

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

LCD TV

Model No.	Serial No.	Brand
LTDN24K20US	E1202179-01/01	Hisense
24K20	--	

FCC ID : W9HLCDA0006

Prepared For : Hisense Electric Co., Ltd.
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Development Zone, Qingdao, China

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Report No. : ACI-F12042
Date of Test : Mar 09, 2012
Date of Report : Mar 15, 2012

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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
LTDN24K20US	E1202179-01/01	Hisense	120V/60Hz
24K20	--		

Test Procedure Used:

*FCC RULES AND REGULATIONS PART 15 SUBPART B CLASS B OCTOBER 2010
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: LTDN24K20US, 24K20; S/N: E1202179-01/01) which was tested in 3m anechoic chamber Mar 09, 2012 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.

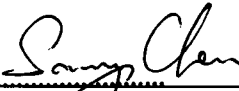
The test results for EUT's TV functions are contained in No.F12041, a Verification report.

Date of Test : Mar 09, 2012 Date of Report : Mar 15, 2012

Producer : 
KATHY WANG / Assistant

Review : 
DIO YANG / Assistant Manager

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

Signatory : 
Authorized Signature EMC SAMMY CHEN / Deputy Manager

1 SUMMARY OF STANDARDS AND RESULTS

1.1 Description of Standards and Results

The EUT have been tested according to the applicable standards as referenced below:

Description of Test Item	Standard	Limits	Results
EMISSION			
Conducted Disturbance at the Mains Terminal	FCC RULES AND REGULATIONS PART 15 SUBPART B OCTOBER 2010 AND ANSI C63.4-2003	15.107(a) Class B	Pass
Radiated Disturbance	FCC RULES AND REGULATIONS PART 15 SUBPART B OCTOBER 2010 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.	:	LTDN24K20US	24K20
Serial No.	:	E1202179-01/01	--
Brand	:	Hisense	

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

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

LCD Panel : Manufacturer : CHI MEI Optoelectronics
M/N : V236H1-LE4

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 LCD TV which input/output ports as follows:

Side Port:

- (1) One Service Port : Do not open to the Customers
- (2) One Headphone Port : Connected with Earphone
- (3) One component of Audio Out Port
Connected with Speaker
- (4) One ANT/Cable In Port : Connected with TV SG / ATSC SG

Back Port:

- (5) One component of YPbPr Port : Connected with DVD
- (6) One component of YPbPr Audio In Port : Connected with DVD
- (7) One HDMI Port : Connected with DVD
- (8) One PC/DVI Audio InPort : Connected with PC
- (9) One PC (VGA) Port : Connected with PC
- (10) One component of AV Port : Connected with DVD
- (11) One Digital Audio Output Port : Connected with DVD

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

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

2.2.10 Speaker

Model Number : FS-04
Serial Number : 002

2.3 Description of Test Facility

Site Description (No.3 3m 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 = 3.38dB

Radiated Emission Expanded Uncertainty (30-200MHz):
U = 4.58 dB (horizontal)
U = 4.70 dB (vertical)

Radiated Emission Expanded Uncertainty (200M-1GHz):
U = 4.84 dB (horizontal)
U = 4.70 dB (vertical)

