

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

LED LCD TV

Model No.:
43H4D, 43H4D+, 43H4+0D, 43H4+0D1, 43H4+0D2,
43H40+0D, 43H40+0D1, 43H40+0D2, 43H4DM, 43H4107

Brand: Hisense

FCC ID : W9HLCDD0071

Prepared For : Hisense Electric Co., Ltd.
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Report No. : ACI-F17134
Date of Test : Mar 10-24, 2017
Date of Report : Apr 06, 2017

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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. : Refer to Sec.2.1
Brand : Hisense
Power Supply : 120V/60Hz

Test Procedure Used:

*FCC RULES AND REGULATIONS PART 15 SUBPART B CLASS B
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 Mar 10-24, 2017 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.F17135, a Verification report.

Date of Test : Mar 10-24, 2017 Date of Report : Apr 06, 2017

Producer : Alan He
ALAN HE / Assistant

Review : Byron Wu
BYRON WU / Deputy Assistant Manager

AUDIX[®] For and on behalf of
Audix Technology (Shanghai) Co., Ltd.

Signatory : Byron Kwo
Authorized Signature(s) **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 AND ANSI C63.4-2014	15.107(a) Class B	Pass
Radiated Disturbance	FCC RULES AND REGULATIONS PART 15 SUBPART B 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	:	<input checked="" type="checkbox"/> Production <input type="checkbox"/> Pre-product <input type="checkbox"/> Pro-type
Model No	:	43H4D, 43H4D+, 43H4+0D, 43H4+0D1, 43H4+0D2, 43H40+0D, 43H40+0D1, 43H40+0D2, 43H4DM, 43H4107
Note #1	:	The above models are all the same except for model number. 43H4D model is tested and recorded in the report.
Note #2	:	“+”represents any of the Arabic numeral.
Note #3	:	The tuner port comply with the 15.111 requirement.
Brand	:	Hisense
RF module FCC ID	:	TC2-N1002
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. Hisense #3510 Parque Industrial Rosarito, C.P. 22710 Playas de Rosarito, B.C.
LCD Panel	:	Manufacturer : Hisense M/N : HD426DF-B51
Tuner	:	Manufacturer : XUGUANG M/N : HFT-96S3/W11FJ4H
Max Resolution	:	1920*1080@60Hz
HDMI Cable*3 (Lab provide)	:	Shielded, Detachable, 1.80m

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

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

Remark:

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

Bottom Port:

(1) One AV IN Port : Connected with DVD Player

(2) One DIGITALAUDIO OUT Port : Connected with Audio Converter to Earphone

(3) One HDMI3 Port : Connected with DVD Player

Side Port:

(4) One ANT Port : Connected with ATSC SG/TV SG

(5) One USB Port : Connected with Hard-Disk

(6) One AUDIO OUT Port : Connected with Earphone

(7) One HDMI1 Port : Connected with PC

(8) One HDMI2 Port : Connected with PC

2.1.1 PC

Manufacturer : HP

Model Number : Pro3340

Serial Number : 6CR2512VFD

Power Cord : Unshielded, Detachable, 1.8m

Certificate : FCC DoC; CE/EMC; VCCI; C-Tick

2.1.2 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

2.1.3 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

2.1.4 Modem

Manufacturer : TP-LINK
Model Number : TM-EC5658V
Serial Number : 07123301053
Data Cable : Shielded, Detachable, 1.5m
Certificate : CCC

2.1.5 Earphone *2

Manufacturer : EDIFIER
Model Number : H210

2.1.6 DVD Player

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

2.1.7 Hard Disk

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

2.1.8 ATSC Signal Generator

Manufacturer : SENCORE
Model Number : ATSC997
Serial Number : 6790071

2.1.9 TV Signal Generator

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

2.2 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

2.3 Measurement Uncertainty

Conducted Emission Expanded Uncertainty : U = 3.4dB

Radiated Emission Expanded Uncertainty (30-200MHz):
U = 4.3dB(Horizontal)
U = 4.6dB (Vertical)

Radiated Emission Expanded Uncertainty (200M-1GHz):
U = 4.3dB (Horizontal)
U = 5.5dB (Vertical)

