

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

LED LCD TV

Model No.	Brand
LHD39A300MH	Hisense
39A300MH	

FCC ID : W9HLCDD0038

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

Prepared By : Audix Technology (Shanghai) Co., Ltd.
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Report No. : ACI-F14023
Date of Test : Jan 16 – 17, 2014
Date of Report : Jan 27, 2014

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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.
EUT Description : LED LCD TV

Model No.	Brand	Power Supply
LHD39A300MH	Hisense	120V/60Hz
39A300MH		

Test Procedure Used:

*FCC RULES AND REGULATIONS PART 15 SUBPART B CLASS B OCTOBER 2013
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 Jan 16 – 17, 2014 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.F14024, a Verification report.

Date of Test : Jan 16 – 17, 2014 Date of Report : Jan 27, 2014

Producer : Kathy Wang
KATHY WANG / Supervisor

Review : Dio Yang
DIO YANG / Deputy Manager

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

Signatory : Sammy Chen
Authorized Signature EMC SAMMY CHEN / Deputy 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 2013 AND ANSI C63.4-2003	15.107(a) Class B	Pass
Radiated Disturbance	FCC RULES AND REGULATIONS PART 15 SUBPART B OCTOBER 2013 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.	:	LHD39A300MH, 39A300MH
Note	:	The above models are all the same except for the model name. 39A300MH model was tested and recorded in the report.
Brand Name	:	Hisense
Applicant	:	Hisense Electric Co., Ltd. No.218 Qianwangang Road, Economy & Technology Development Zone, Qingdao, China
Manufacturer	:	Hisense Electric Co., Ltd. No.218 Qianwangang Road, Economy & Technology Development Zone, Qingdao, China
Factory #1	:	Hisense Electric Co., Ltd. No.218 Qianwangang Road, Economy & Technology Development Zone, Qingdao, China
Factory #2	:	Tatung Mexico S.A. de C.V. Miguel Catalán 420, Parque Industrial Rio Bravo, Cd. Juarez, Chih., CP 32557
LCD Panel	:	Manufacturer : Hisense M/N : HE390HH-E51
Max Resolution	:	1024*768@60Hz (for D-Sub port) 1920*1080@60Hz (for HDMI port)
D-Sub Cable	:	Shielded, Detachable, 1.85m, with two cores on cable
HDMI Cable	:	Shielded, Detachable, 1.00m
Power Cord	:	Unshielded, Detachable, 1.80m

Remark:

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

Bottom Port:

- (1) One ANT/CABLE Port : Connected with ATSC SG / TV SG
- (2) One SERVICE Port : Do not open to customer
- (3) One component of YPbPr Port : Connected with DVD PLAYER
- (4) One component of YPbPr Audio Port : Connected with DVD PLAYER
- (5) One HDMI1 Port : Connected with PC

Side Port:

- (1) One VGA Port : Connected with PC
- (2) One PC AUDIO IN Port : Connected with PC
- (3) One Digital Audio Out Port : Connected with Speaker
- (4) One HDMI2 Port : Connected with DVD PLAYER
- (5) One RJ12 Port : Connected with PC
- (6) One AUDIO OUT Port : Connected with Earphone
- (7) One USB Port : Connected with U-Disk
- (8) One component of AV IN Port : Connected with DVD PLAYER

2.2 Peripherals

2.2.1 PC

Manufacturer	:	HP
Model Number	:	dx7200MT
Serial Number	:	CNG622017W
Power Cord	:	Unshielded, Detachable, 1.8m
Certificate	:	FCC DoC; CE/EMC; VCCI; C-Tick; BSMI, 3C, MIC

2.2.2 Printer

Manufacturer : HP
Model Number : C3990A
Serial Number : JPZX020487
Data Cable : Shielded, detachable, 1.5m
Certificate : GS, CE/EMC, C-Tick, FCC DoC

2.2.3 Keyboard

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

2.2.4 Mouse

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

2.2.5 Modem

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

2.2.6 Earphone

Manufacturer : audio-technica
Model Number : ATH-CKL200

2.2.7 TV Signal Generator

Manufacturer : FLUKE
Model Number : 54200m01
Serial Number : 814008
Data Cable : Shielded, detachable, 2.0m
Power Cord : Unshielded, detachable, 2.0m
Certificate : CE/EMC, FCC DoC, CCC

2.2.8 ATSC Signal Generator

Manufacturer : SENCORE
Model Number : ATSC997
Serial Number : 6790071

2.2.9 DVD PLAYER

Manufacturer : PHILIPS
Model Number : DVP3986K/93
Serial Number : KX1A0902120108
Certificate : FCC DoC, CE/EMC, CCC

2.2.10 Speaker

Manufacturer : DIBA
Model Number : FS-04
Serial Number : 002

2.2.11 U-DISK

Manufacturer : LG
Model Number : 1GB

2.3 Description of Test Facility

Site Description (No.3 3m Chamber) : Sept. 17, 1998 file on
Mar 16, 2012 Renewed
Federal Communications Commission
FCC Engineering Laboratory
7435 Oakland Mills Road
Columbia, MD 21046, USA

Name of Firm : Audix Technology (Shanghai) Co., Ltd.

