

# FCC Part 15B

## Measurement and Test Report

### For

**MACATE GROUP CORPORATION**

**3401 SW 160th AVENUE, SUITE 430, MIRAMAR/FLORIDA, USA**

**FCC ID: 2AGMA-SGB1G**

**Test Rule(s):** FCC Part 15 Subpart B

**Product Description:** 4G-LTE Smartphone

**Tested Model:** SGB1G-W

**Report No.:** STR15118239I-6

**Tested Date:** 2015-12-07 to 2015-12-09

**Issued Date:** 2015-12-10

**Tested By:** Silin Chen / EMC Manager

**Reviewed By:** Silin Chen / EMC Manager

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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: MACATE GROUP CORPORATION  
Address of applicant: 3401 SW 160th AVENUE, SUITE 430,  
MIRAMAR/FLORIDA, USA

Manufacturer: COOSEA GROUP(HK) COMPANY LIMITED  
Address of manufacturer: UNIT 5-6 16F MULTIFIELD PLAZA 3-7A PRAT  
AVENUE TSIM SHA TSUI KL HONGKONG

General Description of EUT	
Product Name:	4G-LTE Smartphone
Trade Name:	BELÉCI
Model No.:	SGB1G-W
Adding Model(s):	SGB1G-BL
Hardware Version:	V12
Software Version:	KD7LE22A.L1.ORIGINAL.SW.AM.SZ.V0.05
IMEI:	356590470001351/356590470001369
<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 SGB1G-W, but the circuit and the electronic construction do not change, declared by the manufacturer.</i>	

Technical Characteristics of EUT	
Rated Voltage:	Battery: DC 3.8V
Rated Current:	/
Rated Power:	/
Power Adapter Model:	Model: A88A-120130U-US1
	INPUT: AC100-240V 50/60Hz,0.5A OUTPUT: DC5V/2A, DC9V/1.8A, DC12V/1.3A
Lowest Internal Frequency:	32.768kHz
Highest Internal Frequency:	1.3GHz
Classification of ITE:	Class B

## 1.2 Test Standards

The following report is prepared on behalf of the MACATE GROUP CORPORATION 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 2<sup>nd</sup> 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	/
TM2	Downloading	/
TM3	Charging + Camera	/

EUT Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
Earphone Cable	1.3	Unshielded	Without Core
USB Cable	1.0	Shielded	Without Core

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 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
Horn Antenna	ETS	3116B	00088203	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

