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

LED LCD TV

Model No.	Brand
LTDN58XT880GWUS	Hisense
58T880UW	

FCC ID : W9HLCDF0028

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-F13161
Date of Test : Sep 16 – Oct 17, 2013
Date of Report : Oct 22, 2013

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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
LTDN58XT880GWUS	Hisense	120V/60Hz
58T880UW		

Test Procedure Used:

FCC RULES AND REGULATIONS PART 15 SUBPART B CLASS B OCTOBER 2012 AND ANSI C63.4-2003

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

The test results are contained in this test report and Audix Technology (Shanghai) Co., Ltd. is assumed full responsibility for the accuracy and completeness of these measurements. This report shows that the EUT (M/N: Refer to Sec2.1) which was tested in 3m anechoic chamber Sep 16 – Oct 17, 2013 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.F13160, a Verification report.

Date of Test : Sep 16 – Oct 17, 2013 **Date of Report :** Oct 22, 2013

Producer : EMILY ZHU / Assistant

Review : DIO YANG / Assistant Manager

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

Signatory : SAMMY CHEN / Deputy Manager
Authorized Signature EMC

1 SUMMARY OF STANDARDS AND RESULTS

1.1 Description of Standards and Results

The EUT have been tested according to the applicable standards as referenced below:

Description of Test Item	Standard	Limits	Results
EMISSION			
Conducted Disturbance at the Mains Terminal	FCC RULES AND REGULATIONS PART 15 SUBPART B OCTOBER 2012 AND ANSI C63.4-2003	15.107(a) Class B	Pass
Radiated Disturbance	FCC RULES AND REGULATIONS PART 15 SUBPART B OCTOBER 2012 AND ANSI C63.4-2003	15.109(a) Class B	Pass

2 GENERAL INFORMATION

2.1 Description of Equipment Under Test

Description	:	LED LCD TV
Type of EUT	:	☐ Production ☑ Pre-product ☐ Pro-type
Model No.	:	LTDN58XT880GWUS, 58T880UW
Note	:	The above models are all the same except for the different model name. The LTDN58XT880GWUS was tested and reported in the report.
Bread 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 : CHIMEI INNOLUX M/N : V580DK1-LS1 Rev. C1
Max Resolution	:	1920*1080@60Hz 3840*2160@30Hz (Only for UHD port)
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 LED LCD TV which input/output ports as follows:

Bottom Port:

(1) One HDMI2 Port
: Connected with DVD PLAYER #1

(2) One HDMI3 Port
: Connected with DVD PLAYER #2

(3) One HDMI4 Port
: Connected with DVD PLAYER #3

(4) One LAN Port
: Connected with PC

(5) One component of AV/YPbPr Port
: Connected with DVD PLAYER #1

Side Port:

(1) One ANT Port
: Connected with ATSC SG / TV SG

(2) One VGA Port
: Connected with PC

(3) One Audio In Port
: Connected with PC

(4) One HDMI1 (UHD) Port
: Connected with PC

(5) Three USB Ports
: Connected with U-Disk

(6) One Headphone Out Port
: Connected with Earphone

(7) One DIGITAL Port
: Connected with DVD PLAYER #1

(8) One Debug Port
: 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 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 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 PLAYER #1

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

2.2.9 DVD PLAYER #2

Manufacturer	:	LG
Model Number	:	DF9921N
Serial Number	:	3850R-M846W

2.2.10 DVD PLAYER #3

Manufacturer	:	DGT RONIK
Model Number	:	DV-A340
Serial Number	:	10004184-C

2.2.11 Earphone

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

2.2.12 U-DISK*3

Manufacturer : LG
Model Number : 1GB

2.3 Description of Test Facility

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

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

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

NVLAP Lab Code : 200371-0

2.4 Measurement Uncertainty

Conducted Emission Expanded Uncertainty: U = 3.42 dB
Radiated Emission Expanded Uncertainty (30-200MHz):
U = 4.14 dB (Horizontal)
U = 4.28 dB (Vertical)
Radiated Emission Expanded Uncertainty (200M-1GHz):
U = 4.18 dB (Horizontal)
U = 4.26 dB (Vertical)
Radiated Emission Expanded Uncertainty (Above 1GHz):
U = 4.50 dB (Horizontal)
U = 4.16 dB (Vertical)

