

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

LCD TV

Model No.	Serial No.	Brand
LHD32V78HUS	E11101296-01/01	Hisense

FCC ID : W9HLCDC0011

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

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Report No. : ACI-F11152
Date of Test : Oct 21 – Nov 01, 2011
Date of Report : Nov 02, 2011

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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
LHD32V78HUS	E11101296-01/01	Hisense	120V/60Hz

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: LHD32V78HUS; S/N: E11101296-01/01) which was tested in 3m anechoic chamber Oct 21 – Nov 01, 2011 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.F11151, a Verification report.

Date of Test : Oct 21 – Nov 01, 2011 Date of Report : Nov 02, 2011

Producer : Yenny Yu.
YENNY YU / Assistant

Review : Dio Yang.
DIO YANG / Assistant Manager

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

Signatory : Sammy Chen
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. : LHD32V78HUS

Serial No. : E11101296-01/01

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 : LG Display
M/N : LC320WXE (SB) (V2)

Tuner : Manufacturer : XuGuang Tech.Co.,Ltd
M/N : DVT-8ADC1/W41F2\ROH

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:

Back Port:

- (1) One component of YPbPr2 Port
: Connected with DVD #2
- (2) One component of YPbPr2 Audio Port
: Connected with DVD #2
- (3) One HDMI2 Port
: Connected with DVD #2
- (4) One HDMI3 Port
: Connected with PC
- (5) One AUDIO OUT Port
: Connected with Speaker
- (6) One component of AV2 Port
: Connected with DVD #2
- (7) One S-Video Port
: Connected with DVD #1
- (8) One DIGITAL AUDIO OUT Port
: Connected with DVD #1
- (9) One RS-232 port
: Connected with PC

Side Port

- (10) One HDMI1 Port
: Connected with DVD #1
- (11) One Headphone Port
: Connected with Earphone
- (12) One component of AV1 Port
: Connected with DVD #1
- (13) One PC AUDIO Port
: Connected with PC
- (14) One VGA Port
: Connected with PC
- (15) One component of YPbPr1 Port
: Connected with DVD #1
- (16) One component of YPbPr1 Audio Port
: Connected with DVD #1
- (17) One ANT Port
: Connected with ATSC SG
- (18) One Service Port
: Do not open to customer

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 Earphone

Manufacturer : SONY
Model Number : MDR-E808
Serial Number : 1808030805305506

2.2.6 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

2.2.7 ATSC Signal Generator

Manufacturer : SENCORE
Model Number : ATSC997
Serial Number : 6790071

2.2.8 DVD #1

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

2.2.9 DVD #2

Manufacturer : LG
Model Number : DF9921N
Serial Number : 3850R-M846W
Certificate : FCC DoC, CE/EMC, CCC

