

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

LED LCD TV

Model No.	Brand
HU55K3300UWG	Hisense
55H8C	
55H8C+	

FCC ID : W9HLCDF0077

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

Prepared By : Audix Technology (Shanghai) Co., Ltd.
3F and 4F, 34Bldg 680 Guiping Rd,
Caohejing Hi-Tech Park,
Shanghai 200233, China

Tel: +86-21-64955500

Fax: +86-21-64955491

Report No. : ACI-F16049
Date of Test : Feb 01 – 26, 2016
Date of Report : Mar 04, 2016

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

Test Procedure Used:

*FCC RULES AND REGULATIONS PART 15 SUBPART B CLASS B OCTOBER 2014
AND ANSI C63.4-2003*

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 01 – 26, 2016 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 contains data that are not covered by the NVLAP accreditation.

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.F16048, a Verification report.

Date of Test : Feb 01 – 26, 2016 Date of Report : Mar 04, 2016

Producer : Huimin Yan
 HUIMIN YAN / Assistant

Review : Byron Wu
 BYRON WU / Deputy Assistant Manager
 For and on behalf of
 Audix Technology (Shanghai) Co., Ltd.

Signatory : Sammy Chen
 Authorized Signature EMC SAMMY CHEN / 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 2014 AND ANSI C63.4-2003	15.107(a) Class B	Pass
Radiated Disturbance	FCC RULES AND REGULATIONS PART 15 SUBPART B OCTOBER 2014 AND ANSI C63.4-2003	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	:	HU55K3300UWG, 55H8C, 55H8C+
Note #1	:	The above models are all the same except for model number.HU55K3300UWG 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. Sharp #3510 Parque Industrial Rosarito, C.P. 22710 Playas de Rosarito, B.C.
LCD Panel	:	Manufacturer : Hisense M/N : HD550DU-B52
Tuner	:	Manufacturer : XuGuang Tech. Co. Ltd. M/N : HFT-96S3/W11FJ2H\ROH
Max Resolution	:	3840*2160@60Hz
HDMI Cable*4 (Lab provide)	:	Shielded, Detachable, 1.50m
Power Cord	:	Unshielded, Detachable, 1.80m, 2C
LAN Cable	:	Shielded, Detachable, 1.50m
USB Cable*3 (Lab provide)	:	Shielded, Detachable, 1.00m, without core

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 USB3 Port : Connected with Hard-Disk #3
- (2) One HDMI2/ARC Port : Connected with PC
- (3) One HDMI1/MHL Port : Connected with Smart Mobile Phone
- (4) One Audio out Port : Connected with Earphone#1
- (5) One Service Port : This port does not open to customer
- (6) One USB1 Port : Connected with Hard-Disk #1
- (7) One USB2 Port : Connected with Hard-Disk #2
- (8) One ANT/CABLE IN Port : Connected with ATSC SG / TV SG

Back Port:

- (9) One LAN Port : Connected with PC
- (10) One HDMI3 Port : Connected with DVD PLAYER #1
- (11) One HDMI4 Port : Connected with DVD PLAYER #2
- (12) One Digital Audio Out Port : Connected with Audio Converter to Earphone#2
- (13) One COMPONENT IN/AV IN Port : Connected with DVD PLAYER #1

2.2 Peripherals

2.2.1 PC

Manufacturer : HP
Model Number : dx7400MT
Serial Number : CNG8130K89
Power Cord : Shielded, 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#1

Manufacturer : Edifier
Model Number : H210

2.2.6 Earphone#2

Manufacturer : Edifier
Model Number : H210

2.2.7 DVD PLAYER #1

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

2.2.8 DVD PLAYER #2

Manufacturer : PHILIPS
Model Number : DVP3986K/93
Serial Number : KX1A0902120082
Certificate : CCC

2.2.9 Hard Disk #1

Manufacturer : Tetasys
Model Number : F12
Serial Number : A010022-4860010X
Data Cable : Shielded, Detachable, 1.5m.
Certificate : CE, FCC DoC

2.2.10 Hard Disk #2

Manufacturer : Tetasys
Model Number : F12
Serial Number : A010022-4860007
Data Cable : Shielded, Detachable, 1.5m.
Certificate : CE, FCC DoC

2.2.11 Hard Disk #3

Manufacturer : Tetasy
Model Number : F12
Serial Number : A010022-40F0005
Data Cable : Shielded, Detachable, 1.5m.
Certificate : CE, FCC DoC

