



Date Issued: 12 September 2008

CERTIFICATE No.: F690501/SP-EMG000216

CERTIFICATE OF EMC COMPLIANCE

Order No. G-44-2008-02393
 Product submitted : BIDET
 Model : HDB-330 (Alternative Model: HDB-310, HB-08)
 Applicant (Manufacturer)..... : HYUNDAI Wacor tec Co., Ltd
 689-49, Gongreung-Dong, Nowon-Gu, Seoul, Korea
 Testing Laboratory : SGS Lab. 23 – SGS Testing Korea Co., Ltd
 Test Report Number(s) : F690501/RF-EMG002221
 Date of Receipt : 03 August 2008
 Date of Test : 25 August 2008 to 05 September 2008
 Specification Requested : EN 55014-1:2006, EN 61000-3-2 : 2000/A2:2005,
 EN 61000-3-3:1995/A1:2001/A2:2005, EN 55014-2:1997/A1:2001 (Category II)

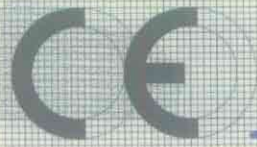
Conclusion

The apparatus meets the requirements of the above standards and hence fulfills the requirements of Directive 2004/108/EC.

This certificate is only valid for the equipment and configuration described, in conjunction with the test data detailed above. It does not permit the use of the SGS PRODUCT CERTIFICATION MARK.

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.

WonWoo Lee
Manager



Eric Lee
General Manager

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F690501

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06400827



EMC TEST REPORT

Reference No. : G-44-2008-02393
 Applicant : HYUNDAI Wacor tec Co., Ltd
 Equipment Under Test (EUT) :
 Product Name : BIDET
 Model No. : HDB-330
 Alt. Model No. : HDB-310, HB-08
 Standards : EN 55014-1:2006
 EN 61000-3-2 : 2000/A2:2005
 EN 61000-3-3 : 1995/A1:2001/A2:2005
 EN 55014-2:1997/A1:2001 (Category II)
 Date of Receipt : 03 August 2008
 Date of Test : 25 August 2008 to 05 September 2008
 Date of Issue : 10 September 2008

Test Result	PASS
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In the configuration tested the EUT complied with the standards specified above.

<p>Tested By : (SGS Testing Korea Co., Ltd.)</p> <p>Approved By : (SGS Testing Korea Co., Ltd.)</p>	 <p>----- John Oh</p>  <p>----- Forest Lee</p>
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Remarks :

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

This report may only be reproduced and distributed in full. 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. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with distribution or use of the product described in this report must be approved by SGS international Electrical Approvals in writing.

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1. General Information

1.1 Client Information

Applicant : HYUNDAI Wacor tec Co., Ltd
Address of Applicant : 689-49, Gongreung-Dong, Nowon-Gu, Seoul, Korea

1.2 General Description of E.U.T.

Product Name : BIDET
Serial No. : None
Model Name : HDB-330
Alt. Model Name : HDB-310, HB-08
Model difference : The model HDB-310 doesn't have dry function and the model HB-08 is for buyer's model.

1.3 Details of E.U.T.

Power Supply : AC 230 V, 50 Hz

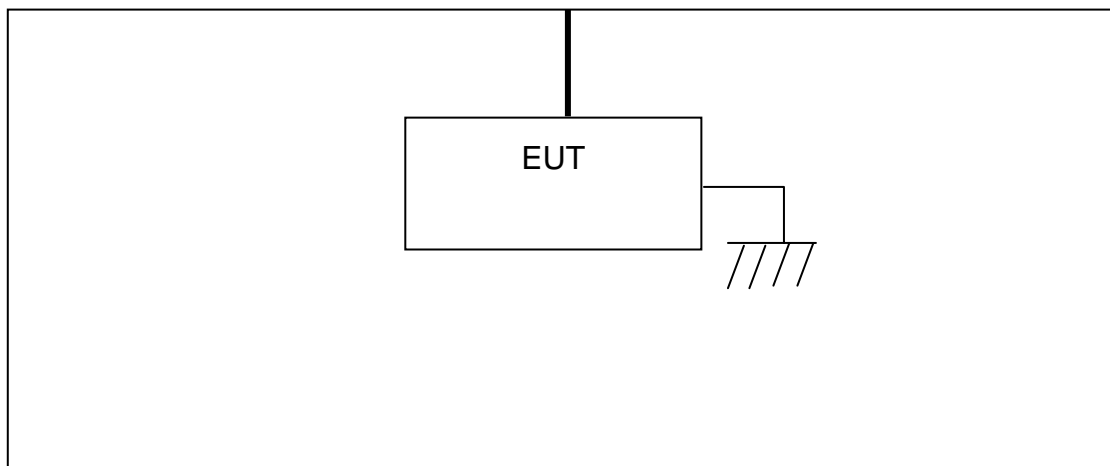
1.4 Peripheral equipment

Description	Model	Serial No.	Manufacturer
-	-	-	-

1.5 Cable List

Start		END		Cable Spec.	
Name	I/O Port	Name	I/O Port	Length	Shield
EUT	AC In	AC Source	-	1.7	Unshielded

1.6 Test system layout on EUT and peripherals



1.7 System Configuration

Description	Model	Serial No.	Manufacturer
Main Board	Dib-C300	N/A	N/A
Control Board	DIB 330-F	3S080603	N/A
SUB Board	N/A	N/A	N/A
Transformer	BD-707A	JY080310	N/A
DC Motor 1	35BY412M-143	08610	GIL INDUSTRIAL
DC Motor 2	SP BR2B	10717	N/A
AIR PUMP	DN-AP2	8116A	DAEHAN NAKAGAWA
Solenoid Valve	N/A	N/A	Jeil Electronics
Control PUMP	N/A	N/A	N/A
FAN	N/A	N/A	HENG SHAM

1.8 Standards Applicable for Testing

Table of tests to be carried out under each category of equipment.

Standards	Status
EN55014-1:2006	Applicable
EN55014-2:1997/A1:2001 (Category)	Applicable
EN61000-3-2 :2000/A2:2005	Applicable
EN61000-3-3 :1995/A1:2001/A2:2005	Applicable

1.9 Deviation from the Standards

Test	Deviation
EN55014-1:2006	No Deviation
EN55014-2:1997/A1:2001 (Category)	No Deviation
EN61000-3-2 :2000/A2:2005	No Deviation
EN61000-3-3 :1995/A1:2001/A2:2005	No Deviation

EMISSION

2. Radio Disturbance

2.1 Test Results

EMISSION	Results
Mains terminal continuous disturbance voltage	PASS
Mains terminal discontinuous disturbance voltage	PASS
Disturbance power	PASS

2.2 Frequency Range

Disturbance Voltage : 0.15 MHz - 30MHz
 Disturbance Power : 30 MHz - 300MHz

2.3 Methods and Procedures

Standard	Date	Description
EN55014-1	2006	Limits and methods of measurement of radio interference characteristics of household electrical appliances, portable tools and similar electrical apparatus

2.4 Test Instruments

Equipment	Model	Manufactory	Last Cal. Date
Test Receiver	ESHS 10	Rohde & Schwarz	21. Jul.2008
TWO-LINE V-NETWORK	ENV216	Rohde & Schwarz	17. Jan. 2008
TWO-LINE V-NETWORK	NNB 41	SCHAFFNER	03. Jul. 2008
Shield Room	-	Seoyoung EMC	-
Test Receiver	ESVS10	Rohde & Schwarz	30. Jun. 2008
Absorbing Clamp	ACF01	EMV TEST SYSTEM	18. Apr. 2008
Multi Channel discontinuous Interference analyzer	DIA 1512C	SCHAFFNER	25. Feb. 2008

