

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

LCD TV

Model No.	Serial No.	Brand
LHDN32V87HUS	E2010080909	Hisense

FCC ID : W9HLCDC0002

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

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Report No. : ACI-F10025A1
Date of Test : Aug 20 – 21, 2010
Date of Report : Aug 26, 2010

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TEST REPORT FOR FCC CERTIFICATE

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

Model No.	Serial No.	Brand	Power Supply
LHDN32V87HUS	E2010080909	Hisense	120V/60Hz

Test Procedure Used:

*FCC RULES AND REGULATIONS PART 15 SUBPART B CLASS B OCTOBER 2009
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 Feb 11-19, 2010 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.F10024A1, a Verification report.

Date of Test : Aug 20 – 21, 2010 Date of Report : Aug 26, 2010

Producer : *Kathy Wang*
KATHY WANG / Assistant

Review : *Dio Yang*
DIO YANG / Deputy Assistant Manager

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

Signatory : *Sammy Chen*
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 2009 AND ANSI C63.4-2003	15.107(a) Class B	Pass
Radiated Disturbance	FCC RULES AND REGULATIONS PART 15 SUBPART B OCTOBER 2009 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 : Production Pre-product Pro-type

Model No. : LHDN32V87HUS

Serial No. : E2010080909

Brand : Hisense

Note #1 : The difference list for all models is as follows:

Report No.	Model No.	Rev. Summary	Edition No.	Data of Rev.
ACI-F10025	LHDN32V87HUS	Original Report.	0	Mar 04, 2010
ACI-F10025A1	LHDN32V87HUS	To add a new LCD panel	Rev. A1	Aug 26, 2010

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 : LTA320AP05

Max Resolution : 1024*768@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:

Bottom View:

- | | | |
|-----|------------------------------------|------------------------|
| (1) | One component of YPbPr2 Port | Connected with DVD #2 |
| (2) | One component of YPbPr2 Audio Port | Connected with DVD #2 |
| (3) | One HDMI2 Port | Connected with DVD #1 |
| (4) | One HDMI3 Port | Connected with DVD #2 |
| (5) | One Digital Audio Out Port | Connected with DVD #3 |
| (6) | One Component of AV Port | Connected with Speaker |
| (7) | One S-Video Port | Connected with DVD #2 |
| (8) | One Component of AV2 Port | Connected with DVD #2 |
| (9) | One RS232 Port | Connected with PC |

Side View:

- | | | |
|-----|------------------------------------|-------------------------|
| (1) | One component of YPbPr1 Port | Connected with DVD #1 |
| (2) | One component of YPbPr1 Audio Port | Connected with DVD #1 |
| (3) | One RF Port | Connected with ATSC SG |
| (4) | One VGA Port | Connected with PC |
| (5) | One VGA Audio Port | Connected with PC |
| (6) | One HDMI1 Port | Connected with PC |
| (7) | One Component of AV1 Port | Connected with DVD #1 |
| (8) | One Earphone Port | Connected with Earphone |

2.2 Peripherals

2.2.1 PC

Manufacturer : HP
Model Number : dx7400MT
Serial Number : CNG8130K89
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 Earphone

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

2.2.6 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

2.2.7 ATSC Signal Generator

Manufacturer : SENCORE
Model Number : ATSC997
Serial Number : 6790071

2.2.8 DVD #1

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

2.2.9 DVD#2

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

2.2.10 DVD#3

Manufacturer : LG
Model Number : DF9921N
Serial Number : 3850R-N846W
Certificate : FCC DoC, CE/EMC, CCC

