

FCC Part 15B Measurement and Test Report

For

JALA ASIA LTD.

SUITE 1004, 10TH FLOOR, BANK OF AMERICA TOWER, 12

HARCOURT ROAD, CENTRAL, HONGKONG

FCC ID: 2AFYR-ENTELET6

Test Rule(s): FCC Part 15 Subpart B

Product Description: Tablet PC

Tested Model: ENTEL eT6

Report No.: STR15118054I-6

Tested Date: 2015-11-04 to 2015-11-17

Issued Date: 2015-11-18

Tested By: Vigoss Liang / Engineer

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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: JALA ASIA LTD.
Address of applicant: SUITE 1004, 10TH FLOOR, BANK OF AMERICA TOWER, 12 HARCOURT ROAD, CENTRAL, HONGKONG
Manufacturer: Guangzhou Shangke Information Technology Limited.
Address of manufacturer: R&F To-Win Building, 12th Floor, No.30 Huaxia Road, Tianhe District, Guangzhou, Guangdong Province, China

General Description of EUT	
Product Name:	Tablet PC
Trade Name:	entel
Model No.:	ENTEL eT6
Adapter Model:	TP-U25
	INPUT:100-240V,50/60Hz,0.3A; OUTPUT:5V, 2.5A
Hardware version:	4G008-3M-V1.0-20141219
Software version:	V1.00_20150822
<i>The EUT Main board support GSM850/900/DCS1800/PCS1900, WCDMA Band 1/2/5/8, LTE Band 4 function. It is intended for speech, Multimedia Message Service (MMS) transmission and ENTEL eT6. It is equipped with GPRS/EDGE class 12 for GSM850/900/DCS1800/PCS1900, GPS, Bluetooth and Wi-Fi functions. For more information see the following datasheet</i>	
<i>Note: The test data is gathered from a production sample provided by the manufacturer.</i>	

Technical Characteristics of EUT	
Rated Voltage:	DC 3.8V Li-ion Battery
Battery Capacity:	8500mAh
Rated Power:	/
Lowest Internal Frequency:	32.768kHz
Highest Internal Frequency:	1.7GHz
Classification of ITE:	Class B

1.2 Test Standards

The following report is prepared on behalf of the JALA ASIA LTD. 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	/
TM4	OTG	With USB Disk
TM5	/	/

EUT Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
USB Cable	1.5	Shielded	Without Ferrite
OTG Cable	0.15	Unshielded	Without Ferrite

Auxiliary Equipment List and Details

Description	Manufacturer	Model	Serial Number
Notebook	Lenovo	E10	LR-63C8R
USB Disk	SSK	SFD216	/

Special Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
Earphone	1.1	Unshielded	Without Ferrite

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

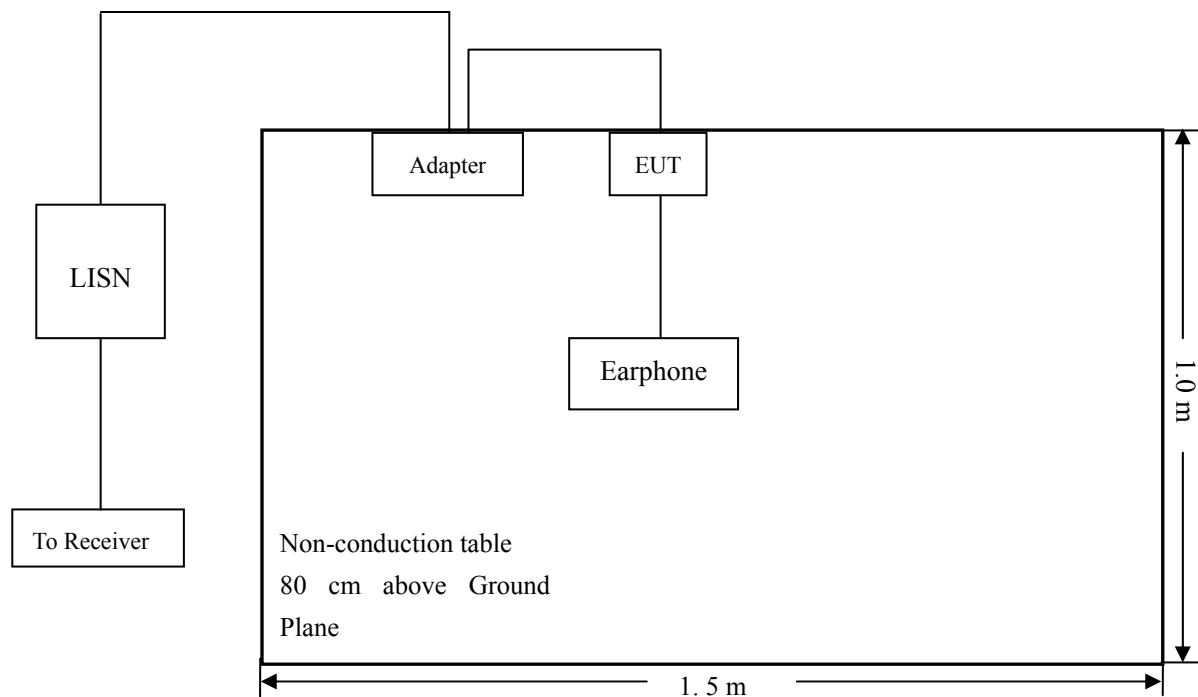
3.1 Measurement Uncertainty

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:

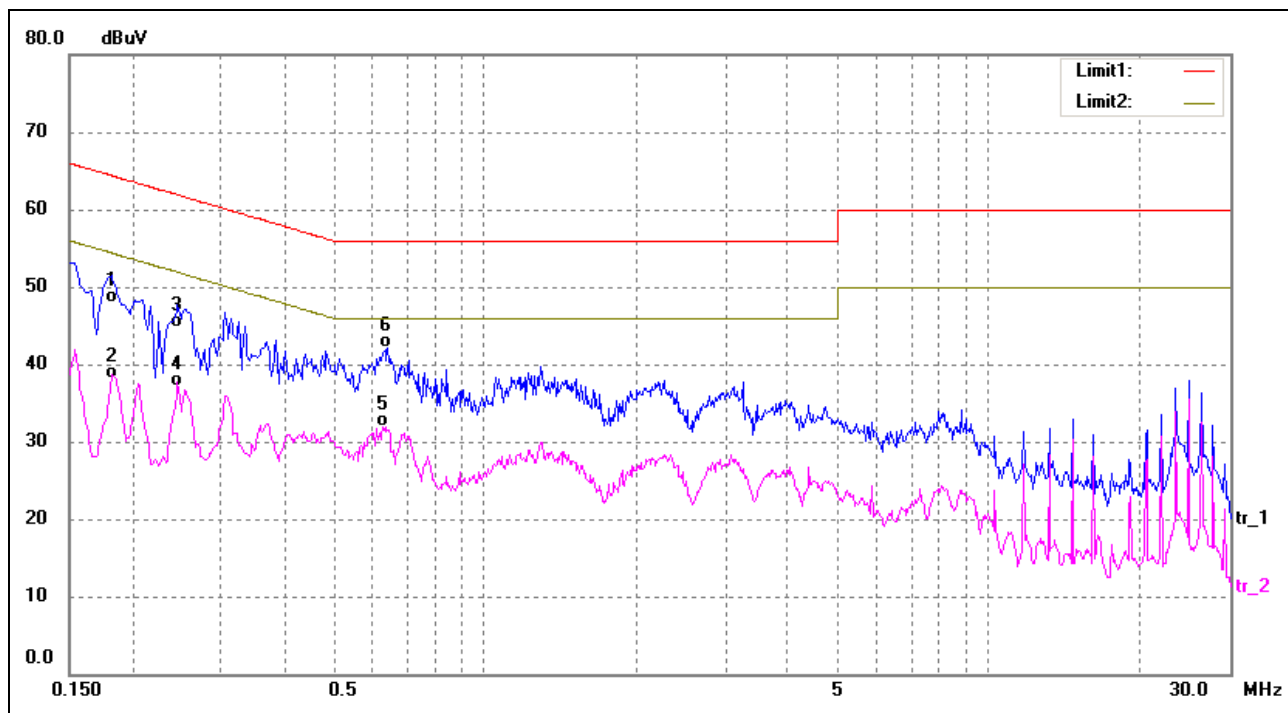
-11.55 dB at 0.1900 MHz in the **Line, TM2, Peak** detector, 0.15-30MHz

3.6 Conducted Emissions Test Data

Plot of Conducted Emissions Test Data

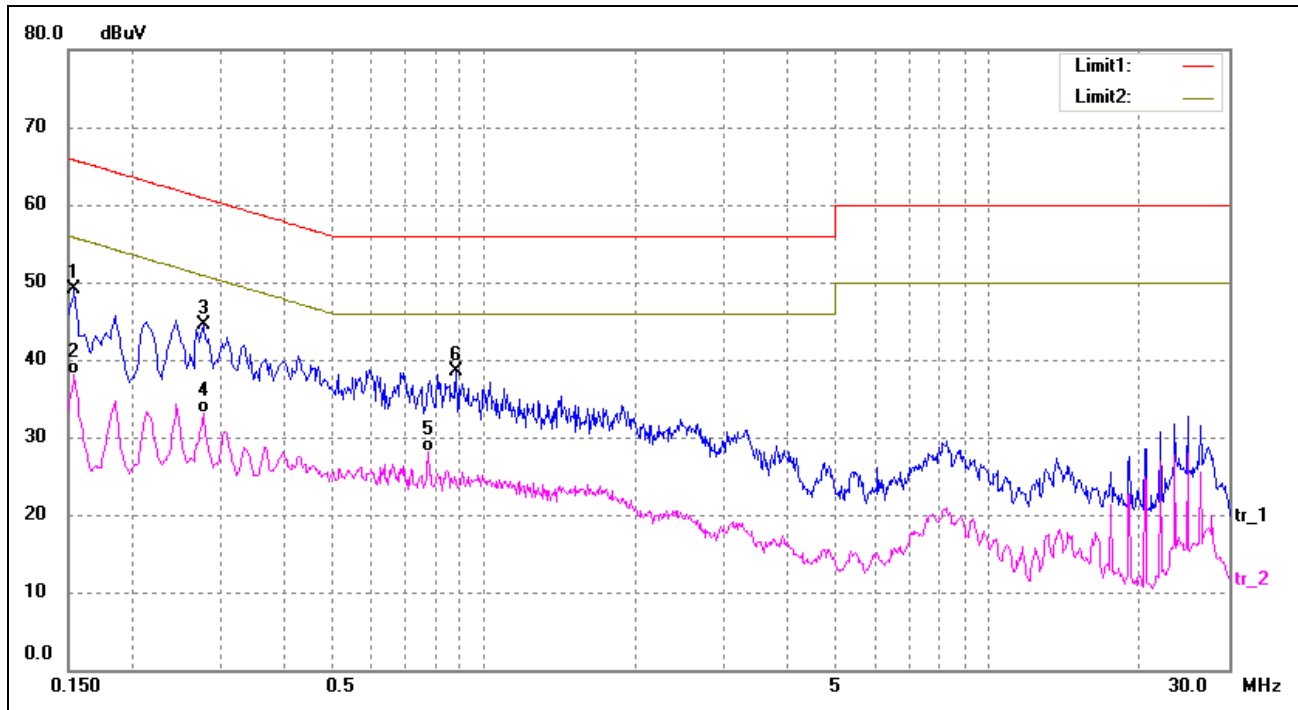
EUT: Tablet PC
 Tested Model: ENTEL eT6
 Operating Condition: TM1
 Comment: AC 120V/60Hz; Adapter DC 5V

Test Specification: Neutral



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1819	35.41	12.50	47.91	64.40	-16.49	QP
2	0.1819	25.59	12.50	38.09	54.40	-16.31	AVG
3	0.2460	32.20	12.50	44.70	61.89	-17.19	QP
4	0.2460	24.59	12.50	37.09	51.89	-14.80	AVG
5	0.6300	19.22	12.63	31.85	46.00	-14.15	AVG
6*	0.6420	29.45	12.64	42.09	56.00	-13.91	QP

