FCC 47 CFR PART 15 SUBPART B

CERTIFICATION TEST REPORT

Product name: LED LCD TV

MODEL No.: 40H3507, 40H3D, 40H3D+(+ on behalf of Arabic numerals) 40H3C, 40H320D, 40H330D, 40H350D, 40H360D, 40H3020D, 40H3030D, 40H3050D, 40H3060D

FCC ID: W9HLCDD0069

REPORT NO: ES170110046E

ISSUE DATE: February 4, 2017

Prepared for

Hisense Electric Co., Ltd.
No. 218 Qianwangang Road, Economy&Technology DevelopmentZone, Qingdao 266071

Prepared by

EMTEK (SHENZHEN) CO., LTD.

Bldg 69, Majialong Industry Zone, Nanshan District, Shenzhen, Guangdong, China
TEL: 86-755-26954280
FAX: 86-755-26954282

TABLE OF CONTENT

TEST REPORT DESCRIPTION

Applicant	:	Hisense Electric Co., Ltd. No. 218 Qianwangang Road, Economy&Technology DevelopmentZone, Qingdao 266071
Manufacturer	:	Hisense Electric Co., Ltd. No. 218 Qianwangang Road, Economy&Technology DevelopmentZone, Qingdao 266071
Factory 1	:	Guangdong Hisense Electronics Co., Ltd. Zone B, No. 8 Hisense Road, Advanced Manufacturing Jiangsha Demonstration Park, Jiangmen City, Guangdong Province, PRC
Factory 2	:	HISENSE ELECTRONICA MEXICO, S.A. DE C.V. Blvd. Sharp #3510 Parque Industrial Rosarito, C.P. 22710 Playas de Rosarito, Baja California, Mexico
Trademark	:	HISENSE
EUT	:	LED LCD TV
Model No.	:	40H3507, 40H3D, 40H3D+(+ on behalf of Arabic numerals) 40H3C, 40H320D, 40H330D, 40H350D, 40H360D, 40H3020D, 40H3030D, 40H3050D, 40H3060D
Power Supply	:	120VAC, 60Hz 70W

Measurement Procedure Used:

FCC Rules and Regulations Part 15: 2016 Subpart B Class B & FCC / ANSI C63.4-2014

The device described above is tested by EMTEK (SHENZHEN) CO., LTD. to determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. The measurement results are contained in this test report and EMTEK (SHENZHEN) CO., LTD. is assumed full of responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT (Equipment Under Test) is technically compliant with the FCC requirements.

This report applies to above tested sample only and shall not be reproduced in part without written approval of EMTEK (SHENZHEN) CO., LTD.

Date of Test	:	January 11, 2017 to February 04, 2017
Prepared by	:	Yaping Shen Yaping Shen/Editor
Reviewer	:	Joe Xia Joe Xia/Supervisor
Approved & Authorized Signer	:	 Lisa Wang/Manager

Modified Information

Version	Report No.	Revision Date	Summary
Ver.1.0	ES170110046E	/	Original Report

1. SUMMARY OF TEST RESULT

EMISSION		
Description of Test Item	Standard & Limits	Results
Conducted Disturbance at Mains Terminals	FCC Part 15, Subpart B, Class B ANSI C63.4: 2014	Pass
Radiated Disturbance	FCC Part 15, Subpart B, Class B ANSI C63.4: 2014	Pass
Note: N/A is an abbreviation for Not Applicable.		

2. GENERAL INFORMATION

2.1. Description of Device (EUT)

EUT	:	LED LCD TV
Model Number	:	40H3507, 40H3D, 40H3D+(+ on behalf of Arabic numerals) 40H3C, 40H320D, 40H330D, 40H350D, 40H360D, 40H3020D, 40H3030D, 40H3050D, 40H3060D (Note: These models are identical in circuitry and electrical, mechanical and physical construction; the only difference is the model number. for trading purpose. We prepare 40H3507 for all test.)
Test Voltage	:	AC 120V/60Hz
Applicant	:	Hisense Electric Co., Ltd.
Address	:	No. 218 Qianwangang Road, Economy&Technology DevelopmentZone, Qingdao 266071
Manufacturer	:	Hisense Electric Co., Ltd.
Address	:	No. 218 Qianwangang Road, Economy&Technology DevelopmentZone, Qingdao 266071
Factory 1	:	Guangdong Hisense Electronics Co., Ltd.
Address	:	Zone B, No. 8 Hisense Road, Advanced Manufacturing Jiangsha Demonstration Park, Jiangmen City, Guangdong Province, PRC
Factory 2	:	HISENSE ELECTRONICA MEXICO, S.A. DE C.V.
Address	:	Blvd. Sharp #3510 Parque Industrial Rosarito, C.P. 22710 Playas de Rosarito, Baja California, Mexico
Date of Received	:	January 11, 2017
Date of Test	:	January 11, 2017 to February 04, 2017

2.2. Description of Test Facility

Site Description

EMC Lab. : Accredited by CNAS, 2016.10.24
The certificate is valid until 2022.10.28
The Laboratory has been assessed and proved to be in compliance with CNAS-CL01:2006 (identical to ISO/IEC 17025:2005)
The Certificate Registration Number is L2291.
Accredited by TUV Rheinland Shenzhen 2010.5.25
The Laboratory has been assessed according to the requirements ISO/IEC 17025.