2.2.11 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

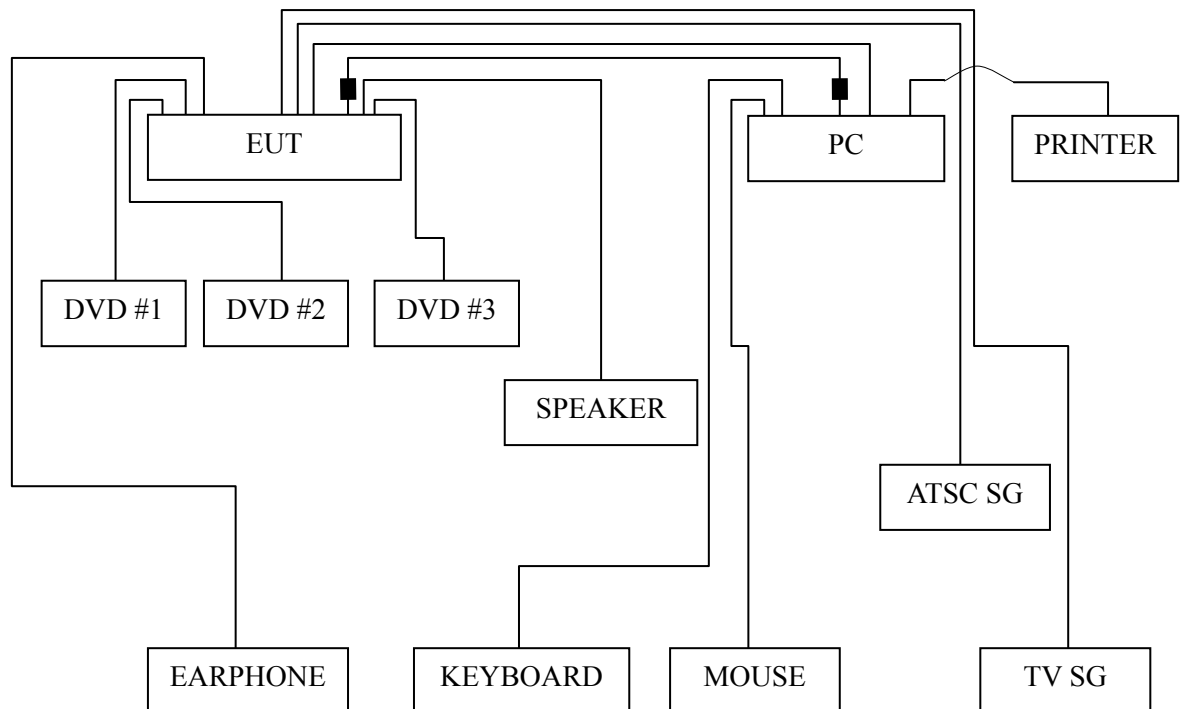
3.1.1 Test Equipment

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	Oct 15, 2009	Oct 15, 2010
2.	Artificial Mains Network (AMN)	R&S	ESH2-Z5	843890/011	Apr 02, 2010	Apr 02, 2011
3.	Line Impedance Stabilization Network (LISN)	Kyoritsu	KNW-407	8-1280-4	Apr 02, 2010	Apr 02, 2011
4.	50 Ω Coaxial Switch	Anritsu	MP59B	6200426389	Mar 19, 2009	Sep 19, 2010
5.	50 Ω Terminator	Anritsu	BNC	001	Apr 02, 2010	Apr 02, 2011
6.	Software	Audix	E3	SET00200 9804M592	--	--

