FCC Part 15B
Measurement and Test Report

For

Guangzhou Shangke Information Technology Co., LTD

A1, E1, C2 Room, 17/F No. 689, GuangDa Bank Bldg. North-Tianhe Road, Tianhe District, Guangzhou, China

FCC ID: 2ACGTX5PRO

Test Rule(s):	FCC Part 15 Subpart B
Product Description:	Tablet PC
Tested Model:	X5 Pro
Report No.:	STR17038044I-4
Tested Date:	2017-03-22 to 2017-04-10
Issued Date:	2017-04-11
Tested By:	Leo Lee / Engineer
Reviewed By:	Silin Chen / EMC Manager
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1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant:	Guangzhou Shangke Information Technology Co.,LTD
Address of applicant:	A1, E1, C2 Room, 17/F No. 689, GuangDa Bank Bldg. North-Tianhe Road, Tianhe District, Guangzhou, China
Manufacturer:	Guangzhou Shangke Information Technology Co.,LTD
Address of manufacturer:	A1, E1, C2 Room, 17/F No. 689, GuangDa Bank Bldg. North-Tianhe Road, Tianhe District, Guangzhou, China

General Description of EUT	
Product Name:	Tabiet PC
Trade Name:	TECLAST
Model No.:	X5 Pro
Adding Model(s):	Tbook10S,Tbook16 Power,Tbook12S,Tbook12 Plus, Tbook12 Power,Tbook16 Pro,Tbook14,Tbook14 Pro, Tbook14S,Tbook14 Power,Tbook14 Plus, Tbook15, Tbook15 Pro,Tbook15S,Tbook15 Power, Tbook15 Plus/98, P10,10,X6,X6 Pro,X6 Plus,X7, X3 Plus,X3,P704G,P804G,P983G,P89H,T10,F5,F6S, F6,F6 Plus,F6 Pro,F6 Power,F6s Plus,F6s Pro, F6s Power,T8, T7, X3Pro, X3 Power, X10 Quad Core, 98 Octa Core, TLP98
Software Version:	/
Hardware Version:	S122Y REV：1.1
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 X5 Pro, but the circuit and the electronic construction do not change, declared by the manufacturer.	

Technical Characteristics of EUT	
Rated Voltage:	DC 7.6V by battery
Battery Capacity:	5000mAh
Rated Power:	/
Power Adapter Model:	Model: TP-U55 Input: AC 100-240V, 50/60Hz; Output: DC 12V, 2.0A
Lowest Internal Frequency:	32.768kHz
Highest Internal Frequency:	1.61GHz
Classification of ITE:	Class B

1.2 Test Standards

The following report is prepared on behalf of the Guangzhou Shangke Information 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 C63.4-2014, 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	Charge and camera and HDMI output mode	Running with software “EMCTest” and display a pattern of a full screen of scrolling letter-H characters
TM2	Charge and play and HDMI output mode	/ Running with software “EMCTest” and display a pattern of a full screen of scrolling letter-H characters
TM3	Charge and download	/

EUT Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
DC cable	0.45	Unshielded	Without Core
AC cable	1.42	Unshielded	Without Core

Auxiliary Equipment List and Details

Description	Manufacturer	Model	Serial Number
U-Disk*3	Kingston	DT SE9H	/
Adapter	Handing Electronic	TP-U55	/

Special Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
OTG cable(Micro USB)	0.06	Shielded	Without Core
OTG cable(Type-C)	0.10	Shielded	Without Core
HDMI cable	1.12	Shielded	Without Core

1.6 Measurement Uncertainty

Measurement uncertainty		
Parameter	Conditions	Uncertainty
Conducted Emissions	Conducted	±2.88dB
Transmitter Spurious Emissions	Radiated	±5.1dB

1.7 Test Equipment List and Details

No.	Description	Manufacturer	Model	Serial No.	Cal Date	Due Date
SEMT-1072	Spectrum Analyzer	Agilent	E4407B	MY41440400	2016-06-04	2017-06-03
SEMT-1031	Spectrum Analyzer	Rohde & Schwarz	FSP30	836079/035	2016-06-04	2017-06-03
SEMT-1007	EMI Test Receiver	Rohde & Schwarz	ESVB	825471/005	2016-06-04	2017-06-03
SEMT-1008	Amplifier	Agilent	8447F	3113A06717	2016-06-04	2017-06-03
SEMT-1043	Amplifier	C&D	PAP-1G18	2002	2016-06-04	2017-06-03
SEMT-1011	Broadband Antenna	Schwarz beck	VULB9163	9163-333	2016-06-04	2017-06-03
SEMT-1042	Horn Antenna	ETS	3117	00086197	2016-06-04	2017-06-03
SEMT-1069	Loop Antenna	Schwarz beck	FMZB 1516	9773	2016-06-04	2017-06-03
SEMT-1001	EMI Test Receiver	Rohde & Schwarz	ESPI	101611	2016-06-04	2017-06-03
SEMT-1003	L.I.S.N	Schwarz beck	NSLK8126	8126-224	2016-06-04	2017-06-03
SEMT-1002	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100911	2016-06-04	2017-06-03

2. SUMMARY OF TEST RESULTS

FCC Rules	Description of Test Item	Result
§ 15.107 (a)	Conducted Emissions	Compliant
§ 15.109 (a)	Radiated Emissions	Compliant

