

FCC Part 15B

Measurement and Test Report

For

SHENZHEN SIBO INDUSTRIAL & DEVELOPMENT CO., LTD

3A/F, Bld.27, Wisdomland Business Park Guankou No.2Rd, Nanshan District

Shenzhen China

FCC ID: 2AH6EQ896

Test Rule(s):	<u>FCC Part 15 Subpart B</u>
Product Description:	<u>Tablet PC</u>
Tested Model:	<u>Q896</u>
Report No.:	<u>STR16038188I-4</u>
Tested Date:	<u>2016-03-24 to 2016-04-16</u>
Issued Date:	<u>2016-04-16</u>
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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.

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
1.6 MEASUREMENT UNCERTAINTY	5
1.7 TEST EQUIPMENT LIST AND DETAILS	6
2. SUMMARY OF TEST RESULTS	7
3. CONDUCTED EMISSIONS	8
3.1 TEST PROCEDURE.....	8
3.2 BASIC TEST SETUP BLOCK DIAGRAM.....	8
3.3 ENVIRONMENTAL CONDITIONS	8
3.4 SUMMARY OF TEST RESULTS/PLOTS	8
3.5 CONDUCTED EMISSIONS TEST DATA.....	9
4. RADIATED EMISSIONS	11
4.1 TEST PROCEDURE.....	11
4.2 TEST RECEIVER SETUP	12
4.3 CORRECTED AMPLITUDE & MARGIN CALCULATION.....	12
4.4 ENVIRONMENTAL CONDITIONS	12
4.5 SUMMARY OF TEST RESULTS/PLOTS	12

1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant: SHENZHEN SIBO INDUSTRIAL & DEVELOPMENT CO., LTD

Address of applicant: 3A/F, Bld.27, Wisdomland Business Park Guankou No.2Rd, Nanshan District Shenzhen China

Manufacturer: SHENZHEN SIBO INDUSTRIAL & DEVELOPMENT CO., LTD

Address of manufacturer: 3A/F, Bld.27, Wisdomland Business Park Guankou No.2Rd, Nanshan District Shenzhen China

General Description of EUT	
Product Name:	Tablet PC
Trade Name:	/
Model No.:	Q896
Adding Model(s):	Q896S/Q895/Q897/Q898
<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 Q896, but the circuit and the electronic construction do not change, declared by the manufacturer.</i>	

Technical Characteristics of EUT	
Rated Voltage:	DC 12V Adapter
Rated Current:	500mA
Rated Power:	6W
Power Adapter Model:	THX-120150KD Input:100-240V 50/60Hz; Output: DC 12V/1500mA
Lowest Internal Frequency:	32.768kHz
Highest Internal Frequency:	1GHz
Classification of ITE:	CLASS B

1.2 Test Standards

The following report is prepared on behalf of the SHENZHEN SIBO INDUSTRIAL & DEVELOPMENT 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 C63.4-2014, 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	Playing for U disk	/
TM2	Connect to network	/
TM3	/	/
TM4	/	/

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
Display	DELL	U2410f	50642P246601H(B) ZL

Special Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
HDMI cable	1.2	Unshielded	Without Core

1.6 Measurement Uncertainty

Measurement uncertainty		
Parameter	Conditions	Uncertainty
Conducted Emissions	Conducted	$\pm 2.88\text{dB}$
Transmitter Spurious Emissions	Radiated	$\pm 5.1\text{dB}$

