

# FCC Part 15B

## Measurement and Test Report

For

XTR S.A.C.

Av. Camino Real 1225 Of 201-A San Isidro, Lima, Peru

**FCC ID: 2AGAK-X45I3G**

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

**Product Description:** Smart Phone

**Tested Model:** X4.5i 3G

**Report No.:** STR16028018I-5

**Tested Date:** 2016-02-19 to 2016-02-23

**Issued Date:** 2016-02-24

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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: XTR S.A.C.  
Address of applicant: Av. Camino Real 1225 Of 201-A San Isidro, Lima, Peru

Manufacturer: XTR S.A.C.  
Address of manufacturer: Av. Camino Real 1225 Of 201-A San Isidro, Lima, Peru

General Description of EUT:	
Product Name:	Smart Phone
Brand Name:	/
Model No.:	X4.5i 3G
Hardware Version:	ZH010-MB-V1.1
Software Version:	ZH010_CF4_HS010D
IMEI:	/
Rated Voltage:	Battery: DC 3.7V(1700mAh)
Power Adaptor:	Model: X4.5i 3G
	INPUT: AC100-240V 50/60Hz,0.25A
	OUTPUT: DC5V/1.0A
Lowest Internal Frequency:	26MHz
Highest Internal Frequency:	1.3GHz
Classification of ITE:	Class B
Note: The test data is gathered from a production sample provided by the manufacturer.	

## 1.2 Test Standards

The following report is prepared on behalf of the XTR S.A.C. 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

