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

LED LCD TV

Model No	Brand
LC-43N7000U, LC-43N7000C	Sharp

FCC ID : W9HLCDD0061

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-F16177
Date of Test : Jun 01 – 16, 2016
Date of Report : Jun 22, 2016

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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.

Factory #3 : HISENSE ELECTRONICA MEXICO, S.A. DE C.V.

EUT Description : LED LCD TV

Model No.	Brand	Power Supply
LC-43N7000U, LC-43N7000C	Sharp	120V/60Hz

Test Procedure Used:

FCC RULES AND REGULATIONS PART 15 SUBPART B CLASS B OCTOBER 2015 AND ANSI C63.4-2014

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 Jun 01 – 16, 2016 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.F15249A1, a Verification report.

Date of Test : Jun 01 – 16, 2016 Date of Report : Jun 22, 2016

Producer : Huimin Yan
HUIMIN YAN / Assistant

Review : Byron Wu
BYRON WU / Deputy Assistant Manager

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

Signatory :
Authorized Signature EMC SAMMY CHEN / Manager

1 SUMMARY OF STANDARDS AND RESULTS

1.1 Description of Standards and Results

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

Description of Test Item	Standard	Limits	Results
EMISSION			
Conducted Disturbance at the Mains Terminal	FCC RULES AND REGULATIONS PART 15 SUBPART B OCTOBER 2015 AND ANSI C63.4-2014	15.107(a) Class B	Pass
Radiated Disturbance	FCC RULES AND REGULATIONS PART 15 SUBPART B OCTOBER 2015 AND ANSI C63.4-2014	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	:	LC-43N7000U, LC-43N7000C
Note	:	The above models are all the same except for model number.LC-43N7000U model is tested and recorded in the report.
Brand	:	Sharp
Applicant	:	Hisense Electric Co., Ltd. No.218 Qianwangang Road, Economy & Technology Development Zone, Qingdao, China
Manufacturer	:	same as Applicant
Factory #1	:	same as Applicant
Factory #2	:	Tatung Mexico S.A. de C.V. Miguel Catalán 420, Parque Industrial Rio Bravo, Cd. Juarez, Chih., CP 32557
Factory #3	:	HISENSE ELECTRONICA MEXICO, S.A. DE C.V. Blvd. Sharp #3510 Parque Industrial Rosarito, C.P. 22710 Playas de Rosarito, B.C.
LCD Panel	:	Manufacturer : Hisense M/N : HE426HU-B51(010)
Tuner	:	Manufacturer : XuGuang Tech. Co., Ltd. M/N : HFT-96S3/W11FJ2H\ROH

Max Resolution	:	3840*2160@60Hz
HDMI Cable*4 (Lab provide)	:	Shielded, Detachable, 1.50m
Power Cord	:	Unshielded, Detachable, 1.80m,2C
LAN Cable	:	Shielded, Detachable, 1.50m
USB Cable*3 (Lab provide)	:	Shielded, Detachable, 1.00m, without core
MHL to HDMI Adaptor: with RCP (Lab provide)		Manufacture: CE-Link M/N: 3002

Remark:

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

Side Port:

(1) One USB3 Port
: Connected with Hard-Disk #1

(2) One HDMI2/ARC Port
: Connected with PC

(3) One HDMI1/MHL Port
: Connected with Smart Mobile Phone

(4) One Audio out Port
: Connected with Earphone#1

(5) One USB1 Port
: Connected with Hard-Disk #2

(6) One USB2 Port
: Connected with Hard-Disk #3

(7) One ANT/CABLE IN Port
: Connected with Antenna or ATSC SG / TV SG

Back Port:

(8) One LAN Port
: Connected with PC

(9) One HDMI3 Port
: Connected with DVD PLAYER #1

(10) One HDMI4 Port
: Connected with DVD PLAYER #2

(11) One Digital Audio Out Port
: Connected with Audio Converter to Earphone#2

(12) One component of YPbPr Port
: Connected with DVD PLAYER #2

2.2 Peripherals

2.2.1 PC

Manufacturer	:	HP
Model Number	:	Pro3340
Serial Number	:	6CR2512VFD
Power Cord	:	Unshielded, Detachable, 1.8m
Certificate	:	FCC DoC; CE/EMC; VCCI; C-Tick;

2.2.2 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

2.2.3 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

2.2.4 Modem

Manufacturer	:	TP-LINK
Model Number	:	TM-EC5658V
Serial Number	:	07123301053
Data Cable	:	Shielded, Detachable, 1.8m
Certificate	:	CCC

2.2.5 Earphone*2

Manufacturer	:	Edifier
Model Number	:	H210

2.2.6 TV Signal Generator

Manufacturer	:	FLUKE
Model Number	:	54200M01
Serial Number	:	814008

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	:	CCC

2.2.9 DVD PLAYER #2

Manufacturer	:	PHILIPS
Model Number	:	DVP3986K/93
Serial Number	:	KX1A0902120082
Certificate	:	CCC

2.2.10 Hard Disk #1

Manufacturer	:	Tetasys
Model Number	:	F12
Serial Number	:	A010022-486006
Data Cable	:	Shielded, Undetachable, 1.8m.
Certificate	:	CE, FCC DoC

2.2.11 Hard Disk #2

Manufacturer	:	Tetasys
Model Number	:	F12
Serial Number	:	A010022-4860010X
Data Cable	:	Shielded, Undetachable, 1.8m.
Certificate	:	CE, FCC DoC

2.2.12 Hard Disk #3

Manufacturer	:	Tetasys
Model Number	:	F12
Serial Number	:	A010022-4A60007
Data Cable	:	Shielded, Undetachable, 1.8m.
Certificate	:	CE, FCC DoC

2.2.13 Smart Mobile Phone

Manufacturer	:	SAMSUNG
Model Number	:	GT-I9100G
Serial Number	:	6935152011519
Certificate	:	CE/EMC

2.3 Description of Test Facility

Site Description (No.3 3m Chamber)	:	Sept. 17, 1998 file on Jan.15, 2015 Renewed Federal Communications Commission FCC Engineering Laboratory 7435 Oakland Mills Road Columbia, MD 21046, USA
Name of Firm	:	Audix Technology (Shanghai) Co., Ltd.
Site Location	:	3F 34Bldg 680 Guiping Rd, Caohejing Hi-Tech Park, Shanghai 200233, China
NVLAP Lab Code	:	200371-0

2.4 Measurement Uncertainty

Conducted Emission Expanded Uncertainty : U = 3.4dB

Radiated Emission Expanded Uncertainty (30-200MHz):

