

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

LED LCD TV

Model No.	Brand
40H5B	Hisense
40H5B+	
40H5C	
40H5C+	

FCC ID: W9HLCDD0064

Prepared For : Hisense Electric Co., Ltd.
No.218 Qianwangang Road, Economy & Technology
Development Zone, Qingdao, China

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Report No. : ACI-F16252
Date of Test : Oct 09- 10, 2016
Date of Report : Oct 20, 2016

TABLE OF CONTENTS

	Page
1 SUMMARY OF STANDARDS AND RESULTS	4
1.1 Description of Standards and Results.....	4
2 GENERAL INFORMATION	5
2.1 Description of Equipment Under Test.....	5
2.2 Peripherals.....	6
2.3 Description of Test Facility.....	8
2.4 Measurement Uncertainty.....	8
3 CONDUCTED EMISSION TEST	9
3.1 Test Equipment.....	9
3.2 Block Diagram of Test Setup.....	9
3.3 Conducted Emission Limit [FCC Part 15 Subpart B 15.107(a)].....	10
3.4 Test Configuration.....	10
3.5 Operating Condition of EUT.....	11
3.6 Test Procedures.....	11
3.7 Test Results.....	12
4 RADIATED EMISSION TEST	19
4.1 Test Equipment.....	19
4.2 Block Diagram of Test Setup.....	19
4.3 Radiated Emission Limit [FCC Part 15 Subpart B 15.109(a)].....	21
4.4 Test Configuration.....	21
4.5 Operating Condition of EUT.....	21
4.6 Test Procedures.....	21
4.7 Test Results.....	22
5 DEBUG DESCRIPTION	30
6 DEVIATION TO TEST SPECIFICATIONS	31

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 Sec.2.1	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 Oct 09- 10, 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.F16251, a Verification report.

Date of Test : Oct 09- 10, 2016 Date of Report : Oct 20, 2016

Producer : Huimin Yan
 HUI MIN YAN / Assistant

Review : Byron Wu
 BYRON WU / Deputy Assistant Manager

 For and on behalf of
 Audix Technology (Shanghai) 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	:	<input checked="" type="checkbox"/> Production <input type="checkbox"/> Pre-product <input type="checkbox"/> Pro-type
Model No	:	40H5B, 40H5B+,40H5C, 40H5C+
Note#1	:	The above models are all the same except for model number.40H5B model is tested and recorded in the report.
Note#2	:	“+”represents any of the Arabic numeral, or spaces.
Brand	:	Hisense
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 : HD396DF-E01(010)
Tuner	:	Manufacturer : XuGuang Tech. Co., Ltd. M/N : HFT-96S3/W11FJ4H\ROH
Max Resolution	:	1920*1080@60Hz
HDMI Cable*2 (Lab provide)	:	Shielded, Detachable, 1.50m
Power Cord	:	Unshielded, Detachable, 1.80m, 2C
LAN Cable	:	Shielded, Detachable, 1.50m
USB Cable	:	Shielded, Detachable, 1.00m

Remark:

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

Side Port:

- (1) One COMPONENT IN Port : Connected with DVD PLAYER
- (2) One AV IN Port : Connected with DVD PLAYER
- (3) One HDMI1 Port : Connected with DVD PLAYER
- (4) One HDMI 2 Port : Connected with PC
- (5) One Audio out Port : Connected with Earphone#1
- (6) One ANT/CABLE IN Port : Connected with Antenna or ATSC SG / TV SG

Side Port:

- (7) One SERVICE Port : Do not open to customer
- (8) One LAN Port : Connected with PC
- (9) One USB Port : Connected with Hard-Disk
- (10) One Digital Audio Out Port : Connected with Audio Converter to Earphone#2

2.2 Peripherals

2.2.1 PC

Manufacturer : HP
Model Number : dx7400MT
Serial Number : CNG8130K89
Power Cord : Unshielded, Detachable, 1.8m
Certificate : FCC DoC; CE/EMC; VCCI; C-Tick;

2.2.2 Keyboard

Manufacturer : Microsoft
Model Number : RT2300
Serial Number : 7668200662248
Data Cable : Shielded, undetachable, 1.8m
Certificate : CE/EMC, FCC DoC, VCCI, MIC,
C-Tick, BSMI

2.2.3 Mouse

Manufacturer : Microsoft
Model Number : RT2300
Serial Number : 6965712071551
Data Cable : Shielded, Undetachable, 1.8m.
Certificate : CE/EMC, FCC DoC, VCCI, MIC,
C-Tick, BSMI

2.2.4 Modem

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

2.2.5 Earphone*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

Manufacturer : PHILIPS
Model Number : DVP3986K/93
Serial Number : KX1A0902120108
Certificate : CCC

2.2.9 Hard Disk

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

2.3 Description of Test Facility

Site Description (No.3 3m Chamber) : Sept. 17, 1998 file on
Jan.15, 2015 Renewed
Federal Communications Commission
FCC Engineering Laboratory
7435 Oakland Mills Road
Columbia, MD 21046, USA

Name of Firm : Audix Technology (Shanghai) Co., Ltd.