2.2.10 Speaker

Manufacturer : DIBA
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

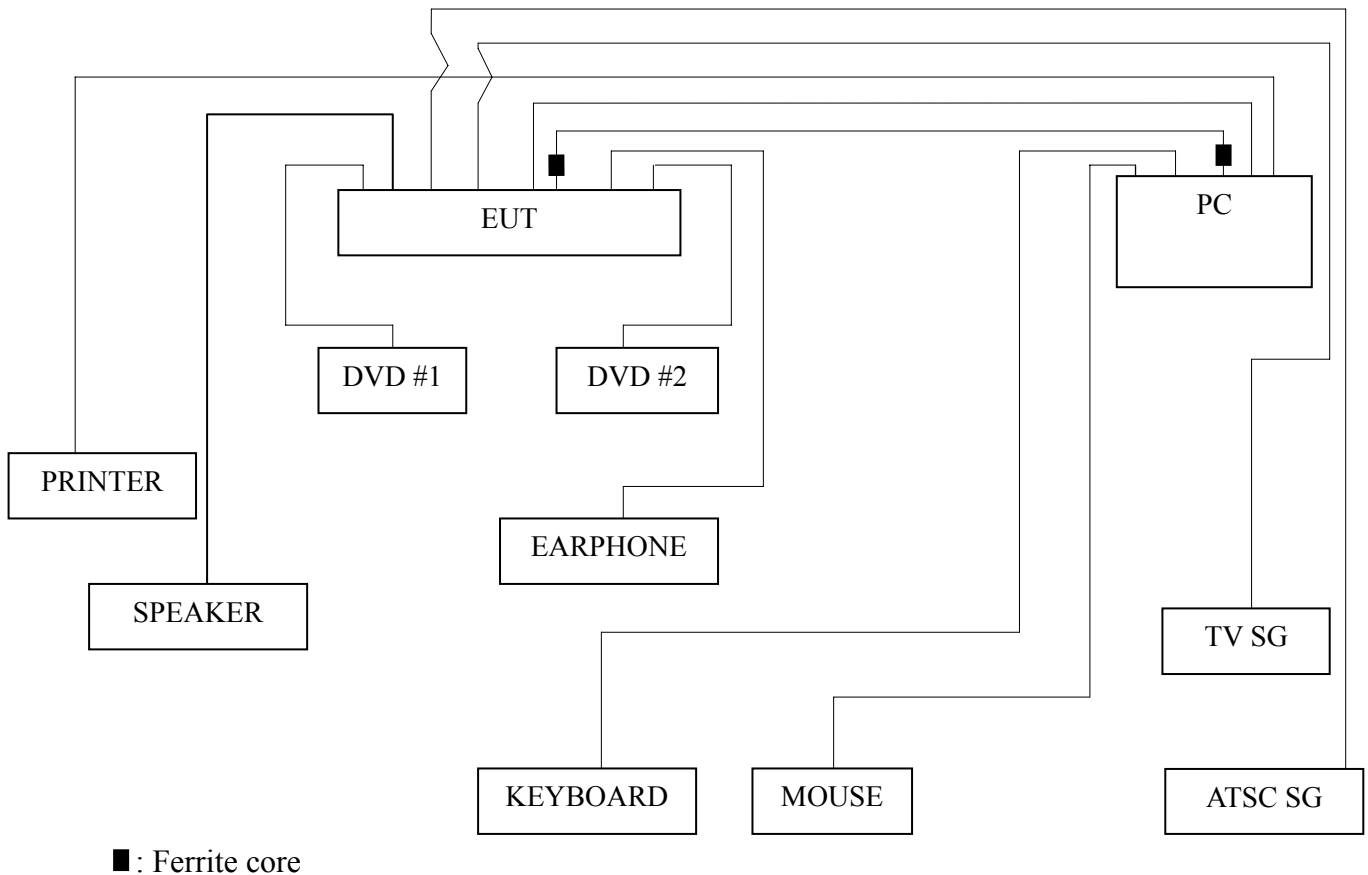
3.1 Test Equipment

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

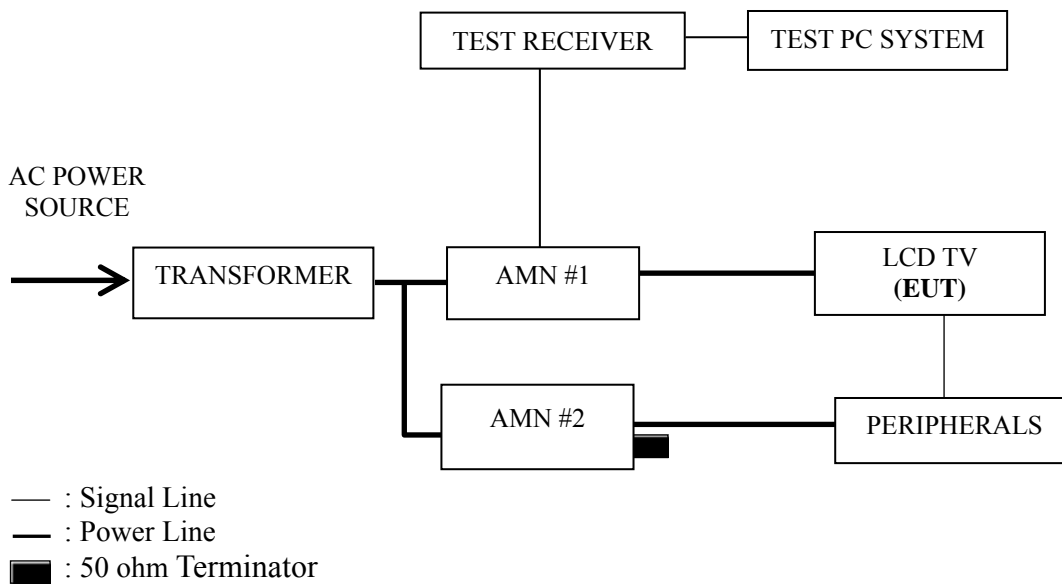
Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Test Receiver	R&S	ESCI	100841	Mar 22, 2011	Mar 22, 2012
2.	Artificial Mains Network (AMN #1)	R&S	ESH2-Z5	843890/011	Mar 22, 2011	Mar 22, 2012
3.	Artificial Mains Network (AMN #2)	R&S	ENV4200	100125	Mar 22, 2011	Mar 22, 2012
4.	50 Ω Coaxial 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



