

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

LCD TV

Model No.	Serial No.	Brand
LTDN47V87XUS	--	Hisense
47LC55S240V87	E2009112301	PROSCAN

FCC ID : W9HLCDE0003

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

Prepared By : Audix Technology (Shanghai) Co., Ltd.
3F 34Bldg 680 Guiping Rd,
Caohejing Hi-Tech Park,
Shanghai 200233, China

Tel: +86-21-64955500
Fax: +86-21-64955491

Report No. : ACI-F09124
Date of Test : Nov 04 – 25, 2009
Date of Report : Dec 09, 2009

TABLE OF CONTENTS

	Page
1 SUMMARY OF STANDARDS AND RESULTS.....	4
1.1 Description of Standards and Results.....	4
2 GENERAL INFORMATION.....	5
2.1 Description of Equipment Under Test.....	5
2.2 Peripherals.....	7
2.3 Description of Test Facility.....	8
2.4 Measurement Uncertainty.....	8
3 CONDUCTED EMISSION TEST.....	9
3.2 Block Diagram of Test Setup.....	9
3.3 Conducted Emission Limit [FCC Part 15 Subpart B 15.107(a)].....	10
3.4 Test Configuration.....	10
3.5 Operating Condition of EUT.....	11
3.6 Test Procedures.....	11
3.7 Test Results.....	12
4 RADIATED EMISSION TEST.....	19
4.1 Test Equipment.....	19
4.2 Block Diagram of Test Setup.....	19
4.3 Radiated Emission Limit [FCC Part 15 Subpart B 15.109(a)].....	20
4.4 Test Configuration.....	20
4.5 Operating Condition of EUT.....	20
4.6 Test Procedures.....	21
4.7 Test Results.....	21
5 DEVIATION TO TEST SPECIFICATIONS.....	28
6 DEBUG DESCRIPTION.....	29

TEST REPORT FOR FCC CERTIFICATE

Applicant : Hisense Electric Co., Ltd.
 Manufacturer : Hisense Electric Co., Ltd.
 EUT Description : LCD TV

Model No.	Serial No.	Brand	Power Supply
LTDN47V87XUS	--	Hisense	120V/60Hz
47LC55S240V87	E2009112301	PROSCAN	

Test Procedure Used:

*FCC RULES AND REGULATIONS PART 15 SUBPART B CLASS B OCTOBER 2008
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 Sec.2.1; S/N: Refer to Sec.2.1) which was tested in 3m anechoic chamber Nov 04 – 25, 2009 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.

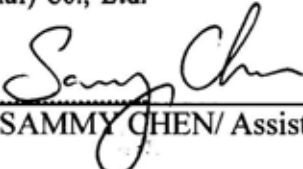
The test results for EUT's TV functions are contained in No.F09121, a Verification report.

Date of Test : Nov 04 – 25, 2009 Date of Report : Dec 09, 2009

Producer : 
KATHY WANG / Assistant

Review : 
DIO YANG / Deputy Assistant Manager

AUDIX[®] For and on behalf of
Audix Technology (Shanghai) Co., Ltd.

Signatory : 
Authorized Signature EMC SAMMY CHEN/ Assistant 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 2008 AND ANSI C63.4-2003	15.107(a) Class B	Pass
Radiated Disturbance	FCC RULES AND REGULATIONS PART 15 SUBPART B OCTOBER 2008 AND ANSI C63.4-2003	15.109(a) Class B	Pass

2 GENERAL INFORMATION

2.1 Description of Equipment Under Test

Description : LCD TV

Type of EUT : Production Pre-product Pro-type

Model No.	Serial No.	Brand
LTDN47V87XUS	--	Hisense
47LC55S240V87	E2009112301	PROSCAN

Note 1 : The above models are all the same except for the different model number and brand.

Note 2 : The 47LC55S240V87 was tested and recorded in this 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

LCD Panel : Manufacturer : LG Display
M/N : LC470WUD (SB) (M1)

Tuner : Manufacturer : XuGuang Tech. Co., Ltd.
M/N : DVT-8ADC1/W41F2ROH

Max Resolution : 1024*768@60Hz

D-Sub Cable : Shielded, Detachable, 1.85m,
with two cores on cable

HDMI Cable : Shielded, Detachable, 1.85m,
without core on cable

Power Cord : Unshielded, Detachable, 1.80m

Remark:

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

Back View:

- (1) One component of YPbPr#2 Port
Connected with DVD#2
- (2) One component of YPbPr#2 Audio Port
Connected with DVD#2
- (3) One HDMI#2 Port
Connected with DVD#1

- | | | |
|-----|---------------------------------|------------------------|
| (4) | One HDMI#3 Port | Connected with DVD#2 |
| (5) | One HDMI#4 Port | Connected with DVD#3 |
| (6) | One COAXIAL Port | Connected with DVD#1 |
| (7) | One Component of Audio Out Port | Connected with Speaker |
| (8) | One S-Video Port | Connected with DVD#2 |
| (9) | One Component of AV#2 Port | Connected with DVD#2 |