U = 4.6dB (Horizontal)

U = 4.3dB (Vertical)

Radiated Emission Expanded Uncertainty (200M-1GHz):

U = 4.5dB (Horizontal)

U = 5.4dB (Vertical)

Radiated Emission Expanded Uncertainty (1GHz-6GHz):

U = 5.1dB

3 CONDUCTED EMISSION TEST

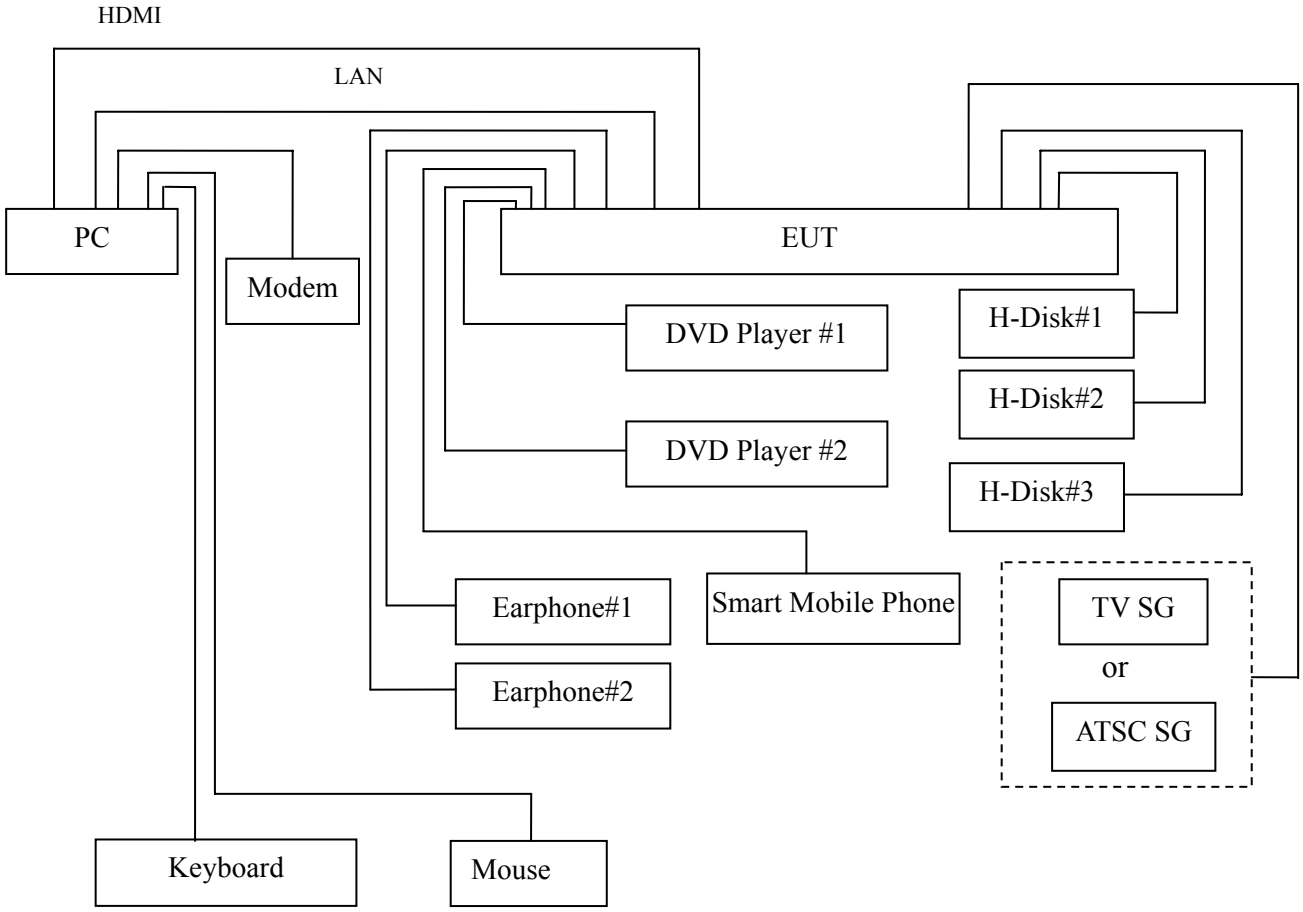
3.1 Test Equipment

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

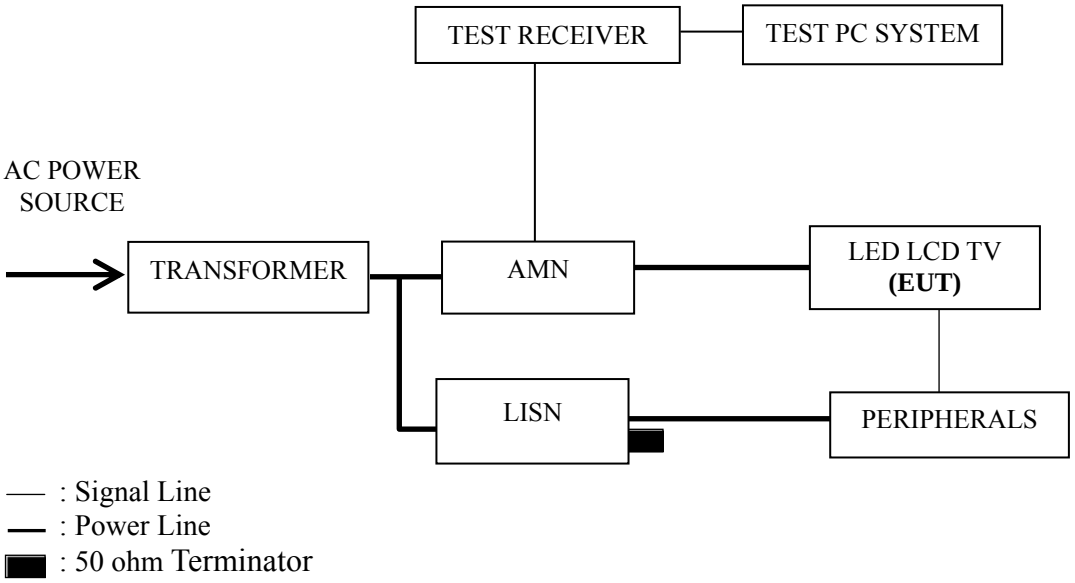
Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Test Receiver	R&S	ESCI	101302	Jul 03, 2015	Jul 02, 2016
2.	Artificial Mains Network (AMN)	R&S	ENV4200	100125	Jun 27, 2015	Jun 26, 2016
3.	Line Impedance Stabilization Network (LISN)	Kyoritsu	KNW-407	8-1280-5	Mar 20, 2016	Mar 19, 2017
4.	50Ω Terminator	Anritsu	BNC	001	Mar 20, 2016	Mar 19, 2017
5.	Software	Audix	e3	6.111206	--	--

3.2 Block Diagram of Test Setup

3.2.1 EUT & Peripherals



3.2.2 Conducted Disturbance Test Setup



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

Frequency Range (MHz)	Limits dB (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 HDMI Input).

