

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

LED LCD TV

Model No.	Serial No.	Brand
LTDN55T39XWUS3D	E11111372-01/01	Hisense
F55T39EGWD	--	

FCC ID : W9HLCDF0003

Prepared For : Hisense Electric Co., Ltd.
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Development Zone, Qingdao, China

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Report No. : ACI-F11158
Date of Test : Nov 08 – 14, 2011
Date of Report : Nov 16, 2011

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TEST REPORT FOR FCC CERTIFICATE

Applicant : Hisense Electric Co., Ltd.

Manufacturer : Hisense Electric Co., Ltd.

EUT Description : LED LCD TV

Model No.	Serial No.	Brand	Power Supply
LTDN55T39XWUS3D	E11111372-01/01	Hisense	120V/60Hz
F55T39EGWD	--		

Test Procedure Used:

*FCC RULES AND REGULATIONS PART 15 SUBPART B CLASS B OCTOBER 2010
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: Ref to Sec2.1; S/N: Ref to Sec2.1) which was tested in 3m anechoic chamber Nov 08 – 14, 2011 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.

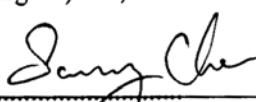
The test results for EUT's TV functions are contained in No.F11159, a Verification report.

Date of Test : Nov 08 – 14, 2011 Date of Report : Nov 16, 2011

Producer : 
YENNY YU / Assistant

Review : 
DIO YANG / Assistant Manager

 For and on behalf of
Audix Technology (Shanghai) Co., Ltd.

Signatory : 
Authorized Signature EMC SAMMY CHEN / Deputy 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 2010 AND ANSI C63.4-2003	15.107(a) Class B	Pass
Radiated Disturbance	FCC RULES AND REGULATIONS PART 15 SUBPART B OCTOBER 2010 AND ANSI C63.4-2003	15.109(a) Class B	Pass

2 GENERAL INFORMATION

2.1 Description of Equipment Under Test

Description : LED LCD TV

Type of EUT : Production Pre-product Pro-type

Model No.	Serial No.	Brand
LTDN55T39XWUS3D	E11111372-01/01	Hisense
F55T39EGWD	--	

Note : The above models are all the same except for the different model name.
The model LTDN55T39XWUS3D was tested in the 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 : LTA550HQ14

Tuner : Manufacturer : XuGuang Tech.Co.,Ltd
M/N : DVT-8C/W41FOHS\ROH

Max Resolution : 1024*768@60Hz

D-Sub Cable : Shielded, Detachable, 1.85m,
with two cores on cable

HDMI Cable : Shielded, Detachable, 1.00m,

Power Cord : Unshielded, Detachable, 1.80m

Remark:

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

Bottom Port:

- (1) One PC AUDIO Port : Connected with PC
- (2) One VGA Port : Connected with PC
- (3) One HDMI3 Port : Connected with DVD #2
- (4) One HDMI4 Port : Connected with DVD #3
- (5) One USB Port : Connected with LOAD
- (6) One LAN Port : Connected with PC

Side Port

- (7) One HDMI1 Port : Connected with PC
- (8) One HDMI2 Port : Connected with DVD #1
- (9) One DIGITAL AUDIO OUT Port : Connected with DVD #1
- (10) One ANT Port : Connected with ATSC SG
- (11) One Headphone Port : Connected with Earphone
- (12) One component of AV/COMP Port : Connected with DVD #1

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, undetachable, 1.8m.
Certificate : CE/EMC, FCC DoC, 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 : LG
Model Number : DF9921N
Serial Number : 3850R-M846W
Certificate : FCC DoC, CE/EMC, CCC

2.2.11 DVD #3

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

2.2.12 Load

Resistance : 10ohm

2.3 Description of Test Facility

Site Description (No.3 3m 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: $U = 3.38\text{dB}$

Radiated Emission Expanded Uncertainty (30-200MHz):

$U = 4.58\text{ dB}$ (horizontal)

$U = 4.70\text{ dB}$ (vertical)

Radiated Emission Expanded Uncertainty (200M-1GHz):

$U = 4.84\text{ dB}$ (horizontal)

$U = 4.70\text{ dB}$ (vertical)

