TEST REPORT
ELECTROMAGNETIC COMPATIBILITY (EMC)

Report Reference No.....:	**130229**
Supervised by (name & signature)...:	Susan Zhou
Approved by (name & signature).....:	Harry Zhao
Date of issue.....:	2010-03-10
Report issued by .....:	**Nemko Shanghai Ltd.**
Address .....:	9A No. 528 Ruiqing Road, PuDong New Area, Shanghai, China P.C.
Testing procedure.....:	Tested at N laboratory
Testing location/ address .....:	See page 7
Applicant's name.....:	**China Hangyu Group Co., Ltd.**
Address .....:	**No.16 Beihu Road, Economic Development Zone, Yongkang, Zhejiang, China**
Test specification:	
Standards for Emission .....:	**EN55014-1:2006+A1:2009** **EN61000-3-3:2008** **EN61000-3-2:2006**
Standards for Immunity .....:	**EN55014-2:1997+A1:2001+A2:2008**
Arrival of EUT .....: Test date of EUT .....:	2009-08-18 2009-08-18 to 2010-01-18
Test item description .....:	**Coffee Maker**
Trade Mark .....:	**HYCO**
Manufacturer .....:	**China Hangyu Group Co., Ltd.**
Address .....:	**No.16 Beihu Road, Economic Development Zone, Yongkang, Zhejiang, China**
Representative Type .....:	**HES120A**
Serial number .....:	**See page 7**

Index of the test report:

1 Summary Emission

1.1 Standards

Generic standard	**EN61000-3-3:2008** **EN61000-3-2:2006**
Product or product family standard	**EN55014-1:2006+A1:2009**
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	**Table 1 of EN55014-1**	**Pass**
Discontinuous disturbance	AC input power ports	CISPR 16	**Clause 4.2 of EN55014-1**	**Pass**
Disturbance power	AC input power port	CISPR 16	**Table 2 of EN55014-1**	**Pass**
Radiated emission	Enclosure	CISPR 16	**Table 3 of EN55014-1**	**N/A***
Harmonic current emission	AC input power ports	EN61000-3-2:2006	**Class A**	**Pass****
Voltage fluctuations and flicker	AC input power ports	EN61000-3-3:2008	**Clause 5 of EN61000-3-3**	**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	**EN55014-2:1997+A1:2001+A2:2008**
Product category:	**Category II *)**
Performance criteria:	**As below**

2.2 Results

Environmental phenomena	Port / Test module	Basic standard and test setup	Performance criteria	Result
Electrostatic Discharge	Enclosure port	EN 61000-4-2:2009	**B**	**Pass**
Radiated Electromagnetic field Susceptibility Test	Enclosure port	EN 61000-4-3:2006/A1:2008	**A**	**N/A**
Electrical Fast Transient /Burst Test	Input Ac Power port	EN 61000-4-4:2004	**B**	**Pass**
Surge Test	Input Ac Power port	EN 61000-4-5:2006	**B**	**Pass**
Conducted Susceptibility Test	Input Ac Power port	EN 61000-4-6:2007	**A**	**Pass**
Voltage Dips and Interruptions Test	Input Ac Power port	EN 61000-4-11:2004	**C**	**Pass**

Remarks: N/A-Not Applicable

*) This product has no internal clock frequency or oscillator frequency higher than 15MHz, Category II.

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

Performance criterion C
Temporary loss of function is allowed, provided the function is selfrecoverable 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	☒
	Floor standing	☐
	Combination	☐
	Hand held EUT	☐

The EUT is **Coffee Maker**.
The model name is

HES120A: Input: 220-240V 50Hz
Brewing:1300W / Grinding: 100W;

3.2 Test Mode (TM)

Working mode

TM1	207-253Vac 50/60Hz EUT working at Heating and Brewing; Grind
TM2	230Vac 50/60Hz EUT working at max power state Heating and Brewing; Grind

3.3 Climatic conditions

parameter	**admissible range**	**actual range**	**Result**
Ambient temperature	**15 °C - 35 °C**	**23°C -25°C**	**OK**
Relative humidity	**30 % - 60 %**	**52 %-60 %**	**OK**
Atmospheric pressure	**86-106kPa**	**100.5 -101.2kPa**	**OK**

3.4 Testing location

Nemko Shanghai Ltd.

9A No. 528 Ruiqing Road, PuDong New Area, Shanghai, China P.C.

4 Measurement of Conducted disturbance

4.1 Standards

Generic standard	**/**
Product or product family standard	**EN55014-1:2006 + A1: 2009**
Limit class	**Table 1 of EN55014-1**
Basic standard	**CISPR 16**
Date of testing	**2009-08-18**

4.2 Measurement equipment

	Equipment	Last Calibration	Type	Serial No.	Manufacturer
☒	EMI Test Receiver	2008-10-16	ESCI	100658	R&S
☒	AMN	2008-10-16	ENV216	100065	R&S

4.3 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 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 form 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.

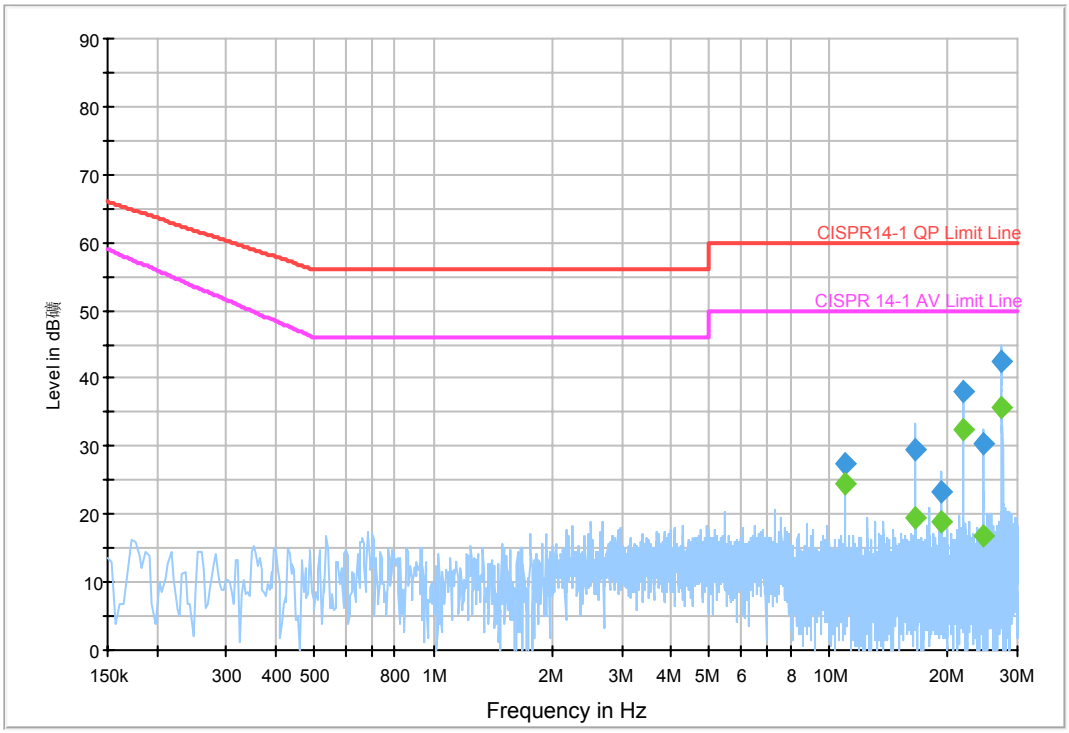
The EUT was placed on the top of an insulating table 0.4 meters above the ground at a shielded room. The EUT was placed 0.8 meters from the conducting wall of shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). The LISN provide 50Ohm/50µH of 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

Mode:	**TM1**	**Power ports**	**AC input port**
Diagram	**Description**	**Remark**	**Result**
001	Line L	Heating	**Pass**
002	Line N		**Pass**
003	Line L	Grind	**Pass**
004	Line N		**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.		