Site Location : 3F 34Bldg 680 Guiping Rd,
Caohejing Hi-Tech Park,
Shanghai 200233, China

NVLAP Lab Code : 200371-0

2.4 Measurement Uncertainty

Conducted Emission Expanded Uncertainty : U = 3.4dB

Radiated Emission Expanded Uncertainty (30-200MHz):
U = 4.6dB (Horizontal)
U = 4.3dB (Vertical)

Radiated Emission Expanded Uncertainty (200M-1GHz):
U = 4.5dB (Horizontal)
U = 5.4dB (Vertical)

Radiated Emission Expanded Uncertainty (1GHz-6GHz):
U = 5.1dB

3 CONDUCTED EMISSION TEST

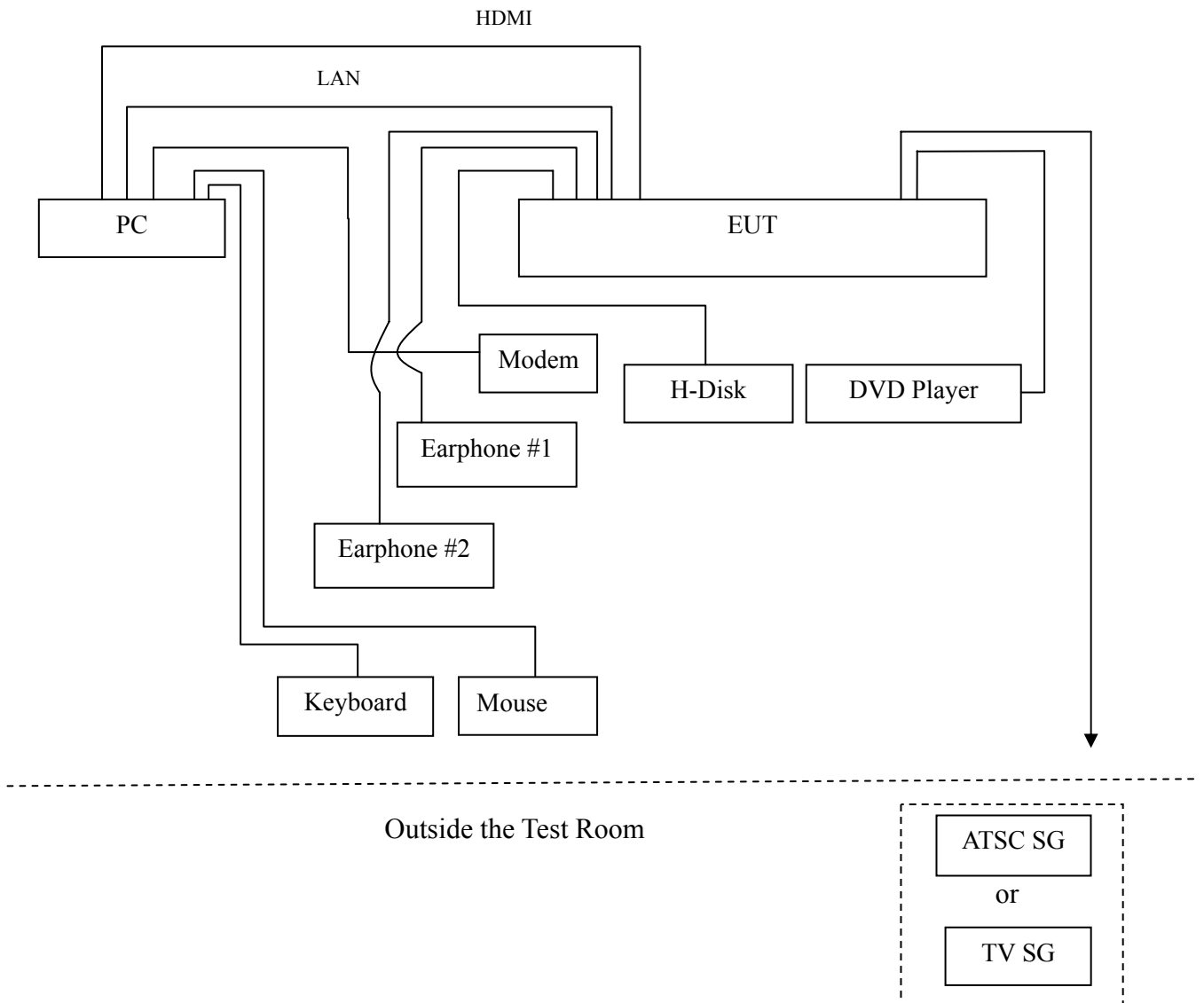
3.1 Test Equipment

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

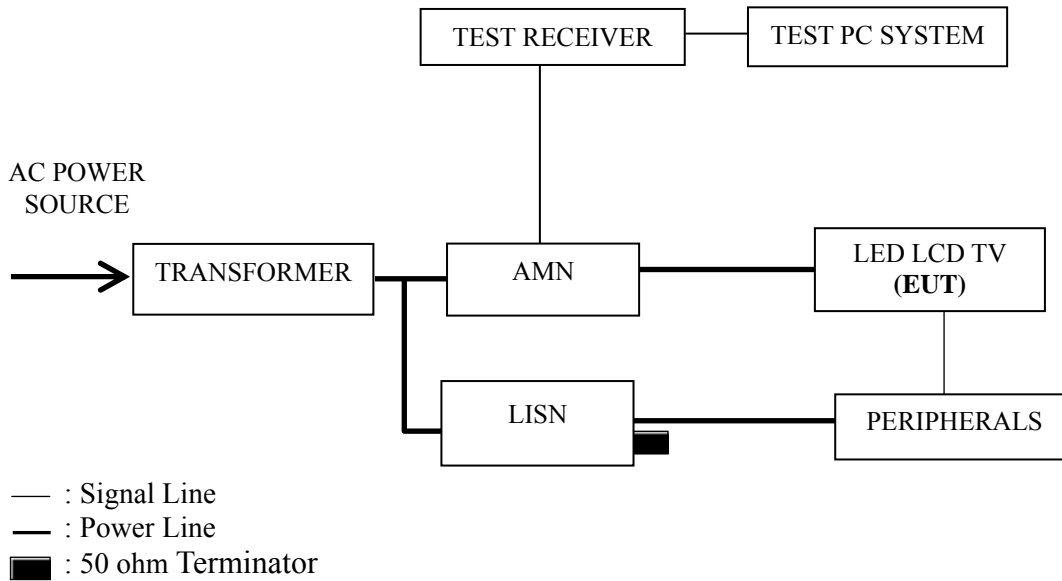
Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Test Receiver	R&S	ESCI	101302	Apr 27, 2016	Apr 26, 2017
2.	Artificial Mains Network (AMN)	R&S	ENV4200	100125	Jun 25, 2016	Jun 24, 2017
3.	Line Impedance Stabilization Network (LISN)	Kyoritsu	KNW-407	8-1280-4	Mar 20, 2016	Mar 19, 2017
4.	50Ω Terminator	Anritsu	BNC	001	Mar 20, 2016	Mar 19, 2017
5.	Software	Audix	e3	6.111206	--	--

