

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

LED LCD TV

Model No.	Brand
46K366W	Hisense
46K366WN	

FCC ID : W9HLCDE0012

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

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Report No. : ACI-F13076  
Date of Test : May 28 – Jun 14, 2013  
Date of Report : Jun 20, 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
46K366W	Hisense	120V/60Hz
46K366WN		

Test Procedure Used:

*FCC RULES AND REGULATIONS PART 15 SUBPART B CLASS B OCTOBER 2012  
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 May 28 – 29, 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.F13075, a Verification report.***

Date of Test : May 28 – Jun 14, 2013      Date of Report : Jun 14, 2013

Producer :   
 KATHY WANG / Supervisor

Review :   
 DIO YANG / Assistant Manager

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

Signatory :   
 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
<b>EMISSION</b>			
Conducted Disturbance at the Mains Terminal	FCC RULES AND REGULATIONS PART 15 SUBPART B OCTOBER 2012 AND ANSI C63.4-2003	15.107(a) Class B	Pass
Radiated Disturbance	FCC RULES AND REGULATIONS PART 15 SUBPART B OCTOBER 2012 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.	:	46K366W, 46K366WN
Brand Name	:	Hisense
Note	:	The above models are all the same except for the different model name. The 46K366W was tested and reported in the report.
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 : HE460GF-B51\PW1
Max Resolution	:	1920*1080@60Hz
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 DIGITAL AUDIO OUT Port  
: Connected with DVD PLAYER #1
- (2) One LAN Port  
: Connected with PC
- (3) One HDMI3/ARC Port  
: Connected with DVD PLAYER #2
- (4) One HDMI2 Port  
: Connected with PC
- (5) One component of Audio/YPbPr Audio Port  
: Connected with DVD PLAYER #1
- (6) One component of Video/YPbPr Port  
: Connected with DVD PLAYER #1

**Side Port:**

- (1) One ANT/CABLE IN Port  
: Connected with Antenna or ATSC SG / TV SG
- (2) One VGA Port  
: Connected with PC
- (3) One PC/DVI Audio In Port  
: Connected with PC
- (4) One HDMI1 Port  
: Connected with DVD PLAYER #1
- (7) One USB Port  
: Connected with U-Disk
- (8) One USB Port  
: Connected with U-Disk
- (9) One Audio Out Port  
: Connected with Earphone

**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; UL  
 BSMI (R33001) 3C (A000111)  
 MIC (E-A011-04-2659(B))

**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 : 1406  
Serial Number : 0200702302609  
Data Cable : Shielded, undetachable ,1.8m  
Certificate : CE/EMC, FCC DoC, VCCI, MIC, C-Tick,  
BSMI

## 2.2.4 Mouse

Manufacturer : Microsoft  
Model Number : 1405  
Serial Number : 0204603562213  
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 #1

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

## 2.2.9 DVD PLAYER #2

Manufacturer : LG  
Model Number : DF9921N  
Serial Number : 3850R-M846W  
Certificate : FCC DoC, CE/EMC, CCC

## 2.2.10 Earphone

Manufacturer : SONY  
Model Number : MDR-E808  
Serial Number : 1808030805305506

### 2.2.11 U-DISK\*2

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 = 3.42 dB

Radiated Emission Expanded Uncertainty (30-200MHz):  
U = 4.14 dB (Horizontal)  
U = 4.28 dB (Vertical)

Radiated Emission Expanded Uncertainty (200M-1GHz):  
U = 4.18 dB (Horizontal)  
U = 4.26 dB (Vertical)