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

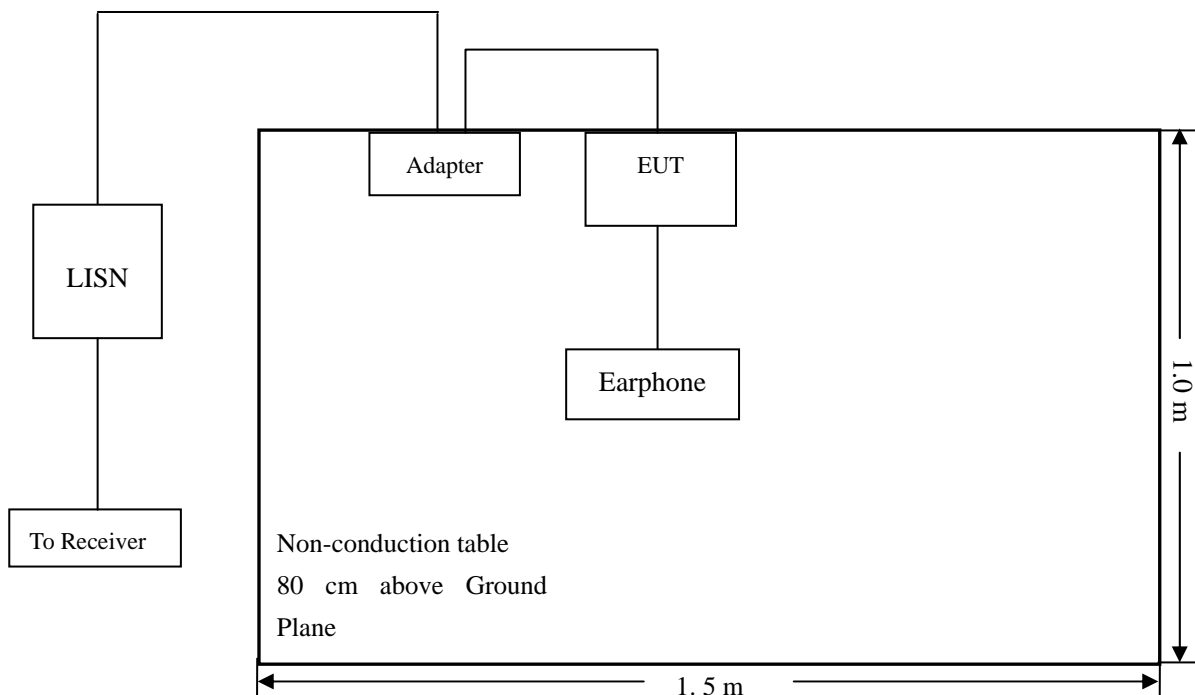
#### 3.1 Measurement Uncertainty

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

#### 3.2 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.

#### 3.3 Basic Test Setup Block Diagram



### 3.4 Environmental Conditions

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

### 3.5 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:

**-4.81 dB at 0.1980 MHz** in the **Neutral** mode, **PK** detector, **0.15-30MHz**

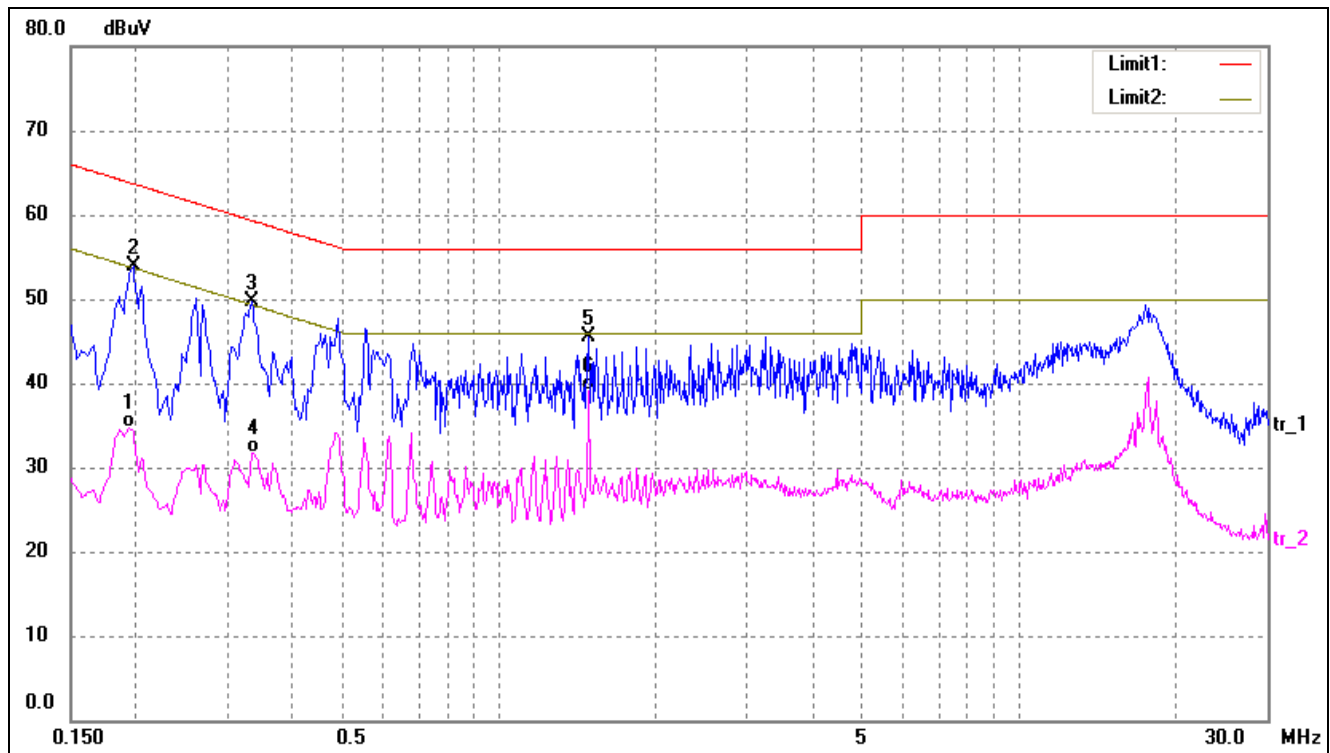
### 3.6 Conducted Emissions Test Data



### Plot of Conducted Emissions Test Data

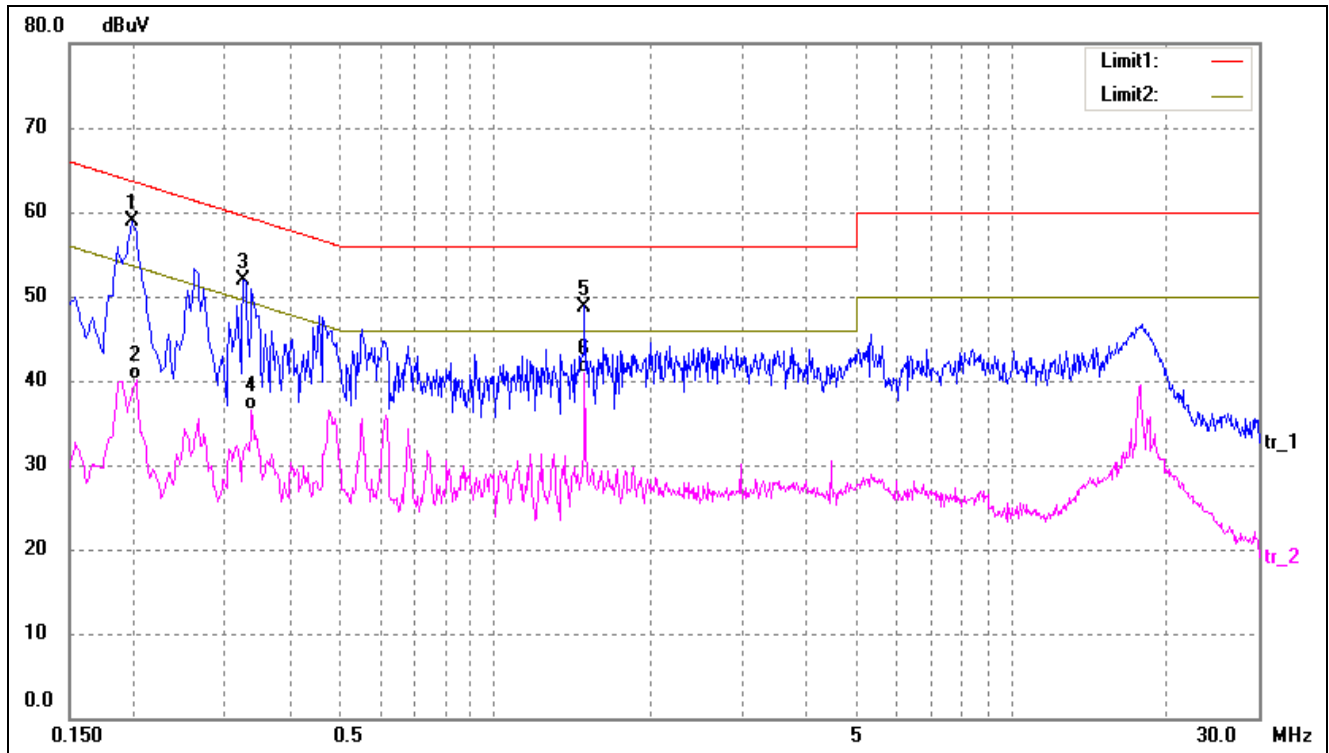
EUT: 4G-LTE Smartphone  
 Tested Model: SGB1G-W  
 Operating Condition: TM1  
 Comment: AC 120V/60Hz; Adapter DC 5V

Test Specification: Neutral



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1940	22.24	12.50	34.74	53.86	-19.12	AVG
2*	0.1980	41.50	12.50	54.00	63.69	-9.69	peak
3	0.3340	37.25	12.50	49.75	59.35	-9.60	peak
4	0.3380	19.27	12.50	31.77	49.25	-17.48	AVG
5	1.4900	32.43	13.00	45.43	56.00	-10.57	peak
6	1.4900	26.17	13.00	39.17	46.00	-6.83	AVG

Test Specification: Line



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1*	0.1980	46.38	12.50	58.88	63.69	-4.81	peak
2	0.2020	27.51	12.50	40.01	53.53	-13.52	AVG
3	0.3260	39.36	12.50	51.86	59.55	-7.69	peak
4	0.3380	24.09	12.50	36.59	49.25	-12.66	AVG
5	1.4940	35.80	13.00	48.80	56.00	-7.20	peak
6	1.4940	27.88	13.00	40.88	46.00	-5.12	AVG

