

# FCC Part 15.109


## Measurement and Test Report

For

### Shenzhen WideTell Technology Co., Ltd.

1008 Tower B, YangGuangHaiJing Bldg, High-Tech Industrial Park, Nanshan  
District, Shenzhen, China

**FCC ID: WABWT-MA801**

<b>Report Concerns:</b> Original Report	<b>Equipment Type:</b> MINIPCI WIRELESS CARD
<b>Model:</b>	<u>WT-MA801</u>
<b>Report No.:</b>	<u>STR08058011E-3</u>
<b>Test/Witness Engineer:</b>	<u>Lahm Peng</u> <i>Lahm peng</i>
<b>Test Date:</b>	<u>2008-05-06 to 2008-05-09</u>
<b>Prepared By:</b>	<b>SEM.Test Compliance Service Co., Ltd.</b> 3/F, Jinbao Commerce Building, Xin'an Fanshen Road, Bao'an District, Shenzhen, P.R.C. (518101)
<b>Approved &amp; Authorized By:</b>	 <hr style="width: 20%; margin: 0 auto;"/> 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.

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## 1. GENERAL INFORMATION

### 1.1 Product Description for Equipment Under Test (EUT)

#### Client Information

Applicant: Shenzhen WideTell Technology Co., Ltd.  
 Address of applicant: 1008 Tower B, YangGuangHaiJing Bldg, High-Tech Industrial Park, Nanshan District, Shenzhen, China

Manufacturer: Shenzhen WideTell Technology Co., Ltd.  
 Address of manufacturer: Block 5, Science & Technology Industrial Park of Privately Owned Enterprises, Pingshan, Xili Town, Nanshan District, Shenzhen, P.R.China

#### General Description of E.U.T

Items	Description
EUT Description:	MINIPCI WIRELESS CARD
Trade Name:	WIDETELL
Model No.:	WT-MA801
Rated Voltage:	DC 3.3V
Max. Output Power	< 18dBm
Frequency range:	2412-2462MHz
Number of channels:	11
Size:	5MHz
Channel Separation:	Unique Antenna
Type of Antenna:	6.0x4.5x0.4cm

*Note: The test data gathered are from a production sample, provided by the manufacturer.*

### 1.2 Test Standards

The following report is prepared on behalf of the Shenzhen WideTell Technology Co., Ltd. in accordance with FCC Part 15, Subpart B, and section 15.107, 15.109 of the Federal Communication Commissions rules.

The objective is to determine compliance with FCC Part 15, Subpart B, and section 15.107, 15.109 of the Federal Communication Commissions 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 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 emission level. For more detail refer 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 EUT Exercise Software

The EUT exercise program used during the testing was designed to exercise the system components.

## 1.7 Accessories Equipment List and Details

Manufacturer	Description	Model	Serial Number	Compliance
IBM	Notebook	R51e	LV14893	FCC DOC
TP-LINK	Modem	TM-EC5658V	KT99CTQC-508	FCC DOC
Lenovo	Printer	3110	OD65133711480	FCC DOC

## 1.8 EUT Cable List and Details

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

## 2. SUMMARY OF TEST RESULTS

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FCC RULES	DESCRIPTION OF TEST	RESULT
§ 15.107	Conducted Emission	Compliant
§ 15.109	Radiated Emission	Compliant

