

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

LED LCD TV

Model No.:
HU55N3000UW, 55H6607, 55H6D, 55H6D+

Brand: Hisense

FCC ID : W9HLCDF0113

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

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Report No. : ACI-F17060
Date of Test : Jan 24 - Feb 04, 2017
Date of Report : Feb 07, 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. : HU55N3000UW, 55H6607, 55H6D, 55H6D+
 Brand : Hisense
 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 Jan 24 - Feb 04, 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.

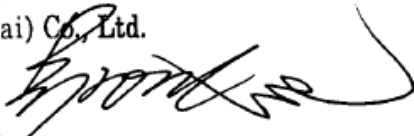
The test results for EUT's TV functions are contained in No.F17059, a Verification report.

Date of Test : Jan 24 - Feb 04, 2017 Date of Report : Feb 07, 2017

Producer : Alan He
 ALAN HE / Assistant

Review : Byron Wu
 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	:	<input checked="" type="checkbox"/> Production <input type="checkbox"/> Pre-product <input type="checkbox"/> Pro-type
Model No	:	HU55N3000UW, 55H6607, 55H6D, 55H6D+
Note #1	:	The above models are all the same except for model number. HU55N3000UW model is tested and recorded in the report.
Note #2	:	“+” represents any of the Arabic numeral.
Brand	:	Hisense
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 : HD550K3U82-K1
Tuner	:	Manufacturer : SILICON LABS M/N : Si2151-A10
Max Resolution	:	3840*2160@60Hz
HDMI Cable*3 (Lab provide)	:	Shielded, Detachable, 1.80m
Power Cord	:	Unshielded, Detachable, 1.80m, 2C
USB Cable*2 (Lab provide)	:	Shielded, Detachable, 1.00m
LAN Cable	:	Shielded, Detachable, 1.50m

MHL to HDMI Adaptor: Manufacture: CE-Link
with RCP (Lab provide) M/N: 3002

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 USB1 Port : Connected with Hard-Disk #1
- (3) One USB2 Port : Connected with Hard-Disk #2
- (4) One Service Port : Do not open to customer
- (5) One AUDIO OUT Port : Connected with Earphone #1
- (6) One HDMI1/MHL Port : Connected with Smart Mobile Phone
- (7) One HDMI2 Port : Connected with PC
- (8) One USB3 Port : Connected with Hard-Disk #3

Back Port:

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

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, 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 Modem

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

2.2.5 Earphone *2

Manufacturer : EDIFIER
Model Number : H210

2.2.6 DVD Player

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

2.2.7 Hard Disk #1

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

2.2.8 Hard Disk #2

Manufacturer : Tetasys
Model Number : F12
Serial Number : A010022-4A60007
Data Cable : Shielded, Undetachable, 1.8m.
Certificate : CE, FCC DoC

2.2.9 Hard Disk #3

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

2.2.10 Smart Mobile Phone

Manufacturer : SAMSUNG
Model Number : GT-I9100G
Serial Number : 6935152011519
Certificate : CE/EMC