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

3 CONDUCTED EMISSION TEST

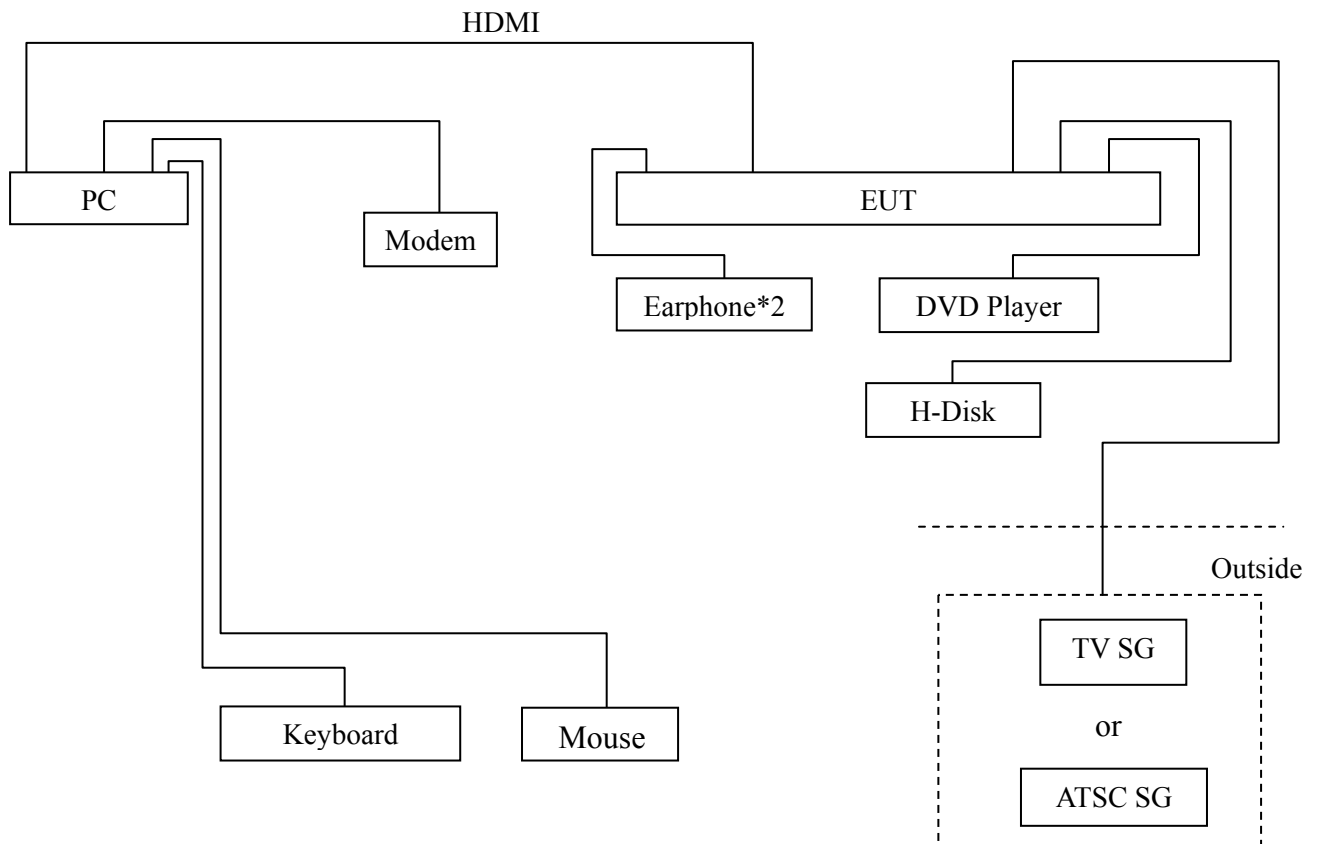
3.1 Test Equipment

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

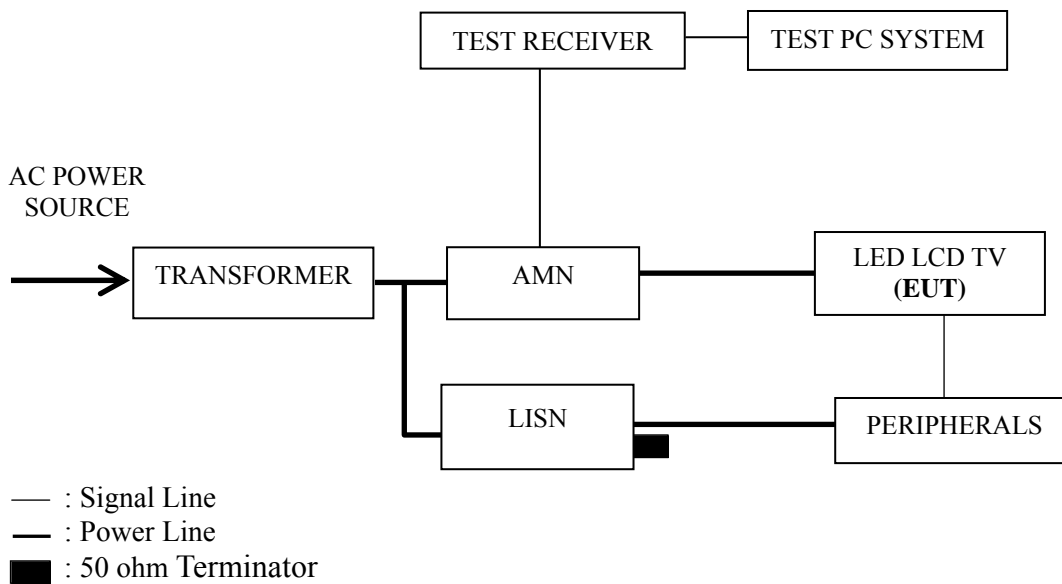
Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Test Receiver	R&S	ESCI	101302	Apr 27, 2016	Apr 26, 2017
2.	Artificial Mains Network (AMN)	R&S	ENV4200	100125	Jun 27, 2016	Jun 26, 2017
3.	Line Impedance Stabilization Network (LISN)	Kyoritsu	KNW-407	8-1280-4	May 15, 2016	May 14, 2017
4.	50Ω Terminator	Anritsu	BNC	001	Sep 18, 2016	Mar 17, 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 (μ V)	
	Quasi-peak	Average
0.15 ~ 0.5	66~56	56~46
0.5 ~ 5	56	46
5 ~ 30	60	50

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

3.4 Test Configuration

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

3.5 Operating Condition of EUT

- 3.5.1 Setup the EUT and peripherals as shown in Sec. 3.2.
- 3.5.2 Turn on the power of all equipments and the EUT.
- 3.5.3 Set the contrast & brightness of EUT to maximum.
- 3.5.4 PC system ran the self-test program “EMC Test” by windows XP and sent “H” characters to EUT through graphic card, the EUT’s screen displayed and filled with “H” pattern by its resolution (Via HDMI Input).
- 3.5.5 PC system sent the 1kHz audio signal to EUT through audio port, the EUT speak out 1kHz audio signal.
- 3.5.6 In USB Play mode, set the EUT play digital media from H-Disk.
- 3.5.7 In WIFI mode, set the EUT play digital media through WIFI.
- 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
HDMI1 1920*1080@60Hz & 1kHz playing
HDMI1 1280*1024@60Hz & 1kHz playing
HDMI1 640*480@60Hz & 1kHz playing
HDMI2 1920*1080@60Hz & 1kHz playing
HDMI3 1920*1080@60Hz & 1kHz playing
HDMI1080P
USB Play
WIFI

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 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
HDMI1 1920*1080@60Hz & 1kHz playing	P13
HDMI1 1280*1024@60Hz & 1kHz playing	P14
HDMI1 640*480@60Hz & 1kHz playing	P15
HDMI2 1920*1080@60Hz & 1kHz playing	P16
HDMI3 1920*1080@60Hz & 1kHz playing	P17
HDMI1080P	P18
USB Play	P19
WIFI	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 HDMI1 1280*1024@60Hz & 1kHz playing test mode. The worst emission is detected at 0.558 MHz (Quasi-Peak Value) with corrected signal level of 40.30dB (μV) (limit is 56.00 dB (μV)), when the Line of the EUT is connected to AMN.

