

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

LED LCD TV

Model No.	Brand
LTDN40K2207WUS	Hisense
40H4C	
40H4C+	

FCC ID : W9HLCDD0051

Prepared For : Hisense Electric Co., Ltd.  
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Report No. : ACI-F16036  
Date of Test : Jan 19 - 22, 2016  
Date of Report : Feb 01, 2016

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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.  
 Factory #3 : HISENSE ELECTRONICA MEXICO, S.A. DE C.V.  
 EUT Description : LED LCD TV

Model No.	Brand	Power Supply
LTDN40K2207WUS	Hisense	120V/60Hz
40H4C		
40H4C+		

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 Jan 19 - 22, 2016 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.

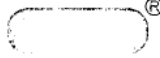
This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.

***The test results for EUT's TV functions are contained in No.F16037, a Verification report.***

Date of Test : Jan 19 - 22, 2016 Date of Report : Feb 01, 2016

Producer : Huimin Yan  
 HUIMIN YAN / Assistant

Review : Sammy Chen  
 SAMMY CHEN / Manager

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

Signatory : Byron Kwo  
 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	:	<input checked="" type="checkbox"/> Production <input type="checkbox"/> Pre-product <input type="checkbox"/> Pro-type
Model No	:	LTDN40K2207WUS, 40H4C, 40H4C+
Note #1	:	The above models are all the same except for model number.LTDN40K2207WUS model is tested and recorded in the report.
Note #2	:	“+”represents any of the Arabic numeral.
Brand	:	Hisense
Applicant	:	Hisense Electric Co., Ltd. No.218 Qianwangang Road, Economy & Technology Development Zone, Qingdao, China
Manufacturer	:	Same as Applicant
Factory #1	:	Same as Applicant
Factory #2	:	Tatung Mexico S.A. de C.V. Miguel Catalán 420, Parque Industrial Rio Bravo, Cd. Juarez, Chih., CP 32557
Factory #3	:	HISENSE ELECTRONICA MEXICO,S.A. DE C.V. Blvd. Sharp #3510 Parque Industrial Rosarito, C.P. 22710 Playas de Rosarito, B.C.
LCD Panel	:	Manufacturer : Hisense M/N : HD400DF-E32
Tuner	:	Manufacturer : XuGuang Tech. Co. Ltd. M/N : HFT-96S3/W11FJ4H\ROH
Max Resolution	:	1920*1080@60Hz
HDMI Cable*3 (Lab provide)	:	Shielded, Detachable, 1.50m
Power Cord	:	Unshielded, Detachable, 1.80m
LAN Cable	:	Shielded, Detachable, 1.50m
USB Cable*1 (Lab provide)	:	Shielded, Detachable, 1.00m

**Remark:**

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

## Side Port:

- (1) One AUDIO OUT Port : Connected with Earphone
- (2) One ANT Port : Connected with ATSC SG
- (3) One HDMI1 Port : Connected with DVD PLAYER #1
- (4) One HDMI2 Port : Connected with PC
- (5) One HDMI3 Port : Connected with DVD PLAYER #2

## Back Port:

- (6) Digital Audio Out : Connected with Audio Converter to Earphone
- (7) One AV in Port : Connected with DVD PLAYER #1
- (8) One USB Port : Connected with H-Disk

## 2.2 Peripherals

### 2.2.1 PC

Manufacturer : HP  
 Model Number : dx7200MT  
 Serial Number : CNG622017W  
 Power Cord : Unshielded, Detachable, 1.8m  
 Certificate : FCC DoC; CE/EMC; VCCI; C-Tick;

### 2.2.2 Keyboard

Manufacturer : Microsoft  
 Model Number : RT2300  
 Serial Number : 7668200662248  
 Data Cable : Shielded, Detachable, 1.5m  
 Certificate : CE/EMC, FCC DoC, VCCI, MIC, C-Tick, BSMI

### 2.2.3 Printer

Manufacturer : HP  
 Model Number : C8060A  
 Serial Number : CN3J19564X  
 Data Cable : Shielded, Detachable, 1.5m  
 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, Detachable, 1.5m.  
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, 1.5m  
Certificate : CCC

## 2.2.6 Earphone \*2

Manufacturer : EDIFIER  
Model Number : H180P

## 2.2.7 DVD PLAYER #1

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

## 2.2.8 DVD PLAYER #2

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

## 2.2.9 Hard Disk

Manufacturer : Tetasys  
Model Number : F12  
Serial Number : A010022-4860010X  
Data Cable : Shielded, Detachable, 1.5m.  
Certificate : CE, FCC DoC