Accredited by FCC, July 06, 2016
The Certificate Registration Number is 709623.

Accredited by Industry Canada, November 15, 2015
The Certificate Registration Number is 4480A-2.

Name of Firm : EMTEK (SHENZHEN) CO., LTD.
Site Location : Bldg 69, Majialong Industry Zone,
Nanshan District, Shenzhen, Guangdong, China

2.3. Description of Support Device

PC	:	Manufacturer: LENOVO M/N: 9702 S/N: L3C4410 CE, FCC: DOC
Keyboard	:	Manufacturer: LENOVO M/N: KU-0225 S/N:0585494 CE, FCC: DOC
Mouse	:	Manufacturer: LENOVO M/N: MO28UOL S/N:44G7862 068 CE, FCC: DOC
Dummy Load	:	Manufacturer: Cultraview M/N: CVNS1200

2.4. Description of Cable

Cables			
No.	Type	Length	Remark
1.	Power Cable	1.5 m	Unshielded
2.	HDMI Cable*3	0.8 m	Unshielded
3.	AV Cable	1.0 m	Unshielded

2.5. Measurement Uncertainty

Test Item		Uncertainty
Conducted Emission Uncertainty	:	2.96dB(9k~150kHz Conduction 1#) 2.74dB(150k-30MHz Conduction 1#)
Radiated Emission Uncertainty (3m Chamber)	:	3.78dB (30M~1GHz Polarize: H) 4.27dB (30M~1GHz Polarize: V) 4.46dB (1~6GHz)

3. MEASURING DEVICE AND TEST EQUIPMENT

3.1. For Power Line Conducted Emission Measurement

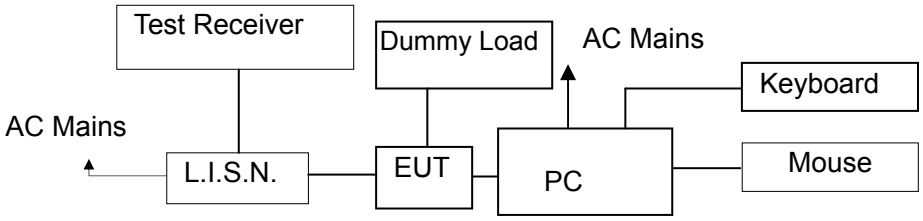
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
☑	Test Receiver	Rohde & Schwarz	ESCI	26115-010-0027	May 28, 2016	1 Year
☑	L.I.S.N.	Rohde & Schwarz	ENV216	101161	May 28, 2016	1 Year
☑	50Ω Coaxial Switch	Anritsu	MP59B	6100175589	May 28, 2016	1 Year
☑	Voltage Probe	Rohde & Schwarz	ESH2-Z3	100122	May 28, 2016	1 Year

3.2. For Radiated Emission Measurement (3m Chamber)

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
☑	EMI Test Receiver	Rohde & Schwarz	ESU	1302.6005.26	May 28, 2016	1 Year
☑	EMI Test Receiver	Rohde & Schwarz	ESU	1302.6005.26	May 28, 2016	1 Year
☑	Pre-Amplifier	HP	8447D	2944A07999	May 28, 2016	1 Year
☑	Bilog Antenna	Schwarzbeck	VULB9163	142	May 28, 2016	1 Year
☑	Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170399	May 28, 2016	1 Year
☑	Cable	Schwarzbeck	AK9513	ACRX1	May 28, 2016	1 Year
☑	Cable	Rosenberger	N/A	FP2RX2	May 28, 2016	1 Year
☑	Cable	Schwarzbeck	AK9513	CRPX1	May 28, 2016	1 Year
☑	Cable	Schwarzbeck	AK9513	CRPX2	May 28, 2016	1 Year

4. CONDUCTED EMISSION MEASUREMENT

4.1. Block Diagram of Test Setup



(EUT: LED LCD TV)

4.2. Measuring Standard

FCC Part 15, Subpart B, Class BANSI C63.4: 2014

4.3. Power Line Conducted Emission Limits (Class B)

Frequency (MHz)	Limit (dBμV)	
	Quasi-peak Level	Average Level
0.15 ~ 0.50	66.0 ~ 56.0 *	56.0 ~ 46.0 *
0.50 ~ 5.00	56.0	46.0
5.00 ~ 30.00	60.0	50.0
NOTE1-The lower limit shall apply at the transition frequencies. NOTE2-The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.50MHz.		

4.4. EUT Configuration on Measurement

The following equipments are installed on Conducted Emission Measurement to meet FCC requirements and operating in a manner which tends to maximize its emission characteristics in a normal application.

