

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

LED LCD TV

Model No.	Brand
50H7GB	Hisense
50H7GB1	

FCC ID : W9HLCDF0054

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

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Report No. : ACI-F15058A3  
Date of Test : Aug 30 – Sep 11, 2015  
Date of Report : Sep 23, 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 2014  
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 Aug 30 – Sep 11, 2015 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.F15059A3, a Verification report.***

Date of Test : Aug 30 – Sep 11, 2015 Date of Report : Sep 23, 2015

Producer :   
 ALAN HE / Assistant

Review :   
 SAMMY CHEN / 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 2014 AND ANSI C63.4-2003	15.107(a) Class B	Pass
Radiated Disturbance	FCC RULES AND REGULATIONS PART 15 SUBPART B OCTOBER 2014 AND ANSI C63.4-2003	15.109(a) Class B	Pass

## 2 GENERAL INFORMATION

### 2.1 Description of Equipment Under Test

Description : LED LCD TV

Type of EUT :  Production  Pre-product  Pro-type

Model No.	Brand
50H7GB	Hisense
50H7GB1	

Note #1 : The above models are all the same except for the different model No. The 50H7GB was tested and reported in the report.

Note #2 : The modified histories of report are as follows:

Report No.	Model No.	Rev. Summary	Edition No.	Data of Rev.
ACI-F15058	LTDN50K3201GUWUS, 50H7GB, 50H7GB*	Original Report	0	Jan 19, 2015
ACI-F15058A1	50H7GB1	1. To add one new model name	Rev. A1	Apr 03, 2015
ACI-F15058A2	50H7GB2,50H7GB3 50H7GB4	1. To add three new model name 2. To change LCD Panel and Power Board	Rev. A2	Jul 15, 2015
ACI-F15058A3	50H7GB, 50H7GB1	1.To add Panel, mainboard heat sink grounding	Rev. A3	Sep 22, 2015

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 : HD500DU-B 52(100)\S0\GM \ROH

Max Resolution : 3840\*2160@60Hz

HDMI Cable : Shielded, Detachable, 1.00m, with two cores  
(Lab provide)

Power Cord : Unshielded, Detachable, 1.80m, without core

LAN Cable : Unshielded, Detachable, 1.50m, without core  
(Lab provide)

USB Cable : Shielded, Detachable, 1.50m, without core  
(Lab provide)

MHL to HDMI Adaptor: Manufacture: CE-Link  
with RCP (Lab provide) M/N : 3002

**Remark:**

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

**Back Port:**

- (1) One LAN Port : Connected with PC
- (2) One HDMI3 Port : Connected with PC
- (3) One HDMI4 Port : Connected with DVD PLAYER#2
- (4) One Digital Audio out Port : Connected with DVD PLAYER#2
- (5) One component of Video/YPbPr Port : Connected with DVD PLAYER#1

**Side Port:**

- (1) One USB3 Port : Connected with Hard-Disk#3
- (2) One HDMI1/MHL Port : Connected with Mobile Phone
- (3) One HDMI2/ARC Port : Connected with DVD PLAYER#1
- (4) One Audio out Port : Connected with Earphone
- (5) One USB2 Port : Connected with Hard-Disk #1
- (6) One USB1 Port : Connected with Hard-Disk #2
- (7) One ANT/CABLE IN Port : Connected with Antenna or ATSC SG / TV SG
- (8) One Service Port : Do not open to the costumers

## 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;

### 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 : 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 Keyboard#2

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

### 2.2.5 Mouse#1

Manufacturer : Microsoft  
Model Number : RT2300  
Serial Number : 6965712071551  
Data Cable : Shielded, Undetachable, 1.8m.  
Certificate : CE/EMC, FCC DoC, VCCI, MIC, C-Tick, BSMI

### 2.2.6 Mouse #2

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



## 2.2.7 Modem

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

## 2.2.8 Earphone

Manufacturer : audio-technica  
Model Number : ATH-CKL200

## 2.2.9 TV Signal Generator

Manufacturer : FLUKE  
Model Number : 54200m01  
Serial Number : 814008  
Data Cable : Shielded, detachable, 2.0m  
Power Cord : Unshielded, detachable, 2.0m

## 2.2.10 ATSC Signal Generator

Manufacturer : SENCORE  
Model Number : ATSC997  
Serial Number : 6790071

## 2.2.11 DVD PLAYER #1

Manufacturer : PHILIPS  
Model Number : DVP3986K/93  
Serial Number : KX1A0902120108  
Certificate : CCC

## 2.2.12 DVD PLAYER #2

Manufacturer : PHILIPS  
Model Number : DVP3986K/93  
Serial Number : KX1A0902120082  
Certificate : CCC

## 2.2.13 Hard Disk#1

Manufacturer : Tetasys  
Model Number : F12  
Serial Number : A010022-4860010X  
Certificate : FCC Doc CE

## 2.2.14 Hard Disk #2

Manufacturer : Tetasys  
Model Number : F12  
Serial Number : A010022-4A60007  
Certificate : FCC Doc CE

### 2.2.15 Hard Disk #3

Manufacturer : Tetasys  
Model Number : F12  
Serial Number : A010022-40F0005  
Certificate : FCC Doc CE

### 2.2.16 Mobile Phone

Manufacturer : SAMSUNG  
Model Number : GT-I9100G  
Serial Number : 6935152011519  
Certificate : CE/EMC

## 2.3 Description of Test Facility

Site Description (No.3 3m Chamber) : Sept. 17, 1998 file on  
Jan 15, 2015 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

FCC registration Number : 91789

NVLAP Lab Code : 200371-0

## 2.4 Measurement Uncertainty

Conducted Emission Expanded Uncertainty : U = 3.4dB

Radiated Emission Expanded Uncertainty (30-200MHz):  
U = 4.6dB (Horizontal)  
U = 4.3dB (Vertical)

Radiated Emission Expanded Uncertainty (200M-1GHz):  
U = 4.5dB (Horizontal)  
U = 5.4dB (Vertical)

