

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

LED LCD TV

Model No.	Brand
HU50K3300UWG 50H8C 50H8C+	Hisense

FCC ID : W9HLCDF0068

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-F16020
Date of Test : Dec 18, 2015-Jan 11, 2016
Date of Report : Jan 20, 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
HU50K3300UWG 50H8C 50H8C+	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 Dec 18, 2015-Jan 11, 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.F16019, a Verification report.

Date of Test : Dec 18, 2015-Jan 11, 2016 Date of Report : Jan 20, 2016

Producer : HUIMIN YAN
HUIMIN YAN / Assistant

Review : SAMMY CHEN
SAMMY CHEN / Manager

 For and on behalf of
Audix Technology (Shanghai) Co., Ltd.

Signatory : BYRON KWO
Authorized Signature EMC 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 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	:	☒ Production ☐ Pre-product ☐ Pro-type
Model No	:	HU50K3300UWG, 50H8C, 50H8C+
Note #1	:	The above models are all the same except for model number.HU50K3300UWG 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 : HD500DU-B53
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
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 ANT Port : Connected with ATSC / TV SG
- (2) One USB #1 Port : Connected with Hard-Disk #1
- (3) One USB #2 Port : Connected with Hard-Disk #2
- (4) One Service Port : This port does not open to user
- (5) One AUDIO OUT Port : Connected with Earphone
- (6) One HDMI1/MHL Port : Connected with Mobile Phone
- (7) One HDMI2 Port : Connected with PC
- (8) One USB #3 Port : Connected with Hard-Disk #3

Back Port:

- (9) One HDMI3 Port : Connected with DVD PLAYER #1
- (10) One HDMI4 Port : Connected with DVD PLAYER #2
- (11) Digital Audio Out : Connected with DVD PLAYER #1
- (12) One COMPONENT in\AV in Port : Connected with DVD PLAYER #1
- (13) LAN Port : Connected with PC

