

FCC Part 15B Measurement and Test Report

For

NOBUX LLC

8600 NW SOUTH RIVER DR 103, MIAMI, Florida, United States

FCC ID: 2AEHFFLAME2

FCC Rule(s):	<u>FCC Part 15 Subpart B</u>
Product Description:	<u>2G Bar phone</u>
Tested Model:	<u>FLAME2</u>
Report No.:	<u>STR16038221I-3</u>
Tested Date:	<u>2016-03-27 to 2016-04-02</u>
Issued Date:	<u>2016-04-14</u>
Tested By:	<u>Irving Liu / Engineer</u>
Reviewed By:	<u>Silin Chen / EMC Manager</u>
Approved & Authorized By:	<u>Jandy so / PSQ Manager</u>
Prepared By:	

Irving Liu

Silin Chen

Jandyso

Shenzhen SEM.Test Technology Co., Ltd.

1/F, Building A, Hongwei Industrial Park, Liuxian 2nd Road,
Bao'an District, Shenzhen, P.R.C. (518101)

Tel.: +86-755-33663308 Fax.: +86-755-33663309 Website: www.semtest.com.cn

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.

TABLE OF CONTENTS

1. GENERAL INFORMATION	3
1.1 PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT).....	3
1.2 TEST STANDARDS.....	4
1.3 TEST METHODOLOGY	4
1.4 TEST FACILITY	4
1.5 EUT SETUP AND OPERATION MODE	5
1.6 MEASUREMENT UNCERTAINTY	5
1.7 TEST EQUIPMENT LIST AND DETAILS	6
2. SUMMARY OF TEST RESULTS	7
3. CONDUCTED EMISSIONS	8
3.1 TEST PROCEDURE.....	8
3.2 BASIC TEST SETUP BLOCK DIAGRAM.....	8
3.3 ENVIRONMENTAL CONDITIONS	8
3.4 SUMMARY OF TEST RESULTS/PLOTS	8
3.5 CONDUCTED EMISSIONS TEST DATA.....	8
4. RADIATED EMISSION	13
4.1 TEST PROCEDURE.....	13
4.2 TEST RECEIVER SETUP	14
4.3 CORRECTED AMPLITUDE & MARGIN CALCULATION.....	14
4.4 ENVIRONMENTAL CONDITIONS	14
4.5 SUMMARY OF TEST RESULTS/PLOTS	14

1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant: NOBUX LLC
Address of applicant: 3100 NW 72nd Ave. Suite 108

Manufacturer: Shenzhen Eben Electronics Digital Technology Co.,Ltd
Address of manufacturer: 3 Floor,NO.1 Queshan Xin er cun Industrial,Longhua District,
Shenzhen City,P.R.China

General Description of EUT	
Product Name:	2G Bar phone
Trade Name:	NOBUX
Model No.:	FLAME 2
Device Category:	Class B
Note: The test data is gathered from a production sample, provided by the manufacturer.	

Technical Characteristics of EUT	
Rated Voltage:	DC 3.7V Li-ion Battery
Battery:	800mAh
Hardware version:	SC6531 BAR
Software version:	MOCOR 12C.W13.04.24 Release
Power Adapter Model:	NOBUX
	Input:AC110-240v 50/60Hz 0.12A Output:DC5V0.5A
Lowest Internal Frequency:	26MHz
Highest Internal Frequency:	312MHz

1.2 Test Standards

The following report is prepared on behalf of the NOBUX 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 & Playing	With Earphone
TM2	Downloading	Connected to PC
TM3	Camera on	Powered by battery

EUT Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
USB Cable	1.0	Shielded	Without Ferrite
Earphone	1.2	Unshielded	Without Ferrite

Auxiliary Equipment List and Details

Description	Manufacturer	Model	Serial Number
Notebook	Lenovo	E10	LR-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

Description	Manufacturer	Model	Serial Number	Cal Date	Due Date
Spectrum Analyzer	Agilent	E4407B	MY41440400	2015-06-17	2016-06-16
Spectrum Analyzer	Rohde & Schwarz	FSP	836079/035	2015-06-17	2016-06-16
EMI Test Receiver	Rohde & Schwarz	ESVB	825471/005	2015-06-17	2016-06-16
Amplifier	Agilent	8447F	3113A06717	2015-06-17	2016-06-16
Amplifier	C&D	PAP-1G18	2002	2015-06-17	2016-06-16
Broadband Antenna	Schwarz beck	VULB9163	9163-333	2015-06-17	2016-06-16
Horn Antenna	ETS	3117	00086197	2015-06-17	2016-06-16
Loop Antenna	Schwarz beck	FMZB 1516	9773	2015-06-17	2016-06-16
EMI Test Receiver	Rohde & Schwarz	ESPI	101611	2015-06-17	2016-06-16
L.I.S.N	Schwarz beck	NSLK8126	8126-224	2015-06-17	2016-06-16
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100911	2015-06-17	2016-06-16

