

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

LED LCD TV

Model No.	Brand
LTDN55K610GWUS	Hisense
55K610GW	

FCC ID : W9HLCDF0015

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

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Report No. : ACI-F12201
Date of Test : Dec 21 – 26, 2012
Date of Report : Jan 04, 2013

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.....	5
2.3 Description of Test Facility.....	8
2.4 Measurement Uncertainty.....	8
3 CONDUCTED EMISSION TEST	9
3.1 Test Equipment.....	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 DEBUG DESCRIPTION	28
6 DEVIATION TO TEST SPECIFICATIONS	29

TEST REPORT FOR FCC CERTIFICATE

Applicant : Hisense Electric Co., Ltd.

Manufacturer : Hisense Electric Co., Ltd.

EUT Description : LED LCD TV

Model No.	Brand	Power Supply
LTDN55K610GWUS	Hisense	120V/60Hz
55K610GW		

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 Dec 21 – 26, 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.

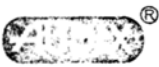
This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.

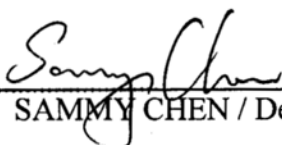
The test results for EUT's TV functions are contained in No.F12200, a Verification report.

Date of Test : Dec 21 – 26, 2012 Date of Report : Jan 04, 2013

Producer : 
YENNY YU / 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 2012 AND ANSI C63.4-2003	15.107(a) Class B	Pass
Radiated Disturbance	FCC RULES AND REGULATIONS PART 15 SUBPART B OCTOBER 2012 AND ANSI C63.4-2003	15.109(a) Class B	Pass

2 GENERAL INFORMATION

2.1 Description of Equipment Under Test

Description	:	LED LCD TV		
Type of EUT	:	<input type="checkbox"/> Production <input checked="" type="checkbox"/> Pre-product <input type="checkbox"/> Pro-type		
Model No.	:	<table border="1"> <tr> <td>LTDN55K610GWUS</td> <td>55K610GW</td> </tr> </table>	LTDN55K610GWUS	55K610GW
LTDN55K610GWUS	55K610GW			
Bread Name	:	Hisense		
Note	:	The above models are all the same except for the different model name. The LTDN55K610GWUS 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		
LCD Panel	:	Manufacturer : Hisense M/N : HE550GF-B51\PW1		
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		

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

Side Port:

- (1) One HDMI2 Port : Connected with DVD PLAYER #1
- (2) One HDMI1 Port : Connected with PC
- (3) One DIGITAL AUDIO OUT Port : Connected with PC
- (4) One Headphone Port : Connected with Earphone
- (5) One ANT/CABLE IN Port : Connected with ATSC SG / TV SG

- (6) One component of YPbPr Port
: Connected with DVD PLAYER #1
- (7) One component of AV Port
: Connected with DVD PLAYER #1
- Bottom Port:
- (8) One LAN Port
: Connected with Internet
- (9) One USB1 Port
: Connected with U-Disk#1
- (10) One USB2 Port
: Connected with U-Disk#2
- (11) One VGA Port
: Connected with PC
- (12) One PC/DVI Audio In Port
: Connected with PC
- (13) One HDMI3 Port
: Connected with DVD PLAYER #2
- (14) One HDMI4 Port
: Connected with DVD PLAYER #3

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 : FCC DoC, 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 #1 #2

Manufacturer : LG
Model Number : 1GB

2.3 Description of Test Facility

Site Description (No.3 3m Chamber) : Sept. 17, 1998 file on
Mar 16, 2012 Renewed
Federal Communications Commission
FCC Engineering Laboratory
7435 Oakland Mills Road
Columbia, MD 21046, USA

Name of Firm : Audix Technology (Shanghai) Co., Ltd.

Site Location : 3F 34Bldg 680 Guiping Rd,
Caohejing Hi-Tech Park,
Shanghai 200233, China