2.2.12 ATSC Signal Generator

Manufacturer : SENCORE
Model Number : ATSC997
Serial Number : 6790071

2.2.13 TV Signal Generator

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

2.2.14 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

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

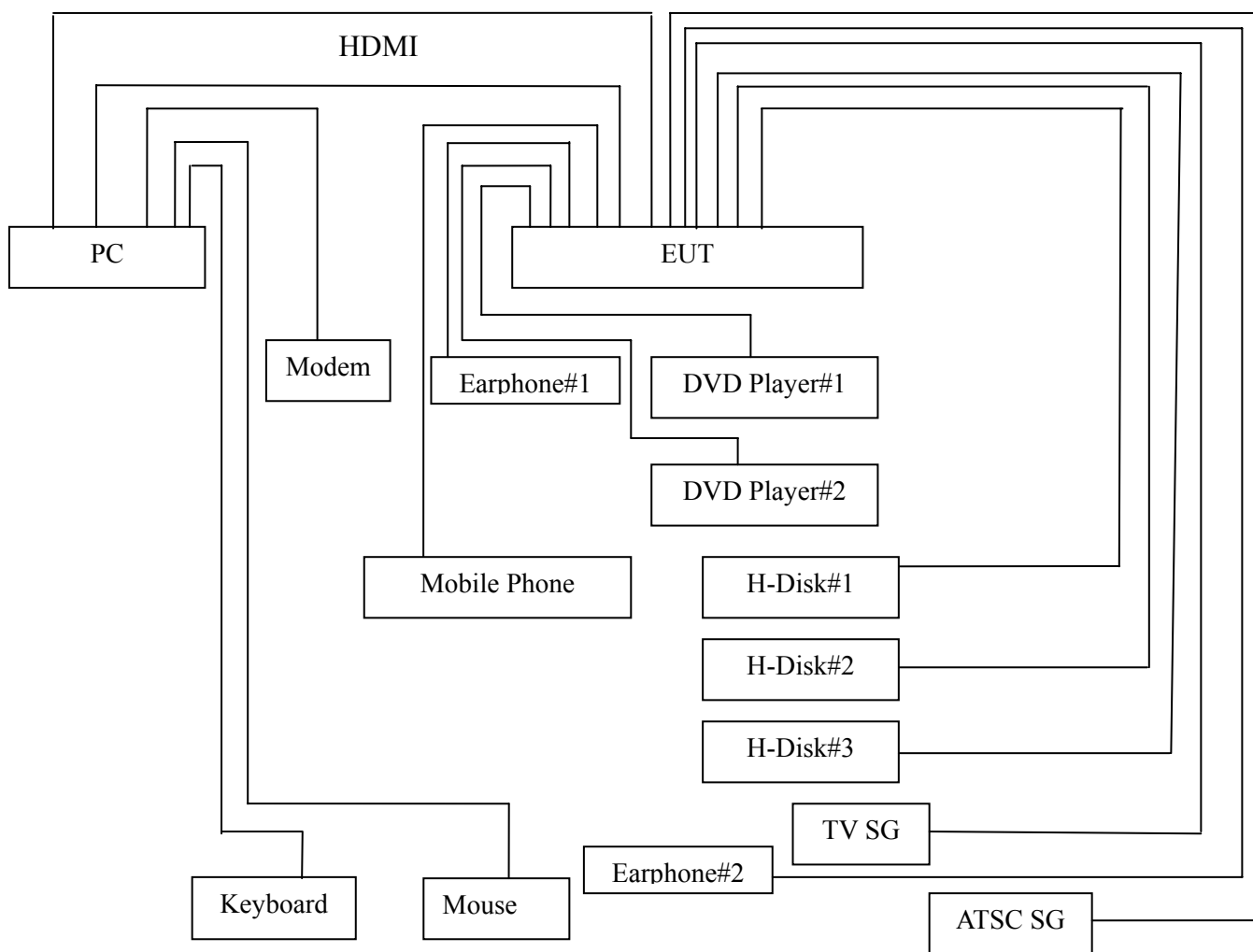
The following test equipments are used during the conducted emission test in a shielded room:

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Test Receiver	R&S	ESCI	101302	Jul 03, 2015	Jul 02, 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	8-1280-5	Mar 20, 2015	Mar 19, 2016
4.	50Ω Terminator	Anritsu	BNC	001	Mar 20, 2015	Mar 19, 2016
5.	Software	Audix	e3	6.111206	--	--

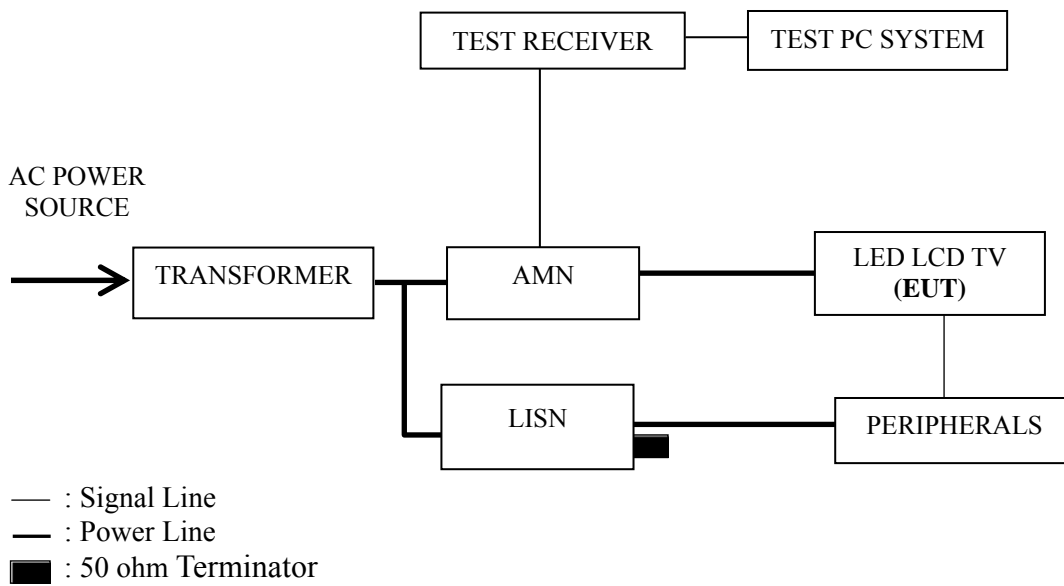
3.2 Block Diagram of Test Setup

3.2.1 EUT & Peripherals

LAN



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 C63.4:2003 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	P14
HDMI 1920*1080@60Hz & 1kHz playing	P15
HDMI 1280*1024@60Hz & 1kHz playing	P16
HDMI 640*480@60Hz & 1kHz playing	P17
HDMI1080P	P18
USB Play	P19
LAN Play	P20
MHL	P21

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 HDMI 640*480@60Hz & 1kHz playing test mode.

The worst emission is detected at 2.299MHz (QP Value) with corrected signal level of 53.22dB (μ V) (limit is 56.00 dB (μ V)), when the Neutral of the EUT is connected to AMN.

