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

LED LCD TV

Model No.:
32H4D, 32H4D+, 32H4+0D, 32H4+0D1, 32H4+0D2,
32H40+0D, 32H40+0D1, 32H40+0D2, 32H4DM, 32H4107

Brand: Hisense

FCC ID : W9HLCDC0039

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-F17122
Date of Test : Mar 15-16, 2017
Date of Report : Mar 29, 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 15-16, 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.F17121, a Verification report.

Date of Test : Mar 15-16, 2017 Date of Report : Mar 29, 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 :
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	:	☑ Production ☐ Pre-product ☐ Pro-type
Model No	:	32H4D, 32H4D+, 32H4+0D, 32H4+0D1, 32H4+0D2, 32H40+0D, 32H40+0D1, 32H40+0D2, 32H4DM, 32H4107
Note #1	:	The above models are all the same except for model number. 32H4D 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 : HD315K2H81-B1
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 (Lab provide)	:	Shielded, Detachable, 1.00m

Remark:

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

Side Port:

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

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

(3) One AUDIO OUT Port
: Connected with Earphone

(4) One HDMI1 Port
: Connected with PC

(5) One HDMI2 Port
: Connected with PC

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

Side Port:

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

(8) One HDMI3 Port
: Connected with DVD Player

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

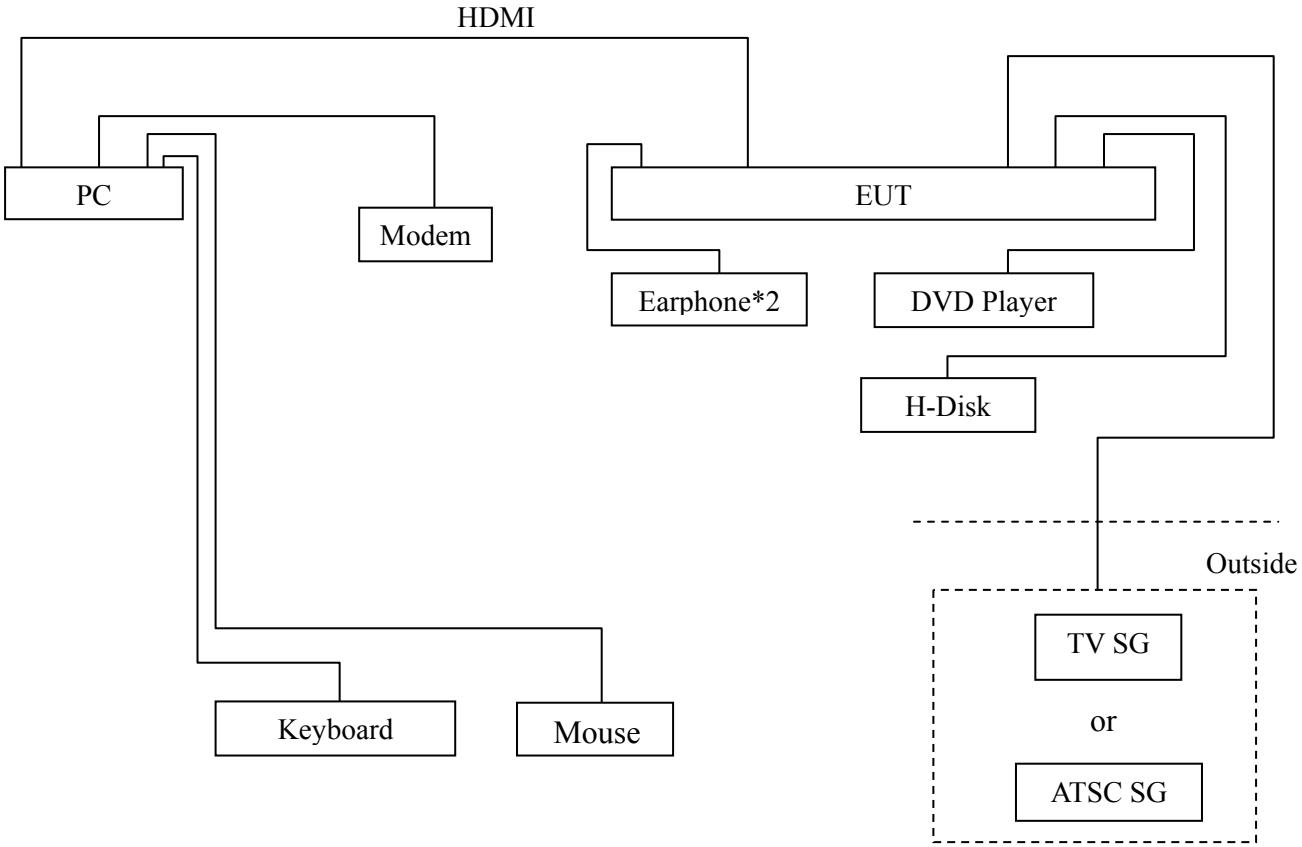
3.1 Test Equipment

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

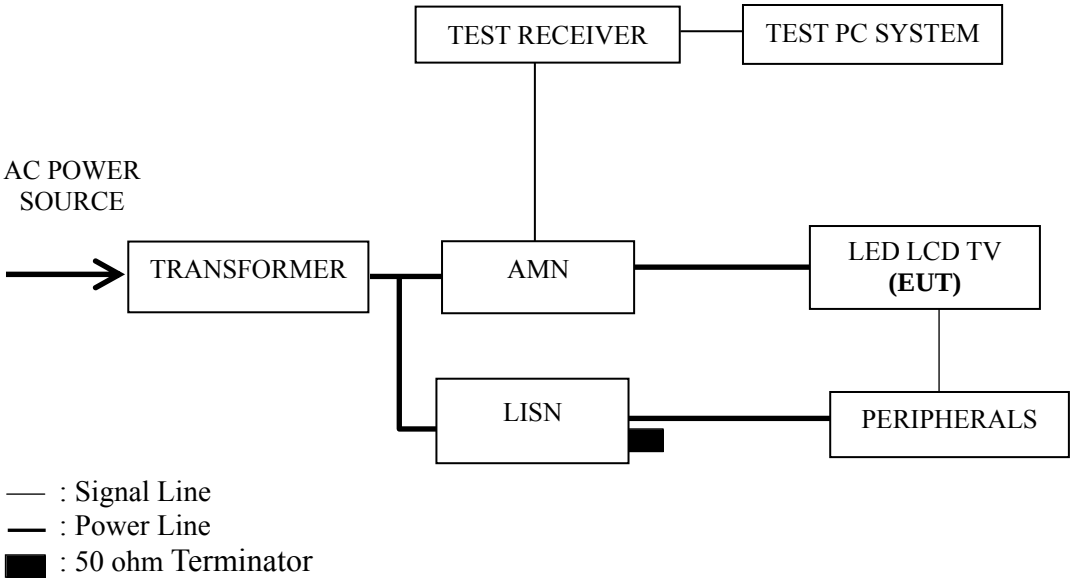
Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Test Receiver	R&S	ESCI	101302	Apr 27, 2016	Apr 26, 2017
2.	Artificial Mains Network (AMN)	R&S	ENV4200	100125	Jun 27, 2016	Jun 26, 2017
3.	Line Impedance Stabilization Network (LISN)	Kyoritsu	KNW-407	8-1280-4	May 15, 2016	May 14, 2017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

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

3.4 Test Configuration

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

3.5 Operating Condition of EUT

3.5.1 Setup the EUT and peripherals as shown in Sec. 3.2.

3.5.2 Turn on the power of all equipments and the EUT.

3.5.3 Set the contrast & brightness of EUT to maximum.

