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

LED LCD TV

Model No.	Brand
LC-43N6100U	
LC-43N6100C	Sharp
LC-43N610CU	

FCC ID: W9HLCDD0063

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-F16191

Date of Test: Jul 25 - Aug 01, 2016

Date of Report: Aug 10, 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
Refer to Sec2.1	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 Jul 25 - Aug 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 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.F16190, a Verification report.

Date of Test	Jul 25 - Aug 01, 2016	Date of Report :	Aug 10, 2016
Producer:	HUY MIN YAN / Assistant		
Review:	Byron WU / Deputy Assistant Manager		
For an Audix Technology (Shar	ad on behalf of aghai) Co., Ltd.		

Signatory:

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 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 : \square Production \square Pre-product \square Pro-type

Model No : LC-43N6100U, LC-43N6100C, LC-43N610CU

Note : The above models are all the same except for

model number.LC-43N6100U 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 : HD426DU-B51

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, 2C

LAN Cable : Unshielded, 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 #1

(2) One HDMI2/ARC Port

: Connected with PC

(3) One HDMI1/MHL Port

: Connected with Smart Mobile Phone

(4) One Service Port

: This port does not open to user

(5) One Audio out Port

: Connected with Earphone#1

(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 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 Audio Converter to Earphone#2

(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;

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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 *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 : 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

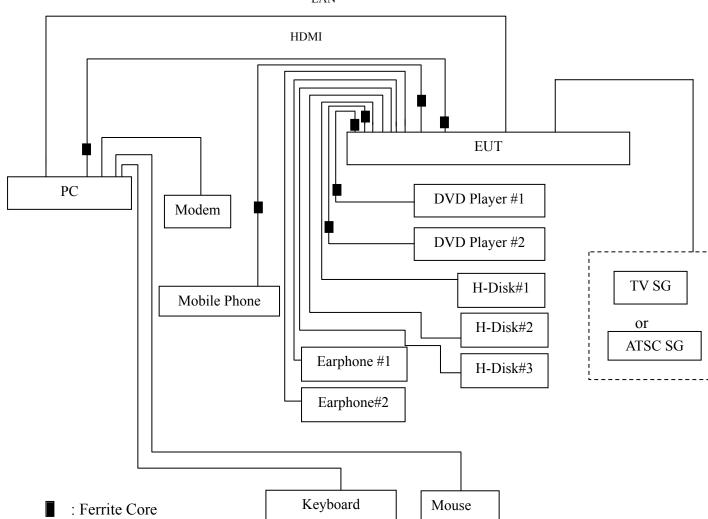
The following test equipments are used during the conducted emission test in a shielded room:

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Test Receiver	R&S	ESCI	101302	Jul 03, 2016	Jul 02, 2017
2.	Artificial Mains Network (AMN)	R&S	ENV4200	100125	Jun 27, 2016	Jun 26, 2017
3.	Line Impedance Stabilization Network (LISN)	Kyoritsu	KNW-407	8-1280-4	Mar 20, 2016	Mar 19, 2017
4.	50Ω Terminator	Anritsu	BNC	001	Mar 18, 2016	Sep 17, 2016
5.	Software	Audix	e3	6.111206		

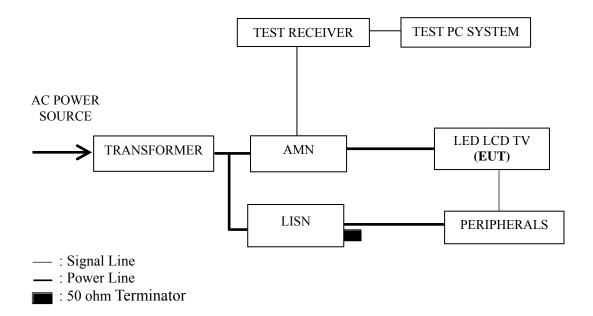
3.2 Block Diagram of Test Setup

3.2.1 EUT & Peripherals

LAN



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 C63.4:2014 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 0.513 MHz (Average Value) with corrected signal level of 33.79 dB (μ V) (limit is 46.00 dB (μ V)), when the Neutral of the EUT is connected to AMN.

