

FCC TEST REPORT

REPORT NO.: RF941101L19

MODEL NO.: 1056

RECEIVED: Nov. 01, 2005

TESTED: Nov. 10, 2005

ISSUED: Nov. 11, 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	DEVIATION FROM TEST STANDARD	11
4.2.5	TEST SETUP	12
4.2.6	EUT OPERATING CONDITION	12
4.2.7	TEST RESULTS.....	13
4	INFORMATION ON THE TESTING LABORATORIES	22
APPENDIX-A		A-1



1 CERTIFICATION

PRODUCT : Microsoft® Wireless Notebook Optical Mouse 3000
BRAND NAME : Microsoft®
MODEL NO. : 1056
APPLICANT : Microsoft Corporation
TESTED : Nov. 10, 2005
TEST SAMPLE : ENGINEERING SAMPLE
STANDARDS : FCC Part 15, Subpart C (Section 15.227)
Canada RSS-310, 2005, Issue 1
ANSI C63.4:2003

The above equipment (model: 1056) 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 : Sunter Liu , **DATE :** Nov. 11, 2005
(Suntee Liu)

TECHNICAL
ACCEPTANCE : Gary Chang , **DATE :** Nov. 11, 2005
Responsible for RF (Gary Chang)

APPROVED BY : Cody Chang , **DATE :** Nov. 11, 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 battery
15.227 15.209	Radiated Emission Test	PASS	Minimum passing margin is -6.60dB at 39.72MHz

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
Radiated emissions	30MHz ~ 200MHz (Horizontal)	3.52 dB
	30MHz ~ 200MHz (Vertical)	3.71 dB
	200MHz ~1000MHz (Horizontal)	3.72 dB
	200MHz ~1000MHz (Vertical)	3.72 dB

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Microsoft® Wireless Notebook Optical Mouse 3000
MODEL NO.	1056
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.
2. Billow Configuration Information:

Configuration #:		Comments: EV phase Mouse unit for formal report			
Manufacturer	Component type	Part no.	Revision no.	Description	BOM (if known)
Microsoft	Mouse			Model: 1056	
ST	Optical Sensor	11300398000	A	CHIP IC Aviator ASIC TQFP-32L	11300398000
ST	Microcontroller	11300398000	A	CHIP IC Aviator ASIC TQFP-32L	11300398000
Microsoft	firmware			Lucerne_0_35_11_cb06_2CH800DPI.ram	
Ta Chien	PCB	10230040200	A	SPCB,H-ROLLER TX,AVIAT,S2L	10230040200
KYE	PCB Assy	20000041201	C	PCBA,LUCERNE,TX,MS,27M	20000041201
	Case tooling				
NYPRO	Top case	SKIRT	15100057201	B	15100057201
		KEY TOP	15130077201		15130077201
DG HEI	Bottom	15120560201	T1		15120560201



Configuration #:		Comments: DV phase Receiver unit with EMC fixes for formal report			
Manufacturer	Component type	Part no.	Revision no.	Description	BOM (if known)
Microsoft	Receiver			Model: 1051	
Sunplus	Microcontroller	11300605200		CHIPIC,SPCP18A	11300605200
TI		11300606200		CHIPIC,TRF7904, QFN 20	11300606200
Microsoft	firmware		V7		
Express	PCB	10230436200	8	RS,SPCB,H-ROLLER RX	10230436200
KYE	PCB Assy.	20000670201		PCBA,HIGH ROLLER,RX	20000670201
	Case tooling				
Merrich	Receiver Top Case	15102048201	01	Receiver Top Case	15102048201
Merrich	Receiver Bottom Case	15120485201	01	Receiver Bottom Case	15120485201
Merrich	Receiver Connect Button	15130573201	01	Receiver Connect Button	15130573201

Host System Used for EV Testing		Comments: Includes all Host and peripheral equipment in the setup.		
Manufacturer	Equipment Type	Part no.	Serial No.	Description
DELL	NOTEBOOK COMPUTER	PP05L	24729091408	
EPSON	Printer 1	LQ-300+	DCGY017089	
	Printer 2			

