

PEP Testing Laboratory

12-3Fl, No. 27-1, Lane 169, Kang-Ning St., Hsi-Chih,

Taipei Hsien, Taiwan, R. O. C.

TEL: 886-2-26922097 FAX: 886-2-26956236

REPORT NO. : E920771

RFI / EMI TEST REPORT

APPLICANT : TECHNICA HOUSE INCORPORATION

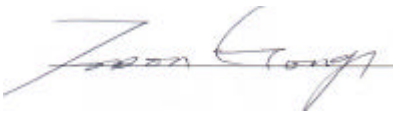
E. U. T. : Microflex II slim size PC, Microflex III Mini desk top PC

TRADE NAME : N/A

FCC ID : O2PMILLENNIUM-P4

REGULATION : CFR 47 , Part 15 Subpart B , Class B

TEST SITE : PEP Testing Laboratory

TEST ENGINEER : 

TEST DATE : JAN. 16, 2004

ISSUED DATE : FEB. 23, 2004

REPORT No. : E920771

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VERIFICATION

WE HEREBY VERIFY THAT:

The E. U. T. listed below has completed RFI testing by PEP Testing Laboratory and the interference emissions can pass **FCC Class B** limitations .

The tested configurations and the facility complies with the radiated and AC line conducted test site criteria in ANSI C63 .4 - 1992 .

Any data in this RFI report is “ **reference** “ only .

APPLICANT : TECHNICA HOUSE INCORPORATION
PRODUCT : Microflex II slim size PC, Microflex III Mini desk top PC
FCC ID : O2PMILLENNIUM-P4
MODEL : MFII-845GV/GE, MFIII-845GV/GE



M. Y. TSUI / Manager

PEP Testing Laboratory

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TABLE OF CONTENTS

<u>1. GENERAL</u>	4
1.1 General Information	
1.2 Place of Measurement	
1.3 Labeling Requirements	
1.4 Information to User	
<u>2. CONDUCTED EMISSIONS TEST</u>	7
2.1 Setup of the Test Facilities	
2.2 Test Procedures	
<u>3. RADIATED EMISSIONS TEST</u>	9
3.1 Setup of the Test Facilities	
3.2 Test Procedures	
<u>4. DESCRIPTION FOR EUT TESTING CONFIGURATION</u>	11
<u>5. SUPPORTING DEVICES TO TEST</u>	13
<u>6. TEST CONFIGURATION</u>	16
** Conducted Emission Test Photo and Data	
** Radiated Emission Test Photo and Data	
<u>7. APPENDIX</u>	
A. Photos of EUT Appearance	25
B. List of Test Equipment	27

1. GENERAL

1.1 GENERAL INFORMATION:

APPLICANT : TECHNICA HOUSE INCORPORATION

4F, NO. 9, LANE 235, PAO CHIAO RD., HSIN TIEN
CITY, TAIPEI HSIEN, TAIWAN, R. O. C.

MANUFACTURER : TECHNICA HOUSE INCORPORATION

4F, NO. 9, LANE 235, PAO CHIAO RD., HSIN TIEN
CITY, TAIPEI HSIEN, TAIWAN, R. O. C.

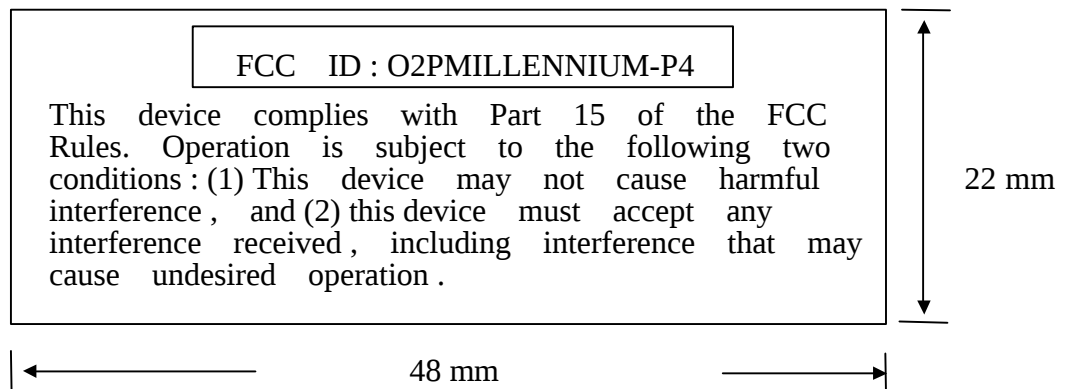
MEASUREMENT PROCEDURE : ANSI C63 , 4 - 1992

TESTED FOR COMPLIANCE WITH : Title 47 of CFR
Part 15 , Subpart B , Class B

1.2 PLACE OF MEASUREMENT
PEP Testing Laboratory

1.3 LABELING REQUIREMENT

A FCC ID label shall be permanently attached and conspicuously located on the equipment :



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.