Model No. : LC-43N6100U Humidity : 48%RH

Test Mode : HDMI 3840*2160@60Hz Date of Test : Jul 25, 2016

& 1kHz Playing

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(µV)	Limits dB(µV)	Margin (dB)	Remark
	0.151	31.90	10.59	42.49	65.93	23.44	
	0.492	29.20	10.40	39.60	56.13	16.53	
	0.769	30.30	10.40	40.70	56.00	15.30	OD
	1.272	26.59	10.41	37.00	56.00	19.00	QP
	2.100	21.50	10.41	31.91	56.00	24.09	
Line	6.623	20.00	10.47	30.47	60.00	29.53	
Line	0.151	9.40	10.59	19.99	55.93	35.94	
	0.492	14.40	10.40	24.80	46.13	21.33	
	0.769	20.80	10.40	31.20	46.00	14.80	AV
	1.272	14.29	10.41	24.70	46.00	21.30	
	2.100	9.60	10.41	20.01	46.00	25.99	
	6.623	9.20	10.47	19.67	50.00	30.33	
	0.223	36.20	10.50	46.70	62.73	16.03	
	0.516	32.30	10.39	42.69	56.00	13.31	
	0.770	31.60	10.39	41.99	56.00	14.01	QP
	1.256	27.10	10.41	37.51	56.00	18.49	Qr
	2.640	23.09	10.46	33.55	56.00	22.45	
Neutral	7.069	20.80	10.53	31.33	60.00	28.67	
Neuman	0.223	21.90	10.50	32.40	52.73	20.33	
	0.516	20.00	10.39	30.39	46.00	15.61	AV
	0.770	21.90	10.39	32.29	46.00	13.71	
	1.256	12.60	10.41	23.01	46.00	22.99	
	2.640	11.89	10.46	22.35	46.00	23.65	
	7.069	11.60	10.53	22.13	50.00	27.87	

Model No. : LC-43N6100U Humidity : 48%RH

Test Mode : HDMI 1920*1080@60Hz Date of Test : Jul 25, 2016

& 1kHz Playing

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(µV)	Limits dB(µV)	Margin (dB)	Remark
	0.157	32.70	10.58	43.28	65.64	22.36	
	0.493	29.00	10.40	39.40	56.11	16.71	
	0.770	30.30	10.40	40.70	56.00	15.30	OD
	1.336	27.89	10.41	38.30	56.00	17.70	QP
Line	2.667	21.99	10.43	32.42	56.00	23.58	
	7.054	18.20	10.47	28.67	60.00	31.33	
	0.157	9.70	10.58	20.28	55.64	35.36	
	0.493	13.60	10.40	24.00	46.11	22.11	AV
	0.770	21.00	10.40	31.40	46.00	14.60	
	1.336	14.19	10.41	24.60	46.00	21.40	
	2.667	11.09	10.43	21.52	46.00	24.48	
	7.054	11.80	10.47	22.27	50.00	27.73	
	0.234	34.80	10.50	45.30	62.30	17.00	
	0.513	32.30	10.39	42.69	56.00	13.31	
	0.769	31.60	10.39	41.99	56.00	14.01	ΟD
	1.521	27.90	10.42	38.32	56.00	17.68	QP
	3.519	21.90	10.47	32.37	56.00	23.63	
Neutral	5.275	20.50	10.50	31.00	60.00	29.00	
Neutrai	0.234	18.90	10.50	29.40	52.30	22.90	
	0.513	22.90	10.39	33.29	46.00	12.71	
	0.769	22.00	10.39	32.39	46.00	13.61	AV
	1.521	12.60	10.42	23.02	46.00	22.98	
	3.519	10.00	10.47	20.47	46.00	25.53	
	5.275	10.20	10.50	20.70	50.00	29.30	

