

FCC Part 15B

Measurement and Test Report

For

Hong Kong Genuine Co., Ltd.

R 201, C1 Baizhong Industrial Park, 3th Kaifa Road, JiuShuikeng, Shiji

Town, Panyu District, GuangZhou City 511450. P.R.C

FCC ID: 2AKE9-E3183

Test Rule(s): FCC Part 15 Subpart B

Product Description: Bluetooth speaker

Tested Model: E3183

Report No.: STR16108162I-2

Tested Date: 2016-10-31 to 2016-11-19

Issued Date: 2016-11-19

Tested By: Tink Zeng / Engineer

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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: Hong Kong Genuine Co., Ltd.
Address of applicant: R 201, C1 Baizhong Industrial Park, 3th Kaifa Road,
JiuShuikeng, Shiji Town, Panyu District, GuangZhou
City 511450. P.R.C

Manufacturer: Hong Kong Genuine Co., Ltd.
Address of manufacturer: R 201, C1 Baizhong Industrial Park, 3th Kaifa Road,
JiuShuikeng, Shiji Town, Panyu District, GuangZhou
City 511450. P.R.C

General Description of EUT	
Product Name:	Bluetooth speaker
Trade Name:	/
Model No.:	E3183
Adding Model(s):	PL-4825
Software Version:	V1.0
Hardware Version:	V2.0
<i>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 E3183, but the circuit and the electronic construction do not change, declared by the manufacturer.</i>	

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

1.2 Test Standards

The following report is prepared on behalf of the Hong Kong Genuine 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 C63.4-2014, 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	/
TM1	Downloading	/

EUT Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
USB Cable	0.5	Shielded	Without Core
AUX Cable	0.5	Unshielded	Without Core

Auxiliary Equipment List and Details

Description	Manufacturer	Model	Serial Number
Notebook	Lenovo	E10	LC-63C8R

Special Cable List and Details

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

1.6 Measurement Uncertainty

Measurement uncertainty		
Parameter	Conditions	Uncertainty
Conducted Emissions	Conducted	$\pm 2.88\text{dB}$
Transmitter Spurious Emissions	Radiated	$\pm 5.1\text{dB}$

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-1121	Horn Antenna	ETS	3116B	00088203	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

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

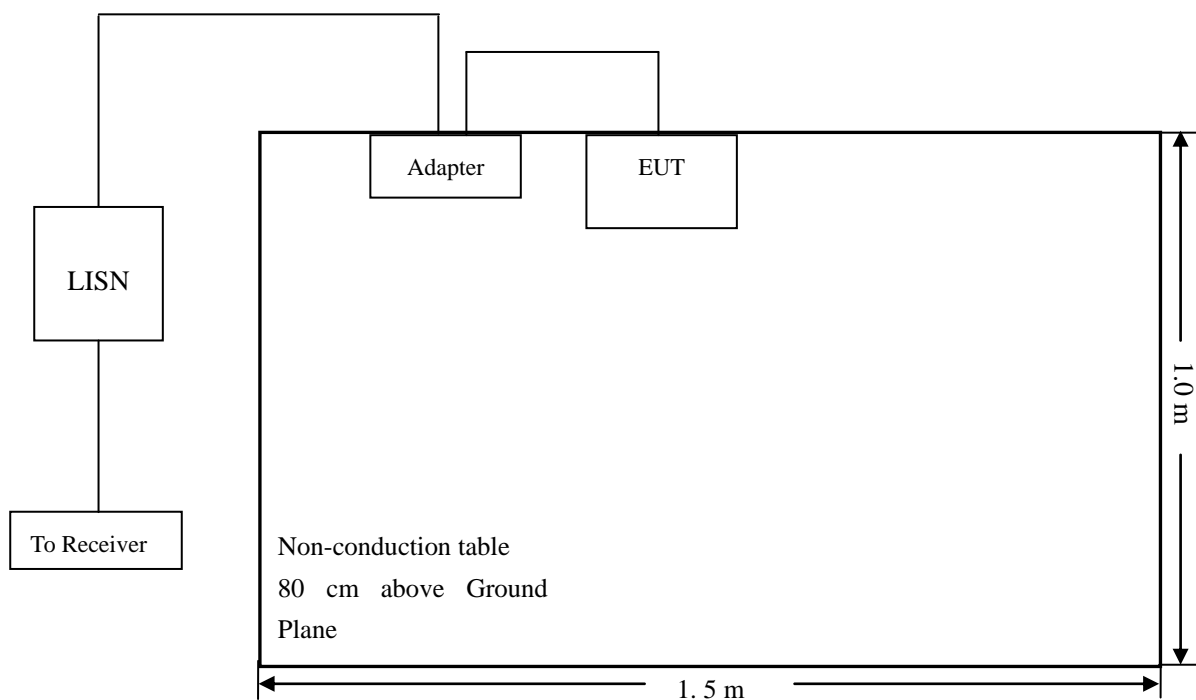
N/A: not applicable

3. Conducted Emissions

3.1 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 3.6, the EUT complied with the FCC Part 15.107(a) Conducted margin for a Class B device, with the *worst* margin reading of:

