FCC PART 15.109

MEASUREMENT AND TEST REPORT

FOR

TELETRON TAIWAN INC.

5F., No.34, Lane 119, Sec. 4, Roosevelt Rd., Da-an District, Taipei City 106, Taiwan

FCC ID: XPL-NB103X

Report Concerns: Original Report	**Equipment Type:** Netbook 10inch Intel Atom N270

Model:	NB1031
Report No.:	STR09088052I
Test/Witness Engineer:	Jason
Test Date:	2009-08-22 to 2009-09-02
Issue Date:	2009-09-08
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.

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1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant: TELETRON TAIWAN INC.

Address of applicant: 5F., No.34, Lane 119, Sec. 4, Roosevelt Rd., Da-an District, Taipei City 106, Taiwan

Manufacturer: TELETRON TAIWAN INC.

Address of manufacturer: 5F., No.34, Lane 119, Sec. 4, Roosevelt Rd., Da-an District, Taipei City 106, Taiwan

General Description of E.U.T

Items	Description
EUT Description:	Netbook 10inch Intel Atom N270
Trade Name:	/
Model No.:	NB1031
Adding Model:	NB1033, NB1031-B, NB1031-W, NB1031-BL, NB-1031-P, NB1031-S, NB1031-G, NB1031-Y, NB1033-B, NB1033-W, NB1033-BL, NB1033-P, NB1033-S, NB1033-G, NB1033-Y
Rate Current:	DC 19V
Rate Voltage:	3.42A
CPU Speed:	Intel Atom 1.6GHz N270
Memory Size:	2GB
Display Resolutions:	10.1” LCD Panel / WSVGA 1024×600
HDD:	2.5’ SATA 160GB
OS:	Microsoft Windows XP/Microsoft Windows Vista
I/O Interface:	USB×3, VGA, RJ45, SD Card Slot, Mic/earphone Jack
Webcam:	1.3M Pixels
Size:	26.5 x19.3 x3.1 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. The other model listed in the report has different appearance only of NB1031 without circuit and electronic construction changed, declared by the manufacturer.

1.2 Test Standards

The following report is prepared on behalf of the TELETRON TAIWAN INC. 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 15.107, and 15.109 rules.

Maintenance of compliance is the responsibility of the manufacturer. Any modification of the product, which results 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 susceptibility against the tested phenomena. The test modes were adapted accordingly in reference to the Operating Instructions.

1.5 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.

1.6 EUT Exercise Software

The EUT exercise program used during radiated and conducted testing was designed to exercise the system components. The test software, provided by the customer, is started while the EUT is on to simulate the normal work. under the Windows XP terminal, the exercise software includes the following features:
* With a file read and write function for all hard drives or external USB/SD drives,
* A exercise video function that fill the character “H” in the LCD display and external VGA display
* Run all I/O port, for eaxmple the USB mouse, RJ45 ethernet port etc.

In addition, the EUT playing the standard 1kHz audio signal, and plug in the mircophone and headphone so that the microphone and audio port is running. The webcamera function is opening in the windows XP.

1.7 Accessories Equipment List and Details

Manufacturer	Description	Model	Serial Number
Lenovo	Monitor	LXM-L17AB	4M0233274805856
Lenovo	Mouse	MO28UOL	/
Kington	SD Card	30260-009	P742988X01
Mymedia	U-disk	MM1G	/

1.8 EUT Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
DC Power Cable	1.5	Unshielded	With Core
VGA Cable	1.5	Shielded	Without 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 ± 1.5 dB.