3 CONDUCTED EMISSION TEST

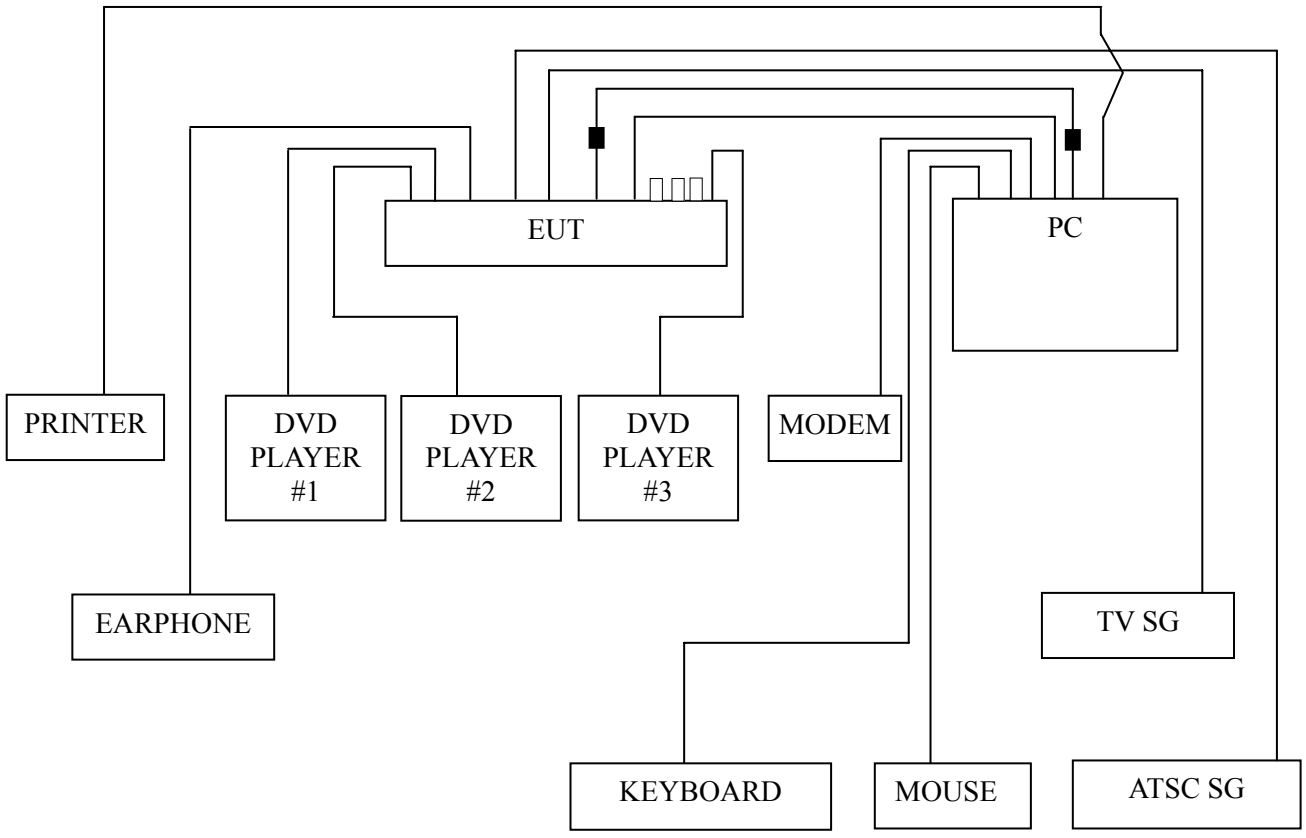
3.1 Test Equipment

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 20, 2013	Mar 20, 2014
2.	Artificial Mains Network (AMN)	R&S	ESH2-Z5	843890/011	Feb 25, 2013	Feb 25, 2014
3.	Line Impedance Stabilization Network (LISN)	Kyoritsu	KNW-407	8-1280-4	Mar 20, 2013	Mar 20, 2014
4.	50 Ω Coaxial Switch	Anritsu	MP59B	6200426389	Mar 18, 2013	Sep 18, 2013
5.	50Ω Terminator	Anritsu	BNC	001	Mar 20, 2013	Mar 20, 2014
6.	Software	Audix	E3	SET00200 9804M592	--	--

3.2 Block Diagram of Test Setup

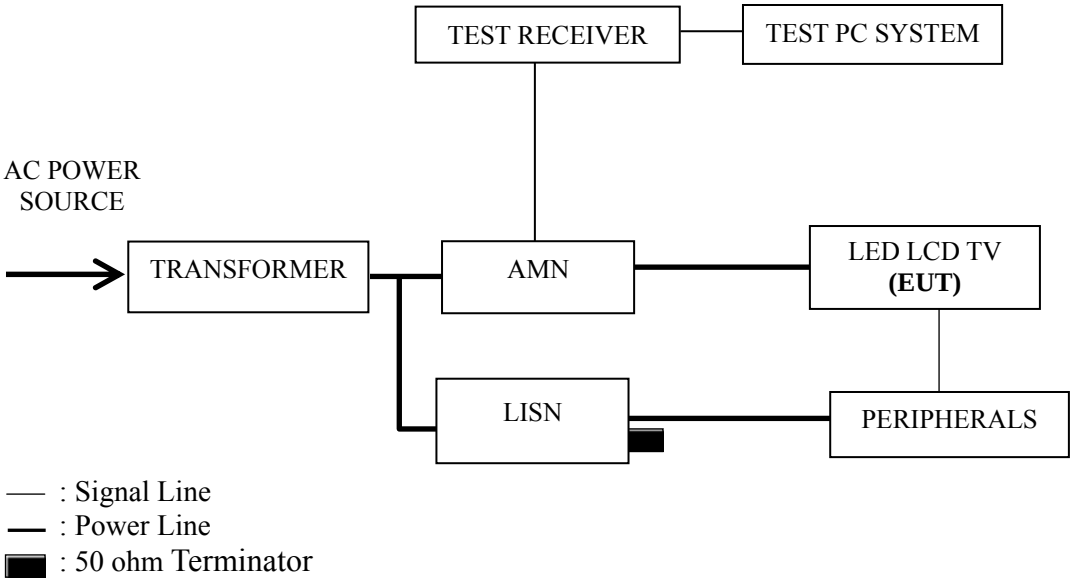
3.2.1 EUT & Peripherals



■: 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 (μV)	
	Quasi-peak	Average
0.15 ~ 0.5	66~56	56~46
0.5 ~ 5	56	46
5 ~ 30	60	50

NOTE 1 – The lower limit shall apply at the transition frequencies.
NOTE 2 – The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz~0.50 MHz

3.4 Test Configuration

The EUT (listed in Sec.2.1) and the peripherals (listed in Sec 2.2) were installed as shown on Sec.3.2 to meet FCC requirement and operating in a manner that tends to maximize its emission level in a normal application.

3.5 Operating Condition of EUT

3.5.1 Setup the EUT and peripherals as shown in Sec. 3.2.

3.5.2 Turn on the power of all equipments and the EUT.

3.5.3 Set the contrast & brightness of EUT to maximum.

3.5.4 PC system ran the self-test program "EMC Test" by windows XP and sent "H" characters to EUT through graphic card, the EUT's screen displayed and filled with "H" pattern by its resolution (Via D-Sub & HDMI Input).

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

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

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

3.5.8 The test modes are as follows:

Test Mode
HDMI 3840*2160@30Hz (UHD)
D-Sub 1920*1080@60Hz
HDMI 1920*1080@60Hz
D-Sub 1280*1024@60Hz
D-Sub 640*480@60Hz
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 3840*2160@30Hz (UHD)	P13
D-Sub 1920*1080@60Hz	P14
HDMI 1920*1080@60Hz	P15
D-Sub 1280*1024@60Hz	P16
D-Sub 640*480@60Hz	P17
USB Play	P18
LAN Play	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 1920*1080@60Hz test mode. The worst emission is detected at 4.550 MHz (Average Value) with corrected signal level of 39.53 dB (μV) (limit is 46.00 dB (μV)), when the Neutral of the EUT is connected to AMN.