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

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

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

3.5.8 In MHL mode, set the EUT play digital media from mobile phone.

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

3.5.10 The test modes are as follows:

Test Mode
HDMI 3840*2160@60Hz & 1kHz playing
HDMI 1920*1080@60Hz & 1kHz playing
HDMI 1280*1024@60Hz & 1kHz playing
HDMI 640*480@60Hz & 1kHz playing
HDMI1080P
MHL
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 C63.4:2014 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@60Hz & 1kHz playing	P14
HDMI 1920*1080@60Hz & 1kHz playing	P15
HDMI 1280*1024@60Hz & 1kHz playing	P16
HDMI 640*480@60Hz & 1kHz playing	P17
HDMI1080P	P18
MHL	P19
USB Play	P20
LAN Play	P21

NOTE 1 – Factor = Cable Loss + AMN Factor.
NOTE 2 – Emission Level = Meter Reading + Factor.
NOTE 3 – "QP" means "Quasi-Peak" values, "AV" means "Average" values.
NOTE 4 – The worst case is for LAN Play test mode. The worst emission is detected at 0.152MHz (Average Value) with corrected signal level of 49.08 dB (μV) (limit is 55.87 dB (μV)), when the Line of the EUT is connected to AMN.

EUT	:	LED LCD TV	Temperature :	22℃	
Model No.	:	LC-43N7000U	Humidity :	48%RH	
Test Mode	:	HDMI 3840*2160@60Hz & 1kHz Playing	Date of Test :	Jun 01, 2016	

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.152	47.69	10.59	58.28	65.88	7.60	QP
	0.460	30.00	10.40	40.40	56.70	16.30	
	0.600	28.80	10.38	39.18	56.00	16.82	
	1.135	26.71	10.38	37.09	56.00	18.91	
	2.287	27.30	10.42	37.72	56.00	18.28	
	7.317	23.50	10.47	33.97	60.00	26.03	
	0.152	**38.39**	**10.59**	**48.98**	**55.88**	**6.90**	AV
	0.460	20.70	10.40	31.10	46.70	15.60	
	0.600	18.10	10.38	28.48	46.00	17.52	
	1.135	13.41	10.38	23.79	46.00	22.21	
	2.287	15.10	10.42	25.52	46.00	20.48	
	7.317	17.10	10.47	27.57	50.00	22.43	
Neutral	0.152	46.19	10.59	56.78	65.88	9.10	QP
	0.465	32.10	10.38	42.48	56.61	14.13	
	0.600	29.30	10.36	39.66	56.00	16.34	
	1.221	26.39	10.39	36.78	56.00	19.22	
	4.180	22.70	10.46	33.16	56.00	22.84	
	7.698	25.30	10.53	35.83	60.00	24.17	
	0.152	36.99	10.59	47.58	55.88	8.30	AV
	0.465	21.50	10.38	31.88	46.61	14.73	
	0.600	18.50	10.36	28.86	46.00	17.14	
	1.221	14.59	10.39	24.98	46.00	21.02	
	4.180	15.40	10.46	25.86	46.00	20.14	
	7.698	15.20	10.53	25.73	50.00	24.27	

TEST ENGINEER: SEVEN LU

EUT	:	LED LCD TV	Temperature :	22℃	
Model No.	:	LC-43N7000U	Humidity :	48%RH	
Test Mode	:	HDMI 1920*1080@60Hz & 1kHz Playing	Date of Test :	Jun 01, 2016	

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.153	47.60	10.58	58.18	65.84	7.66	QP
	0.458	29.90	10.40	40.30	56.73	16.43	
	0.599	28.70	10.38	39.08	56.00	16.92	
	1.146	27.01	10.38	37.39	56.00	18.61	
	1.982	27.30	10.41	37.71	56.00	18.29	
	7.366	24.00	10.47	34.47	60.00	25.53	
	0.153	**38.30**	**10.58**	**48.88**	**55.84**	**6.96**	AV
	0.458	19.70	10.40	30.10	46.73	16.63	
	0.599	18.10	10.38	28.48	46.00	17.52	
	1.146	16.71	10.38	27.09	46.00	18.91	
	1.982	17.80	10.41	28.21	46.00	17.79	
	7.366	18.20	10.47	28.67	50.00	21.33	
Neutral	0.152	46.09	10.59	56.68	65.90	9.22	QP
	0.464	32.00	10.38	42.38	56.62	14.24	
	0.600	29.20	10.36	39.56	56.00	16.44	
	1.092	25.91	10.37	36.28	56.00	19.72	
	2.060	25.80	10.41	36.21	56.00	19.79	
	7.188	22.80	10.52	33.32	60.00	26.68	
	0.152	36.89	10.59	47.48	55.90	8.42	AV
	0.464	22.10	10.38	32.48	46.62	14.14	
	0.600	18.50	10.36	28.86	46.00	17.14	
	1.092	15.21	10.37	25.58	46.00	20.42	
	2.060	14.50	10.41	24.91	46.00	21.09	
	7.188	16.50	10.52	27.02	50.00	22.98	

TEST ENGINEER: SEVEN LU

EUT	:	LED LCD TV	Temperature :	22℃	
Model No.	:	LC-43N7000U	Humidity :	48%RH	
Test Mode	:	HDMI 1280*1024@60Hz & 1kHz Playing	Date of Test :	Jun 01, 2016	