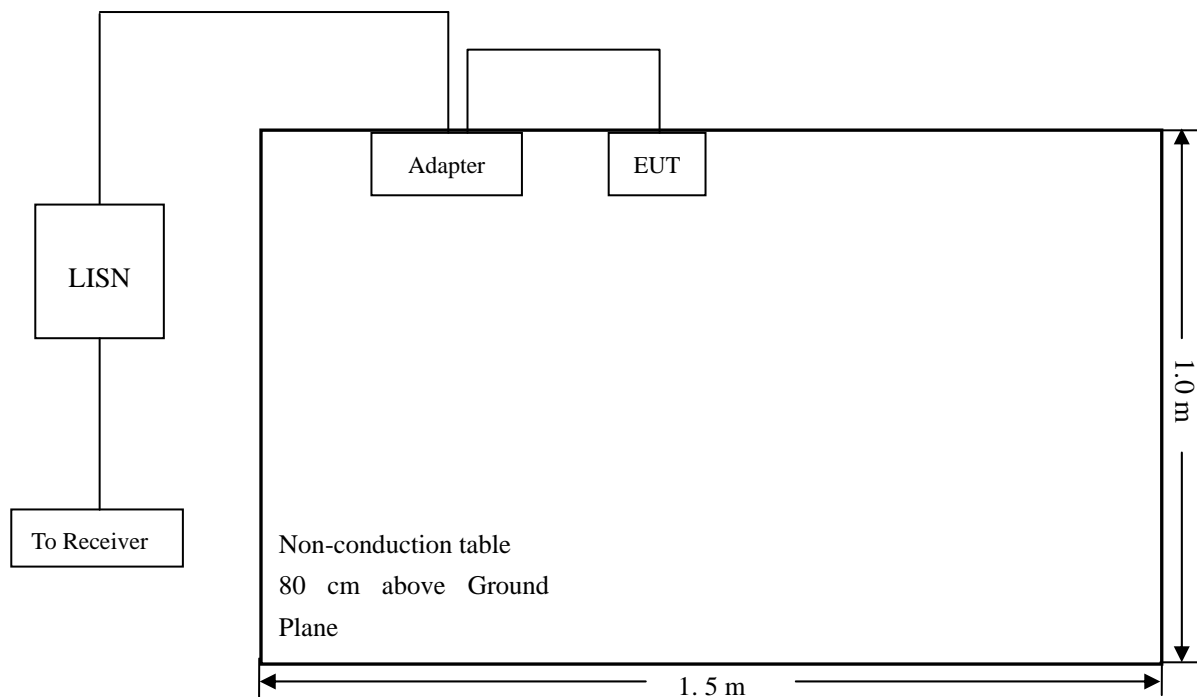
## 2. SUMMARY OF TEST RESULTS

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

N/A: not applicable

### 3.1 Test Procedure

### 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:

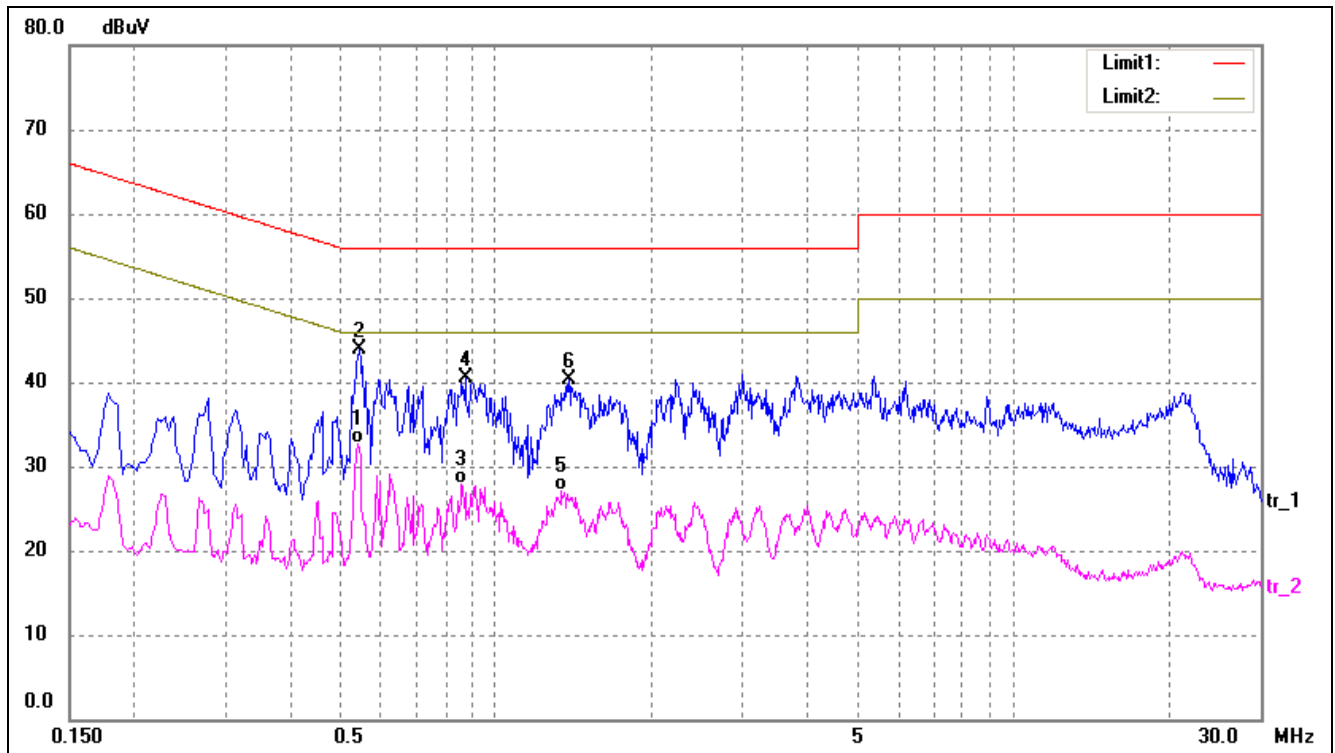
**-4.60 dB at 0.5420 MHz in the Line, Peak detector, TM1, 0.15-30MHz**



### 3.5 Conducted Emissions Test Data

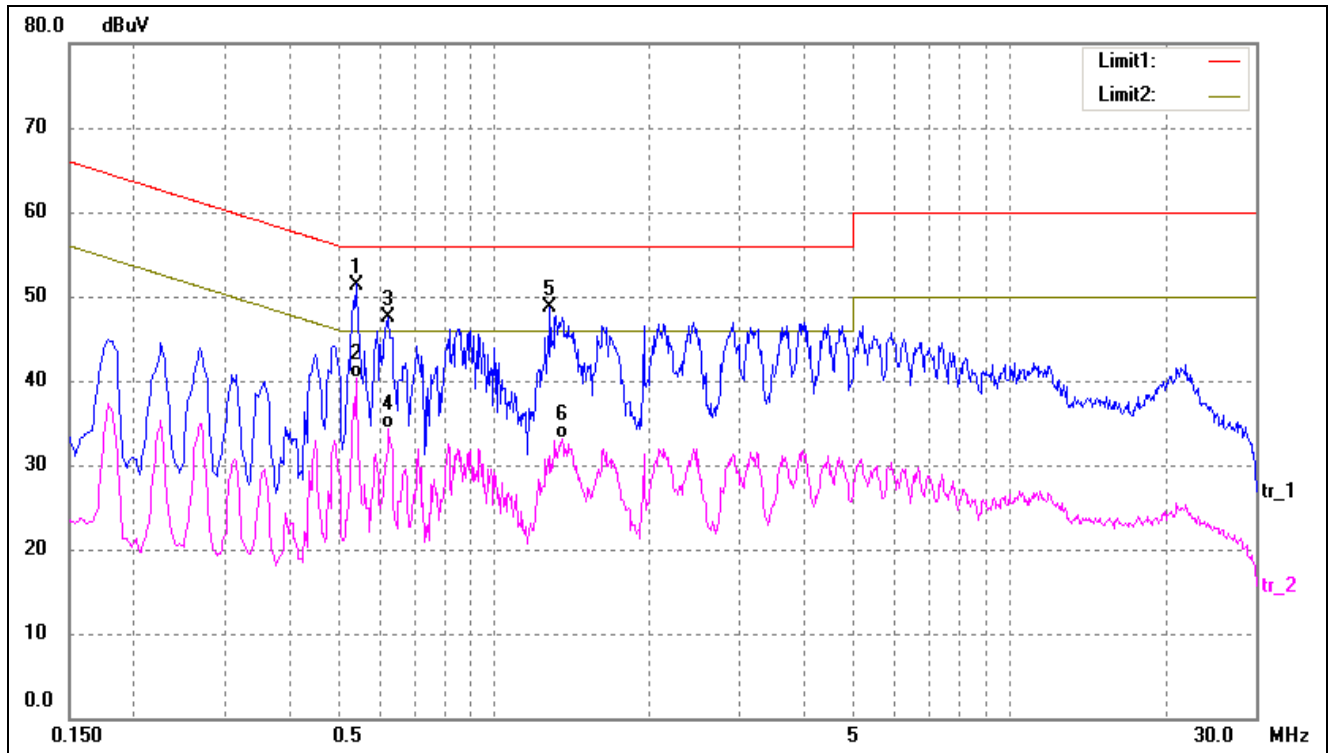
#### Plot of Conducted Emissions Test Data