Test Specification: Line

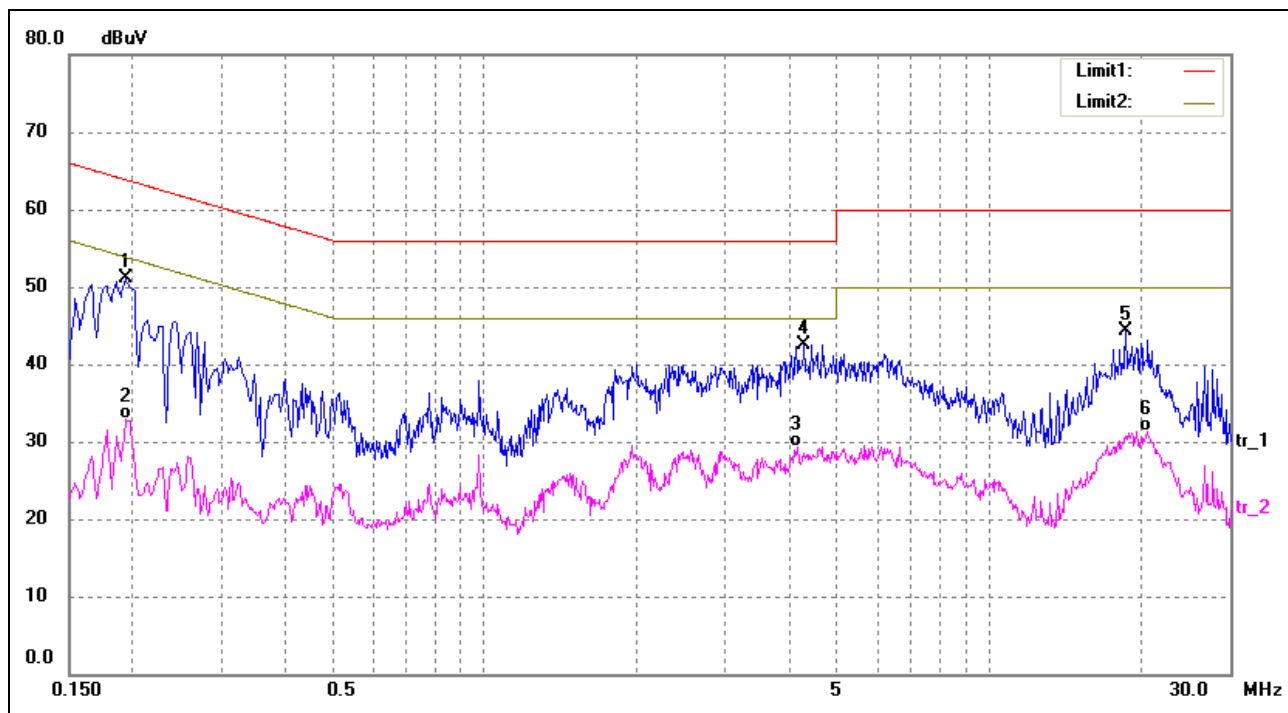


No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1	0.1539	36.51	12.50	49.01	65.79	-16.78	peak
2	0.1539	25.58	12.50	38.08	55.79	-17.71	AVG
3*	0.2780	32.06	12.50	44.56	60.88	-16.32	peak
4	0.2780	20.54	12.50	33.04	50.88	-17.84	AVG
5	0.7780	15.36	12.78	28.14	46.00	-17.86	AVG
6	0.8820	25.60	12.88	38.48	56.00	-17.52	peak

Plot of Conducted Emissions Test Data

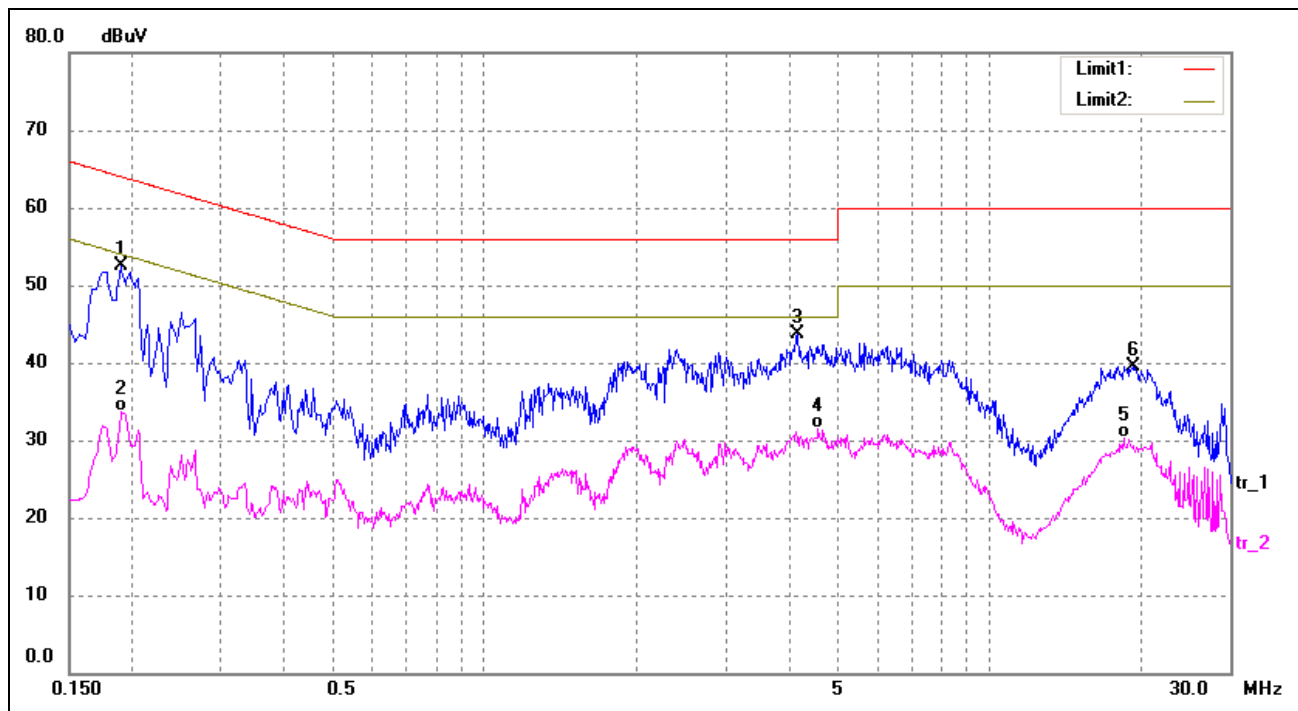
EUT: Tablet PC
 Tested Model: ENTEL eT6
 Operating Condition: TM2
 Comment: AC 120V/60Hz; USB 5V

Test Specification: Neutral



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1*	0.1940	41.54	9.50	51.04	63.86	-12.82	peak
2	0.1940	23.35	9.50	32.85	53.86	-21.01	AVG
3	4.1780	19.31	10.00	29.31	46.00	-16.69	AVG
4	4.3140	32.59	10.00	42.59	56.00	-13.41	peak
5	18.6460	32.48	11.73	44.21	60.00	-15.79	peak
6	20.5260	19.37	12.00	31.37	50.00	-18.63	AVG

Test Specification: Line



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1*	0.1900	42.99	9.50	52.49	64.04	-11.55	peak
2	0.1900	24.17	9.50	33.67	54.04	-20.37	AVG
3	4.1620	33.63	10.00	43.63	56.00	-12.37	peak
4	4.5940	21.53	10.00	31.53	46.00	-14.47	AVG
5	18.5020	18.66	11.70	30.36	50.00	-19.64	AVG
6	19.3300	27.66	11.87	39.53	60.00	-20.47	peak

