

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

LED LCD TV

Model No.	Brand
LTDN55K3201GUWUS	Hisense
55H7B	

FCC ID : W9HLCDF0056

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

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Report No. : ACI-F15088
Date of Test : May 11 – 16, 2015
Date of Report : May 18, 2015

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TEST REPORT FOR FCC CERTIFICATE

Applicant : Hisense Electric Co., Ltd.
 Manufacturer : Hisense Electric Co., Ltd.
 Factory #1 : Hisense Electric Co., Ltd.
 Factory #2 : Tatung Mexico S.A. de C.V.
 EUT Description : LED LCD TV

Model No.	Brand	Power Supply
Refer to Sec2.1	Hisense	120V/60Hz

Test Procedure Used:

*FCC RULES AND REGULATIONS PART 15 SUBPART B CLASS B OCTOBER 2014
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 May 11 – 16, 2015 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 Nso.F15089, a Verification report.

Date of Test : May 11 – 16, 2015 Date of Report : May 18, 2015

Producer : 
 KATHY WANG / Assistant

Review : 
 SAMMY CHEN / Manager

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

Signatory : 
 Authorized Signature EMC BYRON KWO / Assistant General 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 2014 AND ANSI C63.4-2003	15.107(a) Class B	Pass
Radiated Disturbance	FCC RULES AND REGULATIONS PART 15 SUBPART B OCTOBER 2014 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 checked="" type="checkbox"/> Production <input type="checkbox"/> Pre-product <input type="checkbox"/> Pro-type
Model No.	:	LTDN55K3201GUWUS, 55H7B
Note	:	The above models are all the same except for model name. LTDN55K3201GUWUS model is tested and recorded in the report.
Brand Name	:	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
Factory #1	:	Hisense Electric Co., Ltd. No.218 Qianwangang Road, Economy & Technology Development Zone, Qingdao, China
Factory #2	:	Tatung Mexico S.A. de C.V. Miguel Catalán 420, Parque Industrial Rio Bravo, Cd. Juarez, Chih., CP 32557
LCD Panel	:	Manufacturer : Hisense M/N : HD550DU-B51\S3.B2\ROH
Max Resolution	:	1920*1080@60Hz
HDMI Cable*3 (Lab provide)	:	Shielded, Detachable, 1.00m, with two cores
Power Cord	:	Unshielded, Detachable, 1.80m, without core
LAN Cable (Lab provide)	:	Unshielded, Detachable, 1.50m, without core
USB Cable (Lab provide)	:	Shielded, Detachable, 1.50m, without core
MHL to HDMI Adaptor: with RCP (Lab provide)	Manufacture M/N	: CE-Link : 3002

Remark:

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

Side Port:

- (1) One USB3 Port : Connected with U-Disk
- (2) One HDMI2/ARC Port : Connected with DVD PLAYER #1
- (3) One HDMI1/MHL Port : Connected with Smart Mobile Phone
- (4) One Audio out Port : Connected with Earphone
- (5) One Service Port : Do not open to the costumers
- (6) One USB2 Port : Connected with U-Disk
- (7) One USB1 Port : Connected with U-Disk
- (8) One ANT/CABLE IN Port : Connected with Antenna or ATSC SG / TV SG

Back Port:

- (1) One LAN Port : Connected with PC
- (2) One Digital Audio out Port : Connected with DVD PLAYER #2
- (3) One HDMI3 Port : Connected with DVD PLAYER #2
- (4) One HDMI4 Port : Connected with PC
- (5) One AV In Port : Connected with DVD PLAYER #1
- (6) One component of Video/YPbPr Port : Connected with DVD PLAYER #2

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;
 BSMI, 3C, MIC

2.2.2 Printer

Manufacturer : HP
Model Number : P1007
Serial Number : VNFN713831
Data Cable : Shielded, detachable, 1.8m
Certificate : GS, CE/EMC, C-Tick, FCC DoC

2.2.3 Keyboard

Manufacturer : HP
Model Number : CS105
Serial Number : 9GTRNB1300120632
Data Cable : Shielded, undetachable, 1.8m
Certificate : CE/EMC, FCC DoC, VCCI, MIC, C-Tick, BSMI

2.2.4 Mouse

Manufacturer : HP
Model Number : CS105
Serial Number : 9GTRNB1300120632
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 : audio-technica
Model Number : ATH-CKL200

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

2.2.11 U-Disk #1

Manufacturer : Kingmax
Model Number : 8G
Certificate : CE/EMC, FCC DoC, IC

2.2.12 U-Disk #2

Manufacturer : Kingmax
Model Number : 8G
Certificate : CE/EMC, FCC DoC, IC

2.2.13 U-Disk #3

Manufacturer : Transcend
Model Number : 8G
Certificate : CE/EMC, FCC DoC, IC

2.2.14 Smart Mobile Phone

Manufacturer : SAMSUNG
Model Number : GT-I9100G
Serial Number : RV1C2250B7J
Certificate : CE/EMC, CCC