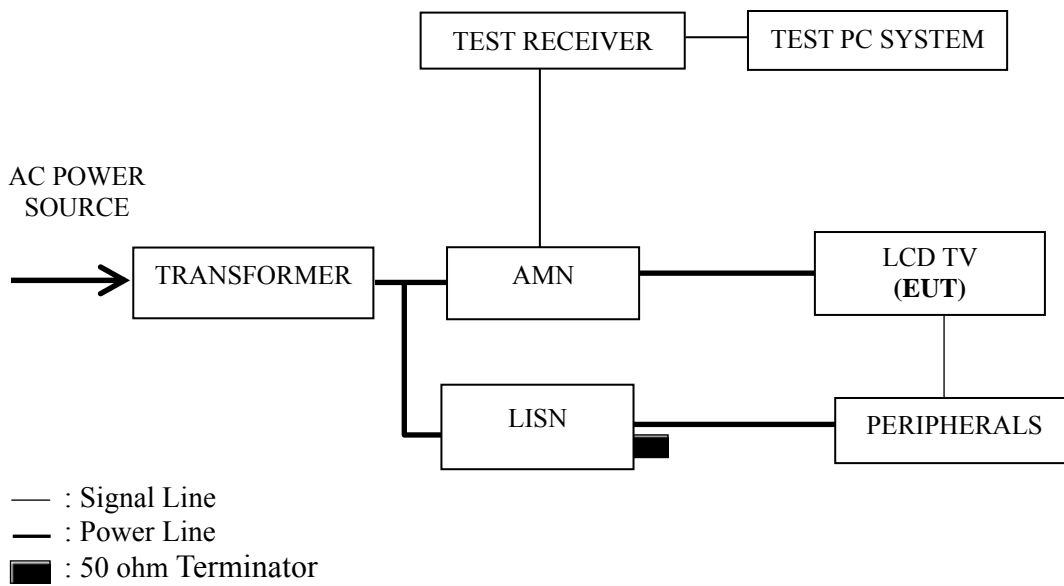
3.2 Block Diagram of Test Setup

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

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 800*600@60Hz test mode. The worst emission is detected at 0.398 MHz (Average value) with corrected signal level of 41.31 dB (μ V) (limit is 47.90 dB (μ V)), when the Line of the EUT is connected to AMN.

EUT : LCD TV Temperature : 22°C

Model No. : LHDN32V87HUS Humidity : 48%RH

Serial No. : E2010020401 Date of Test : Aug 20, 2010

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	0.184	54.57	0.38	54.95	64.28	9.33	QP
	0.303	41.48	0.45	41.93	60.15	18.22	
	0.499	37.57	0.52	38.09	56.01	17.92	
	1.568	29.93	0.58	30.51	56.00	25.49	
	8.637	23.48	0.99	24.47	60.00	35.53	
	21.830	42.78	1.69	44.47	60.00	15.53	
	0.184	37.74	0.38	38.12	54.28	16.16	AV
	0.303	30.28	0.45	30.73	50.15	19.42	
	0.499	25.90	0.52	26.42	46.01	19.59	
	1.568	21.80	0.58	22.38	46.00	23.62	
	8.637	14.13	0.99	15.12	50.00	34.88	
	21.830	29.03	1.69	30.72	50.00	19.28	
Neutral	0.183	55.32	0.31	55.63	64.33	8.70	QP
	0.322	44.99	0.40	45.39	59.66	14.27	
	0.499	41.48	0.49	41.97	56.01	14.04	
	1.716	28.56	0.56	29.12	56.00	26.88	
	9.966	25.98	1.02	27.00	60.00	33.00	
	21.373	44.69	1.79	46.48	60.00	13.52	
	0.183	41.27	0.31	41.58	54.33	12.75	AV
	0.322	20.14	0.40	20.54	49.66	29.12	
	0.499	19.72	0.49	20.21	46.01	25.80	
	1.716	19.94	0.56	20.50	46.00	25.50	
	9.966	14.49	1.02	15.51	50.00	34.49	
	21.373	31.33	1.79	33.12	50.00	16.88	

TEST ENGINEER: WENCY YANG

EUT : LCD TV Temperature : 22°C

Model No. : LHDN32V87HUS Humidity : 48%RH

Serial No. : E2010020401 Date of Test : Aug 20, 2010

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	0.186	56.00	0.38	56.38	64.20	7.82	QP
	0.252	49.72	0.42	50.14	61.69	11.55	
	0.398	46.61	0.48	47.09	57.90	10.81	
	0.661	38.98	0.52	39.50	56.00	16.50	
	0.899	39.17	0.54	39.71	56.00	16.29	
	21.830	47.58	1.69	49.27	60.00	10.73	
	0.186	42.16	0.38	42.54	54.20	11.66	AV
	0.252	35.17	0.42	35.59	51.69	16.10	
	0.398	36.27	0.48	36.75	47.90	11.15	
	0.661	28.54	0.52	29.06	46.00	16.94	
	0.899	29.17	0.54	29.71	46.00	16.29	
	21.830	37.15	1.69	38.84	50.00	11.16	
Neutral	0.150	57.24	0.32	57.56	66.00	8.44	QP
	0.190	56.35	0.31	56.66	64.02	7.36	
	0.256	49.94	0.35	50.29	61.56	11.27	
	0.398	48.03	0.44	48.47	57.90	9.43	
	0.899	39.81	0.51	40.32	56.00	15.68	
	22.298	47.18	1.81	48.99	60.00	11.01	
	0.150	45.28	0.32	45.60	56.00	10.40	AV
	0.190	42.15	0.31	42.46	54.02	11.56	
	0.256	35.17	0.35	35.52	51.56	16.04	
	0.398	28.15	0.44	28.59	47.90	19.31	
	0.899	28.54	0.51	29.05	46.00	16.95	
	22.298	37.19	1.81	39.00	50.00	11.00	