Site Location : 3F 34Bldg 680 Guiping Rd,
Caohejing Hi-Tech Park,
Shanghai 200233, China

NVLAP Lab Code : 200371-0

2.4 Measurement Uncertainty

Conducted Emission Expanded Uncertainty: U = 3.02 dB

Radiated Emission Expanded Uncertainty (30-200MHz):
U = 4.17 dB (Horizontal)
U = 4.02 dB (Vertical)

Radiated Emission Expanded Uncertainty (200M-1GHz):
U = 3.38 dB (Horizontal)
U = 3.28 dB (Vertical)

Radiated Emission Expanded Uncertainty (Above 1GHz):
U = 4.68 dB (Horizontal)
U = 4.87 dB (Vertical)

3 CONDUCTED EMISSION TEST

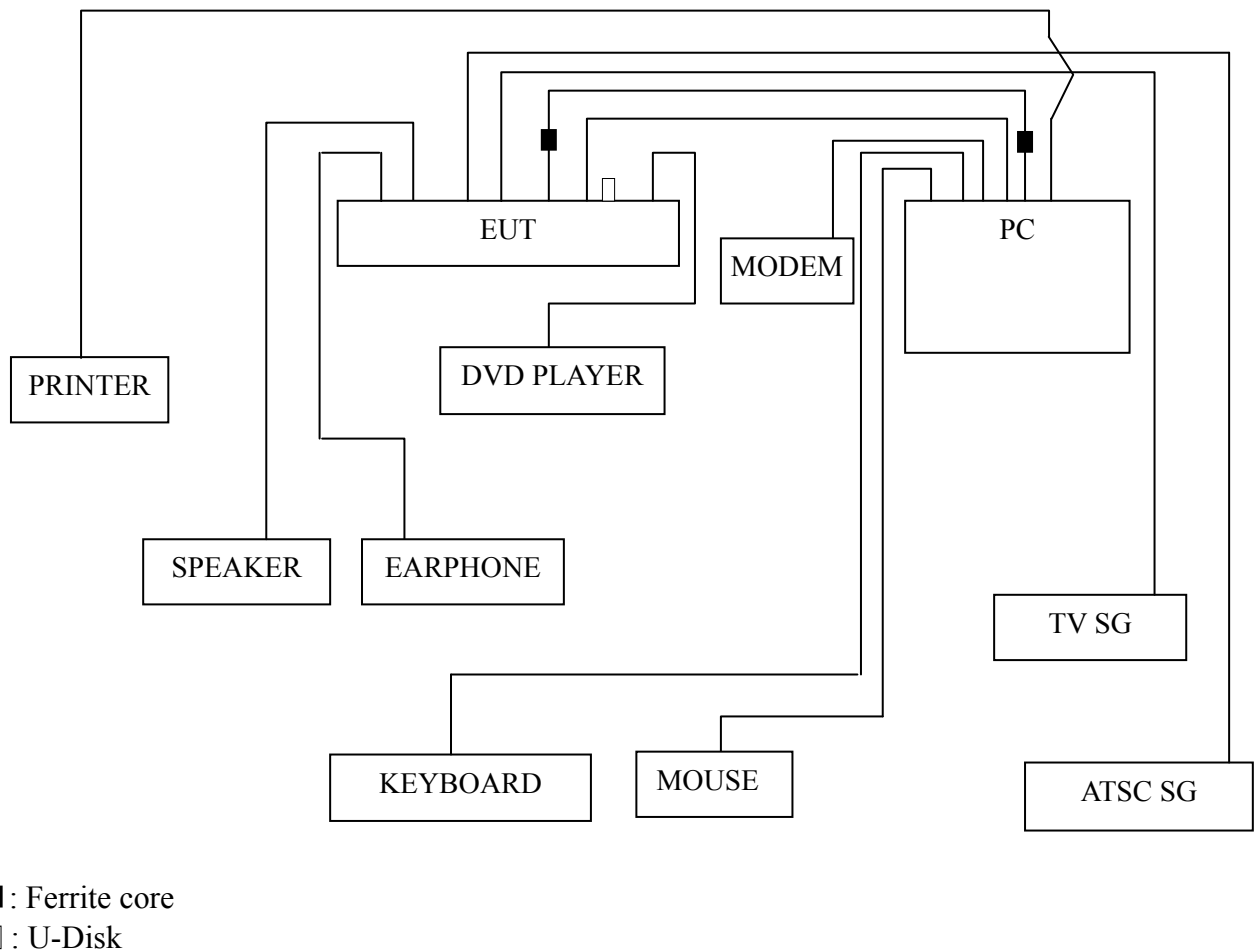
3.1 Test Equipment

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

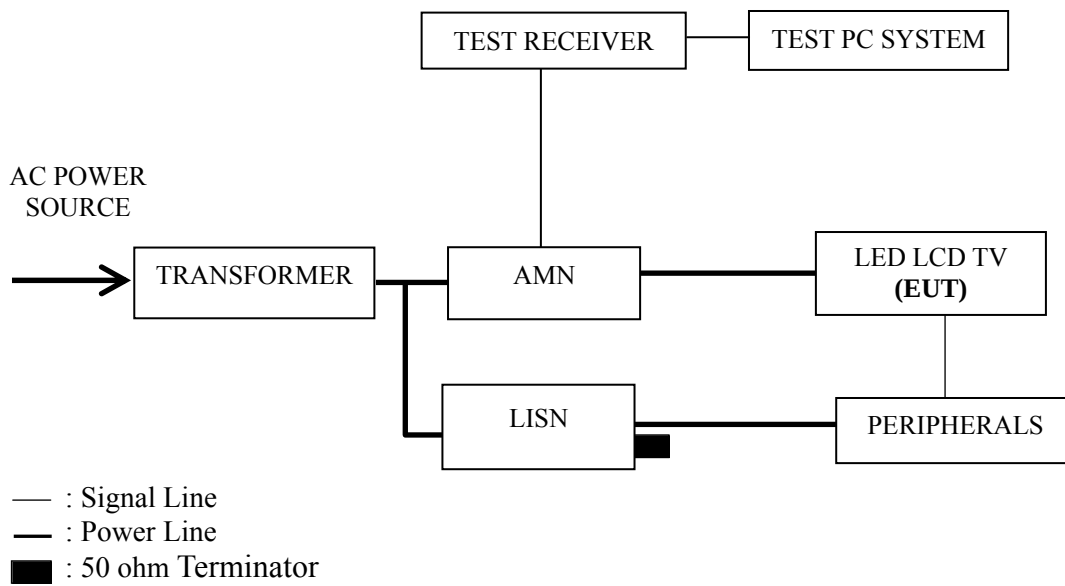
Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Test Receiver	R&S	ESCI	100841	Mar 20, 2013	Mar 19, 2014
2.	Artificial Mains Network (AMN)	R&S	ESH2-Z5	843890/011	Feb 25, 2013	Feb 24, 2014
3.	Line Impedance Stabilization Network (LISN)	Kyoritsu	KNW-407	8-1280-4	Mar 20, 2013	Mar 19, 2014
4.	50 Ω Coaxial Switch	Anritsu	MP59B	6200426389	Sep 18, 2013	Mar 17, 2014
5.	50 Ω Terminator	Anritsu	BNC	001	Mar 20, 2013	Mar 19, 2014
6.	Software	Audix	E3	6.2009-1-15	--	--

3.2 Block Diagram of Test Setup

3.2.1 EUT & Peripherals



3.2.2 Conducted Disturbance Test Setup



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

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

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

3.4 Test Configuration

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

