

FCC Part 15B Measurement and Test Report

For

Dongguan Winn Technology Co., Ltd
xanghe Rd, Xinmin Area, chang'an, dongguan

FCC ID: 2AA5TWT7008

Test Standards: FCC Part 15C

Product Description: Tablet PC

Tested Model: WT7008

Report No.: STR13108070I-2

Tested Date: 2013-10-12 to 2013-10-21

Issued Date: 2013-10-22

Tested By: Silin Chen / Engineer

Silin chen

Reviewed By: Lahm Peng / EMC Manager

Lahm peng

Approved & Authorized By: Jandy so / PSQ Manager

Jandyso

Prepared By:

SEM.Test Compliance Service Co., Ltd

3/F, Jinbao Commerce Building, Xin'an Fanshen Road,
Bao'an District, Shenzhen, P.R.C. (518101)

Tel.: +86-755-33663308 Fax.: +86-755-33663309 Website: www.semtest.com.cn

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 SEM.Test Compliance Service Co., Ltd

TABLE OF CONTENTS

1. GENERAL INFORMATION.....	3
1.1 PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT).....	3
1.2 TEST STANDARDS.....	4
1.3 TEST METHODOLOGY	4
1.4 TEST FACILITY	4
1.5 EUT SETUP AND OPERATION MODE	5
2. SUMMARY OF TEST RESULTS	6
3. CONDUCTED EMISSIONS	7
3.1 MEASUREMENT UNCERTAINTY	7
3.2 TEST EQUIPMENT LIST AND DETAILS	7
3.3 TEST PROCEDURE.....	7
3.4 BASIC TEST SETUP BLOCK DIAGRAM.....	7
3.5 ENVIRONMENTAL CONDITIONS	8
3.6 SUMMARY OF TEST RESULTS/PLOTS	8
3.7 CONDUCTED EMISSIONS TEST DATA.....	8
4. RADIATED EMISSIONS	11
4.1 MEASUREMENT UNCERTAINTY	11
4.2 TEST EQUIPMENT LIST AND DETAILS	11
4.3 TEST PROCEDURE.....	11
4.4 TEST RECEIVER SETUP	12
4.5 CORRECTED AMPLITUDE & MARGIN CALCULATION.....	12
4.6 ENVIRONMENTAL CONDITIONS	12
4.7 SUMMARY OF TEST RESULTS/PLOTS	12

1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant: Dongguan Winn Technology Co., Ltd
Address of applicant: xanghe Rd, Xinmin Area, chang'an, dongguan

Manufacturer: Dongguan Winn Technology Co., Ltd
Address of manufacturer: xanghe Rd, Xinmin Area, chang'an, dongguan

General Description of EUT	
Product Name:	Tablet PC
Trade Name:	/
Model No.:	WT7008
Note: The test data is gathered from a production sample, provided by the manufacturer.	

Technical Characteristics of EUT	
Rated Voltage:	DC 3.7V
Power Adaptor:	Model:JK050200-904USA
	Input 100-240V, 50/60Hz, Output DC 5V
Highest Internal Frequency:	1GHz
Lowest Internal Frequency:	32.768 kHz
Classification of ITE:	Class B

1.2 Test Standards

The following report is prepared on behalf of the Dongguan Winn Technology Co., 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 C63.4-2003, 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.: 994117**

SEM.Test Compliance Services 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 994117.

- **Industry Canada (IC) Registration No.: 7673A**

The 3m Semi-anechoic chamber of SEM.Test Compliance Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 7673A.

- **CNAS Registration No.: L4062**

Shenzhen SEM.Test Electronics Service 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 3/F, Jinbao Commerce Building, Xin'an Fanshen 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	1kHz Video playing
TM2	HDMI Output	1kHz Video playing
TM3	Downloading	Connect to PC

EUT Cable List and Details

Cable Description	Length (m)	Shielded/Unshielded	With / Without Ferrite
USB Cable	1.0	Shielded	With Ferrite
DC Cable	1.2	Unshielded	Without Ferrite

Special Cable List and Details

Cable Description	Length (m)	Shielded/Unshielded	With / Without Ferrite
Earphone	1.0	Unshielded	Without Ferrite

Auxiliary Equipment List and Details

Description	Manufacturer	Model	Serial Number
Notebook	Lenovo	E23	/

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.

