

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

LCD TV

Model No.	Serial No.	Brand
H32K20E	--	Hisense
H32K26E		
H32K21E		
LHD32K20US	E1107787-01/01	EMERSON

FCC ID : W9HLCDC0009

Prepared For : Hisense Electric Co., Ltd.  
No.218 Qianwangang Road, Economy & Technology  
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Report No. : ACI-F11107  
Date of Test : Jul 25 – 26, 2011  
Date of Report : Aug 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
H32K20E	--	Hisense	120V/60Hz
H32K26E			
H32K21E			
LHD32K20US	E1107787-01/01	EMERSON	

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: Refer to Sec.2.1; S/N: Refer to Sec.2.1) which was tested in 3m anechoic chamber Jul 25 – 26, 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.F11106, a Verification report.***

Date of Test : Jul 25 – 26, 2011 Date of Report : Aug.02, 2011

Producer : Yenny Yu.  
YENNY YU / Assistant

Review : Dio Yang.  
DIO YANG / Assistant Manager

**AUDIX**<sup>®</sup> 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
<b>EMISSION</b>			
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.	Serial No.	Brand
H32K20E	--	Hisense
H32K26E		
H32K21E		
LHD32K20US	E1107787-01/01	EMERSON

Note : The above models are all the same except for the different model name, brand and appearance.

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 : HE315FH-E51\PW1

Tuner : Manufacturer : XuGuang Tech. Co., Ltd.  
M/N : DVT-8ADC1/W41F0\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:

**Bottom Port:**

- (1) One component of YPbPr Port  
: Connected with DVD #1
- (2) One component of YPbPr Audio Port  
: Connected with DVD #1
- (3) One component of AV Port  
: Connected with DVD #1
- (4) One Headphone Port  
: Connected with Earphone
- (5) One DIGITAL OUT Port  
: Connected with DVD #1
- (6) One PC AUDIO Port  
: Connected with PC

**Side Port**

- (7) One HDMI1 Port  
: Connected with DVD #1
- (8) One HDMI2 Port  
: Connected with DVD #2
- (9) One HDMI3 Port  
: Connected with PC
- (10) One ANT Port  
: Connected with ATSC SG
- (11) One USB port  
: Connected with U-Disk as terminator
- (12) One VGA Port  
: Connected with PC

## 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, undetachable, 1.8m.  
Certificate : CE/EMC, FCC DoC, VCCI, MIC, C-Tick,  
BSMI