3.2 Block Diagram of Test Setup

3.2.1 EUT & Peripherals



3.2.2 Conducted Disturbance Test Setup



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

Frequency Range (MHz)	Limits dB (μ V)	
	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 The other peripherals devices were driven and operated during the test.
- 3.5.9 The test modes are as follows:

Test Mode
HDMI 1920*1080@60Hz & 1kHz playing
HDMI 1280*1024@60Hz & 1kHz playing
HDMI 640*480@60Hz & 1kHz playing
HDMI1080P
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 1920*1080@60Hz & 1kHz playing	P13
HDMI 1280*1024@60Hz & 1kHz playing	P14
HDMI 640*480@60Hz & 1kHz playing	P15
HDMI1080P	P16
USB Play	P17
LAN Play	P18

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 1280*1024@60Hz & 1kHz playing test mode. The worst emission is detected at 0.435MHz (Average Value) with corrected signal level of 36.32 dB (μ V) (limit is 47.15 dB (μ V)), when the Line of the EUT is connected to AMN.

EUT : LED LCD TV Temperature : 22

Model No. : 40H5B Humidity : 48%RH

Test Mode : HDMI 1920*1080@60Hz & 1kHz Playing Date of Test : Oct 09, 2016

Test Line	Frequency (MHz)	Meter Reading dB(μ V)	Factor (dB)	Emission Level dB(μ V)	Limits dB(μ V)	Margin (dB)	Remark	
Line	0.150	32.50	10.59	43.09	66.00	22.91	QP	
	0.447	32.20	10.42	42.62	56.93	14.31		
	0.567	30.00	10.40	40.40	56.00	15.60		
	1.807	26.30	10.41	36.71	56.00	19.29		
	4.404	27.00	10.44	37.44	56.00	18.56		
	7.933	30.70	10.48	41.18	60.00	18.82		
	0.150	21.30	10.59	31.89	56.00	24.11	AV	
	0.447	25.60	10.42	36.02	46.93	10.91		
	0.567	21.30	10.40	31.70	46.00	14.30		
	1.807	19.50	10.41	29.91	46.00	16.09		
	4.404	21.20	10.44	31.64	46.00	14.36		
	7.933	25.30	10.48	35.78	50.00	14.22		
	Neutral	0.181	29.80	10.54	40.34	64.46	24.12	QP
		0.439	31.60	10.41	42.01	57.07	15.06	
0.654		25.60	10.39	35.99	56.00	20.01		
1.162		20.91	10.40	31.31	56.00	24.69		
4.725		20.90	10.50	31.40	56.00	24.60		
7.853		24.50	10.54	35.04	60.00	24.96		
0.181		20.20	10.54	30.74	54.46	23.72	AV	
0.439		24.80	10.41	35.21	47.07	11.86		
0.654		13.20	10.39	23.59	46.00	22.41		
1.162		13.71	10.40	24.11	46.00	21.89		
4.725		13.30	10.50	23.80	46.00	22.20		
7.853		19.70	10.54	30.24	50.00	19.76		

TEST ENGINEER: BYRON WU

EUT : LED LCD TV Temperature : 22

Model No. : 40H5B Humidity : 48%RH

Test Mode : HDMI 1280*1024@60Hz Date of Test : Oct 09, 2016
& 1kHz Playing

Test Line	Frequency (MHz)	Meter Reading dB(μ V)	Factor (dB)	Emission Level dB(μ V)	Limits dB(μ V)	Margin (dB)	Remark
Line	0.153	31.01	10.58	41.59	65.82	24.23	QP
	0.435	32.80	10.42	43.22	57.15	13.93	
	0.564	30.10	10.40	40.50	56.00	15.50	
	1.811	26.60	10.41	37.01	56.00	18.99	
	4.562	27.30	10.45	37.75	56.00	18.25	
	7.932	30.40	10.48	40.88	60.00	19.12	
	0.153	19.81	10.58	30.39	55.82	25.43	AV
	0.435	25.90	10.42	36.32	47.15	10.83	
	0.564	21.10	10.40	31.50	46.00	14.50	
	1.811	19.60	10.41	30.01	46.00	15.99	
	4.562	21.10	10.45	31.55	46.00	14.45	
	7.932	25.00	10.48	35.48	50.00	14.52	
Neutral	0.171	28.20	10.55	38.75	64.93	26.18	QP
	0.440	31.70	10.41	42.11	57.06	14.95	
	0.604	23.21	10.38	33.59	56.00	22.41	
	1.879	21.00	10.43	31.43	56.00	24.57	
	4.565	20.69	10.50	31.19	56.00	24.81	
	7.768	24.30	10.54	34.84	60.00	25.16	
	0.171	18.00	10.55	28.55	54.93	26.38	AV
	0.440	24.90	10.41	35.31	47.06	11.75	
	0.604	14.81	10.38	25.19	46.00	20.81	
	1.879	13.60	10.43	24.03	46.00	21.97	
	4.565	13.09	10.50	23.59	46.00	22.41	
	7.768	19.50	10.54	30.04	50.00	19.96	