Side View:

- | | | |
|------|-------------------------------------|------------------------------|
| (10) | One component of YPbPr#1 Port | Connected with DVD#1 |
| (11) | One component of YPbPr#1 Audio Port | Connected with DVD#1 |
| (12) | One ANT Port | Connected with TV SG/ATSC SG |
| (13) | One VGA Port | Connected with PC |
| (14) | One VGA Audio Port | Connected with PC |
| (15) | One HDMI#1 Port | Connected with PC |
| (16) | One Component of AV#1 Port | Connected with DVD#1 |
| (17) | One Headphone Port | Connected with Earphone |
| (18) | One Service Port | Do not open to Customer |

2.2 Peripherals

2.2.1 PC

Manufacturer : HP
Model Number : dx6120MT
Serial Number : CNG53004J2
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#1

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

2.2.10 DVD#2

Manufacturer : PHILIPS
Model Number : DVP3986K/93
Serial Number : KX1A0902120082
Certificate : FCC DoC, CE/EMC, CCC

2.2.11 DVD#3

Manufacturer : LG
Model Number : DF9921N
Serial Number : 3850R-N846W
Certificate : FCC DoC, CE/EMC, CCC

2.2.12 Speaker

Manufacturer : DIBA
Model Number : T520
Serial Number : 10628

2.3 Description of Test Facility

Site Description (Semi-Anechoic Chamber) : Sept. 17, 1998 file on
Apr 29, 2009 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 = 1.26 dB
Radiated Emission Expanded Uncertainty : U = 3.02 dB

3 CONDUCTED EMISSION TEST

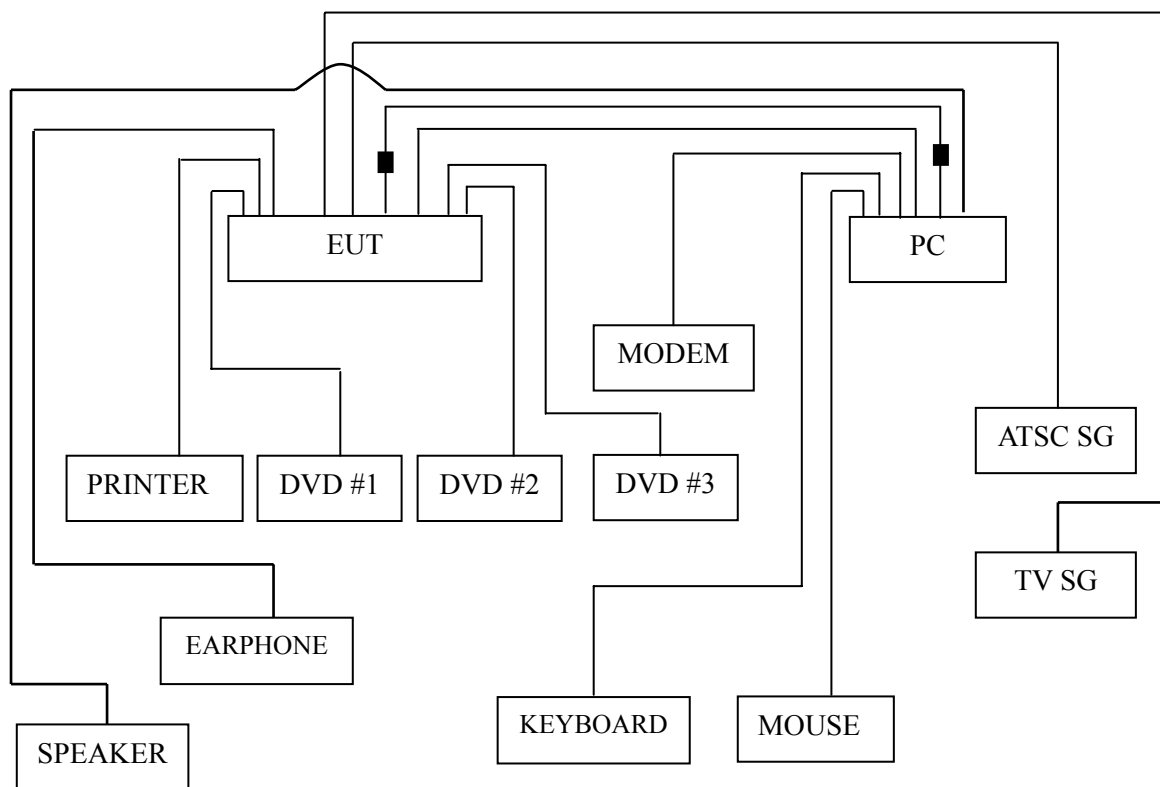
3.1.1 Test Equipment

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	Oct 15, 2009	Oct 15, 2010
2.	Artificial Mains Network (AMN)	R&S	ESH2-Z5	843890/011	Apr 02, 2009	Apr 02, 2010
3.	Line Impedance Stabilization Network (LISN)	Kyoritsu	KNW-407	8-1280-4	Apr 02, 2009	Apr 02, 2010
4.	50 Ω Coaxial Switch	Anritsu	MP59B	6200426389	Sep 19, 2009	Mar 19, 2010
5.	50Ω Terminator	Anritsu	BNC	001	Apr 02, 2009	Apr 02, 2010
6.	Software	Audix	E3	SET00200 9804M592	--	--