## 4. Radiated Emissions

### 4.1 Measurement Uncertainty

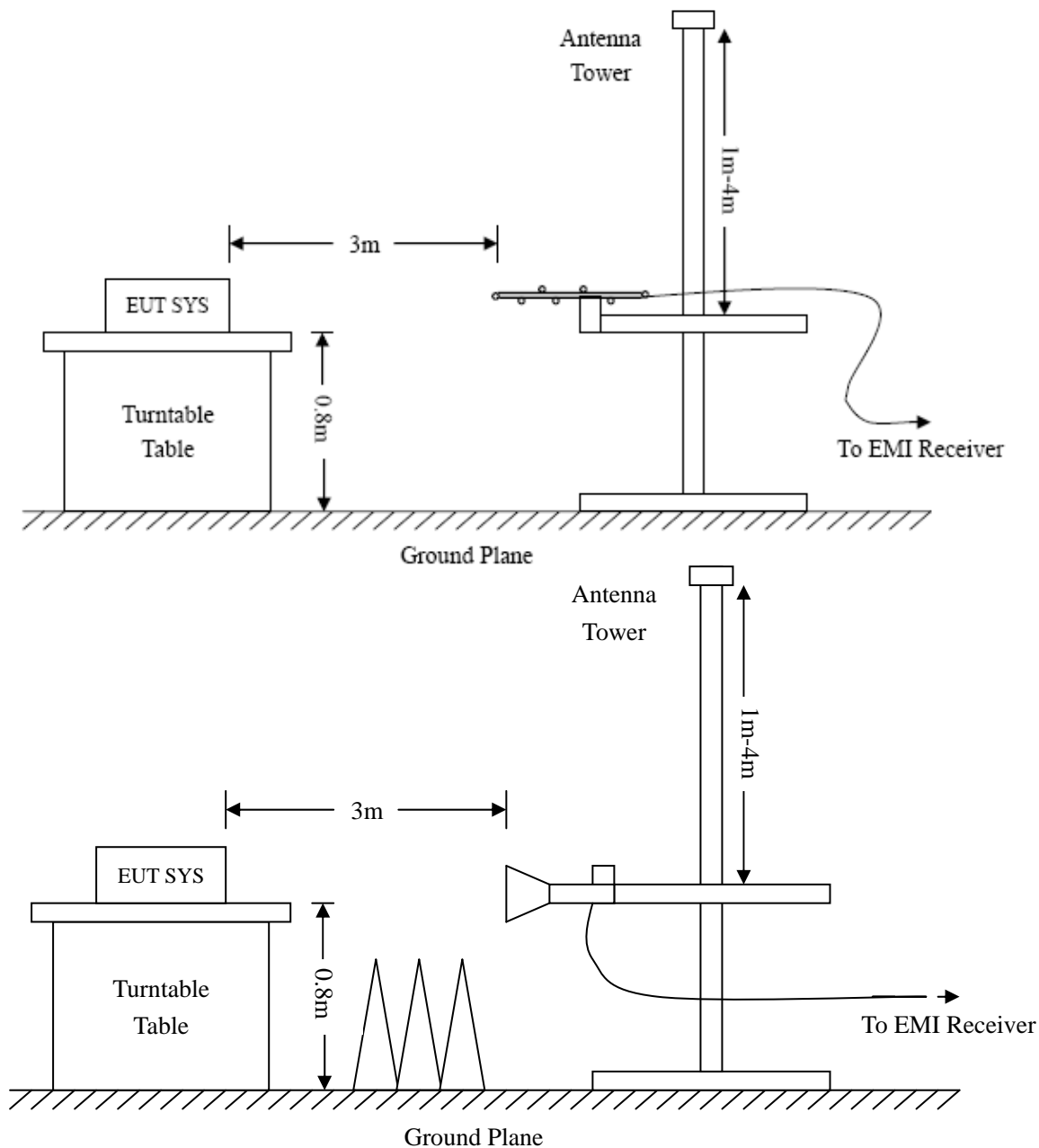
Base on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any radiation emissions measurement is  $\pm 5.10$  dB.

### 4.2 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.



### 4.3 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

### 4.4 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 $\mu$ V means the emission is 6dB $\mu$ V below the maximum limit for a Class B device. The equation for margin calculation is as follows:

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

### 4.5 Environmental Conditions

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

### 4.6 Summary of Test Results/Plots

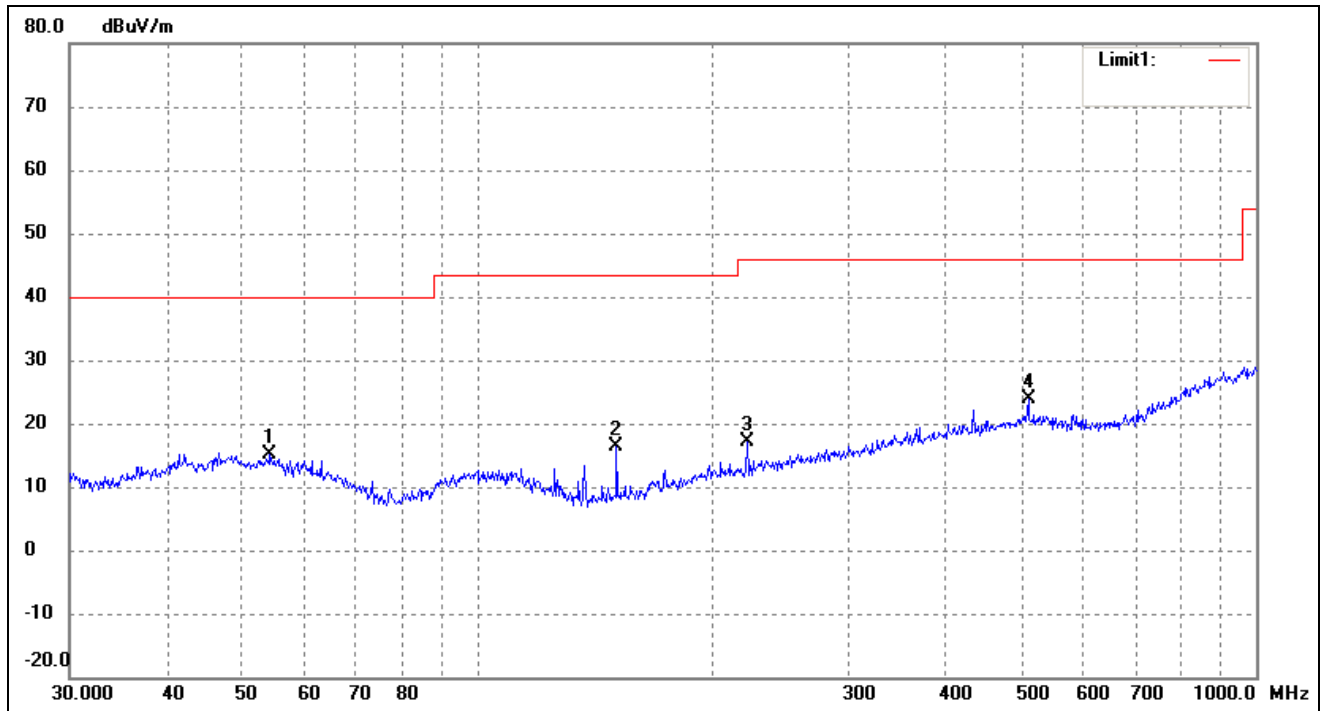
According to the data, the EUT complied with the FCC Part 15.109(a) rule, and had the worst margin of:

**-2.28 dB at 39.0245 MHz in the Horizontal polarization, TM2 Mode 9 kHz to 6.5 GHz, 3Meters**

### Plot of Radiated Emissions Test Data

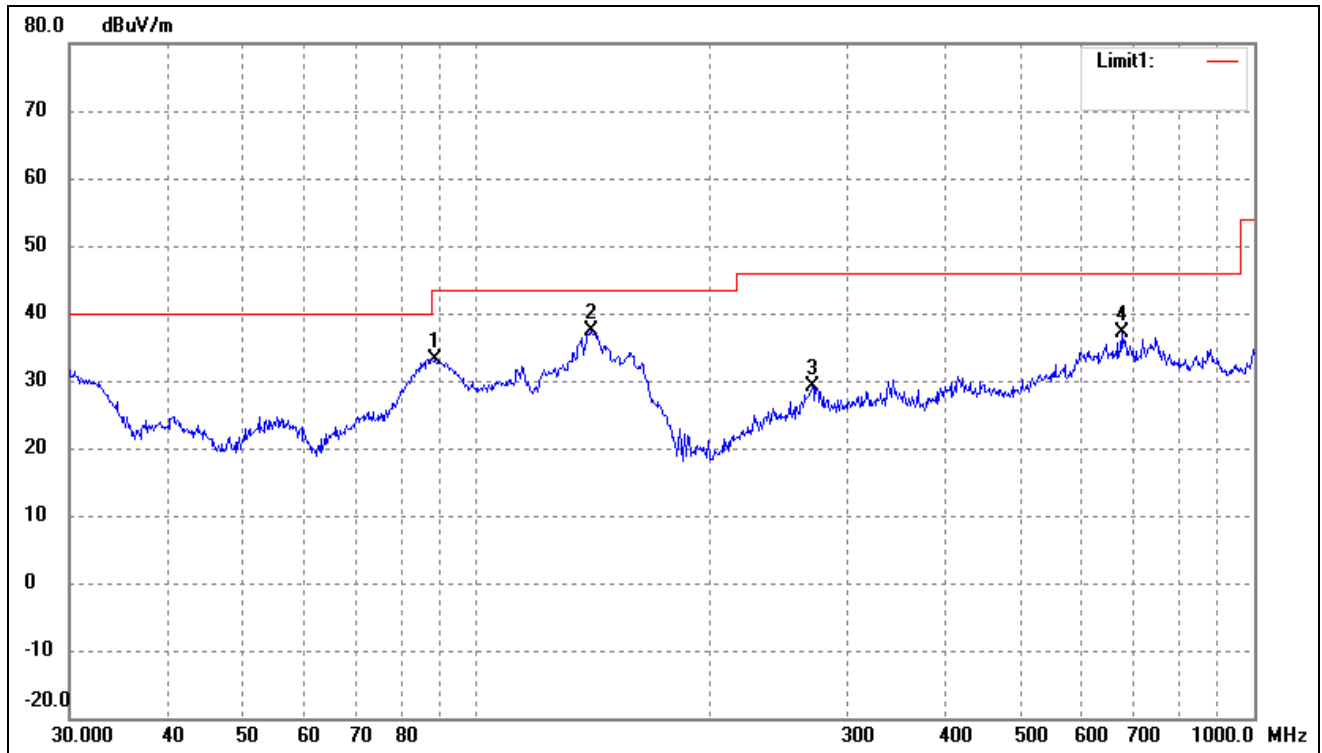
EUT: 4G-LTE Smartphone  
Tested Model: SGB1G-W  
Operating Condition: TM1  
Comment: AC 120V/60Hz; Adapter DC 5V

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	54.2610	22.97	-7.88	15.09	40.00	-24.91	145	100	peak
2	151.0666	29.32	-12.88	16.44	43.50	-27.06	166	100	peak
3	222.1698	25.92	-8.78	17.14	46.00	-28.86	172	100	peak
4*	510.0436	25.06	-1.18	23.88	46.00	-22.12	184	10	peak

