



EMC COMPLIANCE TEST REPORT

for

17" LCD Monitor

Trade Name : Acer; Quanta
Model Number : AL1712xx; AL1712; AL1712b;
AL1712m; AL1712bm; L7Txx
Report Number : 03E1077-E
Date : June 16, 2003
Regulations : See below

Standards	Results (Pass/Fail)
EN 55022: 1998	PASS
EN 61000-3-2: 1995+A1: 1998+A2: 1998+A14: 2000	PASS
EN 61000-3-3: 1995	PASS
EN 55024: 1998	PASS
- IEC 61000-4-2: 1995 +A2: 2001	PASS
- IEC 61000-4-3: 1995	PASS
- IEC 61000-4-4: 1995	PASS
- IEC 61000-4-5: 1995	PASS
- IEC 61000-4-6: 1996	PASS
- IEC 61000-4-8: 1993	PASS
- IEC 61000-4-11: 1994	PASS

Prepared for :

Quanta Computer Inc.
No. 4, Wen Ming 1St., Kuei Shan Hsiang,
Tao Yuan Shien, Taiwan, R.O.C.

Prepared by :

C&C LABORATORY CO., LTD.
No. 199, Chung Sheng Road, Hsin Tien City,
Taipei, Taiwan, R. O. C.
TEL: (02)2217-0894
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Lab. Code: 200617-0



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C&C Laboratory Co., Ltd.**



EC-Declaration of Conformity

For the following equipment:

17" LCD Monitor

(Product Name)

AL1712xx; AL1712; AL1712b; AL1712m; AL1712bm; L7Txx / Acer; Quanta

(Model Designation / Trade name)

Tech-Front (Shanghi) Computer Co., Ltd.

(Manufacturer Name)

No. 120, Rongjiang Rd., Songjiang Export Processing Zone, Shanghai, China.

(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 & 98/13/EC), For the evaluation regarding the Electromagnetic Compatibility (89/336/EEC, Amended by 92/31/EEC & 93/68/EEC & 98/13/EC) the following standards are applied:

EN 55022: 1998

EN 61000-3-2: 1995+A1: 1998+A2: 1998+A14: 2000

EN 61000-3-3: 1995

EN 55024: 1998

IEC 61000-4-2: 1995 +A2: 2001, IEC 61000-4-3: 1995, IEC 61000-4-4: 1995

IEC 61000-4-5: 1995, IEC 61000-4-6: 1996, IEC 61000-4-8:1993, IEC 61000-4-11: 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)

TABLE OF CONTENTS

DESCRIPTION	PAGE
VERIFICATION OF COMPLIANCE	5
GENERAL INFORMATION	6
SYSTEM DESCRIPTION	7
PRODUCT INFORMATION	8
SUPPORT EQUIPMENT	9
TEST FACILITY	10
TEST EQUIPMENT	11
SECTION 1 EN 55022(LINE CONDUCTED & RADIATED EMISSION)	14
MEASUREMENT PROCEDURE & LIMIT (LINE CONDUCTED EMISSION TEST)	14
MEASUREMENT PROCEDURE & LIMIT (COMMON MODE CONDUCTED EMISSION MEASUREMENT)	16
MEASUREMENT PROCEDURE & LIMIT (RADIATED EMISSION TEST)	18
BLOCK DIAGRAM OF TEST SETUP	21
SUMMARY DATA	22
SECTION 2 EN61000-3-2 & EN 61000-3-3 (POWER HARMONICS & VOLTAGE FLUCTUATION/FLICKER)	24
BLOCK DIAGRAM OF TEST SETUP	24
RESULT	24
SECTION 3 IEC 61000-4-2 (ELECTROSTATIC DISCHARGE)	35
BLOCK DIAGRAM OF TEST SETUP	35
TEST PROCEDURE	36
PERFORMANCE & RESULT	36
SECTION 4 IEC 61000-4-3 (RADIATED ELECTROMAGNETIC FIELD)	40
BLOCK DIAGRAM OF TEST SETUP	40
TEST PROCEDURE	41
PERFORMANCE & RESULT	42

DESCRIPTION	PAGE
SECTION 5 IEC 61000-4-4 (FAST TRANSIENTS/BURST)	43
BLOCK DIAGRAM OF TEST SETUP	43
TEST PROCEDURE	44
PERFORMANCE & RESULT	44
SECTION 6 IEC 61000-4-5 (SURGE IMMUNITY)	45
BLOCK DIAGRAM OF TEST SETUP	45
TEST PROCEDURE	46
PERFORMANCE & RESULT	46
SECTION 7 IEC 61000-4-6 (CONDUCTED DISTURBANCE, INDUCED BY RADIO-FREQUENCY FIELDS)	47
BLOCK DIAGRAM OF TEST SETUP	47
TEST PROCEDURE	48
PERFORMANCE & RESULT	49
SECTION 8 IEC 61000-4-8 (POWER FREQUENCY MAGNETIC FIELD)	50
BLOCK DIAGRAM OF TEST SETUP	50
TEST PROCEDURE	51
PERFORMANCE & RESULT	51
SECTION 9 IEC 61000-4-11 (VOLTAGE DIP/INTERRUPTION)	52
BLOCK DIAGRAM OF TEST SETUP	52
TEST PROCEDURE	53
PERFORMANCE & RESULT	53
APPENDIX 1 PHOTOGRAPHS OF TEST SETUP	54
EN 55022 TEST	
EN 61000-3-2 TEST	
EN 61000-3-3 TEST	
IEC 61000-4-2 TEST	
IEC 61000-4-3 TEST	
IEC 61000-4-4 TEST	
IEC 61000-4-5 TEST	
IEC 61000-4-6 TEST	
IEC 61000-4-8 TEST	
IEC 61000-4-11 TEST	
APPENDIX 2 PHOTOGRAPHS OF EUT	66
APPENDIX 3 CONDUCTED EMISSION PLOT & RADIATED EMISSION DATA	76

VERIFICATION OF COMPLIANCE

Equipment Under Test: 17" LCD Monitor
Trade Name: Acer; Quanta
Model Number: AL1712xx; AL1712; AL1712b; AL1712m; AL1712bm; L7Txx
Serial Number: N/A
Applicant: **Quanta Computer Inc.**
 No. 4, Wen Ming 1st., Kuei Shan Hsiang,
 Tao Yuan Shien, Taiwan, R.O.C.
Manufacturer: **Tech-Front (Shanghi) Computer Co., Ltd.**
 No. 120, Rongjiang Rd., Songjiang Export Processing Zone,
 Shanghai, China.
Type of Test: EMC Directive 89/336/EEC for CE Marking
Technical Standards: EN 55022: 1998
 EN 61000-3-2: 1995+A1: 1998+A2: 1998+A14: 2000
 EN 61000-3-3: 1995
 EN 55024: 1998
 (IEC 61000-4-2: 1995 +A2: 2001, IEC 61000-4-3: 1995
 IEC 61000-4-4: 1995, IEC 61000-4-5: 1995
 IEC 61000-4-6: 1996, IEC 61000-4-8: 1993
 IEC 61000-4-11: 1994)
File Number: 03E1077-E
Date of test: May 29, 2003 ~ June 2, 2003
Deviation: N/A
Condition of Test Sample: Normal
Final Result: Pass
Worst data: See below

Test Item	Freq.	Measured data	Margin (M _i C)	Remark
Radiated Emission	300.001 (MHz)	33.98(dBi V/m)	-3.02dB (± 5.5624dB)	Horizontal
Conducted Emission	3.964 (MHz)	42.76 (dBi V)	-3.24dB (± 3.9632 dB)	Line
<ul style="list-style-type: none"> ● The negative sign in Margin cell means under the specific limit. ● This test result traceable to national or international standards 				

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: Vince Chiang
Vince Chiang / Supervisor

GENERAL INFORMATION

Applicant: **Quanta Computer Inc.**
No. 4, Wen Ming 1St., Kuei Shan Hsiang,
Tao Yuan Shien, Taiwan, R.O.C.

Contact Person: Angus Chang

Manufacturer: **Tech-Front (Shanghi) Computer Co., Ltd.**
No. 120, Rongjiang Rd., Songjiang Export Processing Zone,
Shanghai, China.

File Number: 03E1077-E

Date of Test: May 29, 2003 ~ June 2, 2003

Equipment Under Test: 17" LCD Monitor

Trade Name: Acer; Quanta

Model Number: AL1712xx; AL1712; AL1712b; AL1712m; AL1712bm; L7Txx

Serial Number: N/A

Type of Test: EMC Directive 89/336/EEC for CE Marking

Technical Standards: EN 55022: 1998
EN 61000-3-2: 1995+A1: 1998+A2: 1998+A14: 2000
EN 61000-3-3: 1995
EN 55024: 1998
(IEC 61000-4-2: 1995 +A2: 2001, IEC 61000-4-3: 1995
IEC 61000-4-4: 1995, IEC 61000-4-5: 1995
IEC 61000-4-6: 1996, IEC 61000-4-8: 1993
IEC 61000-4-11: 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. 199, Chung Sheng Road, Hsin Tien City, Taipei
Taiwan, R. O. C.

SYSTEM DESCRIPTION

EUT Test Procedure:

1. Windows 98 Boots System.
2. Run Emctest.exe choice Elements / Video Mode to test.
3. Run Emitest.exe choice "O" Run All test.
4. Run Media Player to play music.

PRODUCT INFORMATION

Housing Type: Plastic

EUT Power Rating: AC 100~240V; 50~60Hz

AC power during Test: 230VAC, 50Hz to Power Supply

Power Supply Manufacturer: (1)LI SHIN (2)DELTA

Power Supply Model Number: (1)SLV0315A0450-0057 (2)ADP-40AF

AC Power Cord Type: Unshielded, 1.8m (Detachable)

EUT I/O Cable Type: Unshielded, 1.8m (Non-Detachable, with two cores)

OSC/Clock Frequency: 14.318MHz

Model Differences:

	Model Name	Trade Name	Speaker	Tested (Checked)
Original	AL1712xx	ACER	With Speaker	<input checked="" type="checkbox"/>
Additional	AL1712		Without Speaker	<input type="checkbox"/>
	AL1712b		Without Speaker	<input type="checkbox"/>
	AL1712m		With Speaker	<input type="checkbox"/>
	AL1712bm	<input type="checkbox"/>		
	L7Txx	Quanta		<input type="checkbox"/>

I/O Port of EUT:

I/O PORT TYPES	Q'TY	TESTED WITH
1). VIDEO-OUT PORT (VGA)	1	1
2). AUDIO IN PORT	1	1

Note: N/A

SUPPORT EQUIPMENT

No	Equipment	Model #	Serial #	FCC/BSMI ID	Trade Name	Data Cable	Power Cord
1.	PS/2 Mouse	M-S34	LZED1303050 11701734	DZL211029 BSMI ID:4862A011	LOGITECH	Shielded, 1.8m	N/A
2.	PS/2 Keyboard	6311-TW4C/6	916590744C18F513 67S00000	BSMI ID:4862A064	ACER	Shielded, 1.8m	N/A
3.	Modem	5JEG4033MKO	L0063CG2D007186	5RJTAI-35500- M5-E	TOP- SOLUTION	Shielded, 1.8 m	Unshielded, 1.8m
4.	Host PC	EVOD300	6K1BKF83F0ZL	DoC BSMI ID:3892Q094	COMPAQ	VGA: Shielded, 1.8m, with two cores Audio in: Unshielded, 1.0m	Unshielded, 1.8m
5.	Printer	EPSON C60	DR3K039417	BSMI ID:3902E006	EPSON	Shielded, 1.8 m	Unshielded, 1.8m

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

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

TEST FACILITY

- Location:** No. 199, Chung Sheng Road, Hsin Tien City,
Taipei, Taiwan, R. O. C.
- Description:** There are two 3/10m open area test sites and one line conducted lab for final test.
The Open Area Test Sites and the Line Conducted labs are constructed and calibrated to meet the FCC requirements in documents ANSI C63.4: 1992 and CISPR 22/EN 55022 requirements.
- Site Filing:** A site description is on file with the Federal Communications Commission, 7435 Oakland Mills Road, Columbia, MD 21046.

Registration also was made with Voluntary Control Council for Interference (VCCI). Registration No. R-1434/ C-1511
- Site Accreditation:** Accredited by NEMKO (Authorization #: ELA 103) for EMC & A2LA (Certificate #: 824.01) for EMC.

Also accredited by BSMI for the product category of Information Technology Equipment.
- Instrument Tolerance:** All measuring equipment is in accord with ANSI C63.4 and CISPR 22 requirements that meet industry regulatory agency and accreditation agency requirement.
- Ground Plane:** Two conductive reference ground planes were used during the Line Conducted Emission, one in vertical and the other in horizontal. The dimensions of these ground planes are as below. The vertical ground plane was placed distancing 40 cm to the rear of the wooden test table on where the EUT and the support equipment were placed during test. The horizontal ground plane projected 50 cm beyond the footprint of the EUT system and distanced 80 cm to the wooden test table. For Radiated Emission Test, one horizontal conductive ground plane extended at least 1m beyond the periphery of the EUT and the largest measuring antenna, and covered the entire area between the EUT and the antenna. It has no holes or gaps having longitudinal dimensions larger than one-tenth of a wavelength at the highest frequency of measurement up to 1GHz.

