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

LCD TV

Model No.	Serial No.	Brand
LEDN24K15PUS	E20110215-01-01/03	Hisense
NX2404L	--	NEXUS

FCC ID : W9HLCDA0005

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-F11026
Date of Test : Feb 22 – 24, 2011
Date of Report : Mar 04, 2011

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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
LEDN24K15PUS	E20110215-01-01/03	Hisense	120V/60Hz
NX2404L	--	NEXUS	

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 22 – 24, 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.F11025, a Verification report.

Date of Test : Feb 22 – 24, 2011 Date of Report : Mar 04, 2011

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 : Byron Kwo
Authorized Signature EMC BYRON KWO / 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.	LEDN24K15PUS	NX2404L
Serial No.	E20110215-01-01/03	--
Brand	Hisense	NEXUS

Note : The above two models are all the same except for the model name and brand. The data of LEDN24K15PUS are tested and recorded 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 : CHI MEI OPTOELECTRONICS
M/N : V236H1-LE2

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:

Back Port:

(1) One Component of YPbPr Port
: Connected with DVD

(2) One Component of YPbPr Audio Port
: Connected with DVD

(3) One HDMI Port
: Connected with DVD

(4) One Component of AV Port
: Connected with DVD

(5) One VGA Port
: Connected with PC

(6) One PC/DVI Audio In Port:
: Connected with PC

(7) One Digital Audio Out Port
: Connected with DVD

Side Port

(1) One ANT Port
: Connected with ATSC SG/TV SG

(2) One Service Port
: Do not open to customer

(3) One Headphone Port
: Connected with Earphone

(4) One Audio Out Port
: Connected with Speaker

2.2 Peripherals

2.2.1 PC

Manufacturer	:	HP
Model Number	:	dx7200MT
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 Modem

Manufacturer	:	TP Link
Model Number	:	TM-EC5658V
Serial Number	:	07123301053
Data Cable	:	Shielded, undetachable, 1.8m.
Certificate	:	CE/EMC, FCC DoC, VCCI, MIC, C-Tick, BSMI