### 3 CONDUCTED EMISSION TEST

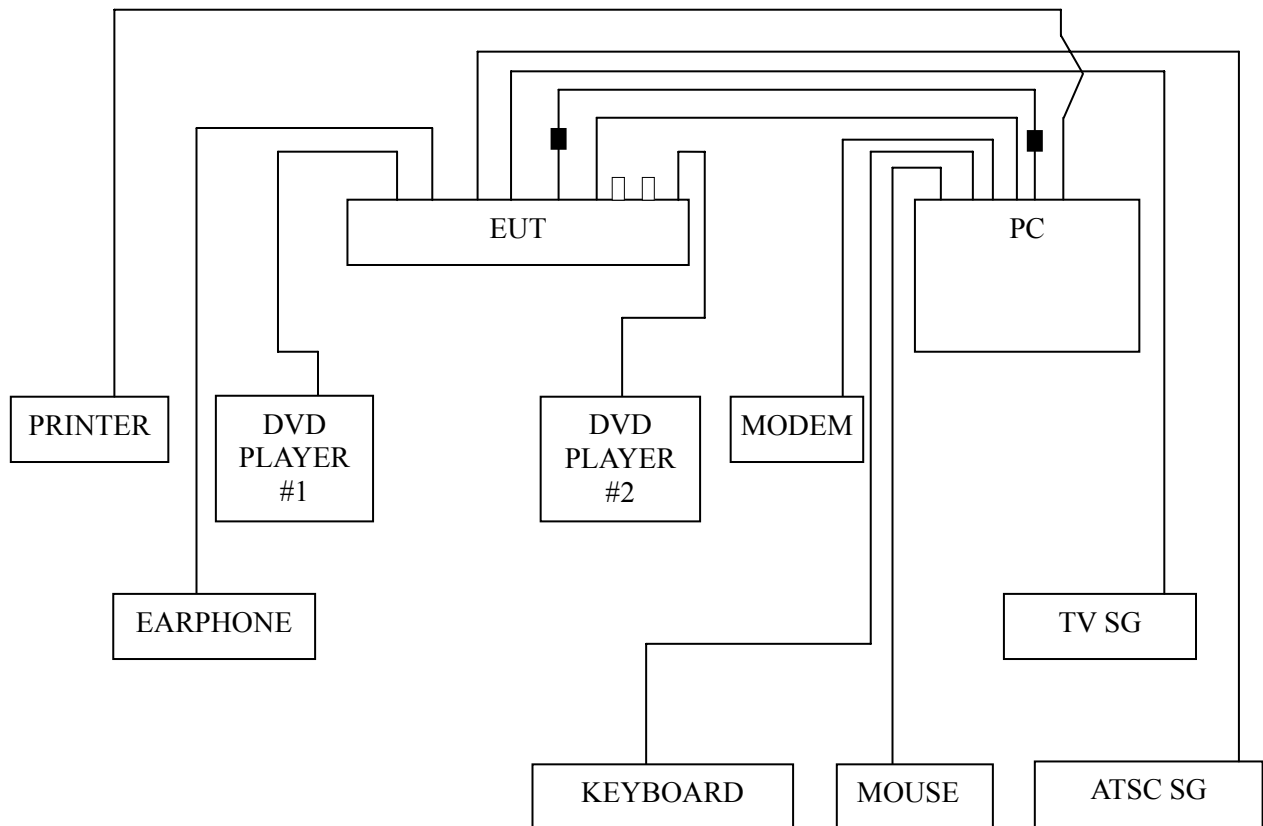
#### 3.1 Test Equipment

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 20, 2014
2.	Artificial Mains Network (AMN)	R&S	ESH2-Z5	843890/011	Feb 25, 2013	Feb 25, 2014
3.	Line Impedance Stabilization Network (LISN)	Kyoritsu	KNW-407	8-1280-4	Mar 20, 2013	Mar 20, 2014
4.	50 $\Omega$ Coaxial Switch	Anritsu	MP59B	6200426389	Mar 18, 2013	Sep 18, 2013
5.	50 $\Omega$ Terminator	Anritsu	BNC	001	Mar 20, 2013	Mar 20, 2014
6.	Software	Audix	E3	SET00200 9804M592	--	--

#### 3.2 Block Diagram of Test Setup

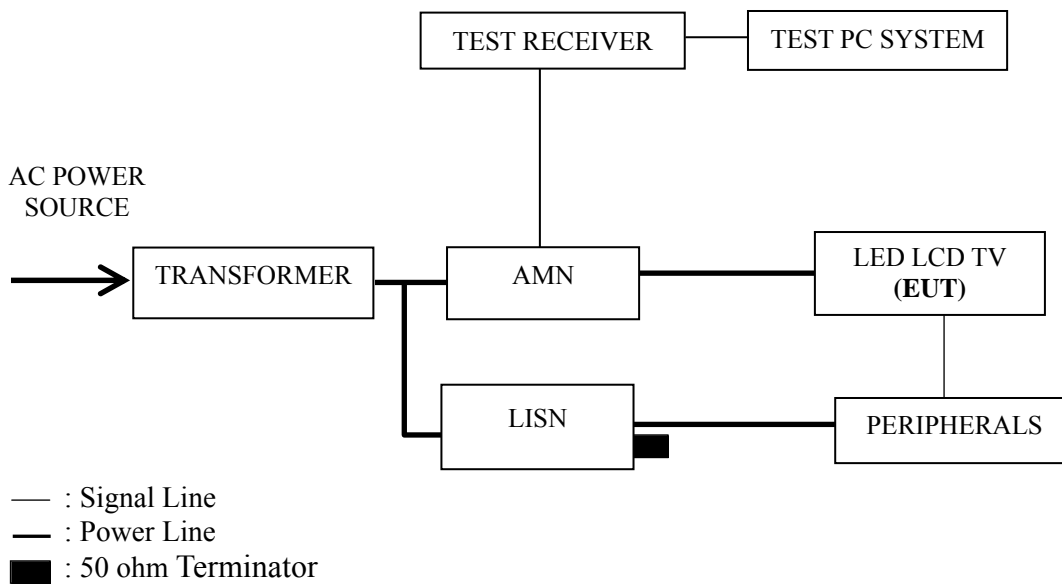
##### 3.2.1 EUT & Peripherals



■ : Ferrite core

□ : 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 ( $\mu$ 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 D-Sub & HDMI Input).

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

3.5.6 In LAN mode, set the EUT play digital media through LAN port.

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

3.5.8 The test modes are as follows:

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

### 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 1920*1080@60Hz	P13
HDMI 1920*1080@60Hz	P14
HDMI 1024*768@60Hz	P15
HDMI 640*480@60Hz	P16
USB Play	P17
LAN	P18

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 HDMI 1080p mode was tested and recorded in a FCC Verification test report (No. F13075).

NOTE 5 – The worst case is for HDMI 1920\*1080@60Hz test mode. The worst emission is detected at 0.621 MHz (Quasi-Peak Value) with corrected signal level of 43.51 dB ( $\mu$ V) (limit is 56.00 dB ( $\mu$ V)), when the Neutral of the EUT is connected to AMN.

