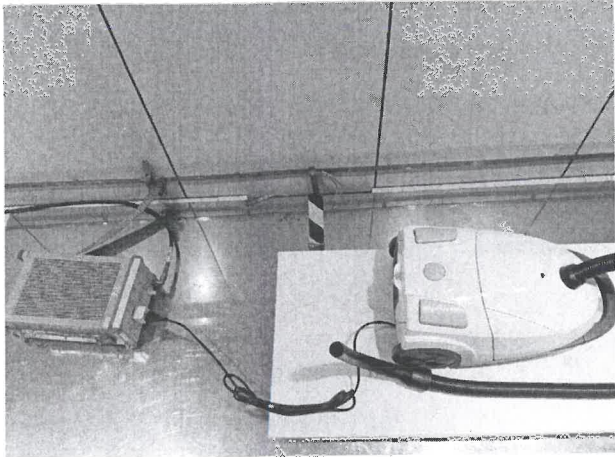

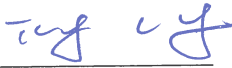


Prüfbericht - Nr.: Test Report No.:	14717192 002	Auftrags-Nr.: Order No.:	1160021440	Seite 1 von 25 Page 1 of 25
Kunden-Referenz-Nr.: Client Reference No.:	416004	Auftragsdatum: Order date:	04.01.2016	
Auftraggeber: Client:	Ningbo Haiji Electric Appliance Co., Ltd. NO.1-9 Wangongchi Road, Xiaodong industrial zone. Yuyao. Zhejiang 315400 P.R. China			
Prüfgegenstand: Test item:	Vacuum Cleaner			
Bezeichnung / Typ-Nr.: Identification / Type No.:	HJX1502-A, HJX1502-B, HJW5401-A, HJW5401-B, HJW5401-C			
Auftrags-Inhalt: Order content:	TÜV Rheinland – EMC Service			
Prüfgrundlage: Test specification:	EN 55014-1:2006+A1+A2 EN 55014-2:1997+A1+A2 EN 61000-3-3:2013 EN 61000-3-2:2014			
Wareneingangsdatum: Date of receipt:	07.01.2016			
Prüfmuster-Nr.: Test sample No.:	N/A			
Prüfzeitraum: Testing period:	07.01.2016-19.02.2016			
Ort der Prüfung: Place of testing:	Refer to section 1.1			
Prüflaboratorium: Testing laboratory:	TÜV Rheinland / CCIC (Ningbo) Co., Ltd.			
Prüfergebnis*: Test result*:	Pass			
geprüft von/ tested by:		kontrolliert von/ reviewed by:		
25.02.2016 Tracy Zhang/PE 		26.02.2016 Feng Liang/TC 		
Datum Date	Name/Stellung Name/Position	Unterschrift Signature	Datum Date	Name/Stellung Name/Position
Unterschrift Signature			Unterschrift Signature	
Sonstiges/ Other:				
Refer to page 2 for further information.				
Zustand des Prüfgegenstandes bei Anlieferung: Condition of the test item at delivery :		Prüfmuster vollständig und unbeschädigt Test item complete and undamaged		
*Legende: 1= Sehr gut 2 = gut 3= befriedigend 4= ausreichend 5 = mangelhaft P(ass) =entspricht o.g. Prüfgrundlage(n) F(ail)= entspricht o.g. Prüfgrundlage(n) N/A = nicht anwendbar N/T =nicht getestet Legend: 1= very good 2 = good 3= satisfactory 4= sufficient 5 = poor P(ass) = passed a.m. test specification(s) F(ail)= failed a.m. test specification(s) N/A = not applicable N/T = not tested				
Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens. <i>This test report relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any safety mark on this or similar products.</i>				

VO4

Model List:

Model	Rated voltage	Rated power	Speed adjustment function
HJX1502-A	AC 220-240V; 50/60Hz	700W	Yes
HJX1502-B		700W	No
HJW5401-A		1200W	Yes
HJW5401-B		1400W	Yes
HJW5401-C		1599W	Yes

Others:

1. In electrical characteristics, models HJX1502-A and HJX1502-B are similar to the certified models HJX1502-C and HJX1502-D which have been approved in the test report 14717192 001 respectively. The difference among them is the the motor.
2. models HJW5401-A, HJW5401-B and HJW5401-C are similar to the certified model HJX1502-K which has been approved in the test report 14717192 001. The differences among them are the the motor, rated power marked on the label and in the mechanical aspect.
3. Therefore addittional DV, DP and harmonics tests were performed on HJX1502-A and HJW5401-C.

TEST SUMMARY

4.1.1 HARMONICS ON AC MAINS

Result:

Pass

4.1.2 MAINS TERMINAL CONTINUOUS DISTURBANCE VOLTAGE

Result:

Pass

4.1.3 DISCONTINUOUS INTERFERENCE ON AC MAINS

Result:

N.A.

4.2.1 DISTURBANCE POWER ON MAINS

Result:

Pass

4.2.2 RADIATED DISTURBANCE IN THE FREQUENCY RANGE FROM 30MHZ TO 1000MHZ

Result:

Pass

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1 Test Sites

1.1 Test Facilities

Laboratory: Ningbo Entry-Exit Inspection and Quarantine Bureau.
Electrical Safety Testing Center for Optics & Electronics products
(NOETC)

**5-9 Zhufeng Road Ningbo Export Processing Zone, Beilun Ningbo,
Zhejiang province, 315800, P. R. China**

The used test equipments of Lab are in accordance with CISPR 16-1 series standards for measurement of radio interference.

