



**Spectrum Research
& Testing Lab., Inc.**
No. 101-10, Ling 8,
Shan-Tong Li, Chung-Li
City, Taoyuan, Taiwan,
R.O.C.

TEST REPORT

Reference No.: A08042903
Report No.: FCCA08042903
FCC ID: HQXAXM-607
Page: 1 of 15
Date: May. 13, 2008

Product Name: Wireless Optical Mouse
Model No.: AXM-607
Serial No.: 98543
Applicant: Sysgration Ltd.
10Fl., No. 868-3, Chung Cheng Rd., Chung Ho,
Taipei (235), Taiwan, R.O.C.
Date of Receipt: Apr. 29, 2008
Finished date of Test: May. 13, 2008
Applicable Standards: 47 CFR Part 15, Subpart C
ANSI C63.4:2003

We, **Spectrum Research & Testing Laboratory Inc.**, hereby certify that one sample of the above was tested in our laboratory with positive results according to the above-mentioned standards. The records in the report are an accurate account of the results. Details of the results are given in the subsequent pages of this report.

Tested By : Shunm Wang , Date: May. 13. 2008
(Shunm Wang)

Approved By : JH , Date: 5/13/2008
(Johnson Ho, Director)

NVLAQ[®]

Lab Code: 200099-0
FMNG-059.10 REPORT



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1. DOCUMENT POLICY AND TEST STATEMENT

1.1 DOCUMENT POLICY

- The report shall not be reproduced except in full, without the written approval of SRT Lab, Inc.
- The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

1.2 TEST STATEMENT

- The test results in the report apply only to the unit tested by SRT Lab.
- There was no deviation from the requirements of test standards during the test.
- Power source, 3 Vdc(for EUT) and 120 Vac/60 Hz(for support units), was used during the test.

1.3 EUT MODIFICATION

- No modification in SRT Lab.



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2. DESCRIPTION OF EUT AND TEST MODE

2.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Wireless Optical Mouse
MODEL NO.	AXM-607
SERIAL NO.	98543

WORKING FREQUENCY	27.045MHz
CHANNEL NUMBER	1
ID NUMBERS	256
RF OUTPUT POWER	-4dBm±2dBm
DEVIATION	6KHz±2KHz
MODULATION METHOD	FSK
POWER REQUIREMENTS	3.0V, AAA size battery 2 pieces
CURRENT DISSIPATION	<35mA
STANDBY MODE CURRENT	5±1mA
SLEEPING MODE CURRENT	0.63mA
TRANSMITTING ANGLE	360°
WORKING DISTANCE	1.0 meter (Min.)
LOW BATTERY	2.0V

NOTE :

For more detailed features, please refer to the manufacturer's specification or User's Manual.

2.2 DESCRIPTION OF EUT INTERNAL DEVICE

DEVICE	BRAND / MAKER	MODEL #	FCC ID/DOC	REMARK
N/A				

NOTE :

1. Frequency range to be measured.
Radiated emission is 30MHz to 1GHz.

2.3 DESCRIPTION OF TEST MODE

Mode 1:TX

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2.4 DESCRIPTION OF SUPPORT UNIT

The EUT was configured by the requirement of ANSI C63.4:2003 and CISPR22:2003. All interface ports were connected to the appropriate support units via specific cables. The support units and cables are listed below.

NO	DEVICE	BRAND	MODEL #	FCC ID/DOC	CABLE
1	NoteBook	DELL	PP21L	DOC/R33002	Power cable 2.0m(shielding)

NOTE : For the actual test configuration, please refer to the photos of testing.

3. DESCRIPTION OF APPLIED STANDARDS

The EUT is a kind of wireless product and to be connected with a PC system for normal use. According to the specifications provided by the applicant, it must comply with the requirements of the following standards:

47 CFR Part 15, Subpart C

ANSI C63.4:2003

All tests have been performed and recorded as per the above standards.

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Date: May. 13, 2008**4. RADIATED EMISSION TEST****4.1 RADIATED EMISSION LIMIT**

FCC Part 15, Subpart C Section 15.227.

