FCC Part 15B
Measurement and Test Report

For

Hisense Electric Co., Ltd.

No. 218 Qianwanggang Road, Economy & Technology Dev.,

Qingdao, China

FCC ID: W9HPADP0005

Test Rule(s):	FCC Part 15 Subpart B
Product Description:	Sero 7 LE
Tested Model:	E2371
Report No.:	STR14068167I-1
Tested Date:	2014-06-11 to 2014-08-18
Issued Date:	2014-08-18
Tested By:	Lebron Wang / Engineer
Reviewed By:	Lahm Peng / EMC Manager
Approved & Authorized By:	Jandy so / PSQ Manager

Prepared By:

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TABLE OF CONTENTS

1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant:	Hisense Electric Co., Ltd.
Address of applicant:	No.218 Qianwangang Road, Economy & Technology Dev., Qingdao, China
Manufacturer:	ELECTRONICS TECHNOLOGY(DONG GUAN) COMPANY LIMITED
Address of manufacturer:	No.161, Xin Min Road, Tong Luo Wei Industrial Zone, Jin Xia, Chang An Town, Dong Guan City, Guang Dong Province, China

General Description of EUT	
Product Name:	Sero 7 LE
Trade Name:	Hisense
Model No.:	E2371
Adding Model(s):	E2371XX (XX=A-Z)
Note: The test data is gathered from a production sample, provided by the manufacturer. The appearance of others models listed in the report is different from main-test model E2371, but the circuit and the electronic construction do not change, declared by the manufacturer.	

Technical Characteristics of EUT	
Rated Voltage:	DC 5V
Rated Current:	1.5A
Rated Power:	/
Power Adapter Model:	PS10C050K1500UU
Lowest Internal Frequency:	32.768KHz
Highest Internal Frequency:	1.0GHz
Classification of ITE:	Class B

1.2 Test Standards

The following report is prepared on behalf of the Hisense Electric Co., Ltd. in accordance with Part 2, Subpart J, and Part 15, Subparts A and B of the Federal Communication Commissions rules.

The objective is to determine compliance with FCC Part 15, Subpart B, and section 15.205, 15.107, and 15.109 rules.

Maintenance of compliance is the responsibility of the manufacturer. Any modification of the product, which result in lowering the emission, should be checked to ensure compliance has been maintained.

1.3 Test Methodology

All measurements contained in this report were conducted with ANSI C63.4-2003, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.

1.4 Test Facility

FCC – Registration No.: 934118

Shenzhen SEM.Test Technology Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files and the Registration is 934118.

Industry Canada (IC) Registration No.: 11464A

The 3m Semi-anechoic chamber of Shenzhen SEM.Test Technology Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 11464A.

CNAS Registration No.: L4062

Shenzhen SEM.Test Technology Co., Ltd. is a testing organization accredited by China National Accreditation Service for Conformity Assessment (CNAS) according to ISO/IEC 17025. The accreditation certificate number is L4062. All measurement facilities used to collect the measurement data are located at 1/F, Building A, Hongwei Industrial Park, Liuxian 2nd Road, Bao'an District, Shenzhen, P.R.C (518101).

1.5 EUT Setup and Operation Mode

The equipment under test (EUT) was configured to measure its highest possible emission level. The test modes were adapted according to the operation manual for use, more detailed description as follows:

Test Mode List:

Test Mode	Description	Remark
TM1	Charging & Playing	Connect To Adapter, Earphone
TM2	Downloading	Connected to PC
TM3		

EUT Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
USB Cable	1.2	Unshielded	Without Core

Auxiliary Equipment List and Details

Description	Manufacturer	Model	Serial Number
Notebook	Lenovo	20007	EB12648265

Special Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
Earphone Cable	1.2	Unshielded	Without Core

2. SUMMARY OF TEST RESULTS

FCC Rules	Description of Test Item	Result
§ 15.107 (a)	Conducted Emissions	Compliant
§ 15.109 (a)	Radiated Emissions	Compliant

N/A: not applicable

3. Conducted Emissions

3.1 Measurement Uncertainty

Base on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement is ± 2.88 dB.

