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

LED LCD TV

Brand	Model No.
Hisense	55H5D, 55H5D+, 55H53077 55H5+0D, 55H5+0D1, 55H5+0D2 55H50+0D, 55H50+0D1, 55H50+0D2
Sharp	LC-55P5000U, LC-55N5002U LC-55N5000U+, LC-55N5200U LC-55N5050U+, LC-55N5020U+ LC-55N5200U+, LC-55P5000U+ LC-55P50+0U, LC-55P50+0U1 LC-55P50+0U2, LC-55P5+0U LC-55P5+0U1, LC-55P5+0U2

FCC ID : W9HLCDF0107

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-F17073
Date of Test : Feb 04-10, 2017
Date of Report : Feb 20, 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 : Refer to Sec.2.1
		Power Supply : 120V/60Hz

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 Feb 04-10, 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.F17072, a Verification report.

Date of Test : Feb 04-10, 2017 Date of Report : Feb 20, 2017

Producer : TINA LIANG / Assistant

Review : BYRON WU / Deputy Assistant Manager

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 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

Brand	Model No.
Hisense	55H5D, 55H5D+, 55H53077 55H5+0D, 55H5+0D1, 55H5+0D2 55H50+0D, 55H50+0D1, 55H50+0D2
Sharp	LC-55P5000U, LC-55N5002U LC-55N5000U+, LC-55N5200U LC-55N5050U+, LC-55N5020U+ LC-55N5200U+, LC-55P5000U+ LC-55P50+0U, LC-55P50+0U1 LC-55P50+0U2, LC-55P5+0U LC-55P5+0U1, LC-55P5+0U2

Note #1 : The above models are all the same except for model number and brand.55H5D model is tested and recorded in the report.

Note#2 : "+"represents any of the Arabic numeral.

Note #3 : Both Hisense and Sharp have two appearances.

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.

WIFI Modular : FCC ID : PPQ-WN4640R

LCD Panel : Manufacturer : Hisense
M/N : HD550K3F81-TX

Tuner : Manufacturer : MAXLINEAR
M/N : MXL661

Max Resolution	:	1920*1080@60Hz
HDMI Cable*3 (Lab provide)	:	Shielded, Detachable, 1.80m
Power Cord	:	Unshielded, Detachable, 1.80m, 2C
USB Cable*2	:	Shielded, Detachable, 1.00m
LAN Cable	:	Unshielded, Detachable, 1.50m

Remark:

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

Side Port:

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

(2) One HDMI1 Port
: Connected with PC

(3) One HDMI2 Port
: Connected with PC

(4) One USB1 Port
: Connected with Hard-Disk #2

(5) One Service Port
: Do not open to customer

(6) One USB2 Port
: Connected with Hard-Disk #2

(7) One AUDIO OUT Port
: Connected with Earphone #1

Back Port:

(8) One COMPONENT IN/AV IN Port
: Connected with DVD Player #1

(9) One LAN Port
: Connected with PC

(10) One DIGITAL AUDIO OUT Port
: Connected with Audio Converter to Earphone

(11) One HDMI3 Port
: Connected with DVD Player #1

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

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

2.2.6 Hard Disk #1

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

2.2.7 Hard Disk #2

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

2.2.8 Mobile Phone

Manufacturer	:	SAMSUNG
Model Number	:	GT-I9100G
Serial Number	:	6935152011519
Data Cable	:	Shielded, Detachable, 1.8m.
Certificate	:	CE/EMC

