

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

LED LCD TV

Model No.	Brand
55H7B	Hisense
55H7B+	
55H7C	
55H7C+	

FCC ID : W9HLCDF0056

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No.218 Qianwangang Road, Economy & Technology
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Report No. : ACI-F15088A3
Date of Test : May 30 – Jun 01, 2016
Date of Report : Jun 13, 2016

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1 SUMMARY OF STANDARDS AND RESULTS

1.1 Description of Standards and Results

The EUT have been tested according to the applicable standards as referenced below:

Description of Test Item	Standard	Limits	Results
EMISSION			
Conducted Disturbance at the Mains Terminal	FCC RULES AND REGULATIONS PART 15 SUBPART B OCTOBER 2015 AND ANSI C63.4-2014	15.107(a) Class B	Pass
Radiated Disturbance	FCC RULES AND REGULATIONS PART 15 SUBPART B OCTOBER 2015 AND ANSI C63.4-2014	15.109(a) Class B	Pass

2 GENERAL INFORMATION

2.1 Description of Equipment Under Test

Description : LED LCD TV

Type of EUT : Production Pre-product Pro-type

Model No. : 55H7B, 55H7B+, 55H7C, 55H7C+

Note#1 : The above models are all the same except for model name 55H7B model is tested and recorded in the report.

Note #2 : The modified histories of report are as follows:

Report No.	Model No.	Rev. Summary	Edition No.	Data of Rev.
ACI-F15088	LTDN55K3201GUWUS, 55H7B	Original Report	0	May 18, 2015
ACI-F15088A1	55H7B2	1. To add one new model name	Rev. A1	Jul 10, 2015
ACI-F15088A2	55H7C, 55H7C+	To add two new model name	Rev. A2	Mar 16, 2016
ACI-F15088A3	55H7B, 55H7B+ 55H7C, 55H7C+	1. To add one new model name 2. To add Panel	Rev. A3	Jun 13, 2016

Note #3 : “+” represents any numerals, for different sales area.

Brand Name : Hisense

Applicant : Hisense Electric Co., Ltd.
No.218 Qianwangang Road, Economy & Technology Development Zone, Qingdao, China

Manufacturer : Hisense Electric Co., Ltd.
No.218 Qianwangang Road, Economy & Technology Development Zone, Qingdao, China

Factory #1 : Hisense Electric Co., Ltd.
No.218 Qianwangang Road, Economy & Technology Development Zone, Qingdao, China

Factory #2 : Tatung Mexico S.A. de C.V.
Miguel Catalán 420, Parque Industrial Rio Bravo,
Cd. Juarez, Chih., CP 32557

Factory #3	:	HISENSE ELECTRONICA MEXICO, S.A. DE. C.V. Blvd. Sharp #3510 Parque Industrial Rosarito, C.P. 22710 Playas de Rosarito, B.C.
LCD Panel	:	Manufacturer : Hisense M/N : HD550DU-B51 (010)
Tuner	:	Manufacturer : XuGuang Tech. Co., Ltd. M/N : HFT-96S3/W11FJ2H/ROH
Max Resolution	:	1920*1080@60Hz
HDMI Cable*4 (Lab provide)	:	Shielded, Detachable, 1.00m, with two cores
Power Cord	:	Unshielded, Detachable, 1.80m, 2C
LAN Cable (Lab provide)	:	Shielded, Detachable, 1.50m
USB Cable*3 (Lab provide)	:	Shielded, Detachable, 1.00m, without core
MHL to HDMI Adaptor: with RCP (Lab provide)	Manufacture : M/N :	CE-Link 3002

Remark:

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

Side Port:

- (1) One USB3 Port : Connected with H-Disk
- (2) One HDMI2/ARC Port : Connected with DVD PLAYER #1
- (3) One HDMI1/MHL Port : Connected with Smart Mobile Phone
- (4) One Audio out Port : Connected with Earphone#1
- (5) One Service Port : Do not open to the costumers
- (6) One USB2 Port : Connected with H-Disk
- (7) One USB1 Port : Connected with H-Disk
- (8) One ANT/CABLE IN Port : Connected with Antenna or ATSC SG / TV SG

Back Port:

- (1) One LAN Port : Connected with PC
- (2) One Digital Audio out Port : Connected with Audio Converter to Earphone#2
- (3) One HDMI3 Port : Connected with DVD PLAYER #2
- (4) One HDMI4 Port : Connected with PC
- (5) One AV In Port : Connected with DVD PLAYER #1
- (6) One component of Video/YPbPr Port : Connected with DVD PLAYER #2

2.2 Peripherals

2.2.1 PC

Manufacturer : HP
Model Number : Pro3340
Serial Number : 6CR2512VFD
Power Cord : Unshielded, Detachable, 1.8m
Certificate : FCC DoC; CE/EMC; VCCI; C-Tick;

2.2.2 Keyboard

Manufacturer : Microsoft
Model Number : RT2300
Serial Number : 7668200662248
Data Cable : Shielded, undetachable, 1.8m
Certificate : CE/EMC, FCC DoC, VCCI, MIC, C-Tick, BSMI

2.2.3 Mouse

Manufacturer : Microsoft
Model Number : RT2300
Serial Number : 6965712071551
Data Cable : Shielded, Undetachable, 1.8m.
Certificate : CE/EMC, FCC DoC, VCCI, MIC, C-Tick, BSMI

2.2.4 Modem

Manufacturer : TP-LINK
Model Number : TM-EC5658V
Serial Number : 07123301053
Data Cable : Shielded, Detachable, 1.8m
Certificate : FCC DoC, CE/EMC, CCC