4. Radiated Emissions

4.1 Measurement Uncertainty

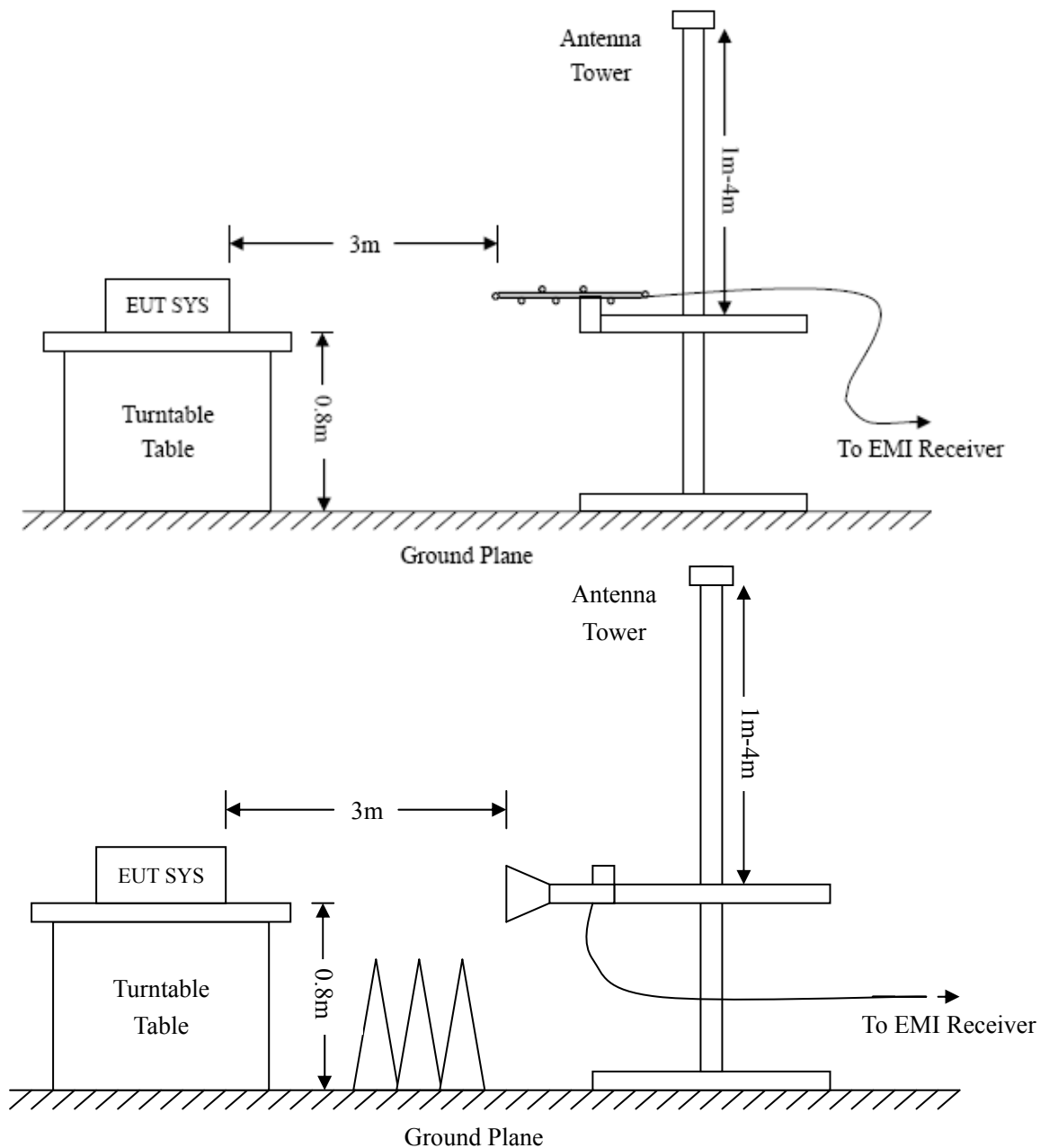
Base on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any radiation emissions measurement is ± 5.10 dB.

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

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

4.4 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:

$$\text{Corr. Ampl.} = \text{Indicated Reading} - \text{Corr. Factor}$$

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:

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

4.5 Environmental Conditions

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

4.6 Summary of Test Results/Plots

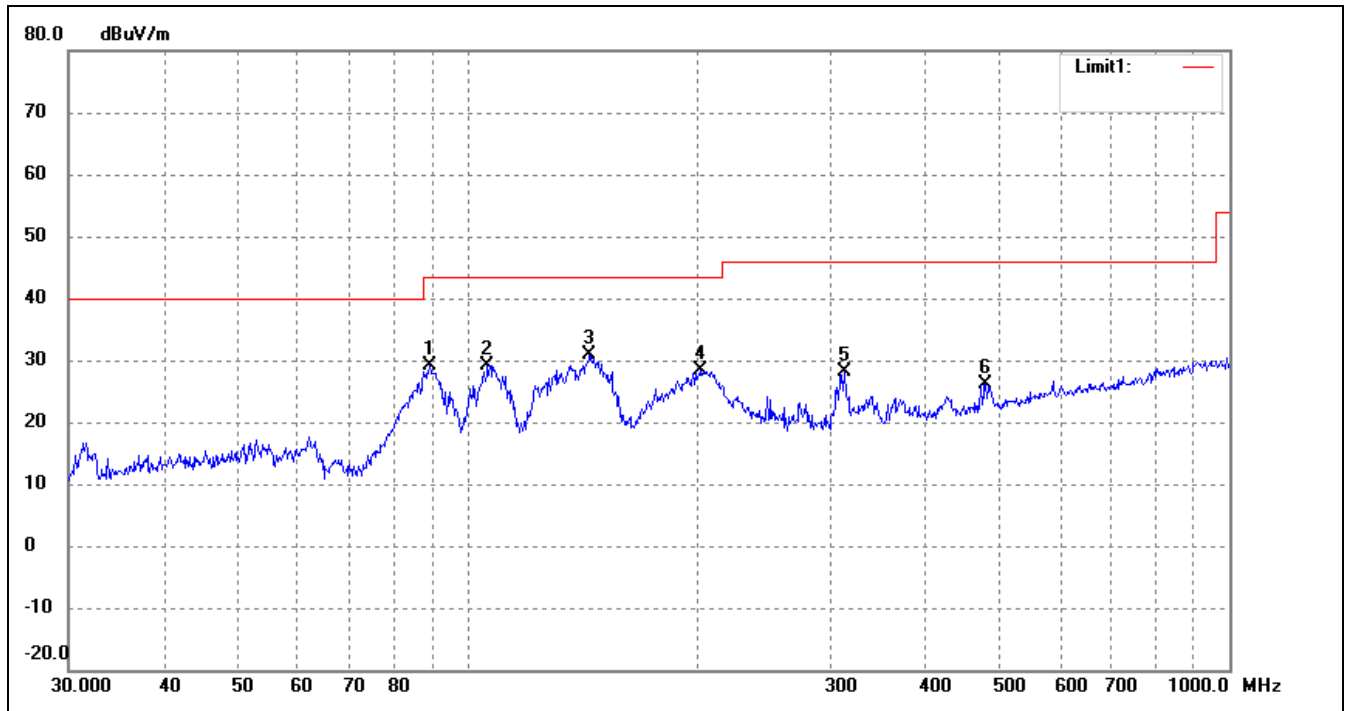
According to the data, the EUT complied with the FCC Part 15.109(a) rule, and had the worst margin of:

-6.42 dB at 35.3750 MHz in the Vertical polarization, TM3, 9 kHz to 8.5 GHz, 3Meters

Plot of Radiated Emissions Test Data

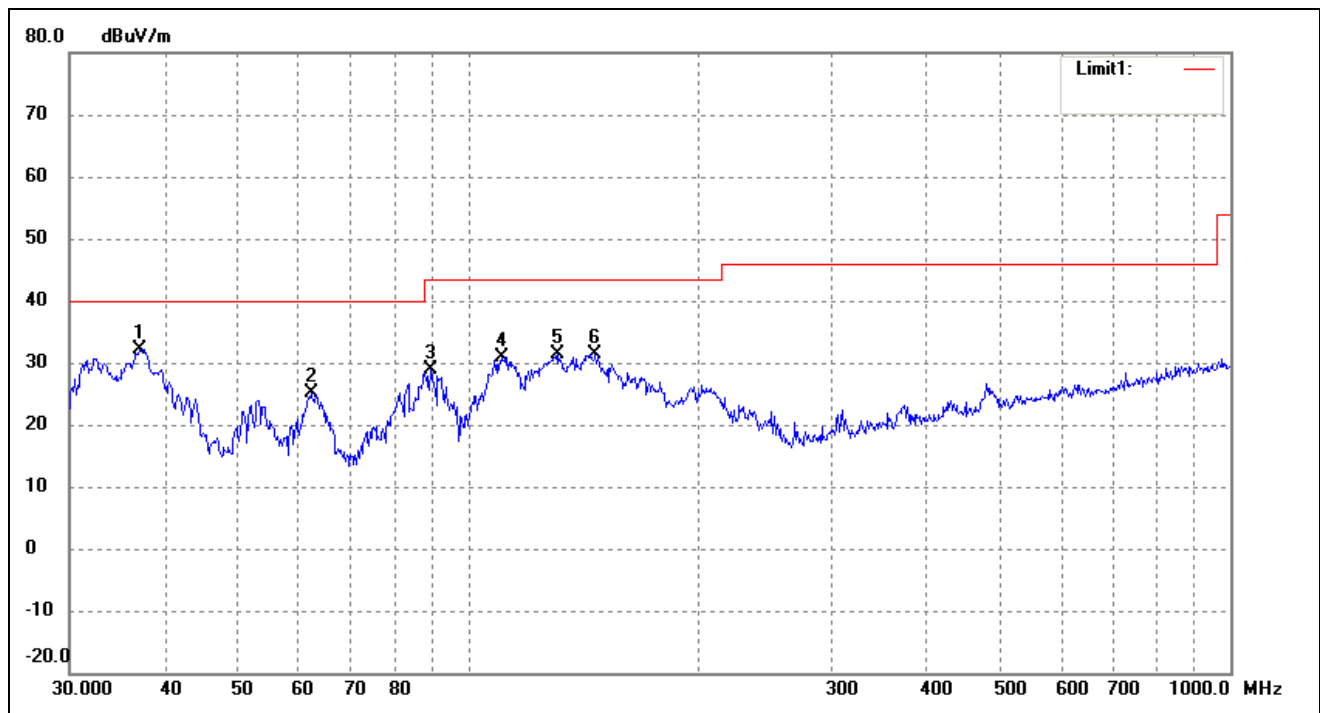
EUT: Tablet PC
 Tested Model: ENTEL eT6
 Operating Condition: TM1
 Comment: AC 120V/60Hz; Adapter DC 5V

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	89.2764	41.76	-12.69	29.07	43.50	-14.43	35	100	QP
2	106.3850	40.56	-11.39	29.17	43.50	-14.33	36	100	QP
3	144.8418	42.29	-11.51	30.78	43.50	-12.72	35	100	QP
4	202.1005	36.81	-8.49	28.32	43.50	-15.18	124	100	QP
5	312.1794	33.14	-5.09	28.05	46.00	-17.95	0	100	QP
6	478.8456	27.63	-1.52	26.11	46.00	-19.89	0	100	QP

Test Specification: Vertical

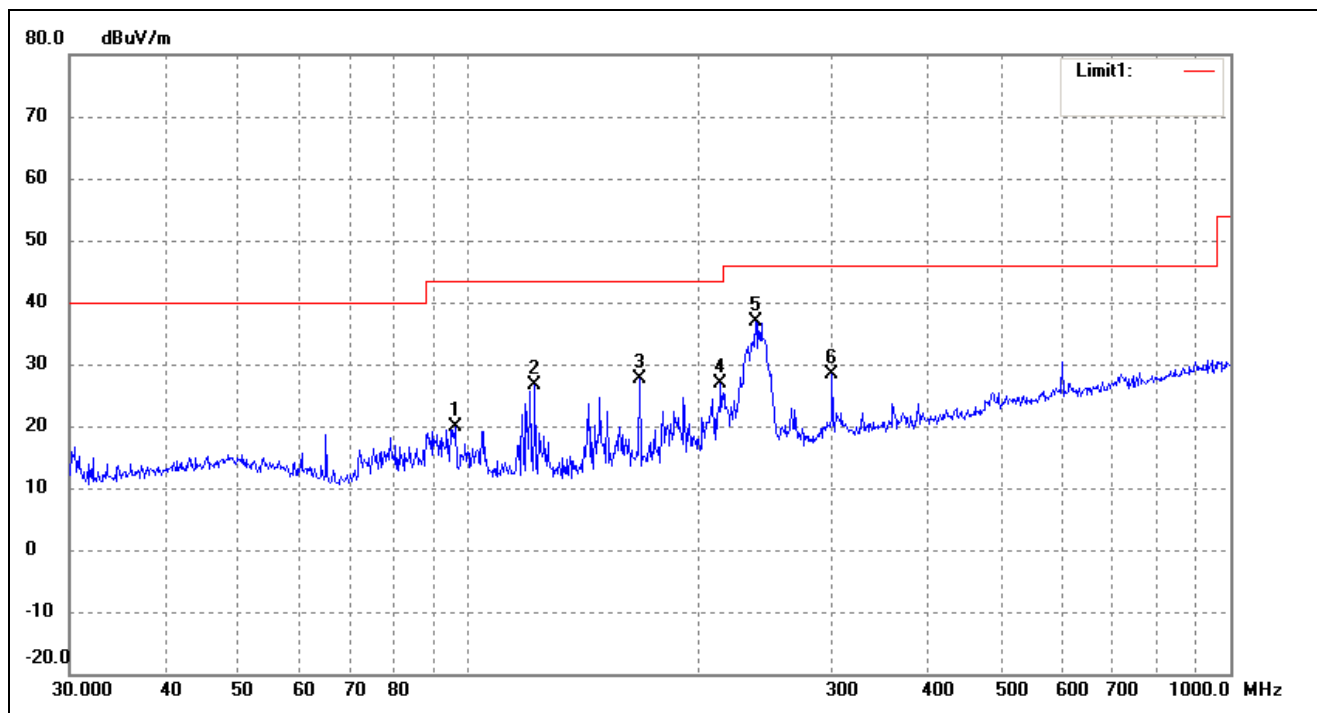


No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	37.0248	42.96	-10.82	32.14	40.00	-7.86	34	100	QP
2	62.2128	36.57	-11.54	25.03	40.00	-14.97	175	100	QP
3	89.2764	41.59	-12.69	28.90	43.50	-14.60	24	100	QP
4	110.9571	42.03	-11.13	30.90	43.50	-12.60	344	100	QP
5	131.2965	42.63	-11.34	31.29	43.50	-12.21	20	100	QP
6	146.8877	42.93	-11.53	31.40	43.50	-12.10	0	100	QP