NVLAP Lab Code : 200371-0

2.4 Measurement Uncertainty

Conducted Emission Expanded Uncertainty: U = 3.42 dB

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

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

3 CONDUCTED EMISSION TEST

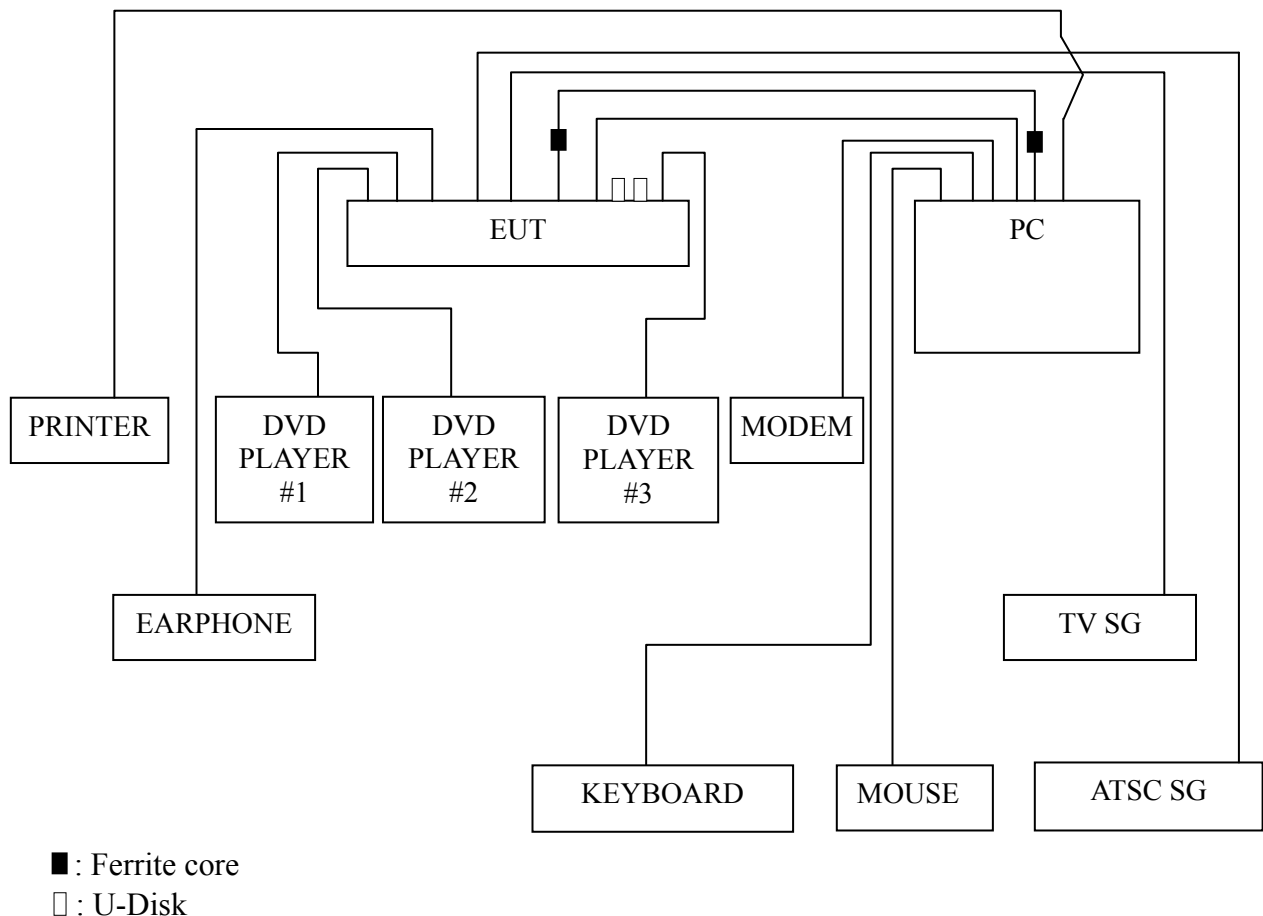
3.1 Test Equipment

The following test equipments are used during the conducted emission test in a shielded room:

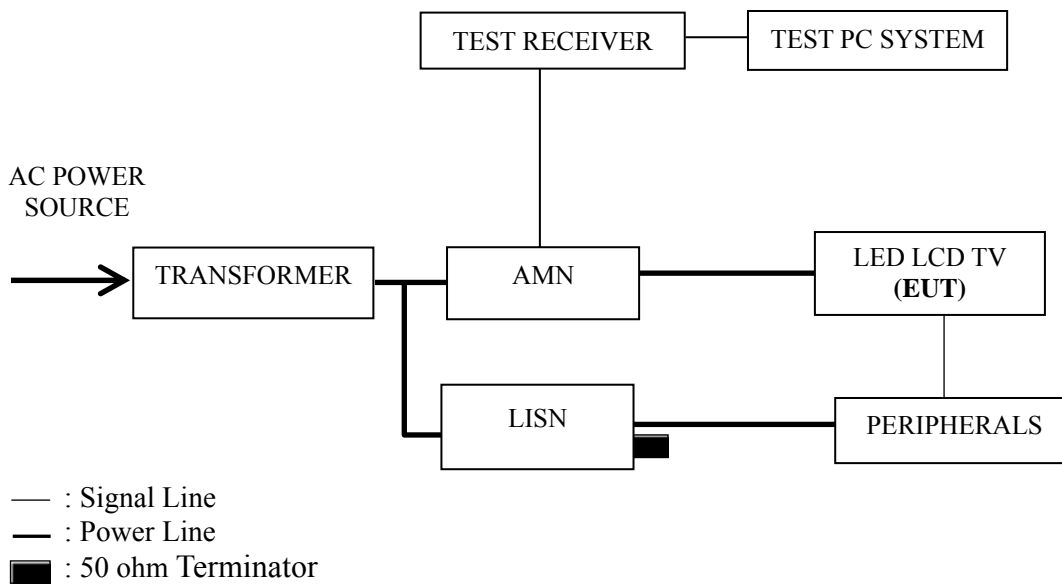
Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Test Receiver	R&S	ESCI	100841	Mar 22, 2012	Mar 22, 2013
2.	Artificial Mains Network (AMN)	R&S	ESH2-Z5	843890/011	Feb 13, 2012	Feb 13, 2013
3.	Line Impedance Stabilization Network (LISN)	Kyoritsu	KNW-407	8-1280-4	Mar 22, 2012	Mar 22, 2013
4.	50 Ω Coaxial Switch	Anritsu	MP59B	6200426389	Sep 18, 2012	Mar 18, 2013
5.	50 Ω Terminator	Anritsu	BNC	001	Mar 22, 2012	Mar 22, 2013
6.	Software	Audix	E3	SET00200 9804M592	--	--