- 2.2.5 Earphone*2
- Manufacturer : Edifier
 - Model Number : H210
- 2.2.6 TV Signal Generator
- Manufacturer : FLUKE
 - Model Number : 54200M01
 - Serial Number : 814008
- 2.2.7 ATSC Signal Generator
- Manufacturer : SENCORE
 - Model Number : ATSC997
 - Serial Number : 6790071
- 2.2.8 DVD PLAYER #1
- Manufacturer : PHILIPS
 - Model Number : DVP3986K/93
 - Serial Number : KX1A0902120108
 - Certificate : FCC DoC, CE/EMC, CCC
- 2.2.9 DVD PLAYER #2
- Manufacturer : PHILIPS
 - Model Number : DVP3986K/93
 - Serial Number : KX1A0902120082
 - Certificate : FCC DoC, CE/EMC, CCC
- 2.2.10 Hard Disk #1
- Manufacturer : Tetasys
 - Model Number : F12
 - Serial Number : A010022-4860010X
 - Data Cable : Shielded, Undetachable, 1.8m.
 - Certificate : CE, FCC DoC
- 2.2.11 Hard Disk #2
- Manufacturer : Tetasys
 - Model Number : F12
 - Serial Number : A010022-4A60007
 - Data Cable : Shielded, Undetachable, 1.8m.
 - Certificate : CE, FCC DoC
- 2.2.12 Hard Disk #3
- Manufacturer : Tetasys
 - Model Number : F12
 - Serial Number : A010022-486006
 - Data Cable : Shielded, Undetachable, 1.8m.
 - Certificate : CE, FCC DoC
- 2.2.13 Smart Mobile Phone
- Manufacturer : SAMSUNG
 - Model Number : GT-I9100G
 - Serial Number : 6935152011519
 - Certificate : CE/EMC

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
NVLAP Lab Code	:	200371-0

2.4 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 = 4.5dB (Horizontal) U = 5.4dB (Vertical)
Radiated Emission Expanded Uncertainty (1GHz-6GHz):	U = 5.1dB

