

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

LED LCD TV

Model No.	Brand
50K370GW	Hisense
50H6SG	

FCC ID : W9HLCDF0039

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

Prepared By : Audix Technology (Shanghai) Co., Ltd.
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Report No. : ACI-F14044
Date of Test : Feb 17 – Mar 04, 2014
Date of Report : Mar 11, 2014

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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
50K370GW	Hisense	120V/60Hz
50H6SG		

Test Procedure Used:

*FCC RULES AND REGULATIONS PART 15 SUBPART B CLASS B OCTOBER 2013
AND ANSI C63.4-2003*

The device described above is tested by Audix Technology (Shanghai) Co., Ltd. to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart B (Class B) limits both radiated and conducted emissions.

The test results are contained in this test report and Audix Technology (Shanghai) Co., Ltd. is assumed full responsibility for the accuracy and completeness of these measurements. This report shows that the EUT (M/N: Refer to Sec2.1) which was tested in 3m anechoic chamber Feb 17 – Mar 04, 2014 is technically compliance with the FCC official limits also.

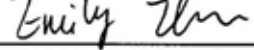
This report applies to above tested sample only. This report shall not be reproduced in part without written approval of Audix Technology (Shanghai) Co., Ltd.

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

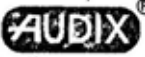
This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.

The test results for EUT's TV functions are contained in No.F14045, a Verification report.

Date of Test : Feb 17 – Mar 04, 2014 Date of Report : Mar 11, 2014

Producer : 
 EMILY ZHU / Assistant

Review : 
 DIO YANG / Deputy Manager

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

Signatory : 
 Authorized Signature EMC SAMM CHEN / Deputy Manager

1 SUMMARY OF STANDARDS AND RESULTS

1.1 Description of Standards and Results

The EUT have been tested according to the applicable standards as referenced below:

Description of Test Item	Standard	Limits	Results
EMISSION			
Conducted Disturbance at the Mains Terminal	FCC RULES AND REGULATIONS PART 15 SUBPART B OCTOBER 2013 AND ANSI C63.4-2003	15.107(a) Class B	Pass
Radiated Disturbance	FCC RULES AND REGULATIONS PART 15 SUBPART B OCTOBER 2013 AND ANSI C63.4-2003	15.109(a) Class B	Pass

2 GENERAL INFORMATION

2.1 Description of Equipment Under Test

Description	:	LED LCD TV
Type of EUT	:	<input checked="" type="checkbox"/> Production <input type="checkbox"/> Pre-product <input type="checkbox"/> Pro-type
Model No.	:	50K370GW, 50H6SG
Note	:	The above models are all the same except for model name. 50K370GW 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 : HE500HF-B57
Max Resolution	:	1920*1080@60Hz
D-Sub Cable	:	Shielded, Detachable, 1.85m, with two cores on cable
HDMI Cable	:	Shielded, Detachable, 1.00m
Power Cord	:	Unshielded, Detachable, 1.80m

Remark:

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

Bottom Port:

- (1) One LAN Port : Connected with PC
- (2) One IR Blaster Port : Connected with Terminal
- (3) One VGA In Port : Connected with PC
- (4) One AUDIO IN Port : Connected with PC
- (5) One component of YPbPr Port : Connected with DVD PLAYER #3
- (6) One USB2 Port : Connected with U-Disk
- (7) One USB3 Port : Connected with U-Disk

Side Port:

- (1) One ANT/CABLE Port : Connected with ATSC SG / TV SG
- (2) One DIGITAL OUTPUT Port : Connected with DVD PLAYER #3
- (3) One Earphone/AUDIO OUT Port : Connected with Earphone
- (4) One HDMI4 Port : Connected with DVD PLAYER #2
- (5) One HDMI3 Port : Connected with DVD PLAYER #1
- (6) One HDMI2 (DVI) Port : Connected with DVD PLAYER #3
- (7) One HDMI1 (ARC) Port : Connected with PC
- (8) One USB1 Port : Connected with U-Disk
- (9) One component of AV Port : Connected with DVD PLAYER #3

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 : C3990A
Serial Number : JPZX020487
Data Cable : Shielded, detachable, 1.5m
Certificate : GS, CE/EMC, C-Tick, FCC DoC

2.2.3 Keyboard

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

2.2.4 Mouse

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

2.2.5 Modem

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

2.2.6 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

2.2.7 ATSC Signal Generator

Manufacturer : SENCORE
Model Number : ATSC997
Serial Number : 6790071

2.2.8 DVD PLAYER#1

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

2.2.9 DVD PLAYER#2

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

2.2.10 DVD PLAYER #3

Manufacturer : LG
 Model Number : DF9921N
 Serial Number : 3850R-M846W
 Certificate : FCC DoC, CE/EMC, CCC

2.2.11 Earphone

Manufacturer : audio-technica
 Model Number : ATH-CKL200

2.2.12 U-DISK*3

Manufacturer : LG
 Model Number : 1GB

2.3 Description of Test Facility

Site Description (No.3 3m Chamber) : Sept. 17, 1998 file on
 Mar 16, 2012 Renewed
 Federal Communications Commission
 FCC Engineering Laboratory
 7435 Oakland Mills Road
 Columbia, MD 21046, USA

Name of Firm : Audix Technology (Shanghai) Co., Ltd.