2.5 Testing Site

Name and address : SGS Testing Korea Co., Ltd.
 18-34, Sanbon-dong, Gunpo, Gyeonggi-do, Korea, 435-041

2.7.3 Test Data of Disturbance Power

Frequency range : 30 MHz – 300 MHz

Measured Bandwidth : 120 kHz

Freq. (MHz)	Level(dB)		Limit(dBpW)		Margin(dB)	
	Q-Peak	Average	Q-Peak	Average	Q-Peak	Average
30.00	17.40	6.60	45.00	35.00	27.60	28.40
40.14	13.40	8.20	45.38	35.38	31.98	27.18
66.36	19.50	16.40	46.35	36.35	26.85	19.95
93.90	30.00	29.00	47.37	37.37	17.37	8.37
153.78	8.00	1.70	49.58	39.58	41.58	37.88
179.88	11.80	4.20	50.55	40.55	38.75	36.35
218.94	8.50	2.10	52.00	42.00	43.50	39.90
296.16	11.00	4.30	54.86	44.86	43.86	40.56

Note : • CFCL (Clamp Factor & Cable Loss) • D/P: Disturbance Power
“<<”means Very lower emission than the limit by over 20dB

See Appendix C (Test Data of Disturbance Power at AC IN Cable)

2.8 Modifications

There was no modified item during the Emissions test

2.9 Photographs (Disturbance Voltage)



2.10 Photographs (Discontinuous Disturbance Voltage)



2.11 Photographs (Disturbance Power)



Harmonics & Flicker

(EN61000-3-2 & EN61000-3-3)

3.1 Test results

Standards	Description	Results
EN61000-3-2	Harmonics	PASS
EN61000-3-3	Flicker	PASS

3.2 Test methods & procedures

Standards	Date	Description	Applicable
EN61000-3-2 A2	2000 2005	Disturbances in the supply system caused by household appliances and similar electrical equipment. Harmonics	Yes
EN61000-3-3 A1 A2	1995 2001 2005	Disturbances in the supply system caused by household appliances and similar electrical equipment. Flicker	Yes

3.3 Test Instruments

Description	Model No.	Manufacturer	Last Cal. Date
Harmonics & Flicker analyzer	DPA 500	EM Test	19. Apr. 2008
AC Source	ACS 500	EM Test	19. Apr. 2008

3.4 Operating Environment

Temperature : 27.2 °C Relative Humidity : 52.0 %

3.5 Testing Site

Name and address : SGS Testing Korea Co., Ltd.
18-34, Sanbon-dong, Gunpo, Gyeonggi-do, Korea,
435-041

3.6 Test set-up for Harmonics on AC Mains

The test set-up was made according to EN61000-3-2:2000/A2:2005 in a test room. The EUT was placed on a non-conductive table 0.8m above the ground plane. The measurement was conducted with an automatic current harmonics analyzing system, This equipment is in compliance with the requirement of EN61000-3-2:2000/A2:2005
Measured were all harmonics up to order 40.

3.7 Test Data : See Appendix D for Harmonics on AC Mains

3.8 Photographs of Test set-up for Harmonics on AC Mains



3.9 Test set-up for Voltage Fluctuations on AC Mains

The test set-up was made according to EN61000-3-3:1995/A1:2001/A2:2005, in a test room, The EUT was placed on a non conductive table 0.8m above the ground plane.

The measurement was conducted with an automatic current Flicker meter system, This equipment is in compliance with the requirement of EN61000-3-3:1995 /A1:2001/A2:2005.

Measured were all Flicker up to order 12.

3.10 Test Data: See Appendix E for Voltage Fluctuation on AC Mains

3.11 Photograph of Test set-up for Voltage Fluctuation on AC Mains



IMMUNITY

(EN55014-2:1997/A1:2001)

4.1 Test Results

Standards	Required Criteria	Test Results
IEC 61000-4-2 :2001	Criterion A	PASS
IEC 61000-4-3 :2006	Criterion A	N/A
IEC 61000-4-4 :2004	Criterion A	PASS
IEC 61000-4-5 :2005	Criterion A	PASS
IEC 61000-4-6 :2006	Criterion A	PASS
IEC 61000-4-11:2004	Criterion A	PASS

4.2 Performance Criteria Description

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.

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.

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

4.3 Methods and Procedures

Standard	Date	Description
IEC1000-4-2	2001	Electrostatic Discharge Immunity
IEC1000-4-3	2006	Radio-Frequency Electromagnetic Immunity
IEC1000-4-4	2004	Electrical Fast Transient/Burst Immunity
IEC61000-4-5	2005	Surge Immunity
IEC1000-4-6	2006	Conducted RF Fields Immunity
IEC61000-4-11	2004	Voltage dips, Interrupt and Variation Immunity

4.4 Test of IEC1000-4-2**4.4.1 Test Instruments**

Description	Model	Manufacturer	Last Cal. Date
ESD Generator	ESD30C	EM Test	27 Mar. 2008
ESD GUN	P30C	EM Test	27 Mar. 2008

4.4.2 Testing Site

Name and address : SGS Testing Korea Co., Ltd.
18-34, Sanbon-dong, Gunpo, Gyeonggi-do, Korea,
435-041

4.4.3 Operation of E.U.T.

Input Voltage : AC 230V, 50Hz
Operating Environment :
Temperature : 25.3 Humidity : 56.0 % RH
Atmospheric Pressure : 102.0 kPa.
Operating the EUT : Operate mode continually

4.4.4 Results of Electrostatic Discharge Test (ESD)

Basic Standard : IEC1000-4-2 : 2001
Discharge Impedance : 330 ohm / 150 pF
Discharge Voltage : Contact : ±2/4kV / Air : ±2/4/8kV
Direction : Direct & Indirect
Polarity : Positive / Negative
Number of Discharge : Minimum 10 times at each test point
Discharge Mode : Single Discharge
Repetition Rate : 1 second minimum

Observation

Direct Application			Test Results	
Discharge Level (kV)	Polarity (+/-)	Test Point	Contact Discharge	Air Discharge
2/4	+/-	Screw	A	N/A
2/4/8	+/-	Enclosure(Front, Rear, Left, Right, Top), AC IN Cover, Control Button	N/A	A
Indirect Application			Test Results	
Discharge Level (kV)	Polarity (+/-)	Test Point	Contact Discharge	
2/4	+/-	VCP	A	

Result



A : There is no any deviation from normal operation condition during and after ESD testing.

N/A : Not Applicable

Monitoring of EUT : Observe any errors on the EUT.