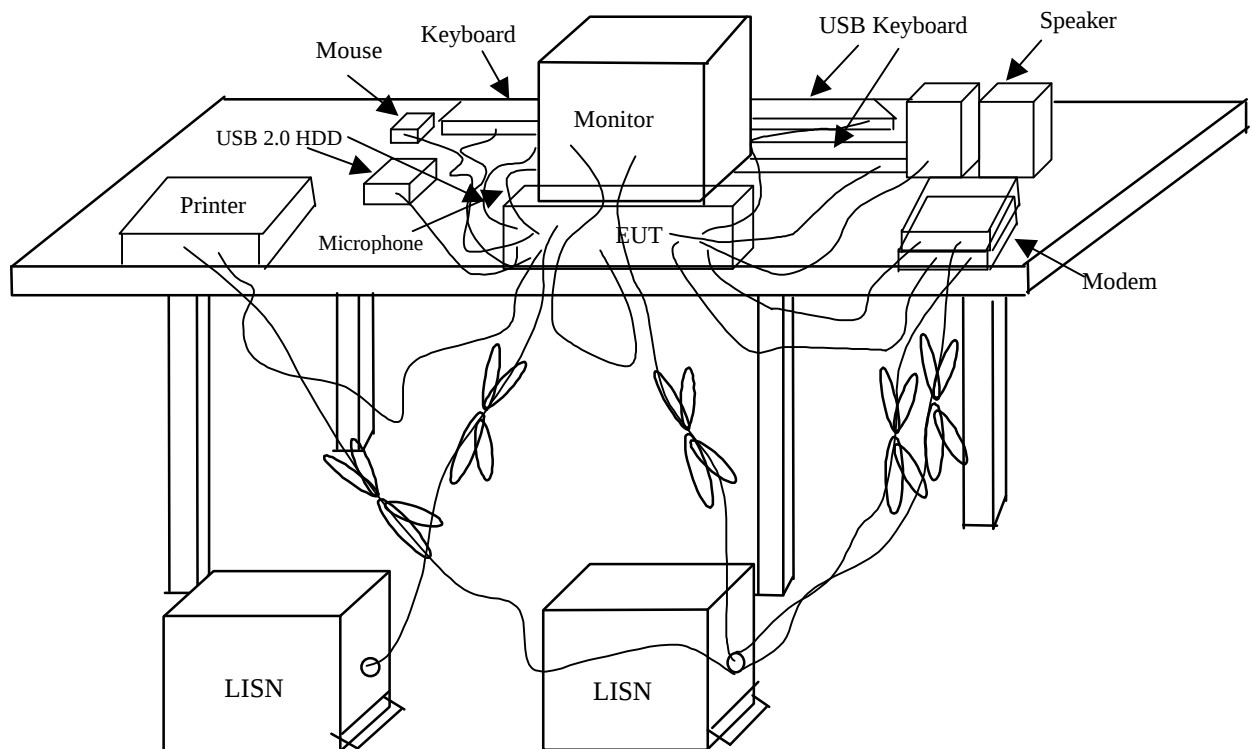
Warning : A shielded-type power cord is required in order to meet FCC emission limits and also to prevent interference to the nearby radio and television reception. It is essential that only the supplied power cord be used.

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. CONDUCTED EMISSION TEST

2.1 GENERAL SETUP OF THE TEST FACILITIES



2.2 TEST PROCEDURES

Conducted Emission Test Procedures

The EUT is placed in the center of a non-conducting table which size is 1m by 1.5m and 80cm (or may be enlarged , if necessary) above the ground plane , it's rear shall be flush with the rear of the table and a 10cm separation spaces between the other peripheral devices .

