FCC Part 15B
Measurement and Test Report

For

LifeSpeed. LLC

5412 Buckner Ct., Flower Mound, TX 75028, USA

FCC ID: 2ALOCAMBER1

FCC Rule(s):	FCC Part 15 Subpart B
Product Description:	GPS Smart Watch
Tested Model:	Amber 1
Report No.:	STR17028119E-3
Tested Date:	2017-02-20 to 2017-03-24
Issued Date:	2017-03-25
Tested By:	Iven Guo / Engineer
Reviewed By:	Silin Chen / EMC Manager
Approved & Authorized By:	Jandy So / PSQ Manager

Prepared By:

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1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant:	LifeSpeed. LLC
Address of applicant:	5412 Buckner Ct., Flower Mound, TX 75028, USA
Manufacturer:	Shenzhen Thinkrace Technology Co.,Ltd
Address of manufacturer:	2108, 1F, Building B, GuoRen Communication Building, No.5 Science and Technology Three Road, High Tech Park District, Nanshan District, ShenZhen, China

General Description of EUT	
Product Name:	GPS Smart Watch
Trade Name:	Amber 1
Model No.:	Amber 1
Adding Model(s):	/
Note: The test data is gathered from a production sample, provided by the manufacturer.	

Technical Characteristics of EUT	
Rated Voltage:	DC 3.7V by Battery
Rated Current:	/
Rated Power:	/
Power Adapter Model:	/
Lowest Internal Frequency:	26MHz
Highest Internal Frequency:	260MHz
Classification of ITE:	Class B

1.2 Test Standards

The following report is prepared on behalf of the LifeSpeed. LLC 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 & Downloading	Connected to DC power

EUT Cable List and Details

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

Auxiliary Equipment List and Details

Description	Manufacturer	Model	Serial Number
/	/	/	/

Special Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
USB Cable	1.0	Shielded	With Core Ferrite

1.6 Measurement Uncertainty

Measurement uncertainty		
Parameter	Conditions	Uncertainty
Conducted Emissions	Conducted	±2.88dB
Transmitter Spurious Emissions	Radiated	±5.1dB

1.7 Test Equipment List and Details

No.	Description	Manufacturer	Model	Serial No.	Cal Date	Due Date
SEMT-1072	Spectrum Analyzer	Agilent	E4407B	MY41440400	2016-06-04	2017-06-03
SEMT-1031	Spectrum Analyzer	Rohde & Schwarz	FSP30	836079/035	2016-06-04	2017-06-03
SEMT-1007	EMI Test Receiver	Rohde & Schwarz	ESVB	825471/005	2016-06-04	2017-06-03
SEMT-1008	Amplifier	Agilent	8447F	3113A06717	2016-06-04	2017-06-03
SEMT-1043	Amplifier	C&D	PAP-1G18	2002	2016-06-04	2017-06-03
SEMT-1011	Broadband Antenna	Schwarz beck	VULB9163	9163-333	2016-06-04	2017-06-03
SEMT-1042	Horn Antenna	ETS	3117	00086197	2016-06-04	2017-06-03
SEMT-1069	Loop Antenna	Schwarz beck	FMZB 1516	9773	2016-06-04	2017-06-03
SEMT-1001	EMI Test Receiver	Rohde & Schwarz	ESPI	101611	2016-06-04	2017-06-03
SEMT-1003	L.I.S.N	Schwarz beck	NSLK8126	8126-224	2016-06-04	2017-06-03
SEMT-1002	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100911	2016-06-04	2017-06-03

2. SUMMARY OF TEST RESULTS

Description of Test	Result
§15.107 (a) Conducted Emission	Compliant
§15.109(a) Radiated Emission	Compliant