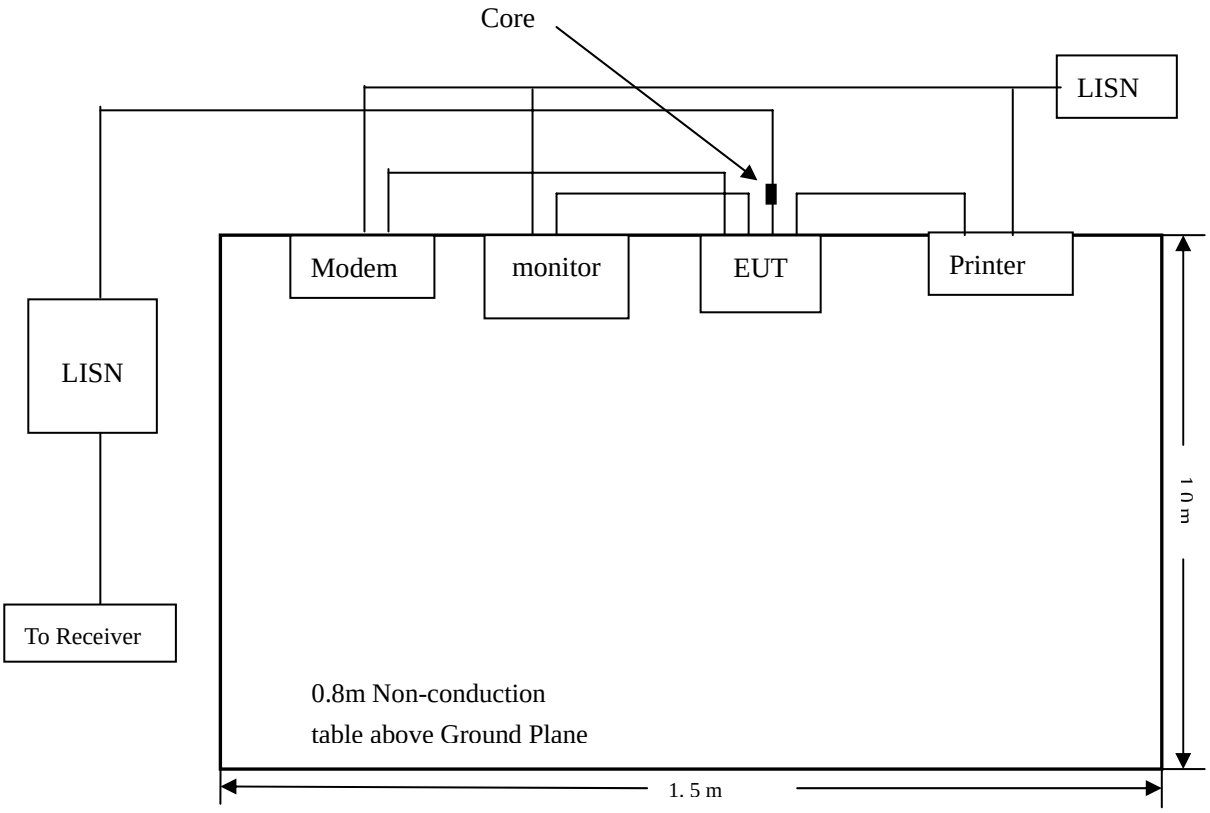
3.2 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
EMI Test Receiver	Rohde & Schwarz	ESPI	101611	2009-08-12	2010-08-11
L.I.S.N	Schwarz beck	NSLK8126	8126-224	2009-08-12	2010-08-11
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100911	2009-08-12	2010-08-11
AMN	Rohde & Schwarz	ESH3-Z5	828304/014	2009-08-12	2010-08-11

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:	52%
ATM Pressure:	1012 mbar

3.6 Test Receiver Setup

During the conducted emission test, the test receiver was set with the following configurations:

Start Frequency ..... 150 kHz
Stop Frequency..... 30 MHz
Sweep Speed ..... Auto
IF Bandwidth..... 10 kHz
Quasi-Peak Adapter Bandwidth ..... 9 kHz
Quasi-Peak Adapter Mode ..... Normal

3.7 Summary of Test Results/Plots

According to the data in section 3.8, the EUT complied with the FCC 15B Conducted margin for a Class B device, with the *worst* margin reading of:

-13.76 dBμV at 0.154 MHz in the **Neutral** mode**, Pk** detector, **0.15-30MHz**

