

# FCC Part 15B

## Measurement and Test Report

For

### SWAGTEK

10205 NW 19th Street, STE 101, Miami, FL 33172, USA

**FCC ID: O55502516**

<b>Test Rule(s):</b>	<u>FCC Part 15 Subpart B</u>
<b>Product Description:</b>	<u>Smart Phone</u>
<b>Tested Model:</b>	<u>ELITE 5R</u>
<b>Report No.:</b>	<u>STR16078164I-5</u>
<b>Tested Date:</b>	<u>2016-07-18 to 2016-07-30</u>
<b>Issued Date:</b>	<u>2016-07-30</u>
<b>Tested By:</b>	<u>Iven Guo / Engineer</u> <i>Iven Guo</i>
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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: SWAGTEK  
 Address of applicant: 10205 NW 19th Street, STE 101, Miami, FL 33172, USA

Manufacturer: SWAGTEK  
 Address of manufacturer: 10205 NW 19th Street, STE 101, Miami, FL 33172, USA

General Description of EUT	
Product Name:	Smart Phone
Trade Name:	
Model No.:	ELITE 5R
Adding Model(s):	/
<i>Note: The test data is gathered from a production sample, provided by the manufacturer.</i>	

Technical Characteristics of EUT	
Rated Voltage:	DC 3.7V by battery; DC 5V by Micro USB
Rated Current:	/
Rated Power:	/
Power Adapter Model:	/
Highest Internal Frequency:	1.2GHz
Classification of ITE:	Class B

## 1.2 Test Standards

The following report is prepared on behalf of the SWAGTEK 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	Downloading	/
TM2	Charging&Back Camera	/
TM3	Charging&Front Camera	/
TM4	Charging&Play	/

EUT Cable List and Details

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

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## 2. SUMMARY OF TEST RESULTS