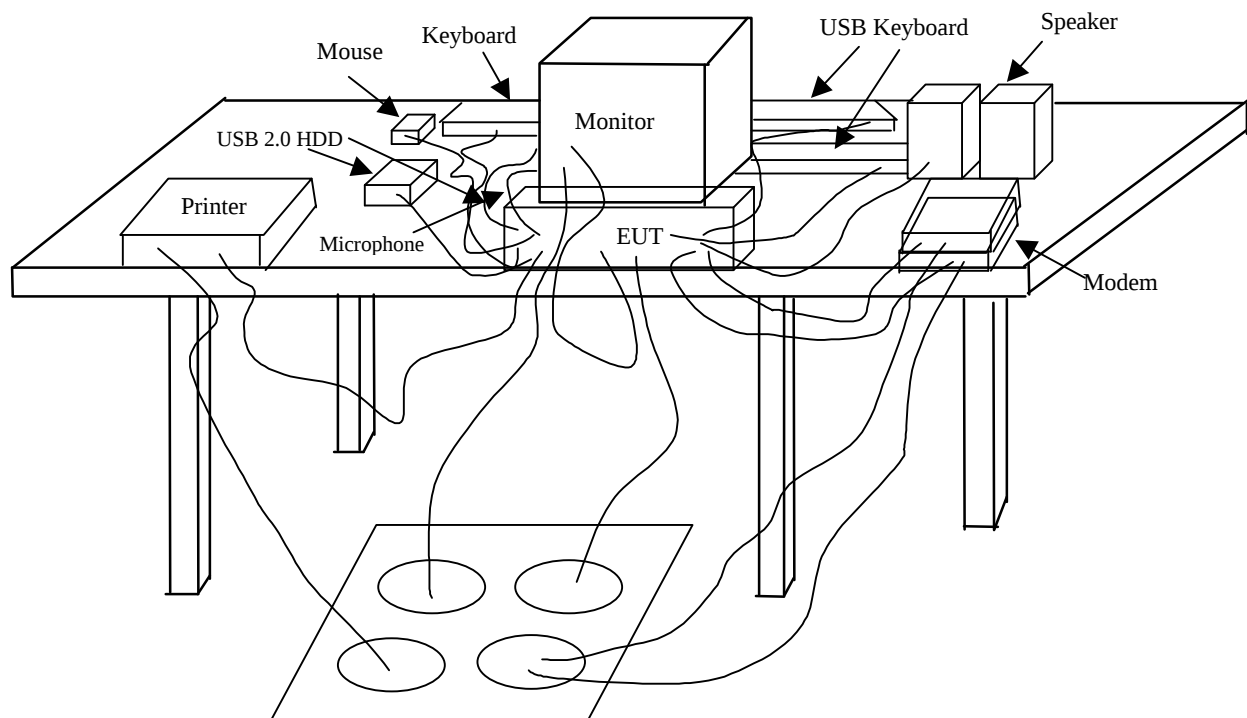
The preliminary tests as specified in ANSI C63.4 (section 7.2.3) should be carried out while varying cable positions in order to determine the maximum or near-maximum emission level .

For the Final tests , based on the preliminary tests of the EUT , the one EUT and cable configuration and mode of operation that produced the emission with the highest amplitude relative to the limit is selected . On all current-carrying conductors of the power cords that comprise the EUT is then performed without variation of the EUT configuration , cable positions , or EUT mode of operation .

The highest emissions data were recorded in this RFI test report .

3. RADIATED EMISSION TEST

3.1 GENERAL SETUP OF THE TEST FACILITIES



3.2 TEST PROCEDURES

Radiated Emission Test Procedures

The EUT is placed in the center of a non-conducting table which size is 1m by 1.5m and 80cm (or may be enlarged , if necessary) above the ground plane , it's rear shall be flush with the rear of the table and a 10cm separation spaces between the other peripheral devices .

The preliminary tests is performed in 3m standard anechoic chamber and as specified in ANSI C63.4 (section 8.3.1.1) should be carried out while varying cable positions in order to determine the maximum or near-maximum emission level . Method of maximization follow ANSI C63.4 Appendix D .

For the final test , the EUT is relocated from chamber to open field site ; then , based on the preliminary tests record , the highest emission shall be re-maximized before final radiated emissions measurements are performed . However , antenna height (1m to 4m) and polarity (Horizontal and Vertical) and EUT azimuth (0 degree to 360 degree) are to be varied .