Test Specification: Vertical

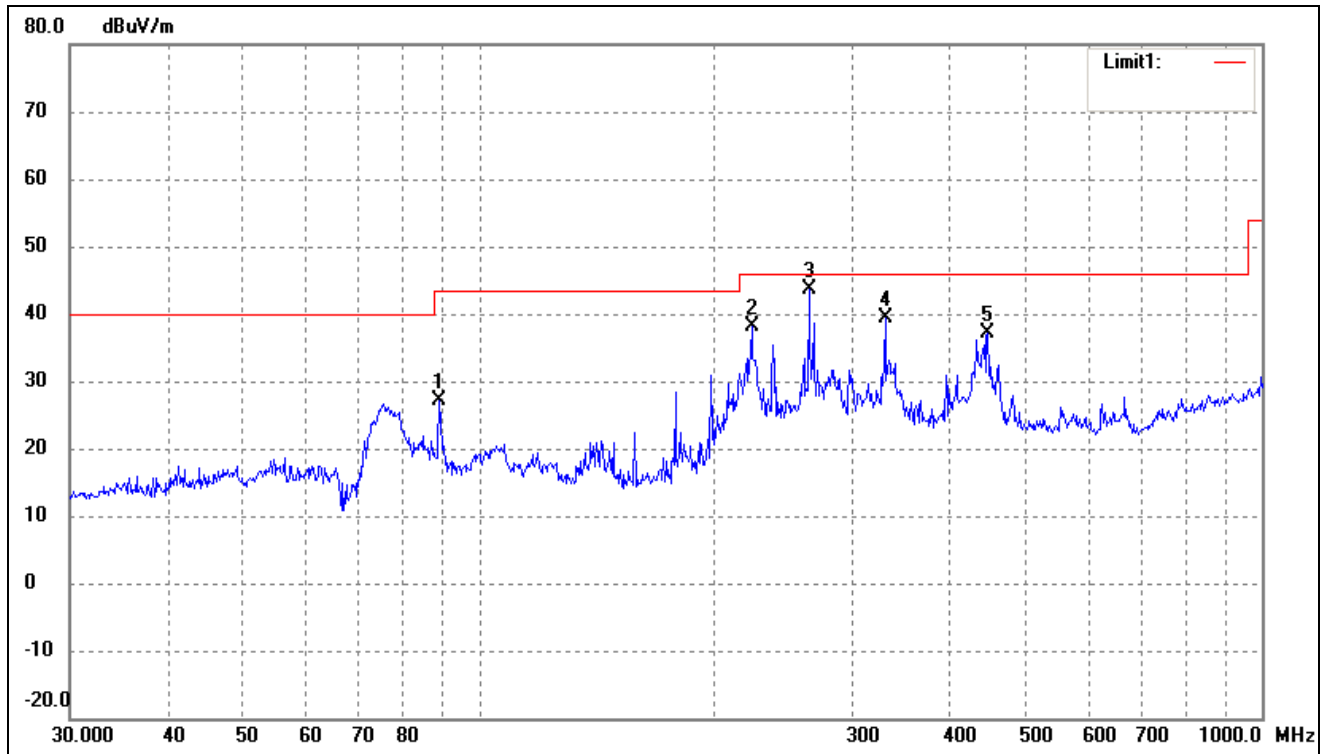


No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( ° )	Height (cm)	Remark
1	88.3421	29.80	3.34	33.14	43.50	-10.36	13	100	QP
2	140.3421	33.98	3.39	37.37	43.50	-6.13	13	100	QP
3	270.3748	18.39	10.74	29.13	46.00	-16.87	13	100	QP
4	675.2080	18.03	18.99	37.02	46.00	-8.98	13	100	QP

### Plot of Radiated Emissions Test Data

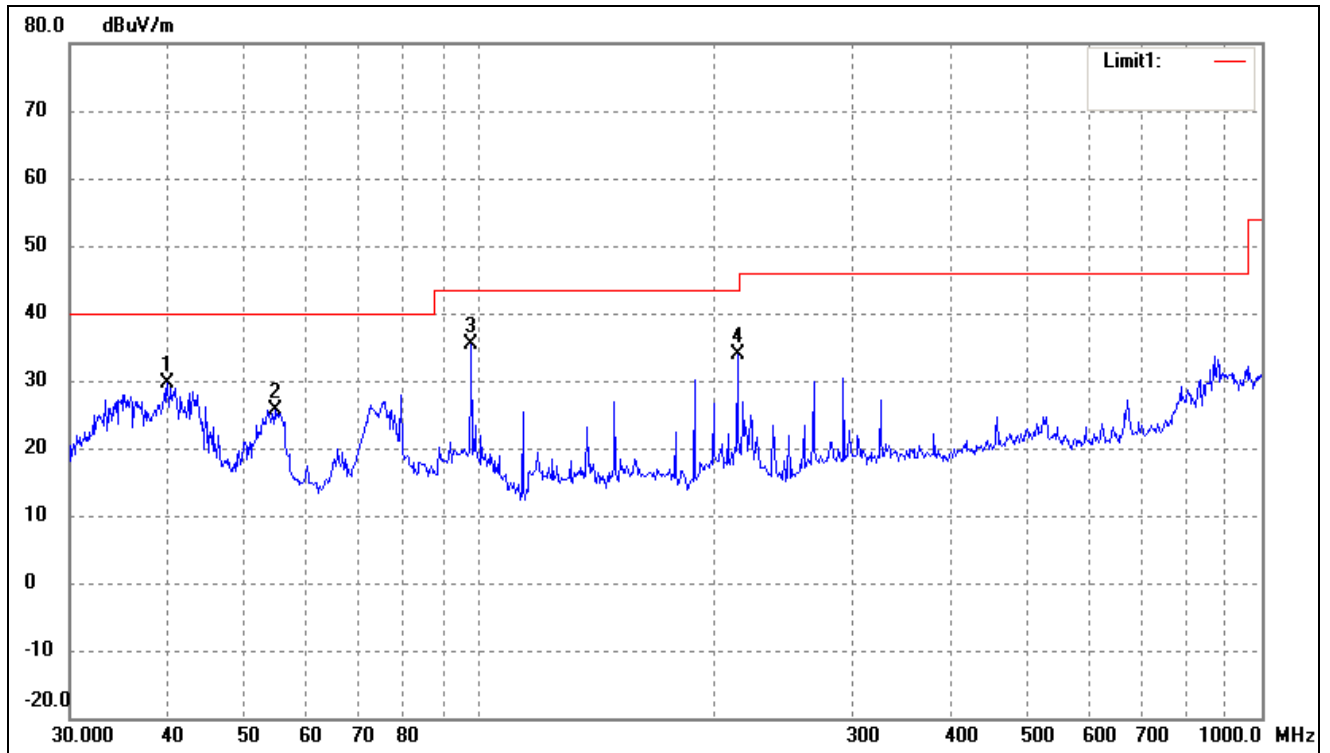
EUT: 4G-LTE Smartphone  
 Tested Model: SGB1G-W  
 Operating Condition: TM2  
 Comment: AC 120V/60Hz USB: DC5V