EUT : LED LCD TV Temperature : 22°C

Model No. : HU55K3300UWG Humidity : 48%RH

Test Mode : HDMI 3840*2160@60Hz & 1kHz Playing Date of Test : Feb 01, 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	0.232	40.10	10.50	50.60	62.38	11.78	QP
	0.557	39.30	10.38	49.68	56.00	6.32	
	0.838	39.10	10.38	49.48	56.00	6.52	
	1.330	35.50	10.39	45.89	56.00	10.11	
	2.318	40.80	10.42	51.22	56.00	4.78	
	6.889	20.91	10.46	31.37	60.00	28.63	
	0.232	30.60	10.50	41.10	52.38	11.28	AV
	0.557	23.70	10.38	34.08	46.00	11.92	
	0.838	21.50	10.38	31.88	46.00	14.12	
	1.330	17.20	10.39	27.59	46.00	18.41	
	2.318	24.20	10.42	34.62	46.00	11.38	
	6.889	19.01	10.46	29.47	50.00	20.53	
Neutral	0.231	38.60	10.48	49.08	62.42	13.34	QP
	0.557	38.80	10.36	49.16	56.00	6.84	
	1.386	37.60	10.39	47.99	56.00	8.01	
	1.853	39.10	10.41	49.51	56.00	6.49	
	2.304	41.80	10.42	52.22	56.00	3.78	
	5.417	20.50	10.48	30.98	60.00	29.02	
	0.231	26.30	10.48	36.78	52.42	15.64	AV
	0.557	23.50	10.36	33.86	46.00	12.14	
	1.386	21.30	10.39	31.69	46.00	14.31	
	1.853	23.50	10.41	33.91	46.00	12.09	
	2.304	26.30	10.42	36.72	46.00	9.28	
	5.417	17.60	10.48	28.08	50.00	21.92	

TEST ENGINEER: WENCY YANG

EUT : LED LCD TV Temperature : 22°C

Model No. : HU55K3300UWG Humidity : 48%RH

Test Mode : HDMI 1920*1080@60Hz & 1kHz Playing Date of Test : Feb 01, 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	0.231	40.20	10.50	50.70	62.41	11.71	QP
	0.554	38.61	10.38	48.99	56.00	7.01	
	0.839	39.40	10.38	49.78	56.00	6.22	
	1.845	40.50	10.41	50.91	56.00	5.09	
	2.302	42.30	10.42	52.72	56.00	3.28	
	7.380	22.50	10.47	32.97	60.00	27.03	AV
	0.231	27.50	10.50	38.00	52.41	14.41	
	0.554	23.81	10.38	34.19	46.00	11.81	
	0.839	21.90	10.38	32.28	46.00	13.72	
	1.845	24.60	10.41	35.01	46.00	10.99	
	2.302	26.90	10.42	37.32	46.00	8.68	
	7.380	19.60	10.47	30.07	50.00	19.93	Neutral
0.249	37.30	10.47	47.77	61.80	14.03	QP	
0.553	38.41	10.36	48.77	56.00	7.23		
0.839	39.19	10.37	49.56	56.00	6.44		
1.384	37.80	10.39	48.19	56.00	7.81		
2.300	42.30	10.42	52.72	56.00	3.28		
5.416	20.90	10.48	31.38	60.00	28.62	AV	
0.249	23.60	10.47	34.07	51.80	17.73		
0.553	23.51	10.36	33.87	46.00	12.13		
0.839	21.69	10.37	32.06	46.00	13.94		
1.384	21.90	10.39	32.29	46.00	13.71		
2.300	26.20	10.42	36.62	46.00	9.38		
5.416	17.80	10.48	28.28	50.00	21.72		

TEST ENGINEER: WENCY YANG

EUT : LED LCD TV Temperature : 22°C

Model No. : HU55K3300UWG Humidity : 48%RH

Test Mode : HDMI 1280*1024@60Hz & 1kHz Playing Date of Test : Feb 01, 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	0.232	40.20	10.50	50.70	62.38	11.68	QP
	0.557	39.20	10.38	49.58	56.00	6.42	
	0.838	38.50	10.38	48.88	56.00	7.12	
	1.861	38.60	10.41	49.01	56.00	6.99	
	2.308	41.80	10.42	52.22	56.00	3.78	
	13.250	21.30	10.53	31.83	60.00	28.17	
	0.232	37.50	10.50	48.00	52.38	4.38	AV
	0.557	23.70	10.38	34.08	46.00	11.92	
	0.838	21.70	10.38	32.08	46.00	13.92	
	1.861	24.20	10.41	34.61	46.00	11.39	
	2.308	25.90	10.42	36.32	46.00	9.68	
	13.250	14.90	10.53	25.43	50.00	24.57	
Neutral	0.245	37.40	10.47	47.87	61.92	14.05	QP
	0.551	38.51	10.36	48.87	56.00	7.13	
	0.838	38.49	10.37	48.86	56.00	7.14	
	1.328	35.50	10.39	45.89	56.00	10.11	
	2.302	42.50	10.42	52.92	56.00	3.08	
	13.070	20.70	10.62	31.32	60.00	28.68	
	0.245	24.90	10.47	35.37	51.92	16.55	AV
	0.551	23.01	10.36	33.37	46.00	12.63	
	0.838	21.59	10.37	31.96	46.00	14.04	
	1.328	18.80	10.39	29.19	46.00	16.81	
	2.302	26.30	10.42	36.72	46.00	9.28	
	13.070	13.90	10.62	24.52	50.00	25.48	

TEST ENGINEER: WENCY YANG

EUT : LED LCD TV Temperature : 22°C

Model No. : HU55K3300UWG Humidity : 48%RH

Test Mode : HDMI 640*480@60Hz & 1kHz Playing Date of Test : Feb 01, 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	0.231	40.10	10.50	50.60	62.41	11.81	QP
	0.557	39.11	10.38	49.49	56.00	6.51	
	0.841	39.30	10.38	49.68	56.00	6.32	
	1.343	35.50	10.39	45.89	56.00	10.11	
	2.302	41.90	10.42	52.32	56.00	3.68	
	7.383	22.20	10.47	32.67	60.00	27.33	
	0.231	27.50	10.50	38.00	52.41	14.41	AV
	0.557	23.81	10.38	34.19	46.00	11.81	
	0.841	21.50	10.38	31.88	46.00	14.12	
	1.343	20.90	10.39	31.29	46.00	14.71	
	2.302	26.60	10.42	37.02	46.00	8.98	
	7.383	19.40	10.47	29.87	50.00	20.13	
Neutral	0.239	37.90	10.47	48.37	62.14	13.77	QP
	0.552	38.51	10.36	48.87	56.00	7.13	
	0.839	39.09	10.37	49.46	56.00	6.54	
	1.396	37.50	10.39	47.89	56.00	8.11	
	2.299	42.80	10.42	53.22	56.00	2.78	
	13.120	18.50	10.62	29.12	60.00	30.88	
	0.239	25.30	10.47	35.77	52.14	16.37	AV
	0.552	23.31	10.36	33.67	46.00	12.33	
	0.839	21.59	10.37	31.96	46.00	14.04	
	1.396	20.40	10.39	30.79	46.00	15.21	
	2.299	27.20	10.42	37.62	46.00	8.38	
	13.120	12.30	10.62	22.92	50.00	27.08	

