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

LCD TV

Model No.	Serial No.	Brand
LTDN42V87XUS	E2010062801	Hisense
42LC55S240V87	--	Proscan
NX4203S240	--	NEXUS
LTDN42V88XUS	--	Hisense
42LA55RS	--	RCA

FCC ID : W9HLCDD0003

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-F09115A3
Date of Test : Jun 30 – Jul 05, 2010
Date of Report : Jul 16, 2010

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 9
2.4 Measurement Uncertainty 9
3 CONDUCTED EMISSION TEST 10
3.2 Block Diagram of Test Setup 10
3.3 Conducted Emission Limit [FCC Part 15 Subpart B 15.107(a)] 11
3.4 Test Configuration 11
3.5 Operating Condition of EUT 12
3.6 Test Procedures 12
3.7 Test Results 13
4 RADIATED EMISSION TEST 20
4.1 Test Equipment 20
4.2 Block Diagram of Test Setup 20
4.3 Radiated Emission Limit [FCC Part 15 Subpart B 15.109(a)] 21
4.4 Test Configuration 21
4.5 Operating Condition of EUT 21
4.6 Test Procedures 22
4.7 Test Results 22
5 DEVIATION TO TEST SPECIFICATIONS 29
6 DEBUG DESCRIPTION 30

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
LTDN42V87XUS	E2010062801	Hisense	120V/60Hz
42LC55S240V87	--	PROSCAN	
NX4203S240	--	NEXUS	
LTDN42V88XUS	--	Hisense	
42LA55RS	--	RCA	

Test Procedure Used:

FCC RULES AND REGULATIONS PART 15 SUBPART B CLASS B OCTOBER 2009 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 Jun 30 – Jul 05, 2010 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.F09114A3, a Verification report.

Date of Test : Jun 30 – Jul 05, 2010 Date of Report : Jul 16, 2010

Producer : Kathy Wang
KATHY WANG / Assistant

Review : Dio Yang
DIO YANG / Deputy Assistant Manager

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

Signatory : Sammy Chen
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 2009 AND ANSI C63.4-2003	15.107(a) Class B	Pass
Radiated Disturbance	FCC RULES AND REGULATIONS PART 15 SUBPART B OCTOBER 2009 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
LTDN42V87XUS	E2010062801	Hisense
42LC55S240V87	--	Proscan
NX4203S240	--	NEXUS
LTDN42V88XUS	--	Hisense
42LA55RS	--	RCA

Note 1 : The difference list for all models is as follows:

Report No.	Model No.	Rev. Summary	Edition No.	Data of Rev.
ACI-F09115	LTDN42V87XUS 42LC55S240V87	Original Report.	0	Nov 17, 2009
ACI-F09115A1	LTDN42V87XUS 42LC55S240V87 NX4203S240	To add one model	Rev. A1	Dec 17, 2009
ACI-F09115A2	LTDN42V87XUS, 42LC55S240V87, NX4203S240, LTDN42V88XUS, 42LA55RS	To add two model numbers (with different appearance)	Rev. A2	Jan 21, 2010
ACI-F09115A3	LTDN42V87XUS, 42LC55S240V87, NX4203S240, LTDN42V88XUS, 42LA55RS	To add LCD Panel	Rev. A3	Jul 16, 2010

Note 2 : LTDN42V87XUS, 42LC55S240V87 and NX4203S240 are all the same except for the different model number and brand. LTDN42V88XUS and 42LA55RS are same as LTDN42V87XUS except for different model number, brand and appearance.

Note 3 : The LTDN42V87XUS 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 : LGD M/N : LC420WUD-SCM1
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 RF 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 Earphone Port
Connected with Earphone

(18) One Service Port
Do not open to Customer

2.2 Peripherals

2.2.1 PC

Manufacturer	:	HP
Model Number	:	dx7200MT
Serial Number	:	CNG8130K89
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	:	FS-04
Serial Number	:	002