EUT	:	LED LCD TV	Temperature :	22℃	
Model No.	:	LTDN58XT880GWUS	Humidity :	48%RH	
Test Mode	:	HDMI 3840*2160@30Hz (UHD)	Date of Test :	Oct 17, 2013	

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.406	43.00	0.00	43.00	57.74	14.74	QP
	0.676	44.81	0.08	44.89	56.00	11.11	
	1.075	45.30	0.05	45.35	56.00	10.65	
	2.051	41.90	0.08	41.98	56.00	14.02	
	2.836	42.39	0.12	42.51	56.00	13.49	
	5.495	42.80	0.22	43.02	60.00	16.98	
	0.406	31.70	0.00	31.70	47.74	16.04	AV
	0.676	33.31	0.08	33.39	46.00	12.61	
	1.075	**36.90**	**0.05**	**36.95**	**46.00**	**9.05**	
	2.051	31.60	0.08	31.68	46.00	14.32	
	2.836	33.09	0.12	33.21	46.00	12.79	
	5.495	35.50	0.22	35.72	50.00	14.28	
Neutral	0.401	42.09	0.22	42.31	57.82	15.51	QP
	0.673	44.01	0.12	44.13	56.00	11.87	
	1.067	43.71	0.17	43.88	56.00	12.12	
	1.535	42.91	0.16	43.07	56.00	12.93	
	2.279	41.20	0.17	41.37	56.00	14.63	
	5.361	44.50	0.25	44.75	60.00	15.25	
	0.401	31.53	0.22	31.75	47.82	16.07	AV
	0.673	33.01	0.12	33.13	46.00	12.87	
	1.067	35.21	0.17	35.38	46.00	10.62	
	1.535	33.81	0.16	33.97	46.00	12.03	
	2.279	34.00	0.17	34.17	46.00	11.83	
	5.361	34.20	0.25	34.45	50.00	15.55	

TEST ENGINEER: WENCY YANG

EUT	:	LED LCD TV	Temperature :	22℃	
Model No.	:	LTDN58XT880GWUS	Humidity	:	48%RH
Test Mode	:	D-Sub 1920*1080@60Hz	Date of Test	:	Sep 16, 2013

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.380	42.59	0.12	42.71	58.27	15.56	QP
	0.649	44.30	0.22	44.52	56.00	11.48	
	1.025	45.00	0.19	45.19	56.00	10.81	
	1.499	46.10	0.20	46.30	56.00	9.70	
	2.238	44.00	0.21	44.21	56.00	11.79	
	5.121	48.10	0.32	48.42	60.00	11.58	
	0.380	30.39	0.12	30.51	48.27	17.76	AV
	0.649	30.40	0.22	30.62	46.00	15.38	
	1.025	36.30	0.19	36.49	46.00	9.51	
	1.499	38.20	0.20	38.40	46.00	7.60	
	2.238	32.00	0.21	32.21	46.00	13.79	
	5.121	39.40	0.32	39.72	50.00	10.28	
Neutral	0.384	42.10	0.32	42.42	58.20	15.78	QP
	0.816	45.30	0.29	45.59	56.00	10.41	
	1.034	45.30	0.32	45.62	56.00	10.38	
	1.484	44.50	0.31	44.81	56.00	11.19	
	4.550	47.41	0.32	47.73	56.00	8.27	
	5.090	46.51	0.33	46.84	60.00	13.16	
	0.384	32.00	0.32	32.32	48.20	15.88	AV
	0.816	35.70	0.29	35.99	46.00	10.01	
	1.034	35.20	0.32	35.52	46.00	10.48	
	1.484	34.50	0.31	34.81	46.00	11.19	
	4.550	**39.21**	**0.32**	**39.53**	**46.00**	**6.47**	
	5.090	38.81	0.33	39.14	50.00	10.86	

TEST ENGINEER: WENCY YANG

EUT	:	LED LCD TV	Temperature :	22℃	
Model No.	:	LTDN58XT880GWUS	Humidity	:	48%RH
Test Mode	:	HDMI 1920*1080@60Hz	Date of Test	:	Sep 16, 2013

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.391	43.30	0.11	43.41	58.05	14.64	QP
	0.881	45.09	0.22	45.31	56.00	10.69	
	1.487	46.10	0.20	46.30	56.00	9.70	
	2.773	45.50	0.24	45.74	56.00	10.26	
	4.575	46.10	0.30	46.40	56.00	9.60	
	5.138	47.50	0.32	47.82	60.00	12.18	
	0.391	29.20	0.11	29.31	48.05	18.74	AV
	0.881	32.09	0.22	32.31	46.00	13.69	
	1.487	36.40	0.20	36.60	46.00	9.40	
	2.773	35.20	0.24	35.44	46.00	10.56	
	4.575	**37.50**	**0.30**	**37.80**	**46.00**	**8.20**	
	5.138	38.60	0.32	38.92	50.00	11.08	
Neutral	0.378	41.90	0.32	42.22	58.32	16.10	QP
	0.876	43.40	0.30	43.70	56.00	12.30	
	1.485	44.00	0.31	44.31	56.00	11.69	
	2.190	43.29	0.30	43.59	56.00	12.41	
	4.638	45.31	0.32	45.63	56.00	10.37	
	5.284	45.40	0.35	45.75	60.00	14.25	
	0.378	29.00	0.32	29.32	48.32	19.00	AV
	0.876	31.50	0.30	31.80	46.00	14.20	
	1.485	34.90	0.31	35.21	46.00	10.79	
	2.190	33.19	0.30	33.49	46.00	12.51	
	4.638	36.31	0.32	36.63	46.00	9.37	
	5.284	36.60	0.35	36.95	50.00	13.05	

