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

LED LCD TV

Brand	Model No.
Hisense	LTDN65K550GUWUS
Sharp	LC-65N7000U, LC-65N7000C

FCC ID: W9HLCDF0064

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-F15228 Date of Test: Nov 14 – 24, 2015 Date of Report: Nov 30, 2015

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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
LTDN65K550GUWUS	Hisense	120V/60Hz
LC-65N7000U, LC-65N7000C	Sharp	120 V/00HZ

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 Nov 14 - 24, 2015 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.F15227, a Verification report.

Date of Test:	Nov 14 – 24, 2015	_ Date of Report :	Nov 30, 2015
Producer:	HWMIN YAN / Assistant	_	
Review:	Sunch		
For and Audix Technology (Shangi	ch behalf of CHEN / Manager		
Signatory:	Tronort		

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

Brand	Model No.
Hisense	LTDN65K550GUWUS
Sharp	LC-65N7000U, LC-65N7000C

Note : The above models are all the same except for

brand and model name.LTDN65K550GUWUS model is tested and recorded in the report.

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: HE650HU-B01\S5\ROH

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, with two cores

Power Cord : Unshielded, Detachable, 1.80m

LAN Cable : Shielded, Detachable, 1.50m

USB Cable*3 : Sh

(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 #1

(2) One HDMI2/ARC Port

: Connected with DVD PLAYER #2

(3) One HDMI1/MHL Port

: Connected with Smart Mobile Phone

(4) One Audio out Port

: Connected with Earphone

(5) One Service Port

: Do not open to customer

(6) One USB1 Port

: Connected with Hard-Disk #2

(7) One USB2 Port

: Connected with Hard-Disk #3

(8) One ANT/CABLE IN Port

: Connected with Antenna or 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 PC

(12) One Digital Audio Out Port

: Connected with DVD PLAYER #1

(13) One component of YPbPr+ Video Port

: Connected with DVD PLAYER #2

(14) One AV 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;

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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

Shielded, Undetachable, 1.8m. Data Cable

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:

U = 3.4dB

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

3 CONDUCTED EMISSION TEST

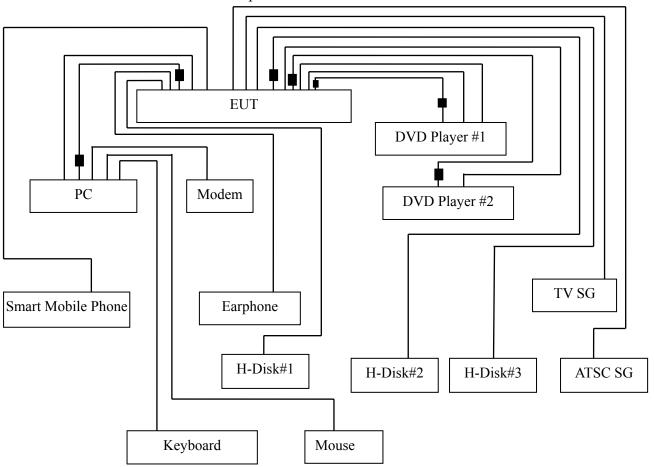
3.1 Test Equipment

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		

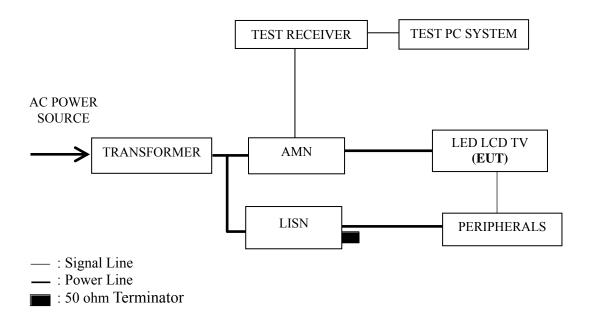
3.2 Block Diagram of Test Setup

3.2.1 EUT & Peripherals



■ : Ferrite Core

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 3840*2160@60Hz & 1kHz playing test mode. The worst emission is detected at 0.155MHz (Average Value) with corrected signal level of 62.48 dB (μV) (limit is 65.73 dB (μV)), when the Neutral of the EUT is connected to AMN.

