

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

LED LCD TV

Model No.	Brand
32K20D, 32K21D, 32K22D, 32K23D, 32K24D, 32K25D	Hisense
32H3, 32H3C, 32H3E, 32H3S, 32H3I	

FCC ID : W9HLCDC0027

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Report No. : ACI-F13217
Date of Test : Dec 18 – 20, 2013
Date of Report : Dec 30, 2013

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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
Refer to Sec2.1	Hisense	120V/60Hz

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 Dec 18 – 20, 2013 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.F13218, a Verification report.

Date of Test : Dec 18 – 20, 2013 Date of Report : Dec 30, 2013

Producer : 
 EMILY ZHU / Assistant

Review : 
 DIO YANG / Assistant Manager

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

Signatory : 
 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	:	<input type="checkbox"/> Production <input checked="" type="checkbox"/> Pre-product <input type="checkbox"/> Pro-type
Model No.	:	32K20D, 32K21D, 32K22D, 32K23D, 32K24D, 32K25D, 32H3, 32H3C, 32H3E, 32H3S, 32H3I
Note	:	The above models are all the same except for model name. 32K20D model is 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 : HD315DH-F11\S1
Max Resolution	:	1920*1080@60Hz
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 USB Port : Connected with U-Disk
- (2) One component of Audio/YPbPr Audio Port : Connected with DVD PLAYER
- (3) One component of Video/YPbPr Port : Connected with DVD PLAYER
- (4) One HDMI1/ARC Port : Connected with PC

Side Port:

- (1) One HDMI2/MHL Port : Connected with Smart Mobile Phone
- (2) One DVI AUDIO IN Port : Connected with PC
- (3) One AUDIO OUT Port : Connected with Earphone
- (4) One ANT/CABLE IN Port : Connected with Antenna or ATSC SG / TV SG
- (5) One DIGITAL AUDIO OUT 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 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

2.2.7 ATSC Signal Generator

Manufacturer : SENCORE
Model Number : ATSC997
Serial Number : 6790071

2.2.8 DVD PLAYER

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

2.2.9 Smart Mobile Phone

Manufacturer : SAMSUNG
Model Number : GT-I9100G
Serial Number : RV1C2250B7J
Certificate : CE/EMC, CCC