3 CONDUCTED EMISSION TEST

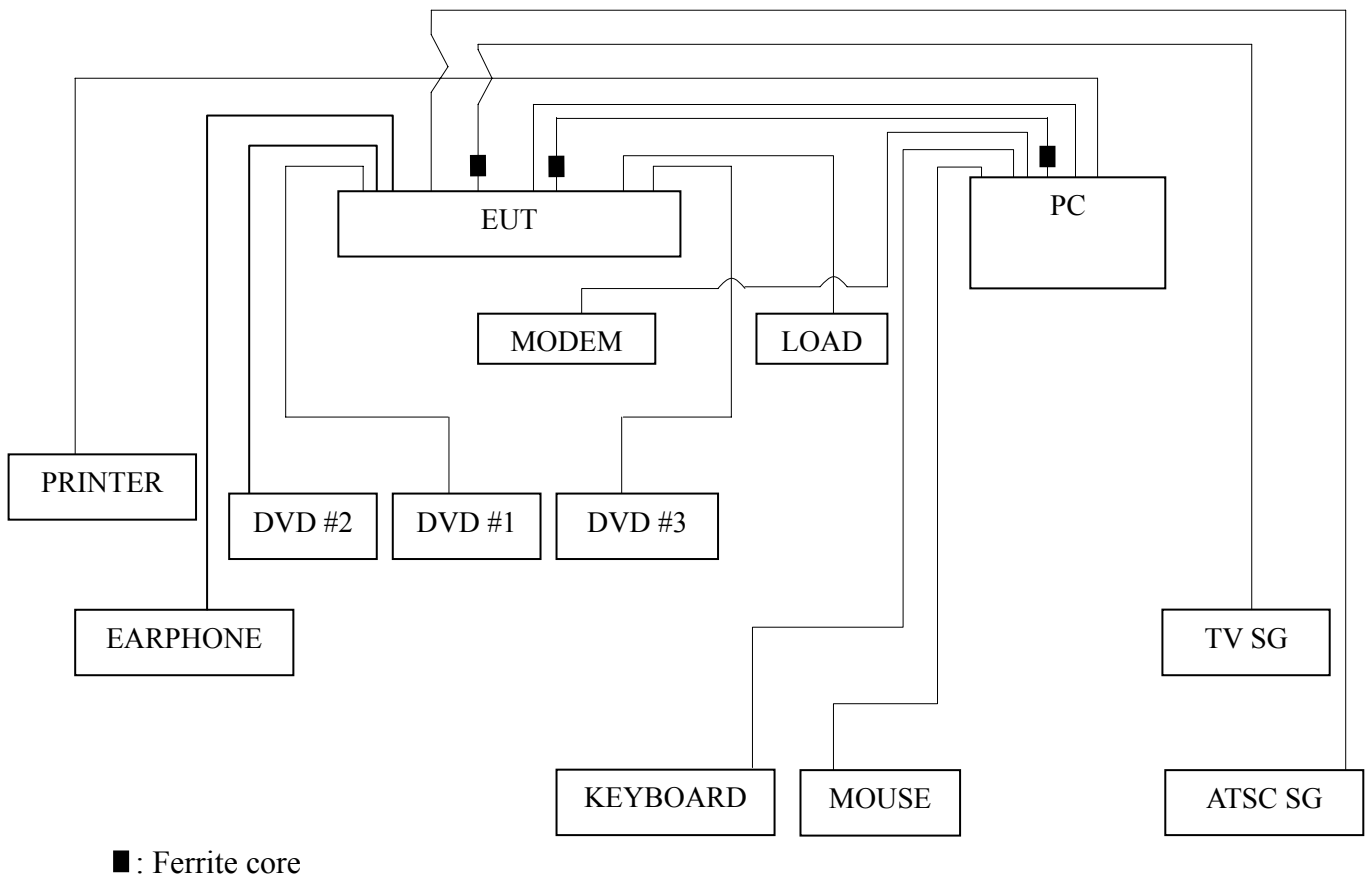
3.1 Test Equipment

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

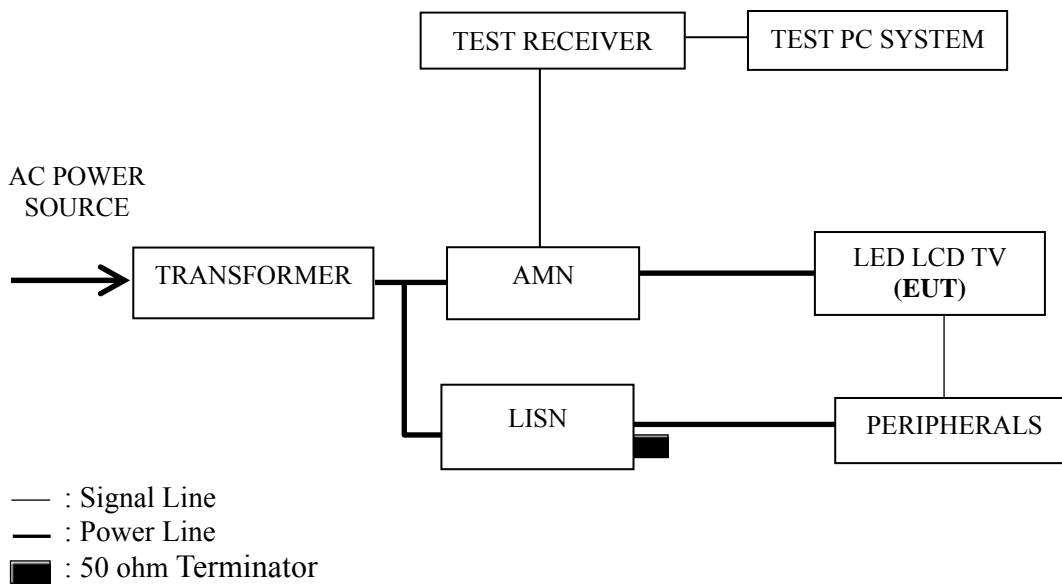
Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Test Receiver	R&S	ESCI	100841	Mar 22, 2011	Mar 22, 2012
2.	Artificial Mains Network (AMN)	R&S	ENV4200	100125	Mar 22, 2011	Mar 22, 2012
3.	Line Impedance Stabilization Network (LISN)	Kyoritsu	KNW-407	8-1280-4	Apr 02, 2011	Apr 02, 2012
4.	50 Ω Coaxial Switch	Anritsu	MP59B	6200426389	Sep 18, 2011	Mar 18, 2012
5.	50 Ω Terminator	Anritsu	BNC	001	Mar 22, 2011	Mar 22, 2012
6.	Software	Audix	E3	SET00200 9804M592	--	--

