FCC Part 15B
Measurement and Test Report

For

Hyundai Corporation

25, Yulgok-ro 2-Gil, Jongno-gu, Seoul, South Korea

FCC ID: RQQHLT-FSL500B

Test Rule(s):	FCC Part 15 Subpart B
Product Description:	4G Smart Phone
Tested Model:	L500C
Report No.:	STR16108015I-6
Tested Date:	2016-10-09 to 2016-10-24
Issued Date:	2016-10-25
Tested By:	Iven Guo / Engineer
Reviewed By:	Silin Chen / EMC Manager
Approved & Authorized By:	Jandy So / PSQ Manager

Prepared By:

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TABLE OF CONTENTS

1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant:	Hyundai Corporation
Address of applicant:	25, Yulgok-ro 2-Gil, Jongno-gu, Seoul, South Korea
Manufacturer:	Shenzhen Fortuneship Technology Co., Ltd.
Address of manufacturer:	Room 701-716, 7th Floor, Kanghesheng Building, No.1 ChuangSheng Road, Nanshan District, Shenzhen, Guangdong, P. R. China

General Description of EUT	
Product Name:	4G Smart Phone
Brand Name:	/
Model No.:	L500C
Hardware version:	WW816 V0.6
Software version:	Android 6.0
Rated Voltage:	DC 3.7V
Battery Capacity:	2200mAh
Note: The test data is gathered from a production sample, provided by the manufacturer.	

Technical Characteristics of EUT	
Rated Voltage:	DC 3.7V
Battery Capacity:	2200mAh
Rated Power:	/
Power Adapter Model:	/
Lowest Internal Frequency:	32.768kHz
Highest Internal Frequency:	1.5GHz

1.2 Test Standards

The following report is prepared on behalf of the Hyundai 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 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	/
TM2	Downloading	/
TM3	Charging + Camera	/

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	±2.88dB
Transmitter Spurious Emissions	Radiated	±5.1dB