3 CONDUCTED EMISSION TEST

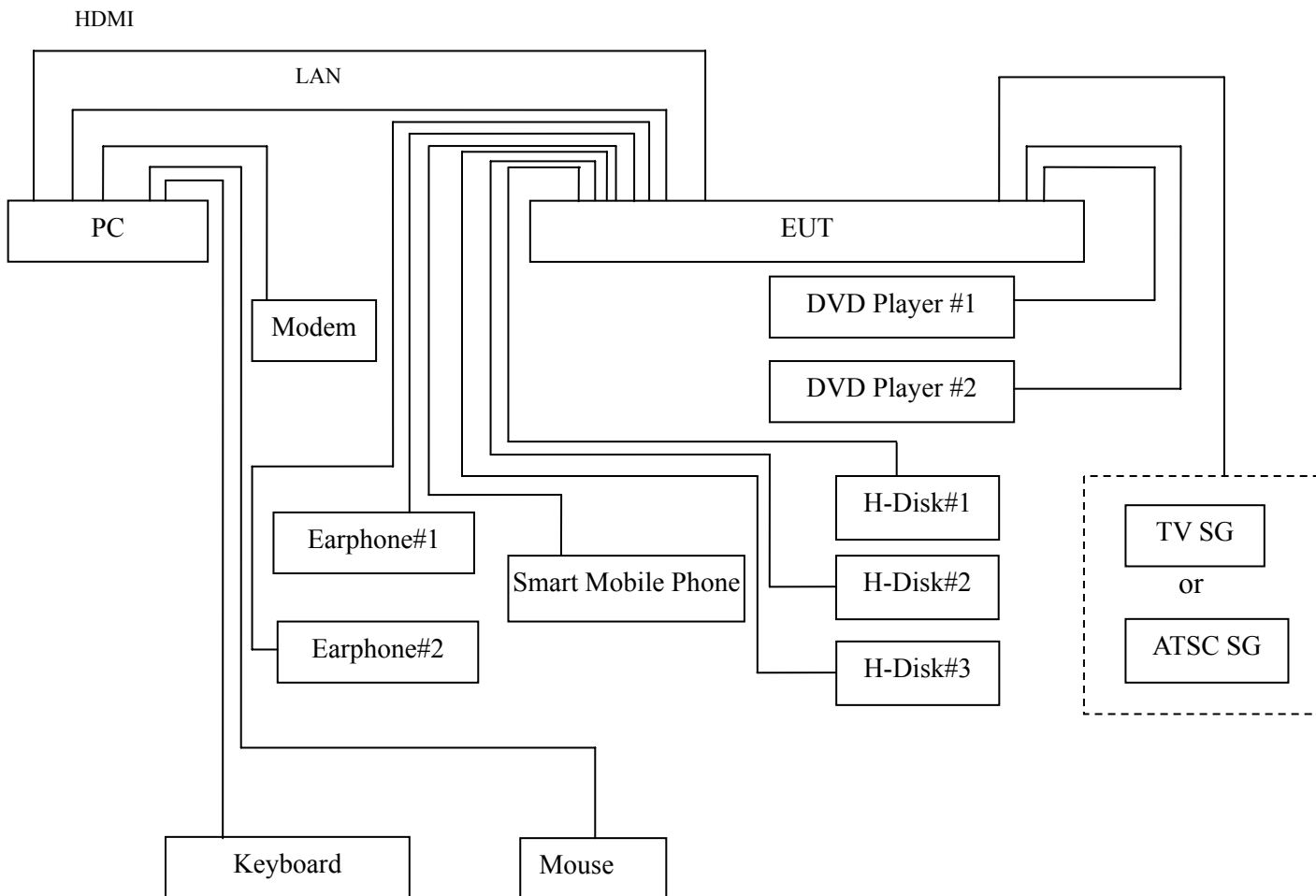
3.1 Test Equipment

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

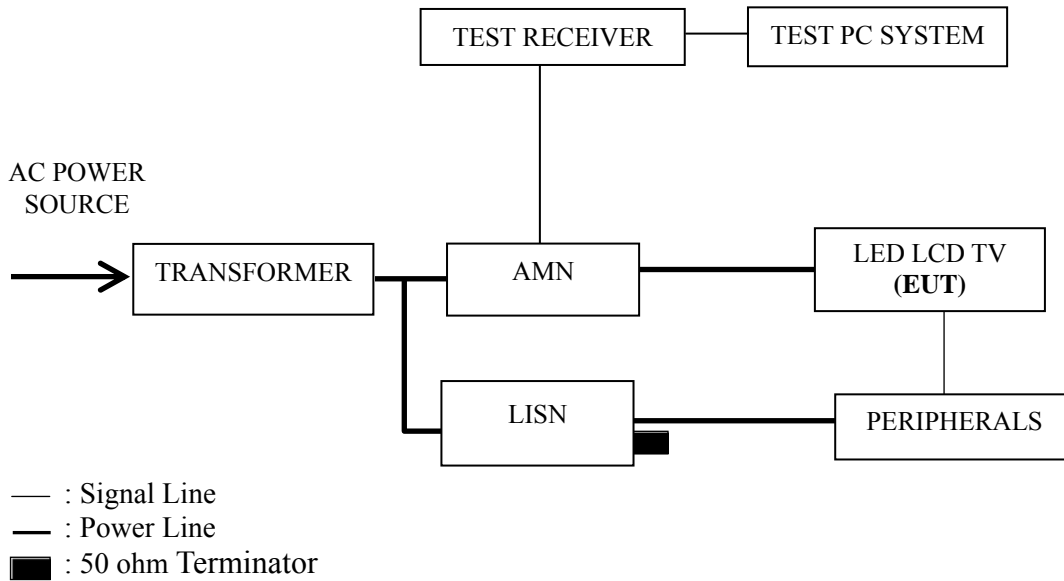
Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Test Receiver	R&S	ESCI	101303	Jul 01, 2015	Jun 30, 2016
2.	Artificial Mains Network (AMN)	R&S	ENV4200	100125	Jun 27, 2015	Jun 26, 2016
3.	Line Impedance Stabilization Network (LISN)	Kyoritsu	KNW-407	8-1280-4	Mar 20, 2016	Mar 19, 2017
4.	50Ω Coaxial Switch	Anritsu	MP59B	6200426389	Mar 18, 2016	Sep 17, 2016
5.	50Ω Terminator	Anritsu	BNC	001	Mar 20, 2016	Mar 19, 2017
6.	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 Hard Disk.
- 3.5.7 In LAN Play mode, set the EUT play digital media through LAN port.
- 3.5.8 In MHL mode, set the EUT play digital media from mobile phone.
- 3.5.9 The other peripherals devices were driven and operated during the test.
- 3.5.10 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
MHL
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	P14
HDMI 1280*1024@60Hz & 1kHz playing	P15
HDMI 640*480@60Hz & 1kHz playing	P16
HDMI1080P	P17
MHL	P18
USB Play	P19
LAN Play	P20

NOTE 1 – Factor = Cable Loss + AMN Factor.

NOTE 2 – Emission Level = Meter Reading + Factor.

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

NOTE 4 – The worst case is for USB Play test mode. The worst emission is detected at 0.594 MHz (Average Value) with corrected signal level of 42.29 dB (μ V) (limit is 56.00 dB (μ V)), when the Line of the EUT is connected to AMN.

EUT : LED LCD TV Temperature : 22°C

Model No. : 55H7B Humidity : 48%RH

Test Mode : HDMI 1920*1080@60Hz Date of Test : May 30, 2016
& 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	0.172	39.10	10.56	49.66	64.87	15.21	QP
	0.390	32.10	10.44	42.54	58.06	15.52	
	0.593	31.80	10.39	42.19	56.00	13.81	
	1.181	27.61	10.39	38.00	56.00	18.00	
	3.884	22.20	10.47	32.67	56.00	23.33	
	18.000	27.60	10.59	38.19	60.00	21.81	
	AV	0.172	24.40	10.56	34.96	54.87	19.91
		0.390	20.40	10.44	30.84	48.06	17.22
		0.593	18.70	10.39	29.09	46.00	16.91
		1.181	13.21	10.39	23.60	46.00	22.40
		3.884	11.90	10.47	22.37	46.00	23.63
		18.000	22.40	10.59	32.99	50.00	17.01
Neutral	0.172	37.00	10.55	47.55	64.84	17.29	QP
	0.395	30.09	10.42	40.51	57.95	17.44	
	0.583	28.40	10.37	38.77	56.00	17.23	
	1.049	24.80	10.38	35.18	56.00	20.82	
	2.358	21.70	10.43	32.13	56.00	23.87	
	18.020	27.60	10.70	38.30	60.00	21.70	
	AV	0.172	24.80	10.55	35.35	54.84	19.49
		0.395	18.39	10.42	28.81	47.95	19.14
		0.583	16.30	10.37	26.67	46.00	19.33
		1.049	10.50	10.38	20.88	46.00	25.12
		2.358	11.20	10.43	21.63	46.00	24.37
		18.020	22.10	10.70	32.80	50.00	17.20

TEST ENGINEER: SEVEN LU

EUT : LED LCD TV Temperature : 22°C

Model No. : 55H7B Humidity : 48%RH

Test Mode : HDMI 1280*1024@60Hz Date of Test : May 30, 2016
& 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	0.177	38.49	10.56	49.05	64.61	15.56	QP
	0.392	32.19	10.44	42.63	58.02	15.39	
	0.591	31.10	10.39	41.49	56.00	14.51	
	1.179	27.71	10.39	38.10	56.00	17.90	
	2.373	24.00	10.43	34.43	56.00	21.57	
	17.320	27.40	10.58	37.98	60.00	22.02	
	AV	0.177	23.09	10.56	33.65	54.61	20.96
		0.392	20.29	10.44	30.73	48.02	17.29
		0.591	18.70	10.39	29.09	46.00	16.91
		1.179	13.91	10.39	24.30	46.00	21.70
		2.373	12.70	10.43	23.13	46.00	22.87
		17.320	22.20	10.58	32.78	50.00	17.22
Neutral	0.173	36.79	10.56	47.35	64.82	17.47	QP
	0.387	29.30	10.42	39.72	58.13	18.41	
	0.582	28.40	10.37	38.77	56.00	17.23	
	1.172	25.81	10.38	36.19	56.00	19.81	
	3.210	20.89	10.46	31.35	56.00	24.65	
	17.620	27.09	10.70	37.79	60.00	22.21	
	AV	0.173	24.69	10.56	35.25	54.82	19.57
		0.387	17.80	10.42	28.22	48.13	19.91
		0.582	16.10	10.37	26.47	46.00	19.53
		1.172	10.61	10.38	20.99	46.00	25.01
		3.210	9.79	10.46	20.25	46.00	25.75
		17.620	21.79	10.70	32.49	50.00	17.51

