SGS-CSTC Standards Technical Services Co., Ltd.

198 Kezhu Road, Scientech Park, Guangzhou Economic & Technological Development District, Guangzhou, China 510663
Telephone: +86 (0) 20 82155555
Fax: +86 (0) 20 82075059
Email: ee.guangzhou@sgs.com

TEST REPORT

Application No:	GZEM1312005795HS
Applicant:	ZHEJIANG CHENXIANG PRECISION TECHNOLOGY CO., LTD.
Product Name:	Refrigerator
Product Description:	Refrigerator
Model No:	BCD50V, BCD72V, BCD92V, BCD108V, BCD138V, BCD168V ♣
♣	Please refer to section 3 of this report for further details.
Trade Mark:	CENCO
Standards:	EN 55014-1:2006+A1:2009+A2:2011, EN 55014-2:1997+A1:2001+A2:2008 (as per applicant's request)
Date of Receipt:	2013-12-10
Date of Test:	2014-01-13 to 2014-01-16
Date of Issue:	2014-01-20
Test Result:	**Pass***

* In the configuration tested, the EUT complied with the standards specified above. This report GZEM131200579503 supersedes the previous report GZEM131200579502, issued on 2014-01-17, which is hereby deemed null and void.

The CE mark as shown below can be used, under the responsibility of the manufacturer, after completion of an EC Declaration of Conformity and compliance with all relevant EC Directives.

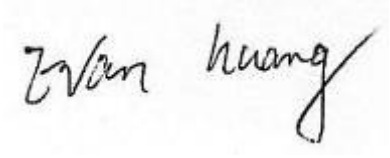
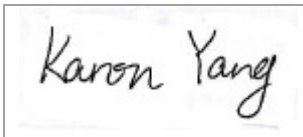
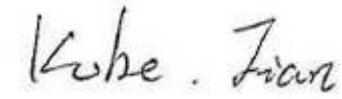
Richard Li
Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards.

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

2 Version

Revision Record				
Version	**Chapter**	**Date**	**Modifier**	**Remark**
00		2014-01-06		Original
01		2014-01-17		Revised report.
02		2014-01-20		Revised report.

Authorized for issue by:				
Tested By		 **(Evan Huang) /Project Engineer**		2014-01-13 to 2014-01-16 **Date**
Prepared By		 **(Karon Yang) /Clerk**		2014-01-20 **Date**
Checked By		 **(Kobe Jian) /Reviewer**		2014-01-20 **Date**

3 Test Summary

Electromagnetic Interference (EMI)				
Test	**Test Requirement**	**Test Method**	**Class / Severity**	**Result**
Conducted Emission on Additional Terminal (150kHz to 30MHz)	EN 55014-1:2006 +A1:2009+A2:2011	EN 55014-1:2006 +A1:2009+A2:2011	Table 1 Columns 2&3	PASS
Radiated Emission (30MHz to 1GHz)	EN 55014-1:2006 +A1:2009+A2:2011	CISPR 16-2-3:2006	Table 3	PASS
Discontinuous Interference on AC (150kHz to 30MHz)	EN 55014-1:2006 +A1:2009+A2:2011	EN 55014-1:2006 +A1:2009+A2:2011	Clause 4.2.3.1 of EN 55014-1	N/A
Electromagnetic Susceptibility(EMS) [1)]				
Test	**Test Requirement**	**Test Method**	**Class / Severity**	**Result**
Immunity	EN 55014-2:1997 +A1:2001+A2:2008	EN 55014-2:1997 +A1:2001+A2:2008	Clause 7.2.1 of EN 55014-2	PASS**

Remark :

[1)] **:** The EUT belongs to **Category I apparatus of EN 55014-2**:1997+A1:2001+A2:2008.

EUT In this whole report EUT means Equipment Under Test.

**Please refer to Section 7.4 & 8 of this report for details.

N/A : Not applicable, please refer to section 7.3 of this report for details.

♣ **Model No.:** BCD50V, BCD72V, BCD92V, BCD108V, BCD138V, BCD168V

According to the declaration from the applicant, the electrical circuit design, layout, components used and internal wiring were identical for all models, with only difference being as below:

Model No	Rated power	Current	Compressor	Module
BCD50V	45W	3.8A / 1.9A	QDZH25G	QDZH25 DC
BCD72V	45W	3.8A / 1.9A	QDZH25G	QDZH25 DC
BCD92V	50W	3.8A / 1.9A	QDZH35G	QDZH35 DC
BCD108V	55W	4.6A / 2.3A	QDZH35G	QDZH35 DC
BCD138V	55W	4.6A / 2.3A	QDZH35	QDZH35 DC
BCD168V	60W	5.5A / 2.5A	QDZH35G	QDZH35 DC

Therefore only one model **BCD72V, BCD168V** was tested in this report.

4 Contents

1 COVER PAGE 1

2 VERSION 2

3 TEST SUMMARY 3

4 CONTENTS 4

5 GENERAL INFORMATION 5

5.1 Client Information 5
5.2 General Description of E.U.T. 5
5.3 Details of E.U.T. 5
5.4 Description of Support Units 5
5.5 Deviation from Standards 5
5.6 General Test Climate During Testing 5
5.7 Abnormalities from Standard Conditions 5
5.8 Monitoring of EUT for All Immunity Test 5
5.9 Test Location 5
5.10 Test Facility 6

6 EQUIPMENT USED DURING TEST 7

7 ELECTROMAGNETIC INTERFERENCE TEST RESULTS 9

7.1 Conducted Emissions on Additional Terminals, 150 kHz to 30MHz 9
7.2 Radiated Emissions, 30MHz to 1GHz 15
7.3 Discontinuous Interference, 150kHz to 30MHz 21

8 ELECTROMAGNETIC SUSCEPTIBILITY TEST RESULTS 22

9 PHOTOGRAPHS 23

9.1 Conducted Emissions on Mains Terminals Test Setup 23
9.2 Radiated Emission Test Setup 25
9.3 EUT Constructional Details 27

5 General Information

5.1 Client Information

Applicant:	ZHEJIANG CHENXIANG PRECISION TECHNOLOGY CO., LTD.
Address of Applicant:	No.218 Meihe Road, Jinhua City Industrial Park, Zhejiang, China

5.2 General Description of E.U.T.

Product Name:	Refrigerator
Product Description:	Refrigerator
Model No:	BCD72V, BCD168V

5.3 Details of E.U.T.

Rated Supply (Voltage):	DC 12V / 24V
Power Cable:	2.0 m x 2 wires unscreened DC cable

5.4 Description of Support Units

The EUT has been tested with DC 12V batteries as power.

5.5 Deviation from Standards

All Immunity tests to EN 55014-2 were performed in accordance with EN 61000-4-x and not IEC 61000-4-x. (x=2, 4, 5, 6, 11).

5.6 General Test Climate During Testing

Temperature: 15-30 °C Humidity: 30-70 %RH Atmospheric Pressure: 860-1060 mbar

5.7 Abnormalities from Standard Conditions

None

5.8 Monitoring of EUT for All Immunity Test

Audio: N/A

Visual: N/A

5.9 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou EMC Laboratory,

198 Kezhu Road, Scientech Park, Guangzhou Economic & Technology Development District, Guangzhou, China 510663

Tel: +86 20 82155555 Fax: +86 20 82075059

No tests were sub-contracted.

5.10 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **NVLAP (Lab Code: 200611-0)**

  SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou EMC Laboratory is recognized under the National Voluntary Laboratory Accreditation Program (NVLAP/NIST). NVLAP Code: 200611-0.

- **ACMA**

  SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory can also perform testing for the Australian C-Tick mark as a result of our NVLAP accreditation.

- **SGS UK(Certificate No.: 32), SGS-TUV SAARLAND and SGS-FIMKO**

  Have approved SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory as a supplier of EMC TESTING SERVICES and SAFETY TESTING SERVICES.

