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

LED LCD TV

Model No.	Brand
LTDN42K610XWUS3D	Hisense
42K611W	

FCC ID : W9HLCDD0027

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-F13045
Date of Test : Feb 18 – Mar 01, 2013
Date of Report : Mar 29, 2013

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TEST REPORT FOR FCC CERTIFICATE

Applicant : Hisense Electric Co., Ltd.

Manufacturer : Hisense Electric Co., Ltd.

Factory : Hisense Electric Co., Ltd.

EUT Description : LED LCD TV

Model No.	Brand	Power Supply
LTDN42K610XWUS3D	Hisense	120V/60Hz
42K611W		

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 Feb 18 – Mar 01, 2013 is in 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.F13046, a Verification report.

Date of Test : Feb 18 – Mar 01, 2013 Date of Report : Mar 29, 2013

Producer : Kathy Wang
KATHY WANG / Supervisor

Review : Wency Yang
WENCY YANG / Supervisor

AUDIX® 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 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	:	☐ Production ☑ Pre-product ☐ Pro-type
Model No.	:	LTDN42K610XWUS3D, 42K611W
Bread Name	:	Hisense
Note	:	The above models are all the same except for the different model name. The LTDN42K610XWUS3D 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	:	Hisense Electric Co., Ltd. No.218 Qianwangang Road, Economy & Technology Development Zone, Qingdao, China
LCD Panel	:	Manufacturer : Hisense M/N : HE420HFD-B01\PW2
Max Resolution	:	1024*768@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:

Side Port:
(1) One Headphone Port
: Connected with Earphone
(2) One HDMI1 Port
: Connected with PC
(3) One HDMI2 Port
: Connected with DVD Player #1
(4) One USB Port
: Connected with U-Disk
(5) One USB Port
: Connected with U-Disk
(6) One ANT Port
: Connected with ATSC SG / TV SG
(7) One AV IN Port
: Connected with DVD Player #1
(8) One COMP IN Port
: Connected with DVD Player #1

Bottom Port:
(1) One HDMI3 Port
: Connected with DVD Player #2
(2) One HDMI4 Port
: Connected with DVD Player #3
(3) One VGA Port
: Connected with PC
(4) One PC AUDIO Port
: Connected with PC
(5) One USB Port
: Connected with U-Disk
(6) One IR BLASTER Port
: Connected with IR BLASTER
(7) One LAN Port
: Connected with PC
(8) One Digital Audio Out Port
: Connected with DVD Player #1

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

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 #1

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

2.2.10 DVD PLAYER #2

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

2.2.11 DVD PLAYER #3

Manufacturer	:	DGT RONIK
Model Number	:	DV-A340
Serial Number	:	10004184-C
Certificate	:	FCC DoC, CE/EMC, CCC

2.2.12 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 = 3.42 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

