

FCC TEST REPORT

REPORT NO.: RF940609L01

MODEL NO.: 1050

RECEIVED: Jun. 09, 2005

TESTED: Jun. 09 ~ Jun. 14, 2005

ISSUED: Jun. 21, 2005

APPLICANT : Microsoft Corporation

ADDRESS : One Microsoft Way, Redmond, WA 98052-6399,
U.S.A.

ISSUED BY : Advance Data Technology Corporation

LAB ADDRESS : No. 47, 14th Ling, Chia Pau Tsuen, Lin Kou Hsiang
244, Taipei Hsien, Taiwan, R.O.C.

TEST LOCATION : No. 19, Hwa Ya 2nd Rd., Wen Hwa Tsuen, Kwei
Shan Hsiang, Taoyuan Hsien 333, Taiwan, R.O.C.

This test report consists of 23 pages in total. It may be duplicated completely for legal use with the approval of the applicant. It should not be reproduced except in full, without the written approval of our laboratory. The client should not use it to claim product endorsement by CNLA, A2LA or any government agencies. The test results in the report only apply to the tested sample.



Table of Contents

1	CERTIFICATION	3
2	SUMMARY OF TEST RESULTS	4
2.1	MEASUREMENT UNCERTAINTY	4
3	GENERAL INFORMATION	5
3.1	GENERAL DESCRIPTION OF EUT	5
3.2	DESCRIPTION OF TEST MODES	7
3.2.1	CONFIGURATION OF SYSTEM UNDER TEST	7
3.2.2	TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL	8
3.3	GENERAL DESCRIPTION OF APPLIED STANDARDS	8
3.4	DESCRIPTION OF SUPPORT UNITS	8
4	TEST PROCEDURE AND RESULT	9
4.1	CONDUCTED EMISSION MEASUREMENT	9
4.2	RADIATED EMISSION MEASUREMENT	9
4.2.1	LIMITS OF RADIATED EMISSION MEASUREMENT	9
4.2.2	TEST INSTRUMENT	10
4.2.3	TEST PROCEDURE	11
4.2.4	TEST SETUP	12
4.2.5	EUT OPERATING CONDITION	12
4.2.6	TEST RESULTS	13
4	PHOTOGRAPHS OF THE TEST CONFIGURATION	22
5	INFORMATION ON THE TESTING LABORATORIES	23

1 CERTIFICATION

PRODUCT : Optical Mouse
BRAND NAME : Microsoft®
MODEL NO. : 1050
APPLICANT : Microsoft Corporation
TESTED : Jun. 09 ~ Jun. 14, 2005
TEST SAMPLE : ENGINEERING SAMPLE
STANDARDS : FCC Part 15, Subpart C (Section 15.227)
Canada RSS-210, 2001, Issued 5, Amend 1
ANSI C63.4:2003

The above equipment has been tested by **Advance Data Technology Corporation**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

PREPARED BY : Suntee Liu , **DATE :** Jun. 21, 2005
(Suntee Liu)

TECHNICAL
ACCEPTANCE : Gary Chang , **DATE :** Jun. 21, 2005
Responsible for RF (Gary Chang)

APPROVED BY : Cody Chang , **DATE :** Jun. 21, 2005
(Cody Chang, Deputy Manager)

2 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 15, Subpart C			
STANDARD PARAGRAPH	TEST TYPE	RESULT	REMARK
15.207	Conducted Emission Test	NA	Power supply is 1.5Vdc from batteries
15.227 15.209	Radiated Emission Test	PASS	Minimum passing margin is -16.45dB at 84.43MHz

2.1 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4:

MEASUREMENT	FREQUENCY	UNCERTAINTY
Conducted emissions	9kHz~30MHz	2.44 dB
Radiated emissions	30MHz ~ 200MHz	3.55 dB
	200MHz ~1000MHz	3.58 dB
	1GHz ~ 18GHz	1.10 dB
	18GHz ~ 40GHz	0.91 dB

3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Optical Mouse
MODEL NO.	1050
POWER SUPPLY	1.5Vdc from battery
MODULATION TYPE	FSK
CARRIER FREQUENCY OF EACH CHANNEL	27.045, 27.145 MHz
NUMBER OF CHANNEL	2
ANTENNA TYPE	Loop antenna
DATA CABLE	NA
I/O PORTS	NA