2.2.10 Earphone

Manufacturer : audio-technica
Model Number : ATH-CKL200

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

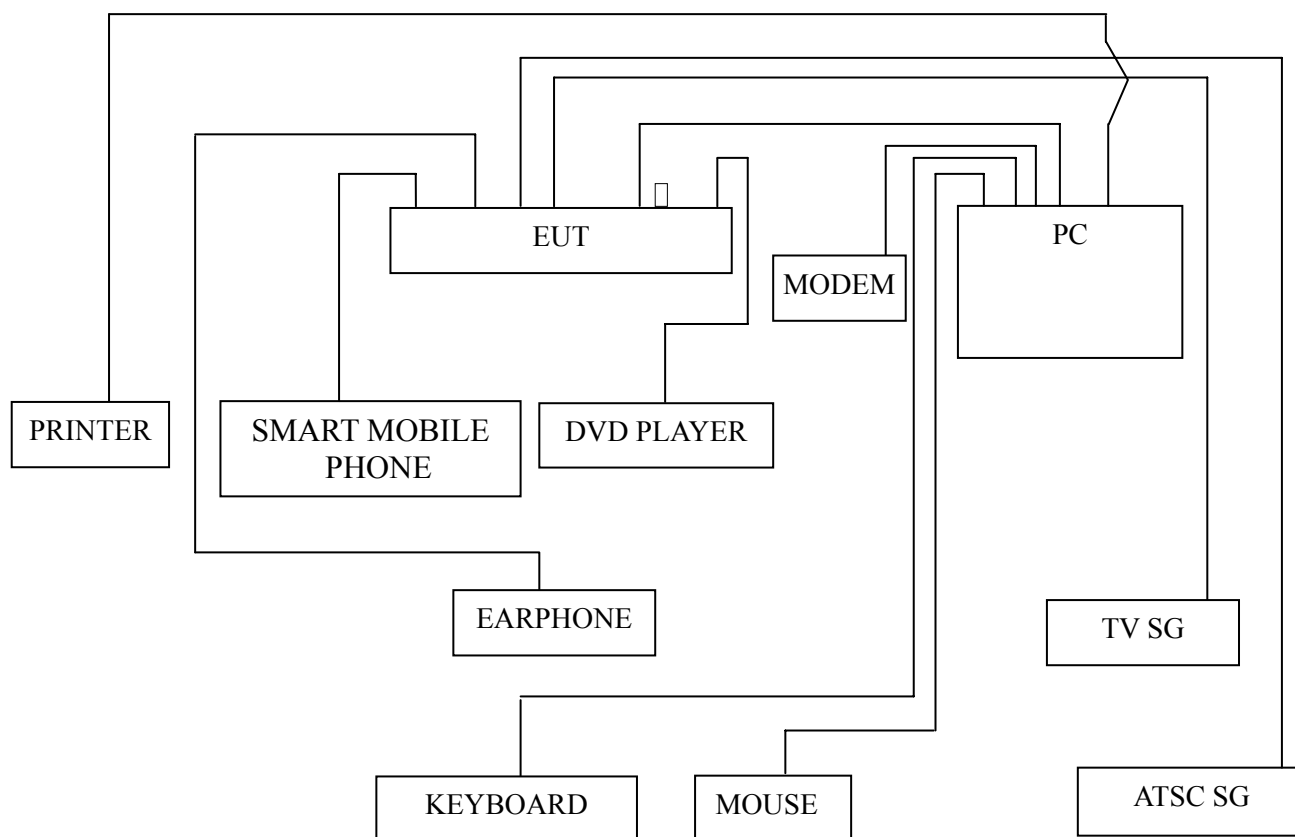
3.1 Test Equipment

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	--	--

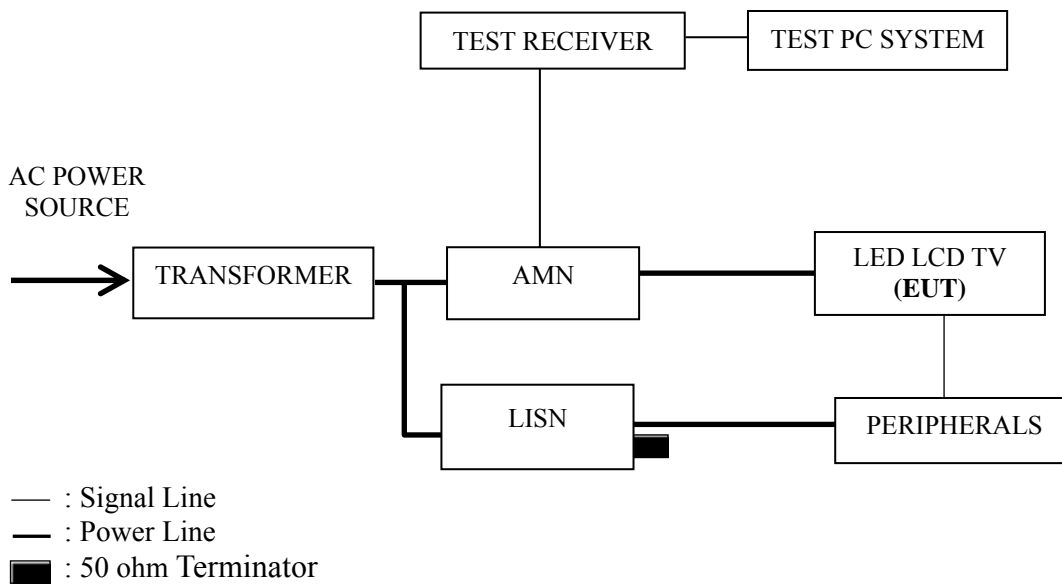
3.2 Block Diagram of Test Setup

3.2.1 EUT & Peripherals



□ : U-Disk

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 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
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
HDMI 1920*1080@60Hz	P13
HDMI 1280*1024@60Hz	P14
HDMI 640*480@60Hz	P15
USB Play	P16