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

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

2.2.10 Speaker

Manufacturer	:	DIBA
Model Number	:	FS-04
Serial Number	:	002

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

3 CONDUCTED EMISSION TEST

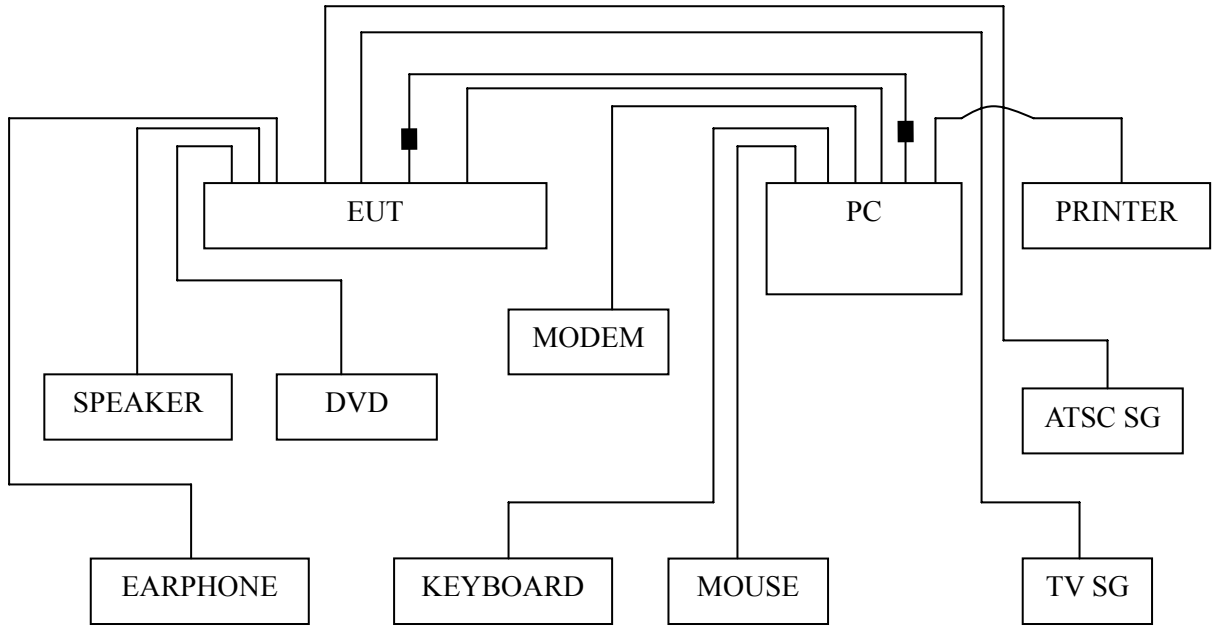
3.1 Test Equipment

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	Oct 15, 2010	Oct 15, 2011
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	Sep 19, 2010	Mar 19, 2011
5.	50Ω Terminator	Anritsu	BNC	001	Apr 02, 2010	Apr 02, 2011
6.	Software	Audix	E3	SET00200 9804M592	--	--

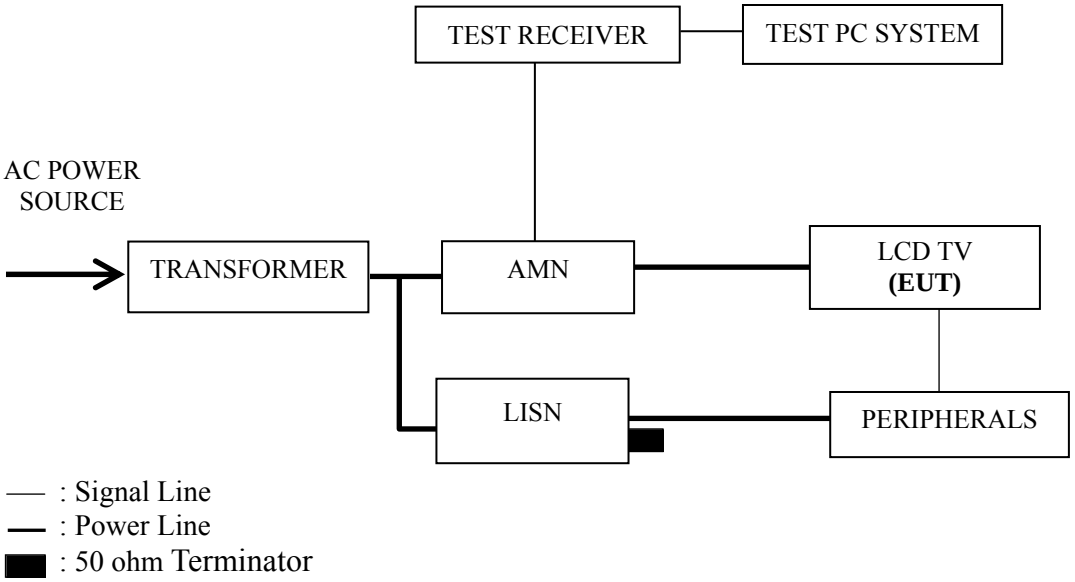
3.2 Block Diagram of Test Setup

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 (μV)	
	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

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 800*600@60Hz	P14
D-Sub 1024*768@60Hz	P15
HDMI 640*480@60Hz	P16
HDMI 800*600@60Hz	P17
HDMI 1024*768@60Hz	P18

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 1024*768@60Hz test mode. The worst emission is detected at 18.039 MHz (Quasi-Peak value) with corrected signal level of 49.93 dB (μV) (limit is 60.00 dB (μV)), when the Line of the EUT is connected to AMN.

EUT	:	LCD TV	Temperature :	22℃	
Model No.	:	LEDN24K15PUS	Humidity :	48%RH	
Serial No.	:	E20110215-01-01/03	Date of Test :	Feb 24, 2011	
Test Mode	:	D-Sub 640*480@60Hz			

