

FCC Part 15B Measurement and Test Report

For

Amelia World Corporation dba LINSAY

16340 West Dixie Highway, North Miami Beach, Florida

FCC ID: 2AAC3EX-5L

Test Rule(s):	<u>FCC Part 15 Subpart B</u>
Product Description:	<u>Smart Watch</u>
Tested Model:	<u>EX-5L</u>
Report No.:	<u>STR15038117I-2</u>
Tested Date:	<u>2015-03-14 to 2015-03-25</u>
Issued Date:	<u>2015-03-26</u>
Tested By:	<u>Vigoss Liang / Engineer</u>
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Note: This test report is limited to the above client company and the product model only. It may not be duplicated without prior permitted by Shenzhen SEM.Test Technology Co., Ltd.

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1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant: Amelia World Corporation dba LINSAY
Address of applicant: 16340 West Dixie Highway, North Miami Beach,
Florida
Manufacturer: Amelia World Corporation dba LINSAY
Address of manufacturer: 16340 West Dixie Highway, North Miami Beach,
Florida

General Description of EUT

Product Name:	Smart Watch
Trade Name:	LINSAY
Model No.:	EX-5L

Note: The test data is gathered from a production sample, provided by the manufacturer.

Technical Characteristics of EUT

Rated Voltage:	Li-ion Battery: 3.7V DC; Adapter 5VDC charging
Adapter Model:	SC050050-US
Rated Current:	/
Rated Power:	/
Lowest Internal Frequency:	32.768kHz
Highest Internal Frequency:	360MHz
Classification of ITE:	CLASS B

1.2 Test Standards

The following report is prepared on behalf of the Amelia World Corporation dba LINSAY 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 C63.4-2014, 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	for EMI testing
TM2	Charging & Camera	for EMI testing
TM3	Downloading	for EMI testing

EUT Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
USB Cable	0.8	Shielded	With Core

Auxiliary Equipment List and Details

Description	Manufacturer	Model	Serial Number
Notebook	Lenovo	E23	/

Special Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/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.

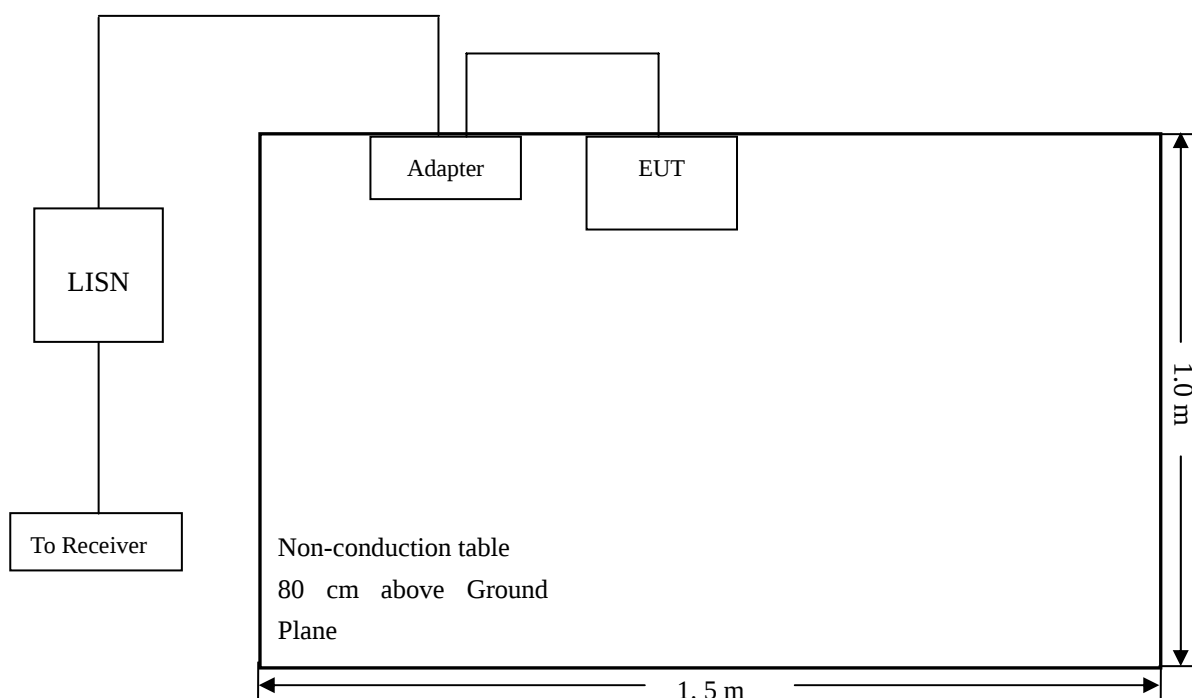
3.2 Test Equipment List and Details

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 C63.4-2014, 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:

-11.90 dB at 0.538 MHz in the **Line** mode, **AVG** detector, **0.15-30MHz**

3.7 Conducted Emissions Test Data

Plot of Conducted Emissions Test Data

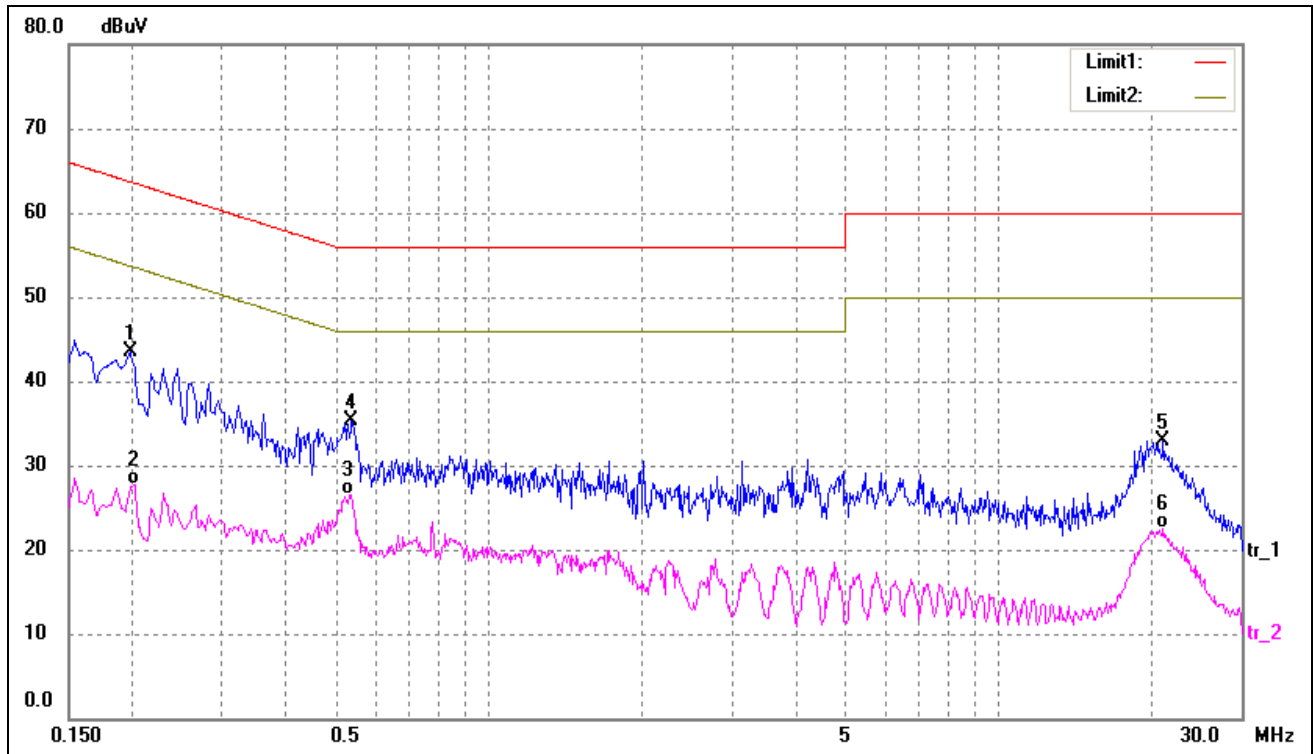
EUT: Smart Watch

Tested Model: EX-5L

Operating Condition: TM1

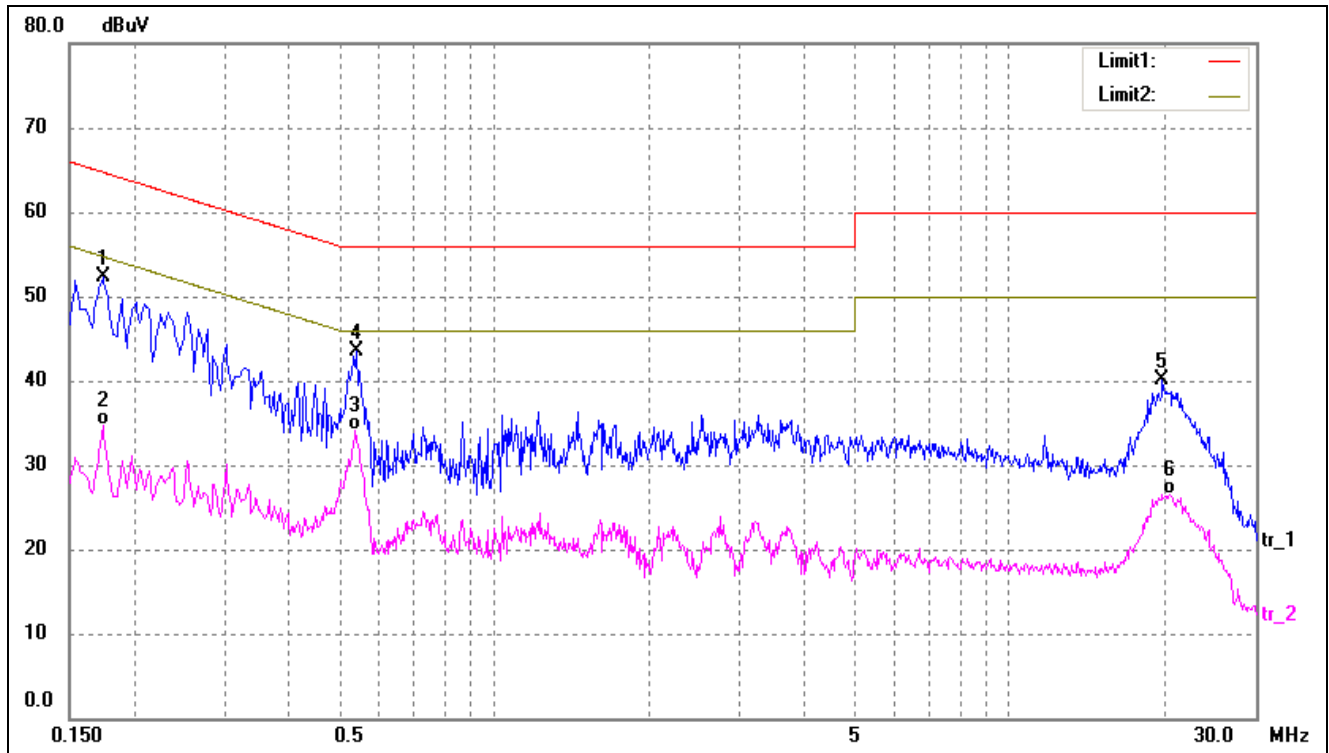
Comment: AC 120V/60Hz; Adapter DC 5V

Test Specification: Neutral



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1980	33.93	9.50	43.43	63.69	-20.26	peak
2	0.2020	18.11	9.50	27.61	53.53	-25.92	AVG
3*	0.5340	16.99	9.53	26.52	46.00	-19.48	AVG
4	0.5380	25.84	9.54	35.38	56.00	-20.62	peak
5	21.0540	20.98	12.00	32.98	60.00	-27.02	peak
6	21.0540	10.54	12.00	22.54	50.00	-27.46	AVG

Test Specification: Line



