EN55022 / CISPR 22 / AS/NZS 3548
Class B

EMI TEST REPORT

of

System Computer

Model/ Type/ Machine Type

G500; G600

Applied by:

Acer Inc.
7 Hsin Ann Rd., Science-Based Industrial Park
Hsinchu 30077
Taiwan, R. O. C.

Test Performed by:

International Standards Laboratory
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Report Number: ISL-01A071C Version: 0 **Test Date: 2001/08/31**
NVLAP Lab. Code: 200234-0; VCCI: R-341, C-354; NEMKO Aut. No: ELA 113; BSMI Lab. Code: SL2-IN-E-0013

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1. General

1.1 Certification of Accuracy of Test Data

The electromagnetic interference tests which this report describes were conducted by an independent electromagnetic compatibility consultant, International Standards Laboratory in accordance with the EN55022:1994 /A1:1995 /A2: 1997; CISPR 22:1993/A1:1995/A2:1996; AS/NZS 3548:1995 /A1:1997 /A2:1997 test Procedure.

This test report accurately represents the test results generated by sample equipment under test at the time of the test.

Equipment Tested:	System Computer	
	Model/ Type/ Machine Type: G500; G600	
	Applied by Acer Inc.	
Date of test:	2001/08/31	
Temperature	27ºC(Conduction Test);	31ºC (Radiation Test)
Humidity:	51% (Conduction Test);	85% (Radiation Test)
Test Engineer:	Chance Chan	

The results show that the sample equipment tested as described in this report is in compliance with the Class B conducted and radiated emission limits of EN55022:1994 /A1:1995 /A2: 1997; CISPR 22:1993/A1:1995/A2:1996; AS/NZS 3548:1995 /A1:1997 /A2:1997 regulations.

Approve & Signature

L. Y. Soong/Director

Note: This test report shall not be reproduced except in full, without the written approval of International Standards Laboratory

1.2 Summary

1.2.1 Description of Equipment Under Test (EUT)

Description: System Computer

Model/ Type/ Machine Type: G500; G600

Applicant: Acer Inc.
7 Hsin Ann Rd., Science-Based Industrial Park
Hsinchu 30077
Taiwan, R. O. C.

A more detailed, technical description of the EUT is contained in Appendix G

1.2.2 Description of EUT and Support Equipment Included in Tests

The EUT is a System Computer (Model/ Type/ Machine Type: G500; G600), which was tested with the following support units:

1. Acer Digital Camera	Model: DVC-VII
2. Acer USB Mouse	Model: MUSXT
3. Koka Headphone	Model: ST-8
4. HP Printer	Model: 2225C
5. Logitech Mouse	Model: M-S34
6. Aceex Modem	Model: DM1414
7. Aceex Modem	Model: DM1414
8. Acer Monitor	Model: 7377xe
9. Acer Keyboard	Model: 6511-TW4C
10.IBM Personal Computer	Model: IBM2170

A more detailed technical description of the support equipment is contained in Appendix F.

1.2.3 Test Procedure and Specification

The tests were performed in accordance with EN55022:1994 /A1:1995 /A2: 1997; CISPR 22:1993/A1:1995/A2:1996; AS/NZS 3548:1995 /A1:1997 /A2:1997 regulations as detailed in the Appendix A & B and the individual test sections. The test instrument used is detailed in Appendix A. The specification used was the Class B limits of EN55022:1994 /A1:1995 /A2: 1997; CISPR 22:1993/A1:1995/A2:1996; AS/NZS 3548:1995 /A1:1997 /A2:1997 regulations.

1.2.4 Tests Performed

1. Power main port conducted emissions in shielded room.
   See Part 2 of this report for details.
2. Telecommunication port conducted emissions in shielded room
   See Part 3 of this report for details.
3. Radiated emissions in 10-meter open area.
   See Part 4 of this report for details.

2. Power Main Port Conducted Emissions

2.1 Configuration and Procedure

2.1.1 EUT Configuration

The equipment under test was set up in the shielded room with the EUT 40cm away from the wall of the room. The EUT was placed on a non-conductive test table which is 80cm in height. Excess power cord was folded back and forth to form a 30cm by 40cm bundle. The distance between EUT and LISN is 80cm.

Any changes made to the configuration, or modifications made to the EUT, during testing are noted in the following test record.

2.1.2 Test Procedure

The system was set up as described above, with the EMI diagnostic software running. The main power line conducted EMI tests were run on the hot and neutral conductors of the power cord and the results were recorded. The effect of varying the position of the interface cables has been investigated to find the configuration that produces maximum emission.

At the frequencies where the peak values of the emissions were higher than 6dß below the applicable limits, the emissions were also measured with the quasi-peak detectors. At the frequencies where the quasi-peak values of the emissions were higher than 6dß below the applicable average limits, the emissions were also measured with the average detectors.

The highest emissions were analyzed in details by operating the spectrum analyzer in fixed tuned mode to determine the nature of the emissions and to provide information which could be useful in reducing their amplitude.