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.178	51.61	0.38	51.99	64.59	12.60	QP
	0.296	46.26	0.45	46.71	60.37	13.66	
	0.735	37.47	0.52	37.99	56.00	18.01	
	5.112	35.25	0.80	36.05	60.00	23.95	
	10.342	44.21	1.07	45.28	60.00	14.72	
	17.849	**48.23**	**1.47**	**49.70**	**60.00**	**10.30**	
	0.178	39.80	0.38	40.18	54.59	14.41	AV
	0.296	33.51	0.45	33.96	50.37	16.41	
	0.735	25.40	0.52	25.92	46.00	20.08	
	5.112	23.51	0.80	24.31	50.00	25.69	
	10.342	31.61	1.07	32.68	50.00	17.32	
	17.849	35.98	1.47	37.45	50.00	12.55	
Neutral	0.178	51.80	0.31	52.11	64.59	12.48	QP
	0.292	45.77	0.38	46.15	60.46	14.31	
	0.735	38.76	0.49	39.25	56.00	16.75	
	5.277	35.34	0.76	36.10	60.00	23.90	
	9.204	41.02	0.98	42.00	60.00	18.00	
	17.755	47.25	1.64	48.89	60.00	11.11	
	0.178	40.16	0.31	40.47	54.59	14.12	AV
	0.292	32.69	0.38	33.07	50.46	17.39	
	0.735	26.43	0.49	26.92	46.00	19.08	
	5.277	23.48	0.76	24.24	50.00	25.76	
	9.204	29.51	0.98	30.49	50.00	19.51	
	17.755	35.16	1.64	36.80	50.00	13.20	

TEST ENGINEER: WENCY YANG

EUT	:	LCD TV	Temperature :	22℃	
Model No.	:	LEDN24K15PUS	Humidity :	48%RH	
Serial No.	:	E20110215-01-01/03	Date of Test :	Feb 24, 2011	
Test Mode	:	D-Sub 800*600@60Hz			

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.176	52.76	0.38	53.14	64.68	11.54	QP
	0.292	45.63	0.44	46.07	60.46	14.39	
	0.727	38.71	0.52	39.23	56.00	16.77	
	4.822	34.71	0.79	35.50	56.00	20.50	
	10.072	43.85	1.06	44.91	60.00	15.09	
	18.426	**48.31**	**1.51**	**49.82**	**60.00**	**10.18**	
	0.176	40.38	0.38	40.76	54.68	13.92	AV
	0.292	33.40	0.44	33.84	50.46	16.62	
	0.727	26.44	0.52	26.96	46.00	19.04	
	4.822	22.49	0.79	23.28	46.00	22.72	
	10.072	31.72	1.06	32.78	50.00	17.22	
	18.426	36.46	1.51	37.97	50.00	12.03	
Neutral	0.176	51.17	0.31	51.48	64.68	13.20	QP
	0.292	46.50	0.38	46.88	60.46	13.58	
	0.727	39.68	0.49	40.17	56.00	15.83	
	1.744	35.97	0.56	36.53	56.00	19.47	
	9.757	39.36	1.01	40.37	60.00	19.63	
	17.568	46.98	1.63	48.61	60.00	11.39	
	0.176	39.60	0.31	39.91	54.68	14.77	AV
	0.292	34.26	0.38	34.64	50.46	15.82	
	0.727	27.41	0.49	27.90	46.00	18.10	
	1.744	23.64	0.56	24.20	46.00	21.80	
	9.757	27.42	1.01	28.43	50.00	21.57	
	17.568	34.76	1.63	36.39	50.00	13.61	

TEST ENGINEER: WENCY YANG

EUT	:	LCD TV	Temperature :	22℃	
Model No.	:	LEDN24K15PUS	Humidity	:	48%RH
Serial No.	:	E20110215-01-01/03	Date of Test	:	Feb 24, 2011
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	0.176	50.52	0.38	50.90	64.68	13.78	QP
	0.292	46.78	0.44	47.22	60.46	13.24	
	0.727	39.40	0.52	39.92	56.00	16.08	
	1.310	37.23	0.57	37.80	56.00	18.20	
	8.592	40.74	0.99	41.73	60.00	18.27	
	18.039	**48.44**	**1.49**	**49.93**	**60.00**	**10.07**	
	0.176	38.43	0.38	38.81	54.68	15.87	AV
	0.292	34.61	0.44	35.05	50.46	15.41	
	0.727	27.27	0.52	27.79	46.00	18.21	
	1.310	24.94	0.57	25.51	46.00	20.49	
	8.592	28.40	0.99	29.39	50.00	20.61	
	18.039	36.38	1.49	37.87	50.00	12.13	
Neutral	0.178	51.42	0.31	51.73	64.59	12.86	QP
	0.296	46.09	0.39	46.48	60.37	13.89	
	0.727	38.69	0.49	39.18	56.00	16.82	
	1.744	37.71	0.56	38.27	56.00	17.73	
	9.552	38.00	1.01	39.01	60.00	20.99	
	17.849	47.28	1.64	48.92	60.00	11.08	
	0.178	39.70	0.31	40.01	54.59	14.58	AV
	0.296	33.97	0.39	34.36	50.37	16.01	
	0.727	26.44	0.49	26.93	46.00	19.07	
	1.744	25.43	0.56	25.99	46.00	20.01	
	9.552	25.85	1.01	26.86	50.00	23.14	
	17.849	35.17	1.64	36.81	50.00	13.19	