3.2 Block Diagram of Test Setup

3.2.1 EUT & Peripherals



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 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 800*600@60Hz test mode. The worst emission is detected at 2.110 MHz (Quasi-Peak Value) with corrected signal level of 52.78 dB (μV) (limit is 56.00 dB (μV)), when the Line of the EUT is connected to AMN.

EUT : LED LCD TV Temperature : 22

Model No. : LTDN55K610GWUS Humidity : 48%RH

Test Mode : D-Sub 1024*768@60Hz Date of Test : Dec 21, 2012

Test Line	Frequency (MHz)	Meter Reading dB(μ V)	Factor (dB)	Emission Level dB(μ V)	Limits dB(μ V)	Margin (dB)	Remark
Line	0.184	49.24	0.25	49.49	64.28	14.79	QP
	0.339	42.07	0.31	42.38	59.22	16.84	
	0.611	44.80	0.23	45.03	56.00	10.97	
	2.110	52.18	0.39	52.57	56.00	3.43	
	3.509	36.83	0.45	37.28	56.00	18.72	
	18.622	29.52	0.91	30.43	60.00	29.57	
	0.184	39.10	0.25	39.35	54.28	14.93	AV
	0.339	32.10	0.31	32.41	49.22	16.81	
	0.611	34.60	0.23	34.83	46.00	11.17	
	2.110	42.33	0.39	42.72	46.00	3.28	
	3.509	26.84	0.45	27.29	46.00	18.71	
	18.622	19.30	0.91	20.21	50.00	29.79	
Neutral	0.182	47.61	0.12	47.73	64.42	16.69	QP
	0.329	40.55	0.14	40.69	59.49	18.80	
	0.611	45.73	0.18	45.91	56.00	10.09	
	2.133	51.59	0.17	51.76	56.00	4.24	
	3.547	37.17	0.36	37.53	56.00	18.47	
	17.383	30.37	0.79	31.16	60.00	28.84	
	0.182	37.40	0.12	37.52	54.42	16.90	AV
	0.329	30.25	0.14	30.39	49.49	19.10	
	0.611	35.41	0.18	35.59	46.00	10.41	
	2.133	41.21	0.17	41.38	46.00	4.62	
	3.547	27.14	0.36	27.50	46.00	18.50	
	17.383	20.19	0.79	20.98	50.00	29.02	

TEST ENGINEER: LVY LV

EUT : LED LCD TV Temperature : 22

Model No. : LTDN55K610GWUS Humidity : 48%RH

Test Mode : HDMI 1024*768@60Hz Date of Test : Dec 21, 2012

Test Line	Frequency (MHz)	Meter Reading dB(μ V)	Factor (dB)	Emission Level dB(μ V)	Limits dB(μ V)	Margin (dB)	Remark
Line	0.184	48.72	0.25	48.97	64.28	15.31	QP
	0.336	42.34	0.31	42.65	59.31	16.66	
	0.604	44.32	0.23	44.55	56.00	11.45	
	1.888	51.57	0.39	51.96	56.00	4.04	
	3.547	37.02	0.47	37.49	56.00	18.51	
	18.622	29.03	0.91	29.94	60.00	30.06	
	AV	0.184	38.60	0.25	38.85	54.28	15.43
		0.336	32.20	0.31	32.51	49.31	16.80
		0.604	34.21	0.23	34.44	46.00	11.56
		1.888	41.20	0.39	41.59	46.00	4.41
		3.547	26.99	0.47	27.46	46.00	18.54
		18.622	19.20	0.91	20.11	50.00	29.89
Neutral	0.183	48.14	0.12	48.26	64.33	16.07	QP
	0.329	40.07	0.14	40.21	59.49	19.28	
	0.604	45.26	0.18	45.44	56.00	10.56	
	2.500	51.45	0.20	51.65	56.00	4.35	
	3.547	37.41	0.36	37.77	56.00	18.23	
	9.302	29.51	0.49	30.00	60.00	30.00	
	AV	0.183	38.10	0.12	38.22	54.33	16.11
		0.329	30.00	0.14	30.14	49.49	19.35
		0.604	35.13	0.18	35.31	46.00	10.69
		2.500	41.27	0.20	41.47	46.00	4.53
		3.547	27.30	0.36	27.66	46.00	18.34
		9.302	19.33	0.49	19.82	50.00	30.18