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1	0.1740	42.72	9.50	52.22	64.77	-12.55	peak
2	0.1740	25.12	9.50	34.62	54.77	-20.15	AVG
3*	0.5380	24.56	9.54	34.10	46.00	-11.90	AVG
4	0.5420	34.05	9.54	43.59	56.00	-12.41	peak
5	19.8260	28.09	11.97	40.06	60.00	-19.94	peak
6	20.4780	14.55	12.00	26.55	50.00	-23.45	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

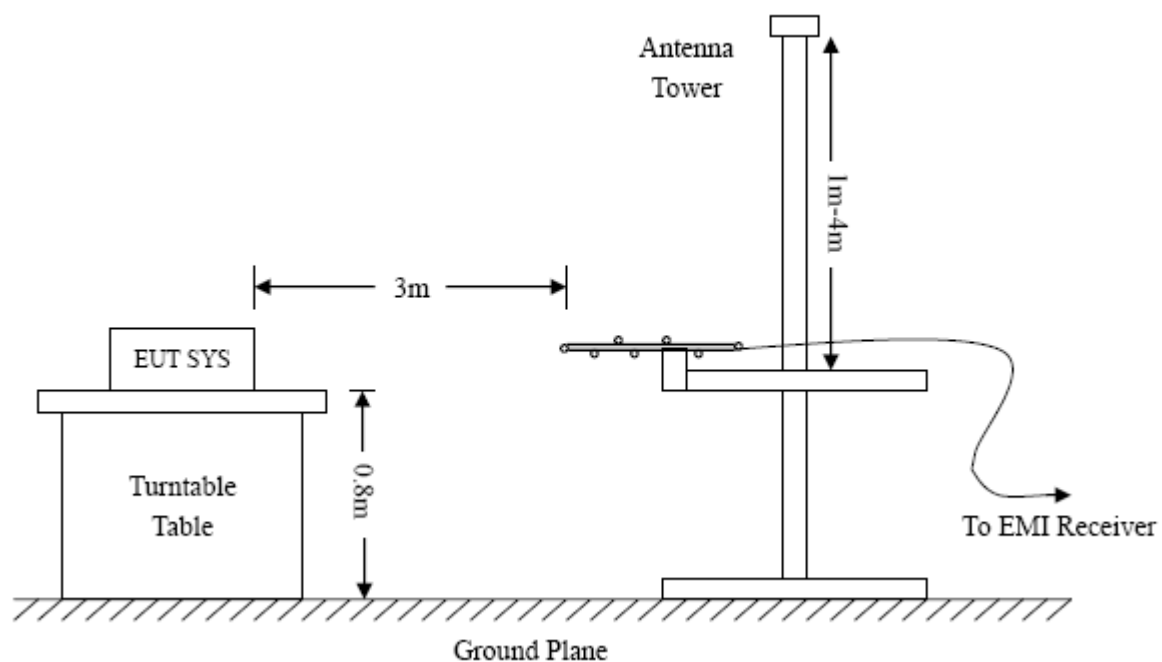
Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
Spectrum Analyzer	R&S	FSP	836079/035	2014-05-28	2015-05-27
EMI Test Receiver	R&S	ESVB	825471/005	2014-05-28	2015-05-27
Pre-amplifier	Agilent	8447F	3113A06717	2014-05-28	2015-05-27
Pre-amplifier	Compliance Direction	PAP-0118	24002	2014-05-28	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