EUT : LED LCD TV Temperature : 22°C

Model No. : 43H4D Humidity : 48%RH

Test Mode : HDMI1 Date of Test : Mar 10, 2017
1920*1080@60Hz &
1kHz Playing

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.176	31.13	10.56	41.69	64.68	22.99	QP
	0.176	21.13	10.56	31.69	54.68	22.99	
	0.371	28.80	10.45	39.25	58.47	19.22	
	0.371	18.80	10.45	29.25	48.47	19.22	
	0.558	29.36	10.40	39.76	56.00	16.24	
	0.558	18.36	10.40	28.76	46.00	17.24	
	0.743	27.80	10.40	38.20	56.00	17.80	AV
	0.743	14.80	10.40	25.20	46.00	20.80	
	1.296	24.68	10.41	35.09	56.00	20.91	
	1.296	13.68	10.41	24.09	46.00	21.91	
	2.396	23.08	10.42	33.50	56.00	22.50	
	2.396	16.08	10.42	26.50	46.00	19.50	
Neutral	0.169	30.44	10.55	40.99	64.99	24.00	QP
	0.169	19.44	10.55	29.99	54.99	25.00	
	0.558	28.60	10.39	38.99	56.00	17.01	
	0.558	17.60	10.39	27.99	46.00	18.01	
	0.647	27.58	10.39	37.97	56.00	18.03	
	0.647	15.58	10.39	25.97	46.00	20.03	
	0.853	24.17	10.40	34.57	56.00	21.43	AV
	0.853	13.17	10.40	23.57	46.00	22.43	
	1.282	25.51	10.41	35.92	56.00	20.08	
	1.282	14.51	10.41	24.92	46.00	21.08	
	1.480	23.32	10.42	33.74	56.00	22.26	
	1.480	13.32	10.42	23.74	46.00	22.26	

TEST ENGINEER: BYRON WU

EUT : LED LCD TV Temperature : 22°C

Model No. : 43H4D Humidity : 48%RH

Test Mode : HDMI1 Date of Test : Mar 10, 2017
1280*1024@60Hz &
1kHz Playing

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.169	31.30	10.56	41.86	64.99	23.13	QP
	0.169	20.30	10.56	30.86	54.99	24.13	
	0.367	28.47	10.45	38.92	58.56	19.64	
	0.367	19.47	10.45	29.92	48.56	18.64	
	0.558	29.90	10.40	40.30	56.00	15.70	
	0.558	18.90	10.40	29.30	46.00	16.70	
	0.727	26.69	10.40	37.09	56.00	18.91	AV
	0.727	15.69	10.40	26.09	46.00	19.91	
	1.296	25.90	10.41	36.31	56.00	19.69	
	1.296	13.90	10.41	24.31	46.00	21.69	
	2.213	23.75	10.42	34.17	56.00	21.83	
	2.213	14.75	10.42	25.17	46.00	20.83	
Neutral	0.174	30.05	10.55	40.60	64.77	24.17	QP
	0.174	21.05	10.55	31.60	54.77	23.17	
	0.363	27.21	10.44	37.65	58.65	21.00	
	0.363	16.21	10.44	26.65	48.65	22.00	
	0.558	28.53	10.39	38.92	56.00	17.08	
	0.558	17.53	10.39	27.92	46.00	18.08	
	0.743	27.60	10.39	37.99	56.00	18.01	AV
	0.743	14.60	10.39	24.99	46.00	21.01	
	1.282	24.48	10.41	34.89	56.00	21.11	
	1.282	13.48	10.41	23.89	46.00	22.11	
	2.012	22.21	10.43	32.64	56.00	23.36	
	2.012	13.21	10.43	23.64	46.00	22.36	

TEST ENGINEER: BYRON WU

EUT : LED LCD TV Temperature : 22°C

Model No. : 43H4D Humidity : 48%RH

Test Mode : HDMI1 640*480@60Hz Date of Test : Mar 10, 2017
& 1kHz Playing

Test Line	Frequency (MHz)	Meter Reading dB(μ V)	Factor (dB)	Emission Level dB(μ V)	Limits dB(μ V)	Margin (dB)	Remark
Line	0.176	31.73	10.56	42.29	64.68	22.39	QP
	0.176	23.73	10.56	34.29	54.68	20.39	
	0.356	27.42	10.45	37.87	58.83	20.96	
	0.356	15.42	10.45	25.87	48.83	22.96	
	0.546	27.95	10.40	38.35	56.00	17.65	
	0.546	16.95	10.40	27.35	46.00	18.65	
	AV	0.735	26.20	10.40	36.60	56.00	19.40
		0.735	14.20	10.40	24.60	46.00	21.40
		1.282	24.53	10.41	34.94	56.00	21.06
		1.282	15.53	10.41	25.94	46.00	20.06
		2.358	21.55	10.42	31.97	56.00	24.03
		2.358	12.55	10.42	22.97	46.00	23.03
Neutral	0.169	30.61	10.55	41.16	64.99	23.83	QP
	0.169	22.61	10.55	33.16	54.99	21.83	
	0.363	27.59	10.44	38.03	58.65	20.62	
	0.363	15.59	10.44	26.03	48.65	22.62	
	0.558	28.24	10.39	38.63	56.00	17.37	
	0.558	17.24	10.39	27.63	46.00	18.37	
	AV	0.743	27.92	10.39	38.31	56.00	17.69
		0.743	12.92	10.39	23.31	46.00	22.69
		1.249	24.32	10.41	34.73	56.00	21.27
		1.249	13.32	10.41	23.73	46.00	22.27
		2.448	22.87	10.44	33.31	56.00	22.69
		2.448	13.87	10.44	24.31	46.00	21.69