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

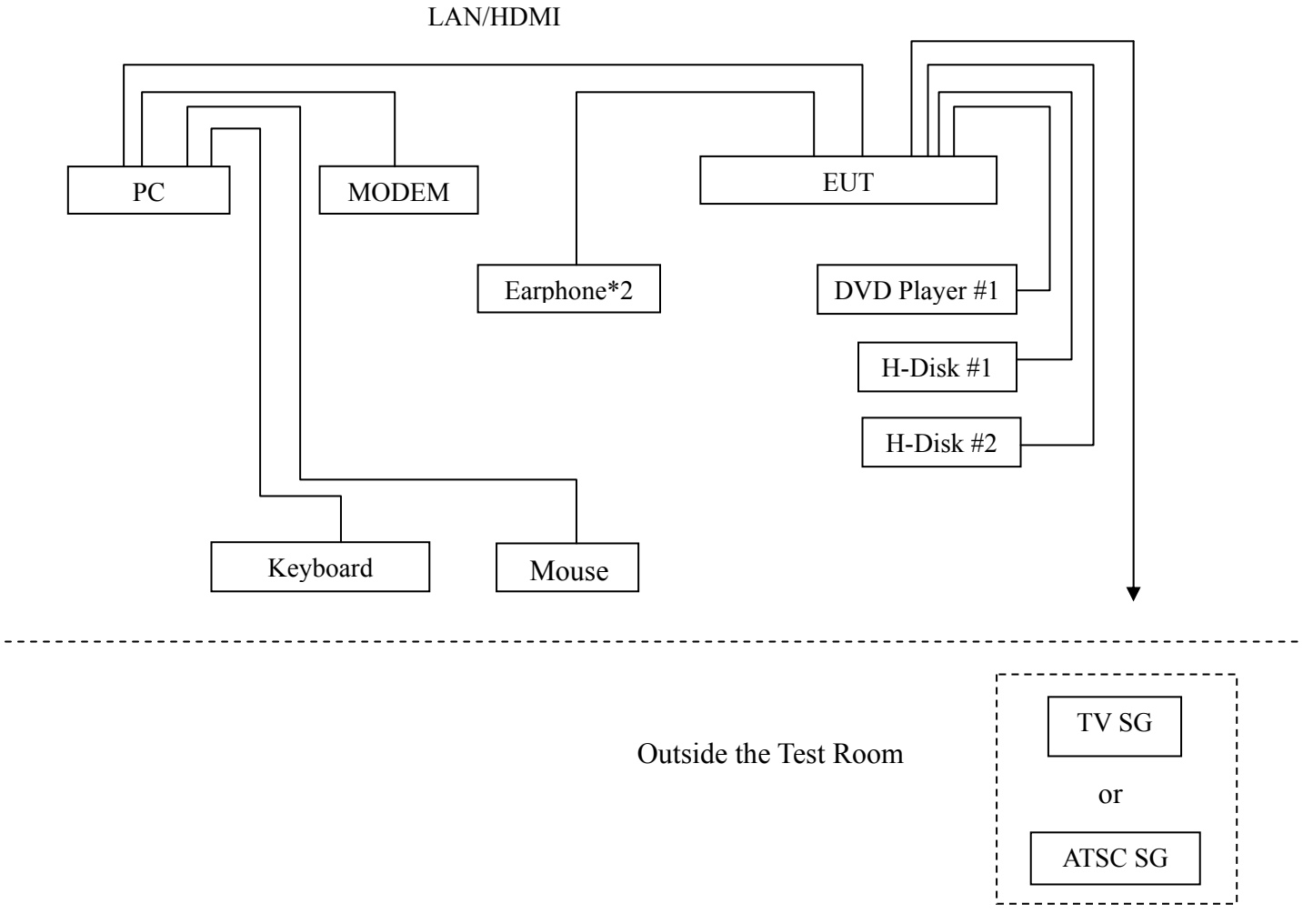
3.1 Test Equipment

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

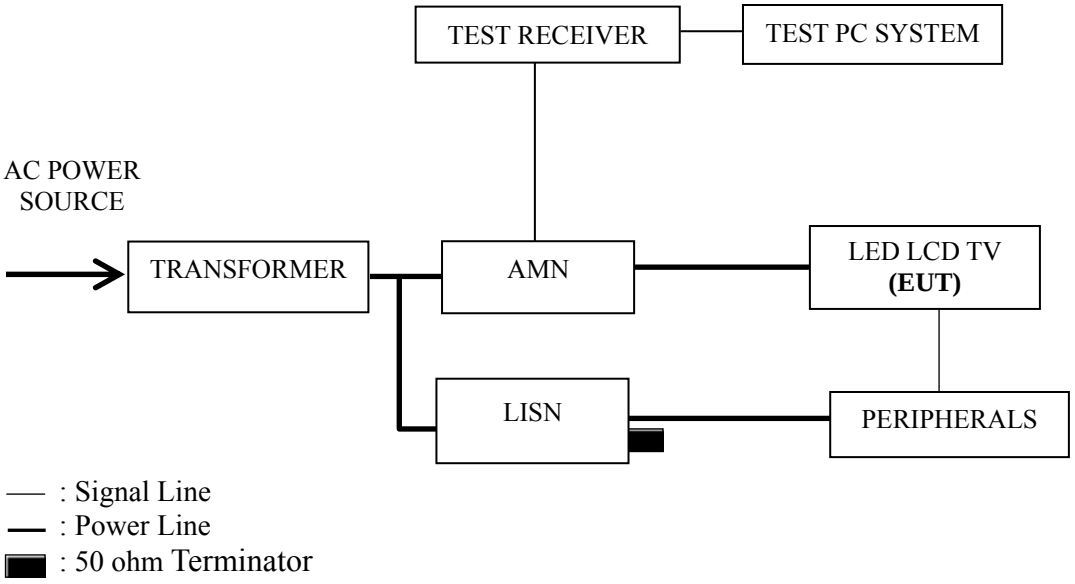
Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Test Receiver	R&S	ESCI	101302	Apr 27, 2016	Apr 26, 2017
2.	Artificial Mains Network (AMN)	R&S	ENV4200	100125	Jun 25, 2016	Jun 24, 2017
3.	Line Impedance Stabilization Network (LISN)	Kyoritsu	KNW-407	8-1280-4	Mar 20, 2016	Mar 19, 2017
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/ 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 1920*1080@60Hz & 1kHz Playing
HDMI 1280*1024@60Hz & 1kHz playing
HDMI 640*480@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 1920*1080@60Hz & 1kHz Playing	P13
HDMI 1280*1024@60Hz & 1kHz playing	P14
HDMI 640*480@60Hz & 1kHz playing	P15
HDMI1080P	P16
USB Play	P17
LAN Play	P18

NOTE 1 – Factor = Cable Loss + AMN Factor.
NOTE 2 – Emission Level = Meter Reading + Factor.
NOTE 3 – "QP" means "Quasi-Peak" values, "AV" means "Average" values.
NOTE 4 – The worst case is for LAN Play test mode. The worst emission is detected at 0.172MHz (Quasi-Peak Value) with corrected signal level of 58.56 dB (μV) (limit is 64.86 dB (μV)), when the Line of the EUT is connected to AMN.