2.3 Description of Test Facility

Site Description (No.3 3m Chamber) : Sept. 17, 1998 file on
Jan.15, 2015 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 = 2.8dB
Radiated Emission Expanded Uncertainty (30-200MHz):	U = 4.4dB (Horizontal)
	U = 4.4dB (Vertical)
Radiated Emission Expanded Uncertainty (200M-1GHz):	U = 4.4dB (Horizontal)
	U = 5.5dB (Vertical)
Radiated Emission Expanded Uncertainty (1GHz-6GHz):	U = 5.1dB

3 CONDUCTED EMISSION TEST

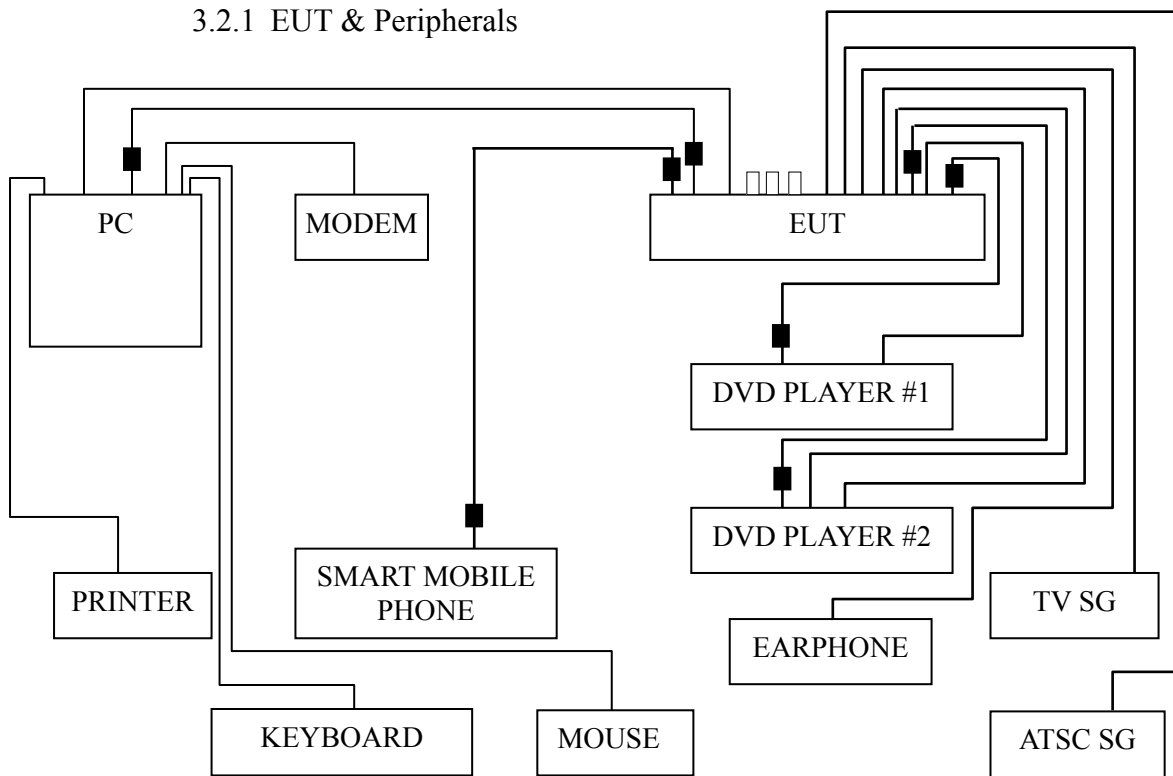
3.1 Test Equipment

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	101303	Jul 01, 2014	Jun 30, 2015
2.	Artificial Mains Network (AMN)	R&S	ENV4200	100125	Jun 27, 2014	Jun 26, 2015
3.	Line Impedance Stabilization Network (LISN)	Kyoritsu	KNW-407	8-1280-4	Mar 20, 2015	Mar 19, 2016
4.	50Ω Coaxial Switch	Anritsu	MP59B	6200426389	Mar 18, 2015	Sep 17, 2015
5.	50Ω Terminator	Anritsu	BNC	001	Mar 20, 2015	Mar 19, 2016
6.	Software	Audix	E3	6.111206	--	--

