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

LED LCD TV

Model No.	Brand
LC-65N9000U, LC-65N9000C	Sharp

FCC ID: W9HLCDF0072

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-F16043

Date of Test: Dec 31, 2015- Feb 01, 2016

Date of Report: Feb 19, 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-65N9000U, LC-65N9000C	Sharp	120V/60Hz

Test Procedure Used:

FCC RULES AND REGULATIONS PART 15 SUBPART B CLASS B OCTOBER 2014 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 Dec 31, 2015- Feb 01, 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.F16042, a Verification report.

Date of Test:	Dec 31, 2015- Feb 01, 2016	Date of Report :	Feb 19, 2016
Producer:	Huimin Yan		
	HUIMIN YAN / Assistant		
	7		
Review:	Byron		
For an	BYRON WU / Deputy Assistant Manager d on behalf of		
Audix Technology (Shan	ghai) Co., Ltd		
Signatory :	Brond		

Authorized Signature EMC BYRON KWO / Assistant General 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 2014 AND ANSI C63.4-2003	15.107(a) Class B	Pass
Radiated Disturbance	FCC RULES AND REGULATIONS PART 15 SUBPART B OCTOBER 2014 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 : \square Production \square Pre-product \square Pro-type

Model No : LC-65N9000U, LC-65N9000C

Note : The above models are all the same except for

model number.LC-65N9000U 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 : HD650FUD-B31 (100)

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, 1C

LAN Cable : Shielded, Detachable, 1.50m

USB Cable*3

(Lab provide)

Shielded, Detachable, 1.00m, without core

MHL to HDMI Adaptor: Manufacture: CE-Link

with RCP (Lab provide) 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 #3

(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

(5) One USB1 Port

: Connected with Hard-Disk #1

(6) One USB2 Port

: Connected with Hard-Disk #2

(7) One Service Port

: This port does not open to user

(8) One ANT/CABLE IN Port

: Connected with ATSC SG / TV SG

Back Port:

(9) One LAN Port

: Connected with PC

(10) One HDMI3 Port

: Connected with DVD PLAYER #1

(11) One HDMI4 Port

: Connected with DVD PLAYER #2

(12) One Digital Audio Out Port

: Connected with DVD PLAYER #1

(13) One COMPONENT IN/AV IN Port

: Connected with DVD PLAYER #1

2.2 Peripherals

2.2.1 PC

Manufacturer: HP

Model Number: dx7400MT Serial Number: CNG8130K89

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

Manufacturer : audio-technica Model Number : ATH-CKL200

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 : A010022-4860010X

Data Cable : Shielded, Undetachable, 1.8m.

Certificate : CE, FCC DoC

2.2.11 Hard Disk #2

Manufacturer : Tetasys Model Number : F12

Serial Number : A010022-4A60007

Data Cable : Shielded, Undetachable, 1.8m.

Certificate : CE, FCC DoC

2.2.12 Hard Disk #3

Manufacturer : Tetasys Model Number : F12

Serial Number : A010022-40F0005

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 : Sept. 17, 1998 file on (No.3 3m Chamber) : 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:

Radiated Emission Expanded Uncertainty (30-200MHz):

U = 4.6dB (Horizontal)

U = 4.3 dB (Vertical)

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

U = 4.5 dB (Horizontal)

U = 5.4 dB (Vertical)