### 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 #1

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

### 2.2.10 DVD #2

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



## 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

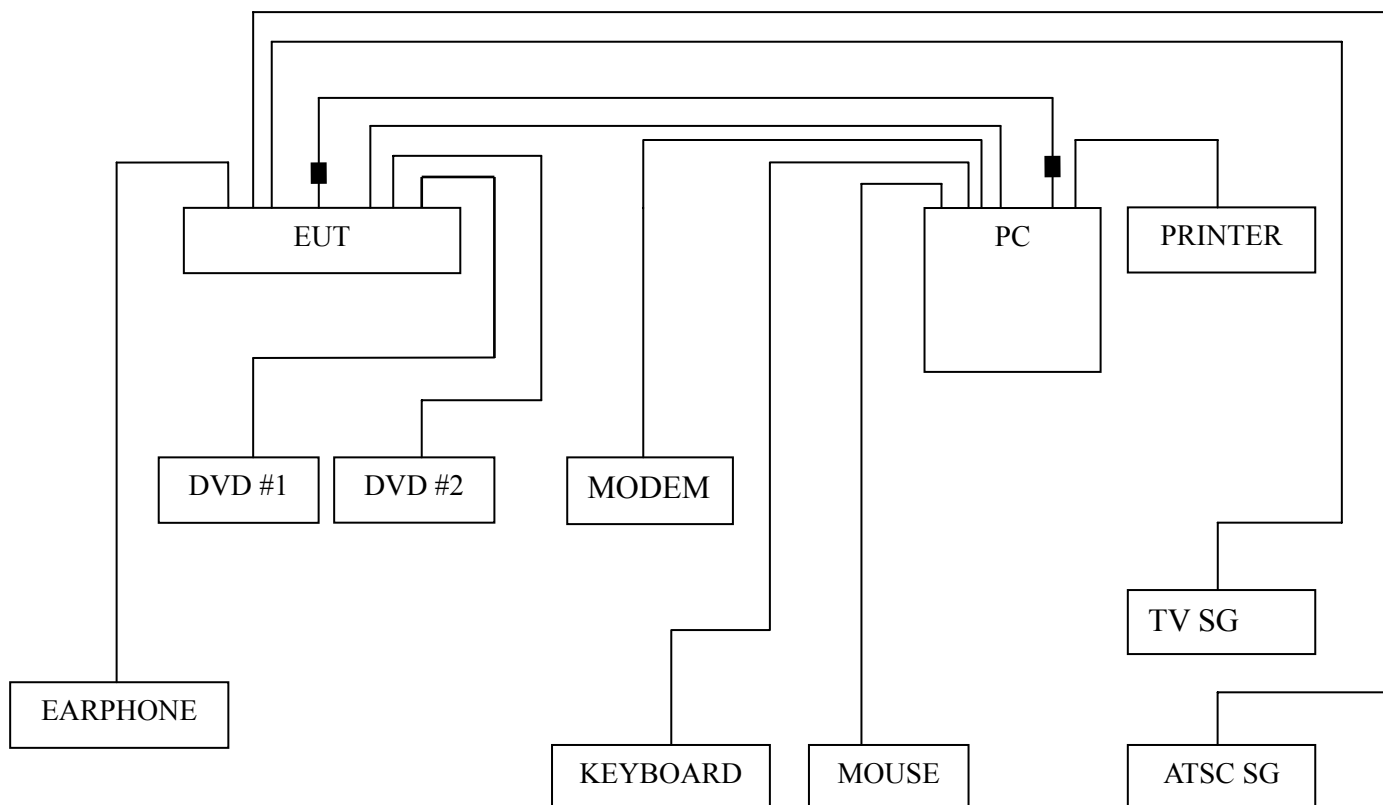
#### 3.1 Test Equipment

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 $\Omega$ Coaxial Switch	Anritsu	MP59B	6200426389	Mar 18, 2011	Sep 18, 2011
5.	50 $\Omega$ Terminator	Anritsu	BNC	001	Mar 22, 2011	Mar 22, 2012
6.	Software	Audix	E3	SET00200 9804M592	--	--

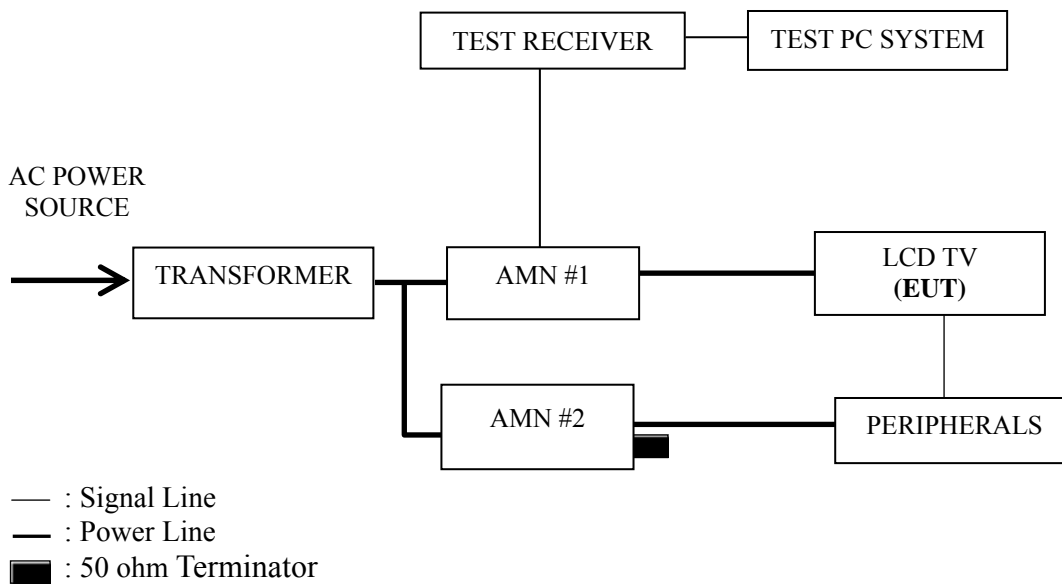
#### 3.2 Block Diagram of Test Setup

##### 3.2.1 EUT & Peripherals



■ : Ferrite core

### 3.2.2 Conducted Disturbance Test Setup



### 3.3 Conducted Emission Limit [FCC Part 15 Subpart B 15.107(a)]

Frequency Range (MHz)	Limits dB ( $\mu$ 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	P14
D-Sub 800*600@60Hz	P15
D-Sub 1024*768@60Hz	P16
HDMI 640*480@60Hz	P17
HDMI 800*600@60Hz	P18
HDMI 1024*768@60Hz	P19

NOTE 1 – Factor = Cable Loss + AMN Factor.

NOTE 2 – Emission Level = Meter Reading + Factor.

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

NOTE 4 – The worst case is for D-Sub 800\*600@60Hz test mode. The worst emission is detected at 3.985 MHz (Quasi-Peak value) with corrected signal level of 52.56 dB ( $\mu$ V) (limit is 56.00 dB ( $\mu$ V)), when the Line of the EUT is connected to AMN.