3.8 Conducted Emissions Test Data

LINE CONDUCTED EMISSIONS				FCC 15 CLASS B	
Frequency	Amplitude	Detector	Phase	Limit	Margin
MHz	dBμV	QP/Ave/Pk	Line/Neutral	dBμV	dB
0.154	52.01	Pk	Neutral	65.77	-13.76
0.162	50.35	Pk	Line	65.35	-15.00
0.198	37.67	Ave	Neutral	53.69	-16.02
0.19	36.77	Ave	Line	54.03	-17.26
0.778	24.94	Ave	Neutral	45.99	-21.05
0.622	34.28	Pk	Line	56.00	-21.72
0.778	24.23	Ave	Line	46.00	-21.77
3.154	34.01	Pk	Neutral	56.00	-21.99
3.218	33.42	Pk	Line	55.99	-22.57
0.53	32.84	Pk	Neutral	55.99	-23.15
0.93	32.14	Pk	Line	55.99	-23.85
3.29	21.89	Ave	Line	45.99	-24.1
11.994	25.71	Ave	Line	49.99	-24.28

Plot of Conducted Emissions Test Data

Conducted Disturbance

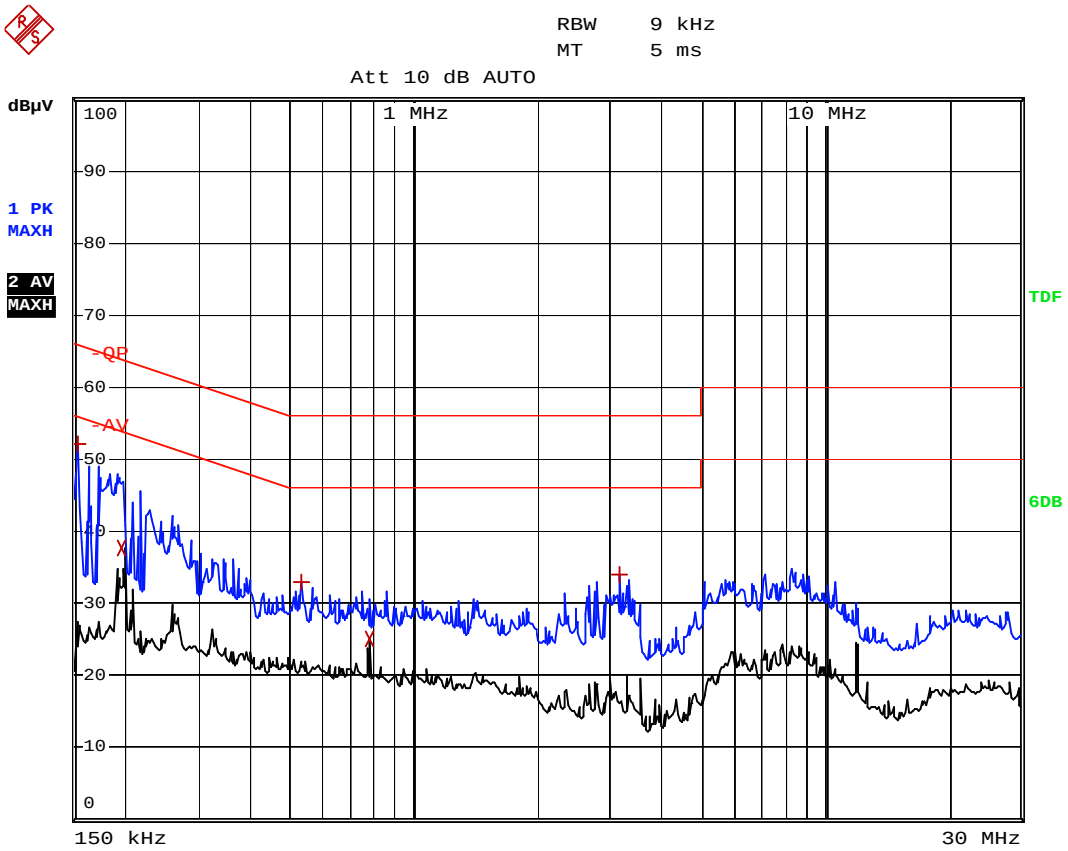
EUT: Netbook 10inch Intel Atom N270

M/N: NB1031

Operating Condition: Running with Program

Test Specification: N

Comment: AC 120V/60Hz



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Plot of Conducted Emissions Test Data