1.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment of Laboratory

No.	Equipment	Model	Inventory no.	Cal. due date
1.	Artificial mains network	ENV216	101022	2016.04.28
2.	EMI test receiver	ESCI	100708	2016.04.28
3.	Absorbing clamp	ADS-Z21	100309	2016.04.28
4.	Harmonics/flicker analyzer	DPA503	V0828104013	2016.04.28

2 General Product Information

2.1 Product Function and Intended Use

The EUT (equipment under test) is an ordinary Vacuum Cleaner for household and similar use.

For the further information, refer to the user's manual.

2.2 Ratings and System Details

System input voltage : Refer to page 2
Rated Input power : Refer to page 2
Protection class : II

Refer to the User's Manual for further information.

2.3 Independent Operation Modes

The basic operation modes are: "On" or "Off".

Refer to the User's Manual for further information.

2.4 Noise Generating and Noise Suppressing Parts

Noise suppression components are used to suppress the noise.

Refer to the Circuit Diagram for more information.

2.5 Submitted Documents

Circuit diagram, user's manual, labels and construction drawings etc.

3 Test Set-up and Operation Modes

3.1 Principle of Configuration Selection

Emission: The equipment under test (EUT) was configured to measure its highest possible radiation level. The test conditions were adapted accordingly in reference to the instructions for use.

Refer to the related paragraph of this report.

Immunity:

Refer to the related paragraph of this report.

3.2 Physical Configuration for Testing

Refer to the related paragraph of this report.

3.3 Test Operation and Test Software

Refer to the related paragraph of this report. No software was used.

3.4 Special Accessories and Auxiliary Equipment

None.

3.5 Countermeasures to achieve EMC Compliance

The tested sample contained no noise suppression capacitors to achieve EMC compliance. No special measure is employed to achieve the requirement.

4 Test Results EMISSION

4.1 Emission in the Frequency Range up to 30 MHz

4.1.1 Harmonics on AC Mains

Result:	Pass
----------------	-------------

Date of testing : 2016.01.12-2016.02.19
Test procedure : EN 61000-3-2:2014
Test duration : 6min
Harmonic order : 2 – 40th
Frequency range : 0 – 2kHz
Test voltage : 230V, 50Hz

The harmonics on AC Mains in the frequency from 0 to 2 kHz were measured in accordance with EN 61000-3-2:2014.

The measurement was conducted with an automatic current harmonic analyzing system. This equipment is in compliance with the requirements of EN 61000-3-2:2014.

The results indicated in the following tables and figures were those measured and recorded by an automatic measuring system.

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Table 2: Harmonic currents measurement result for HJX1502-A

Equipment category: Class A;

Fundamental current I₁: 2.453A; Power factor: 0.979; Active input power: 730.7W.

Average harmonic current results

Hn	I _{eff} [A]	% of Limit	Limit [A]	Result
1	2.453			
2	16.152E-3			PASS
3	953.781E-3	41.469	2.30	PASS
4	11.106E-3			PASS
5	367.486E-3	32.236	1.14	PASS
6	8.574E-3			PASS
7	182.732E-3	23.731	770.00E-3	PASS
8	6.562E-3			PASS
9	95.077E-3	23.769	400.00E-3	PASS
10	5.835E-3			PASS
11	53.240E-3	16.133	330.00E-3	PASS
12	5.236E-3			PASS
13	31.001E-3	14.762	210.00E-3	PASS
14	3.708E-3			PASS
15	21.489E-3	14.326	150.00E-3	PASS
16	3.560E-3			PASS
17	13.974E-3			PASS
18	3.685E-3			PASS
19	14.694E-3			PASS
20	6.832E-3			PASS
21	16.589E-3			PASS
22	8.737E-3			PASS
23	17.364E-3	11.833	146.74E-3	PASS
24	3.687E-3			PASS
25	13.995E-3			PASS
26	3.483E-3			PASS
27	11.320E-3			PASS
28	2.836E-3			PASS
29	11.369E-3			PASS
30	2.623E-3			PASS
31	11.254E-3			PASS
32	2.530E-3			PASS
33	10.058E-3			PASS
34	2.531E-3			PASS
35	8.862E-3			PASS
36	2.333E-3			PASS
37	7.552E-3			PASS
38	2.214E-3			PASS
39	6.696E-3			PASS
40	3.770E-3			PASS

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

Maximum harmonic current results

Hn	leff [A]	% of Limit	Limit [A]	Result
1	3.182			
2	30.629E-3	1.891	1.62	PASS
3	1.428	41.388	3.45	PASS
4	26.545E-3	4.116	645.00E-3	PASS
5	715.097E-3	41.819	1.71	PASS
6	21.180E-3	4.707	450.00E-3	PASS
7	352.573E-3	30.526	1.15	PASS
8	15.427E-3			PASS
9	191.823E-3	31.970	600.00E-3	PASS
10	12.933E-3			PASS
11	114.337E-3	23.098	495.00E-3	PASS
12	10.767E-3			PASS
13	78.574E-3	24.944	315.00E-3	PASS
14	8.297E-3			PASS
15	43.401E-3	19.289	225.00E-3	PASS
16	7.035E-3			PASS
17	34.380E-3	17.318	198.52E-3	PASS
18	7.311E-3			PASS
19	28.680E-3	16.146	177.63E-3	PASS
20	12.534E-3			PASS
21	25.289E-3	15.736	160.71E-3	PASS
22	16.632E-3			PASS
23	22.929E-3	15.625	146.74E-3	PASS
24	5.431E-3			PASS
25	26.481E-3	19.615	135.00E-3	PASS
26	5.355E-3			PASS
27	21.774E-3	17.420	124.99E-3	PASS
28	5.514E-3			PASS
29	22.667E-3	19.476	116.39E-3	PASS
30	5.366E-3			PASS
31	21.571E-3	19.814	108.87E-3	PASS
32	4.949E-3			PASS
33	21.957E-3	21.469	102.27E-3	PASS
34	4.836E-3			PASS
35	21.106E-3	21.886	96.44E-3	PASS
36	4.813E-3			PASS
37	17.521E-3			PASS
38	5.569E-3			PASS
39	12.948E-3			PASS
40	6.845E-3			PASS

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

Table 3: Harmonic currents measurement result for HJW5401-C

Equipment category: Class A;

Fundamental current I1: 4.401A; Power factor: 0.984; Active input power: 1215W.