TEST ENGINEER: SEVEN LU

EUT : LED LCD TV Temperature : 22°C

Model No. : 55H7B Humidity : 48%RH

Test Mode : HDMI 640*480@60Hz & 1kHz Playing Date of Test : May 30, 2016

Test Line	Frequency (MHz)	Meter Reading dB(μ V)	Factor (dB)	Emission Level dB(μ V)	Limits dB(μ V)	Margin (dB)	Remark
Line	0.173	39.10	10.56	49.66	64.84	15.18	QP
	0.395	32.09	10.44	42.53	57.95	15.42	
	0.591	31.40	10.39	41.79	56.00	14.21	
	0.946	27.50	10.39	37.89	56.00	18.11	
	3.204	23.20	10.46	33.66	56.00	22.34	
	17.590	27.59	10.59	38.18	60.00	21.82	
	0.173	30.30	10.56	40.86	54.84	13.98	AV
	0.395	19.89	10.44	30.33	47.95	17.62	
	0.591	18.70	10.39	29.09	46.00	16.91	
	0.946	12.20	10.39	22.59	46.00	23.41	
	3.204	10.70	10.46	21.16	46.00	24.84	
	17.590	22.39	10.59	32.98	50.00	17.02	
Neutral	0.174	36.80	10.55	47.35	64.78	17.43	QP
	0.392	29.59	10.42	40.01	58.03	18.02	
	0.592	30.10	10.37	40.47	56.00	15.53	
	1.045	24.60	10.38	34.98	56.00	21.02	
	2.391	20.80	10.43	31.23	56.00	24.77	
	15.500	24.00	10.67	34.67	60.00	25.33	
	0.174	24.40	10.55	34.95	54.78	19.83	AV
	0.392	18.39	10.42	28.81	48.03	19.22	
	0.592	17.80	10.37	28.17	46.00	17.83	
	1.045	10.10	10.38	20.48	46.00	25.52	
	2.391	10.50	10.43	20.93	46.00	25.07	
	15.500	19.30	10.67	29.97	50.00	20.03	

TEST ENGINEER: SEVEN LU

EUT : LED LCD TV Temperature : 22°C
 Model No. : 55H7B Humidity : 48%RH
 Test Mode : HDMI1080P Date of Test : May 30, 2016

Test Line	Frequency (MHz)	Meter Reading dB(μ V)	Factor (dB)	Emission Level dB(μ V)	Limits dB(μ V)	Margin (dB)	Remark
Line	0.170	39.30	10.56	49.86	64.96	15.10	QP
	0.391	32.09	10.44	42.53	58.04	15.51	
	0.592	31.30	10.39	41.69	56.00	14.31	
	0.935	26.90	10.39	37.29	56.00	18.71	
	3.883	22.30	10.47	32.77	56.00	23.23	
	17.790	27.79	10.59	38.38	60.00	21.62	
	AV	0.170	23.70	10.56	34.26	54.96	20.70
		0.391	20.89	10.44	31.33	48.04	16.71
		0.592	18.90	10.39	29.29	46.00	16.71
		0.935	10.80	10.39	21.19	46.00	24.81
		3.883	11.60	10.47	22.07	46.00	23.93
		17.790	22.39	10.59	32.98	50.00	17.02
Neutral	0.169	37.11	10.55	47.66	64.99	17.33	QP
	0.395	29.89	10.42	40.31	57.95	17.64	
	0.591	30.20	10.37	40.57	56.00	15.43	
	1.585	26.01	10.40	36.41	56.00	19.59	
	4.045	19.50	10.47	29.97	56.00	26.03	
	18.090	27.60	10.70	38.30	60.00	21.70	
	AV	0.169	23.81	10.55	34.36	54.99	20.63
		0.395	17.99	10.42	28.41	47.95	19.54
		0.591	17.70	10.37	28.07	46.00	17.93
		1.585	13.11	10.40	23.51	46.00	22.49
		4.045	7.80	10.47	18.27	46.00	27.73
		18.090	22.00	10.70	32.70	50.00	17.30

TEST ENGINEER: SEVEN LU

EUT : LED LCD TV Temperature : 22°C

Model No. : 55H7B Humidity : 48%RH

Test Mode : MHL Date of Test : May 30, 2016

Test Line	Frequency (MHz)	Meter Reading dB(μ V)	Factor (dB)	Emission Level dB(μ V)	Limits dB(μ V)	Margin (dB)	Remark	
Line	0.173	39.10	10.56	49.66	64.83	15.17	QP	
	0.392	32.19	10.44	42.63	58.03	15.40		
	0.592	31.30	10.39	41.69	56.00	14.31		
	0.956	27.80	10.39	38.19	56.00	17.81		
	2.532	23.40	10.44	33.84	56.00	22.16		
	17.520	27.69	10.59	38.28	60.00	21.72		
	Line	0.173	24.20	10.56	34.76	54.83	20.07	AV
		0.392	20.09	10.44	30.53	48.03	17.50	
		0.592	18.80	10.39	29.19	46.00	16.81	
		0.956	15.30	10.39	25.69	46.00	20.31	
		2.532	10.90	10.44	21.34	46.00	24.66	
		17.520	22.59	10.59	33.18	50.00	16.82	
Neutral	0.171	37.20	10.55	47.75	64.91	17.16	QP	
	0.379	28.60	10.42	39.02	58.30	19.28		
	0.594	30.20	10.37	40.57	56.00	15.43		
	1.160	25.81	10.38	36.19	56.00	19.81		
	2.361	21.70	10.43	32.13	56.00	23.87		
	17.780	27.79	10.70	38.49	60.00	21.51		
	Neutral	0.171	24.70	10.55	35.25	54.91	19.66	AV
		0.379	15.10	10.42	25.52	48.30	22.78	
		0.594	17.70	10.37	28.07	46.00	17.93	
		1.160	13.11	10.38	23.49	46.00	22.51	
		2.361	10.60	10.43	21.03	46.00	24.97	
		17.780	22.49	10.70	33.19	50.00	16.81	