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

U = 5.1 dB

U = 3.4dB

3 CONDUCTED EMISSION TEST

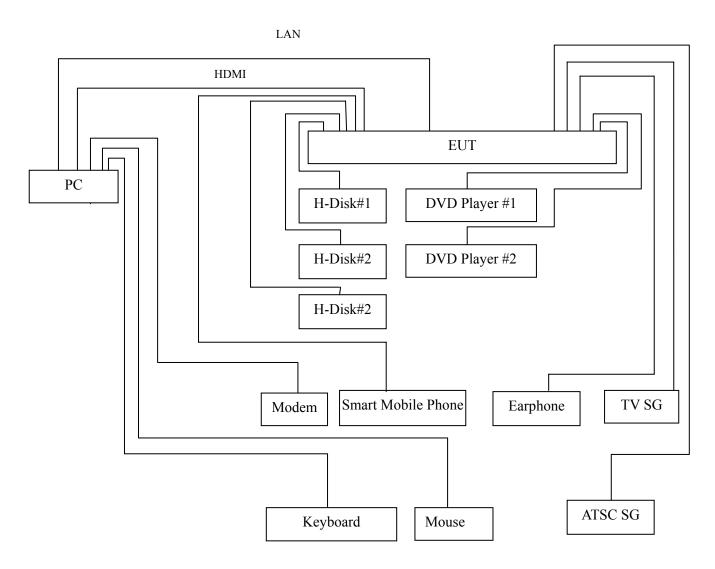
3.1 Test Equipment

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

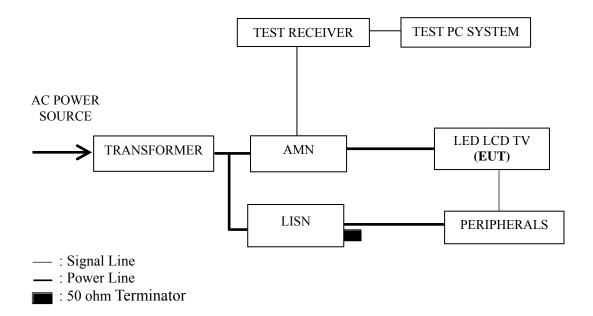
Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Test Receiver	R&S	ESCI	101302	Jul 03, 2015	Jul 02, 2016
2.	Artificial Mains Network (AMN)	R&S	ENV4200	100125	Jun 27, 2015	Jun 26, 2016
3.	Line Impedance Stabilization Network (LISN)	Kyoritsu	KNW-407	8-1280-5	Mar 20, 2015	Mar 19, 2016
4.	50Ω Terminator	Anritsu	BNC	001	Mar 20, 2015	Mar 19, 2016
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	Limits dB (μV)			
(MHz)	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 C63.4:2003 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@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 HDMI 1920*1080@60Hz & 1kHz playing test mode. The worst emission is detected at 2.910MHz (Average Value) with corrected signal level of 42.93 dB (μ V) (limit is 46.00 dB (μ V)), when the Neutral of the EUT is connected to AMN.

Model No. : LC-65N9000U Humidity : 48%RH

Test Mode : HDMI 3840*2160@60Hz Date of Test : Dec 31, 2015

& 1kHz Playing

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(µV)	Limits dB(µV)	Margin (dB)	Remark
	0.199	33.60	10.52	44.12	63.67	19.55	
	0.492	29.30	10.39	39.69	56.14	16.45	
	0.907	34.70	10.38	45.08	56.00	10.92	OD
	1.949	37.30	10.41	47.71	56.00	8.29	QP
	2.912	38.90	10.44	49.34	56.00	6.66	
Line	11.860	28.10	10.51	38.61	60.00	21.39	
Line	0.199	26.10	10.52	36.62	53.67	17.05	
	0.492	21.70	10.39	32.09	46.14	14.05	AV
	0.907	23.60	10.38	33.98	46.00	12.02	
	1.949	27.80	10.41	38.21	46.00	7.79	
	2.912	30.90	10.44	41.34	46.00	4.66	
	11.860	23.60	10.51	34.11	50.00	15.89	
	0.200	31.20	10.50	41.70	63.60	21.90	
	0.349	33.39	10.43	43.82	59.00	15.18	
	0.823	34.10	10.36	44.46	56.00	11.54	QP
	1.947	37.20	10.41	47.61	56.00	8.39	Qr
	2.926	38.91	10.43	49.34	56.00	6.66	
Neutral	12.530	28.09	10.62	38.71	60.00	21.29	
Neutrai	0.200	23.60	10.50	34.10	53.60	19.50	
	0.349	26.09	10.43	36.52	49.00	12.48	AV
	0.823	20.70	10.36	31.06	46.00	14.94	
	1.947	23.90	10.41	34.31	46.00	11.69	
	2.926	27.51	10.43	37.94	46.00	8.06	
	12.530	23.19	10.62	33.81	50.00	16.19	

Model No. : LC-65N9000U Humidity : 48%RH

Test Mode : HDMI 1920*1080@60Hz Date of Test : Dec 31, 2015

& 1kHz Playing

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(µV)	Limits dB(µV)	Margin (dB)	Remark
	0.201	31.90	10.52	42.42	63.56	21.14	
	0.377	28.10	10.43	38.53	58.35	19.82	
	0.882	34.10	10.38	44.48	56.00	11.52	ΩD
	2.348	38.50	10.42	48.92	56.00	7.08	QP
	2.912	39.10	10.44	49.54	56.00	6.46	
Line	12.030	28.11	10.51	38.62	60.00	21.38	
Line	0.201	24.10	10.52	34.62	53.56	18.94	
	0.377	11.50	10.43	21.93	48.35	26.42	
	0.882	19.20	10.38	29.58	46.00	16.42	AV
	2.348	28.40	10.42	38.82	46.00	7.18	AV
	2.912	30.20	10.44	40.64	46.00	5.36	
	12.030	23.81	10.51	34.32	50.00	15.68	
	0.198	31.60	10.50	42.10	63.70	21.60	
	0.330	32.00	10.43	42.43	59.45	17.02	
	0.620	33.50	10.36	43.86	56.00	12.14	QP
	1.323	36.20	10.39	46.59	56.00	9.41	Qr
	2.910	39.40	10.43	49.83	56.00	6.17	
Neutral	17.780	30.69	10.69	41.38	60.00	18.62	
Neutrai	0.198	24.20	10.50	34.70	53.70	19.00	
	0.330	22.10	10.43	32.53	49.45	16.92	
	0.620	25.60	10.36	35.96	46.00	10.04	AV
	1.323	27.70	10.39	38.09	46.00	7.91	AV
	2.910	32.50	10.43	42.93	46.00	3.07	
	17.780	26.89	10.69	37.58	50.00	12.42	

