

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

LCD TV

Model No.	Serial No.	Brand
LHDN32V88MH	E20101228-03-02	Hisense

FCC ID : W9HLCDC0001

Prepared For : Hisense Electric Co., Ltd.  
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Report No. : ACI-F10016A2  
Date of Test : Jan 19, 2011  
Date of Report : Jan 24, 2011

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## TEST REPORT FOR FCC CERTIFICATE

Applicant : Hisense Electric Co., Ltd.  
 Manufacturer#1 : Hisense Electric Co., Ltd.  
 Manufacturer#2 : DELTA ELECTRONICS MEXICO S.A. DE C.V.  
 EUT Description : LCD TV

Model No.	Serial No.	Brand	Power Supply
LHDN32V88MH	E20101228-03-02	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 Jan 19, 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.

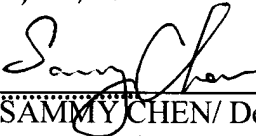
***The test results for EUT's TV functions are contained in No.F10015A2, a Verification report.***

Date of Test : Jan 19, 2011 Date of Report : Jan 24, 2011

Producer :   
CANDY XI / Assistant

Review :   
DIO YANG / Deputy 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:

<b>Description of Test Item</b>	<b>Standard</b>	<b>Limits</b>	<b>Results</b>
<b>EMISSION</b>			
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 number : LHDN32V88MH

Serial number : E20101228-03-02

Brand : Hisense

Note #1 : The different list for all the models are as follows:

Report No.	Model No.	Rev. Summary	Edition No.	Data of Rev.
ACI-F10016	LHDN32V88MH	Original Report.	0	Feb 04, 2010
ACI-F10016A1	LHDN32V88MH	To add LCD panel	Rev. A1	Jul 15, 2010
ACI-F10016A2	LHDN32V88MH	To add a manufacturer and two LCD panels	Rev. A2	Jan 24, 2011

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

Manufacturer#1 : Hisense Electric Co., Ltd.  
No.218 Qianwangang Road, Economy & Technology Development Zone, Qingdao, China

Manufacturer#2 : DELTA ELECTRONICS MEXICO S.A. DE C.V.  
UNO PONIENTE NO.19955 CD INDUSTRIAL  
NUEVA TIJUANA, B.C., MEXICO C.P.22444

LCD Panel 1 : Manufacturer : SAMSUNG  
M/N : LTA320AP05-1

LCD Panel 2 : Manufacturer : SAMSUNG  
M/N : LTA320AP05-Q

Note #2 : LCD Panel 1 and LCD Panel 2 are all the same except for different demand of pixel defect. LCD Panel 1 was tested and recorded in this report.

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:

## Side View:

- |     |                                    |                              |
|-----|------------------------------------|------------------------------|
| (1) | One USB Port                       | Connected with U-Disk        |
| (2) | One ANT Port                       | Connected with TV SG/ATSC SG |
| (3) | One MPI Port                       | Only for optical use         |
| (4) | One component of YPbPr1 Port       | Connected with DVD #1        |
| (5) | One component of YPbPr1 Audio Port | Connected with DVD #1        |
| (6) | One VGA Port                       | Connected with PC            |
| (7) | One PC Audio Port                  | Connected with PC            |
| (8) | One HDMI4 Port                     | Connected with PC            |

## Back View:

- |      |                                    |   |
|------|------------------------------------|---|
| (9)  | One HDMI1 Port                     | Connected with DVD #1                     |
| (10) | One HDMI2 Port                     | Connected with DVD #2                     |
| (11) | One HDMI3 Port                     | Connected with DVD #3                     |
| (12) | One component of YPbPr2 Port       | Connected with DVD #2                     |
| (13) | One component of YPbPr2 Audio Port | Connected with DVD #2                     |
| (14) | One Headphone Port                 | Connected with earphone                   |
| (15) | One component of AV Port           | Connected with DVD #3                     |
| (16) | One S-Video Port                   | Connected with DVD #3                     |
| (17) | One Digital Audio Out Port         | Connected with DVD #3                     |
| (18) | One component of Audio Out Port    | Connected with Speaker                    |
| (19) | One RS232 Port                     | Only for service, do not open to customer |