2. SUMMARY OF TEST RESULTS

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

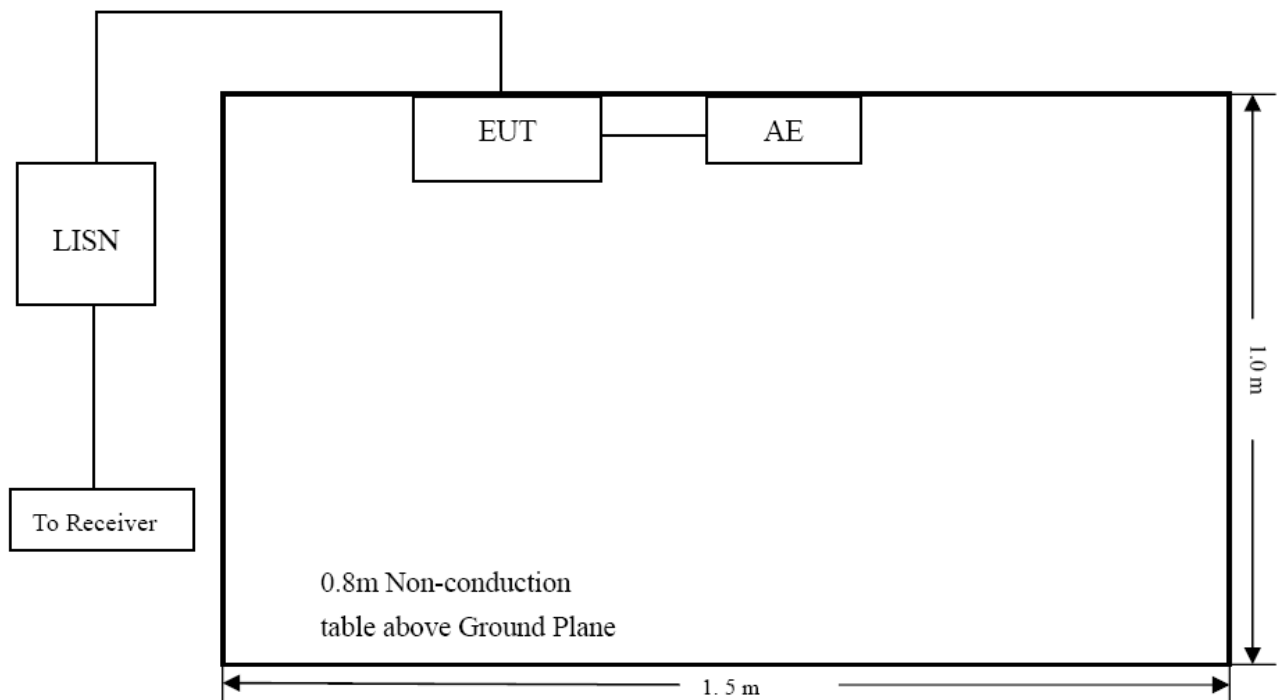
N/A: not applicable

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:

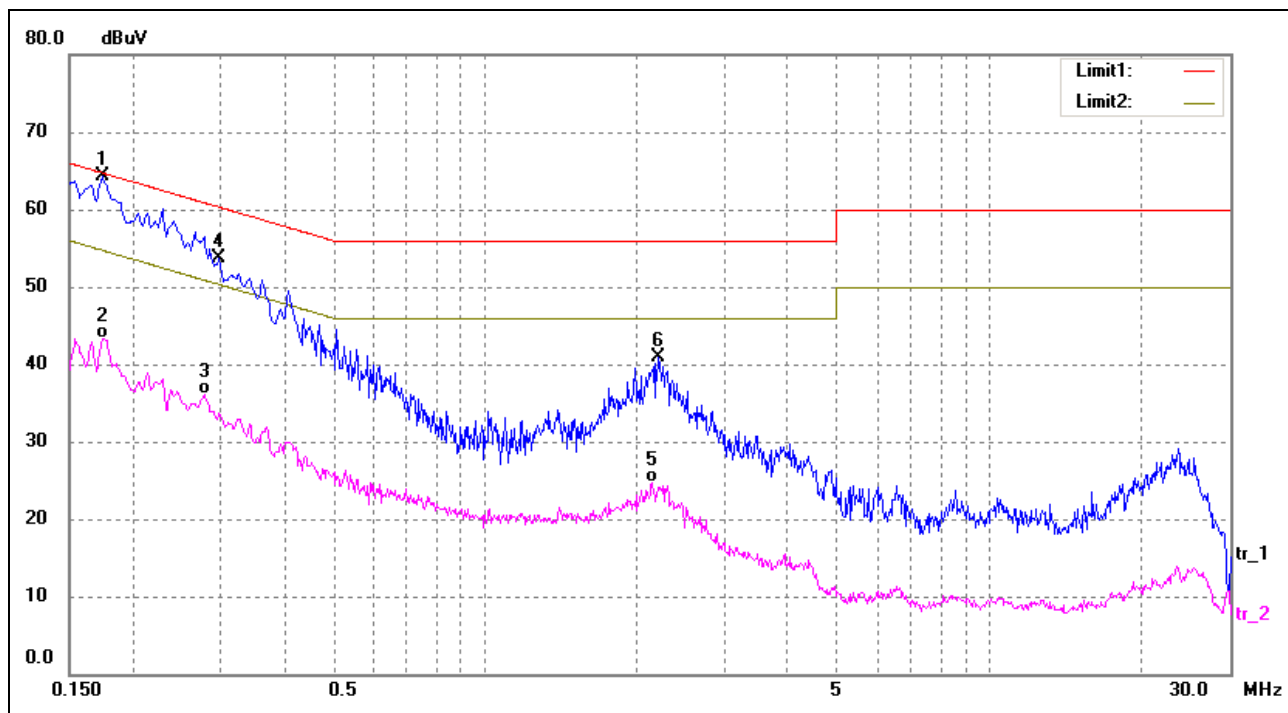
-1.62 dB at 0.1660 in the **Line, TM1, peak** detector, TM1, 0.15-30MHz