The highest emissions data were recorded in this RFI test report .

4. DESCRIPTION FOR EUT TESTING CONFIGURATION

**** Operational description - - - -**

The equipment under test (EUT) are Microflex III Mini desk top PC model MFIII-845GV/GE and Microflex II slim size PC model MFII-845GV/GE, FCC ID No.: O2PMILLENNIUM-P4. These two samples have identical electrical design and construction except that they are different in exterior case. After verifying these two samples, we took the worst-case one, Microflex III Mini desk top PC model MFIII-845GV/GE, for test. The motherboard of EUT is all-in-one designed with 4x AGP VGA, Audio sound and built-in 10/100Mbps network chip. The I/O port of whole PC system contains 2 PS2 ports, 4 USB 2.0 ports, 2 serial ports, 1 parallel port, 1RJ-45 port, 1 VGA port, 2 Audio I/O jack and 6 RJ-11 ports. Power supply unit supply EUT from AC 120V. For more detail specifications about the EUT, please refer to the user's manual.

Test method: According to the major function designed, the EUT configuration was set up by the following steps for test:

- (a) Install keyboard and mouse to EUT PS2 ports.
- (b) Install microphone and speaker to EUT Audio I/O jacks.
- (c) Install two USB 2.0 external hard disk drives and two USB key boards to EUT USB ports.
- (d) Install two modems to EUT serial ports.
- (e) Install monitor to EUT VGA port.
- (f) Install printer to EUT parallel port.
- (g) Connect EUT six RJ-11 Ports to Terminal.
- (h) Interconnect EUT RJ-45 port and remote PC off table.

All operational functions of EUT with peripherals including signal transmission between EUT and remote PC, file transmission between EUT and USB 2.0 hard disk drives were set to proceed with test. After preliminary test on EUT with four display resolutions: 2048x1536, 1920x1440, 1600x1200 and 1024x768 in 9x6x6 chamber, we took EUT with the worst-case display resolution, 2048x1536, for radiated emission test in 10m open field site and conducted emission test. The worst-case test result was recorded and provided in this report.

- (A) After the EUT was set up, we did the conducted emission test in conducted emission test site, and the worst case placement finding as the ANSI C63.4 requirement; similarly, the radiated emission test was done at the open field site.
- (B) 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.
- (C) In the RFI test report, we provided the worst conducted emission testing data and radiated emission test data.

5. SUPPORTING DEVICES TO TEST

SUPPORT UNIT 1. ---- MONITOR * 2

Manufacturer : HITACHI

Model Number : CM 815U

Power Supply Type : Switching

Power Cord : Non-Shielded, Detachable, 1.8m

Data Cable : Shielded, Detachable, 1.2m

FCC ID : Declaration of Conformity(DoC)

SUPPORT UNIT 2. ---- PRINTER

Manufacturer : Hewlett-Packard Singapore Pte Ltd.

Model Number : C2642E

Power Supply Type : Linear, 30Vdc O/P

Power Cord : Non-Shielded, Detachable, 1.7m

Data Cable : Shielded, Detachable, 1m

FCC ID : Declaration of Conformity(DoC)

SUPPORT UNIT 3. ---- MODEM * 2

Manufacturer : ACEEX

Model Number : 1414

Power Supply Type : Linear, 9Vac, O/P

Power Cord : Non-Shielded, Detachable, 1.7m

Data Cable : Shielded, Detachable, 1m

FCC ID : IFAXDM1414

SUPPORT UNIT 4. - - - - KEYBOARD * 2

Manufacturer : BTC

Model Number : 5121W

Power Supply Type : +5Vdc from PS2 of PC

Power Cord : N/A

Data Cable : Shielded, Non-detachable, 1.6m

FCC ID : E5XKB5121WTH0110

SUPPORT UNIT 5. - - - - MOUSE * 2

Manufacturer : LOGITECH

Model Number : M-S43

Power Supply Type : +5Vdc from PS2 of PC

Power Cord : N/A

Data Cable : Shielded, Non-detachable, 1.8m

FCC ID : DZL211106

SUPPORT UNIT 6. - - - - SPEAKER

Manufacturer : SANYO

Model Number : SYSP-204

Power Supply Type : Linear

Power Cord : Non-Shielded, Detachable, 1.8m

Data Cable : Shielded, Detachable, 1.6m

FCC ID : Declaration of Conformity(DoC)

