

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

LCD TV

Model No.: LCD32W57KCA

Serial No.: E2009062501

Brand: Hisense

FCC ID : W9H32LCD001

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

Prepared By : Audix Technology (Shanghai) Co., Ltd.
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Report No. : ACI-F09031A1
Date of Test : Jul 14-15, 2009
Date of Report : Jul 17, 2009

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TEST REPORT FOR FCC CERTIFICATE

Applicant : Hisense Electric Co., Ltd.
Manufacturer : Hisense Electric Co., Ltd.
EUT Description : LCD TV
(A) Model No. : LCD32W57KCA
(B) Serial No. : E2009062501
(C) Brand : Hisense
(D) Power Supply : 120V/60Hz

Test Procedure Used:

*FCC RULES AND REGULATIONS PART 15 SUBPART B CLASS B OCTOBER 2008
AND ANSI C63.4-2003*

The device described above is tested by Audix Technology (Shanghai) Co., Ltd. to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart B (Class B) limits both radiated and conducted emissions.

The test results are contained in this test report and Audix Technology (Shanghai) Co., Ltd. is assumed full responsibility for the accuracy and completeness of these measurements. This report shows that the EUT (M/N: Refer to Sec.2.1; S/N: Refer to Sec.2.1) which was tested in 3m anechoic chamber Jul 14-15, 2009 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 function are contained in No.F09034A1, a Verification report. Because of the request from the client that, the EUT use different main board from the original model (The original Test Report No.: ACI-F09031). We had tested and reissued the report on the basis of the new sample.

Date of Test : Jul 14-15, 2009 Date of Report : Jul 17, 2009

Producer : Alan He
ALAN HE / Assistant

Review : Byron Wu
BYRON WU / Supervisor

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

Signatory : Dio Yang
Authorized Signature EMC DIO YANG / Supervisor

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 2008 AND ANSI C63.4-2003	15.107(a) Class B	Pass
Radiated Disturbance	FCC RULES AND REGULATIONS PART 15 SUBPART B OCTOBER 2008 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. : LCD32W57KCA

Serial No. : E2009062501

Brand : Hisense

Note #1 : The different list for all the models are as follows:

Model No.	Brand	Main Board	Tuner	Report No.
LHD32W57US	Hisense	RSAG7.820.1528	DTVS205FH201A	ACI-F09031
32LC30S57	Proscan			
32LC30S60				
LCD32W57KCA	Hisense	RSAG7.820.1854	FTDC3Y13MH05	ACI-F09031A1

Note 2 : The LCD32W57KCA was tested and recorded in this report.

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

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

LCD Panel : Manufacturer : SAMSUNG
M/N : LTA320AP02
S/N : 8C9BJ1260R 002

Tuner : Manufacturer : Wuxi Components 6th Factory
M/N : FTDC3Y13MH05/ROH

Max Resolution : 1360*768@60Hz

D-Sub Cable	:	Shielded, Detachable, 1.85m, with two cores on cable
HDMI Cable	:	Shielded, Detachable, 1.85m, without core on cable
Power Cord	:	Unshielded, Detachable, 1.80m

Remark:

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

Bottom View:

- | | | |
|-------------------|------------------------------------|------------------------------|
| (1) | One component of YPbPr1 Port | Connected with DVD #1 |
| (2) | One component of YPbPr1 Audio Port | Connected with DVD #1 |
| (3) | One component of YPbPr2 Port | Connected with DVD #2 |
| (4) | One component of YPbPr2 Audio Port | Connected with DVD #2 |
| (5) | One HDMI2 Port | Connected with DVD #2 |
| (6) | One VGA Port | Connected with PC |
| (7) | One VGA Audio Port | Connected with PC |
| (8) | One COAXIAL Port | Connected with DVD #1 |
| (9) | One Component of AV Port | Connected with DVD #2 |
| Side Port: | | |
| (10) | One S-Video Port | Connected with TV SG |
| (11) | One RF Port | Connected with ATSC SG/TV SG |
| (12) | Two Component of AV Port | Connected with DVD#1 |
| (13) | One HDMI1 Port | Connected with DVD#1 |
| (14) | One Earphone Port | Connected with Earphone |
| (15) | One USB Port | Connected with U-Disk |
| (16) | One Component of AV Out Port | Connected with TV |

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

Manufacturer : SOYEA
Model Number : V1453 (M)
Data Cable : Unshielded, Undetachable, 1.5m
Certificate : FCC DoC, CE/EMC, CCC

2.2.8 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

2.2.9 ATSC Signal Generator

Manufacturer : SENCORE
Model Number : ATSC997
Serial Number : 6790071

2.2.10 DVD#1

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

2.2.11 DVD#2

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

2.2.12 U-DISK

Manufacturer : LG
Model Number : 1GB
Serial Number : N/A

2.3 Description of Test Facility

Site Description (Semi-Anechoic Chamber) : Sept. 17, 1998 file on
Apr 29, 2009 Renewed
Federal Communications Commission
FCC Engineering Laboratory
7435 Oakland Mills Road
Columbia, MD 21046, USA