FREQUENCY (MHz)	DISTANCE (m)	FIELD STRENGTH (dB μ V/m)	
		PEAK	AVERAGE
26.96 - 27.28	3	100.0	80.0

FCC Part 15, Subpart B Section 15.209.

FREQUENCY (MHz)	DISTANCE (m)	FIELD STRENGTH (dB μ V/m)
30 - 88	3	40.0
88 - 216	3	43.5
216 - 960	3	46.0
Above 960	3	54.0

NOTE :

1. In the emission tables above, the tighter limit applies at the band edges.
2. Distance refers to the distance between measuring instrument, antenna, and the closest point of any part of the device or system.

4.2 TEST EQUIPMENT

The following test equipment was used during the radiated emission test:

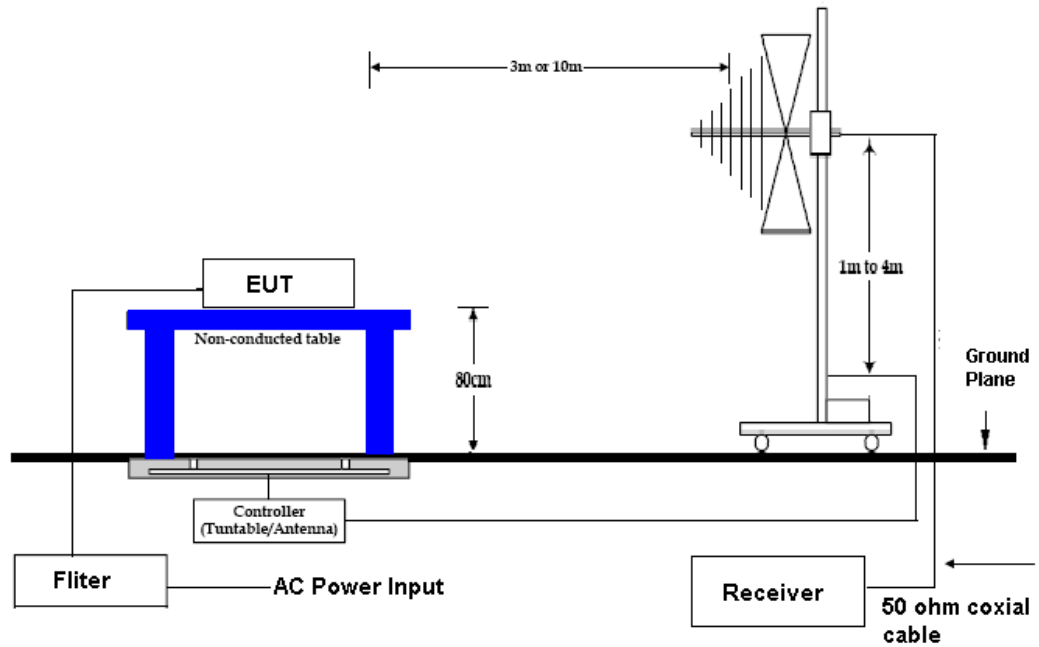
EQUIPMENT/ FACILITIES	SPECIFICATIONS	MANUFACTURER	MODEL#/ SERIAL#	DUE DATE OF CAL. & CAL. CENTER
EMI TEST RECEIVER	9kHz TO 2.75 GHz	ROHDE & SCHWARZ	ESCS30 / 830245/012	OCT. 2008 ETC
BI-LOG ANTENNA	26 MHz TO 2 GHz	EMCO	3142B / 0005-1534	NOV. 2008 ETC
OATS	3 - 10 M MEASUREMENT	SRT	SRT-1	NOV. 2008 SRT
COAXIAL CABLE	25M	TIMES	J400 / #25M	AUG. 2008 ETC
FILTER	2 LINE, 30A	FIL.COIL	FC-943 / 869	NCR
LOOP ANTENNA	9kHz TO 30MHz	ROHDE & SCHWARZ	HFH2-Z2	MAR. 2009

NOTE:

1. The calibration interval of the above test equipment is one year and the calibrations are traceable to NML/ROC and NIST/USA.
2. The Open Area Test Site (SRT-1) is registered by FCC with No. 90957 and VCCI with No. R-1081.
3. The Open Area Test Site (SRT-2) is registered by FCC with No. 98458 and VCCI with No. R-1168.