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 0.193 MHz (Quasi-Peak Value) with corrected signal level of 58.82 dB (μV) (limit is 63.91 dB (μV)), when the Line of the EUT is connected to AMN.

EUT : LED LCD TV Temperature : 22

Model No. : 32K20D Humidity : 48%RH

Test Mode : HDMI 1920*1080@60Hz Date of Test : Dec 18, 2013

Test Line	Frequency (MHz)	Meter Reading dB(μ V)	Factor (dB)	Emission Level dB(μ V)	Limits dB(μ V)	Margin (dB)	Remark
Line	0.152	57.10	0.15	57.25	65.91	8.66	QP
	0.193	58.69	0.13	58.82	63.91	5.09	
	0.257	48.29	0.09	48.38	61.53	13.15	
	0.548	27.20	-0.01	27.19	56.00	28.81	
	8.924	37.10	0.26	37.36	60.00	22.64	
	15.670	31.29	-0.01	31.28	60.00	28.72	
	AV	0.152	38.60	0.15	38.75	55.91	17.16
		0.193	43.59	0.13	43.72	53.91	10.19
		0.257	30.09	0.09	30.18	51.53	21.35
		0.548	13.00	-0.01	12.99	46.00	33.01
		8.924	31.80	0.26	32.06	50.00	17.94
		15.670	22.99	-0.01	22.98	50.00	27.02
Neutral	0.153	56.10	0.15	56.25	65.82	9.57	QP
	0.193	57.69	0.20	57.89	63.90	6.01	
	0.258	47.19	0.22	47.41	61.48	14.07	
	0.530	27.60	0.19	27.79	56.00	28.21	
	9.122	35.60	0.43	36.03	60.00	23.97	
	14.750	34.60	0.53	35.13	60.00	24.87	
	AV	0.153	37.00	0.15	37.15	55.82	18.67
		0.193	42.59	0.20	42.79	53.90	11.11
		0.258	28.89	0.22	29.11	51.48	22.37
		0.530	11.60	0.19	11.79	46.00	34.21
		9.122	29.80	0.43	30.23	50.00	19.77
		14.750	28.00	0.53	28.53	50.00	21.47

TEST ENGINEER: ERIC TANG

EUT : LED LCD TV Temperature : 22

Model No. : 32K20D Humidity : 48%RH

Test Mode : HDMI 1280*1024@60Hz Date of Test : Dec 18, 2013

Test Line	Frequency (MHz)	Meter Reading dB(μ V)	Factor (dB)	Emission Level dB(μ V)	Limits dB(μ V)	Margin (dB)	Remark
Line	0.150	56.40	0.16	56.56	66.00	9.44	QP
	0.193	56.39	0.13	56.52	63.92	7.40	
	0.256	46.59	0.09	46.68	61.55	14.87	
	0.642	27.90	0.06	27.96	56.00	28.04	
	8.923	33.70	0.26	33.96	60.00	26.04	
	15.010	30.50	-0.01	30.49	60.00	29.51	
	0.150	38.60	0.16	38.76	56.00	17.24	AV
	0.193	42.09	0.13	42.22	53.92	11.70	
	0.256	28.39	0.09	28.48	51.55	23.07	
	0.642	13.60	0.06	13.66	46.00	32.34	
	8.923	28.30	0.26	28.56	50.00	21.44	
	15.010	23.10	-0.01	23.09	50.00	26.91	
Neutral	0.150	56.30	0.15	56.45	66.00	9.55	QP
	0.196	55.70	0.20	55.90	63.78	7.88	
	0.257	43.99	0.22	44.21	61.53	17.32	
	0.518	26.20	0.20	26.40	56.00	29.60	
	8.917	35.99	0.43	36.42	60.00	23.58	
	14.410	35.61	0.52	36.13	60.00	23.87	
	0.150	39.00	0.15	39.15	56.00	16.85	AV
	0.196	42.00	0.20	42.20	53.78	11.58	
	0.257	25.19	0.22	25.41	51.53	26.12	
	0.518	11.60	0.20	11.80	46.00	34.20	
	8.917	30.59	0.43	31.02	50.00	18.98	
	14.410	27.81	0.52	28.33	50.00	21.67	

