FCC Part 15B
Measurement and Test Report

For

Matsunichi Digital Development (Shenzhen) Co., Ltd

F/22, Matsunichi Building, No.9996, Shennan Boulevard, Nanshan District,

Shenzhen, China

FCC ID: ZDRTC978

Test Standards:	FCC Part 15 Subpart B
Product Description:	Tablet PC
Tested Model:	TC978
Report No.:	STR12068152I-3
Tested Date:	2012-06-19 to 2012-06-28
Issued Date:	2012-06-29
Tested By:	Vigoss Xiong / Engineer
Reviewed By:	Lahm Peng / EMC Manager
Approved & Authorized By:	Jandy so / PSQ Manager

Prepared By:

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1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant:	Matsunichi Digital Development (Shenzhen) Co., Ltd
Address of applicant:	F/22, Matsunichi Building, No.9996, Shennan Boulevard, Nanshan District, Shenzhen, China
Manufacturer:	Matsunichi Digital Development (Shenzhen) Co., Ltd
Address of manufacturer:	F/22, Matsunichi Building, No.9996, Shennan Boulevard, Nanshan District, Shenzhen, China

General Description of EUT	
Product Name:	Tablet PC
Trade Name:	Le Pan
Model No.:	TC978
Adding Model(s):	Le Pan S
Note: The test data is gathered from a production sample, provided by the manufacturer. The other model listed in the report has different appearance only of TC978 without circuit and electronic construction changed, declared by the manufacturer	

Technical Characteristics of EUT	
Rated Voltage:	AC 100-240V Adapter 5.0V DC 3.7V Battery
Rated Current:	2.0A
Rated Power:	10W
Power Adapter Model:	ASSA1B-050200
Highest Internal Frequency:	1.0GHz
Classification of ITE:	B
Support Interface:	30 Pin Connector

1.2 Test Standards

The following report is prepared on behalf of the Matsunichi Digital Development (Shenzhen) 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	Playing	Color Bar with 1kHz Audio
TM2	Downloading	Connect to PC
TM3	/	/
TM4	/	/

EUT Cable List and Details

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

Auxiliary Equipment List and Details

Description	Manufacturer	Model	Serial Number
Notebook	SAMSUNG	NP-R20	124V93FP300082V
Earphone	PHILIPS	SHM1500	N/A

Special Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
Earphone Cable	1.5	Shielded	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.

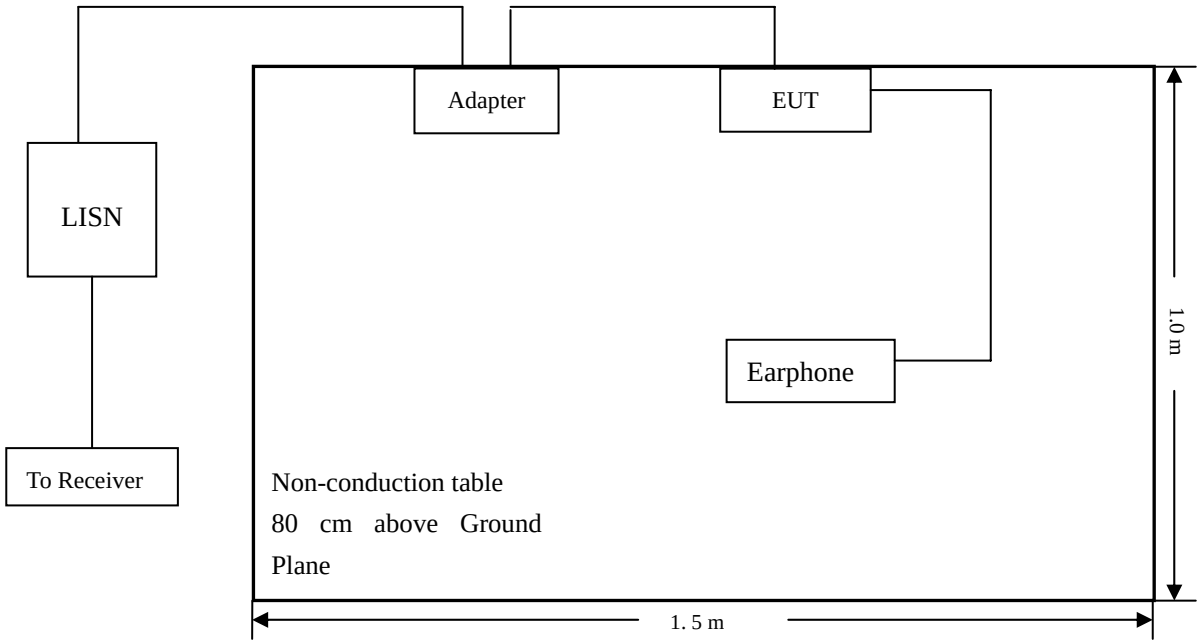
3.2 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
EMI Test Receiver	Rohde & Schwarz	ESPI	101611	2012-03-28	2013-03-27
L.I.S.N	Schwarz beck	NSLK8126	8126-224	2012-03-28	2013-03-27
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100911	2012-03-28	2013-03-27

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:

-3.79 dBμV at **0.178 MHz** in the **Neutral**, **Quasi Peak** detector, 0.15-30MHz