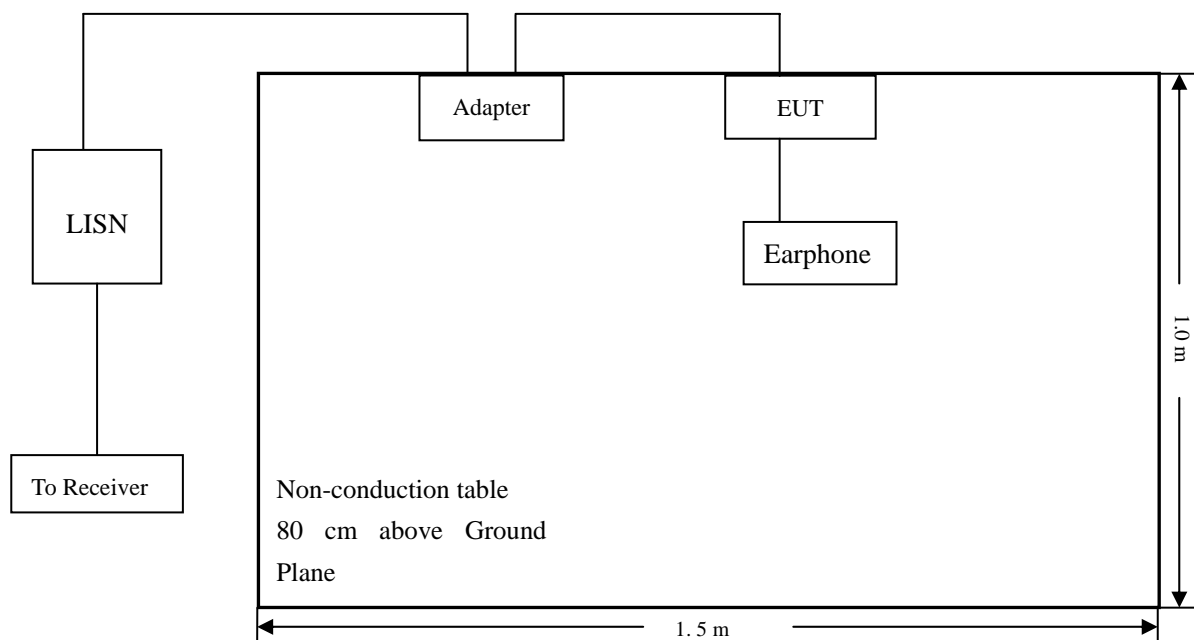
3.2 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
EMI Test Receiver	Rohde & Schwarz	ESPI	101611	2013-05-07	2014-05-06
L.I.S.N	Schwarz beck	NSLK8126	8126-224	2013-05-07	2014-05-06
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100911	2013-05-07	2014-05-06

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.

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

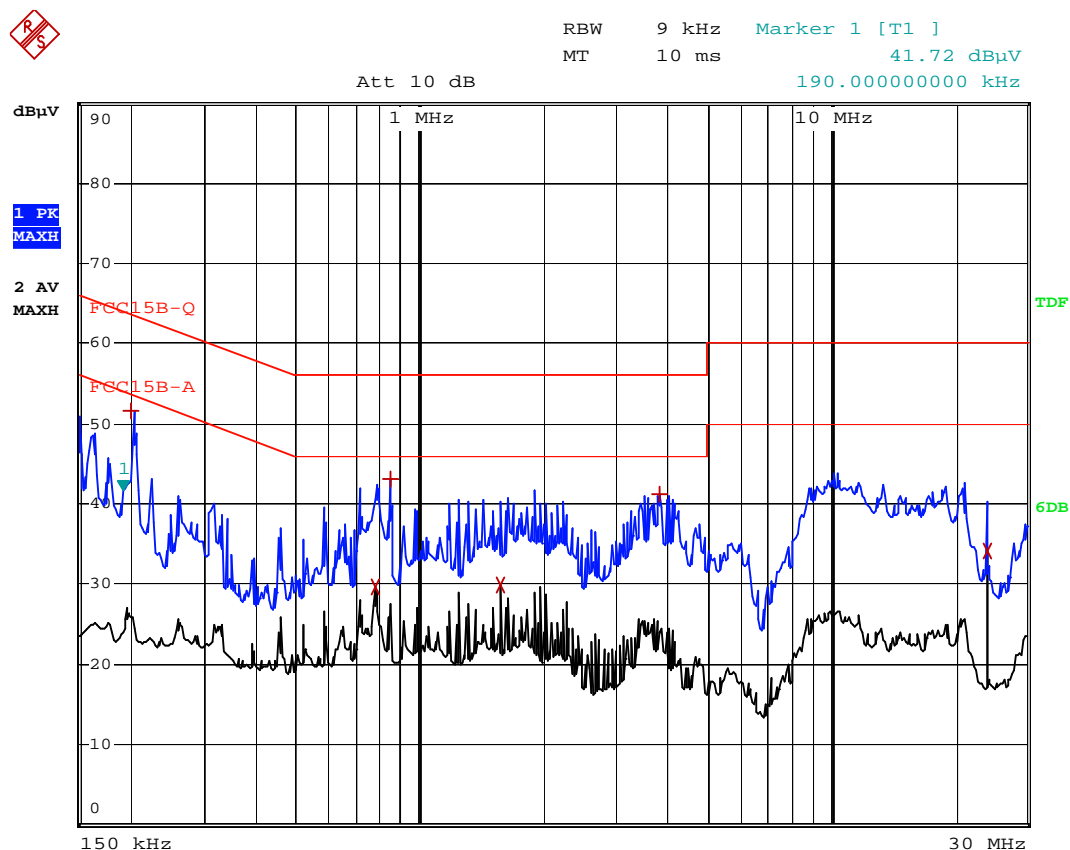
According to the data in section 3.7, the EUT complied with the FCC Part 15.107(a) Conducted margin for a Class B device, with the *worst* margin reading of:

-8.99 dB at 0.170 MHz in the **Line** mode, **Peak** detector, **0.15-30MHz**

3.7 Conducted Emissions Test Data

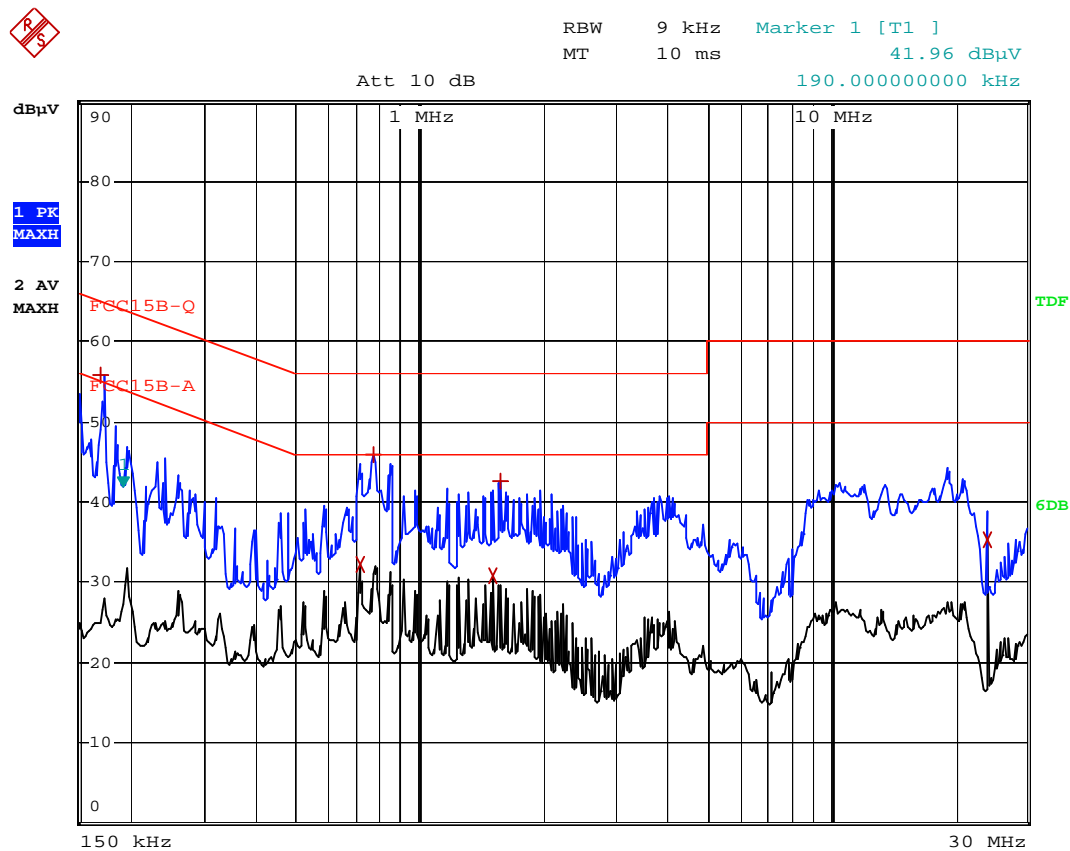
<i>EUT:</i>	<i>Tablet PC</i>
<i>Tested Model:</i>	<i>WT7008</i>
<i>Operating Condition:</i>	<i>TM1</i>
<i>Comment:</i>	<i>Input AC 120V/60Hz, Output DC 5V</i>

Test Specification: *Neutral*



EDIT PEAK LIST (Prescan Results)			
Trace1:		FCC15B-Q	
Trace2:		FCC15B-A	
Trace3:		---	
TRACE	FREQUENCY	LEVEL dBµV	DELTA LIMIT dB
1 Max Peak	202 kHz	51.64	-11.88
2 Average	778 kHz	29.61	-16.38
1 Max Peak	850 kHz	43.11	-12.88
2 Average	1.57 MHz	29.99	-16.00
1 Max Peak	3.854 MHz	41.17	-14.82
2 Average	24.002 MHz	34.20	-15.79

Test Specification: Line



EDIT PEAK LIST (Prescan Results)			
Trace1:	FCC15B-Q		
Trace2:	FCC15B-A		
Trace3:	---		
TRACE	FREQUENCY	LEVEL dBμV	DELTA LIMIT dB
1 Max Peak	170 kHz	55.96	-8.99
2 Average	718 kHz	32.21	-13.78
1 Max Peak	774 kHz	45.90	-10.09
2 Average	1.502 MHz	30.78	-15.21
1 Max Peak	1.566 MHz	42.62	-13.37
2 Average	23.998 MHz	35.21	-14.78