Conducted Disturbance

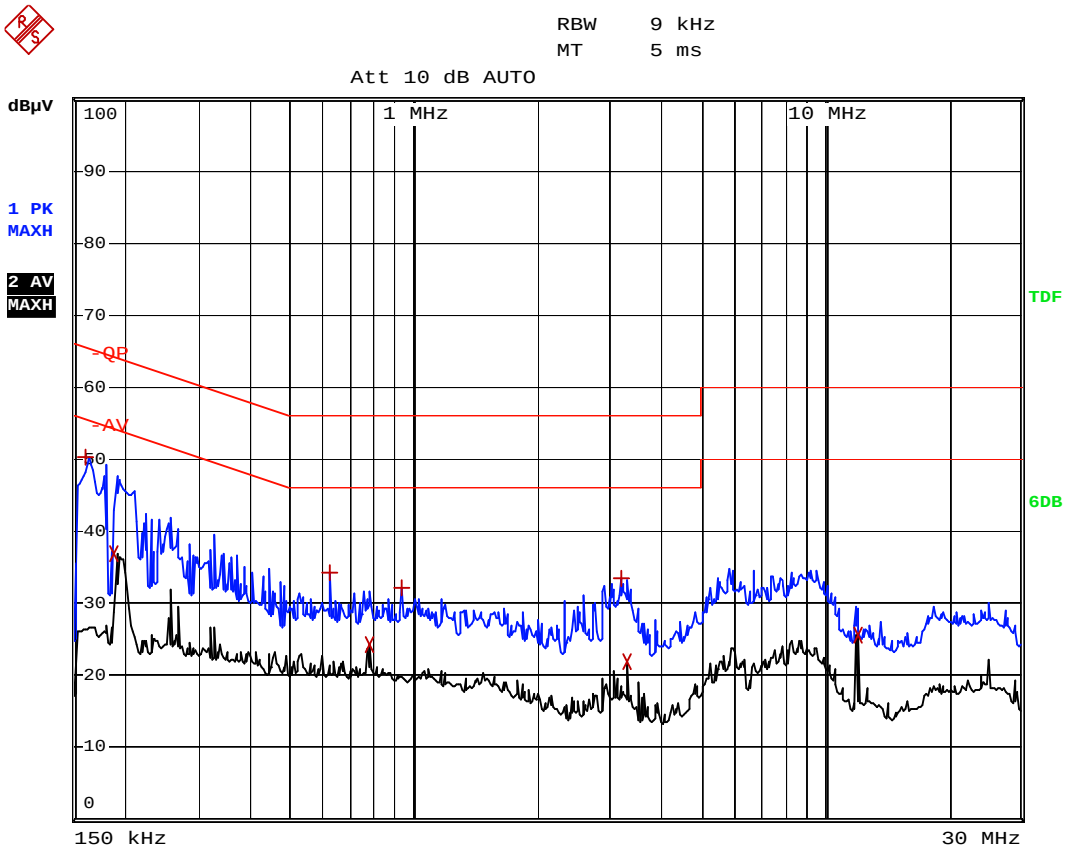
EUT: Netbook 10inch Intel Atom N270

M/N: NB1031

Operating Condition: Running with Program

Test Specification: L

Comment: AC 120V/60Hz



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4. §15.109(a)- RADIATED EMISSION

