

Variant 2: DRC-5

Rating: 400W 220-240V~ 50-60Hz

All the models are identical except of the power, appearance and have micro switch or not, In the original report the maximum power model RC-16A and RCD-10 was chosen to be test.

Remark:

This report 365246 is on the basis of the original report 334882, standards are updated, change the applicant and manufacturer address, Additional test is not need. All test data are from the original report.

3.2 Test Mode (TM)

Working mode

TM1	198V-264VAC 50/60Hz Maximum power state
TM2	230VAC 50/60Hz Maximum power state
Remark	Maximum power state is the worst shift by pre-scan of emission.

3.3 Measurement uncertainty

Conducted Emission :150kHz-30MHz 2.46dB

Disturbance Power: 30MHz-300MHz 3.10dB

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

3.4 Climatic conditions

parameter	admissible range	actual range	Result
Ambient temperature	15 °C - 35 °C	22-24°C	OK
Relative humidity	30 % - 60 %	47-50%	OK
Atmospheric pressure	86-106kPa	101.7kPa	OK

3.5 Testing location

Address1#:Nemko Shanghai Ltd.

7F, No.1 Building, No. 2007 Hong Mei Road, Xuhui district, Shanghai, China

Address 2#:Shenzhen Huatongwei International Inspection Co., Ltd.

Keji Nan No.12 road ,Hi-tech park Shenzhen, P.R. China – ELA 125

Address 3#: AUDIX Technology (Shenzhen) Co., Ltd.

No.6, Ke Feng Rd.,52 Block ,Shenzhen Science & Industrial Park, Nantou, Shenzhen, Guangdong, China – ELA 135

Address 4#:Nemko Shanghai Ltd. Shenzhen Branch

Unit C&D, Floor 10,Tower 2,Financial Base, Kefa Road 8#, Hi-Technology Park, Nanshan District, Shenzhen 518057, China

Remark: all test have been supervised by a Nemko engineer.

4 Measurement of Conducted disturbance

4.1 Standards

Generic standard	/
Product or product family standard	EN 55014-1:2017
Limit class	Table 5 of EN 55014-1
Basic standard	CISPR 16-2-1
Date of testing	2010-07-07, 2015-10-13, 2017-07-13

4.2 Measurement equipment

N LAB

	Equipment	Calibration due	Type	Serial No.	Manufacturer
<input checked="" type="checkbox"/>	EMI Test Receiver	2019.01.29	ESCI	100657	ROHDE & SCHWARZ
<input checked="" type="checkbox"/>	Artificial Mains	2019.01.29	ENV216	100065	ROHDE & SCHWARZ
<input checked="" type="checkbox"/>	Pulse Limiter	2019.01.29	ESH3-Z2	100860	ROHDE & SCHWARZ
<input checked="" type="checkbox"/>	EMI Test Software	N/A	EMC32	N/A	ROHDE & SCHWARZ

4.3 Test set-up

Annex B-1 with photos or a rough figure of the test set-up are attached.
The test has been performed as following:

The power line of the EUT is connected to the AC mains through an Artificial Mains Network (A.M.N.). A EMI test receiver used to test the emissions from both sides of AC line. The bandwidth of EMI test receiver is set at 9 kHz.

A test at about 160 kHz shall be made over a range of 0,9 to 1,1 times the rated voltage in order to check whether the level of disturbance varies considerably with the supply voltage; in which case, the measurements are to be made at the voltage that causes maximum disturbance.

If an appliance has a rated voltage range, the multipliers 0,9 and 1,1 apply to the lowest and highest, most common nominal supply voltages that fall within the rated voltage range that is specified by the manufacturer.

If an appliance has more than one rated voltage the multipliers 0,9 and 1,1 apply to the rated voltage that causes maximum disturbance.

For appliances with a frequency range of 50 Hz to 60 Hz, a test at about 160 kHz shall be made using supply frequencies of 50 Hz and 60 Hz at the above determined supply voltage, in order to check whether the level of disturbance varies considerably with the supply frequency; in which case, the measurements are to be made at the supply frequency which causes maximum disturbance.

The EUT was placed on the top of an insulating table 0.8 meters above the ground at a shielded room. The EUT was placed 0.4 meters from the conducting wall of shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). The LISN provide 50Ohm/50μH of coupling impedance for the measuring instrument. Both lines of the power mains connected to the EUT were checked for maximum conducted interference. The frequency range from 150kHz to 30MHz was searched. The worst-case emissions are reported.

4.4 Test result

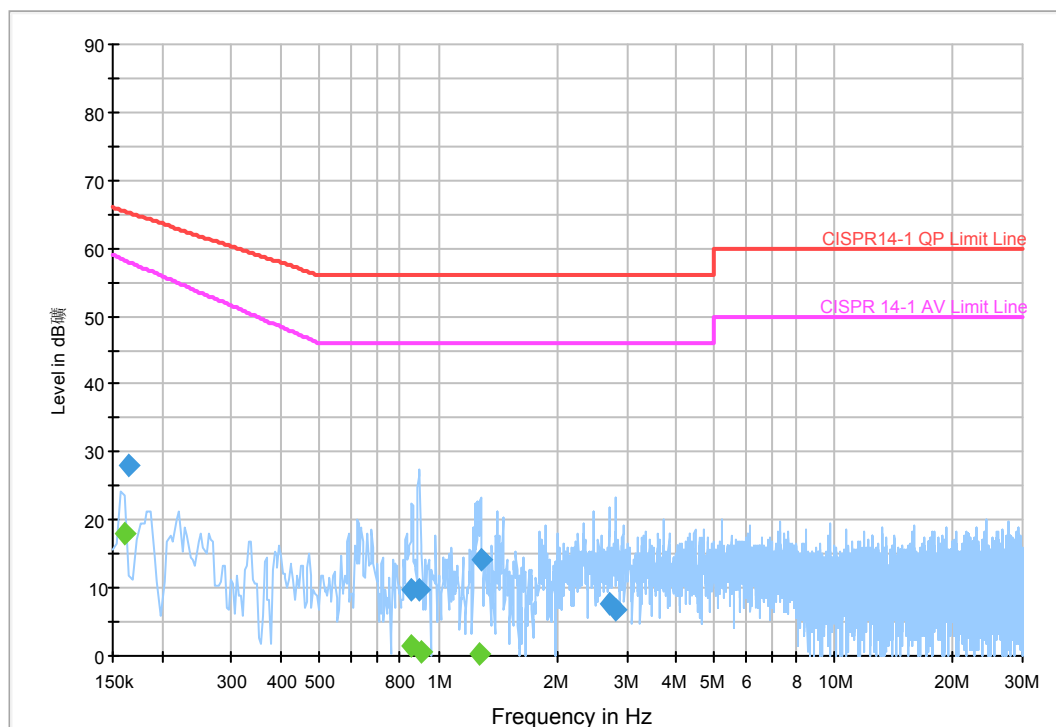
Power ports: AC input

Test mode	Model	Diagram	Description	Result																												
TM1	RC-16A	001	Line L	Pass																												
		002	Line N	Pass																												
TM1	RCD-10	003	Line L	Pass																												
		004	Line N	Pass																												
TM1	DRC-5	005	Line L	Pass																												
		006	Line N	Pass																												
Remark:	<div>Scan setting:</div> <table><tr><th colspan="3">Freq range</th><th colspan="3">Receiver setting</th></tr><tr><th>Start</th><th>Stop</th><th>Step</th><th>IF BW</th><th>Detector</th><th>Meas Time</th></tr><tr><td>9k</td><td>150k</td><td>100Hz</td><td>200Hz</td><td>PK+AV</td><td>10ms</td></tr><tr><td>150k</td><td>30M</td><td>4.5k</td><td>9k</td><td>PK+AV</td><td>10ms</td></tr></table> <div>Final measurement:</div> <table><tr><th>Detector</th><th>Meas time</th></tr><tr><td>QP/AV</td><td>1s</td></tr></table> <p>A test at about 160KHz is made over a range of 0.9 to 1.1 times the rated voltage, and found that <u>264V~ 50Hz</u> causes maximum disturbance.</p> <p>If the Peak measurement value is comply with the Average Limit, then both of QP and AVG is comply with the limit, and only list the peak and AVG value in this report.</p>				Freq range			Receiver setting			Start	Stop	Step	IF BW	Detector	Meas Time	9k	150k	100Hz	200Hz	PK+AV	10ms	150k	30M	4.5k	9k	PK+AV	10ms	Detector	Meas time	QP/AV	1s
Freq range			Receiver setting																													
Start	Stop	Step	IF BW	Detector	Meas Time																											
9k	150k	100Hz	200Hz	PK+AV	10ms																											
150k	30M	4.5k	9k	PK+AV	10ms																											
Detector	Meas time																															
QP/AV	1s																															

4.5 Diagrams and tables

4.5.1 Diagram 001

HOUS EMI_ENV216 LISN Auto Test



Final Result (QP)

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.164694	28.0	1000.000	9.000	Off	L1	9.5	37.2	65.2	
0.850706	9.8	1000.000	9.000	Off	L1	9.5	46.2	56.0	
0.891750	9.7	1000.000	9.000	Off	L1	9.5	46.3	56.0	
1.281338	14.1	1000.000	9.000	Off	L1	9.5	41.9	56.0	
2.702944	7.8	1000.000	9.000	Off	L1	9.6	48.2	56.0	
2.814881	6.8	1000.000	9.000	Off	L1	9.7	49.2	56.0	

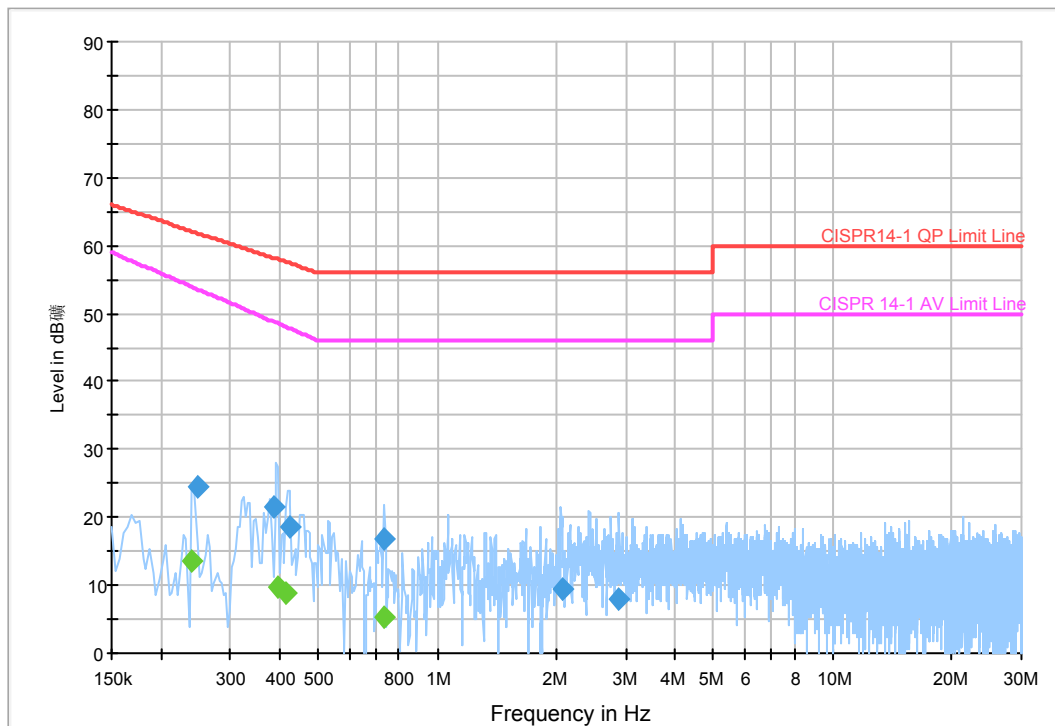
Final Result (AV)

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.160694	18.0	1000.000	9.000	Off	L1	9.5	40.3	58.3	
0.850706	1.3	1000.000	9.000	Off	L1	9.5	44.7	46.0	
0.900750	0.5	1000.000	9.000	Off	L1	9.5	45.5	46.0	
1.272338	0.3	1000.000	9.000	Off	L1	9.5	45.7	46.0	
2.701944	-2.6	1000.000	9.000	Off	L1	9.6	48.6	46.0	
2.805881	-3.7	1000.000	9.000	Off	L1	9.7	49.7	46.0	

Remark: The correction factor= Insertion loss of the AMN + Cable loss

4.5.2 Diagram 002

HOUS EMI_ENV216 LISN Auto Test



Final Result (QP)

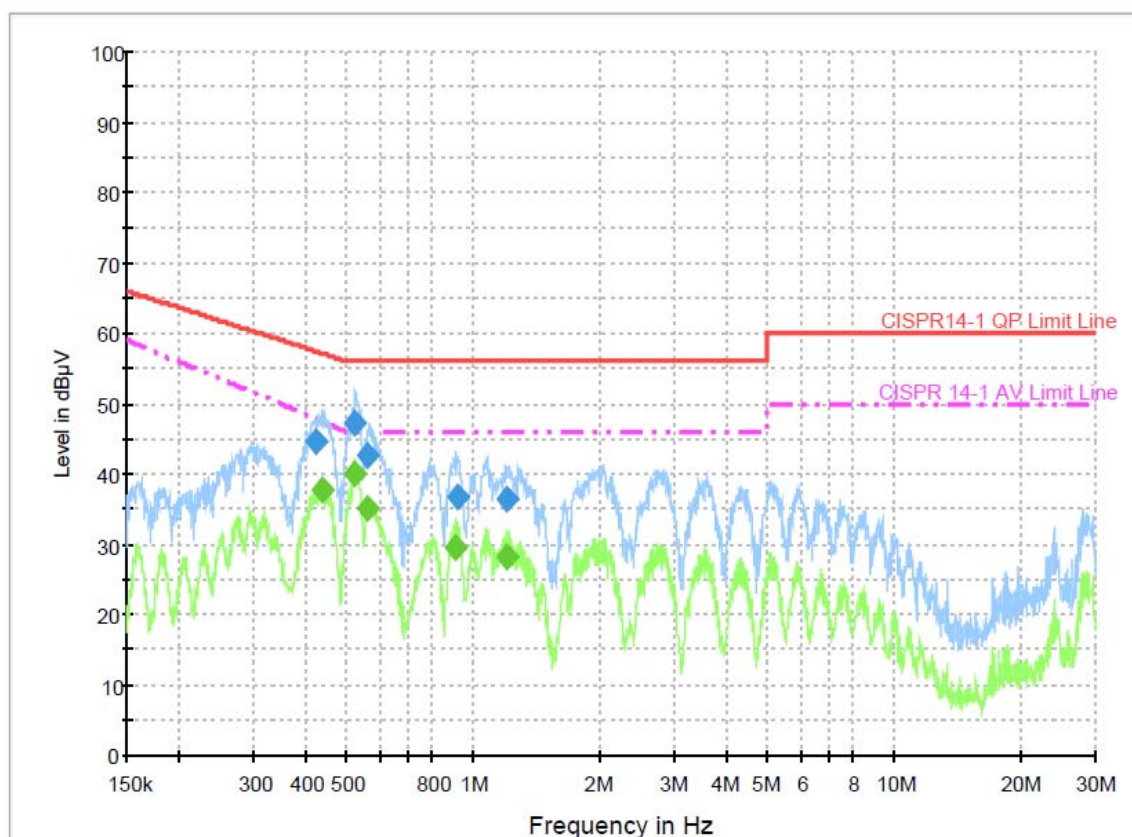
Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.246781	24.4	1000.000	9.000	Off	N	9.5	37.5	61.9	
0.388031	21.7	1000.000	9.000	Off	N	9.5	36.4	58.1	
0.422150	18.5	1000.000	9.000	Off	N	9.5	38.9	57.4	
0.735575	16.9	1000.000	9.000	Off	N	9.5	39.1	56.0	
2.061169	9.5	1000.000	9.000	Off	N	9.5	46.5	56.0	
2.880775	8.1	1000.000	9.000	Off	N	9.6	47.9	56.0	

