

Application for FCC Certificate
On Behalf of
Hisense Electric Co., Ltd.

LCD TV

Model No.	Serial No.	Brand
LTDN40V68US	--	Hisense
DX-L40-10A	E2009060906	Dynex

FCC ID : W9HLCDD0002

Prepared For : Hisense Electric Co., Ltd.
No.218 Qianwangang Road, Economy & Technology
Development Zone, Qingdao, China

Prepared By : Audix Technology (Shanghai) Co., Ltd.
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Report No. : ACI-F09053
Date of Test : Jun 11 – 15, 2009
Date of Report : Jun 22, 2009

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TEST REPORT FOR FCC CERTIFICATE

Applicant : Hisense Electric Co., Ltd.
 Manufacturer : Hisense Electric Co., Ltd.
 EUT Description : LCD TV

(A) Model No.	LTDN40V68US	DX-L40-10A
(B) Serial No.	--	E2009060906
(C) Brand	Hisense	Dynex
(D) Power Supply	120V/60Hz	

Test Procedure Used:

*FCC RULES AND REGULATIONS PART 15 SUBPART B CLASS B OCTOBER 2008
AND ANSI C63.4-2003*

The device described above is tested by Audix Technology (Shanghai) Co., Ltd. to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart B (Class B) limits both radiated and conducted emissions.

The test results are contained in this test report and Audix Technology (Shanghai) Co., Ltd. is assumed full responsibility for the accuracy and completeness of these measurements. This report shows that the EUT (M/N: Refer to Sec.2.1; S/N: Refer to Sec.2.1) which was tested in 3m anechoic chamber Jun 11 – 15, 2009 is technically compliance with the FCC official limits also.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of Audix Technology (Shanghai) Co., Ltd.

This report contains data that are not covered by the NVLAP accreditation.

This 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.

The test results for EUT's TV function are contained in No.F09052, a Verification report.

Date of Test : Jun 11 – 15, 2009 Date of Report : Jun 22, 2009

Producer : Zeno Gu
ZENO GU / Assistant

Review : Byron Wu
BYRON WU / Supervisor

AUDIX[®] For and on behalf of
Audix Technology (Shanghai) Co., Ltd.

Signatory : Sammy Chen
Authorized Signature EMSAMMY CHEN / Assistant Manager

1 SUMMARY OF STANDARDS AND RESULTS

1.1 Description of Standards and Results

The EUT have been tested according to the applicable standards as referenced below:

Description of Test Item	Standard	Limits	Results
EMISSION			
Conducted Disturbance at the Mains Terminal	FCC RULES AND REGULATIONS PART 15 SUBPART B OCTOBER 2008 AND ANSI C63.4-2003	15.107(a) Class B	Pass
Radiated Disturbance	FCC RULES AND REGULATIONS PART 15 SUBPART B OCTOBER 2008 AND ANSI C63.4-2003	15.109(a) Class B	Pass

2 GENERAL INFORMATION

2.1 Description of Equipment Under Test

Description	:	LCD TV						
Type of EUT	:	<input checked="" type="checkbox"/> Production <input type="checkbox"/> Pre-product <input type="checkbox"/> Pro-type						
Model No.	:	<table border="1"> <tr> <td>LTDN40V68US</td> <td>DX-L40-10A</td> </tr> <tr> <td>--</td> <td>E2009060906</td> </tr> <tr> <td>Hisense</td> <td>Dynex</td> </tr> </table>	LTDN40V68US	DX-L40-10A	--	E2009060906	Hisense	Dynex
LTDN40V68US	DX-L40-10A							
--	E2009060906							
Hisense	Dynex							
Serial No.	:							
Brand	:							
Note 1	:	The above models are all the same except for the different model number and brand.						
Note 2	:	The DX-L40-10A was tested and recorded in this report.						
Applicant	:	Hisense Electric Co., Ltd. No.218 Qianwangang Road, Economy & Technology Development Zone, Qingdao, China						
Manufacturer	:	Hisense Electric Co., Ltd. No.218 Qianwangang Road, Economy & Technology Development Zone, Qingdao, China						
LCD Panel	:	Manufacturer : SAMSUNG M/N : LTA400HA07						
Tuner	:	Manufacturer : XuGuang Tech Co., Ltd. M/N : DTV-8ADC/W41F2\ROH						
Max Resolution	:	1920*1080@60Hz						
D-Sub Cable	:	Shielded, Detachable, 1.85m, with two cores on cable						
HDMI Cable	:	Shielded, Detachable, 1.85m, without core on cable						
Power Cord	:	Unshielded, Detachable, 1.80m						

Remark:

The EUT is a LCD TV which input/output ports as follows:

Rear View:

- | | | |
|-----|------------------------------------|--------------------------|
| (1) | One HDMI1 Port | Connected with DVD #1/PC |
| (2) | One HDMI2 Port | Connected with DVD #2/PC |
| (3) | One VGA Port | Connected with PC |
| (4) | One VGA Audio In Port | Connected with PC |
| (5) | One component of YPbPr1 Port | Connected with DVD #1 |
| (6) | One component of YPbPr1 Audio Port | Connected with DVD #1 |
| (7) | One component of YPbPr2 Port | Connected with DVD #2 |
| (8) | One component of YPbPr2 Audio Port | Connected with DVD #2 |
| (9) | One component of Audio Port | Connected with Speaker |

Side Port:

- | | | |
|------|--------------------------|------------------------------|
| (10) | One component of AV Port | Connected with DVD #1 |
| (11) | One S-Video Port | Connected with TV SG/ATSC SG |
| (12) | One Earphone Port | Connected with Earphone |
| (13) | One RF Port Port | Connected with TV SG/ATSC SG |
| (14) | One Coaxial Port | Connected with TV |
| (15) | One HDMI3 Port | Connected with PC |

2.2 Peripherals

2.2.1 PC

Manufacturer : HP
Model Number : dx7200MT
Serial Number : CNG622017W
Power Cord : Unshielded, Detachable, 1.8m
Certificate : FCC DoC; CE/EMC; VCCI; C-Tick; UL
BSMI (R33001) 3C (A000111)
MIC (E-A011-04-2659(B))

2.2.2 Printer

Manufacturer : HP
Model Number : C3990A
Serial Number : JPZX020487
Data Cable : Shielded, detachable, 1.5m
Certificate : GS, CE/EMC, C-Tick, FCC DoC

2.2.3 Keyboard

Manufacturer : Microsoft
Model Number : RT2300
Serial Number : 7668200662248
Data Cable : Shielded, undetachable ,1.8m
Certificate : CE/EMC, FCC DoC, VCCI, MIC, C-Tick,
BSMI