TEST ENGINEER: SEVEN LU

EUT : LED LCD TV Temperature : 22°C

Model No. : 55H7B Humidity : 48%RH

Test Mode : USB Play Date of Test : May 30, 2016

Test Line	Frequency (MHz)	Meter Reading dB(μ V)	Factor (dB)	Emission Level dB(μ V)	Limits dB(μ V)	Margin (dB)	Remark
Line	0.174	38.80	10.56	49.36	64.77	15.41	QP
	0.392	32.09	10.44	42.53	58.02	15.49	
	0.594	31.90	10.39	42.29	56.00	13.71	
	1.582	27.90	10.41	38.31	56.00	17.69	
	3.212	22.70	10.46	33.16	56.00	22.84	
	17.710	27.89	10.59	38.48	60.00	21.52	
	AV	0.174	23.90	10.56	34.46	54.77	20.31
		0.392	20.29	10.44	30.73	48.02	17.29
		0.594	18.30	10.39	28.69	46.00	17.31
		1.582	14.40	10.41	24.81	46.00	21.19
		3.212	10.60	10.46	21.06	46.00	24.94
		17.710	22.69	10.59	33.28	50.00	16.72
Neutral	0.172	37.10	10.55	47.65	64.85	17.20	QP
	0.394	29.79	10.42	40.21	57.99	17.78	
	0.581	28.30	10.37	38.67	56.00	17.33	
	0.956	26.30	10.38	36.68	56.00	19.32	
	2.367	21.90	10.43	32.33	56.00	23.67	
	15.980	25.60	10.68	36.28	60.00	23.72	
	AV	0.172	24.80	10.55	35.35	54.85	19.50
		0.394	18.29	10.42	28.71	47.99	19.28
		0.581	15.90	10.37	26.27	46.00	19.73
		0.956	14.50	10.38	24.88	46.00	21.12
		2.367	11.20	10.43	21.63	46.00	24.37
		15.980	20.50	10.68	31.18	50.00	18.82

TEST ENGINEER: SEVEN LU

EUT : LED LCD TV Temperature : 22°C

Model No. : 55H7B Humidity : 48%RH

Test Mode : LAN Play Date of Test : May 30, 2016

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	38.80	10.56	49.36	64.70	15.34	QP	
	0.391	31.99	10.44	42.43	58.05	15.62		
	0.587	29.50	10.39	39.89	56.00	16.11		
	1.171	27.61	10.39	38.00	56.00	18.00		
	4.554	21.80	10.48	32.28	56.00	23.72		
	16.980	27.81	10.57	38.38	60.00	21.62		
	0.176	23.90	10.56	34.46	54.70	20.24	AV	
	0.391	20.09	10.44	30.53	48.05	17.52		
	0.587	17.20	10.39	27.59	46.00	18.41		
	1.171	11.31	10.39	21.70	46.00	24.30		
	4.554	11.10	10.48	21.58	46.00	24.42		
	16.980	22.51	10.57	33.08	50.00	16.92		
	Neutral	0.171	37.10	10.55	47.65	64.93	17.28	QP
		0.389	29.60	10.42	40.02	58.09	18.07	
0.592		29.90	10.37	40.27	56.00	15.73		
1.582		25.81	10.40	36.21	56.00	19.79		
3.206		20.59	10.46	31.05	56.00	24.95		
17.690		27.99	10.70	38.69	60.00	21.31		
0.171		24.60	10.55	35.15	54.93	19.78	AV	
0.389		17.70	10.42	28.12	48.09	19.97		
0.592		18.10	10.37	28.47	46.00	17.53		
1.582		14.11	10.40	24.51	46.00	21.49		
3.206		9.29	10.46	19.75	46.00	26.25		
17.690		22.79	10.70	33.49	50.00	16.51		