4.5 Diagrams and tables

4.5.1 Diagram 001



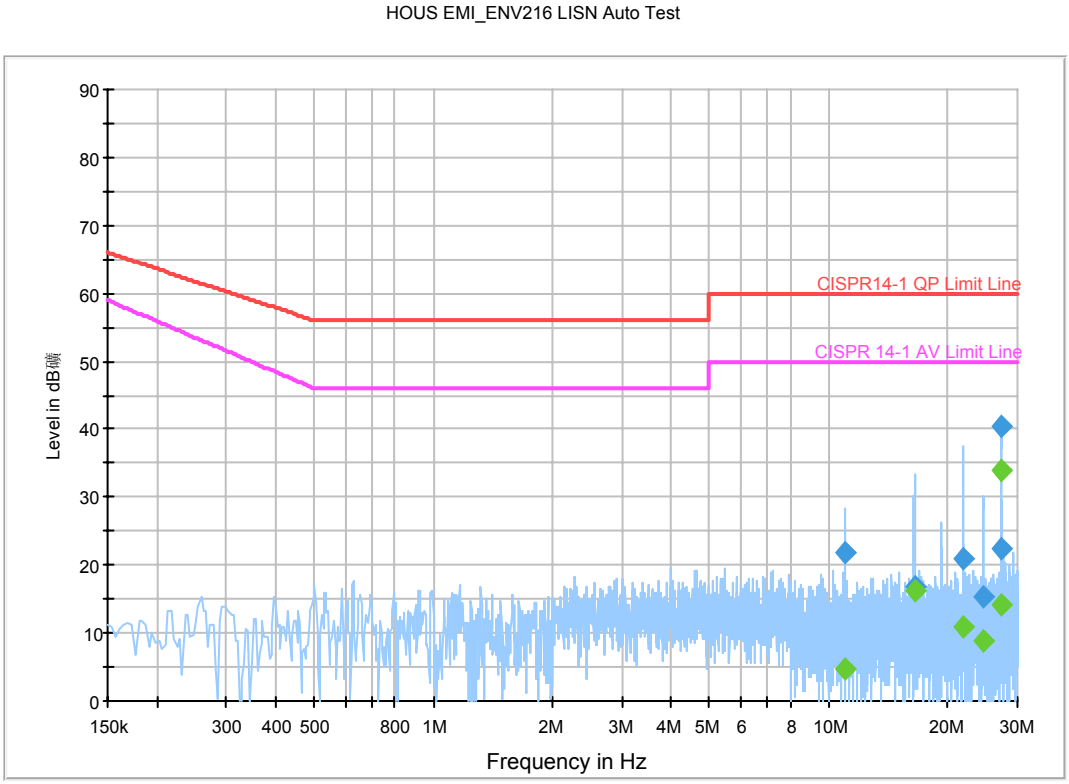
Final Result (QP)

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
10.978856	27.3	1000.000	9.000	Off	L1	9.9	32.7	60.0	
16.480912	29.4	1000.000	9.000	Off	L1	10.0	30.6	60.0	
19.223650	23.5	1000.000	9.000	Off	L1	10.0	36.5	60.0	
21.956194	38.1	1000.000	9.000	Off	L1	10.2	21.9	60.0	
24.713588	30.3	1000.000	9.000	Off	L1	10.1	29.7	60.0	
27.443594	42.6	1000.000	9.000	Off	L1	10.1	17.4	60.0	

Final Result (AV)

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
10.977856	24.4	1000.000	9.000	Off	L1	9.9	25.6	50.0	
16.480912	19.6	1000.000	9.000	Off	L1	10.0	30.4	50.0	
19.219650	18.9	1000.000	9.000	Off	L1	10.0	31.1	50.0	
21.956194	32.6	1000.000	9.000	Off	L1	10.2	17.4	50.0	
24.713588	16.7	1000.000	9.000	Off	L1	10.1	33.3	50.0	
27.448594	35.8	1000.000	9.000	Off	L1	10.1	14.2	50.0	

4.5.2 Diagram 002



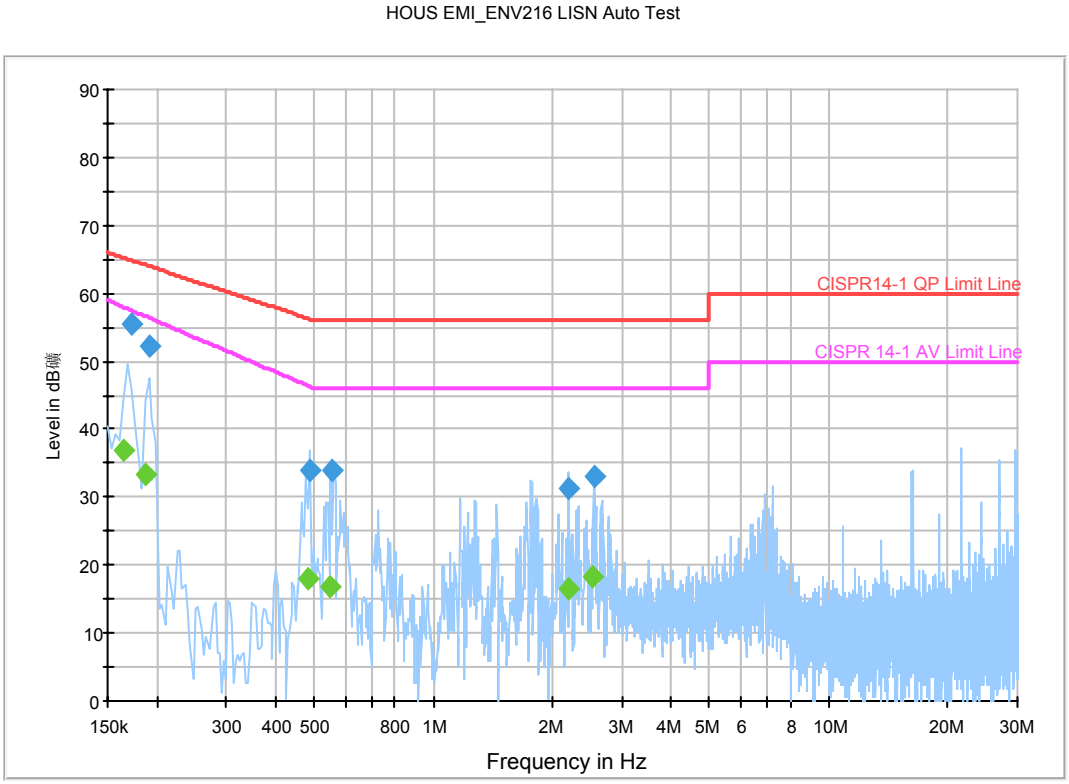
Final Result (QP)

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
10.970394	21.8	1000.000	9.000	Off	N	9.9	38.2	60.0	
16.451062	17.0	1000.000	9.000	Off	N	10.0	43.0	60.0	
21.932538	21.0	1000.000	9.000	Off	N	10.1	39.0	60.0	
24.686200	15.4	1000.000	9.000	Off	N	10.1	44.6	60.0	
27.428400	22.3	1000.000	9.000	Off	N	10.1	37.7	60.0	
27.473444	40.6	1000.000	9.000	Off	N	10.1	19.4	60.0	

Final Result (AV)

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
10.971394	4.8	1000.000	9.000	Off	N	9.9	45.2	50.0	
16.460062	16.3	1000.000	9.000	Off	N	10.0	33.7	50.0	
21.937538	10.9	1000.000	9.000	Off	N	10.1	39.1	50.0	
24.691200	8.8	1000.000	9.000	Off	N	10.1	41.2	50.0	
27.437400	14.2	1000.000	9.000	Off	N	10.1	35.8	50.0	
27.473444	34.1	1000.000	9.000	Off	N	10.1	15.9	50.0	

4.5.3 Diagram 003



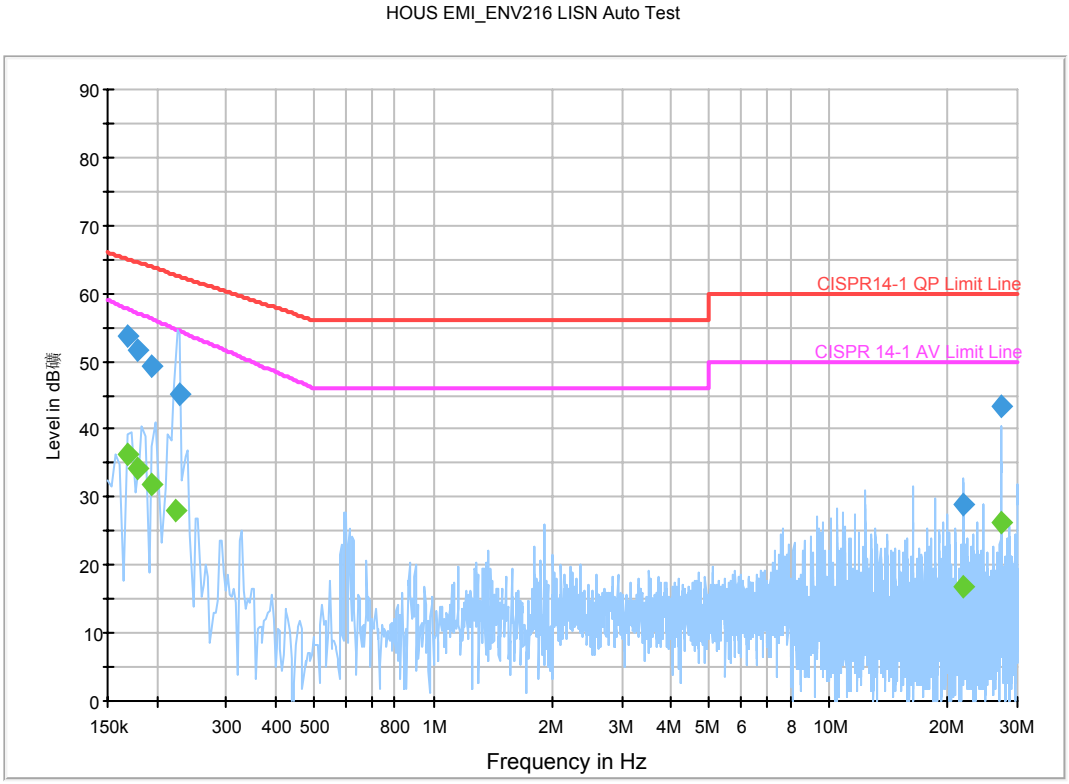
Final Result (QP)