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	88.9638	38.53	-11.46	27.07	43.50	-16.43	305	100	QP
2	222.9501	46.86	-8.74	38.12	46.00	-7.88	98	100	QP
3	263.8190	50.81	-7.09	43.72	46.00	-2.28	201	100	QP
4	330.1949	44.36	-5.00	39.36	46.00	-6.64	55	100	QP
5	446.4141	39.39	-2.21	37.18	46.00	-8.82	65	100	QP
6	88.9638	38.53	-11.46	27.07	43.50	-16.43	305	100	QP

Test Specification: Vertical



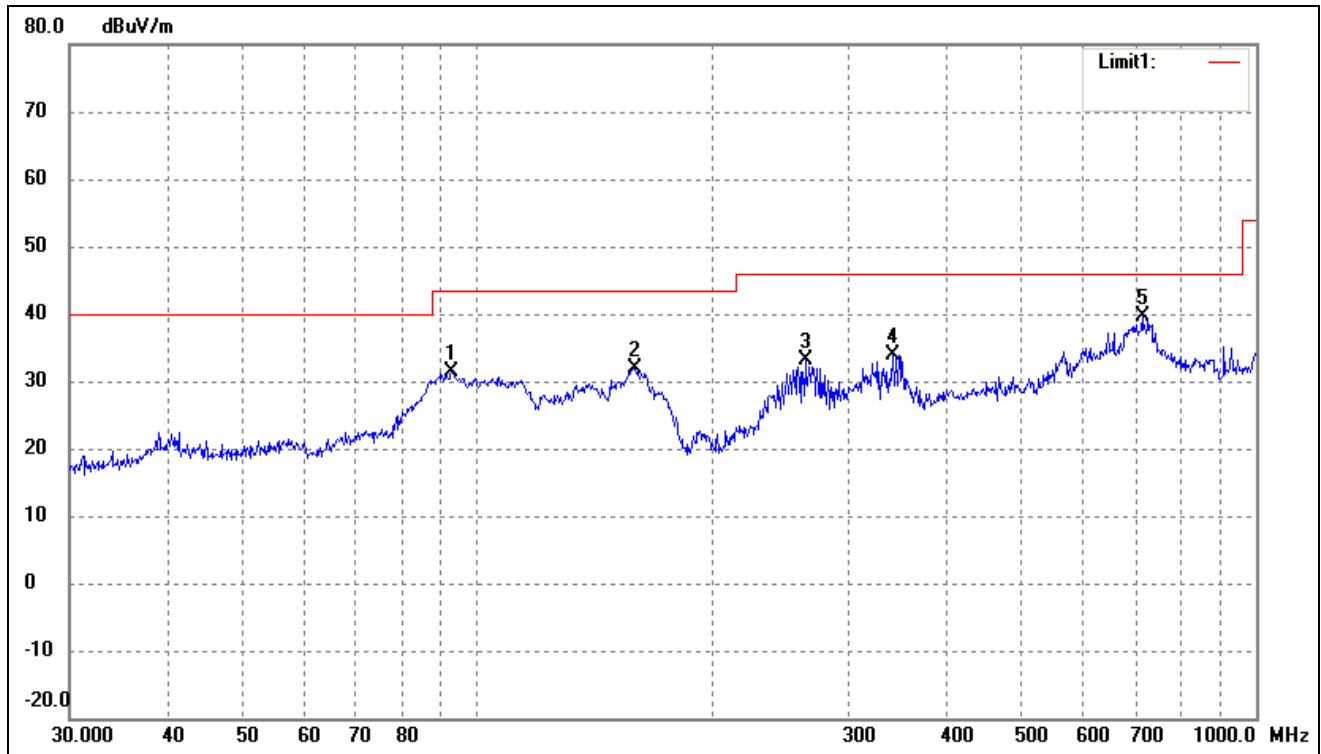
No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( ° )	Height (cm)	Remark
1	39.9941	38.19	-8.44	29.75	40.00	-10.25	325	100	QP
2	54.8348	33.63	-7.93	25.70	40.00	-14.30	56	100	QP
3	97.7982	45.11	-9.82	35.29	43.50	-8.21	98	100	QP
4	213.7633	42.94	-8.96	33.98	43.50	-9.52	121	100	QP