EUT	:	LED LCD TV	Temperature :	22℃	
Model No.	:	55H5D	Humidity	:	48%RH
Test Mode	:	HDMI 1920*1080@60Hz & 1kHz Playing	Date of Test	:	Feb 10, 2017

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	**0.170**	**46.50**	**10.56**	**57.06**	**64.94**	**7.88**	QP
	0.447	35.00	10.42	45.42	56.93	11.51	
	0.743	31.30	10.40	41.70	56.00	14.30	
	1.032	26.50	10.40	36.90	56.00	19.10	
	3.399	27.10	10.43	37.53	56.00	18.47	
	18.039	27.10	10.58	37.68	60.00	22.32	
	0.170	34.70	10.56	45.26	54.94	9.68	AV
	0.447	23.10	10.42	33.52	46.93	13.41	
	0.743	19.40	10.40	29.80	46.00	16.20	
	1.032	13.20	10.40	23.60	46.00	22.40	
	3.399	12.20	10.43	22.63	46.00	23.37	
	18.039	22.50	10.58	33.08	50.00	16.92	
Neutral	**0.170**	**47.50**	**10.55**	**58.05**	**64.94**	**6.89**	QP
	0.444	32.50	10.41	42.91	56.98	14.07	
	0.727	26.90	10.39	37.29	56.00	18.71	
	1.338	25.40	10.41	35.81	56.00	20.19	
	3.241	26.40	10.47	36.87	56.00	19.13	
	17.755	26.20	10.69	36.89	60.00	23.11	
	0.170	34.70	10.55	45.25	54.94	9.69	AV
	0.444	21.30	10.41	31.71	46.98	15.27	
	0.727	8.90	10.39	19.29	46.00	26.71	
	1.338	12.20	10.41	22.61	46.00	23.39	
	3.241	10.60	10.47	21.07	46.00	24.93	
	17.755	21.80	10.69	32.49	50.00	17.51	

TEST ENGINEER: BYRON WU

EUT	:	LED LCD TV	Temperature :	22℃	
Model No.	:	55H5D	Humidity	:	48%RH
Test Mode	:	HDMI 1280*1024@60Hz & 1kHz playing	Date of Test	:	Feb 10, 2017

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	**0.174**	**45.40**	**10.56**	**55.96**	**64.77**	**8.81**	QP
	0.444	35.00	10.42	45.42	56.98	11.56	
	0.735	29.80	10.40	40.20	56.00	15.80	
	2.500	19.80	10.42	30.22	56.00	25.78	
	5.476	25.10	10.46	35.56	60.00	24.44	
	18.039	27.00	10.58	37.58	60.00	22.42	
	0.174	35.00	10.56	45.56	54.77	9.21	AV
	0.444	22.50	10.42	32.92	46.98	14.06	
	0.735	13.50	10.40	23.90	46.00	22.10	
	2.500	7.20	10.42	17.62	46.00	28.38	
	5.476	10.30	10.46	20.76	50.00	29.24	
	18.039	22.50	10.58	33.08	50.00	16.92	
Neutral	**0.169**	**47.00**	**10.55**	**57.55**	**64.99**	**7.44**	QP
	0.447	32.80	10.41	43.21	56.93	13.72	
	0.735	28.60	10.39	38.99	56.00	17.01	
	1.662	24.60	10.42	35.02	56.00	20.98	
	3.041	19.40	10.46	29.86	56.00	26.14	
	18.039	26.10	10.69	36.79	60.00	23.21	
	0.169	33.80	10.55	44.35	54.99	10.64	AV
	0.447	21.30	10.41	31.71	46.93	15.22	
	0.735	14.40	10.39	24.79	46.00	21.21	
	1.662	6.80	10.42	17.22	46.00	28.78	
	3.041	6.30	10.46	16.76	46.00	29.24	
	18.039	21.50	10.69	32.19	50.00	17.81	

TEST ENGINEER: BYRON WU

EUT	:	LED LCD TV	Temperature :	22℃	
Model No.	:	55H5D	Humidity	:	48%RH
Test Mode	:	HDMI 640*480@60Hz & 1kHz playing	Date of Test	:	Feb 10, 2017