TEST ENGINEER: WENCY YANG

EUT	:	LED LCD TV	Temperature :	22℃	
Model No.	:	LTDN58XT880GWUS	Humidity	:	48%RH
Test Mode	:	D-Sub 1280*1024@60Hz	Date of Test	:	Sep 16, 2013

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.387	43.30	0.11	43.41	58.12	14.71	QP
	0.872	44.70	0.22	44.92	56.00	11.08	
	1.502	46.20	0.20	46.40	56.00	9.60	
	2.163	46.20	0.21	46.41	56.00	9.59	
	4.597	47.80	0.30	48.10	56.00	7.90	
	5.192	46.90	0.32	47.22	60.00	12.78	
	0.387	31.50	0.11	31.61	48.12	16.51	AV
	0.872	32.90	0.22	33.12	46.00	12.88	
	1.502	36.50	0.20	36.70	46.00	9.30	
	2.163	35.70	0.21	35.91	46.00	10.09	
	4.597	**38.00**	**0.30**	**38.30**	**46.00**	**7.70**	
	5.192	37.70	0.32	38.02	50.00	11.98	
Neutral	0.348	43.71	0.30	44.01	59.01	15.00	QP
	0.647	43.80	0.29	44.09	56.00	11.91	
	1.029	44.80	0.32	45.12	56.00	10.88	
	2.147	42.89	0.30	43.19	56.00	12.81	
	4.658	46.81	0.32	47.13	56.00	8.87	
	5.047	45.40	0.33	45.73	60.00	14.27	
	0.348	38.61	0.30	38.91	49.01	10.10	AV
	0.647	30.70	0.29	30.99	46.00	15.01	
	1.029	36.00	0.32	36.32	46.00	9.68	
	2.147	31.89	0.30	32.19	46.00	13.81	
	4.658	36.21	0.32	36.53	46.00	9.47	
	5.047	37.60	0.33	37.93	50.00	12.07	

TEST ENGINEER: WENCY YANG

EUT	:	LED LCD TV	Temperature :	22℃	
Model No.	:	LTDN58XT880GWUS	Humidity	:	48%RH
Test Mode	:	D-Sub 640*480@60Hz	Date of Test	:	Sep 16, 2013

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.383	43.29	0.12	43.41	58.22	14.81	QP
	0.641	44.81	0.21	45.02	56.00	10.98	
	1.034	45.80	0.19	45.99	56.00	10.01	
	2.209	45.60	0.21	45.81	56.00	10.19	
	4.582	47.67	0.30	47.97	56.00	8.03	
	5.276	45.40	0.32	45.72	60.00	14.28	
	0.383	32.29	0.12	32.41	48.22	15.81	AV
	0.641	31.41	0.21	31.62	46.00	14.38	
	1.034	37.20	0.19	37.39	46.00	8.61	
	2.209	34.80	0.21	35.01	46.00	10.99	
	4.582	**37.90**	**0.30**	**38.20**	**46.00**	**7.80**	
	5.276	36.50	0.32	36.82	50.00	13.18	
Neutral	0.386	42.90	0.32	43.22	58.14	14.92	QP
	0.638	43.30	0.29	43.59	56.00	12.41	
	1.037	45.30	0.32	45.62	56.00	10.38	
	2.202	43.70	0.30	44.00	56.00	12.00	
	4.650	45.81	0.32	46.13	56.00	9.87	
	5.245	45.40	0.35	45.75	60.00	14.25	
	0.386	32.00	0.32	32.32	48.14	15.82	AV
	0.638	29.70	0.29	29.99	46.00	16.01	
	1.037	36.90	0.32	37.22	46.00	8.78	
	2.202	34.00	0.30	34.30	46.00	11.70	
	4.650	36.71	0.32	37.03	46.00	8.97	
	5.245	36.50	0.35	36.85	50.00	13.15	

TEST ENGINEER: WENCY YANG

EUT	:	LED LCD TV	Temperature	:	22℃
Model No.	:	LTDN58XT880GWUS	Humidity	:	48%RH
Test Mode	:	USB Play	Date of Test	:	Sep 16, 2013

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.389	44.17	0.11	44.28	58.08	13.80	QP
	0.654	46.06	0.22	46.28	56.00	9.72	
	1.418	45.75	0.20	45.95	56.00	10.05	
	2.237	44.71	0.21	44.92	56.00	11.08	
	4.549	47.48	0.30	47.78	56.00	8.22	
	5.058	47.25	0.31	47.56	60.00	12.44	
	0.389	32.80	0.11	32.91	48.08	15.17	AV
	0.654	35.51	0.22	35.73	46.00	10.27	
	1.418	32.10	0.20	32.30	46.00	13.70	
	2.237	32.86	0.21	33.07	46.00	12.93	
	4.549	38.00	0.30	38.30	46.00	7.70	
	5.058	39.10	0.31	39.41	50.00	10.59	
Neutral	0.389	43.05	0.32	43.37	58.08	14.71	QP
	0.899	44.51	0.31	44.82	56.00	11.18	
	1.449	44.69	0.31	45.00	56.00	11.00	
	2.736	43.16	0.31	43.47	56.00	12.53	
	4.874	45.34	0.33	45.67	56.00	10.33	
	5.774	41.97	0.38	42.35	60.00	17.65	
	0.389	31.90	0.32	32.22	48.08	15.86	AV
	0.899	34.00	0.31	34.31	46.00	11.69	
	1.449	30.98	0.31	31.29	46.00	14.71	
	2.736	34.10	0.31	34.41	46.00	11.59	
	4.874	**38.10**	**0.33**	**38.43**	**46.00**	**7.57**	
	5.774	33.14	0.38	33.52	50.00	16.48	

TEST ENGINEER: WENCY YANG

EUT	:	LED LCD TV	Temperature :	22℃	
Model No.	:	LTDN58XT880GWUS	Humidity	:	48%RH
Test Mode	:	LAN Play	Date of Test	:	Sep 16, 2013