TEST ENGINEER: BYRON WU

EUT : LED LCD TV Temperature : 22

Model No. : 40H5B Humidity : 48%RH

Test Mode : HDMI 640*480@60Hz & 1kHz Playing Date of Test : Oct 09, 2016

Test Line	Frequency (MHz)	Meter Reading dB(μ V)	Factor (dB)	Emission Level dB(μ V)	Limits dB(μ V)	Margin (dB)	Remark
Line	0.150	31.20	10.59	41.79	66.00	24.21	QP
	0.440	32.80	10.42	43.22	57.07	13.85	
	0.564	30.20	10.40	40.60	56.00	15.40	
	1.310	27.19	10.41	37.60	56.00	18.40	
	2.559	27.40	10.42	37.82	56.00	18.18	
	7.926	30.70	10.48	41.18	60.00	18.82	
	0.150	21.30	10.59	31.89	56.00	24.11	AV
	0.440	25.80	10.42	36.22	47.07	10.85	
	0.564	20.60	10.40	31.00	46.00	15.00	
	1.310	19.19	10.41	29.60	46.00	16.40	
	2.559	19.70	10.42	30.12	46.00	15.88	
	7.926	25.10	10.48	35.58	50.00	14.42	
Neutral	0.155	28.40	10.57	38.97	65.72	26.75	QP
	0.440	31.60	10.41	42.01	57.07	15.06	
	0.611	23.81	10.38	34.19	56.00	21.81	
	1.877	21.20	10.43	31.63	56.00	24.37	
	3.263	20.80	10.47	31.27	56.00	24.73	
	7.685	24.30	10.54	34.84	60.00	25.16	
	0.155	16.90	10.57	27.47	55.72	28.25	AV
	0.440	25.00	10.41	35.41	47.07	11.66	
	0.611	16.11	10.38	26.49	46.00	19.51	
	1.877	13.30	10.43	23.73	46.00	22.27	
	3.263	14.00	10.47	24.47	46.00	21.53	
	7.685	19.00	10.54	29.54	50.00	20.46	

TEST ENGINEER: BYRON WU

EUT : LED LCD TV Temperature : 22

Model No. : 40H5B Humidity : 48%RH

Test Mode : HDMI1080P Date of Test : Oct 09, 2016

Test Line	Frequency (MHz)	Meter Reading dB(μ V)	Factor (dB)	Emission Level dB(μ V)	Limits dB(μ V)	Margin (dB)	Remark	
Line	0.150	31.10	10.59	41.69	66.00	24.31	QP	
	0.440	32.90	10.42	43.32	57.07	13.75		
	0.567	30.00	10.40	40.40	56.00	15.60		
	1.809	26.60	10.41	37.01	56.00	18.99		
	4.366	26.90	10.44	37.34	56.00	18.66		
	7.977	30.20	10.48	40.68	60.00	19.32		
	0.150	21.50	10.59	32.09	56.00	23.91	AV	
	0.440	25.80	10.42	36.22	47.07	10.85		
	0.567	20.60	10.40	31.00	46.00	15.00		
	1.809	19.80	10.41	30.21	46.00	15.79		
	4.366	20.90	10.44	31.34	46.00	14.66		
	7.977	24.80	10.48	35.28	50.00	14.72		
	Neutral	0.150	29.40	10.58	39.98	66.00	26.02	QP
		0.445	31.80	10.41	42.21	56.97	14.76	
0.611		24.21	10.38	34.59	56.00	21.41		
1.876		21.20	10.43	31.63	56.00	24.37		
4.358		20.50	10.49	30.99	56.00	25.01		
7.852		24.20	10.54	34.74	60.00	25.26		
0.150		19.00	10.58	29.58	56.00	26.42	AV	
0.445		25.10	10.41	35.51	46.97	11.46		
0.611		15.41	10.38	25.79	46.00	20.21		
1.876		13.60	10.43	24.03	46.00	21.97		
4.358		13.80	10.49	24.29	46.00	21.71		
7.852		19.10	10.54	29.64	50.00	20.36		

TEST ENGINEER: BYRON WU

EUT : LED LCD TV Temperature : 22

Model No. : 40H5B Humidity : 48%RH

Test Mode : USB Play Date of Test : Oct 09, 2016

Test Line	Frequency (MHz)	Meter Reading dB(μ V)	Factor (dB)	Emission Level dB(μ V)	Limits dB(μ V)	Margin (dB)	Remark
Line	0.162	28.90	10.57	39.47	65.34	25.87	QP
	0.447	32.40	10.42	42.82	56.93	14.11	
	0.564	30.30	10.40	40.70	56.00	15.30	
	2.115	27.00	10.41	37.41	56.00	18.59	
	4.537	26.71	10.44	37.15	56.00	18.85	
	7.599	30.29	10.48	40.77	60.00	19.23	
	0.162	18.20	10.57	28.77	55.34	26.57	AV
	0.447	25.20	10.42	35.62	46.93	11.31	
	0.564	21.20	10.40	31.60	46.00	14.40	
	2.115	19.50	10.41	29.91	46.00	16.09	
	4.537	21.31	10.44	31.75	46.00	14.25	
	7.599	25.19	10.48	35.67	50.00	14.33	
Neutral	0.150	29.40	10.58	39.98	66.00	26.02	QP
	0.435	31.80	10.41	42.21	57.16	14.95	
	0.647	25.20	10.39	35.59	56.00	20.41	
	2.384	20.30	10.44	30.74	56.00	25.26	
	4.562	20.79	10.50	31.29	56.00	24.71	
	7.934	24.20	10.54	34.74	60.00	25.26	
	0.150	19.40	10.58	29.98	56.00	26.02	AV
	0.435	25.10	10.41	35.51	47.16	11.65	
	0.647	12.60	10.39	22.99	46.00	23.01	
	2.384	14.60	10.44	25.04	46.00	20.96	
	4.562	13.19	10.50	23.69	46.00	22.31	
	7.934	19.30	10.54	29.84	50.00	20.16	

