

FCC Part 15B Measurement and Test Report

For

Wisky (Hong Kong) Co., Limited

Flat/RM1202, 12F, Tung Chun Comercial Center, 438-444 Shanghai Street,

Kowloon, Hong Kong

FCC ID: 2ACGU-3G052I

Test Rule(s): FCC Part 15 Subpart B

Product Description: Entertainment Tablet

Tested Model: 3G052i

Report No.: STR14058279I-4

Tested Date: 2014-05-19 to 2014-05-26

Issued Date: 2014-05-26

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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: Wisky (Hong Kong) Co., Limited
Address of applicant: Flat/RM1202, 12F, Tung Chun Comercial Center,
438-444 Shanghai Street, Kowloon, Hong Kong
Manufacturer: Shenzhen Wisky technology Co., LTD
Address of manufacturer: 5th Floor, W2-A Building, Hi-Tech Park South 1st
Road, Nanshan District, Shenzhen

General Description of EUT	
Product Name:	Entertainment Tablet
Trade Name:	/
Model No.:	3G052i
Adding Model(s):	3GD052i
<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 3G051i, but the circuit and the electronic construction do not change, declared by the manufacturer.</i>	

Technical Characteristics of EUT	
Rated Voltage:	5V
Rated Current:	2A
Rated Power:	/
Power Adapter Model:	FY0502000
Lowest Internal Frequency:	32.768KHz
Highest Internal Frequency:	1.0GHz
Classification of ITE:	Class B

1.2 Test Standards

The following report is prepared on behalf of the Wisky (Hong Kong) Co., Limited 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 C63.4-2003, 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	Connect to Adapter, Earphone
TM2	Downloading	Connect to PC

EUT Cable List and Details

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

Auxiliary Equipment List and Details

Description	Manufacturer	Model	Serial Number
Notebook Computer	Lenovo	20007	EB12648265

Special Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
USB Cable	0.8	Unshielded	Without Core

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 Equipment List and Details

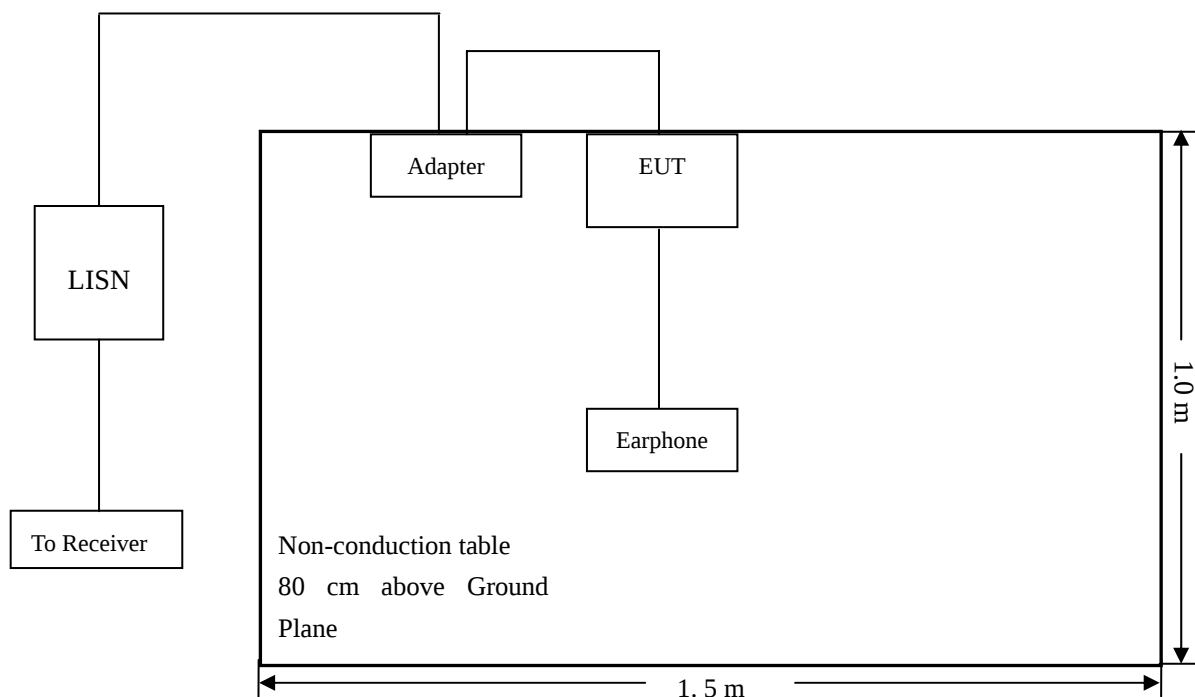
Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
EMI Test Receiver	Rohde & Schwarz	ESPI	101611	2014-05-07	2015-05-06
L.I.S.N	Schwarz beck	NSLK8126	8126-224	2014-05-07	2015-05-06
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100911	2014-05-07	2015-05-06

3.3 Test Procedure

Test is conducting under the description of ANSI C63.4-2003, 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.

Note: Base on the calibrated result, for the impedance characteristic and insertion loss, the effect shall be ignored from the placed multiple outlet power strip between the device and LISN.