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.378	43.19	0.12	43.31	58.32	15.01	QP
	0.881	45.49	0.22	45.71	56.00	10.29	
	1.481	46.90	0.20	47.10	56.00	8.90	
	2.155	45.80	0.21	46.01	56.00	9.99	
	4.775	47.49	0.31	47.80	56.00	8.20	
	5.327	46.10	0.32	46.42	60.00	13.58	
	0.378	29.89	0.12	30.01	48.32	18.31	AV
	0.881	30.49	0.22	30.71	46.00	15.29	
	1.481	37.30	0.20	37.50	46.00	8.50	
	2.155	35.20	0.21	35.41	46.00	10.59	
	4.775	**37.94**	**0.31**	**38.25**	**46.00**	**7.75**	
	5.327	36.80	0.32	37.12	50.00	12.88	
Neutral	0.386	42.80	0.32	43.12	58.15	15.03	QP
	0.629	43.20	0.30	43.50	56.00	12.50	
	1.035	45.20	0.32	45.52	56.00	10.48	
	2.185	42.89	0.30	43.19	56.00	12.81	
	4.643	46.91	0.32	47.23	56.00	8.77	
	5.240	45.50	0.35	45.85	60.00	14.15	
	0.386	32.40	0.32	32.72	48.15	15.43	AV
	0.629	27.30	0.30	27.60	46.00	18.40	
	1.035	36.80	0.32	37.12	46.00	8.88	
	2.185	32.39	0.30	32.69	46.00	13.31	
	4.643	37.31	0.32	37.63	46.00	8.37	
	5.240	36.30	0.35	36.65	50.00	13.35	

TEST ENGINEER: WENCY YANG

4 RADIATED EMISSION TEST

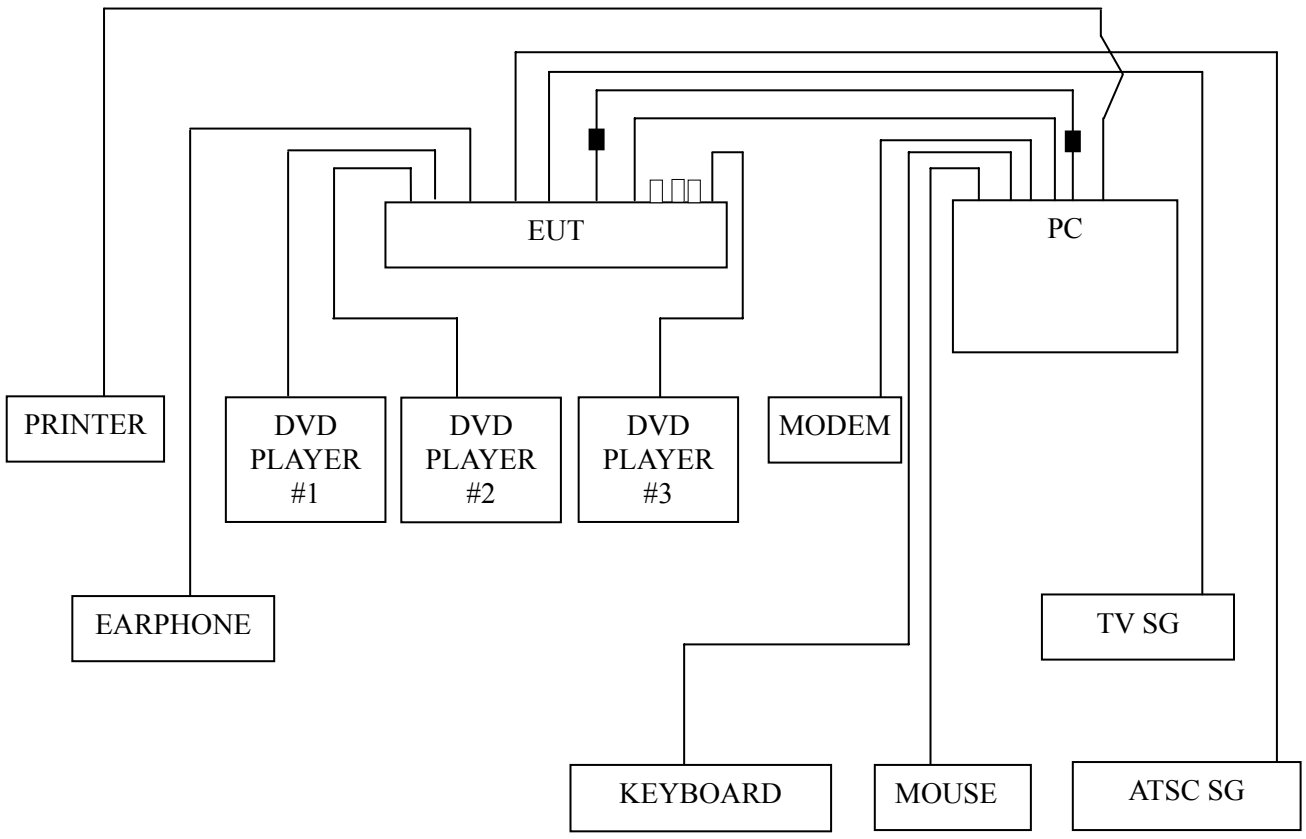
4.1 Test Equipment

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	Sep 03, 2013	Sep 03, 2014
2.	Preamplifier	Agilent	8447D	2944A10548	Mar 18, 2013	Sep 18, 2013
3.	Preamplifier	HP	8449B	3008A00864	Mar 20, 2013	Mar 20, 2014
4.	Bi-log Antenna	TESEQ	CBL6112D	23193	May 03, 2013	May 03, 2014
5.	Horn Antenna	EMCO	3115	9607-4878	May 11, 2013	May 11, 2014
6.	Spectrum	Agilent	E7405A	MY45106600	Dec 17, 2012	Dec 17, 2013
7.	50Ω Coaxial Switch	Anritsu	MP59B	6200426390	Mar 18, 2013	Sep 18, 2013
8.	Software	Audix	E3	SET00200 9912M295-2	--	--

