FCC PART 15.109
MEASUREMENT AND TEST REPORT
FOR

Shenzhen Sungworld Electronics Co., LTD.

4#, North District, Shangxue Industrial park, Bantian, Long Gang District,

Shenzhen, China

FCC ID: WI3SW-E700

Report Concerns: Original Report	**Equipment Type:** Mini Notebook PC
Model:	SW-E700 Series
Report No.:	STR08058049I
Test/Witness Engineer:	Seven Song
Test Date:	2008-07-24-2008-08-01
Issued Date:	2008-08-01
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）
Approved & Authorized By:	Jandy So /PSQ Manager

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

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant:	Shenzhen Sungworld Electronics Co., LTD.
Address of applicant:	4#, North District, Shangxue Industrial park, Bantian, Long Gang District, Shenzhen, China
Manufacturer:	Shenzhen Sungworld Electronics Co., LTD.
Address of manufacturer:	4#, North District, Shangxue Industrial park, Bantian, Long Gang District, Shenzhen, China

General Description of E.U.T

Items	Description
EUT Description:	Mini Notebook PC
Trade Name:	/
Model No.:	SW-E700 Series
Rate Current:	2A
Rate Voltage:	9V
Size:	21.5 x14.5 x3.2 cm
For more information refer to the circuit diagram form and the user's manual.	

The test data is gathered from a production sample, provided by the manufacturer.

1.2 Test Standards

The following report is prepared on behalf of the Shenzhen Sungworld Electronics 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 15.107, and 15.109 rules.

Maintenance of compliance is the responsibility of the manufacturer. Any modification of the product, which result in lowering the emission/immunity, should be checked to ensure compliance has been maintained.

1.3 Related Submittal(s)/Grant(s)

No Related Submittal(s).

1.4 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.

The equipment under test (EUT) was configured to measure its highest possible immunity level. Test is carried with playing mode which worst case has been showed. Test setup was adapted accordingly in reference to the Operating Instructions.

1.5 Test Facility

The 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 files which the Registration No.: **994117**. Measurement required was performed at laboratory of SEM.Test Compliance Service Co., Ltd. at 3/F, Jinbao Commerce Building, Xin'an Fanshen Road, Bao'an District, Shenzhen, P.R.C. (518101).

1.6 Accessories Equipment List and Details

Manufacturer	Description	Model	Serial Number
Lenove	Mouse	MS-32	/

1.7 EUT Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
DC Power Cable	1.5	Unshielded	With Core

2. SUMMARY OF TEST RESULTS

Description of Test	Result
§15.107 (a) Conducted Emission	Compliant
§15.109(a) Radiated Emission	Compliant

3. §15.107 (a)- CONDUCTED EMISSION

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 ± 1.5dB.