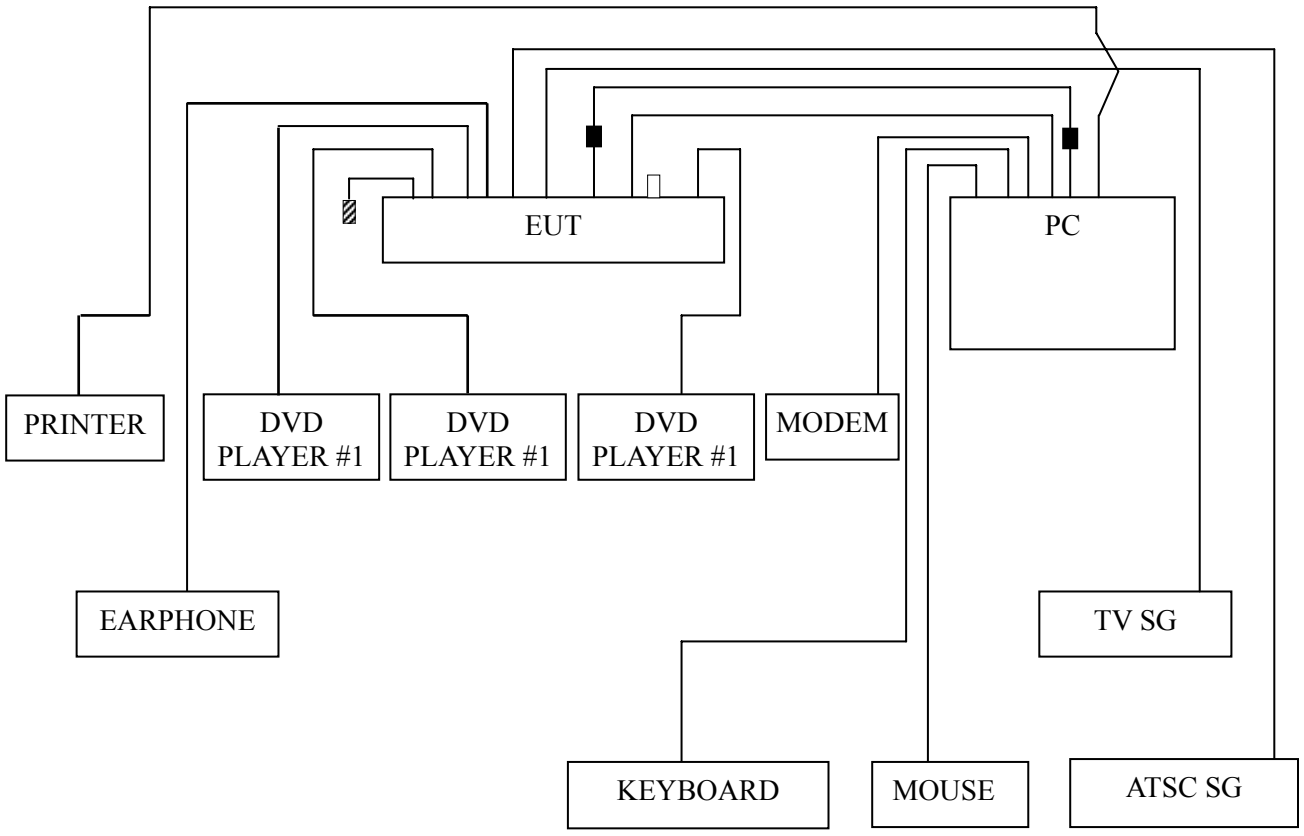
3.1 Test Equipment

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 22, 2013	Mar 22, 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 Ω Coaxial Switch	Anritsu	MP59B	6200426389	Mar 18, 2013	Sep 18, 2013
5.	50Ω 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

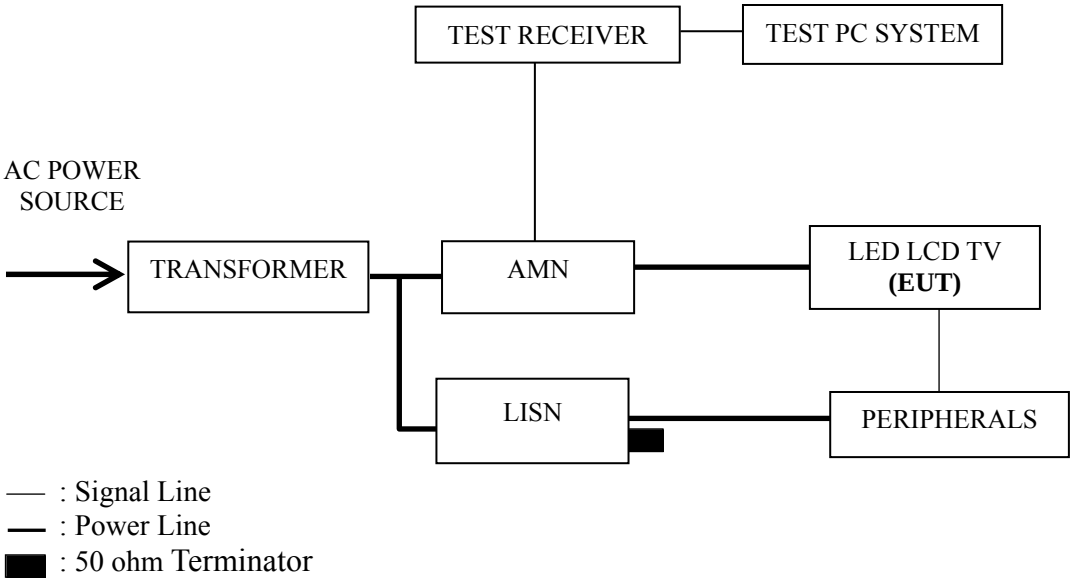


■ : Ferrite core

▯ : U-Disk

▨ : IR BLASTER

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 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 1024*768@60Hz
HDMI 1024*768@60Hz
D-Sub 800*600@60Hz
D-Sub 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 1024*768@60Hz	P13
HDMI 1024*768@60Hz	P14
D-Sub 800*600@60Hz	P15
D-Sub 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 worst case is for D-Sub 1024*768@60Hz test mode. The worst emission is detected at 6.121 MHz (Quasi-Peak Value) with corrected signal level of 39.31 dB (μV) (limit is 60.00 dB (μV)), when the Line of the EUT is connected to AMN.