TEST ENGINEER: BYRON WU

EUT : LED LCD TV Temperature : 22°C

Model No. : 43H4D Humidity : 48%RH

Test Mode : HDMI2 Date of Test : Mar 10, 2017
1920*1080@60Hz &
1kHz playing

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.178	31.69	10.56	42.25	64.59	22.34	QP
	0.178	22.69	10.56	33.25	54.59	21.34	
	0.371	28.21	10.45	38.66	58.47	19.81	
	0.371	19.21	10.45	29.66	48.47	18.81	
	0.558	26.28	10.40	36.68	56.00	19.32	
	0.558	14.28	10.40	24.68	46.00	21.32	
	AV	0.743	27.40	10.40	37.80	56.00	18.20
		0.743	14.40	10.40	24.80	46.00	21.20
		1.282	24.15	10.41	34.56	56.00	21.44
		1.282	13.15	10.41	23.56	46.00	22.44
		1.480	24.28	10.40	34.68	56.00	21.32
		1.480	15.28	10.40	25.68	46.00	20.32
Neutral	0.170	30.06	10.55	40.61	64.94	24.33	QP
	0.170	21.06	10.55	31.61	54.94	23.33	
	0.371	28.70	10.44	39.14	58.47	19.33	
	0.371	19.70	10.44	30.14	48.47	18.33	
	0.558	26.94	10.39	37.33	56.00	18.67	
	0.558	17.94	10.39	28.33	46.00	17.67	AV
	0.647	27.33	10.39	37.72	56.00	18.28	
	0.647	16.33	10.39	26.72	46.00	19.28	
	1.082	24.97	10.40	35.37	56.00	20.63	
	1.082	13.97	10.40	24.37	46.00	21.63	
2.448	22.94	10.44	33.38	56.00	22.62	AV	
2.448	11.94	10.44	22.38	46.00	23.62		

TEST ENGINEER: BYRON WU

EUT : LED LCD TV Temperature : 22°C

Model No. : 43H4D Humidity : 48%RH

Test Mode : HDMI3 Date of Test : Mar 10, 2017
1920*1080@60Hz &
1kHz playing

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark	
Line	0.169	31.15	10.56	41.71	64.99	23.28	QP	
	0.169	20.15	10.56	30.71	54.99	24.28		
	0.363	28.42	10.45	38.87	58.65	19.78		
	0.363	17.42	10.45	27.87	48.65	20.78		
	0.558	25.69	10.40	36.09	56.00	19.91		
	0.558	14.69	10.40	25.09	46.00	20.91		
		0.735	26.48	10.40	36.88	56.00	19.12	AV
		0.735	15.48	10.40	25.88	46.00	20.12	
		1.487	25.51	10.40	35.91	56.00	20.09	
		1.487	14.51	10.40	24.91	46.00	21.09	
		2.448	22.02	10.42	32.44	56.00	23.56	
		2.448	13.02	10.42	23.44	46.00	22.56	
Neutral	0.169	31.43	10.55	41.98	64.99	23.01	QP	
	0.169	20.43	10.55	30.98	54.99	24.01		
	0.363	27.39	10.44	37.83	58.65	20.82		
	0.363	15.39	10.44	25.83	48.65	22.82		
	0.558	25.76	10.39	36.15	56.00	19.85		
	0.558	13.76	10.39	24.15	46.00	21.85		
		0.743	25.76	10.39	36.15	56.00	19.85	AV
		0.743	14.76	10.39	25.15	46.00	20.85	
		1.282	24.11	10.41	34.52	56.00	21.48	
		1.282	13.11	10.41	23.52	46.00	22.48	
		2.213	23.73	10.44	34.17	56.00	21.83	
		2.213	13.73	10.44	24.17	46.00	21.83	

TEST ENGINEER: BYRON WU

EUT : LED LCD TV Temperature : 22°C
 Model No. : 43H4D Humidity : 48%RH
 Test Mode : HDMI 1080P Date of Test : Mar 10, 2017

Test Line	Frequency (MHz)	Meter Reading dB(μ V)	Factor (dB)	Emission Level dB(μ V)	Limits dB(μ V)	Margin (dB)	Remark
Line	0.169	28.93	10.56	39.49	64.99	25.50	QP
	0.169	20.93	10.56	31.49	54.99	23.50	
	0.558	27.90	10.40	38.30	56.00	17.70	
	0.558	18.90	10.40	29.30	46.00	16.70	
	0.727	27.02	10.40	37.42	56.00	18.58	
	0.727	18.02	10.40	28.42	46.00	17.58	
	AV	1.296	26.23	10.41	36.64	56.00	19.36
		1.296	14.23	10.41	24.64	46.00	21.36
		2.213	25.66	10.42	36.08	56.00	19.92
		2.213	13.66	10.42	24.08	46.00	21.92
		4.926	22.24	10.45	32.69	56.00	23.31
		4.926	13.24	10.45	23.69	46.00	22.31
Neutral	0.170	31.97	10.55	42.52	64.94	22.42	QP
	0.170	20.97	10.55	31.52	54.94	23.42	
	0.558	28.59	10.39	38.98	56.00	17.02	
	0.558	16.59	10.39	26.98	46.00	19.02	
	0.654	27.80	10.39	38.19	56.00	17.81	
	0.654	15.80	10.39	26.19	46.00	19.81	
	AV	1.487	26.01	10.42	36.43	56.00	19.57
		1.487	14.01	10.42	24.43	46.00	21.57
		2.261	22.26	10.44	32.70	56.00	23.30
		2.261	12.26	10.44	22.70	46.00	23.30
		3.881	20.93	10.48	31.41	56.00	24.59
		3.881	12.93	10.48	23.41	46.00	22.59

TEST ENGINEER: BYRON WU

EUT : LED LCD TV Temperature : 22°C
 Model No. : 43H4D Humidity : 48%RH
 Test Mode : USB Play Date of Test : Mar 10, 2017