2.2.11 ATSC Signal Generator

Manufacturer : SENCORE
Model Number : ATSC997
Serial Number : 6790071

2.2.12 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

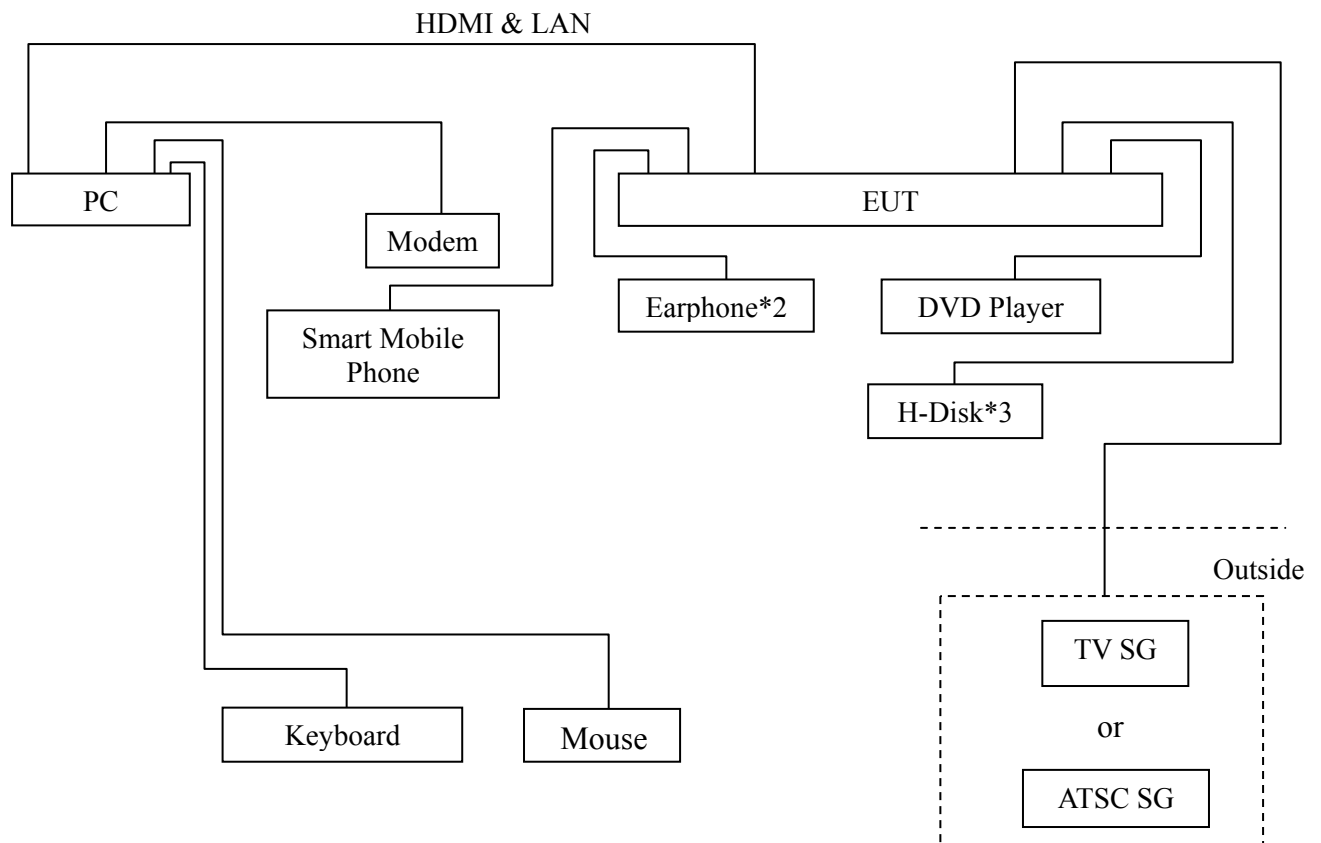
3.1 Test Equipment

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

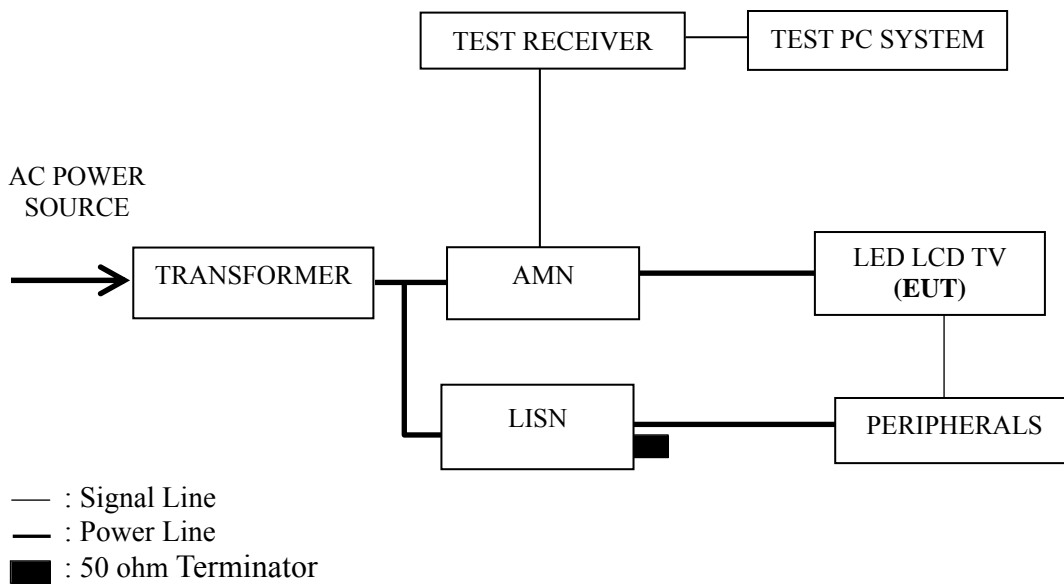
Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Test Receiver	R&S	ESCI	101302	Apr 27, 2016	Apr 26, 2017
2.	Artificial Mains Network (AMN)	R&S	ENV4200	100125	Mar 20, 2016	Mar 19, 2017
3.	Line Impedance Stabilization Network (LISN)	Kyoritsu	KNW-407	8-1280-4	May 15, 2016	May 14, 2017
4.	50Ω Terminator	Anritsu	BNC	001	Sep 18, 2016	Mar 17, 2017
5.	Software	Audix	E3	6.111206	--	--

3.2 Block Diagram of Test Setup

3.2.1 EUT & Peripherals



3.2.2 Conducted Disturbance Test Setup



3.3 Conducted Emission Limit [FCC Part 15 Subpart B 15.107(a)]

Frequency Range (MHz)	Limits Db (μ V)	
	Quasi-peak	Average
0.15 ~ 0.5	66~56	56~46
0.5 ~ 5	56	46
5 ~ 30	60	50

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

3.4 Test Configuration

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

3.5 Operating Condition of EUT

- 3.5.1 Setup the EUT and peripherals as shown in Sec. 3.2.
- 3.5.2 Turn on the power of all equipments and the EUT.
- 3.5.3 Set the contrast & brightness of EUT to maximum.
- 3.5.4 PC system ran the self-test program “EMC Test” by windows XP and sent “H” characters to EUT through graphic card, the EUT’s screen displayed and filled with “H” pattern by its resolution (Via HDMI Input).
- 3.5.5 PC system sent the 1kHz audio signal to EUT through audio port, the EUT speak out 1kHz audio signal.
- 3.5.6 In USB Play mode, set the EUT play digital media from H-Disk.
- 3.5.7 In 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 3840*2160@60Hz & 1kHz playing
HDMI 1920*1080@60Hz & 1kHz playing
HDMI 1280*1024@60Hz & 1kHz playing
HDMI 640*480@60Hz & 1kHz playing
HDMI1080P
USB Play
LAN Play
MHL

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
HDMI 3840*2160@60Hz & 1kHz playing	P13
HDMI 1920*1080@60Hz & 1kHz playing	P14
HDMI 1280*1024@60Hz & 1kHz playing	P15
HDMI 640*480@60Hz & 1kHz playing	P16
HDMI1080P	P17
USB Play	P18
LAN Play	P19
MHL	P20

NOTE 1 – Factor = Cable Loss + AMN Factor.

NOTE 2 – Emission Level = Meter Reading + Factor.

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

NOTE 4 – The worst case is for LAN Play test mode. The worst emission is detected at 0.377 MHz (Average Value) with corrected signal level of 38.03dB (μ V) (limit is 48.34 dB (μ V)), when the Neutral of the EUT is connected to AMN.