3 CONDUCTED EMISSION TEST

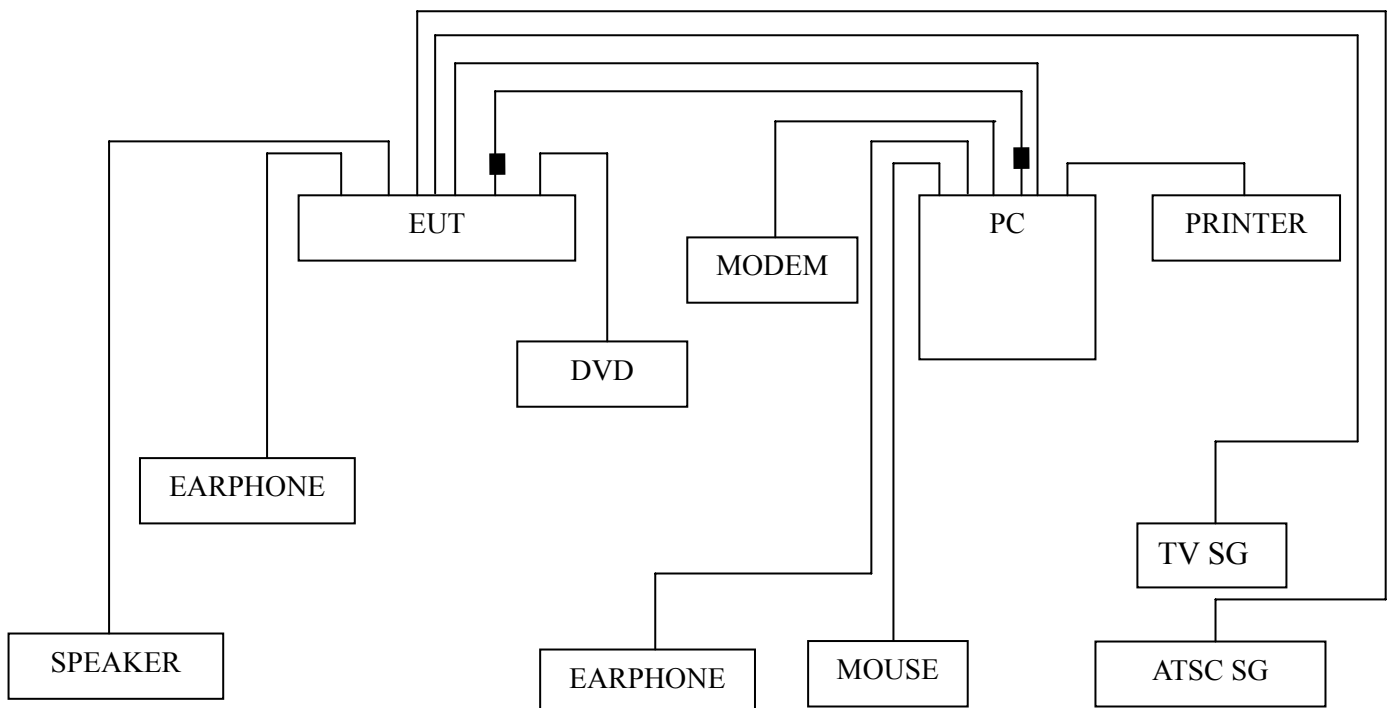
3.1 Test Equipment

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, 2011	Mar 22, 2012
2.	Artificial Mains Network (AMN #1)	R&S	ESH2-Z5	843890/011	Mar 22, 2011	Mar 22, 2012
3.	Artificial Mains Network (AMN #2)	R&S	ENV4200	100125	Mar 22, 2011	Mar 22, 2012
4.	50 Ω Coaxial Switch	Anritsu	MP59B	6200426389	Sep 18, 2011	Mar 18, 2012
5.	50 Ω Terminator	Anritsu	BNC	001	Mar 22, 2011	Mar 22, 2012
6.	Software	Audix	E3	SET00200 9804M592	--	--

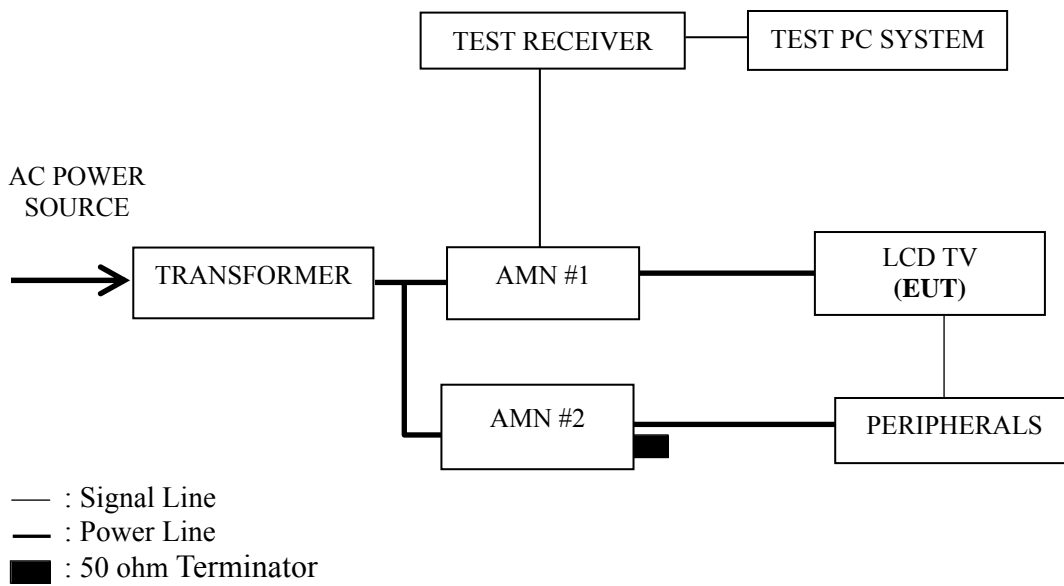
3.2 Block Diagram of Test Setup

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 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
USB Play

3.6 Test Procedures

The EUT and peripherals were connected to the power mains through an Artificial Mains Network (AMN). This provided a 50 ohm coupling impedance for the measuring equipment.