TEST ENGINEER: BYRON WU

EUT : LED LCD TV Temperature : 22

Model No. : 40H5B Humidity : 48%RH

Test Mode : LAN Play Date of Test : Oct 09, 2016

Test Line	Frequency (MHz)	Meter Reading dB(μ V)	Factor (dB)	Emission Level dB(μ V)	Limits dB(μ V)	Margin (dB)	Remark
Line	0.150	31.10	10.59	41.69	66.00	24.31	QP
	0.451	31.89	10.42	42.31	56.85	14.54	
	0.567	30.00	10.40	40.40	56.00	15.60	
	1.808	26.30	10.41	36.71	56.00	19.29	
	4.539	27.21	10.44	37.65	56.00	18.35	
	7.850	30.50	10.48	40.98	60.00	19.02	
	0.150	21.40	10.59	31.99	56.00	24.01	AV
	0.451	25.09	10.42	35.51	46.85	11.34	
	0.567	20.00	10.40	30.40	46.00	15.60	
	1.808	19.80	10.41	30.21	46.00	15.79	
	4.539	21.51	10.44	31.95	46.00	14.05	
	7.850	25.10	10.48	35.58	50.00	14.42	
Neutral	0.150	29.30	10.58	39.88	66.00	26.12	QP
	0.447	31.50	10.41	41.91	56.94	15.03	
	0.614	24.31	10.38	34.69	56.00	21.31	
	1.876	21.00	10.43	31.43	56.00	24.57	
	3.474	21.50	10.47	31.97	56.00	24.03	
	9.343	23.20	10.56	33.76	60.00	26.24	
	0.150	19.30	10.58	29.88	56.00	26.12	AV
	0.447	24.80	10.41	35.21	46.94	11.73	
	0.614	13.21	10.38	23.59	46.00	22.41	
	1.876	13.70	10.43	24.13	46.00	21.87	
	3.474	15.50	10.47	25.97	46.00	20.03	
	9.343	17.50	10.56	28.06	50.00	21.94	

TEST ENGINEER: BYRON WU

4 RADIATED EMISSION TEST

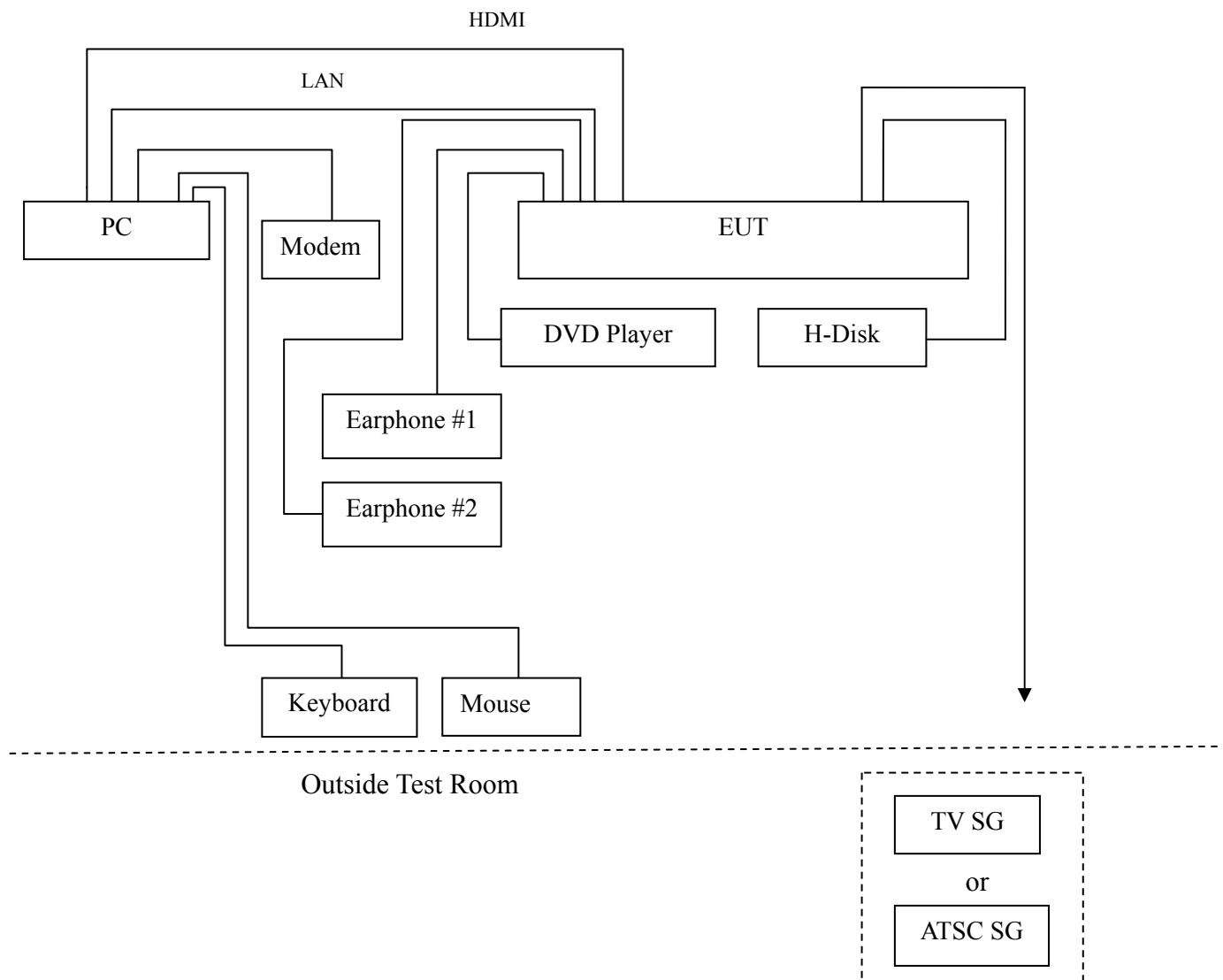
4.1 Test Equipment

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

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Test Receiver	R&S	ESCI	101303	May 07, 2016	May 06, 2017
2.	Preamplifier	Agilent	8447D	2944A06664	Apr 27, 2016	Apr 26, 2017
3.	Preamplifier	HP	8449B	3008A00864	Mar 20, 2016	Mar 19, 2017
4.	Bi-log Antenna	TESEQ	CBL6112D	23193	May 15, 2016	May 14, 2017
5.	Horn Antenna	EMCO	3115	9607-4878	Jun 03, 2016	Jun 02, 2017
6.	Spectrum	Agilent	E7405A	MY45106600	Apr 26, 2016	Apr 25, 2017
7.	Software	Audix	e3	6.2007-9-10	--	--