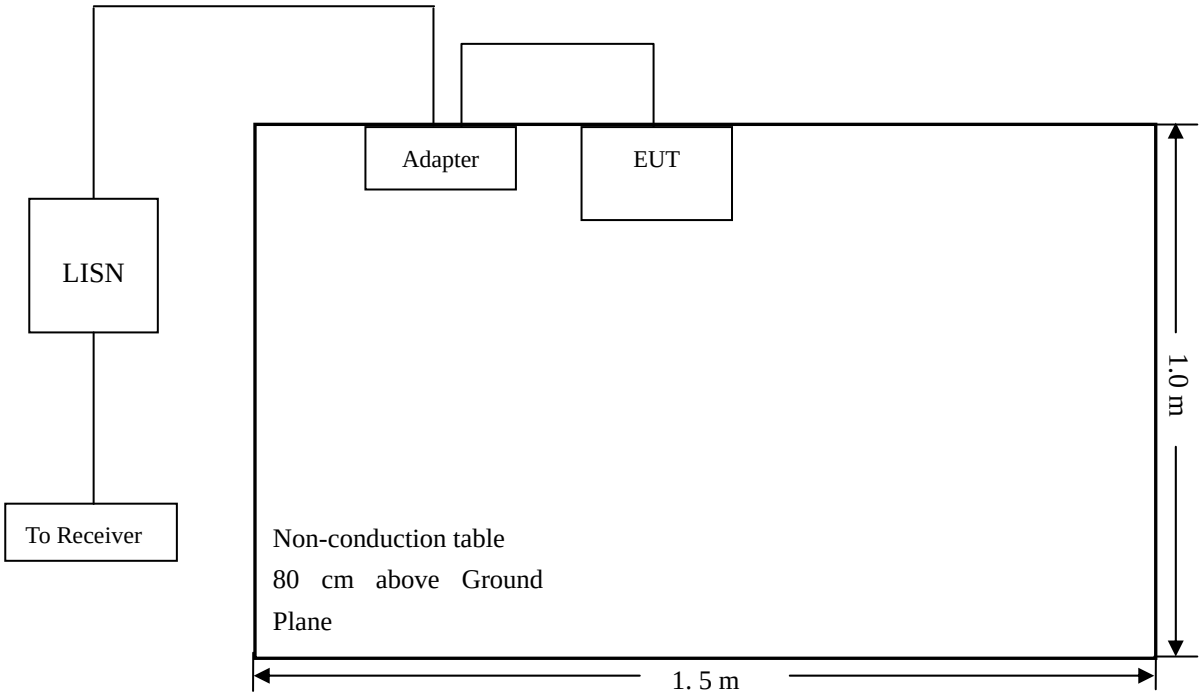
N/A: not applicable

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

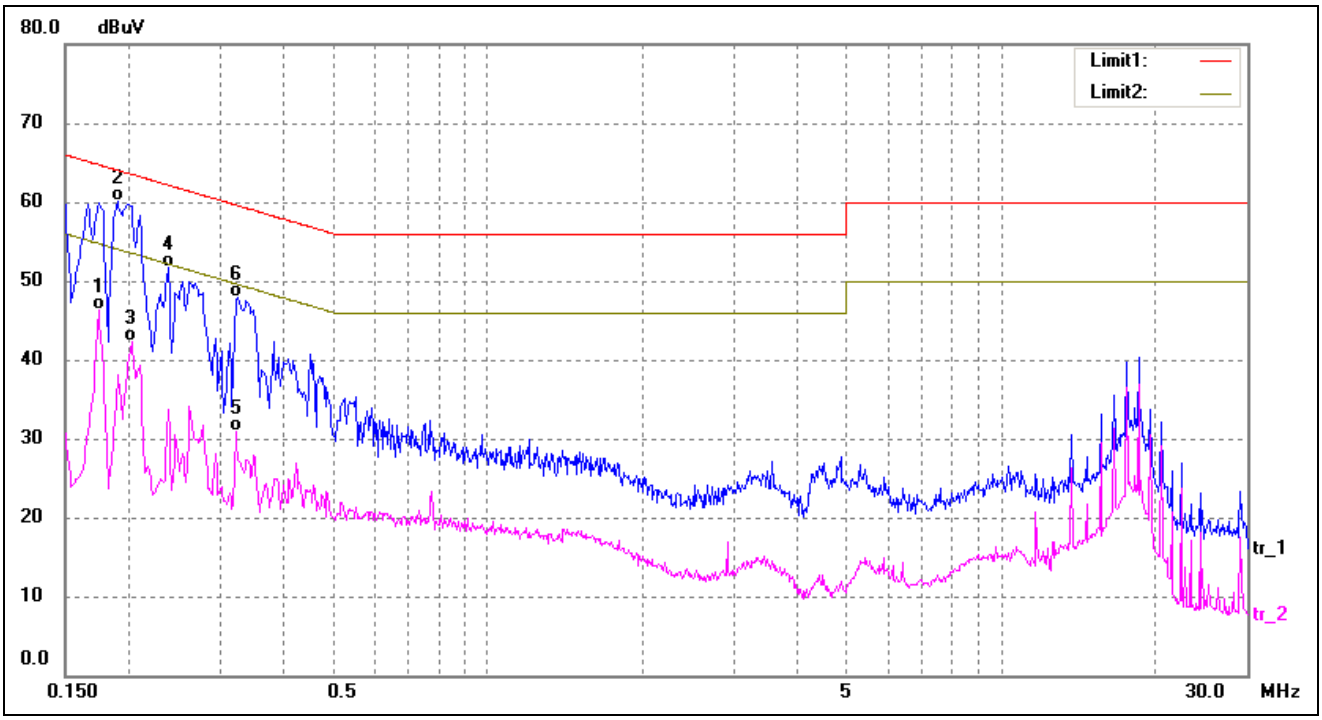
-4.00 dB at **0.1900 MHz** in the **Neutral**, **QP** detector, **TM1** mode, 0.15-30MHz

3.5 Conducted Emissions Test Data

Plot of Conducted Emissions Test Data

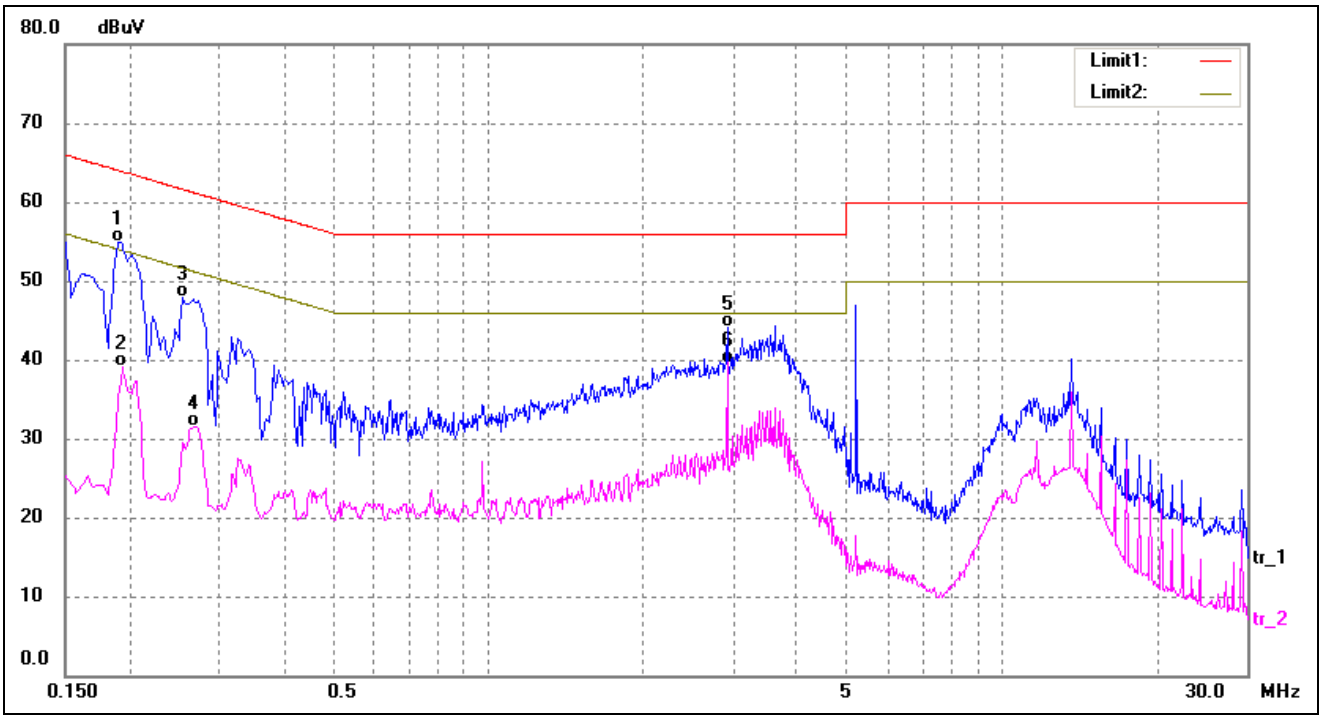
EUT: *Tablet PC*
Tested Model: *X5 Pro*
Operating Condition: *TM1*
Comment: *AC 12V/60Hz, Adapter DC 12V*