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	**0.170**	**46.50**	**10.56**	**57.06**	**64.94**	**7.88**	QP
	0.447	34.80	10.42	45.22	56.93	11.71	
	0.735	29.00	10.40	39.40	56.00	16.60	
	2.554	27.90	10.42	38.32	56.00	17.68	
	5.476	25.20	10.46	35.66	60.00	24.34	
	17.755	26.60	10.58	37.18	60.00	22.82	
	0.170	34.80	10.56	45.36	54.94	9.58	AV
	0.447	23.40	10.42	33.82	46.93	13.11	
	0.735	12.50	10.40	22.90	46.00	23.10	
	2.554	11.30	10.42	21.72	46.00	24.28	
	5.476	10.60	10.46	21.06	50.00	28.94	
	17.755	22.30	10.58	32.88	50.00	17.12	
Neutral	**0.170**	**47.40**	**10.55**	**57.95**	**64.94**	**6.99**	QP
	0.447	32.50	10.41	42.91	56.93	14.02	
	0.735	27.60	10.39	37.99	56.00	18.01	
	1.324	24.60	10.41	35.01	56.00	20.99	
	2.384	27.10	10.44	37.54	56.00	18.46	
	17.755	25.90	10.69	36.59	60.00	23.41	
	0.170	34.90	10.55	45.45	54.94	9.49	AV
	0.447	21.30	10.41	31.71	46.93	15.22	
	0.735	14.20	10.39	24.59	46.00	21.41	
	1.324	9.80	10.41	20.21	46.00	25.79	
	2.384	11.10	10.44	21.54	46.00	24.46	
	17.755	21.60	10.69	32.29	50.00	17.71	

TEST ENGINEER: BYRON WU

EUT	:	LED LCD TV	Temperature :	22℃
Model No.	:	55H5D	Humidity	:	48%RH
Test Mode	:	HDMI1080P	Date of Test	:	Feb 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**	**46.10**	**10.56**	**56.66**	**64.86**	**8.20**	QP
	0.447	35.00	10.42	45.42	56.93	11.51	
	0.743	31.70	10.40	42.10	56.00	13.90	
	2.213	25.19	10.42	35.61	56.00	20.39	
	3.720	23.71	10.43	34.14	56.00	21.86	
	18.039	27.20	10.58	37.78	60.00	22.22	
	0.172	35.30	10.56	45.86	54.86	9.00	AV
	0.447	23.50	10.42	33.92	46.93	13.01	
	0.743	19.00	10.40	29.40	46.00	16.60	
	2.213	11.69	10.42	22.11	46.00	23.89	
	3.720	7.51	10.43	17.94	46.00	28.06	
	18.039	22.60	10.58	33.18	50.00	16.82	
Neutral	**0.172**	**47.10**	**10.55**	**57.65**	**64.86**	**7.21**	QP
	0.510	26.90	10.39	37.29	56.00	18.71	
	0.963	27.90	10.40	38.30	56.00	17.70	
	2.554	27.40	10.45	37.85	56.00	18.15	
	6.420	24.79	10.53	35.32	60.00	24.68	
	17.755	25.60	10.69	36.29	60.00	23.71	
	0.172	35.50	10.55	46.05	54.86	8.81	AV
	0.510	14.80	10.39	25.19	46.00	20.81	
	0.963	9.60	10.40	20.00	46.00	26.00	
	2.554	11.00	10.45	21.45	46.00	24.55	
	6.420	11.79	10.53	22.32	50.00	27.68	
	17.755	21.30	10.69	31.99	50.00	18.01	

TEST ENGINEER: BYRON WU

EUT	:	LED LCD TV	Temperature :	22℃	
Model No.	:	55H5D	Humidity	:	48%RH
Test Mode	:	USB Play	Date of Test	:	Feb 10, 2017

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	**0.174**	**47.40**	**10.56**	**57.96**	**64.77**	**6.81**	QP
	0.435	32.50	10.42	42.92	57.15	14.23	
	0.716	29.40	10.40	39.80	56.00	16.20	
	1.310	26.29	10.41	36.70	56.00	19.30	
	2.736	25.99	10.43	36.42	56.00	19.58	
	21.147	22.90	10.64	33.54	60.00	26.46	
	0.174	35.90	10.56	46.46	54.77	8.31	AV
	0.435	22.10	10.42	32.52	47.15	14.63	
	0.716	13.60	10.40	24.00	46.00	22.00	
	1.310	12.59	10.41	23.00	46.00	23.00	
	2.736	8.69	10.43	19.12	46.00	26.88	
	21.147	16.40	10.64	27.04	50.00	22.96	
Neutral	**0.172**	**46.10**	**10.55**	**56.65**	**64.85**	**8.20**	QP
	0.435	34.60	10.41	45.01	57.15	12.14	
	0.720	32.00	10.39	42.39	56.00	13.61	
	1.032	22.80	10.40	33.20	56.00	22.80	
	2.448	27.71	10.44	38.15	56.00	17.85	
	5.867	20.70	10.51	31.21	60.00	28.79	
	0.172	35.00	10.55	45.55	54.85	9.30	AV
	0.435	22.50	10.41	32.91	47.15	14.24	
	0.720	19.40	10.39	29.79	46.00	16.21	
	1.032	8.60	10.40	19.00	46.00	27.00	
	2.448	12.81	10.44	23.25	46.00	22.75	
	5.867	8.70	10.51	19.21	50.00	30.79	