3.7 Conducted Emissions Test Data

Plot of Conducted Emissions Test Data

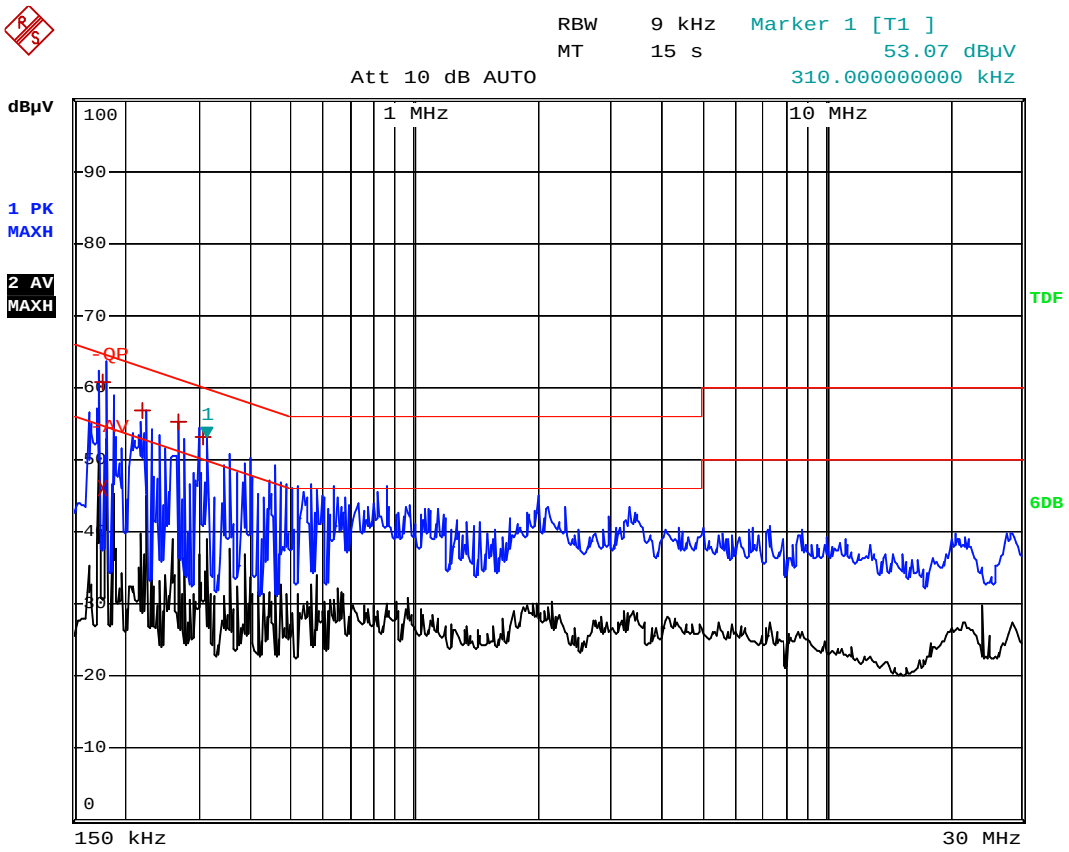
EUT: *Tablet PC*

Tested Model: *TC978*

Operating Condition: *Playing*

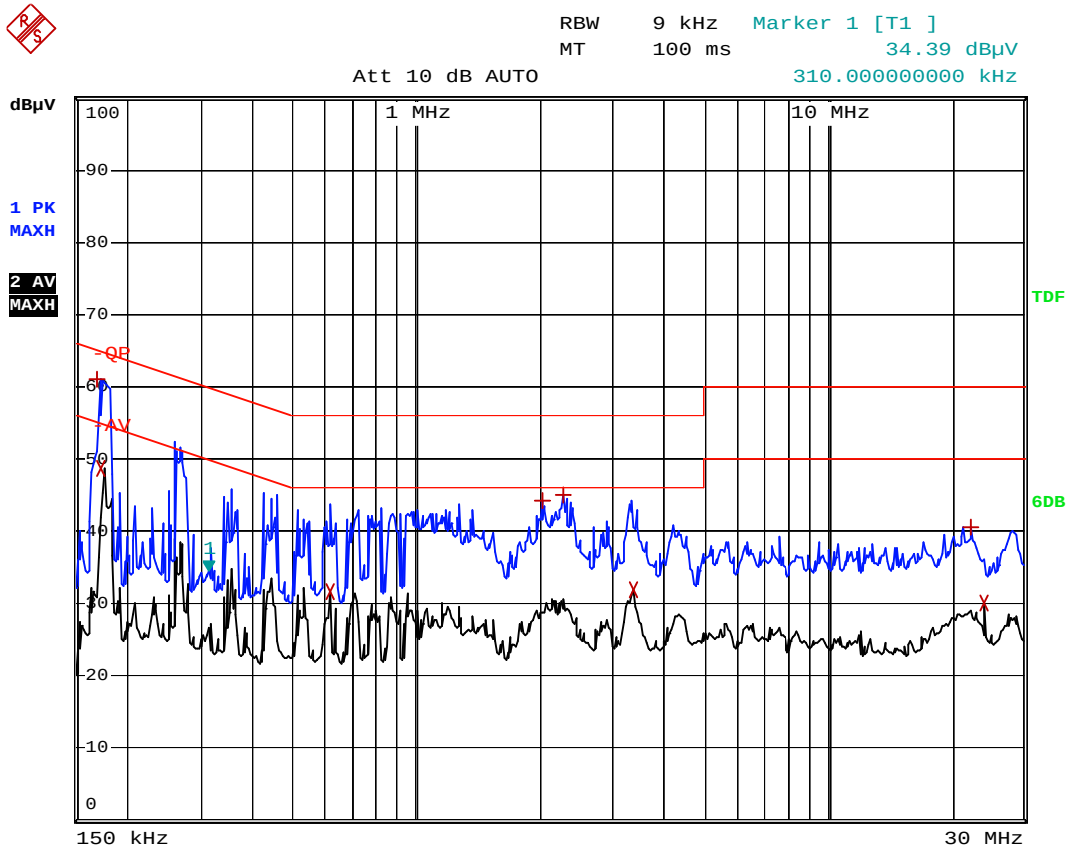
Comment: *AC 120V/60Hz; Adapter 5V*

Test Specification: *Neutral*



EDIT PEAK LIST (Final Measurement Results)			
Trace1:	-QP		
Trace2:	-AV		
Trace3:	---		
TRACE	FREQUENCY	LEVEL dBµV	DELTA LIMIT dB
1 Quasi Peak	178 kHz	60.78	-3.79
2 Average	178 kHz	46.18	-8.39
1 Max Peak	222 kHz	56.89	-5.85
1 Max Peak	266 kHz	55.28	-5.95
1 Max Peak	310 kHz	53.06	-6.90

