

EMC Test Report

Application No. : TB11091677
Applicant : SO GOOD INTERNATIONAL TRADING LIMITED

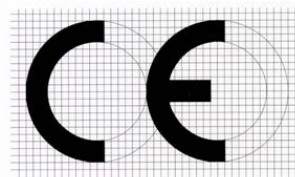
Equipment Under Test (EUT)

EUT Name : DVD PLAYER
Model No. : DVP751HD
Serial No. : See the page 4
Brand Name : BBK
Receipt Date : 2011-09-13
Test Date : 2011-09-13 to 2011-09-20
Issue Date : 2011-09-20
Standards : EN55013:2001+A1:2003+A2:2006
EN61000-3-2: 2006+A1:2009+A2:2009
EN61000-3-3: 2008
EN55020:2007

Conclusions : **PASS**

In the configuration tested, the EUT complied with the standards specified above
The EUT technically complies with the 2004/108/EC directive requirements

Test/Witness Engineer :



Approved & Authorized :



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 the report.

TABLE OF CONTENTS

1.	GENERAL INFORMATION.....	4
1.1.	Client Information	4
1.2.	General Description of EUT (Equipment Under Test).....	4
1.3.	Block Diagram Showing the Configuration of System Tested	4
1.4.	Performance Criterion	4
1.5.	Test Facility	5
2.	TEST RESULTS SUMMARY	6
3.	TEST EQUIPMENT USED.....	7
3.1.	Test Equipment Used to Measure Conducted Emission	7
3.2.	Test Equipment Used to Measure Disturbance Power	7
3.3.	Test Equipment Used to Measure Radiated Emission.....	7
3.4.	Test Equipment Used to Measure Harmonic Current/ Voltage Fluctuation and Flicker 7	
3.5.	Test Equipment Used to Measure Electrostatic Discharge Immunity.....	7
3.6.	Test Equipment Used to Measure Electrical Fast Transient/Burst Immunity	7
3.7.	Test Equipment Used to S1, S2a, S2b, S3, S4, S5.....	8
4.	CONDUCTED DISTURBANCE TEST	9
4.1.	Test Standard and Limit	9
4.2.	Test Setup	9
4.3.	Test Procedure	9
4.4.	Test Condition.....	10
4.5.	Test Data	10
5.	ANTENNA POWER CONDUCTED LIMIT FOR RECEIVERS	13
5.1.	Test Standard and Limit	13
5.2.	Test Setup	13
5.3.	Test Procedure	13
5.4.	Test Condition.....	14
5.5.	Test Data	14
6.	DISTURBANCE POWER MEASUREMENT	15
6.1.	Test Standard and Limit	15
6.2.	Test Setup	15
6.3.	Test Procedure	15
6.4.	Test Condition.....	16
6.5.	Test Data	16
7.	RADIATED DISTURBANCE TEST.....	19
7.1.	Test Standard and Limit	19
7.2.	Test Setup	19
7.3.	Test Procedure	19
7.4.	Test Condition.....	20
7.5.	Test Data	20
8.	HARMONIC CURRENT EMISSION TEST	23
8.1.	Test Standard and Limit	23
8.2.	Test Setup	23
8.3.	Test Procedure	24
8.4.	Test Condition.....	24
8.5.	Test Data	24

9.	VOLTAGE FLUCTUATION AND FLICKER TEST	25
9.1.	Test Standard and Limit	25
9.2.	Test Setup	25
9.3.	Test Procedure	25
9.4.	Test Condition	26
9.5.	Test Data	26
10.	ELECTROSTATIC DISCHARGE IMMUNITY TEST	28
10.1.	Test Requirements	28
10.2.	Test Setup	28
10.3.	Test Procedure	28
10.4.	Test Data	29
11.	ELECTRICAL FAST TRANSIENT/BURST TEST	31
11.1.	Test Requirements	31
11.2.	Test Setup	31
11.3.	Test Procedure	31
11.4.	Test Data	32
12.	PHOTOGRAPHS - CONSTRUCTIONAL DETAILS	34

1. General Information

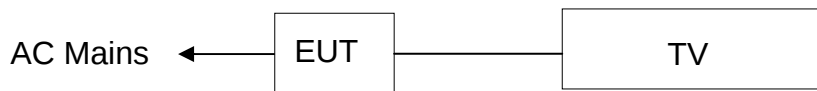
1.1. Client Information

Applicant	:	SO GOOD INTERNATIONAL TRADING LIMITED
Address	:	Room 823, 8/F, YALE IND. CENTRE, 61-63 ALL PUI WAN ST. FO TAN, SHATIN, HONGKONG
Manufacturer	:	DAHUA ELECTRONIC (SHENZHEN) CO., LTD
Address	:	SANWEI VILLAGE, AVIATION ROAD, XIXIANG, BAO'AN, SHENZHEN, CHINA.

1.2. General Description of EUT (Equipment Under Test)

EUT Name	:	DVD PLAYER
Model No.	:	DVP751HD
Serial No.	:	DVP752HD, DVP753HD, DVP754HD, DVP755HD, DVP756HD, DVP758HD, DVP759HD, DVP156SI, DVP157SI, DVP158SI, DVP159SI, DVP253SI, DVP254SI, DVP255SI, DVP256SI, DVP257SI, DVP258SI, DVP259SI, DVP455SI, DVP456SI, DVP457SI, DVP458SI, DVP459SI, DVP853X, DVP854X, DVP855X, DVP856X, DVP857X, DVP858X, DVP859X, DV116SI, DV117SI, DV118SI, DV119SI.
Brand Name	:	BBK
Power Supply	:	input AC110-250V, 50/60Hz, 14W MAX
Remark: All above models are identical in schematic, structure, except for different model number, shape and color, EMI and EMS testing were performed with DVP751HD only.		

1.3. Block Diagram Showing the Configuration of System Tested



1.4. Performance Criterion

Criterion A: The equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer when the equipment is used as intended.

Criterion B: After the test, the equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed, after the application of the phenomena below a performance level specified by the manufacturer, when the equipment is used as intended.

Criterion C: Loss of function is allowed, provided the function is self-recoverable, or can be restored by the operation of the controls by the user in accordance with the manufacturer's instructions.

1.5. Test Facility

The testing report were performed by the Shenzhen Toby Technology Co., Ltd., in their facilities located at 10/F., A Block, Jiada R & D Bldg., No.5 Songpingshan Road, Science & Technology Park, Nanshan District, Shenzhen, China. At the time of testing, the following bodies accredited the Laboratory:

The Laboratory is listed in the United States of American Federal Communications Commission (FCC), and the registration number is 811562.

Jun. 04, 2010 certificated by TUV Rhineland, Shenzhen (Audit Report: 17015407-001). The certificate is valid until the next scheduled inspection or up to 18 months, at the discretion of TUV Rhineland.

2. Test Results Summary

Description of test items	Standards	Results
Mains Terminal Disturbance Voltage	EN 55013:2001+A1:2003 +A2:2006	PASS
Disturbance Power	EN 55013:2001+A1:2003 +A2:2006	PASS
Disturbance Voltage at the Antenna Terminals	EN 55013:2001+A1:2003 +A2:2006	N/A
Radiation Emission	EN 55013:2001+A1:2003 +A2:2006	PASS
Harmonic current emissions	EN 61000-3-2 :2006+A1:2009 +A2:2009	N/A
Voltage fluctuation and flicker	EN 61000-3-3 :2008	PASS
ESD	EN 61000-4-2:2009	PASS
EFT/B Immunity	EN 61000-4-4: 2004+A1:2010	PASS

Test items	S1	S2a	S2b	S3	S4	S5
Results	N/A	N/A	N/A	N/A	N/A	N/A

Note: N/A is an abbreviation for Not Applicable.