TEST ENGINEER: BYRON WU

EUT	:	LED LCD TV	Temperature :	22℃	
Model No.	:	55H5D	Humidity	:	48%RH
Test Mode	:	LAN Play	Date of Test	:	Feb 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**	**48.00**	**10.56**	**58.56**	**64.86**	**6.30**	QP
	0.440	32.60	10.42	43.02	57.07	14.05	
	0.735	29.80	10.40	40.20	56.00	15.80	
	1.310	26.39	10.41	36.80	56.00	19.20	
	3.242	22.40	10.43	32.83	56.00	23.17	
	5.535	17.40	10.46	27.86	60.00	32.14	
	0.172	35.20	10.56	45.76	54.86	9.10	AV
	0.440	20.50	10.42	30.92	47.07	16.15	
	0.735	16.80	10.40	27.20	46.00	18.80	
	1.310	13.39	10.41	23.80	46.00	22.20	
	3.242	6.50	10.43	16.93	46.00	29.07	
	5.535	9.70	10.46	20.16	50.00	29.84	
Neutral	**0.172**	**46.10**	**10.55**	**56.65**	**64.86**	**8.21**	QP
	0.440	34.80	10.41	45.21	57.07	11.86	
	0.727	32.00	10.39	42.39	56.00	13.61	
	2.736	17.49	10.46	27.95	56.00	28.05	
	5.653	24.90	10.51	35.41	60.00	24.59	
	20.162	21.20	10.72	31.92	60.00	28.08	
	0.172	34.60	10.55	45.15	54.86	9.71	AV
	0.440	22.80	10.41	33.21	47.07	13.86	
	0.727	19.20	10.39	29.59	46.00	16.41	
	2.736	5.59	10.46	16.05	46.00	29.95	
	5.653	10.30	10.51	20.81	50.00	29.19	
	20.162	16.20	10.72	26.92	50.00	23.08	