TEST ENGINEER: SEVEN LU

4 RADIATED EMISSION TEST

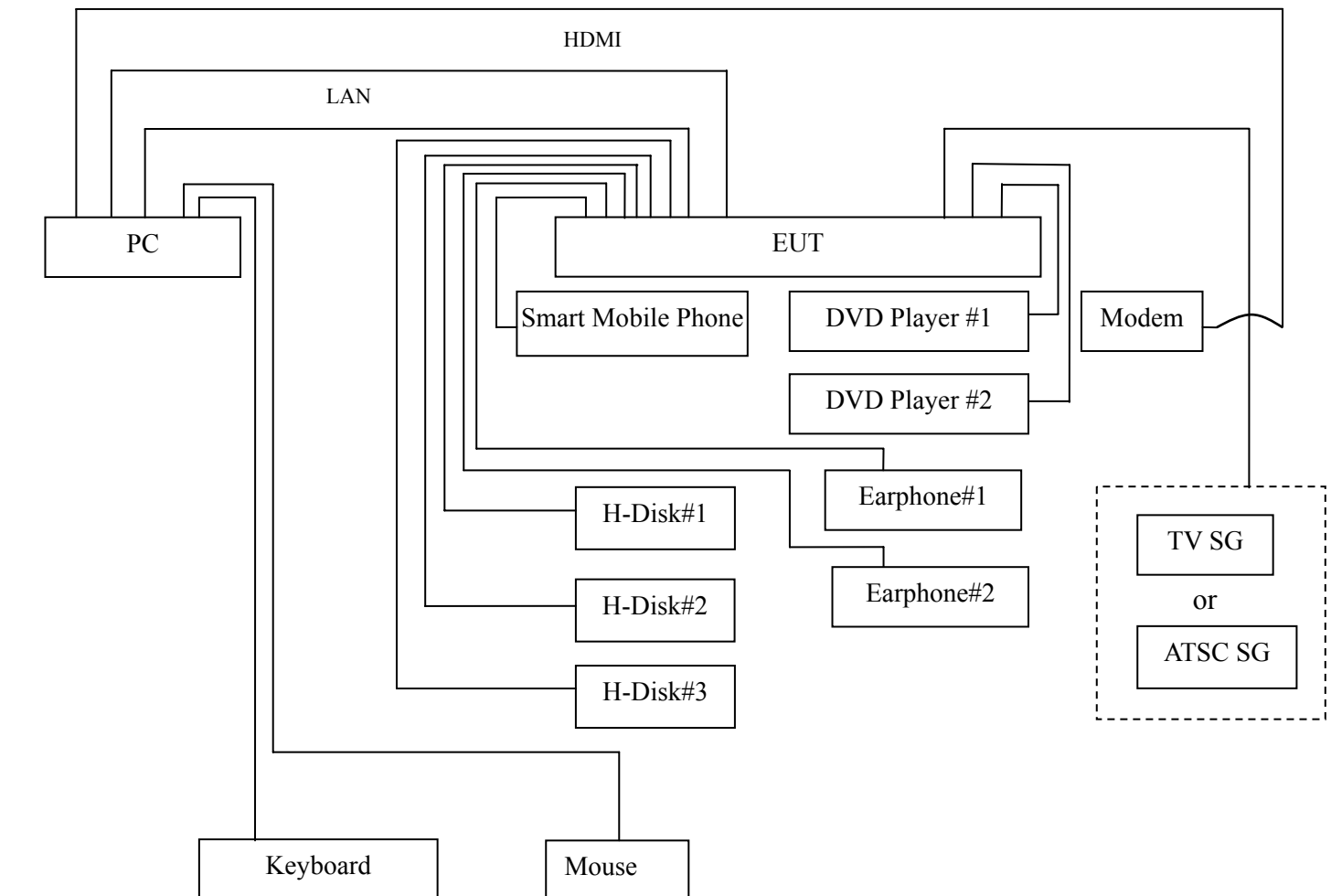
4.1 Test Equipment

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, 2015	Jun 02, 2016
6.	Spectrum	Agilent	E7405A	MY45106600	Feb 26, 2016	Feb 25, 2017
7.	Spectrum	HP	8591EM	3628A00908	May 07, 2016	May 06, 2017
8.	50 Ω Coaxial Switch	Anritsu	MP59B	6200426390	Mar 18, 2016	Sep 17, 2016
9.	Software	Audix	e3	6.2007-9-10	--	--