EUT : LED LCD TV
Model Number : 40H3507

4.5. Operating Condition of EUT

4.5.1.Setup the EUT as shown on Section 4.1.

4.5.2.Turn on the power of all equipments.

4.5.3.Let the EUT work in measuring mode (HDMI IN1 ARC, HDMI IN 2, HDMI IN 3) and measure it.

4.6. Test Procedure

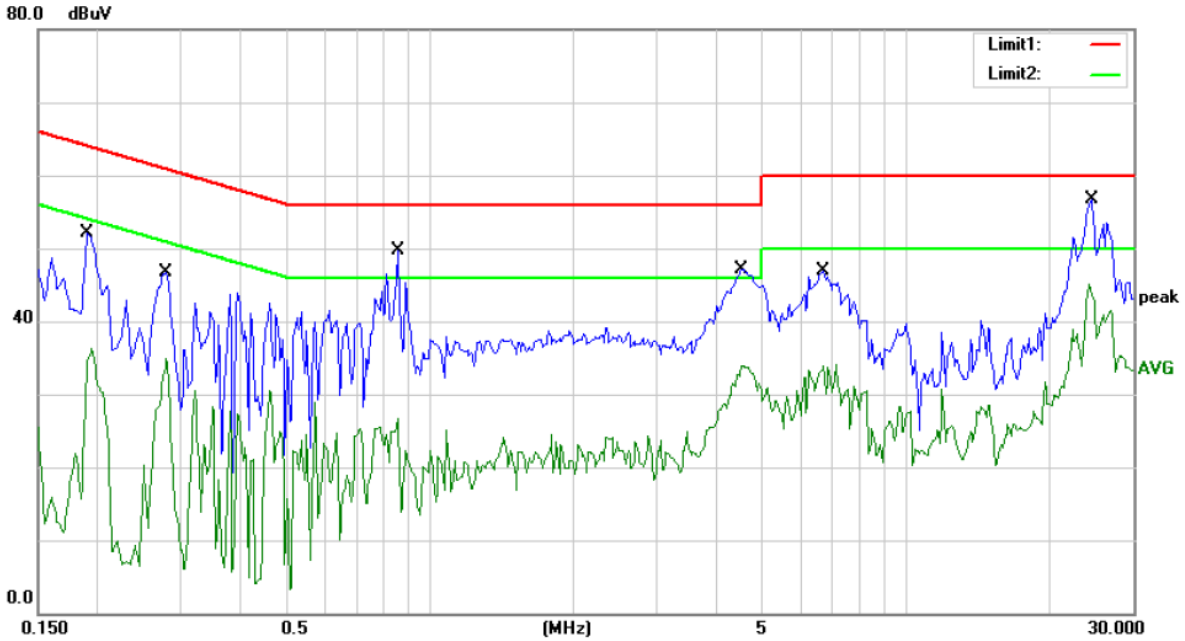
The EUT is put on the plane 0.8m high above the ground by insulating support and connected to the AC mains through Line Impedance Stability Network (L.I.S.N). This provided a 50ohm coupling impedance for the tested equipments. Both sides of AC line are investigated to find out the maximum conducted emission according to the FCC regulations during conducted emission measurement.
The bandwidth of the field strength meter (R&S Test Receiver ESCS30) is set at 9kHz in 150kHz~30MHz and 200Hz in 9kHz~150kHz.
The frequency range from 150kHz to 30MHz is investigated.

All the modes were tested and the data of the worst modes are attached the following pages.

4.7. Measuring Results

PASS.

The worst mode is HDMI IN 3, and the mode is the LED LCD TV connected to PC. Please refer to the following pages.