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

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

NVLAP Lab Code : 200371-0

2.4 Measurement Uncertainty

Conducted Emission Expanded Uncertainty: U = 1.26 dB
Radiated Emission Expanded Uncertainty : U = 3.02 dB

3 CONDUCTED EMISSION TEST

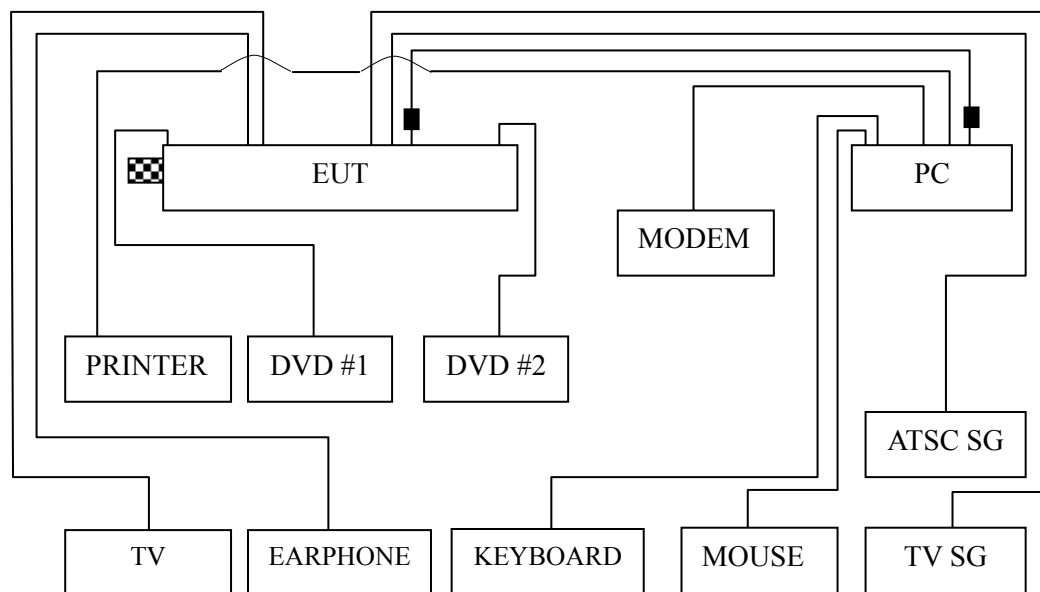
3.1.1 Test Equipment

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

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Test Receiver	R&S	ESCI	100841	Nov 21, 2008	Nov 21, 2009
2.	Artificial Mains Network (AMN)	R&S	ESH2-Z5	843890/011	Apr 02, 2009	Apr 02, 2010
3.	Line Impedance Stabilization Network (LISN)	Kyoritsu	KNW-407	8-1280-4	Apr 02, 2009	Apr 02, 2010
4.	50 Ω Coaxial Switch	Anritsu	MP59B	6200426389	Mar 19, 2009	Sep 19, 2009
5.	50 Ω Terminator	Anritsu	BNC	001	Apr 02, 2009	Apr 02, 2010
6.	Software	Audix	E3	SET00200 9804M592	--	--

3.2 Block Diagram of Test Setup

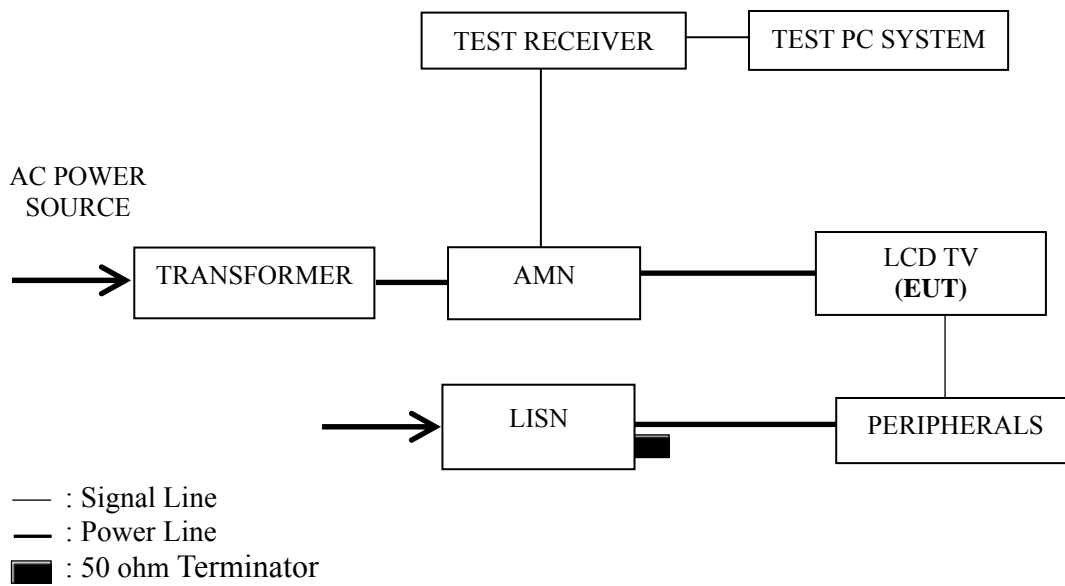
3.2.1 EUT & Peripherals



■ : Ferrite core

▣ : U-disk

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 from 3.5.3 to 3.5.4 for difference test mode.