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.152	47.59	10.59	58.18	65.88	7.70	QP
	0.453	29.39	10.41	39.80	56.83	17.03	
	0.597	28.80	10.38	39.18	56.00	16.82	
	1.155	27.11	10.38	37.49	56.00	18.51	
	3.192	24.20	10.45	34.65	56.00	21.35	
	7.425	27.60	10.47	38.07	60.00	21.93	
	0.152	**38.29**	**10.59**	**48.88**	**55.88**	**7.00**	AV
	0.453	15.79	10.41	26.20	46.83	20.63	
	0.597	18.30	10.38	28.68	46.00	17.32	
	1.155	17.21	10.38	27.59	46.00	18.41	
	3.192	15.40	10.45	25.85	46.00	20.15	
	7.425	18.70	10.47	29.17	50.00	20.83	
Neutral	0.152	45.99	10.59	56.58	65.90	9.32	QP
	0.462	31.90	10.38	42.28	56.65	14.37	
	0.596	29.30	10.36	39.66	56.00	16.34	
	1.388	27.10	10.39	37.49	56.00	18.51	
	3.801	24.50	10.45	34.95	56.00	21.05	
	6.514	23.10	10.51	33.61	60.00	26.39	
	0.152	36.79	10.59	47.38	55.90	8.52	AV
	0.462	22.70	10.38	33.08	46.65	13.57	
	0.596	18.50	10.36	28.86	46.00	17.14	
	1.388	16.70	10.39	27.09	46.00	18.91	
	3.801	14.00	10.45	24.45	46.00	21.55	
	6.514	15.20	10.51	25.71	50.00	24.29	

TEST ENGINEER: SEVEN LU

EUT	:	LED LCD TV	Temperature :	22℃	
Model No.	:	LC-43N7000U	Humidity :	48%RH	
Test Mode	:	HDMI 640*480@60Hz & 1kHz Playing	Date of Test :	Jun 01, 2016	

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.152	47.59	10.59	58.18	65.92	7.74	QP
	0.449	28.89	10.41	39.30	56.90	17.60	
	0.603	28.40	10.38	38.78	56.00	17.22	
	1.133	26.71	10.38	37.09	56.00	18.91	
	2.282	26.50	10.42	36.92	56.00	19.08	
	7.471	26.90	10.47	37.37	60.00	22.63	
	0.152	**38.19**	**10.59**	**48.78**	**55.92**	**7.14**	AV
	0.449	13.19	10.41	23.60	46.90	23.30	
	0.603	17.50	10.38	27.88	46.00	18.12	
	1.133	13.61	10.38	23.99	46.00	22.01	
	2.282	15.30	10.42	25.72	46.00	20.28	
	7.471	17.40	10.47	27.87	50.00	22.13	
Neutral	0.151	45.99	10.59	56.58	65.95	9.37	QP
	0.463	31.90	10.38	42.28	56.65	14.37	
	0.594	29.30	10.36	39.66	56.00	16.34	
	1.213	26.49	10.39	36.88	56.00	19.12	
	2.585	26.61	10.42	37.03	56.00	18.97	
	6.551	22.80	10.51	33.31	60.00	26.69	
	0.151	36.79	10.59	47.38	55.95	8.57	AV
	0.463	22.70	10.38	33.08	46.65	13.57	
	0.594	17.90	10.36	28.26	46.00	17.74	
	1.213	14.59	10.39	24.98	46.00	21.02	
	2.585	17.51	10.42	27.93	46.00	18.07	
	6.551	15.60	10.51	26.11	50.00	23.89	

TEST ENGINEER: SEVEN LU

EUT	:	LED LCD TV	Temperature :	22℃	
Model No.	:	LC-43N7000U	Humidity	:	48%RH
Test Mode	:	HDMI1080P	Date of Test	:	Jun 01, 2016

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.153	47.49	10.59	58.08	65.85	7.77	QP
	0.463	30.10	10.40	40.50	56.64	16.14	
	0.593	28.40	10.38	38.78	56.00	17.22	
	1.154	27.21	10.38	37.59	56.00	18.41	
	2.287	27.20	10.42	37.62	56.00	18.38	
	7.417	25.50	10.47	35.97	60.00	24.03	
	0.153	**38.19**	**10.59**	**48.78**	**55.85**	**7.07**	AV
	0.463	20.70	10.40	31.10	46.64	15.54	
	0.593	17.60	10.38	27.98	46.00	18.02	
	1.154	17.31	10.38	27.69	46.00	18.31	
	2.287	15.00	10.42	25.42	46.00	20.58	
	7.417	17.40	10.47	27.87	50.00	22.13	
Neutral	0.152	45.99	10.59	56.58	65.87	9.29	QP
	0.455	31.10	10.38	41.48	56.79	15.31	
	0.609	28.40	10.36	38.76	56.00	17.24	
	1.215	26.39	10.39	36.78	56.00	19.22	
	3.796	24.80	10.45	35.25	56.00	20.75	
	7.464	25.50	10.52	36.02	60.00	23.98	
	0.152	36.79	10.59	47.38	55.87	8.49	AV
	0.455	19.20	10.38	29.58	46.79	17.21	
	0.609	17.50	10.36	27.86	46.00	18.14	
	1.215	14.59	10.39	24.98	46.00	21.02	
	3.796	14.30	10.45	24.75	46.00	21.25	
	7.464	17.60	10.52	28.12	50.00	21.88	

TEST ENGINEER: SEVEN LU

EUT	:	LED LCD TV	Temperature :	22℃	
Model No.	:	LC-43N7000U	Humidity	:	48%RH
Test Mode	:	MHL	Date of Test	:	Jun 01, 2016

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.152	47.39	10.59	57.98	65.87	7.89	QP
	0.453	29.39	10.41	39.80	56.83	17.03	
	0.603	28.40	10.38	38.78	56.00	17.22	
	1.115	26.60	10.38	36.98	56.00	19.02	
	2.571	26.60	10.43	37.03	56.00	18.97	
	7.443	27.50	10.47	37.97	60.00	22.03	
	0.152	**38.19**	**10.59**	**48.78**	**55.87**	**7.09**	AV
	0.453	15.69	10.41	26.10	46.83	20.73	
	0.603	17.50	10.38	27.88	46.00	18.12	
	1.115	13.20	10.38	23.58	46.00	22.42	
	2.571	17.10	10.43	27.53	46.00	18.47	
	7.443	17.90	10.47	28.37	50.00	21.63	
Neutral	0.152	45.89	10.59	56.48	65.89	9.41	QP
	0.454	30.90	10.38	41.28	56.81	15.53	
	0.605	28.80	10.36	39.16	56.00	16.84	
	1.152	27.71	10.37	38.08	56.00	17.92	
	2.590	27.21	10.42	37.63	56.00	18.37	
	7.705	25.10	10.53	35.63	60.00	24.37	
	0.152	36.79	10.59	47.38	55.89	8.51	AV
	0.454	18.00	10.38	28.38	46.81	18.43	
	0.605	17.60	10.36	27.96	46.00	18.04	
	1.152	18.11	10.37	28.48	46.00	17.52	
	2.590	17.71	10.42	28.13	46.00	17.87	
	7.705	14.70	10.53	25.23	50.00	24.77	