3.5.4 PC system ran the self-test program "EMC Test" by windows XP and sent "H" characters to EUT through graphic card, the EUT's screen displayed and filled with "H" pattern by its resolution (Via HDMI Input).

3.5.5 PC system sent the 1kHz audio signal to EUT through audio port, the EUT speak out 1kHz audio signal.

3.5.6 In USB Play mode, set the EUT play digital media from 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
HDMI3 1920*1080@60Hz & 1kHz playing
HDMI3 1280*1024@60Hz & 1kHz playing
HDMI3 640*480@60Hz & 1kHz playing
HDMI1 1920*1080@60Hz & 1kHz playing
HDMI2 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
HDMI3 1920*1080@60Hz & 1kHz playing	P13
HDMI3 1280*1024@60Hz & 1kHz playing	P14
HDMI3 640*480@60Hz & 1kHz playing	P15
HDMI1 1920*1080@60Hz & 1kHz playing	P16
HDMI2 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 HDMI1080P test mode. The worst emission is detected at 12.253 MHz (Average Value) with corrected signal level of 42.50dB (μV) (limit is 50.00 dB (μV)), when the Neutral of the EUT is connected to AMN.

EUT	:	LED LCD TV	Temperature :	22℃
Model No.	:	32H4D	Humidity :	48%RH
Test Mode	:	HDMI3 1920*1080@60Hz & 1kHz Playing	Date of Test :	Mar 15, 2017

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.190	37.22	10.54	47.76	64.02	16.26	QP
	0.440	29.73	10.42	40.15	57.07	16.92	
	0.541	23.95	10.40	34.35	56.00	21.65	
	0.822	27.45	10.40	37.85	56.00	18.15	
	2.500	25.08	10.42	35.50	56.00	20.50	
	12.253	38.92	10.53	49.45	60.00	10.55	
	0.190	23.22	10.54	33.76	54.02	20.26	AV
	0.440	16.73	10.42	27.15	47.07	19.92	
	0.541	15.95	10.40	26.35	46.00	19.65	
	0.822	15.45	10.40	25.85	46.00	20.15	
	2.500	17.08	10.42	27.50	46.00	18.50	
	12.253	**31.92**	**10.53**	**42.45**	**50.00**	**7.55**	
Neutral	0.188	38.71	10.53	49.24	64.11	14.87	QP
	0.367	30.52	10.44	40.96	58.56	17.60	
	0.476	24.86	10.40	35.26	56.41	21.15	
	0.564	31.89	10.39	42.28	56.00	13.72	
	1.418	26.32	10.42	36.74	56.00	19.26	
	12.253	38.88	10.62	49.50	60.00	10.50	
	0.188	22.71	10.53	33.24	54.11	20.87	AV
	0.367	17.52	10.44	27.96	48.56	20.60	
	0.476	17.86	10.40	28.26	46.41	18.15	
	0.564	18.89	10.39	29.28	46.00	16.72	
	1.418	18.32	10.42	28.74	46.00	17.26	
	12.253	30.88	10.62	41.50	50.00	8.50	

TEST ENGINEER: BYRON WU

EUT	:	LED LCD TV	Temperature :	22℃	
Model No.	:	32H4D	Humidity :	48%RH	
Test Mode	:	HDMI3 1280*1024@60Hz & 1kHz Playing	Date of Test :	Mar 15, 2017	