## 2.2.10 ATSC Signal Generator

Manufacturer : SENCORE  
Model Number : ATSC997  
Serial Number : 6790071

## 2.2.11 TV Signal Generator

Manufacturer : FLUKE  
Model Number : 54200M01  
Serial Number : 814008

## 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 = 5.1dB



### 3 CONDUCTED EMISSION TEST

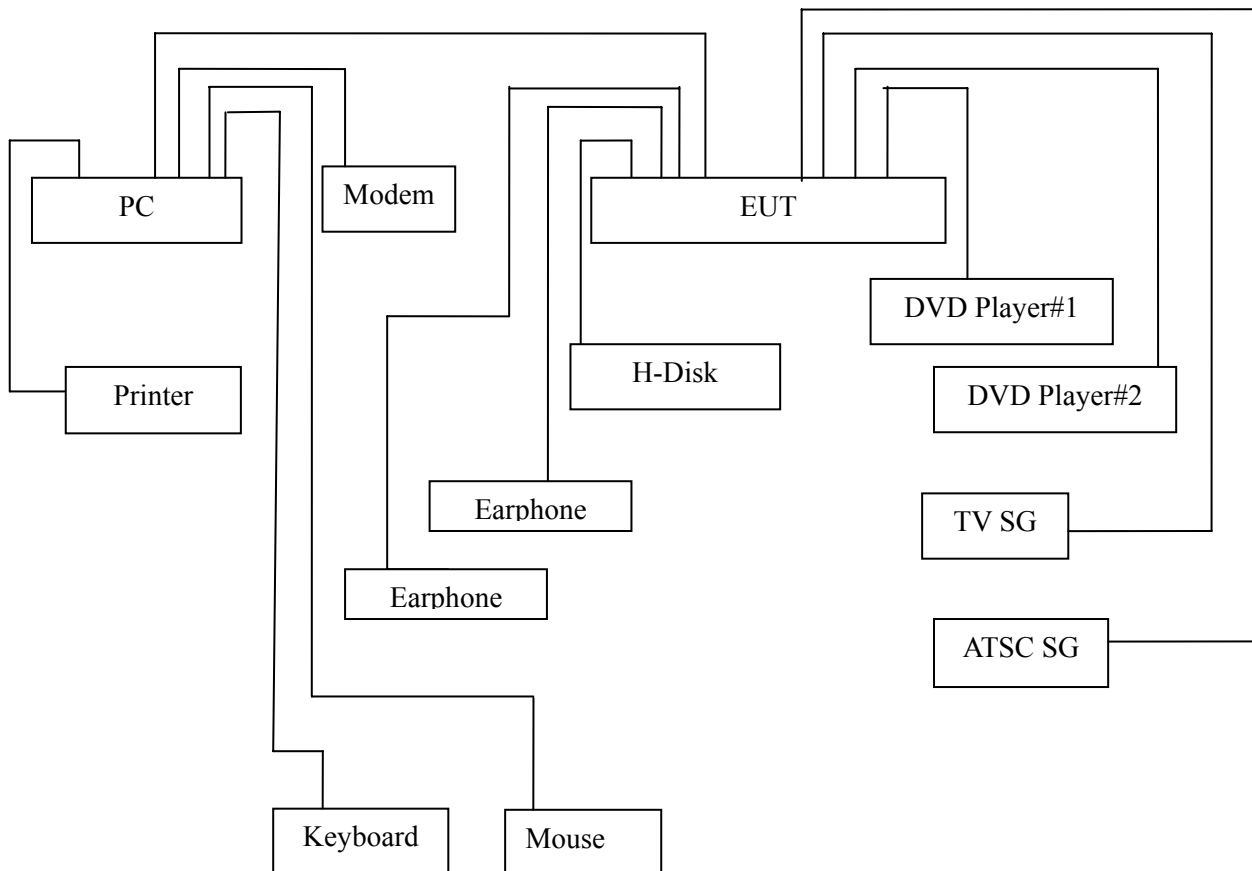
#### 3.1 Test Equipment

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

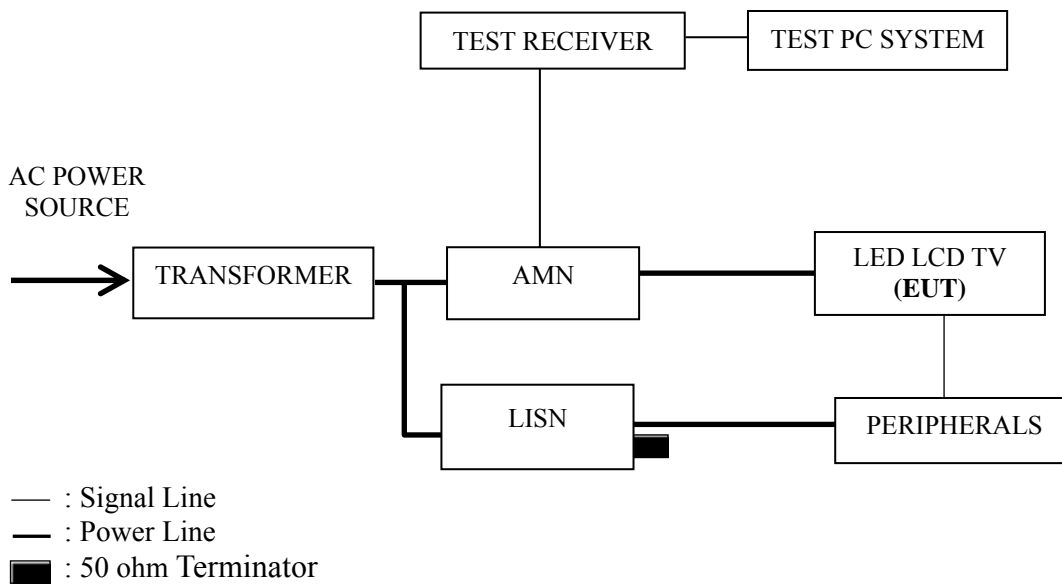
Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Test Receiver	R&S	ESCI	101302	Jul 03, 2015	Jul 02, 2016
2.	Artificial Mains Network (AMN)	R&S	ENV4200	100125	Jun 27, 2015	Jun 26, 2016
3.	Line Impedance Stabilization Network (LISN)	Kyoritsu	KNW-407	8-1280-5	Mar 20, 2015	Mar 19, 2016
4.	50Ω Terminator	Anritsu	BNC	001	Mar 20, 2015	Mar 19, 2016
5.	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 ( $\mu$ 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 H-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 1920*1080@60Hz & 1kHz playing
HDMI 1280*1024@60Hz & 1kHz playing
HDMI 640*480@60Hz & 1kHz playing
HDMI1080P
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
HDMI 1920*1080@60Hz & 1kHz playing	P13
HDMI 1280*1024@60Hz & 1kHz playing	P14
HDMI 640*480@60Hz & 1kHz playing	P15
HDMI1080P	P16
USB 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 HDMI1080P for test mode. The worst emission is detected at 3.243MHz (QP Value) with corrected signal level of 37.74dB ( $\mu$ V) (limit is 46.00 dB ( $\mu$ V)), when the Neutral of the EUT is connected to AMN.