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

Manufacturer : audio-technica
Model Number : ATH-CKL200

2.2.6 DVD PLAYER #1

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

2.2.7 DVD PLAYER #2

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

2.2.8 Hard Disk #1

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

2.2.9 Hard Disk #2

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

2.2.10 Hard Disk #3

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

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

2.2.13 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

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

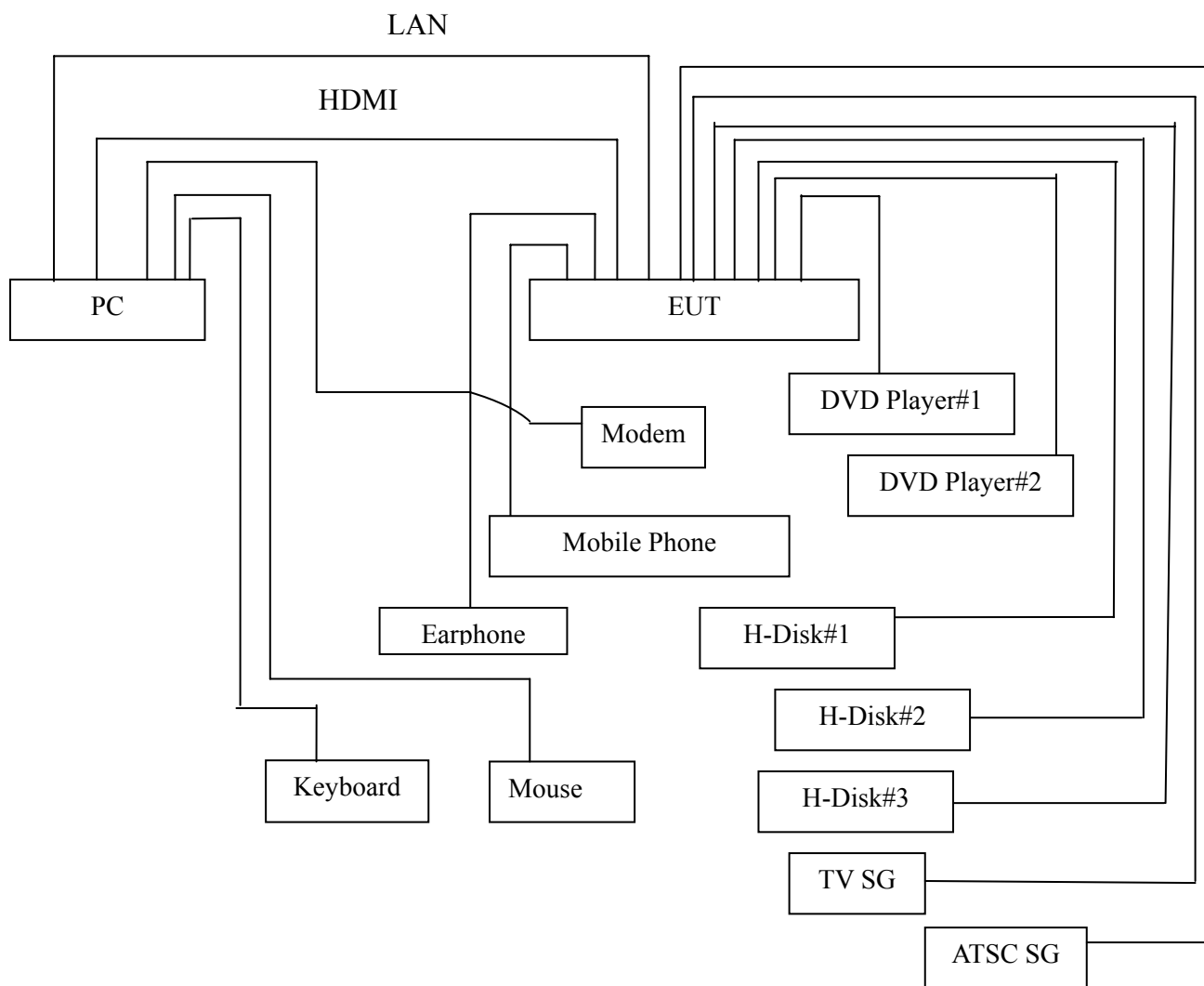
3.1 Test Equipment

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

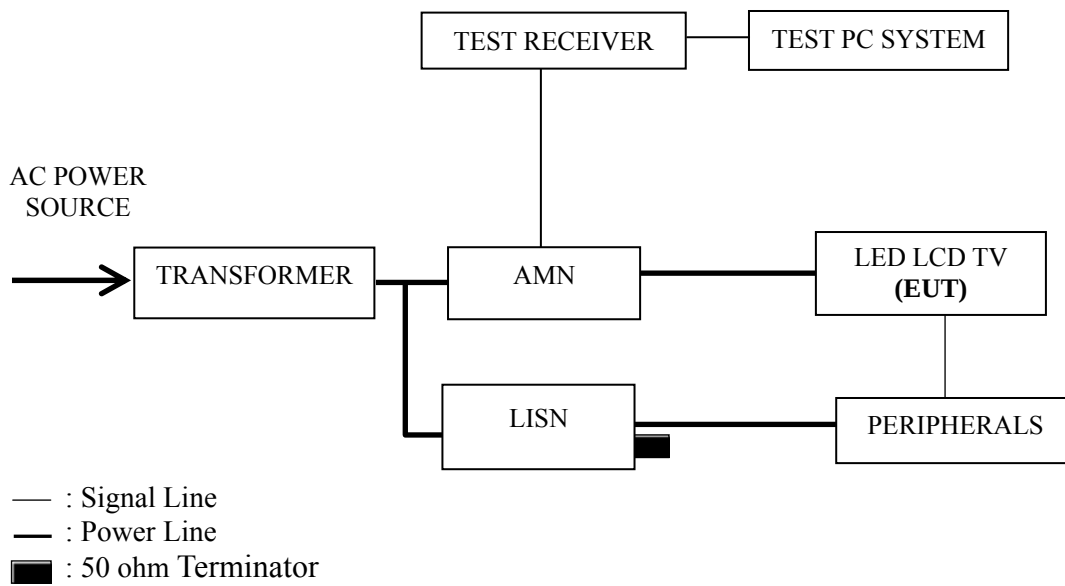
Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Test Receiver	R&S	ESCI	101302	Jul 03, 2015	Jul 02, 2016
2.	Artificial Mains Network (AMN)	R&S	ENV4200	100125	Jun 27, 2015	Jun 26, 2016
3.	Line Impedance Stabilization Network (LISN)	Kyoritsu	KNW-407	8-1280-5	Mar 20, 2015	Mar 19, 2016
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



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	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 1.949MHz (QP Value) with corrected signal level of 50.51dB (μV) (limit is 56.00 dB (μV)), when the Neutral of the EUT is connected to AMN.

EUT : LED LCD TV Temperature : 22°C

Model No. : HU50K3300UWG Humidity : 48%RH

Test Mode : HDMI 3840*2160@60Hz & 1kHz Playing Date of Test : Dec 18, 2015

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.255	38.21	10.48	48.69	61.59	12.90	QP
	0.617	39.70	10.38	50.08	56.00	5.92	
	0.928	39.90	10.38	50.28	56.00	5.72	
	1.828	36.30	10.41	46.71	56.00	9.29	
	2.530	39.20	10.43	49.63	56.00	6.37	
	6.042	20.70	10.47	31.17	60.00	28.83	
	0.255	25.61	10.48	36.09	51.59	15.50	AV
	0.617	26.60	10.38	36.98	46.00	9.02	
	0.928	24.80	10.38	35.18	46.00	10.82	
	1.828	20.90	10.41	31.31	46.00	14.69	
	2.530	24.40	10.43	34.83	46.00	11.17	
	6.042	15.30	10.47	25.77	50.00	24.23	
Neutral	0.255	38.31	10.46	48.77	61.61	12.84	QP
	0.612	39.20	10.36	49.56	56.00	6.44	
	0.925	39.00	10.37	49.37	56.00	6.63	
	2.040	37.90	10.41	48.31	56.00	7.69	
	2.526	39.11	10.42	49.53	56.00	6.47	
	6.076	24.31	10.49	34.80	60.00	25.20	
	0.255	26.01	10.46	36.47	51.61	15.14	AV
	0.612	26.30	10.36	36.66	46.00	9.34	
	0.925	24.80	10.37	35.17	46.00	10.83	
	2.040	21.10	10.41	31.51	46.00	14.49	
	2.526	23.81	10.42	34.23	46.00	11.77	
	6.076	20.41	10.49	30.90	50.00	19.10	