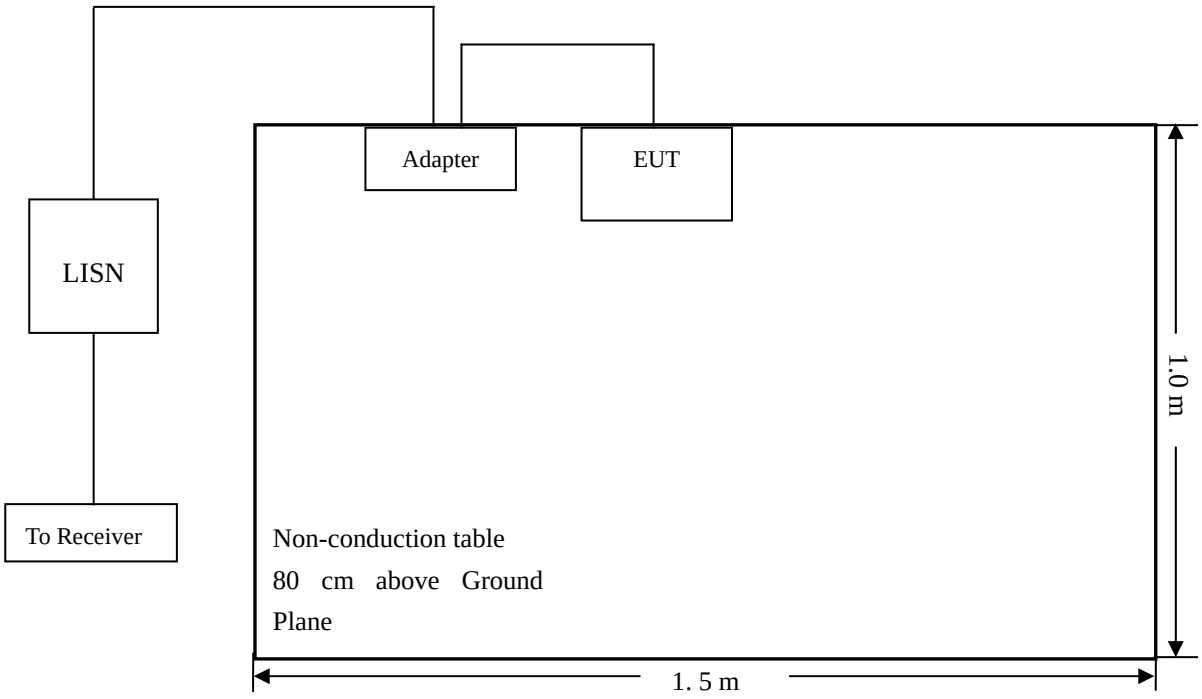
3.2 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
EMI Test Receiver	Rohde & Schwarz	ESPI	101611	2014-05-28	2015-05-27
L.I.S.N	Schwarz beck	NSLK8126	8126-224	2014-05-28	2015-05-27
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100911	2014-05-28	2015-05-27

3.3 Test Procedure

Test is conducting under the description of ANSI C63.4-2003, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.

3.4 Basic Test Setup Block Diagram



3.5 Environmental Conditions

Temperature:	23 °C
Relative Humidity:	52%
ATM Pressure:	1011 mbar

3.6 Summary of Test Results/Plots

According to the data in section 3.7, the EUT complied with the FCC Part 15.107(a) Conducted margin for a Class B device, with the *worst* margin reading of:

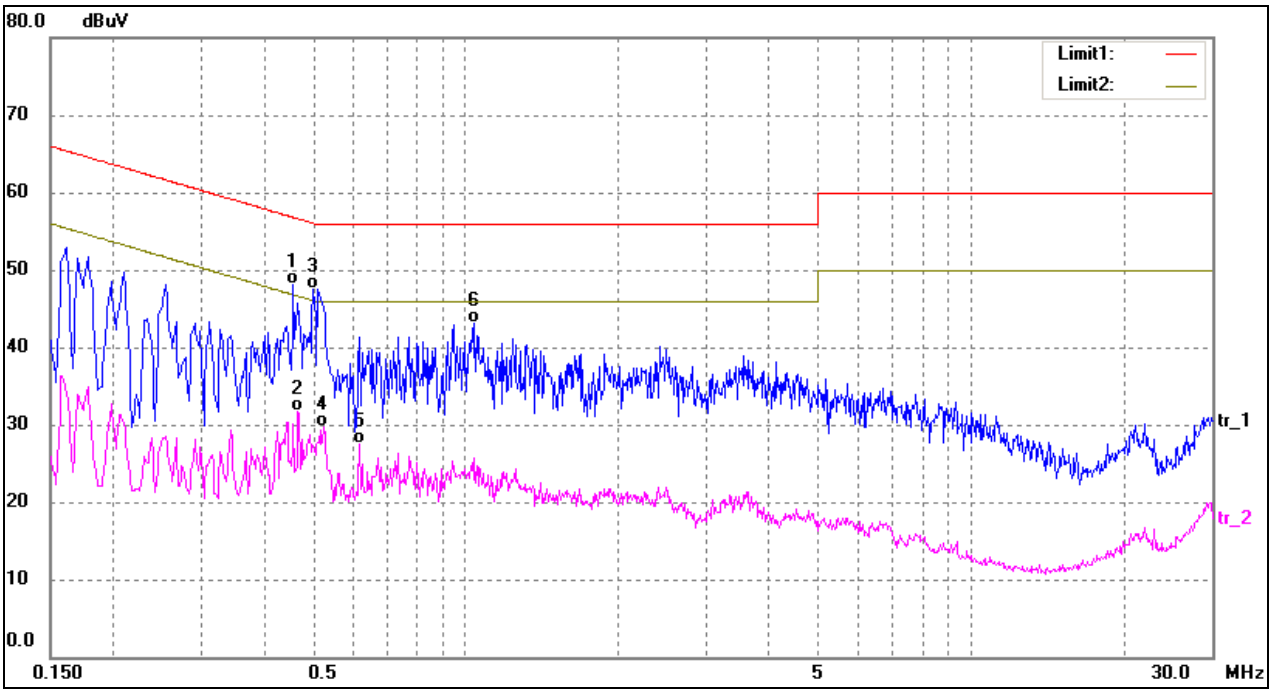
-6.60 dB at 0.4620 MHz in the **Line** mode**, Average** detector, **0.15-30MHz**

3.7 Conducted Emissions Test Data

Plot of Conducted Emissions Test Data

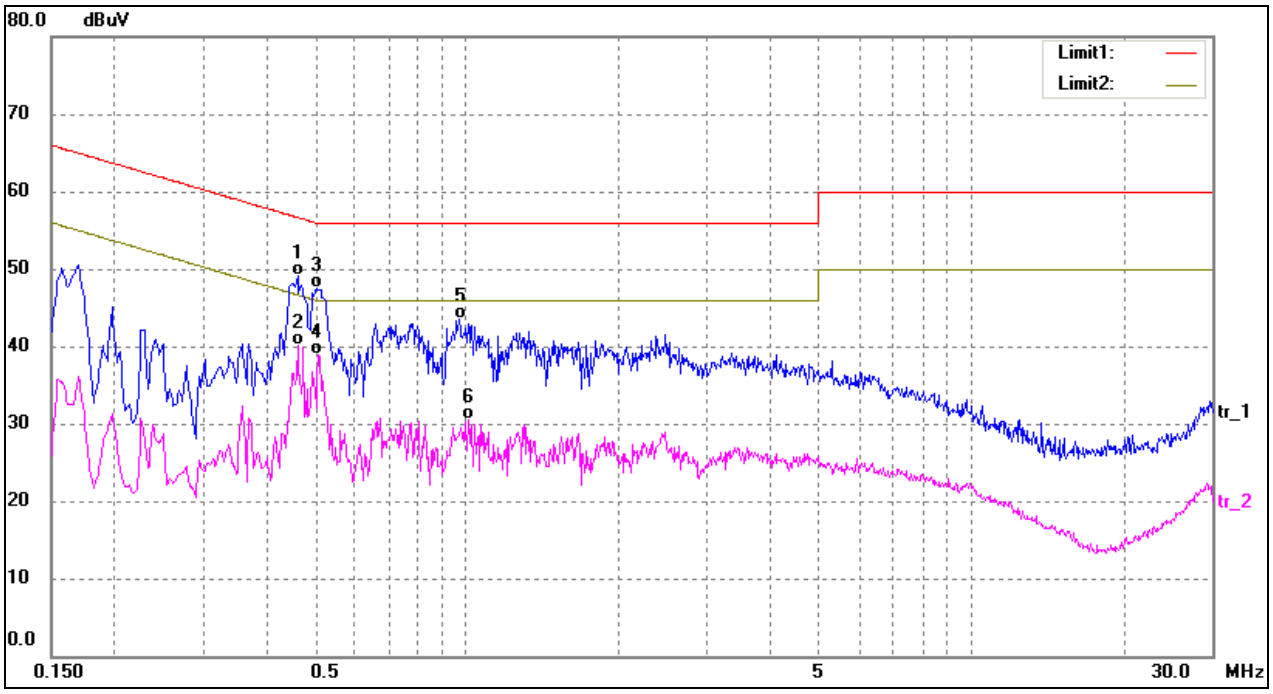
EUT: *Sero 7 LE*
Tested Model: *E2371*
Operating Condition: *Charging & Playing*
Comment: *AC 120V/60Hz, Adapter DC 5V/1.5A*