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.172	30.63	10.56	41.19	64.86	23.67	QP
	0.172	21.63	10.56	32.19	54.86	22.67	
	0.558	29.33	10.40	39.73	56.00	16.27	
	0.558	18.33	10.40	28.73	46.00	17.27	
	0.743	27.08	10.40	37.48	56.00	18.52	
	0.743	12.08	10.40	22.48	46.00	23.52	
	AV	1.296	25.01	10.41	35.42	56.00	20.58
		1.296	13.01	10.41	23.42	46.00	22.58
		2.396	22.02	10.42	32.44	56.00	23.56
		2.396	13.02	10.42	23.44	46.00	22.56
		4.549	22.74	10.44	33.18	56.00	22.82
		4.549	11.74	10.44	22.18	46.00	23.82
Neutral	0.172	31.03	10.55	41.58	64.86	23.28	QP
	0.172	22.03	10.55	32.58	54.86	22.28	
	0.558	28.26	10.39	38.65	56.00	17.35	
	0.558	18.26	10.39	28.65	46.00	17.35	
	0.727	25.97	10.39	36.36	56.00	19.64	
	0.727	14.97	10.39	25.36	46.00	20.64	
	AV	1.269	25.22	10.41	35.63	56.00	20.37
		1.269	16.22	10.41	26.63	46.00	19.37
		1.487	25.39	10.42	35.81	56.00	20.19
		1.487	17.39	10.42	27.81	46.00	18.19
		2.500	21.06	10.44	31.50	56.00	24.50
		2.500	10.06	10.44	20.50	46.00	25.50

TEST ENGINEER: BYRON WU

EUT : LED LCD TV Temperature : 22°C
 Model No. : 43H4D Humidity : 48%RH
 Test Mode : WIFI Date of Test : Mar 10, 2017

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.169	29.31	10.56	39.87	64.99	25.12	QP
	0.169	20.31	10.56	30.87	54.99	24.12	
	0.367	26.81	10.45	37.26	58.56	21.30	
	0.367	17.81	10.45	28.26	48.56	20.30	
	0.558	27.23	10.40	37.63	56.00	18.37	
	0.558	16.23	10.40	26.63	46.00	19.37	
	0.727	24.12	10.40	34.52	56.00	21.48	AV
	0.727	15.12	10.40	25.52	46.00	20.48	
	1.296	25.88	10.41	36.29	56.00	19.71	
	1.296	14.88	10.41	25.29	46.00	20.71	
	1.800	22.69	10.41	33.10	56.00	22.90	
	1.800	8.69	10.41	19.10	46.00	26.90	
Neutral	0.168	31.42	10.55	41.97	65.08	23.11	QP
	0.168	22.42	10.55	32.97	55.08	22.11	
	0.360	27.50	10.44	37.94	58.74	20.80	
	0.360	14.50	10.44	24.94	48.74	23.80	
	0.558	29.78	10.39	40.17	56.00	15.83	
	0.558	16.78	10.39	27.17	46.00	18.83	
	0.641	28.57	10.39	38.96	56.00	17.04	AV
	0.641	15.57	10.39	25.96	46.00	20.04	
	1.480	25.21	10.42	35.63	56.00	20.37	
	1.480	14.21	10.42	24.63	46.00	21.37	
	2.594	21.56	10.45	32.01	56.00	23.99	
	2.594	12.56	10.45	23.01	46.00	22.99	

TEST ENGINEER: BYRON WU

4 RADIATED EMISSION TEST

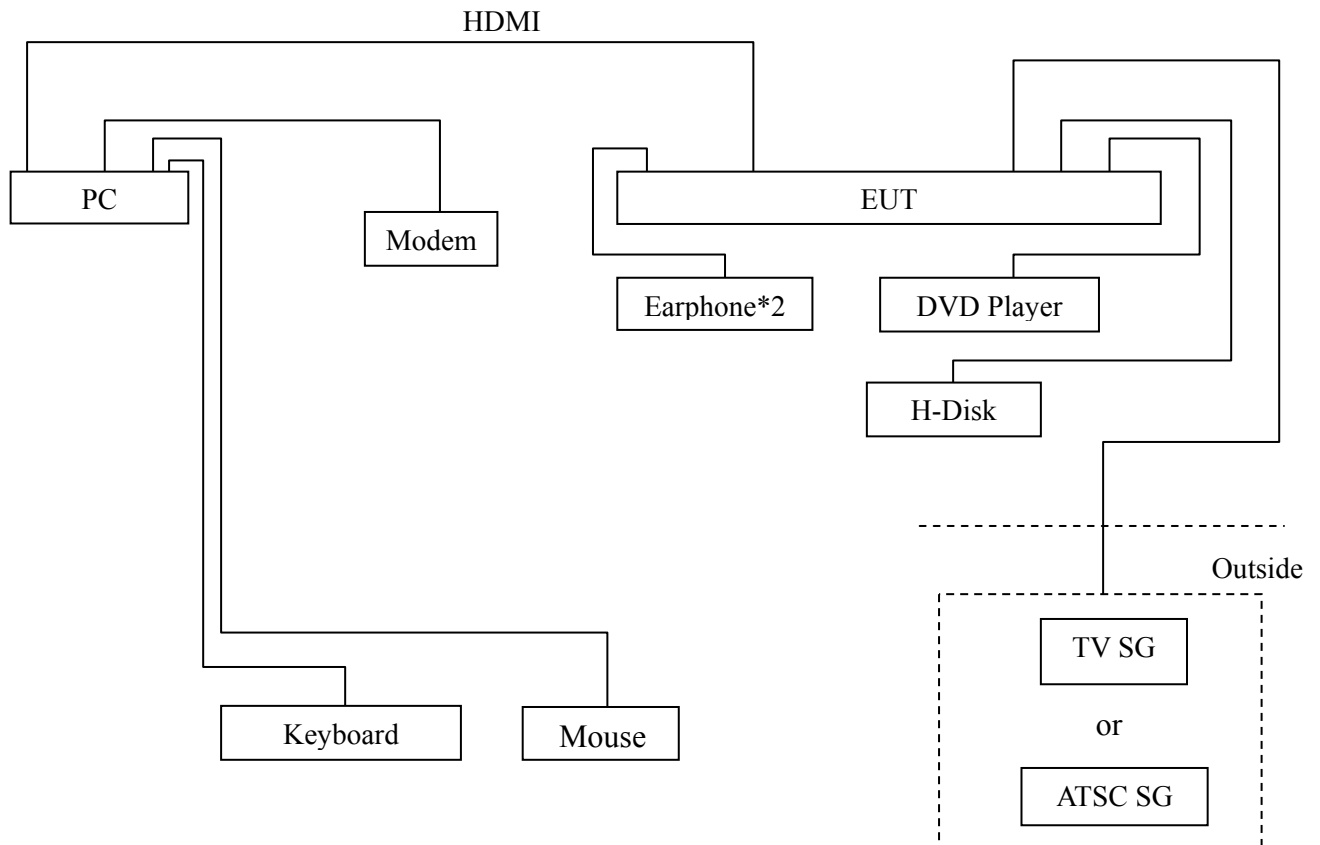
4.1 Test Equipment

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, 2017	Mar 19, 2018
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	--	--