4.1 Measurement Uncertainty

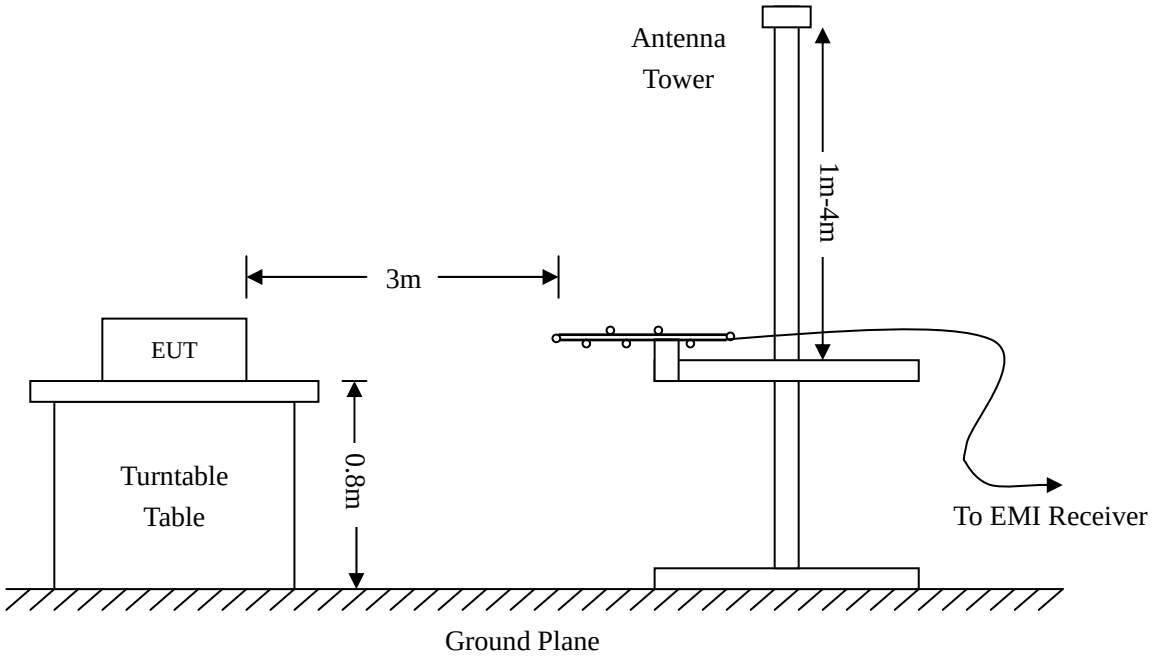
Base on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any radiation emissions measurement is ± 3.0 dB.

4.2 Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Cal. Date	Due. Date
Spectrum Analyzer	ROHDE&SCHWARZ	FSEA20	DE25181	2009-08-12	2010-08-11
Positioning Controller	C&C	CC-C-1F	N/A	2009-08-12	2010-08-11
Trilog Broadband Antenna	SCHWARZBECK	VULB9163	9163-333	2009-07-21	2010-07-20
Horn Antenna	SCHWARZBECK	BBHX 9120	9120-426	2009-07-21	2010-07-20
RF Switch	EM	EMSW18	SW060023	2009-08-12	2010-08-11
Amplifier	Agilent	8447F	3113A06717	2009-08-12	2010-08-11
Coaxial Cable	SCHWARZBECK	AK9513	9513-10	2009-08-12	2010-08-11
EMI Test Receiver	ROHDE&SCHWARZ	ESPI	25498514	2009-08-12	2010-08-11

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 15.205 and 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 conducted emission test, the test receiver was set with the following configurations:

Start Frequency ..... 30 MHz
Stop Frequency..... 1000 MHz
Sweep Speed ..... Auto
IF Bandwidth..... 10 kHz
Quasi-Peak Adapter Bandwidth ..... 120 kHz
Quasi-Peak Adapter Mode ..... Normal

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

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

4.6 Environmental Conditions

Temperature:	25 °C
Relative Humidity:	54%
ATM Pressure:	1011 mbar

4.7 Summary of Test Results/Plots

According to the data, the EUT complied with the FCC 15B Class B standards, and had the worst margin of:

-1.96 dBμV at **938.7139MHz** in the **Vertical** polarization, **30 MHz to 8 GHz, 3Meters**

