

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

LED LCD TV

Model No.	Brand
LTDN40K220WUS	Hisense
40H5B	

FCC ID : W9HLCDD0043

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

Prepared By : Audix Technology (Shanghai) Co., Ltd.  
3F and 4F, 34Bldg 680 Guiping Rd,  
Caohejing Hi-Tech Park,  
Shanghai 200233, China

Tel: +86-21-64955500  
Fax: +86-21-64955491

Report No. : ACI-F15009  
Date of Test : Dec 27 – 29, 2014  
Date of Report : Jan 12, 2015

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## TEST REPORT FOR FCC CERTIFICATE

Applicant : Hisense Electric Co., Ltd.  
 Manufacturer : Hisense Electric Co., Ltd.  
 Factory #1 : Hisense Electric Co., Ltd.  
 Factory #2 : Tatung Mexico S.A. de C.V.  
 EUT Description : LED LCD TV

Model No.	Brand	Power Supply
Refer to Sec2.1	Hisense	120V/60Hz

Test Procedure Used:

*FCC RULES AND REGULATIONS PART 15 SUBPART B CLASS B OCTOBER 2013  
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 Sec2.1) which was tested in 3m anechoic chamber Dec 27 – 29, 2014 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.F15010, a Verification report.***

Date of Test : Dec 27 – 29, 2014 Date of Report : Jan 12, 2015

Producer :   
 KATHY WANG / Supervisor

Review :   
 SAMMY CHEN / Deputy Manager

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

Signatory :   
 Authorized Signature EMC BYRON KWO / Assistant General 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
<b>EMISSION</b>			
Conducted Disturbance at the Mains Terminal	FCC RULES AND REGULATIONS PART 15 SUBPART B OCTOBER 2013 AND ANSI C63.4-2003	15.107(a) Class B	Pass
Radiated Disturbance	FCC RULES AND REGULATIONS PART 15 SUBPART B OCTOBER 2013 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	:	<input checked="" type="checkbox"/> Production <input type="checkbox"/> Pre-product <input type="checkbox"/> Pro-type
Model No.	:	LTDN40K220WUS, 40H5B
Note	:	The above models are all the same except for model name. 40H5B model is tested and Recorded in the report.
Brand Name	:	Hisense
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
Factory #1	:	Hisense Electric Co., Ltd. No.218 Qianwangang Road, Economy & Technology Development Zone, Qingdao, China
Factory #2	:	Tatung Mexico S.A. de C.V. Miguel Catalán 420, Parque Industrial Rio Bravo, Cd. Juarez, Chih., CP 32557
LCD Panel	:	Manufacturer : Hisense M/N : HD400DF-B31\S1
Max Resolution	:	1920*1080@60Hz
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:

## Side Port:

- (1) One ANT/CABLE IN Port : Connected with Antenna or ATSC SG / TV SG
- (2) One HDMI2/ARC Port : Connected with DVD PLAYER
- (3) One HDMI1/DVI Port : Connected with PC
- (4) One DVI AUDIO IN Port : Connected with PC
- (5) One LAN Port : Connected with PC
- (6) One DIGITAL AUDIO OUT Port : Connected with DVD PLAYER

## Bottom Port:

- (7) One USB Port : Connected with U-Disk
- (8) One component of Audio/YPbPr Audio Port : Connected with DVD PLAYER
- (9) One component of Video/YPbPr Port : Connected with DVD PLAYER
- (10) One AUDIO OUT 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; BSMI, 3C, MIC

### 2.2.2 Printer

Manufacturer : HP  
Model Number : P1007  
Serial Number : VNFN713831  
Data Cable : Shielded, detachable, 1.8m  
Certificate : GS, CE/EMC, C-Tick, FCC DoC

## 2.2.3 Keyboard #1

Manufacturer : HP  
Model Number : CS105  
Serial Number : 9GTRNB1300120632  
Data Cable : Shielded, undetachable, 1.8m  
Certificate : CE/EMC, FCC DoC, VCCI, MIC, C-Tick,  
BSMI

## 2.2.4 Keyboard #2

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

## 2.2.5 Mouse

Manufacturer : HP  
Model Number : CS105  
Serial Number : 9GTRNB1300120632  
Data Cable : Shielded, Undetachable, 1.8m.  
Certificate : CE/EMC, FCC DoC, VCCI, MIC,  
C-Tick, BSMI

## 2.2.6 Modem

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

## 2.2.7 Earphone

Manufacturer : audio-technica  
Model Number : ATH-CKL200

## 2.2.8 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

## 2.2.9 ATSC Signal Generator

Manufacturer : SENCORE  
Model Number : ATSC997  
Serial Number : 6790071

### 2.2.10 DVD PLAYER

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

### 2.2.11 U-DISK

Manufacturer : Kingmax  
Model Number : 8GB

## 2.3 Description of Test Facility

Site Description (No.3 3m Chamber) : Sept. 17, 1998 file on  
Mar 16, 2012 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 = 2.77dB