- **CNAS (Lab Code: L0167)**

  SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been assessed and in compliance with CNAS-CL01:2006 accreditation criteria for testing laboratories (identical to ISO/IEC 17025:2005 General Requirements) for the Competence of Testing Laboratories.

- **FCC (Registration No.: 282399)**

  SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 282399, May 31, 2002.

- **Industry Canada (Registration No.: 4620B-1)**

  The 3m/10m Alternate Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd. has been registered by Certification and Engineering of Industry Canada for radio equipment testing with Registration No. 4620B-1.

- **VCCI (Registration No.: R-2460, C-2584, G-449 and T-1179)**

  The 10m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-2460, C-2584，G-449 and T-1179 respectively.

- **CBTL (Lab Code: TL129)**

  SGS-CSTC Standards Technical Services Co., Ltd., E&E Laboratory has been assessed and fully comply with the requirements of ISO/IEC 17025:2005, the Basic Rules, IECEE 01:2006-10 and Rules of procedure IECEE 02:2006-10, and the relevant IECEE CB-Scheme Operational documents.

6 Equipment Used during Test

Conducted Emission						
No.	Test Equipment	Manufacturer	Model No.	Serial No.	Cal.Due date (YYYY-MM-DD)	Calibration Interval
EMC0306	Shielding Room	Zhong Yu	8 x 3 x 3.8 m^3	N/A	N/A	N/A
EMC0118	Two-line v-netwok	R&S	ENV216	100359	2014-03-04	1Y
EMC0102	LISN	SCHAFFNER CHASE	MN2050D/1	1421	2014-8-31	1Y
EMC2046	Artificial Mains Network (LISN)	AFJ Instruments	LT32C	S.N.320311201 50	2014-03-04	1Y
EMC0506	EMI Test Receiver	Rohde & Schwarz	ESCS30	100085	2014-03-04	1Y
EMC0107	Coaxial Cable	SGS	2m	N/A	2014-07-25	2Y
EMC0106	Voltage Probe	SGS	N/A	N/A	N/A	1Y
EMC0120	8 Line ISN	Fischer Custom Communications	FCC-TLISN-T8-02	20550	2014-8-31	1Y
EMC0121	4 Line ISN	Fischer Custom Communications	FCC-TLISN-T4-02	20549	2014-8-31	1Y
EMC0122	2 Line ISN	Fischer Custom Communications	FCC-TLISN-T2-02	20548	2014-8-31	1Y
EMC2047	CDN	Elektronik-Feinmechanik	L-801:AF2	2793	2014-11-11	3Y
EMC2048	CDN	Elektronik-Feinmechanik	L-801:M2/M3	2738	2014-11-11	3Y
EMC2062	6dB Attenuator	HP	8491A	24487	2015-01-04	1Y
EMC167	Conical metal housing	SGS-EMC	N/A	N/A	2014-2-16	2Y

RE in Chamber						
No.	Test Equipment	Manufacturer	Model No.	Serial No.	Cal.Due date (YYYY-MM-DD)	Calibration Interval
EMC0525	Compact Semi-Anechoic Chamber	ChangZhou ZhongYu	N/A	N/A	2014-08-30	2Y
EMC0522	EMI Test Receiver	Rohde & Schwarz	ESIB26	100283	2014-05-06	1Y
EMC0056	EMI Test Receiver	Rohde & Schwarz	ESCI	100236	2014-03-04	1Y
EMC0528	RI High frequency Cable	SGS	20 m	N/A	2014-05-09	1Y
EMC2025	Trilog Broadband Antenna 30-3000MHz	SCHWARZBECK MESS-ELEKTRONIK	VULB 9163	9163-450	2016-08-31	3Y
EMC0524	Bi-log Type Antenna	Schaffner -Chase	CBL6112B	2966	2016-08-31	3Y
EMC0519	Bilog Type Antenna	Schaffner -Chase	CBL6143	5070	2014-06-02	2Y
EMC2026	Horn Antenna 1-18GHz	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120D	9120D-841	2016-08-31	3Y
EMC0518	Horn Antenna	Rohde & Schwarz	HF906	100096	2014-07-01	2Y
EMC0521	1-26.5 GHz Pre-Amplifier	Agilent	8449B	3008A01649	2014-03-04	1Y
EMC2065	Amplifier	HP	8447F	N/A	2014-08-31	1Y
EMC2063	1-26GHz Pre Amplifier	Compliance Direction System Inc.	PAP-1G26-48	6279.628	2014-07-29	1Y
EMC0075	310N Amplifier	Sonama	310N	272683	2014-03-04	1Y
EMC0523	Active Loop Antenna	EMCO	6502	42963	2014-04-07	2Y
EMC2041	Broad-Band Horn Antenna (14)15-26.5(40)GHz	SCHWARZBECK MESS-ELEKTRONI	BBHA 9170	9170-375	2014-06-01	3Y
EMC2069	2.4GHz filter	Micro-Tronics	BRM 50702	149	2014-06-05	1Y
EMC0530	10m Semi-Anechoic Chamber	ETS	N/A	N/A	2014-04-27	2Y
EMC2041	Broad-Band Horn Antenna(14)15-26.5(40)GHz	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9170	9170-375	2014/6/11	3Y

General used equipment						
No.	Test Equipment	Manufacturer	Model No.	Serial No.	Cal.Due date (YYYY-MM-DD)	Calibration Interval
EMC0006	DMM	Fluke	73	70681569	2014-09-13	1Y
EMC0007	DMM	Fluke	73	70671122	2014-09-13	1Y

7 Electromagnetic Interference Test Results

7.1 Conducted Emissions on Additional Terminals, 150 kHz to 30MHz

Test Requirement: EN 55014-1

Test Method: EN 55014-1

Test Date: 2014-01-13

Test voltage AC 230V 50Hz

Frequency Range: 150KHz to 30MHz

Detector: Peak for pre-scan

Quasi-Peak and Average for final measurement
(9 kHz resolution bandwidth)

Limit:

Frequency range MHz	**At additional terminals** dB (μV)	
	Quasi-peak	Average
0.15 to 0.50	80	70
0.50 to 30	74	64
Note1: The lower limit is applicable at the transition frequency.		

7.1.1 E.U.T. Operation

A pre-test was performed on the EUT in cooling mode with DC 12V and 24V batteries in order to find the worse case.

Test the EUT in cooling mode with DC 24V batteries for the compliance test as the worse case was found.

A pre-test at 160KHz shall be made over a range of 0.9 to 1.1 times the rated voltage in order to check the level of disturbance varies considerably with the supply voltage, compliance test at AC 230V as no worse case was found.

7.1.2 Test Setup and Procedure

1. The mains terminal disturbance voltage was measured with the EUT in a shielded room.
2. The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50Ω/50μH + 5Ω linear impedance. The power cables of all other units of the EUT were connected to a second LISN, which was bonded to the ground reference plane in the same way as the LISN for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.
3. The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane, but separated from metallic contact with the ground reference plane by 0.1m of insulation.
4. The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN was placed 0.8m from the boundary of the unit under test and bonded to a ground reference plane for LISN mounted on top of the ground reference plane. This distance was between the closest points of the LISN and the EUT. The mains lead of EUT excess 0.8m was folded back and forth parallel to the lead so as to form a horizontal bundle with a length between 0.3m and 0.4m. All other units of the EUT and associated equipment were at least 0.8m from the LISN.
5. According to clause 5.2.3 Appliances having auxiliary apparatus connected at the end of a lead other than the mains lead of standard, “The measurement of the terminal voltage on non-rewirable leads longer than 2 m and shorter than 10 m shall be started at a frequency according to the following formula:
   fstart = 60 / L ”