Final Result (AV)

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.238781	13.7	1000.000	9.000	Off	N	9.5	40.3	54.0	
0.397031	9.7	1000.000	9.000	Off	N	9.5	38.8	48.5	
0.414150	9.0	1000.000	9.000	Off	N	9.5	39.0	48.0	
0.736575	5.3	1000.000	9.000	Off	N	9.5	40.7	46.0	
2.052169	-0.5	1000.000	9.000	Off	N	9.5	46.5	46.0	
2.884775	-1.8	1000.000	9.000	Off	N	9.6	47.8	46.0	

Remark: The correction factor= Insertion loss of the AMN + Cable loss

4.5.3 Diagram 003



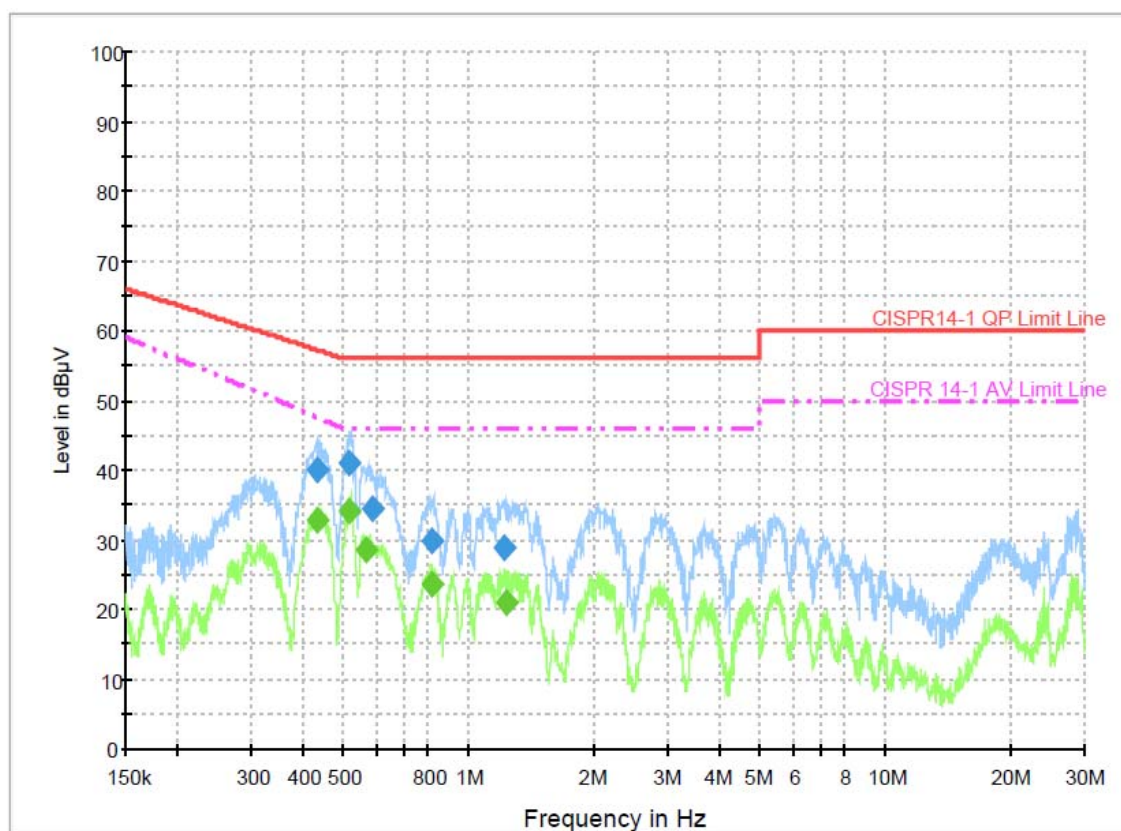
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.421845	44.7	L1	20.2	12.7	57.4
0.519763	47.3	L1	20.3	8.7	56.0
0.559904	42.7	L1	20.3	13.3	56.0
0.916763	36.8	L1	20.3	19.2	56.0
1.198075	36.5	L1	20.3	19.5	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.434863	37.6	L1	20.2	9.9	47.5
0.521648	40.1	L1	20.3	5.9	46.0
0.561590	35.1	L1	20.3	10.9	46.0
0.908523	29.5	L1	20.3	16.5	46.0
1.195769	28.3	L1	20.3	17.7	46.0

4.5.4 Diagram 004



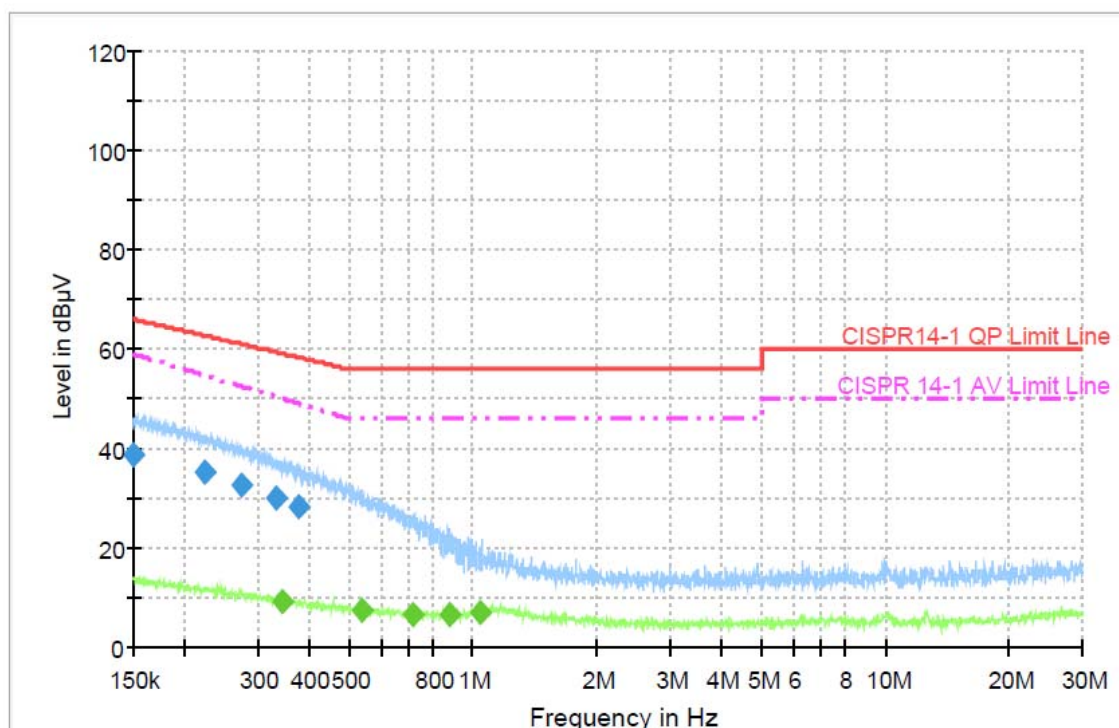
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.431413	39.9	N	19.3	17.3	57.2
0.517273	40.9	N	19.4	15.1	56.0
0.586996	34.6	N	19.4	21.4	56.0
0.811777	29.9	N	19.4	26.1	56.0
1.218287	28.8	N	19.4	27.2	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.433468	32.9	N	19.3	14.6	47.5
0.516236	34.3	N	19.4	11.7	46.0
0.566181	28.4	N	19.4	17.6	46.0
0.816481	23.5	N	19.4	22.5	46.0
1.229419	20.9	N	19.4	25.1	46.0

4.5.5 Diagram 005



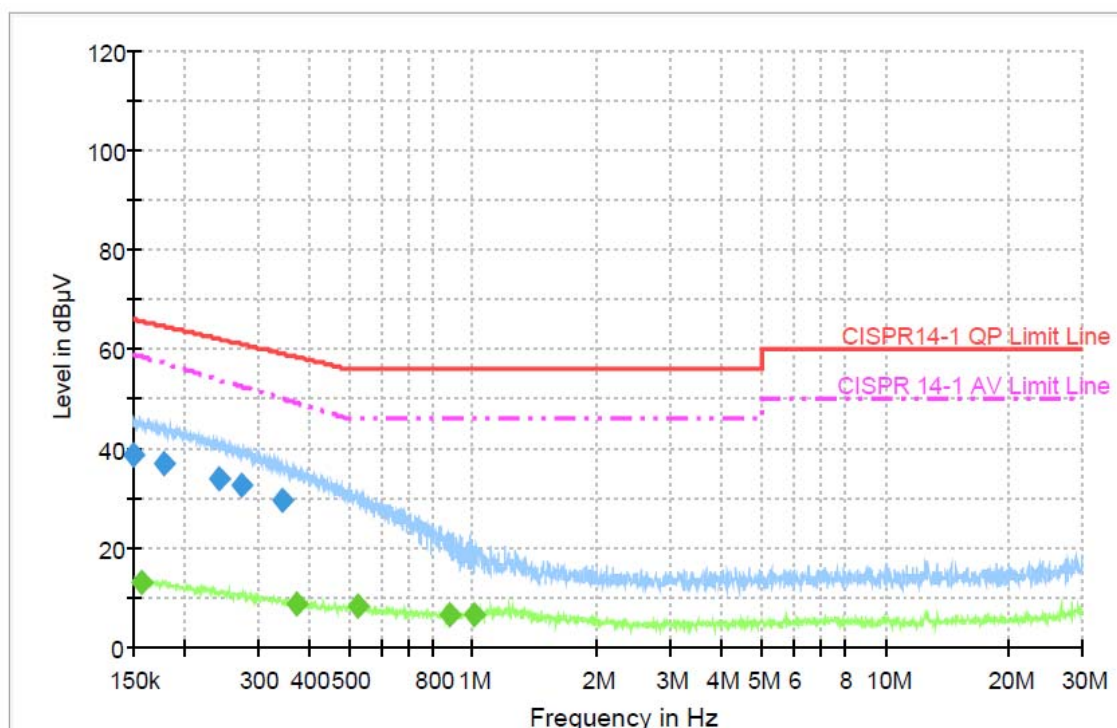
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	38.8	L1	19.3	27.2	66.0
0.223699	35.0	L1	19.4	27.7	62.7
0.273219	32.6	L1	19.4	28.4	61.0
0.332851	30.0	L1	19.4	29.4	59.4
0.376098	28.3	L1	19.4	30.1	58.4

Final Result 2

Frequency (MHz)	Average (dBµV)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.345373	9.2	L1	19.4	40.8	50.0
0.538313	7.4	L1	19.4	38.6	46.0
0.715931	6.6	L1	19.4	39.4	46.0
0.880573	6.4	L1	19.4	39.6	46.0
1.039611	7.0	L1	19.4	39.0	46.0

4.5.6 Diagram 006



Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	38.6	N	19.3	27.4	66.0
0.177506	37.0	N	19.3	27.6	64.6
0.241865	33.9	N	19.4	28.1	62.0
0.273271	32.5	N	19.4	28.5	61.0
0.343175	29.4	N	19.4	29.7	59.1

Final Result 2

Frequency (MHz)	Average (dBµV)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.157050	13.2	N	19.3	45.3	58.5
0.374446	8.8	N	19.4	40.3	49.1
0.524920	8.2	N	19.4	37.8	46.0
0.880093	6.4	N	19.4	39.6	46.0
1.002682	6.6	N	19.4	39.4	46.0

5 Measurement of Discontinuous Disturbance

5.1 Standards

Product or product family standard	EN55014-1:2017
Limit class	Clause 4.4 of CISPR14-1
Basic standard	CISPR 16
Date of testing	2015-10-13, 2017-07-12

5.2 Measurement equipment

N LAB

	Equipment	Calibration due	Type	Serial No.	Manufacturer
<input checked="" type="checkbox"/>	Artificial Mains Network	2019.01.29	LS16C	16010744219	AFJ
<input checked="" type="checkbox"/>	Click Analyzer	2019.01.29	CL55C	55040744142	AFJ

5.3 Test set-up

Annex B with a photo or a rough figure of the test set-up is attached.

The test has been performed as following:

The discontinuous interference on AC mains in the frequency range from 0.15 to 30MHz was measured in accordance to EN 55014-1. The measurement setup was made in a shielded room. The clicks were measured at the frequency of 0.15MHz, 0.5 MHz, 1.4MHz and 30MHz according to Clause 7.4.2.5 of EN 55014-1 respectively.

In accordance with the EN 55014-1, Appliances which have a click rate N of not more than five and the duration of each click is less than 20ms and the duration of 90% click is less than 10ms, shall be deemed to comply with the limits, independent of the amplitude of the clicks.