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

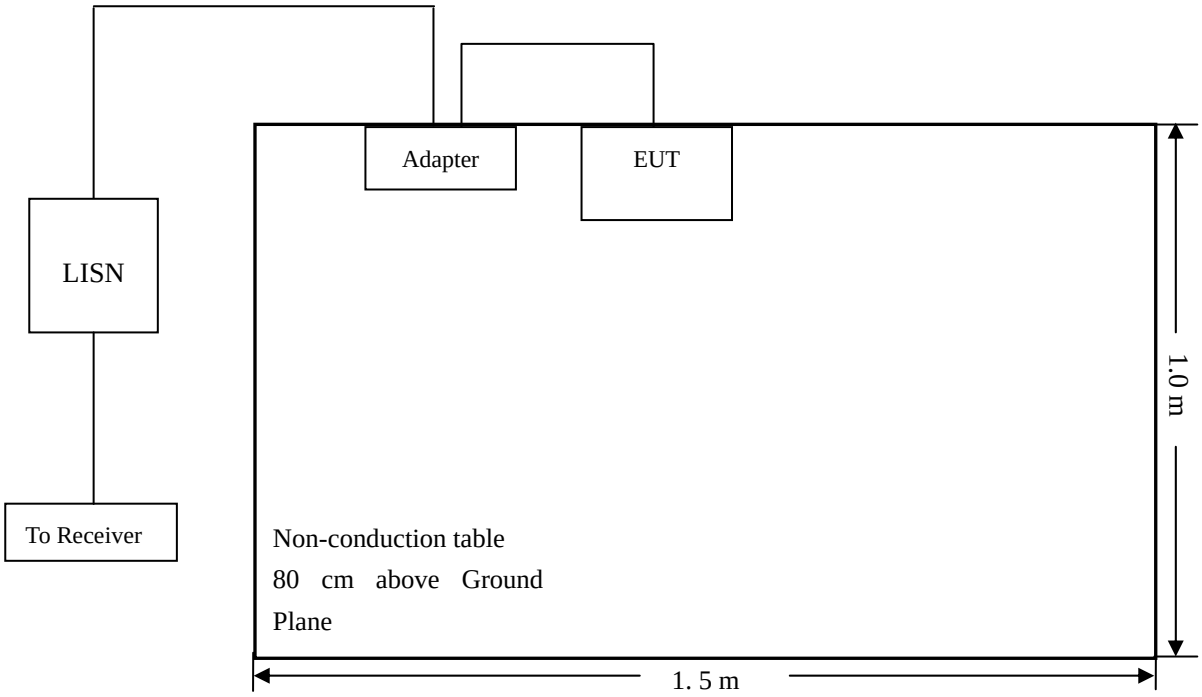
N/A: not applicable

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

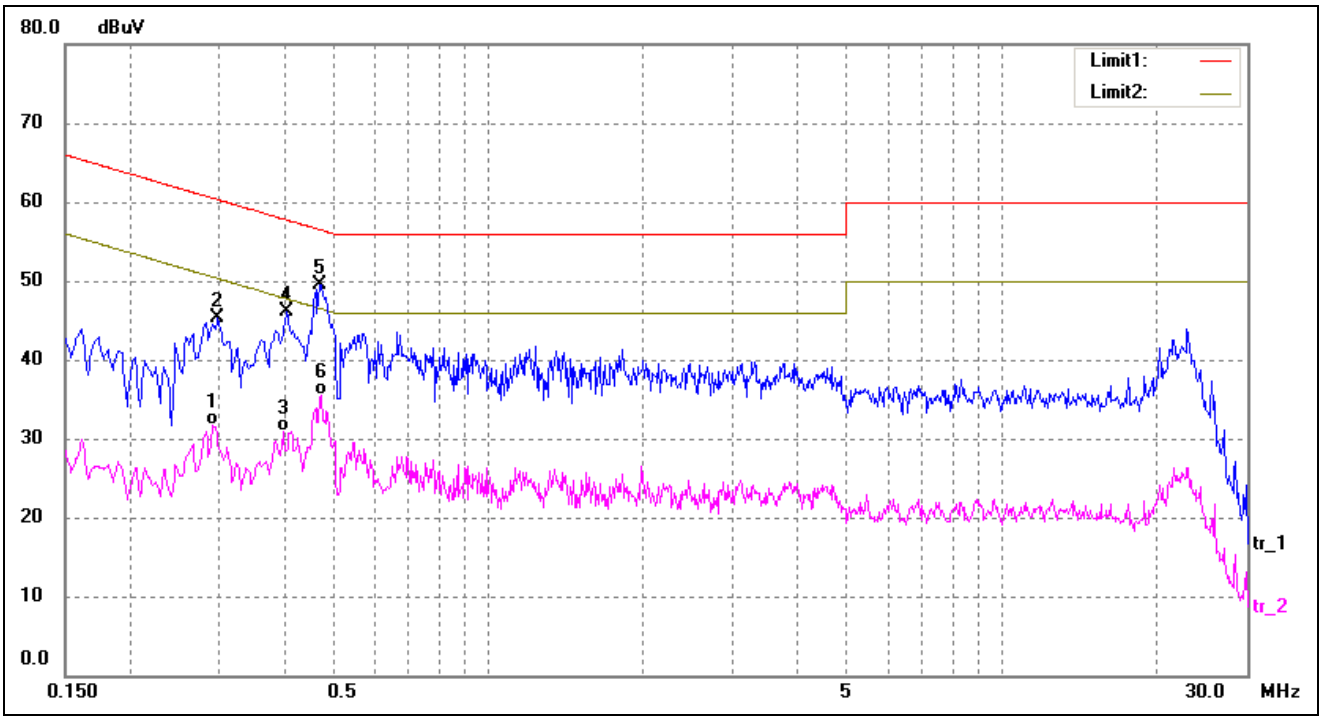
-2.93 dB at **0.4580 MHz** in the **Line**, **Peak** detector, 0.15-30MHz, TM1 mode

3.5 Conducted Emissions Test Data

Plot of Conducted Emissions Test Data

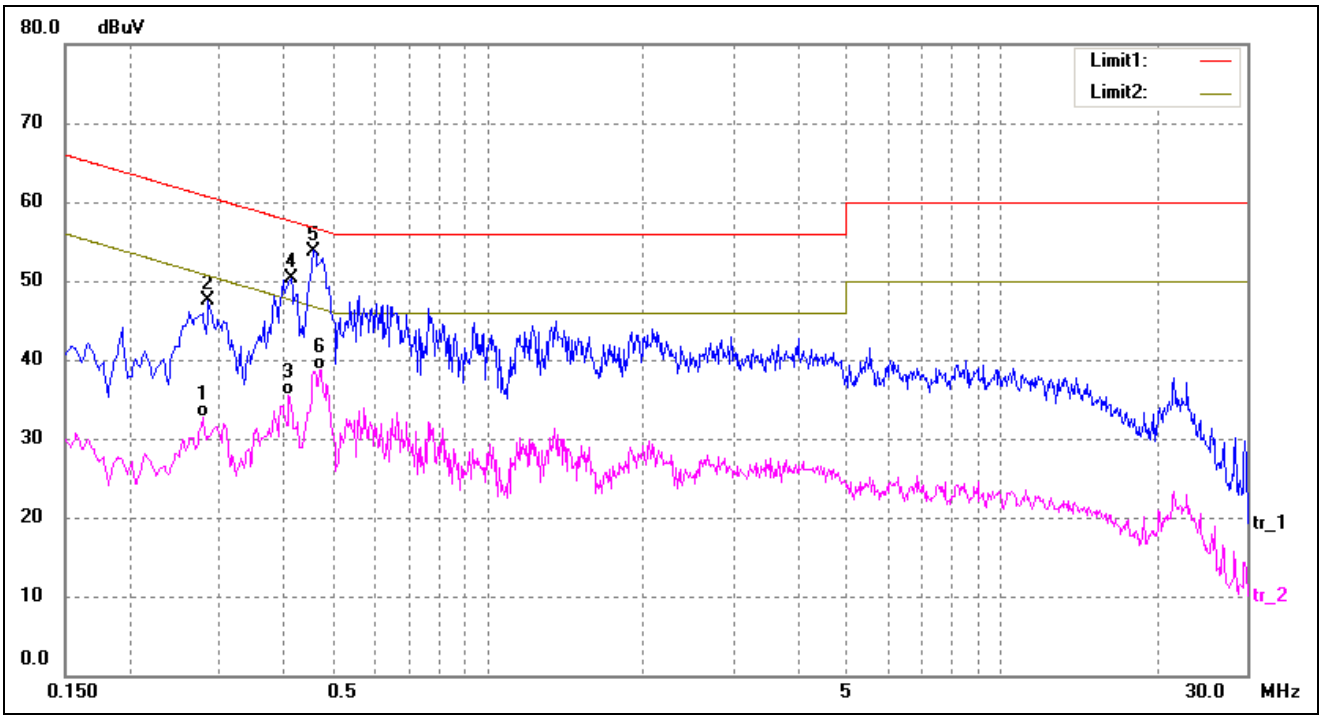
EUT: *4G Smart Phone*
Tested Model: *L500C*
Operating Condition: *TM1*
Comment: *AC 120V/60Hz; Adapter DC 5V*

Test Specification: *Neutral*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1	0.2900	21.85	9.80	31.65	50.52	-18.87	AVG
2	0.2980	35.56	9.80	45.36	60.30	-14.94	peak
3	0.3980	21.16	9.80	30.96	47.90	-16.94	AVG
4	0.4060	36.25	9.80	46.05	57.73	-11.68	peak
5*	0.4700	39.71	9.80	49.51	56.51	-7.00	peak
6	0.4740	25.67	9.80	35.47	46.44	-10.97	AVG