Performance : Criterion A

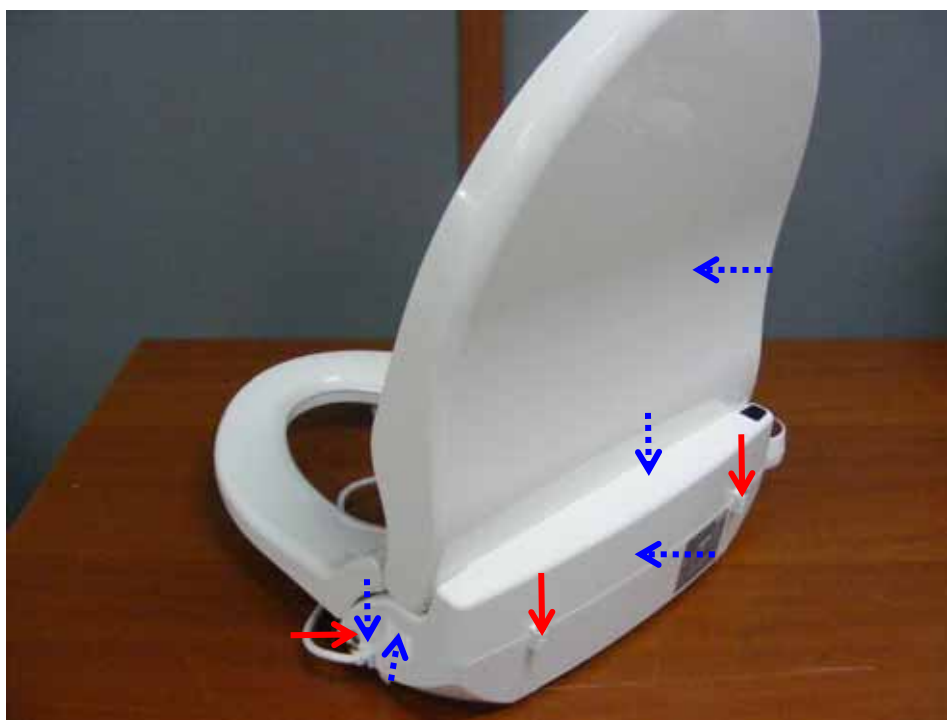
4.4.5 ESD Test point Map

	Air
	Contact

- Front View



- Rear View



4.4.6 Photograph of Test set-up for ESD



4.6 Test of IEC 1000-4-4

4.6.1 Test Instruments

Description	Model No.	Manufacturer	Last Cal. Date
Motor Driven AC Source	MV2616	EM TEST	27. Mar. 2008
Ultra-Compact Simulator	UCS 500-M	EM TEST	27. Mar. 2008

4.6.2 Testing Site

Name and address : SGS Testing Korea Co., Ltd.
18-34, Sanbon-dong, Gunpo, Gyeonggi-do, Korea,
435-041

4.6.3 Operation of E.U.T.

Input voltage : AC 230V, 50Hz
Operating Environment :
Temperature : 25.0 Humidity : 59.0 % RH
Atmospheric Pressure : 102.0 kPa.
Operating the EUT : Operate mode continually

4.6.4 Results of Electrical Fast Transient (EFT)

Basic Standard : IEC 1000-4-4 : 2004
Test Voltage : AC Line : 1.0 kV
Polarity : Positive / Negative
Impulse Frequency : 5 kHz
Test Duration : Not less than 120 seconds.

Observation

Test Point	Polarity	Test Level (kV)	Results
L+N+PE	+/-	1.0	A

Results

A : During and after the EFT/Burst testing, There is no deviation from normal Operation.

Monitoring of EUT : Observe any errors on the EUT

Performance : Criterion A

4.6.5 Photograph of Test set-up for Burst



4.7 Test of IEC61000-4-5

4.7.1 Test Instruments

Description	Model No.	Manufacturer	Last Cal. Date
Motor Driven AC Source	MV2616	EM TEST	27. Mar. 2008
Ultra-Compact Simulator	UCS 500-M	EM TEST	27. Mar. 2008

4.7.2 Testing Site

Name and address : SGS Testing Korea Co., Ltd.
18-34, Sanbon-dong, Gunpo, Gyeonggi-do, Korea,
435-041

4.7.3 Operation of E.U.T.

Input voltage : AC 230V, 50Hz
Operating Environment :
Temperature : 25.0 Humidity : 58.0 % RH
Atmospheric Pressure : 102.0 kPa
Operating the EUT : Operate mode continually

4.7.4 Results of Surge

Basic Standard : IEC61000-4-5 : 2005
Test Voltage : 0.5 kV & 1.0 kV & 2.0 kV
Type of lines & length : Unshielded & 1.0m
Polarity : Positive / Negative
Source impedance : 18 μ F / 10 ohm + 9 μ F
Test Duration : Not less than 60 seconds.
Number of surge : 5 surge / polarity
Angle : 0° / 90° / 180° / 270°
Repetition Rate : 60 sec

Observation

Test Point	Polarity	Coupling	Test Level (kV)	Results
L+N	+/-	Direct	0.5/1.0	A
L+PE, N+PE	+/-	Direct	0.5/1.0/2.0	A

Results

A : There was no change of operation status during and after the above testing

Monitoring of EUT : Observe any errors on the EUT

Performance : Criterion A

4.7.5 Photograph of Test set-up for Surge



4.8 Test of IEC 1000-4-6

4.8.1 Test Instruments

Description	Model No.	Manufacturer	Last Cal. Date
Signal Generator	SML03	Rohde & Shwarz	19. Mar. 2008
Voltage Sensor	URV5-Z2	Rohde & Shwarz	19. Mar. 2008
Milivoltmeter	URV5	Rohde & Shwarz	19. Mar. 2008
Power Amplifier	150A250	AR	27. Jun. 2008
Dual Directional Coupler	DC2600M2	AR	27. Jun. 2008
CDN	FCC-801-M3-16A	FCC	09. Nov.2007

4.8.2 Testing Site

Name and address : SGS Testing Korea Co., Ltd.
 18-34, Sanbon-dong, Gunpo, Gyeonggi-do, Korea,
 435-041

4.8.3 Operation of E.U.T.

Input voltage : AC 230V, 50Hz
 Operating Environment :
 Temperature : 26.5 Humidity : 49.0 % RH
 Atmospheric Pressure : 102.0 kPa.
 Operating the EUT : Operate mode continually

4.8.4 Results of Conducted RF Fields

Basic Standard : IEC 1000-4-6 : 2006
 Frequency range : 0.15 MHz – 230 MHz
 Sport Frequency : 8,16,24,32,40 MHz
 Voltage level(EMF) : 3V(r.m.s)(Unmodulated)
 Modulation : 1kHz 80% AM
 Frequency Step : 1% of the fundamental

Observation

Test Point	Coupling	Modulation	Results
AC IN	CDN	80%AM(1kHz)	A

Results

A : There was no change of operation status during and after the above testing

Monitoring of EUT : Observe any errors on the EUT

Performance : Criterion A

4.8.5 Photograph of Test set-up for CS (AC IN)



4.9 Test of IEC61000-4-11

4.9.1 Test Instruments

Description	Model No.	Manufacturer	Last Cal. Date
Motor Driven AC Source	MV2616	EM TEST	27. Mar. 2008
Ultra-Compact Simulator	UCS 500-M	EM TEST	27. Mar. 2008

4.9.2 Testing Site

Name and address : SGS Testing Korea Co., Ltd.
18-34, Sanbon-dong, Gunpo, Gyeonggi-do, Korea,
435-041

4.9.3 Operation of E.U.T.

Input voltage : AC 230V, 50Hz
Operating Environment :
Temperature : 25.1 Humidity : 57.0 % RH
Atmospheric Pressure : 102.0 kPa
Operating the EUT : Operate mode continually

4.9.4 Results of Voltage Dips, Interrupt and Variation

Basic Standard : IEC61000-4-11 : 2004
Nominal Mains Voltage(V nom) : 230 Vac
Type of line and length : Unshielded 1.0m
No. of dips / interruption : 3
Angle : 0° /180°

Observation

Test Level %U _T	Voltage Dip/Int %U _T	Duration mS/Period	Results
0 %	> 95 %	0.5 Period	A
40 %	60 %	10 Period	A
70 %	30 %	50 Period	A

Results

A : There was no change of operation status during and after the above testing.