Average harmonic current results

Hn	Ieff [A]	% of Limit	Limit [A]	Result
1	4.401			
2	15.614E-3			PASS
3	1.808	78.620	2.30	PASS
4	13.908E-3			PASS
5	649.076E-3	56.936	1.14	PASS
6	11.462E-3			PASS
7	360.224E-3	46.782	770.00E-3	PASS
8	8.736E-3			PASS
9	176.811E-3	44.203	400.00E-3	PASS
10	6.891E-3			PASS
11	119.427E-3	36.190	330.00E-3	PASS
12	5.083E-3			PASS
13	61.255E-3	29.169	210.00E-3	PASS
14	3.679E-3			PASS
15	34.592E-3	23.061	150.00E-3	PASS
16	2.879E-3			PASS
17	22.089E-3			PASS
18	2.903E-3			PASS
19	12.259E-3			PASS
20	7.891E-3			PASS
21	18.229E-3			PASS
22	13.974E-3			PASS
23	19.169E-3			PASS
24	14.615E-3			PASS
25	18.653E-3			PASS
26	12.241E-3			PASS
27	31.222E-3	24.978	124.99E-3	PASS
28	7.448E-3			PASS
29	27.931E-3			PASS
30	4.419E-3			PASS
31	19.765E-3			PASS
32	3.440E-3			PASS
33	15.903E-3			PASS
34	3.364E-3			PASS
35	16.181E-3			PASS
36	2.890E-3			PASS
37	13.208E-3			PASS
38	2.875E-3			PASS
39	12.759E-3			PASS
40	3.298E-3			PASS

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

Maximum harmonic current results

Hn	I _{eff} [A]	% of Limit	Limit [A]	Result
1	5.290			
2	29.862E-3			PASS
3	2.371	68.713	3.45	PASS
4	33.459E-3	5.187	645.00E-3	PASS
5	1.062	62.116	1.71	PASS
6	27.129E-3			PASS
7	608.572E-3	52.690	1.15	PASS
8	20.468E-3			PASS
9	299.190E-3	49.865	600.00E-3	PASS
10	14.977E-3			PASS
11	191.175E-3	38.621	495.00E-3	PASS
12	10.425E-3			PASS
13	108.610E-3	34.479	315.00E-3	PASS
14	7.036E-3			PASS
15	56.661E-3	25.183	225.00E-3	PASS
16	4.981E-3			PASS
17	38.365E-3	19.325	198.52E-3	PASS
18	8.121E-3			PASS
19	32.973E-3	18.563	177.63E-3	PASS
20	16.704E-3			PASS
21	34.504E-3	21.470	160.71E-3	PASS
22	27.116E-3			PASS
23	39.371E-3	26.830	146.74E-3	PASS
24	27.128E-3			PASS
25	38.023E-3	28.165	135.00E-3	PASS
26	26.906E-3			PASS
27	36.367E-3	29.095	124.99E-3	PASS
28	18.783E-3			PASS
29	35.866E-3	30.816	116.39E-3	PASS
30	6.522E-3			PASS
31	30.379E-3			PASS
32	5.011E-3			PASS
33	26.527E-3			PASS
34	4.904E-3			PASS
35	25.693E-3			PASS
36	4.793E-3			PASS
37	22.584E-3			PASS
38	4.576E-3			PASS
39	20.737E-3			PASS
40	4.778E-3			PASS

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

4.1.2 Mains Terminal Continuous Disturbance Voltage

Result:	Pass
----------------	-------------

Date of testing : 2016.01.27-2016.02.19
 Test procedure : EN 55014-1:2006+A1+A2 and CISPR 16-1 series standards
 Frequency range : 0.15-30MHz
 Kind of test site : EMC Chamber

Test Setup

Input Voltage : AC 220-240V, 50/60Hz
 Operational mode : ON
 Artificial hand : Yes
 Earthing : No. (as class II equipment)

The measurement setup was made according to EN 55014-1:2006+A1+A2 in an EMC Chamber.

The measurement equipment like test receivers, quasi-peak detector and Artificial Mains Network (AMN) are in compliance with CISPR 16-1 series standards. The tested object was operated under its rated voltage and its rated frequency. Prior to the measurements the test object operated about 15 minutes (warm-up) in order to stabilize its operating conditions and to ensure reliable measurement values.

Furthermore an internal calibration with the test receiver was conducted prior to each measurement. And the measurement was made in the state the maximum disturbance was obtained.

The tested object was set-up on a wooden table. The length of the power cord of the tested object was about 3.0m. The EUT was set 0.8m away from the AMN. The cord longer than necessary to be connected to the AMN was folded forth and back parallel so as to form a bundle with a length between 0.3m and 0.4m.