3.5 Operating Condition of EUT

3.5.1 Setup the EUT and peripherals as shown in Sec. 3.2.

3.5.2 Turn on the power of all equipments and the EUT.

3.5.3 Set the contrast & brightness of EUT to maximum.

3.5.4 PC system ran the self-test program “EMC Test” by windows XP and sent “H” characters to EUT through graphic card, the EUT’s screen displayed and filled with “H” pattern by its resolution (Via D-Sub & HDMI Input).

3.5.5 In USB Play mode, set the EUT play digital media from U-Disk.

3.5.6 The other peripherals devices were driven and operated during the test.

3.5.7 The test modes are as follows:

Test Mode
D-Sub 1024*768@60Hz
HDMI 1920*1080@60Hz
HDMI 1280*1024@60Hz
HDMI 640*480@60Hz
USB Play

3.6 Test Procedures

The EUT and peripherals were connected to the power mains through an Artificial Mains Network (AMN). This provided a 50 ohm coupling impedance for the measuring equipment.

Both sides of AC line (Line & Neutral) were checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables were changed or manipulated according to ANSI C63.4:2003 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
D-Sub 1024*768@60Hz	P13
HDMI 1920*1080@60Hz	P14
HDMI 1280*1024@60Hz	P15
HDMI 640*480@60Hz	P16
USB Play	P17

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 1920*1080@60Hz test mode. The worst emission is detected at 22.18 MHz (Average Value) with corrected signal level of 44.45 dB (μV) (limit is 50.00 dB (μV)), when the Neutral of the EUT is connected to AMN.