Radiated Emission Expanded Uncertainty (30-200MHz):  
U = 4.40dB (Horizontal)  
U = 4.40dB (Vertical)

Radiated Emission Expanded Uncertainty (200M-1GHz):  
U = 4.40dB (Horizontal)  
U = 5.40dB (Vertical)

Radiated Emission Expanded Uncertainty (1GHz-6GHz):  
U = 5.08 dB



### 3 CONDUCTED EMISSION TEST

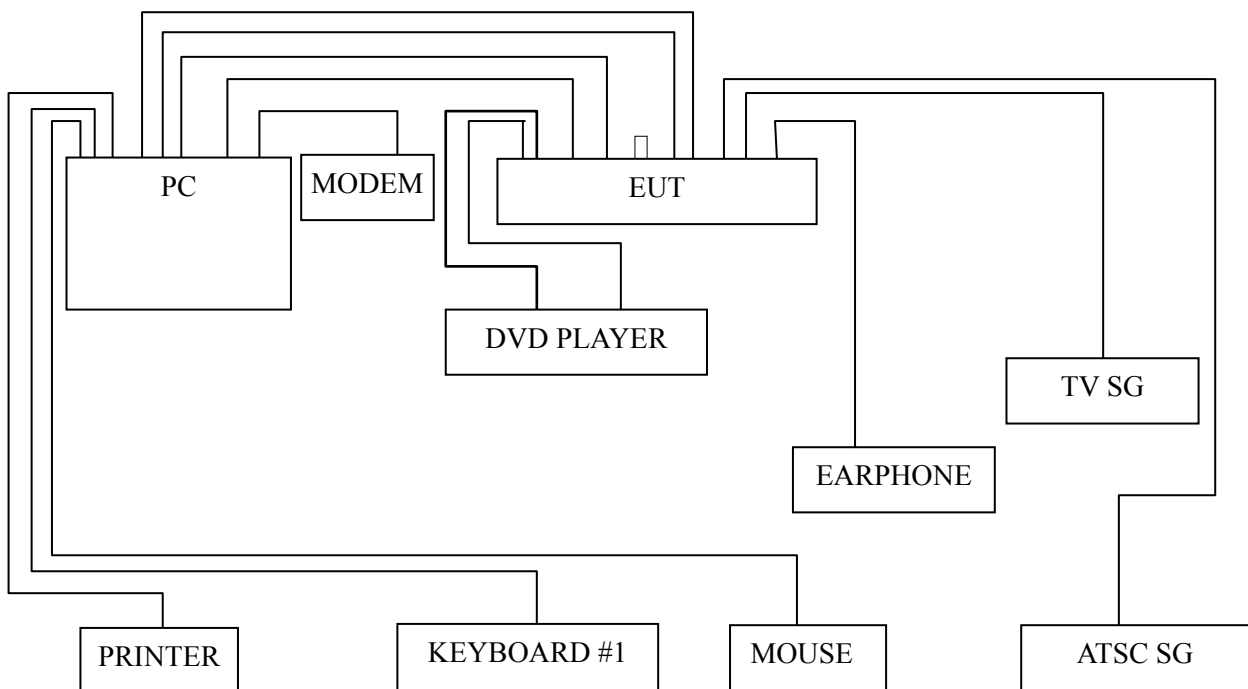
#### 3.1 Test Equipment

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	101303	Sep 11, 2014	Sep 10, 2015
2.	Artificial Mains Network (AMN)	R&S	ENV4200	100125	Jun 27, 2014	Jun 26, 2015
3.	Line Impedance Stabilization Network (LISN)	Kyoritsu	KNW-407	8-1280-4	Mar 20, 2014	Mar 19, 2015
4.	50Ω Coaxial Switch	Anritsu	MP59B	6200426389	Sep 18, 2014	Mar 17, 2015
5.	50Ω Terminator	Anritsu	BNC	001	Mar 20, 2014	Mar 19, 2015
6.	Software	Audix	E3	6.111206	--	--