TEST ENGINEER: WENCY YANG

EUT : LCD TV Temperature : 22°C

Model No. : LHDN32V87HUS Humidity : 48%RH

Serial No. : E2010020401 Date of Test : Aug 20, 2010

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

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.197	56.60	0.38	56.98	63.76	6.78	QP
	0.264	52.01	0.43	52.44	61.29	8.85	
	0.325	49.03	0.45	49.48	59.57	10.09	
	0.398	49.33	0.48	49.81	57.90	8.09	
	0.661	42.65	0.52	43.17	56.00	12.83	
	22.655	48.45	1.72	50.17	60.00	9.83	
	0.197	43.25	0.38	43.63	53.76	10.13	AV
	0.264	41.27	0.43	41.70	51.29	9.59	
	0.325	35.18	0.45	35.63	49.57	13.94	
	0.398	35.27	0.48	35.75	47.90	12.15	
	0.661	32.17	0.52	32.69	46.00	13.31	
	22.655	30.16	1.72	31.88	50.00	18.12	
Neutral	0.192	53.93	0.31	54.24	63.93	9.69	QP
	0.259	50.03	0.35	50.38	61.47	11.09	
	0.322	45.73	0.40	46.13	59.66	13.53	
	0.393	46.98	0.44	47.42	57.99	10.57	
	0.914	40.90	0.51	41.41	56.00	14.59	
	22.655	48.46	1.83	50.29	60.00	9.71	
	0.192	42.18	0.31	42.49	53.93	11.44	AV
	0.259	40.57	0.35	40.92	51.47	10.55	
	0.322	32.15	0.40	32.55	49.66	17.11	
	0.393	36.57	0.44	37.01	47.99	10.98	
	0.914	26.58	0.51	27.09	46.00	18.91	
	22.655	32.57	1.83	34.40	50.00	15.60	

TEST ENGINEER: WENCY YANG

EUT : LCD TV Temperature : 22°C

Model No. : LHDN32V87HUS Humidity : 48%RH

Serial No. : E2010020401 Date of Test : Aug 20, 2010

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	0.197	54.13	0.38	54.51	63.76	9.25	QP
	0.264	53.31	0.43	53.74	61.29	7.55	
	0.329	47.96	0.45	48.41	59.49	11.08	
	0.398	50.46	0.48	50.94	57.90	6.96	
	15.885	40.27	1.32	41.59	60.00	18.41	
	23.140	48.29	1.73	50.02	60.00	9.98	
	0.197	44.26	0.38	44.64	53.76	9.12	AV
	0.264	43.25	0.43	43.68	51.29	7.61	
	0.329	35.29	0.45	35.74	49.49	13.75	
	0.398	40.57	0.48	41.05	47.90	6.85	
	15.885	30.26	1.32	31.58	50.00	18.42	
	23.140	38.26	1.73	39.99	50.00	10.01	
Neutral	0.197	53.50	0.30	53.80	63.76	9.96	QP
	0.262	50.16	0.35	50.51	61.38	10.87	
	0.398	48.22	0.44	48.66	57.90	9.24	
	0.661	42.37	0.49	42.86	56.00	13.14	
	19.740	40.68	1.76	42.44	60.00	17.56	
	23.140	47.69	1.83	49.52	60.00	10.48	
	0.197	42.70	0.30	43.00	53.76	10.76	AV
	0.262	40.26	0.35	40.61	51.38	10.77	
	0.398	30.69	0.44	31.13	47.90	16.77	
	0.661	30.06	0.49	30.55	46.00	15.45	
	19.740	30.57	1.76	32.33	50.00	17.67	
	23.140	31.57	1.83	33.40	50.00	16.60	