EUT : LCD TV Temperature : 22°C

Model No. : LHD32K20US Humidity : 48%RH

Serial No. : E1107787-01/01 Date of Test : Jul 25, 2011

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

Test Line	Frequency (MHz)	Meter Reading dB( $\mu$ V)	Factor (dB)	Emission Level dB( $\mu$ V)	Limits dB( $\mu$ V)	Margin (dB)	Remark
Line	0.176	46.97	0.23	47.20	64.68	17.48	QP
	0.381	39.19	0.29	39.48	58.25	18.77	
	0.634	40.64	0.37	41.01	56.00	14.99	
	1.210	37.23	0.38	37.61	56.00	18.39	
	<b>3.985</b>	<b>51.02</b>	<b>0.54</b>	<b>51.56</b>	<b>56.00</b>	<b>4.44</b>	
	8.916	44.07	0.73	44.80	60.00	15.20	
	0.176	36.60	0.23	36.83	54.68	17.85	AV
	0.381	28.30	0.29	28.59	48.25	19.66	
	0.634	30.30	0.37	30.67	46.00	15.33	
	1.210	26.60	0.38	26.98	46.00	19.02	
	3.985	40.40	0.54	40.94	46.00	5.06	
	8.916	33.30	0.73	34.03	50.00	15.97	
Neutral	0.176	46.53	0.19	46.72	64.68	17.96	QP
	0.371	38.98	0.22	39.20	58.47	19.27	
	0.641	40.36	0.28	40.64	56.00	15.36	
	1.908	38.80	0.55	39.35	56.00	16.65	
	3.985	50.52	0.74	51.26	56.00	4.74	
	8.916	43.48	1.02	44.50	60.00	15.50	
	0.176	36.30	0.19	36.49	54.68	18.19	AV
	0.371	28.80	0.22	29.02	48.47	19.45	
	0.641	30.89	0.28	31.17	46.00	14.83	
	1.908	28.90	0.55	29.45	46.00	16.55	
	3.985	40.20	0.74	40.94	46.00	5.06	
	8.916	33.40	1.02	34.42	50.00	15.58	

TEST ENGINEER: WENCY YANG

EUT : LCD TV Temperature : 22°C

Model No. : LHD32K20US Humidity : 48%RH

Serial No. : E1107787-01/01 Date of Test : Jul 25, 2011

Test Mode : D-Sub 800\*600@60Hz

Test Line	Frequency (MHz)	Meter Reading dB( $\mu$ V)	Factor (dB)	Emission Level dB( $\mu$ V)	Limits dB( $\mu$ V)	Margin (dB)	Remark
Line	0.176	46.83	0.23	47.06	64.68	17.62	QP
	0.352	38.93	0.28	39.21	58.91	19.70	
	0.641	40.26	0.38	40.64	56.00	15.36	
	1.184	37.87	0.38	38.25	56.00	17.75	
	<b>3.985</b>	<b>52.02</b>	<b>0.54</b>	<b>52.56</b>	<b>56.00</b>	<b>3.44</b>	
	8.916	42.56	0.73	43.29	60.00	16.71	
	0.176	36.20	0.23	36.43	54.68	18.25	AV
	0.352	28.60	0.28	28.88	48.91	20.03	
	0.641	30.40	0.38	30.78	46.00	15.22	
	1.184	27.50	0.38	27.88	46.00	18.12	
	3.985	40.50	0.54	41.04	46.00	4.96	
	8.916	32.20	0.73	32.93	50.00	17.07	
Neutral	0.180	47.47	0.19	47.66	64.50	16.84	QP
	0.367	39.41	0.21	39.62	58.56	18.94	
	0.641	40.77	0.28	41.05	56.00	14.95	
	1.310	38.75	0.47	39.22	56.00	16.78	
	3.985	50.82	0.74	51.56	56.00	4.44	
	8.916	44.02	1.02	45.04	60.00	14.96	
	0.180	36.90	0.19	37.09	54.50	17.41	AV
	0.367	28.61	0.21	28.82	48.56	19.74	
	0.641	30.79	0.28	31.07	46.00	14.93	
	1.310	28.10	0.47	28.57	46.00	17.43	
	3.985	40.20	0.74	40.94	46.00	5.06	
	8.916	33.40	1.02	34.42	50.00	15.58	

TEST ENGINEER: WENCY YANG

EUT :           LCD TV           Temperature :           22°C          

Model No. :           LHD32K20US           Humidity :           48%RH          

Serial No. :           E1107787-01/01           Date of Test :           Jul 25, 2011          