TEST ENGINEER: WENCY YANG

EUT : LED LCD TV Temperature : 22°C

Model No. : HU55K3300UWG Humidity : 48%RH

Test Mode : HDMI 1080P Date of Test : Feb 01, 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	0.234	39.80	10.50	50.30	62.31	12.01	QP
	0.554	38.81	10.38	49.19	56.00	6.81	
	0.985	35.90	10.38	46.28	56.00	9.72	
	1.834	40.60	10.41	51.01	56.00	4.99	
	2.299	42.50	10.42	52.92	56.00	3.08	
	5.354	19.51	10.47	29.98	60.00	30.02	
	0.234	27.60	10.50	38.10	52.31	14.21	AV
	0.554	23.61	10.38	33.99	46.00	12.01	
	0.985	15.20	10.38	25.58	46.00	20.42	
	1.834	24.90	10.41	35.31	46.00	10.69	
	2.299	26.60	10.42	37.02	46.00	8.98	
	5.354	16.21	10.47	26.68	50.00	23.32	
Neutral	0.235	37.90	10.48	48.38	62.28	13.90	QP
	0.557	38.61	10.36	48.97	56.00	7.03	
	0.838	39.24	10.37	49.61	56.00	6.39	
	1.840	40.80	10.41	51.21	56.00	4.79	
	2.306	41.80	10.42	52.22	56.00	3.78	
	13.000	19.80	10.62	30.42	60.00	29.58	
	0.235	25.80	10.48	36.28	52.28	16.00	AV
	0.557	23.51	10.36	33.87	46.00	12.13	
	0.838	21.79	10.37	32.16	46.00	13.84	
	1.840	25.90	10.41	36.31	46.00	9.69	
	2.306	26.00	10.42	36.42	46.00	9.58	
	13.000	13.30	10.62	23.92	50.00	26.08	

EUT : LED LCD TV Temperature : 22°C

Model No. : HU55K3300UWG Humidity : 48%RH

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

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.232	40.10	10.50	50.60	62.38	11.78	QP
	0.558	39.00	10.38	49.38	56.00	6.62	
	1.389	37.30	10.39	47.69	56.00	8.31	
	1.957	39.30	10.41	49.71	56.00	6.29	
	2.298	42.60	10.42	53.02	56.00	2.98	
	13.280	21.50	10.53	32.03	60.00	27.97	
	0.232	27.50	10.50	38.00	52.38	14.38	AV
	0.558	23.60	10.38	33.98	46.00	12.02	
	1.389	20.50	10.39	30.89	46.00	15.11	
	1.957	23.60	10.41	34.01	46.00	11.99	
	2.298	27.10	10.42	37.52	46.00	8.48	
	13.280	14.20	10.53	24.73	50.00	25.27	
Neutral	0.233	38.20	10.48	48.68	62.33	13.65	QP
	0.542	37.50	10.37	47.87	56.00	8.13	
	0.838	39.19	10.37	49.56	56.00	6.44	
	1.835	40.80	10.41	51.21	56.00	4.79	
	2.310	41.60	10.42	52.02	56.00	3.98	
	12.990	19.30	10.62	29.92	60.00	30.08	
	0.233	26.30	10.48	36.78	52.33	15.55	AV
	0.542	22.90	10.37	33.27	46.00	12.73	
	0.838	21.69	10.37	32.06	46.00	13.94	
	1.835	25.50	10.41	35.91	46.00	10.09	
	2.310	24.20	10.42	34.62	46.00	11.38	
	12.990	13.40	10.62	24.02	50.00	25.98	

TEST ENGINEER: WENCY YANG

EUT : LED LCD TV Temperature : 22°C
 Model No. : HU55K3300UWG Humidity : 48%RH
 Test Mode : LAN Play Date of Test : Feb 01, 2016

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.232	40.20	10.50	50.70	62.37	11.67	QP
	0.557	39.10	10.38	49.48	56.00	6.52	
	0.838	39.10	10.38	49.48	56.00	6.52	
	1.836	40.70	10.41	51.11	56.00	4.89	
	2.297	42.50	10.42	52.92	56.00	3.08	
	5.414	19.90	10.48	30.38	60.00	29.62	AV
	0.232	27.50	10.50	38.00	52.37	14.37	
	0.557	23.60	10.38	33.98	46.00	12.02	
	0.838	21.50	10.38	31.88	46.00	14.12	
	1.836	24.50	10.41	34.91	46.00	11.09	
	2.297	27.10	10.42	37.52	46.00	8.48	
	5.414	16.60	10.48	27.08	50.00	22.92	QP
0.232	38.30	10.48	48.78	62.38	13.60		
0.543	37.51	10.36	47.87	56.00	8.13		
0.838	38.79	10.37	49.16	56.00	6.84		
1.370	35.50	10.39	45.89	56.00	10.11		
2.298	42.60	10.42	53.02	56.00	2.98		
12.988	18.20	10.62	28.82	60.00	31.18	AV	
0.232	26.50	10.48	36.98	52.38	15.40		
0.543	22.11	10.36	32.47	46.00	13.53		
0.838	21.69	10.37	32.06	46.00	13.94		
1.370	20.30	10.39	30.69	46.00	15.31		
2.298	27.10	10.42	37.52	46.00	8.48		
12.988	12.50	10.62	23.12	50.00	26.88		