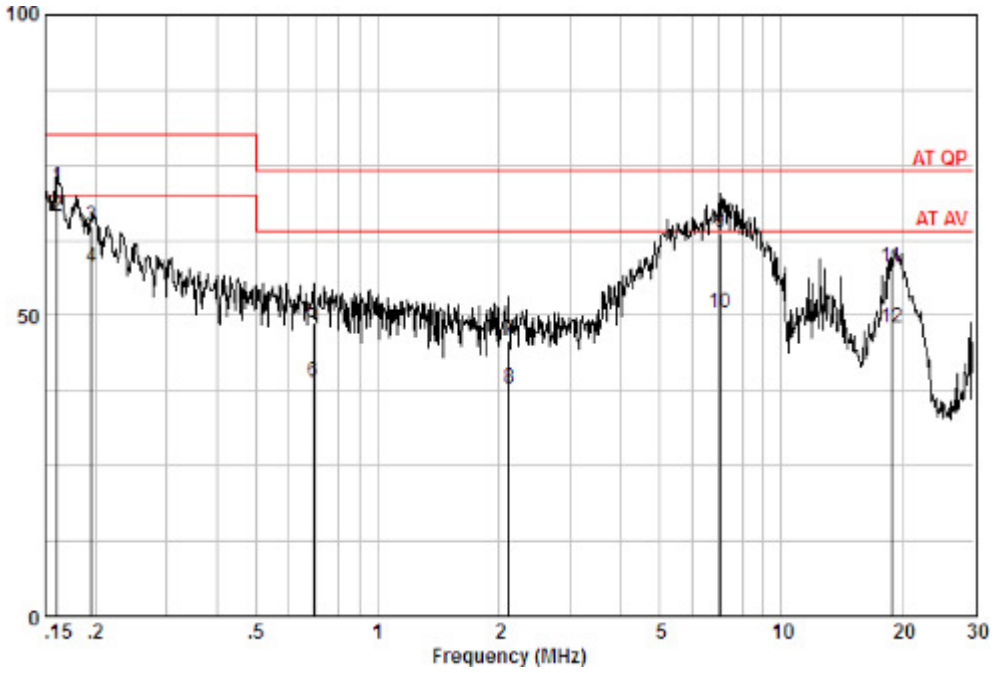
7.1.3 Measurement Data

For model BCD72V

24V positive pole:

Peak Scan:

Level (dBµV)



Quasi-peak and Average measurement:

Freq	Read Level	Cable Loss	LISN Factor	Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB	dB	dBuV	dBuV	dB	
0.161	40.88	30.40	0.00	71.28	80.00	-8.72	QP
0.161	36.08	30.40	0.00	66.48	70.00	-3.52	AVERAGE
0.195	34.50	30.40	0.00	64.90	80.00	-15.10	QP
0.195	27.71	30.40	0.00	58.11	70.00	-11.89	AVERAGE
0.694	18.46	30.40	0.00	48.86	74.00	-25.14	QP
0.694	8.66	30.40	0.00	39.06	64.00	-24.94	AVERAGE
2.121	15.36	30.40	0.00	45.76	74.00	-28.24	QP
2.121	7.55	30.40	0.00	37.95	64.00	-26.05	AVERAGE
7.062	33.52	30.31	0.00	63.83	74.00	-10.17	QP
7.062	20.21	30.31	0.00	50.52	64.00	-13.48	AVERAGE
18.721	27.60	30.40	0.00	58.00	74.00	-16.00	QP
18.721	17.59	30.40	0.00	47.99	64.00	-16.01	AVERAGE

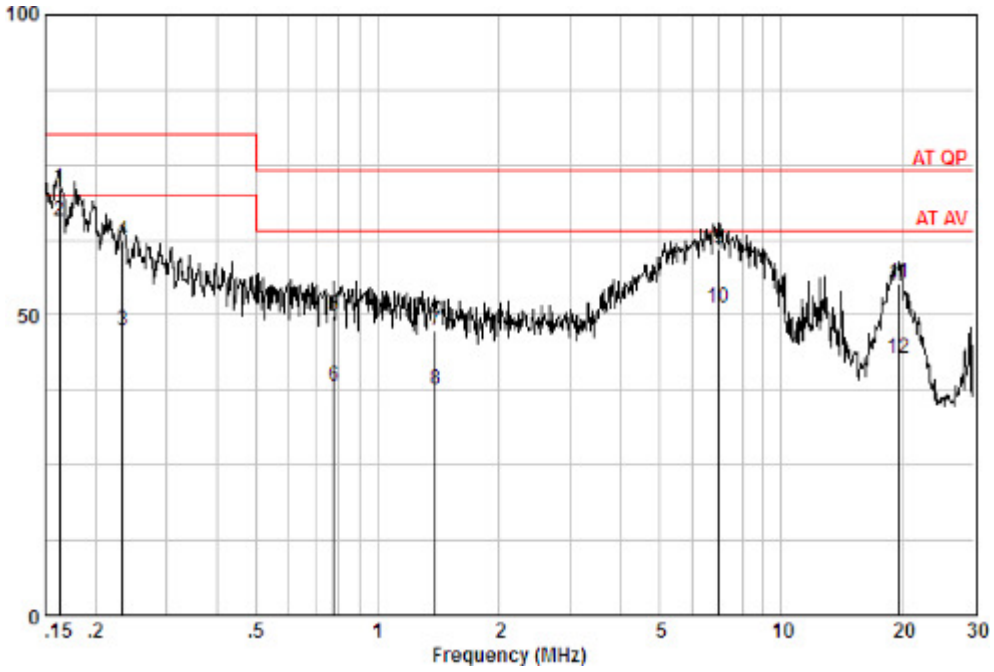
Level = Read Level + LISN Factor + Cable Loss.

For model BCD72V

24V negative pole:

Peak Scan:

Level (dBµV)



Quasi-peak and Average measurement:

Freq	Read Level	Cable Loss	LISN Factor	Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB	dB	dBuV	dBuV	dB	
0.162	40.62	30.40	0.00	71.02	80.00	-8.98	QP
0.162	35.39	30.40	0.00	65.79	70.00	-4.21	AVERAGE
0.233	16.99	30.40	0.00	47.39	70.00	-22.61	AVERAGE
0.233	32.12	30.40	0.00	62.52	80.00	-17.48	QP
0.779	19.38	30.40	0.00	49.78	74.00	-24.22	QP
0.779	7.81	30.40	0.00	38.21	64.00	-25.79	AVERAGE
1.388	16.94	30.35	0.00	47.29	74.00	-26.71	QP
1.388	7.26	30.35	0.00	37.61	64.00	-26.39	AVERAGE
6.988	30.74	30.30	0.00	61.04	74.00	-12.96	QP
6.988	20.95	30.30	0.00	51.25	64.00	-12.75	AVERAGE
19.532	24.86	30.40	0.00	55.26	74.00	-18.74	QP
19.532	12.35	30.40	0.00	42.75	64.00	-21.25	AVERAGE

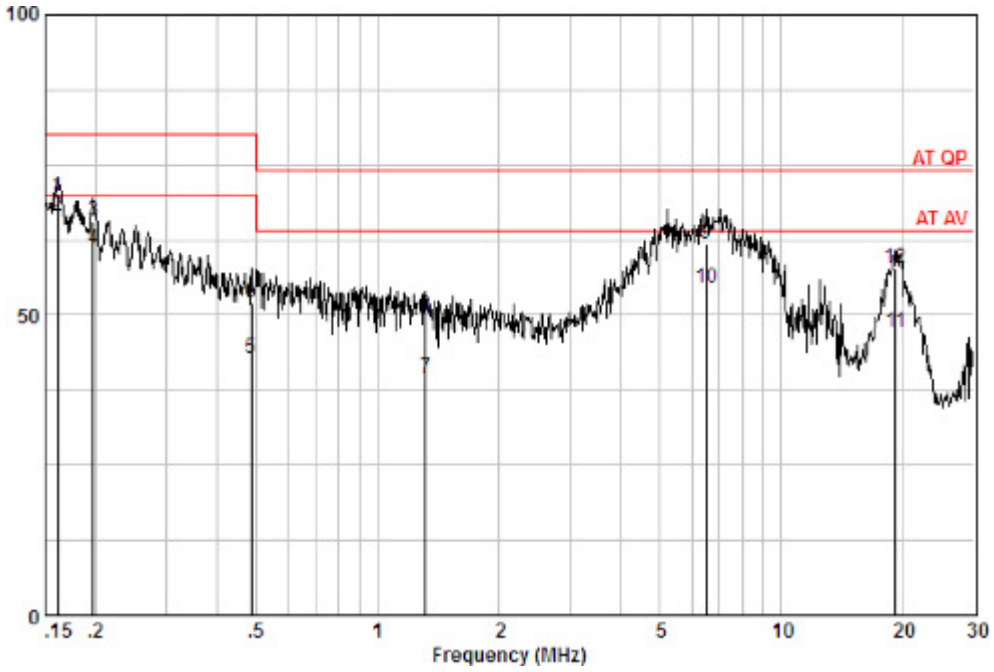
Level = Read Level + LISN Factor + Cable Loss.