Site Conduction #1 Phase: *L1* Temperature: 22

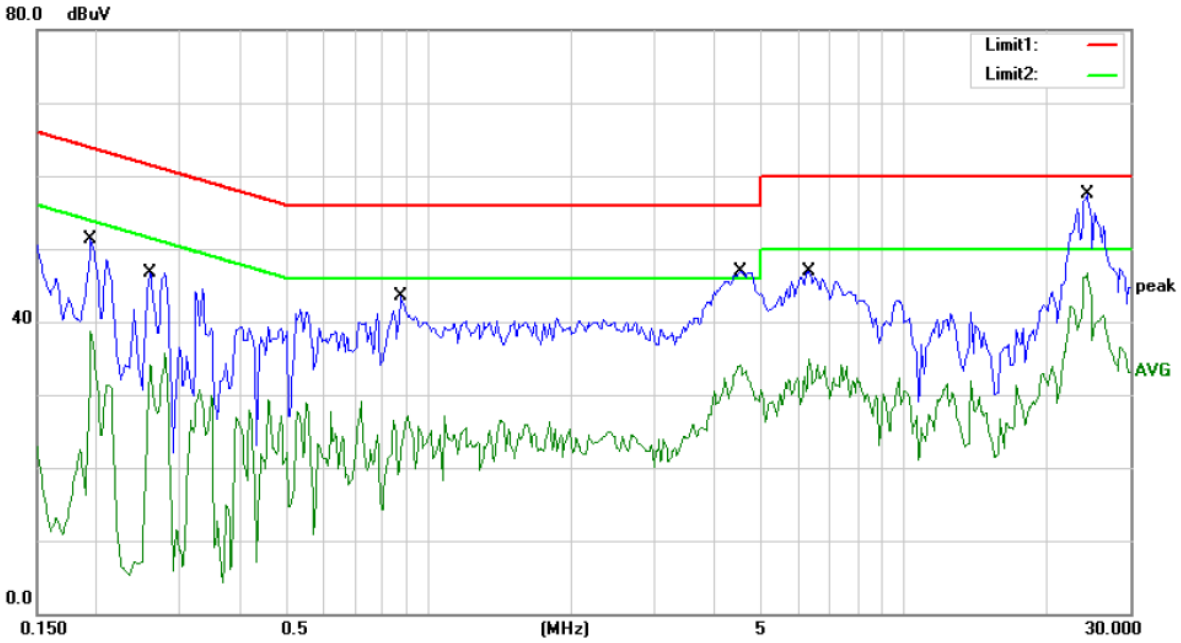
Limit: (CE)FCC PART 15 class B_QP Power: AC 120V/60Hz Humidity: 55 %

Mode: HDMI IN 3

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1900	52.12	0.00	52.12	64.04	-11.92	QP	
2		0.1900	36.34	0.00	36.34	54.04	-17.70	AVG	
3		0.2800	46.69	0.00	46.69	60.82	-14.13	QP	
4		0.2800	34.87	0.00	34.87	50.82	-15.95	AVG	
5		0.8550	49.68	0.00	49.68	56.00	-6.32	QP	
6		0.8550	26.76	0.00	26.76	46.00	-19.24	AVG	
7		4.5250	47.17	0.00	47.17	56.00	-8.83	QP	
8		4.5250	33.88	0.00	33.88	46.00	-12.12	AVG	
9		6.7100	46.96	0.00	46.96	60.00	-13.04	QP	
10		6.7100	34.15	0.00	34.15	50.00	-15.85	AVG	
11	*	24.5750	56.77	0.00	56.77	60.00	-3.23	QP	
12		24.5750	45.09	0.00	45.09	50.00	-4.91	AVG	

*:Maximum data x:Over limit !:over margin Comment: Factor build in receiver. Operator: Stan



Site Conduction #1 Phase: *N* Temperature: 22

Limit: (CE)FCC PART 15 class B_QP Power: AC 120V/60Hz Humidity: 55 %

Mode: HDMI IN 3

Note:

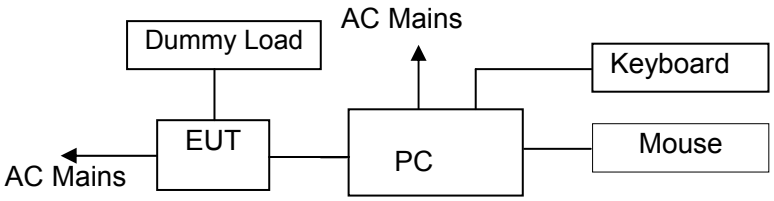
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1950	51.29	0.00	51.29	63.82	-12.53	QP	
2		0.1950	38.77	0.00	38.77	53.82	-15.05	AVG	
3		0.2600	46.72	0.00	46.72	61.43	-14.71	QP	
4		0.2600	35.77	0.00	35.77	51.43	-15.66	AVG	
5		0.8750	43.44	0.00	43.44	56.00	-12.56	QP	
6		0.8750	27.20	0.00	27.20	46.00	-18.80	AVG	
7		4.5300	46.97	0.00	46.97	56.00	-9.03	QP	
8		4.5300	34.09	0.00	34.09	46.00	-11.91	AVG	
9		6.3200	46.91	0.00	46.91	60.00	-13.09	QP	
10		6.3200	34.89	0.00	34.89	50.00	-15.11	AVG	
11		24.2750	52.50	0.00	52.50	60.00	-7.50	QP	
12	*	24.2750	46.71	0.00	46.71	50.00	-3.29	AVG	

*:Maximum data x:Over limit !:over margin Comment: Factor build in receiver. Operator: Stan