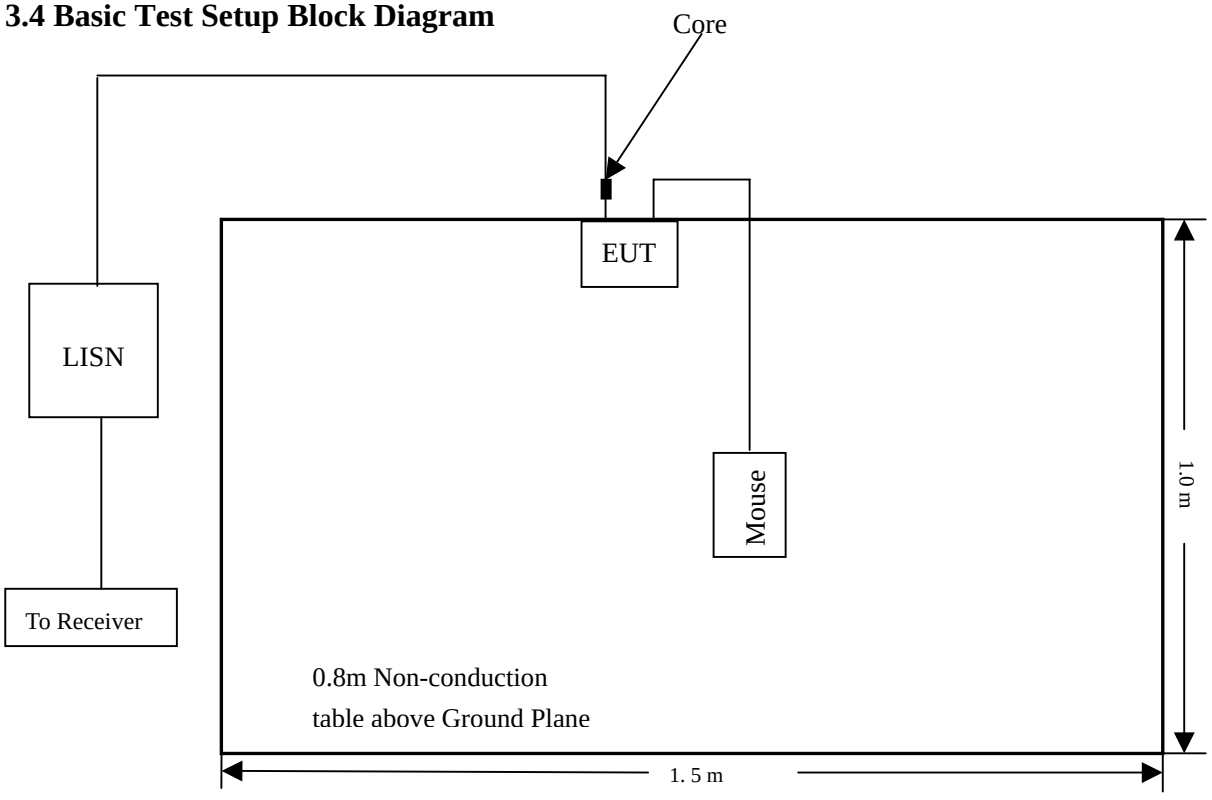
3.2 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
Spectrum Analyzer	Aglient	E4402B-ESA	US41192821	2008-01-25	2009-01-24
EMI Test Receiver	ROHDE&SCHWARZ	ESPI	101206	2008-01-25	2009-01-24
L.I.S.N.	SCHWARZBECK	NSLK8126	8126-224	2008-01-25	2009-01-24
L.I.S.N.	EMCO	3825/2	11967C	2008-01-25	2009-01-24

3.3 Test Procedure

The setup of EUT is according with per ANSI C63.4-2003 measurement procedure. The specification used was with the FCC Part 15.107 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.

3.4 Basic Test Setup Block Diagram



3.5 Environmental Conditions

Temperature:	25° C
Relative Humidity:	55%
ATM Pressure:	1010 mbar

3.6 Summary of Test Results/Plots

According to the data in section 3.7, the EUT complied with the FCC 15B Conducted margin for a Class B device, with the *worst* margin reading of:

-10.6 dBμV at **0.154 MHz** in the **Line** mode**, Peak** detector, **0.15-30MHz**