3.4 Basic Test Setup Block Diagram



3.5 Environmental Conditions

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

3.6 Summary of Test Results/Plots

According to the data in section 3.7, the EUT complied with the FCC Part 15.107(a) Conducted margin for a Class B device, with the *worst* margin reading of:

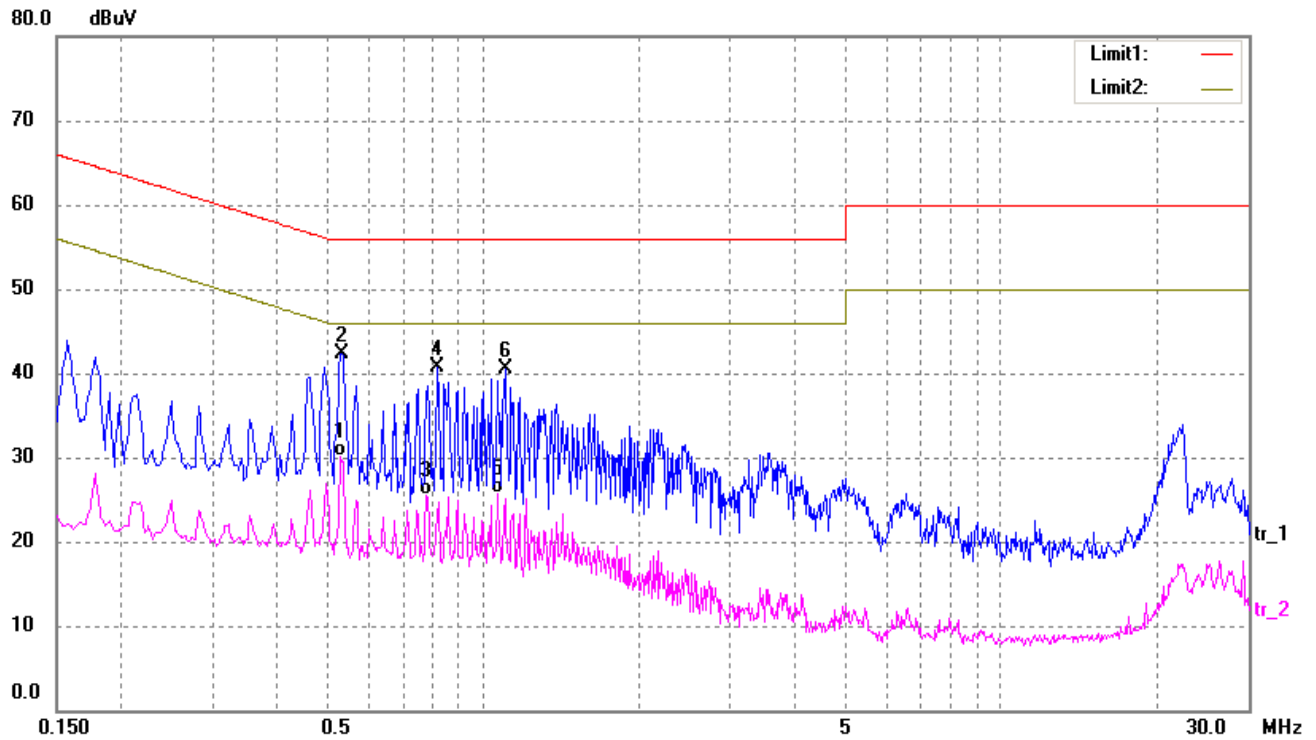
-6.90 dB at **3.4380 MHz** in the **Neutral, Peak** detector, 0.15-30MHz

3.7 Conducted Emissions Test Data

Plot of Conducted Emissions Test Data

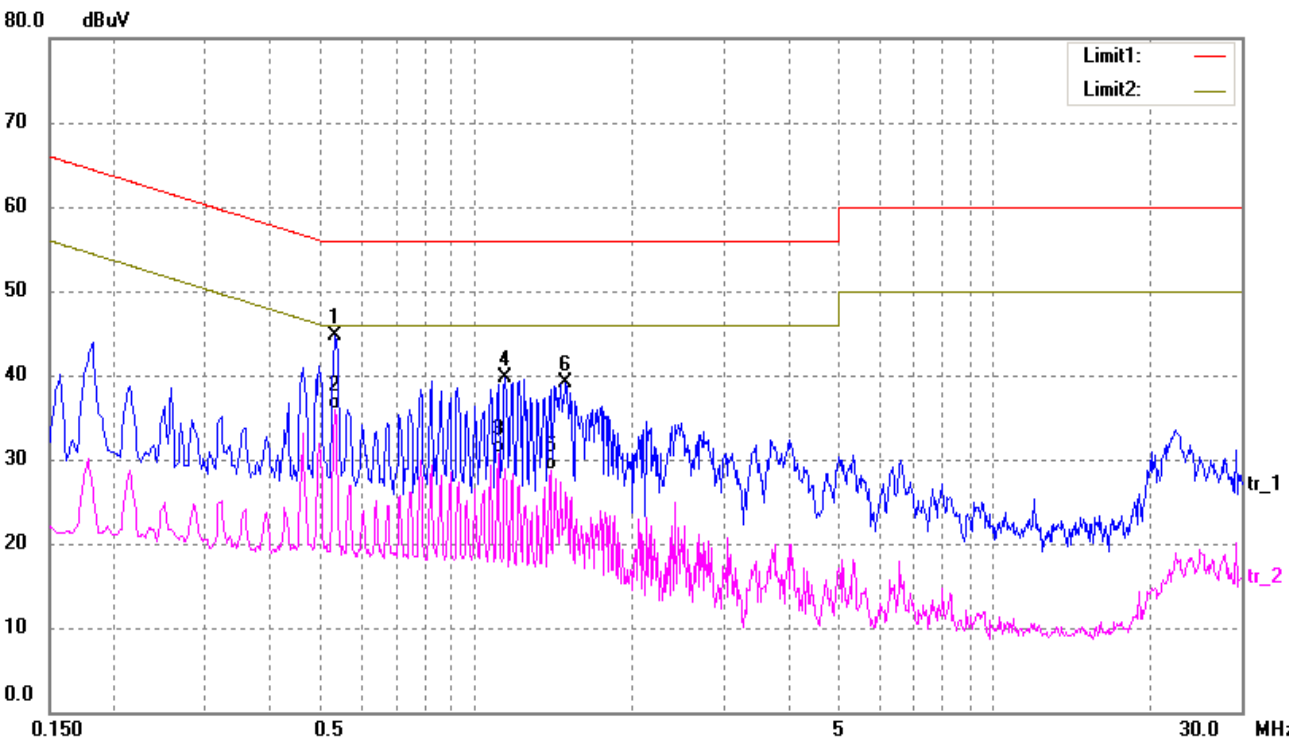
EUT: Entertainment Tablet
 Tested Model: 3G052i
 Operating Condition: AC 120V/60Hz; Adapter DC 5V/2A
 Comment: TM1