SUPPORT UNIT 7. ---- MICRO-PHONE

Manufacturer : KOKA

Model Number : DM-510

Power Supply Type : N/A

Power Cord : N/A

Data Cable : Non-Shielded, Non-detachable, 3m

FCC ID : Declaration of Conformity(DoC)

SUPPORT UNIT 8. ---- EXTERNAL HARD DISK * 2

Manufacturer : TeraSys

Model Number : F12-U

Power Supply Type : DC +12V/1.25A, Non-Shielded, 1.5m (Core)

Power Cord : N/A

Data Cable : Shielded, Detachable, 1.7m

FCC ID : Declaration of Conformity(DoC)

SUPPORT UNIT 9. ---- USB KEYBOARD * 2

Manufacturer : BTC

Model Number : 7932M

Power Supply Type : +5Vdc from USB of PC

Power Cord : N/A

Data Cable : Shielded, Non-detachable, 1.6m

FCC ID : Declaration of Conformity(DoC)

SUPPORT UNIT 10. ---- PERSONAL COMPUTER

Manufacturer : LEMEL

Model Number : LMIH1A2

Power Supply Type : Switching

Power Cord : Non-Shielded, Detachable, 1.8m

Data Cable : N/A

FCC ID : Declaration of Conformity(DoC)

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) 150KHZ~30MHZ : Quasi-Peak value and Average Value

Resolution BW : 9KHZ Video BW : 30KHZ

The else descriptions : N/A

Conducted Emission Test Photo : Page 17

Test Data : Hot 18, 19

Neutral 20, 21

Radiated Emission Test Photo. : Page 22

Test Data : Horizontal 23

Vertical 24

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CONDUCTED TEST CONFIGURATION PHOTO

< FRONT VIEW >



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CONDUCTED EMISSIONS TEST DATA

Note : HOT LINE TEST (Quasi-Peak Value)

Freq. (MHz)	Level (dBuV)	Over Limit (dB)	Limit Line (dBuV)	Read Level (dBuV)	LISN Insertion Loss (dB)	Cable Loss (dB)
0.186	46.90	-17.30	64.20	46.60	0.20	0.10
0.279	40.14	-20.71	60.85	39.80	0.20	0.14
0.379	42.10	-16.20	58.30	41.80	0.20	0.10
0.481	42.57	-13.75	56.32	42.20	0.20	0.17
0.558	39.54	-16.46	56.00	39.20	0.20	0.14
0.661	39.70	-16.30	56.00	39.40	0.20	0.10
1.010	40.40	-15.60	56.00	40.00	0.20	0.20
1.117	41.20	-14.80	56.00	40.80	0.20	0.20
7.893	51.97	- 8.03	60.00	51.40	0.27	0.30
10.620	42.43	-17.57	60.00	41.80	0.33	0.30
24.790	31.19	-28.81	60.00	30.00	0.79	0.40

Note :

1. Level = Read Level + LISN Insertion Loss+ Cable Loss
2. Over Limit = Level – Limit Line

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CONDUCTED EMISSIONS TEST DATA

Note : HOT LINE TEST (Average Value)

Freq. (MHz)	Level (dBuV)	Over Limit (dB)	Limit Line (dBuV)	Read Level (dBuV)	Probe Insertion Loss (dB)	Cable Loss (dB)
7.882	34.77	-15.23	50.00	34.20	0.27	0.30

Note :

1. Level = Read Level + LISN Insertion Loss+ Cable Loss
2. Over Limit = Level – Limit Line

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CONDUCTED EMISSIONS TEST DATA

Note : NEUTRAL LINE TEST (Quasi-Peak Value)

Freq. (MHz)	Level (dBuV)	Over Limit (dB)	Limit Line (dBuV)	Read Level (dBuV)	LISN Insertion Loss (dB)	Cable Loss (dB)
0.187	44.30	-19.85	64.15	44.00	0.20	0.10
0.279	40.74	-20.11	60.85	40.40	0.20	0.14
0.381	41.70	-16.55	58.25	41.40	0.20	0.10
0.481	41.37	-14.95	56.32	41.00	0.20	0.17
0.661	39.50	-16.50	56.00	39.20	0.20	0.10
0.918	39.40	-16.60	56.00	39.00	0.20	0.20
1.527	36.80	-19.20	56.00	36.40	0.20	0.20
2.033	35.20	-20.80	56.00	34.80	0.20	0.20
7.852	52.77	- 7.23	60.00	52.20	0.27	0.30
24.142	32.37	-27.63	60.00	31.21	0.76	0.40