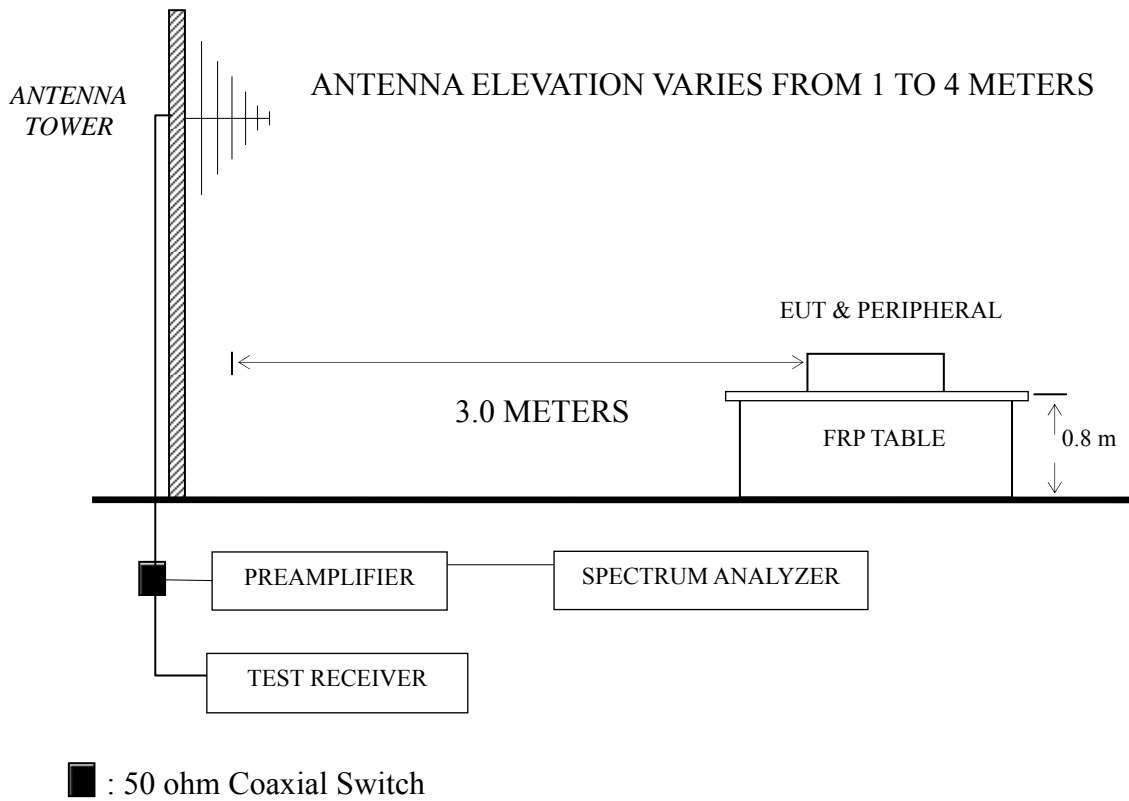
4.2 Block Diagram of Test Setup

4.2.1 EUT & Peripherals



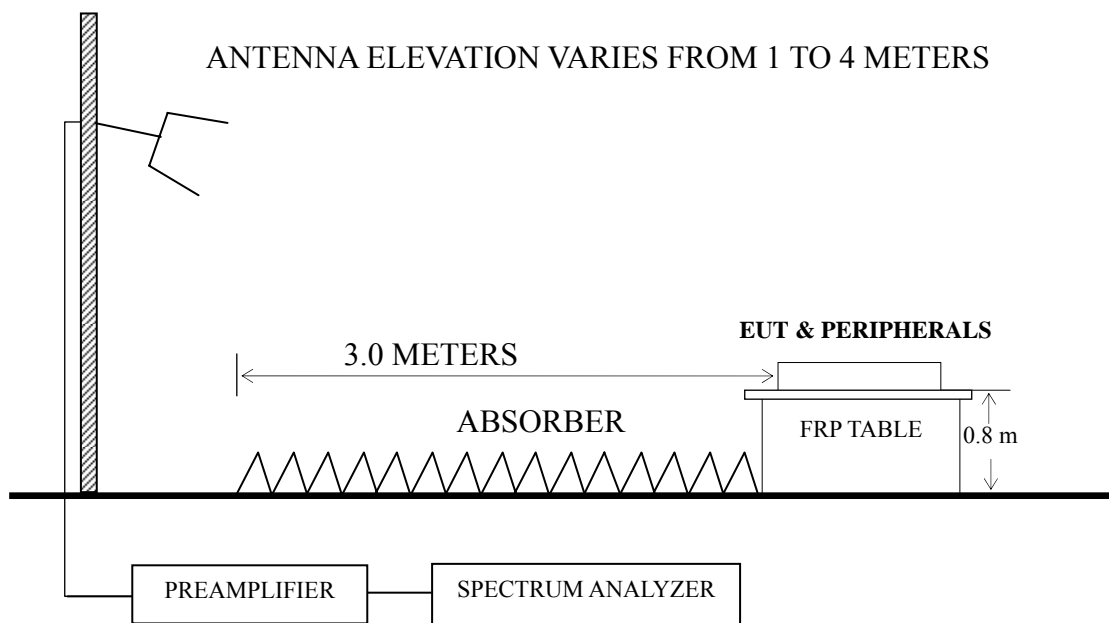
4.2.2 Test Setup

4.2.2.1 Below 1GHz



4.2.2.2 Above 1GHz

BORE-SIGHT ANTENNA TOWER



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

Frequency (MHz)	Distance (m)	Field strength limits	
		($\mu\text{V/m}$)	dB ($\mu\text{V/m}$)
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 ($\mu\text{V/m}$) = 20 log Emission Level ($\mu\text{V/m}$)
 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 2 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 1920*1080@60Hz & 1kHz playing	P23 - P24
HDMI 1280*1024@60Hz & 1kHz playing	P25
HDMI 640*480@60Hz & 1kHz playing	P26
HDMI1080P	P27
USB Play	P28
LAN Play	P29

NOTE 1 – Emission Level = Antenna Factor + Cable Loss + Meter Reading.
($< 1\text{GHz}$);

Emission Level = Antenna Factor + Cable Loss – Preamp Factor
+ Meter Reading. ($> 1\text{GHz}$)

NOTE 2 – All readings are Quasi-Peak values below or equal to 1GHz, Peak and Average values above 1GHz.

NOTE 3 – 0° was the table front facing the antenna. Degree is calculated from 0° clockwise facing the antenna.

NOTE 4 – The worst case is for HDMI 1920*1080@60Hz & 1kHz playing test mode. The worst emission at horizontal polarization was detected at 793.396 MHz with corrected signal level of 42.26 dB ($\mu\text{V/m}$) (limit is 46.00 dB ($\mu\text{V/m}$)), when the antenna was 2.0 m height and the turntable was at 50° . The worst emission at vertical polarization was detected at 31.955 MHz with corrected signal level of 35.58dB ($\mu\text{V/m}$) (limit is 40.00 dB ($\mu\text{V/m}$)), when the antenna was 1.0m height and the turntable was at 240° .

EUT : LED LCD TV Temperature : 22

Model No. : 40H5B Humidity : 60%RH

Test Mode : HDMI 1920*1080@60Hz & 1kHz Playing Date of Test : Oct 10, 2016

Polarization	Frequency (MHz)	Meter Reading dB (μ V)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Emission Level dB (μ V/m)	Limits dB (μ V/m)	Margin (dB)	Remark
Horizontal	73.876	21.45	8.13	0.86	0.00	30.44	40.00	9.56	QP
	136.939	18.96	12.98	1.22	0.00	33.16	43.50	10.34	
	207.123	26.67	10.42	1.50	0.00	38.59	43.50	4.91	