EUT: Smart Phone  
 Tested Model: X4.5i 3G  
 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	0.5420	24.97	7.79	32.76	46.00	-13.24	AVG
2*	0.5460	36.04	7.82	43.86	56.00	-12.14	peak
3	0.8580	17.85	10.01	27.86	46.00	-18.14	AVG
4	0.8740	30.45	10.12	40.57	56.00	-15.43	peak
5	1.3420	16.01	11.00	27.01	46.00	-18.99	AVG
6	1.3820	29.32	11.00	40.32	56.00	-15.68	peak

Test Specification: Line



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1*	0.5420	43.61	7.79	51.40	56.00	-4.60	peak
2	0.5420	32.59	7.79	40.38	46.00	-5.62	AVG
3	0.6260	39.17	8.38	47.55	56.00	-8.45	peak
4	0.6260	26.00	8.38	34.38	46.00	-11.62	AVG
5	1.2860	37.65	11.00	48.65	56.00	-7.35	peak
6	1.3540	22.07	11.00	33.07	46.00	-12.93	AVG

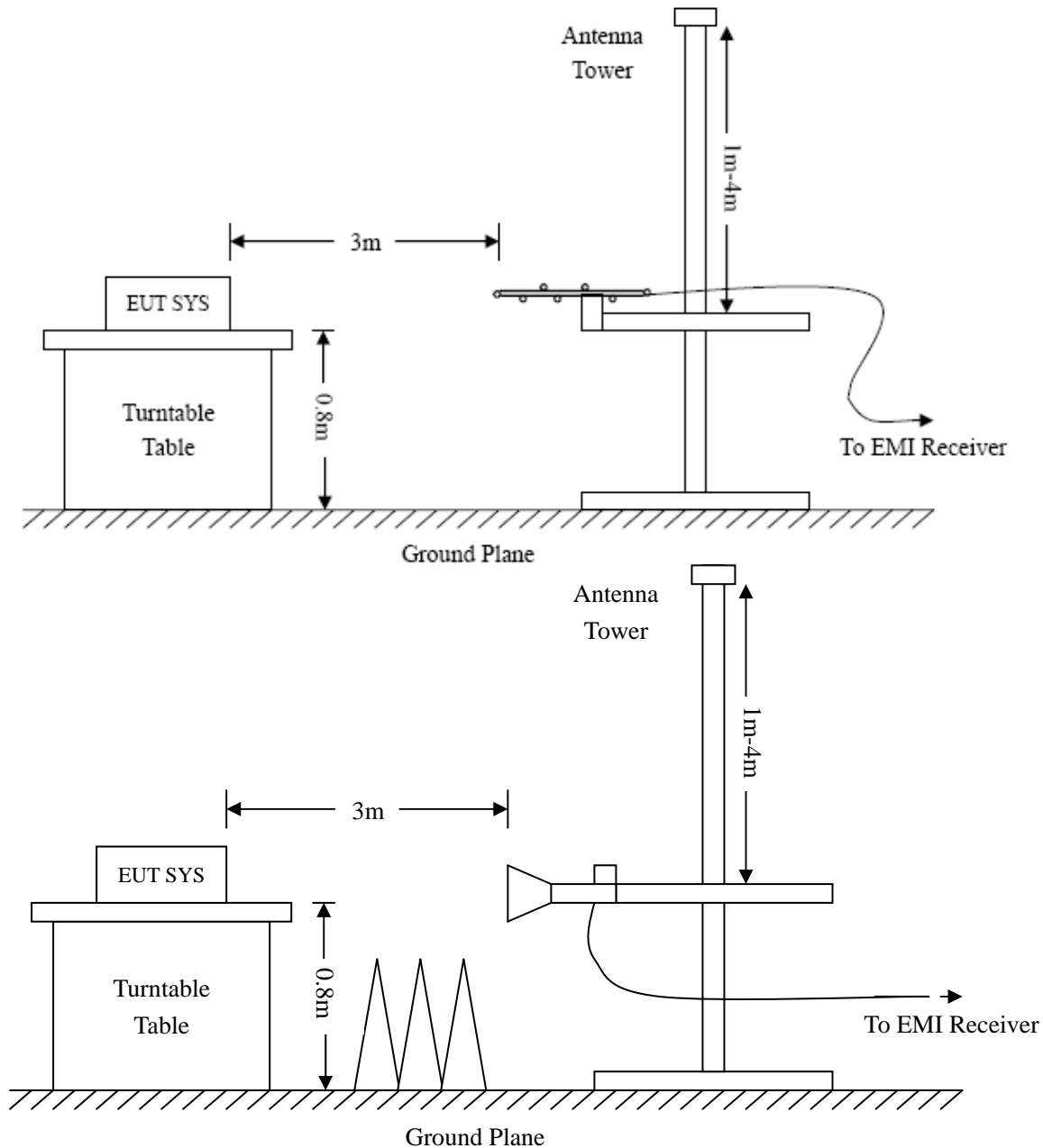
