0363

CE

EMC COMPLIANCE TEST REPORT

for

LCD PANEL PC

Trade Name : N/A
Model Number : ONYX-151
Serial Number : N/A
Report Number : 000932-E
Date : December 18, 2000
Regulations : See below

Standards	Results (Pass/Fail)
EN 55022: 1994 + A1: 1995 + A2: 1997 (Class A)	PASS
EN 61000-3-2: 1995 +A1: 1998 + A2: 1998	PASS
EN 61000-3-3: 1995	PASS
EN 50082-2: 1995	PASS
- EN 61000-4-2: 1995	PASS
- ENV 50140: 1994	PASS
- ENV 50204: 1996	PASS
- EN 61000-4-4:1995	PASS
- ENV 50141: 1994	PASS

Prepared for :

AAEON Technology Inc.
5F, No. 135, Lane 235, Pao Chiao Rd., Hsin Tien,
Taipei Shian, Taiwan, R.O.C.

Prepared by :

C&C LABORATORY, CO., LTD.
#B1, 1st Fl., Universal Center,
No. 183, Sec. 1, Tatung Rd., Hsi Chih,
Taipei Hsien, Taiwan, R.O.C.
TEL: (02)8642-2071~3
FAX: (02)8642-2256

ACCREDITED

Report Number: 000932-E
December 18, 2000

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CE

EC-Declaration of Conformity

For the following equipment:

LCD PANEL PC

(Product Name)

ONYX-151

(Model Designation / Trade name)

AAEON Technology Inc.

(Manufacturer Name)

5F, No. 135, Lane 235, Pao Chiao Rd., Hsin Tien, Taipei Shian, Taiwan, R.O.C.

(Manufacturer Address)

is herewith confirmed to comply with the requirements set out in the Council Directive on the Approximation of the Laws of the Member States relating to Electromagnetic Compatibility Directive (89/336/EEC, Amended by 92/31/EEC & 93/68/EEC), For the evaluation regarding the Electromagnetic Compatibility (89/336/EEC, Amended by 92/31/EEC & 93/68/EEC), the following standards are applied:

[V] EN 55022: 1994+A1: 1995+A2: 1997 (Class A)
[V] EN 61000-3-2: 1995 +A1: 1998 + A2: 1998 ; EN 61000-3-3: 1995
[V] EN50082-2: 1995
EN 61000-4-2: 1995 ; ENV 50140: 1994 ; ENV 50204: 1996 ; EN 61000-4-4: 1995
ENV 50141: 1994

The following manufacturer / importer or authorized representative established within the EUT is responsible for this declaration:

(Company Name)

(Company Address)

Person responsible for making this declaration:

(Name, Surname)

(Position / Title)

(Place) (Date) (Legal Signature)

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VERIFICATION OF COMPLIANCE

Equipment Under Test:	LCD PANEL PC
Trade Name:	N/A
Model Number:	ONYX-151
Serial Number:	N/A
Applicant:	**AAEON Technology Inc.** 5F, No. 135, Lane 235, Pao Chiao Rd., Hsin Tien, Taipei Shian, Taiwan, R.O.C.
Manufacturer:	**AAEON Technology Inc.** 5F, No. 135, Lane 235, Pao Chiao Rd., Hsin Tien, Taipei Shian, Taiwan, R.O.C.
Type of Test:	EMC Directive 89/336/EEC for CE Marking
Technical Standards:	EN 55022: 1994 + A1: 1995 + A2: 1997 (Class A) EN 61000-3-2: 1995 +A1: 1998 + A2: 1998, EN 61000-3-3: 1995 EN 50082-2: 1995 (EN 61000-4-2: 1995 ; ENV 50140: 1994 ; ENV 50204: 1996 ; EN 61000-4-4: 1995 : ENV 50141: 1994)
File Number:	000932-E
Date of test:	December 11 ~ 12, 2000
Deviation:	According to applicant's declaration this EUT is a class A product, and to be market in industrial environment only.
Condition of Test Sample:	Normal

The above equipment was tested by C&C Laboratory Co., Ltd. for compliance with the requirements set forth in EMC Directive 89/336/EEC and the Technical Standards mentioned above. This said equipment in the configuration described in this report shows the maximum emission levels emanating from equipment and the level of the immunity endurance of the equipment are within the compliance requirements.

The test results of this report relate only to the tested sample identified in this report.

Approved by Authorized Signatory: Kurt Chen

Kurt Chen / Q.A. Manager

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GENERAL INFORMATION

Applicant:	**AAEON Technology Inc.** 5F, No. 135, Lane 235, Pao Chiao Rd., Hsin Tien, Taipei Shian, Taiwan, R.O.C.
Contact Person:	Wenyuan Yang
Manufacturer:	**AAEON Technology Inc.** 5F, No. 135, Lane 235, Pao Chiao Rd., Hsin Tien, Taipei Shian, Taiwan, R.O.C.
File Number:	000932-E
Date of Test:	December 11 ~ 12, 2000
Equipment Under Test:	LCD PANEL PC
Model Number:	ONYX-151
Serial Number:	N/A
Technical Standards:	EN 55022: 1994 + A1: 1995 + A2: 1997 (Class A) EN 61000-3-2: 1995 +A1: 1998 + A2: 1998, EN 61000-3-3: 1995 EN 50082-2: 1995 (EN 61000-4-2: 1995 ; ENV 50140: 1994 ; ENV 50204: 1996 ; EN 61000-4-4: 1995 : ENV 50141: 1994)
Frequency Range (EN 55022):	150kHz to 30MHz for Line Conducted Test 30MHz to 1000MHz for Radiated Emission Test
Test Site	**C & C LABORATORY CO., LTD.** No. 15, 14 Lin, Chi Twu Chi, Lu-Chu Hsiang Taoyuan, Taiwan, R. O. C.

SYSTEM DESCRIPTION

EUT Test Program:

1. Turn on all of test equipment.
2. EMI test program was loaded and executed in Windows 98 mode.
3. Data was sent to monitor and filling the screens with Test patterns.
4. Test program sequentially exercised all related I/O's of EUT.
5. Repeat 2 to 4. Test program is self-repeating throughout the test.

PRODUCT INFORMATION

Housing Type:	Plastic w/metal plate		
EUT Power Rating:	100-240VAC, 50-60Hz		
AC Power during Test	230VAC/50Hz		
Power Supply Manufacturer:	Power Add		
Power Supply Model Number:	PPS100-31		
AC Power Cord Type:	Unshielded, 1.8m		
OSC/Clock Frequencies:	66MHz		
CPU Manufacture:	Intel	**Type:**	Celeron 533MHz
Memory Capacity:		**Install:**	64MB
15" LCD Panel Manufacturer:	Hyundai	**Model:**	HT15X22-100
HDD Manufacturer:	Fujitsu	**Model:**	MHH2032AT (3.2GB)
FDD Manufacturer:	NEC	**Model:**	FD1238T-GRP
CD-ROM Manufacturer:	NEC	**Model:**	CD-2800D
VGA Card Type:	On Board		

I/O Port of EUT

I/O PORT TYPES	Q'TY	TESTED WITH
1). Parallel Port	1	1
2). Serial Port	3	3
3). PS/2 Keyboard Port	1	1
4). PS/2 Mouse Port	1	1
5). Video Port	1	1
6). Line-in Port	1	1
7). Line-out Port	1	1
8). Speaker-out Port	1	1
9) LAN Port	1	1
10) USB Port	2	2

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SUPPORT EQUIPMENT

No.	Equipment	Model #	Serial #	FCC ID	Trade Name	Data Cable	Power Cord
1.	Monitor	GDM-17SE2T	7138048	AK8GDM17SE2T	SONY	Shielded, 1.8m	Unshielded, 1.8m
2.	Modem	2400	94-364-176281	DK467GSM24	Computer Peripherals	Shielded, 1.8m	Unshielded, 1.8m
3.	Modem	2400	94-364-176276	DK467GSM24	Computer Peripherals	Shielded, 1.8m	Unshielded, 1.8m
4.	Printer	C2642A	TH86K1M14P	B94C2642X	HP	Shielded, 1.8m	AC I/P: Unshielded, 0.9m DC O/P: Unshielded, 1.9m
5.	PS/2 Keyboard	SK-2502C	M99043551	FCC DoC	HP	Shielded, 1.8m	N/A
6.	PS/2 Mouse	M-S34	LZC84445540	DZL211029	HP	Shielded, 1.8m	N/A
7.	Serial Mouse	M-MM43	LZE94052791	DoC	Logitech	Shielded, 1.9m	N/A
8.	USB Mouse	M-BB48	LZE93050162	FCC DoC	Logitech	Shielded, 1.8m	N/A
9.	USB Mouse	M-BB48	LZE1450642	FCC DoC	Logitech	Shielded, 1.8m	N/A
10.	Multimedia Headset	SX-M	A5-3	N/A	TOKYO	Unshielded, 1.8m	N/A
11.	Walkman	YX-328	W2	N/A	YING-KO	Unshielded, 1.2m	N/A
12.	Notebook PC (Remote)	365	TZ30518	FCC DoC	Acer	Shielded, 10m	AC I/P: Unshielded, 0.9m DC O/P: Unshielded, 1.9m

Note: All the above equipment/cables were placed in worse case positions to maximize emission signals during emission test.

Grounding: Grounding was in accordance with the manufacturer's requirements and conditions for the intended use.

THE AMERICAN
ASSOCIATION
FOR LABORATORY
ACCREDITATION

ACCREDITED LABORATORY

A2LA has accredited

C & C LABORATORY CO., LTD
Taipei, Taiwan, R.O.C

for technical competence in the field of

Electrical (EMC) Testing

The accreditation covers the specific tests and types of tests listed on the agreed scope of accreditation. This laboratory meets the requirements of ISO/IEC Guide 25-1990 "General Requirements for the Competence of Calibration and Testing Laboratories" (equivalent to relevant requirements of the ISO 9000 series of standards) and any additional program requirements in the identified field of testing.

Presented this 28th day of April, 2000.

President
For the Accreditation Council
Certificate Number 824.01
Valid to January 31, 2002

For tests or types of tests to which this accreditation applies, please refer to the laboratory's Electrical (EMC) Scope of Accreditation

American Association for Laboratory Accreditation

SCOPE OF ACCREDITATION TO ISO/IEC GUIDE 25-1990 and EN 45001-1989

C & C LABORATORY CO., LTD
No. 15, 14 Lin, Chin Twu Chi
Lu Chu Hsiang, Taoyuan, TAIWAN, R.O.C.
Charles Wang Phone: 002 886 3 324 5966
Fax: 002 886 3 324 5235

ELECTRICAL (EMC)

Valid to: January 31, 2002 Certificate Number: 0824-01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following tests:

Electrical Emissions – Enclosure – 3 & 10 Meters; to 26.5 GHz (Sites 1, 2, 3 and 4)
Electrical Emissions – AC Power – 0 - 300 V; 50 - 400 Hz (Sites 1, 2, 3 and 4)
Electrical Immunity – Enclosure – 27 - 80 MHz / 3V/m; 80 MHz - 1 GHz / 10V/m
Electrical Immunity – AC Power, DC Power, Signal & Control
Electrical Fast Transient (EFT)
Electrostatic Discharge (ESD) to 25 kV
Electrical Power Surge
Power Magnetic Field Immunity
Voltage Dips, Shots, Variations

On the following products/equipment:

Computer Components and Peripherals; Networking Components; Wireless Communications Components; Electronic Components; Televisions; Home Appliances

Using the following test methods/specifications/standards:

Code of Federal Regulations (CFR) 47, FCC Part 15 using ANSI C63.4
AS/NZS 3548
BSMI CNS: 13438, 13439, 13783, 13803
CISPR: 11, 14, 22
EN: 50081-1, 50082-1, 55011, 55022, 55014, 61000-4-2, 61000-4-3, 61000-4-4, 61000-4-5, 61000-4-6, 61000-4-8, 61000-4-11
VCCI V3 (1999)
IEC: 801-2, 801-3, 801-4

FEDERAL COMMUNICATIONS COMMISSION
Equipment Authorization Division
7435 Oakland Mills Road
Columbia, MD. 21046

February 01, 1999

Registration Number: 93105

C & C Laboratory Co., Ltd.
1st Fl., No. 344, Fu Ching Street
Taipei
Taiwan, R.O.C.

Attention: Charles Wang

Re: Measurement facility located at Taoyuan, Site No. 4
3 & 10 meters
Date of Listing: February 01, 1999

Gentlemen:

Your submission of the description of the subject measurement facility has been reviewed and found to be in compliance with the requirements of Section 2.948 of the FCC Rules. The description has, therefore, been placed on file and the name of your organization added to the Commission's list of facilities whose measurement data will be accepted in conjunction with applications for Certification under Parts 15 or 18 of the Commission's Rules. Please note that this filing must be updated for any changes made to the facility, and at least every three years from the date of listing the data on file must be certified as current.

If requested, the above mentioned facility has been added to our list of those who perform these measurement services for the public on a fee basis. An up-to-date list of such public test facilities is available on the Internet on the FCC Website at WWW.FCC.GOV, Electronic Filing, OET Equipment Authorization Electronic Filing.

Sincerely,

Thomas W. Phillips

Thomas W Phillips
Electronics Engineer

FEDERAL COMMUNICATIONS COMMISSION

7435 Oakland Mills Road
Columbia, MD 21046
Telephone: 301-725-1585 (ext-218)
Facsimile: 301-344-2050

April 20, 1998

IN REPLY REFER TO
31040/SIT
1300F2

C&C Laboratory Co., Ltd.
1st Fl., No. 344, Fu Ching Street
Taipei, Taiwan

Attention: Charles Wang

Re: Measurement facility located at Taoyuan, Site No. 3
(3 and 10 meter site)

Gentlemen:

Your submission of the description of the subject measurement facility has been reviewed and found to be in compliance with the requirements of Section 2.948 of the FCC Rules. The description has, therefore, been placed on file and the name of your organization added to the Commission's list of facilities whose measurement data will be accepted in conjunction with applications for certification or notification under Parts 15 or 18 of the Commission's Rules. Our list will also indicate that the facility complies with the radiated and AC line conducted test site criteria in ANSI C63.4-1992. Please note that this filing must be updated for any changes made to the facility, and at least every three years the data on file must be certified as current.