2.1.3 EMI Receiver/Spectrum Analyzer Configuration (for the frequencies tested)

Frequency Range:	150KHz--30MHz
Detector Function:	Quasi-Peak / Average Mode
Resolution Bandwidth (RBW):	9KHz

2.2 Test Data: CPU: Pentium III 1.26GHz (Socket 370), SPS: Delta (Model: DPS-300AB-1A; RPS-600-A), H DD: IBM (Model: DDYS-T36950) 36.7GB, CD-ROM Drive: AOpen (Model: CD952E/AKH) 52X

Table 2.2.1 Power Line Conducted Emissions (Hot)

	LISN	Quasi-Peak			Average		
Frequency (KHz/MHz)	Insertion Loss (dB)	Amplitude (dBuV)	Limit (dBuV)	Margin (dB)	Amplitude (dBuV)	Limit (dBuV)	Margin (dB)
226.08KHz	0.20	51.19	63.83	−12.44	44.15	53.83	−9.48
301.66KHz	0.22	39.10	61.67	−22.35	31.64	51.67	−19.82
384.08KHz	0.24	41.42	59.31	−17.66	39.51	49.31	−9.57
447.6KHz	0.25	36.59	57.50	−20.66	33.17	47.50	−14.08
511.28KHz	0.26	35.97	56.00	−19.77	33.99	46.00	−11.74
3.9686MHz	0.69	29.12	56.00	−26.19	23.56	46.00	−21.75
4.0687MHz	0.69	29.36	56.00	−25.95	23.74	46.00	−21.57
21.664MHz	1.72	31.29	60.00	−26.99	27.06	50.00	−21.22
23.815MHz	1.80	29.38	60.00	−28.82	28.74	50.00	−19.46
24.585MHz	1.83	31.04	60.00	−27.13	30.18	50.00	−17.98

* NOTE: Margin = Amplitude + Insertion Loss- Limit
A margin of -8dB means that the emission is 8dB below the limit

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Table 2.2.1 Power Line Conducted Emissions (Neutral)

	LISN	Quasi-Peak			Average		
Frequency (KHz/MHz)	Insertion Loss (dB)	Amplitude (dBuV)	Limit (dBuV)	Margin (dB)	Amplitude (dBuV)	Limit (dBuV)	Margin (dB)
226.13KHz	0.21	51.46	63.82	−12.16	44.23	53.82	−9.39
383.93KHz	0.33	40.51	59.32	−18.48	35.90	49.32	−13.08
639.53KHz	0.35	30.88	56.00	−24.77	29.58	46.00	−16.07
642.18KHz	0.35	30.49	56.00	−25.16	29.02	46.00	−16.63
3.8636MHz	0.67	27.52	56.00	−27.81	22.90	46.00	−22.42
3.9681MHz	0.69	29.24	56.00	−26.07	23.67	46.00	−21.64
20.23MHz	1.37	19.83	60.00	−38.80	15.75	50.00	−32.88
21.663MHz	1.42	31.64	60.00	−26.94	25.23	50.00	−23.35
24.596MHz	1.53	31.25	60.00	−27.22	26.43	50.00	−22.04

* NOTE: Margin = Amplitude + Insertion Loss- Limit
A margin of -8dB means that the emission is 8dB below the limit

Tested by:

Chance Chan 9/6/01

Chance Chan

3. Open Field Radiated Emissions

3.1 Configuration and Procedure

3.1.1 EUT Configuration

The radiated emissions test setups are in accordance with EN55022:1994 /A1:1995 /A2: 1997; CISPR 22:1993/A1:1995/A2:1996; AS/NZS 3548:1995 /A1:1997 /A2:1997.

The equipment under test was set up on the 10 meter open field test non-conductive table 80cm above ground, same as conducted Excess data cable was folded back and forth to form a 30cm by 40cm bundle.

Any changes made to the configuration, or modifications made to the EUT, during testing are noted in the following test record.

If the EUT is a Personal Computer or a peripheral of personal computer, and the personal computer has an auxiliary AC outlet which can be used for providing power to an external monitor, then all measurements will be made with the monitor power from first the computer-mounted AC outlet and then a floor-mounted AC outlet.

3.1.2 Test Procedure

The system was set up as described above, with the EMI diagnostic software running. The maximum readings were found by vary the height of antenna and then rotating the turntable. Both polarization of antenna, horizontal and vertical, are measured. The effect of varying the position of the interface cables has been investigated to find the configuration that produces maximum emission.

The highest emissions were also analyzed in details by operating the spectrum analyzer in fixed tuned quasi-peak mode to determine the precise amplitude of the emissions. While doing so, the antenna height was varied between one and four meters, and the turntable was slowly rotated, to maximize the emission.