3.5 Conducted Emissions Test Data

Plot of Conducted Emissions Test Data

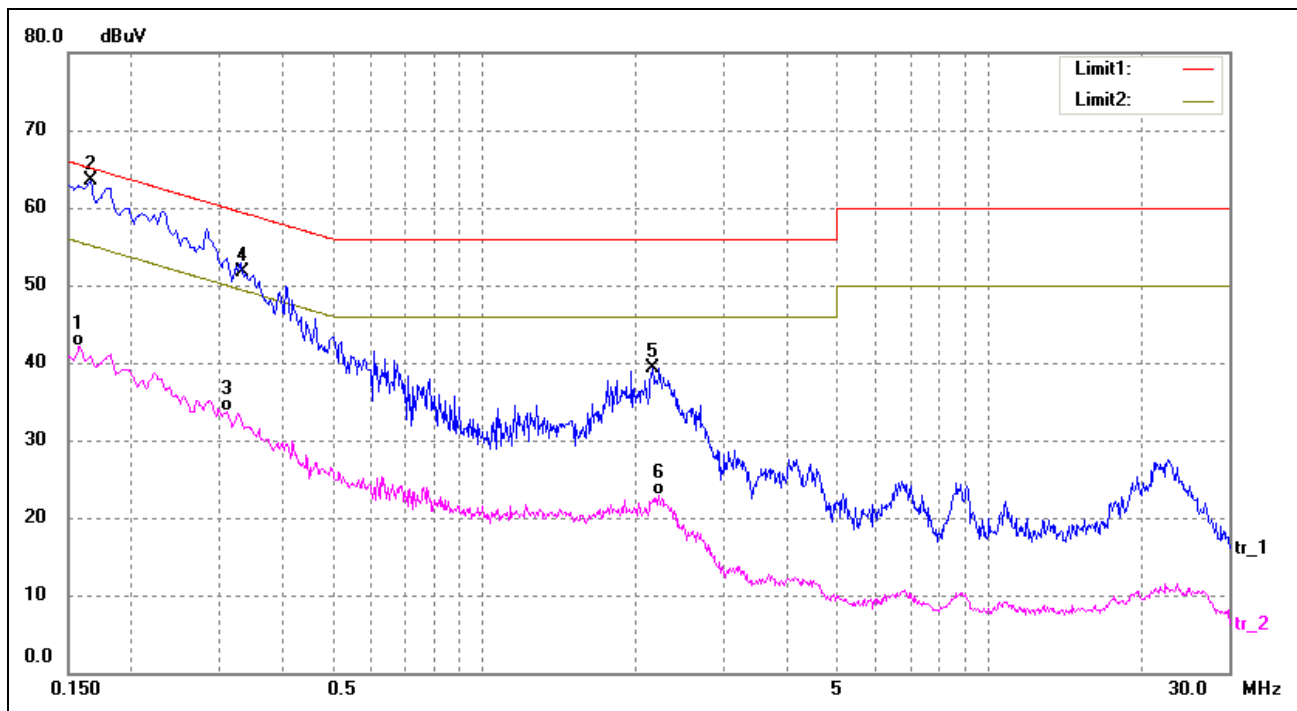
EUT: 2G Bar phone
Tested Model: FLAME2
Operating Condition: TM1
Comment: AC 120V/60Hz; Adapter DC 5V

Test Specification: Neutral



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1*	0.1740	54.83	9.50	62.33	64.77	-2.44	QP
2	0.1740	33.86	9.50	43.36	54.77	-11.41	AVG
3	0.2780	26.65	9.50	36.15	50.88	-14.73	AVG
4	0.2980	44.13	9.50	53.63	60.30	-6.67	peak
5	2.1500	14.83	9.84	24.67	46.00	-21.33	AVG
6	2.2020	31.02	9.85	40.87	56.00	-15.13	peak

Test Specification: Line

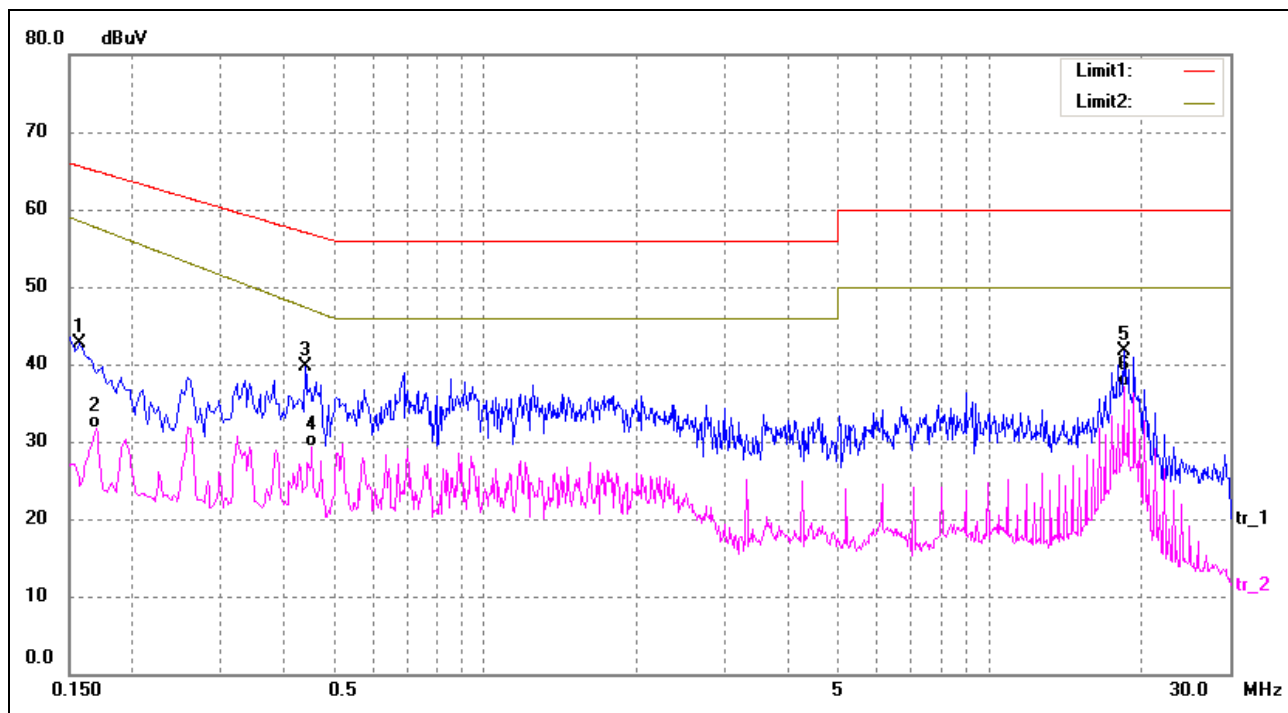


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1580	32.68	9.50	42.18	55.57	-13.39	AVG
2*	0.1660	54.04	9.50	63.54	65.16	-1.62	peak
3	0.3100	24.16	9.50	33.66	49.97	-16.31	AVG
4	0.3321	42.12	9.50	51.62	59.40	-7.78	peak
5	2.1620	29.47	9.84	39.31	56.00	-16.69	peak
6	2.2180	13.01	9.85	22.86	46.00	-23.14	AVG

