

CE MARK TECHNICAL FILE

**AUSTRALIA EMC CONSTRUCTION
FILE**

of

System Computer

Model/ Type/ Machine Type

AA1200 ; Acer Altos1200

Contains:

1. Declaration of Conformity
2. EN55022/CISPR 22, AS/NZS 3548 Class B EMI test report
3. Test report of EN50082-1, AS/NZS 4252.1, EN60555-2, and EN60555-3
4. Certificate of EN60950
5. Block Diagram and Schematics
6. User`s manual



Date: Aug. 11, 2000

ISL-00A133E



Acer Incorporated
7 Hsin Ann Road
Science-Based Industrial Park
Hsinchu 300, Taiwan
R.O.C.

Telephone: (035) 770-707
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Declaration of Conformity

Name of Manufacturer: Acer Inc.
Address of Manufacturer: 7 Hsin Ann Rd., Science-Based Industrial Park
Hsinchu 30077
Taiwan, R. O. C.
Declares that product: System Computer
Model/ Type/ Machine Type: AA1200 ; Acer Altos1200
Assembled by: Same as above
Address: Same as above

Conforms to the EMC Directive 89/336/EEC as attested by conformity with the following harmonized standards:

EN55022 Class B: 1994/A1:1995/A2:1997: Limits and Methods of Measurement of Radio Interference characteristics of Information Technology Equipment,

EN50082-1: 1992: Generic Immunity Standard -Part 1: Domestic Commercial and Light Industry,

EN60555-2: 1987: Disturbances in supply systems caused by household appliances and similar electrical equipment- Part 2: Harmonics,

EN60555-3: 1987: Disturbances in supply systems caused by household appliances and similar electrical equipment- Part 3: Voltage Fluctuations.

Conforms to the Low Voltage Directive 73/23/EEC as attested by conformity with the following harmonized standard:

EN60950:1992 /A1:1993, A2:1993 /A3:1995 /A4:1997 /A11:1997: Safety of Information Technology Equipment Including electrical business equipment.

Conforms to the C-Tick Mark requirement as attested by conformity with the following standards:

AS/NZS 3548: 1995 /A1:1997 /A2:1997: Information technology equipment
AS/NZS 4252.1:1994: Generic Immunity.

Angus Hsieh / Director
Acer Inc.

Aug. 11, 2000

Date

ISL-00A133E

EN50082-1 / AS/NZS 4252.1 / IMMUNITY
EN60555-2 / HARMONICS
EN60555-3 / VOLTAGE FLUCTUATIONS

TEST REPORT

of

System Computer

Model/ Type/ Machine Type

AA1200 ; Acer Altos1200

Applied by:

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

Test Performed by:

(NVLAP Lab. Code: 200234-0)
International Standards Laboratory
No. 21, Alley 37, Lane 122, Sec. 2
Hsiwan Rd. Hsichih Chen
Taipei Hsien 22117
Taiwan, R.O.C.

Tel:(02)2646-2550
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Report Number: ISL-00A133E

Test Date: Aug. 11, 2000

NVLAP Lab. Code: 200234-0; VCCI: R-341, C-354; NEMKO Aut. No: ELA 113; BSMI Lab. Code: SL2-IN-E-0013

Contents of Report

| | | |
|-------|---|----|
| 1. | General..... | 1 |
| 1.1 | Certification of Accuracy of Test Data..... | 1 |
| 2. | Summary..... | 2 |
| 2.1.1 | Aplicant Information..... | 2 |
| 2.1.2 | Operation Environment..... | 2 |
| 2.2 | Description of Equipment Under Test..... | 2 |
| 2.2.1 | Software for Controlling Support Unit..... | 5 |
| 2.2.2 | I/O Cable Condition of EUT and Support Units..... | 6 |
| 2.3 | Description of Equipment Under Test..... | 7 |
| 3. | Electrostatic discharge (ESD) immunity..... | 9 |
| 3.1 | Electrostatic discharge (ESD) immunity test..... | 9 |
| 4. | Radiated electromagnetic field immunity..... | 10 |
| 4.1 | Radiated electromagnetic field immunity test..... | 10 |
| 5. | Electrical Fast transients/burst immunity..... | 11 |
| 5.1 | Fast transients/burst immunity test..... | 11 |
| 5.2 | Fast transients/burst immunity test for I/O cable..... | 12 |
| 6. | Harmonics..... | 13 |
| 6.1 | Harmonics test..... | 13 |
| 7. | Voltage Fluctuations..... | 15 |
| 7.1 | Voltage Fluctuations test..... | 15 |
| 8. | Photographs..... | 16 |
| 8.1 | Photos of ESD measurement..... | 16 |
| 8.2 | Photos of RF Field Strength Susceptibility Measurement..... | 16 |
| 8.3 | Photos of Electrical Fast Transient/Burst measurement..... | 17 |
| 8.4 | Photos of Harmonics and Voltage Fluctuations..... | 17 |
| 8.5 | Appendix: Photographs of EUT..... | 18 |