3.1.3 Spectrum Analyzer Configuration (for the frequencies tested)

Frequency Range:	30MHz--1000MHz
Detector Function:	Quasi-Peak Mode
Resolution Bandwidth (RBW):	120KHz
Frequency Range:	Above 1000MHz
Detector Function:	Peak Mode
Resolution Bandwidth (RBW):	1MHz

3.2 Test Data:.CPU: Pentium III 1.26GHz (Socket 370), SPS: Delta (Model: DPS-300AB-1A; RPS-600-A), H DD: IBM (Model: DDYS-T36950) 36.7GB, CD-ROM Drive: AOpen (Model: CD952E/AKH) 52X

Table 3.2.1 Open Field Radiated Emissions (Horizontal)

Meter Reading		Correction Factor			Corrected Emissions			Antenna	Turntable
Freq. (MHz)	Ampl. (dBuV)	Ant. (dB/m)	Cable (dB)	Pre-Ampl. (dB)	Ampl. (dBuV/m)	Limit (dBuV/m)	Margin* (dB)	Height (cm)	Position (?)
104.83	14.21	10.88	1.37	0.00	26.46	30.00	−3.54	179.00	117.00
191.65	15.92	8.22	2.08	0.00	26.22	30.00	−3.78	192.00	164.00
435.67	14.48	15.94	3.73	0.00	34.15	37.00	−2.85	124.00	95.00
826.76	7.32	20.46	6.49	0.00	34.27	37.00	−2.73	213.00	224.00
899.87	5.45	20.80	6.88	0.00	33.13	37.00	−3.87	289.00	310.00
944.04	4.98	20.98	7.06	0.00	33.02	37.00	−3.98	130.00	157.00
981.14	5.17	21.25	7.36	0.00	33.78	37.00	−3.22	332.00	41.00

* NOTE: Margin = Corrected Amplitude – Limit
Corrected Amplitude = Radiated Amplitude + Antenna Correction Factor + Cable Loss – Pre-Amplifier Gain
A margin of -8dB means that the emission is 8dB below the limit
BILOG Antenna Distance: 10 meter, Frequency: under 1000MHz
Horn Antenna Distance: 3 meter, Frequency: 1000MHz—18GHz

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Table 3.2.2 Open Field Radiated Emissions (Vertical)

Meter Reading		Correction Factor			Corrected Emissions			Antenna	Turntable
Freq. (MHz)	Ampl. (dBuV)	Ant. (dB/m)	Cable (dB)	Pre-Ampl. (dB)	Ampl. (dBuV/m)	Limit (dBuV/m)	Margin* (dB)	Height (cm)	Position (?)
99.14	15.25	10.26	1.32	−0.00	26.83	30.00	−3.17	181.00	124.00
104.79	14.98	10.88	1.37	0.00	27.23	30.00	−2.77	99.00	4.00
109.95	14.18	11.39	1.42	0.00	26.99	30.00	−3.01	331.00	190.00
192.02	14.89	8.22	2.08	0.00	25.19	30.00	−4.81	324.00	125.00
297.76	17.14	12.56	2.80	0.00	32.50	37.00	−4.50	264.00	243.00
436.78	14.31	15.95	3.74	0.00	34.00	37.00	−3.00	178.50	294.60
883.77	6.28	20.74	6.80	0.00	33.82	37.00	−3.18	133.00	190.00
897.87	5.89	20.79	6.87	0.00	33.55	37.00	−3.45	292.00	260.00
899.74	6.01	20.80	6.88	0.00	33.69	37.00	−3.31	130.00	308.00
937.74	5.13	20.95	7.04	0.00	33.12	37.00	−3.88	400.00	214.00

* NOTE: Margin = Corrected Amplitude – Limit
Corrected Amplitude = Radiated Amplitude + Antenna Correction Factor + Cable Loss - Pre-Amplifier Gain
A margin of -8dB means that the emission is 8dB below the limit
BILOG Antenna Distance: 10 meter, Frequency: under 1000MHz
Horn Antenna Distance: 3 meter, Frequency: 1000MHz—18GHz

Tested by:

Chance Chan 9/6/01

Chance Chan

4. Appendix

4.1 Appendix A: Measurement Procedure for Main Power Port Conducted Emissions

The EUT is set up in accordance with the suggested configuration given in EN55022:1994 /A1:1995 /A2: 1997; CISPR 22:1993/A1:1995/A2:1996; AS/NZS 3548:1995 /A1:1997 /A2:1997. The measurements are performed in a 7.6 x 5.7 x 5 (m) shielded room. The EUT was placed on a non-conduction table, which is 0.8 meters above an earth-grounded floor, 0.4 meters in the back away from the metal wall and 0.8 meter at least in the front, left and right away from the metal wall.

Power to the EUT was provided through the LISN which has the Impedance (50 Ohm/50uH) vs. Frequency Characteristic as defined in Sub-clause 8.3.3, Section Two, of CISPR 16. Power to the LISN was filtered to eliminate ambient signal interference and this filter was bonded to ground. Peripheral equipment required to provide a functional system (support equipment) for EUT testing was powered through a ganged, metal power outlet box which is bonded to the ground. AC input power for the auxiliary power outlets was obtained from the same filtered source that provides input power to the LISN.

If the EUT is supplied with a flexible power cord, if the power cord length in excess of 1 m, the excess cable shall be bundled at approximate center of the power cord with the bundles 30 cm to 40 cm in length. If the EUT is provided with a permanently coiled power cord, bundling of the cord is not required. If the EUT is supplied without a power cord, the EUT shall be connected to the LISN by a power cord of the type specified by the manufacturer which shall be 1 meter in length. If a non-flexible power cord is provided with the EUT, it shall be cut to the length necessary to attach the EUT to the LISN and shall not be bundled.