3.2 Block Diagram of Test Setup

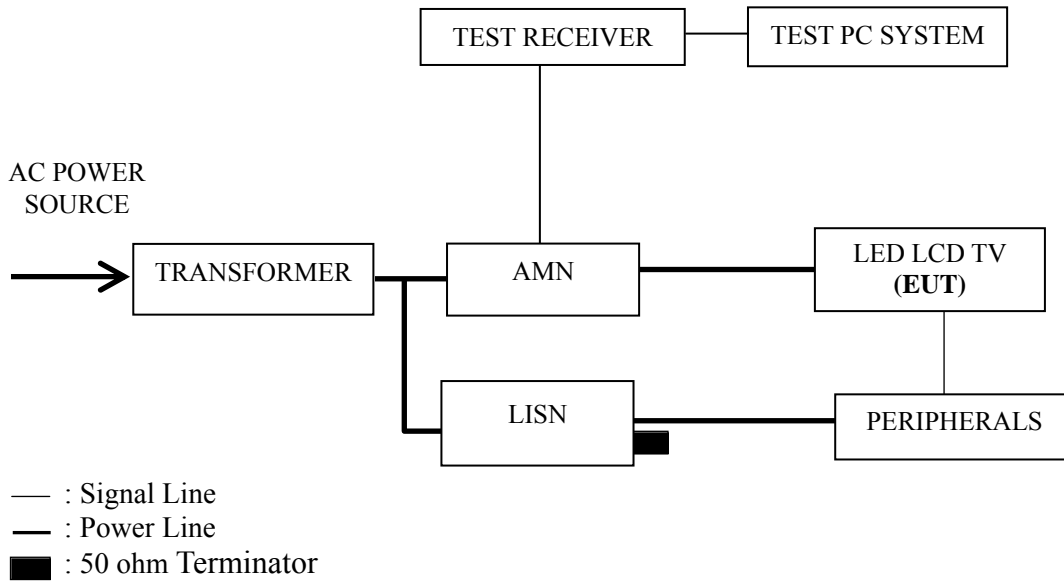
3.2.1 EUT & Peripherals



□ : U-Disk

■ : 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 HDMI Input).

3.5.5 PC system sent the 1kHz audio signal to EUT through audio port, the EUT speak out 1kHz audio signal.

3.5.6 In USB Play mode, set the EUT play digital media from U-Disk.

3.5.7 In LAN Play mode, set the EUT play digital media through LAN port.

3.5.8 The other peripherals devices were driven and operated during the test.

3.5.9 The test modes are as follows:

Test Mode
HDMI 1920*1080@60Hz & 1kHz playing
HDMI 1280*1024@60Hz & 1kHz playing
HDMI 640*480@60Hz & 1kHz playing
USB Play
LAN 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
HDMI 1920*1080@60Hz & 1kHz playing	P14
HDMI 1280*1024@60Hz & 1kHz playing	P15
HDMI 640*480@60Hz & 1kHz playing	P16
USB Play	P17
LAN Play	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 LAN Play test mode. The worst emission is detected at 0.565 MHz (Average Value) with corrected signal level of 31.93 dB (μ V) (limit is 46.00 dB (μ V)), when the Neutral of the EUT is connected to AMN.

EUT : LED LCD TV Temperature : 22°C

Model No. : LTDN55K3201GUWUS Humidity : 48%RH

Test Mode : HDMI 1920*1080@60Hz Date of Test : May 11, 2015
& 1kHz Playing

Test Line	Frequency (MHz)	Meter Reading dB(μ V)	Factor (dB)	Emission Level dB(μ V)	Limits dB(μ V)	Margin (dB)	Remark
Line	0.229	31.80	10.53	42.33	62.49	20.16	QP
	0.544	30.30	10.44	40.74	56.00	15.26	
	1.195	27.80	10.40	38.20	56.00	17.80	
	1.714	25.30	10.42	35.72	56.00	20.28	
	3.781	24.90	10.44	35.34	56.00	20.66	
	15.510	25.51	10.54	36.05	60.00	23.95	
	AV	0.229	17.30	10.53	27.83	52.49	24.66
		0.544	20.40	10.44	30.84	46.00	15.16
		1.195	19.90	10.40	30.30	46.00	15.70
		1.714	16.20	10.42	26.62	46.00	19.38
		3.781	16.30	10.44	26.74	46.00	19.26
		15.510	17.91	10.54	28.45	50.00	21.55
Neutral	0.342	25.90	10.46	36.36	59.15	22.79	QP
	0.563	30.90	10.43	41.33	56.00	14.67	
	1.017	27.20	10.41	37.61	56.00	18.39	
	1.856	26.50	10.45	36.95	56.00	19.05	
	3.383	23.60	10.49	34.09	56.00	21.91	
	16.990	24.30	10.68	34.98	60.00	25.02	
	AV	0.342	15.10	10.46	25.56	49.15	23.59
		0.563	21.20	10.43	31.63	46.00	14.37
		1.017	17.50	10.41	27.91	46.00	18.09
		1.856	16.20	10.45	26.65	46.00	19.35
		3.383	13.80	10.49	24.29	46.00	21.71
		16.990	17.90	10.68	28.58	50.00	21.42

