

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

LED LCD TV

Model No.	Brand
LTDN50K2203WUS	Hisense
50H6B	

FCC ID : W9HLCDF0055

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

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Report No. : ACI-F15075
Date of Test : Apr 01 – 20, 2015
Date of Report : Apr 24, 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 Apr 01 – 20, 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.

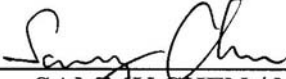
This report contains data that are not covered by the NVLAP accreditation.


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.F15074, a Verification report.

Date of Test : Apr 01 – 20, 2015 Date of Report : Apr 24, 2015

Producer : 
 KATHY WANG / 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
EMISSION			
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.	:	LTDN50K2203WUS, 50H6B
Note	:	The above models are all the same except for model name. LTDN50K2203WUS 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 : HD500DF-E01\T1\S5\ROH
Max Resolution	:	1920*1080@60Hz
HDMI Cable*3 (Lab provide)	:	Shielded, Detachable, 1.00m, with two cores
Power Cord	:	Unshielded, Detachable, 1.80m, without core
LAN Cable (Lab provide)	:	Unshielded, Detachable, 1.50m, without core
USB Cable (Lab provide)	:	Shielded, Detachable, 1.50m, without core

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 Digital Audio out Port : Connected with DVD PLAYER#1
- (4) One component of Video/YPbPr Port : Connected with DVD PLAYER#2

Side Port:

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

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; 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

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

2.2.4 Mouse

Manufacturer : 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 Modem

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

2.2.6 Earphone

Manufacturer : Skullcandy
Model Number : FMJ

2.2.7 TV Signal Generator

Manufacturer : FLUKE
Model Number : 54200m01
Serial Number : 814008
Data Cable : Shielded, detachable, 2.0m
Power Cord : Unshielded, detachable, 2.0m
Certificate : CE/EMC, FCC DoC, CCC

2.2.8 ATSC Signal Generator

Manufacturer : SENCORE
Model Number : ATSC997
Serial Number : 6790071

2.2.9 DVD PLAYER #1

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

2.2.10 DVD PLAYER #2

Manufacturer : PHILIPS
Model Number : DVP3986K/93
Serial Number : KX1A0902120082
Certificate : FCC DoC, CE/EMC, CCC

2.2.11 U-Disk #1

Manufacturer : Kingmax
Model Number : 8G
Certificate : CE/EMC, FCC DoC, IC

2.2.12 U-Disk #2

Manufacturer : Transcend
Model Number : 8G
Certificate : CE/EMC, FCC DoC, IC

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

NVLAP Lab Code : 200371-0

2.4 Measurement Uncertainty

Conducted Emission Expanded Uncertainty : U = 2.8dB

Radiated Emission Expanded Uncertainty (30-200MHz):
U = 4.4dB (Horizontal)
U = 4.4dB (Vertical)

Radiated Emission Expanded Uncertainty (200M-1GHz):
U = 4.4dB (Horizontal)
U = 5.5dB (Vertical)