5. RADIATED EMISSION MEASUREMENT

5.1. Block Diagram of Test Setup

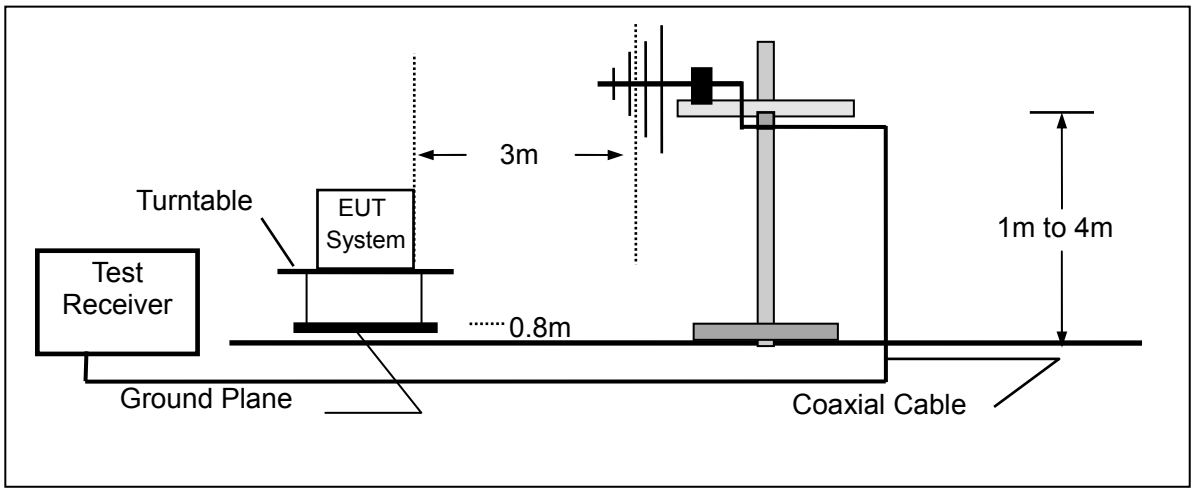
5.1.1. Block diagram of EUT System



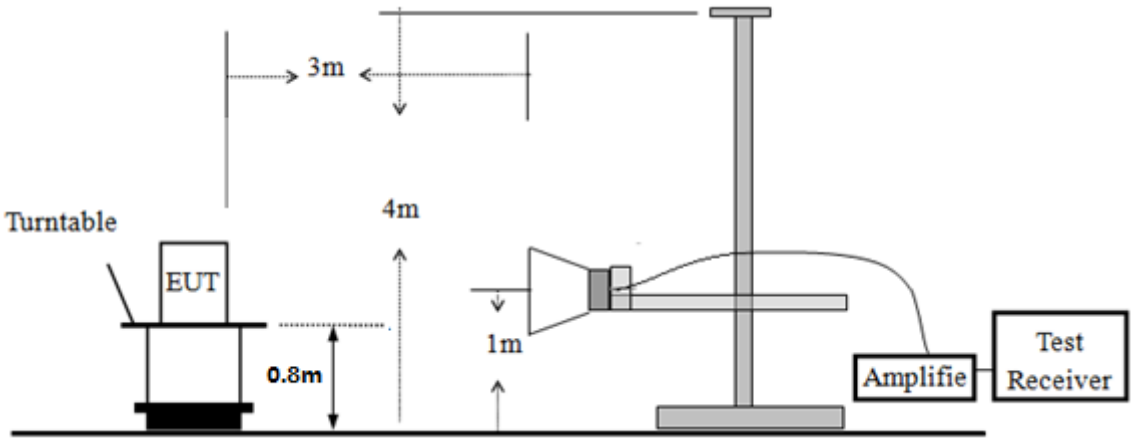
(EUT: LED LCD TV)

5.1.2.Block diagram of test setup (In chamber)

30MHz-1GHz:



1GHz-6GHz:



(EUT: LED LCD TV)

5.2. Measuring Standard

FCC Part 15, Subpart B, Class B ANSI C63.4: 2014

5.3. Radiated Emission Limits (Class B)

Frequency MHz	Distance Meters	Field Strengths Limit	
		μV/m	dB(μV)/m@3M
30 ~ 88	10	100	40
88 ~ 216	10	150	43.5
216 ~ 960	10	200	46
960 ~ 1000	10	500	54

Frequency (GHz)	Distance (Meters)	Field Strengths Limit	
		Average (dBμV/m)	Peak (dBμV/m)
1~6	3	54	74

Remark：(1) Emission level (dB)μV = 20 log Emission level μV/m
(2) The smaller limit shall apply at the cross point between two frequency bands.
(3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

5.4. EUT Configuration on Measurement

The FCC Class B regulations test method must be used to find the maximum emission during radiated emission measurement.

EUT : LED LCD TV
Model Number : 40H3507

5.5. Operating Condition of EUT

5.5.1.Setup the EUT as shown on Section 5.1.

5.5.2.Turn on the power of all equipments.

5.5.3.Let the EUT work in measuring mode (HDMI IN1 ARC, HDMI IN 2, HDMI IN 3) and measure it.

5.6. Test Procedure

The EUT is placed on a turn table which is 0.8 meter high above the ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT is set 3 meters away from the receiving antenna which is mounted on a antenna tower. The antenna can be moved up and down from 1 to 4 meters to find out the maximum emission level. Bilog antenna (calibrated by Dipole Antenna) is used as a receiving antenna. Both horizontal and vertical polarization of the antenna are set on test.

The bandwidth of the Receiver (ESU26) is set at 120kHz.

