



PEP Testing Laboratory

1.4 INFORMATION TO THE USER

The following FCC statement should be declared in a conspicuous location in the user's manual.

Federal Communications Commission (FCC) Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio / TV technician for help.

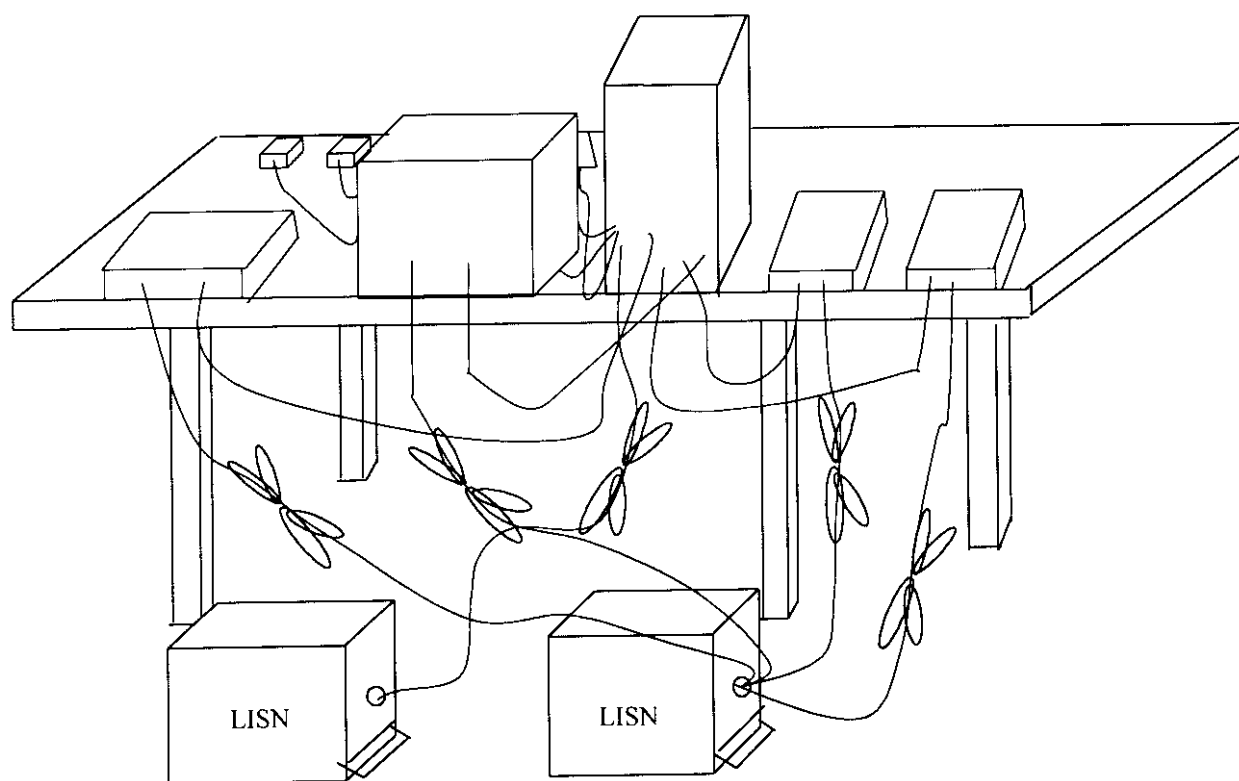
Warning : A shielded-type power cord is required in order to meet FCC emission limits and also to prevent interference to the nearby radio and television reception. It is essential that only the supplied power cord be used.

Use only shielded cables to connect I/O devices to this equipment.

You are cautioned that changes or modifications not expressly approved by the party responsible for compliance could void your authority to operate the equipment.

2. CONDUCTION EMISSIONS TEST

2.1 GENERAL SETUP OF THE TEST FACILITIES





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2.2 TEST PROCEDURES

The system was setup as described above, with the EMI diagnostic software.