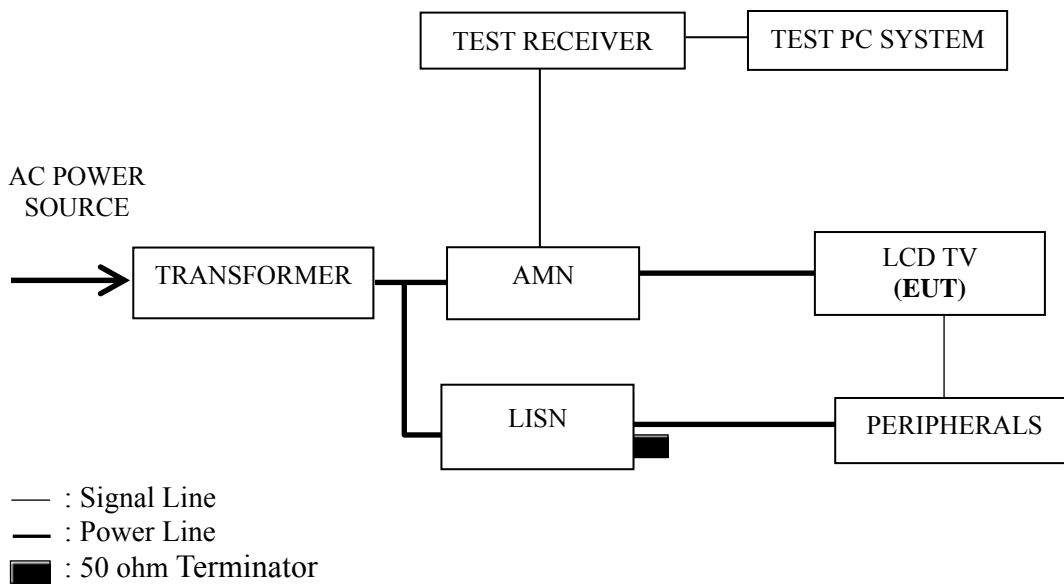
3.2 Block Diagram of Test Setup

3.2.1 EUT & Peripherals



■ : Ferrite core

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 D-Sub & HDMI Input).

3.5.5 Repeat above procedure from 3.5.3 to 3.5.4 for difference test mode.

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 640*480@60Hz
D-Sub 800*600@60Hz
D-Sub 1024*768@60Hz
HDMI 640*480@60Hz
HDMI 800*600@60Hz
HDMI 1024*768@60Hz

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 640*480@60Hz	P13
D-Sub 800*600@60Hz	P14
D-Sub 1024*768@60Hz	P15
HDMI 640*480@60Hz	P16
HDMI 800*600@60Hz	P17
HDMI 1024*768@60Hz	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 HDMI 1024*768@60Hz test mode. The worst emission is detected at 0.489 MHz (Average Value) with corrected signal level of 31.68 dB (μ V) (limit is 46.19 dB (μ V)), when the Line of the EUT is connected to AMN.

EUT : LCD TV Temperature : 21°C

Model No. : 47LC55S240V87 Humidity : 49%RH

Serial No. : E2009112301 Date of Test : Nov 04, 2009

Test Mode : D-Sub 640*480@60Hz

Test Line	Frequency (MHz)	Meter Reading dB(μ V)	Factor (dB)	Emission Level dB(μ V)	Limits dB(μ V)	Margin (dB)	Remark
Line	0.535	36.55	0.29	36.84	56.00	19.16	QP
	1.106	33.81	0.30	34.11	56.00	21.89	
	2.261	36.13	0.37	36.50	56.00	19.50	
	3.074	36.32	0.40	36.72	56.00	19.28	
	7.446	32.94	0.47	33.41	60.00	26.59	
	23.990	33.60	0.82	34.42	60.00	25.58	
	0.535	15.24	0.29	15.53	46.00	30.47	AV
	1.106	25.27	0.30	25.57	46.00	20.43	
	2.261	29.25	0.37	29.62	46.00	16.38	
	3.074	30.16	0.40	30.56	46.00	15.44	
	7.446	26.22	0.47	26.69	50.00	23.31	
	23.990	28.76	0.82	29.58	50.00	20.42	
Neutral	0.535	36.18	0.26	36.44	56.00	19.56	QP
	1.106	34.75	0.30	35.05	56.00	20.95	
	1.928	36.78	0.36	37.14	56.00	18.86	
	3.241	37.83	0.41	38.24	56.00	17.76	
	15.388	38.87	0.68	39.55	60.00	20.45	
	23.888	36.65	0.76	37.41	60.00	22.59	
	0.535	13.97	0.26	14.23	46.00	31.77	AV
	1.106	24.51	0.30	24.81	46.00	21.19	
	1.928	30.60	0.36	30.96	46.00	15.04	
	3.241	28.83	0.41	29.24	46.00	16.76	
	15.388	27.55	0.68	28.23	50.00	21.77	
	23.888	27.40	0.76	28.16	50.00	21.84	