Both sides of AC line (Line & Neutral) were checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables were changed or manipulated according to ANSI C63.4:2003 during conducted emission test.

The bandwidth of R&S Test Receiver ESCI was set at 9 kHz.

The frequency range from 150 kHz to 30 MHz was checked.

The test modes were done on conducted disturbance test and all the test results are listed in Sec. 3.7.

3.7 Test Results

< **PASS** >

The frequency and amplitude of the highest conducted emission relative to the limit is reported. All emissions not reported below are too low against the prescribed limits.

Test Mode	Data Page
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
USB Play	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 1024*768@60Hz test mode. The worst emission is detected at 18.232 MHz (Average Value) with corrected signal level of 45.59 dB (μV) (limit is 60.00 dB (μV)), when the Neutral of the EUT is connected to AMN.

EUT : LCD TV Temperature : 22°C

Model No. : LTDN24K20US Humidity : 48%RH

Serial No. : E1202179-01/01 Date of Test : Mar 09, 2012

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	0.176	50.00	0.23	50.23	64.68	14.45	QP
	0.260	36.34	0.23	36.57	61.43	24.86	
	1.587	34.85	0.42	35.27	56.00	20.73	
	6.624	38.19	0.66	38.85	60.00	21.15	
	18.427	43.69	0.96	44.65	60.00	15.35	
	23.400	40.50	1.16	41.66	60.00	18.34	
	0.176	35.88	0.23	36.11	54.68	18.57	AV
	0.260	25.90	0.23	26.13	51.43	25.30	
	1.587	23.84	0.42	24.26	46.00	21.74	
	6.624	27.97	0.66	28.63	50.00	21.37	
	18.427	33.59	0.96	34.55	50.00	15.45	
	23.400	30.43	1.16	31.59	50.00	18.41	
Neutral	0.179	46.20	0.19	46.39	64.53	18.14	QP
	0.295	38.54	0.19	38.73	60.38	21.65	
	1.586	35.90	0.53	36.43	56.00	19.57	
	6.624	38.19	0.96	39.15	60.00	20.85	
	18.800	42.15	1.18	43.33	60.00	16.67	
	24.380	39.40	1.33	40.73	60.00	19.27	
	0.179	35.14	0.19	35.33	54.53	19.20	AV
	0.295	27.52	0.19	27.71	50.38	22.67	
	1.586	25.12	0.53	25.65	46.00	20.35	
	6.624	27.59	0.96	28.55	50.00	21.45	
	18.800	31.80	1.18	32.98	50.00	17.02	
	24.380	29.65	1.33	30.98	50.00	19.02	

TEST ENGINEER: LUY LV

EUT : LCD TV Temperature : 22°C

Model No. : LTDN24K20US Humidity : 48%RH

Serial No. : E1202179-01/01 Date of Test : Mar 09, 2012

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	0.176	48.93	0.23	49.16	64.68	15.52	QP
	0.237	43.05	0.22	43.27	62.22	18.95	
	0.421	35.76	0.31	36.07	57.42	21.35	
	1.584	34.36	0.42	34.78	56.00	21.22	
	6.680	37.20	0.66	37.86	60.00	22.14	
	18.120	42.85	0.94	43.79	60.00	16.21	
	0.176	38.26	0.23	38.49	54.68	16.19	AV
	0.237	32.59	0.22	32.81	52.22	19.41	
	0.421	25.13	0.31	25.44	47.42	21.98	
	1.584	23.56	0.42	23.98	46.00	22.02	
	6.680	26.38	0.66	27.04	50.00	22.96	
	18.120	32.47	0.94	33.41	50.00	16.59	
Neutral	0.185	45.95	0.19	46.14	64.24	18.10	QP
	0.299	38.22	0.19	38.41	60.28	21.87	
	0.890	31.16	0.41	31.57	56.00	24.43	
	1.585	33.11	0.52	33.63	56.00	22.37	
	6.488	38.69	0.93	39.62	60.00	20.38	
	18.622	42.03	1.18	43.21	60.00	16.79	
	0.185	35.24	0.19	35.43	54.24	18.81	AV
	0.299	28.14	0.19	28.33	50.28	21.95	
	0.890	21.62	0.41	22.03	46.00	23.97	
	1.585	23.09	0.52	23.61	46.00	22.39	
	6.488	28.31	0.93	29.24	50.00	20.76	
	18.622	31.58	1.18	32.76	50.00	17.24	