Test Specification: *Neutral*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1	0.1740	36.49	9.83	46.32	54.77	-8.45	AVG
2*	0.1900	50.23	9.81	60.04	64.04	-4.00	QP
3	0.2020	32.50	9.80	42.30	53.53	-11.23	AVG
4	0.2380	41.83	9.80	51.63	62.17	-10.54	QP
5	0.3220	21.02	9.80	30.82	49.66	-18.84	AVG
6	0.3260	38.03	9.80	47.83	59.55	-11.72	QP

Test Specification: *Line*

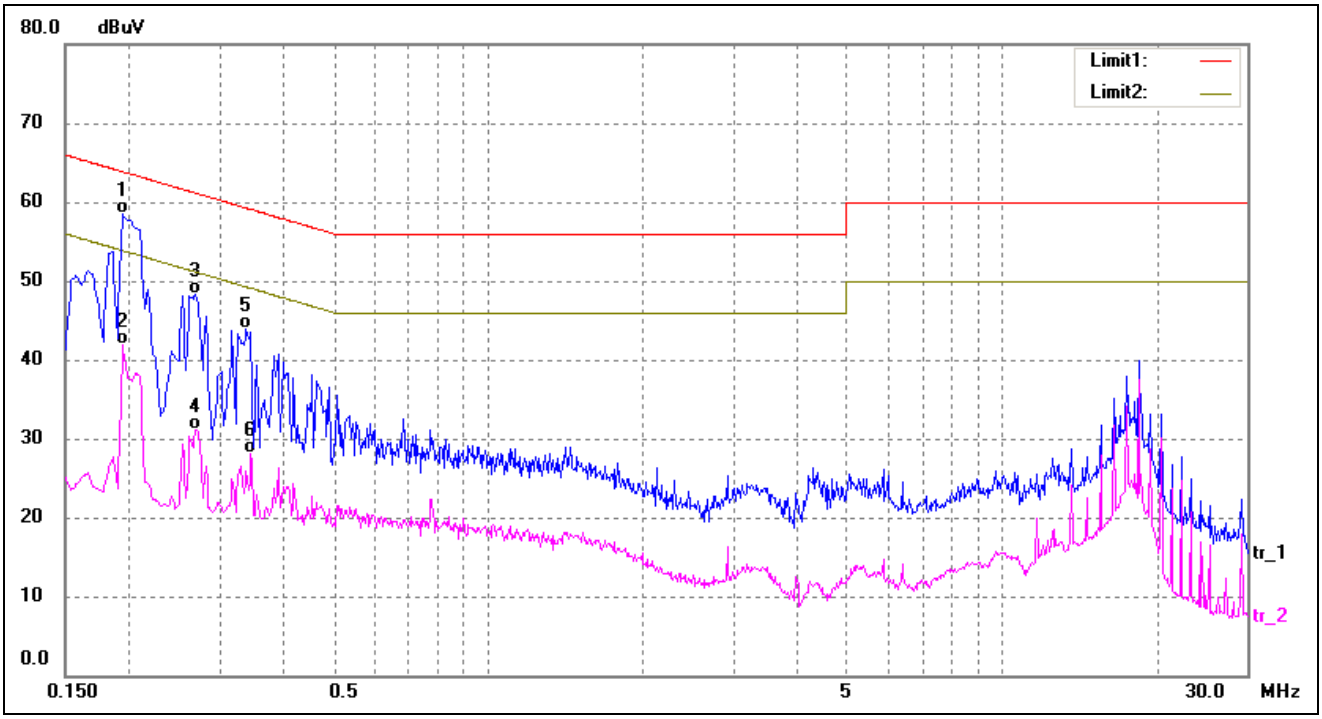


No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1	0.1900	45.17	9.81	54.98	64.03	-9.05	QP
2	0.1940	29.31	9.81	39.12	53.86	-14.74	AVG
3	0.2540	38.01	9.80	47.81	61.62	-13.81	QP
4	0.2660	21.79	9.80	31.59	51.24	-19.65	AVG
5	2.9260	34.46	9.71	44.17	56.00	-11.83	QP
6*	2.9260	29.89	9.71	39.60	46.00	-6.40	AVG

Plot of Conducted Emissions Test Data

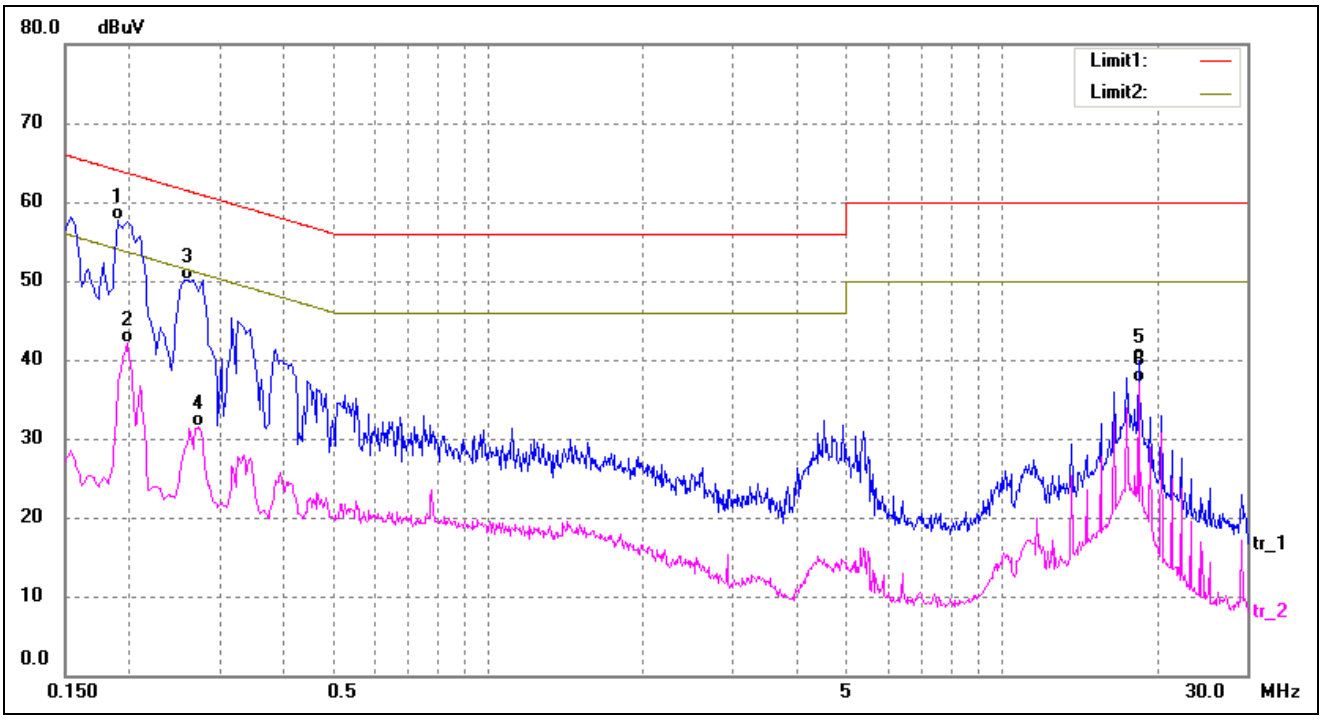
EUT: *Tablet PC*
Tested Model: *X5 Pro*
Operating Condition: *TM2*
Comment: *AC 12V/60Hz, Adapter DC 12V*