Radiated Emission Expanded Uncertainty (1GHz-6GHz):  
U = 5.1 dB

### 3 CONDUCTED EMISSION TEST

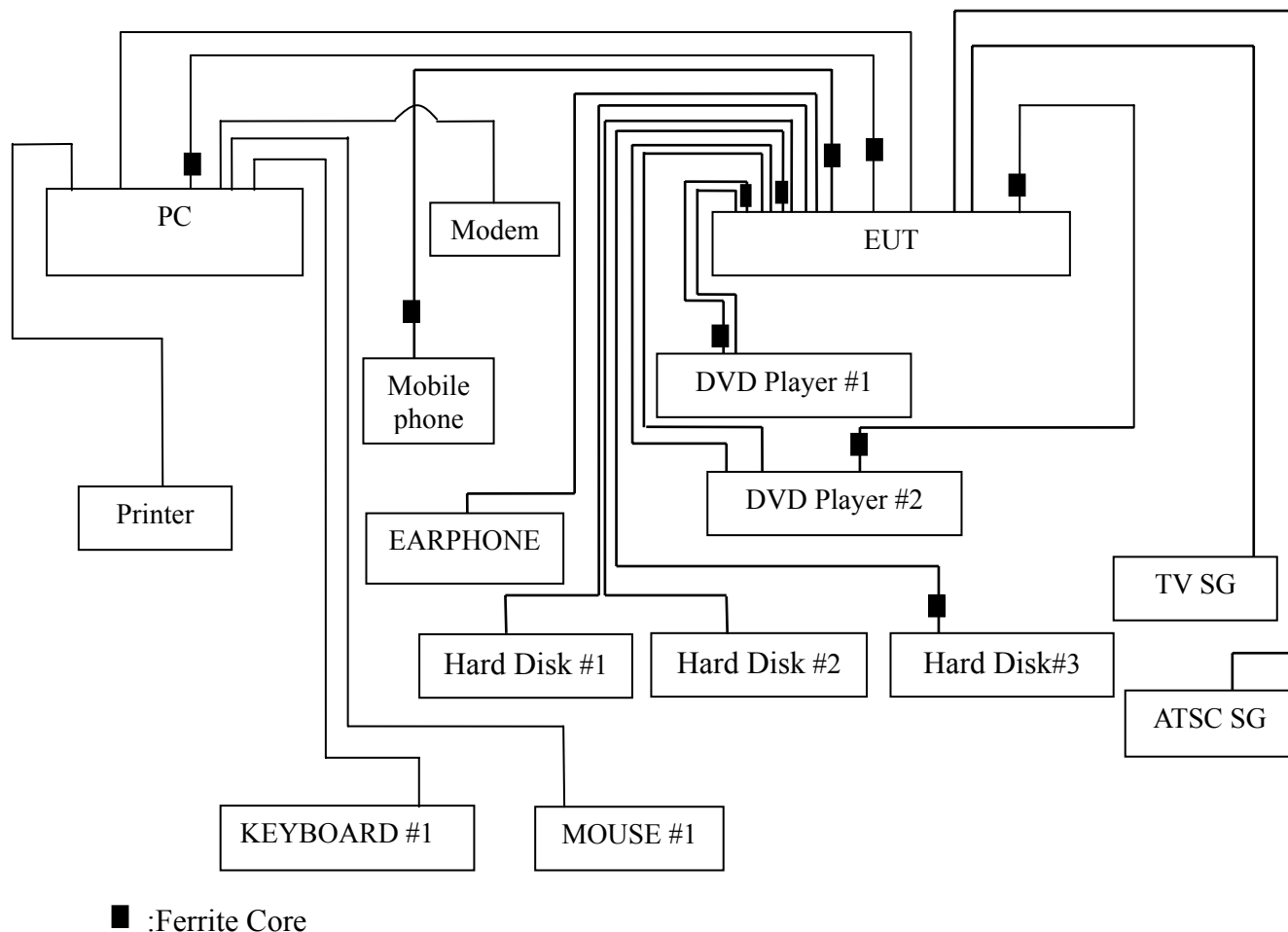
#### 3.1 Test Equipment

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

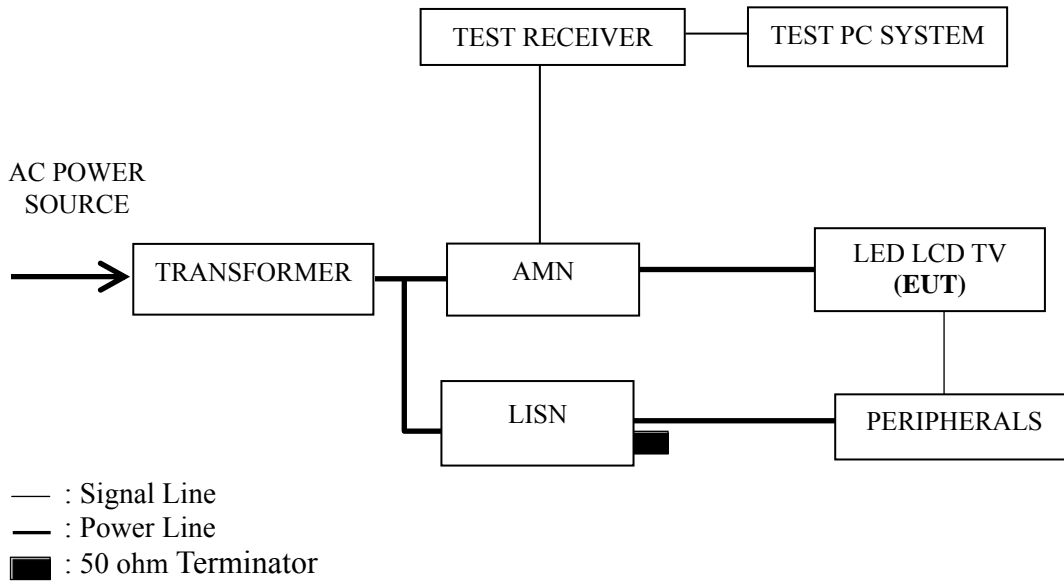
Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Test Receiver	R&S	ESCI	101302	Apr 27, 2015	Apr 26, 2016
2.	Artificial Mains Network (AMN)	R&S	ENV4200	100125	Jun 27, 2015	Jun 26, 2016
3.	Line Impedance Stabilization Network (LISN)	Kyoritsu	KNW-407	8-1280-5	Mar 20, 2015	Mar 19, 2016
4.	50Ω Coaxial Switch	Anritsu	MP59B	6200426389	Sep 18, 2015	Mar 17, 2016
5.	50Ω Terminator	Anritsu	BNC	001	Mar 20, 2015	Mar 19, 2016
6.	Software	Audix	E3	6.111206	--	--