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.188	37.03	10.54	47.57	64.11	16.54	QP
	0.440	29.25	10.42	39.67	57.07	17.40	
	0.535	25.16	10.40	35.56	56.00	20.44	
	0.839	24.42	10.40	34.82	56.00	21.18	
	2.527	22.95	10.42	33.37	56.00	22.63	
	12.124	36.16	10.51	46.67	60.00	13.33	
	0.188	22.03	10.54	32.57	54.11	21.54	AV
	0.440	18.25	10.42	28.67	47.07	18.40	
	0.535	15.16	10.40	25.56	46.00	20.44	
	0.839	15.42	10.40	25.82	46.00	20.18	
	2.527	12.95	10.42	23.37	46.00	22.63	
	12.124	30.16	10.51	40.67	50.00	9.33	
Neutral	0.192	37.57	10.53	48.10	63.93	15.83	QP
	0.367	30.39	10.44	40.83	58.56	17.73	
	0.564	29.89	10.39	40.28	56.00	15.72	
	1.065	26.49	10.40	36.89	56.00	19.11	
	2.110	26.43	10.43	36.86	56.00	19.14	
	12.253	37.46	10.62	48.08	60.00	11.92	
	0.192	23.57	10.53	34.10	53.93	19.83	AV
	0.367	18.39	10.44	28.83	48.56	19.73	
	0.564	17.89	10.39	28.28	46.00	17.72	
	1.065	17.49	10.40	27.89	46.00	18.11	
	2.110	18.43	10.43	28.86	46.00	17.14	
	12.253	**30.46**	**10.62**	**41.08**	**50.00**	**8.92**	

TEST ENGINEER: BYRON WU

EUT	:	LED LCD TV	Temperature :	22℃	
Model No.	:	32H4D	Humidity :	48%RH	
Test Mode	:	HDMI3 640*480@60Hz & 1kHz Playing	Date of Test :	Mar 15, 2017	

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.188	36.70	10.54	47.24	64.11	16.87	QP
	0.440	28.91	10.42	39.33	57.07	17.74	
	0.535	26.98	10.40	37.38	56.00	18.62	
	0.720	23.92	10.40	34.32	56.00	21.68	
	2.554	21.27	10.42	31.69	56.00	24.31	
	12.124	37.82	10.51	48.33	60.00	11.67	
	0.188	23.70	10.54	34.24	54.11	19.87	AV
	0.440	17.91	10.42	28.33	47.07	18.74	
	0.535	16.98	10.40	27.38	46.00	18.62	
	0.720	12.92	10.40	23.32	46.00	22.68	
	2.554	12.27	10.42	22.69	46.00	23.31	
	12.124	29.82	10.51	40.33	50.00	9.67	
Neutral	0.188	36.34	10.53	46.87	64.11	17.24	QP
	0.367	26.56	10.44	37.00	58.56	21.56	
	0.564	27.94	10.39	38.33	56.00	17.67	
	1.535	25.60	10.42	36.02	56.00	19.98	
	3.207	25.89	10.47	36.36	56.00	19.64	
	12.124	37.16	10.60	47.76	60.00	12.24	
	0.188	24.34	10.53	34.87	54.11	19.24	AV
	0.367	18.56	10.44	29.00	48.56	19.56	
	0.564	18.94	10.39	29.33	46.00	16.67	
	1.535	18.60	10.42	29.02	46.00	16.98	
	3.207	13.89	10.47	24.36	46.00	21.64	
	12.124	**30.16**	**10.60**	**40.76**	**50.00**	**9.24**	

TEST ENGINEER: BYRON WU

EUT	:	LED LCD TV	Temperature :	22℃
Model No.	:	32H4D	Humidity :	48%RH
Test Mode	:	HDMI1 1920*1080@60Hz & 1kHz playing	Date of Test :	Mar 15, 2017

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.150	39.00	10.59	49.59	65.99	16.40	QP
	0.188	36.90	10.54	47.44	64.11	16.67	
	0.440	27.15	10.42	37.57	57.07	19.50	
	0.839	24.85	10.40	35.25	56.00	20.75	
	2.581	20.01	10.42	30.43	56.00	25.57	
	12.124	36.75	10.51	47.26	60.00	12.74	
	0.150	20.70	10.59	31.29	55.99	24.70	AV
	0.188	18.90	10.54	29.44	54.11	24.67	
	0.440	21.15	10.42	31.57	47.07	15.50	
	0.839	12.85	10.40	23.25	46.00	22.75	
	2.581	12.01	10.42	22.43	46.00	23.57	
	12.124	29.75	10.51	40.26	50.00	9.74	
Neutral	0.151	38.22	10.58	48.80	65.96	17.16	QP
	0.188	37.55	10.53	48.08	64.11	16.03	
	0.367	28.41	10.44	38.85	58.56	19.71	
	0.564	30.83	10.39	41.22	56.00	14.78	
	1.065	28.07	10.40	38.47	56.00	17.53	
	12.124	37.02	10.60	47.62	60.00	12.38	
	0.151	21.22	10.58	31.80	55.96	24.16	AV
	0.188	22.55	10.53	33.08	54.11	21.03	
	0.367	15.41	10.44	25.85	48.56	22.71	
	0.564	16.83	10.39	27.22	46.00	18.78	
	1.065	16.07	10.40	26.47	46.00	19.53	
	12.124	**30.02**	**10.60**	**40.62**	**50.00**	**9.38**	

TEST ENGINEER: BYRON WU

EUT	:	LED LCD TV	Temperature :	22℃	
Model No.	:	32H4D	Humidity :	48%RH	
Test Mode	:	HDMI2 1920*1080@60Hz & 1kHz playing	Date of Test :	Mar 15, 2017	