Model No. : LC-65N9000U Humidity : 48%RH

Test Mode : HDMI 1280*1024@60Hz Date of Test : Dec 31, 2015

& 1kHz Playing

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(µV)	Limits dB(µV)	Margin (dB)	Remark
	0.200	31.60	10.52	42.12	63.61	21.49	
	0.348	31.19	10.45	41.64	59.02	17.38	
	0.815	34.90	10.38	45.28	56.00	10.72	OD
	1.753	35.29	10.41	45.70	56.00	10.30	QP
	2.911	39.40	10.44	49.84	56.00	6.16	
Line	10.760	27.90	10.50	38.40	60.00	21.60	
Line	0.200	24.00	10.52	34.52	53.61	19.09	
	0.348	19.29	10.45	29.74	49.02	19.28	
	0.815	26.60	10.38	36.98	46.00	9.02	AV
	1.753	26.39	10.41	36.80	46.00	9.20	
	2.911	31.20	10.44	41.64	46.00	4.36	
	10.760	22.10	10.50	32.60	50.00	17.40	
	0.198	31.80	10.50	42.30	63.70	21.40	
	0.347	33.29	10.43	43.72	59.05	15.33	
	0.832	34.70	10.36	45.06	56.00	10.94	QP
	2.431	38.80	10.42	49.22	56.00	6.78	Qr
	2.912	39.30	10.43	49.73	56.00	6.27	
Neutral	8.113	27.59	10.54	38.13	60.00	21.87	
Neutrai	0.198	24.40	10.50	34.90	53.70	18.80	
	0.347	25.39	10.43	35.82	49.05	13.23	
	0.832	26.30	10.36	36.66	46.00	9.34	AV
	2.431	28.10	10.42	38.52	46.00	7.48	
	2.912	29.80	10.43	40.23	46.00	5.77	
	8.113	21.79	10.54	32.33	50.00	17.67	

Model No. : LC-65N9000U Humidity : 48%RH

Test Mode : HDMI 640*480@60Hz & Date of Test : Dec 31, 2015

1kHz Playing

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(µV)	Limits dB(µV)	Margin (dB)	Remark		
	0.200	31.70	10.52	42.22	63.62	21.40			
	0.346	31.29	10.45	41.74	59.06	17.32			
	0.820	34.20	10.38	44.58	56.00	11.42	QP		
	2.360	39.30	10.42	49.72	56.00	6.28	Qr		
Line	2.911	39.60	10.44	50.04	56.00	5.96			
	8.126	26.40	10.48	36.88	60.00	23.12			
	0.200	24.30	10.52	34.82	53.62	18.80			
	0.346	20.59	10.45	31.04	49.06	18.02			
	0.820	21.50	10.38	31.88	46.00	14.12	AV		
	2.360	26.40	10.42	36.82	46.00	9.18	AV		
	2.911	30.50	10.44	40.94	46.00	5.06			
	8.126	21.29	10.48	31.77	50.00	18.23	i		
	0.200	31.80	10.50	42.30	63.63	21.33			
	0.330	32.10	10.43	42.53	59.45	16.92			
	0.613	32.50	10.36	42.86	56.00	13.14	OD		
	1.385	36.30	10.39	46.69	56.00	9.31	QP		
	2.910	39.50	10.43	49.93	56.00	6.07			
Neutral	11.120	27.11	10.58	37.69	60.00	22.31			
Neutrai	0.200	24.20	10.50	34.70	53.63	18.93			
	0.330	22.30	10.43	32.73	49.45	16.72			
	0.613	16.20	10.36	26.56	46.00	19.44	AX 7		
	1.385	26.40	10.39	36.79	46.00	9.21	AV		
	2.910	31.90	10.43	42.33	46.00	3.67			
	11.120	21.21	10.58	31.79	50.00	18.21			