1. General

1.1 Certification of Accuracy of Test Data

The immunity tests which this report describes were conducted by an independent electromagnetic compatibility consultant, International Standards Laboratory in accordance with the Generic Immunity Standards EN50082-1:1992 / AS/NZS 4252.1:1994 which include IEC 801 series regulations, Harmonic Current Emissions EN60555-2: 1987, and Voltage Fluctuations EN60555-3: 1987.

Equipment Tested: System Computer
Model/ Type/ Machine Type: AA1200 ; Acer Altos1200
Applied by Acer Inc.

Date of test: Aug. 11, 2000

Test Engineer: W.H. Chang

| Standard | Comment | Test Results |
|-----------------|--------------------------------|--------------|
| IEC 801-2, 1984 | ElectroStatic Discharge | Complies |
| IEC 801-3, 1984 | Radiated Electromagnetic Field | Complies |
| IEC 801-4, 1988 | Fast Transient/Burst | Complies |
| EN60555-2, 1987 | Harmonic Current Emissions | Complies |
| EN60555-3, 1987 | Voltage Fluctuations | Complies |

Approve & Signature



Jammy Chen/Manager

This test report accurately contains the test results of Electrostatic discharge, Radiation Electromagnetic Field, Fast Transient/Burst Test, Harmonic current Emissions of the sample equipment tested, and Voltage Fluctuations at the time of the test.

The results in this report apply only to the sample(s) tested.

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

2. Summary

2.1.1 Applicant Information

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

2.1.2 Operation Environment

Power supply : 230 Vac / 50 Hz

2.2 Description of Equipment Under Test

Support Unit 1.

| | |
|--------------------|----------------|
| 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 2.

| | |
|--------------------|-----------------------|
| 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 3.

| | |
|--------------------|--------------------------|
| Description: | Acer USB Keyboard |
| Model Number: | 6511-HA |
| Serial Number: | 9122H070818D711684S00000 |
| Power Supply Type: | N/A |
| Power Cord: | N/A |
| FCC ID: | N/A(comply with FCC DOC) |

Support Unit 4.

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

Support Unit 5.

| | |
|--------------------|--|
| Description: | HP Printer (for parallel interface port) |
| Model Number: | C2642E |
| Serial Number: | N/A |
| Power Supply Type: | AC Adaptor (HP,Model: C2175A) |
| Power Cord: | Nonshielded, Detachable |
| Data Cable: | Shielded, Detachable, With Metal Hood |
| FCC ID: | (Comply with FCC DOC) |

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: | IBM Monitor |
| Model: | 2237-00N |
| Serial Number: | 23-KV210 |
| Power Supply Type: | Switching |
| Power Cord: | Nonshielded, Detachable |
| FCC ID : | A3KM071 |

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) |

2.2.1 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. Send audio signal to the headphone.
- C. Capture Video image from digital camera than playback to display.
- 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 H pattern to server and receive H pattern from server.
- 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 |

2.2.2 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 | Shielded, 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 |
| Printer Data Cable | Printer to PC Parallel port | 1.5M | Shielded, Detachable | Metal Head Plastic Hood |
| Mouse Data Cable | Mouse to PC Mouse port | 1.8M | Shielded, Undetachable | Metal Head without Hood |
| USB Keyboard Data Cable | Keyboard to PC USB port | 1.8M | Shielded, Undetachable | Metal Head Plastic Hood |
| USB CCD Data Cable | Digital camera to PC USB port | 1.6M | Shielded, Detachable | Metal Head Plastic Hood |
| Headphone Data Cable | Headphone to Line-out jack of PC | 1.5M | Nonshielded, Undetachable | Metal Head without Hood |