TEST ENGINEER: BYRON WU

4 RADIATED EMISSION TEST

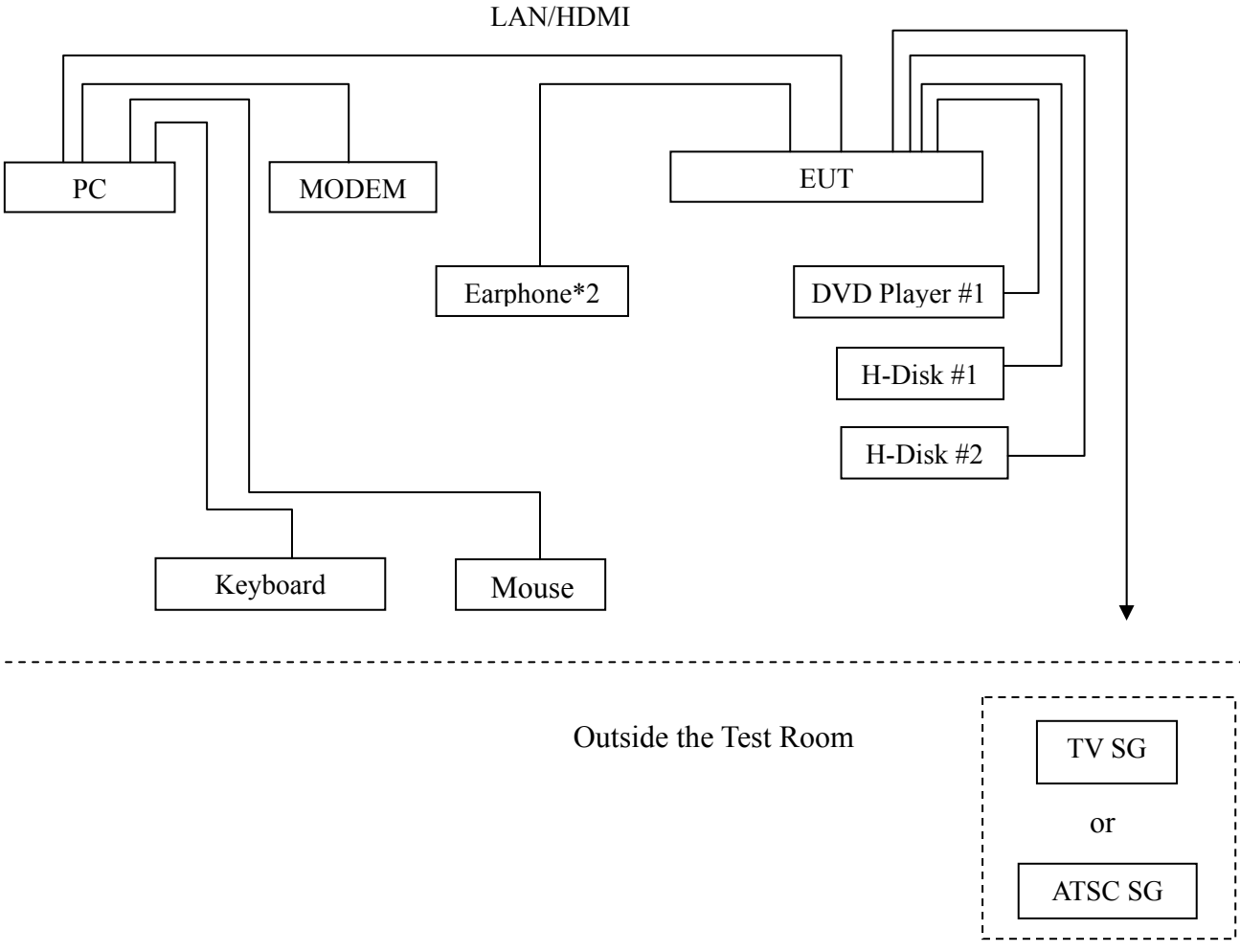
4.1 Test Equipment

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	--	--

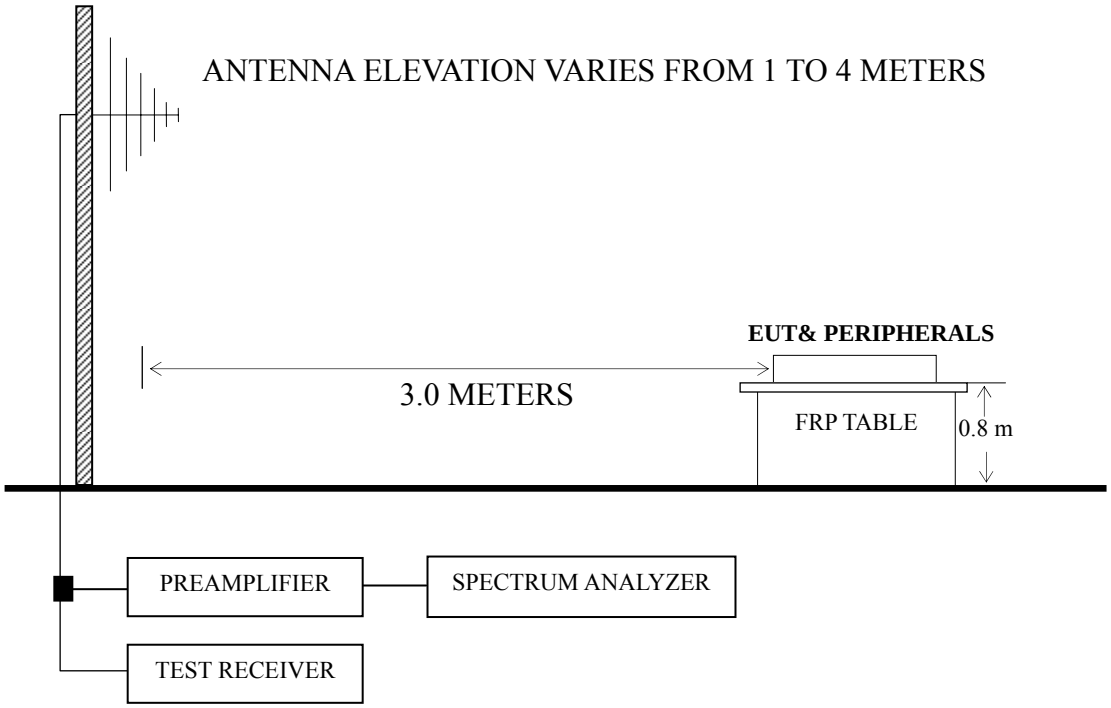
4.2 Block Diagram of Test Setup

4.2.1 EUT & Peripherals



4.2.2 Radiated emission test setup

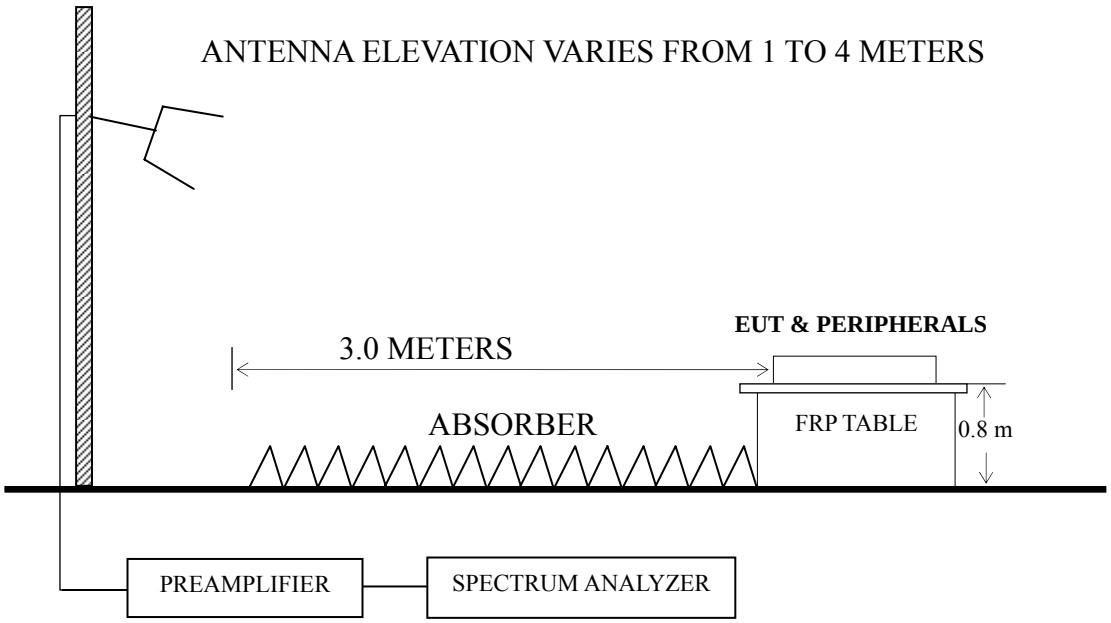
4.2.2.1 Below 1GHz



■ : 50 ohm Coaxial Switch

4.2.2.2 Above 1GHz

BORE-SIGHT ANTENNA TOWER



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 2 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 1920*1080@60Hz & 1kHz Playing	P23-P24
	HDMI 1280*1024@60Hz & 1kHz playing	P25
	HDMI 640*480@60Hz & 1kHz playing	P26
	HDMI1080P	P27
	USB Play	P28
	LAN Play	P29
Above 1GHz	HDMI 1920*1080@60Hz & 1kHz Playing	P23-P24

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 1920*1080@60Hz & 1kHz Playing test mode. The worst emission at horizontal polarization was detected at 747.483 MHz with corrected signal level of 42.47dB (μV/m) (limit is 46.00 dB (μV/m)), when the antenna was 2.0 m height and the turntable was at 165°. The worst emission at vertical polarization was detected at 796.183 MHz with corrected signal level of 42.62dB (μV/m) (limit is 46.00 dB (μV/m)), when the antenna was 1.2 m height and the turntable was at 320°.

EUT	:	LED LCD TV	Temperature :	22℃
Model No.	:	55H5D	Humidity :	60%RH
Test Mode	:	HDMI 1920*1080@60Hz & 1kHz Playing	Date of Test :	Feb 04, 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	74.919	22.00	0.86	8.30	--	31.16	40.00	8.84	QP
	148.963	25.15	1.28	12.16	--	38.59	43.50	4.91	
	197.200	24.36	1.47	9.97	--	35.80	43.50	7.70	
	511.835	18.77	2.30	17.60	--	38.67	46.00	7.33	
	747.483	**20.16**	**2.81**	**19.50**	--	**42.47**	**46.00**	**3.53**	
	790.619	19.12	2.89	20.30	--	42.31	46.00	3.69	
	1215.678	55.29	3.54	24.52	36.10	47.25	74.00	26.75	PK
	1475.227	56.17	3.86	25.52	35.71	49.84	74.00	24.16	