#### 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 (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 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 In MHL mode, set the EUT play digital media from mobile phone.
- 3.5.9 The other peripherals devices were driven and operated during the test.
- 3.5.10 The test modes are as follows:

Test Mode
HDMI 3840*2160@60Hz & 1kHz playing
HDMI 1920*1080@60Hz & 1kHz playing
HDMI 1280*1024@60Hz & 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 3840*2160@60Hz & 1kHz playing	P15
HDMI 1920*1080@60Hz & 1kHz playing	P16
HDMI 1280*1024@60Hz & 1kHz playing	P17
HDMI 640*480@60Hz & 1kHz playing	P18
USB Play	P19
LAN 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 HDMI 1920\*1080@60Hz & 1kHz playing test mode. The worst emission is detected at 0.187 MHz (Average Value) with corrected signal level of 57.34dB (μV) (limit is 64.18 dB (μV)), when the Line of the EUT is connected to AMN.

EUT : LED LCD TV Temperature : 22°C

Model No. : 50H7GB Humidity : 48%RH

Test Mode : HDMI 3840\*2160@60Hz & 1kHz playing Date of Test : Aug 30, 2015

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark	
Line	<b>0.185</b>	<b>46.80</b>	<b>10.54</b>	<b>57.34</b>	<b>64.24</b>	<b>6.90</b>	QP	
	0.429	30.10	10.41	40.51	57.27	16.76		
	0.616	31.50	10.38	41.88	56.00	14.12		
	1.276	27.80	10.39	38.19	56.00	17.81		
	2.773	25.49	10.44	35.93	56.00	20.07		
	5.928	33.50	10.47	43.97	60.00	16.03	AV	
	<b>0.185</b>	<b>33.90</b>	<b>10.54</b>	<b>44.44</b>	<b>54.24</b>	<b>9.80</b>		
	0.429	18.70	10.41	29.11	47.27	18.16		
	0.616	20.10	10.38	30.48	46.00	15.52		
	1.276	15.50	10.39	25.89	46.00	20.11		
2.773	14.99	10.44	25.43	46.00	20.57	AV		
5.928	27.20	10.47	37.67	50.00	12.33			
Neutral	<b>0.187</b>	<b>46.10</b>	<b>10.52</b>	<b>56.62</b>	<b>64.18</b>		<b>7.56</b>	QP
	0.431	28.80	10.39	39.19	57.24		18.05	
	0.606	31.90	10.36	42.26	56.00		13.74	
	1.026	27.90	10.37	38.27	56.00	17.73		
	1.908	28.80	10.41	39.21	56.00	16.79		
	5.915	33.10	10.49	43.59	60.00	16.41	AV	
	<b>0.187</b>	<b>34.20</b>	<b>10.52</b>	<b>44.72</b>	<b>54.18</b>	<b>9.46</b>		
	0.431	17.40	10.39	27.79	47.24	19.45		
	0.606	18.70	10.36	29.06	46.00	16.94		
	1.026	17.50	10.37	27.87	46.00	18.13		
1.908	18.10	10.41	28.51	46.00	17.49	AV		
5.915	21.60	10.49	32.09	50.00	17.91			

TEST ENGINEER: WENCY YANG

EUT : LED LCD TV Temperature : 22°C

Model No. : 50H7GB Humidity : 48%RH

Test Mode : HDMI 1920\*1080@60Hz Date of Test : Aug 30, 2015  
& 1kHz Playing

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>0.187</b>	<b>46.80</b>	<b>10.54</b>	<b>57.34</b>	<b>64.18</b>	<b>6.84</b>	QP
	0.431	30.50	10.41	40.91	57.24	16.33	
	0.579	30.90	10.38	41.28	56.00	14.72	
	1.283	28.30	10.39	38.69	56.00	17.31	
	2.715	27.79	10.44	38.23	56.00	17.77	
	5.935	33.70	10.47	44.17	60.00	15.83	
	<b>0.187</b>	<b>34.30</b>	<b>10.54</b>	<b>44.84</b>	<b>54.18</b>	<b>9.34</b>	AV
	0.431	17.60	10.41	28.01	47.24	19.23	
	0.579	18.80	10.38	29.18	46.00	16.82	
	1.283	16.70	10.39	27.09	46.00	18.91	
	2.715	16.89	10.44	27.33	46.00	18.67	
	5.935	26.30	10.47	36.77	50.00	13.23	
Neutral	<b>0.186</b>	<b>46.10</b>	<b>10.52</b>	<b>56.62</b>	<b>64.23</b>	<b>7.61</b>	QP
	0.413	28.90	10.40	39.30	57.59	18.29	
	0.611	31.70	10.36	42.06	56.00	13.94	
	1.055	28.10	10.37	38.47	56.00	17.53	
	4.327	25.20	10.46	35.66	56.00	20.34	
	5.913	32.80	10.49	43.29	60.00	16.71	
	<b>0.186</b>	<b>34.00</b>	<b>10.52</b>	<b>44.52</b>	<b>54.23</b>	<b>9.71</b>	AV
	0.413	18.60	10.40	29.00	47.59	18.59	
	0.611	20.90	10.36	31.26	46.00	14.74	
	1.055	16.60	10.37	26.97	46.00	19.03	
	4.327	15.60	10.46	26.06	46.00	19.94	
	5.913	25.60	10.49	36.09	50.00	13.91	