### Plot of Radiated Emissions Test Data

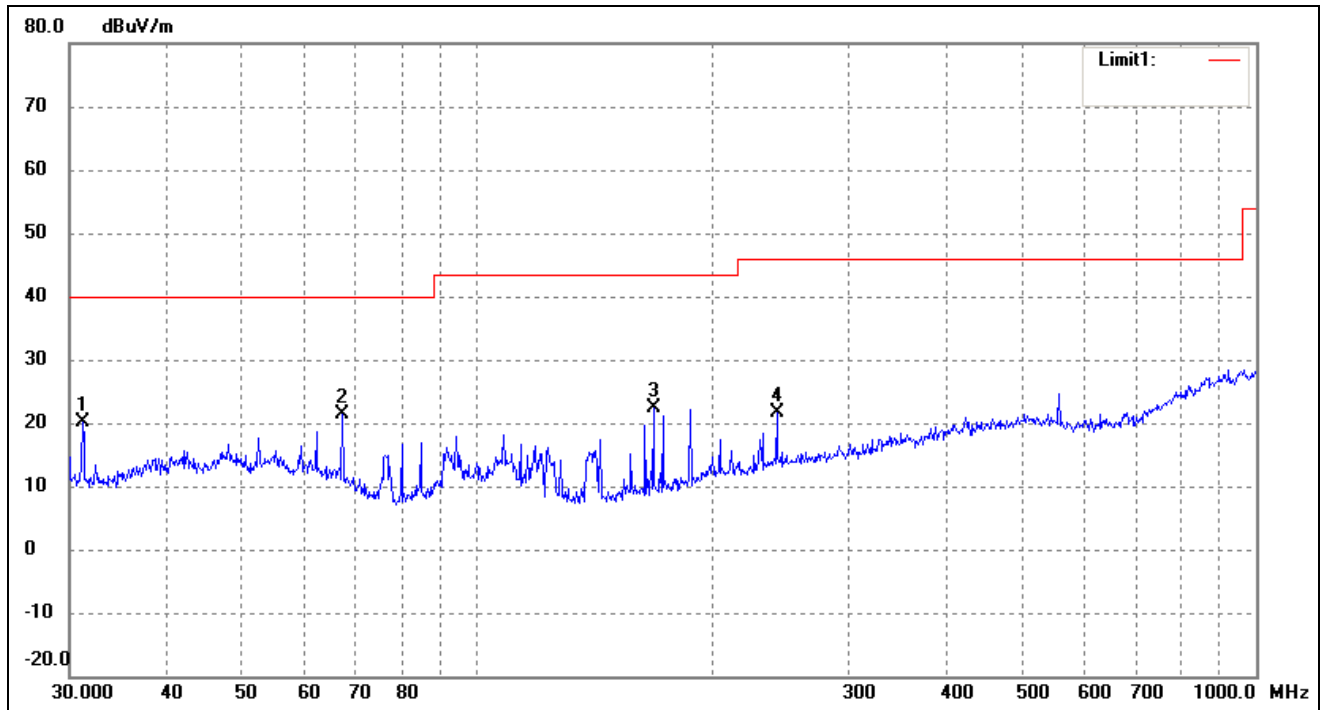
EUT: 4G-LTE Smartphone  
 Tested Model: SGB1G-W  
 Operating Condition: TM3  
 Comment: AC 120V/60Hz; Adapter DC 5V

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	92.7871	27.41	4.04	31.45	43.50	-12.05	23	100	QP
2	159.7844	29.30	2.63	31.93	43.50	-11.57	23	100	QP
3	263.8190	22.84	10.29	33.13	46.00	-12.87	23	100	QP
4	341.9786	22.16	11.77	33.93	46.00	-12.07	23	100	QP
5	714.1734	21.31	18.20	39.51	46.00	-6.49	23	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	31.1798	30.84	-10.60	20.24	40.00	-19.76	101	100	peak
2*	67.2022	31.88	-10.51	21.37	40.00	-18.63	124	100	peak
3	168.4138	34.22	-11.92	22.30	43.50	-21.20	136	100	peak
4	242.5253	29.31	-7.71	21.60	46.00	-24.40	149	100	peak

Note: Testing is carried out with frequency rang 9kHz to the 6.5GHz, 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 \*\*\*\*\*