TEST ENGINEER: HUGH HUANG

EUT : LCD TV Temperature : 21°C

Model No. : 47LC55S240V87 Humidity : 49%RH

Serial No. : E2009112301 Date of Test : Nov 04, 2009

Test Mode : D-Sub 800*600@60Hz

Test Line	Frequency (MHz)	Meter Reading dB(μ V)	Factor (dB)	Emission Level dB(μ V)	Limits dB(μ V)	Margin (dB)	Remark	
Line	0.529	37.39	0.29	37.68	56.00	18.32	QP	
	1.249	36.50	0.32	36.82	56.00	19.18		
	2.261	38.15	0.37	38.52	56.00	17.48		
	3.293	37.76	0.41	38.17	56.00	17.83		
	5.277	37.27	0.44	37.71	60.00	22.29		
	7.446	34.74	0.47	35.21	60.00	24.79		
	0.529	18.03	0.29	18.32	46.00	27.68	AV	
	1.249	30.71	0.32	31.03	46.00	14.97		
	2.261	30.07	0.37	30.44	46.00	15.56		
	3.293	28.68	0.41	29.09	46.00	16.91		
	5.277	28.49	0.44	28.93	50.00	21.07		
	7.446	27.89	0.47	28.36	50.00	21.64		
	Neutral	0.535	36.51	0.26	36.77	56.00	19.23	QP
		1.262	35.32	0.32	35.64	56.00	20.36	
2.765		37.22	0.39	37.61	56.00	18.39		
3.799		37.08	0.43	37.51	56.00	18.49		
8.729		35.81	0.50	36.31	60.00	23.69		
15.146		37.37	0.67	38.04	60.00	21.96		
0.535		13.47	0.26	13.73	46.00	32.27	AV	
1.262		28.95	0.32	29.27	46.00	16.73		
2.765		28.39	0.39	28.78	46.00	17.22		
3.799		29.75	0.43	30.18	46.00	15.82		
8.729		29.54	0.50	30.04	50.00	19.96		
15.146		27.26	0.67	27.93	50.00	22.07		

TEST ENGINEER: HUGH HUANG

EUT : LCD TV Temperature : 21°C

Model No. : 47LC55S240V87 Humidity : 49%RH

Serial No. : E2009112301 Date of Test : Nov 04, 2009

Test Mode : D-Sub 1024*768@60Hz

Test Line	Frequency (MHz)	Meter Reading dB(μ V)	Factor (dB)	Emission Level dB(μ V)	Limits dB(μ V)	Margin (dB)	Remark
Line	0.529	36.25	0.29	36.54	56.00	19.46	QP
	1.249	35.35	0.32	35.67	56.00	20.33	
	1.858	34.77	0.36	35.13	56.00	20.87	
	2.594	36.46	0.39	36.85	56.00	19.15	
	3.720	35.80	0.42	36.22	56.00	19.78	
	6.056	34.96	0.45	35.41	60.00	24.59	
	0.529	14.13	0.29	14.42	46.00	31.58	AV
	1.249	26.61	0.32	26.93	46.00	19.07	
	1.858	27.04	0.36	27.40	46.00	18.60	
	2.594	30.02	0.39	30.41	46.00	15.59	
	3.720	30.54	0.42	30.96	46.00	15.04	
	6.056	27.14	0.45	27.59	50.00	22.41	
Neutral	0.529	36.38	0.26	36.64	56.00	19.36	QP
	1.269	34.21	0.32	34.53	56.00	21.47	
	2.261	36.44	0.37	36.81	56.00	19.19	
	3.547	36.00	0.43	36.43	56.00	19.57	
	8.062	33.74	0.49	34.23	60.00	25.77	
	15.146	37.49	0.67	38.16	60.00	21.84	
	0.529	14.06	0.26	14.32	46.00	31.68	AV
	1.269	27.18	0.32	27.50	46.00	18.50	
	2.261	30.20	0.37	30.57	46.00	15.43	
	3.547	28.04	0.43	28.47	46.00	17.53	
	8.062	26.91	0.49	27.40	50.00	22.60	
	15.146	27.80	0.67	28.47	50.00	21.53	

