

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

LED LCD TV

Model No.	Brand
75U1600	Hisense
LC-75U	Sharp

FCC ID : W9HLCDF0091

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-F16225
Date of Test : Aug 16 – Sep 12, 2016
Date of Report : Sep 21, 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
75U1600	Hisense	120V/60Hz
LC-75U	Sharp	

Test Procedure Used:

*FCC RULES AND REGULATIONS PART 15 SUBPART B CLASS B OCTOBER 2015
AND ANSI C63.4-2014*

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

The test results are contained in this test report and Audix Technology (Shanghai) Co., Ltd. is assumed full responsibility for the accuracy and completeness of these measurements. This report shows that the EUT (M/N: Refer to Sec2.1) which was tested in 3m anechoic chamber Aug 16 – Sep 12, 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 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.F16224, a Verification report.

Date of Test : Aug 16 – Sep 12, 2016 Date of Report : Sep 21, 2016

Producer :

Tina Liang
TINA LIANG / Assistant

Review :

 Byron WU
For and on behalf of BYRON WU / Deputy Assistant Manager
Audix Technology (Shanghai) Co., Ltd.

Signatory :

Byron WU
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 2015 AND ANSI C63.4-2014	15.107(a) Class B	Pass
Radiated Disturbance	FCC RULES AND REGULATIONS PART 15 SUBPART B OCTOBER 2015 AND ANSI C63.4-2014	15.109(a) Class B	Pass

2 GENERAL INFORMATION

2.1 Description of Equipment Under Test

Description : LED LCD TV

Type of EUT : ☒ Production ☐ Pre-product ☐ Pro-type

Model No.	Brand
75U1600	Hisense
LC-75U	Sharp

Note : The above models are all the same except for model number and brand name.LC-75U model is tested and recorded in the report.

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 : INNOLUX
M/N : V750DK1-KS5

Tuner : Manufacturer : XUGUANG
M/N : HFT-96S3/W11FJ2H

HDMI Cable*4 : Shielded, Detachable, 1.50m with two cores
(Lab provide)

Power Cord : Unshielded, Detachable, 1.80m, 2C

USB Cable*2 : Shielded, Detachable, 1.00m
(Lab provide)

LAN Cable : Unshielded, Detachable, 1.50m

D-Sub Cable : Shielded, Detachable, 1.50m

Remark:

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

Side Port:

- (1) One USB#1 Port : Connected with Hard-Disk #1
- (2) One HDMI1 Port : Connected with PC
- (3) One ANT Port : Connected with Antenna or ATSC SG / TV SG
- (4) One AUDIO OUT Port : Connected with Earphone #1
- (5) One VGA Port : Connected with PC
- (6) One HDMI2 Port : Connected with PC
- (7) One Service Port : Do not open to customer
- (8) RS232 Port : Connected with PC
- (9) One USB2 Port : Connected with Hard-Disk #2

Back Port:

- (10) One COMPONENT IN/AV IN Port : Connected with DVD Player #1
- (11) One LAN Port : Connected with PC
- (12) One DIGITAL AUDIO OUT Port : Connected with Audio Converter to Earphone
- (13) One HDMI3 Port : Connected with DVD Player #1
- (14) One HDMI4 Port : Connected with DVD Player #2

2.2 Peripherals

2.2.1 PC

Manufacturer : HP
 Model Number : Pro3340
 Serial Number : 6CR2512VFD
 Power Cord : Unshielded, Detachable, 1.8m
 Certificate : CE/EMC, FCC DoC, VCCI, UL, CCC

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 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

2.2.4 Earphone *2

Manufacturer : EDIFIER
Model Number : H210

2.2.5 DVD PLAYER #1

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

2.2.6 DVD PLAYER #2

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

2.2.7 Hard Disk #1

Manufacturer : Tetasy
Model Number : F12
Serial Number : A010022-4860010X
Data Cable : Shielded, Undetachable, 1.8m.
Certificate : CE, FCC DoC

2.2.8 Hard Disk #2

Manufacturer : Tetasy
Model Number : F12
Serial Number : A010022-486006
Data Cable : Shielded, Undetachable, 1.8m.
Certificate : CE, FCC DoC