TEST ENGINEER: LVY LV

EUT : LED LCD TV Temperature : 22

Model No. : LTDN55K610GWUS Humidity : 48%RH

Test Mode : D-Sub 800*600@60Hz Date of Test : Dec 21, 2012

Test Line	Frequency (MHz)	Meter Reading dB(μ V)	Factor (dB)	Emission Level dB(μ V)	Limits dB(μ V)	Margin (dB)	Remark	
Line	0.183	49.72	0.25	49.97	64.33	14.36	QP	
	0.332	42.20	0.30	42.50	59.40	16.90		
	0.592	44.79	0.26	45.05	56.00	10.95		
	2.110	52.39	0.39	52.78	56.00	3.22		
	3.547	37.82	0.47	38.29	56.00	17.71		
	11.317	29.18	0.75	29.93	60.00	30.07		
	Line	0.183	39.25	0.25	39.50	54.33	14.83	AV
		0.332	32.21	0.30	32.51	49.40	16.89	
		0.592	34.31	0.26	34.57	46.00	11.43	
		2.110	42.20	0.39	42.59	46.00	3.41	
		3.547	27.59	0.47	28.06	46.00	17.94	
		11.317	19.20	0.75	19.95	50.00	30.05	
Neutral	0.183	47.56	0.12	47.68	64.33	16.65	QP	
	0.329	40.68	0.14	40.82	59.49	18.67		
	0.579	44.63	0.18	44.81	56.00	11.19		
	2.110	52.58	0.17	52.75	56.00	3.25		
	3.509	36.13	0.34	36.47	56.00	19.53		
	18.039	30.44	0.80	31.24	60.00	28.76		
	Neutral	0.183	37.20	0.12	37.32	54.33	17.01	AV
		0.329	30.25	0.14	30.39	49.49	19.10	
		0.579	34.80	0.18	34.98	46.00	11.02	
		2.110	42.16	0.17	42.33	46.00	3.67	
		3.509	26.20	0.34	26.54	46.00	19.46	
		18.039	20.30	0.80	21.10	50.00	28.90	

TEST ENGINEER: LVY LV

EUT : LED LCD TV Temperature : 22

Model No. : LTDN55K610GWUS Humidity : 48%RH

Test Mode : D-Sub 640*480@60Hz Date of Test : Dec 21, 2012

Test Line	Frequency (MHz)	Meter Reading dB(μ V)	Factor (dB)	Emission Level dB(μ V)	Limits dB(μ V)	Margin (dB)	Remark
Line	0.184	49.25	0.25	49.50	64.28	14.78	QP
	0.336	41.76	0.31	42.07	59.31	17.24	
	0.611	45.83	0.23	46.06	56.00	9.94	
	2.133	51.91	0.39	52.30	56.00	3.70	
	3.642	36.54	0.47	37.01	56.00	18.99	
	18.622	29.54	0.91	30.45	60.00	29.55	
	AV	0.184	39.20	0.25	39.45	54.28	14.83
		0.336	31.60	0.31	31.91	49.31	17.40
		0.611	35.60	0.23	35.83	46.00	10.17
		2.133	41.26	0.39	41.65	46.00	4.35
		3.642	26.20	0.47	26.67	46.00	19.33
		18.622	19.34	0.91	20.25	50.00	29.75
Neutral	0.184	47.61	0.12	47.73	64.28	16.55	QP
	0.332	40.04	0.14	40.18	59.40	19.22	
	0.614	44.85	0.19	45.04	56.00	10.96	
	2.201	51.16	0.18	51.34	56.00	4.66	
	3.547	37.73	0.36	38.09	56.00	17.91	
	18.232	29.18	0.80	29.98	60.00	30.02	
	AV	0.184	37.25	0.12	37.37	54.28	16.91
		0.332	30.20	0.14	30.34	49.40	19.06
		0.614	34.60	0.19	34.79	46.00	11.21
		2.201	41.20	0.18	41.38	46.00	4.62
		3.547	27.45	0.36	27.81	46.00	18.19
		18.232	19.20	0.80	20.00	50.00	30.00