Test Specification: *Line*

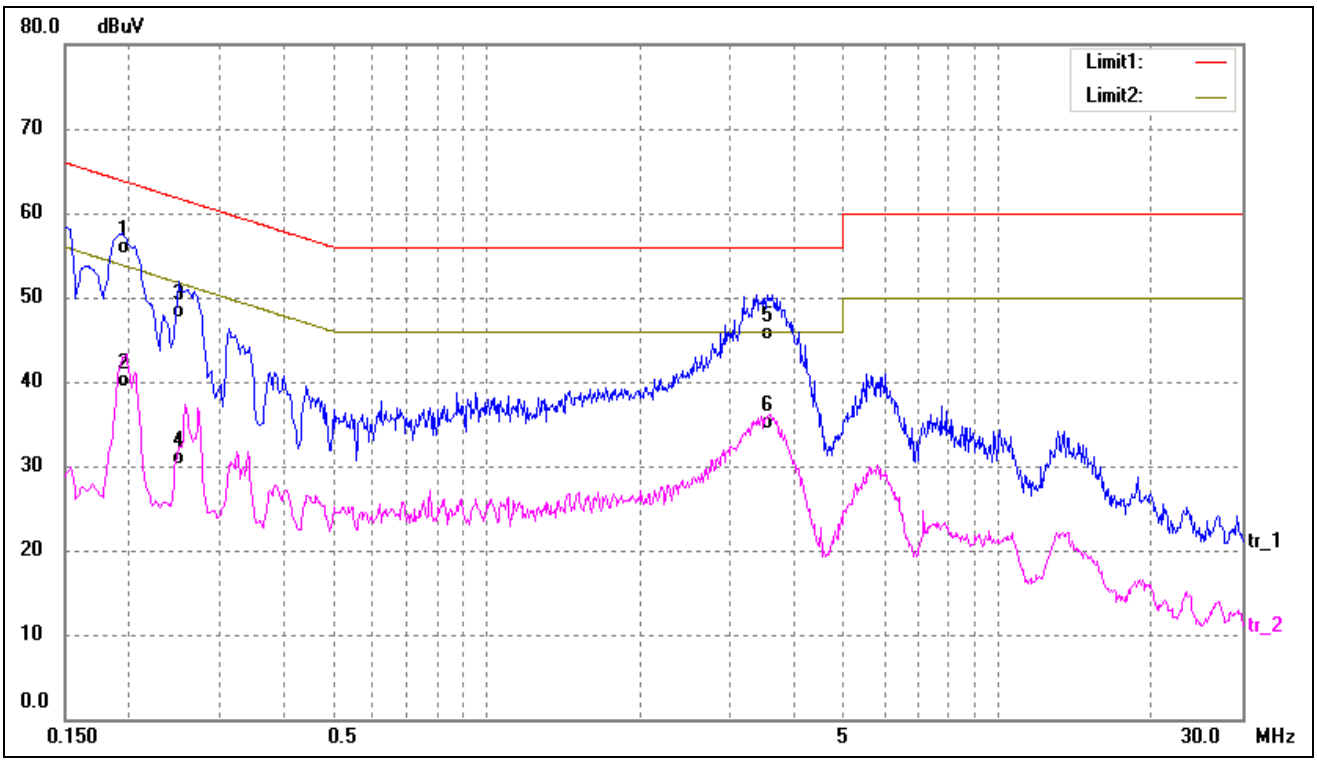


No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1	0.2780	22.94	9.80	32.74	50.88	-18.14	AVG
2	0.2860	37.67	9.80	47.47	60.64	-13.17	peak
3	0.4100	25.75	9.80	35.55	47.65	-12.10	AVG
4	0.4140	40.52	9.80	50.32	57.57	-7.25	peak
5*	0.4580	44.00	9.80	53.80	56.73	-2.93	peak
6	0.4700	28.87	9.80	38.67	46.51	-7.84	AVG

Plot of Conducted Emissions Test Data

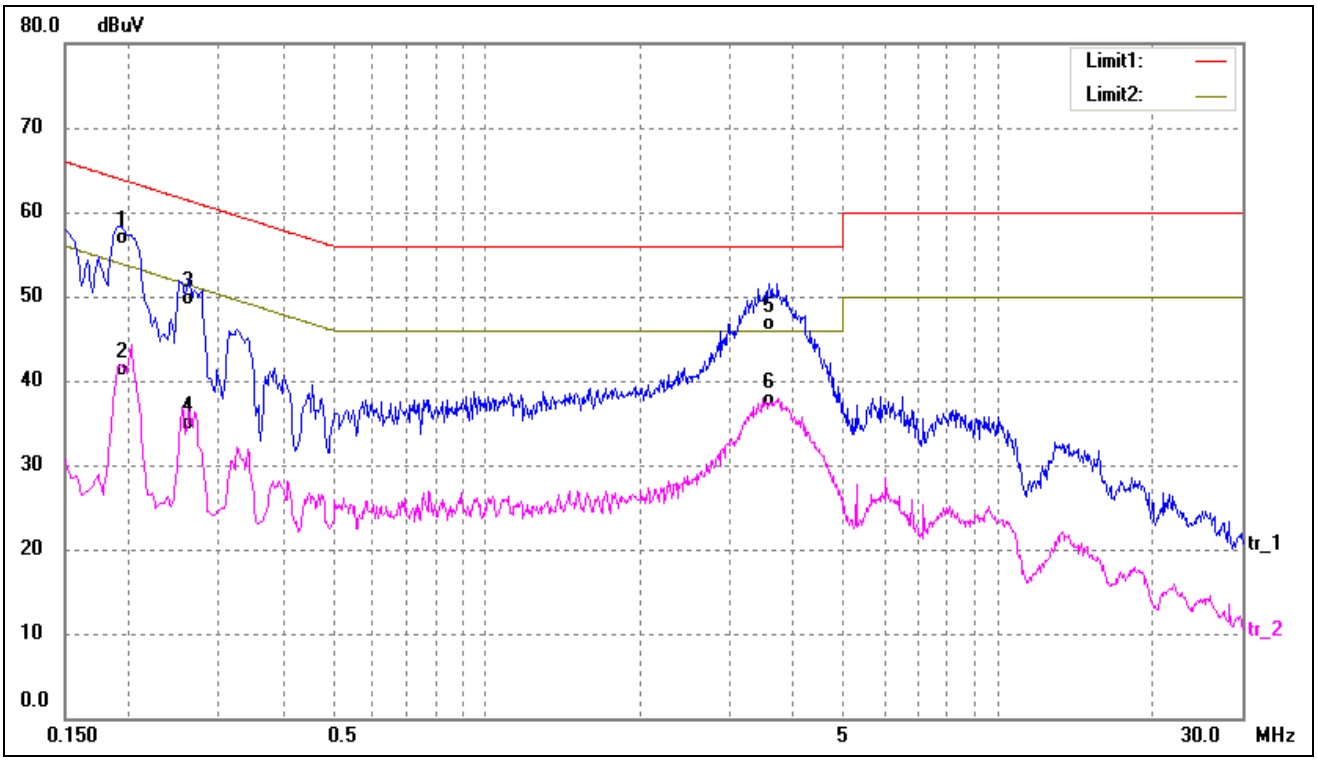
EUT: *4G Smart Phone*
Tested Model: *L500C*
Operating Condition: *TM1*
Comment: *AC 120V/60Hz; USB 5V*