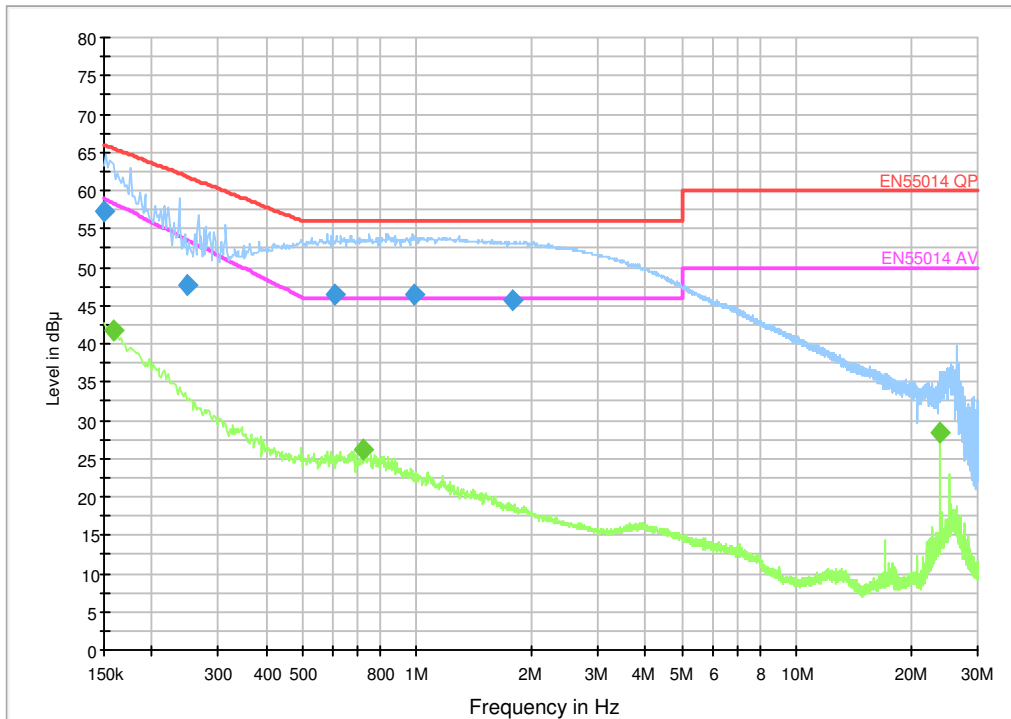
The Interference Voltage was determined according to clause 5 of EN 55014-1:2006+A1+A2 while measuring the line and neutral conductor by turns.

The following figures and tables were those measured by an automatic measuring system. Both Quasi Peak and Average Value were measured. Quasi-Peak and Average Value were measured and listed respectively where they had a maximum in previous scanning survey. In the figures, the symbol “◆” in blue color means Quasi-Peak Value and the symbol “◆” in green color means Average Value which was measured in final measurement.

Figure 1: Spectral Diagrams, Conducted Emission, 150kHz - 30MHz, L, for HJX1502-A

1160021440-HJX1502-A-L

Voltage with 2-Line-LISN



Final Result 1

Frequency (MHz)	QuasiPeak (dB μ V)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)	Comment
0.150000	57.2	1000.0	9.000	Off	L1	10.8	8.8	66.0	
0.249000	47.6	1000.0	9.000	Off	L1	10.7	14.2	61.8	
0.608000	46.3	1000.0	9.000	Off	L1	10.8	9.7	56.0	
0.986000	46.4	1000.0	9.000	Off	L1	10.8	9.6	56.0	
1.782000	45.7	1000.0	9.000	Off	L1	10.7	10.3	56.0	

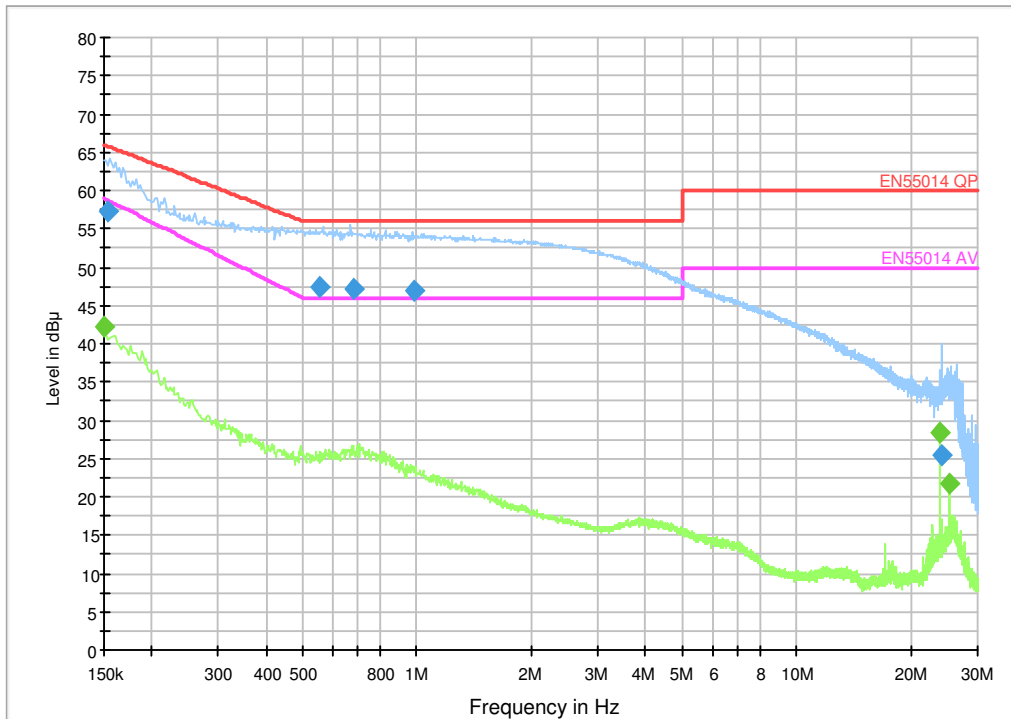
Final Result 2

Frequency (MHz)	CAverage (dB μ V)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)	Comment
0.158000	41.7	1000.0	9.000	Off	L1	10.8	16.7	58.4	
0.721000	26.3	1000.0	9.000	Off	L1	10.7	19.7	46.0	
23.940000	28.4	1000.0	9.000	Off	L1	11.0	21.6	50.0	

