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

LED LCD TV

Model No.	Brand
50H7GB	
50H7GB1	Hisaas
50H7C	Hisense
50H7C+	

FCC ID: W9HLCDF0054

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-F15058A5

Date of Test: Apr 25 – May 03, 2016

Date of Report: May 13, 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	Hisense	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 Apr 25 – May 03, 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.F15059A5, a Verification report.

Date of Test:	Apr 25 – May 03, 2016	Date of Report :	May 13, 2016
Producer:	HUTMIN Jan HUI MIN YAN / Assistant		
Review:	Byron W.		
For and Audix Technology (Shangl	BYRON WU / Deputy Assistant Manager on behalf of nai) Co., Ltd.		

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.	Brand	
50H7GB		
50H7GB1	Higanga	
50H7C	Hisense	
50H7C+		

Note #1 : The above models are all the same except for the

different model No. The 50H7GB was tested and reported in the report.

Note #2 : The modified histories of report are as follows:

D ()1	N	D G	TO 11.11 D.T.	D / CD
Report No.	Model No.	Rev. Summary	Edition No.	Data of Rev.
ACI-F15058	LTDN50K3201GUWUS, 50H7GB, 50H7GB*	Original Report	0	Jan 19, 2015
ACI-F15058A1	50H7GB1	1. To add one new model name	Rev. A1	Apr 03, 2015
ACI-F15058A2	50H7GB2,50H7GB3 50H7GB4	 To add three new model name To change LCD Panel and Power Board 	Rev. A2	Jul 15, 2015
ACI-F15058A3	50H7GB, 50H7GB1	1.To add Panel, mainboard heat sink grounding	Rev. A3	Sep 22, 2015
ACI-F15058A4	50H7C, 50H7C+	To add two new model name	Rev. A4	Mar 18, 2016
ACI-F15058A5	50H7GB, 50H7GB1 50H7C, 50H7C+	To add Panel, mainboard	Rev. A5	May 13, 2016

Note#3 : "+" represents any numerals, for different sales area.

Applicant : Hisense Electric Co., Ltd.

No.218 Qianwangang Road, Economy &

Technology Development Zone, Qingdao, China

Manufacturer : same as Applicant

Hisense Electric Co., Ltd. FCC ID: W9HLCDF0054 Page 6 of 36

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 : HD500DU-B52(110)

Tuner : Manufacturer : XuGuang Tech.Co., Ltd

M/N: HFT-96S3/W11FJ2H\ROH

Max Resolution : 3840*2160@60Hz

HDMI Cable*4 :

Shielded, Detachable, 1.50m with two cores

(Lab provide)

Power Cord : Unshielded, Detachable, 1.80m 2C

LAN Cable : Shielded, Detachable, 1.50m

USB Cable*3 : Shielded, Detachable, 1.00m

Remark:

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

Back Port:

(1) One LAN Port

: Connected with PC

(2) One HDMI3 Port

: Connected with PC

(3) One HDMI4 Port

: Connected with DVD PLAYER#2

(4) One Digital Audio out Port

: Connected with DVD PLAYER#2

(5) One component of Video/YPbPr Port

: Connected with DVD PLAYER#1

Side Port:

(1) One USB3 Port

: Connected with Hard-Disk#3

(2) One HDMI1/MHL Port

: Connected with Mobile Phone

(3) One HDMI2/ARC Port

: Connected with DVD PLAYER#1

(4) One Audio out Port

: Connected with Earphone

(5) One USB2 Port

: Connected with Hard-Disk #1

(6) One USB1 Port

: Connected with Hard-Disk #2

(7) One ANT/CABLE IN Port

: Connected with Antenna or ATSC SG / TV SG

(8) One Service Port

: Do not open to the costumers

2.2 Peripherals

2.2.1 PC

Manufacturer: HP
Model Number: Pro3340

Serial Number: 6CR2512VFD

Power Cord : Unshielded, Detachable, 1.8m Certificate : FCC DoC; CE/EMC; VCCI; C-Tick;

2.2.2 Keyboard

Manufacturer : Microsoft Model Number : RT2300

Serial Number: 7668200662248

Data Cable : Shielded, undetachable, 1.8m

Certificate : CE/EMC, FCC DoC, VCCI, MIC, C-Tick,

BSMI

2.2.3 Mouse

Manufacturer : Microsoft Model Number : RT2300

Serial Number: 6965712071551

Data Cable : Shielded, Undetachable, 1.8m. Certificate : CE/EMC, FCC DoC, VCCI, MIC,

C-Tick, BSMI

2.2.4 Modem

Manufacturer : TP-LINK Model Number : TM-EC5658V Serial Number : 07123301053

Data Cable : Shielded, Detachable, 1.8m

Certificate : CCC

2.2.5 Earphone*2

Manufacturer : Edifier Model Number : H210

2.2.6 TV Signal Generator

Manufacturer : FLUKE Model Number : 54200m01 Serial Number : 814008

Data Cable : Shielded, detachable, 2.0m Power Cord : Unshielded, detachable, 2.0m Hisense Electric Co., Ltd. FCC ID: W9HLCDF0054 Page 8 of 36