EUT : LED LCD TV Temperature : 22°C  
 Model No. : 46K366W Humidity : 48%RH  
 Test Mode : D-Sub 1920\*1080@60Hz Date of Test : Jun 20, 2013

Test Line	Frequency (MHz)	Meter Reading dB( $\mu$ V)	Factor (dB)	Emission Level dB( $\mu$ V)	Limits dB( $\mu$ V)	Margin (dB)	Remark
Line	0.169	45.33	0.24	45.57	64.99	19.42	QP
	0.614	42.32	0.22	42.54	56.00	13.46	
	1.610	38.57	0.37	38.94	56.00	17.06	
	2.650	37.60	0.40	38.00	56.00	18.00	
	6.186	36.73	0.59	37.32	60.00	22.68	
	11.317	33.08	0.75	33.83	60.00	26.17	
	0.169	33.95	0.24	34.19	54.99	20.80	AV
	0.614	31.09	0.22	31.31	46.00	14.69	
	1.610	28.27	0.37	28.64	46.00	17.36	
	2.650	26.15	0.40	26.55	46.00	19.45	
	6.186	27.16	0.59	27.75	50.00	22.25	
	11.317	21.98	0.75	22.73	50.00	27.27	
Neutral	0.170	44.75	0.12	44.87	64.94	20.07	QP
	<b>0.621</b>	<b>42.50</b>	<b>0.19</b>	<b>42.69</b>	<b>56.00</b>	<b>13.31</b>	
	1.602	38.91	0.17	39.08	56.00	16.92	
	3.025	37.92	0.24	38.16	56.00	17.84	
	7.252	35.56	0.59	36.15	60.00	23.85	
	12.784	33.85	0.66	34.51	60.00	25.49	
	0.170	34.27	0.12	34.39	54.94	20.55	AV
	0.621	31.08	0.19	31.27	46.00	14.73	
	1.602	29.57	0.17	29.74	46.00	16.26	
	3.025	27.43	0.24	27.67	46.00	18.33	
	7.252	23.90	0.59	24.49	50.00	25.51	
	12.784	22.80	0.66	23.46	50.00	26.54	

TEST ENGINEER: VEIGAR ZHOU

EUT : LED LCD TV Temperature : 22°C  
 Model No. : 46K366W Humidity : 48%RH  
 Test Mode : HDMI 1920\*1080@60Hz Date of Test : Jun 20, 2013

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.172	44.06	0.24	44.30	64.86	20.56	QP
	0.614	42.09	0.22	42.31	56.00	13.69	
	1.970	38.21	0.39	38.60	56.00	17.40	
	2.650	37.24	0.40	37.64	56.00	18.36	
	5.929	37.50	0.57	38.07	60.00	21.93	
	12.920	34.28	0.81	35.09	60.00	24.91	
	AV	0.172	32.09	0.24	32.33	54.86	22.53
		0.614	30.97	0.22	31.19	46.00	14.81
		1.970	27.50	0.39	27.89	46.00	18.11
		2.650	26.59	0.40	26.99	46.00	19.01
		5.929	26.13	0.57	26.70	50.00	23.30
		12.920	22.88	0.81	23.69	50.00	26.31
Neutral	0.166	46.89	0.13	47.02	65.16	18.14	QP
	<b>0.621</b>	<b>43.32</b>	<b>0.19</b>	<b>43.51</b>	<b>56.00</b>	<b>12.49</b>	
	0.899	38.85	0.22	39.07	56.00	16.93	
	2.678	37.14	0.20	37.34	56.00	18.66	
	3.720	37.98	0.38	38.36	56.00	17.64	
	14.517	33.50	0.72	34.22	60.00	25.78	
	AV	0.166	36.15	0.13	36.28	55.16	18.88
		0.621	32.00	0.19	32.19	46.00	13.81
		0.899	29.00	0.22	29.22	46.00	16.78
		2.678	26.45	0.20	26.65	46.00	19.35
		3.720	25.23	0.38	25.61	46.00	20.39
		14.517	22.59	0.72	23.31	50.00	26.69

TEST ENGINEER: VEIGAR ZHOU

EUT : LED LCD TV Temperature : 22°C

Model No. : 46K366W Humidity : 48%RH

Test Mode : HDMI 1024\*768@60Hz Date of Test : May 29, 2013

Test Line	Frequency (MHz)	Meter Reading dB( $\mu$ V)	Factor (dB)	Emission Level dB( $\mu$ V)	Limits dB( $\mu$ V)	Margin (dB)	Remark
Line	0.169	45.07	0.24	45.31	64.99	19.68	QP
	0.621	42.15	0.22	42.37	56.00	13.63	
	1.970	38.48	0.39	38.87	56.00	17.13	
	2.678	37.91	0.40	38.31	56.00	17.69	
	7.252	35.27	0.66	35.93	60.00	24.07	
	12.920	34.28	0.81	35.09	60.00	24.91	
	AV	0.169	33.89	0.24	34.13	54.99	20.86
		0.621	31.39	0.22	31.61	46.00	14.39
		1.970	27.15	0.39	27.54	46.00	18.46
		2.678	26.39	0.40	26.79	46.00	19.21
		7.252	23.73	0.66	24.39	50.00	25.61
		12.920	22.88	0.81	23.69	50.00	26.31
Neutral	0.170	44.75	0.12	44.87	64.94	20.07	QP
	<b>0.614</b>	<b>42.39</b>	<b>0.19</b>	<b>42.58</b>	<b>56.00</b>	<b>13.42</b>	
	1.610	39.13	0.17	39.30	56.00	16.70	
	2.650	38.08	0.20	38.28	56.00	17.72	
	5.929	36.09	0.49	36.58	60.00	23.42	
	14.364	33.96	0.72	34.68	60.00	25.32	
	AV	0.170	34.27	0.12	34.39	54.94	20.55
		0.614	31.12	0.19	31.31	46.00	14.69
		1.610	28.47	0.17	28.64	46.00	17.36
		2.650	27.36	0.20	27.56	46.00	18.44
		5.929	25.32	0.49	25.81	50.00	24.19
		14.364	22.78	0.72	23.50	50.00	26.50