TEST ENGINEER: WENCY YANG

EUT : LED LCD TV Temperature : 22°C

Model No. : LTDN55K3201GUWUS Humidity : 48%RH

Test Mode : HDMI 1280*1024@60Hz & 1kHz Playing Date of Test : May 11, 2015

Test Line	Frequency (MHz)	Meter Reading dB(μ V)	Factor (dB)	Emission Level dB(μ V)	Limits dB(μ V)	Margin (dB)	Remark
Line	0.230	31.80	10.53	42.33	62.45	20.12	QP
	0.543	30.70	10.44	41.14	56.00	14.86	
	1.017	27.40	10.40	37.80	56.00	18.20	
	1.644	26.50	10.41	36.91	56.00	19.09	
	3.695	22.80	10.44	33.24	56.00	22.76	
	16.020	24.69	10.56	35.25	60.00	24.75	
	0.230	18.20	10.53	28.73	52.45	23.72	AV
	0.543	20.80	10.44	31.24	46.00	14.76	
	1.017	17.60	10.40	28.00	46.00	18.00	
	1.644	17.30	10.41	27.71	46.00	18.29	
	3.695	15.90	10.44	26.34	46.00	19.66	
	16.020	17.79	10.56	28.35	50.00	21.65	
Neutral	0.400	24.90	10.42	35.32	57.86	22.54	QP
	0.557	30.90	10.43	41.33	56.00	14.67	
	0.993	27.10	10.41	37.51	56.00	18.49	
	1.848	26.10	10.45	36.55	56.00	19.45	
	3.842	24.30	10.49	34.79	56.00	21.21	
	15.440	23.71	10.66	34.37	60.00	25.63	
	0.400	14.00	10.42	24.42	47.86	23.44	AV
	0.557	20.20	10.43	30.63	46.00	15.37	
	0.993	17.20	10.41	27.61	46.00	18.39	
	1.848	16.60	10.45	27.05	46.00	18.95	
	3.842	15.40	10.49	25.89	46.00	20.11	
	15.440	16.81	10.66	27.47	50.00	22.53	

TEST ENGINEER: WENCY YANG

EUT : LED LCD TV Temperature : 22°C

Model No. : LTDN55K3201GUWUS Humidity : 48%RH

Test Mode : HDMI 640*480@60Hz & 1kHz Playing Date of Test : May 11, 2015

Test Line	Frequency (MHz)	Meter Reading dB(μ V)	Factor (dB)	Emission Level dB(μ V)	Limits dB(μ V)	Margin (dB)	Remark
Line	0.232	31.79	10.53	42.32	62.37	20.05	QP
	0.475	29.90	10.44	40.34	56.42	16.08	
	0.540	30.80	10.44	41.24	56.00	14.76	
	1.061	27.60	10.40	38.00	56.00	18.00	
	2.361	23.60	10.44	34.04	56.00	21.96	
	16.870	25.10	10.56	35.66	60.00	24.34	
	0.232	19.99	10.53	30.52	52.37	21.85	AV
	0.475	17.80	10.44	28.24	46.42	18.18	
	0.540	20.90	10.44	31.34	46.00	14.66	
	1.061	17.50	10.40	27.90	46.00	18.10	
	2.361	14.90	10.44	25.34	46.00	20.66	
	16.870	18.00	10.56	28.56	50.00	21.44	
Neutral	0.228	27.10	10.52	37.62	62.51	24.89	QP
	0.543	30.60	10.43	41.03	56.00	14.97	
	1.015	27.40	10.41	37.81	56.00	18.19	
	1.919	25.70	10.45	36.15	56.00	19.85	
	3.307	23.30	10.49	33.79	56.00	22.21	
	16.790	23.80	10.68	34.48	60.00	25.52	
	0.228	13.50	10.52	24.02	52.51	28.49	AV
	0.543	20.10	10.43	30.53	46.00	15.47	
	1.015	17.20	10.41	27.61	46.00	18.39	
	1.919	15.20	10.45	25.65	46.00	20.35	
	3.307	14.80	10.49	25.29	46.00	20.71	
	16.790	17.20	10.68	27.88	50.00	22.12	

TEST ENGINEER: WENCY YANG

EUT : LED LCD TV Temperature : 22°C
 Model No. : LTDN55K3201GUWUS Humidity : 48%RH
 Test Mode : USB Play Date of Test : May 11, 2015

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.231	31.79	10.53	42.32	62.40	20.08	QP
	0.477	29.90	10.44	40.34	56.39	16.05	
	0.560	31.10	10.44	41.54	56.00	14.46	
	1.246	27.10	10.40	37.50	56.00	18.50	
	3.238	23.20	10.44	33.64	56.00	22.36	
	15.820	24.89	10.56	35.45	60.00	24.55	
	0.231	18.89	10.53	29.42	52.40	22.98	AV
	0.477	17.40	10.44	27.84	46.39	18.55	
	0.560	21.20	10.44	31.64	46.00	14.36	
	1.246	16.50	10.40	26.90	46.00	19.10	
	3.238	15.10	10.44	25.54	46.00	20.46	
	15.820	17.59	10.56	28.15	50.00	21.85	
Neutral	0.343	25.80	10.46	36.26	59.13	22.87	QP
	0.563	31.00	10.43	41.43	56.00	14.57	
	1.010	27.60	10.41	38.01	56.00	17.99	
	1.700	26.19	10.44	36.63	56.00	19.37	
	3.772	25.20	10.49	35.69	56.00	20.31	
	15.930	24.20	10.67	34.87	60.00	25.13	
	0.343	14.90	10.46	25.36	49.13	23.77	AV
	0.563	21.40	10.43	31.83	46.00	14.17	
	1.010	17.20	10.41	27.61	46.00	18.39	
	1.700	16.99	10.44	27.43	46.00	18.57	
	3.772	15.90	10.49	26.39	46.00	19.61	
	15.930	17.10	10.67	27.77	50.00	22.23	