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

3.5.7 The test modes are as follows:

Test Mode
D-Sub 640*480@60Hz
D-Sub 1024*768@60Hz
D-Sub 1360*768@60Hz
HDMI 640*480@60Hz
HDMI 1024*768@60Hz
HDMI 1360*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	P14
D-Sub 1024*768@60Hz	P15
D-Sub 1360*768@60Hz	P16
HDMI 640*480@60Hz	P17
HDMI 1024*768@60Hz	P18
HDMI 1360*768@60Hz	P19
USB Play	P20

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 HDMI 1360*768@60Hz test mode. The worst emission is detected at 6.577 MHz (Average value) with corrected signal level of 47.47 dB (μV) (limit is 50.00 dB (μV)), when the Neutral of the EUT is connected to AMN.

EUT : LCD TV Temperature : 20°C

Model No. : LCD32W57KCA Humidity : 46%RH

Serial No. : E2009062501 Date of Test : Jul 15, 2009

Test Mode : D-Sub 640*480@60Hz

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.161	26.94	0.23	27.17	65.43	38.26	QP
	0.325	24.54	0.26	24.80	59.57	34.77	
	0.716	30.23	0.28	30.51	56.00	25.49	
	4.874	38.15	0.44	38.59	56.00	17.41	
	6.627	47.53	0.47	48.00	60.00	12.00	
	12.384	46.16	0.60	46.76	60.00	13.24	
	0.161	19.32	0.23	19.55	55.43	35.88	AV
	0.325	24.22	0.26	24.48	49.57	25.09	
	0.716	24.48	0.28	24.76	46.00	21.24	
	4.874	31.26	0.44	31.70	46.00	14.30	
	6.627	41.55	0.47	42.02	50.00	7.98	
	12.384	37.20	0.60	37.80	50.00	12.20	
Neutral	0.161	28.44	0.20	28.64	65.43	36.79	QP
	0.456	23.65	0.26	23.91	56.76	32.85	
	0.716	28.61	0.28	28.89	56.00	27.11	
	4.874	36.80	0.45	37.25	56.00	18.75	
	6.488	49.22	0.47	49.69	60.00	10.31	
	12.384	45.13	0.59	45.72	60.00	14.28	
	0.161	19.23	0.20	19.43	55.43	36.00	AV
	0.456	21.43	0.26	21.69	46.76	25.07	
	0.716	24.67	0.28	24.95	46.00	21.05	
	4.874	27.40	0.45	27.85	46.00	18.15	
	6.488	39.18	0.47	39.65	50.00	10.35	
	12.384	34.33	0.59	34.92	50.00	15.08	

TEST ENGINEER: HUGH HUANG

EUT : LCD TV Temperature : 20°C

Model No. : LCD32W57KCA Humidity : 46%RH

Serial No. : E2009062501 Date of Test : Jul 15, 2009

Test Mode : D-Sub 1024*768@60Hz

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.197	29.12	0.22	29.34	63.76	34.42	QP
	0.325	24.58	0.26	24.84	59.57	34.73	
	0.716	29.01	0.28	29.29	56.00	26.71	
	4.874	37.40	0.44	37.84	56.00	18.16	
	7.446	44.36	0.47	44.83	60.00	15.17	
	11.198	44.00	0.55	44.55	60.00	15.45	
	0.197	17.44	0.22	17.66	53.76	36.10	AV
	0.325	24.53	0.26	24.79	49.57	24.78	
	0.716	24.83	0.28	25.11	46.00	20.89	
	4.874	28.39	0.44	28.83	46.00	17.17	
	7.446	38.18	0.47	38.65	50.00	11.35	
	11.198	38.49	0.55	39.04	50.00	10.96	
Neutral	0.162	27.83	0.20	28.03	65.34	37.31	QP
	0.456	25.70	0.26	25.96	56.76	30.80	
	0.716	32.19	0.28	32.47	56.00	23.53	
	4.874	36.98	0.45	37.43	56.00	18.57	
	6.627	49.87	0.48	50.35	60.00	9.65	
	11.198	46.68	0.56	47.24	60.00	12.76	
	0.162	19.01	0.20	19.21	55.34	36.13	AV
	0.456	20.95	0.26	21.21	46.76	25.55	
	0.716	24.74	0.28	25.02	46.00	20.98	
	4.874	30.55	0.45	31.00	46.00	15.00	
	6.627	45.08	0.48	45.56	50.00	4.44	
	11.198	42.20	0.56	42.76	50.00	7.24	