TEST ENGINEER: LVY LV

EUT : LED LCD TV Temperature : 22

Model No. : LTDN55K610GWUS Humidity : 48%RH

Test Mode : USB Play Date of Test : Dec 21, 2012

Test Line	Frequency (MHz)	Meter Reading dB(μ V)	Factor (dB)	Emission Level dB(μ V)	Limits dB(μ V)	Margin (dB)	Remark
Line	0.183	49.20	0.25	49.45	64.33	14.88	QP
	0.339	41.83	0.31	42.14	59.22	17.08	
	0.598	45.69	0.25	45.94	56.00	10.06	
	2.500	51.30	0.40	51.70	56.00	4.30	
	3.547	38.00	0.47	38.47	56.00	17.53	
	18.820	28.99	0.92	29.91	60.00	30.09	
	AV	0.183	39.12	0.25	39.37	54.33	14.96
		0.339	31.50	0.31	31.81	49.22	17.41
		0.598	35.42	0.25	35.67	46.00	10.33
		2.500	41.33	0.40	41.73	46.00	4.27
		3.547	28.09	0.47	28.56	46.00	17.44
		18.820	19.19	0.92	20.11	50.00	29.89
Neutral	0.182	48.14	0.12	48.26	64.42	16.16	QP
	0.332	40.84	0.14	40.98	59.40	18.42	
	0.604	44.88	0.18	45.06	56.00	10.94	
	2.110	52.35	0.17	52.52	56.00	3.48	
	3.547	38.36	0.36	38.72	56.00	17.28	
	18.622	28.71	0.81	29.52	60.00	30.48	
	AV	0.182	38.20	0.12	38.32	54.42	16.10
		0.332	30.60	0.14	30.74	49.40	18.66
		0.604	34.37	0.18	34.55	46.00	11.45
		2.110	42.15	0.17	42.32	46.00	3.68
		3.547	28.14	0.36	28.50	46.00	17.50
		18.622	18.40	0.81	19.21	50.00	30.79

TEST ENGINEER: LVY LV

EUT : LED LCD TV Temperature : 22

Model No. : LTDN55K610GWUS Humidity : 48%RH

Test Mode : LAN Date of Test : Dec 21, 2012

Test Line	Frequency (MHz)	Meter Reading dB(μ V)	Factor (dB)	Emission Level dB(μ V)	Limits dB(μ V)	Margin (dB)	Remark	
Line	0.183	48.60	0.25	48.85	64.33	15.48	QP	
	0.336	42.54	0.31	42.85	59.31	16.46		
	0.604	45.25	0.23	45.48	56.00	10.52		
	2.285	51.24	0.40	51.64	56.00	4.36		
	3.509	37.00	0.45	37.45	56.00	18.55		
	10.072	29.44	0.73	30.17	60.00	29.83		
	Line	0.183	38.45	0.25	38.70	54.33	15.63	AV
		0.336	32.28	0.31	32.59	49.31	16.72	
		0.604	35.46	0.23	35.69	46.00	10.31	
		2.285	40.90	0.40	41.30	46.00	4.70	
		3.509	27.20	0.45	27.65	46.00	18.35	
		10.072	19.42	0.73	20.15	50.00	29.85	
Neutral	0.183	47.89	0.12	48.01	64.33	16.32	QP	
	0.336	40.84	0.14	40.98	59.31	18.33		
	0.592	44.83	0.18	45.01	56.00	10.99		
	2.110	51.42	0.17	51.59	56.00	4.41		
	3.547	36.32	0.36	36.68	56.00	19.32		
	17.849	29.68	0.79	30.47	60.00	29.53		
	Neutral	0.183	37.60	0.12	37.72	54.33	16.61	AV
		0.336	30.50	0.14	30.64	49.31	18.67	
		0.592	34.20	0.18	34.38	46.00	11.62	
		2.110	41.20	0.17	41.37	46.00	4.63	
		3.547	26.20	0.36	26.56	46.00	19.44	
		17.849	19.47	0.79	20.26	50.00	29.74	