TEST ENGINEER: VEIGAR ZHOU

EUT : LED LCD TV Temperature : 22°C

Model No. : 46K366W Humidity : 48%RH

Test Mode : HDMI 640\*480@60Hz Date of Test : May 29, 2013

Test Line	Frequency (MHz)	Meter Reading dB( $\mu$ V)	Factor (dB)	Emission Level dB( $\mu$ V)	Limits dB( $\mu$ V)	Margin (dB)	Remark
Line	0.169	45.99	0.24	46.23	64.99	18.76	QP
	<b>0.621</b>	<b>43.28</b>	<b>0.22</b>	<b>43.50</b>	<b>56.00</b>	<b>12.50</b>	
	1.610	38.57	0.37	38.94	56.00	17.06	
	1.970	37.70	0.39	38.09	56.00	17.91	
	6.186	36.73	0.59	37.32	60.00	22.68	
	12.988	37.20	0.82	38.02	60.00	21.98	
	AV	0.169	36.04	0.24	36.28	54.99	18.71
		0.621	33.08	0.22	33.30	46.00	12.70
		1.610	28.27	0.37	28.64	46.00	17.36
		1.970	27.22	0.39	27.61	46.00	18.39
		6.186	27.16	0.59	27.75	50.00	22.25
		12.988	26.67	0.82	27.49	50.00	22.51
Neutral	0.168	44.93	0.13	45.06	65.08	20.02	QP
	0.621	42.50	0.19	42.69	56.00	13.31	
	1.602	38.91	0.17	39.08	56.00	16.92	
	2.650	38.05	0.20	38.25	56.00	17.75	
	7.252	35.56	0.59	36.15	60.00	23.85	
	13.127	33.79	0.69	34.48	60.00	25.52	
	AV	0.168	35.56	0.13	35.69	55.08	19.39
		0.621	31.08	0.19	31.27	46.00	14.73
		1.602	29.57	0.17	29.74	46.00	16.26
		2.650	27.40	0.20	27.60	46.00	18.40
		7.252	23.90	0.59	24.49	50.00	25.51
		13.127	22.91	0.69	23.60	50.00	26.40

TEST ENGINEER: VEIGAR ZHOU



EUT : LED LCD TV Temperature : 22°C

Model No. : 46K366W Humidity : 48%RH

Test Mode : USB Play Date of Test : May 29, 2013

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.169	46.08	0.24	46.32	64.99	18.67	QP
	0.614	42.37	0.22	42.59	56.00	13.41	
	1.602	39.26	0.37	39.63	56.00	16.37	
	2.650	37.24	0.40	37.64	56.00	18.36	
	5.867	36.16	0.56	36.72	60.00	23.28	
	11.317	33.08	0.75	33.83	60.00	26.17	
	0.169	34.66	0.24	34.90	54.99	20.09	AV
	0.614	31.05	0.22	31.27	46.00	14.73	
	1.602	26.27	0.37	26.64	46.00	19.36	
	2.650	26.59	0.40	26.99	46.00	19.01	
	5.867	24.87	0.56	25.43	50.00	24.57	
	11.317	21.98	0.75	22.73	50.00	27.27	
Neutral	0.168	45.20	0.13	45.33	65.08	19.75	QP
	<b>0.614</b>	<b>42.58</b>	<b>0.19</b>	<b>42.77</b>	<b>56.00</b>	<b>13.23</b>	
	1.602	39.21	0.17	39.38	56.00	16.62	
	4.874	36.99	0.42	37.41	56.00	18.59	
	6.252	35.21	0.53	35.74	60.00	24.26	
	12.384	35.20	0.62	35.82	60.00	24.18	
	0.168	34.05	0.13	34.18	55.08	20.90	AV
	0.614	31.05	0.19	31.24	46.00	14.76	
	1.602	29.49	0.17	29.66	46.00	16.34	
	4.874	26.31	0.42	26.73	46.00	19.27	
	6.252	24.27	0.53	24.80	50.00	25.20	
	12.384	24.15	0.62	24.77	50.00	25.23	

TEST ENGINEER: VEIGAR ZHOU

EUT : LED LCD TV Temperature : 22°C

Model No. : 46K366W Humidity : 48%RH

Test Mode : LAN Date of Test : May 29, 2013

Test Line	Frequency (MHz)	Meter Reading dB( $\mu$ V)	Factor (dB)	Emission Level dB( $\mu$ V)	Limits dB( $\mu$ V)	Margin (dB)	Remark
Line	0.168	46.22	0.24	46.46	65.08	18.62	QP
	<b>0.614</b>	<b>42.54</b>	<b>0.22</b>	<b>42.76</b>	<b>56.00</b>	<b>13.24</b>	
	1.949	38.28	0.39	38.67	56.00	17.33	
	2.707	37.14	0.40	37.54	56.00	18.46	
	5.929	36.71	0.57	37.28	60.00	22.72	
	12.384	33.51	0.79	34.30	60.00	25.70	
	AV	0.168	34.44	0.24	34.68	55.08	20.40
		0.614	31.72	0.22	31.94	46.00	14.06
		1.949	28.10	0.39	28.49	46.00	17.51
		2.707	24.56	0.40	24.96	46.00	21.04
		5.929	25.68	0.57	26.25	50.00	23.75
		12.384	20.98	0.79	21.77	50.00	28.23
Neutral	0.166	44.31	0.13	44.44	65.16	20.72	QP
	0.614	42.48	0.19	42.67	56.00	13.33	
	1.602	39.33	0.17	39.50	56.00	16.50	
	3.025	37.92	0.24	38.16	56.00	17.84	
	5.929	35.93	0.49	36.42	60.00	23.58	
	12.384	34.12	0.62	34.74	60.00	25.26	
	AV	0.166	32.15	0.13	32.28	55.16	22.88
		0.614	31.26	0.19	31.45	46.00	14.55
		1.602	28.39	0.17	28.56	46.00	17.44
		3.025	27.43	0.24	27.67	46.00	18.33
		5.929	26.77	0.49	27.26	50.00	22.74
		12.384	22.95	0.62	23.57	50.00	26.43