Site Location : 3F 34Bldg 680 Guiping Rd,
 Caohejing Hi-Tech Park,
 Shanghai 200233, China

NVLAP Lab Code : 200371-0

2.4 Measurement Uncertainty

Conducted Emission Expanded Uncertainty: U = 3.02 dB

Radiated Emission Expanded Uncertainty (30-200MHz):
 U = 4.17 dB (Horizontal)
 U = 4.02 dB (Vertical)

Radiated Emission Expanded Uncertainty (200M-1GHz):
 U = 3.38 dB (Horizontal)
 U = 3.28 dB (Vertical)

Radiated Emission Expanded Uncertainty (Above 1GHz):
 U = 4.68 dB (Horizontal)
 U = 4.87 dB (Vertical)

3 CONDUCTED EMISSION TEST

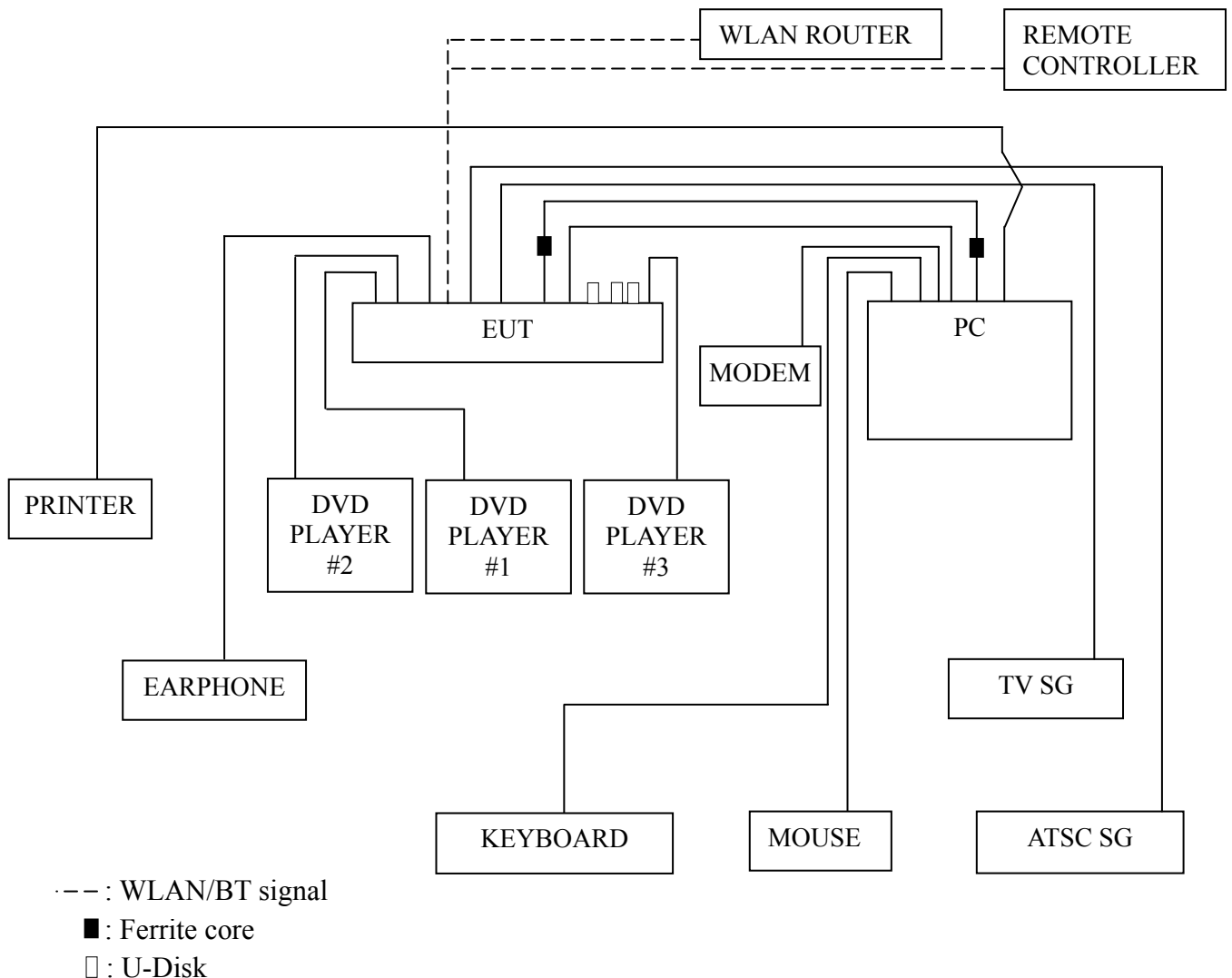
3.1 Test Equipment

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

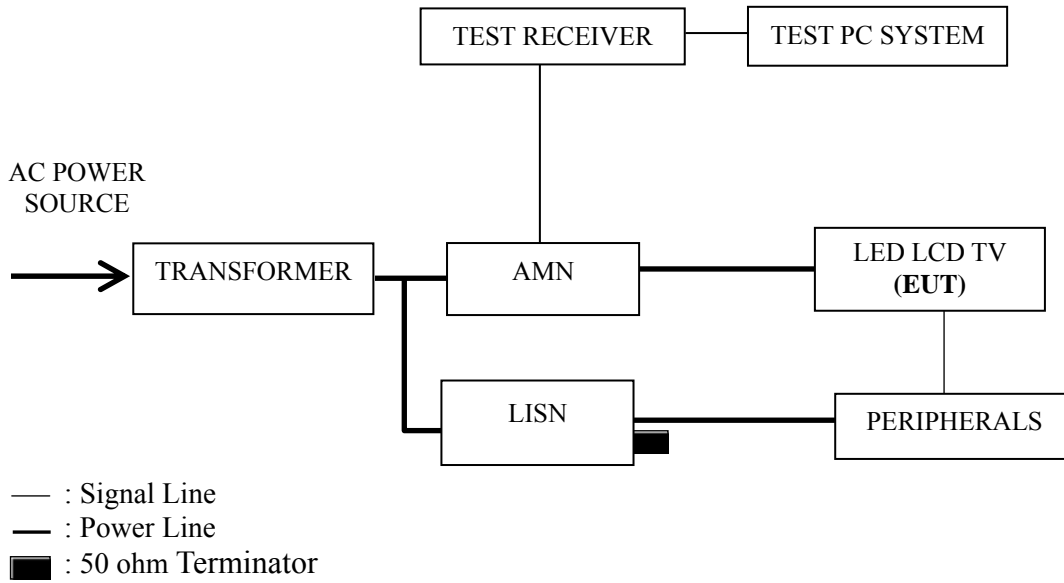
Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Test Receiver	R&S	ESCI	100841	Mar 20, 2013	Mar 19, 2014
2.	Artificial Mains Network (AMN)	R&S	ESH2-Z5	843890/011	Feb 25, 2014	Feb 24, 2015
3.	Line Impedance Stabilization Network (LISN)	Kyoritsu	KNW-407	8-1280-4	Mar 20, 2013	Mar 19, 2014
4.	50 Ω Coaxial Switch	Anritsu	MP59B	6200426389	Sep 18, 2013	Mar 17, 2014
5.	50Ω Terminator	Anritsu	BNC	001	Mar 20, 2013	Mar 19, 2014
6.	Software	Audix	E3	6.2009-1-15	--	--

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 D-Sub & HDMI Input).

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

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

3.5.7 The WLAN function is operating to communicate with WLAN router / the BT function is operating to communicate with the remote controller.

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
D-Sub 1920*1080@60Hz
HDMI 1920*1080@60Hz
D-Sub 1280*1024@60Hz
D-Sub 640*480@60Hz
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
D-Sub 1920*1080@60Hz	P13