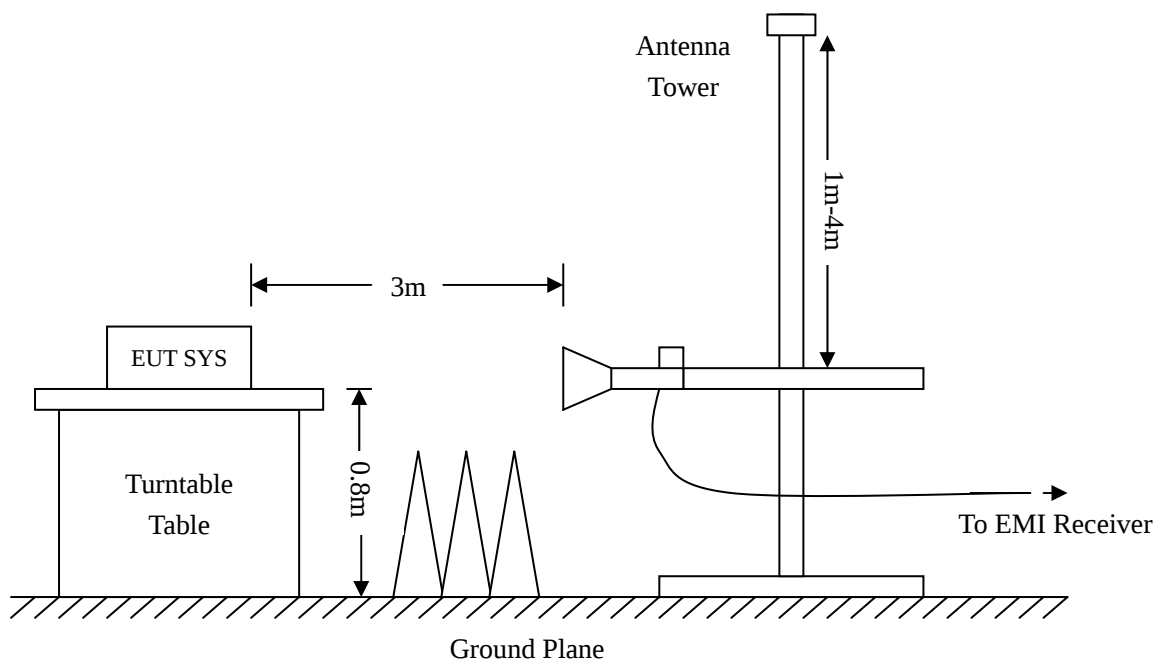
4.3 Test Procedure

The setup of EUT is according with per ANSI C63.4-2014 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

RBW=10KHz,

VBW =30KHz

Sweep time= Auto

Trace = max hold

Detector function = peak

Frequency :30MHz-1GHz

RBW=120KHz,

VBW=300KHz

Sweep time= Auto

Trace = max hold

Detector function = peak, QP

Frequency :Above 1GHz

RBW=1MHz,

VBW=3MHz(Peak), 10Hz(AV)

Sweep time= Auto

Trace = max hold

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:

$$\text{Corr. Ampl.} = \text{Indicated Reading} - \text{Corr. Factor}$$

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

$$\text{Margin} = \text{Corr. Ampl.} - \text{FCC Part 15.109(a) Limit}$$

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:

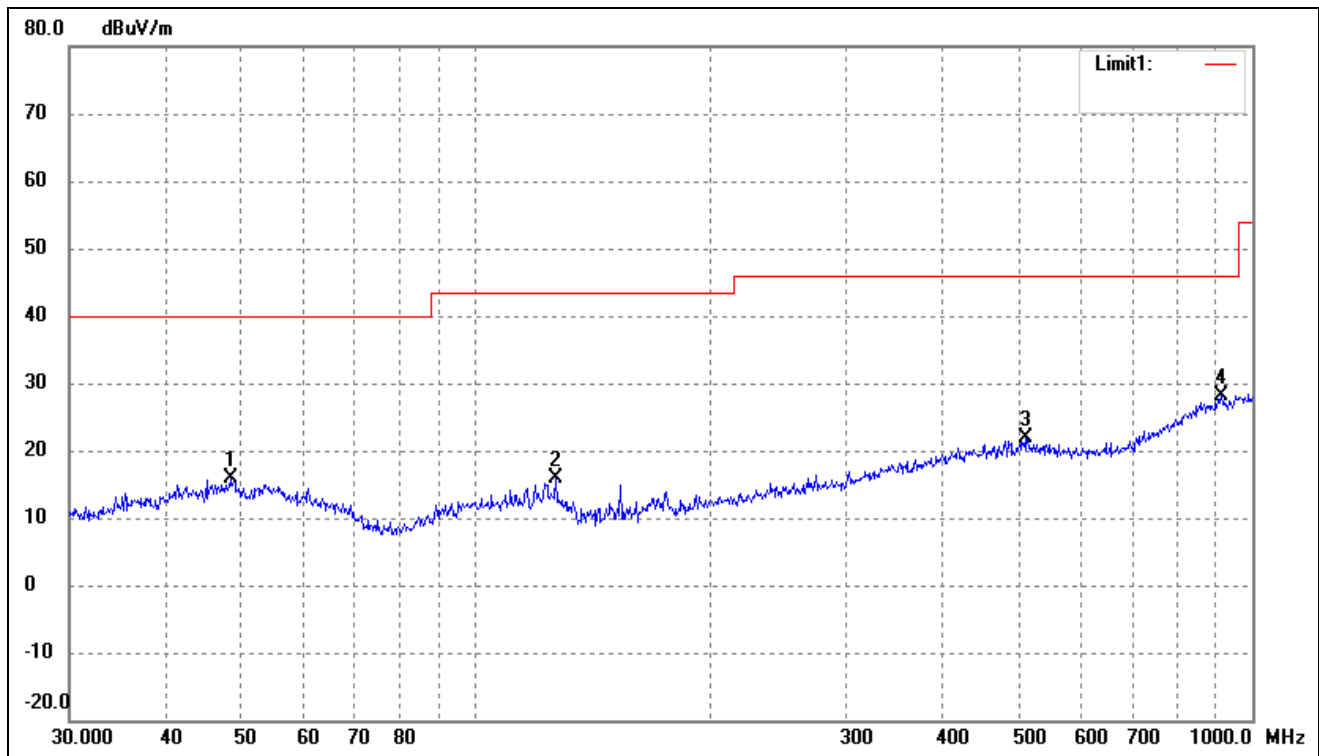
Note: this EUT was tested in 3 orthogonal positions and the worst case position data was reported.