EUT	:	LED LCD TV	Temperature :	22℃	
Model No.	:	LTDN42K610XWUS3D	Humidity	:	48%RH
Test Mode	:	D-Sub 1024*768@60Hz	Date of Test	:	Feb 18, 2013

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.151	30.11	0.23	30.34	65.96	35.62	QP
	0.381	29.95	0.33	30.28	58.25	27.97	
	1.800	27.54	0.39	27.93	56.00	28.07	
	2.765	29.73	0.40	30.13	56.00	25.87	
	6.121	**38.72**	**0.59**	**39.31**	**60.00**	**20.69**	
	18.232	32.39	0.90	33.29	60.00	26.71	
	0.151	19.42	0.23	19.65	55.96	36.31	AV
	0.381	18.45	0.33	18.78	48.25	29.47	
	1.800	16.55	0.39	16.94	46.00	29.06	
	2.765	17.46	0.40	17.86	46.00	28.14	
	6.121	27.21	0.59	27.80	50.00	22.20	
	18.232	21.38	0.90	22.28	50.00	27.72	
Neutral	0.151	35.28	0.13	35.41	65.96	30.55	QP
	0.385	30.69	0.16	30.85	58.17	27.32	
	1.800	25.35	0.17	25.52	56.00	30.48	
	2.962	29.32	0.23	29.55	56.00	26.45	
	6.056	38.73	0.51	39.24	60.00	20.76	
	17.849	34.37	0.79	35.16	60.00	24.84	
	0.151	24.36	0.13	24.49	55.96	31.47	AV
	0.385	19.45	0.33	19.78	48.17	28.39	
	1.800	14.35	0.39	14.74	46.00	31.26	
	2.962	18.47	0.42	18.89	46.00	27.11	
	6.056	27.36	0.59	27.95	50.00	22.05	
	17.849	24.33	0.90	25.23	50.00	24.77	

TEST ENGINEER: SAWEN LI

EUT	:	LED LCD TV	Temperature :	22℃	
Model No.	:	LTDN42K610XWUS3D	Humidity	:	48%RH
Test Mode	:	HDMI 1024*768@60Hz	Date of Test	:	Feb 18, 2013

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.151	30.29	0.23	30.52	65.96	35.44	QP
	0.381	29.83	0.33	30.16	58.25	28.09	
	1.781	26.54	0.39	26.93	56.00	29.07	
	2.900	29.65	0.41	30.06	56.00	25.94	
	5.713	38.21	0.55	38.76	60.00	21.24	
	18.232	31.68	0.90	32.58	60.00	27.42	
	0.151	19.48	0.23	19.71	55.96	36.25	AV
	0.381	18.44	0.33	18.77	48.25	29.48	
	1.781	15.83	0.39	16.22	46.00	29.78	
	2.900	18.64	0.41	19.05	46.00	26.95	
	5.713	27.58	0.55	28.13	50.00	21.87	
	18.232	20.55	0.90	21.45	50.00	28.55	
Neutral	0.152	35.33	0.13	35.46	65.91	30.45	QP
	0.385	30.62	0.16	30.78	58.17	27.39	
	0.853	26.59	0.22	26.81	56.00	29.19	
	2.765	28.08	0.21	28.29	56.00	27.71	
	5.805	**38.52**	**0.48**	**39.00**	**60.00**	**21.00**	
	17.849	35.61	0.79	36.40	60.00	23.60	
	0.152	24.63	0.13	24.76	55.91	31.15	AV
	0.385	19.55	0.16	19.71	48.17	28.46	
	0.853	15.32	0.22	15.54	46.00	30.46	
	2.765	16.58	0.21	16.79	46.00	29.21	
	5.805	27.56	0.48	28.04	50.00	21.96	
	17.849	24.34	0.79	25.13	50.00	24.87	

TEST ENGINEER: SAWEN LI

EUT	:	LED LCD TV	Temperature :	22℃	
Model No.	:	LTDN42K610XWUS3D	Humidity	:	48%RH
Test Mode	:	D-Sub 800*600@60Hz	Date of Test	:	Feb 18, 2013