EUT : LED LCD TV Temperature : 22°C

Model No. : 39A300MH Humidity : 48%RH

Test Mode : D-Sub 1024*768@60Hz Date of Test : Jan 17, 2014

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.197	46.10	0.12	46.22	63.72	17.50	QP
	0.219	45.81	0.10	45.91	62.88	16.97	
	0.603	25.79	0.04	25.83	56.00	30.17	
	4.494	37.79	0.20	37.99	56.00	18.01	
	7.675	38.89	0.27	39.16	60.00	20.84	
	22.180	47.20	-0.25	46.95	60.00	13.05	
	0.197	23.60	0.12	23.72	53.72	30.00	AV
	0.219	20.91	0.10	21.01	52.88	31.87	
	0.603	17.19	0.04	17.23	46.00	28.77	
	4.494	28.89	0.20	29.09	46.00	16.91	
	7.675	31.79	0.27	32.06	50.00	17.94	
	22.180	42.10	-0.25	41.85	50.00	8.15	
Neutral	0.196	46.70	0.20	46.90	63.80	16.90	QP
	0.230	44.51	0.20	44.71	62.45	17.74	
	0.608	28.50	0.16	28.66	56.00	27.34	
	4.501	42.60	0.22	42.82	56.00	13.18	
	6.805	42.00	0.32	42.32	60.00	17.68	
	22.070	48.49	0.85	49.34	60.00	10.66	
	0.196	23.40	0.20	23.60	53.80	30.20	AV
	0.230	14.61	0.20	14.81	52.45	37.64	
	0.608	17.60	0.16	17.76	46.00	28.24	
	4.501	33.40	0.22	33.62	46.00	12.38	
	6.805	34.50	0.32	34.82	50.00	15.18	
	22.070	43.19	0.85	44.04	50.00	5.96	

TEST ENGINEER: ERIC TANG

EUT : LED LCD TV Temperature : 22°C

Model No. : 39A300MH Humidity : 48%RH

Test Mode : HDMI 1920*1080@60Hz Date of Test : Jan 17, 2014

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.202	46.00	0.12	46.12	63.53	17.41	QP
	0.225	44.60	0.10	44.70	62.62	17.92	
	0.850	30.10	0.07	30.17	56.00	25.83	
	4.528	37.49	0.20	37.69	56.00	18.31	
	7.543	40.00	0.26	40.26	60.00	19.74	
	22.970	46.80	-0.32	46.48	60.00	13.52	
	0.202	24.70	0.12	24.82	53.53	28.71	AV
	0.225	14.60	0.10	14.70	52.62	37.92	
	0.850	25.40	0.07	25.47	46.00	20.53	
	4.528	29.19	0.20	29.39	46.00	16.61	
	7.543	34.50	0.26	34.76	50.00	15.24	
	22.970	41.60	-0.32	41.28	50.00	8.72	
Neutral	0.191	46.80	0.19	46.99	63.98	16.99	QP
	0.231	44.11	0.20	44.31	62.40	18.09	
	0.849	28.80	0.15	28.95	56.00	27.05	
	4.604	43.20	0.22	43.42	56.00	12.58	
	7.111	42.21	0.33	42.54	60.00	17.46	
	22.180	48.70	0.85	49.55	60.00	10.45	
	0.191	24.50	0.19	24.69	53.98	29.29	AV
	0.231	14.21	0.20	14.41	52.40	37.99	
	0.849	26.40	0.15	26.55	46.00	19.45	
	4.604	33.90	0.22	34.12	46.00	11.88	
	7.111	36.01	0.33	36.34	50.00	13.66	
	22.180	43.60	0.85	44.45	50.00	5.55	

TEST ENGINEER: ERIC TANG

EUT : LED LCD TV Temperature : 22°C

Model No. : 39A300MH Humidity : 48%RH

Test Mode : HDMI 1280*1024@60Hz Date of Test : Jan 17, 2014

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.198	45.80	0.12	45.92	63.68	17.76	QP
	0.227	44.50	0.10	44.60	62.54	17.94	
	0.846	28.61	0.07	28.68	56.00	27.32	
	4.356	37.41	0.18	37.59	56.00	18.41	
	7.671	37.79	0.27	38.06	60.00	21.94	
	22.210	47.40	-0.25	47.15	60.00	12.85	
	0.198	24.50	0.12	24.62	53.68	29.06	AV
	0.227	15.00	0.10	15.10	52.54	37.44	
	0.846	26.01	0.07	26.08	46.00	19.92	
	4.356	28.31	0.18	28.49	46.00	17.51	
	7.671	30.39	0.27	30.66	50.00	19.34	
	22.210	42.30	-0.25	42.05	50.00	7.95	
Neutral	0.196	46.10	0.20	46.30	63.79	17.49	QP
	0.217	45.90	0.20	46.10	62.94	16.84	
	0.846	29.10	0.15	29.25	56.00	26.75	
	4.595	43.00	0.22	43.22	56.00	12.78	
	7.179	42.60	0.34	42.94	60.00	17.06	
	22.150	48.60	0.85	49.45	60.00	10.55	
	0.196	23.90	0.20	24.10	53.79	29.69	AV
	0.217	22.80	0.20	23.00	52.94	29.94	
	0.846	25.90	0.15	26.05	46.00	19.95	
	4.595	34.50	0.22	34.72	46.00	11.28	
	7.179	35.90	0.34	36.24	50.00	13.76	
	22.150	43.40	0.85	44.25	50.00	5.75	