Model No. : LC-43N6100U Humidity : 48%RH

Test Mode : HDMI 1280*1024@60Hz Date of Test : Jul 25, 2016

& 1kHz Playing

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(µV)	Limits dB(µV)	Margin (dB)	Remark
	0.151	32.90	10.59	43.49	65.92	22.43	
	0.493	28.70	10.40	39.10	56.13	17.03	
	0.771	30.30	10.40	40.70	56.00	15.30	OD
	1.323	27.79	10.41	38.20	56.00	17.80	QP
	2.531	21.80	10.42	32.22	56.00	23.78	
Line	6.394	19.10	10.47	29.57	60.00	30.43	
Line	0.151	10.20	10.59	20.79	55.92	35.13	
	0.493	15.10	10.40	25.50	46.13	20.63	AV
	0.771	21.10	10.40	31.50	46.00	14.50	
	1.323	14.09	10.41	24.50	46.00	21.50	
	2.531	12.00	10.42	22.42	46.00	23.58	
	6.394	10.30	10.47	20.77	50.00	29.23	
	0.238	34.51	10.49	45.00	62.16	17.16	
	0.488	29.30	10.39	39.69	56.20	16.51	
	0.770	31.60	10.39	41.99	56.00	14.01	OD
	1.275	26.50	10.41	36.91	56.00	19.09	QP
	2.051	23.40	10.43	33.83	56.00	22.17	
Neutral	5.291	21.71	10.50	32.21	60.00	27.79	
Neutrai	0.238	19.31	10.49	29.80	52.16	22.36	
	0.488	15.00	10.39	25.39	46.20	20.81	
	0.770	22.00	10.39	32.39	46.00	13.61	AV
	1.275	15.80	10.41	26.21	46.00	19.79	
	2.051	13.80	10.43	24.23	46.00	21.77	
	5.291	11.21	10.50	21.71	50.00	28.29	

Model No. : LC-43N6100U Humidity : 48%RH

Test Mode : HDMI 640*480@60Hz & Date of Test : Jul 25, 2016

1kHz Playing

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(µV)	Limits dB(µV)	Margin (dB)	Remark	
	0.152	32.70	10.59	43.29	65.91	22.62		
	0.498	28.60	10.40	39.00	56.03	17.03		
	0.771	30.30	10.40	40.70	56.00	15.30	ΩD	
	1.327	27.79	10.41	38.20	56.00	17.80	QP	
	2.013	23.70	10.41	34.11	56.00	21.89		
Lina	5.070	20.30	10.45	30.75	60.00	29.25		
Line	0.152	10.30	10.59	20.89	55.91	35.02		
	0.498	15.00	10.40	25.40	46.03	20.63	AV	
	0.771	21.10	10.40	31.50	46.00	14.50		
	1.327	13.89	10.41	24.30	46.00	21.70	AV	
	2.013	12.90	10.41	23.31	46.00	22.69		
	5.070	11.60	10.45	22.05	50.00	27.95	_	
	0.221	36.21	10.50	46.71	62.80	16.09		
	0.515	29.30	10.39	39.69	56.00	16.31		
	0.770	31.60	10.39	41.99	56.00	14.01	OD	
	1.262	27.30	10.41	37.71	56.00	18.29	QP	
	2.041	24.70	10.43	35.13	56.00	20.87		
Neutral	6.656	20.50	10.53	31.03	60.00	28.97		
Neutrai	0.221	21.31	10.50	31.81	52.80	20.99		
	0.515	21.50	10.39	31.89	46.00	14.11		
	0.770	22.00	10.39	32.39	46.00	13.61	A 3.7	
	1.262	11.70	10.41	22.11	46.00	23.89	AV	
	2.041	13.30	10.43	23.73	46.00	22.27		
	6.656	10.60	10.53	21.13	50.00	28.87		

Model No. : LC-43N6100U Humidity : 48%RH

Test Mode : HDMI1080P Date of Test : Jul 25, 2016

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(µV)	Limits dB(µV)	Margin (dB)	Remark	
	0.155	32.60	10.58	43.18	65.75	22.57		
	0.232	32.00	10.51	42.51	62.38	19.87		
	0.482	27.70	10.41	38.11	56.31	18.20	OD	
Line	1.019	29.10	10.40	39.50	56.00	16.50	QP	
	1.527	25.81	10.40	36.21	56.00	19.79		
	6.630	19.30	10.47	29.77	60.00	30.23	1	
	0.155	10.10	10.58	20.68	55.75	35.07		
	0.232	16.80	10.51	27.31	52.38	25.07	AV	
	0.482	15.00	10.41	25.41	46.31	20.90		
	1.019	18.10	10.40	28.50	46.00	17.50		
	1.527	10.11	10.40	20.51	46.00	25.49		
	6.630	10.30	10.47	20.77	50.00	29.23	1	
	0.217	36.20	10.51	46.71	62.92	16.21		
	0.514	32.00	10.39	42.39	56.00	13.61		
	0.772	30.60	10.39	40.99	56.00	15.01	OD	
	1.770	18.09	10.43	28.52	56.00	27.48	QP	
	2.856	22.20	10.46	32.66	56.00	23.34		
NI asstmal	6.632	18.00	10.53	28.53	60.00	31.47		
Neutral	0.217	21.40	10.51	31.91	52.92	21.01		
	0.514	22.40	10.39	32.79	46.00	13.21		
	0.772	21.50	10.39	31.89	46.00	14.11	AV	
	1.770	15.49	10.43	25.92	46.00	20.08		
	2.856	10.60	10.46	21.06	46.00	24.94		
	6.632	10.50	10.53	21.03	50.00	28.97		