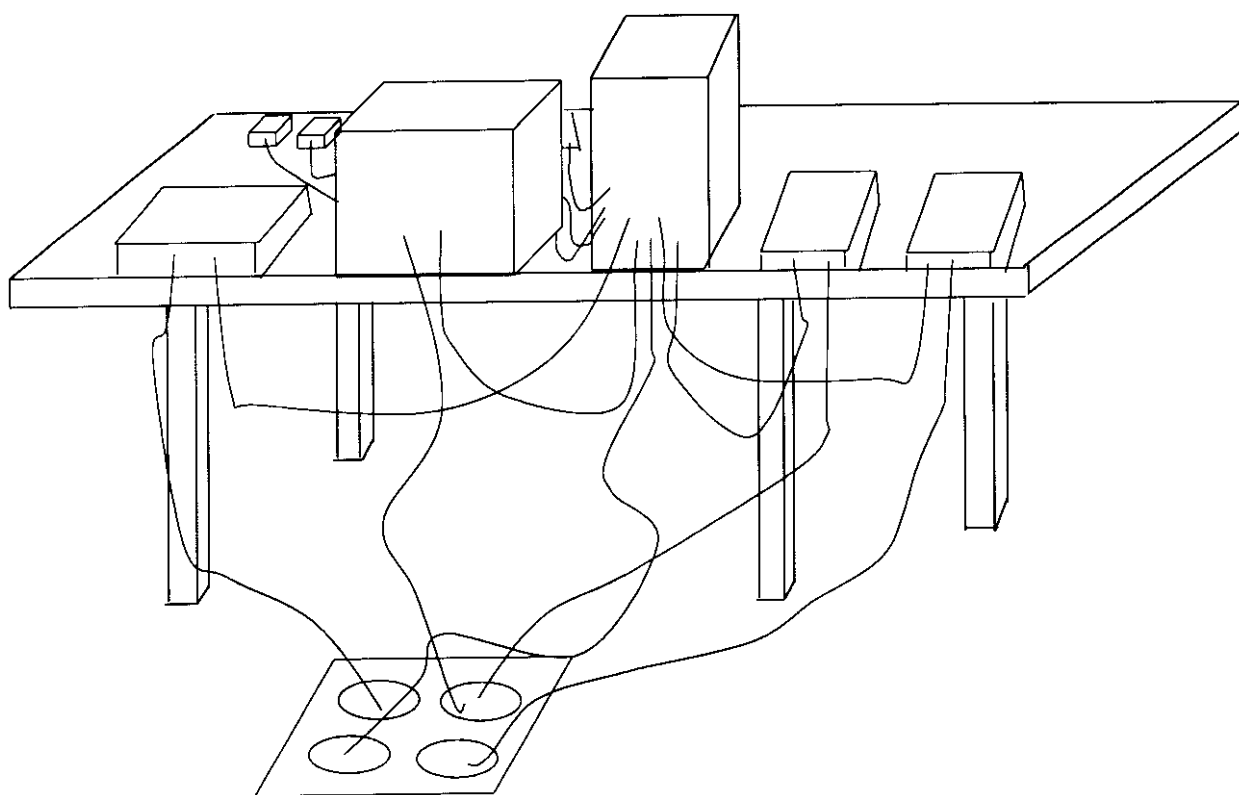
Both the line of power cord, hot and neutral, were run with the EMI tests software.

To get the maximum power line conducted emission, we changed the configuration by varying the monitor power cord fed from floor outlet and from the outlet on the power supply of this computer.

The highest emissions were recorded in the RFI test report.

3. RADIATED EMISSIONS TEST

3.1 GENERAL SETUP OF THE FACILITIES



3.2 TEST PROCEDURES

Radiated emissions test was carried out by **PEP Testing Laboratory** at the open field test site authorized by FCC .

The EUT and supporting equipments were setup with the EMI diagnostic software .

a. setting up the EUT under normally position , and scanning it from 30 MHz to 1000 MHz , then recording those narrow band noises which cannot be 6 dBuV below lower bound . Both horizontal and vertical antenna are measured from 1 meter height to 4.0 meter height , and turntable rotate 360 degrees .

b. fixing the EUT rear face to antenna and antenna 1.0 meter height .
We adjusted I/O cables to find the highest coupling noise and moved the height of antenna from 1 to 4 meters , then rotated the turntable simultaneously .

c. checking following step b. all points which were recorded in step a.

d. changing the peripherals position , and routine steps a. b. c.

The highest emissions were recorded in the RFI test report .



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4. DESCRIPTION FOR EUT TESTING CONFIGURATION

**** TEST PROCEDURE ----**

- (A) The EUT was two keys USB mouse with FCC ID : HQXPC97010-38 , for more detail information about the EUT , please refer user's manual .
- (B) The EUT was inserted into PC USB port and enabled it during the test . We moved the mouse's data cable on both side of the PC in order to find the worst case data recorded in this RFI report .
- (C) After the EUT was set up , we did the conducted emission test in the shielded room and the worst case placement finding as the ANSI C63.4 requirement ; similarly , the radiated emission test was done at the open field site .
- (D) If the peak value of the noise can't under Non-consumer equipment limit 3 dBuV more , we'll change Biconical antenna or Log-periodic antenna for Dipole antenna and record its Quasi-Peak value , making sure it can under 6 dBuV at least .
- (E) In the RFI test report , we provided the worst conducted emission testing data in page C-1.*
For the radiated emission test , the worst data recorded in the page R-1.*

**** I / O DATA CABLES INFORMATIONS ---**

Please refer the page 9 .