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

## 2.2.12 Speaker

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



## 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

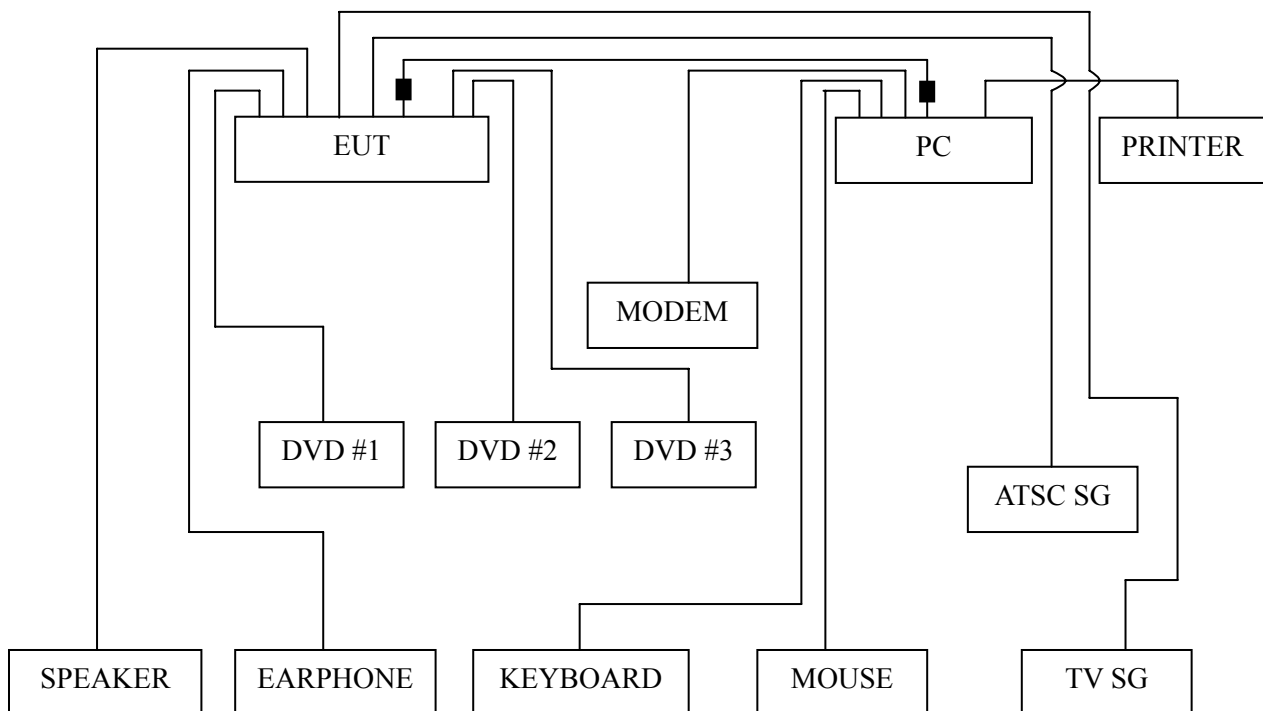
#### 3.1 Test Equipment

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

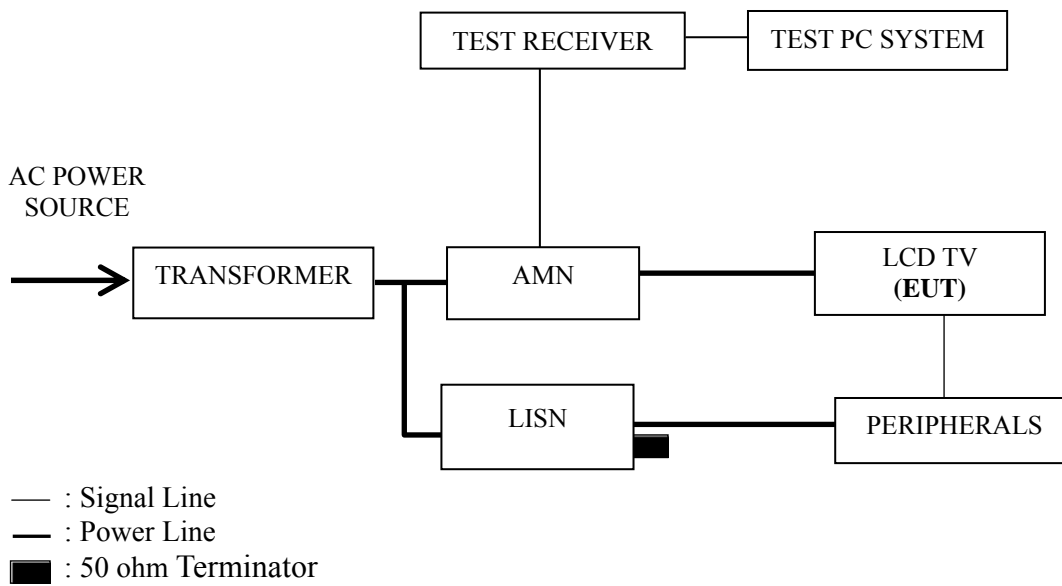
Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Test Receiver	R&S	ESCI	100841	Oct 15, 2010	Oct 15, 2011
2.	Artificial Mains Network (AMN)	R&S	ESH2-Z5	843890/011	Apr 02, 2010	Apr 02, 2011
3.	Line Impedance Stabilization Network (LISN)	Kyoritsu	KNW-407	8-1280-4	Apr 02, 2010	Apr 02, 2011
4.	50 $\Omega$ Coaxial Switch	Anritsu	MP59B	6200426389	Sep 19, 2010	Mar 19, 2011
5.	50 $\Omega$ 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



### 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 ( $\mu$ 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
USB Play

### 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
USB Play	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 800\*600@60Hz test mode. The worst emission is detected at 0.169 MHz (Quasi-Peak) with corrected signal level of 60.28 dB (μV) (limit is 64.99 dB (μV)), when the Line of the EUT is connected to AMN.