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

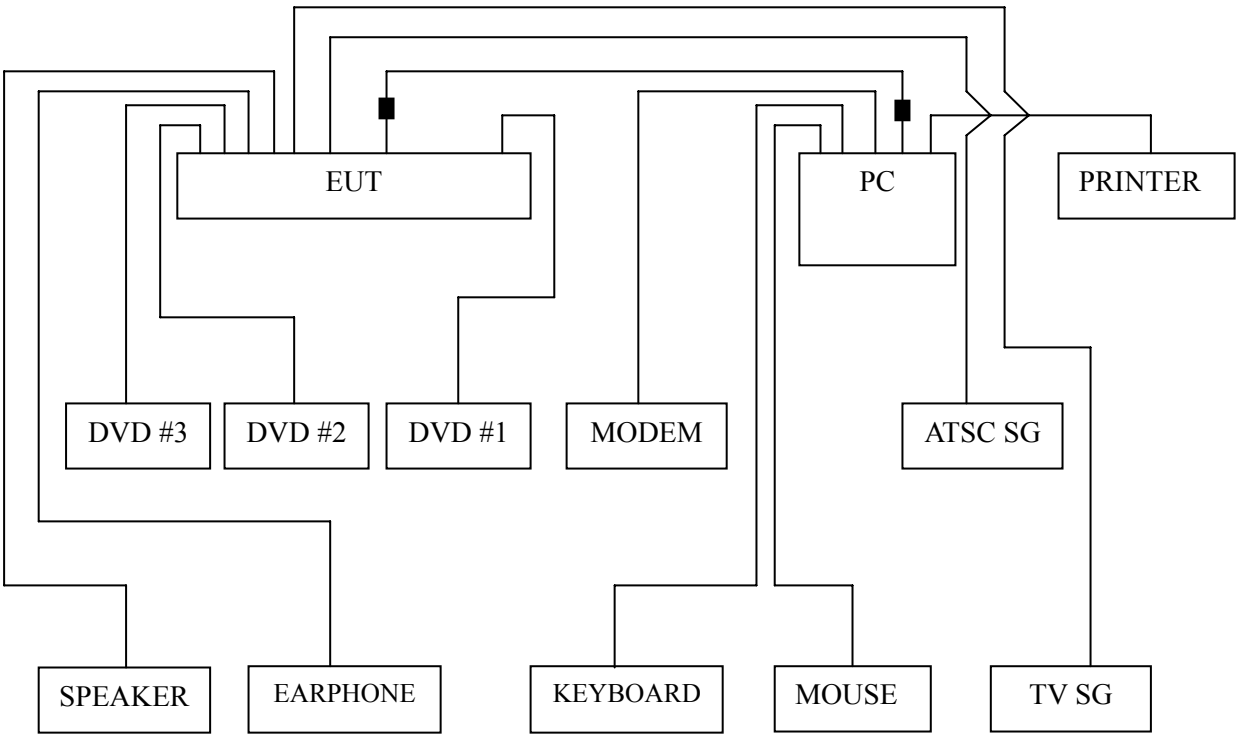
3.1.1 Test Equipment

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	Nov 21, 2009	Nov 21, 2010
2.	Artificial Mains Network (AMN)	R&S	ESH2-Z5	843890/011	Apr 02, 2010	Apr 02, 2011
3.	Line Impedance Stabilization Network (LISN)	Kyoritsu	KNW-407	8-1280-4	Apr 02, 2010	Apr 02, 2011
4.	50 Ω Coaxial Switch	Anritsu	MP59B	6200426389	Mar 19, 2010	Sep 19, 2010
5.	50Ω Terminator	Anritsu	BNC	001	Apr 02, 2010	Apr 02, 2011
6.	Software	Audix	E3	SET00200 9804M592	--	--