	1690.434	56.77	4.07	26.40	35.44	51.80	74.00	22.20	
	1215.678	34.50	3.54	24.52	36.10	26.46	54.00	27.54	AV
	1475.227	36.23	3.86	25.52	35.71	29.90	54.00	24.10	
	1690.434	39.20	4.07	26.40	35.44	34.23	54.00	19.77	

TEST ENGINEER: CAESAR WU

EUT	:	LED LCD TV	Temperature :	22℃
Model No.	:	55H5D	Humidity :	60%RH
Test Mode	:	HDMI 1920*1080@60Hz & 1kHz Playing	Date of Test :	Feb 04, 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	30.962	16.70	0.57	17.71	--	34.98	40.00	5.02	QP
	147.921	25.69	1.27	12.29	--	39.25	43.50	4.25	
	294.114	20.42	1.74	13.60	--	35.76	46.00	10.24	
	446.414	17.02	2.15	16.73	--	35.90	46.00	10.10	
	747.483	19.12	2.81	19.50	--	41.43	46.00	4.57	
	796.183	**19.36**	**2.89**	**20.37**	**--**	**42.62**	**46.00**	**3.38**	
	1200.526	55.15	3.52	24.44	36.13	46.98	74.00	27.02	PK
	1499.209	55.80	3.89	25.60	35.68	49.61	74.00	24.39	
	1690.434	56.49	4.07	26.40	35.44	51.52	74.00	22.48	
	1200.526	34.21	3.52	24.44	36.13	26.04	54.00	27.96	AV
	1499.209	32.01	3.89	25.60	35.68	25.82	54.00	28.18	
	1690.434	34.76	4.07	26.40	35.44	29.79	54.00	24.21	

TEST ENGINEER: CAESAR WU

EUT	:	LED LCD TV	Temperature :	22℃
Model No.	:	55H5D	Humidity :	60%RH
Test Mode	:	HDMI 1280*1024@60Hz & 1kHz Playing	Date of Test :	Feb 04, 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	77.051	19.41	0.87	8.56	28.84	40.00	11.16
	148.963	25.00	1.28	12.16	38.44	43.50	5.06
	199.986	26.36	1.48	10.10	37.94	43.50	5.56
	294.114	24.12	1.74	13.60	39.46	46.00	6.54
	326.740	21.26	1.85	14.39	37.50	46.00	8.50
	790.619	**17.86**	**2.89**	**20.30**	**41.05**	**46.00**	**4.95**
Vertical	**30.962**	**16.64**	**0.57**	**17.71**	**34.92**	**40.00**	**5.08**
	137.903	21.72	1.22	13.02	35.96	43.50	7.54
	147.921	24.34	1.27	12.29	37.90	43.50	5.60
	295.147	20.29	1.75	13.60	35.64	46.00	10.36
	599.321	17.39	2.50	18.40	38.29	46.00	7.71
	790.619	17.44	2.89	20.30	40.63	46.00	5.37

