FCC Part 15B
Measurement and Test Report

For

SENWA MEXICO,S.A.DE C.V

Av.Javier Barros Sierra 540,Torre I,Planta 5; COL.LOMAS DE SANTA FE

DELEGACION ALVARO OBREGON Mexico

FCC ID: 2AAA6-S301

Test Rule(s):	FCC Part 15 Subpart B
Product Description:	Mobile Phone
Tested Model:	S301
Report No.:	STR16018050I-3
Tested Date:	2016-01-13 to 2016-01-26
Issued Date:	2016-01-27
Tested By:	Irving Liu / Engineer
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1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant:	SENWA MEXICO,S.A.DE C.V
Address of applicant:	Av.Javier Barros Sierra 540,Torre I,Planta 5; COL.LOMAS DE SANTA FE DELEGACION ALVARO OBREGON Mexico
Manufacturer:	GPLUS.TELECOM CO.,LIMITED
Address of manufacturer:	Office:Room 505-507,East Science And Technology Building, Keyuan Road Science And Technology Park,Nanshan, Shenzhen.

General Description of EUT	
Product Name:	Mobile Phone
Trade Name:	SENWA
Model No.:	S301
Adapter Model:	S301
	INPUT:100-240V,50/60Hz; OUTPUT:5V, 1.5A
Hardware version:	F9_MB_V1.7_20150417
Software version:	SENWA_S301_Ver1.0
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 Capacity:	1000mAh
Lowest Internal Frequency:	26MHz
Highest Internal Frequency:	312MHz
Classification of ITE:	Class B

1.2 Test Standards

The following report is prepared on behalf of the SENWA MEXICO,S.A.DE C.V 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	Charging & Camera	/

EUT Cable List and Details

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

Auxiliary Equipment List and Details

Description	Manufacturer	Model	Serial Number
Notebook	Lenovo	E10	LR-63C8R
USB Cable	1.0	shielded	Without Ferrite

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
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

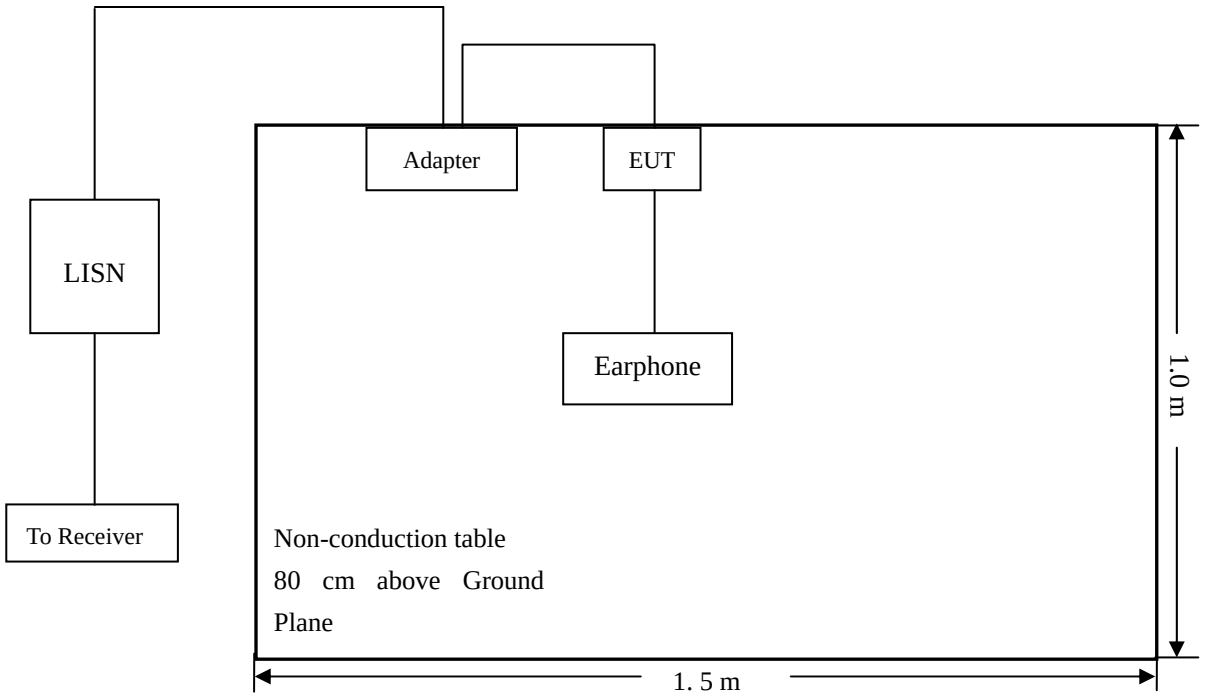
3.1 Measurement Uncertainty

Base on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement is ± 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:

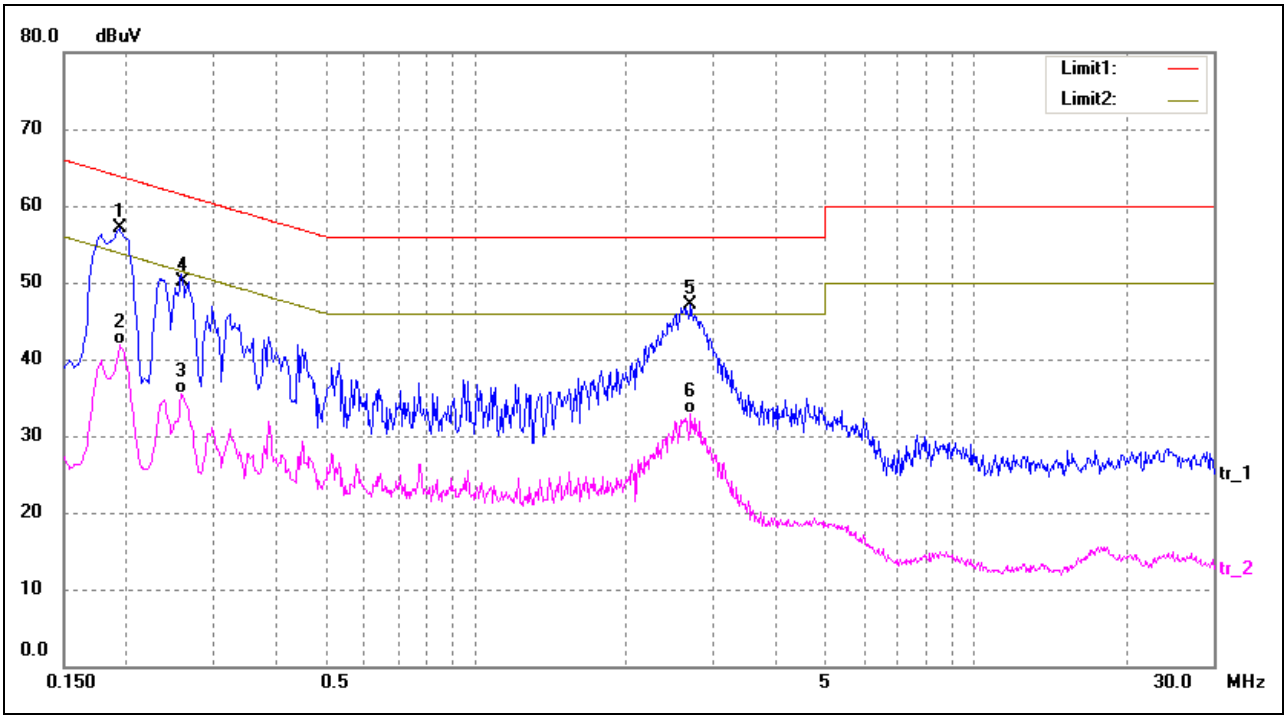
-4.76 dB at **0.4740 MHz** in the **Line, TM3, Peak** detector, 0.15-30MHz

3.6 Conducted Emissions Test Data

Plot of Conducted Emissions Test Data

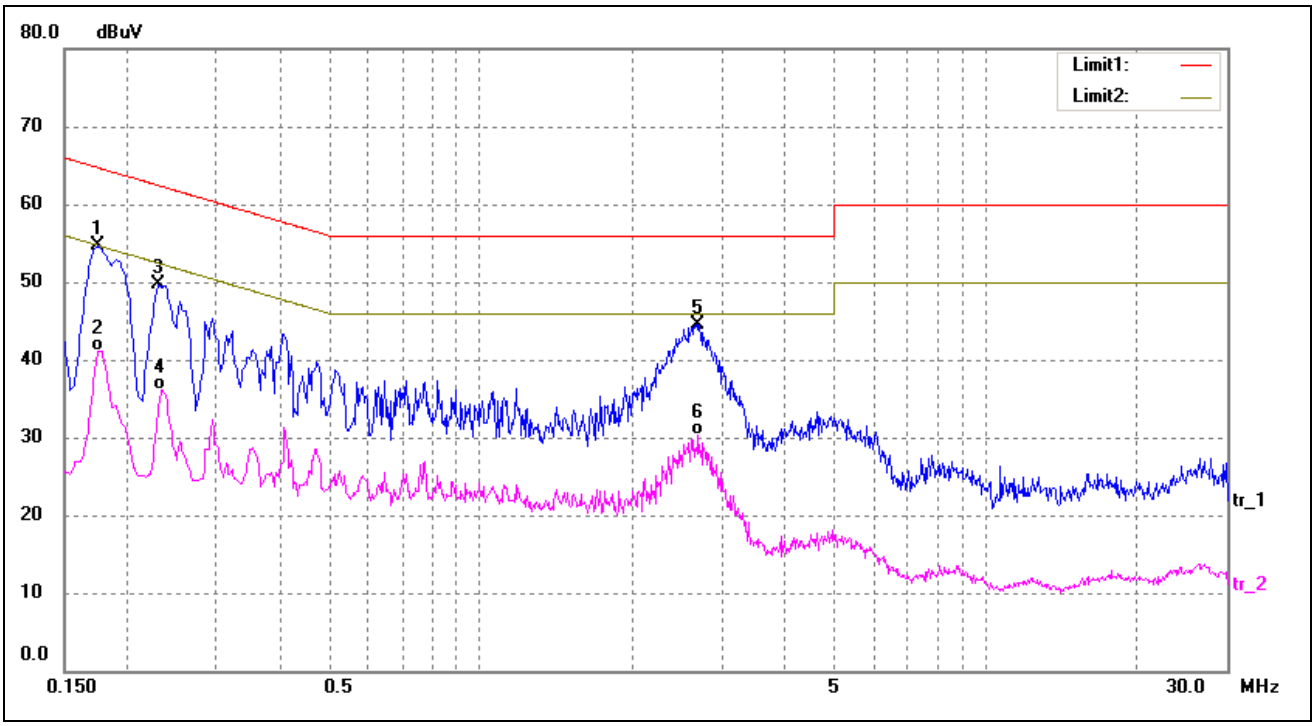
EUT: *Mobile Phone*
Tested Model: *S301*
Operating Condition: *TM1*
Comment: *AC 120V/60Hz; Adapter DC 5V*

Test Specification: *Neutral*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1*	0.1940	44.65	12.50	57.15	63.86	-6.71	peak
2	0.1940	29.36	12.50	41.86	53.86	-12.00	AVG
3	0.2580	23.05	12.50	35.55	51.50	-15.95	AVG
4	0.2589	37.61	12.50	50.11	61.47	-11.36	peak
5	2.6980	34.10	13.00	47.10	56.00	-8.90	peak
6	2.6980	19.91	13.00	32.91	46.00	-13.09	AVG