Test Specification: Neutral



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.5300	20.48	9.53	30.01	46.00	-15.99	AVG
2	0.5340	32.69	9.53	42.22	56.00	-13.78	peak
3	0.7780	15.70	9.78	25.48	46.00	-20.52	AVG
4	0.8140	30.95	9.81	40.76	56.00	-15.24	peak
5	1.0660	15.70	10.00	25.70	46.00	-20.30	AVG
6	1.1020	30.46	10.00	40.46	56.00	-15.54	peak

Test Specification: Line

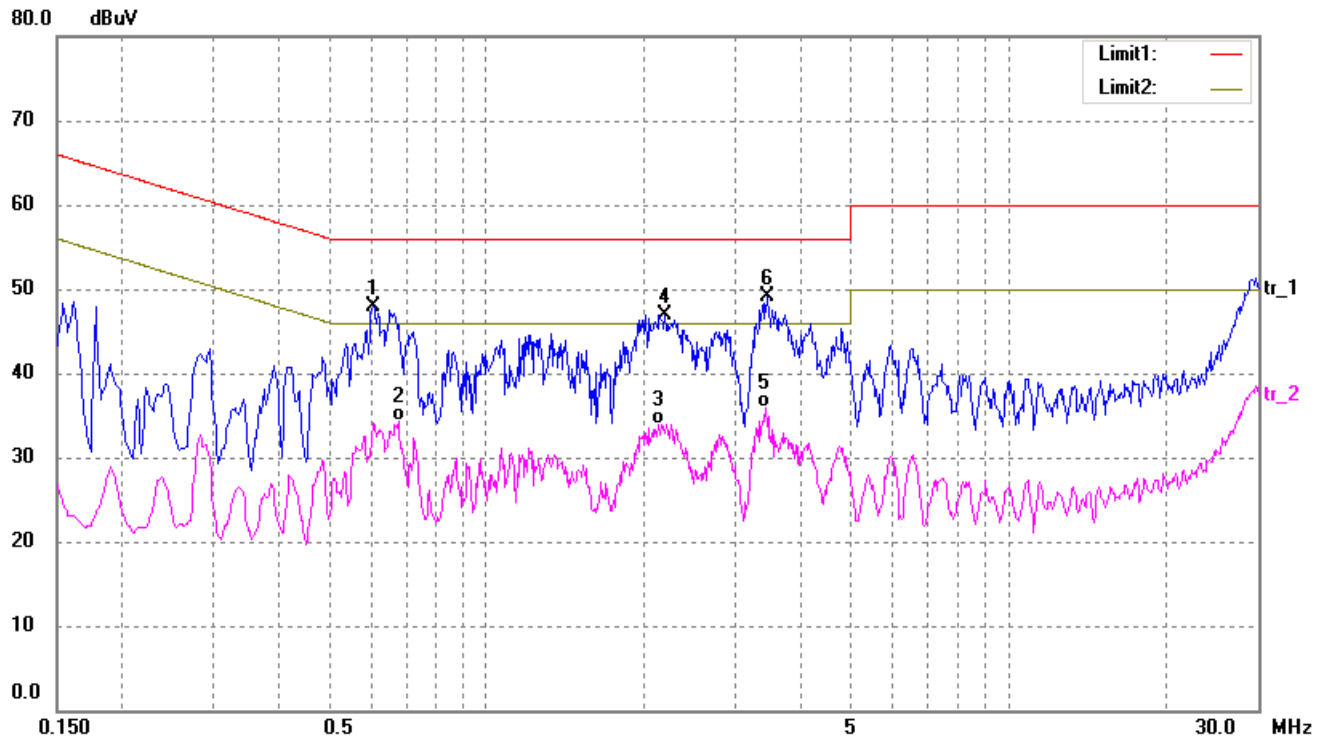


No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1	0.5340	35.12	9.53	44.65	56.00	-11.35	peak
2	0.5340	26.40	9.53	35.93	46.00	-10.07	AVG
3	1.1020	20.68	10.00	30.68	46.00	-15.32	AVG
4	1.1380	29.79	10.00	39.79	56.00	-16.21	peak
5	1.3900	18.78	10.00	28.78	46.00	-17.22	AVG
6	1.4940	29.08	10.00	39.08	56.00	-16.92	peak