TEST ENGINEER: HUGH HUANG

EUT : LCD TV Temperature : 20°C

Model No. : LCD32W57KCA Humidity : 46%RH

Serial No. : E2009062501 Date of Test : Jul 15, 2009

Test Mode : D-Sub 1360*768@60Hz

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.161	24.39	0.23	24.62	65.43	40.81	QP
	0.325	24.38	0.26	24.64	59.57	34.93	
	0.654	25.92	0.27	26.19	56.00	29.81	
	4.874	39.78	0.44	40.22	56.00	15.78	
	6.488	46.61	0.46	47.07	60.00	12.93	
	11.198	43.15	0.55	43.70	60.00	16.30	
	0.161	12.08	0.23	12.31	55.43	43.12	AV
	0.325	24.38	0.26	24.64	49.57	24.93	
	0.654	17.04	0.27	17.31	46.00	28.69	
	4.874	31.15	0.44	31.59	46.00	14.41	
	6.488	39.76	0.46	40.22	50.00	9.78	
	11.198	37.35	0.55	37.90	50.00	12.10	
Neutral	0.164	24.25	0.20	24.45	65.25	40.80	QP
	0.456	23.06	0.26	23.32	56.76	33.44	
	0.716	27.28	0.28	27.56	56.00	28.44	
	4.874	36.89	0.45	37.34	56.00	18.66	
	6.627	50.30	0.48	50.78	60.00	9.22	
	11.198	43.74	0.56	44.30	60.00	15.70	
	0.164	17.07	0.20	17.27	55.25	37.98	AV
	0.456	20.61	0.26	20.87	46.76	25.89	
	0.716	24.44	0.28	24.72	46.00	21.28	
	4.874	28.79	0.45	29.24	46.00	16.76	
	6.627	44.97	0.48	45.45	50.00	4.55	
	11.198	37.80	0.56	38.36	50.00	11.64	

TEST ENGINEER: HUGH HUANG

EUT : LCD TV Temperature : 20°C

Model No. : LCD32W57KCA Humidity : 46%RH

Serial No. : E2009062501 Date of Test : Jul 15, 2009

Test Mode : HDMI 640*480@60Hz

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.194	21.52	0.22	21.74	63.84	42.10	QP
	0.325	23.74	0.26	24.00	59.57	35.57	
	0.716	26.33	0.28	26.61	56.00	29.39	
	4.874	38.41	0.44	38.85	56.00	17.15	
	8.501	37.38	0.48	37.86	60.00	22.14	
	11.198	40.41	0.55	40.96	60.00	19.04	
	0.194	16.80	0.22	17.02	53.84	36.82	AV
	0.325	23.33	0.26	23.59	49.57	25.98	
	0.716	23.83	0.28	24.11	46.00	21.89	
	4.874	31.44	0.44	31.88	46.00	14.12	
	8.501	29.44	0.48	29.92	50.00	20.08	
	11.198	30.38	0.55	30.93	50.00	19.07	
Neutral	0.172	21.87	0.20	22.07	64.86	42.79	QP
	0.456	21.24	0.26	21.50	56.76	35.26	
	1.487	25.60	0.34	25.94	56.00	30.06	
	4.874	37.46	0.45	37.91	56.00	18.09	
	6.488	40.77	0.47	41.24	60.00	18.76	
	11.198	41.19	0.56	41.75	60.00	18.25	
	0.172	17.91	0.20	18.11	54.86	36.75	AV
	0.456	19.47	0.26	19.73	46.76	27.03	
	1.487	16.67	0.34	17.01	46.00	28.99	
	4.874	27.35	0.45	27.80	46.00	18.20	
	6.488	30.49	0.47	30.96	50.00	19.04	
	11.198	31.24	0.56	31.80	50.00	18.20	

TEST ENGINEER: HUGH HUANG

EUT : LCD TV Temperature : 20°C

Model No. : LCD32W57KCA Humidity : 46%RH

Serial No. : E2009062501 Date of Test : Jul 15, 2009

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	0.166	24.42	0.23	24.65	65.16	40.51	QP
	0.325	23.77	0.26	24.03	59.57	35.54	
	0.716	26.05	0.28	26.33	56.00	29.67	
	4.874	37.75	0.44	38.19	56.00	17.81	
	8.501	40.13	0.48	40.61	60.00	19.39	
	11.198	43.25	0.55	43.80	60.00	16.20	
	0.166	12.85	0.23	13.08	55.16	42.08	AV
	0.325	23.58	0.26	23.84	49.57	25.73	
	0.716	23.69	0.28	23.97	46.00	22.03	
	4.874	29.86	0.44	30.30	46.00	15.70	
	8.501	28.88	0.48	29.36	50.00	20.64	
	11.198	34.34	0.55	34.89	50.00	15.11	
Neutral	0.162	20.60	0.20	20.80	65.34	44.54	QP
	0.456	23.33	0.26	23.59	56.76	33.17	
	0.716	27.63	0.28	27.91	56.00	28.09	
	4.874	37.36	0.45	37.81	56.00	18.19	
	8.501	41.64	0.50	42.14	60.00	17.86	
	11.198	42.64	0.56	43.20	60.00	16.80	
	0.162	13.69	0.20	13.89	55.34	41.45	AV
	0.456	20.75	0.26	21.01	46.76	25.75	
	0.716	24.63	0.28	24.91	46.00	21.09	
	4.874	25.95	0.45	26.40	46.00	19.60	
	8.501	25.70	0.50	26.20	50.00	23.80	
	11.198	31.41	0.56	31.97	50.00	18.03	

