

FCC PART 15B
MEASUREMENT AND TEST REPORT
FOR

Ergowerx International LLC

39 Park Place Suite 201, Englewood, New Jersey, United, United States

FCC ID: YAE-K2418

Report Concerns: Original Report	Equipment Type: Ergo Motion Keyboard
Model:	<u>K2418</u>
Report No.:	<u>STR10088043I</u>
Test Date:	<u>2010-08-08 to 2010-08-11</u>
Issue Date:	<u>2010-09-02</u>
Tested By:	<u>Galy He / Engineer</u>
Reviewed By:	<u>Lahm Peng / EMC Manager</u>
Approved & Authorized By:	<u>Jandy so / PSQ Manager</u>
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Note: This test report is limited to the above client company and the product model only. It may not be duplicated without prior permission 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: Ergowerx International LLC
Address of applicant: 39 Park Place Suite 201, Englewood, New Jersey, United States

Manufacturer: DynaPoint (Dong Guan) INC.
Address of manufacturer: No.51, Xinju Road, Precinct Shangjiao, ChangAn, DongGuan Guangdong, China

General Description of E.U.T

Items	Description
EUT Description:	Ergo Motion Keyboard
Trade Name:	/
Model No.:	K2418
Add Models:	K2418X, 191047, KH558, XXXXXX
Rated Voltage:	DC 5V USB
Rated Current:	/
Size:	50.0X20.0X6.5 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 K2418 without circuit and electronic construction changed, declared by the manufacturer.

1.2 Test Standards

The following report is prepared on behalf of the Ergowerx International LLC 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 C63.4-2009, 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.

1.7 Accessories Equipment List and Details

Description	Manufacturer	Model	Serial Number
Notebook	Lenovo	T22	LV14893
/	/	/	/

1.8 EUT Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
USB 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 ± 2.88 dB.

3.2 Test Equipment List and Details

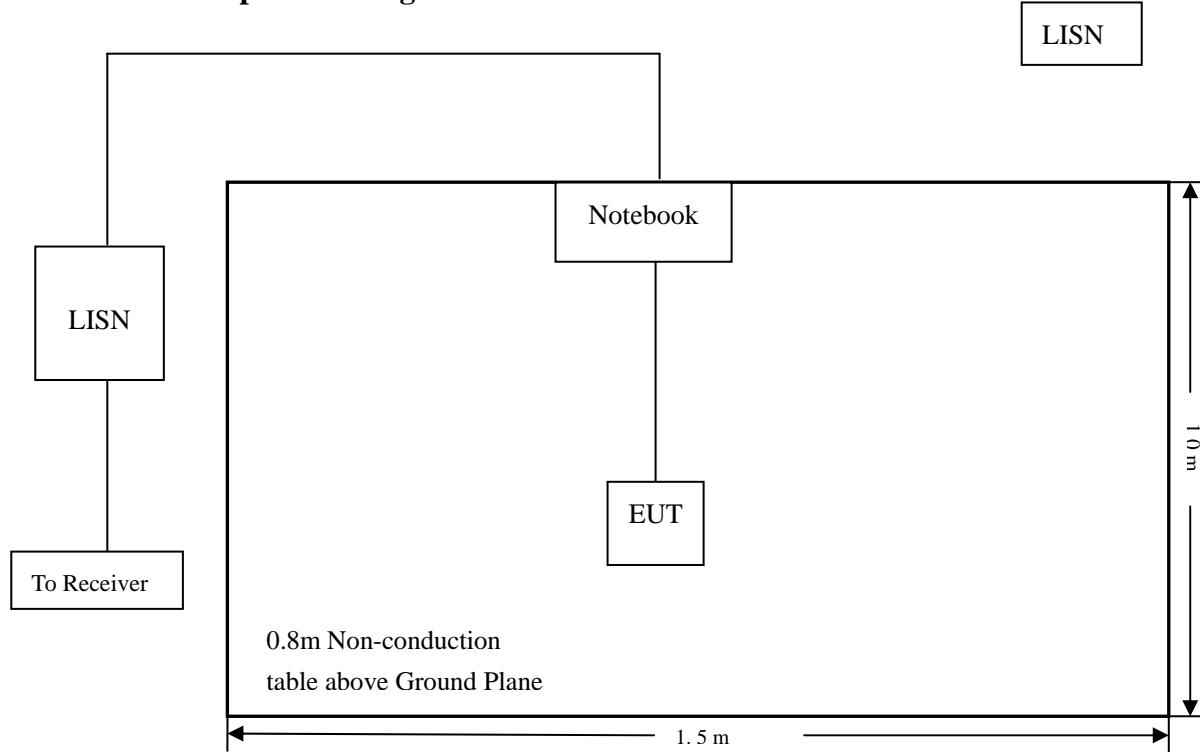
Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
EMI Test Receiver	Rohde & Schwarz	ESPI	101611	2009-08-12	2010-08-11
L.I.S.N	Schwarz beck	NSLK8126	8126-224	2009-08-12	2010-08-11
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100911	2009-08-12	2010-08-11