TEST ENGINEER: SEVEN LU

EUT	:	LED LCD TV	Temperature :	22℃	
Model No.	:	LC-43N7000U	Humidity	:	48%RH
Test Mode	:	USB Play	Date of Test	:	Jun 01, 2016

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.152	47.49	10.59	58.08	65.88	7.80	QP
	0.442	28.40	10.41	38.81	57.03	18.22	
	0.600	28.70	10.38	39.08	56.00	16.92	
	1.239	26.70	10.39	37.09	56.00	18.91	
	1.974	27.20	10.41	37.61	56.00	18.39	
	7.852	24.70	10.47	35.17	60.00	24.83	
	0.152	**38.29**	**10.59**	**48.88**	**55.88**	**7.00**	AV
	0.442	11.50	10.41	21.91	47.03	25.12	
	0.600	18.00	10.38	28.38	46.00	17.62	
	1.239	14.80	10.39	25.19	46.00	20.81	
	1.974	17.30	10.41	27.71	46.00	18.29	
	7.852	13.60	10.47	24.07	50.00	25.93	
Neutral	0.152	45.89	10.59	56.48	65.87	9.39	QP
	0.465	32.10	10.38	42.48	56.61	14.13	
	0.917	27.90	10.37	38.27	56.00	17.73	
	1.980	27.10	10.41	37.51	56.00	18.49	
	4.079	23.50	10.46	33.96	56.00	22.04	
	7.459	27.50	10.52	38.02	60.00	21.98	
	0.152	36.79	10.59	47.38	55.87	8.49	AV
	0.465	21.20	10.38	31.58	46.61	15.03	
	0.917	16.40	10.37	26.77	46.00	19.23	
	1.980	17.80	10.41	28.21	46.00	17.79	
	4.079	15.70	10.46	26.16	46.00	19.84	
	7.459	14.80	10.52	25.32	50.00	24.68	

TEST ENGINEER: SEVEN LU

EUT	:	LED LCD TV	Temperature :	22℃	
Model No.	:	LC-43N7000U	Humidity	:	48%RH
Test Mode	:	LAN Play	Date of Test	:	Jun 01, 2016

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.152	47.39	10.59	57.98	65.87	7.89	QP
	0.448	28.89	10.41	39.30	56.91	17.61	
	0.594	28.60	10.38	38.98	56.00	17.02	
	1.231	26.80	10.39	37.19	56.00	18.81	
	2.777	23.39	10.44	33.83	56.00	22.17	
	7.397	24.90	10.47	35.37	60.00	24.63	
	0.152	**38.49**	**10.59**	**49.08**	**55.87**	**6.79**	AV
	0.448	12.59	10.41	23.00	46.91	23.91	
	0.594	17.50	10.38	27.88	46.00	18.12	
	1.231	15.20	10.39	25.59	46.00	20.41	
	2.777	12.89	10.44	23.33	46.00	22.67	
	7.397	17.20	10.47	27.67	50.00	22.33	
Neutral	0.152	45.89	10.59	56.48	65.88	9.40	QP
	0.458	31.40	10.38	41.78	56.73	14.95	
	0.595	29.40	10.36	39.76	56.00	16.24	
	1.154	27.61	10.37	37.98	56.00	18.02	
	3.182	25.19	10.45	35.64	56.00	20.36	
	7.374	22.80	10.52	33.32	60.00	26.68	
	0.152	36.69	10.59	47.28	55.88	8.60	AV
	0.458	21.70	10.38	32.08	46.73	14.65	
	0.595	18.50	10.36	28.86	46.00	17.14	
	1.154	17.71	10.37	28.08	46.00	17.92	
	3.182	15.89	10.45	26.34	46.00	19.66	
	7.374	17.10	10.52	27.62	50.00	22.38	

