

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

LED LCD TV

Model No.	Brand
55H6SG	Hisense
55K370GW	

FCC ID : W9HLCDF0034

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-F14011
Date of Test : Dec 27, 2013 – Jan 28, 2014
Date of Report : Feb 08, 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
55H6SG	Hisense	120V/60Hz
55K370GW		

Test Procedure Used:

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

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

The test results are contained in this test report and Audix Technology (Shanghai) Co., Ltd. is assumed full responsibility for the accuracy and completeness of these measurements. This report shows that the EUT (M/N: Refer to Sec2.1) which was tested in 3m anechoic chamber Dec 27, 2013 – Jan 28, 2014 is technically compliance with the FCC official limits also.

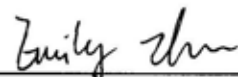
This report applies to above tested sample only. This report shall not be reproduced in part without written approval of Audix Technology (Shanghai) Co., Ltd.

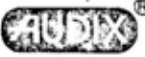
This report contains data that are not covered by the NVLAP accreditation.

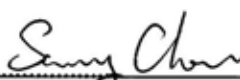
This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.

The test results for EUT's TV functions are contained in No.F14012, a Verification report.

Date of Test : Dec 27, 2013 – Jan 28, 2014 Date of Report : Feb 08, 2014

Producer : 
EMILY ZHU / Assistant

Review : 
 For and on behalf of
Audix Technology (Shanghai) Co., Ltd. DIAO YANG / Assistant Manager

Signatory : 
Authorized Signature EMC SAMMY 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	:	☐ Production ☒ Pre-product ☐ Pro-type
Model No.	:	55H6SG, 55K370GW
Note	:	The above models are all the same except for model name . There are two kind of general appearance for the above model. 55H6SG 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 : HE550HF-B51(100)\S0
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 USB2 Port : Connected with U-Disk
- (2) One USB3 Port : Connected with U-Disk
- (3) One VGA 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 LAN Port : Connected with PC
- (7) One IR BLASTER Port : Connected with Terminal

Side Port:

- (1) One USB1 Port : Connected with U-Disk
- (2) One HDMI1(ARC) Port : Connected with PC
- (3) One HDMI2(DVI) Port : Connected with DVD PLAYER#3
- (4) One HDMI3 Port : Connected with DVD PLAYER#1
- (5) One HDMI4 Port : Connected with DVD PLAYER#2
- (6) One component of AV Port : Connected with DVD PLAYER#3
- (7) One DIGITAL AUDIO OUT Port : Connected with DVD PLAYER #3
- (8) One AUDIO OUT/Earphone Port : Connected with Earphone
- (9) 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 : 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 : Sept. 17, 1998 file on
(No.3 3m Chamber) 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