Test Specification: *Line*

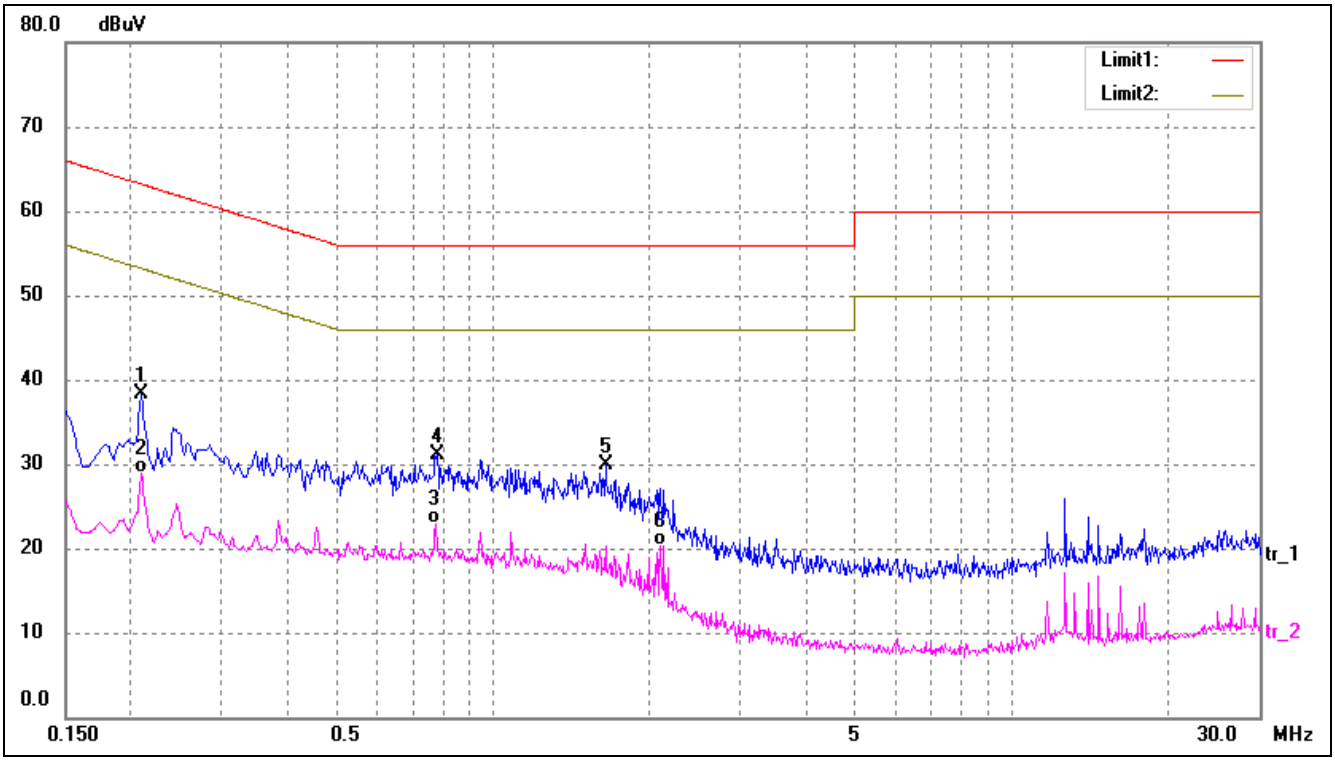


No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1*	0.1740	42.26	12.50	54.76	64.77	-10.01	peak
2	0.1740	28.61	12.50	41.11	54.77	-13.66	AVG
3	0.2300	37.21	12.50	49.71	62.45	-12.74	peak
4	0.2340	23.54	12.50	36.04	52.31	-16.27	AVG
5	2.6980	31.59	13.00	44.59	56.00	-11.41	peak
6	2.6980	17.33	13.00	30.33	46.00	-15.67	AVG

Plot of Conducted Emissions Test Data

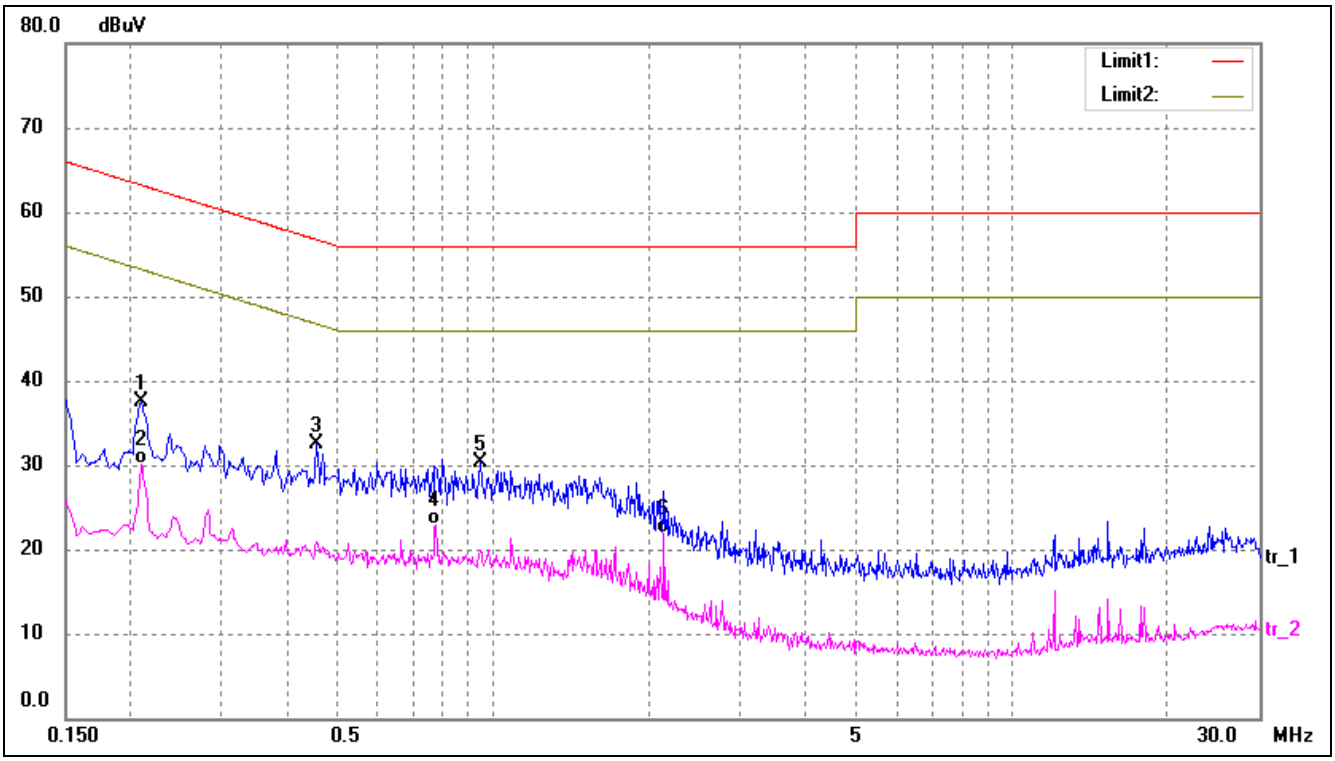
EUT: *Mobile Phone*
Tested Model: *S301*
Operating Condition: *TM2*
Comment: *AC 120V/60Hz; USB 5V*