Plot of Radiated Emissions Test Data

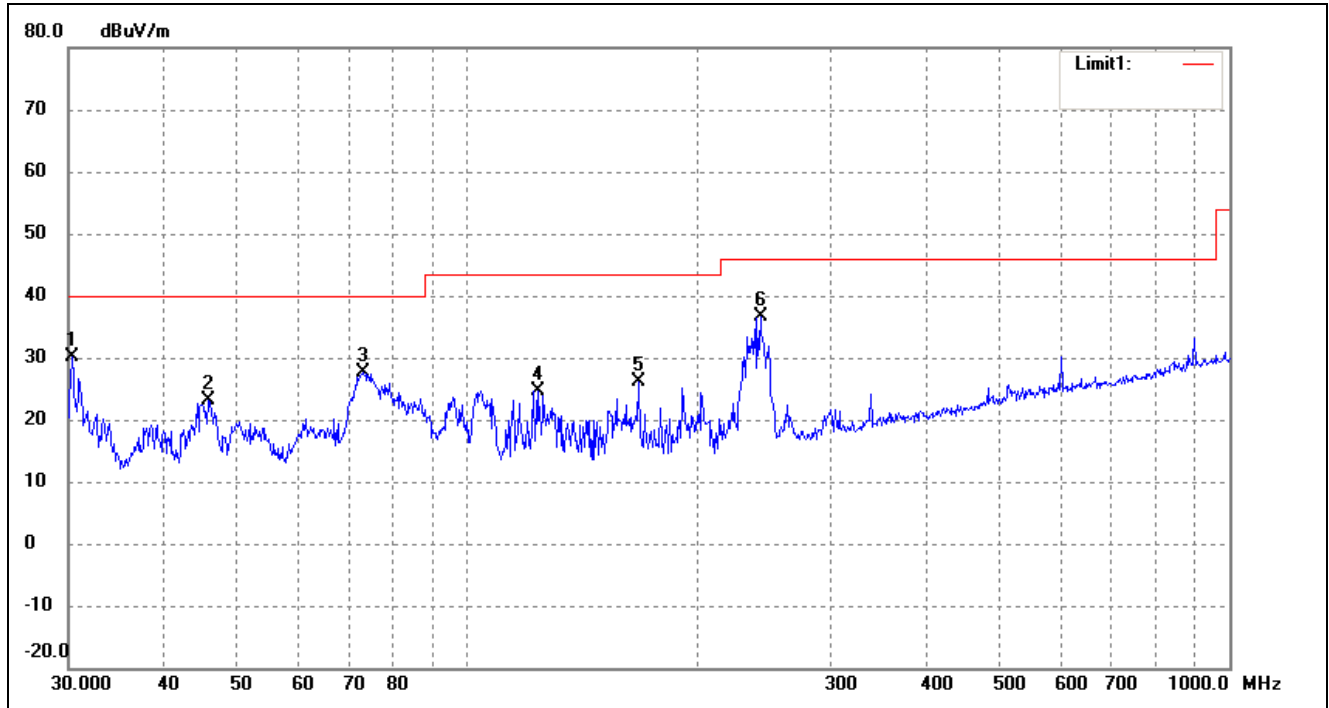
EUT: Tablet PC
 Tested Model: ENTEL eT6
 Operating Condition: TM2
 Comment: USB: DC5V

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	96.4362	31.95	-12.16	19.79	43.50	-23.71	51	100	QP
2	122.4040	37.80	-11.24	26.56	43.50	-16.94	37	100	QP
3	167.8243	38.38	-10.66	27.72	43.50	-15.78	58	100	QP
4	214.5143	34.94	-7.99	26.95	43.50	-16.55	86	100	QP
5	238.3102	43.65	-6.89	36.76	46.00	-9.24	124	100	QP
6	300.3672	33.78	-5.36	28.42	46.00	-17.58	203	100	QP