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.172156	55.4	1000.000	9.000	Off	L1	9.5	9.5	64.9	
0.190544	52.2	1000.000	9.000	Off	L1	9.6	11.8	64.0	
0.490312	33.9	1000.000	9.000	Off	L1	9.5	22.3	56.2	
0.556475	33.8	1000.000	9.000	Off	L1	9.5	22.2	56.0	
2.194225	31.2	1000.000	9.000	Off	L1	9.6	24.8	56.0	
2.548962	33.2	1000.000	9.000	Off	L1	9.6	22.8	56.0	

Final Result (AV)

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.164156	36.9	1000.000	9.000	Off	L1	9.5	21.1	58.0	
0.186544	33.3	1000.000	9.000	Off	L1	9.6	23.3	56.6	
0.481312	18.0	1000.000	9.000	Off	L1	9.5	28.4	46.4	
0.548475	16.9	1000.000	9.000	Off	L1	9.5	29.1	46.0	
2.198225	16.7	1000.000	9.000	Off	L1	9.6	29.3	46.0	
2.540962	18.4	1000.000	9.000	Off	L1	9.6	27.6	46.0	

4.5.4 Diagram 004



Final Result (QP)

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.167888	53.6	1000.000	9.000	Off	N	9.5	11.5	65.1	
0.179081	51.7	1000.000	9.000	Off	N	9.5	12.8	64.5	
0.194006	49.2	1000.000	9.000	Off	N	9.5	14.7	63.9	
0.228125	45.2	1000.000	9.000	Off	N	9.5	17.3	62.5	
21.787019	29.0	1000.000	9.000	Off	N	10.1	31.0	60.0	
27.284419	43.4	1000.000	9.000	Off	N	10.1	16.6	60.0	

Final Result (AV)

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.167888	36.2	1000.000	9.000	Off	N	9.5	21.6	57.8	
0.179081	34.2	1000.000	9.000	Off	N	9.5	22.9	57.1	
0.194006	32.0	1000.000	9.000	Off	N	9.5	24.2	56.2	
0.224125	28.2	1000.000	9.000	Off	N	9.5	26.5	54.7	
21.791019	16.7	1000.000	9.000	Off	N	10.1	33.3	50.0	
27.283419	26.2	1000.000	9.000	Off	N	10.1	23.8	50.0	

5 Measurement of Disturbance Power

5.1 Standards

Generic standard	**/**
Product or product family standard	**EN55014-1:2006 + A1: 2009**
Limit class	**Table 2 of EN55014-1**
Basic standard	**CISPR 16**
Date of testing	**2009-08-28**

5.2 Measurement equipment

	Equipment	Last Calibration	Type	Serial No.	Manufacturer
☒	EMI test receiver	2008-10-16	ESCI	100658	R&S
☒	Absorbing Clamp	2008-10-16	MDS-21	100298	R&S

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 EUT shall be placed with the lead (having the absorbing clamp attached)stretched horizontally straight out from the unit connected to the lead, On each lead, the absorbing clamp is moved a distance of a half wavelength for each frequency of measurement ,starting with the clamp positioned close to the case of the EUT and the current transformer of the clamp pointing towards the EUT ,For each lead the maximum measurement value at each frequency ,which is obtained, when the absorbing clamp is moved along the lead the distance specified is to be registered.

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.

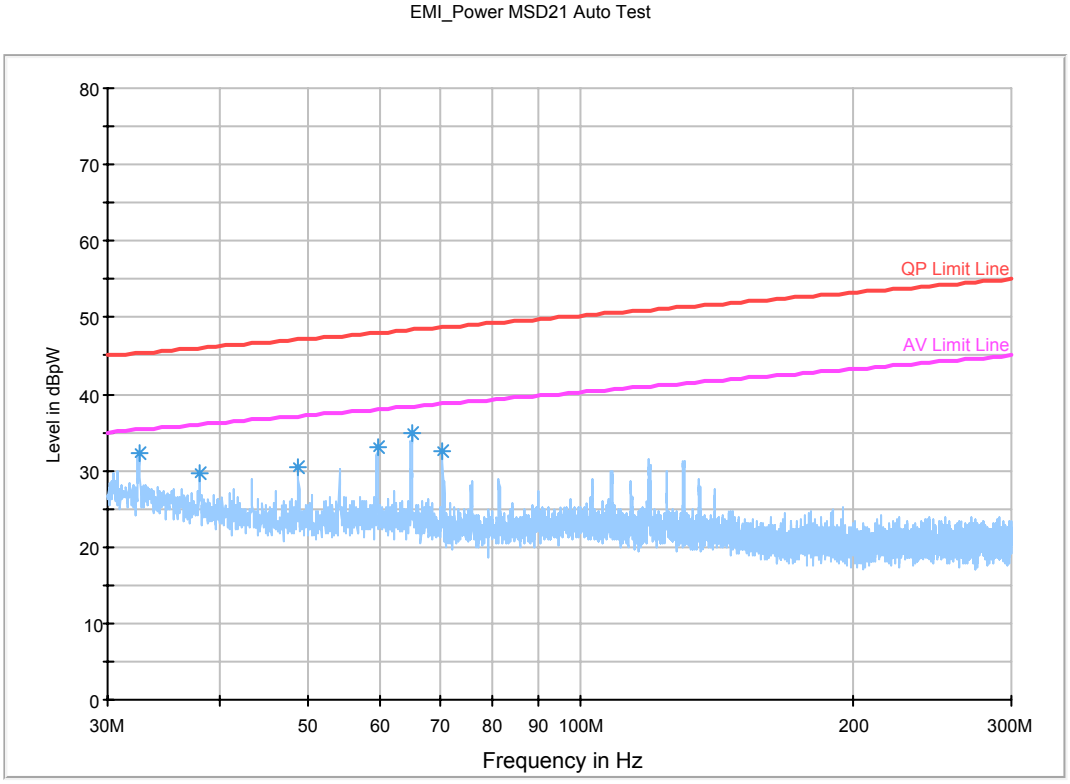
For appliances The EUT shall be placed on the top of an insulating table 0.8 meters above the ground with a frequency range of 50 Hz to 60 Hz, a test at about 50 MHz shall be made using supply frequencies of 50 Hz and 60 Hz at the above determined supply voltage, in order to check whether the level of disturbance varies considerably with the supply frequency; in which case, the measurements are to be made at the supply frequency which causes maximum disturbance.