4.3 TEST SET-UP



NOTE :

1. The EUT system was put on a wooden table with 0.8m heights above a ground plane.
2. For the actual test configuration, please refer to the photos of testing.



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4.4 TEST PROCEDURE

The EUT was tested according to the requirement of ANSI C63.4:2003 and CISPR 22:2003. The measurements were made at an open area test site with 3 meter measurement distance under 1 GHz and with 3m distance above 1GHz. The frequency spectrum measured started from 30 MHz. Under 1 GHz, all readings were quasi-peak values with 120 kHz resolution bandwidth of the test receiver. Above 1 GHz, the measurements were made at an open area test site with 3 meter measurement distance and all readings were peak or average values with 1 MHz resolution bandwidth of the test receiver. The EUT system was operated in all typical methods by users. The cables connected to EUT and support units were moved to find the maximum emission levels for each frequency. First, find the margin or higher points at least 6 points by software, then use manual to find the maximum data. The procedure is referred on the test procedure of SRT LAB.

4.5 EUT OPERATING CONDITION

Same as section 4.5 of this report.



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4.6 RADIATED EMISSION TEST RESULT

Temperature:	<u>20°C</u>	Humidity:	<u>67 %RH</u>
Frequency Range:	<u>9K - 1000 MHz</u>	Measured Distance:	<u>3m</u>
Receiver Detector:	<u>PK & AV.</u>	Tested Mode:	<u>TX (Fundamental Frequency)</u>
Tested Date:	<u>Apr. 29, 2008</u>		
Tested By:	<u>Shunm Wang</u>		

Fundamental frequency of transmitter

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Antenna Polarization	Reading Data (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)
27.045	0.03	20.20	H	36.02 (PK)	56.25	100.0	-43.75

Receiver Detector:	<u>Q.P.</u>	Tested Mode:	<u>TX (Harmonic)</u>
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Frequency (MHz)	Antenna Polarization	Cable Loss (dB)	Antenna Factor (dB/m)	Reading Data (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)
54.094	H	1.19	6.45	25.2	32.84	40.0	-7.16
81.14	H	1.48	7.36	23.9	32.74	40.0	-7.26
54.0941	V	1.19	6.45	24.9	32.54	40.0	-7.46

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Date: May. 13, 2008Receiver Detector: Q.P. Tested Mode: TX (Spurious)

Frequency (MHz)	Antenna Polarization	Cable Loss (dB)	Antenna Factor (dB/m)	Reading Data (dB μ V)	Emission Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
81.112	H	1.26	8.18	12.5	21.94	40.0	-18.06
160.845	H	2.10	9.00	4.7	15.8	43.5	-27.7
219.633	H	2.85	10.36	4.3	17.51	46.0	-28.49
296.751	H	3.91	13.52	3.6	21.03	46.0	-24.97
349.002	H	4.70	14.78	4.7	24.18	46.0	-21.82
418.0009	H	5.49	15.94	4.4	25.83	46.0	-20.17
113.4205	V	1.71	7.24	17.2	26.15	43.5	-17.35
160.9501	V	2.10	9.00	8.1	19.2	43.5	-24.3
188.4105	V	2.49	11.26	7.3	21.05	43.5	-22.45
250.0204	V	3.77	11.50	9.4	24.67	46.0	-21.33
319.6006	V	3.82	14.12	5.1	23.04	46.0	-22.96
399.9003	V	4.70	15.88	4.6	25.18	46.0	-20.82

NOTE :

1. Measurement uncertainty is less than +/- 2dB
2. "**": Measurement does not apply for this frequency.
3. Emission Level = Reading Value + Ant. Factor + Cable Loss
4. The field strength of other emission frequencies were very low against the limit.
5. (F) : Fundamental frequency of transmitter.