Model No. : LTDN65K550GUWUS Humidity : 48%RH

Test Mode : HDMI 3840*2160@60Hz Date of Test : Nov 14, 2015

& 1kHz Playing

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(µV)	Limits dB(µV)	Margin (dB)	Remark
	0.155	50.40	10.58	60.98	65.73	4.75	
	0.155	40.50	10.58	51.08	55.73	4.65	
	0.391	27.29	10.43	37.72	58.04	20.32	OD
	0.391	15.59	10.43	26.02	48.04	22.02	QP
	0.579	27.43	10.38	37.81	56.00	18.19	
Line	0.579	17.00	10.38	27.38	46.00	18.62	
Line	0.910	23.30	10.38	33.68	56.00	22.32	
	0.910	11.80	10.38	22.18	46.00	23.82	
	1.435	20.40	10.40	30.80	56.00	25.20	AV
	1.435	11.30	10.40	21.70	46.00	24.30	
	7.110	23.60	10.46	34.06	60.00	25.94	
	7.110	23.60	10.46	34.06	50.00	15.94	
	0.155	51.90	10.58	62.48	65.73	3.25	
	0.155	40.50	10.58	51.08	55.73	4.65	
	0.383	26.40	10.41	36.81	58.21	21.40	OD
	0.383	16.90	10.41	27.31	48.21	20.90	QP
	0.644	26.10	10.36	36.46	56.00	19.54	
Neutral	0.644	13.50	10.36	23.86	46.00	22.14	
Neuman	0.900	21.40	10.37	31.77	56.00	24.23	
	0.900	10.30	10.37	20.67	46.00	25.33	AV
	1.682	19.91	10.39	30.30	56.00	25.70	
	1.682	10.01	10.39	20.40	46.00	25.60	
	7.190	18.20	10.52	28.72	60.00	31.28	
	7.190	4.80	10.52	15.32	50.00	34.68	

Model No. : LTDN65K550GUWUS Humidity : 48%RH

Test Mode : HDMI 1920*1080@60Hz Date of Test : Nov 14, 2015

& 1kHz Playing

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(µV)	Limits dB(µV)	Margin (dB)	Remark
	0.154	50.70	10.58	61.28	65.78	4.50	
	0.154	40.60	10.58	51.18	55.78	4.60	
	0.411	24.70	10.42	35.12	57.64	22.52	OD
	0.411	15.80	10.42	26.22	47.64	21.42	QP
	0.646	27.10	10.38	37.48	56.00	18.52	
Line	0.646	14.50	10.38	24.88	46.00	21.12	
Line	0.891	23.40	10.38	33.78	56.00	22.22	
	0.891	13.10	10.38	23.48	46.00	22.52	
	1.692	20.49	10.41	30.90	56.00	25.10	AV
	1.692	9.59	10.41	20.00	46.00	26.00	
	7.025	22.20	10.46	32.66	60.00	27.34	
	7.025	10.40	10.46	20.86	50.00	29.14	
	0.156	50.39	10.58	60.97	65.66	4.69	QP
	0.156	39.79	10.58	50.37	55.66	5.29	
	0.384	26.30	10.41	36.71	58.19	21.48	
	0.384	16.40	10.41	26.81	48.19	21.38	
	0.654	25.91	10.35	36.26	56.00	19.74	
Neutral	0.654	12.61	10.35	22.96	46.00	23.04	
Neuman	0.891	22.20	10.37	32.57	56.00	23.43	
	0.891	12.30	10.37	22.67	46.00	23.33	
	1.917	19.40	10.41	29.81	56.00	26.19	AV
	1.917	4.80	10.41	15.21	46.00	30.79	
	7.252	22.80	10.52	33.32	60.00	26.68	
	7.252	5.40	10.52	15.92	50.00	34.08	