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

Certificate : FCC Doc CE

2.2.11 Hard Disk #2

Manufacturer : Tetasys Model Number : F12

Serial Number: A010022-4A60007

Certificate : FCC Doc CE

2.2.12 Hard Disk #3

Manufacturer : Tetasys Model Number : F12

Serial Number: A010022-486006 Certificate: FCC Doc CE

2.2.13 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

FCC registration Number : 91789

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 = 5.4dB (Vertical)

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

U = 5.1 dB

3 CONDUCTED EMISSION TEST

3.1 Test Equipment

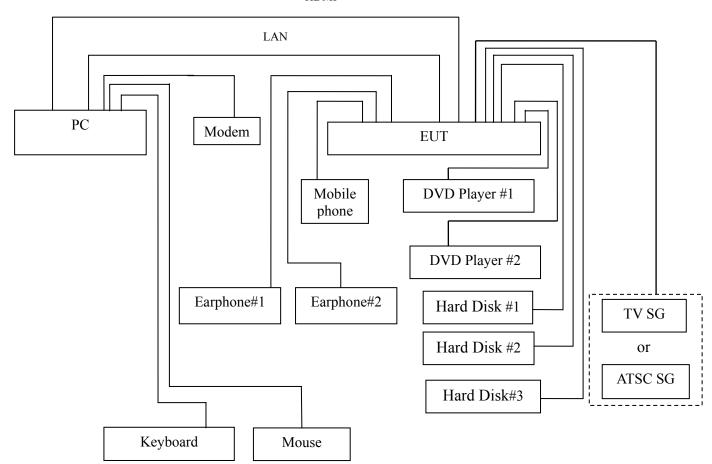
The following test equipments are used during the conducted emission test in a shielded room:

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Test Receiver	R&S	ESCI	101302	Apr 27, 2015	Apr 26, 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	8-1280-4	Mar 19, 2016	Mar 18, 2017
4.	50Ω Coaxial Switch	Anritsu	MP59B	6200426389	Mar 18, 2015	Sep 17, 2016
5.	50Ω Terminator	Anritsu	BNC	001	Mar 20, 2016	Mar 19, 2017
6.	Software	Audix	e3	6.111206		

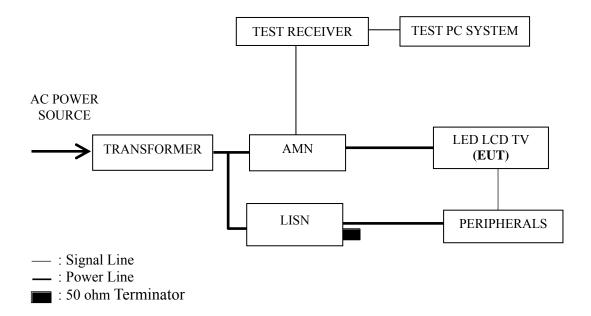
3.2 Block Diagram of Test Setup

3.2.1 EUT & Peripherals

HDMI



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 HDMI 640*480@60Hz & 1kHz playing test mode. The worst emission is detected at 0.171 MHz (Average Value) with corrected signal level of 56.76dB (μV) (limit is 64.91 dB (μV)), when the Line of the EUT is connected to AMN.

Model No. : ______ 50H7GB _____ Humidity : _____ 48%RH

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

& 1kHz playing

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(µV)	Limits dB(µV)	Margin (dB)	Remark
	0.171	46.10	10.56	56.66	64.89	8.23	
	0.400	31.60	10.42	42.02	57.86	15.84	
	0.520	28.10	10.39	38.49	56.00	17.51	OD
	0.967	27.80	10.38	38.18	56.00	17.82	QP
	2.553	25.30	10.43	35.73	56.00	20.27	
Lina	7.346	32.80	10.47	43.27	60.00	16.73	
Line	0.171	33.50	10.56	44.06	54.89	10.83	
	0.400	19.50	10.42	29.92	47.86	17.94	
	0.520	17.00	10.39	27.39	46.00	18.61	AV
	0.967	18.70	10.38	29.08	46.00	16.92	
	2.553	15.80	10.43	26.23	46.00	19.77	
	7.346	18.70	10.47	29.17	50.00	20.83	
	0.171	46.10	10.55	56.65	64.91	8.26	
	0.384	27.90	10.41	38.31	58.20	19.89	
	0.596	27.30	10.36	37.66	56.00	18.34	OD
	1.247	26.89	10.39	37.28	56.00	18.72	QP
	2.375	22.80	10.42	33.22	56.00	22.78	
Neutral	7.298	28.90	10.52	39.42	60.00	20.58	
Neutrai	0.171	33.30	10.55	43.85	54.91	11.06	
	0.384	19.80	10.41	30.21	48.20	17.99	
	0.596	14.60	10.36	24.96	46.00	21.04	AV
	1.247	16.09	10.39	26.48	46.00	19.52	
	2.375	13.90	10.42	24.32	46.00	21.68	
	7.298	15.80	10.52	26.32	50.00	23.68	