2.3 Description of Equipment Under Test

EUT

| | |
|--|---|
| Description: | System Computer |
| Condition: | Pre-Production |
| Model: | AA1200 ; Acer Altos1200 |
| Serial Number: | N/A |
| Power Supply Type : | Switching Delta (Model: DPS-300AB-4A; RPS-600-2A) |
| Hard Disk Driver: | IBM (Model: DPSS-309170) 9.1GB or Seagate (Model: ST39204LC) 9GB or Seagate (Model: ST318404LC) 18GB or Seagate (Model: ST336704LC) 36GB |
| Floppy Drive | Panasonic (Model: JU-256A046P) |
| CD-ROM Drive : | Aopen (Model: CD948E/AKU) 48X or Aopen (Model: CD948E/AKH) 48X or API (Model: 650P-047) 50X |
| DAT Driver: | Seagate(Model:STD224000N) |
| FDD/HDD Controller and Parallel/Serial ports: | |
| Parallel Port: | one 25-pin |
| Serial Port: | two 9-pin |
| Keyboard Connector: | 6-pin |
| Mouse Connector: | 6-pin |
| USB Connector: | two 4-pin |
| VGA Connector: | 15-pin |
| LAN Port: | 8-pin |
| Power Cord: | Nonshielded, Detachable |
| Display: | CRT |
| Maximum Resolution: | 1280X1024 V:60Hz |

Speed and
133MHz

CPU
Pentium III 600,667,733,800,866,933(Socket 370)

All types of CPU with related components have been tested, only shown the worst data using
CPU: Pentium III 933 (Socket 370), Hard Disk Driver: IBM (Model: DPSS-309170) 9.1GB,
CD-ROM Drive: Aopen (Model: CD948E/AKU) 48X

EMI Noise Source:

Crystal: 25 MHz (X1), 14.318MHz (X2), 32.768KHz (X4), 40MHz (XT1)

Oscillator: 29.498MHz (OSC1)

Clock Generator: U19

EMI Solution:

1. Two ferrite cores (Vendor: KITAGAWA, Type: BRH17.5*12.7*9.5) were added on the CPU fan wires.
2. 4 spring fingers were added at the right side of the housing.
3. 8 spring fingers were added at the I/O bracket.

3. Electrostatic discharge (ESD) immunity

3.1 Electrostatic discharge (ESD) immunity test

| | |
|-----------------|----------------|
| Port: | Enclosure |
| Basic Standard: | IEC 801-2 |
| Requirements: | 8 kV (level 3) |
| Criteria: | B |
| Temperature: | 27 degree C |
| Humidity: | 55% |

Test Procedure

The electronic discharges were applied as follows:

The EUT was set up on a nonconductive table, 1mm above a reference ground plane. $\pm 8\text{kV}$ to all accessible parts of cabinet from outside.

Performance

No fatal operation errors were detected during or after the discharges.

Test equipment used

EMC-Partner Transient 1000-216.

Result

Performance of EUT complies with the given specification.

4. Radiated electromagnetic field immunity

4.1 Radiated electromagnetic field immunity test

| | |
|-----------------|-----------|
| Port: | Enclosure |
| Basic Standard: | IEC 801-3 |
| Requirements: | 3 V/m |
| Criteria: | A |

Test Procedure

EUT was exposed to specified field:

| | |
|------------------|-----------------------------|
| Field: | 3 V/m ~ 3.3 V/m (modulated) |
| Frequency range: | 26 MHz - 1 GHz |
| Step: | 1% of last Frequency |
| Step time: | 800 msec |

The field sensor is placed on the position of EUT to calibrate the field strength as required before EUT was setup on the table. The EUT was setup on a nonconductive table 0.8m above at a full-anechoic chamber.

The EUT is 3 m away from the transmitting antenna mounted on the antenna tower and turns 90 centigrade each time to have each sides of EUT face the antenna during each circle of test. The antenna is fixed 1.1 m above ground. Both vertical and horizontal polarization of antenna are set during the measurement . A CCD camera is used to monitor the condition of EUT for the performance judgement.

Performance

No fatal operation errors were detected during or after the exposure.