3.3 Test Procedure

The setup of EUT is according with per ANSI C63.4-2009 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:

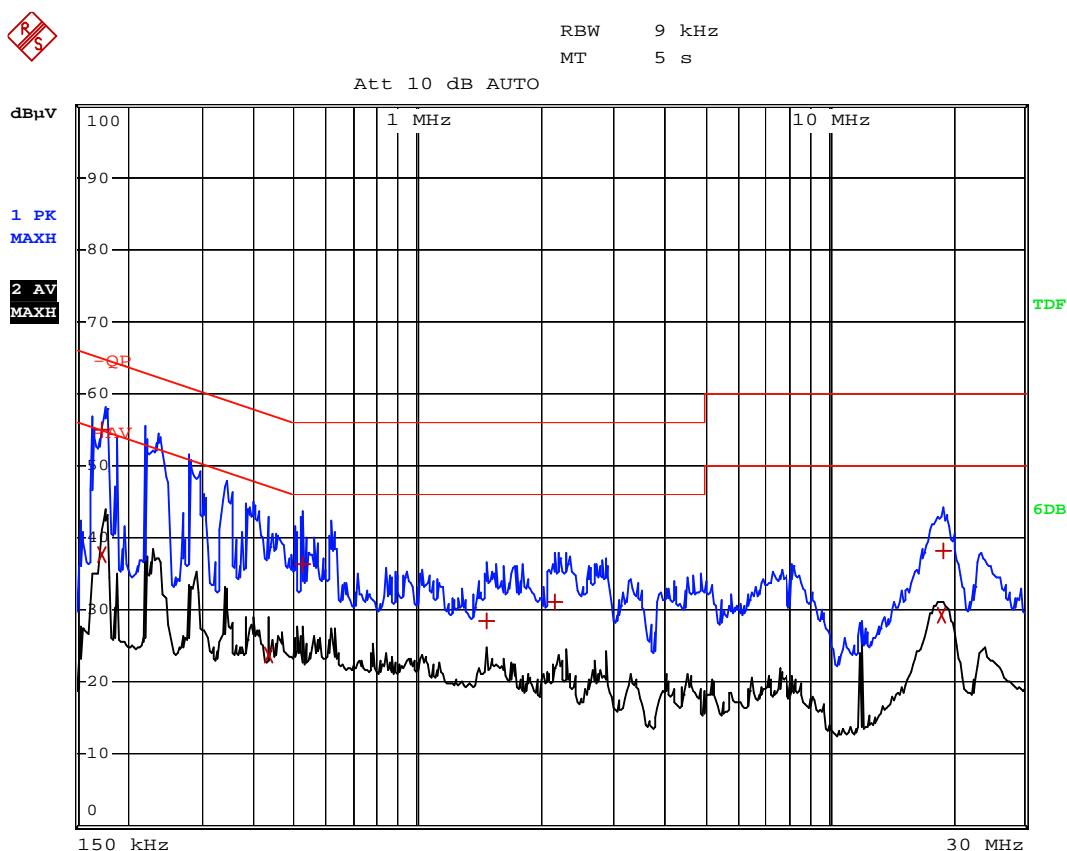
Start Frequency 150 kHz
Stop Frequency..... 30 MHz
Sweep Speed Auto
IF Bandwidth..... 10 kHz
Quasi-Peak Adapter Bandwidth 9 kHz
Quasi-Peak Adapter Mode Normal