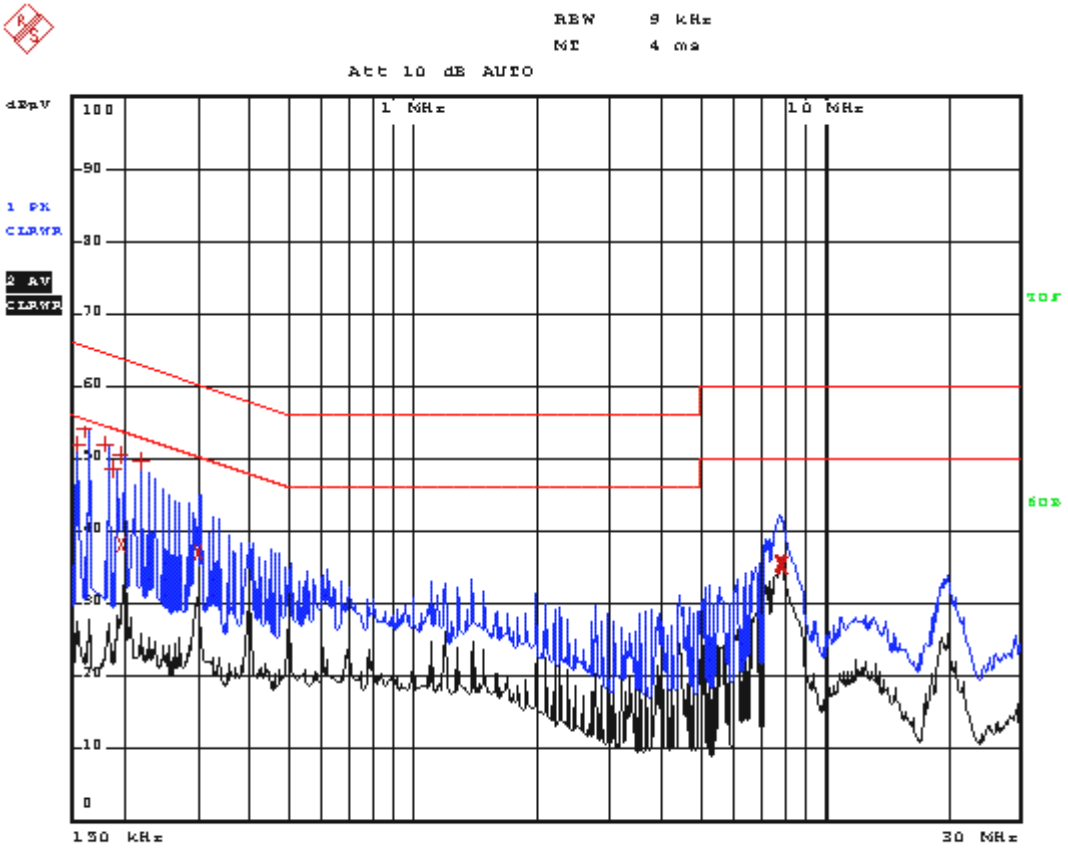
3.7 Conducted Emissions Test Data

LINE CONDUCTED EMISSIONS				FCC 15B CLASS B	
Frequency	Amplitude	Detector	Phase	Limit	Margin
MHz	dBμV	QP/Ave/Pk	Line/Neutral	dBμV	dB
0.154	55.21	Pk	Line	65.78	-10.6
0.162	54.26	Pk	Neutral	65.36	-11.1
0.182	52.18	Pk	Neutral	64.39	-12.2
0.170	52.50	Pk	Line	64.96	-12.5
0.298	37.21	Ave	Neutral	50.3	-13.1
0.198	50.53	Pk	Neutral	63.69	-13.2
0.218	49.63	Pk	Neutral	62.89	-13.3
0.154	52.14	Pk	Neutral	65.78	-13.6
0.190	49.65	Pk	Line	64.04	-14.4
7.79	35.48	Ave	Neutral	50	-14.5
0.226	48.10	Pk	Line	62.6	-14.5
7.77	35.51	Ave	Line	50	-14.5
0.198	38.99	Ave	Line	53.69	-14.7
8.002	35.21	Ave	Neutral	50	-14.8
0.162	50.29	Pk	Line	65.36	-15.1
0.242	46.83	Pk	Line	62.03	-15.2
7.958	34.7	Ave	Line	50	-15.3
8.026	34.68	Ave	Line	50	-15.3
0.198	38.28	Ave	Neutral	53.69	-15.4

Note: Emissions attenuation more than 20dB below maximum permissible value are not report.