Test Specification: *Line*



EDIT PEAK LIST (Prescan Results)			
Trace1:	-QP		
Trace2:	-AV		
Trace3:	---		
TRACE	FREQUENCY	LEVEL dBµV	DELTA LIMIT dB
1 Max Peak	170 kHz	60.97	-3.98
2 Average	174 kHz	48.64	-6.12
2 Average	618 kHz	31.56	-14.43
1 Max Peak	2.038 MHz	44.21	-11.78
1 Max Peak	2.278 MHz	44.91	-11.09
2 Average	3.37 MHz	31.98	-14.01
1 Max Peak	22.366 MHz	40.56	-19.43
2 Average	23.982 MHz	29.93	-20.06

4. Radiated Emissions

4.1 Measurement Uncertainty

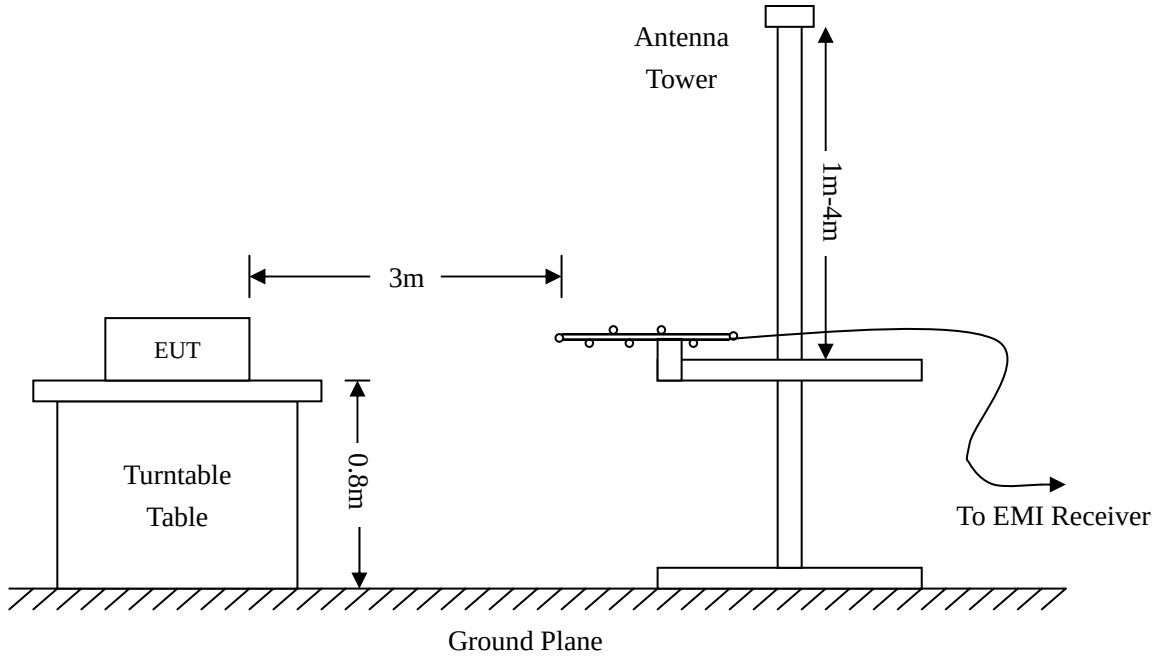
Base on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any radiation emissions measurement is ± 5.10 dB.

4.2 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
Spectrum Analyzer	R&S	FSP	836079/035	2012-03-28	2013-03-27
EMI Test Receiver	R&S	ESVB	825471/005	2012-03-28	2013-03-27
Pre-amplifier	Agilent	8447F	3113A06717	2012-03-28	2013-03-27
Pre-amplifier	Compliance Direction	PAP-0118	24002	2012-03-28	2013-03-27
Trilog Broadband Antenna	SCHWARZBECK	VULB9163	9163-333	2012-02-25	2013-02-24
Horn Antenna	ETS	3117	00086197	2012-02-25	2013-02-24

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

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:

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

4.6 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:

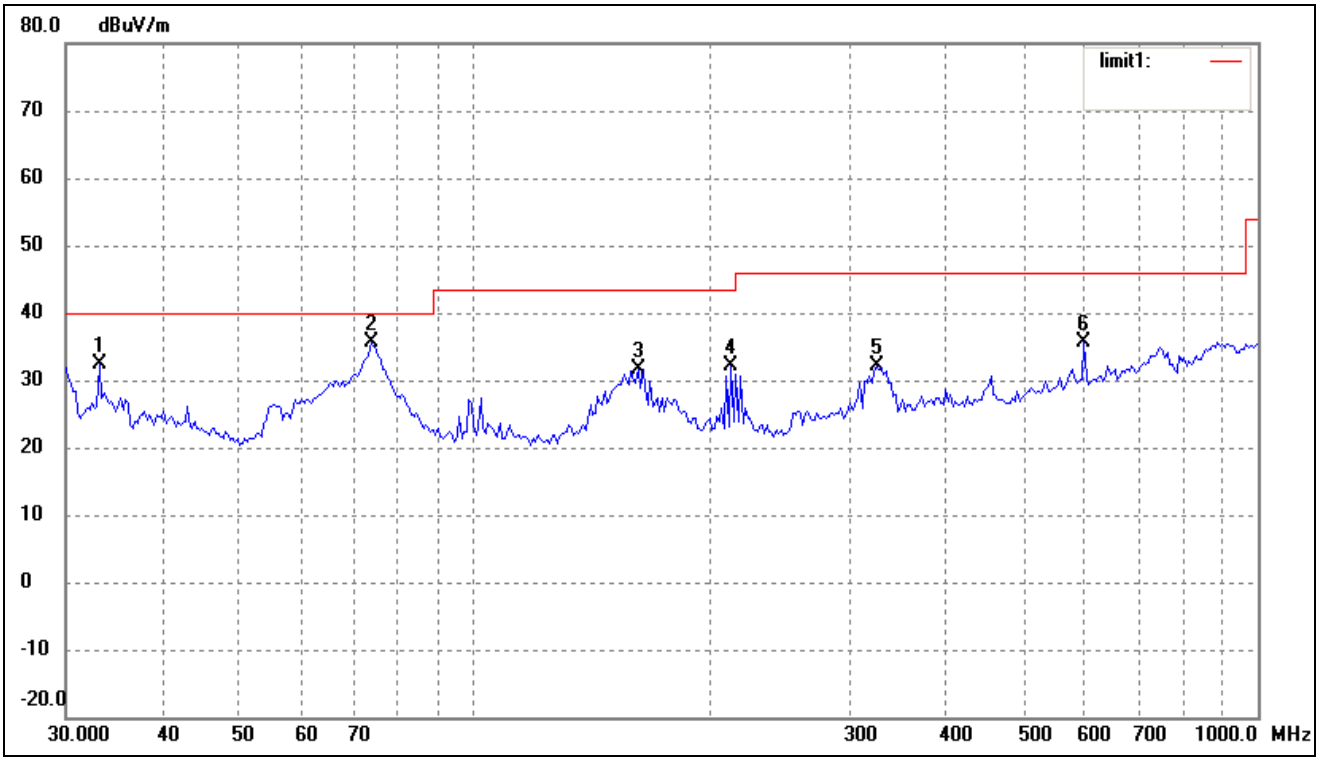
-3.55 dBμV at **30.0000 MHz** in the **Vertical** polarization, **Playing** Mode, **30 MHz** to **6 GHz**, **3Meters**