2.2.4 Mouse

Manufacturer : Microsoft
Model Number : RT2300
Serial Number : 6965712071551
Data Cable : Shielded, undetachable, 1.8m.
Certificate : CE/EMC, FCC DoC, VCCI, MIC, C-Tick,
BSMI

2.2.5 Modem

Manufacturer : TP-LINK
Model Number : TM-EC5658V
Serial Number : 07123301053
Data Cable : Shielded, Detachable, 1.8m
Certificate : FCC DoC, CE/EMC, CCC

2.2.6 Earphone

Manufacturer : SONY
Model Number : MDR-E808
Serial Number : 1808030805305506

2.2.7 TV Signal Generator

Manufacturer : FLUKE
Model Number : 54200m01
Serial Number : 814008
Data Cable : Shielded, detachable, 2.0m
Power Cord : Unshielded, detachable, 2.0m
Certificate : CE/EMC, FCC DoC, CCC

2.2.8 ATSC Signal Generator

Manufacturer : SENCORE
Model Number : ATSC997
Serial Number : 6790071

2.2.9 DVD#1

Manufacturer : PHILIPS
Model Number : DVP3986K/93
Serial Number : KX1A0902120108
Certificate : FCC DoC, CE/EMC, CCC

2.2.10 DVD#2

Manufacturer : PHILIPS
Model Number : DVP3986K/93
Serial Number : KX1A0902120082
Certificate : FCC DoC, CE/EMC, CCC

2.2.11 DVD#3

Manufacturer : DGT
Model Number : DV-A340
Serial Number : 10004184-C
Certificate : FCC DoC, CE/EMC, CCC

2.2.12 Speaker

Manufacturer : DIBA
Model Number : T520
Serial Number : 10628

2.3 Description of Test Facility

Site Description (Semi-Anechoic Chamber) : Sept. 17, 1998 file on
Apr 29, 2009 Renewed
Federal Communications Commission
FCC Engineering Laboratory
7435 Oakland Mills Road
Columbia, MD 21046, USA

Name of Firm : Audix Technology (Shanghai) Co., Ltd.

Site Location : 3F 34Bldg 680 Guiping Rd,
Caohejing Hi-Tech Park,
Shanghai 200233, China

NVLAP Lab Code : 200371-0

2.4 Measurement Uncertainty

Conducted Emission Expanded Uncertainty: U = 1.26 dB
Radiated Emission Expanded Uncertainty : U = 3.02 dB

3 CONDUCTED EMISSION TEST

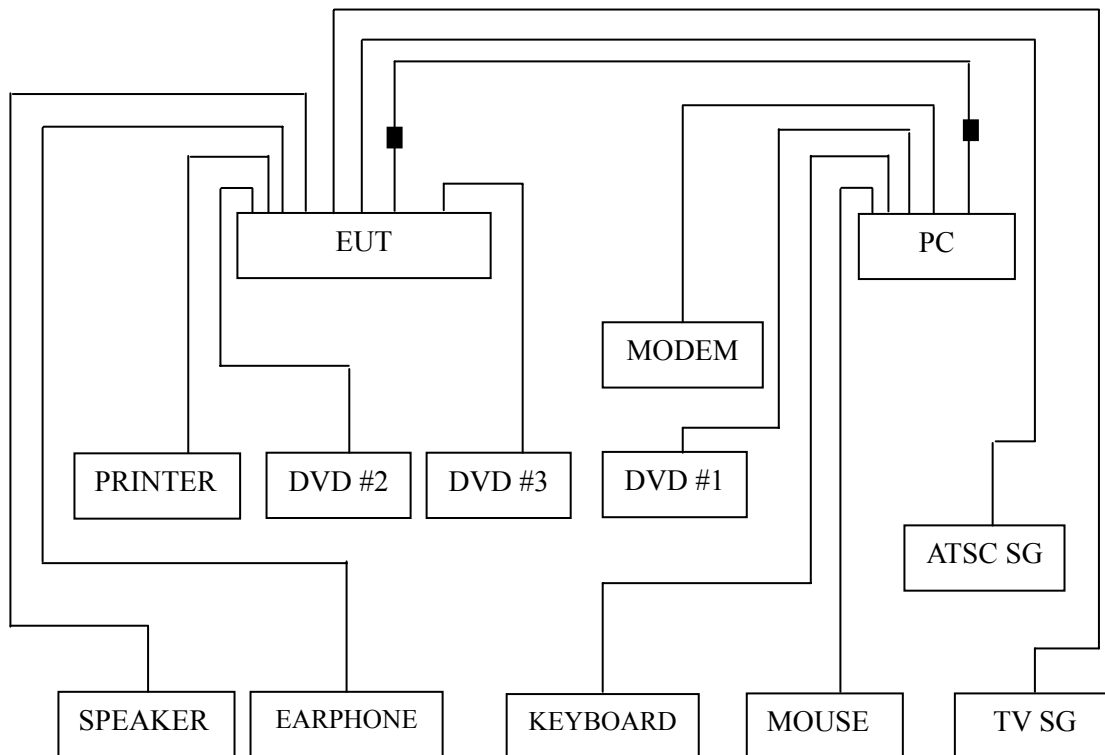
3.1.1 Test Equipment

The following test equipments are used during the conducted emission test in a shielded room:

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Test Receiver	R&S	ESCI	100841	Nov 21, 2008	Nov 21, 2009
2.	Artificial Mains Network (AMN)	R&S	ESH2-Z5	843890/011	Apr 02, 2009	Apr 02, 2010
3.	Line Impedance Stabilization Network (LISN)	Kyoritsu	KNW-407	8-1280-4	Apr 02, 2009	Apr 02, 2010
4.	50 Ω Coaxial Switch	Anritsu	MP59B	6200426389	Mar 19, 2009	Sep 19, 2009
5.	50 Ω Terminator	Anritsu	BNC	001	Apr 02, 2009	Apr 02, 2010
6.	Software	Audix	E3	SET00200 9804M592	--	--