Model No. : LTDN65K550GUWUS Humidity : 48%RH

Test Mode : HDMI 1280*1024@60Hz Date of Test : Nov 14, 2015

& 1kHz Playing

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(µV)	Limits dB(µV)	Margin (dB)	Remark				
	0.152	51.49	10.59	62.08	65.87	3.79					
	0.152	40.29	10.59	50.88	55.87	4.99					
	0.395	26.59	10.43	37.02	57.97	20.95	OD				
	0.395	15.49	10.43	25.92	47.97	22.05	QP				
Line	0.648	26.61	10.37	36.98	56.00	19.02					
	0.648	13.71	10.37	24.08	46.00	21.92					
Line	0.891	24.30	10.38	34.68	56.00	21.32					
	0.891	13.80	10.38	24.18	46.00	21.82	AV				
	1.418	19.60	10.40	30.00	56.00	26.00					
	1.418	9.80	10.40	20.20	46.00	25.80					
	7.175	20.60	10.47	31.07	60.00	28.93					
	7.175	3.90	10.47	14.37	50.00	35.63					
	0.154	51.70	10.58	62.28	65.80	3.52					
	0.154	40.40	10.58	50.98	55.80	4.82					
	0.233	30.60	10.48	41.08	62.33	21.25	QP				
	0.233	15.20	10.48	25.68	52.33	26.65	Qr				
	0.386	25.90	10.41	36.31	58.16	21.85					
Neutral	0.386	16.30	10.41	26.71	48.16	21.45					
Neutrai	0.648	27.31	10.35	37.66	56.00	18.34					
	0.648	14.71	10.35	25.06	46.00	20.94					
	1.719	18.19	10.41	28.60	56.00	27.40	437				
	1.719	9.89	10.41	20.30	46.00	25.70	AV				
	7.185	22.40	10.52	32.92	60.00	27.08					
	7.185	3.90	10.52	14.42	50.00	35.58					

Model No. : LTDN65K550GUWUS Humidity : 48%RH

Test Mode : HDMI 640*480@60Hz & Date of Test : Nov 14, 2015

1kHz Playing

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(µV)	Limits dB(µV)	Margin (dB)	Remark				
	0.156	50.60	10.58	61.18	65.70	4.52					
	0.156	40.40	10.58	50.98	55.70	4.72					
	0.381	27.60	10.43	38.03	58.26	20.23	OD				
	0.381	16.50	10.43	26.93	48.26	21.33	QP				
	0.641	27.90	10.38	38.28	56.00	17.72					
Line	0.641	14.60	10.38	24.98	46.00	21.02					
Line	0.882	21.30	10.38	31.68	56.00	24.32					
	0.882	12.50	10.38	22.88	46.00	23.12	AV				
	1.701	20.49	10.41	30.90	56.00	25.10					
	1.701	9.29	10.41	19.70	46.00	26.30					
	7.252	16.10	10.47	26.57	60.00	33.43					
	7.252	3.30	10.47	13.77	50.00	36.23					
	0.157	50.49	10.58	61.07	65.63	4.56					
	0.157	39.59	10.58	50.17	55.63	5.46					
	0.398	24.50	10.40	34.90	57.90	23.00	QP				
	0.398	13.90	10.40	24.30	47.90	23.60	Qr				
	0.654	25.91	10.35	36.26	56.00	19.74					
Neutral	0.654	12.81	10.35	23.16	46.00	22.84					
Neutrai	0.899	21.90	10.37	32.27	56.00	23.73					
	0.899	10.70	10.37	21.07	46.00	24.93					
	2.431	19.10	10.42	29.52	56.00	26.48	A X 7				
	2.431	4.60	10.42	15.02	46.00	30.98	AV				
	7.237	21.30	10.52	31.82	60.00	28.18					
	7.237	8.20	10.52	18.72	50.00	31.28					