5.4 Test result

Mode	Model	Diagram	Remarks	Result
RC-16A	TM2	007	AC INPUT PORT	Pass
RCD-10	TM2	008	AC INPUT PORT	Pass
DRC-5	TM2	009	AC INPUT PORT	Pass

5.5 Diagrams

5.5.1 Diagram 007

AFJ CL55c Click Analyser ver 6.00
Test Report - Printed 08-07-2010 14:36:41

Title: _____ Test#: 1
Date: 08/07/2010 14:25:39 Time: 120:02.333
Required: _____
Executed by: Harry
Description: Rice Cooker
Model: RC-16
SN: _____
Type: _____
Report: _____

Pass

Mode: Switch Op ☐ f= 1.00 Click Rate: ☒

Rx1 150kHz: Instantaneous switchings: Exempt from amplitude limits
 Rx2 500kHz: Instantaneous switchings: Exempt from amplitude limits
 Rx3 1.4MHz: Instantaneous switchings: Exempt from amplitude limits
 Rx4 30MHz: No Clicks

Remote	Input Offset	External Attenuator
NONE	0.0	0 dB

Att. Rx1 150kHz	Att. Rx2 500kHz	Att. Rx3 1.4MHz	Att. Rx4 30MHz
25dB	15dB	15dB	20dB

ClickMeter for Windows
c:\Data\Default\Test036411 - Analysis print n#: 1

First Pass		Rx1 150kHz	Rx2 500kHz	Rx3 1.4MHz	Rx4 30MHz
CISPR	Short	2	2	2	0
14-1	Long	0	0	0	0
	Fast Long	0	0	0	0
Total Clicks		2	2	2	0
Continuous Int.	Events	0	0	0	0
Correction	TIME (s)	0.00	0.00	0.00	0.00
Manual	Switch Op	0	0	0	0
2 Click		0	0	0	0
Limit dBuV		66.0	56.0	56.0	60.0
7.4.2.2	N	0.02	0.02	0.02	0.02

Limit dBuV
Allowed Clicks

Second Pass		Short	Long	0	0	
Preview	Total Clicks	0	0	0	0	
	Continuous Int.	Events	0	0	0	0
		TIME (s)	0.00	0.00	0.00	0.00
2 Click		0	0	0	0	

PASS ☒

☒

☒

☒

Peak Clipping ☒

☒

5.5.2 Diagram 008



AFJ CL55c Click Analyser ver 6.05

Test Report - Printed 13-10-2015 11:15:46

Title Click Test Test# 1
Date 13/10/2015 10:22:38 Time 17:04.557
Required
Executed by RJB
Description
Model RCD-10
SN /
Type /
Report /

Pass

Mode: Switch Op ☐ f= 1.00 Click Rate ☒

Rx1 150kHz Instantaneous switchings: Exempt from amplitude limits
Rx2 500kHz Instantaneous switchings: Exempt from amplitude limits
Rx3 1.4MHz Instantaneous switchings: Exempt from amplitude limits
Rx4 30MHz No Clicks

Remote	Input Offset	External Attenuator
NONE	0.0	0 dB

Att. Rx1 150kHz	Att. Rx2 500kHz	Att. Rx3 1.4MHz	Att. Rx4 30MHz
15dB	15dB	15dB	15dB

ClickMeter for Windows™

c:\Data\Default\Test0215\1 - Analysis print n#: 1

First Pass		Rx1 150kHz	Rx2 500kHz	Rx3 1.4MHz	Rx4 30MHz
CISPR	Short	39	40	8	0
14-1:2005 + A1:2008	Long	0	0	0	0
	Fast Long	0	0	0	0
	Total Clicks	39	40	8	0
Continuous Int.	Events	0	0	0	0
Correction	TIME (s)	0.00	0.00	0.00	0.00
Manual	Switch Op	0	0	0	0
	2 Click	0	0	0	0
	Limit dBuV	66.0	56.0	56.0	60.0
7.4.2.2	N	2.28	2.34	2.34	2.34

Limit dBuV

Allowed Clicks

Second Pass		Short	Long	Fast Long	Total Clicks
Preview	Short	0	0	0	0
	Long	0	0	0	0
	Total Clicks	0	0	0	0
Continuous Int.	Events	0	0	0	0
	TIME (s)	0.00	0.00	0.00	0.00
	2 Click	0	0	0	0

PASS



Peak Clipping



5.5.3 Diagram 009



AFJ CL55c Click Analyser ver 6.05

Test Report - Printed 07-12-2017 17:11:50

Title Click Test Test# 1
Date 07/12/2017 17:11:23 Time 70:03.696
Required
Executed by Juno
Description DRC-5
Model
SN
Type
Report

Pass

Mode: Switch Op ☐ f= 1.00 Click Rate ☒

Rx1 150kHz Instantaneous switchings: Exempt from amplitude limits
Rx2 500kHz Instantaneous switchings: Exempt from amplitude limits
Rx3 1.4MHz Instantaneous switchings: Exempt from amplitude limits
Rx4 30MHz No Clicks

Remote	Input Offset	External Attenuator
NONE	0.0	0 dB

Att. Rx1 150kHz	Att. Rx2 500kHz	Att. Rx3 1.4MHz	Att. Rx4 30MHz
15dB	15dB	15dB	15dB

ClickMeter for Windows™

c:\Data\Default\Test0078\1 - Analysis print n#: 1

First Pass		Rx1 150kHz	Rx2 500kHz	Rx3 1.4MHz	Rx4 30MHz
CISPR	Short	38	40	8	0
14-1:2005 + A1:2008	Long	0	0	0	0
	Fast Long	0	0	0	0
Total Clicks		38	40	8	0
Continuous Int.	Events	0	0	0	0
Correction	TIME (s)	0.00	0.00	0.00	0.00
Manual	Switch Op	0	0	0	0
	2 Click	0	0	0	0
	Limit dBuV	66.0	56.0	56.0	60.0
7.4.2.2	N	0.54	0.57	0.57	0.5703

Limit dBuV
Allowed Clicks

Second Pass		Short	Long	Fast Long	Total Clicks
Preview	Short	0	0	0	0
	Long	0	0	0	0
	Total Clicks	0	0	0	0
Continuous Int.	Events	0	0	0	0
	TIME (s)	0.00	0.00	0.00	0.00
	2 Click	0	0	0	0

PASS ☒ ☒ ☒ ☒

Peak Clipping ☒ ☒ ☒ ☒

6 Measurement of Disturbance Power

6.1 Standards

Generic standard	/
Product or product family standard	EN 55014-1:2017
Limit class	Table 7 of EN 55014-1
Basic standard	CISPR 16-2-3
Date of testing	2010-07-07, 2015-10-14, 2017-07-11

6.2 Measurement equipment

N LAB

	Equipment	Calibration Due	Type	Serial No.	Manufacturer
<input checked="" type="checkbox"/>	EMI test receiver	2019-01-29	ESCI	100658	R&S
<input checked="" type="checkbox"/>	Absorbing Clamp	2019-01-29	MDS-21	100298	R&S

ELA 125

	Equipment	Calibration due	Type	Equipment No.	Manufacturer
<input checked="" type="checkbox"/>	EMI Test Receiver	2019.10	ESCS	100038	R&S
<input checked="" type="checkbox"/>	Absorbing Clamp	2019.10	MDS-21	100011	R&S
<input checked="" type="checkbox"/>	EMI In Motion	2019.10	KMS 560	560/385 BJ:01	HD
<input checked="" type="checkbox"/>	Controller	2017.10	HD 050	050/477 BJ:01	HD
<input checked="" type="checkbox"/>	EMI Test Software	2017.10	ESK1	N/A	R&S

ELA135

	Equipment	Calibration due.	Type	Serial No.	Manufacturer
<input checked="" type="checkbox"/>	Test Receiver	May.08, 19	ESCI	100842	Rohde & Schwarz
<input checked="" type="checkbox"/>	Absorbing Clamp	Dec.05,19	MDS-21	100096	Rohde & Schwarz
<input checked="" type="checkbox"/>	N50(f-m) 6dB Fixed Attenuator	Dec.05,19	8491A	MY39264395	Agilent
<input checked="" type="checkbox"/>	RF Cable	Dec.05,19	5D-2W	NO.1	MIYAZAKI

6.3 Test set-up

Annex B-2 with a photo or a rough figure of the test set-up is attached.
The test has been performed as following:

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 lead to be measured is placed in a straight line for a distance sufficient to accommodate the absorbing clamp, and to permit the necessary measuring adjustment of position for tuning.

A test at about 50 MHz shall be made over a range of 0,9 to 1,1 times the rated voltage in order to check whether the level of disturbance varies considerably with the supply voltage; in which case, the measurements are to be made at the voltage that causes maximum disturbance.

If an appliance has a rated voltage range, the multipliers 0,9 and 1,1 apply to the lowest and highest, most common nominal supply voltages that fall within the rated voltage range that is specified by the manufacturer.

If an appliance has more than one rated voltage the multipliers 0,9 and 1,1 apply to the rated voltage that causes maximum disturbance.

With a frequency range of 50 Hz to 60 Hz, a test at about 50 MHz shall be made using supply frequencies of 50 Hz and 60 Hz at the above determined supply voltage, in order to check whether the level of disturbance varies considerably with the supply frequency; in which case, the measurements are to be made at the supply frequency which causes maximum disturbance.

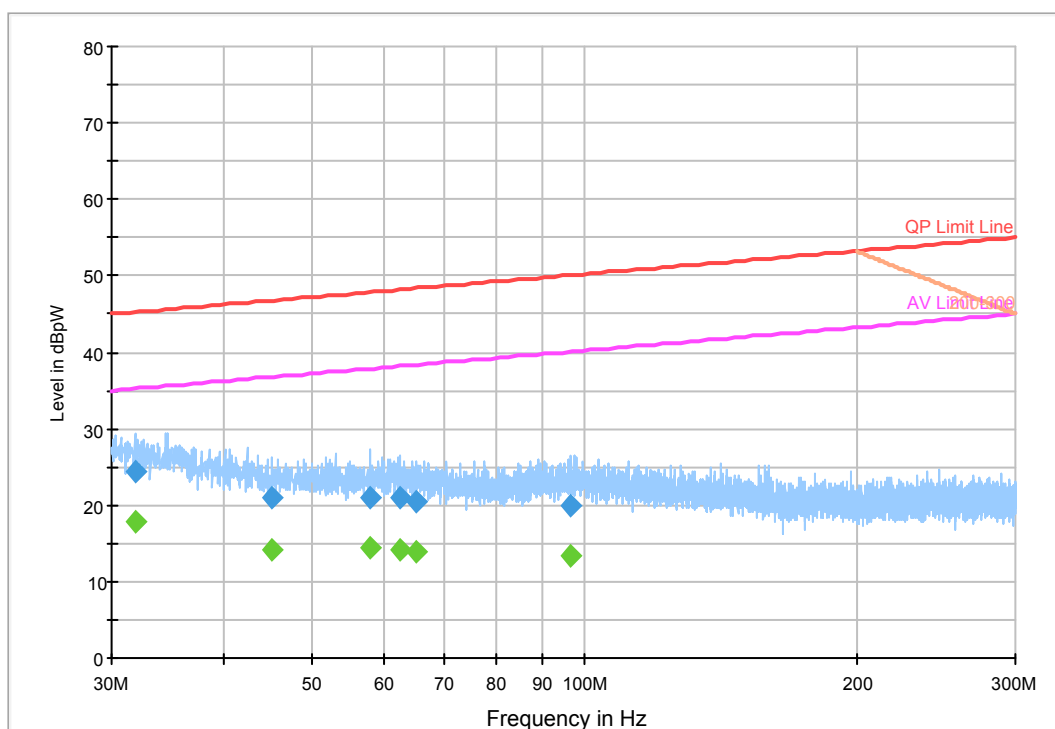
6.4 Test result

Mode	Diagram	Model	Description	Result
TM1	010	RC-16A	AC Mains Power line	Pass
TM1	011	RCD-10	AC Mains Power line	Pass
TM1	012	DRC-5	AC Mains Power line	Pass
Remark:	Only the worst test result diagram list in report and if the reading value is too lower then only list the test diagram. 264V 50Hz is the worst mode for test.			

6.5 Diagrams and tables

6.5.1 Diagram 010

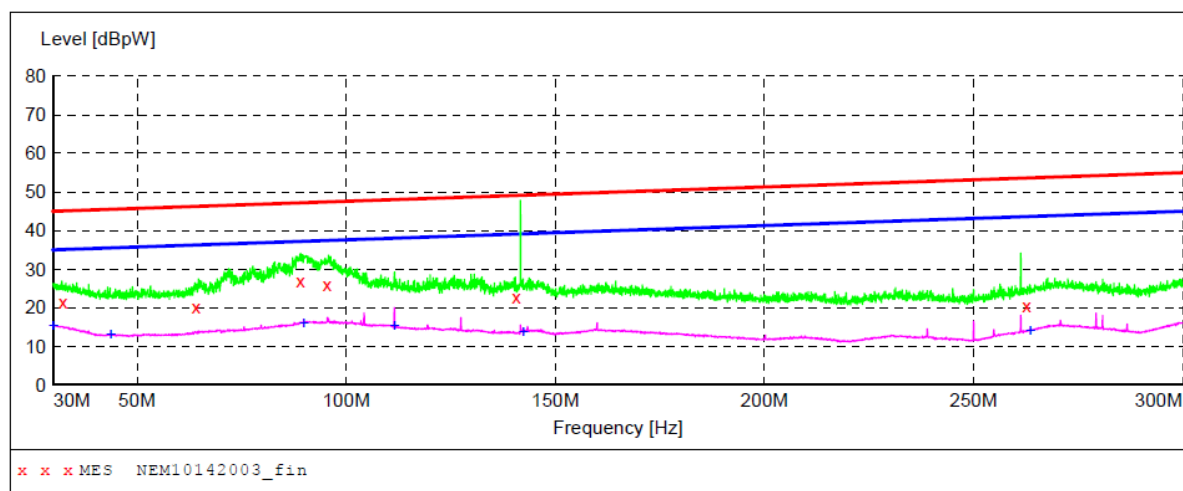
New Standard EMI_Power MSD21 Auto Test



Final Result

Frequency (MHz)	QuasiPeak (dBpW)	Average (dBpW)	QP Limit (dBpW)	AV Limit (dBpW)
31.822500	24.3	17.7	45.1	35.1
45.187500	20.9	14.3	45.6	35.6
57.911250	20.9	14.4	46.0	36.0
62.602500	20.9	14.3	46.2	36.2
65.235000	20.5	14.0	46.3	36.3
96.825000	19.9	13.4	47.5	37.5

6.5.2 Diagram 011



MEASUREMENT RESULT: "NEM10142003_fin"