Model No. : 50H7GB Humidity : 48%RH

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

& 1kHz Playing

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(µV)	Limits dB(µV)	Margin (dB)	Remark
	0.172	46.09	10.56	56.65	64.85	8.20	
	0.392	30.79	10.43	41.22	58.02	16.80	
	0.522	28.00	10.39	38.39	56.00	17.61	\cap D
	0.971	28.50	10.38	38.88	56.00	17.12	QP
	1.817	26.90	10.41	37.31	56.00	18.69	
Time	7.297	29.60	10.47	40.07	60.00	19.93	=
Line	0.172	33.59	10.56	44.15	54.85	10.70	
	0.392	18.49	10.43	28.92	48.02	19.10	AV
	0.522	17.40	10.39	27.79	46.00	18.21	
	0.971	18.60	10.38	28.98	46.00	17.02	
	1.817	16.10	10.41	26.51	46.00	19.49	
	7.297	16.20	10.47	26.67	50.00	23.33	
	0.171	46.10	10.55	56.65	64.93	8.28	
	0.383	27.90	10.41	38.31	58.21	19.90	
	0.701	25.10	10.35	35.45	56.00	20.55	OD
	1.076	26.90	10.37	37.27	56.00	18.73	QP
	1.795	26.69	10.41	37.10	56.00	18.90	
Neutral	7.519	28.50	10.52	39.02	60.00	20.98	
Neutrai	0.171	33.00	10.55	43.55	54.93	11.38	
	0.383	20.00	10.41	30.41	48.21	17.80	AV
	0.701	10.50	10.35	20.85	46.00	25.15	
	1.076	15.60	10.37	25.97	46.00	20.03	
	1.795	17.29	10.41	27.70	46.00	18.30	
	7.519	17.00	10.52	27.52	50.00	22.48	

Model No. : 50H7GB Humidity : 48%RH

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

& 1kHz Playing

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(µV)	Limits dB(µV)	Margin (dB)	Remark				
	0.171	46.20	10.56	56.76	64.94	8.18					
	0.399	31.40	10.42	41.82	57.88	16.06					
	0.695	27.41	10.37	37.78	56.00	18.22	OD				
	1.808	27.10	10.41	37.51	56.00	18.49	QP				
	4.242	23.90	10.47	34.37	56.00	21.63					
Line	7.361	32.00	10.47	42.47	60.00	17.53					
Line	0.171	33.50	10.56	44.06	54.94	10.88					
	0.399	19.80	10.42	30.22	47.88	17.66	AV				
	0.695	17.81	10.37	28.18	46.00	17.82					
	1.808	17.50	10.41	27.91	46.00	18.09					
	4.242	13.80	10.47	24.27	46.00	21.73					
	7.361	18.90	10.47	29.37	50.00	20.63					
	0.171	46.00	10.55	56.55	64.93	8.38					
	0.382	27.50	10.41	37.91	58.23	20.32					
	0.528	28.10	10.37	38.47	56.00	17.53	QP				
	0.973	28.50	10.37	38.87	56.00	17.13	Qr				
	2.626	26.30	10.43	36.73	56.00	19.27					
Neutral	7.764	30.20	10.53	40.73	60.00	19.27					
Neuman	0.171	32.90	10.55	43.45	54.93	11.48					
	0.382	19.60	10.41	30.01	48.23	18.22	AV				
	0.528	17.60	10.37	27.97	46.00	18.03					
	0.973	19.00	10.37	29.37	46.00	16.63					
	2.626	16.00	10.43	26.43	46.00	19.57					
	7.764	16.80	10.53	27.33	50.00	22.67					

Model No. : 50H7GB Humidity : 48%RH

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

1kHz Playing

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(µV)	Limits dB(µV)	Margin (dB)	Remark
	0.171	46.20	10.56	56.76	64.91	8.15	
	0.384	30.50	10.43	40.93	58.20	17.27	
	0.523	28.20	10.39	38.59	56.00	17.41	OD
	0.972	28.90	10.38	39.28	56.00	16.72	QP
	2.362	25.50	10.42	35.92	56.00	20.08	
Line	7.738	28.20	10.47	38.67	60.00	21.33	
Line	0.171	33.30	10.56	43.86	54.91	11.05	AV
	0.384	21.30	10.43	31.73	48.20	16.47	
	0.523	17.70	10.39	28.09	46.00	17.91	
	0.972	19.50	10.38	29.88	46.00	16.12	
	2.362	16.70	10.42	27.12	46.00	18.88	
	7.738	13.30	10.47	23.77	50.00	26.23	
	0.171	45.90	10.55	56.45	64.91	8.46	
	0.399	28.40	10.40	38.80	57.87	19.07	
	0.533	28.50	10.37	38.87	56.00	17.13	OD
	0.967	28.50	10.37	38.87	56.00	17.13	QP
	2.357	25.10	10.42	35.52	56.00	20.48	
Neutral	7.325	29.90	10.52	40.42	60.00	19.58	
Neutrai	0.171	33.40	10.55	43.95	54.91	10.96	
	0.399	17.50	10.40	27.90	47.87	19.97	
	0.533	18.60	10.37	28.97	46.00	17.03	AV
	0.967	18.40	10.37	28.77	46.00	17.23	
	2.357	16.50	10.42	26.92	46.00	19.08	
	7.325	16.50	10.52	27.02	50.00	22.98	