5.4 Test result

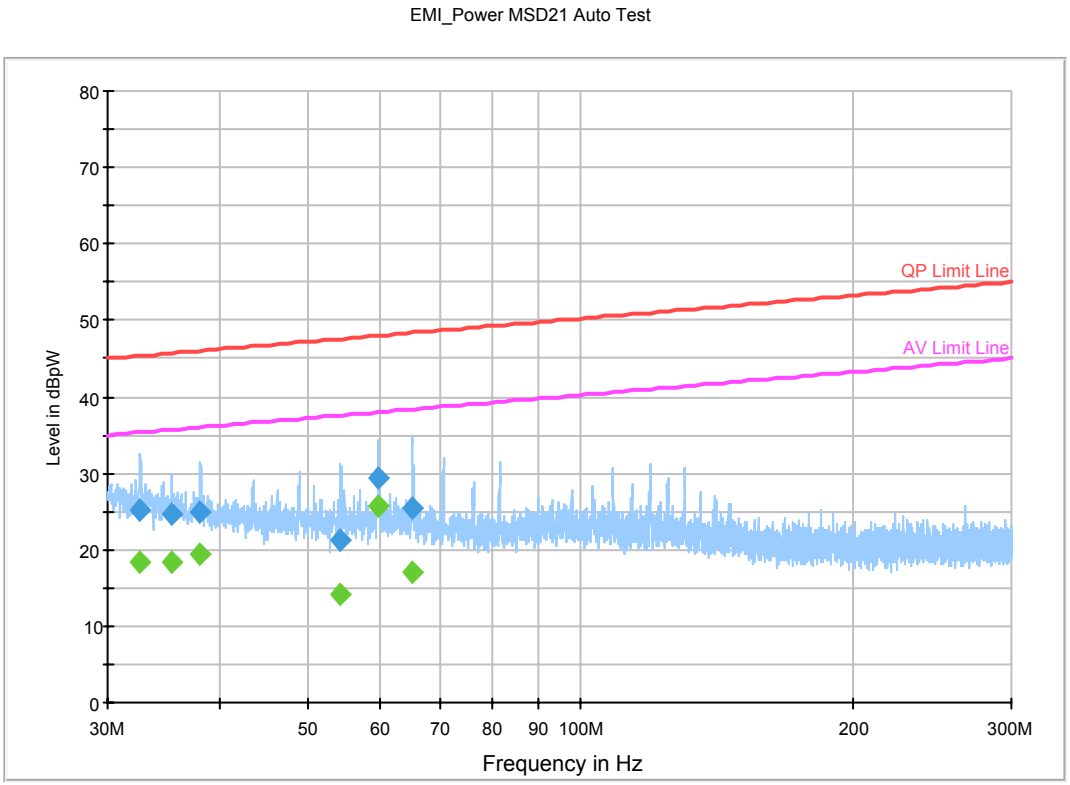
Mode	Diagrams	Remark	Description	Result
TM1	005	Heating	AC Mains Power line	Pass
TM1	006	Grind	AC Mains Power line	Pass
Remark: Only the worst test result diagram list in report and if the reading value is too lower then only list the test diagram.				

5.5 Diagrams

5.5.1 Diagram 005



5.5.2 Diagram 006



Final Result (QP)

Frequency (MHz)	QuasiPeak (dBpW)	Meas. Time (ms)	Bandwidth (kHz)	Corr. (dB)	Margin (dB)	Limit (dBpW)	Comment
32.565000	25.3	1000.000	120.000	9.9	20.1	45.4	
35.332500	24.7	1000.000	120.000	9.1	21.0	45.7	
38.032500	24.8	1000.000	120.000	8.3	21.2	46.0	
54.300000	21.3	1000.000	120.000	6.8	26.3	47.6	
59.868750	29.5	1000.000	120.000	7.0	18.5	48.0	
65.201250	25.4	1000.000	120.000	6.6	23.0	48.4	

Final Result (AV)

Frequency (MHz)	Average (dBpW)	Meas. Time (ms)	Bandwidth (kHz)	Corr. (dB)	Margin (dB)	Limit (dBpW)	Comment
32.565000	18.4	1000.000	120.000	9.9	17.0	35.4	
35.332500	18.3	1000.000	120.000	9.1	17.4	35.7	
38.032500	19.3	1000.000	120.000	8.3	16.7	36.0	
54.300000	14.3	1000.000	120.000	6.8	23.3	37.6	
59.868750	25.8	1000.000	120.000	7.0	12.2	38.0	
65.201250	17.0	1000.000	120.000	6.6	21.4	38.4	

6. Measurement of Discontinuous Disturbance

6.1 Standards

Generic standard	**/**
Product or product family standard	**EN55014-1:2006**
Limit class	**Clause 4.2 of CISPR14-1**
Basic standard	**CISPR 16**
Date of testing	**2010-01-18**

6.2 Measurement equipment

	Equipment	Last Calibration	Type	Equipment No.	Manufacturer
☒	Click Analyzer	2009.10.16	CL55C	55040744142	AFJ
☒	Artificial Mains Network	2009.10.16	LS16C	16010744219	AFJ

6.3 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.

6.4 Test result

Mode	Table	Remark	Description	Result
TM2	007	Heating	AC Mains Power line	**Pass**

6.5 Table

6.5.1 Table 007

AFJ CL55c Click Analyser ver 6.00

Test Report - Printed 18-01-2010 13:04:00

Title		Test#	1
Date	18/01/2010 12:54:0	Time	120:02.260
Required			
Executed by	HARRY		
Description			
Model	HES120A		
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\Test0214\1 - Analisys print n#: 1

First Pass

CISPR 14-1 2000

	Rx1 150kHz	Rx2 500kHz	Rx3 1.4MHz	Rx4 30MHz
Short	5	5	5	0
Long	0	0	0	0
Fast Long	0	0	0	0
Total Clicks	5	5	5	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	0.04	0.04	0.04	0.04

Limit dBuV
Allowed Clicks

Second Pass

Preview

	Rx1 150kHz	Rx2 500kHz	Rx3 1.4MHz	Rx4 30MHz
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 Harmonic current

6.1 Standard

Basic standard	**EN61000-3-2:2006**
Limit class	**Class A**
Date of testing	**2009-09-03; 2009-09-04**

6.2 Measurement equipment

	Equipment	Last Calibration	Type	Serial No.	Manufacturer
☒	AC Power Source	2008-10-16	NSG1007	57877	SCHAFFNER
☒	Harmonic and Flick test system	2008-10-16	CCN1000-1	72538	SCHAFFNER

6.3 Test set-up

Devices with an active input power of P < 75 W		☐
Balanced three-phase equipment and all other equipment, expect 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 ≤ 600 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.

6.4 Test results

Mode	Diagrams	Model	Result
TM2	008	HES102A	**Pass**

6.5 Diagrams

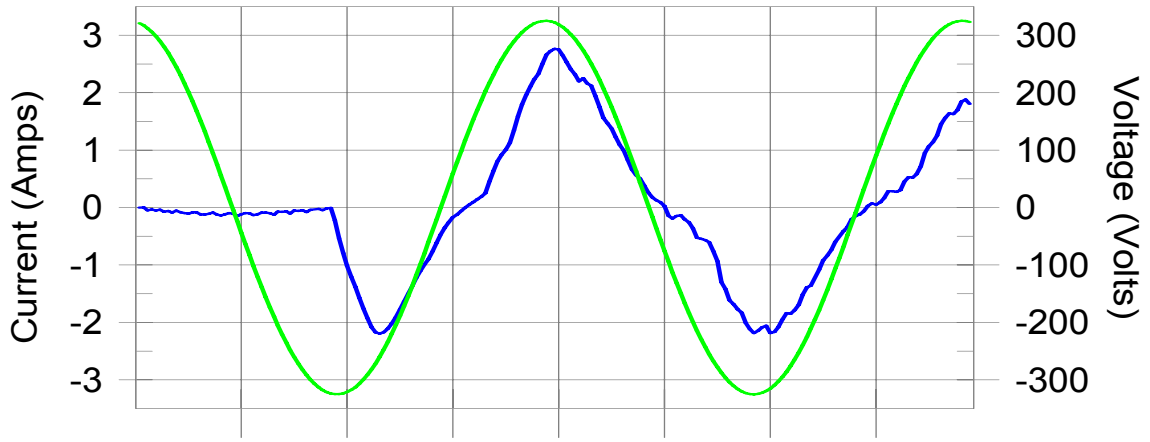
6.5.1 Diagram 008

Harmonics – Class-A per Ed. 3.0 (2006)(Run time)

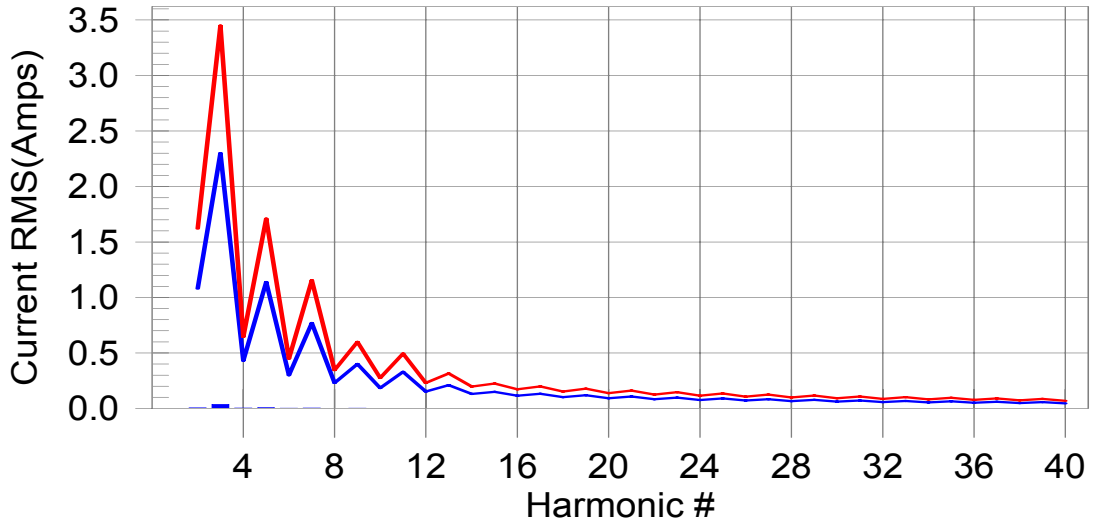
EUT: Coffee Maker **Tested by: Susan Zhou**
Test category: Class-A per Ed. 3.0 (2006) (European limits) **Test Margin: 100**
Test date: 9/3/2009 **Start time: 1:59:28 PM** **End time: 2:02:20 PM**
Test duration (min): 2.5 **Data file name: H-000327.cts_data**
Comment: HES120A
Customer: China Hangyu Group Co., Ltd.