Test Specification: *Neutral*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1	0.4540	38.60	9.50	48.10	56.80	-8.70	QP
2	0.4660	22.17	9.50	31.67	46.58	-14.91	AVG
3	0.4980	38.07	9.50	47.57	56.03	-8.46	QP
4	0.5220	20.18	9.52	29.70	46.00	-16.30	AVG
5	0.6140	17.87	9.61	27.48	46.00	-18.52	AVG
6	1.0380	33.15	10.00	43.15	56.00	-12.85	QP

Test Specification: *Line*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1	0.4620	39.52	9.50	49.02	56.66	-7.64	QP
2	0.4620	30.56	9.50	40.06	46.66	-6.60	AVG
3	0.5020	38.05	9.50	47.55	56.00	-8.45	QP
4	0.5100	29.39	9.51	38.90	46.00	-7.10	AVG
5	0.9660	33.49	9.97	43.46	56.00	-12.54	QP
6	1.0060	20.49	10.00	30.49	46.00	-15.51	AVG

4. Radiated Emissions

4.1 Measurement Uncertainty

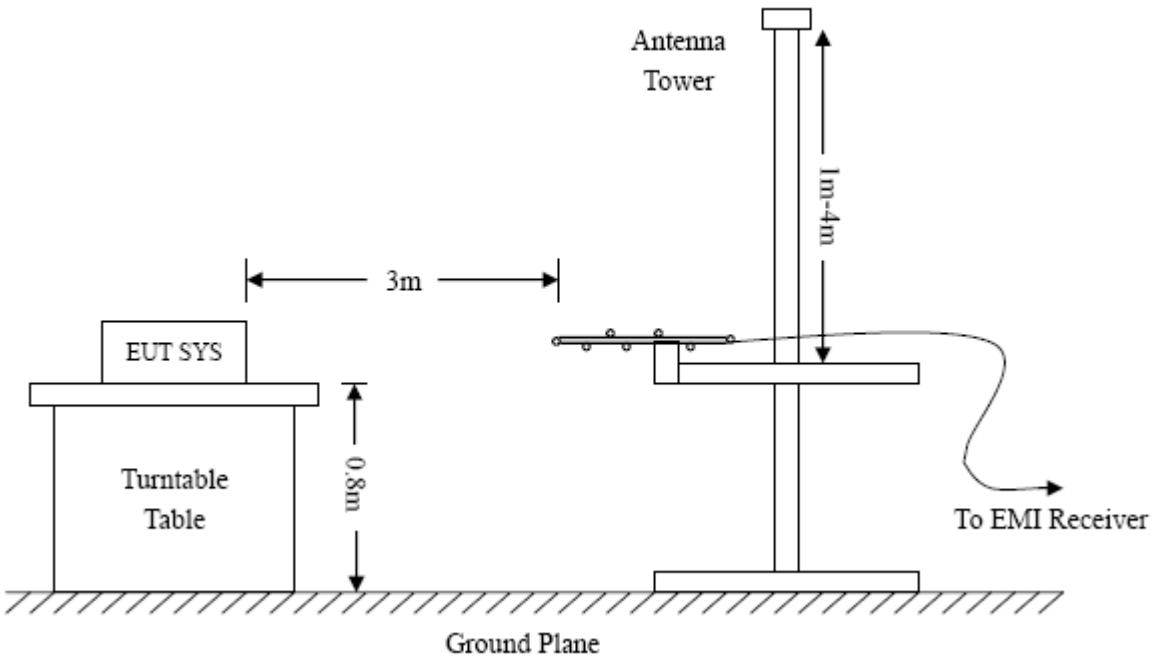
Base on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any radiation emissions measurement is ± 5.10 dB.