Per your request, the above mentioned facility has been also added to our list of those who perform these measurement services for the public on a fee basis. This list is updated monthly and is available on the Laboratory's Public Access Link (PAL) at 301-725-1072, and also on the Internet at the FCC Website www.fcc.gov/oet/info/database/testsite/.

Sincerely,

Thomas W. Phillips
Electronics Engineer
Customer Service Branch

FEDERAL COMMUNICATIONS COMMISSION

7435 Oakland Mills Road
Columbia, MD 21046
Telephone: 301-725-1585 (ext-218)
Facsimile: 301-344-2050

March 13, 1998

IN REPLY REFER TO
31040/SIT
1300F2

C & C Laboratory Co., Ltd.
1st Fl., No. 344, Fu Ching Street
Taipei, Taiwan

Attention: Ceres Lin

Re: Measurement facility located at Taoyuan
(3 and 10 meter site)

Gentlemen:

Your submission of the description of the subject measurement facility has been reviewed and found to be in compliance with the requirements of Section 2.948 of the FCC Rules. The description has, therefore, been placed on file and the name of your organization added to the Commission's list of facilities whose measurement data will be accepted in conjunction with applications for certification or notification under Parts 15 or 18 of the Commission's Rules. Our list will also indicate that the facility complies with the radiated and AC line conducted test site criteria in ANSI C63.4-1992. Please note that this filing must be updated for any changes made to the facility, and at least every three years the data on file must be certified as current.

Per your request, the above mentioned facility has been also added to our list of those who perform these measurement services for the public on a fee basis. This list is updated monthly and is available on the Laboratory's Public Access Link (PAL) at 301-725-1072, and also on the Internet at the FCC Website www.fcc.gov/oet/info/database/testsite/.

Sincerely,

Thomas W. Phillips
Electronics Engineer
Customer Service Branch

MINISTRY OF COMMERCE
Te Manatū Tauhokohoko

ENG 3/9
AJD

22 January 1998

C & C Laboratory Co Ltd
1st Fl
No. 344
Fu Ching Street
Taipei
TAIWAN ROC

Attention: Mr Tony Houng

Dear Sir

LABORATORY APPROVAL

Thank you for your submission of 21 January regarding the approval of your testing laboratory to the Ministry of Commerce's laboratory approval criteria. Thank you for your interest in this matter.

I am pleased to advise that your submission has been successful and your laboratory has been added to the list of Ministry-approved laboratories. Your approved status is valid until 31 December 1998. At this time, the Approved Laboratory scheme will cease operation with the implementation of the new radiocommunications regulations. Test reports from your laboratory will be accepted under the new framework. Please find enclosed a copy of the Ministry's discussion paper, DP10, outlining the proposed compliance process from 1 January 1999.

If you have any further questions on this matter please do not hesitate to contact me.

Yours faithfully

Andrew Dyke
Senior Technical Officer(Regulatory)

Nemko World-wide Testing and Certification

ELA 4

EMC Laboratory Authorisation

Aut. No. : ELA 124

EMC Laboratory: **C & C Laboratory Co., Ltd.**
No. 15, 14 Lin, Chin Twu Chi, Lu Chu Hsiang,
Taoyuan 338, Taiwan R.O.C.

Scope of Authorization: **All CENELEC standards [ENs] for EMC that are listed on the accompanying page, and, all of the corresponding CISPR, IEC, and ISO EMC standards that are listed on the accompanying page.**

This Authorisation Document confirms that the above mentioned EMC Laboratory has been validated against EN 45001 and found to be compliant. The laboratory also fulfils the conditions described in Nemko Document ELA 10. During Nemko's visit to the laboratory on 14 and 15 May, 1999, an assessment was made of the relevant parts of your organisation - i.e. facilities, personnel qualifications, test equipment, and testing practices. It was found that the EMC Laboratory is capable of performing tests within the Scope of Authorisation given on the accompanying page. Accordingly, Nemko will accept your test reports as a basis for attesting conformity to these EMC Standards for the products in question under the European Union EMC Directive [89/336/EEC as amended by 92/31/EEC and 98/13/EC].

In case of applications for Product Certification(s) to be issued by Nemko, your EMC Laboratory's test report(s) will be accepted by Nemko if they are enclosed with the Application Form submitted by the manufacturer.

In order to maintain this Authorization, the information given in the enclosed ELA-INFOs (if any) must be carefully followed. Nemko is to be promptly notified about any changes in the situation at your EMC Laboratory which may affect the basis for this Authorization. The Authorization may at any time be withdrawn if the conditions are no longer considered to be fulfilled.

The Authorisation is valid through 31 December 2001.

Oslo, 13. November 2000

For Nemko AS:

Kjell Bergh

Kjell Bergh, Nemko Group EMC Co-ordinator

Postal address:
P.O.Box 73 Blindern
N-0314 OSLO, NORWAY

Telephone: +47 22 96 03 30
Fax: +47 22 96 05 50

EMC Laboratory Authorisation

Aut. No. : ELA 124

(Page 2 of 2)

SCOPE OF AUTHORIZATION

GENERIC & PRODUCT-FAMILY STANDARDS

EN 50081-1(1992)	EN 50081-2(1994)	EN 50082-1(1992), EN 50082-1(1997)
EN 50082-2(1995)	EN 50091-2(1995)	EN 50130-4(1995)
CISPR 11(1990), CISPR 11(1997), EN 55011(1991), EN 55011(1998)	CISPR 13(1975)+ A1(1983) EN55013(1990) +A12(1994) + A13(1996)	CISPR 14(1993) + A1 (1993) + Corrigendum(1996) [Excluding Clause 4.2] EN 55014-1(1993) + A1(1997) [Excluding Clause 4.2]
CISPR 14-2(1997), EN 55014-2(1997) EN 55104(1995)	CISPR 15(1992), CISPR 15(1996) +A1(1997), EN 55015(1996) + A1(1997)	CISPR 24(1997), EN 55024(1998)
CISPR 22(1993) +A1(1995) +A2(1997), EN 55022(1994) + A1(195) + A2(1997) CISPR 22(1997) [Excluding Clause 9.5] EN 55022(1998) [Excluding Clause 9.5]	EN 60555-2(1987), EN 61000-3-2(1995)+A1(1998) + A2 (1998)	EN 60555-3(1987) + A1(1991), EN 61000-3-3(1995)
IEC 61326-1(1997), EN 61326-1(1997)		

BASIC STANDARDS

IEC 801-2(1984), IEC 61000-4-2(1991) IEC/EN 61000-4-2(1995)	IEC 801-3(1984), IEC/EN 61000-4-3(1995) ENV 50204(1995)	IEC 801.4(1988), IEC/EN 61000-4-4(1995)
IEC/EN 61000-4-5(1995) [Including Corrigendum]	IEC/EN 61000-4-6(1996)	IEC/EN 61000-4-8(1993/94)
IEC/EN 61000-4-11(1994)		

Oslo, 13. November 2000 Kjell Bergh, Nemko Group EMC Co-ordinator

Postal address:
P.O.Box 73 Blindern
N-0314 OSLO, NORWAY

Telephone: +47 22 96 03 30
Fax: +47 22 96 05 50

Nemko World-wide Testing and Certification

ELA 4

EMC Laboratory Authorisation

Aut. No. : ELA 160

EMC Laboratory: **C & C Laboratory Co., Ltd.**
No. 15, 14 Lin, Chin Twu Chi, Lu Chu Hsiang,
Taoyuan 338, Taiwan R.O.C.

Scope of Authorization: **EN 60601-1-2 and IEC 60601-1-2, the Collateral Standards for electromedical products, with particular application to EMC requirements only.**

This Authorisation Document confirms that the above mentioned EMC Laboratory has been validated against EN 45001 and found to be compliant. The laboratory also fulfils the conditions described in Nemko Document ELA 10. During Nemko's visit to the laboratory on 14 and 15 May, 1999, an assessment was made of the relevant parts of your organisation - i.e. facilities, personnel qualifications, test equipment, and testing practices. It was found that the EMC Laboratory is capable of performing tests within the Scope of Authorisation listed above. Accordingly, Nemko will accept your test reports as a basis for attesting conformity to these EMC Standards for the products in question under either the European Union Medical Device Directive [MDD], 93/42/EEC, or the European Union Active Implantable Medical Device Directive [AIMD], 90/385/EEC, (as applicable).

In case of applications for Product Certification(s) to be issued by Nemko, your EMC Laboratory's test report(s) will be accepted by Nemko if they are enclosed with the Application Form submitted by the manufacturer.

In order to maintain the Authorisation, the information given in the enclosed ELA-INFOs (if any) must be carefully followed. Nemko is to be promptly notified about any changes in the situation at your EMC Laboratory which may affect the basis for this Authorisation. The Authorisation may at any time be withdrawn if the conditions are no longer considered to be fulfilled.

The Authorisation is valid through 31. December 2001.

Oslo, 13. November 2000

For Nemko AS:

Kjell Bergh

Kjell Bergh, Nemko Group EMC Co-ordinator

Postal address: P.O.Box 73 Blindern N-0314 OSLO, NORWAY
Telephone: +47 22 96 03 30
Fax: +47 22 96 05 50

TÜV Rheinland

Technischer Überwachungs-Verein Rheinland

Certificate

of

Appointment

No. I 9964142-9906

The applicant:

C & C Laboratory Co., Ltd.

No. 15, 14 Lin, Chin twu Chi, Lu Chu Hsiang, Taoyuan, Taiwan, R.O.C.

has been authorized to carry out EMC tests by order and under supervision of TÜV Rheinland according to

EN 55 011:1991, EN 55 014-1:1993/A1, EN 55 022:1994/A1, EN 55 014-2:1997, EN 60 555-2:1987, EN 61 000-3-2:1995, EN 61 000-3-3:1995 EN 50 081-1:1992, EN 50 082-1:1992, EN 50 082-1:1997, EN 50 081-2:1993 EN 50 082-2:1995, IEC 801-2:1984, IEC 801-2:1991, IEC 801-3:1984 IEC 801-4:1988, IEC 801-5:1990, EN 61 000-4-2:1995, ENV 50 140:1993, ENV 50 141:1993 ENV 50 204:1995, EN 61 000-4-3:1996, EN 61 000-4-4:1995, EN 61 000-4-5:1995 EN 61 000-4-6:1995, EN 61 000-4-8:1993, EN 61 000-4-11:1994

An inspection of the facility was conducted according to the Document "Approval of Test Site" with reference to EN 45 001 by a TÜV Rheinland inspector.

Audit Report No. P 9964142E01, Rev.-

This certificate is valid until the next scheduled inspection or up to 15 month, at the discretion of TÜV Rheinland.

TÜV Rheinland Taiwan Ltd.
Taipei, 24. June 1999

Dipl.-Ing. A. Klinker

Dipl.-Ing. R. Charton
Auditor

中華民國經濟部標準檢驗局
臺北市濟南路一段四號
BUREAU OF STANDARDS, METROLOGY AND INSPECTION
MINISTRY OF ECONOMIC AFFAIRS, REPUBLIC OF CHINA
4, SEC, 1, CHINAN ROAD, TAIPEI, TAIWAN, R. O. C.
Tel: 886-2-23431700 FAX: 886-2-23932324

To: C&C Laboratory Co., Ltd

1 Fl.No.344,Fu Ching St., Taipei, Taiwan

IN REPLY REFER TO
87-2-01386

This Designation Document confirms that your subject measurement facility has been validated according to the **ISO/IEC Guide 25-1990** and found to be in compliance with the requirements of "Operation Guidelines of the Approval and Management of Designated EMC Laboratories."

The description of your facility has, therefore, been placed on file and the name of your organization added to the Bureau's list of facilities whose measurement data and test reports will be accepted as a basis for attesting conformity to CNS13438-1994 / CISPR22-1993, CNS13783-1-1996/ CISPR14 - 1993, CNS13439-1997 / CISPR13-1990 for Information Technology Equipment、household appliances/tools、broadcast receivers and related equipments.

It is located at: **http://w**

Please reference the file numbers below in the body of all [illegible]orts containing measurements made on the corresponding facility.

For your **EMI Testing Lab**, use reference " **SL2-IN-E-001[illegible]2-A1-E-0014, SL2-R1-E-0014, SL2-R2-E-0014**"

Note that this filing must be updated for any chang[illegible]documentation and / or facility and whenever major [illegible]your documentation or major construction or repairs to your facility are completed, re-submission of the related information or the site attenuation characteristics will be required within 2 weeks.

The Designation is valid through January 16, 2001.

Taipei, October 5, 1999
For BSMI, MOEA

Chen Tso-Chen

CERTIFICATE

Company : C&C Laboratory Co., Ltd.

Facility: C&C Open Area Test Site No.1

(Conducted Interference Measurement)

Address : No.15, 14 Lin, Chin Twu Chi,

Lu Chu Hsiang Taoyuan Shien, Taiwan

This is to certify that the following measuring facility has been registered in accordance with the Regulations for Voluntary Control Measures

Registration No. : C-402

Date of Registration : July 1, 1999

This Certificate is valid until September 30, 2002

Voluntary Control Council for Interference by Information Technology Equipment

CERTIFICATE

Company : C&C Laboratory Co., Ltd.

Facility: C&C Open Area Test Site No.1

(Radiation 3 and 10 meter site)

Address : No.15, 14 Lin, Chin Twu Chi,

Lu Chu Hsiang Taoyuan Shien, Taiwan

This is to certify that the following measuring facility has been registered in accordance with the Regulations for Voluntary Control Measures

Registration No. : R-393

Date of Registration : July 1, 1999

This Certificate is valid until September 30, 2002

Voluntary Control Council for Interference by Information Technology Equipment

CERTIFICATE

Company : C&C Laboratory Co., Ltd.

Facility: C&C Open Area Test Site No.2

(Radiation 3 and 10 meter site)

Location of Facility : No.15, 14 Lin, Chin Twu Chi, Lu Chu Hsiang Taoyuan Shien

This is to certify that the following measuring facility has been registered in accordance with the Regulations for Voluntary Control Measures

Registration No. : R-1066

Date of Registration : March 6, 2000

This Certificate is valid until March 31, 2003

Voluntary Control Council for Interference by Information Technology Equipment

CERTIFICATE

Facility: C&C Conducted Interference Test Site No.3
(Conducted Interference Measurement)
Company : C&C Laboratory Co., Ltd.
Address : No.15, 14Lin, Chin Twu Chi, Lu Chu Hsiang Taoyuan Shien

This is to certify that the following measuring facility has been registered in accordance with the Regulations for Voluntary Control Measures.