EUT : LCD TV Temperature : 22°C

Model No. : LHDN32V88MH Humidity : 48%RH

Serial No. : E20101228-03-02 Date of Test : Jan 19, 2011

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

Test Line	Frequency (MHz)	Meter Reading dB( $\mu$ V)	Factor (dB)	Emission Level dB( $\mu$ V)	Limits dB( $\mu$ V)	Margin (dB)	Remark
Line	<b>0.170</b>	<b>58.23</b>	<b>0.37</b>	<b>58.60</b>	<b>64.94</b>	<b>6.34</b>	QP
	0.190	56.01	0.38	56.39	64.02	7.63	
	0.244	48.55	0.41	48.96	61.95	12.99	
	0.400	49.19	0.48	49.67	57.86	8.19	
	0.661	40.38	0.52	40.90	56.00	15.10	
	19.224	40.81	1.57	42.38	60.00	17.62	
	0.170	46.61	0.37	46.98	54.94	7.96	AV
	0.190	43.20	0.38	43.58	54.02	10.44	
	0.244	37.70	0.41	38.11	51.95	13.84	
	0.400	37.60	0.48	38.08	47.86	9.78	
0.661	28.80	0.52	29.32	46.00	16.68		
19.224	30.10	1.57	31.67	50.00	18.33		
Neutral	0.170	57.83	0.31	58.14	64.94	6.80	QP
	0.192	57.02	0.31	57.33	63.93	6.60	
	0.259	48.46	0.35	48.81	61.47	12.66	
	0.400	48.71	0.44	49.15	57.86	8.71	
	0.665	40.87	0.49	41.36	56.00	14.64	
	19.740	37.79	1.76	39.55	60.00	20.45	
	0.170	46.20	0.31	46.51	54.94	8.43	AV
	0.192	45.20	0.31	45.51	53.93	8.42	
	0.259	37.60	0.35	37.95	51.47	13.52	
	0.400	38.10	0.44	38.54	47.86	9.32	
0.665	29.10	0.49	29.59	46.00	16.41		
19.740	27.10	1.76	28.86	50.00	21.14		

TEST ENGINEER: WENCY YANG

EUT : LCD TV Temperature : 22°C

Model No. : LHDN32V88MH Humidity : 48%RH

Serial No. : E20101228-03-02 Date of Test : Jan 19, 2011

Test Mode : D-Sub 800\*600@60Hz

Test Line	Frequency (MHz)	Meter Reading dB( $\mu$ V)	Factor (dB)	Emission Level dB( $\mu$ V)	Limits dB( $\mu$ V)	Margin (dB)	Remark	
Line	<b>0.169</b>	<b>59.91</b>	<b>0.37</b>	<b>60.28</b>	<b>64.99</b>	<b>4.71</b>	QP	
	0.190	57.20	0.38	57.58	64.02	6.44		
	0.264	48.75	0.43	49.18	61.29	12.11		
	0.400	49.57	0.48	50.05	57.86	7.81		
	0.661	41.55	0.52	42.07	56.00	13.93		
	19.021	41.58	1.56	43.14	60.00	16.86		
	0.169	48.11	0.37	48.48	54.99	6.51	AV	
	0.190	46.50	0.38	46.88	54.02	7.14		
	0.264	37.89	0.43	38.32	51.29	12.97		
	0.400	37.70	0.48	38.18	47.86	9.68		
	0.661	29.80	0.52	30.32	46.00	15.68		
	19.021	30.69	1.56	32.25	50.00	17.75		
	Neutral	0.168	59.55	0.31	59.86	65.08	5.22	QP
		0.190	56.24	0.31	56.55	64.02	7.47	
0.264		48.47	0.36	48.83	61.29	12.46		
0.400		49.52	0.44	49.96	57.86	7.90		
0.661		40.41	0.49	40.90	56.00	15.10		
18.426		36.57	1.68	38.25	60.00	21.75		
0.168		47.70	0.31	48.01	55.08	7.07	AV	
0.190		44.80	0.31	45.11	54.02	8.91		
0.264		37.80	0.36	38.16	51.29	13.13		
0.400		38.70	0.44	39.14	47.86	8.72		
0.661		28.54	0.49	29.03	46.00	16.97		
18.426		25.80	1.68	27.48	50.00	22.52		

TEST ENGINEER: WENCY YANG

EUT :           LCD TV                Temperature :           22°C          

Model No. :           LHDN32V88MH                Humidity :           48%RH          

Serial No. :           E20101228-03-02                Date of Test :           Jan 19, 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	0.168	59.27	0.38	59.65	65.08	5.43	QP	
	0.190	55.71	0.38	56.09	64.02	7.93		
	0.256	47.77	0.42	48.19	61.56	13.37		
	0.400	49.75	0.48	50.23	57.86	7.63		
	0.661	40.26	0.52	40.78	56.00	15.22		
	18.820	40.30	1.54	41.84	60.00	18.16		
	0.168	47.60	0.38	47.98	55.08	7.10	AV	
	0.190	45.20	0.38	45.58	54.02	8.44		
	0.256	36.80	0.42	37.22	51.56	14.34		
	0.400	37.90	0.48	38.38	47.86	9.48		
	0.661	28.40	0.52	28.92	46.00	17.08		
	18.820	29.60	1.54	31.14	50.00	18.86		
	Neutral	<b>0.169</b>	<b>59.61</b>	<b>0.31</b>	<b>59.92</b>	<b>64.99</b>	<b>5.07</b>	QP
		0.192	55.72	0.31	56.03	63.93	7.90	
0.262		48.87	0.35	49.22	61.38	12.16		
0.400		49.57	0.44	50.01	57.86	7.85		
0.665		40.25	0.49	40.74	56.00	15.26		
19.326		35.99	1.73	37.72	60.00	22.28		
0.169		47.70	0.31	48.01	54.99	6.98	AV	
0.192		45.10	0.31	45.41	53.93	8.52		
0.262		38.11	0.35	38.46	51.38	12.92		
0.400		37.70	0.44	38.14	47.86	9.72		
0.665		28.70	0.49	29.19	46.00	16.81		
19.326		25.20	1.73	26.93	50.00	23.07		