Test Specification: *Neutral*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1	0.2100	28.71	9.50	38.21	63.21	-25.00	peak
2	0.2100	19.46	9.50	28.96	53.21	-24.25	AVG
3	0.7780	13.07	9.78	22.85	46.00	-23.15	AVG
4	0.7820	21.38	9.78	31.16	56.00	-24.84	peak
5	1.6460	19.94	10.00	29.94	56.00	-26.06	peak
6	2.1020	10.38	10.00	20.38	46.00	-25.62	AVG

Test Specification: *Line*

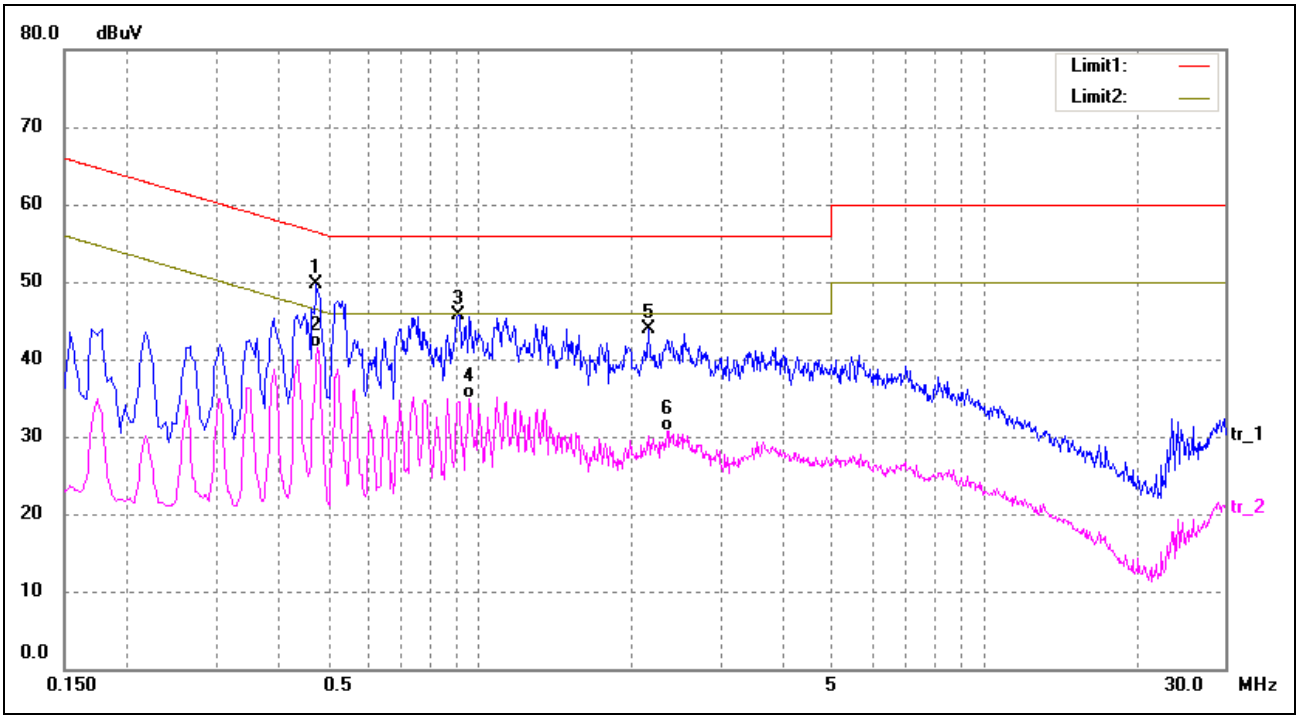


No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1	0.2100	28.06	9.50	37.56	63.21	-25.65	peak
2	0.2100	20.63	9.50	30.13	53.21	-23.08	AVG
3	0.4580	23.00	9.50	32.50	56.73	-24.23	peak
4	0.7780	13.06	9.78	22.84	46.00	-23.16	AVG
5	0.9460	20.28	9.95	30.23	56.00	-25.77	peak
6	2.1380	11.81	10.00	21.81	46.00	-24.19	AVG