TEST ENGINEER: LVY LV

4 RADIATED EMISSION TEST

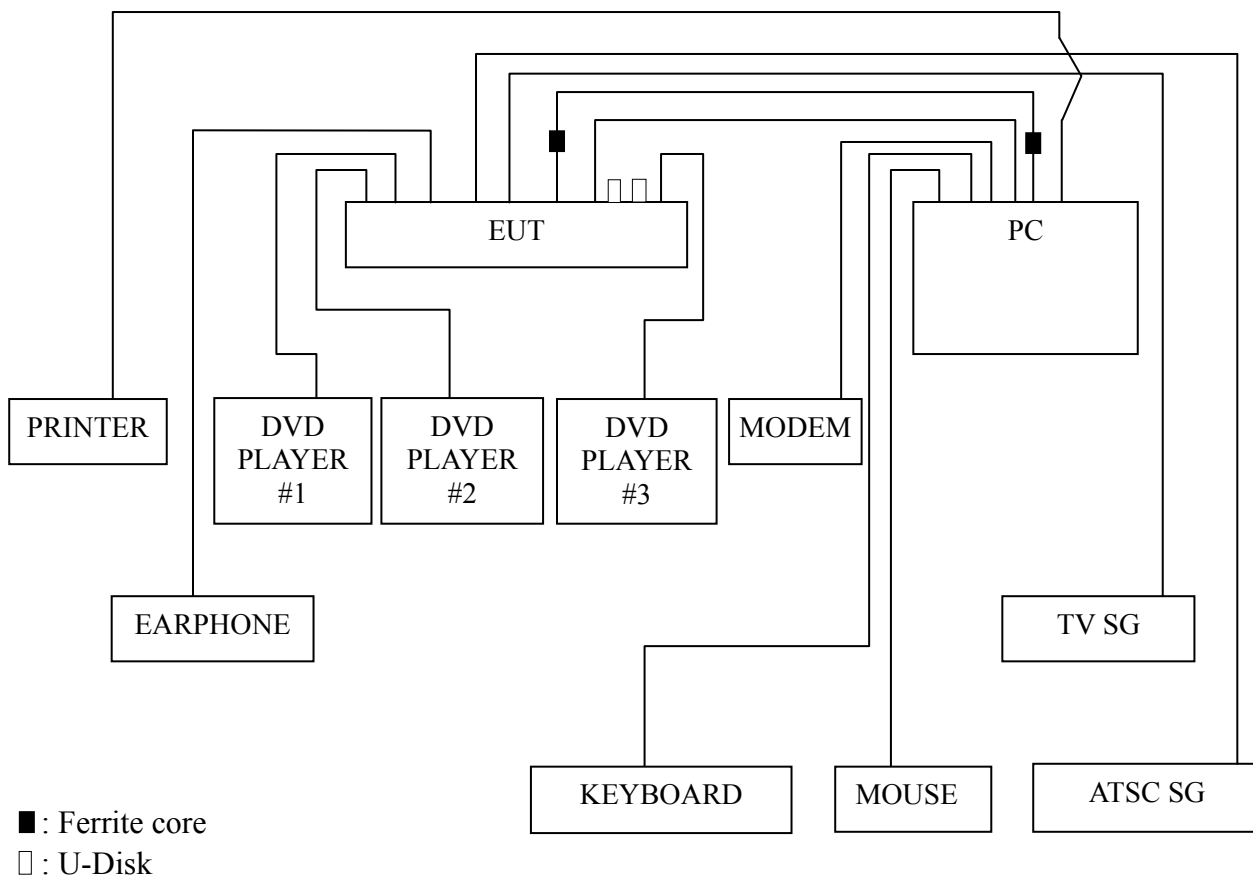
4.1 Test Equipment

The following test equipments are used during the radiated emission test in a semi-anechoic chamber:

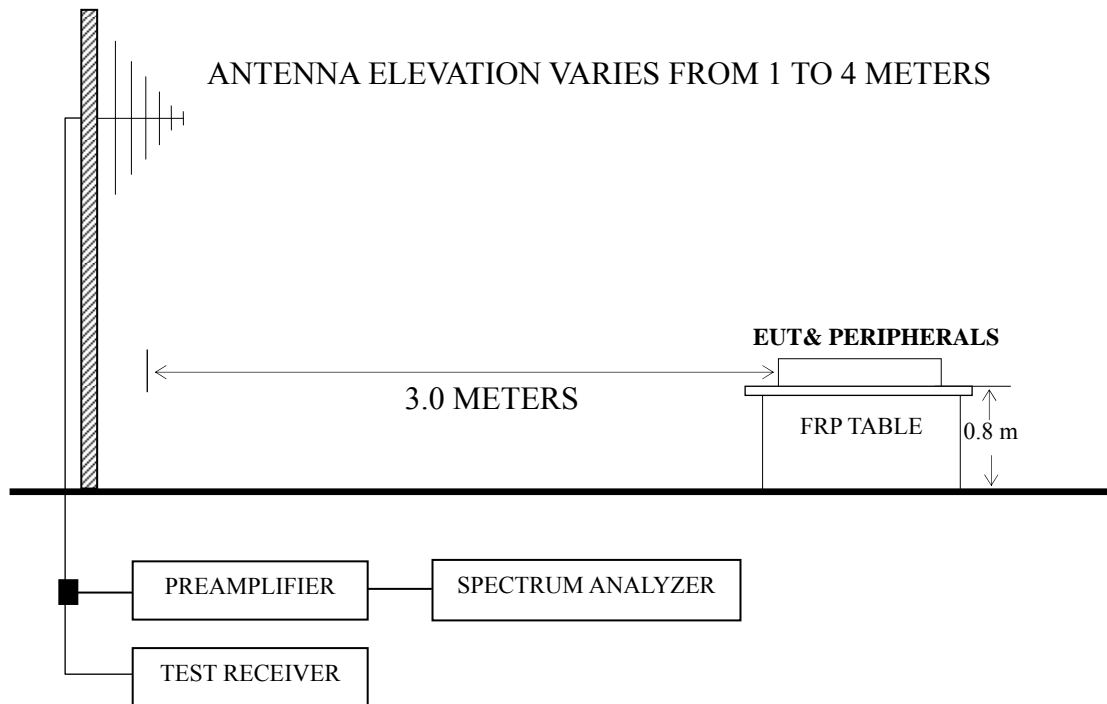
Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Test Receiver	R&S	ESCI	101302	Sep 11, 2012	Sep 11, 2013
2.	Preamplifier	Agilent	8447D	2944A10548	Sep 18, 2012	Mar 18, 2013
3.	Bi-log Antenna	TESEQ	CBL6112D	23193	May 03, 2012	May 03, 2013
4.	Spectrum	Agilent	E7405A	MY45106600	Mar 22, 2012	Mar 22, 2013
5.	50 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