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

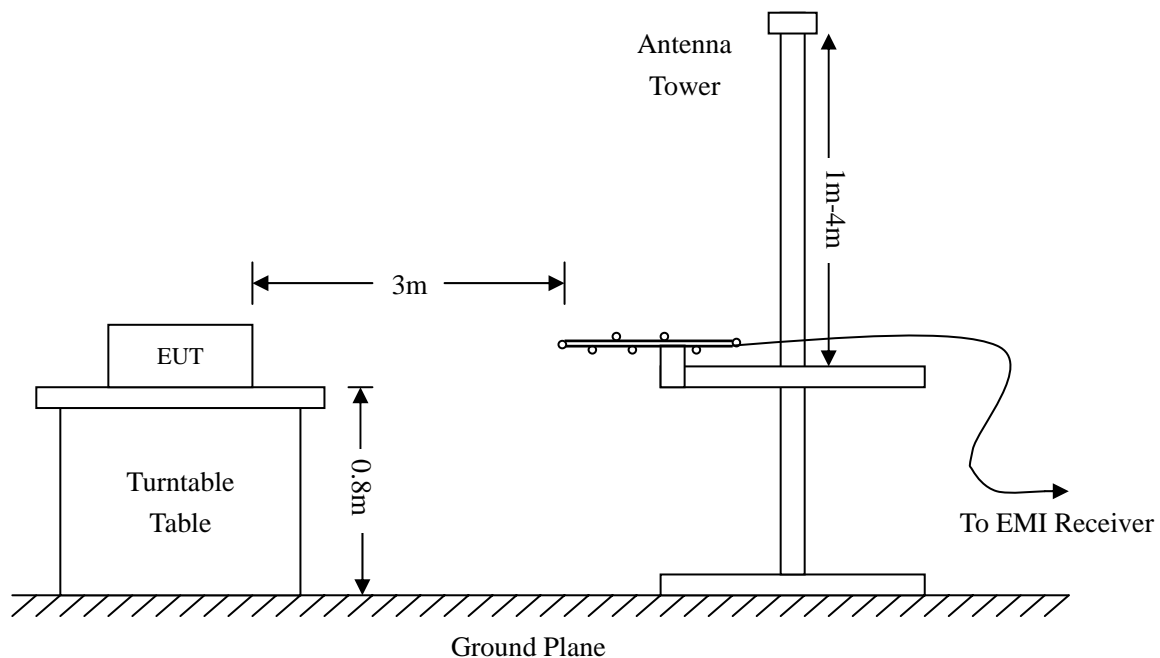
Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
Spectrum Analyzer	R&S	FSP	836079/035	2013-05-07	2014-05-06
EMI Test Receiver	R&S	ESVB	825471/005	2013-05-07	2014-05-06
Pre-amplifier	Agilent	8447F	3113A06717	2013-05-07	2014-05-06
Pre-amplifier	Compliance Direction	PAP-0118	24002	2013-05-07	2014-05-06
Trilog Broadband Antenna	SCHWARZBECK	VULB9163	9163-333	2013-04-20	2014-04-19
Horn Antenna	ETS	3117	00086197	2013-04-20	2014-04-19
Loop Antenna	SCHWARZECK	HFRA 5165	9365	2013-04-20	2014-04-19

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.



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 Test Receiver Setup

During the radiated emission test for above 1GHz, the test receiver was set with the following configurations:

For peak detector:

RBW = 1000kHz, VBW = 3000kHz, Sweep Time = Auto

For average detector:

RBW = 1000kHz, VBW = 10Hz, Sweep Time = Auto

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 -6dBμV means the emission is 6dBμV 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

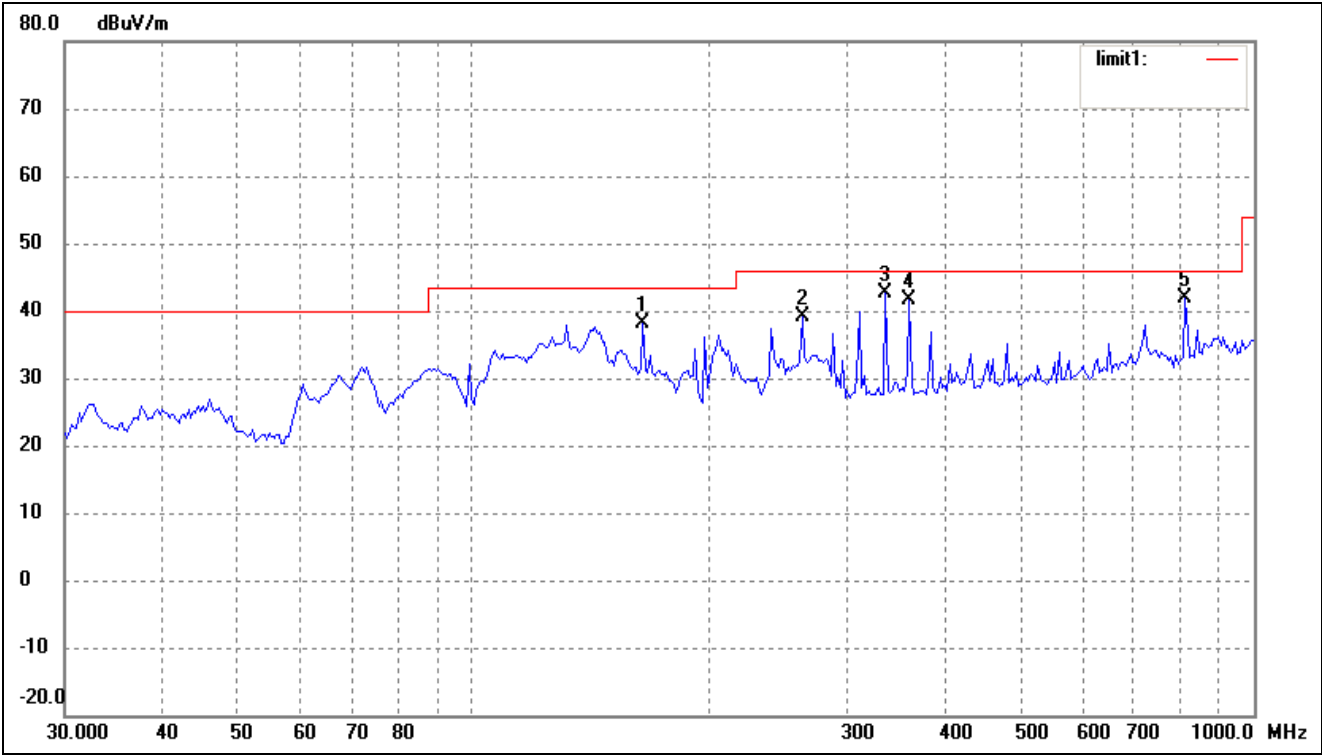
According to the data, the EUT complied with the FCC Part 15.109(a) rule, and had the worst margin of:

-2.14 dB at 86.5029 MHz in the **Horizontal** polarization, **TM2** mode, **9 kHz** to **5 GHz**, **3Meters**

Plot of Radiated Emissions Test Data

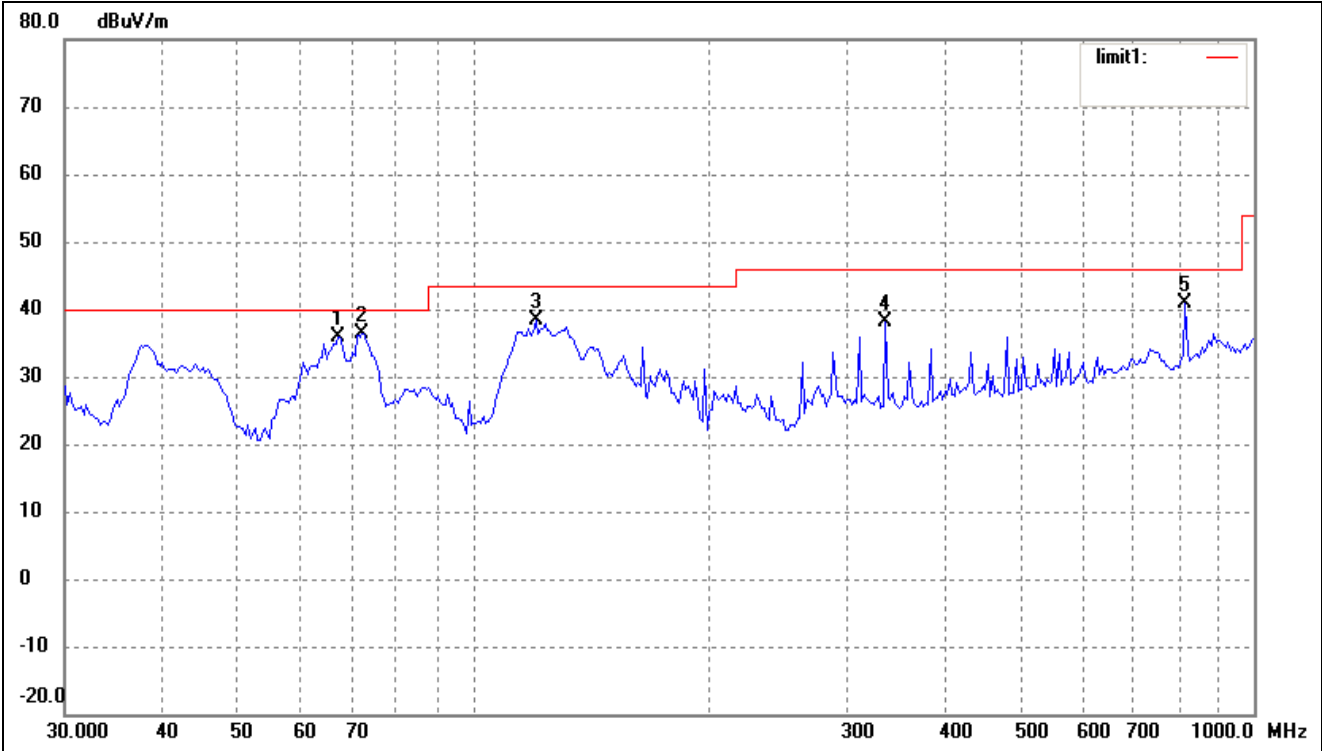
EUT: Tablet PC
Tested Model: WT7008
Operating Condition: TM1
Comment: AC 120V/60Hz; Adapter DC 5V

Test Specification: Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	164.9075	34.42	3.68	38.10	43.50	-5.40	50	100	peak
2	263.8190	31.19	8.00	39.19	46.00	-6.81	50	100	peak
3	337.2155	32.61	10.14	42.75	46.00	-3.25	50	100	peak
4	361.7139	30.92	10.69	41.61	46.00	-4.39	50	100	peak
5	815.9678	25.29	16.70	41.99	46.00	-4.01	50	100	peak