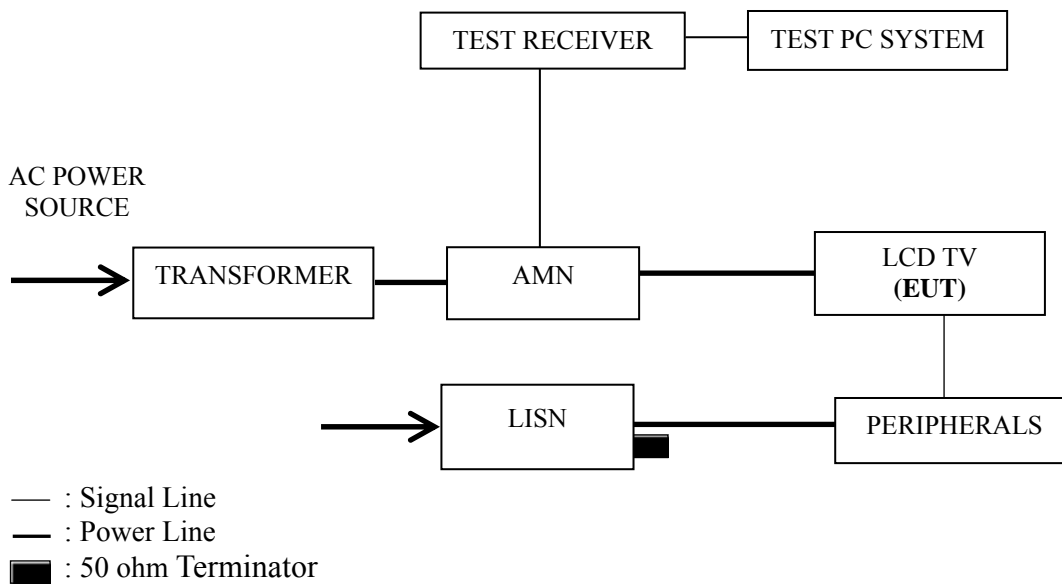
3.2 Block Diagram of Test Setup

3.2.1 EUT & Peripherals



■ : Ferrite core

3.2.2 Conducted Disturbance Test Setup



3.3 Conducted Emission Limit [FCC Part 15 Subpart B 15.107(a)]

Frequency Range (MHz)	Limits dB (μ V)	
	Quasi-peak	Average
0.15 ~ 0.5	66~56	56~46
0.5 ~ 5	56	46
5 ~ 30	60	50

NOTE 1 – The lower limit shall apply at the transition frequencies.
 NOTE 2 – The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz~0.50 MHz

3.4 Test Configuration

The EUT (listed in Sec.2.1) and the peripherals (listed in Sec 2.2) were installed as shown on Sec.3.2 to meet FCC requirement and operating in a manner that tends to maximize its emission level in a normal application.

3.5 Operating Condition of EUT

3.5.1 Setup the EUT and peripherals as shown in Sec. 3.2.

3.5.2 Turn on the power of all equipments and the EUT.

3.5.3 Set the contrast & brightness of EUT to maximum.

3.5.4 PC system ran the self-test program “EMC Test” by windows XP and sent “H” characters to EUT through graphic card, the EUT’s screen displayed and filled with “H” pattern by its resolution (Via D-Sub & HDMI Input).

3.5.5 Repeat above procedure from 3.5.3 to 3.5.4 for difference test mode.

3.5.6 The other peripherals devices were driven and operated during the test.

3.5.7 The test modes are as follows:

Test Mode
D-Sub 640*480@60Hz
D-Sub 1024*768@60Hz
D-Sub 1680*1050@60Hz
D-Sub 1920*1080@60Hz
HDMI 640*480@60Hz
HDMI 1024*768@60Hz
HDMI 1680*1050@60Hz
HDMI 1920*1080@60Hz

3.6 Test Procedures

The EUT and peripherals were connected to the power mains through an Artificial Mains Network (AMN). This provided a 50 ohm coupling impedance for the measuring equipment.

Both sides of AC line (Line & Neutral) were checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables were changed or manipulated according to ANSI C63.4:2003 during conducted emission test.

The bandwidth of R&S Test Receiver ESCI was set at 9 kHz.

The frequency range from 150 kHz to 30 MHz was checked.

The test modes were done on conducted disturbance test and all the test results are listed in Sec. 3.7.

3.7 Test Results

< **PASS** >

The frequency and amplitude of the highest conducted emission relative to the limit is reported. All emissions not reported below are too low against the prescribed limits.

Test Mode	Data Page
D-Sub 640*480@60Hz	P13
D-Sub 1024*768@60Hz	P14
D-Sub 1680*1050@60Hz	P15
D-Sub 1920*1080@60Hz	P16
HDMI 640*480@60Hz	P17
HDMI 1024*768@60Hz	P18
HDMI 1680*1050@60Hz	P19
HDMI 1920*1080@60Hz	P20

NOTE 1 – Factor = Cable Loss + AMN Factor.

NOTE 2 – Emission Level = Meter Reading + Factor.

NOTE 3 – “QP” means “Quasi-Peak” values, “AV” means “Average” values.

NOTE 4 – The worst case is for HDMI 1024*768@60Hz test mode. The worst emission is detected at 0.150 MHz (Quasi-Peak) with corrected signal level of 55.72 dB (μV) (limit is 66.00 dB (μV)), when the Line of the EUT is connected to AMN.

EUT : LCD TV Temperature : 22°C

Model No. : DX-L40-10A Humidity : 48%RH

Serial No. : E2009060906 Date of Test : Jun 11, 2009

Test Mode : D-Sub 640*480@60Hz

Test Line	Frequency (MHz)	Meter Reading dB(μ V)	Factor (dB)	Emission Level dB(μ V)	Limits dB(μ V)	Margin (dB)	Remark
Line	0.157	52.81	0.23	53.04	65.60	12.56	QP
	0.289	38.43	0.25	38.68	60.54	21.86	
	2.066	32.47	0.36	32.83	56.00	23.17	
	5.277	36.20	0.44	36.64	60.00	23.36	
	9.654	30.93	0.49	31.42	60.00	28.58	
	19.224	27.18	0.87	28.05	60.00	31.95	
	0.157	42.15	0.23	42.38	55.60	13.22	AV
	0.289	28.72	0.25	28.97	50.54	21.57	
	2.066	22.49	0.36	22.85	46.00	23.15	
	5.277	26.39	0.44	26.83	50.00	23.17	
	9.654	20.16	0.49	20.65	50.00	29.35	
	19.224	17.48	0.87	18.35	50.00	31.65	
Neutral	0.150	52.85	0.20	53.05	66.00	12.95	QP
	0.286	38.32	0.23	38.55	60.63	22.08	
	2.650	33.27	0.39	33.66	56.00	22.34	
	5.277	36.89	0.45	37.34	60.00	22.66	
	9.757	32.11	0.51	32.62	60.00	27.38	
	21.147	31.19	0.82	32.01	60.00	27.99	
	0.150	42.35	0.20	42.55	56.00	13.45	AV
	0.286	28.56	0.23	28.79	50.63	21.84	
	2.650	23.54	0.39	23.93	46.00	22.07	
	5.277	26.35	0.45	26.80	50.00	23.20	
	9.757	22.30	0.51	22.81	50.00	27.19	
	21.147	21.41	0.82	22.23	50.00	27.77	