Model No. : LC-65N9000U Humidity : 48%RH

Test Mode : HDMI1080P Date of Test : Dec 31, 2015

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(µV)	Limits dB(µV)	Margin (dB)	Remark		
	0.199	32.10	10.52	42.62	63.67	21.05			
	0.346	33.39	10.45	43.84	59.07	15.23			
	0.829	34.80	10.38	45.18	56.00	10.82	QP		
	2.250	36.30	10.42	46.72	56.00	9.28	Q1		
	2.910	39.80	10.44	50.24	56.00	5.76			
Line	12.570	28.19	10.53	38.72	60.00	21.28	1		
	0.199	24.50	10.52	35.02	53.67	18.65			
	0.346	26.19	10.45	36.64	49.07	12.43			
	0.829	24.90	10.38	35.28	46.00	10.72	AX7		
	2.250	28.20	10.42	38.62	46.00	7.38	AV		
	2.910	31.90	10.44	42.34	46.00	3.66			
	12.570	22.89	10.53	33.42	50.00	16.58	i		
	0.197	31.50	10.50	42.00	63.72	21.72			
	0.372	30.79	10.42	41.21	58.46	17.25			
	0.617	33.90	10.36	44.26	56.00	11.74	OD		
	1.380	35.80	10.39	46.19	56.00	9.81	QP		
	2.906	40.40	10.43	50.83	56.00	5.17			
Neutral	12.370	28.70	10.61	39.31	60.00	20.69			
Neutrai	0.197	24.20	10.50	34.70	53.72	19.02			
	0.372	25.89	10.42	36.31	48.46	12.15			
	0.617	26.30	10.36	36.66	46.00	9.34	AX7		
	1.380	24.20	10.39	34.59	46.00	11.41	AV		
	2.906	32.20	10.43	42.63	46.00	3.37			
	12.370	24.00	10.61	34.61	50.00	15.39			

Model No. : LC-65N9000U Humidity : 48%RH

Test Mode : MHL Date of Test : Dec 31, 2015

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(µV)	Limits dB(µV)	Margin (dB)	Remark	
	0.200	31.80	10.52	42.32	63.63	21.31		
	0.346	31.09	10.45	41.54	59.05	17.51		
	0.806	33.90	10.38	44.28	56.00	11.72	OD	
	1.783	36.49	10.41	46.90	56.00	9.10	QP	
Line	2.909	40.60	10.44	51.04	56.00	4.96		
	12.260	29.11	10.51	39.62	60.00	20.38		
	0.200	24.20	10.52	34.72	53.63	18.91		
	0.346	19.19	10.45	29.64	49.05	19.41	AV	
	0.806	18.80	10.38	29.18	46.00	16.82		
	1.783	27.89	10.41	38.30	46.00	7.70	AV	
	2.909	32.20	10.44	42.64	46.00	3.36	i	
	12.260	23.71	10.51	34.22	50.00	15.78	i	
	0.198	31.60	10.50	42.10	63.70	21.60		
	0.370	28.09	10.42	38.51	58.50	19.99		
	0.620	33.60	10.36	43.96	56.00	12.04	OD	
	1.356	34.50	10.39	44.89	56.00	11.11	QP	
	2.909	40.80	10.43	51.23	56.00	4.77		
Neutral	12.650	28.20	10.62	38.82	60.00	21.18		
Neutrai	0.198	24.10	10.50	34.60	53.70	19.10		
	0.370	12.99	10.42	23.41	48.50	25.09		
	0.620	18.10	10.36	28.46	46.00	17.54	AV	
	1.356	20.90	10.39	31.29	46.00	14.71		
	2.909	31.60	10.43	42.03	46.00	3.97		
	12.650	22.80	10.62	33.42	50.00	16.58		

Model No. : LC-65N9000U Humidity : 48%RH

Test Mode : USB Play Date of Test : Dec 31, 2015

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(µV)	Limits dB(µV)	Margin (dB)	Remark	
	0.199	31.90	10.52	42.42	63.66	21.24		
	0.348	31.09	10.45	41.54	59.02	17.48		
	0.830	34.80	10.38	45.18	56.00	10.82	OD	
	1.745	35.39	10.41	45.80	56.00	10.20	QP	
	2.908	40.10	10.44	50.54	56.00	5.46		
Line	8.124	25.90	10.48	36.38	60.00	23.62	=	
Line	0.199	24.40	10.52	34.92	53.66	18.74		
	0.348	18.79	10.45	29.24	49.02	19.78	AV	
	0.830	24.40	10.38	34.78	46.00	11.22		
	1.745	26.49	10.41	36.90	46.00	9.10		
	2.908	31.90	10.44	42.34	46.00	3.66		
	8.124	20.79	10.48	31.27	50.00	18.73		
	0.199	31.60	10.50	42.10	63.64	21.54		
	0.349	31.40	10.42	41.82	58.98	17.16		
	0.829	34.60	10.36	44.96	56.00	11.04	OD	
	2.187	35.50	10.42	45.92	56.00	10.08	QP	
	2.909	40.20	10.43	50.63	56.00	5.37		
Neutral	12.080	29.10	10.60	39.70	60.00	20.30		
Neutrai	0.199	24.20	10.50	34.70	53.64	18.94		
	0.349	25.50	10.42	35.92	48.98	13.06		
	0.829	24.80	10.36	35.16	46.00	10.84	AV	
	2.187	27.90	10.42	38.32	46.00	7.68		
	2.909	31.60	10.43	42.03	46.00	3.97		
	12.080	23.90	10.60	34.50	50.00	15.50		