Registration No. : C-747
Date of Registration : May 1, 1998
This Certificate is valid until June 30, 2001

Voluntary Control Council for Interference by Information Technology Equipment

CERTIFICATE

Facility: C&C Open Area Test Site No.3
(Radiation 3 and 10 meter site)
Company : C&C Laboratory Co., Ltd.
Address : No.15, 14Lin, Chin Twu Chi, Lu Chu Hsiang Taoyuan Shien

This is to certify that the following measuring facility has been registered in accordance with the Regulations for Voluntary Control Measures.

Registration No. : R-725
Date of Registration : May 1, 1998
This Certificate is valid until June 30, 2001

Voluntary Control Council for Interference by Information Technology Equipment

CERTIFICATE

Company : C&C Laboratory Co., Ltd.

Facility : C&C Conducted Interference Test Site No.4

(Conducted Interference Measurement)

Address : No.15, 14 Lin, Chin Twu Chi, Lu Chu Hsiang Taoyuan Shien, Taiwan

This is to certify that the following measuring facility has been registered in accordance with the Regulations for Voluntary Control Measures

Registration No. : C-912

Date of Registration : March 26, 1999

This Certificate is valid until March 31, 2002

Voluntary Control Council for Interference by
Information Technology Equipment

0027

CERTIFICATE

Company : C&C Laboratory Co., Ltd.

Facility: C&C Open Area Test Site No.4

(Radiation 3 and 10 meter site)

Address : No.15, 14 Lin, Chin Twu Chi, Lu Chu Hsiang Taoyuan Shien, Taiwan

This is to certify that the following measuring facility has been registered in accordance with the Regulations for Voluntary Control Measures

Registration No. : R-879

Date of Registration : March 26, 1999

This Certificate is valid until March 31, 2002

Voluntary Control Council for Interference by Information Technology Equipment

中華民國實驗室認證體系認可證書

Chinese National Laboratory Accreditation Certificate ROC

CNLA-ZL98078

茲以　程智科技股份有限公司程智科技電磁相容實驗室之電性測試領域經評鑑認可十三項發給本證書有效期限至九十年十一月十四日　此證

This is to certify that C & C Laboratory Co., Ltd., C & C Laboratory Co., Ltd. has been recognized by the Council of Chinese National Laboratory Accreditation as an accredited laboratory. The laboratory has been registered for thirteen specific tests within the field of Electrical Testing. The details of the scope of accreditation are described in the following pages and this certificate is valid until Nov. 14, 2001.

中華民國實驗室認證委員會
主　任　委　員　林能中

Neng-Jong Lin
The Chairman of Chinese National Laboratory Accreditation Council

中　華　民　國 八十九 年 十一 月 十五 日

(本證書共 5 頁, 分離使用無效 This document is invalid unless accompanied by all 5 pages)

機構名稱	程智科技股份有限公司	Organization	C & C Laboratory Co., Ltd.
實驗室名稱	程智科技電磁相容實驗室	Laboratory	C & C Laboratory Co., Ltd.
認可編號	0363	Registration	0363
實驗室負責人	王順義	Laboratory Head	WANG, Charles
測試領域	電性測試	Testing Field	Electrical Testing
發證日期	1998.11.15	Date of Registration	1998.11.15
變更日期	2000.11.15	Date of Revised	2000.11.15

認可項目 Registration items	測試件 Test items	測試方法 Test methods	範圍 Ranges	認可之最佳測試能力 Best Test capability recognized	備註 Remarks
EE0280 低功率射頻電機 Low power R.F. equipment	低功率發射/接收機 Low power radiators/receivers	(87.9)	9 KHz~25.5 GHz		
EJ0102 諧波電流干擾 Harmonic current emissions	資訊類及其週邊產品 ITE and peripheral products	IEC 1000-3-2(1995) EN 61000-3-2(1995)	測試件電壓:100~270VAC(單相) 測試件電流:0~16 A 量測諧波階數:1~40 階		
EJ0103 電壓變動與閃爍干擾 Voltage fluctuations and flicker	資訊類及其週邊產品 ITE and peripheral Products	IEC 1000-3-3(1994) EN 61000-3-3(1995)	測試件電壓:100~270VAC(單相) 測試件電流:0~16 A		

認可項目 Registration items	測試件 Test items	測試方法 Test Methods	範圍 Ranges	認可之最佳測試能力 Best Test capability recognized	備註 Remarks
EJ0113 音響及電視廣播接收機與相關設備 Audio and television broadcast receivers and associated equipment	廣播接收機及其相關產品 Broadcast receivers and associated equipment	EN 55013：1990+A12：1994+A3：1996 CISPR 13：1975+A1：1983 CNS 13439 (86.5)	9 kHz~1.75 GHz		
EJ0114 電器產品及系統 Electrical appliances and systems	家電製品/電動工具及類似裝置 Household appliances/Electric tools and similar apparatus	EN 55014-1：1993+A1：1997+A2：1999 CISPR 14：1993+A1：1996+A2：1999 CNS 13783-1 (87年)	9 KHz~1 GHz		
EJ0122 電信及資訊技術系統及儀器 Systems and apparatus of the telecommunication and information technology	資訊類及其週邊產品 ITE and peripheral products	CISPR 22(1996) EN 55022(1995) CNS 13438(1997) AS/NZS 3548(1995) VCCI(1997) FCC Part 15(1996)	傳導干擾:150 kHz~30 MHz 輻射干擾:30 MHz~1.0 GHz 傳導干擾:450 kHz~30 MHz 輻射干擾:30 MHz~2.0 GHz		

認可項目 Registration items	測試件 Test Items	測試方法 Test Methods	範圍 Ranges	認可之最佳測試能力 Best Test capability recognized	備註 Remarks
EJ0202 靜電放電測試 Electrostatic discharge tests	資訊類及其週邊產品 ITE and peripheral products	IEC 1000-4-2(1995) EN 61000-4-2(1995) CNS 13022-1(1992)	空氣放電: 0.2 kV～16.5 kV(+/-) 接觸放電:0.2 kV～9.0 kV(+/-)		
EJ0203 輻射耐受測試 Radiated susceptibility tests	資訊類及其週邊產品 ITE and peripheral products	IEC 801-3(1984) IEC 1000-4-3(1995) EN 61000-4-3(1996) ENV 50204(1995)	頻率範圍:26MHz～1.0 GHz [illegible] V/m,AM調變) 頻率範圍:900[illegible]±5MHz [illegible]		
EJ0204 電性快速突波測試 Electrical fast transient/burst tests	資訊類及其週邊產品 ITE and peripheral products	IEC 801-4([illegible]) IEC 1000-4-4([illegible]) EN 61000-4-4(1995) CNS 13022-2(1992)	[illegible]～270 VAC(單相) [illegible]～100 A [illegible]:0.22～4.5 kV		
EJ0205 突波/雷擊測試 Surge/lightening tests	資訊類及其週邊產品 ITE and peripheral products	IEC 1000-4-5(1995) ENV 50142(1994) CNS 13022-3(1992)	測試件電壓:100～270 VAC(單相),DC 180V 測試件電流:16 A(AC/DC) 相線耦合範圍:0～4.2 kV 測試埠:電源線		
EJ0206 傳導耐受測試 Conducted susceptibility	資訊類及其週邊產品 ITE and peripheral products	IEC 1000-4-6(1993) EN 61000-4-6(1996)	頻率範圍:150 kHz～230 MHz (振幅:10 V,AM調變)		

認可項目 Registration items	測試件 Test items	測試方法 Test Methods	範圍 Ranges	認可之最佳測試能力 Best Test capability recognized	備註 Remarks
tests					
EJ0208 電源頻率磁場耐受測試 Power frequency magnetic field immunity test	資訊類及其週邊產品 ITE and peripheral products	IEC 1000-4-8 (1993) EN 61000-4-8 (1993)	連續磁場 1 A／m～100 A／m		
EJ0211 電壓下降，瞬斷和緩變耐受測試 Voltage dips, short interruptions and voltage variations immunity tests	資訊類及其週邊產品 ITE and peripheral products	IEC 1000-4-11 ([illegible]94) EN 61000-4-11 ([illegible]94)	[illegible]斷：100 % [illegible]：0～[illegible]0 % [illegible]：[illegible]波形		
（以下空白）					

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TEST EQUIPMENT LIST

Instrumentation: The following list contains equipment used at C & C Laboratory, Co., Ltd. for testing. The equipment conforms to the CISPR 16-1 / ANSI C63.2-1988 Specifications for Electromagnetic Interference and Field Strength Instrumentation from 10kHz to 1.0 / 2.0 GHz.

Equipment used during the tests:

Open Area Test Site: ☐ # 1 ; ☐ # 2 ; ☐ # 3 ; ☑ # 4

Open Area Test Site # 1					
EQUIPMENT TYPE	**MFR**	**MODEL NUMBER**	**SERIAL NUMBER**	**LAST CAL.**	**CAL. DUE**
Q.P Adaptor	HP	85650A	2811A01399	05/05/2000	05/04/2001
RF Pre-selector	HP	85685A	2947A01064	05/05/2000	05/04/2001
Spectrum Analyzer	HP	8568B	3001A05004	05/05/2000	05/04/2001
S.P.A Display	HP	8568B	3014A18846	05/05/2000	05/04/2001
Precision Dipole	R&S	HZ-12	846932/0004	07/14/2000	07/13/2001
Precision Dipole	R&S	HZ-13	846556/0008	07/14/2000	07/13/2001
Bilog Antenna	CHASE	CBL6112A	2309	02/13/2000	02/12/2001
Turn Table	EMCO	2081-1.21	N/A	N.C.R	N.C.R
Antenna Tower	EMCO	2075-2	9707-2604	N.C.R	N.C.R
Controller	EMCO	2090	N/A	N.C.R	N.C.R
RF Switch	ANRITSU	MP59B	M54367	N.C.R	N.C.R
Site NSA	C&C	N/A	N/A	11/05/2000	11/04/2001

Open Area Test Site # 2					
EQUIPMENT TYPE	**MFR**	**MODEL NUMBER**	**SERIAL NUMBER**	**LAST CAL.**	**CAL. DUE**
Spectrum Analyzer	ADVANTEST	R3261A	N/A	03/08/2000	03/07/2001
Pre-Amplifier	HP	8447D	2944A08432	11/28/2000	11/27/2001
EMI Test Receiver	R&S	ESVS10	834468/006	03/24/2000	03/23/2001
Precision Dipole	R&S	HZ-12	846932/0004	07/14/2000	07/13/2001
Precision Dipole	R&S	HZ-13	846556/0008	07/14/2000	07/13/2001
Bilog Antenna	CHASE	CBL 6112B	2635	12/01/2000	11/30/2001
Turn Table	Chance Most	CM-T003-1	T807-6	N.C.R	N.C.R
Antenna Tower	Chance Most	CM-A003-1	A807-6	N.C.R	N.C.R
Controller	Chance Most	N/A	N/A	N.C.R	N.C.R
RF Switch	ANRITSU	MP59B	M76890	N.C.R	N.C.R
Site NSA	C&C Lab.	N/A	N/A	11/11/2000	11/10/2001

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Open Area Test Site # 3					
EQUIPMENT TYPE	**MFR**	**MODEL NUMBER**	**SERIAL NUMBER**	**LAST CAL.**	**CAL. DUE**
Spectrum Analyzer	ADVANTEST	R3261A	21720279	08/15/2000	08/14/2001
Pre-Amplifier	HP	8447D	2944A09173	02/01/2000	01/31/2001
EMI Test Receiver	R&S	ESVS20	838804/004	12/24/1999	12/23/2000
Precision Dipole	R&S	HZ-12	846932/0004	07/14/2000	07/13/2001
Precision Dipole	R&S	HZ-13	846556/0008	07/14/2000	07/13/2001
Bilog Antenna	CHASE	CBL6112A	2179	12/01/2000	11/30/2001
Turn Table	EMCO	2081-1.21	9709-1885	N.C.R	N.C.R
Antenna Tower	EMCO	2075-2	9707-2060	N.C.R	N.C.R
Controller	EMCO	2090	9709-1256	N.C.R	N.C.R
RF Switch	ANRITSU	MP59B	M53867	N.C.R	N.C.R
Site NSA	C&C	N/A	N/A	01/29/2000	01/28/2001

Open Area Test Site # 4					
EQUIPMENT TYPE	**MFR**	**MODEL NUMBER**	**SERIAL NUMBER**	**LAST CAL.**	**CAL. DUE**
Spectrum Analyzer	ADVANTEST	R3132	91700456	02/15/2000	02/14/2001
EMI Test Receiver	R&S	ESCS30	847793/012	11/10/2000	11/09/2001
Precision Dipole	R&S	HZ-12	846932/0004	07/14/2000	07/13/2001
Precision Dipole	R&S	HZ-13	846556/0008	07/14/2000	07/13/2001
Bilog Antenna	CHASE	CBL 6112B	2462	01/13/2000	01/12/2001
Turn Table	Chance most	N/A	N/A	N.C.R	N.C.R
Antenna Tower	Chance most	N/A	N/A	N.C.R	N.C.R
Controller	Chance most	N/A	N/A	N.C.R	N.C.R
RF Switch	ANRITSU	MP59B	M51067	N.C.R	N.C.R
Site NSA	C&C Lab.	N/A	N/A	12/26/1999	12/25/2000

Conducted Emission Test Site: # 4

Conducted Emission Test Site # 4					
EQUIPMENT TYPE	**MFR**	**MODEL NUMBER**	**SERIAL NUMBER**	**LAST CAL.**	**CAL. DUE**
EMI Test Receiver	R&S	ESCS30	845552/030	12/07/2000	12/06/2001
LISN	EMCO	3825/2	9003/1382	01/10/2000	01/09/2001
LISN	R&S	ENV 4200	8303261016	11/18/2000	11/17/2001

The calibrations of the measuring instruments, including any accessories that may effect such calibration, are checked frequently to assure their accuracy. Adjustments are made and correction factors applied in accordance with instructions contained in the manual for the measuring instrument.