Test Mode : HDMI 1080P Date of Test : Apr 25, 2016

Test	Frequency	Meter	Factor	Emission	Limits	Margin	
Line	(MHz)	Reading dB(μV)	(dB)	Level dB(μV)	$dB(\mu V)$	(dB)	Remark
	0.173	45.70	10.55	56.25	64.82	8.57	
	0.396	31.29	10.43	41.72	57.93	16.21	
	0.695	27.51	10.37	37.88	56.00	18.12	
	1.242	27.60	10.39	37.99	56.00	18.01	QP
	2.554	25.60	10.43	36.03	56.00	19.97	
Line	7.362	31.60	10.47	42.07	60.00	17.93	1
Line	0.173	33.50	10.55	44.05	54.82	10.77	AV
	0.396	19.69	10.43	30.12	47.93	17.81	
	0.695	17.91	10.37	28.28	46.00	17.72	
	1.242	18.00	10.39	28.39	46.00	17.61	
	2.554	16.30	10.43	26.73	46.00	19.27	
	7.362	17.30	10.47	27.77	50.00	22.23	
	0.172	45.99	10.55	56.54	64.85	8.31	
	0.383	27.80	10.41	38.21	58.22	20.01	
	0.519	27.90	10.37	38.27	56.00	17.73	OD
	0.967	28.20	10.37	38.57	56.00	17.43	QP
	1.875	26.90	10.41	37.31	56.00	18.69	
Neutral	7.366	29.70	10.52	40.22	60.00	19.78	
Neutrai	0.172	33.39	10.55	43.94	54.85	10.91	
	0.383	19.70	10.41	30.11	48.22	18.11	AV
	0.519	17.20	10.37	27.57	46.00	18.43	
	0.967	18.00	10.37	28.37	46.00	17.63	
	1.875	15.80	10.41	26.21	46.00	19.79	
	7.366	15.80	10.52	26.32	50.00	23.68	

EUT : LED LCD TV Temperature : 22°C

Model No. : 50H7GB Humidity : 48%RH

Test Mode : MHL Date of Test : Apr 25, 2016

	I I	N ()		г · ·			
Test	Frequency	Meter	Factor	Emission Level	Limits	Margin	D 1
Line	(MHz)	Reading	(dB)		dB(μV)	(dB)	Remark
	, ,	$dB(\mu V)$	` ′	$dB(\mu V)$. ,		
	0.172	45.79	10.56	56.35	64.86	8.51	
	0.401	31.60	10.42	42.02	57.84	15.82	
	0.524	28.30	10.39	38.69	56.00	17.31	QP
	0.976	29.20	10.38	39.58	56.00	16.42	Q1
	2.552	26.20	10.43	36.63	56.00	19.37	
Line	7.053	28.80	10.46	39.26	60.00	20.74	
Line	0.172	33.59	10.56	44.15	54.86	10.71	
	0.401	19.20	10.42	29.62	47.84	18.22	AV
	0.524	17.80	10.39	28.19	46.00	17.81	
	0.976	19.40	10.38	29.78	46.00	16.22	
	2.552	16.30	10.43	26.73	46.00	19.27	
	7.053	18.51	10.46	28.97	50.00	21.03	
	0.174	45.10	10.54	55.64	64.79	9.15	
	0.390	27.70	10.41	38.11	58.06	19.95	
	0.519	28.00	10.37	38.37	56.00	17.63	OD
	0.972	28.80	10.37	39.17	56.00	16.83	QP
	3.207	23.49	10.45	33.94	56.00	22.06	
NT 4 1	7.043	25.10	10.51	35.61	60.00	24.39	
Neutral	0.174	33.30	10.54	43.84	54.79	10.95	
	0.390	17.00	10.41	27.41	48.06	20.65	
	0.519	17.30	10.37	27.67	46.00	18.33	AV
	0.972	20.00	10.37	30.37	46.00	15.63	
	3.207	14.09	10.45	24.54	46.00	21.46	
	7.043	18.00	10.51	28.51	50.00	21.49	