TEST ENGINEER: WENCY YANG

EUT : LED LCD TV Temperature : 22°C

Model No. : HU50K3300UWG Humidity : 48%RH

Test Mode : HDMI 1920*1080@60Hz & 1kHz Playing Date of Test : Dec 18, 2015

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.252	37.31	10.48	47.79	61.69	13.90	QP
	0.598	39.20	10.38	49.58	56.00	6.42	
	1.039	35.50	10.38	45.88	56.00	10.12	
	1.945	39.90	10.41	50.31	56.00	5.69	
	2.362	33.90	10.42	44.32	56.00	11.68	
	6.450	21.20	10.47	31.67	60.00	28.33	
	0.252	22.91	10.48	33.39	51.69	18.30	AV
	0.598	26.40	10.38	36.78	46.00	9.22	
	1.039	17.60	10.38	27.98	46.00	18.02	
	1.945	24.40	10.41	34.81	46.00	11.19	
	2.362	20.20	10.42	30.62	46.00	15.38	
	6.450	15.60	10.47	26.07	50.00	23.93	
Neutral	0.250	37.70	10.47	48.17	61.76	13.59	QP
	0.592	38.30	10.36	48.66	56.00	7.34	
	0.899	39.00	10.37	49.37	56.00	6.63	
	1.945	39.70	10.41	50.11	56.00	5.89	
	2.440	39.30	10.42	49.72	56.00	6.28	
	6.077	23.71	10.49	34.20	60.00	25.80	
	0.250	24.40	10.47	34.87	51.76	16.89	AV
	0.592	25.40	10.36	35.76	46.00	10.24	
	0.899	24.80	10.37	35.17	46.00	10.83	
	1.945	23.90	10.41	34.31	46.00	11.69	
	2.440	23.90	10.42	34.32	46.00	11.68	
	6.077	20.01	10.49	30.50	50.00	19.50	

TEST ENGINEER: WENCY YANG

EUT : LED LCD TV Temperature : 22°C

Model No. : HU50K3300UWG Humidity : 48%RH

Test Mode : HDMI 1280*1024@60Hz & 1kHz Playing Date of Test : Dec 18, 2015

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.246	37.90	10.49	48.39	61.90	13.51	QP
	0.597	39.00	10.38	49.38	56.00	6.62	
	0.898	39.30	10.38	49.68	56.00	6.32	
	1.497	36.10	10.40	46.50	56.00	9.50	
	2.438	39.21	10.42	49.63	56.00	6.37	
	6.075	24.50	10.47	34.97	60.00	25.03	
	0.246	25.30	10.49	35.79	51.90	16.11	AV
	0.597	26.60	10.38	36.98	46.00	9.02	
	0.898	25.00	10.38	35.38	46.00	10.62	
	1.497	19.70	10.40	30.10	46.00	15.90	
	2.438	23.91	10.42	34.33	46.00	11.67	
	6.075	21.20	10.47	31.67	50.00	18.33	
Neutral	0.246	37.90	10.47	48.37	61.90	13.53	QP
	0.598	38.90	10.36	49.26	56.00	6.74	
	0.897	39.00	10.37	49.37	56.00	6.63	
	1.948	40.10	10.41	50.51	56.00	5.49	
	2.447	37.90	10.42	48.32	56.00	7.68	
	6.074	23.91	10.49	34.40	60.00	25.60	AV
	0.246	25.80	10.47	36.27	51.90	15.63	
	0.598	26.30	10.36	36.66	46.00	9.34	
	0.897	24.60	10.37	34.97	46.00	11.03	
	1.948	24.50	10.41	34.91	46.00	11.09	
	2.447	23.60	10.42	34.02	46.00	11.98	
	6.074	20.61	10.49	31.10	50.00	18.90	

TEST ENGINEER: WENCY YANG

EUT : LED LCD TV Temperature : 22°C

Model No. : HU50K3300UWG Humidity : 48%RH

Test Mode : HDMI 640*480@60Hz & 1kHz Playing Date of Test : Dec 18, 2015

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.245	37.80	10.49	48.29	61.91	13.62	QP
	0.595	38.90	10.38	49.28	56.00	6.72	
	0.901	39.70	10.38	50.08	56.00	5.92	
	1.947	39.90	10.41	50.31	56.00	5.69	
	2.439	38.91	10.42	49.33	56.00	6.67	
	6.075	24.50	10.47	34.97	60.00	25.03	
	0.245	25.90	10.49	36.39	51.91	15.52	AV
	0.595	26.60	10.38	36.98	46.00	9.02	
	0.901	25.10	10.38	35.48	46.00	10.52	
	1.947	24.40	10.41	34.81	46.00	11.19	
	2.439	23.81	10.42	34.23	46.00	11.77	
	6.075	21.10	10.47	31.57	50.00	18.43	
Neutral	0.249	37.70	10.47	48.17	61.79	13.62	QP
	0.598	38.80	10.36	49.16	56.00	6.84	
	1.050	35.50	10.37	45.87	56.00	10.13	
	1.964	39.90	10.41	50.31	56.00	5.69	
	2.443	38.30	10.42	48.72	56.00	7.28	
	6.077	23.61	10.49	34.10	60.00	25.90	
	0.249	25.00	10.47	35.47	51.79	16.32	AV
	0.598	26.50	10.36	36.86	46.00	9.14	
	1.050	15.20	10.37	25.57	46.00	20.43	
	1.964	23.50	10.41	33.91	46.00	12.09	
	2.443	23.90	10.42	34.32	46.00	11.68	
	6.077	19.71	10.49	30.20	50.00	19.80	