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

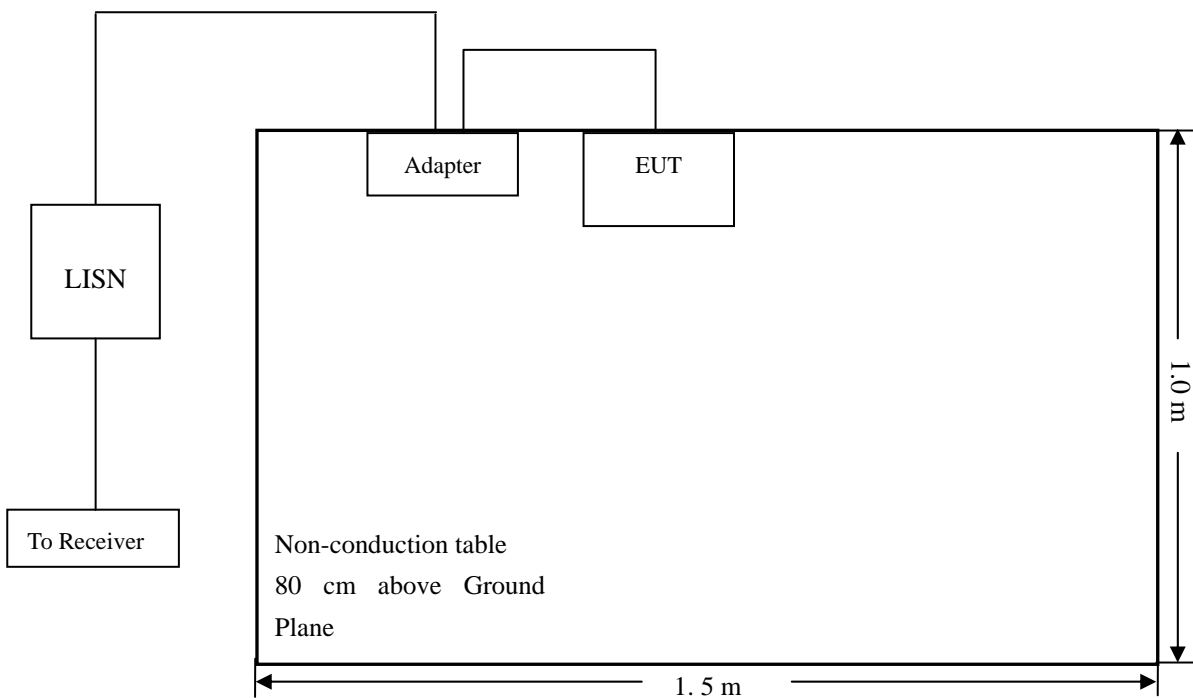
N/A: not applicable

### 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:

**-0.76 dB at 0.1780 MHz** in the **Line, Peak** detector, TM4, 0.15-30MHz

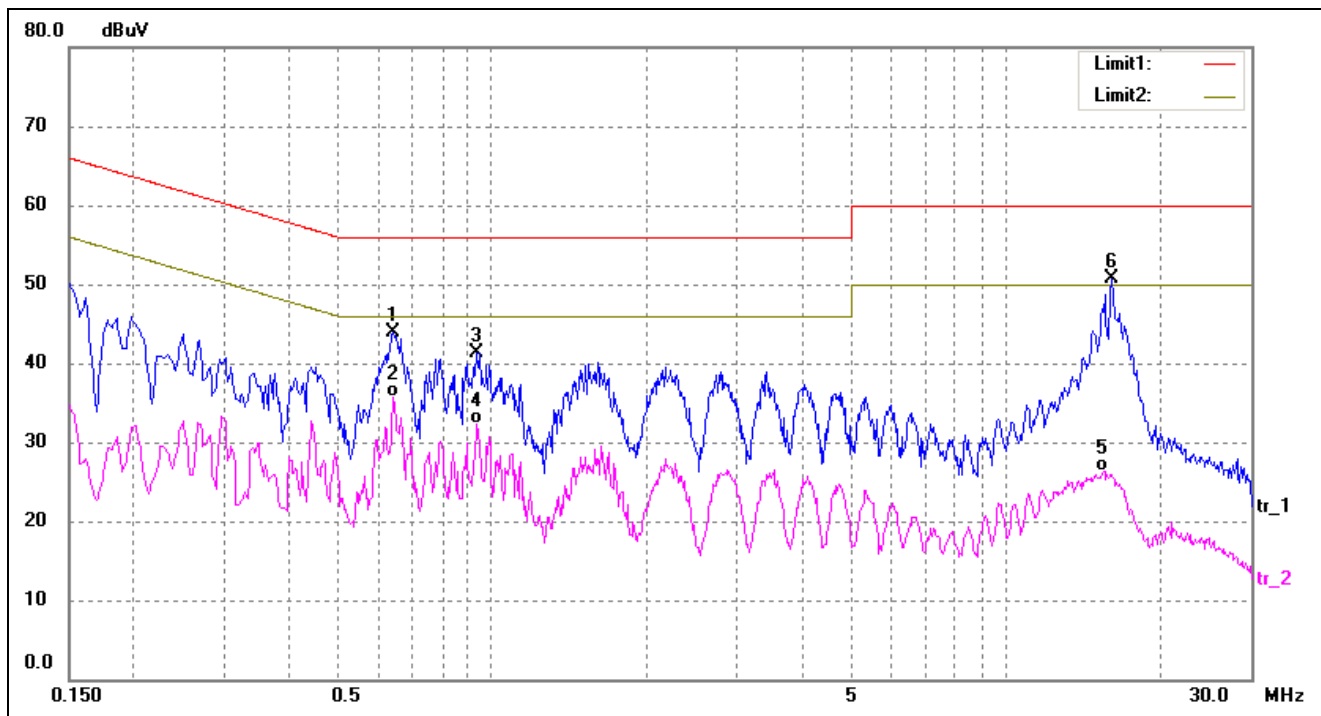


### 3.5 Conducted Emissions Test Data

#### Plot of Conducted Emissions Test Data

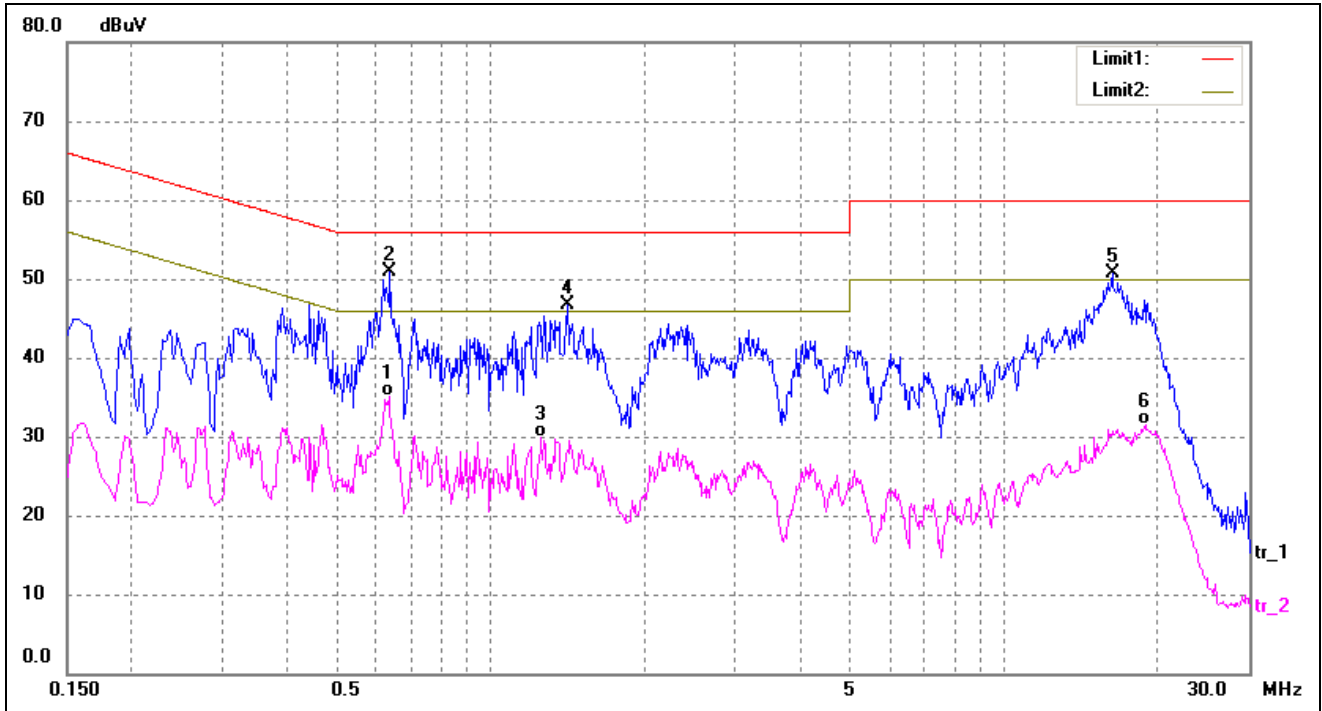
EUT: Smart Phone  
 Tested Model: ELITE 5R  
 Operating Condition: TM1  
 Comment: DC 3.7V by battery; DC 5V by Micro USB

Test Specification: Neutral



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.6420	34.36	9.59	43.95	56.00	-12.05	peak
2	0.6420	26.11	9.59	35.70	46.00	-10.30	AVG
3	0.9300	31.65	9.66	41.31	56.00	-14.69	peak
4	0.9380	22.61	9.66	32.27	46.00	-13.73	AVG
5	15.5140	15.86	10.42	26.28	50.00	-23.72	AVG
6*	16.0740	40.28	10.43	50.71	60.00	-9.29	peak

