


Test Verification of Conformity

On the basis of the referenced test report(s), sample(s) of the below product have been found to comply with the harmonized standards and Directives listed on this verification at the time the tests were carried out. Other standards and Directives may be relevant to the product.

Once all product relevant  mark directives are verified in compliance, the manufacturer may indicate compliance by signing a Declaration of Conformity themselves and applying the mark to product identical to the test sample(s) if the product complies with all relevant CE mark Directives requirements.

Applicant Name & Address: Hisense Ronshen (Guangdong) Refrigerator Co., Ltd.
No.8 Ronggang Road, Ronggui, Shunde, Foshan, Guangdong, P. R. China

Product Description: Frost Free Refrigerator Freezer

Ratings & Principle Characteristics: Refer to Annex to Test Verification of Conformity

Models: Refer to Annex to Test Verification of Conformity

Brand Name: --

Relevant Standards/ Specifications/Directives: EN 55014-1: 2006+A1: 2009+A2: 2011/ Electromagnetic compatibility – Requirements for household appliances, electric tools and similar apparatus – Part 1: Emission

EN 61000-3-2: 2006+ A1: 2009+ A2: 2009/ Electromagnetic compatibility (EMC) – Part 3-2: Limits – Limits for harmonic current emissions (equipment input current ≤ 16 A per phase)

EN 61000-3-3: 2013/ Electromagnetic compatibility (EMC) – Part 3-3: Limits – Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current ≤ 16 A per phase and not subject to conditional connection

EN 55014-2: 1997+A1: 2001+A2: 2008/ Electromagnetic compatibility – Requirements for household appliances, electric tools and similar apparatus – Part 2: Immunity – Product family standard

Verification Issuing Office: EMC Directive 2004/108/EC
Same as Legal Entity

Date of Tests: 16 April 2014 to 20 April 2014

Test Report Number(s): GZ11121724-1R6

Note 1: This verification is part of the full test report(s) and should be read in conjunction with them.

Note 2: This verification supersedes previous verification with report number(s) GZ11121724-1R5 dated 28 February 2014.

Signature:



Name:

Maggie Xie

Position:

Project Engineer

Date:

26 May 2014

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Annex to Test Verification of Conformity

This is an Annex to Test Verification of Conformity with Report Number(s): GZ11121724-1R6. The issuing office is Intertek Testing Services Shenzhen Ltd. Guangzhou Branch (Address: Block E, No, 7-2 Guang Dong Software Science Park, Caipin Road Guangzhou Science City, GETDD Guangzhou).

Model(s):

RD-43WC4SY2, RD-43WC4SBA/CSA2, RD-44WC4SY2, RD-44WC4SBA/CVA2,
RD-44WC4SBA/CVA1, RD-44WC4SY1, RD-44WC4SBA/CPA1, RD-44WC4SBA/CLA2,
RD-44WC4SBA/CLA1, RD-45WC4SBA/CSA2, RD-46WC4SBA/CLA2,
RD-46WC4SBA/CLA1, RD-46WC4SBA/CPA1, RB468N4AC2, RD-46WC4SY2,
RB468N4BC1, RD-46WC4SY1, RB468N4BW1, RB449N4ZS2, RD-45WC4SY2,
RB403N4AC2, RB403N4BC1, RB403N4DY1, RB403N4DC1, RB403N4ZS2,
RD-44WC4SQA/CLA2, RB403N4CC2, RD-44WC4SBB/CLA1, RB419N4WC1,
RD-44WC4S1, RB403N4EW1, RB403N4EY1, RB403N4EC1, RD-44WC4S2,
RB403N4EC2, RB403N4EW2

Ratings and principal characteristics:

220-240V~, 50Hz, class I, R600a, defrosting power: 170W, climatic class: SN, N, ST, T;
0,8A for RD-44WC4S1, RB403N4EW1, RB403N4EY1, RB403N4EC1, RD-44WC4S2,
RB403N4EC2, RB403N4EW2;
0,7A for all the other models.