HDMI 1920*1080@60Hz	P14
D-Sub 1280*1024@60Hz	P15
D-Sub 640*480@60Hz	P16
USB Play	P17
LAN Play	P18

NOTE 1 – Factor = Cable Loss + AMN Factor.

NOTE 2 – Emission Level = Meter Reading + Factor.

NOTE 3 – “QP” means “Quasi-Peak” values, “AV” means “Average” values.

NOTE 4 – The worst case is for D-Sub 1920*1080@60Hz test mode. The worst emission is detected at 0.150 MHz (Quasi-Peak Value) with corrected signal level of 62.92 dB (μ V) (limit is 65.99 dB (μ V)), when the Neutral of the EUT is connected to AMN.

EUT : LED LCD TV Temperature : 22

Model No. : 50K370GW Humidity : 48%RH

Test Mode : D-Sub 1920*1080@60Hz Date of Test : Feb 20, 2014

Test Line	Frequency (MHz)	Meter Reading dB(μ V)	Factor (dB)	Emission Level dB(μ V)	Limits dB(μ V)	Margin (dB)	Remark
Line	0.150	51.40	10.62	62.02	65.99	3.97	QP
	0.646	27.30	10.41	37.71	56.00	18.29	
	1.211	29.40	10.43	39.83	56.00	16.17	
	2.004	28.90	10.47	39.37	56.00	16.63	
	3.886	26.10	10.52	36.62	56.00	19.38	
	6.856	34.70	10.59	45.29	60.00	14.71	
	0.150	37.90	10.62	48.52	55.99	7.47	AV
	0.646	14.40	10.41	24.81	46.00	21.19	
	1.211	21.50	10.43	31.93	46.00	14.07	
	2.004	20.60	10.47	31.07	46.00	14.93	
	3.886	17.10	10.52	27.62	46.00	18.38	
	6.856	28.70	10.59	39.29	50.00	10.71	
Neutral	0.150	52.30	10.62	62.92	65.99	3.07	QP
	0.623	30.20	10.40	40.60	56.00	15.40	
	1.214	28.10	10.44	38.54	56.00	17.46	
	2.038	27.60	10.49	38.09	56.00	17.91	
	4.502	25.59	10.60	36.19	56.00	19.81	
	6.939	35.20	10.67	45.87	60.00	14.13	
	0.150	37.70	10.62	48.32	55.99	7.67	AV
	0.623	20.60	10.40	31.00	46.00	15.00	
	1.214	19.90	10.44	30.34	46.00	15.66	
	2.038	18.90	10.49	29.39	46.00	16.61	
	4.502	17.89	10.60	28.49	46.00	17.51	
	6.939	30.10	10.67	40.77	50.00	9.23	