EUT : LED LCD TV Temperature : 22

Model No. : LTDN40K2207WUS Humidity : 48%RH

Test Mode : HDMI 1920\*1080@60Hz & 1kHz Playing Date of Test : Jan 19, 2016

Test Line	Frequency (MHz)	Meter Reading dB( $\mu$ V)	Factor (dB)	Emission Level dB( $\mu$ V)	Limits dB( $\mu$ V)	Margin (dB)	Remark
Line	0.155	38.30	10.58	48.88	65.72	16.84	QP
	0.207	38.20	10.51	48.71	63.33	14.62	
	0.407	28.80	10.42	39.22	57.72	18.50	
	2.007	25.10	10.41	35.51	56.00	20.49	
	3.257	31.30	10.45	41.75	56.00	14.25	
	6.003	31.80	10.47	42.27	60.00	17.73	
	AV	0.155	17.50	10.58	28.08	55.72	27.64
		0.207	25.80	10.51	36.31	53.33	17.02
		0.407	16.10	10.42	26.52	47.72	21.20
		2.007	15.90	10.41	26.31	46.00	19.69
		<b>3.257</b>	<b>24.00</b>	<b>10.45</b>	<b>34.45</b>	<b>46.00</b>	<b>11.55</b>
		6.003	25.90	10.47	36.37	50.00	13.63
Neutral	0.193	38.50	10.51	49.01	63.90	14.89	QP
	0.387	28.20	10.41	38.61	58.14	19.53	
	0.562	31.80	10.36	42.16	56.00	13.84	
	1.973	31.90	10.41	42.31	56.00	13.69	
	3.247	36.09	10.45	46.54	56.00	9.46	
	6.137	32.50	10.50	43.00	60.00	17.00	
	AV	0.193	25.60	10.51	36.11	53.90	17.79
		0.387	16.80	10.41	27.21	48.14	20.93
		0.562	18.00	10.36	28.36	46.00	17.64
		1.973	21.50	10.41	31.91	46.00	14.09
		<b>3.247</b>	<b>26.99</b>	<b>10.45</b>	<b>37.44</b>	<b>46.00</b>	<b>8.56</b>
		6.137	25.90	10.50	36.40	50.00	13.60

TEST ENGINEER: WENCY YANG

EUT : LED LCD TV Temperature : 22

Model No. : LTDN40K2207WUS Humidity : 48%RH

Test Mode : HDMI 1280\*1024@60Hz & 1kHz Playing Date of Test : Jan 19, 2016

Test Line	Frequency (MHz)	Meter Reading dB( $\mu$ V)	Factor (dB)	Emission Level dB( $\mu$ V)	Limits dB( $\mu$ V)	Margin (dB)	Remark
Line	0.198	38.70	10.52	49.22	63.69	14.47	QP
	0.387	28.80	10.43	39.23	58.12	18.89	
	0.847	26.10	10.38	36.48	56.00	19.52	
	1.954	25.90	10.41	36.31	56.00	19.69	
	3.244	34.10	10.45	44.55	56.00	11.45	
	6.210	32.60	10.47	43.07	60.00	16.93	
	0.198	27.60	10.52	38.12	53.69	15.57	AV
	0.387	17.10	10.43	27.53	48.12	20.59	
	0.847	10.60	10.38	20.98	46.00	25.02	
	1.954	16.30	10.41	26.71	46.00	19.29	
	<b>3.244</b>	<b>24.30</b>	<b>10.45</b>	<b>34.75</b>	<b>46.00</b>	<b>11.25</b>	
	6.210	26.20	10.47	36.67	50.00	13.33	
Neutral	0.154	37.50	10.58	48.08	65.77	17.69	QP
	0.190	38.59	10.52	49.11	64.04	14.93	
	0.559	31.60	10.36	41.96	56.00	14.04	
	1.232	28.19	10.39	38.58	56.00	17.42	
	<b>3.230</b>	<b>34.79</b>	<b>10.45</b>	<b>45.24</b>	<b>56.00</b>	<b>10.76</b>	
	6.136	32.20	10.50	42.70	60.00	17.30	
	0.154	15.40	10.58	25.98	65.77	39.79	AV
	0.190	26.09	10.52	36.61	64.04	27.43	
	0.559	18.50	10.36	28.86	56.00	27.14	
	1.232	17.89	10.39	28.28	56.00	27.72	
	3.230	26.99	10.45	37.44	56.00	18.56	
	6.136	26.00	10.50	36.50	60.00	23.50	