TEST ENGINEER: HUGH HUANG

EUT : LCD TV Temperature : 21°C

Model No. : 47LC55S240V87 Humidity : 49%RH

Serial No. : E2009112301 Date of Test : Nov 04, 2009

Test Mode : HDMI 640*480@60Hz

Test Line	Frequency (MHz)	Meter Reading dB(μ V)	Factor (dB)	Emission Level dB(μ V)	Limits dB(μ V)	Margin (dB)	Remark
Line	0.484	37.65	0.29	37.94	56.27	18.33	QP
	1.141	35.83	0.31	36.14	56.00	19.86	
	1.878	39.03	0.36	39.39	56.00	16.61	
	2.500	38.90	0.39	39.29	56.00	16.71	
	3.565	39.08	0.42	39.50	56.00	16.50	
	6.056	37.76	0.45	38.21	60.00	21.79	
	0.484	29.33	0.29	29.62	46.27	16.65	AV
	1.141	20.68	0.31	20.99	46.00	25.01	
	1.878	25.66	0.36	26.02	46.00	19.98	
	2.500	27.24	0.39	27.63	46.00	18.37	
	3.565	28.68	0.42	29.10	46.00	16.90	
	6.056	27.60	0.45	28.05	50.00	21.95	
Neutral	0.489	37.97	0.26	38.23	56.19	17.96	QP
	1.602	37.00	0.34	37.34	56.00	18.66	
	2.554	38.84	0.39	39.23	56.00	16.77	
	3.720	40.00	0.43	40.43	56.00	15.57	
	9.654	37.18	0.51	37.69	60.00	22.31	
	16.661	37.89	0.73	38.62	60.00	21.38	
	0.489	29.92	0.26	30.18	46.19	16.01	AV
	1.602	23.94	0.34	24.28	46.00	21.72	
	2.554	29.22	0.39	29.61	46.00	16.39	
	3.720	30.82	0.43	31.25	46.00	14.75	
	9.654	27.13	0.51	27.64	50.00	22.36	
	16.661	24.86	0.73	25.59	50.00	24.41	

TEST ENGINEER: HUGH HUANG

EUT : LCD TV Temperature : 21°C

Model No. : 47LC55S240V87 Humidity : 49%RH

Serial No. : E2009112301 Date of Test : Nov 04, 2009

Test Mode : HDMI 800*600@60Hz

Test Line	Frequency (MHz)	Meter Reading dB(μ V)	Factor (dB)	Emission Level dB(μ V)	Limits dB(μ V)	Margin (dB)	Remark
Line	0.484	37.71	0.29	38.00	56.27	18.27	QP
	1.249	37.25	0.32	37.57	56.00	18.43	
	2.237	39.48	0.37	39.85	56.00	16.15	
	3.943	39.71	0.42	40.13	56.00	15.87	
	5.594	37.96	0.45	38.41	60.00	21.59	
	7.852	37.44	0.48	37.92	60.00	22.08	
	0.484	28.65	0.29	28.94	46.27	17.33	AV
	1.249	27.93	0.32	28.25	46.00	17.75	
	2.237	31.02	0.37	31.39	46.00	14.61	
	3.943	29.61	0.42	30.03	46.00	15.97	
	5.594	29.67	0.45	30.12	50.00	19.88	
	7.852	27.26	0.48	27.74	50.00	22.26	
Neutral	0.489	38.14	0.26	38.40	56.19	17.79	QP
	1.585	36.65	0.34	36.99	56.00	19.01	
	2.213	39.01	0.37	39.38	56.00	16.62	
	2.765	39.38	0.39	39.77	56.00	16.23	
	8.822	35.96	0.50	36.46	60.00	23.54	
	15.718	38.60	0.70	39.30	60.00	20.70	
	0.489	30.92	0.26	31.18	46.19	15.01	AV
	1.585	25.71	0.34	26.05	46.00	19.95	
	2.213	29.51	0.37	29.88	46.00	16.12	
	2.765	27.96	0.39	28.35	46.00	17.65	
	8.822	27.74	0.50	28.24	50.00	21.76	
	15.718	26.11	0.70	26.81	50.00	23.19	