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.188	37.42	10.54	47.96	64.11	16.15	QP
	0.440	29.12	10.42	39.54	57.07	17.53	
	0.541	25.85	10.40	36.25	56.00	19.75	
	0.830	23.51	10.40	33.91	56.00	22.09	
	2.554	24.48	10.42	34.90	56.00	21.10	
	12.253	38.25	10.53	48.78	60.00	11.22	
	0.188	22.42	10.54	32.96	54.11	21.15	AV
	0.440	17.12	10.42	27.54	47.07	19.53	
	0.541	15.85	10.40	26.25	46.00	19.75	
	0.830	15.51	10.40	25.91	46.00	20.09	
	2.554	16.48	10.42	26.90	46.00	19.10	
	12.253	31.25	10.53	41.78	50.00	8.22	
Neutral	0.150	39.80	10.58	50.38	65.99	15.61	QP
	0.190	37.61	10.53	48.14	64.02	15.88	
	0.440	29.86	10.41	40.27	57.07	16.80	
	0.564	30.97	10.39	41.36	56.00	14.64	
	1.535	26.50	10.42	36.92	56.00	19.08	
	12.253	38.22	10.62	48.84	60.00	11.16	
	0.150	23.00	10.58	33.58	55.99	22.41	AV
	0.190	25.61	10.53	36.14	54.02	17.88	
	0.440	16.86	10.41	27.27	47.07	19.80	
	0.564	16.97	10.39	27.36	46.00	18.64	
	1.535	17.50	10.42	27.92	46.00	18.08	
	12.253	**31.22**	**10.62**	**41.84**	**50.00**	**8.16**	

TEST ENGINEER: BYRON WU

EUT	:	LED LCD TV	Temperature :	22℃	
Model No.	:	32H4D	Humidity	:	48%RH
Test Mode	:	HDMI 1080P	Date of Test	:	Mar 15, 2017

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.188	37.67	10.54	48.21	64.11	15.90	QP
	0.440	29.13	10.42	39.55	57.07	17.52	
	0.541	25.12	10.40	35.52	56.00	20.48	
	0.830	24.34	10.40	34.74	56.00	21.26	
	2.384	21.99	10.42	32.41	56.00	23.59	
	12.253	37.97	10.53	48.50	60.00	11.50	
	0.188	22.67	10.54	33.21	54.11	20.90	AV
	0.440	18.13	10.42	28.55	47.07	18.52	
	0.541	16.12	10.40	26.52	46.00	19.48	
	0.830	18.34	10.40	28.74	46.00	17.26	
	2.384	12.99	10.42	23.41	46.00	22.59	
	12.253	**31.97**	**10.53**	**42.50**	**50.00**	**7.50**	
Neutral	0.188	36.33	10.53	46.86	64.11	17.25	QP
	0.367	28.59	10.44	39.03	58.56	19.53	
	0.564	27.02	10.39	37.41	56.00	18.59	
	1.388	26.54	10.41	36.95	56.00	19.05	
	5.867	28.31	10.51	38.82	60.00	21.18	
	12.253	36.90	10.62	47.52	60.00	12.48	
	0.188	21.33	10.53	31.86	54.11	22.25	AV
	0.367	17.59	10.44	28.03	48.56	20.53	
	0.564	16.02	10.39	26.41	46.00	19.59	
	1.388	15.54	10.41	25.95	46.00	20.05	
	5.867	19.31	10.51	29.82	50.00	20.18	
	12.253	29.90	10.62	40.52	50.00	9.48	

TEST ENGINEER: BYRON WU

EUT	:	LED LCD TV	Temperature :	22℃	
Model No.	:	32H4D	Humidity	:	48%RH
Test Mode	:	USB Play	Date of Test	:	Mar 15, 2017

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.188	36.63	10.54	47.17	64.11	16.94	QP
	0.440	29.93	10.42	40.35	57.07	16.72	
	0.535	25.05	10.40	35.45	56.00	20.55	
	0.727	23.61	10.40	34.01	56.00	21.99	
	2.044	21.80	10.41	32.21	56.00	23.79	
	12.124	38.96	10.51	49.47	60.00	10.53	
	0.188	23.63	10.54	34.17	54.11	19.94	AV
	0.440	18.93	10.42	29.35	47.07	17.72	
	0.535	17.05	10.40	27.45	46.00	18.55	
	0.727	16.61	10.40	27.01	46.00	18.99	
	2.044	16.80	10.41	27.21	46.00	18.79	
	12.124	30.96	10.51	41.47	50.00	8.53	
Neutral	0.188	37.29	10.53	47.82	64.11	16.29	QP
	0.363	29.39	10.44	39.83	58.65	18.82	
	0.564	29.13	10.39	39.52	56.00	16.48	
	1.065	26.59	10.40	36.99	56.00	19.01	
	2.044	24.31	10.43	34.74	56.00	21.26	
	12.253	38.68	10.62	49.30	60.00	10.70	
	0.188	20.29	10.53	30.82	54.11	23.29	AV
	0.363	17.39	10.44	27.83	48.65	20.82	
	0.564	18.13	10.39	28.52	46.00	17.48	
	1.065	19.59	10.40	29.99	46.00	16.01	
	2.044	16.31	10.43	26.74	46.00	19.26	
	12.253	**31.68**	**10.62**	**42.30**	**50.00**	**7.70**	

TEST ENGINEER: BYRON WU

EUT	:	LED LCD TV	Temperature :	22℃	
Model No.	:	32H4D	Humidity	:	48%RH
Test Mode	:	WIFI	Date of Test	:	Mar 15, 2017