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

3 CONDUCTED EMISSION TEST

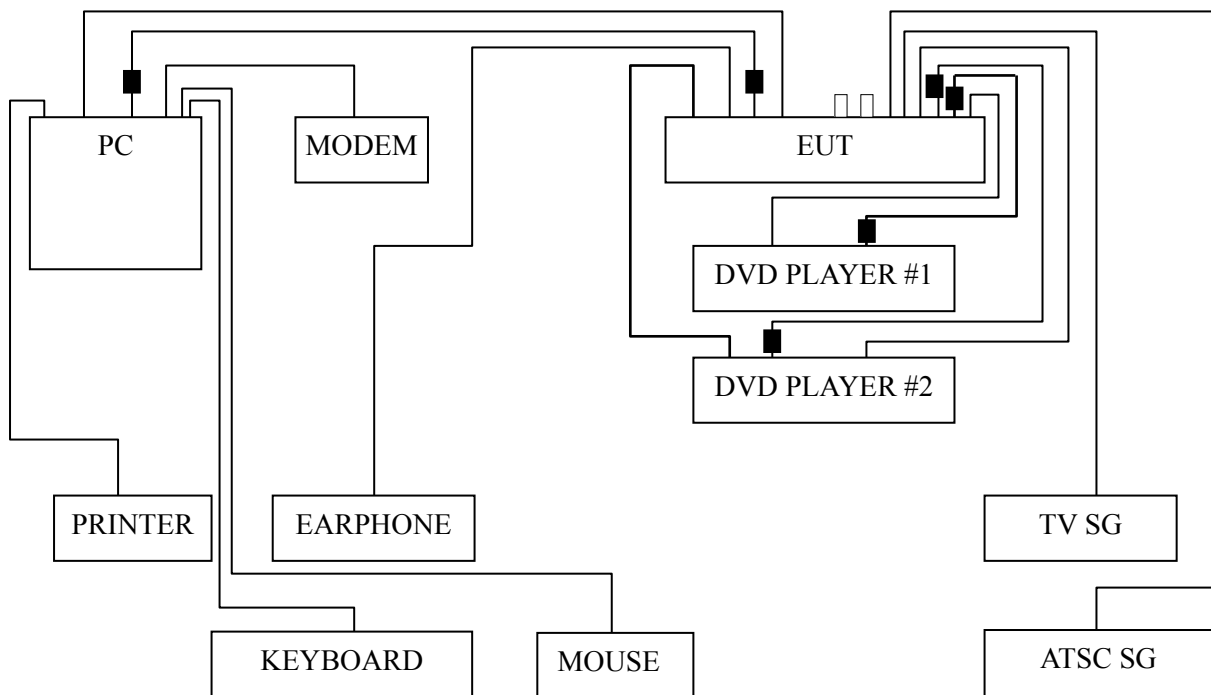
3.1 Test Equipment

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	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, 2015	Mar 19, 2016
4.	50Ω Coaxial Switch	Anritsu	MP59B	6200426389	Mar 18, 2015	Sep 17, 2015
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

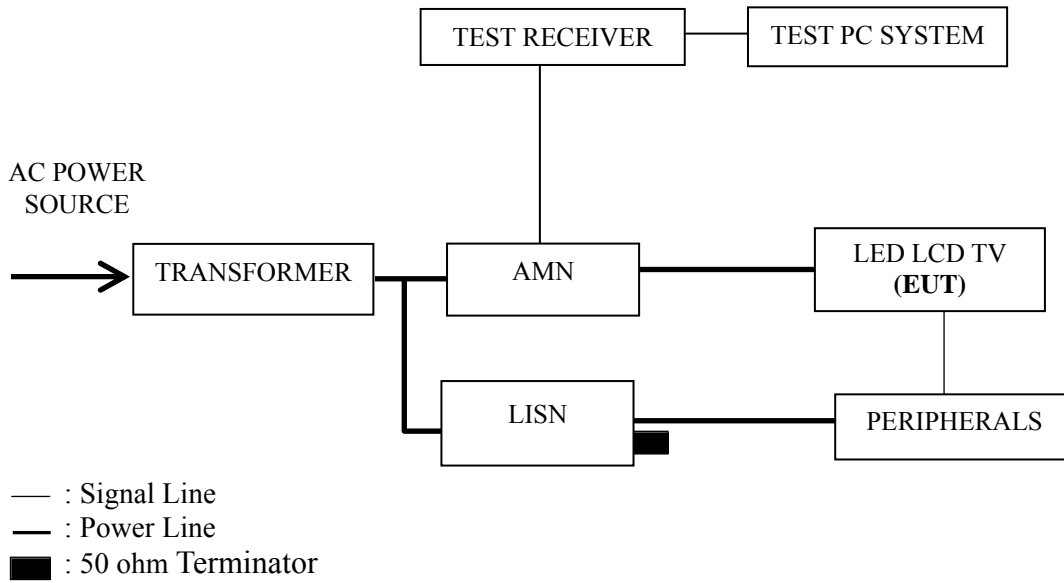
3.2.1 EUT & Peripherals



□ : U-Disk

■ : Ferrite Core

3.2.2 Conducted Disturbance Test Setup



3.3 Conducted Emission Limit [FCC Part 15 Subpart B 15.107(a)]

Frequency Range (MHz)	Limits dB (μV)	
	Quasi-peak	Average
0.15 ~ 0.5	66~56	56~46
0.5 ~ 5	56	46
5 ~ 30	60	50

NOTE 1 – The lower limit shall apply at the transition frequencies.
 NOTE 2 – The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz~0.50 MHz

3.4 Test Configuration

The EUT (listed in Sec.2.1) and the peripherals (listed in Sec 2.2) were installed as shown on Sec.3.2 to meet FCC requirement and operating in a manner that tends to maximize its emission level in a normal application.

3.5 Operating Condition of EUT

- 3.5.1 Setup the EUT and peripherals as shown in Sec. 3.2.
- 3.5.2 Turn on the power of all equipments and the EUT.
- 3.5.3 Set the contrast & brightness of EUT to maximum.
- 3.5.4 PC system ran the self-test program “EMC Test” by windows XP and sent “H” characters to EUT through graphic card, the EUT’s screen displayed and filled with “H” pattern by its resolution (Via 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@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 1920*1080@60Hz & 1kHz playing	P13
HDMI 1280*1024@60Hz & 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 0.162 MHz (Quasi-Peak Value) with corrected signal level of 60.07 dB (μ V) (limit is 65.37 dB (μ V)), when the Line of the EUT is connected to AMN.