TEST ENGINEER: WENCY YANG

EUT : LCD TV Temperature : 22°C

Model No. : LHDN32V87HUS Humidity : 48%RH

Serial No. : E2010020401 Date of Test : Aug 20, 2010

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	0.199	55.30	0.38	55.68	63.67	7.99	QP
	0.264	51.90	0.43	52.33	61.29	8.96	
	0.398	49.16	0.48	49.64	57.90	8.26	
	0.661	43.31	0.52	43.83	56.00	12.17	
	19.326	39.90	1.57	41.47	60.00	18.53	
	23.387	48.36	1.74	50.10	60.00	9.90	
	0.199	42.57	0.38	42.95	53.67	10.72	AV
	0.264	40.26	0.43	40.69	51.29	10.60	
	0.398	36.57	0.48	37.05	47.90	10.85	
	0.661	32.57	0.52	33.09	46.00	12.91	
	19.326	28.54	1.57	30.11	50.00	19.89	
	23.387	35.79	1.74	37.53	50.00	12.47	
Neutral	0.197	55.51	0.30	55.81	63.76	7.95	QP
	0.264	50.22	0.36	50.58	61.29	10.71	
	0.398	50.16	0.44	50.60	57.90	7.30	
	0.661	42.61	0.49	43.10	56.00	12.90	
	18.232	40.91	1.67	42.58	60.00	17.42	
	22.896	49.12	1.83	50.95	60.00	9.05	
	0.197	42.58	0.30	42.88	53.76	10.88	AV
	0.264	41.26	0.36	41.62	51.29	9.67	
	0.398	40.87	0.44	41.31	47.90	6.59	
	0.661	30.25	0.49	30.74	46.00	15.26	
	18.232	30.29	1.67	31.96	50.00	18.04	
	22.896	29.58	1.83	31.41	50.00	18.59	

TEST ENGINEER: WENCY YANG

EUT : LCD TV Temperature : 22°C

Model No. : LHDN32V87HUS Humidity : 48%RH

Serial No. : E2010020401 Date of Test : Aug 20, 2010

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	0.199	55.36	0.38	55.74	63.67	7.93	QP
	0.262	52.28	0.42	52.70	61.38	8.68	
	0.325	49.12	0.45	49.57	59.57	10.00	
	0.398	48.70	0.48	49.18	57.90	8.72	
	0.661	42.30	0.52	42.82	56.00	13.18	
	23.140	48.61	1.73	50.34	60.00	9.66	AV
	0.199	42.67	0.38	43.05	53.67	10.62	
	0.262	42.57	0.42	42.99	51.38	8.39	
	0.325	36.58	0.45	37.03	49.57	12.54	
	0.398	38.54	0.48	39.02	47.90	8.88	
0.661	31.24	0.52	31.76	46.00	14.24	AV	
23.140	38.26	1.73	39.99	50.00	10.01		
0.197	55.58	0.30	55.88	63.76	7.88		QP
0.264	50.11	0.36	50.47	61.29	10.82		
0.398	47.97	0.44	48.41	57.90	9.49		
0.661	42.13	0.49	42.62	56.00	13.38		
19.326	42.59	1.73	44.32	60.00	15.68		
Neutral	23.387	48.36	1.84	50.20	60.00	9.80	AV
	0.197	42.68	0.30	42.98	53.76	10.78	
	0.264	40.15	0.36	40.51	51.29	10.78	
	0.398	37.18	0.44	37.62	47.90	10.28	
	0.661	30.28	0.49	30.77	46.00	15.23	
	19.326	29.58	1.73	31.31	50.00	18.69	
23.387	32.58	1.84	34.42	50.00	15.58		