3. The above EUT information was declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.

3.2 DESCRIPTION OF TEST MODES

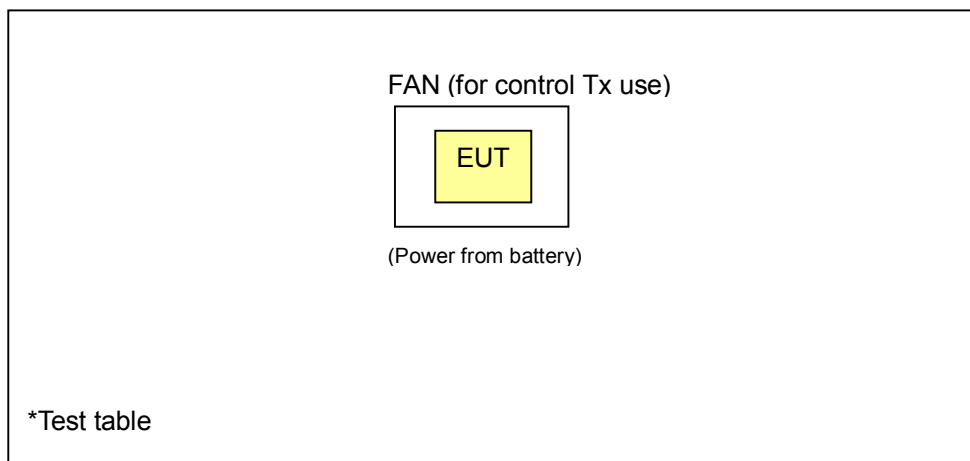
2 channels provided to the EUT.

Channel	Frequency (MHz)
0	27.045
1	27.145

3 sets of identical samples are tested and presented in the report as below.

Test Results	Mouse Serial Number	Frequency (MHz)
A	BT-PEV-19	27.045
B	BT-PEV-41	27.045
C	BT-PEV-48	27.145

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	BT-PEV-19, operating@27.045
2	Note	v	BT-PEV-19, operating@27.145
3	Note	v	BT-PEV-41, operating@27.045
4	Note	v	BT-PEV-41, operating@27.145
5	Note	v	BT-PEV-48, operating@27.045
6	Note	v	BT-PEV-48, 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 3000. 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
HP Preamplifier	8449B	3008A01924	Sep. 06, 2006
HP Preamplifier	8449B	3008A01638	Sep. 21, 2006
ROHDE & SCHWARZ TEST RECEIVER	ESCS30	100275	Oct. 25, 2006
CHASE BILOG Antenna	CBL6111C	2765	Dec. 10, 2005
EMCO Horn Antenna	3115	6714	Oct. 26, 2006
EMCO Horn Antenna	3115	9312-4192	Mar. 21, 2006
CHANCE Turn Table & Tower Controller	CM-AT40	CM-A006	NA
Software	ADT_Radiated_V7.5.14	NA	NA
ANRITSU RF Switches	MP59B	6200265067	Aug. 24, 2006
TIMES RF cable	LMR-600	CABLE-ST6-01	Aug. 24, 2006
Loop Antenna	HFH2-Z2	100070	Nov. 14, 2005

- 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 horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
 3. The test was performed in ADT Open Site No. 6.
 4. The VCCI Site Registration No. R-728.

4.2.3 TEST PROCEDURE

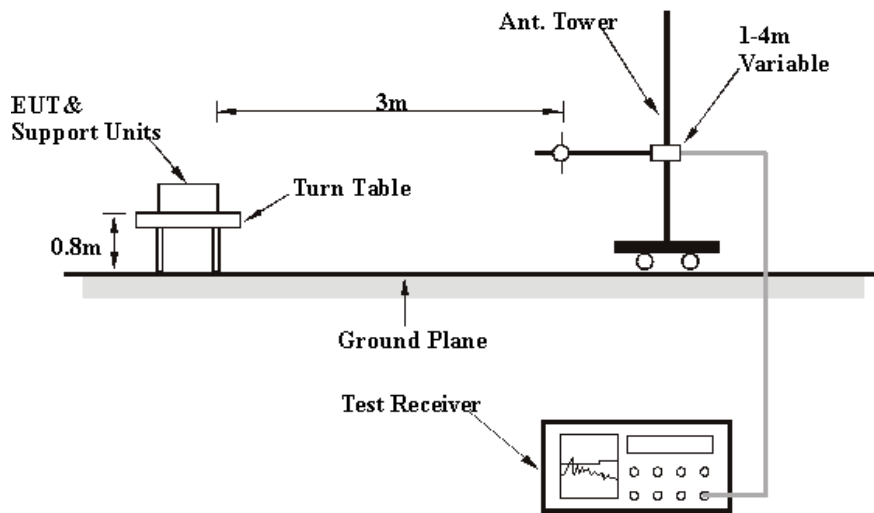
- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meters semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on 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 lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions would be re-tested one by one using peak, quasi-peak method or average method as specified and then reported in 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 DEVIATION FROM TEST STANDARD