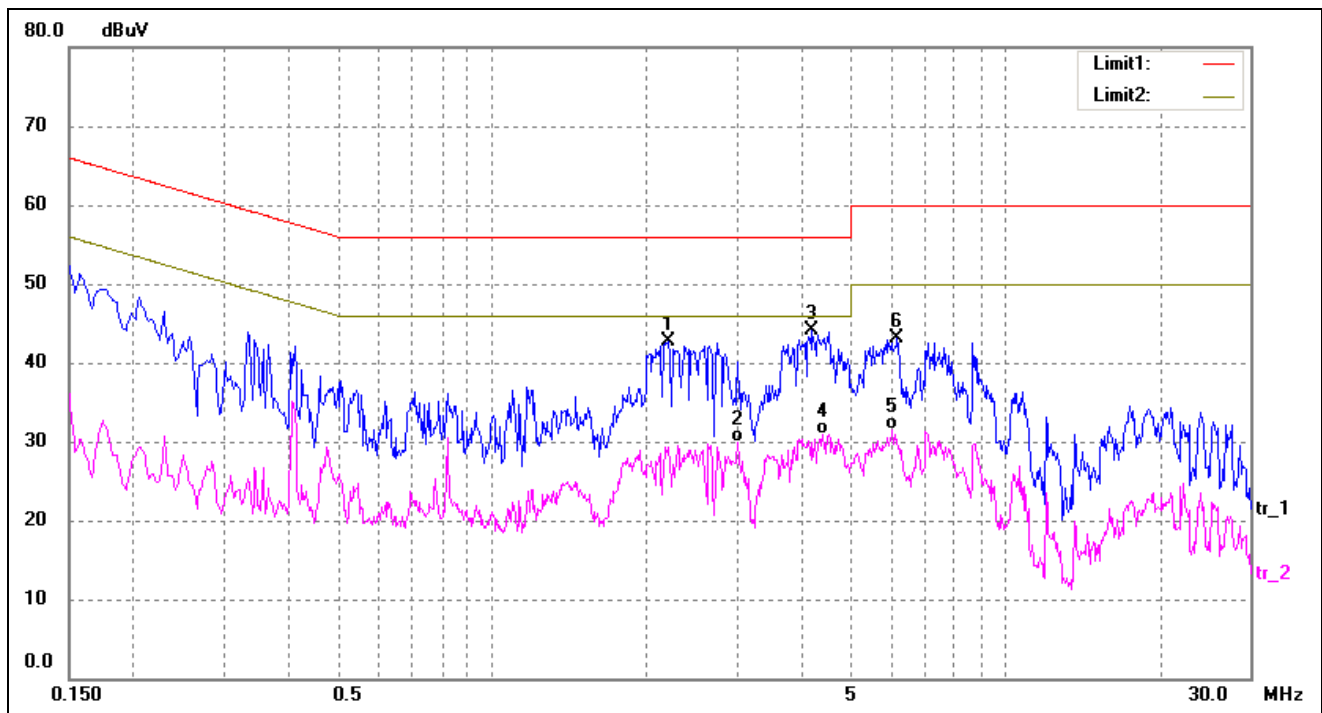
-6.93 dB at 0.1740 MHz in the **Neutral**, TM2 Model, **QP** detector, 0.15-30MHz