TEST ENGINEER: LUY LV

EUT : LCD TV Temperature : 22°C

Model No. : LTDN24K20US Humidity : 48%RH

Serial No. : E1202179-01/01 Date of Test : Mar 09, 2012

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	0.178	45.39	0.23	45.62	64.59	18.97	QP
	0.332	35.35	0.27	35.62	59.40	23.78	
	1.054	31.29	0.37	31.66	56.00	24.34	
	1.585	31.51	0.42	31.93	56.00	24.07	
	6.488	36.81	0.64	37.45	60.00	22.55	
	23.888	40.25	1.19	41.44	60.00	18.56	
	0.178	35.04	0.23	35.27	54.59	19.32	AV
	0.332	24.68	0.27	24.95	49.40	24.45	
	1.054	20.81	0.37	21.18	46.00	24.82	
	1.585	22.10	0.42	22.52	46.00	23.48	
	6.488	26.41	0.64	27.05	50.00	22.95	
	23.888	30.27	1.19	31.46	50.00	18.54	
Neutral	0.190	45.29	0.19	45.48	64.02	18.54	QP
	0.296	38.38	0.19	38.57	60.37	21.80	
	0.701	32.02	0.28	32.30	56.00	23.70	
	1.928	34.27	0.55	34.82	56.00	21.18	
	6.488	39.69	0.93	40.62	60.00	19.38	
	18.232	44.42	1.17	45.59	60.00	14.41	
	0.190	35.04	0.19	35.23	54.02	18.79	AV
	0.296	28.00	0.19	28.19	50.37	22.18	
	0.701	21.54	0.28	21.82	46.00	24.18	
	1.928	23.86	0.55	24.41	46.00	21.59	
	6.488	29.37	0.93	30.30	50.00	19.70	
	18.232	34.19	1.17	35.36	50.00	14.64	

TEST ENGINEER: LUY LV

EUT : LCD TV Temperature : 22°C

Model No. : LTDN24K20US Humidity : 48%RH

Serial No. : E1202179-01/01 Date of Test : Mar 09, 2012

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	0.176	46.26	0.23	46.49	64.68	18.19	QP
	0.260	36.44	0.23	36.67	61.42	24.75	
	1.585	34.71	0.42	35.13	56.00	20.87	
	6.627	38.38	0.66	39.04	60.00	20.96	
	18.426	43.73	0.96	44.69	60.00	15.31	
	23.387	40.46	1.16	41.62	60.00	18.38	
	0.176	35.87	0.23	36.10	54.68	18.58	AV
	0.260	25.80	0.23	26.03	51.42	25.39	
	1.585	23.68	0.42	24.10	46.00	21.90	
	6.627	27.90	0.66	28.56	50.00	21.44	
	18.426	33.61	0.96	34.57	50.00	15.43	
	23.387	30.21	1.16	31.37	50.00	18.63	
Neutral	0.176	46.04	0.19	46.23	64.68	18.45	QP
	0.296	38.61	0.19	38.80	60.37	21.57	
	1.585	35.41	0.52	35.93	56.00	20.07	
	6.627	38.16	0.96	39.12	60.00	20.88	
	18.820	42.11	1.18	43.29	60.00	16.71	
	24.400	40.11	1.33	41.44	60.00	18.56	
	0.176	35.20	0.19	35.39	54.68	19.29	AV
	0.296	27.83	0.19	28.02	50.37	22.35	
	1.585	25.02	0.52	25.54	46.00	20.46	
	6.627	27.62	0.96	28.58	50.00	21.42	
	18.820	31.82	1.18	33.00	50.00	17.00	
	24.400	29.67	1.33	31.00	50.00	19.00	

TEST ENGINEER: LUY LV

EUT : LCD TV Temperature : 22°C

Model No. : LTDN24K20US Humidity : 48%RH

Serial No. : E1202179-01/01 Date of Test : Mar 09, 2012

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	0.172	46.95	0.23	47.18	64.86	17.68	QP
	0.262	37.22	0.23	37.45	61.38	23.93	
	1.585	34.37	0.42	34.79	56.00	21.21	
	6.698	37.11	0.66	37.77	60.00	22.23	
	18.039	42.79	0.94	43.73	60.00	16.27	
	23.387	40.01	1.16	41.17	60.00	18.83	
	0.172	36.83	0.23	37.06	54.86	17.80	AV
	0.262	26.45	0.23	26.68	51.38	24.70	
	1.585	23.61	0.42	24.03	46.00	21.97	
	6.698	26.54	0.66	27.20	50.00	22.80	
	18.039	32.52	0.94	33.46	50.00	16.54	
	23.387	29.42	1.16	30.58	50.00	19.42	
Neutral	0.176	45.42	0.19	45.61	64.68	19.07	QP
	0.296	37.16	0.19	37.35	60.37	23.02	
	1.585	31.11	0.52	31.63	56.00	24.37	
	6.488	36.69	0.93	37.62	60.00	22.38	
	18.232	42.46	1.17	43.63	60.00	16.37	
	25.864	40.40	1.33	41.73	60.00	18.27	
	0.176	34.95	0.19	35.14	54.68	19.54	AV
	0.296	26.83	0.19	27.02	50.37	23.35	
	1.585	20.86	0.52	21.38	46.00	24.62	
	6.488	26.34	0.93	27.27	50.00	22.73	
	18.232	32.19	1.17	33.36	50.00	16.64	
	25.864	29.67	1.33	31.00	50.00	19.00	