Plot of Conducted Emissions Test Data

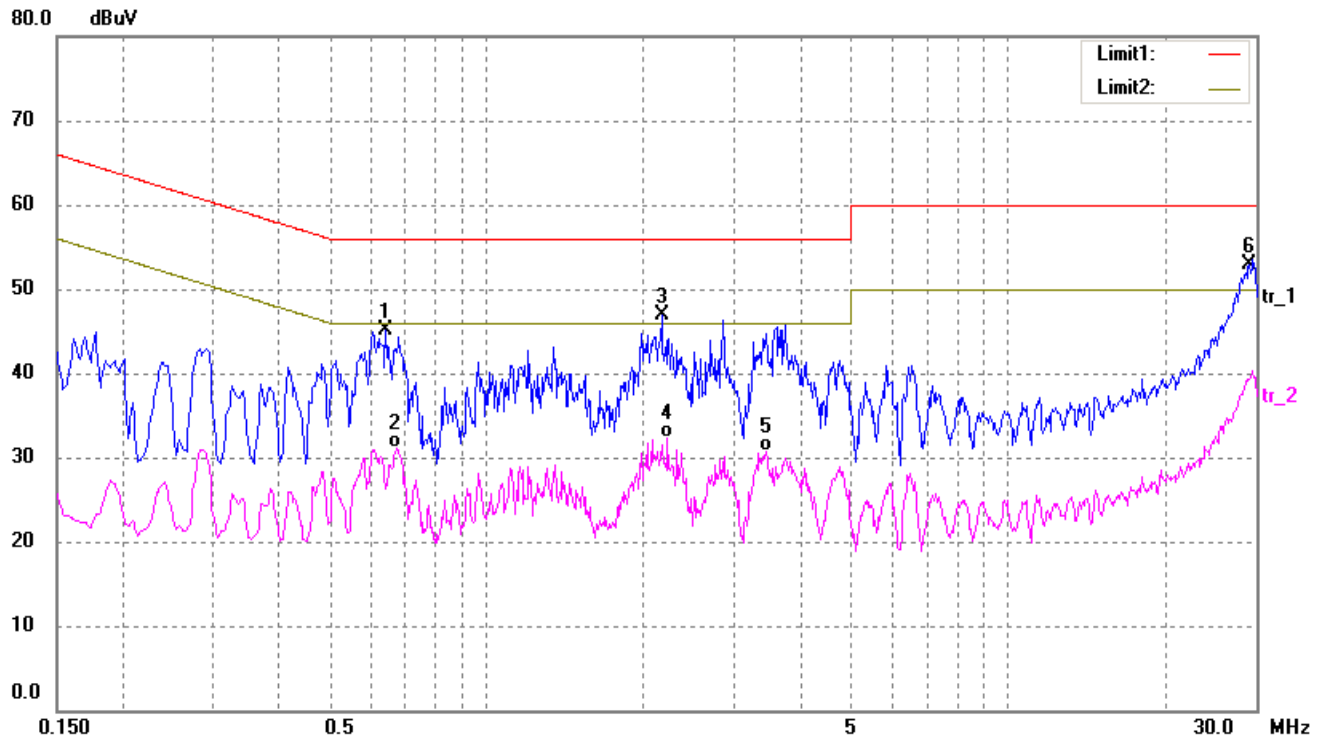
EUT: Entertainment Tablet
 Tested Model: 3G052i
 Operating Condition: AC 120V/60Hz; DC 5V
 Comment: TM2

Test Specification: Neutral



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.6060	38.31	9.61	47.92	56.00	-8.08	peak
2	0.6780	24.55	9.68	34.23	46.00	-11.77	AVG
3	2.1380	23.93	10.00	33.93	46.00	-12.07	AVG
4	2.1940	36.95	10.00	46.95	56.00	-9.05	peak
5	3.4220	25.88	10.00	35.88	46.00	-10.12	AVG
6*	3.4380	39.10	10.00	49.10	56.00	-6.90	peak

Test Specification: Line



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.6420	35.48	9.64	45.12	56.00	-10.88	peak
2	0.6740	21.42	9.67	31.09	46.00	-14.91	AVG
3	2.1780	36.87	10.00	46.87	56.00	-9.13	peak
4	2.2300	22.26	10.00	32.26	46.00	-13.74	AVG
5	3.4420	20.65	10.00	30.65	46.00	-15.35	AVG
6*	29.1860	39.85	13.00	52.85	60.00	-7.15	peak

Note: Result= Reading+ Correct, Margin= Result- Limit

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 Equipment List and Details

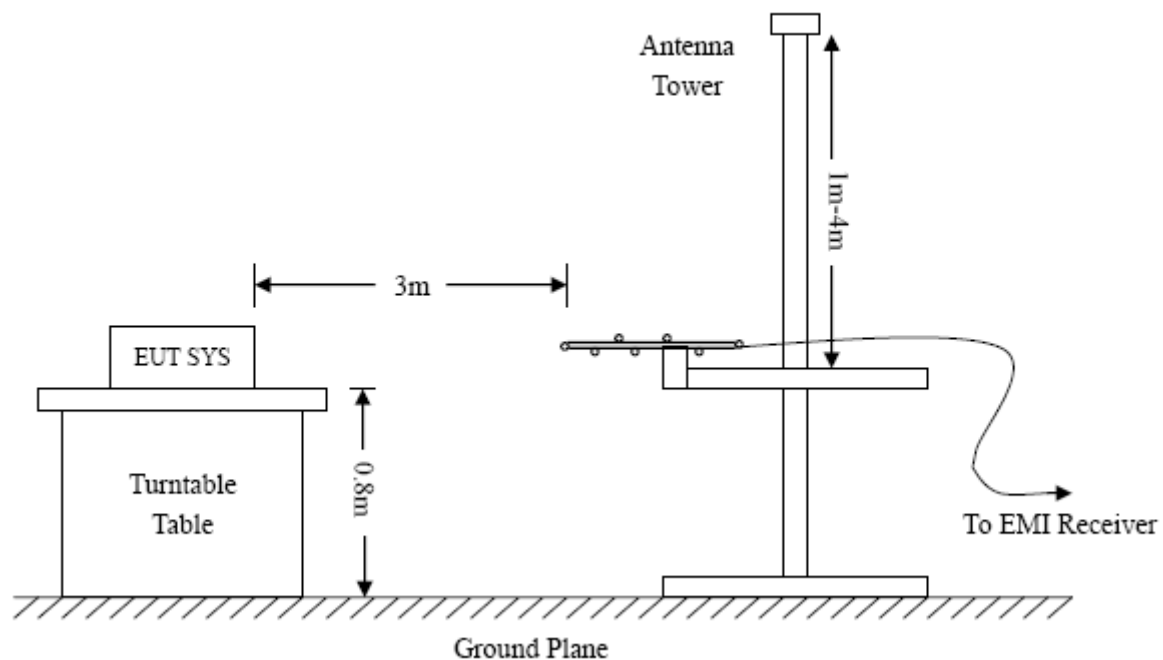
Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
Spectrum Analyzer	R&S	FSP	836079/035	2014-05-07	2015-05-06
EMI Test Receiver	R&S	ESVB	825471/005	2014-05-07	2015-05-06
Pre-amplifier	Agilent	8447F	3113A06717	2014-05-07	2015-05-06
Pre-amplifier	Compliance Direction	PAP-0118	24002	2014-05-07	2015-05-06
Trilog Broadband Antenna	SCHWARZBECK	VULB9163	9163-333	2014-05-07	2015-05-06
Horn Antenna	ETS	3117	00086197	2014-05-07	2015-05-06
Loop Antenna	SCHWARZECK	HFRA 5165	9365	2014-05-07	2015-05-06

4.3 Test Procedure

The setup of EUT is according with per ANSI C63.4-2003 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.