Plot of Radiation Emissions Test Data

Radiated Disturbance

EUT: Netbook 10inch Intel Atom N270

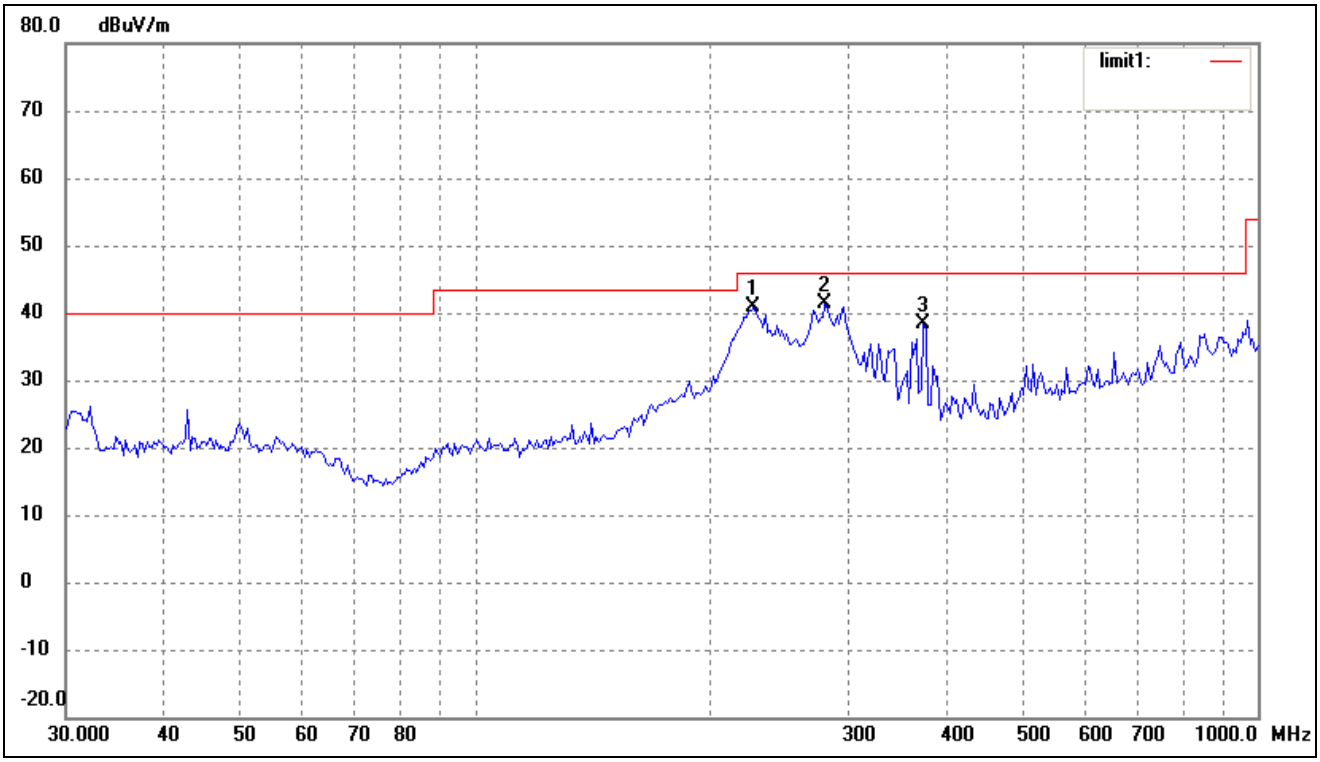
M/N: NB1031

Operating Condition: Running with Program

Test Specification: Horizontal & Vertical

Comment: AC 120V/60Hz

Horizontal

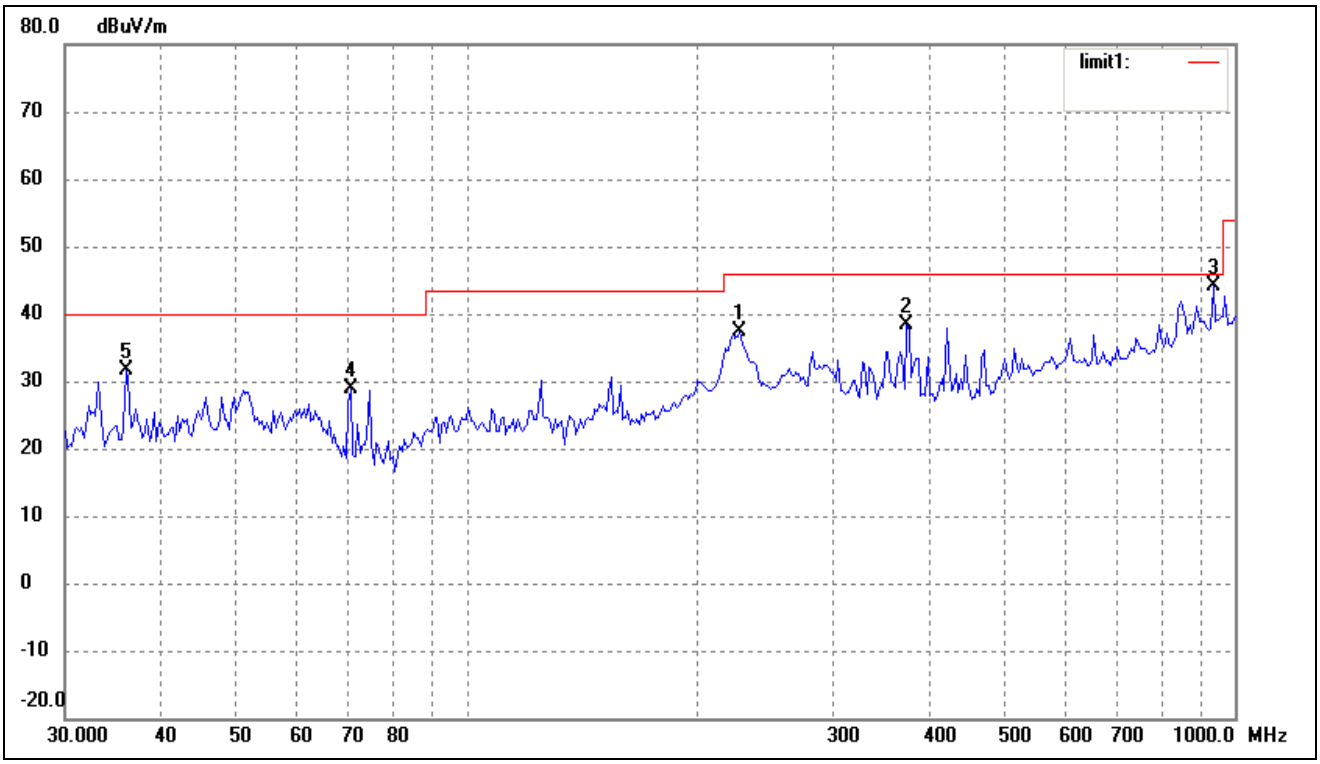


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	227.0164	34.03	6.73	40.76	46.00	-5.24	203	105	QP
2	280.2936	32.81	8.46	41.27	46.00	-4.73	210	100	QP
3	373.8861	28.51	9.84	38.35	46.00	-7.65	360	200	peak

Above 1GHz:

No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	1601.3	21.37	27.28	48.65	54.00	-5.35	360	100	peak
2	--	--	--	--	--	--	--	--	--
3	--	--	--	--	--	--	--	--	--
4	--	--	--	--	--	--	--	--	--

Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	227.0164	30.68	6.73	37.41	46.00	-8.59	360	100	peak
2	373.8862	28.59	9.84	38.43	46.00	-7.57	0	100	peak
3	938.7139	24.58	19.46	44.04	46.00	-1.96	124	100	QP
4	70.7047	25.68	3.09	28.77	40.00	-11.23	360	200	peak
5	36.0139	24.82	6.87	31.69	40.00	-8.31	0	200	peak

Above 1GHz:

No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	1224.6	24.18	25.34	49.52	54.00	-4.48	360	100	peak
2	1598.2	23.35	27.28	50.63	54.00	-3.37	360	100	peak
3	--	--	--	--	--	--	--	--	--
4	--	--	--	--	--	--	--	--	--

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