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TEST EQUIPMENT LIST

For Power Harmonic & Voltage Fluctuation/Flicker Measurement:

Manufacturer/Type	Model No.	Serial No.	Last Cal.	Cal. Due
HAEFELY TRENCH Harmonic & Flicker Tester	PHF 555	080 419-25	Oct. 16, 2000	Oct. 15, 2001

For ESD test:

Manufacturer/Type	Model No.	Serial No.	Last Cal.	Cal. Due
HAEFELY/TRENCH ESD Generator	PESD 1600	H710203	Sep. 02, 2000	Sep. 01, 2001

For Radiated Electromagnetic Field immunity Measurement:

Manufacturer/Type	Model No.	Serial No.	Last Cal.	Cal. Due
Maconi /Signal Generator	2022D	119246/003	Aug. 21, 2000	Aug. 20, 2001
M2S / Power Amplifier	A00181/1000	9801-112	N/A	N/A
M2S / Power Amplifier	AC8113/800-250A	9801-179	N/A	N/A
Wandel & Goltormann/ EM-Radiation Meter	EMR-30	L-0013	Feb. 25, 2000	Feb. 24, 2001
EMCO Power Antenna	93141	9712-1083	N/A	N/A

For Fast Transients/Burst test:

Manufacturer/Type	Model No.	Serial No.	Last Cal.	Cal. Due
HAEFELY TRENCH/ Fast Transients/Burst Generator	PEFT-JUNIOR	583 333-117	Aug. 21, 2000	Aug. 20, 2001

For CS test:

Manufacturer/Type	Model No.	Serial No.	Last Cal.	Cal. Due
Maconi /Signal Generator	2022D	119246/003	Aug. 21, 2000	Aug. 20, 2001
MEB / CDN M3	M3	3683	Sep. 11, 2000	Sep. 10, 2001
C.D.N / CDN M2	CDN-M2	A3002010	Apr. 09, 2000	Apr. 08, 2001
M2S / Power Amplifier	A00181/1000	9801-112	N/A	N/A

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SECTION 1 EN 55022 (LINE CONDUCTED & RADIATED EMISSION)

MEASUREMENT PROCEDURE
(PRELIMINARY LINE CONDUCTED EMISSION TEST)

1) The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When the EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per EN 55022 (see Test Facility for the dimensions of the ground plane used). When the EUT is a floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.

2) Support equipment, if needed, was placed as per EN 55022.

3) All I/O cables were positioned to simulate typical actual usage as per EN 55022.

4) The EUT received AC power through a Line Impedance Stabilization Network (LISN) which supplied power source of 230VAC/50Hz and was grounded to the ground plane.

5) All support equipment received power from a second LISN supplying power of 110VAC/60Hz.

6) The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.

7) Analyzer / Receiver scanned from 150kHz to 30MHz for emissions in each of the test modes.

8) During the above scans, the emissions were maximized by cable manipulation.

9) The following test mode(s) were scanned during the preliminary test:

Mode(s): (customer defined)

1. 1600 x 1200 Resolution

10) After the preliminary scan, we found the following test mode producing the highest emission level.

Mode: 1.

Then, the EUT configuration and cable configuration of the above highest emission level were recorded for reference of final testing.

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MEASUREMENT PROCEDURE
(FINAL LINE CONDUCTED EMISSION TEST)

1) EUT and support equipment was set up on the test bench as per step 10 of the preliminary test.

2) A scan was taken on both power lines, Line 1 and Line 2, recording at least the six highest emissions. Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit.

3) The test data of the worst case condition(s) was reported on the Summary Data page.

Data Sample:

Freq. MHz	Q.P. Raw dBuV	Average Raw dBuV	Q.P. Limit dBuV	Average Limit dBuV	Q.P. Margin dB	Average Margin dB	Note
x.xx	43.95	---	56	46	-12.05	-2.05	L 1

Freq. = Emission frequency in MHz
Raw dBuV = Uncorrected Analyzer/Receiver reading
Limit dBuV = Limit stated in standard
Margin dB = Reading in reference to limit
Note = Current carrying line of reading
"---" = The emission level complied with the Average limits, with at least 2 dB margin, so no further recheck.

LINE CONDUCTED EMISSION LIMIT

Frequency	Maximum RF Line Voltage	
	Q.P.	AVERAGE
150kHz-500kHz	79dBuV	66dBuV
500kHz-5MHz	73dBuV	60dBuV
5MHz-30MHz	73dBuV	60dBuV

Note: The lower limit shall apply at the transition frequency.

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MEASUREMENT PROCEDURE
(PRELIMINARY RADIATED EMISSION TEST)

1) The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When the EUT is a tabletop system, a wooden turntable with a height of 0.8 meters is used which is placed on the ground plane as per EN 55022 (see Test Facility for the dimensions of the ground plane used). When the EUT is a floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.

2) Support equipment, if needed, was placed as per EN 55022.

3) All I/O cables were positioned to simulate typical actual usage as per EN 55022.

4) The EUT received 230VAC/50Hz power source from the outlet socket under the turntable. All support equipment received 110VAC/60Hz power from another socket under the turntable.

5) The antenna was placed at some given distance away from the EUT as stated in EN 55022. The antenna connected to the analyzer via a cable and at times a pre-amplifier would be used.

6) The Analyzer quickly scanned from 30MHz to 1000MHz. The EUT test program was started. Emissions were scanned and measured rotating the EUT to 360 degrees and positioning the antenna 1 to 4 meters above the ground plane, in both the vertical and the horizontal polarization, to maximize the emission reading level.

7) The following test mode(s) were scanned during the preliminary test:

Mode(s): (customer defined)

1. 1600 x 1200 Resolution

8) After the preliminary scan, we found the following test mode producing the highest emission level.

Mode: 1.

Then, the EUT and cable configuration, antenna position, polarization and turntable position of the above highest emission level were recorded for final testing.

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MEASUREMENT PROCEDURE
(FINAL RADIATED EMISSION TEST)

1) EUT and support equipment were set up on the turntable as per step 8 of the preliminary test.

2) The Analyzer / Receiver scanned from 30MHz to 1000MHz. Emissions were scanned and measured rotating the EUT to 360 degrees, varying cable placement and positioning the antenna 1 to 4 meters above the ground plane, in both the vertical and the horizontal polarization, to maximize the emission reading level.

3) Recorded at least the six highest emissions. Emission frequency, amplitude, antenna position, polarization and turntable position were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit and only Q.P. reading is presented.

4) The test data of the worst case condition(s) was reported on the Summary Data page.

Data Sample:

Freq. (MHz)	Raw Data (dBuV/m)	Corr. Factor (dB)	Emiss. Level (dBuV/m)	Limits	Margin (dB)
xx.xx	14.0	11.2	26.2	30	-3.8

Freq.	= Emission frequency in MHz
Raw Data (dBuV/m)	= Uncorrected Analyzer / Receiver reading
Corr. Factor (dB)	= Correction factors of antenna factor and cable loss
Emiss. Level	= Raw reading converted to dBuV and CF added
Limit dBuV/m	= Limit stated in standard
Margin dB	= Reading in reference to limit

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RADIATED EMISSION LIMIT

Frequency (MHz)	Distance (m)	Maximum Field Strength Limit (dBuV/m/ Q.P.)
30-230	10	40
230-1000	10	47

Note: The lower limit shall apply at the transition frequency.

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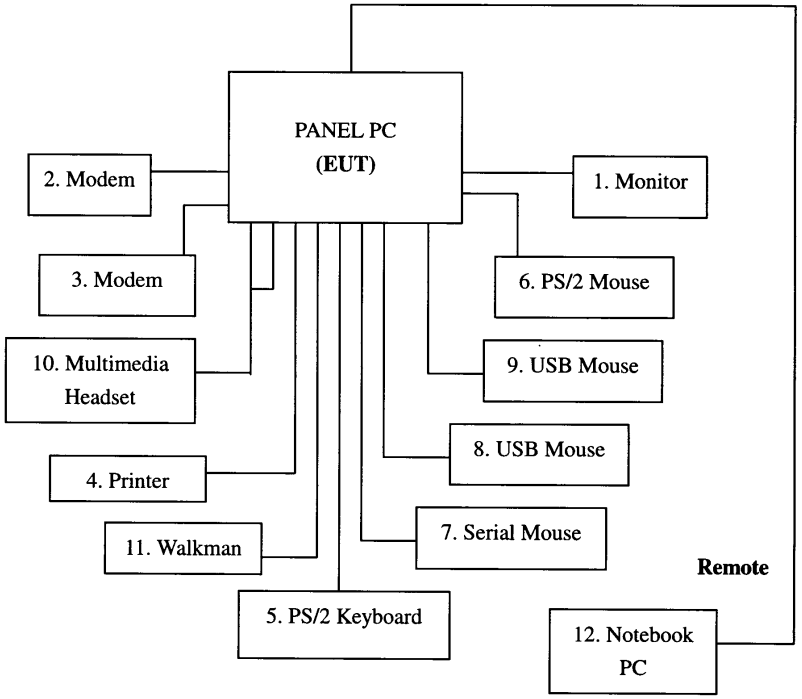
BLOCK DIAGRAM OF TEST SETUP

SYSTEM DIAGRAM OF CONNECTIONS BETWEEN EUT AND SIMULATORS

EUT: LCD PANEL PC
Trade Name: N/A
Model Number: ONYX-151
Power Cord: Unshielded, 1.8m



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SUMMARY DATA

(LINE CONDUCTED TEST)

Model Number: ONYX-151 **Location:** Site # 4

Tested by: Jacky Wang

Test Mode: Mode 1

Test Results: Passed

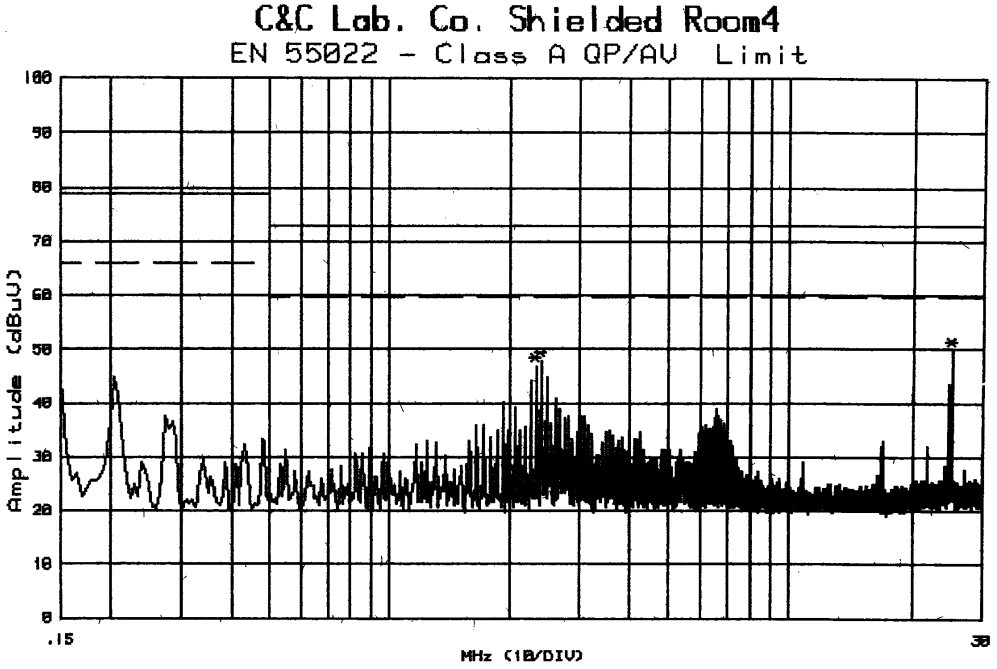
Temperature: 18^{0}C **Humidity:** 72%RH

(The chart below shows the highest readings taken from the final data)

FREQ MHz	Q.P. RAW dBuV	AVG RAW dBuV	Q.P. Limit dBuV	AVG Limit dBuV	Q.P. Margin dB	AVG Margin dB	NOTE
0.230	42.1	---	79.0	66.0	-36.9	---	L1
2.320	44.1	---	73.0	60.0	-28.9	---	L1
2.350	45.1	---	73.0	60.0	-27.9	---	L1
2.420	43.2	---	73.0	60.0	-29.8	---	L1
2.550	42.8	---	73.0	60.0	-30.2	---	L1
25.200	48.7	---	73.0	60.0	-24.3	---	L1
0.220	45.1	---	79.0	66.0	-33.9	---	L2
0.510	44.3	---	73.0	60.0	-28.7	---	L2
0.550	45.6	---	73.0	60.0	-27.4	---	L2
1.890	43.7	---	73.0	60.0	-29.3	---	L2
2.500	44.8	---	73.0	60.0	-28.2	---	L2
25.220	47.1	---	73.0	60.0	-25.9	---	L2

L1 = Line One (Hot side) / L2 = Line Two (Neutral side)

****NOTE: "---" denotes the emission level was or more than 2dB below the Average limit, so no re-check anymore.**



Customer:NA
Model :ONYX-151
Mode :230V 50Hz
Reading :Peak(R&S Receiver)
Mark :FULL SYSTEM

File#: 3798
Humd.:72 (%)
Port :L1

Date :11 Dec 2000 20:57:11
Temp. :18 (C)
Tester:JACKY WANG

No.	Freq. (MHz)	Reading (dBuV)	I_Loss (dB)	Total (dBuV)	QP.Lmt (dBuV)	Margin (dB)	Warning Mark
1	2.340	37.3	9.7	47.0	73.0	-26.0	
2	2.410	38.1	9.7	47.8	73.0	-25.2	
3	25.040	39.9	10.0	49.9	73.0	-23.1	