2.2.9 ATSC Signal Generator

Manufacturer : SENCORE
Model Number : ATSC997
Serial Number : 6790071

2.2.10 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

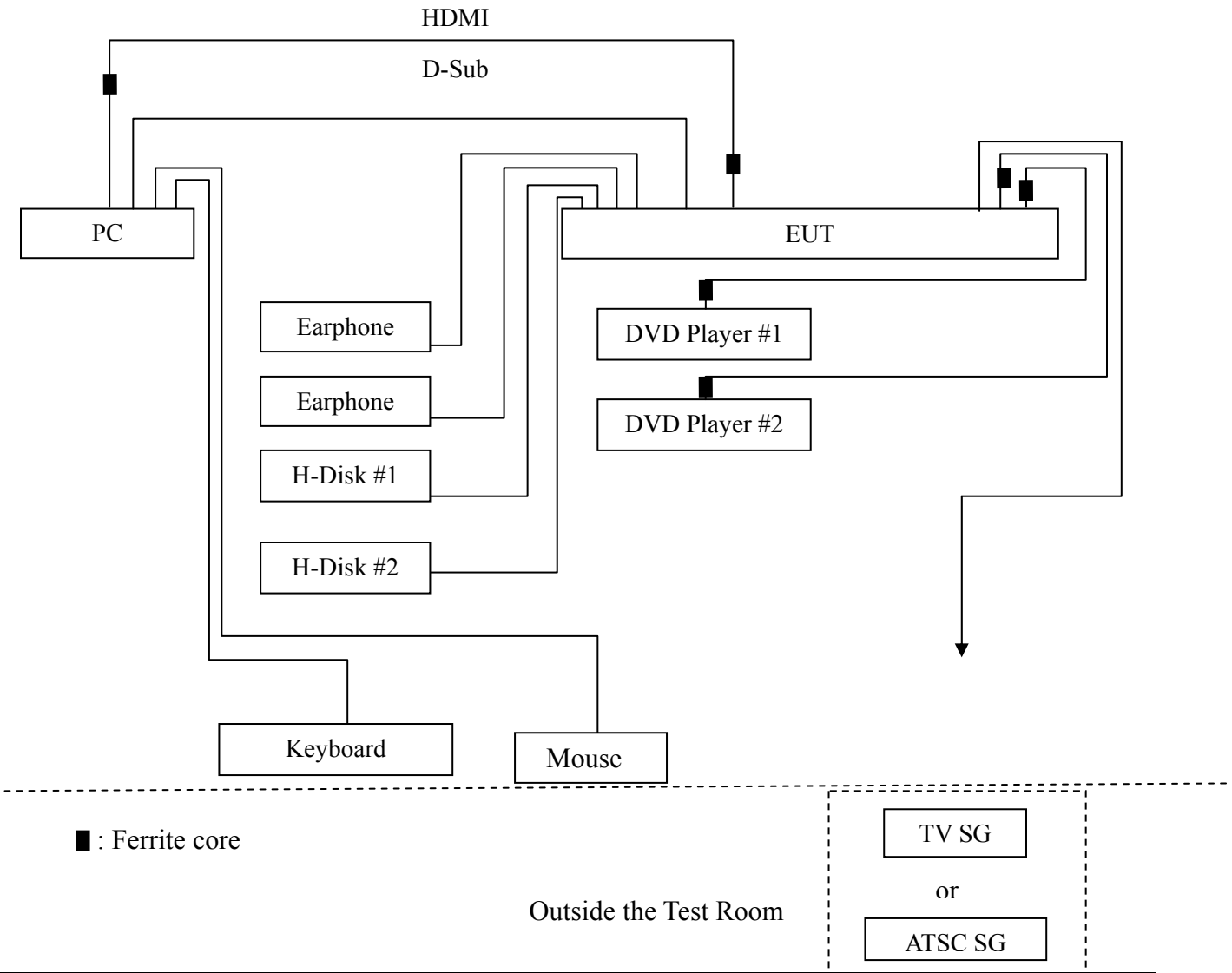
3.1 Test Equipment

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

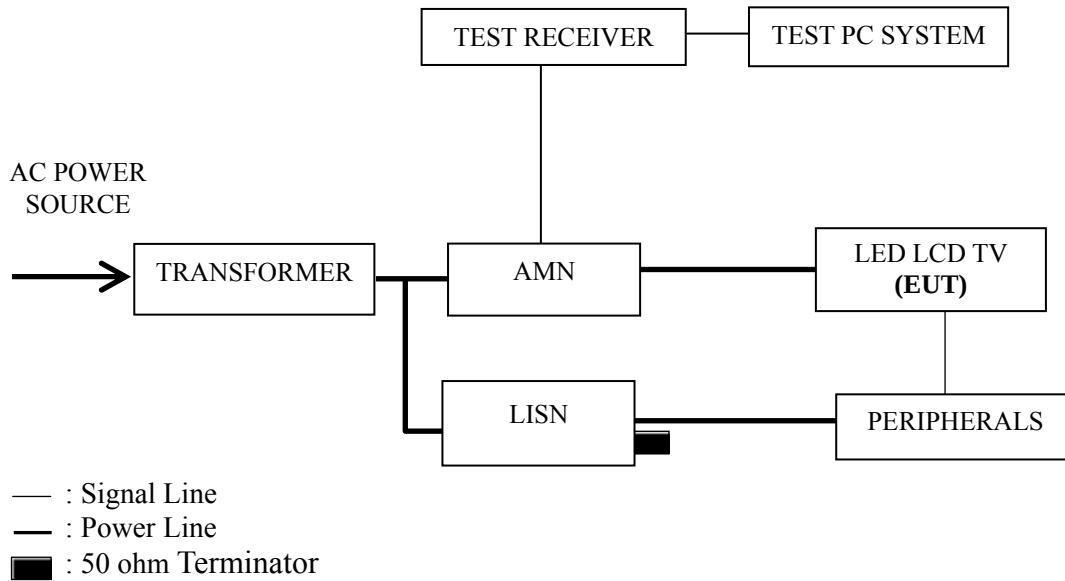
Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Test Receiver	R&S	ESCI	101302	Apr 27, 2016	Apr 26, 2017
2.	Artificial Mains Network (AMN)	R&S	ENV4200	100125	Jun 25, 2016	Jun 24, 2017
3.	Line Impedance Stabilization Network (LISN)	Kyoritsu	KNW-407	8-1280-4	Mar 20, 2016	Mar 19, 2017
4.	50Ω Terminator	Anritsu	BNC	001	Mar 20, 2016	Mar 19, 2017
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 (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/D-Sub 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 The other peripherals devices were driven and operated during the test.
- 3.5.9 The test modes are as follows:

Test Mode
HDMI 3840*2160@60Hz & 1kHz Playing
HDMI 1920*1080@60Hz & 1kHz Playing
HDMI 1280*1024@60Hz & 1kHz playing
HDMI 640*480@60Hz & 1kHz playing
D-Sub 1920*1080@60Hz & 1kHz Playing
HDMI1080P
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 C63.4:2014 during conducted emission test.

The bandwidth of R&S Test Receiver ESCI was set at 9 kHz.

The frequency range from 150 kHz to 30 MHz was checked.

The test modes were done on conducted disturbance test and all the test results are listed in Sec. 3.7.

3.7 Test Results

< **PASS** >

The frequency and amplitude of the highest conducted emission relative to the limit is reported. All emissions not reported below are too low against the prescribed limits.

Test Mode	Data Page
HDMI 3840*2160@60Hz & 1kHz Playing	P13
HDMI 1920*1080@60Hz & 1kHz Playing	P14
HDMI 1280*1024@60Hz & 1kHz playing	P15
HDMI 640*480@60Hz & 1kHz playing	P16
D-Sub 1920*1080@60Hz & 1kHz Playing	P17
HDMI1080P	P18
USB Play	P19
LAN Play	P20

NOTE 1 – Factor = Cable Loss + AMN Factor.

NOTE 2 – Emission Level = Meter Reading + Factor.

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

NOTE 4 – The worst case is for LAN Play test mode. The worst emission is detected at 16.700MHz (Quasi-Peak Value) with corrected signal level of 47.37 dB (μV) (limit is 50.00 dB (μV)), when the Neutral of the EUT is connected to AMN.