10/14/2015 1:33PM

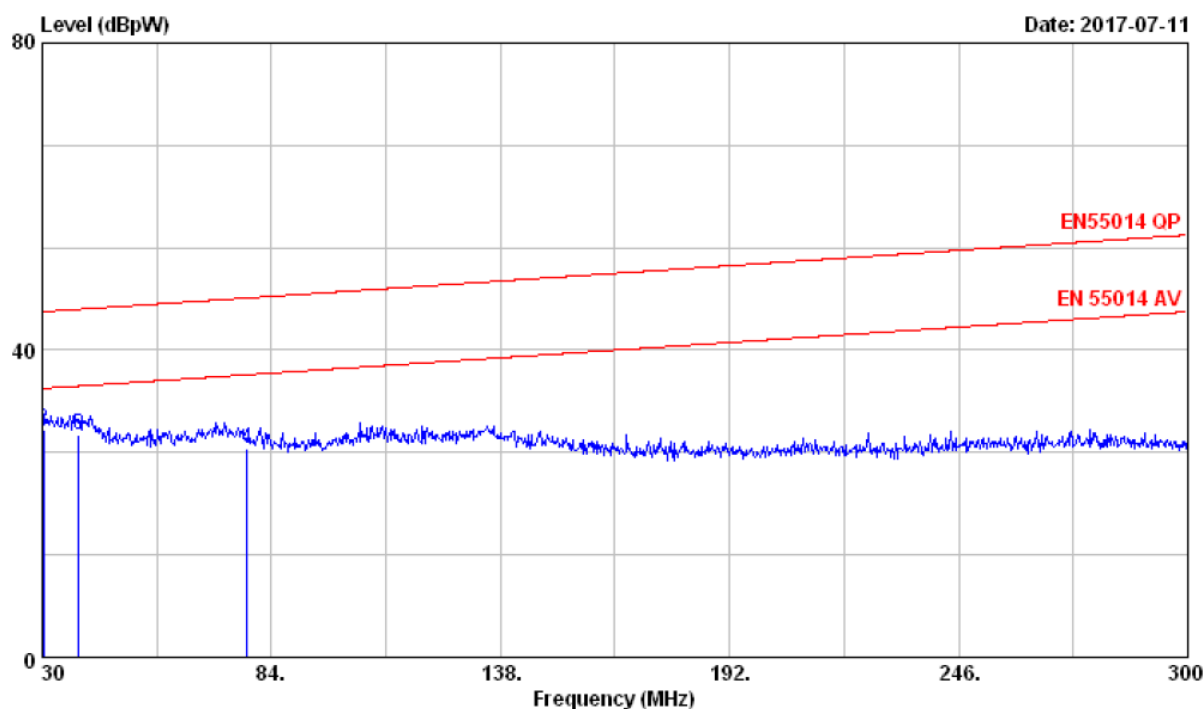
Frequency MHz	Level dBpW	Transd dB	Limit dBpW	Margin dB	Det.	Position cm
32.340000	21.50	7.7	45	23.6	QP	530.0
64.140000	20.00	6.0	46	26.3	QP	530.0
89.100000	26.80	8.0	47	20.4	QP	530.0
95.460000	26.10	8.3	47	21.3	QP	530.0
140.700000	22.80	6.1	49	26.3	QP	530.0
262.740000	20.50	7.3	54	33.1	QP	530.0

MEASUREMENT RESULT: "NEM10142003_fin2"

10/14/2015 1:33PM

Frequency MHz	Level dBpW	Transd dB	Limit dBpW	Margin dB	Det.	Position cm
30.000000	15.40	8.2	35	19.6	AV	530.0
43.800000	13.10	5.7	36	22.4	AV	530.0
89.820000	16.10	8.1	37	21.1	AV	530.0
111.540000	15.50	8.2	38	22.5	AV	530.0
142.440000	13.80	6.0	39	25.4	AV	530.0
263.580000	14.20	7.5	44	29.5	AV	530.0

6.5.3 Diagram 012



	Freq. (MHz)	Clamp Factor (dB)	Reading (dBpW)	Emission Level (dBpW)	Limits (dBpW)	Margin (dB)	Remark
1	30.270	26.55	-2.30	24.25	35.02	10.77	Average
2	30.270	26.55	3.05	29.60	45.02	15.42	QP
3	38.640	26.18	2.84	29.02	45.33	16.31	QP
4	78.330	24.83	2.42	27.25	46.80	19.55	QP

Remarks: 1. Emission Level= Clamp Factor(Include 6dB ATT.&Cable Loss)+Reading.
2. If the average limit is met when using a quasi-peak detector,the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.

7 Harmonic Current

7.1 Standard

Generic standard

EN 61000-3-2:2014

Limit class

Class A

Date of testing

2010-07-07, 2015-10-12, 2017-07-13

7.2 Measurement equipment

N LAB

	Equipment	Calibration Due	Type	Serial No.	Manufacturer
<input checked="" type="checkbox"/>	AC Power Source	2019-01-29	NSG1007	57877	SCHAFFNER
<input checked="" type="checkbox"/>	Harmonic and Flick test system	2019-01-29	CCN1000-1	72538	SCHAFFNER

7.3 Test set-up

Devices with an active input power
of $P < 75 \text{ W}$

☐

Balanced three-phase equipment and all other
equipment, except that stated in one of the
following classes

Class A

☒

Portable tools

Class B

☐

Lightning equipment, including dimming devices

Class C

☐

Equipment having an input current with a "special
wave shape" as defined in figure 1 in the
standard and an active input power, $P \leq 600 \text{ W}$
and motor driven with phase angle control

Class D

☐

The power cord of the EUT is connected to the output of the test systems, Turn on the power of the EUT and use the test system to test the harmonic current level. Observation time: 150s

If Harmonic current less than 0.6% of the input current measured under the test condition, or less than 5mA, then whichever is greater, are disregarded.

7.4 Test results

Mode	Diagram	Model	Power	Result
TM2	013	RC-16A	1018.9W	Pass
TM2	014	RCD-10	735W	Pass
TM2	015	DRC-5	378.6W	Pass

7.5 Diagrams

7.5.1 Diagram 013

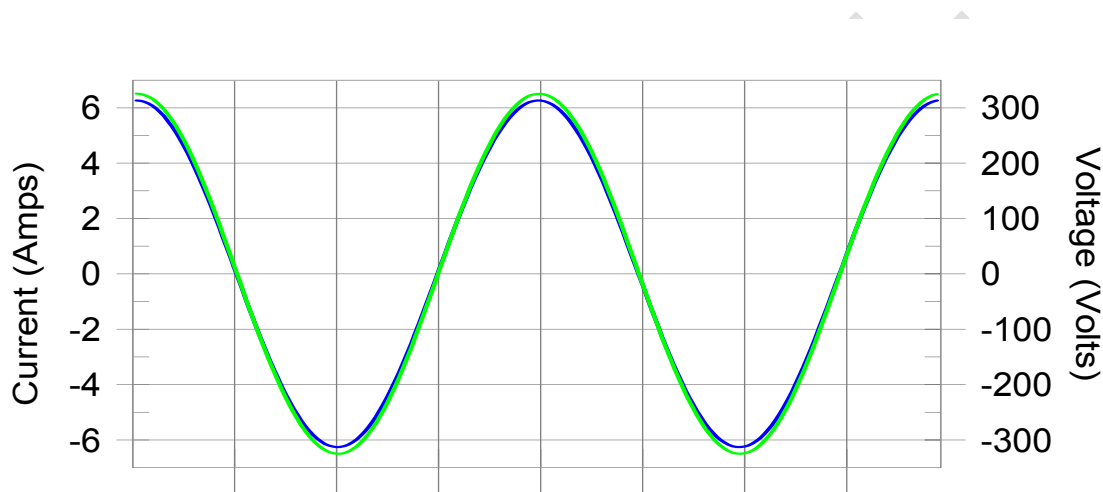
Harmonics – Class-A per Ed. 3.0 (2005-11)(Run time)

EUT: Rice Cooker
Test category: Class-A per Ed. 3.0 (2005-11) (European limits)
Test date: 7/7/2010
Test duration (min): 2.5
Comment: RC-16A
Customer: New Nanfang Electrical Appliance Co., Ltd.

Tested by: Harry Zhao
Test Margin: 100
Start time: 4:55:17 PM
End time: 4:57:58 PM
Data file name: H-001222.cts_data

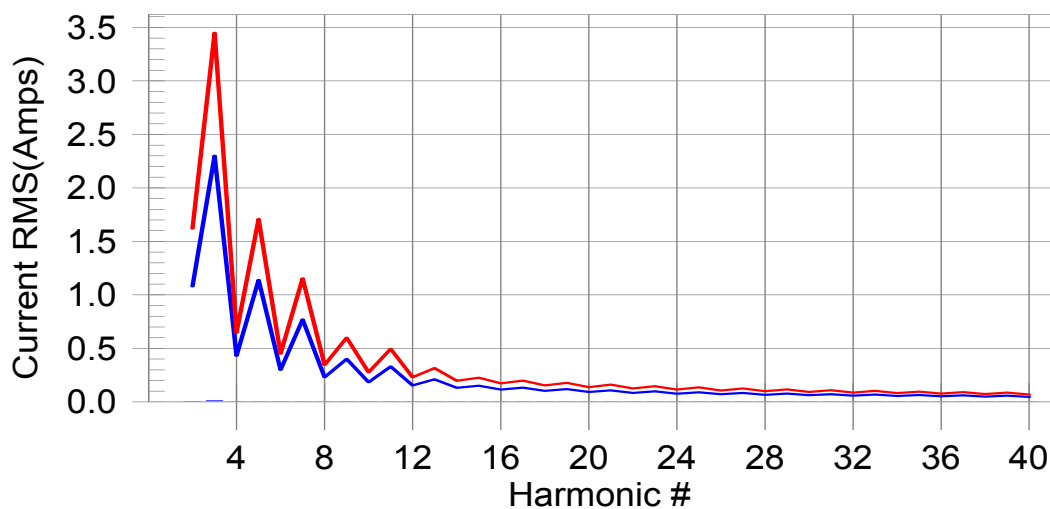
Test Result: Pass Source qualification: Normal

Current & voltage waveforms



Harmonics and Class A limit line

European Limits



Test result: Pass Worst harmonic was #39 with 0.58% of the limit.

Ident. Nr.: 365246
Date: 2018-12-11



Current Test Result Summary (Run time)

EUT: Rice Cooker Tested by: Harry Zhao
Test category: Class-A per Ed. 3.0 (2005-11) (European limits) Test Margin: 100
Test date: 7/7/2010 Start time: 4:55:17 PM End time: 4:57:58 PM
Test duration (min): 2.5 Data file name: H-001222.cts_data
Comment: RC-16A
Customer: New Nanfang Electrical Appliance Co., Ltd.

Test Result: Pass Source qualification: Normal
THC(A): 0.01 I-THD(%): 0.21 POHC(A): 0.001 POHC Limit(A): 0.251
Highest parameter values during test:

V_RMS (Volts):	230.11	Frequency(Hz):	50.00
I_Peak (Amps):	6.269	I_RMS (Amps):	4.432
I_Fund (Amps):	4.430	Crest Factor:	1.415
Power (Watts):	1018.9	Power Factor:	0.999

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.002	1.080	0.2	0.003	1.620	0.21	Pass
3	0.008	2.300	0.4	0.009	3.450	0.27	Pass
4	0.001	0.430	0.3	0.002	0.645	0.27	Pass
5	0.000	1.140	0.0	0.001	1.710	0.03	Pass
6	0.001	0.300	0.3	0.001	0.450	0.25	Pass
7	0.001	0.770	0.2	0.002	1.155	0.13	Pass
8	0.001	0.230	0.2	0.001	0.345	0.19	Pass
9	0.001	0.400	0.2	0.001	0.600	0.17	Pass
10	0.001	0.184	0.3	0.001	0.276	0.27	Pass
11	0.001	0.330	0.3	0.001	0.495	0.21	Pass
12	0.000	0.153	0.2	0.000	0.230	0.19	Pass
13	0.001	0.210	0.4	0.001	0.315	0.31	Pass
14	0.000	0.131	0.2	0.000	0.197	0.16	Pass
15	0.000	0.150	0.3	0.001	0.225	0.27	Pass
16	0.000	0.115	0.2	0.000	0.173	0.25	Pass
17	0.000	0.132	0.3	0.000	0.199	0.23	Pass
18	0.000	0.102	0.3	0.000	0.153	0.24	Pass
19	0.001	0.118	0.5	0.001	0.178	0.41	Pass
20	0.000	0.092	0.4	0.001	0.138	0.38	Pass
21	0.001	0.107	0.5	0.001	0.161	0.42	Pass
22	0.000	0.084	0.1	0.000	0.125	0.16	Pass
23	0.001	0.098	0.5	0.001	0.147	0.44	Pass
24	0.000	0.077	0.2	0.000	0.115	0.16	Pass
25	0.000	0.090	0.4	0.000	0.135	0.32	Pass
26	0.000	0.071	0.2	0.000	0.106	0.16	Pass
27	0.000	0.083	0.3	0.000	0.125	0.32	Pass
28	0.000	0.066	0.2	0.000	0.099	0.19	Pass
29	0.000	0.078	0.6	0.001	0.116	0.45	Pass
30	0.000	0.061	0.2	0.000	0.092	0.15	Pass
31	0.000	0.073	0.7	0.001	0.109	0.50	Pass
32	0.000	0.058	0.2	0.000	0.086	0.17	Pass
33	0.000	0.068	0.5	0.000	0.102	0.46	Pass
34	0.000	0.054	0.2	0.000	0.081	0.18	Pass
35	0.000	0.064	0.5	0.000	0.096	0.44	Pass
36	0.000	0.051	0.2	0.000	0.077	0.17	Pass
37	0.000	0.061	0.5	0.000	0.091	0.46	Pass
38	0.000	0.048	0.2	0.000	0.073	0.15	Pass
39	0.000	0.058	0.8	0.001	0.087	0.58	Pass
40	0.000	0.046	0.4	0.000	0.069	0.35	Pass

Voltage Source Verification Data (Run time)

EUT: Rice Cooker
Test category: Class-A per Ed. 3.0 (2005-11) (European limits)
Test date: 7/7/2010
Test duration (min): 2.5
Comment: RC-16A
Customer: New Nanfang Electrical Appliance Co., Ltd.