Test Specification: Line

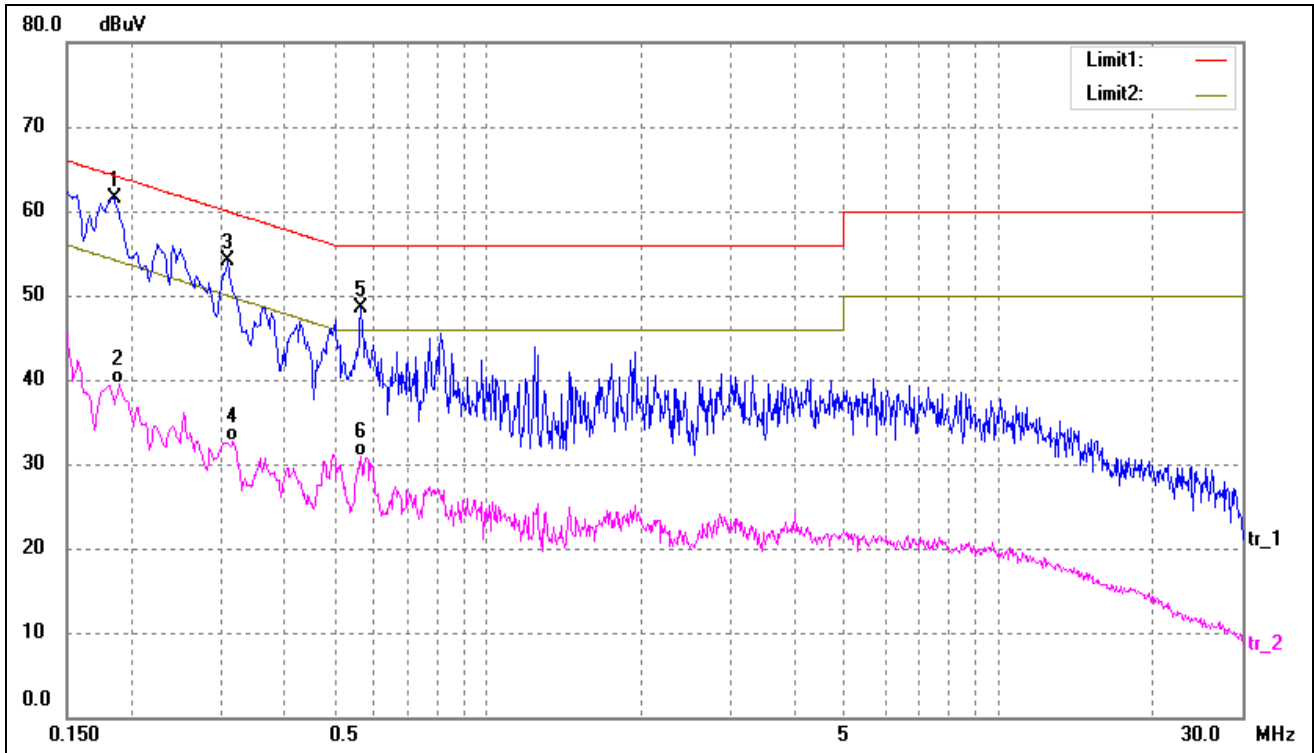


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.6340	25.50	9.59	35.09	46.00	-10.91	AVG
2*	0.6380	41.23	9.59	50.82	56.00	-5.18	peak
3	1.2620	20.18	9.72	29.90	46.00	-16.10	AVG
4	1.4180	36.88	9.74	46.62	56.00	-9.38	peak
5	16.2420	40.26	10.43	50.69	60.00	-9.31	peak
6	18.9140	21.13	10.45	31.58	50.00	-18.42	AVG

**Plot of Conducted Emissions Test Data**

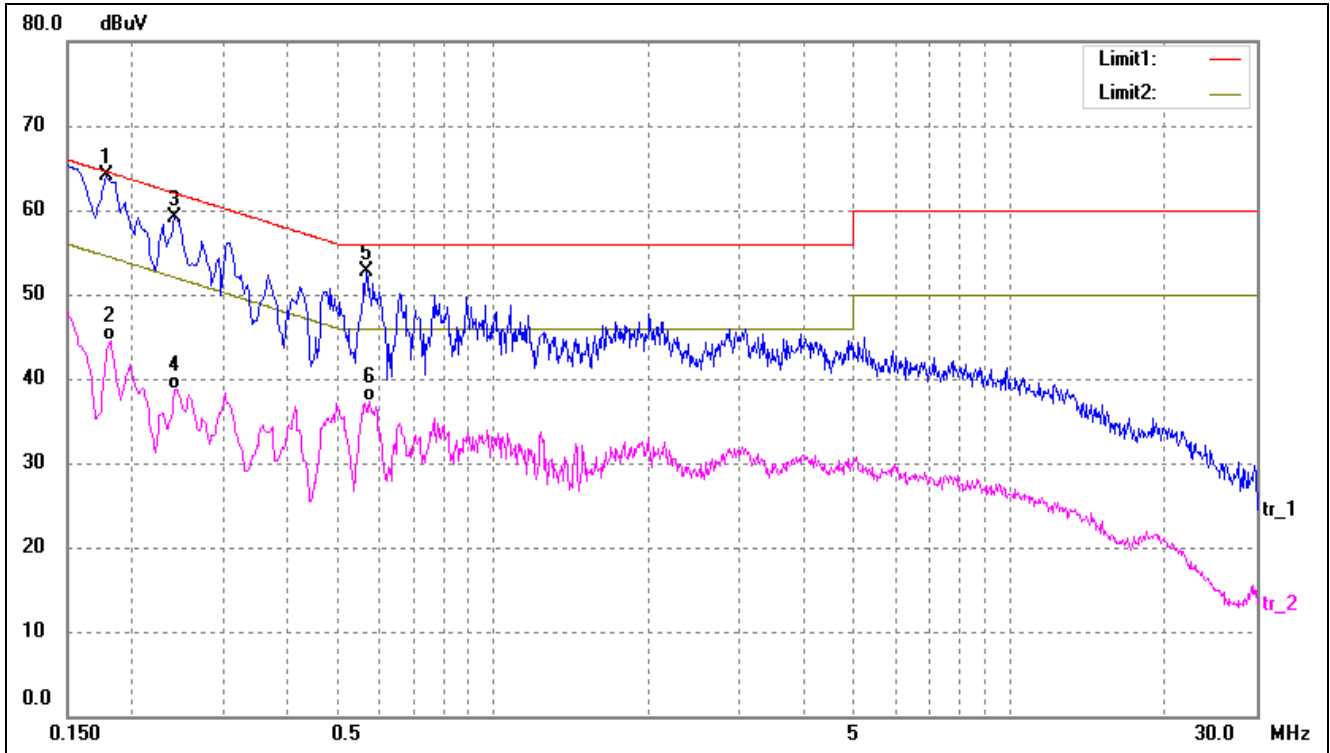
EUT: Smart Phone  
 Tested Model: ELITE 5R  
 Operating Condition: TM4  
 Comment: AC 120V/60Hz; DC 5V by Adapter