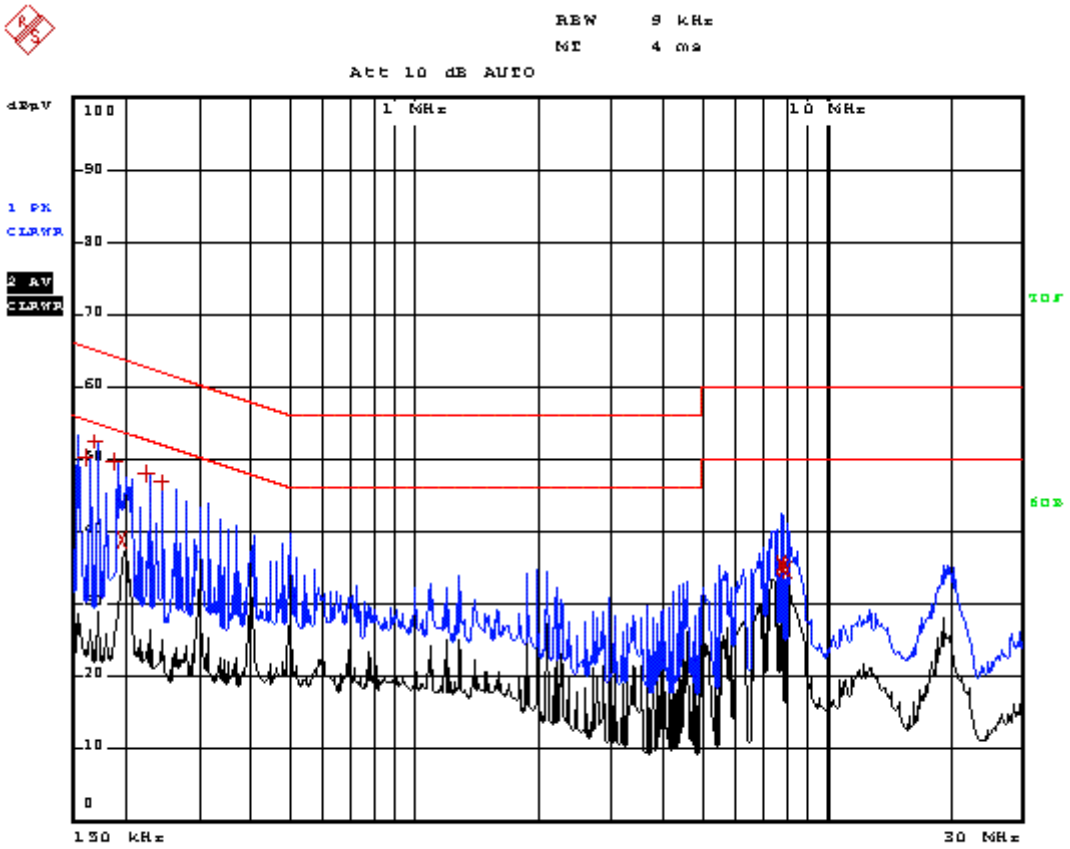
Plot of Conducted Emissions Test Data

Conducted Disturbance
EUT: Mini Notebook PC
M/N: SW-E700 Series
Operating Condition: Operating
Test Specification: N
Comment: AC 120V/60Hz Adapter DC 9V



Plot of Conducted Emissions Test Data

Conducted Disturbance
EUT: Mini Notebook PC
M/N: SW-E700 Series
Operating Condition: Operating
Test Specification: L
Comment: AC 120V/60Hz Adapter DC 9V