-2.82 dBμV at **196.5098 MHz** in the **Horizontal** polarization, **downloading** Mode, **30 MHz** to **6 GHz**, **3Meters**

Plot of Radiated Emissions Test Data

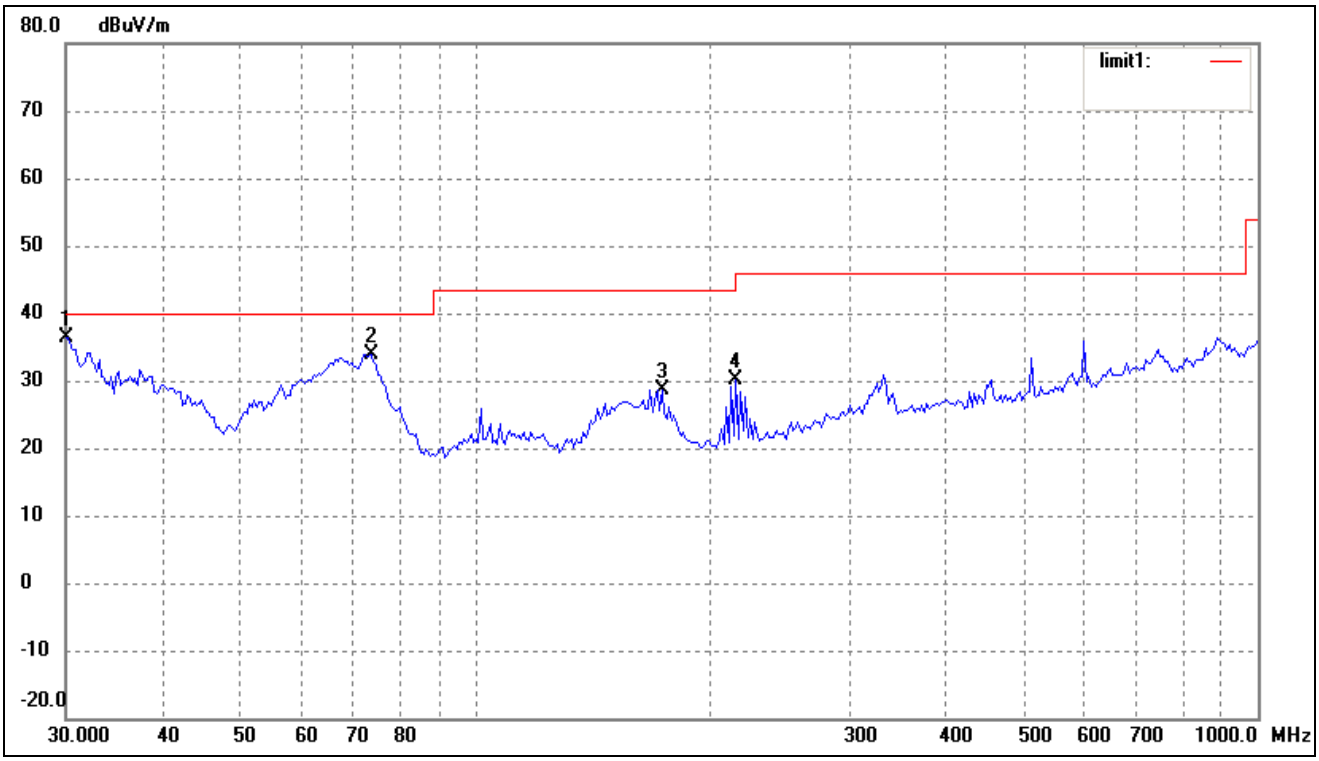
EUT: *Tablet PC*
Tested Model: *TC978*
Operating Condition: *Playing*
Comment: *AC 120V/60Hz; Adapter 5V; 30MHz to 1GHz*

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	33.0950	23.84	8.56	32.40	40.00	-7.60	58	150	QP
2	73.6170	33.50	2.10	35.60	40.00	-4.40	326	100	QP
3	161.4742	28.00	3.66	31.66	43.50	-11.84	29	120	QP
4	212.2695	26.66	5.44	32.10	43.50	-11.40	209	100	peak
5	325.5958	21.73	10.38	32.11	46.00	-13.89	359	200	peak
6	599.3212	20.78	14.76	35.54	46.00	-10.46	359	100	peak