Model No. : LC-65N9000U Humidity : 48%RH

Test Mode : LAN Play Date of Test : Dec 31, 2015

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(µV)	Limits dB(µV)	Margin (dB)	Remark	
	0.199	31.90	10.52	42.42	63.66	21.24		
	0.348	30.99	10.45	41.44	59.01	17.57		
	0.828	34.40	10.38	44.78	56.00	11.22	OD	
Line	2.323	37.10	10.42	47.52	56.00	8.48	QP	
	2.909	40.30	10.44	50.74	56.00	5.26		
	8.131	24.09	10.48	34.57	60.00	25.43	1	
	0.199	24.30	10.52	34.82	53.66	18.84		
	0.348	18.59	10.45	29.04	49.01	19.97		
	0.828	23.00	10.38	33.38	46.00	12.62	A T 7	
	2.323	28.60	10.42	39.02	46.00	6.98	AV	
	2.909	31.40	10.44	41.84	46.00	4.16		
	8.131	19.00	10.48	29.48	50.00	20.52		
	0.199	31.60	10.50	42.10	63.66	21.56		
	0.369	30.89	10.42	41.31	58.52	17.21		
	0.622	34.40	10.36	44.76	56.00	11.24	OD	
	2.340	37.90	10.42	48.32	56.00	7.68	QP	
	2.908	40.50	10.43	50.93	56.00	5.07		
Neutral	12.410	28.80	10.61	39.41	60.00	20.59		
Neutrai	0.199	24.30	10.50	34.80	53.66	18.86		
	0.369	25.49	10.42	35.91	48.52	12.61		
	0.622	25.10	10.36	35.46	46.00	10.54	AV	
	2.340	28.50	10.42	38.92	46.00	7.08		
	2.908	31.90	10.43	42.33	46.00	3.67		
	12.410	23.40	10.61	34.01	50.00	15.99		

4 RADIATED EMISSION TEST

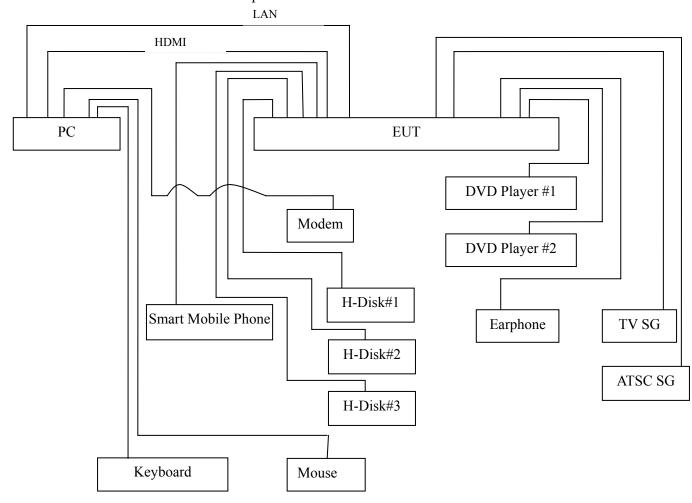
4.1 Test Equipment

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

Item	Туре	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Test Receiver	R&S	ESCI	101303	May 07, 2015	May 06, 2016
2.	Preamplifier	Agilent	8447D	2944A06664	Apr 27, 2015	Apr 26, 2016
3.	Preamplifier	HP	8449B	3008A00864	Mar 20, 2015	Sep 19, 2016
4.	Bi-log Antenna	TESEQ	CBL6112D	23193	May 15, 2015	May 14, 2016
5.	Horn Antenna	EMCO	3115	9607-4878	Jun 03, 2015	Jun 02, 2016
6.	Spectrum	Agilent	N9010A	MY52221182	Jun 12, 2015	Jun 11, 2016
7.	Spectrum	HP	8591EM	3628A00908	May 07, 2015	May 06, 2016
8.	50Ω Coaxial Switch	Anritsu	MP59B	6200426390	Sep 18, 2015	Mar 17, 2016
9.	Software	Audix	E3	6.2007-9-10		