Test Specification: Vertical

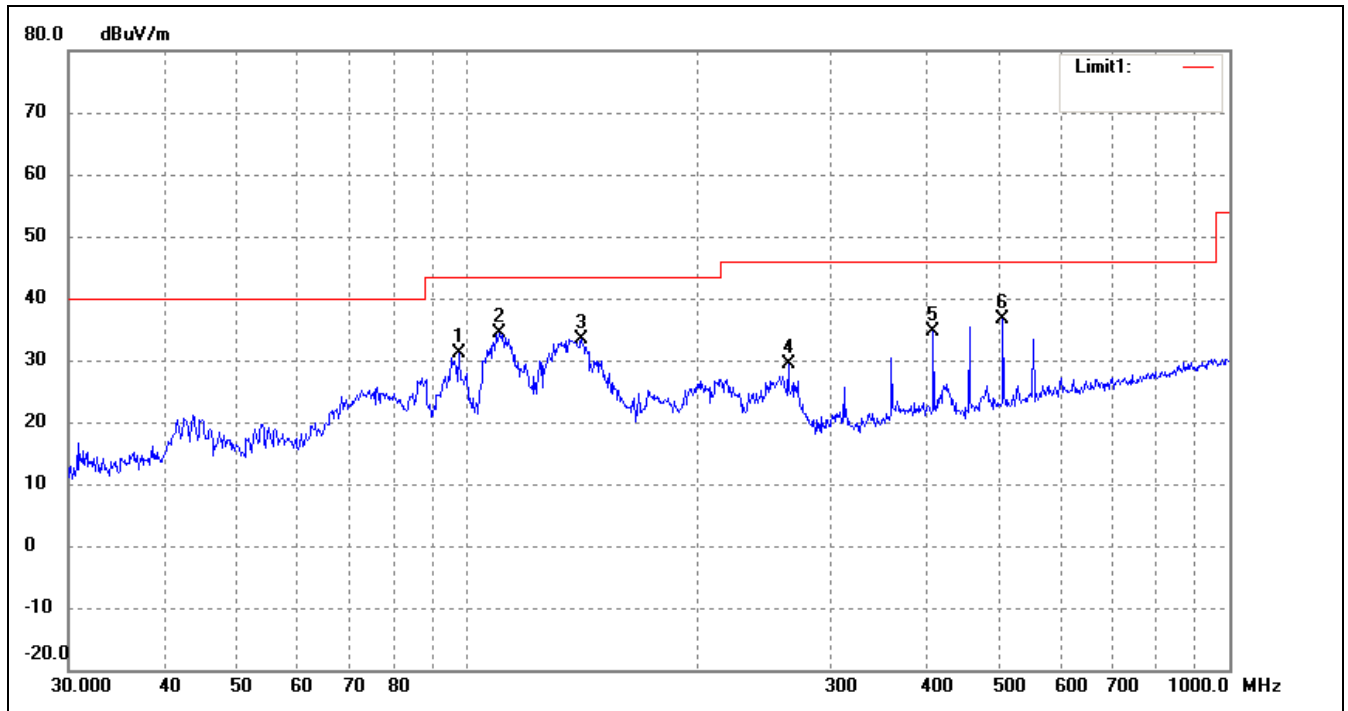


No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	30.3173	41.99	-11.79	30.20	40.00	-9.80	327	100	QP
2	45.6948	32.79	-9.58	23.21	40.00	-16.79	22	100	QP
3	73.1025	40.68	-13.11	27.57	40.00	-12.43	41	100	QP
4	123.6985	35.84	-11.25	24.59	43.50	-18.91	125	100	QP
5	167.8243	36.77	-10.66	26.11	43.50	-17.39	358	100	QP
6	242.5253	43.34	-6.77	36.57	46.00	-9.43	0	100	QP

Plot of Radiated Emissions Test Data

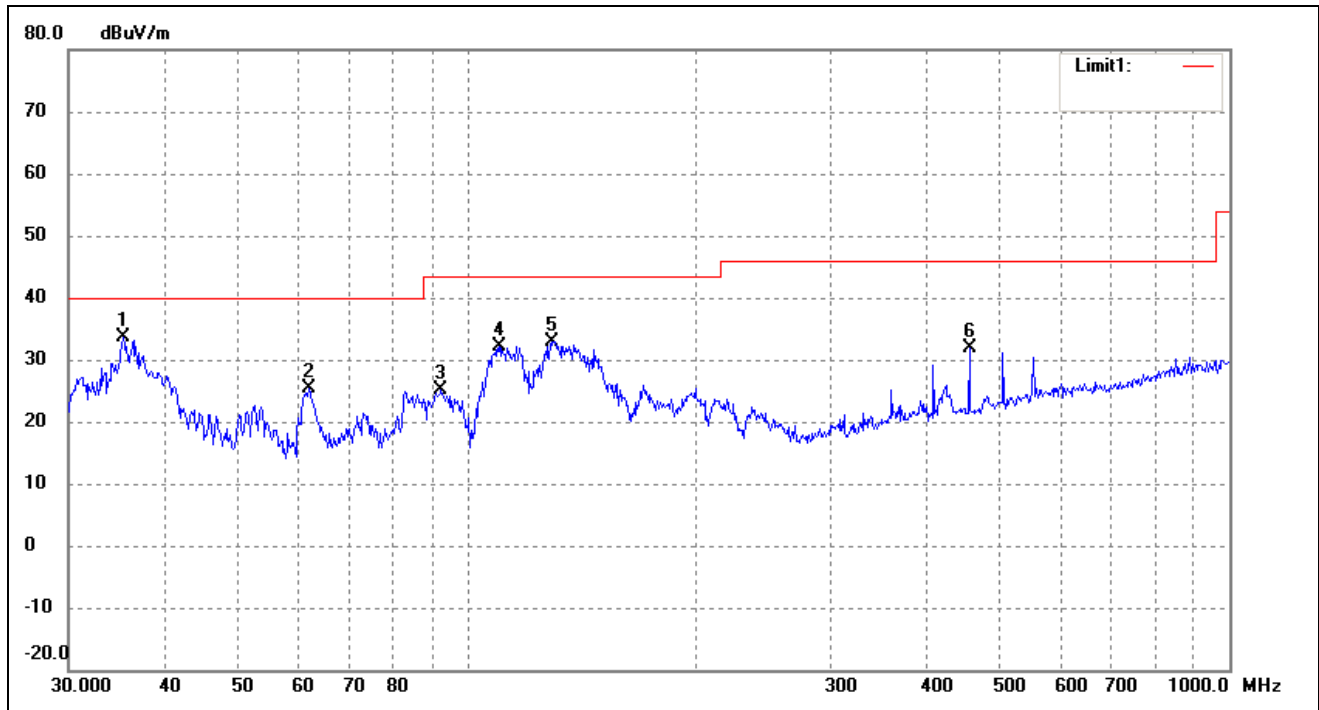
EUT: Tablet PC
Tested Model: ENTEL eT6
Operating Condition: TM3
Comment: AC 120V/60Hz; Adapter DC 5V

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	97.4560	43.21	-12.10	31.11	43.50	-12.39	357	100	QP
2	110.1816	45.46	-11.11	34.35	43.50	-9.15	254	100	QP
3	141.3298	44.77	-11.47	33.30	43.50	-10.20	45	100	QP
4	263.8190	35.83	-6.47	29.36	46.00	-16.64	244	100	QP
5	408.9460	37.36	-2.62	34.74	46.00	-11.26	1	100	QP
6	504.7062	37.64	-0.95	36.69	46.00	-9.31	0	100	QP