TEST ENGINEER: VEIGAR ZHOU

## 4 RADIATED EMISSION TEST

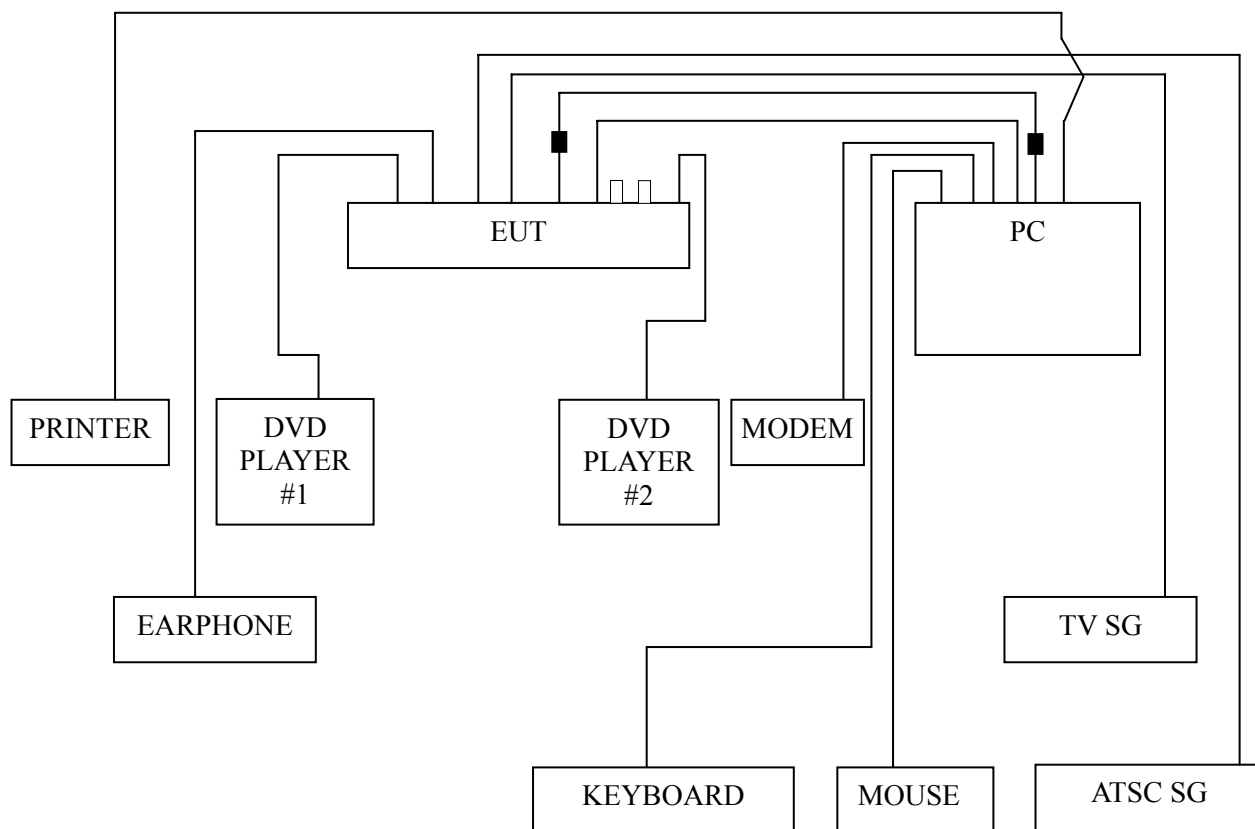
### 4.1 Test Equipment

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 11, 2012	Sep 11, 2013
2.	Preamplifier	Agilent	8447D	2944A10548	Mar 18, 2013	Sep 18, 2013
3.	Preamplifier	HP	8449B	3008A00864	Mar 20, 2013	Mar 20, 2014
4.	Bi-log Antenna	TESEQ	CBL6112D	23192	Nov 29, 2012	Nov 29, 2013
5.	Horn Antenna	EMCO	3115	9607-4878	May 11, 2013	May 11, 2014
6.	Spectrum	Agilent	E7405A	MY45106600	Dec 17, 2012	Dec 17, 2013
7.	50Ω Coaxial Switch	Anritsu	MP59B	6200426390	Mar 18, 2013	Sep 18, 2013
8.	Software	Audix	E3	SET00200 9912M295-2	--	--