TEST ENGINEER: WENCY YANG

EUT	:	LCD TV	Temperature :	22℃	
Model No.	:	LEDN24K15PUS	Humidity :	48%RH	
Serial No.	:	E20110215-01-01/03	Date of Test :	Feb 24, 2011	
Test Mode	:	HDMI 640*480@60Hz			

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.174	50.58	0.38	50.96	64.77	13.81	QP
	0.292	45.25	0.44	45.69	60.46	14.77	
	0.727	39.92	0.52	40.44	56.00	15.56	
	5.221	35.75	0.81	36.56	60.00	23.44	
	9.552	43.53	1.04	44.57	60.00	15.43	
	17.568	46.24	1.45	47.69	60.00	12.31	
	0.174	38.49	0.38	38.87	54.77	15.90	AV
	0.292	33.46	0.44	33.90	50.46	16.56	
	0.727	27.68	0.52	28.20	46.00	17.80	
	5.221	23.90	0.81	24.71	50.00	25.29	
	9.552	31.67	1.04	32.71	50.00	17.29	
	17.568	34.50	1.45	35.95	50.00	14.05	
Neutral	0.176	49.21	0.31	49.52	64.68	15.16	QP
	0.292	46.37	0.38	46.75	60.46	13.71	
	0.727	39.38	0.49	39.87	56.00	16.13	
	5.221	34.63	0.75	35.38	60.00	24.62	
	9.552	39.69	1.01	40.70	60.00	19.30	
	17.383	**46.44**	**1.62**	**48.06**	**60.00**	**11.94**	
	0.176	37.16	0.31	37.47	54.68	17.21	AV
	0.292	34.50	0.38	34.88	50.46	15.58	
	0.727	26.95	0.49	27.44	46.00	18.56	
	5.221	22.79	0.75	23.54	50.00	26.46	
	9.552	27.81	1.01	28.82	50.00	21.18	
	17.383	34.61	1.62	36.23	50.00	13.77	

TEST ENGINEER: WENCY YANG

EUT	:	LCD TV	Temperature :	22℃	
Model No.	:	LEDN24K15PUS	Humidity :	48%RH	
Serial No.	:	E20110215-01-01/03	Date of Test :	Feb 24, 2011	
Test Mode	:	HDMI 800*600@60Hz			

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.176	49.79	0.38	50.17	64.68	14.51	QP
	0.292	45.53	0.44	45.97	60.46	14.49	
	0.727	39.18	0.52	39.70	56.00	16.30	
	5.221	35.94	0.81	36.75	60.00	23.25	
	9.552	42.99	1.04	44.03	60.00	15.97	
	17.849	**47.34**	**1.47**	**48.81**	**60.00**	**11.19**	
	0.176	37.46	0.38	37.84	54.68	16.84	AV
	0.292	33.16	0.44	33.60	50.46	16.86	
	0.727	26.90	0.52	27.42	46.00	18.58	
	5.221	23.76	0.81	24.57	50.00	25.43	
	9.552	30.76	1.04	31.80	50.00	18.20	
	17.849	35.46	1.47	36.93	50.00	13.07	
Neutral	0.176	48.83	0.31	49.14	64.68	15.54	QP
	0.292	45.30	0.38	45.68	60.46	14.78	
	0.727	38.55	0.49	39.04	56.00	16.96	
	5.362	33.10	0.77	33.87	60.00	26.13	
	9.552	39.48	1.01	40.49	60.00	19.51	
	17.568	45.13	1.63	46.76	60.00	13.24	
	0.176	36.76	0.31	37.07	54.68	17.61	AV
	0.292	32.89	0.38	33.27	50.46	17.19	
	0.727	26.44	0.49	26.93	46.00	19.07	
	5.362	20.87	0.77	21.64	50.00	28.36	
	9.552	27.35	1.01	28.36	50.00	21.64	
	17.568	32.96	1.63	34.59	50.00	15.41	