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	0.176	46.70	0.23	46.93	64.68	17.75	QP
	0.356	39.69	0.28	39.97	58.83	18.86	
	0.641	40.39	0.38	40.77	56.00	15.23	
	1.324	36.72	0.39	37.11	56.00	18.89	
	<b>3.985</b>	<b>50.94</b>	<b>0.54</b>	<b>51.48</b>	<b>56.00</b>	<b>4.52</b>	
	8.916	41.99	0.73	42.72	60.00	17.28	
	0.176	36.80	0.23	37.03	54.68	17.65	AV
	0.356	29.70	0.28	29.98	48.83	18.85	
	0.641	29.80	0.38	30.18	46.00	15.82	
	1.324	26.80	0.39	27.19	46.00	18.81	
	3.985	40.10	0.54	40.64	46.00	5.36	
	8.916	31.70	0.73	32.43	50.00	17.57	
Neutral	0.176	48.11	0.19	48.30	64.68	16.38	QP
	0.377	39.66	0.22	39.88	58.34	18.46	
	0.641	40.11	0.28	40.39	56.00	15.61	
	1.908	38.40	0.55	38.95	56.00	17.05	
	3.985	50.56	0.74	51.30	56.00	4.70	
	8.916	42.26	1.02	43.28	60.00	16.72	
	0.176	37.40	0.19	37.59	54.68	17.09	AV
	0.377	29.50	0.22	29.72	48.34	18.62	
	0.641	30.29	0.28	30.57	46.00	15.43	
	1.908	28.70	0.55	29.25	46.00	16.75	
	3.985	40.60	0.74	41.34	46.00	4.66	
	8.916	32.10	1.02	33.12	50.00	16.88	

TEST ENGINEER: WENCY YANG



EUT : LCD TV Temperature : 22°C

Model No. : LHD32K20US Humidity : 48%RH

Serial No. : E1107787-01/01 Date of Test : Jul 25, 2011

Test Mode : HDMI 640\*480@60Hz

Test Line	Frequency (MHz)	Meter Reading dB( $\mu$ V)	Factor (dB)	Emission Level dB( $\mu$ V)	Limits dB( $\mu$ V)	Margin (dB)	Remark
Line	0.174	47.07	0.23	47.30	64.77	17.47	QP
	0.371	38.52	0.29	38.81	58.47	19.66	
	0.641	40.11	0.38	40.49	56.00	15.51	
	1.908	36.13	0.44	36.57	56.00	19.43	
	4.001	48.87	0.54	49.41	56.00	6.59	
	8.916	45.23	0.73	45.96	60.00	14.04	
	0.174	37.20	0.23	37.43	54.77	17.34	AV
	0.371	28.10	0.29	28.39	48.47	20.08	
	0.641	30.40	0.38	30.78	46.00	15.22	
	1.908	25.70	0.44	26.14	46.00	19.86	
	4.001	37.40	0.54	37.94	46.00	8.06	
	8.916	34.60	0.73	35.33	50.00	14.67	
Neutral	0.178	48.33	0.19	48.52	64.59	16.07	QP
	0.377	39.40	0.22	39.62	58.34	18.72	
	0.788	39.78	0.31	40.09	56.00	15.91	
	1.282	37.28	0.47	37.75	56.00	18.25	
	<b>3.985</b>	<b>49.43</b>	<b>0.74</b>	<b>50.17</b>	<b>56.00</b>	<b>5.83</b>	
	8.822	41.52	1.02	42.54	60.00	17.46	
	0.178	37.60	0.19	37.79	54.59	16.80	AV
	0.377	29.10	0.22	29.32	48.34	19.02	
	0.788	29.21	0.31	29.52	46.00	16.48	
	1.282	27.09	0.47	27.56	46.00	18.44	
	3.985	38.90	0.74	39.64	46.00	6.36	
	8.822	31.70	1.02	32.72	50.00	17.28	

TEST ENGINEER: WENCY YANG

EUT : LCD TV Temperature : 22°C

Model No. : LHD32K20US Humidity : 48%RH

Serial No. : E1107787-01/01 Date of Test : Jul 25, 2011

Test Mode : HDMI 800\*600@60Hz

Test Line	Frequency (MHz)	Meter Reading dB( $\mu$ V)	Factor (dB)	Emission Level dB( $\mu$ V)	Limits dB( $\mu$ V)	Margin (dB)	Remark
Line	0.174	46.71	0.23	46.94	64.77	17.83	QP
	0.352	38.75	0.28	39.03	58.91	19.88	
	0.641	40.71	0.38	41.09	56.00	14.91	
	1.249	36.49	0.39	36.88	56.00	19.12	
	3.985	50.67	0.54	51.21	56.00	4.79	
	8.822	42.05	0.73	42.78	60.00	17.22	
	0.174	35.90	0.23	36.13	54.77	18.64	AV
	0.352	28.40	0.28	28.68	48.91	20.23	
	0.641	30.70	0.38	31.08	46.00	14.92	
	1.249	26.29	0.39	26.68	46.00	19.32	
	<b>3.985</b>	<b>40.70</b>	<b>0.54</b>	<b>41.24</b>	<b>46.00</b>	<b>4.76</b>	
	8.822	32.10	0.73	32.83	50.00	17.17	
Neutral	0.174	47.78	0.19	47.97	64.77	16.80	QP
	0.381	39.41	0.23	39.64	58.25	18.61	
	0.641	40.32	0.28	40.60	56.00	15.40	
	1.908	38.59	0.55	39.14	56.00	16.86	
	3.985	50.39	0.74	51.13	56.00	4.87	
	8.916	41.96	1.02	42.98	60.00	17.02	
	0.174	37.70	0.19	37.89	54.77	16.88	AV
	0.381	29.39	0.23	29.62	48.25	18.63	
	0.641	30.39	0.28	30.67	46.00	15.33	
	1.908	28.20	0.55	28.75	46.00	17.25	
	3.985	39.90	0.74	40.64	46.00	5.36	
	8.916	31.60	1.02	32.62	50.00	17.38	