For model BCD168V

24V positive pole:

Peak Scan:

Level (dBµV)



Quasi-peak and Average measurement:

Freq	Read Level	Cable Loss	LISN Factor	Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB	dB	dBuV	dBuV	dB	
0.162	39.28	30.40	0.00	69.68	80.00	-10.32	QP
0.162	36.17	30.40	0.00	66.57	70.00	-3.43	AVERAGE
0.198	35.20	30.40	0.00	65.60	80.00	-14.40	QP
0.198	30.65	30.40	0.00	61.05	70.00	-8.95	AVERAGE
0.486	12.25	30.40	0.00	42.65	70.00	-27.35	AVERAGE
0.486	21.62	30.40	0.00	52.02	80.00	-27.98	QP
1.317	9.16	30.34	0.00	39.50	64.00	-24.50	AVERAGE
1.317	19.46	30.34	0.00	49.80	74.00	-24.20	QP
6.523	31.58	30.30	0.00	61.88	74.00	-12.12	QP
6.523	24.25	30.30	0.00	54.55	64.00	-9.45	AVERAGE
19.224	16.78	30.40	0.00	47.18	64.00	-16.82	AVERAGE
19.224	27.36	30.40	0.00	57.76	74.00	-16.24	QP

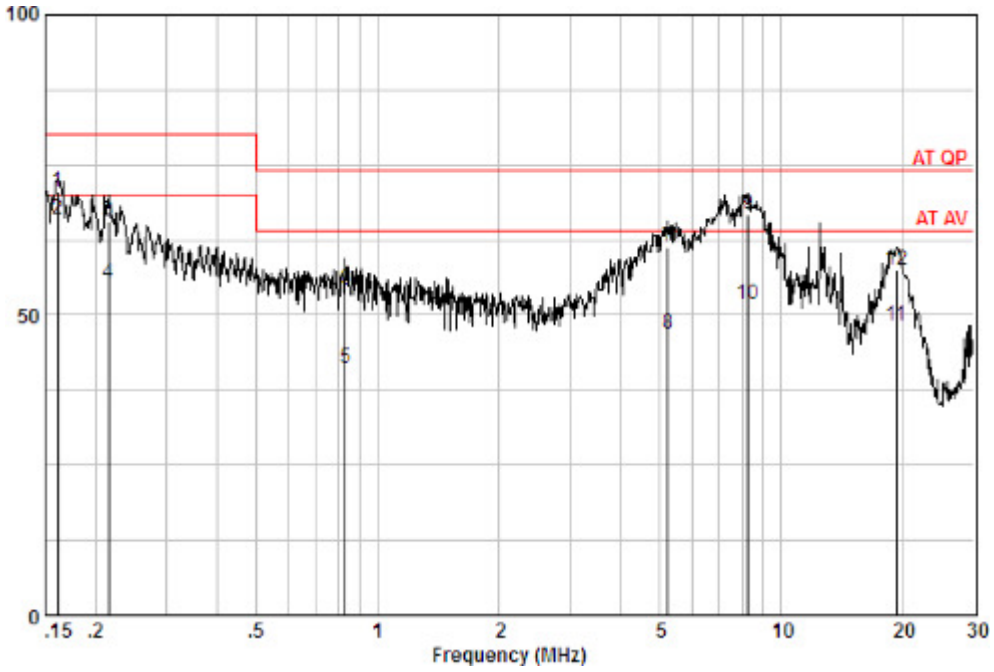
Level = Read Level + LISN Factor + Cable Loss.

For model BCD168V

24V negative pole:

Peak Scan:

Level (dBµV)



Quasi-peak and Average measurement:

Freq	Read Level	Cable Loss	LISN Factor	Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB	dB	dBuV	dBuV	dB	
0.162	40.16	30.40	0.00	70.56	80.00	-9.44	QP
0.162	35.56	30.40	0.00	65.96	70.00	-4.04	AVERAGE
0.215	35.30	30.40	0.00	65.70	80.00	-14.30	QP
0.215	24.80	30.40	0.00	55.20	70.00	-14.80	AVERAGE
0.830	10.89	30.37	0.00	41.26	64.00	-22.74	AVERAGE
0.830	23.82	30.37	0.00	54.19	74.00	-19.81	QP
5.249	30.98	30.30	0.00	61.28	74.00	-12.72	QP
5.249	16.53	30.30	0.00	46.83	64.00	-17.17	AVERAGE
8.279	36.44	30.40	0.00	66.84	74.00	-7.16	QP
8.279	21.25	30.40	0.00	51.65	64.00	-12.35	AVERAGE
19.326	17.85	30.40	0.00	48.25	64.00	-15.75	AVERAGE
19.326	27.18	30.40	0.00	57.58	74.00	-16.42	QP

Level = Read Level + LISN Factor + Cable Loss.

7.2 Radiated Emissions, 30MHz to 1GHz

Test Requirement: EN 55014-1

Test Method: CISPR 16-2-3, semi-anechoic chamber

Test Date: 2014-01-16

Test voltage AC 230V 50Hz

Frequency Range: 30 MHz to 1GHz

Measurement Distance: 3 m

Detector: Peak for pre-scan

Quasi-Peak for final test (120 kHz resolution bandwidth)

Limit:

Frequency range	Quasi-peak limits
MHz	**dB (μV/m)**
30 to 230	40
230 to 1000	47
At transitional frequencies the lower limit applies.	