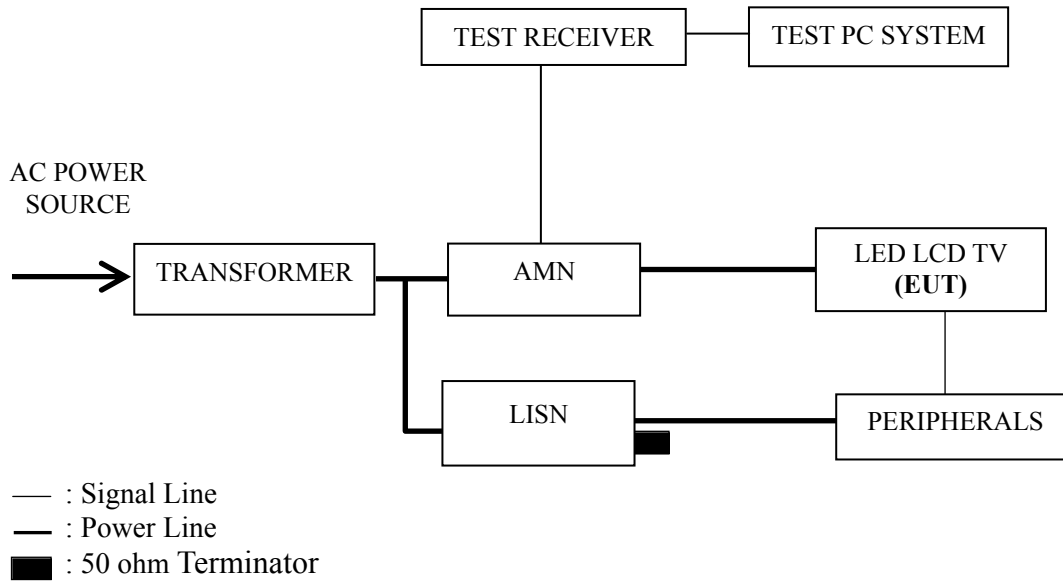
#### 3.2 Block Diagram of Test Setup

##### 3.2.1 EUT & Peripherals



□ : U-Disk

### 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 HDMI Input).

3.5.5 PC system sent the 1kHz audio signal to EUT through audio port, the EUT speak out 1kHz audio signal.

3.5.6 In USB Play mode, set the EUT play digital media from U-Disk.

3.5.7 In LAN Play mode, set the EUT play digital media through LAN port.

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

3.5.9 The test modes are as follows:

Test Mode
HDMI 1920*1080@60Hz & 1kHz playing
HDMI 1280*1024@75Hz & 1kHz playing
HDMI 640*480@60Hz & 1kHz playing
USB Play
LAN 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
HDMI 1920*1080@60Hz & 1kHz playing	P13
HDMI 1280*1024@75Hz & 1kHz playing	P14
HDMI 640*480@60Hz & 1kHz playing	P15
USB Play	P16
LAN Play	P17

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 LAN Play test mode. The worst emission is detected at 0.314 MHz (AV Value) with corrected signal level of 43.18 dB ( $\mu$ V) (limit is 49.86dB ( $\mu$ V)), when the Neutral of the EUT is connected to AMN.

EUT : LED LCD TV Temperature : 22°C

Model No. : 40H5B Humidity : 48%RH

Test Mode : HDMI 1920\*1080@60Hz & 1kHz Playing Date of Test : Dec 29, 2014

Test Line	Frequency (MHz)	Meter Reading dB( $\mu$ V)	Factor (dB)	Emission Level dB( $\mu$ V)	Limits dB( $\mu$ V)	Margin (dB)	Remark	
Line	0.151	40.60	10.58	51.18	65.94	14.76	QP	
	0.191	38.20	10.55	48.75	63.99	15.24		
	0.315	34.10	10.49	44.59	59.85	15.26		
	0.631	24.60	10.43	35.03	56.00	20.97		
	1.569	22.60	10.41	33.01	56.00	22.99		
	6.059	24.71	10.40	35.11	60.00	24.89		
	Line	0.151	15.30	10.58	25.88	55.94	30.06	AV
		0.191	29.30	10.55	39.85	53.99	14.14	
		0.315	32.30	10.49	42.79	49.85	7.06	
		0.631	11.30	10.43	21.73	46.00	24.27	
1.569		18.80	10.41	29.21	46.00	16.79		
6.059		18.31	10.40	28.71	50.00	21.29		
Neutral	0.152	39.90	10.58	50.48	65.88	15.40	QP	
	0.191	39.70	10.54	50.24	63.98	13.74		
	0.313	34.50	10.48	44.98	59.88	14.90		
	0.549	24.10	10.43	34.53	56.00	21.47		
	1.569	21.09	10.43	31.52	56.00	24.48		
	18.280	26.11	10.69	36.80	60.00	23.20		
	Neutral	0.152	15.10	10.58	25.68	55.88	30.20	AV
		0.191	31.60	10.54	42.14	53.98	11.84	
		<b>0.313</b>	<b>32.70</b>	<b>10.48</b>	<b>43.18</b>	<b>49.88</b>	<b>6.70</b>	
		0.549	10.80	10.43	21.23	46.00	24.77	
1.569		17.69	10.43	28.12	46.00	17.88		
18.280		17.31	10.69	28.00	50.00	22.00		