TEST ENGINEER: ERIC TANG

EUT : LED LCD TV Temperature : 22°C

Model No. : 39A300MH Humidity : 48%RH

Test Mode : HDMI 640*480@60Hz Date of Test : Jan 17, 2014

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.192	45.79	0.13	45.92	63.96	18.04	QP
	0.223	45.30	0.10	45.40	62.73	17.33	
	0.845	28.51	0.07	28.58	56.00	27.42	
	4.366	37.91	0.18	38.09	56.00	17.91	
	6.957	39.70	0.26	39.96	60.00	20.04	
	22.220	47.30	-0.25	47.05	60.00	12.95	
	0.192	24.19	0.13	24.32	53.96	29.64	AV
	0.223	18.90	0.10	19.00	52.73	33.73	
	0.845	25.91	0.07	25.98	46.00	20.02	
	4.366	28.71	0.18	28.89	46.00	17.11	
	6.957	33.50	0.26	33.76	50.00	16.24	
	22.220	42.40	-0.25	42.15	50.00	7.85	
Neutral	0.187	46.40	0.19	46.59	64.19	17.60	QP
	0.203	46.50	0.20	46.70	63.47	16.77	
	0.604	28.70	0.16	28.86	56.00	27.14	
	4.363	42.31	0.21	42.52	56.00	13.48	
	6.944	43.10	0.33	43.43	60.00	16.57	
	22.260	48.50	0.85	49.35	60.00	10.65	
	0.187	23.20	0.19	23.39	54.19	30.80	AV
	0.203	24.00	0.20	24.20	53.47	29.27	
	0.604	18.20	0.16	18.36	46.00	27.64	
	4.363	33.01	0.21	33.22	46.00	12.78	
	6.944	35.90	0.33	36.23	50.00	13.77	
	22.260	43.20	0.85	44.05	50.00	5.95	

TEST ENGINEER: ERIC TANG

EUT : LED LCD TV Temperature : 22°C

Model No. : 39A300MH Humidity : 48%RH

Test Mode : USB Play Date of Test : Jan 17, 2014

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.201	46.60	0.12	46.72	63.57	16.85	QP
	0.221	45.40	0.10	45.50	62.78	17.28	
	0.607	25.60	0.04	25.64	56.00	30.36	
	4.363	37.01	0.18	37.19	56.00	18.81	
	7.225	39.60	0.26	39.86	60.00	20.14	
	22.470	47.81	-0.28	47.53	60.00	12.47	
	0.201	23.90	0.12	24.02	53.57	29.55	AV
	0.221	17.40	0.10	17.50	52.78	35.28	
	0.607	16.00	0.04	16.04	46.00	29.96	
	4.363	27.71	0.18	27.89	46.00	18.11	
	7.225	34.10	0.26	34.36	50.00	15.64	
	22.470	43.11	-0.28	42.83	50.00	7.17	
Neutral	0.186	46.00	0.19	46.19	64.23	18.04	QP
	0.215	46.30	0.20	46.50	63.02	16.52	
	0.601	28.60	0.16	28.76	56.00	27.24	
	4.418	42.71	0.21	42.92	56.00	13.08	
	6.708	42.30	0.31	42.61	60.00	17.39	
	23.240	48.11	0.86	48.97	60.00	11.03	
	0.186	22.60	0.19	22.79	54.23	31.44	AV
	0.215	21.60	0.20	21.80	53.02	31.22	
	0.601	18.10	0.16	18.26	46.00	27.74	
	4.418	33.11	0.21	33.32	46.00	12.68	
	6.708	34.60	0.31	34.91	50.00	15.09	
	23.240	42.91	0.86	43.77	50.00	6.23	