EUT : LED LCD TV Temperature : 22°C

Model No. : LTDN50K2203WUS Humidity : 48%RH

Test Mode : HDMI 1920*1080@60Hz Date of Test : Apr 01, 2015
& 1kHz Playing

Test Line	Frequency (MHz)	Meter Reading dB(μ V)	Factor (dB)	Emission Level dB(μ V)	Limits dB(μ V)	Margin (dB)	Remark
Line	0.161	49.50	10.57	60.07	65.40	5.33	QP
	0.382	27.70	10.44	38.14	58.23	20.09	
	0.574	30.90	10.44	41.34	56.00	14.66	
	1.444	28.70	10.40	39.10	56.00	16.90	
	2.757	25.89	10.45	36.34	56.00	19.66	
	5.064	25.80	10.48	36.28	60.00	23.72	
	AV	0.161	36.30	10.57	46.87	55.40	8.53
		0.382	18.20	10.44	28.64	48.23	19.59
		0.574	20.80	10.44	31.24	46.00	14.76
		1.444	19.90	10.40	30.30	46.00	15.70
2.757		16.49	10.45	26.94	46.00	19.06	
5.064		19.50	10.48	29.98	50.00	20.02	
Neutral	0.162	49.30	10.57	59.87	65.36	5.49	QP
	0.378	28.81	10.43	39.24	58.33	19.09	
	0.574	31.20	10.43	41.63	56.00	14.37	
	1.723	28.30	10.44	38.74	56.00	17.26	
	4.892	28.20	10.54	38.74	56.00	17.26	
	6.697	26.49	10.52	37.01	60.00	22.99	
	AV	0.162	37.10	10.57	47.67	55.36	7.69
		0.378	17.91	10.43	28.34	48.33	19.99
		0.574	21.30	10.43	31.73	46.00	14.27
		1.723	19.80	10.44	30.24	46.00	15.76
4.892		20.30	10.54	30.84	46.00	15.16	
	6.697	12.49	10.52	23.01	50.00	26.99	

TEST ENGINEER: WENCY YANG

EUT : LED LCD TV Temperature : 22°C

Model No. : LTDN50K2203WUS Humidity : 48%RH

Test Mode : HDMI 1280*1024@60Hz & 1kHz Playing Date of Test : Apr 01, 2015

Test Line	Frequency (MHz)	Meter Reading dB(μ V)	Factor (dB)	Emission Level dB(μ V)	Limits dB(μ V)	Margin (dB)	Remark
Line	0.161	49.40	10.57	59.97	65.39	5.42	QP
	0.383	27.70	10.44	38.14	58.21	20.07	
	0.575	31.10	10.44	41.54	56.00	14.46	
	1.449	28.80	10.40	39.20	56.00	16.80	
	2.607	24.69	10.45	35.14	56.00	20.86	
	5.124	28.90	10.47	39.37	60.00	20.63	
	0.161	37.80	10.57	48.37	55.39	7.02	AV
	0.383	18.30	10.44	28.74	48.21	19.47	
	0.575	21.20	10.44	31.64	46.00	14.36	
	1.449	20.00	10.40	30.40	46.00	15.60	
	2.607	15.99	10.45	26.44	46.00	19.56	
	5.124	20.30	10.47	30.77	50.00	19.23	
Neutral	0.161	48.90	10.57	59.47	65.41	5.94	QP
	0.382	29.30	10.43	39.73	58.23	18.50	
	0.569	30.70	10.43	41.13	56.00	14.87	
	0.925	27.90	10.41	38.31	56.00	17.69	
	1.721	28.70	10.44	39.14	56.00	16.86	
	5.126	28.50	10.53	39.03	60.00	20.97	
	0.161	35.80	10.57	46.37	55.41	9.04	AV
	0.382	19.70	10.43	30.13	48.23	18.10	
	0.569	21.00	10.43	31.43	46.00	14.57	
	0.925	19.20	10.41	29.61	46.00	16.39	
	1.721	19.80	10.44	30.24	46.00	15.76	
	5.126	20.00	10.53	30.53	50.00	19.47	