EUT : LED LCD TV Temperature : 22°C

Model No. : LC-75U Humidity : 48%RH

Test Mode : HDMI 3840*2160@60Hz & 1kHz Playing Date of Test : Aug 16, 2016

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.157	42.30	10.58	52.88	65.60	12.72	QP
	0.157	29.50	10.44	39.94	58.16	18.22	
	0.386	22.40	10.40	32.80	56.00	23.20	
	0.386	20.31	10.40	30.71	56.00	25.29	
	0.737	19.50	10.43	29.93	56.00	26.07	
	0.737	41.31	10.58	51.89	60.00	8.11	
	1.542	35.00	10.58	45.58	55.60	10.02	AV
	1.542	27.80	10.44	38.24	48.16	9.92	
	3.244	17.50	10.40	27.90	46.00	18.10	
	3.244	15.21	10.40	25.61	46.00	20.39	
	18.350	9.30	10.43	19.73	46.00	26.27	
	18.350	36.41	10.58	46.99	50.00	3.01	
Neutral	0.172	39.10	10.55	49.65	64.85	15.20	QP
	0.172	30.20	10.43	40.63	58.18	17.55	
	0.384	23.50	10.39	33.89	56.00	22.11	
	0.384	19.00	10.43	29.43	56.00	26.57	
	0.768	18.50	10.47	28.97	56.00	27.03	
	0.768	40.20	10.67	50.87	60.00	9.13	
	1.825	28.50	10.55	39.05	54.85	15.80	AV
	1.825	28.70	10.43	39.13	48.18	9.05	
	3.232	21.40	10.39	31.79	46.00	14.21	
	3.232	7.20	10.43	17.63	46.00	28.37	
	16.540	10.20	10.47	20.67	46.00	25.33	
	16.540	36.20	10.67	46.87	50.00	3.13	

TEST ENGINEER: BYRON WU

EUT : LED LCD TV Temperature : 22°C

Model No. : LC-75U Humidity : 48%RH

Test Mode : HDMI 1920*1080@60Hz & 1kHz Playing Date of Test : Aug 16, 2016

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.170	40.20	10.56	50.76	64.94	14.18	QP
	0.170	29.80	10.44	40.24	58.16	17.92	
	0.386	22.10	10.40	32.50	56.00	23.50	
	0.386	21.81	10.40	32.21	56.00	23.79	
	0.807	19.20	10.42	29.62	56.00	26.38	
	0.807	40.61	10.58	51.19	60.00	8.81	
	1.538	31.10	10.56	41.66	54.94	13.28	AV
	1.538	28.10	10.44	38.54	48.16	9.62	
	2.623	16.50	10.40	26.90	46.00	19.10	
	2.623	16.71	10.40	27.11	46.00	18.89	
	18.540	10.30	10.42	20.72	46.00	25.28	
	18.540	36.31	10.58	46.89	50.00	3.11	
Neutral	0.172	39.50	10.55	50.05	64.89	14.84	QP
	0.172	30.40	10.43	40.83	58.18	17.35	
	0.384	23.20	10.39	33.59	56.00	22.41	
	0.384	21.50	10.41	31.91	56.00	24.09	
	0.769	18.40	10.47	28.87	56.00	27.13	
	0.769	40.10	10.67	50.77	60.00	9.23	
	1.272	28.50	10.55	39.05	54.89	15.84	AV
	1.272	28.70	10.43	39.13	48.18	9.05	
	3.227	21.20	10.39	31.59	46.00	14.41	
	3.227	15.80	10.41	26.21	46.00	19.79	
	16.670	10.80	10.47	21.27	46.00	24.73	
	16.670	36.20	10.67	46.87	50.00	3.13	

TEST ENGINEER: BYRON WU

EUT : LED LCD TV Temperature : 22°C

Model No. : LC-75U Humidity : 48%RH

Test Mode : HDMI 1280*1024@60Hz & 1kHz playing Date of Test : Aug 16, 2016

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.171	39.90	10.56	50.46	64.93	14.47	QP
	0.171	30.40	10.44	40.84	58.20	17.36	
	0.384	23.60	10.40	34.00	56.00	22.00	
	0.384	21.71	10.40	32.11	56.00	23.89	
	0.769	19.40	10.42	29.82	56.00	26.18	
	0.769	38.60	10.58	49.18	60.00	10.82	
	1.539	28.40	10.56	38.96	54.93	15.97	AV
	1.539	28.80	10.44	39.24	48.20	8.96	
	2.625	21.40	10.40	31.80	46.00	14.20	
	2.625	16.51	10.40	26.91	46.00	19.09	
	17.940	10.20	10.42	20.62	46.00	25.38	
	17.940	32.10	10.58	42.68	50.00	7.32	
Neutral	0.171	40.20	10.55	50.75	64.91	14.16	QP
	0.171	30.00	10.43	40.43	58.19	17.76	
	0.384	23.40	10.39	33.79	56.00	22.21	
	0.384	21.50	10.42	31.92	56.00	24.08	
	0.769	18.09	10.46	28.55	56.00	27.45	
	0.769	38.70	10.71	49.41	60.00	10.59	
	1.539	28.70	10.55	39.25	54.91	15.66	AV
	1.539	28.70	10.43	39.13	48.19	9.06	
	2.766	21.30	10.39	31.69	46.00	14.31	
	2.766	16.40	10.42	26.82	46.00	19.18	
	19.600	9.89	10.46	20.35	46.00	25.65	
	19.600	36.60	10.71	47.31	50.00	2.69	