## 4. Radiated Emissions

### 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

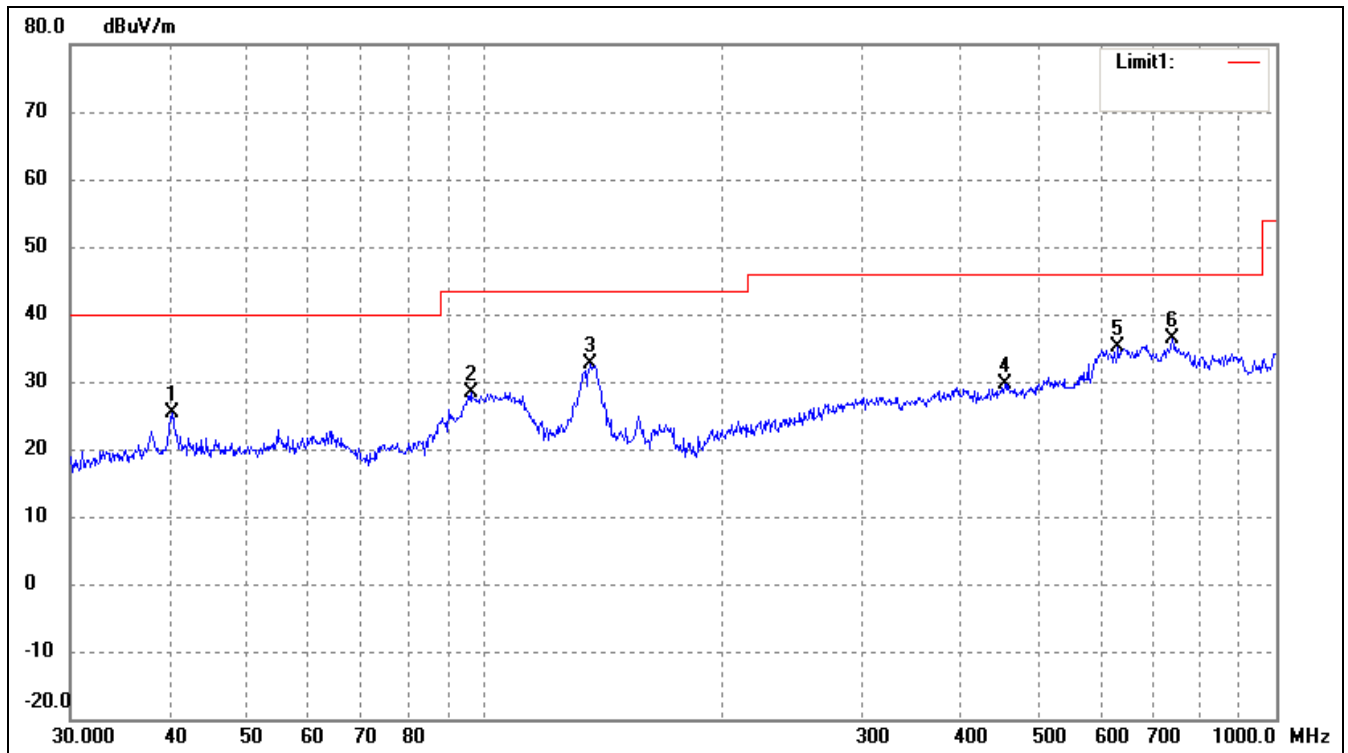
## 4.5 Summary of Test Results/Plots

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

**-2.07 dB at 135.9822 MHz in the Vertical polarization, TM3 Mode 30MHz to 6.5 GHz, 3Meters**

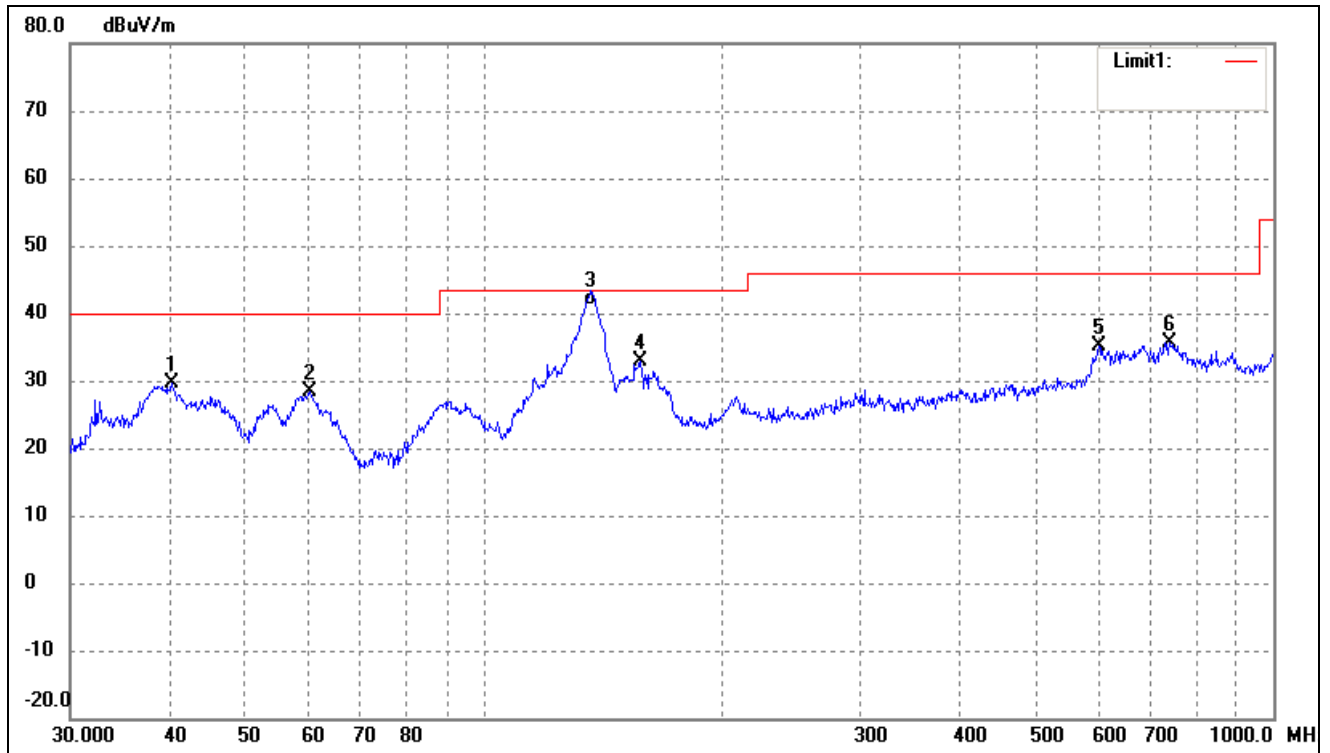
### Plot of Radiated Emissions Test Data

EUT: Smart Phone  
 Tested Model: X4.5i 3G  
 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	40.4172	20.08	5.25	25.33	40.00	-14.67	42	100	peak
2	96.0986	23.90	4.53	28.43	43.50	-15.07	132	100	peak
3	135.9822	28.90	3.73	32.63	43.50	-10.87	168	100	peak
4	454.3100	16.20	13.41	29.61	46.00	-16.39	0	100	peak
5	631.6884	16.74	18.33	35.07	46.00	-10.93	5	100	peak
6	739.6605	16.93	19.53	36.46	46.00	-9.54	175	100	peak