3.5 Conducted Emissions Test Data

Plot of Conducted Emissions Test Data

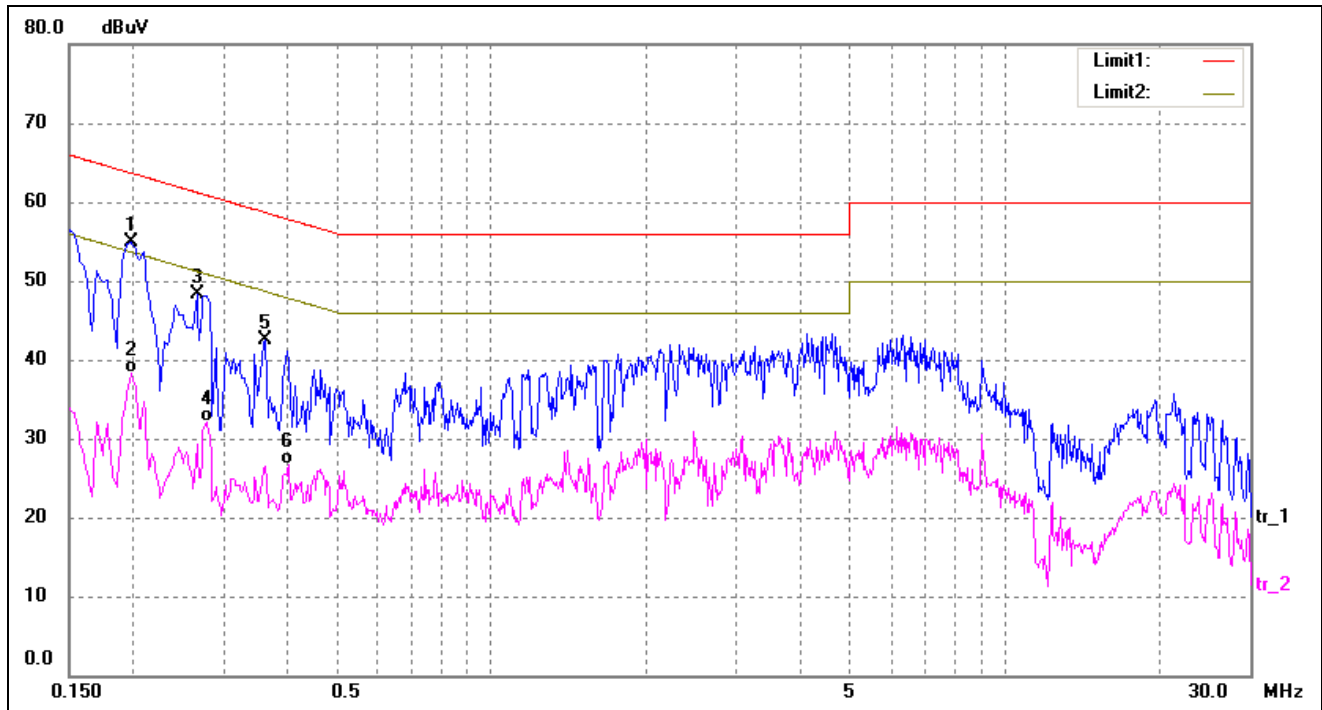
EUT: Bluetooth speaker
 Tested Model: E3183
 Operating Condition: TM1
 Comment: USB 5V From Notebook

Test Specification: Neutral



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	2.2020	32.91	9.73	42.64	56.00	-13.36	QP
2	3.0100	20.12	9.71	29.83	46.00	-16.17	AVG
3*	4.2220	34.35	9.68	44.03	56.00	-11.97	QP
4	4.4220	21.29	9.67	30.96	46.00	-15.04	AVG
5	6.0260	21.79	9.63	31.42	50.00	-18.58	AVG
6	6.1700	33.44	9.63	43.07	60.00	-16.93	QP