TEST ENGINEER: WENCY YANG



EUT : LED LCD TV Temperature : 22°C

Model No. : 50H7GB Humidity : 48%RH

Test Mode : HDMI 1280\*1024@60Hz Date of Test : Aug 30, 2015  
& 1kHz Playing

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>0.186</b>	<b>46.40</b>	<b>10.54</b>	<b>56.94</b>	<b>64.21</b>	<b>7.27</b>	QP
	0.430	30.80	10.41	41.21	57.26	16.05	
	0.614	31.40	10.38	41.78	56.00	14.22	
	1.131	28.21	10.38	38.59	56.00	17.41	
	2.794	27.80	10.44	38.24	56.00	17.76	
	5.931	34.90	10.47	45.37	60.00	14.63	
	<b>0.186</b>	<b>34.30</b>	<b>10.54</b>	<b>44.84</b>	<b>54.21</b>	<b>9.37</b>	AV
	0.430	18.30	10.41	28.71	47.26	18.55	
	0.614	19.70	10.38	30.08	46.00	15.92	
	1.131	15.61	10.38	25.99	46.00	20.01	
	2.794	16.60	10.44	27.04	46.00	18.96	
	5.931	26.00	10.47	36.47	50.00	13.53	
Neutral	<b>0.186</b>	<b>46.10</b>	<b>10.52</b>	<b>56.62</b>	<b>64.24</b>	<b>7.62</b>	QP
	0.427	29.70	10.39	40.09	57.32	17.23	
	0.575	31.40	10.36	41.76	56.00	14.24	
	1.286	29.59	10.39	39.98	56.00	16.02	
	2.581	28.21	10.42	38.63	56.00	17.37	
	6.064	31.81	10.49	42.30	60.00	17.70	
	<b>0.186</b>	<b>34.00</b>	<b>10.52</b>	<b>44.52</b>	<b>54.24</b>	<b>9.72</b>	AV
	0.427	18.60	10.39	28.99	47.32	18.33	
	0.575	19.00	10.36	29.36	46.00	16.64	
	1.286	18.09	10.39	28.48	46.00	17.52	
	2.581	19.01	10.42	29.43	46.00	16.57	
	6.064	24.91	10.49	35.40	50.00	14.60	

TEST ENGINEER: WENCY YANG

EUT : LED LCD TV Temperature : 22°C

Model No. : 50H7GB Humidity : 48%RH

Test Mode : HDMI 640\*480@60Hz & 1kHz Playing Date of Test : Aug 30, 2015

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>0.185</b>	<b>46.70</b>	<b>10.54</b>	<b>57.24</b>	<b>64.27</b>	<b>7.03</b>	QP
	0.428	29.80	10.41	40.21	57.30	17.09	
	0.621	27.30	10.38	37.68	56.00	18.32	
	1.283	28.90	10.39	39.29	56.00	16.71	
	4.269	27.10	10.47	37.57	56.00	18.43	
	6.196	30.50	10.47	40.97	60.00	19.03	
	<b>0.185</b>	<b>33.80</b>	<b>10.54</b>	<b>44.34</b>	<b>54.27</b>	<b>9.93</b>	AV
	0.428	19.20	10.41	29.61	47.30	17.69	
	0.621	14.80	10.38	25.18	46.00	20.82	
	1.283	17.50	10.39	27.89	46.00	18.11	
	4.269	18.00	10.47	28.47	46.00	17.53	
	6.196	20.10	10.47	30.57	50.00	19.43	
Neutral	<b>0.187</b>	<b>46.10</b>	<b>10.52</b>	<b>56.62</b>	<b>64.16</b>	<b>7.54</b>	QP
	0.426	29.30	10.39	39.69	57.33	17.64	
	0.558	29.80	10.36	40.16	56.00	15.84	
	1.042	28.50	10.37	38.87	56.00	17.13	
	2.012	26.90	10.41	37.31	56.00	18.69	
	5.940	34.70	10.49	45.19	60.00	14.81	
	<b>0.187</b>	<b>34.20</b>	<b>10.52</b>	<b>44.72</b>	<b>54.16</b>	<b>9.44</b>	AV
	0.426	19.00	10.39	29.39	47.33	17.94	
	0.558	17.00	10.36	27.36	46.00	18.64	
	1.042	16.90	10.37	27.27	46.00	18.73	
	2.012	15.00	10.41	25.41	46.00	20.59	
	5.940	25.80	10.49	36.29	50.00	13.71	

TEST ENGINEER: WENCY YANG

EUT : LED LCD TV Temperature : 22°C  
 Model No. : 50H7GB Humidity : 48%RH  
 Test Mode : USB Play Date of Test : Aug 30, 2015

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>0.187</b>	<b>46.60</b>	<b>10.54</b>	<b>57.14</b>	<b>64.18</b>	<b>7.04</b>	QP
	0.560	30.70	10.38	41.08	56.00	14.92	
	1.124	28.91	10.38	39.29	56.00	16.71	
	2.539	27.30	10.43	37.73	56.00	18.27	
	4.874	28.20	10.48	38.68	56.00	17.32	
	5.929	34.50	10.47	44.97	60.00	15.03	
	<b>0.187</b>	<b>34.20</b>	<b>10.54</b>	<b>44.74</b>	<b>54.18</b>	<b>9.44</b>	AV
	0.560	17.80	10.38	28.18	46.00	17.82	
	1.124	16.81	10.38	27.19	46.00	18.81	
	2.539	18.10	10.43	28.53	46.00	17.47	
	4.874	20.40	10.48	30.88	46.00	15.12	
	5.929	26.80	10.47	37.27	50.00	12.73	
Neutral	<b>0.185</b>	<b>46.30</b>	<b>10.52</b>	<b>56.82</b>	<b>64.26</b>	<b>7.44</b>	QP
	0.417	29.10	10.40	39.50	57.52	18.02	
	0.611	31.80	10.36	42.16	56.00	13.84	
	1.042	28.60	10.37	38.97	56.00	17.03	
	1.878	28.50	10.41	38.91	56.00	17.09	
	5.925	33.90	10.49	44.39	60.00	15.61	
	<b>0.185</b>	<b>34.00</b>	<b>10.52</b>	<b>44.52</b>	<b>54.26</b>	<b>9.74</b>	AV
	0.417	18.50	10.40	28.90	47.52	18.62	
	0.611	20.60	10.36	30.96	46.00	15.04	
	1.042	16.90	10.37	27.27	46.00	18.73	
	1.878	17.60	10.41	28.01	46.00	17.99	
	5.925	26.70	10.49	37.19	50.00	12.81	