EUT : LED LCD TV Temperature : 22°C

Model No. : HU55N3000UW Humidity : 48%RH

Test Mode : HDMI 3840*2160@60Hz & 1kHz Playing Date of Test : Jan 24, 2017

Test Line	Frequency (MHz)	Meter Reading dB(μ V)	Factor (dB)	Emission Level dB(μ V)	Limits dB(μ V)	Margin (dB)	Remark
Line	0.199	29.20	10.53	39.73	63.66	23.93	QP
	0.356	30.20	10.45	40.65	58.83	18.18	
	0.844	26.00	10.40	36.40	56.00	19.60	
	1.878	21.70	10.41	32.11	56.00	23.89	
	4.574	22.80	10.45	33.25	56.00	22.75	
	17.383	27.50	10.58	38.08	60.00	21.92	AV
	0.199	20.10	10.53	30.63	53.66	23.03	
	0.356	23.50	10.45	33.95	48.83	14.88	
	0.844	16.10	10.40	26.50	46.00	19.50	
	1.878	8.10	10.41	18.51	46.00	27.49	
4.574	13.00	10.45	23.45	46.00	22.55	QP	
17.383	22.60	10.58	33.18	50.00	16.82		
0.195	29.00	10.53	39.53	63.84	24.31		
0.352	31.10	10.44	41.54	58.91	17.37		
0.579	29.10	10.39	39.49	56.00	16.51		
Neutral	1.043	26.10	10.40	36.50	56.00	19.50	QP
	2.962	22.20	10.46	32.66	56.00	23.34	
	17.390	26.59	10.69	37.28	60.00	22.72	
	0.195	19.60	10.53	30.13	53.84	23.71	
	0.352	24.60	10.44	35.04	48.91	13.87	
	0.579	20.70	10.39	31.09	46.00	14.91	
	1.043	16.20	10.40	26.60	46.00	19.40	
	2.962	10.60	10.46	21.06	46.00	24.94	
	17.390	21.79	10.69	32.48	50.00	17.52	

TEST ENGINEER: BYRON WU

EUT : LED LCD TV Temperature : 22°C

Model No. : HU55N3000UW Humidity : 48%RH

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

Test Line	Frequency (MHz)	Meter Reading dB(μ V)	Factor (dB)	Emission Level dB(μ V)	Limits dB(μ V)	Margin (dB)	Remark
Line	0.211	29.50	10.52	40.02	63.17	23.15	QP
	0.364	31.20	10.45	41.65	58.65	17.00	
	0.831	27.20	10.40	37.60	56.00	18.40	
	1.538	23.81	10.40	34.21	56.00	21.79	
	4.926	20.00	10.45	30.45	56.00	25.55	
	17.383	27.50	10.58	38.08	60.00	21.92	
	0.211	21.40	10.52	31.92	53.17	21.25	AV
	0.364	24.40	10.45	34.85	48.65	13.80	
	0.831	16.20	10.40	26.60	46.00	19.40	
	1.538	14.31	10.40	24.71	46.00	21.29	
	4.926	12.20	10.45	22.65	46.00	23.35	
	17.383	22.50	10.58	33.08	50.00	16.92	
Neutral	0.197	28.90	10.52	39.42	63.75	24.33	QP
	0.363	32.30	10.44	42.74	58.65	15.91	
	0.614	30.41	10.38	40.79	56.00	15.21	
	1.106	26.60	10.40	37.00	56.00	19.00	
	3.074	23.90	10.46	34.36	56.00	21.64	
	17.380	26.69	10.69	37.38	60.00	22.62	
	0.197	20.20	10.52	30.72	53.75	23.03	AV
	0.363	25.70	10.44	36.14	48.65	12.51	
	0.614	21.71	10.38	32.09	46.00	13.91	
	1.106	15.50	10.40	25.90	46.00	20.10	
	3.074	10.20	10.46	20.66	46.00	25.34	
	17.380	21.69	10.69	32.38	50.00	17.62	

TEST ENGINEER: BYRON WU

EUT : LED LCD TV Temperature : 22°C

Model No. : HU55N3000UW Humidity : 48%RH

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

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.182	31.50	10.55	42.05	64.42	22.37	QP
	0.371	31.09	10.45	41.54	58.47	16.93	
	0.621	28.11	10.39	38.50	56.00	17.50	
	1.117	25.00	10.40	35.40	56.00	20.60	
	2.358	21.90	10.42	32.32	56.00	23.68	
	17.383	26.70	10.58	37.28	60.00	22.72	
	AV	0.182	20.20	10.55	30.75	54.42	23.67
		0.371	24.49	10.45	34.94	48.47	13.53
		0.621	19.31	10.39	29.70	46.00	16.30
		1.117	14.90	10.40	25.30	46.00	20.70
		2.358	12.80	10.42	23.22	46.00	22.78
		17.383	21.40	10.58	31.98	50.00	18.02
Neutral	0.199	29.10	10.52	39.62	63.67	24.05	QP
	0.371	32.79	10.44	43.23	58.47	15.24	
	0.621	30.91	10.38	41.29	56.00	14.71	
	1.117	26.40	10.40	36.80	56.00	19.20	
	4.408	22.00	10.49	32.49	56.00	23.51	
	17.383	26.59	10.69	37.28	60.00	22.72	
	AV	0.199	20.60	10.52	31.12	53.67	22.55
		0.371	26.59	10.44	37.03	48.47	11.44
		0.621	22.15	10.38	32.53	46.00	13.47
		1.117	17.20	10.40	27.60	46.00	18.40
		4.408	12.60	10.49	23.09	46.00	22.91
		17.383	21.59	10.69	32.28	50.00	17.72