TEST ENGINEER: WENCY YANG

EUT : LED LCD TV Temperature : 22°C

Model No. : LTDN55K3201GUWUS Humidity : 48%RH

Test Mode : LAN Play Date of Test : May 11, 2015

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.225	31.50	10.53	42.03	62.65	20.62	QP
	0.542	30.80	10.44	41.24	56.00	14.76	
	1.061	27.30	10.40	37.70	56.00	18.30	
	1.845	26.30	10.43	36.73	56.00	19.27	
	3.733	22.00	10.44	32.44	56.00	23.56	
	17.270	24.80	10.57	35.37	60.00	24.63	
	AV	0.225	15.20	10.53	25.73	52.65	26.92
		0.542	21.00	10.44	31.44	46.00	14.56
		1.061	17.40	10.40	27.80	46.00	18.20
		1.845	17.40	10.43	27.83	46.00	18.17
		3.733	15.10	10.44	25.54	46.00	20.46
		17.270	17.90	10.57	28.47	50.00	21.53
Neutral	0.343	25.90	10.46	36.36	59.14	22.78	QP
	0.565	31.20	10.43	41.63	56.00	14.37	
	1.246	26.80	10.41	37.21	56.00	18.79	
	1.908	25.70	10.45	36.15	56.00	19.85	
	4.036	22.10	10.49	32.59	56.00	23.41	
	15.540	23.81	10.66	34.47	60.00	25.53	
	AV	0.343	15.20	10.46	25.66	49.14	23.48
		0.565	21.50	10.43	31.93	46.00	14.07
		1.246	17.10	10.41	27.51	46.00	18.49
		1.908	15.50	10.45	25.95	46.00	20.05
		4.036	13.60	10.49	24.09	46.00	21.91
		15.540	16.71	10.66	27.37	50.00	22.63