Test Specification: Line

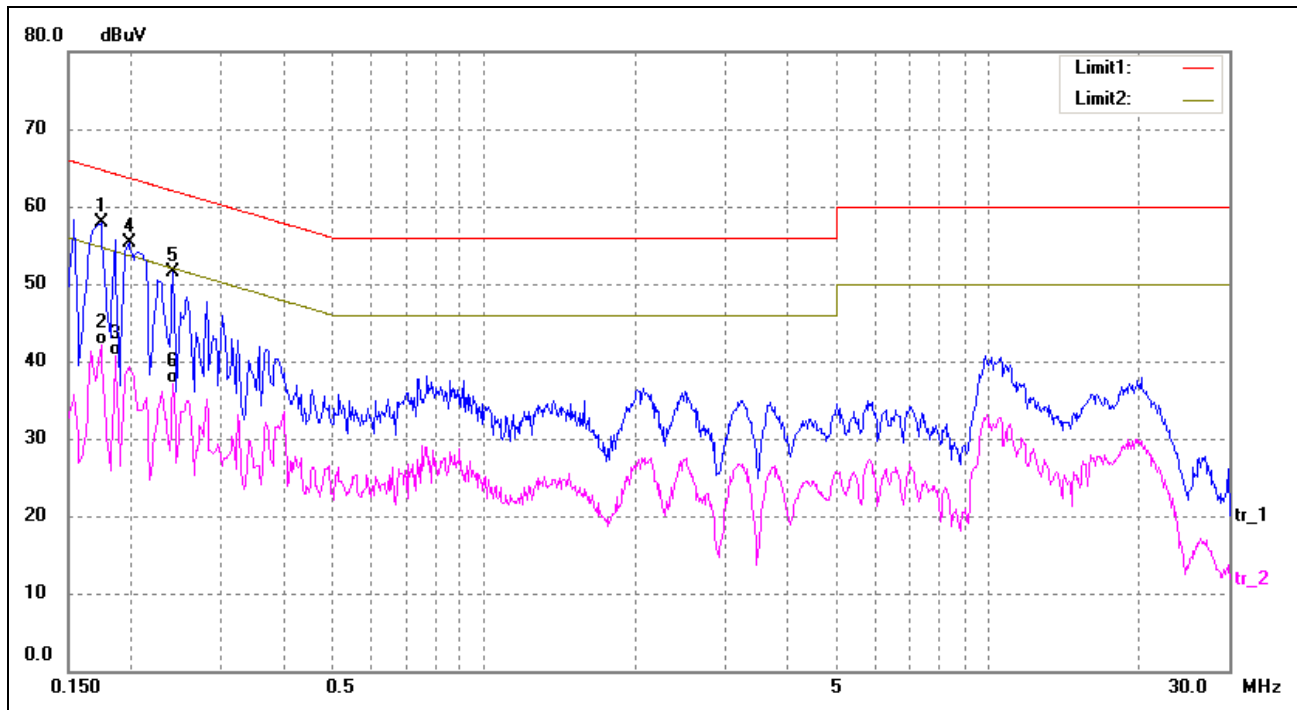


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1*	0.1980	45.13	9.80	54.93	63.69	-8.76	QP
2	0.1980	28.60	9.80	38.40	53.69	-15.29	AVG
3	0.2660	38.46	9.80	48.26	61.24	-12.98	QP
4	0.2780	22.28	9.80	32.08	50.88	-18.80	AVG
5	0.3620	32.64	9.80	42.44	58.68	-16.24	QP
6	0.4020	16.95	9.80	26.75	47.81	-21.06	AVG

Plot of Conducted Emissions Test Data

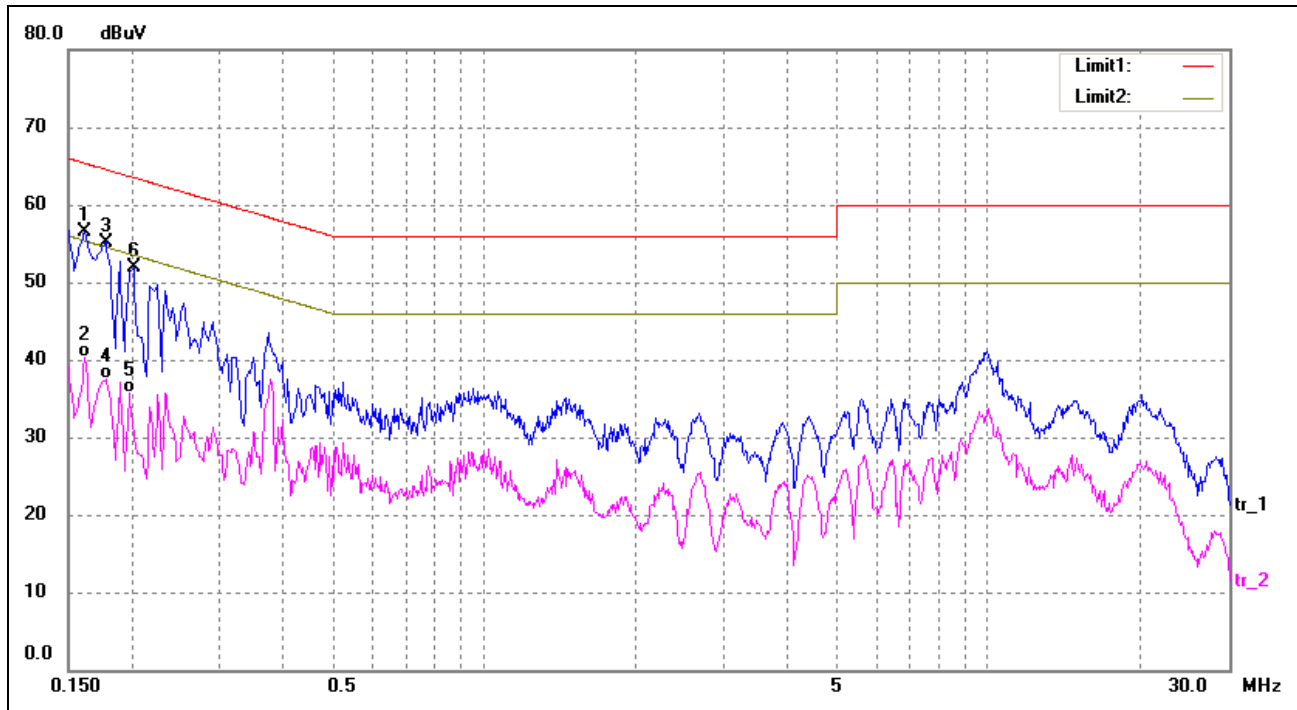
EUT: *Bluetooth speaker*
 Tested Model: *E3183*
 Operating Condition: *TM2*
 Comment: *USB 5V From Notebook*