1.7 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

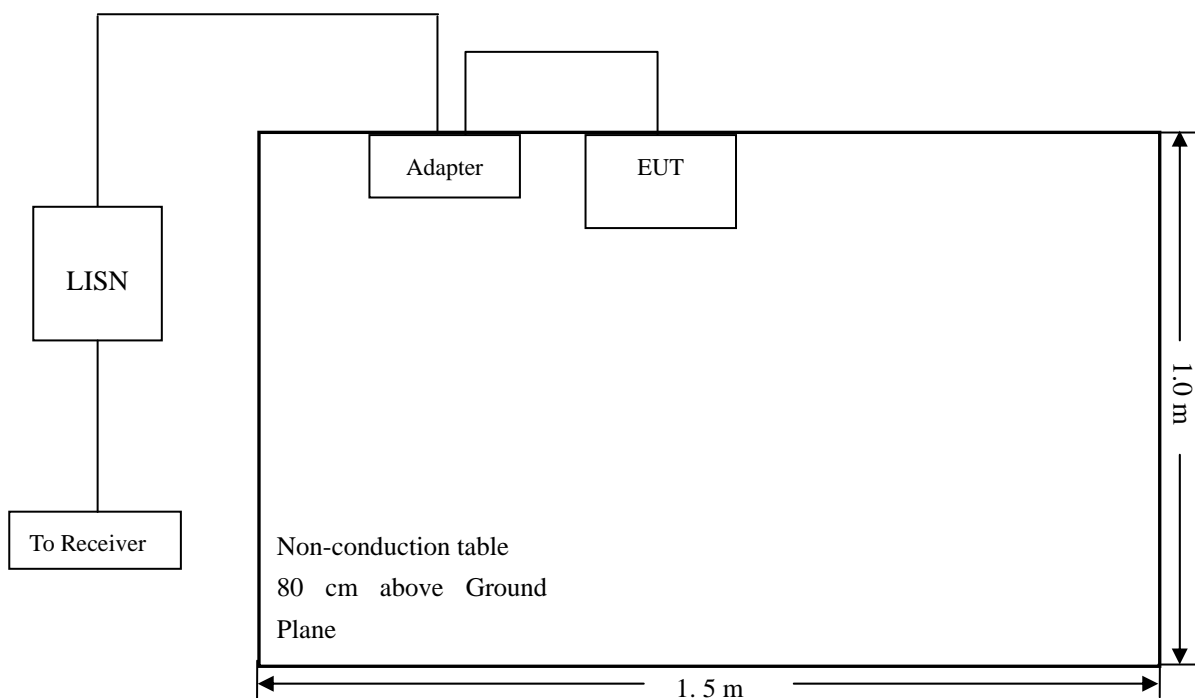
N/A: not applicable

3. Conducted Emissions

3.1 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 3.6, the EUT complied with the FCC Part 15.107(a) Conducted margin for a Class B device, with the *worst* margin reading of:

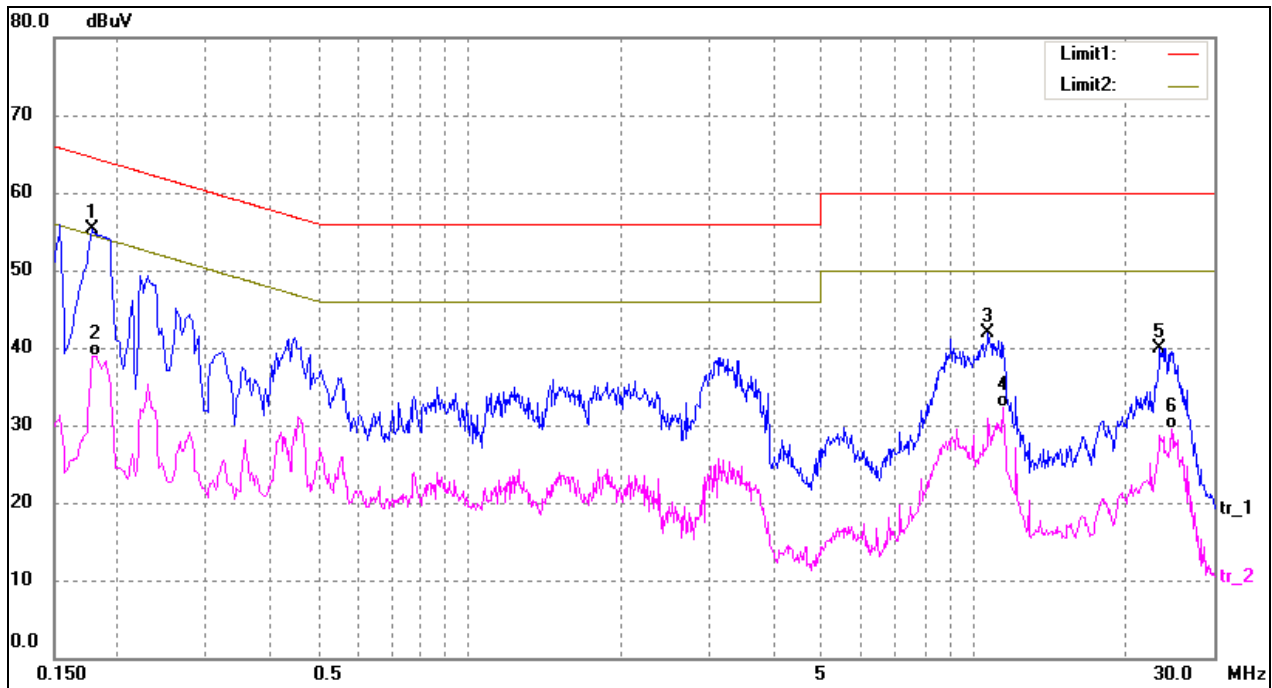
-9.24dB at 0.1780 MHz in the **Neutral, Peak** detector, 0.15-30MHz