Tested by: Harry Zhao
Test Margin: 100
Start time: 4:55:17 PM
End time: 4:57:58 PM
Data file name: H-001222.cts_data

Test Result: Pass Source qualification: Normal

Highest parameter values during test:

Voltage (Vrms):	230.11	Frequency(Hz):	50.00
I_Peak (Amps):	6.269	I_RMS (Amps):	4.432
I_Fund (Amps):	4.430	Crest Factor:	1.415
Power (Watts):	1018.9	Power Factor:	0.999

Harm#	Harmonics V-rms	Limit V-rms	% of Limit	Status
2	0.161	0.460	35.00	OK
3	0.495	2.070	23.91	OK
4	0.089	0.460	19.27	OK
5	0.061	0.920	6.60	OK
6	0.059	0.460	12.77	OK
7	0.048	0.690	6.96	OK
8	0.033	0.460	7.23	OK
9	0.029	0.460	6.28	OK
10	0.039	0.460	8.37	OK
11	0.026	0.230	11.20	OK
12	0.022	0.230	9.71	OK
13	0.026	0.230	11.11	OK
14	0.017	0.230	7.43	OK
15	0.012	0.230	5.28	OK
16	0.021	0.230	9.05	OK
17	0.013	0.230	5.62	OK
18	0.019	0.230	8.37	OK
19	0.016	0.230	7.14	OK
20	0.029	0.230	12.54	OK
21	0.014	0.230	6.01	OK
22	0.012	0.230	5.17	OK
23	0.013	0.230	5.75	OK
24	0.010	0.230	4.20	OK
25	0.011	0.230	4.60	OK
26	0.008	0.230	3.46	OK
27	0.013	0.230	5.52	OK
28	0.010	0.230	4.13	OK
29	0.010	0.230	4.48	OK
30	0.007	0.230	3.25	OK
31	0.007	0.230	3.26	OK
32	0.006	0.230	2.75	OK
33	0.008	0.230	3.50	OK
34	0.007	0.230	3.07	OK
35	0.006	0.230	2.76	OK
36	0.005	0.230	2.34	OK
37	0.008	0.230	3.61	OK
38	0.006	0.230	2.54	OK
39	0.009	0.230	3.73	OK
40	0.013	0.230	5.46	OK

7.5.2 Diagram 014

Harmonics – Class-A per Ed. 4.0 (2014)(Run time)

EUT: RCD-10

Test category: Class-A per Ed. 4.0 (2014) (European limits)

Test date: 10/12/2015

Test duration (min): 2.5

Comment: Working

Customer: Customer information

Tested by: RJB

Test Margin: 100

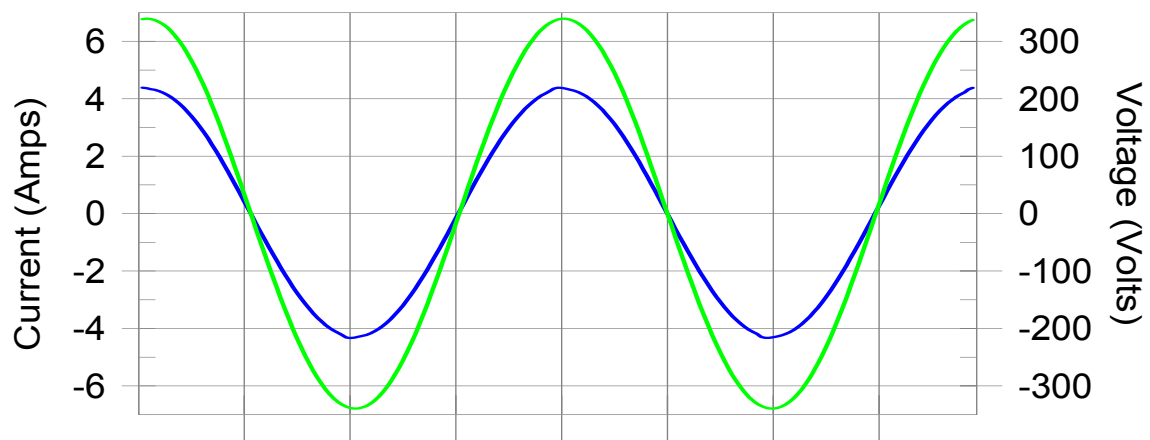
Start time: 4:42:13 PM

End time: 4:45:05 PM

Data file name: H-000224.cts_data

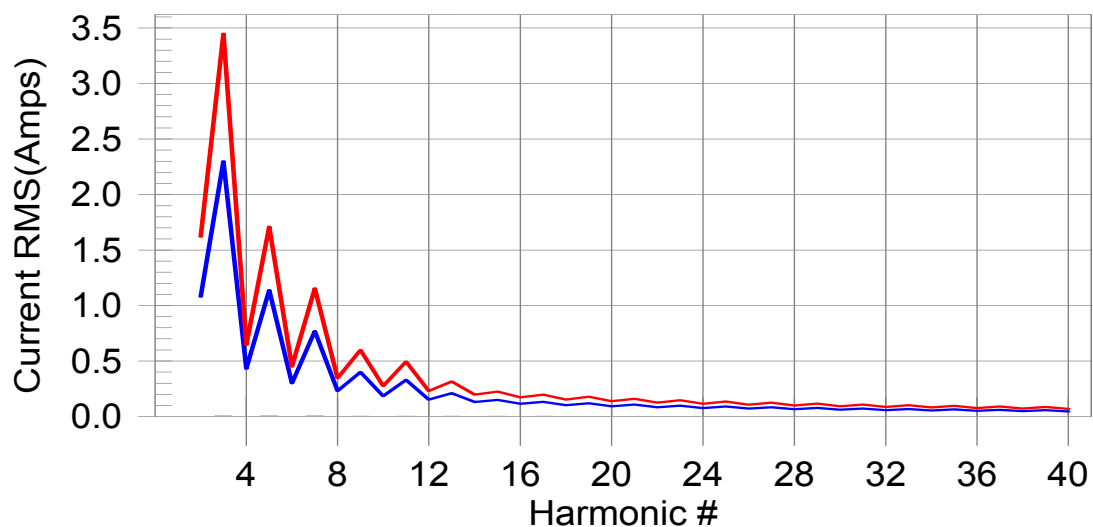
Test Result: Pass Source qualification: Normal

Current & voltage waveforms



Harmonics and Class A limit line

European Limits



Test result: Pass Worst harmonic was #0 with 0.0% of the limit.

Current Test Result Summary (Run time)

EUT: RCD-10
Test category: Class-A per Ed. 4.0 (2014) (European limits)
Test date: 10/12/2015 Start time: 4:42:13 PM End time: 4:45:05 PM
Test duration (min): 2.5 Data file name: H-000224.cts_data
Comment: Working
Customer: Customer information

Test Result: Pass Source qualification: Normal
THC(A): 0.010 I-THD(%): 0.6 POHC(A): 0.000 POHC Limit(A): 0.251
Highest parameter values during test:

V_RMS (Volts): 230.25	Frequency(Hz): 50.00
I_Peak (Amps): 4.381	I_RMS (Amps): 3.061
I_Fund (Amps): 3.061	Crest Factor: 4.326
Power (Watts): 735.0	Power Factor: 1.000

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.002	1.080	N/A	0.012	1.620	N/A	Pass
3	0.004	2.300	N/A	0.008	3.450	N/A	Pass
4	0.001	0.430	N/A	0.005	0.645	N/A	Pass
5	0.004	1.140	N/A	0.007	1.710	N/A	Pass
6	0.000	0.300	N/A	0.003	0.450	N/A	Pass
7	0.004	0.770	N/A	0.006	1.155	N/A	Pass
8	0.000	0.230	N/A	0.002	0.345	N/A	Pass
9	0.003	0.400	N/A	0.004	0.600	N/A	Pass
10	0.000	0.184	N/A	0.002	0.276	N/A	Pass
11	0.003	0.330	N/A	0.004	0.495	N/A	Pass
12	0.000	0.153	N/A	0.001	0.230	N/A	Pass
13	0.003	0.210	N/A	0.004	0.315	N/A	Pass
14	0.000	0.131	N/A	0.001	0.197	N/A	Pass
15	0.002	0.150	N/A	0.003	0.225	N/A	Pass
16	0.000	0.115	N/A	0.001	0.173	N/A	Pass
17	0.002	0.132	N/A	0.003	0.198	N/A	Pass
18	0.000	0.102	N/A	0.001	0.153	N/A	Pass
19	0.002	0.118	N/A	0.003	0.178	N/A	Pass
20	0.000	0.092	N/A	0.001	0.138	N/A	Pass
21	0.002	0.107	N/A	0.002	0.161	N/A	Pass
22	0.000	0.084	N/A	0.001	0.125	N/A	Pass
23	0.001	0.098	N/A	0.002	0.147	N/A	Pass
24	0.000	0.077	N/A	0.001	0.115	N/A	Pass
25	0.001	0.090	N/A	0.001	0.135	N/A	Pass
26	0.000	0.071	N/A	0.001	0.107	N/A	Pass
27	0.001	0.083	N/A	0.001	0.125	N/A	Pass
28	0.000	0.066	N/A	0.001	0.099	N/A	Pass
29	0.001	0.078	N/A	0.001	0.116	N/A	Pass
30	0.000	0.061	N/A	0.001	0.092	N/A	Pass
31	0.001	0.073	N/A	0.001	0.109	N/A	Pass
32	0.000	0.058	N/A	0.000	0.086	N/A	Pass
33	0.001	0.068	N/A	0.001	0.102	N/A	Pass
34	0.000	0.054	N/A	0.001	0.081	N/A	Pass
35	0.001	0.064	N/A	0.001	0.096	N/A	Pass
36	0.000	0.051	N/A	0.000	0.077	N/A	Pass
37	0.001	0.061	N/A	0.001	0.091	N/A	Pass
38	0.000	0.048	N/A	0.000	0.073	N/A	Pass
39	0.001	0.058	N/A	0.001	0.087	N/A	Pass
40	0.000	0.046	N/A	0.001	0.069	N/A	Pass

Voltage Source Verification Data (Run time)

EUT: RCD-10
Test category: Class-A per Ed. 4.0 (2014) (European limits)
Test date: 10/12/2015 Start time: 4:42:13 PM End time: 4:45:05 PM
Test duration (min): 2.5 Data file name: H-000224.cts_data
Comment: Working
Customer: Customer information

Test Result: Pass Source qualification: Normal

Highest parameter values during test:

Voltage (Vrms):	230.25	Frequency(Hz):	50.00
I_Peak (Amps):	4.381	I_RMS (Amps):	3.061
I_Fund (Amps):	3.061	Crest Factor:	4.326
Power (Watts):	735.0	Power Factor:	1.000

Harm#	Harmonics V-rms	Limit V-rms	% of Limit	Status
2	0.083	0.480	17.21	OK
3	0.603	2.161	27.88	OK
4	0.096	0.480	19.99	OK
5	0.074	0.960	7.75	OK
6	0.044	0.480	9.23	OK
7	0.066	0.720	9.22	OK
8	0.023	0.480	4.74	OK
9	0.026	0.480	5.47	OK
10	0.022	0.480	4.52	OK
11	0.017	0.240	6.91	OK
12	0.011	0.240	4.39	OK
13	0.012	0.240	5.05	OK
14	0.011	0.240	4.70	OK
15	0.012	0.240	5.19	OK
16	0.013	0.240	5.34	OK
17	0.006	0.240	2.38	OK
18	0.012	0.240	4.97	OK
19	0.011	0.240	4.38	OK
20	0.022	0.240	9.26	OK
21	0.012	0.240	5.01	OK
22	0.008	0.240	3.29	OK
23	0.005	0.240	2.04	OK
24	0.003	0.240	1.28	OK
25	0.003	0.240	1.12	OK
26	0.003	0.240	1.15	OK
27	0.006	0.240	2.41	OK
28	0.004	0.240	1.62	OK
29	0.006	0.240	2.53	OK
30	0.003	0.240	1.33	OK
31	0.003	0.240	1.23	OK
32	0.002	0.240	0.96	OK
33	0.004	0.240	1.69	OK
34	0.002	0.240	0.85	OK
35	0.004	0.240	1.66	OK
36	0.002	0.240	0.92	OK
37	0.005	0.240	1.98	OK
38	0.002	0.240	0.95	OK
39	0.006	0.240	2.40	OK
40	0.011	0.240	4.69	OK

7.5.3 Diagram 015

Harmonics – Class-A per Ed. 4.0 (2014)(Run time)

EUT: DRC-5

Test category: Class-A per Ed. 4.0 (2014) (European limits)

Test date: 2017-7-13

Start time: 14:17:12

Tested by: RJB

Test Margin: 100

End time: 14:20:04

Test duration (min): 2.5

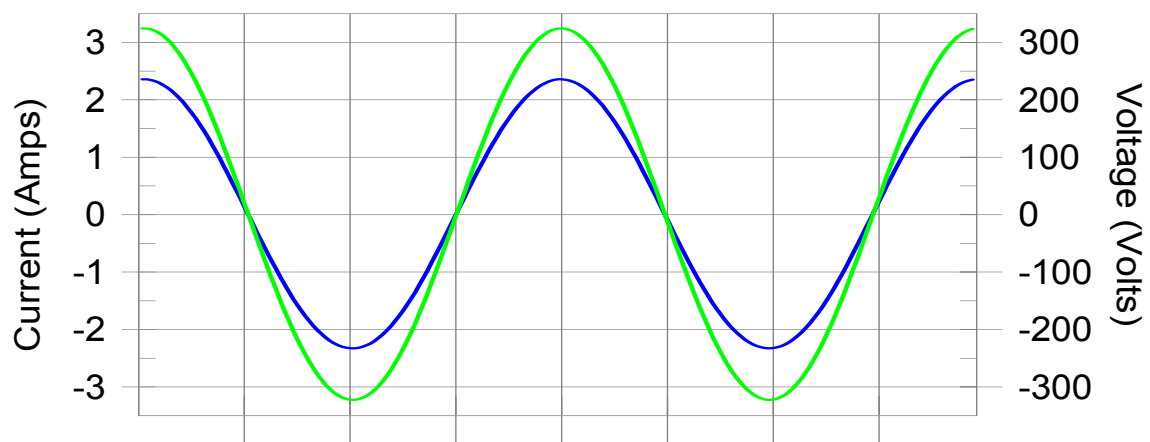
Data file name: H-000454.cts_data

Comment: COOK

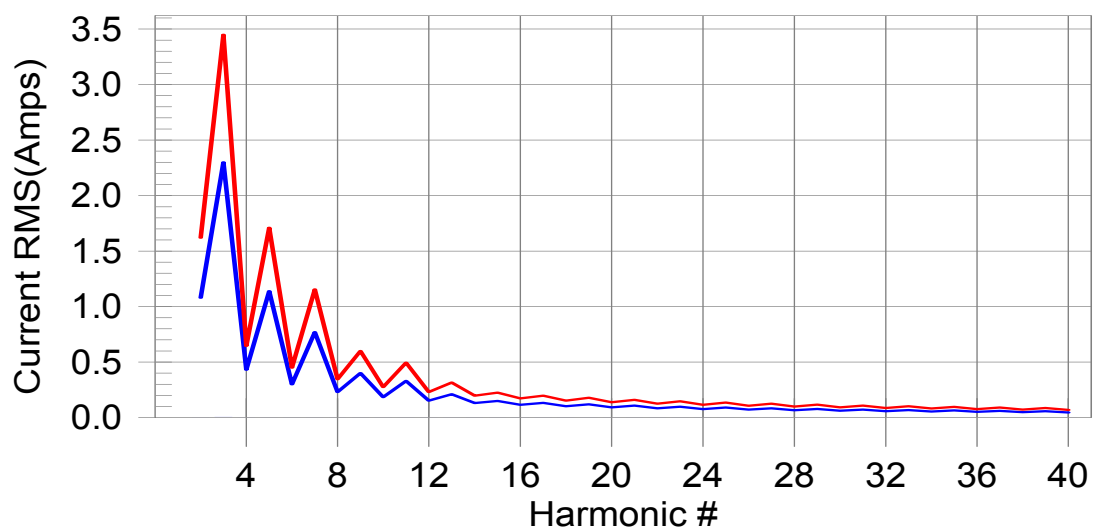
Customer: Customer information

Test Result: Pass Source qualification: Normal

Current & voltage waveforms



Harmonics and Class A limit line European Limits



Test result: Pass Worst harmonic was #0 with 0.0% of the limit.