3.2 Block Diagram of Test Setup

3.2.1 EUT & Peripherals



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 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 800*600@60Hz
D-Sub 1024*768@60Hz
HDMI 640*480@60Hz
HDMI 800*600@60Hz
HDMI 1024*768@60Hz
LAN

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	P14
D-Sub 800*600@60Hz	P15
D-Sub 1024*768@60Hz	P16
HDMI 640*480@60Hz	P17
HDMI 800*600@60Hz	P18
HDMI 1024*768@60Hz	P19
LAN	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 D-Sub 640*480@60Hz test mode. The worst emission is detected at 7.852 MHz (Quasi-Peak Value) with corrected signal level of 55.04 dB (μ V) (limit is 60.00 dB (μ V)), when the Neutral of the EUT is connected to AMN.

EUT : LED LCD TV Temperature : 22°C

Model No. : LTDN55T39XWUS3D Humidity : 48%RH

Serial No. : E11111372-01/01 Date of Test : Nov 08, 2011

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	0.180	41.16	9.85	51.01	64.50	13.49	QP
	0.402	24.63	9.90	34.53	57.81	23.28	
	0.953	29.67	10.36	40.03	56.00	15.97	
	1.464	30.22	10.32	40.54	56.00	15.46	
	7.687	43.42	10.31	53.73	60.00	6.27	
	12.649	40.37	10.36	50.73	60.00	9.27	
	0.180	31.70	9.85	41.55	54.50	12.95	AV
	0.402	17.30	9.90	27.20	47.81	20.61	
	0.953	20.20	10.36	30.56	46.00	15.44	
	1.464	20.10	10.32	30.42	46.00	15.58	
	7.687	31.90	10.31	42.21	50.00	7.79	
	12.649	31.60	10.36	41.96	50.00	8.04	
Neutral	0.180	38.89	9.84	48.73	64.50	15.77	QP
	0.402	23.81	9.90	33.71	57.81	24.10	
	0.953	30.03	10.09	40.12	56.00	15.88	
	2.900	29.12	10.24	39.36	56.00	16.64	
	7.852	44.56	10.48	55.04	60.00	4.96	
	12.649	39.20	10.35	49.55	60.00	10.45	
	0.180	29.30	9.84	39.14	54.50	15.36	AV
	0.402	15.60	9.90	25.50	47.81	22.31	
	0.953	20.20	10.09	30.29	46.00	15.71	
	2.900	20.10	10.24	30.34	46.00	15.66	
	7.852	32.59	10.48	43.07	50.00	6.93	
	12.649	32.90	10.35	43.25	50.00	6.75	

TEST ENGINEER: L V Y L V

EUT : LED LCD TV Temperature : 22°C

Model No. : LTDN55T39XWUS3D Humidity : 48%RH

Serial No. : E11111372-01/01 Date of Test : Nov 08, 2011

Test Mode : D-Sub 800*600@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	0.180	40.93	9.85	50.78	64.50	13.72	QP
	0.402	24.76	9.90	34.66	57.81	23.15	
	0.953	31.72	10.36	42.08	56.00	13.92	
	2.809	28.40	10.31	38.71	56.00	17.29	
	7.526	43.74	10.31	54.05	60.00	5.95	
	12.649	39.05	10.36	49.41	60.00	10.59	
	0.180	30.60	9.85	40.45	54.50	14.05	AV
	0.402	17.50	9.90	27.40	47.81	20.41	
	0.953	21.20	10.36	31.56	46.00	14.44	
	2.809	18.91	10.31	29.22	46.00	16.78	
	7.526	31.20	10.31	41.51	50.00	8.49	
	12.649	32.60	10.36	42.96	50.00	7.04	
Neutral	0.180	38.66	9.84	48.50	64.50	16.00	QP
	0.398	24.97	9.90	34.87	57.90	23.03	
	0.953	31.20	10.09	41.29	56.00	14.71	
	2.707	29.55	10.22	39.77	56.00	16.23	
	7.935	43.98	10.47	54.45	60.00	5.55	
	12.649	41.43	10.35	51.78	60.00	8.22	
	0.180	28.50	9.84	38.34	54.50	16.16	AV
	0.398	17.30	9.90	27.20	47.90	20.70	
	0.953	21.90	10.09	31.99	46.00	14.01	
	2.707	20.61	10.22	30.83	46.00	15.17	
	7.935	31.20	10.47	41.67	50.00	8.33	
	12.649	32.20	10.35	42.55	50.00	7.45	