TEST ENGINEER: ERIC TANG

4 RADIATED EMISSION TEST

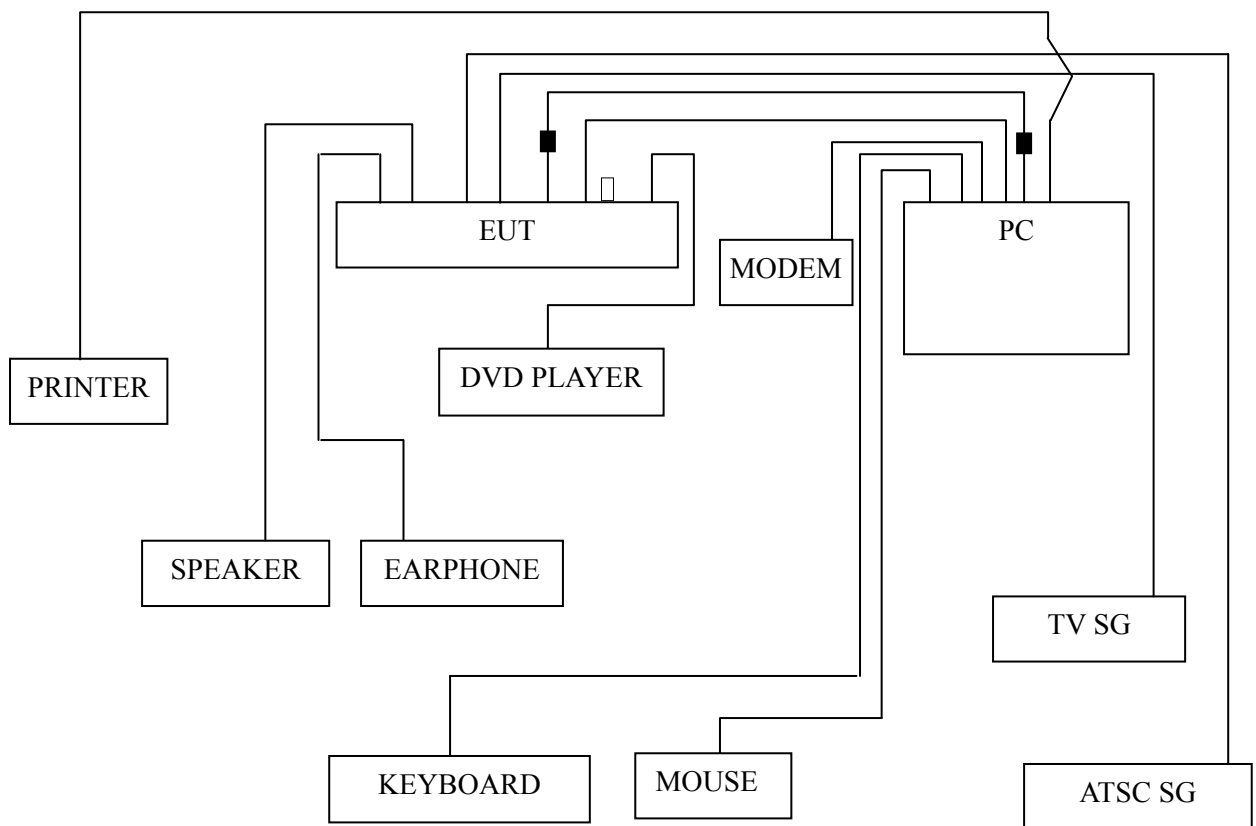
4.1 Test Equipment

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	101302	Sep 03, 2013	Sep 02, 2014
2.	Preamplifier	Agilent	8447D	2944A10548	Sep 18, 2013	Mar 17, 2014
3.	Preamplifier	HP	8449B	3008A00864	Mar 20, 2013	Mar 19, 2014
4.	Bi-log Antenna	TESEQ	CBL6112D	23193	May 03, 2013	May 02, 2014
5.	Horn Antenna	EMCO	3115	9607-4878	May 11, 2013	May 10, 2014
6.	Spectrum	Agilent	E7405A	MY45106600	Nov 11, 2013	Nov 10, 2014
7.	50 Ω Coaxial Switch	Anritsu	MP59B	6200426390	Sep 18, 2013	Mar 17, 2014
8.	Software	Audix	E3	6.2007-9-10	--	--

4.2 Block Diagram of Test Setup

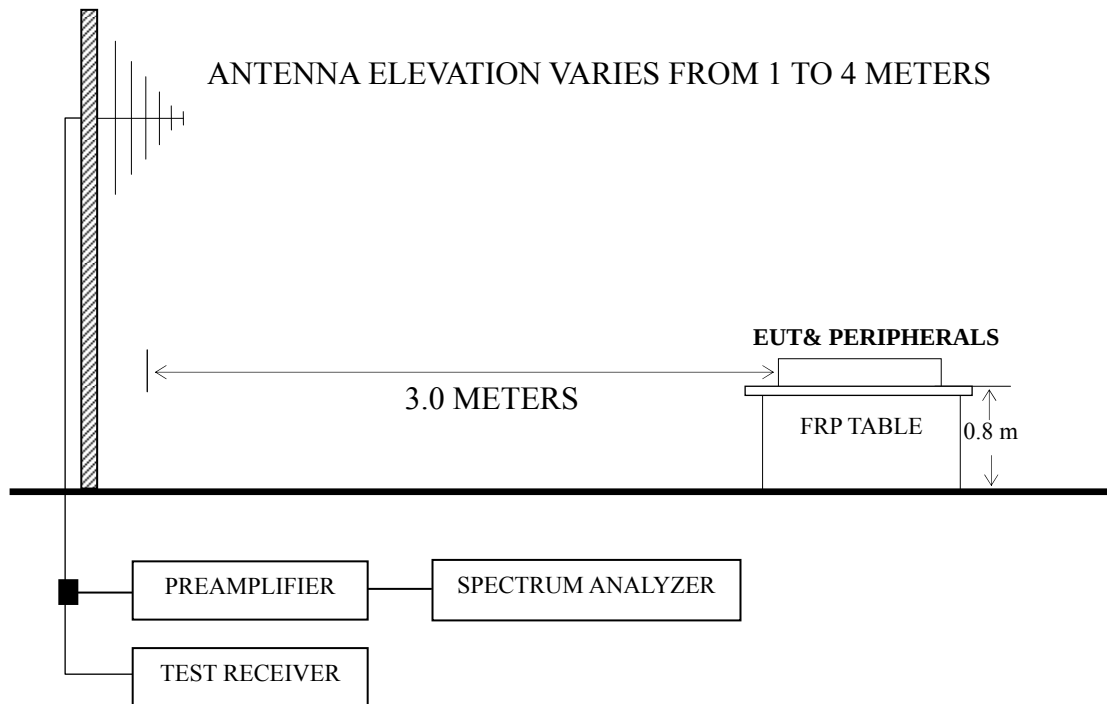
4.2.1 EUT and Peripherals



■ : Ferrite core

□ : U-Disk

4.2.2 Radiated emission test setup



■ : 50 ohm Coaxial Switch

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 2 GHz was checked for the maximum resolution test mode.