### 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  $\pm 0.5$  dB.

#### 3.2 Test Equipment List and Details

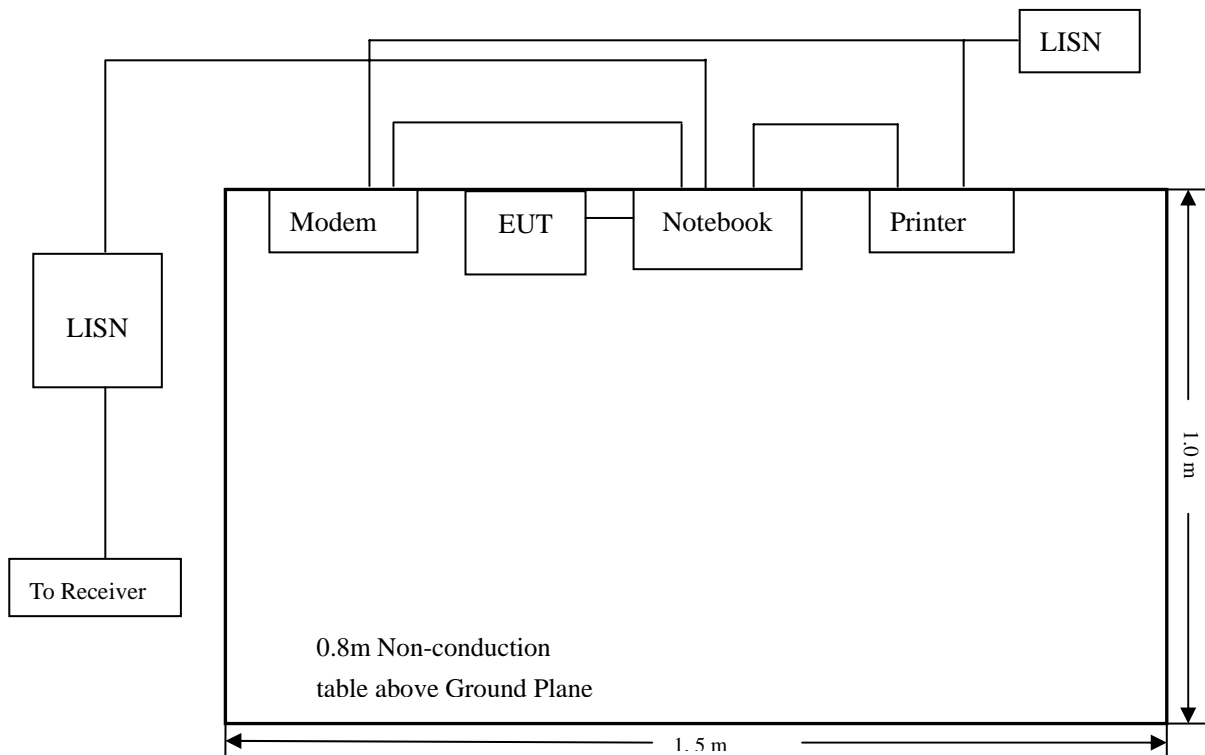
Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
EMI Test Receiver	Rohde & Schwarz	ESCS30	830245/009	2008-01-25	2009-01-24
AMN	Rohde & Schwarz	ESH2-Z5	100002	2008-01-25	2009-01-24
Limiter	Rohde & Schwarz	ESH3-Z2	357.8810.52	2008-01-25	2009-01-24
AMN	Rohde & Schwarz	ESH3-Z5	828304/014	2008-01-25	2009-01-24

**Statement of Traceability:** All calibrations have been performed per the NVLAP requirements traceable to the NIST.

#### 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:	20° 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 15.107 Conducted margin for a Class B device, with the *worst* margin reading of:

**-15.6 dB $\mu$ V at 3.031 MHz in the Neutral, 0.15-30MHz**

### 3.7 Conducted Emissions Test Data

LINE CONDUCTED EMISSIONS				FCC 15.107	
Frequency	Amplitude	Detector	Phase	Limit	Margin
MHz	dB $\mu$ V	QP/Ave/Pk	Line/Neutral	dB $\mu$ V	dB
3.031	40.38	PK	Neutral	56	-15.6
2.970	40.10	PK	Line	56	-15.9
0.557	38.39	PK	Neutral	56	-17.6
0.560	36.84	PK	Line	56	-19.2
0.247	38.76	PK	Neutral	61.86	-23.1
0.250	34.36	PK	Line	61.76	-27.4