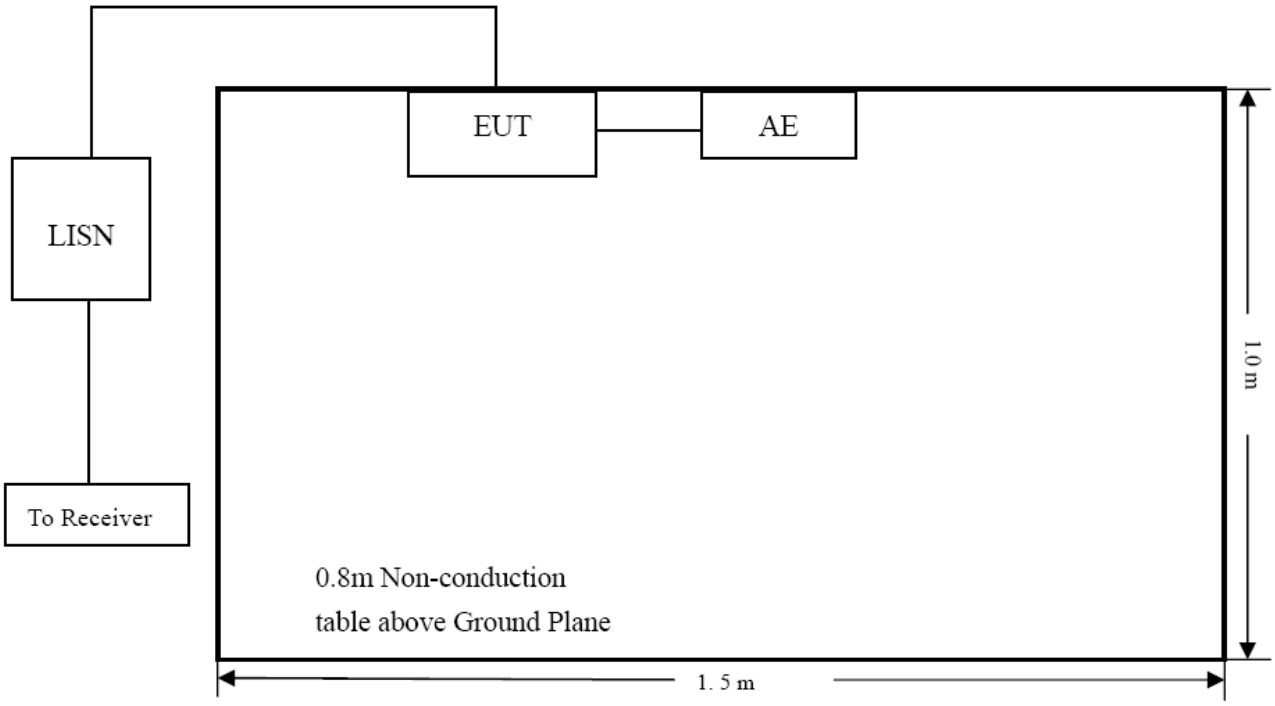
N/A: not applicable

3. Conducted Emissions

3.1 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.

3.2 Basic Test Setup Block Diagram



3.3 Environmental Conditions

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

3.4 Summary of Test Results/Plots

According to the data in section 3.5, the EUT complied with the FCC Part 15.107(a) Conducted margin for a Class B device, with the *worst* margin reading of:

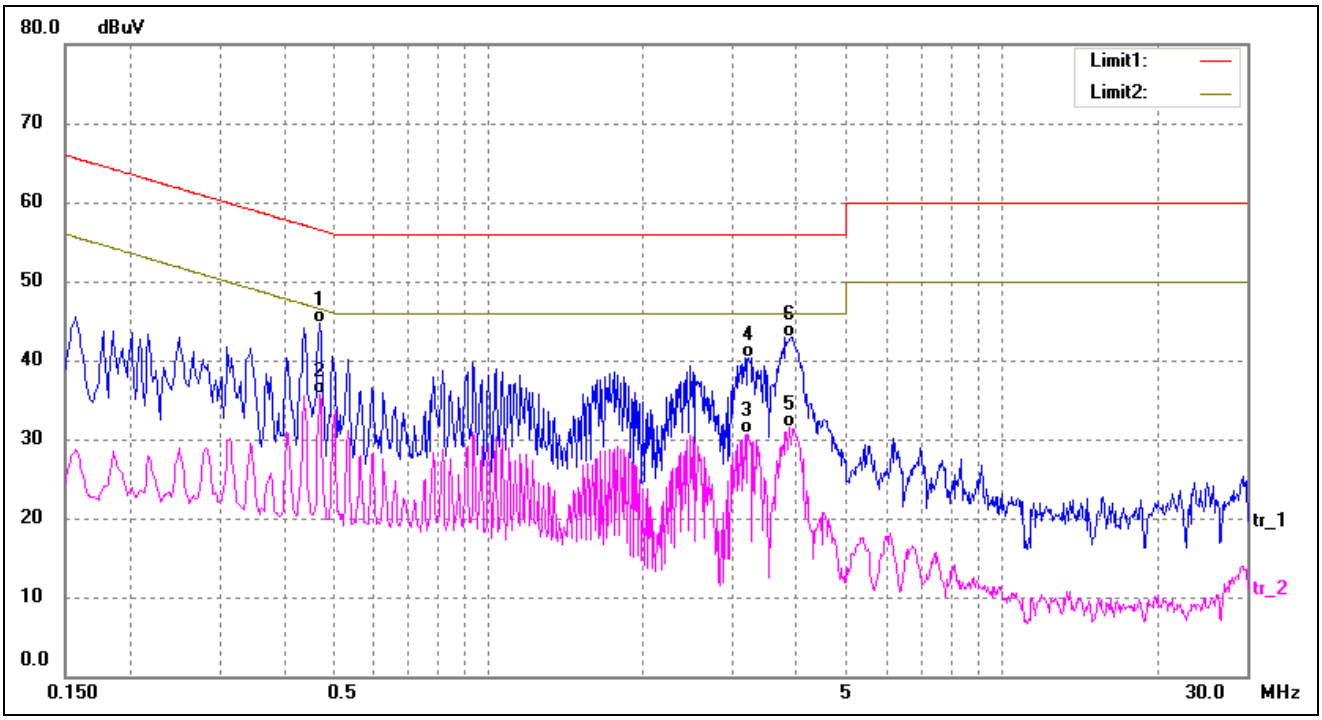
-7.40 dB at **0.4380 MHz** in the **Line**, **Average** detector, 0.15-30MHz

3.5 Conducted Emissions Test Data

Plot of Conducted Emissions Test Data

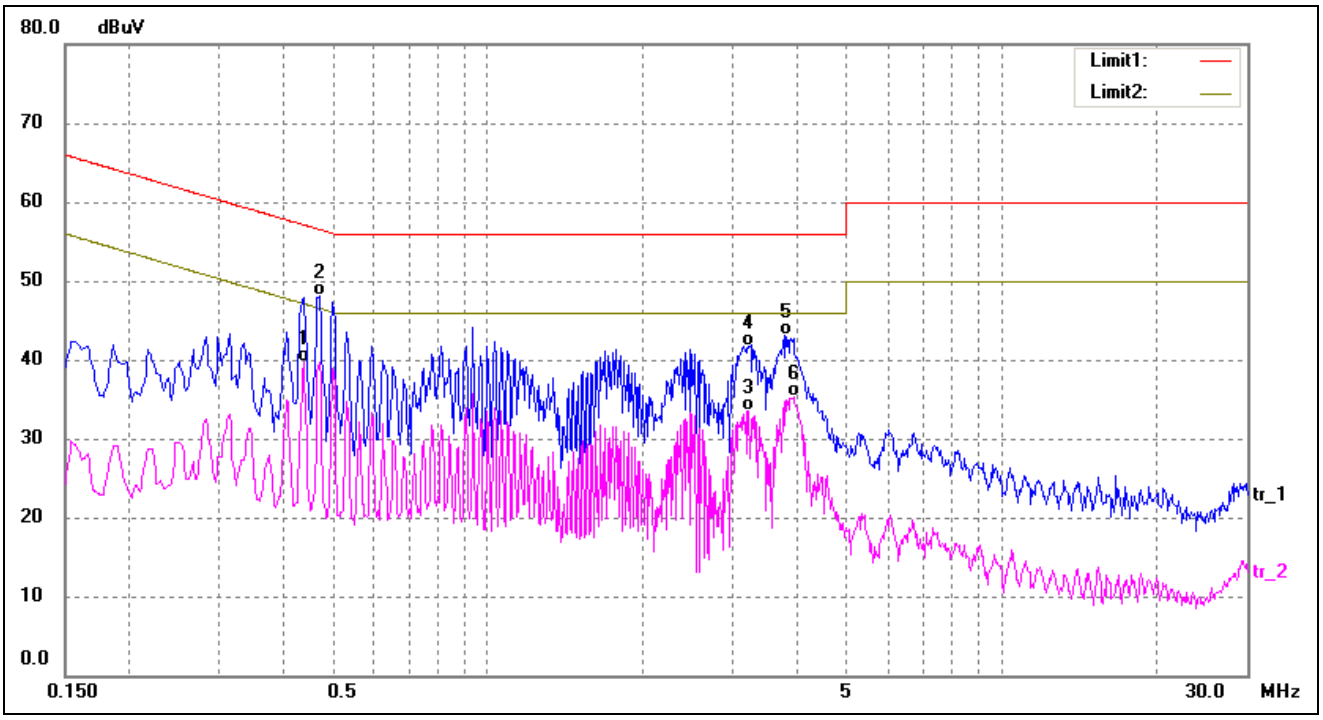
EUT: *GPS Smart Watch*
Tested Model: *Amber 1*
Operating Condition: *TM1*
Comment: *AC 120V/60Hz; USB 5V*