Model No. : 50H7GB Humidity : 48%RH

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

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(µV)	Margin (dB)	Remark		
	0.171	46.10	10.56	56.66	64.93	8.27			
	0.401	31.70	10.42	42.12	57.84	15.72			
	0.975	29.10	10.38	39.48	56.00	16.52	OD		
	1.810	27.60	10.41	38.01	56.00	17.99	QP		
	4.043	25.29	10.47	35.76	56.00	20.24			
т:	7.352	30.40	10.47	40.87	60.00	19.13			
Line	0.171	32.60	10.56	43.16	54.93	11.77			
	0.401	19.20	10.42	29.62	47.84	18.22	AV		
	0.975	19.20	10.38	29.58	46.00	16.42			
	1.810	17.80	10.41	28.21	46.00	17.79			
	4.043	16.19	10.47	26.66	46.00	19.34			
	7.352	16.90	10.47	27.37	50.00	22.63			
	0.173	44.49	10.55	55.04	64.81	9.77			
	0.385	27.80	10.41	38.21	58.17	19.96			
	0.695	27.21	10.35	37.56	56.00	18.44	OD		
	0.972	28.80	10.37	39.17	56.00	16.83	QP		
	2.631	26.50	10.43	36.93	56.00	19.07			
NI asstral	7.088	27.91	10.51	38.42	60.00	21.58			
Neutral	0.173	33.59	10.55	44.14	54.81	10.67			
	0.385	19.70	10.41	30.11	48.17	18.06	AV		
	0.695	18.61	10.35	28.96	46.00	17.04			
	0.972	19.90	10.37	30.27	46.00	15.73			
	2.631	16.20	10.43	26.63	46.00	19.37			
	7.088	19.61	10.51	30.12	50.00	19.88			

Model No. : 50H7GB Humidity : 48%RH

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

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(µV)	Limits dB(µV)	Margin (dB)	Remark
	0.171	46.10	10.56	56.66	64.91	8.25	
	0.398	31.50	10.42	41.92	57.90	15.98	
	0.589	26.80	10.38	37.18	56.00	18.82	OD
	0.976	28.80	10.38	39.18	56.00	16.82	QP
	3.209	23.90	10.45	34.35	56.00	21.65	
Time	7.329	29.40	10.47	39.87	60.00	20.13	
Line	0.171	33.20	10.56	43.76	54.91	11.15	
	0.398	20.00	10.42	30.42	47.90	17.48	
	0.589	13.00	10.38	23.38	46.00	22.62	AV
	0.976	18.70	10.38	29.08	46.00	16.92	
	3.209	14.20	10.45	24.65	46.00	21.35	
	7.329	14.50	10.47	24.97	50.00	25.03	
	0.172	45.59	10.55	56.14	64.86	8.72	
	0.400	28.50	10.40	38.90	57.86	18.96	
	0.696	27.41	10.35	37.76	56.00	18.24	OD
	1.806	27.29	10.41	37.70	56.00	18.30	QP
	4.107	26.00	10.46	36.46	56.00	19.54	
NI asstral	7.335	29.30	10.52	39.82	60.00	20.18	
Neutral	0.172	33.39	10.55	43.94	54.86	10.92	
	0.400	17.60	10.40	28.00	47.86	19.86	AV
	0.696	18.61	10.35	28.96	46.00	17.04	
	1.806	17.69	10.41	28.10	46.00	17.90	
	4.107	15.50	10.46	25.96	46.00	20.04	
	7.335	14.90	10.52	25.42	50.00	24.58	

4 RADIATED EMISSION TEST

4.1 Test Equipment

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

	Denn ancene	710 011001110 011				
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	HP	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 15, 2015	May 14, 2016
5.	Horn Antenna	EMCO	3115	9607-4878	Jun 03, 2015	Jun 02, 2016
6.	Spectrum	Agilent	E7405A	MY45106600	Feb 26, 2016	Feb 25, 2017
7.	50Ω Coaxial Switch	Anritsu	MP59B	6200426390	Mar 17, 2015	Sep 18, 2016
8.	Software	Audix	e3	6.2007-9-10		

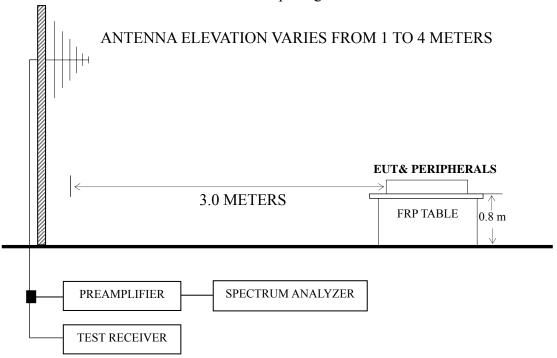
4.2 Block Diagram of Test Setup

4.2.1 EUT & Peripherals

HDMI LAN EUT PC Modem DVD Player #1 Mobile phone DVD Player #2 Earphone#1 Earphone#2 Hard Disk #1 TV SG or Hard Disk #2 ATSC SG Hard Disk#3 Keyboard Mouse