Test Specification: *Neutral*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1*	0.1940	42.52	12.50	55.02	63.86	-8.84	QP
2	0.1940	26.78	12.50	39.28	53.86	-14.58	AVG
3	0.2500	35.08	12.50	47.58	61.76	-14.18	QP
4	0.2500	17.59	12.50	30.09	51.76	-21.67	AVG
5	3.5300	31.87	13.00	44.87	56.00	-11.13	QP
6	3.5300	21.34	13.00	34.34	46.00	-11.66	AVG

Test Specification: *Line*

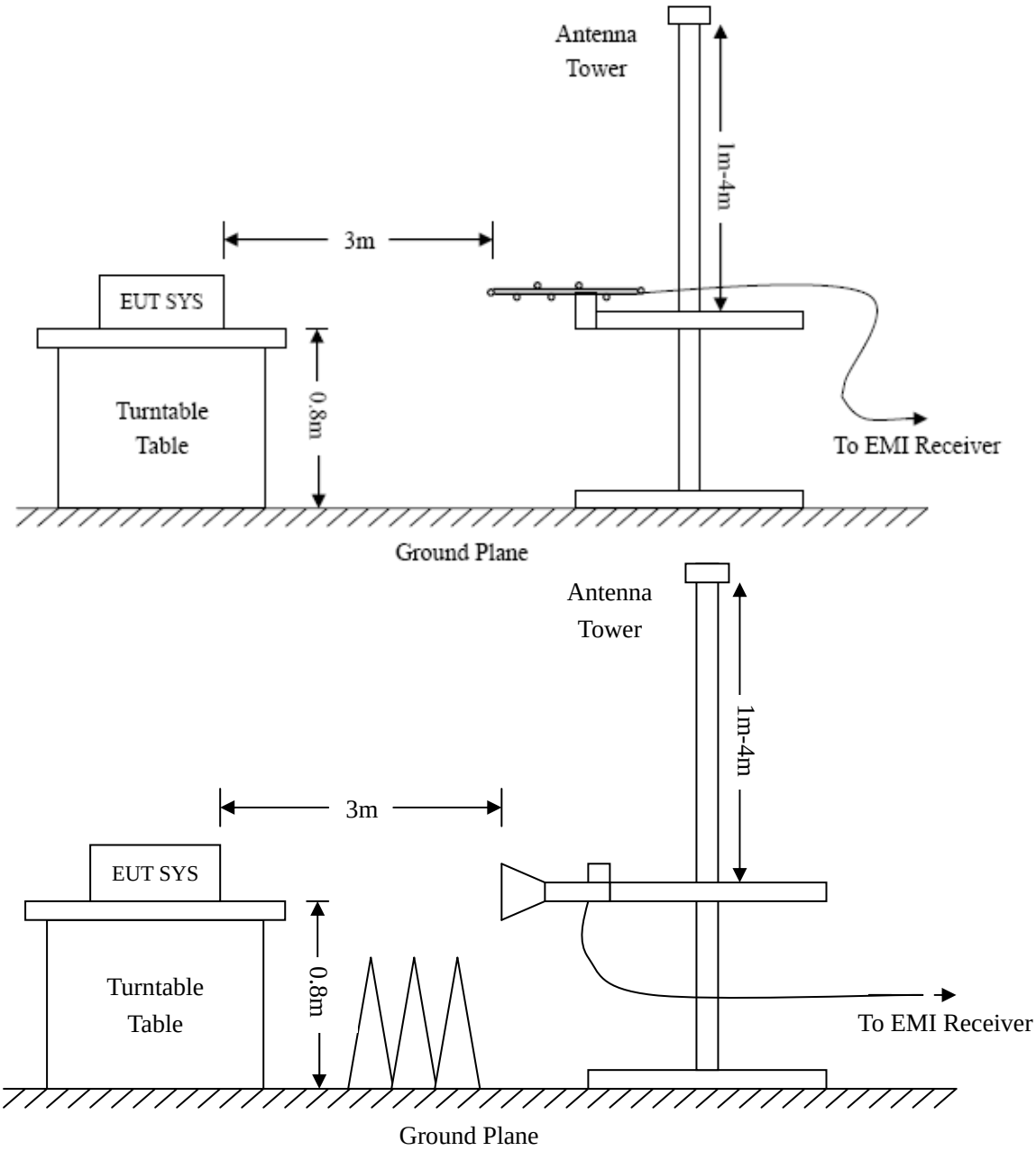


No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1*	0.1940	43.53	12.50	56.03	63.86	-7.83	QP
2	0.1940	27.93	12.50	40.43	53.86	-13.43	AVG
3	0.2620	36.35	12.50	48.85	61.37	-12.52	QP
4	0.2620	21.64	12.50	34.14	51.37	-17.23	AVG
5	3.5820	32.89	13.00	45.89	56.00	-10.11	QP
6	3.5820	23.85	13.00	36.85	46.00	-9.15	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	Frequency :30MHz-1GHz	Frequency :Above 1GHz
RBW=10KHz,	RBW=120KHz,	RBW=1MHz,
VBW =30KHz	VBW=300KHz	VBW=3MHz(Peak), 10Hz(AV)
Sweep time= Auto	Sweep time= Auto	Sweep time= Auto
Trace = max hold	Trace = max hold	Trace = max hold
Detector function = peak	Detector function = peak, QP	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:

Corr. Ampl. = Indicated Reading – Corr. Factor

The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -6dBμV means the emission is 6dBμV below the maximum limit for a Class B device. The equation for margin calculation is as follows:

Margin = Corr. Ampl. – 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

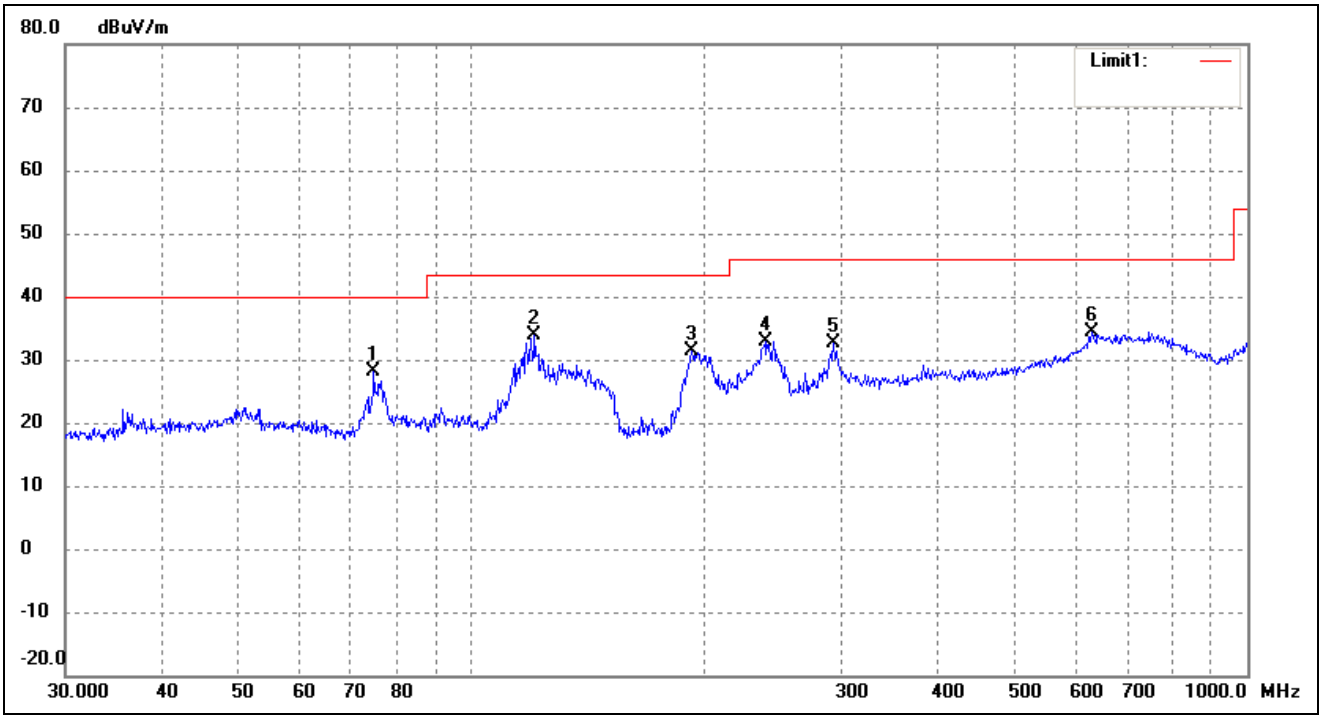
According to the data, the EUT complied with the FCC Part 15.109(a) rule, and had the worst margin of:

-1.23 dB at **121.1231 MHz** in the **Vertical** polarization, **TM3** Mode, **30MHz** to **6.5 GHz**, **3Meters**