TEST ENGINEER: WENCY YANG

EUT : LED LCD TV Temperature : 22°C

Model No. : 40H5B Humidity : 48%RH

Test Mode : HDMI 1280\*1024@75Hz & 1kHz Playing Date of Test : Dec 29, 2014

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.152	39.80	10.58	50.38	65.90	15.52	QP
	0.191	37.90	10.55	48.45	63.99	15.54	
	0.314	34.10	10.49	44.59	59.86	15.27	
	0.523	25.30	10.44	35.74	56.00	20.26	
	6.351	21.10	10.42	31.52	60.00	28.48	
	18.150	29.50	10.58	40.08	60.00	19.92	
	AV	0.152	14.20	10.58	24.78	55.90	31.12
		0.191	30.00	10.55	40.55	53.99	13.44
		<b>0.314</b>	<b>32.40</b>	<b>10.49</b>	<b>42.89</b>	<b>49.86</b>	<b>6.97</b>
		0.523	12.20	10.44	22.64	46.00	23.36
6.351		13.60	10.42	24.02	50.00	25.98	
18.150		22.30	10.58	32.88	50.00	17.12	
Neutral	0.153	39.40	10.58	49.98	65.85	15.87	QP
	0.195	38.79	10.54	49.33	63.80	14.47	
	0.313	34.50	10.48	44.98	59.88	14.90	
	0.547	24.30	10.43	34.73	56.00	21.27	
	4.530	21.40	10.52	31.92	56.00	24.08	
	18.130	30.20	10.69	40.89	60.00	19.11	
	AV	0.153	14.30	10.58	24.88	55.85	30.97
		0.195	32.59	10.54	43.13	53.80	10.67
		0.313	32.60	10.48	43.08	49.88	6.80
		0.547	10.60	10.43	21.03	46.00	24.97
4.530		10.30	10.52	20.82	46.00	25.18	
18.130		22.30	10.69	32.99	50.00	17.01	

TEST ENGINEER: WENCY YANG

EUT : LED LCD TV Temperature : 22°C

Model No. : 40H5B Humidity : 48%RH

Test Mode : HDMI 640\*480@60Hz & 1kHz Playing Date of Test : Dec 29, 2014

Test Line	Frequency (MHz)	Meter Reading dB( $\mu$ V)	Factor (dB)	Emission Level dB( $\mu$ V)	Limits dB( $\mu$ V)	Margin (dB)	Remark
Line	0.154	38.21	10.57	48.78	65.80	17.02	QP
	0.314	34.00	10.49	44.49	59.87	15.38	
	0.630	24.70	10.43	35.13	56.00	20.87	
	1.571	22.60	10.41	33.01	56.00	22.99	
	6.378	20.90	10.42	31.32	60.00	28.68	
	18.180	25.20	10.58	35.78	60.00	24.22	
	0.154	12.71	10.57	23.28	55.80	32.52	AV
	0.314	32.30	10.49	42.79	49.87	7.08	
	0.630	11.40	10.43	21.83	46.00	24.17	
	1.571	18.80	10.41	29.21	46.00	16.79	
	6.378	13.20	10.42	23.62	50.00	26.38	
	18.180	18.30	10.58	28.88	50.00	21.12	
Neutral	0.151	40.30	10.58	50.88	65.97	15.09	QP
	0.192	39.40	10.54	49.94	63.97	14.03	
	0.314	34.80	10.48	45.28	59.86	14.58	
	0.551	24.20	10.43	34.63	56.00	21.37	
	4.524	18.50	10.52	29.02	56.00	26.98	
	18.130	29.80	10.69	40.49	60.00	19.51	
	0.151	16.10	10.58	26.68	55.97	29.29	AV
	0.192	31.60	10.54	42.14	53.97	11.83	
	<b>0.314</b>	<b>32.70</b>	<b>10.48</b>	<b>43.18</b>	<b>49.86</b>	<b>6.68</b>	
	0.551	9.70	10.43	20.13	46.00	25.87	
	4.524	9.60	10.52	20.12	46.00	25.88	
	18.130	21.30	10.69	31.99	50.00	18.01	

TEST ENGINEER: WENCY YANG

EUT : LED LCD TV Temperature : 22°C

Model No. : 40H5B Humidity : 48%RH

Test Mode : USB Play Date of Test : Dec 29, 2014

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.151	40.20	10.58	50.78	65.94	15.16	QP
	0.314	33.90	10.49	44.39	59.87	15.48	
	0.507	25.50	10.44	35.94	56.00	20.06	
	1.569	22.70	10.41	33.11	56.00	22.89	
	6.355	20.80	10.42	31.22	60.00	28.78	
	19.560	23.40	10.60	34.00	60.00	26.00	
	AV	0.151	15.40	10.58	25.98	55.94	29.96
		0.314	32.30	10.49	42.79	49.87	7.08
		0.507	12.60	10.44	23.04	46.00	22.96
		1.569	18.90	10.41	29.31	46.00	16.69
		6.355	13.30	10.42	23.72	50.00	26.28
		19.560	15.50	10.60	26.10	50.00	23.90
Neutral	0.152	39.50	10.58	50.08	65.91	15.83	QP
	0.314	34.80	10.48	45.28	59.86	14.58	
	0.543	24.20	10.43	34.63	56.00	21.37	
	0.943	24.30	10.41	34.71	56.00	21.29	
	4.781	21.40	10.53	31.93	56.00	24.07	
	18.060	27.50	10.69	38.19	60.00	21.81	
	AV	0.152	14.80	10.58	25.38	55.91	30.53
		<b>0.314</b>	<b>32.70</b>	<b>10.48</b>	<b>43.18</b>	<b>49.86</b>	<b>6.68</b>
		0.543	10.90	10.43	21.33	46.00	24.67
		0.943	21.70	10.41	32.11	46.00	13.89
		4.781	12.00	10.53	22.53	46.00	23.47
		18.060	18.40	10.69	29.09	50.00	20.91