TEST ENGINEER: WENCY YANG

4 RADIATED EMISSION TEST

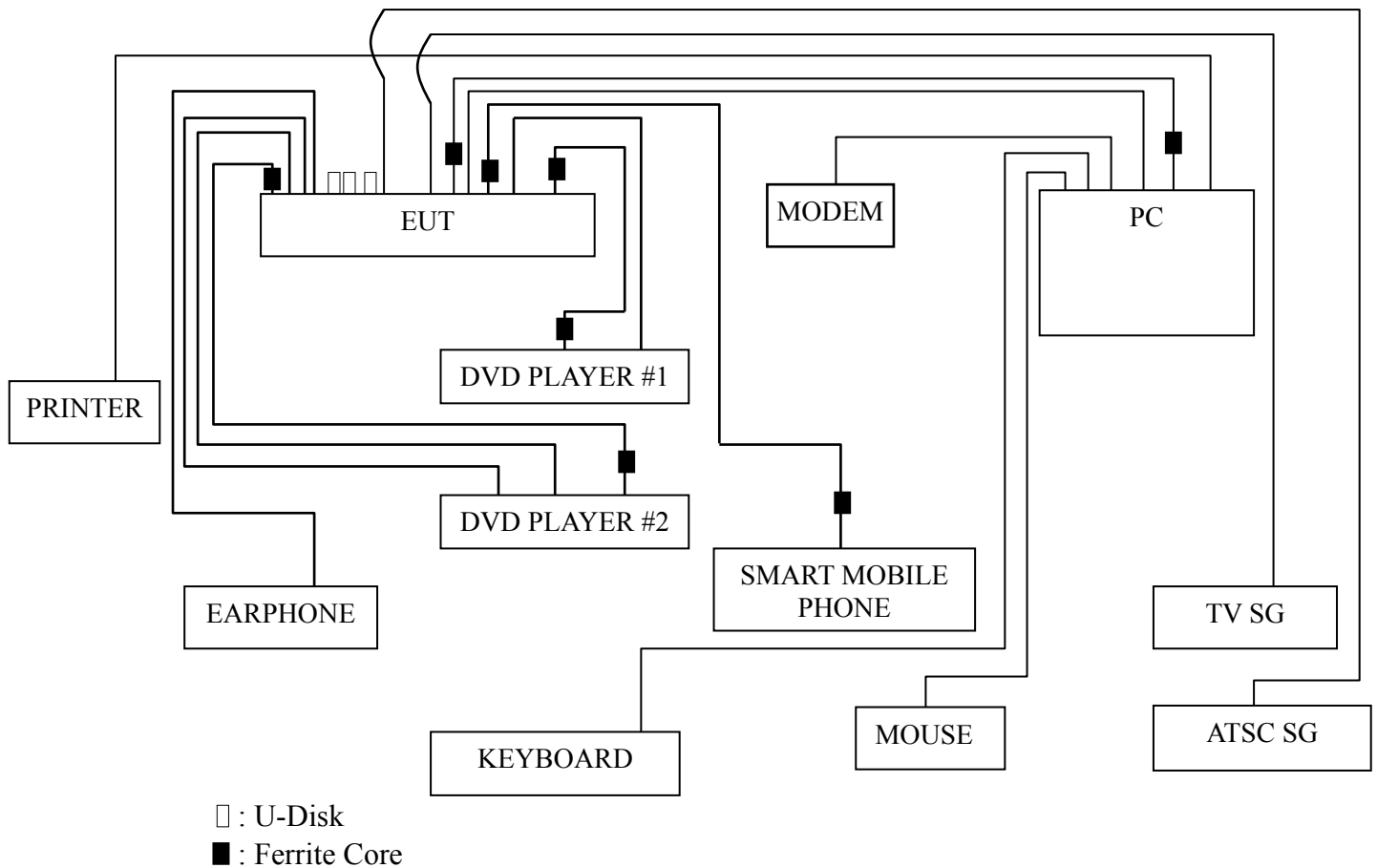
4.1 Test Equipment

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

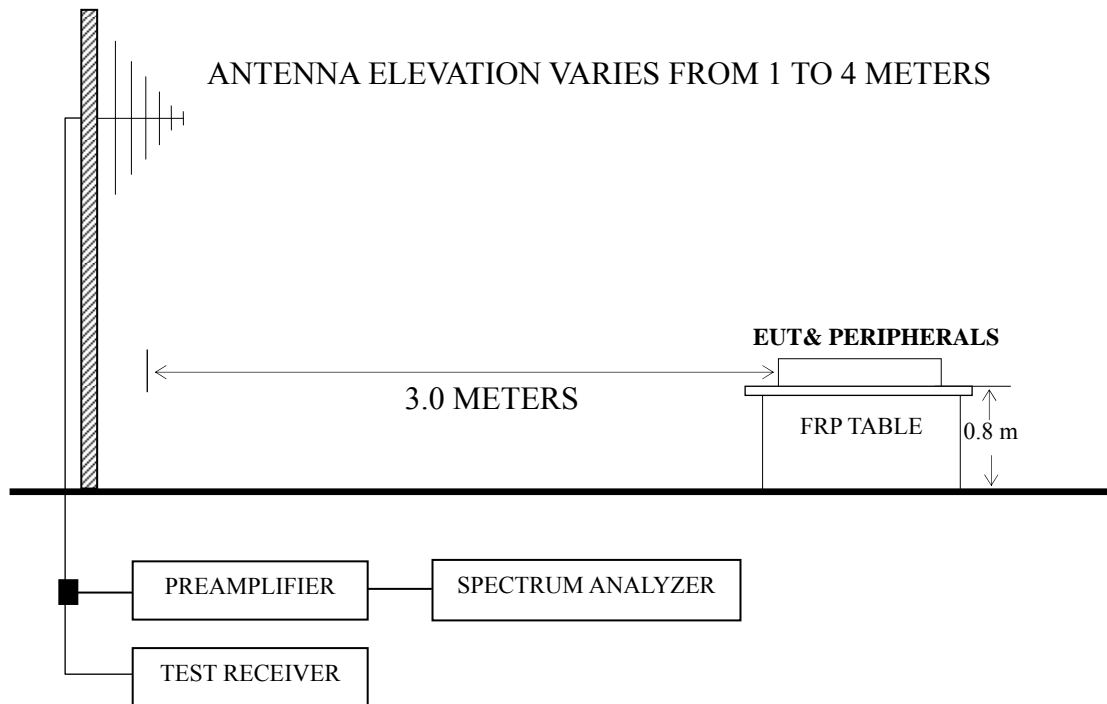
Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Test Receiver	R&S	ESCI	101302	Jul 03, 2014	Jul 02, 2015
2.	Preamplifier	Agilent	8447D	2944A10548	Mar 18, 2015	Sep 17, 2015
3.	Preamplifier	HP	8449B	3008A00864	May 20, 2015	May 19, 2016
4.	Bi-log Antenna	TESEQ	CBL6112D	23193	May 24, 2014	May 23, 2015
5.	Horn Antenna	EMCO	3115	9607-4878	Jun 16, 2014	Jun 15, 2015
6.	Spectrum	Agilent	E7405A	MY45106600	Jul 03, 2014	Jul 02, 2015
7.	50Ω Coaxial Switch	Anritsu	MP59B	6200426390	Mar 18, 2015	Sep 17, 2015
8.	Software	Audix	E3	6.2007-9-10	--	--

4.2 Block Diagram of Test Setup

4.2.1 EUT & 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 frequency range from 1 GHz to 2 GHz was checked for the maximum resolution test mode.