Plot of Conducted Emissions Test Data

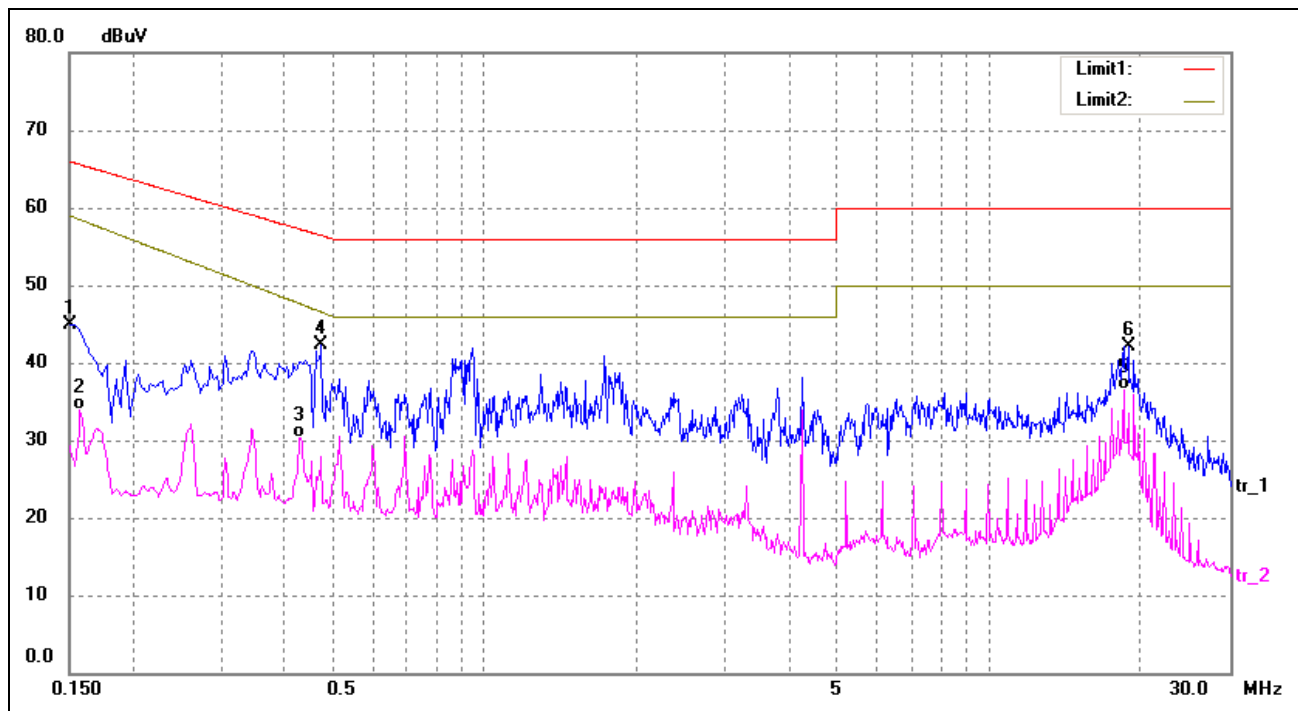
EUT: 2G Bar phone
Tested Model: FLAME2
Operating Condition: TM2
Comment: AC 120V/60Hz; USB 5V

Test Specification: Neutral



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1580	33.18	9.50	42.68	65.57	-22.89	peak
2	0.1700	22.18	9.50	31.68	57.65	-25.97	AVG
3	0.4420	30.18	9.53	39.71	57.02	-17.31	peak
4	0.4540	19.68	9.53	29.21	47.04	-17.83	AVG
5	18.4340	31.34	10.45	41.79	60.00	-18.21	peak
6*	18.4340	26.59	10.45	37.04	50.00	-12.96	AVG