Note 1: This annex is part of the Test Verification of Conformity and should be read in conjunction with it.

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Note 2: This annex to verification supersedes previous annex to verification with report number(s) GZ11121724-1R5 dated 28 February 2014.

Maggie Xie

Signature

Name: Maggie Xie

Position: Project Engineer

Date: 26 May 2014

TEST REPORT

Applicant Name & : Hisense Ronshen (Guangdong) Refrigerator Co., Ltd.
Address : No.8 Ronggang Road, Ronggui, Shunde, Foshan, Guangdong, P. R. China
Manufacturing Site : Same as applicant

Sample Description

Product : Frost Free Refrigerator Freezer
Model No. : Refer to page 6
Electrical Rating : Refer to page 6

Date Received : 16 April 2014
Date Test Conducted : 16 April 2014 to 20 April 2014

Test standards : EN 55014-1: 2006+A1:2009+A2: 2011
EN 61000-3-2: 2006+ A1:2009+ A2:2009
EN 61000-3-3: 2013
EN 55014-2: 1997+A1: 2001+A2: 2008

Test Result : Pass

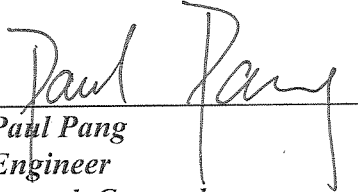
Conclusion : The submitted samples complied with the above EMC standards.

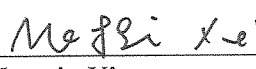
Remark : Based on previous test report GZ11121724-1R5 dated 28 February 2014.

*****End of Page*****

Prepared and Checked By:

Approved By:


Paul Pang
Engineer
Intertek Guangzhou

 **Signature**
Maggie Xie
Project Engineer
Intertek Guangzhou
26 May 2014 **Date**

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1

TEST RESULTS SUMMARY

Test Item	Standard	Result
Continuous conducted disturbance voltage	EN 55014-1: 2006+A1:2009+A2: 2011	N/A
Discontinuous conducted disturbance voltage	EN 55014-1: 2006+A1:2009+A2: 2011	N/A
Radiated disturbance power	EN 55014-1: 2006+A1:2009+A2: 2011	N/A
Radiated disturbance	EN 55014-1: 2006+A1:2009+A2: 2011 Reference: CISPR 16-2-3: 2006	N/A
Harmonic of current	EN 61000-3-2: 2006+ A1: 2009+ A2: 2009	Pass
Flicker	EN 61000-3-3: 2013	Pass
ESD immunity	EN 55014-2: 1997+A1: 2001+A2: 2008 Reference: EN 61000-4-2:1995+A1:1998+A2:2001	N/A
Radiated EM field immunity	EN 55014-2: 1997+A1: 2001+A2: 2008 Reference: EN 61000-4-3:2006+A1:2008	N/A
EFT immunity	EN 55014-2: 1997+A1: 2001+A2: 2008 Reference: EN 61000-4-4:2004	N/A
Surge immunity	EN 55014-2: 1997+A1: 2001+A2: 2008 Reference: EN 61000-4-5:2006	N/A
Inject current immunity	EN 55014-2: 1997+A1: 2001+A2: 2008 Reference: EN 61000-4-6:2007	N/A
Voltage dips and interruption immunity	EN 55014-2: 1997+A1: 2001+A2: 2008 Reference: EN 61000-4-11:2004	N/A

Remark: 1. The symbol “N/A” in above table means Not Applicable.

2. When determining the test results, measurement uncertainty of tests has been considered.

2**EMC Results Conclusion**
(with Justification)

RE: EMC Testing Pursuant to EMC Directive 2004/108/EC Performed on the Frost Free Refrigerator Freezer, Models: Refer to page 6.

This report is the revision of the previous test report GZ11121724-1R5 dated 28 February 2014 and shall be used together with it.