Plot of Conducted Emissions Test Data

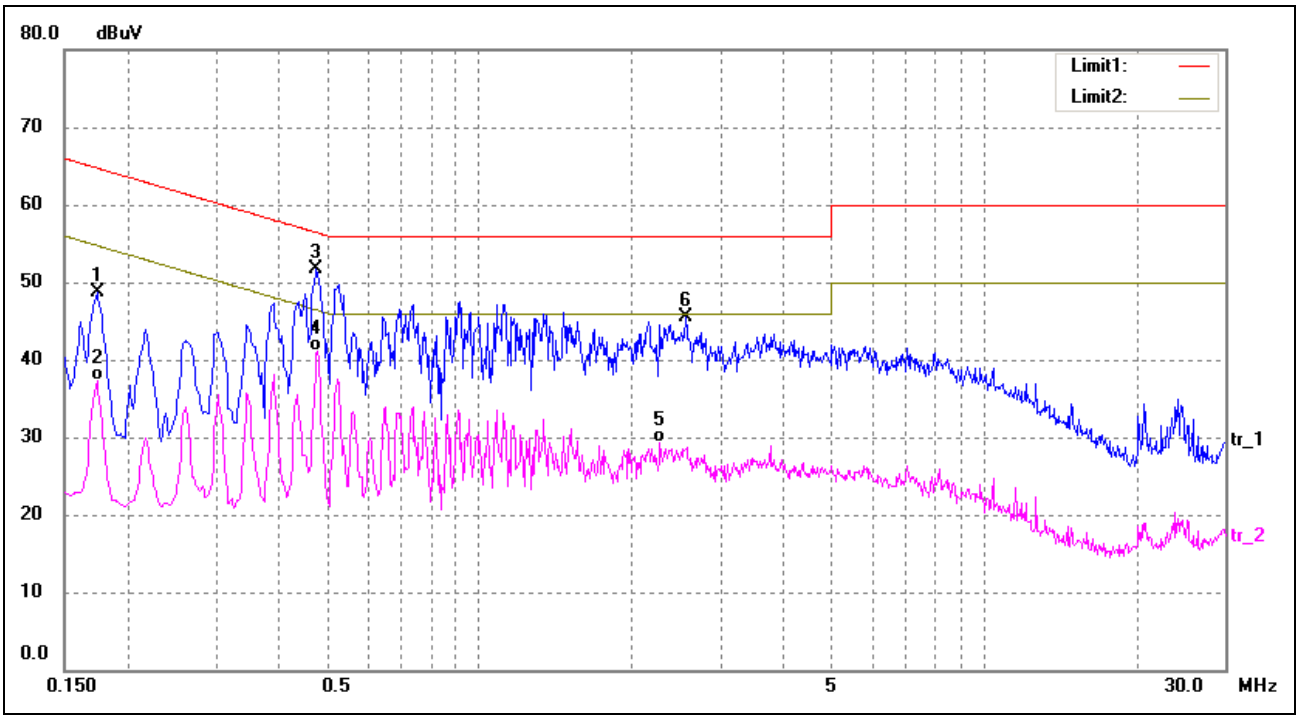
EUT: *Mobile Phone*
Tested Model: *S301*
Operating Condition: *TM3*
Comment: *AC 120V/60Hz; Adapter DC 5V*

Test Specification: *Neutral*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1	0.4740	40.17	9.50	49.67	56.44	-6.77	peak
2	0.4780	31.99	9.50	41.49	46.37	-4.88	AVG
3	0.9060	35.75	9.91	45.66	56.00	-10.34	peak
4	0.9580	25.03	9.96	34.99	46.00	-11.01	AVG
5	2.1660	33.87	10.00	43.87	56.00	-12.13	peak
6	2.3700	20.76	10.00	30.76	46.00	-15.24	AVG

Test Specification: *Line*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1	0.1740	39.20	9.50	48.70	64.77	-16.07	peak
2	0.1740	27.76	9.50	37.26	54.77	-17.51	AVG
3	0.4740	42.18	9.50	51.68	56.44	-4.76	peak
4	0.4780	31.56	9.50	41.06	46.37	-5.31	AVG
5	2.2780	19.30	10.00	29.30	46.00	-16.70	AVG
6	2.5660	35.44	10.00	45.44	56.00	-10.56	peak