United States Department of Commerce
National Institute of Standards and Technology

NVLAP[®]



ISO/IEC 17025:1999
ISO 9002:1994

Certificate of Accreditation

C&C LABORATORY CO., LTD (SHINTIEN LAB)

TAIPEIHSEIN, 231
TAIWAN

*is recognized by the National Voluntary Laboratory Accreditation Program
for satisfactory compliance with criteria set forth in NIST Handbook 150:2001,
all requirements of ISO/IEC 17025:1999, and relevant requirements of ISO 9002:1994.
Accreditation is awarded for specific services, listed on the Scope of Accreditation, for:*

ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS

December 31, 2003

Effective through

For the National Institute of Standards and Technology
NVLAP Lab Code: 200617-0



ISO/IEC 17025:1999
ISO 9002:1994

Scope of Accreditation

Page: 1 of 3

**ELECTROMAGNETIC COMPATIBILITY
AND TELECOMMUNICATIONS**

NVLAP LAB CODE 200617-0

C&C LABORATORY CO., LTD (SHINTIEN LAB)

No. 199, Chunghsen Rd., Hsintien City

Taipei Hsein, 231

TAIWAN

Mr. Kurt Chen

Phone: 886-2-2240222 Fax: 886-2-2245225

E-Mail: kurt_chen@cclab.com.tw

URL: <http://www.cclab.com.tw>

NVLAP Code Designation / Description

Emissions Test Methods:

12/CIS11	IEC/CISPR 11 (1990) and EN 55011 (1998): Limits and Methods of Measurement of Electromagnetic Disturbance Characteristics of Industrial, Scientific, and Medical Radio-Frequency Equipment
12/CIS14a	EN 55014-1 (1993) with Amendments A1 (1997) & A2 (1999)
12/CIS14b	AS/NZS 1044 (1995)
12/CIS14c	CNS 13783-1
12/CIS22	IEC/CISPR 22 (1997) and EN 55022 (1998): Limits and methods of measurement of radio disturbance characteristics of information technology equipment
12/CIS22a	IEC/CISPR 22 (1993): Limits and methods of measurement of radio disturbance characteristics of information technology equipment, Amendment 1:1995, and Amendment 2:1996.

December 31, 2003

Effective through

For the National Institute of Standards and Technology

Scope of Accreditation



ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS

NVLAP LAB CODE 200617-0

C&C LABORATORY CO., LTD (SHINTIEN LAB)

NVLAP Code ***Designation / Description***

12/CIS22b	CNS 13438 (1997): Limits and Methods of Measurement of Radio Interference Characteristics of Information Technology Equipment
12/EM02a	IEC 61000-3-2, Edition 2.1 (2001-10) and EN 61000-3-2 (2000) : Electromagnetic compatibility (EMC) Part 3-2: Limits - Limits for harmonic current emissions (equipment input current ≤ 16 A)
12/EM03	EN 61000-3-3 (1995) and IEC 61000-3-3 (1995): Electromagnetic compatibility (EMC) - Part 3: Limits - Section 3. Limitation of voltage fluctuations and flicker in low-voltage supply systems for equipment with rated current ≤ 16 A
12/F01	ANSI C63.4 (2001) - cited in FCC Method - 47 CFR Part 15 - Digital Devices
12/F01a	Conducted Emissions, Power Lines, 150 KHz to 30 MHz
12/F01b	Radiated Emissions
12/F18	FCC OST/MP-5 (1986): FCC Methods of Measurement of Radio Noise Emissions for ISM Equipment (cited in FCC Method 47 CFR Part 18 - Industrial, Scientific, and Medical Equipment)
12/T51	AS/NZS CISPR (2002) and AS/NZS 3548: Electromagnetic Interference - Limits and Methods of Measurement of Information Technology Equipment

December 31, 2003

Effective through

A handwritten signature in cursive script, appearing to read "C. D. Lawson".

For the National Institute of Standards and Technology

Scope of Accreditation



**ELECTROMAGNETIC COMPATIBILITY
AND TELECOMMUNICATIONS**

NVLAP LAB CODE 200617-0

C&C LABORATORY CO., LTD (SHINTIEN LAB)

NVLAP Code Designation / Description

Immunity Test Methods:

12/I01	IEC 61000-4-2 (1995) and Amendment 1 (1998): Electrostatic Discharge Immunity Test
12/I02	IEC 61000-4-3 (1995) and Amendment 1 (1998): Radiated, Radio-Frequency Electromagnetic Field Immunity Test
12/I03	IEC 61000-4-4 (1995): Electrical Fast Transient/Burst Immunity Test
12/I04	IEC 61000-4-5 (1995): Surge Immunity Test
12/I05	IEC 61000-4-6 (1996): Immunity to Conducted Disturbances, Induced Radio-Frequency Fields
12/I06	IEC 61000-4-8 (1993): Power Frequency Magnetic Field Immunity Test
12/I07	IEC 61000-4-11 (1994): Voltage Dips, Short Interruptions and Voltage Variations Immunity Tests

December 31, 2003

Effective through

A handwritten signature in cursive script, appearing to read "C. D. Lawson".

For the National Institute of Standards and Technology

**EMC Laboratory
Preliminary Authorisation
Aut. No.: ELA 103**

EMC Laboratory: **C & C Laboratory Co, Ltd
(Hsintien Lab.)
No. 199, Chunghsen Rd., Hsintien City,
Taipei Hsien (231)
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.**

Nemko has assessed the testing facilities, qualifications and testing practices and the relevant part of the organization. The above-mentioned EMC Laboratory has been validated against EN 45001 and ISO 17025 and found to be compliant. The laboratory also fulfils the conditions described in Nemko Document ELA-INFO-10. During Nemko's visit it was found that the EMC Laboratory is capable of performing tests within the Scope of Authorisation given on the accompanying page(s).

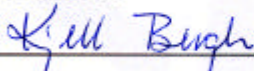
Accordingly, Nemko will accept test reports from the laboratory as a basis for attesting conformity to these EMC Standards under either the European Union EMC Directive (89/336/EEC) or, when applicable, the national standards of countries Nemko has been authorised to attest conformity with.

In order to maintain the Authorisation, the information given in the pertinent ELA-INFO-10 must be carefully followed. Nemko is to be promptly notified about any changes in the situation at the EMC Laboratory, which may affect the basis for this Authorisation. The Authorisation may be withdrawn at any time if the conditions are no longer considered to be fulfilled.

The Authorisation is valid through 31 December 2003.

Oslo, 17. December 2002

For Nemko AS:



Kjell Bergh, Nemko Group EMC Co-ordinator

EMC Laboratory Preliminary Authorisation Aut. No.: ELA 103

SCOPE OF AUTHORIZATION

GENERIC & PRODUCT-FAMILY STANDARDS

EN 50091-2:1995 (doc=exp)	EN 50130-4:1995 + A1:98 (doc=exp)	EN 55011:1998 + A1 :99 (doc=exp) CISPR 11:97 + A1 :99
EN 55013:1990 + A12:1994 + A13:1996 + A14 :1999 (doc=exp) CISPR 13:1975 + A1:1983 mod. EN 55013 :2001 (doc=1.9.04) CISPR 13 :2001 (mod)	EN 55014-1:1993 + A1:1997 + A2 :1999 (doc=exp) CISPR 14:1993 + A1:1996 + A2 :1998 EN 55014-1 :2000 (doc=1.8.03) + A1 :2001 (doc=1.10.04) CISPR 14-1 :2000 + A1 :2001	EN 55014-2:1997 (doc=exp) + A1:2001 (doc=1.12.04) CISPR 14-2:1997 + A1 :2001
EN 55015:1996 + A1:97 + A2 :99 (doc=exp) CISPR 15:96 + A1:97 + A2 :98 EN 55015 :2000 (doc=1.8.03) + A1 :2001 (doc=1.12.04) CISPR 15 :2000 + A1 :2000	EN 55022:1994 + A1:1995 + A2:1997 (doc=exp) CISPR 22:1993 + A1:1995 + A2:1996 EN 55022:1998 + A1 :2000 (doc=1.8.03) + A2 :2002 (doc=not harmonised yet) CISPR 22:1997 + A1 :2000 + A2 :2002	EN 55024:1998 (doc=exp) + A1 :2001 (doc=1.10.04) + A2 :2002 (doc=not harmonised yet) CISPR 24:1997 + A1 :2001 + A2 :2002
EN 61000-3-2:1995 + A1:1998 + A2:1998 (doc=exp) + A14 :2000 (doc=1.1.04) IEC 61000-3-2:1995 + A1:1997 + A2:1998 EN 61000-3-2 :2000 (doc=1.1.04) IEC 61000-3-2 :2000 (mod) + A1 :2001	EN 61000-3-3 :1995 (doc=exp) + A1 :2001 (doc=1.5.04) IEC 61000-3-3 :1994 + A1 :2001 EN 61000-3-11 :00 (doc=1.11.03) IEC 61000-3-11 :00	EN 61000-6-1:2001 (doc=1.7.04) IEC 61000-6-1:1997 (mod) EN 50082-1 :1997 (doc=exp)
EN 61000-6-2:1999 (doc=exp) IEC 61000-6-2:1999 EN 61000-6-2:2001 (doc=1.7.04) IEC 61000-6-2:1999 (mod)	EN 61000-6-3 :2001 (doc=1.7.04) IEC 61000-6-3 :1996 (mod) EN 50081-1:1992 (doc=exp)	EN 61000-6-4 :2001 (doc=1.7.04) IEC 61000-6-4:1997 (mod) EN 50081-2:1993 (doc=exp)
EN 61326 :1997 + A1 :98 (doc=exp) + A2 :01 (doc=1.4.04) IEC 61326 :1997 + A1 :98 + A2 :00		

BASIC STANDARDS

EN 61000-4-2:1995 + A1:98 IEC 61000-4-2:1995 + A1:98 (EN 60801-1:1993 IEC 801.2:1991 IEC 801.2:1984)	EN 61000-4-3:1996 + A1:98 IEC 61000-4-3:1995 + A1:98 (IEC 801.3:1984 ENV 50140:1993 + ENV 50204:1995)	EN 61000-4-4:1995 IEC 61000-4-4:1995 (IEC 801.4:1990)
EN 61000-4-5:1995 IEC 61000-4-5:1995 (ENV 50142:1994)	EN 61000-4-6:1996 IEC 61000-4-6:1996 (ENV 50141:1993)	EN 61000-4-8:1993 IEC 61000-4-8:1993
EN 61000-4-11:1994 IEC 61000-4-11:1994	CISPR 16-1 :1999 + A1 :2002 CISPR 16-2 :1996 + A1 :1999 + A2 :2002 CISPR 16-3 :2000 + A1 :2002 CISPR 16-4 :2002	

Oslo, 17. December 2002

Kjell Bergh, Nemko Group EMC Co-ordinator



**THE AMERICAN
ASSOCIATION
FOR LABORATORY
ACCREDITATION**

ACCREDITED LABORATORY

A2LA has accredited

C & C LABORATORY CO., LTD
Hsi Chin, Taipei Hsien, Taiwan, R.O.C

for technical competence in the field of

Electrical 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 17025 - 1999 "General Requirements for the Competence of Testing and Calibration Laboratories" and any additional program requirements in the identified field of testing. Testing and calibration laboratories that comply with this International Standard also operate in accordance with ISO 9001 or ISO 9002 (1994).

Presented this 30th day of January, 2002.



Peter Abney

President
For the Accreditation Council
Certificate Number 824.01
Valid to January 31, 2004

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



American Association for Laboratory Accreditation

SCOPE OF ACCREDITATION TO ISO/IEC 17025-1999

C & C LABORATORY CO., LTD¹
No. 81-1, Lane 210, Pa-De 2nd Rd.,
Lu Chu Hsiang, Taoyuan, TAIWAN, R.O.C.
Kurt Chen Phone: 002 886 3 324 0332
Fax: 002 886 3 324 5235

ELECTRICAL (EMC)

Valid to: January 31, 2004

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 electromagnetic compatibility tests:

Test Technology

Test Method(s)

Emissions

Radiated & Conducted

CFR 47, FCC Part 15/18 using ANSI 63.4/1992&2000;
AS/NZS 3548; VCCI V3 (2001); CNS 13438;
CNS 13439; CNS 13783; CNS 13803; CNS 14115
CISPR 11; EN 55011; CISPR 14-1; EN 55014-1;
CISPR 15; EN 55015; CISPR 22; EN 55022;
EN 50081-1/ EN 61000-6-3: 2001;
EN 50082-1/ EN 61000-6-4: 2001

Immunity

Electrostatic Discharge (ESD)
Radiated Immunity
Electrical Fast Transient/Burst
Surge Immunity
Conducted Immunity
Power Frequency Magnetic
Field Immunity
Voltage Dips, Short Interruptions, and
Line Voltage Variations
Harmonics/Flicker

IEC/EN 61000-4-2; IEC 801-2
IEC/EN 61000-4-3; IEC 801-3
IEC/EN 61000-4-4; IEC 801-4
IEC/EN 61000-4-5
IEC/EN 61000-4-6

IEC/EN 61000-4-8

IEC/EN 61000-4-11
IEC/EN 61000-3-2; IEC/EN 61000-3-3

¹ Note: This accreditation covers testing performed at the main laboratory listed above, and the satellite laboratory located at No.199, Chung Sheng Road, Hsin Tien City, Taipei, TAIWAN, R.O.C.