Plot of Radiated Emissions Test Data

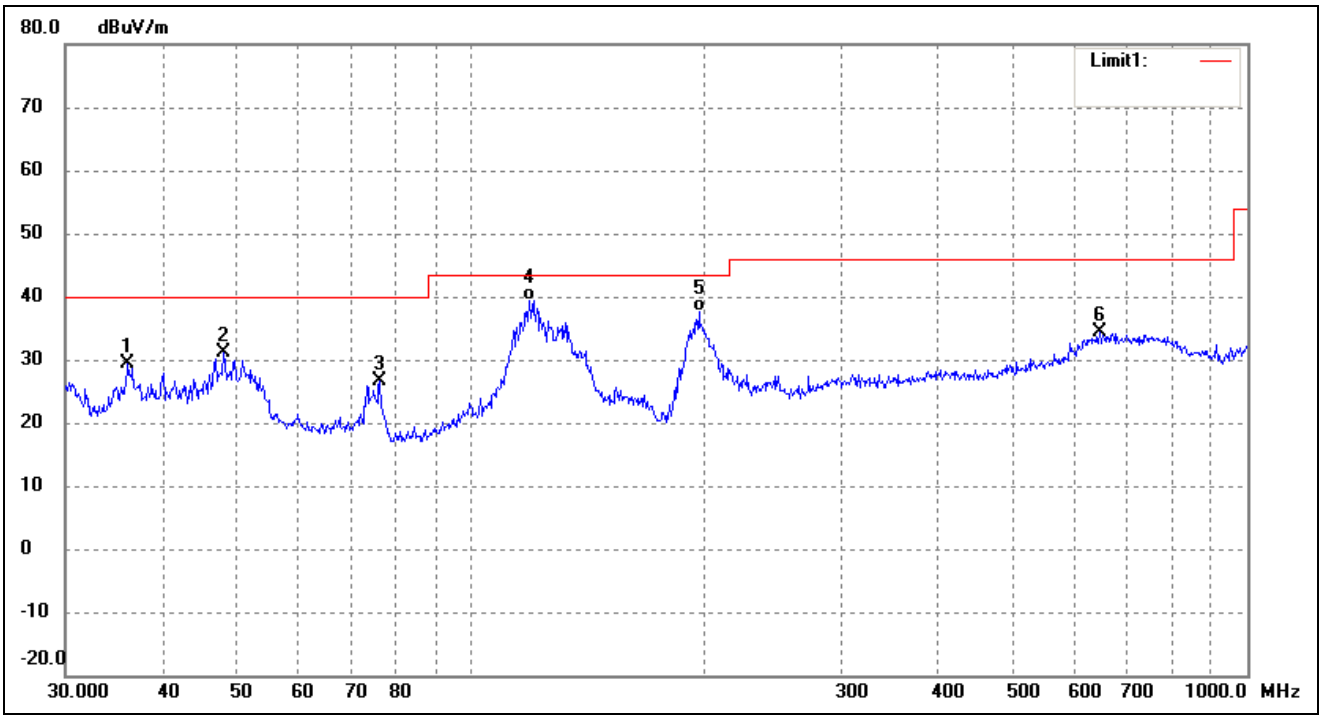
EUT: *4G Smart Phone*
Tested Model: *L500C*
Operating Condition: *TM1*
Comment: *AC 120V/60Hz; Adapter DC 5V*

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	74.9191	25.75	2.31	28.06	40.00	-11.94	0	100	peak
2	120.6991	29.17	4.76	33.93	43.50	-9.57	0	100	peak
3	192.4186	28.41	3.01	31.42	43.50	-12.08	0	100	peak
4	239.1473	23.98	8.87	32.85	46.00	-13.15	0	100	peak
5	293.0842	20.84	11.69	32.53	46.00	-13.47	0	100	peak
6	629.4772	16.73	17.70	34.43	46.00	-11.57	0	100	peak

Test Specification: *Vertical*

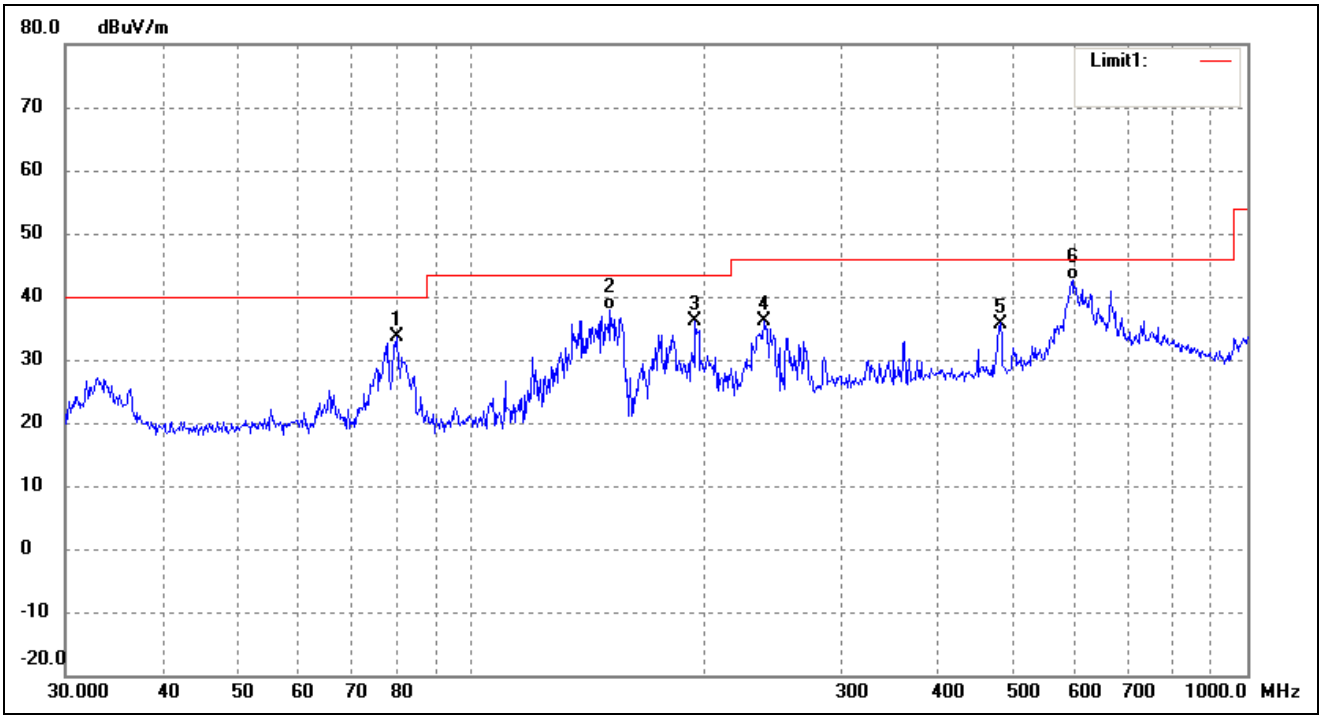


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	36.1272	25.03	4.35	29.38	40.00	-10.62	0	100	peak
2	47.9940	26.17	4.96	31.13	40.00	-8.87	0	100	peak
3	76.2442	24.42	2.15	26.57	40.00	-13.43	0	100	peak
4	119.0180	34.57	4.82	39.39	43.50	-4.11	0	100	QP
5	196.5098	34.34	3.20	37.54	43.50	-5.96	0	100	QP
6	645.1195	16.40	17.94	34.34	46.00	-11.66	0	100	peak