Test equipment used

| | | |
|-----------------------|--------------------|------------|
| Signal Generator: | HP | 8656B |
| Field Strength Meter | Amplifier Research | FM2000 |
| Field Strength Sensor | Amplifier Research | FP2000 |
| Power Amplifier | Amplifier Research | 100W1000M1 |
| Power Antenna | EMCO | 3143 |

Result

Performance of EUT complies with the given specification at 3 V/m.

5. Electrical Fast transients/burst immunity

5.1 Fast transients/burst immunity test

Port: AC mains
Basic Standard: IEC 801-4
Requirements: 1 kV
Criteria: B

Test Procedure

The EUT was setup on a nonconductive table 0.8 m above a reference ground plane.

Test Point: Power Line
AC Power Source: 230VAC, 50Hz

| | Voltage | 1 KV | |
|-------------|----------|--------|---------|
| Test Points | Polarity | Result | Comment |
| Line | + | N | 90 sec |
| | - | N | 90 sec. |
| Neutral | + | N | 90 sec |
| | - | N | 90 sec. |
| Ground | + | N | 90 sec |
| | - | N | 90 sec. |

Note: 'N' means normal, the EUT function is correct during the test.

Performance

No fatal errors were detected after the transient/burst firing.

Test equipment used

EMC-Partner Transient 1000-216.

Result

Performance of EUT complies with the given specification.

5.2 Fast transients/burst immunity test for I/O cable

Port: twisted pairs LAN port
Basic Standard: IEC 801-4
Requirements: 0.5 kV
Criteria: B

Test Procedure

The EUT was setup on a nonconductive table 0.8 m above a reference ground plane.

Performance

No fatal errors were detected after the transient/burst firing.

Test equipment used

EMC-Partner Transient 1000-216.

Result

Performance of EUT complies with the given specification.

6. Harmonics

6.1 Harmonics test

Port: AC mains
Basic Standard: EN60555-2

Test Procedure

The EUT is supplied in series with shunts or current transformers from a source having the same nominal voltage and frequency as the rated supply voltage and frequency of the EUT.

If the current harmonics vary more than proportionately with the supply voltage, tests at supply voltages of 0.94 times and 1.06 times the rated voltage shall be performed.

Equipment having more than one rated voltage shall be tested at the rated voltage producing the highest harmonics as compared with the limits. For equipment marked with a rated voltage range, the measurements shall be made at the extremes of that supply range.

Test equipment used

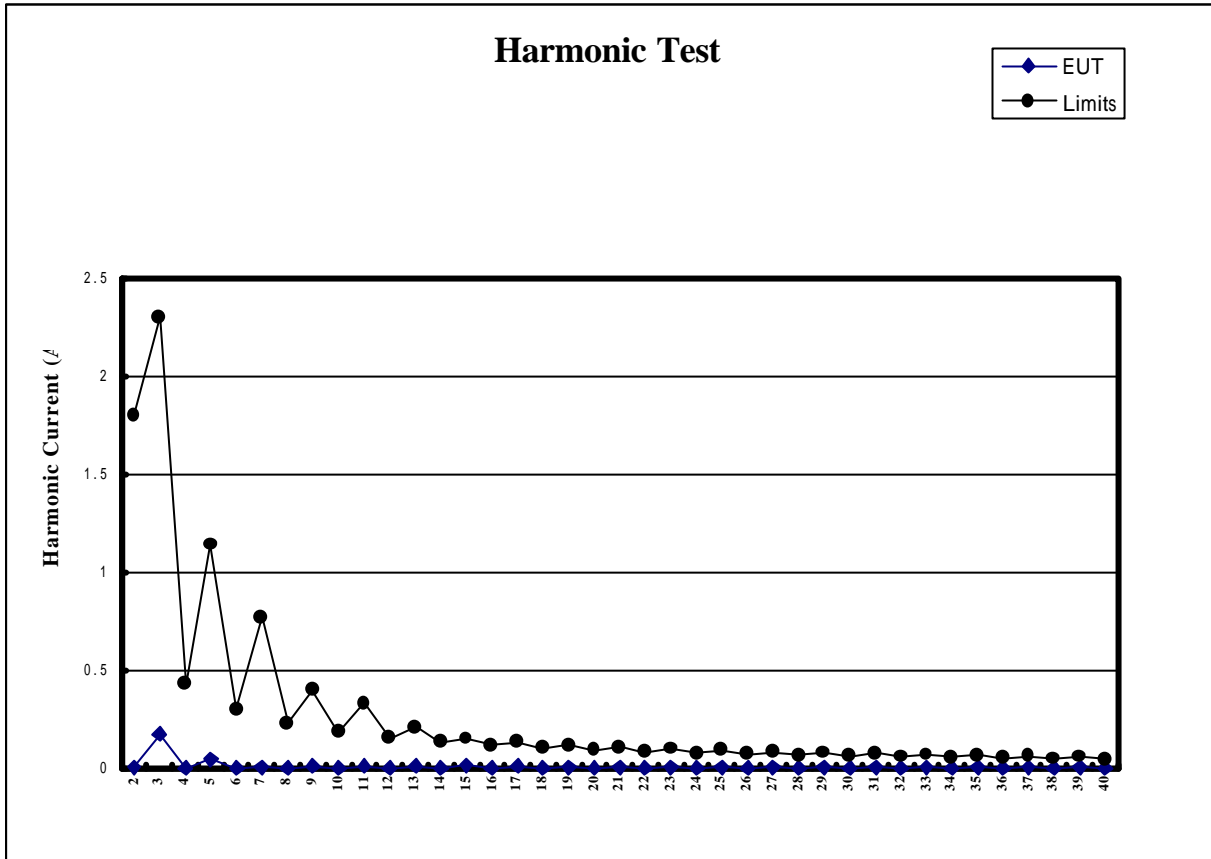
| | | |
|---------------------------------|---------------------|---------|
| Standard Impedance | Xitron Technologies | 2520 |
| 3-Channel Power Analysis System | Xitron Technologies | 2503AH |
| Frequency Converter | Extech Electronics | CFC-110 |