TEST ENGINEER: WENCY YANG



EUT : LCD TV Temperature : 22°C

Model No. : LHDN32V88MH Humidity : 48%RH

Serial No. : E20101228-03-02 Date of Test : Jan 19, 2011

Test Mode : HDMI 640\*480@60Hz

Test Line	Frequency (MHz)	Meter Reading dB( $\mu$ V)	Factor (dB)	Emission Level dB( $\mu$ V)	Limits dB( $\mu$ V)	Margin (dB)	Remark
Line	0.172	58.33	0.37	58.70	64.86	6.16	QP
	0.192	54.83	0.38	55.21	63.93	8.72	
	0.267	49.11	0.43	49.54	61.20	11.66	
	0.402	45.97	0.48	46.45	57.81	11.36	
	0.665	41.15	0.52	41.67	56.00	14.33	
	18.426	40.99	1.51	42.50	60.00	17.50	
	0.172	46.61	0.37	46.98	54.86	7.88	AV
	0.192	44.20	0.38	44.58	53.93	9.35	
	0.267	38.59	0.43	39.02	51.20	12.18	
	0.402	35.21	0.48	35.69	47.81	12.12	
	0.665	29.80	0.52	30.32	46.00	15.68	
	18.426	30.20	1.51	31.71	50.00	18.29	
Neutral	<b>0.172</b>	<b>58.52</b>	<b>0.31</b>	<b>58.83</b>	<b>64.86</b>	<b>6.03</b>	QP
	0.190	54.28	0.31	54.59	64.02	9.43	
	0.264	49.08	0.36	49.44	61.29	11.85	
	0.402	47.52	0.44	47.96	57.81	9.85	
	0.665	40.90	0.49	41.39	56.00	14.61	
	18.820	38.28	1.71	39.99	60.00	20.01	
	0.172	46.60	0.31	46.91	54.86	7.95	AV
	0.190	43.70	0.31	44.01	54.02	10.01	
	0.264	38.60	0.36	38.96	51.29	12.33	
	0.402	35.80	0.44	36.24	47.81	11.57	
	0.665	29.10	0.49	29.59	46.00	16.41	
	18.820	27.59	1.71	29.30	50.00	20.70	

TEST ENGINEER: WENCY YANG

EUT : LCD TV Temperature : 22°C

Model No. : LHDN32V88MH Humidity : 48%RH

Serial No. : E20101228-03-02 Date of Test : Jan 19, 2011

Test Mode : HDMI 800\*600@60Hz

Test Line	Frequency (MHz)	Meter Reading dB( $\mu$ V)	Factor (dB)	Emission Level dB( $\mu$ V)	Limits dB( $\mu$ V)	Margin (dB)	Remark
Line	0.169	58.83	0.37	59.20	64.99	5.79	QP
	0.192	55.10	0.38	55.48	63.93	8.45	
	0.256	46.60	0.42	47.02	61.56	14.54	
	0.400	50.15	0.48	50.63	57.86	7.23	
	0.665	40.39	0.52	40.91	56.00	15.09	
	18.622	41.14	1.52	42.66	60.00	17.34	
	0.169	47.11	0.37	47.48	54.99	7.51	AV
	0.192	44.60	0.38	44.98	53.93	8.95	
	0.256	35.80	0.42	36.22	51.56	15.34	
	0.400	37.60	0.48	38.08	47.86	9.78	
	0.665	28.70	0.52	29.22	46.00	16.78	
	18.622	30.41	1.52	31.93	50.00	18.07	
Neutral	<b>0.170</b>	<b>59.16</b>	<b>0.31</b>	<b>59.47</b>	<b>64.94</b>	<b>5.47</b>	QP
	0.192	55.59	0.31	55.90	63.93	8.03	
	0.264	49.15	0.36	49.51	61.29	11.78	
	0.402	48.51	0.44	48.95	57.81	8.86	
	0.665	40.74	0.49	41.23	56.00	14.77	
	19.740	37.63	1.76	39.39	60.00	20.61	
	0.170	47.60	0.31	47.91	54.94	7.03	AV
	0.192	44.80	0.31	45.11	53.93	8.82	
	0.264	38.50	0.36	38.86	51.29	12.43	
	0.402	36.70	0.44	37.14	47.81	10.67	
	0.665	29.10	0.49	29.59	46.00	16.41	
	19.740	26.80	1.76	28.56	50.00	21.44	

TEST ENGINEER: WENCY YANG

EUT :           LCD TV           Temperature :           22°C          

Model No. :           LHDN32V88MH           Humidity :           48%RH          

Serial No. :           E20101228-03-02           Date of Test :           Jan 19, 2011          