Test Specification: *Neutral*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1	0.4700	34.85	9.80	44.65	56.51	-11.86	QP
2*	0.4700	25.98	9.80	35.78	46.51	-10.73	AVG
3	3.1900	20.98	9.71	30.69	46.00	-15.31	AVG
4	3.2540	30.67	9.70	40.37	56.00	-15.63	QP
5	3.8780	21.89	9.69	31.58	46.00	-14.42	AVG
6	3.9100	33.27	9.69	42.96	56.00	-13.04	QP

Test Specification: *Line*

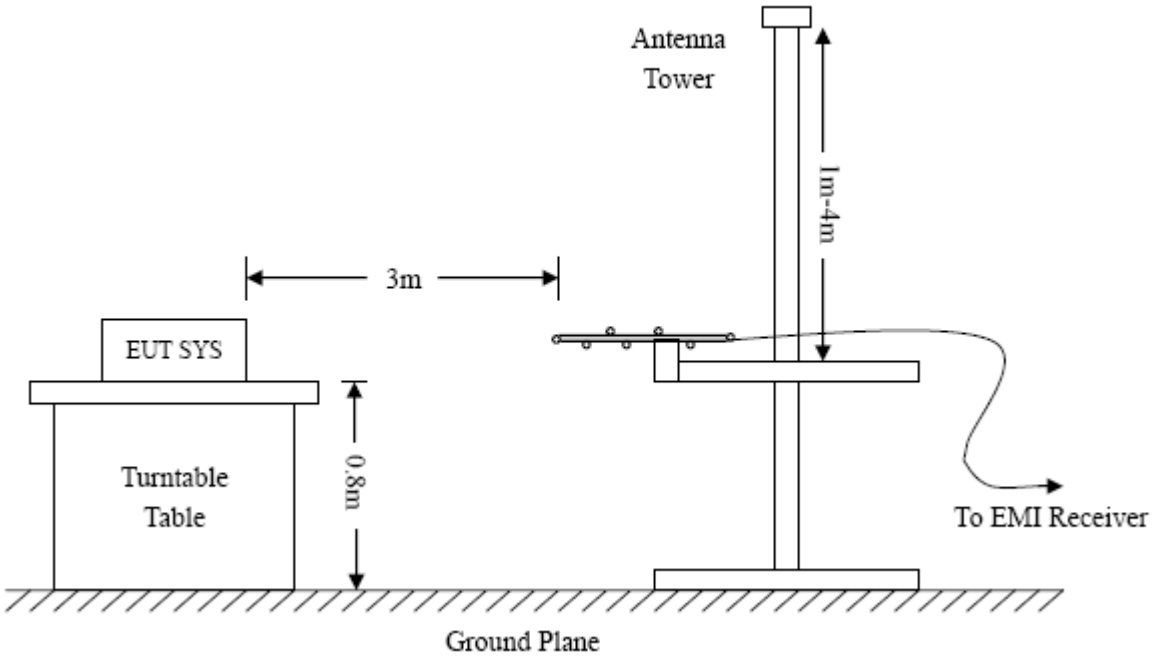


No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1*	0.4380	29.90	9.80	39.70	47.10	-7.40	AVG
2	0.4700	38.22	9.80	48.02	56.51	-8.49	QP
3	3.2180	23.78	9.70	33.48	46.00	-12.52	AVG
4	3.2460	32.10	9.70	41.80	56.00	-14.20	QP
5	3.7740	33.44	9.69	43.13	56.00	-12.87	QP
6	3.9300	25.65	9.69	35.34	46.00	-10.66	AVG

4. RADIATED EMISSION

4.1 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.