The EUT, any support equipment, and any interconnecting cables were arranged and moved to get the maximum according to EN55022:1994 /A1:1995 /A2: 1997; CISPR 22:1993/A1:1995/A2:1996; AS/NZS 3548:1995 /A1:1997 /A2:1997. Both the line of power cord, hot and neutral, were measured.

The highest emissions were analyzed in details by operating the spectrum analyzer in fixed tuned mode to determine the nature of the emissions and to provide information which could be useful in reducing their amplitude.

4.2 Appendix B: Measurement Procedure for Communication Port Conducted Emissions

The EUT is set up in accordance with the suggested configuration given in EN55022:1994 /A1:1995 /A2: 1997; CISPR 22:1993/A1:1995/A2:1996; AS/NZS 3548:1995 /A1:1997 /A2:1997. The measurements are performed in a 7.6 x 5.7 x 5 (m) shielded room. The EUT was placed on a non-conduction table, which is 0.4 meters away from the reference ground wall and 0.8 meters above the reference ground floor. CDN is placed and connected to the reference ground floor.

The EUT, any support equipment, and any interconnecting cables were arranged and moved to get the maximum according to EN55022:1994 /A1:1995 /A2: 1997; CISPR 22:1993/A1:1995/A2:1996; AS/NZS 3548:1995 /A1:1997 /A2:1997.

Power to the EUT was provided through the LISN which has the Impedance (50 Ohm/50uH) vs. Frequency Characteristic as defined in Sub-clause 8.3.3, Section Two, of CISPR 16. Power to the LISN was filtered to eliminate ambient signal interference and this filter was bonded to ground. Peripheral equipment to provide a functional system (support equipment) for EUT testing was powered through a ganged, metal power outlet box bonded to the ground. AC input power for the auxiliary power outlets was obtained from the same filtered source that provides input power to the LISN.

If the EUT is supplied with a flexible power cord, if the power cord length in excess of 1 m, the excess cable shall be bundled at approximate center of the power cord with the bundles 30 cm to 40 cm in length. If the EUT is provided with a permanently coiled power cord, bundling of the cord is not required. If the EUT is supplied without a power cord, the EUT shall be connected to the LISN by a power cord of the type specified by the manufacturer which shall be 1 meter in length. If a non-flexible power cord is provided with the EUT, it shall be cut to the length necessary to attach the EUT to the LISN and shall not be bundled.

The highest emissions were analyzed in details by operating the spectrum analyzer in fixed tuned mode to determine the nature of the emissions and to provide information could be useful in reducing their amplitude.

4.3 Appendix C: Test Procedure for Radiated Emissions

Preliminary Measurements in the Anechoic Chamber

The radiated emissions are initially measured in the anechoic chamber at a measurement distance of 3 meters. Desktop EUT is placed on a wooden stand 0.8 meter in height. The measurement antenna is 3 meters from the EUT. The test setup in anechoic chamber is the same as open site. The turntable rotated 360?C. The antenna height is varied from 1-2.5m. The primary objective of the radiated measurements in the anechoic chamber is to identify the frequency spectrum in the absence of the electromagnetic environment existing on the open test site. The frequencies can then be pre-selected on the open test site to obtain the corresponding amplitude. The initial scan is made with the spectrum analyzer in automatic sweep mode. The spectrum peaks are then measured manually to determine the exact frequencies.

Measurements on the Open Site

The radiated emissions test will then be repeated on the open site to measure the amplitudes accurately and without the multiple reflections existing in the shielded room. The EUT and support equipment are set up on the turntable of 10 meter open field sites for frequency between 30Mhz~1Ghz and 3 meter open field sites for frequency above 1Ghz. Desktop EUT is set up on a wooden stand 0.8 meter above the ground.

For the initial measurements, the receiving antenna is varied from 1-4 meter height and is changed in the vertical plane from vertical to horizontal polarization at each frequency. Both reading are recorded with the quasi-peak detector with 120KHz bandwidth for frequency between 30Mhz and 1Ghz. The readings are recorded with peak detector and with the 1 MHz bandwidth for frequency above 1Ghz.

At the highest amplitudes observed, the EUT is rotated in the horizontal plane while changing the antenna polarization in the vertical plane to maximize the reading. The interconnecting cables were arranged and moved to get the maximum according to ANSI C63.4-1992, and/or EN55022:1994 /A1:1995 /A2: 1997; CISPR 22:1993/A1:1995/A2:1996; AS/NZS 3548:1995 /A1:1997 /A2:1997. Once the maximum reading is obtained, the antenna elevation and polarization will be varied between specified limits to maximize the readings.

During the open site measurements, the peaks are selected, the scan frequency span width is reduced, the audible modulation is monitored with a loudspeaker and the quasi-peak reading or peak is recorded at the indicated frequency and at the specified bandwidth.