C & C Lab. Co. Ltd
File No. 000922-E
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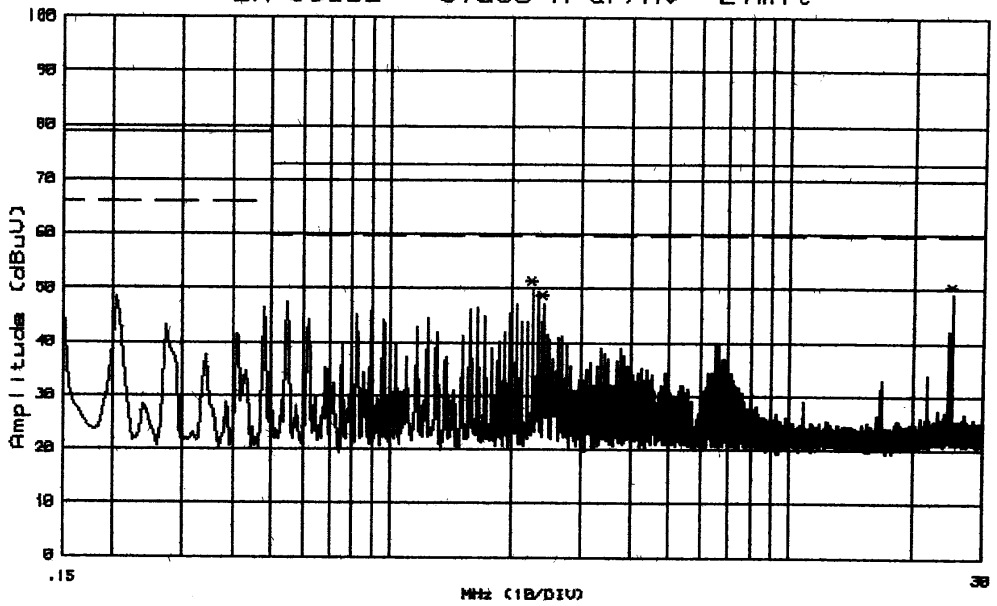
C&C Lab. Co. Shielded Room4

EN 55022 - Class A QP/AV Limit



Customer:NA
Model :ONYX-151
Mode :230V 50Hz
Reading :Peak(R&S Receiver)
mark :FULL SYSTEM

File#: 3799
Humd.:72 (%)
Port :L2

Date :11 Dec 2000 21:15:22
Temp. :18 (C)
Tester:JACKY WANG

No.	Freq. (MHz)	Reading (dBuV)	I_Loss (dB)	Total (dBuV)	QP.Lmt (dBuV)	Margin (dB)	Warning Mark
1	2.270	40.2	9.8	50.0	73.0	-23.0	
2	2.410	37.5	9.8	47.3	73.0	-25.7	
3	25.030	39.0	10.1	49.1	73.0	-23.9	

C & C Lab. Co. Ltd.
File No. 000992-2
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0363

SUMMARY DATA

(RADIATED EMISSION TEST)

Model Number: ONYX-151 **Location:** Site # 4

Tested by: Jacky Wang

Test Mode: Mode 1 **Polar:** Vertical -- 10m

Detector Function: Quasi-Peak **Test Results:** Passed

Temperature: 19^{0}C **Humidity:** 70%RH

(The chart below shows the highest readings taken from the final data)

Freq. (MHz)	Raw Data (dBuV/m)	Corr. Factor (dB)	Emiss. Level (dBuV/m)	Limits	Margin (dB)
49.04	25.6	11.7	37.3	40.0	-2.7
148.04	26.0	11.5	37.5	40.0	-2.5
167.02	26.1	10.8	36.9	40.0	-3.1
201.30	26.0	11.6	37.6	40.0	-2.4
398.05	24.8	19.5	44.3	47.0	-2.7
504.24	23.2	20.1	43.3	47.0	-3.7

0363

SUMMARY DATA

(RADIATED EMISSION TEST)

Model Number: ONYX-151 **Location:** Site # 4

Tested by: Jacky Wang

Test Mode: Mode 1 **Polar:** Horizontal -- 10m

Detector Function: Quasi-Peak **Test Results:** Passed

Temperature: 19^{0}C **Humidity:** 70%RH

(The chart below shows the highest readings taken from the final data)

Freq. (MHz)	Raw Data (dBuV/m)	Corr. Factor (dB)	Emiss. Level (dBuV/m)	Limits	Margin (dB)
49.02	25.1	11.7	36.8	40.0	-3.2
149.34	23.9	11.4	35.3	40.0	-4.7
166.91	25.7	10.8	36.5	40.0	-3.5
198.36	24.2	11.6	35.8	40.0	-4.2
402.69	22.4	19.6	42.0	47.0	-5.0
498.40	21.4	19.9	41.3	47.0	-5.7

SECTION 2 EN 61000-3-2 & EN 61000-3-3 (POWER HARMONICS & VOLTAGE FLUCTUATION/FLICKER)

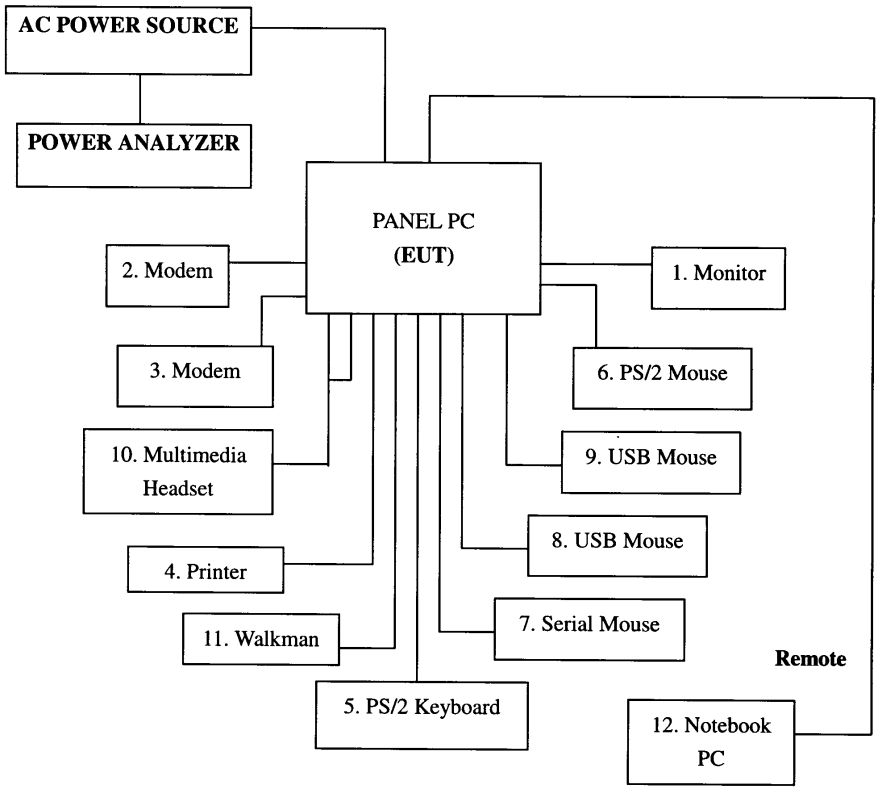
POWER HARMONICS MEASUREMENT

Port	:	AC mains
Basic Standard	:	EN 61000-3-2 (1995 +A1: 1998 + A2: 1998)
Limits	:	[V] Class A, [ ] Class D
Tested by	:	Jacky Wang
Temperature	:	24^0C
Humidity	:	45%

VOLTAGE FLUCTUATION/FLICKER MEASUREMENT

Port	:	AC mains
Basic Standard	:	EN 61000-3-3 (1995)
Limits	:	§5 of EN 61000-3-3
Tested by	:	Jacky Wang
Temperature	:	24^0C
Humidity	:	45%

Block Diagram of Test Setup:



Result:

Please see the attached test data.

EN61000-3-2 TEST REPORT 2000/12/11 11:01 PM

Unit: LCD Panal PC

Serial No.: ONYX-151

Remarks: Temp: 24 Humidity: 45%

Operator: JACKY WANG

TEST SETUP

Test Freq.:	50.00 Hz.	Test Voltage:	230.0 vac
Waveform :	SINE	Test Time:	2.5 min.
Classification :	CLASS A	Test Type:	STEADY-STATE

Prog. Zo Enabled: YES Prog. Zo: 0.000

Motor Driven with Phase Angle Control: NO
Impedance selected: DIRECT

Synthetic R+L Enabled: NO
Resistance: 0.380 Ohms Inductance: 460.000 uH

Max Watts:68.2W

TEST DATA

Result: PASS

Harmonic Current Results

Hn	AMPS	LO Limit	HI Limit	Result
0	0.000	0.000	0.000	PASS
1	0.297	NaN	NaN	PASS
2	0.002	1.080	1.080	PASS
3	0.271	2.300	2.300	PASS
4	0.002	0.430	0.430	PASS
5	0.252	1.140	1.140	PASS
6	0.002	0.300	0.300	PASS
7	0.228	0.770	0.770	PASS
8	0.002	0.230	0.230	PASS
9	0.198	0.400	0.400	PASS
10	0.002	0.184	0.184	PASS
11	0.166	0.330	0.330	PASS
12	0.001	0.153	0.153	PASS
13	0.132	0.210	0.210	PASS
14	0.001	0.131	0.131	PASS
15	0.098	0.150	0.150	PASS
16	0.001	0.115	0.115	PASS
17	0.068	0.132	0.132	PASS
18	0.001	0.102	0.102	PASS
19	0.043	0.118	0.118	PASS
20	0.001	0.092	0.092	PASS
21	0.023	0.107	0.107	PASS
22	0.001	0.084	0.084	PASS

23	0.013	0.098	0.098	PASS
24	0.001	0.077	0.077	PASS
25	0.018	0.090	0.090	PASS
26	0.001	0.071	0.071	PASS
27	0.022	0.083	0.083	PASS
28	0.001	0.066	0.066	PASS
29	0.023	0.078	0.078	PASS
30	0.000	0.061	0.061	PASS
31	0.020	0.073	0.073	PASS
32	0.000	0.058	0.058	PASS
33	0.016	0.068	0.068	PASS
34	0.000	0.054	0.054	PASS
35	0.012	0.064	0.064	PASS
36	0.000	0.051	0.051	PASS
37	0.007	0.061	0.061	PASS
38	0.000	0.048	0.048	PASS
39	0.003	0.058	0.058	PASS
40	0.001	0.046	0.046	PASS

END OF REPORT

EN 61000-3-3 TEST REPORT 2000/12/11 11:19 PM

Unit: LCD LCD PANEL PC

Serial No.: ONYX-151

Remarks: Temp: 24 Humidity: 45%

Operator: JACKY WANG

TEST SETUP

Test Freq.:	50.00 Hz.	Test Voltage:	230.0 vac
Waveform :	SINE		
Test Time:	10.0 min.	Tshort:	10.0 min.
Prog. Zo Enabled:	YES	Prog. Zo:	0.000

Voltage Change less than once per Hour: NO
Impedance selected: DIRECT

Synthetic R+L Enabled: NO
Resistance: 0.380 Ohms Inductance: 460.000 uH

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TEST DATA

Result: PASS

EUT Data	Limit	Result	Test Enabled	
Pst max	0.009	1.00	PASS	true
Plt max	0.009	0.65	PASS	true
dc %	0.00	3.00	PASS	true
dmax %	0.00	4.00	PASS	true
d(t) sec.	0.00	0.20	PASS	true
		Power Source Data		
Source Pst max	0.020	0.400	PASS	true
% THD	0.03	3.00	PASS	true

END OF REPORT

0363

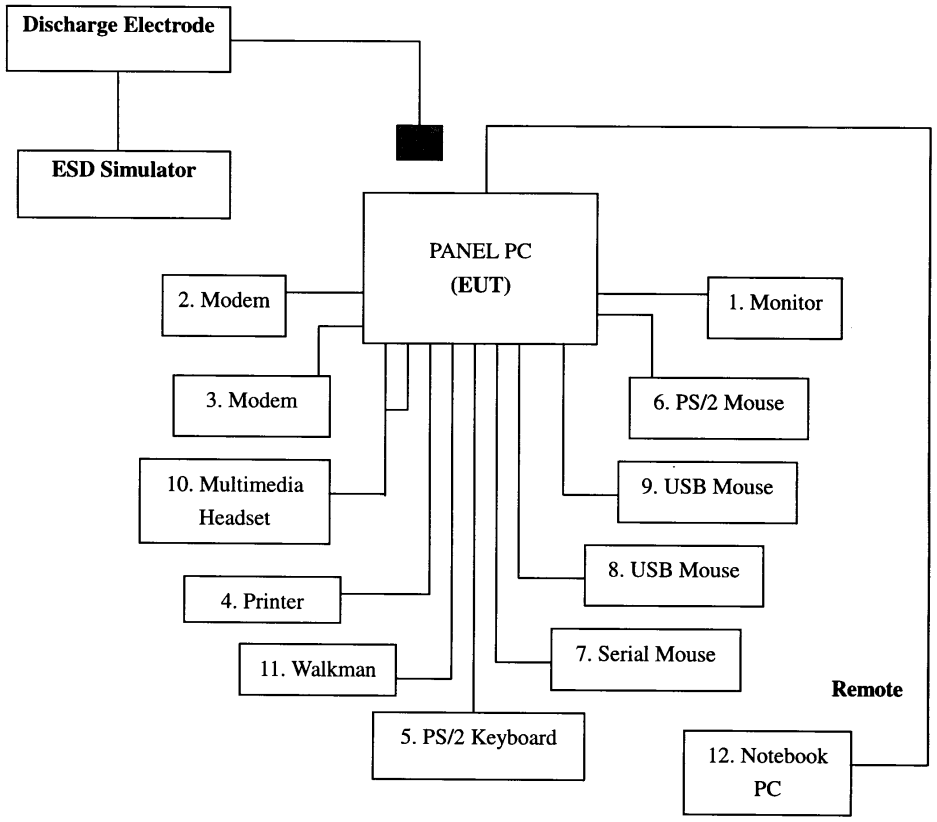
SECTION 3 EN 61000-4-2 (ELECTROSTATIC DISCHARGE)

ELECTROSTATIC DISCHARGE (ESD) IMMUNITY TEST

Port	: Enclosure
Basic Standard	: EN 61000-4-2
Requirements	: ±8kV (Air Discharge)
	±4kV (Contact Discharge)
	±4kV (Indirect Discharge)
Performance Criteria	: B (Standard Required)
Tested by	: Jacky Wang
Temperature/Humidity:	24^0C / 50%

0363

Block Diagram of Test Setup:



0363

Test Procedure:

The electrostatic discharges were applied as follows:

Amount of Discharges	Voltage	Coupling	Result (Pass/Fail)
≥10Point	±8kV	Air Discharge	Pass
≥10Point	±4kV	Contact Discharge	Pass
≥10Point	±4kV	Indirect Discharge HCP (Front)	Pass
≥10Point	±4kV	Indirect Discharge HCP (Left)	Pass
≥10Point	±4kV	Indirect Discharge HCP (Back)	Pass
≥10Point	±4kV	Indirect Discharge HCP (Right)	Pass
≥10Point	±4kV	Indirect Discharge VCP (Front)	Pass
≥10Point	±4kV	Indirect Discharge VCP (Left)	Pass
≥10Point	±4kV	Indirect Discharge VCP (Back)	Pass
≥10Point	±4kV	Indirect Discharge VCP (Right)	Pass

**** The tested points to EUT, please refer to attached pages.**

Performance & Result:

☑ **Criteria A:** The apparatus continues to operate as intended. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases the performance level may be replaced by a permissible loss of performance.