TEST ENGINEER: CAESAR WU

EUT	:	LED LCD TV	Temperature :	22℃
Model No.	:	55H5D	Humidity :	60%RH
Test Mode	:	HDMI 640*480@60Hz & 1kHz Playing	Date of Test :	Feb 04, 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	**148.963**	**24.92**	**1.28**	**12.16**	**38.36**	**43.50**	**5.14**
	223.733	23.56	1.56	11.20	36.32	46.00	9.68
	295.147	25.27	1.75	13.60	40.62	46.00	5.38
	410.383	18.91	2.06	16.20	37.17	46.00	8.83
	747.483	17.29	2.81	19.50	39.60	46.00	6.40
	796.183	17.11	2.89	20.37	40.37	46.00	5.63
Vertical	30.962	16.21	0.57	17.71	34.49	40.00	5.51
	34.037	15.62	0.60	16.30	32.52	40.00	7.48
	147.921	**24.72**	**1.27**	**12.29**	**38.28**	**43.50**	**5.22**
	298.268	18.79	1.75	13.60	34.14	46.00	11.86
	597.223	16.31	2.50	18.33	37.14	46.00	8.86
	798.980	16.81	2.89	20.40	40.10	46.00	5.90

TEST ENGINEER: CAESAR WU

EUT	:	LED LCD TV	Temperature :	22℃
Model No.	:	55H5D	Humidity :	60%RH
Test Mode	:	HDMI1080P	Date of Test :	Feb 04, 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	20.36	0.93	10.20	31.49	40.00	8.51
	148.963	24.13	1.28	12.16	37.57	43.50	5.93
	297.224	**26.63**	**1.75**	**13.60**	**41.98**	**46.00**	**4.02**
	597.223	18.29	2.50	18.33	39.12	46.00	6.88
	744.866	19.09	2.79	19.53	41.41	46.00	4.59
	790.619	18.29	2.89	20.30	41.48	46.00	4.52
Vertical	33.095	13.29	0.59	16.67	30.55	40.00	9.45
	148.963	**26.11**	**1.28**	**12.16**	**39.55**	**43.50**	**3.95**
	297.224	20.55	1.75	13.60	35.90	46.00	10.10
	446.414	18.40	2.15	16.73	37.28	46.00	8.72
	593.050	19.32	2.50	18.25	40.07	46.00	5.93
	742.259	14.68	2.79	19.57	37.04	46.00	8.96

TEST ENGINEER: CAESAR WU

EUT	:	LED LCD TV	Temperature :	22℃
Model No.	:	55H5D	Humidity :	60%RH
Test Mode	:	USB Play	Date of Test :	Feb 04, 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	93.440	19.44	0.96	11.40	31.80	43.50	11.70
	176.269	20.64	1.39	10.51	32.54	43.50	10.96
	331.355	**20.95**	**1.86**	**14.54**	**37.35**	**46.00**	**8.65**
	454.310	16.51	2.16	16.84	35.51	46.00	10.49
	586.844	15.59	2.48	18.15	36.22	46.00	9.78
	948.761	10.10	3.16	21.67	34.93	46.00	11.07
Vertical	37.155	15.77	0.62	14.61	31.00	40.00	9.00
	62.871	**23.58**	**0.79**	**6.77**	**31.14**	**40.00**	**8.86**
	124.569	18.39	1.15	12.28	31.82	43.50	11.68
	299.316	20.16	1.76	13.60	35.52	46.00	10.48
	499.425	15.64	2.26	17.50	35.40	46.00	10.60
	750.108	10.69	2.81	19.50	33.00	46.00	13.00

TEST ENGINEER: CAESAR WU

EUT	:	LED LCD TV	Temperature :	22℃
Model No.	:	55H5D	Humidity :	60%RH
Test Mode	:	LAN Play	Date of Test :	Feb 04, 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**	**19.72**	**0.90**	**9.59**	**30.21**	**40.00**	**9.79**
	286.982	16.32	1.73	13.45	31.50	46.00	14.50
	528.246	10.70	2.34	17.74	30.78	46.00	15.22
	588.905	13.06	2.48	18.10	33.64	46.00	12.36
	845.088	9.44	2.98	20.40	32.82	46.00	13.18
	965.542	9.37	3.18	21.80	34.35	54.00	19.65
Vertical	**32.293**	**14.98**	**0.58**	**16.94**	**32.50**	**40.00**	**7.50**
	52.025	19.37	0.72	8.10	28.19	40.00	11.81
	97.798	18.57	0.99	12.03	31.59	43.50	11.91
	334.859	16.18	1.86	14.63	32.67	46.00	13.33
	520.888	13.72	2.32	17.56	33.60	46.00	12.40
	747.483	11.54	2.81	19.50	33.85	46.00	12.15

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 16

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

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