TEST ENGINEER: WENCY YANG

EUT : LED LCD TV Temperature : 22°C

Model No. : HU55K3300UWG Humidity : 48%RH

Test Mode : MHL Date of Test : Feb 01, 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	0.230	40.10	10.50	50.60	62.45	11.85	QP
	0.554	38.51	10.38	48.89	56.00	7.11	
	0.838	39.10	10.38	49.48	56.00	6.52	
	1.841	40.50	10.41	50.91	56.00	5.09	
	2.309	41.30	10.42	51.72	56.00	4.28	
	13.030	21.20	10.53	31.73	60.00	28.27	
	0.230	26.90	10.50	37.40	52.45	15.05	AV
	0.554	23.31	10.38	33.69	46.00	12.31	
	0.838	21.80	10.38	32.18	46.00	13.82	
	1.841	25.30	10.41	35.71	46.00	10.29	
	2.309	24.60	10.42	35.02	46.00	10.98	
	13.030	12.90	10.53	23.43	50.00	26.57	
Neutral	0.231	38.50	10.48	48.98	62.42	13.44	QP
	0.542	37.50	10.37	47.87	56.00	8.13	
	0.837	38.89	10.37	49.26	56.00	6.74	
	1.846	39.90	10.41	50.31	56.00	5.69	
	2.306	41.60	10.42	52.02	56.00	3.98	
	7.380	21.80	10.52	32.32	60.00	27.68	
	0.231	26.00	10.48	36.48	52.42	15.94	AV
	0.542	22.20	10.37	32.57	46.00	13.43	
	0.837	21.49	10.37	31.86	46.00	14.14	
	1.846	25.20	10.41	35.61	46.00	10.39	
	2.306	25.50	10.42	35.92	46.00	10.08	
	7.380	19.10	10.52	29.62	50.00	20.38	

4 RADIATED EMISSION TEST

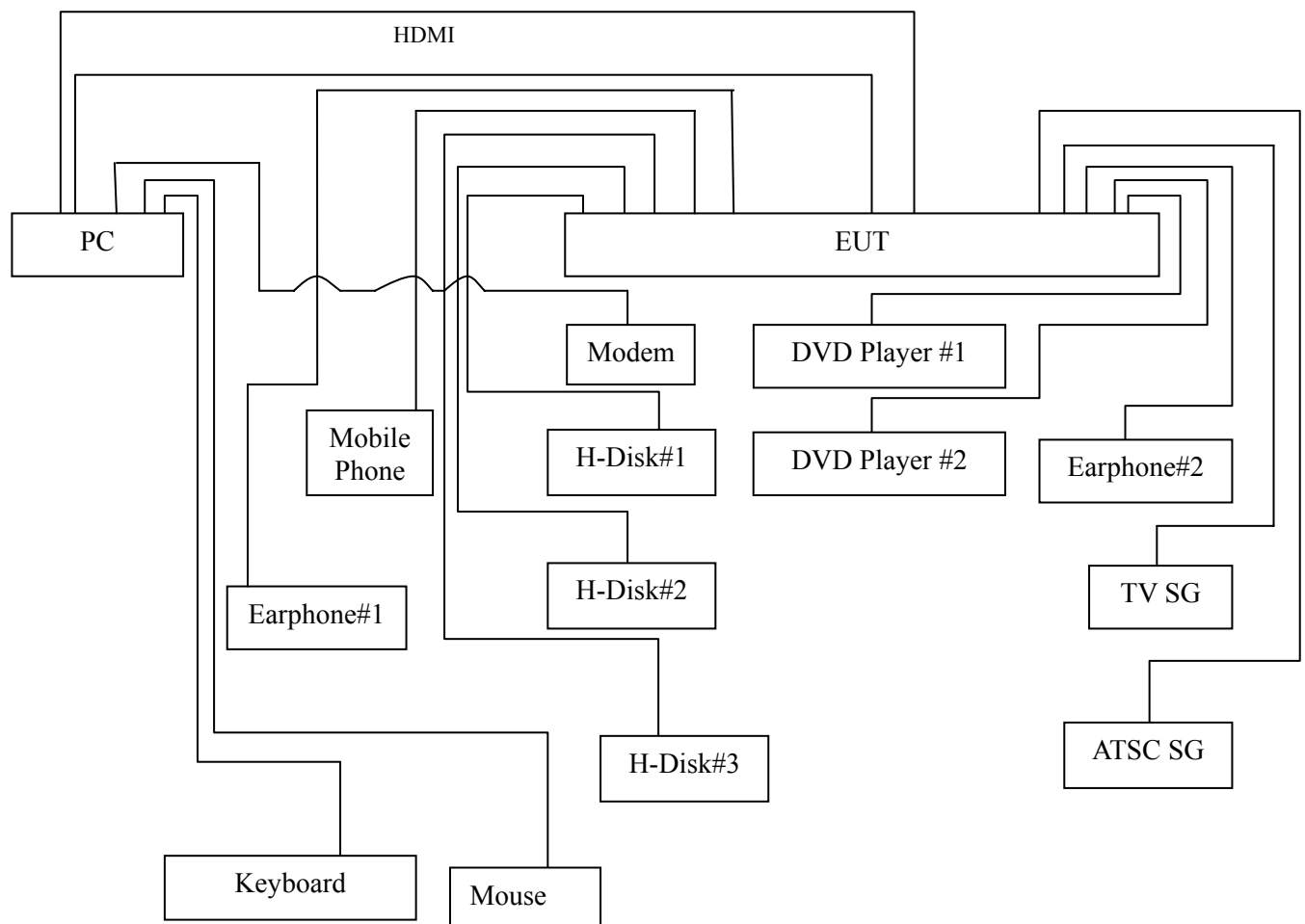
4.1 Test Equipment

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, 2015	May 06, 2016
2.	Preamplifier	Agilent	8447D	2944A06664	Apr 27, 2015	Apr 26, 2016
3.	Preamplifier	HP	8449B	3008A00864	Mar 20, 2015	Sep 19, 2016
4.	Bi-log Antenna	TESEQ	CBL6112D	23193	May 15, 2015	May 14, 2016
5.	Horn Antenna	EMCO	3115	9607-4878	Jun 03, 2015	Jun 02, 2016
6.	Spectrum	Agilent	N9010A	MY52221182	Jun 12, 2015	Jun 11, 2016
7.	Spectrum	HP	8591EM	3628A00908	May 07, 2015	May 06, 2016
8.	Software	Audix	e3	6.2007-9-10	--	--