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.

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 D-Sub 800*600@60Hz test mode. The worst emission at horizontal polarization was detected at 552.920 MHz with corrected signal level of 42.20 dB ($\mu\text{V}/\text{m}$) (limit is 46.00 dB ($\mu\text{V}/\text{m}$)), when the antenna was 1.90 m height and the turntable was at 270°. The worst emission at vertical polarization was detected at 448.070 MHz with corrected signal level of 42.97 dB ($\mu\text{V}/\text{m}$) (limit is 46.00 dB ($\mu\text{V}/\text{m}$)), when the antenna was 1.90 m height and the turntable was at 85°.

EUT : LED LCD TV Temperature : 22

Model No. : LTDN55K610GWUS Humidity : 60%RH

Test Mode : D-Sub 1024*768@60Hz Date of Test : Dec 26, 2012

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	15.17	15.63	0.73	31.53	40.00	8.47
	67.830	26.16	5.31	0.91	32.38	40.00	7.62
	125.060	22.45	11.50	1.50	35.45	43.50	8.05
	238.550	20.12	10.83	2.15	33.10	46.00	12.90
	444.190	19.91	17.15	2.82	39.88	46.00	6.12
	595.510	17.41	18.40	3.20	39.01	46.00	6.99
Vertical	70.740	23.51	5.89	0.94	30.34	40.00	9.66
	238.550	23.94	10.83	2.15	36.92	46.00	9.08
	405.430	23.10	16.25	2.71	42.06	46.00	3.94
	519.850	20.84	18.30	3.03	42.17	46.00	3.83
	552.830	19.58	19.30	3.10	41.98	46.00	4.02
	817.480	18.20	20.53	3.80	42.53	46.00	3.47

TEST ENGINEER: RAVEN JIN

EUT : LED LCD TV Temperature : 22

Model No. : LTDN55K610GWUS Humidity : 60%RH

Test Mode : HDMI 1024*768@60Hz Date of Test : Dec 26, 2012

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	11.17	15.63	0.73	27.53	40.00	12.47
	67.830	22.16	5.31	0.91	28.38	40.00	11.62
	125.060	18.45	11.50	1.50	31.45	43.50	12.05
	152.220	17.05	9.85	1.65	28.55	43.50	14.95
	519.850	12.45	18.30	3.03	33.78	46.00	12.22
	595.510	13.41	18.40	3.20	35.01	46.00	10.99
Vertical	70.740	24.51	5.89	0.94	31.34	40.00	8.66
	121.180	18.33	11.42	1.48	31.23	43.50	12.27
	152.220	20.49	9.85	1.65	31.99	43.50	11.51
	238.550	21.94	10.83	2.15	34.92	46.00	11.08
	405.390	20.64	16.25	2.71	39.60	46.00	6.40
	519.850	16.84	18.30	3.03	38.17	46.00	7.83