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

3.6 Test Procedures

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

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

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

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

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

3.7 Test Results

< **PASS** >

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

Test Mode	Data Page
D-Sub 640*480@60Hz	P13
D-Sub 800*600@60Hz	P14
D-Sub 1024*768@60Hz	P15
HDMI 640*480@60Hz	P16
HDMI 800*600@60Hz	P17
HDMI 1024*768@60Hz	P18

NOTE 1 – Factor = Cable Loss + AMN Factor.

NOTE 2 – Emission Level = Meter Reading + Factor.

NOTE 3 – “QP” means “Quasi-Peak” values, “AV” means “Average” values.

NOTE 4 – The worst case is for D-Sub 640*480@60Hz test mode. The worst emission is detected at 22.896 MHz (Quasi-Peak Value) with corrected signal level of 45.48 dB (μ V) (limit is 60.00 dB (μ V)), when the Line of the EUT is connected to AMN.

EUT : LCD TV Temperature : 22°C

Model No. : LHD32V78HUS Humidity : 48%RH

Serial No. : E11101296-01/01 Date of Test : Oct 21, 2011

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	0.182	41.50	0.23	41.73	64.42	22.69	QP
	0.300	39.76	0.24	40.00	60.24	20.24	
	0.494	35.82	0.31	36.13	56.10	19.97	
	0.779	36.76	0.39	37.15	56.00	18.85	
	1.991	30.95	0.44	31.39	56.00	24.61	
	22.896	44.34	1.14	45.48	60.00	14.52	
	0.182	31.10	0.23	31.33	54.42	23.09	AV
	0.300	29.50	0.24	29.74	50.24	20.50	
	0.494	25.70	0.31	26.01	46.10	20.09	
	0.779	26.11	0.39	26.50	46.00	19.50	
	1.991	20.30	0.44	20.74	46.00	25.26	
	22.896	33.60	1.14	34.74	50.00	15.26	
Neutral	0.182	41.45	0.19	41.64	64.42	22.78	QP
	0.300	39.95	0.19	40.14	60.24	20.10	
	0.494	36.06	0.24	36.30	56.10	19.80	
	0.779	37.22	0.31	37.53	56.00	18.47	
	1.991	31.47	0.55	32.02	56.00	23.98	
	22.535	42.54	1.28	43.82	60.00	16.18	
	0.182	30.70	0.19	30.89	54.42	23.53	AV
	0.300	29.80	0.19	29.99	50.24	20.25	
	0.494	25.90	0.24	26.14	46.10	19.96	
	0.779	26.51	0.31	26.82	46.00	19.18	
	1.991	21.30	0.55	21.85	46.00	24.15	
	22.535	32.70	1.28	33.98	50.00	16.02	

TEST ENGINEER: WENCY YANG

EUT : LCD TV Temperature : 22°C

Model No. : LHD32V78HUS Humidity : 48%RH

Serial No. : E11101296-01/01 Date of Test : Oct 21, 2011

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	0.182	41.74	0.23	41.97	64.42	22.45	QP
	0.300	40.04	0.24	40.28	60.24	19.96	
	0.494	35.77	0.31	36.08	56.10	20.02	
	0.779	36.99	0.39	37.38	56.00	18.62	
	1.991	31.25	0.44	31.69	56.00	24.31	
	22.535	44.11	1.12	45.23	60.00	14.77	
	0.182	31.10	0.23	31.33	54.42	23.09	AV
	0.300	30.10	0.24	30.34	50.24	19.90	
	0.494	25.10	0.31	25.41	46.10	20.69	
	0.779	26.91	0.39	27.30	46.00	18.70	
	1.991	21.50	0.44	21.94	46.00	24.06	
	22.535	33.89	1.12	35.01	50.00	14.99	
Neutral	0.182	41.30	0.19	41.49	64.42	22.93	QP
	0.300	40.18	0.19	40.37	60.24	19.87	
	0.494	36.12	0.24	36.36	56.10	19.74	
	0.779	37.12	0.31	37.43	56.00	18.57	
	1.991	31.73	0.55	32.28	56.00	23.72	
	22.535	43.53	1.28	44.81	60.00	15.19	
	0.182	31.20	0.19	31.39	54.42	23.03	AV
	0.300	29.30	0.19	29.49	50.24	20.75	
	0.494	26.40	0.24	26.64	46.10	19.46	
	0.779	26.71	0.31	27.02	46.00	18.98	
	1.991	21.50	0.55	22.05	46.00	23.95	
	22.535	32.80	1.28	34.08	50.00	15.92	