Test Result: Pass **Source qualification: Normal**

Current & voltage waveforms



Harmonics and Class A limit line **European Limits**



Test result: Pass Worst harmonic was #3 with 1.06% of the limit.

Current Test Result Summary (Run time)

EUT: Coffee Maker **Tested by: Susan Zhou**
Test category: Class-A per Ed. 3.0 (2006) (European limits) **Test Margin: 100**
Test date: 9/3/2009 **Start time: 1:59:28 PM** **End time: 2:02:20 PM**
Test duration (min): 2.5 **Data file name: H-000327.cts_data**
Comment: HES120A
Customer: China Hangyu Group Co., Ltd.

Test Result: Pass **Source qualification: Normal**
THC(A): 0.02 **I-THD(%): 7.61** **POHC(A): 0.000** **POHC Limit(A): 0.320**
Highest parameter values during test:

V_RMS (Volts):	230.13	Frequency(Hz):	50.00
I_Peak (Amps):	2.770	I_RMS (Amps):	0.785
I_Fund (Amps):	0.347	Crest Factor:	14.840
Power (Watts):	79.6	Power Factor:	0.988

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.001	1.080	0.1	0.006	1.620	0.38	Pass
3	0.022	2.300	0.9	0.037	3.450	1.06	Pass
4	0.001	0.430	0.0	0.004	0.645	0.63	Pass
5	0.005	1.140	0.5	0.007	1.710	0.42	Pass
6	0.000	0.300	0.0	0.003	0.450	0.60	Pass
7	0.001	0.770	0.0	0.004	1.155	0.31	Pass
8	0.000	0.230	0.0	0.002	0.345	0.50	Pass
9	0.001	0.400	0.0	0.003	0.600	0.52	Pass
10	0.000	0.184	0.0	0.001	0.276	0.51	Pass
11	0.001	0.330	0.0	0.002	0.495	0.40	Pass
12	0.000	0.153	0.0	0.001	0.230	0.45	Pass
13	0.001	0.210	0.0	0.002	0.315	0.65	Pass
14	0.000	0.131	0.0	0.001	0.197	0.48	Pass
15	0.001	0.150	0.0	0.002	0.225	0.72	Pass
16	0.000	0.115	0.0	0.001	0.173	0.51	Pass
17	0.001	0.132	0.0	0.001	0.199	0.64	Pass
18	0.000	0.102	0.0	0.001	0.153	0.46	Pass
19	0.001	0.118	0.0	0.001	0.178	0.62	Pass
20	0.000	0.092	0.0	0.001	0.138	0.40	Pass
21	0.001	0.107	0.0	0.001	0.161	0.71	Pass
22	0.000	0.084	0.0	0.001	0.125	0.44	Pass
23	0.001	0.098	0.0	0.001	0.147	0.62	Pass
24	0.000	0.077	0.0	0.001	0.115	0.59	Pass
25	0.000	0.090	0.0	0.001	0.135	0.54	Pass
26	0.000	0.071	0.0	0.001	0.106	0.83	Pass
27	0.001	0.083	0.0	0.001	0.125	0.76	Pass
28	0.000	0.066	0.0	0.001	0.099	0.85	Pass
29	0.000	0.078	0.0	0.001	0.116	0.89	Pass
30	0.000	0.061	0.0	0.001	0.092	0.63	Pass
31	0.000	0.073	0.0	0.001	0.109	0.74	Pass
32	0.000	0.058	0.0	0.001	0.086	0.78	Pass
33	0.000	0.068	0.0	0.001	0.102	0.91	Pass
34	0.000	0.054	0.0	0.001	0.081	0.85	Pass
35	0.000	0.064	0.0	0.001	0.096	0.59	Pass
36	0.000	0.051	0.0	0.001	0.077	0.79	Pass
37	0.000	0.061	0.0	0.001	0.091	0.59	Pass
38	0.000	0.048	0.0	0.000	0.073	0.59	Pass
39	0.000	0.058	0.0	0.001	0.087	0.75	Pass
40	0.000	0.046	0.0	0.001	0.069	0.74	Pass

Voltage Source Verification Data (Run time)

EUT: Coffee Maker **Tested by: Susan Zhou**
Test category: Class-A per Ed. 3.0 (2006) (European limits) **Test Margin: 100**
Test date: 9/3/2009 **Start time: 1:59:28 PM** **End time: 2:02:20 PM**
Test duration (min): 2.5 **Data file name: H-000327.cts_data**
Comment: HES120A
Customer: China Hangyu Group Co., Ltd.

Test Result: Pass **Source qualification: Normal**

Highest parameter values during test:

Voltage (Vrms):	230.13	Frequency(Hz):	50.00
I_Peak (Amps):	2.770	I_RMS (Amps):	0.785
I_Fund (Amps):	0.347	Crest Factor:	14.840
Power (Watts):	79.6	Power Factor:	0.988

Harm#	Harmonics V-rms	Limit V-rms	% of Limit	Status
2	0.072	0.460	15.72	OK
3	0.504	2.071	24.33	OK
4	0.063	0.460	13.71	OK
5	0.048	0.920	5.24	OK
6	0.029	0.460	6.25	OK
7	0.045	0.690	6.58	OK
8	0.013	0.460	2.86	OK
9	0.020	0.460	4.27	OK
10	0.014	0.460	2.95	OK
11	0.012	0.230	5.06	OK
12	0.013	0.230	5.56	OK
13	0.009	0.230	3.97	OK
14	0.005	0.230	1.99	OK
15	0.009	0.230	4.10	OK
16	0.012	0.230	5.22	OK
17	0.003	0.230	1.16	OK
18	0.012	0.230	5.12	OK
19	0.008	0.230	3.30	OK
20	0.023	0.230	10.07	OK
21	0.009	0.230	3.77	OK
22	0.006	0.230	2.65	OK
23	0.004	0.230	1.66	OK
24	0.003	0.230	1.36	OK
25	0.003	0.230	1.17	OK
26	0.002	0.230	0.94	OK
27	0.006	0.230	2.39	OK
28	0.002	0.230	0.88	OK
29	0.005	0.230	1.99	OK
30	0.003	0.230	1.19	OK
31	0.002	0.230	0.98	OK
32	0.002	0.230	0.95	OK
33	0.002	0.230	1.08	OK
34	0.002	0.230	0.98	OK
35	0.002	0.230	0.94	OK
36	0.002	0.230	0.74	OK
37	0.003	0.230	1.29	OK
38	0.002	0.230	0.79	OK
39	0.005	0.230	2.23	OK
40	0.012	0.230	5.27	OK

7 Voltage fluctuations and flicker

7.1 Standard

Basic standard	**EN61000-3-3:2008**
Date of testing	**2009-09-04**

7.2 Measurement equipment

	Equipment	Last Calibration	Type	Serial No.	Manufacturer
☒	AC Power Source	2008-10-16	NSG1007	57877	SCHAFFNER
☒	Harmonic and Flick test system	2008-10-16	CCN1000-1	72538	SCHAFFNER