4.4 Appendix D: Test Equipment

4.4.1 Test Equipment List

Use For	Equipment	Brand	Model	Start Service Date	Last Cal. Date	Next Cal. Date
R	EMI Receiver	R&S	ESMI; rev. 02.80 S/N: 849182/003	Nov. 09, 1999	May. 24, 2001	May. 24, 2002
R	BILOG Antenna	Chase	CBL6112B S/N: 2487	Nov. 23, 1998	Nov. 03, 2000	Nov. 02, 2001
R	Horn Antenna	EMCO	3115 S/N: 9504-4462	Nov. 06, 1999	Dec. 02, 2000	Dec.01, 2001
R	Pre Amplifier	R&S	ESMI-Z7	Nov. 09, 1999	May. 08, 2001	May. 08, 2002
R	Coaxial Cables	RICHTEC	TWB4001 S/N: 3F-10M	Aug. 31, 1995	Jul. 24, 2001	Jul. 24, 2002
R	Coaxial Cables	RICHTEC	9913 S/N: 3F-3M	Dec. 20, 1998	Jan. 18, 2001	Jan. 18, 2002
R	Thermo-Hygro Meter	CRECER	HD-30 S/N: ISL-C-001	Nov. 26, 1999	Nov. 28, 2000	Nov. 27, 2001
C	EMI Receiver	HP	8546A; S/N: 3520A00236	Sep. 08, 1997	Dec. 13, 2000	Dec. 13, 2001
C	LISN 1	R & S	ESH2-Z5 S/N: 890485/013	Dec. 15, 1988	May. 07, 2001	May. 07, 2002
C	LISN 2	EMCO	3825/2 S/N: 1407	Oct. 20, 1990	May. 07, 2001	May. 07, 2002
C	Terminator	RICHTEC	S/N: ISL-T-001	Oct. 19, 1999	May. 07, 2001	May. 07, 2002
C	Terminator	RICHTEC	S/N: ISL-T-002	Oct. 19, 1999	May. 07, 2001	May. 07, 2002
C	Terminator	RICHTEC	S/N: ISL-T-003	Mar. 13, 2001	May. 07, 2001	May. 07, 2002
C	ISN	Schaffner	ISN T400	Mar. 13, 2001	Sep. 11, 2000	Sep. 11, 2001
C	Coaxial Cables	RICHTEC	RG400 S/N: 1F-C1	Aug. 31, 1995	Jun. 01, 2001	Jun. 01, 2002
C	Coaxial Cables	RICHTEC	RG400 S/N: 1F-C2	Aug. 31, 1995	Jun. 01, 2001	Jun. 01, 2002
C	Digital Thermo-Hygro Meter	MICROLIFE	S/N: ISL-C-002	Nov. 26, 1999	Nov. 28, 2000	Nov. 27, 2001

Note:

Calibration traceable to NIST or national or international standards.

The *Use For* column with *C* means the equipment is used for the measurement of conducted emission.

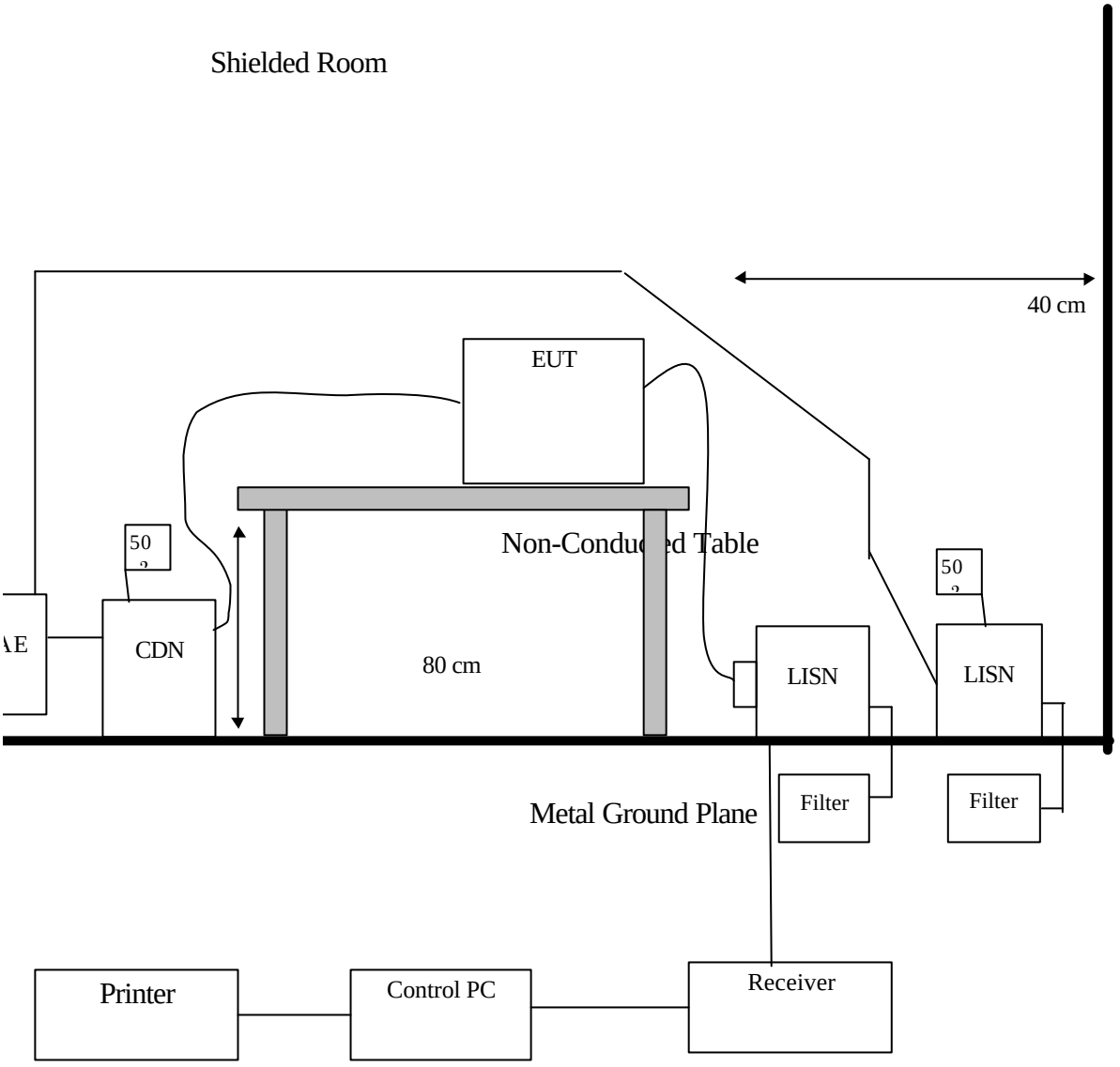
The *Use For* column with *R* means the equipment is used for the measurement of radiated emission.