TEST ENGINEER: BYRON WU

EUT : LED LCD TV Temperature : 22°C

Model No. : HU55N3000UW Humidity : 48%RH

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

Test Line	Frequency (MHz)	Meter Reading dB(μ V)	Factor (dB)	Emission Level dB(μ V)	Limits dB(μ V)	Margin (dB)	Remark
Line	0.186	32.39	10.55	42.94	64.20	21.26	QP
	0.377	31.30	10.44	41.74	58.34	16.60	
	0.627	29.01	10.39	39.40	56.00	16.60	
	1.129	25.40	10.40	35.80	56.00	20.20	
	4.407	21.00	10.44	31.44	56.00	24.56	
	17.568	26.10	10.58	36.68	60.00	23.32	
	AV	0.186	21.89	10.55	32.44	54.20	21.76
		0.377	24.00	10.44	34.44	48.34	13.90
		0.627	20.61	10.39	31.00	46.00	15.00
		1.129	15.70	10.40	26.10	46.00	19.90
		4.407	12.60	10.44	23.04	46.00	22.96
		17.568	21.80	10.58	32.38	50.00	17.62
Neutral	0.186	32.19	10.54	42.73	64.20	21.47	QP
	0.375	33.30	10.43	43.73	58.39	14.66	
	0.627	31.81	10.38	42.19	56.00	13.81	
	1.094	26.70	10.40	37.10	56.00	18.90	
	2.385	24.20	10.44	34.64	56.00	21.36	
	17.199	24.81	10.67	35.48	60.00	24.52	
	AV	0.186	22.19	10.54	32.73	54.20	21.47
		0.375	27.30	10.43	37.73	48.39	10.66
		0.627	22.91	10.38	33.29	46.00	12.71
		1.094	16.60	10.40	27.00	46.00	19.00
		2.385	12.70	10.44	23.14	46.00	22.86
		17.199	19.91	10.67	30.58	50.00	19.42

TEST ENGINEER: BYRON WU

EUT : LED LCD TV Temperature : 22°C

Model No. : HU55N3000UW Humidity : 48%RH

Test Mode : HDMI 1080P Date of Test : Jan 24, 2017

Test Line	Frequency (MHz)	Meter Reading dB(μ V)	Factor (dB)	Emission Level dB(μ V)	Limits dB(μ V)	Margin (dB)	Remark
Line	0.186	33.29	10.55	43.84	64.20	20.36	QP
	0.367	30.59	10.45	41.04	58.56	17.52	
	0.880	28.80	10.40	39.20	56.00	16.80	
	1.389	23.79	10.41	34.20	56.00	21.80	
	4.225	20.50	10.44	30.94	56.00	25.06	
	17.390	26.50	10.58	37.08	60.00	22.92	
	0.186	22.79	10.55	33.34	54.20	20.86	AV
	0.367	23.89	10.45	34.34	48.56	14.22	
	0.880	18.80	10.40	29.20	46.00	16.80	
	1.389	14.09	10.41	24.50	46.00	21.50	
	4.225	13.20	10.44	23.64	46.00	22.36	
	17.390	20.90	10.58	31.48	50.00	18.52	
Neutral	0.182	32.30	10.54	42.84	64.41	21.57	QP
	0.375	33.30	10.43	43.73	58.39	14.66	
	0.880	29.50	10.40	39.90	56.00	16.10	
	2.900	26.30	10.46	36.76	56.00	19.24	
	7.025	22.80	10.53	33.33	60.00	26.67	
	17.199	25.01	10.67	35.68	60.00	24.32	
	0.182	21.90	10.54	32.44	54.41	21.97	AV
	0.375	27.40	10.43	37.83	48.39	10.56	
	0.880	20.40	10.40	30.80	46.00	15.20	
	2.900	14.90	10.46	25.36	46.00	20.64	
	7.025	16.50	10.53	27.03	50.00	22.97	
	17.199	19.81	10.67	30.48	50.00	19.52	

EUT : LED LCD TV Temperature : 22°C

Model No. : HU55N3000UW Humidity : 48%RH

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

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.183	33.60	10.55	44.15	64.33	20.18	QP
	0.377	31.20	10.44	41.64	58.34	16.70	
	0.634	29.50	10.40	39.90	56.00	16.10	
	1.107	27.40	10.40	37.80	56.00	18.20	
	4.224	20.60	10.44	31.04	56.00	24.96	
	17.383	26.20	10.58	36.78	60.00	23.22	
	AV	0.183	22.50	10.55	33.05	54.33	21.28
		0.377	24.90	10.44	35.34	48.34	13.00
		0.634	20.50	10.40	30.90	46.00	15.10
		1.107	16.20	10.40	26.60	46.00	19.40
		4.224	13.70	10.44	24.14	46.00	21.86
		17.383	21.20	10.58	31.78	50.00	18.22
Neutral	0.188	32.90	10.53	43.43	64.11	20.68	QP
	0.381	33.80	10.43	44.23	58.25	14.02	
	0.634	31.70	10.39	42.09	56.00	13.91	
	1.107	27.80	10.40	38.20	56.00	17.80	
	2.396	24.90	10.44	35.34	56.00	20.66	
	17.200	24.41	10.67	35.08	60.00	24.92	
	AV	0.188	23.30	10.53	33.83	54.11	20.28
		0.381	26.40	10.43	36.83	48.25	11.42
		0.634	22.80	10.39	33.19	46.00	12.81
		1.107	17.10	10.40	27.50	46.00	18.50
		2.396	13.30	10.44	23.74	46.00	22.26
		17.200	19.11	10.67	29.78	50.00	20.22

TEST ENGINEER: BYRON WU

EUT : LED LCD TV Temperature : 22°C

Model No. : HU55N3000UW Humidity : 48%RH

Test Mode : LAN Play Date of Test : Jan 24, 2017

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.184	34.00	10.55	44.55	64.28	19.73	QP
	0.367	30.29	10.45	40.74	58.56	17.82	
	0.880	27.50	10.40	37.90	56.00	18.10	
	1.645	23.71	10.40	34.11	56.00	21.89	
	3.604	20.61	10.43	31.04	56.00	24.96	
	17.383	25.50	10.58	36.08	60.00	23.92	
	AV	0.184	23.20	10.55	33.75	54.28	20.53
		0.367	23.69	10.45	34.14	48.56	14.42
		0.880	18.20	10.40	28.60	46.00	17.40
		1.645	14.41	10.40	24.81	46.00	21.19
		3.604	12.51	10.43	22.94	46.00	23.06
		17.383	20.40	10.58	30.98	50.00	19.02
Neutral	0.183	33.30	10.54	43.84	64.33	20.49	QP
	0.377	33.50	10.43	43.93	58.34	14.41	
	0.634	31.60	10.39	41.99	56.00	14.01	
	0.890	30.00	10.40	40.40	56.00	15.60	
	2.396	25.10	10.44	35.54	56.00	20.46	
	17.568	24.59	10.69	35.28	60.00	24.72	
	AV	0.183	23.00	10.54	33.54	54.33	20.79
		0.377	27.60	10.43	38.03	48.34	10.31
		0.634	23.20	10.39	33.59	46.00	12.41
		0.890	20.80	10.40	31.20	46.00	14.80
		2.396	13.40	10.44	23.84	46.00	22.16
		17.568	19.59	10.69	30.28	50.00	19.72