TEST ENGINEER: SEVEN LU

4 RADIATED EMISSION TEST

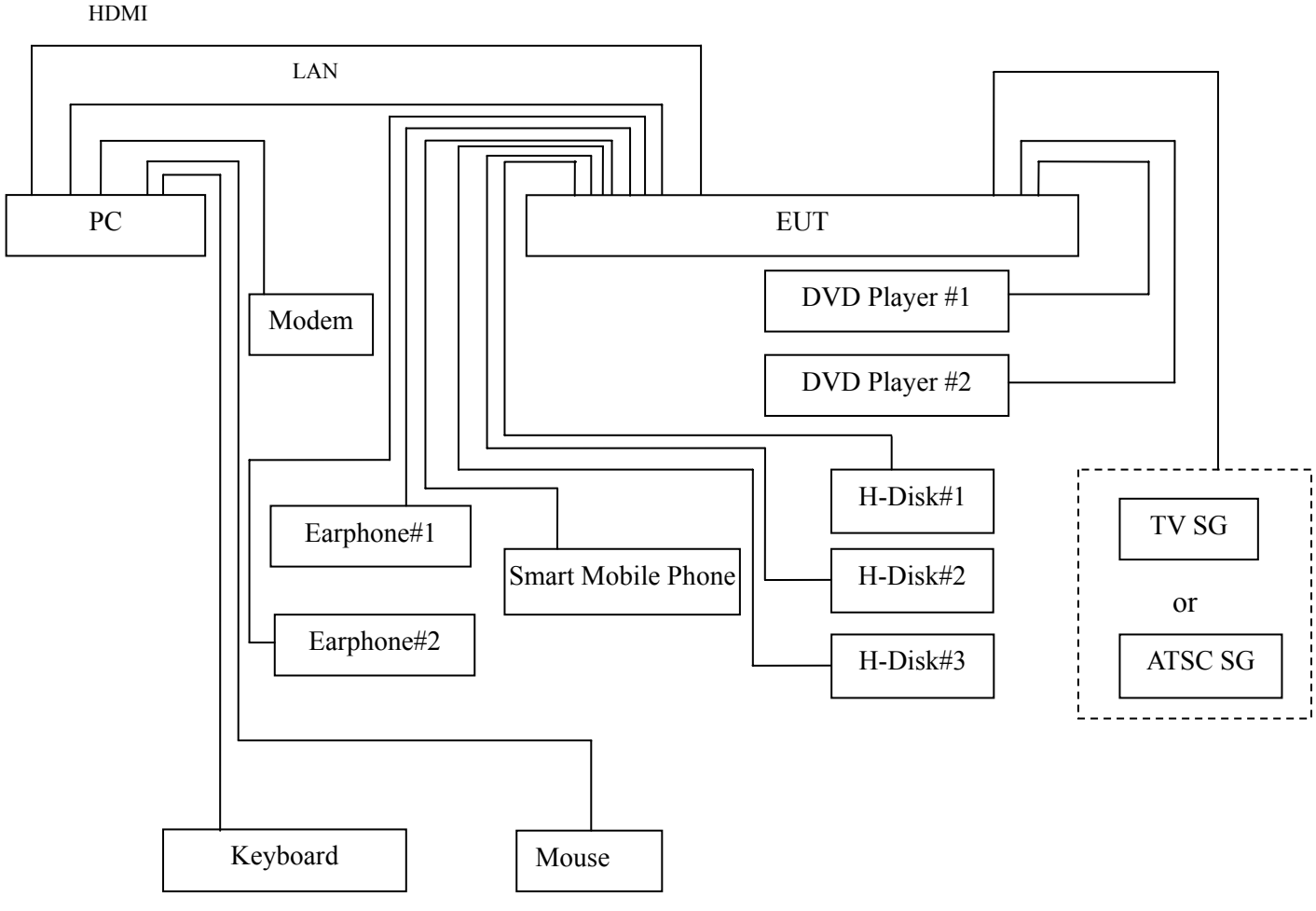
4.1 Test Equipment

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	101303	May 07, 2016	May 06, 2017
2.	Preamplifier	Agilent	8447D	2944A06664	Apr 27, 2016	Apr 26, 2017
3.	Preamplifier	HP	8449B	3008A00864	Mar 20, 2016	Sep 19, 2017
4.	Bi-log Antenna	TESEQ	CBL6112D	23193	May 15, 2016	May 14, 2017
5.	Horn Antenna	EMCO	3115	9607-4878	Jun 03, 2016	Jun 02, 2017
6.	Spectrum	Agilent	E7405A	MY45106600	Feb 26, 2016	Feb 25, 2017
7.	Spectrum	HP	8591EM	3628A00908	May 07, 2016	May 06, 2017
8.	50Ω Coaxial Switch	Anritsu	MP59B	6200426390	Mar 18, 2016	Sep 17, 2016
9.	Software	Audix	e3	6.2007-9-10	--	--

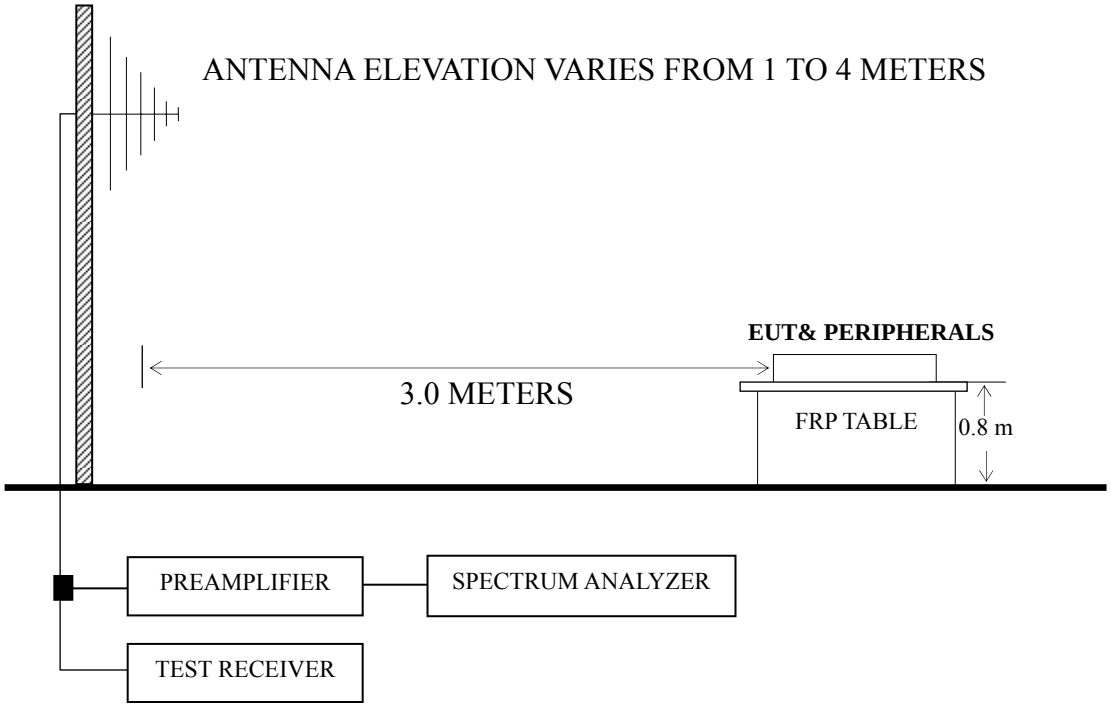
4.2 Block Diagram of Test Setup

4.2.1 EUT & Peripherals



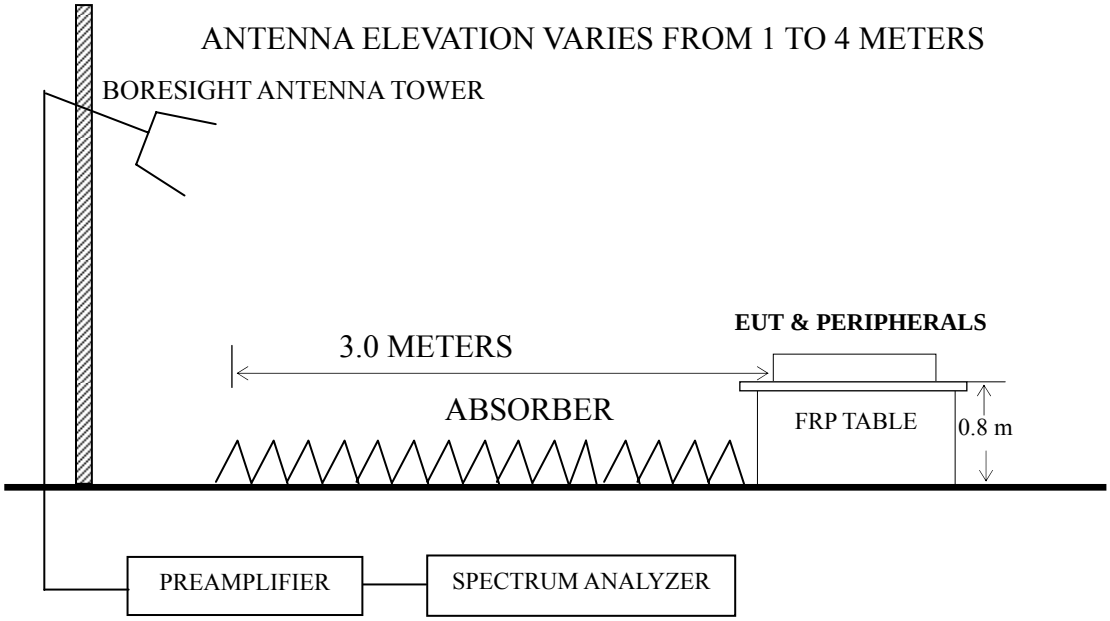
4.2.2 Radiated emission test setup

4.2.2.1 Below 1GHz



■ : 50 ohm Coaxial Switch

4.2.2.2 Above 1GHz



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 C63.4:2014 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 6 GHz was checked for