Test Mode :           HDMI 1024\*768@60Hz          

Test Line	Frequency (MHz)	Meter Reading dB( $\mu$ V)	Factor (dB)	Emission Level dB( $\mu$ V)	Limits dB( $\mu$ V)	Margin (dB)	Remark
Line	<b>0.170</b>	<b>59.50</b>	<b>0.37</b>	<b>59.87</b>	<b>64.94</b>	<b>5.07</b>	QP
	0.190	55.88	0.38	56.26	64.02	7.76	
	0.264	47.70	0.43	48.13	61.29	13.16	
	0.400	49.90	0.48	50.38	57.86	7.48	
	0.665	39.62	0.52	40.14	56.00	15.86	
	19.021	40.83	1.56	42.39	60.00	17.61	
	0.170	47.61	0.37	47.98	54.94	6.96	AV
	0.190	45.10	0.38	45.48	54.02	8.54	
	0.264	37.09	0.43	37.52	51.29	13.77	
	0.400	38.20	0.48	38.68	47.86	9.18	
	0.665	27.70	0.52	28.22	46.00	17.78	
	19.021	30.09	1.56	31.65	50.00	18.35	
Neutral	0.169	59.40	0.31	59.71	64.99	5.28	QP
	0.192	55.69	0.31	56.00	63.93	7.93	
	0.259	47.53	0.35	47.88	61.47	13.59	
	0.400	49.90	0.44	50.34	57.86	7.52	
	0.665	40.13	0.49	40.62	56.00	15.38	
	18.820	36.96	1.71	38.67	60.00	21.33	
	0.169	47.60	0.31	47.91	54.99	7.08	AV
	0.192	45.10	0.31	45.41	53.93	8.52	
	0.259	36.80	0.35	37.15	51.47	14.32	
	0.400	38.20	0.44	38.64	47.86	9.22	
	0.665	28.60	0.49	29.09	46.00	16.91	
	18.820	26.09	1.71	27.80	50.00	22.20	

TEST ENGINEER: WENCY YANG

EUT :           LCD TV           Temperature :           22°C          

Model No. :           LHDN32V88MH           Humidity :           48%RH          

Serial No. :           E20101228-03-02           Date of Test :           Jan 19, 2011          

Test Mode :           USB Play          

Test Line	Frequency (MHz)	Meter Reading dB( $\mu$ V)	Factor (dB)	Emission Level dB( $\mu$ V)	Limits dB( $\mu$ V)	Margin (dB)	Remark
Line	0.156	34.39	0.37	34.76	65.65	30.89	QP
	0.393	30.86	0.48	31.34	57.99	26.65	
	0.844	30.49	0.54	31.03	56.00	24.97	
	1.296	30.50	0.56	31.06	56.00	24.94	
	10.452	35.73	1.08	36.81	60.00	23.19	
	17.199	40.90	1.43	42.33	60.00	17.67	
	0.156	24.14	0.37	24.51	55.65	31.14	AV
	0.393	20.34	0.48	20.82	47.99	27.17	
	0.844	20.16	0.54	20.70	46.00	25.30	
	1.296	20.74	0.56	21.30	46.00	24.70	
	10.452	21.47	1.08	22.55	50.00	27.45	
	<b>17.199</b>	<b>31.26</b>	<b>1.43</b>	<b>32.69</b>	<b>50.00</b>	<b>17.31</b>	
Neutral	0.159	34.21	0.32	34.53	65.52	30.99	QP
	0.393	31.72	0.44	32.16	57.99	25.83	
	0.844	30.53	0.51	31.04	56.00	24.96	
	1.106	30.03	0.52	30.55	56.00	25.45	
	10.452	35.83	1.06	36.89	60.00	23.11	
	17.199	40.55	1.61	42.16	60.00	17.84	
	0.159	24.15	0.32	24.47	55.52	31.05	AV
	0.393	21.47	0.44	21.91	47.99	26.08	
	0.844	20.16	0.51	20.67	46.00	25.33	
	1.106	20.17	0.52	20.69	46.00	25.31	
	10.452	25.18	1.06	26.24	50.00	23.76	
	17.199	21.47	1.61	23.08	50.00	26.92	