Test Specification: *Vertical*

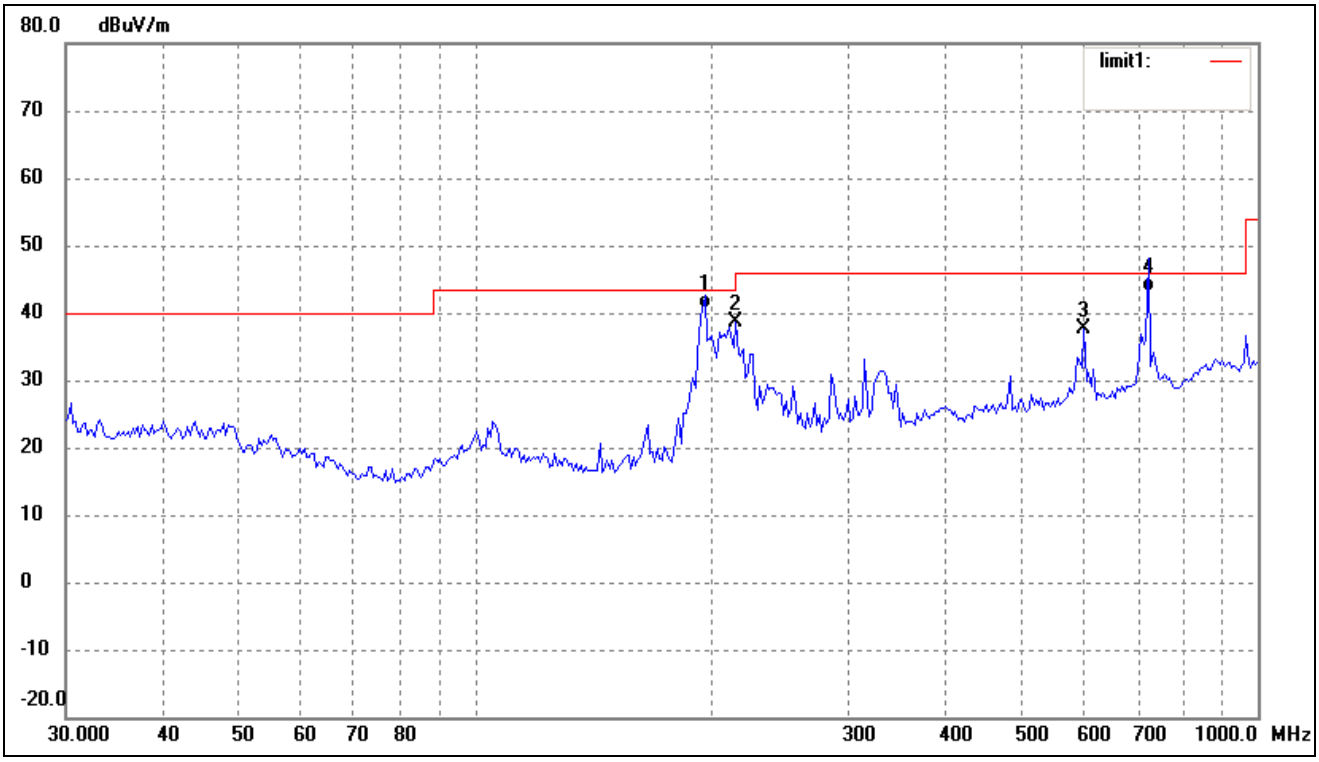


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	30.0000	28.41	8.04	36.45	40.00	-3.55	51	100	peak
2	73.6170	31.80	2.10	33.90	40.00	-6.10	308	100	peak
3	173.2051	25.03	3.72	28.75	43.50	-14.75	120	100	peak
4	215.2678	24.52	5.62	30.14	43.50	-13.36	359	100	peak

Plot of Radiated Emissions Test Data

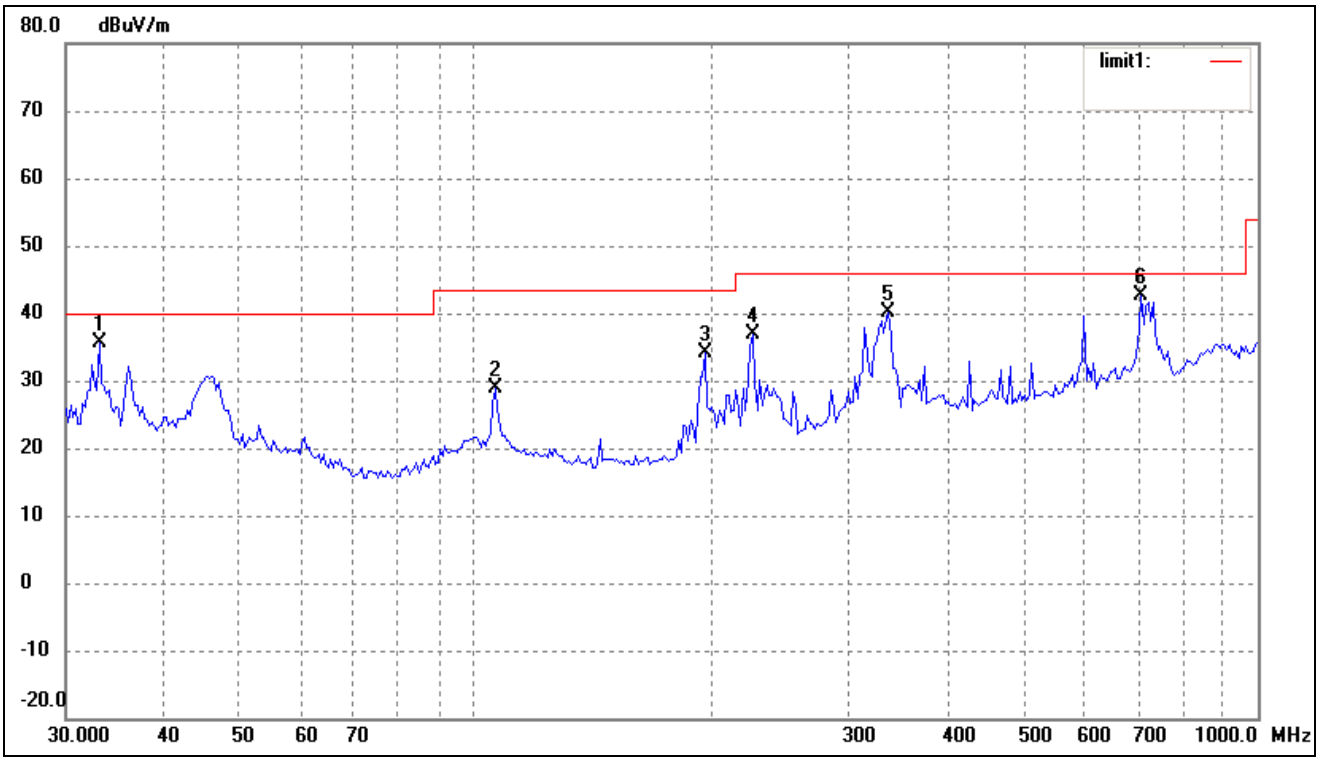
EUT: *Tablet PC*
Tested Model: *TC978*
Operating Condition: *Downloading*
Comment: *AC 120V/60Hz; Connect to PC; USB 5V; 30MHz to 1GHz*