Test Specification: Vertical

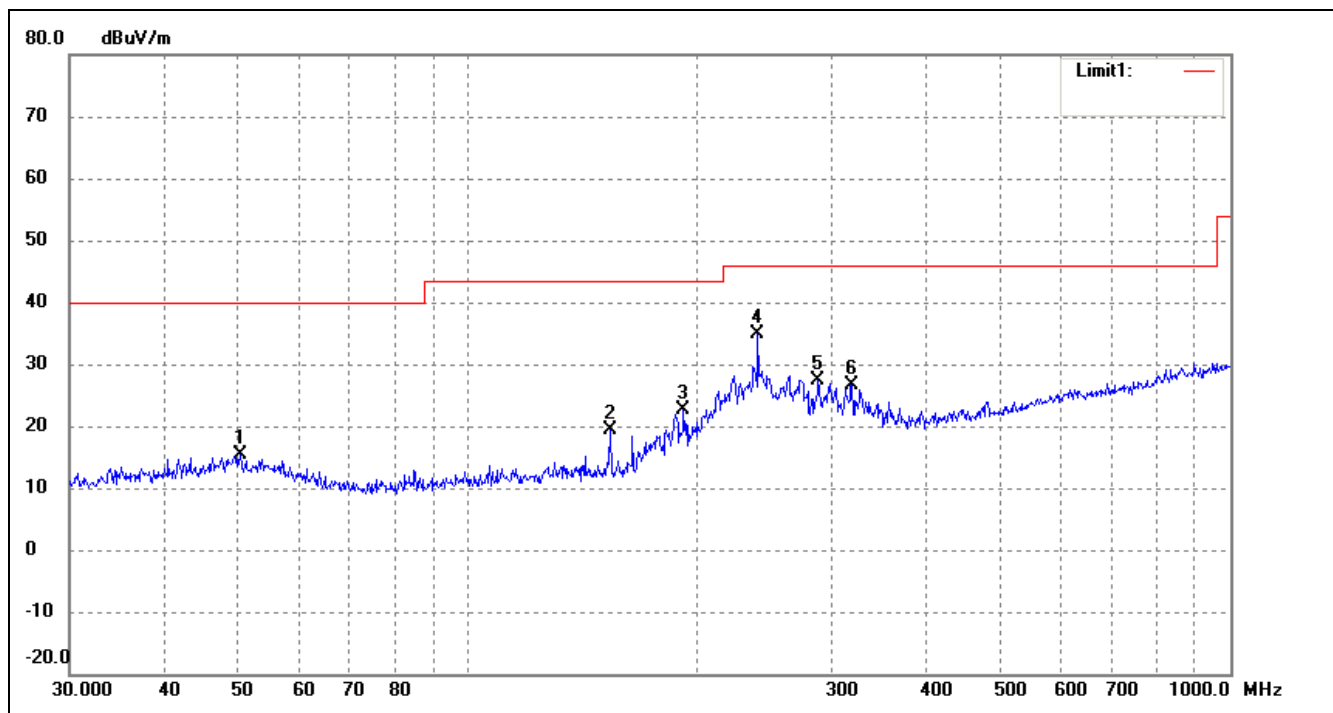


No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	35.3750	44.65	-11.07	33.58	40.00	-6.42	43	100	QP
2	61.9951	36.90	-11.50	25.40	40.00	-14.60	45	100	QP
3	92.4624	37.56	-12.48	25.08	43.50	-18.42	225	100	QP
4	110.1816	43.26	-11.11	32.15	43.50	-11.35	241	100	QP
5	129.4677	44.21	-11.30	32.91	43.50	-10.59	241	100	QP
6	455.9058	33.86	-1.98	31.88	46.00	-14.12	0	100	QP

Plot of Radiated Emissions Test Data

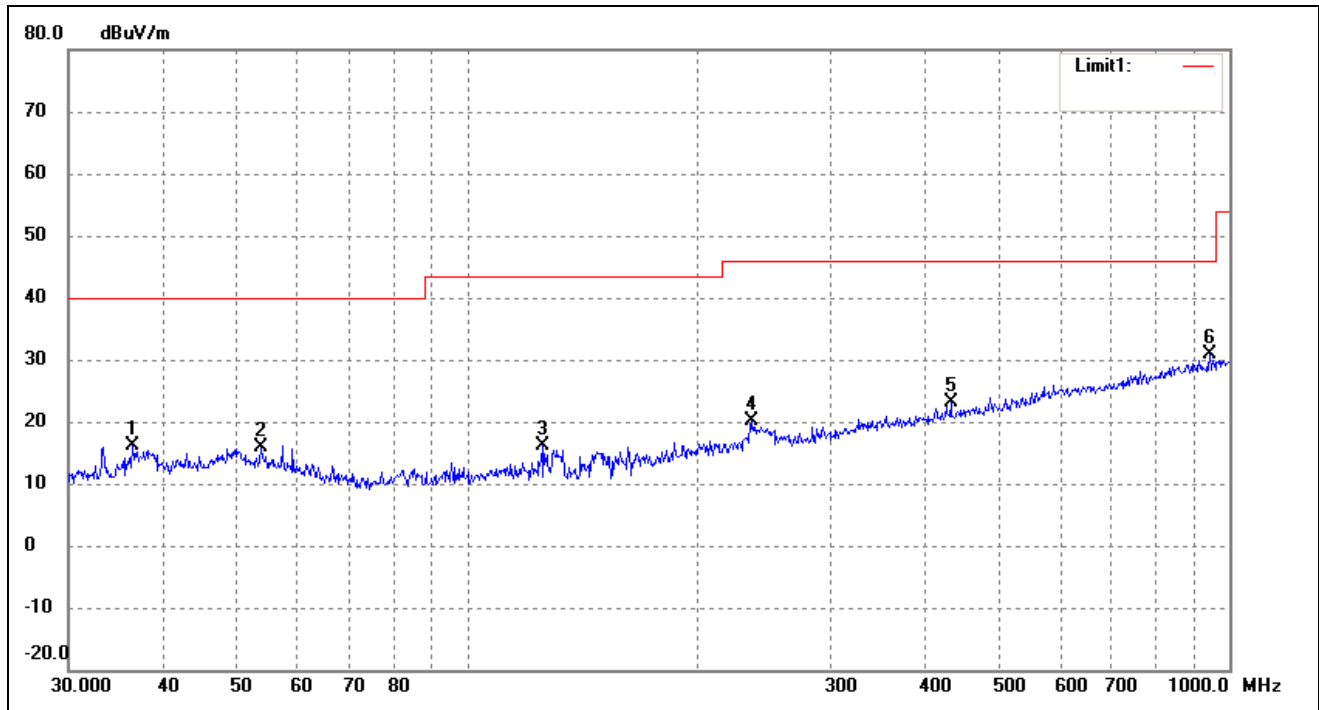
EUT: Tablet PC
 Tested Model: ENTEL eT6
 Operating Condition: TM4
 Comment: Battery: DC 3.8V

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	50.2324	24.35	-9.02	15.33	40.00	-24.67	54	100	QP
2	153.7385	30.66	-11.39	19.27	43.50	-24.23	12	100	QP
3	191.7450	31.52	-8.81	22.71	43.50	-20.79	0	100	QP
4	239.9874	41.64	-6.85	34.79	46.00	-11.21	0	100	QP
5	287.9904	33.15	-5.67	27.48	46.00	-18.52	11	100	QP
6	318.8170	31.56	-4.87	26.69	46.00	-19.31	124	100	QP

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	36.3814	27.16	-10.92	16.24	40.00	-23.76	355	100	QP
2	53.6932	25.66	-9.76	15.90	40.00	-24.10	0	100	QP
3	125.4457	27.47	-11.26	16.21	43.50	-27.29	257	100	QP
4	236.6447	27.04	-6.95	20.09	46.00	-25.91	360	100	QP
5	431.0316	25.26	-2.21	23.05	46.00	-22.95	247	100	QP
6	942.1305	25.53	5.29	30.82	46.00	-15.18	58	100	QP

Note: Testing is carried out with frequency rang 9kHz to the 8.5GHz, which above 1GHz is close to the noise base even antenna close up to 1meter distance according the measurement of ANSI C63.4.

The measurements greater than 20dB below the limit from 9kHz to 30MHz and test data are not provided.

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