TEST ENGINEER: ERIC TANG

EUT : LED LCD TV Temperature : 22

Model No. : 50K370GW Humidity : 48%RH

Test Mode : HDMI 1920*1080@60Hz Date of Test : Feb 20, 2014

Test Line	Frequency (MHz)	Meter Reading dB(μ V)	Factor (dB)	Emission Level dB(μ V)	Limits dB(μ V)	Margin (dB)	Remark
Line	0.150	51.50	10.62	62.12	65.99	3.87	QP
	0.635	28.60	10.41	39.01	56.00	16.99	
	1.232	30.60	10.43	41.03	56.00	14.97	
	2.044	28.30	10.47	38.77	56.00	17.23	
	3.680	26.90	10.51	37.41	56.00	18.59	
	6.905	34.50	10.59	45.09	60.00	14.91	
	AV	0.150	37.80	10.62	48.42	55.99	7.57
		0.635	16.90	10.41	27.31	46.00	18.69
		1.232	22.30	10.43	32.73	46.00	13.27
		2.044	19.30	10.47	29.77	46.00	16.23
		3.680	17.40	10.51	27.91	46.00	18.09
		6.905	27.80	10.59	38.39	50.00	11.61
Neutral	0.150	51.30	10.62	61.92	65.99	4.07	QP
	0.620	30.90	10.40	41.30	56.00	14.70	
	1.230	30.40	10.44	40.84	56.00	15.16	
	2.061	28.30	10.49	38.79	56.00	17.21	
	4.540	26.59	10.60	37.19	56.00	18.81	
	6.968	36.40	10.67	47.07	60.00	12.93	
	AV	0.150	37.60	10.62	48.22	55.99	7.77
		0.620	20.60	10.40	31.00	46.00	15.00
		1.230	22.60	10.44	33.04	46.00	12.96
		2.061	18.90	10.49	29.39	46.00	16.61
		4.540	17.69	10.60	28.29	46.00	17.71
		6.968	29.60	10.67	40.27	50.00	9.73

TEST ENGINEER: ERIC TANG

EUT : LED LCD TV Temperature : 22

Model No. : 50K370GW Humidity : 48%RH

Test Mode : D-Sub 1280*1024@60Hz Date of Test : Feb 20, 2014

Test Line	Frequency (MHz)	Meter Reading dB(μ V)	Factor (dB)	Emission Level dB(μ V)	Limits dB(μ V)	Margin (dB)	Remark
Line	0.150	50.40	10.62	61.02	65.99	4.97	QP
	0.629	28.60	10.41	39.01	56.00	16.99	
	1.230	30.90	10.43	41.33	56.00	14.67	
	2.059	30.30	10.47	40.77	56.00	15.23	
	2.593	26.30	10.47	36.77	56.00	19.23	
	6.876	36.20	10.59	46.79	60.00	13.21	
	0.150	37.90	10.62	48.52	55.99	7.47	AV
	0.629	16.50	10.41	26.91	46.00	19.09	
	1.230	23.40	10.43	33.83	46.00	12.17	
	2.059	20.90	10.47	31.37	46.00	14.63	
	2.593	17.20	10.47	27.67	46.00	18.33	
	6.876	29.20	10.59	39.79	50.00	10.21	
Neutral	0.150	50.30	10.62	60.92	65.99	5.07	QP
	0.618	31.30	10.40	41.70	56.00	14.30	
	1.236	30.30	10.44	40.74	56.00	15.26	
	2.066	27.70	10.49	38.19	56.00	17.81	
	4.535	27.09	10.60	37.69	56.00	18.31	
	6.939	36.20	10.67	46.87	60.00	13.13	
	0.150	37.70	10.62	48.32	55.99	7.67	AV
	0.618	20.90	10.40	31.30	46.00	14.70	
	1.236	23.20	10.44	33.64	46.00	12.36	
	2.066	18.80	10.49	29.29	46.00	16.71	
	4.535	18.79	10.60	29.39	46.00	16.61	
	6.939	30.50	10.67	41.17	50.00	8.83	

TEST ENGINEER: ERIC TANG

EUT : LED LCD TV Temperature : 22

Model No. : 50K370GW Humidity : 48%RH

Test Mode : D-Sub 640*480@60Hz Date of Test : Feb 20, 2014

Test Line	Frequency (MHz)	Meter Reading dB(μ V)	Factor (dB)	Emission Level dB(μ V)	Limits dB(μ V)	Margin (dB)	Remark
Line	0.150	51.50	10.62	62.12	65.99	3.87	QP
	0.653	26.50	10.41	36.91	56.00	19.09	
	1.230	30.10	10.43	40.53	56.00	15.47	
	1.761	29.40	10.46	39.86	56.00	16.14	
	3.709	28.20	10.51	38.71	56.00	17.29	
	6.866	36.10	10.59	46.69	60.00	13.31	
	0.150	37.80	10.62	48.42	55.99	7.57	AV
	0.653	14.00	10.41	24.41	46.00	21.59	
	1.230	22.10	10.43	32.53	46.00	13.47	
	1.761	20.10	10.46	30.56	46.00	15.44	
	3.709	19.20	10.51	29.71	46.00	16.29	
	6.866	28.90	10.59	39.49	50.00	10.51	
Neutral	0.150	51.40	10.62	62.02	65.99	3.97	QP
	0.628	28.90	10.40	39.30	56.00	16.70	
	1.241	30.80	10.44	41.24	56.00	14.76	
	2.041	28.80	10.49	39.29	56.00	16.71	
	3.684	27.40	10.56	37.96	56.00	18.04	
	6.992	35.10	10.67	45.77	60.00	14.23	
	0.150	37.60	10.62	48.22	55.99	7.77	AV
	0.628	16.60	10.40	27.00	46.00	19.00	
	1.241	22.00	10.44	32.44	46.00	13.56	
	2.041	19.30	10.49	29.79	46.00	16.21	
	3.684	18.30	10.56	28.86	46.00	17.14	
	6.992	29.90	10.67	40.57	50.00	9.43	