TEST ENGINEER: WENCY YANG

EUT : LED LCD TV Temperature : 22

Model No. : LTDN40K2207WUS Humidity : 48%RH

Test Mode : HDMI 640\*480@60Hz & 1kHz Playing Date of Test : Jan 19, 2016

Test Line	Frequency (MHz)	Meter Reading dB( $\mu$ V)	Factor (dB)	Emission Level dB( $\mu$ V)	Limits dB( $\mu$ V)	Margin (dB)	Remark
Line	0.158	38.89	10.58	49.47	65.58	16.11	QP
	0.195	39.90	10.53	50.43	63.84	13.41	
	0.399	28.90	10.42	39.32	57.87	18.55	
	0.843	24.90	10.38	35.28	56.00	20.72	
	3.244	34.10	10.45	44.55	56.00	11.45	
	6.132	32.09	10.48	42.57	60.00	17.43	
	AV	0.158	17.59	10.58	28.17	55.58	27.41
		0.195	28.30	10.53	38.83	53.84	15.01
		0.399	16.60	10.42	27.02	47.87	20.85
		0.843	10.80	10.38	21.18	46.00	24.82
		<b>3.244</b>	<b>24.20</b>	<b>10.45</b>	<b>34.65</b>	<b>46.00</b>	<b>11.35</b>
		6.132	25.99	10.48	36.47	50.00	13.53
Neutral	0.185	38.30	10.52	48.82	64.25	15.43	QP
	0.308	30.71	10.43	41.14	60.03	18.89	
	0.563	32.30	10.36	42.66	56.00	13.34	
	1.723	29.89	10.41	40.30	56.00	15.70	
	3.245	36.79	10.45	47.24	56.00	8.76	
	6.082	32.31	10.49	42.80	60.00	17.20	
	AV	0.185	25.50	10.52	36.02	54.25	18.23
		0.308	17.61	10.43	28.04	50.03	21.99
		0.563	17.80	10.36	28.16	46.00	17.84
		1.723	19.49	10.41	29.90	46.00	16.10
		<b>3.245</b>	<b>27.19</b>	<b>10.45</b>	<b>37.64</b>	<b>46.00</b>	<b>8.36</b>
		6.082	26.01	10.49	36.50	50.00	13.50

TEST ENGINEER: WENCY YANG

EUT : LED LCD TV Temperature : 22

Model No. : LTDN40K2207WUS Humidity : 48%RH

Test Mode : HDMI 1080P Date of Test : Jan 19, 2016

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	35.69	10.59	46.28	65.95	19.67	QP
	0.196	39.09	10.53	49.62	63.78	14.16	
	0.416	28.80	10.42	39.22	57.53	18.31	
	0.843	24.10	10.38	34.48	56.00	21.52	
	3.243	32.90	10.45	43.35	56.00	12.65	
	5.795	31.40	10.47	41.87	60.00	18.13	
	0.151	16.09	10.59	26.68	55.95	29.27	AV
	0.196	27.89	10.53	38.42	53.78	15.36	
	0.416	15.70	10.42	26.12	47.53	21.41	
	0.843	10.80	10.38	21.18	46.00	24.82	
	<b>3.243</b>	<b>24.50</b>	<b>10.45</b>	<b>34.95</b>	<b>46.00</b>	<b>11.05</b>	
	5.795	25.50	10.47	35.97	50.00	14.03	
Neutral	0.194	39.10	10.51	49.61	63.87	14.26	QP
	0.380	27.90	10.41	38.31	58.28	19.97	
	0.546	31.21	10.36	41.57	56.00	14.43	
	0.845	30.39	10.37	40.76	56.00	15.24	
	3.243	36.09	10.45	46.54	56.00	9.46	
	6.134	31.70	10.50	42.20	60.00	17.80	
	0.194	25.60	10.51	36.11	53.87	17.76	AV
	0.380	15.50	10.41	25.91	48.28	22.37	
	0.546	17.31	10.36	27.67	46.00	18.33	
	0.845	16.09	10.37	26.46	46.00	19.54	
	<b>3.243</b>	<b>27.29</b>	<b>10.45</b>	<b>37.74</b>	<b>46.00</b>	<b>8.26</b>	
	6.134	25.80	10.50	36.30	50.00	13.70	