Result

Performance of EUT complies with the given specification.

Test Data

| Class A | | PASS | |
|-----------|--------------|---------------|---------------|
| Power (W) | Power Factor | Power Voltage | Power Current |
| 190.695 | 0.913 | 229.137 | 0.893 |



7. Voltage Fluctuations

7.1 Voltage Fluctuations test

Port: AC mains
Basic Standard: EN60555-3

Test Procedure

The EUT is supplied in series with reference impedance from a power source with the voltage and frequency as the nominal supply voltage and frequency of the EUT.

The EUT was tested for 10 minutes under the condition producing the highest voltage fluctuation.

Test equipment used

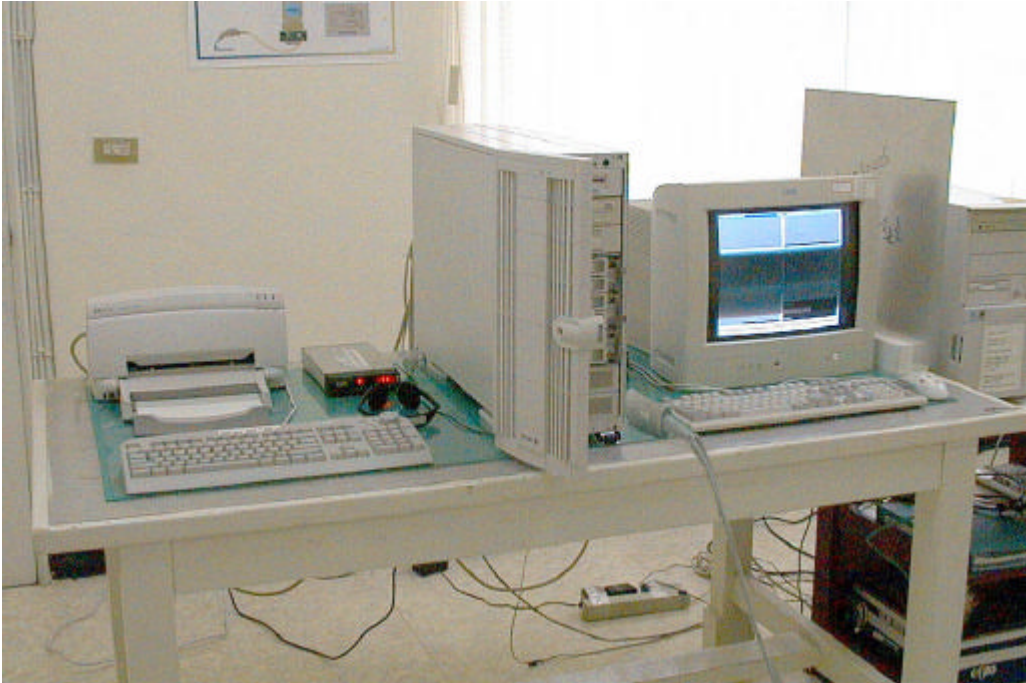
| | | |
|---------------------------------|---------------------|---------|
| Standard Impedance | Xitron Technologies | 2520 |
| 3-Channel Power Analysis System | Xitron Technologies | 2503AH |
| Frequency Converter | Extech Electronics | CFC-110 |

Result

Performance of EUT complies with the given specification.