TEST ENGINEER: WENCY YANG

4 RADIATED EMISSION TEST

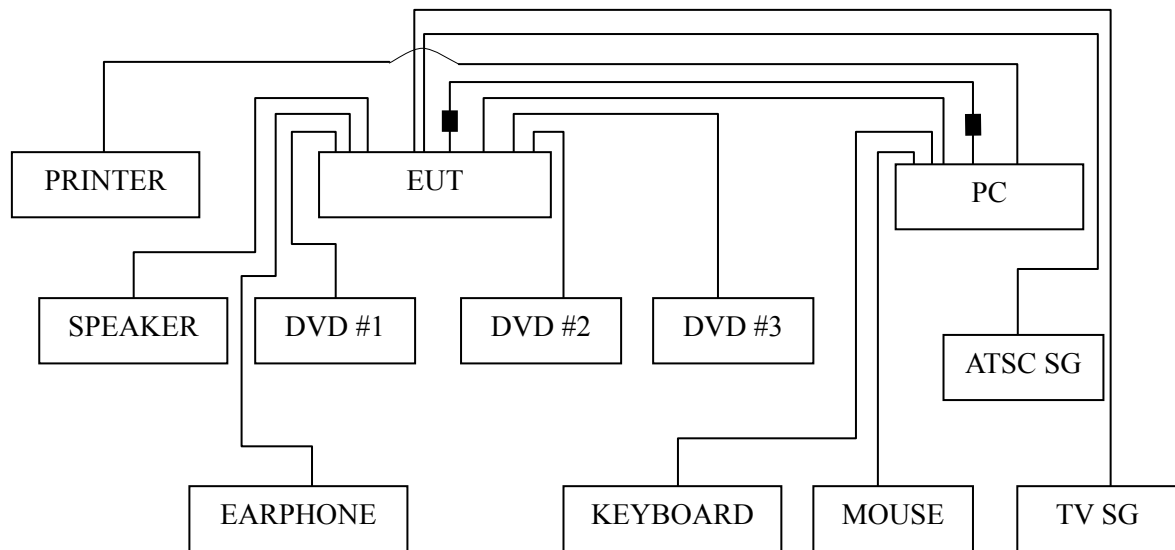
4.1 Test Equipment

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, 2010	Mar 07, 2011
2.	Preamplifier	Agilent	8447D	2944A10548	Mar 19, 2010	Sep 19, 2010
3.	Bi-log Antenna	TESEQ	CBL6112D	23192	Dec 01, 2009	Dec 01, 2010
4.	Spectrum Analyzer	Agilent	E7405A	MY45106600	May 19, 2010	May 19, 2011
5.	Software	Audix	E3	SET00200 9912M295-2	--	--