TEST ENGINEER: WENCY YANG



EUT : LED LCD TV Temperature : 22°C  
 Model No. : 40H5B Humidity : 48%RH  
 Test Mode : LAN Play Date of Test : Dec 29, 2014

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.151	40.40	10.58	50.98	65.94	14.96	QP
	0.314	34.00	10.49	44.49	59.86	15.37	
	0.513	25.60	10.44	36.04	56.00	19.96	
	1.571	22.50	10.41	32.91	56.00	23.09	
	6.035	24.81	10.40	35.21	60.00	24.79	
	18.860	19.51	10.58	30.09	60.00	29.91	
	0.151	16.10	10.58	26.68	55.94	29.26	AV
	0.314	32.30	10.49	42.79	49.86	7.07	
	0.513	12.70	10.44	23.14	46.00	22.86	
	1.571	18.60	10.41	29.01	46.00	16.99	
	6.035	19.41	10.40	29.81	50.00	20.19	
	18.860	12.61	10.58	23.19	50.00	26.81	
Neutral	0.153	38.51	10.57	49.08	65.82	16.74	QP
	0.192	39.30	10.54	49.84	63.97	14.13	
	0.314	34.80	10.48	45.28	59.86	14.58	
	0.943	24.50	10.41	34.91	56.00	21.09	
	4.529	21.10	10.52	31.62	56.00	24.38	
	18.100	25.60	10.69	36.29	60.00	23.71	
	0.153	13.21	10.57	23.78	55.82	32.04	AV
	0.192	31.60	10.54	42.14	53.97	11.83	
	<b>0.314</b>	<b>32.70</b>	<b>10.48</b>	<b>43.18</b>	<b>49.86</b>	<b>6.68</b>	
	0.943	21.90	10.41	32.31	46.00	13.69	
	4.529	9.90	10.52	20.42	46.00	25.58	
	18.100	19.80	10.69	30.49	50.00	19.51	