8. Photographs

8.1 Photos of ESD measurement



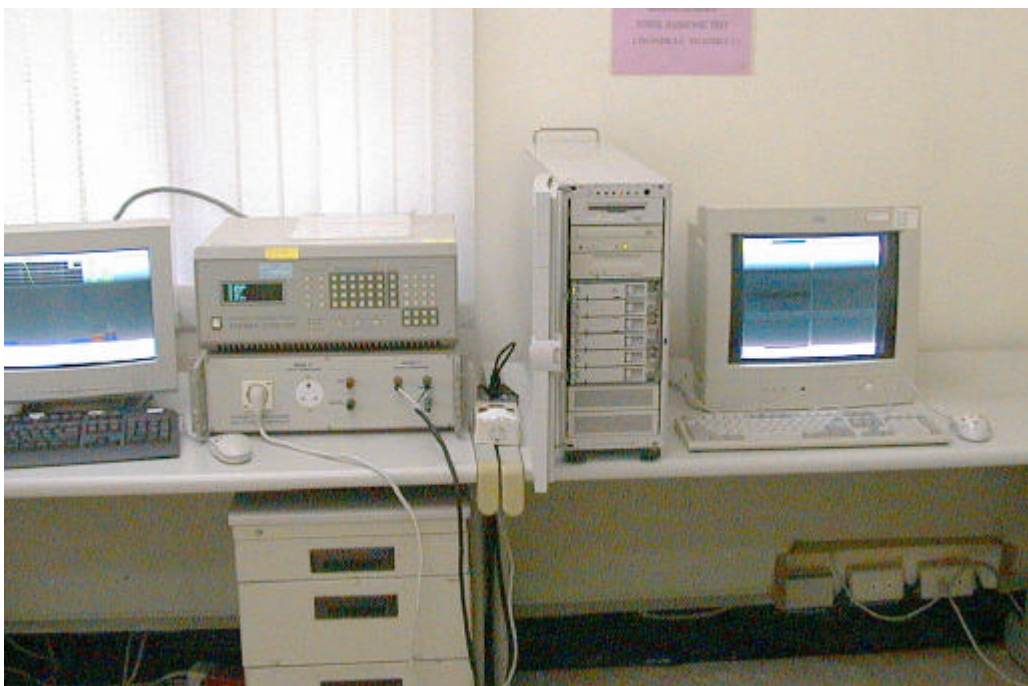
8.2 Photos of RF Field Strength Susceptibility Measurement



8.3 Photos of Electrical Fast Transient/Burst measurement



8.4 Photos of Harmonics and Voltage Fluctuations



8.5 Appendix: Photographs of EUT

Please find this appendix in the File of **ISL-00A133P**

Product System(PS) Other(X)

| | | | | | |
|----------------------|--|---------------|--|-----------------|------|
| Subject: | System Computer AA1200 ; Acer Altos1200 CE Mark Technical File Release | Part No.: | | Rev: | |
| Project Code: | 91.51C01.001 | Doc. No.: | | Page | of |
| Model No.: | AA1200 ; Acer Altos1200 | Release Date: | | Revision status | |
| Description: | Release AA1200 ; Acer Altos1200 (M25C in H85) CE Mark Technical File It has passed the CE Mark Limits | | | Page | Rev. |
| Reason For Released: | | | | | |

| Item | Contents | Q`ty | Unit | | |
|------|--|------|------|--|--|
| 1 | CE Mark Technical File Cover Page | 1 | Page | | |
| 2 | CE Mark Declaration of Conformity Letter | 1 | | | |
| 3 | CISPR Class B Test Report | 23 | | | |
| 4 | EMS Test Report | 18 | | | |
| 5 | Appendix: Photos of EUT (refer to BSMI report) | 22 | | | |
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