TEST ENGINEER: HUGH HUANG

EUT : LCD TV Temperature : 22°C

Model No. : DX-L40-10A Humidity : 48%RH

Serial No. : E2009060906 Date of Test : Jun 11, 2009

Test Mode : D-Sub 1024*768@60Hz

Test Line	Frequency (MHz)	Meter Reading dB(μ V)	Factor (dB)	Emission Level dB(μ V)	Limits dB(μ V)	Margin (dB)	Remark
Line	0.159	53.30	0.23	53.53	65.52	11.99	QP
	0.289	36.74	0.25	36.99	60.54	23.55	
	2.622	31.31	0.39	31.70	56.00	24.30	
	5.333	35.72	0.44	36.16	60.00	23.84	
	9.966	31.91	0.49	32.40	60.00	27.60	
	20.924	29.81	0.87	30.68	60.00	29.32	
	0.159	43.26	0.23	43.49	55.52	12.03	AV
	0.289	26.68	0.25	26.93	50.54	23.61	
	2.622	21.84	0.39	22.23	46.00	23.77	
	5.333	25.97	0.44	26.41	50.00	23.59	
	9.966	21.45	0.49	21.94	50.00	28.06	
	20.924	19.84	0.87	20.71	50.00	29.29	
Neutral	0.150	53.94	0.20	54.14	66.00	11.86	QP
	0.286	39.06	0.23	39.29	60.63	21.34	
	2.594	33.60	0.39	33.99	56.00	22.01	
	5.221	36.49	0.45	36.94	60.00	23.06	
	9.757	32.76	0.51	33.27	60.00	26.73	
	19.326	31.73	0.84	32.57	60.00	27.43	
	0.150	43.26	0.20	43.46	56.00	12.54	AV
	0.286	29.83	0.23	30.06	50.63	20.57	
	2.594	23.46	0.39	23.85	46.00	22.15	
	5.221	26.94	0.45	27.39	50.00	22.61	
	9.757	22.16	0.51	22.67	50.00	27.33	
	19.326	21.42	0.84	22.26	50.00	27.74	

TEST ENGINEER: HUGH HUANG

EUT : LCD TV Temperature : 22°C

Model No. : DX-L40-10A Humidity : 48%RH

Serial No. : E2009060906 Date of Test : Jun 11, 2009

Test Mode : D-Sub 1680*1050@60Hz

Test Line	Frequency (MHz)	Meter Reading dB(μ V)	Factor (dB)	Emission Level dB(μ V)	Limits dB(μ V)	Margin (dB)	Remark
Line	0.156	52.04	0.23	52.27	65.65	13.38	QP
	0.292	38.00	0.25	38.25	60.46	22.21	
	2.650	32.32	0.39	32.71	56.00	23.29	
	5.277	38.38	0.44	38.82	60.00	21.18	
	9.757	31.11	0.49	31.60	60.00	28.40	
	21.373	29.94	0.87	30.81	60.00	29.19	
	0.156	42.16	0.23	42.39	55.65	13.26	AV
	0.292	28.67	0.25	28.92	50.46	21.54	
	2.650	22.54	0.39	22.93	46.00	23.07	
	5.277	28.67	0.44	29.11	50.00	20.89	
	9.757	21.45	0.49	21.94	50.00	28.06	
	21.373	19.68	0.87	20.55	50.00	29.45	
Neutral	0.156	51.99	0.20	52.19	65.65	13.46	QP
	0.286	39.46	0.23	39.69	60.63	20.94	
	2.155	33.41	0.37	33.78	56.00	22.22	
	5.333	37.06	0.45	37.51	60.00	22.49	
	9.757	29.95	0.51	30.46	60.00	29.54	
	20.162	30.62	0.85	31.47	60.00	28.53	
	0.156	41.15	0.20	41.35	55.65	14.30	AV
	0.286	29.64	0.23	29.87	50.63	20.76	
	2.155	23.54	0.37	23.91	46.00	22.09	
	5.333	27.48	0.45	27.93	50.00	22.07	
	9.757	19.58	0.51	20.09	50.00	29.91	
	20.162	20.11	0.85	20.96	50.00	29.04	

TEST ENGINEER: HUGH HUANG

EUT : LCD TV Temperature : 22°C

Model No. : DX-L40-10A Humidity : 48%RH

Serial No. : E2009060906 Date of Test : Jun 11, 2009

Test Mode : D-Sub 1920*1080@60Hz

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark	
Line	0.150	52.93	0.23	53.16	66.00	12.84	QP	
	0.292	35.92	0.25	36.17	60.46	24.29		
	2.594	32.67	0.39	33.06	56.00	22.94		
	5.221	38.37	0.44	38.81	60.00	21.19		
	9.966	30.68	0.49	31.17	60.00	28.83		
	22.063	27.97	0.85	28.82	60.00	31.18		
		0.150	42.16	0.23	42.39	56.00	13.61	AV
		0.292	25.84	0.25	26.09	50.46	24.37	
		2.594	22.35	0.39	22.74	46.00	23.26	
		5.221	28.75	0.44	29.19	50.00	20.81	
		9.966	20.60	0.49	21.09	50.00	28.91	
		22.063	17.48	0.85	18.33	50.00	31.67	
Neutral	0.150	51.96	0.20	52.16	66.00	13.84	QP	
	0.332	35.40	0.23	35.63	59.40	23.77		
	2.155	31.14	0.37	31.51	56.00	24.49		
	5.333	37.56	0.45	38.01	60.00	21.99		
	9.861	29.44	0.51	29.95	60.00	30.05		
	21.147	26.94	0.82	27.76	60.00	32.24		
		0.150	41.15	0.20	41.35	56.00	14.65	AV
		0.332	25.70	0.23	25.93	49.40	23.47	
		2.155	21.44	0.37	21.81	46.00	24.19	
		5.333	27.48	0.45	27.93	50.00	22.07	
		9.861	19.84	0.51	20.35	50.00	29.65	
		21.147	16.59	0.82	17.41	50.00	32.59	