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.151	30.22	0.23	30.45	65.96	35.51	QP
	0.381	29.82	0.33	30.15	58.25	28.10	
	1.602	25.94	0.37	26.31	56.00	29.69	
	2.931	29.74	0.41	30.15	56.00	25.85	
	5.867	38.22	0.56	38.78	60.00	21.22	
	19.224	31.70	0.92	32.62	60.00	27.38	
	0.151	20.31	0.23	20.54	55.96	35.42	AV
	0.381	18.65	0.33	18.98	48.25	29.27	
	1.602	14.92	0.37	15.29	46.00	30.71	
	2.931	17.51	0.41	17.92	46.00	28.08	
	5.867	26.94	0.56	27.50	50.00	22.50	
	19.224	20.32	0.92	21.24	50.00	28.76	
Neutral	0.151	35.22	0.13	35.35	65.96	30.61	QP
	0.385	30.65	0.16	30.81	58.17	27.36	
	0.844	25.96	0.22	26.18	56.00	29.82	
	2.931	28.14	0.23	28.37	56.00	27.63	
	5.867	**38.58**	**0.49**	**39.07**	**60.00**	**20.93**	
	17.755	36.55	0.79	37.34	60.00	22.66	
	0.151	24.22	0.13	24.35	55.96	31.61	AV
	0.385	19.50	0.16	19.66	48.17	28.51	
	0.844	14.31	0.22	14.53	46.00	31.47	
	2.931	17.22	0.23	17.45	46.00	28.55	
	5.867	26.99	0.49	27.48	50.00	22.52	
	17.755	24.57	0.79	25.36	50.00	24.64	

TEST ENGINEER: SAWEN LI

EUT	:	LED LCD TV	Temperature	:	22℃
Model No.	:	LTDN42K610XWUS3D	Humidity	:	48%RH
Test Mode	:	D-Sub 640*480@60Hz	Date of Test	:	Feb 18, 2013

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.151	29.88	0.23	30.11	65.96	35.85	QP
	0.381	29.86	0.33	30.19	58.25	28.06	
	1.800	27.05	0.39	27.44	56.00	28.56	
	2.736	29.83	0.40	30.23	56.00	25.77	
	5.867	38.04	0.56	38.60	60.00	21.40	
	17.849	32.10	0.90	33.00	60.00	27.00	
	0.151	18.79	0.23	19.02	55.96	36.94	AV
	0.381	18.52	0.33	18.85	48.25	29.40	
	1.800	16.43	0.39	16.82	46.00	29.18	
	2.736	18.26	0.40	18.66	46.00	27.34	
	5.867	27.66	0.56	28.22	50.00	21.78	
	17.849	21.53	0.90	22.43	50.00	27.57	
Neutral	0.151	35.45	0.13	35.58	65.96	30.38	QP
	0.385	31.41	0.16	31.57	58.17	26.60	
	1.800	26.10	0.17	26.27	56.00	29.73	
	2.736	27.81	0.21	28.02	56.00	27.98	
	5.867	**38.36**	**0.49**	**38.85**	**60.00**	**21.15**	
	17.568	35.95	0.79	36.74	60.00	23.26	
	0.151	24.59	0.13	24.72	55.96	31.24	AV
	0.385	20.69	0.16	20.85	48.17	27.32	
	1.800	15.66	0.17	15.83	46.00	30.17	
	2.736	16.58	0.21	16.79	46.00	29.21	
	5.867	27.92	0.49	28.41	50.00	21.59	
	17.568	24.30	0.79	25.09	50.00	24.91	

TEST ENGINEER: SAWEN LI

EUT	:	LED LCD TV	Temperature :	22℃	
Model No.	:	LTDN42K610XWUS3D	Humidity	:	48%RH
Test Mode	:	USB Play	Date of Test	:	Feb 18, 2013

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.151	29.49	0.23	29.72	65.96	36.24	QP
	0.381	30.08	0.33	30.41	58.25	27.84	
	1.800	26.46	0.39	26.85	56.00	29.15	
	2.736	30.13	0.40	30.53	56.00	25.47	
	5.867	37.68	0.56	38.24	60.00	21.76	
	18.039	34.98	0.90	35.88	60.00	24.12	
	0.151	18.62	0.23	18.85	55.96	37.11	AV
	0.381	19.22	0.33	19.55	48.25	28.70	
	1.800	15.24	0.39	15.63	46.00	30.37	
	2.736	18.89	0.40	19.29	46.00	26.71	
	5.867	26.45	0.56	27.01	50.00	22.99	
	18.039	23.12	0.90	24.02	50.00	25.98	
Neutral	0.151	35.47	0.13	35.60	65.96	30.36	QP
	0.385	31.13	0.16	31.29	58.17	26.88	
	1.610	24.95	0.17	25.12	56.00	30.88	
	2.736	27.94	0.21	28.15	56.00	27.85	
	6.627	**38.35**	**0.57**	**38.92**	**60.00**	**21.08**	
	17.849	37.13	0.79	37.92	60.00	22.08	
	0.151	24.47	0.13	24.60	55.96	31.36	AV
	0.385	20.57	0.16	20.73	48.17	27.44	
	1.610	13.67	0.17	13.84	46.00	32.16	
	2.736	16.52	0.21	16.73	46.00	29.27	
	6.627	27.52	0.57	28.09	50.00	21.91	
	17.849	26.35	0.79	27.14	50.00	22.86	