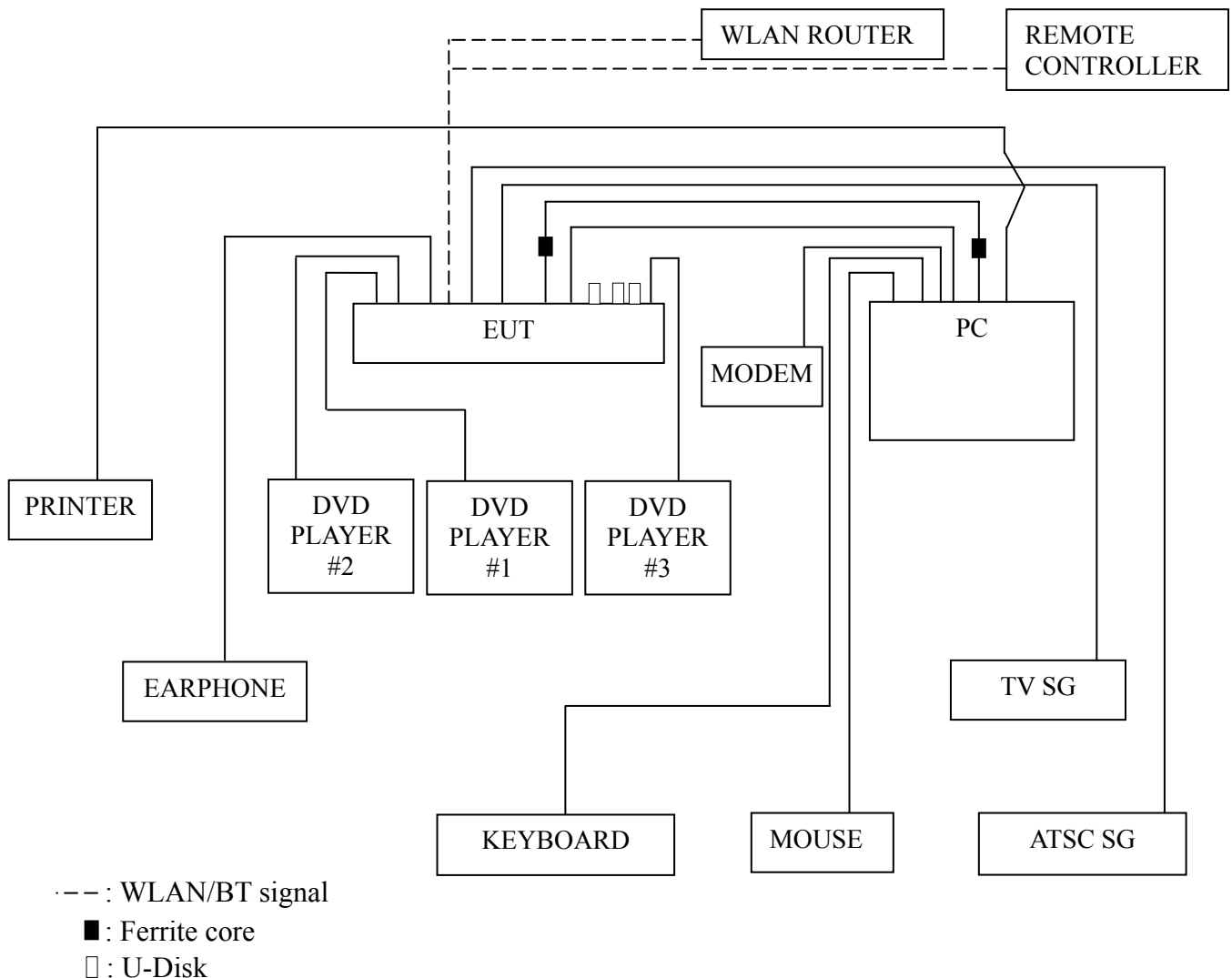
3.1 Test Equipment

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

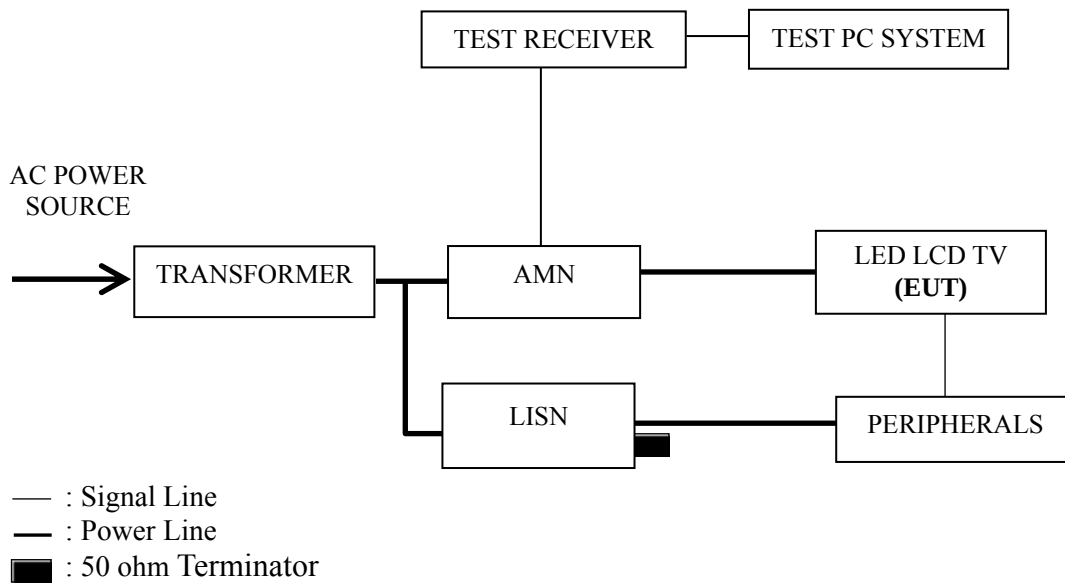
Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Test Receiver	R&S	ESCI	100841	Mar 20, 2013	Mar 19, 2014
2.	Artificial Mains Network (AMN)	R&S	ESH2-Z5	843890/011	Feb 25, 2013	Feb 24, 2014
3.	Line Impedance Stabilization Network (LISN)	Kyoritsu	KNW-407	8-1280-4	Mar 20, 2013	Mar 19, 2014
4.	50 Ω Coaxial Switch	Anritsu	MP59B	6200426389	Sep 18, 2013	Mar 17, 2014
5.	50 Ω 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 5.359 MHz (Average Value) with corrected signal level of 42.02 dB (μV) (limit is 50.00 dB (μV)), when the Line of the EUT is connected to AMN.