Current Test Result Summary (Run time)

EUT: DRC-5
Test category: Class-A per Ed. 4.0 (2014) (European limits)
Test date: 2017-7-13 Start time: 14:17:12 End time: 14:20:04
Test duration (min): 2.5 Data file name: H-000454.cts_data
Comment: COOK
Customer: Customer information

Test Result: Pass Source qualification: Normal
THC(A): 0.003 I-THD(%): 0.2 POHC(A): 0.000 POHC Limit(A): 0.251
Highest parameter values during test:

V_RMS (Volts): 228.75	Frequency(Hz): 50.00
I_Peak (Amps): 2.359	I_RMS (Amps): 1.655
I_Fund (Amps): 1.655	Crest Factor: 1.425
Power (Watts): 378.6	Power Factor: 1.000

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.001	1.080	N/A	0.001	1.620	N/A	Pass
3	0.003	2.300	N/A	0.004	3.450	N/A	Pass
4	0.001	0.430	N/A	0.001	0.645	N/A	Pass
5	0.000	1.140	N/A	0.001	1.710	N/A	Pass
6	0.000	0.300	N/A	0.001	0.450	N/A	Pass
7	0.000	0.770	N/A	0.001	1.155	N/A	Pass
8	0.000	0.230	N/A	0.000	0.345	N/A	Pass
9	0.000	0.400	N/A	0.000	0.600	N/A	Pass
10	0.000	0.184	N/A	0.000	0.276	N/A	Pass
11	0.000	0.330	N/A	0.000	0.495	N/A	Pass
12	0.000	0.153	N/A	0.000	0.230	N/A	Pass
13	0.000	0.210	N/A	0.000	0.315	N/A	Pass
14	0.000	0.131	N/A	0.000	0.197	N/A	Pass
15	0.000	0.150	N/A	0.000	0.225	N/A	Pass
16	0.000	0.115	N/A	0.000	0.173	N/A	Pass
17	0.000	0.132	N/A	0.000	0.198	N/A	Pass
18	0.000	0.102	N/A	0.000	0.153	N/A	Pass
19	0.000	0.118	N/A	0.000	0.178	N/A	Pass
20	0.000	0.092	N/A	0.000	0.138	N/A	Pass
21	0.000	0.107	N/A	0.000	0.161	N/A	Pass
22	0.000	0.084	N/A	0.000	0.125	N/A	Pass
23	0.000	0.098	N/A	0.000	0.147	N/A	Pass
24	0.000	0.077	N/A	0.000	0.115	N/A	Pass
25	0.000	0.090	N/A	0.000	0.135	N/A	Pass
26	0.000	0.071	N/A	0.000	0.107	N/A	Pass
27	0.000	0.083	N/A	0.000	0.125	N/A	Pass
28	0.000	0.066	N/A	0.000	0.099	N/A	Pass
29	0.000	0.078	N/A	0.000	0.116	N/A	Pass
30	0.000	0.061	N/A	0.000	0.092	N/A	Pass
31	0.000	0.073	N/A	0.000	0.109	N/A	Pass
32	0.000	0.058	N/A	0.000	0.086	N/A	Pass
33	0.000	0.068	N/A	0.000	0.102	N/A	Pass
34	0.000	0.054	N/A	0.000	0.081	N/A	Pass
35	0.000	0.064	N/A	0.000	0.096	N/A	Pass
36	0.000	0.051	N/A	0.000	0.077	N/A	Pass
37	0.000	0.061	N/A	0.000	0.091	N/A	Pass
38	0.000	0.048	N/A	0.000	0.073	N/A	Pass
39	0.000	0.058	N/A	0.000	0.087	N/A	Pass
40	0.000	0.046	N/A	0.000	0.069	N/A	Pass

Voltage Source Verification Data (Run time)

EUT: DRC-5
Test category: Class-A per Ed. 4.0 (2014) (European limits)
Test date: 2017-7-13
Test duration (min): 2.5
Comment: COOK
Customer: Customer information

Tested by: RJB
Test Margin: 100
Start time: 14:17:12
End time: 14:20:04
Data file name: H-000454.cts_data

Test Result: Pass Source qualification: Normal

Highest parameter values during test:

Voltage (Vrms):	228.75	Frequency(Hz):	50.00
I_Peak (Amps):	2.359	I_RMS (Amps):	1.655
I_Fund (Amps):	1.655	Crest Factor:	1.425
Power (Watts):	378.6	Power Factor:	1.000

Harm#	Harmonics V-rms	Limit V-rms	% of Limit	Status
2	0.087	0.457	19.01	OK
3	0.471	2.059	22.90	OK
4	0.091	0.457	19.94	OK
5	0.042	0.915	4.63	OK
6	0.050	0.457	10.87	OK
7	0.060	0.686	8.77	OK
8	0.017	0.457	3.74	OK
9	0.033	0.457	7.11	OK
10	0.019	0.457	4.05	OK
11	0.019	0.229	8.17	OK
12	0.015	0.229	6.65	OK
13	0.011	0.229	5.02	OK
14	0.006	0.229	2.48	OK
15	0.009	0.229	3.96	OK
16	0.010	0.229	4.54	OK
17	0.004	0.229	1.69	OK
18	0.011	0.229	4.78	OK
19	0.009	0.229	3.85	OK
20	0.024	0.229	10.35	OK
21	0.009	0.229	3.79	OK
22	0.004	0.229	1.95	OK
23	0.005	0.229	2.02	OK
24	0.003	0.229	1.39	OK
25	0.004	0.229	1.74	OK
26	0.003	0.229	1.47	OK
27	0.007	0.229	2.91	OK
28	0.002	0.229	1.03	OK
29	0.006	0.229	2.42	OK
30	0.002	0.229	1.06	OK
31	0.003	0.229	1.52	OK
32	0.002	0.229	0.88	OK
33	0.003	0.229	1.45	OK
34	0.003	0.229	1.20	OK
35	0.003	0.229	1.45	OK
36	0.002	0.229	0.81	OK
37	0.003	0.229	1.42	OK
38	0.002	0.229	0.90	OK
39	0.005	0.229	2.31	OK
40	0.012	0.229	5.35	OK

8 Voltage fluctuations and flicker

8.1 Standard

Basic standard

EN 61000-3-3:2013

Date of testing

2010-07-07, 2015-10-12, 2017-07-13

8.2 Measurement equipment

N LAB

	Equipment	Calibration Due	Type	Serial No.	Manufacturer
<input checked="" type="checkbox"/>	AC Power Source	2019-01-29	NSG1007e	57877	SCHAFFNER
<input checked="" type="checkbox"/>	Harmonic and Flick test system	2019-01-29	CCN1000-1	72538	SCHAFFNER

8.3 Test set-up

Annex B-4 with a photo or a rough figure of the test set-up is attached.

The power cord of the EUT is connected to the output of the test systems, Turn on the power of the EUT and use the test system to test the voltage fluctuation and flicker.

Test duration (min): 10

8.4 Test results

Mode	Diagram	Model	Remarks	Result
TM2	016	RC-16A	AC Input port	Pass
TM2	017	RCD-10	AC Input port	Pass
TM2	018	DRC-5	AC Input port	Pass

8.5 Diagram

8.5.1 Diagram 016

Flicker Test Summary per EN/IEC61000-3-3 (Run time)

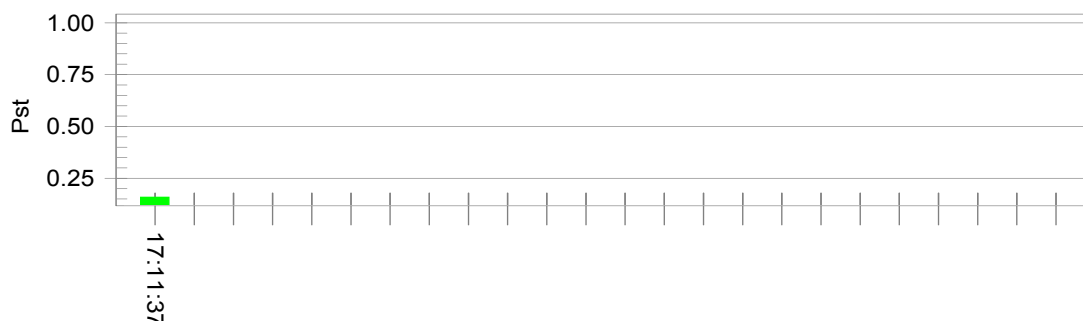
EUT: Rice Cooker
Test category: dt,dmax,dc and Pst (European limits)
Test date: 7/7/2010 Start time: 5:01:17 PM End time: 5:11:38 PM
Test duration (min): 10 Data file name: F-001223.cts_data
Comment: RC-16A
Customer: New Nanfang Electrical Appliance Co., Ltd.

Test Result: Pass

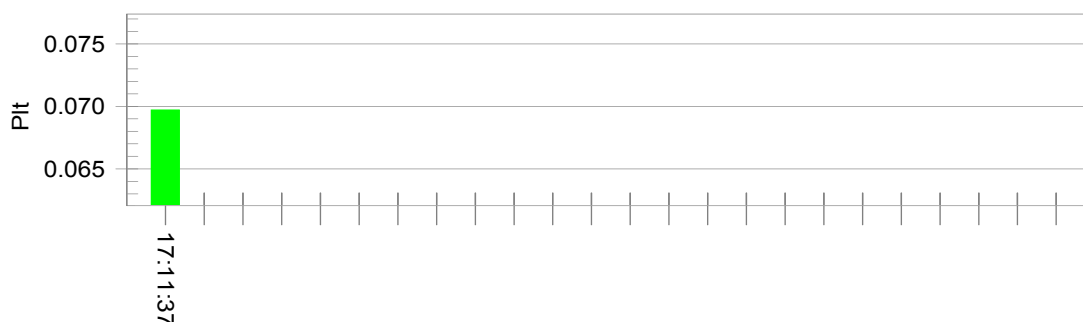
Status: Test Completed

Pst_i and limit line

▲ European Limits



Plt and limit line



Parameter values recorded during the test:

Vrms at the end of test (Volt):	228.38		
Highest dt (%):	0.00	Test limit (%):	3.30 Pass
Time(mS) > dt:	0.0	Test limit (mS):	500.0 Pass
Highest dc (%):	0.00	Test limit (%):	3.30 Pass
Highest dmax (%):	0.00	Test limit (%):	4.00 Pass
Highest Pst (10 min. period):	0.160	Test limit:	1.000 Pass

8.5.2 Diagram 017

Flicker Test Summary per EN/IEC61000-3-3 (Run time)

EUT: RCD-10
Test category: All parameters (European limits)
Test date: 10/12/2015
Test duration (min): 10
Comment: Working
Customer: Customer information

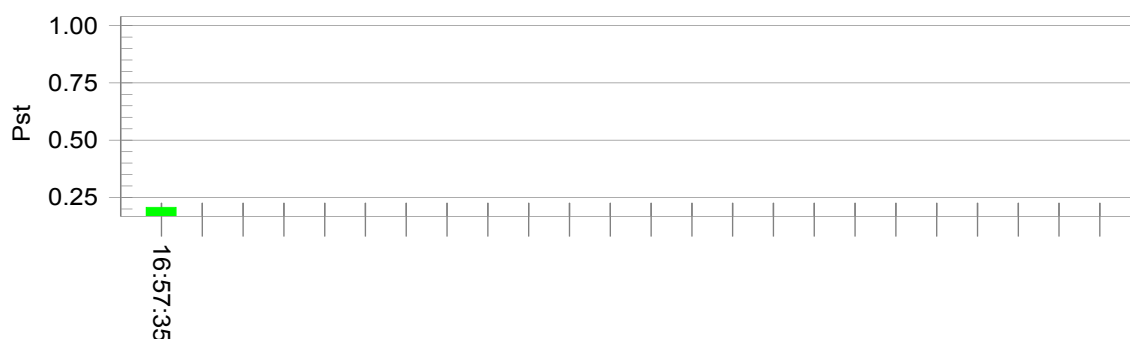
Tested by: RJB
Test Margin: 100
Start time: 4:47:05 PM
End time: 4:57:37 PM
Data file name: F-000225.cts_data

Test Result: Pass

Status: Test Completed

Pst_i and limit line

European Limits



Parameter values recorded during the test:

Vrms at the end of test (Volt):	230.20		
Highest dt (%):	0.56	Test limit (%):	N/A
T-max (mS):	0	Test limit (mS):	500.0
Highest dc (%):	-0.53	Test limit (%):	3.30
Highest dmax (%):	0.55	Test limit (%):	4.00
Highest Pst (10 min. period):	0.207	Test limit:	1.000

8.5.3 Diagram 018

Flicker Test Summary per EN/IEC61000-3-3 (Run time)