Model No. : LC-43N6100U Humidity : 48%RH

Test Mode : ____ MHL Date of Test : ___ Jul 25, 2016

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(µV)	Limits dB(µV)	Margin (dB)	Remark	
	0.153	32.11	10.58	42.69	65.84	23.15		
	0.491	28.40	10.40	38.80	56.16	17.36		
	0.772	29.50	10.40	39.90	56.00	16.10	OD	
Line	1.766	25.50	10.41	35.91	56.00	20.09	QP	
	2.778	20.39	10.43	30.82	56.00	25.18		
	6.192	20.20	10.46	30.66	60.00	29.34	1	
	0.153	9.51	10.58	20.09	55.84	35.75		
	0.491	14.90	10.40	25.30	46.16	20.86	AV	
	0.772	20.50	10.40	30.90	46.00	15.10		
	1.766	12.40	10.41	22.81	46.00	23.19		
	2.778	11.09	10.43	21.52	46.00	24.48		
	6.192	10.60	10.46	21.06	50.00	28.94		
	0.176	28.70	10.55	39.25	64.66	25.41		
	0.510	32.70	10.39	43.09	56.00	12.91		
	1.025	30.00	10.40	40.40	56.00	15.60	OD	
	1.772	27.89	10.43	38.32	56.00	17.68	QP	
	4.389	22.30	10.49	32.79	56.00	23.21		
NI41	6.614	21.20	10.53	31.73	60.00	28.27		
Neutral	0.176	16.70	10.55	27.25	54.66	27.41		
	0.510	22.30	10.39	32.69	46.00	13.31		
	1.025	18.90	10.40	29.30	46.00	16.70	AV	
	1.772	15.49	10.43	25.92	46.00	20.08		
	4.389	11.10	10.49	21.59	46.00	24.41		
	6.614	12.00	10.53	22.53	50.00	27.47		

Model No. : LC-43N6100U Humidity : 48%RH

Test Mode : USB Play Date of Test : Jul 25, 2016

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(µV)	Limits dB(µV)	Margin (dB)	Remark	
	0.153	32.90	10.59	43.49	65.85	22.36		
	0.514	30.70	10.40	41.10	56.00	14.90		
_	0.955	27.40	10.40	37.80	56.00	18.20	OD	
	1.745	27.00	10.41	37.41	56.00	18.59	QP	
	2.781	21.99	10.43	32.42	56.00	23.58		
Lina	7.030	17.50	10.47	27.97	60.00	32.03		
Line	0.153	9.90	10.59	20.49	55.85	35.36		
	0.514	21.20	10.40	31.60	46.00	14.40	AV	
	0.955	10.40	10.40	20.80	46.00	25.20		
	1.745	15.70	10.41	26.11	46.00	19.89		
	2.781	10.99	10.43	21.42	46.00	24.58		
	7.030	16.20	10.47	26.67	50.00	23.33		
	0.222	34.50	10.50	45.00	62.74	17.74		
	0.515	31.60	10.39	41.99	56.00	14.01		
	0.768	30.70	10.39	41.09	56.00	14.91	OD	
	1.317	27.30	10.41	37.71	56.00	18.29	QP	
	2.577	22.10	10.45	32.55	56.00	23.45		
Nautus 1	6.221	22.10	10.52	32.62	60.00	27.38		
Neutral	0.222	21.70	10.50	32.20	52.74	20.54		
	0.515	22.60	10.39	32.99	46.00	13.01		
	0.768	21.70	10.39	32.09	46.00	13.91	AV	
	1.317	11.60	10.41	22.01	46.00	23.99		
	2.577	12.60	10.45	23.05	46.00	22.95		
	6.221	12.70	10.52	23.22	50.00	26.78		