TEST ENGINEER: WENCY YANG

EUT : LED LCD TV Temperature : 22°C

Model No. : LTDN50K2203WUS Humidity : 48%RH

Test Mode : HDMI 640*480@60Hz & 1kHz Playing Date of Test : Apr 01, 2015

Test Line	Frequency (MHz)	Meter Reading dB(μ V)	Factor (dB)	Emission Level dB(μ V)	Limits dB(μ V)	Margin (dB)	Remark
Line	0.161	49.40	10.57	59.97	65.39	5.42	QP
	0.382	27.70	10.44	38.14	58.23	20.09	
	0.576	31.50	10.44	41.94	56.00	14.06	
	1.708	28.20	10.42	38.62	56.00	17.38	
	4.898	28.50	10.48	38.98	56.00	17.02	
	6.489	27.90	10.43	38.33	60.00	21.67	AV
	0.161	37.80	10.57	48.37	55.39	7.02	
	0.382	18.20	10.44	28.64	48.23	19.59	
	0.576	20.40	10.44	30.84	46.00	15.16	
	1.708	19.10	10.42	29.52	46.00	16.48	
4.898	20.60	10.48	31.08	46.00	14.92	QP	
6.489	17.80	10.43	28.23	50.00	21.77		
0.162	49.30	10.57	59.87	65.39	5.52		
0.382	29.30	10.43	39.73	58.24	18.51		
0.578	31.30	10.43	41.73	56.00	14.27		
0.915	27.40	10.41	37.81	56.00	18.19		
Neutral	1.717	28.40	10.44	38.84	56.00	17.16	QP
	5.114	29.40	10.53	39.93	60.00	20.07	
	0.162	37.70	10.57	48.27	55.39	7.12	
	0.382	19.80	10.43	30.23	48.24	18.01	AV
	0.578	20.20	10.43	30.63	46.00	15.37	
	0.915	16.90	10.41	27.31	46.00	18.69	
	1.717	19.30	10.44	29.74	46.00	16.26	
	5.114	19.30	10.53	29.83	50.00	20.17	

TEST ENGINEER: WENCY YANG

EUT : LED LCD TV Temperature : 22°C

Model No. : LTDN50K2203WUS Humidity : 48%RH

Test Mode : USB Play Date of Test : Apr 01, 2015

Test Line	Frequency (MHz)	Meter Reading dB(μ V)	Factor (dB)	Emission Level dB(μ V)	Limits dB(μ V)	Margin (dB)	Remark
Line	0.165	48.70	10.57	59.27	65.23	5.96	QP
	0.373	27.31	10.44	37.75	58.44	20.69	
	0.578	31.30	10.44	41.74	56.00	14.26	
	1.456	29.30	10.40	39.70	56.00	16.30	
	2.689	25.89	10.45	36.34	56.00	19.66	
	5.129	29.30	10.47	39.77	60.00	20.23	
	0.165	37.90	10.57	48.47	55.23	6.76	AV
	0.373	12.61	10.44	23.05	48.44	25.39	
	0.578	20.00	10.44	30.44	46.00	15.56	
	1.456	20.40	10.40	30.80	46.00	15.20	
	2.689	16.39	10.45	26.84	46.00	19.16	
	5.129	21.40	10.47	31.87	50.00	18.13	
Neutral	0.166	47.90	10.56	58.46	65.14	6.68	QP
	0.378	28.91	10.43	39.34	58.32	18.98	
	0.576	31.30	10.43	41.73	56.00	14.27	
	1.437	28.80	10.42	39.22	56.00	16.78	
	3.558	25.80	10.49	36.29	56.00	19.71	
	5.117	28.90	10.53	39.43	60.00	20.57	
	0.166	37.50	10.56	48.06	55.14	7.08	AV
	0.378	18.71	10.43	29.14	48.32	19.18	
	0.576	21.40	10.43	31.83	46.00	14.17	
	1.437	18.70	10.42	29.12	46.00	16.88	
	3.558	17.50	10.49	27.99	46.00	18.01	
	5.117	19.50	10.53	30.03	50.00	19.97	

TEST ENGINEER: WENCY YANG

EUT : LED LCD TV Temperature : 22°C
 Model No. : LTDN50K2203WUS Humidity : 48%RH
 Test Mode : LAN Play Date of Test : Apr 01, 2015