Test Specification: *Neutral*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1*	0.1740	45.34	12.50	57.84	64.77	-6.93	peak
2	0.1740	29.57	12.50	42.07	54.77	-12.70	AVG
3	0.1860	28.24	12.50	40.74	54.21	-13.47	AVG
4	0.1980	42.76	12.50	55.26	63.69	-8.43	peak
5	0.2420	39.01	12.50	51.51	62.03	-10.52	peak
6	0.2420	24.69	12.50	37.19	52.03	-14.84	AVG

Test Specification: Line



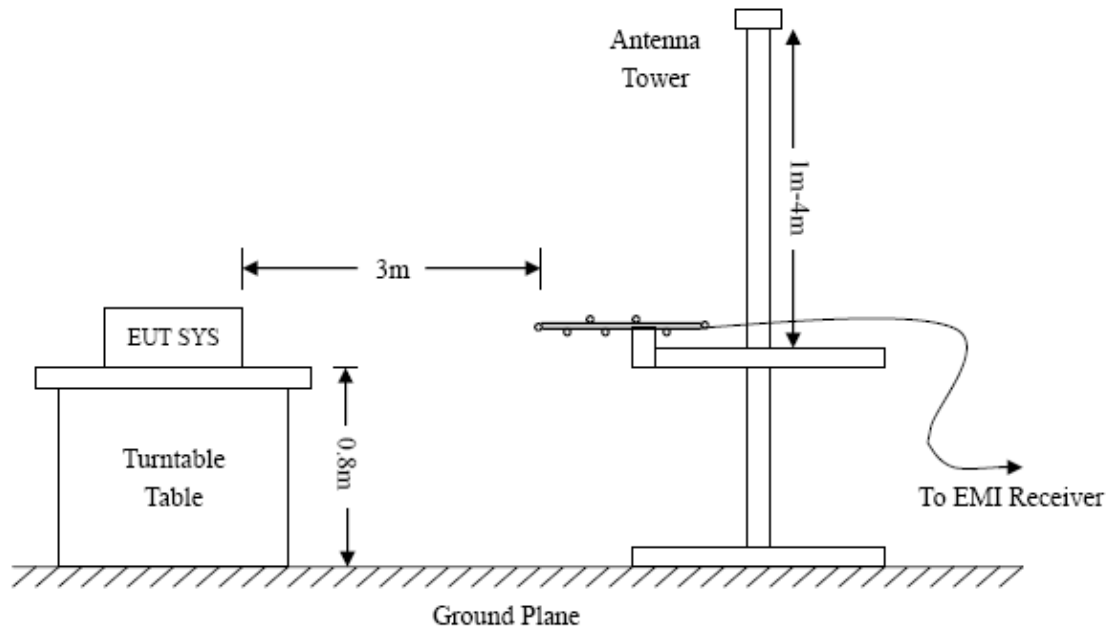
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1*	0.1620	43.92	12.50	56.42	65.36	-8.94	peak
2	0.1620	27.87	12.50	40.37	55.36	-14.99	AVG
3	0.1780	42.70	12.50	55.20	64.58	-9.38	peak
4	0.1780	25.04	12.50	37.54	54.58	-17.04	AVG
5	0.1980	23.13	12.50	35.63	53.69	-18.06	AVG
6	0.2020	39.48	12.50	51.98	63.53	-11.55	peak

4. Radiated Emissions

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

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

4.3 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:

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

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:

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

4.4 Environmental Conditions

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

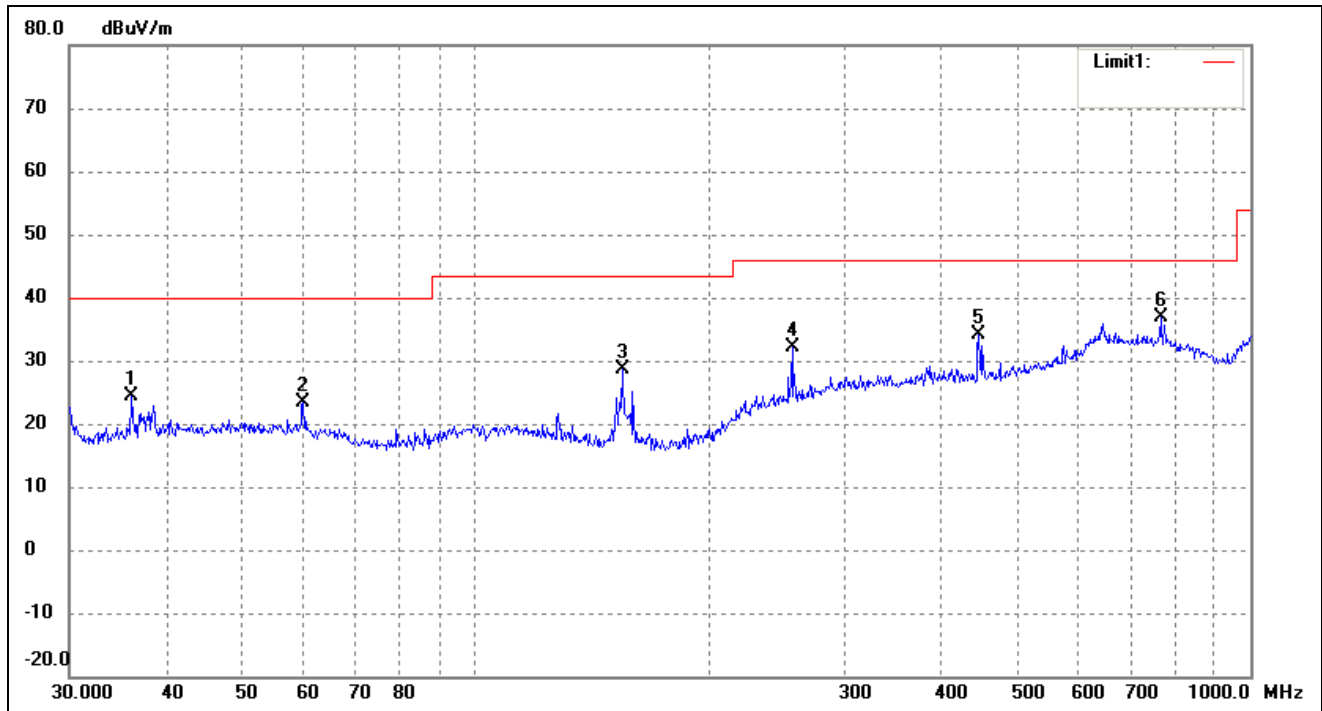
4.5 Summary of Test Results/Plots

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

-8.39 dB at 40.5591 MHz in the Vertical polarization, TM1 Model, 30MHz to 1 GHz, 3Meters

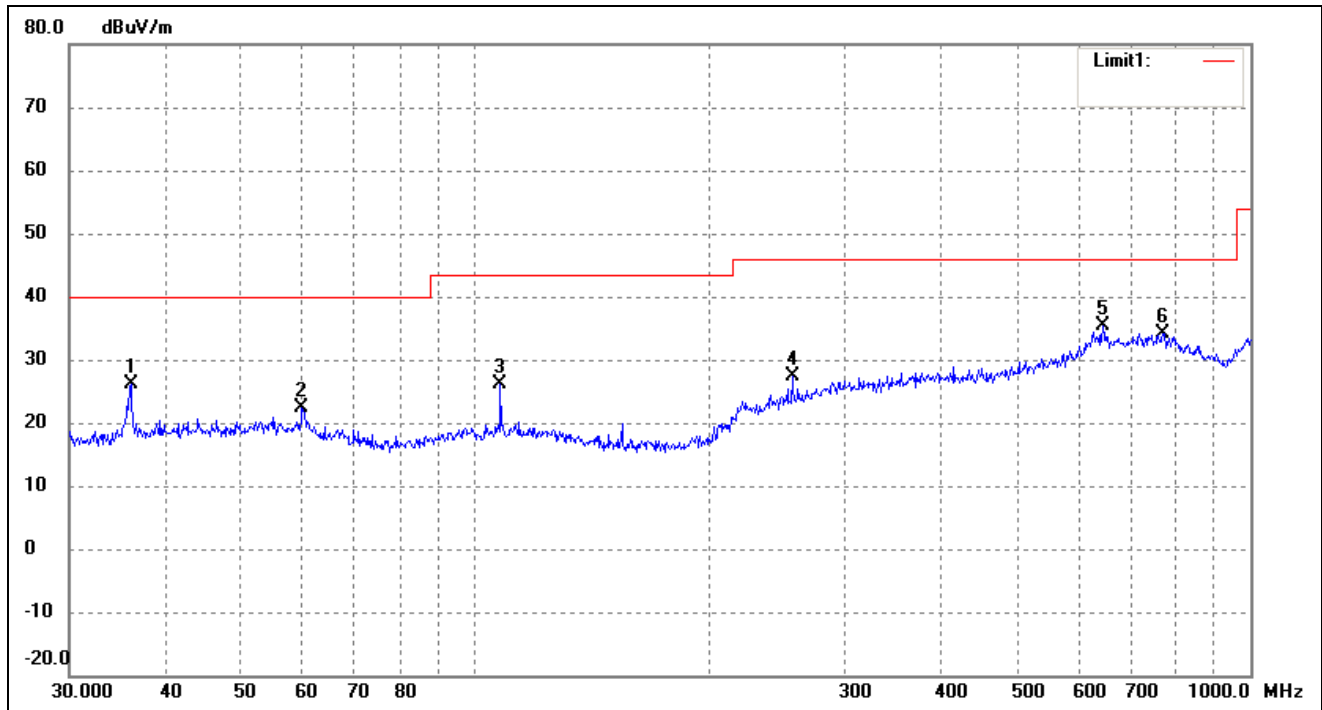
Plot of Radiated Emissions Test Data

EUT: *Bluetooth speaker*
 Tested Model: *E3183*
 Operating Condition: *TM1*
 Comment: *USB 5V From Notebook*
 Test Specification: *Horizontal*