### 4.2 Block Diagram of Test Setup

#### 4.2.1 EUT and Peripherals

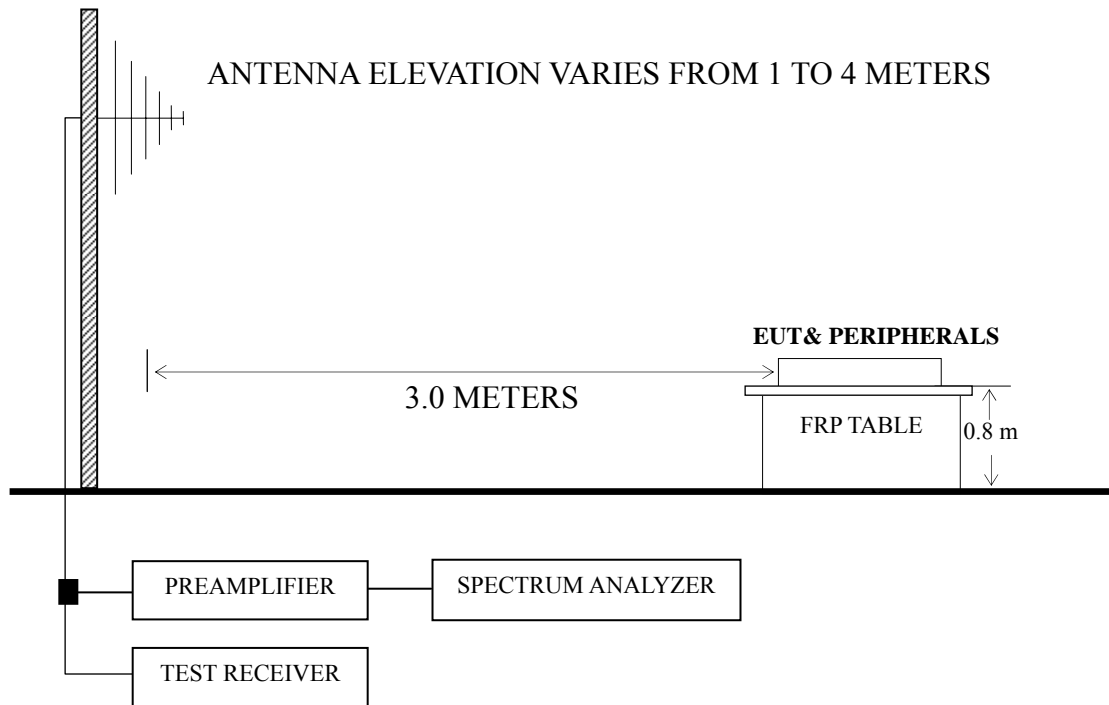


■ : Ferrite core

□ : U-Disk

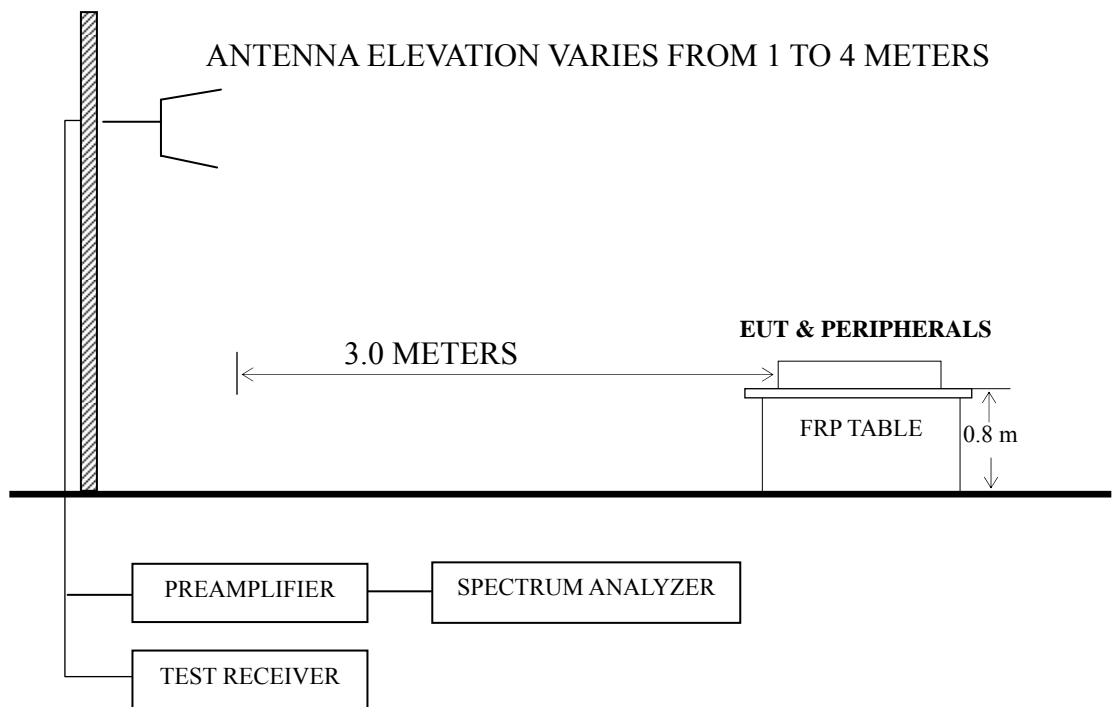
### 4.2.2 Radiated emission test setup

#### 4.2.2.1 Below 1GHz



■ : 50 ohm Coaxial Switch

#### 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 below 1GHz and The Spectrum Agilent E7405A was set at 1MHz above 1GHz.

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 worst test mode in 30 - 1000 MHz test.

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 1920*1080@60Hz	P23 – P24
HDMI 1920*1080@60Hz	P25
D-Sub 1024*768@60Hz	P26
D-Sub 640*480@60Hz	P27
USB Play	P28
LAN	P29

NOTE 1 – Emission Level = Antenna Factor + Cable Loss + Meter Reading.

NOTE 2 – All readings are Quasi-Peak values.

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

NOTE 4 – The HDMI 1080p mode was tested and recorded in a FCC Verification test report (No. F13075).

NOTE 5 – The worst case is for D-Sub 1024\*768@60Hz test mode. The worst emission at horizontal polarization was detected at 699.000MHz with corrected signal level of 44.24 dB ( $\mu\text{V}/\text{m}$ ) (limit is 46.00 dB ( $\mu\text{V}/\text{m}$ )), when the antenna was 2.00 m height and the turntable was at 240°. The worst emission at vertical polarization was detected at 120.000 MHz with corrected signal level of 38.28 dB ( $\mu\text{V}/\text{m}$ ) (limit is 47.50 dB ( $\mu\text{V}/\text{m}$ )), when the antenna was 1.00 m height and the turntable was at 73°.