This report was issued because of the following changes:

1. Add a new alternative compressor PZ90H1Y.
2. Add a new alternative plug “XYP-02”.
3. Add some alternative PCB type as “RH-2”, “S1150G”, “S1600”, “DL-C3” and delete the type “BMX-01” .
4. The EN 61000-3-3 standard has been updated from EN 61000-3-3: 2008 to EN 61000-3-3: 2013.

Based on above changes and engineering judgment, we selected model RD-44WC4SY2 with compressor PZ90H1Y to conduct tests listed on the Test Result Summary.

We tested the Frost Free Refrigerator Freezer, Models: RD-44WC4SY2 and RD-44WC4S2 with compressor PZ90H1Y, to determine if it was in compliance with the relevant EN standards as marked on the Test Results Summary. We found that the unit met the requirements of EN 55014-1, EN 61000-3-2, EN 61000-3-3, EN 55014-2 (EN 61000-4-2), EN 55014-2 (EN 61000-4-4), EN 55014-2 (EN 61000-4-6), EN 55014-2 (EN 61000-4-5), & EN 55014-2 (EN 61000-4-11) standards when tested as received. The worst case’s test data was presented in this test report.

The production units are required to conform to the initial sample as received when the units are placed on the market.

Model list and rating characteristics:

Model(s):	RD-43WC4SY2, RD-43WC4SBA/CSA2, RD-44WC4SY2, RD-44WC4SBA/CVA2, RD-44WC4SBA/CVA1, RD-44WC4SY1, RD-44WC4SBA/CPA1, RD-44WC4SBA/CLA2, RD-44WC4SBA/CLA1, RD-45WC4SBA/CSA2, RD-46WC4SBA/CLA2, RD-46WC4SBA/CLA1, RD-46WC4SBA/CPA1, RB468N4AC2, RD-46WC4SY2, RB468N4BC1, RD-46WC4SY1, RB468N4BW1, RB449N4ZS2, RD-45WC4SY2, RB403N4AC2, RB403N4BC1, RB403N4DY1, RB403N4DC1, RB403N4ZS2, RD-44WC4SQA/CLA2, RB403N4CC2, RD-44WC4SBB/CLA1, RB419N4WC1, RD-44WC4S1, RB403N4EW1, RB403N4EY1, RB403N4EC1, RD-44WC4S2, RB403N4EC2, RB403N4EW2
Ratings and principal characteristics:	220-240V~, 50Hz, class I, R600a, defrosting power: 170W, climatic class: SN, N, ST, T; 0,8A for RD-44WC4S1, RB403N4EW1, RB403N4EY1, RB403N4EC1, RD-44WC4S2, RB403N4EC2, RB403N4EW2; 0,7A for all the other models.

3

LABORATORY MEASUREMENTS**Configuration Information**

Equipment Under Test (EUT):	Frost Free Refrigerator Freezer
Model:	RD-44WC4SY2 with compressor PZ90H1Y RD-44WC4S2 with compressor PZ90H1Y
Serial No.	Not Labeled
Support Equipment:	N/A
Rated Voltage:	220-240V~, 50Hz
Condition of Environment:	Temperature : 22~28°C Relative Humidity: 35~60% Atmosphere Pressure 86~106kPa

Notes:

1. The EMI measurements had been made in the operating mode produced the largest emission in the frequency band being investigated consistent with normal applications.
An attempt had been made to maximize the emission by varying the configuration of the EUT.