4.2 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

4.3 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

4.4 Environmental Conditions

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

4.5 Summary of Test Results/Plots

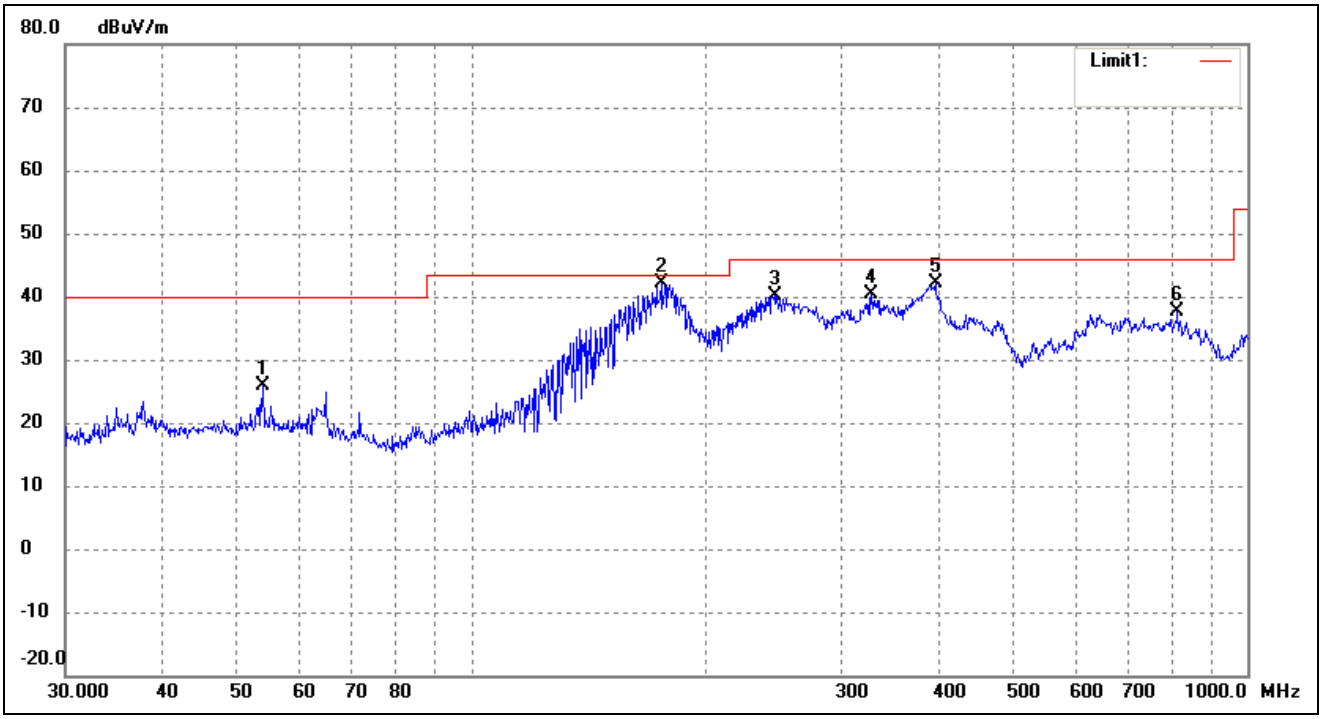
According to the data, the EUT complied with the FCC Part 15.109(a) rule, and had the worst margin of:

-1.36 dB at **175.6516 MHz** in the **Horizontal** polarization, **30 MHz** to **12.75 GHz**, **3Meters**