Model No. : LTDN65K550GUWUS Humidity : ____48%RH

Test Mode : HDMI1080P Date of Test : Nov 14, 2015

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(µV)	Limits dB(µV)	Margin (dB)	Remark				
	0.157	49.90	10.58	60.48	65.63	5.15					
	0.157	39.30	10.58	49.88	55.63	5.75					
	0.386	27.50	10.43	37.93	58.14	20.21	OD				
Line	0.386	17.10	10.43	27.53	48.14	20.61	QP				
	0.640	26.10	10.38	36.48	56.00	19.52					
	0.640	12.70	10.38	23.08	46.00	22.92					
Line	0.908	22.70	10.38	33.08	56.00	22.92					
	0.908	10.60	10.38	20.98	46.00	25.02	AV				
	1.706	21.29	10.41	31.70	56.00	24.30					
	1.706	9.49	10.41	19.90	46.00	26.10					
	7.253	18.90	10.47	29.37	60.00	30.63					
	7.253	3.80	10.47	14.27	50.00	35.73					
	0.154	51.40	10.58	61.98	65.78	3.80					
	0.154	40.50	10.58	51.08	55.78	4.70					
	0.260	29.40	10.46	39.86	61.44	21.58	OD				
	0.260	17.20	10.46	27.66	51.44	23.78	QP				
	0.386	26.10	10.41	36.51	58.15	21.64					
Neutral	0.386	16.80	10.41	27.21	48.15	20.94					
Neutrai	0.648	26.11	10.35	36.46	56.00	19.54					
	0.648	13.21	10.35	23.56	46.00	22.44					
	1.714	18.59	10.41	29.00	56.00	27.00	AV				
	1.714	9.49	10.41	19.90	46.00	26.10					
	7.110	16.61	10.51	27.12	60.00	32.88					
	7.110	9.81	10.51	20.32	50.00	29.68					

EUT : LED LCD TV Temperature : 22°C

Model No. : LTDN65K550GUWUS Humidity : 48%RH

Test Mode : MHL Date of Test : Nov 14, 2015

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(µV)	Margin (dB)	Remark	
	0.156	50.00	10.58	60.58	65.65	5.07		
	0.156	39.70	10.58	50.28	55.65	5.37		
	0.256	29.90	10.48	40.38	61.56	21.18	ΩD	
Line	0.256	17.60	10.48	28.08	51.56	23.48	QP	
	0.413	24.60	10.42	35.02	57.59	22.57		
	0.413	14.80	10.42	25.22	47.59	22.37		
Line	0.635	27.40	10.38	37.78	56.00	18.22		
	0.635	12.50	10.38	22.88	46.00	23.12		
	1.145	21.51	10.38	31.89	56.00	24.11	AV	
	1.145	11.01	10.38	21.39	46.00	24.61		
	7.450	19.20	10.47	29.67	60.00	30.33		
	7.450	3.50	10.47	13.97	50.00	36.03		
	0.154	51.90	10.58	62.48	65.79	3.31		
	0.154	40.40	10.58	50.98	55.79	4.81		
	0.389	26.50	10.41	36.91	58.08	21.17	ΩD	
	0.389	16.10	10.41	26.51	48.08	21.57	QP	
	0.636	25.70	10.36	36.06	56.00	19.94		
Neutral	0.636	12.20	10.36	22.56	46.00	23.44		
Neutrai	0.891	23.90	10.37	34.27	56.00	21.73		
	0.891	13.60	10.37	23.97	46.00	22.03		
	1.409	20.30	10.39	30.69	56.00	25.31	A 3.7	
	1.409	10.20	10.39	20.59	46.00	25.41	AV	
	7.319	17.10	10.52	27.62	60.00	32.38		
	7.319	4.00	10.52	14.52	50.00	35.48		

Model No. : LTDN65K550GUWUS Humidity : 48%RH

Test Mode : USB Play Date of Test : Nov 14, 2015

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(µV)	Limits dB(µV)	Margin (dB)	Remark				
	0.154	51.10	10.58	61.68	65.79	4.11					
	0.154	40.50	10.58	51.08	55.79	4.71					
	0.394	26.49	10.43	36.92	57.98	21.06	OD				
	0.394	15.59	10.43	26.02	47.98	21.96	QP				
	0.661	24.81	10.37	35.18	56.00	20.82					
Time	0.661	10.61	10.37	20.98	46.00	25.02	1				
Line	0.892	24.50	10.38	34.88	56.00	21.12					
	0.892	13.80	10.38	24.18	46.00	21.82					
	2.204	18.80	10.42	29.22	56.00	26.78	AV				
	2.204	3.90	10.42	14.32	46.00	31.68					
	7.100	17.20	10.46	27.66	60.00	32.34					
	7.100	10.90	10.46	21.36	50.00	28.64					
	0.156	50.69	10.58	61.27	65.69	4.42					
	0.156	39.89	10.58	50.47	55.69	5.22					
	0.393	25.89	10.41	36.30	58.01	21.71	OD				
	0.393	15.09	10.41	25.50	48.01	22.51	QP				
	0.647	26.61	10.35	36.96	56.00	19.04					
Neutral	0.647	13.91	10.35	24.26	46.00	21.74					
Neutrai	0.890	23.30	10.37	33.67	56.00	22.33					
	0.890	13.20	10.37	23.57	46.00	22.43					
	2.171	21.51	10.41	31.92	56.00	24.08	AX7				
	2.171	6.91	10.41	17.32	46.00	28.68	AV				
	7.219	20.60	10.52	31.12	60.00	28.88					
	7.219	7.10	10.52	17.62	50.00	32.38					