TEST ENGINEER: ERIC TANG

EUT : LED LCD TV Temperature : 22

Model No. : 50K370GW Humidity : 48%RH

Test Mode : USB Play Date of Test : Feb 20, 2014

Test Line	Frequency (MHz)	Meter Reading dB(μ V)	Factor (dB)	Emission Level dB(μ V)	Limits dB(μ V)	Margin (dB)	Remark
Line	0.150	51.20	10.62	61.82	65.99	4.17	QP
	0.616	31.20	10.41	41.61	56.00	14.39	
	1.235	31.20	10.43	41.63	56.00	14.37	
	2.035	28.00	10.47	38.47	56.00	17.53	
	3.650	27.60	10.51	38.11	56.00	17.89	
	6.917	33.40	10.59	43.99	60.00	16.01	
	AV	0.150	37.90	10.62	48.52	55.99	7.47
		0.616	21.30	10.41	31.71	46.00	14.29
		1.235	23.00	10.43	33.43	46.00	12.57
		2.035	18.80	10.47	29.27	46.00	16.73
		3.650	17.20	10.51	27.71	46.00	18.29
		6.917	27.40	10.59	37.99	50.00	12.01
Neutral	0.150	50.90	10.62	61.52	65.99	4.47	QP
	0.618	31.10	10.40	41.50	56.00	14.50	
	1.206	29.40	10.44	39.84	56.00	16.16	
	1.759	27.59	10.48	38.07	56.00	17.93	
	4.412	26.70	10.59	37.29	56.00	18.71	
	6.904	33.40	10.67	44.07	60.00	15.93	
	AV	0.150	38.10	10.62	48.72	55.99	7.27
		0.618	21.10	10.40	31.50	46.00	14.50
		1.206	21.30	10.44	31.74	46.00	14.26
		1.759	18.29	10.48	28.77	46.00	17.23
		4.412	17.60	10.59	28.19	46.00	17.81
		6.904	26.20	10.67	36.87	50.00	13.13

TEST ENGINEER: ERIC TANG

EUT : LED LCD TV Temperature : 22

Model No. : 50K370GW Humidity : 48%RH

Test Mode : LAN Play Date of Test : Feb 20, 2014

Test Line	Frequency (MHz)	Meter Reading dB(μ V)	Factor (dB)	Emission Level dB(μ V)	Limits dB(μ V)	Margin (dB)	Remark
Line	0.150	51.10	10.62	61.72	65.99	4.27	QP
	0.618	31.50	10.41	41.91	56.00	14.09	
	1.234	31.50	10.43	41.93	56.00	14.07	
	2.047	28.30	10.47	38.77	56.00	17.23	
	4.196	27.80	10.53	38.33	56.00	17.67	
	7.284	34.50	10.60	45.10	60.00	14.90	
	AV	0.150	38.10	10.62	48.72	55.99	7.27
		0.618	21.00	10.41	31.41	46.00	14.59
		1.234	23.30	10.43	33.73	46.00	12.27
		2.047	19.20	10.47	29.67	46.00	16.33
		4.196	19.50	10.53	30.03	46.00	15.97
		7.284	26.40	10.60	37.00	50.00	13.00
Neutral	0.150	50.90	10.62	61.52	65.99	4.47	QP
	0.617	31.40	10.40	41.80	56.00	14.20	
	1.224	30.70	10.44	41.14	56.00	14.86	
	1.762	28.90	10.48	39.38	56.00	16.62	
	3.373	27.60	10.55	38.15	56.00	17.85	
	6.876	34.79	10.67	45.46	60.00	14.54	
	AV	0.150	37.70	10.62	48.32	55.99	7.67
		0.617	21.20	10.40	31.60	46.00	14.40
		1.224	23.10	10.44	33.54	46.00	12.46
		1.762	19.40	10.48	29.88	46.00	16.12
		3.373	18.90	10.55	29.45	46.00	16.55
		6.876	27.59	10.67	38.26	50.00	11.74