3. Test Equipment Used

3.1. Test Equipment Used to Measure Conducted Emission

No.	Equipment	Manufacturer	Model No.	Last Cal.	Cal. Interval
TB-EMC001	EMI Test Receiver	Rohde & Schwarz	ESCS30	Jan.20, 2011	1 Year
TB-EMC002	AMN	Rohde & Schwarz	ENV216	Jan.20, 2011	1 Year
TB-EMC003	AMN	SCHWARZBECK	NNBL 8226-2	Jan.20, 2011	1 Year

3.2. Test Equipment Used to Measure Disturbance Power

No.	Equipment	Manufacturer	Model No.	Last Cal.	Cal. Interval
TB-EMC001	EMI Test Receiver	Rohde & Schwarz	ESCS30	Jan.20, 2011	1 Year
TB-EMC028	Power Clamp	Luthi	MDS-21	Jan.20, 2011	1 Year

3.3. Test Equipment Used to Measure Radiated Emission

No.	Equipment	Manufacturer	Model No.	Last Cal.	Cal. Interval
TB-EMC004	EMI Test Receiver	Rohde & Schwarz	ESI26	Jan.20, 2011	1 Year
TB-EMC005	Bilog Antenna	SCHWARZBECK	VULB9163	Jan.20, 2011	1 Year
TB-EMC006	Positioning Controller	C&C	CC-C-1F	N/A	N/A

3.4. Test Equipment Used to Measure Harmonic Current/ Voltage Fluctuation and Flicker

No.	Equipment	Manufacturer	Model No.	Last Cal.	Cal. Interval
TB-EMC007	Harmonic Flicker Test System	CI	5001ix-CTS-400	Jan.20, 2011	1 Year

3.5. Test Equipment Used to Measure Electrostatic Discharge Immunity

No.	Equipment	Manufacturer	Model No.	Last Cal.	Cal. Interval
TB-EMC008	ESD Tester	TESEQ	NSG437	Jan.20, 2011	1 Year

3.6. Test Equipment Used to Measure Electrical Fast Transient/Burst Immunity

No.	Equipment	Manufacturer	Model No.	Last Cal.	Cal. Interval
TB-EMC020	Simulator	EMTEST	UCS500N5	Jan.20, 2011	1 Year
TB-EMC021	Auto-transformer	EMTEST	V4780S2	Jan.20, 2011	1 Year

3.7. Test Equipment Used to S1, S2a, S2b, S3, S4, S5

No.	Equipment	Manufacturer	Model No.	Last Cal.	Cal. Interval
TB-EMC040	Signal Generator 9kHz ~2.2GHz	Rohde&Schwarz	SML02	Jan.20, 2011	1 Year
TB-EMC041	Signal Generator 9kHz ~1.1GHz	Rohde&Schwarz	SML01	Jan.20, 2011	1 Year
TB-EMC042	Power Meter	Rohde&Schwarz	NRVS	Jan.20, 2011	1 Year
TB-EMC043	RF Level Meter	Rohde&Schwarz	URV35	Jan.20, 2011	1 Year
TB-EMC044	RF Probe	Rohde&Schwarz	URV5-Z7	Jan.20, 2011	1 Year
TB-EMC045	Audio Analyzer	Rohde&Schwarz	UPL	Jan.20, 2011	1 Year
TB-EMC046	RF-Amplifier150 kHz~150MHz	BONN Elektronik	BSA1515-25	Jan.20, 2011	1 Year
TB-EMC047	Stripline Test Cell	Erika Fiedler	VDE0872	Jan.20, 2011	1 Year
TB-EMC048	TV Test Transmitter	Rohde&Schwarz	SFM	Jan.20, 2011	1 Year
TB-EMC049	TV Generator Pal	Rohde&Schwarz	SGPF	Jan.20, 2011	1 Year
TB-EMC050	TV Generator Ntsc	Rohde&Schwarz	SGMF	Jan.20, 2011	1 Year
TB-EMC051	TV-Test Transmitter 0.3MHz~3300 MHz	Rohde&Schwarz	SFQ	Jan.20, 2011	1 Year
TB-EMC052	MPEG2 measurement Generator	Rohde&Schwarz	DVG	Jan.20, 2011	1 Year
TB-EMC053	Matching Pad	Rohde&Schwarz	RAM	Jan.20, 2011	1 Year
TB-EMC054	Matching Pad	Rohde&Schwarz	RAM	Jan.20, 2011	1 Year
TB-EMC055	RF Power Amplifier 25MHz~1GHz	BONN Elektronik	BLWA0310-01	Jan.20, 2011	1 Year
TB-EMC056	Matching Pad	Rohde&Schwarz	RAM	Jan.20, 2011	1 Year
TB-EMC057	Absorbing Clamp	Rohde&Schwarz	MDS21	Jan.20, 2011	1 Year
TB-EMC058	Coupling Set	Erika Fiedler	RCo,RCi,M C,AC,LC	Jan.20, 2011	1 Year
TB-EMC059	Filters	Erika Fiedler	Sr, LBS	Jan.20, 2011	1 Year
TB-EMC060	Matching Network	Erika Fiedler	MN, T1	Jan.20, 2011	1 Year

4. Conducted Disturbance Test

4.1. Test Standard and Limit

4.1.1. Test Standard

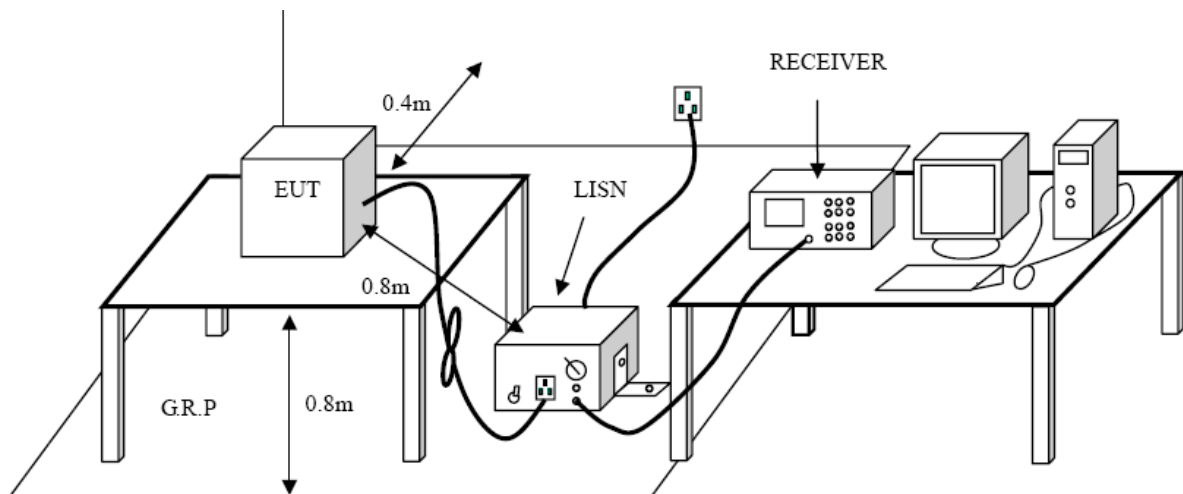
EN55013:2001+A1:2003+A2:2006

4.1.2. Test Limit

Conducted Disturbance Test Limit

Frequency	Maximum RF Line Voltage (dB μ V)	
	Quasi-peak Level	Average Level
150kHz~500kHz	66 ~ 56 *	56 ~ 46 *
500kHz~5MHz	56	46
5MHz~30MHz	60	50
Remark: “*” Decreasing linearly with logarithm of the frequency		

4.2. Test Setup



4.3. Test Procedure

The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.

Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.

I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.

LISN at least 80 cm from nearest part of EUT chassis.

The bandwidth of EMI test receiver is set at 9kHz, and the test frequency band is from 0.15MHz to 30MHz.

4.4. Test Condition

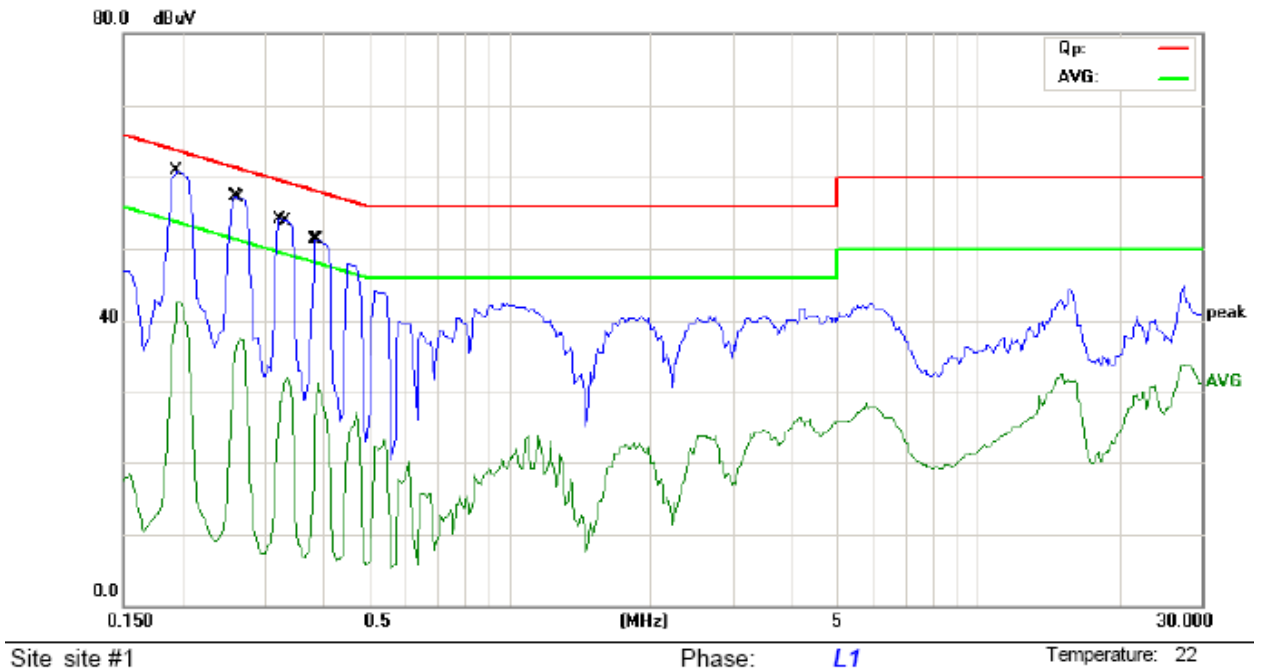
Temperature	:	22 °C
Relative Humidity	:	53 %
Pressure	:	1010 hPa
Test Power	:	AC 230V/50Hz

4.5. Test Data

Please refer to the following pages.