TEST ENGINEER: WENCY YANG

EUT : LCD TV Temperature : 22°C

Model No. : LHD32K20US Humidity : 48%RH

Serial No. : E1107787-01/01 Date of Test : Jul 25, 2011

Test Mode : HDMI 1024\*768@60Hz

Test Line	Frequency (MHz)	Meter Reading dB( $\mu$ V)	Factor (dB)	Emission Level dB( $\mu$ V)	Limits dB( $\mu$ V)	Margin (dB)	Remark
Line	0.176	46.53	0.23	46.76	64.68	17.92	QP
	0.356	39.65	0.28	39.93	58.83	18.90	
	0.641	40.48	0.38	40.86	56.00	15.14	
	1.153	37.20	0.37	37.57	56.00	18.43	
	<b>3.985</b>	<b>50.82</b>	<b>0.54</b>	<b>51.36</b>	<b>56.00</b>	<b>4.64</b>	
	8.916	42.82	0.73	43.55	60.00	16.45	
	0.176	36.90	0.23	37.13	54.68	17.55	AV
	0.356	29.50	0.28	29.78	48.83	19.05	
	0.641	29.70	0.38	30.08	46.00	15.92	
	1.153	26.51	0.37	26.88	46.00	19.12	
	3.985	40.10	0.54	40.64	46.00	5.36	
	8.916	32.60	0.73	33.33	50.00	16.67	
Neutral	0.176	47.57	0.19	47.76	64.68	16.92	QP
	0.377	39.46	0.22	39.68	58.34	18.66	
	0.641	40.00	0.28	40.28	56.00	15.72	
	1.324	38.15	0.47	38.62	56.00	17.38	
	3.985	50.45	0.74	51.19	56.00	4.81	
	8.916	41.25	1.02	42.27	60.00	17.73	
	0.176	37.70	0.19	37.89	54.68	16.79	AV
	0.377	29.30	0.22	29.52	48.34	18.82	
	0.641	29.69	0.28	29.97	46.00	16.03	
	1.324	27.40	0.47	27.87	46.00	18.13	
	3.985	40.60	0.74	41.34	46.00	4.66	
	8.916	31.50	1.02	32.52	50.00	17.48	