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@60Hz & 1kHz playing	P26 - P27
HDMI 1920*1080@60Hz & 1kHz playing	P28
HDMI 1280*1024@60Hz & 1kHz playing	P29
HDMI 640*480@60Hz & 1kHz playing	P30
HDMI1080P	P31
MHL	P32
USB Play	P33
LAN Play	P34

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@60Hz & 1kHz playing test mode. The worst emission at horizontal polarization was detected at 297.224 MHz with corrected signal level of 42.13 dB (μV/m) (limit is 46.00 dB (μV/m)), when the antenna was 1.2 m height and the turntable was at 150°. The worst emission at vertical polarization was detected at 586.844 MHz with corrected signal level of 42.67 dB (μV/m) (limit is 46.00 dB (μV/m)), when the antenna was 1.1m height and the turntable was at 60°.

EUT	:	LED LCD TV	Temperature :	22℃
Model No.	:	LC-43N7000U	Humidity :	60%RH
Test Mode	:	HDMI 3840*2160@60Hz & 1kHz Playing	Date of Test :	Jun 16, 2016

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	82.648	9.50	20.05	0.90	--	30.45	40.00	9.55	QP
	135.506	12.84	25.26	1.21	--	39.31	43.50	4.19	
	146.374	12.48	25.70	1.26	--	39.44	43.50	4.06	
	297.224	**13.60**	**26.78**	**1.75**	**--**	**42.13**	**46.00**	**3.87**	
	595.133	18.25	18.18	2.50	--	38.93	46.00	7.07	
	848.056	20.50	17.91	2.98	--	41.39	46.00	4.61	
	2126.188	27.75	61.42	4.85	35.20	58.82	74.00	15.18	PK
	2982.000	30.43	66.26	5.82	35.20	67.31	74.00	6.69	
	3393.901	31.31	55.22	6.29	34.77	58.05	74.00	15.95	
	2126.188	27.75	36.29	4.85	35.20	33.69	54.00	20.31	AV
	2982.000	30.43	40.62	5.82	35.20	41.67	54.00	12.33	
	3393.901	31.31	30.63	6.29	34.77	33.46	54.00	20.54	

TEST ENGINEER: CAESAR WU

EUT	:	LED LCD TV	Temperature :	22℃
Model No.	:	LC-43N7000U	Humidity :	60%RH
Test Mode	:	HDMI 3840*2160@60Hz & 1kHz Playing	Date of Test :	Jun 16, 2016

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	32.293	16.94	17.01	0.58	--	34.53	40.00	5.47	QP
	39.994	13.65	20.94	0.64	--	35.23	40.00	4.77	
	148.963	12.16	23.89	1.28	--	37.33	43.50	6.17	
	213.763	10.85	26.94	1.52	--	39.31	43.50	4.19	
	586.844	**18.15**	**22.04**	**2.48**	**--**	**42.67**	**46.00**	**3.33**	
	890.920	21.10	18.50	3.07	--	42.67	46.00	3.33	
	1211.329	24.49	66.63	3.64	36.14	58.62	74.00	15.38	PK
	2556.000	28.67	67.45	5.35	35.20	66.27	74.00	7.73	
	2951.232	30.30	63.55	5.78	35.20	64.43	74.00	9.57	
	1211.329	24.49	40.39	3.64	36.14	32.38	54.00	21.62	AV
	2556.000	28.67	40.40	5.35	35.20	39.22	54.00	14.78	
	2951.232	30.30	38.36	5.78	35.20	39.24	54.00	14.76	

TEST ENGINEER: CAESAR WU

EUT	:	LED LCD TV	Temperature :	22℃
Model No.	:	LC-43N7000U	Humidity :	60%RH
Test Mode	:	HDMI 1920*1080@60Hz & 1kHz Playing	Date of Test :	Jun 16, 2016

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	67.675	7.18	21.67	0.82	29.67	40.00	10.33
	138.874	13.11	24.85	1.23	39.19	43.50	4.31
	356.676	15.27	21.81	1.93	39.01	46.00	6.99
	446.414	16.73	23.04	2.15	41.92	46.00	4.08
	742.259	19.57	19.18	2.79	41.54	46.00	4.46
	890.728	21.10	17.41	3.07	41.58	46.00	4.42
Vertical	31.731	17.27	14.68	0.58	32.53	40.00	7.47
	40.559	13.19	19.85	0.64	33.68	40.00	6.32
	69.114	7.32	26.69	0.83	34.84	40.00	5.16
	140.342	13.20	22.39	1.23	36.82	43.50	6.68
	446.414	16.73	22.57	2.15	41.45	46.00	4.55
	742.259	**19.57**	**19.50**	**2.79**	**41.86**	**46.00**	**4.14**

TEST ENGINEER: CAESAR WU

EUT	:	LED LCD TV	Temperature	:	22℃
Model No.	:	LC-43N7000U	Humidity	:	60%RH
Test Mode	:	HDMI 1280*1024@60Hz & 1kHz Playing	Date of Test	:	Jun 16, 2016

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	90.220	10.80	19.07	0.95	30.82	43.50	12.68
	131.758	12.87	24.71	1.19	38.77	43.50	4.73
	150.538	12.03	24.51	1.28	37.82	43.50	5.68
	297.224	13.60	23.32	1.75	38.67	46.00	7.33
	851.035	20.57	17.31	3.00	40.88	46.00	5.12
	890.920	21.10	17.40	3.07	41.57	46.00	4.43
Vertical	39.994	13.65	20.33	0.64	34.62	40.00	5.38
	132.000	12.86	24.70	1.19	38.75	43.50	4.75
	146.374	**12.48**	**25.74**	**1.26**	**39.48**	**43.50**	**4.02**
	219.845	11.00	25.52	1.54	38.06	46.00	7.94
	586.844	18.15	20.17	2.48	40.80	46.00	5.20
	890.920	21.10	17.00	3.07	41.17	46.00	4.83