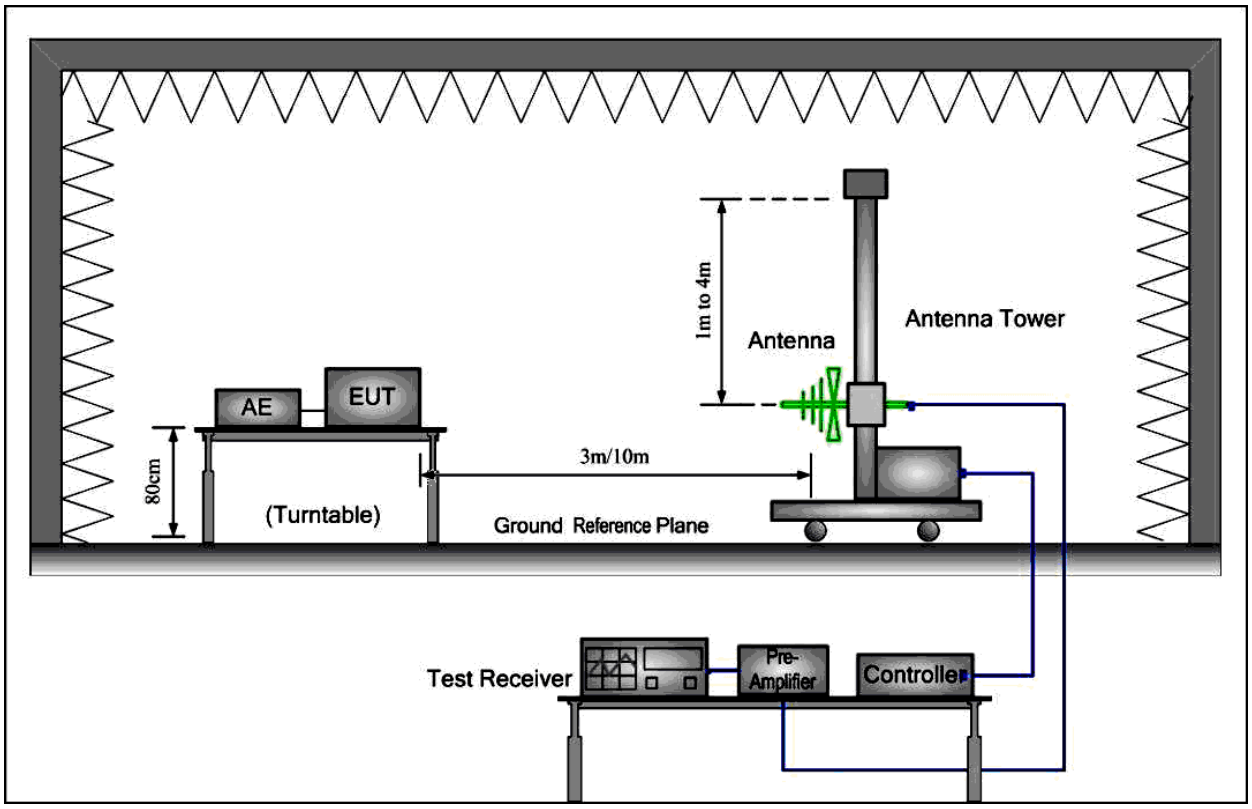
7.2.1 E.U.T. Operation

A pre-test was performed on the EUT in cooling mode with DC 12V and 24V batteries in order to find the worse case.

Test the EUT in cooling mode with DC 24V batteries for the compliance test as the worse case was found.

A pre-test at 50MHz shall be made over a range of 0.9 to 1.1 times the rated voltage in order to check the level of disturbance varies considerably with the supply voltage, compliance test at AC 230V as no worse case was found.

7.2.2 Test Setup and Procedure



1. The radiated emissions test was conducted in a semi-anechoic chamber.
2. The mains cables shall drape to the ground reference plane.
3. The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane, but separated from metallic contact with the ground reference plane by 0.1m of insulation.
4. Before final measurements of radiated emissions, a pre-scan was performed in the spectrum mode with the peak detector to find out the maximum emission spectrum signature data plots of the EUT.
5. The frequencies of maximum emission were determined in the final radiated emissions measurement, the physical arrangement of the test system and associated cabling was varied in order to determine the effect on the EUT's emissions in amplitude, direction and frequency. At each frequency, the EUT was rotated 360°, and the antenna was raised and lowered from 1 to 4 meters in order to determine the maximum disturbance. Measurements were performed for both horizontal and vertical antenna polarization.

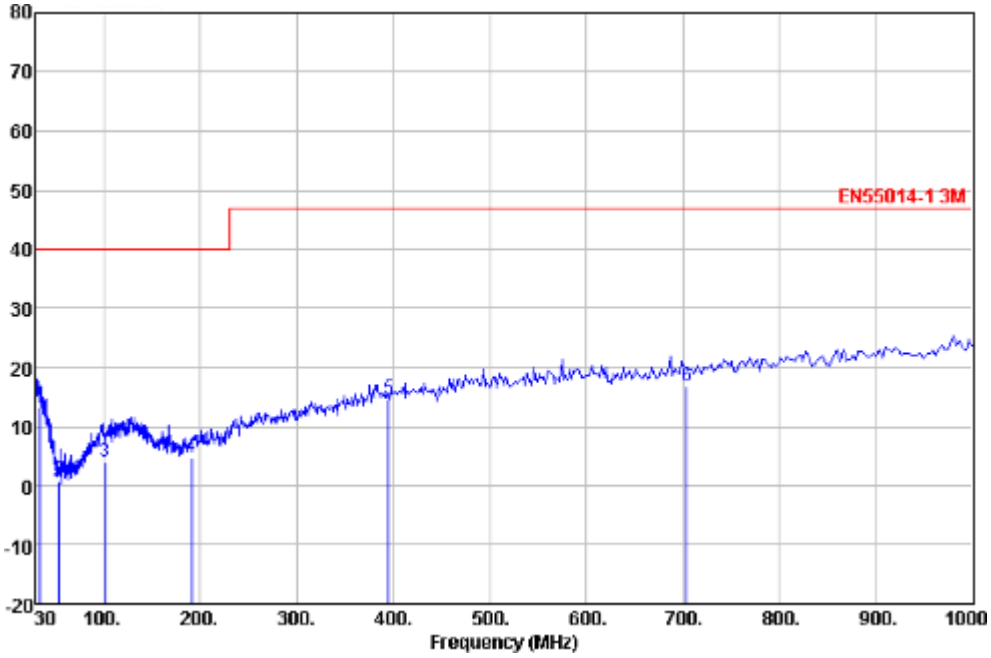
7.2.3 Measurement Data

For model BCD72V

Vertical:

Peak scan

Level (dBμV/m)



Quasi-peak measurement

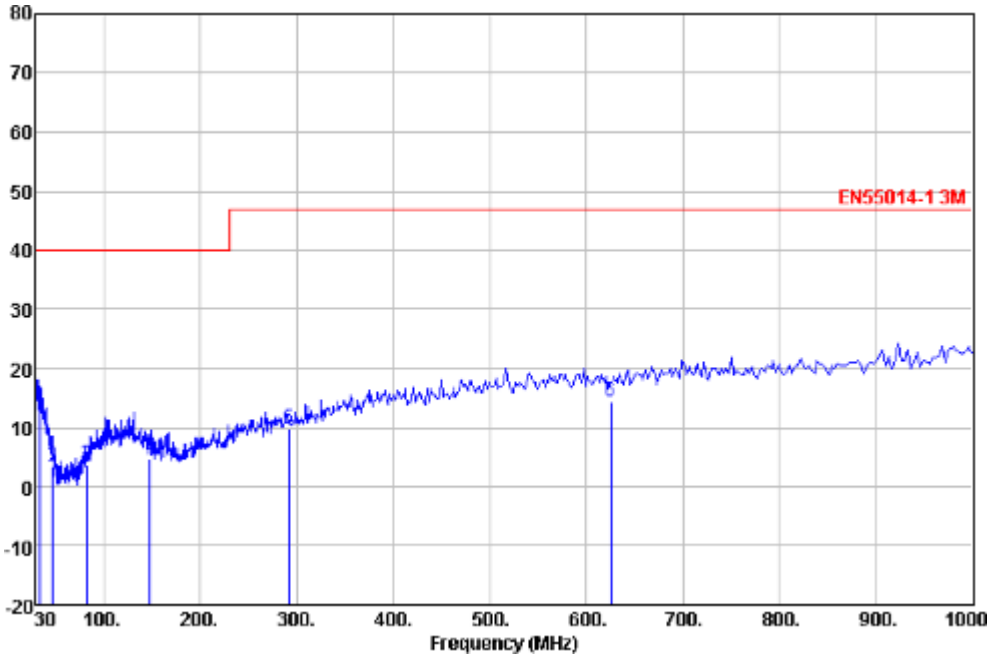
Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
33.917	22.08	17.96	0.09	26.79	13.34	40.00	-26.66	QP
53.318	22.99	4.40	0.08	26.70	0.77	40.00	-39.23	QP
101.644	19.32	11.09	0.21	26.58	4.04	40.00	-35.96	QP
191.074	21.78	8.45	0.71	26.12	4.82	40.00	-35.18	QP
394.855	24.02	15.80	1.20	26.45	14.57	47.00	-32.43	QP
704.226	22.94	19.05	1.87	27.07	16.79	47.00	-30.21	QP

Level = Read Level + Antenna Factor + Cable Loss – Preamp Factor.