	239.987	27.27	12.10	1.60	0.00	40.97	46.00	5.03	
	408.946	21.64	16.22	2.06	0.00	39.92	46.00	6.08	
	793.396	19.04	20.33	2.89	0.00	42.26	46.00	3.74	
	1042.071	53.23	23.71	3.34	36.41	43.87	74.00	30.13	PK
	1196.231	57.15	24.43	3.61	36.14	49.05	74.00	24.95	
	1979.136	64.39	27.42	4.65	35.13	61.33	74.00	12.67	
	1042.071	33.29	23.71	3.34	36.41	23.93	54.00	30.07	AV
	1196.231	36.03	24.43	3.61	36.14	27.93	54.00	26.07	
1979.136	42.13	27.42	4.65	35.13	39.07	54.00	14.93		

TEST ENGINEER: LEON YUN

EUT : LED LCD TV Temperature : 22

Model No. : 40H5B Humidity : 60%RH

Test Mode : HDMI 1920*1080@60Hz & 1kHz Playing Date of Test : Oct 10, 2016

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Vertical	31.955	17.90	17.10	0.58	0.00	35.58	40.00	4.42	QP
	64.887	27.04	6.90	0.80	0.00	34.74	40.00	5.26	
	136.939	22.13	12.98	1.22	0.00	36.33	43.50	7.17	
	195.137	25.80	9.90	1.46	0.00	37.16	43.50	6.34	
	375.939	18.41	15.71	1.97	0.00	36.09	46.00	9.91	
	526.397	15.15	17.68	2.34	0.00	35.17	46.00	10.83	PK
	1196.231	64.13	24.43	3.61	36.14	56.03	74.00	17.97	
	1346.397	53.74	25.05	3.85	35.90	46.74	74.00	27.26	
	1989.803	57.56	27.46	4.65	35.11	54.56	74.00	19.44	AV
	1196.231	43.67	24.43	3.61	36.14	35.57	54.00	18.43	
	1346.397	32.76	25.05	3.85	35.90	25.76	54.00	28.24	
	1989.803	35.88	27.46	4.65	35.11	32.88	54.00	21.12	

TEST ENGINEER: LEON YUN

EUT : LED LCD TV Temperature : 22

Model No. : 40H5B Humidity : 60%RH

Test Mode : HDMI 1280*1024@60Hz & 1kHz Playing Date of Test : Oct 10, 2016

Polarization	Frequency (MHz)	Meter Reading dB (μ V)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level dB (μ V/m)	Limits dB (μ V/m)	Margin (dB)
Horizontal	107.888	21.96	12.17	1.05	35.18	43.50	8.32
	207.123	25.80	10.42	1.50	37.72	43.50	5.78
	239.987	27.11	12.10	1.60	40.81	46.00	5.19
	408.946	20.40	16.22	2.06	38.68	46.00	7.32
	539.478	19.50	17.60	2.36	39.46	46.00	6.54
	796.183	18.63	20.37	2.89	41.89	46.00	4.11
Vertical	31.843	16.29	17.19	0.58	34.06	40.00	5.94
	135.982	22.10	12.89	1.21	36.20	43.50	7.30
	216.024	23.59	10.92	1.53	36.04	46.00	9.96
	258.326	22.39	13.32	1.65	37.36	46.00	8.64
	383.932	21.10	15.90	2.00	39.00	46.00	7.00
	539.478	19.92	17.60	2.36	39.88	46.00	6.12