TEST ENGINEER: WENCY YANG

EUT : LED LCD TV Temperature : 22°C  
 Model No. : 50H7GB Humidity : 48%RH  
 Test Mode : LAN Play Date of Test : Aug 30, 2015

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	<b>0.184</b>	<b>46.80</b>	<b>10.54</b>	<b>57.34</b>	<b>64.29</b>	<b>6.95</b>	QP
	0.426	30.30	10.41	40.71	57.33	16.62	
	0.592	32.60	10.38	42.98	56.00	13.02	
	1.061	28.60	10.38	38.98	56.00	17.02	
	1.878	28.60	10.41	39.01	56.00	16.99	
	5.814	28.90	10.47	39.37	60.00	20.63	
	<b>0.184</b>	<b>33.70</b>	<b>10.54</b>	<b>44.24</b>	<b>54.29</b>	<b>10.05</b>	AV
	0.426	19.50	10.41	29.91	47.33	17.42	
	0.592	19.80	10.38	30.18	46.00	15.82	
	1.061	16.90	10.38	27.28	46.00	18.72	
	1.878	17.90	10.41	28.31	46.00	17.69	
	5.814	21.10	10.47	31.57	50.00	18.43	
Neutral	<b>0.185</b>	<b>46.20</b>	<b>10.52</b>	<b>56.72</b>	<b>64.25</b>	<b>7.53</b>	QP
	0.426	30.10	10.39	40.49	57.33	16.84	
	0.604	32.20	10.36	42.56	56.00	13.44	
	1.155	29.81	10.37	40.18	56.00	15.82	
	2.765	26.70	10.43	37.13	56.00	18.87	
	5.937	33.30	10.49	43.79	60.00	16.21	
	<b>0.185</b>	<b>33.90</b>	<b>10.52</b>	<b>44.42</b>	<b>54.25</b>	<b>9.83</b>	AV
	0.426	19.20	10.39	29.59	47.33	17.74	
	0.604	21.00	10.36	31.36	46.00	14.64	
	1.155	18.61	10.37	28.98	46.00	17.02	
	2.765	16.00	10.43	26.43	46.00	19.57	
	5.937	25.50	10.49	35.99	50.00	14.01	