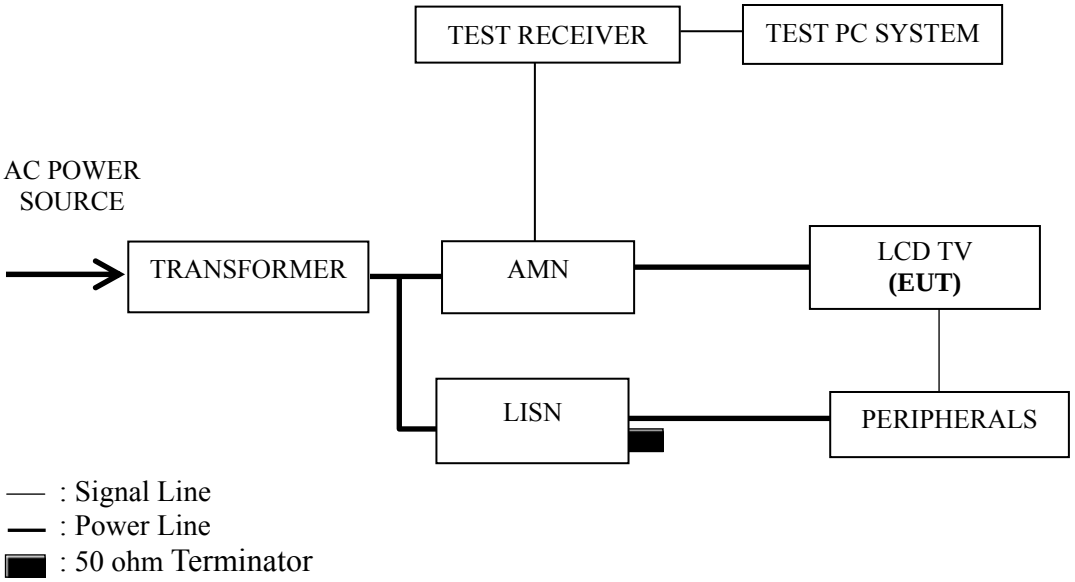
3.2 Block Diagram of Test Setup

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 (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 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	P14
D-Sub 800*600@60Hz	P15
D-Sub 1024*768@60Hz	P16
HDMI 640*480@60Hz	P17
HDMI 800*600@60Hz	P18
HDMI 1024*768@60Hz	P19

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 640*480@60Hz test mode. The worst emission is detected at 2.057 MHz (Quasi-Peak Value) with corrected signal level of 52.21 dB (μV) (limit is 56.00 dB (μV)), when the Neutral of the EUT is connected to AMN.

EUT	:	LCD TV	Temperature :	22℃	
Model No.	:	LTDN42V87XUS	Humidity :	48%RH	
Serial No.	:	E2010062801	Date of Test :	Jul 05, 2010	
Test Mode	:	D-Sub 640*480@60Hz			

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.190	44.63	0.38	45.01	64.02	19.01	QP
	0.296	46.82	0.45	47.27	60.37	13.10	
	0.880	45.58	0.54	46.12	56.00	9.88	
	1.464	42.83	0.57	43.40	56.00	12.60	
	9.352	24.54	1.03	25.57	60.00	34.43	
	12.920	37.11	1.18	38.29	60.00	21.71	
	0.190	38.67	0.38	39.05	54.02	14.97	AV
	0.296	28.53	0.45	28.98	50.37	21.39	
	0.880	16.96	0.54	17.50	46.00	28.50	
	1.464	26.53	0.57	27.10	46.00	18.90	
	9.352	15.75	1.03	16.78	50.00	33.22	
	12.920	24.08	1.18	25.26	50.00	24.74	
Neutral	0.296	48.20	0.39	48.59	60.36	11.77	QP
	0.883	48.39	0.51	48.90	56.00	7.10	
	1.471	51.50	0.54	52.04	56.00	3.96	
	2.057	**51.63**	**0.58**	**52.21**	**56.00**	**3.79**	
	12.940	49.78	1.30	51.08	60.00	8.92	
	16.270	48.84	1.55	50.39	60.00	9.61	
	0.296	30.96	0.39	31.35	50.36	19.01	AV
	0.883	28.17	0.51	28.68	46.00	17.32	
	1.471	32.84	0.54	33.38	46.00	12.62	
	2.057	33.71	0.58	34.29	46.00	11.71	
	12.940	31.99	1.30	33.29	50.00	16.71	
	16.270	30.46	1.55	32.01	50.00	17.99	

TEST ENGINEER: TED ZHU

EUT	:	LCD TV	Temperature :	22℃	
Model No.	:	LTDN42V87XUS	Humidity :	48%RH	
Serial No.	:	E2010062801	Date of Test :	Jul 05, 2010	
Test Mode	:	D-Sub 800*600@60Hz			

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.190	52.29	0.38	52.67	64.02	11.35	QP
	0.296	47.77	0.45	48.22	60.36	12.14	
	0.881	46.72	0.54	47.26	56.00	8.74	
	1.470	46.24	0.57	46.81	56.00	9.19	
	2.045	33.74	0.61	34.35	56.00	21.65	
	12.920	34.39	1.18	35.57	60.00	24.43	
	0.190	**45.69**	**0.38**	**46.07**	**54.02**	**7.95**	AV
	0.296	27.11	0.45	27.56	50.36	22.80	
	0.881	25.43	0.54	25.97	46.00	20.03	
	1.470	25.52	0.57	26.09	46.00	19.91	
	2.045	22.40	0.61	23.01	46.00	22.99	
	12.920	23.61	1.18	24.79	50.00	25.21	
Neutral	0.193	44.87	0.31	45.18	63.93	18.75	QP
	0.295	45.26	0.39	45.65	60.37	14.72	
	0.881	44.36	0.51	44.87	56.00	11.13	
	1.471	42.27	0.54	42.81	56.00	13.19	
	2.055	34.90	0.58	35.48	56.00	20.52	
	13.000	35.82	1.30	37.12	60.00	22.88	
	0.193	39.24	0.31	39.55	53.93	14.38	AV
	0.295	24.46	0.39	24.85	50.37	25.52	
	0.881	23.03	0.51	23.54	46.00	22.46	
	1.471	17.10	0.54	17.64	46.00	28.36	
	2.055	23.06	0.58	23.64	46.00	22.36	
	13.000	23.17	1.30	24.47	50.00	25.53	