4. §15.109(a)- RADIATED EMISSION

4.1 Measurement Uncertainty

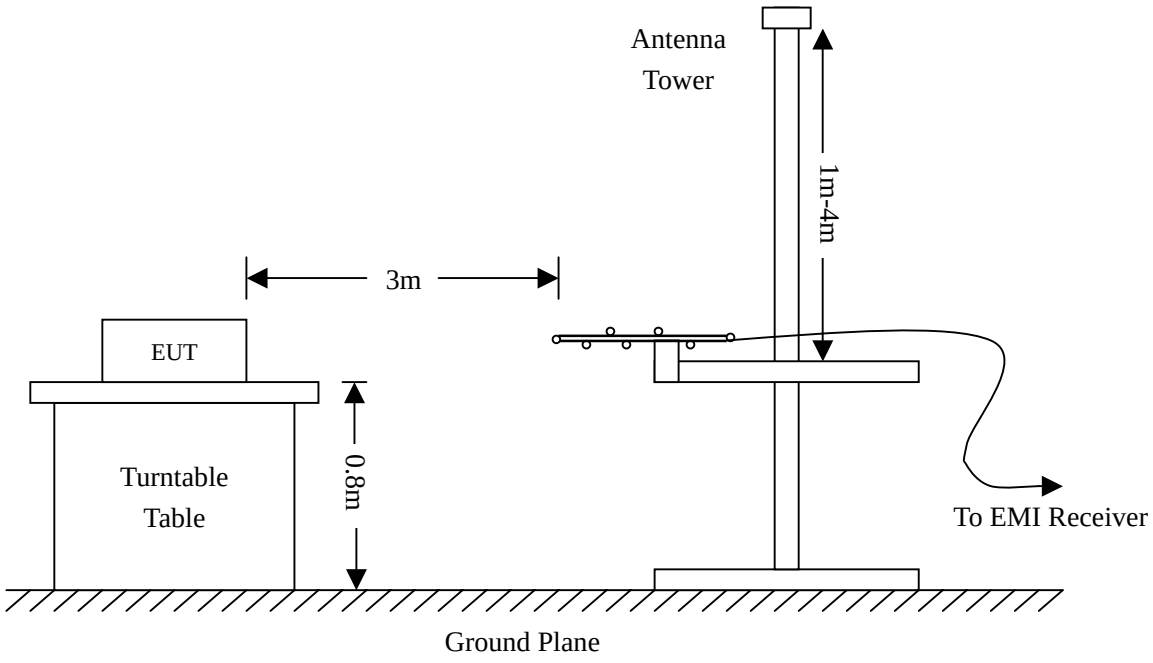
Manufacturer	Description	Model	Serial Number	Cal. Date	Due. Date
Spectrum Analyzer	ROHDE&SCHWARZ	FSEA20	DE25181	2008-01-25	2009-01-24
Positioning Controller	C&C	CC-C-1F	N/A	2008-01-25	2009-01-24
Trilog Broadband Antenna	SCHWARZBECK	VULB9163	9163-333	2008-01-25	2009-01-24
Horn Antenna	SCHWARZBECK	BBHX 9120	9120-426	2008-01-25	2009-01-24
RF Switch	EM	EMSW18	SW060023	2008-01-25	2009-01-24
Amplifier	Agilent	8447F	3113A06717	2008-01-25	2009-01-24
Coaxial Cable	SCHWARZBECK	AK9513	9513-10	2008-01-25	2009-01-24
EMI Test Receiver	ROHDE&SCHWARZ	ESPI	25498514	2008-01-25	2009-01-24

Base on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any radiation emissions measurement is ± 3.0 dB.

4.2 Test Equipment List and Details

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 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 Class B. The equation for margin calculation is as follows:

Margin = Corr. Ampl. – FCC Part 15B Limit

4.5 Environmental Conditions

Temperature:	25° C
Relative Humidity:	52%
ATM Pressure:	1012 mbar

4.6 Summary of Test Results/Plots

According to the data in section 4.6, the EUT complied with the FCC 15 Class B standards, and had the worst margin is:

-4.71 dBμV at **448.8361 MHz** in the, **Vertical** polarization, **30 MHz to 1 GHz, 3Meters**