TEST ENGINEER: WENCY YANG

## 4 RADIATED EMISSION TEST

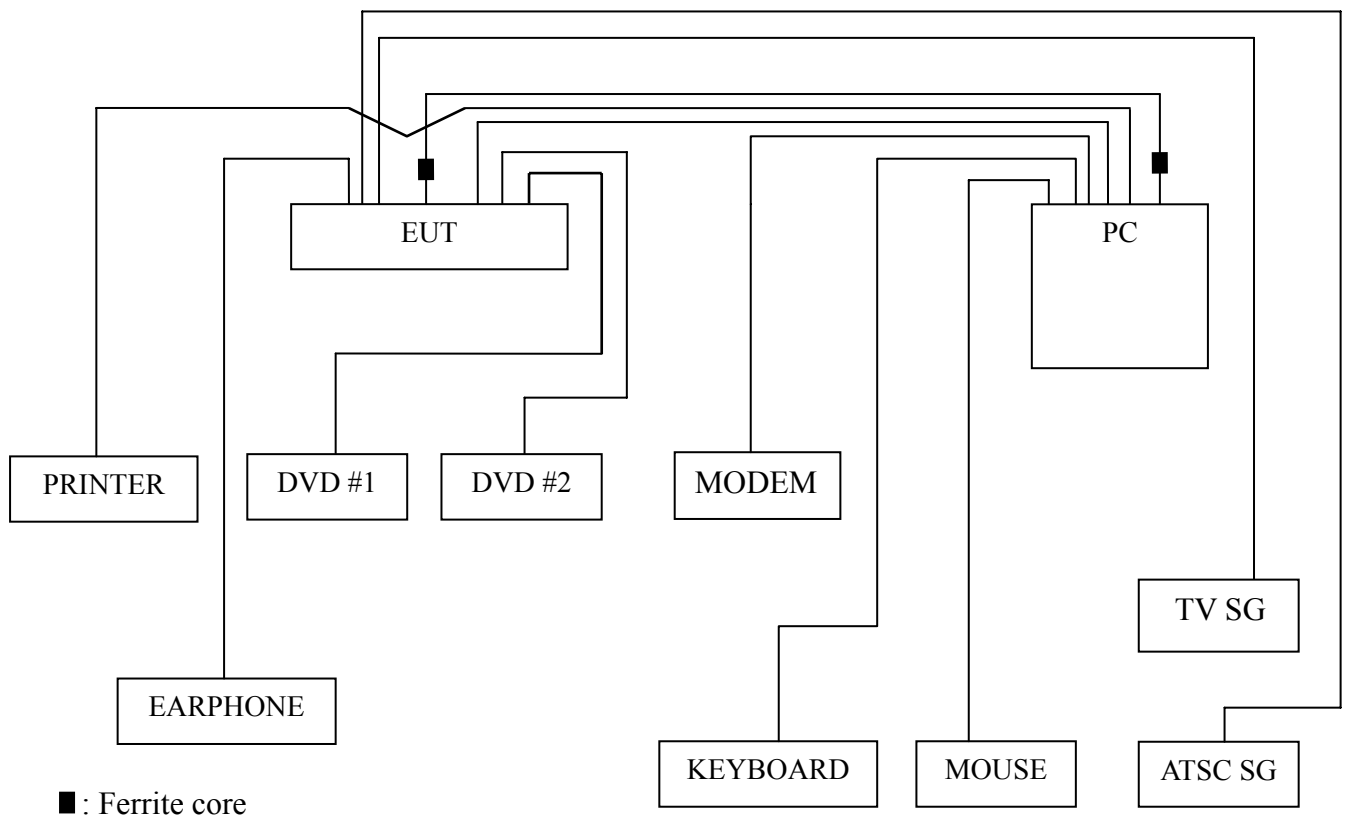
### 4.1 Test Equipment

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

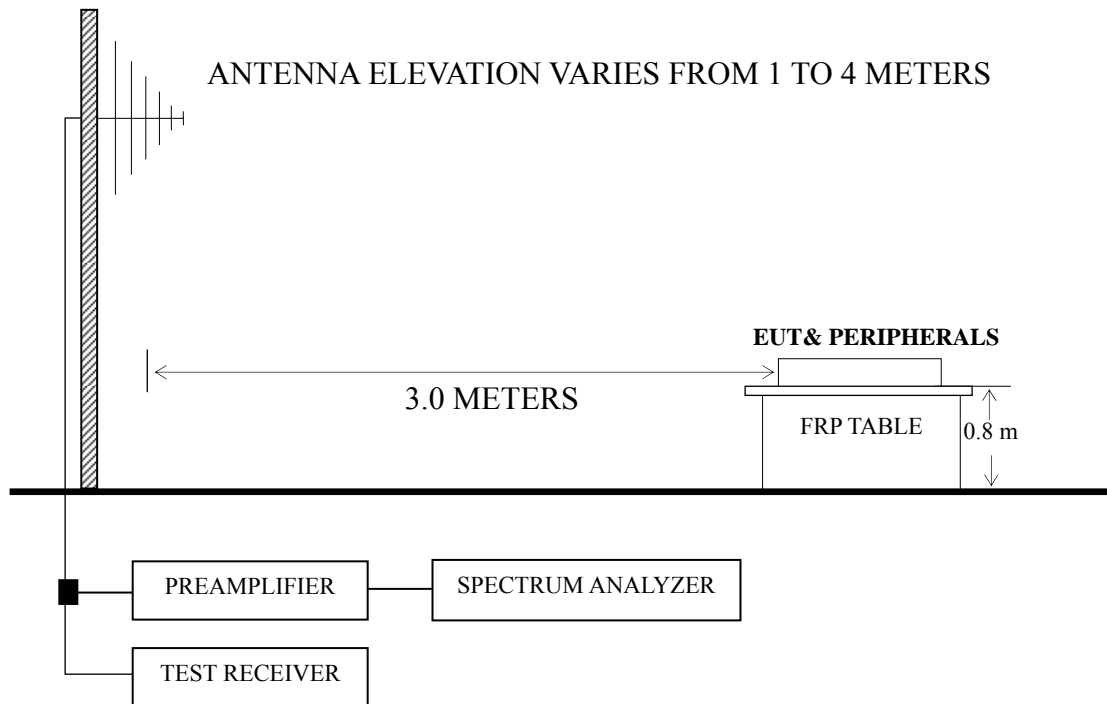
Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Test Receiver	R&S	ESVS10	844594/001	Mar 22, 2011	Mar 22, 2012
2.	Preamplifier	Agilent	8447D	2944A10548	Mar 18, 2011	Sep 18, 2011
3.	Bi-log Antenna	TESEQ	CBL6112D	23192	Dec 01, 2010	Dec 01, 2011
4.	Spectrum Analyzer	Agilent	E7405A	MY45106600	Mar 22, 2011	Mar 22, 2012
5.	50Ω Coaxial Switch	Anritsu	MP59B	6200426390	Mar 18, 2011	Sep 18, 2011
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.