4.2 Block Diagram of Test Setup

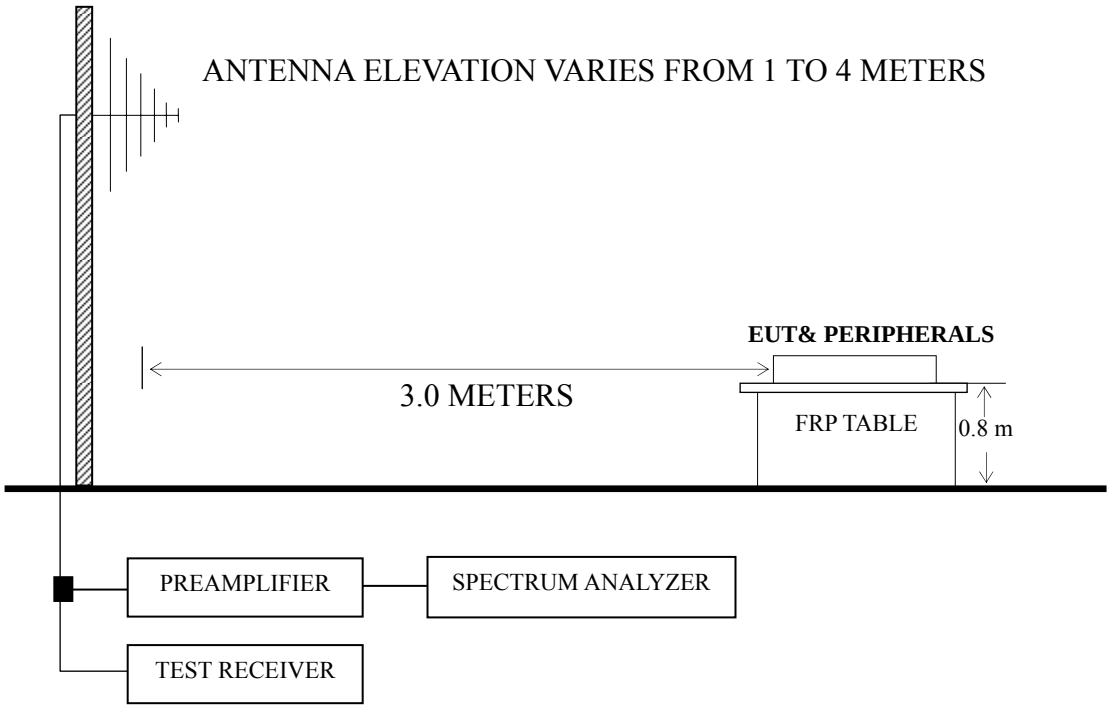
4.2.1 EUT & Peripherals



■ : 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	
		(μV/m)	dB (μV/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 (μV/m) = 20 log Emission Level (μV/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 worst test mode in 30 – 1000 MHz test.

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 3840*2160@30Hz (UHD)	P24 – P25
D-Sub 1920*1080@60Hz	P26 – P27
HDMI 1920*1080@60Hz	P28
D-Sub 1280*1024@60Hz	P29
D-Sub 640*480@60Hz	P30
USB Play	P31
LAN Play	P32

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 3840*2160@30Hz (UHD) test mode. The worst emission at horizontal polarization was detected at 217.210 MHz with corrected signal level of 34.34 dB (μV/m) (limit is 40.00 dB (μV/m)), when the antenna was 2.00 m height and the turntable was at 95°. The worst emission at vertical polarization was detected at 66.860 MHz with corrected signal level of 38.86 dB (μV/m) (limit is 40.00 dB (μV/m)), when the antenna was 1.80 m height and the turntable was at 257°.

EUT	:	LED LCD TV	Temperature :	22℃
Model No.	:	LTDN58XT880GWUS	Humidity :	60%RH
Test Mode	:	HDMI 3840*2160@30Hz (UHD)	Date of Test :	Oct 14, 2013

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	67.830	27.52	5.80	0.89	--	34.21	40.00	5.79	QP
	106.630	19.05	11.97	1.38	--	32.40	40.00	7.60	
	149.310	20.14	10.56	1.62	--	32.32	40.00	7.68	
	217.210	**24.06**	**8.27**	**2.01**	**--**	**34.34**	**40.00**	**5.66**	
	375.460	20.20	14.85	2.67	--	37.72	47.00	9.28	
	700.300	15.00	20.10	3.52	--	38.62	47.00	8.38	
	1083.000	48.09	24.02	4.98	38.02	39.07	74.00	34.93	PK
	1204.000	46.21	24.55	5.15	37.73	38.18	74.00	35.82	
	1277.000	46.15	24.90	5.35	37.54	38.86	74.00	35.14	
	1534.000	46.26	25.96	5.64	36.83	41.03	74.00	32.97	
	1653.000	49.05	27.31	5.81	36.58	45.59	74.00	28.41	
	1788.000	46.36	28.99	6.15	36.37	45.13	74.00	28.87	
	1083.000	35.29	24.02	4.98	38.02	26.27	54.00	27.73	AV
	1204.000	33.29	24.55	5.15	37.73	25.26	54.00	28.74	
	1277.000	33.27	24.90	5.35	37.54	25.98	54.00	28.02	
	1534.000	32.58	25.96	5.64	36.83	27.35	54.00	26.65	
	1653.000	37.00	27.31	5.81	36.58	33.54	54.00	20.46	
	1788.000	33.25	28.99	6.15	36.37	32.02	54.00	21.98	

TEST ENGINEER: NEAL WANG

EUT	:	LED LCD TV	Temperature :	22℃
Model No.	:	LTDN58XT880GWUS	Humidity :	60%RH
Test Mode	:	HDMI 3840*2160@30Hz (UHD)	Date of Test :	Oct 14, 2013