4.4 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

4.5 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 μ V means the emission is 6dB μ V below the maximum limit for a Class B device. The equation for margin calculation is as follows:

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

4.6 Environmental Conditions

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

4.7 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:

-3.49 dB at 47.9939 MHz in the Horizontal polarization, TM2 mode, 9 kHz to 6 GHz, 3Meters

Plot of Radiated Emissions Test Data (9kHz~30MHz)

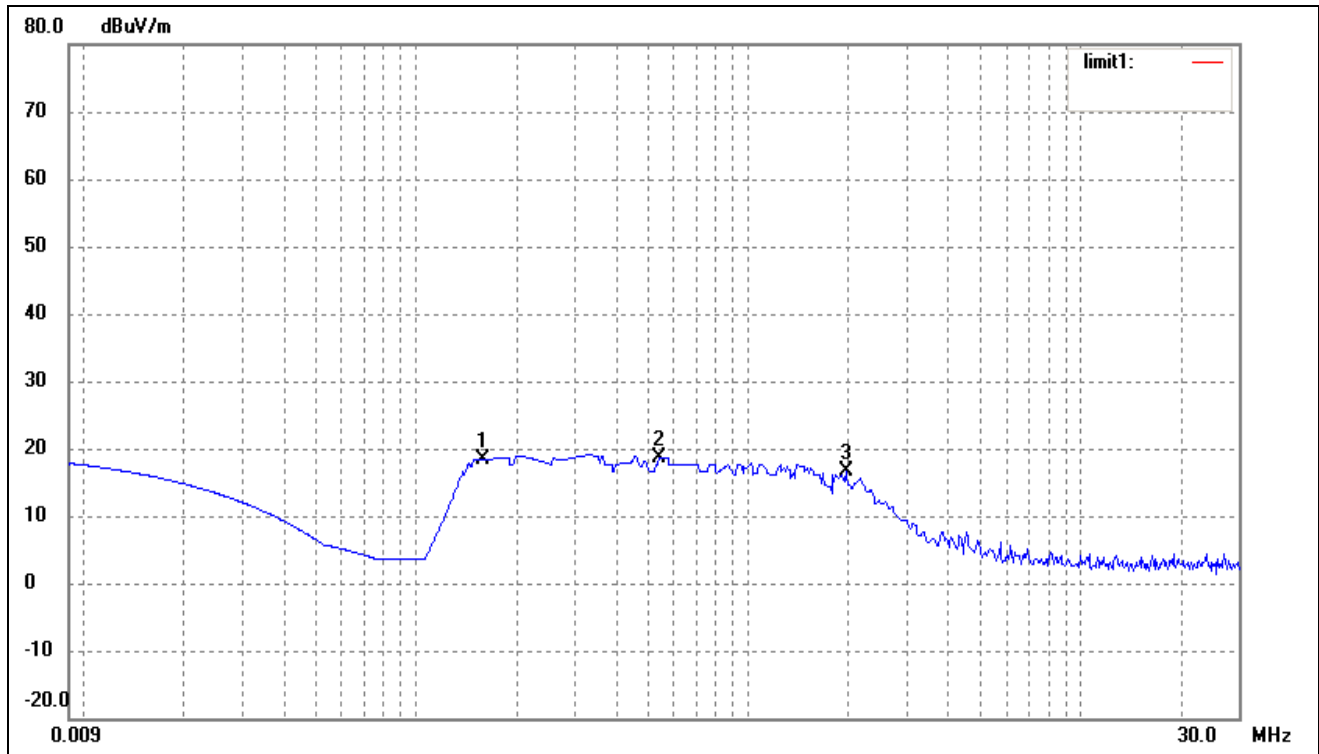
EUT: Entertainment Tablet

Tested Model: 3G052i

Operating Condition: AC 120V/60Hz; Adapter DC 5V/2A

Comment: TM1

Test Specification:



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	0.1590	18.19	0.21	18.40	39.56	-21.16	0	100	peak
2	0.5368	17.57	1.03	18.60	37.49	-18.89	0	100	peak
3	1.9653	15.34	1.34	16.68	35.56	-18.88	0	100	peak

Plot of Radiated Emissions Test Data (9kHz~30MHz)