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Temperature:	<u>20°C</u>	Humidity:	<u>67 %RH</u>
Ferquency Range:	<u>30 – 1000 MHz</u>	Measured Distance:	<u>3m</u>
Receiver Detector:	<u>Q.P.</u>	Tested Mode:	<u>TX</u>
Tested Date:	<u>Apr. 29, 2008</u>	Tested By:	<u>Shunm Wang</u>

Antenna Polarization: Horizontal

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Reading Data (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	AZ(°)	EL(m)
54.2865	0.99	4.98	22.0	28.0	40.0	-12.0	220	2.3
117.1561	1.43	7.26	15.7	24.4	43.5	-19.1	143	1.89
158.2263	1.65	8.61	22.4	32.7	43.5	-10.8	149	1.65
211.0238	1.93	9.86	22.3	34.1	43.5	-9.4	331	1.41
240.0347	2.10	11.08	17.1	30.3	46.0	-15.7	23	1.49
434.5599	3.00	16.64	14.8	34.4	46.0	-11.6	205	1.21

Antenna Polarization: Vertical

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Reading Data (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	AZ(°)	EL(m)
54.2865	0.99	4.98	20.4	26.4	40.0	-13.6	34	1.1
80.3361	1.26	7.60	19.6	28.5	40.0	-11.5	264	1.1
190.1154	2.01	9.35	23.0	34.3	43.5	-9.2	105	1
216.5186	2.09	10.07	22.0	34.2	46.0	-11.8	226	1
250.6521	2.57	11.50	22.2	36.3	46.0	-9.7	51	1.3
366.1769	3.24	15.49	16.5	35.2	46.0	-10.8	350	1.22

NOTE :

1. Measurement uncertainty is +/-2dB.
2. "**": Measurement does not apply for this frequency.
3. Emission Level = Reading Value + Ant. Factor + Cable Loss.
4. The field strength of other emission frequencies were very low against the limit.



5. BAND EDGE

5.1 BAND EDGE LIMIT

The field strength of any emissions, which appear outside of this band, shall not exceed the general radiated emission limits in Section 15.209.

5.2 TEST EQUIPMENT

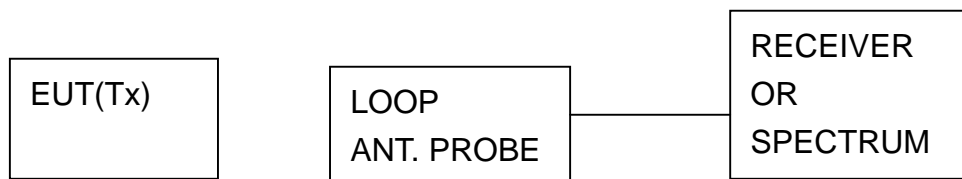
The following test equipment was used during the radiated emission test:

EQUIPMENT/ FACILITIES	SPECIFICATIONS	MANUFACTURER	MODEL#/ SERIAL#	DUE DATE OF CAL. & CAL. CENTER
SPECTRUM	9 kHz TO 7GHz	ROHDE & SCHWARZ	FSP7/ 839511/010	MAY 2008 R&S

NOTE:

The calibration interval of the above test equipment is one year and the calibrations are traceable to NML/ROC and NIST/USA.

5.3 TEST SET-UP



5.4 TEST PROCEDURE

A specific loop antenna was connected to receiver to detect the EUT's power level. The Receiver displayed the EUT's power level and printed out the plot of measurement.

5.5 EUT OPERATING CONDITION

Set the EUT under transmission condition continuously according to the test progress provided by the applicant.

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7. TERMS OF ABBREVIATION

AV.	Average detection
AZ(°)	Turn table azimuth
Correct.	Correction
EL(m)	Antenna height (meter)
EUT	Equipment Under Test
Horiz.	Horizontal direction
LISN	Line Impedance Stabilization Network
NSA	Normalized Site Attenuation
Q.P.	Quasi-peak detection
SRT Lab	Spectrum Research & Testing Laboratory, Inc.
Vert.	Vertical direction