TEST ENGINEER: LUY LV

EUT : LED LCD TV Temperature : 22°C

Model No. : LTDN55T39XWUS3D Humidity : 48%RH

Serial No. : E11111372-01/01 Date of Test : Nov 08, 2011

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	0.180	41.15	9.85	51.00	64.50	13.50	QP
	0.402	24.63	9.90	34.53	57.81	23.28	
	0.953	32.00	10.36	42.36	56.00	13.64	
	2.678	28.72	10.32	39.04	56.00	16.96	
	7.526	44.53	10.31	54.84	60.00	5.16	
	12.649	40.88	10.36	51.24	60.00	8.76	
	0.180	31.70	9.85	41.55	54.50	12.95	AV
	0.402	18.30	9.90	28.20	47.81	19.61	
	0.953	22.40	10.36	32.76	46.00	13.24	
	2.678	19.40	10.32	29.72	46.00	16.28	
	7.526	31.70	10.31	42.01	50.00	7.99	
	12.649	30.80	10.36	41.16	50.00	8.84	
Neutral	0.178	38.79	9.84	48.63	64.59	15.96	QP
	0.402	23.78	9.90	33.68	57.81	24.13	
	0.974	30.78	10.09	40.87	56.00	15.13	
	2.809	29.85	10.23	40.08	56.00	15.92	
	7.852	44.26	10.48	54.74	60.00	5.26	
	12.784	40.07	10.34	50.41	60.00	9.59	
	0.178	28.70	9.84	38.54	54.59	16.05	AV
	0.402	17.50	9.90	27.40	47.81	20.41	
	0.974	20.70	10.09	30.79	46.00	15.21	
	2.809	20.20	10.23	30.43	46.00	15.57	
	7.852	32.09	10.48	42.57	50.00	7.43	
	12.784	33.10	10.34	43.44	50.00	6.56	

TEST ENGINEER: LUY LV

EUT : LED LCD TV Temperature : 22°C

Model No. : LTDN55T39XWUS3D Humidity : 48%RH

Serial No. : E11111372-01/01 Date of Test : Nov 08, 2011

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	0.180	41.14	9.85	50.99	64.50	13.51	QP
	0.402	25.33	9.90	35.23	57.81	22.58	
	0.953	32.45	10.36	42.81	56.00	13.19	
	2.809	28.25	10.31	38.56	56.00	17.44	
	7.446	43.52	10.31	53.83	60.00	6.17	
	12.649	39.18	10.36	49.54	60.00	10.46	
	0.180	31.60	9.85	41.45	54.50	13.05	AV
	0.402	18.50	9.90	28.40	47.81	19.41	
	0.953	22.40	10.36	32.76	46.00	13.24	
	2.809	19.61	10.31	29.92	46.00	16.08	
	7.446	32.50	10.31	42.81	50.00	7.19	
	12.649	30.20	10.36	40.56	50.00	9.44	
Neutral	0.180	38.49	9.84	48.33	64.50	16.17	QP
	0.402	24.44	9.90	34.34	57.81	23.47	
	0.953	31.35	10.09	41.44	56.00	14.56	
	2.678	28.45	10.22	38.67	56.00	17.33	
	7.852	42.22	10.48	52.70	60.00	7.30	
	12.649	39.88	10.35	50.23	60.00	9.77	
	0.180	28.60	9.84	38.44	54.50	16.06	AV
	0.402	18.40	9.90	28.30	47.81	19.51	
	0.953	21.00	10.09	31.09	46.00	14.91	
	2.678	19.61	10.22	29.83	46.00	16.17	
	7.852	31.59	10.48	42.07	50.00	7.93	
	12.649	29.60	10.35	39.95	50.00	10.05	

TEST ENGINEER: LUY LV

EUT : LED LCD TV Temperature : 22°C

Model No. : LTDN55T39XWUS3D Humidity : 48%RH

Serial No. : E11111372-01/01 Date of Test : Nov 08, 2011

Test Mode : HDMI 800*600@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	0.180	40.92	9.85	50.77	64.50	13.73	QP
	0.406	24.93	9.90	34.83	57.73	22.90	
	0.943	32.04	10.36	42.40	56.00	13.60	
	2.809	28.89	10.31	39.20	56.00	16.80	
	7.852	43.16	10.31	53.47	60.00	6.53	
	12.649	39.89	10.36	50.25	60.00	9.75	
	0.180	31.20	9.85	41.05	54.50	13.45	AV
	0.406	17.21	9.90	27.11	47.73	20.62	
	0.943	22.20	10.36	32.56	46.00	13.44	
	2.809	19.71	10.31	30.02	46.00	15.98	
	7.852	32.30	10.31	42.61	50.00	7.39	
	12.649	29.60	10.36	39.96	50.00	10.04	
Neutral	0.180	38.58	9.84	48.42	64.50	16.08	QP
	0.406	24.53	9.90	34.43	57.73	23.30	
	0.953	30.58	10.09	40.67	56.00	15.33	
	2.678	28.63	10.22	38.85	56.00	17.15	
	7.935	43.57	10.47	54.04	60.00	5.96	
	11.438	43.50	10.45	53.95	60.00	6.05	
	0.180	29.50	9.84	39.34	54.50	15.16	AV
	0.406	18.50	9.90	28.40	47.73	19.33	
	0.953	20.60	10.09	30.69	46.00	15.31	
	2.678	19.21	10.22	29.43	46.00	16.57	
	7.935	32.50	10.47	42.97	50.00	7.03	
	11.438	31.91	10.45	42.36	50.00	7.64	