TEST ENGINEER: BYRON WU

EUT : LED LCD TV Temperature : 22°C

Model No. : LC-75U Humidity : 48%RH

Test Mode : HDMI 640*480@60Hz & 1kHz playing Date of Test : Jun 16, 2016

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.169	40.61	10.56	51.17	65.01	13.84	QP
	0.169	29.10	10.44	39.54	58.16	18.62	
	0.385	23.00	10.40	33.40	56.00	22.60	
	0.385	19.20	10.41	29.61	56.00	26.39	
	0.770	20.50	10.43	30.93	56.00	25.07	
	0.770	41.60	10.59	52.19	60.00	7.81	
	1.811	30.71	10.56	41.27	55.01	13.74	AV
	1.811	28.20	10.44	38.64	48.16	9.52	
	3.345	21.00	10.40	31.40	46.00	14.60	
	3.345	11.30	10.41	21.71	46.00	24.29	
	18.790	16.10	10.43	26.53	46.00	19.47	
	18.790	36.10	10.59	46.69	50.00	3.31	
Neutral	0.170	40.40	10.55	50.95	64.97	14.02	QP
	0.170	28.40	10.43	38.83	58.20	19.37	
	0.384	19.70	10.40	30.10	56.00	25.90	
	0.384	21.30	10.43	31.73	56.00	24.27	
	1.004	19.89	10.49	30.38	56.00	25.62	
	1.004	38.20	10.69	48.89	60.00	11.11	
	1.806	30.30	10.55	40.85	54.97	14.12	AV
	1.806	28.60	10.43	39.03	48.20	9.17	
	4.082	15.80	10.40	26.20	46.00	19.80	
	4.082	16.30	10.43	26.73	46.00	19.27	
	18.000	15.29	10.49	25.78	46.00	20.22	
	18.000	31.90	10.69	42.59	50.00	7.41	

TEST ENGINEER: BYRON WU

EUT : LED LCD TV Temperature : 22°C

Model No. : LC-75U Humidity : 48%RH

Test Mode : D-Sub 1920*1080@60Hz Date of Test : Aug 16, 2016
& 1kHz playing

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.168	40.91	10.56	51.47	65.04	13.57	QP
	0.168	29.40	10.44	39.84	58.20	18.36	
	0.384	23.30	10.40	33.70	56.00	22.30	
	0.384	21.40	10.41	31.81	56.00	24.19	
	0.768	21.20	10.43	31.63	56.00	24.37	
	0.768	41.70	10.58	52.28	60.00	7.72	
	1.805	30.61	10.56	41.17	55.04	13.87	AV
	1.805	28.70	10.44	39.14	48.20	9.06	
	3.209	21.40	10.40	31.80	46.00	14.20	
	3.209	16.40	10.41	26.81	46.00	19.19	
	18.110	16.00	10.43	26.43	46.00	19.57	
	18.110	36.70	10.58	47.28	50.00	2.72	
Neutral	0.171	40.90	10.55	51.45	64.90	13.45	QP
	0.171	29.00	10.43	39.43	58.16	18.73	
	0.385	22.20	10.39	32.59	56.00	23.41	
	0.385	21.10	10.42	31.52	56.00	24.48	
	0.670	20.09	10.46	30.55	56.00	25.45	
	0.670	40.90	10.67	51.57	60.00	8.43	
	1.606	28.60	10.55	39.15	54.90	15.75	AV
	1.606	28.20	10.43	38.63	48.16	9.53	
	2.750	16.30	10.39	26.69	46.00	19.31	
	2.750	15.80	10.42	26.22	46.00	19.78	
	16.240	11.89	10.46	22.35	46.00	23.65	
	16.240	37.00	10.67	47.67	50.00	2.33	

TEST ENGINEER: BYRON WU

EUT : LED LCD TV Temperature : 22°C

Model No. : LC-75U Humidity : 48%RH

Test Mode : HDMI1080P Date of Test : Aug 16, 2016

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.172	40.70	10.56	51.26	64.85	13.59	QP
	0.172	28.60	10.44	39.04	58.16	19.12	
	0.386	23.10	10.40	33.50	56.00	22.50	
	0.386	21.81	10.40	32.21	56.00	23.79	
	0.769	19.39	10.43	29.82	56.00	26.18	
	0.769	41.50	10.57	52.07	60.00	7.93	
	1.540	28.70	10.56	39.26	54.85	15.59	AV
	1.540	28.10	10.44	38.54	48.16	9.62	
	2.752	21.20	10.40	31.60	46.00	14.40	
	2.752	16.41	10.40	26.81	46.00	19.19	
	16.380	11.39	10.43	21.82	46.00	24.18	
	16.380	36.40	10.57	46.97	50.00	3.03	
Neutral	0.172	40.80	10.55	51.35	64.89	13.54	QP
	0.172	29.40	10.43	39.83	58.19	18.36	
	0.384	23.30	10.39	33.69	56.00	22.31	
	0.384	18.70	10.43	29.13	56.00	26.87	
	0.768	20.59	10.49	31.08	56.00	24.92	
	0.768	39.50	10.67	50.17	60.00	9.83	
	1.811	28.60	10.55	39.15	54.89	15.74	AV
	1.811	28.70	10.43	39.13	48.19	9.06	
	4.079	21.30	10.39	31.69	46.00	14.31	
	4.079	11.30	10.43	21.73	46.00	24.27	
	16.250	16.09	10.49	26.58	46.00	19.42	
	16.250	36.20	10.67	46.87	50.00	3.13	

TEST ENGINEER: BYRON WU

EUT : LED LCD TV Temperature : 22°C

Model No. : LC-75U Humidity : 48%RH

Test Mode : USB Play Date of Test : Aug 16, 2016

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.168	41.21	10.56	51.77	65.05	13.28	QP
	0.168	29.50	10.44	39.94	58.20	18.26	
	0.384	23.20	10.40	33.60	56.00	22.40	
	0.384	21.60	10.41	32.01	56.00	23.99	
	0.767	19.20	10.44	29.64	56.00	26.36	
	0.767	39.81	10.58	50.39	60.00	9.61	
	1.804	32.41	10.56	42.97	55.05	12.08	AV
	1.804	28.80	10.44	39.24	48.20	8.96	
	4.091	21.40	10.40	31.80	46.00	14.20	
	4.091	16.40	10.41	26.81	46.00	19.19	
	18.310	12.70	10.44	23.14	46.00	22.86	
	18.310	34.21	10.58	44.79	50.00	5.21	
Neutral	0.170	40.80	10.55	51.35	64.98	13.63	QP
	0.170	29.20	10.43	39.63	58.17	18.54	
	0.385	22.90	10.39	33.29	56.00	22.71	
	0.385	22.00	10.42	32.42	56.00	23.58	
	0.767	21.09	10.46	31.55	56.00	24.45	
	0.767	40.10	10.67	50.77	60.00	9.23	
	1.538	29.70	10.55	40.25	54.98	14.73	AV
	1.538	28.50	10.43	38.93	48.17	9.24	
	2.740	21.10	10.39	31.49	46.00	14.51	
	2.740	16.80	10.42	27.22	46.00	18.78	
	16.770	15.69	10.46	26.15	46.00	19.85	
	16.770	36.00	10.67	46.67	50.00	3.33	