No deviation

4.2.5 TEST SETUP



4.2.6 EUT OPERATING CONDITION

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

4.2.7 TEST RESULTS

EUT	Microsoft® Wireless Notebook Optical Mouse 3000	MODEL	1056
INPUT POWER	1.5Vdc	FREQUENCY RANGE	Below 1000 MHz
ENVIRONMENTAL CONDITIONS	27 deg. C, 74% RH, 989 hPa	DETECTOR FUNCTION	Peak / Average
TEST MODE	1	TESTED BY	Jamison Chan

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	44.23 PK	100.00	-55.77	2.14	348	36.83	7.40
2	*27.045	38.29 AV	80.00	-41.71	2.14	348	30.89	7.40

- 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 3000	MODEL	1056
INPUT POWER	1.5Vdc	FREQUENCY RANGE	Below 1000 MHz
ENVIRONMENTAL CONDITIONS	27 deg. C, 74% RH, 989 hPa	DETECTOR FUNCTION	Peak / Average
TEST MODE	2	TESTED BY	Jamison Chan

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	41.44 PK	100.00	-58.56	2.32	336	34.04	7.40
2	*27.145	37.31 AV	80.00	-42.69	2.32	336	29.91	7.40

- 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 3000	MODEL	1056
INPUT POWER	1.5Vdc	FREQUENCY RANGE	Below 1000 MHz
ENVIRONMENTAL CONDITIONS	27 deg. C, 74% RH, 989 hPa	DETECTOR FUNCTION	Quasi-Peak
TEST MODE	1	TESTED BY	Jamison Chan

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	292.42	29.60 QP	46.00	-16.40	1.01 H	130	14.72	14.89
2	366.29	28.58 QP	46.00	-17.42	1.15 H	100	12.16	16.42
3	399.34	29.43 QP	46.00	-16.57	1.73 H	328	12.05	17.38
4	640.38	26.03 QP	46.00	-19.97	1.56 H	64	3.34	22.68
5	828.94	27.73 QP	46.00	-18.27	1.08 H	343	2.04	25.69
6	959.18	27.65 QP	46.00	-18.35	1.24 H	292	0.40	27.25

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	27.72 QP	40.00	-12.28	1.98 V	19	14.04	13.67
2	399.34	26.49 QP	46.00	-19.51	1.38 V	199	9.11	17.38
3	842.55	26.22 QP	46.00	-19.78	2.59 V	346	0.11	26.11
4	879.48	26.30 QP	46.00	-19.70	3.19 V	352	0.16	26.15
5	916.41	27.41 QP	46.00	-18.59	2.37 V	10	0.99	26.42
6	949.46	27.26 QP	46.00	-18.74	2.21 V	16	0.01	27.25

- 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 3000	MODEL	1056
INPUT POWER	1.5Vdc	FREQUENCY RANGE	Below 1000 MHz
ENVIRONMENTAL CONDITIONS	27 deg. C, 74% RH, 989 hPa	DETECTOR FUNCTION	Peak / Average
TEST MODE	3	TESTED BY	Jamison Chan

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	45.44 PK	100.00	-54.56	2.50	0	38.04	7.40
2	*27.045	39.99 AV	80.00	-40.01	2.50	0	32.59	7.40

- 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 3000	MODEL	1056
INPUT POWER	1.5Vdc	FREQUENCY RANGE	Below 1000 MHz
ENVIRONMENTAL CONDITIONS	26 deg. C, 64% RH, 989 hPa	DETECTOR FUNCTION	Peak / Average
TEST MODE	4	TESTED BY	Jamison Chan