TEST ENGINEER: WENCY YANG

EUT : LCD TV Temperature : 22°C

Model No. : LHD32V78HUS Humidity : 48%RH

Serial No. : E11101296-01/01 Date of Test : Oct 21, 2011

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	0.182	41.75	0.23	41.98	64.42	22.44	QP
	0.300	39.76	0.24	40.00	60.24	20.24	
	0.484	35.87	0.31	36.18	56.27	20.09	
	0.779	36.66	0.39	37.05	56.00	18.95	
	1.991	31.38	0.44	31.82	56.00	24.18	
	22.655	43.72	1.12	44.84	60.00	15.16	
	0.182	31.80	0.23	32.03	54.42	22.39	AV
	0.300	29.50	0.24	29.74	50.24	20.50	
	0.484	25.60	0.31	25.91	46.27	20.36	
	0.779	25.71	0.39	26.10	46.00	19.90	
	1.991	20.70	0.44	21.14	46.00	24.86	
	22.655	33.49	1.12	34.61	50.00	15.39	
Neutral	0.182	41.52	0.19	41.71	64.42	22.71	QP
	0.300	40.34	0.19	40.53	60.24	19.71	
	0.494	36.12	0.24	36.36	56.10	19.74	
	0.779	36.79	0.31	37.10	56.00	18.90	
	2.396	31.28	0.57	31.85	56.00	24.15	
	21.830	43.46	1.22	44.68	60.00	15.32	
	0.182	31.40	0.19	31.59	54.42	22.83	AV
	0.300	30.30	0.19	30.49	50.24	19.75	
	0.494	25.30	0.24	25.54	46.10	20.56	
	0.779	26.71	0.31	27.02	46.00	18.98	
	2.396	21.10	0.57	21.67	46.00	24.33	
	21.830	33.20	1.22	34.42	50.00	15.58	

TEST ENGINEER: WENCY YANG

EUT : LCD TV Temperature : 22°C

Model No. : LHD32V78HUS Humidity : 48%RH

Serial No. : E11101296-01/01 Date of Test : Oct 21, 2011

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	0.182	42.17	0.23	42.40	64.42	22.02	QP
	0.300	39.93	0.24	40.17	60.24	20.07	
	0.484	36.11	0.31	36.42	56.27	19.85	
	0.779	36.42	0.39	36.81	56.00	19.19	
	1.991	31.08	0.44	31.52	56.00	24.48	
	21.600	43.03	1.03	44.06	60.00	15.94	
	0.182	31.30	0.23	31.53	54.42	22.89	AV
	0.300	30.10	0.24	30.34	50.24	19.90	
	0.484	25.70	0.31	26.01	46.27	20.26	
	0.779	26.41	0.39	26.80	46.00	19.20	
	1.991	20.90	0.44	21.34	46.00	24.66	
	21.600	32.20	1.03	33.23	50.00	16.77	
Neutral	0.182	42.04	0.19	42.23	64.42	22.19	QP
	0.300	40.31	0.19	40.50	60.24	19.74	
	0.484	36.69	0.24	36.93	56.27	19.34	
	0.779	36.79	0.31	37.10	56.00	18.90	
	1.991	32.08	0.55	32.63	56.00	23.37	
	21.830	41.38	1.22	42.60	60.00	17.40	
	0.182	31.50	0.19	31.69	54.42	22.73	AV
	0.300	29.69	0.19	29.88	50.24	20.36	
	0.484	26.20	0.24	26.44	46.27	19.83	
	0.779	26.31	0.31	26.62	46.00	19.38	
	1.991	21.60	0.55	22.15	46.00	23.85	
	21.830	30.90	1.22	32.12	50.00	17.88	