Operating Condition: Playing

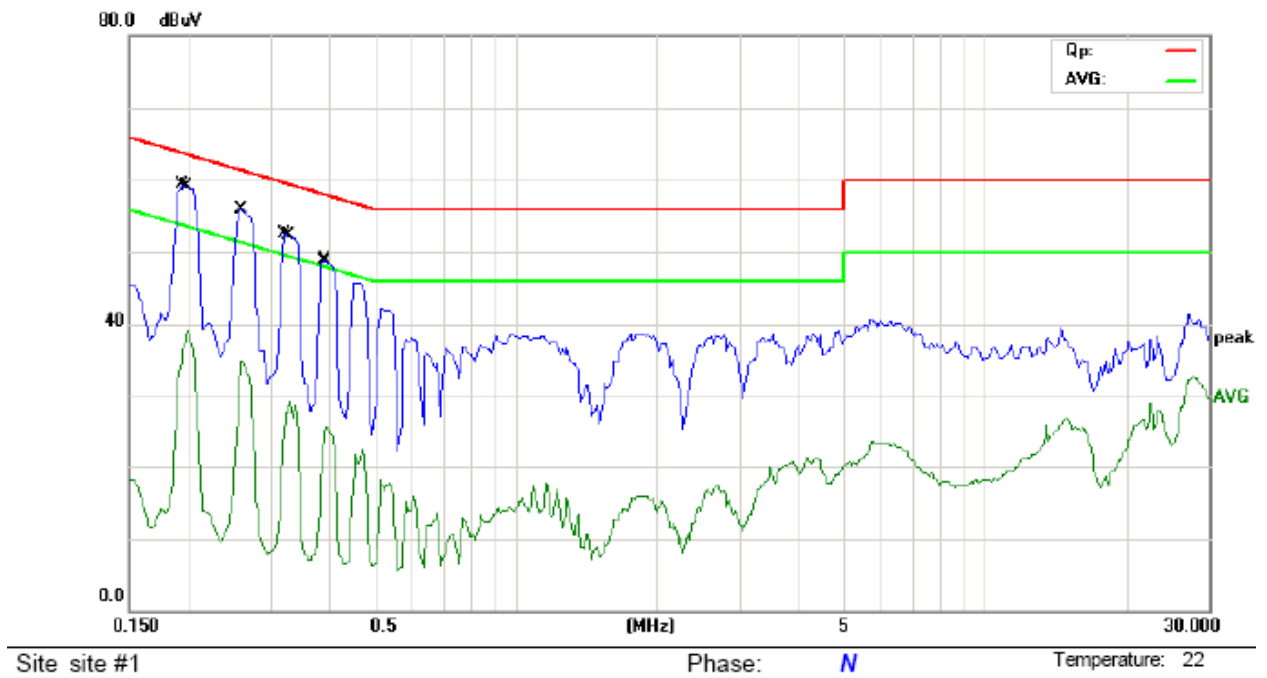
Test Specification: L



No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over		
		MHz	Level	Factor	ment			Detector	Comment
			dBuV	dB	dBuV	dBuV	dB		
1	*	0.1950	56.90	0.00	56.90	63.82	-6.92	QP	
2		0.1950	42.55	0.00	42.55	53.82	-11.27	AVG	
3		0.2600	53.20	0.00	53.20	61.43	-8.23	QP	
4		0.2650	37.45	0.00	37.45	51.27	-13.82	AVG	
5		0.3250	49.60	0.00	49.60	59.58	-9.98	QP	
6		0.3350	32.16	0.00	32.16	49.33	-17.17	AVG	
7		0.3850	45.10	0.00	45.10	58.17	-13.07	QP	
8		0.3900	31.26	0.00	31.26	48.06	-16.80	AVG	

Operating Condition: Playing

Test Specification: N



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1	*	0.1950	55.80	0.00	55.80	63.82	-8.02	QP	
2		0.2000	39.10	0.00	39.10	53.61	-14.51	AVG	
3		0.2600	52.10	0.00	52.10	61.43	-9.33	QP	
4		0.2600	34.89	0.00	34.89	51.43	-16.54	AVG	
5		0.3200	47.20	0.00	47.20	59.71	-12.51	QP	
6		0.3300	29.21	0.00	29.21	49.45	-20.24	AVG	
7		0.3900	45.20	0.00	45.20	58.06	-12.86	QP	
8		0.3950	25.73	0.00	25.73	47.96	-22.23	AVG	

5. Antenna Power Conducted Limit for Receivers

5.1. Test Standard and Limit

5.1.1. Test Standard

EN55013:2001+A1:2003+A2:2006.

5.1.2. Test Limit

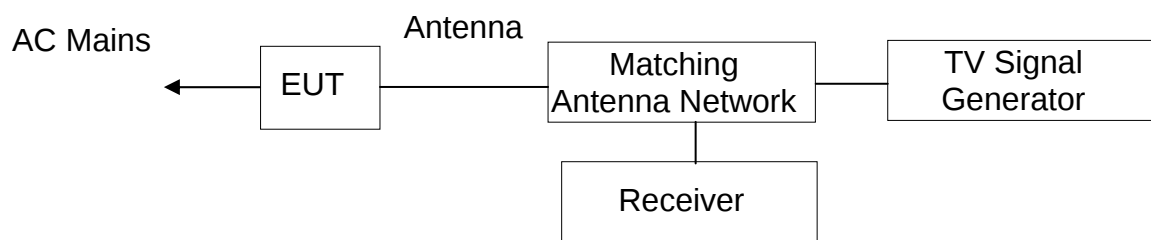
The limit values specified correspond to a nominal impedance of 75 Ω ,The limit values for receivers with nominal impedance other than 75 Ω are calculated according to the following formula:

$$LZ=L75+10\text{LOG}(Z/75)\text{dB}(\mu\text{V})$$

Antenna Power Conducted Limit

Equipment type	Source	Frequency	Limit values dB(μ V) 75 Ω Quasi-peak*
Television receivers, video recorders and PC tuner cards working in channels between 30MHz and 1GHz	Local Oscillator	≤ 1000 30 to 950 950 to 2150 30 to 2150	Fundamental 46 Harmonics 46 Harmonics 54 46
Note: "*" At frequencies above 1GHz the peak detector is used.			

5.2. Test Setup



5.3. Test Procedure

The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.

Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.

I/O cables that are not connected to a peripheral shall be bundled in the center. The end of

the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.

LISN at least 80 cm from nearest part of EUT chassis.

The bandwidth of EMI test receiver is set at 9kHz, and the test frequency band is from 0.15MHz to 30MHz.

5.4. Test Condition

Temperature	:	23 °C
Relative Humidity	:	54 %
Pressure	:	1010 hPa
Test Power	:	AC 230V/50Hz

5.5. Test Data

N/A

6. Disturbance Power Measurement

6.1. Test Standard and Limit

6.1.1. Test Standard

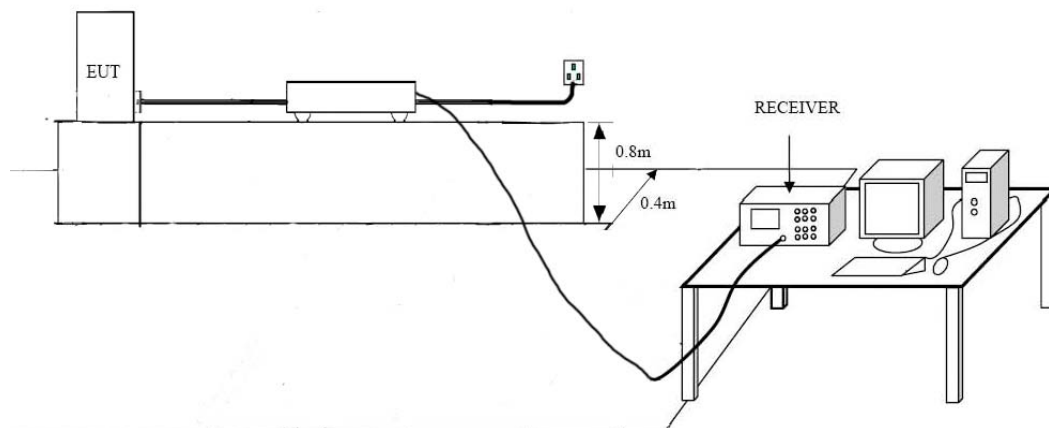
EN55013:2001+A1:2003+A2:2006.