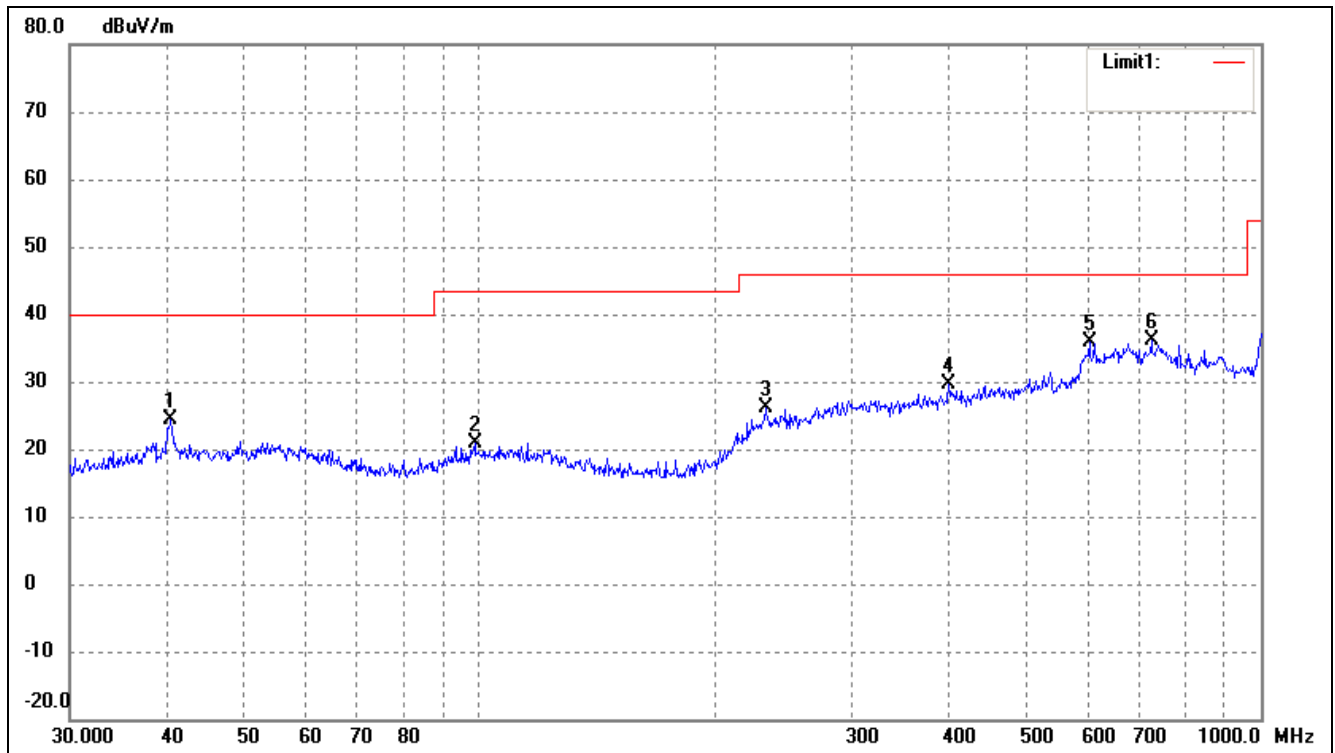
Test Specification: Vertical



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	40.4172	24.50	5.25	29.75	40.00	-10.25	59	100	peak
2	60.2801	22.95	5.32	28.27	40.00	-11.73	147	100	peak
3	136.9392	37.40	3.65	41.05	43.50	-2.45	236	100	peak
4	158.1123	30.18	2.68	32.86	43.50	-10.64	158	100	peak
5	601.4265	16.00	19.22	35.22	46.00	-10.78	180	100	peak
6	739.6605	16.19	19.53	35.72	46.00	-10.28	181	100	peak

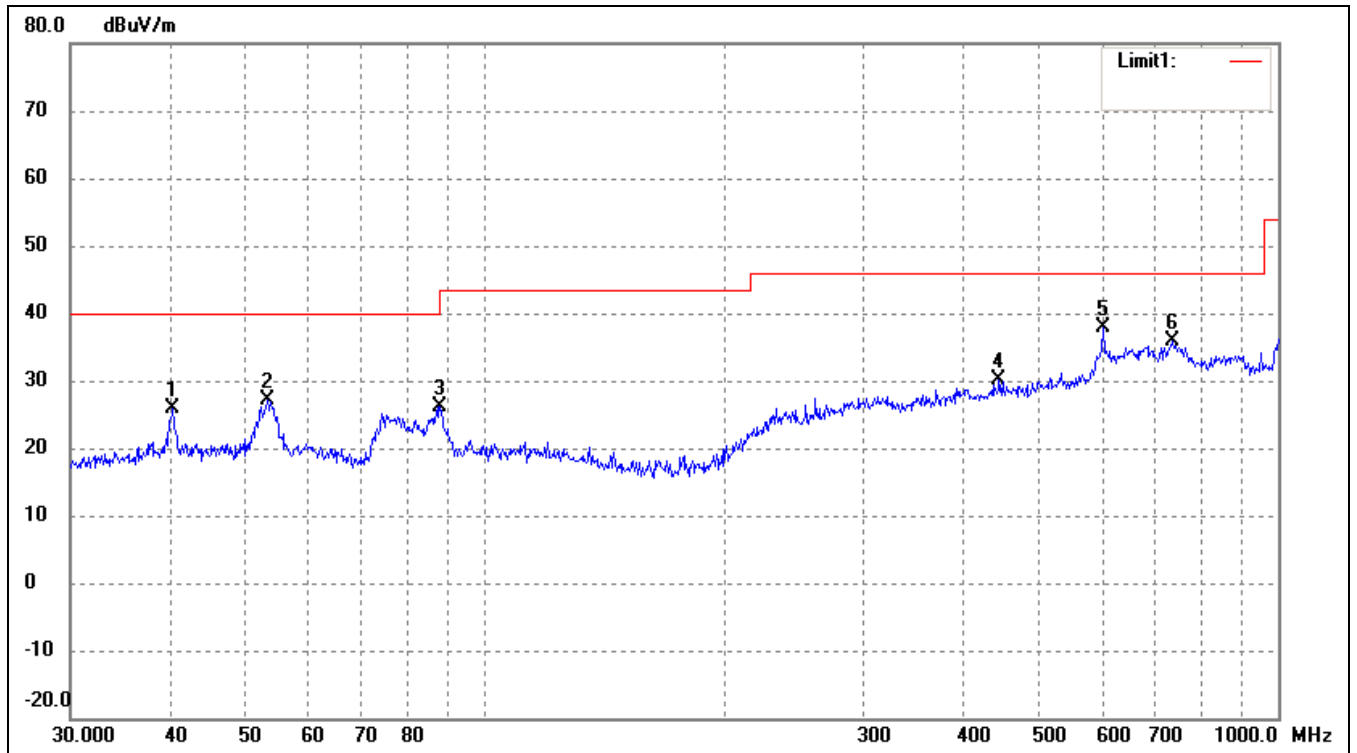
### Plot of Radiated Emissions Test Data