Note :

1. Level = Read Level + LISN Insertion Loss+ Cable Loss
2. Over Limit = Level – Limit Line

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CONDUCTED EMISSIONS TEST DATA

Note : NEUTRAL LINE TEST (Average Value)

Freq. (MHz)	Level (dBuV)	Over Limit (dB)	Limit Line (dBuV)	Read Level (dBuV)	LISN Insertion Loss (dB)	Cable Loss (dB)
7.852	37.17	-12.83	50.00	36.60	0.27	0.30

Note :

1. Level = Read Level + LISN Insertion Loss+ Cable Loss
2. Over Limit = Level – Limit Line

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RADIATED TEST CONFIGURATION PHOTOS

< FRONT VIEW >



< REAR VIEW >



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RADIATED EMISSIONS TEST DATA

Antenna polarization : HORIZONTAL ; Test distance : 3 m ;

Freq. (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Probe Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)
66.588	39.00	-1.00	40.00	46.84	11.88	0.40	20.12
79.947	36.12	-3.88	40.00	46.10	9.92	0.30	20.20
166.490	36.72	-6.78	43.50	42.60	13.64	0.70	20.22
186.500	42.39	-1.11	43.50	49.96	11.86	0.77	20.20
231.944	42.78	-3.25	46.00	50.34	11.81	0.83	20.23
479.558	43.50	-2.50	46.00	43.75	18.00	1.46	19.71
832.760	41.18	-4.82	46.00	35.90	22.10	2.51	19.33

Note :

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

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RADIATED EMISSIONS TEST DATA

Antenna polarization : VERTICAL ; Test distance : 3 m ;

Freq. (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Probe Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)
32.005	37.70	-2.30	40.00	44.40	13.30	0.10	20.10
65.972	38.60	-1.40	40.00	46.44	11.88	0.40	20.12
86.027	36.27	-3.73	40.00	46.51	9.65	0.41	20.30
186.503	42.79	-0.71	43.50	50.36	11.86	0.77	20.20
233.144	39.99	-6.01	46.00	47.57	11.79	0.83	20.20
599.630	39.15	-6.85	46.00	36.24	20.51	1.90	19.50
732.754	41.58	-4.42	46.00	36.95	22.02	2.17	19.56

Note :

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

APPENDIX A.
PHOTOS OF EUT APPEARANCE
< EUT FRONT VIEW >



< EUT REAR VIEW >



FCC ID : O2PMILLENNIUM-P4
This device complies with Part 15 of the
FCC Rules. Operation is subject to the
following two conditions : (1) This device
may not cause harmful interference , and
(2) this device must accept any interference
received , including interference that may
cause undesired operation .

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< EUT FRONT VIEW >



< EUT REAR VIEW >

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APPENDIX B.
List of Test Equipment

Test Mode	Instrument	Model No.	Serial No.	Next Cal. Date	Cal. Interval
Conduction (No.1)	R & S Receiver	ESHS10	830223/008	May 22, 2004	1Year
	Rolf Heine LISN	NNB-4/63TL	98008	May 01, 2004	1Year
	R & S LISN	ESH3-Z5	844982/039	Aug. 07, 2004	1Year
	Spectrum Analyzer	R3261A	91720076	June 09, 2004	1Year
	RF Cable	Rg400	N/A	May 12, 2004	1Year
	Schaffner ISN	T411	N/A	June 30, 2004	1Year
Radiation (OP No. 1)	R & S Receiver	ESVS30	863342/012	May 22, 2004	1Year
	Schaffner Pre-amplifier	CPA9232	1028	May 20, 2004	1Year
	COM-Power Horn Ant.	AH-118 (1GHz~18GHz)	10095	May 21, 2005	2Year
	Schwarzbeck Precision Dipole Ant	VHAP (30MHz~1GHz)	970 + 971 953 + 954	June 26, 2006	3Year
	R & S Signal Generator	SMY01	841104/037	Apr. 29, 2004	2Year
	RF Cable	No. 1	N/A	May 11, 2004	1Year
	EMCO Antenna	3142B (26MHz~2GHz)	9904-1370	Aug. 24, 2004	1Year