EUT : LED LCD TV Temperature : 22°C  
 Model No. : 46K366W Humidity : 60%RH  
 Test Mode : D-Sub 1920\*1080@60Hz Date of Test : Jun 14, 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
Horizontal	70.740	23.42	6.30	0.94	--	30.66	40.00	9.34	QP
	136.700	24.13	10.89	1.58	--	36.60	43.50	6.90	
	163.860	26.26	9.28	1.73	--	37.27	43.50	6.23	
	269.590	18.52	12.70	2.32	--	33.54	46.00	12.46	
	378.230	24.34	14.77	2.66	--	41.77	46.00	4.23	
	<b>700.270</b>	<b>18.90</b>	<b>20.10</b>	<b>3.54</b>	--	<b>42.54</b>	<b>46.00</b>	<b>3.46</b>	
	1011.000	48.38	23.74	4.91	38.18	38.85	74.00	35.15	PK
	1088.000	48.03	24.03	4.99	38.00	39.05	74.00	34.95	
	1248.000	46.10	24.77	5.25	37.62	38.50	74.00	35.50	
	1444.000	45.76	25.46	5.61	37.05	39.78	74.00	34.22	
	1650.000	48.02	27.25	5.81	36.58	44.50	74.00	29.50	
	1802.000	46.84	29.17	6.15	36.34	45.82	74.00	28.18	
	1011.000	35.11	23.74	4.91	38.18	25.58	54.00	28.42	AV
	1088.000	35.47	24.03	4.99	38.00	26.49	54.00	27.51	
	1248.000	34.63	24.77	5.25	37.62	27.03	54.00	26.97	
	1444.000	32.19	25.46	5.61	37.05	26.21	54.00	27.79	
	1650.000	35.37	27.25	5.81	36.58	31.85	54.00	22.15	
	1802.000	33.33	29.17	6.15	36.34	32.31	54.00	21.69	

TEST ENGINEER: RAVEN JIN

EUT : LED LCD TV Temperature : 22°C

Model No. : 46K366W Humidity : 60%RH

Test Mode : D-Sub 1920\*1080@60Hz Date of Test : Jun 14, 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	54.250	23.54	6.74	0.87	--	31.15	40.00	8.85	QP
	69.770	28.71	6.15	0.92	--	35.78	40.00	4.22	
	120.210	25.04	12.04	1.48	--	38.56	43.50	4.94	
	<b>377.993</b>	<b>26.00</b>	<b>14.77</b>	<b>2.66</b>	--	<b>43.43</b>	<b>46.00</b>	<b>2.57</b>	
	446.130	18.63	16.57	2.82	--	38.02	46.00	7.98	
	593.570	13.76	18.35	3.20	--	35.31	46.00	10.69	
	1020.000	46.72	23.78	4.91	38.16	37.25	74.00	36.75	PK
	1086.000	46.75	24.03	4.98	38.01	37.75	74.00	36.25	
	1193.000	45.41	24.50	5.10	37.76	37.25	74.00	36.75	
	1459.000	45.43	25.50	5.62	37.01	39.54	74.00	34.46	
	1768.000	47.05	28.75	6.11	36.39	45.52	74.00	28.48	
	1936.000	45.07	30.49	6.18	36.17	45.57	74.00	28.43	
	AV	1020.000	33.23	23.78	4.91	38.16	23.76	54.00	30.24
		1086.000	33.54	24.03	4.98	38.01	24.54	54.00	29.46
		1193.000	32.60	24.50	5.10	37.76	24.44	54.00	29.56
		1459.000	32.67	25.50	5.62	37.01	26.78	54.00	27.22
1768.000		34.10	28.75	6.11	36.39	32.57	54.00	21.43	
1936.000		32.61	30.49	6.18	36.17	33.11	54.00	20.89	

TEST ENGINEER: RAVEN JIN



EUT : LED LCD TV Temperature : 22°C

Model No. : 46K366W Humidity : 60%RH

Test Mode : HDMI 1920\*1080@60Hz Date of Test : Jun 14, 2013

Polarization	Frequency (MHz)	Meter Reading dB ( $\mu$ V)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level dB ( $\mu$ V/m)	Limits dB ( $\mu$ V/m)	Margin (dB)
Horizontal	70.740	20.42	6.30	0.94	27.66	40.00	12.34
	136.700	21.13	10.89	1.58	33.60	43.50	9.90
	163.860	23.26	9.28	1.73	34.27	43.50	9.23
	359.800	14.54	15.30	2.63	32.47	46.00	13.53
	378.230	21.34	14.77	2.66	38.77	46.00	7.23
	<b>700.270</b>	<b>15.90</b>	<b>20.10</b>	<b>3.54</b>	<b>39.54</b>	<b>46.00</b>	<b>6.46</b>
Vertical	120.210	23.04	12.04	1.48	36.56	43.50	6.94
	151.250	24.25	10.33	1.65	36.23	43.50	7.27
	296.750	15.45	12.60	2.52	30.57	46.00	15.43
	<b>378.230</b>	<b>22.74</b>	<b>14.77</b>	<b>2.66</b>	<b>40.17</b>	<b>46.00</b>	<b>5.83</b>
	446.130	14.63	16.57	2.82	34.02	46.00	11.98
	704.150	8.01	19.97	3.55	31.53	46.00	14.47

TEST ENGINEER: RAVEN JIN

EUT : LED LCD TV Temperature : 22°C  
 Model No. : 46K366W Humidity : 60%RH  
 Test Mode : D-Sub 1024\*768@60Hz Date of Test : May 28, 2013