The PK reading is lower than the Limit, so the AV reading is omitted

**Plot of Conducted Emissions Test Data**

Conducted Disturbance

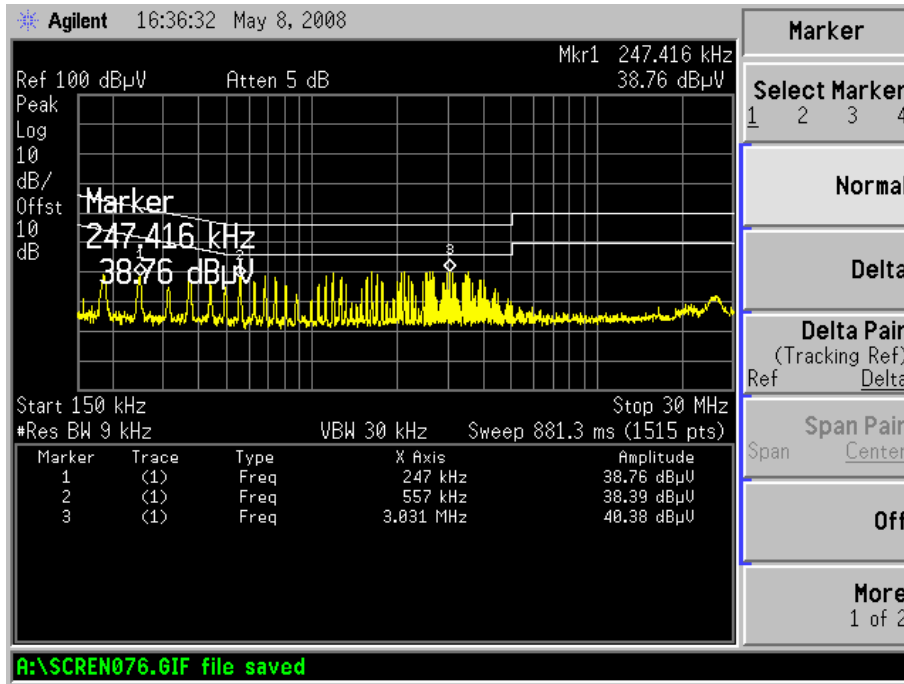
EUT: MINIPCI WIRELESS CARD

M/N: WT-MA801

Operating Condition: Running

Test Specification: N

Comment: AC120V/60Hz





**Plot of Conducted Emissions Test Data**

Conducted Disturbance

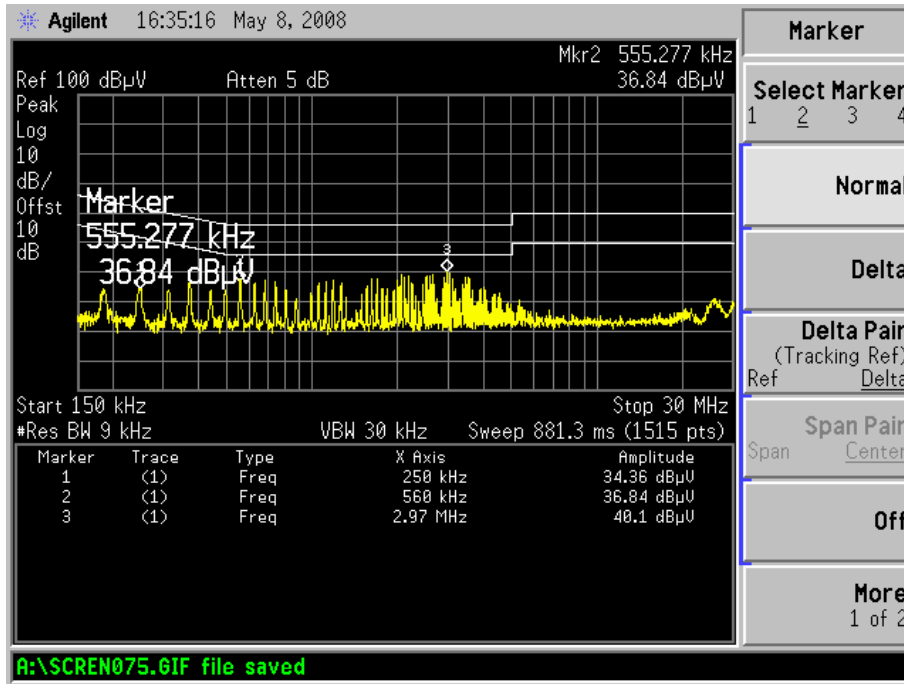
EUT: MINIPCI WIRELESS CARD

M/N: WT-MA801

Operating Condition: Running

Test Specification: L

Comment: AC120V/60Hz



## 4. RADIATION EMISSIONS

### 4.1 Measurement Uncertainty

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement is  $\pm 3.0$  dB.