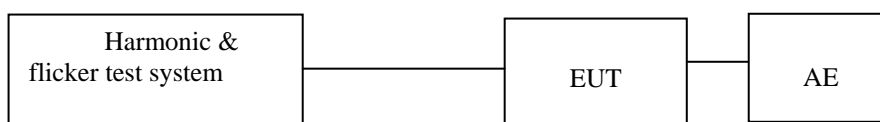
4 Harmonic of Current

Test Result: Pass

4.1 Used Test Equipment

Equip. No.	Equipment	Model	Manufacturer
EM001-02	Harmonic & Flicker Test System	5001IX-CTS-400-413	California Instrument

4.2 Block Diagram of Test Setup



4.3 Test Setup and Procedure

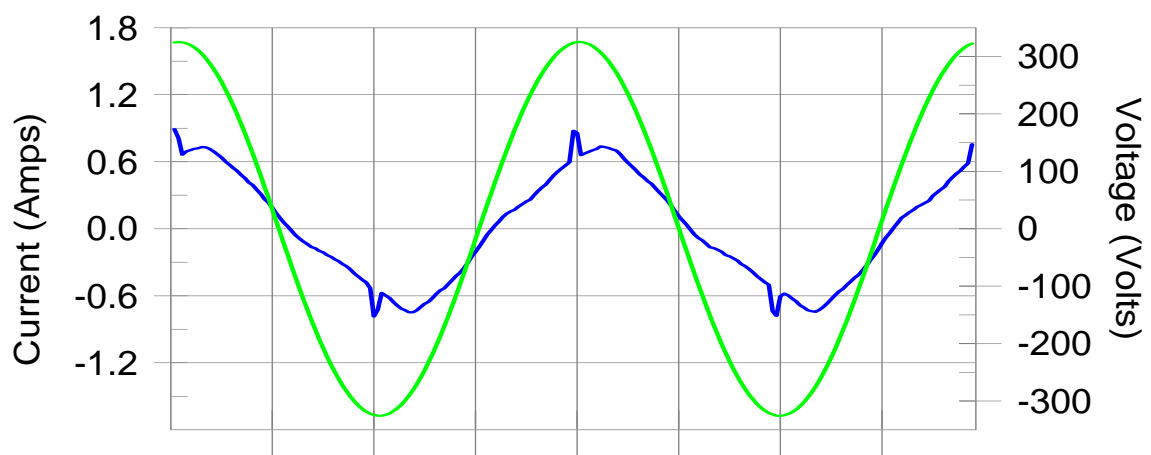
Harmonics of the fundamental current were measured up to 40 order harmonics using a digital power meter with an analogue output and frequency analyser which was integrated in the harmonic & flicker test system. The measurements were carried out under steady conditions.

4.4 Test Data

Model: RD-44WC4SY2

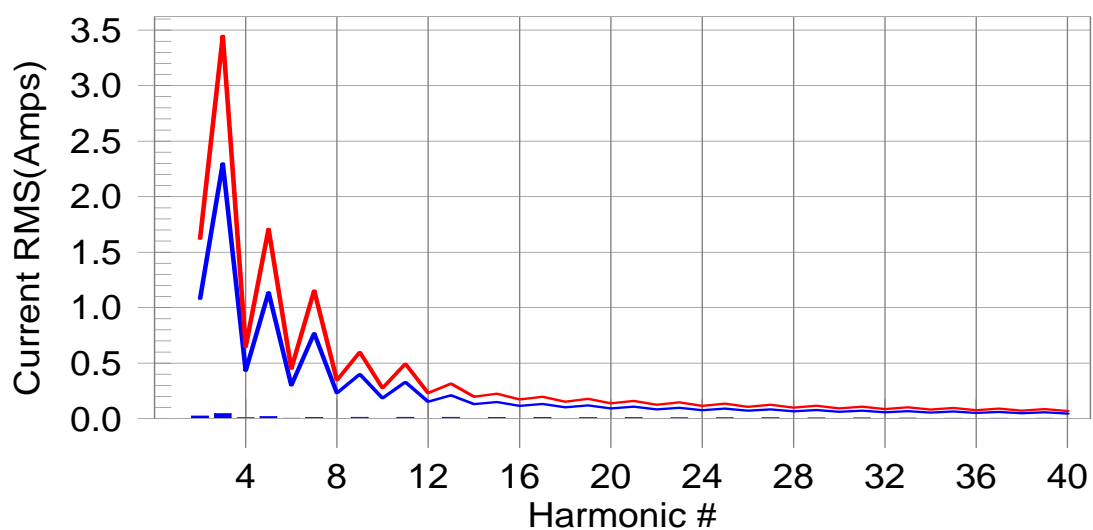
Harmonics – Class-A per Ed. 3.0 (incl. inter-harmonics)