Test Specification: Neutral



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1*	0.1860	52.11	9.50	61.61	64.21	-2.60	peak
2	0.1900	29.90	9.50	39.40	54.03	-14.63	AVG
3	0.3100	44.57	9.50	54.07	59.97	-5.90	peak
4	0.3180	23.15	9.50	32.65	49.76	-17.11	AVG
5	0.5660	38.88	9.58	48.46	56.00	-7.54	peak
6	0.5660	21.38	9.58	30.96	46.00	-15.04	AVG

Test Specification: Line



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1*	0.1780	54.31	9.50	63.81	64.57	-0.76	peak
2	0.1819	34.94	9.50	44.44	54.39	-9.95	AVG
3	0.2420	49.52	9.50	59.02	62.02	-3.00	peak
4	0.2420	29.12	9.50	38.62	52.02	-13.40	AVG
5	0.5700	43.19	9.58	52.77	56.00	-3.23	peak
6	0.5780	27.81	9.58	37.39	46.00	-8.61	AVG

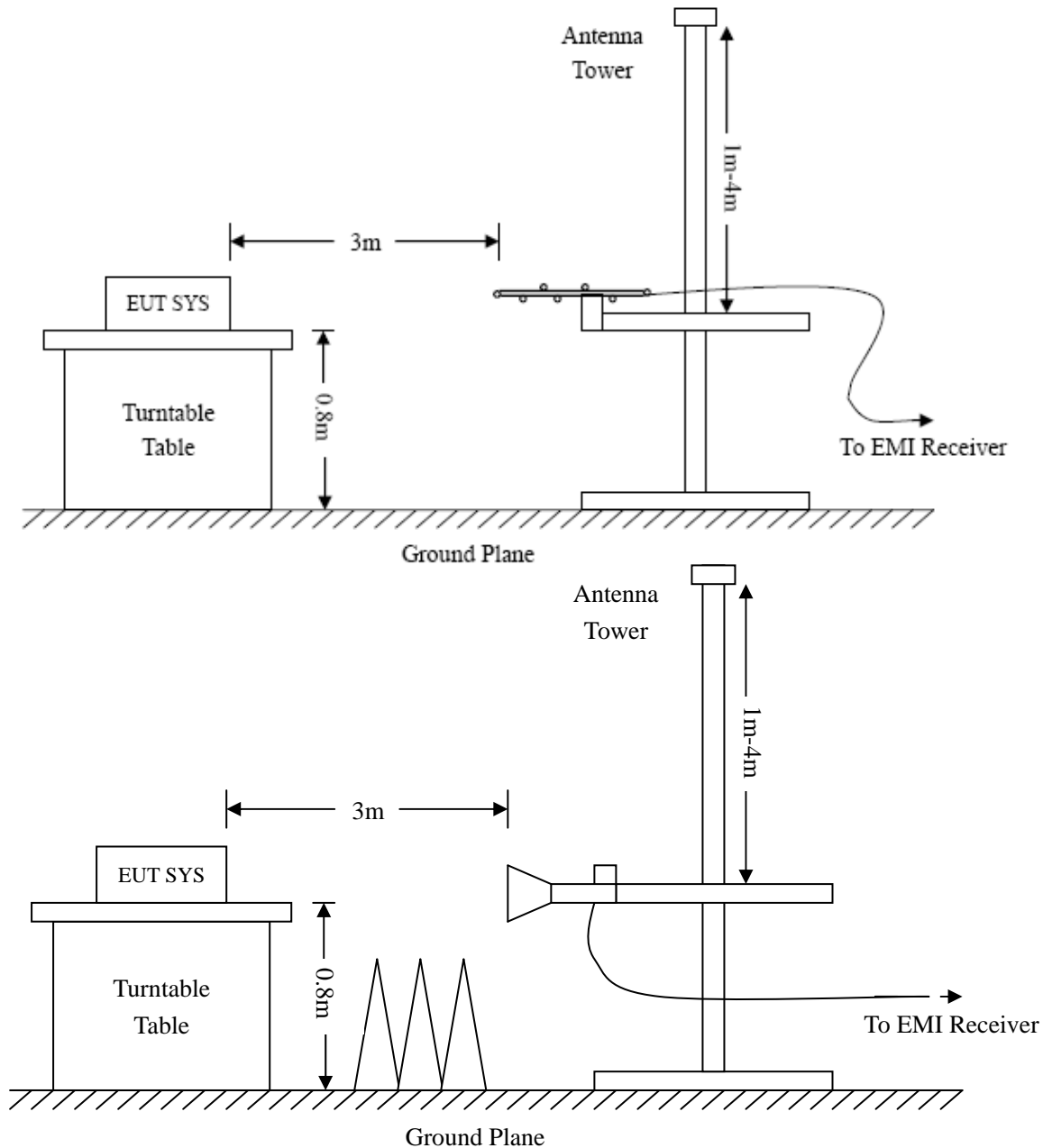
## 4. Radiated Emissions

### 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 $\mu$ 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:

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

### 4.4 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:

**-5.15 dB at 187.7530 MHz in the Vertical polarization, TM1 Mode, 30MHz to 6 GHz, 3Meters**

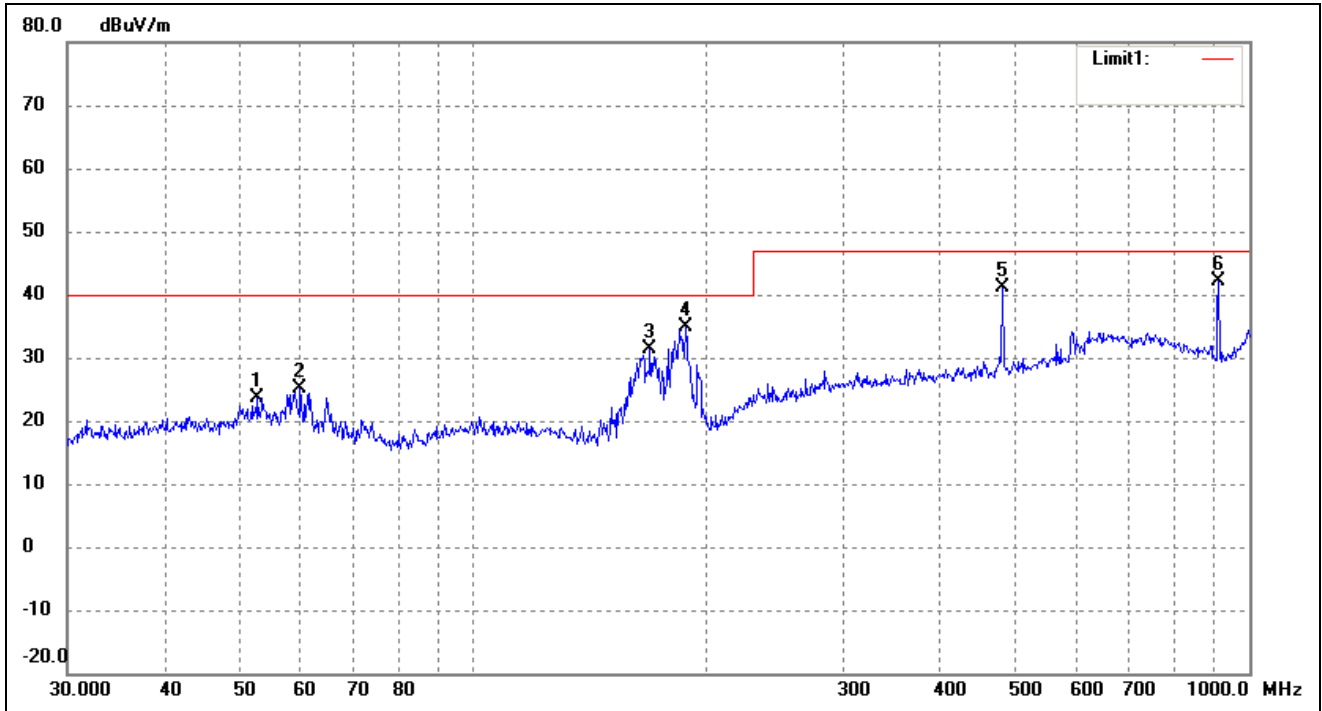
**Plot of Radiated Emissions Test Data**

EUT: Smart Phone  
 Tested Model: ELITE 5R  
 Operating Condition: TM1  
 Comment: DC 3.7V by battery; DC 5V by Micro USB  
 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	59.4405	20.69	5.02	25.71	40.00	-14.29	0	100	peak
2	167.2368	26.57	2.46	29.03	40.00	-10.97	0	100	peak
3	181.9202	31.74	2.53	34.27	40.00	-5.73	0	100	peak
4	239.9874	26.44	8.93	35.37	47.00	-11.63	0	100	peak
5	480.5276	20.71	12.58	33.29	47.00	-13.71	0	100	peak
6	668.1423	17.38	18.03	35.41	47.00	-11.59	0	100	peak