### 4.2 Standard Applicable

According to §15.109, the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

Section 15.109:

30 - 88 MHz 40 dBuV/m @3M

88 -216 MHz 43.5 dBuV/m @3M

216 -960 MHz 46 dBuV/m @3M

Above 960 MHz 54dBuV/m @3M

### 4.3 Test Equipment List and Details

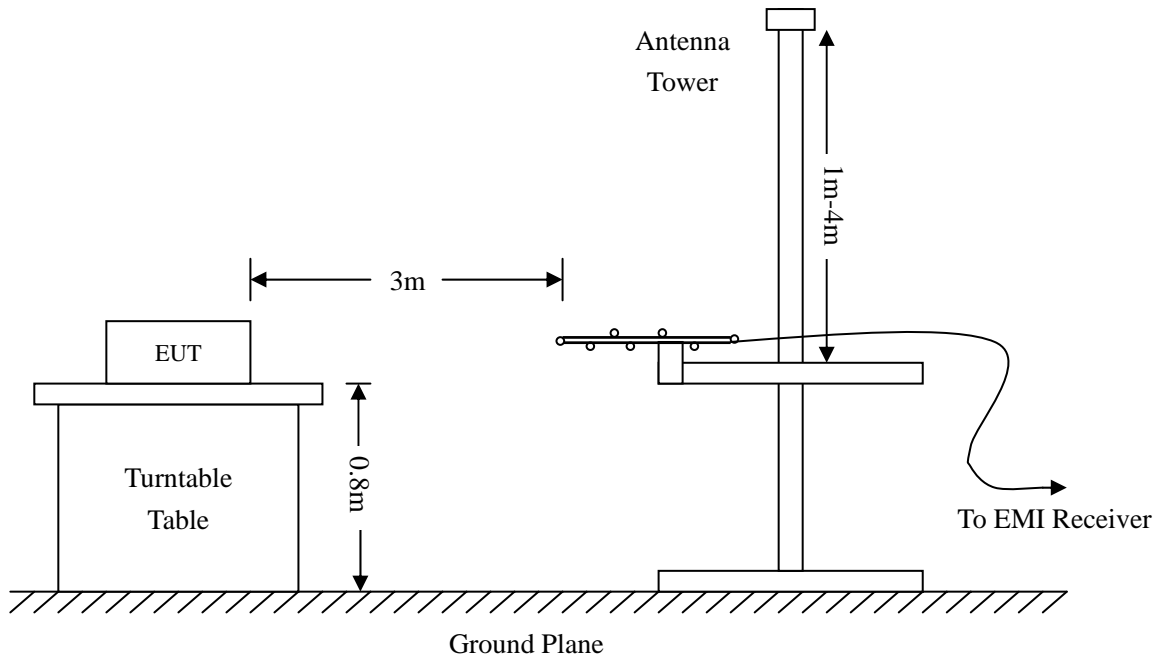
Manufacturer	Description	Model	Serial Number	Cal. Date	Due. Date
Spectrum Analyzer	ROHDE&SCHWARZ	FSEA20	DE25181	2008-01-25	2009-01-24
Positioning Controller	C&C	CC-C-1F	N/A	2008-01-25	2009-01-24
Trilog Broadband Antenna	SCHWARZBECK	VULB9163	9163-333	2008-01-25	2009-01-24
Horn Antenna	SCHWARZBECK	BBHX 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

**Statement of Traceability:** All calibrations have been performed per the NVLAP requirements traceable to the NIST.

### 4.4 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.



### 4.5 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated adding the Antenna Factor and the Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

$$\text{Corr. Ampl.} = \text{Indicated Reading} + \text{Ant. Factor} + \text{Cable Loss} - \text{Ampl. Gain}$$