☐ **Criteria B:** The apparatus continues to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases the performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is however allowed.

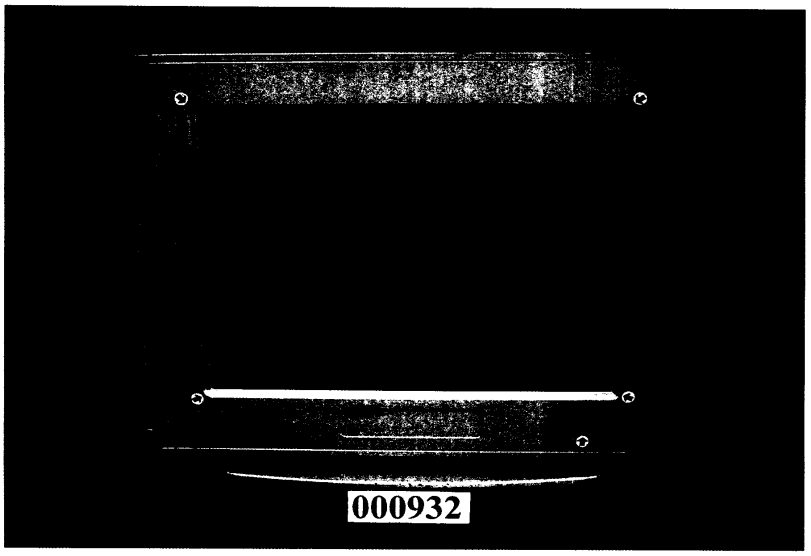
☐ **Criteria C:** Temporary loss of function is allowed, provided the functions self recoverable or can be restored by the operation of controls.

****Observation:** No any function degraded during the tests.

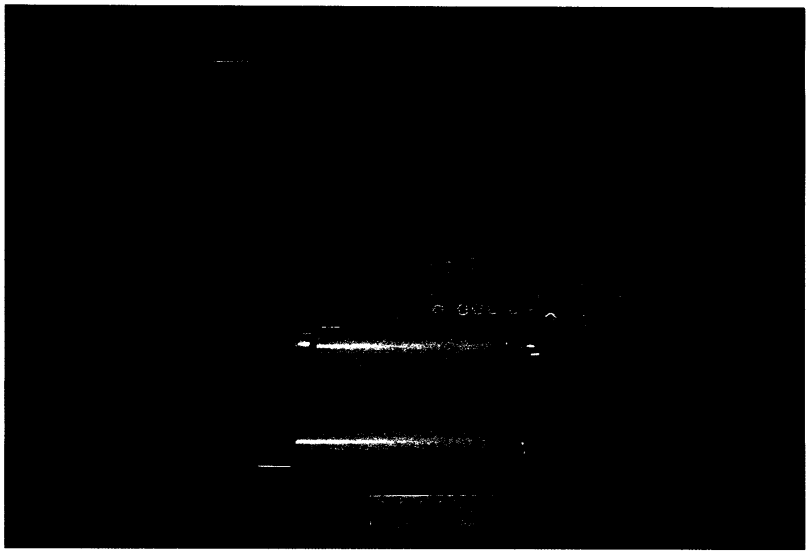
The Tested Points of EUT

0363

(Photo 1 of 2)



(Photo 2 of 2)



0363

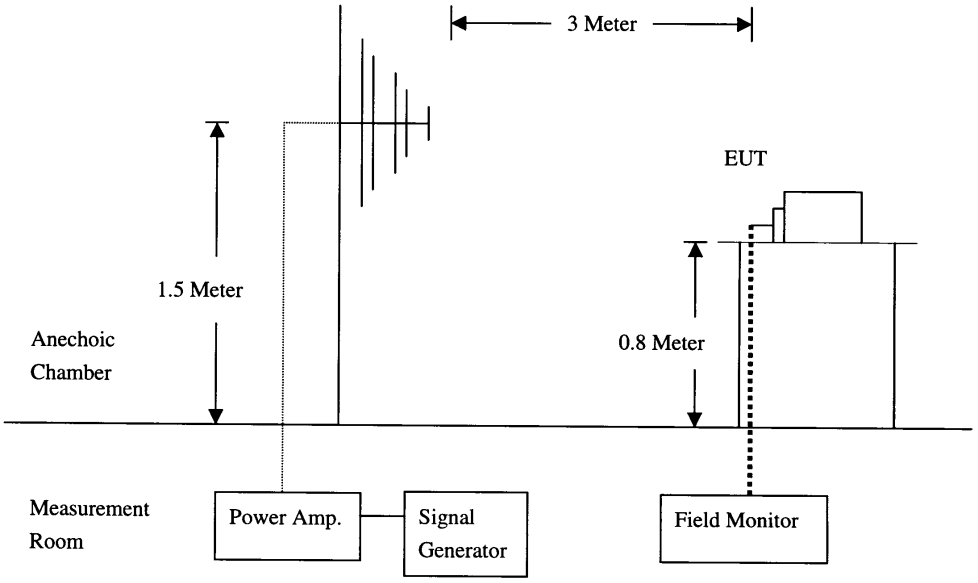
SECTION 4 ENV 50140 (RADIATED ELECTROMAGNETIC FIELD)

RADIATED ELECTROMAGNETIC FIELD IMMUNITY TEST

Port	: Enclosure
Basic Standard	: ENV 50140
Requirements	: 10 V/m, with Modulated
Performance Criteria	: A (Standard Required)
Tested by	: Jacky Wang
Temperature	: 24^{0}C
Humidity	: 50%

Block Diagram of Test Setup:

Same as Section 3 EN61000-4-2 Test Setup:



0363

Test Procedure:

Frequency Range : 80MHz-1000MHz
Frequency Step : 1% of fundamental
Dwell Time : 3 sec

Range (MHz)	Field	Modulation	Polarity	Position (°)	Result (Pass/Fail)
80-1000	10V	Yes	H	0	Pass
80-1000	10V	Yes	V	0	Pass
80-1000	10V	Yes	H	90	Pass
80-1000	10V	Yes	V	90	Pass
80-1000	10V	Yes	H	180	Pass
80-1000	10V	Yes	V	180	Pass
80-1000	10V	Yes	H	270	Pass
80-1000	10V	Yes	V	270	Pass

Performance & Result:

☑ **Criteria A:** The apparatus continues to operate as intended. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases the performance level may be replaced by a permissible loss of performance.

☐ **Criteria B:** The apparatus continues to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases the performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is however allowed.

☐ **Criteria C:** Temporary loss of function is allowed, provided the functions self recoverable or can be restored by the operation of controls.

****Observation:** No any function degraded during the tests.

0363

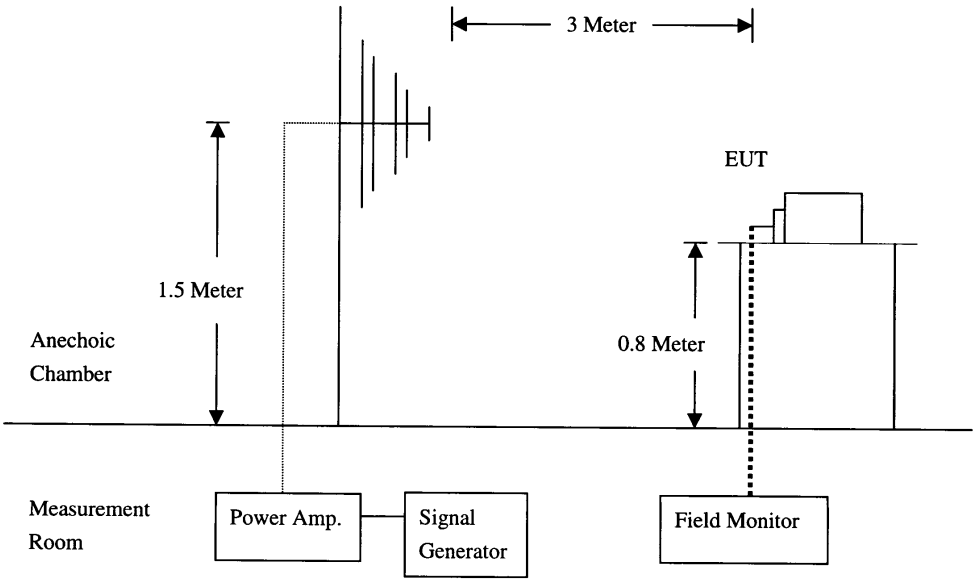
SECTION 5 ENV 50204 (RADIATED ELECTROMAGNETIC FIELD FROM DIGITAL TELEPHONES)

RADIATED ELECTROMAGNETIC FIELD IMMUNITY TEST

Port	: Enclosure
Basic Standard	: ENV 50204
Requirements	: 10 V/m, with modulated
Performance Criteria	: A (Standard Required)
Tested by	: Jacky Wang
Temperature	: 24^{0}C
Humidity	: 50%

Block Diagram of Test Setup:

Same as Section 3 EN61000-4-2 Test Setup:



0363

Test Procedure:

Spot Frequency : 900 MHz ±5MHz
Modulated Frequency : 200 Hz
Duty cycle : 50%

Range (MHz)	Field	Modulation	Polarity	Position (°)	Result (Pass/Fail)
900	10V	Yes	H	0	Pass
900	10V	Yes	V	0	Pass
900	10V	Yes	H	90	Pass
900	10V	Yes	V	90	Pass
900	10V	Yes	H	180	Pass
900	10V	Yes	V	180	Pass
900	10V	Yes	H	270	Pass
900	10V	Yes	V	270	Pass

Performance & Result:

☒ **Criteria A:** The apparatus continues to operate as intended. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases the performance level may be replaced by a permissible loss of performance.

☐ **Criteria B:** The apparatus continues to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases the performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is however allowed.

☐ **Criteria C:** Temporary loss of function is allowed, provided the functions self recoverable or can be restored by the operation of controls.

****Observation:** No any function degraded during the tests.

0363

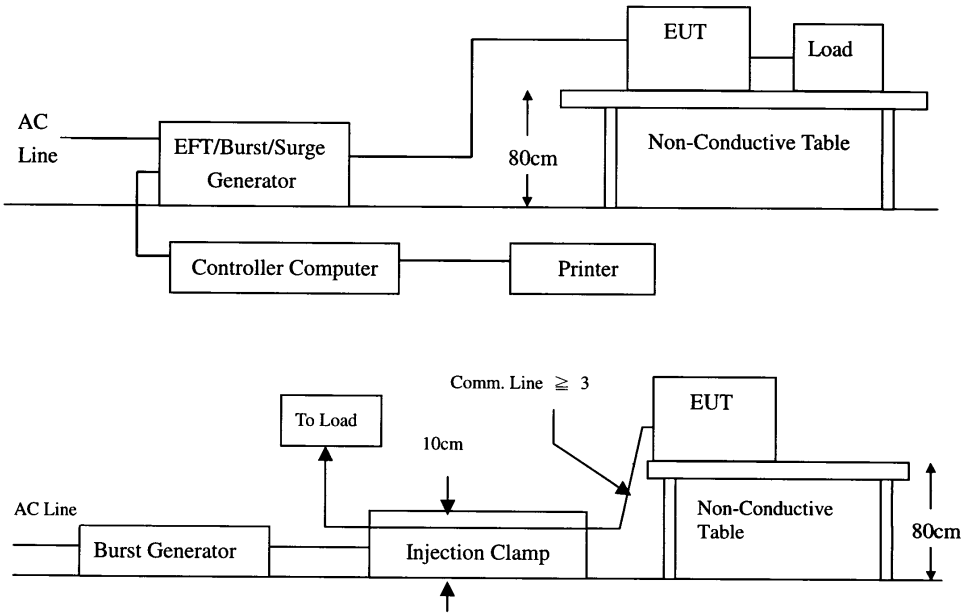
SECTION 6 EN 61000-4-4 (FAST TRANSIENTS/BURST)

FAST TRANSIENTS/BURST IMMUNITY TEST

Port	:	On Power Lines and Data Cable
Basic Standard	:	EN 61000-4-4
Requirements	:	±2kV for Power Supply Line ±1kV for Data Cable
Performance Criteria	:	B (Standard require)
Tested by	:	Jacky Wang
Temperature	:	24°C
Humidity	:	50%
Deviation	:	Not applicable, according to customer request.

Block Diagram of Test Setup:

Same as Section 3 EN 61000-4-2 Test Setup:



0363

Test Procedure:

Impulse Frequency: 5kHz
Tr/Th: 5/50ns
Burst Duration: 15ms
Burst Period: 3Hz

Inject Line	Voltage kV	Inject Method	Result (Pass/Fail)
L1	±2	Direct	Pass
N	±2	Direct	Pass
PE	±2	Direct	Pass
L1 + N	±2	Direct	Pass
L1 + PE	±2	Direct	Pass
N + PE	±2	Direct	Pass
L1 + N + PE	±2	Direct	Pass
LAN	±1	Clamp	Pass

Performance & Result:

[V] **Criteria A:** The apparatus continues to operate as intended. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases the performance level may be replaced by a permissible loss of performance.

[ ] **Criteria B:** The apparatus continues to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases the performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is however allowed.