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.188	37.61	10.54	48.15	64.11	15.96	QP
	0.440	29.22	10.42	39.64	57.07	17.43	
	0.529	28.03	10.40	38.43	56.00	17.57	
	0.720	22.62	10.40	33.02	56.00	22.98	
	2.044	18.92	10.41	29.33	56.00	26.67	
	12.124	37.71	10.51	48.22	60.00	11.78	
	0.188	19.61	10.54	30.15	54.11	23.96	AV
	0.440	18.22	10.42	28.64	47.07	18.43	
	0.529	20.03	10.40	30.43	46.00	15.57	
	0.720	11.62	10.40	22.02	46.00	23.98	
	2.044	12.92	10.41	23.33	46.00	22.67	
	12.124	29.71	10.51	40.22	50.00	9.78	
Neutral	0.186	36.49	10.54	47.03	64.20	17.17	QP
	0.367	30.47	10.44	40.91	58.56	17.65	
	0.564	24.99	10.39	35.38	56.00	20.62	
	1.065	25.79	10.40	36.19	56.00	19.81	
	3.293	25.35	10.47	35.82	56.00	20.18	
	12.124	37.25	10.60	47.85	60.00	12.15	
	0.186	21.49	10.54	32.03	54.20	22.17	AV
	0.367	18.47	10.44	28.91	48.56	19.65	
	0.564	15.99	10.39	26.38	46.00	19.62	
	1.065	16.79	10.40	27.19	46.00	18.81	
	3.293	18.35	10.47	28.82	46.00	17.18	
	12.124	**31.25**	**10.60**	**41.85**	**50.00**	**8.15**	