TEST ENGINEER: WENCY YANG

## 4 RADIATED EMISSION TEST

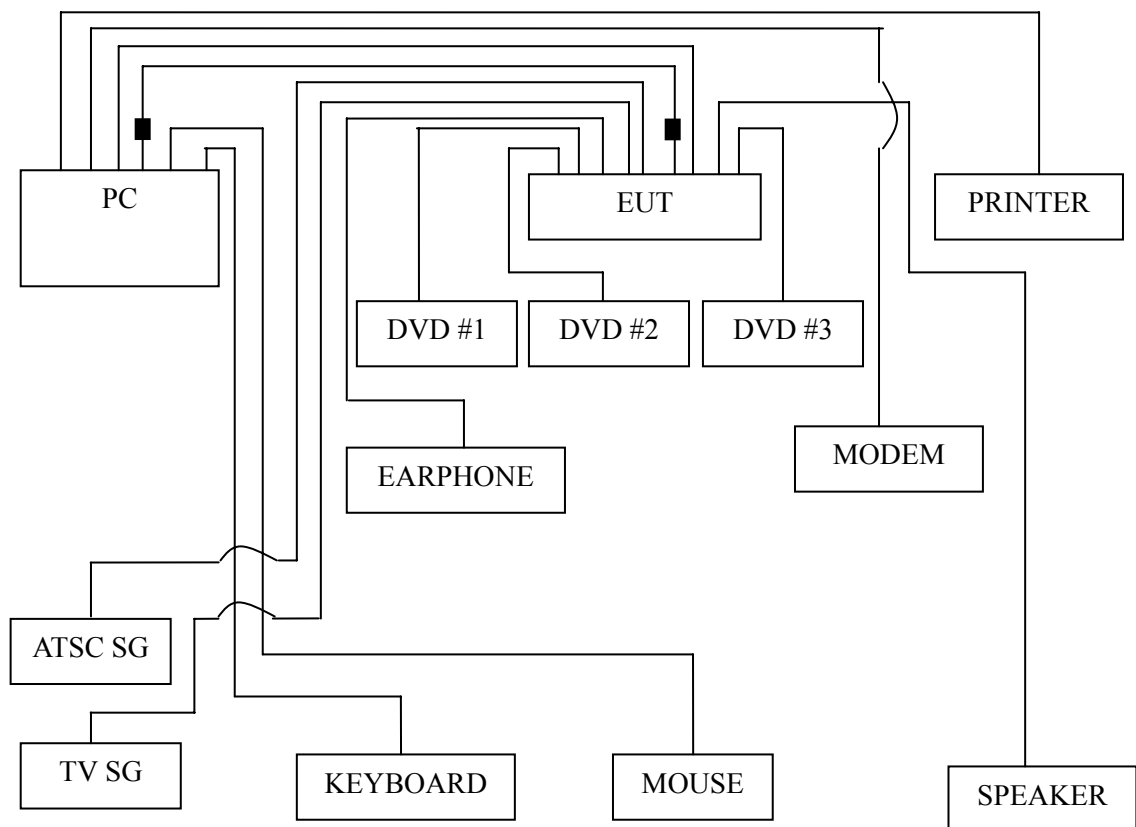
### 4.1 Test Equipment

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 19, 2010	Mar 19, 2011
3.	Bi-log Antenna	TESEQ	CBL6112D	23192	Dec 01, 2010	Dec 01, 2011
4.	Spectrum Analyzer	Agilent	E7405A	MY45106600	May 19, 2010	May 19, 2011
5.	Software	Audix	E3	SET00200 9912M295-2	--	--

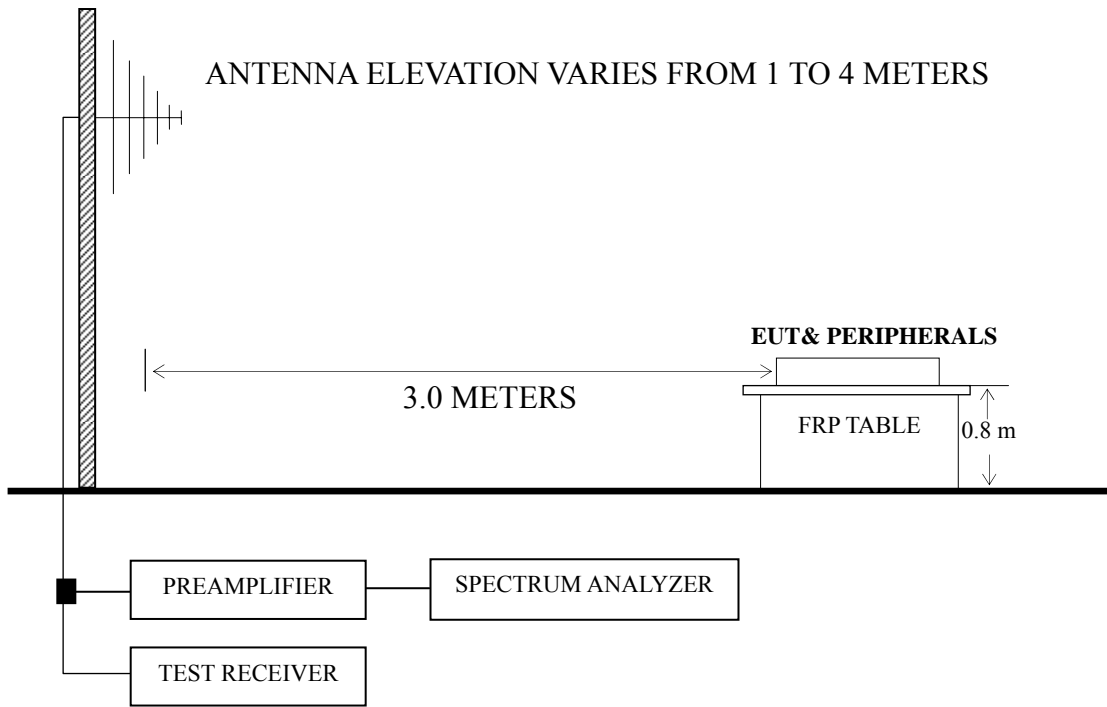
### 4.2 Block Diagram of Test Setup

#### 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	P24
D-Sub 800*600@60Hz	P25
D-Sub 1024*768@60Hz	P26
HDMI 640*480@60Hz	P27
HDMI 800*600@60Hz	P28
HDMI 1024*768@60Hz	P29
USB Play	P30

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 D-Sub 800\*600@60Hz test mode. The worst emission at horizontal polarization was detected at 356.890 MHz with corrected signal level of 43.69 dB ( $\mu\text{V}/\text{m}$ ) (limit is 46.00dB ( $\mu\text{V}/\text{m}$ )), when the antenna was 1.00 m height and the turntable was at 130°. The worst emission at vertical polarization was detected at 875.840 MHz with corrected signal level of 41.38 dB ( $\mu\text{V}/\text{m}$ ) (limit is 46.00 dB ( $\mu\text{V}/\text{m}$ )), when the antenna was 1.00 m height and the turntable was at 210°.