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	36.95 PK	100.00	-55.65	2.34	8	36.95	7.40
2	*27.145	32.03 AV	80.00	-40.57	2.34	8	32.03	7.40

- 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 3000	MODEL	1056
INPUT POWER	1.5Vdc	FREQUENCY RANGE	Below 1000 MHz
ENVIRONMENTAL CONDITIONS	27 deg. C, 74% RH, 989 hPa	DETECTOR FUNCTION	Quasi-Peak
TEST MODE	3	TESTED BY	Jamison Chan

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	185.51	24.81 QP	43.50	-18.69	1.32 H	163	13.41	11.40
2	292.42	28.56 QP	46.00	-17.44	1.08 H	142	13.67	14.89
3	339.08	27.66 QP	46.00	-18.34	1.36 H	151	11.86	15.80
4	374.07	31.28 QP	46.00	-14.72	1.00 H	94	14.63	16.65
5	838.66	26.82 QP	46.00	-19.18	2.84 H	175	0.83	25.99
6	955.29	27.42 QP	46.00	-18.58	2.56 H	196	0.16	27.25

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	39.72	33.40 QP	40.00	-6.60	1.50 V	253	19.84	13.55
2	374.07	24.06 QP	46.00	-21.94	1.50 V	289	7.41	16.65
3	813.39	25.21 QP	46.00	-20.79	2.39 V	202	0.01	25.20
4	852.26	27.14 QP	46.00	-18.86	2.11 V	181	0.81	26.33
5	910.58	26.36 QP	46.00	-19.64	1.64 V	274	0.08	26.27
6	951.40	27.53 QP	46.00	-18.47	3.13 V	121	0.27	27.26

- 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 3000	MODEL	1056
INPUT POWER	1.5Vdc	FREQUENCY RANGE	Below 1000 MHz
ENVIRONMENTAL CONDITIONS	26 deg. C, 64% RH, 989 hPa	DETECTOR FUNCTION	Peak / Average
TEST MODE	5	TESTED BY	Jamison Chan

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	45.31 PK	100.00	-54.69	2.60	0	37.91	7.40
2	*27.045	41.41 AV	80.00	-38.59	2.60	0	34.01	7.40

- 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 3000	MODEL	1056
INPUT POWER	1.5Vdc	FREQUENCY RANGE	Below 1000 MHz
ENVIRONMENTAL CONDITIONS	26 deg. C, 64% RH, 989 hPa	DETECTOR FUNCTION	Peak / Average
TEST MODE	6	TESTED BY	Jamison Chan

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	36.70 PK	100.00	-35.90	2.69	0	36.70	7.40
2	*27.145	32.05 AV	80.00	-40.55	2.69	0	32.05	7.40

- 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 3000	MODEL	1056
INPUT POWER	1.5Vdc	FREQUENCY RANGE	Below 1000 MHz
ENVIRONMENTAL CONDITIONS	27 deg. C, 74% RH, 989 hPa	DETECTOR FUNCTION	Quasi-Peak
TEST MODE	6	TESTED BY	Jamison Chan

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	185.51	25.19 QP	43.50	-18.31	1.48 H	127	13.79	11.40
2	292.42	30.49 QP	46.00	-15.51	1.00 H	112	15.60	14.89
3	358.52	30.17 QP	46.00	-15.83	1.03 H	124	13.98	16.20
4	399.34	29.72 QP	46.00	-16.28	1.24 H	295	12.34	17.38
5	613.17	26.73 QP	46.00	-19.27	1.54 H	238	4.34	22.38
6	953.35	27.88 QP	46.00	-18.12	2.11 H	70	0.62	27.26

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	26.93 QP	40.00	-13.07	1.22 V	22	13.26	13.67
2	399.34	28.35 QP	46.00	-17.65	1.37 V	223	10.97	17.38
3	840.60	26.98 QP	46.00	-19.02	2.93 V	304	0.93	26.05
4	875.59	26.91 QP	46.00	-19.09	1.14 V	343	0.74	26.17
5	908.64	26.55 QP	46.00	-19.45	2.37 V	229	0.32	26.23
6	943.63	27.92 QP	46.00	-18.08	1.05 V	265	0.82	27.10

- 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.



4 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.



APPENDIX-A

MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

No any modifications are made to the EUT by the lab during the test.