3.5 Conducted Emissions Test Data

Plot of Conducted Emissions Test Data

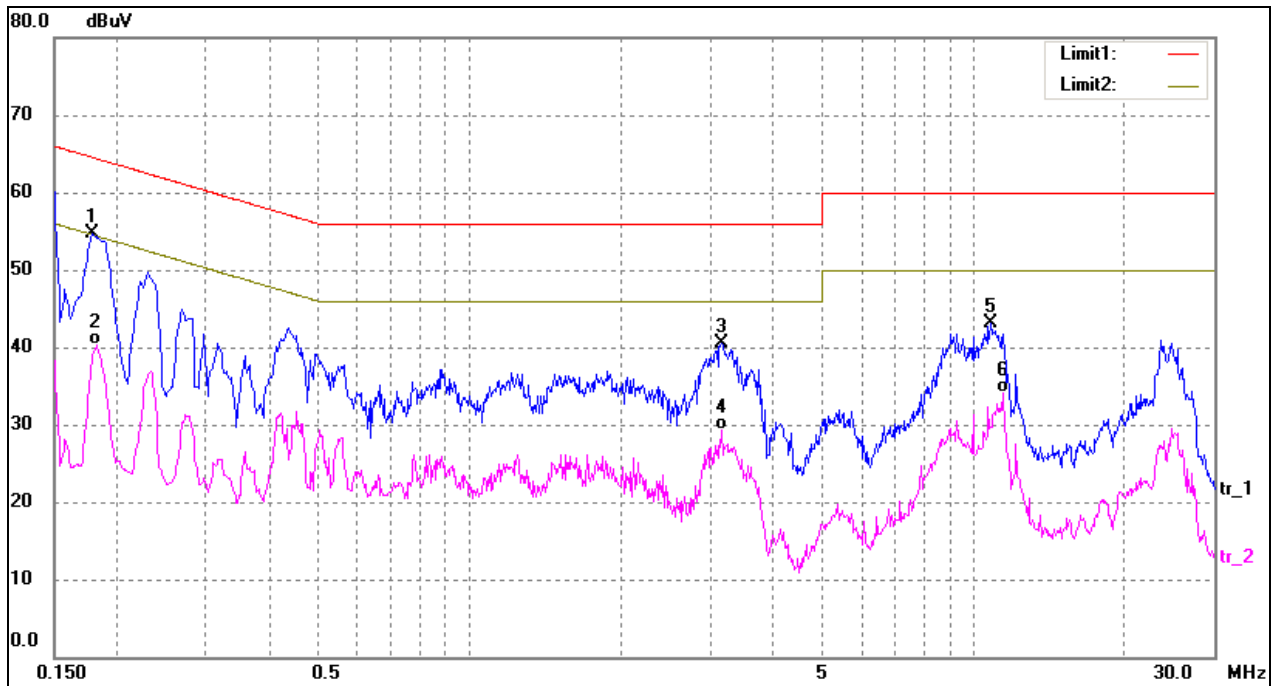
EUT: Tablet PC
 Tested Model: Q896
 Operating Condition: TM1
 Comment: AC120V/60Hz Adapter DC 12V