TEST ENGINEER: SAWEN LI

EUT	:	LED LCD TV	Temperature :	22℃	
Model No.	:	LTDN42K610XWUS3D	Humidity	:	48%RH
Test Mode	:	LAN	Date of Test	:	Feb 18, 2013

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.151	35.38	0.23	35.61	65.96	30.35	QP
	0.385	31.15	0.33	31.48	58.17	26.69	
	1.781	24.79	0.39	25.18	56.00	30.82	
	2.931	28.47	0.41	28.88	56.00	27.12	
	5.867	37.88	0.56	38.44	60.00	21.56	
	18.232	38.08	0.90	38.98	60.00	21.02	
	0.151	24.08	0.23	24.31	55.96	31.65	AV
	0.385	20.18	0.33	20.51	48.17	27.66	
	1.781	13.35	0.39	13.74	46.00	32.26	
	2.931	18.09	0.41	18.50	46.00	27.50	
	5.867	27.12	0.56	27.68	50.00	22.32	
	18.232	27.66	0.90	28.56	50.00	21.44	
Neutral	0.151	35.35	0.13	35.48	65.96	30.48	QP
	0.385	31.09	0.16	31.25	58.17	26.92	
	1.800	25.53	0.17	25.70	56.00	30.30	
	2.962	29.45	0.23	29.68	56.00	26.32	
	5.713	**38.60**	**0.47**	**39.07**	**60.00**	**20.93**	
	18.039	37.93	0.80	38.73	60.00	21.27	
	0.151	24.55	0.13	24.68	55.96	31.28	AV
	0.385	20.36	0.16	20.52	48.17	27.65	
	1.800	15.60	0.17	15.77	46.00	30.23	
	2.962	18.36	0.23	18.59	46.00	27.41	
	5.713	28.00	0.47	28.47	50.00	21.53	
	18.039	27.03	0.80	27.83	50.00	22.17	