TEST ENGINEER: WENCY YANG

EUT : LED LCD TV Temperature : 22°C

Model No. : HU50K3300UWG Humidity : 48%RH

Test Mode : HDMI 1080P Date of Test : Dec 18, 2015

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.248	37.40	10.49	47.89	61.81	13.92	QP
	0.586	38.10	10.38	48.48	56.00	7.52	
	0.902	39.70	10.38	50.08	56.00	5.92	
	1.418	35.50	10.40	45.90	56.00	10.10	
	2.437	39.11	10.42	49.53	56.00	6.47	
	6.075	24.50	10.47	34.97	60.00	25.03	
	0.248	24.80	10.49	35.29	51.81	16.52	AV
	0.586	22.80	10.38	33.18	46.00	12.82	
	0.902	25.00	10.38	35.38	46.00	10.62	
	1.418	13.90	10.40	24.30	46.00	21.70	
	2.437	23.81	10.42	34.23	46.00	11.77	
	6.075	21.10	10.47	31.57	50.00	18.43	
Neutral	0.245	38.20	10.47	48.67	61.92	13.25	QP
	0.593	38.50	10.36	48.86	56.00	7.14	
	0.898	38.90	10.37	49.27	56.00	6.73	
	1.781	35.99	10.41	46.40	56.00	9.60	
	2.441	38.80	10.42	49.22	56.00	6.78	
	6.077	23.31	10.49	33.80	60.00	26.20	
	0.245	25.90	10.47	36.37	51.92	15.55	AV
	0.593	25.60	10.36	35.96	46.00	10.04	
	0.898	24.50	10.37	34.87	46.00	11.13	
	1.781	20.89	10.41	31.30	46.00	14.70	
	2.441	23.90	10.42	34.32	46.00	11.68	
	6.077	19.71	10.49	30.20	50.00	19.80	

EUT : LED LCD TV Temperature : 22°C

Model No. : HU50K3300UWG Humidity : 48%RH

Test Mode : USB Play Date of Test : Dec 18, 2015

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.255	37.21	10.48	47.69	61.59	13.90	QP
	0.592	38.50	10.38	48.88	56.00	7.12	
	0.899	39.20	10.38	49.58	56.00	6.42	
	1.775	35.79	10.41	46.20	56.00	9.80	
	2.438	38.91	10.42	49.33	56.00	6.67	
	6.073	23.50	10.47	33.97	60.00	26.03	
	0.255	21.91	10.48	32.39	51.59	19.20	AV
	0.592	25.20	10.38	35.58	46.00	10.42	
	0.899	25.70	10.38	36.08	46.00	9.92	
	1.775	20.09	10.41	30.50	46.00	15.50	
	2.438	23.61	10.42	34.03	46.00	11.97	
	6.073	20.20	10.47	30.67	50.00	19.33	
Neutral	0.246	37.90	10.47	48.37	61.89	13.52	QP
	0.599	38.80	10.36	49.16	56.00	6.84	
	0.898	39.10	10.37	49.47	56.00	6.53	
	1.955	39.80	10.41	50.21	56.00	5.79	
	2.434	39.30	10.42	49.72	56.00	6.28	
	5.130	22.30	10.47	32.77	60.00	27.23	
	0.246	26.30	10.47	36.77	51.89	15.12	AV
	0.599	26.50	10.36	36.86	46.00	9.14	
	0.898	24.90	10.37	35.27	46.00	10.73	
	1.955	23.60	10.41	34.01	46.00	11.99	
	2.434	23.90	10.42	34.32	46.00	11.68	
	5.130	18.80	10.47	29.27	50.00	20.73	

TEST ENGINEER: WENCY YANG

EUT : LED LCD TV Temperature : 22°C

Model No. : HU50K3300UWG Humidity : 48%RH

Test Mode : LAN Play Date of Test : Dec 18, 2015

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.251	37.20	10.49	47.69	61.71	14.02	QP
	0.593	38.50	10.38	48.88	56.00	7.12	
	0.898	39.30	10.38	49.68	56.00	6.32	
	1.959	39.90	10.41	50.31	56.00	5.69	
	2.436	39.21	10.42	49.63	56.00	6.37	
	6.075	24.30	10.47	34.77	60.00	25.23	
	0.251	23.80	10.49	34.29	51.71	17.42	AV
	0.593	25.60	10.38	35.98	46.00	10.02	
	0.898	25.10	10.38	35.48	46.00	10.52	
	1.959	24.10	10.41	34.51	46.00	11.49	
	2.436	23.71	10.42	34.13	46.00	11.87	
	6.075	21.10	10.47	31.57	50.00	18.43	
Neutral	0.246	38.00	10.47	48.47	61.90	13.43	QP
	0.599	38.90	10.36	49.26	56.00	6.74	
	1.038	35.70	10.37	46.07	56.00	9.93	
	1.949	40.10	10.41	50.51	56.00	5.49	
	2.408	34.10	10.42	44.52	56.00	11.48	
	6.073	23.11	10.49	33.60	60.00	26.40	
	0.246	26.10	10.47	36.57	51.90	15.33	AV
	0.599	26.50	10.36	36.86	46.00	9.14	
	1.038	17.80	10.37	28.17	46.00	17.83	
	1.949	24.40	10.41	34.81	46.00	11.19	
	2.408	21.70	10.42	32.12	46.00	13.88	
	6.073	19.81	10.49	30.30	50.00	19.70	