Horizontal:

Peak scan

Level (dBμV/m)



Quasi-peak measurement

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
34.037	22.58	17.90	0.09	26.79	13.78	40.00	-26.22	QP
47.492	21.66	8.32	0.08	26.73	3.33	40.00	-36.67	QP
82.359	23.16	6.91	0.22	26.62	3.67	40.00	-36.33	QP
147.921	20.98	9.78	0.48	26.37	4.87	40.00	-35.13	QP
292.058	21.99	12.66	0.97	25.84	9.78	47.00	-37.22	QP
625.078	21.42	18.65	1.66	27.22	14.51	47.00	-32.49	QP

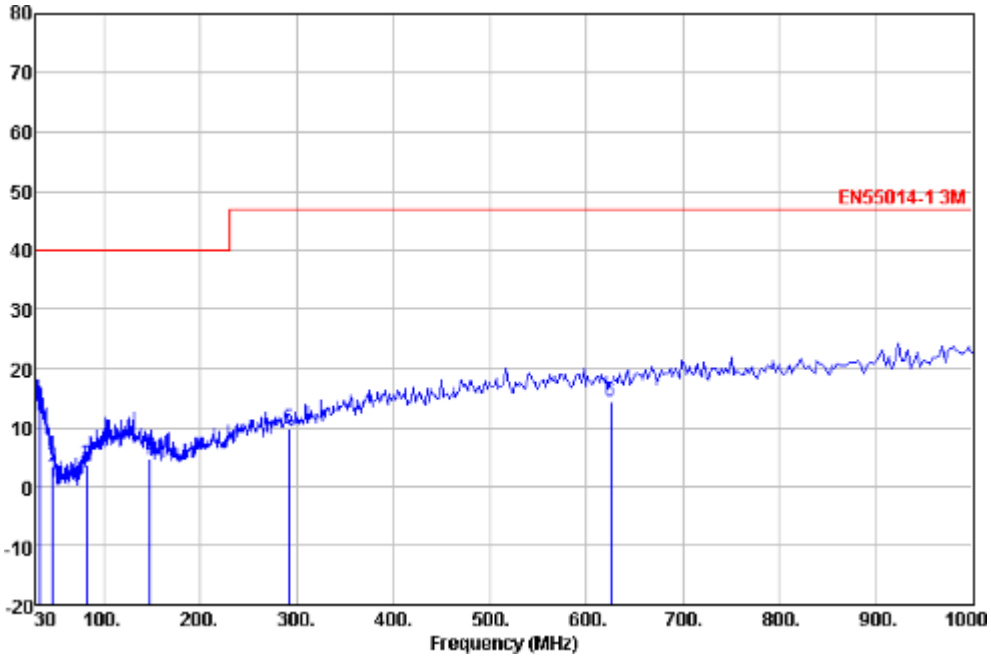
Level = Read Level + Antenna Factor + Cable Loss – Preamp Factor.

For model BCD168V

Vertical:

Peak scan

Level (dBμV/m)



Quasi-peak measurement

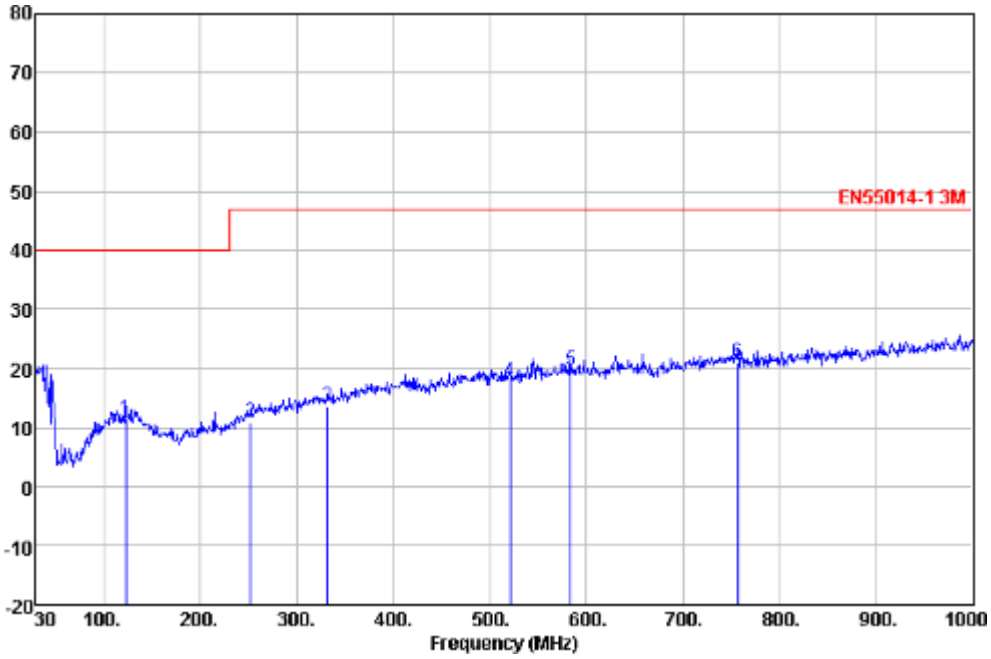
Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
34.037	22.58	17.90	0.09	26.79	13.78	40.00	-26.22	QP
47.492	21.66	8.32	0.08	26.73	3.33	40.00	-36.67	QP
82.359	23.16	6.91	0.22	26.62	3.67	40.00	-36.33	QP
147.921	20.98	9.78	0.48	26.37	4.87	40.00	-35.13	QP
292.058	21.99	12.66	0.97	25.84	9.78	47.00	-37.22	QP
625.078	21.42	18.65	1.66	27.22	14.51	47.00	-32.49	QP

Level = Read Level + Antenna Factor + Cable Loss – Preamp Factor.

Horizontal:

Peak scan

Level (dBµV/m)



Quasi-peak measurement

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
123.120	25.80	11.87	0.32	26.50	11.49	40.00	-28.51	QP
252.130	24.42	11.72	0.78	26.00	10.92	47.00	-36.08	QP
331.670	24.69	13.72	1.13	25.99	13.55	47.00	-33.45	QP
520.820	25.88	17.50	1.54	27.08	17.84	47.00	-29.16	QP
583.870	26.79	18.54	1.51	27.23	19.61	47.00	-27.39	QP
756.530	26.15	20.20	1.84	27.09	21.10	47.00	-25.90	QP

Level = Read Level + Antenna Factor + Cable Loss – Preamp Factor.

7.3 Discontinuous Interference, 150kHz to 30MHz

Test Requirement:	EN 55014-1
Test Method:	EN 55014-1
Test Date:	NA
Frequency Range:	150KHz to 30MHz
Remark:	Not applicable. The EUT belongs to exceptions from the click definition in clause 4.2.3.1,

"4.2.3.1 Individual switching operations

The disturbance from individual switching operations, caused directly or indirectly, manually or by similar activities on a switch or a control which is included in an appliance or otherwise to be used for:

a) the purpose of mains connection or disconnection only;

b) the purpose of programme selection only;

c) the control of energy or speed by switching between a limited number of fixed positions;

d) the changing of the manual setting of a continuously adjustable control such as a variable speed device for water extraction or electronic thermostats, is to be disregarded for the purpose of testing the appliance for compliance with the limits of radio disturbance set out in this standard.

Examples of switches included in this subclause are the on/off switches for apparatus (including foot activated), for instance the switch for an electric typewriter, manual switches for heat and air flow control in fan heaters and hair dryers, as well as the indirectly operated switch in a cupboard, wardrobe or refrigerator, and sensor-operated switches, etc. Switches which usually will be repeatedly operated are not included in this subclause, e.g. for sewing machines, calculating machines, soldering equipment, etc. (see 7.2.3. and 7.3.2.4.c).

Also the disturbance caused by the operation of any switching device or control which is included in an appliance for the purpose of mains disconnection for safety only, is to be disregarded for the purpose of testing the appliance for compliance with the limits of radio disturbance as described in this standard."