TEST ENGINEER: WENCY YANG

EUT	:	LCD TV	Temperature	:	22℃
Model No.	:	LEDN24K15PUS	Humidity	:	48%RH
Serial No.	:	E20110215-01-01/03	Date of Test	:	Feb 24, 2011
Test Mode	:	HDMI 1024*768@60Hz			

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.174	50.25	0.38	50.63	64.77	14.14	QP
	0.292	45.68	0.44	46.12	60.46	14.34	
	0.727	40.51	0.52	41.03	56.00	14.97	
	1.310	37.09	0.57	37.66	56.00	18.34	
	9.302	41.51	1.03	42.54	60.00	17.46	
	17.755	**48.02**	**1.46**	**49.48**	**60.00**	**10.52**	
	0.174	37.89	0.38	38.27	54.77	16.50	AV
	0.292	33.54	0.44	33.98	50.46	16.48	
	0.727	28.44	0.52	28.96	46.00	17.04	
	1.310	25.96	0.57	26.53	46.00	19.47	
	9.302	29.86	1.03	30.89	50.00	19.11	
	17.755	35.94	1.46	37.40	50.00	12.60	
Neutral	0.174	50.90	0.32	51.22	64.77	13.55	QP
	0.292	46.12	0.38	46.50	60.46	13.96	
	0.727	40.48	0.49	40.97	56.00	15.03	
	1.744	36.25	0.56	36.81	56.00	19.19	
	8.822	35.29	0.97	36.26	60.00	23.74	
	17.568	46.29	1.63	47.92	60.00	12.08	
	0.174	38.66	0.32	38.98	54.77	15.79	AV
	0.292	34.20	0.38	34.58	50.46	15.88	
	0.727	27.97	0.49	28.46	46.00	17.54	
	1.744	24.13	0.56	24.69	46.00	21.31	
	8.822	22.97	0.97	23.94	50.00	26.06	
	17.568	34.16	1.63	35.79	50.00	14.21	