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.162	49.50	10.57	60.07	65.37	5.30	QP
	0.579	31.30	10.44	41.74	56.00	14.26	
	0.916	27.70	10.40	38.10	56.00	17.90	
	1.716	28.30	10.42	38.72	56.00	17.28	
	4.886	27.60	10.48	38.08	56.00	17.92	
	6.777	26.90	10.44	37.34	60.00	22.66	
	AV	0.162	37.30	10.57	47.87	55.37	7.50
		0.579	19.60	10.44	30.04	46.00	15.96
		0.916	17.40	10.40	27.80	46.00	18.20
		1.716	19.50	10.42	29.92	46.00	16.08
		4.886	19.90	10.48	30.38	46.00	15.62
		6.777	13.30	10.44	23.74	50.00	26.26
Neutral	0.164	48.50	10.56	59.06	65.25	6.19	QP
	0.368	27.79	10.45	38.24	58.54	20.30	
	0.575	31.50	10.43	41.93	56.00	14.07	
	1.454	28.70	10.42	39.12	56.00	16.88	
	2.685	25.40	10.48	35.88	56.00	20.12	
	5.109	29.50	10.53	40.03	60.00	19.97	
	AV	0.164	37.70	10.56	48.26	55.25	6.99
		0.368	10.99	10.45	21.44	48.54	27.10
		0.575	21.30	10.43	31.73	46.00	14.27
		1.454	19.80	10.42	30.22	46.00	15.78
		2.685	16.70	10.48	27.18	46.00	18.82
		5.109	19.70	10.53	30.23	50.00	19.77

TEST ENGINEER: WENCY YANG

4 RADIATED EMISSION TEST

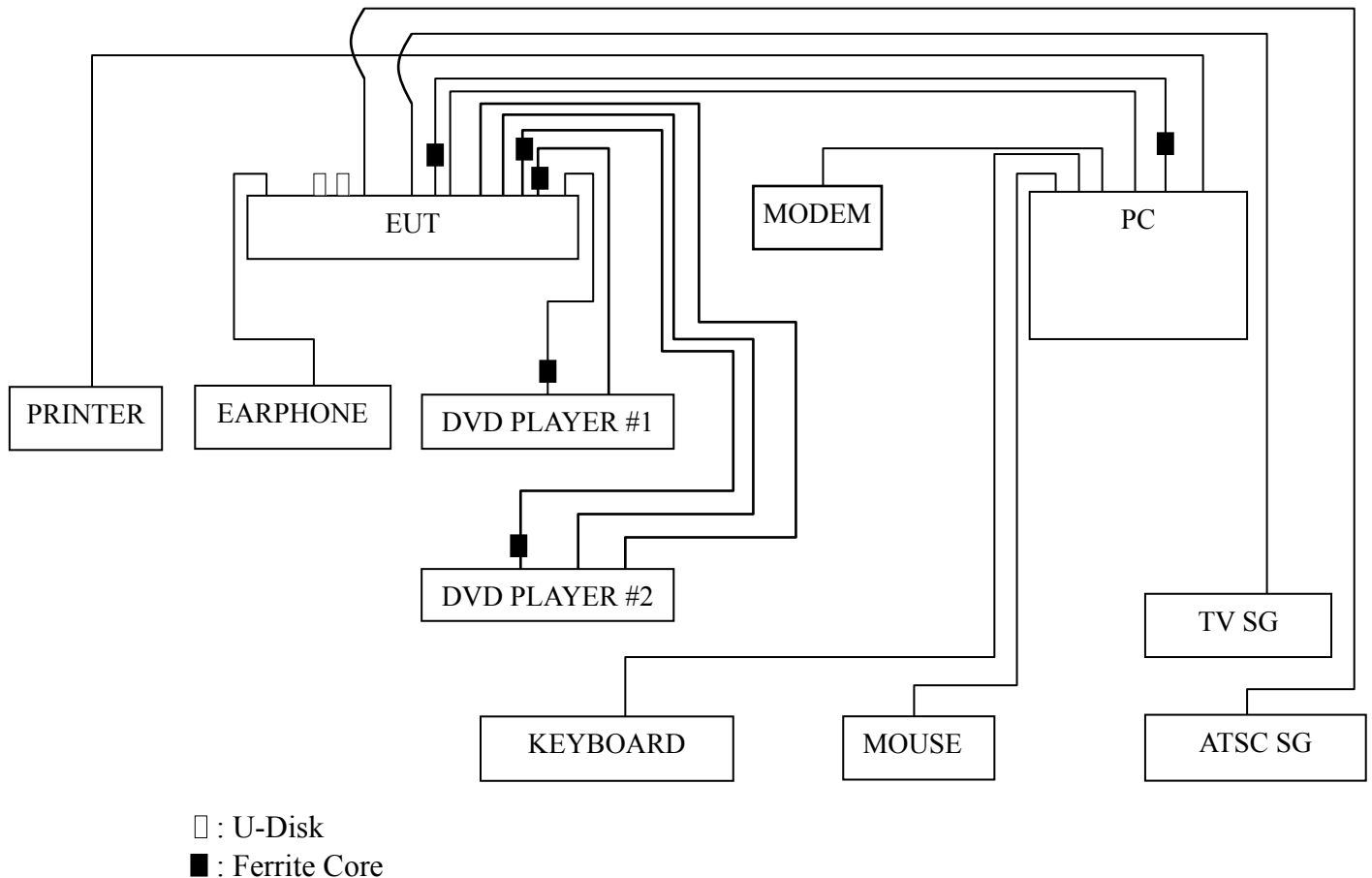
4.1 Test Equipment

The following test equipments are used during the radiated emission test in a semi-anechoic chamber:

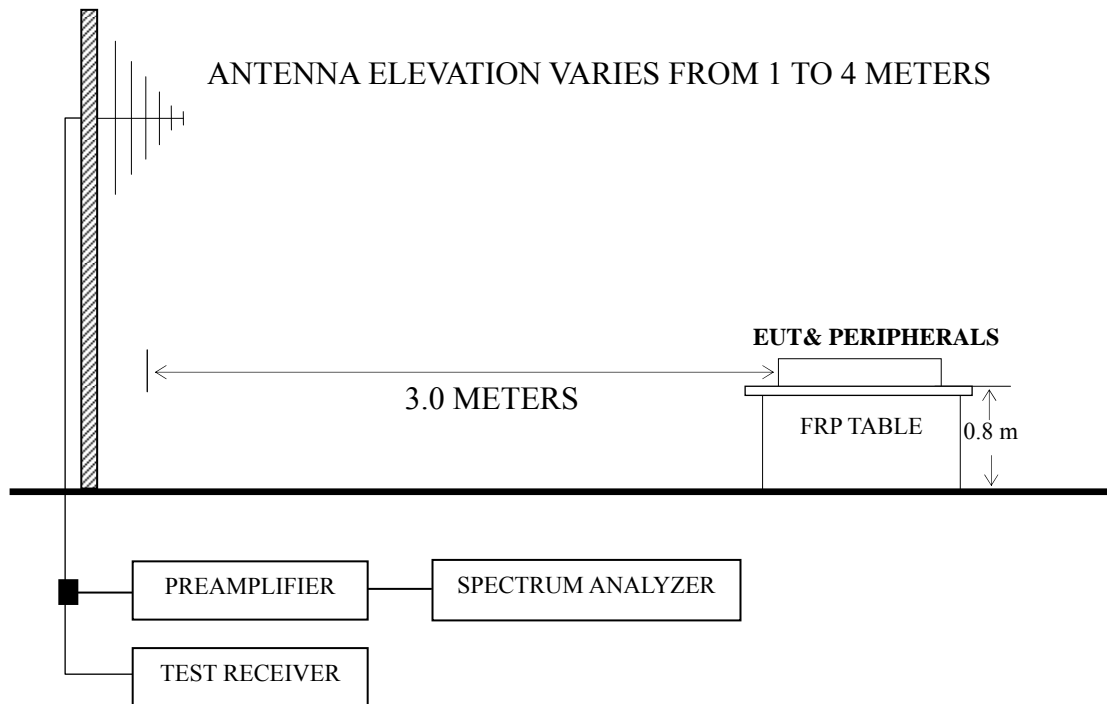
Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Test Receiver	R&S	ESCI	101302	Mar 18, 2015	Sep 17, 2015
2.	Preamplifier	Agilent	8447D	2944A10548	Mar 20, 2015	Mar 19, 2016
3.	Preamplifier	HP	8449B	3008A00864	May 03, 2014	May 02, 2015
4.	Bi-log Antenna	TESEQ	CBL6112D	23193	May 11, 2014	May 10, 2015
5.	Horn Antenna	EMCO	3115	9607-4878	Nov 11, 2014	Nov 10, 2015
6.	Spectrum	Agilent	E7405A	MY45106600	Mar 18, 2015	Sep 17, 2015
7.	50 Ω Coaxial Switch	Anritsu	MP59B	6200426390	Mar 18, 2015	Sep 17, 2015
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



■ : 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@60Hz & 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 302.481 MHz with corrected signal level of 42.47 dB ($\mu\text{V}/\text{m}$) (limit is 46.00 dB ($\mu\text{V}/\text{m}$)), when the antenna was 1.83 m height and the turntable was at 47°. The worst emission at vertical polarization was detected at 30.962 MHz with corrected signal level of 36.55 dB ($\mu\text{V}/\text{m}$) (limit is 40.00 dB ($\mu\text{V}/\text{m}$)), when the antenna was 1.00m height and the turntable was at 134°.