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	57.160	30.20	5.74	0.86	--	36.80	40.00	3.20	QP
	66.860	**32.32**	**5.65**	**0.89**	**--**	**38.86**	**40.00**	**1.14**	
	108.570	24.54	12.04	1.39	--	37.97	40.00	2.03	
	370.900	19.99	15.04	2.67	--	37.70	47.00	9.30	
	396.660	22.32	15.57	2.70	--	40.59	47.00	6.41	
	705.100	18.51	19.83	3.53	--	41.87	47.00	5.13	
	1022.000	46.28	23.79	4.91	38.15	36.83	74.00	37.17	PK
	1127.000	46.37	24.19	5.03	37.91	37.68	74.00	36.32	
	1264.000	45.31	24.84	5.30	37.58	37.87	74.00	36.13	
	1433.000	45.32	25.42	5.61	37.09	39.26	74.00	34.74	
	1579.000	45.62	26.45	5.66	36.73	41.00	74.00	33.00	
	1839.000	45.42	29.57	6.16	36.29	44.86	74.00	29.14	
	1022.000	33.49	23.79	4.91	38.15	24.04	54.00	29.96	AV
	1127.000	32.96	24.19	5.03	37.91	24.27	54.00	29.73	
	1264.000	32.55	24.84	5.30	37.58	25.11	54.00	28.89	
	1433.000	31.55	25.42	5.61	37.09	25.49	54.00	28.51	
	1579.000	31.21	26.45	5.66	36.73	26.59	54.00	27.41	
	1839.000	32.45	29.57	6.16	36.29	31.89	54.00	22.11	

TEST ENGINEER: NEAL WANG

EUT	:	LED LCD TV	Temperature :	22℃
Model No.	:	LTDN58XT880GWUS	Humidity :	60%RH
Test Mode	:	D-Sub 1920*1080@60Hz	Date of Test :	Sep 16, 2013

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	**72.680**	**31.29**	**6.20**	**0.97**	**--**	**38.46**	**40.00**	**1.54**	QP
	115.360	23.12	11.58	1.45	--	36.15	43.50	7.35	
	287.050	22.86	12.55	2.46	--	37.87	46.00	8.13	
	702.210	12.45	20.13	3.54	--	36.12	46.00	9.88	
	790.480	18.92	18.70	3.61	--	41.23	46.00	4.77	
	983.510	15.21	21.03	4.83	--	41.07	54.00	12.93	
	1021.000	47.85	23.78	4.91	38.16	38.38	74.00	35.62	PK
	1113.000	47.97	24.14	5.01	37.95	39.17	74.00	34.83	
	1381.000	45.68	25.28	5.55	37.25	39.26	74.00	34.74	
	1636.000	47.55	27.09	5.81	36.61	43.84	74.00	30.16	
	1744.000	48.09	28.43	6.06	36.43	46.15	74.00	27.85	
	1864.000	45.82	29.79	6.17	36.26	45.52	74.00	28.48	
	1021.000	34.63	23.78	4.91	38.16	25.16	54.00	28.84	AV
	1113.000	33.78	24.14	5.01	37.95	24.98	54.00	29.02	
	1381.000	32.18	25.28	5.55	37.25	25.76	54.00	28.24	
	1636.000	34.73	27.09	5.81	36.61	31.02	54.00	22.98	
	1744.000	35.43	28.43	6.06	36.43	33.49	54.00	20.51	
	1864.000	32.22	29.79	6.17	36.26	31.92	54.00	22.08	

TEST ENGINEER: NEAL WANG

EUT	:	LED LCD TV	Temperature :	22℃	
Model No.	:	LTDN58XT880GWUS	Humidity	:	60%RH
Test Mode	:	D-Sub 1920*1080@60Hz	Date of Test	:	Sep 16, 2013

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	34.850	18.71	15.85	0.71	--	35.27	40.00	4.73	QP
	62.010	**32.90**	**4.70**	**0.89**	**--**	**38.49**	**40.00**	**1.51**	
	119.240	22.21	11.42	1.47	--	35.10	43.50	8.40	
	148.340	22.61	10.15	1.63	--	34.39	43.50	9.11	
	292.870	23.83	12.67	2.49	--	38.99	46.00	7.01	
	574.170	15.19	19.10	3.16	--	37.45	46.00	8.55	
	1111.000	46.01	24.13	5.01	37.95	37.20	74.00	36.80	PK
	1250.000	46.15	24.77	5.25	37.62	38.55	74.00	35.45	
	1499.000	46.32	25.60	5.64	36.91	40.65	74.00	33.35	
	1628.000	45.66	27.03	5.74	36.62	41.81	74.00	32.19	
	1788.000	49.78	28.99	6.15	36.37	48.55	74.00	25.45	
	1953.000	44.70	30.64	6.19	36.16	45.37	74.00	28.63	
	1111.000	33.62	24.13	5.01	37.95	24.81	54.00	29.19	AV
	1250.000	33.76	24.77	5.25	37.62	26.16	54.00	27.84	
	1499.000	33.25	25.60	5.64	36.91	27.58	54.00	26.42	
	1628.000	32.76	27.03	5.74	36.62	28.91	54.00	25.09	
	1788.000	36.01	28.99	6.15	36.37	34.78	54.00	19.22	
	1953.000	31.76	30.64	6.19	36.16	32.43	54.00	21.57	

TEST ENGINEER: NEAL WANG

EUT	:	LED LCD TV	Temperature :	22℃
Model No.	:	LTDN58XT880GWUS	Humidity :	60%RH
Test Mode	:	HDMI 1920*1080@60Hz	Date of Test :	Sep 16, 2013

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	73.650	27.09	6.33	0.98	34.40	40.00	5.60
	116.330	19.47	11.54	1.46	32.47	43.50	11.03
	149.310	25.34	10.12	1.64	37.10	43.50	6.40
	182.290	**30.03**	**8.25**	**1.84**	**40.12**	**43.50**	**3.38**
	294.810	24.62	12.60	2.52	39.74	46.00	6.26
	726.460	18.64	19.23	3.57	41.44	46.00	4.56
Vertical	36.790	15.61	14.92	0.74	31.27	40.00	8.73
	59.100	**27.26**	**5.20**	**0.88**	**33.34**	**40.00**	**6.66**
	118.270	20.94	11.46	1.47	33.87	43.50	9.63
	298.690	20.38	12.52	2.52	35.42	46.00	10.58
	579.990	16.08	18.80	3.16	38.04	46.00	7.96
	788.540	15.33	18.50	3.60	37.43	46.00	8.57