TEST ENGINEER: LUY LV

EUT : LED LCD TV Temperature : 22°C

Model No. : LTDN55T39XWUS3D Humidity : 48%RH

Serial No. : E11111372-01/01 Date of Test : Nov 08, 2011

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	0.180	41.12	9.85	50.97	64.50	13.53	QP
	0.402	24.75	9.90	34.65	57.81	23.16	
	0.953	32.06	10.36	42.42	56.00	13.58	
	2.900	28.64	10.32	38.96	56.00	17.04	
	7.852	44.37	10.31	54.68	60.00	5.32	
	12.649	39.73	10.36	50.09	60.00	9.91	
	0.180	31.60	9.85	41.45	54.50	13.05	AV
	0.402	18.30	9.90	28.20	47.81	19.61	
	0.953	21.90	10.36	32.26	46.00	13.74	
	2.900	19.29	10.32	29.61	46.00	16.39	
	7.852	32.80	10.31	43.11	50.00	6.89	
	12.649	32.20	10.36	42.56	50.00	7.44	
Neutral	0.180	38.51	9.84	48.35	64.50	16.15	QP
	0.406	24.77	9.90	34.67	57.73	23.06	
	0.953	30.66	10.09	40.75	56.00	15.25	
	2.809	28.77	10.23	39.00	56.00	17.00	
	7.526	43.20	10.47	53.67	60.00	6.33	
	12.649	39.17	10.35	49.52	60.00	10.48	
	0.180	29.20	9.84	39.04	54.50	15.46	AV
	0.406	18.40	9.90	28.30	47.73	19.43	
	0.953	20.10	10.09	30.19	46.00	15.81	
	2.809	20.20	10.23	30.43	46.00	15.57	
	7.526	32.70	10.47	43.17	50.00	6.83	
	12.649	31.90	10.35	42.25	50.00	7.75	

TEST ENGINEER: L V Y L V

EUT : LED LCD TV Temperature : 22°C

Model No. : LTDN55T39XWUS3D Humidity : 48%RH

Serial No. : E11111372-01/01 Date of Test : Nov 08, 2011

Test Mode : LAN

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.178	41.18	9.86	51.04	64.59	13.55	QP
	0.406	25.05	9.90	34.95	57.73	22.78	
	0.953	32.33	10.36	42.69	56.00	13.31	
	2.554	28.10	10.32	38.42	56.00	17.58	
	7.446	42.64	10.31	52.95	60.00	7.05	
	12.649	39.48	10.36	49.84	60.00	10.16	
	0.178	31.30	9.86	41.16	54.59	13.43	AV
	0.406	18.51	9.90	28.41	47.73	19.32	
	0.953	22.40	10.36	32.76	46.00	13.24	
	2.554	18.41	10.32	28.73	46.00	17.27	
	7.446	32.50	10.31	42.81	50.00	7.19	
	12.649	30.40	10.36	40.76	50.00	9.24	
Neutral	0.178	38.62	9.84	48.46	64.59	16.13	QP
	0.484	24.28	9.93	34.21	56.27	22.06	
	0.943	31.33	10.09	41.42	56.00	14.58	
	2.809	29.13	10.23	39.36	56.00	16.64	
	7.935	42.96	10.47	53.43	60.00	6.57	
	12.649	39.99	10.35	50.34	60.00	9.66	
	0.178	28.70	9.84	38.54	54.59	16.05	AV
	0.484	18.60	9.93	28.53	46.27	17.74	
	0.943	21.19	10.09	31.28	46.00	14.72	
	2.809	20.40	10.23	30.63	46.00	15.37	
	7.935	32.70	10.47	43.17	50.00	6.83	
	12.649	29.40	10.35	39.75	50.00	10.25	