4.2 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
Spectrum Analyzer	R&S	FSP	836079/035	2014-05-28	2015-05-27
EMI Test Receiver	R&S	ESVB	825471/005	2014-05-28	2015-05-27
Pre-amplifier	Agilent	8447F	3113A06717	2014-05-28	2015-05-27
Pre-amplifier	Compliance Direction	PAP-0118	24002	2014-05-28	2015-05-27
Trilog Broadband Antenna	SCHWARZBECK	VULB9163	9163-333	2014-05-24	2015-05-23
Horn Antenna	ETS	3117	00086197	2014-05-24	2015-05-23
Loop Antenna	SCHWARZECK	HFRA 5165	9365	2014-05-24	2015-05-23

4.3 Test Procedure

The setup of EUT is according with per ANSI C63.4-2003 measurement procedure. The specification used was with the FCC Part 15.109 Limit.
The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.
The spacing between the peripherals was 10 cm.



4.4 Test Receiver Setup

Frequency :9kHz-30MHz	Frequency :30MHz-1GHz	Frequency :Above 1GHz
RBW=10KHz,	RBW=120KHz,	RBW=1MHz,
VBW =30KHz	VBW=300KHz	VBW=3MHz(Peak), 10Hz(AV)
Sweep time= Auto	Sweep time= Auto	Sweep time= Auto
Trace = max hold	Trace = max hold	Trace = max hold
Detector function = peak	Detector function = peak, QP	Detector function = peak, AV

4.5 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and the Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

Corr. Ampl. = Indicated Reading – Corr. Factor

The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -6dBμV means the emission is 6dBμV below the maximum limit for a Class B device. The equation for margin calculation is as follows:

Margin = Corr. Ampl. – FCC Part 15.109(a) Limit

4.6 Environmental Conditions

Temperature:	23 °C
Relative Humidity:	55 %
ATM Pressure:	1011 mbar

4.7 Summary of Test Results/Plots

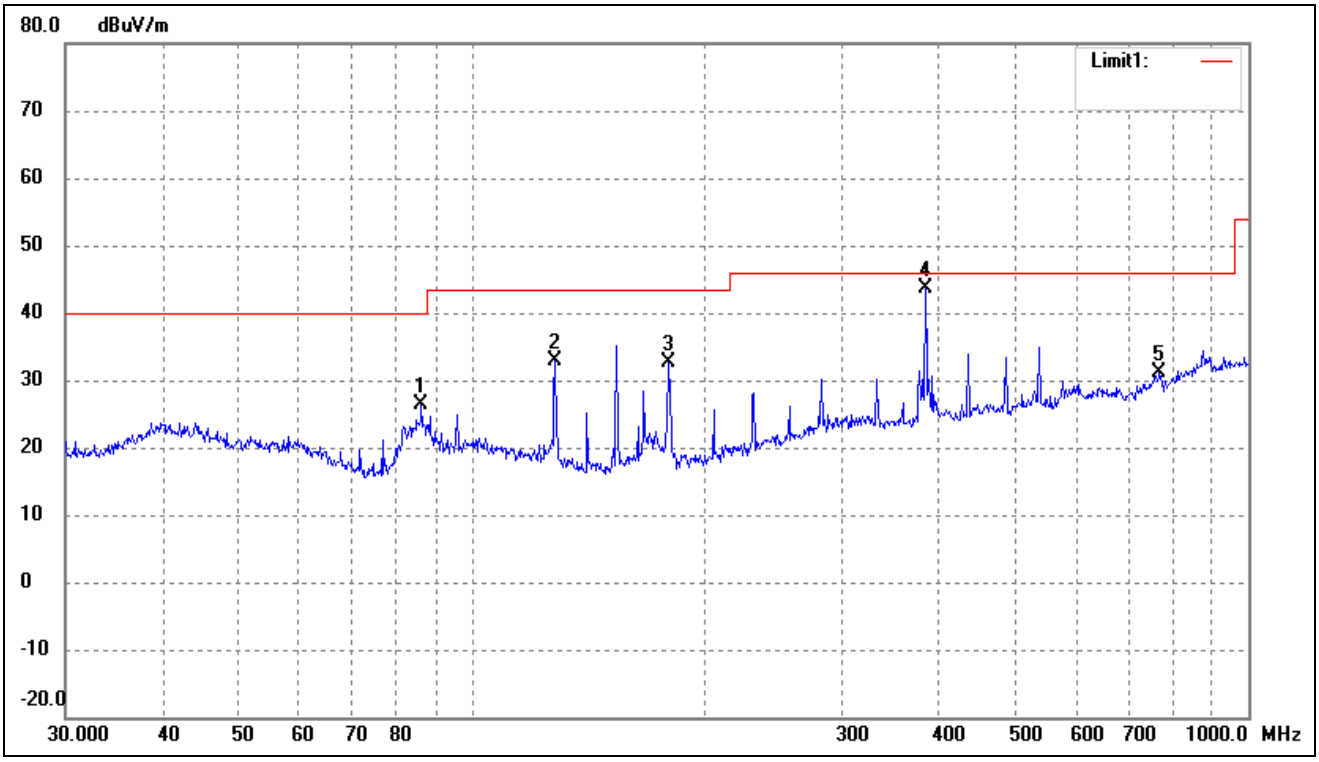
According to the data, the EUT complied with the FCC Part 15.109(a) rule, and had the worst margin of:

-3.36 dB at **383.9318 MHz** in the **Horizontal** polarization, **Charging and Playing** Mode, **9 kHz** to **5 GHz**, **3Meters**

Plot of Radiated Emissions Test Data

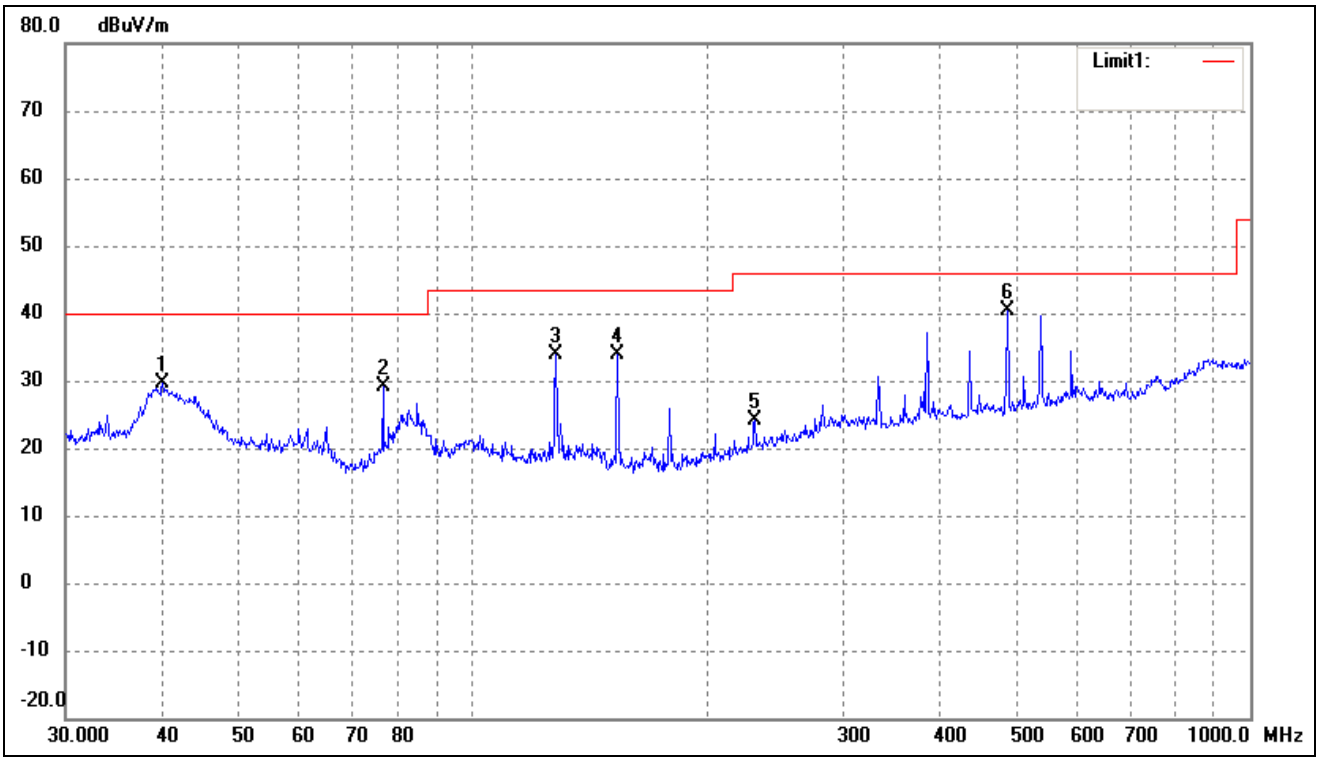
EUT: *Sero 7 LE*
Tested Model: *E2371*
Operating Condition: *Charging & Playing*
Comment: *AC 120V/60Hz, Adapter DC 5V/1.5A*