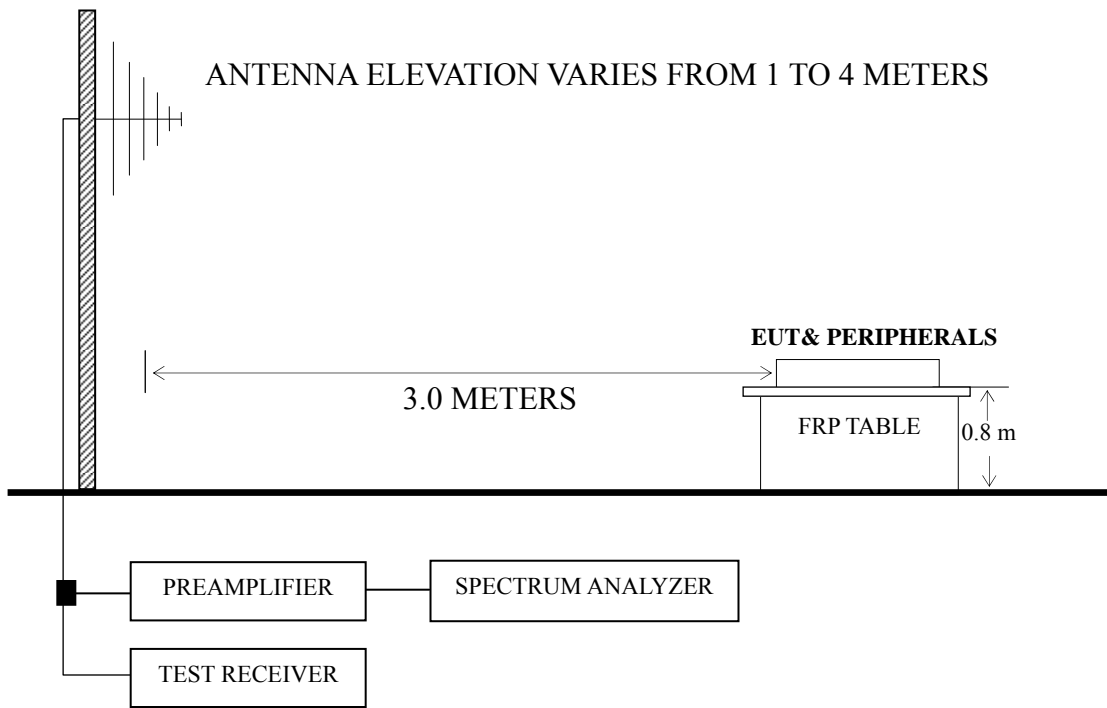
4.2 Block Diagram of Test Setup

4.2.1 EUT & Peripherals



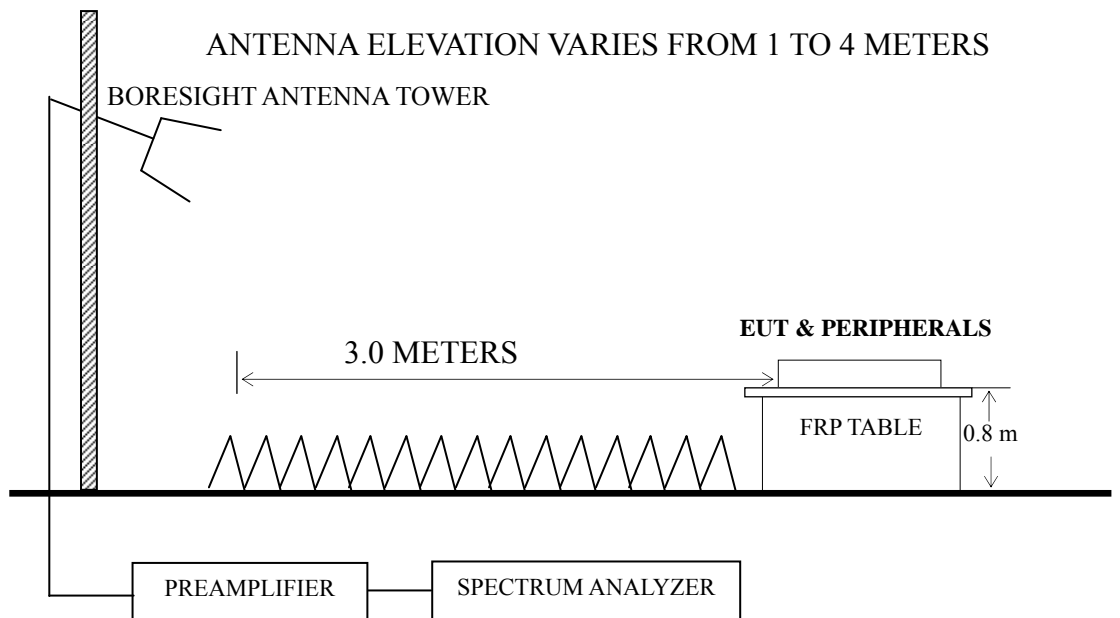
4.2.2 Radiated emission test setup

4.2.2.1 Below 1GHz



■ : 50 ohm Coaxial Switch

4.2.2.2 Above 1GHz



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

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

NOTE 1 - Emission Level dB ($\mu\text{V/m}$) = 20 log Emission Level ($\mu\text{V/m}$)
 NOTE 2 - The tighter limit applies at the band edges.
 NOTE 3 - Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.
 NOTE 4 - The limits shown are based on Quasi-peak value detector.
 NOTE 5 - Above 1 GHz, the limit on peak emission is 20 dB above the maximum permitted average emission limit applicable to the EUT.