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
HDMI 1920*1080@60Hz & 1kHz playing	P23 – P24
HDMI 1280*1024@60Hz & 1kHz playing	P25
HDMI 640*480@60Hz & 1kHz playing	P26
USB Play	P27
LAN Play	P28

NOTE 1 – Emission Level = Antenna Factor + Cable Loss + Meter Reading. (< 1GHz);

Emission Level = Antenna Factor + Cable Loss – Preamp Factor + Meter Reading. (> 1GHz)

NOTE 2 – All readings are Quasi-Peak values below or equal to 1GHz, Peak and Average values above 1GHz.

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 HDMI 1920*1080@60Hz & 1kHz playing test mode. The worst emission at horizontal polarization was detected at 73.876 MHz with corrected signal level of 32.80 dB ($\mu\text{V/m}$) (limit is 40.00 dB ($\mu\text{V/m}$)), when the antenna was 2.05 m height and the turntable was at 37°. The worst emission at vertical polarization was detected at 72.180 MHz with corrected signal level of 36.69 dB ($\mu\text{V/m}$) (limit is 40.00 dB ($\mu\text{V/m}$)), when the antenna was 1.00m height and the turntable was at 321°.

EUT : LED LCD TV Temperature : 22°C

Model No. : LTDN55K3201GUWUS Humidity : 60%RH

Test Mode : HDMI 1920*1080@60Hz & 1kHz Playing Date of Test : May 16, 2015

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	30.000	1.36	19.80	0.54	--	21.70	40.00	18.30	QP
	73.876	24.14	7.81	0.85	--	32.80	40.00	7.20	
	133.151	17.62	12.10	1.16	--	30.88	43.50	12.62	
	305.680	19.56	12.84	1.80	--	34.20	46.00	11.80	
	417.641	16.55	16.58	2.10	--	35.23	46.00	10.77	
	801.786	15.21	19.90	2.89	--	38.00	46.00	8.00	
	1105.545	54.83	23.74	3.38	36.54	45.41	74.00	28.59	PK
	1246.558	48.49	24.59	3.61	36.32	40.37	74.00	33.63	
	1405.558	48.51	25.37	3.84	36.02	41.70	74.00	32.30	
	1636.785	48.23	26.17	4.15	35.65	42.90	74.00	31.10	
	1755.252	51.25	26.65	4.29	35.51	46.68	74.00	27.32	AV
	1937.036	48.32	27.24	4.46	35.35	44.67	74.00	29.33	
	1105.545	41.58	23.74	3.38	36.54	32.16	54.00	21.84	
	1246.558	38.52	24.59	3.61	36.32	30.40	54.00	23.60	
	1405.558	36.25	25.37	3.84	36.02	29.44	54.00	24.56	
	1636.785	37.12	26.17	4.15	35.65	31.79	54.00	22.21	
1755.252	40.21	26.65	4.29	35.51	35.64	54.00	18.36		
1937.036	36.18	27.24	4.46	35.35	32.53	54.00	21.47		

TEST ENGINEER: MARK LI

EUT : LED LCD TV Temperature : 22°C

Model No. : LTDN55K3201GUWUS Humidity : 60%RH

Test Mode : HDMI 1920*1080@60Hz & 1kHz Playing Date of Test : May 16, 2015

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Vertical	30.962	13.37	18.31	0.54	--	32.22	40.00	7.78	QP
	72.180	28.40	7.44	0.85	--	36.69	40.00	3.31	
	144.842	18.18	11.50	1.22	--	30.90	43.50	12.60	
	305.680	15.25	12.84	1.80	--	29.89	46.00	16.11	
	422.058	19.47	16.57	2.10	--	38.14	46.00	7.86	
	866.088	18.27	20.40	2.99	--	41.66	46.00	4.34	
	1053.335	56.75	23.46	3.27	36.62	46.86	74.00	27.14	PK
	1154.123	56.66	24.02	3.47	36.47	47.68	74.00	26.32	
	1336.782	49.67	25.07	3.75	36.15	42.34	74.00	31.66	
	1619.283	47.62	26.12	4.12	35.67	42.19	74.00	31.81	
	1764.712	47.91	26.69	4.29	35.50	43.39	74.00	30.61	
	1868.851	48.80	27.03	4.41	35.40	44.84	74.00	29.16	
	1053.335	42.75	23.46	3.27	36.62	32.86	54.00	21.14	AV
	1154.123	41.96	24.02	3.47	36.47	32.98	54.00	21.02	
	1336.782	38.27	25.07	3.75	36.15	30.94	54.00	23.06	
	1619.283	35.78	26.12	4.12	35.67	30.35	54.00	23.65	
	1764.712	34.26	26.69	4.29	35.50	29.74	54.00	24.26	
	1868.851	36.71	27.03	4.41	35.40	32.75	54.00	21.25	