EUT : LED LCD TV Temperature : 22

Model No. : LTDN40K2207WUS Humidity : 48%RH

Test Mode : USB Play Date of Test : Jan 19, 2016

Test Line	Frequency (MHz)	Meter Reading dB( $\mu$ V)	Factor (dB)	Emission Level dB( $\mu$ V)	Limits dB( $\mu$ V)	Margin (dB)	Remark
Line	0.193	39.50	10.53	50.03	63.89	13.86	QP
	0.312	31.11	10.45	41.56	59.91	18.35	
	0.633	25.50	10.38	35.88	56.00	20.12	
	1.717	25.49	10.41	35.90	56.00	20.10	
	3.246	34.10	10.45	44.55	56.00	11.45	
	6.201	32.10	10.47	42.57	60.00	17.43	
	0.193	28.30	10.53	38.83	53.89	15.06	AV
	0.312	18.41	10.45	28.86	49.91	21.05	
	0.633	9.80	10.38	20.18	46.00	25.82	
	1.717	14.39	10.41	24.80	46.00	21.20	
	<b>3.246</b>	<b>24.20</b>	<b>10.45</b>	<b>34.65</b>	<b>46.00</b>	<b>11.35</b>	
	6.201	26.20	10.47	36.67	50.00	13.33	
Neutral	0.188	39.10	10.52	49.62	64.13	14.51	QP
	0.387	28.50	10.41	38.91	58.13	19.22	
	0.563	32.10	10.36	42.46	56.00	13.54	
	1.794	28.49	10.41	38.90	56.00	17.10	
	3.814	34.09	10.46	44.55	56.00	11.45	
	6.133	31.60	10.50	42.10	60.00	17.90	
	0.188	26.20	10.52	36.72	54.13	17.41	AV
	0.387	16.80	10.41	27.21	48.13	20.92	
	0.563	17.60	10.36	27.96	46.00	18.04	
	1.794	18.89	10.41	29.30	46.00	16.70	
	<b>3.814</b>	<b>26.29</b>	<b>10.46</b>	<b>36.75</b>	<b>46.00</b>	<b>9.25</b>	
	6.133	25.50	10.50	36.00	50.00	14.00	

TEST ENGINEER: WENCY YANG

## 4 RADIATED EMISSION TEST

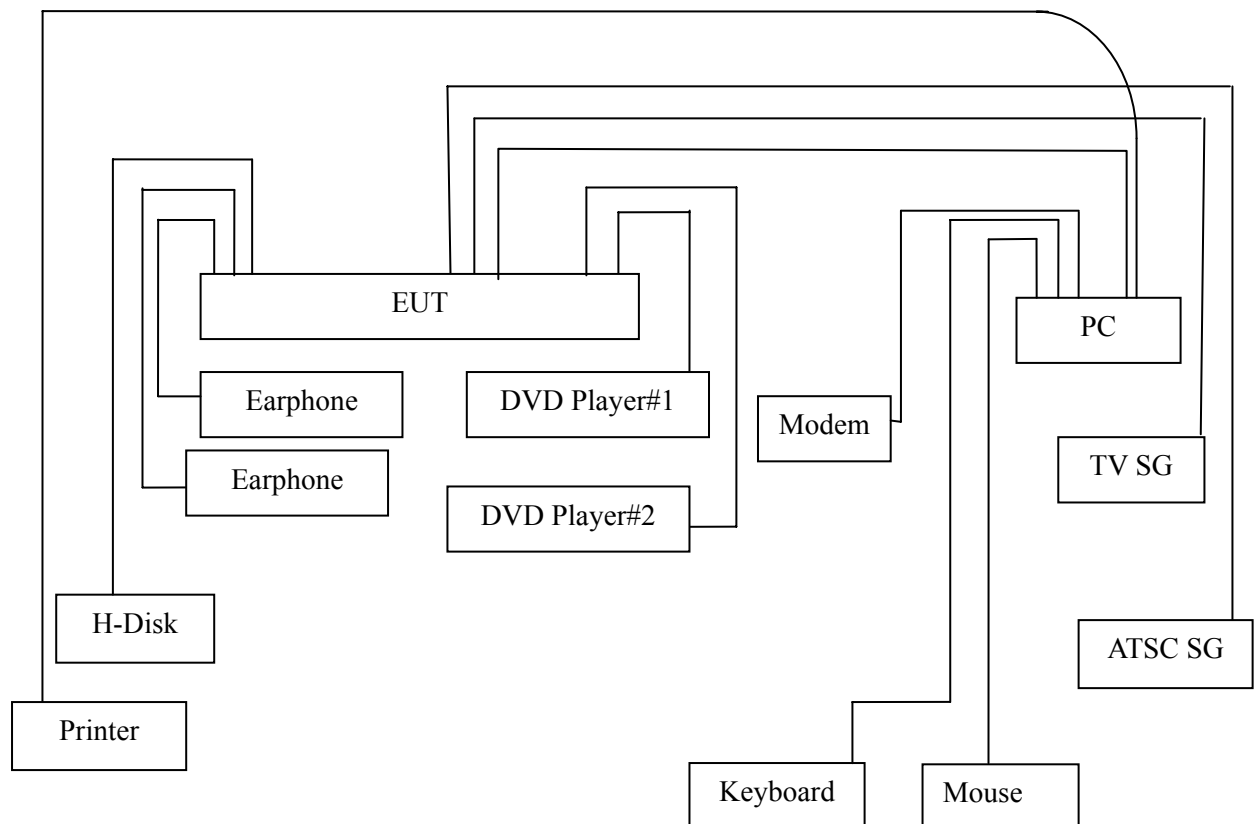
### 4.1 Test Equipment

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	Agilent	8447D	2944A06664	Apr 27, 2015	Apr 26, 2016
3.	Preamplifier	HP	8449B	3008A00864	Mar 20, 2015	Sep 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.	Spectrum	HP	8591EM	3628A00908	May 07, 2015	May 06, 2016
8.	Software	Audix	E3	6.2007-9-10	--	--