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	85.290	22.02	7.46	1.15	30.63	40.00	9.37
	157.070	28.53	9.60	1.68	39.81	43.50	3.69
	292.870	16.81	12.67	2.49	31.97	46.00	14.03
	350.100	16.54	14.80	2.62	33.96	46.00	12.04
	524.700	10.22	18.33	3.03	31.58	46.00	14.42
	<b>699.000</b>	<b>20.40</b>	<b>20.30</b>	<b>3.54</b>	<b>44.24</b>	<b>46.00</b>	<b>1.76</b>
Vertical	34.850	17.37	15.85	0.71	33.93	40.00	6.07
	51.340	24.93	7.20	0.86	32.99	40.00	7.01
	81.410	23.86	6.97	1.10	31.93	40.00	8.07
	<b>120.000</b>	<b>25.40</b>	<b>11.40</b>	<b>1.48</b>	<b>38.28</b>	<b>43.50</b>	<b>5.22</b>
	263.770	14.27	12.90	2.30	29.47	46.00	16.53
	444.190	13.27	17.15	2.82	33.24	46.00	12.76

TEST ENGINEER: RAVEN JIN

EUT : LED LCD TV Temperature : 22°C

Model No. : 46K366W Humidity : 60%RH

Test Mode : D-Sub 640\*480@60Hz Date of Test : May 28, 2013

Polarization	Frequency (MHz)	Meter Reading dB ( $\mu$ V)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level dB ( $\mu$ V/m)	Limits dB ( $\mu$ V/m)	Margin (dB)
Horizontal	85.290	17.18	7.46	1.15	25.79	40.00	14.21
	118.270	17.15	11.46	1.47	30.08	43.50	13.42
	256.980	11.71	12.30	2.25	26.26	46.00	19.74
	295.780	14.14	12.58	2.52	29.24	46.00	16.76
	528.580	10.15	18.38	3.05	31.58	46.00	14.42
	<b>597.450</b>	<b>13.68</b>	<b>18.40</b>	<b>3.20</b>	<b>35.28</b>	<b>46.00</b>	<b>10.72</b>
Vertical	<b>32.910</b>	<b>13.99</b>	<b>16.30</b>	<b>0.69</b>	<b>30.98</b>	<b>40.00</b>	<b>9.02</b>
	51.340	22.77	7.20	0.86	30.83	40.00	9.17
	84.320	20.48	7.32	1.13	28.93	40.00	11.07
	113.420	16.46	11.67	1.43	29.56	43.50	13.94
	138.640	17.41	10.51	1.59	29.51	43.50	13.99
	373.380	13.41	14.90	2.66	30.97	46.00	15.03

TEST ENGINEER: RAVEN JIN

EUT : LED LCD TV Temperature : 22°C

Model No. : 46K366W Humidity : 60%RH

Test Mode : USB Play Date of Test : May 28, 2013

Polarization	Frequency (MHz)	Meter Reading dB ( $\mu$ V)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level dB ( $\mu$ V/m)	Limits dB ( $\mu$ V/m)	Margin (dB)
Horizontal	72.680	21.80	6.20	0.97	28.97	40.00	11.03
	97.900	17.35	10.01	1.32	28.68	43.50	14.82
	127.000	17.53	11.70	1.52	30.75	43.50	12.75
	<b>152.220</b>	<b>23.85</b>	<b>9.85</b>	<b>1.65</b>	<b>35.35</b>	<b>43.50</b>	<b>8.15</b>
	289.960	11.09	12.90	2.46	26.45	46.00	19.55
	399.570	4.46	16.20	2.69	23.35	46.00	22.65
Vertical	55.220	21.47	6.08	0.87	28.42	40.00	11.58
	71.710	20.14	6.02	0.95	27.11	40.00	12.89
	89.170	18.58	8.03	1.20	27.81	43.50	15.69
	109.540	12.82	11.84	1.40	26.06	43.50	17.44
	218.180	15.49	7.95	2.04	25.48	46.00	20.52
	<b>352.040</b>	<b>17.57</b>	<b>14.83</b>	<b>2.63</b>	<b>35.03</b>	<b>46.00</b>	<b>10.97</b>

TEST ENGINEER: RAVEN JIN

EUT : LED LCD TV Temperature : 22°C

Model No. : 46K366W Humidity : 60%RH

Test Mode : LAN Date of Test : May 28, 2013

Polarization	Frequency (MHz)	Meter Reading dB ( $\mu$ V)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level dB ( $\mu$ V/m)	Limits dB ( $\mu$ V/m)	Margin (dB)
Horizontal	72.680	15.83	6.20	0.97	23.00	40.00	17.00
	122.150	18.01	11.44	1.49	30.94	43.50	12.56
	<b>145.430</b>	<b>19.65</b>	<b>10.28</b>	<b>1.62</b>	<b>31.55</b>	<b>43.50</b>	<b>11.95</b>
	256.010	14.69	12.30	2.25	29.24	46.00	16.76
	302.570	12.87	12.70	2.55	28.12	46.00	17.88
	448.070	7.37	16.98	2.82	27.17	46.00	18.83
Vertical	<b>30.970</b>	<b>8.73</b>	<b>17.65</b>	<b>0.67</b>	<b>27.05</b>	<b>40.00</b>	<b>12.95</b>
	81.410	17.04	6.97	1.10	25.11	40.00	14.89
	139.610	15.53	10.37	1.59	27.49	43.50	16.01
	177.440	15.45	8.26	1.83	25.54	43.50	17.96
	632.370	3.75	18.42	3.32	25.49	46.00	20.51
	676.990	5.83	19.20	3.48	28.51	46.00	17.49

TEST ENGINEER: RAVEN JIN

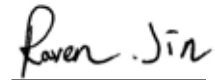
## 5 DEBUG DESCRIPTION

The following components are used during the countermeasure procedures:

Name	M/N	Manufacturer	Location
Gasket	JAL-10-8-130-CR	QINGDAO JOINSET S&T CO.,LTD	See Internal Photos Figure 18
Gasket	35X0.7X41mm\VGA	Qingdao Joinset S&T Co., Ltd.	See Internal Photos Figure 19
		Shenzhen TAT 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:



(RAVEN JIN)

## **6 DEVIATION TO TEST SPECIFICATIONS**

None.