TEST ENGINEER: HUGH HUANG

EUT : LCD TV Temperature : 21°C

Model No. : 47LC55S240V87 Humidity : 49%RH

Serial No. : E2009112301 Date of Test : Nov 04, 2009

Test Mode : HDMI 1024*768@60Hz

Test Line	Frequency (MHz)	Meter Reading dB(μ V)	Factor (dB)	Emission Level dB(μ V)	Limits dB(μ V)	Margin (dB)	Remark	
Line	0.489	37.94	0.29	38.23	56.19	17.96	QP	
	1.249	36.25	0.32	36.57	56.00	19.43		
	1.585	36.83	0.34	37.17	56.00	18.83		
	2.261	38.54	0.37	38.91	56.00	17.09		
	2.900	39.87	0.40	40.27	56.00	15.73		
	5.362	36.71	0.44	37.15	60.00	22.85		
		0.489	31.39	0.29	31.68	46.19	14.51	AV
		1.249	28.73	0.32	29.05	46.00	16.95	
		1.585	28.53	0.34	28.87	46.00	17.13	
		2.261	29.08	0.37	29.45	46.00	16.55	
		2.900	30.17	0.40	30.57	46.00	15.43	
		5.362	27.50	0.44	27.94	50.00	22.06	
Neutral	0.489	38.04	0.26	38.30	56.19	17.89	QP	
	0.953	34.41	0.30	34.71	56.00	21.29		
	2.261	39.11	0.37	39.48	56.00	16.52		
	3.720	39.86	0.43	40.29	56.00	15.71		
	7.446	37.03	0.48	37.51	60.00	22.49		
	9.654	37.41	0.51	37.92	60.00	22.08		
		0.489	30.51	0.26	30.77	46.19	15.42	AV
		0.953	16.42	0.30	16.72	46.00	29.28	
		2.261	27.62	0.37	27.99	46.00	18.01	
		3.720	30.95	0.43	31.38	46.00	14.62	
		7.446	27.59	0.48	28.07	50.00	21.93	
		9.654	26.79	0.51	27.30	50.00	22.70	

TEST ENGINEER: HUGH HUANG

4 RADIATED EMISSION TEST

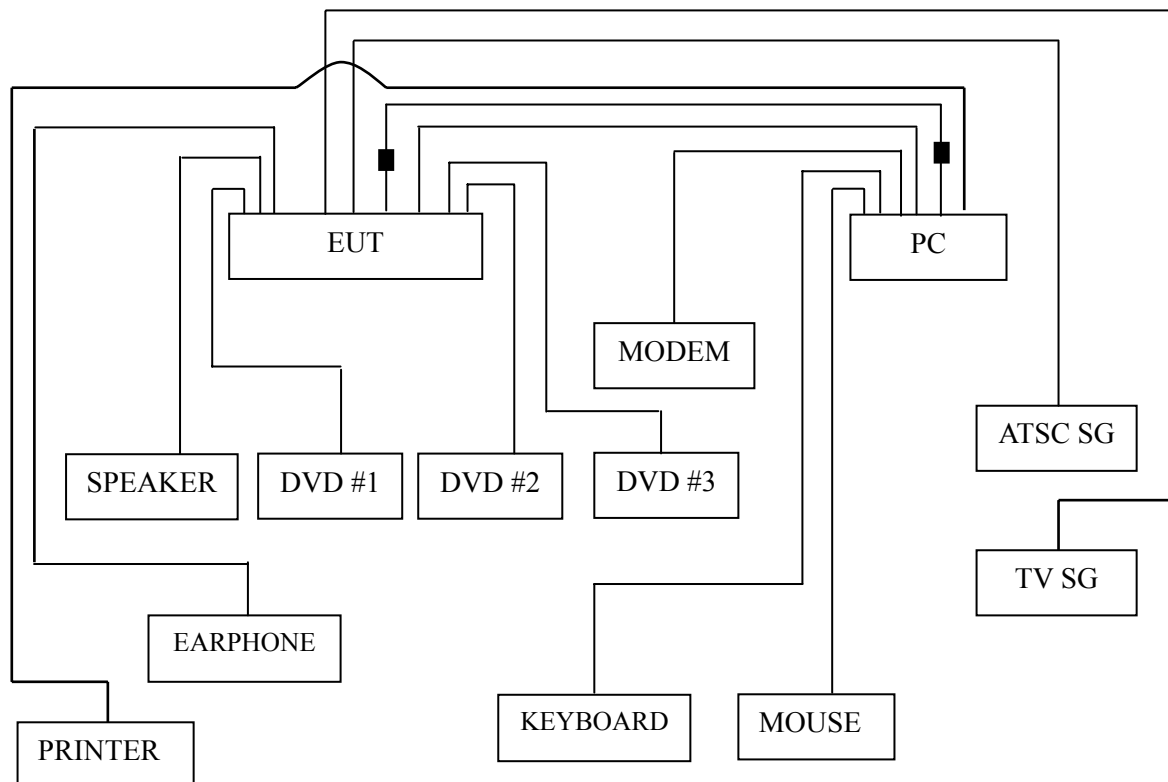
4.1 Test Equipment

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	ESVS10	844594/001	Mar 07, 2009	Mar 07, 2010
2.	Preamplifier	Agilent	8447D	2944A10548	Sep 19, 2009	Mar 19, 2010
3.	Bi-log Antenna	TESEQ	CBL6112D	23193	May 14, 2008	May 14, 2010
4.	Spectrum	Agilent	E7405A	MY45106600	May 19, 2009	May 19, 2010
5.	Software	Audix	E3	SET00200 9912M295-2	--	--