Test Specification: Line



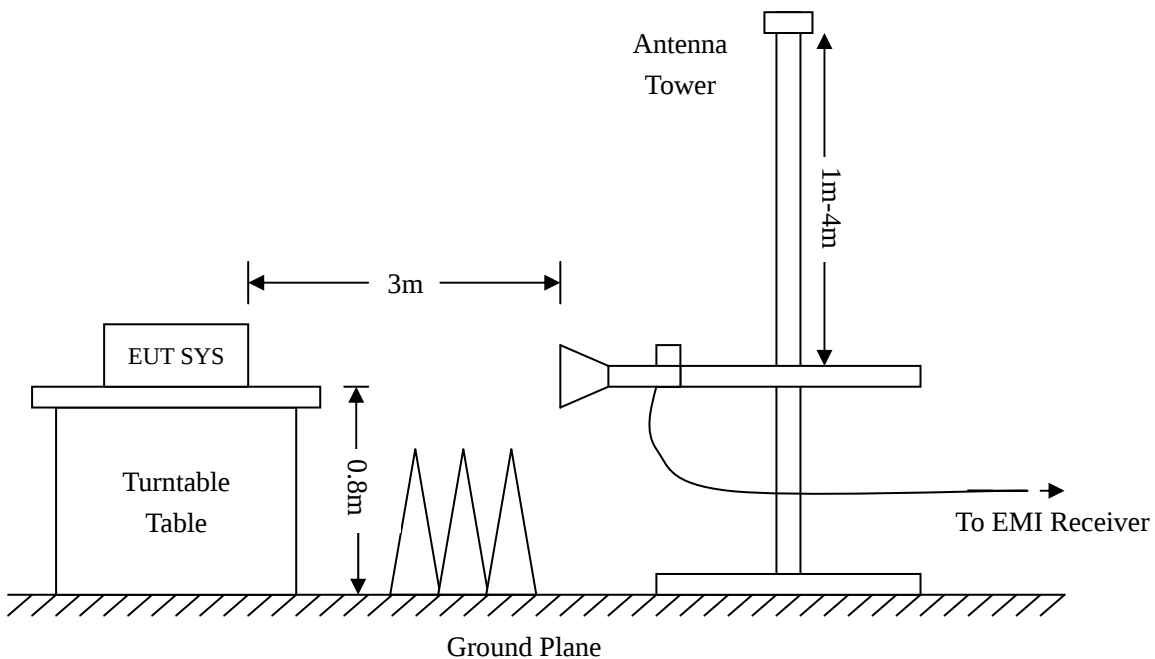
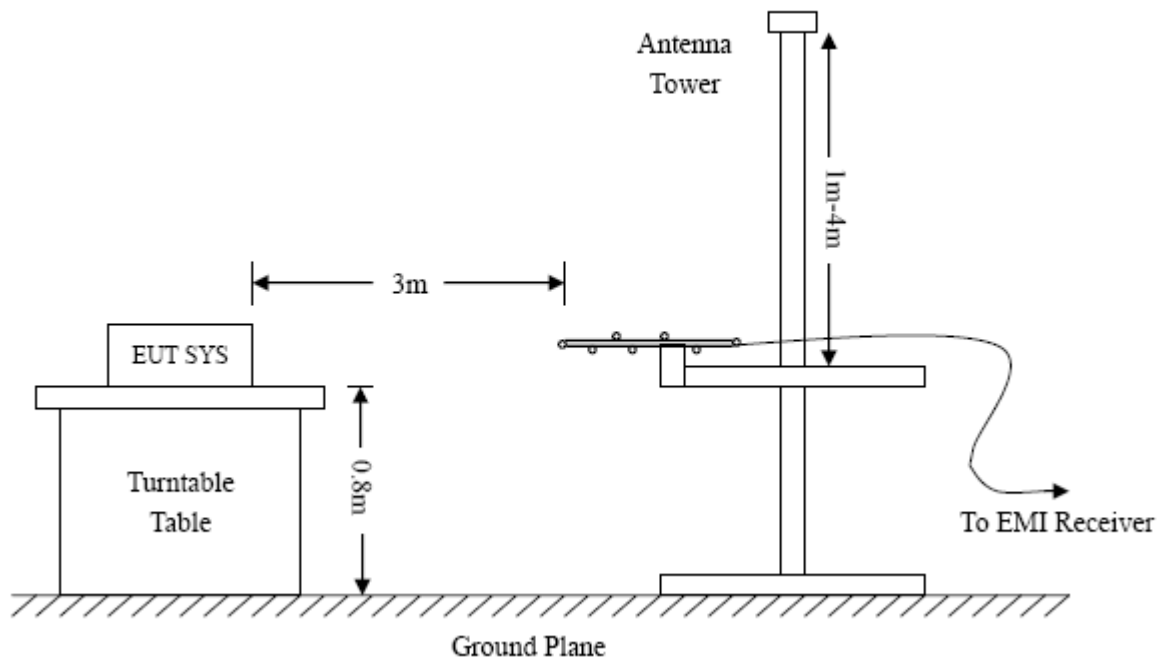
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1500	35.48	9.50	44.98	66.00	-21.02	peak
2	0.1580	24.32	9.50	33.82	58.44	-24.62	AVG
3	0.4300	20.84	9.52	30.36	47.63	-17.27	AVG
4	0.4740	32.70	9.54	42.24	56.44	-14.20	peak
5*	18.4260	26.08	10.45	36.53	50.00	-13.47	AVG
6	18.8980	31.72	10.45	42.17	60.00	-17.83	peak

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

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

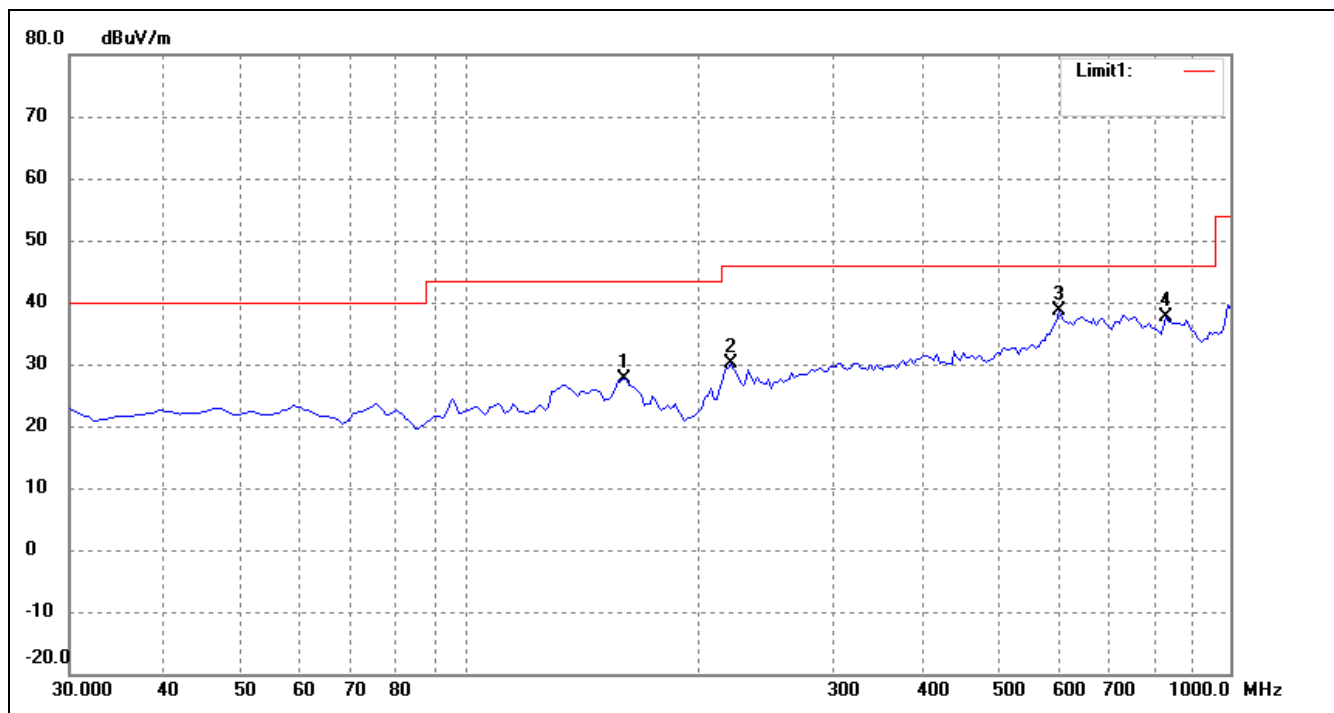
According to the data, the EUT complied with the FCC Part 15.109(a) rule, and had the worst margin of:

-5.84 dB at 134.2750 MHz in the Vertical polarization, TM1 Mode 30 MHz to 2 GHz, 3Meters