3.7 Summary of Test Results/Plots

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

-9.76 dB μ V at 0.174 MHz in the Neutral mode, Pk detector, 0.15-30MHz

3.8 Conducted Emissions Test Data

Plot of Conducted Emissions Test Data*Conducted Disturbance**EUT: Ergo Motion Keyboard**M/N: K2418**Operating Condition: Operating**Test Specification: N**Comment: AC 120V/60Hz connect to PC, USB 5V*

EDIT PEAK LIST (Final Measurement Results)				
Trace1:	-QP			
Trace2:	-AV			
Trace3:	---			
TRACE	FREQUENCY	LEVEL dB μ V	DELTA	LIMIT dB
1 Quasi Peak	174 kHz	55.00	-	-9.76
2 Average	174 kHz	37.78	-	-16.98
2 Average	434 kHz	23.76	-	-23.41
1 Quasi Peak	526 kHz	36.23	-	-19.76
1 Quasi Peak	1.482 MHz	28.42	-	-27.57
1 Quasi Peak	2.162 MHz	31.10	-	-24.89
2 Average	18.822 MHz	29.30	-	-20.69
1 Quasi Peak	19.086 MHz	38.07	-	-21.92

Plot of Conducted Emissions Test Data

Conducted Disturbance

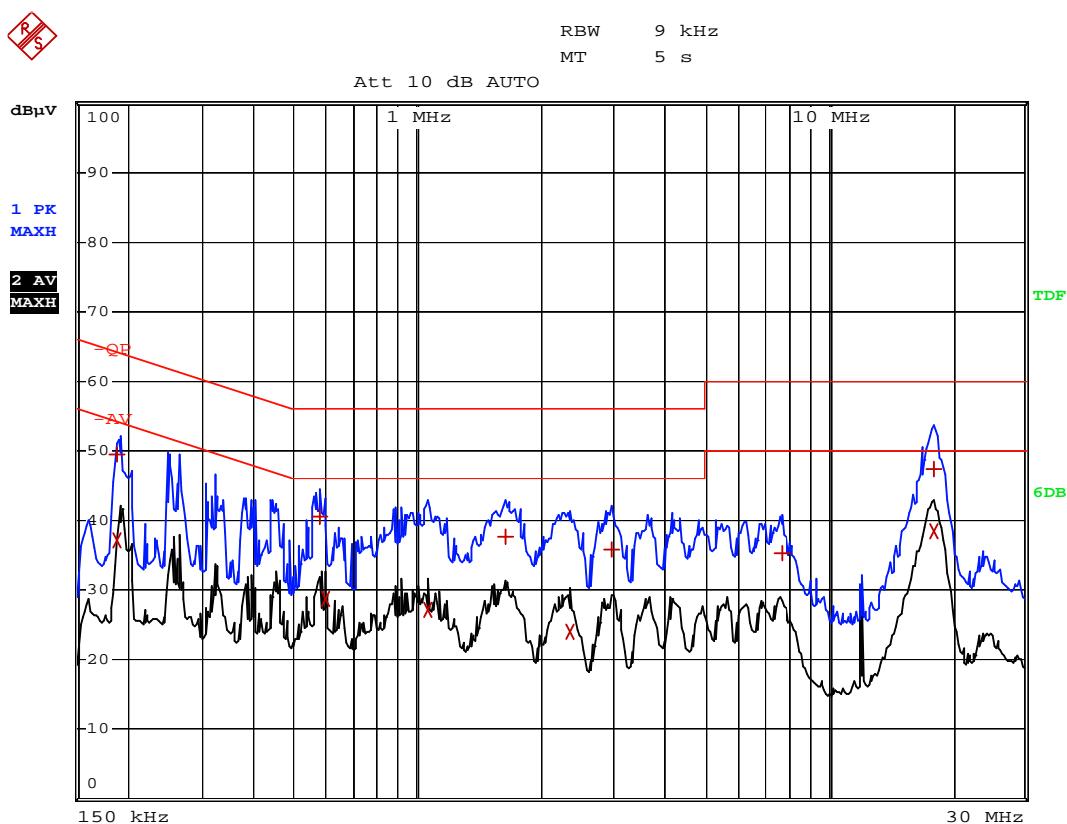
EUT: Ergo Motion Keyboard

M/N: K2418

Operating Condition: Operating

Test Specification: L

Comment: AC 120V/60Hz connect to PC, USB 5V