Test Specification: Vertical

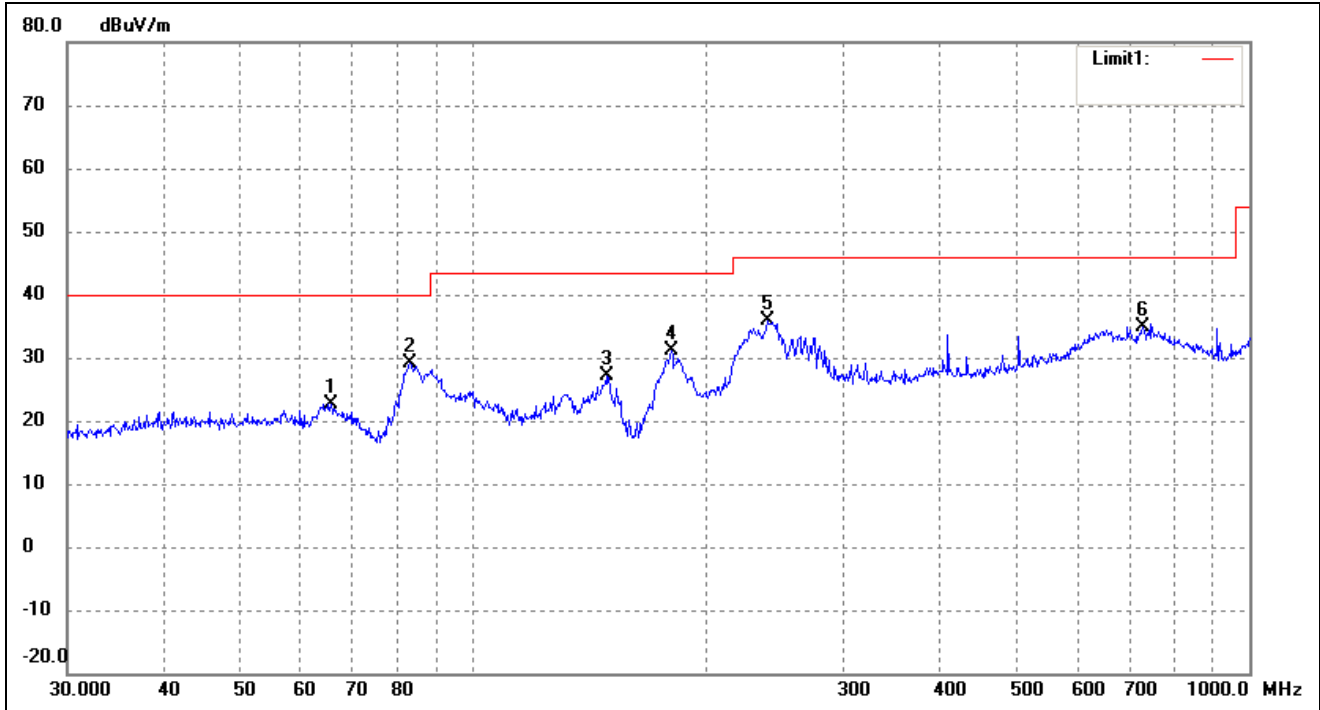


No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( )	Height (cm)	Remark
1	52.7600	18.45	5.06	23.51	40.00	-16.49	0	100	peak
2	59.8588	20.11	5.03	25.14	40.00	-14.86	0	100	peak
3	169.0054	29.03	2.46	31.49	40.00	-8.51	0	100	peak
4	187.7530	32.06	2.79	34.85	40.00	-5.15	0	100	peak
5	480.5276	28.65	12.58	41.23	47.00	-5.77	0	100	peak
6	912.8620	27.85	14.35	42.20	47.00	-4.80	0	100	peak



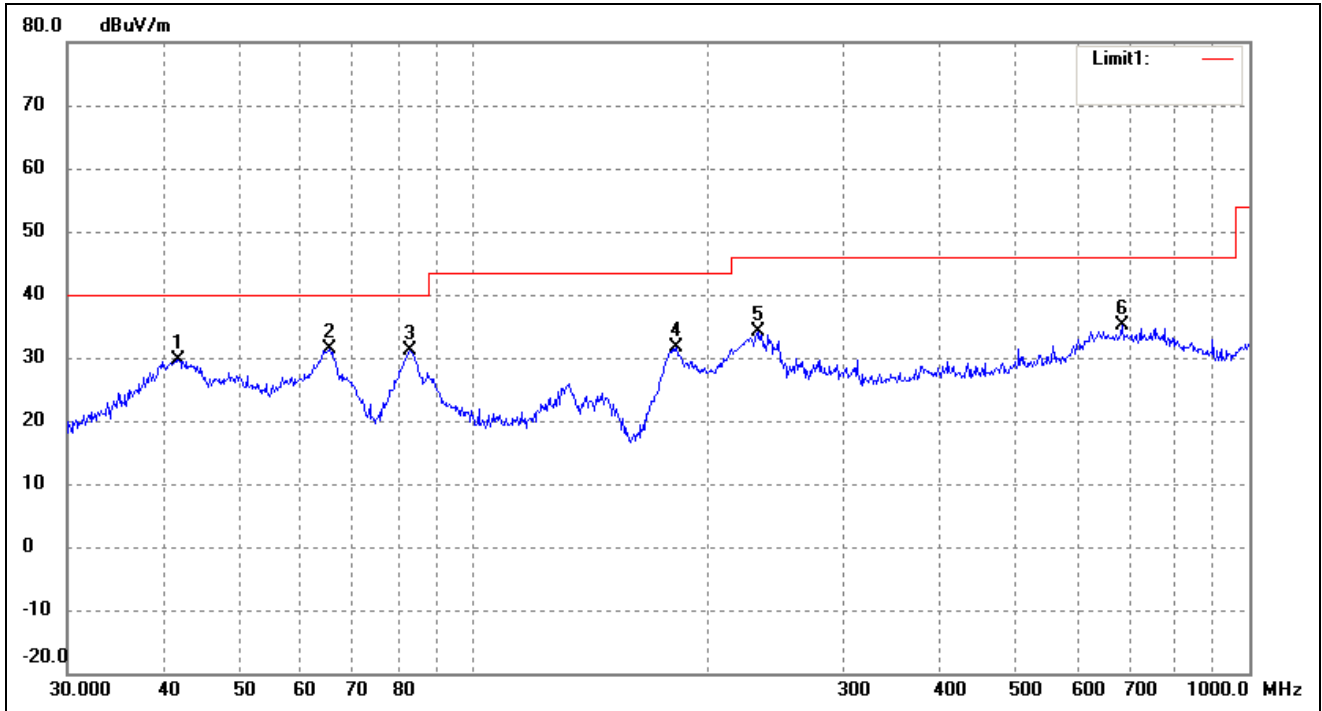
**Plot of Radiated Emissions Test Data**

EUT: Smart Phone  
 Tested Model: ELITE 5R  
 Operating Condition: TM2  
 Comment: DC 3.7V by battery; DC 5V by Micro USB  
 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	65.5727	18.88	3.85	22.73	40.00	-17.27	0	100	peak
2	82.9385	26.82	2.21	29.03	40.00	-10.97	0	100	peak
3	148.4410	24.23	2.82	27.05	43.50	-16.45	0	100	peak
4	180.0165	28.60	2.46	31.06	43.50	-12.44	0	100	peak
5	239.1473	26.95	8.87	35.82	46.00	-10.18	0	100	peak
6	729.3583	16.43	18.38	34.81	46.00	-11.19	0	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	41.7130	24.74	4.93	29.67	40.00	-10.33	0	100	peak
2	65.3432	27.53	3.90	31.43	40.00	-8.57	0	100	peak
3	82.9385	28.81	2.21	31.02	40.00	-8.98	0	100	peak
4	182.5592	29.02	2.55	31.57	43.50	-11.93	0	100	peak
5	233.3487	25.53	8.51	34.04	46.00	-11.96	0	100	peak
6	684.7454	16.79	18.33	35.12	46.00	-10.88	0	100	peak