TEST ENGINEER: LUY LV

4 RADIATED EMISSION TEST

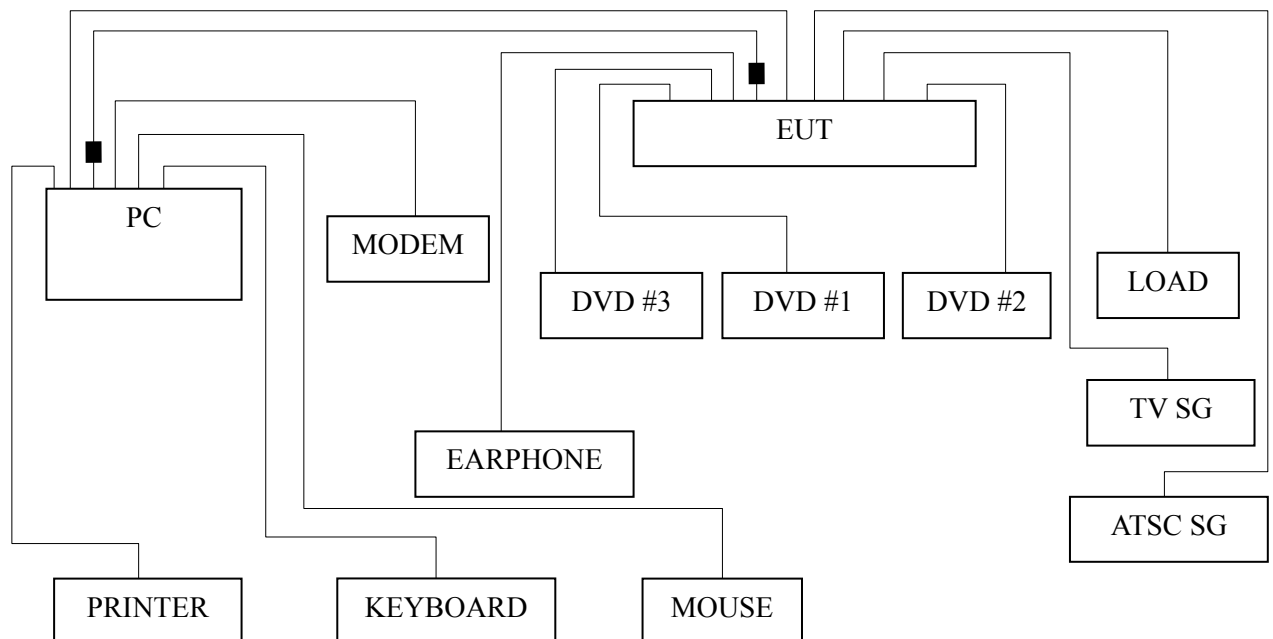
4.1 Test Equipment

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 22, 2011	Mar 22, 2012
2.	Preamplifier	Agilent	8447D	2944A10548	Sep 18, 2011	Mar 18, 2012
3.	Bi-log Antenna	TESEQ	CBL6112D	23192	Dec 01, 2010	Dec 01, 2011
4.	Spectrum Analyzer	Agilent	E7405A	MY45106600	Mar 22, 2011	Mar 22, 2012
5.	50Ω Coaxial Switch	Anritsu	MP59B	6200426390	Sep 18, 2011	Mar 18, 2012
6.	Software	Audix	E3	SET00200 9912M295-2	--	--

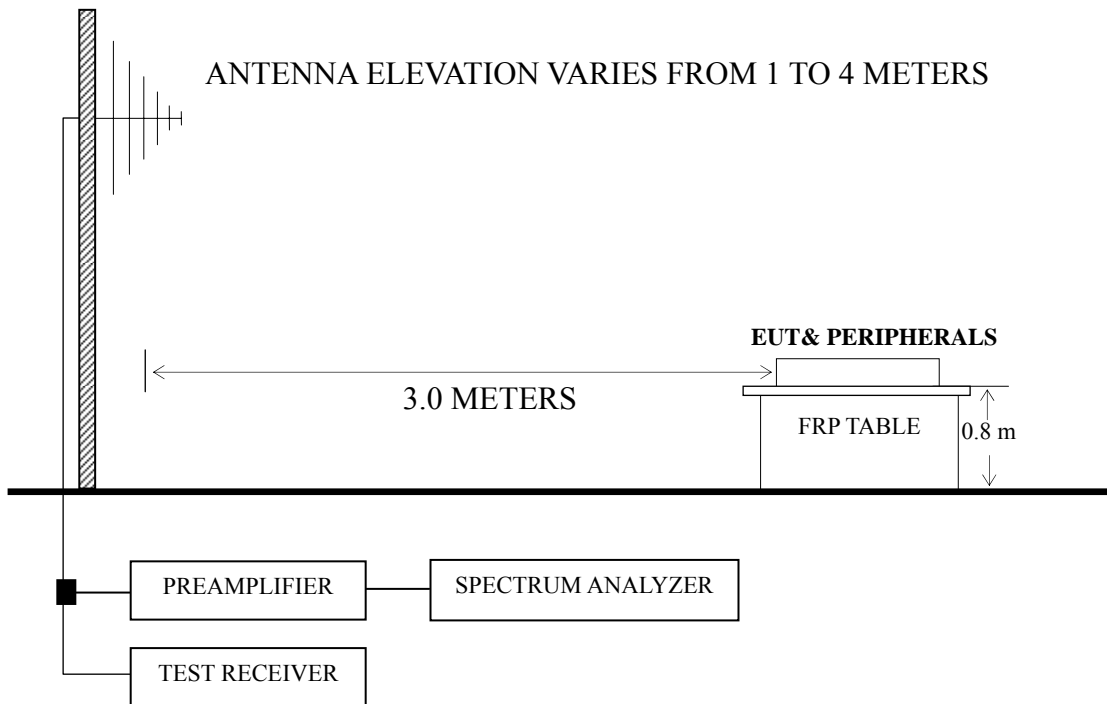
4.2 Block Diagram of Test Setup

4.2.1 EUT and Peripherals



■ : Ferrite core

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.