-4.43 dB at 842.1296 MHz in the Horizontal polarization, TM2 Mode 9 kHz to 2 GHz, 3Meters

Plot of Radiated Emissions Test Data

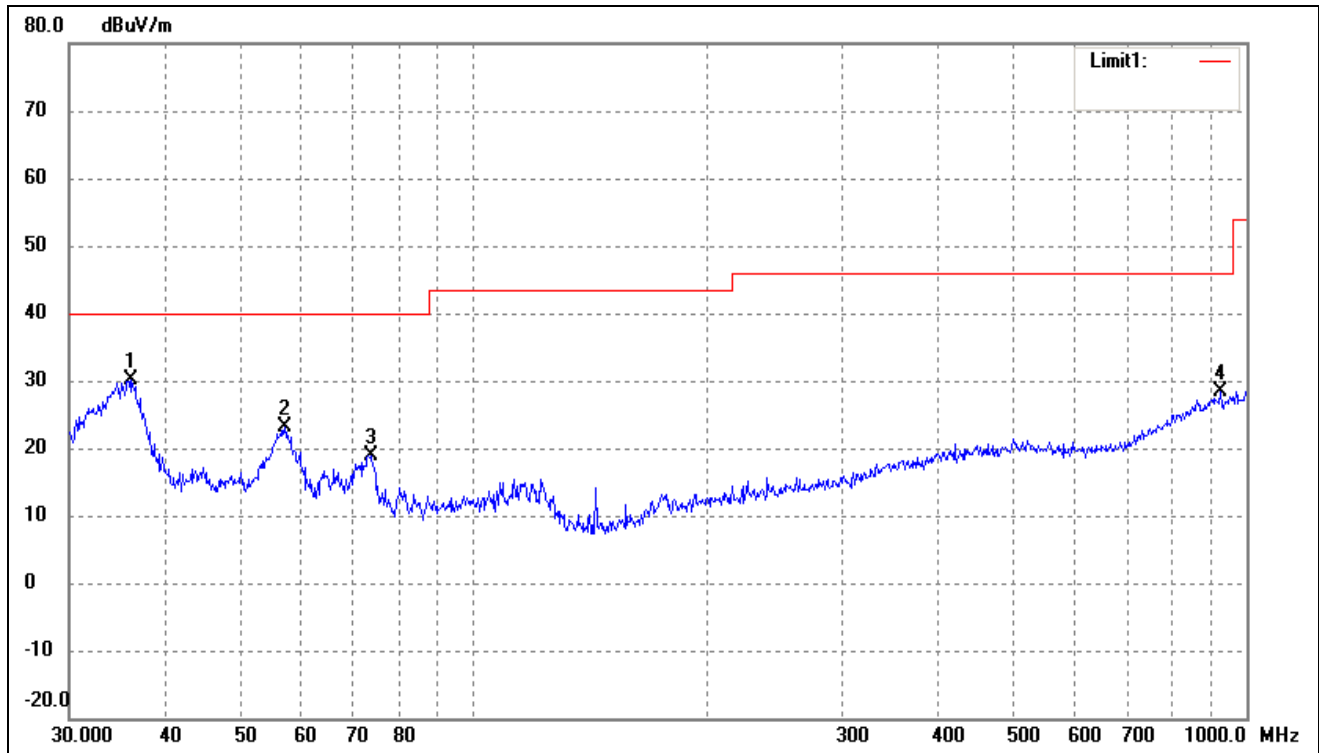
EUT: Smart Watch
 Tested Model: EX-5L
 Operating Condition: TM1
 Comment: AC 120V/60Hz; Adapter DC 5V