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	196.5098	37.16	3.52	40.68	43.50	-2.82	58	150	QP
2	215.2677	33.84	4.74	38.58	43.50	-4.92	326	100	QP
3	599.3212	24.36	13.20	37.56	46.00	-8.44	29	120	QP
4	724.2611	28.56	14.56	43.12	46.00	-2.88	209	100	peak

Test Specification: *Vertical*

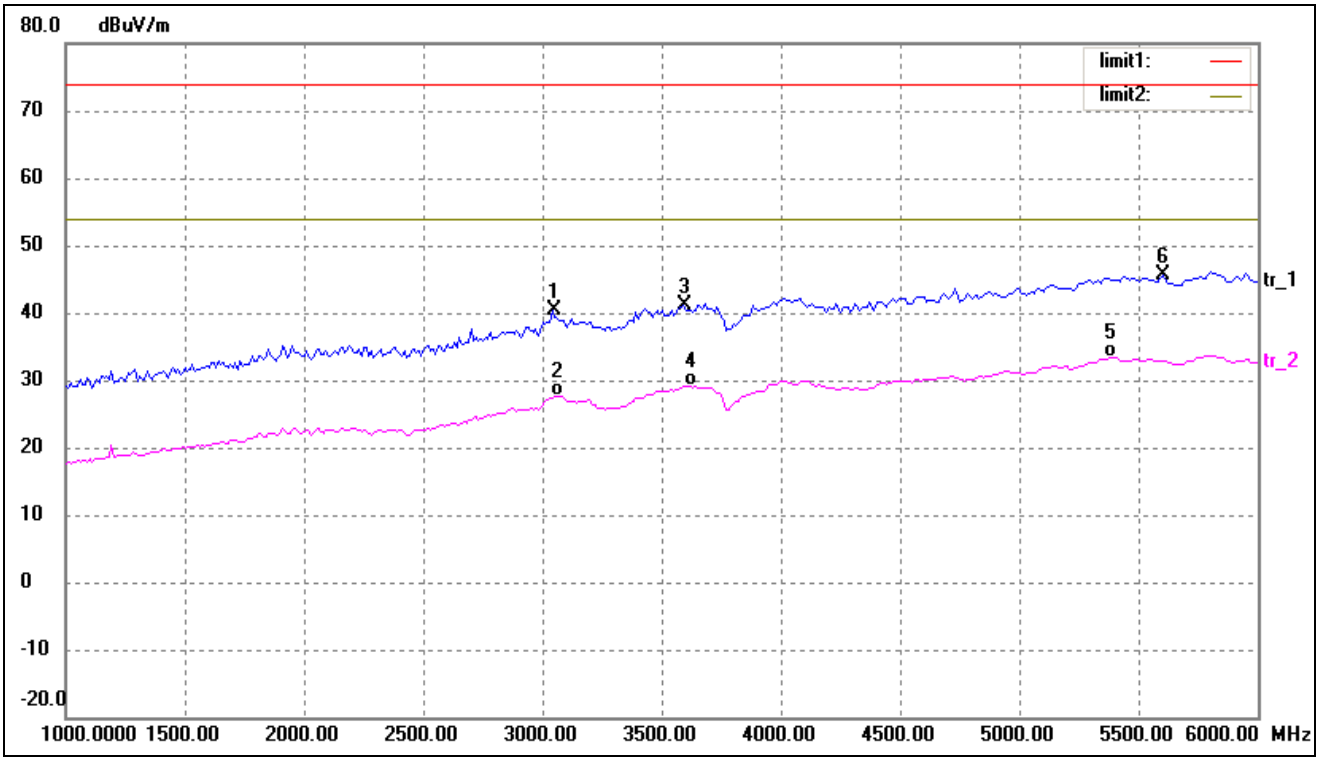


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	33.0950	26.98	8.56	35.54	40.00	-4.46	51	100	peak
2	106.0126	22.63	6.24	28.87	43.50	-14.63	308	100	peak
3	196.5098	29.55	4.49	34.04	43.50	-9.46	120	100	peak
4	226.0994	30.58	6.26	36.84	46.00	-9.16	359	100	peak
5	337.2155	29.90	10.14	40.04	46.00	-5.96	359	100	peak
6	709.1823	26.55	16.15	42.70	46.00	-3.30	359	100	peak