6.1.2. Test Limit

Disturbance Power Measurement Limit

Frequency MHz	Interference Power Limits dB(pW)	
	Quasi-peak Value	Average Value
30 ~ 300	45 Increasing Linearly with Frequency to 55 (Q.P.)	35 Increasing Linearly with Frequency to 45 (A.V.)

6.2. Test Setup



6.3. Test Procedure

The EUT is placed on the plane 0.8m high above the ground by insulating support and away from other metallic surface at least 0.4m. It is connected to the power mains through an extension cord of 6m min. The absorber clamp clamps the cord and moves from the far end to the EUT to measure the disturbing energy emitted from the cord.

The bandwidth of the field strength meter is set at 120kHz.

6.4. Test Condition

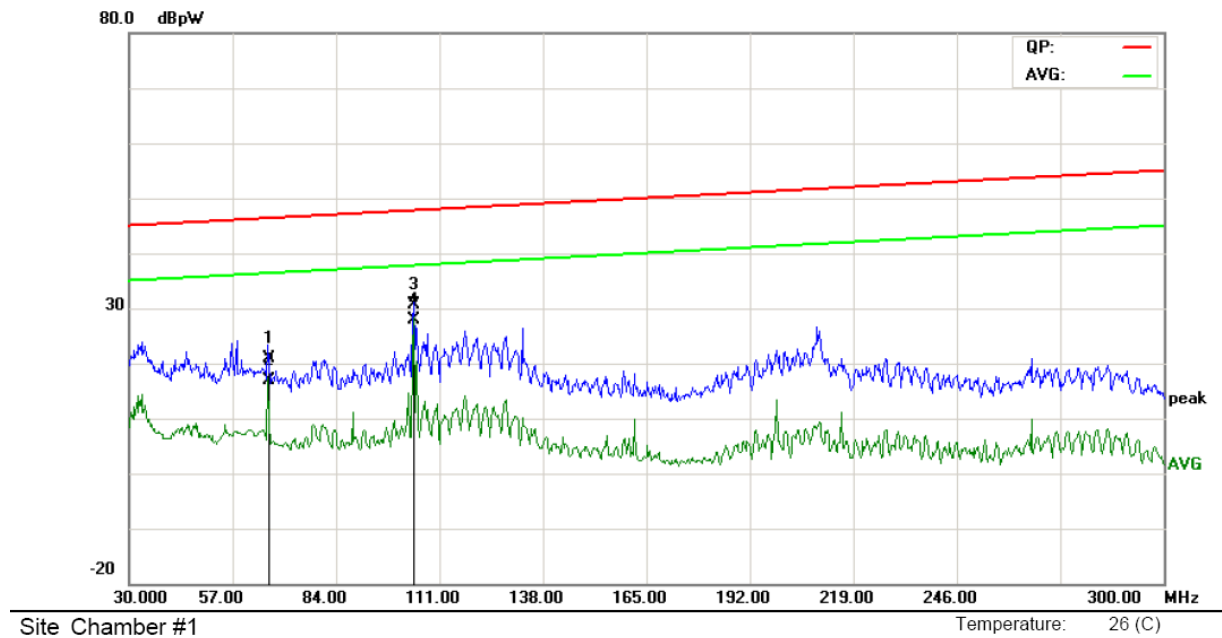
Temperature	:	23 °C
Relative Humidity	:	52 %
Pressure	:	1010 hPa
Test Power	:	AC 230V/50Hz

6.5. Test Data

Please refer to the following pages.

Operating Condition: Playing

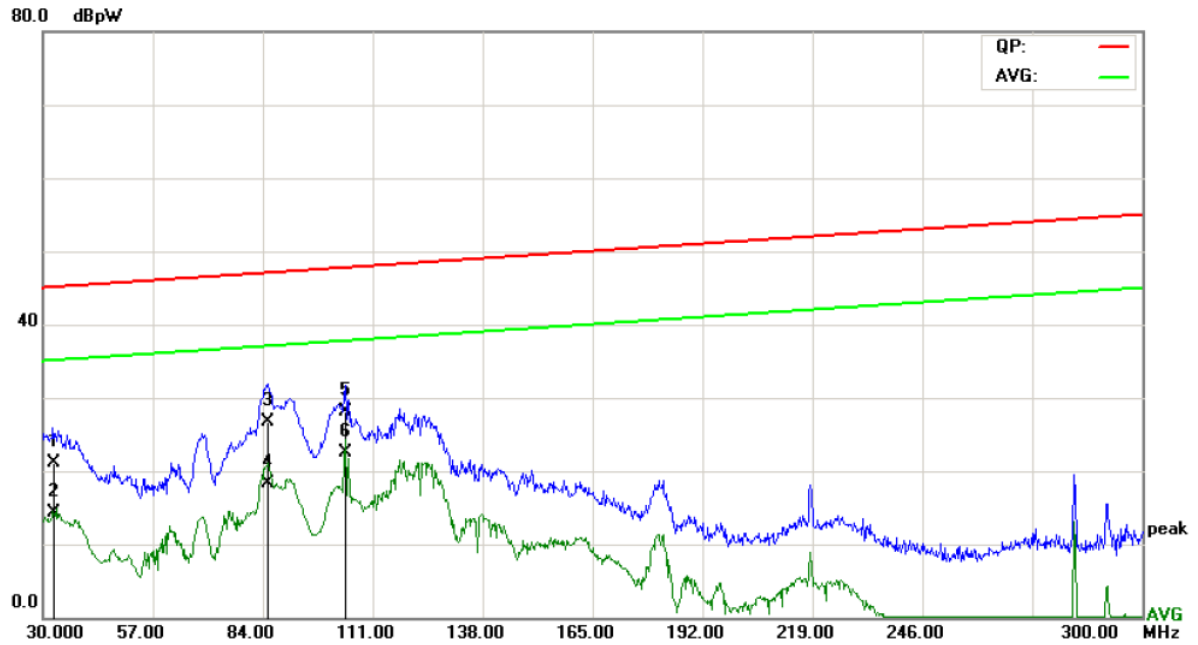
Test Specification: AC Main



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Position	
		MHz	dBpW	dB	dBpW	dBpW	dB	Detector	cm
1		66.3600	7.31	13.54	20.85	46.35	-25.50	QP	
2		66.3600	3.38	13.54	16.92	36.35	-19.43	AVG	
3		104.3200	16.58	14.16	30.74	47.75	-17.01	QP	
4	*	104.3200	13.67	14.16	27.83	37.75	-9.92	AVG	

Operating Condition:Playing

Test Specification: AV line



No.	Mk.	Freq. MHz	Reading Level dBpW	Correct Factor dB	Measure- ment dBpW	Limit dBpW	Over dB	Detector	Position cm	Comment
1		32.6000	1.06	20.14	21.20	45.10	-23.90	QP		
2		32.6000	-5.83	20.14	14.31	35.10	-20.79	AVG		
3		85.1200	14.38	12.40	26.78	47.04	-20.26	QP		
4		85.1200	6.00	12.40	18.40	37.04	-18.64	AVG		
5		104.3200	14.99	13.14	28.13	47.75	-19.62	QP		
6	*	104.3200	9.38	13.14	22.52	37.75	-15.23	AVG		

7. Radiated Disturbance Test

7.1. Test Standard and Limit

7.1.1. Test Standard

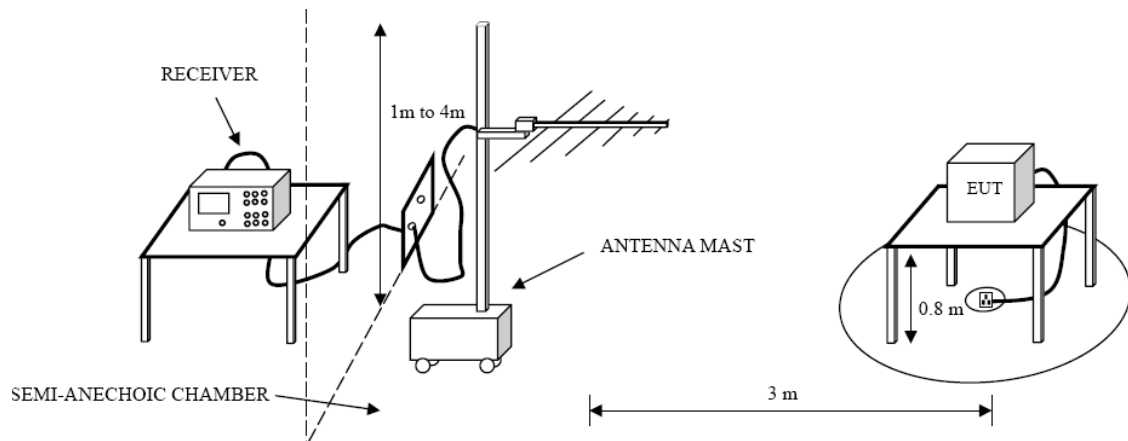
EN55013:2001+A1:2003+A2:2006

7.1.2. Test Limit

Radiated Disturbance Test Limit For EN55013

Frequency MHz	Distance Meters	Field Strengths Limit dB(μ V)/m	
	3	Fundamental	57
30 ~ 300	3	Harmonics	52
300 ~ 1000	3	Harmonics	56
Other	3	Harmonics	Same as EN55022B