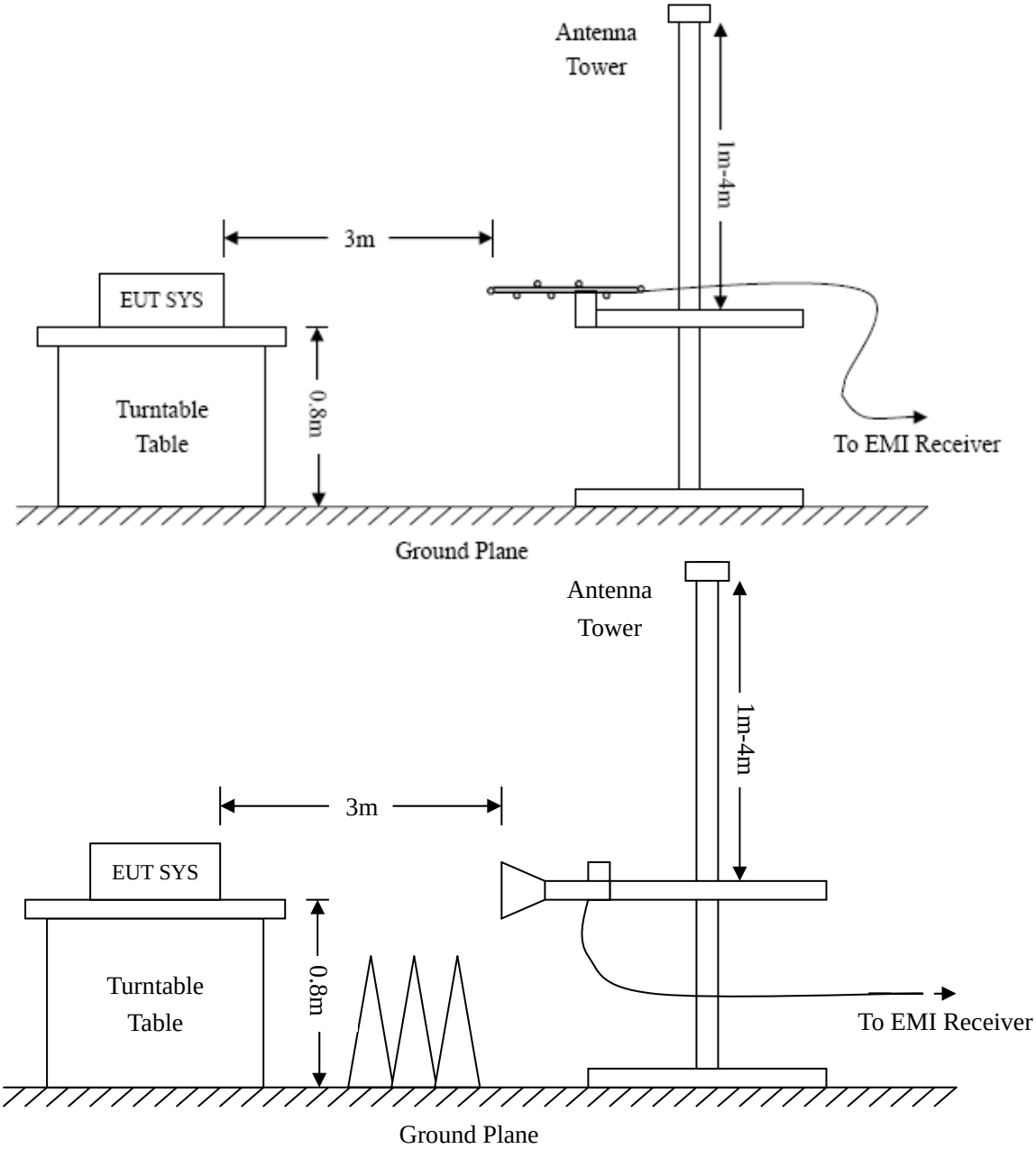
4. Radiated Emissions

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 ± 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	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

4.4 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:

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

4.5 Environmental Conditions

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

4.6 Summary of Test Results/Plots

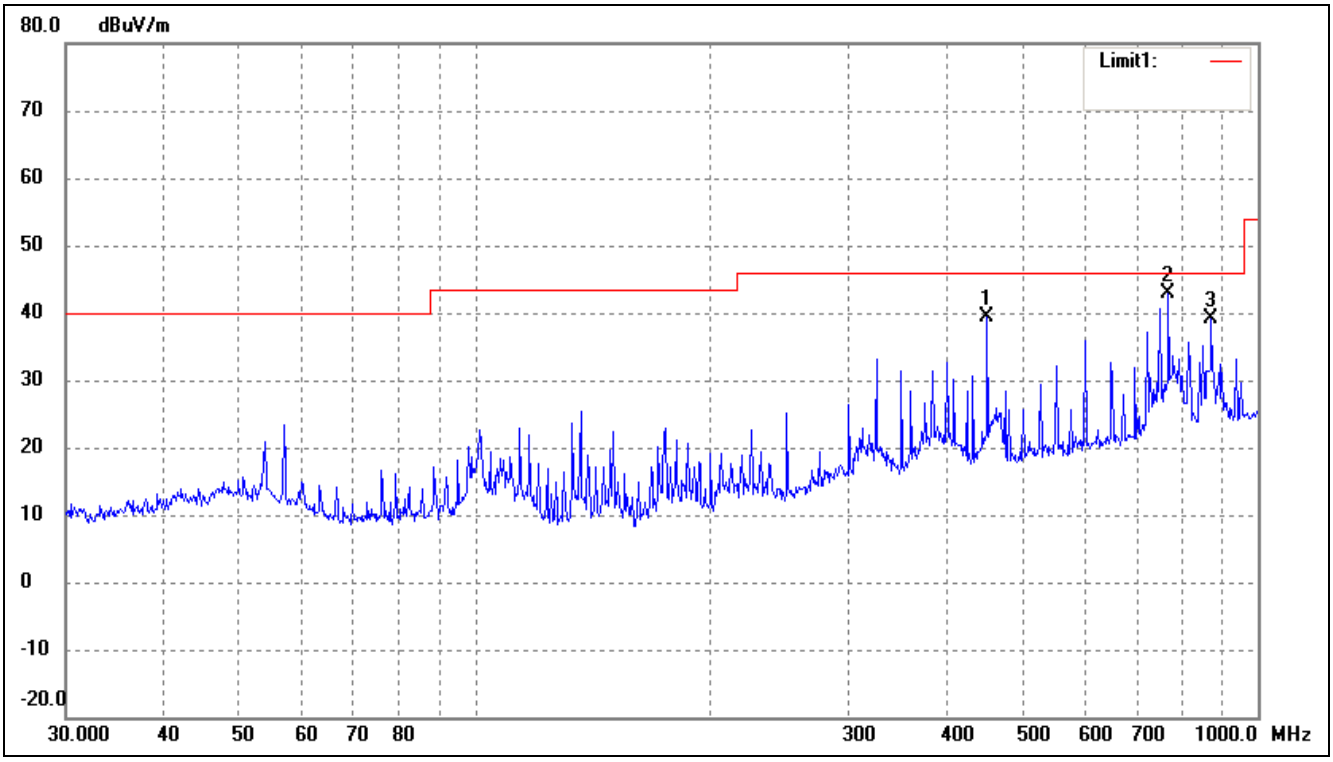
According to the data, the EUT complied with the FCC Part 15.109(a) rule, and had the worst margin of:

-3.19 dB at **768.7482 MHz** in the **Horizontal** polarization, TM1, **30MHz** to **2 GHz**, **3Meters**