TEST ENGINEER: BYRON WU

EUT : LED LCD TV Temperature : 22°C

Model No. : HU55N3000UW Humidity : 48%RH

Test Mode : MHL Date of Test : Jan 24, 2017

Test Line	Frequency (MHz)	Meter Reading dB(μ V)	Factor (dB)	Emission Level dB(μ V)	Limits dB(μ V)	Margin (dB)	Remark
Line	0.184	34.00	10.55	44.55	64.28	19.73	QP
	0.381	31.60	10.44	42.04	58.26	16.22	
	0.634	28.60	10.40	39.00	56.00	17.00	
	0.890	27.90	10.40	38.30	56.00	17.70	
	4.316	20.90	10.44	31.34	56.00	24.66	
	17.210	24.60	10.57	35.17	60.00	24.83	
	0.184	23.20	10.55	33.75	54.28	20.53	AV
	0.381	24.70	10.44	35.14	48.26	13.12	
	0.634	20.80	10.40	31.20	46.00	14.80	
	0.890	19.40	10.40	29.80	46.00	16.20	
	4.316	13.20	10.44	23.64	46.00	22.36	
	17.210	19.60	10.57	30.17	50.00	19.83	
Neutral	0.188	33.20	10.53	43.73	64.11	20.38	QP
	0.371	33.19	10.44	43.63	58.47	14.84	
	0.611	31.11	10.38	41.49	56.00	14.51	
	0.890	29.80	10.40	40.20	56.00	15.80	
	3.681	26.31	10.47	36.78	56.00	19.22	
	6.951	24.60	10.53	35.13	60.00	24.87	
	0.188	23.70	10.53	34.23	54.11	19.88	AV
	0.371	26.79	10.44	37.23	48.47	11.24	
	0.611	21.81	10.38	32.19	46.00	13.81	
	0.890	21.20	10.40	31.60	46.00	14.40	
	3.681	13.11	10.47	23.58	46.00	22.42	
	6.951	17.20	10.53	27.73	50.00	22.27	

4 RADIATED EMISSION TEST

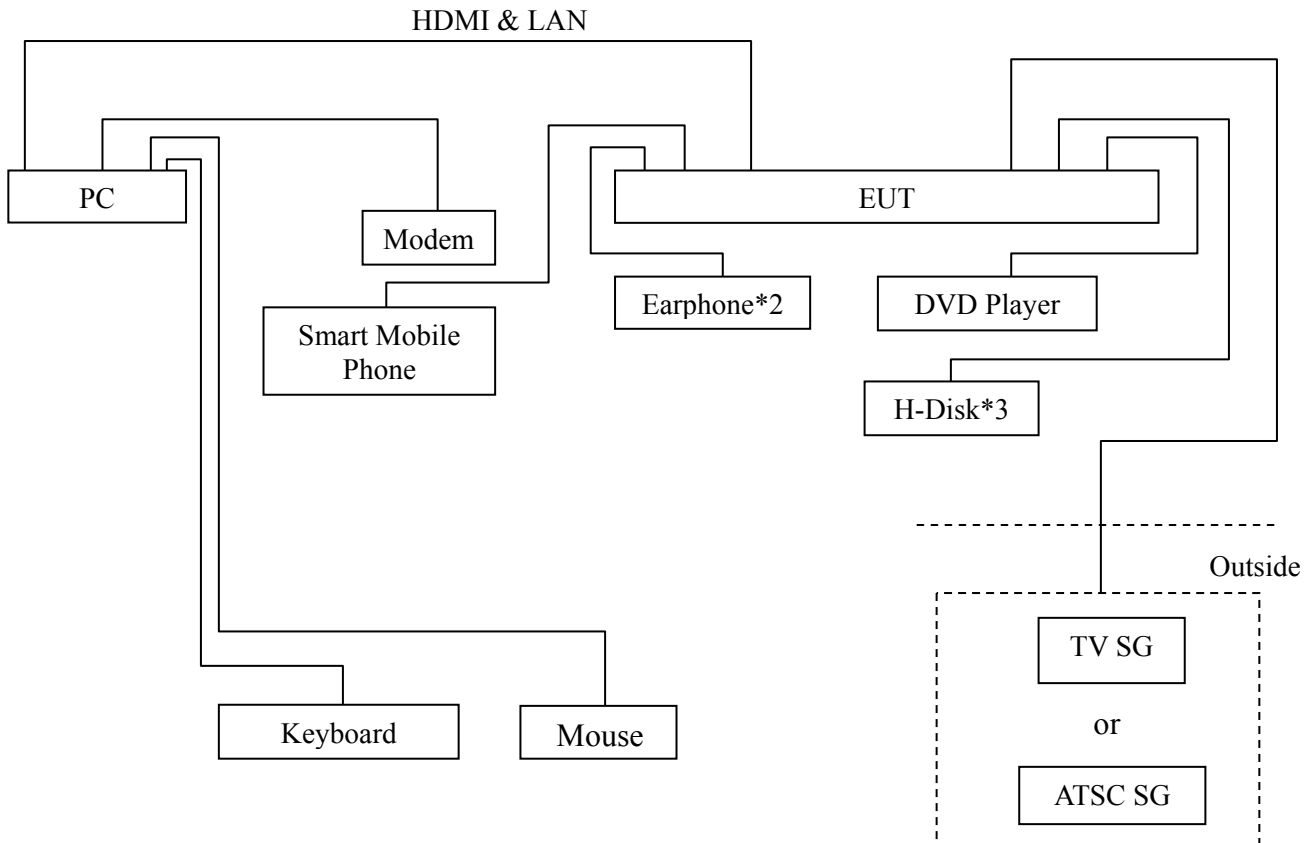
4.1 Test Equipment

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.	Spectrum	HP	8591EM	3628A00908	May 07, 2016	May 06, 2017
8.	Software	Audix	e3	6.2007-9-10	--	--