Model No. : LC-43N6100U Humidity : 48%RH

Test Mode : LAN Play Date of Test : Jul 25, 2016

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(µV)	Limits dB(µV)	Margin (dB)	Remark	
	0.153	31.90	10.59	42.49	65.86	23.37		
	0.487	28.60	10.40	39.00	56.22	17.22		
	1.026	27.40	10.40	37.80	56.00	18.20	OD	
	1.545	27.41	10.40	37.81	56.00	18.19	QP	
	2.621	23.30	10.42	33.72	56.00	22.28		
Lina	5.533	16.20	10.46	26.66	60.00	33.34	-	
Line	0.153	9.90	10.59	20.49	55.86	35.37	AV	
	0.487	15.00	10.40	25.40	46.22	20.82		
	1.026	18.40	10.40	28.80	46.00	17.20		
	1.545	15.41	10.40	25.81	46.00	20.19		
	2.621	11.90	10.42	22.32	46.00	23.68		
	5.533	9.90	10.46	20.36	50.00	29.64		
	0.235	34.71	10.49	45.20	62.27	17.07		
	0.513	32.60	10.39	42.99	56.00	13.01		
	0.769	31.60	10.39	41.99	56.00	14.01	OD	
	1.774	27.89	10.43	38.32	56.00	17.68	QP	
	3.540	23.20	10.47	33.67	56.00	22.33		
NI41	5.975	18.80	10.52	29.32	60.00	30.68		
Neutral	0.235	19.21	10.49	29.70	52.27	22.57		
	0.513	23.40	10.39	33.79	46.00	12.21		
	0.769	22.10	10.39	32.49	46.00	13.51	AV	
	1.774	15.49	10.43	25.92	46.00	20.08		
	3.540	11.00	10.47	21.47	46.00	24.53		
	5.975	11.00	10.52	21.52	50.00	28.48		

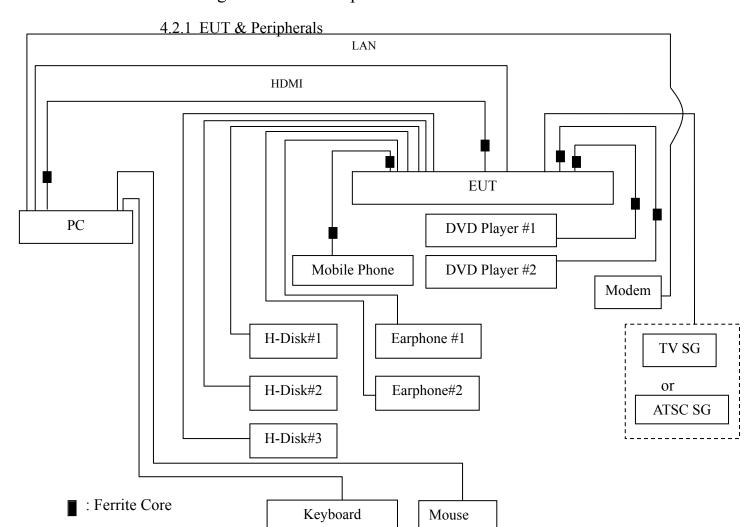
4 RADIATED EMISSION TEST

4.1 Test Equipment

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

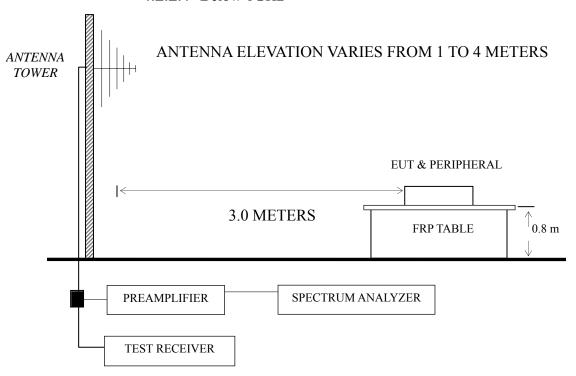
		1	I			
Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Test Receiver	R&S	ESCI	101303	May 07, 2016	May 06, 2017
2.	Preamplifier	Agilent	8447D	2944A06664	Apr 27, 2016	Apr 26, 2017
3.	Preamplifier	HP	8449B	3008A00864	Mar 20, 2016	Mar 19, 2017
4.	Bi-log Antenna	TESEQ	CBL6112D	23193	May 10, 2016	May 09, 2017
5.	Horn Antenna	EMCO	3115	9607-4878	Jun 03, 2016	Jun 02, 2017
6.	Spectrum	Agilent	E7405A	MY45106600	Jun 12, 2016	Jun 11, 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