**Plot of Radiated Emissions Test Data**

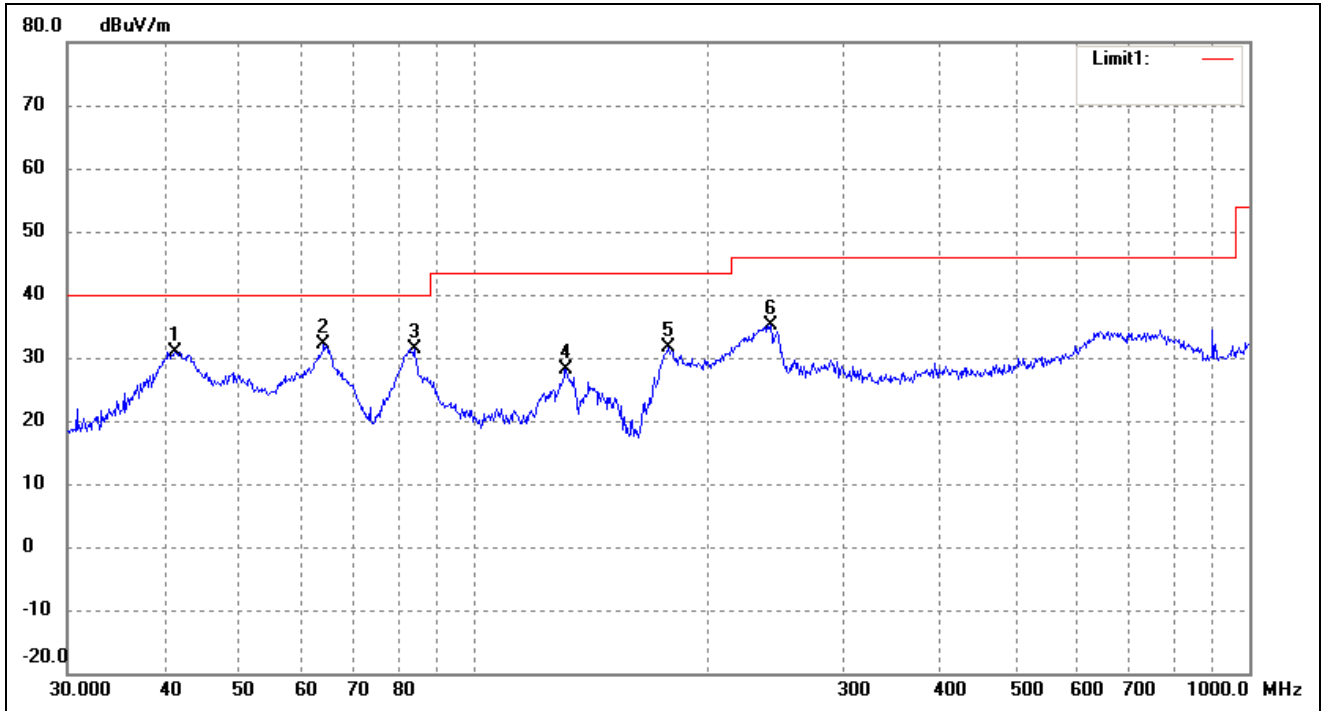
EUT: *Smart Phone*  
 Tested Model: *ELITE 5R*  
 Operating Condition: *TM3*  
 Comment: *DC 3.7V by battery; DC 5V by Micro USB*

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	64.4331	19.38	4.11	23.49	40.00	-16.51	0	100	peak
2	86.2001	20.81	2.75	23.56	40.00	-16.44	0	100	peak
3	139.8508	21.44	3.17	24.61	43.50	-18.89	0	100	peak
4	176.8878	29.47	2.46	31.93	43.50	-11.57	0	100	peak
5	239.9874	30.13	8.93	39.06	46.00	-6.94	0	100	peak
6	647.3856	16.30	17.90	34.20	46.00	-11.80	0	100	peak