EUT : LED LCD TV Temperature : 22°C

Model No. : 55H6SG Humidity : 48%RH

Test Mode : D-Sub 1920*1080@60Hz Date of Test : Dec 27, 2013

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.150	48.80	0.16	48.96	65.98	17.02	QP
	0.320	37.00	0.05	37.05	59.70	22.65	
	0.648	39.20	0.07	39.27	56.00	16.73	
	1.950	35.00	0.08	35.08	56.00	20.92	
	5.359	46.80	0.22	47.02	60.00	12.98	
	21.620	34.49	-0.20	34.29	60.00	25.71	
	0.150	35.00	0.16	35.16	55.98	20.82	AV
	0.320	25.80	0.05	25.85	49.70	23.85	
	0.648	29.60	0.07	29.67	46.00	16.33	
	1.950	28.50	0.08	28.58	46.00	17.42	
	5.359	41.80	0.22	42.02	50.00	7.98	
	21.620	29.09	-0.20	28.89	50.00	21.11	
Neutral	0.150	51.00	0.15	51.15	65.99	14.84	QP
	0.484	37.20	0.21	37.41	56.27	18.86	
	0.647	38.70	0.14	38.84	56.00	17.16	
	1.417	34.90	0.17	35.07	56.00	20.93	
	5.333	46.60	0.25	46.85	60.00	13.15	
	21.430	34.09	0.84	34.93	60.00	25.07	
	0.150	35.60	0.15	35.75	55.99	20.24	AV
	0.484	27.80	0.21	28.01	46.27	18.26	
	0.647	29.10	0.14	29.24	46.00	16.76	
	1.417	26.40	0.17	26.57	46.00	19.43	
	5.333	41.39	0.25	41.64	50.00	8.36	
	21.430	28.89	0.84	29.73	50.00	20.27	

TEST ENGINEER: ERIC TANG

EUT : LED LCD TV Temperature : 22°C

Model No. : 55H6SG Humidity : 48%RH

Test Mode : HDMI 1920*1080@60Hz Date of Test : Dec 27, 2013

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.151	49.10	0.15	49.25	65.94	16.69	QP
	0.648	39.10	0.07	39.17	56.00	16.83	
	1.181	37.59	0.06	37.65	56.00	18.35	
	1.978	35.50	0.08	35.58	56.00	20.42	
	5.331	46.90	0.22	47.12	60.00	12.88	
	21.210	34.30	-0.16	34.14	60.00	25.86	
	0.151	35.40	0.15	35.55	55.94	20.39	AV
	0.648	29.80	0.07	29.87	46.00	16.13	
	1.181	29.49	0.06	29.55	46.00	16.45	
	1.978	27.30	0.08	27.38	46.00	18.62	
	5.331	40.00	0.22	40.22	50.00	9.78	
	21.210	28.90	-0.16	28.74	50.00	21.26	
Neutral	0.151	51.00	0.15	51.15	65.92	14.77	QP
	0.635	38.50	0.14	38.64	56.00	17.36	
	1.176	36.89	0.18	37.07	56.00	18.93	
	1.982	35.90	0.17	36.07	56.00	19.93	
	5.329	46.50	0.25	46.75	60.00	13.25	
	21.620	34.50	0.84	35.34	60.00	24.66	
	0.151	35.50	0.15	35.65	55.92	20.27	AV
	0.635	25.90	0.14	26.04	46.00	19.96	
	1.176	28.49	0.18	28.67	46.00	17.33	
	1.982	27.50	0.17	27.67	46.00	18.33	
	5.329	40.10	0.25	40.35	50.00	9.65	
	21.620	28.50	0.84	29.34	50.00	20.66	