Product Immunity / Generic Immunity

ITE Product

Home Appliance

Residential; commercial and light

Industry

Industry

CISPR 24; EN 55024

CISPR 14-2; EN 55014-2

EN 50081-2/ EN 61000-6-1: 2001

EN 50082-2/ EN 61000-6-2: 2001

On the following products/equipment:

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

01/23/02





CERTIFICATE

Company: C & C Laboratory Co., Ltd.

<Member No. 710 >

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

(Radiation 3 and 10 meter site)

Location of Facility:

No.199, Chung Sheng Road, Hsin Tien City
Taipei 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-1434

Date of Registration: February 25 , 2002

This Certificate is valid until March 31 , 2005

*Voluntary Control Council for Interference by
Information Technology Equipment*



CERTIFICATE

Company: C & C Laboratory Co., Ltd.

<Member No. 710 >

Facility: C&C Conducted Test Room No.D

(Main Ports Conducted Interference Measurement)

Location of Facility:

No.199, Chung Sheng Road, Hsin Tien City
Taipei 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-1511

Date of Registration: February 25 , 2002

This Certificate is valid until March 31 , 2005

*Voluntary Control Council for Interference by
Information Technology Equipment*



TEST EQUIPMENT LIST (EMISSION)

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 9kHz to 1.0 / 2.0 GHz.

Equipment used during the tests:

Open Area Test Site: #E

EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL. DUE
SPECTRUM ANALYZER	ADVANTEST	R3261A	21720276	04/12/03	04/11/04
MEASURE RECEIVER	R&S	ESVS30	828488/004	09/14/02	09/13/03
AMPLIFIER	HP.	8447D A	2727A05764	05/04/03	05/03/04
ANTENNA	SCHAFFNER	CBL 6143	5084	03/16/03	03/15/04
CABLE	BELDEN	9913	N-TYPE07	01/10/03	01/09/04

Conducted Area Test Site: Conducted Room

EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL. DUE
TEST RECEIVER	R&S	ESHS20	840455/006	03/24/03	03/23/04
LISN	EMCO	3825/2	1842	01/29/03	01/28/04
LISN (EUT)	EMCO	3825/2	1435	01/20/03	01/19/04
BNC CABLE	TIMES MICROWAVE	LMR-195	BNC 03	05/02/03	05/01/04

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.

TEST EQUIPMENT LIST

For Power Harmonic & Voltage Fluctuation/Flicker Measurement:

Manufacturer/Type	Model No.	Serial No.	Last Cal.	Cal. Due
HP / Harmonic & Flicker Tester	6842A	3531A-000142	06/18/2002	06/17/2003

For ESD test:

Manufacturer/Type	Model No.	Serial No.	Last Cal.	Cal. Due
SCHAFFNER/ ESD Simulator	NSG 438	129 0238	4/23/2003	4/22/2004

For Radiated Electromagnetic Field immunity Measurement:

Manufacturer/Type	Model No.	Serial No.	Last Cal.	Cal. Due
R&S / Signal Generator	SMY 02	DE13751	01/13/2003	01/12/2004
IFI / "E" Field sensor/ Light Modulator Transmitter	EFS-5	713-0695	06/28/2002	06/27/2003
IFI / Combination Amplifier	SMX100	2067-1196	No Calibration Required	No Calibration Required
IFI / Leveling Pre-Amplifier	LPA-5B	714-0695	No Calibration Required	No Calibration Required
EMCO / Biconilog Antenna	3142	9609-1087	No Calibration Required	No Calibration Required

For Fast Transients/Burst test:

Manufacturer/Type	Model No.	Serial No.	Last Cal.	Cal. Due
KeyTek Instruments / EFT Generator	E421	9502326	10/01/2002	09/30/2003
KeyTek Instruments / Capacitive Clamp	CCL-4	9503290	No Calibration Required	No Calibration Required

For Surge Immunity test:

Manufacturer/Type	Model No.	Serial No.	Last Cal.	Cal. Due
KeyTek Instruments/ Surger Generator	E501	9502324	10/01/2002	09/30/2003
Telecom Lines Coupler DECOUPLER KeyTek Instruments	CM-TELCD	0104399	No Calibration Required	No Calibration Required
I/O Signal Line DECOUPLER KeyTek Instruments	CM-I/OCD	0103234	No Calibration Required	No Calibration Required

For CS test:

Manufacturer/Type	Model No.	Serial No.	Last Cal.	Cal. Due
SCHAFFNER / RF GENERATOR	NSG 2701-1	1061	07/31/2002	07/30/2003
SCHAFFNER / Power Line Coupling Decoupling Network	CDN M316	19600	11/12/2002	11/11/2003
SCHAFFNER / Power Line Coupling Decoupling Network	CDN M216	19294	11/21/2002	11/20/2003
SCHAFFNER/EM CLAMP	KEMZ 801	19227	11/12/2002	11/11/2003

For Power Frequency Magnetic Field test:

Manufacturer/Type	Model No.	Serial No.	Last Cal.	Cal. Due
Haefely / Magic Field Tester	MAG 100.1	081436-02	No Calibration Required	No Calibration Required
Extech Electronics / Frequency Converter	CFC-105	810390	No Calibration Required	No Calibration Required
CHY/ AC/DC Clamp Meter	932C	2K0900285	10/24/2002	10/23/2003

For Voltage Dips/Short Interruption and Voltage Variation Immunity test:

Manufacturer/Type	Model No.	Serial No.	Last Cal.	Cal. Due
Haefely / Dips/Inerruption/Variations Tester	PLINE 1610	081568-06	04/15/2003	04/16/2004
FLUKE / 79 Series Ii Multimeter	79-II	66400868	07/02/2002	07/01/2003

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 AC Adaptor and 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, if any.
- 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):

1.	QDI (With Speaker)	LI SHIN	1280X1024, VF=75Hz
2.			1024X768, VF=75Hz
3.			800X600, VF=85Hz
4.		DELTA	1280X1024, VF=75Hz
5.			1024X768, VF=75Hz
6.			800X600, VF=85Hz
7.	LG (Without Speaker)	LI SHIN	1280X1024, VF=75Hz
8.			1024X768, VF=75Hz
9.			800X600, VF=85Hz
10.		DELTA	1280X1024, VF=75Hz
11.			1024X768, VF=75Hz
12.			800X600, VF=85Hz

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

Mode: 7.

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

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. If EUT emission level was less -2dB to the A.V. limit in Q.P. mode, then the emission signal was re-checked using an A.V. detector.
- 3) The test data of the worst case condition(s) was reported on the Summary Data page.

Data Sample:

Freq (MHz)	Meter Reading (dBuV)	C.F. (dB)	Corrected Reading (dBuV)	Limits (dBuV)	Margin (dB)	Reading Type (P/Q/A)	Line (L1/L2)
x.xx	x.xx	x.xx	38.38	56.00	-17.62	P	L1

C.F.(Correction Factor)=Insertion Loss + Cable Loss

Corrected Reading = Metering Reading + C.F.

Margin=Corrected Reading - Limits

P=Peak Reading

L1=Hot

Q=Quasi-peak

L2=Neutral

A=Average Reading

Comments: N/A

Calculation example:

$$\text{Margin (dB)} = \text{Corrected Reading (dBuV)} - \text{Limit (dBuV)}$$

LINE CONDUCTED EMISSION LIMIT (EN 55022)

Frequency	Maximum RF Line Voltage	
	Q.P.	AVERAGE
150kHz-500kHz	66-56dBuV	56-46dBuV
500kHz-5MHz	56dBuV	46dBuV
5MHz-30MHz	60dBuV	50dBuV

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

MEASUREMENT PROCEDURE (COMMON MODE CONDUCTED EMISSION MEASUREMENT)

- 1) Selecting ISN for unscreened cable or a current probe for screened cable to take measurement.
- 2) The port of the EUT was connected to the remote side support equipment through the ISN/Current Probe and communication in normal condition.
- 3) Making a overall range scan by using the test receiver controlled by controller and record at least six highest emissions for showing in the test report.
- 4) 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.
- 5) In case of measuring on the screened cable, the current limit shall be applied, otherwise the voltage limit should be applied.
- 6) The following test mode(s) were scanned during the preliminary test:
Mode: N/A (EUT no any Telecommunicate Port)
- 7) After the preliminary scan, we found the following test mode(s) producing the highest emission level and test date of the worst case was reported on the summary data page.
Mode: N/A

Data Sample:

Freq (MHz)	Meter Reading (dBuV)	C.F. (dB)	Corrected Reading (dBuV)	Limits (dBuV)	Margin (dB)	Reading Type (P/Q/A)
x.xx	x.xx	x.xx	59.26	74.00	-14.74	P

C.F.(Correction Factor)=Insertion Loss (9.5dB) + Cable Loss

Corrected Reading = Metering Reading + C.F.

Margin=Corrected Reading - Limits

P=Peak Reading

Q=Quasi-peak

A=Average Reading

Comments: N/A

COMMON MODE CONDUCTED EMISSION LIMIT AT TELECOMMUNICATION PORTS

<input type="checkbox"/> CE-Mark (EN 55022:1998)					
CLASS	Measuring Band	Voltage limit dB(uV)		Current limit dB(uA)	
		Q.P.	AV	Q.P.	AV
B	150kHz-500kHz	84-74	74-64	40-30	30-20
	500kHz-30MHz	74	64	30	20

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

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 AC power source from the outlet socket under the turntable. All support equipment received 110VAC/60Hz power from another socket under the turntable, if any.
- 5) The antenna was placed at 10 meter 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 / Receiver 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):

1.	QDI (With Speaker)	LI SHIN	1280X1024, VF=75Hz
2.			1024X768, VF=75Hz
3.			800X600, VF=85Hz
4.		DELTA	1280X1024, VF=75Hz
5.			1024X768, VF=75Hz
6.			800X600, VF=85Hz
7.	LG (Without Speaker)	LI SHIN	1280X1024, VF=75Hz
8.			1024X768, VF=75Hz
9.			800X600, VF=85Hz
10.		DELTA	1280X1024, VF=75Hz
11.			1024X768, VF=75Hz
12.			800X600, VF=85Hz

8) After the preliminary scan, we found the following test mode(s) 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.

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 Peak reading is presented. If EUT emission level was less-2dB to the limit, then the emission signal was re-checked using a Q.P. detector.
- 4) The test data of the worst case condition(s) was reported on the Summary Data page.

Data Sample:

Freq (MHz)	Meter Reading (dBuV)	C.F. (dB/m)	Corrected Reading (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Reading Type P/Q/A	Pol. H/V
x.xx	x.xx	x.xx	30.82	37.00	-6.18	P	V

C.F.(Correction Factor)=Antenna Factor + Cable Loss + Attenuator(3/6dB) - Amplifier Gain

Corrected Reading = Metering Reading + C.F.

Margin=Corrected Reading – Limits

P=Peak Reading

H=Horizontal Polarization/Antenna

Q=Quasi-peak

V=Vertical Polarization/Antenna

A=Average Reading

Comments: N/A

Calculation example:

Margin (dB) = Corrected Reading (dBuV/m) – Limits (dBuV/m)

Corrected Reading (dBuV/m)=Metering Reading (dBuV) + Corr Factor (dB/m)

RADIATED EMISSION LIMIT

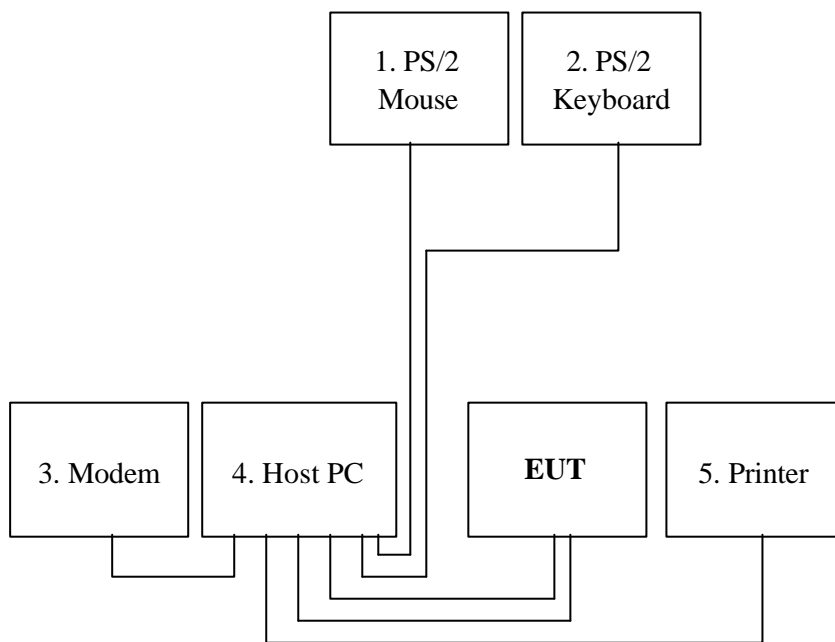
Frequency (MHz)	Distance (m)	Maximum Field Strength Limit (dBu V/m/ Q.P.)
30-230	10	30
230-1000	10	37

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

BLOCK DIAGRAM OF TEST SETUP

System Diagram of Connections between EUT and Simulators

EUT: 17" LCD Monitor
Trade Name: Acer; Quanta
Model Number: AL1712xx



SUMMARY DATA (LINE CONDUCTED TEST)

Model Number: AL1712xx

Location: Conducted Room

Tested by: JOHN YEN

Test Model: Mode 7

Test Results: Passed

Temperature: 25

Humidity: 64%RH

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

Frequency Range Investigated (150 kHz TO 30 MHz)							
Freq (MHz)	Meter Reading (dBuV)	C.F. (dB)	Corrected Reading (dBuV)	Limits (dBuV)	Margin (dB)	Reading Type (P/Q/A)	Line (L1/L2)
0.150	51.30	0.24	51.54	66.00	-14.46	P	L1
0.162	49.11	0.22	49.32	65.34	-16.02	P	L1
3.964	52.29	0.25	52.54	56.00	-3.46	P	L1
3.964	42.51	0.25	42.76	46.00	-3.24	A	L1
4.549	42.02	0.27	42.29	56.00	-13.71	P	L1
0.150	52.14	0.14	52.28	66.00	-13.72	P	L2
3.901	51.03	0.25	51.28	56.00	-4.72	P	L2
3.901	39.47	0.25	39.72	46.00	-6.28	A	L2

C.F.(Correction Factor)=Insertion Loss + Cable Loss

Corrected Reading = Metering Reading + C.F.