5. SUPPORTING DEVICES TO TEST

SUPPORT UNIT 1. - - - - PERSONAL COMPUTER

Manufacturer : ASUS Inc.
Model Number : P2L97
Power Supply Type : Switching
Power Cord : Shielded, Detachable, 1.2m
Data Cable : Shielded, Detachable, 1.2m
FCC ID : N/A

SUPPORT UNIT 2. - - - - MONITOR

Manufacturer : Acer Peripherals Inc.
Model Number : 7134T
Power Supply Type : Switching
Power Cord : Shielded, Detachable, 1.2m
Data Cable : Shielded, Undetachable, 1m
FCC ID : JVP7134T

SUPPORT UNIT 3. - - - - PRINTER

Manufacturer : Hewlett-Packard Singapore Pte Ltd.
Model Number : HP 2225C⁺
Power Supply Type : Linear
Power Cord : Non-Shielded, Detachable, 1.2m
Data Cable : Shielded, Detachable, 1m. 2464
FCC ID : DSI6XU2225



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SUPPORT UNIT 4. - - - - MODEM × 2

Manufacturer : ACEEX
Model Number : 1414
Power Supply Type : Linear
Power Cord : Non-Shielded, Detachable, 1.2m
Data Cable : Shielded, Detachable, 1m
FCC ID : IFAXDM1414

SUPPORT UNIT 5. - - - - KEYBOARD

Manufacturer : Acer Peripherals Inc.
Model Number : 6311-KW
Power Supply Type : N/A
Power Cord : N/A
Data Cable : Shielded, Undetachable, 1.2m
FCC ID : JVPKBS-WIN

SUPPORT UNIT 6. - - - - MOUSE (PS/2)

Manufacturer : ACER
Model Number : M-S34
Power Supply Type : N/A
Power Cord : N/A
Data Cable : Shielded, Undetachable, 1m
FCC ID : DZL211029

EQUIPMENT UNDER TEST ---- MOUSE

Manufacturer : SYSGRATION CO., LTD.
Model Number : PC97010-38
Data Cable : Shielded, Undetachable, 1.2m
FCC ID : HQXPC97010-38



6. TEST CONFIGURATION

Radiated emission detector function :

(1) 30MHZ~1GHZ : Quasi-Peak Value

Resolution BW : 120KHZ Video BW : 300KHZ

(2) above 1GHZ : Quasi-Peak value and Average Value

Resolution BW : 1MHZ Video BW : 1MHZ

*** either Q. P. or average value will be recorded
in the report**

Conducted emission detector function :

(1) 450KHZ~30MHZ : Quasi-Peak Value

Resolution BW : 9KHZ Video BW : 30KHZ

The else descriptions : data cable put on right side of the PC will get worse data
than left .

Conducted Emission Test Photo. : Page C-1

Test Data : Hot C-1.1

Neutral C-1.2

Radiated Emission Test Photo. : Page R-1

Test Data : Horizontal R-1.1

Vertical R-1.2

CONDUCTED EMISSIONS TEST DATA

Note : HOT LINE TEST

Freq. (MHz)	Level (dB)	Over Limit (dB)	Limit Line (dB)	Read Level (dB)	Probe Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)
0.450	26.68	-21.32	48.00	24.85	0.10	1.73	0.00
0.952	25.66	-22.34	48.00	23.81	0.10	1.75	0.00
2.932	22.86	-25.14	48.00	20.90	0.16	1.80	0.00
3.907	21.07	-26.93	48.00	19.07	0.20	1.80	0.00
16.023	23.51	-24.49	48.00	20.88	0.73	1.90	0.00
18.830	26.44	-21.56	48.00	23.68	0.78	1.98	0.00
20.071	24.26	-23.74	48.00	21.44	0.80	2.02	0.00
21.194	23.24	-24.76	48.00	20.37	0.82	2.05	0.00
24.504	19.84	-28.16	48.00	16.81	0.89	2.14	0.00
27.400	19.67	-28.33	48.00	16.20	1.27	2.21	0.00

Note :

1. Level = Read Level + Probe Factor + Cable Loss – Preamp Factor
2. Over Limit = Level – Limit Line

CONDUCTED EMISSIONS TEST DATA

Note : NEUTRAL LINE TEST

Freq. (MHz)	Level (dB)	Over Limit (dB)	Limit Line (dB)	Read Level (dB)	Probe Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)
0.450	25.48	-22.52	48.00	23.65	0.10	1.73	0.00
1.100	22.45	-25.55	48.00	20.60	0.10	1.75	0.00
12.034	18.84	-29.16	48.00	16.42	0.59	1.83	0.00
16.023	23.56	-24.44	48.00	20.93	0.73	1.90	0.00
18.830	23.87	-24.13	48.00	21.11	0.78	1.98	0.00
20.071	23.47	-24.53	48.00	20.65	0.80	2.02	0.00
21.342	24.22	-23.78	48.00	21.34	0.83	2.05	0.00
21.637	20.94	-27.06	48.00	18.04	0.84	2.06	0.00
24.208	20.85	-27.15	48.00	17.84	0.89	2.12	0.00
24.947	21.50	-26.50	48.00	18.45	0.90	2.15	0.00