TEST ENGINEER: HUGH HUANG

EUT : LCD TV Temperature : 22°C

Model No. : DX-L40-10A Humidity : 48%RH

Serial No. : E2009060906 Date of Test : Jun 11, 2009

Test Mode : HDMI 640*480@60Hz

Test Line	Frequency (MHz)	Meter Reading dB(μ V)	Factor (dB)	Emission Level dB(μ V)	Limits dB(μ V)	Margin (dB)	Remark
Line	0.150	52.08	0.23	52.31	66.00	13.69	QP
	0.226	39.45	0.24	39.69	62.61	22.92	
	2.155	35.08	0.37	35.45	56.00	20.55	
	4.454	34.64	0.44	35.08	56.00	20.92	
	9.451	28.81	0.49	29.30	60.00	30.70	
	23.888	34.74	0.82	35.56	60.00	24.44	
	0.150	42.38	0.23	42.61	56.00	13.39	AV
	0.226	29.67	0.24	29.91	52.61	22.70	
	2.155	25.67	0.37	26.04	46.00	19.96	
	4.454	24.67	0.44	25.11	46.00	20.89	
	9.451	18.76	0.49	19.25	50.00	30.75	
	23.888	24.96	0.82	25.78	50.00	24.22	
Neutral	0.150	53.00	0.20	53.20	66.00	12.80	QP
	0.336	33.88	0.23	34.11	59.31	25.20	
	2.110	36.36	0.36	36.72	56.00	19.28	
	4.407	39.37	0.45	39.82	56.00	16.18	
	9.204	27.41	0.50	27.91	60.00	32.09	
	23.888	31.53	0.76	32.29	60.00	27.71	
	0.150	43.41	0.20	43.61	56.00	12.39	AV
	0.336	23.69	0.23	23.92	49.31	25.39	
	2.110	26.39	0.36	26.75	46.00	19.25	
	4.407	29.67	0.45	30.12	46.00	15.88	
	9.204	17.68	0.50	18.18	50.00	31.82	
	23.888	21.35	0.76	22.11	50.00	27.89	

TEST ENGINEER: HUGH HUANG

EUT : LCD TV Temperature : 22°C

Model No. : DX-L40-10A Humidity : 48%RH

Serial No. : E2009060906 Date of Test : Jun 11, 2009

Test Mode : HDMI 1024*768@60Hz

Test Line	Frequency (MHz)	Meter Reading dB(μ V)	Factor (dB)	Emission Level dB(μ V)	Limits dB(μ V)	Margin (dB)	Remark
Line	0.150	55.49	0.23	55.72	66.00	10.28	QP
	0.289	38.43	0.25	38.68	60.54	21.86	
	2.155	36.35	0.37	36.72	56.00	19.28	
	4.407	37.16	0.44	37.60	56.00	18.40	
	9.302	28.68	0.48	29.16	60.00	30.84	
	23.888	35.73	0.82	36.55	60.00	23.45	
	0.150	45.16	0.23	45.39	56.00	10.61	AV
	0.289	28.15	0.25	28.40	50.54	22.14	
	2.155	26.48	0.37	26.85	46.00	19.15	
	4.407	27.49	0.44	27.93	46.00	18.07	
	9.302	18.46	0.48	18.94	50.00	31.06	
	23.888	25.75	0.82	26.57	50.00	23.43	
Neutral	0.156	53.16	0.20	53.36	65.65	12.29	QP
	0.329	34.67	0.23	34.90	59.49	24.59	
	2.155	35.45	0.37	35.82	56.00	20.18	
	4.407	35.48	0.45	35.93	56.00	20.07	
	9.552	29.80	0.51	30.31	60.00	29.69	
	23.888	34.25	0.76	35.01	60.00	24.99	
	0.156	43.16	0.20	43.36	55.65	12.29	AV
	0.329	24.98	0.23	25.21	49.49	24.28	
	2.155	25.84	0.37	26.21	46.00	19.79	
	4.407	25.96	0.45	26.41	46.00	19.59	
	9.552	19.34	0.51	19.85	50.00	30.15	
	23.888	24.16	0.76	24.92	50.00	25.08	

TEST ENGINEER: HUGH HUANG

EUT : LCD TV Temperature : 22°C

Model No. : DX-L40-10A Humidity : 48%RH

Serial No. : E2009060906 Date of Test : Jun 11, 2009

Test Mode : HDMI 1680*1050@60Hz

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark	
Line	0.150	51.60	0.23	51.83	66.00	14.17	QP	
	0.292	37.30	0.25	37.55	60.46	22.91		
	1.403	26.26	0.33	26.59	56.00	29.41		
	2.594	37.82	0.39	38.21	56.00	17.79		
	4.407	36.82	0.44	37.26	56.00	18.74		
	23.888	33.48	0.82	34.30	60.00	25.70	AV	
	0.150	41.26	0.23	41.49	56.00	14.51		
	0.292	27.82	0.25	28.07	50.46	22.39		
	1.403	16.35	0.33	16.68	46.00	29.32		
	2.594	27.75	0.39	28.14	46.00	17.86		
4.407	26.34	0.44	26.78	46.00	19.22	AV		
23.888	23.41	0.82	24.23	50.00	25.77			
Neutral	0.150	51.20	0.20	51.40	66.00		14.60	QP
	0.283	36.65	0.22	36.87	60.72		23.85	
	2.066	33.58	0.36	33.94	56.00		22.06	
	4.407	41.19	0.45	41.64	56.00	14.36		
	9.757	31.02	0.51	31.53	60.00	28.47		
	23.888	33.73	0.76	34.49	60.00	25.51	AV	
	0.150	41.29	0.20	41.49	56.00	14.51		
	0.283	26.85	0.22	27.07	50.72	23.65		
	2.066	23.65	0.36	24.01	46.00	21.99		
	4.407	31.42	0.45	31.87	46.00	14.13		
9.757	21.35	0.51	21.86	50.00	28.14	AV		
23.888	23.64	0.76	24.40	50.00	25.60			

TEST ENGINEER: HUGH HUANG

EUT : LCD TV Temperature : 22°C

Model No. : DX-L40-10A Humidity : 48%RH

Serial No. : E2009060906 Date of Test : Jun 11, 2009

Test Mode : HDMI 1920*1080@60Hz

Test Line	Frequency (MHz)	Meter Reading dB(μ V)	Factor (dB)	Emission Level dB(μ V)	Limits dB(μ V)	Margin (dB)	Remark
Line	0.150	53.06	0.23	53.29	66.00	12.71	QP
	0.259	39.05	0.24	39.29	61.47	22.18	
	2.033	34.17	0.36	34.53	56.00	21.47	
	4.574	32.06	0.44	32.50	56.00	23.50	
	9.966	35.11	0.49	35.60	60.00	24.40	
	23.888	33.04	0.82	33.86	60.00	26.14	
	0.150	43.30	0.23	43.53	56.00	12.47	AV
	0.259	29.85	0.24	30.09	51.47	21.38	
	2.033	24.58	0.36	24.94	46.00	21.06	
	4.574	22.64	0.44	23.08	46.00	22.92	
	9.966	25.84	0.49	26.33	50.00	23.67	
	23.888	23.35	0.82	24.17	50.00	25.83	
Neutral	0.150	54.81	0.20	55.01	66.00	10.99	QP
	0.336	34.06	0.23	34.29	59.31	25.02	
	2.155	32.32	0.37	32.69	56.00	23.31	
	4.407	38.76	0.45	39.21	56.00	16.79	
	9.861	31.56	0.51	32.07	60.00	27.93	
	23.888	33.94	0.76	34.70	60.00	25.30	
	0.150	44.46	0.20	44.66	56.00	11.34	AV
	0.336	24.36	0.23	24.59	49.31	24.72	
	2.155	22.36	0.37	22.73	46.00	23.27	
	4.407	28.96	0.45	29.41	46.00	16.59	
	9.861	21.48	0.51	21.99	50.00	28.01	
	23.888	23.48	0.76	24.24	50.00	25.76	