EDIT PEAK LIST (Final Measurement Results)					
Trace1:	-QP				
Trace2:	-AV				
Trace3:	---				
TRACE	FREQUENCY	LEVEL	dB μ V	DELTA	LIMIT dB
1	Quasi Peak	190 kHz	49.55	-	14.48
2	Average	190 kHz	37.22	-	16.81
1	Quasi Peak	578 kHz	40.46	-	15.53
2	Average	594 kHz	28.84	-	17.15
2	Average	1.066 MHz	27.13	-	18.86
1	Quasi Peak	1.634 MHz	37.57	-	18.42
2	Average	2.35 MHz	24.05	-	21.94
1	Quasi Peak	2.978 MHz	35.77	-	20.23
1	Quasi Peak	7.694 MHz	35.38	-	24.61
2	Average	17.966 MHz	38.35	-	11.64
1	Quasi Peak	17.994 MHz	47.31	-	12.69

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 ± 5.10 dB.

4.2 Test Equipment List and Details

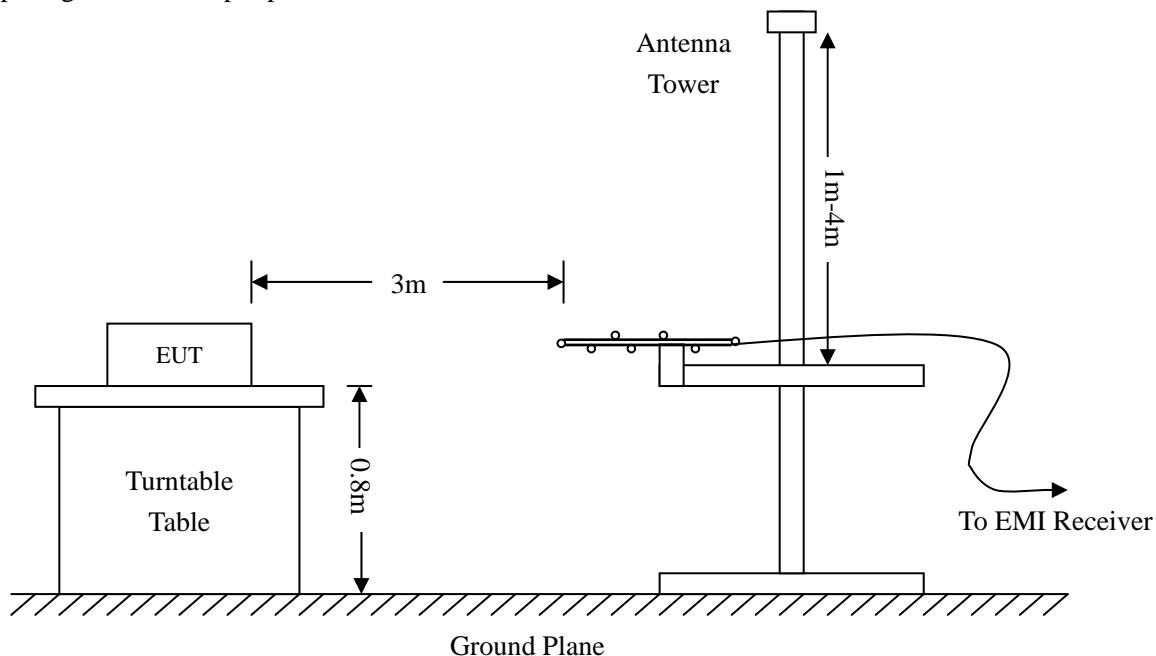
Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
Spectrum Analyzer	ROHDE&SCHWARZ	FSEA20	DE25181	2009-08-12	2010-08-11
Positioning Controller	C&C	CC-C-1F	N/A	2009-08-12	2010-08-11
Trilog Broadband Antenna	SCHWARZBECK	VULB9163	9163-333	2010-07-21	2011-07-20
Horn Antenna	SCHWARZBECK	BBHX 9120	9120-426	2010-07-21	2011-07-20
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
Spectrum Analyzer	ROHDE&SCHWARZ	FSP	N/A	2010-04-16	2011-04-15