Test Specification: Vertical

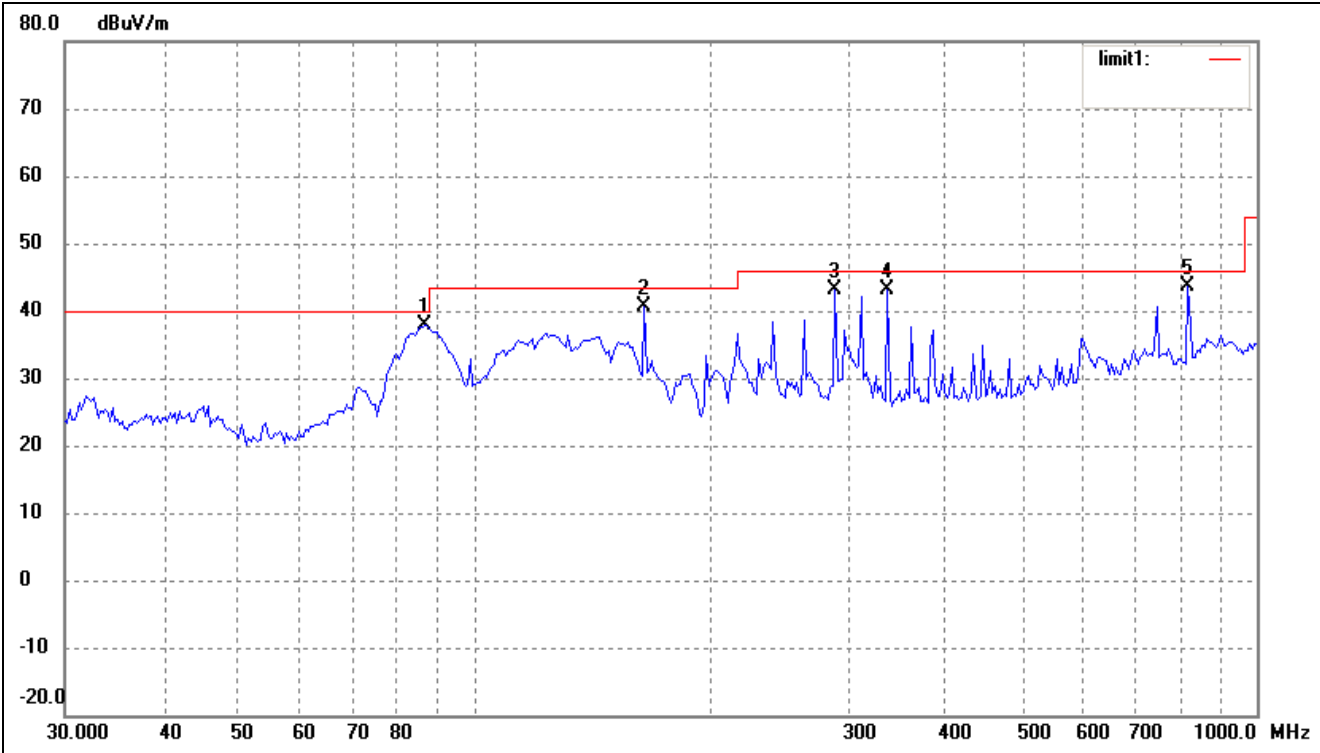


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	67.2022	32.34	3.42	35.76	40.00	-4.24	0	100	peak
2	72.0843	34.17	2.28	36.45	40.00	-3.55	0	100	peak
3	120.2766	33.49	4.85	38.34	43.50	-5.16	0	100	peak
4	337.2155	27.89	10.14	38.03	46.00	-7.97	0	100	peak
5	815.9678	24.18	16.70	40.88	46.00	-5.12	0	100	peak