TEST ENGINEER: WENCY YANG

4 RADIATED EMISSION TEST

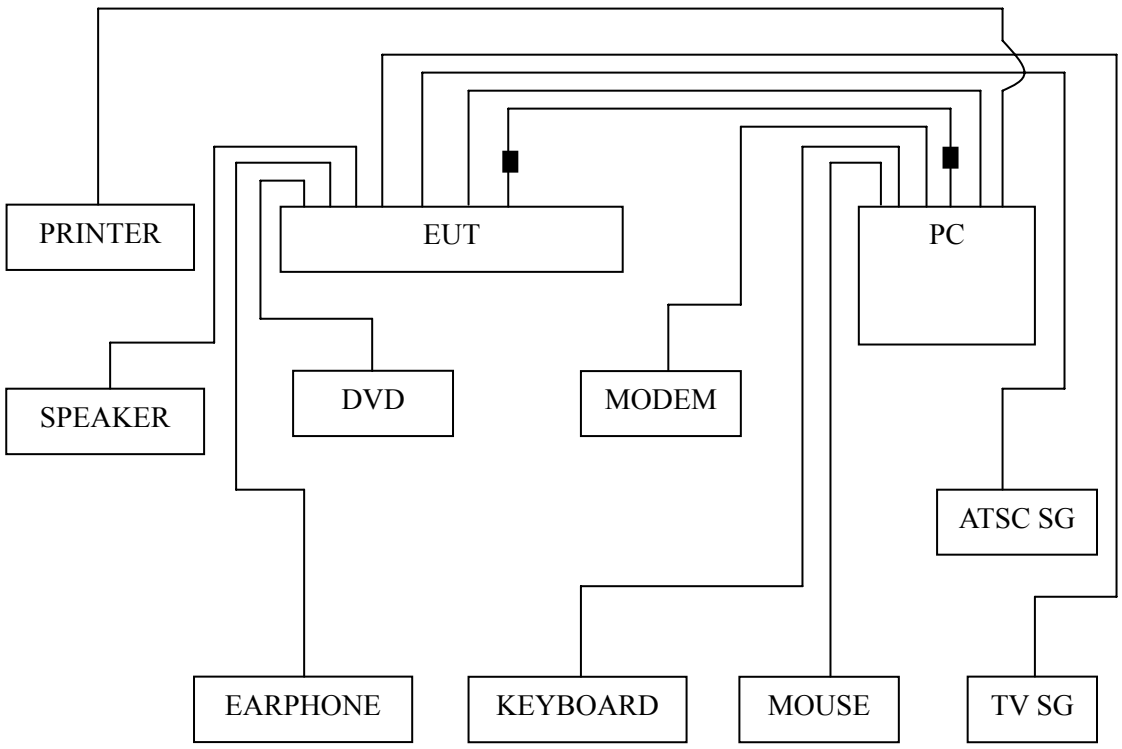
4.1 Test Equipment

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	Sep 18, 2010	Mar 18, 2011
3.	Bi-log Antenna	TESEQ	CBL6112D	23192	Dec 01, 2010	Dec 01, 2011
4.	Spectrum Analyzer	Agilent	E7405A	MY45106600	Apr 30, 2010	Apr 30, 2011
5.	50Ω Coaxial Switch	Anritsu	MP59B	6200426390	Sep 18, 2010	Mar 18, 2011
6.	Software	Audix	E3	SET00200 9912M295-2	--	--

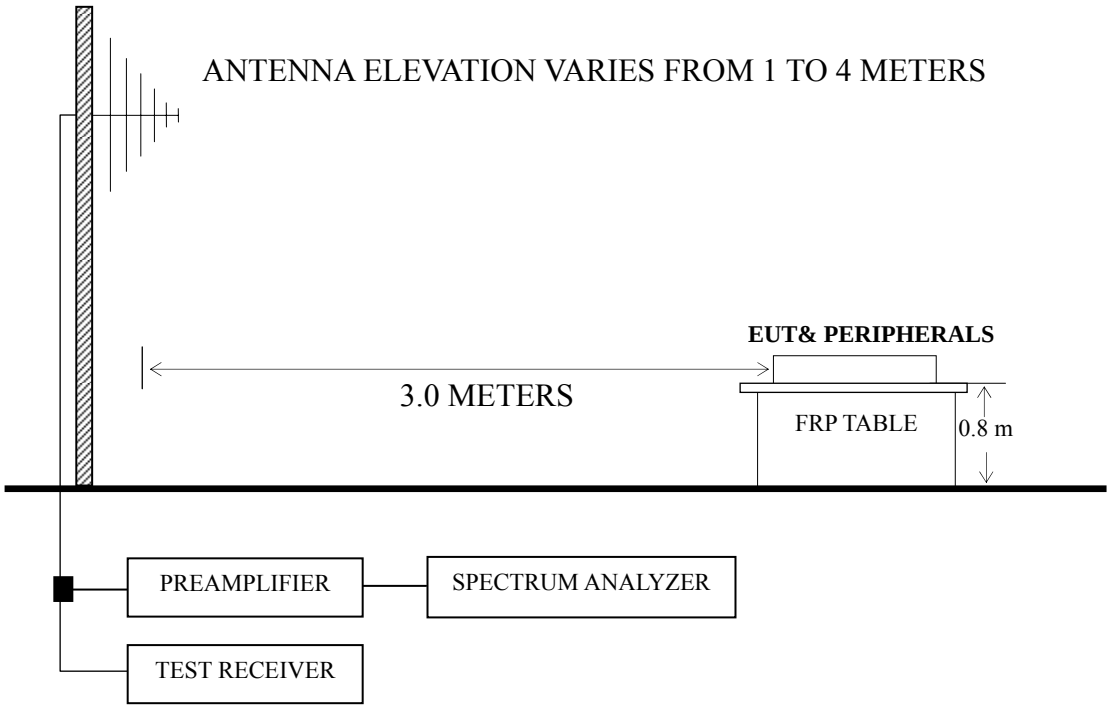
4.2 Block Diagram of Test Setup

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	
		(μV/m)	dB (μV/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 (μV/m) = 20 log Emission Level (μV/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	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.(< 1GHz)

NOTE 2 – Emission Level = Antenna Factor + Cable Loss – Preamp Factor + Meter Reading.(> 1GHz)

NOTE 3 – All readings are Quasi-Peak values.