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:

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

### 4.6 Environmental Conditions

Temperature:	22° C
Relative Humidity:	52%
ATM Pressure:	1012 mbar

### 4.7 Summary of Test Results/Plots

According to the data below, the FCC Part 15.109 standards, and had the worst margin of:

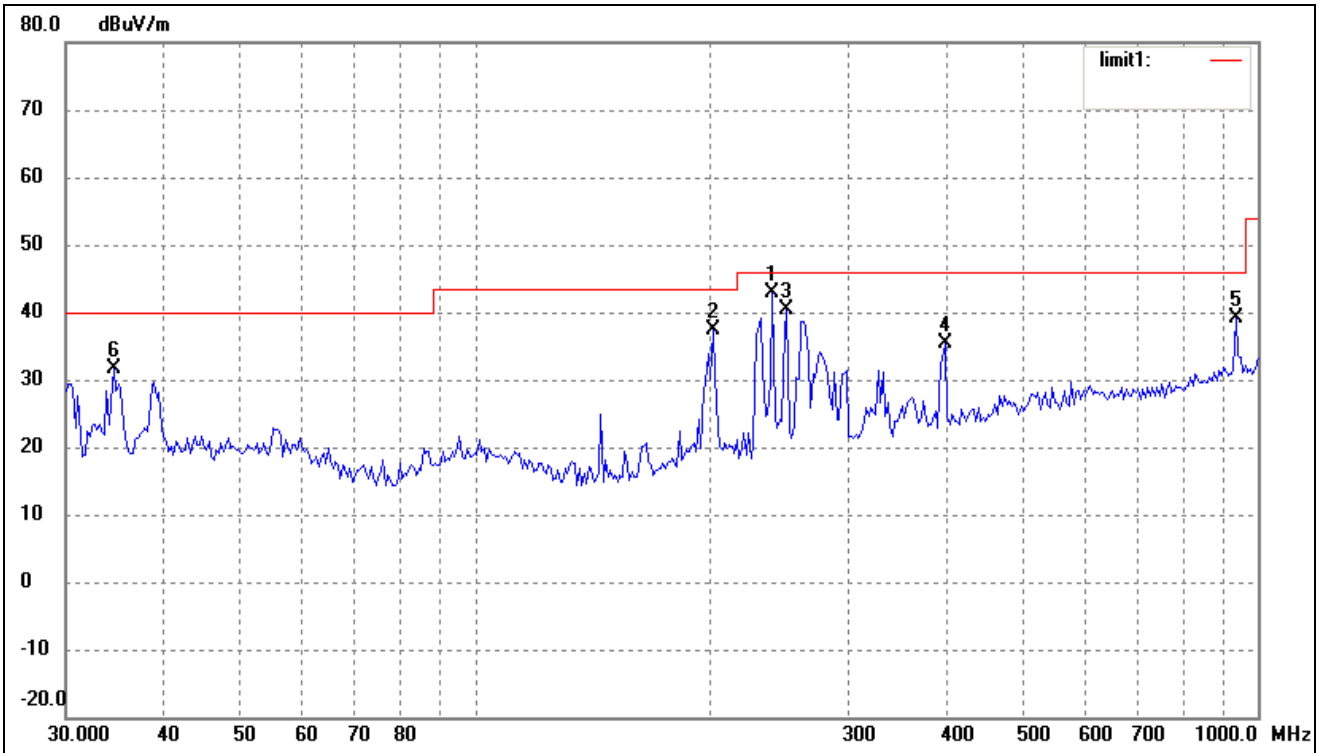
**-0.9 dB $\mu$ V at 4924 MHz in the Vertical polarization, 30 MHz to 25 GHz, 3Meters**

Test Result/Plots:

Spurious Emission From 30 MHz to 1 GHz

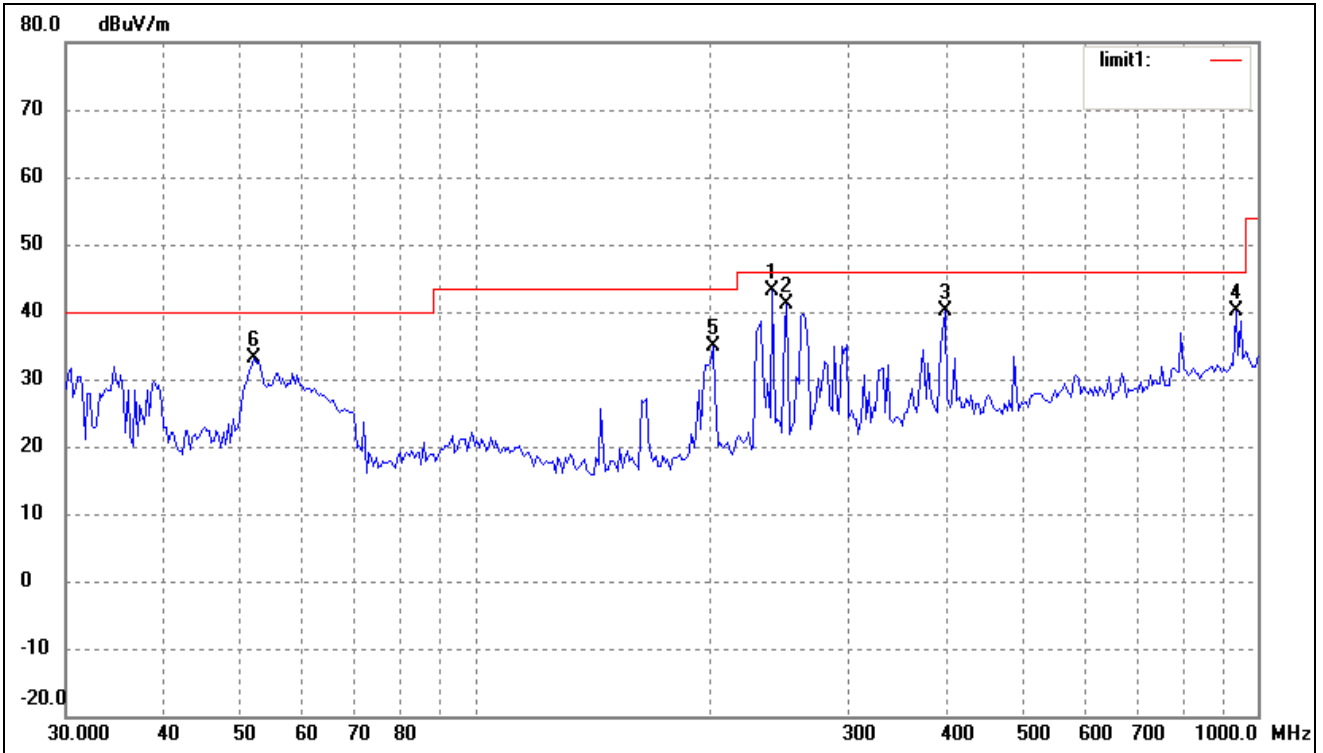
Test mode: PC Connection

Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	240.1442	34.43	8.43	42.86	46.00	-3.14	85	100	QP
2	201.4539	30.63	6.63	37.26	43.50	-6.24	120	100	peak
3	250.4859	31.60	8.70	40.30	46.00	-5.70	0	190	QP
4	398.2962	23.90	11.40	35.30	46.00	-10.70	360	150	peak
5	938.7139	21.61	17.41	39.02	46.00	-6.98	0	100	peak
6	34.5270	24.80	6.77	31.57	40.00	-8.43	115	120	peak

Vertical



No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	240.1442	34.75	8.43	43.18	46.00	-2.82	10	100	QP
2	250.4859	32.48	8.70	41.18	46.00	-4.82	180	180	QP
3	398.2962	28.64	11.40	40.04	46.00	-5.96	360	190	QP
4	938.7139	22.75	17.41	40.16	46.00	-5.84	0	150	QP
5	201.4539	28.27	6.63	34.90	43.50	-8.60	0	100	peak
6	52.2659	25.27	7.88	33.15	40.00	-6.85	150	120	peak