TEST ENGINEER: WENCY YANG

EUT : LCD TV Temperature : 22°C

Model No. : LHD32V78HUS Humidity : 48%RH

Serial No. : E11101296-01/01 Date of Test : Oct 21, 2011

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	0.182	41.92	0.23	42.15	64.42	22.27	QP
	0.300	40.19	0.24	40.43	60.24	19.81	
	0.494	35.90	0.31	36.21	56.10	19.89	
	0.779	36.81	0.39	37.20	56.00	18.80	
	1.991	31.75	0.44	32.19	56.00	23.81	
	21.830	43.71	1.04	44.75	60.00	15.25	
	0.182	31.78	0.23	32.01	54.42	22.41	AV
	0.300	29.41	0.24	29.65	50.24	20.59	
	0.494	25.14	0.31	25.45	46.10	20.65	
	0.779	26.21	0.39	26.60	46.00	19.40	
	1.991	21.36	0.44	21.80	46.00	24.20	
	21.830	33.56	1.04	34.60	50.00	15.40	
Neutral	0.182	41.79	0.19	41.98	64.42	22.44	QP
	0.303	40.33	0.19	40.52	60.15	19.63	
	0.484	36.53	0.24	36.77	56.27	19.50	
	0.779	36.45	0.31	36.76	56.00	19.24	
	1.858	30.87	0.55	31.42	56.00	24.58	
	21.830	42.97	1.22	44.19	60.00	15.81	
	0.182	30.80	0.19	30.99	54.42	23.43	AV
	0.303	30.40	0.19	30.59	50.15	19.56	
	0.484	26.70	0.24	26.94	46.27	19.33	
	0.779	26.11	0.31	26.42	46.00	19.58	
	1.858	20.70	0.55	21.25	46.00	24.75	
	21.830	32.90	1.22	34.12	50.00	15.88	

TEST ENGINEER: WENCY YANG

EUT : LCD TV Temperature : 22°C

Model No. : LHD32V78HUS Humidity : 48%RH

Serial No. : E11101296-01/01 Date of Test : Oct 21, 2011

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	0.182	42.06	0.23	42.29	64.42	22.13	QP
	0.300	40.04	0.24	40.28	60.24	19.96	
	0.484	35.93	0.31	36.24	56.27	20.03	
	0.779	36.58	0.39	36.97	56.00	19.03	
	1.991	30.80	0.44	31.24	56.00	24.76	
	21.830	44.09	1.04	45.13	60.00	14.87	
	0.182	31.60	0.23	31.83	54.42	22.59	AV
	0.300	29.70	0.24	29.94	50.24	20.30	
	0.484	25.40	0.31	25.71	46.27	20.56	
	0.779	26.21	0.39	26.60	46.00	19.40	
	1.991	20.70	0.44	21.14	46.00	24.86	
	21.830	33.90	1.04	34.94	50.00	15.06	
Neutral	0.182	41.82	0.19	42.01	64.42	22.41	QP
	0.300	39.96	0.19	40.15	60.24	20.09	
	0.494	36.39	0.24	36.63	56.10	19.47	
	0.779	36.99	0.31	37.30	56.00	18.70	
	1.991	31.64	0.55	32.19	56.00	23.81	
	21.830	43.92	1.22	45.14	60.00	14.86	
	0.182	31.40	0.19	31.59	54.42	22.83	AV
	0.300	29.70	0.19	29.89	50.24	20.35	
	0.494	26.50	0.24	26.74	46.10	19.36	
	0.779	26.91	0.31	27.22	46.00	18.78	
	1.991	21.60	0.55	22.15	46.00	23.85	
	21.830	33.79	1.22	35.01	50.00	14.99	