NOTE:

1. The EUT is a wireless mouse.

3.2 DESCRIPTION OF TEST MODES

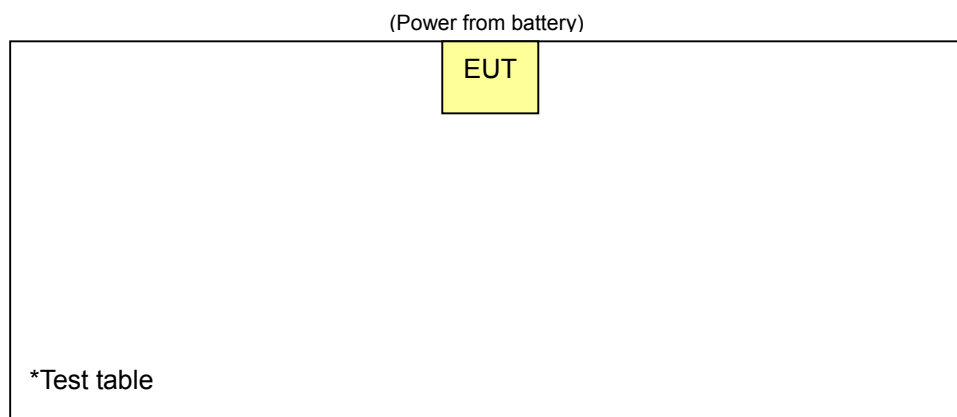
There are 2 channels provided to the EUT.

Channel	Frequency (MHz)
0	27.045
1	27.145

There are 3 sets of identical samples tested and presented in the report under Microsoft's request.

Mouse Serial Number	Crystal Vender
HRT-DV-004/019	Chen Moun
HRT-DV-004/020	HKC
HRT-DV-013/065	Chen Moun

3.2.1 CONFIGURATION OF SYSTEM UNDER TEST



3.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT Configure Mode	Applicable to		Description
	PLC	RE<1G	
1	Note	v	HRT-DV-004/019, operating@27.045
2	Note	v	HRT-DV-004/019, operating@27.145
3	Note	v	HRT-DV-004/020, operating@27.045
4	Note	v	HRT-DV-004/020, operating@27.145
5	Note	v	HRT-DV-013/065, operating@27.045
6	Note	v	HRT-DV-013/065, operating@27.145

Where PLC: Power Line Conducted Emission RE<1G RE: Radiated Emission below 1GHz

Note: No need to concern of Conducted Emission due to the EUT is powered by battery.

Radiated Emission Test (Below 1 GHz):

☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Available Channel	Tested Channel	Modulation Type
1	0, 1	0	FSK
2	0, 1	1	FSK
3	0, 1	0	FSK
4	0, 1	1	FSK
5	0, 1	0	FSK
6	0, 1	1	FSK

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a Microsoft® Wireless Notebook Optical Mouse 4000. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC Part 15, Subpart C (15.227)
ANSI C63.4:2003

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

3.4 DESCRIPTION OF SUPPORT UNITS

NA

4 TEST PROCEDURE AND RESULT

4.1 CONDUCTED EMISSION MEASUREMENT

NA

4.2 RADIATED EMISSION MEASUREMENT

4.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

According to 15.227 the field strength of Emissions from intentional radiators operated under these frequencies bands shall not exceed the following:

Fundamental Frequency (MHz)	Field Strength of Fundamental (dBuV/m)	
	Peak	Average
26.96-27.28	100	80

Field strength limits are at the distance of 3 meters, Emissions radiated outside of the specified bands, shall be according to the general radiated limits in 15.209 as following:

Frequencies (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

4.2.2 TEST INSTRUMENT

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
Test Receiver ROHDE & SCHWARZ	ESI7	100033	May. 19, 2006
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100039	Nov. 21, 2006
BILOG Antenna SCHWARZBECK	VULB9168	9168-160	Jun. 01, 2006
HORN Antenna SCHWARZBECK	9120D	9120D-408	Jan. 17, 2006
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170243	Jan. 23, 2006
Loop Antenna	HFH2-Z2	100070	Nov. 14, 2005
Preamplifier Agilent	8447D	2944A10633	Nov. 09, 2005
Preamplifier Agilent	8449B	3008A01964	Nov. 06, 2005
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	218183/4	Jan. 26, 2006
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	218195/4	Jan. 26, 2006
Software ADT.	ADT_Radiated_V5.14	NA	NA
Antenna Tower inn-co GmbH	MA 4000	013303	NA
Antenna Tower Controller inn-co GmbH	CO2000	017303	NA
Turn Table ADT.	TT100.	TT93021703	NA
Turn Table Controller ADT.	SC100.	SC93021703	NA