TEST ENGINEER: TED ZHU

EUT	:	LCD TV	Temperature :	22℃	
Model No.	:	LTDN42V87XUS	Humidity :	48%RH	
Serial No.	:	E2010062801	Date of Test :	Jul 05, 2010	
Test Mode	:	D-Sub 1024*768@60Hz			

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.192	52.62	0.38	53.00	63.93	10.93	QP
	0.296	45.01	0.45	45.46	60.37	14.91	
	0.880	44.17	0.54	44.71	56.00	11.29	
	1.464	43.95	0.57	44.52	56.00	11.48	
	2.044	32.55	0.61	33.16	56.00	22.84	
	13.267	31.76	1.19	32.95	60.00	27.05	
	0.192	**46.54**	**0.38**	**46.92**	**53.93**	**7.01**	AV
	0.296	23.51	0.45	23.96	50.37	26.41	
	0.880	14.38	0.54	14.92	46.00	31.08	
	1.464	27.09	0.57	27.66	46.00	18.34	
	2.044	22.46	0.61	23.07	46.00	22.93	
	13.267	21.81	1.19	23.00	50.00	27.00	
Neutral	0.192	44.85	0.31	45.16	63.93	18.77	QP
	0.297	43.94	0.39	44.33	60.34	16.01	
	0.880	43.02	0.51	43.53	56.00	12.47	
	1.464	41.21	0.54	41.75	56.00	14.25	
	2.044	34.11	0.58	34.69	56.00	21.31	
	13.267	33.82	1.32	35.14	60.00	24.86	
	0.192	39.47	0.31	39.78	53.93	14.15	AV
	0.297	20.44	0.39	20.83	50.34	29.51	
	0.880	14.87	0.51	15.38	46.00	30.62	
	1.464	18.59	0.54	19.13	46.00	26.87	
	2.044	21.38	0.58	21.96	46.00	24.04	
	13.267	26.26	1.32	27.58	50.00	22.42	

TEST ENGINEER: TED ZHU

EUT	:	LCD TV	Temperature :	22℃	
Model No.	:	LTDN42V87XUS	Humidity :	48%RH	
Serial No.	:	E2010062801	Date of Test :	Jul 05, 2010	
Test Mode	:	HDMI 640*480@60Hz			

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.190	52.06	0.38	52.44	64.02	11.58	QP
	0.296	44.83	0.45	45.28	60.37	15.09	
	0.880	44.24	0.54	44.78	56.00	11.22	
	1.464	43.98	0.57	44.55	56.00	11.45	
	2.044	32.59	0.61	33.20	56.00	22.80	
	13.267	31.68	1.19	32.87	60.00	27.13	
	0.190	**46.42**	**0.38**	**46.80**	**54.02**	**7.22**	AV
	0.296	26.03	0.45	26.48	50.37	23.89	
	0.880	15.60	0.54	16.14	46.00	29.86	
	1.464	26.37	0.57	26.94	46.00	19.06	
	2.044	22.20	0.61	22.81	46.00	23.19	
	13.267	23.23	1.19	24.42	50.00	25.58	
Neutral	0.193	45.10	0.31	45.41	63.92	18.51	QP
	0.296	43.00	0.39	43.39	60.37	16.98	
	0.881	42.32	0.51	42.83	56.00	13.17	
	1.460	40.33	0.54	40.87	56.00	15.13	
	2.055	34.20	0.58	34.78	56.00	21.22	
	13.400	33.19	1.33	34.52	60.00	25.48	
	0.193	38.52	0.31	38.83	53.92	15.09	AV
	0.296	23.45	0.39	23.84	50.37	26.53	
	0.881	20.88	0.51	21.39	46.00	24.61	
	1.460	17.63	0.54	18.17	46.00	27.83	
	2.055	21.81	0.58	22.39	46.00	23.61	
	13.400	24.36	1.33	25.69	50.00	24.31	

TEST ENGINEER: TED ZHU

EUT	:	LCD TV	Temperature :	22℃	
Model No.	:	LTDN42V87XUS	Humidity :	48%RH	
Serial No.	:	E2010062801	Date of Test :	Jul 05, 2010	
Test Mode	:	HDMI 800*600@60Hz			