Note :

1. Level = Read Level + Probe Factor + Cable Loss – Preamp Factor
2. Over Limit = Level – Limit Line

RADIATED EMISSIONS TEST DATA**Antenna polarization : HORIZONTAL ; Test distance : 3 m ;**

Freq. (MHz)	Level (dB)	Over Limit (dB)	Limit Line (dB)	Read Level (dB)	Probe Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)
42.580	20.06	-19.94	40.00	38.56	0.45	1.05	20.00
60.090	22.35	-17.65	40.00	41.89	-0.84	1.30	20.00
92.560	18.43	-25.07	43.50	37.74	-0.86	1.55	20.00
100.380	19.51	-23.99	43.50	37.68	0.13	1.70	20.00
108.030	22.13	-21.37	43.50	38.45	1.88	1.80	20.00
201.600	26.02	-17.48	43.50	38.79	4.52	2.71	20.00
287.200	24.41	-21.59	46.00	38.07	2.86	3.48	20.00
335.200	22.50	-23.50	46.00	35.58	3.21	3.72	20.00
471.200	27.05	-18.95	46.00	36.65	6.06	4.34	20.00
699.200	26.86	-19.14	46.00	29.89	11.67	5.30	20.00

Note :

1. Level = Read Level + Probe Factor + Cable Loss - Preamp Factor
2. Over Limit = Level - Limit Line

RADIATED EMISSIONS TEST DATA

Antenna polarization : VERTICAL ; Test distance : 3 m ;

Freq. (MHz)	Level (dB)	Over Limit (dB)	Limit Line (dB)	Read Level (dB)	Probe Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)
41.730	24.68	-15.32	40.00	43.18	0.44	1.07	20.00
66.890	19.58	-20.42	40.00	41.19	-2.98	1.37	20.00
94.090	21.70	-21.80	43.50	40.80	-0.69	1.58	20.00
107.690	22.88	-20.62	43.50	39.27	1.81	1.80	20.00
168.040	25.25	-18.25	43.50	39.75	3.10	2.40	20.00
203.200	21.40	-22.10	43.50	33.95	4.72	2.72	20.00
287.200	23.87	-22.13	46.00	34.59	5.80	3.48	20.00
467.200	25.86	-20.14	46.00	32.57	8.98	4.32	20.00
689.600	23.96	-22.04	46.00	27.08	11.61	5.27	20.00
865.600	28.07	-17.93	46.00	29.45	12.62	6.00	20.00

Note :

1. Level = Read Level + Probe Factor + Cable Loss – Preamp Factor
2. Over Limit = Level – Limit Line

List of Test Equipment

Instrument	Model No.	Cal. Due Date	S/N
R&S Receiver	ESVS30(30M~1GHZ)	Nov. 1, 1998	863342/012
R&S Receiver	ESBI (20~5GHZ)	Feb. 12, 1999	845658/003
Spectrum Analyzer	HP8591A(9K~1.8GHZ)	Jan. 31, 1999	3225A03039
Spectrum Analyzer	R3261A (9K~2.6GHZ)	Dec. 03 1998	91720076
EMCO L.I.S.N.	3825/2 (10K~30MHZ)	Oct. 31, 1998	9311-2150
L.I.S.N.	KNW-242(10K~30MHZ)	Jan. 31, 1999	8-837-7
R & S L.I.S.N.	ESH3-Z5(9K~30MHZ)	Feb. 12, 1999	844982/039
Anritsu Pre-Amp.	MH648A(100K~1.4GHZ)	Nov. 9, 1998	M40076
R & S Pre-Amp.	ESMI-Z7(20M~7GHZ)	Feb. 12, 1999	6/2278/011
Chase bi-Log Antenna	CBL6111B(30M~1GHZ)	Aug. 05, 1999	1968
COM-Power Horn Antenna	AH-118 (1G~18GHZ)		10056
EMCO Dipole Antenna	3121C (20M~1GHZ)	May. 22, 1999	9611-1230
EMCO Biconical Antenna	3110B (30M~300M)	Mar. 10, 1999	2932
EMCO Log-Periodic Antenna	3146A (300M~1GHZ)	Apr. 14, 1999	1384