TEST ENGINEER: BYRON WU

4 RADIATED EMISSION TEST

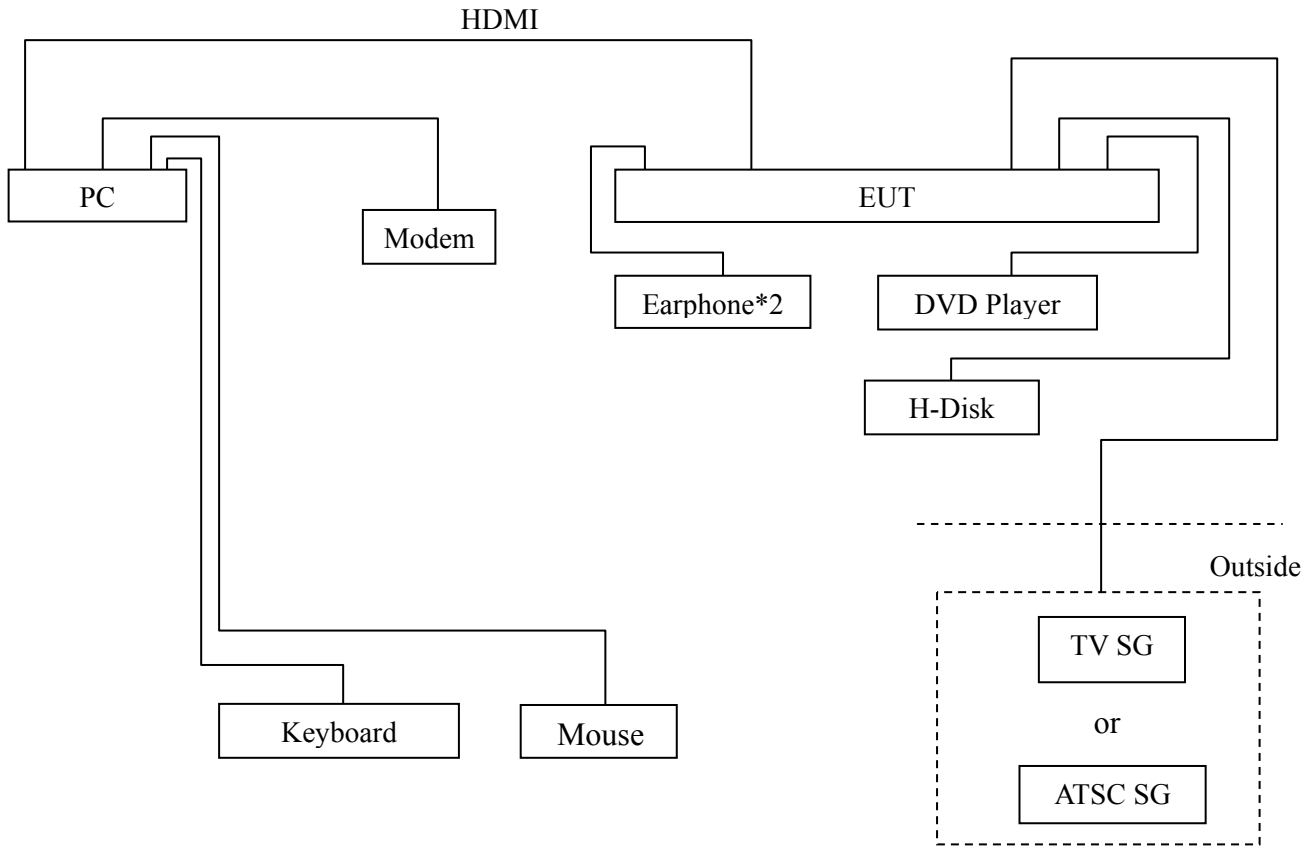
4.1 Test Equipment

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	--	--

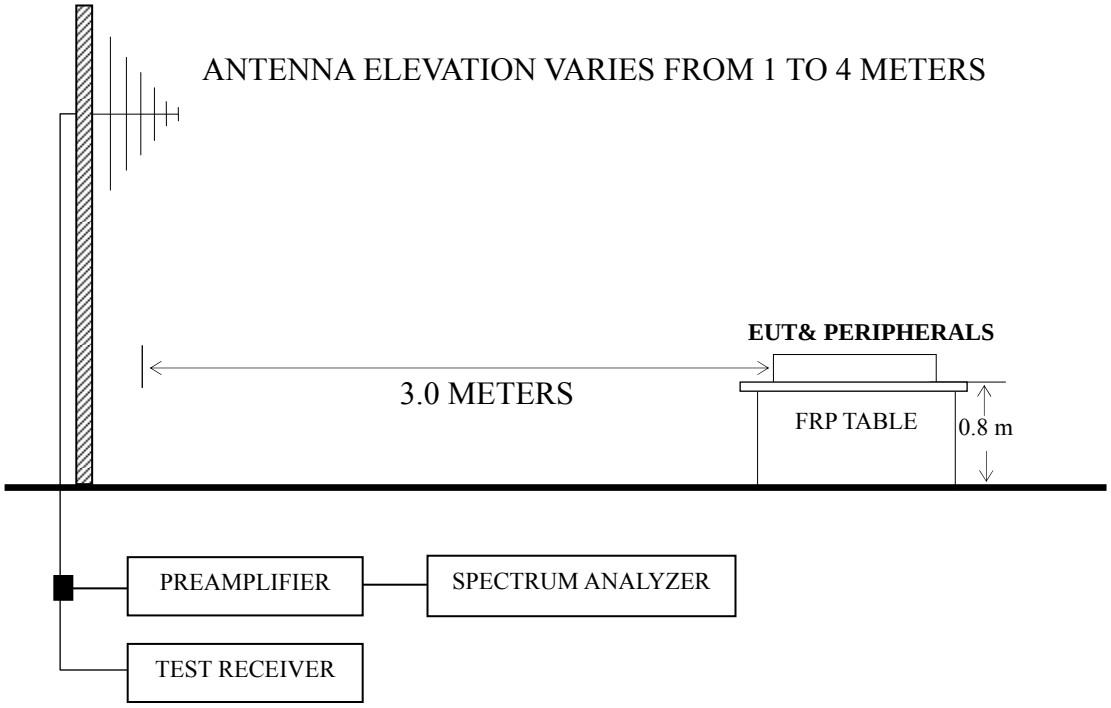
4.2 Block Diagram of Test Setup

4.2.1 EUT & Peripherals



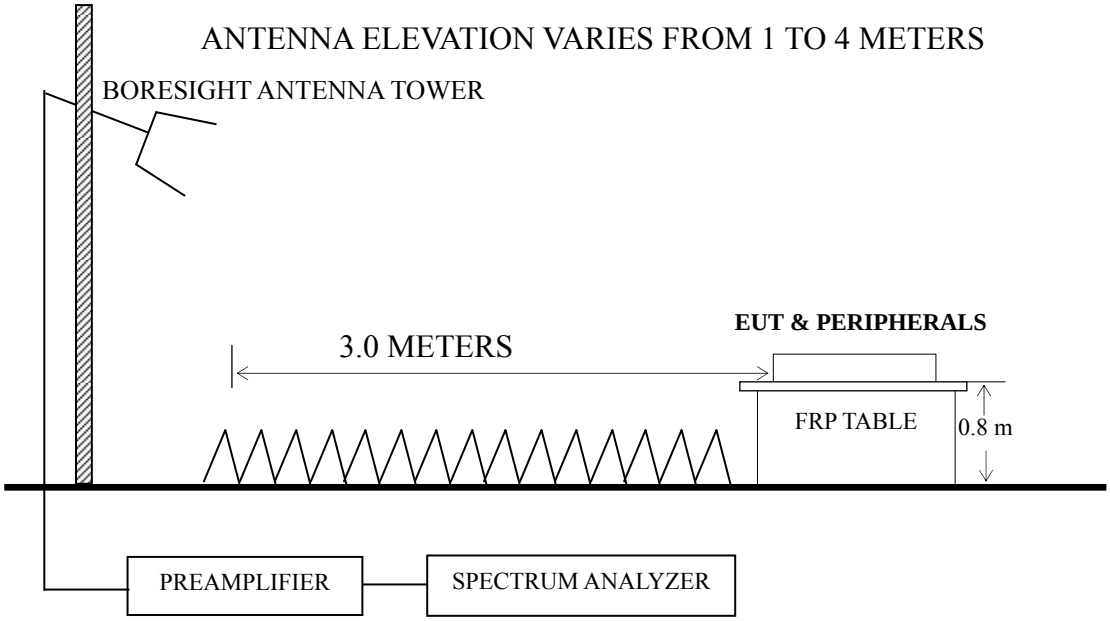
4.2.2 Radiated emission test setup

4.2.2.1 Below 1GHz



■ : 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	
		(μV/m)	dB (μV/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 (μV/m) = 20 log Emission Level (μV/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
HDMI3 1920*1080@60Hz & 1kHz playing	P25-P26
HDMI3 1280*1024@60Hz & 1kHz playing	P27
HDMI3 640*480@60Hz & 1kHz playing	P28
HDMI1 1920*1080@60Hz & 1kHz playing	P29
HDMI2 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 HDMI3 1920*1080@60Hz & 1kHz Playing test mode. The worst emission at horizontal polarization was detected at 315.481 MHz with corrected signal level of 41.05 dB (μV/m) (limit is 46.00 dB (μV/m)), when the antenna was 2.30 m height and the turntable was at 230°. The worst emission at vertical polarization was detected at 31.955 MHz with corrected signal level of 35.60 dB (μV/m) (limit is 40.00 dB (μV/m)), when the antenna was 1.20 m height and the turntable was at 70°.