TEST ENGINEER: HUGH HUANG

EUT : LCD TV Temperature : 20°C

Model No. : LCD32W57KCA Humidity : 46%RH

Serial No. : E2009062501 Date of Test : Jul 15, 2009

Test Mode : HDMI 1360*768@60Hz

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.197	22.09	0.22	22.31	63.76	41.45	QP
	0.325	24.62	0.26	24.88	59.57	34.69	
	0.716	28.36	0.28	28.64	56.00	27.36	
	4.874	38.99	0.44	39.43	56.00	16.57	
	6.627	45.64	0.47	46.11	60.00	13.89	
	12.384	42.88	0.60	43.48	60.00	16.52	
	0.197	16.25	0.22	16.47	53.76	37.29	AV
	0.325	24.27	0.26	24.53	49.57	25.04	
	0.716	24.66	0.28	24.94	46.00	21.06	
	4.874	31.01	0.44	31.45	46.00	14.55	
	6.627	39.02	0.47	39.49	50.00	10.51	
	12.384	38.17	0.60	38.77	50.00	11.23	
Neutral	0.197	21.46	0.20	21.66	63.76	42.10	QP
	0.456	23.23	0.26	23.49	56.76	33.27	
	0.716	27.73	0.28	28.01	56.00	27.99	
	4.874	37.29	0.45	37.74	56.00	18.26	
	6.577	50.13	0.48	50.61	60.00	9.39	
	11.198	44.74	0.56	45.30	60.00	14.70	
	0.197	15.38	0.20	15.58	53.76	38.18	AV
	0.456	21.20	0.26	21.46	46.76	25.30	
	0.716	25.01	0.28	25.29	46.00	20.71	
	4.874	26.42	0.45	26.87	46.00	19.13	
	6.577	46.99	0.48	47.47	50.00	2.53	
	11.198	39.18	0.56	39.74	50.00	10.26	

TEST ENGINEER: HUGH HUANG

EUT : LCD TV Temperature : 20°C

Model No. : LCD32W57KCA Humidity : 46%RH

Serial No. : E2009062501 Date of Test : Jul 15, 2009

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	0.197	23.04	0.22	23.26	63.76	40.50	QP
	0.325	24.75	0.26	25.01	59.57	34.56	
	0.716	28.79	0.28	29.07	56.00	26.93	
	4.874	40.16	0.44	40.60	56.00	15.40	
	8.501	43.41	0.48	43.89	60.00	16.11	
	11.198	43.22	0.55	43.77	60.00	16.23	
	0.197	16.56	0.22	16.78	53.76	36.98	AV
	0.325	24.33	0.26	24.59	49.57	24.98	
	0.716	24.56	0.28	24.84	46.00	21.16	
	4.874	32.99	0.44	33.43	46.00	12.57	
	8.501	35.16	0.48	35.64	50.00	14.36	
	11.198	33.04	0.55	33.59	50.00	16.41	
Neutral	0.169	24.52	0.20	24.72	64.99	40.27	QP
	0.456	23.47	0.26	23.73	56.76	33.03	
	0.716	28.22	0.28	28.50	56.00	27.50	
	4.874	35.60	0.45	36.05	56.00	19.95	
	6.488	49.56	0.47	50.03	60.00	9.97	
	12.384	44.37	0.59	44.96	60.00	15.04	
	0.169	16.60	0.20	16.80	54.99	38.19	AV
	0.456	21.33	0.26	21.59	46.76	25.17	
	0.716	25.28	0.28	25.56	46.00	20.44	
	4.874	30.70	0.45	31.15	46.00	14.85	
	6.488	43.96	0.47	44.43	50.00	5.57	
	12.384	37.21	0.59	37.80	50.00	12.20	