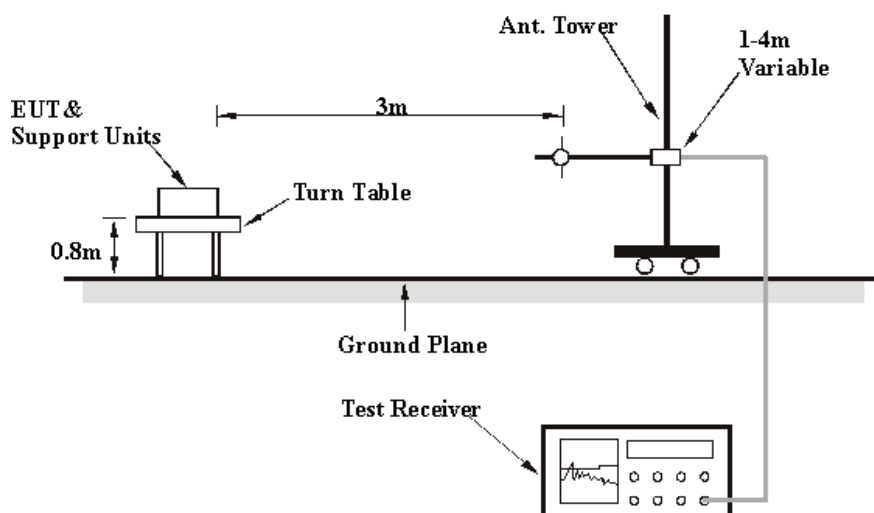
- NOTE:**
1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
 2. The test was performed in HwaYa Chamber 2.
 3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
 4. The VCCI Site Registration No. is R-237.
 5. The IC Site Registration No. is IC4924-3.

4.2.3 TEST PROCEDURE

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meters semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was 10 dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10 dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

NOTE: The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Peak detection (PK) and Quasi-peak detection (QP) at frequency below 1GHz.

4.2.4 TEST SETUP



For the actual test configuration, please refer to the related item in this test report - Photographs of the Test Configuration.

4.2.5 EUT OPERATING CONDITION

Set the transmitter part of EUT under transmission condition continuously at specific channel frequency.

4.2.6 TEST RESULTS

EUT	Microsoft® Wireless Notebook Optical Mouse 4000	MODEL	1050
INPUT POWER	3Vdc	FREQUENCY RANGE	Below 1000 MHz
ENVIRONMENTAL CONDITIONS	22 deg. C, 63% RH, 991 hPa	DETECTOR FUNCTION	Peak / Average
TEST MODE	1	TESTED BY	Morgan Chen

TEST DISTANCE: 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*27.045	46.84 PK	100.00	-53.16	1.61	342	32.99	13.85
2	*27.045	31.83 AV	80.00	-48.17	1.61	342	17.98	13.85

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. "*" = Fundamental frequency.
 6. Loop Antenna was used for all frequency below 30MHz.

EUT	Microsoft® Wireless Notebook Optical Mouse 4000	MODEL	1050
INPUT POWER	3Vdc	FREQUENCY RANGE	Below 1000 MHz
ENVIRONMENTAL CONDITIONS	22 deg. C, 63% RH, 991 hPa	DETECTOR FUNCTION	Peak / Average
TEST MODE	2	TESTED BY	Morgan Chen

TEST DISTANCE: 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*27.145	46.51 PK	100.00	-53.49	1.61	342	32.51	14.00
2	*27.145	31.53 AV	80.00	-48.47	1.61	342	17.53	14.00

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. "*" = Fundamental frequency.
 6. Loop Antenna was used for all frequency below 30MHz.