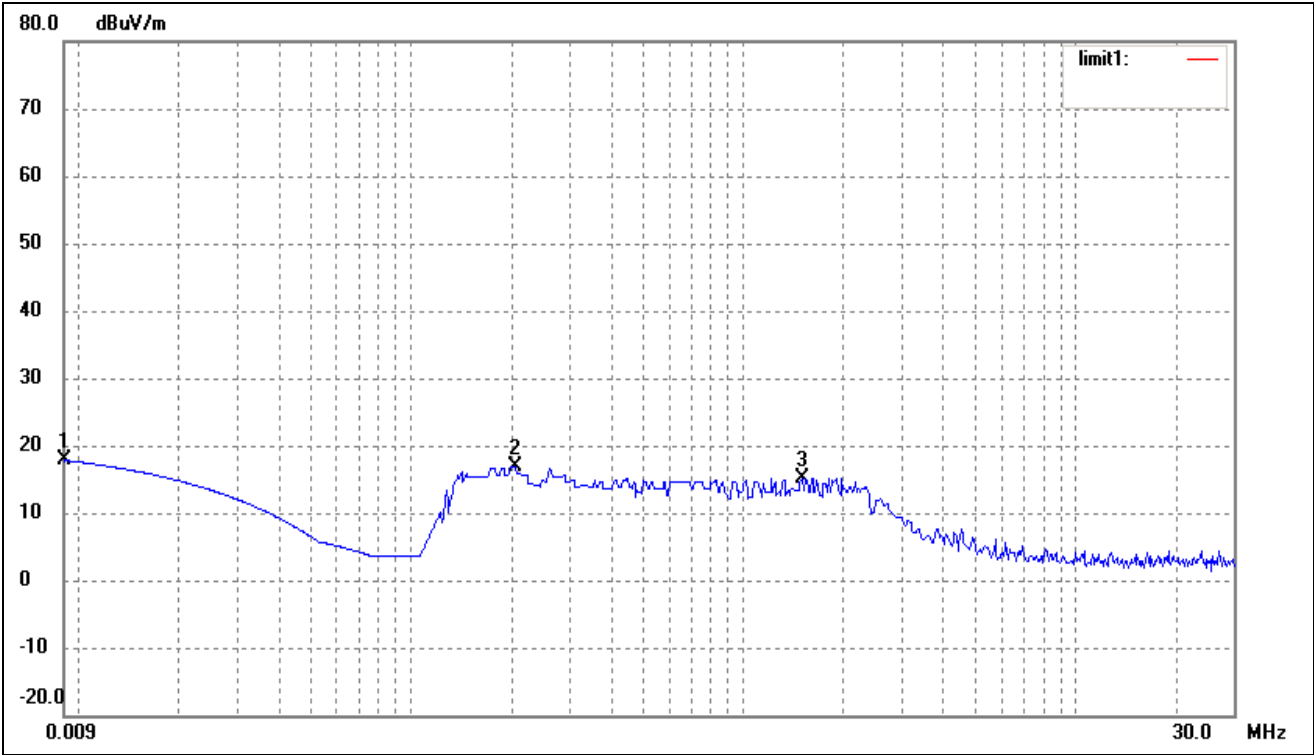
EUT:Entertainment Tablet

Tested Model:3G052i

Operating Condition:AC 120V/60Hz; Adapter DC 5V/2A

Comment:TM1

Test Specification:

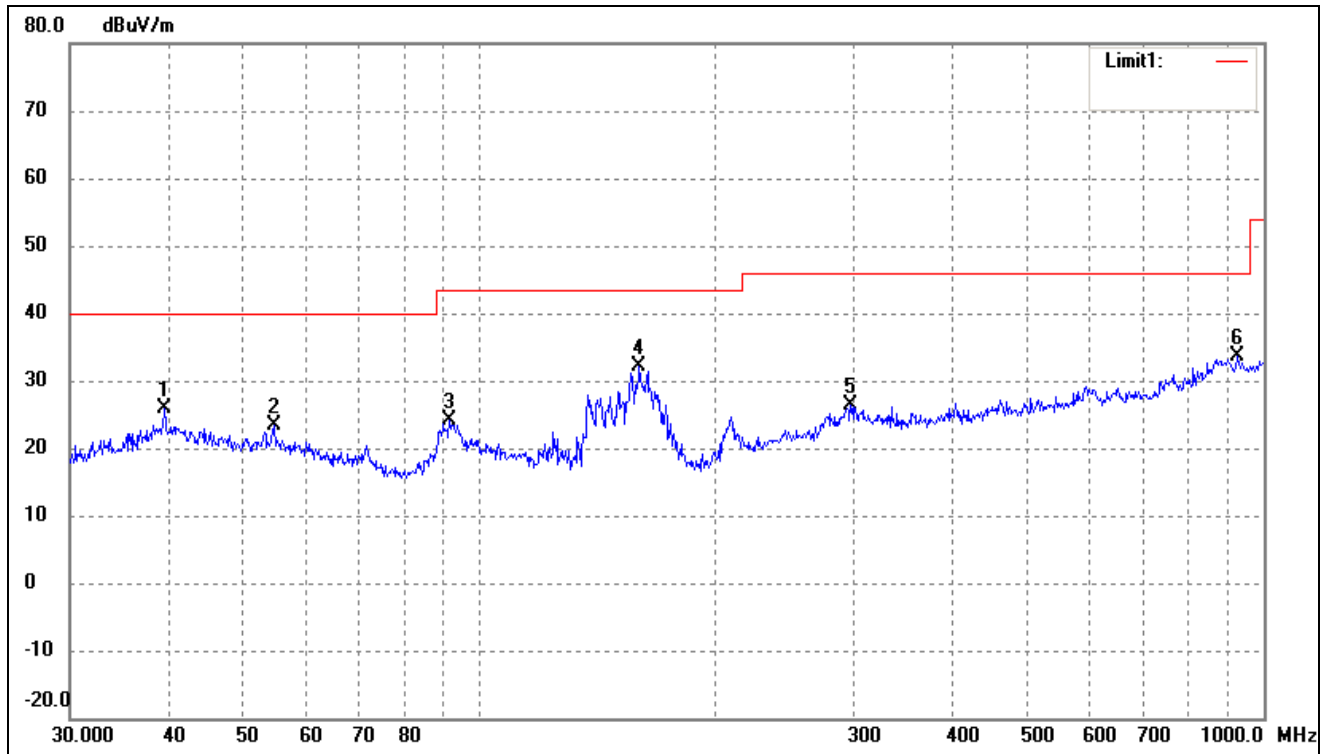


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	0.0091	17.57	0.25	17.82	50.72	-32.90	254	100	peak
2	0.2061	16.28	0.57	16.85	39.24	-22.39	116	100	peak
3	1.5088	13.99	1.24	15.23	33.24	-18.01	360	200	peak

Plot of Radiated Emissions Test Data (30MHz~1GHz)