TEST ENGINEER: HUGH HUANG

4 RADIATED EMISSION TEST

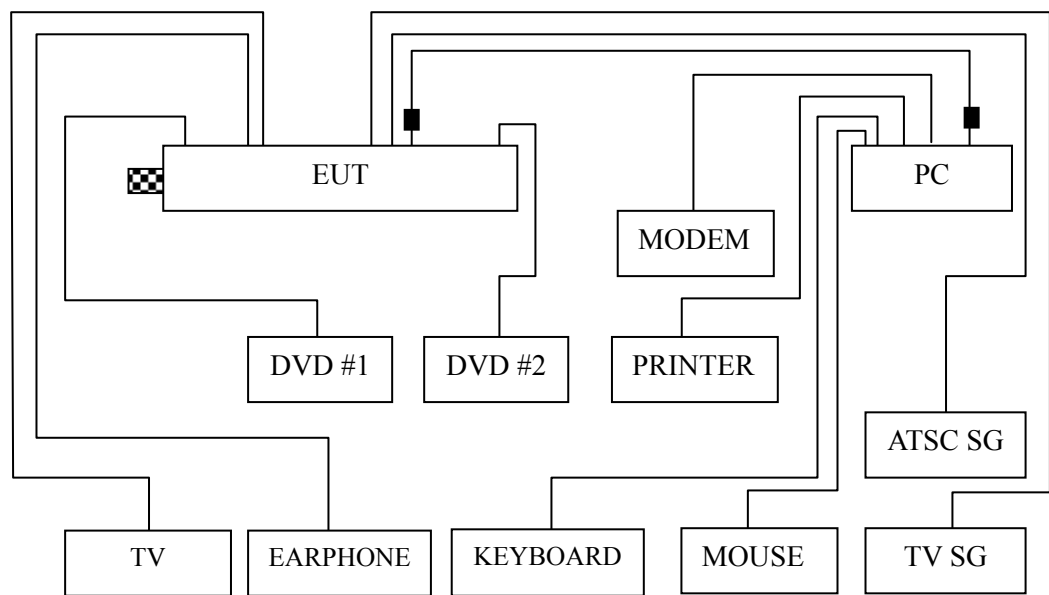
4.1 Test Equipment

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

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Test Receiver	R&S	ESVS10	844594/001	Mar 07, 2009	Mar 07, 2010
2.	Preamplifier	Agilent	8447D	2944A10548	Mar 19, 2009	Sep 19, 2009
3.	Bi-log Antenna	TESEQ	CBL6112D	23193	May 14, 2008	May 14, 2010
4.	Spectrum	Agilent	E7405A	MY45106600	May 19, 2009	May 19, 2010
5.	Software	Audix	E3	SET00200 9912M295-2	--	--

4.2 Block Diagram of Test Setup

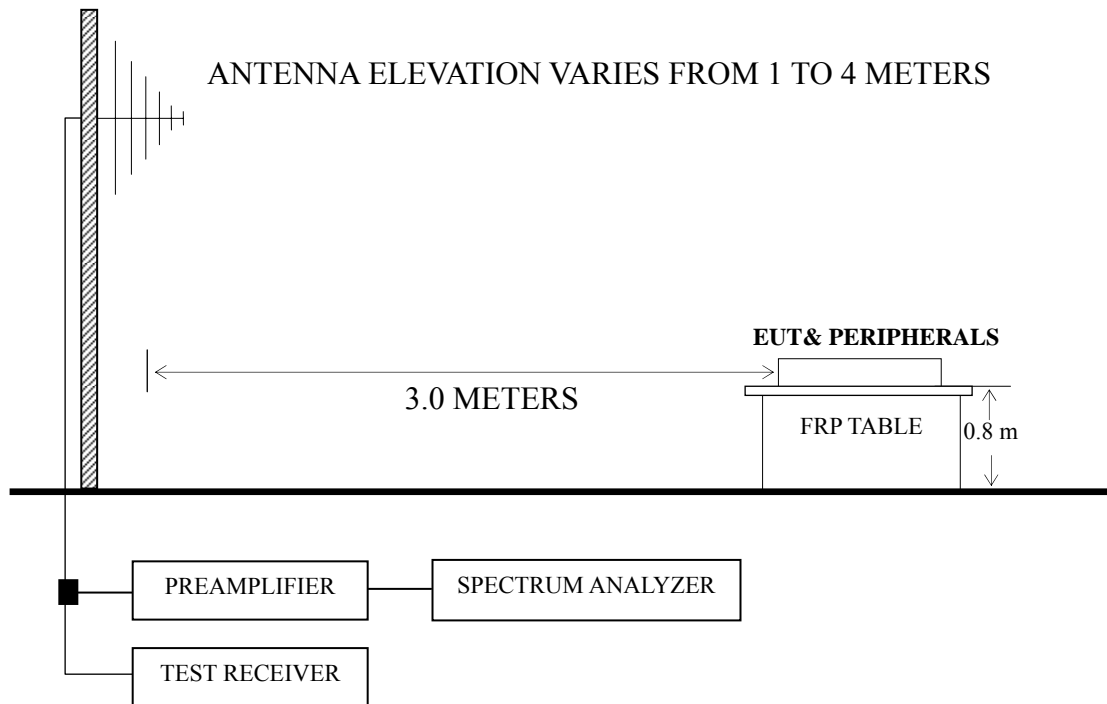
4.2.1 EUT and Peripherals



■ : Ferrite core

▣ : U-disk

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 below or equal to 1GHz.

4.4 Test Configuration

The configuration of the EUT and peripherals are same as those used in conducted emission test.

Please refer to Sec.3.4.

4.5 Operating Condition of EUT

Same as conducted emission test which is listed in Sec.3.5, except for the test setup replaced by Sec.4.2.