TEST ENGINEER: WENCY YANG

## 4 RADIATED EMISSION TEST

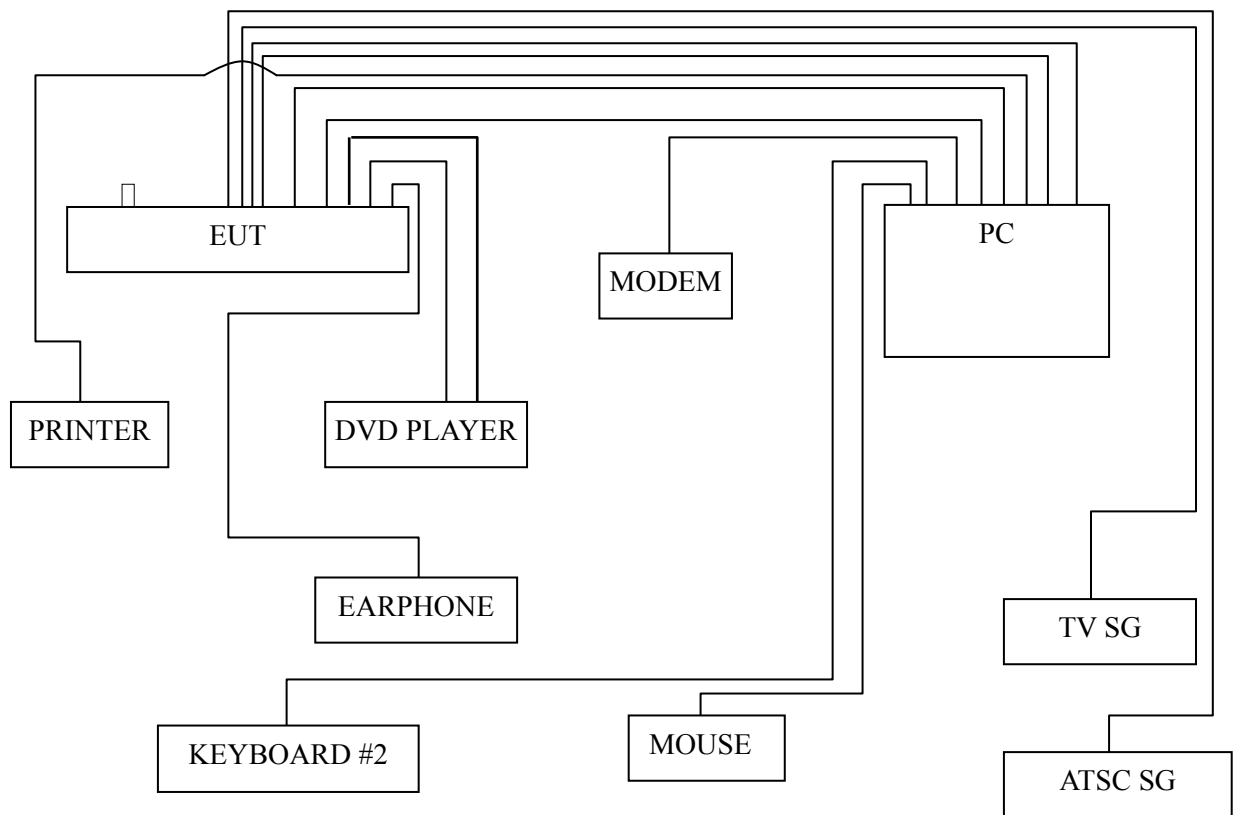
### 4.1 Test Equipment

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	ESCI	101302	Sep 18, 2014	Mar 17, 2015
2.	Preamplifier	Agilent	8447D	2944A10548	Mar 20, 2014	Mar 19, 2015
3.	Preamplifier	HP	8449B	3008A00864	May 03, 2014	May 02, 2015
4.	Bi-log Antenna	TESEQ	CBL6112D	23193	May 11, 2014	May 10, 2015
5.	Horn Antenna	EMCO	3115	9607-4878	Nov 11, 2014	Nov 10, 2015
6.	Spectrum	Agilent	E7405A	MY45106600	Sep 18, 2014	Mar 17, 2015
7.	50Ω Coaxial Switch	Anritsu	MP59B	6200426390	Sep 18, 2014	Mar 17, 2015
8.	Software	Audix	E3	6.2007-9-10	--	--

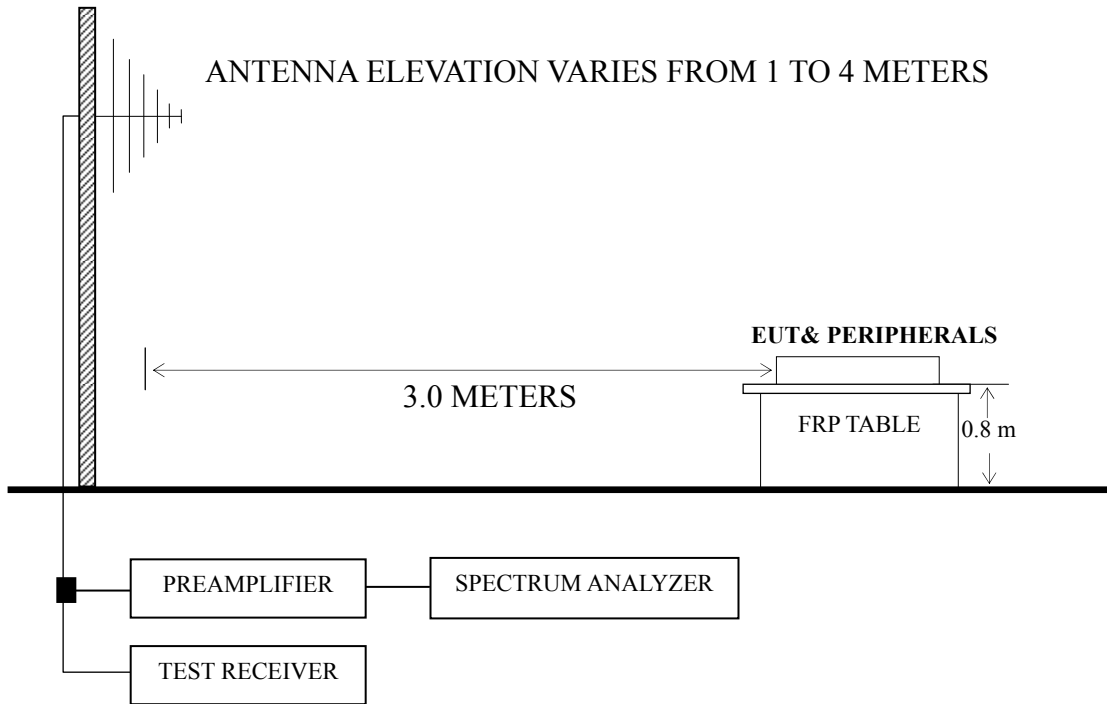
### 4.2 Block Diagram of Test Setup

#### 4.2.1 EUT & Peripherals



□ : U-Disk

### 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.  
 NOTE 5 - Above 1 GHz, the limit on peak emission is 20 dB above the maximum permitted average emission limit applicable to the EUT.

### 4.4 Test Configuration

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

Please refer to Sec.3.4.

### 4.5 Operating Condition of EUT

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

## 4.6 Test Procedures

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

The I.F. bandwidth of Test Receiver R&S ESCI was set at 120 kHz.

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

The frequency range from 1 GHz to 2 GHz was checked for the maximum resolution test mode.

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

## 4.7 Test Results

**<PASS>**

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

Test Mode	Data Page
HDMI 1920*1080@60Hz & 1kHz playing	P22 – P23
HDMI 1280*1024@75Hz & 1kHz playing	P24
HDMI 640*480@60Hz & 1kHz playing	P25
USB Play	P26
LAN Play	P27

NOTE 1 – Emission Level = Antenna Factor + Cable Loss + Meter Reading. (< 1GHz);

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

NOTE 2 – All readings are Quasi-Peak values below or equal to 1GHz, Peak and Average values above 1GHz.