4.4 Test Configuration

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

Please refer to Sec.3.4.

4.5 Operating Condition of EUT

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

4.6 Test Procedures

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

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

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

The frequency range from 1 GHz to 6 GHz was checked for the maximum resolution test mode.

The test modes were done on radiated disturbance test and all the test results are listed in Sec.4.7.

4.7 Test Results

<PASS>

The frequency and amplitude of the highest radiated emission relative the limit is reported. All the emissions not reported below are too low against the FCC limit.

Test Mode	Data Page
HDMI1 1920*1080@60Hz & 1kHz playing	P25-P26
HDMI1 1280*1024@60Hz & 1kHz playing	P27
HDMI1 640*480@60Hz & 1kHz playing	P28
HDMI2 1920*1080@60Hz & 1kHz playing	P29
HDMI3 1920*1080@60Hz & 1kHz playing	P30
HDMI1080P	P31
USB Play	P32
WIFI	P33

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 HDMI1 1920*1080@60Hz & 1kHz playing test mode. The worst emission at horizontal polarization was detected at 84.110 MHz with corrected signal level of 35.69 dB ($\mu\text{V}/\text{m}$) (limit is 40.00 dB ($\mu\text{V}/\text{m}$)), when the antenna was 2.30 m height and the turntable was at 150°. The worst emission at vertical polarization was detected at 603.539 MHz with corrected signal level of 42.56 dB ($\mu\text{V}/\text{m}$) (limit is 46.00 dB ($\mu\text{V}/\text{m}$)), when the antenna was 1.00 m height and the turntable was at 330°.

EUT : LED LCD TV Temperature : 22°C

Model No. : 43H4D Humidity : 60%RH

Test Mode : HDMI1 1920*1080@60Hz & 1kHz Playing Date of Test : Mar 24, 2017

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	84.110	24.94	9.84	0.91	--	35.69	40.00	4.31	QP
	135.982	23.47	12.89	1.21	--	37.57	43.50	5.93	
	300.367	19.98	13.64	1.76	--	35.38	46.00	10.62	
	446.414	20.71	16.73	2.15	--	39.59	46.00	6.41	
	590.974	15.70	18.17	2.50	--	36.37	46.00	9.63	
	900.147	15.43	21.20	3.09	--	39.72	46.00	6.28	PK
	1334.389	56.38	25.00	3.85	35.96	49.27	74.00	24.73	
	1477.873	49.31	25.52	4.05	35.77	43.11	74.00	30.89	
	1889.051	48.14	27.12	4.56	35.31	44.51	74.00	29.49	AV
	1334.389	40.84	25.00	3.85	35.96	33.73	54.00	20.27	
	1477.873	33.21	25.52	4.05	35.77	27.01	54.00	26.99	
1889.051	32.85	27.12	4.56	35.31	29.22	54.00	24.78		

TEST ENGINEER: CAESAR WU

EUT : LED LCD TV Temperature : 22°C

Model No. : 43H4D Humidity : 60%RH

Test Mode : HDMI1 1920*1080@60Hz & 1kHz Playing Date of Test : Mar 24, 2017

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	31.071	17.77	17.71	0.57	--	36.05	40.00	3.95	QP
	47.994	25.12	9.30	0.69	--	35.11	40.00	4.89	
	85.898	24.51	10.20	0.93	--	35.64	40.00	4.36	
	148.963	23.65	12.16	1.28	--	37.09	43.50	6.41	
	603.539	21.54	18.50	2.52	--	42.56	46.00	3.44	
	900.147	14.69	21.20	3.09	--	38.98	46.00	7.02	PK
	1251.033	51.18	24.66	3.70	36.08	43.46	74.00	30.54	
	1477.873	48.53	25.52	4.05	35.77	42.33	74.00	31.67	
	1862.166	46.18	27.02	4.53	35.33	42.40	74.00	31.60	AV
	1251.033	34.93	24.66	3.70	36.08	27.21	54.00	26.79	
	1477.873	32.96	25.52	4.05	35.77	26.76	54.00	27.24	
1862.166	30.85	27.02	4.53	35.33	27.07	54.00	26.93		

TEST ENGINEER: CAESAR WU

EUT : LED LCD TV Temperature : 22°C

Model No. : 43H4D Humidity : 60%RH

Test Mode : HDMI1 1280*1024@60Hz & 1kHz Playing Date of Test : Mar 24, 2017

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	84.999	24.78	10.10	0.92	35.80	40.00	4.20
	134.088	24.74	12.81	1.20	38.75	43.50	4.75
	223.733	21.87	11.20	1.56	34.63	46.00	11.37
	603.539	15.25	18.50	2.52	36.27	46.00	9.73
	737.071	14.93	19.53	2.79	37.25	46.00	8.75
	896.997	17.31	21.17	3.07	41.55	46.00	4.45
Vertical	30.962	17.60	17.71	0.57	35.88	40.00	4.12
	47.994	24.62	9.30	0.69	34.61	40.00	5.39
	85.898	24.74	10.20	0.93	35.87	40.00	4.13
	296.184	21.16	13.60	1.75	36.51	46.00	9.49
	605.659	18.95	18.55	2.52	40.02	46.00	5.98
	896.997	15.95	21.17	3.07	40.19	46.00	5.81

TEST ENGINEER: CAESAR WU

EUT : LED LCD TV Temperature : 22°C

Model No. : 43H4D Humidity : 60%RH

Test Mode : HDMI1 640*480@60Hz & 1kHz Playing Date of Test : Mar 24, 2017

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	85.898	24.90	10.20	0.93	36.03	40.00	3.97
	135.032	25.47	12.80	1.21	39.48	43.50	4.02
	223.733	20.33	11.20	1.56	33.09	46.00	12.91
	360.448	19.34	15.40	1.93	36.67	46.00	9.33
	734.491	16.86	19.47	2.79	39.12	46.00	6.88
	906.482	16.94	21.30	3.09	41.33	46.00	4.67
Vertical	30.962	17.60	17.71	0.57	35.88	40.00	4.12
	46.995	24.91	9.45	0.68	35.04	40.00	4.96
	84.110	24.50	9.84	0.91	35.25	40.00	4.75
	296.184	19.77	13.60	1.75	35.12	46.00	10.88
	599.321	19.25	18.40	2.50	40.15	46.00	5.85
	903.309	16.58	21.25	3.09	40.92	46.00	5.08