TEST ENGINEER: LUY LV

EUT : LCD TV Temperature : 22°C

Model No. : LTDN24K20US Humidity : 48%RH

Serial No. : E1202179-01/01 Date of Test : Mar 09, 2012

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	0.186	46.69	0.23	46.92	64.20	17.28	QP	
	0.283	36.70	0.23	36.93	60.72	23.79		
	1.585	29.51	0.42	29.93	56.00	26.07		
	6.488	36.81	0.64	37.45	60.00	22.55		
	17.849	42.08	0.94	43.02	60.00	16.98		
	23.888	40.25	1.19	41.44	60.00	18.56	AV	
	0.186	35.88	0.23	36.11	54.20	18.09		
	0.283	26.41	0.23	26.64	50.72	24.08		
	1.585	18.78	0.42	19.20	46.00	26.80		
	6.488	26.40	0.64	27.04	50.00	22.96		
17.849	31.64	0.94	32.58	50.00	17.42	QP		
23.888	29.37	1.19	30.56	50.00	19.44			
0.176	45.97	0.19	46.16	64.68	18.52			
0.296	38.38	0.19	38.57	60.37	21.80			
1.928	31.27	0.55	31.82	56.00	24.18			
Neutral	6.488	36.69	0.93	37.62	60.00	22.38	QP	
	18.232	43.42	1.17	44.59	60.00	15.41		
	24.400	40.01	1.33	41.34	60.00	18.66		
	0.176	35.20	0.19	35.39	54.68	19.29		AV
	0.296	27.49	0.19	27.68	50.37	22.69		
	1.928	20.68	0.55	21.23	46.00	24.77		
	6.488	26.30	0.93	27.23	50.00	22.77		
	18.232	32.77	1.17	33.94	50.00	16.06		
	24.400	29.36	1.33	30.69	50.00	19.31		

TEST ENGINEER: L V Y L V

EUT : LCD TV Temperature : 22°C

Model No. : LTDN24K20US Humidity : 48%RH

Serial No. : E1202179-01/01 Date of Test : Mar 09, 2012

Test Mode : USB Play

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.178	44.91	0.23	45.14	64.59	19.45	QP
	0.280	36.29	0.23	36.52	60.81	24.29	
	1.585	28.70	0.42	29.12	56.00	26.88	
	6.488	37.69	0.64	38.33	60.00	21.67	
	17.849	40.71	0.94	41.65	60.00	18.35	
	22.655	40.67	1.12	41.79	60.00	18.21	
	0.178	34.15	0.23	34.38	54.59	20.21	AV
	0.280	25.67	0.23	25.90	50.81	24.91	
	1.585	18.24	0.42	18.66	46.00	27.34	
	6.488	27.39	0.64	28.03	50.00	21.97	
	17.849	29.34	0.94	30.28	50.00	19.72	
	22.655	29.66	1.12	30.78	50.00	19.22	
Neutral	0.178	44.70	0.19	44.89	64.59	19.70	QP
	0.296	39.28	0.19	39.47	60.37	20.90	
	1.585	29.34	0.52	29.86	56.00	26.14	
	6.420	36.79	0.93	37.72	60.00	22.28	
	18.622	41.43	1.18	42.61	60.00	17.39	
	23.888	39.08	1.32	40.40	60.00	19.60	
	0.178	34.10	0.19	34.29	54.59	20.30	AV
	0.296	28.67	0.19	28.86	50.37	21.51	
	1.585	18.80	0.52	19.32	46.00	26.68	
	6.420	26.15	0.93	27.08	50.00	22.92	
	18.622	30.85	1.18	32.03	50.00	17.97	
	23.888	28.37	1.32	29.69	50.00	20.31	