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 1920\*1080@60Hz & 1kHz playing test mode. The worst emission at horizontal polarization was detected at 704.226 MHz with corrected signal level of 43.29 dB ( $\mu\text{V/m}$ ) (limit is 46.00 dB ( $\mu\text{V/m}$ )), when the antenna was 2.00 m height and the turntable was at 48°. The worst emission at vertical polarization was detected at 32.979 MHz with corrected signal level of 35.18 dB ( $\mu\text{V/m}$ ) (limit is 40.00 dB ( $\mu\text{V/m}$ )), when the antenna was 1.10 m height and the turntable was at 205°.

EUT : LED LCD TV Temperature : 22°C

Model No. : 40H5B Humidity : 60%RH

Test Mode : HDMI 1920\*1080@60Hz & 1kHz Playing Date of Test : Dec 27, 2014

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	75.977	16.42	7.25	0.87	--	24.54	40.00	15.46	QP
	110.182	9.62	12.35	1.05	--	23.02	43.50	20.48	
	229.293	24.73	9.16	1.53	--	35.42	46.00	10.58	
	350.477	16.02	14.10	1.94	--	32.06	46.00	13.94	
	522.718	10.45	18.20	2.32	--	30.97	46.00	15.03	
	<b>704.226</b>	<b>20.44</b>	<b>20.13</b>	<b>2.72</b>	--	<b>43.29</b>	<b>46.00</b>	<b>2.71</b>	
	1128.000	46.55	23.87	3.41	36.51	37.32	74.00	36.68	PK
	1209.000	46.06	24.36	3.55	36.38	37.59	74.00	36.41	
	1267.000	47.16	24.72	3.64	36.28	39.24	74.00	34.76	
	1500.000	45.82	25.70	3.98	35.84	39.66	74.00	34.34	
	1739.000	51.87	26.57	4.26	35.53	47.17	74.00	26.83	
	1935.000	50.72	27.23	4.46	35.35	47.06	74.00	26.94	AV
	1128.000	33.63	23.87	3.41	36.51	24.40	54.00	29.60	
	1209.000	32.22	24.36	3.55	36.38	23.75	54.00	30.25	
	1267.000	35.24	24.72	3.64	36.28	27.32	54.00	26.68	
1500.000	32.88	25.70	3.98	35.84	26.72	54.00	27.28		
1739.000	38.46	26.57	4.26	35.53	33.76	54.00	20.24		
1935.000	36.95	27.23	4.46	35.35	33.29	54.00	20.71		

TEST ENGINEER: BILL WU

EUT : LED LCD TV Temperature : 22°C

Model No. : 40H5B Humidity : 60%RH

Test Mode : HDMI 1920\*1080@60Hz & 1kHz Playing Date of Test : Dec 27, 2014

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Vertical	<b>32.979</b>	<b>17.73</b>	<b>16.89</b>	<b>0.56</b>	--	<b>35.18</b>	<b>40.00</b>	<b>4.82</b>	QP
	39.994	16.79	13.08	0.62	--	30.49	40.00	9.51	
	90.855	16.50	8.62	0.94	--	26.06	43.50	17.44	
	212.270	25.42	8.05	1.46	--	34.93	43.50	8.57	
	352.000	13.79	14.27	1.94	--	30.00	46.00	16.00	
	704.226	11.90	20.13	2.72	--	34.75	46.00	11.25	
	1051.000	46.78	23.45	3.27	36.63	36.87	74.00	37.13	PK
	1212.000	45.36	24.38	3.55	36.37	36.92	74.00	37.08	
	1429.000	45.05	25.47	3.87	35.97	38.42	74.00	35.58	
	1575.000	45.35	25.95	4.06	35.72	39.64	74.00	34.36	
	1740.000	47.57	26.59	4.26	35.53	42.89	74.00	31.11	
	1951.000	48.38	27.27	4.49	35.34	44.80	74.00	29.20	AV
	1051.000	33.12	23.45	3.27	36.63	23.21	54.00	30.79	
	1212.000	32.97	24.38	3.55	36.37	24.53	54.00	29.47	
	1429.000	33.10	25.47	3.87	35.97	26.47	54.00	27.53	
	1575.000	32.33	25.95	4.06	35.72	26.62	54.00	27.38	
1740.000	34.70	26.59	4.26	35.53	30.02	54.00	23.98		
1951.000	34.37	27.27	4.49	35.34	30.79	54.00	23.21		