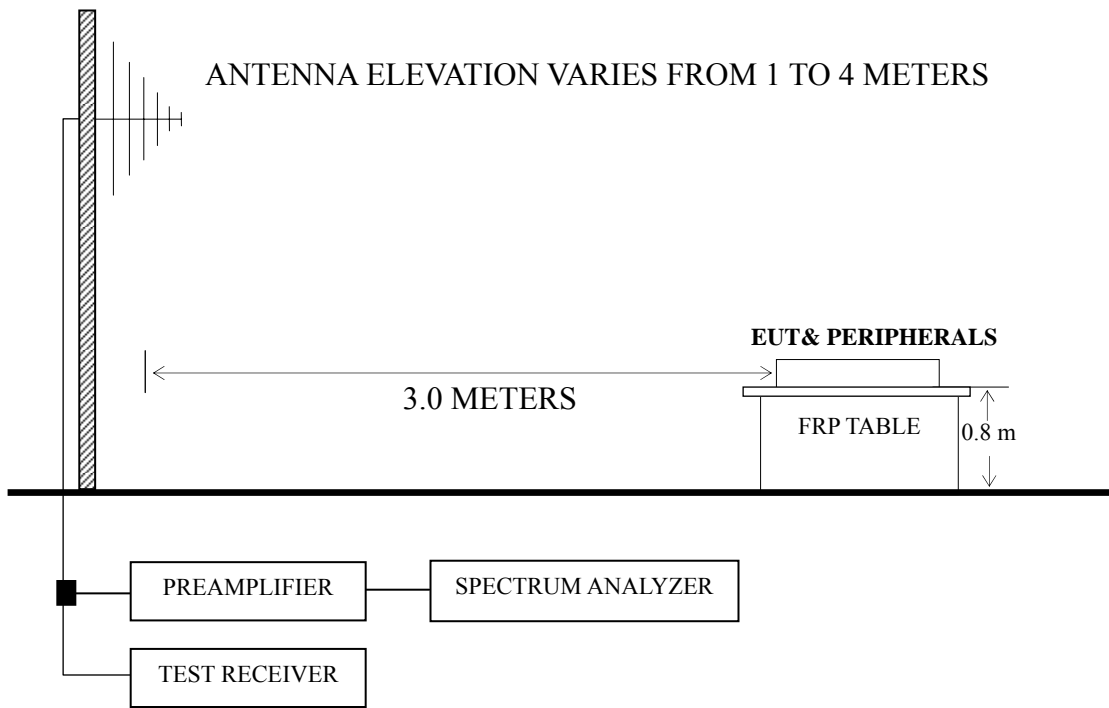
4.2 Block Diagram of Test Setup

4.2.1 EUT & Peripherals LAN

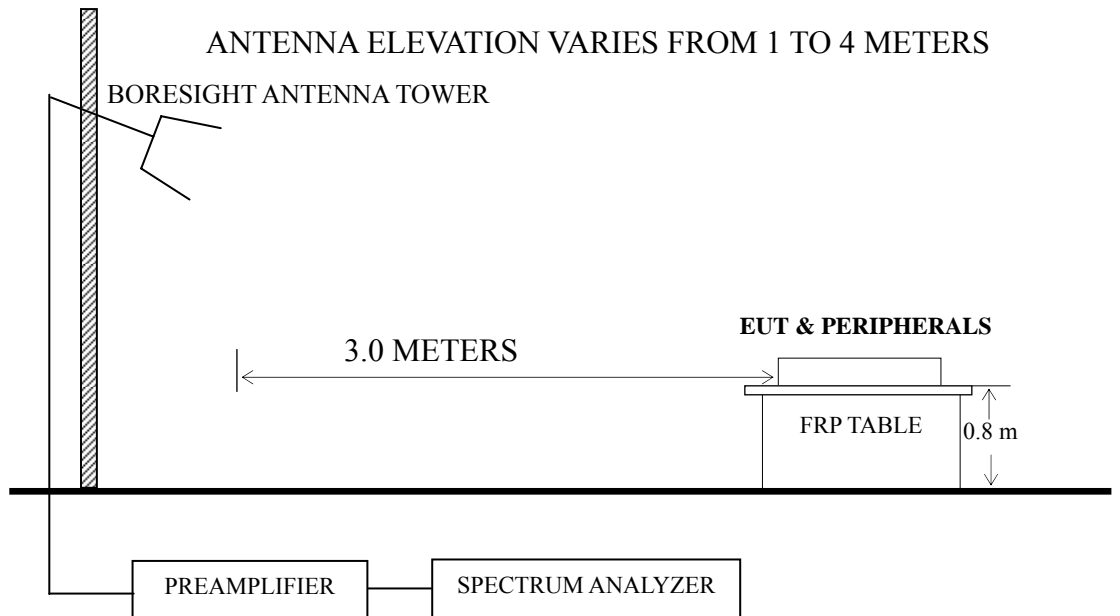


4.2.2 Radiated emission test setup

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 C63.4:2003 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	P26-P27
HDMI 1920*1080@60Hz & 1kHz playing	P28
HDMI 1280*1024@60Hz & 1kHz playing	P29
HDMI 640*480@60Hz & 1kHz playing	P30
HDMI1080P	P31
USB Play	P32
LAN Play	P33
MHL	P34

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 & 1 kHz playing test mode. The worst emission at horizontal polarization was detected at 154.160MHz with corrected signal level of 42.22 dB (μV/m) (limit is 43.50 dB (μV/m)), when the antenna was 2.00 m height and the turntable was at 110°. The worst emission at vertical polarization was detected at 151.920 MHz with corrected signal level of 42.13dB (μV/m) (limit is 43.50 dB (μV/m)), when the antenna was 1.9m height and the turntable was at 290°.