TEST ENGINEER: WENCY YANG

## 4 RADIATED EMISSION TEST

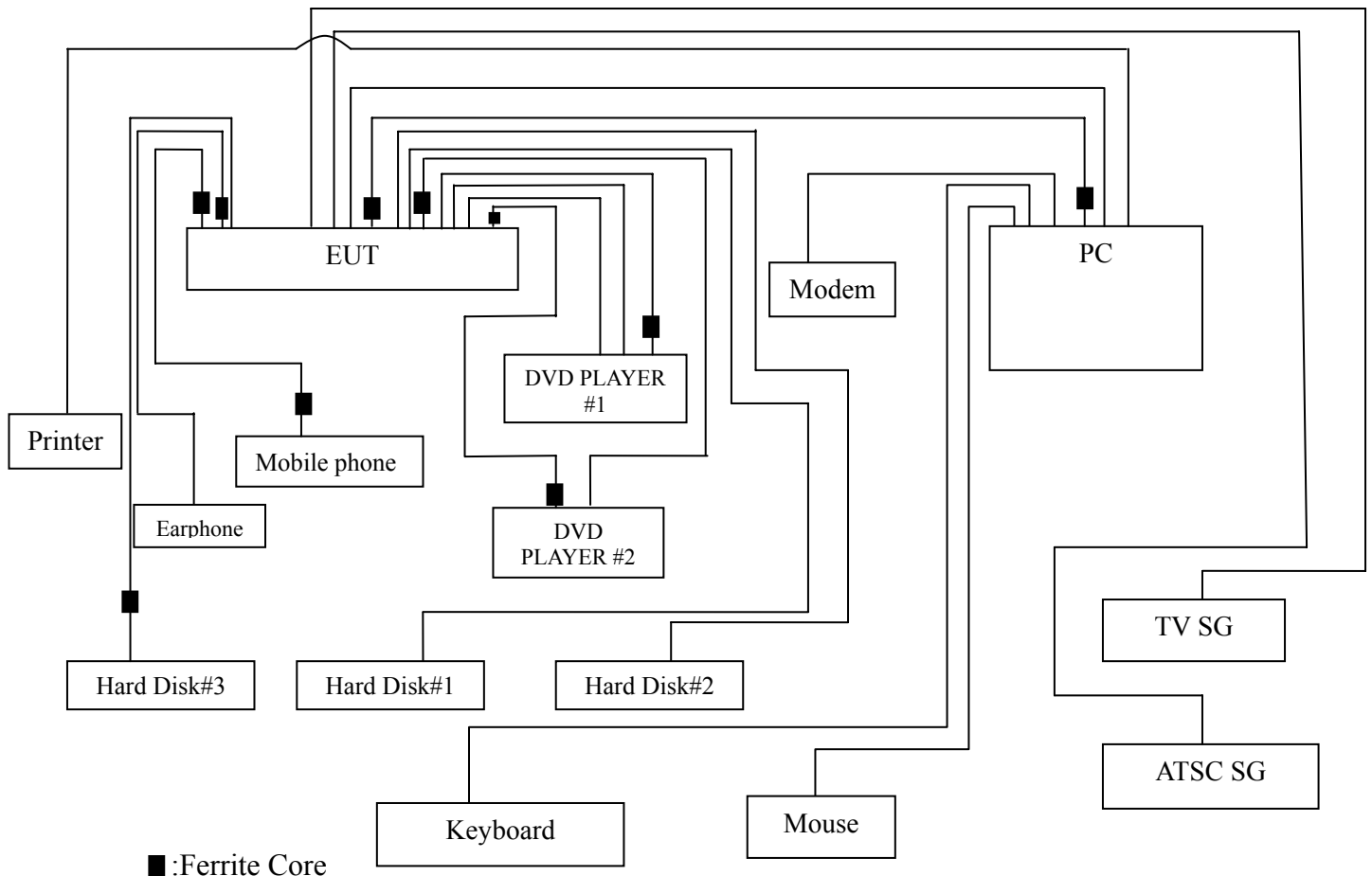
### 4.1 Test Equipment

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	101303	May 07, 2015	May 06, 2016
2.	Preamplifier	HP	8447D	2944A06664	Apr 27, 2015	Apr 26, 2016
3.	Preamplifier	HP	8449B	3008A00864	Mar 20, 2015	Mar 19, 2016
4.	Bi-log Antenna	TESEQ	CBL6112D	23193	May 15, 2015	May 14, 2016
5.	Horn Antenna	EMCO	3115	9607-4878	Jun 03, 2015	Jun 02, 2016
6.	Spectrum	Agilent	N9010A	MY52221182	Jun 12, 2015	Jun 11, 2016
7.	50Ω Coaxial Switch	Anritsu	MP59B	6200426390	Sep 17, 2015	Mar 18, 2016
8.	Software	Audix	E3	6.2007-9-10	--	--

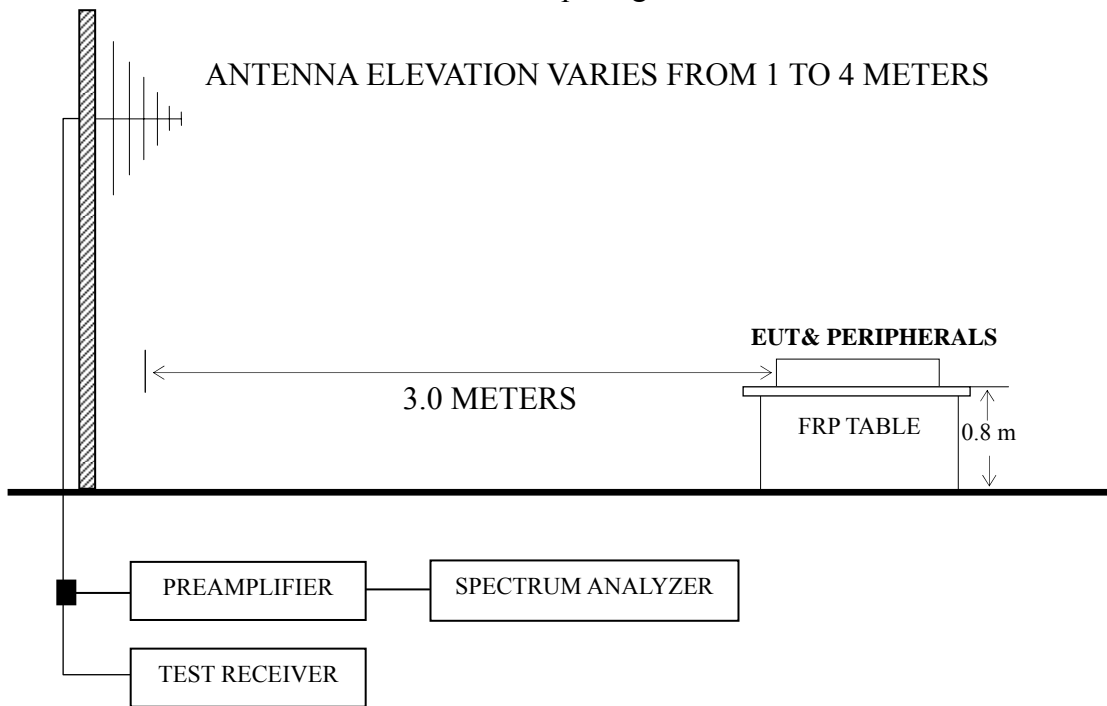
### 4.2 Block Diagram of Test Setup

#### 4.2.1 EUT & Peripherals



### 4.2.2 Radiated emission test setup

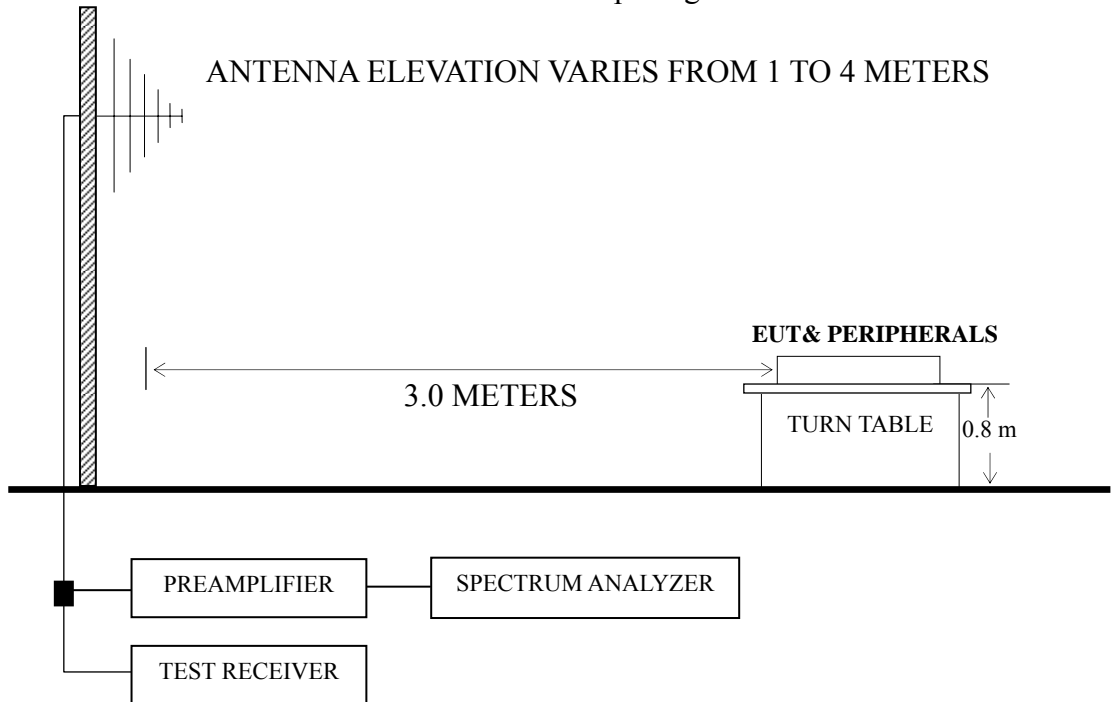
#### 4.2.2.1 For TV modes Setup Diagram



Note\*: The length of Dipole Antenna is 2.24m for VHF (Channel 2~13); and 0.3m for UHF (Channel 14~69)