TEST ENGINEER: BYRON WU

EUT : LED LCD TV Temperature : 22°C

Model No. : LC-75U Humidity : 48%RH

Test Mode : LAN Play Date of Test : Jun 16, 2016

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.166	41.11	10.56	51.67	65.14	13.47	QP
	0.166	29.10	10.44	39.54	58.19	18.65	
	0.384	23.00	10.40	33.40	56.00	22.60	
	0.384	22.20	10.41	32.61	56.00	23.39	
	0.767	20.21	10.43	30.64	56.00	25.36	
	0.767	41.00	10.57	51.57	60.00	8.43	
	1.738	32.31	10.56	42.87	55.14	12.27	AV
	1.738	28.80	10.44	39.24	48.19	8.95	
	3.809	21.30	10.40	31.70	46.00	14.30	
	3.809	16.10	10.41	26.51	46.00	19.49	
	16.830	16.01	10.43	26.44	46.00	19.56	
	16.830	36.60	10.57	47.17	50.00	2.83	
Neutral	0.171	41.00	10.55	51.55	64.92	13.37	QP
	0.171	29.10	10.43	39.53	58.20	18.67	
	0.384	22.90	10.39	33.29	56.00	22.71	
	0.384	21.99	10.43	32.42	56.00	23.58	
	0.769	21.10	10.47	31.57	56.00	24.43	
	0.769	41.00	10.67	51.67	60.00	8.33	
	1.737	28.00	10.55	38.55	54.92	16.37	AV
	1.737	28.70	10.43	39.13	48.20	9.07	
	3.208	21.10	10.39	31.49	46.00	14.51	
	3.208	16.09	10.43	26.52	46.00	19.48	
	16.700	15.90	10.47	26.37	46.00	19.63	
	16.700	36.70	10.67	47.37	50.00	2.63	

TEST ENGINEER: BYRON WU

4 RADIATED EMISSION TEST

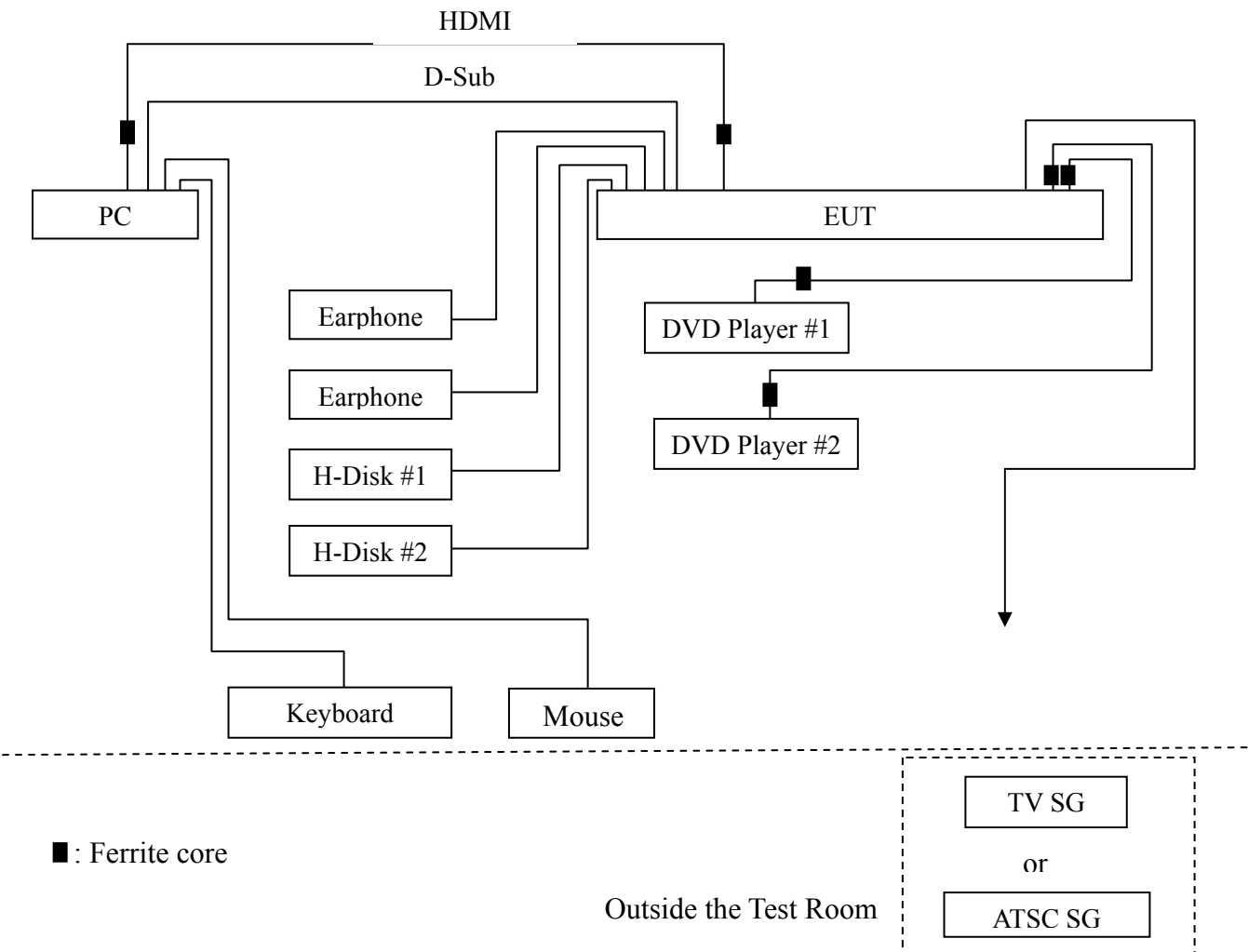
4.1 Test Equipment

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, 2016	May 06, 2017
2.	Preamplifier	Agilent	8447D	2944A06664	Apr 27, 2016	Apr 26, 2017
3.	Preamplifier	HP	8449B	3008A00864	Mar 20, 2016	Mar 19, 2017
4.	Bi-log Antenna	TESEQ	CBL6112D	23193	May 15, 2016	May 14, 2017
5.	Horn Antenna	EMCO	3115	9607-4878	Jun 03, 2016	Jun 02, 2017
6.	Spectrum	Agilent	E7405A	MY45106600	Apr 26, 2016	Apr 25, 2017
7.	Software	Audix	e3	6.2007-9-10	--	--