TEST ENGINEER: ERIC TANG

4 RADIATED EMISSION TEST

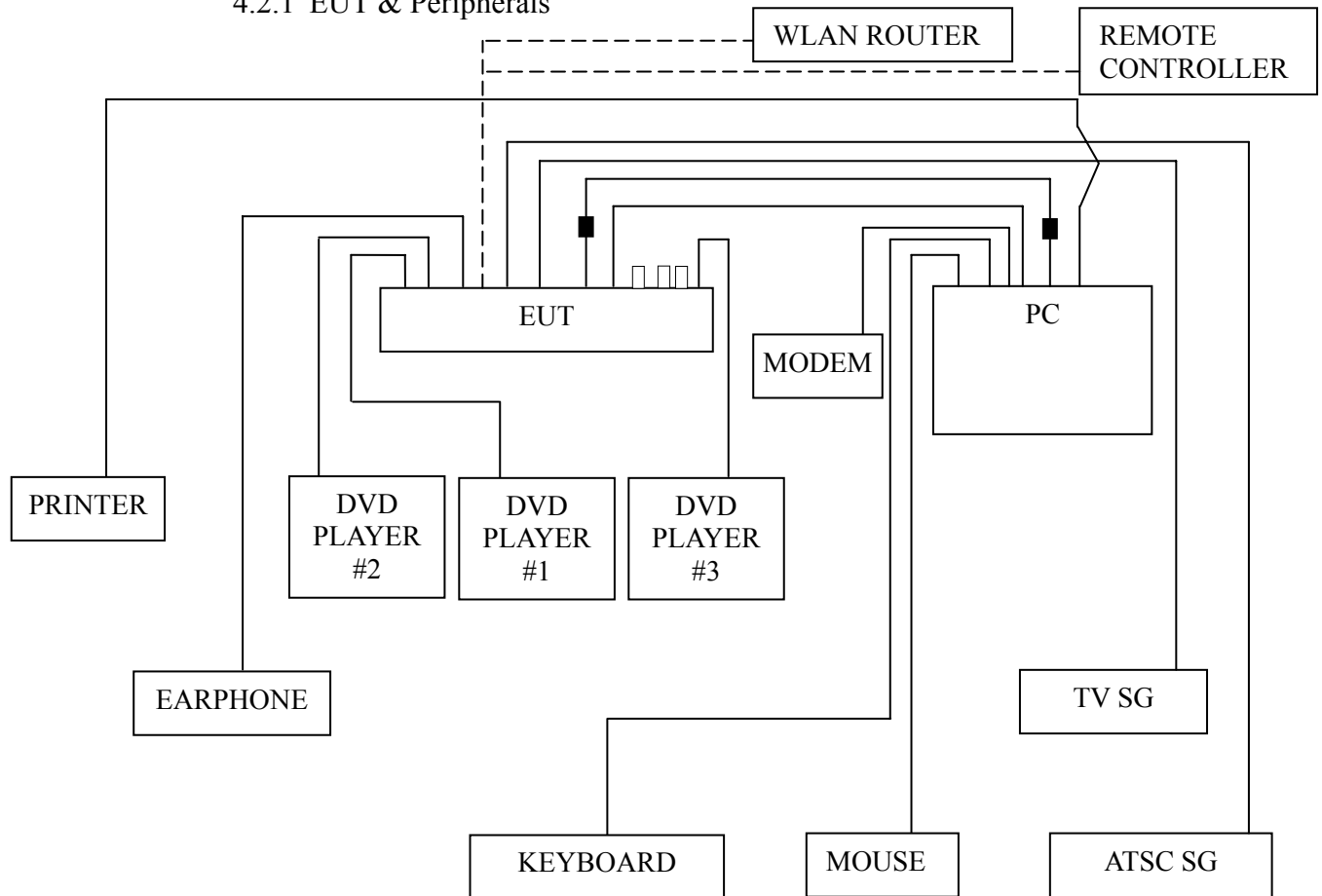
4.1 Test Equipment

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

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Test Receiver	R&S	ESCI	101302	Sep 03, 2013	Sep 02, 2014
2.	Preamplifier	Agilent	8447D	2944A10548	Sep 18, 2013	Mar 17, 2014
3.	Preamplifier	HP	8449B	3008A00864	Mar 20, 2013	Mar 19, 2014
4.	Bi-log Antenna	TESEQ	CBL6112D	23193	May 03, 2013	May 02, 2014
5.	Horn Antenna	EMCO	3115	9607-4878	May 11, 2013	May 10, 2014
6.	Spectrum	Agilent	E7405A	MY45106600	Nov 11, 2013	Nov 10, 2014
7.	50 Coaxial Switch	Anritsu	MP59B	6200426390	Sep 18, 2013	Mar 17, 2014
8.	Software	Audix	E3	6.2007-9-10	--	--

4.2 Block Diagram of Test Setup

4.2.1 EUT & Peripherals

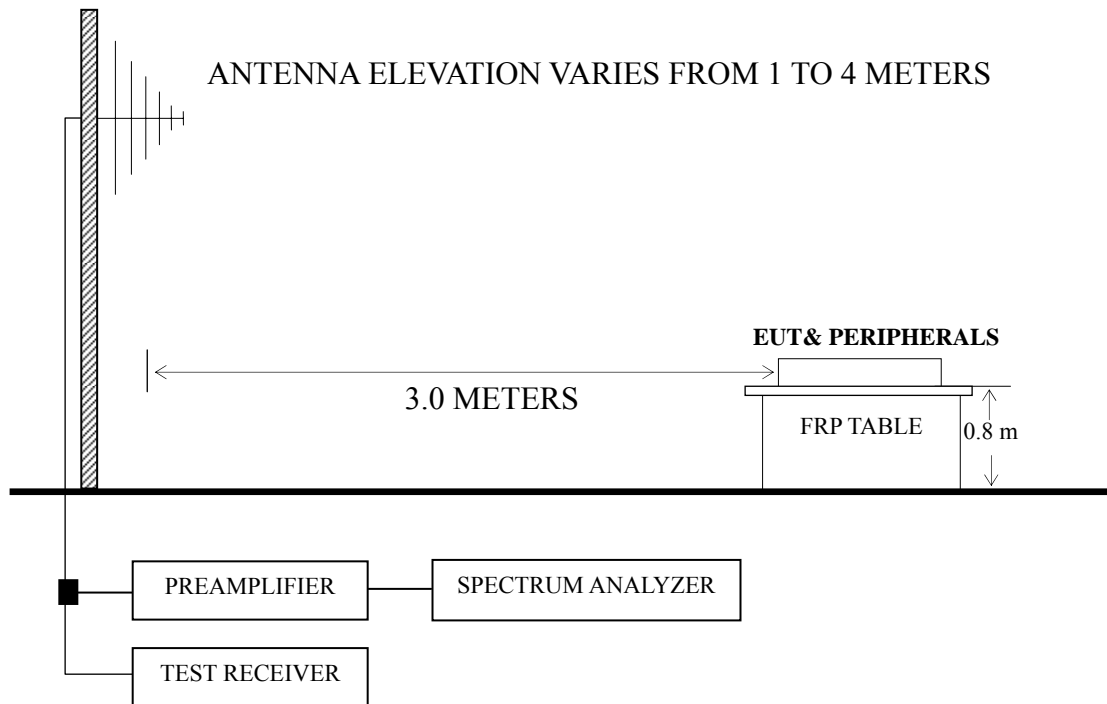


--- : WLAN/BT signal

■ : Ferrite core

□ : U-Disk

4.2.2 Radiated emission test setup



■ : 50 ohm Coaxial Switch

4.3 Radiated Emission Limit [FCC Part 15 Subpart B 15.109(a)]

Frequency (MHz)	Distance (m)	Field strength limits	
		($\mu\text{V/m}$)	dB ($\mu\text{V/m}$)
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
Above 960	3	500	54.0

NOTE 1 - Emission Level dB ($\mu\text{V/m}$) = 20 log Emission Level ($\mu\text{V/m}$)

NOTE 2 - The tighter limit applies at the band edges.