Test Specification: *Neutral*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1*	0.1940	48.60	9.81	58.41	63.86	-5.45	QP
2	0.1940	32.02	9.81	41.83	53.86	-12.03	AVG
3	0.2700	38.43	9.80	48.23	61.12	-12.89	QP
4	0.2700	21.39	9.80	31.19	51.12	-19.93	AVG
5	0.3380	34.05	9.80	43.85	59.25	-15.40	QP
6	0.3460	18.38	9.80	28.18	49.06	-20.88	AVG

Test Specification: *Line*

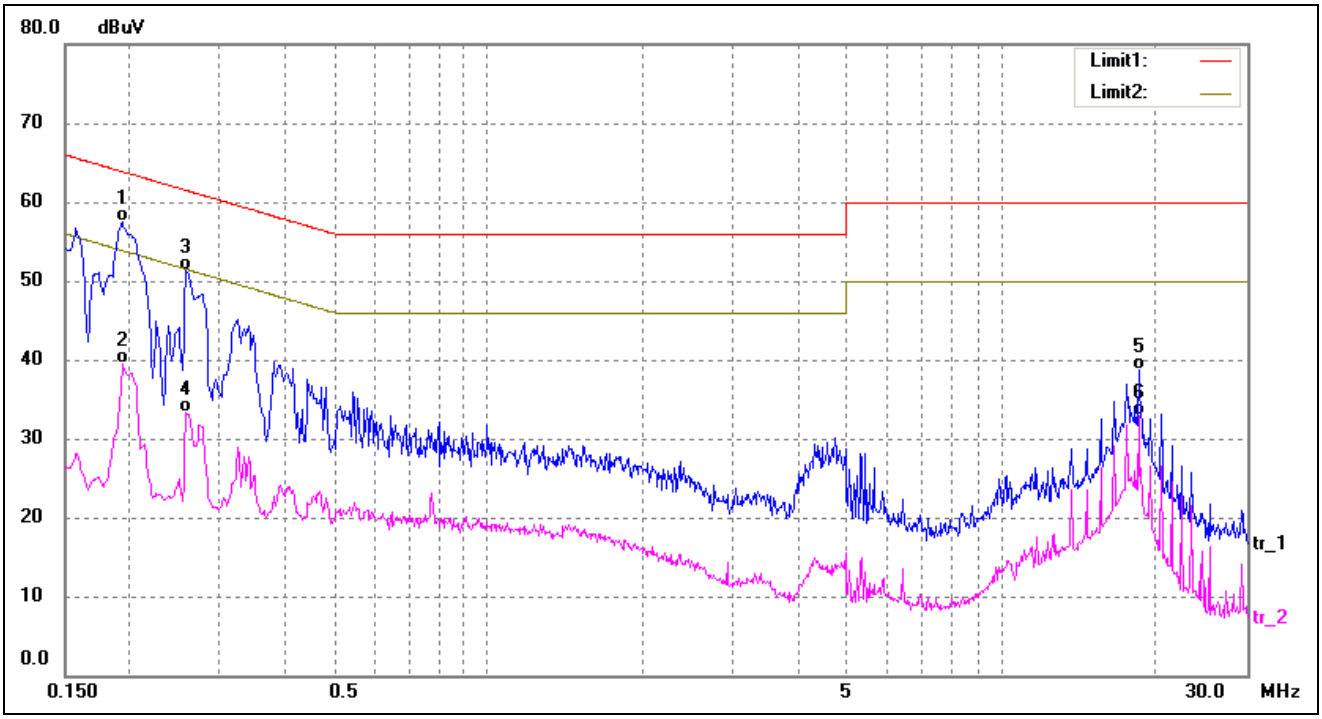


No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1*	0.1900	47.80	9.81	57.61	64.04	-6.43	QP
2	0.1980	32.29	9.80	42.09	53.69	-11.60	AVG
3	0.2580	40.34	9.80	50.14	61.50	-11.36	QP
4	0.2740	21.74	9.80	31.54	51.00	-19.46	AVG
5	18.5060	30.20	9.66	39.86	60.00	-20.14	QP
6	18.5060	27.45	9.66	37.11	50.00	-12.89	AVG

Plot of Conducted Emissions Test Data

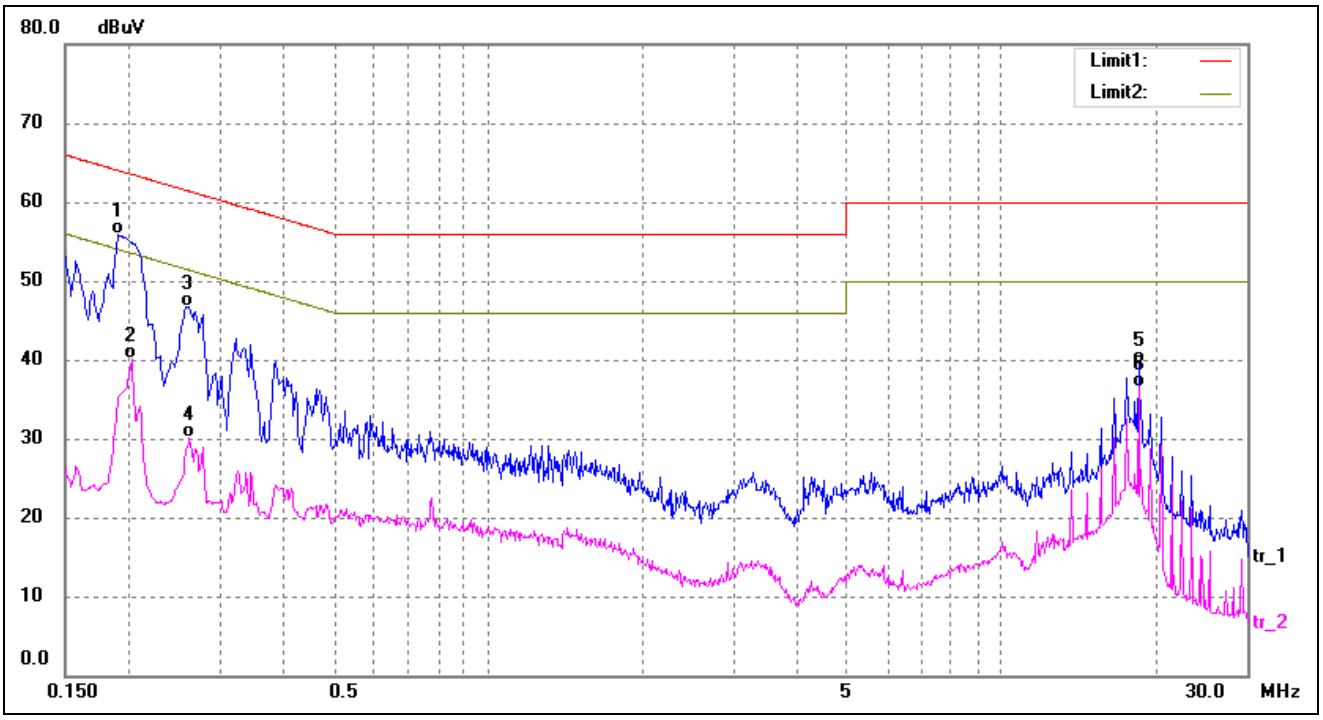
EUT: *Tablet PC*
Tested Model: *X5 Pro*
Operating Condition: *TM3*
Comment: *AC 12V/60Hz, Adapter DC 12V*