4.4.2 Software for Controlling Spectrum/Receiver and Calculating Test Data

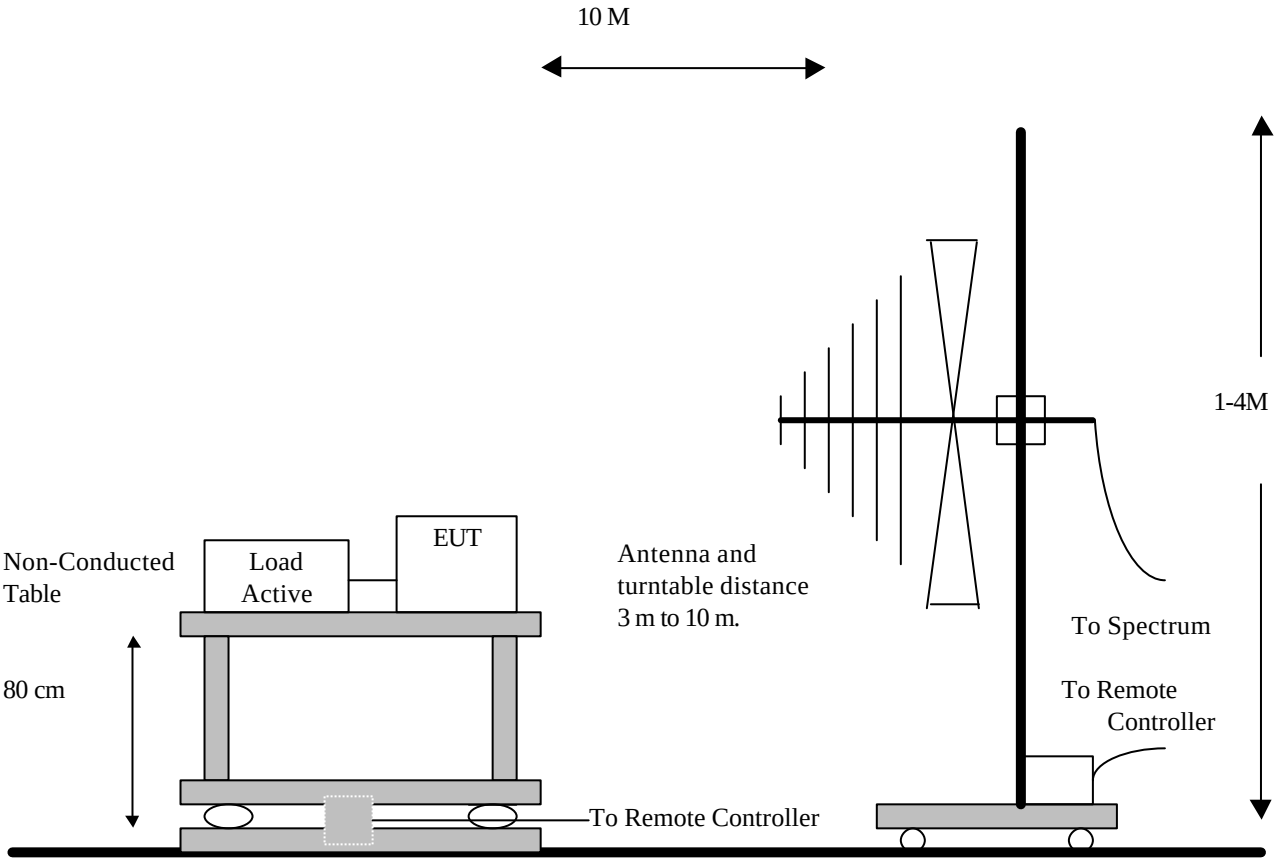
Radiation/Conduction	Filename	Version	Issued Date
Conduction	Tile.exe	1.13Z	4/5/2001
Radiation	Tile.exe	1.13Z	4/5/2001