4.3 Test Procedure

The setup of EUT is according with per ANSI C63.4-2009 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:

$$\text{Corr. Ampl.} = \text{Indicated Reading} - \text{Corr. Factor}$$

The “Margin” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -6dB μ V means the emission is 6dB μ V below the maximum limit for Class B. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Corr. Ampl.} - \text{FCC Part 15B Limit}$$

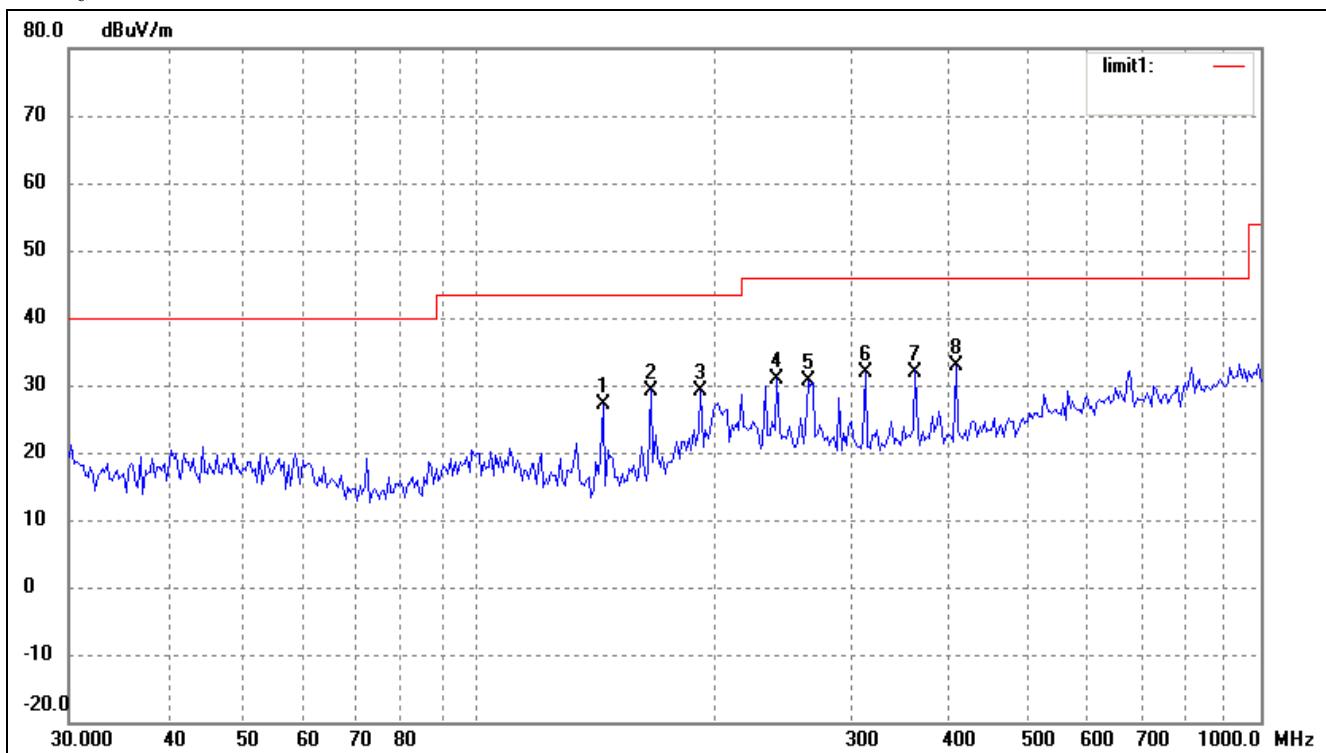
4.6 Environmental Conditions

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

4.7 Summary of Test Results/Plots

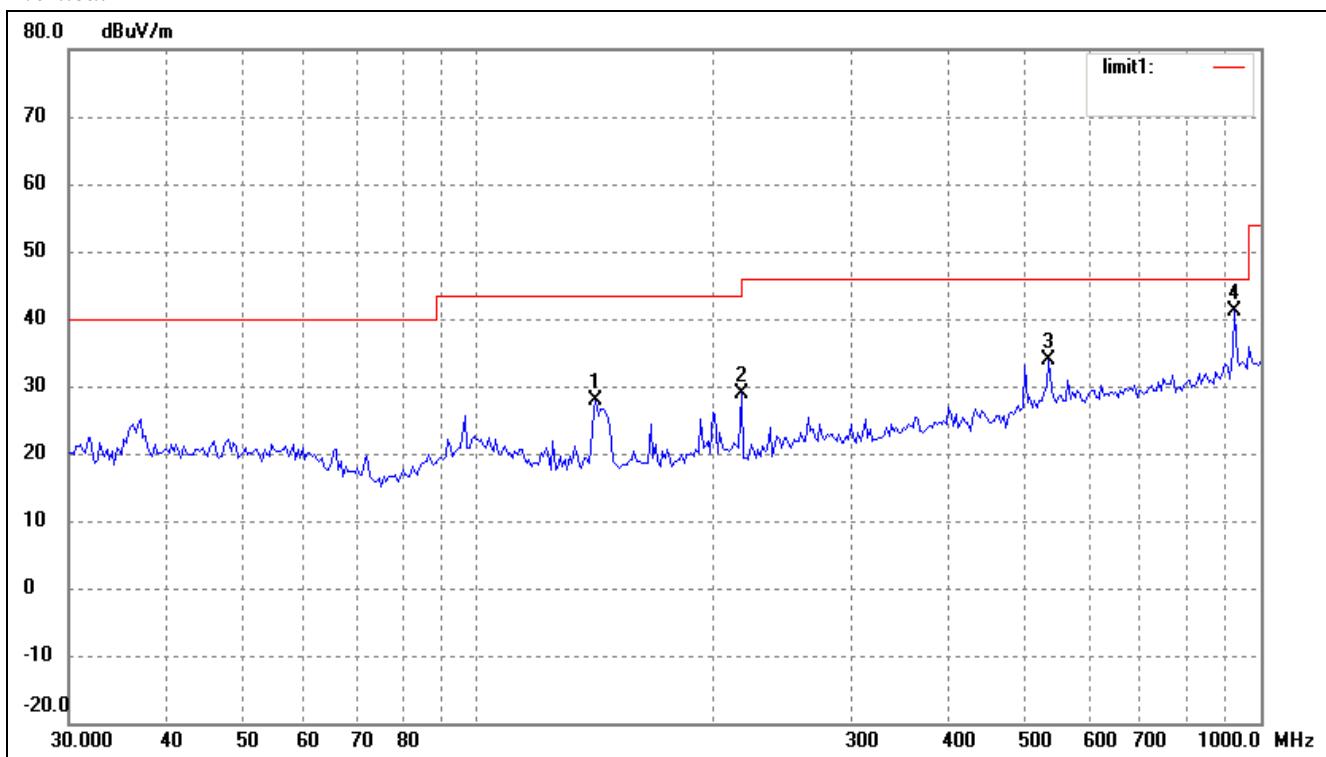
According to the data, the EUT complied with the FCC 15B Class B standards, and had the worst margin of:

-4.94 dB μ V at 925.7563MHz in the Vertical polarization, 30 MHz to 1 GHz, 3Meters