EUT : LED LCD TV Temperature : 22°C

Model No. : LTDN50K2203WUS Humidity : 60%RH

Test Mode : HDMI 1920*1080@60Hz & 1kHz Playing Date of Test : Apr 20, 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	71.080	21.01	7.19	0.84	--	29.04	40.00	10.96	QP	
	132.221	20.96	12.10	1.16	--	34.22	43.50	9.28		
	302.481	28.11	12.57	1.79	--	42.47	46.00	3.53		
	365.539	19.25	17.25	1.96	--	38.46	46.00	7.54		
	661.151	10.51	21.90	2.62	--	35.03	46.00	10.97		
	793.396	17.87	19.57	2.87	--	40.31	46.00	5.69		
	Horizontal	1194.401	53.74	24.25	3.52	36.41	45.10	74.00	28.90	PK
		1342.060	54.39	25.10	3.75	36.14	47.10	74.00	26.90	
		1530.511	53.38	25.80	4.01	35.79	47.40	74.00	26.60	
		1630.979	52.50	26.15	4.12	35.65	47.12	74.00	26.88	
		1678.316	55.13	26.33	4.18	35.59	50.05	74.00	23.95	
		1795.132	54.52	26.79	4.32	35.47	50.16	74.00	23.84	
	Horizontal	1194.401	35.45	24.25	3.52	36.41	26.81	54.00	27.19	AV
		1342.060	35.46	25.10	3.75	36.14	28.17	54.00	25.83	
		1530.511	34.56	25.80	4.01	35.79	28.58	54.00	25.42	
		1630.979	36.57	26.15	4.12	35.65	31.19	54.00	22.81	
1678.316		37.68	26.33	4.18	35.59	32.60	54.00	21.40		
1795.132	38.76	26.79	4.32	35.47	34.40	54.00	19.60			

TEST ENGINEER: MARK LI

EUT : LED LCD TV Temperature : 22°C

Model No. : LTDN50K2203WUS Humidity : 60%RH

Test Mode : HDMI 1920*1080@60Hz & 1kHz Playing Date of Test : Apr 20, 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	30.962	17.70	18.31	0.54	--	36.55	40.00	3.45	QP
	63.983	25.57	6.60	0.79	--	32.96	40.00	7.04	
	151.067	22.76	11.20	1.24	--	35.20	43.50	8.30	
	397.633	18.61	17.13	2.04	--	37.78	46.00	8.22	
	661.151	14.31	21.90	2.62	--	38.83	46.00	7.17	
	804.603	17.54	19.90	2.89	--	40.33	46.00	5.67	
	1139.686	58.31	23.92	3.44	36.49	49.18	74.00	24.82	PK
	1256.847	55.53	24.65	3.64	36.30	47.52	74.00	26.48	
	1373.509	55.40	25.24	3.81	36.08	48.37	74.00	25.63	
	1428.183	52.72	25.45	3.87	35.97	46.07	74.00	27.93	
	1540.848	55.31	25.84	4.04	35.78	49.41	74.00	24.59	
	1722.116	53.11	26.51	4.24	35.54	48.32	74.00	25.68	
	1139.686	45.36	23.92	3.44	36.49	36.23	54.00	17.77	AV
	1256.847	36.57	24.65	3.64	36.30	28.56	54.00	25.44	
	1373.509	35.67	25.24	3.81	36.08	28.64	54.00	25.36	
	1428.183	35.57	25.45	3.87	35.97	28.92	54.00	25.08	
	1540.848	34.56	25.84	4.04	35.78	28.66	54.00	25.34	
	1722.116	35.66	26.51	4.24	35.54	30.87	54.00	23.13	

TEST ENGINEER: MARK LI

EUT : LED LCD TV Temperature : 22°C

Model No. : LTDN50K2203WUS Humidity : 60%RH

Test Mode : HDMI 1280*1024@60Hz & 1kHz Playing Date of Test : Apr 20, 2015

Polarization	Frequency (MHz)	Meter Reading dB (μ V)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level dB (μ V/m)	Limits dB (μ V/m)	Margin (dB)
Horizontal	56.792	22.56	6.60	0.74	29.90	40.00	10.10
	130.837	23.14	12.10	1.16	36.40	43.50	7.10
	216.783	20.21	8.00	1.48	29.69	46.00	16.31
	333.687	15.64	14.94	1.88	32.46	46.00	13.54
	438.655	12.02	16.80	2.14	30.96	46.00	15.04
Vertical	661.151	10.33	21.90	2.62	34.85	46.00	11.15
	69.114	22.55	6.93	0.83	30.31	40.00	9.69
	130.837	22.24	12.10	1.16	35.50	43.50	8.00
	295.147	26.16	11.80	1.77	39.73	46.00	6.27
	366.823	18.04	17.37	1.98	37.39	46.00	8.61
	661.151	12.16	21.90	2.62	36.68	46.00	9.32
	796.183	16.38	19.73	2.87	38.98	46.00	7.02