TEST ENGINEER: WENCY YANG

EUT : LED LCD TV Temperature : 22°C

Model No. : HU50K3300UWG Humidity : 48%RH

Test Mode : MHL Date of Test : Dec 18, 2015

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.250	37.30	10.49	47.79	61.75	13.96	QP
	0.599	38.90	10.38	49.28	56.00	6.72	
	0.899	39.10	10.38	49.48	56.00	6.52	
	1.947	39.90	10.41	50.31	56.00	5.69	
	2.437	39.11	10.42	49.53	56.00	6.47	
	6.074	24.20	10.47	34.67	60.00	25.33	
	0.250	23.80	10.49	34.29	51.75	17.46	AV
	0.599	26.50	10.38	36.88	46.00	9.12	
	0.899	25.20	10.38	35.58	46.00	10.42	
	1.947	24.50	10.41	34.91	46.00	11.09	
	2.437	23.81	10.42	34.23	46.00	11.77	
	6.074	20.80	10.47	31.27	50.00	18.73	
Neutral	0.246	37.80	10.47	48.27	61.91	13.64	QP
	0.597	38.90	10.36	49.26	56.00	6.74	
	0.899	39.30	10.37	49.67	56.00	6.33	
	1.495	36.80	10.39	47.19	56.00	8.81	
	2.434	39.40	10.42	49.82	56.00	6.18	
	5.132	20.70	10.47	31.17	60.00	28.83	
	0.246	25.90	10.47	36.37	51.91	15.54	AV
	0.597	26.20	10.36	36.56	46.00	9.44	
	0.899	24.90	10.37	35.27	46.00	10.73	
	1.495	21.20	10.39	31.59	46.00	14.41	
	2.434	24.10	10.42	34.52	46.00	11.48	
	5.132	17.50	10.47	27.97	50.00	22.03	