EUT	:	LED LCD TV	Temperature :	22℃
Model No.	:	32H4D	Humidity :	60%RH
Test Mode	:	HDMI3 1920*1080@60Hz & 1kHz Playing	Date of Test :	Mar 16, 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
Horizontal	82.071	22.31	9.41	0.90	--	32.62	40.00	7.38	QP
	133.151	19.72	12.83	1.20	--	33.75	43.50	9.75	
	315.481	**25.25**	**14.00**	**1.80**	**--**	**41.05**	**46.00**	**4.95**	
	432.546	16.29	16.44	2.12	--	34.85	46.00	11.15	
	625.078	13.57	18.95	2.56	--	35.08	46.00	10.92	
	851.035	11.16	20.57	3.00	--	34.73	46.00	11.27	
	1327.235	55.43	24.97	3.82	35.97	48.25	74.00	25.75	PK
	1480.523	49.93	25.54	4.05	35.76	43.76	74.00	30.24	
	1767.877	55.48	26.68	4.41	35.43	51.14	74.00	22.86	
	1327.235	38.66	24.97	3.82	35.97	31.48	54.00	22.52	AV
	1480.523	33.03	25.54	4.05	35.76	26.86	54.00	27.14	
	1767.877	38.03	26.68	4.41	35.43	33.69	54.00	20.31	

TEST ENGINEER: CAESAR WU

EUT	:	LED LCD TV	Temperature :	22℃
Model No.	:	32H4D	Humidity	: 60%RH
Test Mode	:	HDMI3 1920*1080@60Hz & 1kHz Playing	Date of Test	: Mar 16, 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	**31.955**	**17.92**	**17.10**	**0.58**	--	**35.60**	**40.00**	**4.40**	QP
	82.380	24.40	9.50	0.90	--	34.80	40.00	5.20	
	132.221	21.13	12.86	1.19	--	35.18	43.50	8.32	
	307.831	17.85	13.82	1.79	--	33.46	46.00	12.54	
	465.599	14.35	17.02	2.19	--	33.56	46.00	12.44	
	620.710	11.65	18.80	2.56	--	33.01	46.00	12.99	
	1320.120	64.72	24.94	3.82	35.98	57.50	74.00	16.50	PK
	1459.452	47.81	25.47	4.02	35.79	41.51	74.00	32.49	
	1882.294	44.31	27.10	4.53	35.32	40.62	74.00	33.38	
	1320.120	45.34	24.94	3.82	35.98	38.12	54.00	15.88	AV
	1459.452	30.78	25.47	4.02	35.79	24.48	54.00	29.52	
	1882.294	28.11	27.10	4.53	35.32	24.42	54.00	29.58	

TEST ENGINEER: CAESAR WU

EUT	:	LED LCD TV	Temperature :	22℃
Model No.	:	32H4D	Humidity :	60%RH
Test Mode	:	HDMI3 1280*1024@60Hz & 1kHz Playing	Date of Test :	Mar 16, 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	**79.720**	**25.01**	**8.86**	**0.88**	**34.75**	**40.00**	**5.25**
	99.878	24.88	12.34	1.00	38.22	43.50	5.28
	136.939	23.68	12.98	1.22	37.88	43.50	5.62
	311.087	18.29	13.92	1.79	34.00	46.00	12.00
	432.546	15.62	16.44	2.12	34.18	46.00	11.82
	541.373	12.69	17.66	2.36	32.71	46.00	13.29
Vertical	**31.955**	**16.79**	**17.10**	**0.58**	**34.47**	**40.00**	**5.53**
	81.430	24.10	9.24	0.90	34.24	40.00	5.76
	136.939	23.50	12.98	1.22	37.70	43.50	5.80
	158.112	24.40	11.38	1.32	37.10	43.50	6.40
	472.176	15.25	17.12	2.20	34.57	46.00	11.43
	647.386	13.36	19.27	2.61	35.24	46.00	10.76

TEST ENGINEER: CAESAR WU

EUT	:	LED LCD TV	Temperature :	22℃
Model No.	:	32H4D	Humidity :	60%RH
Test Mode	:	HDMI3 640*480@60Hz & 1kHz Playing	Date of Test :	Mar 16, 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	87.112	20.15	10.40	0.93	31.48	40.00	8.52
	159.784	25.35	11.32	1.32	37.99	43.50	5.51
	307.831	**25.02**	**13.82**	**1.79**	**40.63**	**46.00**	**5.37**
	432.546	15.91	16.44	2.12	34.47	46.00	11.53
	511.835	17.64	17.60	2.30	37.54	46.00	8.46
	597.223	15.25	18.33	2.50	36.08	46.00	9.92
Vertical	**36.001**	**18.58**	**15.10**	**0.61**	**34.29**	**40.00**	**5.71**
	84.999	21.45	10.10	0.92	32.47	40.00	7.53
	159.784	20.91	11.32	1.32	33.55	43.50	9.95
	309.998	20.68	13.90	1.79	36.37	46.00	9.63
	473.835	17.40	17.14	2.20	36.74	46.00	9.26
	620.710	13.28	18.80	2.56	34.64	46.00	11.36