4.2.2 Test Setup

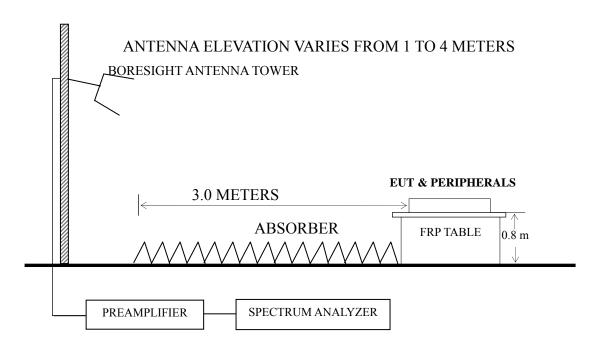
4.2.2.1 Below 1GHz



: 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 C63.4:2014 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 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 890.96 MHz with corrected signal level of 45.06 dB (μ V/m) (limit is 46.00 dB (μ V/m)), when the antenna was 2.1m height and the turntable was at 120°. The worst emission at vertical polarization was detected at 890.73 MHz with corrected signal level of 44.26 dB (μ V/m) (limit is 46.00 dB (μ V/m)), when the antenna was 1.0m height and the turntable was at 295°.

Model No. : LC-43N6100U Humidity : 60%RH

Test Mode : HDMI 3840*2160@60Hz Date of Test : Aug 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
	71.330	23.76	7.60	0.96	0.00	32.32	40.00	7.68	
	85.898	27.21	9.90	1.16	0.00	38.27	40.00	1.73	
	130.837	21.32	12.76	1.53	0.00	35.61	43.50	7.89	QP
	297.224	22.28	13.70	2.56	0.00	38.54	46.00	7.46	Qr
	845.088	16.32	20.73	4.07	0.00	41.12	46.00	4.88	
Horizontal	890.960	19.30	21.30	4.46	0.00	45.06	46.00	0.94	
Tionzontai	2555.000	67.39	28.67	5.35	35.20	66.21	74.00	7.79	
	2972.460	61.66	30.40	5.82	35.20	62.68	74.00	11.32	PK
	3399.987	57.09	31.31	6.29	34.77	59.92	74.00	14.08	
	2555.000	40.92	28.67	5.35	35.20	39.74	54.00	14.26	
	2972.460	35.37	30.40	5.82	35.20	36.39	54.00	17.61	AV
	3399.987	32.12	31.31	6.29	34.77	34.95	54.00	19.05	

EUT : LED LCD TV Temperature : 22°C

Model No. : LC-43N6100U Humidity : 60%RH

Test Mode : HDMI 3840*2160@60Hz Date of Test : Aug 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	
	34.037	14.92	16.40	0.68	0.00	32.00	40.00	8.00		
	48.332	25.37	8.64	0.80	0.00	34.81	40.00	5.19		
	72.084	24.15	7.83	0.98	0.00	32.96	40.00	7.04	QP	
	423.540	18.80	16.80	2.78	0.00	38.38	46.00	7.62		
	848.056	12.18	20.70	4.07	0.00	36.95	46.00	9.05		
Vertical	890.728	15.50	21.30	4.46	0.00	41.26	46.00	4.74		
Vertical	2550.000	65.88	28.63	5.35	35.20	64.66	74.00	9.34		
	2951.232	57.27	30.30	5.78	35.20	58.15	74.00	15.85	PK	
	3387.825	54.19	31.29	6.29	34.78	56.99	74.00	17.01		
	2550.000	41.49	28.63	5.35	35.20	40.27	54.00	13.73		
	2951.232	33.23	30.30	5.78	35.20	34.11	54.00	19.89	AV	
	3387.825	30.74	31.29	6.29	34.78	33.54	54.00	20.46		