EUT	Microsoft® Wireless Notebook Optical Mouse 4000	MODEL	1050
INPUT POWER	3Vdc	FREQUENCY RANGE	Below 1000 MHz
ENVIRONMENTAL CONDITIONS	22 deg. C, 63% RH, 991 hPa	DETECTOR FUNCTION	Quasi-Peak
TEST MODE	1	TESTED BY	Morgan Chen

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	84.43	23.55 QP	40.00	-16.45	1.00 H	103	13.16	10.39
2	212.73	14.98 QP	43.50	-28.52	1.00 H	46	2.85	12.14
3	292.42	20.38 QP	46.00	-25.62	1.00 H	58	5.49	14.89
4	319.64	21.42 QP	46.00	-24.58	1.00 H	55	5.95	15.47
5	346.85	26.63 QP	46.00	-19.37	1.00 H	52	10.54	16.09
6	374.07	23.45 QP	46.00	-22.55	1.00 H	19	6.77	16.68

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	101.92	14.93 QP	43.50	-28.57	1.25 V	55	3.44	11.49
2	319.64	17.33 QP	46.00	-28.67	1.00 V	325	1.85	15.47
3	346.85	19.41 QP	46.00	-26.59	1.25 V	112	3.33	16.09
4	374.07	19.62 QP	46.00	-26.38	1.25 V	109	2.94	16.68
5	399.34	20.48 QP	46.00	-25.52	1.00 V	181	3.26	17.22
6	482.93	19.34 QP	46.00	-26.66	1.25 V	112	0.28	19.06

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.

EUT	Microsoft® Wireless Notebook Optical Mouse 4000	MODEL	1050
INPUT POWER	3Vdc	FREQUENCY RANGE	Below 1000 MHz
ENVIRONMENTAL CONDITIONS	22 deg. C, 63% RH, 991 hPa	DETECTOR FUNCTION	Peak / Average
TEST MODE	3	TESTED BY	Morgan Chen

TEST DISTANCE: 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*27.045	46.95 PK	100.00	-53.08	1.56	203	33.10	13.85
2	*27.045	33.48 AV	80.00	-46.52	1.56	203	19.63	13.85

REMARKS:

1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. "*" = Fundamental frequency.
6. Loop Antenna was used for all frequency below 30MHz.

EUT	Microsoft® Wireless Notebook Optical Mouse 4000	MODEL	1050
INPUT POWER	3Vdc	FREQUENCY RANGE	Below 1000 MHz
ENVIRONMENTAL CONDITIONS	22 deg. C, 63% RH, 991 hPa	DETECTOR FUNCTION	Peak / Average
TEST MODE	4	TESTED BY	Morgan Chen

TEST DISTANCE: 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*27.145	47.14 PK	100.00	-52.86	1.56	203	33.14	14.00
2	*27.145	33.73 AV	80.00	-46.27	1.56	203	19.73	14.00

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. "*" = Fundamental frequency.
 6. Loop Antenna was used for all frequency below 30MHz.

EUT	Microsoft® Wireless Notebook Optical Mouse 4000	MODEL	1050
INPUT POWER	3Vdc	FREQUENCY RANGE	Below 1000 MHz
ENVIRONMENTAL CONDITIONS	22 deg. C, 63% RH, 991 hPa	DETECTOR FUNCTION	Quasi-Peak
TEST MODE	4	TESTED BY	Morgan Chen

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	212.73	17.50 QP	43.50	-26.00	1.00 H	241	5.36	12.14
2	239.94	16.33 QP	46.00	-29.67	1.00 H	226	2.82	13.51
3	292.42	22.33 QP	46.00	-23.67	1.00 H	16	7.44	14.89
4	319.64	22.34 QP	46.00	-23.66	1.00 H	4	6.87	15.47
5	346.85	25.10 QP	46.00	-20.90	1.00 H	34	9.01	16.09
6	374.07	21.87 QP	46.00	-24.13	1.00 H	352	5.19	16.68

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	43.61	14.34 QP	40.00	-25.66	1.00 V	178	-1.23	15.57
2	158.30	13.64 QP	43.50	-29.86	1.00 V	112	-1.55	15.19
3	346.85	19.25 QP	46.00	-26.75	1.00 V	100	3.16	16.09
4	374.07	17.59 QP	46.00	-28.41	1.00 V	133	0.91	16.68
5	399.34	20.19 QP	46.00	-25.81	1.00 V	127	2.97	17.22
6	959.18	25.31 QP	46.00	-20.69	1.00 V	148	-1.22	26.53

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.