Plot of Radiated Emissions Test Data

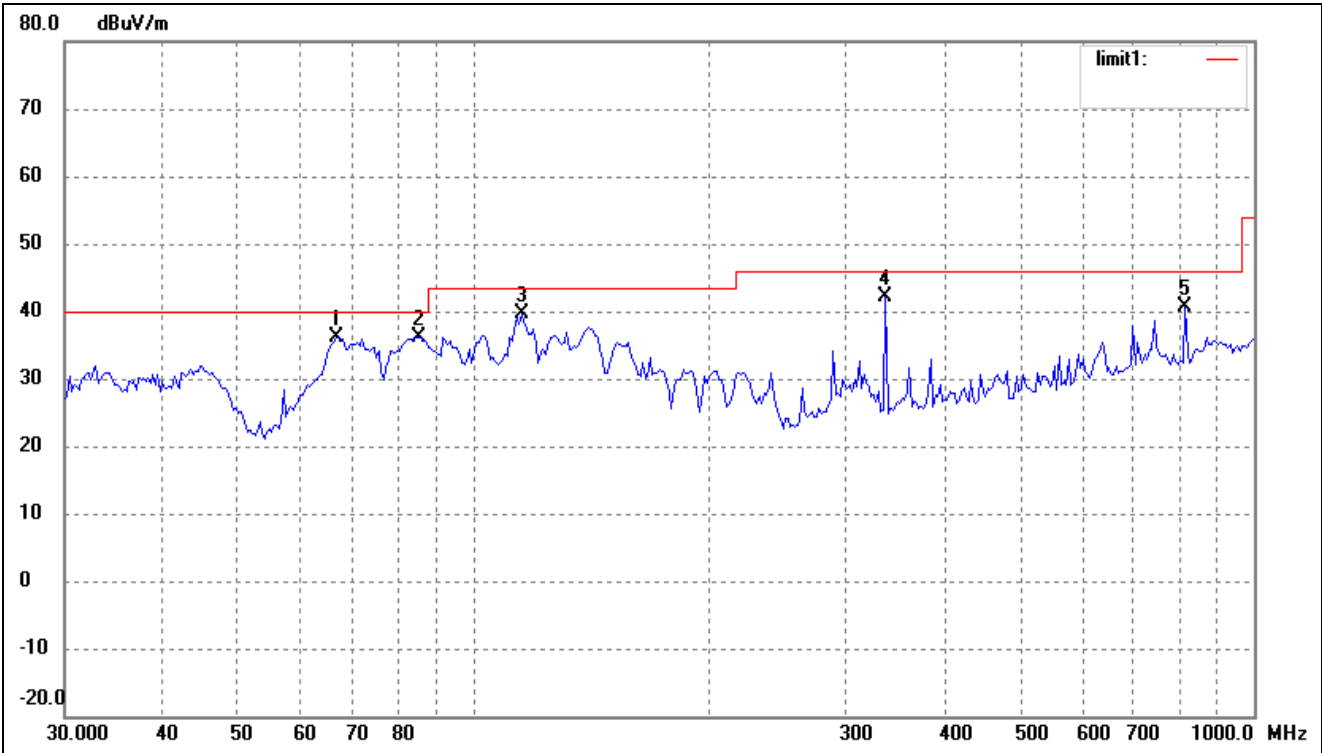
EUT: Tablet PC
Tested Model: WT7008
Operating Condition: TM2
Comment: DC 3.7V Lithium Battery

Test Specification: Horizontal

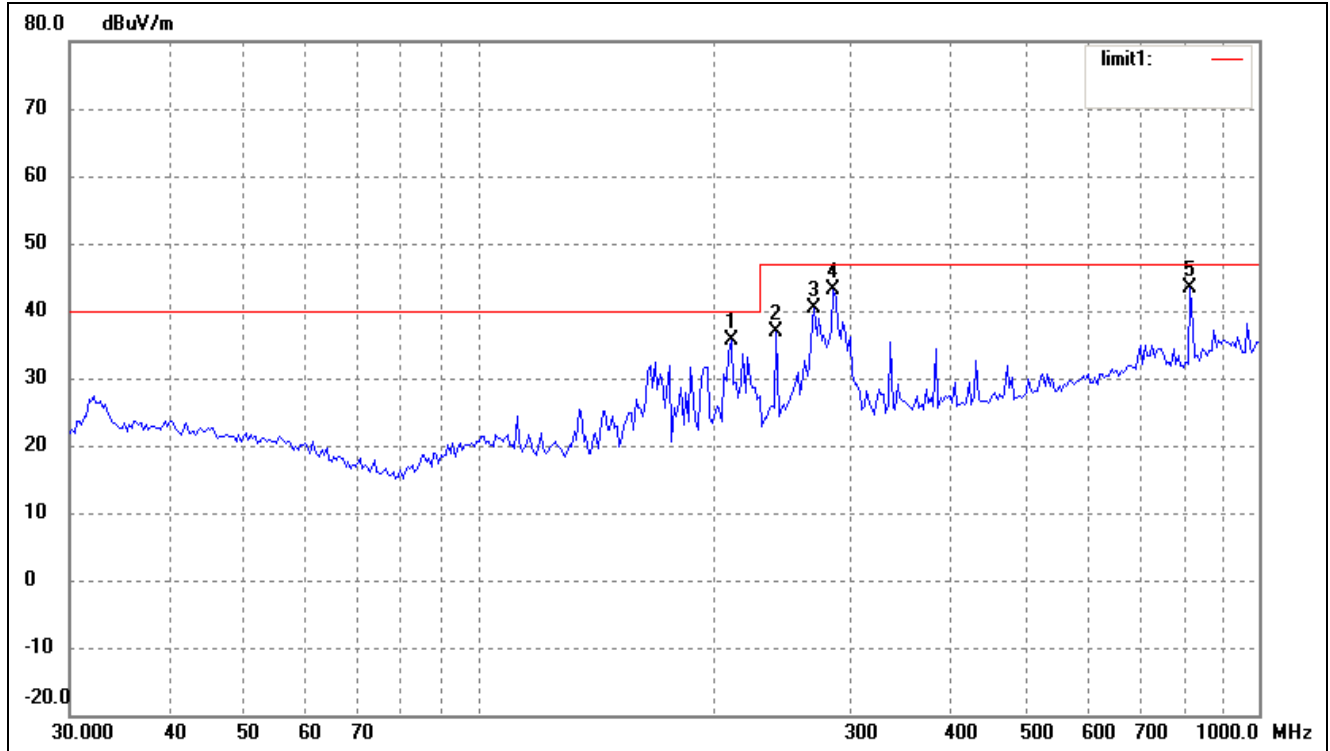


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	86.5029	34.39	3.47	37.86	40.00	-2.14	250	100	peak
2	164.9075	36.90	3.68	40.58	43.50	-2.92	250	100	peak
3	289.0021	33.42	9.67	43.09	46.00	-2.91	250	100	peak
4	337.2155	33.09	10.14	43.23	46.00	-2.77	250	100	peak
5	815.9678	26.89	16.70	43.59	46.00	-2.41	250	100	peak