Test Specification: Neutral



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1*	0.1780	45.84	9.50	55.34	64.58	-9.24	peak
2	0.1820	29.44	9.50	38.94	54.39	-15.45	AVG
3	10.7300	31.50	10.37	41.87	60.00	-18.13	peak
4	11.4460	21.89	10.38	32.27	50.00	-17.73	AVG
5	23.4980	29.48	10.51	39.99	60.00	-20.01	peak
6	24.6740	19.02	10.53	29.55	50.00	-20.45	AVG

Test Specification: Line



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1*	0.1780	45.29	9.50	54.79	64.58	-9.79	peak
2	0.1820	30.74	9.50	40.24	54.39	-14.15	AVG
3	3.1660	30.55	9.98	40.53	56.00	-15.47	peak
4	3.1660	19.31	9.98	29.29	46.00	-16.71	AVG
5	10.8380	32.67	10.37	43.04	60.00	-16.96	peak
6	11.4420	23.79	10.38	34.17	50.00	-15.83	AVG

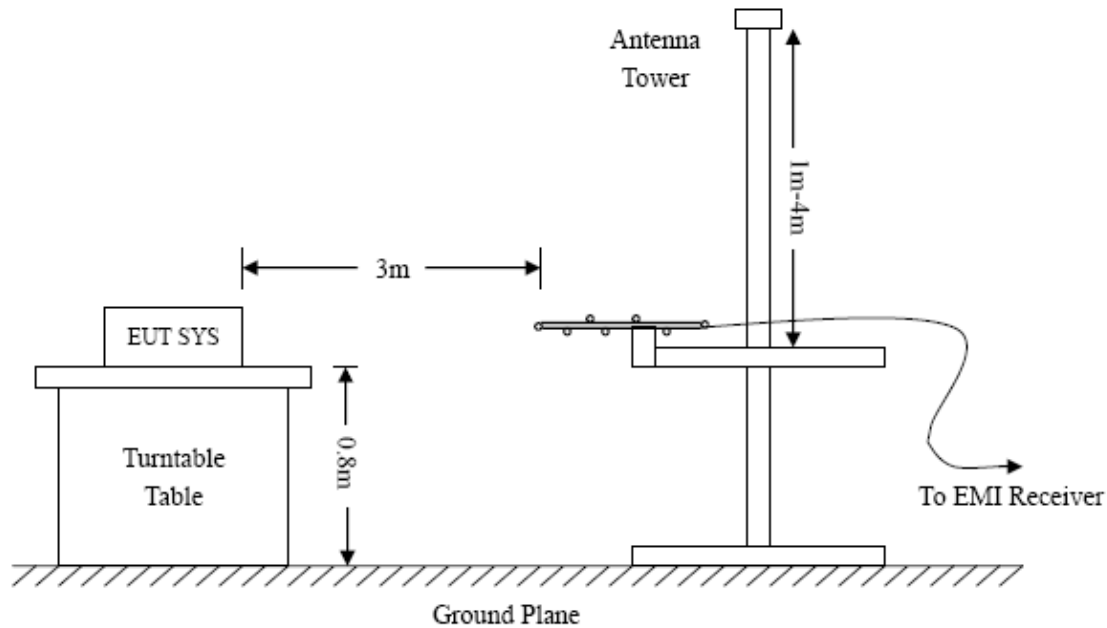
4. Radiated Emissions

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

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

4.3 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:

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

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:

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

4.4 Environmental Conditions

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

4.5 Summary of Test Results/Plots

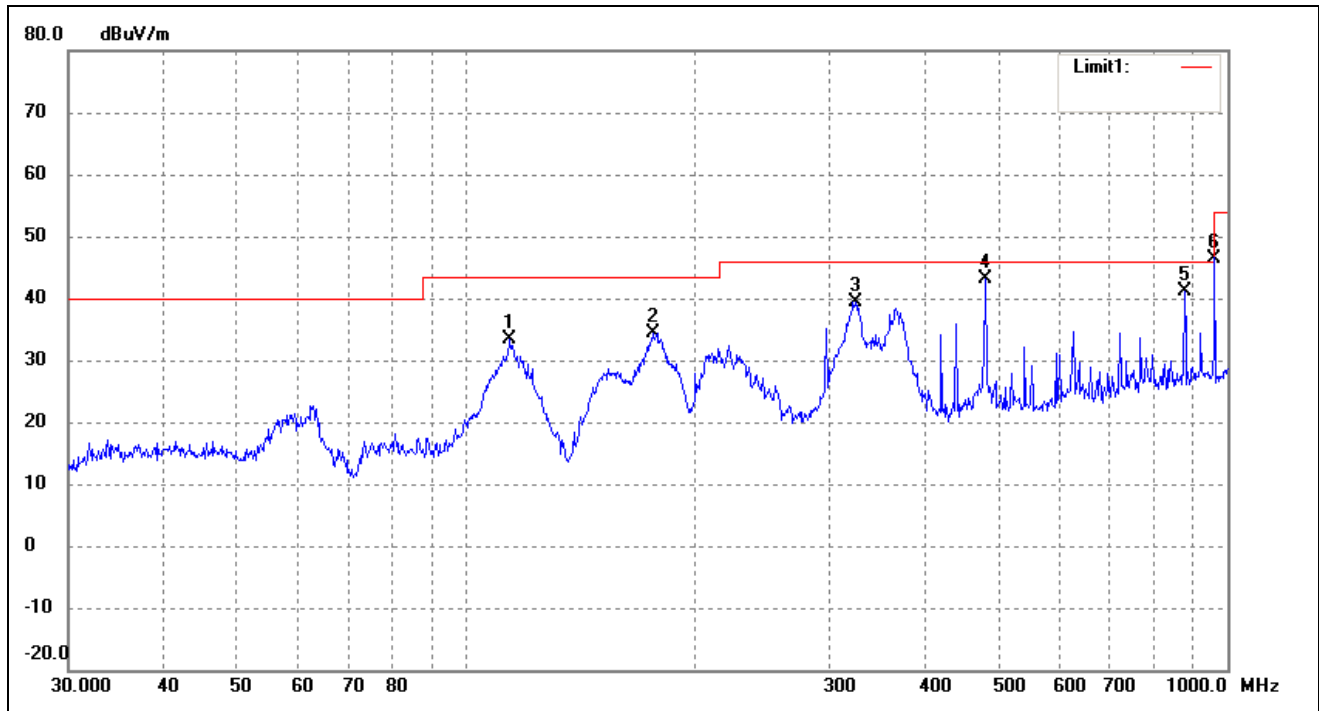
According to the data, the EUT complied with the FCC Part 15.109(a) rule, and had the worst margin of:

-1.96 dB at 114.1138 MHz in the Vertical polarization, 30MHz to 5 GHz, 3Meters

Plot of Radiated Emissions Test Data

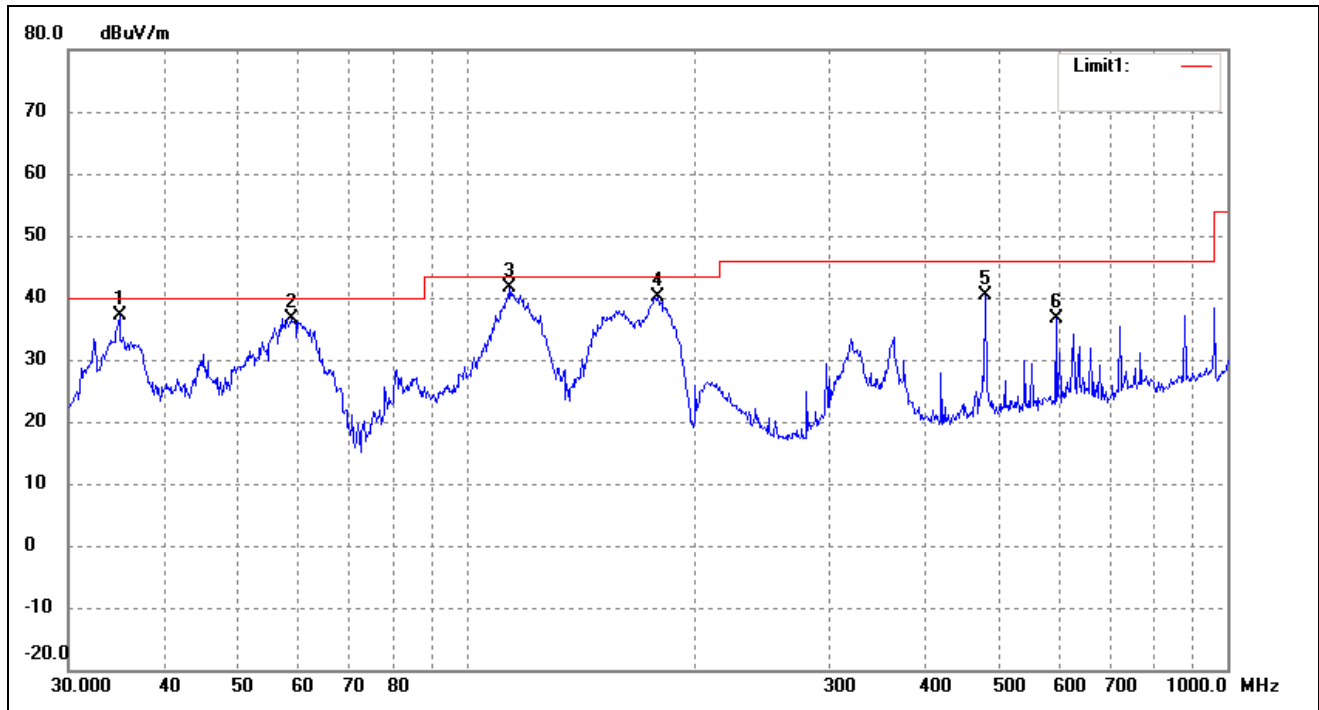
EUT: Tablet PC
 Tested Model: Q896
 Operating Condition: TM1
 Comment: AC120V/60Hz Adapter DC 12V

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	114.1138	44.56	-11.28	33.28	43.50	-10.22	58	200	peak
2	175.6516	46.02	-11.56	34.46	43.50	-9.04	326	200	peak
3	324.4561	44.07	-4.70	39.37	46.00	-6.63	29	200	peak
4	480.5276	44.16	-1.08	43.08	46.00	-2.92	209	200	peak
5	878.3214	37.93	3.12	41.05	46.00	-4.95	100	100	peak
6	962.1623	42.89	3.61	46.50	54.00	-7.50	100	100	peak