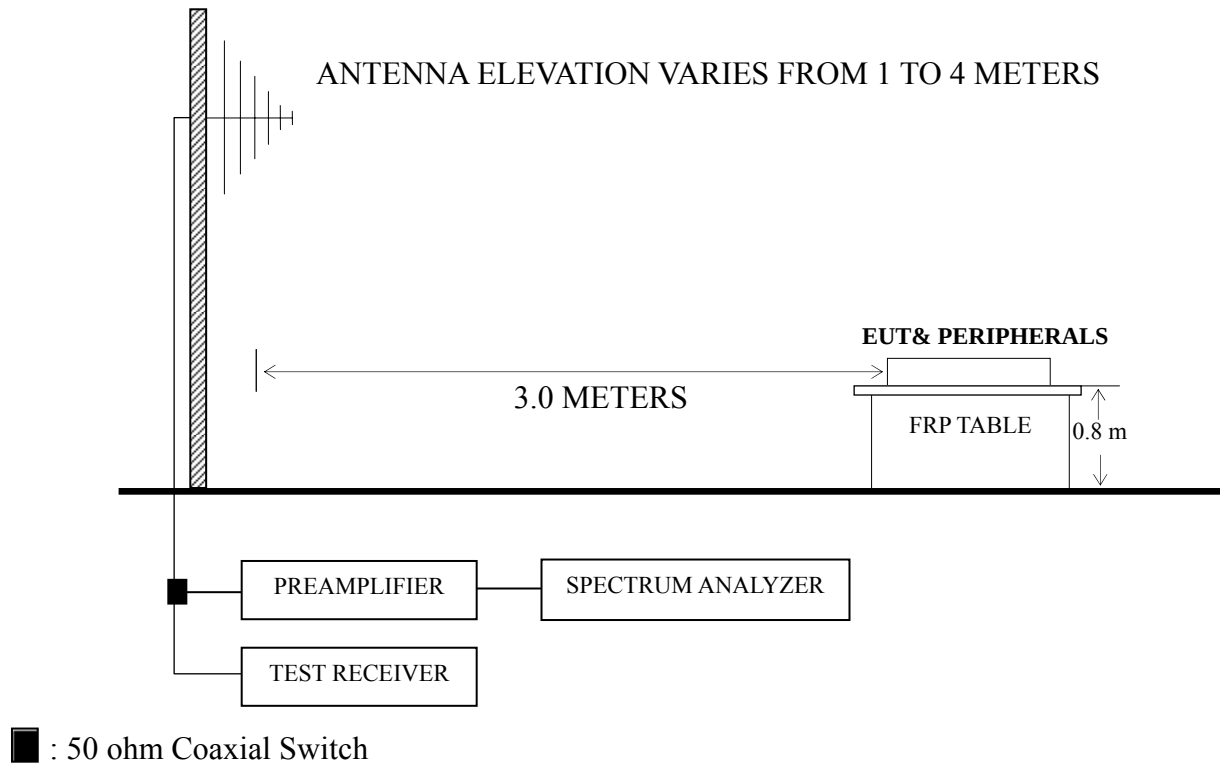
4.2 Block Diagram of Test Setup

4.2.1 EUT & Peripherals



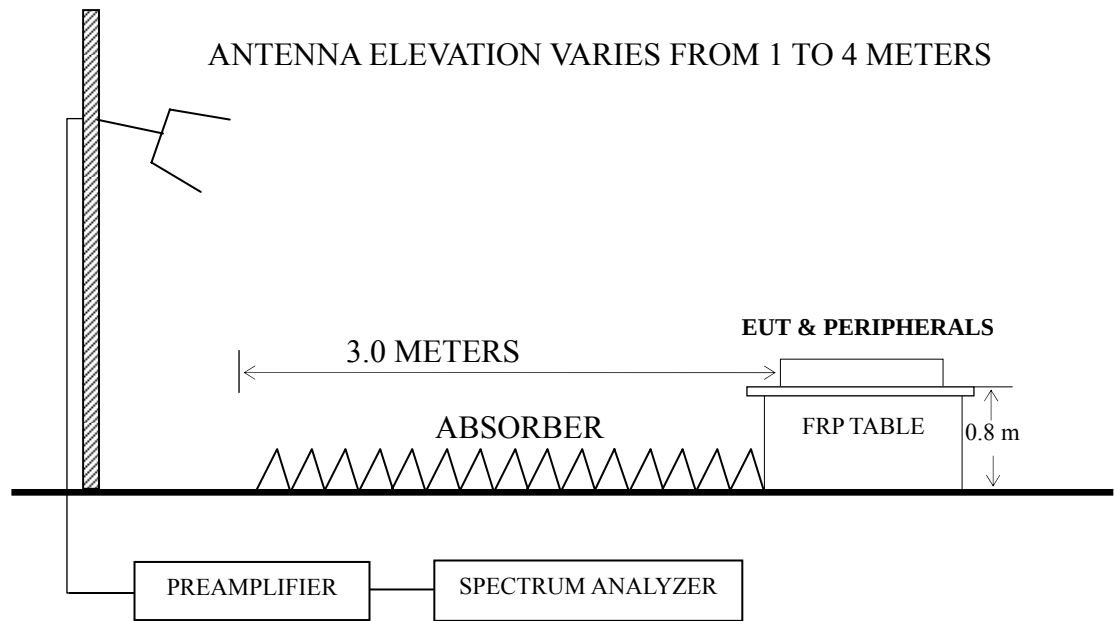
4.2.2 Radiated emission test setup

4.2.2.1 Below 1GHz



4.2.2.2 Above 1GHz

BORE-SIGHT ANTENNA TOWER



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 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.