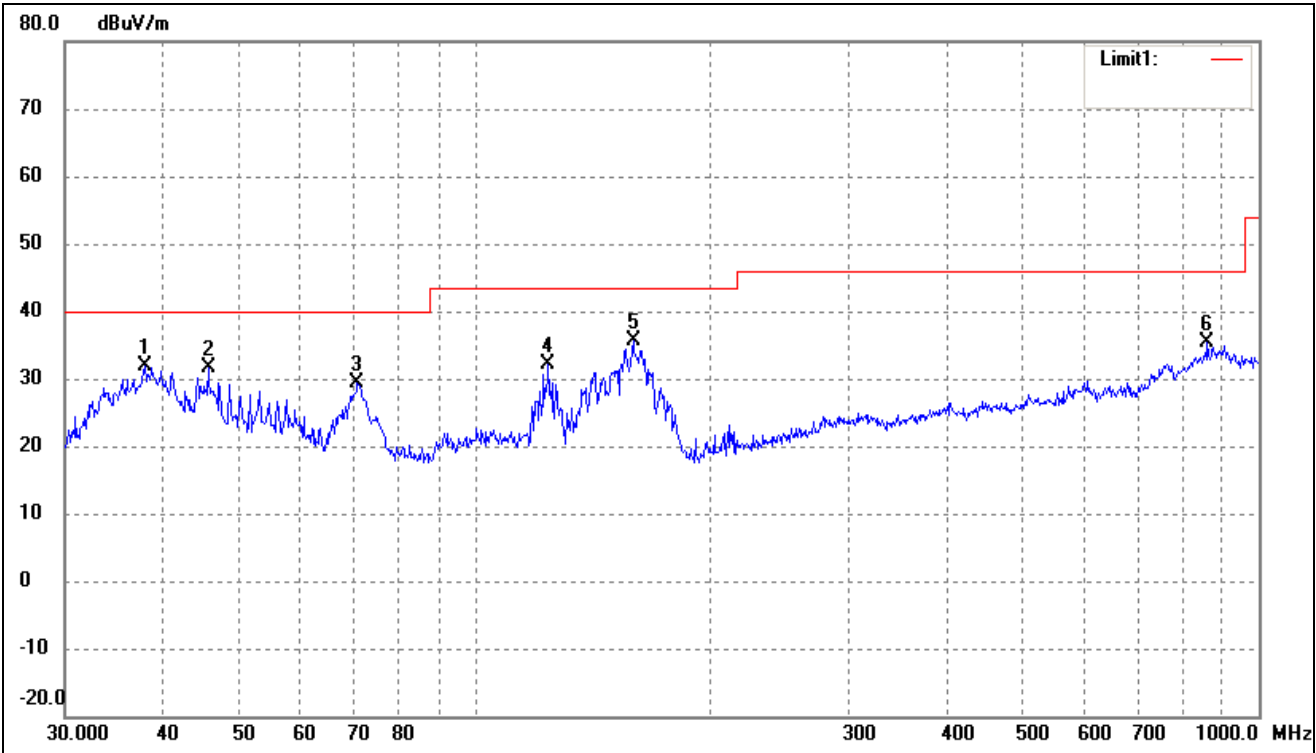
EUT: Entertainment Tablet
 Tested Model: 3G052i
 Operating Condition: AC 120V/60Hz; Adapter DC 5V/2A
 Comment: TM1

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	39.5756	18.68	7.13	25.81	40.00	-14.19	58	150	peak
2	54.6428	17.50	5.85	23.35	40.00	-16.65	326	100	peak
3	91.4949	20.06	3.99	24.05	43.50	-19.45	29	150	peak
4	159.7844	29.42	2.62	32.04	43.50	-11.46	209	100	peak
5	297.2241	17.32	9.06	26.38	46.00	-19.62	145	100	peak
6	925.7563	17.14	16.40	33.54	46.00	-12.46	359	200	peak