Model No. : LTDN65K550GUWUS Humidity : 48%RH

Test Mode : LAN Play Date of Test : Nov 14, 2015

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(µV)	Limits dB(µV)	Margin (dB)	Remark				
	0.153	51.50	10.58	62.08	65.82	3.74					
	0.153	40.30	10.58	50.88	55.82	4.94					
	0.403	24.80	10.42	35.22	57.80	22.58	OD				
	0.403	14.50	10.42	24.92	47.80	22.88	QP				
Line	0.647	27.81	10.37	38.18	56.00	17.82					
	0.647	14.91	10.37	25.28	46.00	20.72					
Line	0.881	21.90	10.38	32.28	56.00	23.72					
	0.881	12.70	10.38	23.08	46.00	22.92	AV				
	1.688	21.89	10.41	32.30	56.00	23.70					
	1.688	10.39	10.41	20.80	46.00	25.20					
	7.238	18.30	10.47	28.77	60.00	31.23					
	7.238	8.40	10.47	18.87	50.00	31.13					
	0.154	51.40	10.58	61.98	65.77	3.79					
	0.154	40.50	10.58	51.08	55.77	4.69					
	0.395	25.09	10.41	35.50	57.96	22.46	OD				
	0.395	14.69	10.41	25.10	47.96	22.86	QP				
	0.650	26.71	10.35	37.06	56.00	18.94					
NI asstral	0.650	13.61	10.35	23.96	46.00	22.04					
Neutral	0.891	23.60	10.37	33.97	56.00	22.03					
	0.891	13.40	10.37	23.77	46.00	22.23					
	1.671	22.51	10.39	32.90	56.00	23.10	AV				
	1.671	10.41	10.39	20.80	46.00	25.20					
	7.226	20.20	10.52	30.72	60.00	29.28					
	7.226	4.80	10.52	15.32	50.00	34.68					

4 RADIATED EMISSION TEST

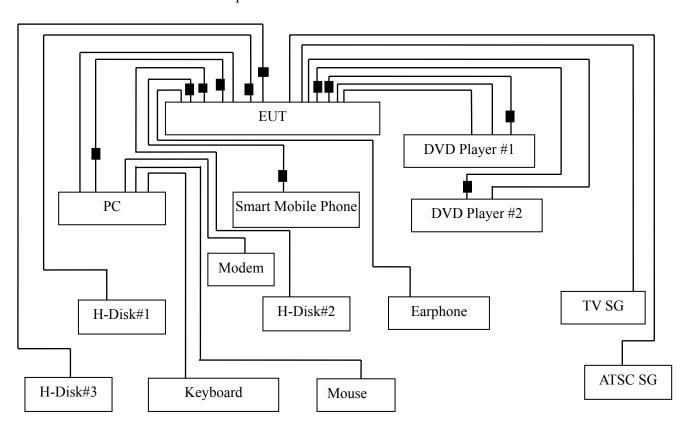
4.1 Test Equipment

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		

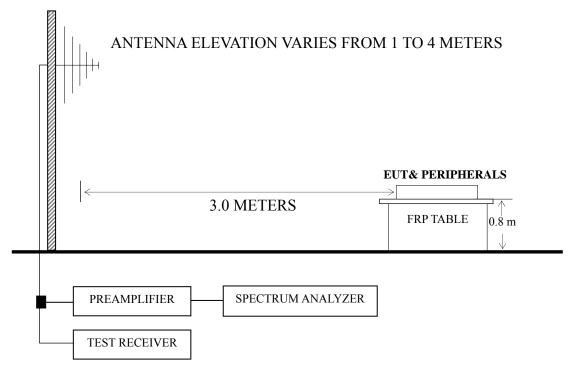
4.2 Block Diagram of Test Setup

4.2.1 EUT & Peripherals



: Ferrite Core

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	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	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 $3 0^{\circ}$ 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 733.520 MHz with corrected signal level of 45.72 dB (μ V/m) (limit is 46.00 dB (μ V/m)), when the antenna was 2.03 m height and the turntable was at 321°. The worst emission at vertical polarization was detected at 726.460 MHz with corrected signal level of 41.56 dB (μ V/m) (limit is 46.00 dB (μ V/m)), when the antenna was 1.2m height and the turntable was at 132°.