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

4.7 Test Results

<PASS>

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

Test Mode	Data Page
D-Sub 1024*768@60Hz	P22
HDMI 1920*1080@60Hz	P23 – P24
HDMI 1280*1024@60Hz	P25
HDMI 640*480@60Hz	P26
USB Play	P27

NOTE 1 – Emission Level = Antenna Factor + Cable Loss + Meter Reading. (< 1GHz);

Emission Level = Antenna Factor + Cable Loss – Preamp Factor + Meter Reading. (> 1GHz)

NOTE 2 – All readings are Quasi-Peak values below or equal to 1GHz, Peak and Average values above 1GHz.

NOTE 3 – 0° was the table front facing the antenna. Degree is calculated from 0° clockwise facing the antenna.

NOTE 4 – The worst case is for HDMI 1920*1080@60Hz test mode. The worst emission at horizontal polarization was detected at 887.480 MHz with corrected signal level of 44.80 dB ($\mu\text{V/m}$) (limit is 46.00 dB ($\mu\text{V/m}$)), when the antenna was 1.60 m height and the turntable was at 165°. The worst emission at vertical polarization was detected at 30.000 MHz with corrected signal level of 38.41 dB ($\mu\text{V/m}$) (limit is 40.00 dB ($\mu\text{V/m}$)), when the antenna was 1.40 m height and the turntable was at 221°.

EUT : LED LCD TV Temperature : 22°C

Model No. : 39A300MH Humidity : 60%RH

Test Mode : D-Sub 1024*768@60Hz Date of Test : Jan 16, 2014

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	72.680	23.80	6.20	0.97	30.97	40.00	9.03
	96.930	22.89	9.76	1.31	33.96	43.50	9.54
	145.430	18.82	10.28	1.62	30.72	43.50	12.78
	247.280	18.12	11.70	2.18	32.00	46.00	14.00
	497.540	14.75	17.98	2.98	35.71	46.00	10.29
	984.480	9.78	21.03	4.83	35.64	54.00	18.36
Vertical	30.970	19.97	17.65	0.67	38.29	40.00	1.71
	126.030	23.63	11.60	1.51	36.74	43.50	6.76
	281.230	21.25	12.43	2.40	36.08	46.00	9.92
	482.990	14.16	17.80	2.94	34.90	46.00	11.10
	640.130	14.05	18.50	3.35	35.90	46.00	10.10
	989.330	14.51	21.07	4.83	40.41	54.00	13.59

TEST ENGINEER: NEAL WANG

EUT : LED LCD TV Temperature : 22°C

Model No. : 39A300MH Humidity : 60%RH

Test Mode : HDMI 1920*1080@60Hz Date of Test : Jan 16, 2014

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	30.000	12.30	18.80	0.65	--	31.75	40.00	8.25	QP
	358.830	18.39	14.98	2.63	--	36.00	46.00	10.00	
	446.130	19.96	17.07	2.82	--	39.85	46.00	6.15	
	594.540	17.10	18.50	3.20	--	38.80	46.00	7.20	
	746.830	18.30	18.83	3.58	--	40.71	46.00	5.29	
	887.480	20.57	19.80	4.43	--	44.80	46.00	1.20	
	1057.000	47.68	23.91	4.96	38.07	38.48	74.00	35.52	PK
	1169.000	47.43	24.38	5.08	37.81	39.08	74.00	34.92	
	1282.000	46.16	24.92	5.35	37.53	38.90	74.00	35.10	
	1444.000	45.76	25.46	5.61	37.05	39.78	74.00	34.22	
	1586.000	46.76	26.55	5.66	36.71	42.26	74.00	31.74	
	1790.000	46.87	28.99	6.15	36.36	45.65	74.00	28.35	
	1057.000	34.25	23.91	4.96	38.07	25.05	54.00	28.95	AV
	1169.000	34.65	24.38	5.08	37.81	26.30	54.00	27.70	
	1282.000	33.87	24.92	5.35	37.53	26.61	54.00	27.39	
	1444.000	32.01	25.46	5.61	37.05	26.03	54.00	27.97	
	1586.000	33.14	26.55	5.66	36.71	28.64	54.00	25.36	
	1790.000	33.64	28.99	6.15	36.36	32.42	54.00	21.58	