Plot of Radiation Emissions Test Data*Radiated Disturbance**EUT: Ergo Motion Keyboard**M/N: K2418**Operating Condition: Operating**Test Specification: Horizontal & Vertical**Comment: AC 120V/60Hz connect to PC, USB 5V**Horizontal*

No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	144.3348	23.98	3.26	27.24	43.50	-16.26	360	100	peak
2	166.0680	25.32	3.93	29.25	43.50	-14.25	360	100	peak
3	192.4186	23.58	5.66	29.24	43.50	-14.26	360	100	peak
4	240.8304	23.38	7.46	30.84	46.00	-15.16	360	100	peak
5	263.8190	22.57	8.02	30.59	46.00	-15.41	360	100	peak
6	312.1794	23.16	8.76	31.92	46.00	-14.08	360	100	peak
7	361.7139	22.33	9.67	32.00	46.00	-14.00	360	100	peak
8	407.5145	22.72	10.06	32.78	46.00	-13.22	360	100	peak

Vertical



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	141.3298	24.75	3.23	27.98	43.50	-15.52	360	100	peak
2	216.7828	22.75	6.23	28.98	46.00	-17.02	360	100	peak
3	535.7073	20.58	13.37	33.95	46.00	-12.05	360	100	peak
4	925.7563	23.82	17.24	41.06	46.00	-4.94	360	100	peak

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