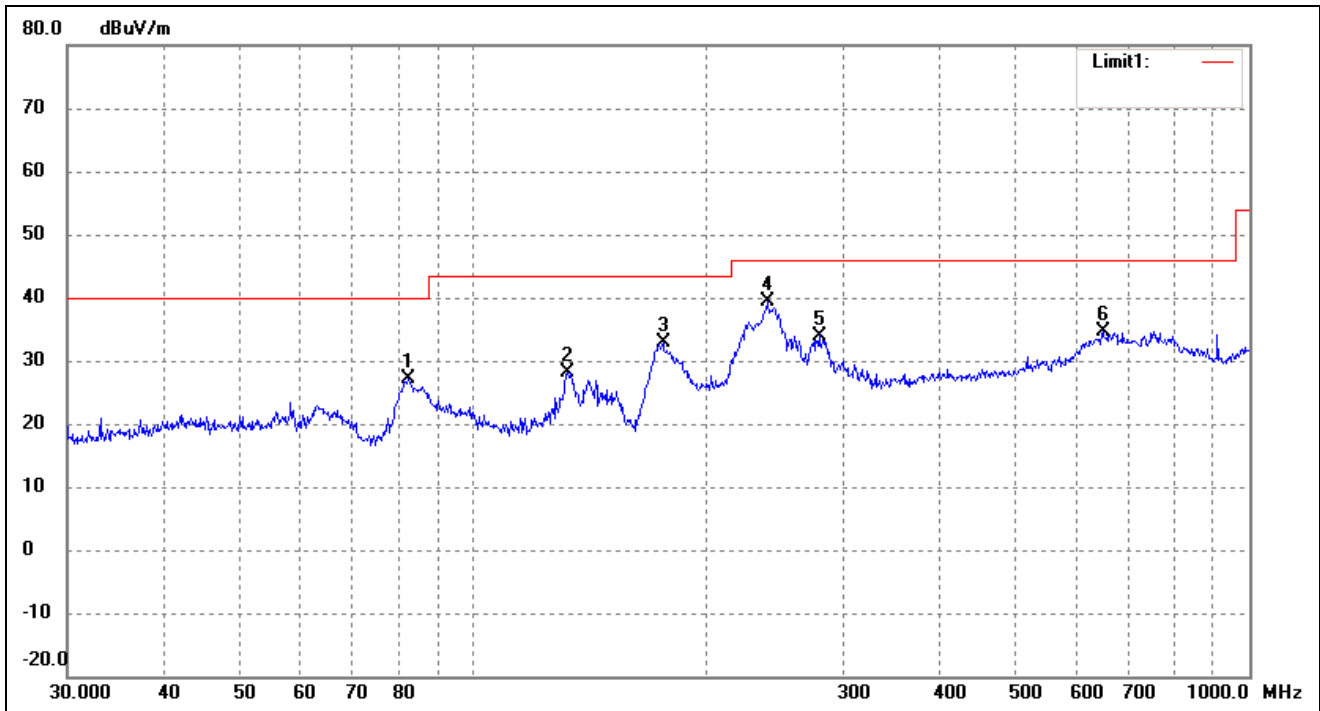
Test Specification: Vertical



No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( )	Height (cm)	Remark
1	41.2765	25.98	4.93	30.91	40.00	-9.09	0	100	peak
2	64.2075	28.03	4.16	32.19	40.00	-7.81	0	100	peak
3	84.1100	28.87	2.41	31.28	40.00	-8.72	0	100	peak
4	131.7577	24.39	3.84	28.23	43.50	-15.27	0	100	peak
5	178.1327	29.07	2.46	31.53	43.50	-11.97	0	100	peak
6	241.6763	26.08	9.00	35.08	46.00	-10.92	0	100	peak

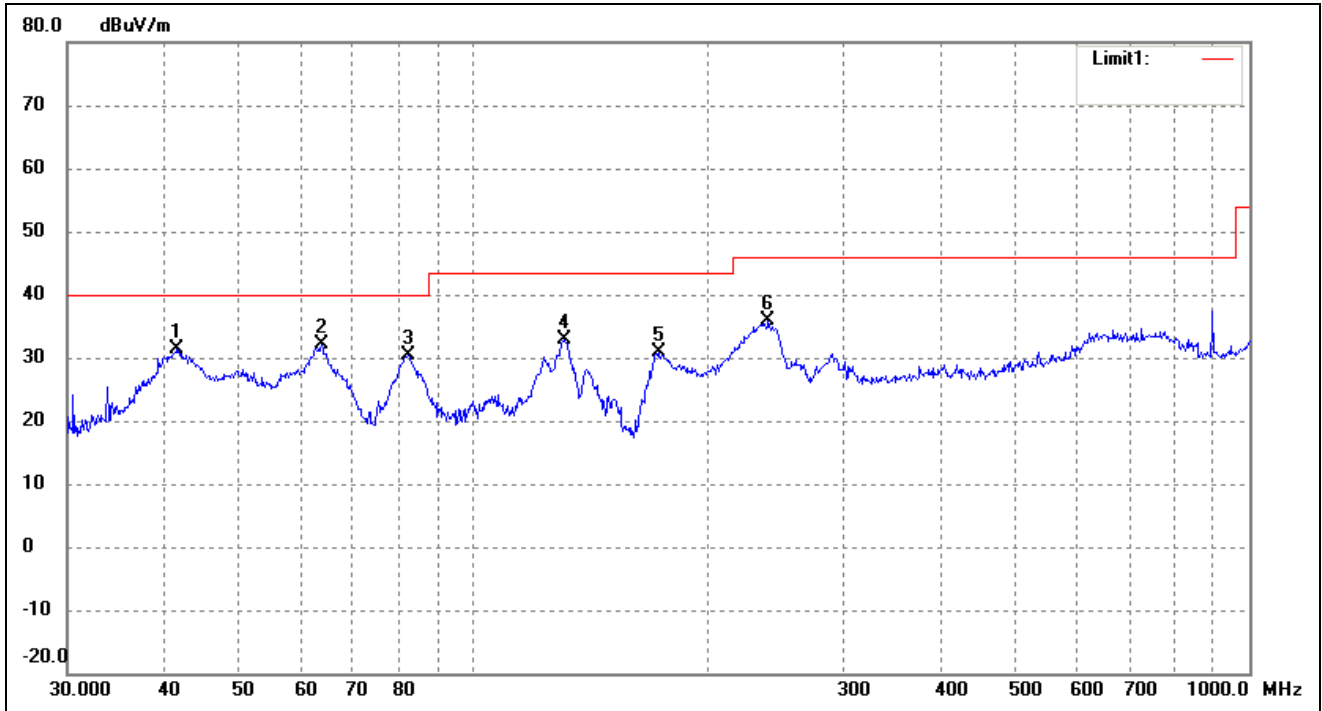
**Plot of Radiated Emissions Test Data**

EUT: Smart Phone  
 Tested Model: ELITE 5R  
 Operating Condition: TM4  
 Comment: DC 3.7V by battery; DC 5V by Micro USB  
 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	82.3589	24.93	2.12	27.05	40.00	-12.95	0	100	peak
2	132.2206	24.28	3.80	28.08	43.50	-15.42	0	100	peak
3	175.6516	30.33	2.46	32.79	43.50	-10.71	0	100	peak
4	239.1473	30.39	8.87	39.26	46.00	-6.74	0	100	peak
5	279.0436	22.93	11.07	34.00	46.00	-12.00	0	100	peak
6	647.3856	16.85	17.90	34.75	46.00	-11.25	0	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	41.5670	26.55	4.93	31.48	40.00	-8.52	0	100	peak
2	63.7588	27.90	4.26	32.16	40.00	-7.84	0	100	peak
3	82.3589	28.29	2.12	30.41	40.00	-9.59	0	100	peak
4	131.2965	28.92	3.88	32.80	43.50	-10.70	0	100	peak
5	173.2051	28.53	2.46	30.99	43.50	-12.51	0	100	peak
6	239.9874	27.01	8.93	35.94	46.00	-10.06	0	100	peak

Note: Testing is carried out with frequency rang 30MHz to the 6GHz, 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 \*\*\*\*\*