Model No. : LTDN65K550GUWUS Humidity : 60%RH

Test Mode : HDMI 3840*2160@60Hz Date of Test : Nov 24, 2015

& 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		
	78.500	9.12	25.53	1.05		35.70	40.00	4.30			
	156.100	11.18	18.59	1.68	-	31.45	43.50	12.05			
	299.660	13.80	19.15	2.59	-	35.54	46.00	10.46	ΩD		
	584.840	18.55	18.13	2.36		39.04	46.00	6.96	QP		
	733.520	20.03	22.10	3.59	-	45.72	46.00	0.28			
	891.000	21.30	17.60	4.46	-	43.36	46.00	2.64			
	1099.410	24.00	53.62	4.20	36.31	45.51	74.00	28.49			
	1412.470	25.28	50.80	3.79	35.81	44.06	74.00	29.94			
Horizontal	1793.540	26.78	52.40	4.15	35.32	48.01	74.00	25.99	PK		
Попідопіаї	2404.300	28.25	49.49	4.81	35.15	47.40	74.00	26.60	rĸ		
	3478.230	31.46	50.24	6.17	34.74	53.13	74.00	20.87			
	4171.280	33.08	50.51	6.19	34.22	55.56	74.00	18.44			
	1099.410	24.00	35.48	4.20	36.31	27.37	54.00	26.63			
	1412.470	25.28	35.69	3.79	35.81	28.95	54.00	25.05			
	1793.540	26.78	35.25	4.15	35.32	30.86	54.00	23.14	AV		
	2404.300	28.25	37.69	4.81	35.15	35.60	54.00	18.40			
	3478.230	31.46	31.82	6.17	34.74	34.71	54.00	19.29			
	4171.280	33.08	29.59	6.19	34.22	34.64	54.00	19.36			

EUT : LED LCD TV Temperature : 22°C

Model No. : LTDN65K550GUWUS Humidity : 60%RH

Test Mode : HDMI 3840*2160@60Hz Date of Test : Nov 24, 2015

& 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
	30.970	18.15	9.02	0.64		27.81	40.00	12.19	
	76.560	8.78	23.88	1.04	-	33.70	40.00	6.30	
	156.100	11.18	17.14	1.68	-	30.00	43.50	13.50	OD
	427.700	16.80	16.62	2.78		36.20	46.00	9.80	QP
	726.460	20.03	17.94	3.59	-	41.56	46.00	4.44	
	852.560	20.73	15.46	4.17	-	40.36	46.00	5.64	-
	1101.760	24.01	55.88	4.20	36.30	47.79	74.00	26.21	
	1300.790	24.86	53.96	3.65	35.97	46.50	74.00	27.50	PK
Vertical	1562.860	25.87	51.15	3.98	35.60	45.40	74.00	28.60	
Vertical	2013.710	27.52	53.17	4.47	35.10	50.06	74.00	23.94	ГK
	3223.580	30.97	51.63	5.97	34.97	53.60	74.00	20.40	
	4282.550	33.26	46.61	6.43	34.18	52.12	74.00	21.88	
	1101.760	24.01	36.58	4.20	36.30	28.49	54.00	25.51	
	1300.790	24.86	36.17	3.65	35.97	28.71	54.00	25.29	
	1562.860	25.87	37.59	3.98	35.60	31.84	54.00	22.16	AV
	2013.710	27.52	36.47	4.47	35.10	33.36	54.00	20.64	
	3223.580	30.97	31.15	5.97	34.97	33.12	54.00	20.88	
	4282.550	33.26	28.57	6.43	34.18	34.08	54.00	19.92	