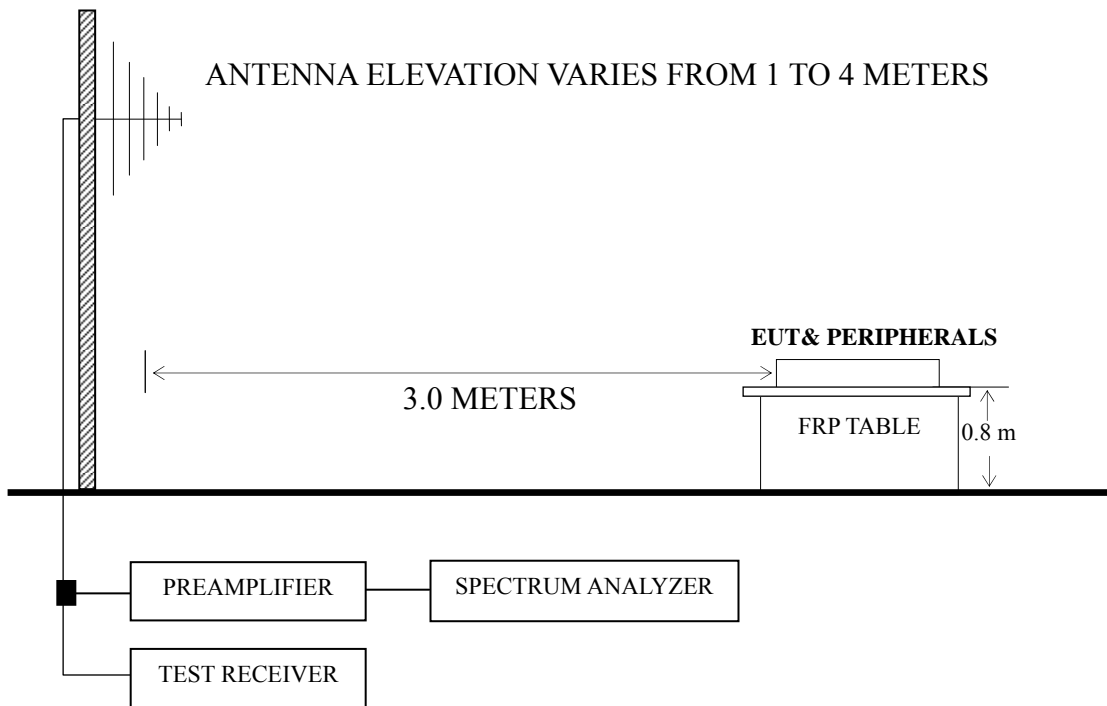
4.2 Block Diagram of Test Setup

4.2.1 EUT & Peripherals

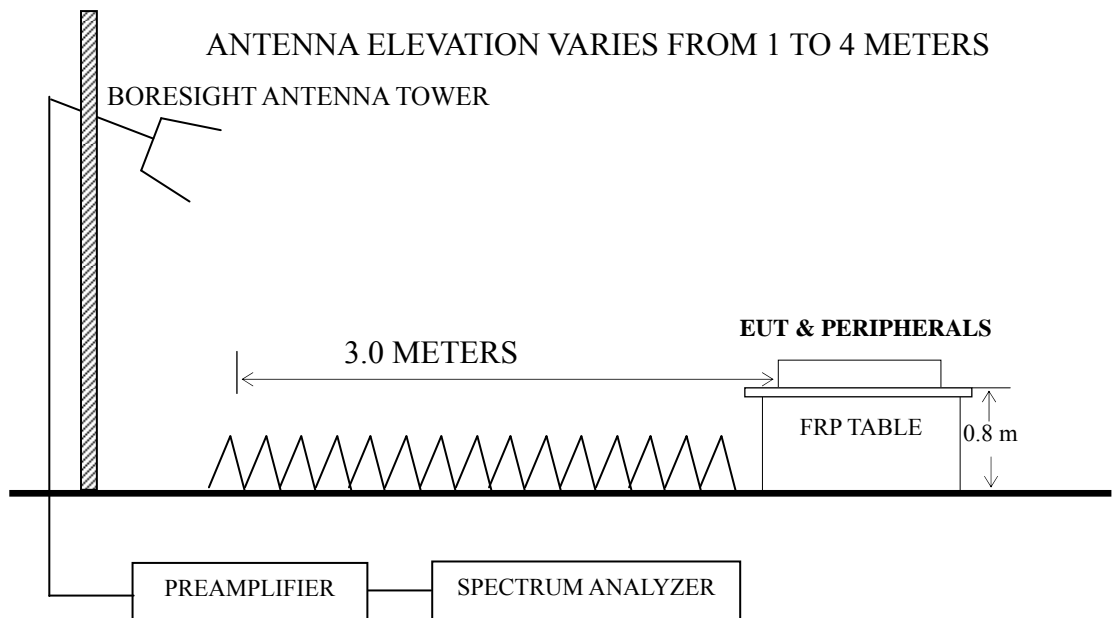


4.2.2 Radiated emission test setup

4.2.2.1 Below 1GHz



4.2.2.2 Above 1GHz



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

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

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

4.4 Test Configuration

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

Please refer to Sec.3.4.