Current & voltage waveforms



Harmonics and Class A limit line

European Limits



Test result: Pass Worst harmonic was #23 with 9.37% of the limit.

Current Test Result Summary (Run time)

Test Result: Pass

Source qualification: Normal

Highest parameter values during test:

V_RMS (Volts): 230.07
I_Peak (Amps): 0.947
I_Fund (Amps): 0.475
Power (Watts): 105.4

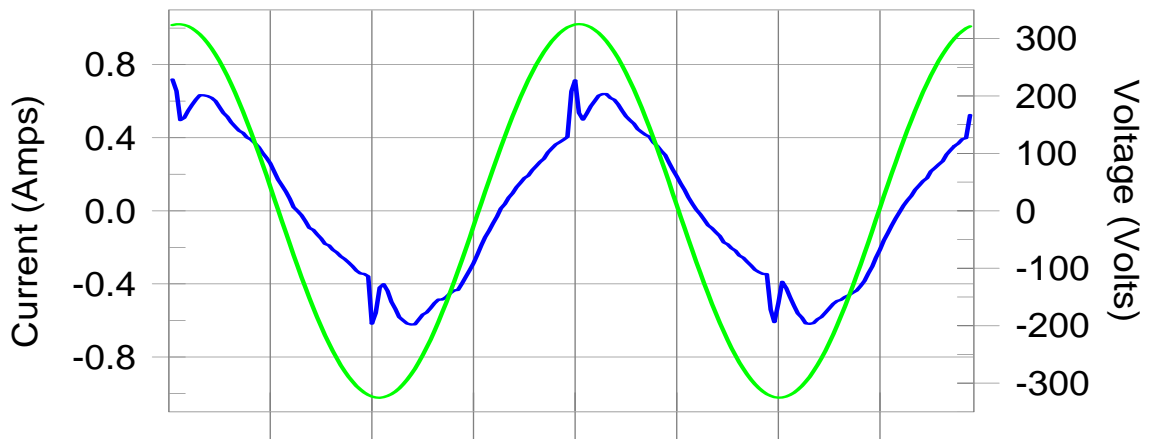
Frequency(Hz): 50.00
I_RMS (Amps): 0.482
Crest Factor: 1.982
Power Factor: 0.954