Model No. : LTDN65K550GUWUS Humidity : 60%RH

Test Mode : HDMI 1920*1080@60Hz Date of Test : Nov 24, 2015

& 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)
	76.560	8.78	24.90	1.04	34.72	40.00	5.28
	156.100	11.18	19.44	1.68	32.30	43.50	11.20
Horizontal	432.550	16.82	15.13	2.79	34.74	46.00	11.26
Попідопіаї	582.900	18.52	17.43	2.36	38.31	46.00	7.69
	728.400	20.03	18.55	3.59	42.17	46.00	3.83
	846.740	20.73	17.78	4.07	42.58	46.00	3.42
	31.940	17.50	10.33	0.65	28.48	40.00	11.52
	76.560	8.78	24.97	1.04	34.79	40.00	5.21
Vertical	156.100	11.18	15.28	1.68	28.14	43.50	15.36
vertical	427.700	16.80	15.70	2.78	35.28	46.00	10.72
	728.400	20.03	16.77	3.59	40.39	46.00	5.61
	842.860	20.77	14.67	4.07	39.51	46.00	6.49

Model No. : LTDN65K550GUWUS Humidity : 60%RH

Test Mode : HDMI 1280*1024@60Hz Date of Test : Nov 24, 2015

& 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)
	31.940	17.50	8.27	0.65	26.42	40.00	13.58
	76.560	8.78	24.75	1.04	34.57	40.00	5.43
Horizontal	144.460	12.15	18.05	1.60	31.80	43.50	11.70
Попідопіаї	542.160	18.56	19.54	2.63	40.73	46.00	5.27
	730.340	20.10	19.76	3.59	43.45	46.00	2.55
	852.560	20.73	17.66	4.17	42.56	46.00	3.44
	32.910	16.99	16.11	0.66	33.76	40.00	6.24
	76.560	8.78	23.23	1.04	33.05	40.00	6.95
Vertical	219.150	10.44	16.94	2.04	29.42	46.00	16.58
	427.700	16.80	15.20	2.78	34.78	46.00	11.22
	542.160	18.56	17.13	2.63	38.32	46.00	7.68
	849.650	20.70	14.89	4.17	39.76	46.00	6.24

EUT : LED LCD TV Temperature : 22°C

Model No. : LTDN65K550GUWUS Humidity : 60%RH

Test Mode : HDMI 640*480@60Hz & Date of Test : Nov 24, 2015

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)
	76.560	8.78	24.77	1.04	34.59	40.00	5.41
	160.950	11.13	17.90	1.72	30.75	43.50	12.75
Horizontal	311.300	14.15	13.72	2.60	30.47	46.00	15.53
Пописний	584.840	18.55	15.57	2.36	36.48	46.00	9.52
	726.460	20.03	19.17	3.59	42.79	46.00	3.21
	844.800	20.73	17.11	4.07	41.91	46.00	4.09
	30.520	18.53	12.39	0.64	31.56	40.00	8.44
	76.560	8.78	23.65	1.04	33.47	40.00	6.53
Vertical	156.100	11.18	13.71	1.68	26.57	43.50	16.93
	427.700	16.80	15.47	2.78	35.05	46.00	10.95
	728.400	20.03	13.30	3.59	36.92	46.00	9.08
	932.100	21.70	12.82	4.65	39.17	46.00	6.83

Model No. : LTDN65K550GUWUS Humidity : 60%RH

Test Mode : HDMI1080P Date of Test : Nov 24, 2015

Polarization	Frequency (MHz)	Meter Reading dB (µV)	Antenna Factor (dB/m)		Emission Level dB (µV/m)	Limits dB ($\mu V/m$)	Margin (dB)
	82.380	9.60	22.46	1.12	33.18	40.00	6.82
	159.980	11.10	19.29	1.70	32.09	43.50	11.41
Horizontal	273.470	13.24	14.47	2.35	30.06	46.00	15.94
попідопіаї	446.130	16.83	12.55	2.82	32.20	46.00	13.80
	564.470	18.60	15.33	2.52	36.45	46.00	9.55
	866.140	20.87	14.91	4.27	40.05	46.00	5.95
	33.880	16.47	9.08	0.67	26.22	40.00	13.78
	76.560	8.78	23.97	1.04	33.79	40.00	6.21
Vertical	152.220	11.35	14.70	1.65	27.70	43.50	15.80
	425.760	16.80	16.21	2.78	35.79	46.00	10.21
	515.970	18.00	14.36	2.84	35.20	46.00	10.80
	847.710	20.70	15.70	4.07	40.47	46.00	5.53