4.5 Operating Condition of EUT

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

4.6 Test Procedures

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

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

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

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

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

4.7 Test Results

<PASS>

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

Test Mode	Data Page
HDMI 3840*2160@60Hz & 1kHz playing	P25-P26
HDMI 1920*1080@60Hz & 1kHz playing	P27
HDMI 1280*1024@60Hz & 1kHz playing	P28
HDMI 640*480@60Hz & 1kHz playing	P29
HDMI1080P	P30
USB Play	P31
LAN Play	P32
MHL	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 3840*2160@60Hz & 1kHz playing test mode. The worst emission at horizontal polarization was detected at 890.728 MHz with corrected signal level of 42.80 dB ($\mu\text{V}/\text{m}$) (limit is 46.00 dB ($\mu\text{V}/\text{m}$)), when the antenna was 1.90 m height and the turntable was at 240°. The worst emission at vertical polarization was detected at 739.661 MHz with corrected signal level of 42.95 dB ($\mu\text{V}/\text{m}$) (limit is 46.00 dB ($\mu\text{V}/\text{m}$)), when the antenna was 1.50 m height and the turntable was at 60°.

EUT : LED LCD TV Temperature : 22°C

Model No. : HU55N3000UW Humidity : 60%RH

Test Mode : HDMI 3840*2160@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	165.487	25.74	10.64	1.75	--	38.13	43.50	5.37	QP	
	297.224	26.21	12.10	2.56	--	40.87	46.00	5.13		
	590.974	20.95	17.62	2.31	--	40.88	46.00	5.12		
	739.661	17.77	20.60	3.60	--	41.97	46.00	4.03		
	848.056	16.76	19.50	4.07	--	40.33	46.00	5.67		
	890.728	17.44	20.90	4.46	--	42.80	46.00	3.20	PK	
	1702.593	62.52	26.44	4.07	35.43	57.60	74.00	16.40		
	2525.249	57.59	28.50	4.96	35.16	55.89	74.00	18.11		
	3399.987	55.88	31.31	6.10	34.81	58.48	74.00	15.52		
	1702.593	41.49	26.44	4.07	35.43	36.57	54.00	17.43		AV
	2525.249	37.55	28.50	4.96	35.16	35.85	54.00	18.15		
	3399.987	36.03	31.31	6.10	34.81	38.63	54.00	15.37		

TEST ENGINEER: CAESAR WU

EUT : LED LCD TV Temperature : 22°C

Model No. : HU55N3000UW Humidity : 60%RH

Test Mode : HDMI 3840*2160@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	148.441	26.02	11.42	1.62	--	39.06	43.50	4.44	QP
	425.028	19.94	16.60	2.78	--	39.32	46.00	6.68	
	590.974	21.37	17.62	2.31	--	41.30	46.00	4.70	
	665.804	16.32	21.75	3.16	--	41.23	46.00	4.77	
	739.661	18.75	20.60	3.60	--	42.95	46.00	3.05	
	890.728	16.96	20.90	4.46	--	42.32	46.00	3.68	PK
	1690.434	63.08	26.40	4.07	35.44	58.11	74.00	15.89	
	2118.583	59.04	27.73	4.58	35.11	56.24	74.00	17.76	
	2683.869	56.75	29.23	5.25	35.17	56.06	74.00	17.94	AV
	1690.434	43.29	26.40	4.07	35.44	38.32	54.00	15.68	
	2118.583	40.47	27.73	4.58	35.11	37.67	54.00	16.33	
	2683.869	36.45	29.23	5.25	35.17	35.76	54.00	18.24	

TEST ENGINEER: CAESAR WU

EUT : LED LCD TV Temperature : 22°C

Model No. : HU55N3000UW Humidity : 60%RH

Test Mode : HDMI 1920*1080@60Hz Date of Test : Feb 04, 2017
& 1kHz Playing

Polarization	Frequency (MHz)	Meter Reading dB (μ V)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level dB (μ V/m)	Limits dB (μ V/m)	Margin (dB)
Horizontal	87.112	21.91	10.34	1.18	33.43	40.00	6.57
	154.821	25.53	10.60	1.66	37.79	43.50	5.71
	296.184	24.13	11.95	2.56	38.64	46.00	7.36
	590.974	19.63	17.62	2.31	39.56	46.00	6.44
	739.661	18.21	20.60	3.60	42.41	46.00	3.59
	851.035	17.59	19.67	4.17	41.43	46.00	4.57
Vertical	66.967	23.93	6.76	0.91	31.60	40.00	8.40
	137.420	22.63	11.83	1.56	36.02	43.50	7.48
	397.633	19.97	17.13	2.71	39.81	46.00	6.19
	607.787	19.47	20.02	2.26	41.75	46.00	4.25
	739.661	17.68	20.60	3.60	41.88	46.00	4.12
	836.244	18.32	19.60	3.97	41.89	46.00	4.11

TEST ENGINEER: CAESAR WU

EUT : LED LCD TV Temperature : 22°C

Model No. : HU55N3000UW Humidity : 60%RH

Test Mode : HDMI 1280*1024@60Hz Date of Test : Feb 04, 2017
& 1kHz Playing

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)
Horizontal	73.617	24.20	7.75	0.99	32.94	40.00	7.06
	149.486	24.49	11.41	1.63	37.53	43.50	5.97
	200.688	26.87	9.05	1.97	37.89	43.50	5.61
	312.179	21.19	13.12	2.61	36.92	46.00	9.08
	638.369	15.37	21.58	2.77	39.72	46.00	6.28
	851.035	16.76	19.67	4.17	40.60	46.00	5.40
Vertical	35.251	16.71	14.54	0.69	31.94	40.00	8.06
	85.898	21.34	10.11	1.16	32.61	40.00	7.39
	153.200	23.70	10.90	1.65	36.25	43.50	7.25
	206.398	25.61	8.70	1.99	36.30	43.50	7.20
	318.817	25.82	13.19	2.62	41.63	46.00	4.37
	506.479	20.58	16.00	2.89	39.47	46.00	6.53