TEST ENGINEER: WENCY YANG

4 RADIATED EMISSION TEST

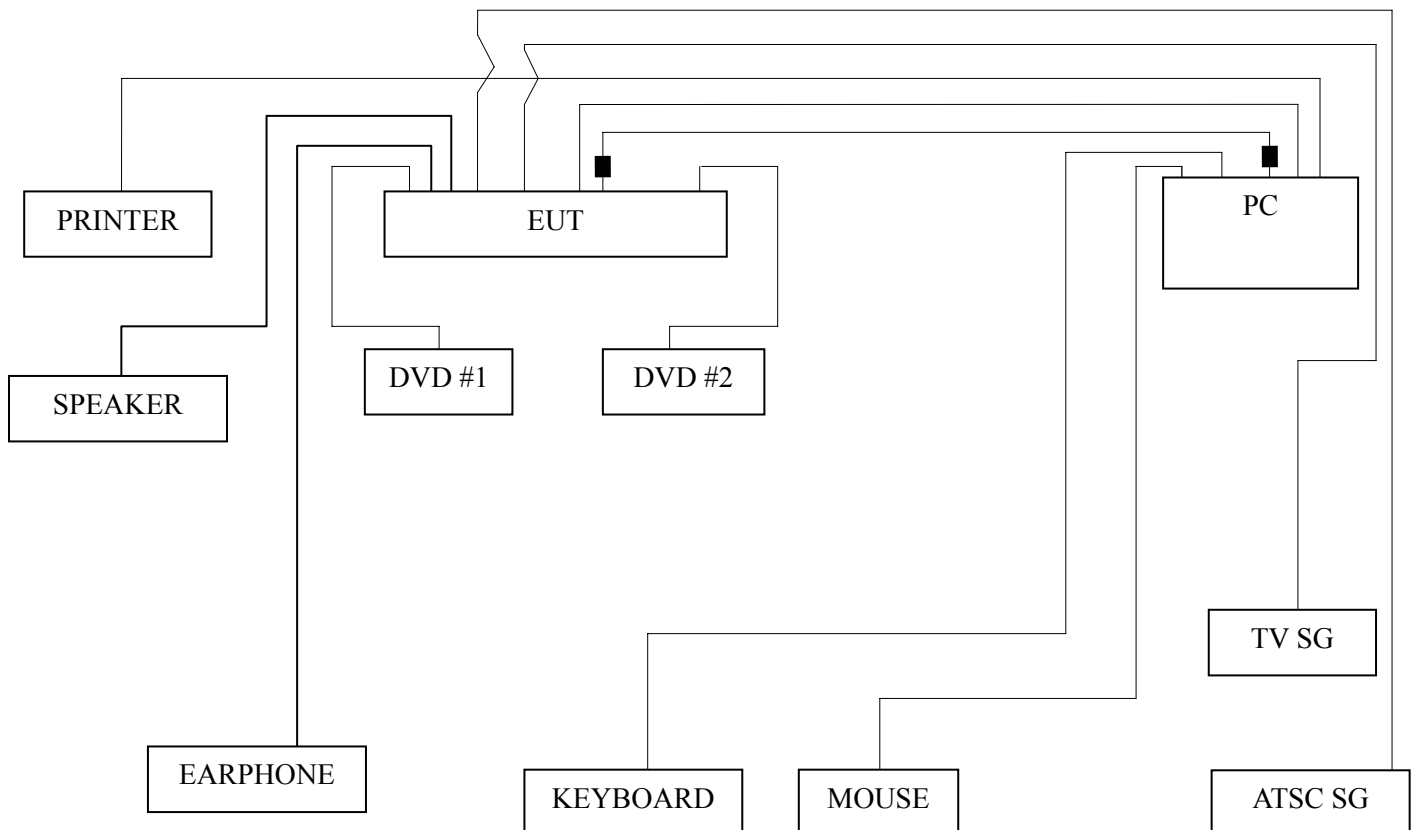
4.1 Test Equipment

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	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, 2010	Dec 01, 2011
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	--	--