Test Specification: Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	48.3318	23.29	-7.45	15.84	40.00	-24.16	0	150	QP
2	126.7723	28.03	-12.27	15.76	43.50	-27.74	320	100	QP
3	511.8352	23.32	-1.37	21.95	46.00	-24.05	120	100	QP
4	912.8620	22.62	5.43	28.05	46.00	-17.95	0	100	peak

Test Specification: Vertical

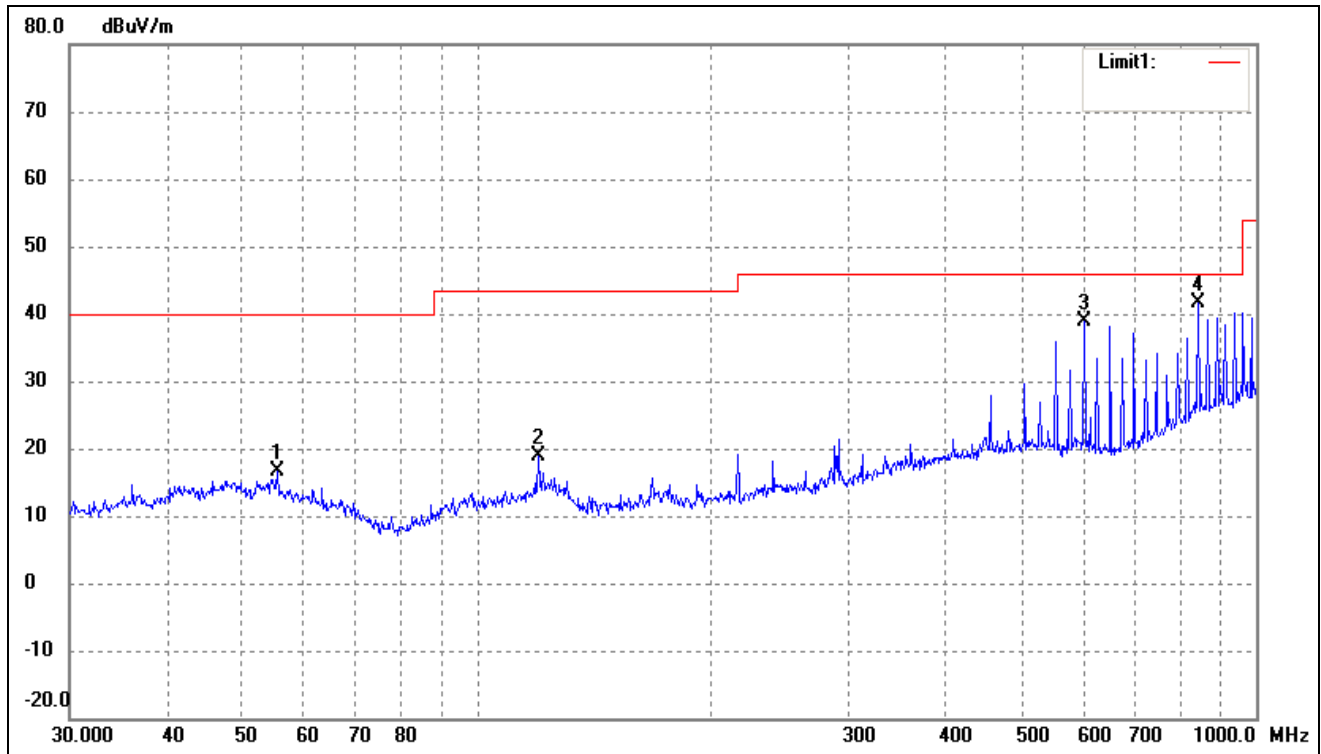


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	36.1272	39.74	-9.63	30.11	40.00	-9.89	120	100	peak
2	56.9912	31.33	-8.30	23.03	40.00	-16.97	0	100	peak
3	73.6170	31.73	-12.80	18.93	40.00	-21.07	0	100	peak
4	925.7563	22.82	5.60	28.42	46.00	-17.58	0	100	peak

