FCC TEST REPORT

REPORT NO.: RF920725R04A
MODEL NO.: MWP2060
RECEIVED: Aug. 15, 2003
TESTED: Sep. 8~Sep. 17, 2003

APPLICANT: DEXIN Corporation

ADDRESS: 14F-8, No 258,Lian Cheng Rd., Chung Ho City, Taipei Hsien, Taiwan, R.O.C

ISSUED BY: Advance Data Technology Corporation

LAB LOCATION: 47 14th Lin, Chia Pau Tsuen, Linkou Hsiang, Taipei, Taiwan, R.O.C.

0528
ILAC MRA

Lab Code: 200102-0

Table of Contents

1 CERTIFICATION

PRODUCT :	OFFICE WIRELESS MOUSE
BRAND NAME :	DEXIN
MODEL NO :	MWP2060
TEST ITEM:	Engineering Sample
APPLICANT :	DEXIN Corporation
STANDARDS :	47 CFR Part 15, Subpart C(15.227) ANSI C63.4-1992

We, **Advance Data Technology Corporation**, hereby certify that one sample of the designation has been tested in our facility on Sep. 8 ~ Sep. 17, 2003. The test record, data evaluation and Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions herein specified.

PREPARED BY: Landy Soong, **DATE:** Sep. 19 ,2003

Landy Soong

APPROVED BY: , **DATE:** Sep. 19 ,2003

Dr. Alan Lane / JVP

2 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: 47 CFR Part 15, Subpart C			
STANDARD PARAGRAPH	**TEST TYPE**	**RESULT**	**REMARK**
15.207	Conducted Emission Test	NA	Power supply is 3VDC from batteries
15.227	Radiated Emission Test	PASS	Minimum passing margin is –5.2dB at 377.96MHz

NOTE:

1. The receiver part to communicate with the EUT has been verified to comply with FCC Part 15, Subpart B, Class B (DoC). The test report can be provided upon request.
2. The information of measurement uncertainty is available upon the customer's request.

3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	OFFICE WIRELESS MOUSE
MODEL NO.	MWP2060
POWER SUPPLY	3VDC from battery
MODULATION TYPE	FSK
CARRIER FREQUENCY OF EACH CHANNEL	27.045MHZ /27.145MHZ
BANDWIDTH OF EACH CHANNEL	100KHz
NUMBER OF CHANNEL	2
ANTENNA TYPE	Loop Antenna
DATA CABLE	NA
I/O PORTS	USB Port
ASSOCIATED DEVICES	NA

NOTE:

1. The following adapter is provided to the charger:

BRAND:	SPEC LIN
MODEL:	L3C-050045R
INPUT:	120V,60Hz,6.2W
OUTPUT:	5VDC,450mA

2. The EUT is the transmitter part of a OFFICE WIRELESS MOUSE.
3. For more detailed features description of the EUT, please refer to the manufacturer's specifications or the User's Manual.

3.2 DESCRIPTION OF TEST MODES

Two channels were provided in this EUT.

Channel	Frequency
1	27.045 MHz
2	27.145 MHz

Note :

1. The EUT was tested with the following two modes. Mode 1 was tested with Tx mouse only, mode 2 was tested with Rx USB and Tx mouse on the charger powered by the adapter.
2. Channel 2, the worse case, was chosen for the final test.

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is the transmitter part of a OFFICE WIRELESS MOUSE. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC 47 CFR Part 15, Subpart C (15.227)

ANSI C63.4-1992

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

3.4 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	Notebook	Compaq	N800C	470048-515	FCC DoC Approved
2	Printer	EPSON	LQ-300+	DCGY017096	FCC DoC Approved
3	Modem	ACEEX	1414	980020503	IFAXDM1414

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	NA
2	NA
3	1.2 m braid shielded wire, terminated with DB25 and DB9 connector via metallic frame, w/o core.

NOTE: All power cords of the above support units are non shielded (1.8m).

4 TEST TYPES AND RESULTS

4.1 CONDUCTED EMISSION MEASUREMENT

NA

5 TEST PROCEDURE AND RESULT

5.1 RADIATED EMISSION MEASUREMENT

5.1.1 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)	
26.96-27.28	Peak	Average
	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:

Other Frequencies (MHz)	Field Strength of Fundamental	
	uV/meter	dBuV/meter
30-88	100	40.0
88-216	150	43.5
216-960	200	46.0
Above 960	500	54.0

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.