Plot of Radiated Emissions Test Data

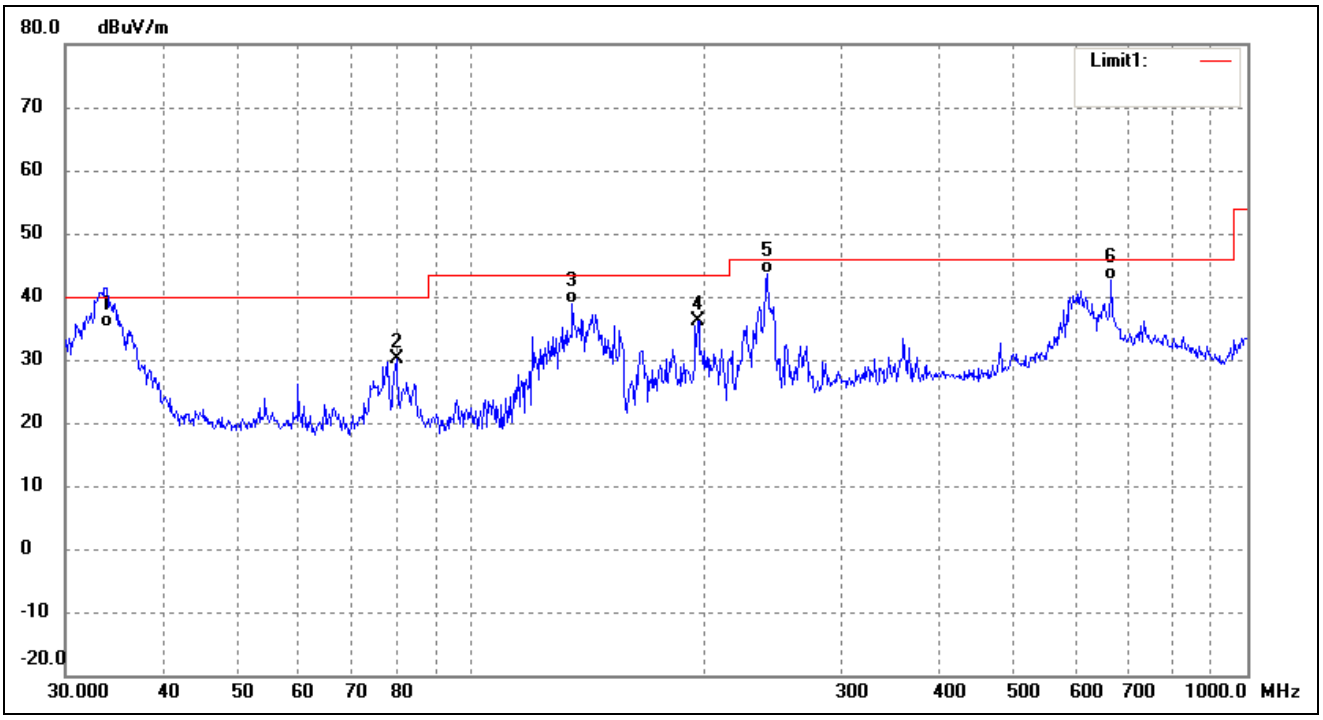
EUT: *4G Smart Phone*
Tested Model: *L500C*
Operating Condition: *TM2*
Comment: *AC 120V/60Hz; USB 5V*

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	80.0806	31.87	1.73	33.60	40.00	-6.40	0	100	peak
2	151.0666	35.13	2.72	37.85	43.50	-5.65	0	100	QP
3	194.4534	33.00	3.10	36.10	43.50	-7.40	0	100	peak
4	238.3102	27.31	8.83	36.14	46.00	-9.86	0	100	peak
5	480.5276	23.17	12.58	35.75	46.00	-10.25	0	100	peak
6	595.1329	24.81	17.85	42.66	46.00	-3.34	0	100	QP