Plot of Radiated Emissions Test Data

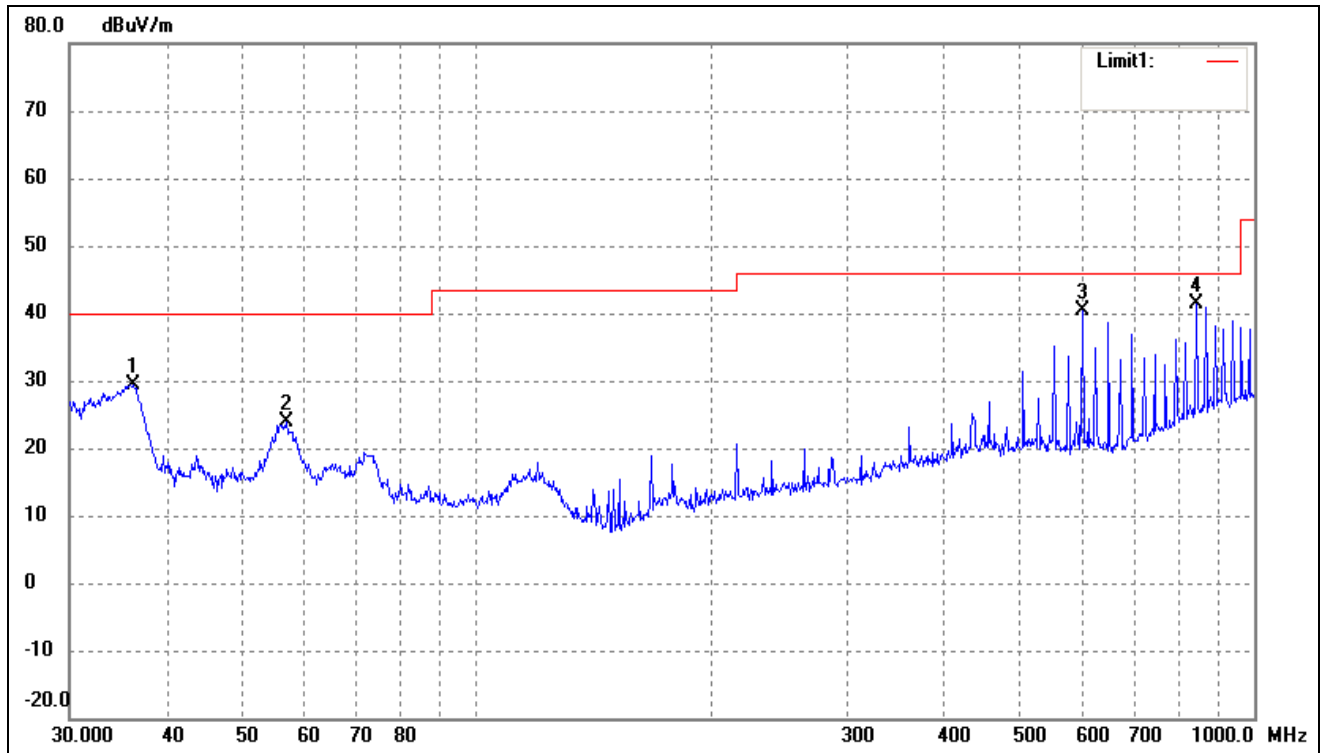
EUT: Smart Watch
 Tested Model: EX-5L
 Operating Condition: TM2
 Comment: AC 120V/60Hz; Adapter DC 5V

Test Specification: Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	55.4147	24.51	-7.99	16.52	40.00	-23.48	0	100	peak
2	119.8556	30.17	-11.25	18.92	43.50	-24.58	0	100	peak
3	601.4265	40.79	-1.84	38.95	46.00	-7.05	30	100	QP
4	842.1296	37.88	3.69	41.57	46.00	-4.43	3	100	QP

Test Specification: Vertical



No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	36.2541	39.01	-9.58	29.43	40.00	-10.57	0	100	peak
2	56.9912	32.29	-8.30	23.99	40.00	-16.01	0	100	peak
3	601.4265	39.26	1.16	40.42	46.00	-5.58	29	100	peak
4	842.1296	37.19	4.27	41.46	46.00	-4.54	3	100	peak