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	86.2001	23.77	2.62	26.39	40.00	-13.61	58	150	peak
2	128.1130	29.45	3.37	32.82	43.50	-10.68	326	100	peak
3	179.3863	29.99	2.74	32.73	43.50	-10.77	29	150	peak
4	383.9318	34.26	9.38	43.64	46.00	-2.36	209	100	peak
5	768.7481	16.97	14.15	31.12	46.00	-14.88	359	200	peak

Test Specification: *Vertical*

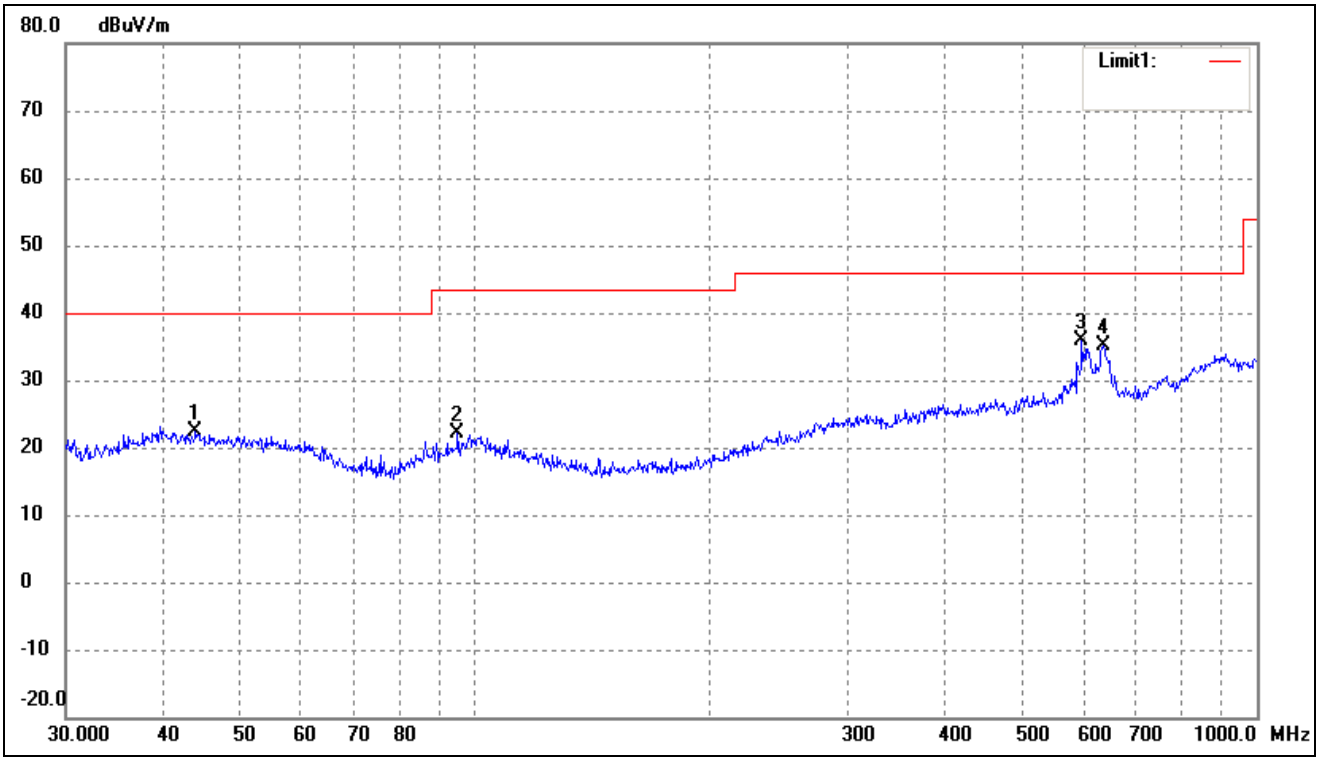


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	39.9942	20.38	9.25	29.63	40.00	-10.37	51	100	peak
2	76.7808	27.70	1.39	29.09	40.00	-10.91	308	100	peak
3	128.1130	30.43	3.37	33.80	43.50	-9.70	120	100	peak
4	153.7385	31.44	2.54	33.98	43.50	-9.52	359	100	peak
5	230.9068	18.33	5.77	24.10	46.00	-21.90	145	100	peak
6	487.3151	30.02	10.37	40.39	46.00	-5.61	359	100	peak