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	36.1272	19.98	4.35	24.33	40.00	-15.67	55	100	QP
2	60.0691	18.31	5.02	23.33	40.00	-16.67	125	100	QP
3	154.8204	25.98	2.57	28.55	43.50	-14.95	351	100	QP
4	256.5211	22.50	9.56	32.06	46.00	-13.94	241	100	QP
5	446.4141	21.52	12.67	34.19	46.00	-11.81	121	100	QP
6	766.0570	19.09	17.79	36.88	46.00	-9.12	111	100	QP

Test Specification: Vertical

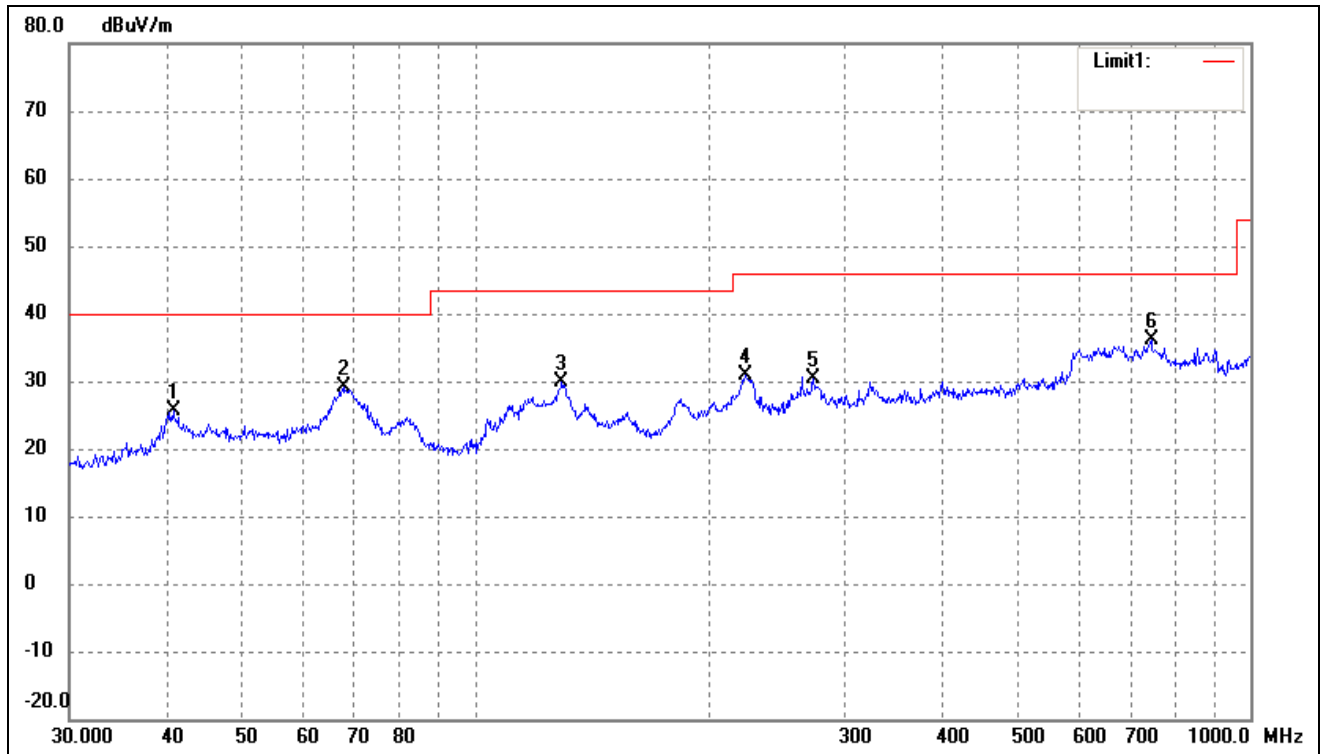


No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	36.0007	21.90	4.33	26.23	40.00	-13.77	55	100	QP
2	59.8588	17.45	5.03	22.48	40.00	-17.52	125	100	QP
3	107.8877	21.35	4.88	26.23	43.50	-17.27	351	100	QP
4	256.5211	17.94	9.56	27.50	46.00	-18.50	241	100	QP
5	645.1195	17.32	17.94	35.26	46.00	-10.74	121	100	QP
6	771.4486	16.84	17.39	34.23	46.00	-11.77	111	100	QP