TEST ENGINEER: CAESAR WU

EUT	:	LED LCD TV	Temperature :	22℃	
Model No.	:	LC-43N7000U	Humidity :	60%RH	
Test Mode	:	HDMI 640*480@60Hz & 1kHz Playing	Date of Test :	Jun 16, 2016	

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	132.000	12.86	23.80	1.19	37.85	43.50	5.65
	297.224	13.60	25.38	1.75	40.73	46.00	5.27
	357.929	15.31	23.69	1.93	40.93	46.00	5.07
	480.528	17.20	19.28	2.22	38.70	46.00	7.30
	845.088	20.40	17.18	2.98	40.56	46.00	5.44
	890.920	21.10	17.00	3.07	41.17	46.00	4.83
Vertical	58.613	6.97	23.93	0.76	31.66	40.00	8.34
	88.652	10.60	26.08	0.94	37.62	43.50	5.88
	132.221	12.86	23.74	1.19	37.79	43.50	5.71
	147.921	12.29	25.18	1.27	38.74	43.50	4.76
	297.224	**13.60**	**26.43**	**1.75**	**41.78**	**46.00**	**4.22**
	590.974	18.17	18.46	2.50	39.13	46.00	6.87

TEST ENGINEER: CAESAR WU

EUT	:	LED LCD TV	Temperature :	22℃	
Model No.	:	LC-43N7000U	Humidity	:	60%RH
Test Mode	:	HDMI1080P	Date of Test	:	Jun 16, 2016

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	140.342	13.20	24.58	1.23	39.01	43.50	4.49
	356.676	15.27	18.92	1.93	36.12	46.00	9.88
	593.050	18.25	16.67	2.50	37.42	46.00	8.58
	709.182	19.20	15.69	2.73	37.62	46.00	8.38
	851.035	20.57	17.84	3.00	41.41	46.00	4.59
	891.000	**21.10**	**17.40**	**3.07**	**41.57**	**46.00**	**4.43**
Vertical	40.135	13.60	19.00	0.64	33.24	40.00	6.76
	148.441	12.23	23.17	1.27	36.67	43.50	6.83
	214.514	10.85	25.10	1.53	37.48	43.50	6.02
	586.844	18.15	17.61	2.48	38.24	46.00	7.76
	848.056	20.50	17.03	2.98	40.51	46.00	5.49
	891.000	21.10	17.30	3.07	41.47	46.00	4.53

TEST ENGINEER: CAESAR WU

EUT	:	LED LCD TV	Temperature :	22℃	
Model No.	:	LC-43N7000U	Humidity :	60%RH	
Test Mode	:	MHL	Date of Test :	Jun 16, 2016	

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	93.768	11.40	21.45	0.97	33.82	43.50	9.68
	137.903	**13.02**	**24.72**	**1.22**	**38.96**	**43.50**	**4.54**
	165.000	11.10	26.00	1.35	38.45	43.50	5.05
	356.676	15.27	20.28	1.93	37.48	46.00	8.52
	848.056	20.50	15.63	2.98	39.11	46.00	6.89
	890.728	21.10	15.39	3.07	39.56	46.00	6.44
Vertical	32.179	16.99	17.51	0.58	35.08	40.00	4.92
	83.230	9.67	24.50	0.90	35.07	40.00	4.93
	149.486	12.16	25.03	1.28	38.47	43.50	5.03
	164.908	11.10	25.16	1.35	37.61	43.50	5.89
	586.844	18.15	19.94	2.48	40.57	46.00	5.43
	891.000	21.10	15.20	3.07	39.37	46.00	6.63

TEST ENGINEER: CAESAR WU

EUT	:	LED LCD TV	Temperature :	22℃
Model No.	:	LC-43N7000U	Humidity :	60%RH
Test Mode	:	USB Play	Date of Test :	Jun 16, 2016

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	67.438	7.15	23.83	0.82	31.80	40.00	8.20
	119.436	**12.13**	**23.57**	**1.12**	**36.82**	**43.50**	**6.68**
	214.514	10.85	21.07	1.53	33.45	43.50	10.05
	359.186	15.36	16.29	1.93	33.58	46.00	12.42
	684.745	19.45	11.68	2.69	33.82	46.00	12.18
	824.597	20.33	9.75	2.94	33.02	46.00	12.98
Vertical	55.221	7.58	24.93	0.74	33.25	40.00	6.75
	124.569	12.28	21.22	1.15	34.65	43.50	8.85
	198.588	10.03	24.39	1.47	35.89	43.50	7.61
	257.422	13.25	18.44	1.65	33.34	46.00	12.66
	480.528	17.20	15.46	2.22	34.88	46.00	11.12
	771.449	19.90	12.47	2.85	35.22	46.00	10.78

TEST ENGINEER: CAESAR WU

EUT	:	LED LCD TV	Temperature :	22℃
Model No.	:	LC-43N7000U	Humidity :	60%RH
Test Mode	:	LAN Play	Date of Test :	Jun 16, 2016

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	92.787	11.27	19.70	0.96	31.93	43.50	11.57
	136.939	**12.98**	**25.02**	**1.22**	**39.22**	**43.50**	**4.28**
	146.888	12.41	25.11	1.27	38.79	43.50	4.71
	709.182	19.20	17.15	2.73	39.08	46.00	6.92
	848.056	20.50	15.83	2.98	39.31	46.00	6.69
	891.000	21.10	15.10	3.07	39.27	46.00	6.73
Vertical	32.179	16.99	18.13	0.58	35.70	40.00	4.30
	40.417	13.33	21.12	0.64	35.09	40.00	4.91
	148.441	12.23	23.79	1.27	37.29	43.50	6.21
	214.514	10.85	25.75	1.53	38.13	43.50	5.37
	584.790	18.20	19.91	2.48	40.59	46.00	5.41
	891.000	21.10	15.40	3.07	39.57	46.00	6.43

TEST ENGINEER: CAESAR WU

5 DEBUG DESCRIPTION

The following components are used during the countermeasure procedures:

Name	M/N	Manufacturer	Location
SMcontact	SMR-TSL-4-3.5-5R	JOINSET	See Appendix Figure 21

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: 

(BYRON WU)

6 DEVIATION TO TEST SPECIFICATIONS

None.