EUT: DRC-5
Test category: All parameters (European limits)
Test date: 2017-7-13
Test duration (min): 10
Comment: COOK
Customer: Customer information

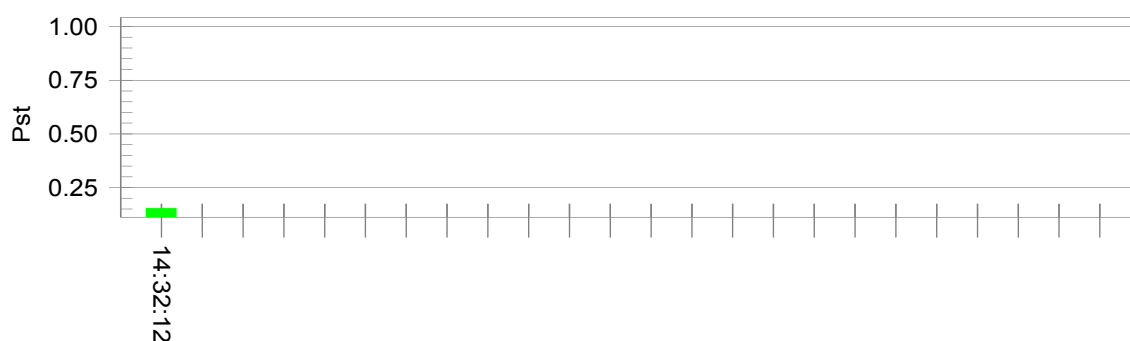
Tested by: RJB
Test Margin: 100
Start time: 14:21:42
End time: 14:32:13
Data file name: F-000455.cts_data

Test Result: Pass

Status: Test Completed

Pst_i and limit line

European Limits



Parameter values recorded during the test:

Vrms at the end of test (Volt):	228.04		
Highest dt (%):	0.00	Test limit (%):	3.30 Pass
T-max (mS):	0	Test limit (mS):	500.0 Pass
Highest dc (%):	0.00	Test limit (%):	3.30 Pass
Highest dmax (%):	0.04	Test limit (%):	4.00 Pass
Highest Pst (10 min. period):	0.153	Test limit:	1.000 Pass

9 Electrostatic discharge

9.1 Standard

Basic standard

EN 61000-4-2:2009

Date of testing

2015-10-18

Performance criteria:

B

9.2 Measurement equipment

N LAB

	Equipment	Calibration due.	Type	Serial No.	Manufacturer
<input checked="" type="checkbox"/>	ESD generator power	2019.01.29	NSG437	161	TESEQ
<input checked="" type="checkbox"/>	ESD generator	2019.01.29	NSG437	130-149	TESEQ

9.3 Test set-up

Annex B with a photo or a rough figure of the test set-up is attached.

The EUT and cables shall be isolated from the ground reference plane by an insulating support about 0,4 m thick. Any mounting feet associated with the EUT shall remain in place.

Contact discharge is the preferred test method. 20 discharges (10 with positive and 10 with negative polarity) shall be applied on each accessible metal part of the enclosure. In case of a non-conductive enclosure, discharges shall be applied on the HCP and VCP, and Air discharges shall be used where contact discharges cannot be applied.

The 4kV contact discharge shall be applied to conductive accessible parts, metallic contacts, such as battery compartments or in socket outlets, are excluded from this requirement.

9.4 Test results

Test Port: Enclosure			
Mode	Model	Table	Result
TM2	RCD-10	019	Pass

9.5 Table

9.5.1 Table 019

Location	Voltage	Amount of test points	Amount of discharge	Discharge Method	Performance
Nonconductive Enclosure	±8kV	10	200	Air	A
Conductive Enclosure	±4kV	12	240	Contact	A
HCP	±4kV	4	80	Contact	A
VCP	±4kV	4	80	Contact	A

10 Electrical Fast Transients/Bursts Immunity

10.1 Standard

Basic standard EN 61000-4-4:2012
Date of testing 2015-10-17
Performance criteria: B

10.2 Measurement equipment

N LAB

	Equipment	Calibration due	Type	Serial No.	Manufacturer
<input checked="" type="checkbox"/>	Multi-function generator	2017.03.28	NSG 3060	083	TESEQ
<input checked="" type="checkbox"/>	Coupling- decoupling Network	2017.03.28	CDN3061	083	TESEQ

10.3 Test set-up

Annex B with a photo or a rough figure of the test set-up is attached.

The EUT located $0.1\text{m} \pm 0.01\text{m}$ above the ground reference plane. The ground reference plane shall project beyond the EUT at least 0.1m on all side,

The minimum distance between the EUT and all other conductive structures (e.g. the walls of a shielded room), except the ground reference plane shall be more than 0,5 m.

All cables to the EUT shall be placed on the insulation support 0,1 m above the ground reference plane. Cables not subject to electrical fast transients shall be routed as far as possible from the cable under test to minimize the coupling between the cables.

Fast transients are carried out during 2min with a positive polarity and during 2min with a negative polarity.

10.4 Test results

Test Port:			AC input port
Model	Mode	Table	Result
RCD-10	TM2	020	Pass

10.5 Table

10.5.1 Table 020

Test specification	1KV(peak); 5/50ns Tr/Th; 5kHz repetition frequency			
Injected Line	Voltage (kV)	Test Time (s)	Injected Method	Performance
L	+1	120	Direct	A
	-1	120	Direct	A
N	+1	120	Direct	A
	-1	120	Direct	A
PE	+1	120	Direct	A
	-1	120	Direct	A
L,PE	+1	120	Direct	A
	-1	120	Direct	A
N,PE	+1	120	Direct	A
	-1	120	Direct	A
L,N,PE	+1	120	Direct	A
	-1	120	Direct	A

11 Surge Immunity

11.1 Standard

Basic standard **EN 61000-4-5:2014**
Date of testing **2015-10-19**
Performance criteria: **B**

11.2 Measurement equipment

N LAB

	Equipment	Calibration due	Type	Serial No.	Manufacturer
<input checked="" type="checkbox"/>	Multi-function generator	2019.01.29	NSG 3060	083	TESEQ
<input checked="" type="checkbox"/>	Coupling- decoupling Network	2019.01.29	CDN 3061	083	TESEQ

11.3 Test set-up

Annex B with a photo or a rough figure of the test set-up is attached.

If not otherwise specified the power cord between the EUT and the coupling/decoupling network shall not exceed 2m in length.

5 positive and 5 negative pulses is applicable : between phase to phase 1kV
between phase to neutral 1kV
between phase to protective earth 2kV
between protective earth to neutral 2kV

11.4 Test results

Port:	AC input			
Mode	Model	Table	Test specification	Result
TM2	RCD-10	021	1.2/50(8/20) μ s Tr/Th 1KV L-N 2KV L-PE, N-PE	Pass

11.5 Table

11.5.1 Table 021

Injected Line	Wave Form	Voltage (kV)	Phase	Number of Pulse	Interval time	Performance
L-N	1.2/50 μ s	+1	90°	5	60s	A
		-1	270°	5	60s	A
L-PE	1.2/50 μ s	+2	90°	5	60s	A
		-2	270°	5	60s	A
N-PE	1.2/50 μ s	+2	90°	5	60s	A
		-2	270°	5	60s	A

12 Conducted Immunity

12.1 Standard

Basic standard

EN 61000-4-6:2014

Date of testing

2015-10-17

Performance criteria:

A

12.2 Measurement equipment

N LAB

	Equipment	Calibration due	Type	Serial No.	Manufacturer
<input checked="" type="checkbox"/>	Conducted immunity test system	2019.01.29	NSG4070	25795	SCHAFFNER
<input checked="" type="checkbox"/>	Attenuator	2019.01.29	ATN6075	25366	TESEQ
<input checked="" type="checkbox"/>	CDN	2019.01.29	M016	25127	TESEQ
<input checked="" type="checkbox"/>	EM Injection Clamp	2019.01.29	KEMZ 801	25468	TESEQ

12.3 Test set-up

Annex B with a photo or a rough figure of the test set-up is attached.

Set up the EUT, CDN and test generators as shown above. The equipment to be tested is placed on an insulating support of 0.1m height above a ground reference plane, all cable exiting the EUT shall be supported at a height of at least 30mm above the ground reference plane. The distance between eut and CDN is 0.1 to 0.3m.

The test is performed with the generator contacted to each CDN in turn. The frequency range is swept from 150kHz to 80MHz, using the signal levels established during the setting process, and with the disturbance signal 80% amplitude modulated with a 1kHz sine wave.

Only applicable to ports interfacing with cables whose total length according to the manufacturer's specification may exceed 1 m.

Artificial hand need to be used when EUT is a hand held equipment.

12.4 Test results

Port:		AC input port		
Mode	Model	Table	Test specification	Result
TM2	RCD-10	022	0.15MHz~230MHz 3V(r.m.s.) (unmodulated) 1kHz ,80%AM ,sine wave Source impedance 150 Ω	Pass

12.5 Table

12.5.1 Table 022

Frequency Range(MHz)	Injected Position	Strength	Performance
0.15MHz ~230MHz	AC Input port	3V(rms, Unmodulated)	A
Dwell time: 1s; Steps: 1%			

13 Voltage dips and interruptions Immunity

13.1 Standard

Basic standard

EN 61000-4-11:2004+A1:2017

Date of testing

2015-10-18

Performance criteria:

C

13.2 Measurement equipment

N LAB

	Equipment	Calibration due	Type	Serial No.	Manufacturer
<input checked="" type="checkbox"/>	Multi-function generator	2019.01.29	NSG 3060	083	TESEQ
<input checked="" type="checkbox"/>	Coupling- decoupling Network	2019.01.29	CDN3061	083	TESEQ
<input checked="" type="checkbox"/>	Automated Step transformer	2019.01.29	INA 6502	112	TESEQ

13.3 Test set-up

Annex B with a photo or a rough figure of the test set-up is attached.

The EUT is tested for each selected combination of test level and duration with a sequence of three Dips/interruptions with intervals of 10s minimum.

Voltage shift shall occur at Zero crossing.

13.4 Test results

Model: RCD-10		Test Port: AC input		
Test Mode	Table	Test specification (50Hz)	Test specification (60Hz)	Result
TM2	023	Voltage reduction 30% Number of periods 25; Voltage reduction 60% Number of periods 10; Voltage reduction 100% Number of periods 0.5 Performance criteria:C	Voltage reduction 30% Number of periods 30; Voltage reduction 60% Number of periods 12; Voltage reduction 100% Number of periods 0.5 Performance criteria:C	Pass

13.5 Table

13.5.1 Table 023

Test level %UT	Voltage Dips & Short Interruptions % UT	Duration (ms) (50Hz)	Duration (ms) (60Hz)	Phase Angle	Performance
0	100	10	8.3	0°, 180°	A
40	60	200	200	0°, 180°	A
70	30	500	500	0°, 180°	B

Annex A

EUT / technical data

Port	Label	Description		
Enclosure	GH	Plastic Enclosure		
Mains input AC	NAC.E	220-240V~ 50-60Hz, CI.I		
Mains input DC	NDC.E	N.A		
Mains output AC	NAC.E	N.A		
Mains output DC	NAC.A	N.A		
Process measurement and control ports	PMS.E/A	N.A		
I/O and communication ports	SD.E/A	N.A		
Protective earth connection	EA	YES		
Interface Cables	Length	Shielded	Type	Special
Detachable Power cable	1.5m	<input type="checkbox"/>	Round	<input type="checkbox"/>



Figure A-1 EUT External Photo Front View (RC-16A)



Figure A-2 EUT External Photo Rear View (RC-16A)



Figure A-3 Pot Photo (RC-16A)



Figure A-4 Pot Taken Out Photo (RC-16A)



Figure A-5 Electrical Circuit Photo (RC-16A)



Figure A-6 External Photo of EUT (RCD-10)



Figure A-7 External Photo of EUT (RCD-10)

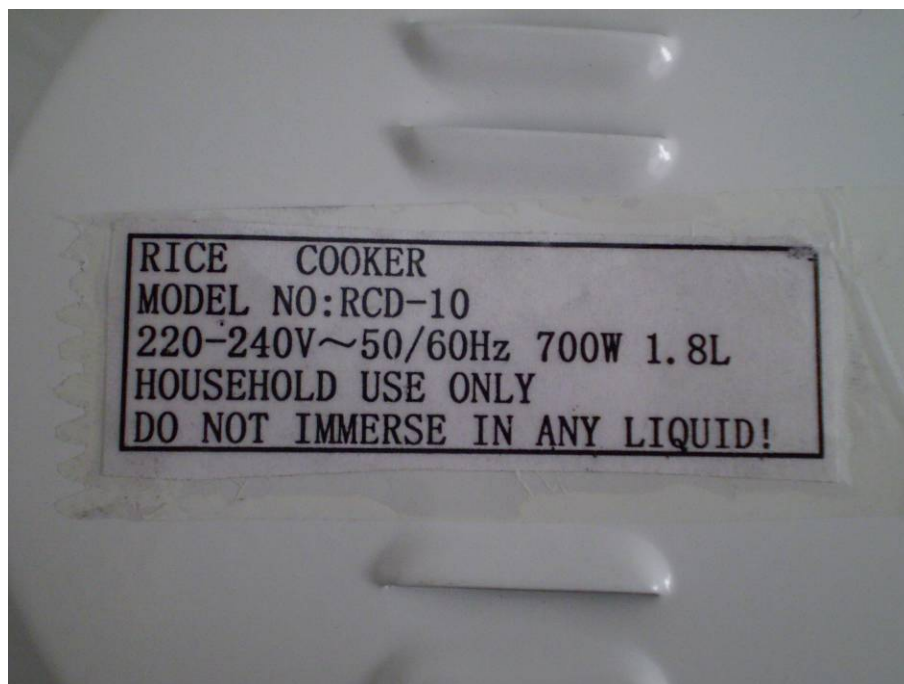


Figure A-8 External Photo of EUT (RCD-10)



Figure A-9 External Photo of EUT (RCD-10)