Test Specification: *Neutral*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1*	0.1940	47.69	9.81	57.50	63.86	-6.36	QP
2	0.1940	29.62	9.81	39.43	53.86	-14.43	AVG
3	0.2580	41.43	9.80	51.23	61.50	-10.27	QP
4	0.2580	23.41	9.80	33.21	51.50	-18.29	AVG
5	18.5140	29.13	9.66	38.79	60.00	-21.21	QP
6	18.5140	23.30	9.66	32.96	50.00	-17.04	AVG

Test Specification: *Line*

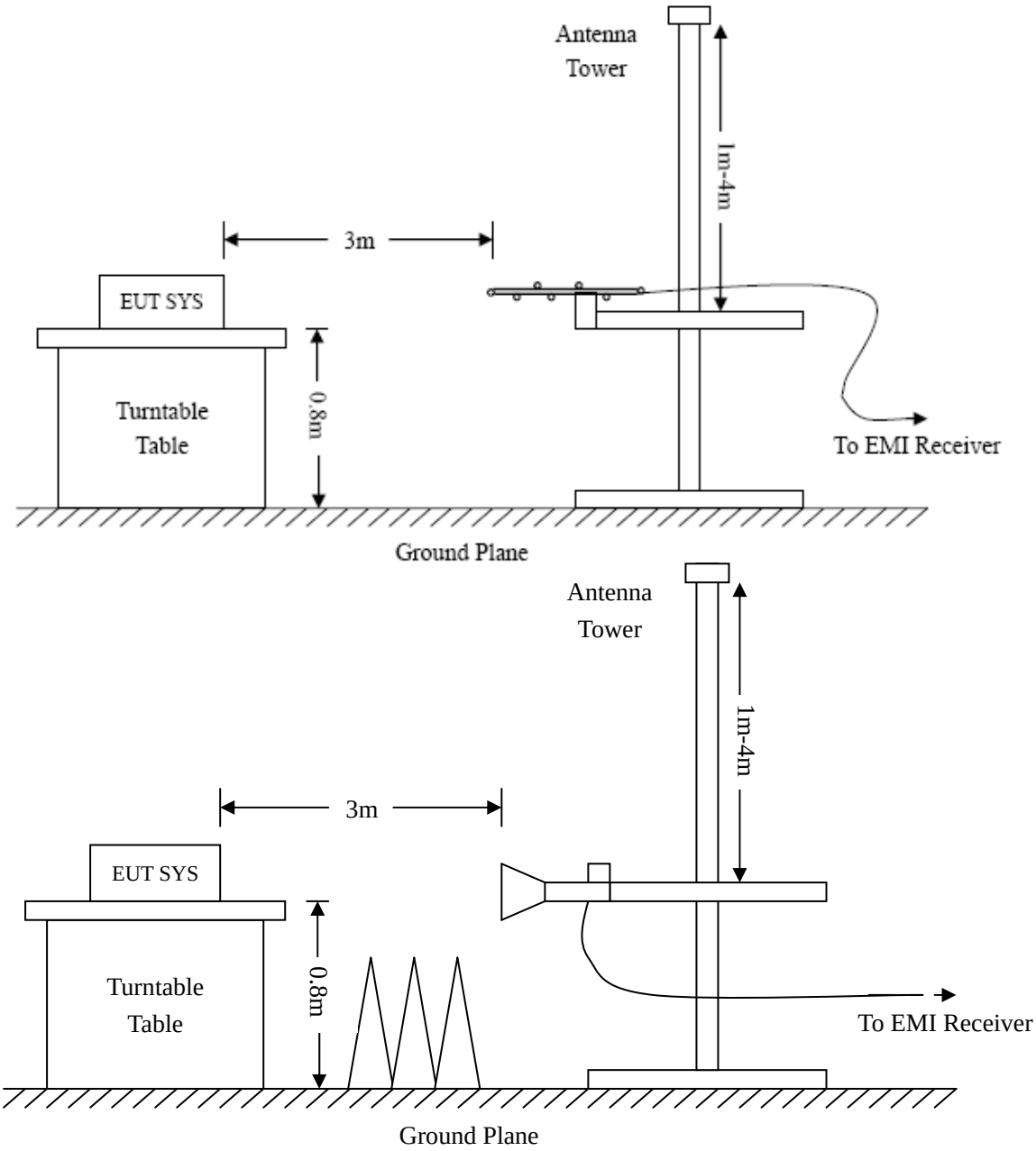


No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1*	0.1900	46.08	9.81	55.89	64.04	-8.15	QP
2	0.2020	30.29	9.80	40.09	53.53	-13.44	AVG
3	0.2580	36.89	9.80	46.69	61.50	-14.81	QP
4	0.2620	20.32	9.80	30.12	51.37	-21.25	AVG
5	18.5180	29.76	9.66	39.42	60.00	-20.58	QP
6	18.5180	26.76	9.66	36.42	50.00	-13.58	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	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

4.3 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:

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

4.4 Environmental Conditions

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

4.5 Summary of Test Results/Plots

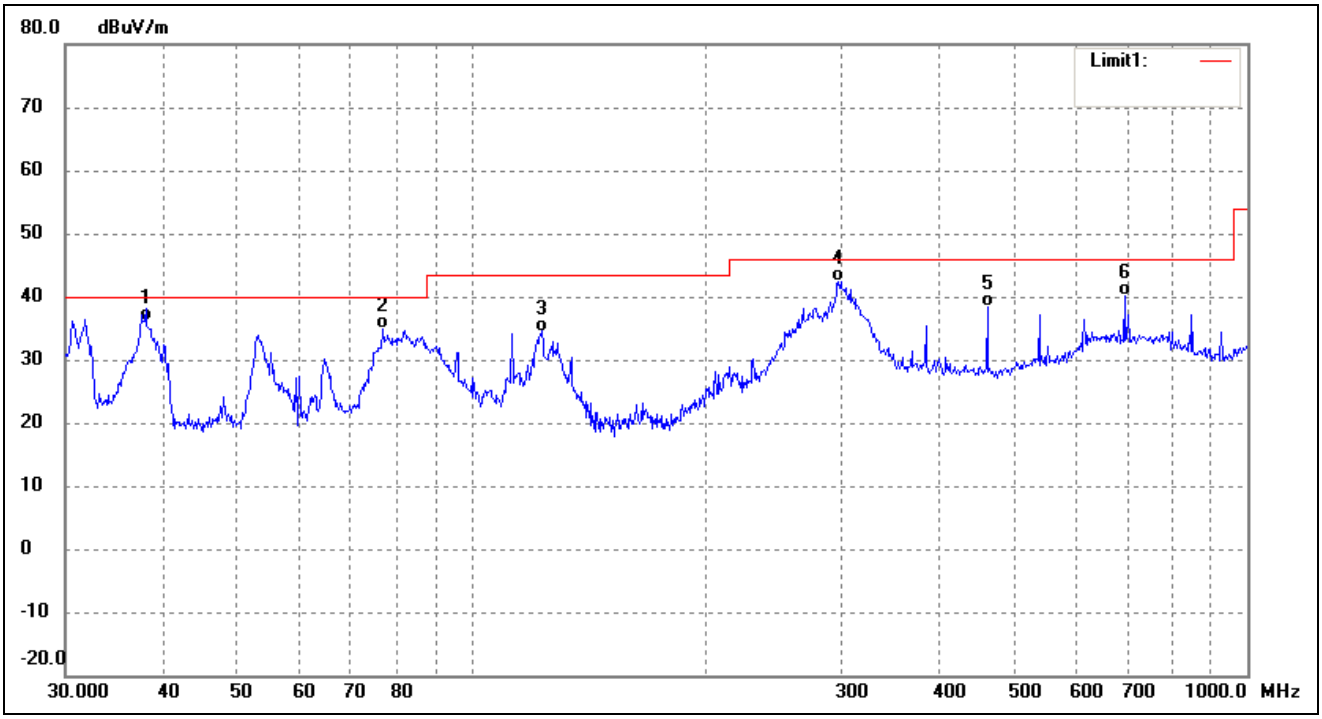
According to the data, the EUT complied with the FCC Part 15.109(a) rule, and had the worst margin of:

-2.81 dB at **37.8121 MHz** in the **Vertical** polarization, **TM2** mode, **30MHz** to **12.75GHz**, **3Meters**

Plot of Radiated Emissions Test Data

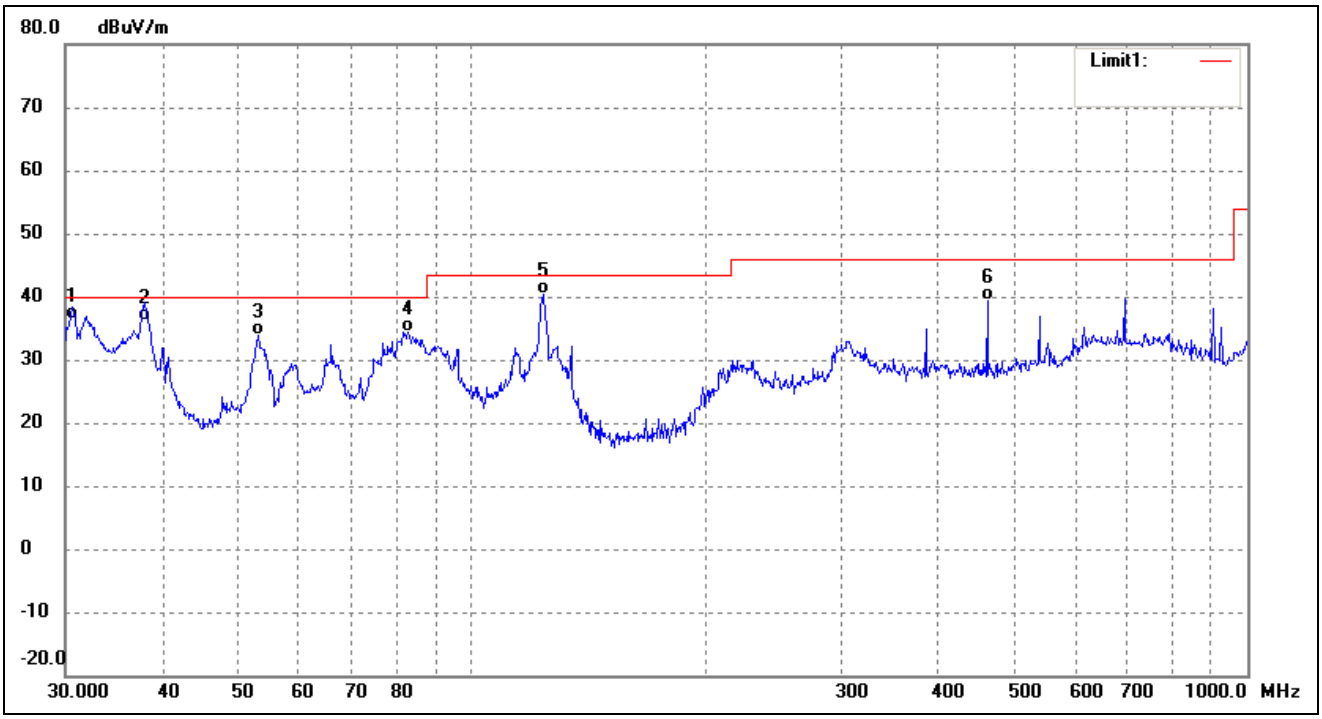
EUT: *Tablet PC*
Tested Model: *X5 Pro*
Operating Condition: *TM1*
Comment: *AC 12V/60Hz, Adapter DC 12V*

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	38.0783	31.48	4.64	36.12	40.00	-3.88	192	100	QP
2	77.0505	32.83	2.06	34.89	40.00	-5.11	128	100	QP
3	123.2655	29.95	4.55	34.50	43.50	-9.00	73	100	QP
4	297.2241	30.56	11.84	42.40	46.00	-3.60	146	100	QP
5	462.3455	25.37	12.96	38.33	46.00	-7.67	93	100	QP
6	694.4174	22.40	17.61	40.01	46.00	-5.99	256	100	QP