Margin=Corrected Reading - Limits

P=Peak Reading L1=Hot

Q=Quasi-peak L2=Neutral

A=Average Reading

Comments: N/A

SUMMARY DATA

(RADIATED EMISSION TEST)

Model Number: AL1712xx

Location: Site # E

Tested by: JOHN YEN

Polar: Vertical / Horizontal- 10m

Test Mode: Mode 1

Test Results: Passed

Temperature: 24

Humidity: 62%RH

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

Frequency Range Investigated (30 MHz TO 1000 MHz)							
Freq (MHz)	Meter Reading (dBUV)	C.F. (dB/m)	Corrected Reading (dBUV/m)	Limits (dBUV/m)	Margin (dB)	Reading Type P/Q/A	Pol. H/V
296.000	39.58	-6.36	33.22	37.00	-3.78	P	V
312.000	39.00	-5.98	33.02	37.00	-3.98	P	V
300.001	40.23	-6.25	33.98	37.00	-3.02	P	H
313.220	39.40	-5.96	33.44	37.00	-3.56	Q	H
335.089	37.97	-5.43	32.54	37.00	-4.46	P	H
786.444	30.95	2.07	33.02	37.00	-3.98	Q	H

C.F.(Correction Factor)=Antenna Factor + Cable Loss - Amplifier Gain (+ Attenuator 3dB)

Corrected Reading = Metering Reading + C.F.

Margin=Corrected Reading - Limits

P=Peak Reading

H=Horizontal Polarization/Antenna

Q=Quasi-peak

V=Vertical Polarization/Antenna

A=Average Reading

Comments: N/A

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

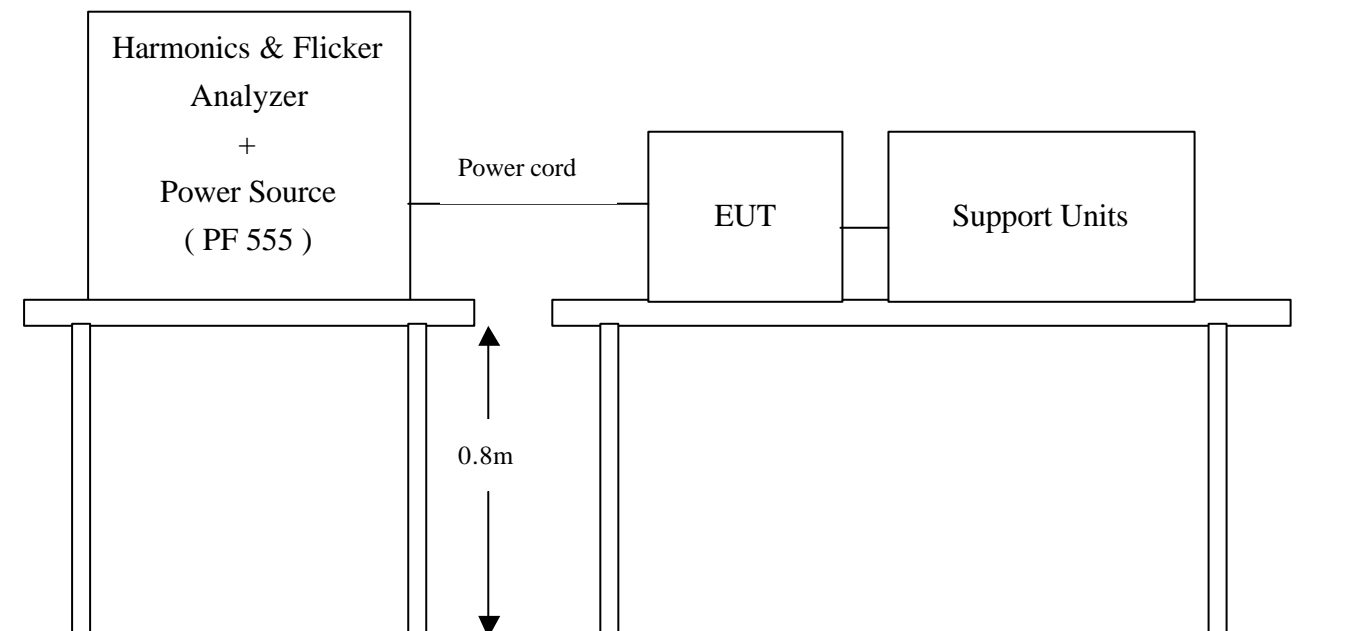
POWER HARMONICS MEASUREMENT

Port : AC mains
Basic Standard : EN 61000-3-2 (1995+A1: 1998+A2: 1998 + A14: 2000)
Limits : Class A, Class D
Temperature : 20⁰C
Humidity : 60%
Test By : JOHN YEN

VOLTAGE FLUCTUATION/FLICKER MEASUREMENT

Port : AC mains
Basic Standard : EN 61000-3-3 (1995)
Limits : § 5 of EN 61000-3-3
Temperature : 20⁰C
Humidity : 60%
Test By : JOHN YEN

Block Diagram of Test Setup:



Result:

Please see the attached test data.

Approved by: Bill Huang 6/2/03
Signature: John Yen Date: 6/2/03

Final Test Result: PASS

Settings and Test Conditions Compliant to the Standard: Yes

Test Equipment Used:

Agilent 6842A Harmonic/Flicker Test System with serial number:
HFTS Software Version: A.05.03
Date Last Calibrated:

Test Equipment Settings:

Line Voltage: 230.00 V Current Measurement Range: High
Line Frequency: 50 Hz Measurement Window Type: Rectangular
Device Class: D Measurement Delay: 10 seconds
RMS Current Limit: 13.1 A Quasi-stationary Test Duration: 30.00 minutes
Peak Current Limit: 80.8 A Class Determination Pre-test Duration: 10.00 seconds
Number of Records: 5625

Overrides:

Test Limit Source (Power Measurements/Statistics): Maximum
Power Overrides: None
Test Limit Overrides: None

Pre-test Results for Class Determination:

Percent in Envelope: 100.0% Voltage THD Out-of-Specification?: No
Class D Equipment?: Yes Fundamental Current: 0.157 A

RMS Voltage: 229.8 V RMS Current: 0.4 A Real Power: 34.5 W
Frequency: 50.0 Hz Peak Current: 1.6 A Apparent Power: 82.7 VA
Voltage THD: 0.03% Current THD: 89.85% Power Factor: 0.417
Maximum Power: 34.5 W Mean Power: 34.5 W

Active Power Statistics:

100th Percentile: 34.5 W 99th Percentile: 34.5 W 95th Percentile: 34.5
90th Percentile: 34.5 W 50th Percentile: 34.5 W

Total Number of Failures:

None

Total Number of Errors:

None

Pre-Test Source Voltage Harmonics Data:

```

-----
Harmonic  Limit      Limit      Max      Max
Number    (%)      (Volts)   (%)      (Volts)
-----
Fund.
  2      0.20      0.460     0.006     0.013
  3      0.90      2.069     0.008     0.017
  4      0.20      0.460     0.004     0.008
  5      0.40      0.919     0.009     0.021
  6      0.20      0.460     0.001     0.002
  7      0.30      0.690     0.008     0.019
  8      0.20      0.460     0.001     0.003
  9      0.20      0.460     0.011     0.025
 10      0.20      0.460     0.002     0.004
 11      0.10      0.230     0.010     0.023
 12      0.10      0.230     0.002     0.005
 13      0.10      0.230     0.012     0.027
 14      0.10      0.230     0.001     0.002
 15      0.10      0.230     0.006     0.015
 16      0.10      0.230     0.000     0.001
 17      0.10      0.230     0.011     0.026
 18      0.10      0.230     0.001     0.002
 19      0.10      0.230     0.009     0.021
 20      0.10      0.230     0.002     0.004
 21      0.10      0.230     0.009     0.021
 22      0.10      0.230     0.003     0.007
 23      0.10      0.230     0.007     0.016
 24      0.10      0.230     0.002     0.005
 25      0.10      0.230     0.003     0.006
 26      0.10      0.230     0.001     0.003
 27      0.10      0.230     0.004     0.009
 28      0.10      0.230     0.001     0.003
 29      0.10      0.230     0.003     0.007
 30      0.10      0.230     0.001     0.003
 31      0.10      0.230     0.005     0.011
 32      0.10      0.230     0.001     0.003
 33      0.10      0.230     0.003     0.008
 34      0.10      0.230     0.001     0.003
 35      0.10      0.230     0.005     0.011
 36      0.10      0.230     0.001     0.003
 37      0.10      0.230     0.004     0.010
 38      0.10      0.230     0.002     0.004
 39      0.10      0.230     0.005     0.011
 40      0.10      0.230     0.001     0.001
-----
Fund.      100.0     229.845
  
```

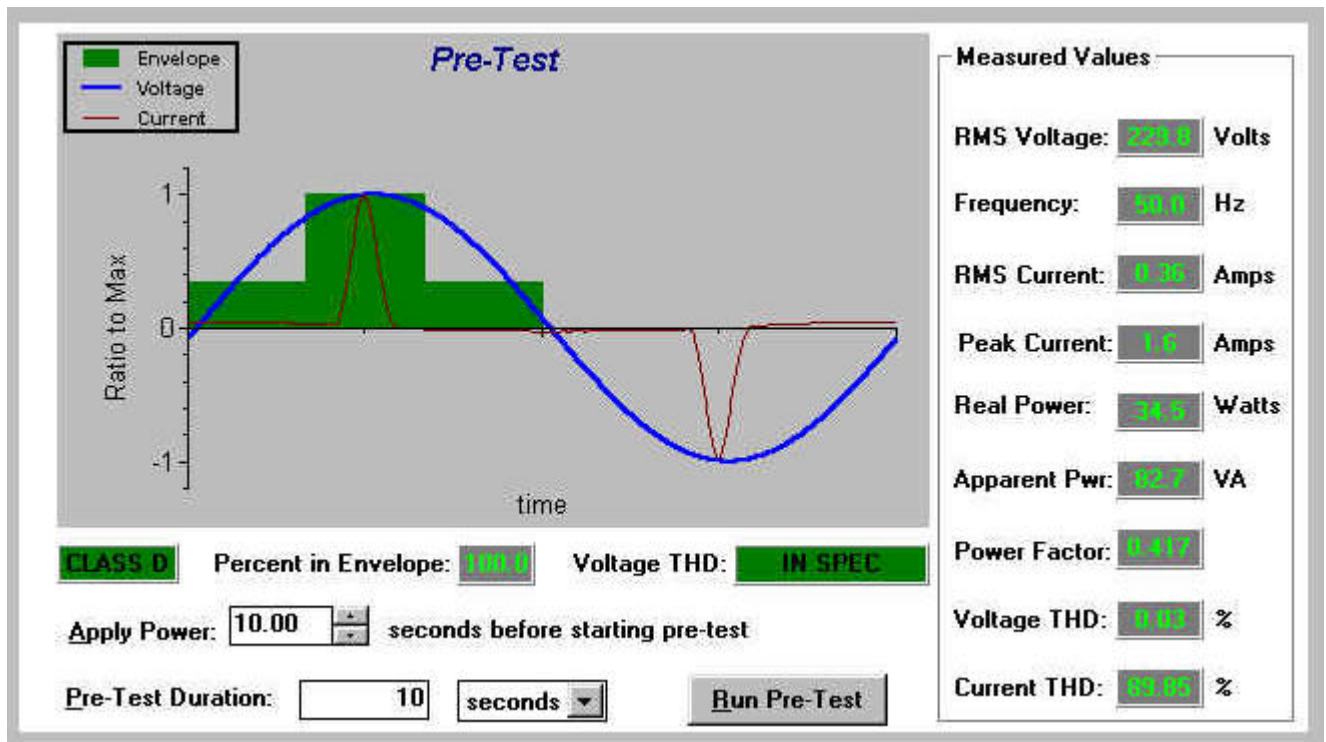
Final Test Data:

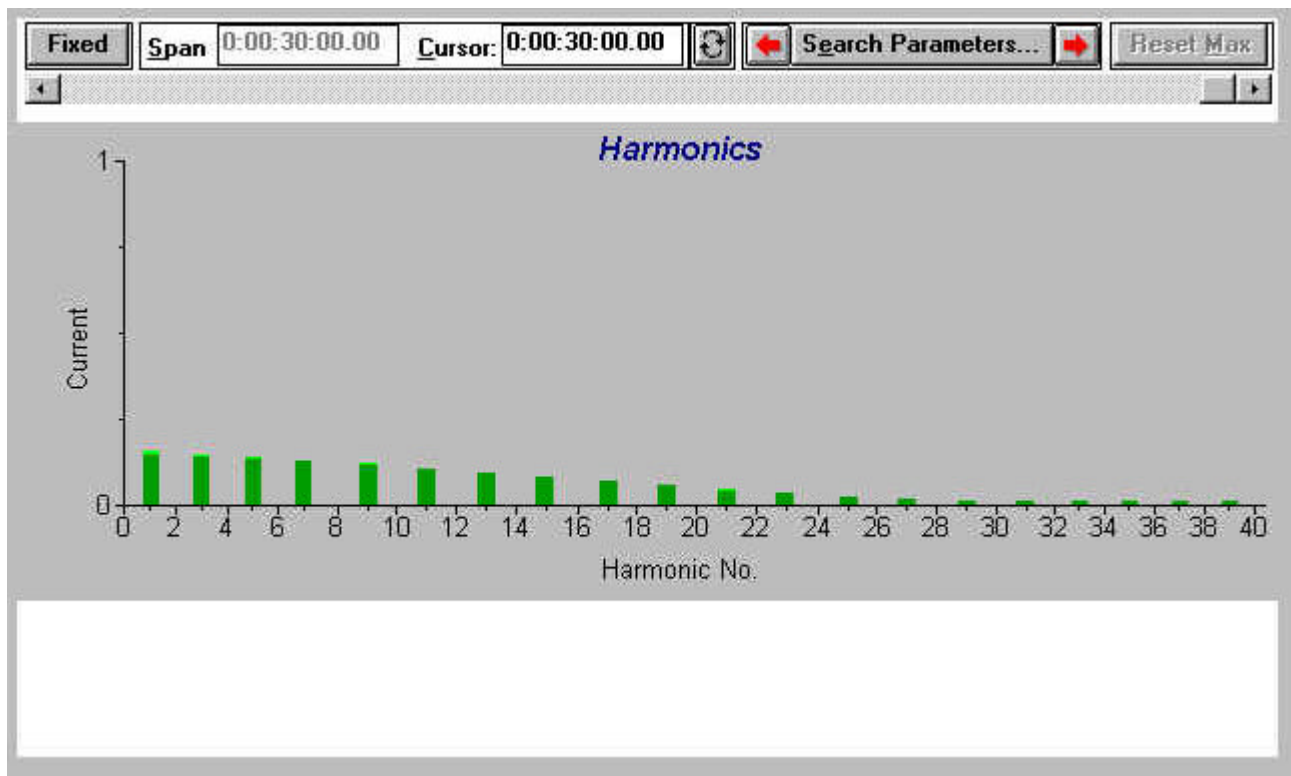
Harmonic Number	Standard Limit (A rms)	Maximum Value (A rms)	Maximum Value (% Limit)	Mean Value (A rms)	Mean Value (% Limit)	Standard Deviation (A rms)	Standard Deviation (% Limit)	Pass (P) or Fail (F)
Fund.		0.1548		0.1119		0.0556		
2		0.0028		0.0017		0.0004		
3	2.3000	0.1465	6.4	0.0985	4.3	0.0635	2.8	P
4		0.0023		0.0014		0.0003		
5	1.1400	0.1401	12.3	0.0943	8.3	0.0611	5.4	P
6		0.0015		0.0009		0.0001		
7	0.7700	0.1310	17.0	0.0887	11.5	0.0573	7.4	P
8		0.0011		0.0006		0.0002		
9	0.4000	0.1199	30.0	0.0819	20.5	0.0528	13.2	P
10		0.0012		0.0006		0.0003		
11	0.3300	0.1077	32.6	0.0742	22.5	0.0476	14.4	P
12		0.0011		0.0006		0.0002		
13	0.2100	0.0955	45.5	0.0657	31.3	0.0419	19.9	P
14		0.0011		0.0005		0.0001		
15	0.1500	0.0826	55.1	0.0568	37.9	0.0358	23.9	P
16		0.0010		0.0004		0.0001		
17	0.1324	0.0694	52.5	0.0478	36.1	0.0297	22.5	P
18		0.0008		0.0003		0.0001		
19	0.1184	0.0565	47.7	0.0388	32.8	0.0237	20.0	P
20		0.0007		0.0003		0.0001		
21	0.1071	0.0444	41.4	0.0304	28.4	0.0181	16.9	P
22		0.0008		0.0003		0.0002		
23	0.0978	0.0333	34.1	0.0229	23.4	0.0131	13.4	P
24		0.0008		0.0003		0.0002		
25	0.0900	0.0239	26.6	0.0166	18.4	0.0089	9.9	P
26		0.0008		0.0003		0.0002		
27	0.0833	0.0167	20.0	0.0118	14.2	0.0058	6.9	P
28		0.0008		0.0003		0.0002		
29	0.0776	0.0123	15.9	0.0090	11.6	0.0040	5.1	P
30		0.0008		0.0003		0.0002		
31	0.0726	0.0123	16.9	0.0082	11.3	0.0035	4.8	P
32		0.0008		0.0003		0.0002		
33	0.0682	0.0129	18.9	0.0084	12.3	0.0038	5.5	P
34		0.0007		0.0002		0.0002		
35	0.0643	0.0126	19.7	0.0087	13.5	0.0040	6.3	P
36		0.0007		0.0002		0.0001		
37	0.0608	0.0119	19.6	0.0085	14.1	0.0041	6.7	P
38		0.0006		0.0002		0.0001		
39	0.0577	0.0109	18.8	0.0079	13.7	0.0038	6.5	P
40		0.0007		0.0002		0.0001		

Final Test Statistics:

Harmonic Number	Standard Limit (A rms)	Maximum Value (A rms)	Maximum Value (% Limit)	>50% of Limit (Count)	>75% of Limit (Count)	>90% of Limit (Count)	>95% of Limit (Count)	>100% of Limit (Count)	Pass (P) or Fail (F)
Fund.		0.1548							
2		0.0028		0	0	0	0	0	
3	2.3000	0.1465	6.4	0	0	0	0	0	P
4		0.0023		0	0	0	0	0	
5	1.1400	0.1401	12.3	0	0	0	0	0	P
6		0.0015		0	0	0	0	0	
7	0.7700	0.1310	17.0	0	0	0	0	0	P
8		0.0011		0	0	0	0	0	
9	0.4000	0.1199	30.0	0	0	0	0	0	P
10		0.0012		0	0	0	0	0	
11	0.3300	0.1077	32.6	0	0	0	0	0	P
12		0.0011		0	0	0	0	0	
13	0.2100	0.0955	45.5	0	0	0	0	0	P
14		0.0011		0	0	0	0	0	
15	0.1500	0.0826	55.1	3828	0	0	0	0	P
16		0.0010		0	0	0	0	0	
17	0.1324	0.0694	52.5	3732	0	0	0	0	P
18		0.0008		0	0	0	0	0	
19	0.1184	0.0565	47.7	0	0	0	0	0	P
20		0.0007		0	0	0	0	0	
21	0.1071	0.0444	41.4	0	0	0	0	0	P
22		0.0008		0	0	0	0	0	
23	0.0978	0.0333	34.1	0	0	0	0	0	P
24		0.0008		0	0	0	0	0	
25	0.0900	0.0239	26.6	0	0	0	0	0	P
26		0.0008		0	0	0	0	0	
27	0.0833	0.0167	20.0	0	0	0	0	0	P
28		0.0008		0	0	0	0	0	
29	0.0776	0.0123	15.9	0	0	0	0	0	P
30		0.0008		0	0	0	0	0	
31	0.0726	0.0123	16.9	0	0	0	0	0	P
32		0.0008		0	0	0	0	0	
33	0.0682	0.0129	18.9	0	0	0	0	0	P
34		0.0007		0	0	0	0	0	
35	0.0643	0.0126	19.7	0	0	0	0	0	P
36		0.0007		0	0	0	0	0	
37	0.0608	0.0119	19.6	0	0	0	0	0	P
38		0.0006		0	0	0	0	0	
39	0.0577	0.0109	18.8	0	0	0	0	0	P
40		0.0007		0	0	0	0	0	

Remarks





Approved by: Bill Huang 6/3.03
Signature: John Yen Date: 6/2.03
Final Test Result: PASS

Settings and Test Conditions Compliant to the Standard: Yes

Test Equipment Used:

Agilent 6842A Harmonic/Flicker Test System with serial number:
HFTS Software Version: A.05.03
Date Last Calibrated:

Test Equipment Settings:

Line Voltage: 230.00 V Pst Integration Time: 10 minutes
Line Frequency: 50 Hz Pst Integration Periods: 3
Measurement Delay: 10.0 seconds Test Duration: 00:30:00
RMS Current Limit: 13.1 A Peak Current Limit: 80.8 A

Overrides:

Pst/Plt Test Limit Overrides: None
RMS Test Limit Overrides: None

Equipment Under Test Pre-test Results:

RMS Voltage: 229.8 V RMS Current: 0.4 A Real Power: 32.5 W
Frequency: 50.0 Hz Peak Current: 1.7 A Apparent Power: 82.4 VA
Voltage THD: 0.04% Current THD: 90.90% Power Factor: 0.394

Total Number of Failures:

Pst: 0 Dc: 0
Plt: 0 Dmax: 0
Dt: 0

Total Number of Errors:

None

Final Test Summary:

```

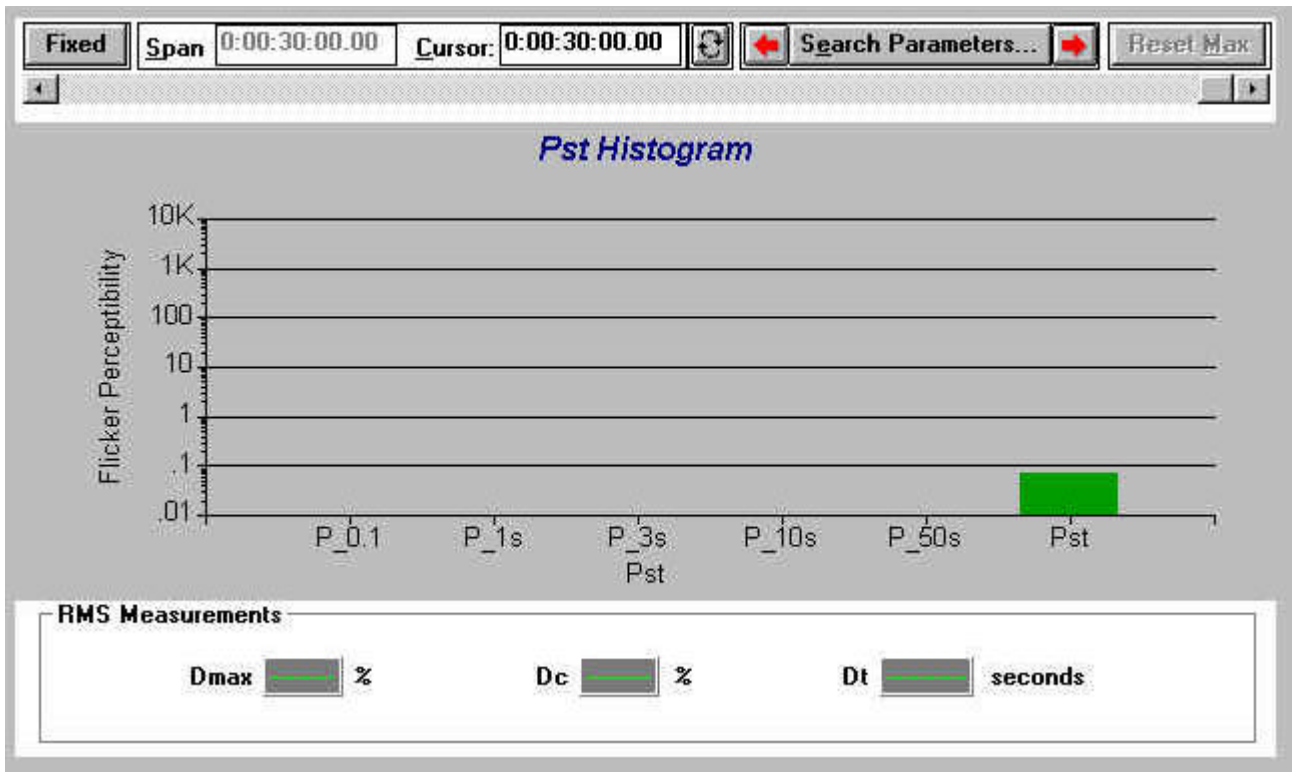
-----
Dmax: 0.0          Pst: 0.07          P_0.1: 0.01
Dc: 0.0           Plt: 0.07          P_1s: 0.01
Dt: 0.00          Elt Threshold: 0.65      P_3s: 0.01
                                      P_10s: 0.01
                                      P_50s: 0.01
  