TEST ENGINEER: ERIC TANG

EUT : LED LCD TV Temperature : 22

Model No. : 32K20D Humidity : 48%RH

Test Mode : HDMI 640*480@60Hz Date of Test : Dec 18, 2013

Test Line	Frequency (MHz)	Meter Reading dB(μ V)	Factor (dB)	Emission Level dB(μ V)	Limits dB(μ V)	Margin (dB)	Remark
Line	0.151	55.90	0.15	56.05	65.94	9.89	QP
	0.196	55.90	0.12	56.02	63.80	7.78	
	0.257	46.29	0.09	46.38	61.52	15.14	
	0.681	28.50	0.09	28.59	56.00	27.41	
	9.214	34.50	0.25	34.75	60.00	25.25	
	14.600	29.30	0.01	29.31	60.00	30.69	
	0.151	38.21	0.15	38.36	55.94	17.58	AV
	0.196	43.40	0.12	43.52	53.80	10.28	
	0.257	29.09	0.09	29.18	51.52	22.34	
	0.681	13.70	0.09	13.79	46.00	32.21	
	9.214	28.90	0.25	29.15	50.00	20.85	
	14.600	23.00	0.01	23.01	50.00	26.99	
Neutral	0.151	57.00	0.15	57.15	65.94	8.79	QP
	0.193	56.19	0.20	56.39	63.89	7.50	
	0.257	45.89	0.22	46.11	61.54	15.43	
	0.560	26.61	0.17	26.78	56.00	29.22	
	9.448	36.01	0.41	36.42	60.00	23.58	
	14.400	33.91	0.52	34.43	60.00	25.57	
	0.151	38.50	0.15	38.65	55.94	17.29	AV
	0.193	42.39	0.20	42.59	53.89	11.30	
	0.257	27.29	0.22	27.51	51.54	24.03	
	0.560	10.31	0.17	10.48	46.00	35.52	
	9.448	29.91	0.41	30.32	50.00	19.68	
	14.400	27.81	0.52	28.33	50.00	21.67	

TEST ENGINEER: ERIC TANG

EUT : LED LCD TV Temperature : 22

Model No. : 32K20D Humidity : 48%RH

Test Mode : USB Play Date of Test : Dec 18, 2013

Test Line	Frequency (MHz)	Meter Reading dB(μ V)	Factor (dB)	Emission Level dB(μ V)	Limits dB(μ V)	Margin (dB)	Remark
Line	0.150	56.90	0.16	57.06	65.99	8.93	QP
	0.193	54.49	0.13	54.62	63.89	9.27	
	0.257	44.59	0.09	44.68	61.54	16.86	
	0.517	26.80	-0.04	26.76	56.00	29.24	
	9.230	36.70	0.24	36.94	60.00	23.06	
	15.550	28.90	-0.01	28.89	60.00	31.11	
	AV	0.150	37.80	0.16	37.96	55.99	18.03
		0.193	41.09	0.13	41.22	53.89	12.67
		0.257	26.89	0.09	26.98	51.54	24.56
		0.517	10.40	-0.04	10.36	46.00	35.64
		9.230	31.30	0.24	31.54	50.00	18.46
		15.550	22.30	-0.01	22.29	50.00	27.71
Neutral	0.150	55.50	0.15	55.65	66.00	10.35	QP
	0.192	55.69	0.20	55.89	63.93	8.04	
	0.257	44.89	0.22	45.11	61.51	16.40	
	0.516	28.30	0.20	28.50	56.00	27.50	
	9.122	38.50	0.43	38.93	60.00	21.07	
	14.200	33.90	0.52	34.42	60.00	25.58	
	AV	0.150	37.60	0.15	37.75	56.00	18.25
		0.192	42.49	0.20	42.69	53.93	11.24
		0.257	25.79	0.22	26.01	51.51	25.50
		0.516	11.70	0.20	11.90	46.00	34.10
		9.122	32.90	0.43	33.33	50.00	16.67
		14.200	27.60	0.52	28.12	50.00	21.88