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.193	52.58	0.38	52.96	63.93	10.97	QP
	0.296	44.82	0.45	45.27	60.37	15.10	
	0.880	44.26	0.54	44.80	56.00	11.20	
	1.466	43.97	0.57	44.54	56.00	11.46	
	2.055	32.48	0.61	33.09	56.00	22.91	
	13.300	31.62	1.19	32.81	60.00	27.19	
	0.193	**47.39**	**0.38**	**47.77**	**53.93**	**6.16**	AV
	0.296	19.89	0.45	20.34	50.37	30.03	
	0.880	22.10	0.54	22.64	46.00	23.36	
	1.466	26.29	0.57	26.86	46.00	19.14	
	2.055	21.62	0.61	22.23	46.00	23.77	
	13.300	23.70	1.19	24.89	50.00	25.11	
Neutral	0.190	44.55	0.31	44.86	64.02	19.16	QP
	0.296	42.91	0.39	43.30	60.35	17.05	
	0.880	42.38	0.51	42.89	56.00	13.11	
	1.467	40.39	0.54	40.93	56.00	15.07	
	2.045	34.16	0.58	34.74	56.00	21.26	
	13.290	33.11	1.32	34.43	60.00	25.57	
	0.190	38.87	0.31	39.18	54.02	14.84	AV
	0.296	21.48	0.39	21.87	50.35	28.48	
	0.880	18.75	0.51	19.26	46.00	26.74	
	1.467	22.99	0.54	23.53	46.00	22.47	
	2.045	22.33	0.58	22.91	46.00	23.09	
	13.290	25.10	1.32	26.42	50.00	23.58	

TEST ENGINEER: TED ZHU

EUT	:	LCD TV	Temperature :	22℃
Model No.	:	LTDN42V87XUS	Humidity :	48%RH
Serial No.	:	E2010062801	Date of Test :	Jul 05, 2010
Test Mode	:	HDMI 1024*768@60Hz		

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.190	52.00	0.38	52.38	64.02	11.64	QP
	0.296	44.76	0.45	45.21	60.37	15.16	
	0.880	44.21	0.54	44.75	56.00	11.25	
	1.467	43.93	0.57	44.50	56.00	11.50	
	2.055	32.49	0.61	33.10	56.00	22.90	
	13.300	31.91	1.19	33.10	60.00	26.90	
	0.190	**45.02**	**0.38**	**45.40**	**54.02**	**8.62**	AV
	0.296	19.16	0.45	19.61	50.37	30.76	
	0.880	22.08	0.54	22.62	46.00	23.38	
	1.467	26.48	0.57	27.05	46.00	18.95	
	2.055	22.41	0.61	23.02	46.00	22.98	
	13.300	22.99	1.19	24.18	50.00	25.82	
Neutral	0.192	45.05	0.31	45.36	63.93	18.57	QP
	0.296	42.73	0.39	43.12	60.37	17.25	
	0.880	42.43	0.51	42.94	56.00	13.06	
	1.464	40.35	0.54	40.89	56.00	15.11	
	2.044	34.20	0.58	34.78	56.00	21.22	
	13.267	33.04	1.32	34.36	60.00	25.64	
	0.192	39.24	0.31	39.55	53.93	14.38	AV
	0.296	23.60	0.39	23.99	50.37	26.38	
	0.880	18.50	0.51	19.01	46.00	26.99	
	1.464	15.09	0.54	15.63	46.00	30.37	
	2.044	21.71	0.58	22.29	46.00	23.71	
	13.267	20.13	1.32	21.45	50.00	28.55	