4 RADIATED EMISSION TEST

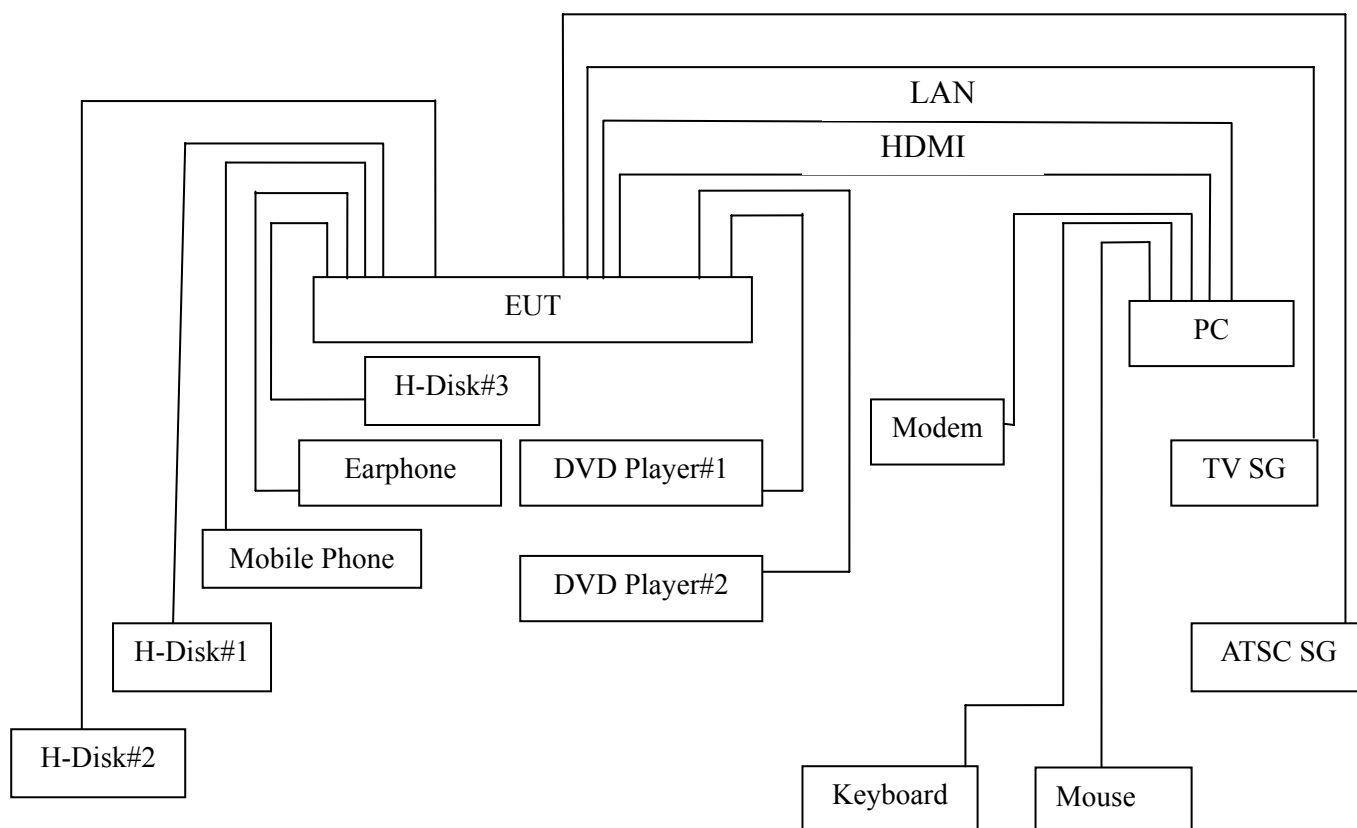
4.1 Test Equipment

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	--	--

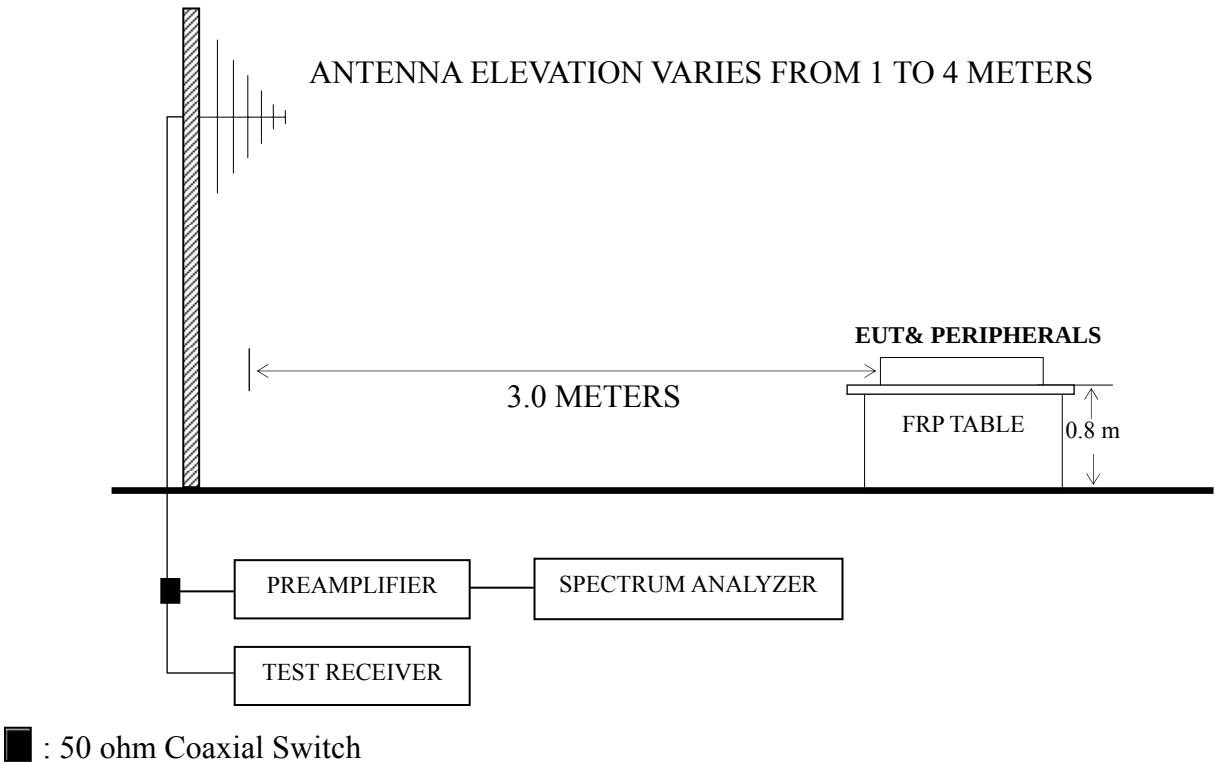
4.2 Block Diagram of Test Setup

4.2.1 EUT & Peripherals

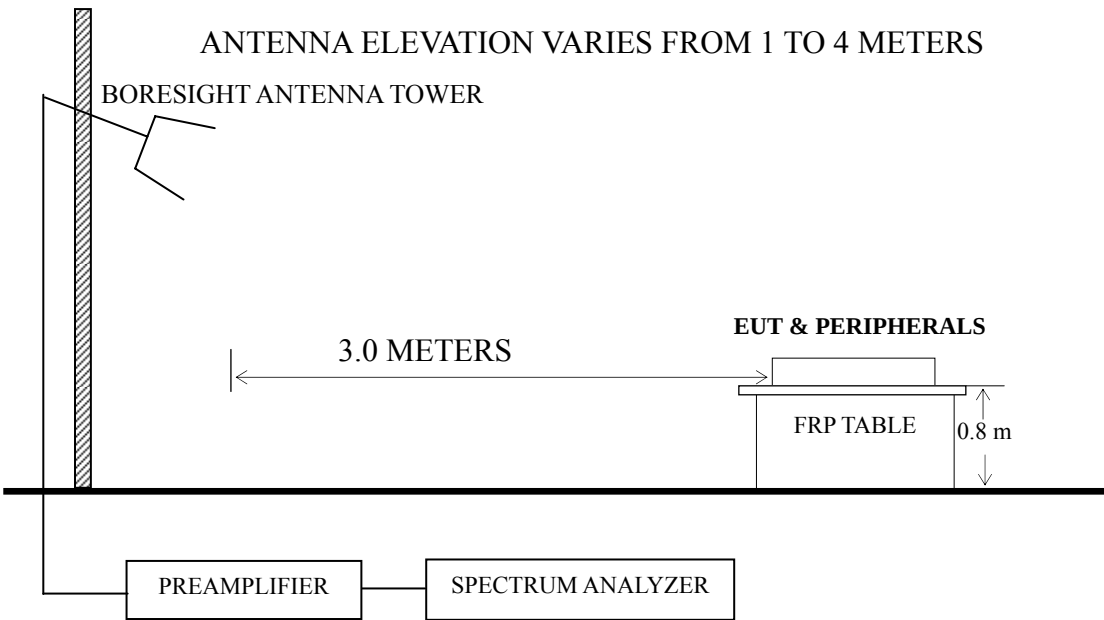


4.2.2 Radiated emission test setup

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	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 & 1 kHz playing test mode. The worst emission at horizontal polarization was detected at 847.710MHz with corrected signal level of 44.43 dB (μV/m) (limit is 46.00 dB (μV/m)), when the antenna was 2.00 m height and the turntable was at 70°. The worst emission at vertical polarization was detected at 893.300 MHz with corrected signal level of 43.80dB (μV/m) (limit is 46.00 dB (μV/m)), when the antenna was 1.5m height and the turntable was at 355°.