Plot of Radiated Emissions Test Data

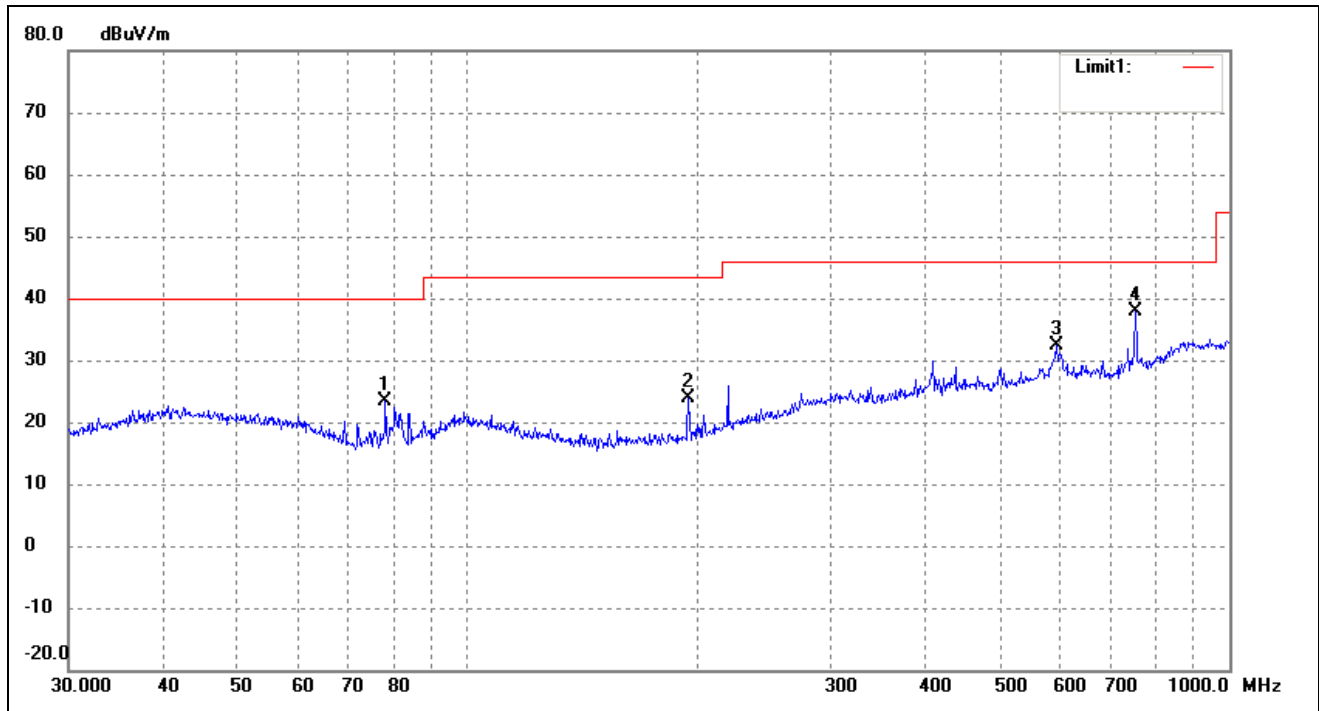
EUT: Smart Watch

Tested Model: EX-5L

Operating Condition: TM3

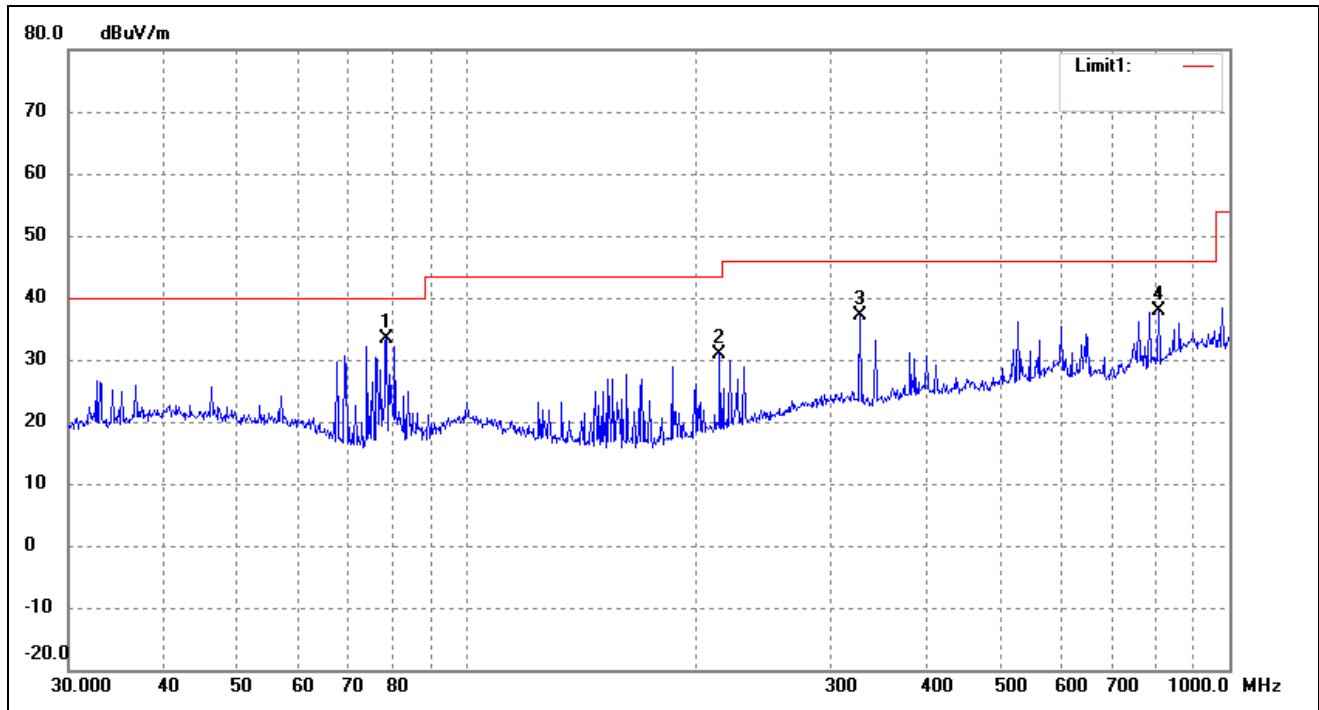
Comment: USB:5V DC

Test Specification: Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	78.1389	22.28	1.22	23.50	40.00	-16.50	0	150	QP
2	195.1365	20.48	3.45	23.93	43.50	-19.57	30	100	QP
3	593.0497	19.38	13.06	32.44	46.00	-13.56	29	120	QP
4	752.7432	23.69	14.25	37.94	46.00	-8.06	209	100	peak

Test Specification: Vertical



No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	78.4134	32.13	1.19	33.32	40.00	-6.68	51	100	peak
2	214.5143	26.06	4.71	30.77	43.50	-12.73	0	100	peak
3	327.8873	28.02	9.07	37.09	46.00	-8.91	120	100	peak
4	807.4291	23.38	14.53	37.91	46.00	-8.09	359	100	peak

Note: Testing is carried out with frequency rang 9kHz to the 2GHz, 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 *****