TEST ENGINEER: CAESAR WU

EUT : LED LCD TV Temperature : 22°C

Model No. : 43H4D Humidity : 60%RH

Test Mode : HDMI2 1920*1080@60Hz & 1kHz playing Date of Test : Mar 24, 2017

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	87.112	23.68	10.40	0.93	35.01	40.00	4.99
	129.923	22.50	12.90	1.18	36.58	43.50	6.92
	295.147	16.72	13.60	1.75	32.07	46.00	13.93
	372.005	14.35	15.63	1.97	31.95	46.00	14.05
	599.321	15.15	18.40	2.50	36.05	46.00	9.95
	906.482	14.11	21.30	3.09	38.50	46.00	7.50
Vertical	32.067	17.31	17.05	0.58	34.94	40.00	5.06
	49.533	25.96	8.81	0.70	35.47	40.00	4.53
	83.522	24.74	9.76	0.91	35.41	40.00	4.59
	143.326	17.98	12.82	1.25	32.05	43.50	11.45
	599.321	19.20	18.40	2.50	40.10	46.00	5.90
	909.667	13.12	21.30	3.09	37.51	46.00	8.49

TEST ENGINEER: CAESAR WU

EUT : LED LCD TV Temperature : 22°C

Model No. : 43H4D Humidity : 60%RH

Test Mode : HDMI3 1920*1080@60Hz Date of Test : Mar 24, 2017
& 1kHz playing

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	90.855	26.12	10.93	0.95	38.00	43.50	5.50
	132.221	23.86	12.86	1.19	37.91	43.50	5.59
	296.184	18.53	13.60	1.75	33.88	46.00	12.12
	605.659	16.39	18.55	2.52	37.46	46.00	8.54
	739.661	14.63	19.60	2.79	37.02	46.00	8.98
	900.147	17.78	21.20	3.09	42.07	46.00	3.93
Vertical	32.979	17.44	16.67	0.59	34.70	40.00	5.30
	47.994	25.25	9.30	0.69	35.24	40.00	4.76
	85.598	24.16	10.20	0.92	35.28	40.00	4.72
	295.147	21.62	13.60	1.75	36.97	46.00	9.03
	599.321	20.25	18.40	2.50	41.15	46.00	4.85
	893.857	16.32	21.13	3.07	40.52	46.00	5.48

TEST ENGINEER: CAESAR WU

EUT : LED LCD TV Temperature : 22°C

Model No. : 43H4D Humidity : 60%RH

Test Mode : HDMI1080P Date of Test : Mar 24, 2017

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	89.590	25.94	10.75	0.95	37.64	43.50	5.86
	131.297	24.09	12.87	1.19	38.15	43.50	5.35
	364.260	16.60	15.47	1.95	34.02	46.00	11.98
	593.050	15.16	18.25	2.50	35.91	46.00	10.09
	747.483	13.66	19.50	2.81	35.97	46.00	10.03
	890.728	15.55	21.10	3.07	39.72	46.00	6.28
Vertical	32.406	17.56	16.94	0.58	35.08	40.00	4.92
	50.942	25.04	8.38	0.71	34.13	40.00	5.87
	78.689	23.44	8.75	0.88	33.07	40.00	6.93
	148.441	19.45	12.23	1.27	32.95	43.50	10.55
	368.112	15.67	15.57	1.96	33.20	46.00	12.80
	909.667	12.75	21.30	3.09	37.14	46.00	8.86

TEST ENGINEER: CAESAR WU

EUT : LED LCD TV Temperature : 22°C

Model No. : 43H4D Humidity : 60%RH

Test Mode : USB Play Date of Test : Mar 24, 2017

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	83.230	23.21	9.67	0.90	33.78	40.00	6.22
	136.939	22.00	12.98	1.22	36.20	43.50	7.30
	301.422	19.17	13.64	1.76	34.57	46.00	11.43
	369.405	17.81	15.60	1.96	35.37	46.00	10.63
	590.974	13.53	18.17	2.50	34.20	46.00	11.80
	881.407	13.69	21.00	3.05	37.74	46.00	8.26
Vertical	49.359	24.45	8.81	0.70	33.96	40.00	6.04
	81.497	24.31	9.24	0.90	34.45	40.00	5.55
	137.903	19.30	13.02	1.22	33.54	43.50	9.96
	299.316	16.25	13.60	1.76	31.61	46.00	14.39
	593.050	17.55	18.25	2.50	38.30	46.00	7.70
	878.322	13.66	20.97	3.05	37.68	46.00	8.32

TEST ENGINEER: CAESAR WU

EUT : LED LCD TV Temperature : 22°C

Model No. : 43H4D Humidity : 60%RH

Test Mode : WIFI Date of Test : Mar 24, 2017

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	82.648	23.48	9.50	0.90	33.88	40.00	6.12
	91.175	24.02	11.00	0.96	35.98	43.50	7.52
	136.939	24.23	12.98	1.22	38.43	43.50	5.07
	294.114	19.15	13.60	1.74	34.49	46.00	11.51
	590.974	13.62	18.17	2.50	34.29	46.00	11.71
	896.997	16.73	21.17	3.07	40.97	46.00	5.03
Vertical	30.745	17.56	17.88	0.57	36.01	40.00	3.99
	48.843	25.17	9.02	0.70	34.89	40.00	5.11
	80.927	24.07	9.07	0.89	34.03	40.00	5.97
	147.921	20.52	12.29	1.27	34.08	43.50	9.42
	370.702	15.81	15.63	1.96	33.40	46.00	12.60
	890.728	15.05	21.10	3.07	39.22	46.00	6.78

TEST ENGINEER: CAESAR WU

5 DEVIATION TO TEST SPECIFICATIONS

None.

6 DEBUG DESCRIPTION

The following components are used during the countermeasure procedures:

Name	M/N	Manufacturer	Location
Ferrite Core BNF	BNF1730GR	Bilusi	Internal Photos Figure 19

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)