EUT : LED LCD TV Temperature : 22°C

Model No. : HU50K3300UWG Humidity : 60%RH

Test Mode : HDMI 3840*2160@60Hz & 1kHz Playing Date of Test : Jan 11, 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	84.320	21.65	9.74	1.13	--	32.52	40.00	7.48	QP
	214.300	24.00	10.17	2.03	--	36.20	43.50	7.30	
	297.000	27.50	13.70	2.56	--	43.76	46.00	2.24	
	596.480	16.20	18.98	2.31	--	37.49	46.00	8.51	
	719.670	17.16	19.90	3.57	--	40.63	46.00	5.37	
	847.710	19.66	20.70	4.07	--	44.43	46.00	1.57	
	1475.227	56.17	25.52	3.86	35.71	49.84	74.00	24.16	PK
	2114.790	55.39	27.72	4.55	35.11	52.55	74.00	21.45	
	2529.778	57.90	28.53	4.96	35.16	56.23	74.00	17.77	
	2951.232	63.03	30.30	5.69	35.20	63.82	74.00	10.18	
	3363.631	59.02	31.25	6.07	34.84	61.50	74.00	12.50	
	4245.883	51.57	33.20	6.31	34.19	56.89	74.00	17.11	
	1475.227	38.10	25.52	3.86	35.71	31.77	54.00	22.23	AV
	2114.790	35.29	27.72	4.55	35.11	32.45	54.00	21.55	
	2529.778	38.04	28.53	4.96	35.16	36.37	54.00	17.63	
	2951.232	43.11	30.30	5.69	35.20	43.90	54.00	10.10	
	3363.631	40.99	31.25	6.07	34.84	43.47	54.00	10.53	
	4245.883	32.67	33.20	6.31	34.19	37.99	54.00	16.01	

EUT : LED LCD TV Temperature : 22°C

Model No. : HU50K3300UWG Humidity : 60%RH

Test Mode : HDMI 3840*2160@60Hz & 1kHz Playing Date of Test : Jan 11, 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	31.680	15.90	17.69	0.65	--	34.24	40.00	5.76	QP
	85.290	25.45	9.85	1.15	--	36.45	40.00	3.55	
	428.670	18.43	16.80	2.78	--	38.01	46.00	7.99	
	593.570	18.04	18.85	2.31	--	39.20	46.00	6.80	
	669.230	18.40	19.60	3.16	--	41.16	46.00	4.84	
	893.300	18.04	21.30	4.46	--	43.80	46.00	2.20	
	1209.161	67.44	24.49	3.54	36.12	59.35	74.00	14.65	PK
	2111.004	58.56	27.72	4.55	35.11	55.72	74.00	18.28	
	2534.314	63.91	28.57	4.96	35.16	62.28	74.00	11.72	
	2951.232	64.79	30.30	5.69	35.20	65.58	74.00	8.42	
	3363.631	56.81	31.25	6.07	34.84	59.29	74.00	14.71	
	4215.562	50.79	33.16	6.31	34.21	56.05	74.00	17.95	
	1209.161	48.36	24.49	3.54	36.12	40.27	54.00	13.73	AV
	2111.004	40.68	27.72	4.55	35.11	37.84	54.00	16.16	
	2534.314	43.67	28.57	4.96	35.16	42.04	54.00	11.96	
	2951.232	45.39	30.30	5.69	35.20	46.18	54.00	7.82	
	3363.631	37.80	31.25	6.07	34.84	40.28	54.00	13.72	
	4215.562	32.91	33.16	6.31	34.21	38.17	54.00	15.83	

TEST ENGINEER: MARK LI

EUT : LED LCD TV Temperature : 22°C

Model No. : HU50K3300UWG Humidity : 60%RH

Test Mode : HDMI 1920*1080@60Hz & 1kHz Playing Date of Test : Jan 11, 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	160.950	22.17	11.13	1.72	35.02	43.50	8.48
	390.840	20.67	16.50	2.71	39.88	46.00	6.12
	447.100	23.38	16.83	2.82	43.03	46.00	2.97
	719.670	17.29	19.90	3.57	40.76	46.00	5.24
	850.620	16.58	20.70	4.17	41.45	46.00	4.55
	891.000	17.70	21.30	4.46	43.46	46.00	2.54
Vertical	30.970	16.06	18.15	0.64	34.85	40.00	5.15
	85.290	24.01	9.85	1.15	35.01	40.00	4.99
	224.970	23.58	10.80	2.07	36.45	46.00	9.55
	598.420	17.51	19.10	2.31	38.92	46.00	7.08
	667.290	20.17	19.60	3.16	42.93	46.00	3.07
	844.800	15.01	20.73	4.07	39.81	46.00	6.19

TEST ENGINEER: MARK LI

EUT : LED LCD TV Temperature : 22°C

Model No. : HU50K3300UWG Humidity : 60%RH

Test Mode : HDMI 1280*1024@60Hz & 1kHz Playing Date of Test : Jan 11, 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	78.500	25.50	9.12	1.05	35.67	40.00	4.33
	109.540	23.93	12.59	1.39	37.91	43.50	5.59
	334.580	22.79	14.93	2.64	40.36	46.00	5.64
	722.580	17.18	19.97	3.57	40.72	46.00	5.28
	847.710	17.33	20.70	4.07	42.10	46.00	3.90
	885.540	16.60	21.20	4.36	42.16	46.00	3.84
Vertical	32.910	16.42	16.99	0.66	34.07	40.00	5.93
	76.560	25.06	8.78	1.04	34.88	40.00	5.12
	425.760	16.13	16.80	2.78	35.71	46.00	10.29
	643.040	19.64	19.60	2.77	42.01	46.00	3.99
	667.290	20.17	19.60	3.16	42.93	46.00	3.07
	844.800	14.05	20.73	4.07	38.85	46.00	7.15