Plot of Radiated Emissions Test Data

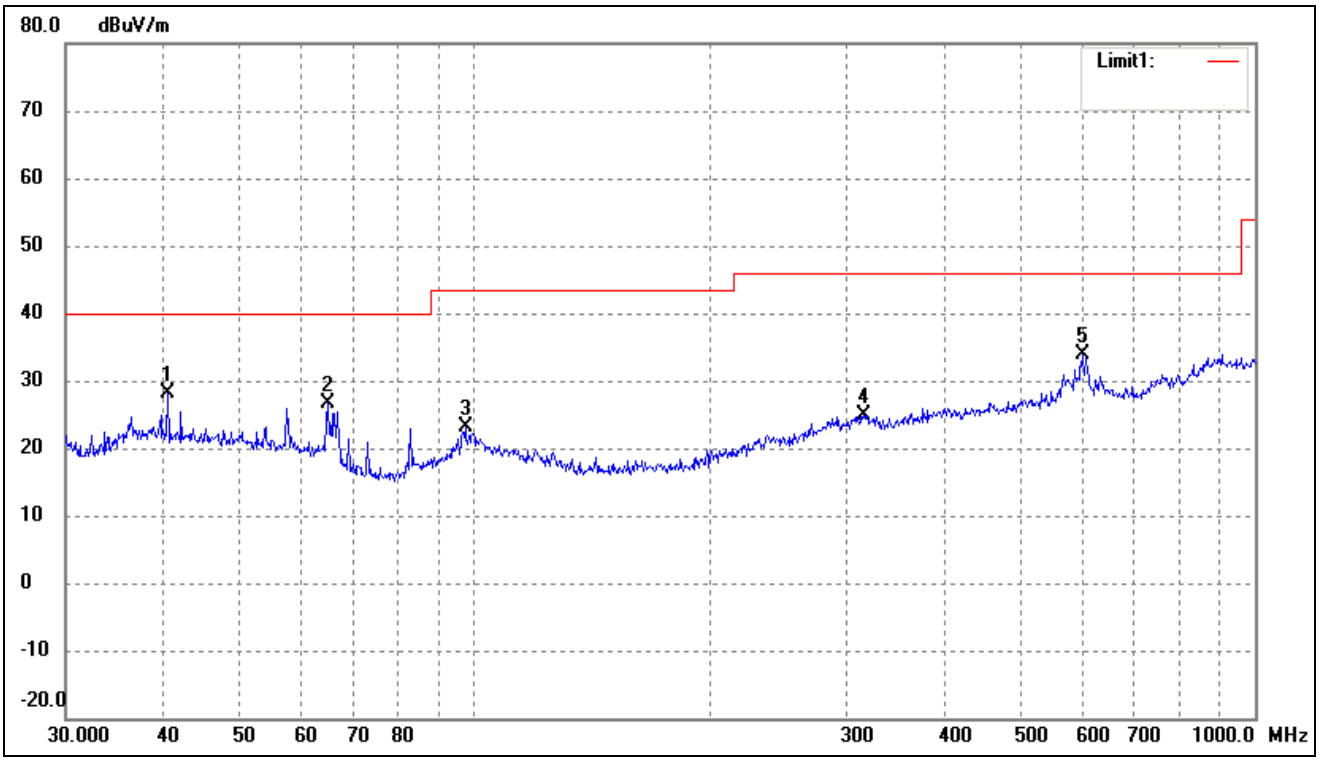
EUT: *Sero 7 LE*
Tested Model: *E2371*
Operating Condition: *Downloading*
Comment: *AC 120V/60Hz,USB DC 5V*

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	43.9658	15.49	6.86	22.35	40.00	-17.65	158	150	peak
2	95.0930	17.13	4.89	22.02	43.50	-21.48	326	100	peak
3	597.2234	22.61	13.21	35.82	46.00	-10.18	129	100	peak
4	636.1340	22.53	12.49	35.02	46.00	-10.98	209	100	peak

Test Specification: *Vertical*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	40.5591	19.14	9.08	28.22	40.00	-11.78	151	100	peak
2	64.8865	22.89	3.82	26.71	40.00	-13.29	208	100	peak
3	97.4560	17.62	5.49	23.11	43.50	-20.39	120	100	peak
4	315.4808	15.72	9.27	24.99	46.00	-21.01	359	100	peak
5	601.4265	20.59	13.22	33.81	46.00	-12.19	359	100	peak

Note: Testing is carried out with frequency rang 9kHz to the 5GHz, which above 1GHz is close to the noise base even antenna close up to 1meter distance according the measurement of ANSI C63.4.
The measurements greater than 20dB below the limit from 9kHz to 30MHz and test data are not provided.

******* END OF REPORT *******