Plot of Radiated Emissions Test Data

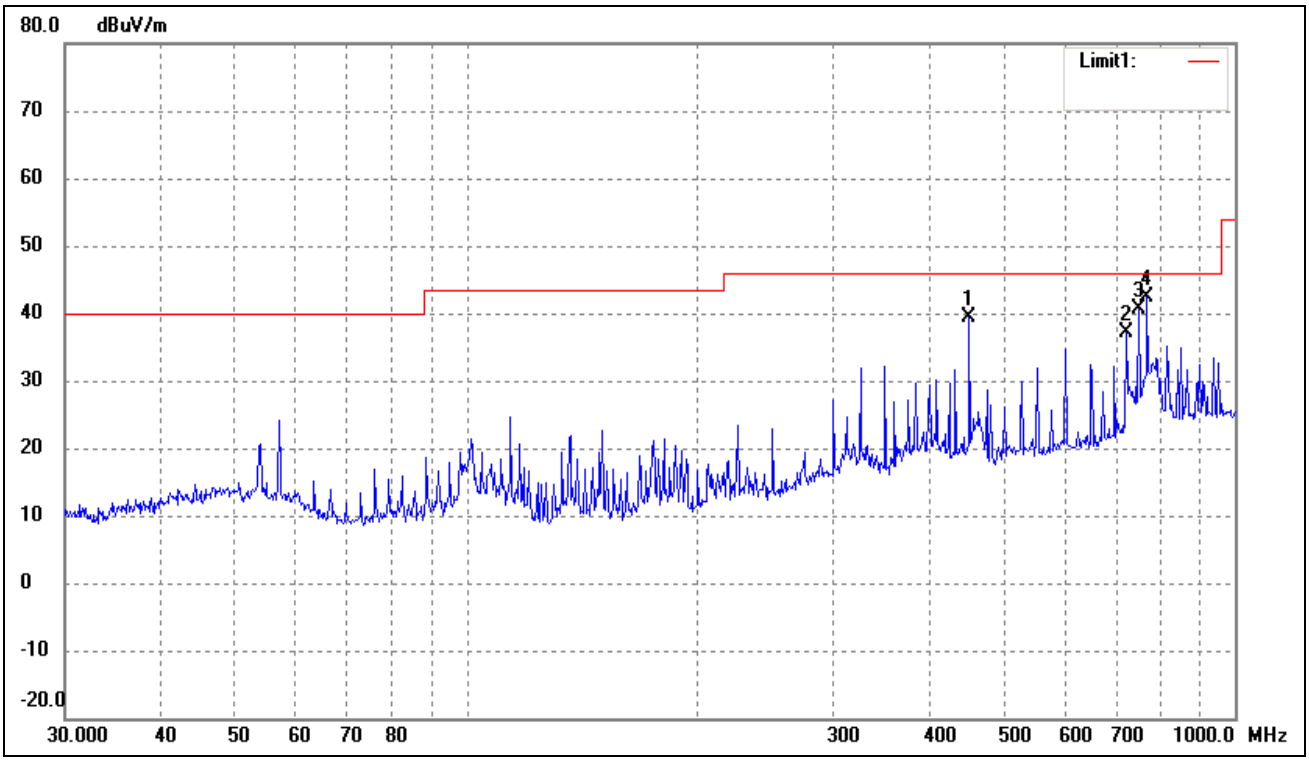
EUT: *Mobile Phone*
Tested Model: *S301*
Operating Condition: *TM1*
Comment: *AC 120V/60Hz; Adapter DC 5V*

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	451.1350	43.32	-4.02	39.30	46.00	-6.70	271	100	peak
2	768.7482	41.24	1.57	42.81	46.00	-3.19	187	100	peak
3	872.1832	36.36	2.79	39.15	46.00	-6.85	220	100	peak