Test Specification: *Vertical*

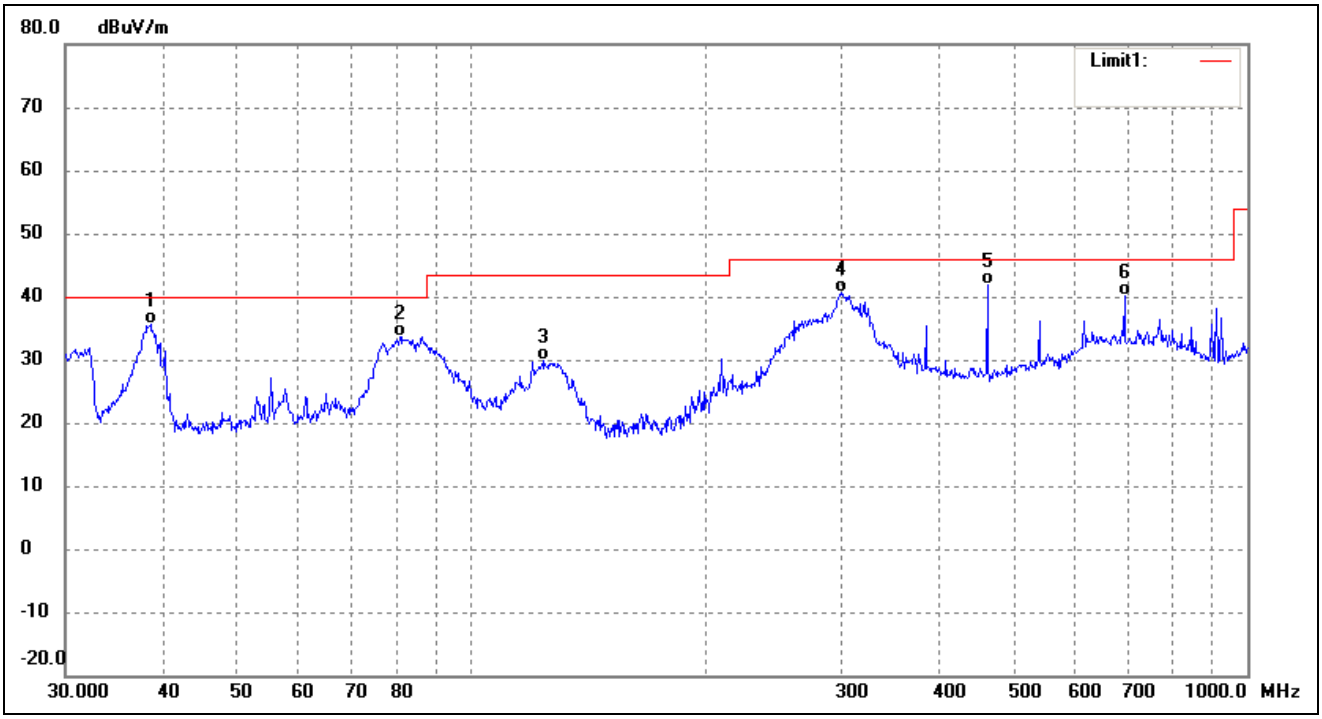


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	30.6379	32.92	3.45	36.37	40.00	-3.63	94	100	QP
2	37.9450	31.42	4.63	36.05	40.00	-3.95	199	100	QP
3	53.1313	28.88	5.06	33.94	40.00	-6.06	53	100	QP
4	82.9385	32.25	2.21	34.46	40.00	-5.54	121	100	QP
5	123.6985	35.77	4.52	40.29	43.50	-3.21	97	100	QP
6	462.3455	26.44	12.96	39.40	46.00	-6.60	333	100	QP

Plot of Radiated Emissions Test Data

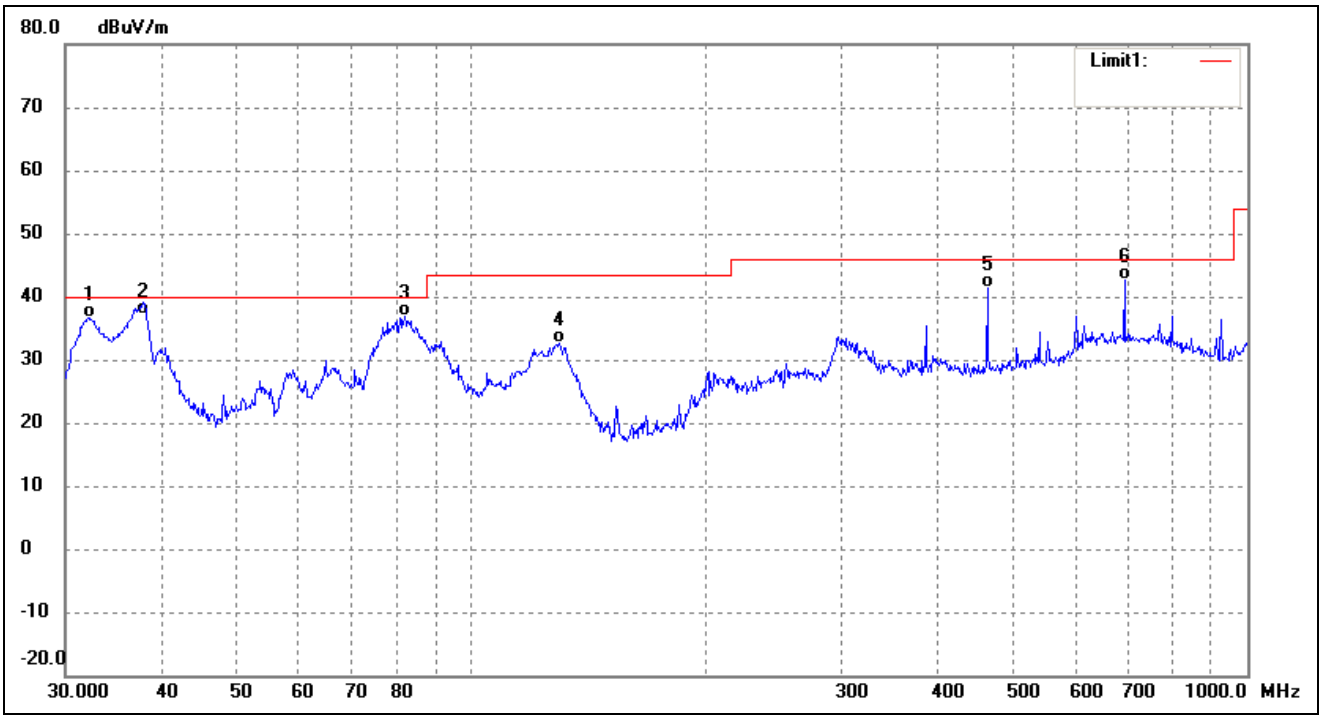
EUT: *Tablet PC*
Tested Model: *X5 Pro*
Operating Condition: *TM2*
Comment: *AC 12V/60Hz, Adapter DC 12V*

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	38.6160	30.96	4.72	35.68	40.00	-4.32	320	100	QP
2	80.9275	31.77	1.87	33.64	40.00	-6.36	94	100	QP
3	124.1330	25.48	4.48	29.96	43.50	-13.54	55	100	QP
4	299.3158	28.76	11.92	40.68	46.00	-5.32	95	100	QP
5	462.3455	28.83	12.96	41.79	46.00	-4.21	274	100	QP
6	694.4174	22.62	17.61	40.23	46.00	-5.77	119	100	QP