TEST ENGINEER: TED ZHU

4 RADIATED EMISSION TEST

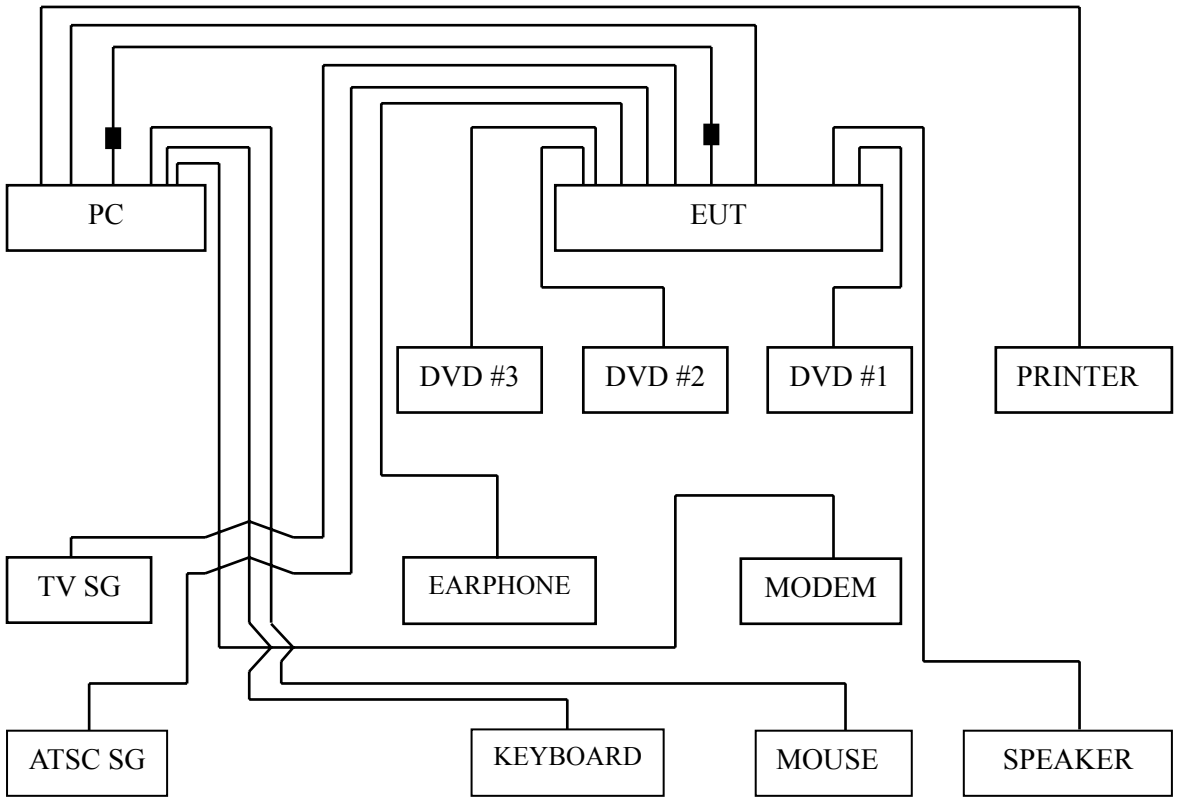
4.1 Test Equipment

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, 2010	Mar 07, 2011
2.	Preamplifier	Agilent	8447D	2944A10548	Mar 19, 2010	, Sep 19 2011
3.	Bi-log Antenna	TESEQ	CBL6112D	23192	Dec 01, 2009	Dec 01, 2010
4.	Spectrum	Agilent	E7405A	MY45106600	May 19, 2010	May 19, 2011
5.	Software	Audix	E3	SET00200 9912M295-2	--	--

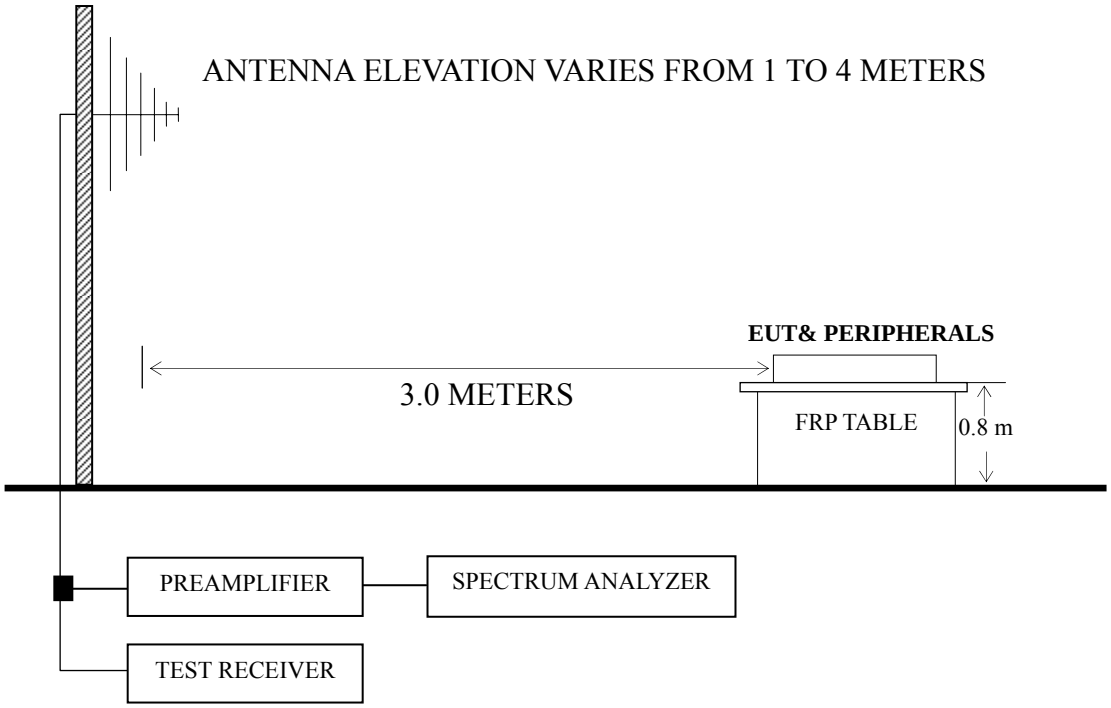
4.2 Block Diagram of Test Setup

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	
		(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.