Figure 2: Spectral Diagrams, Conducted Emission, 150kHz - 30MHz, N, for HJX1502-A

1160021440-HJX1502-A-N

Voltage with 2-Line-LISN



Final Result 1

Frequency (MHz)	QuasiPeak (dB μ V)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)	Comment
0.153000	57.3	1000.0	9.000	Off	N	10.8	8.6	65.8	
0.553000	47.5	1000.0	9.000	Off	N	10.7	8.5	56.0	
0.678000	47.3	1000.0	9.000	Off	N	10.7	8.7	56.0	
0.980000	47.0	1000.0	9.000	Off	N	10.8	9.0	56.0	
24.047000	25.3	1000.0	9.000	Off	N	11.1	34.7	60.0	

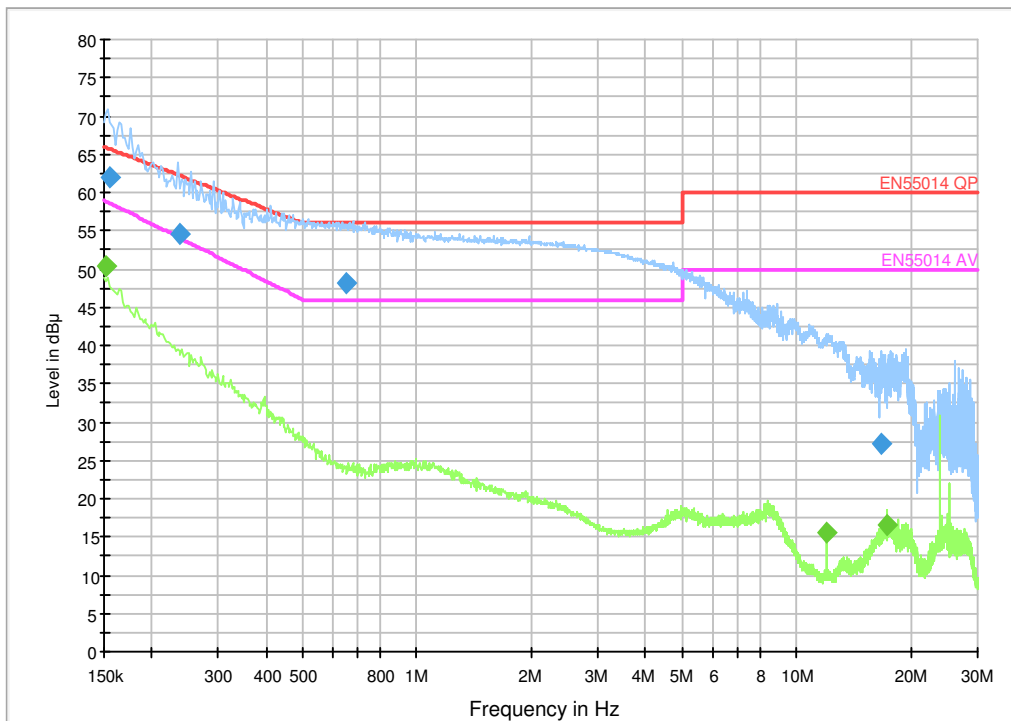
Final Result 2

Frequency (MHz)	CAverage (dB μ V)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)	Comment
0.150000	42.2	1000.0	9.000	Off	N	10.8	16.8	59.0	
23.940000	28.3	1000.0	9.000	Off	N	11.1	21.7	50.0	
25.202000	21.8	1000.0	9.000	Off	N	11.1	28.2	50.0	

Figure 3: Spectral Diagrams, Conducted Emission, 150kHz - 30MHz, L, for HJW5401-C

1160021440-HJX5401-C-DV-L

Voltage with 2-Line-LISN



Final Result 1

Frequency (MHz)	QuasiPeak (dB μ V)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)	Comment
0.155000	61.9	1000.0	9.000	Off	L1	10.8	3.8	65.7	
0.238000	54.5	1000.0	9.000	Off	L1	10.8	7.7	62.2	
0.653000	48.1	1000.0	9.000	Off	L1	10.8	7.9	56.0	
16.745000	27.1	1000.0	9.000	Off	L1	10.9	32.9	60.0	