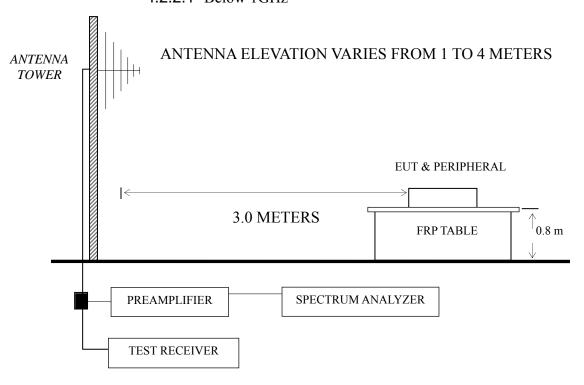
4.2 Block Diagram of Test Setup

4.2.1 EUT & Peripherals



4.2.2 Test Setup

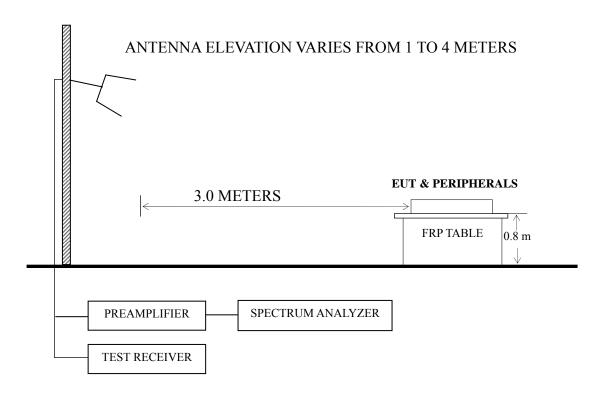
4.2.2.1 Below 1GHz



: 50 ohm Coaxial Switch

4.2.2.2 Above 1GHz

BORE-SIGHT ANTENNA TOWER



4.3 Radiated Emission Limit [FCC Part 15 Subpart B 15.109(a)]

Frequency	Distance	Field strength limits				
(MHz)	(m)	(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 (μ V/m) = 20 log Emission Level (μ 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.
- 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 6 GHz was checked for the maximum resolution test mode.

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	P27 - P28
HDMI 1920*1080@60Hz & 1kHz playing	P29
HDMI 1280*1024@60Hz & 1kHz playing	P30
HDMI 640*480@60Hz & 1kHz playing	P31
HDMI1080P	P32
MHL	P33
USB Play	P34
LAN Play	P35

- 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 $3-0^{\circ}$ 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 850.620 MHz with corrected signal level of 43.06 dB (μ V/m) (limit is 46.00 dB (μ V/m)), when the antenna was 2.1 m height and the turntable was at 70°. The worst emission at vertical polarization was detected at 814.730 MHz with corrected signal level of 43.39 dB (μ V/m) (limit is 46.00 dB (μ V/m)), when the antenna was 1.4m height and the turntable was at 260°.

Model No. : LC-65N9000U Humidity : 60%RH

Test Mode : HDMI 3840*2160@60Hz Date of Test : Feb 01, 2016

& 1kHz Playing

Polarization	Frequency (MHz)	Meter Reading dB (µV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Emission Level dB (µV/m)	Limits dB ($\mu V/m$)	Margin (dB)	Remark	
	82.380	9.60	25.89	1.12		36.61	40.00	3.39		
	150.280	11.46	26.21	1.63		39.30	43.50	4.20		
	236.610	11.56	21.81	2.10		35.47	46.00	10.53	OD	
	678.930	19.90	16.26	3.28		39.44	46.00	6.56	QP	
	850.620	20.70	18.19	4.17		43.06	46.00	2.94		
	945.680	21.87	15.18	4.70		41.75	46.00	4.25		
	1687.408	26.38	62.91	4.07	35.44	57.92	74.00	16.08		
	2126.188	27.75	64.17	4.58	35.11	61.39	74.00	12.61		
Horizontal	2525.249	28.50	61.15	4.96	35.16	59.45	74.00	14.55	PK	
	2967.138	30.37	62.94	5.76	35.20	63.87	74.00	10.13	ГK	
	3393.901	31.31	56.96	6.10	34.81	59.56	74.00	14.44		
	3806.281	32.30	55.46	5.94	34.45	59.25	74.00	14.75		
	1687.408	26.38	42.11	4.07	35.44	37.12	54.00	16.88		
	2126.188	27.75	43.76	4.58	35.11	40.98	54.00	13.02		
	2525.249	28.50	42.71	4.96	35.16	41.01	54.00	12.99	AV	
	2967.138	30.37	42.33	5.76	35.20	43.26	54.00	10.74		
	3393.901	31.31	36.42	6.10	34.81	39.02	54.00	14.98		
	3806.281	32.30	36.71	5.94	34.45	40.50	54.00	13.50		

EUT : LED LCD TV Temperature : 22°C

Model No. : LC-65N9000U Humidity : 60%RH

Test Mode : HDMI 3840*2160@60Hz Date of Test : Feb 01, 2016

& 1kHz Playing

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Emission Level dB (µV/m)	Limits dB ($\mu V/m$)	Margin (dB)	Remark		
	85.290	9.85	24.32	1.15		35.32	40.00	4.68			
	99.840	12.25	23.95	1.32		37.52	43.50	5.98			
	484.930	17.56	16.54	2.91		37.01	46.00	8.99	OD		
	684.750	19.80	15.84	3.41		39.05	46.00	6.95	QP		
	814.730	20.63	18.88	3.88		43.39	46.00	2.61			
	925.310	21.57	14.15	4.61		40.33	46.00	5.67			
	1780.593	26.74	61.76	4.15	35.34	57.31	74.00	16.69			
	2251.658	27.98	59.90	4.69	35.13	57.44	74.00	16.56	-		
Vertical	2552.543	28.63	63.18	4.96	35.16	61.61	74.00	12.39	PK		
	2956.525	30.33	60.52	5.69	35.20	61.34	74.00	12.66	ГK		
	3393.901	31.31	50.27	6.10	34.81	52.87	74.00	21.13			
	4238.283	33.20	50.69	6.31	34.19	56.01	74.00	17.99			
	1780.593	26.74	40.84	4.15	35.34	36.39	54.00	17.61			
	2251.658	27.98	40.69	4.69	35.13	38.23	54.00	15.77			
	2552.543	28.63	43.88	4.96	35.16	42.31	54.00	11.69	AV		
	2956.525	30.33	40.11	5.69	35.20	40.93	54.00	13.07			
	3393.901	31.31	31.21	6.10	34.81	33.81	54.00	20.19			
	4238.283	33.20	30.62	6.31	34.19	35.94	54.00	18.06			