TEST ENGINEER: SAWEN LI

4 RADIATED EMISSION TEST

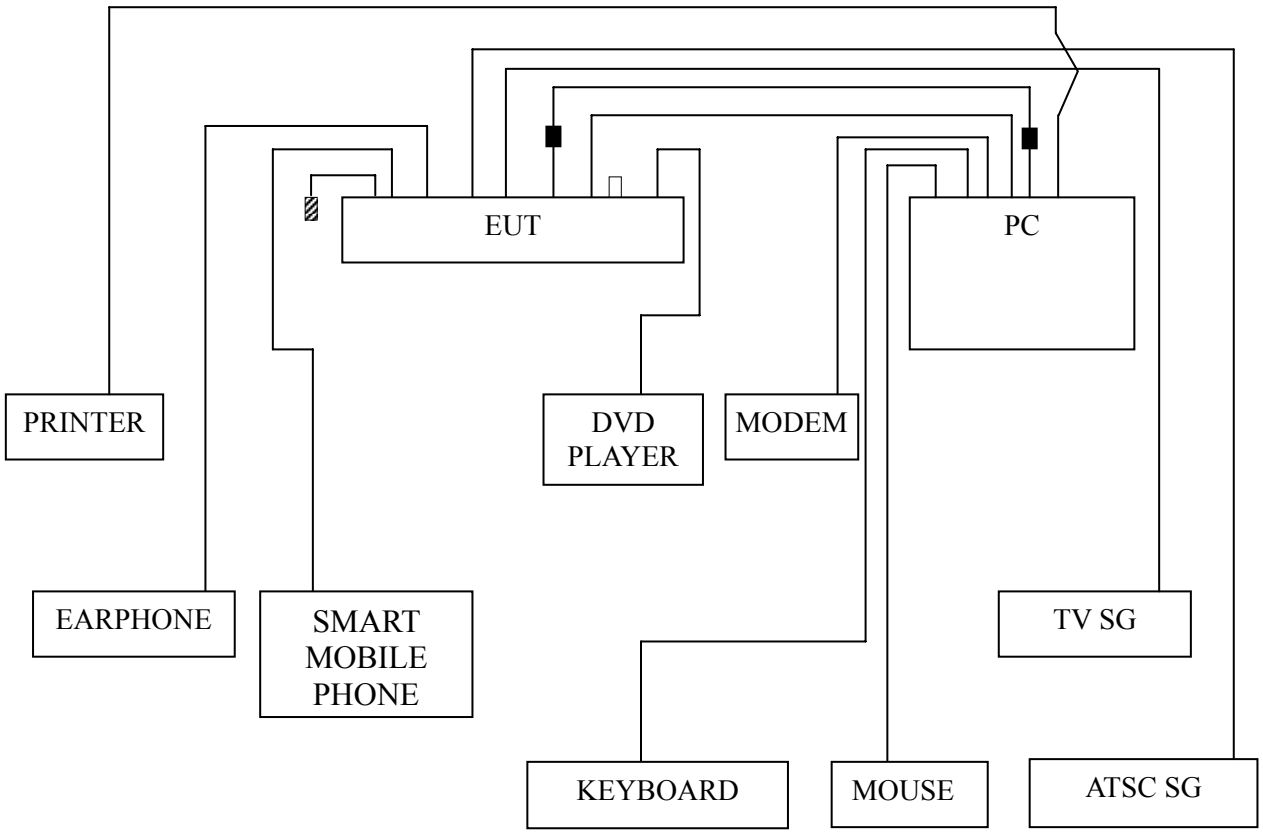
4.1 Test Equipment

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	Sep 18, 2012	Mar 18, 2013
3.	Bi-log Antenna	TESEQ	CBL6112D	23193	May 03, 2012	May 03, 2013
4.	Spectrum	Agilent	E7405A	MY45106600	Dec 17, 2012	Dec 17, 2013
5.	50Ω Coaxial Switch	Anritsu	MP59B	6200426390	Sep 18, 2012	Mar 18, 2013
6.	Software	Audix	E3	SET00200 9912M295-2	--	--

4.2 Block Diagram of Test Setup

4.2.1 EUT and Peripherals

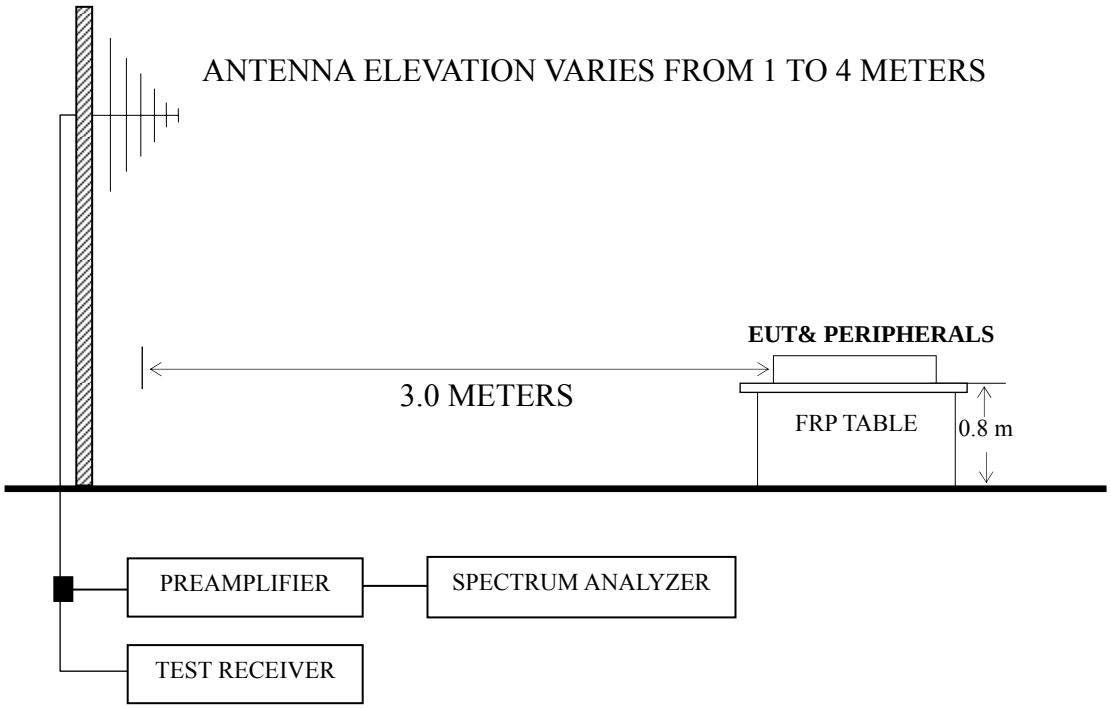


■ : Ferrite core

□ : U-Disk

▨ : IR BLASTER

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	
		(μV/m)	dB (μV/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 (μV/m) = 20 log Emission Level (μV/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 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 1024*768@60Hz	P23
D-Sub 800*600@60Hz	P24
D-Sub 640*480@60Hz	P25
USB Play	P26
LAN	P27