TEST ENGINEER: MARK LI

EUT : LED LCD TV Temperature : 22°C

Model No. : LTDN55K3201GUWUS Humidity : 60%RH

Test Mode : HDMI 1280*1024@60Hz & 1kHz Playing Date of Test : May 16, 2015

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	30.745	7.51	18.68	0.54	26.73	40.00	13.27
	73.876	26.65	7.81	0.85	35.31	40.00	4.69
	130.837	19.47	12.10	1.16	32.73	43.50	10.77
	234.991	22.79	8.90	1.56	33.25	46.00	12.75
	305.680	21.15	12.84	1.80	35.79	46.00	10.21
	869.130	17.49	20.60	2.99	41.08	46.00	4.92
Vertical	31.510	16.12	17.56	0.55	34.23	40.00	5.77
	73.970	26.51	7.81	0.85	35.17	40.00	4.83
	129.923	21.38	12.10	1.15	34.63	43.50	8.87
	202.810	23.22	8.95	1.42	33.59	43.50	9.91
	426.521	19.87	16.63	2.11	38.61	46.00	7.39
	870.300	17.00	20.60	2.99	40.59	46.00	5.41

TEST ENGINEER: MARK LI

EUT : LED LCD TV Temperature : 22°C

Model No. : LTDN55K3201GUWUS Humidity : 60%RH

Test Mode : HDMI 640*480@60Hz & 1kHz Playing Date of Test : May 16, 2015

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	30.745	6.18	18.68	0.54	25.40	40.00	14.60
	73.876	26.70	7.81	0.85	35.36	40.00	4.64
	129.015	18.68	12.12	1.15	31.95	43.50	11.55
	197.200	25.15	9.03	1.40	35.58	43.50	7.92
	305.680	22.20	12.84	1.80	36.84	46.00	9.16
	742.259	18.90	20.40	2.78	42.08	46.00	3.92
Vertical	31.843	17.08	17.19	0.55	34.82	40.00	5.18
	73.876	27.98	7.81	0.85	36.64	40.00	3.36
	129.015	22.04	12.12	1.15	35.31	43.50	8.19
	423.540	20.73	16.57	2.11	39.41	46.00	6.59
	742.259	18.62	20.40	2.78	41.80	46.00	4.20
	851.035	19.79	19.67	2.97	42.43	46.00	3.57

TEST ENGINEER: MARK LI

EUT : LED LCD TV Temperature : 22°C

Model No. : LTDN55K3201GUWUS Humidity : 60%RH

Test Mode : USB Play Date of Test : May 16, 2015

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	32.979	0.68	16.57	0.56	17.81	40.00	22.19
	76.512	20.82	8.31	0.87	30.00	40.00	10.00
	176.888	20.61	9.56	1.33	31.50	43.50	12.00
	508.258	5.30	16.00	2.28	23.58	46.00	22.42
	694.417	6.47	20.87	2.70	30.04	46.00	15.96
	893.857	14.67	20.83	3.03	38.53	46.00	7.47
Vertical	31.620	13.63	17.37	0.55	31.55	40.00	8.45
	72.338	27.58	7.50	0.85	35.93	40.00	4.07
	168.414	18.75	10.41	1.30	30.46	43.50	13.04
	359.186	13.98	16.77	1.95	32.70	46.00	13.30
	513.633	15.03	16.05	2.30	33.38	46.00	12.62
	782.345	13.41	19.27	2.85	35.53	46.00	10.47

TEST ENGINEER: MARK LI

EUT : LED LCD TV Temperature : 22°C

Model No. : LTDN55K3201GUWUS Humidity : 60%RH

Test Mode : LAN Play Date of Test : May 16, 2015

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	32.520	3.70	16.79	0.56	21.05	40.00	18.95
	67.913	22.21	6.84	0.82	29.87	40.00	10.13
	141.826	17.52	11.50	1.20	30.22	43.50	13.28
	226.894	20.62	8.22	1.53	30.37	46.00	15.63
	420.580	19.60	16.53	2.10	38.23	46.00	7.77
	709.182	12.09	21.20	2.72	36.01	46.00	9.99
Vertical	39.162	18.18	11.08	0.61	29.87	40.00	10.13
	68.151	24.97	6.84	0.82	32.63	40.00	7.37
	136.939	17.95	11.83	1.18	30.96	43.50	12.54
	327.887	12.85	14.20	1.87	28.92	46.00	17.08
	490.745	15.05	15.90	2.25	33.20	46.00	12.80
	863.056	17.34	20.20	2.99	40.53	46.00	5.47

TEST ENGINEER: MARK LI

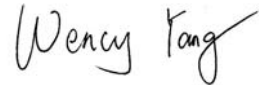
5 DEBUG DESCRIPTION

The following components are used during the countermeasure procedures:

Name	M/N	Manufacturer	Location
Gasket	JCT-RF-13-0.12-35\ROH	Qingdao Joinset Co., Ltd	See Internal Photos Figure 24
Al Tape	DCF40\ROH	Qingdao Joinset Co., Ltd	See Internal Photos Figure 25, 26

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:



(WENCY YANG)

6 DEVIATION TO TEST SPECIFICATIONS

None.