Model No. : LC-43N6100U Humidity : 60%RH

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

& 1kHz Playing

	•	•		1	•	1	
	Frequency	Meter			Emission	Limits	Margin
Polarization	(MHz)	Reading	Factor	Loss	Level dB	dB	_
	(MITIZ)	$dB (\mu V)$	(dB/m)	(dB)	$(\mu V/m)$	$(\mu V/m)$	(dB)
	88.652	25.45	10.30	1.20	36.95	43.50	6.55
	134.088	23.36	12.62	1.54	37.52	43.50	5.98
Horizontal	243.377	21.27	12.10	2.13	35.50	46.00	10.50
попідощаї	282.985	20.39	13.35	2.45	36.19	46.00	9.81
	742.450	19.60	19.97	3.60	43.17	46.00	2.83
	851.035	16.40	20.73	4.17	41.30	46.00	4.70
	32.864	15.27	16.99	0.66	32.92	40.00	7.08
	47.492	26.20	9.11	0.79	36.10	40.00	3.90
Vertical	134.559	19.29	12.62	1.55	33.46	43.50	10.04
vertical	428.019	17.76	16.80	2.78	37.34	46.00	8.66
	742.259	17.65	19.97	3.60	41.22	46.00	4.78
	848.056	13.36	20.70	4.07	38.13	46.00	7.87

EUT : LED LCD TV Temperature : 22°C

Model No. : LC-43N6100U Humidity : 60%RH

Test Mode : HDMI 1280*1024@60Hz Date of Test : Aug 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)
	134.088	22.67	12.62	1.54	36.83	43.50	6.67
	284.977	21.28	13.50	2.45	37.23	46.00	8.77
Horizontal	324.456	19.63	14.63	2.62	36.88	46.00	9.12
Пописний	432.546	19.69	16.82	2.79	39.30	46.00	6.70
	842.130	15.73	20.77	4.07	40.57	46.00	5.43
	884.503	15.64	21.20	4.36	41.20	46.00	4.80
	33.445	14.63	16.69	0.67	31.99	40.00	8.01
	49.014	26.16	8.25	0.80	35.21	40.00	4.79
Vertical	71.832	23.66	7.75	0.96	32.37	40.00	7.63
vertical	426.521	16.83	16.80	2.78	36.41	46.00	9.59
	541.373	17.00	18.56	2.68	38.24	46.00	7.76
	845.088	12.26	20.73	4.07	37.06	46.00	8.94

Model No. : LC-43N6100U Humidity : 60%RH

Test Mode : HDMI 640*480@60Hz & Date of Test : Aug 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)
	71.581	23.18	7.68	0.96	31.82	40.00	8.18
	88.033	24.47	10.20	1.18	35.85	43.50	7.65
Horizontal	138.874	21.91	12.52	1.57	36.00	43.50	7.50
Пописния	284.977	21.31	13.50	2.45	37.26	46.00	8.74
	851.035	16.43	20.73	4.17	41.33	46.00	4.67
	881.407	14.48	21.10	4.36	39.94	46.00	6.06
	32.749	14.67	17.06	0.66	32.39	40.00	7.61
	47.326	25.02	9.11	0.79	34.92	40.00	5.08
Vertical	133.151	18.33	12.67	1.54	32.54	43.50	10.96
	284.977	17.46	13.50	2.45	33.41	46.00	12.59
	425.028	17.62	16.80	2.78	37.20	46.00	8.80
	845.088	12.08	20.73	4.07	36.88	46.00	9.12