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.023	1.080	2.2	0.024	1.620	1.5	Pass
3	0.043	2.300	1.9	0.045	3.450	1.3	Pass
4	0.007	0.430	1.7	0.008	0.645	1.2	Pass
5	0.019	1.140	1.6	0.020	1.710	1.2	Pass
6	0.004	0.300	N/A	0.004	0.450	0.9	Pass
7	0.011	0.770	1.4	0.011	1.155	1.0	Pass
8	0.002	0.230	N/A	0.002	0.345	0.7	Pass
9	0.012	0.400	3.1	0.013	0.600	2.2	Pass
10	0.001	0.184	N/A	0.002	0.276	0.6	Pass
11	0.013	0.330	3.8	0.013	0.495	2.6	Pass
12	0.001	0.153	N/A	0.001	0.230	0.4	Pass
13	0.012	0.210	5.6	0.012	0.315	3.8	Pass
14	0.001	0.131	N/A	0.001	0.197	0.4	Pass
15	0.011	0.150	7.4	0.011	0.225	5.0	Pass
16	0.001	0.115	N/A	0.001	0.173	0.4	Pass
17	0.011	0.132	8.2	0.011	0.198	5.5	Pass
18	0.001	0.102	N/A	0.001	0.153	0.5	Pass
19	0.010	0.118	8.7	0.010	0.178	5.8	Pass
20	0.001	0.092	N/A	0.001	0.138	0.6	Pass
21	0.010	0.107	9.1	0.010	0.161	6.1	Pass
22	0.001	0.084	N/A	0.001	0.125	0.5	Pass
23	0.009	0.098	9.2	0.009	0.147	6.2	Pass
24	0.001	0.077	N/A	0.001	0.115	0.6	Pass
25	0.008	0.090	9.2	0.008	0.135	6.2	Pass
26	0.001	0.071	N/A	0.001	0.107	0.7	Pass
27	0.008	0.083	9.1	0.008	0.125	6.2	Pass
28	0.001	0.066	N/A	0.001	0.099	0.7	Pass
29	0.007	0.078	8.8	0.007	0.116	6.0	Pass
30	0.001	0.061	N/A	0.001	0.092	0.7	Pass
31	0.006	0.073	8.5	0.006	0.109	5.8	Pass
32	0.001	0.058	N/A	0.001	0.086	0.8	Pass
33	0.005	0.068	8.0	0.006	0.102	5.6	Pass
34	0.001	0.054	N/A	0.001	0.081	0.8	Pass
35	0.005	0.064	N/A	0.005	0.096	5.2	Pass
36	0.000	0.051	N/A	0.001	0.077	0.8	Pass
37	0.004	0.061	N/A	0.004	0.091	4.9	Pass
38	0.000	0.048	N/A	0.001	0.073	0.8	Pass
39	0.004	0.058	N/A	0.004	0.087	4.4	Pass
40	0.000	0.046	N/A	0.001	0.069	0.8	Pass

Model: RD-44WC4S2

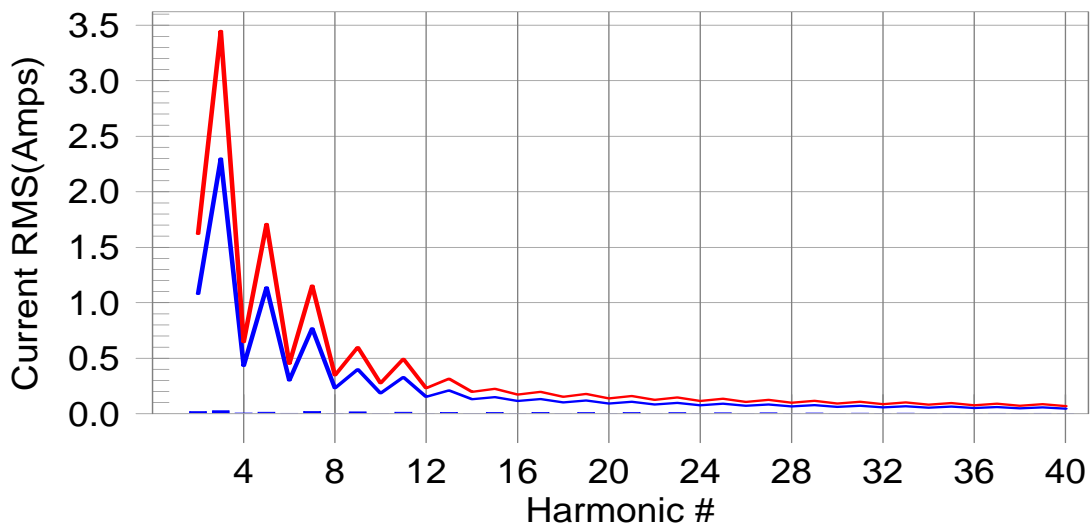
Harmonics – Class-A per Ed. 3.0 (incl. inter-harmonics)

Current & voltage waveforms



Harmonics and Class A limit line

European Limits



Test result: Pass Worst harmonic was #23 with 9.50% of the limit.