EUT : LED LCD TV Temperature : 22°C

Model No. : HU55K3300UWG Humidity : 60%RH

Test Mode : HDMI 3840*2160@60Hz & 1kHz Playing Date of Test : Feb 26, 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	75.590	8.61	28.19	1.02	--	37.82	40.00	2.18	QP
	109.540	12.59	24.81	1.39	--	38.79	43.50	4.71	
	154.160	11.24	29.32	1.66	--	42.22	43.50	1.28	
	317.120	14.35	25.27	2.62	--	42.24	46.00	3.76	
	436.430	16.88	24.20	2.81	--	43.89	46.00	2.11	
	891.000	21.30	18.95	4.46	--	44.71	46.00	1.29	
	1477.873	25.52	56.15	3.86	35.71	49.82	74.00	24.18	PK
	1702.593	26.44	54.52	4.07	35.43	49.60	74.00	24.40	
	2111.004	27.72	55.41	4.55	35.11	52.57	74.00	21.43	
	2525.249	28.50	57.60	4.96	35.16	55.90	74.00	18.10	
	2945.949	30.30	63.67	5.69	35.20	64.46	74.00	9.54	
	3375.707	31.27	58.70	6.10	34.83	61.24	74.00	12.76	
	1477.873	25.52	37.29	3.86	35.71	30.96	54.00	23.04	AV
	1702.593	26.44	36.27	4.07	35.43	31.35	54.00	22.65	
	2111.004	27.72	36.29	4.55	35.11	33.45	54.00	20.55	
2525.249	28.50	37.63	4.96	35.16	35.93	54.00	18.07		
2945.949	30.30	43.83	5.69	35.20	44.62	54.00	9.38		
3375.707	31.27	39.73	6.10	34.83	42.27	54.00	11.73		

EUT : LED LCD TV Temperature : 22°C

Model No. : HU55K3300UWG Humidity : 60%RH

Test Mode : HDMI 3840*2160@60Hz & 1kHz Playing Date of Test : Feb 26, 2016

Polarization	Frequency (MHz)	Meter Reading dB (μ V)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Emission Level dB (μ V/m)	Limits dB (μ V/m)	Margin (dB)	Remark
Vertical	72.610	7.90	28.70	0.98	--	37.58	40.00	2.42	QP
	108.960	12.58	26.60	1.39	--	40.57	43.50	2.93	
	151.920	11.39	29.09	1.65	--	42.13	43.50	1.37	
	318.090	14.40	26.18	2.62	--	43.20	46.00	2.80	
	433.520	16.84	21.46	2.79	--	41.09	46.00	4.91	
	597.450	18.98	22.62	2.31	--	43.91	46.00	2.09	
	1206.996	24.48	67.15	3.54	36.12	59.05	74.00	14.95	PK
	2114.790	27.72	58.38	4.55	35.11	55.54	74.00	18.46	
	2525.249	28.50	62.55	4.96	35.16	60.85	74.00	13.15	
	2951.232	30.30	63.79	5.69	35.20	64.58	74.00	9.42	
	3369.664	31.25	57.73	6.10	34.83	60.25	74.00	13.75	
	4208.015	33.14	52.12	6.31	34.21	57.36	74.00	16.64	
	1206.996	24.48	47.33	3.54	36.12	39.23	54.00	14.77	AV
	2114.790	27.72	43.27	4.55	35.11	40.43	54.00	13.57	
	2525.249	28.50	46.84	4.96	35.16	45.14	54.00	8.86	
2951.232	30.30	42.44	5.69	35.20	43.23	54.00	10.77		
3369.664	31.25	40.33	6.10	34.83	42.85	54.00	11.15		
4208.015	33.14	37.28	6.31	34.21	42.52	54.00	11.48		

TEST ENGINEER: MARK LI

EUT : LED LCD TV Temperature : 22°C

Model No. : HU55K3300UWG Humidity : 60%RH

Test Mode : HDMI 1920*1080@60Hz Date of Test : Feb 26, 2016
& 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	74.620	8.43	27.80	1.01	37.24	40.00	2.76
	110.510	12.61	24.89	1.40	38.90	43.50	4.60
	152.220	11.35	27.63	1.65	40.63	43.50	2.87
	436.430	16.88	24.20	2.81	43.89	46.00	2.11
	593.960	18.85	21.70	2.31	42.86	46.00	3.14
	904.940	21.40	17.48	4.56	43.44	46.00	2.56
Vertical	72.600	7.90	28.60	0.98	37.48	40.00	2.52
	108.900	12.58	26.40	1.39	40.37	43.50	3.13
	151.920	11.39	27.89	1.65	40.93	43.50	2.57
	319.060	14.45	24.64	2.62	41.71	46.00	4.29
	433.520	16.84	22.12	2.79	41.75	46.00	4.25
	597.450	18.98	22.23	2.31	43.52	46.00	2.48

TEST ENGINEER: MARK LI

EUT : LED LCD TV Temperature : 22°C

Model No. : HU55K3300UWG Humidity : 60%RH

Test Mode : HDMI 1280*1024@60Hz Date of Test : Feb 26, 2016
& 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	72.600	7.90	28.70	0.98	37.58	40.00	2.42
	150.011	11.50	25.53	1.63	38.66	43.50	4.84
	313.276	14.25	24.67	2.61	41.53	46.00	4.47
	426.521	16.80	22.23	2.78	41.81	46.00	4.19
	845.088	20.73	16.29	4.07	41.09	46.00	4.91
	989.536	22.27	11.89	4.84	39.00	54.00	15.00
Vertical	75.446	8.61	27.09	1.02	36.72	40.00	3.28
	152.000	11.39	27.99	1.65	41.03	43.50	2.47
	316.589	14.35	22.32	2.62	39.29	46.00	6.71
	426.521	16.80	19.77	2.78	39.35	46.00	6.65
	845.088	20.73	18.51	4.07	43.31	46.00	2.69
	965.542	22.33	18.00	4.75	45.08	54.00	8.92