4.6 Test Procedures

The EUT and peripherals were placed on a FRP turntable that is 0.8 meter above ground. The FRP turntable rotated 360 degrees to determine the position of the maximum emission level. The EUT was set 3 meters away from the receiving antenna, which was mounted on an antenna tower. Broadband antenna (Calibrated Bilog Antenna) was used as receiving antenna. The antenna moved up and down between 1 meter and 4 meters to find out the maximum emission level. Both horizontal and vertical polarizations of the antenna were set on measurement. In order to find the maximum emission, all of the interference cables were manipulated according to ANSI C63.4:2003 requirements during radiated emission test.

The bandwidth of Test Receiver R&S ESVS10 was set at 120 kHz.

The frequency range from 30 MHz to 1000MHz was checked for all test modes.

The test modes were done on radiated disturbance test and all the test results are listed in Sec.4.7.

4.7 Test Results

<PASS>

The frequency and amplitude of the highest radiated emission relative the limit is reported. All the emissions not reported below are too low against the FCC limit.

Test Mode	Data Page
D-Sub 640*480@60Hz	P25
D-Sub 1024*768@60Hz	P26
D-Sub 1360*768@60Hz	P27
HDMI 640*480@60Hz	P28
HDMI 1024*768@60Hz	P29
HDMI 1360*768@60Hz	P30
USB Play	P31

NOTE 1 – Emission Level = Antenna Factor + Cable Loss + Meter Reading.

NOTE 2 – The emission levels that are 20dB below the official limit are not reported.

NOTE 3 – 0° was the table front facing the antenna. Degree is calculated from 0° clockwise facing the antenna.

NOTE 4 – The worst case is for D-Sub 1360*768@60Hz test mode. The worst emission at horizontal polarization was detected at 141.700 MHz with corrected signal level of 40.56 dB (μV/m) (limit is 43.50dB (μV/m)), when the antenna was 2.00 m height and the turntable was at 340°. The worst emission at vertical polarization was detected at 806.000 MHz with corrected signal level of 41.83 dB (μV/m) (limit is 46.00 dB (μV/m)), when the antenna was 2.10 m height and the turntable was at 150°.

EUT : LCD TV Temperature : 22°C

Model No. : LCD32W57KCA Humidity : 60%RH

Serial No. : E2009062501 Date of Test : Jul 14, 2009

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	93.050	20.25	10.09	1.04	31.38	43.50	12.12
	237.580	23.43	12.44	1.67	37.54	46.00	8.46
	321.970	23.02	14.50	1.96	39.48	46.00	6.52
	400.540	16.41	16.50	2.20	35.11	46.00	10.89
	573.200	20.26	18.88	2.66	41.80	46.00	4.20
	794.360	14.27	20.64	3.19	38.10	46.00	7.90
Vertical	57.160	27.05	7.18	0.76	34.99	40.00	5.01
	138.640	17.65	12.17	1.19	31.01	43.50	12.49
	322.940	16.46	14.54	1.96	32.96	46.00	13.04
	398.600	19.66	16.47	2.20	38.33	46.00	7.67
	573.200	16.23	18.88	2.66	37.77	46.00	8.23
	818.100	14.50	20.87	3.24	38.61	46.00	7.39

TEST ENGINEER: RAVEN JIN

EUT : LCD TV Temperature : 22°C

Model No. : LCD32W57KCA Humidity : 60%RH

Serial No. : E2009062501 Date of Test : Jul 14, 2009

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	56.190	22.41	7.46	0.75	30.62	40.00	9.38
	101.780	19.10	11.63	1.08	31.81	43.50	11.69
	237.580	25.18	12.44	1.67	39.29	46.00	6.71
	407.330	16.87	16.59	2.22	35.68	46.00	10.32
	570.290	19.43	18.84	2.66	40.93	46.00	5.07
	801.150	15.71	20.70	3.21	39.62	46.00	6.38
Vertical	55.220	25.74	7.69	0.75	34.18	40.00	5.82
	141.550	19.84	12.01	1.20	33.05	43.50	10.45
	237.580	18.35	12.44	1.67	32.46	46.00	13.54
	399.570	21.42	16.50	2.20	40.12	46.00	5.88
	573.200	16.23	18.88	2.66	37.77	46.00	8.23
	810.850	16.86	20.80	3.24	40.90	46.00	5.10

TEST ENGINEER: RAVEN JIN

EUT : LCD TV Temperature : 22°C

Model No. : LCD32W57KCA Humidity : 60%RH

Serial No. : E2009062501 Date of Test : Jul 14, 2009

Test Mode : D-Sub 1360*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	101.780	19.11	11.63	1.08	31.82	43.50	11.68
	141.700	27.40	11.96	1.20	40.56	43.50	2.94
	248.250	25.72	12.83	1.69	40.24	46.00	5.76
	324.880	22.17	14.58	1.96	38.71	46.00	7.29
	572.230	19.78	18.88	2.66	41.32	46.00	4.68
	800.180	16.11	20.70	3.19	40.00	46.00	6.00
Vertical	49.400	23.07	9.16	0.70	32.93	40.00	7.07
	141.550	24.84	12.01	1.20	38.05	43.50	5.45
	248.250	21.28	12.83	1.69	35.80	46.00	10.20
	406.360	21.17	16.59	2.22	39.98	46.00	6.02
	550.890	16.55	18.58	2.60	37.73	46.00	8.27
	806.000	17.85	20.77	3.21	41.83	46.00	4.17