TEST ENGINEER: ERIC TANG

4 RADIATED EMISSION TEST

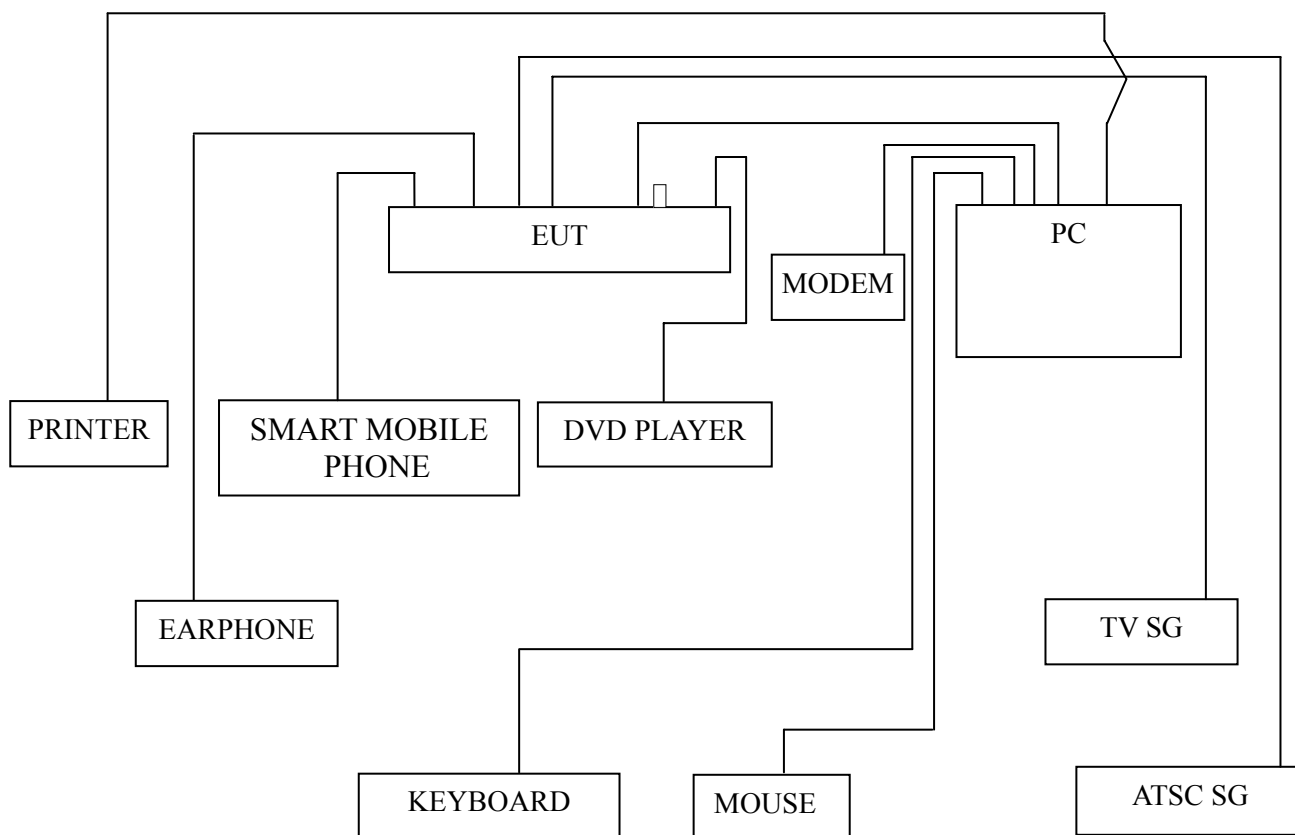
4.1 Test Equipment

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 Coaxial Switch	Anritsu	MP59B	6200426390	Sep 18, 2013	Mar 17, 2014
8.	Software	Audix	E3	6.2007-9-10	--	--

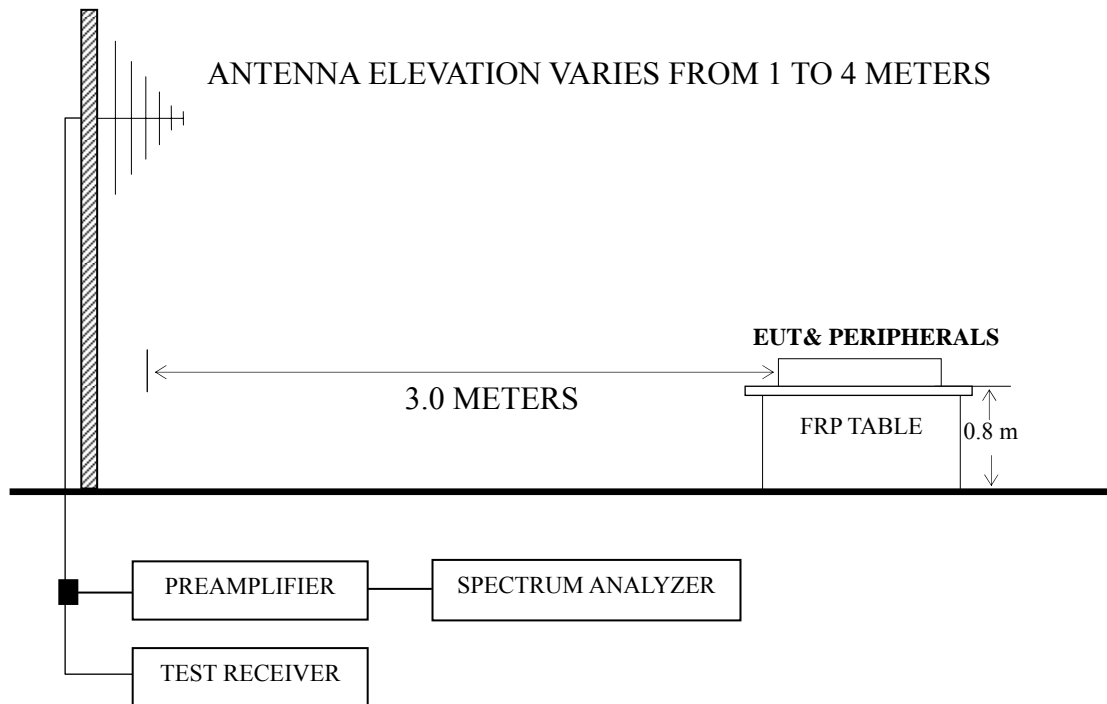
4.2 Block Diagram of Test Setup

4.2.1 EUT & Peripherals



□ : 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	
		($\mu\text{V}/\text{m}$)	dB ($\mu\text{V}/\text{m}$)
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 ($\mu\text{V}/\text{m}$) = 20 log Emission Level ($\mu\text{V}/\text{m}$)

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
HDMI 1920*1080@60Hz	P21 – P22
HDMI 1280*1024@60Hz	P23
HDMI 640*480@60Hz	P24
USB Play	P25