Test Specification: Vertical

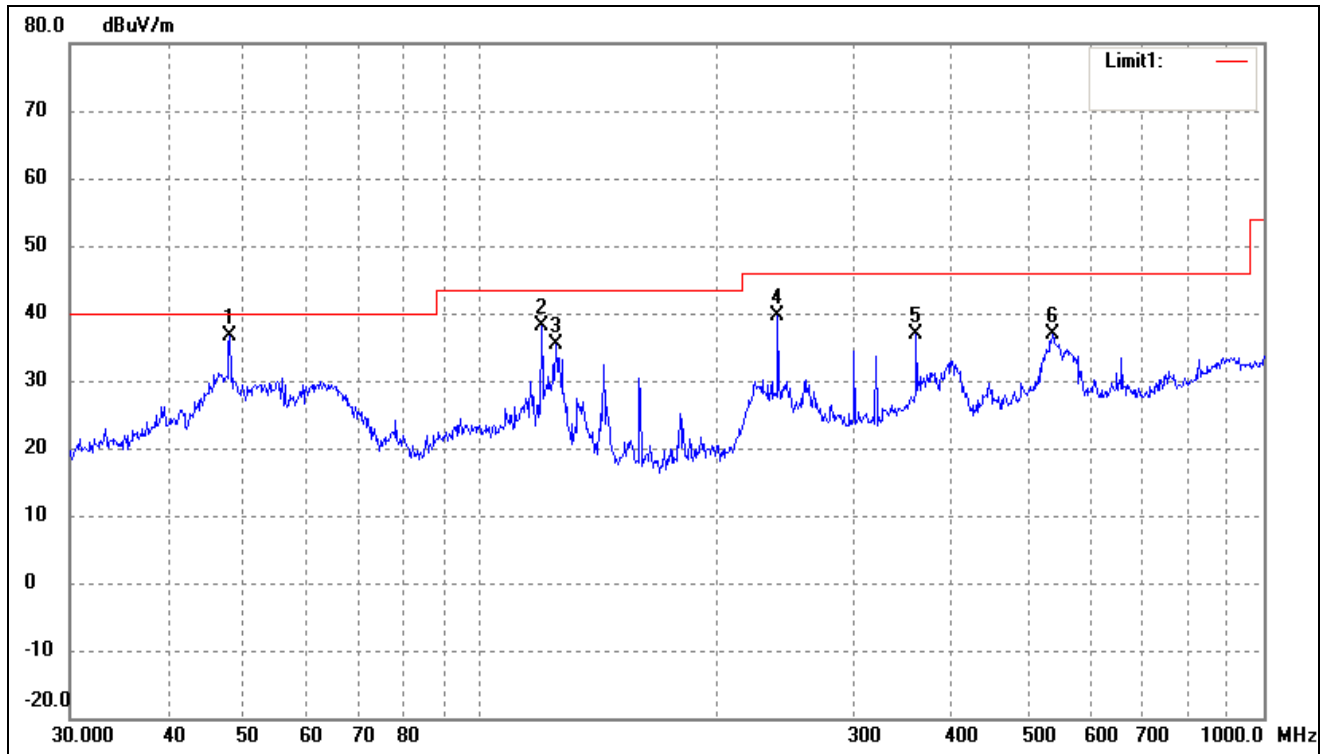


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	37.9450	23.06	8.90	31.96	40.00	-8.04	51	100	peak
2	45.6948	24.15	7.55	31.70	40.00	-8.30	308	100	peak
3	70.8315	27.17	2.09	29.26	40.00	-10.74	120	100	peak
4	124.1329	28.35	3.69	32.04	43.50	-11.46	359	100	peak
5	159.2249	33.03	2.62	35.65	43.50	-7.85	145	100	peak
6	860.0352	19.03	16.29	35.32	46.00	-10.68	359	100	peak

Plot of Radiated Emissions Test Data (30MHz~1GHz)

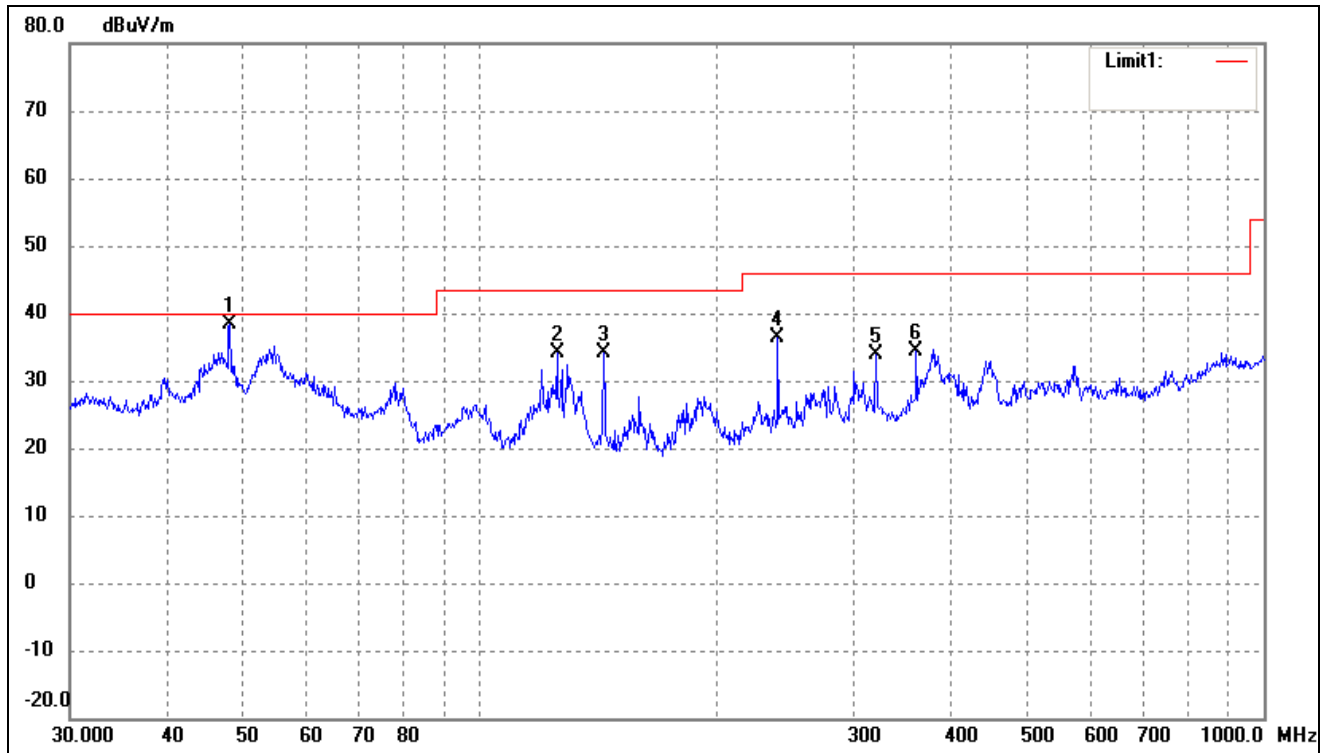
EUT: Entertainment Tablet
 Tested Model: 3G052i
 Operating Condition: AC 120V/60Hz;DC 5V
 Comment: TM2

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	47.9939	30.05	6.46	36.51	40.00	-3.49	58	150	peak
2	119.8555	34.14	4.04	38.18	43.50	-5.32	326	100	peak
3	125.0066	31.88	3.61	35.49	43.50	-8.01	29	120	peak
4	239.9874	33.38	6.33	39.71	46.00	-6.29	209	100	peak
5	360.4476	27.75	9.24	36.99	46.00	-9.01	178	100	peak
6	537.5891	25.59	11.31	36.90	46.00	-9.10	359	200	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	47.9938	31.63	6.86	38.49	40.00	-1.51	51	100	peak
2	125.4457	30.53	3.58	34.11	43.50	-9.39	308	100	peak
3	143.8293	31.73	2.45	34.18	43.50	-9.32	120	100	peak
4	239.9874	29.94	6.33	36.27	46.00	-9.73	359	100	peak
5	319.9370	24.71	9.29	34.00	46.00	-12.00	178	100	Peak
6	360.4476	25.03	9.24	34.27	46.00	-11.73	359	100	peak

Note: Result= Reading+ Correct, Margin= Result- Limit

Note: Testing is carried out with frequency rang 9kHz 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 *****