TEST ENGINEER: RAVEN JIN

EUT : LCD TV Temperature : 22°C

Model No. : LCD32W57KCA Humidity : 60%RH

Serial No. : E2009062501 Date of Test : Jul 14, 2009

Test Mode : HDMI 640*480@60Hz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)
Horizontal	93.050	21.25	10.09	1.04	32.38	43.50	11.12
	201.690	20.75	10.78	1.55	33.08	43.50	10.42
	245.340	22.12	12.72	1.68	36.52	46.00	9.48
	321.970	20.02	14.50	1.96	36.48	46.00	9.52
	549.920	20.08	18.58	2.60	41.26	46.00	4.74
	654.680	15.20	19.48	2.86	37.54	46.00	8.46
Vertical	57.160	24.05	7.18	0.76	31.99	40.00	8.01
	138.640	21.65	12.17	1.19	35.01	43.50	8.49
	281.230	16.04	13.57	1.81	31.42	46.00	14.58
	407.330	16.51	16.59	2.22	35.32	46.00	10.68
	573.200	13.23	18.88	2.66	34.77	46.00	11.23
	818.100	14.50	20.87	3.24	38.61	46.00	7.39

TEST ENGINEER: RAVEN JIN

EUT : LCD TV Temperature : 22°C

Model No. : LCD32W57KCA Humidity : 60%RH

Serial No. : E2009062501 Date of Test : Jul 14, 2009

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	56.190	21.41	7.46	0.75	29.62	40.00	10.38
	100.810	22.81	11.57	1.08	35.46	43.50	8.04
	237.580	21.18	12.44	1.67	35.29	46.00	10.71
	407.330	19.87	16.59	2.22	38.68	46.00	7.32
	500.450	10.99	17.90	2.42	31.31	46.00	14.69
	570.290	17.43	18.84	2.66	38.93	46.00	7.07
Vertical	55.220	23.74	7.69	0.75	32.18	40.00	7.82
	141.550	18.84	12.01	1.20	32.05	43.50	11.45
	244.370	21.92	12.68	1.68	36.28	46.00	9.72
	399.570	19.42	16.50	2.20	38.12	46.00	7.88
	551.860	17.89	18.58	2.60	39.07	46.00	6.93
	810.850	14.86	20.80	3.24	38.90	46.00	7.10

TEST ENGINEER: RAVEN JIN

EUT : LCD TV Temperature : 22°C

Model No. : LCD32W57KCA Humidity : 60%RH

Serial No. : E2009062501 Date of Test : Jul 14, 2009

Test Mode : HDMI 1360*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	57.160	18.02	7.18	0.76	25.96	40.00	14.04
	101.780	18.11	11.63	1.08	30.82	43.50	12.68
	141.700	25.50	11.96	1.20	38.66	43.50	4.84
	248.250	23.72	12.83	1.69	38.24	46.00	7.76
	368.530	16.58	15.81	2.10	34.49	46.00	11.51
	572.230	20.78	18.88	2.66	42.32	46.00	3.68
Vertical	49.400	23.07	9.16	0.70	32.93	40.00	7.07
	79.470	21.91	7.72	0.94	30.57	40.00	9.43
	166.770	25.02	10.31	1.34	36.67	43.50	6.83
	295.780	20.92	13.84	1.86	36.62	46.00	9.38
	406.360	20.17	16.59	2.22	38.98	46.00	7.02
	816.670	16.82	20.87	3.24	40.93	46.00	5.07

TEST ENGINEER: RAVEN JIN

EUT : LCD TV Temperature : 22°C

Model No. : LCD32W57KCA Humidity : 60%RH

Serial No. : E2009062501 Date of Test : Jul 14, 2009

Test Mode : USB Play

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	93.050	22.25	10.09	1.04	33.38	43.50	10.12
	163.860	25.41	10.40	1.31	37.12	43.50	6.38
	237.580	26.43	12.44	1.67	40.54	46.00	5.46
	315.180	21.81	14.32	1.93	38.06	46.00	7.94
	573.200	18.26	18.88	2.66	39.80	46.00	6.20
	812.790	17.53	20.84	3.24	41.61	46.00	4.39
Vertical	48.430	23.88	9.62	0.70	34.20	40.00	5.80
	57.160	27.05	7.18	0.76	34.99	40.00	5.01
	138.640	24.65	12.17	1.19	38.01	43.50	5.49
	398.600	21.66	16.47	2.20	40.33	46.00	5.67
	573.200	18.23	18.88	2.66	39.77	46.00	6.23
	815.700	17.04	20.84	3.24	41.12	46.00	4.88

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	Specifications (mm)	Manufacturer	Location
Ferrite Core	ZCAT2132-1130	21*32*11	ROH	See Internal Photo Figure 16
Ferrite Core	ZCAT2017-0930	20*17*09	TDK	See Internal Photo Figure 17

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)