Test Specification: *Vertical*

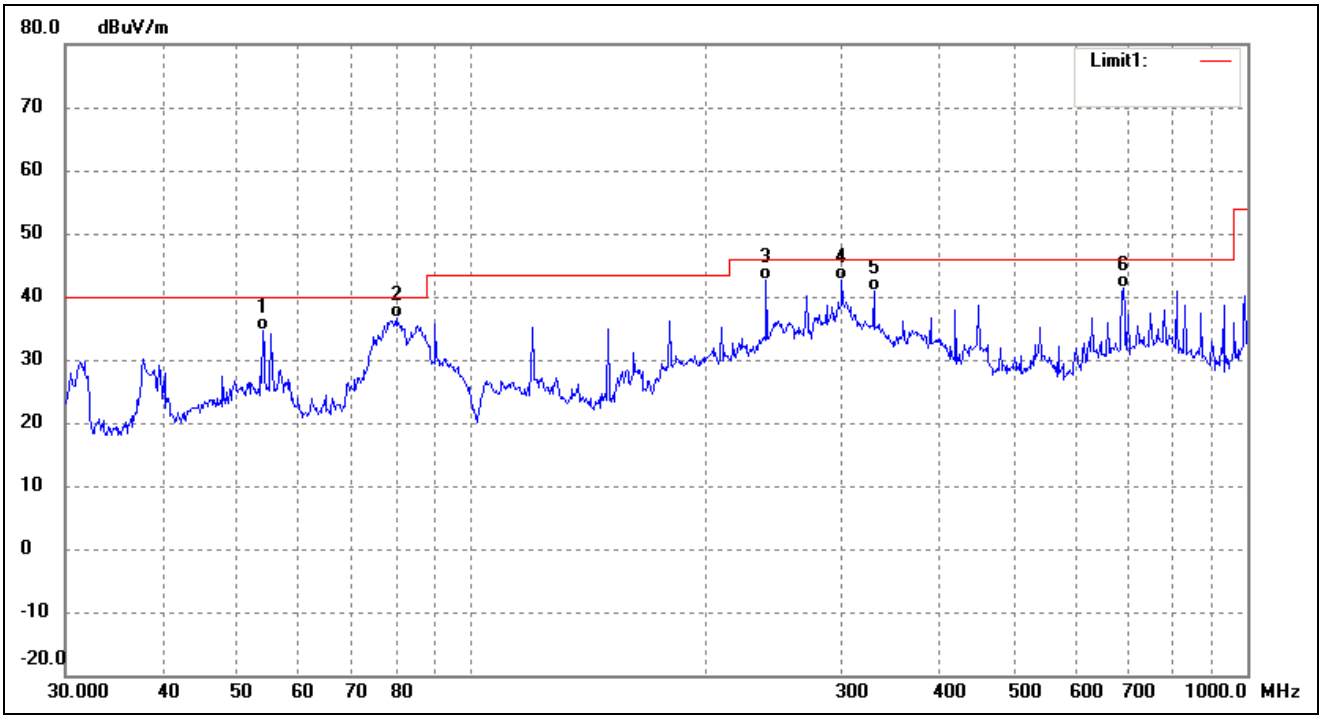


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	32.1795	32.88	3.73	36.61	40.00	-3.39	357	100	QP
2	37.8121	32.58	4.61	37.19	40.00	-2.81	93	100	QP
3	82.0706	34.91	2.07	36.98	40.00	-3.02	331	100	QP
4	129.9226	28.60	3.99	32.59	43.50	-10.91	112	100	QP
5	462.3455	28.38	12.96	41.34	46.00	-4.66	323	100	QP
6	694.4174	24.91	17.61	42.52	46.00	-3.48	214	100	QP

Plot of Radiated Emissions Test Data

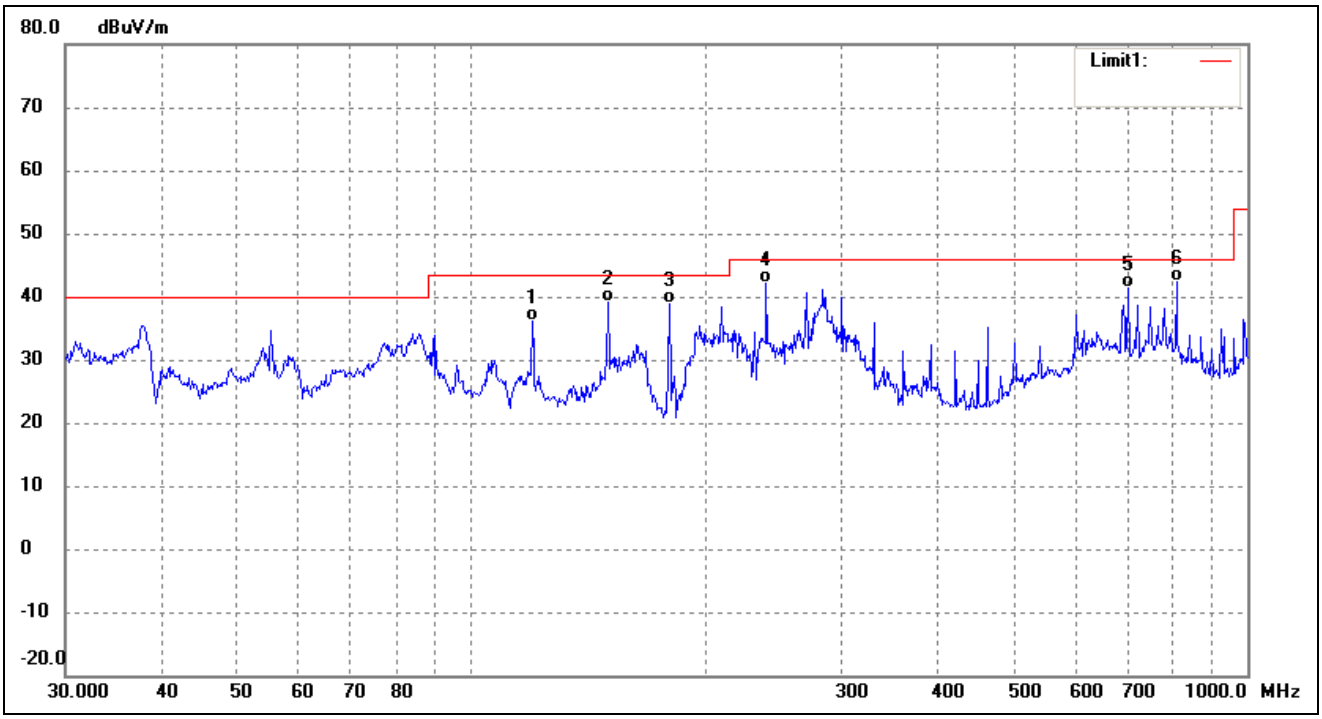
EUT: *Tablet PC*
Tested Model: *X5 Pro*
Operating Condition: *TM3*
Comment: *AC 12V/60Hz, Adapter DC 12V*

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	53.8817	29.47	5.05	34.52	40.00	-5.48	103	100	QP
2	80.0806	34.83	1.73	36.56	40.00	-3.44	314	100	QP
3	239.9874	33.71	8.93	42.64	46.00	-3.36	95	100	QP
4	300.3673	30.57	11.95	42.52	46.00	-3.48	349	100	QP
5	330.1949	29.33	11.64	40.97	46.00	-5.03	246	100	QP
6	691.9867	23.70	17.78	41.48	46.00	-4.52	242	100	QP

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	119.8555	31.29	4.82	36.11	43.50	-7.39	301	100	QP
2	150.0107	36.34	2.75	39.09	43.50	-4.41	291	100	QP
3	180.0165	36.53	2.46	38.99	43.50	-4.51	63	100	QP
4	239.9874	33.19	8.93	42.12	46.00	-3.88	303	100	QP
5	701.7608	24.20	17.24	41.44	46.00	-4.56	86	100	QP
6	810.2653	26.41	15.99	42.40	46.00	-3.60	287	100	QP

Note: Testing is carried out with frequency rang 30MHz to the 12.75GHz, 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 *******