Test Specification: Vertical

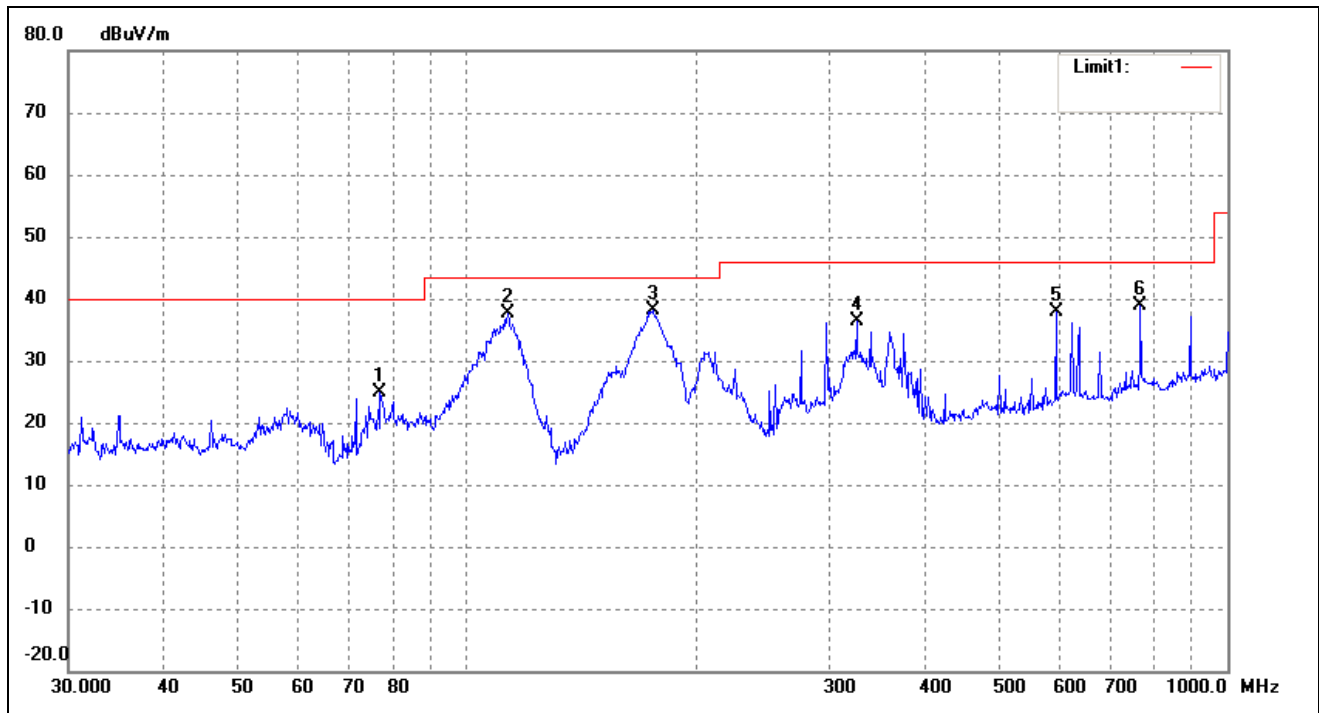


No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	35.0048	46.14	-9.04	37.10	40.00	-2.90	51	100	peak
2	58.8185	46.13	-9.43	36.70	40.00	-3.30	308	100	peak
3	114.1138	52.82	-11.28	41.54	43.50	-1.96	120	100	peak
4	178.7584	51.58	-11.41	40.17	43.50	-3.33	359	100	peak
5	480.5276	41.50	-1.08	40.42	46.00	-5.58	100	100	peak
6	595.1329	36.94	-0.33	36.61	46.00	-9.39	100	100	peak