Plot of Radiated Emissions Test Data

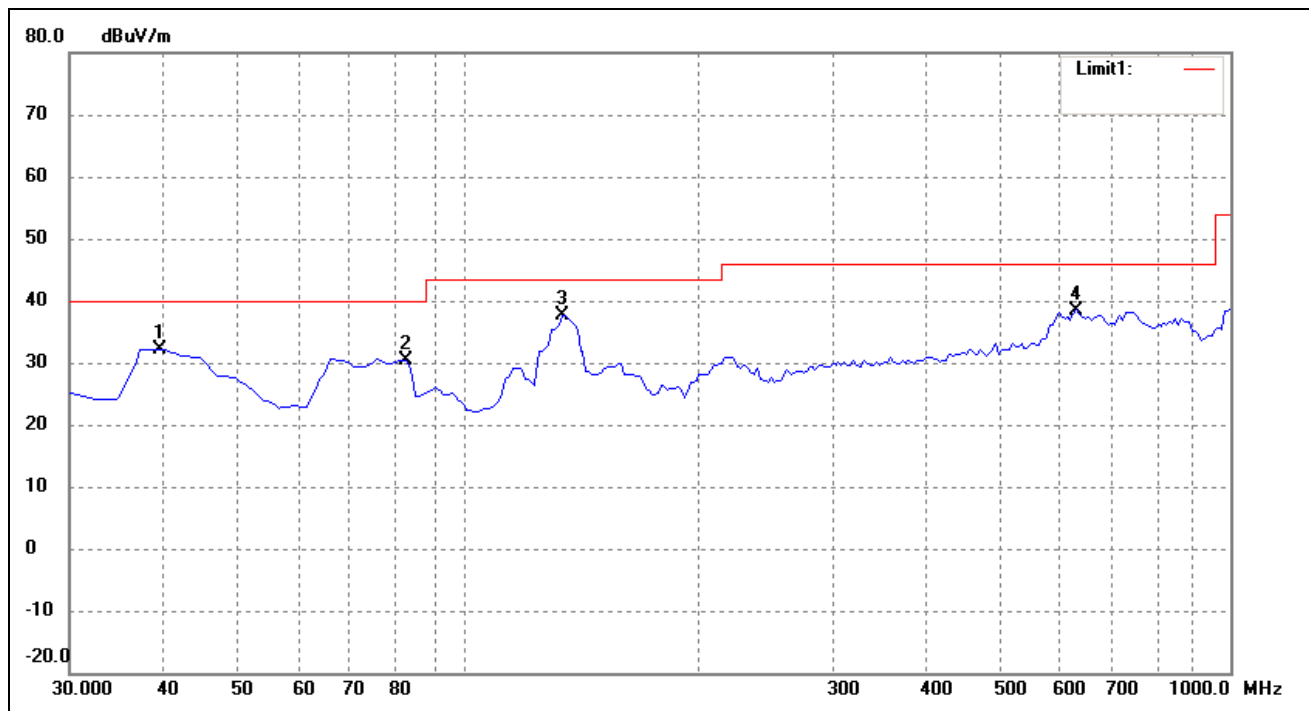
EUT: 2G Bar phone
 Tested Model: FLAME2
 Operating Condition: TM1
 Comment: AC 120V/60Hz; Adapter DC 5V

Test Specification: Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	160.9499	25.01	2.62	27.63	43.50	-15.87	42	100	QP
2	221.5749	21.94	8.21	30.15	46.00	-15.85	132	100	QP
3	599.8750	19.25	19.30	38.55	46.00	-7.45	168	100	QP
4	825.3999	20.63	17.10	37.73	46.00	-8.27	0	100	QP

Test Specification: Vertical



No.	Frequency (MHz)	Reading (dBuV)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	39.7000	27.03	5.20	32.23	40.00	-7.77	59	100	QP
2	83.3500	27.90	2.55	30.45	40.00	-9.55	147	100	QP
3	134.2750	33.79	3.87	37.66	43.50	-5.84	236	100	QP
4	633.8250	20.10	18.40	38.50	46.00	-7.50	158	100	QP