5.1.2 TEST INSTRUMENT

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
*HP Spectrum Analyzer	8594E	3911A07465	Jul. 07, 2004
*HP Preamplifier	8447D	2944A10386	Aug. 15, 2003
HP Preamplifier	8449B	3008A01201	Dec. 01, 2003
HP Preamplifier	8449B	3008A01292	Aug. 11, 2004
SCHAFFNER Tunable Dipole Antenna SCHWARZBECK Tunable Dipole Antenna	VHBA 9123 UHA 9105	459 977	Nov. 22, 2003
ROHDE & SCHWARZ TEST RECEIVER	ESCS 30	836858/008	Dec.13, 2003
* SCHAFFNER BILOG Antenna	CBL6111C	2727	Jul. 15, 2004
ANTENNA (Large Biconical)	VHBA9123	449	Dec. 22, 2003
SCHWARZBECK Horn Antenna	BBHA9120-D1	D130	Jun. 30, 2004
EMCO Horn Antenna	3115	9312-4192	Mar. 23 2004
* ADT. Turn Table	TT100	0201	NA
* ADT. Tower	AT100	0201	NA
* Software	ADT_Radiated_V5.06	NA	NA
* ANRITSU RF Switches	MP59B	6100237246	Oct. 30, 2003
* TIMES RF cable	LMR-600	CABLE-ST10-01	Oct. 30, 2003

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. "*" = These equipment are used for the final measurement.

3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.

4. The test was performed in ADT Open Site No. 10.

5. The VCCI Site Registration No. is R-1248.

5.2.3 TEST PROCEDURE

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 10 meter open area test site. 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.

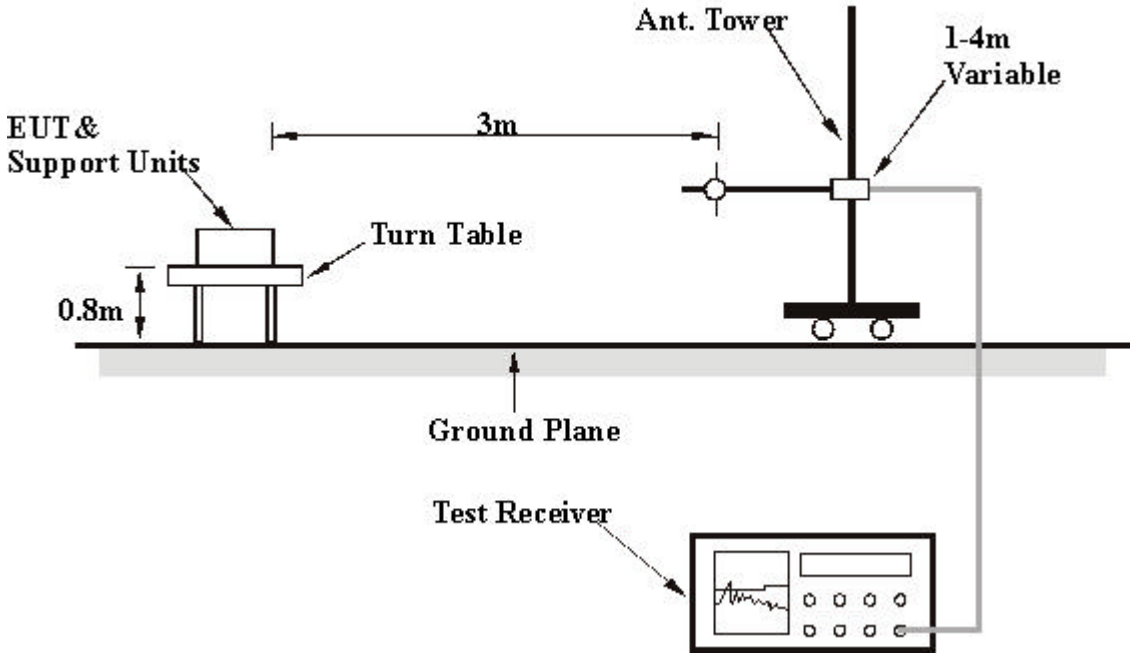
e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

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 the quasi-peak method or average method as specified and then reported in Data sheet peak mode and QP mode.

NOTE:

1. 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.
2. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 MHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 300 Hz for Average detection (AV) at frequency above 1GHz.