Plot of Radiated Emissions Test Data

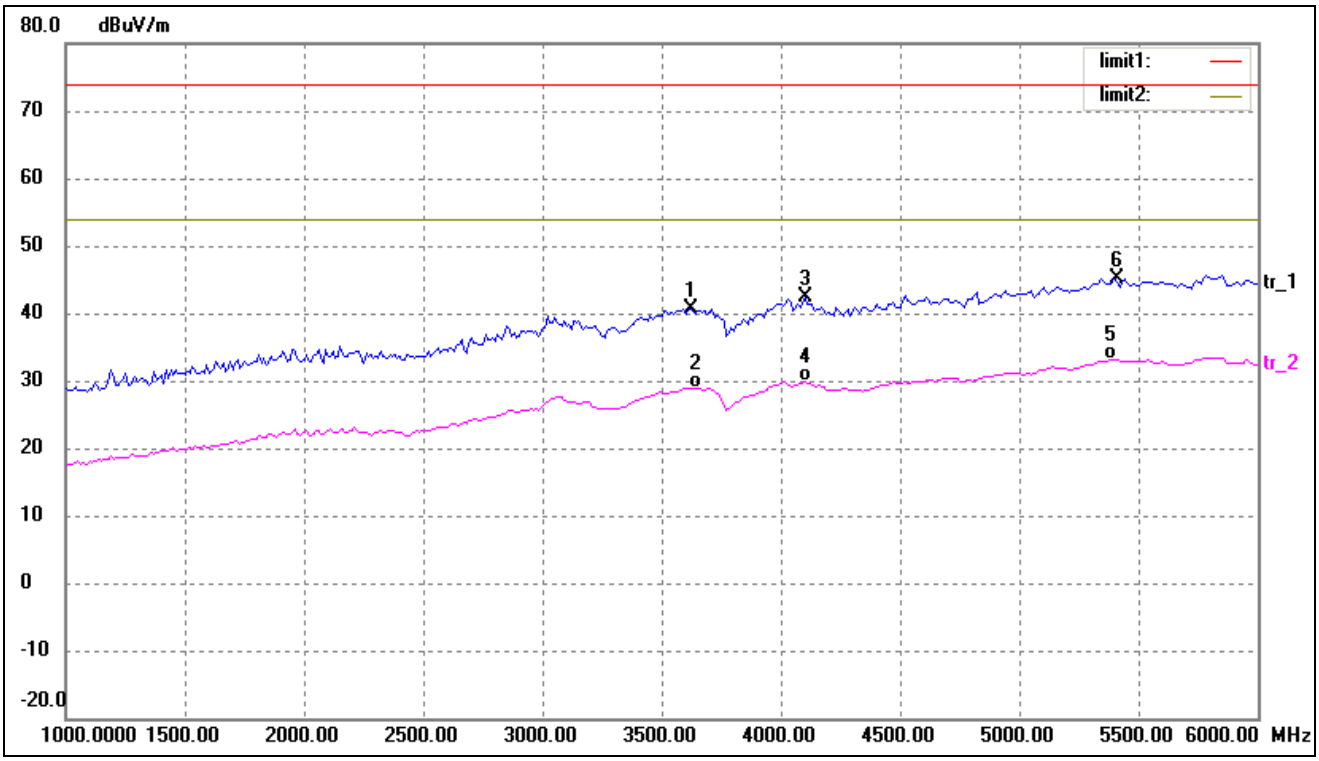
EUT: *Tablet PC*
Tested Model: *TC978*
Operating Condition: *Playing*
Comment: *AC 120V/60Hz; Adapter 5V; Above 1G*

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	3047.966	48.01	-7.71	40.30	74.00	-33.70	58	150	peak
2	3069.889	35.25	-7.66	27.59	54.00	-26.41	326	100	AVG
3	3594.181	47.23	-6.22	41.01	74.00	-32.99	29	120	peak
4	3620.034	35.16	-6.13	29.03	54.00	-24.97	209	100	AVG
5	5388.429	35.32	-1.94	33.38	54.00	-20.62	359	200	AVG
6	5605.076	47.22	-1.61	45.61	74.00	-28.39	359	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	3620.034	46.86	-6.13	40.73	74.00	-33.27	51	100	peak
2	3646.072	35.02	-6.05	28.97	54.00	-25.03	308	100	AVG
3	4103.772	47.24	-4.93	42.31	74.00	-31.69	120	100	peak
4	4103.772	34.84	-4.93	29.91	54.00	-24.09	359	100	AVG
5	5388.429	35.09	-1.94	33.15	54.00	-20.85	359	100	AVG
6	5407.773	47.11	-1.87	45.24	74.00	-28.76	359	100	peak