```

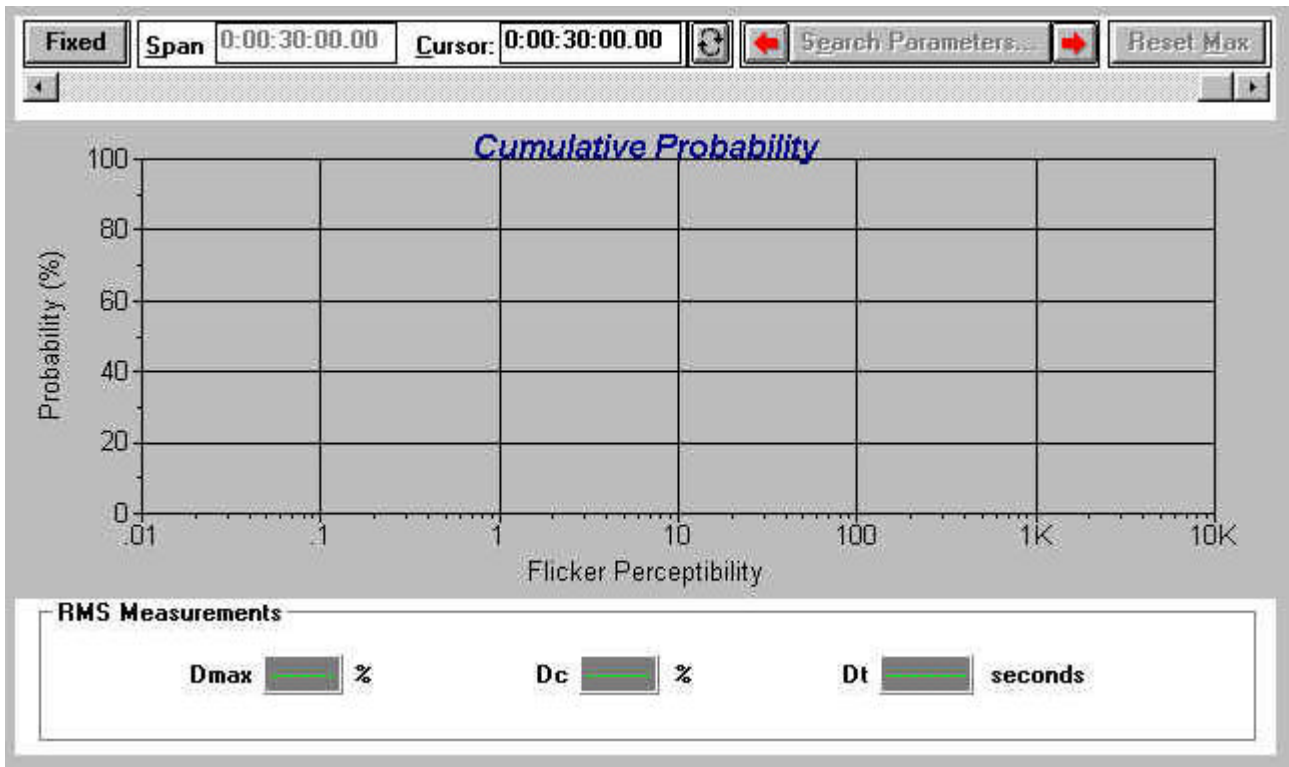
Final Test Data by Integration Period:

Number of Integration Periods: 3

Integration Periods	Pst (P.U.)	P_0.1 (P.U.)	P_1.0s (P.U.)	P_3.0s (P.U.)	P_10s (P.U.)	P_50s (P.U.)	Dc (%)	Dmax (%)	Dt (seconds)	Pass (P) or Fail (F)
1	0.07	0.01	0.01	0.01	0.01	0.01	-----	-----	-----	N/A
2	0.07	0.01	0.01	0.01	0.01	0.01	-----	-----	-----	N/A
3	0.07	0.01	0.01	0.01	0.01	0.01	-----	-----	-----	N/A

Remarks



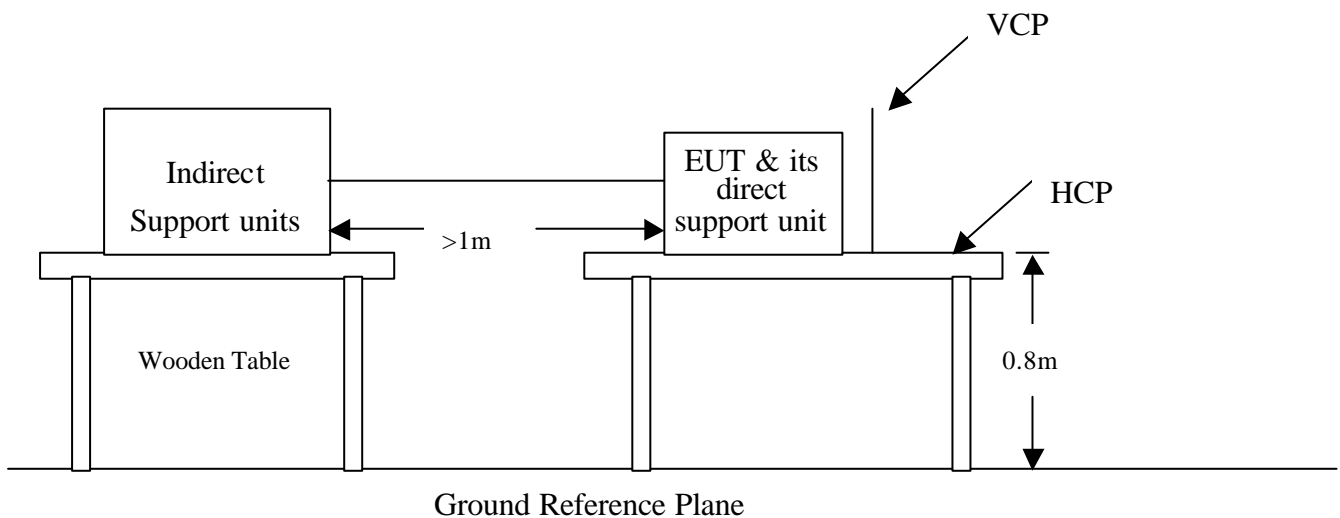


SECTION 3 IEC 61000-4-2 (ELECTROSTATIC DISCHARGE)

ELECTROSTATIC DISCHARGE (ESD) IMMUNITY TEST

Port	: Enclosure
Basic Standard	: IEC 61000-4-2
Requirements	: ±8 kV (Air Discharge) ±4kV (Contact Discharge) ±4kV (Indirect Discharge)
Performance Criteria	: B (Standard require)
Temperature/Humidity	: 20 ⁰ C / 60%
Pressure	: 1010 mbar
Test By	: JOHN YEN

Block Diagram of Test Setup:



Test Procedure:

1. The EUT was located 0.1 m minimum from all side of the HCP.
2. The indirect support units were located 1 m minimum away from the EUT, but direct support unit was/were located at same location as EUT on the HCP and keep at a distance of 10 cm with EUT.
3. A communication test program was loaded and executed in Windows mode.
4. PC sent transmit data to remote side via EUT.
5. As per the requirement of EN 55024; applying direct contact discharge at the sides other than front of EUT at minimum 50 discharges (25 positive and 25 negative) if applicable, can't be applied direct contact discharge side of EUT then the indirect discharge shall be applied. One of the test points shall be subjected to at least 50 indirect discharge (contact) to the front edge of horizontal coupling plane.
6. Other parts of EUT where it is not possible to perform contact discharge then selecting appropriate points of EUT for air discharge, a minimum of 10 single air discharges shall be applied.
7. The application of ESD to the contact of open connectors is not required.
8. Putting a mark on EUT to show tested points. The following test condition was followed during the tests.

Note: As per IEC 61000-4-2:2001, with two 470k bleed resistors cable is connected between the EUT and HCP during the test applicable for power ungrounded or battery operating unit only.

9. The electrostatic discharges were applied as follows:

Amount of Discharges	Voltage	Coupling	Result (Pass/Fail)
Mini 25 /Point	±4kV	Contact Discharge	Pass
Mini 25 /Point	±4kV	Indirect Discharge HCP (Front)	Pass
Mini 25 /Point	±4kV	Indirect Discharge VCP (Back)	Pass
Mini 25 /Point	±4kV	Indirect Discharge VCP (Left)	Pass
Mini 25 /Point	±4kV	Indirect Discharge VCP (Right)	Pass
Mini 10 /Point	±8kV	Air Discharge	Pass

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

(Blue arrow mark for contact discharge, red arrow mark for air discharge.)

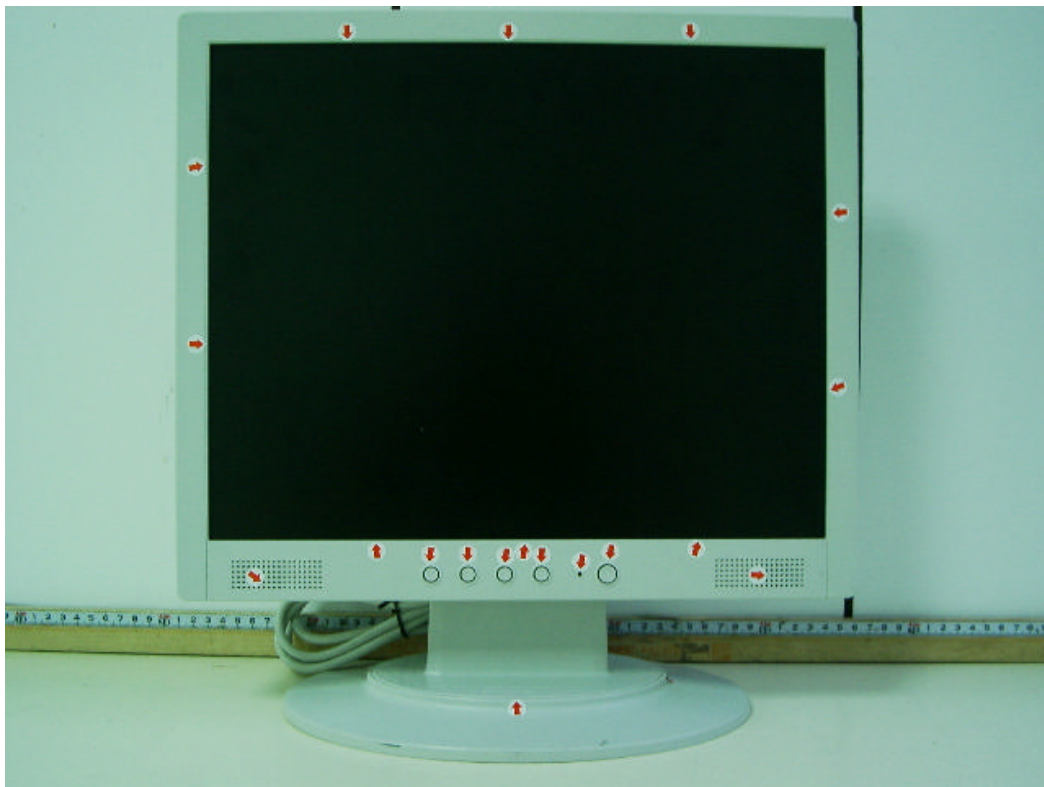
Performance & Result:

- 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.