TEST ENGINEER: NEAL WANG

EUT	:	LED LCD TV	Temperature :	22℃
Model No.	:	LTDN58XT880GWUS	Humidity :	60%RH
Test Mode	:	D-Sub 1280*1024@60Hz	Date of Test :	Sep 16, 2013

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	**75.590**	**29.29**	**6.54**	**1.01**	**36.84**	**40.00**	**3.16**
	115.360	22.34	11.58	1.45	35.37	43.50	8.13
	177.440	26.13	8.26	1.83	36.22	43.50	7.28
	290.930	25.99	12.83	2.49	41.31	46.00	4.69
	570.290	16.96	19.40	3.14	39.50	46.00	6.50
	782.720	17.13	18.30	3.60	39.03	46.00	6.97
Vertical	34.850	18.83	15.85	0.71	35.39	40.00	4.61
	65.890	**30.96**	**4.88**	**0.91**	**36.75**	**40.00**	**3.25**
	120.210	21.24	11.41	1.48	34.13	43.50	9.37
	291.900	23.09	12.75	2.49	38.33	46.00	7.67
	579.990	14.80	18.80	3.16	36.76	46.00	9.24
	993.210	19.51	21.10	4.83	45.44	54.00	8.56

TEST ENGINEER: NEAL WANG

EUT	:	LED LCD TV	Temperature :	22℃
Model No.	:	LTDN58XT880GWUS	Humidity :	60%RH
Test Mode	:	D-Sub 640*480@60Hz	Date of Test :	Sep 16, 2013

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	**71.710**	**29.95**	**6.02**	**0.95**	**36.92**	**40.00**	**3.08**
	145.430	25.93	10.28	1.62	37.83	43.50	5.67
	287.050	24.10	12.55	2.46	39.11	46.00	6.89
	390.840	20.06	15.40	2.68	38.14	46.00	7.86
	501.420	17.72	18.17	2.98	38.87	46.00	7.13
	796.300	18.03	19.43	3.61	41.07	46.00	4.93
Vertical	35.820	19.34	15.63	0.73	35.70	40.00	4.30
	57.160	**30.37**	**5.81**	**0.88**	**37.06**	**40.00**	**2.94**
	118.270	21.60	11.46	1.47	34.53	43.50	8.97
	143.490	23.58	10.30	1.61	35.49	43.50	8.01
	294.810	25.34	12.60	2.52	40.46	46.00	5.54
	574.170	13.44	19.10	3.16	35.70	46.00	10.30

TEST ENGINEER: NEAL WANG

EUT	:	LED LCD TV	Temperature :	22℃
Model No.	:	LTDN58XT880GWUS	Humidity :	60%RH
Test Mode	:	USB Play	Date of Test :	Sep 16, 2013

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	**74.620**	**26.19**	**6.46**	**1.00**	**33.65**	**40.00**	**6.35**
	97.900	19.57	10.01	1.32	30.90	43.50	12.60
	149.310	19.25	10.12	1.64	31.01	43.50	12.49
	288.020	24.38	12.73	2.46	39.57	46.00	6.43
	572.230	12.12	19.25	3.14	34.51	46.00	11.49
	723.550	13.36	19.27	3.56	36.19	46.00	9.81
Vertical	31.940	15.44	16.50	0.68	32.62	40.00	7.38
	58.130	**26.88**	**5.58**	**0.88**	**33.34**	**40.00**	**6.66**
	117.300	20.89	11.50	1.46	33.85	43.50	9.65
	149.310	24.52	10.12	1.64	36.28	43.50	7.22
	214.300	19.03	7.60	2.03	28.66	43.50	14.84
	576.110	14.43	18.95	3.16	36.54	46.00	9.46

TEST ENGINEER: NEAL WANG

EUT	:	LED LCD TV	Temperature :	22℃
Model No.	:	LTDN58XT880GWUS	Humidity :	60%RH
Test Mode	:	LAN Play	Date of Test :	Sep 16, 2013

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	74.620	27.46	6.46	1.00	34.92	40.00	5.08
	115.360	18.16	11.58	1.45	31.19	43.50	12.31
	165.800	22.06	8.40	1.75	32.21	43.50	11.29
	296.750	23.61	12.55	2.52	38.68	46.00	7.32
	367.560	16.09	14.83	2.65	33.57	46.00	12.43
	790.480	**19.17**	**18.70**	**3.61**	**41.48**	**46.00**	**4.52**
Vertical	37.760	13.84	14.13	0.75	28.72	40.00	11.28
	67.830	**28.46**	**5.31**	**0.91**	**34.68**	**40.00**	**5.32**
	117.300	20.08	11.50	1.46	33.04	43.50	10.46
	294.810	21.90	12.60	2.52	37.02	46.00	8.98
	585.810	12.25	18.72	3.18	34.15	46.00	11.85
	972.840	8.03	20.80	4.78	33.61	54.00	20.39

TEST ENGINEER: NEAL WANG

5 DEBUG DESCRIPTION

The following components are used during the countermeasure procedures:

Name	M/N	Manufacturer	Location
Ferrite core	BNF-12\ZCAT1519-0830\ROH	Jiangsu Ruifeng Electronic Co., Ltd.	See Internal Photo Figure 29, 30
		FEELUX	
		Jiangsu Chenlang Group Electronic Co., Ltd.	
Gasket	35x0.7x56mm\VGA\ROH	Qingdao Joinset S&T Co., Ltd. Shenzhen Tongantai Electronic Technology Co., Ltd.	See Internal Photo Figure 28
Gasket	DAA1001\ROH		See Internal Photo Figure 26, 27, 31, 32
Gasket	DAA25x20x150\ROH		

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: Neal_wang

(NEAL WANG)

6 DEVIATION TO TEST SPECIFICATIONS

None.