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	P23
D-Sub 800*600@60Hz	P24
D-Sub 1024*768@60Hz	P25
HDMI 640*480@60Hz	P26
HDMI 800*600@60Hz	P27
HDMI 1024*768@60Hz	P28

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 800*600@60Hz test mode. The worst emission at horizontal polarization was detected at 898.150 MHz with corrected signal level of 43.03 dB (μV/m) (limit is 46.00dB (μV/m)), when the antenna was 1.00 m height and the turntable was at 330°. The worst emission at vertical polarization was detected at 599.390 MHz with corrected signal level of 41.19dB (μV/m) (limit is 46.00 dB (μV/m)), when the antenna was 1.00 m height and the turntable was at 120°.

EUT	:	LCD TV	Temperature :	22℃
Model No.	:	LTDN42V87XUS	Humidity :	60%RH
Serial No.	:	E2010062801	Date of Test :	Jun 29, 2010
Test Mode	:	D-Sub 640*480@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	50.370	18.05	8.85	0.70	27.60	40.00	12.40
	87.230	**26.16**	**8.96**	**1.00**	**36.12**	**40.00**	**3.88**
	152.220	25.08	11.09	1.25	37.42	43.50	6.08
	440.310	20.22	17.09	2.30	39.61	46.00	6.39
	659.530	17.97	19.51	2.86	40.34	46.00	5.66
	879.720	14.67	21.49	3.39	39.55	46.00	6.45
Vertical	32.910	13.42	17.95	0.64	32.01	40.00	7.99
	87.230	23.61	8.96	1.00	33.57	40.00	6.43
	172.590	**27.48**	**10.11**	**1.38**	**38.97**	**43.50**	**4.53**
	440.310	20.01	17.09	2.30	39.40	46.00	6.60
	659.530	17.44	19.51	2.86	39.81	46.00	6.19
	953.440	11.84	22.11	3.53	37.48	46.00	8.52

TEST ENGINEER: RAVEN JIN

EUT	:	LCD TV	Temperature :	22℃
Model No.	:	LTDN42V87XUS	Humidity :	60%RH
Serial No.	:	E2010062801	Date of Test :	Jun 29, 2010
Test Mode	:	D-Sub 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	50.370	18.18	8.85	0.70	27.73	40.00	12.27
	94.020	22.76	10.27	1.05	34.08	43.50	9.42
	187.140	24.80	10.17	1.47	36.44	43.50	7.06
	298.690	21.62	13.88	1.88	37.38	46.00	8.62
	599.390	20.69	19.20	2.74	42.63	46.00	3.37
	898.150	**17.92**	**21.67**	**3.44**	**43.03**	**46.00**	**2.97**
Vertical	32.910	13.02	17.95	0.64	31.61	40.00	8.39
	94.020	20.38	10.27	1.05	31.70	43.50	11.80
	187.140	26.64	10.17	1.47	38.28	43.50	5.22
	449.040	18.39	17.20	2.32	37.91	46.00	8.09
	599.390	**19.25**	**19.20**	**2.74**	**41.19**	**46.00**	**4.81**
	972.840	11.87	22.22	3.58	37.67	54.00	16.33

TEST ENGINEER: RAVEN JIN

EUT	:	LCD TV	Temperature :	22℃
Model No.	:	LTDN42V87XUS	Humidity :	60%RH
Serial No.	:	E2010062801	Date of Test :	Jun 29, 2010
Test Mode	:	D-Sub 1024*768@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	50.370	17.85	8.85	0.70	27.40	40.00	12.60
	87.230	**26.63**	**8.96**	**1.00**	**36.59**	**40.00**	**3.41**
	152.220	24.50	11.09	1.25	36.84	43.50	6.66
	371.440	19.63	15.88	2.12	37.63	46.00	8.37
	592.600	20.13	19.11	2.72	41.96	46.00	4.04
	890.390	17.31	21.60	3.42	42.33	46.00	3.67
Vertical	31.940	12.25	18.49	0.64	31.38	40.00	8.62
	87.230	23.66	8.96	1.00	33.62	40.00	6.38
	172.590	**27.16**	**10.11**	**1.38**	**38.65**	**43.50**	**4.85**
	445.160	17.41	17.14	2.31	36.86	46.00	9.14
	592.600	17.70	19.11	2.72	39.53	46.00	6.47
	890.390	13.12	21.60	3.42	38.14	46.00	7.86