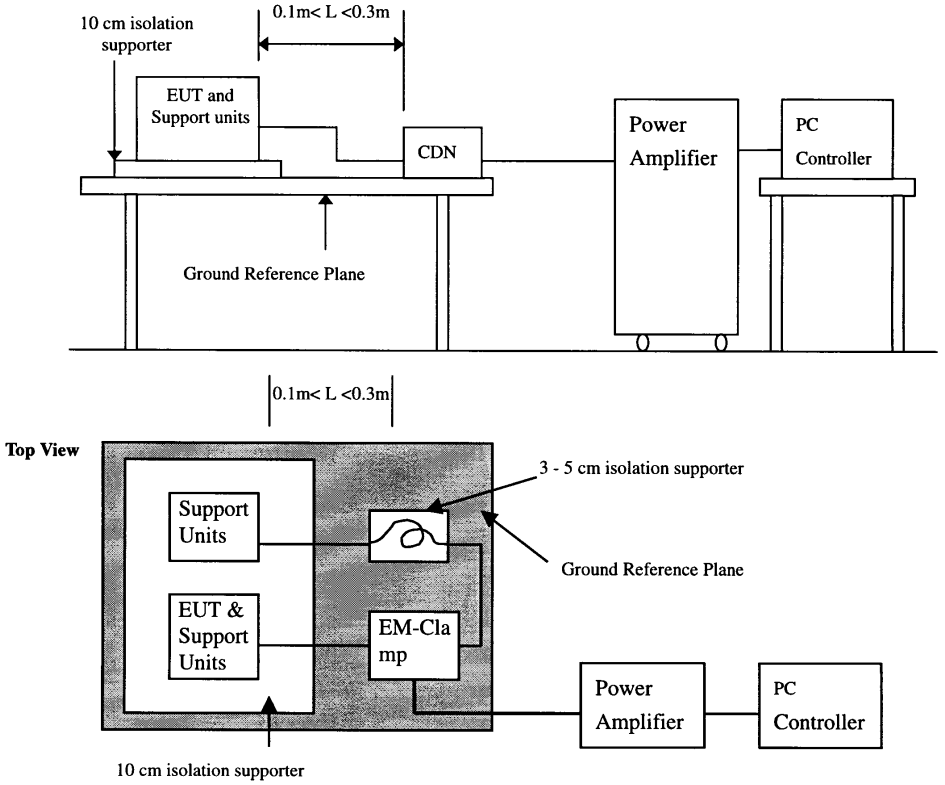
[ ] **Criteria C:** Temporary loss of function is allowed, provided the functions self recoverable or can be restored by the operation of controls.

****Observation:** No any function degraded during the tests.

SECTION 7 ENV 50141 (CONDUCTED DISTURBANCE/INDUCED BY RADIO-FREQUENCY FIELD)

Port	:	Power cord and Data Bus
Basic Standard	:	ENV 50141
Requirements	:	10 V with Modulated
Injection Method	:	CDN-M3 for Power Supply EM-Clamp for LAN cable
Tested by	:	Jacky Wang
Performance Criteria	:	A
Temperature	:	24C
Humidity	:	60%
Deviation	:	N/A

Block Diagram of Test Setup:



0363

Test Procedure:

Frequency Range : 0.15MHz-80MHz
Frequency Step : 1% of fundamental
Dwell Time : 3 sec

Range (MHz)	Field	Modulation	Result (Pass/Fail)
0.15-80	10V	Yes	Pass

Performance & Result:

[V] **Criteria A:** The apparatus continues to operate as intended. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases the performance level may be replaced by a permissible loss of performance.

[ ] **Criteria B:** The apparatus continues to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases the performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is however allowed.

[ ] **Criteria C:** Temporary loss of function is allowed, provided the functions self recoverable or can be restored by the operation of controls.

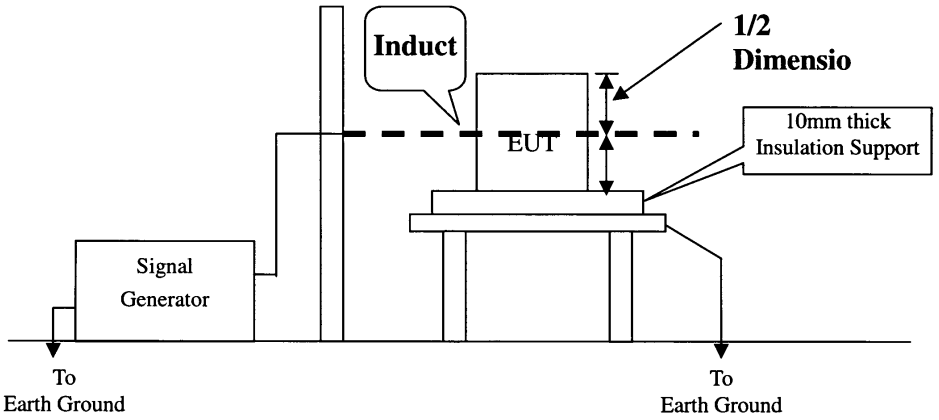
****Observation:** No any function degraded during the tests.

0363

SECTION 9 EN 61000-4-8 (POWER FREQUENCY MAGNETIC FIELD IMMUNITY TEST)

Port	: Enclosure
Basic Standard	: EN 61000-4-8
Requirements	: 3 A/m
Performance Criteria	: A (Standard Required)
Temperature	: N/A
Humidity	: N/A

Block Diagram of Test Setup:



0363

Test Procedure:

Field Strength: 3A/m
Power Freq.: 50Hz
Orientation: X, Y, Z

Orientation	Field	Result (Pass/Fail)	Remark

****Note:** Not applicable, because no any component can be influenced by power magnetic fields.

Performance & Result:

☐ **Criteria A:** The apparatus continues to operate as intended. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases the performance level may be replaced by a permissible loss of performance.

☐ **Criteria B:** The apparatus continues to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases the performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is however allowed.

☐ **Criteria C:** Temporary loss of function is allowed, provided the functions self recoverable or can be restored by the operation of controls.

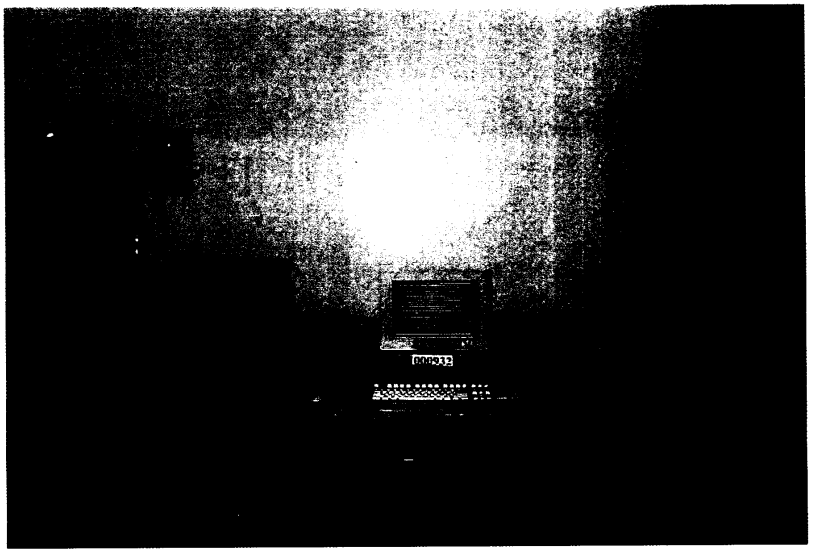
****Observation:** N/A

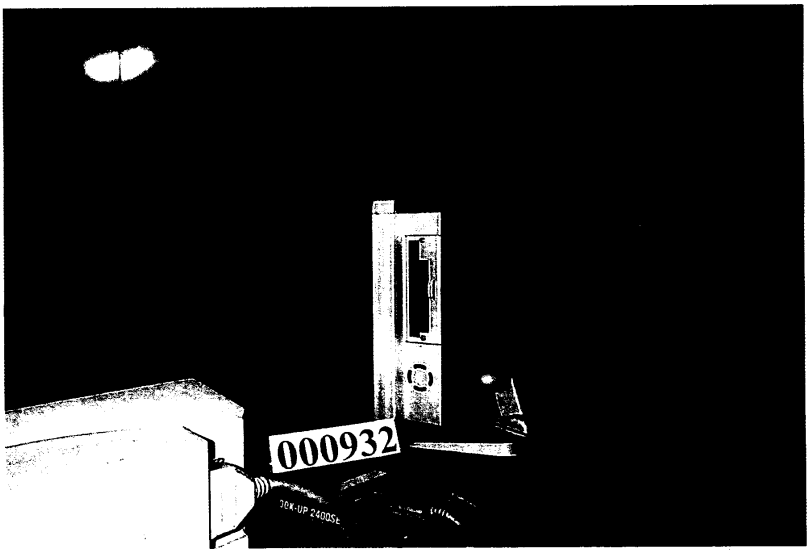
APPENDIX 1

PHOTOGRAPHS OF TEST SETUP

0363

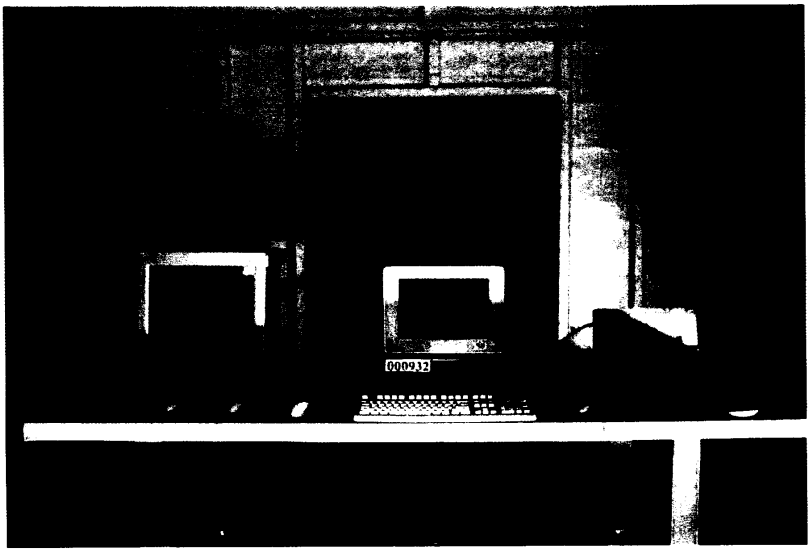
LINE CONDUCTED EMISSION TEST (EN 55022)

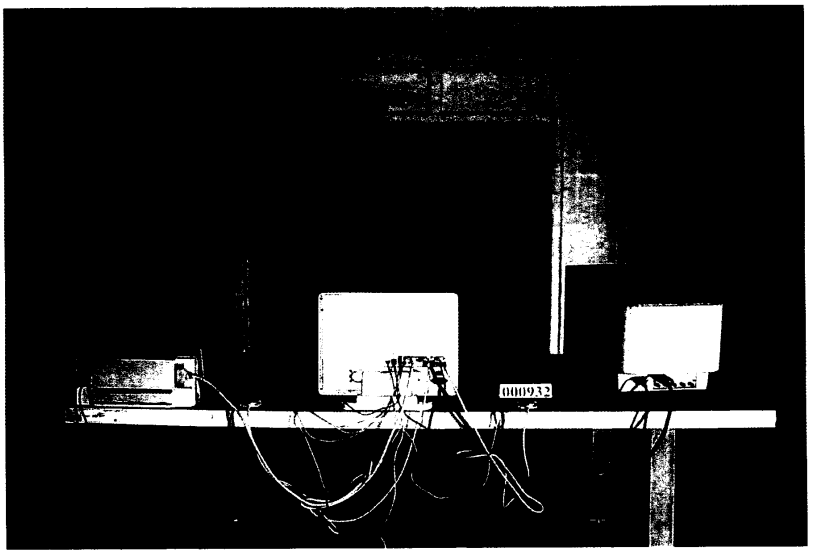




0363

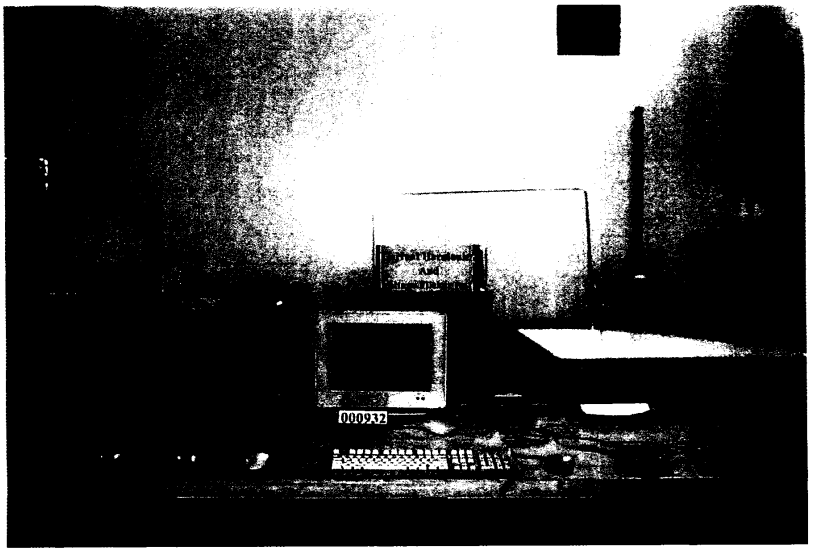
RADIATED EMISSION TEST (EN 55022)