Model No. : LC-65N9000U Humidity : 60%RH

Test Mode : HDMI 1920*1080@60Hz Date of Test : Feb 01, 2016

& 1kHz Playing

Polarization	Frequency (MHz)	Meter Reading dB (µV)	Antenna Factor (dB/m)		Emission Level dB (µV/m)	Limits dB ($\mu V/m$)	Margin (dB)
	84.320	9.74	23.96	1.13	34.83	40.00	5.17
	238.550	11.72	24.11	2.11	37.94	46.00	8.06
Horizontal	300.630	13.84	20.45	2.59	36.88	46.00	9.12
попідопіаї	684.750	19.80	17.09	3.41	40.30	46.00	5.70
	853.530	20.73	16.22	4.17	41.12	46.00	4.88
	925.310	21.57	15.04	4.61	41.22	46.00	4.78
	42.610	12.12	19.48	0.75	32.35	40.00	7.65
	82.380	9.60	23.64	1.12	34.36	40.00	5.64
Vertical	94.020	11.50	25.26	1.26	38.02	43.50	5.48
vertical	482.990	17.54	15.26	2.91	35.71	46.00	10.29
	811.820	20.60	16.55	3.78	40.93	46.00	5.07
	938.890	21.80	12.23	4.65	38.68	46.00	7.32

Model No. : LC-65N9000U Humidity : 60%RH

Test Mode : HDMI 1280*1024@60Hz Date of Test : Feb 01, 2016

& 1kHz Playing

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)		Emission Level dB (µV/m)	Limits dB ($\mu V/m$)	Margin (dB)
	80.440	9.43	24.92	1.09	35.44	40.00	4.56
	97.900	12.07	23.03	1.30	36.40	43.50	7.10
Horizontal	237.580	11.64	22.76	2.11	36.51	46.00	9.49
Пописний	681.840	19.85	16.29	3.28	39.42	46.00	6.58
	850.620	20.70	16.24	4.17	41.11	46.00	4.89
	959.260	22.20	14.58	4.75	41.53	46.00	4.47
	85.290	9.85	24.70	1.15	35.70	40.00	4.30
	97.900	12.07	23.58	1.30	36.95	43.50	6.55
Vertical	283.170	13.43	18.67	2.45	34.55	46.00	11.45
vertical	544.100	18.62	14.48	2.63	35.73	46.00	10.27
	678.930	19.90	14.09	3.28	37.27	46.00	8.73
	820.550	20.70	16.84	3.88	41.42	46.00	4.58

EUT : LED LCD TV Temperature : 22°C

Model No. : LC-65N9000U Humidity : 60%RH

Test Mode : HDMI 640*480@60Hz & Date of Test : Feb 01, 2016

1kHz Playing

Polarization	Frequency (MHz)	Meter Reading dB (µV)	Antenna Factor (dB/m)		Emission Level dB (µV/m)	Limits dB ($\mu V/m$)	Margin (dB)
	56.190	6.30	26.39	0.85	33.54	40.00	6.46
	83.350	9.66	23.98	1.13	34.77	40.00	5.23
Horizontal	160.950	11.13	22.43	1.72	35.28	43.50	8.22
Horizontai	237.580	11.64	21.70	2.11	35.45	46.00	10.55
	814.730	20.63	16.82	3.88	41.33	46.00	4.67
	952.470	21.90	14.95	4.70	41.55	46.00	4.45
	31.940	17.50	14.75	0.65	32.90	40.00	7.10
	59.100	6.20	26.31	0.87	33.38	40.00	6.62
Vertical	93.050	11.30	25.83	1.24	38.37	43.50	5.13
	476.200	17.42	15.49	2.90	35.81	46.00	10.19
	820.550	20.70	16.71	3.88	41.29	46.00	4.71
	938.890	21.80	12.59	4.65	39.04	46.00	6.96

EUT : LED LCD TV Temperature : 22° C

Model No. : LC-65N9000U Humidity : 60° RH

Test Mode : HDMI1080P Date of Test : Feb 01, 2016

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)		Emission Level dB (µV/m)	Limits dB ($\mu V/m$)	Margin (dB)
	85.290	9.85	24.69	1.15	35.69	40.00	4.31
	240.490	11.90	21.73	2.13	35.76	46.00	10.24
Horizontal	596.480	18.98	19.65	2.31	40.94	46.00	5.06
Horizontai	681.840	19.85	15.00	3.28	38.13	46.00	7.87
	820.550	20.70	15.47	3.88	40.05	46.00	5.95
	959.260	22.20	13.53	4.75	40.48	46.00	5.52
	31.940	17.50	15.98	0.65	34.13	40.00	5.87
	86.260	9.95	23.95	1.16	35.06	40.00	4.94
Vertical	99.840	12.25	24.00	1.32	37.57	43.50	5.93
	595.510	18.98	19.35	2.31	40.64	46.00	5.36
	817.640	20.67	17.66	3.88	42.21	46.00	3.79
	941.800	21.83	12.00	4.70	38.53	46.00	7.47