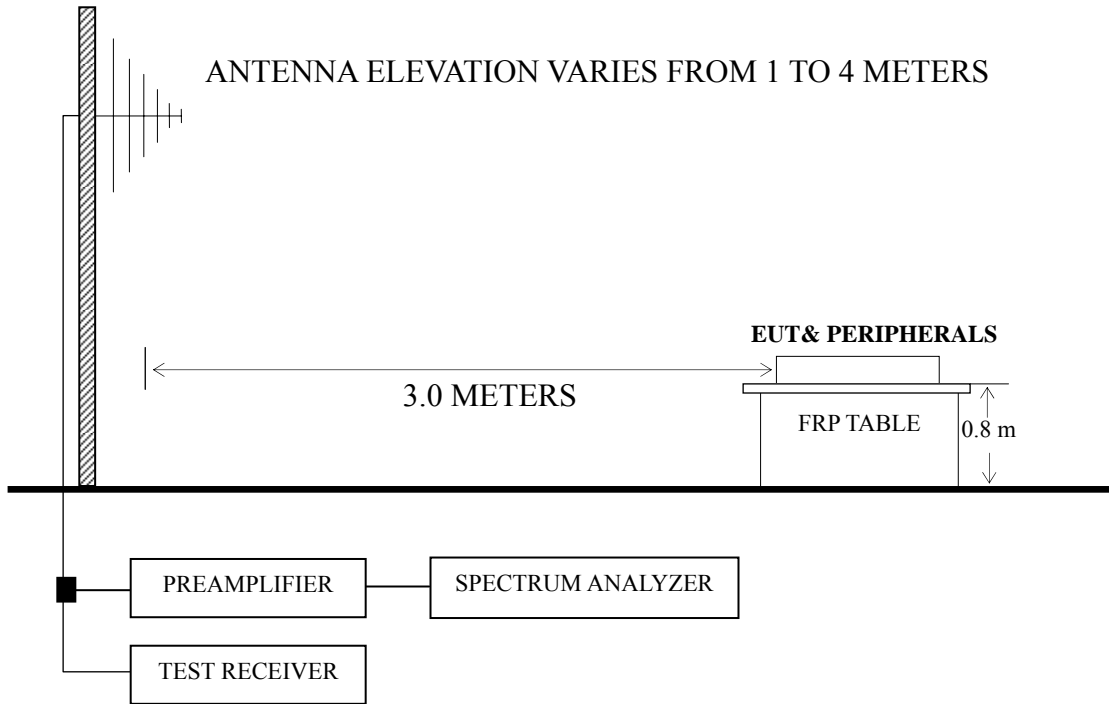
### 4.2 Block Diagram of Test Setup

#### 4.2.1 EUT & Peripherals

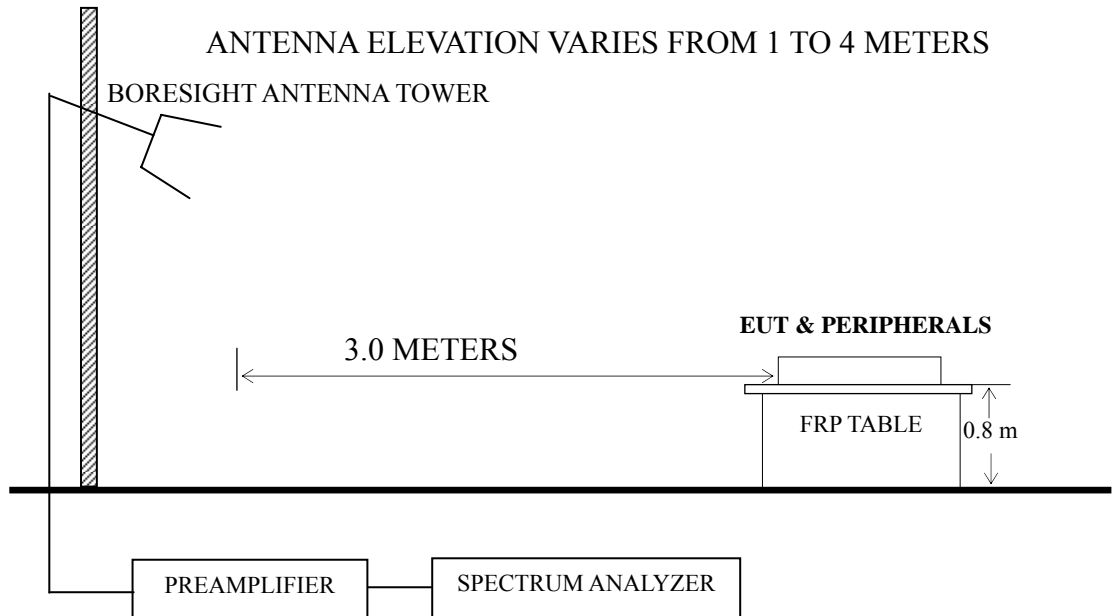


### 4.2.2 Radiated emission test setup

#### 4.2.2.1 Below 1GHz



#### 4.2.2.2 Above 1GHz



### 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 1920*1080@60Hz & 1kHz playing	P22
HDMI 1280*1024@60Hz & 1kHz playing	P23
HDMI 640*480@60Hz & 1kHz playing	P24
HDMI1080P	P25
USB Play	P26

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 & 1 kHz playing test mode. The worst emission at horizontal polarization was detected at 376.290MHz with corrected signal level of 44.26 dB ( $\mu\text{V}/\text{m}$ ) (limit is 46.00 dB ( $\mu\text{V}/\text{m}$ )), when the antenna was 1.70 m height and the turntable was at 160°. The worst emission at vertical polarization was detected at 76.560 MHz with corrected signal level of 38.44dB ( $\mu\text{V}/\text{m}$ ) (limit is 46.00 dB ( $\mu\text{V}/\text{m}$ )), when the antenna was 1.00 m height and the turntable was at 315°.