Frequency	Test Mode	Data Page
Below 1GHz	HDMI 3840*2160@60Hz & 1kHz Playing	P25-P26
	HDMI 1920*1080@60Hz & 1kHz Playing	P27
	HDMI 1280*1024@60Hz & 1kHz playing	P28
	HDMI 640*480@60Hz & 1kHz playing	P29
	D-Sub 3840*2160@60Hz & 1kHz Playing	P30
	HDMI1080P	P31
	USB Play	P32
	LAN Play	P33
Above 1GHz	HDMI 3840*2160@60Hz & 1kHz Playing	P25-P26

NOTE 1 – Emission Level = Antenna Factor + Cable Loss + Meter Reading. (< 1GHz);

NOTE 2 – All readings are Quasi-Peak values below or equal to 1GHz, Peak and Average values above 1GHz.

NOTE 3 – 0° was the table front facing the antenna. Degree is calculated from 0° clockwise facing the antenna.

NOTE 4 – The worst case is for HDMI 3840*2160@60Hz & 1kHz Playing test mode. The worst emission at horizontal polarization was detected at 890.728 MHz with corrected signal level of 43.22dB (μV/m) (limit is 46.00 dB (μV/m)), when the antenna was 2.3 m height and the turntable was at 250°. The worst emission at vertical polarization was detected at 890.728 MHz with corrected signal level of 43.15dB (μV/m) (limit is 46.00 dB (μV/m)), when the antenna was 2.01 m height and the turntable was at 65°.

EUT : LED LCD TV Temperature : 22°C

Model No. : LC-75U Humidity : 60%RH

Test Mode : HDMI 3840*2160@60Hz & 1kHz Playing Date of Test : Sep 12, 2016

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	82.938	19.49	0.90	9.59	--	29.98	40.00	10.02	QP
	132.221	21.25	1.19	12.86	--	35.30	43.50	8.20	
	164.908	26.91	1.35	11.10	--	39.36	43.50	4.14	
	297.224	22.89	1.75	13.60	--	38.24	46.00	7.76	
	848.056	19.22	2.98	20.50	--	42.70	46.00	3.30	
	890.728	19.05	3.07	21.10	--	43.22	46.00	2.78	
	1702.593	62.52	26.44	4.07	35.43	57.60	74.00	16.40	PK
	2107.225	59.43	27.71	4.55	35.11	56.58	74.00	17.42	
	2552.543	61.46	28.63	4.96	35.16	59.89	74.00	14.11	
	1702.593	39.30	26.44	4.07	35.43	34.38	54.00	19.62	AV
	2107.225	37.21	27.71	4.55	35.11	34.36	54.00	19.64	
	2552.543	40.23	28.63	4.96	35.16	38.66	54.00	15.34	

TEST ENGINEER: CAESAR WU

EUT : LED LCD TV Temperature : 22°C

Model No. : LC-75U Humidity : 60%RH

Test Mode : HDMI 3840*2160@60Hz & 1kHz Playing Date of Test : Sep 12, 2016

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
Vertical	50.057	22.74	0.70	8.60	--	32.04	40.00	7.96	QP
	164.908	26.79	1.35	11.10	--	39.24	43.50	4.26	
	297.224	24.02	1.75	13.60	--	39.37	46.00	6.63	
	478.846	18.34	2.22	17.20	--	37.76	46.00	8.24	
	848.056	17.16	2.98	20.50	--	40.64	46.00	5.36	
	890.728	18.98	3.07	21.10	--	43.15	46.00	2.85	
	2118.583	59.04	27.73	4.58	35.11	56.24	74.00	17.76	PK
	2693.504	56.15	29.27	5.25	35.17	55.50	74.00	18.50	
	3363.631	56.62	31.25	6.07	34.84	59.10	74.00	14.90	
	2118.583	39.20	27.73	4.58	35.11	36.40	54.00	17.60	AV
	2693.504	35.11	29.27	5.25	35.17	34.46	54.00	19.54	
	3363.631	34.20	31.25	6.07	34.84	36.68	54.00	17.32	

TEST ENGINEER: CAESAR WU

EUT : LED LCD TV Temperature : 22°C

Model No. : LC-75U Humidity : 60%RH

Test Mode : HDMI 1920*1080@60Hz Date of Test : Sep 12, 2016
& 1kHz Playing

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	88.652	17.93	0.94	10.60	29.47	43.50	14.03
	148.963	24.52	1.28	12.16	37.96	43.50	5.54
	297.224	17.70	1.75	13.60	33.05	46.00	12.95
	480.528	17.96	2.22	17.20	37.38	46.00	8.62
	851.035	17.78	3.00	20.57	41.35	46.00	4.65
	893.857	16.93	3.07	21.13	41.13	46.00	4.87
Vertical	50.057	24.68	0.70	8.60	33.98	40.00	6.02
	148.963	24.86	1.28	12.16	38.30	43.50	5.20
	297.224	23.26	1.75	13.60	38.61	46.00	7.39
	423.540	19.60	2.10	16.33	38.03	46.00	7.97
	478.846	18.87	2.22	17.20	38.29	46.00	7.71
	842.130	17.75	2.98	20.30	41.03	46.00	4.97

TEST ENGINEER: CAESAR WU

EUT : LED LCD TV Temperature : 22°C

Model No. : LC-75U Humidity : 60%RH

Test Mode : HDMI 1280*1024@60Hz Date of Test : Sep 12, 2016
& 1kHz Playing

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	96.099	20.46	0.98	11.78	33.22	43.50	10.28
	155.910	22.04	1.31	11.48	34.83	43.50	8.67
	324.456	22.07	1.83	14.27	38.17	46.00	7.83
	480.528	17.16	2.22	17.20	36.58	46.00	9.42
	750.108	18.26	2.81	19.50	40.57	46.00	5.43
	893.857	17.55	3.07	21.13	41.75	46.00	4.25
Vertical	31.731	15.29	0.58	17.27	33.14	40.00	6.86
	52.025	20.86	0.72	8.10	29.68	40.00	10.32
	155.910	21.16	1.31	11.48	33.95	43.50	9.55
	216.024	25.20	1.53	10.92	37.65	46.00	8.35
	324.456	21.11	1.83	14.27	37.21	46.00	8.79
	919.287	16.46	3.12	21.50	41.08	46.00	4.92