EUT: Smart Phone  
 Tested Model: X4.5i 3G  
 Operating Condition: TM2  
 Comment: 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	40.4172	19.15	5.25	24.40	40.00	-15.60	51	100	peak
2	98.8326	16.00	4.95	20.95	43.50	-22.55	124	100	peak
3	232.5318	17.19	8.87	26.06	46.00	-19.94	203	100	peak
4	399.0302	16.53	13.09	29.62	46.00	-16.38	86	100	peak
5	603.5392	16.70	19.06	35.76	46.00	-10.24	181	100	peak
6	724.2611	17.55	18.62	36.17	46.00	-9.83	21	100	peak

Test Specification: Vertical

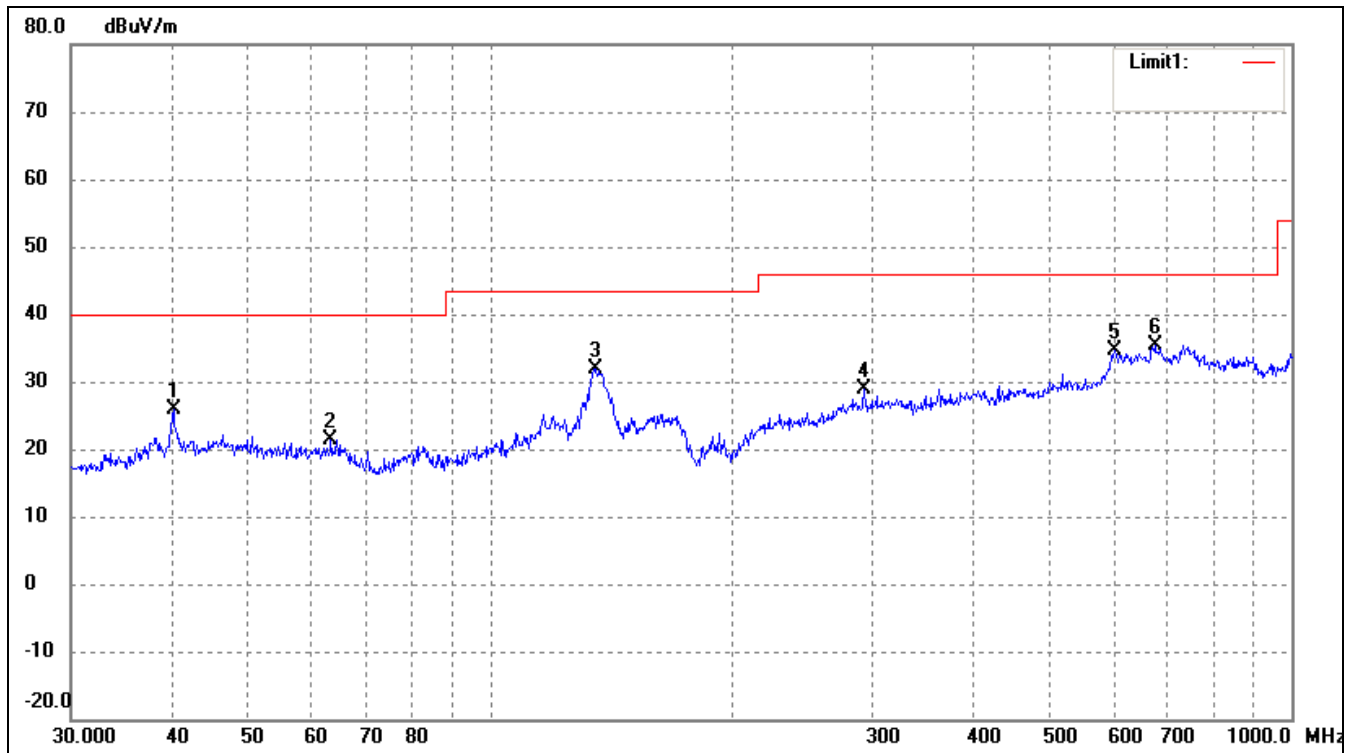


No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( ° )	Height (cm)	Remark
1	40.4172	20.63	5.25	25.88	40.00	-14.12	22	100	peak
2	53.1313	21.91	5.30	27.21	40.00	-12.79	146	100	peak
3	87.7248	23.00	3.25	26.25	40.00	-13.75	197	100	peak
4	444.8514	17.01	13.15	30.16	46.00	-15.84	375	100	peak
5	601.4265	18.77	19.22	37.99	46.00	-8.01	181	100	peak
6	737.0714	16.50	19.37	35.87	46.00	-10.13	175	100	peak