7.3 Test set-up

Annex B 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

7.4 Test results

Mode	Diagrams	Model	Remarks	Result
TM2	009	HES120A	AC Input port	**Pass**

7.5 Diagrams

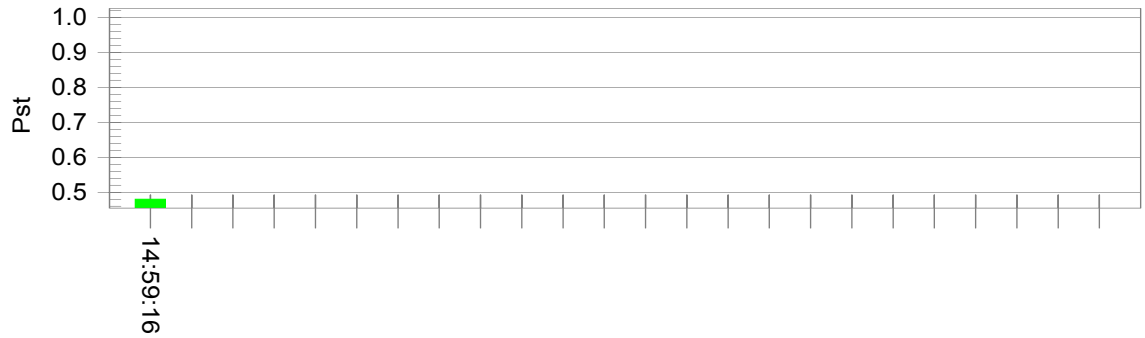
7.5.1 Diagram 009

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

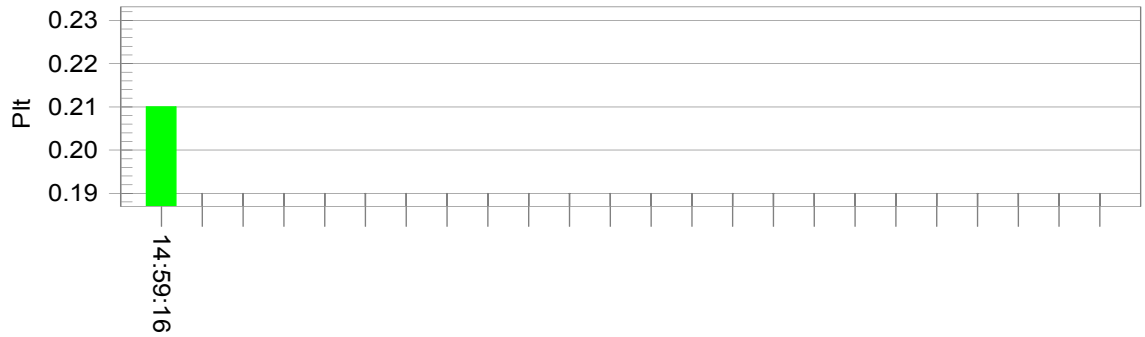
EUT: Coffee Maker **Tested by: Susan Zhou**
Test category: dt,dmax,dc and Pst (European limits) **Test Margin: 100**
Test date: 9/4/2009 **Start time: 2:48:56 PM** **End time: 2:59:17 PM**
Test duration (min): 10 **Data file name: F-000333.cts_data**
Comment: HES120A
Customer: China Hangyu Group Co., 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):	**228.64**			
Highest dt (%):	**1.03**	**Test limit (%):**	**3.30**	**Pass**
Time(mS) > dt:	**0.0**	**Test limit (mS):**	**500.0**	**Pass**
Highest dc (%):	**1.02**	**Test limit (%):**	**3.30**	**Pass**
Highest dmax (%):	**-1.12**	**Test limit (%):**	**4.00**	**Pass**
Highest Pst (10 min. period):	**0.481**	**Test limit:**	**1.000**	**Pass**

8 Electrostatic discharge

8.1 Standard

Basic standard **EN 61000-4-2:2009**

Date of testing **2009-10-29**

Performance criteria: **B**

8.2 Measurement equipment

	Equipment	Last Calibration	Type	Serial No.	Manufacturer
☒	ESD generator	2009.3.6	NSG437	161	TESEQ

8.3 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.

8.4 Test results

Port:		**Enclosure**
Mode	**Table**	**Result**
TM2	**010**	**Pass**

8.5 Table

8.5.1 Table 010

Location	Voltage	Amount of test points	Amount of discharge	Discharge Method	Results
Nonconductive Enclosure	±8kV	4	80	Air	Pass
Conductive Enclosure	±4kV	4	80	Contact	Pass
HCP	±4kV	4	80	Contact	Pass
VCP	±4kV	4	80	Contact	Pass

9 Electrical Fast Transients/Bursts Immunity

9.1 Standard

Basic standard	**EN 61000-4-4:2004**
Date of testing	**2009-10-28**
Performance criteria:	**B**

9.2 Measurement equipment

	Equipment	Last Calibration	Type	Serial No.	Manufacturer
☒	Multi-function Generator	2009-10-16	NSG3060	083	TESEQ
☒	CDN	2009-10-16	3061	083	TESEQ
☒	MAGNETIC FIELD GENERATOR	2009-10-16	MFU6502	083	TESEQ

9.3Test set-up

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

The EUT located 0.1m±0.01m 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.

9.4 Test results

Port:		**AC input**
Mode	**Table**	**Result**
TM2	**011**	**Pass**

9.5 Table

9.5.1 Table 011

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

10 Surge Immunity

10.1 Standard

Basic standard **EN 61000-4-5:2006**

Date of testing **2009-10-28**

Performance criteria: **B**

10.2 Measurement equipment

	Equipment	Last Calibration	Type	Serial No.	Manufacturer
☒	Immunity Simulator	2009.3.6	UCS500M4	SB3070	EMTEST
☒	Three Phase Coupling Network	2009.3.6	CNI5036	SB3070/01	EMTEST

10.3 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

10.4 Test results

Port:		**AC input**	
Mode	**Table**	**Test specification**	**Result**
TM2	**012**	1.2/50(8/20) μs Tr/Th 1KV L-N； 2KV L-PE ;N-PE	The appliance shall not undergo a dangerous malfunction, and there shall be no failure of protective electronic circuits if the appliance is still operable.

10.5 Table

10.5.1 Table 012

Injected Line	Wave Form	Voltage(kV)	Phase	Number of Pulse	Interval time	Result
L-N	1.2/50μs	+1	0°,90°,180°,270°	20	60s	Pass
		-1	0°,90°,180°,270°	20	60s	Pass
L-PE	1.2/50μs	+2	0°,90°,180°,270°	20	60s	Pass
		-2	0°,90°,180°,270°	20	60s	Pass
N-PE	1.2/50μs	+2	0°,90°,180°,270°	20	60s	Pass
		-2	0°,90°,180°,270°	20	60s	Pass

11 Conducted Immunity

11.1 Standard

Basic standard **EN 61000-4-6:2007**

Date of testing **2009-10-29**

Performance criteria: **A**

11.2 Measurement equipment

	Equipment	Last Calibration	Type	Serial No.	Manufacturer
☒	Compact immunity test	2009.03.06	NSG4070	25795	TESEQ
☒	CDN M2/M3	2009.03.06	MO16S	25127	TESEQ

11.3 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 test is performed with the generator contacted to each CDN in turn. The frequency range is swept form 150kHz to 230MHz, using the signal levels established during the setting process, and with the disturbance signal 80% amplitude modulated with a 1kHz sine wave.

11.4 Test results

Port:		**AC input**	
Mode	**Table**	**Test specification**	**Result**
TM2	**013**	0.15MHz~230MHz 3V(r.m.s.) (unmodulated) 1kHz ,80%AM ,sine wave Source impedance 150 Ω	**Pass**

11.5 Table

11.5.1 Table 013

Frequency Range (MHz)	Injecteded Position	Strength	Result
0.15MHz ~230MHz	AC main port	3V(rms, Unmodulated)	Pass
Dwell time: 1s; Steps: 1%			

12 Voltage dips and interruptions Immunity

12.1 Standard

Basic standard **EN 61000-4-11:2004**

Date of testing **2009-10-29**

Performance criteria: **C**

12.2 Measurement equipment

	Equipment	Last Calibration	Type	Serial No.	Manufacturer
☒	Multi-function Generator	2009-10-16	NSG3060	083	TESEQ
☒	CDN	2009-10-16	3061	083	TESEQ
☒	MAGNETIC FIELD GENERATOR	2009-10-16	MFU6502	113	TESEQ

12.3 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.