NOTE 3 - Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

NOTE 4 - The limits shown are based on Quasi-peak value detector.

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

4.4 Test Configuration

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

Please refer to Sec.3.4.

4.5 Operating Condition of EUT

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

4.6 Test Procedures

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

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

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

The frequency range from 1 GHz to 24 GHz (10th harmonic of the 2.4GHz RF function) was checked for the worst emission 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	P23 – P24
D-Sub 1920*1080@60Hz	P25
HDMI 1280*1024@60Hz	P26
HDMI 640*480@60Hz	P27
USB Play	P28
LAN Play	P29

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 test mode. The worst emission at horizontal polarization was detected at 447.100 MHz with corrected signal level of 45.12 dB ($\mu\text{V}/\text{m}$) (limit is 46.00 dB ($\mu\text{V}/\text{m}$)), when the antenna was 1.80 m height and the turntable was at 170°. The worst emission at vertical polarization was detected at 740.040 MHz with corrected signal level of 45.16 dB ($\mu\text{V}/\text{m}$) (limit is 46.00 dB ($\mu\text{V}/\text{m}$)), when the antenna was 1.80 m height and the turntable was at 290°.

EUT : LED LCD TV Temperature : 22

Model No. : 50K370GW Humidity : 60%RH

Test Mode : HDMI 1920*1080@60Hz Date of Test : Mar 04, 2014

Polarization	Frequency (MHz)	Meter Reading dB (μ V)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Emission Level dB (μ V/m)	Limits dB (μ V/m)	Margin (dB)	Remark
Horizontal	83.350	25.75	7.19	1.13	--	34.07	40.00	5.93	QP
	151.250	26.20	9.98	1.65	--	37.83	43.50	5.67	
	187.140	29.05	8.10	1.87	--	39.02	43.50	4.48	
	447.100	25.23	17.07	2.82	--	45.12	46.00	0.88	
	548.950	20.95	19.42	3.08	--	43.45	46.00	2.55	
	740.040	22.49	18.90	3.57	--	44.96	46.00	1.04	
	1012.000	50.87	23.74	4.91	38.17	41.35	74.00	32.65	PK
	1066.000	49.78	23.95	4.96	38.05	40.64	74.00	33.36	
	1156.000	48.62	24.32	5.07	37.85	40.16	74.00	33.84	
	1238.000	49.06	24.72	5.20	37.64	41.34	74.00	32.66	
	1596.000	49.91	26.66	5.66	36.70	45.53	74.00	28.47	
	1953.000	47.34	30.64	6.19	36.16	48.01	74.00	25.99	
	1012.000	37.63	23.74	4.91	38.17	28.11	54.00	25.89	AV
	1066.000	36.24	23.95	4.96	38.05	27.10	54.00	26.90	
	1156.000	35.71	24.32	5.07	37.85	27.25	54.00	26.75	
	1238.000	36.22	24.72	5.20	37.64	28.50	54.00	25.50	
1596.000	36.80	26.66	5.66	36.70	32.42	54.00	21.58		
1953.000	34.14	30.64	6.19	36.16	34.81	54.00	19.19		

TEST ENGINEER: NEAL WANG

EUT : LED LCD TV Temperature : 22

Model No. : 50K370GW Humidity : 60%RH

Test Mode : HDMI 1920*1080@60Hz Date of Test : Mar 04, 2014

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Vertical	39.700	21.65	12.54	0.77	--	34.96	40.00	5.04	QP
	83.350	26.18	7.19	1.13	--	34.50	40.00	5.50	
	131.850	28.35	11.54	1.55	--	41.44	43.50	2.06	
	447.100	24.84	17.07	2.82	--	44.73	46.00	1.27	
	539.250	22.05	19.50	3.06	--	44.61	46.00	1.39	
	740.040	22.69	18.90	3.57	--	45.16	46.00	0.84	
	1033.000	48.48	23.82	4.92	38.13	39.09	74.00	34.91	PK
	1208.000	48.24	24.56	5.15	37.72	40.23	74.00	33.77	
	1421.000	47.00	25.40	5.60	37.12	40.88	74.00	33.12	
	1573.000	46.92	26.40	5.66	36.74	42.24	74.00	31.76	
	1866.000	46.35	29.84	6.17	36.26	46.10	74.00	27.90	
	1952.000	46.76	30.59	6.19	36.16	47.38	74.00	26.62	
	1033.000	35.89	23.82	4.92	38.13	26.50	54.00	27.50	AV
	1208.000	35.40	24.56	5.15	37.72	27.39	54.00	26.61	
	1421.000	34.48	25.40	5.60	37.12	28.36	54.00	25.64	
	1573.000	33.90	26.40	5.66	36.74	29.22	54.00	24.78	
	1866.000	33.38	29.84	6.17	36.26	33.13	54.00	20.87	
	1952.000	33.73	30.59	6.19	36.16	34.35	54.00	19.65	