TEST ENGINEER: ERIC TANG

EUT : LED LCD TV Temperature : 22°C

Model No. : 55H6SG Humidity : 48%RH

Test Mode : D-Sub 1280*1024@60Hz Date of Test : Dec 27, 2013

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.151	48.30	0.15	48.45	65.95	17.50	QP
	0.655	38.60	0.07	38.67	56.00	17.33	
	1.176	37.99	0.06	38.05	56.00	17.95	
	1.966	35.60	0.08	35.68	56.00	20.32	
	5.334	46.30	0.22	46.52	60.00	13.48	
	21.420	33.79	-0.17	33.62	60.00	26.38	
	0.151	34.60	0.15	34.75	55.95	21.20	AV
	0.655	29.40	0.07	29.47	46.00	16.53	
	1.176	30.09	0.06	30.15	46.00	15.85	
	1.966	26.80	0.08	26.88	46.00	19.12	
	5.334	40.90	0.22	41.12	50.00	8.88	
	21.420	28.59	-0.17	28.42	50.00	21.58	
Neutral	0.151	50.50	0.15	50.65	65.96	15.31	QP
	0.648	38.70	0.14	38.84	56.00	17.16	
	1.296	35.90	0.17	36.07	56.00	19.93	
	1.946	37.10	0.17	37.27	56.00	18.73	
	5.385	48.50	0.25	48.75	60.00	11.25	
	20.830	33.50	0.82	34.32	60.00	25.68	
	0.151	35.60	0.15	35.75	55.96	20.21	AV
	0.648	28.20	0.14	28.34	46.00	17.66	
	1.296	25.50	0.17	25.67	46.00	20.33	
	1.946	28.60	0.17	28.77	46.00	17.23	
	5.333	41.30	0.25	41.55	50.00	8.45	
	20.830	28.10	0.82	28.92	50.00	21.08	

TEST ENGINEER: ERIC TANG

EUT : LED LCD TV Temperature : 22°C

Model No. : 55H6SG Humidity : 48%RH

Test Mode : D-Sub 640*480@60Hz Date of Test : Dec 27, 2013

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.151	47.90	0.15	48.05	65.95	17.90	QP
	0.657	38.51	0.07	38.58	56.00	17.42	
	1.123	34.79	0.06	34.85	56.00	21.15	
	2.768	35.31	0.10	35.41	56.00	20.59	
	5.455	47.80	0.22	48.02	60.00	11.98	
	12.030	38.29	0.11	38.40	60.00	21.60	
	0.151	34.10	0.15	34.25	55.95	21.70	AV
	0.657	29.31	0.07	29.38	46.00	16.62	
	1.123	23.39	0.06	23.45	46.00	22.55	
	2.768	27.81	0.10	27.91	46.00	18.09	
	5.455	40.10	0.22	40.32	50.00	9.68	
	12.030	35.89	0.11	36.00	50.00	14.00	
Neutral	0.152	50.50	0.15	50.65	65.91	15.26	QP
	0.656	36.40	0.13	36.53	56.00	19.47	
	1.198	37.40	0.17	37.57	56.00	18.43	
	1.975	37.50	0.17	37.67	56.00	18.33	
	5.431	45.30	0.25	45.55	60.00	14.45	
	12.070	38.29	0.47	38.76	60.00	21.24	
	0.152	35.50	0.15	35.65	55.91	20.26	AV
	0.656	27.60	0.13	27.73	46.00	18.27	
	1.198	29.10	0.17	29.27	46.00	16.73	
	1.975	28.30	0.17	28.47	46.00	17.53	
	5.431	39.50	0.25	39.75	50.00	10.25	
	12.070	36.09	0.47	36.56	50.00	13.44	

TEST ENGINEER: ERIC TANG

EUT : LED LCD TV Temperature : 22°C

Model No. : 55H6SG Humidity : 48%RH

Test Mode : USB Play Date of Test : Dec 27, 2013

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.152	47.60	0.15	47.75	65.91	18.16	QP
	0.484	38.10	-0.04	38.06	56.27	18.21	
	0.633	37.50	0.06	37.56	56.00	18.44	
	1.738	36.10	0.07	36.17	56.00	19.83	
	5.221	43.70	0.21	43.91	60.00	16.09	
	21.380	34.31	-0.17	34.14	60.00	25.86	
	0.152	34.40	0.15	34.55	55.91	21.36	AV
	0.484	27.50	-0.04	27.46	46.27	18.81	
	0.633	25.10	0.06	25.16	46.00	20.84	
	1.738	27.50	0.07	27.57	46.00	18.43	
	5.221	36.10	0.21	36.31	50.00	13.69	
	21.380	28.59	-0.17	28.42	50.00	21.58	
Neutral	0.151	50.50	0.15	50.65	65.93	15.28	QP
	0.481	37.60	0.21	37.81	56.32	18.51	
	0.641	37.10	0.14	37.24	56.00	18.76	
	2.086	37.60	0.17	37.77	56.00	18.23	
	5.362	44.10	0.25	44.35	60.00	15.65	
	22.220	32.50	0.85	33.35	60.00	26.65	
	0.151	35.60	0.15	35.75	55.93	20.18	AV
	0.481	28.60	0.21	28.81	46.32	17.51	
	0.641	25.60	0.14	25.74	46.00	20.26	
	2.086	28.50	0.17	28.67	46.00	17.33	
	5.362	38.80	0.25	39.05	50.00	10.95	
	22.220	27.10	0.85	27.95	50.00	22.05	