12.4 Test results

Port:		**AC input**	
Mode	**Table**	**Test specification (50Hz)**	**Result (50Hz)**
TM2	**014**	Voltage reduction 30% Number of periods 25; Voltage reduction 60% Number of periods 10; Voltage reduction 100% Number of periods 0.5	**Pass**

12.5 Table

12.5.1 Table 014

Test level $\%U_T$	Voltage Dips & Short Interruptions $\% U_T$	Duration(50Hz) (ms)	Phase Angle	Result
0	100	10	0°, 180°	Pass
40	60	200	0°, 180°	Pass
70	30	500	0°, 180°	Pass

Annex A

EUT / technical data

Port	Label	Description		
Enclosure	GH	Metal Enclosure		
Mains input AC	NAC.E	220-240V 50Hz		
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	N.A		
Interface Cables	**Length**	**Shielded**	**Type**	**Special**
	1.20m	☐	Round	☐

Figure 1 EUT photo

Figure 2 EUT photo

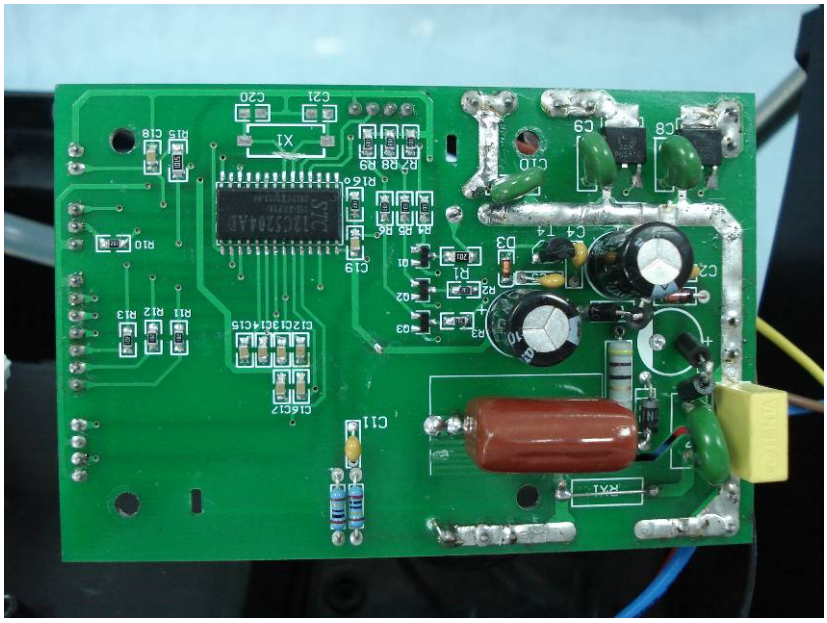


Figure 3 Photo of internal EUT

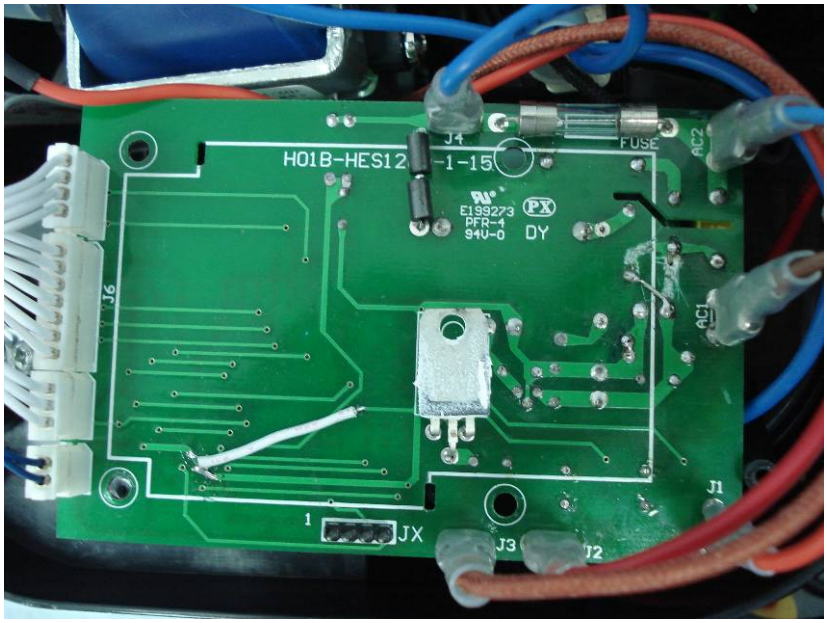


Figure 4 **photo of internal EUT**