Current Test Result Summary (Run time)

Test Result: Pass

Source qualification: Normal

Highest parameter values during test:

V_RMS (Volts):	230.07	Frequency(Hz):	50.00
I_Peak (Amps):	0.778	I_RMS (Amps):	0.401
I_Fund (Amps):	0.396	Crest Factor:	1.969
Power (Watts):	84.2	Power Factor:	0.918

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.016	1.080	1.5	0.020	1.620	1.3	Pass
3	0.018	2.300	0.8	0.027	3.450	0.8	Pass
4	0.004	0.430	1.0	0.006	0.645	1.0	Pass
5	0.006	1.140	0.6	0.014	1.710	0.8	Pass
6	0.003	0.300	N/A	0.005	0.450	1.0	Pass
7	0.019	0.770	2.5	0.022	1.155	1.9	Pass
8	0.002	0.230	N/A	0.003	0.345	0.9	Pass
9	0.017	0.400	4.2	0.017	0.600	2.9	Pass
10	0.001	0.184	N/A	0.001	0.276	0.5	Pass
11	0.013	0.330	4.0	0.014	0.495	2.8	Pass
12	0.001	0.153	N/A	0.001	0.230	0.5	Pass
13	0.012	0.210	5.8	0.013	0.315	4.1	Pass
14	0.001	0.131	N/A	0.001	0.197	0.5	Pass
15	0.012	0.150	8.0	0.013	0.225	5.7	Pass
16	0.001	0.115	N/A	0.001	0.173	0.6	Pass
17	0.012	0.132	8.8	0.012	0.198	6.1	Pass
18	0.001	0.102	N/A	0.001	0.153	0.6	Pass
19	0.011	0.118	9.2	0.011	0.178	6.4	Pass
20	0.001	0.092	N/A	0.001	0.138	0.6	Pass
21	0.010	0.107	9.5	0.010	0.161	6.5	Pass
22	0.001	0.084	N/A	0.001	0.125	0.7	Pass
23	0.009	0.098	9.5	0.010	0.147	6.6	Pass
24	0.001	0.077	N/A	0.001	0.115	0.8	Pass
25	0.008	0.090	9.4	0.009	0.135	6.5	Pass
26	0.001	0.071	N/A	0.001	0.107	0.9	Pass
27	0.008	0.083	9.2	0.008	0.125	6.3	Pass
28	0.001	0.066	N/A	0.001	0.099	1.0	Pass
29	0.007	0.078	8.7	0.007	0.116	6.0	Pass
30	0.001	0.061	N/A	0.001	0.092	1.0	Pass
31	0.006	0.073	8.1	0.006	0.109	5.6	Pass
32	0.001	0.058	N/A	0.001	0.086	1.2	Pass
33	0.005	0.068	7.5	0.005	0.102	5.2	Pass
34	0.001	0.054	N/A	0.001	0.081	1.1	Pass
35	0.004	0.064	N/A	0.005	0.096	4.7	Pass
36	0.001	0.051	N/A	0.001	0.077	1.2	Pass
37	0.004	0.061	N/A	0.004	0.091	4.3	Pass
38	0.001	0.048	N/A	0.001	0.073	1.2	Pass
39	0.003	0.058	N/A	0.003	0.087	3.9	Pass
40	0.000	0.046	N/A	0.001	0.069	1.0	Pass

4.5 Measurement Uncertainty

The measurement uncertainty for harmonic test is under consideration according to CISPR 16-4-2:2003.