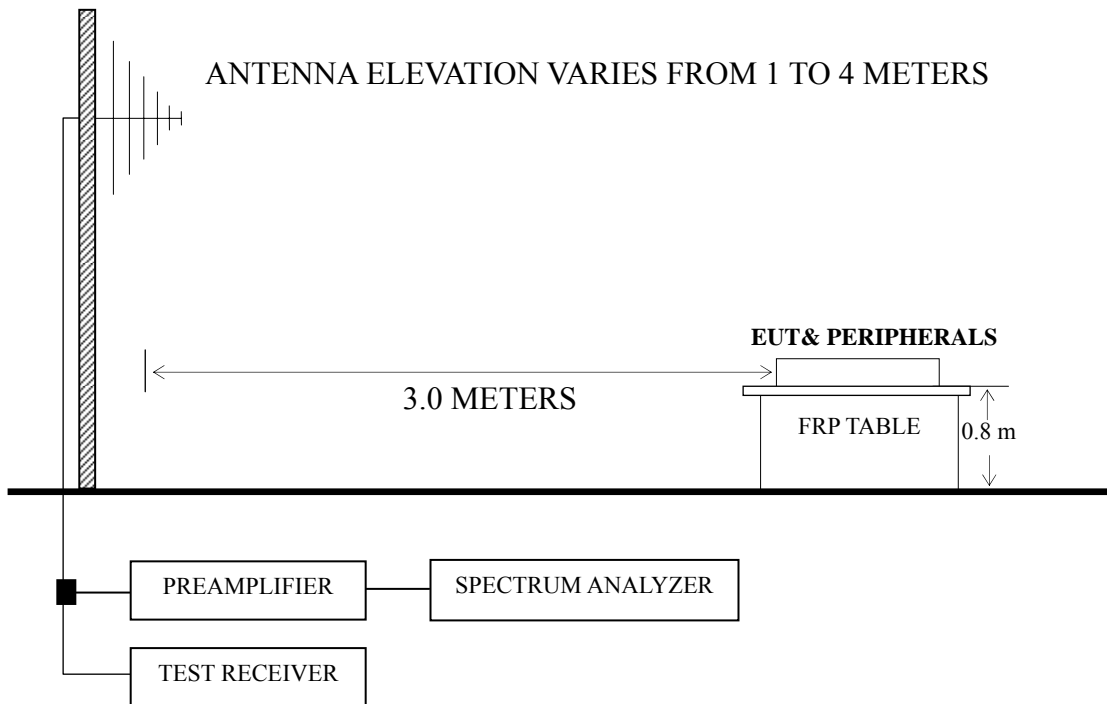
4.2 Block Diagram of Test Setup

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 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	P23
D-Sub 800*600@60Hz	P24
D-Sub 1024*768@60Hz	P25
HDMI 640*480@60Hz	P26
HDMI 800*600@60Hz	P27
HDMI 1024*768@60Hz	P28

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

NOTE 2 – The emission levels that are 20dB below the official limit are not reported.

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 HDMI 1024*768@60Hz test mode. The worst emission at horizontal polarization was detected at 153.190 MHz with corrected signal level of 40.49dB ($\mu\text{V/m}$) (limit is 43.50dB ($\mu\text{V/m}$)), when the antenna was 1.00 m height and the turntable was at 210°. The worst emission at vertical polarization was detected at 87.230 MHz with corrected signal level of 36.63 dB ($\mu\text{V/m}$) (limit is 40.00 dB ($\mu\text{V/m}$)), when the antenna was 1.00 m height and the turntable was at 30°.

EUT : LCD TV Temperature : 22°C

Model No. : LHDN32V87HUS Humidity : 60%RH

Serial No. : E2010020401 Date of Test : Aug 21, 2010

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	61.040	20.45	6.59	0.85	27.89	40.00	12.11
	119.240	17.99	12.97	1.12	32.08	43.50	11.42
	159.980	24.07	10.50	1.28	35.85	43.50	7.65
	293.840	22.37	13.79	1.74	37.90	46.00	8.10
	492.690	13.44	17.80	2.25	33.49	46.00	12.51
	683.780	13.80	19.62	2.65	36.07	46.00	9.93
Vertical	30.000	11.08	19.60	0.63	31.31	40.00	8.69
	61.040	25.56	6.59	0.85	33.00	40.00	7.00
	159.980	20.26	10.50	1.28	32.04	43.50	11.46
	293.840	19.08	13.79	1.74	34.61	46.00	11.39
	489.780	14.03	17.78	2.25	34.06	46.00	11.94
	688.630	11.78	19.65	2.65	34.08	46.00	11.92

TEST ENGINEER: RAVEN JIN

EUT : LCD TV Temperature : 22°C

Model No. : LHDN32V87HUS Humidity : 60%RH

Serial No. : E2010020401 Date of Test : Aug 21, 2010

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	82.380	24.18	8.19	0.96	33.33	40.00	6.67
	121.180	23.64	12.95	1.13	37.72	43.50	5.78
	169.680	21.77	10.20	1.33	33.30	43.50	10.20
	293.840	19.56	13.79	1.74	35.09	46.00	10.91
	489.780	12.69	17.78	2.25	32.72	46.00	13.28
	686.690	13.29	19.63	2.65	35.57	46.00	10.43
Vertical	30.000	14.49	19.60	0.63	34.72	40.00	5.28
	43.580	21.08	11.88	0.74	33.70	40.00	6.30
	61.040	26.09	6.59	0.85	33.53	40.00	6.47
	92.080	17.53	9.82	1.00	28.35	43.50	15.15
	293.840	19.68	13.79	1.74	35.21	46.00	10.79
	487.840	13.48	17.75	2.24	33.47	46.00	12.53

TEST ENGINEER: RAVEN JIN

EUT : LCD TV Temperature : 22°C

Model No. : LHDN32V87HUS Humidity : 60%RH

Serial No. : E2010020401 Date of Test : _____

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	61.040	20.14	6.59	0.85	27.58	40.00	12.42
	119.240	18.13	12.97	1.12	32.22	43.50	11.28
	159.980	21.46	10.50	1.28	33.24	43.50	10.26
	293.840	20.76	13.79	1.74	36.29	46.00	9.71
	489.780	12.94	17.78	2.25	32.97	46.00	13.03
	686.690	13.89	19.63	2.65	36.17	46.00	9.83
Vertical	61.040	27.97	6.59	0.85	35.41	40.00	4.59
	109.540	17.39	12.25	1.08	30.72	43.50	12.78
	167.740	17.73	10.27	1.32	29.32	43.50	14.18
	293.840	20.23	13.79	1.74	35.76	46.00	10.24
	492.690	14.36	17.80	2.25	34.41	46.00	11.59
	870.990	14.17	21.42	2.98	38.57	46.00	7.43