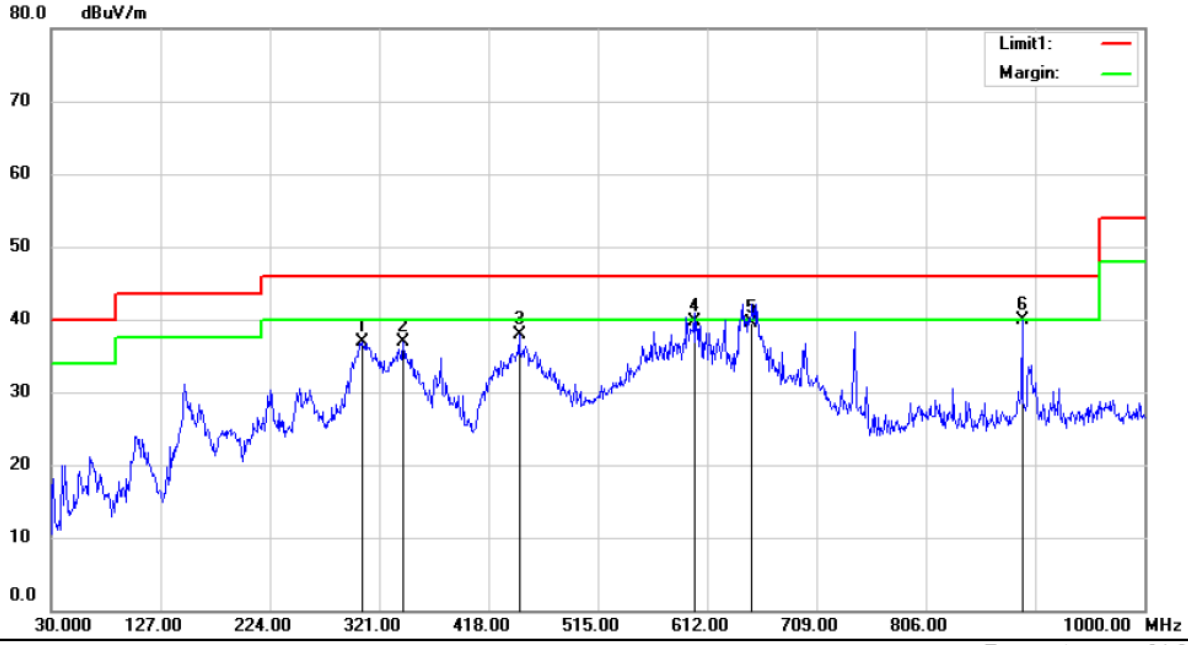
All the modes were tested and the data of the worst modes are attached the following pages.

5.7. Measuring Results

PASS.

The frequency range from 30MHz to 6000MHz is investigated.

The worst mode is HDMI IN 3, and the mode is the LED LCD TV connected to PC. Please refer to the following pages.



Site 3m Chamber #3 Polarization: *Horizontal* Temperature: 24 C

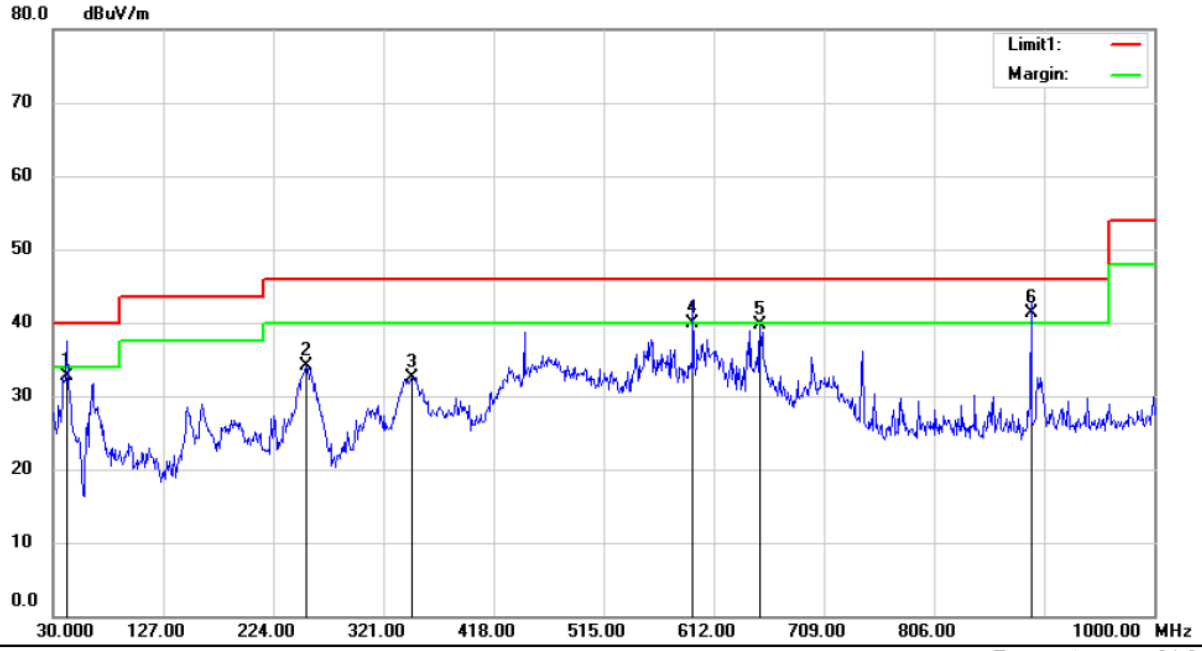
Limit: (RE)FCC PART 15 CLASS B Power: AC 120V/60Hz Humidity: 53 %