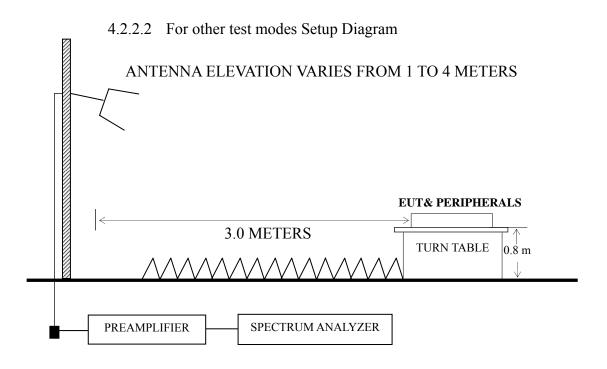
4.2.2 Radiated emission test setup

4.2.2.1 For TV modes Setup Diagram



Note*: The length of Dipole Antenna is 2.24m for VHF (Channel 2~13); and 0.3m for UHF (Channel 14~69)

: 50 ohm Coaxial Switch



: 50 ohm Coaxial Switch

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	P26-P27
HDMI 1920*1080@60Hz & 1kHz playing	P28
HDMI 1280*1024@60Hz & 1kHz playing	P29
HDMI 640*480@60Hz & 1kHz playing	P30
HDMI 1080P	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 739.661 MHz with corrected signal level of 42.92dB (μ V/m) (limit is 46.00 dB (μ V/m)), when the antenna was 1.50 m height and the turntable was at 120°. The worst emission at vertical polarization was detected at 845.088 MHz with corrected signal level of 42.96dB (μ V/m) (limit is 46.00 dB (μ V/m)), when the antenna was 1.40 m height and the turntable was at 70°.

Model No. : 50H7GB Humidity : 60%RH

Test Mode : HDMI 3840*2160@60Hz Date of Test : May 03, 2016 & 1kHz Playing

Preamp Limits Meter Antenna Cable Emission Margin Frequency Polarization Factor Factor Reading Level dB Loss dB Remark (MHz) (dB) (dB) $dB (\mu V)$ (dB) $(\mu V/m)$ (dB/m) $(\mu V/m)$ 26.20 0.99 35.39 73.617 8.20 40.00 4.61 135.506 21.21 12.59 1.55 35.35 43.50 8.15 185.138 23.83 10.50 43.50 7.29 1.88 36.21 --QP 36.39 227.691 23.27 11.04 2.08 46.00 9.61 663.473 19.51 19.60 3.16 42.27 46.00 3.73 --739.661 19.42 19.90 3.60 42.92 46.00 3.08 4.07 55.94 74.00 1690.434 60.91 26.40 35.44 18.06 2538.859 28.57 4.96 35.16 74.00 13.31 62.32 60.69 62.73 30.37 5.76 35.20 74.00 11.27 2961.827 61.80 Horizontal PK 3381.760 58.77 31.29 6.10 34.82 61.34 74.00 12.66 1690.434 42.10 26.40 4.07 35.44 37.13 54.00 16.87 35.16 41.57 54.00 2538.859 43.20 28.57 4.96 12.43 2961.827 41.94 30.37 5.76 35.20 42.87 54.00 11.13 3381.760 40.94 31.29 6.10 34.82 43.51 54.00 10.49 1690.434 60.91 26.40 4.07 35.44 55.94 74.00 18.06 ΑV 2538.859 62.32 28.57 4.96 35.16 60.69 74.00 13.31 35.20 2961.827 61.80 30.37 5.76 62.73 74.00 11.27 3381.760 31.29 6.10 34.82 61.34 74.00 12.66 58.77

EUT : LED LCD TV Temperature : 22°C

Model No. : _____ 50H7GB _____ Humidity : ____ 60%RH

Test Mode : HDMI 3840*2160@60Hz Date of Test : May 03, 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
	72.338	27.22	7.90	0.98		36.10	40.00	3.90	
	132.221	21.44	12.71	1.53		35.68	43.50	7.82	
	425.028	15.65	16.80	2.78	1	35.23	46.00	10.77	ΩD
	663.473	18.49	19.60	3.16		41.25	46.00	4.75	QP
	742.259	19.30	19.97	3.60	1	42.87	46.00	3.13	
	845.088	18.16	20.73	4.07	ŀ	42.96	46.00	3.04	
	1477.873	59.59	25.52	3.86	35.71	53.26	74.00	20.74	
	2111.004	59.86	27.72	4.55	35.11	57.02	74.00	16.98	
Vertical	2534.314	64.04	28.57	4.96	35.16	62.41	74.00	11.59	PK
Vertical	2972.460	63.67	30.40	5.76	35.20	64.63	74.00	9.37	I K
	1477.873	41.30	25.52	3.86	35.71	34.97	54.00	19.03	
	2111.004	39.92	27.72	4.55	35.11	37.08	54.00	16.92	
	2534.314	45.73	28.57	4.96	35.16	44.10	54.00	9.90	
	2972.460	45.38	30.40	5.76	35.20	46.34	54.00	7.66	
	1477.873	59.59	25.52	3.86	35.71	53.26	74.00	20.74	AV
	2111.004	59.86	27.72	4.55	35.11	57.02	74.00	16.98	
	2534.314	64.04	28.57	4.96	35.16	62.41	74.00	11.59	
	2972.460	63.67	30.40	5.76	35.20	64.63	74.00	9.37	