Monitoring of EUT : Observe any errors on the EUT

Performance : Criterion A

4.9.5 Photograph of Test set-up for Voltage Dips, Interrupt and Variation



5. Photographs of EUT

- Front View of Product



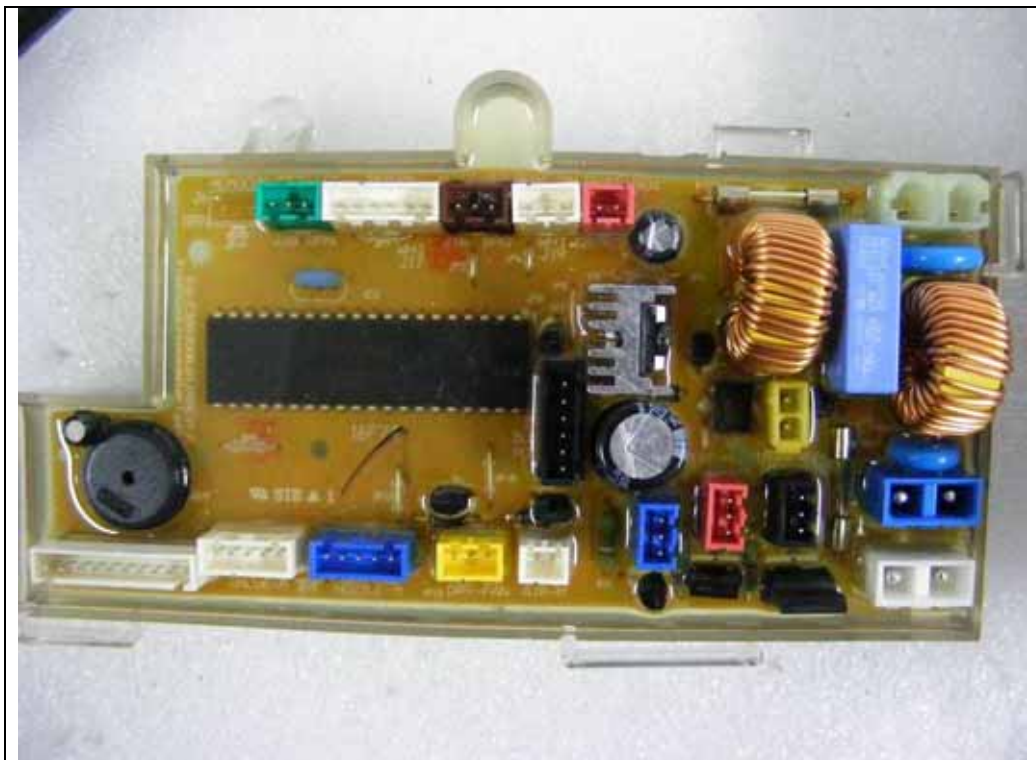
- Rear View of Product



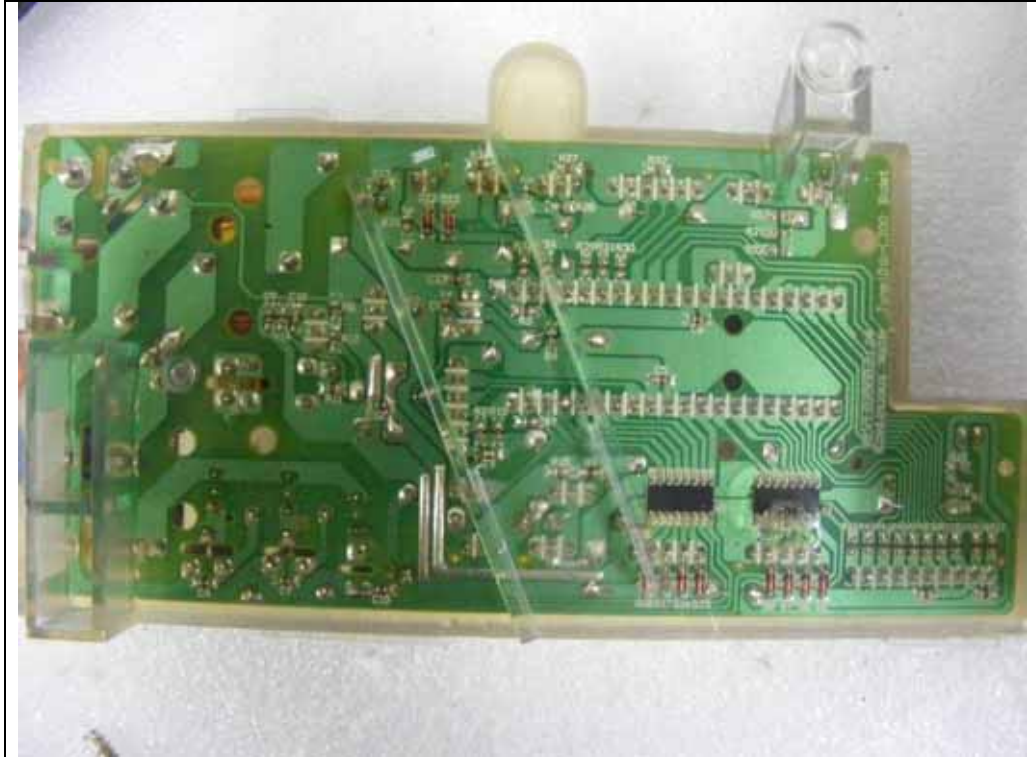
- **Inside View of Product**



- **Top View of Main Board**



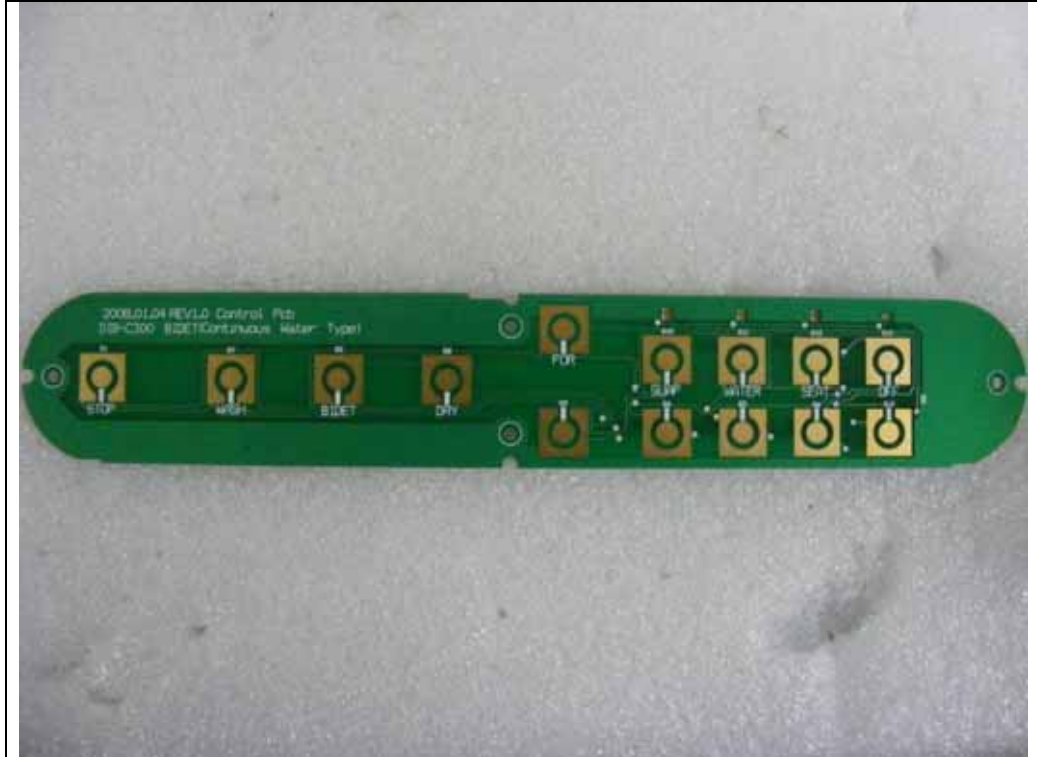
- Bottom View of Main Board



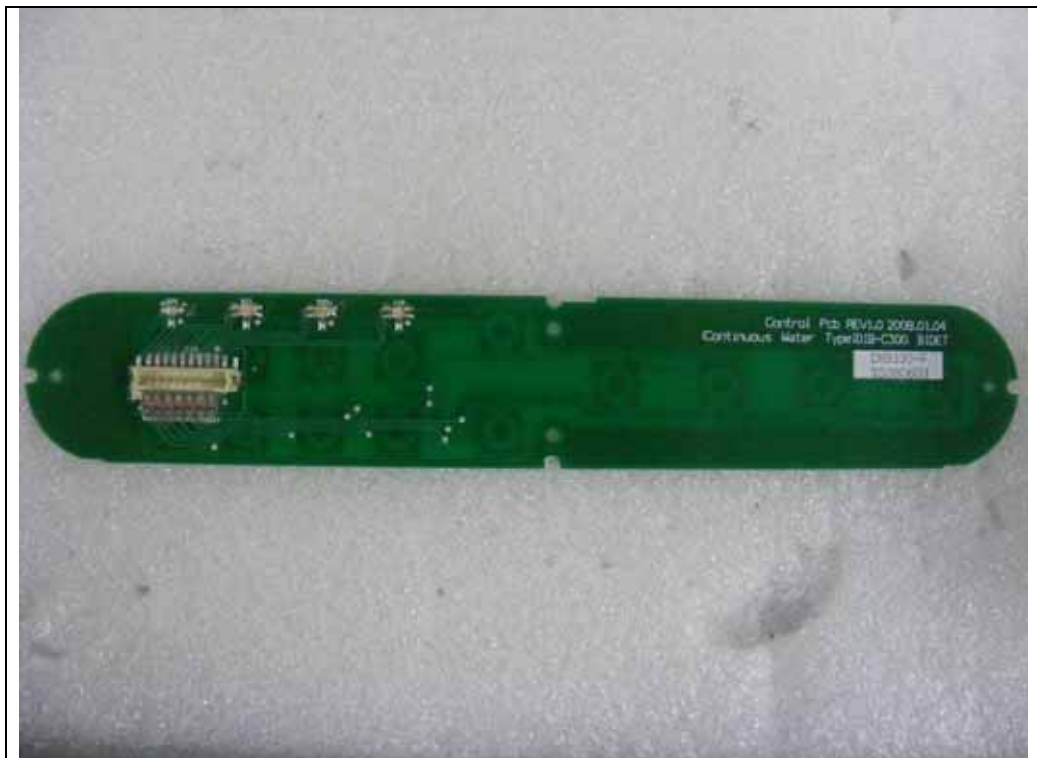
- AIR PUMP



- **Top View of Control Board**