Plot of Radiated Emissions Test Data

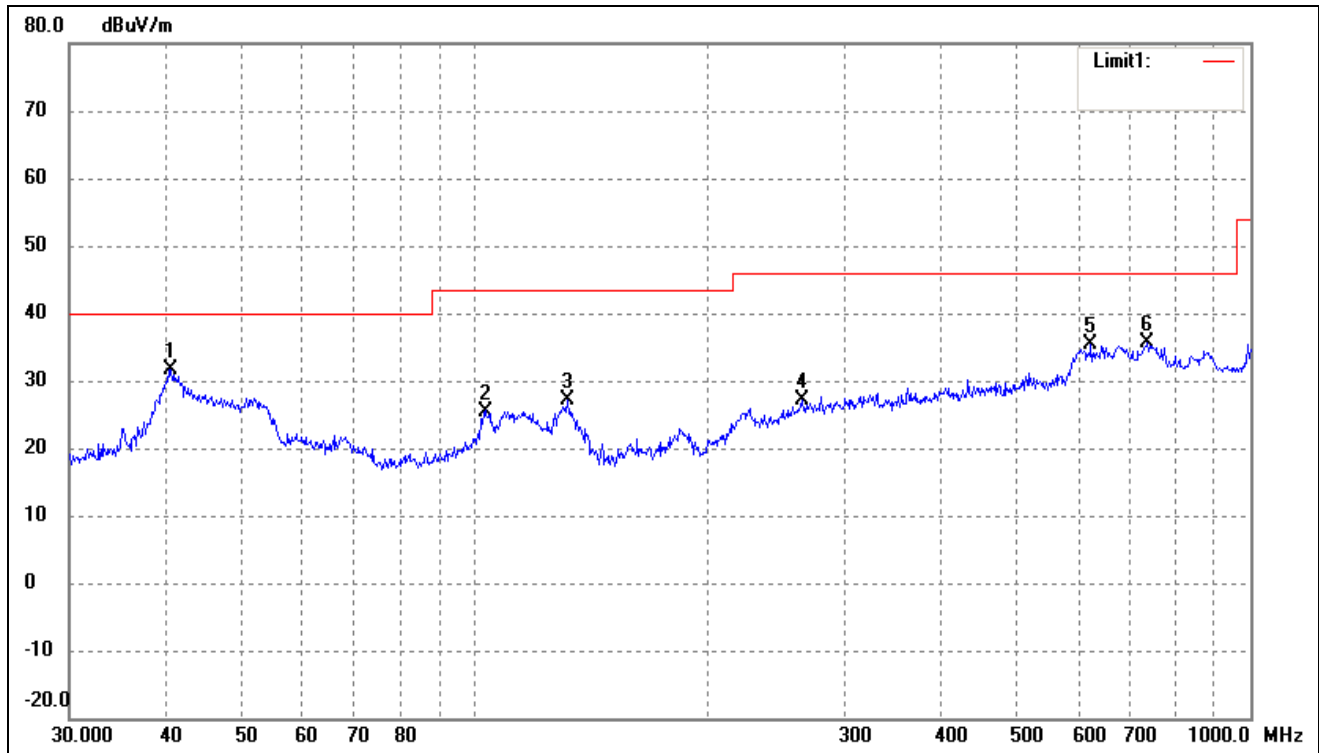
EUT: Bluetooth speaker
Tested Model: E3183
Operating Condition: TM2
Comment: USB 5V From Notebook

Test Specification: Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	40.8446	20.44	5.25	25.69	40.00	-14.31	100	100	peak
2	67.9129	25.53	3.65	29.18	40.00	-10.82	100	100	peak
3	129.4677	25.58	4.26	29.84	43.50	-13.66	100	100	peak
4	222.9502	22.60	8.28	30.88	46.00	-15.12	100	100	peak
5	273.2341	19.43	10.93	30.36	46.00	-15.64	100	100	peak
6	744.8661	16.85	19.33	36.18	46.00	-9.82	100	100	peak

Test Specification: Vertical



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	40.5591	26.36	5.25	31.61	40.00	-8.39	100	100	peak
2	103.0800	20.38	5.12	25.50	43.50	-18.00	100	100	peak
3	131.7577	23.05	4.07	27.12	43.50	-16.38	100	100	peak
4	264.7457	16.67	10.35	27.02	46.00	-18.98	100	100	peak
5	622.8900	17.26	18.02	35.28	46.00	-10.72	100	100	peak
6	737.0714	16.28	19.37	35.65	46.00	-10.35	100	100	peak

Note: Testing is carried out with frequency rang 30MHz to the 1GHz, which above 1GHz are attenuated more than 20 dB below the permissible value and are not showed in the test report.

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