Plot of Radiated Emissions Test Data

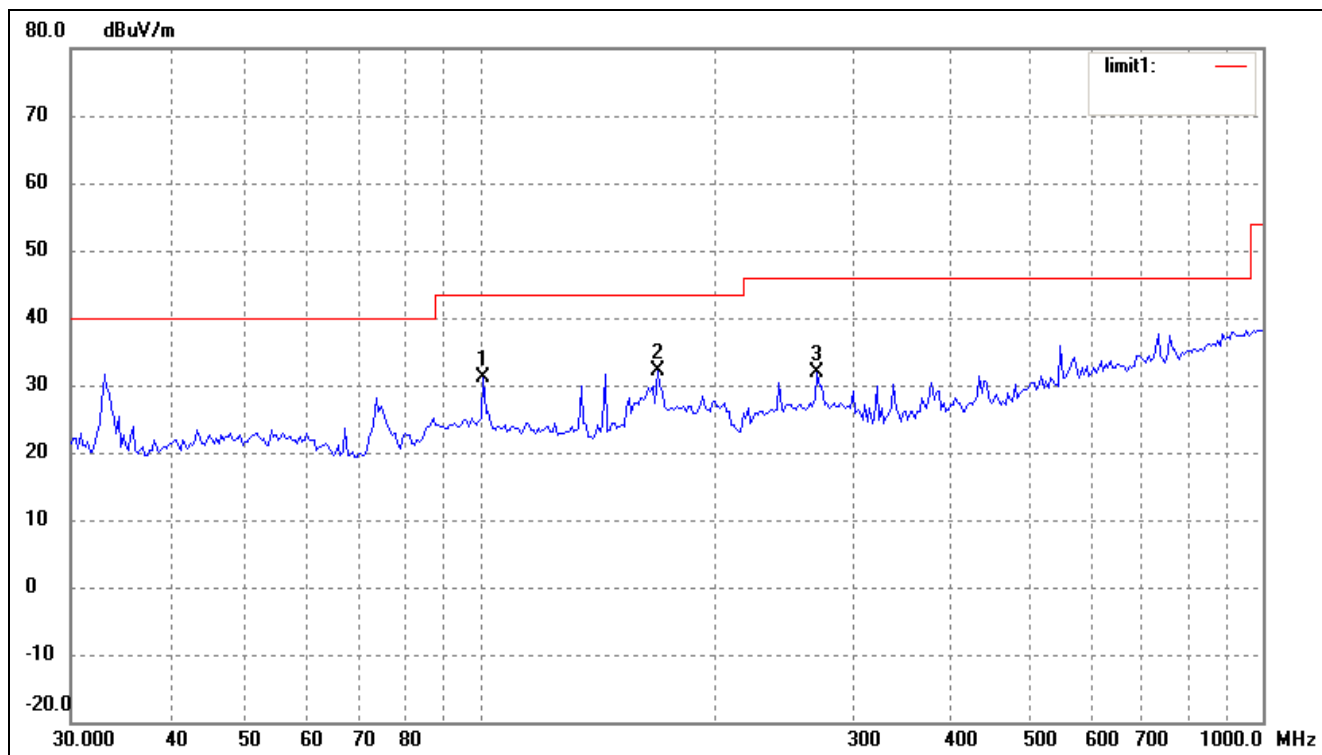
EUT: 2G Bar phone

Tested Model: FLAME2

Operating Condition: TM2

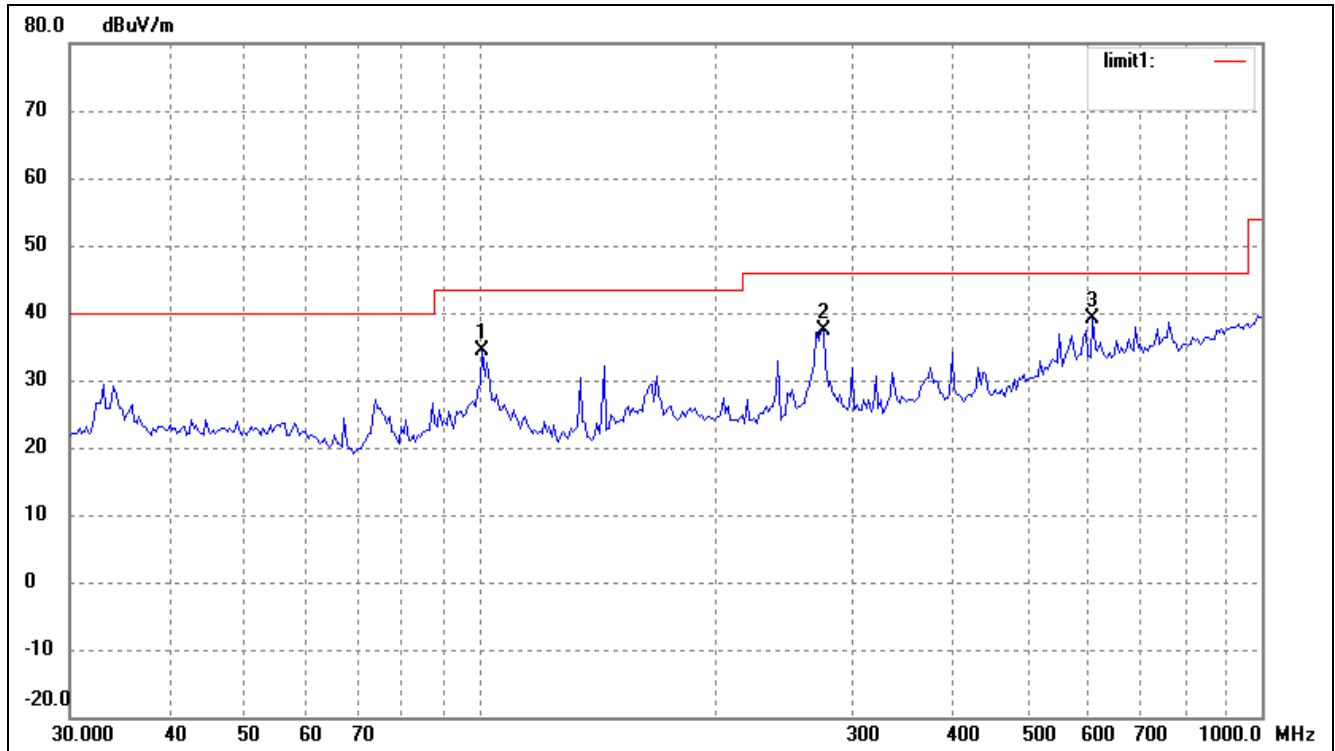
Comment: USB: DC5V

Test Specification: Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	100.9338	22.90	8.34	31.24	43.50	-12.26	223	203	peak
2	168.4138	27.28	4.84	32.12	43.50	-11.38	360	200	peak
3	269.4284	22.55	9.22	31.77	46.00	-14.23	205	104	peak

Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	100.9338	26.06	8.34	34.40	43.50	-9.10	220	100	peak
2	275.1569	27.93	9.38	37.31	46.00	-8.69	360	400	peak
3	607.7866	22.50	16.73	39.23	46.00	-6.77	232	120	peak