TEST ENGINEER: HUGH HUANG

4 RADIATED EMISSION TEST

4.1 Test Equipment

The following test equipments are used during the radiated emission test in a semi-anechoic chamber:

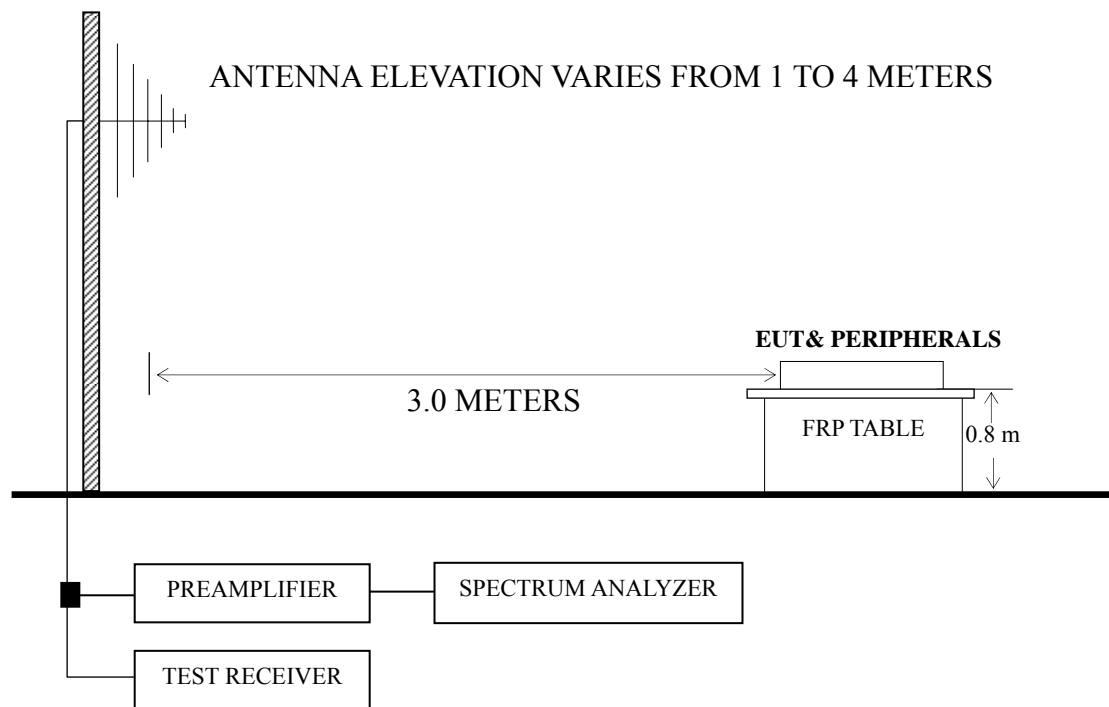
Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Test Receiver	R&S	ESVS10	844594/001	Mar 07, 2009	Mar 07, 2010
2.	Preamplifier	Agilent	8447D	2944A10548	Mar 19, 2009	Sep 19, 2009
3.	Preamplifier	HP	8449B	3008A00864	May 19, 2009	May 19, 2010
4.	Bi-log Antenna	TESEQ	CBL6112D	23193	May 14, 2008	May 14, 2010
5.	Spectrum	Agilent	E7405A	MY45106600	May 19, 2009	May 19, 2010
6.	Software	Audix	E3	SET00200 9912M295-2	--	--

4.2 Block Diagram of Test Setup

4.2.1 EUT and Peripherals

Same as Sec.3.2.1

4.2.2 Radiated emission test setup



■ : 50 ohm Coaxial Switch

4.3 Radiated Emission Limit [FCC Part 15 Subpart B 15.109(a)]

Frequency (MHz)	Distance (m)	Field strength limits	
		($\mu\text{V/m}$)	dB ($\mu\text{V/m}$)
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
Above 960	3	500	54.0

NOTE 1 - Emission Level dB ($\mu\text{V/m}$) = 20 log Emission Level ($\mu\text{V/m}$)
NOTE 2 - The tighter limit applies at the band edges.
NOTE 3 - Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.
NOTE 4 - The limits shown are based on Quasi-peak value detector below or equal to 1GHz and Average value detector above 1GHz.
NOTE 5 - Above 1 GHz, the limit on peak emission is 20 dB above the maximum permitted average emission limit applicable to the EUT

4.4 Test Configuration

The configuration of the EUT and peripherals are same as those used in conducted emission test.

Please refer to Sec.3.4.

4.5 Operating Condition of EUT

Same as conducted emission test which is listed in Sec.3.5, except for the test setup replaced by Sec.4.2.

4.6 Test Procedures

The EUT and peripherals were placed on a FRP turntable that is 0.8 meter above ground. The FRP turntable rotated 360 degrees to determine the position of the maximum emission level. The EUT was set 3 meters away from the receiving antenna, which was mounted on an antenna tower. Broadband antenna (Calibrated Bilog Antenna) was used as receiving antenna. The antenna moved up and down between 1 meter and 4 meters to find out the maximum emission level. Both horizontal and vertical polarizations of the antenna were set on measurement. In order to find the maximum emission, all of the interference cables were manipulated according to ANSI C63.4:2003 requirements during radiated emission test.

The bandwidth of Test Receiver R&S ESVS10 was set at 120 kHz.

The frequency range from 30 MHz to 1000MHz was checked for all test modes.

The frequency range from 1 GHz to 2 GHz was checked for D-Sub/HDMI 1680*1050@60Hz and 1920*1080@60Hz mode.

The test modes were done on radiated disturbance test and all the test results are listed in Sec.4.7.

4.7 Test Results

<PASS>

The frequency and amplitude of the highest radiated emission relative the limit is reported. All the emissions not reported below are too low against the FCC limit.