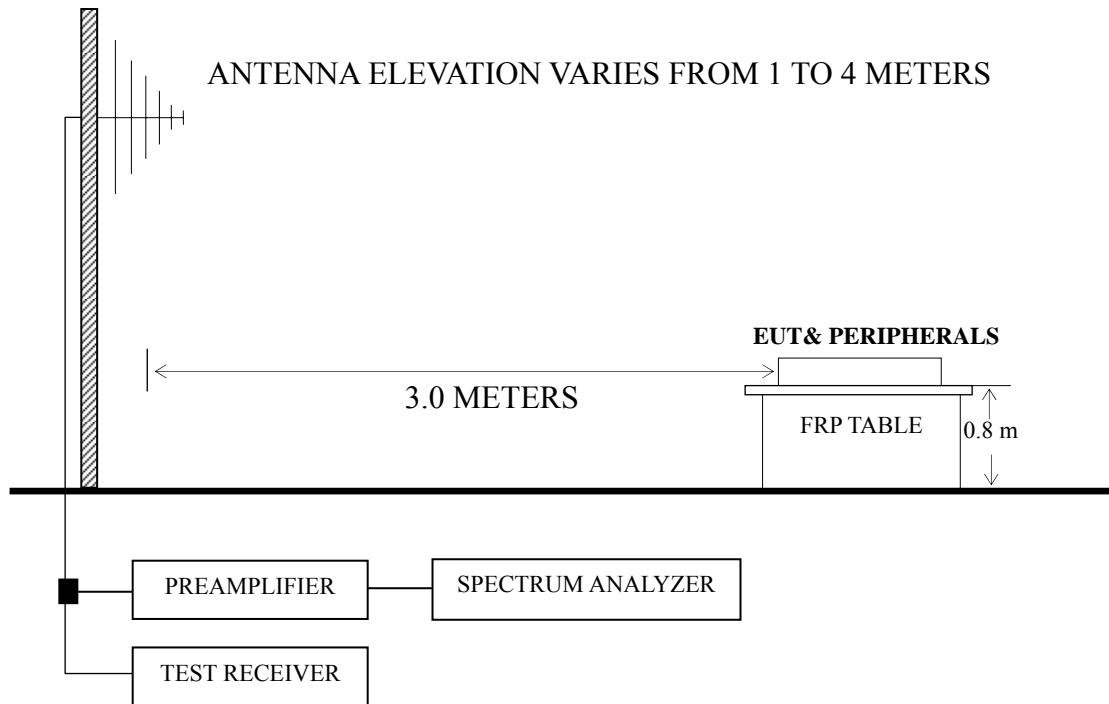
4.2 Block Diagram of Test Setup

4.2.1 EUT and Peripherals



■ : Ferrite core

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.

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 bandwidth of Test Receiver R&S ESVS10 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 640*480@60Hz	P22
D-Sub 800*600@60Hz	P23
D-Sub 1024*768@60Hz	P24
HDMI 640*480@60Hz	P25
HDMI 800*600@60Hz	P26
HDMI 1024*768@60Hz	P27

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

NOTE 2 – The emission levels that are 20dB below the official limit are not reported.

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 D-Sub 1024*768@60Hz test mode. The worst emission at horizontal polarization was detected at 665.350 MHz with corrected signal level of 42.74 dB ($\mu\text{V}/\text{m}$) (limit is 46.00dB ($\mu\text{V}/\text{m}$)), when the antenna was 1.00 m height and the turntable was at 290°. The worst emission at vertical polarization was detected at 665.000 MHz with corrected signal level of 44.16dB ($\mu\text{V}/\text{m}$) (limit is 46.00 dB ($\mu\text{V}/\text{m}$)), when the antenna was 1.00 m height and the turntable was at 225°.

EUT : LCD TV Temperature : 22°C

Model No. : 47LC55S240V87 Humidity : 60%RH

Serial No. : E2009112301 Date of Test : Nov 25, 2009

Test Mode : D-Sub 800*600@60Hz

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	56.190	24.59	7.46	0.78	32.83	40.00	7.17
	74.620	24.80	7.11	0.91	32.82	40.00	7.18
	133.790	25.02	12.35	1.19	38.56	43.50	4.94
	150.280	25.62	11.25	1.23	38.10	43.50	5.40
	673.000	21.80	19.58	2.61	43.99	46.00	2.01
	747.800	15.19	20.20	2.78	38.17	46.00	7.83
Vertical	80.440	24.94	7.85	0.97	33.76	40.00	6.24
	94.020	23.34	10.27	1.01	34.62	43.50	8.88
	187.140	26.12	10.17	1.38	37.67	43.50	5.83
	598.000	21.00	19.20	2.46	42.66	46.00	3.34
	673.110	20.10	19.58	2.61	42.29	46.00	3.71
	971.870	19.37	22.22	3.16	44.75	54.00	9.25