Plot of Radiation Emissions Test Data

Radiated Emission

EUT: Mini Notebook PC

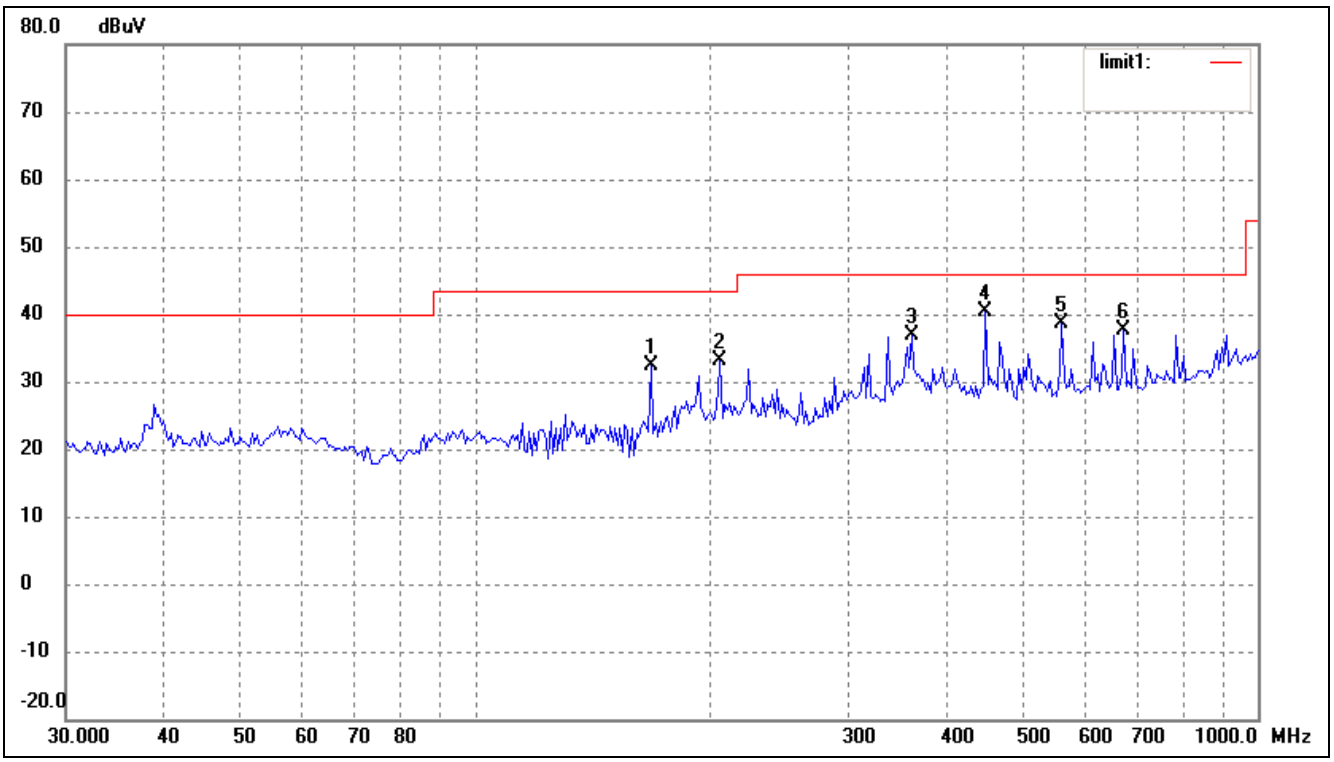
M/N: SW-E700 Series

Operating Condition: Operating

Test Specification: Horizontal & Vertical

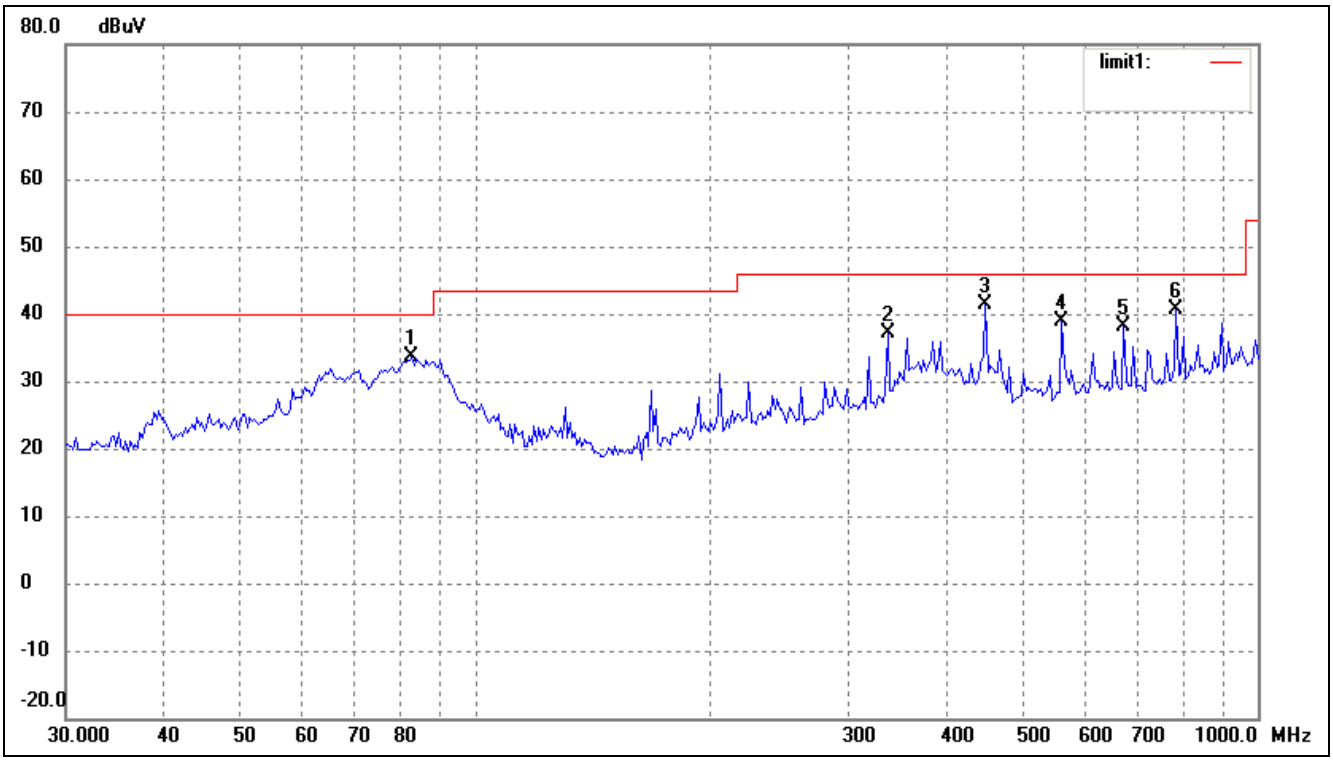
Comment: Adapter DC 9V

Horizontal:



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV)	Factor(dB)	(dBuV)	(dBuV)	(dB)	(°)	(cm)	
1	167.8136	27.69	4.81	32.50	43.50	-11.00	45	100	peak
2	205.7459	26.26	6.78	33.04	43.50	-10.46	39	120	peak
3	360.9775	25.86	10.90	36.76	46.00	-9.24	162	114	peak
4	448.8360	28.65	11.72	40.37	46.00	-5.63	320	146	QP
5	562.0143	25.17	13.50	38.67	46.00	-7.33	225	112	peak
6	674.6767	23.10	14.41	37.51	46.00	-8.49	98	121	peak

Vertical:



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV)	Factor(dB)	(dBuV)	(dBuV)	(dB)	(°)	(cm)	
1	83.1076	28.79	4.76	33.55	40.00	-6.45	360	120	peak
2	336.4817	26.70	10.35	37.05	46.00	-8.95	15	109	peak
3	448.8361	29.57	11.72	41.29	46.00	-4.71	26	113	QP
4	562.0143	25.43	13.50	38.93	46.00	-7.07	21	100	peak
5	674.6768	23.69	14.41	38.10	46.00	-7.90	64	110	peak
6	787.4749	25.31	15.38	40.69	46.00	-5.31	200	100	QP