EUT : LED LCD TV Temperature : 22° C

Model No. : LC-65N9000U Humidity : 60° RH

Test Mode : MHL Date of Test : Feb 01, 2016

Polarization	Frequency (MHz)	Meter Reading dB (µV)	Antenna Factor (dB/m)		Emission Level dB (µV/m)	Limits dB ($\mu V/m$)	Margin (dB)
	81.410	9.51	25.31	1.10	35.92	40.00	4.08
	151.250	11.43	22.27	1.65	35.35	43.50	8.15
Horizontal	240.490	11.90	21.32	2.13	35.35	46.00	10.65
Пописний	596.480	18.98	19.04	2.31	40.33	46.00	5.67
	629.460	19.50	16.59	2.64	38.73	46.00	7.27
	847.710	20.70	15.56	4.07	40.33	46.00	5.67
	41.640	12.41	21.17	0.75	34.33	40.00	5.67
	82.380	9.60	25.09	1.12	35.81	40.00	4.19
Vertical	98.870	12.16	24.24	1.30	37.70	43.50	5.80
	151.250	11.43	21.52	1.65	34.60	43.50	8.90
	596.480	18.98	17.69	2.31	38.98	46.00	7.02
	814.730	20.63	15.69	3.88	40.20	46.00	5.80

USB Play

Test Mode

EUT : LED LCD TV Temperature : 22° C

Model No. : LC-65N9000U Humidity : 60° RH

Polarization	Frequency (MHz)	Meter Reading dB (µV)	Antenna Factor (dB/m)		Emission Level dB (µV/m)	Limits dB ($\mu V/m$)	Margin (dB)
	53.280	6.83	22.89	0.84	30.56	40.00	9.44
	74.620	8.43	23.12	1.01	32.56	40.00	7.44
Horizontal	153.190	11.31	18.86	1.65	31.82	43.50	11.68
Поптенца	228.850	11.12	20.98	2.08	34.18	46.00	11.82
	582.900	18.52	12.14	2.36	33.02	46.00	12.98
	820.550	20.70	14.47	3.88	39.05	46.00	6.95
	40.670	12.74	18.95	0.74	32.43	40.00	7.57
	83.350	9.66	22.33	1.13	33.12	40.00	6.88
Vertical	132.820	12.69	19.98	1.54	34.21	43.50	9.29
	337.490	15.01	17.19	2.64	34.84	46.00	11.16
	515.970	18.00	14.67	2.84	35.51	46.00	10.49
	771.080	20.50	11.95	3.65	36.10	46.00	9.90

TEST ENGINEER: BILL WU

Date of Test: Feb 01, 2016

EUT : LED LCD TV Temperature : 22°C

Model No. : LC-65N9000U Humidity : 60%RH

Test Mode : LAN Play Date of Test : Feb 01, 2016

Polarization	Frequency (MHz)	Meter Reading dB (µV)	Antenna Factor (dB/m)		Emission Level dB (µV/m)	Limits dB ($\mu V/m$)	Margin (dB)
	84.320	9.74	23.21	1.13	34.08	40.00	5.92
	109.540	12.59	18.83	1.39	32.81	43.50	10.69
Horizontal	244.370	12.20	19.85	2.14	34.19	46.00	11.81
Пописний	542.160	18.56	18.66	2.63	39.85	46.00	6.15
	814.730	20.63	15.74	3.88	40.25	46.00	5.75
	955.380	22.05	14.05	4.75	40.85	46.00	5.15
	42.610	12.12	20.31	0.75	33.18	40.00	6.82
	85.290	9.85	24.57	1.15	35.57	40.00	4.43
Vertical	99.840	12.25	25.03	1.32	38.60	43.50	4.90
	542.160	18.56	18.77	2.63	39.96	46.00	6.04
	650.800	19.75	17.49	2.90	40.14	46.00	5.86
	814.730	20.63	15.88	3.88	40.39	46.00	5.61

5 DEBUG DESCRIPTION

The following components are used during the countermeasure procedures:

Name	M/N	Manufacturer	Location
SMcontact	SMR-TSL-4-3.5-5R	Qingdao Joinset Co., Ltd	See Appendix Figure 27, 28
Ferrite Core	ZCAT1519-0830	Jiangsu Ruifeng Electronics Co., Ltd	See Appendix Figure 29

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:

(WENCY YANG)

6	DEVIA	TION TO	TEST	SPECIFICA	TIONS
	, v . A		1,4		

None.