4.5 Appendix E: Layout of EUT and Support Equipment

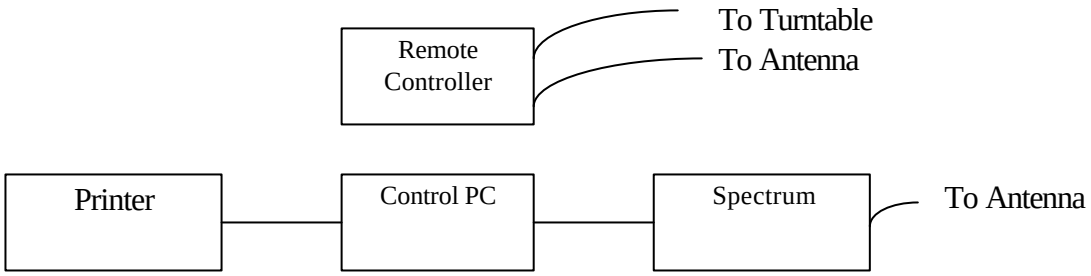
4.5.1 General Power Main Port Conducted Test Configuration



4.5.2 General Radiation Test Configuration



Metal Full Soldered Ground Plane



4.6 Appendix F: Description of Support Equipment

4.6.1 Description of Support Equipment

Support Unit 1.

Description:	Acer Digital Camera
Model:	DVC-VII
Serial Number:	N/A
Power Supply Type:	From PC USB Port
Power Cord:	N/A
FCC ID:	(Comply with FCC DOC)

Support Unit 2.

Description:	Acer USB Mouse
Model Number:	MUSXT
Serial Number:	81130159
Power Supply Type:	N/A
Power Cord:	N/A
FCC ID:	(comply with FCC DOC)

Support Unit 3.

Description:	Koka Headphone
Model Number:	ST-8
Serial Number:	N/A
Power Supply Type:	N/A
Power Cord:	N/A
FCC ID:	N/A

Support Unit 4.

Description:	HP Printer (for parallel interface port)
Model Number:	2225C
Serial Number:	N/A
Power Supply Type:	Switching (AC to AC Xfmr, Wall Mounted Type)
Power Cord:	Nonshielded, Detachable With Grounding Pin
FCC ID:	DSI6XU2225

Support Unit 5.

Description:	Logitech Mouse
Model Number:	M-SAH
Serial Number:	LZB81251703
Power Supply Type:	N/A
Power Cord:	N/A
FCC ID:	DZL211029

Support Unit 6.

Description:	Aceex Modem (for serial interface port)
Model Number:	DM1414
Serial Number:	960063772
Power Supply Type:	Linear, Power Adapter (AC to AC Xfmr, Wall Mounted Type)
Power Cord:	Nonshielded, Without Grounding Pin
FCC ID:	IFAXDM1414

Support Unit 7.

Description:	Aceex Modem (for serial interface port)
Model Number:	DM1414
Serial Number:	960063771
Power Supply Type:	Linear, Power Adapter (AC to AC Xfmr, Wall Mounted Type)
Power Cord:	Nonshielded, Without Grounding Pin
FCC ID:	IFAXDM1414

Support Unit 8.

Description:	Acer Monitor
Model:	7377xe
Serial Number:	999027100501700055P644E1 P
Power Supply Type:	Switching
Power Cord:	Nonshielded, Detachable
FCC ID:	(Comply with FCC DOC)

Support Unit 9.

Description:	Acer Keyboard
Model Number:	6511-TW4C
Serial Number:	916600704C83D11076S00000
Power Supply Type:	N/A
Power Cord:	N/A
FCC ID:	JVPKBS-WIN

Support Unit 10.

Description:	Personal Computer
Model:	IBM 2170
Serial No.:	N/A
Power Supply Type :	Switching Delta (Model: DPS-145PB-80A)
Hard Disk Drive:	Maxtor (Model: 91303D6) 13.3GB
Floppy Driver:	Panasonic (Model: JU256A276P)
CD-ROM Drive:	AOpen (Model: CD-940E/TKU PRO)
ZIP Driver:	Iomega (Model:Z100ATAPI)
LAN Card	Accton (Model: EN1207D-TX1)
FDD/HDD Controller and VGA port/ Parallel/ Serial port:	Built on Motherboard
VGA port:	one 15-pin
Parallel Port:	one 25-pin
Serial Port:	one 9-pin
Keyboard Connector:	6-pin
Mouse Connector:	6-pin
USB Connector:	two 4-pin
Game Port:	one 15-pin
Speaker Port:	one
Microphone Port:	one
Line In Port:	one
Power Cord:	Nonshielded, Detachable
FCC ID:	N/A (comply witch FCC DOC)

4.6.2 Software for Controlling Support Unit

A test program which generates a complete line of continuously repeating "H" pattern is used as the software test program. The program was executed as follows:

A. Read and write to the disk drives.
B. Capture Video image from digital camera than playback to display.
C. Send audio signal to the headphone.
D. Send H pattern to the parallel port device (Printer).
E. Send H pattern to the serial port device (Modem 1).
F. Send H pattern to the serial port device (Modem 2).
G. Send H pattern to the video port device (Monitor).
H. Send signal form EUT to server through LAN port.
I. Repeat the above steps.