TEST ENGINEER: RAVEN JIN

EUT	:	LCD TV	Temperature :	22℃
Model No.	:	LTDN42V87XUS	Humidity :	60%RH
Serial No.	:	E2010062801	Date of Test :	Jun 29, 2010
Test Mode	:	HDMI 640*480@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	50.370	15.05	8.85	0.70	24.60	40.00	15.40
	87.230	**24.16**	**8.96**	**1.00**	**34.12**	**40.00**	**5.88**
	152.220	22.08	11.09	1.25	34.42	43.50	9.08
	440.310	19.22	17.09	2.30	38.61	46.00	7.39
	585.810	18.22	19.06	2.70	39.98	46.00	6.02
	879.720	13.67	21.49	3.39	38.55	46.00	7.45
Vertical	**32.910**	**14.42**	**17.95**	**0.64**	**33.01**	**40.00**	**6.99**
	87.230	21.61	8.96	1.00	31.57	40.00	8.43
	152.220	23.25	11.09	1.25	35.59	43.50	7.91
	440.310	19.01	17.09	2.30	38.40	46.00	7.60
	659.530	15.44	19.51	2.86	37.81	46.00	8.19
	953.440	10.84	22.11	3.53	36.48	46.00	9.52

TEST ENGINEER: RAVEN JIN

EUT	:	LCD TV	Temperature :	22℃
Model No.	:	LTDN42V87XUS	Humidity :	60%RH
Serial No.	:	E2010062801	Date of Test :	Jun 29, 2010
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	50.370	16.18	8.85	0.70	25.73	40.00	14.27
	94.020	19.76	10.27	1.05	31.08	43.50	12.42
	147.370	24.74	11.51	1.22	37.47	43.50	6.03
	374.350	17.95	15.95	2.13	36.03	46.00	9.97
	599.390	17.69	19.20	2.74	39.63	46.00	6.37
	898.150	**14.92**	**21.67**	**3.44**	**40.03**	**46.00**	**5.97**
Vertical	49.400	19.86	9.16	0.70	29.72	40.00	10.28
	94.020	15.38	10.27	1.05	26.70	43.50	16.80
	187.140	24.64	10.17	1.47	36.28	43.50	7.22
	449.040	14.39	17.20	2.32	33.91	46.00	12.09
	599.390	**17.25**	**19.20**	**2.74**	**39.19**	**46.00**	**6.81**
	972.840	8.87	22.22	3.58	34.67	54.00	19.33

TEST ENGINEER: RAVEN JIN

EUT	:	LCD TV	Temperature :	22℃
Model No.	:	LTDN42V87XUS	Humidity :	60%RH
Serial No.	:	E2010062801	Date of Test :	Jun 29, 2010
Test Mode	:	HDMI 1024*768@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	50.370	14.85	8.85	0.70	24.40	40.00	15.60
	87.230	**22.63**	**8.96**	**1.00**	**32.59**	**40.00**	**7.41**
	152.220	23.50	11.09	1.25	35.84	43.50	7.66
	371.440	19.63	15.88	2.12	37.63	46.00	8.37
	592.600	16.13	19.11	2.72	37.96	46.00	8.04
	890.390	13.31	21.60	3.42	38.33	46.00	7.67
Vertical	31.940	12.25	18.49	0.64	31.38	40.00	8.62
	87.230	21.66	8.96	1.00	31.62	40.00	8.38
	172.590	**25.16**	**10.11**	**1.38**	**36.65**	**43.50**	**6.85**
	445.160	13.41	17.14	2.31	32.86	46.00	13.14
	592.600	15.70	19.11	2.72	37.53	46.00	8.47
	890.390	10.12	21.60	3.42	35.14	46.00	10.86

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	Manufacturer	Location
Ferrite Core	ZCAT3035-1130\ ROH	--	FEELUX	See Internal Figure 18, 19, 22
			REALFINE	
			Haian County Magnetic Material No. 2 Factory	
			LETTALL	
Ferrite Core	ZCAT2132-1330\ ROH	--	FEELUX	See Internal Figure 21
			REALFINE	
			Haian County Magnetic Material No. 2 Factory	
			LETTALL	
			REALFINE	
			Haian County Magnetic Material No. 2 Factory	
			LETTALL	
Gasket	35X0.7X41mm\VGA\ROH	--	JOINSET S&T CO., LTD.	See Internal 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)