Test Mode	Data Page
D-Sub 640*480@60Hz	P24
D-Sub 1024*768@60Hz	P25
D-Sub 1680*1050@60Hz	P26
D-Sub 1920*1080@60Hz	P27
HDMI 640*480@60Hz	P28
HDMI 1024*768@60Hz	P29
HDMI 1680*1050@60Hz	P30
HDMI 1920*1080@60Hz	P31

- NOTE 1 – Emission Level = Antenna Factor + Cable Loss + Meter Reading. (< 1GHz)
- NOTE 2 – Emission Level = Antenna Factor + Cable Loss – Preamp Factor + Meter Reading.(> 1GHz)
- NOTE 3 – The emission levels that are 20dB below the official limit are not reported.
- NOTE 4 – 0° was the table front facing the antenna. Degree is calculated from 0° clockwise facing the antenna.
- NOTE 5 – All reading are Quasi-Peak values below or equal to 1GHz and Peak values above 1GHz. For measurements above 1 GHz, the peak measured value complies with the average limit, it is unnecessary to perform an average measurement.
- NOTE 6 – The worst case is for HDMI 1024*768@60Hz test mode. The worst emission at horizontal polarization was detected at 221.090 MHz with corrected signal level of 45.07 dB (μV/m) (limit is 46.00dB (μV/m)), when the antenna was 1.90 m height and the turntable was at 60°. The worst emission at vertical polarization was detected at 84.320 MHz with corrected signal level of 36.72 dB (μV/m) (limit is 40.00 dB (μV/m)), when the antenna was 1.80 m height and the turntable was at 310°.

EUT : LCD TV Temperature : 22°C

Model No. : DX-L40-10A Humidity : 60%RH

Serial No. : E2009060906 Date of Test : Jun 15, 2009

Test Mode : D-Sub1024*768@60Hz

Polarization	Frequency (MHz)	Meter Reading dB (μ V)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level dB (μ V/m)	Limits dB (μ V/m)	Margin (dB)
Horizontal	224.000	30.12	11.85	1.62	43.59	46.00	2.41
	252.130	23.80	12.94	1.70	38.44	46.00	7.56
	298.690	27.68	13.88	1.88	43.44	46.00	2.56
	449.040	22.42	17.20	2.32	41.94	46.00	4.06
	675.050	16.61	19.58	2.89	39.08	46.00	6.92
	809.880	16.46	20.80	3.21	40.47	46.00	5.53
Vertical	35.820	49.92	16.45	0.65	38.50	40.00	1.50
	84.320	54.46	8.48	0.98	35.72	40.00	4.28
	91.110	52.84	9.65	1.02	35.22	43.50	8.28
	94.990	52.20	10.45	1.05	35.45	43.50	8.05
	298.690	49.36	13.88	1.88	37.94	46.00	8.06
	449.040	49.20	17.20	2.32	39.93	46.00	6.07

TEST ENGINEER: RAVEN JIN

EUT : LCD TV Temperature : 22°C

Model No. : DX-L40-10A Humidity : 60%RH

Serial No. : E2009060906 Date of Test : Jun 15, 2009

Test Mode : D-Sub 1680*1050@60Hz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	84.320	23.42	8.48	0.98	--	32.88	40.00	7.12	QP
	144.460	21.14	11.76	1.21	--	34.11	43.50	9.39	
	221.090	29.81	11.71	1.61	--	43.13	46.00	2.87	
	298.690	25.69	13.88	1.88	--	41.45	46.00	4.55	
	441.280	22.22	17.09	2.31	--	41.62	46.00	4.38	
	809.880	15.95	20.80	3.21	--	39.96	46.00	6.04	PK
	1090.000	57.07	23.02	3.93	37.45	46.57	74.00	27.43	
	1170.000	55.26	23.54	4.13	37.25	45.68	74.00	28.32	
	1319.000	52.33	24.66	4.45	36.90	44.54	74.00	29.46	
	1435.000	52.16	25.41	4.67	36.65	45.59	74.00	28.41	
	1496.000	51.27	25.80	4.79	36.54	45.32	74.00	28.68	
1733.000	49.88	26.74	5.26	36.11	45.77	74.00	28.23		
Vertical	35.820	20.55	16.45	0.65	--	37.65	40.00	2.35	QP
	48.430	21.59	9.62	0.70	--	31.91	40.00	8.09	
	84.320	25.93	8.48	0.98	--	35.39	40.00	4.61	
	298.690	23.08	13.88	1.88	--	38.84	46.00	7.16	
	448.070	22.36	17.20	2.32	--	41.88	46.00	4.12	
	608.120	19.65	19.25	2.76	--	41.66	46.00	4.34	PK
	1024.000	59.32	22.57	3.76	37.63	48.02	74.00	25.98	
	1082.000	55.46	22.98	3.91	37.47	44.88	74.00	29.12	
	1157.000	54.39	23.48	4.10	37.28	44.69	74.00	29.31	
	1244.000	55.12	24.06	4.29	37.07	46.40	74.00	27.60	
	1365.000	57.42	24.98	4.54	36.80	50.14	74.00	23.86	
1499.000	55.77	25.80	4.80	36.53	49.84	74.00	24.16		

TEST ENGINEER: RAVEN JIN

EUT : LCD TV Temperature : 22°C

Model No. : DX-L40-10A Humidity : 60%RH

Serial No. : E2009060906 Date of Test : Jun 15, 2009

Test Mode : D-Sub 1920*1080@60Hz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	35.820	20.55	16.45	0.65	--	37.65	40.00	2.35	QP
	84.320	27.24	8.48	0.98	--	36.70	40.00	3.30	
	221.090	23.25	11.71	1.61	--	36.57	46.00	9.43	
	298.690	22.95	13.88	1.88	--	38.71	46.00	7.29	
	449.040	23.15	17.20	2.32	--	42.67	46.00	3.33	
	608.120	19.81	19.25	2.76	--	41.82	46.00	4.18	PK
	1010.000	60.06	22.46	3.72	37.67	48.57	74.00	25.43	
	1090.000	59.07	23.02	3.93	37.45	48.57	74.00	25.43	
	1114.000	58.68	23.21	4.00	37.39	48.50	74.00	25.50	
	1339.000	58.43	24.78	4.49	36.86	50.84	74.00	23.16	
	1365.000	58.42	24.98	4.54	36.80	51.14	74.00	22.86	PK
1633.000	52.00	26.49	5.06	36.28	47.27	74.00	26.73		
Vertical	73.650	24.73	6.98	0.89	--	32.60	40.00	7.40	QP
	202.660	28.13	10.81	1.55	--	40.49	43.50	3.01	
	221.090	30.69	11.71	1.61	--	44.01	46.00	1.99	
	298.690	27.09	13.88	1.88	--	42.85	46.00	3.15	
	448.070	24.41	17.20	2.32	--	43.93	46.00	2.07	
	809.880	16.78	20.80	3.21	--	40.79	46.00	5.21	PK
	1044.000	60.47	22.69	3.81	37.58	49.39	74.00	24.61	
	1109.000	56.87	23.18	3.99	37.40	46.64	74.00	27.36	
	1134.000	61.10	23.33	4.05	37.34	51.14	74.00	22.86	
	1227.000	58.87	23.94	4.25	37.11	49.95	74.00	24.05	
	1328.000	51.28	24.70	4.47	36.88	43.57	74.00	30.43	
1452.000	51.35	25.53	4.71	36.63	44.96	74.00	29.04		