TEST ENGINEER: L V Y L V

4 RADIATED EMISSION TEST

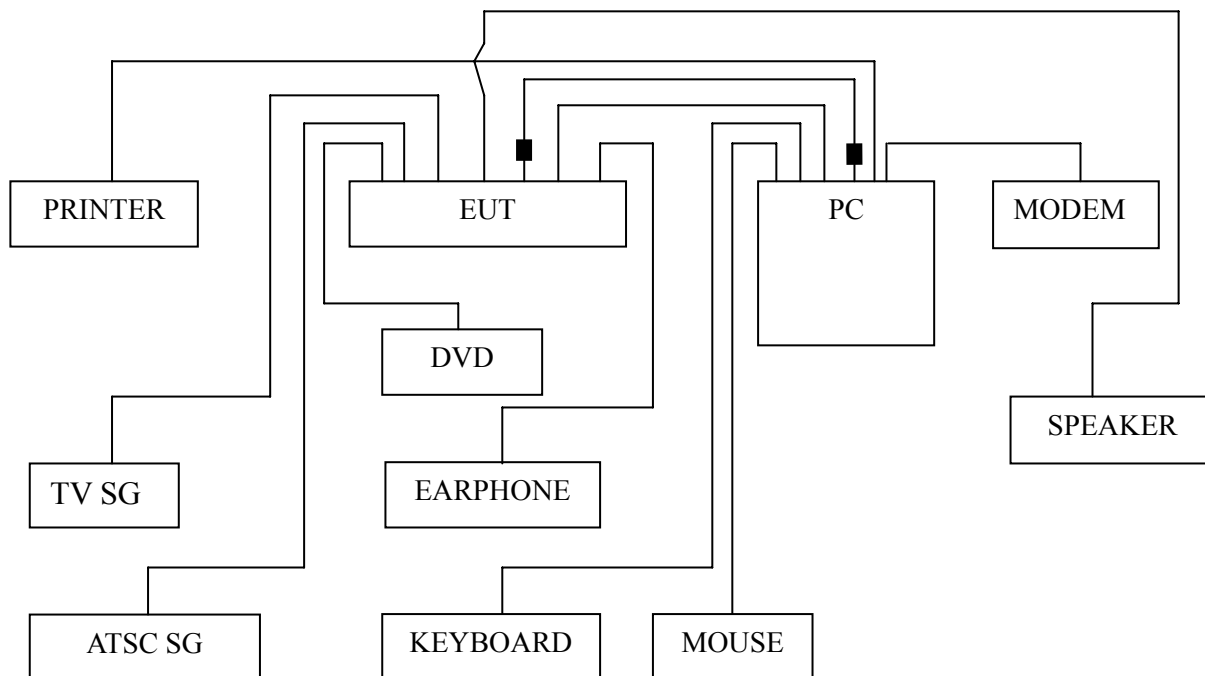
4.1 Test Equipment

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 22, 2011	Mar 22, 2012
2.	Preamplifier	Agilent	8447D	2944A10548	Sep 18, 2011	Mar 18, 2012
3.	Bi-log Antenna	TESEQ	CBL6112D	23192	Dec 01, 2011	Dec 01, 2012
4.	Spectrum Analyzer	Agilent	E7405A	MY45106600	Mar 22, 2011	Mar 22, 2012
5.	50 Ω Coaxial Switch	Anritsu	MP59B	6200426390	Sep 18, 2011	Mar 18, 2012
6.	Software	Audix	E3	SET00200 9912M295-2	--	--