TEST ENGINEER: ERIC TANG

EUT : LED LCD TV Temperature : 22°C

Model No. : 55H6SG Humidity : 48%RH

Test Mode : LAN Play Date of Test : Dec 27, 2013

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.152	47.60	0.15	47.75	65.87	18.12	QP
	0.483	38.00	-0.04	37.96	56.30	18.34	
	0.613	39.90	0.04	39.94	56.00	16.06	
	2.013	37.10	0.08	37.18	56.00	18.82	
	5.171	44.40	0.21	44.61	60.00	15.39	
	21.330	34.29	-0.17	34.12	60.00	25.88	
	0.152	34.40	0.15	34.55	55.87	21.32	AV
	0.483	28.10	-0.04	28.06	46.30	18.24	
	0.613	29.10	0.04	29.14	46.00	16.86	
	2.013	28.50	0.08	28.58	46.00	17.42	
	5.171	37.90	0.21	38.11	50.00	11.89	
	21.330	28.79	-0.17	28.62	50.00	21.38	
Neutral	0.153	49.60	0.15	49.75	65.84	16.09	QP
	0.648	36.90	0.14	37.04	56.00	18.96	
	1.460	37.30	0.17	37.47	56.00	18.53	
	4.947	42.10	0.23	42.33	56.00	13.67	
	12.060	37.59	0.47	38.06	60.00	21.94	
	21.860	33.60	0.84	34.44	60.00	25.56	
	0.153	34.50	0.15	34.65	55.84	21.19	AV
	0.648	24.60	0.14	24.74	46.00	21.26	
	1.460	28.60	0.17	28.77	46.00	17.23	
	4.947	36.00	0.23	36.23	46.00	9.77	
	12.060	36.19	0.47	36.66	50.00	13.34	
	21.860	28.20	0.84	29.04	50.00	20.96	