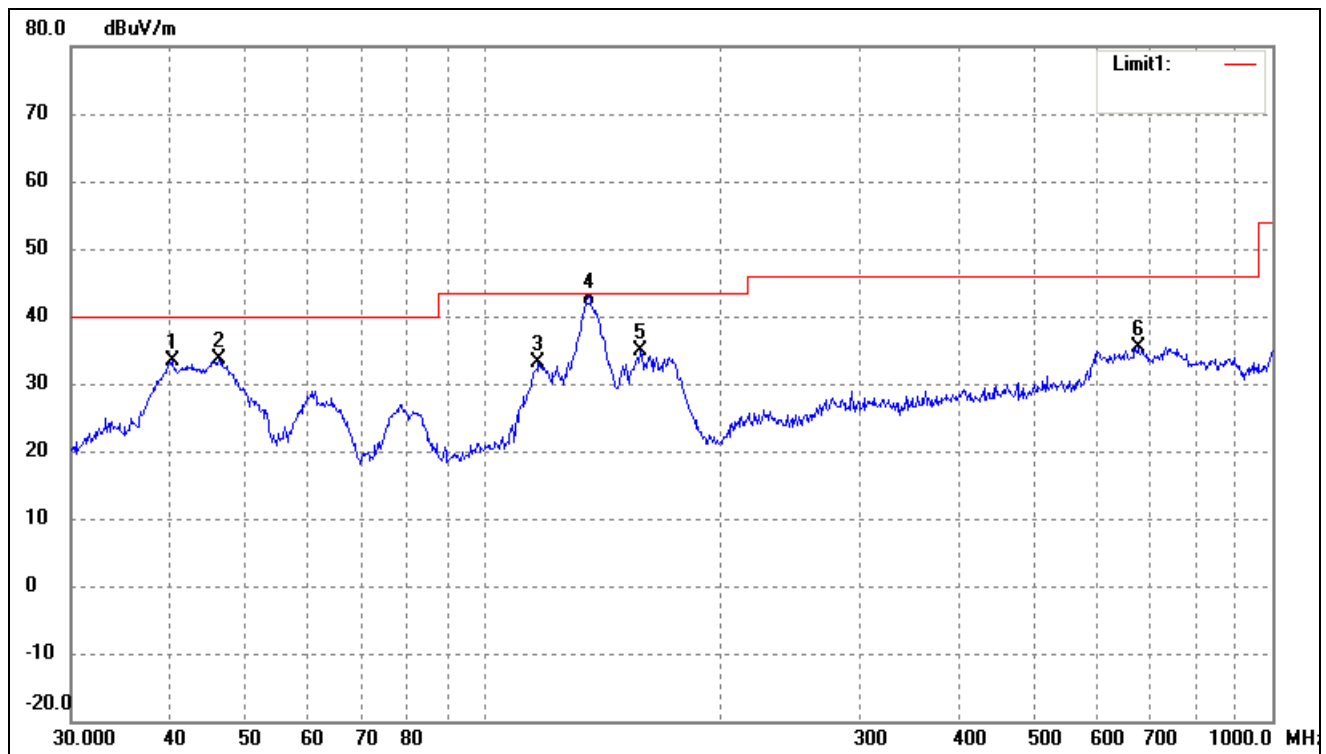
### Plot of Radiated Emissions Test Data

EUT: Smart Phone  
 Tested Model: X4.5i 3G  
 Operating Condition: TM3  
 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	40.2757	20.66	5.25	25.91	40.00	-14.09	158	100	peak
2	63.3132	16.78	4.65	21.43	40.00	-18.57	0	100	peak
3	135.5062	28.17	3.77	31.94	43.50	-11.56	147	100	peak
4	293.0842	16.93	11.90	28.83	46.00	-17.17	352	100	peak
5	601.4265	15.37	19.22	34.59	46.00	-11.41	355	100	peak
6	675.2080	16.40	18.99	35.39	46.00	-10.61	182	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	40.2757	28.06	5.25	33.31	40.00	-6.69	76	100	peak
2	46.1779	28.26	5.26	33.52	40.00	-6.48	288	100	peak
3	117.3602	28.14	5.03	33.17	43.50	-10.33	10	100	peak
4	135.9822	37.70	3.73	41.43	43.50	-2.07	11	100	peak
5	158.1123	32.12	2.68	34.80	43.50	-8.70	180	100	peak
6	675.2079	16.40	18.99	35.39	46.00	-10.61	355	100	peak

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

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