■ : 50 ohm Coaxial Switch

#### 4.2.2.2 For other test modes Setup Diagram



■ : 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 6 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 3840*2160@60Hz & 1kHz Playing	P25-P26
HDMI 1920*1080@60Hz & 1kHz playing	P27
HDMI 1280*1024@60Hz & 1kHz playing	P28
HDMI 640*480@60Hz & 1kHz playing	P29
USB Play	P30
LAN Play	P31



- 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 3840\*2160@60Hz & 1kHz Playing test mode. The worst emission at horizontal polarization was detected at 77.530 MHz with corrected signal level of 37.01dB ( $\mu\text{V/m}$ ) (limit is 40.00 dB ( $\mu\text{V/m}$ )), when the antenna was 2.05 m height and the turntable was at 124°. The worst emission at vertical polarization was detected at 84.320 MHz with corrected signal level of 37.45dB ( $\mu\text{V/m}$ ) (limit is 40.00 dB ( $\mu\text{V/m}$ )), when the antenna was 1.00 m height and the turntable was at 294°.

EUT : LED LCD TV Temperature : 22°C

Model No. : 50H7GB Humidity : 60%RH

Test Mode : HDMI 3840\*2160@60Hz & 1kHz Playing Date of Test : Sep 11, 2015

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	<b>77.530</b>	<b>27.01</b>	<b>8.95</b>	<b>1.05</b>	--	<b>37.01</b>	<b>40.00</b>	<b>2.99</b>	QP
	95.960	19.86	11.84	1.27	--	32.97	43.50	10.53	
	142.520	23.36	12.30	1.59	--	37.25	43.50	6.25	
	309.360	22.25	14.10	2.60	--	38.95	46.00	7.05	
	385.020	15.73	16.50	2.70	--	34.93	46.00	11.07	
	670.200	15.51	19.60	3.16	--	38.27	46.00	7.73	
	1016.000	55.12	23.58	4.78	36.47	47.01	74.00	26.99	PK
	1152.000	52.74	24.24	3.75	36.22	44.51	74.00	29.49	
	1482.000	54.58	25.54	3.86	35.71	48.27	74.00	25.73	
	1736.000	52.60	26.57	4.11	35.39	47.89	74.00	26.11	
	3292.000	45.30	31.10	6.03	34.90	47.53	74.00	26.47	AV
	4856.000	41.92	33.96	6.24	33.95	48.17	74.00	25.83	
	1016.000	44.81	23.58	4.78	36.47	36.70	54.00	17.30	
	1152.000	41.57	24.24	3.75	36.22	33.34	54.00	20.66	
	1482.000	41.99	25.54	3.86	35.71	35.68	54.00	18.32	
	1736.000	40.43	26.57	4.11	35.39	35.72	54.00	18.28	
3292.000	32.81	31.10	6.03	34.90	35.04	54.00	18.96	AV	
4856.000	29.57	33.96	6.24	33.95	35.82	54.00	18.18		

TEST ENGINEER: BILL WU

EUT : LED LCD TV Temperature : 22°C

Model No. : 50H7GB Humidity : 60%RH

Test Mode : HDMI 3840\*2160@60Hz & 1kHz Playing Date of Test : Sep 11, 2015

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	30.970	17.48	18.15	0.64	--	36.27	40.00	3.73	QP
	33.880	17.98	16.47	0.67	--	35.12	40.00	4.88	
	44.550	21.95	11.20	0.77	--	33.92	40.00	6.08	
	<b>84.320</b>	<b>26.58</b>	<b>9.74</b>	<b>1.13</b>	--	<b>37.45</b>	<b>40.00</b>	<b>2.55</b>	
	134.760	23.16	12.60	1.55	--	37.31	43.50	6.19	
	672.140	14.01	19.60	3.16	--	36.77	46.00	9.23	
	1085.000	54.54	23.92	4.32	36.33	46.45	74.00	27.55	PK
	1204.000	54.62	24.46	3.54	36.12	46.50	74.00	27.50	
	1533.000	50.70	25.75	3.92	35.64	44.73	74.00	29.27	
	1874.000	48.89	27.06	4.27	35.23	44.99	74.00	29.01	
	3630.000	41.56	31.86	6.06	34.61	44.87	74.00	29.13	
	4401.000	38.50	33.46	6.67	34.13	44.50	74.00	29.50	AV
	1085.000	42.21	23.92	4.32	36.33	34.12	54.00	19.88	
	1204.000	43.87	24.46	3.54	36.12	35.75	54.00	18.25	
	1533.000	40.75	25.75	3.92	35.64	34.78	54.00	19.22	
	1874.000	37.55	27.06	4.27	35.23	33.65	54.00	20.35	
3630.000	30.29	31.86	6.06	34.61	33.60	54.00	20.40		
4401.000	27.09	33.46	6.67	34.13	33.09	54.00	20.91		

TEST ENGINEER: BILL WU

EUT : LED LCD TV Temperature : 22°C

Model No. : 50H7GB Humidity : 60%RH

Test Mode : HDMI 1920\*1080@60Hz & 1kHz playing Date of Test : Sep 11, 2015

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>78.000</b>	<b>26.01</b>	<b>9.06</b>	<b>1.05</b>	<b>36.12</b>	<b>40.00</b>	<b>3.88</b>
	141.550	23.57	12.40	1.59	37.56	43.50	5.94
	212.360	24.36	10.10	2.02	36.48	43.50	7.02
	313.240	21.87	14.25	2.61	38.73	46.00	7.27
	384.050	18.94	16.50	2.70	38.14	46.00	7.86
	665.350	17.20	19.60	3.16	39.96	46.00	6.04
Vertical	41.640	21.82	12.41	0.75	34.98	40.00	5.02
	79.440	25.40	9.29	1.07	35.76	40.00	4.24
	138.640	23.37	12.53	1.57	37.47	43.50	6.03
	212.360	25.39	10.10	2.02	37.51	43.50	5.99
	311.300	19.83	14.15	2.60	36.58	46.00	9.42
	<b>663.400</b>	<b>19.50</b>	<b>19.60</b>	<b>3.03</b>	<b>42.13</b>	<b>46.00</b>	<b>3.87</b>