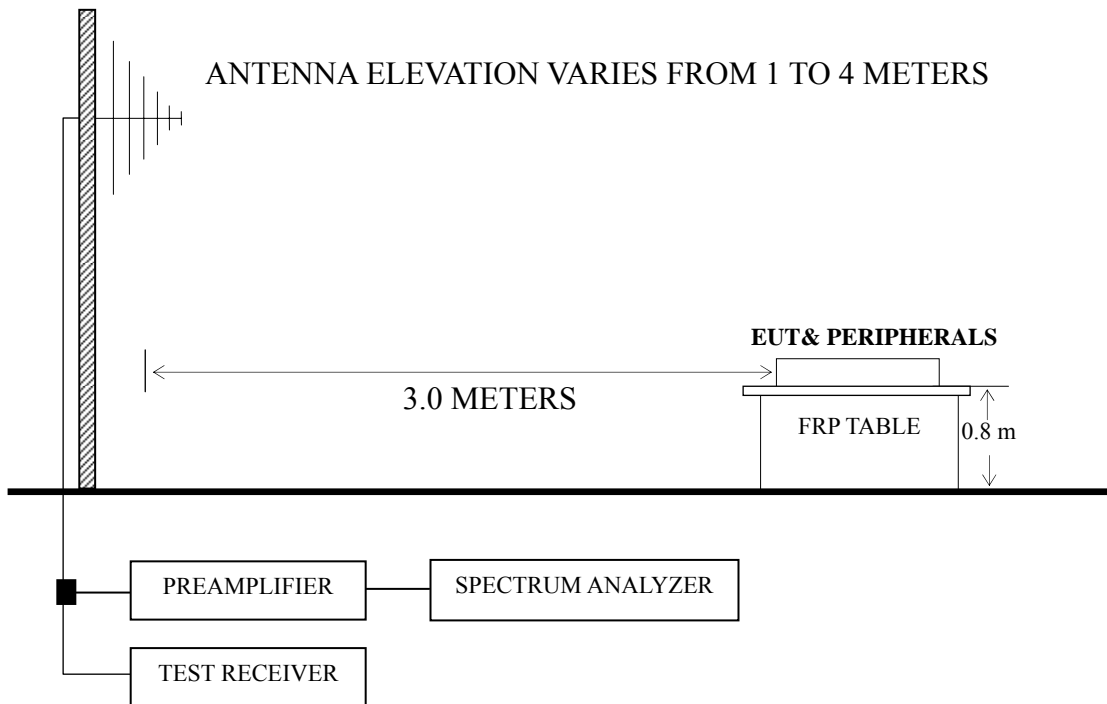
4.2 Block Diagram of Test Setup

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

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 664.380MHz with corrected signal level of 42.49 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 95°. The worst emission at vertical polarization was detected at 668.000 MHz with corrected signal level of 42.17 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 265°.

EUT : LCD TV Temperature : 22°C

Model No. : LHD32V78HUS Humidity : 60%RH

Serial No. : E11101296-01/01 Date of Test : Nov 01, 2011

Test Mode : D-Sub 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	82.380	23.97	8.19	0.98	33.14	40.00	6.86
	101.780	19.60	11.63	1.05	32.28	43.50	11.22
	202.500	24.80	10.81	1.46	37.07	43.50	6.43
	271.530	17.26	13.37	1.67	32.30	46.00	13.70
	405.390	14.60	16.57	2.04	33.21	46.00	12.79
	667.290	15.93	19.55	2.62	38.10	46.00	7.90
Vertical	48.430	24.20	9.62	0.75	34.57	40.00	5.43
	77.530	23.12	7.49	0.93	31.54	40.00	8.46
	101.780	20.33	11.63	1.05	33.01	43.50	10.49
	203.630	23.37	10.85	1.47	35.69	43.50	7.81
	271.530	18.46	13.37	1.67	33.50	46.00	12.50
	363.680	22.32	15.69	1.94	39.95	46.00	6.05

TEST ENGINEER: RAVEN JIN

EUT : LCD TV Temperature : 22°C

Model No. : LHD32V78HUS Humidity : 60%RH

Serial No. : E11101296-01/01 Date of Test : Nov 01, 2011

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	48.430	22.72	9.62	0.75	33.09	40.00	6.91
	101.780	20.68	11.63	1.05	33.36	43.50	10.14
	203.630	25.37	10.85	1.47	37.69	43.50	5.81
	368.530	23.07	15.81	1.96	40.84	46.00	5.16
	412.180	20.53	16.67	2.07	39.27	46.00	6.73
	662.440	19.44	19.52	2.62	41.58	46.00	4.42
Vertical	82.380	24.18	8.19	0.98	33.35	40.00	6.65
	202.500	27.00	10.81	1.46	39.27	43.50	4.23
	293.840	21.24	13.79	1.76	36.79	46.00	9.21
	405.390	14.54	16.57	2.04	33.15	46.00	12.85
	672.140	19.90	19.57	2.59	42.06	46.00	3.94
	809.880	12.45	20.80	2.87	36.12	46.00	9.88

TEST ENGINEER: RAVEN JIN

EUT : LCD TV Temperature : 22°C

Model No. : LHD32V78HUS Humidity : 60%RH

Serial No. : E11101296-01/01 Date of Test : Nov 01, 2011

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	82.380	23.78	8.19	0.98	32.95	40.00	7.05
	145.430	23.86	11.66	1.22	36.74	43.50	6.76
	182.290	27.03	9.99	1.38	38.40	43.50	5.10
	202.500	26.00	10.81	1.46	38.27	43.50	5.23
	288.990	21.35	13.71	1.71	36.77	46.00	9.23
	664.380	20.33	19.54	2.62	42.49	46.00	3.51
Vertical	48.430	24.27	9.62	0.75	34.64	40.00	5.36
	101.780	20.98	11.63	1.05	33.66	43.50	9.84
	368.530	23.25	15.81	1.96	41.02	46.00	4.98
	412.180	21.87	16.67	2.07	40.61	46.00	5.39
	668.000	20.00	19.55	2.62	42.17	46.00	3.83
	732.280	16.15	20.04	2.75	38.94	46.00	7.06