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 640*480@60Hz test mode. The worst emission at horizontal polarization was detected at 431.580 MHz with corrected signal level of 43.69 dB ($\mu\text{V}/\text{m}$) (limit is 46.00 dB ($\mu\text{V}/\text{m}$)), when the antenna was 1.30 m height and the turntable was at 168°. The worst emission at vertical polarization was detected at 431.580 MHz with corrected signal level of 41.39 dB ($\mu\text{V}/\text{m}$) (limit is 46.00 dB ($\mu\text{V}/\text{m}$)), when the antenna was 1.20 m height and the turntable was at 206°.

EUT : LED LCD TV Temperature : 22

Model No. : 32K20D Humidity : 60%RH

Test Mode : HDMI 1920*1080@60Hz Date of Test : Dec 20, 2013

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
Horizontal	60.070	24.86	4.70	0.89	--	30.45	40.00	9.55	QP
	136.700	17.86	10.74	1.58	--	30.18	43.50	13.32	
	186.170	21.51	8.17	1.87	--	31.55	43.50	11.95	
	371.440	21.93	14.85	2.66	--	39.44	46.00	6.56	
	556.710	15.10	19.20	3.10	--	37.40	46.00	8.60	
	928.220	19.54	19.30	4.63	--	43.47	46.00	2.53	
	1090.000	47.90	24.05	4.99	38.00	38.94	74.00	35.06	PK
	1167.000	47.77	24.37	5.07	37.82	39.39	74.00	34.61	
	1356.000	45.88	25.19	5.51	37.33	39.25	74.00	34.75	
	1481.000	46.06	25.56	5.63	36.95	40.30	74.00	33.70	
	1593.000	48.26	26.60	5.66	36.70	43.82	74.00	30.18	
	1732.000	48.52	28.30	6.06	36.44	46.44	74.00	27.56	
	1090.000	34.73	24.05	4.99	38.00	25.77	54.00	28.23	AV
	1167.000	34.73	24.37	5.07	37.82	26.35	54.00	27.65	
	1356.000	32.17	25.19	5.51	37.33	25.54	54.00	28.46	
	1481.000	33.03	25.56	5.63	36.95	27.27	54.00	26.73	
	1593.000	35.38	26.60	5.66	36.70	30.94	54.00	23.06	
	1732.000	35.73	28.30	6.06	36.44	33.65	54.00	20.35	

TEST ENGINEER: NEAL WANG

EUT : LED LCD TV Temperature : 22

Model No. : 32K20D Humidity : 60%RH

Test Mode : HDMI 1920*1080@60Hz Date of Test : Dec 20, 2013

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	38.730	19.15	13.30	0.76	--	33.21	40.00	6.79	QP
	130.880	23.80	11.72	1.55	--	37.07	43.50	6.43	
	312.270	20.85	13.45	2.57	--	36.87	46.00	9.13	
	482.990	19.17	17.80	2.94	--	39.91	46.00	6.09	
	556.710	17.69	19.20	3.10	--	39.99	46.00	6.01	
	928.220	19.71	19.30	4.63	--	43.64	46.00	2.36	
	1022.000	46.28	23.79	4.91	38.15	36.83	74.00	37.17	PK
	1099.000	47.39	24.09	4.99	37.98	38.49	74.00	35.51	
	1214.000	45.82	24.60	5.15	37.70	37.87	74.00	36.13	
	1445.000	45.68	25.46	5.61	37.05	39.70	74.00	34.30	
	1636.000	46.04	27.09	5.81	36.61	42.33	74.00	31.67	
	1763.000	50.37	28.69	6.11	36.40	48.77	74.00	25.23	
	AV	1022.000	33.32	23.79	4.91	38.15	23.87	54.00	30.13
		1099.000	34.34	24.09	4.99	37.98	25.44	54.00	28.56
		1214.000	32.71	24.60	5.15	37.70	24.76	54.00	29.24
		1445.000	32.02	25.46	5.61	37.05	26.04	54.00	27.96
1636.000		33.19	27.09	5.81	36.61	29.48	54.00	24.52	
1763.000		37.09	28.69	6.11	36.40	35.49	54.00	18.51	