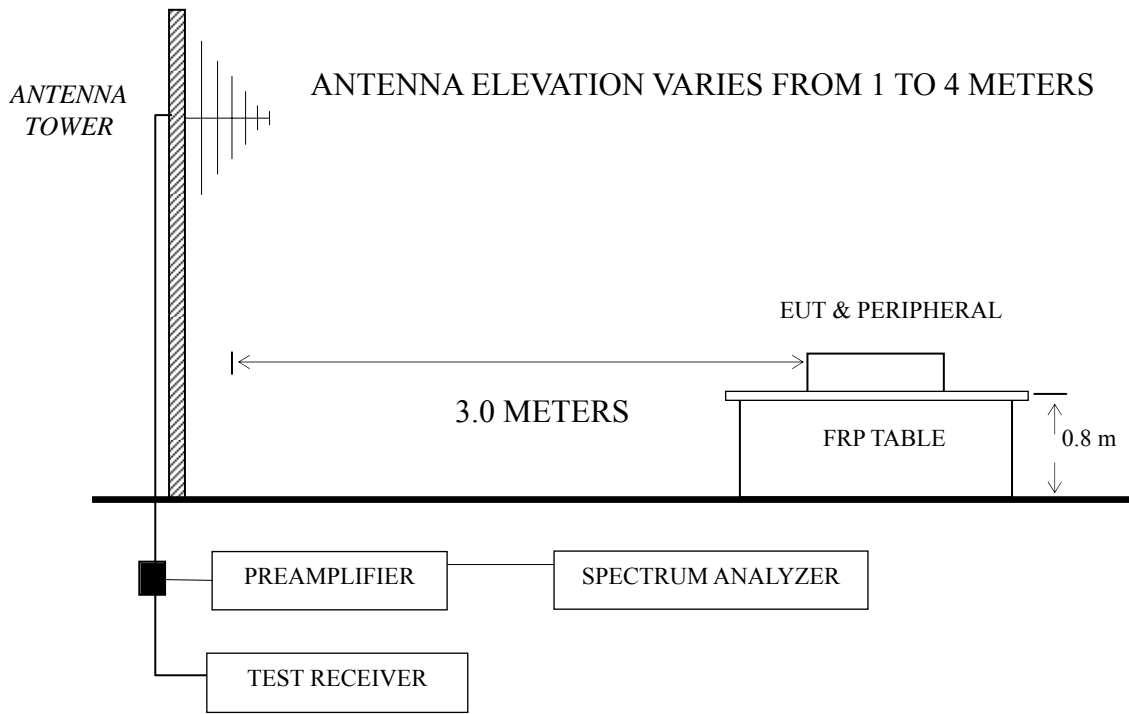
4.2 Block Diagram of Test Setup

4.2.1 EUT & Peripherals



4.2.2 Test Setup

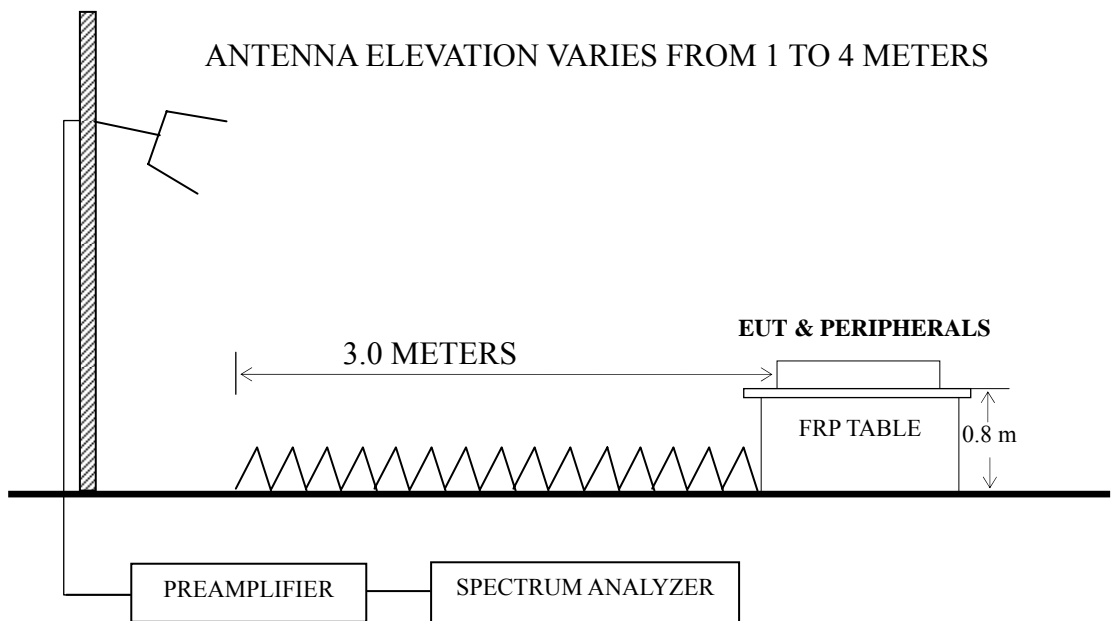
4.2.2.1 Below 1GHz



■ : 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	
		($\mu\text{V/m}$)	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 C63.4:2014 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.

Test Mode	Data Page
HDMI 1920*1080@60Hz & 1kHz playing	P26 – P27
HDMI 1280*1024@60Hz & 1kHz playing	P28
HDMI 640*480@60Hz & 1kHz playing	P29
HDMI1080P	P30
MHL	P31
USB Play	P32
LAN Play	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 HDMI 1920*1080@60Hz & 1kHz playing test mode. The worst emission at horizontal polarization was detected at 593.050 MHz with corrected signal level of 42.26 dB ($\mu\text{V}/\text{m}$) (limit is 46.00 dB ($\mu\text{V}/\text{m}$)), when the antenna was 1.9 m height and the turntable was at 260°. The worst emission at vertical polarization was detected at 742.259 MHz with corrected signal level of 42.86 dB ($\mu\text{V}/\text{m}$) (limit is 46.00 dB ($\mu\text{V}/\text{m}$)), when the antenna was 1.7m height and the turntable was at 135°.

EUT : LED LCD TV Temperature : 22°C

Model No. : 55H7B Humidity : 60%RH

Test Mode : HDMI 1920*1080@60Hz & 1kHz Playing Date of Test : Jun 01, 2016

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	63.983	6.84	26.78	0.80	--	34.42	40.00	5.58	QP
	74.919	8.30	24.96	0.86	--	34.12	40.00	5.88	
	148.963	12.16	24.51	1.28	--	37.95	43.50	5.55	
	446.414	16.73	23.22	2.15	--	42.10	46.00	3.90	
	593.050	18.25	21.51	2.50	--	42.26	46.00	3.74	
	742.500	19.57	19.80	2.79	--	42.16	46.00	3.84	PK
	1204.835	24.46	63.15	3.54	36.12	55.03	74.00	18.97	
	1499.209	25.60	55.29	3.89	35.68	49.10	74.00	24.90	
	1696.503	26.42	55.10	4.07	35.44	50.15	74.00	23.85	AV
	1204.835	24.46	46.20	3.54	36.12	38.08	54.00	15.92	
	1499.209	25.60	40.49	3.89	35.68	34.30	54.00	19.70	
1696.503	26.42	40.01	4.07	35.44	35.06	54.00	18.94		

TEST ENGINEER: CAESAR WU

EUT : LED LCD TV Temperature : 22°C

Model No. : 55H7B Humidity : 60%RH

Test Mode : HDMI 1920*1080@60Hz & 1kHz Playing Date of Test : Jun 01, 2016

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Vertical	31.843	17.19	18.49	0.58	--	36.26	40.00	3.74	QP
	66.034	7.01	28.95	0.81	--	36.77	40.00	3.23	
	106.385	12.25	24.75	1.04	--	38.04	43.50	5.46	
	684.590	19.45	20.20	2.69	--	42.34	46.00	3.66	
	742.259	19.57	20.50	2.79	--	42.86	46.00	3.14	
	851.035	20.57	18.08	3.00	--	41.65	46.00	4.35	PK
	1217.858	24.52	52.47	3.54	36.10	44.43	74.00	29.57	
	1485.838	25.56	52.56	3.86	35.70	46.28	74.00	27.72	
	1699.545	26.42	55.11	4.07	35.43	50.17	74.00	23.83	
	AV	1217.858	24.52	37.28	3.54	36.10	29.24	54.00	24.76
		1485.838	25.56	36.22	3.86	35.70	29.94	54.00	24.06
	1699.545	26.42	41.08	4.07	35.43	36.14	54.00	17.86	

TEST ENGINEER: CAESAR WU

EUT : LED LCD TV Temperature : 22°C

Model No. : 55H7B Humidity : 60%RH

Test Mode : HDMI 1280*1024@60Hz & 1kHz Playing Date of Test : Jun 01, 2016

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)
Horizontal	75.446	8.38	25.86	0.87	35.11	40.00	4.89
	107.134	12.21	22.88	1.05	36.14	43.50	7.36
	148.963	12.16	25.02	1.28	38.46	43.50	5.04
	220.194	11.05	25.47	1.54	38.06	46.00	7.94
	446.414	16.73	22.38	2.15	41.26	46.00	4.74
	851.035	20.57	17.66	3.00	41.23	46.00	4.77
Vertical	31.843	17.19	16.47	0.58	34.24	40.00	5.76
	65.803	6.98	27.68	0.81	35.47	40.00	4.53
	106.759	12.23	23.31	1.05	36.59	43.50	6.91
	148.963	12.16	23.89	1.28	37.33	43.50	6.17
	682.348	19.52	18.44	2.67	40.63	46.00	5.37
	890.728	21.10	15.68	3.07	39.85	46.00	6.15