NOTE 4 – 0° was the table front facing the antenna. Degree is calculated from 0° clockwise facing the antenna.

NOTE 5 – The worst case is for D-Sub 1024*768@60Hz test mode. The worst emission at horizontal polarization was detected at 152.220 MHz with corrected signal level of 40.56 dB (μV/m) (limit is 43.50 dB (μV/m)), when the antenna was 1.00 m height and the turntable was at 20°. The worst emission at vertical polarization was detected at 152.220 MHz with corrected signal level of 40.20 dB (μV/m) (limit is 43.50 dB (μV/m)), when the antenna was 1.00 m height and the turntable was at 300°.

EUT	:	LCD TV	Temperature :	22℃
Model No.	:	LEDN24K15PUS	Humidity :	60%RH
Serial No.	:	E20110215-01-01/03	Date of Test :	Feb 22, 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	**87.230**	**27.01**	**8.96**	**0.98**	**36.95**	**40.00**	**3.05**
	144.460	26.38	11.76	1.22	39.36	43.50	4.14
	217.000	28.09	11.48	1.50	41.07	46.00	4.93
	497.540	18.24	17.88	2.26	38.38	46.00	7.62
	546.040	19.82	18.52	2.35	40.69	46.00	5.31
	692.510	14.91	19.66	2.65	37.22	46.00	8.78
Vertical	34.850	13.57	16.97	0.68	31.22	40.00	8.78
	58.130	19.87	6.96	0.83	27.66	40.00	12.34
	107.600	20.92	12.10	1.07	34.09	43.50	9.41
	152.220	**27.46**	**11.09**	**1.25**	**39.80**	**43.50**	**3.70**
	217.210	27.75	11.48	1.51	40.74	46.00	5.26
	432.550	19.63	16.95	2.13	38.71	46.00	7.29

TEST ENGINEER: RAVEN JIN

EUT	:	LCD TV	Temperature :	22℃
Model No.	:	LEDN24K15PUS	Humidity :	60%RH
Serial No.	:	E20110215-01-01/03	Date of Test :	Feb 22, 2010
Test Mode	:	D-Sub 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	87.230	21.18	8.96	0.98	31.12	40.00	8.88
	116.330	19.49	12.78	1.12	33.39	43.50	10.11
	144.460	22.42	11.76	1.22	35.40	43.50	8.10
	547.010	**21.09**	**18.52**	**2.35**	**41.96**	**46.00**	**4.04**
	606.180	15.10	19.24	2.46	36.80	46.00	9.20
	736.160	15.26	20.07	2.78	38.11	46.00	7.89
Vertical	34.850	13.83	16.97	0.68	31.48	40.00	8.52
	62.980	24.27	6.57	0.86	31.70	40.00	8.30
	100.810	23.09	11.57	1.05	35.71	43.50	7.79
	172.590	**28.00**	**10.11**	**1.35**	**39.46**	**43.50**	**4.04**
	237.580	26.75	12.44	1.57	40.76	46.00	5.24
	546.040	18.51	18.52	2.35	39.38	46.00	6.62

TEST ENGINEER: RAVEN JIN

EUT	:	LCD TV	Temperature :	22℃
Model No.	:	LEDN24K15PUS	Humidity :	60%RH
Serial No.	:	E20110215-01-01/03	Date of Test :	Feb 22, 2010
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	64.920	21.26	6.55	0.87	28.68	40.00	11.32
	87.230	22.23	8.96	0.98	32.17	40.00	7.83
	107.600	16.99	12.10	1.07	30.16	43.50	13.34
	152.220	**28.22**	**11.09**	**1.25**	**40.56**	**43.50**	**2.94**
	172.590	27.29	10.11	1.35	38.75	43.50	4.75
	547.980	19.61	18.55	2.35	40.51	46.00	5.49
Vertical	34.850	11.11	16.97	0.68	28.76	40.00	11.24
	60.070	23.75	6.60	0.84	31.19	40.00	8.81
	87.230	25.87	8.96	0.98	35.81	40.00	4.19
	152.220	**27.86**	**11.09**	**1.25**	**40.20**	**43.50**	**3.30**
	217.210	24.25	11.48	1.51	37.24	46.00	8.76
	365.620	19.91	15.73	1.96	37.60	46.00	8.40