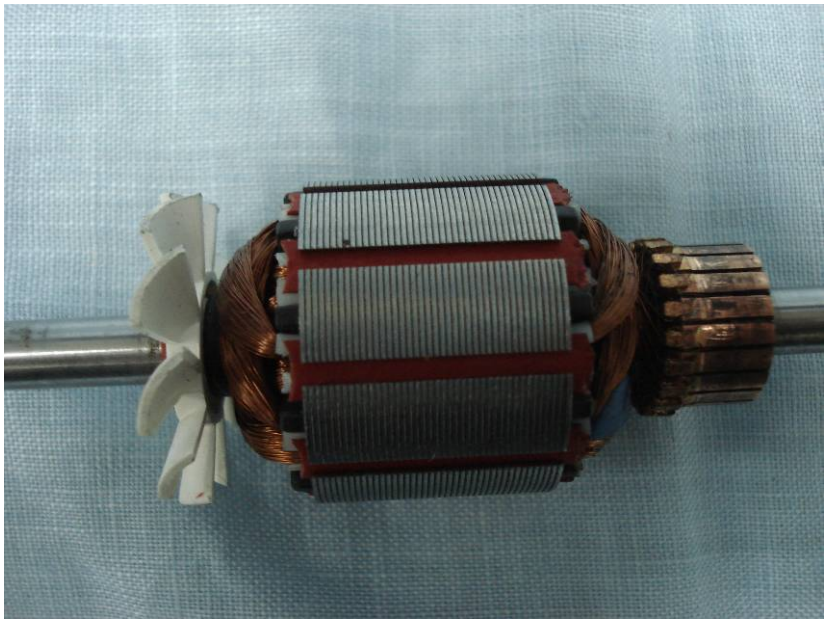


Figure 5 **photo of internal EUT**

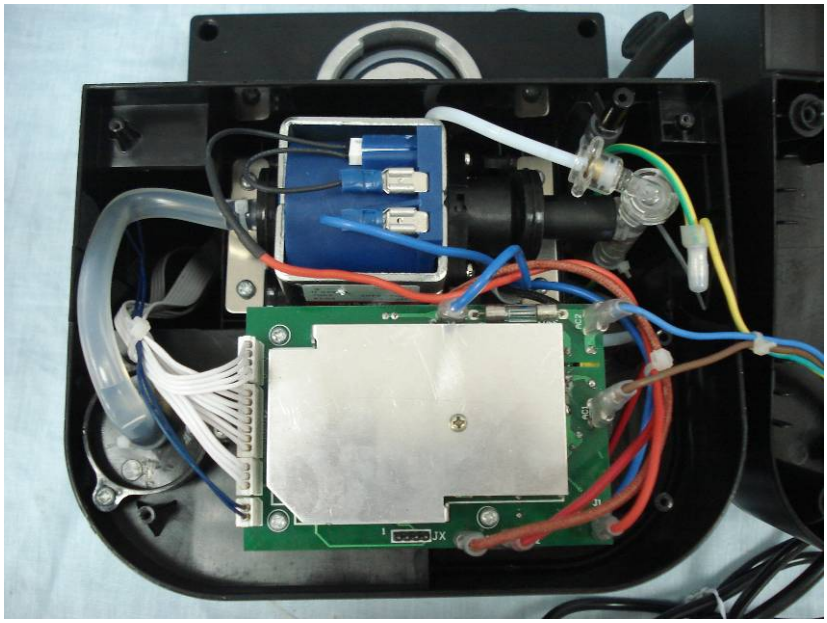


Figure 6 photo of internal EUT

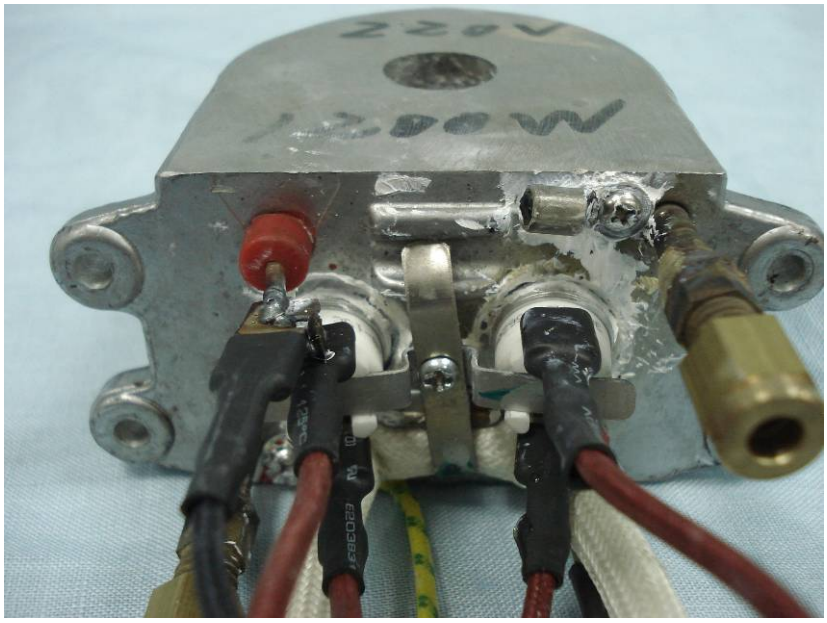


Figure 7 photo of internal EUT

Figure 8 photo of internal EUT

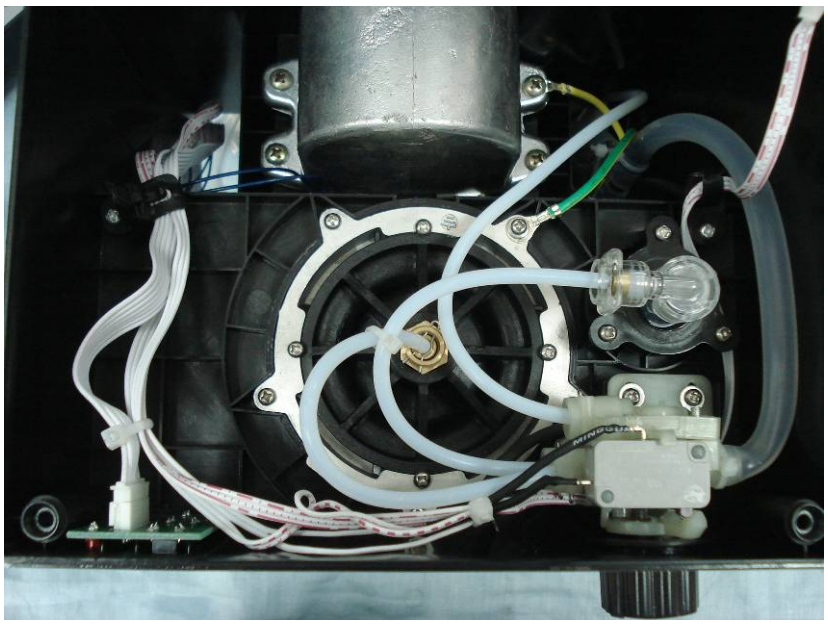


Figure 9 photo of internal EUT

Annex B

EUT set-up -details-

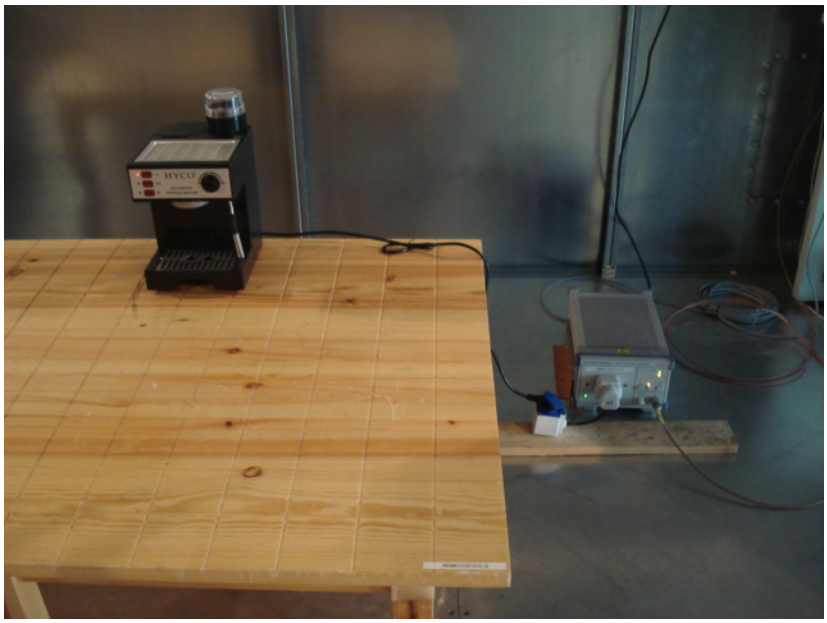


Figure 10 Setup for conducted emission

Figure 11 Setup for disturbance power

Figure 12 Setup for Discontinuous Disturbance

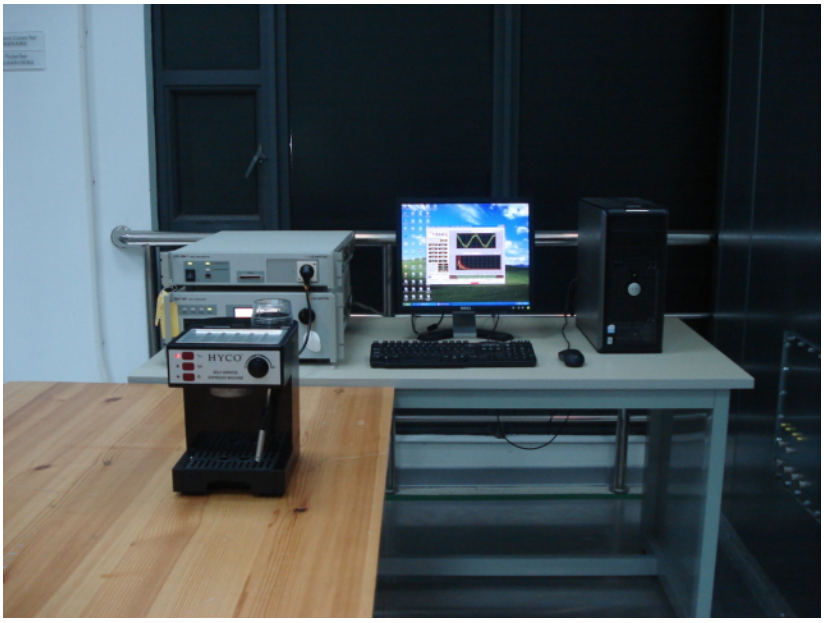


Figure 13 Setup for Harmonic current emission and Voltage fluctuations and flicker

Figure 14 Setup for ESD

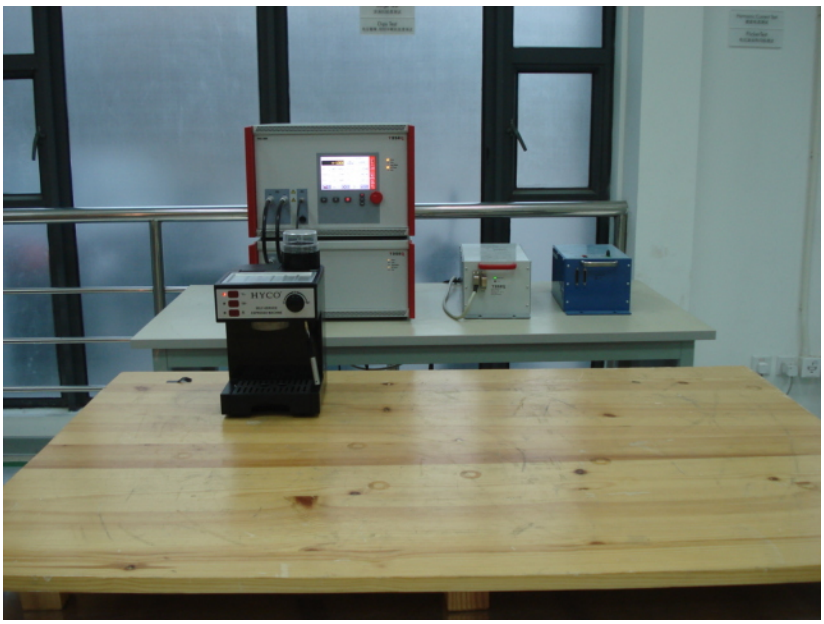


Figure 15 Setup for EFT, Surge, Dip and interruption

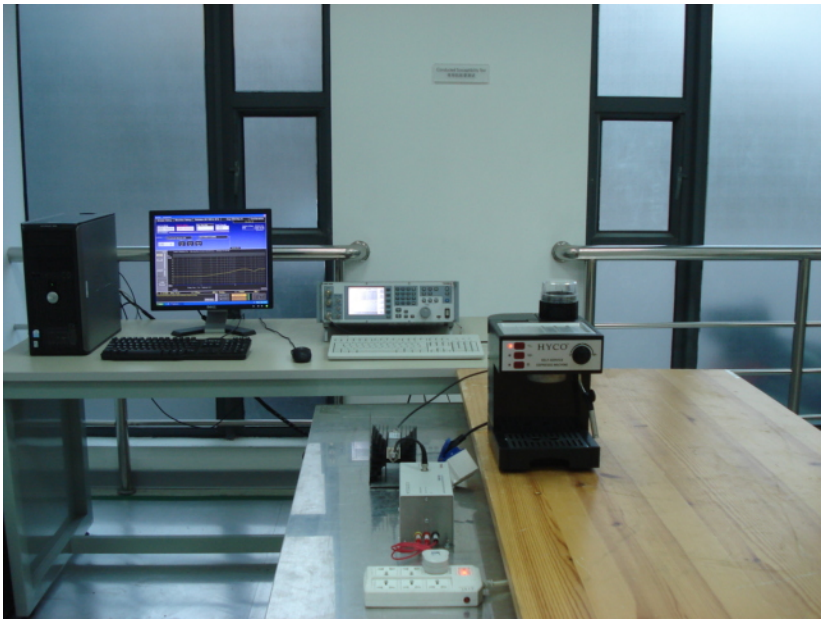


Figure 16 Setup for conducted immunity

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