EUT	Microsoft® Wireless Notebook Optical Mouse 4000	MODEL	1050
INPUT POWER	3Vdc	FREQUENCY RANGE	Below 1000 MHz
ENVIRONMENTAL CONDITIONS	22 deg. C, 63% RH, 991 hPa	DETECTOR FUNCTION	Peak / Average
TEST MODE	5	TESTED BY	Morgan Chen

TEST DISTANCE: 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*27.045	46.68 PK	100.00	-53.32	1.68	18	32.83	13.85
2	*27.045	31.63 AV	80.00	-48.37	1.65	18	17.78	13.85

REMARKS:

1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. "*" = Fundamental frequency.
6. Loop Antenna was used for all frequency below 30MHz.

EUT	Microsoft® Wireless Notebook Optical Mouse 4000	MODEL	1050
INPUT POWER	3Vdc	FREQUENCY RANGE	Below 1000 MHz
ENVIRONMENTAL CONDITIONS	22 deg. C, 63% RH, 991 hPa	DETECTOR FUNCTION	Peak / Average
TEST MODE	6	TESTED BY	Morgan Chen

TEST DISTANCE: 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*27.145	46.28 PK	100.00	-53.72	1.68	18	32.28	14.00
2	*27.145	31.38 AV	80.00	-48.62	1.65	18	17.38	14.00

REMARKS:

1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. "*" = Fundamental frequency.
6. Loop Antenna was used for all frequency below 30MHz.

EUT	Microsoft® Wireless Notebook Optical Mouse 4000	MODEL	1050
INPUT POWER	3Vdc	FREQUENCY RANGE	Below 1000 MHz
ENVIRONMENTAL CONDITIONS	23 deg. C, 68% RH, 991 hPa	DETECTOR FUNCTION	Quasi-Peak
TEST MODE	5	TESTED BY	Morgan Chen

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	212.73	14.84 QP	43.50	-28.66	1.00 H	262	2.70	12.14
2	292.42	18.43 QP	46.00	-27.57	1.00 H	253	3.53	14.89
3	319.64	21.28 QP	46.00	-24.72	1.00 H	46	5.81	15.47
4	346.85	23.89 QP	46.00	-22.11	1.00 H	250	7.80	16.09
5	374.07	21.31 QP	46.00	-24.69	3.00 H	46	4.63	16.68
6	399.34	19.19 QP	46.00	-26.81	3.00 H	55	1.96	17.22

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	47.49	15.58 QP	40.00	-24.42	1.00 V	97	0.28	15.30
2	105.81	13.33 QP	43.50	-30.17	1.00 V	262	1.43	11.90
3	146.63	14.28 QP	43.50	-29.22	1.00 V	280	-0.63	14.91
4	346.85	17.40 QP	46.00	-28.60	1.00 V	283	1.31	16.09
5	374.07	17.98 QP	46.00	-28.02	1.00 V	124	1.30	16.68
6	399.34	19.25 QP	46.00	-26.75	1.00 V	280	2.03	17.22

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.

5 INFORMATION ON THE TESTING LABORATORIES

We, ADT Corp., were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025:

USA	FCC, NVLAP, UL, A2LA
Germany	TUV Rheinland
Japan	VCCI
Norway	NEMKO
Canada	INDUSTRY CANADA , CSA
R.O.C.	CNLA, BSMI, DGT
Netherlands	Telefication
Singapore	PSB , GOST-ASIA(MOU)
Russia	CERTIS(MOU)

Copies of accreditation certificates of our laboratories obtained from approval agencies can be downloaded from our web site: www.adt.com.tw/index.5/phtml. If you have any comments, please feel free to contact us at the following:

Linko EMC/RF Lab

Tel: 886-2-26052180

Fax: 886-2-26052943

Hsin Chu EMC/RF Lab

Tel: 886-3-5935343

Fax: 886-3-5935342

Hwa Ya EMC/RF/Safety/Telecom Lab

Tel: 886-3-3183232

Fax: 886-3-3185050

Linko RF Lab

Tel: 886-3-3270910

Fax: 886-3-3270892

Email: service@adt.com.tw

Web Site: www.adt.com.tw

The address and road map of all our labs can be found in our web site also.