TEST ENGINEER: BILL WU

EUT : LED LCD TV Temperature : 22°C

Model No. : 50H7GB Humidity : 60%RH

Test Mode : HDMI 1280\*1024@60Hz Date of Test : Sep 11, 2015  
& 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	<b>78.500</b>	<b>26.24</b>	<b>9.12</b>	<b>1.05</b>	<b>36.41</b>	<b>40.00</b>	<b>3.59</b>
	138.640	23.90	12.53	1.57	38.00	43.50	5.50
	212.360	24.61	10.10	2.02	36.73	43.50	6.77
	311.300	22.95	14.15	2.60	39.70	46.00	6.30
	542.160	18.33	18.56	2.63	39.52	46.00	6.48
	665.350	17.77	19.60	3.16	40.53	46.00	5.47
Vertical	41.640	22.44	12.41	0.75	35.60	40.00	4.40
	80.440	25.42	9.43	1.09	35.94	40.00	4.06
	131.850	22.37	12.71	1.53	36.61	43.50	6.89
	212.360	25.90	10.10	2.02	38.02	43.50	5.48
	311.300	19.23	14.15	2.60	35.98	46.00	10.02
	<b>663.560</b>	<b>20.50</b>	<b>19.60</b>	<b>3.16</b>	<b>43.26</b>	<b>46.00</b>	<b>2.74</b>

TEST ENGINEER: BILL WU

EUT : LED LCD TV Temperature : 22°C

Model No. : 50H7GB Humidity : 60%RH

Test Mode : HDMI 640\*480@60Hz Date of Test : Sep 11, 2015  
& 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	<b>78.500</b>	<b>25.47</b>	<b>9.12</b>	<b>1.05</b>	<b>35.64</b>	<b>40.00</b>	<b>4.36</b>
	138.640	24.20	12.53	1.57	38.30	43.50	5.20
	212.360	24.56	10.10	2.02	36.68	43.50	6.82
	311.300	21.92	14.15	2.60	38.67	46.00	7.33
	384.050	19.20	16.50	2.70	38.40	46.00	7.60
	665.350	17.65	19.60	3.16	40.41	46.00	5.59
Vertical	41.640	21.00	12.41	0.75	34.16	40.00	5.84
	80.440	25.84	9.43	1.09	36.36	40.00	3.64
	136.700	23.04	12.57	1.56	37.17	43.50	6.33
	212.360	26.12	10.10	2.02	38.24	43.50	5.26
	303.540	18.76	13.91	2.60	35.27	46.00	10.73
	<b>666.320</b>	<b>19.91</b>	<b>19.60</b>	<b>3.16</b>	<b>42.67</b>	<b>46.00</b>	<b>3.33</b>

TEST ENGINEER: BILL WU

EUT : LED LCD TV Temperature : 22°C

Model No. : 50H7GB Humidity : 60%RH

Test Mode : USB Play Date of Test : Sep 11, 2015

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>78.500</b>	<b>26.08</b>	<b>9.12</b>	<b>1.05</b>	<b>36.25</b>	<b>40.00</b>	<b>3.75</b>
	144.460	21.76	12.15	1.60	35.51	43.50	7.99
	273.470	16.35	13.24	2.35	31.94	46.00	14.06
	500.450	16.03	17.90	2.94	36.87	46.00	9.13
	728.400	12.36	20.03	3.59	35.98	46.00	10.02
	875.840	12.02	20.97	4.36	37.35	46.00	8.65
Vertical	38.730	20.61	13.08	0.72	34.41	40.00	5.59
	<b>82.380</b>	<b>25.39</b>	<b>9.60</b>	<b>1.12</b>	<b>36.11</b>	<b>40.00</b>	<b>3.89</b>
	147.370	22.90	11.80	1.62	36.32	43.50	7.18
	252.130	20.11	12.58	2.18	34.87	46.00	11.13
	499.480	14.33	17.90	2.94	35.17	46.00	10.83
	754.590	13.88	20.20	3.62	37.70	46.00	8.30

TEST ENGINEER: BILL WU

EUT : LED LCD TV Temperature : 22°C

Model No. : 50H7GB Humidity : 60%RH

Test Mode : LAN Play Date of Test : Sep 11, 2015

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>78.50</b>	<b>25.24</b>	<b>9.12</b>	<b>1.05</b>	<b>35.41</b>	<b>40.00</b>	<b>4.59</b>
	186.17	23.64	10.44	1.88	35.96	43.50	7.54
	288.02	20.37	13.58	2.49	36.44	46.00	9.56
	384.05	20.49	16.50	2.70	39.69	46.00	6.31
	575.14	14.97	18.40	2.42	35.79	46.00	10.21
	779.81	14.53	20.50	3.66	38.69	46.00	7.31
Vertical	<b>44.550</b>	<b>23.17</b>	<b>11.20</b>	<b>0.77</b>	<b>35.14</b>	<b>40.00</b>	<b>4.86</b>
	90.140	24.43	10.50	1.21	36.14	43.50	7.36
	145.430	23.78	12.03	1.61	37.42	43.50	6.08
	221.090	26.14	10.60	2.05	38.79	46.00	7.21
	418.970	15.94	16.80	2.76	35.50	46.00	10.50
	863.230	14.89	20.83	4.27	39.99	46.00	6.01

TEST ENGINEER: BILL WU



## 5 DEBUG DESCRIPTION

The following components are used during the countermeasure procedures:

Name	M/N	Manufacturer	Location
Conductive fabric	5X30MM\ROH	JOINSET	See Appendix Figure 31
Conductive Tapes	DCF40	Shenzhen an tai electronic technology co., LTD	See Appendix Figure 32

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:



**(WENCY YANG)**

## **6 DEVIATION TO TEST SPECIFICATIONS**

None.