TEST ENGINEER: RAVEN JIN

EUT : LCD TV Temperature : 22°C

Model No. : LHD32V78HUS Humidity : 60%RH

Serial No. : E11101296-01/01 Date of Test : Nov 01, 2011

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	82.380	21.97	8.19	0.98	31.14	40.00	8.86
	101.780	17.60	11.63	1.05	30.28	43.50	13.22
	153.190	12.89	11.04	1.24	25.17	43.50	18.33
	203.630	23.57	10.85	1.47	35.89	43.50	7.61
	303.540	14.22	14.00	1.75	29.97	46.00	16.03
	405.390	12.60	16.57	2.04	31.21	46.00	14.79
Vertical	48.430	21.20	9.62	0.75	31.57	40.00	8.43
	77.530	20.12	7.49	0.93	28.54	40.00	11.46
	101.780	16.33	11.63	1.05	29.01	43.50	14.49
	203.630	20.37	10.85	1.47	32.69	43.50	10.81
	363.680	20.32	15.69	1.94	37.95	46.00	8.05
	652.740	16.00	19.47	2.61	38.08	46.00	7.92

TEST ENGINEER: RAVEN JIN

EUT : LCD TV Temperature : 22°C

Model No. : LHD32V78HUS Humidity : 60%RH

Serial No. : E11101296-01/01 Date of Test : Nov 01, 2011

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	48.430	19.72	9.62	0.75	30.09	40.00	9.91
	101.780	18.68	11.63	1.05	31.36	43.50	12.14
	203.630	23.37	10.85	1.47	35.69	43.50	7.81
	368.530	21.07	15.81	1.96	38.84	46.00	7.16
	412.180	18.53	16.67	2.07	37.27	46.00	8.73
	662.440	17.44	19.52	2.62	39.58	46.00	6.42
Vertical	82.380	21.18	8.19	0.98	30.35	40.00	9.65
	101.780	16.18	11.63	1.05	28.86	43.50	14.64
	203.630	24.00	10.85	1.47	36.32	43.50	7.18
	293.840	16.24	13.79	1.76	31.79	46.00	14.21
	405.390	9.54	16.57	2.04	28.15	46.00	17.85
	672.140	14.90	19.57	2.59	37.06	46.00	8.94

TEST ENGINEER: RAVEN JIN

EUT : LCD TV Temperature : 22°C

Model No. : LHD32V78HUS Humidity : 60%RH

Serial No. : E11101296-01/01 Date of Test : Nov 01, 2011

Test Mode : HDMI 1024*768@60Hz

Polarization	Frequency (MHz)	Meter Reading dB (μ V)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level dB (μ V/m)	Limits dB (μ V/m)	Margin (dB)
Horizontal	82.380	21.78	8.19	0.98	30.95	40.00	9.05
	145.430	20.86	11.66	1.22	33.74	43.50	9.76
	203.630	24.41	10.85	1.47	36.73	43.50	6.77
	288.990	17.35	13.71	1.71	32.77	46.00	13.23
	366.590	14.65	15.77	1.96	32.38	46.00	13.62
	664.380	18.33	19.54	2.62	40.49	46.00	5.51
Vertical	48.430	20.27	9.62	0.75	30.64	40.00	9.36
	101.780	15.98	11.63	1.05	28.66	43.50	14.84
	288.990	15.82	13.71	1.71	31.24	46.00	14.76
	368.530	18.25	15.81	1.96	36.02	46.00	9.98
	412.180	16.87	16.67	2.07	35.61	46.00	10.39
	669.230	17.04	19.55	2.62	39.21	46.00	6.79

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
Ferrite core	ZCAT3035-1330\ROH	FEELUX	See Internal Photos Figure 17
		Rui Feng Electronic Co., Ltd.	
		Hai An Magnetic Material No.2 Factory	
		JIANGSU LETTALL ELECTRONICS CO., LTD.	
Ferrite core	BNF-12\ZCAT1519-0830\ROH	FEELUX	See Internal Photos Figure 18
		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)