5.2.4 TEST SETUP



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

5.1.5 EUT OPERATING CONDITION

Same as 4.1.5

5.1.6 TEST RESULT

EUT	OFFICE WIRELESS MOUSE	**MODEL**	MWP2060
FREQUENCY RANGE	Below 1000MHz	**MODE**	Mode 1
INPUT POWER	3.6VDC	**DETECTOR FUNCTION**	Peak / Average
ENVIRONMENTAL CONDITIONS	30 deg. C, 50 % RH, 991 hPa	**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	*27.18	51.2 PK	100.00	-48.80	3.27 H	272	30.80	20.40
2	*27.18	50.8 AV	80.00	-29.20	3.27 H	272	30.40	20.40

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	*27.18	52.0 PK	100.00	-48.00	2.35 V	71	31.70	20.40
2	*27.18	53.1 AV	80.00	-26.90	2.35 V	71	32.70	20.40

REMARKS:
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB)
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.

EUT	OFFICE WIRELESS MOUSE	**MODEL**	MWP2060
FREQUENCY RANGE	Below 1000MHz	**MODE**	Mode 1
INPUT POWER	3.6VDC	**DETECTOR FUNCTION**	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25 deg. C, 55 % RH, 991 hPa	**TESTED BY**: Steven Lu	

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	189.40	18.1 QP	43.50	-25.40	1.25 H	307	6.30	11.90
2	216.61	21.7 QP	46.00	-24.30	1.00 H	322	9.70	12.00
3	243.83	31.7 QP	46.00	-14.30	1.00 H	328	18.40	13.30
4	269.10	28.2 QP	46.00	-17.80	1.00 H	313	14.10	14.10
5	296.31	26.2 QP	46.00	-19.80	1.00 H	304	11.20	15.00
6	323.53	32.1 QP	46.00	-13.90	1.00 H	106	16.40	15.70
7	350.74	38.9 QP	46.00	-7.10	1.00 H	139	22.50	16.40
8	377.96	40.8 QP	46.00	-5.20	1.00 H	133	23.60	17.10
9	405.17	35.1 QP	46.00	-10.90	1.00 H	166	17.20	17.90
10	432.38	31.2 QP	46.00	-14.80	1.75 H	343	12.40	18.70
11	486.81	26.7 QP	46.00	-19.30	1.50 H	325	6.90	19.80

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	80.54	14.8 QP	40.00	-25.20	1.50 V	277	5.60	9.30
2	107.76	16.4 QP	43.50	-27.10	1.00 V	301	5.30	11.10
3	134.97	15.7 QP	43.50	-27.80	1.00 V	358	2.30	13.40
4	162.18	20.6 QP	43.50	-22.90	1.00 V	358	6.50	14.10
5	189.40	17.1 QP	43.50	-26.40	1.00 V	157	5.20	11.90
6	243.83	20.4 QP	46.00	-25.60	1.50 V	355	7.20	13.30
7	271.04	20.7 QP	46.00	-25.30	1.50 V	13	6.50	14.20
8	323.53	24.7 QP	46.00	-21.30	1.25 V	1	9.00	15.70
9	350.74	29.3 QP	46.00	-16.70	2.50 V	244	12.90	16.40
10	377.96	31.6 QP	46.00	-14.40	1.75 V	10	14.40	17.10
11	405.17	29.5 QP	46.00	-16.50	1.50 V	10	11.70	17.90
12	432.38	28.2 QP	46.00	-17.80	1.25 V	16	9.50	18.70

REMARKS:
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB)
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.

EUT	OFFICE WIRELESS MOUSE	**MODEL**	MWP2060
FREQUENCY RANGE	Below 1000MHz	**MODE**	Mode 2
INPUT POWER	3.6VDC	**DETECTOR FUNCTION**	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25 deg. C, 55 % RH, 991 hPa	**TESTED BY**: Steven Lu	