TEST ENGINEER: ERIC TANG

4 RADIATED EMISSION TEST

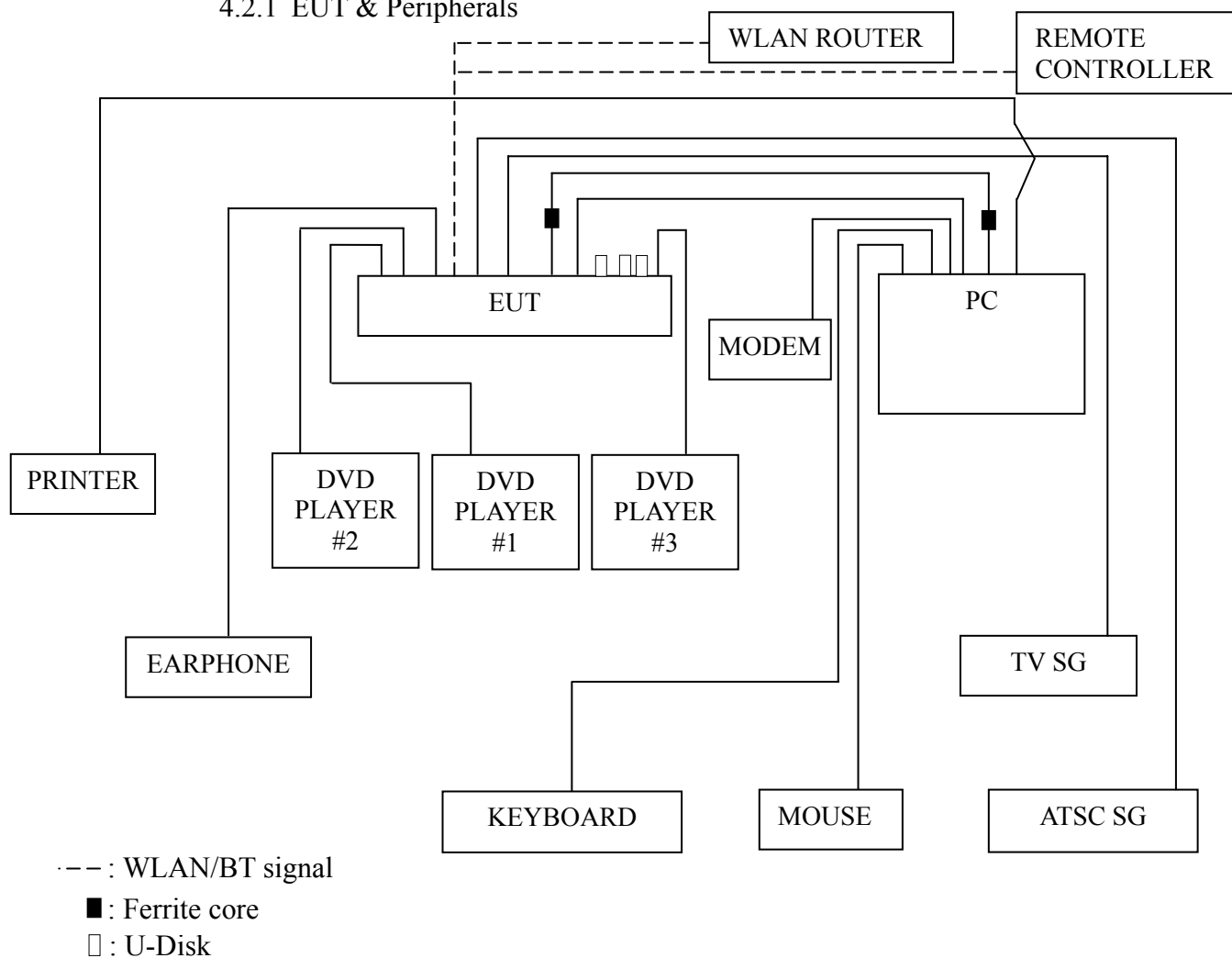
4.1 Test Equipment

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

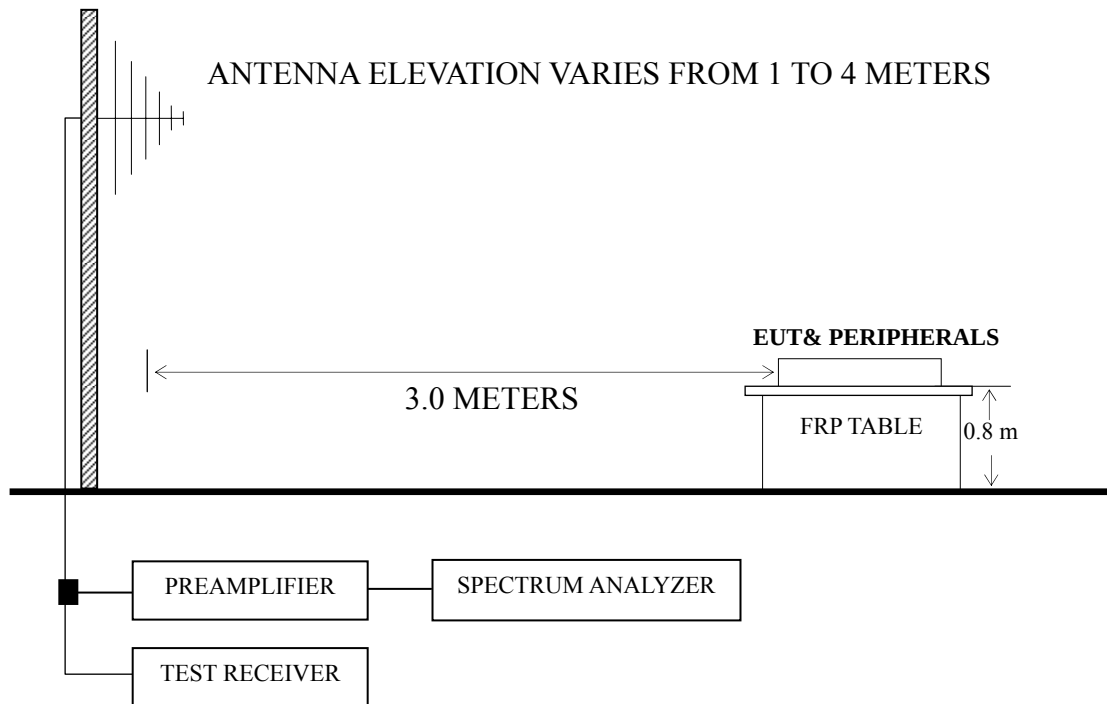
Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Test Receiver	R&S	ESCI	101302	Sep 03, 2013	Sep 02, 2014
2.	Preamplifier	Agilent	8447D	2944A10548	Sep 18, 2013	Mar 17, 2014
3.	Preamplifier	HP	8449B	3008A00864	Mar 20, 2013	Mar 19, 2014
4.	Bi-log Antenna	TESEQ	CBL6112D	23193	May 03, 2013	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.	50Ω 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



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 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	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 150.280 MHz with corrected signal level of 41.19 dB ($\mu\text{V/m}$) (limit is 43.50 dB ($\mu\text{V/m}$)), when the antenna was 1.70 m height and the turntable was at 168°. The worst emission at vertical polarization was detected at 124.090 MHz with corrected signal level of 41.44 dB ($\mu\text{V/m}$) (limit is 43.50 dB ($\mu\text{V/m}$)), when the antenna was 1.90 m height and the turntable was at 300°.