EUT : LCD TV Temperature : 22°C

Model No. : LHDN32V88MH Humidity : 60%RH

Serial No. : E20101228-03-02 Date of Test : Jan 19, 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	109.540	24.00	11.19	1.08	36.27	43.50	7.23
	174.530	26.63	10.06	1.35	38.04	43.50	5.46
	266.680	25.58	12.66	1.66	39.90	46.00	6.10
	<b>353.980</b>	<b>23.92</b>	<b>15.25</b>	<b>1.93</b>	<b>41.10</b>	<b>46.00</b>	<b>4.90</b>
	601.330	12.50	18.23	2.46	33.19	46.00	12.81
	756.530	13.00	20.16	2.82	35.98	46.00	10.02
Vertical	<b>87.000</b>	<b>24.10</b>	<b>10.88</b>	<b>0.98</b>	<b>35.96</b>	<b>40.00</b>	<b>4.04</b>
	153.190	25.21	10.36	1.25	36.82	43.50	6.68
	174.530	25.57	10.06	1.35	36.98	43.50	6.52
	303.540	17.68	13.80	1.78	33.26	46.00	12.74
	601.330	14.60	18.23	2.46	35.29	46.00	10.71
	877.780	16.27	20.36	3.00	39.63	46.00	6.37

TEST ENGINEER: RAVEN JIN



EUT : LCD TV Temperature : 22°C

Model No. : LHDN32V88MH Humidity : 60%RH

Serial No. : E20101228-03-02 Date of Test : Jan 19, 2011

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	72.680	21.51	10.08	0.91	32.50	40.00	7.50
	109.540	25.98	11.19	1.08	38.25	43.50	5.25
	302.000	27.10	13.77	1.77	42.64	46.00	3.36
	<b>356.890</b>	<b>26.41</b>	<b>15.33</b>	<b>1.95</b>	<b>43.69</b>	<b>46.00</b>	<b>2.31</b>
	601.330	17.43	18.23	2.46	38.12	46.00	7.88
	756.530	16.75	20.16	2.82	39.73	46.00	6.27
Vertical	87.000	23.10	10.88	0.98	34.96	40.00	5.04
	174.530	26.38	10.06	1.35	37.79	43.50	5.71
	313.240	23.87	14.08	1.81	39.76	46.00	6.24
	356.890	23.70	15.33	1.95	40.98	46.00	5.02
	601.330	17.28	18.23	2.46	37.97	46.00	8.03
	<b>875.840</b>	<b>18.01</b>	<b>20.37</b>	<b>3.00</b>	<b>41.38</b>	<b>46.00</b>	<b>4.62</b>

TEST ENGINEER: RAVEN JIN

EUT : LCD TV Temperature : 22°C

Model No. : LHDN32V88MH Humidity : 60%RH

Serial No. : E20101228-03-02 Date of Test : Jan 19, 2011

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

Polarization	Frequency (MHz)	Meter Reading dB ( $\mu$ V)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level dB ( $\mu$ V/m)	Limits dB ( $\mu$ V/m)	Margin (dB)
Horizontal	87.000	24.30	10.88	0.98	36.16	40.00	3.84
	<b>109.540</b>	<b>28.46</b>	<b>11.19</b>	<b>1.08</b>	<b>40.73</b>	<b>43.50</b>	<b>2.77</b>
	153.190	28.12	10.36	1.25	39.73	43.50	3.77
	174.530	28.48	10.06	1.35	39.89	43.50	3.61
	489.780	18.37	17.49	2.25	38.11	46.00	7.89
	759.440	16.31	20.16	2.82	39.29	46.00	6.71
Vertical	<b>87.000</b>	<b>24.30</b>	<b>10.88</b>	<b>0.98</b>	<b>36.16</b>	<b>40.00</b>	<b>3.84</b>
	153.190	24.63	10.36	1.25	36.24	43.50	7.26
	179.380	25.80	10.00	1.37	37.17	43.50	6.33
	356.890	24.29	15.33	1.95	41.57	46.00	4.43
	489.780	19.48	17.49	2.25	39.22	46.00	6.78
	877.780	17.96	20.36	3.00	41.32	46.00	4.68

TEST ENGINEER: RAVEN JIN

EUT : LCD TV Temperature : 22°C

Model No. : LHDN32V88MH Humidity : 60%RH

Serial No. : E20101228-03-02 Date of Test : Jan 19, 2011

Test Mode : HDMI 640\*480@60Hz

Polarization	Frequency (MHz)	Meter Reading dB ( $\mu$ V)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level dB ( $\mu$ V/m)	Limits dB ( $\mu$ V/m)	Margin (dB)
Horizontal	<b>87.230</b>	<b>23.97</b>	<b>10.88</b>	<b>0.98</b>	<b>35.83</b>	<b>40.00</b>	<b>4.17</b>
	94.990	23.72	11.18	1.02	35.92	43.50	7.58
	109.540	25.98	11.19	1.08	38.25	43.50	5.25
	302.000	25.10	13.77	1.77	40.64	46.00	5.36
	356.890	24.41	15.33	1.95	41.69	46.00	4.31
	756.530	16.75	20.16	2.82	39.73	46.00	6.27
Vertical	<b>80.440</b>	<b>21.40</b>	<b>10.56</b>	<b>0.95</b>	<b>32.91</b>	<b>40.00</b>	<b>7.09</b>
	174.530	20.38	10.06	1.35	31.79	43.50	11.71
	313.240	17.87	14.08	1.81	33.76	46.00	12.24
	356.890	17.70	15.33	1.95	34.98	46.00	11.02
	487.840	14.24	17.46	2.24	33.94	46.00	12.06
	875.840	12.01	20.37	3.00	35.38	46.00	10.62