TEST ENGINEER: CAESAR WU

EUT : LED LCD TV Temperature : 22°C

Model No. : 55H7B Humidity : 60%RH

Test Mode : HDMI 640*480@60Hz & 1kHz Playing Date of Test : Jun 01, 2016

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)
Horizontal	64.208	6.85	24.54	0.80	32.19	40.00	7.81
	105.642	12.26	23.95	1.04	37.25	43.50	6.25
	135.506	12.84	23.66	1.21	37.71	43.50	5.79
	242.525	12.28	24.39	1.61	38.28	46.00	7.72
	482.216	17.22	16.48	2.23	35.93	46.00	10.07
	768.748	19.83	14.29	2.85	36.97	46.00	9.03
Vertical	35.251	15.56	19.30	0.60	35.46	40.00	4.54
	49.881	8.67	25.46	0.70	34.83	40.00	5.17
	122.404	12.20	21.13	1.14	34.47	43.50	9.03
	166.651	11.04	24.43	1.35	36.82	43.50	6.68
	281.995	13.45	21.91	1.72	37.08	46.00	8.92
	721.726	19.30	16.14	2.75	38.19	46.00	7.81

TEST ENGINEER: CAESAR WU

EUT : LED LCD TV Temperature : 22°C

Model No. : 55H7B Humidity : 60%RH

Test Mode : HDMI1080P Date of Test : Jun 01, 2016

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	72.592	7.85	24.55	0.85	33.25	40.00	6.75
	117.773	12.22	24.62	1.11	37.95	43.50	5.55
	210.048	10.60	24.46	1.51	36.57	43.50	6.93
	344.386	14.93	22.19	1.89	39.01	46.00	6.99
	699.305	19.10	15.33	2.71	37.14	46.00	8.86
	884.503	21.05	15.25	3.05	39.35	46.00	6.65
Vertical	40.702	13.05	21.70	0.64	35.39	40.00	4.61
	53.505	7.87	26.32	0.73	34.92	40.00	5.08
	132.685	12.84	22.06	1.20	36.10	43.50	7.40
	193.773	9.93	23.98	1.46	35.37	43.50	8.13
	413.271	16.24	19.82	2.07	38.13	46.00	7.87
	633.907	19.12	14.69	2.58	36.39	46.00	9.61

TEST ENGINEER: CAESAR WU

EUT : LED LCD TV Temperature : 22°C
 Model No. : 55H7B Humidity : 60%RH
 Test Mode : MHL Date of Test : Jun 01, 2016

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	79.243	8.79	23.79	0.88	33.46	40.00	6.54
	134.088	12.81	23.67	1.20	37.68	43.50	5.82
	237.476	11.98	24.99	1.60	38.57	46.00	7.43
	343.180	14.89	18.06	1.89	34.84	46.00	11.16
	576.644	18.27	17.54	2.46	38.27	46.00	7.73
	734.491	19.47	14.35	2.79	36.61	46.00	9.39
Vertical	40.988	12.92	21.40	0.65	34.97	40.00	5.03
	50.942	8.38	25.09	0.71	34.18	40.00	5.82
	127.665	12.63	22.56	1.17	36.36	43.50	7.14
	189.739	10.03	24.73	1.44	36.20	43.50	7.30
	322.189	14.16	22.01	1.83	38.00	46.00	8.00
	721.726	19.30	16.22	2.75	38.27	46.00	7.73

TEST ENGINEER: CAESAR WU

EUT : LED LCD TV Temperature : 22°C

Model No. : 55H7B Humidity : 60%RH

Test Mode : USB Play Date of Test : Jun 01, 2016

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	58.407	6.97	24.79	0.76	32.52	40.00	7.48
	97.115	11.97	22.15	0.99	35.11	43.50	8.39
	170.793	10.86	25.85	1.37	38.08	43.50	5.42
	275.157	13.20	23.80	1.70	38.70	46.00	7.30
	497.677	17.46	16.50	2.26	36.22	46.00	9.78
	779.607	20.10	14.19	2.87	37.16	46.00	8.84
Vertical	35.128	15.56	18.67	0.60	34.83	40.00	5.17
	58.203	7.04	26.82	0.76	34.62	40.00	5.38
	109.796	12.10	24.02	1.07	37.19	43.50	6.31
	197.200	9.97	24.37	1.47	35.81	43.50	7.69
	434.065	16.48	18.61	2.12	37.21	46.00	8.79
	642.861	19.23	15.34	2.59	37.16	46.00	8.84

TEST ENGINEER: CAESAR WU

EUT : LED LCD TV Temperature : 22°C

Model No. : 55H7B Humidity : 60%RH

Test Mode : LAN Play Date of Test : Jun 01, 2016

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	63.759	6.84	25.71	0.80	33.35	40.00	6.65
	118.186	12.22	24.52	1.12	37.86	43.50	5.64
	245.951	12.44	23.05	1.62	37.11	46.00	8.89
	422.058	16.33	15.43	2.09	33.85	46.00	12.15
	510.044	17.60	16.91	2.28	36.79	46.00	9.21
	776.878	20.03	14.11	2.85	36.99	46.00	9.01
Vertical	46.666	9.51	24.82	0.68	35.01	40.00	4.99
	104.170	12.32	23.28	1.03	36.63	43.50	6.87
	233.349	11.68	22.94	1.58	36.20	46.00	9.80
	382.588	15.85	17.39	2.00	35.24	46.00	10.76
	622.890	18.88	14.89	2.56	36.33	46.00	9.67
	827.493	20.37	14.71	2.96	38.04	46.00	7.96

TEST ENGINEER: CAESAR WU

5 DEBUG DESCRIPTION

The following components are used during the countermeasure procedures:

Name	M/N	Manufacturer	Location
Conductive cloth	DCF40	Tong an tai	See Appendix Figure 17
SMcontact	SMR-TSL-4-3.5-5R	Qingdao Joinset Co., Ltd	See Appendix Figure 18
Conductive cloth	JCT-RF-40-0.12-260	Qingdao Joinset Co., Ltd	See Appendix 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 ENGINEE



(BYRON WU)

6 DEVIATION TO TEST SPECIFICATIONS

None.