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 I.F. 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 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	P25
D-Sub 800*600@60Hz	P26
D-Sub 1024*768@60Hz	P27
HDMI 640*480@60Hz	P28
HDMI 800*600@60Hz	P29
HDMI 1024*768@60Hz	P30
LAN	P31

NOTE 1 – Emission Level = Antenna Factor + Cable Loss + Meter Reading.

NOTE 2 – All readings are Quasi-Peak values.

NOTE 3 – 0° was the table front facing the antenna. Degree is calculated from 0° clockwise facing the antenna.

NOTE 4 – The worst case is for D-Sub 1024*768@60Hz test mode. The worst emission at horizontal polarization was detected at 175.500MHz with corrected signal level of 31.24 dB ($\mu\text{V}/\text{m}$) (limit is 43.50 dB ($\mu\text{V}/\text{m}$)), when the antenna was 2.10 m height and the turntable was at 280°. The worst emission at vertical polarization was detected at 49.100 MHz with corrected signal level of 37.60 dB ($\mu\text{V}/\text{m}$) (limit is 40.00 dB ($\mu\text{V}/\text{m}$)), when the antenna was 1.00 m height and the turntable was at 120°.

EUT : LED LCD TV Temperature : 22°C

Model No. : LTDN55T39XWUS3D Humidity : 60%RH

Serial No. : E11111372-01/01 Date of Test : Nov 14, 2011

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

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)
Horizontal	72.680	16.64	10.08	0.91	27.63	40.00	12.37
	185.200	23.77	9.94	1.40	35.11	43.50	8.39
	216.400	18.69	10.45	1.50	30.64	46.00	15.36
	282.200	11.14	13.21	1.72	26.07	46.00	19.93
	708.030	7.16	19.60	2.70	29.46	46.00	16.54
	903.970	6.10	20.32	3.04	29.46	46.00	16.54
Vertical	47.500	26.39	9.37	0.77	36.53	40.00	3.47
	69.770	16.42	9.85	0.89	27.16	40.00	12.84
	105.660	16.49	11.26	1.07	28.82	43.50	14.68
	186.170	22.84	9.93	1.40	34.17	43.50	9.33
	357.860	13.61	15.33	1.95	30.89	46.00	15.11
	708.030	2.94	19.60	2.70	25.24	46.00	20.76

TEST ENGINEER: RAVEN JIN

EUT : LED LCD TV Temperature : 22°C

Model No. : LTDN55T39XWUS3D Humidity : 60%RH

Serial No. : E11111372-01/01 Date of Test : Nov 14, 2011

Test Mode : D-Sub 800*600@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	50.370	19.12	8.51	0.78	28.41	40.00	11.59
	75.590	17.69	10.27	0.92	28.88	40.00	11.12
	159.980	18.63	10.25	1.28	30.16	43.50	13.34
	212.360	16.47	10.29	1.49	28.25	43.50	15.25
	266.680	13.91	12.66	1.66	28.23	46.00	17.77
	828.310	6.91	20.52	2.93	30.36	46.00	15.64
Vertical	47.460	26.48	9.37	0.77	36.62	40.00	3.38
	73.650	19.61	10.15	0.91	30.67	40.00	9.33
	99.840	16.70	11.34	1.04	29.08	43.50	14.42
	183.260	23.89	9.96	1.39	35.24	43.50	8.26
	361.740	8.14	15.45	1.96	25.55	46.00	20.45
	819.580	3.06	20.54	2.92	26.52	46.00	19.48

TEST ENGINEER: RAVEN JIN

EUT : LED LCD TV Temperature : 22°C

Model No. : LTDN55T39XWUS3D Humidity : 60%RH

Serial No. : E11111372-01/01 Date of Test : Nov 14, 2011

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

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)
Horizontal	49.400	18.09	8.69	0.78	27.56	40.00	12.44
	76.560	16.31	10.34	0.93	27.58	40.00	12.42
	175.500	19.84	10.04	1.36	31.24	43.50	12.26
	272.500	14.11	12.86	1.68	28.65	46.00	17.35
	496.570	6.82	17.56	2.26	26.64	46.00	19.36
	808.910	6.53	20.58	2.90	30.01	46.00	15.99
Vertical	49.100	28.00	8.82	0.78	37.60	40.00	2.40
	70.740	50.36	9.93	0.90	33.40	40.00	6.60
	98.870	46.31	11.31	1.03	30.75	43.50	12.75
	183.260	52.00	9.96	1.39	36.03	43.50	7.47
	265.710	45.79	12.62	1.65	33.18	46.00	12.82
	803.090	38.05	20.59	2.90	33.81	46.00	12.19