TEST ENGINEER: CAESAR WU

EUT : LED LCD TV Temperature : 22°C

Model No. : HU55N3000UW 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	80.927	22.35	9.14	1.09	32.58	40.00	7.42
	133.619	23.37	12.10	1.54	37.01	43.50	6.49
	191.074	25.09	9.08	1.92	36.09	43.50	7.41
	304.610	23.91	12.75	2.60	39.26	46.00	6.74
	564.639	17.43	17.90	2.52	37.85	46.00	8.15
	842.130	16.49	19.50	4.07	40.06	46.00	5.94
Vertical	51.301	24.14	6.77	0.82	31.73	40.00	8.27
	75.446	23.87	8.12	1.02	33.01	40.00	6.99
	112.524	20.30	12.05	1.41	33.76	43.50	9.74
	185.138	25.12	9.20	1.88	36.20	43.50	7.30
	227.691	28.48	8.28	2.08	38.84	46.00	7.16
	459.114	21.94	16.60	2.85	41.39	46.00	4.61

TEST ENGINEER: CAESAR WU

EUT : LED LCD TV Temperature : 22°C

Model No. : HU55N3000UW 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	83.522	22.21	9.71	1.13	33.05	40.00	6.95
	148.963	25.07	11.41	1.63	38.11	43.50	5.39
	239.147	24.65	8.66	2.11	35.42	46.00	10.58
	419.108	21.93	16.50	2.76	41.19	46.00	4.81
	593.050	20.93	18.05	2.31	41.29	46.00	4.71
	729.358	17.71	20.80	3.59	42.10	46.00	3.90
Vertical	72.592	24.46	7.50	0.98	32.94	40.00	7.06
	148.441	23.85	11.42	1.62	36.89	43.50	6.61
	425.028	19.28	16.60	2.78	38.66	46.00	7.34
	612.064	17.77	20.62	2.39	40.78	46.00	5.22
	739.661	17.68	20.60	3.60	41.88	46.00	4.12
	890.728	16.83	20.90	4.46	42.19	46.00	3.81

TEST ENGINEER: CAESAR WU

EUT : LED LCD TV Temperature : 22°C
 Model No. : HU55N3000UW Humidity : 60%RH
 Test Mode : USB Play Date of Test : Feb 04, 2017

Polarization	Frequency (MHz)	Meter Reading dB (μ V)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level dB (μ V/m)	Limits dB (μ V/m)	Margin (dB)
Horizontal	75.977	22.76	8.19	1.02	31.97	40.00	8.03
	137.903	20.85	11.77	1.56	34.18	43.50	9.32
	207.123	22.34	8.60	1.99	32.93	43.50	10.57
	319.937	19.30	13.20	2.62	35.12	46.00	10.88
	501.179	16.37	16.00	2.94	35.31	46.00	10.69
	709.182	13.50	21.20	3.56	38.26	46.00	7.74
Vertical	48.843	23.01	8.08	0.80	31.89	40.00	8.11
	82.071	22.48	9.43	1.10	33.01	40.00	6.99
	163.755	22.04	10.70	1.73	34.47	43.50	9.03
	292.058	22.94	11.45	2.52	36.91	46.00	9.09
	499.425	16.40	16.00	2.94	35.34	46.00	10.66
	679.960	15.81	21.00	3.28	40.09	46.00	5.91

TEST ENGINEER: CAESAR WU

EUT : LED LCD TV Temperature : 22°C

Model No. : HU55N3000UW Humidity : 60%RH

Test Mode : LAN Play Date of Test : Feb 04, 2017

Polarization	Frequency (MHz)	Meter Reading dB (μ V)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level dB (μ V/m)	Limits dB (μ V/m)	Margin (dB)
Horizontal	60.704	26.01	6.60	0.88	33.49	40.00	6.51
	102.719	22.27	12.05	1.34	35.66	43.50	7.84
	162.041	22.78	10.70	1.72	35.20	43.50	8.30
	281.008	22.86	10.30	2.42	35.58	46.00	10.42
	497.677	15.88	15.98	2.94	34.80	46.00	11.20
	821.710	11.07	19.60	3.88	34.55	46.00	11.45
Vertical	83.816	22.23	9.79	1.13	33.15	40.00	6.85
	162.611	24.01	10.70	1.73	36.44	43.50	7.06
	297.224	21.44	12.10	2.56	36.10	46.00	9.90
	482.216	15.34	16.22	2.91	34.47	46.00	11.53
	651.942	14.42	21.30	2.90	38.62	46.00	7.38
	863.056	13.39	20.20	4.27	37.86	46.00	8.14

TEST ENGINEER: CAESAR WU

EUT : LED LCD TV Temperature : 22°C

Model No. : HU55N3000UW Humidity : 60%RH

Test Mode : MHL Date of Test : Feb 04, 2017

Polarization	Frequency (MHz)	Meter Reading dB (μ V)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level dB (μ V/m)	Limits dB (μ V/m)	Margin (dB)
Horizontal	80.644	22.12	9.07	1.09	32.28	40.00	7.72
	117.773	20.58	11.94	1.44	33.96	43.50	9.54
	191.074	24.34	9.08	1.92	35.34	43.50	8.16
	303.544	22.25	12.66	2.60	37.51	46.00	8.49
	535.707	14.04	16.75	2.68	33.47	46.00	12.53
	830.400	13.10	19.70	3.97	36.77	46.00	9.23
Vertical	72.084	24.90	7.44	0.98	33.32	40.00	6.68
	101.289	20.51	12.03	1.33	33.87	43.50	9.63
	184.490	23.38	9.20	1.87	34.45	43.50	9.05
	285.978	19.92	10.73	2.49	33.14	46.00	12.86
	501.179	17.07	16.00	2.94	36.01	46.00	9.99
	804.603	12.54	19.90	3.78	36.22	46.00	9.78

TEST ENGINEER: CAESAR WU

5 DEVIATION TO TEST SPECIFICATIONS

None.

6 DEBUG DESCRIPTION

The following components are used during the countermeasure procedures:

Name	M/N	Manufacturer	Location
SMcontact	SMR-TSL-4-3.5-5R	Qingdao Joinset Co., Ltd	See Internal Photos Figure 21

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)