7.2. Test Setup



7.3. Test Procedure

The EUT is placed on a turntable, which is 0.8 meter high above the ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. The EUT is set 3 meters away for 30M-1GHz frequencies and 10 meters away for 1GHz-6GHz frequencies from the receiving antenna, which is mounted on a antenna tower. The antenna can be moved up and down from 1 to 4 meters to find out the maximum emission level. Bilog antenna (calibrated by Dipole Antenna) and horn antenna is used as a receiving antenna. Both horizontal and vertical polarization of the antenna is set on test.

Measurement on frequencies above 1GHz is performed in the open site

The bandwidth of the Receiver (ESCS30) is set at 120kHz.

7.4. Test Condition

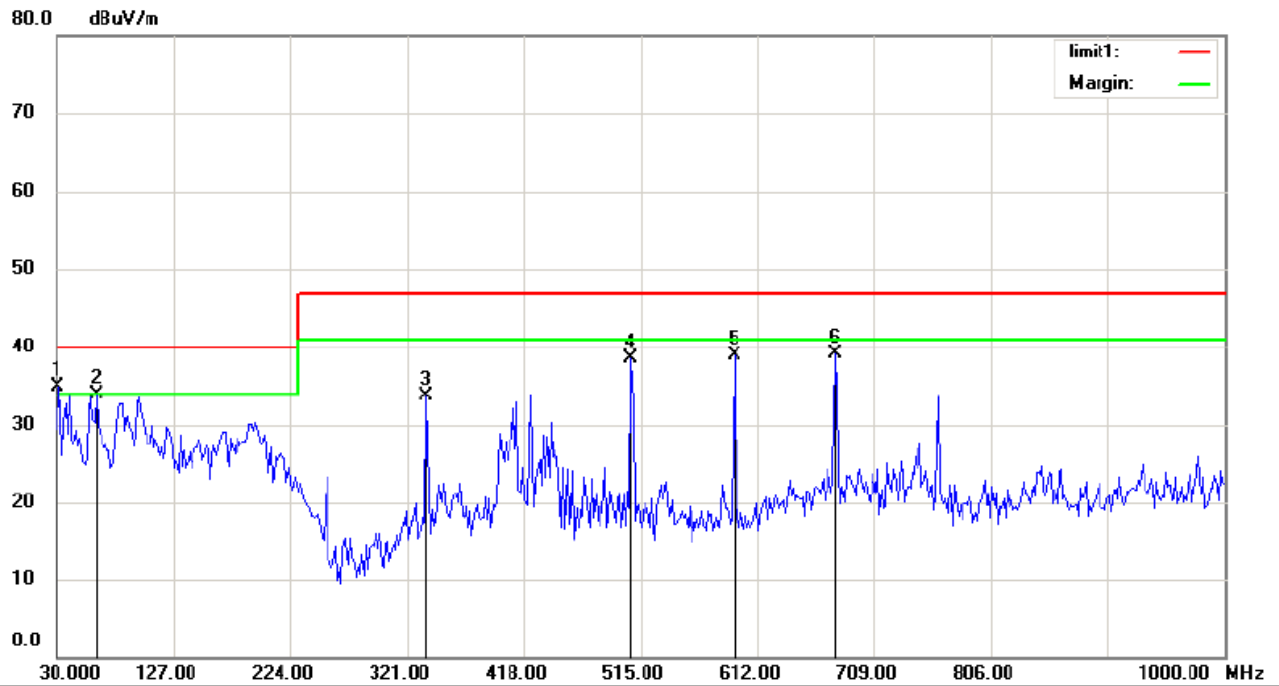
Temperature	:	26 °C
Relative Humidity	:	53 %
Pressure	:	1010 hPa
Test Power	:	AC 230V/50Hz

7.5. Test Data

Please refer to the following pages.

Operating Condition: Playing

Test Specification: Vertical



Site site #1

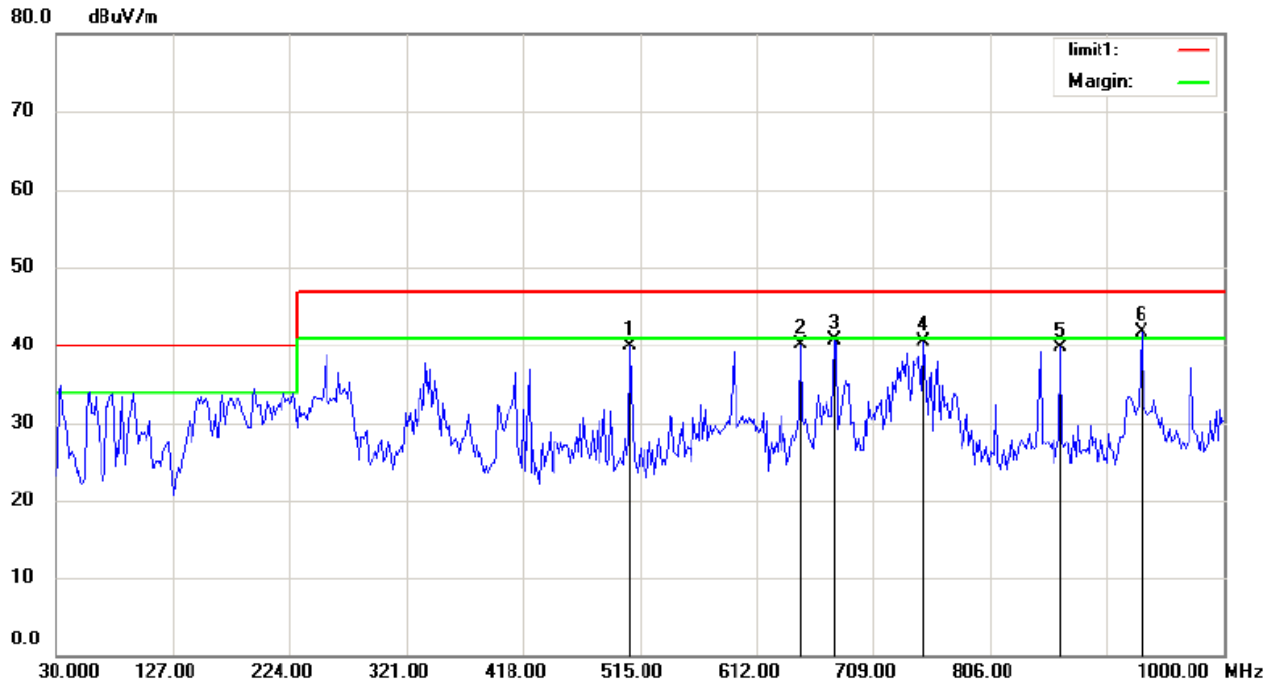
Polarization: **Vertical**

Temperature: 26

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	31.5544	20.98	14.02	35.00	40.00	-5.00	QP	0	
2		62.6441	21.87	12.10	33.97	40.00	-6.03	QP	0	
3		337.7884	18.72	14.96	33.68	47.00	-13.32	QP	0	
4		507.2275	19.56	18.98	38.54	47.00	-8.46	QP	0	
5		592.7242	18.65	20.29	38.94	47.00	-8.06	QP	0	
6		676.6666	15.95	23.19	39.14	47.00	-7.86	QP	0	

Operating Condition: Playing

Test Specification: Horizontal



No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Antenna	Table	
		MHz	Level	Factor	ment			Height	Degree	Comment
			dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	
1		507.2275	20.85	18.98	39.83	47.00	-7.17	QP	0	
2		648.6856	18.92	21.19	40.11	47.00	-6.89	QP	0	
3		676.6666	18.68	22.07	40.75	47.00	-6.25	QP	0	
4		751.2820	17.53	22.99	40.52	47.00	-6.48	QP	0	
5		864.7595	15.62	24.12	39.74	47.00	-7.26	QP	0	
6	*	931.6023	17.27	24.46	41.73	47.00	-5.27	QP	0	

