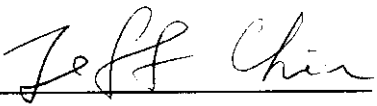
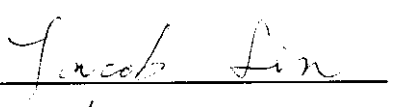



Report No	N0115966
Specifications	FCC Part 15 Class B
Test Method	ANSI C63.4 1992
Applicant address	Room 905-6, 9/F, Tower 1, Silvercord, 30 Canton Road, Tsimshatsui, Kowloon, Hong Kong
Applicant	WORLD WIDE LICENSES, LTD.
Items tested	MOUSE
Model No.	CM-PS54(Sample # N01966)
Results	As detailed within this report
Sample received data	03/05/1998 (month / day / year)
Prepared by	 project engineer
Authorized by	 Vice General Manager (Jacob Lin)
Issue date	 (month / day / year)
Modifications	None
Tested by	Training Research Co., Ltd.
Office at	2F, No. 571, Chung Hsiao E. Road, Sec.7, Taipei, Taiwan
Open site at	No. 5-3, Lane 21, Yen Chiu Yuan Rd., Sec. 4, Taipei, Taiwan

Conditions of issue :

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- (2) **This report must not be used by the client to claim product endorsement by NVLAP or any agency of U.S. Government.**

★ FCC ID : NW7CM-PS54

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Chapter 1 Introduction

Description of EUT :

The EUT is a PS/2 mouse. It is suitable for IBM or compatible one.

Connections of EUT :

Connect the mouse to the mouse Port of PC .

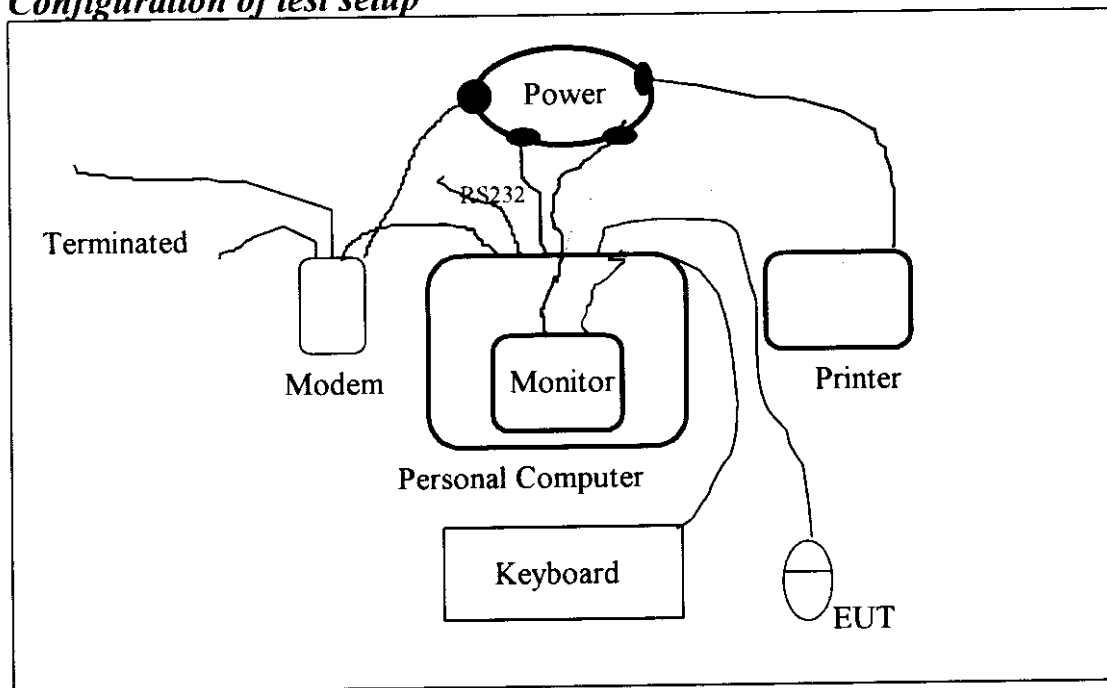
Test method :

All measurements contained in this report were performed according to the techniques described in Measurement procedure ANSI C63.4 – 1992 .

Pretest was found that the emission of operating mode equated to standby mode . So, The final test is made at the standby mode.

The test placement as the photographs showed is the worst case emission placed. (If the emission is close to the ambient, the resolution BW and view resolution will be reduced and the data will be recorded by detection of maximum hold peak mode.)

The testing configuration of test setup is showing in the next page.