	Filename	Issued Date
LAN	EMC.exe	11/22/1996
Monitor	HH.bat	8/20/1991
Modem 1	Hm.bat	8/20/1991
Modem 2	Hm.bat	8/20/1991
Printer1	Wordpad.exe	11/11/1999
Digital Camera	Acer Cap.exe	8/10/1998

4.6.3 I/O Cable Condition of EUT and Support Units

Description	Path	Cable Length	Cable Type	Connector Type
AC Power Cord	110V (~240V) to AC Power Cord Inlet (3-pin)	1.8M	Nonshielded, Detachable	Plastic Head Plastic Hood
Server Data Cable	Server to EUT LAN port	33 feet	Nonshielded, Detachable	RJ-45, with Metal Head, Metal Hood
Keyboard Data Cable	Keyboard to PC Keyboard port	1.8M	Shielded, Undetachable	Metal Head Plastic Hood
Monitor Data Cable	Monitor to PC VGA port	1.6M	Shielded, Detachable	Metal Head Plastic Hood
Modem Data Cable	Modem to PC COM 1 port	1.5M	Shielded, Detachable	Metal Head Metal Hood
Modem Data Cable	Modem to PC COM 2 port	1.5M	Shielded, Detachable	Metal Head Metal Hood
Mouse Data Cable	Mouse to PC Mouse port	1.8M	Shielded, Undetachable	Metal Head without Hood
Printer Data Cable	Printer to PC Parallel port	1.5M	Shielded, Detachable	Metal Head Plastic Hood
Headphone Data Cable	Headphone to Line-out jack of PC	1.5M	Nonshielded, Undetachable	Metal Head without Hood
USB Mouse Data Cable	Mouse to PC USB port	1.8M	Shielded, Undetachable	Metal Head without Hood
USB CCD Data Cable	Digital camera to PC USB port	1.6M	Shielded, Detachable	Metal Head Plastic Hood

4.7 Appendix G: Description of Equipment Under Test

EUT

Description:	System Computer
Condition:	Pre-Production
Model:	G500;G600
Serial Number:	N/A
Power Supply Type :	Delta (Model: DPS-300AB-1A; DPS-300AB-1A; RPS-600-A) 337W or Delta (Model: DPS-280BB) 280W
Hard Disk Driver:	IBM (Model: DDYS-T36950) 36.7GB
Floppy Drive	Panasonic (Model: JU-256A046P)
CD-ROM Drive :	AOpen (Model: CD-952E/AKH) 52X
DAT Driver:	HP(Model: C5683-00156)
VGA Card:	ATI(Model: RageXL Xpert 98)
Lan Card:	Intel(Model: PRO/100S)
FDD/HDD Controller and Parallel/Serial ports:	
Parallel Port:	one 25-pin
Serial Port:	two 9-pin
Keyboard Connector:	one 6-pin
Mouse Connector:	one 6-pin
USB Connector:	two 4-pin
LAN Port:	one 8-pin
Power Cord:	Nonshielded, Detachable
Display:	CRT
Maximum Resolution:	1280X1024 V:60Hz

Speed and CPU

133MHz Pentium III 1GHz, 1.13GHz, 1.26GHz (Socket 370)

All types of CPU with related components have been tested, only shown the worst data using CPU: Pentium III 1.26GHz (Socket 370), SPS: Delta (Model: DPS-300AB-1A; RPS-600-A), Hard Disk Driver: IBM (Model: DDYS-T36950) 36.7GB, CD-ROM Drive: AOpen (Model: CD952E/AKH) 52X

There are different model number definitions of EUT with different power supply.

Model	Power Supply
G500	Delta (Model: DPS-280BB) 280W
G600	Delta (Model: DPS-300AB-1A; DPS-300AB-1A;RPS-600-A) 337W

EMI Noise Source:

Crystal: 14.318MHz (X1), 25MHz (X2),32.768KHz (X3),24.576MHz(X4), 32.768KHz(X5),40MHz(X6)
Oscillator:40MHz(OSC1)
Clock Generator: U18

EMI Solution:

1. Add seven spring fingers on Add-on card brakets.
2. Add two 15mm 71TS4-1 gaskets on BPL5 Hot Swap Cage.
3. Add two spring fingers on 337W power supply bay or three spring fingers on 280W power supply bay.
4. One Ferrite Core was added on the power line of fan of CPU.
5. Two gasket was added on the Hot swap cage to contact the housing.

4.8 Appendix H: Photographs of EUT Configuration Test Set Up

According to ANSI C63.4-1992 / EN55022:1994 /A1:1995 /A2: 1997; CISPR 22:1993/A1:1995/A2:1996; AS/NZS 3548:1995 /A1:1997 /A2:1997:

Front View of Highest Main Power Port Conducted Emission

Front View of Highest Radiated Emission Test.

Back View of Highest Radiated Emission Test.