TEST ENGINEER: BILL WU

EUT : LED LCD TV Temperature : 22°C

Model No. : 40H5B Humidity : 60%RH

Test Mode : HDMI 1280\*1024@75Hz Date of Test : Dec 27, 2014  
& 1kHz Playing

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	31.399	0.79	17.77	0.55	19.11	40.00	20.89
	67.913	15.23	5.51	0.82	21.56	40.00	18.44
	180.649	17.46	8.20	1.35	27.01	43.50	16.49
	285.978	7.03	12.80	1.75	21.58	46.00	24.42
	522.718	11.09	18.20	2.32	31.61	46.00	14.39
	<b>701.761</b>	<b>18.00</b>	<b>20.13</b>	<b>2.70</b>	<b>40.83</b>	<b>46.00</b>	<b>5.17</b>
Vertical	30.745	5.32	18.60	0.54	24.46	40.00	15.54
	66.733	15.74	5.37	0.81	21.92	40.00	18.08
	110.182	8.79	12.35	1.05	22.19	43.50	21.31
	181.920	16.60	8.43	1.35	26.38	43.50	17.12
	304.610	12.88	12.70	1.80	27.38	46.00	18.62
	<b>701.000</b>	<b>20.12</b>	<b>20.20</b>	<b>2.70</b>	<b>43.02</b>	<b>46.00</b>	<b>2.98</b>

TEST ENGINEER: BILL WU



EUT : LED LCD TV Temperature : 22°C

Model No. : 40H5B Humidity : 60%RH

Test Mode : HDMI 640\*480@60Hz & 1kHz Playing Date of Test : Dec 27, 2014

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	31.399	0.79	17.77	0.55	19.11	40.00	20.89
	67.913	15.23	5.51	0.82	21.56	40.00	18.44
	180.649	17.46	8.20	1.35	27.01	43.50	16.49
	285.978	7.03	12.80	1.75	21.58	46.00	24.42
	522.718	11.09	18.20	2.32	31.61	46.00	14.39
	<b>701.761</b>	<b>18.00</b>	<b>20.13</b>	<b>2.70</b>	<b>40.83</b>	<b>46.00</b>	<b>5.17</b>
Vertical	32.979	14.66	16.89	0.56	32.11	40.00	7.89
	39.994	16.48	13.08	0.62	30.18	40.00	9.82
	90.340	17.43	8.50	0.94	26.87	43.50	16.63
	<b>215.268</b>	<b>27.31</b>	<b>8.00</b>	<b>1.48</b>	<b>36.79</b>	<b>43.50</b>	<b>6.71</b>
	351.708	14.64	14.27	1.94	30.85	46.00	15.15
	699.305	14.96	20.20	2.70	37.86	46.00	8.14

TEST ENGINEER: BILL WU

EUT : LED LCD TV Temperature : 22°C

Model No. : 40H5B Humidity : 60%RH

Test Mode : USB Play Date of Test : Dec 27, 2014

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	37.945	10.82	15.20	0.60	26.62	40.00	13.38
	112.000	19.10	12.17	1.06	32.33	43.50	11.17
	240.830	31.23	10.06	1.59	42.88	46.00	3.12
	300.367	22.21	12.47	1.79	36.47	46.00	9.53
	370.702	20.99	14.79	1.98	37.76	46.00	8.24
	<b>699.780</b>	<b>20.20</b>	<b>20.20</b>	<b>2.70</b>	<b>43.10</b>	<b>46.00</b>	<b>2.90</b>
Vertical	32.979	14.31	16.89	0.56	31.76	40.00	8.24
	112.131	19.47	12.17	1.06	32.70	43.50	10.80
	239.987	21.18	10.00	1.57	32.75	46.00	13.25
	352.943	19.03	14.44	1.94	35.41	46.00	10.59
	699.305	15.74	20.20	2.70	38.64	46.00	7.36
	<b>890.728</b>	<b>19.35</b>	<b>19.80</b>	<b>3.03</b>	<b>42.18</b>	<b>46.00</b>	<b>3.82</b>

TEST ENGINEER: BILL WU

EUT : LED LCD TV Temperature : 22°C

Model No. : 40H5B Humidity : 60%RH

Test Mode : LAN Play Date of Test : Dec 27, 2014

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	30.317	6.47	19.10	0.54	26.11	40.00	13.89
	74.919	14.38	7.40	0.86	22.64	40.00	17.36
	116.132	8.03	12.00	1.08	21.11	43.50	22.39
	213.763	22.23	8.02	1.46	31.71	43.50	11.79
	228.490	23.56	8.92	1.53	34.01	46.00	11.99
	<b>701.000</b>	<b>20.12</b>	<b>20.20</b>	<b>2.70</b>	<b>43.02</b>	<b>46.00</b>	<b>2.98</b>
Vertical	<b>33.095</b>	<b>16.23</b>	<b>16.89</b>	<b>0.56</b>	<b>33.68</b>	<b>40.00</b>	<b>6.32</b>
	67.438	19.30	5.45	0.82	25.57	40.00	14.43
	186.441	21.25	8.73	1.37	31.35	43.50	12.15
	219.845	25.49	8.10	1.49	35.08	46.00	10.92
	570.610	11.34	20.10	2.43	33.87	46.00	12.13
	700.000	11.01	20.20	2.70	33.91	46.00	12.09

TEST ENGINEER: BILL WU

## **5 DEVIATION TO TEST SPECIFICATIONS**

None.