TEST ENGINEER: MARK LI

EUT : LED LCD TV Temperature : 22°C

Model No. : HU55K3300UWG Humidity : 60%RH

Test Mode : HDMI 640*480@60Hz & 1kHz Playing Date of Test : Feb 26, 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	74.135	8.27	27.22	0.99	36.48	40.00	3.52
	109.412	12.59	27.31	1.39	41.29	43.50	2.21
	189.074	10.36	23.64	1.90	35.90	43.50	7.60
	389.355	16.50	23.27	2.71	42.48	46.00	3.52
	422.058	16.80	22.65	2.76	42.21	46.00	3.79
	848.056	20.70	17.32	4.07	42.09	46.00	3.91
Vertical	72.600	7.90	28.70	0.98	37.58	40.00	2.42
	151.597	11.39	27.03	1.65	40.07	43.50	3.43
	311.087	14.15	22.79	2.60	39.54	46.00	6.46
	431.032	16.82	20.33	2.79	39.94	46.00	6.06
	854.025	20.73	14.95	4.17	39.85	46.00	6.15
	968.934	22.33	19.01	4.80	46.14	54.00	7.86

TEST ENGINEER: MARK LI

EUT : LED LCD TV Temperature : 22°C

Model No. : HU55K3300UWG Humidity : 60%RH

Test Mode : HDMI1080P Date of Test : Feb 26, 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	59.649	6.20	29.78	0.87	36.85	40.00	3.15
	96.775	11.93	27.27	1.29	40.49	43.50	3.01
	188.413	10.36	27.27	1.90	39.53	43.50	3.97
	237.476	11.64	27.85	2.11	41.60	46.00	4.40
	683.800	19.85	20.60	3.41	43.86	46.00	2.14
	848.056	20.70	16.27	4.07	41.04	46.00	4.96
Vertical	57.191	6.24	27.26	0.86	34.36	40.00	5.64
	97.798	12.02	25.47	1.30	38.79	43.50	4.71
	233.349	11.32	29.66	2.09	43.07	46.00	2.93
	297.224	13.70	26.76	2.56	43.02	46.00	2.98
	656.530	19.65	20.67	3.03	43.35	46.00	2.65
	975.753	22.30	20.72	4.80	47.82	54.00	6.18

TEST ENGINEER: MARK LI

EUT : LED LCD TV Temperature : 22°C

Model No. : HU55K3300UWG Humidity : 60%RH

Test Mode : USB Play Date of Test : Feb 26, 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	112.131	12.65	24.24	1.41	38.30	43.50	5.20
	189.074	10.36	27.22	1.90	39.48	43.50	4.02
	234.991	11.40	27.41	2.10	40.91	46.00	5.09
	519.065	18.10	19.41	2.78	40.29	46.00	5.71
	683.800	19.85	19.40	3.41	42.66	46.00	3.34
	848.056	20.70	16.68	4.07	41.45	46.00	4.55
Vertical	76.512	8.78	25.95	1.04	35.77	40.00	4.23
	113.316	12.66	24.18	1.42	38.26	43.50	5.24
	236.645	11.56	27.07	2.10	40.73	46.00	5.27
	435.590	16.86	18.80	2.81	38.47	46.00	7.53
	665.804	19.60	18.20	3.16	40.96	46.00	5.04
	979.180	22.20	14.10	4.80	41.10	54.00	12.90

TEST ENGINEER: MARK LI

EUT : LED LCD TV Temperature : 22°C

Model No. : HU55K3300UWG Humidity : 60%RH

Test Mode : LAN Play Date of Test : Feb 26, 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	112.131	12.65	24.04	1.41	38.10	43.50	5.40
	184.490	10.50	26.11	1.87	38.48	43.50	5.02
	239.147	11.72	26.88	2.11	40.71	46.00	5.29
	593.050	18.85	20.82	2.31	41.98	46.00	4.02
	672.845	19.70	19.98	3.16	42.84	46.00	3.16
	891.000	21.30	16.30	4.46	42.06	46.00	3.94
Vertical	75.977	8.67	26.60	1.02	36.29	40.00	3.71
	112.524	12.65	24.46	1.41	38.52	43.50	4.98
	238.310	11.64	25.21	2.11	38.96	46.00	7.04
	426.521	16.80	18.91	2.78	38.49	46.00	7.51
	670.489	19.60	17.94	3.16	40.70	46.00	5.30
	891.000	21.30	17.00	4.46	42.76	46.00	3.24

TEST ENGINEER: MARK LI

EUT : LED LCD TV Temperature : 22°C

Model No. : HU55K3300UWG Humidity : 60%RH

Test Mode : MHL Date of Test : Feb 26, 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	73.876	8.27	26.67	0.99	35.93	40.00	4.07
	108.950	12.58	26.40	1.39	40.37	43.50	3.13
	152.130	11.35	25.37	1.65	38.37	43.50	5.13
	185.788	10.47	26.67	1.88	39.02	43.50	4.48
	426.521	16.80	22.53	2.78	42.11	46.00	3.89
	909.667	21.50	16.20	4.56	42.26	46.00	3.74
Vertical	31.955	17.50	17.49	0.65	35.64	40.00	4.36
	72.610	7.90	28.60	0.98	37.48	40.00	2.52
	150.011	11.50	26.49	1.63	39.62	43.50	3.88
	438.655	16.90	20.61	2.81	40.32	46.00	5.68
	906.870	21.50	17.10	4.56	43.16	46.00	2.84
	982.620	22.23	17.32	4.84	44.39	54.00	9.61

TEST ENGINEER: MARK LI

5 DEBUG DESCRIPTION

The following components are used during the countermeasure procedures:

Name	M/N	Manufacturer	Location
Conductive cloth	35mm*35mm	Qingdao Joinset Co., Ltd	See Appendix Figure 23
Conductive Tapes	80mm*40mm	Shenzhen antai electronic technology co., LTD	See Appendix Figure 24
Conductive cotton bubble	SMR-TSL-4-3.5-5R\ ROH	Qingdao Joinset Co., Ltd	See Appendix Figure 25

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:



(WENCY YANG)

6 DEVIATION TO TEST SPECIFICATIONS

None.