EUT : LED LCD TV Temperature : 22°C

Model No. : 55H6SG Humidity : 60%RH

Test Mode : HDMI 1920*1080@60Hz Date of Test : Jan 28, 2014

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	85.290	25.21	7.46	1.15	--	33.82	40.00	6.18	QP
	124.090	28.01	11.48	1.50	--	40.99	43.50	2.51	
	150.280	29.51	10.04	1.64	--	41.19	43.50	2.31	
	417.030	23.95	16.98	2.74	--	43.67	46.00	2.33	
	446.130	23.21	17.07	2.82	--	43.10	46.00	2.90	
	740.040	20.64	18.90	3.57	--	43.11	46.00	2.89	
	1022.000	48.02	23.79	4.91	38.15	38.57	74.00	35.43	PK
	1095.000	48.71	24.06	4.99	37.99	39.77	74.00	34.23	
	1197.000	48.45	24.51	5.10	37.75	40.31	74.00	33.69	
	1293.000	45.79	24.96	5.35	37.50	38.60	74.00	35.40	
	1485.000	46.23	25.57	5.63	36.95	40.48	74.00	33.52	
	1606.000	47.15	26.76	5.66	36.67	42.90	74.00	31.10	
	1022.000	35.73	23.79	4.91	38.15	26.28	54.00	27.72	AV
	1095.000	35.63	24.06	4.99	37.99	26.69	54.00	27.31	
	1197.000	35.83	24.51	5.10	37.75	27.69	54.00	26.31	
	1293.000	32.19	24.96	5.35	37.50	25.00	54.00	29.00	
	1485.000	33.03	25.57	5.63	36.95	27.28	54.00	26.72	
	1606.000	34.53	26.76	5.66	36.67	30.28	54.00	23.72	

TEST ENGINEER: NEAL WANG

EUT : LED LCD TV Temperature : 22°C

Model No. : 55H6SG Humidity : 60%RH

Test Mode : HDMI 1920*1080@60Hz Date of Test : Jan 28, 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	38.730	23.30	13.30	0.76	--	37.36	40.00	2.64	QP
	124.090	28.46	11.48	1.50	--	41.44	43.50	2.06	
	446.130	23.24	17.07	2.82	--	43.13	46.00	2.87	
	547.980	20.91	19.42	3.08	--	43.41	46.00	2.59	
	740.040	20.73	18.90	3.57	--	43.20	46.00	2.80	
	926.280	20.00	19.30	4.63	--	43.93	46.00	2.07	
	1027.000	47.19	23.80	4.92	38.14	37.77	74.00	36.23	PK
	1150.000	46.43	24.29	5.05	37.86	37.91	74.00	36.09	
	1328.000	49.29	25.09	5.43	37.40	42.41	74.00	31.59	
	1441.000	45.46	25.45	5.61	37.07	39.45	74.00	34.55	
	1628.000	45.66	27.03	5.74	36.62	41.81	74.00	32.19	
	1818.000	49.46	29.35	6.16	36.33	48.64	74.00	25.36	
	1027.000	34.83	23.80	4.92	38.14	25.41	54.00	28.59	AV
	1150.000	33.30	24.29	5.05	37.86	24.78	54.00	29.22	
	1328.000	35.78	25.09	5.43	37.40	28.90	54.00	25.10	
	1441.000	32.11	25.45	5.61	37.07	26.10	54.00	27.90	
	1628.000	32.43	27.03	5.74	36.62	28.58	54.00	25.42	
	1818.000	36.28	29.35	6.16	36.33	35.46	54.00	18.54	

TEST ENGINEER: NEAL WANG

EUT : LED LCD TV Temperature : 22°C

Model No. : 55H6SG Humidity : 60%RH

Test Mode : D-Sub 1920*1080@60Hz Date of Test : Jan 03, 2014

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)
Horizontal	85.290	25.89	7.46	1.15	34.50	40.00	5.50
	198.780	29.81	8.20	1.94	39.95	43.50	3.55
	247.280	27.87	11.70	2.18	41.75	46.00	4.25
	347.190	25.14	14.80	2.62	42.56	46.00	3.44
	446.130	22.68	17.07	2.82	42.57	46.00	3.43
	740.040	20.38	18.90	3.57	42.85	46.00	3.15
Vertical	38.730	22.02	13.30	0.76	36.08	40.00	3.92
	124.090	26.81	11.48	1.50	39.79	43.50	3.71
	198.780	29.41	8.20	1.94	39.55	43.50	3.95
	347.190	22.31	14.80	2.62	39.73	46.00	6.27
	547.980	19.68	19.42	3.08	42.18	46.00	3.82
	740.040	20.06	18.90	3.57	42.53	46.00	3.47