8. Harmonic Current Emission Test

8.1. Test Standard and Limit

8.1.1. Test Standard

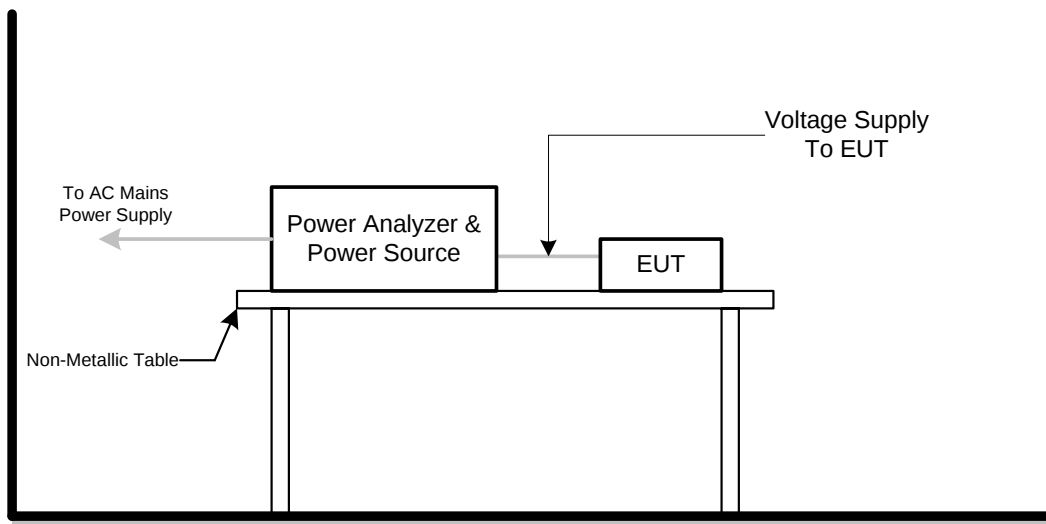
EN 61000-3-2:2006+A1:2009+A2:2009.

8.1.2. Limits

Harmonic Current Test Limit (Class A)

Harmonic order (n)	Maximum permissible harmonic current (A)
Odd harmonics	
3	2.30
5	1.14
7	0.77
9	0.40
11	0.33
13	0.21
$15 \leq n \leq 39$	$0.15 \times 15/n$
Even harmonics	
2	1.08
4	0.43
6	0.30
$8 \leq n \leq 40$	$0.23 \times 8/n$

8.2. Test Setup



8.3. Test Procedure

The EUT was placed on the top of a wooden table 0.8 meters above the ground and operated to produce the maximum harmonic components under normal operating conditions.

The classification of EUT is according to section 5 of EN 61000-3-2. The EUT is classified as follows:

Class A: Balanced three-phase equipment, Household appliances excluding equipment as Class D, Tools excluding portable tools, Dimmers for incandescent lamps, audio equipment, equipment not specified in one of the three other classes.

Class B: Portable tools. Arc welding equipment which is not professional equipment.

Class C: Lighting equipment.

Class D: Equipment having a specified power less than or equal to 600 W of the following types: Personal computers and personal computer monitors and television receivers.

8.4. Test Condition

Temperature	:	23 °C
Relative Humidity	:	53 %
Pressure	:	1010 hPa
Test Power	:	AC 230V/50Hz

8.5. Test Data

The active power of the EUT is less than 75W, according to EN61000-3-2, this item is unnecessary.

9. Voltage Fluctuation and Flicker Test

9.1. Test Standard and Limit

9.1.1. Test Standard

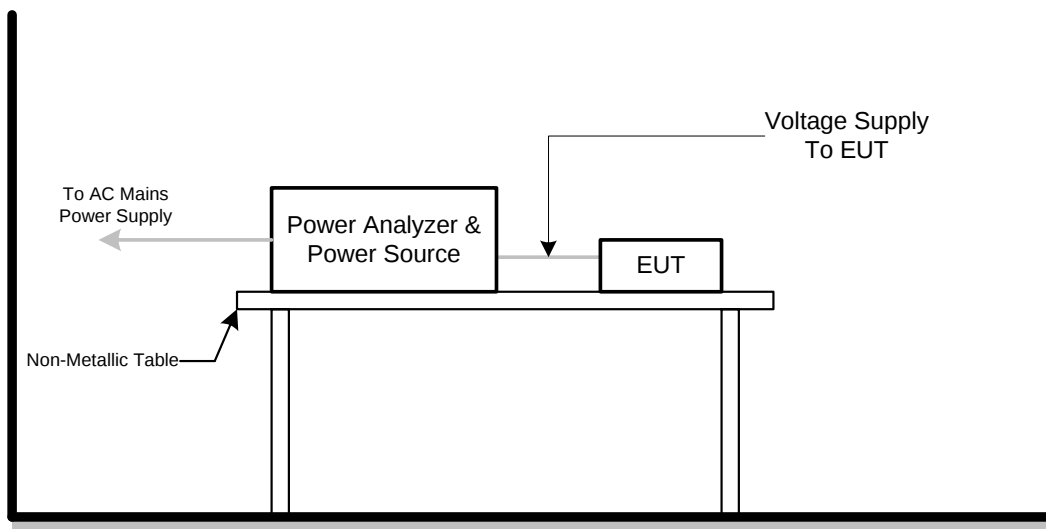
EN 61000-3-3:2008

9.1.2. Limit

Voltage Fluctuation and Flicker Test Limit

Test Items	Limits
Pst	1.0
dc	3.3%
dmax	4.0%
dt	Not exceed 3.3% for 500ms

9.2. Test Setup



9.3. Test Procedure

9.3.1. Fluctuation and Flickers Test:

Tests was performed according to the Test Conditions/Assessment of Voltage Fluctuations specified in Clause 5.0/6.0 of IEC555-3 and/or Clause 6.0/4.0 of IEC/EN 61000-3-3 depend on which standard adopted for compliance measurement.

9.3.2. All types of harmonic current and/or voltage fluctuation in this report are assessed by direct measurement using flicker-meter.

9.3.3. For the actual test configuration, please refer to the related Item –Block Diagram of system tested.

9.4. Test Condition

Temperature	:	23 °C
Relative Humidity	:	53 %
Pressure	:	1010 hPa
Test Power	:	AC 230V/50Hz

9.5. Test Data

Please refer to the following page.

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

EUT: DVD PLAYER

Test category: All parameters (European limits)

Test date: 2011-9-19

Test duration (min): 10

Comment: DVP751HD

Customer: Customer

Tested by: STY

Test Margin: 100

End time: 14:10:36

Start time: 14:00:15

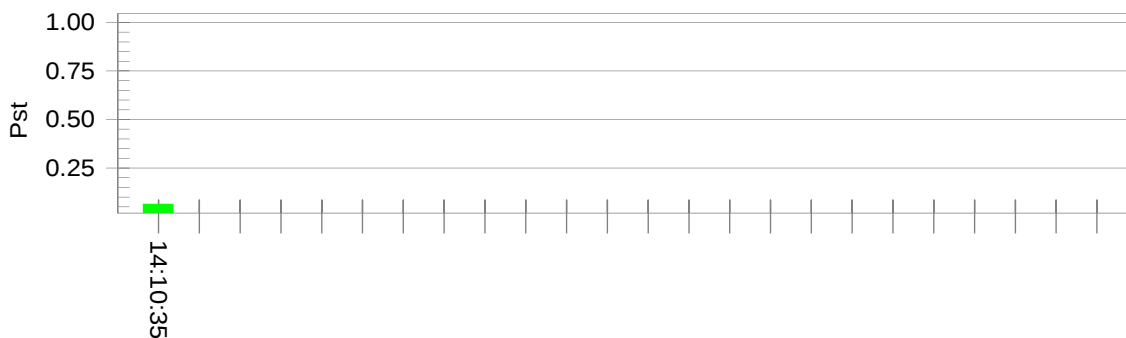
Data file name: F-000398.cts_data

Test Result: Pass

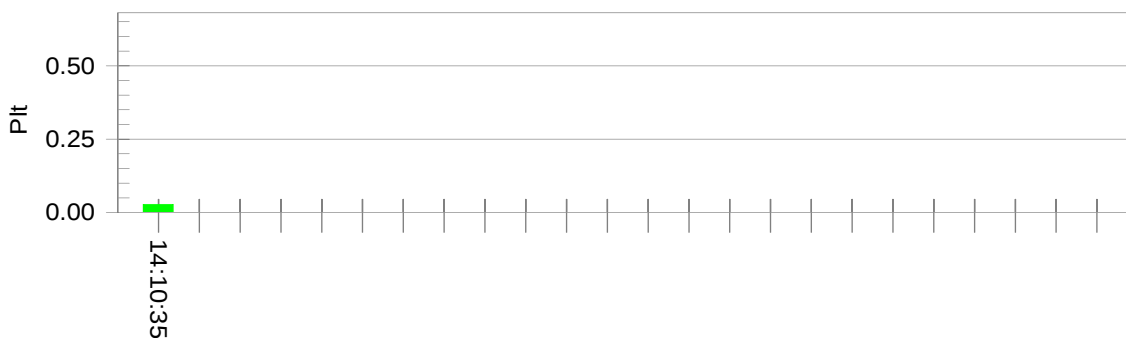
Status: Test Completed

Pst_i and limit line

European Limits



Plt and limit line



Parameter values recorded during the test:

Vrms at the end of test (Volt): 229.85

Highest dt (%): 0.00

Time(mS) > dt: 0.0

Highest dc (%): 0.00

Highest dmax (%): 0.00

Highest Pst (10 min. period): 0.064

Highest Plt (2 hr. period): 0.028

Test limit (%): 3.30 Pass

Test limit (mS): 500.0 Pass

Test limit (%): 3.30 Pass

Test limit (%): 4.00 Pass

Test limit: 1.000 Pass

Test limit: 0.650 Pass

10. Electrostatic Discharge Immunity Test

10.1. Test Requirements

10.1.1. Test Standard

EN55020:2007 (EN 61000-4-2:2009)

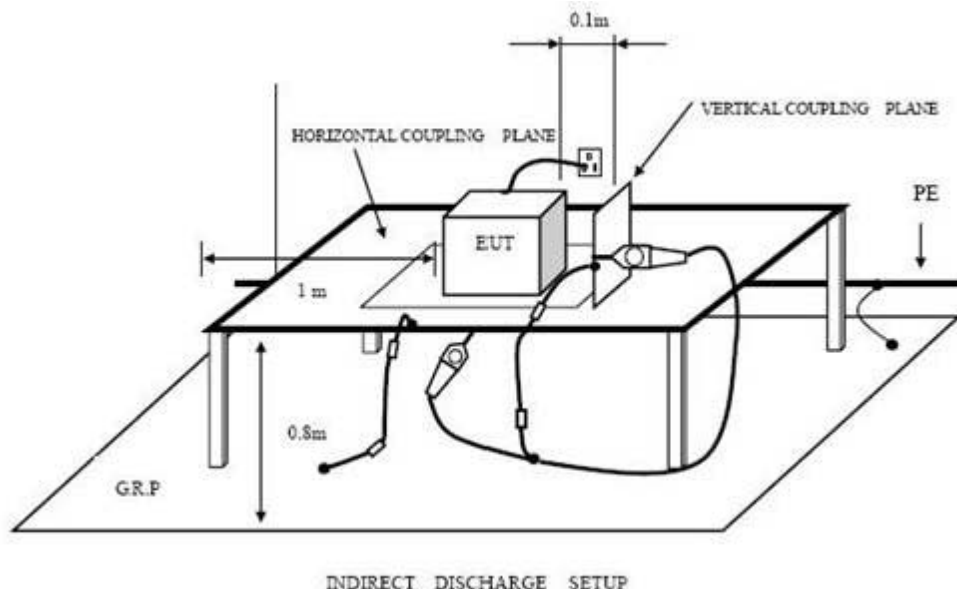
10.1.2. Test Level

Electrostatic Discharge Immunity Test Limit

Level	Test Voltage Contact Discharge (kV)	Test Voltage Air Discharge (kV)
1	±2	±2
2	±4	±4
3	±6	±8
4	±8	±15
X	Special	Special

10.1.3. Performance criterion: B

10.2. Test Setup



10.3. Test Procedure

10.3.1. Air Discharge:

This test is done on a non-conductive surface. The round discharge tip of the discharge electrode shall be approached as fast as possible to touch the EUT. After each discharge,

the discharge electrode shall be removed from the EUT. The generator is then re-triggered for a new single discharge and repeated 10 times for each pre-selected test point. This procedure shall be repeated until all the air discharge completed.

10.3.2. Contact Discharge:

All the procedure shall be same as air discharge. Except that the tip of the discharge electrode shall touch the EUT before the discharge switch is operated.

10.3.3. Indirect discharge for horizontal coupling plane

At least 10 single discharges (in the most sensitive polarity) shall be applied at the front edge of each HCP opposite the center point of each unit (if applicable) of the EUT and 0.1m from the front of the EUT. The long axis of the discharge electrode shall be in the plane of the HCP and perpendicular to its front edge during the discharge.

10.3.4. Indirect discharge for vertical coupling plane

At least 10 single discharges (in the most sensitive polarity) shall be applied to the center of one vertical edge of the coupling plane. The coupling plane, of dimensions 0.5m X 0.5m, is placed parallel to, and positioned at a distance of 0.1m from the EUT. Discharges shall be applied to the coupling plane, with this plane in sufficient different positions that the four faces of the EUT are completely illuminated.

10.4. Test Data

Please refer to the following page.

Electrostatic Discharge Test Result

EUT	: DVD PLAYER	M/N	: DVP751HD
Temperature	: 23°C	Humidity	: 53%
Power supply	: AC 230V/50Hz	Test Mode	: Playing
Criterion: B			
Air Discharge: $\pm 8\text{kV}$ Contact Discharge: $\pm 4\text{kV}$			
For each point positive 10 times and negative 10 times discharge.			
Location	Kind A-Air Discharge C-Contact Discharge		Result
Nonconductive enclosure	A		PASS
Slot of the EUT	A		PASS
Button	A		PASS
LCD Screen	A		PASS
Metal	C		PASS
Port	C		PASS
HCP	C		PASS
VCP of front	C		PASS
VCP of rear	C		PASS
VCP of left	C		PASS
VCP of right	C		PASS

11. Electrical Fast Transient/Burst Test

11.1. Test Requirements

11.1.1. Test Standard

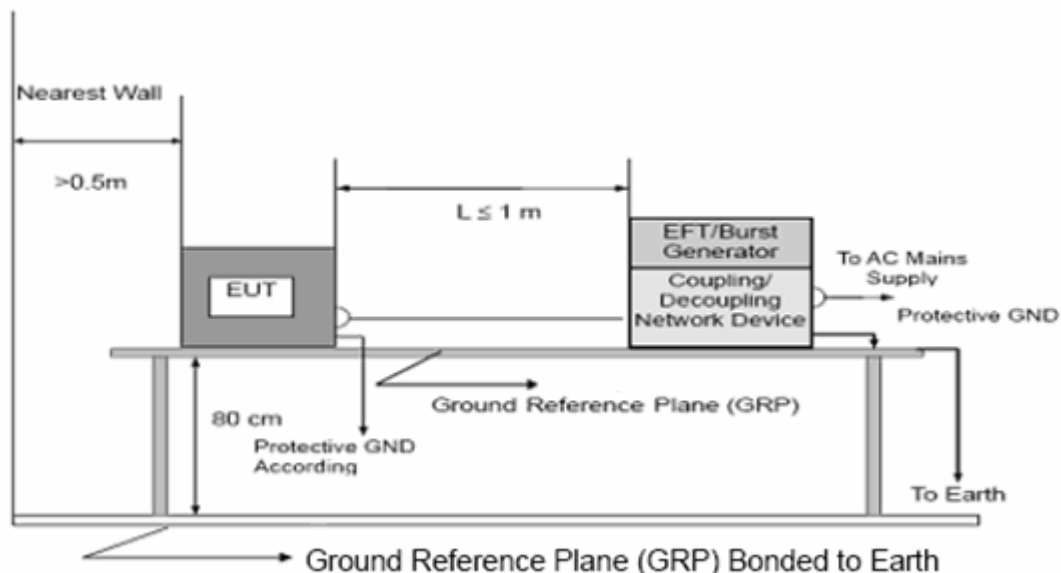
EN55020:2007 (EN 61000-4-4:2004)

11.1.2. Level

Open Circuit Output Test Voltage $\pm 10\%$		
Level	On Switching Adapter Lines	On I/O (Input/Output) Signal data and control lines
1	0.5 KV	0.25 KV
2	1 KV	0.5 KV
3	2 KV	1 KV
4	4 KV	2 KV
X	Special	Special

11.1.3. Performance criterion: B

11.2. Test Setup



11.3. Test Procedure

11.3.1. For input and output AC power ports:

The EUT is connected to the power mains by using a coupling device which couples the

EFT interference signal to AC power lines. Both polarities of the test voltage should be applied during compliance test and the duration of the test is 1 minute.

11.3.2. For signal lines and control lines ports:

A coupling clamp is use to couple the EFT interference signal to the signal and control lines. Both polarities of the test voltage should be applied during compliance test and the duration of the test is 1 minute.