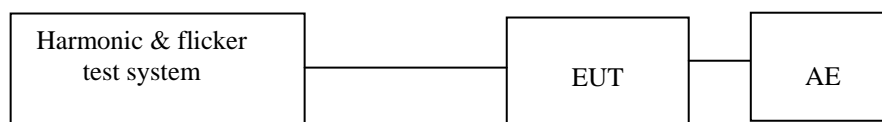
5 Flicker

Test Result: Pass

5.1 Used Test Equipment

Equip. No.	Equipment	Model	Manufacturer
EM001-02	Harmonic & Flicker Test System	5001IX-CTS-400-413	California Instrument

5.2 Block Diagram of Test Setup



5.3 Test Setup and Procedure

5.3.1 Definition

Flicker:	impression of unsteadiness of visual sensation induced by a lighting stimulus whose luminance or spectral distribution fluctuates with time.
Pst:	Short-term flicker indicator The flicker severity evaluated over a short period (in minutes); Pst=1 is the conventional threshold of irritability
Plt:	long-term flicker indicator; the flicker severity evaluated over a long period (a few hours). Using successive Pst values.
dc:	the relative steady-state voltage change
dmax:	the maximum relative voltage change
d(t):	the value during a voltage change

5.3.2 Test condition

The EUT was set to produce the most unfavourable sequence of voltage changes.

5.4 Test Data

Model: RD-44WC4SY2

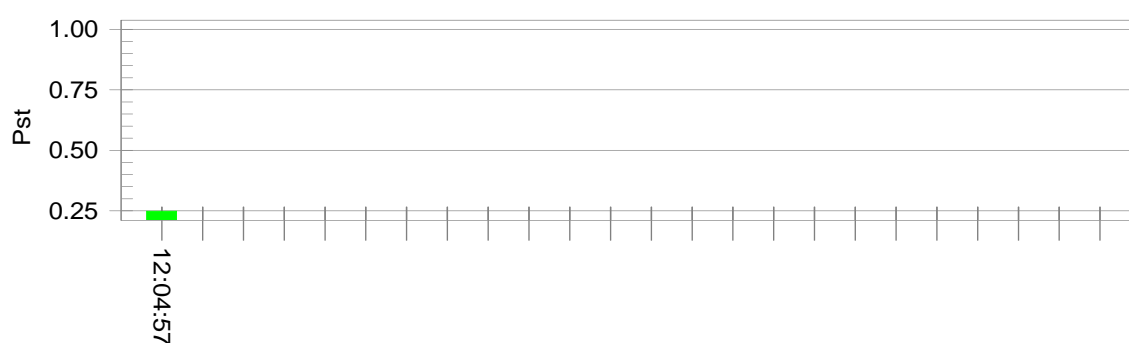
Flicker Test Summary (Run time)

Test Result: Pass

Status: Test Completed

Pst, and limit line

European Limits



Parameter values recorded during the test:

Vrms at the end of test (Volt):	229.75			
Highest dt (%):	1.75	Test limit (%):	3.30	Pass
Time(mS) > dt:	0	Test limit (mS):	500.0	Pass
Highest dc (%):	0.00	Test limit (%):	3.30	Pass
Highest dmax (%):	1.75	Test limit (%):	4.00	Pass
Highest Pst (10 min. period):	0.249	Test limit:	1.000	Pass

Model: RD-44WC4S2

Flicker Test Summary (Run time)

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):	229.66			
Highest dt (%):	1.78	Test limit (%):	3.30	Pass
Time(mS) > dt:	0	Test limit (mS):	500.0	Pass
Highest dc (%):	0.00	Test limit (%):	3.30	Pass
Highest dmax (%):	1.86	Test limit (%):	4.00	Pass
Highest Pst (10 min. period):	0.273	Test limit:	1.000	Pass

5.5 Measurement Uncertainty

Measurement uncertainty for voltage fluctuation and flicker is under consideration according to CISPR 16-4-2:2003.

6 Appendix I - Photos of test setup

Harmonics and Flicker (Model: RD-44WC4SY2)





Harmonics and Flicker (Model: RD-44WC4S2)



7 Appendix II - Photos of EUT

Below photos are for RD-44WC4S1, RB403N4EW1, RB403N4EY1, RB403N4EC1, RD-44WC4S2, RB403N4EC2, RB403N4EW2

Overall view	
	
Inside view	
	
Back view	



Compressor view