TEST ENGINEER: NEAL WANG

EUT : LED LCD TV Temperature : 22

Model No. : 50K370GW Humidity : 60%RH

Test Mode : D-Sub 1920*1080@60Hz Date of Test : Mar 04, 2014

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	80.440	24.95	6.84	1.08	32.87	40.00	7.13
	185.200	27.06	8.30	1.87	37.23	43.50	6.27
	309.360	22.74	13.30	2.56	38.60	46.00	7.40
	379.200	20.42	15.13	2.66	38.21	46.00	7.79
	539.250	16.51	19.50	3.06	39.07	46.00	6.93
Vertical	985.450	15.37	21.03	4.83	41.23	54.00	12.77
	39.700	22.56	12.54	0.77	35.87	40.00	4.13
	80.440	26.83	6.84	1.08	34.75	40.00	5.25
	127.000	26.00	11.70	1.52	39.22	43.50	4.28
	190.050	30.51	7.90	1.89	40.30	43.50	3.20
	454.860	21.52	17.03	2.84	41.39	46.00	4.61
539.250	17.12	19.50	3.06	39.68	46.00	6.32	

TEST ENGINEER: NEAL WANG

EUT : LED LCD TV Temperature : 22

Model No. : 50K370GW Humidity : 60%RH

Test Mode : HDMI 1280*1024@60Hz Date of Test : Mar 04, 2014

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	80.440	26.79	6.84	1.08	34.71	40.00	5.29
	183.260	26.86	8.27	1.86	36.99	43.50	6.51
	224.000	27.26	8.47	2.08	37.81	46.00	8.19
	371.440	21.18	14.85	2.66	38.69	46.00	7.31
	548.950	17.75	19.42	3.08	40.25	46.00	5.75
	668.260	14.47	19.45	3.44	37.36	46.00	8.64
Vertical	39.700	19.67	12.54	0.77	32.98	40.00	7.02
	80.440	26.11	6.84	1.08	34.03	40.00	5.97
	125.060	23.91	11.50	1.50	36.91	43.50	6.59
	192.960	28.23	8.05	1.91	38.19	43.50	5.31
	371.440	23.13	14.85	2.66	40.64	46.00	5.36
	539.250	16.76	19.50	3.06	39.32	46.00	6.68

TEST ENGINEER: NEAL WANG

EUT : LED LCD TV Temperature : 22

Model No. : 50K370GW Humidity : 60%RH

Test Mode : HDMI 640*480@60Hz Date of Test : Mar 04, 2014

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	76.560	26.65	6.59	1.03	34.27	40.00	5.73
	151.250	25.56	9.98	1.65	37.19	43.50	6.31
	194.900	27.29	8.20	1.92	37.41	43.50	6.09
	354.950	20.86	14.90	2.63	38.39	46.00	7.61
	447.100	17.49	17.07	2.82	37.38	46.00	8.62
	542.160	17.97	19.48	3.08	40.53	46.00	5.47
Vertical	30.970	14.96	17.65	0.67	33.28	40.00	6.72
	73.650	25.58	6.33	0.98	32.89	40.00	7.11
	134.760	25.17	11.00	1.57	37.74	43.50	5.76
	199.750	25.98	8.20	1.95	36.13	43.50	7.37
	447.100	20.42	17.07	2.82	40.31	46.00	5.69
	542.160	18.74	19.48	3.08	41.30	46.00	4.70

TEST ENGINEER: NEAL WANG

EUT : LED LCD TV Temperature : 22

Model No. : 50K370GW Humidity : 60%RH

Test Mode : USB Play Date of Test : Mar 04, 2014

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	88.200	25.28	7.92	1.18	34.38	43.50	9.12
	151.250	24.80	9.98	1.65	36.43	43.50	7.07
	194.900	26.23	8.20	1.92	36.35	43.50	7.15
	311.300	19.39	13.37	2.56	35.32	46.00	10.68
	429.640	16.36	17.60	2.78	36.74	46.00	9.26
	542.160	13.11	19.48	3.08	35.67	46.00	10.33
Vertical	39.700	18.54	12.54	0.77	31.85	40.00	8.15
	134.760	24.93	11.00	1.57	37.50	43.50	6.00
	192.960	27.33	8.05	1.91	37.29	43.50	6.21
	447.100	19.23	17.07	2.82	39.12	46.00	6.88
	542.160	18.23	19.48	3.08	40.79	46.00	5.21
	740.040	16.86	18.90	3.57	39.33	46.00	6.67

TEST ENGINEER: NEAL WANG

EUT : LED LCD TV Temperature : 22

Model No. : 50K370GW Humidity : 60%RH

Test Mode : LAN Play Date of Test : Mar 04, 2014

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	78.500	26.27	6.71	1.05	34.03	40.00	5.97
	151.250	25.03	9.98	1.65	36.66	43.50	6.84
	192.960	27.12	8.05	1.91	37.08	43.50	6.42
	447.100	18.73	17.07	2.82	38.62	46.00	7.38
	542.160	18.19	19.48	3.08	40.75	46.00	5.25
	740.040	19.47	18.90	3.57	41.94	46.00	4.06
Vertical	39.700	18.79	12.54	0.77	32.10	40.00	7.90
	78.500	24.85	6.71	1.05	32.61	40.00	7.39
	127.000	23.83	11.70	1.52	37.05	43.50	6.45
	447.100	19.40	17.07	2.82	39.29	46.00	6.71
	542.160	15.30	19.48	3.08	37.86	46.00	8.14
	740.040	14.00	18.90	3.57	36.47	46.00	9.53

TEST ENGINEER: NEAL WANG

5 DEVIATION TO TEST SPECIFICATIONS

None.