- **Bottom View of Control Board**



- DC Motor 1



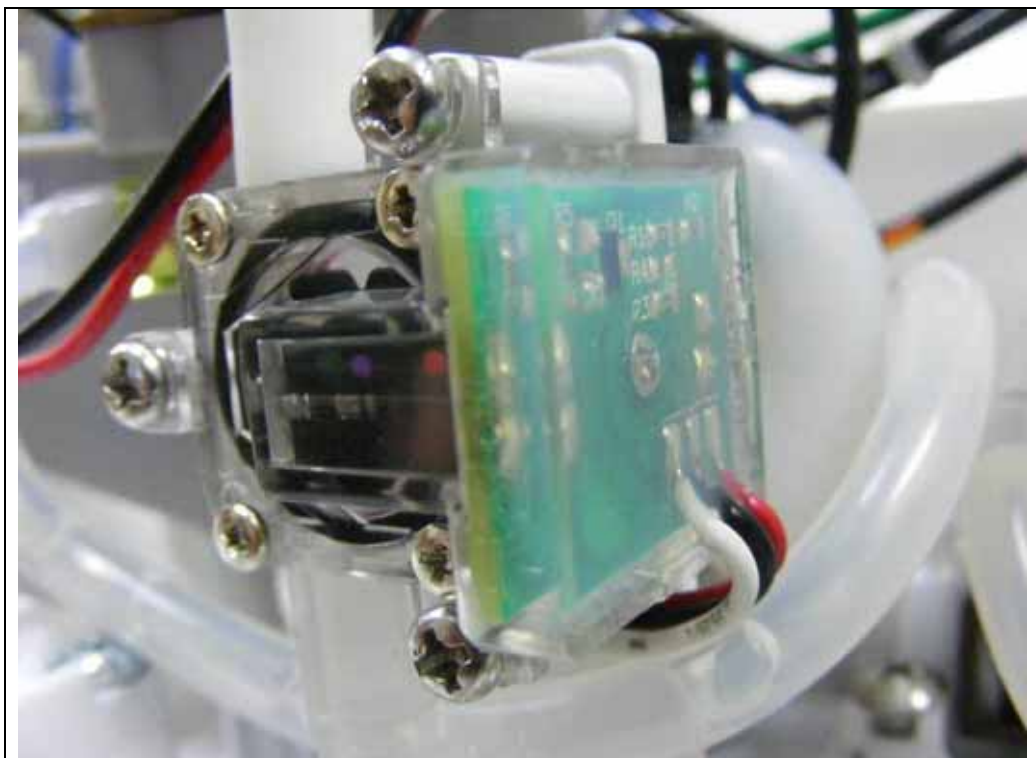
- DC Motor 2



- **FAN**



- **Control PUMP**



- Solenoid Valve



- SUB Board

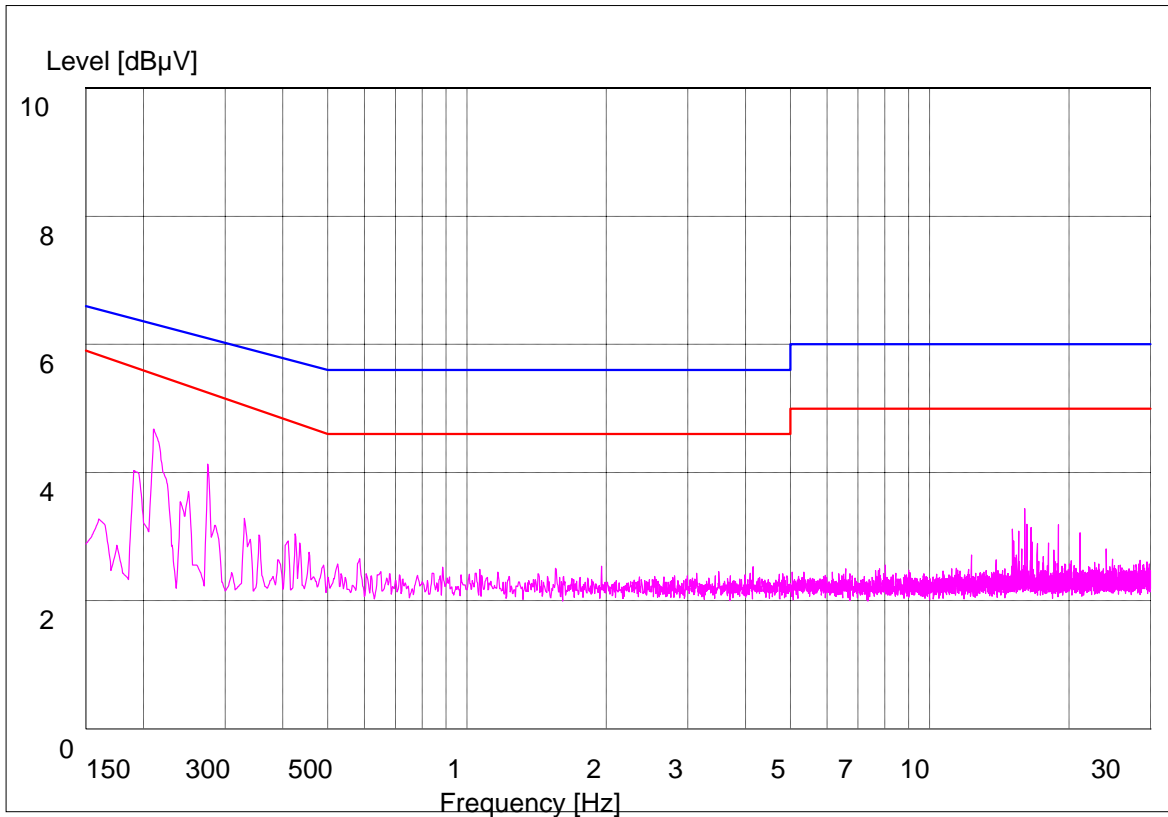


- Transformer

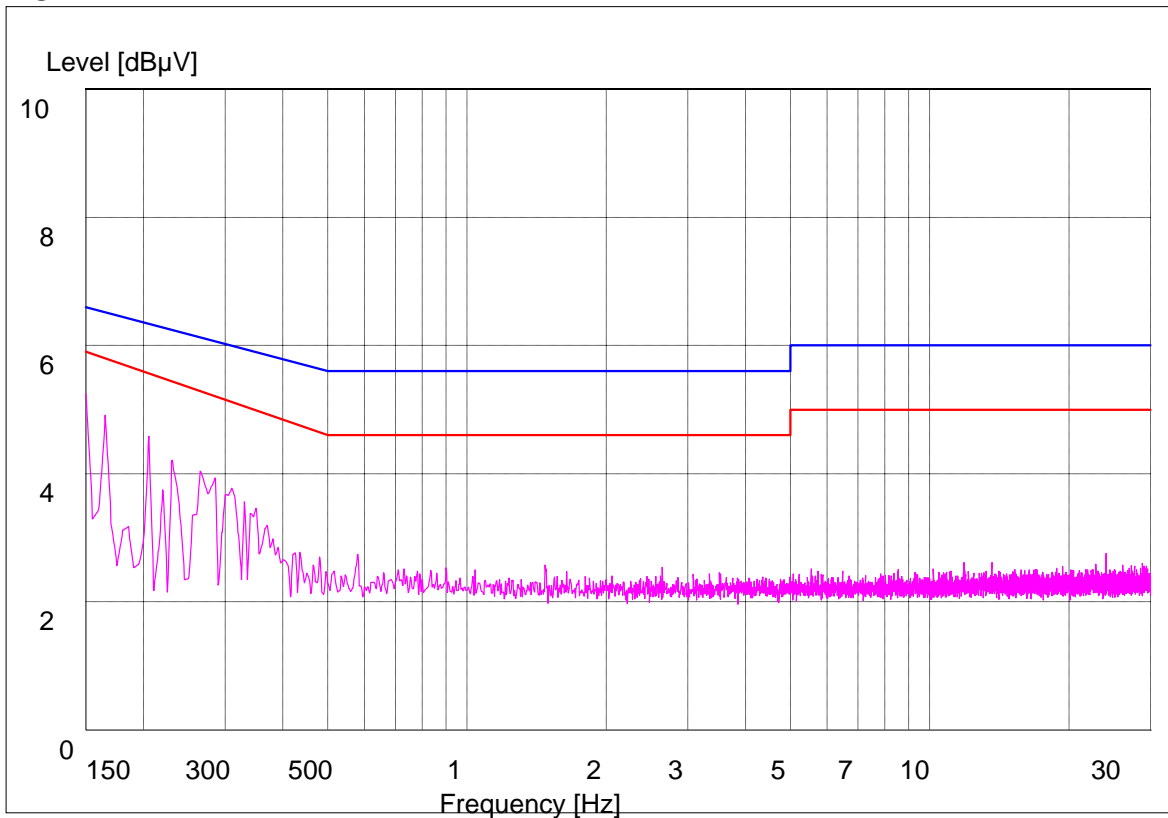


Appendix A : Mains Terminal Continuous Disturbance Voltage Test Data

Neutral



HOT



Appendix B : Mains Terminal Discontinuous Disturbance Voltage Test Data

G-44-2008-02393.drd

Reference: EN55014-1

Discontinuous Interference Tests

Apparatus Code:

Tested by: M.S.OH