TEST ENGINEER: CAESAR WU

EUT	:	LED LCD TV	Temperature :	22℃
Model No.	:	32H4D	Humidity :	60%RH
Test Mode	:	HDMI1 1920*1080@60Hz & 1kHz playing	Date of Test :	Mar 16, 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	82.938	20.93	9.59	0.90	31.42	40.00	8.58
	94.098	21.04	11.47	0.97	33.48	43.50	10.02
	148.963	20.92	12.16	1.28	34.36	43.50	9.14
	311.087	**24.82**	**13.92**	**1.79**	**40.53**	**46.00**	**5.47**
	475.499	15.85	17.16	2.22	35.23	46.00	10.77
	742.259	12.61	19.57	2.79	34.97	46.00	11.03
Vertical	**31.955**	**16.97**	**17.10**	**0.58**	**34.65**	**40.00**	**5.35**
	82.071	23.85	9.41	0.90	34.16	40.00	5.84
	148.963	22.47	12.16	1.28	35.91	43.50	7.59
	311.087	17.62	13.92	1.79	33.33	46.00	12.67
	477.169	14.85	17.18	2.22	34.25	46.00	11.75
	890.728	13.86	21.10	3.07	38.03	46.00	7.97

TEST ENGINEER: CAESAR WU

EUT	:	LED LCD TV	Temperature :	22℃
Model No.	:	32H4D	Humidity :	60%RH
Test Mode	:	HDMI2 1920*1080@60Hz & 1kHz playing	Date of Test :	Mar 16, 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	21.42	10.20	0.93	32.55	40.00	7.45
	159.784	25.01	11.32	1.32	37.65	43.50	5.85
	311.087	**25.14**	**13.92**	**1.79**	**40.85**	**46.00**	**5.15**
	593.050	16.69	18.25	2.50	37.44	46.00	8.56
	742.259	16.90	19.57	2.79	39.26	46.00	6.74
	896.997	16.35	21.17	3.07	40.59	46.00	5.41
Vertical	**36.001**	**18.76**	**15.10**	**0.61**	**34.47**	**40.00**	**5.53**
	148.963	23.88	12.16	1.28	37.32	43.50	6.18
	311.087	18.14	13.92	1.79	33.85	46.00	12.15
	475.499	15.94	17.16	2.22	35.32	46.00	10.68
	742.259	15.19	19.57	2.79	37.55	46.00	8.45
	890.728	11.66	21.10	3.07	35.83	46.00	10.17

TEST ENGINEER: CAESAR WU

EUT	:	LED LCD TV	Temperature :	22℃
Model No.	:	32H4D	Humidity :	60%RH
Test Mode	:	HDMI1080P	Date of Test :	Mar 16, 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	88.033	20.81	10.50	0.93	32.24	43.50	11.26
	148.963	24.23	12.16	1.28	37.67	43.50	5.83
	159.784	**25.67**	**11.32**	**1.32**	**38.31**	**43.50**	**5.19**
	313.276	24.82	13.98	1.80	40.60	46.00	5.40
	597.223	18.62	18.33	2.50	39.45	46.00	6.55
	742.259	16.72	19.57	2.79	39.08	46.00	6.92
Vertical	31.955	15.75	17.10	0.58	33.43	40.00	6.57
	36.001	18.21	15.10	0.61	33.92	40.00	6.08
	148.963	**24.33**	**12.16**	**1.28**	**37.77**	**43.50**	**5.73**
	309.998	20.16	13.90	1.79	35.85	46.00	10.15
	477.169	17.57	17.18	2.22	36.97	46.00	9.03
	742.259	17.02	19.57	2.79	39.38	46.00	6.62

TEST ENGINEER: CAESAR WU

EUT	:	LED LCD TV	Temperature :	22℃
Model No.	:	32H4D	Humidity :	60%RH
Test Mode	:	USB Play	Date of Test :	Mar 16, 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	84.110	23.62	9.84	0.91	34.37	40.00	5.63
	159.784	24.58	11.32	1.32	37.22	43.50	6.28
	308.913	**24.93**	**13.86**	**1.79**	**40.58**	**46.00**	**5.42**
	511.835	17.84	17.60	2.30	37.74	46.00	8.26
	539.478	16.65	17.60	2.36	36.61	46.00	9.39
	935.546	14.12	21.50	3.14	38.76	46.00	7.24
Vertical	31.955	15.77	17.10	0.58	33.45	40.00	6.55
	36.127	**18.96**	**15.04**	**0.61**	**34.61**	**40.00**	**5.39**
	84.999	20.47	10.10	0.92	31.49	40.00	8.51
	159.784	20.62	11.32	1.32	33.26	43.50	10.24
	309.998	19.84	13.90	1.79	35.53	46.00	10.47
	539.478	18.17	17.60	2.36	38.13	46.00	7.87

TEST ENGINEER: CAESAR WU

EUT	:	LED LCD TV	Temperature :	22℃
Model No.	:	32H4D	Humidity :	60%RH
Test Mode	:	WIFI	Date of Test :	Mar 16, 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	**33.445**	**16.55**	**16.51**	**0.59**	**33.65**	**40.00**	**6.35**
	96.775	19.99	11.91	0.99	32.89	43.50	10.61
	169.005	21.12	10.93	1.36	33.41	43.50	10.09
	300.367	18.51	13.64	1.76	33.91	46.00	12.09
	586.844	10.90	18.15	2.48	31.53	46.00	14.47
	952.094	9.07	21.70	3.16	33.93	46.00	12.07
Vertical	**32.749**	**15.73**	**16.78**	**0.58**	**33.09**	**40.00**	**6.91**
	97.798	20.85	12.03	0.99	33.87	43.50	9.63
	236.645	19.17	11.92	1.59	32.68	46.00	13.32
	389.355	15.25	16.05	2.02	33.32	46.00	12.68
	574.626	12.00	18.25	2.46	32.71	46.00	13.29
	842.130	11.02	20.30	2.98	34.30	46.00	11.70

TEST ENGINEER: CAESAR WU

5 DEVIATION TO TEST SPECIFICATIONS

None.