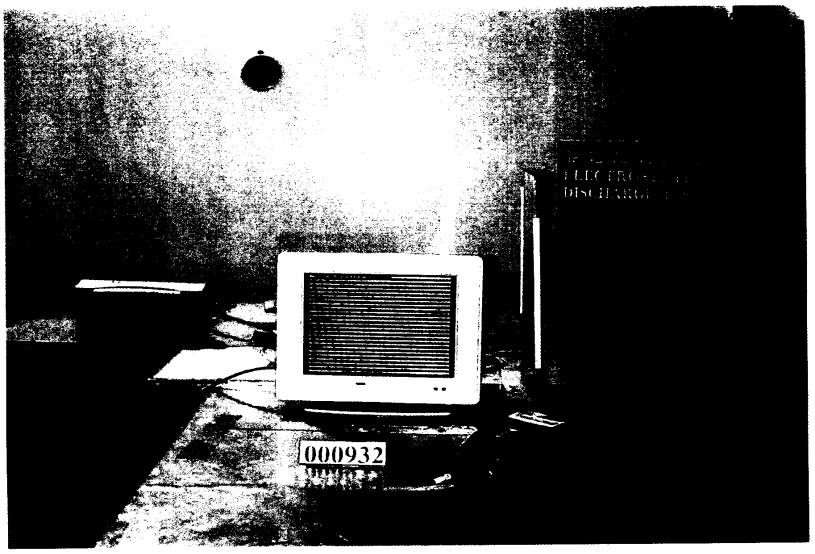
0363

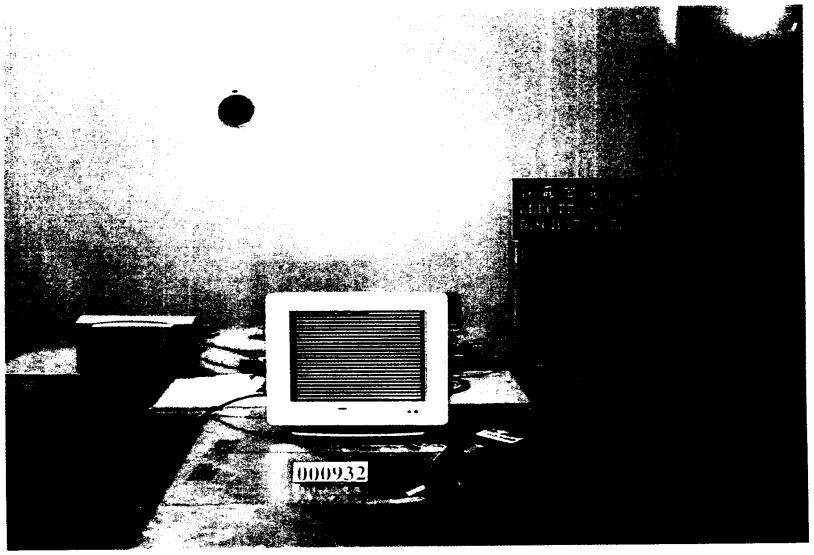
POWER HARMONIC & VOLTAGE FLUCTUATION / FLICKER TEST
(EN 61000-3-2, EN 61000-3-3)



0363

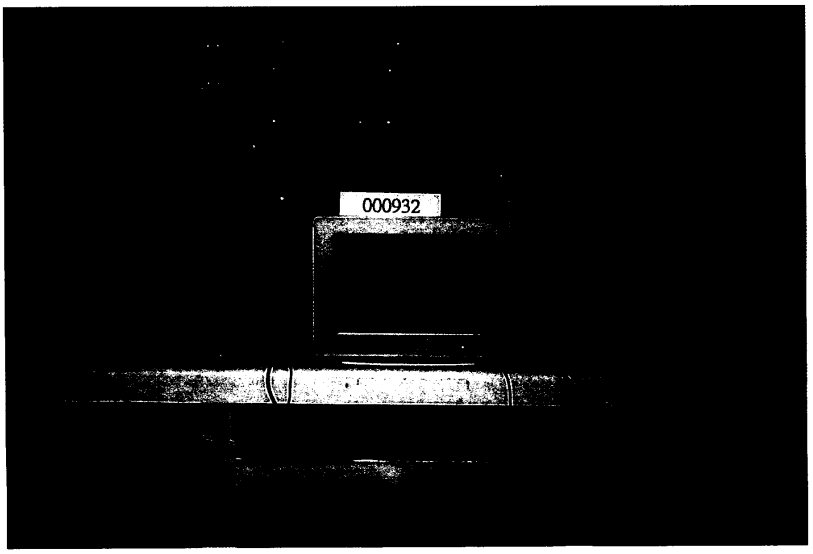
ELECTROSTATIC DISCHARGE TEST (EN 61000-4-2)





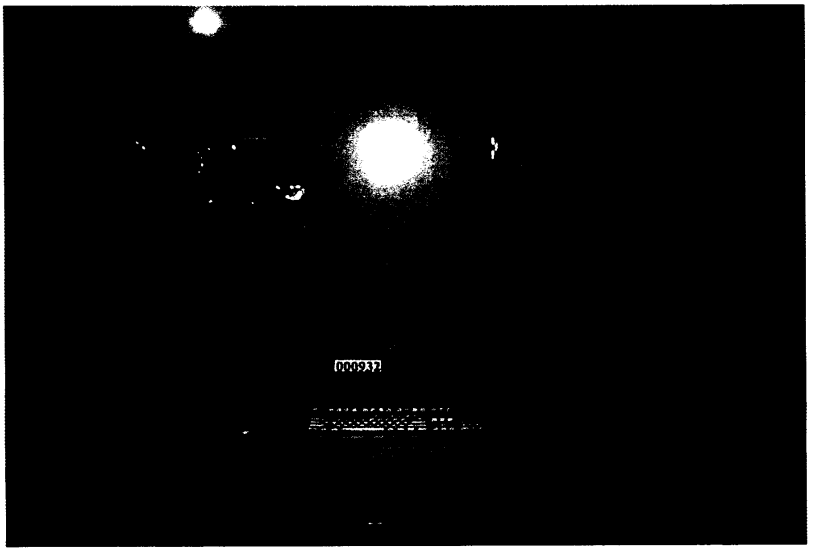
0363

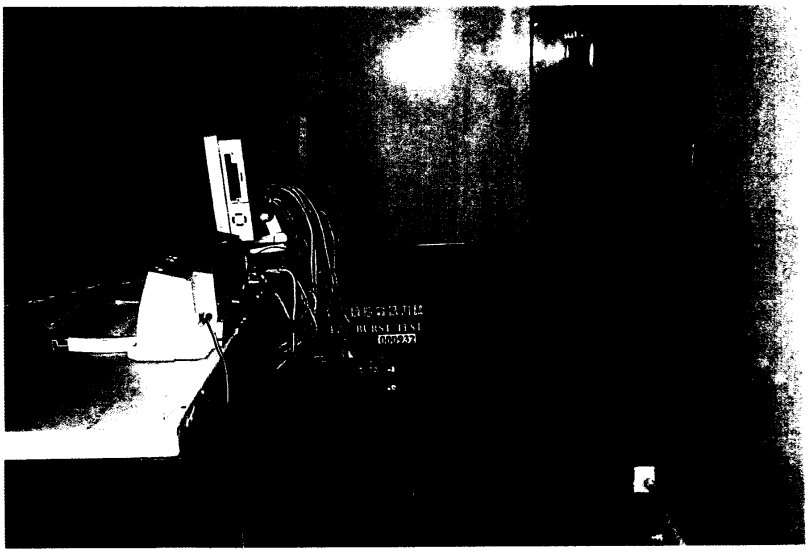
RADIATED ELECTROMAGNETIC FIELD (ENV 50140 & ENV 50204)



0363

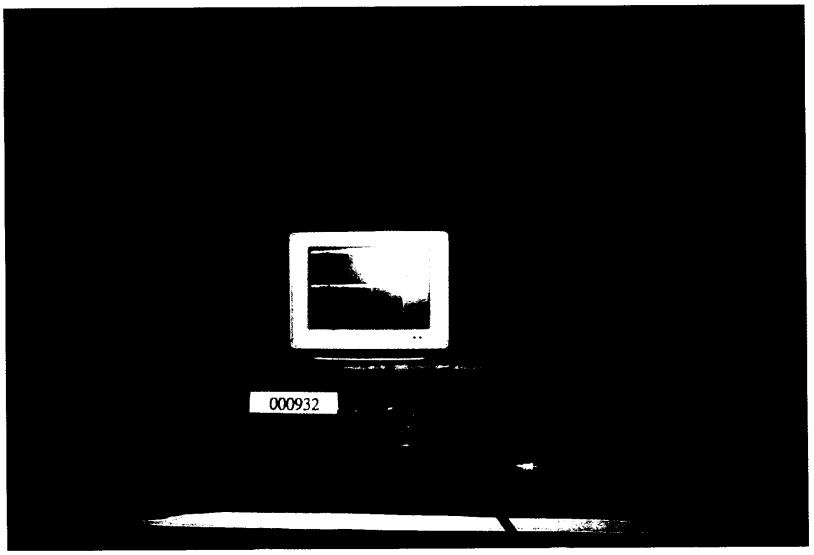
FAST TRANSIENTS/BURST TEST (EN 61000-4-4)





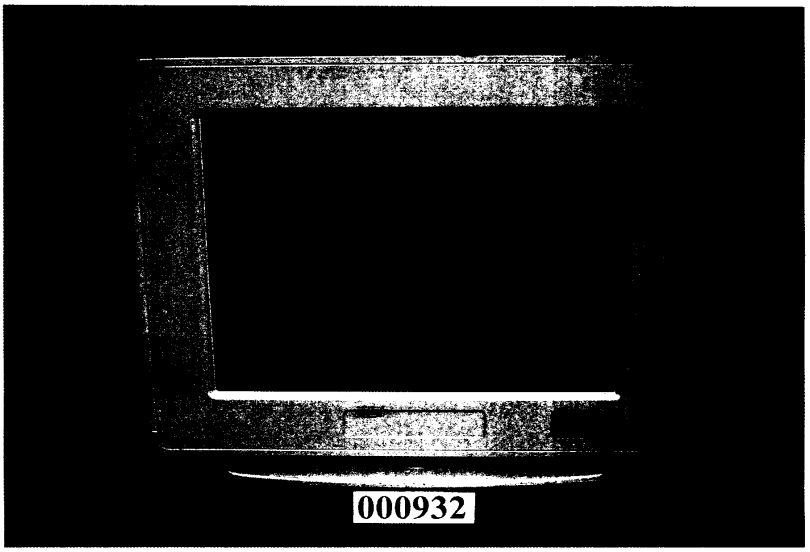
0363

CONDUCTED DISTURBANCE, INDUCED BY RADIO-FREQUENCY FIELDS TEST (ENV 50141)



APPENDIX 2

PHOTOGRAPHS OF EUT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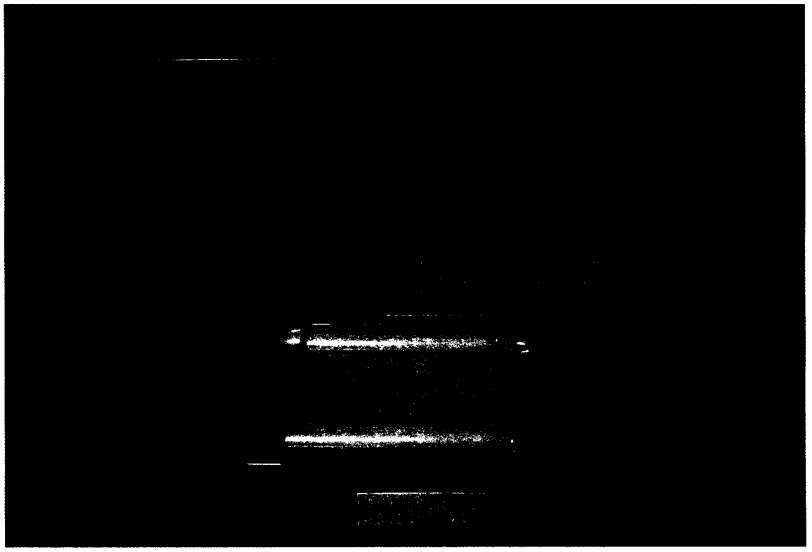

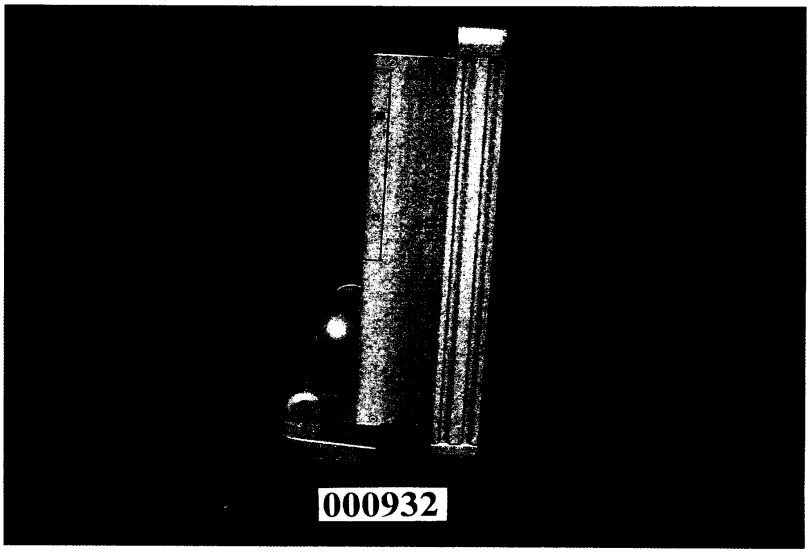
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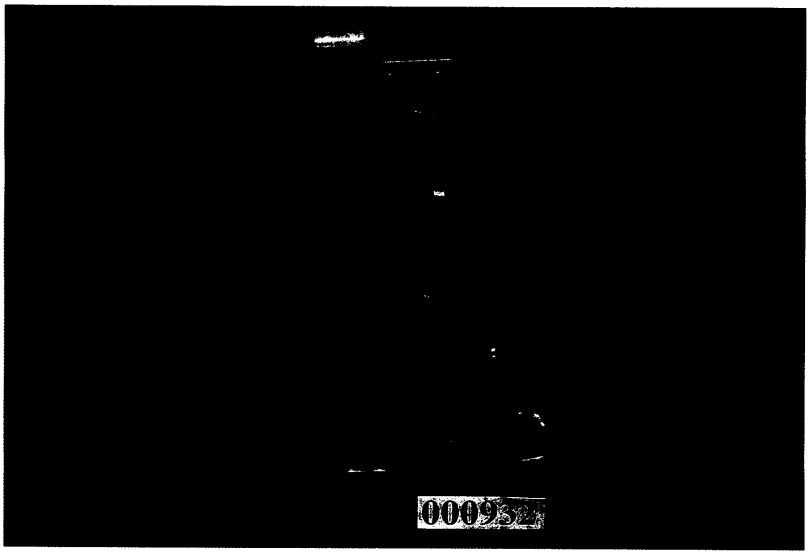
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