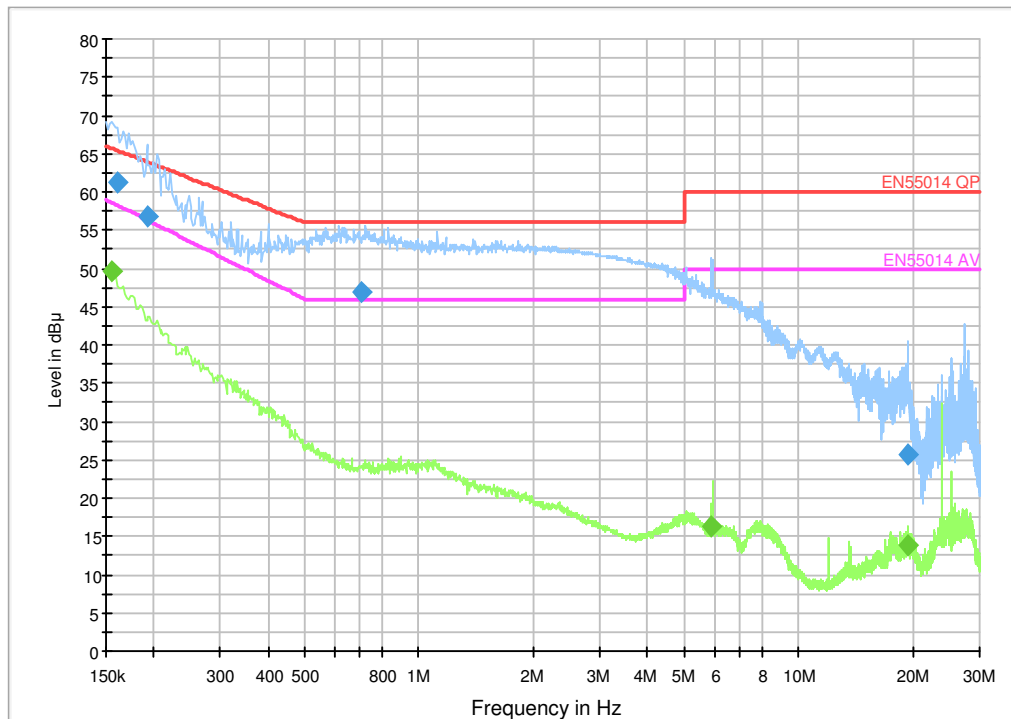
Final Result 2

Frequency (MHz)	CAverage (dB μ V)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)	Comment
0.151000	50.3	1000.0	9.000	Off	L1	10.8	8.7	58.9	
12.001000	15.6	1000.0	9.000	Off	L1	10.9	34.4	50.0	
17.247000	16.5	1000.0	9.000	Off	L1	10.9	33.5	50.0	

Figure 4: Spectral Diagrams, Conducted Emission, 150kHz - 30MHz, N, for HJW5401-C

1160021440-HJX5401-C-DV-N

Voltage with 2-Line-LISN



Final Result 1

Frequency (MHz)	QuasiPeak (dB µV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dB µV)	Comment
0.160000	61.2	1000.0	9.000	Off	N	10.8	4.3	65.5	
0.194000	56.8	1000.0	9.000	Off	N	10.7	7.1	63.9	
0.704000	46.9	1000.0	9.000	Off	N	10.7	9.1	56.0	
19.344000	25.7	1000.0	9.000	Off	N	11.0	34.3	60.0	

Final Result 2

Frequency (MHz)	CAverage (dB µV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dB µV)	Comment
0.156000	49.7	1000.0	9.000	Off	N	10.7	8.9	58.6	
5.894000	16.2	1000.0	9.000	Off	N	10.8	33.8	50.0	
19.467000	13.9	1000.0	9.000	Off	N	11.1	36.1	50.0	

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4.1.3 Discontinuous Interference on AC Mains

Result:

N.A.

4.2 Emission in the Frequency Range above 30 MHz

4.2.1 Disturbance Power on Mains

Result:	Pass
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Date of testing	: 2016.01.19-2016.02.19
Port	: Mains
Basic Standard	: EN 55014-1:2006+A1+A2
Frequency Range	: 30-300MHz
Limit	: EN 55014-1:2006+A1+A2, clause 4.1.2.1, Household and similar appliances

Test Setup

Input Voltage	: AC 220-240V, 50/60Hz
Operational mode	: ON
Earthing	: No (as class II equipment)

Measuring configuration and description

The measurement setup was made according to EN 55014-1:2006+A1+A2.

The measurement equipment like test receivers and absorption clamp are in compliance with CISPR 16-1 series standards. The test object has been operated by its rated voltage, rated frequency. Prior to the measurements the test objects operated about 10 minutes (warm-up) in order to stabilize their operating conditions and to ensure reliable measurement values.

Furthermore an internal calibration with the test receiver was conducted prior to each measurement.

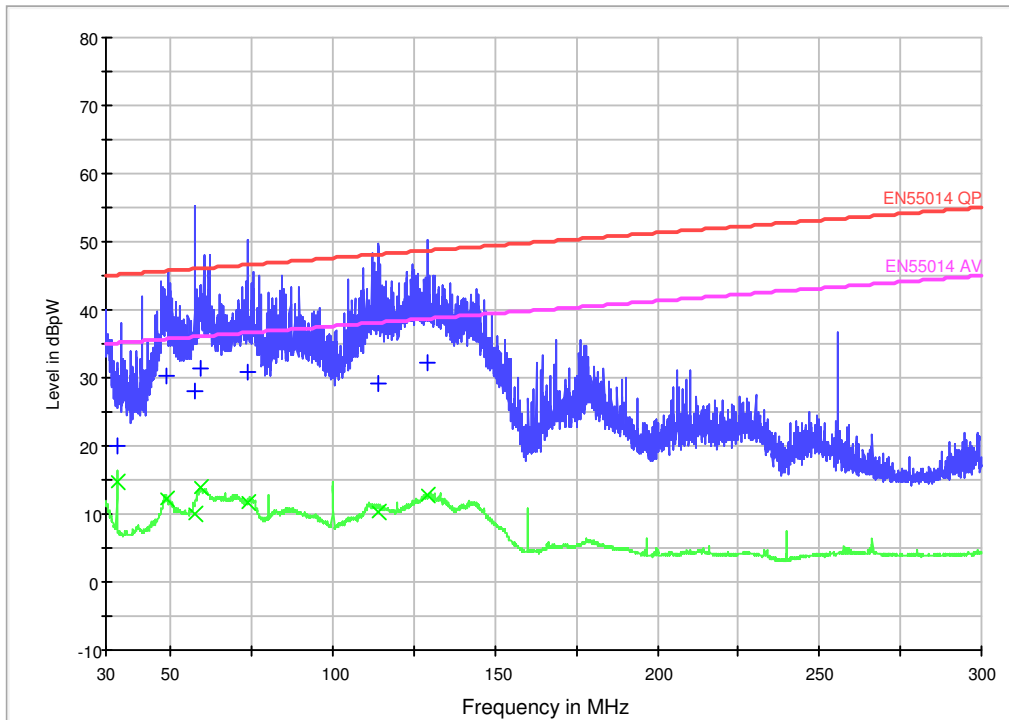
The disturbance power was determined according to clause 6 of EN 55014-1:2006+A1+A2. The tested object was set-up on a wooden bench. The length of the power cord of the test object was about 3.0m. The length of power cord of EUT plus that of the extension cord was approximately 6.0m.