Manufacturer: HYUNDAI WACOR TEC CO.,LTD.

Model: HDB-330

Operating mode continually

RUN A: August 25, 2008: 10.50 AM

Run Duration: 120 mins 0 secs

Duration limit: 120 mins

Continuous limit: 0.600 secs

Click limit: 40

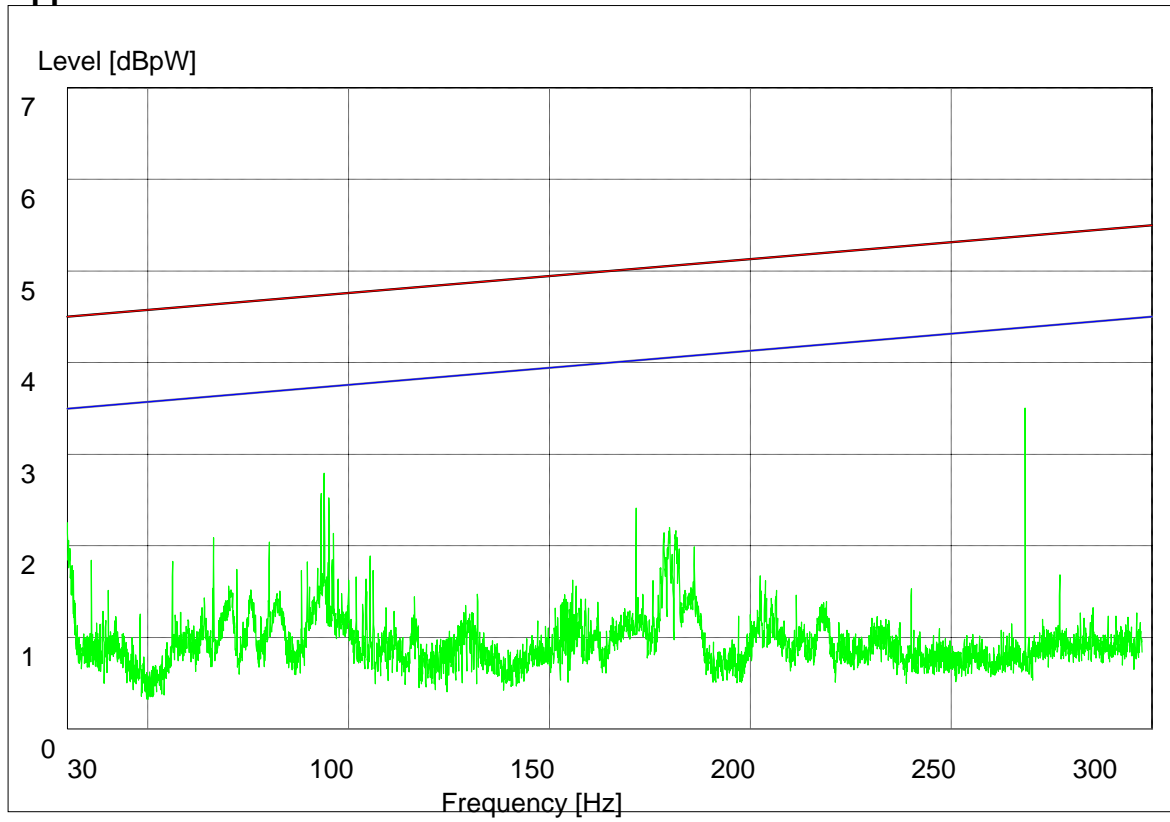
Channel no:	1	2	3	4	5	6
	1	2	3	6		
Sensitivity (dBUV):	66	56	56	60		
Short Clicks:	0	0	0	0		
Long Clicks:	0	0	0	0		
Total:	0	0	0	0		
Click Rate:	0.00	0.00	0.00	0.00		
> 2 in 2s:	N	N	N	N		
Continuous(s):	0.00	0.00	0.00	0.00		

Apparatus Passes (subject to exceptions)

Click rate not > 5 and no long clicks.