#### 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	P24
D-Sub 800*600@60Hz	P25
D-Sub 1024*768@60Hz	P26
HDMI 640*480@60Hz	P27
HDMI 800*600@60Hz	P28
HDMI 1024*768@60Hz	P29

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

NOTE 2 – All readings are Quasi-Peak values.

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

NOTE 4 – The worst case is for D-Sub 800\*600@60Hz test mode. The worst emission at horizontal polarization was detected at 47.460MHz with corrected signal level of 35.52 dB ( $\mu\text{V}/\text{m}$ ) (limit is 40.00 dB ( $\mu\text{V}/\text{m}$ )), when the antenna was 1.00 m height and the turntable was at 150°. The worst emission at vertical polarization was detected at 266.680 MHz with corrected signal level of 42.35 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 240°.

EUT :           LCD TV                Temperature :           22°C          

Model No. :           LHD32K20US                Humidity :           60%RH          

Serial No. :           E1107787-01/01                Date of Test :           Jul 26, 2011          

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	<b>49.100</b>	<b>26.00</b>	<b>8.82</b>	<b>0.78</b>	<b>35.60</b>	<b>40.00</b>	<b>4.40</b>
	70.740	51.36	9.93	0.90	34.40	40.00	5.60
	98.870	48.31	11.31	1.03	32.75	43.50	10.75
	183.260	53.00	9.96	1.39	37.03	43.50	6.47
	265.710	46.79	12.62	1.65	34.18	46.00	11.82
	803.090	40.05	20.59	2.90	35.81	46.00	10.19
Vertical	49.400	49.09	8.69	0.78	30.52	40.00	9.48
	76.560	45.31	10.34	0.93	28.70	40.00	11.30
	<b>175.500</b>	<b>50.85</b>	<b>10.04</b>	<b>1.36</b>	<b>34.85</b>	<b>43.50</b>	<b>8.65</b>
	272.500	43.11	12.86	1.68	30.77	46.00	15.23
	496.570	41.82	17.56	2.26	33.54	46.00	12.46
	808.910	39.53	20.58	2.90	35.30	46.00	10.70

TEST ENGINEER: RAVEN JIN



EUT : LCD TV Temperature : 22°C

Model No. : LHD32K20US Humidity : 60%RH

Serial No. : E1107787-01/01 Date of Test : Jul 26, 2011

Test Mode : D-Sub 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	<b>47.460</b>	<b>53.48</b>	<b>9.37</b>	<b>0.77</b>	<b>35.52</b>	<b>40.00</b>	<b>4.48</b>
	73.650	49.61	10.15	0.91	32.84	40.00	7.16
	99.840	48.70	11.34	1.04	33.18	43.50	10.32
	183.260	51.88	9.96	1.39	35.91	43.50	7.59
	361.740	44.15	15.45	1.96	34.24	46.00	11.76
	819.580	39.06	20.54	2.92	34.83	46.00	11.17
Vertical	50.370	51.12	8.51	0.78	32.39	40.00	7.61
	75.590	47.70	10.27	0.92	31.02	40.00	8.98
	159.980	49.63	10.25	1.28	33.66	43.50	9.84
	212.360	48.47	10.29	1.49	33.23	43.50	10.27
	<b>266.680</b>	<b>54.91</b>	<b>12.66</b>	<b>1.66</b>	<b>42.35</b>	<b>46.00</b>	<b>3.65</b>
	828.310	42.91	20.52	2.93	38.69	46.00	7.31

TEST ENGINEER: RAVEN JIN

EUT : LCD TV Temperature : 22°C

Model No. : LHD32K20US Humidity : 60%RH

Serial No. : E1107787-01/01 Date of Test : Jul 26, 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	72.680	48.64	10.08	0.91	31.81	40.00	8.19
	185.200	51.76	9.94	1.40	35.81	43.50	7.69
	216.400	27.69	10.45	1.50	39.64	46.00	6.36
	<b>282.200</b>	<b>52.14</b>	<b>13.21</b>	<b>1.72</b>	<b>40.19</b>	<b>46.00</b>	<b>5.81</b>
	708.030	42.15	19.60	2.70	36.39	46.00	9.61
	903.970	41.10	20.32	3.04	36.98	46.00	9.02
Vertical	<b>47.500</b>	<b>24.39</b>	<b>9.37</b>	<b>0.77</b>	<b>34.53</b>	<b>40.00</b>	<b>5.47</b>
	69.770	47.41	9.85	0.89	30.37	40.00	9.63
	105.660	48.49	11.26	1.07	32.98	43.50	10.52
	186.170	51.84	9.93	1.40	35.90	43.50	7.60
	357.860	46.61	15.33	1.95	36.60	46.00	9.40
	708.030	42.93	19.60	2.70	37.17	46.00	8.83