The measurement was performed by operating the EUT in normal operation mode. The figures and tables below were those measured in the operation mode. Both Quasi Peak and Average Value were measured. In final measurement, by moving the absorption clamp along the power supply cord and the extension-power cord from the test object, Quasi-Peak and Average Value were measured and listed respectively where they had a maximum in previous scanning survey. In the Figures, the symbol “+” means Quasi-Peak Value and the symbol “x” means Average Value which was measured in final measurement.

Figure 5: Spectral Diagrams, Power Disturbance, Mains, 30–300MHz, for HJX1502-A

1160021440-HJX1502-A-P

Power EMI pre



Limit and Margin

Frequency (MHz)	QuasiPeak (dBpW)	Meas. Time (ms)	Bandwidth (kHz)	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBpW)	Comment
33.360000	20.1	1000.0	120.000	8.1	25.0	45.1	
48.420000	30.2	1000.0	120.000	7.1	15.5	45.7	
57.420000	28.0	1000.0	120.000	6.6	18.0	46.0	
59.040000	31.3	1000.0	120.000	6.5	14.8	46.1	
73.860000	30.8	1000.0	120.000	7.4	15.8	46.6	
113.820000	29.1	1000.0	120.000	6.7	19.0	48.1	
129.300000	32.2	1000.0	120.000	6.4	16.4	48.7	

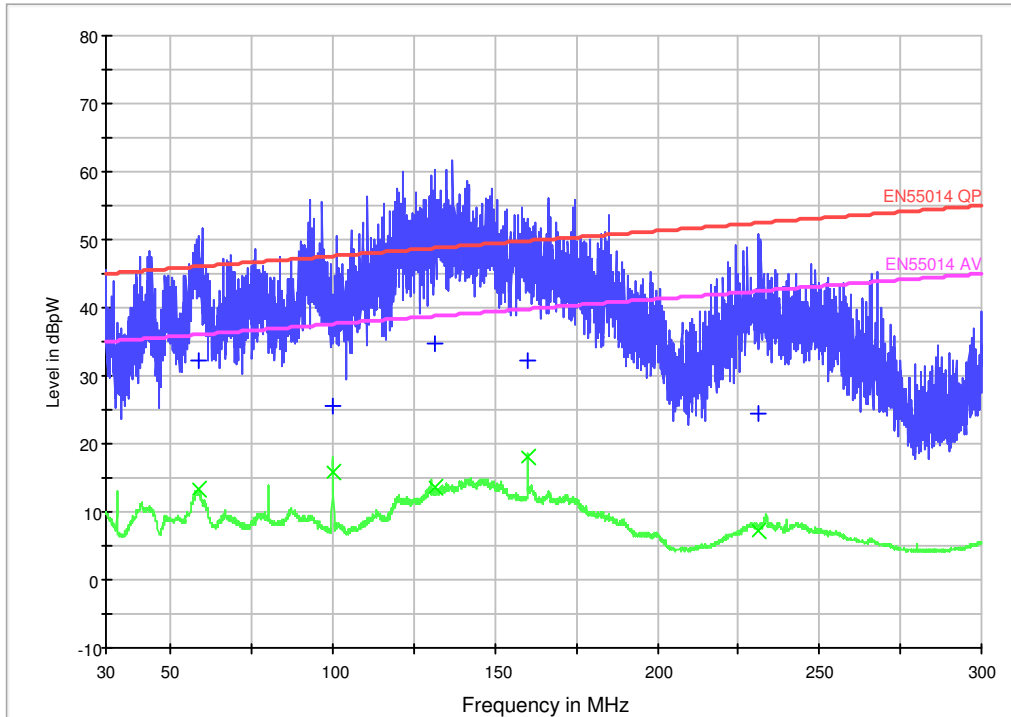
Limit and Margin-AV

Frequency (MHz)	Average (dBpW)	Meas. Time (ms)	Bandwidth (kHz)	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBpW)	Comment
33.360000	14.9	1000.0	120.000	8.1	20.3	35.1	
48.420000	12.3	1000.0	120.000	7.1	23.4	35.7	
57.420000	10.1	1000.0	120.000	6.6	25.9	36.0	
59.040000	13.9	1000.0	120.000	6.5	22.1	36.1	
73.860000	11.7	1000.0	120.000	7.4	24.9	36.6	
113.820000	10.3	1000.0	120.000	6.7	27.8	38.1	
129.300000	12.7	1000.0	120.000	6.4	26.0	38.7	

Figure 6: Spectral Diagrams, Power Disturbance, Mains, 30–300MHz, for HJW5401-C

1160021440-HJX5401-C-DP-M

Power EMI pre



Limit and Margin-QP

Frequency (MHz)	QuasiPeak (dBpW)	Meas. Time (ms)	Bandwidth (kHz)	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBpW)	Comment
58.380000	32.2	1000.0	120.000	6.6	13.9	46.1	
100.020000	25.5	1000.0	120.000	6.3	22.1	47.6	
131.700000	34.6	1000.0	120.000	6.3	14.2	48.8	
160.020000	32.2	1000.0	120.000	5.5	17.6	49.8	
231.060000	24.3	1000.0	120.000	5.0	28.1	52.4	

Limit and Margin-AV

Frequency (MHz)	Average (dBpW)	Meas. Time (ms)	Bandwidth (kHz)	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBpW)	Comment
58.380000	13.3	1000.0	120.000	6.6	22.7	36.1	
100.020000	15.9	1000.0	120.000	6.3	21.7	37.6	
131.700000	13.7	1000.0	120.000	6.3	25.1	38.8	
160.020000	18.0	1000.0	120.000	5.5	21.8	39.8	
231.060000	7.3	1000.0	120.000	5.0	35.1	42.4	

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4.2.2 Radiated Disturbance in the Frequency Range from 30MHz to 1000MHz

Result:	Pass
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Port : Enclosure
Basic Standard : EN 55014-1:2006+A1+A2
Frequency Range : 30-1000MHz
Limit : EN 55014-1:2006+A1+A2, clause 4.1.2.2, Table 3.