TEST ENGINEER: MARK LI

EUT : LED LCD TV Temperature : 22°C

Model No. : LTDN50K2203WUS Humidity : 60%RH

Test Mode : HDMI 640*480@60Hz & 1kHz Playing Date of Test : Apr 20, 2015

Polarization	Frequency (MHz)	Meter Reading dB (μ V)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level dB (μ V/m)	Limits dB (μ V/m)	Margin (dB)
Horizontal	69.114	22.44	6.93	0.83	30.20	40.00	9.80
	135.032	19.55	12.10	1.17	32.82	43.50	10.68
	241.676	22.16	8.84	1.59	32.59	46.00	13.41
	293.084	26.03	11.62	1.76	39.41	46.00	6.59
	368.112	18.73	17.48	1.98	38.19	46.00	7.81
	677.580	12.30	21.20	2.66	36.16	46.00	9.84
Vertical	31.510	18.24	17.56	0.55	36.35	40.00	3.65
	67.913	28.84	6.84	0.82	36.50	40.00	3.50
	133.151	21.13	12.10	1.16	34.39	43.50	9.11
	213.763	24.70	8.05	1.46	34.21	43.50	9.29
	397.633	20.50	17.13	2.04	39.67	46.00	6.33
	677.580	13.11	21.20	2.66	36.97	46.00	9.03

TEST ENGINEER: MARK LI

EUT : LED LCD TV Temperature : 22°C

Model No. : LTDN50K2203WUS Humidity : 60%RH

Test Mode : USB Play Date of Test : Apr 20, 2015

Polarization	Frequency (MHz)	Meter Reading dB (μ V)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level dB (μ V/m)	Limits dB (μ V/m)	Margin (dB)
Horizontal	74.919	23.57	8.00	0.86	32.43	40.00	7.57
	135.982	21.00	11.97	1.17	34.14	43.50	9.36
	302.481	24.81	12.57	1.79	39.17	46.00	6.83
	375.939	18.16	17.54	1.99	37.69	46.00	8.31
	675.208	11.81	21.40	2.66	35.87	46.00	10.13
	798.980	17.34	19.90	2.87	40.11	46.00	5.89
Vertical	31.843	18.31	17.19	0.55	36.05	40.00	3.95
	67.913	28.66	6.84	0.82	36.32	40.00	3.68
	135.032	21.37	12.10	1.17	34.64	43.50	8.86
	215.268	24.11	8.00	1.48	33.59	43.50	9.91
	396.242	19.27	17.13	2.04	38.44	46.00	7.56
	599.321	15.97	18.90	2.49	37.36	46.00	8.64

TEST ENGINEER: MARK LI

EUT : LED LCD TV Temperature : 22°C

Model No. : LTDN50K2203WUS Humidity : 60%RH

Test Mode : LAN Play Date of Test : Apr 20, 2015

Polarization	Frequency (MHz)	Meter Reading dB (μ V)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level dB (μ V/m)	Limits dB (μ V/m)	Margin (dB)
Horizontal	74.919	23.94	8.00	0.86	32.80	40.00	7.20
	132.221	19.74	12.10	1.16	33.00	43.50	10.50
	294.114	26.61	11.80	1.76	40.17	46.00	5.83
	366.823	16.40	17.37	1.98	35.75	46.00	10.25
	661.151	9.44	21.90	2.62	33.96	46.00	12.04
	796.183	15.97	19.73	2.87	38.57	46.00	7.43
Vertical	30.962	17.30	18.31	0.54	36.15	40.00	3.85
	60.069	27.07	6.60	0.76	34.43	40.00	5.57
	132.221	25.27	12.10	1.16	38.53	43.50	4.97
	396.242	18.75	17.13	2.04	37.92	46.00	8.08
	599.321	14.72	18.90	2.49	36.11	46.00	9.89
	796.183	16.58	19.73	2.87	39.18	46.00	6.82

TEST ENGINEER: MARK LI

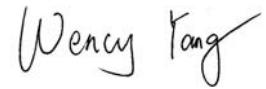
5 DEBUG DESCRIPTION

The following components are used during the countermeasure procedures:

Name	M/N	Manufacturer	Location
Gasket	JCT-RF-5-0.12-50\ROH	Qingdao Joinset Co., Ltd	See Internal Photos Figure 27, 28, 29

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.