TEST ENGINEER: NEAL WANG

EUT : LED LCD TV Temperature : 22

Model No. : 32K20D Humidity : 60%RH

Test Mode : HDMI 1280*1024@60Hz Date of Test : Dec 20, 2013

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	62.980	25.12	4.70	0.90	30.72	40.00	9.28
	144.460	23.16	10.30	1.61	35.07	43.50	8.43
	296.750	23.22	12.55	2.52	38.29	46.00	7.71
	446.130	18.94	17.07	2.82	38.83	46.00	7.17
	593.570	17.37	18.50	3.20	39.07	46.00	6.93
	747.800	17.27	18.80	3.58	39.65	46.00	6.35
Vertical	38.730	18.86	13.30	0.76	32.92	40.00	7.08
	144.460	24.24	10.30	1.61	36.15	43.50	7.35
	201.690	24.88	8.07	1.95	34.90	43.50	8.60
	446.130	19.65	17.07	2.82	39.54	46.00	6.46
	480.080	19.37	18.00	2.92	40.29	46.00	5.71
	593.570	19.36	18.50	3.20	41.06	46.00	4.94

TEST ENGINEER: NEAL WANG

EUT : LED LCD TV Temperature : 22

Model No. : 32K20D Humidity : 60%RH

Test Mode : HDMI 640*480@60Hz Date of Test : Dec 20, 2013

Polarization	Frequency (MHz)	Meter Reading dB (μ V)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level dB (μ V/m)	Limits dB (μ V/m)	Margin (dB)
Horizontal	60.070	26.46	4.70	0.89	32.05	40.00	7.95
	76.560	24.32	6.59	1.03	31.94	40.00	8.06
	144.460	24.70	10.30	1.61	36.61	43.50	6.89
	323.910	26.18	14.09	2.58	42.85	46.00	3.15
	431.580	23.36	17.55	2.78	43.69	46.00	2.31
	647.890	19.38	18.40	3.38	41.16	46.00	4.84
Vertical	37.760	17.26	14.13	0.75	32.14	40.00	7.86
	126.030	22.86	11.60	1.51	35.97	43.50	7.53
	132.820	22.99	11.45	1.56	36.00	43.50	7.50
	323.910	24.43	14.09	2.58	41.10	46.00	4.90
	431.580	21.06	17.55	2.78	41.39	46.00	4.61
	479.110	19.35	18.00	2.92	40.27	46.00	5.73

TEST ENGINEER: NEAL WANG

EUT : LED LCD TV Temperature : 22

Model No. : 32K20D Humidity : 60%RH

Test Mode : USB Play Date of Test : Dec 20, 2013

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	59.100	23.71	5.20	0.88	29.79	40.00	10.21
	144.460	22.18	10.30	1.61	34.09	43.50	9.41
	318.090	20.27	13.75	2.58	36.60	46.00	9.40
	508.210	16.56	18.35	3.00	37.91	46.00	8.09
	594.540	15.03	18.50	3.20	36.73	46.00	9.27
	760.410	14.80	18.50	3.59	36.89	46.00	9.11
Vertical	39.700	19.05	12.54	0.77	32.36	40.00	7.64
	127.000	21.45	11.70	1.52	34.67	43.50	8.83
	144.460	22.79	10.30	1.61	34.70	43.50	8.80
	480.080	17.19	18.00	2.92	38.11	46.00	7.89
	592.600	14.85	18.60	3.20	36.65	46.00	9.35
	960.230	13.48	20.10	4.72	38.30	54.00	15.70

TEST ENGINEER: NEAL WANG

5 DEVIATION TO TEST SPECIFICATIONS

None.