EUT : LED LCD TV Temperature : 22° C

Model No. : LC-43N6100U Humidity : 60° RH

Test Mode : HDMI1080P Date of Test : Aug 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)
	100.581	17.79	12.39	1.00	31.18	43.50	12.32
	139.361	22.00	13.16	1.23	36.39	43.50	7.11
Horizontal	240.830	18.53	12.16	1.61	32.30	46.00	13.70
Попідопіаї	281.995	19.61	13.45	1.72	34.78	46.00	11.22
	742.500	21.30	19.57	2.79	43.66	46.00	2.34
	851.035	17.58	20.57	3.00	41.15	46.00	4.85
	51.843	26.01	8.16	0.72	34.89	40.00	5.11
	88.033	24.37	10.50	0.93	35.80	43.50	7.70
Vertical	148.963	24.68	12.16	1.28	38.12	43.50	5.38
	423.540	17.74	16.33	2.10	36.17	46.00	9.83
	742.259	20.50	19.57	2.79	42.86	46.00	3.14
	851.035	14.78	20.57	3.00	38.35	46.00	7.65

EUT : LED LCD TV Temperature : 22° C

Model No. : LC-43N6100U Humidity : 60%RH

Test Mode : MHL Date of Test : Aug 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)
	100.229	18.87	12.40	1.00	32.27	43.50	11.23
	140.342	22.10	13.20	1.23	36.53	43.50	6.97
Horizontal	239.987	21.08	12.10	1.60	34.78	46.00	11.22
Попідопіаї	282.985	20.58	13.45	1.72	35.75	46.00	10.25
	848.056	15.98	20.50	2.98	39.46	46.00	6.54
	878.322	13.76	20.97	3.05	37.78	46.00	8.22
	32.179	15.68	16.99	0.58	33.25	40.00	6.75
	51.843	24.81	8.16	0.72	33.69	40.00	6.31
Vertical	89.276	22.35	10.70	0.94	33.99	43.50	9.51
	141.826	19.90	12.98	1.24	34.12	43.50	9.38
	423.540	17.60	16.33	2.10	36.03	46.00	9.97
	845.088	12.74	20.40	2.98	36.12	46.00	9.88

EUT : LED LCD TV Temperature : 22° C

Model No. : LC-43N6100U Humidity : 60%RH

Test Mode : USB Play Date of Test : Aug 01, 2016

Polarization	Frequency (MHz)	Meter Reading dB (µV)	Antenna Factor (dB/m)		Emission Level dB (µV/m)	Limits dB (µV/m)	Margin (dB)
	99.878	18.53	12.34	1.00	31.87	43.50	11.63
	138.387	21.37	13.07	1.22	35.66	43.50	7.84
Horizontal	245.090	20.44	12.40	1.62	34.46	46.00	11.54
Попідопіаї	282.985	21.48	13.45	1.72	36.65	46.00	9.35
	742.500	17.80	19.57	2.79	40.16	46.00	5.84
	842.130	15.72	20.30	2.98	39.00	46.00	7.00
	52.575	24.76	8.00	0.72	33.48	40.00	6.52
	148.963	23.86	12.16	1.28	37.30	43.50	6.20
Vertical	425.028	19.80	16.35	2.10	38.25	46.00	7.75
	742.259	17.74	19.57	2.79	40.10	46.00	5.90
	845.088	14.03	20.40	2.98	37.41	46.00	8.59
	890.970	15.60	21.10	3.07	39.77	46.00	6.23

EUT : LED LCD TV Temperature : 22° C

Model No. : LC-43N6100U Humidity : 60° RH

Test Mode : LAN Play Date of Test : Aug 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)
	138.874	22.26	13.11	1.23	36.60	43.50	6.90
	282.985	21.26	13.45	1.72	36.43	46.00	9.57
Horizontal	432.546	18.25	16.44	2.12	36.81	46.00	9.19
Попідопіаї	539.478	19.28	17.60	2.36	39.24	46.00	6.76
	755.387	16.11	19.60	2.81	38.52	46.00	7.48
	851.035	17.03	20.57	3.00	40.60	46.00	5.40
	32.749	15.04	16.78	0.58	32.40	40.00	7.60
	54.071	24.79	7.80	0.73	33.32	40.00	6.68
Vertical	87.418	22.55	10.45	0.93	33.93	40.00	6.07
	140.342	18.24	13.20	1.23	32.67	43.50	10.83
	422.058	18.31	16.33	2.09	36.73	46.00	9.27
	845.088	14.57	20.40	2.98	37.95	46.00	8.05

5 DEBUG DESCRIPTION

The following components are used during the countermeasure procedures:

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

(BYRON WU)

6	DEVI	ATION TO	TEST	SPECIFICA	TIONS
1,		 		178 878 288 877	

None.