Run time limit reached

Appendix C : Disturbance Power Test Data at Power Cable



Appendix D : Harmonics on AC Mains Test Data

Standard used:	Equipment class A
Observation time:	150s

Test Result	
E. U. T.:	PASS
Power Source:	PASS

E. U. T. Result

Check harmonics 2..40 [exception odd 21..39]:

Harmonic(s) > 150%:	
Order (n):	None
Harmonic(s) with average > 100%:	
Order (n):	None

Check odd harmonics 21..39:

All Partial Odd Harmonics below partial limits.	
Harmonic(s) > 150%:	
Order (n):	None
Harmonic(s) with average > 150%:	
Order (n):	None

Power Source Result

First dataset out of limit:	
DS (time):	None
Harmonic(s) out of limit:	
Order (n):	None

Average harmonic current results

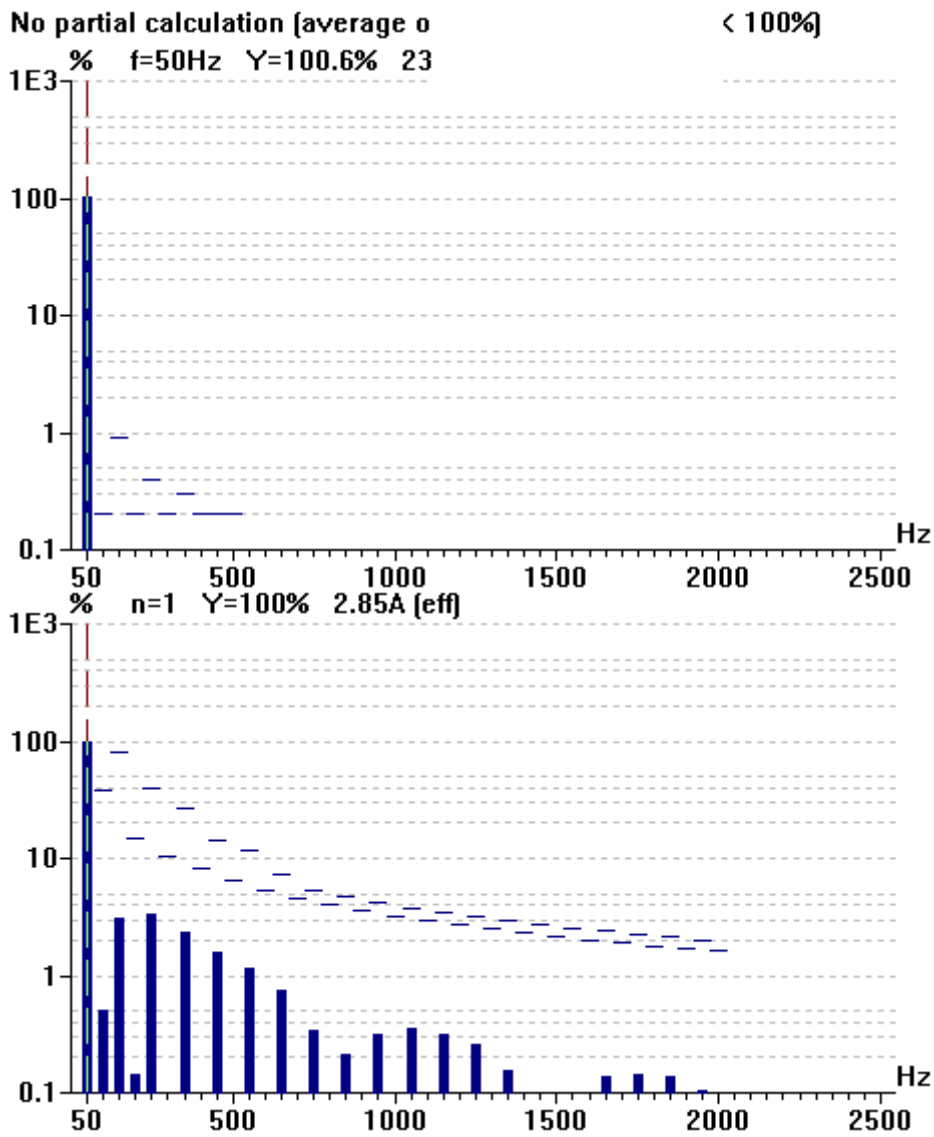
Hn	I _{eff} [A]	I _{eff} [%]	Limit [A]	Result
1	2.877	100.000		
2	15.208E-3	0.529	1.08	PASS
3	111.568E-3	3.878	2.30	PASS
4	4.635E-3	0.161	430.00E-3	PASS
5	123.307E-3	4.286	1.14	PASS
6	3.230E-3	0.112	300.00E-3	PASS
7	95.150E-3	3.308	770.00E-3	PASS
8	2.593E-3	0.090	230.00E-3	PASS
9	73.314E-3	2.549	400.00E-3	PASS
10	2.206E-3	0.077	184.00E-3	PASS
11	57.317E-3	1.992	330.00E-3	PASS
12	1.865E-3	0.065	153.33E-3	PASS
13	41.984E-3	1.459	210.00E-3	PASS
14	1.900E-3	0.066	131.43E-3	PASS
15	25.641E-3	0.891	150.00E-3	PASS
16	1.563E-3	0.054	115.00E-3	PASS
17	11.294E-3	0.393	132.35E-3	PASS
18	1.523E-3	0.053	102.22E-3	PASS
19	6.169E-3	0.214	118.42E-3	PASS
20	1.422E-3	0.049	92.00E-3	PASS
21	10.411E-3	0.362	160.71E-3	PASS
22	1.326E-3	0.046	83.64E-3	PASS
23	12.559E-3	0.437	146.74E-3	PASS
24	1.279E-3	0.044	76.66E-3	PASS
25	13.669E-3	0.475	135.00E-3	PASS
26	1.310E-3	0.046	70.77E-3	PASS
27	12.035E-3	0.418	124.99E-3	PASS
28	1.257E-3	0.044	65.71E-3	PASS
29	9.200E-3	0.320	116.39E-3	PASS
30	1.234E-3	0.043	61.33E-3	PASS
31	6.237E-3	0.217	108.87E-3	PASS
32	1.749E-3	0.061	57.50E-3	PASS
33	3.359E-3	0.117	102.27E-3	PASS
34	2.128E-3	0.074	54.12E-3	PASS
35	3.602E-3	0.125	96.44E-3	PASS
36	1.454E-3	0.051	51.11E-3	PASS
37	5.047E-3	0.175	91.21E-3	PASS
38	1.484E-3	0.052	48.42E-3	PASS
39	5.436E-3	0.189	86.53E-3	PASS
40	1.282E-3	0.045	46.00E-3	PASS