Test Specification: *Vertical*

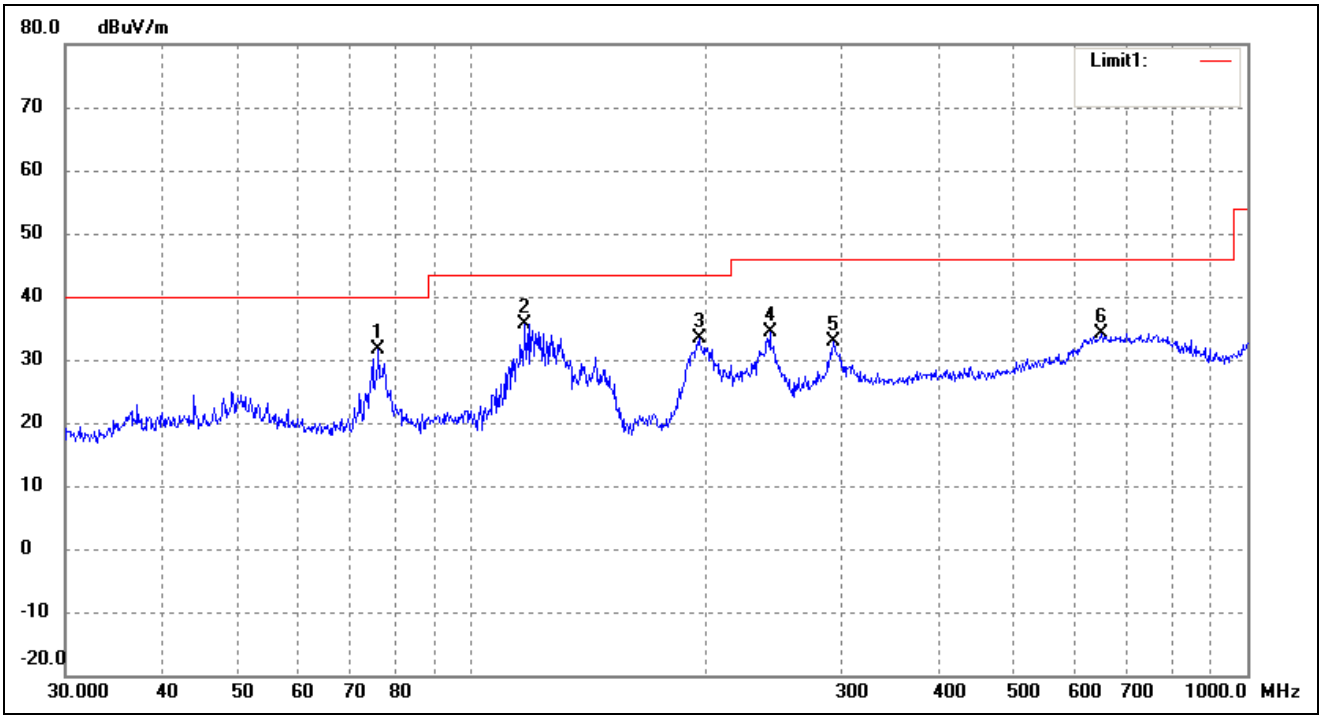


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	33.9174	31.20	4.01	35.21	40.00	-4.79	0	100	QP
2	80.0806	28.40	1.73	30.13	40.00	-9.87	0	100	peak
3	135.0319	35.42	3.56	38.98	43.50	-4.52	0	100	QP
4	195.8220	32.95	3.16	36.11	43.50	-7.39	0	100	peak
5	240.8304	34.57	8.96	43.53	46.00	-2.47	0	100	QP
6	668.1423	24.69	18.03	42.72	46.00	-3.28	0	100	QP

Plot of Radiated Emissions Test Data

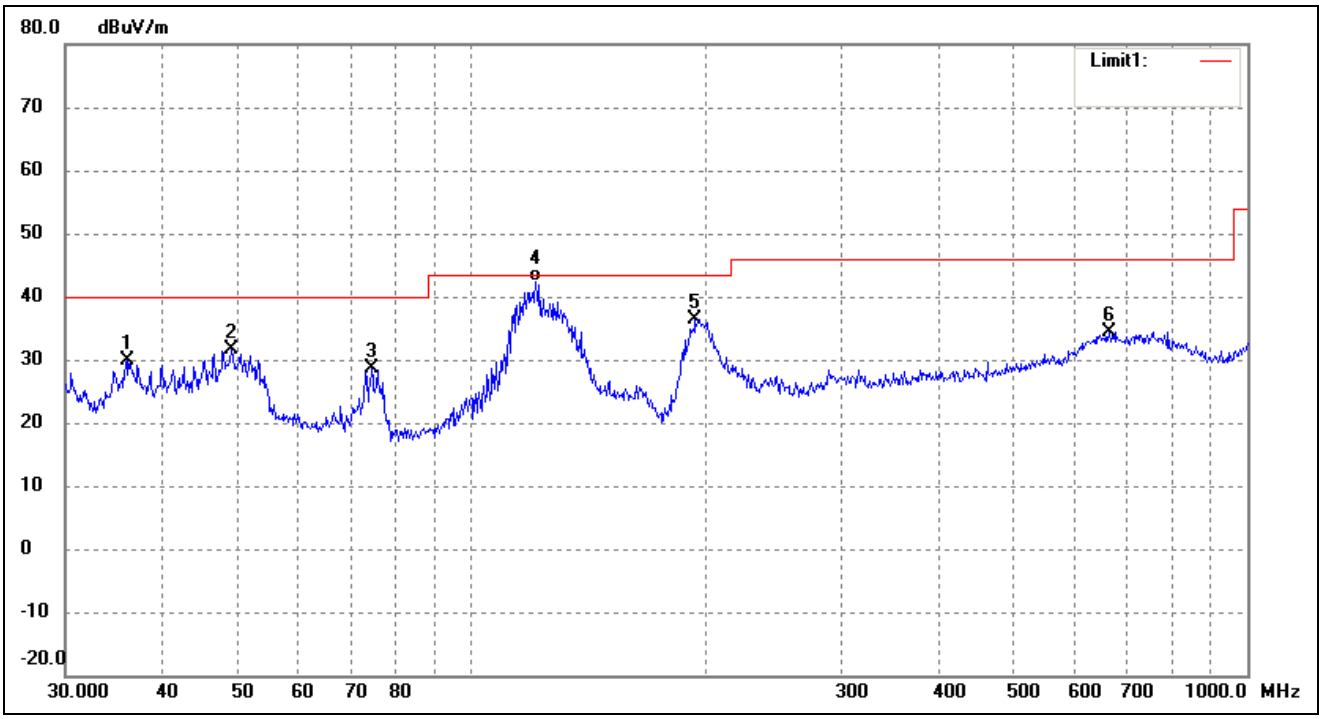
EUT: *4G Smart Phone*
Tested Model: *L500C*
Operating Condition: *TM3*
Comment: *AC 120V/60Hz; Adapter DC 5V*

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	75.9773	29.47	2.18	31.65	40.00	-8.35	0	100	peak
2	117.3603	30.83	4.83	35.66	43.50	-7.84	0	100	peak
3	196.5098	30.09	3.20	33.29	43.50	-10.21	0	100	peak
4	242.5253	25.33	9.03	34.36	46.00	-11.64	0	100	peak
5	293.0842	21.11	11.69	32.80	46.00	-13.20	0	100	peak
6	649.6597	16.34	17.84	34.18	46.00	-11.82	0	100	peak

Test Specification: *Vertical*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	36.0007	25.57	4.33	29.90	40.00	-10.10	0	100	peak
2	49.1866	26.59	4.97	31.56	40.00	-8.44	0	100	peak
3	74.3955	26.26	2.36	28.62	40.00	-11.38	0	100	peak
4	121.1231	37.55	4.72	42.27	43.50	-1.23	0	100	QP
5	194.4534	33.26	3.10	36.36	43.50	-7.14	0	100	peak
6	663.4729	16.73	17.76	34.49	46.00	-11.51	0	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 *******