According to a) of clause 4.1.2.3.2 of EN 55014-1:2006+A1+A2:

“Appliances are deemed to comply in the frequency range from 300MHz to 1000MHz if both of the following conditions (1) and 2)) are fulfilled:”

- 1): all emission readings from the equipment under test shall be lower than the applicable limits (Table 2a) reduced by the margin (Table 2b);
- 2): the maximum clock frequency shall be less than 30MHz.

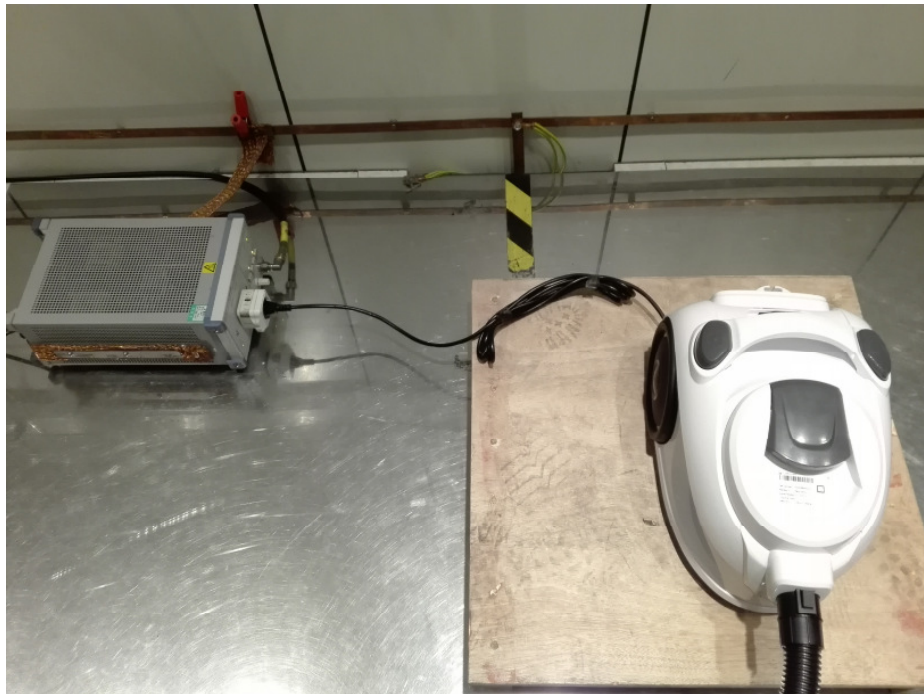
Because the EUT meets the two conditions mentioned above, the EUT is deemed to meet the radiated requirements without actual testing.

5 Photographs of the Test Set-Up

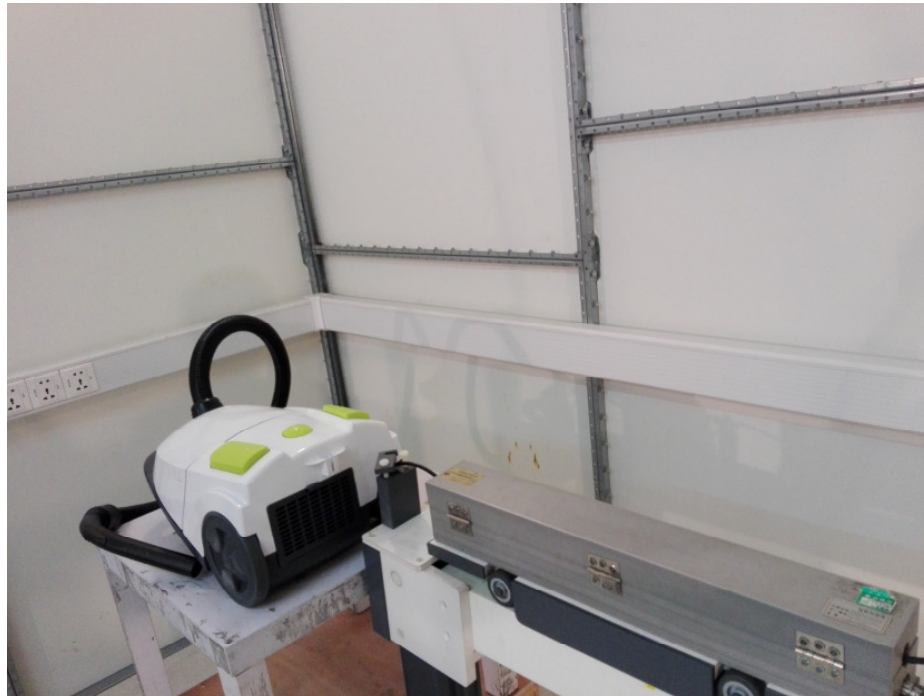
Photograph 1: Set-up for Harmonics



Photograph 2: Set-up for Disturbance Voltage on AC mains terminal



Photograph 3: Set-up for Disturbance Power on AC mains



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