Mode:HDMI IN 3

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		306.4500	48.94	-11.99	36.95	46.00	-9.05	QP			
2		342.3400	48.02	-11.10	36.92	46.00	-9.08	QP			
3		445.1600	46.49	-8.59	37.90	46.00	-8.10	QP			
4		600.3600	44.85	-5.05	39.80	46.00	-6.20	QP			
5		651.7700	44.10	-4.50	39.60	46.00	-6.40	QP			
6	*	891.3600	40.96	-1.04	39.92	46.00	-6.08	QP			

*:Maximum data x:Over limit !:over margin Operator: CL



Site 3m Chamber #3 Polarization: *Vertical* Temperature: 24 C

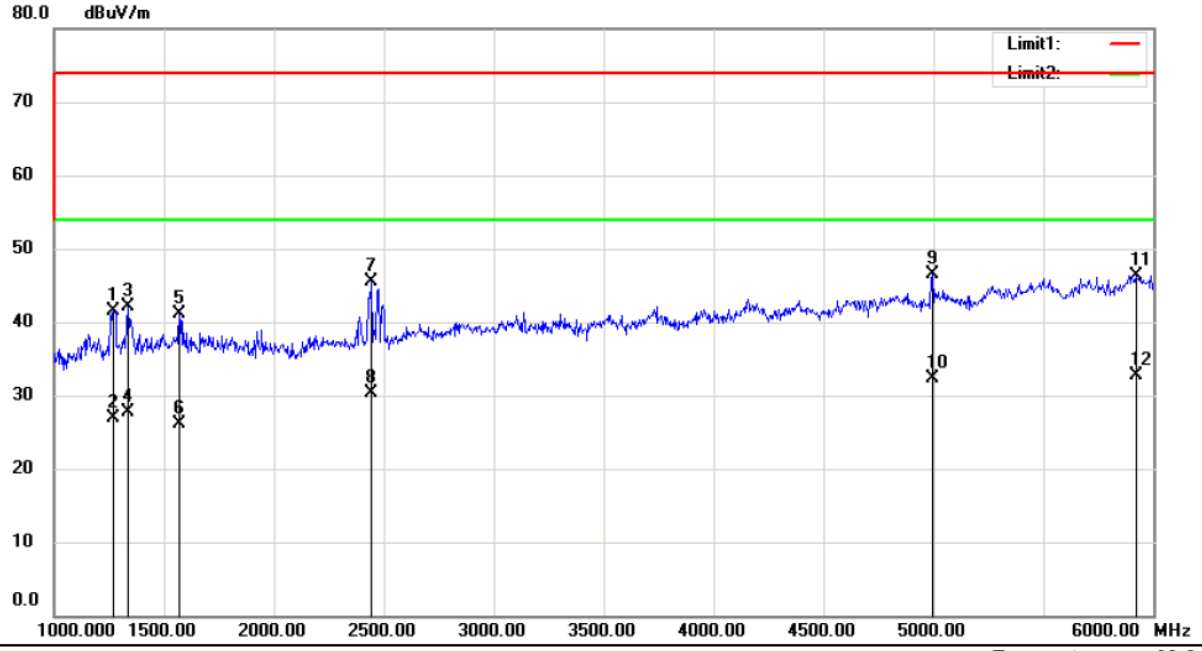
Limit: (RE)FCC PART 15 CLASS B Power: AC 120V/60Hz Humidity: 53 %

Mode:HDMI IN 3

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		41.6400	47.83	-15.03	32.80	40.00	-7.20	QP			
2		253.1000	47.48	-13.45	34.03	46.00	-11.97	QP			
3		346.2200	43.53	-10.93	32.60	46.00	-13.40	QP			
4		593.5700	45.21	-5.21	40.00	46.00	-6.00	QP			
5		652.7400	44.15	-4.49	39.66	46.00	-6.34	QP			
6	*	891.3600	42.34	-1.04	41.30	46.00	-4.70	QP			