TEST ENGINEER: RAVEN JIN

EUT : LCD TV Temperature : 22°C

Model No. : LHDN32V87HUS Humidity : 60%RH

Serial No. : E2010020401 Date of Test : Aug 21, 2010

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	59.100	20.58	6.80	0.83	28.21	40.00	11.79
	97.900	22.46	11.11	1.03	34.60	43.50	8.90
	162.890	22.98	10.42	1.30	34.70	43.50	8.80
	342.340	18.52	15.11	1.90	35.53	46.00	10.47
	407.330	16.46	16.59	2.08	35.13	46.00	10.87
	792.420	10.31	20.64	2.89	33.84	46.00	12.16
Vertical	33.880	17.05	17.44	0.67	35.16	40.00	4.84
	49.400	19.08	9.16	0.78	29.02	40.00	10.98
	147.370	20.63	11.51	1.23	33.37	43.50	10.13
	244.370	23.17	12.68	1.59	37.44	46.00	8.56
	292.870	21.47	13.79	1.74	37.00	46.00	9.00
	388.900	16.65	16.27	2.03	34.95	46.00	11.05

TEST ENGINEER: RAVEN JIN

EUT : LCD TV Temperature : 22°C

Model No. : LHDN32V87HUS Humidity : 60%RH

Serial No. : E2010020401 Date of Test : Aug 21, 2010

Test Mode : HDMI 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	109.540	17.46	12.25	1.08	30.79	43.50	12.71
	153.190	19.45	11.04	1.25	31.74	43.50	11.76
	281.230	18.15	13.57	1.70	33.42	46.00	12.58
	492.690	9.72	17.80	2.25	29.77	46.00	16.23
	688.630	8.15	19.65	2.65	30.45	46.00	15.55
	866.140	8.74	21.39	2.98	33.11	46.00	12.89
Vertical	61.040	24.26	6.59	0.85	31.70	40.00	8.30
	87.230	22.75	8.96	0.98	32.69	40.00	7.31
	153.190	17.83	11.04	1.25	30.12	43.50	13.38
	271.530	13.95	13.37	1.68	29.00	46.00	17.00
	412.180	13.50	16.67	2.09	32.26	46.00	13.74
	870.990	14.00	21.42	2.98	38.40	46.00	7.60

TEST ENGINEER: RAVEN JIN

EUT : LCD TV Temperature : 22°C

Model No. : LHDN32V87HUS Humidity : 60%RH

Serial No. : E2010020401 Date of Test : Aug 21, 2010

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	61.040	21.36	6.59	0.85	28.80	40.00	11.20
	109.540	21.54	12.25	1.08	34.87	43.50	8.63
	153.190	28.20	11.04	1.25	40.49	43.50	3.01
	174.530	27.16	10.07	1.35	38.58	43.50	4.92
	281.230	25.60	13.57	1.70	40.87	46.00	5.13
	688.630	13.55	19.65	2.65	35.85	46.00	10.15
Vertical	43.580	20.57	11.88	0.74	33.19	40.00	6.81
	87.230	26.69	8.96	0.98	36.63	40.00	3.37
	153.190	25.43	11.04	1.25	37.72	43.50	5.78
	218.180	22.30	11.52	1.51	35.33	46.00	10.67
	281.230	23.12	13.57	1.70	38.39	46.00	7.61
	688.630	11.70	19.65	2.65	34.00	46.00	12.00

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
Ferrite core	ZCAT3035-1130\ROH	FEELUX	See Internal Photo Figure 16
		Rui Feng Electronic Co., Ltd.	
		Hai An Magnetic Material No.2 Factory	
Ferrite core	ZCAT2132-1330\ROH	FEELUX	See Internal Photo Figure 17
		Rui Feng Electronic Co., Ltd.	
		Hai An Magnetic Material No.2 Factory	

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)