TEST ENGINEER: RAVEN JIN

EUT : LCD TV Temperature : 22°C

Model No. : LHDN32V88MH Humidity : 60%RH

Serial No. : E20101228-03-02 Date of Test : Jan 19, 2011

Test Mode : HDMI 800\*600@60Hz

Polarization	Frequency (MHz)	Meter Reading dB ( $\mu$ V)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level dB ( $\mu$ V/m)	Limits dB ( $\mu$ V/m)	Margin (dB)
Horizontal	<b>87.000</b>	<b>23.30</b>	<b>10.88</b>	<b>0.98</b>	<b>35.16</b>	<b>40.00</b>	<b>4.84</b>
	145.430	25.15	10.50	1.23	36.88	43.50	6.62
	269.590	26.29	12.78	1.66	40.73	46.00	5.27
	489.780	18.37	17.49	2.25	38.11	46.00	7.89
	601.330	16.02	18.23	2.46	36.71	46.00	9.29
	759.440	16.31	20.16	2.82	39.29	46.00	6.71
Vertical	<b>87.000</b>	<b>24.30</b>	<b>10.88</b>	<b>0.98</b>	<b>36.16</b>	<b>40.00</b>	<b>3.84</b>
	153.190	24.63	10.36	1.25	36.24	43.50	7.26
	179.380	25.80	10.00	1.37	37.17	43.50	6.33
	356.890	24.29	15.33	1.95	41.57	46.00	4.43
	489.780	19.48	17.49	2.25	39.22	46.00	6.78
	601.330	17.60	18.23	2.46	38.29	46.00	7.71

TEST ENGINEER: RAVEN JIN

EUT : LCD TV Temperature : 22°C

Model No. : LHDN32V88MH Humidity : 60%RH

Serial No. : E20101228-03-02 Date of Test : Jan 19, 2011

Test Mode : HDMI 1024\*768@60Hz

Polarization	Frequency (MHz)	Meter Reading dB ( $\mu$ V)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level dB ( $\mu$ V/m)	Limits dB ( $\mu$ V/m)	Margin (dB)
Horizontal	87.230	22.16	10.88	0.98	34.02	40.00	5.98
	179.380	21.73	10.00	1.37	33.10	43.50	10.40
	<b>268.800</b>	<b>27.00</b>	<b>12.74</b>	<b>1.66</b>	<b>41.40</b>	<b>46.00</b>	<b>4.60</b>
	356.890	19.73	15.33	1.95	37.01	46.00	8.99
	601.330	20.26	18.23	2.46	40.95	46.00	5.05
	919.490	14.90	20.40	3.22	38.52	46.00	7.48
Vertical	90.140	23.75	11.00	1.00	35.75	43.50	7.75
	179.380	26.12	10.00	1.37	37.49	43.50	6.01
	<b>355.100</b>	<b>24.00</b>	<b>15.25</b>	<b>1.93</b>	<b>41.18</b>	<b>46.00</b>	<b>4.82</b>
	489.780	19.10	17.49	2.25	38.84	46.00	7.16
	601.330	18.58	18.23	2.46	39.27	46.00	6.73
	872.930	15.15	20.37	2.98	38.50	46.00	7.50

TEST ENGINEER: RAVEN JIN

EUT : LCD TV Temperature : 22°C

Model No. : LHDN32V88MH Humidity : 60%RH

Serial No. : E20101228-03-02 Date of Test : Jan 19, 2011

Test Mode : USB Play

Polarization	Frequency (MHz)	Meter Reading dB ( $\mu$ V)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level dB ( $\mu$ V/m)	Limits dB ( $\mu$ V/m)	Margin (dB)
Horizontal	<b>32.000</b>	<b>18.00</b>	<b>18.49</b>	<b>0.65</b>	<b>37.14</b>	<b>40.00</b>	<b>2.86</b>
	36.800	17.00	15.80	0.69	33.49	40.00	6.51
	87.230	23.98	8.96	0.98	33.92	40.00	6.08
	164.830	22.33	10.35	1.31	33.99	43.50	9.51
	218.180	20.96	11.52	1.51	33.99	46.00	12.01
	293.840	22.16	13.79	1.74	37.69	46.00	8.31
Vertical	87.230	22.33	8.96	0.98	32.27	40.00	7.73
	109.540	19.74	12.25	1.08	33.07	43.50	10.43
	162.890	21.23	10.42	1.30	32.95	43.50	10.55
	218.180	21.92	11.52	1.51	34.95	46.00	11.05
	<b>293.840</b>	<b>22.90</b>	<b>13.79</b>	<b>1.74</b>	<b>38.43</b>	<b>46.00</b>	<b>7.57</b>
	412.180	15.69	16.67	2.09	34.45	46.00	11.55

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	ZCAT3035-1330\ROH	FEELUX	See Internal photo Figure 20
		Rui Feng Electronic Co., Ltd.	
		Hai An Magnetic Material No.2 Factory	
Ferrite core	ZCAT2132-1130\ROH	FEELUX	See Internal photo Figure 19
		Rui Feng Electronic Co., Ltd.	
		Hai An Magnetic Material No.2 Factory	
Gasket	35X0.7X41mm\VGA\ROH	Qingdao Joinset S&T Co., Ltd.	See Internal photo Figure 18

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)