EUT : LED LCD TV Temperature : 22°C

Model No. : LTDN65K550GUWUS Humidity : 60%RH

Test Mode : MHL Date of Test : Nov 24, 2015

Polarization	Frequency (MHz)	Meter Reading dB (µV)	Antenna Factor (dB/m)		Emission Level dB (µV/m)	Limits dB ($\mu V/m$)	Margin (dB)
	76.560	8.78	22.75	1.04	32.57	40.00	7.43
	147.370	11.80	17.58	1.62	31.00	43.50	12.50
Horizontal	388.900	16.50	12.65	2.71	31.86	46.00	14.14
Попідопіат	536.340	18.45	16.04	2.68	37.17	46.00	8.83
	728.400	20.03	19.19	3.59	42.81	46.00	3.19
	921.430	21.50	12.30	4.61	38.41	46.00	7.59
	36.790	14.22	15.26	0.70	30.18	40.00	9.82
	78.500	9.12	22.20	1.05	32.37	40.00	7.63
Vertical	138.640	12.53	13.18	1.57	27.28	43.50	16.22
	287.050	13.55	10.89	2.49	26.93	46.00	19.07
	664.380	19.60	13.33	3.16	36.09	46.00	9.91
	850.620	20.70	16.77	4.17	41.64	46.00	4.36

Model No. : LTDN65K550GUWUS Humidity : 60%RH

Test Mode : USB Play Date of Test : Nov 24, 2015

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)
	34.850	15.80	4.82	0.68	21.30	40.00	18.70
	80.440	9.43	21.63	1.09	32.15	40.00	7.85
Horizontal	143.490	12.20	19.20	1.60	33.00	43.50	10.50
Поптенца	257.950	12.90	14.87	2.22	29.99	46.00	16.01
	575.140	18.40	16.56	2.42	37.38	46.00	8.62
	738.100	19.90	16.73	3.60	40.23	46.00	5.77
	32.910	16.99	15.11	0.66	32.76	40.00	7.24
	75.590	8.61	24.27	1.02	33.90	40.00	6.10
Vertical	172.590	10.79	14.52	1.80	27.11	43.50	16.39
	438.370	16.90	10.14	2.81	29.85	46.00	16.15
	736.160	19.97	14.99	3.60	38.56	46.00	7.44
	878.750	21.03	13.65	4.36	39.04	46.00	6.96

Model No. : LTDN65K550GUWUS Humidity : 60%RH

Test Mode : LAN Play Date of Test : Nov 24, 2015

Polarization	Frequency (MHz)	Meter Reading dB (µV)	Antenna Factor (dB/m)		Emission Level dB (µV/m)	Limits dB ($\mu V/m$)	Margin (dB)
	72.680	7.97	24.35	0.98	33.30	40.00	6.70
	139.610	12.51	18.02	1.57	32.10	43.50	11.40
Horizontal	429.640	16.80	13.99	2.79	33.58	46.00	12.42
Поптенца	538.280	18.45	12.70	2.68	33.83	46.00	12.17
	714.820	19.85	18.29	3.57	41.71	46.00	4.29
	844.800	20.73	18.30	4.07	43.10	46.00	2.90
	32.910	16.99	12.14	0.66	29.79	40.00	10.21
	72.680	7.97	23.18	0.98	32.13	40.00	7.87
Vertical	149.310	11.57	14.69	1.63	27.89	43.50	15.61
	446.130	16.83	13.45	2.82	33.10	46.00	12.90
	714.820	19.85	16.06	3.57	39.48	46.00	6.52
	911.730	21.50	15.84	4.56	41.90	46.00	4.10

5 DEBUG DESCRIPTION

The following components are used during the countermeasure procedures:

Name	M/N	Manufacturer	Location
Conductive Tape	5X30MM\ROH	Qingdao Joinset Co., Ltd	See Appendix Figure 33, 34,
Master	MT5657NDEJ\TP\JK\ROH	Qingdao Joinset Co., Ltd	See Appendix Figure 35

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)

	DEXI	TION TO	TECT	SPECIFICA	TIONE
h			1 H.5 I	SPHC IHIC A	

None.