11.3.3. For DC input and DC output power ports:

The EUT is connected to the power mains by using a coupling device which couples the EFT interference signal to DC power lines. Both polarities of the test voltage should be applied during compliance test and the duration of the test is 1 minute.

11.4. Test Data

Please refer to the following page.

Electrical Fast Transient/Burst Test Results

EUT	: DVD PLAYER	M/N	: DVP751HD
Temperature	: 23°C	Humidity	: 54%
Power supply	: AC 230V/50Hz	Test Mode	: Playing
Criterion: B			
Line : ☒ AC Mains Coupling : ☒ Direct Line : ☐ Signal ☐ I/O Cable Coupling : ☐ Capacitive			
Line	Voltage(kV)	Result(+)	Result(-)
L	1	PASS	PASS
N	1	PASS	PASS
L-N	1	PASS	PASS
PE	/	/	/
L-PE	/	/	/
N-PE	/	/	/
L-N-PE	/	/	/

12. Photographs - Constructional Details

Photo 1 Appearance of EUT



Photo 2 Appearance of EUT



Photo 3 Inside of EUT

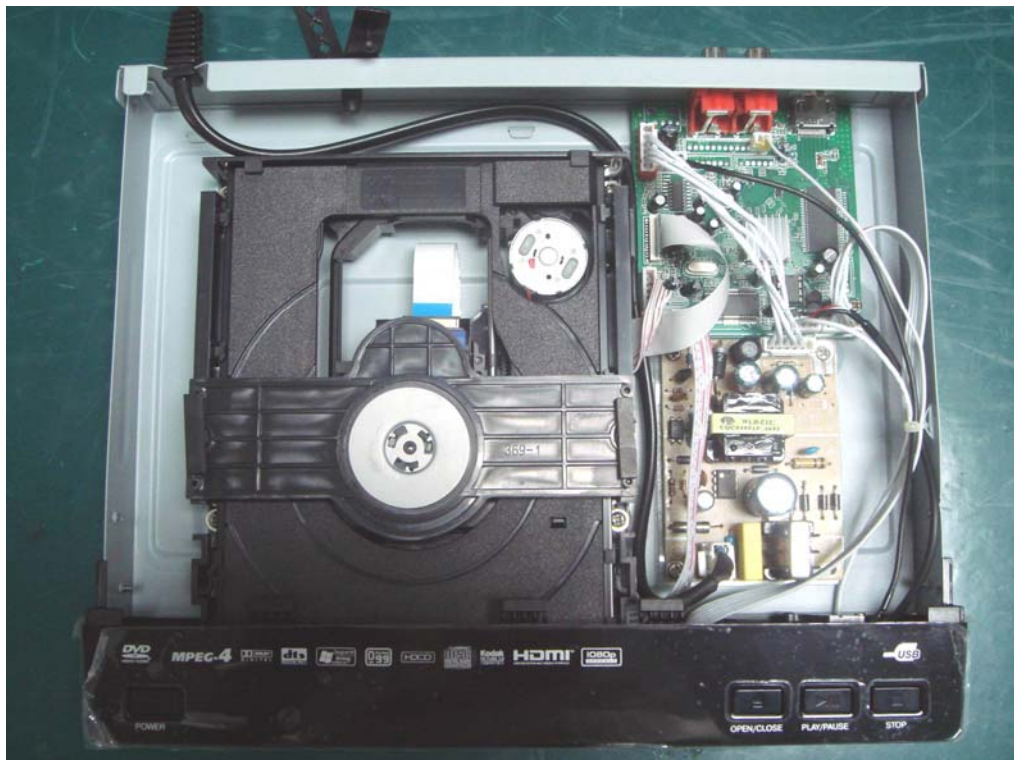


Photo 4 Appearance of EUT

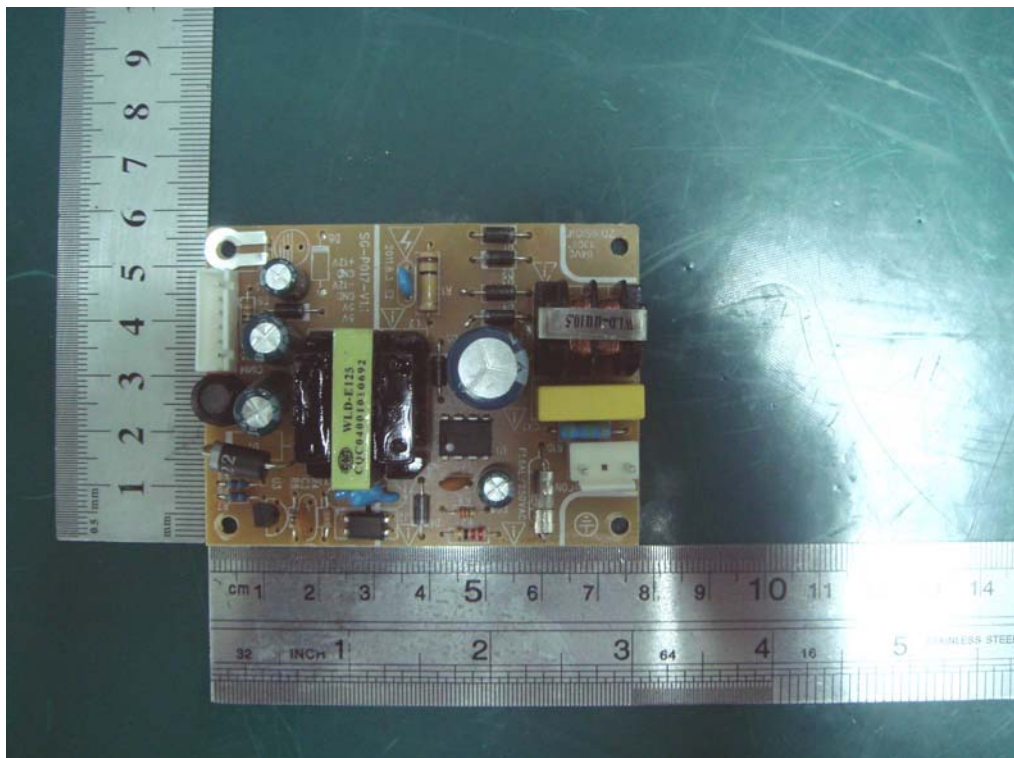


Photo 5 Appearance of PCB

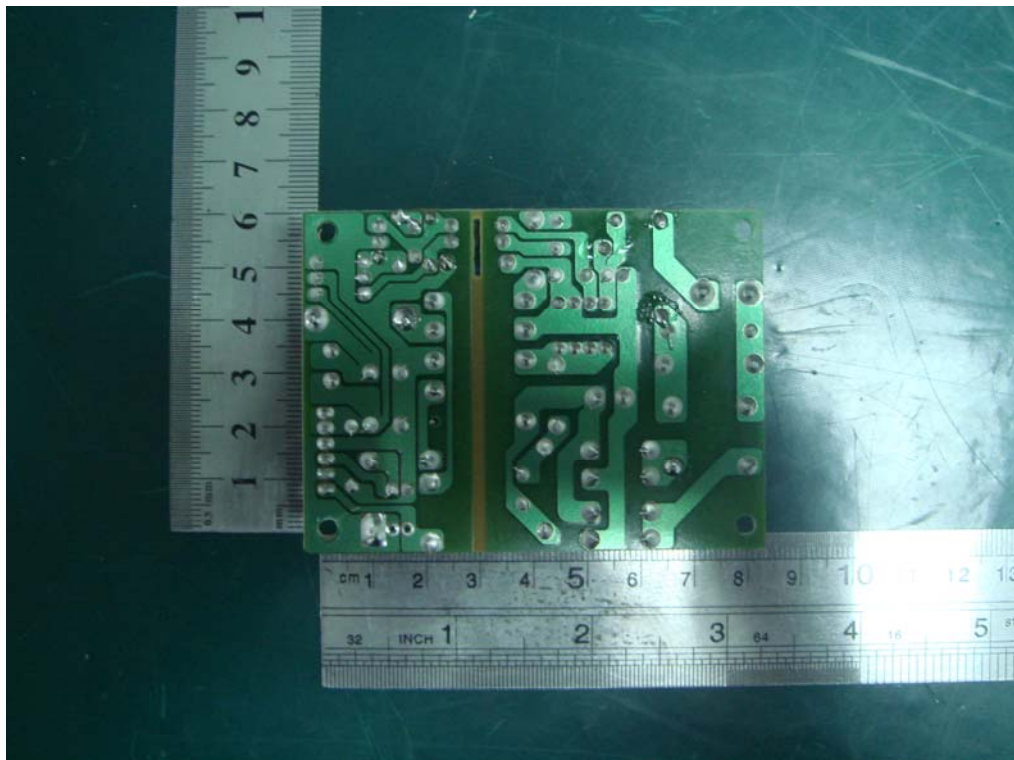


Photo 6 Appearance of PCB