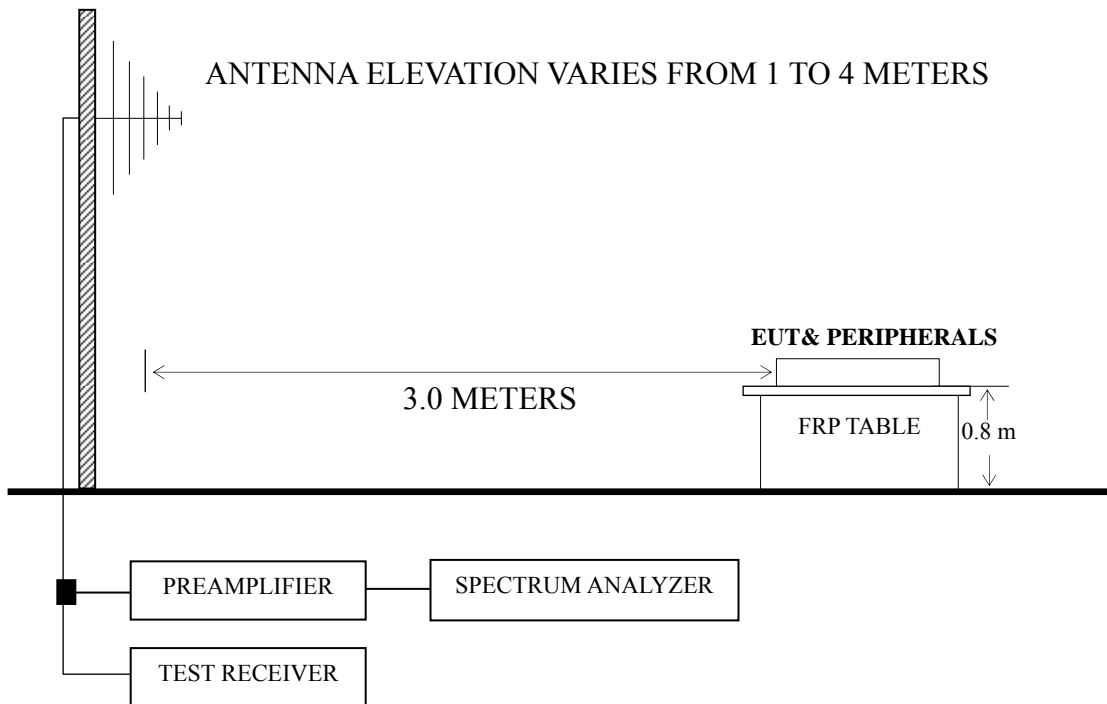
4.2 Block Diagram of Test Setup

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 I.F. 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
USB Play	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 worst case is for D-Sub 1024*768@60Hz test mode. The worst emission at horizontal polarization was detected at 740.800 MHz with corrected signal level of 43.76 dB ($\mu\text{V}/\text{m}$) (limit is 46.00 dB ($\mu\text{V}/\text{m}$)), when the antenna was 1.00 m height and the turntable was at 220°. The worst emission at vertical polarization was detected at 85.290 MHz with corrected signal level of 35.73 dB ($\mu\text{V}/\text{m}$) (limit is 40.00 dB ($\mu\text{V}/\text{m}$)), when the antenna was 1.00 m height and the turntable was at 270°.

EUT : LCD TV Temperature : 22°C

Model No. : LTDN24K20US Humidity : 60%RH

Serial No. : E1202179-01/01 Date of Test : Mar 09, 2012

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	85.290	24.40	10.80	1.66	36.86	40.00	3.14
	184.230	21.65	9.95	2.37	33.97	43.50	9.53
	235.640	22.96	11.32	2.56	36.84	46.00	9.16
	447.100	15.66	16.92	3.11	35.69	46.00	10.31
	740.800	19.00	19.98	3.78	42.76	46.00	3.24
	774.960	19.13	20.34	3.84	43.31	46.00	2.69
Vertical	85.290	23.27	10.80	1.66	35.73	40.00	4.27
	148.340	26.14	10.44	2.22	38.80	43.50	4.70
	184.230	23.16	9.95	2.37	35.48	43.50	8.02
	467.470	15.59	17.22	3.17	35.98	46.00	10.02
	617.820	10.13	18.43	3.51	32.07	46.00	13.93
	777.870	18.14	20.37	3.84	42.35	46.00	3.65

TEST ENGINEER: RAVEN JIN

EUT : LCD TV Temperature : 22°C

Model No. : LTDN24K20US Humidity : 60%RH

Serial No. : E1202179-01/01 Date of Test : Mar 09, 2012

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	137.670	22.05	10.66	2.15	34.86	43.50	8.64
	184.230	20.59	9.95	2.37	32.91	43.50	10.59
	276.380	23.87	13.02	2.68	39.57	46.00	6.43
	467.765	23.00	17.22	3.17	43.39	46.00	2.61
	620.110	14.22	18.46	3.51	36.19	46.00	9.81
	783.650	11.54	20.44	3.86	35.84	46.00	10.16
Vertical	36.790	12.46	14.57	0.85	27.88	40.00	12.12
	75.590	21.01	10.27	1.53	32.81	40.00	7.19
	211.390	14.70	10.26	2.47	27.43	43.50	16.07
	298.690	11.65	13.67	2.75	28.07	46.00	17.93
	487.840	12.51	17.46	3.23	33.20	46.00	12.80
	669.230	8.40	19.12	3.62	31.14	46.00	14.86

TEST ENGINEER: RAVEN JIN

EUT : LCD TV Temperature : 22°C

Model No. : LTDN24K20US Humidity : 60%RH

Serial No. : E1202179-01/01 Date of Test : Mar 09, 2012

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	35.820	19.10	15.19	0.84	35.13	40.00	4.87
	67.830	20.93	9.70	1.36	31.99	40.00	8.01
	88.200	24.68	10.93	1.70	37.31	43.50	6.19
	223.030	19.59	10.76	2.51	32.86	46.00	13.14
	462.620	13.04	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	23.27	10.80	1.66	35.73	40.00	4.27
	148.340	26.14	10.44	2.22	38.80	43.50	4.70
	185.200	21.12	9.94	2.38	33.44	43.50	10.06
	234.670	19.00	11.28	2.56	32.84	46.00	13.16
	343.310	14.65	14.91	2.86	32.42	46.00	13.58
	464.560	16.39	17.17	3.17	36.73	46.00	9.27