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 worst case is for -Sub 640*480@60Hz test mode. The worst emission at horizontal polarization was detected at 740.800 MHz with corrected signal level of 43.76 dB (μV/m) (limit is 46.00 dB (μV/m)), when the antenna was 1.10 m height and the turntable was at 224°. The worst emission at vertical polarization was detected at 85.290 MHz with corrected signal level of 35.73 dB (μV/m) (limit is 40.00 dB (μV/m)), when the antenna was 1.10 m height and the turntable was at 115°.

EUT	:	LED LCD TV	Temperature :	22℃
Model No.	:	LTDN42K610XWUS3D	Humidity :	60%RH
Test Mode	:	D-Sub 1024*768@60Hz	Date of Test :	Mar 01, 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	**34.850**	**47.99**	**15.70**	**0.84**	**36.35**	**40.00**	**3.65**
	94.020	50.41	11.15	1.78	35.45	43.50	8.05
	184.230	50.49	9.95	2.37	35.51	43.50	7.99
	233.700	47.11	11.23	2.56	33.97	46.00	12.03
	462.620	42.80	17.14	3.17	35.18	46.00	10.82
	774.960	42.34	20.34	3.84	38.70	46.00	7.30
Vertical	**152.220**	**53.63**	**10.37**	**2.24**	**38.73**	**43.50**	**4.77**
	211.390	51.35	10.26	2.47	37.06	43.50	6.44
	339.430	40.89	14.83	2.85	31.41	46.00	14.59
	466.500	44.76	17.19	3.17	37.17	46.00	8.83
	620.730	41.84	18.46	3.51	35.51	46.00	10.49
	774.960	43.83	20.34	3.84	40.19	46.00	5.81

TEST ENGINEER: RAVEN JIN

EUT	:	LED LCD TV	Temperature :	22℃
Model No.	:	LTDN42K610XWUS3D	Humidity :	60%RH
Test Mode	:	HDMI 1024*768@60Hz	Date of Test :	Mar 01, 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	**35.820**	**48.27**	**15.19**	**0.84**	**36.13**	**40.00**	**3.87**
	72.680	47.30	10.08	1.47	31.03	40.00	8.97
	91.110	49.07	11.05	1.75	33.98	43.50	9.52
	154.160	43.04	10.34	2.25	28.12	43.50	15.38
	231.760	46.14	11.14	2.55	32.89	46.00	13.11
	497.540	42.55	17.58	3.27	35.29	46.00	10.71
Vertical	93.050	45.98	11.12	1.77	30.98	43.50	12.52
	140.580	49.94	10.60	2.18	35.20	43.50	8.30
	153.190	**53.52**	**10.36**	**2.24**	**38.61**	**43.50**	**4.89**
	186.170	48.13	9.93	2.38	33.17	43.50	10.33
	467.470	45.32	17.22	3.17	37.76	46.00	8.24
	774.960	43.83	20.34	3.84	40.19	46.00	5.81

TEST ENGINEER: RAVEN JIN

EUT	:	LED LCD TV	Temperature :	22℃	
Model No.	:	LTDN42K610XWUS3D	Humidity :	60%RH	
Test Mode	:	D-Sub 800*600@60Hz	Date of Test :	Mar 01, 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	**34.850**	**48.73**	**15.70**	**0.84**	**37.09**	**40.00**	**2.91**
	90.140	48.38	11.00	1.73	33.22	43.50	10.28
	182.290	51.77	9.97	2.36	36.77	43.50	6.73
	226.910	48.46	10.93	2.53	34.96	46.00	11.04
	468.000	22.00	17.22	3.17	42.39	46.00	3.61
	773.020	41.49	20.34	3.84	37.85	46.00	8.15
Vertical	137.670	49.59	10.66	2.15	34.86	43.50	8.64
	184.230	47.89	9.95	2.37	32.91	43.50	10.59
	276.380	50.75	13.02	2.68	39.57	46.00	6.43
	468.000	**23.00**	**17.22**	**3.17**	**43.39**	**46.00**	**2.61**
	622.670	42.48	18.49	3.51	36.19	46.00	9.81
	780.780	39.38	20.40	3.86	35.84	46.00	10.16