TEST ENGINEER: RAVEN JIN

EUT : LCD TV Temperature : 22°C

Model No. : DX-L40-10A Humidity : 60%RH

Serial No. : E2009060906 Date of Test : Jun 15, 2009

Test Mode : HDMI 1024*768@60Hz

Polarization	Frequency (MHz)	Meter Reading dB (μ V)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level dB (μ V/m)	Limits dB (μ V/m)	Margin (dB)
Horizontal	74.620	22.89	7.11	0.90	30.90	40.00	9.10
	221.090	31.75	11.71	1.61	45.07	46.00	0.93
	298.690	27.48	13.88	1.88	43.24	46.00	2.76
	448.070	24.54	17.20	2.32	44.06	46.00	1.94
	608.120	17.54	19.25	2.76	39.55	46.00	6.45
	809.880	15.76	20.80	3.21	39.77	46.00	6.23
Vertical	84.320	55.46	8.48	0.98	36.72	40.00	3.28
	94.990	52.48	10.45	1.05	35.73	43.50	7.77
	221.090	49.86	11.71	1.61	35.73	46.00	10.27
	298.690	48.60	13.88	1.88	37.18	46.00	8.82
	449.040	49.09	17.20	2.32	39.82	46.00	6.18
	735.190	42.89	20.07	3.04	37.53	46.00	8.47

TEST ENGINEER: RAVEN JIN

EUT : LCD TV Temperature : 22°C

Model No. : DX-L40-10A Humidity : 60%RH

Serial No. : E2009060906 Date of Test : Jun 15, 2009

Test Mode : HDMI 1680*1050@60Hz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	35.820	20.69	16.45	0.65	--	37.79	40.00	2.21	QP
	84.320	25.81	8.48	0.98	--	35.27	40.00	4.73	
	221.090	22.93	11.71	1.61	--	36.25	46.00	9.75	
	298.690	22.83	13.88	1.88	--	38.59	46.00	7.41	
	449.040	22.97	17.20	2.32	--	42.49	46.00	3.51	
	608.120	20.09	19.25	2.76	--	42.10	46.00	3.90	PK
	1093.000	52.42	23.05	3.94	37.44	41.97	74.00	32.03	
	1312.000	48.06	24.62	4.43	36.91	40.20	74.00	33.80	
	1434.000	49.13	25.41	4.67	36.66	42.55	74.00	31.45	
	1673.000	45.99	26.58	5.14	36.21	41.50	74.00	32.50	
	1801.000	47.26	26.90	5.40	36.00	43.56	74.00	30.44	Vertical
1922.000	43.87	27.66	5.52	35.81	41.24	74.00	32.76		
73.650	23.19	6.98	0.89	--	31.06	40.00	8.94	QP	
91.110	20.83	9.65	1.02	--	31.50	43.50	12.00		
221.090	30.55	11.71	1.61	--	43.87	46.00	2.13		
298.690	26.84	13.88	1.88	--	42.60	46.00	3.40		
449.040	24.79	17.20	2.32	--	44.31	46.00	1.69		
740.040	13.78	20.10	3.04	--	36.92	46.00	9.08	PK	
1085.000	53.70	22.98	3.91	37.47	43.12	74.00	30.88		
1209.000	43.55	23.78	4.22	37.15	34.40	74.00	39.60		
1338.000	50.26	24.78	4.49	36.86	42.67	74.00	31.33		
1460.000	51.83	25.56	4.73	36.61	45.51	74.00	28.49		
1552.000	45.68	26.15	4.90	36.43	40.30	74.00	33.70	PK	
1882.000	41.52	27.40	5.48	35.87	38.53	74.00	35.47		

TEST ENGINEER: RAVEN JIN

EUT : LCD TV Temperature : 22°C

Model No. : DX-L40-10A Humidity : 60%RH

Serial No. : E2009060906 Date of Test : Jun 15, 2009

Test Mode : HDMI 1920*1080@60Hz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	71.710	25.41	6.69	0.87	--	32.97	40.00	7.03	QP
	95.960	20.40	10.70	1.05	--	32.15	43.50	11.35	
	221.090	29.92	11.71	1.61	--	43.24	46.00	2.76	
	298.690	24.85	13.88	1.88	--	40.61	46.00	5.39	
	448.070	24.23	17.20	2.32	--	43.75	46.00	2.25	
	608.120	17.98	19.25	2.76	--	39.99	46.00	6.01	PK
	1100.000	53.38	23.11	3.96	37.42	43.03	74.00	30.97	
	1216.000	50.25	23.86	4.23	37.14	41.20	74.00	32.80	
	1324.000	47.75	24.70	4.46	36.89	40.02	74.00	33.98	
	1500.000	48.20	25.80	4.80	36.53	42.27	74.00	31.73	
	1719.000	46.43	26.71	5.23	36.13	42.24	74.00	31.76	
1847.000	45.51	27.17	5.45	35.93	42.20	74.00	31.80		
Vertical	35.820	20.89	16.45	0.65	--	37.99	40.00	2.01	QP
	84.320	25.77	8.48	0.98	--	35.23	40.00	4.77	
	94.990	24.12	10.45	1.05	--	35.62	43.50	7.88	
	224.970	22.08	11.89	1.62	--	35.59	46.00	10.41	
	298.690	23.89	13.88	1.88	--	39.65	46.00	6.35	
	449.040	23.03	17.20	2.32	--	42.55	46.00	3.45	PK
	1142.000	53.50	23.39	4.07	37.32	43.64	74.00	30.36	
	1232.000	52.19	23.98	4.26	37.09	43.34	74.00	30.66	
	1408.000	51.05	25.24	4.62	36.71	44.20	74.00	29.80	
	1540.000	46.26	26.07	4.87	36.45	40.75	74.00	33.25	
	1660.000	45.27	26.56	5.11	36.24	40.70	74.00	33.30	
1829.000	45.67	27.08	5.43	35.95	42.23	74.00	31.77		

TEST ENGINEER: RAVEN JIN

5 DEVIATION TO TEST SPECIFICATIONS

None.


6 DEBUG DESCRIPTION

The following components are used during the countermeasure procedures:

Name	M/N	Specifications (mm)	Manufacturer	Location
Ferrite Core	--	30*35*13	ROH	See Internal Photo Figure 16
Ferrite Core	BNF-12	15*19*8	ROH	See Internal Photo Figure 17

Note: We had required the applicant and manufacturer that all electrical and mechanical devices employed for spurious radiation suppression, including any modifications made during certification testing, must be incorporated in each unit marked

TEST ENGINEER:



(RAVEN JIN)