TEST ENGINEER: RAVEN JIN

EUT : LCD TV Temperature : 22°C

Model No. : LTDN24K20US Humidity : 60%RH

Serial No. : E1202179-01/01 Date of Test : Mar 09, 2012

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	35.820	20.10	15.19	0.84	36.13	40.00	3.87
	72.680	19.48	10.08	1.47	31.03	40.00	8.97
	91.110	21.18	11.05	1.75	33.98	43.50	9.52
	154.160	15.53	10.34	2.25	28.12	43.50	15.38
	231.760	19.20	11.14	2.55	32.89	46.00	13.11
	497.540	14.44	17.58	3.27	35.29	46.00	10.71
Vertical	93.050	18.09	11.12	1.77	30.98	43.50	12.52
	140.580	22.42	10.60	2.18	35.20	43.50	8.30
	153.190	26.01	10.36	2.24	38.61	43.50	4.89
	186.170	20.86	9.93	2.38	33.17	43.50	10.33
	467.470	17.37	17.22	3.17	37.76	46.00	8.24
	774.960	16.01	20.34	3.84	40.19	46.00	5.81

TEST ENGINEER: RAVEN JIN

EUT : LCD TV Temperature : 22°C

Model No. : LTDN24K20US Humidity : 60%RH

Serial No. : E1202179-01/01 Date of Test : Mar 09, 2012

Test Mode : HDMI 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	33.880	18.28	16.26	0.83	35.37	40.00	4.63
	90.140	20.33	11.00	1.73	33.06	43.50	10.44
	182.290	24.44	9.97	2.36	36.77	43.50	6.73
	226.910	21.50	10.93	2.53	34.96	46.00	11.04
	468.000	21.95	17.22	3.17	42.34	46.00	3.66
	926.280	11.47	20.44	5.07	36.98	46.00	9.02
Vertical	147.370	25.68	10.46	2.22	38.36	43.50	5.14
	184.230	20.59	9.95	2.37	32.91	43.50	10.59
	226.910	19.42	10.93	2.53	32.88	46.00	13.12
	396.660	18.53	16.24	2.98	37.75	46.00	8.25
	468.000	23.00	17.22	3.17	43.39	46.00	2.61
	622.670	14.19	18.49	3.51	36.19	46.00	9.81

TEST ENGINEER: RAVEN JIN

EUT : LCD TV Temperature : 22°C

Model No. : LTDN24K20US Humidity : 60%RH

Serial No. : E1202179-01/01 Date of Test : Mar 09, 2012

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	33.880	18.33	16.26	0.83	35.42	40.00	4.58
	90.140	20.49	11.00	1.73	33.22	43.50	10.28
	181.320	19.83	9.98	2.36	32.17	43.50	11.33
	224.000	20.94	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	19.45	17.60	3.27	40.32	46.00	5.68
Vertical	90.140	14.34	11.00	1.73	27.07	43.50	16.43
	146.400	24.48	10.49	2.20	37.17	43.50	6.33
	183.260	22.50	9.96	2.37	34.83	43.50	8.67
	226.910	19.42	10.93	2.53	32.88	46.00	13.12
	399.570	13.99	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 : LCD TV Temperature : 22°C

Model No. : LTDN24K20US Humidity : 60%RH

Serial No. : E1202179-01/01 Date of Test : Mar 09, 2012

Test Mode : USB Play

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	36.790	12.80	14.57	0.85	28.22	40.00	11.78
	55.220	20.11	8.82	1.06	29.99	40.00	10.01
	96.930	19.03	11.24	1.82	32.09	43.50	11.41
	140.580	14.86	10.60	2.18	27.64	43.50	15.86
	209.620	25.51	10.18	2.46	38.15	43.50	5.35
	302.570	13.13	13.77	2.76	29.66	46.00	16.34
Vertical	73.650	18.69	10.15	1.49	30.33	40.00	9.67
	124.090	19.80	10.93	2.05	32.78	43.50	10.72
	217.210	21.97	10.48	2.50	34.95	46.00	11.05
	299.660	15.04	13.70	2.76	31.50	46.00	14.50
	500.450	9.97	17.60	3.27	30.84	46.00	15.16
	593.570	7.82	18.17	3.45	29.44	46.00	16.56

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	Manufacturer	Location
Gasket	DAA1001\ROH	JOINSET	See Internal Photos Figure 15
		SZTAT	
Ferrite core	ZCAT2132-1130\ROH	FEELUX	See Internal Photos Figure 14, 15
		Rui Feng Electronic Co., Ltd.	
		Hai An Magnetic Material No.2 Factory	
		JIANGSU LETTALL ELECTRONICS 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)