EUT : LED LCD TV Temperature : 22°C

Model No. : 50H7GB Humidity : 60%RH

Test Mode : HDMI 1920*1080@60Hz Date of Test : May 03, 2016

& 1kHz playing

	T	T	T		T	1	
	Frequency	Meter			Emission	Limits	Margin
Polarization	(MHz)	Reading	Factor	Loss	Level dB	dB	_
	(WITIZ)	dB (µV)	(dB/m)	(dB)	$(\mu V/m)$	$(\mu V/m)$	(dB)
	69.600	25.67	7.21	0.93	33.81	40.00	6.19
	84.405	22.93	9.74	1.13	33.80	40.00	6.20
Horizontal	148.963	26.63	11.57	1.63	39.83	43.50	3.67
Попідопіаї	206.398	22.70	9.84	1.99	34.53	43.50	8.97
	668.142	19.22	19.60	3.16	41.98	46.00	4.02
	842.130	15.43	20.77	4.07	40.27	46.00	5.73
	30.853	16.40	18.25	0.64	35.29	40.00	4.71
	54.261	27.38	6.66	0.84	34.88	40.00	5.12
Vertical	71.581	28.16	7.68	0.96	36.80	40.00	3.20
vertical	135.506	26.26	12.59	1.55	40.40	43.50	3.10
	209.313	22.69	10.00	2.01	34.70	43.50	8.80
	670.489	19.33	19.60	3.16	42.09	46.00	3.91

Model No. : 50H7GB Humidity : 60%RH

Test Mode : HDMI 1280*1024@60Hz Date of Test : May 03, 2016

& 1kHz playing

	•	•		1	,		
	Frequency	Meter			Emission	Limits	Margin
Polarization	(MHz)	Reading	Factor	Loss	Level dB	dB	_
	(МПZ)	dB (µV)	(dB/m)	(dB)	$(\mu V/m)$	$(\mu V/m)$	(dB)
	70.090	25.53	7.30	0.95	33.78	40.00	6.22
	185.138	25.28	10.50	1.88	37.66	43.50	5.84
Horizontal	324.456	23.19	14.63	2.62	40.44	46.00	5.56
поптенца	432.546	20.15	16.82	2.79	39.76	46.00	6.24
	670.489	18.83	19.60	3.16	41.59	46.00	4.41
	851.035	15.83	20.73	4.17	40.73	46.00	5.27
	30.424	14.97	18.62	0.64	34.23	40.00	5.77
	54.835	26.32	6.52	0.85	33.69	40.00	6.31
Vertical	71.330	26.05	7.60	0.96	34.61	40.00	5.39
vertical	135.032	23.37	12.60	1.55	37.52	43.50	5.98
	670.489	18.95	19.60	3.16	41.71	46.00	4.29
	851.035	14.91	20.73	4.17	39.81	46.00	6.19

Model No. : 50H7GB Humidity : 60%RH

Test Mode : HDMI 640*480@60Hz Date of Test : May 03, 2016

& 1kHz Playing

Polarization	Frequency (MHz)	Meter Reading dB (µV)	Antenna Factor (dB/m)		Emission Level dB (µV/m)	Limits dB (µV/m)	Margin (dB)
	69.845	25.63	7.26	0.93	33.82	40.00	6.18
	137.903	22.77	12.54	1.56	36.87	43.50	6.63
Horizontal	185.138	25.45	10.50	1.88	37.83	43.50	5.67
Попідопіаї	246.815	23.86	12.38	2.14	38.38	46.00	7.62
	670.489	18.42	19.60	3.16	41.18	46.00	4.82
	851.035	15.45	20.73	4.17	40.35	46.00	5.65
	30.853	16.36	18.25	0.64	35.25	40.00	4.75
	70.832	27.43	7.53	0.95	35.91	40.00	4.09
Vertical	134.559	23.28	12.62	1.55	37.45	43.50	6.05
verticai	215.268	22.07	10.20	2.03	34.30	43.50	9.20
	663.473	18.35	19.60	3.16	41.11	46.00	4.89
	851.035	15.28	20.73	4.17	40.18	46.00	5.82