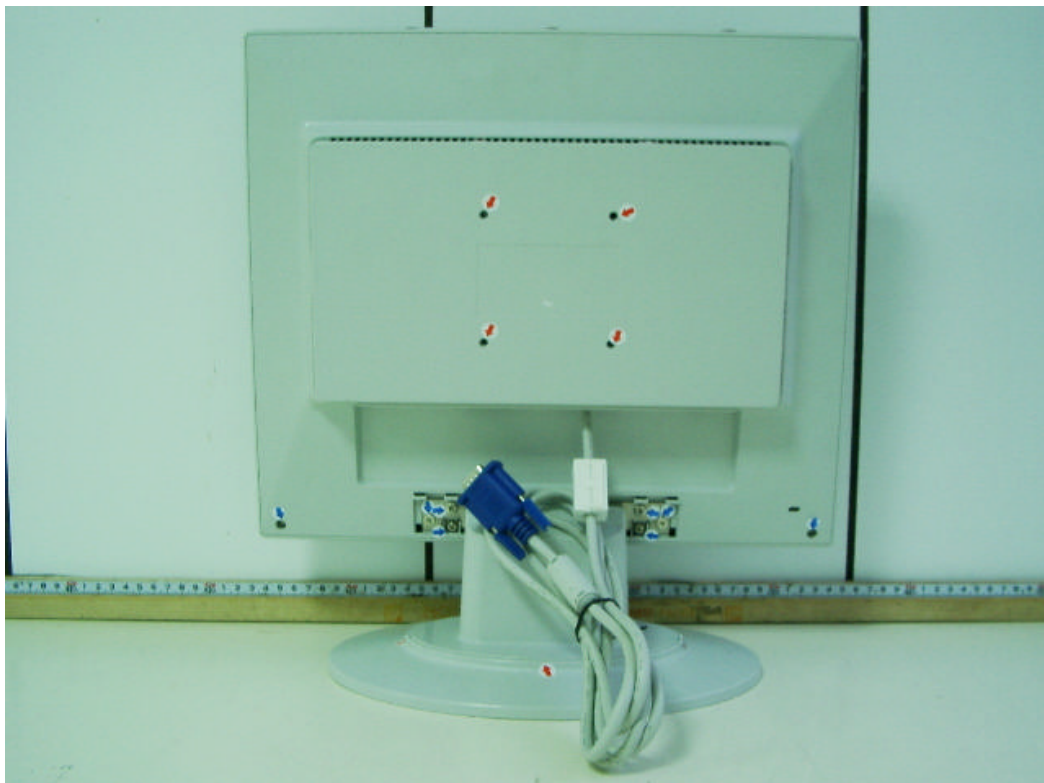
<input checked="" type="checkbox"/> PASS <input type="checkbox"/> FAILED
Observation: No any function degraded during the tests.

The Tested Points of EUT

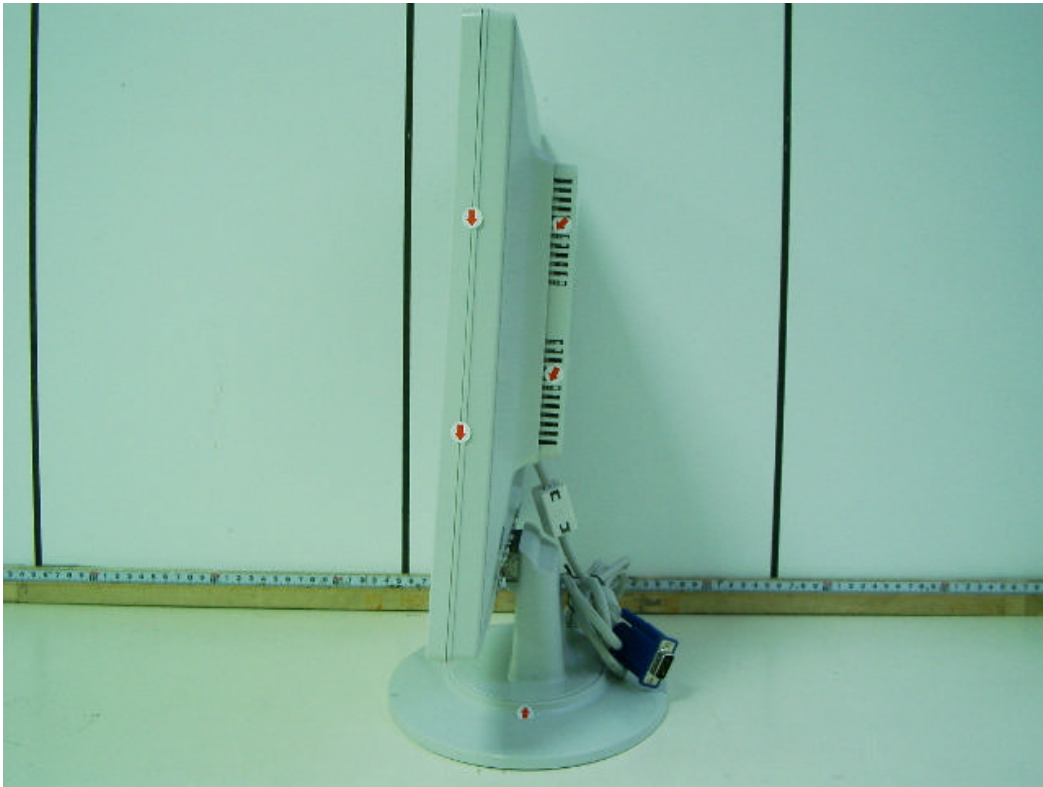
(Photo 1 of 5)



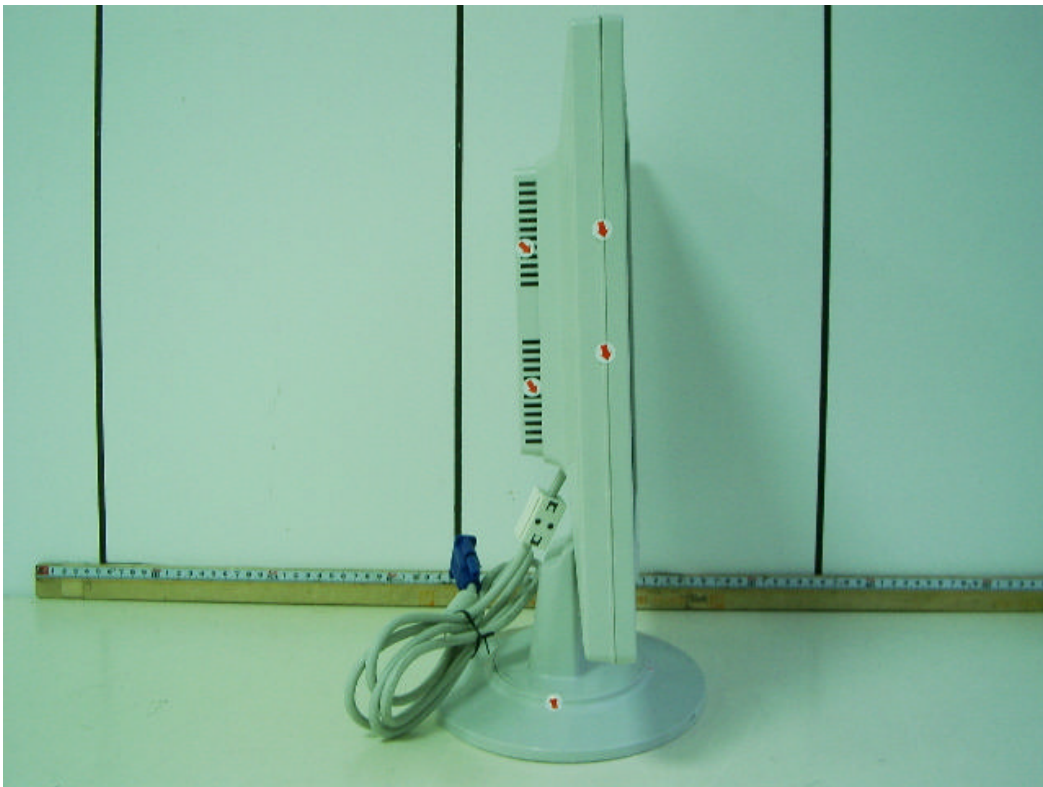
(Photo 2 of 5)



(Photo 3 of 5)



(Photo 4 of 5)



(Photo 5 of 5)

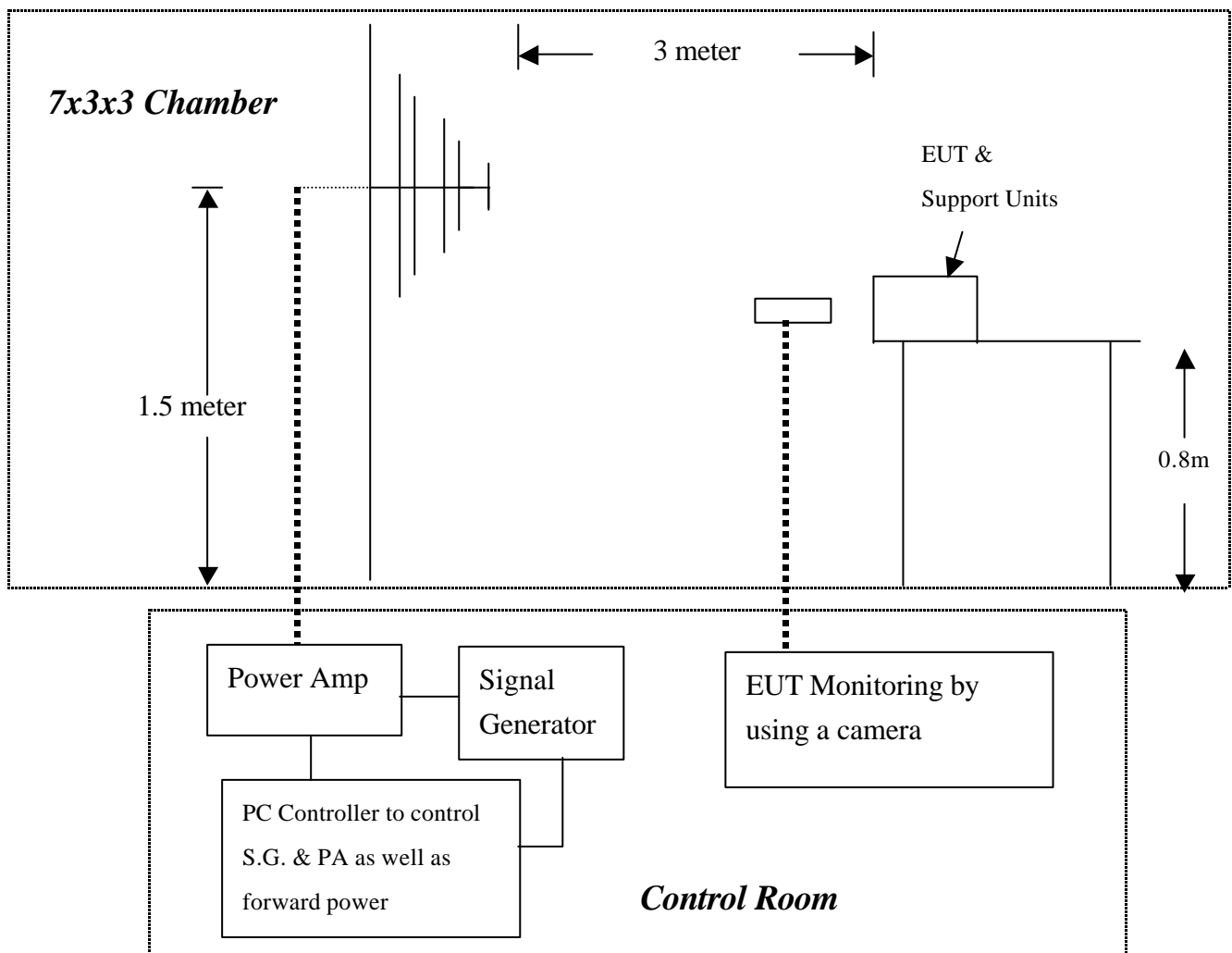


SECTION 4 IEC 61000-4-3 (RADIATED ELECTROMAGNETIC FIELD)

RADIATED ELECTROMAGNETIC FIELD IMMUNITY TEST

Port	: Enclosure
Basic Standard	: IEC 61000-4-3
Requirements	: 3 V/m / with 80% AM. 1kHz Modulation
Performance Criteria	: A (Standard require)
Tester	: JOHN YEN
Temperature	: 20
Humidity	: 60%
Pressure	: 1020 mbar
Note	: The EUT not have acoustic interfaces, the annex A of EN 55024 should not be applied

Block Diagram of Test Setup:



Test Procedure:

1. The EUT and support units were located at the edge of supporting table keep 3 meter away from transmitting antenna, it just the calibrated square area of field uniformity.
2. Adjusting the cables to be exposed to the electromagnetic field as possible.
3. Performing a Radiated Emission Scan in range of 30 to 1000 MHz prior to do RS test and records the more higher emission frequencies for the reference of RS test, due to antenna effectiveness.
4. Adjusting the monitoring camera to monitor the “H” message as clear as possible.
5. Setting the testing parameters of RS test software per IEC 61000-4-3.
6. Referring to the tested data of step 3 to performing the RS test from 80 to 1000 MHz.
7. Recording the test result in following table.
8. Changing the EUT to the other side and repeat step 3 to 6, until 4 sides of EUT were verified.

IEC 61000-4-3 Final test conditions:

Test level : 3V/m
Steps : 1 % of fundamental
Dwell Time : 3 sec

Range (MHz)	Field	Modulation	Polarity	Position (°)	Result (Pass/Fail)
80-1000	3V	Yes	H	Front	Pass
80-1000	3V	Yes	V	Front	Pass
80-1000	3V	Yes	H	Right	Pass
80-1000	3V	Yes	V	Right	Pass
80-1000	3V	Yes	H	Back	Pass
80-1000	3V	Yes	V	Back	Pass
80-1000	3V	Yes	H	Left	Pass
80-1000	3V	Yes	V	Left	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.