Maximum harmonic current results

Hn	I _{eff} [A]	I _{eff} [%]	Limit [A]	Result
1	2.901	100.000		
2	16.290E-3	0.561	1.62	PASS
3	128.774E-3	4.438	3.45	PASS
4	5.294E-3	0.182	645.00E-3	PASS
5	130.695E-3	4.504	1.71	PASS
6	3.548E-3	0.122	450.00E-3	PASS
7	100.233E-3	3.455	1.15	PASS
8	2.902E-3	0.100	345.00E-3	PASS
9	78.423E-3	2.703	600.00E-3	PASS
10	2.468E-3	0.085	276.00E-3	PASS
11	62.119E-3	2.141	495.00E-3	PASS
12	2.098E-3	0.072	229.99E-3	PASS
13	46.521E-3	1.603	315.00E-3	PASS
14	2.217E-3	0.076	197.15E-3	PASS
15	29.514E-3	1.017	225.00E-3	PASS
16	1.742E-3	0.060	172.50E-3	PASS
17	13.858E-3	0.478	198.52E-3	PASS
18	1.707E-3	0.059	153.33E-3	PASS
19	11.167E-3	0.385	177.63E-3	PASS
20	1.573E-3	0.054	138.00E-3	PASS
21	13.841E-3	0.477	160.71E-3	PASS
22	1.520E-3	0.052	125.46E-3	PASS
23	13.850E-3	0.477	146.74E-3	PASS
24	1.443E-3	0.050	114.99E-3	PASS
25	14.635E-3	0.504	135.00E-3	PASS
26	1.447E-3	0.050	106.16E-3	PASS
27	13.461E-3	0.464	124.99E-3	PASS
28	1.371E-3	0.047	98.57E-3	PASS
29	10.875E-3	0.375	116.39E-3	PASS
30	1.362E-3	0.047	92.00E-3	PASS
31	7.624E-3	0.263	108.87E-3	PASS
32	1.847E-3	0.064	86.25E-3	PASS
33	4.800E-3	0.165	102.27E-3	PASS
34	2.247E-3	0.077	81.18E-3	PASS
35	5.236E-3	0.180	96.44E-3	PASS
36	1.603E-3	0.055	76.66E-3	PASS
37	6.354E-3	0.219	91.21E-3	PASS
38	1.595E-3	0.055	72.63E-3	PASS
39	5.987E-3	0.206	86.53E-3	PASS
40	1.368E-3	0.047	69.00E-3	PASS

Maximum harmonic voltage results

Hn	Ueff [V]	Ueff [%]	Limit [%]	Result
1	231.27	100.551		
2	73.34E-3	0.032	0.2	PASS
3	70.42E-3	0.031	0.9	PASS
4	11.80E-3	0.005	0.2	PASS
5	50.78E-3	0.022	0.4	PASS
6	17.73E-3	0.008	0.2	PASS
7	47.23E-3	0.021	0.3	PASS
8	15.34E-3	0.007	0.2	PASS
9	74.94E-3	0.033	0.2	PASS
10	20.10E-3	0.009	0.2	PASS
11	83.48E-3	0.036	0.1	PASS
12	26.80E-3	0.012	0.1	PASS
13	77.40E-3	0.034	0.1	PASS
14	10.68E-3	0.005	0.1	PASS
15	101.15E-3	0.044	0.1	PASS
16	9.15E-3	0.004	0.1	PASS
17	66.57E-3	0.029	0.1	PASS
18	10.32E-3	0.004	0.1	PASS
19	62.63E-3	0.027	0.1	PASS
20	8.57E-3	0.004	0.1	PASS
21	76.84E-3	0.033	0.1	PASS
22	9.56E-3	0.004	0.1	PASS
23	67.86E-3	0.030	0.1	PASS
24	12.81E-3	0.006	0.1	PASS
25	75.11E-3	0.033	0.1	PASS
26	11.32E-3	0.005	0.1	PASS
27	74.40E-3	0.032	0.1	PASS
28	12.71E-3	0.006	0.1	PASS
29	39.75E-3	0.017	0.1	PASS
30	11.00E-3	0.005	0.1	PASS
31	77.03E-3	0.033	0.1	PASS
32	12.55E-3	0.005	0.1	PASS
33	36.24E-3	0.016	0.1	PASS
34	13.99E-3	0.006	0.1	PASS
35	64.24E-3	0.028	0.1	PASS
36	10.90E-3	0.005	0.1	PASS
37	52.83E-3	0.023	0.1	PASS
38	18.52E-3	0.008	0.1	PASS
39	29.94E-3	0.013	0.1	PASS
40	11.05E-3	0.005	0.1	PASS



Appendix E : Voltage Fluctuations on AC Mains Test Data

Maximum Flicker results

	EUT values	Limit	Result
Pst	0.225	1.00	PASS
Plt	0.142	0.65	PASS
dc [%]	0.445	3.30	PASS
dmax [%]	1.949	4.00	PASS
dt [s]	0.000	0.50	PASS

Detail Flicker data

Flicker measurement 1	EUT values	Limit	Result
Pst	0.028	1.00	PASS
dc [%]	0.004	3.30	PASS
dmax [%]	0.107	4.00	PASS
dt [s]	0.000	0.50	PASS

Flicker measurement 2	EUT values	Limit	Result
Pst	0.067	1.00	PASS
dc [%]	0.441	3.30	PASS
dmax [%]	0.513	4.00	PASS
dt [s]	0.000	0.50	PASS

Flicker measurement 3	EUT values	Limit	Result
Pst	0.028	1.00	PASS
dc [%]	0.000	3.30	PASS
dmax [%]	0.065	4.00	PASS
dt [s]	0.000	0.50	PASS

Flicker measurement 4	EUT values	Limit	Result
Pst	0.028	1.00	PASS
dc [%]	0.000	3.30	PASS
dmax [%]	0.066	4.00	PASS
dt [s]	0.000	0.50	PASS

Flicker measurement 5	EUT values	Limit	Result
Pst	0.028	1.00	PASS
dc [%]	0.000	3.30	PASS
dmax [%]	0.065	4.00	PASS
dt [s]	0.000	0.50	PASS

Flicker measurement 6	EUT values	Limit	Result
Pst	0.028	1.00	PASS
dc [%]	0.000	3.30	PASS
dmax [%]	0.065	4.00	PASS
dt [s]	0.000	0.50	PASS

Flicker measurement 7	EUT values	Limit	Result
Pst	0.102	1.00	PASS
dc [%]	0.445	3.30	PASS
dmax [%]	0.675	4.00	PASS
dt [s]	0.000	0.50	PASS

Flicker measurement 8	EUT values	Limit	Result
Pst	0.216	1.00	PASS
dc [%]	0.194	3.30	PASS
dmax [%]	1.481	4.00	PASS
dt [s]	0.000	0.50	PASS

Flicker measurement 9	EUT values	Limit	Result
Pst	0.028	1.00	PASS
dc [%]	0.000	3.30	PASS
dmax [%]	0.066	4.00	PASS
dt [s]	0.000	0.50	PASS

Flicker measurement 10	EUT values	Limit	Result
Pst	0.035	1.00	PASS
dc [%]	0.122	3.30	PASS
dmax [%]	0.217	4.00	PASS
dt [s]	0.000	0.50	PASS

Flicker measurement 11	EUT values	Limit	Result
Pst	0.225	1.00	PASS
dc [%]	0.192	3.30	PASS
dmax [%]	1.509	4.00	PASS
dt [s]	0.000	0.50	PASS

Flicker measurement 12	EUT values	Limit	Result
Pst	0.224	1.00	PASS
dc [%]	0.444	3.30	PASS
dmax [%]	1.949	4.00	PASS
dt [s]	0.000	0.50	PASS