Configuration of test setup**Connections :****PC :**

- *Serial A port --- a modem
 - *Serial B port --- a 76 cm shielded RS232 cable
 - *Printer port --- a Printer
 - *Keyboard port --- a keyboard
 - *Mouse port --- **EUT**
 - *Monitor port --- a monitor
- (Each port on PC is connected with suitable device)

List of support equipment**Conducted (Radiated) test :****PC : HP**

Model : Vectra VE 5/166 series 3
Serial No. : SG72450161(SG72450174)
FCC ID : B94VECTRAVE53
Power type : AC 117 VAC ,switching
Power cord : non-Shielded, 1.7m long ,Plastic ,no ferrite core

Monitor : HP

Model No. : D2821
Serial No. : TW 73107071(CN 73812777)
FCC ID : A3HM064
Power type : 117VAC ,Switching
Power cord : Non-Shielded, 3m long ,no ferrite core
Data cable : Shielded, 1.8m long ,with ferrite core

Printer : HP

Model No. : C2642A
Serial No. : SG69A196GV
FCC ID : B94C2642X
Power type : Linear
Power cord : Non-shielded, 2m long, no ferrite core
Data cable : Shielded,1.84m long ,no ferrite core (1.7m)

Modem : ACEEX 9624 External Fax / Modem

Model No. : XDM=9624
Serial No. : N / A
FCC ID : IFAXDM-9624
Power Type : Linear
Power Cord : Nonshielded, 5.5' long , Plastic hoods, No ferrite bead
Data Cable : RS-232 →Shielded, 3' long, Metal hoods , No bead
RJ-11C →Nonshielded, 7'long,Plastic hoods, No bead

Keyboard : **HP**
Model No. : C7258A #ABO
Serial No. : C7358A-60223 (C7358A-60223)
FCC ID : CIGE03633
Power type : By PC
Data cable : Shielded, 1.8m long, with ferrite core

Chapter 2 Conducted emission test

Test condition and setup :

All the equipment is placed and setup according to the ANSI C63.4 - 1992 .

The EUT is assembled on a wooden table which is 80 cm high , is placed 40 cm from the back-wall which is a vertical conducting plane . One LISN is for EUT ,the other LISN is for support equipment. They are all placed on the conductive ground .The EUT's LISN connect a line switch box for selecting L1 or L2 ,then connect to a preamplifier and spectrum.

The spectrum scans from 450KHz to 30MHz . Conducted emission levels are detected at max. peak mode . But if the max. peak mode failed ,it will be measured by CISPR's quasi-peak detection mode .

While testing, there is a the worst-emission plot printed at peak detection mode ,and there are more than 6 highest emissions relative to limit recorded. The plot is kept as the original data, not included in test report .

List of test Instrument :

<u>Instrument Name</u>	<u>Model No.</u>	<u>Brand</u>	<u>Serial No.</u>	<u>Calibration Date</u>	
				<u>Last time</u>	<u>Next time</u>
Spectrum analyzer	8591EM	H P	3619A00821	10/06/97	10/06/98
LISN (EUT)	3825/2	EMCO	9411-2284	05/15/97	05/15/98
LISN (Support E.)	3825/2	EMCO	9210-2007	05/15/97	05/15/98
Preamplifier	8447F	H P	2944A03706	05/13/97	05/15/98
Line switch box	AC1-003	TRC	-----	05/15/97	05/15/98
Line selector	AC1-002	TRC	-----	05/15/97	05/15/98

The level of confidence of 95%, the uncertainty of measurement of conducted emission is ± 2.4 dB.

Test Result: Pass (Appendix A)

Chapter 3 Radiated emission test

Test condition and setup :

Pretest : Prior to the final test (OATS test), the EUT is placed in a shielded enclosure, GTEM, and scan from 30MHz to 1GHz. This is done to ensure the radiation exactly emits from the EUT.

Final test : Final radiation measurements is made on a **3 - meter**, open-field test site. The EUT is placed on a nonconductive table which is 0.8 cm height, the top surface is 1.0 x 1.5 meter. All the placement is according to ANSI C63.4 - 1992.

The spectrum is examined from 30 MHz to 1000 MHz measured by HP spectrum.

The EMCO whole range Antenna is used to measure frequency from 30 MHz to 1GHz. The final test is used the spectrum HP 8594EM.

Measure more than six top marked frequencies generated from pretest by computer step by step at each frequency. The EUT is rotated 360 degrees, and antenna is raised and lowered from 1 to 4 meter to find the maximum emission levels. The antenna is used with both horizontal and vertical polarization.