TEST ENGINEER: RAVEN JIN

EUT : LED LCD TV Temperature : 22

Model No. : LTDN55K610GWUS Humidity : 60%RH

Test Mode : D-Sub 800*600@60Hz Date of Test : Dec 26, 2012

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	125.060	25.05	11.50	1.50	38.05	43.50	5.45
	307.420	21.30	13.10	2.56	36.96	46.00	9.04
	405.010	21.40	16.25	2.69	40.34	46.00	5.66
	522.930	20.70	18.33	3.03	42.06	46.00	3.94
	552.920	19.80	19.30	3.10	42.20	46.00	3.80
	746.830	16.71	18.83	3.58	39.12	46.00	6.88
Vertical	37.760	16.79	14.13	0.75	31.67	40.00	8.33
	283.170	19.76	12.27	2.43	34.46	46.00	11.54
	406.360	17.54	16.27	2.71	36.52	46.00	9.48
	448.070	23.17	16.98	2.82	42.97	46.00	3.03
	522.760	20.44	18.33	3.03	41.80	46.00	4.20
	591.630	18.88	18.60	3.20	40.68	46.00	5.32

TEST ENGINEER: RAVEN JIN

EUT : LED LCD TV Temperature : 22

Model No. : LTDN55K610GWUS Humidity : 60%RH

Test Mode : D-Sub 640*480@60Hz Date of Test : Dec 26, 2012

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	69.770	25.26	5.74	0.92	31.92	40.00	8.08
	238.550	23.77	10.83	2.15	36.75	46.00	9.25
	405.390	23.69	16.25	2.71	42.65	46.00	3.35
	520.170	19.20	18.30	3.03	40.53	46.00	5.47
	808.710	18.10	20.07	3.70	41.87	46.00	4.13
	817.480	18.50	20.53	3.80	42.83	46.00	3.17
Vertical	35.820	15.35	15.63	0.73	31.71	40.00	8.29
	69.770	26.07	5.74	0.92	32.73	40.00	7.27
	122.150	22.90	11.44	1.49	35.83	43.50	7.67
	237.580	21.65	10.67	2.15	34.47	46.00	11.53
	446.130	21.12	17.07	2.82	41.01	46.00	4.99
	817.640	18.01	20.53	3.80	42.34	46.00	3.66

TEST ENGINEER: RAVEN JIN

EUT : LED LCD TV Temperature : 22

Model No. : LTDN55K610GWUS Humidity : 60%RH

Test Mode : USB Play Date of Test : Dec 26, 2012

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	69.770	27.26	5.74	0.92	33.92	40.00	6.08
	145.430	21.30	10.28	1.62	33.20	43.50	10.30
	152.220	25.07	9.85	1.65	36.57	43.50	6.93
	238.550	21.77	10.83	2.15	34.75	46.00	11.25
	405.390	22.69	16.25	2.71	41.65	46.00	4.35
	578.050	17.44	18.95	3.16	39.55	46.00	6.45
Vertical	69.770	24.07	5.74	0.92	30.73	40.00	9.27
	122.150	20.90	11.44	1.49	33.83	43.50	9.67
	237.580	19.65	10.67	2.15	32.47	46.00	13.53
	446.130	19.12	17.07	2.82	39.01	46.00	6.99
	519.850	16.25	18.30	3.03	37.58	46.00	8.42
	817.640	16.01	20.53	3.80	40.34	46.00	5.66

TEST ENGINEER: RAVEN JIN

EUT : LED LCD TV Temperature : 22

Model No. : LTDN55K610GWUS Humidity : 60%RH

Test Mode : LAN Date of Test : Dec 26, 2012

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	16.08	14.92	0.74	31.74	40.00	8.26
	122.150	20.06	11.44	1.49	32.99	43.50	10.51
	152.220	16.05	9.85	1.65	27.55	43.50	15.95
	238.550	16.12	10.83	2.15	29.10	46.00	16.90
	381.140	8.25	15.20	2.66	26.11	46.00	19.89
	817.640	13.16	20.53	3.80	37.49	46.00	8.51
Vertical	152.220	19.49	9.85	1.65	30.99	43.50	12.51
	238.550	21.94	10.83	2.15	34.92	46.00	11.08
	405.390	17.64	16.25	2.71	36.60	46.00	9.40
	519.850	13.84	18.30	3.03	35.17	46.00	10.83
	817.640	15.32	20.53	3.80	39.65	46.00	6.35
	966.050	14.05	20.57	4.72	39.34	54.00	14.66

TEST ENGINEER: RAVEN JIN

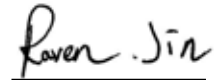
5 DEBUG DESCRIPTION

The following components are used during the countermeasure procedures:

Name	M/N	Manufacturer	Location
Aluminum Tape	DBA40X100\ROH	Qingdao Joinset S&T Co., Ltd.	See Internal Photos Figure 21
Gasket	35X0.7X41mm\VGA\ROH	Qingdao Joinset S&T Co., Ltd.	See Internal Photos Figure 22

Note: We had required the applicant and manufacturer that all electrical and mechanical devices employed for spurious radiation suppression, including any modifications made during certification testing, must be incorporated in each unit marked

TEST ENGINEER:



(RAVEN JIN)

6 DEVIATION TO TEST SPECIFICATIONS

None.