TEST ENGINEER: NEAL WANG

EUT : LED LCD TV Temperature : 22°C

Model No. : 55H6SG Humidity : 60%RH

Test Mode : HDMI 1280*1024@60Hz Date of Test : Jan 03, 2014

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)
Horizontal	90.140	23.10	8.20	1.22	32.52	43.50	10.98
	124.090	24.08	11.48	1.50	37.06	43.50	6.44
	419.940	20.56	17.20	2.74	40.50	46.00	5.50
	446.130	21.54	17.07	2.82	41.43	46.00	4.57
	550.890	19.89	19.40	3.10	42.39	46.00	3.61
	741.980	19.81	18.87	3.57	42.25	46.00	3.75
Vertical	38.730	17.92	13.30	0.76	31.98	40.00	8.02
	51.340	24.69	7.20	0.86	32.75	40.00	7.25
	130.880	25.92	11.72	1.55	39.19	43.50	4.31
	446.130	21.19	17.07	2.82	41.08	46.00	4.92
	550.890	19.11	19.40	3.10	41.61	46.00	4.39
	741.980	19.20	18.87	3.57	41.64	46.00	4.36

TEST ENGINEER: NEAL WANG

EUT : LED LCD TV Temperature : 22°C

Model No. : 55H6SG Humidity : 60%RH

Test Mode : HDMI 640*480@60Hz Date of Test : Jan 03, 2014

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)
Horizontal	87.230	24.84	7.74	1.18	33.76	40.00	6.24
	124.090	23.81	11.48	1.50	36.79	43.50	6.71
	395.690	23.10	15.80	2.68	41.58	46.00	4.42
	446.130	21.04	17.07	2.82	40.93	46.00	5.07
	550.890	18.43	19.40	3.10	40.93	46.00	5.07
	693.480	17.86	20.30	3.54	41.70	46.00	4.30
Vertical	38.730	18.67	13.30	0.76	32.73	40.00	7.27
	90.140	26.27	8.20	1.22	35.69	43.50	7.81
	124.090	25.64	11.48	1.50	38.62	43.50	4.88
	395.690	22.89	15.80	2.68	41.37	46.00	4.63
	550.890	19.41	19.40	3.10	41.91	46.00	4.09
	741.980	18.81	18.87	3.57	41.25	46.00	4.75

TEST ENGINEER: NEAL WANG

EUT : LED LCD TV Temperature : 22°C

Model No. : 55H6SG Humidity : 60%RH

Test Mode : USB Play Date of Test : Jan 03, 2014

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)
Horizontal	83.350	24.64	7.19	1.13	32.96	40.00	7.04
	122.150	20.55	11.44	1.49	33.48	43.50	10.02
	199.750	27.79	8.20	1.95	37.94	43.50	5.56
	403.450	16.70	16.23	2.69	35.62	46.00	10.38
	512.090	16.08	18.38	3.01	37.47	46.00	8.53
	660.500	16.23	19.00	3.41	38.64	46.00	7.36
Vertical	36.790	17.13	14.92	0.74	32.79	40.00	7.21
	85.290	22.89	7.46	1.15	31.50	40.00	8.50
	122.150	21.79	11.44	1.49	34.72	43.50	8.78
	249.220	20.69	12.03	2.20	34.92	46.00	11.08
	394.720	17.73	15.80	2.68	36.21	46.00	9.79
	513.060	13.87	18.38	3.01	35.26	46.00	10.74

TEST ENGINEER: NEAL WANG

EUT : LED LCD TV Temperature : 22°C

Model No. : 55H6SG Humidity : 60%RH

Test Mode : LAN Play Date of Test : Jan 03, 2014

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)
Horizontal	77.530	24.48	6.65	1.05	32.18	40.00	7.82
	122.150	23.13	11.44	1.49	36.06	43.50	7.44
	148.340	22.16	10.15	1.63	33.94	43.50	9.56
	406.360	16.35	16.27	2.71	35.33	46.00	10.67
	508.210	13.10	18.35	3.00	34.45	46.00	11.55
	713.850	13.82	19.55	3.56	36.93	46.00	9.07
Vertical	35.820	15.96	15.63	0.73	32.32	40.00	7.68
	81.410	23.61	6.97	1.10	31.68	40.00	8.32
	122.150	23.19	11.44	1.49	36.12	43.50	7.38
	181.320	24.26	8.22	1.84	34.32	43.50	9.18
	386.960	16.38	15.33	2.67	34.38	46.00	11.62
	709.000	13.35	19.80	3.55	36.70	46.00	9.30

TEST ENGINEER: NEAL WANG

5 DEVIATION TO TEST SPECIFICATIONS

None.