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	191.34	31.2 QP	43.50	-12.30	2.00 H	160	19.40	11.80
2	234.11	29.2 QP	46.00	-16.80	1.25 H	238	16.30	12.90
3	239.94	32.8 QP	46.00	-13.20	1.50 H	310	19.60	13.20
4	306.03	30.6 QP	46.00	-15.40	1.00 H	190	15.30	15.30
5	321.58	30.2 QP	46.00	-15.80	2.00 H	190	14.60	15.70
6	337.13	35.0 QP	46.00	-11.00	2.00 H	196	18.90	16.10
7	364.35	35.6 QP	46.00	-10.40	2.00 H	187	18.80	16.80
8	381.84	35.0 QP	46.00	-11.00	2.00 H	193	17.70	17.20
9	401.28	33.3 QP	46.00	-12.70	1.00 H	1	15.50	17.80
10	432.38	28.9 QP	46.00	-17.10	1.00 H	61	10.10	18.70
11	461.54	29.5 QP	46.00	-16.50	2.00 H	160	10.00	19.50
12	482.93	30.5 QP	46.00	-15.50	2.00 H	181	10.70	19.80
13	504.31	29.8 QP	46.00	-16.20	2.00 H	187	9.70	20.10
14	541.24	30.9 QP	46.00	-15.10	1.25 H	226	10.00	20.90
15	601.50	32.6 QP	46.00	-13.40	1.25 H	235	10.00	22.60
16	642.32	29.7 QP	46.00	-16.30	1.25 H	196	6.50	23.20
17	700.64	33.1 QP	46.00	-12.90	1.25 H	214	9.10	24.00
18	725.91	32.8 QP	46.00	-13.20	1.25 H	319	8.20	24.70
19	749.24	32.7 QP	46.00	-13.30	1.25 H	280	7.40	25.30

REMARKS:
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB)
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.

EUT	OFFICE WIRELESS MOUSE	**MODEL**	MWP2060
FREQUENCY RANGE	Below 1000MHz	**MODE**	Mode 2
INPUT POWER	3.6VDC	**DETECTOR FUNCTION**	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25 deg. C, 55 % RH, 991 hPa	**TESTED BY**: Steven Lu	

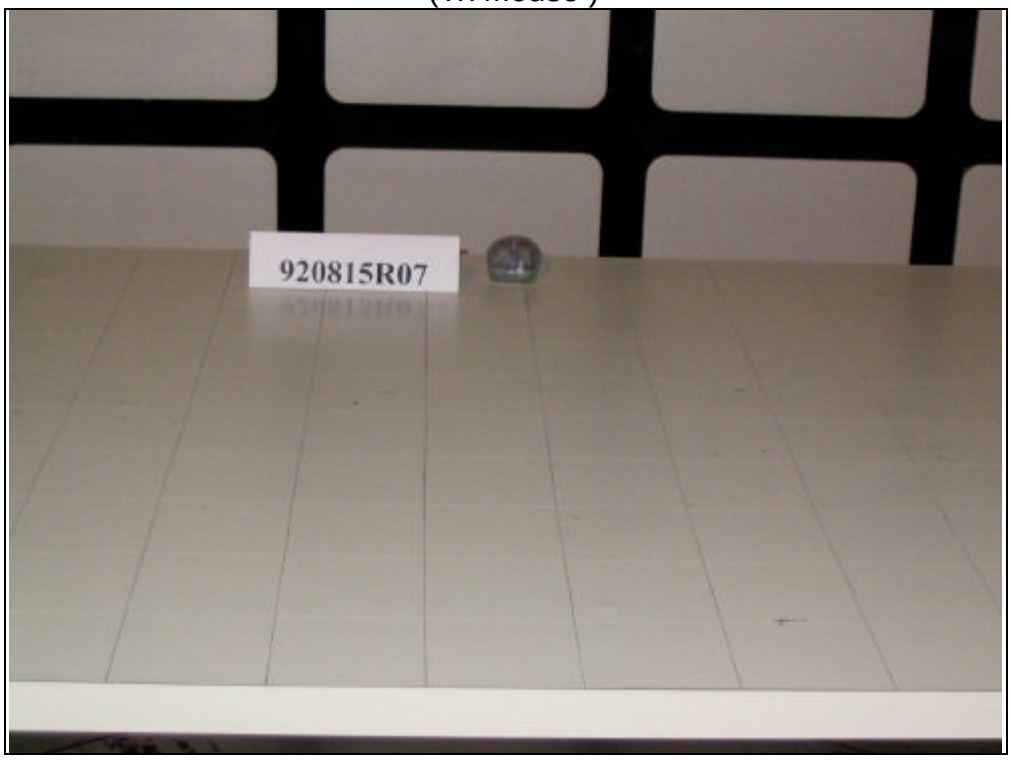
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	160.24	28.2 QP	43.50	-15.30	1.00 V	235	14.00	14.30
2	239.94	27.8 QP	46.00	-18.20	2.00 V	22	14.70	13.20
3	304.09	25.3 QP	46.00	-20.70	1.75 V	145	10.10	15.20
4	364.35	26.4 QP	46.00	-19.60	2.50 V	67	9.60	16.80
5	379.90	32.2 QP	46.00	-13.80	1.50 V	1	15.00	17.20
6	401.28	27.2 QP	46.00	-18.80	1.75 V	337	9.40	17.80
7	451.82	32.3 QP	46.00	-13.70	3.00 V	16	12.90	19.30
8	461.54	26.0 QP	46.00	-20.00	1.75 V	163	6.50	19.50
9	601.50	27.1 QP	46.00	-18.90	2.50 V	181	4.50	22.60
10	630.66	29.5 QP	46.00	-16.50	1.75 V	16	6.50	23.00
11	702.59	28.7 QP	46.00	-17.30	1.50 V	226	4.60	24.10
12	725.91	29.9 QP	46.00	-16.10	2.00 V	259	5.20	24.70
13	749.24	30.3 QP	46.00	-15.70	2.00 V	268	4.90	25.30
14	774.51	29.6 QP	46.00	-16.40	1.75 V	262	4.10	25.50