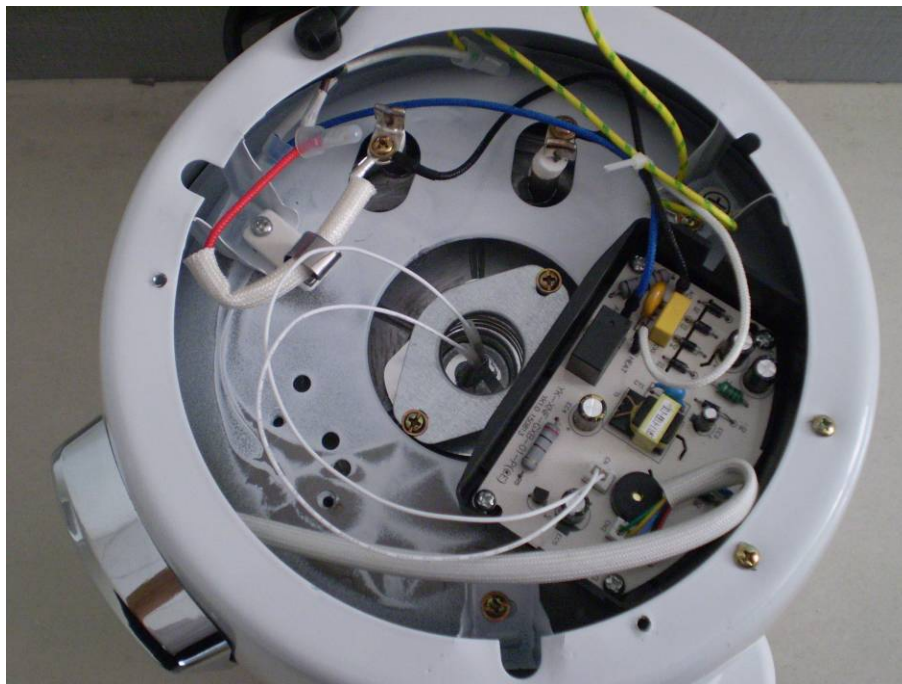


Figure A-10 Internal Photo of EUT (RCD-10)

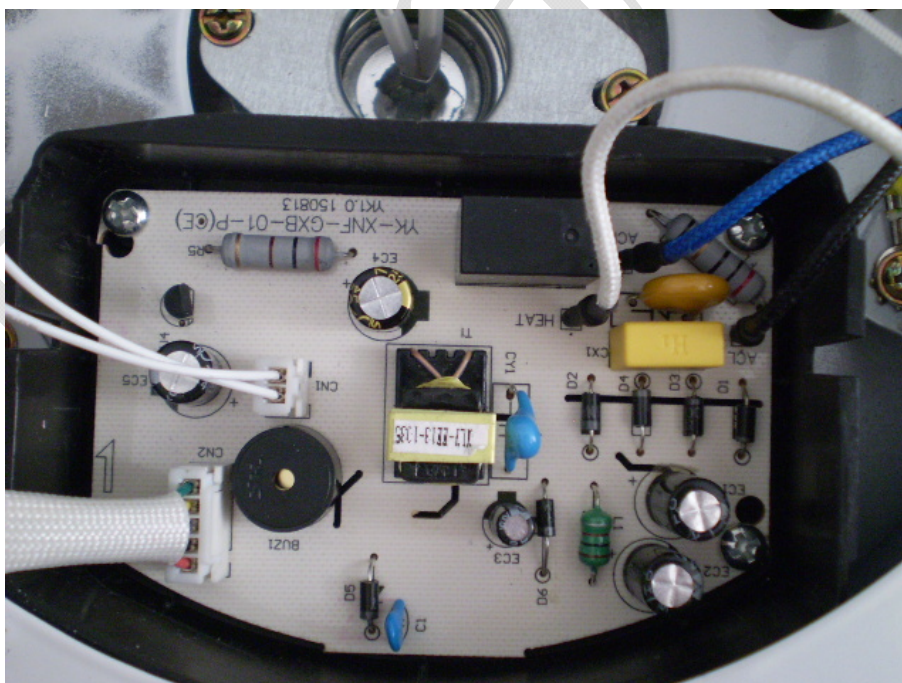


Figure A-11 Internal Photo of EUT (RCD-10)

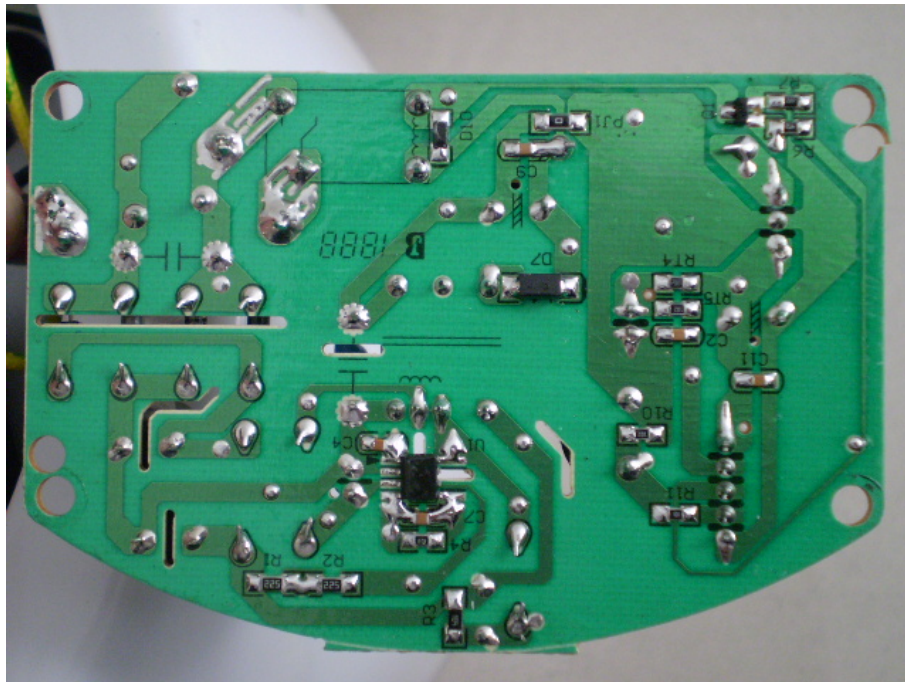


Figure A-12 Internal Photo of EUT (RCD-10)

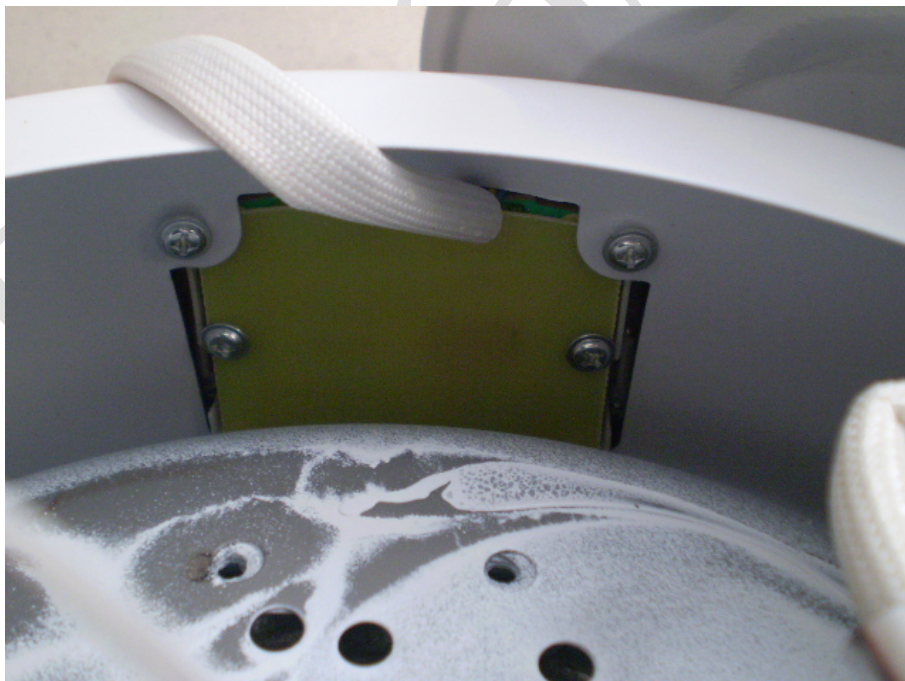
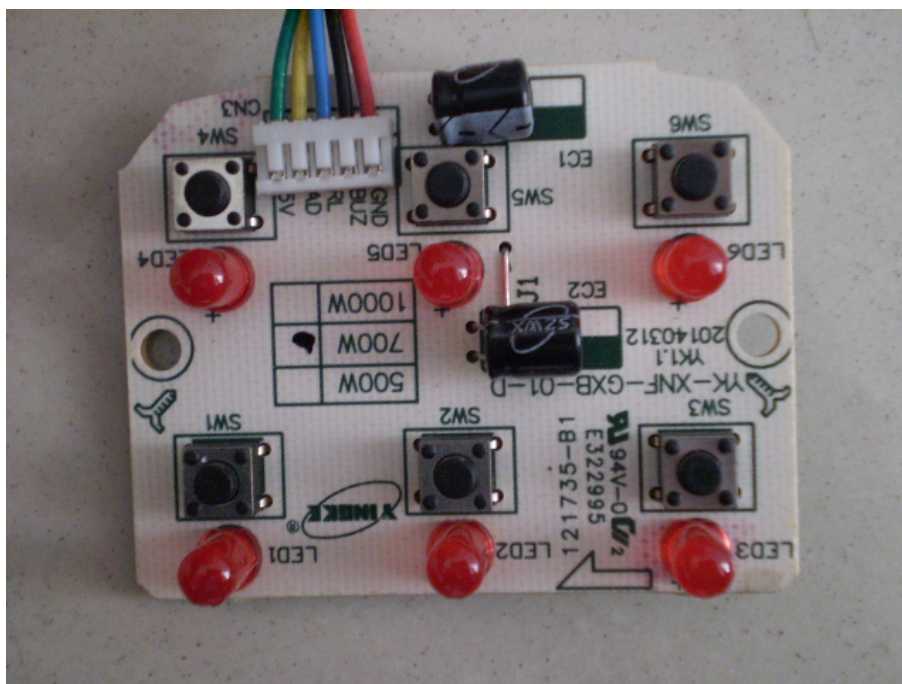


Figure A-13 Internal Photo of EUT (RCD-10)



0-10)

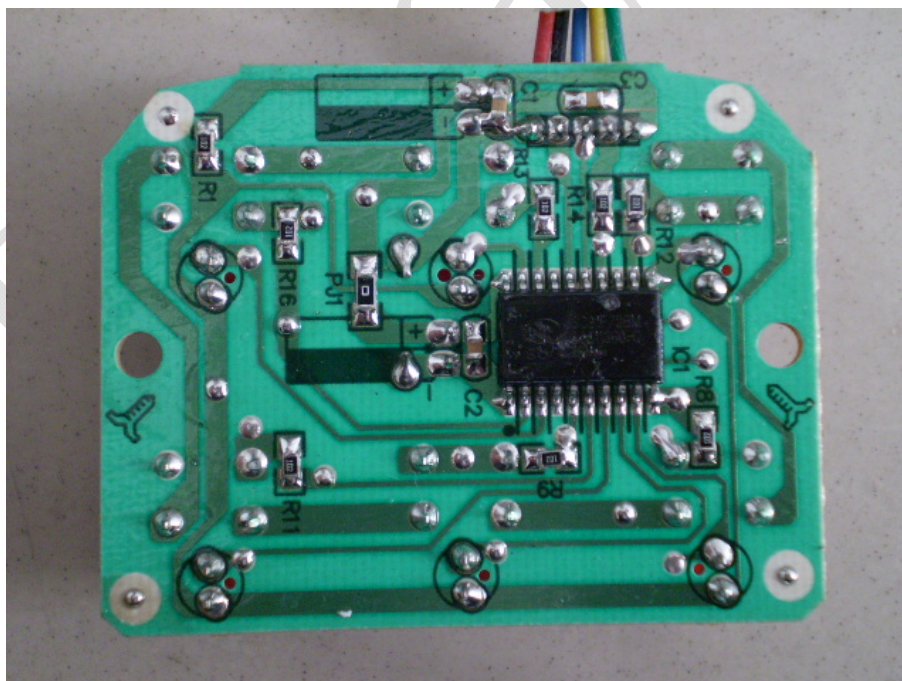


Figure A-15 Internal Photo of EUT (RCD-10)



Figure A-16 External Photo of EUT (DRC-5)



Figure A-17 External Photo of EUT (DRC-5)

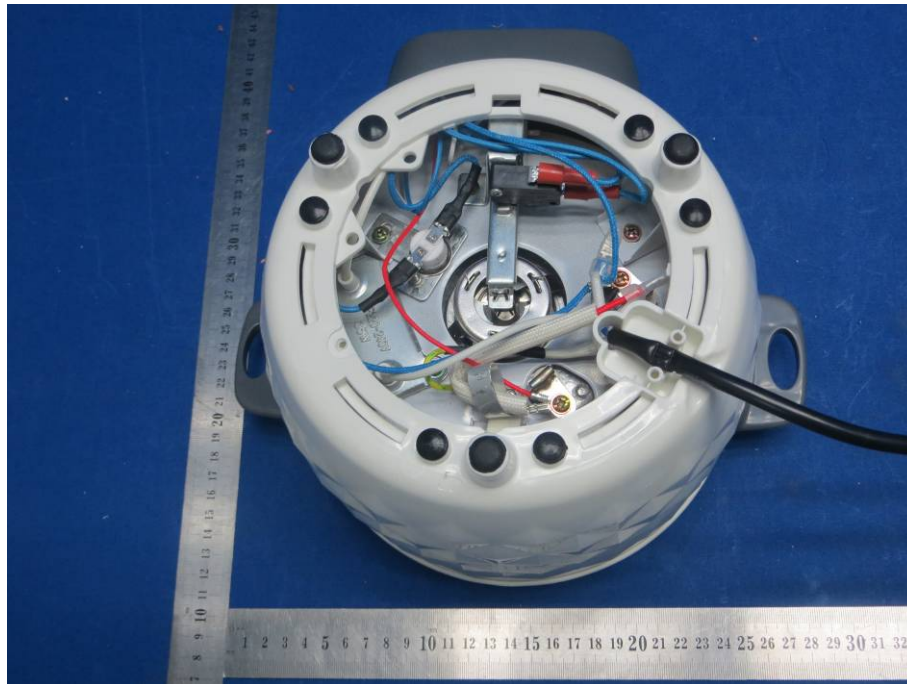


Figure A-18 Internal Photo of EUT (DRC-5)

Annex B

EUT set-up -details-



Figure B-1 Setup for conducted emission



Figure B-2 Setup for discontinuous disturbance



Figure B-3 Setup for disturbance power



Figure B-4 Setup for Harmonics and flicker



Figure B-5 Setup for ESD



Figure B-6 Setup for EFT, Surge, Voltage dips and Interruption



Figure B-7 Setup for Conducted Immunity

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