*:Maximum data x:Over limit !:over margin Operator: CL



Site 3m Chamber #2 Polarization: *Horizontal* Temperature: 22 C

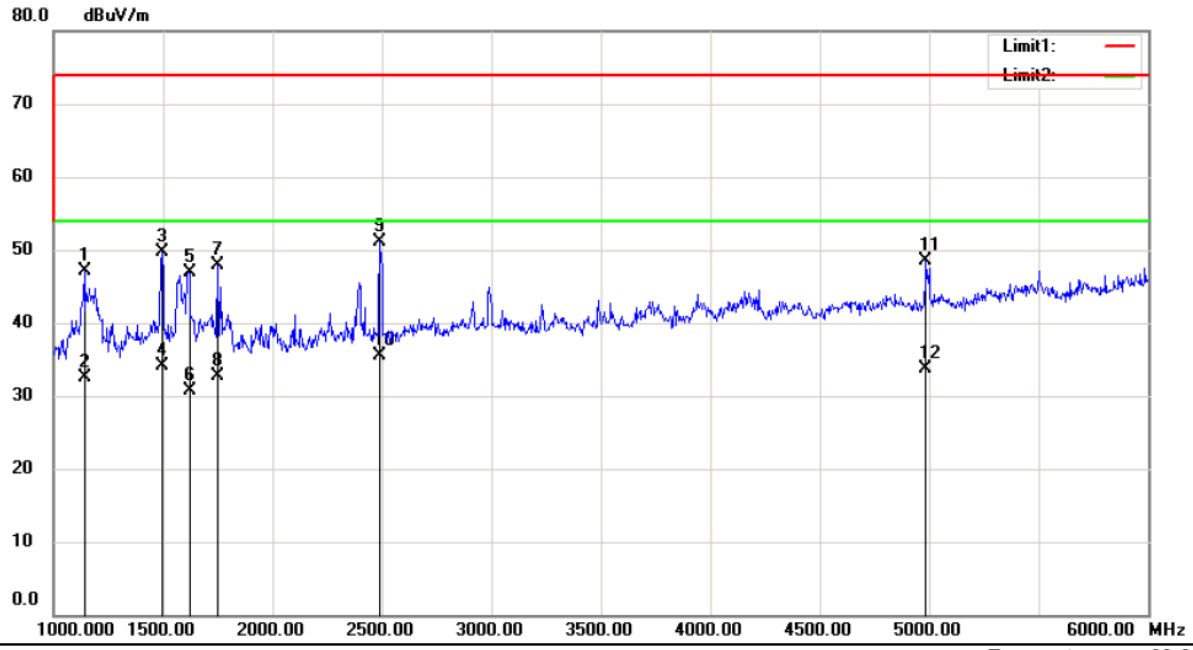
Limit: (RE)FCC PART 15 CLASS B Power: AC 120V/60Hz Humidity: 55 %

Mode:HDMI 3 IN

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		1270.000	57.42	-15.82	41.60	74.00	-32.40	peak			
2		1270.000	42.72	-15.82	26.90	54.00	-27.10	AVG			
3		1335.000	57.93	-15.85	42.08	74.00	-31.92	peak			
4		1335.000	43.65	-15.85	27.80	54.00	-26.20	AVG			
5		1570.000	57.13	-15.97	41.16	74.00	-32.84	peak			
6		1570.000	42.07	-15.97	26.10	54.00	-27.90	AVG			
7		2445.000	59.46	-13.95	45.51	74.00	-28.49	peak			
8		2445.000	44.35	-13.95	30.40	54.00	-23.60	AVG			
9		4995.000	54.27	-7.72	46.55	74.00	-27.45	peak			
10		4995.000	40.02	-7.72	32.30	54.00	-21.70	AVG			
11		5920.000	50.64	-4.25	46.39	74.00	-27.61	peak			
12	*	5920.000	36.95	-4.25	32.70	54.00	-21.30	AVG			

*:Maximum data x:Over limit !:over margin Operator: JOE



Site 3m Chamber #2 Polarization: *Vertical* Temperature: 22 C

Limit: (RE)FCC PART 15 CLASS B Power: AC 120V/60Hz Humidity: 55 %

Mode:HDMI 3 IN

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		1140.000	62.88	-15.76	47.12	74.00	-26.88	peak			
2		1140.000	48.36	-15.76	32.60	54.00	-21.40	AVG			
3		1495.000	65.56	-15.93	49.63	74.00	-24.37	peak			
4		1495.000	50.03	-15.93	34.10	54.00	-19.90	AVG			
5		1620.000	62.95	-15.99	46.96	74.00	-27.04	peak			
6		1620.000	46.79	-15.99	30.80	54.00	-23.20	AVG			
7		1750.000	63.93	-16.04	47.89	74.00	-26.11	peak			
8		1750.000	48.84	-16.04	32.80	54.00	-21.20	AVG			
9		2490.000	64.93	-13.73	51.20	74.00	-22.80	peak			
10	*	2490.000	49.33	-13.73	35.60	54.00	-18.40	AVG			
11		4985.000	56.23	-7.74	48.49	74.00	-25.51	peak			
12		4985.000	41.44	-7.74	33.70	54.00	-20.30	AVG			

*:Maximum data x:Over limit !:over margin Operator: JOE

----------The end----------