REMARKS:
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB)
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.

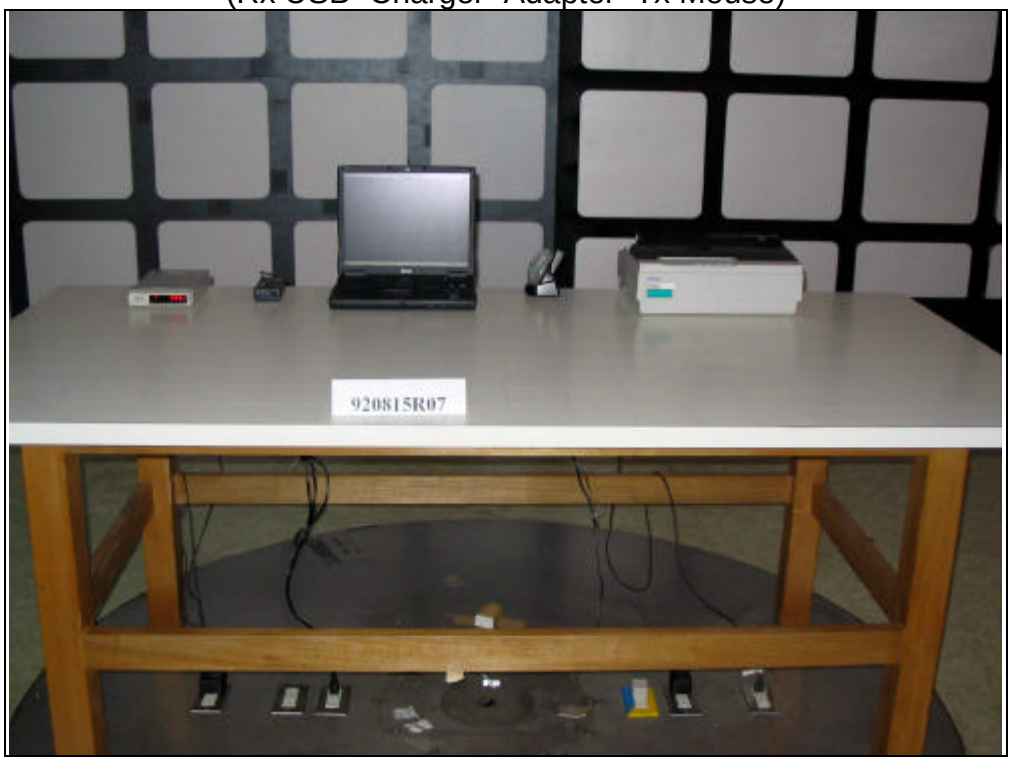
6 PHOTOGRAPHS OF THE TEST CONFIGURATION

RADIATED EMISSION TEST

(Tx Mouse)



(Rx USB+Charger+Adapter+Tx Mouse)



7 INFORMATION ON THE TESTING LABORATORIES

We, ADT Corp., were founded in 1988 to provide our best service in EMC and Safety consultation. Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025, Guide 25 or EN 45001:

USA	FCC, NVLAP
Germany	TUV Rheinland
Japan	VCCI
New Zealand	MoC
Norway	NEMKO
R.O.C.	BSMI, DGT, CNLA

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:

Lin Kou EMC Lab:
Tel: 886-2-26052180
Fax: 886-2-26052943

Hsin Chu EMC Lab:
Tel: 886-35-935343
Fax: 886-35-935342

Lin Kou Safety Lab:
Tel: 886-2-26093195
Fax: 886-2-26093184

Lin Kou RF&Telecom Lab:
Tel: 886-3-3270910
Fax: 886-3-3270892

Email: service@mail.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.