Plot of Radiated Emissions Test Data

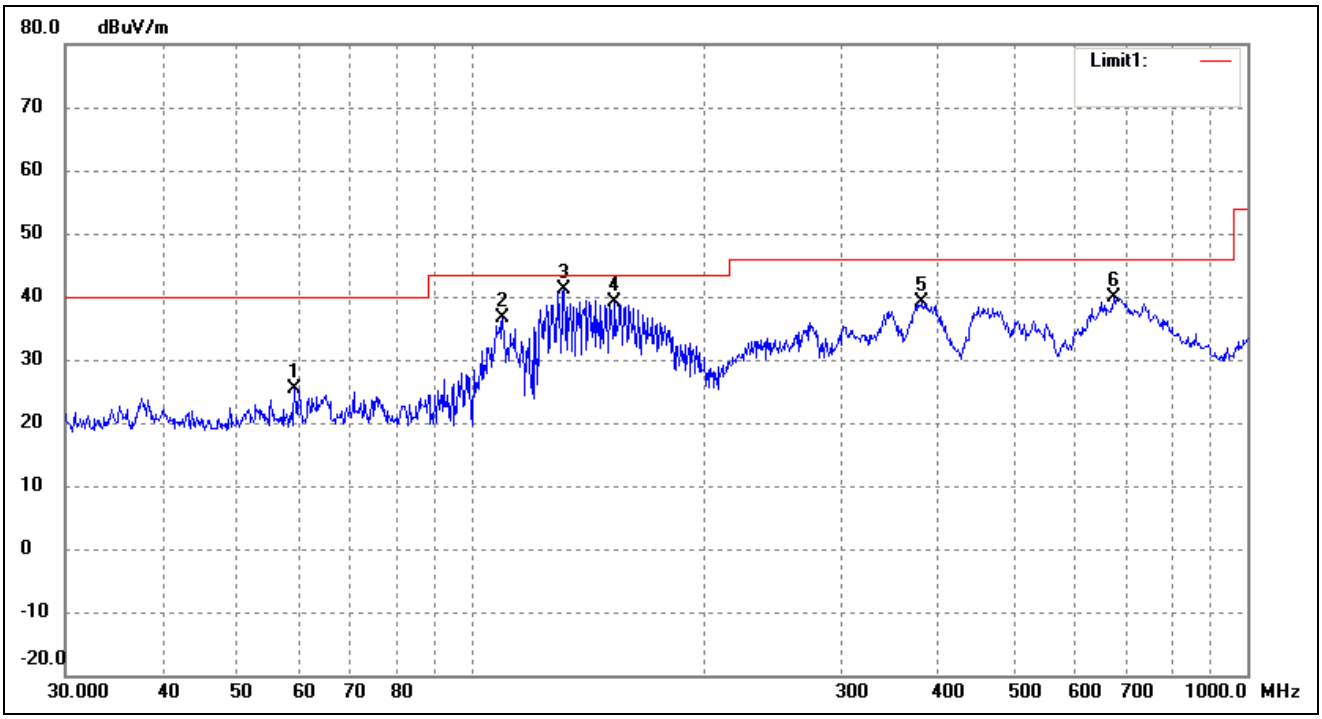
EUT: *GPS Smart Watch*
Tested Model: *Amber 1*
Operating Condition: *TM1*
Comment: *AC 120V/60Hz; USB 5V*

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	53.8818	20.86	5.05	25.91	40.00	-14.09	99	100	QP
2	175.6516	39.68	2.46	42.14	43.50	-1.36	155	100	QP
3	245.9509	31.05	9.16	40.21	46.00	-5.79	146	100	QP
4	327.8873	28.76	11.71	40.47	46.00	-5.53	92	100	QP
5	396.2415	29.64	12.51	42.15	46.00	-3.85	313	100	QP
6	813.1116	21.66	15.89	37.55	46.00	-8.45	279	100	QP

Test Specification: *Vertical*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	59.2325	20.25	5.02	25.27	40.00	-14.73	196	100	QP
2	109.7960	31.74	4.86	36.60	43.50	-6.90	328	100	QP
3	131.7577	37.18	3.84	41.02	43.50	-2.48	83	100	QP
4	153.2004	36.52	2.64	39.16	43.50	-4.34	105	100	QP
5	381.2487	27.23	11.85	39.08	46.00	-6.92	165	100	QP
6	672.8445	21.48	18.29	39.77	46.00	-6.23	304	100	QP

Note: Testing is carried out with frequency rang 30MHz to the 25GHz, which above 1GHz are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

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