TEST ENGINEER: RAVEN JIN

EUT	:	LED LCD TV	Temperature :	22℃	
Model No.	:	LTDN42K610XWUS3D	Humidity	:	60%RH
Test Mode	:	D-Sub 640*480@60Hz	Date of Test	:	Mar 01, 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	35.820	47.27	15.19	0.84	35.13	40.00	4.87
	67.830	48.74	9.70	1.36	31.99	40.00	8.01
	88.200	52.58	10.93	1.70	37.31	43.50	6.19
	223.030	46.56	10.76	2.51	32.86	46.00	13.14
	462.620	40.97	17.14	3.17	33.35	46.00	12.65
	740.800	**20.00**	**19.98**	**3.78**	**43.76**	**46.00**	**2.24**
Vertical	**85.290**	**51.18**	**10.80**	**1.66**	**35.73**	**40.00**	**4.27**
	148.340	53.65	10.44	2.22	38.80	43.50	4.70
	185.200	48.41	9.94	2.38	33.44	43.50	10.06
	234.670	45.92	11.28	2.56	32.84	46.00	13.16
	343.310	41.83	14.91	2.86	32.42	46.00	13.58
	464.560	44.33	17.17	3.17	36.73	46.00	9.27

TEST ENGINEER: RAVEN JIN

EUT	:	LED LCD TV	Temperature :	22℃
Model No.	:	LTDN42K610XWUS3D	Humidity :	60%RH
Test Mode	:	USB Play	Date of Test :	Mar 01, 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	33.880	46.50	16.26	0.83	35.42	40.00	4.58
	90.140	48.38	11.00	1.73	33.22	43.50	10.28
	181.320	47.18	9.98	2.36	32.17	43.50	11.33
	224.000	47.91	10.80	2.52	34.26	46.00	11.74
	468.000	**22.00**	**17.22**	**3.17**	**42.39**	**46.00**	**3.61**
	499.480	47.57	17.60	3.27	40.32	46.00	5.68
Vertical	90.140	42.23	11.00	1.73	27.07	43.50	16.43
	146.400	51.99	10.49	2.20	37.17	43.50	6.33
	183.260	49.82	9.96	2.37	34.83	43.50	8.67
	226.910	46.38	10.93	2.53	32.88	46.00	13.12
	399.570	41.51	16.30	2.99	33.28	46.00	12.72
	468.000	**23.00**	**17.22**	**3.17**	**43.39**	**46.00**	**2.61**

TEST ENGINEER: RAVEN JIN

EUT	:	LED LCD TV	Temperature :	22℃
Model No.	:	LTDN42K610XWUS3D	Humidity :	60%RH
Test Mode	:	LAN	Date of Test :	Mar 01, 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	**55.220**	**27.76**	**7.69**	**0.81**	**36.26**	**40.00**	**3.74**
	127.000	23.07	12.66	1.16	36.89	43.50	6.61
	235.640	24.84	12.36	1.56	38.76	46.00	7.24
	287.050	24.29	13.68	1.73	39.70	46.00	6.30
	608.120	17.87	19.25	2.48	39.60	46.00	6.40
	704.150	16.90	19.73	2.70	39.33	46.00	6.67
Vertical	59.100	27.00	6.80	0.83	34.63	40.00	5.37
	211.390	**27.47**	**11.22**	**1.49**	**40.18**	**43.50**	**3.32**
	362.710	22.36	15.65	1.96	39.97	46.00	6.03
	573.200	16.27	18.88	2.39	37.54	46.00	8.46
	704.150	15.62	19.73	2.70	38.05	46.00	7.95
	910.760	15.18	21.78	3.04	40.00	46.00	6.00

TEST ENGINEER: RAVEN JIN

5 DEBUG DESCRIPTION

The following components are used during the countermeasure procedures:

Name	M/N	Manufacturer	Location
Gasket	35X0.7X41mm\VGA\ROH	Shenzhen TAT Electronic Technology Co., Ltd.	See Internal Photos Figure 21
Gasket	10×8×35	Qingdao Joinset S&T Co., Ltd.	See Internal Photos Figure 23, 24
Gasket	DAA1002	Shenzhen TAT Electronic Technology Co., Ltd.	See Internal Photos Figure 22
Ferrite Core	ZCAT3035-1330	Rui Feng Electronic Co., Ltd.	See Internal Photos Figure 20

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

(RAVEN JIN)

6 DEVIATION TO TEST SPECIFICATIONS

None.