Test Specification: *Vertical*

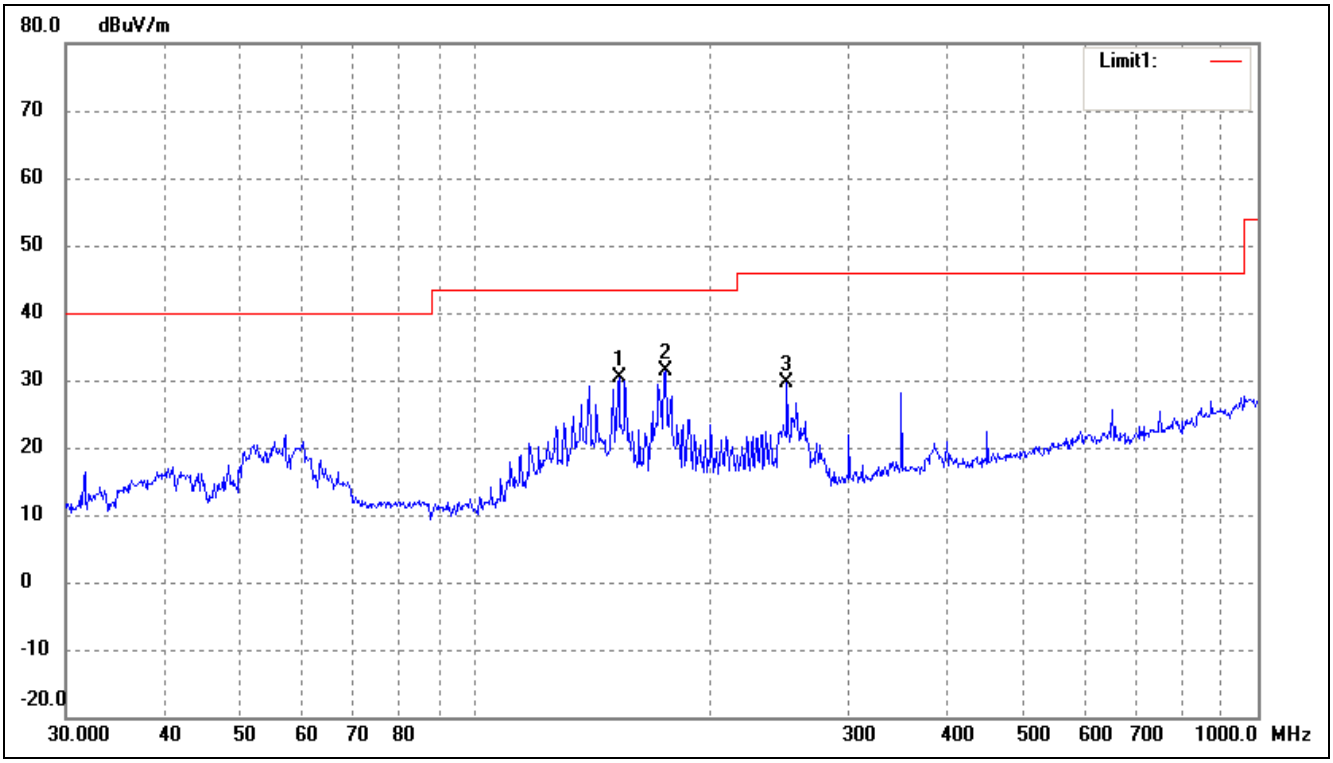


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	451.1350	43.47	-4.02	39.45	46.00	-6.55	360	100	peak
2	721.7259	36.43	0.76	37.19	46.00	-8.81	117	100	peak
3	750.1083	39.39	1.35	40.74	46.00	-5.26	256	100	peak
4	768.7482	40.87	1.57	42.44	46.00	-3.56	273	100	peak

Plot of Radiated Emissions Test Data

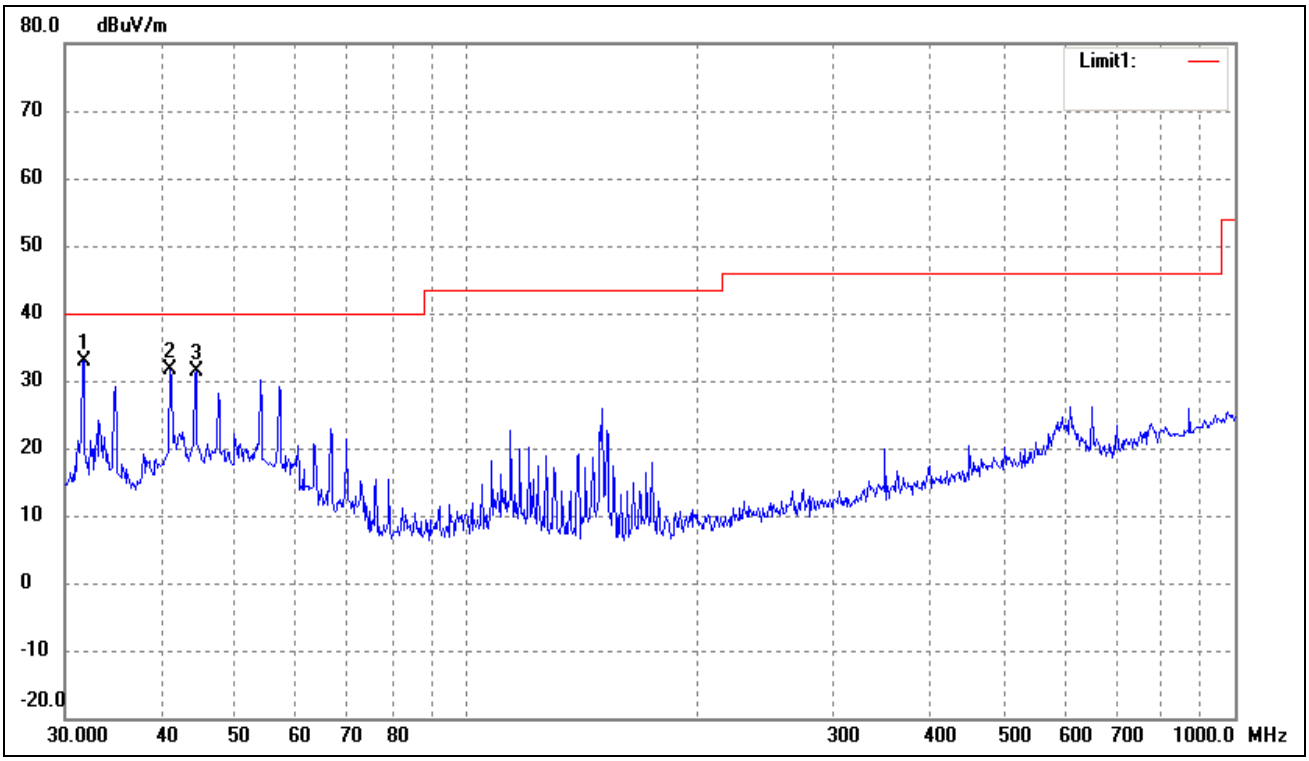
EUT: *Mobile Phone*
Tested Model: *S301*
Operating Condition: *TM2*
Comment: *USB: DC5V*

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	152.6641	43.66	-13.31	30.35	43.50	-13.15	22	100	peak
2	175.0368	43.39	-12.01	31.38	43.50	-12.12	165	100	peak
3	250.3012	38.12	-8.43	29.69	46.00	-16.31	334	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	31.7313	43.28	-10.42	32.86	40.00	-7.14	224	100	peak
2	41.1320	40.67	-9.09	31.58	40.00	-8.42	167	100	peak
3	44.4308	40.02	-8.64	31.38	40.00	-8.62	330	100	peak

Note: Testing is carried out with frequency rang 30MHz to the 2GHz, which above 1GHz are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

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