Test Specification: Vertical

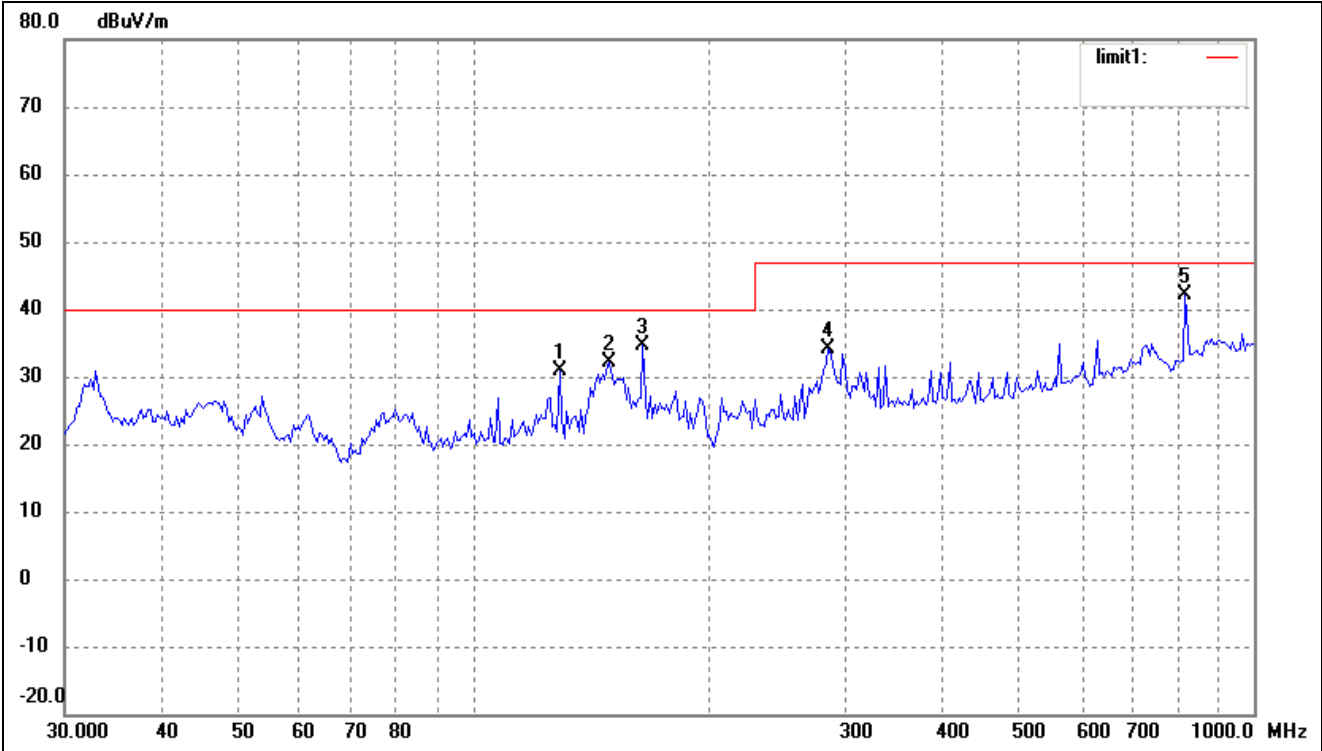


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	66.7325	32.55	3.57	36.12	40.00	-3.88	0	100	peak
2	85.2981	32.98	3.17	36.15	40.00	-3.85	0	100	peak
3	115.3205	34.19	5.32	39.51	43.50	-3.99	0	100	peak
4	337.2155	32.01	10.14	42.15	46.00	-3.85	0	100	peak
5	815.9678	23.81	16.70	40.51	46.00	-5.49	0	100	peak

Plot of Radiated Emissions Test Data*EUT:* Tablet PC*Tested Model:* WT7008*Operating Condition:* TM3*Comment:* AC 120V/60Hz, USB 5V*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	210.7860	30.22	5.33	35.55	40.00	-4.45	0	100	peak
2	240.8304	29.97	7.02	36.99	47.00	-10.01	0	100	peak
3	269.4284	31.86	8.43	40.29	47.00	-6.71	0	100	peak
4	284.9767	33.73	9.47	43.20	47.00	-3.80	0	100	peak
5	815.9678	26.70	16.70	43.40	47.00	-3.60	0	100	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	129.0146	26.58	4.20	30.78	40.00	-9.22	0	100	peak
2	149.4857	28.50	3.55	32.05	40.00	-7.95	0	100	peak
3	164.9075	30.92	3.68	34.60	40.00	-5.40	0	100	peak
4	284.9767	24.64	9.47	34.11	47.00	-12.89	0	100	peak
5	815.9678	25.45	16.70	42.15	47.00	-4.85	0	100	peak

Note: Testing is carried out with frequency rang 9kHz to 5GHz, which above 9kHz to 30MHz and above 1GHz spurious are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

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