Plot of Radiated Emissions Test Data

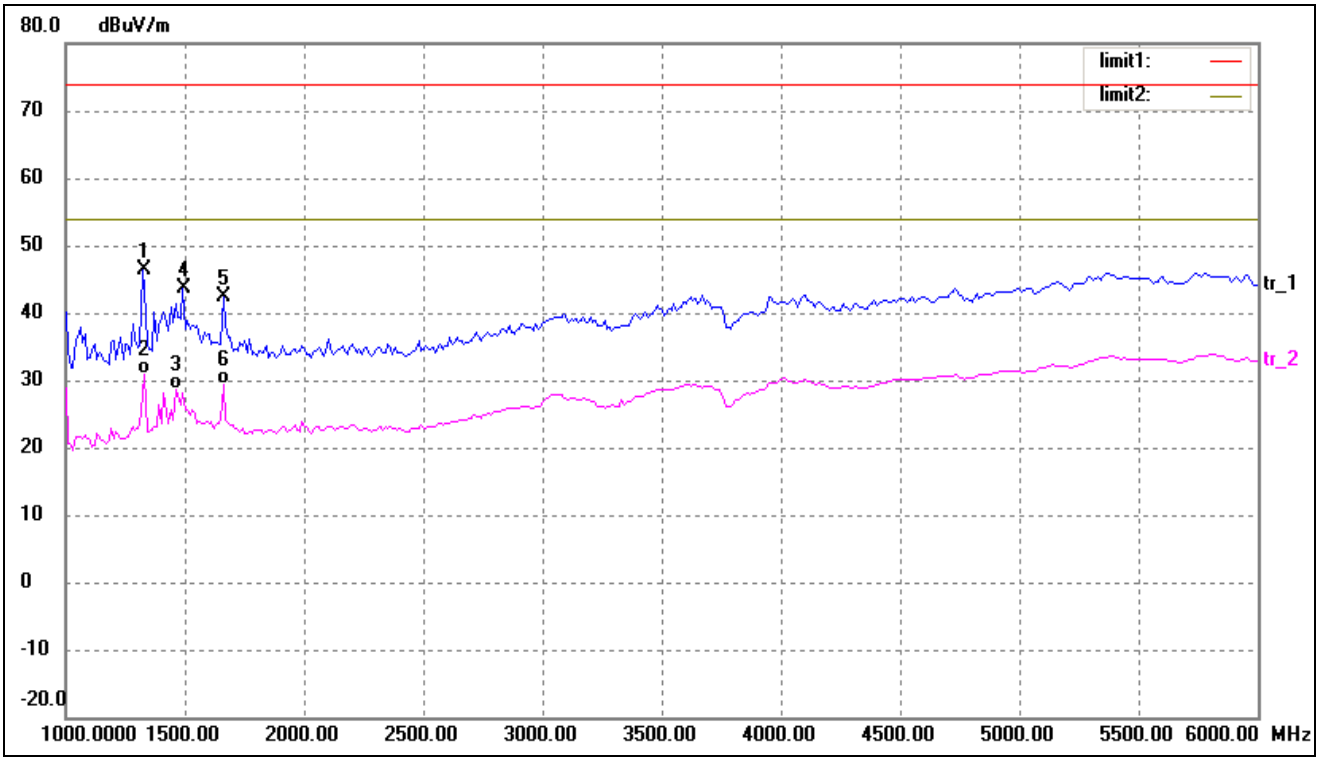
EUT: *Tablet PC*

Tested Model: *TC978*

Operating Condition: *Downloading*

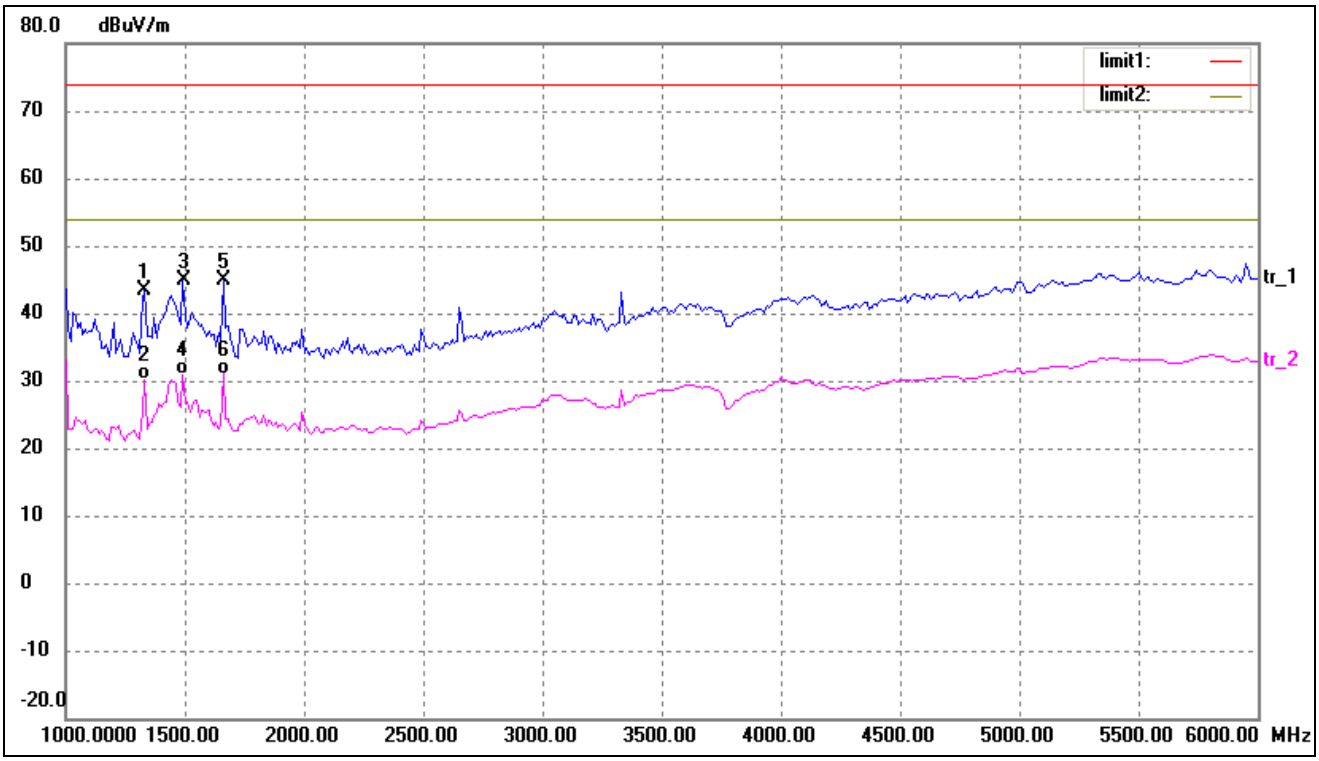
Comment: *AC 120V/60Hz; Connect to PC; USB 5V; Above 1G*

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	1327.235	61.65	-15.36	46.29	74.00	-27.71	58	150	peak
2	1332.000	46.31	-15.34	30.97	54.00	-23.03	326	100	AVG
3	1467.318	43.28	-14.66	28.62	54.00	-25.38	29	120	AVG
4	1499.209	58.21	-14.50	43.71	74.00	-30.29	209	100	peak
5	1663.393	55.83	-13.56	42.27	74.00	-31.73	359	200	peak
6	1663.393	42.93	-13.56	29.37	54.00	-24.63	359	100	AVG

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	1332.000	58.75	-15.34	43.41	74.00	-30.59	51	100	peak
2	1332.000	45.56	-15.34	30.22	54.00	-23.78	308	100	AVG
3	1493.846	59.48	-14.53	44.95	74.00	-29.05	120	100	peak
4	1499.209	45.28	-14.50	30.78	54.00	-23.22	359	100	AVG
5	1663.393	58.38	-13.56	44.82	74.00	-29.18	359	100	peak
6	1663.393	44.56	-13.56	31.00	54.00	-23.00	359	100	AVG

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.
The measurements greater than 20dB below the limit from 9kHz to 30MHz.

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