Plot of Radiated Emissions Test Data

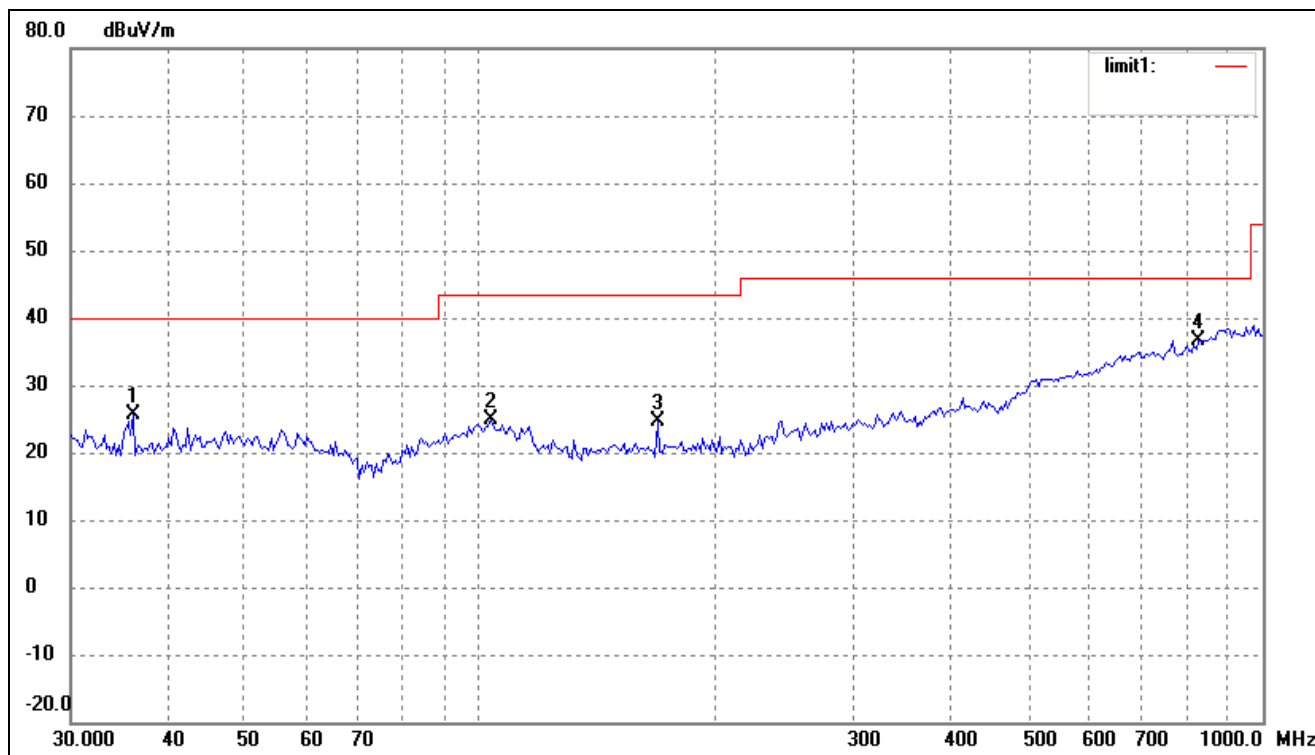
EUT: 2G Bar phone

Tested Model: FLAME2

Operating Condition: TM3

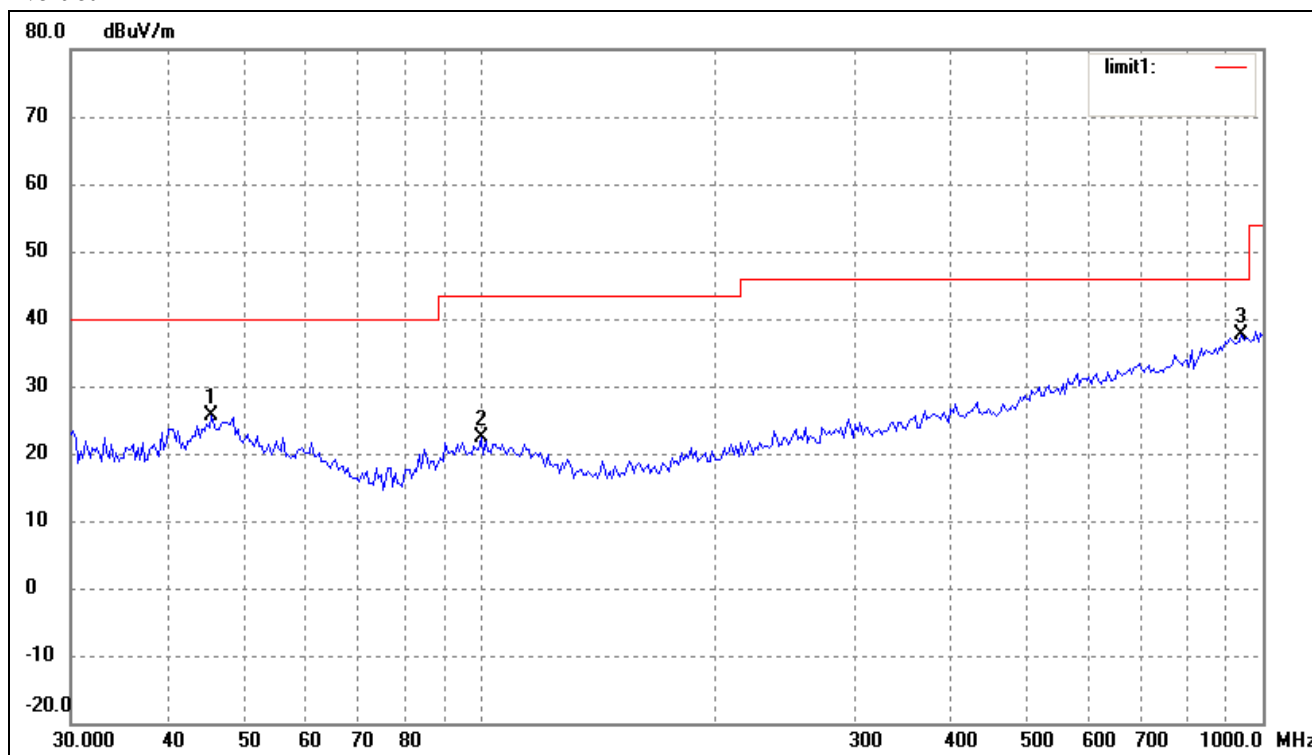
Comment: DC 3.7V

Test Specification: Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	36.0007	18.60	7.05	25.65	40.00	-14.35	58	150	QP
2	103.0800	16.65	8.18	24.83	43.50	-18.67	326	100	QP
3	168.4138	19.91	4.84	24.75	43.50	-18.75	29	120	QP
4	827.4934	17.13	19.53	36.66	46.00	-9.34	359	200	QP

Vertical



No.	Frequency (MHz)	Reading (dBuV)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	45.3755	17.53	8.21	25.74	40.00	-14.26	51	100	peak
2	100.2286	14.02	8.41	22.43	43.50	-21.07	308	100	peak
3	938.8326	16.13	21.61	37.74	46.00	-8.26	120	100	peak

Note: Testing is carried out with frequency rang 30MHz 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.

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