TEST ENGINEER: RAVEN JIN

EUT : LCD TV Temperature : 22°C

Model No. : 47LC55S240V87 Humidity : 60%RH

Serial No. : E2009112301 Date of Test : Nov 25, 2009

Test Mode : D-Sub 1024*768@60Hz

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	87.230	26.52	8.96	0.99	36.47	40.00	3.53
	152.220	27.04	11.09	1.22	39.35	43.50	4.15
	172.590	26.11	10.11	1.33	37.55	43.50	5.95
	444.190	17.12	17.14	2.12	36.38	46.00	9.62
	590.660	20.80	19.11	2.46	42.37	46.00	3.63
	665.350	20.58	19.54	2.62	42.74	46.00	3.26
Vertical	87.230	24.48	8.96	0.99	34.43	40.00	5.57
	107.600	23.53	12.10	1.05	36.68	43.50	6.82
	147.800	27.39	11.46	1.24	40.09	43.50	3.41
	516.940	17.75	18.12	2.31	38.18	46.00	7.82
	665.000	22.00	19.54	2.62	44.16	46.00	1.84
	739.070	17.27	20.10	2.77	40.14	46.00	5.86

TEST ENGINEER: RAVEN JIN

EUT : LCD TV Temperature : 22°C

Model No. : 47LC55S240V87 Humidity : 60%RH

Serial No. : E2009112301 Date of Test : Nov 25, 2009

Test Mode : HDMI 640*480@60Hz

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	55.220	17.65	7.69	0.78	26.12	40.00	13.88
	133.790	21.35	12.35	1.19	34.89	43.50	8.61
	150.280	21.37	11.25	1.23	33.85	43.50	9.65
	224.970	20.63	11.89	1.55	34.07	46.00	11.93
	599.390	17.53	19.20	2.46	39.19	46.00	6.81
	674.080	16.26	19.58	2.64	38.48	46.00	7.52
Vertical	32.910	13.17	17.95	0.62	31.74	40.00	8.26
	74.620	23.72	7.11	0.91	31.74	40.00	8.26
	150.280	24.30	11.25	1.23	36.78	43.50	6.72
	187.140	19.75	10.17	1.38	31.30	43.50	12.20
	523.730	13.95	18.21	2.32	34.48	46.00	11.52
	673.110	17.83	19.58	2.61	40.02	46.00	5.98

TEST ENGINEER: RAVEN JIN

EUT : LCD TV Temperature : 22°C

Model No. : 47LC55S240V87 Humidity : 60%RH

Serial No. : E2009112301 Date of Test : Nov 25, 2009

Test Mode : HDMI 800*600@60Hz

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	32.910	13.79	17.95	0.62	32.36	40.00	7.64
	73.650	22.77	6.98	0.91	30.66	40.00	9.34
	107.600	18.39	12.10	1.05	31.54	43.50	11.96
	148.340	25.04	11.41	1.24	37.69	43.50	5.81
	516.940	14.98	18.12	2.31	35.41	46.00	10.59
	665.350	17.22	19.54	2.62	39.38	46.00	6.62
Vertical	79.470	23.52	7.72	0.97	32.21	40.00	7.79
	107.600	19.45	12.10	1.05	32.60	43.50	10.90
	152.220	20.47	11.09	1.22	32.78	43.50	10.72
	295.780	16.50	13.84	1.76	32.10	46.00	13.90
	369.500	13.10	15.84	1.97	30.91	46.00	15.09
	590.660	17.19	19.11	2.46	38.76	46.00	7.24

TEST ENGINEER: RAVEN JIN

EUT : LCD TV Temperature : 22°C

Model No. : 47LC55S240V87 Humidity : 60%RH

Serial No. : E2009112301 Date of Test : Nov 25, 2009

Test Mode : HDMI 1024*768@60Hz

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	33.880	13.33	17.44	0.64	31.41	40.00	8.59
	73.650	23.58	6.98	0.91	31.47	40.00	8.53
	147.370	25.27	11.51	1.24	38.02	43.50	5.48
	180.350	23.92	9.90	1.36	35.18	43.50	8.32
	513.060	16.52	18.06	2.31	36.89	46.00	9.11
	659.530	19.09	19.51	2.62	41.22	46.00	4.78
Vertical	144.000	28.20	11.76	1.21	41.17	43.50	2.33
	252.130	26.36	12.94	1.61	40.91	46.00	5.09
	292.870	18.43	13.79	1.75	33.97	46.00	12.03
	513.060	17.16	18.06	2.31	37.53	46.00	8.47
	586.780	16.80	19.06	2.45	38.31	46.00	7.69
	659.530	13.88	19.51	2.62	36.01	46.00	9.99

TEST ENGINEER: RAVEN JIN

5 DEVIATION TO TEST SPECIFICATIONS

None.


6 DEBUG DESCRIPTION

The following components are used during the countermeasure procedures:

Name	M/N	Specification (mm)	Manufacturer	Location
Ferrite Core	ZCAT3035-1330\ ROH	--	FEELUX	See Appendix Internal Figure 23, 24
			REALFINE	
			Haian County Magnetic Material No. 2 Factory	
			LETTALL	
Aluminum foil	--	30*100	FEELUX	See Appendix Internal Figure 25
Aluminum foil	--	30*40	FEELUX	See Appendix Internal Figure 25, 26, 27

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)