Appropriated preamplifier which is made by TRC is used for improving sensitivity and precautions is taken to avoid overloading. The spectrum analyzer's 6dB bandwidth is set to 120 K Hz, and the EUT is measured at quasi-peak mode.

If the emission is close to the frequency band of ambient, the data will be rechecked by the tester and the corrected data will be written in the test data sheet. If the emission is just within the ambient, the data from GTEM will be taken as the final data.

List of test Instrument :

<u>Instrument name</u>	<u>Model No.</u>	<u>Brand</u>	<u>Serial No.</u>	<u>Calibration Date</u>	
				<u>Last</u>	<u>Next</u>
Spectrum analyzer	8568B	H P	3004A18617	05/15/97	05/15/98
Quasi-peak Adapter	85650A	H P	2521A00984	05/15/97	05/15/98
RF Pre-selector	85685A	H P	2947A01011	05/15/97	05/15/98
Spectrum analyzer	8594EM	H P	3619A00198	08/13/97	08/13/98
Antenna (30M-2G Hz)	3142	EMCO	9610-1094	10/30/96	10/30/97
Open test site (Antenna, Amplify, cable calibrated together)				05/15/97	05/15/98

The level of confidence of 95%, the uncertainty of measurement of radiated emission is ± 4.96 dB.

Test Result: Pass (Appendix B)

Appendix A

Conducted Emission Test Result :

Testing room : Temperature : 22 ° C Humidity :54 % RH

Line 1

Frequency (MHz)	Amplitude (dBuV)	Limit (dBuV/m)	Margin (dB)
1.041	32.44	48.00	-15.56
2.370	33.62	48.00	-14.38
3.181	37.03	48.00	-10.97
3.403	33.92	48.00	-14.08
6.792	28.74	48.00	-19.26
7.602	29.62	48.00	-18.38
7.896	32.48	48.00	-15.52
8.632	30.26	48.00	-17.74
14.799	29.85	48.00	-18.15
15.824	28.90	48.00	-19.10

Line 2

Frequency (MHz)	Amplitude (dBuV)	Limit (dBuV)	Margin (dB)
1.632	30.72	48.00	-17.28
2.370	32.69	48.00	-15.31
3.255	36.66	48.00	-11.34
3.403	35.09	48.00	-12.91
7.675	29.60	48.00	-18.40
7.896	30.25	48.00	-17.75
8.926	29.15	48.00	-18.85
15.092	29.71	48.00	-18.29
16.044	28.12	48.00	-19.88
23.718	28.69	48.00	-19.31

Appendix B**Radiated Emission Test Result :(Horizontal)**

Test Conditions:

Testing room : Temperature : 20 ° C Humidity : 75 % RH

Testing site : Temperature : 25 ° C Humidity : 63 % RH

Frequency	Reading	Ant.	Table	Correction	Corrected	Class B	Margin
	Amplitude	Height		Factors	Amplitude	limit	
MHz	dBuV	m	degree	dB/m	dBuV/m	dBuV/m	dB
)							
184.316	41.49	2.49	212	-23.18	18.31	43.50	-25.19
333.759	37.97	2.49	105	-17.85	20.12	46.00	-25.88
366.914	36.30	0.99	59	-16.95	19.35	46.00	-26.65
399.942	345.72	0.99	139	-16.13	19.59	46.00	-26.41
431.081	37.87	0.98	236	-15.55	22.32	46.00	-23.68
466.127	35.75	0.99	324	-14.24	21.51	46.00	-24.49

Note:

1.Margin = Amplitude - limit, *if margin is minus means under limit.*

2.Corrected Amplitude = Reading Amplitude -

3.Correction factor = Antenna factor + (Cable Loss - Amplitude gain)

(For example : 30MHz correction factor = 15.5 + (-15.26) = 0.24 dB/m)

Radiated Emission Test Result :(Vertical)

Frequency	Reading	Ant.	Table	Correction	Corrected	Class B	Margin
	Amplitude	Height		Factors	Amplitude	limit	
MHz	dBuV	m	degree	dB/m	dBuV/m	dBuV/m	dB
)				
184.316	38.61	1.00	232	-23.18	15.43	43.50	-28.07
333.759	35.48	1.00	0	-17.85	17.63	46.00	-28.37
366.914	35.26	1.00	16	-16.95	18.31	46.00	-27.69
399.942	35.34	1.00	34	-16.13	19.21	46.00	-26.79
431.081	41.52	0.99	98	-15.55	25.97	46.00	-20.03
466.127	35.69	4.01	49	-14.24	21.45	46.00	-24.55

Final statement :

This test report, measurements made by TRC are traceable to the NIST.