TEST ENGINEER: RAVEN JIN

EUT	:	LCD TV	Temperature :	22℃
Model No.	:	LEDN24K15PUS	Humidity :	60%RH
Serial No.	:	E20110215-01-01/03	Date of Test :	Feb 22, 2010
Test Mode	:	HDMI 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	93.050	20.02	10.09	1.01	31.12	43.50	12.38
	154.160	**26.17**	**10.94**	**1.26**	**38.37**	**43.50**	**5.13**
	185.200	24.35	10.08	1.40	35.83	43.50	7.67
	400.540	18.47	16.50	2.06	37.03	46.00	8.97
	684.750	7.27	19.63	2.65	29.55	46.00	16.45
	924.340	9.93	21.87	3.22	35.02	46.00	10.98
Vertical	35.820	14.58	16.45	0.68	31.71	40.00	8.29
	45.520	**22.27**	**10.94**	**0.76**	**33.97**	**40.00**	**6.03**
	62.010	24.53	6.58	0.85	31.96	40.00	8.04
	76.560	23.37	7.36	0.93	31.66	40.00	8.34
	385.020	20.23	16.20	2.02	38.45	46.00	7.55
	508.210	15.64	18.01	2.27	35.92	46.00	10.08

TEST ENGINEER: RAVEN JIN

EUT	:	LCD TV	Temperature :	22℃
Model No.	:	LEDN24K15PUS	Humidity :	60%RH
Serial No.	:	E20110215-01-01/03	Date of Test :	Feb 22, 2010
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	87.230	24.01	8.96	0.98	33.95	40.00	6.05
	144.460	24.38	11.76	1.22	37.36	43.50	6.14
	302.570	**24.47**	**13.97**	**1.77**	**40.21**	**46.00**	**5.79**
	365.620	21.42	15.73	1.96	39.11	46.00	6.89
	546.040	16.82	18.52	2.35	37.69	46.00	8.31
	692.510	12.91	19.66	2.65	35.22	46.00	10.78
Vertical	34.850	12.57	16.97	0.68	30.22	40.00	9.78
	87.230	20.83	8.96	0.98	30.77	40.00	9.23
	100.810	19.82	11.57	1.05	32.44	43.50	11.06
	152.220	**22.46**	**11.09**	**1.25**	**34.80**	**43.50**	**8.70**
	217.210	20.75	11.48	1.51	33.74	46.00	12.26
	432.550	17.63	16.95	2.13	36.71	46.00	9.29

TEST ENGINEER: RAVEN JIN

EUT	:	LCD TV	Temperature :	22℃
Model No.	:	LEDN24K15PUS	Humidity :	60%RH
Serial No.	:	E20110215-01-01/03	Date of Test :	Feb 22, 2010
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	**57.160**	**27.82**	**7.18**	**0.83**	**35.83**	**40.00**	**4.17**
	107.600	25.93	12.10	1.07	39.10	43.50	4.40
	210.420	20.98	11.18	1.48	33.64	43.50	9.86
	234.670	20.70	12.32	1.56	34.58	46.00	11.42
	362.710	19.15	15.65	1.96	36.76	46.00	9.24
	575.140	15.18	18.91	2.41	36.50	46.00	9.50
Vertical	63.950	23.48	6.56	0.86	30.90	40.00	9.10
	101.780	**25.10**	**11.63**	**1.05**	**37.78**	**43.50**	**5.72**
	117.300	20.73	12.84	1.12	34.69	43.50	8.81
	209.000	22.00	11.09	1.48	34.57	43.50	8.93
	549.920	18.65	18.58	2.36	39.59	46.00	6.41
	915.000	15.00	21.81	3.22	40.03	46.00	5.97

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	ZCAT2132-1130\ROH	FEELUX	See Internal Photos Figure 15, 16, 17
		Rui Feng Electronic Co., Ltd.	
		Hai An Magnetic Material No.2 Factory	
		JIANGSU LETTALL ELECTRONICS CO., LTD.	
Gasket	DAA1002\ROH	Qingdao Joinset S&T Co., Ltd.	See Internal Photos Figure 17
		TAT ELECTRONIC TECH CO.,LTD.	
Gasket	DAA1001\ROH	Qingdao Joinset S&T Co., Ltd.	See Internal Photos Figure 17
		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

(RAVEN JIN)