TEST ENGINEER: MARK LI

EUT : LED LCD TV Temperature : 22°C

Model No. : HU50K3300UWG Humidity : 60%RH

Test Mode : HDMI 640*480@60Hz & 1kHz Playing Date of Test : Jan 11, 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	83.350	23.11	9.66	1.13	33.90	40.00	6.10
	127.000	18.70	12.97	1.51	33.18	43.50	10.32
	388.900	20.95	16.50	2.71	40.16	46.00	5.84
	593.570	17.02	18.85	2.31	38.18	46.00	7.82
	725.490	16.80	20.03	3.59	40.42	46.00	5.58
	853.530	17.14	20.73	4.17	42.04	46.00	3.96
Vertical	32.910	17.77	16.99	0.66	35.42	40.00	4.58
	84.320	25.05	9.74	1.13	35.92	40.00	4.08
	428.670	16.42	16.80	2.78	36.00	46.00	10.00
	593.570	16.66	18.85	2.31	37.82	46.00	8.18
	669.230	18.40	19.60	3.16	41.16	46.00	4.84
	844.800	14.99	20.73	4.07	39.79	46.00	6.21

TEST ENGINEER: MARK LI

EUT : LED LCD TV Temperature : 22°C

Model No. : HU50K3300UWG Humidity : 60%RH

Test Mode : HDMI1080P Date of Test : Jan 11, 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	133.790	20.76	12.64	1.54	34.94	43.50	8.56
	297.000	26.50	13.70	2.56	42.76	46.00	3.24
	388.900	21.58	16.50	2.71	40.79	46.00	5.21
	598.420	17.52	19.10	2.31	38.93	46.00	7.07
	722.580	16.73	19.97	3.57	40.27	46.00	5.73
	891.000	17.20	21.30	4.46	42.96	46.00	3.04
Vertical	31.840	16.51	17.59	0.65	34.75	40.00	5.25
	89.170	26.69	10.35	1.20	38.24	43.50	5.26
	126.030	19.55	13.03	1.50	34.08	43.50	9.42
	426.730	19.23	16.80	2.78	38.81	46.00	7.19
	669.230	18.81	19.60	3.16	41.57	46.00	4.43
	904.940	16.32	21.40	4.56	42.28	46.00	3.72

TEST ENGINEER: MARK LI

EUT : LED LCD TV Temperature : 22°C

Model No. : HU50K3300UWG Humidity : 60%RH

Test Mode : USB Play Date of Test : Jan 11, 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	88.200	20.80	10.25	1.18	32.23	43.50	11.27
	190.050	24.31	10.30	1.90	36.51	43.50	6.99
	317.120	17.25	14.35	2.62	34.22	46.00	11.78
	365.620	14.55	16.10	2.67	33.32	46.00	12.68
	528.580	13.56	18.26	2.73	34.55	46.00	11.45
	983.510	8.56	22.23	4.84	35.63	54.00	18.37
Vertical	80.440	22.57	9.43	1.09	33.09	40.00	6.91
	124.090	18.95	13.04	1.49	33.48	43.50	10.02
	203.630	24.47	9.77	1.98	36.22	43.50	7.28
	327.790	18.69	14.71	2.63	36.03	46.00	9.97
	709.970	12.46	19.80	3.56	35.82	46.00	10.18
	925.310	10.39	21.57	4.61	36.57	46.00	9.43

TEST ENGINEER: MARK LI

EUT : LED LCD TV Temperature : 22°C

Model No. : HU50K3300UWG Humidity : 60%RH

Test Mode : LAN Play Date of Test : Jan 11, 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	84.320	23.78	9.74	1.13	34.65	40.00	5.35
	224.970	23.84	10.80	2.07	36.71	46.00	9.29
	296.700	23.80	13.70	2.56	40.06	46.00	5.94
	600.360	15.82	19.10	2.26	37.18	46.00	8.82
	847.710	15.58	20.70	4.07	40.35	46.00	5.65
	890.100	14.70	21.30	4.46	40.46	46.00	5.54
Vertical	76.560	24.08	8.78	1.04	33.90	40.00	6.10
	220.120	23.25	10.55	2.04	35.84	46.00	10.16
	298.690	24.49	13.75	2.56	40.80	46.00	5.20
	366.590	21.43	16.17	2.68	40.28	46.00	5.72
	612.000	18.01	19.15	2.39	39.55	46.00	6.45
	890.100	14.10	21.30	4.46	39.86	46.00	6.14

TEST ENGINEER: MARK LI

EUT : LED LCD TV Temperature : 22°C

Model No. : HU50K3300UWG Humidity : 60%RH

Test Mode : MHL Date of Test : Jan 11, 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	95.960	20.33	11.84	1.27	33.44	43.50	10.06
	224.970	24.68	10.80	2.07	37.55	46.00	8.45
	301.600	22.91	13.88	2.59	39.38	46.00	6.62
	609.090	17.84	19.10	2.39	39.33	46.00	6.67
	847.710	15.61	20.70	4.07	40.38	46.00	5.62
	891.000	15.20	21.30	4.46	40.96	46.00	5.04
Vertical	41.640	20.65	12.41	0.75	33.81	40.00	6.19
	76.560	24.48	8.78	1.04	34.30	40.00	5.70
	216.240	24.44	10.26	2.03	36.73	46.00	9.27
	310.330	23.09	14.10	2.60	39.79	46.00	6.21
	594.400	20.50	18.85	2.31	41.66	46.00	4.34
	891.000	14.90	21.30	4.46	40.66	46.00	5.34

TEST ENGINEER: MARK LI

5 DEBUG DESCRIPTION

The following components are used during the countermeasure procedures:

Name	M/N	Manufacturer	Location
Conductive cloth	22X15MM\ROH	Shenzhen antai electronic technology co., LTD Qingdao jei club technology co., LTD	See Internal photo Figure 23
Conductive cotton bubble	SMR-TSL-4-3.5-5R\ROH	Shenzhen antai electronic technology co., LTD Qingdao jei club technology co., LTD	See Internal photo Figure 24

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