Plot of Radiated Emissions Test Data

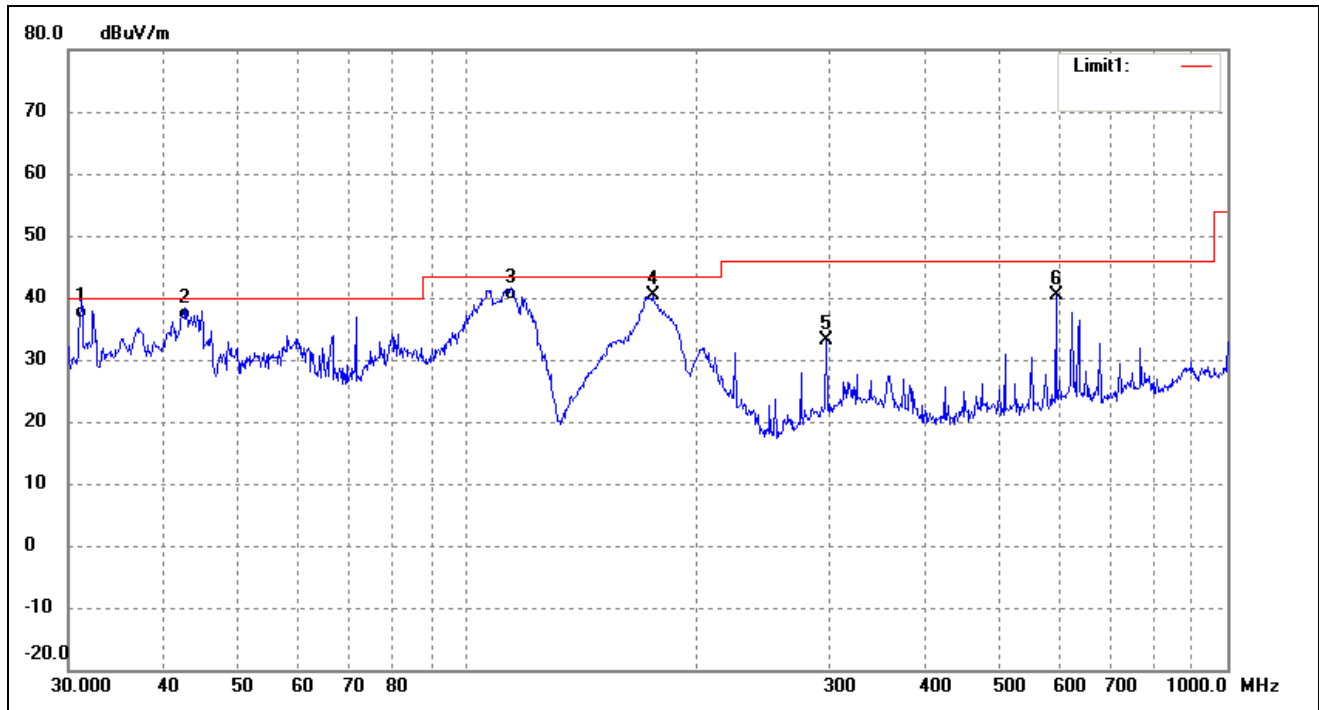
EUT: Tablet PC
 Tested Model: Q896
 Operating Condition: TM2
 Comment: AC120V/60Hz Adapter DC 12V

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	77.0505	37.15	-12.24	24.91	40.00	-15.09	100	200	peak
2	113.3163	48.94	-11.25	37.69	43.50	-5.81	326	200	peak
3	175.6516	49.76	-11.56	38.20	43.50	-5.30	100	200	peak
4	325.5958	41.20	-4.72	36.48	46.00	-9.52	209	200	peak
5	595.1329	38.26	-0.33	37.93	46.00	-8.07	100	100	peak
6	768.7482	36.67	2.28	38.95	46.00	-7.05	100	100	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	31.1798	46.65	-10.01	36.64	40.00	-3.36	100	100	QP
2	42.6000	44.20	-7.84	36.36	40.00	-3.64	100	100	QP
3	114.5146	50.82	-11.29	39.53	43.50	-3.97	100	100	QP
4	175.6516	51.82	-11.56	40.26	43.50	-3.24	100	100	peak
5	297.2241	38.80	-5.71	33.09	46.00	-12.91	100	100	peak
6	595.1329	40.65	-0.33	40.32	46.00	-5.68	100	100	peak

Note: Testing is carried out with frequency rang 30MHz to the 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 *****