EUT : LED LCD TV Temperature : 22

Model No. : LTDN40K2207WUS Humidity : 60%RH

Test Mode : HDMI 1920\*1080@60Hz & 1kHz Playing Date of Test : Jan 22, 2016

Polarization	Frequency (MHz)	Meter Reading dB ( $\mu$ V)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Emission Level dB ( $\mu$ V/m)	Limits dB ( $\mu$ V/m)	Margin (dB)	Remark
Horizontal	73.920	28.41	8.27	0.99	--	37.67	40.00	2.33	QP
	212.360	26.74	10.10	2.02	--	38.86	43.50	4.64	
	248.250	29.06	12.42	2.15	--	43.63	46.00	2.37	
	<b>376.290</b>	<b>25.16</b>	<b>16.41</b>	<b>2.69</b>	--	<b>44.26</b>	<b>46.00</b>	<b>1.74</b>	
	597.450	18.27	18.98	2.31	--	39.56	46.00	6.44	
	745.860	15.54	20.03	3.62	--	39.19	46.00	6.81	
	1105.545	59.01	24.02	4.09	36.30	50.82	74.00	23.18	PK
	1832.378	57.90	26.93	4.23	35.28	53.78	74.00	20.22	
	2004.115	59.50	27.51	4.47	35.10	56.38	74.00	17.62	
	2219.613	54.00	27.92	4.67	35.13	51.46	74.00	22.54	
	2418.959	51.92	28.27	4.83	35.15	49.87	74.00	24.13	
	5655.516	43.28	34.96	7.90	34.04	52.10	74.00	21.90	
	1105.545	38.79	24.02	4.09	36.30	30.60	54.00	23.40	AV
	1832.378	38.65	26.93	4.23	35.28	34.53	54.00	19.47	
	2004.115	38.03	27.51	4.47	35.10	34.91	54.00	19.09	
	2219.613	34.22	27.92	4.67	35.13	31.68	54.00	22.32	
2418.959	30.67	28.27	4.83	35.15	28.62	54.00	25.38		
5655.516	22.90	34.96	7.90	34.04	31.72	54.00	22.28		

EUT : LED LCD TV Temperature : 22

Model No. : LTDN40K2207WUS Humidity : 60%RH

Test Mode : HDMI 1920\*1080@60Hz & 1kHz Playing Date of Test : Jan 22, 2016

Polarization	Frequency (MHz)	Meter Reading dB ( $\mu$ V)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Emission Level dB ( $\mu$ V/m)	Limits dB ( $\mu$ V/m)	Margin (dB)	Remark
Vertical	31.840	19.41	17.59	0.65	--	37.65	40.00	2.35	QP
	<b>76.560</b>	<b>28.62</b>	<b>8.78</b>	<b>1.04</b>	--	<b>38.44</b>	<b>40.00</b>	<b>1.56</b>	
	118.270	24.55	12.77	1.45	--	38.77	43.50	4.73	
	163.860	27.13	11.24	1.73	--	40.10	43.50	3.40	
	212.360	24.78	10.10	2.02	--	36.90	43.50	6.60	
	374.350	21.74	16.39	2.69	--	40.82	46.00	5.18	
	2000.528	59.75	27.50	4.47	35.10	56.62	74.00	17.38	PK
	2436.358	49.29	28.29	4.83	35.15	47.26	74.00	26.74	
	2961.827	52.25	30.37	5.76	35.20	53.18	74.00	20.82	
	4432.448	47.34	33.50	6.67	34.12	53.39	74.00	20.61	
	5208.076	43.65	34.44	6.84	33.95	50.98	74.00	23.02	
	5655.516	43.28	34.96	7.90	34.04	52.10	74.00	21.90	
	2000.528	38.20	27.50	4.47	35.10	35.07	54.00	18.93	AV
	2436.358	37.45	28.29	4.83	35.15	35.42	54.00	18.58	
	2961.827	32.83	30.37	5.76	35.20	33.76	54.00	20.24	
	4432.448	27.54	33.50	6.67	34.12	33.59	54.00	20.41	
	5208.076	24.84	34.44	6.84	33.95	32.17	54.00	21.83	
	5655.516	23.29	34.96	7.90	34.04	32.11	54.00	21.89	