TEST ENGINEER: NEAL WANG

EUT : LED LCD TV Temperature : 22°C

Model No. : 39A300MH Humidity : 60%RH

Test Mode : HDMI 1920*1080@60Hz Date of Test : Jan 16, 2014

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Vertical	30.000	18.96	18.80	0.65	--	38.41	40.00	1.59	QP
	124.090	19.41	11.48	1.50	--	32.39	43.50	11.11	
	150.280	19.49	10.04	1.64	--	31.17	43.50	12.33	
	281.230	19.58	12.43	2.40	--	34.41	46.00	11.59	
	594.540	15.70	18.50	3.20	--	37.40	46.00	8.60	
	887.480	19.94	19.80	4.43	--	44.17	46.00	1.83	
	1139.000	46.02	24.25	5.05	37.89	37.43	74.00	36.57	PK
	1215.000	45.75	24.60	5.15	37.70	37.80	74.00	36.20	
	1336.000	49.08	25.12	5.47	37.38	42.29	74.00	31.71	
	1517.000	45.18	25.78	5.64	36.86	39.74	74.00	34.26	
	1713.000	52.84	28.04	6.01	36.48	50.41	74.00	23.59	
	1905.000	44.93	30.20	6.18	36.21	45.10	74.00	28.90	
	1139.000	33.29	24.25	5.05	37.89	24.70	54.00	29.30	AV
	1215.000	32.71	24.60	5.15	37.70	24.76	54.00	29.24	
	1336.000	36.83	25.12	5.47	37.38	30.04	54.00	23.96	
	1517.000	32.35	25.78	5.64	36.86	26.91	54.00	27.09	
	1713.000	39.01	28.04	6.01	36.48	36.58	54.00	17.42	
	1905.000	31.82	30.20	6.18	36.21	31.99	54.00	22.01	

TEST ENGINEER: NEAL WANG

EUT : LED LCD TV Temperature : 22°C

Model No. : 39A300MH Humidity : 60%RH

Test Mode : HDMI 1280*1024@60Hz Date of Test : Jan 16, 2014

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	109.540	16.76	11.84	1.40	30.00	43.50	13.50
	247.280	18.47	11.70	2.18	32.35	46.00	13.65
	324.880	19.68	14.09	2.58	36.35	46.00	9.65
	647.890	17.66	18.40	3.38	39.44	46.00	6.56
	754.590	16.62	18.65	3.58	38.85	46.00	7.15
	892.330	18.24	19.63	4.43	42.30	46.00	3.70
Vertical	30.000	17.96	18.80	0.65	37.41	40.00	2.59
	75.590	23.49	6.54	1.01	31.04	40.00	8.96
	121.180	21.33	11.42	1.48	34.23	43.50	9.27
	431.580	18.28	17.55	2.78	38.61	46.00	7.39
	647.890	18.77	18.40	3.38	40.55	46.00	5.45
	892.330	18.08	19.63	4.43	42.14	46.00	3.86

TEST ENGINEER: NEAL WANG

EUT : LED LCD TV Temperature : 22°C

Model No. : 39A300MH Humidity : 60%RH

Test Mode : HDMI 640*480@60Hz Date of Test : Jan 16, 2014

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	30.970	15.76	17.65	0.67	34.08	40.00	5.92
	96.930	19.42	9.76	1.31	30.49	43.50	13.01
	247.280	18.36	11.70	2.18	32.24	46.00	13.76
	484.930	13.07	17.73	2.94	33.74	46.00	12.26
	652.740	13.15	18.55	3.38	35.08	46.00	10.92
	895.240	18.55	19.47	4.43	42.45	46.00	3.55
Vertical	32.910	19.93	16.30	0.69	36.92	40.00	3.08
	122.150	19.89	11.44	1.49	32.82	43.50	10.68
	150.280	20.83	10.04	1.64	32.51	43.50	10.99
	322.940	17.05	14.02	2.58	33.65	46.00	12.35
	599.390	14.95	18.30	3.22	36.47	46.00	9.53
	892.330	16.39	19.63	4.43	40.45	46.00	5.55

TEST ENGINEER: NEAL WANG

EUT : LED LCD TV Temperature : 22°C

Model No. : 39A300MH Humidity : 60%RH

Test Mode : USB Play Date of Test : Jan 16, 2014

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	31.940	14.34	16.50	0.68	31.52	40.00	8.48
	150.280	21.81	10.04	1.64	33.49	43.50	10.01
	215.270	23.59	7.60	2.03	33.22	43.50	10.28
	393.750	16.68	15.67	2.68	35.03	46.00	10.97
	564.470	15.00	19.20	3.12	37.32	46.00	8.68
	861.290	13.58	20.70	4.08	38.36	46.00	7.64
Vertical	35.820	19.21	15.63	0.73	35.57	40.00	4.43
	94.020	21.46	9.12	1.27	31.85	43.50	11.65
	125.060	21.18	11.50	1.50	34.18	43.50	9.32
	255.040	23.25	12.10	2.25	37.60	46.00	8.40
	413.150	15.18	16.45	2.73	34.36	46.00	11.64
	458.740	15.42	17.20	2.86	35.48	46.00	10.52

TEST ENGINEER: NEAL WANG

5 DEBUG DESCRIPTION

The following components are used during the countermeasure procedures:

Name	M/N	Manufacturer	Location
Ferrite Core	BNF-12/ZCAT1519-0830	Jiangsu Ruifeng Electronic Co., Ltd.	See Internal Photos Figure 16
		FEELUX	
		Jiangsu Chenlang Group Electronic Co., Ltd.	
Gasket	35x0.7x41mmVGA	Qingdao Joinset S&T Co., Ltd.	See Internal Photos Figure 17
		Shenzhen Tongantai Electronic Technology Co., Ltd.	

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:



(NEAL WANG)

6 DEVIATION TO TEST SPECIFICATIONS

None.