8 Electromagnetic Susceptibility Test Results

Test Requirement: EN 55014-2

Test Method: N/A: See Remark Below

There is no need for immunity tests to be performed on this product in accordance with clause 7.2.1 of EN 55014-2 which states:

“Category I apparatus is deemed to fulfil the relevant immunity requirement without testing.”

For further details, please refer to clause 4.1 of EN 55014-2 which states:

“Category I: apparatus containing no electronic control circuitry.

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

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

9 Photographs

9.1 Conducted Emissions on Mains Terminals Test Setup

For model BCD72V:

For model BCD168V:

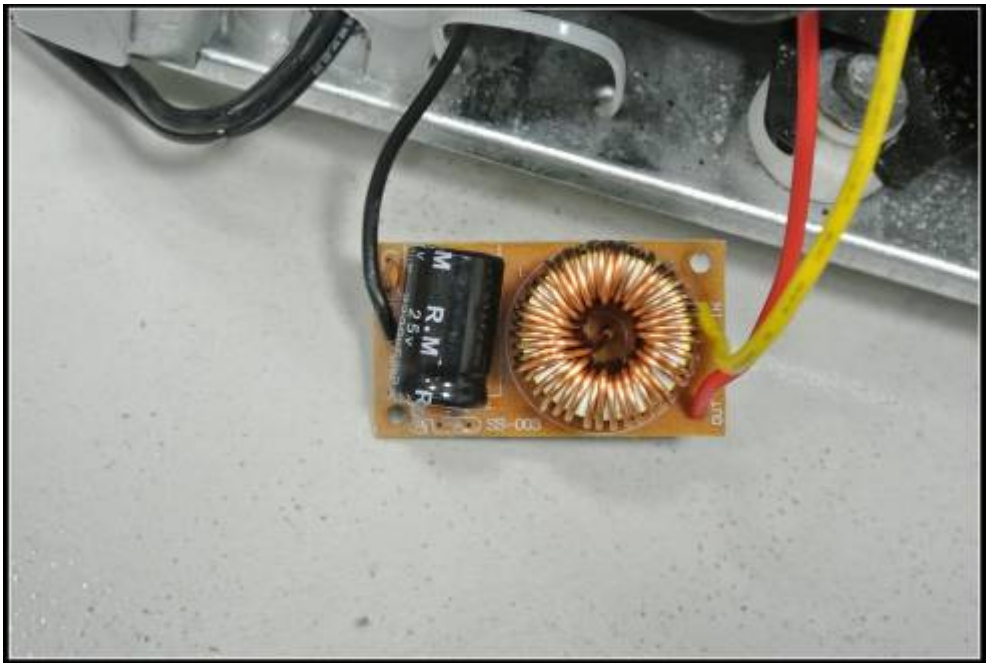
9.2 Radiated Emission Test Setup

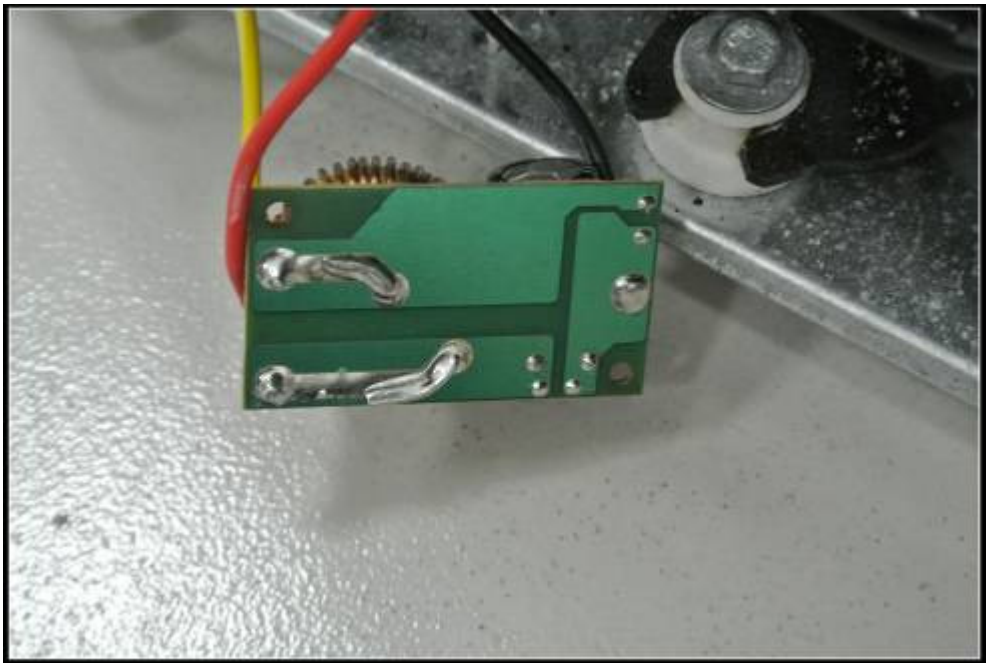
For model BCD72V:

For model BCD168V:

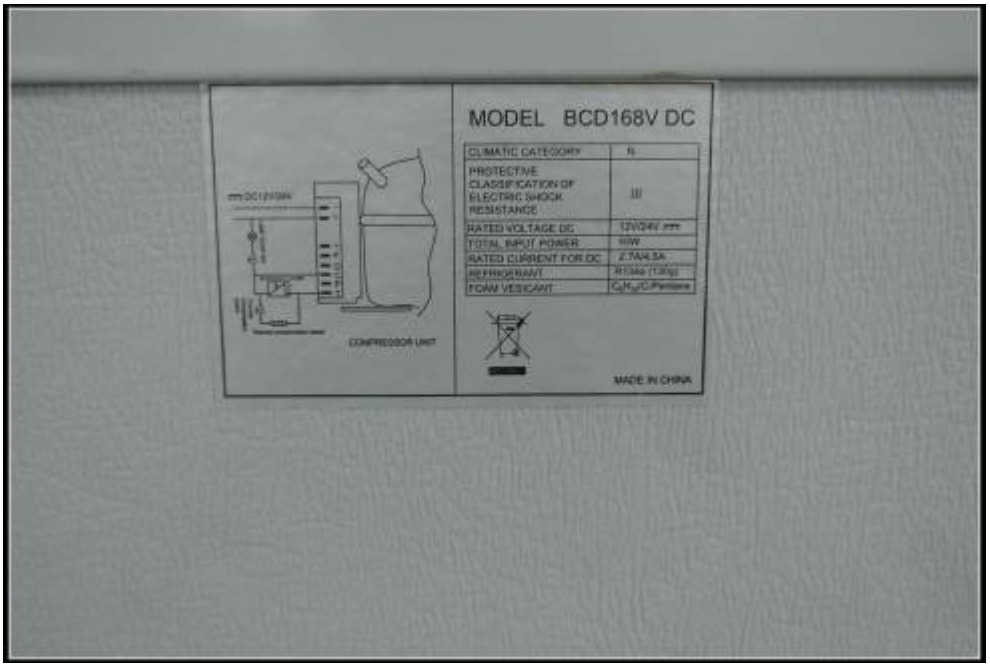
9.3 EUT Constructional Details

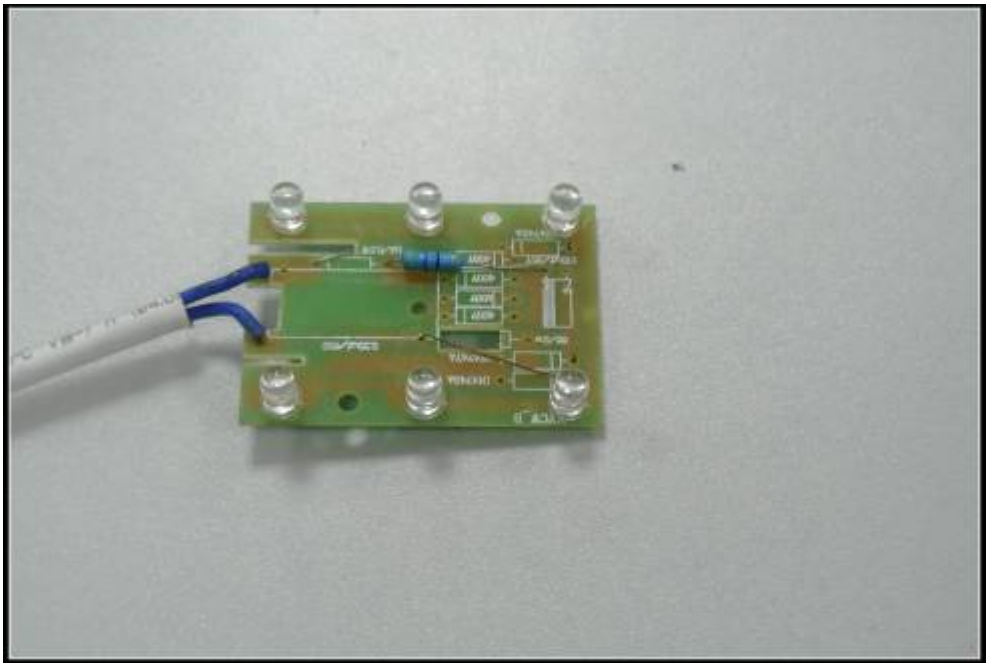
For model BCD72V:

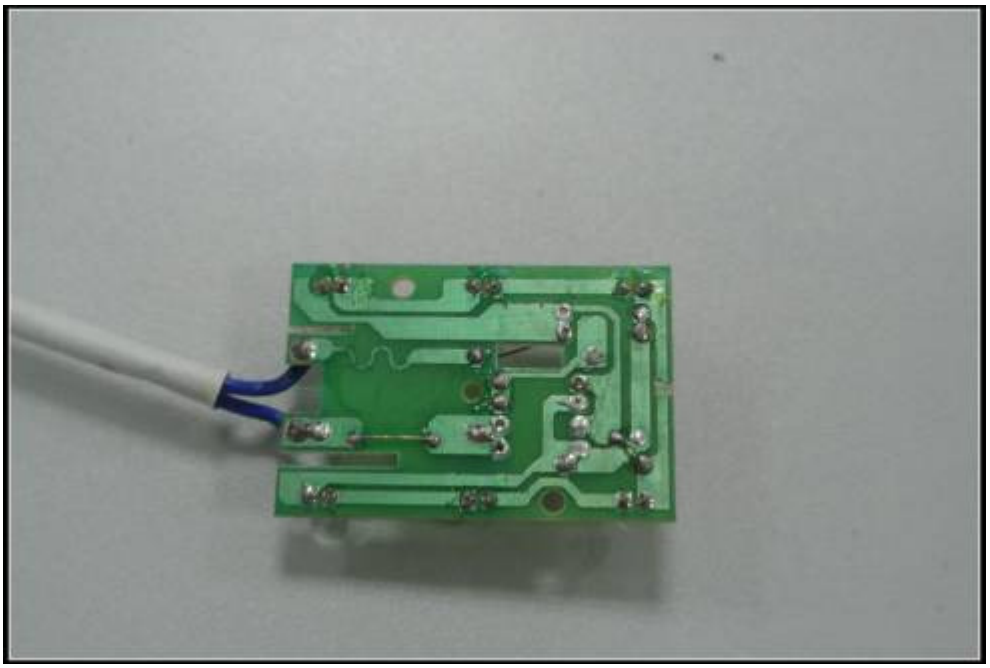


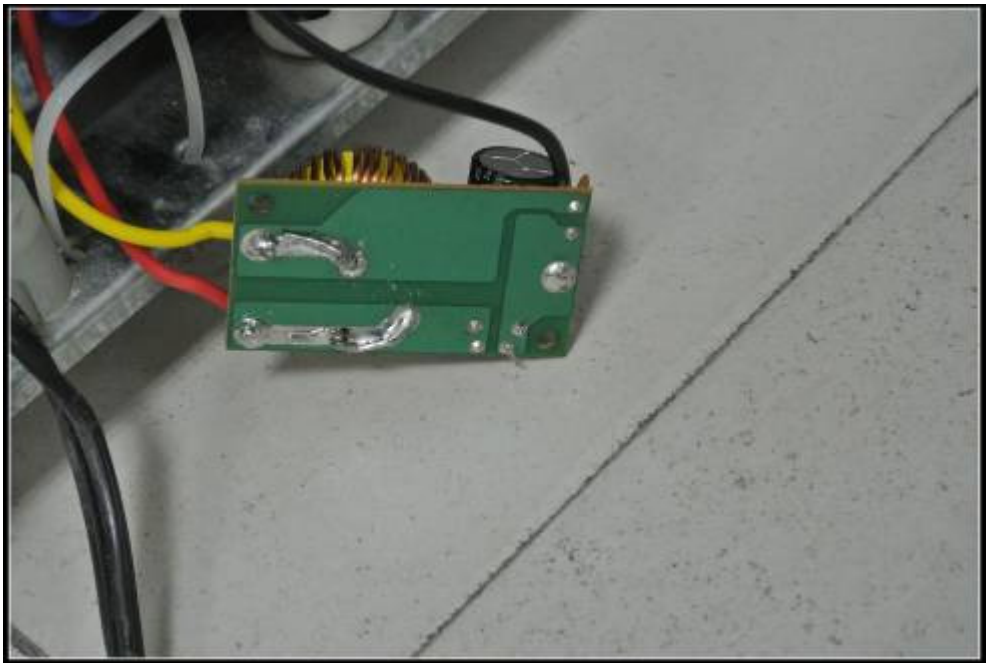


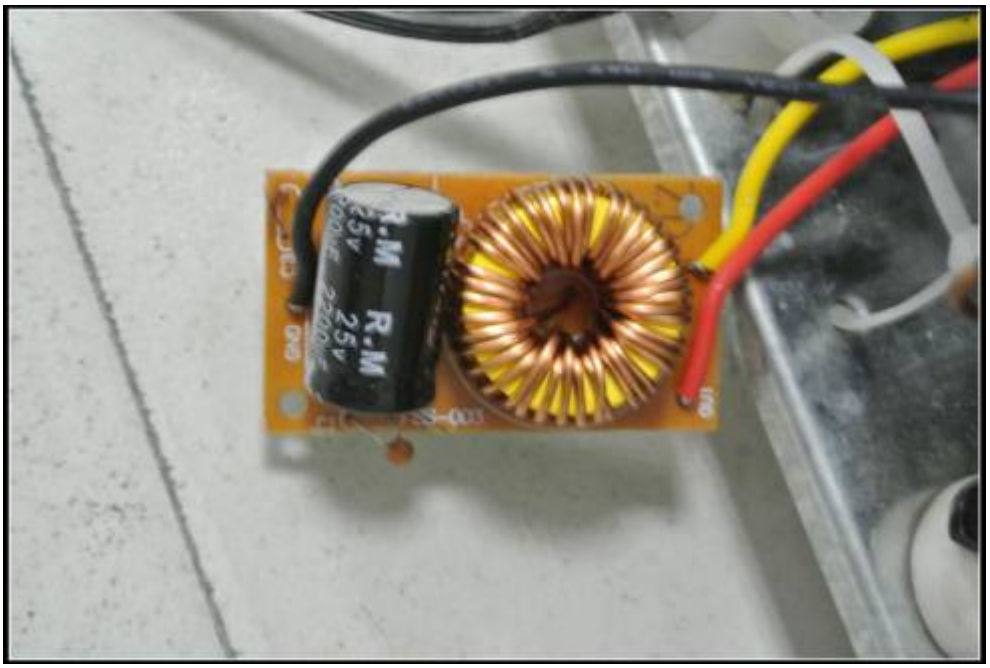
For model BCD168V:











--End of Report--