TEST ENGINEER: MARK LI

EUT : LED LCD TV Temperature : 22

Model No. : LTDN40K2207WUS Humidity : 60%RH

Test Mode : HDMI 1280\*1024@60Hz Date of Test : Jan 22, 2016  
& 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	73.920	28.31	8.27	0.99	37.57	40.00	2.43
	208.480	25.36	9.96	2.01	37.33	43.50	6.17
	251.160	28.46	12.54	2.18	43.18	46.00	2.82
	<b>377.260</b>	<b>24.79</b>	<b>16.44</b>	<b>2.69</b>	<b>43.92</b>	<b>46.00</b>	<b>2.08</b>
	544.100	18.33	18.62	2.63	39.58	46.00	6.42
	827.340	17.36	20.70	3.97	42.03	46.00	3.97
Vertical	30.000	17.80	18.90	0.63	37.33	40.00	2.67
	<b>76.560</b>	<b>27.83</b>	<b>8.78</b>	<b>1.04</b>	<b>37.65</b>	<b>40.00</b>	<b>2.35</b>
	118.270	23.10	12.77	1.45	37.32	43.50	6.18
	163.860	27.75	11.24	1.73	40.72	43.50	2.78
	374.350	22.06	16.39	2.69	41.14	46.00	4.86
	827.340	17.43	20.70	3.97	42.10	46.00	3.90

TEST ENGINEER: MARK LI



EUT : LED LCD TV Temperature : 22

Model No. : LTDN40K2207WUS Humidity : 60%RH

Test Mode : HDMI 640\*480@60Hz & 1kHz Playing Date of Test : Jan 22, 2016

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	76.560	24.93	8.78	1.04	34.75	40.00	5.25
	209.450	25.57	10.00	2.01	37.58	43.50	5.92
	<b>249.220</b>	<b>28.51</b>	<b>12.46</b>	<b>2.15</b>	<b>43.12</b>	<b>46.00</b>	<b>2.88</b>
	301.600	24.33	13.88	2.59	40.80	46.00	5.20
	371.440	23.92	16.33	2.69	42.94	46.00	3.06
	959.260	10.29	22.20	4.75	37.24	46.00	8.76
Vertical	32.040	15.99	17.43	0.66	34.08	40.00	5.92
	76.560	25.09	8.78	1.04	34.91	40.00	5.09
	<b>163.860</b>	<b>26.86</b>	<b>11.24</b>	<b>1.73</b>	<b>39.83</b>	<b>43.50</b>	<b>3.67</b>
	284.140	21.36	13.43	2.45	37.24	46.00	8.76
	371.440	21.03	16.33	2.69	40.05	46.00	5.95
	959.260	9.53	22.20	4.75	36.48	46.00	9.52

TEST ENGINEER: MARK LI

EUT : LED LCD TV Temperature : 22

Model No. : LTDN40K2207WUS Humidity : 60%RH

Test Mode : HDMI1080P Date of Test : Jan 22, 2016

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	31.940	13.99	17.50	0.65	32.14	40.00	7.86
	85.290	23.88	9.85	1.15	34.88	40.00	5.12
	135.730	21.54	12.59	1.55	35.68	43.50	7.82
	291.900	21.14	13.60	2.52	37.26	46.00	8.74
	462.620	21.08	17.14	2.87	41.09	46.00	4.91
	<b>932.100</b>	<b>15.30</b>	<b>21.70</b>	<b>4.65</b>	<b>41.65</b>	<b>46.00</b>	<b>4.35</b>
Vertical	41.640	19.10	12.41	0.75	32.26	40.00	7.74
	79.470	22.88	9.29	1.07	33.24	40.00	6.76
	<b>104.690</b>	<b>26.59</b>	<b>12.50</b>	<b>1.35</b>	<b>40.44</b>	<b>43.50</b>	<b>3.06</b>
	221.090	22.56	10.60	2.05	35.21	46.00	10.79
	290.930	23.32	13.60	2.52	39.44	46.00	6.56
	797.270	18.01	20.57	3.68	42.26	46.00	3.74

TEST ENGINEER: MARK LI

EUT : LED LCD TV Temperature : 22

Model No. : LTDN40K2207WUS Humidity : 60%RH

Test Mode : USB Play Date of Test : Jan 22, 2016

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	30.970	13.06	18.15	0.64	31.85	40.00	8.15
	74.620	23.33	8.43	1.01	32.77	40.00	7.23
	121.180	21.13	12.86	1.46	35.45	43.50	8.05
	246.310	25.41	12.34	2.14	39.89	46.00	6.11
	<b>374.350</b>	<b>20.98</b>	<b>16.39</b>	<b>2.69</b>	<b>40.06</b>	<b>46.00</b>	<b>5.94</b>
	902.030	12.36	21.30	4.56	38.22	46.00	7.78
Vertical	<b>35.820</b>	<b>17.70</b>	<b>15.20</b>	<b>0.69</b>	<b>33.59</b>	<b>40.00</b>	<b>6.41</b>
	82.380	22.39	9.60	1.12	33.11	40.00	6.89
	114.390	22.67	12.69	1.42	36.78	43.50	6.72
	280.260	20.74	13.20	2.42	36.36	46.00	9.64
	401.510	18.74	16.60	2.72	38.06	46.00	7.94
	730.340	14.95	20.10	3.59	38.64	46.00	7.36

TEST ENGINEER: MARK LI

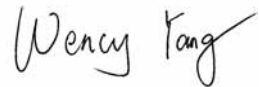
## 5 DEBUG DESCRIPTION

The following components are used during the countermeasure procedures:

Name	M/N	Manufacturer	Location
FERRITE CORE BNF	BNF1730GR	Brigitte Liu Si (Shandong) photoelectric co., LTD	See Internal Photos Figure 17

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.