TEST ENGINEER: LEON YUN

EUT : LED LCD TV Temperature : 22

Model No. : 40H5B Humidity : 60%RH

Test Mode : HDMI 640*480@60Hz & 1kHz Playing Date of Test : Oct 10, 2016

Polarization	Frequency (MHz)	Meter Reading dB (μ V)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level dB (μ V/m)	Limits dB (μ V/m)	Margin (dB)
Horizontal	100.934	24.20	12.38	1.01	37.59	43.50	5.91
	151.067	24.66	11.95	1.29	37.90	43.50	5.60
	176.269	25.44	10.51	1.39	37.34	43.50	6.16
	207.123	25.16	10.42	1.50	37.08	43.50	6.42
	242.525	24.76	12.28	1.61	38.65	46.00	7.35
	378.584	21.99	15.77	1.99	39.75	46.00	6.25
Vertical	31.955	16.49	17.10	0.58	34.17	40.00	5.83
	151.067	24.75	11.95	1.29	37.99	43.50	5.51
	204.955	25.99	10.30	1.50	37.79	43.50	5.71
	239.987	22.28	12.10	1.60	35.98	46.00	10.02
	397.633	19.64	16.23	2.03	37.90	46.00	8.10
	935.546	15.32	21.50	3.14	39.96	46.00	6.04

TEST ENGINEER: LEON YUN

EUT : LED LCD TV Temperature : 22

Model No. : 40H5B Humidity : 60%RH

Test Mode : HDMI1080P Date of Test : Oct 10, 2016

Polarization	Frequency (MHz)	Meter Reading dB (μ V)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level dB (μ V/m)	Limits dB (μ V/m)	Margin (dB)
Horizontal	70.584	20.00	7.51	0.84	28.35	40.00	11.65
	207.123	25.73	10.42	1.50	37.65	43.50	5.85
	239.987	25.32	12.10	1.60	39.02	46.00	6.98
	408.946	21.00	16.22	2.06	39.28	46.00	6.72
	731.920	14.74	19.47	2.77	36.98	46.00	9.02
	793.396	17.97	20.33	2.89	41.19	46.00	4.81
Vertical	32.067	16.42	17.05	0.58	34.05	40.00	5.95
	48.672	22.32	9.09	0.69	32.10	40.00	7.90
	207.850	22.81	10.48	1.51	34.80	43.50	8.70
	238.310	22.00	11.98	1.60	35.58	46.00	10.42
	408.946	17.14	16.22	2.06	35.42	46.00	10.58
	513.633	16.61	17.58	2.30	36.49	46.00	9.51

TEST ENGINEER: LEON YUN

EUT : LED LCD TV Temperature : 22

Model No. : 40H5B Humidity : 60%RH

Test Mode : USB Play Date of Test : Oct 10, 2016

Polarization	Frequency (MHz)	Meter Reading dB (μ V)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level dB (μ V/m)	Limits dB (μ V/m)	Margin (dB)
Horizontal	67.913	25.76	7.21	0.82	33.79	40.00	6.21
	82.071	22.69	9.41	0.90	33.00	40.00	7.00
	106.013	22.59	12.25	1.04	35.88	43.50	7.62
	205.675	25.06	10.30	1.50	36.86	43.50	6.64
	238.310	25.53	11.98	1.60	39.11	46.00	6.89
	408.946	21.67	16.22	2.06	39.95	46.00	6.05
Vertical	30.531	14.66	18.05	0.56	33.27	40.00	6.73
	72.084	25.35	7.79	0.85	33.99	40.00	6.01
	106.013	24.63	12.25	1.04	37.92	43.50	5.58
	218.309	22.88	10.98	1.54	35.40	46.00	10.60
	378.584	20.83	15.77	1.99	38.59	46.00	7.41
	526.397	13.64	17.68	2.34	33.66	46.00	12.34

TEST ENGINEER: LEON YUN

EUT : LED LCD TV Temperature : 22

Model No. : 40H5B Humidity : 60%RH

Test Mode : LAN Play Date of Test : Oct 10, 2016

Polarization	Frequency (MHz)	Meter Reading dB (μ V)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level dB (μ V/m)	Limits dB (μ V/m)	Margin (dB)
Horizontal	43.966	21.51	10.70	0.66	32.87	40.00	7.13
	71.080	21.80	7.57	0.84	30.21	40.00	9.79
	207.123	25.61	10.42	1.50	37.53	43.50	5.97
	241.676	25.32	12.22	1.61	39.15	46.00	6.85
	446.414	19.47	16.73	2.15	38.35	46.00	7.65
	742.259	16.68	19.57	2.79	39.04	46.00	6.96
Vertical	33.095	17.20	16.67	0.59	34.46	40.00	5.54
	72.084	25.06	7.79	0.85	33.70	40.00	6.30
	241.676	22.13	12.22	1.61	35.96	46.00	10.04
	440.196	15.79	16.63	2.13	34.55	46.00	11.45
	742.259	17.53	19.57	2.79	39.89	46.00	6.11
	890.728	16.59	21.10	3.07	40.76	46.00	5.24

TEST ENGINEER: LEON YUN

5 DEBUG DESCRIPTION

The following components are used during the countermeasure procedures:

Name	M/N	Manufacturer	Location
Conductive foam	SMR-TSL-4-3.5-5R	JOINSET	See Appendix Figure 22

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

TEST ENGINEER:



(BYRON WU)

6 DEVIATION TO TEST SPECIFICATIONS

None.