TEST ENGINEER: RAVEN JIN

EUT : LED LCD TV Temperature : 22°C

Model No. : LTDN55T39XWUS3D Humidity : 60%RH

Serial No. : E11111372-01/01 Date of Test : Nov 14, 2011

Test Mode : HDMI 640*480@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	72.680	17.29	10.08	0.91	28.28	40.00	11.72
	182.290	24.12	9.97	1.38	35.47	43.50	8.03
	266.680	13.53	12.66	1.66	27.85	46.00	18.15
	307.420	11.01	13.90	1.78	26.69	46.00	19.31
	507.240	3.19	17.64	2.27	23.10	46.00	22.90
	698.330	4.62	19.47	2.67	26.76	46.00	19.24
Vertical	48.430	26.13	9.02	0.77	35.92	40.00	4.08
	72.680	16.78	10.08	0.91	27.77	40.00	12.23
	102.750	17.93	11.31	1.05	30.29	43.50	13.21
	186.170	22.86	9.93	1.40	34.19	43.50	9.31
	353.980	13.83	15.25	1.93	31.01	46.00	14.99
	708.030	3.72	19.60	2.70	26.02	46.00	19.98

TEST ENGINEER: RAVEN JIN

EUT : LED LCD TV Temperature : 22°C

Model No. : LTDN55T39XWUS3D Humidity : 60%RH

Serial No. : E11111372-01/01 Date of Test : Nov 14, 2011

Test Mode : HDMI 800*600@60Hz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)
Horizontal	47.460	15.05	9.37	0.77	25.19	40.00	14.81
	73.650	16.97	10.15	0.91	28.03	40.00	11.97
	183.260	23.90	9.96	1.39	35.25	43.50	8.25
	249.220	15.88	11.95	1.60	29.43	46.00	16.57
	710.940	6.94	19.63	2.70	29.27	46.00	16.73
	955.380	5.58	20.59	3.76	29.93	46.00	16.07
Vertical	47.200	26.00	9.44	0.76	36.20	40.00	3.80
	70.740	17.54	9.93	0.90	28.37	40.00	11.63
	100.810	17.04	11.34	1.05	29.43	43.50	14.07
	183.600	20.20	9.96	1.39	31.55	43.50	11.95
	264.740	16.12	12.62	1.65	30.39	46.00	15.61
	361.740	12.87	15.45	1.96	30.28	46.00	15.72

TEST ENGINEER: RAVEN JIN

EUT : LED LCD TV Temperature : 22°C

Model No. : LTDN55T39XWUS3D Humidity : 60%RH

Serial No. : E11111372-01/01 Date of Test : Nov 14, 2011

Test Mode : HDMI 1024*768@60Hz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)
Horizontal	47.460	14.94	9.37	0.77	25.08	40.00	14.92
	75.590	16.46	10.27	0.92	27.65	40.00	12.35
	99.840	13.96	11.34	1.04	26.34	43.50	17.16
	182.290	24.12	9.97	1.38	35.47	43.50	8.03
	706.090	6.28	19.56	2.70	28.54	46.00	17.46
	923.370	4.34	20.42	3.22	27.98	46.00	18.02
Vertical	47.460	26.53	9.37	0.77	36.67	40.00	3.33
	74.620	15.95	10.21	0.92	27.08	40.00	12.92
	103.720	18.27	11.29	1.06	30.62	43.50	12.88
	183.260	23.91	9.96	1.39	35.26	43.50	8.24
	250.190	17.11	11.99	1.60	30.70	46.00	15.30
	355.920	13.41	15.29	1.95	30.65	46.00	15.35

TEST ENGINEER: RAVEN JIN

EUT : LED LCD TV Temperature : 22°C

Model No. : LTDN55T39XWUS3D Humidity : 60%RH

Serial No. : E11111372-01/01 Date of Test : Nov 14, 2011

Test Mode : LAN

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	98.870	23.81	11.31	1.03	36.15	43.50	7.35
	118.270	23.99	11.03	1.12	36.14	43.50	7.36
	172.590	23.83	10.08	1.35	35.26	43.50	8.24
	248.250	22.86	11.90	1.60	36.36	46.00	9.64
	347.190	21.63	15.04	1.91	38.58	46.00	7.42
	481.050	17.22	17.39	2.22	36.83	46.00	9.17
Vertical	98.870	25.89	11.31	1.03	38.23	43.50	5.27
	112.450	23.22	11.14	1.10	35.46	43.50	8.04
	161.920	23.81	10.23	1.29	35.33	43.50	8.17
	248.250	21.24	11.90	1.60	34.74	46.00	11.26
	347.190	16.62	15.04	1.91	33.57	46.00	12.43
	709.970	13.45	19.60	2.70	35.75	46.00	10.25

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	Manufacturer	Location
EMI Tape	35X0.7X56mm\VGA\ROH	Qingdao Joinset S&T Co., Ltd.	See Internal Photos Figure 20
		TAT ELECTRONIC TECH CO.,LTD.	
Gasket	10×8×35\ROH	Qingdao Joinset S&T Co., Ltd.	See Internal Photos Figure 21
		TAT ELECTRONIC TECH CO.,LTD.	
Gasket	DAA25X20X150\ROH	Qingdao Joinset S&T Co., Ltd.	See Internal Photos Figure 19
		TAT ELECTRONIC TECH CO.,LTD.	
Gasket	DAA1002\ROH	Qingdao Joinset S&T Co., Ltd.	See Internal Photos Figure 19
		TAT ELECTRONIC TECH CO.,LTD.	

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)