Model No. : 50H7GB Humidity : 60%RH

Test Mode : HDMI 1080P Date of Test : May 03, 2016

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)		Emission Level dB (µV/m)	Limits dB (µV/m)	Margin (dB)
	70.584	25.81	7.45	0.95	34.21	40.00	5.79
	142.824	21.20	12.25	1.60	35.05	43.50	8.45
Horizontal	244.232	24.10	12.20	2.14	38.44	46.00	7.56
Поптенца	446.414	19.97	16.83	2.82	39.62	46.00	6.38
	670.489	18.64	19.60	3.16	41.40	46.00	4.60
	742.259	17.22	19.97	3.60	40.79	46.00	5.21
	71.581	26.43	7.68	0.96	35.07	40.00	4.93
	210.786	21.14	10.03	2.01	33.18	43.50	10.32
Vertical	446.414	21.60	16.83	2.82	41.25	46.00	4.75
	670.489	18.80	19.60	3.16	41.56	46.00	4.44
	742.259	16.30	19.97	3.60	39.87	46.00	6.13
	890.728	14.61	21.30	4.46	40.37	46.00	5.63

EUT : LED LCD TV Temperature : 22° C

Model No. : 50H7GB Humidity : 60%RHTest Mode : MHL Date of Test : May 03, 2016

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)		Emission Level dB (µV/m)	Limits dB (µV/m)	Margin (dB)
	86.503	22.10	10.00	1.16	33.26	40.00	6.74
	135.982	21.67	12.58	1.55	35.80	43.50	7.70
Horizontal	207.850	23.30	9.92	2.01	35.23	43.50	8.27
Попідопіаї	244.232	25.10	12.20	2.14	39.44	46.00	6.56
	499.425	18.90	17.90	2.94	39.74	46.00	6.26
	842.130	15.22	20.77	4.07	40.06	46.00	5.94
	33.445	15.67	16.69	0.67	33.03	40.00	6.97
	66.967	26.12	6.81	0.91	33.84	40.00	6.16
Vertical	128.563	22.19	12.87	1.51	36.57	43.50	6.93
verticai	210.786	24.14	10.03	2.01	36.18	43.50	7.32
	531.964	19.68	18.35	2.73	40.76	46.00	5.24
	848.056	15.74	20.70	4.07	40.51	46.00	5.49

Model No. : 50H7GB Humidity : 60%RH

Test Mode : USB Play Date of Test : May 03, 2016

Polarization	Frequency (MHz)	Meter Reading dB (µV)	Antenna Factor (dB/m)		Emission Level dB (µV/m)	Limits dB (µV/m)	Margin (dB)
	71.581	24.61	7.68	0.96	33.25	40.00	6.75
	98.142	22.29	12.07	1.30	35.66	43.50	7.84
Horizontal	166.651	20.87	11.19	1.75	33.81	43.50	9.69
Попідопіаї	206.398	24.70	9.84	1.99	36.53	43.50	6.97
	408.946	18.94	16.60	2.73	38.27	46.00	7.73
	706.700	16.47	19.80	3.56	39.83	46.00	6.17
	62.651	27.06	6.36	0.89	34.31	40.00	5.69
	100.581	22.81	12.32	1.32	36.45	43.50	7.05
Vertical	180.649	24.68	10.50	1.85	37.03	43.50	6.47
vertical	209.313	24.69	10.00	2.01	36.70	43.50	6.80
	399.030	17.68	16.58	2.71	36.97	46.00	9.03
	670.489	17.33	19.60	3.16	40.09	46.00	5.91

Model No. : 50H7GB Humidity : 60%RH

Test Mode : LAN Play Date of Test : May 03, 2016

Polarization	Frequency (MHz)	Meter Reading dB (µV)	Antenna Factor (dB/m)		Emission Level dB (µV/m)	Limits dB ($\mu V/m$)	Margin (dB)
	77.593	24.96	8.95	1.05	34.96	40.00	5.04
	165.487	24.40	11.24	1.75	37.39	43.50	6.11
Horizontal	266.609	22.71	13.23	2.32	38.26	46.00	7.74
попідопіаї	513.633	18.72	17.95	2.84	39.51	46.00	6.49
	833.317	11.65	20.75	3.97	36.37	46.00	9.63
	925.756	12.76	21.63	4.61	39.00	46.00	7.00
	61.995	26.01	6.33	0.89	33.23	40.00	6.77
	83.816	22.24	9.71	1.13	33.08	40.00	6.92
Vertical	128.563	22.03	12.87	1.51	36.41	43.50	7.09
verticai	215.268	24.07	10.20	2.03	36.30	43.50	7.20
	520.888	18.19	18.14	2.78	39.11	46.00	6.89
	818.834	12.53	20.67	3.88	37.08	46.00	8.92

5 DEBUG DESCRIPTION

The following components are used during the countermeasure procedures:

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

Note: We had required the applicant and manufacturer that all electrical and mechanical devices employed for spurious radiation suppression, including any modifications made during certification testing, must be incorporated in each unit marked

TEST ENGINEER:

(BYRON WU)

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6	DEVI	TION TO	TECT	SPECIFICA	TIONS
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None.