TEST ENGINEER: CAESAR WU

EUT : LED LCD TV Temperature : 22°C

Model No. : LC-75U Humidity : 60%RH

Test Mode : HDMI 640*480@60Hz & 1kHz Playing Date of Test : Sep 12, 2016

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	89.905	19.75	0.95	10.75	31.45	43.50	12.05
	164.908	19.91	1.35	11.10	32.36	43.50	11.14
	297.224	25.16	1.75	13.60	40.51	46.00	5.49
	593.050	17.71	2.50	18.25	38.46	46.00	7.54
	851.035	17.57	3.00	20.57	41.14	46.00	4.86
	890.728	16.11	3.07	21.10	40.28	46.00	5.72
Vertical	52.025	22.62	0.72	8.10	31.44	40.00	8.56
	132.221	17.91	1.19	12.86	31.96	43.50	11.54
	297.224	19.78	1.75	13.60	35.13	46.00	10.87
	423.540	18.81	2.10	16.33	37.24	46.00	8.76
	857.025	17.05	3.00	20.63	40.68	46.00	5.32
	890.728	16.52	3.07	21.10	40.69	46.00	5.31

TEST ENGINEER: CAESAR WU

EUT : LED LCD TV Temperature : 22°C

Model No. : LC-75U Humidity : 60%RH

Test Mode : D-Sub 1920*1080@60Hz & 1kHz Playing Date of Test : Sep 12, 2016

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	84.110	20.17	0.91	9.84	30.92	40.00	9.08
	297.224	25.22	1.75	13.60	40.57	46.00	5.43
	478.846	18.81	2.22	17.20	38.23	46.00	7.77
	742.259	18.06	2.79	19.57	40.42	46.00	5.58
	842.130	17.26	2.98	20.30	40.54	46.00	5.46
	890.728	15.19	3.07	21.10	39.36	46.00	6.64
Vertical	30.962	14.63	0.57	17.71	32.91	40.00	7.09
	297.224	21.65	1.75	13.60	37.00	46.00	9.00
	478.846	19.10	2.22	17.20	38.52	46.00	7.48
	709.182	17.88	2.73	19.20	39.81	46.00	6.19
	848.056	16.15	2.98	20.50	39.63	46.00	6.37
	890.728	15.77	3.07	21.10	39.94	46.00	6.06

TEST ENGINEER: CAESAR WU

EUT : LED LCD TV Temperature : 22°C

Model No. : 75U1600 Humidity : 60%RH

Test Mode : HDMI1080P Date of Test : Sep 12, 2016

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	33.095	17.42	0.59	16.67	34.68	40.00	5.32
	54.071	24.43	0.73	7.80	32.96	40.00	7.04
	407.515	22.58	2.06	16.23	40.87	46.00	5.13
	422.058	20.99	2.09	16.33	39.41	46.00	6.59
	704.226	19.65	2.73	19.13	41.51	46.00	4.49
	890.728	17.46	3.07	21.10	41.63	46.00	4.37
Vertical	52.025	24.56	0.72	8.10	33.38	40.00	6.62
	204.955	23.34	1.50	10.30	35.14	43.50	8.36
	420.580	21.35	2.09	16.32	39.76	46.00	6.24
	593.050	19.63	2.50	18.25	40.38	46.00	5.62
	701.761	17.69	2.71	19.13	39.53	46.00	6.47
	890.728	16.62	3.07	21.10	40.79	46.00	5.21

TEST ENGINEER: CAESAR WU

EUT : LED LCD TV Temperature : 22°C

Model No. : 75U1600 Humidity : 60%RH

Test Mode : USB Play Date of Test : Sep 12, 2016

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	82.648	21.07	0.90	9.50	31.47	40.00	8.53
	201.393	22.13	1.48	10.13	33.74	43.50	9.76
	322.189	18.29	1.83	14.16	34.28	46.00	11.72
	397.633	19.47	2.03	16.23	37.73	46.00	8.27
	519.065	15.45	2.32	17.50	35.27	46.00	10.73
	848.056	15.37	2.98	20.50	38.85	46.00	7.15
Vertical	55.221	23.68	0.74	7.58	32.00	40.00	8.00
	71.581	22.43	0.84	7.68	30.95	40.00	9.05
	139.851	19.86	1.23	13.20	34.29	43.50	9.21
	322.189	18.28	1.83	14.16	34.27	46.00	11.73
	473.835	16.87	2.20	17.14	36.21	46.00	9.79
	790.619	13.26	2.89	20.30	36.45	46.00	9.55

TEST ENGINEER: CAESAR WU

EUT : LED LCD TV Temperature : 22°C

Model No. : 75U1600 Humidity : 60%RH

Test Mode : LAN Play Date of Test : Sep 12, 2016

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	84.702	20.40	0.92	10.01	31.33	40.00	8.67
	297.224	24.35	1.75	13.60	39.70	46.00	6.30
	478.846	17.29	2.22	17.20	36.71	46.00	9.29
	709.182	17.77	2.73	19.20	39.70	46.00	6.30
	842.130	17.58	2.98	20.30	40.86	46.00	5.14
	890.728	16.46	3.07	21.10	40.63	46.00	5.37
Vertical	66.034	21.71	0.81	7.01	29.53	40.00	10.47
	132.221	17.25	1.19	12.86	31.30	43.50	12.20
	297.224	20.65	1.75	13.60	36.00	46.00	10.00
	709.182	18.74	2.73	19.20	40.67	46.00	5.33
	848.056	16.89	2.98	20.50	40.37	46.00	5.63
	890.728	16.31	3.07	21.10	40.48	46.00	5.52

TEST ENGINEER: CAESAR WU

5 DEBUG DESCRIPTION

The following components are used during the countermeasure procedures:

Name	M/N	Manufacturer	Location
SMcontact	SMR-TSL-4-3.5-5R	Qingdao Joinset Co., Ltd	See Internal Photos Figure 22

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:



(BYRON WU)

6 DEVIATION TO TEST SPECIFICATIONS

None