TEST ENGINEER: RAVEN JIN

EUT : LCD TV Temperature : 22°C

Model No. : LHD32K20US Humidity : 60%RH

Serial No. : E1107787-01/01 Date of Test : Jul 26, 2011

Test Mode : HDMI 640\*480@60Hz

Polarization	Frequency (MHz)	Meter Reading dB ( $\mu$ V)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level dB ( $\mu$ V/m)	Limits dB ( $\mu$ V/m)	Margin (dB)
Horizontal	<b>48.430</b>	<b>53.14</b>	<b>9.02</b>	<b>0.77</b>	<b>34.86</b>	<b>40.00</b>	<b>5.14</b>
	72.680	48.79	10.08	0.91	31.96	40.00	8.04
	102.750	49.92	11.31	1.05	34.41	43.50	9.09
	186.170	52.86	9.93	1.40	36.92	43.50	6.58
	353.980	44.83	15.25	1.93	34.75	46.00	11.25
	708.030	42.72	19.60	2.70	36.96	46.00	9.04
Vertical	72.680	48.29	10.08	0.91	31.46	40.00	8.54
	<b>182.290</b>	<b>53.12</b>	<b>9.97</b>	<b>1.38</b>	<b>37.14</b>	<b>43.50</b>	<b>6.36</b>
	266.680	47.53	12.66	1.66	34.97	46.00	11.03
	307.420	45.01	13.90	1.78	33.75	46.00	12.25
	507.240	43.19	17.64	2.27	34.96	46.00	11.04
	698.330	41.62	19.47	2.67	35.66	46.00	10.34

TEST ENGINEER: RAVEN JIN

EUT : LCD TV Temperature : 22°C

Model No. : LHD32K20US Humidity : 60%RH

Serial No. : E1107787-01/01 Date of Test : Jul 26, 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	47.460	48.05	9.37	0.77	30.09	40.00	9.91
	73.650	47.96	10.15	0.91	31.19	40.00	8.81
	<b>183.260</b>	<b>52.90</b>	<b>9.96</b>	<b>1.39</b>	<b>36.93</b>	<b>43.50</b>	<b>6.57</b>
	249.220	47.88	11.95	1.60	34.56	46.00	11.44
	710.940	41.94	19.63	2.70	36.21	46.00	9.79
	955.380	39.58	20.59	3.76	36.66	46.00	9.34
Vertical	<b>47.200</b>	<b>23.00</b>	<b>9.44</b>	<b>0.76</b>	<b>33.20</b>	<b>40.00</b>	<b>6.80</b>
	70.740	48.54	9.93	0.90	31.58	40.00	8.42
	100.810	48.04	11.34	1.05	32.54	43.50	10.96
	183.600	21.20	9.96	1.39	32.55	43.50	10.95
	264.740	47.13	12.62	1.65	34.52	46.00	11.48
	361.740	43.87	15.45	1.96	33.96	46.00	12.04

TEST ENGINEER: RAVEN JIN

EUT : LCD TV Temperature : 22°C

Model No. : LHD32K20US Humidity : 60%RH

Serial No. : E1107787-01/01 Date of Test : Jul 26, 2011

Test Mode : HDMI 1024\*768@60Hz

Polarization	Frequency (MHz)	Meter Reading dB ( $\mu$ V)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level dB ( $\mu$ V/m)	Limits dB ( $\mu$ V/m)	Margin (dB)
Horizontal	<b>47.460</b>	<b>52.53</b>	<b>9.37</b>	<b>0.77</b>	<b>34.57</b>	<b>40.00</b>	<b>5.43</b>
	74.620	47.95	10.21	0.92	31.23	40.00	8.77
	103.720	49.27	11.29	1.06	33.76	43.50	9.74
	183.260	51.91	9.96	1.39	35.94	43.50	7.56
	250.190	49.11	11.99	1.60	35.83	46.00	10.17
	355.920	47.41	15.29	1.95	37.38	46.00	8.62
Vertical	47.460	50.94	9.37	0.77	32.98	40.00	7.02
	75.590	47.46	10.27	0.92	30.78	40.00	9.22
	99.840	46.96	11.34	1.04	31.44	43.50	12.06
	<b>182.290</b>	<b>53.12</b>	<b>9.97</b>	<b>1.38</b>	<b>37.14</b>	<b>43.50</b>	<b>6.36</b>
	706.090	39.28	19.56	2.70	33.47	46.00	12.53
	923.370	39.34	20.42	3.22	35.58	46.00	10.42

TEST ENGINEER: RAVEN JIN

## **5 DEVIATION TO TEST SPECIFICATIONS**

None.