PASS

FAILED

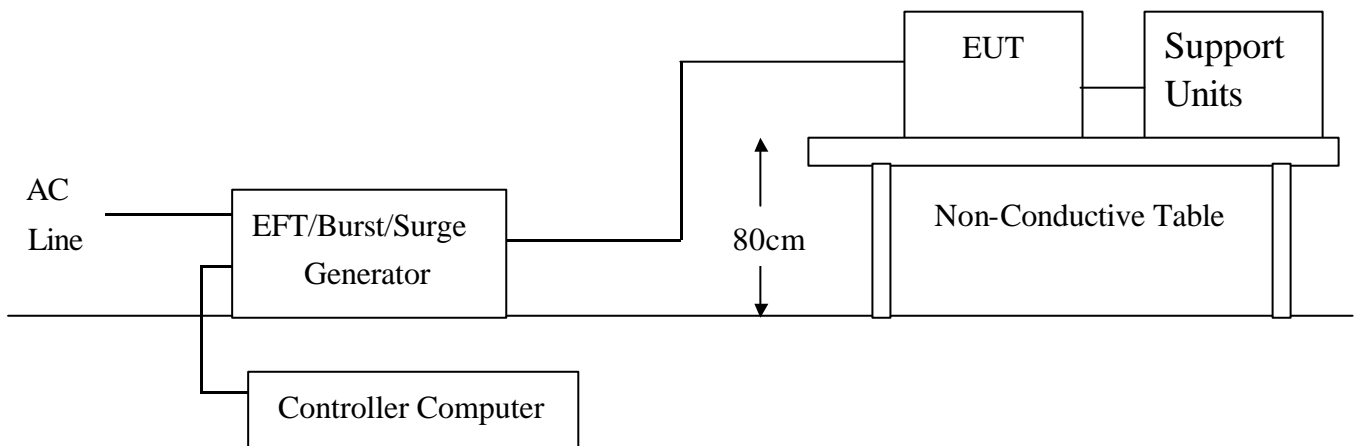
Observation: No any function degraded during the tests.

SECTION 5 IEC 61000-4-4 (FAST TRANSIENTS/BURST)

FAST TRANSIENTS/BURST IMMUNITY TEST

Port	: On Power Lines
Basic Standard	: IEC 61000-4-4
Requirements	: $\pm 1\text{kV}$ for Power Supply Lines
Performance Criteria	: B (Standard require)
Temperature	: 20°C
Humidity	: 60%
Pressure	: 1010 mbar
Test By	: JOHN YEN

Block Diagram of Test Setup:



Test Procedure:

1. The EUT and support units were located on a wooden table 0.8 m away from ground reference plane.
2. A 1.0 meter long power cord was attached to EUT during the test.
3. The length of communication cable between communication port and clamp was keeping within 1 meter.
4. A test program was loaded and executed in Windows mode.
5. The data was display on the monitor and filling the screens.
6. The test program exercised related support units sequentially.
7. Repeating step 3 to 6 through the test.
8. Recording the test result as shown in following table.

Test conditions:

Impulse Frequency: 5kHz

Tr/Th: 5/50ns

Burst Duration: 15ms

Burst Period: 300mS

Inject Line	Voltage kV	Inject Method	Result (Pass/Fail)
L1	+/- 1	Direct	Pass
N	+/- 1	Direct	Pass
PE	+/- 1	Direct	Pass
L1+N	+/- 1	Direct	Pass
L1+PE	+/- 1	Direct	Pass
N+PE	+/- 1	Direct	Pass
L1+N+PE	+/- 1	Direct	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.

PASS

FAILED

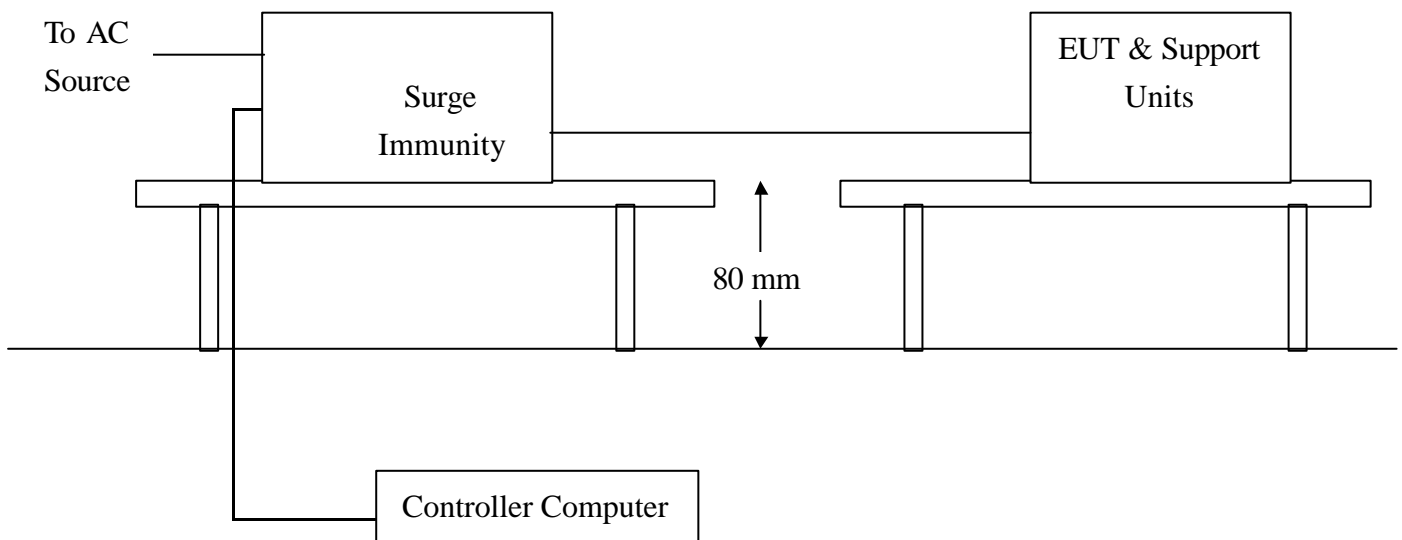
Observation: No any function degraded during the tests.

SECTION 6 IEC 61000-4-5 (SURGE IMMUNITY)

SURGE IMMUNITY TEST

Port	:	Power Cord
Basic Standard	:	IEC 61000-4-5
Requirements	:	+/- 1kV (Line to Line of Power Port) +/- 2kV (Line to Earth of Power Port)
Performance Criteria	:	B (Standard require)
Tester	:	JOHN YEN
Temperature	:	20
Humidity	:	60%
Pressure	:	1010 mbar

Block Diagram of Test Setup:



Test Procedure:

1. The EUT and support units were located on a wooden table 0.8 m away from ground floor.
2. A test program was loaded and executed in Windows mode.
3. The data was display on the monitor and filling the screens.
4. The test program exercised related support units sequentially.
5. Repeating step 3 to 4 through the test.
6. Recording the test result as shown in following table.

Test conditions:

Voltage Waveform : 1.2/50 us
 Current Waveform : 8/20 us
 Polarity : Positive/Negative
 Phase angle : 0°, 90°, 270°
 Number of Test : 5

Coupling Line	Voltage (kV)	Polarity	Coupling Method	Result (Pass/Fail)
L1-L2, L1-PE, L2-PE	1	Positive	Capacitive	Pass
L1-L2, L1-PE, L2-PE	1	Negative	Capacitive	Pass
L1-PE, L2-PE	2	Positive	Capacitive	Pass
L1-PE, L2-PE	2	Negative	Capacitive	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.

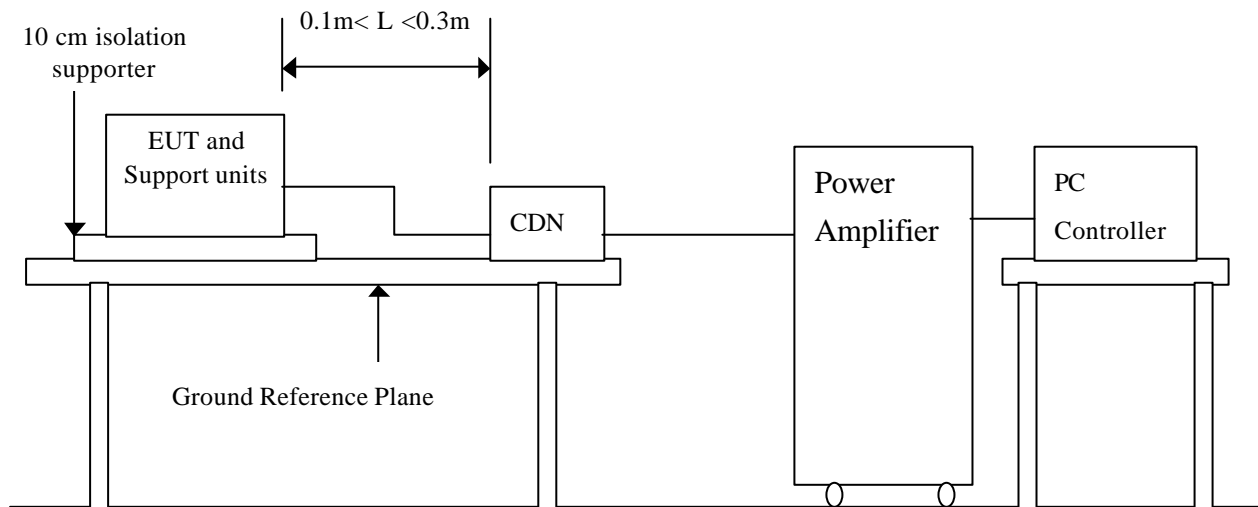
<input checked="" type="checkbox"/> PASS <input type="checkbox"/> FAILED
Observation: No any function degraded during the tests.

SECTION 7 IEC 61000-4-6 (CONDUCTED DISTURBANCE/INDUCED BY RADIO-FREQUENCY FIELD)

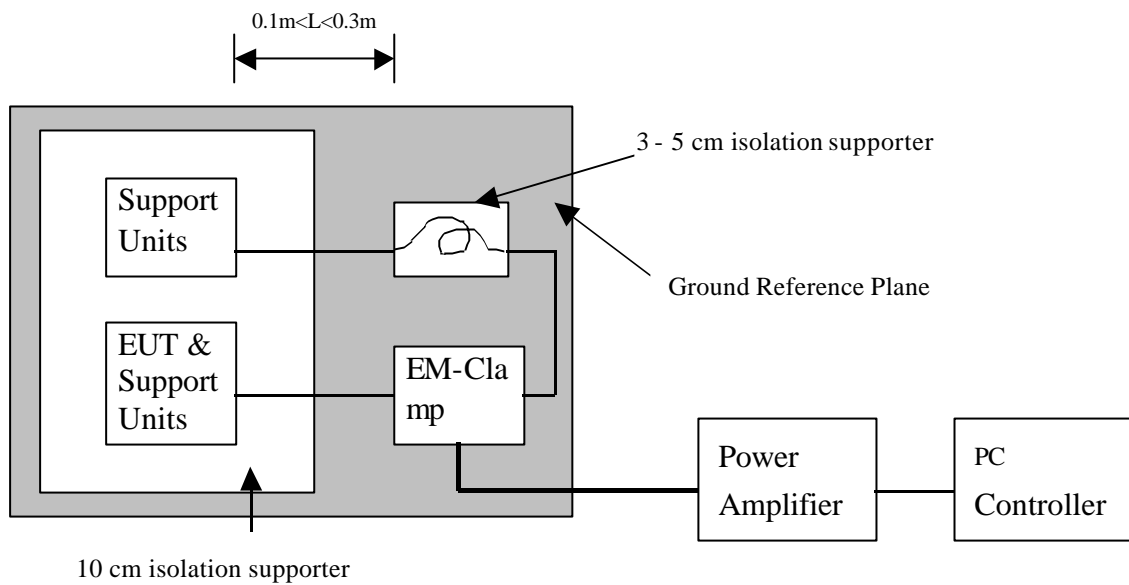
CONDUCTED DISTURBANCE, INDUCED BY RADIO-FREQUENCY FIELDS

Port	: AC Port
Basic Standard	: IEC 61000-4-6
Requirements	: 3V with 80% AM. Modulation
Injection Method	: CDN-M3 for Power Cord
Performance Criteria	: A (Standard require)
Temperature	: 20 ⁰ C
Humidity	: 60%
Pressure	: 1010 mbar
Test By	: JOHN YEN

Block Diagram of Test Setup:



Top view:



Test Procedure:

1. The EUT and support units were located at a ground reference plane with the interposition of a 0.1 m thickness insulating support and the CDN was located on GRP directly.
2. Transmit data messages were displayed on screen of Monitor.
3. Adjusting the monitoring camera to monitor the transmit data message as clear as possible.
4. Setting the testing parameters of CS test software per EN 61000-4-6.
5. Recording the test result in following table.

Test conditions:

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

Range (MHz)	Field	Modulation	Result (Pass/Fail)
0.15-80	3V	Yes	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.

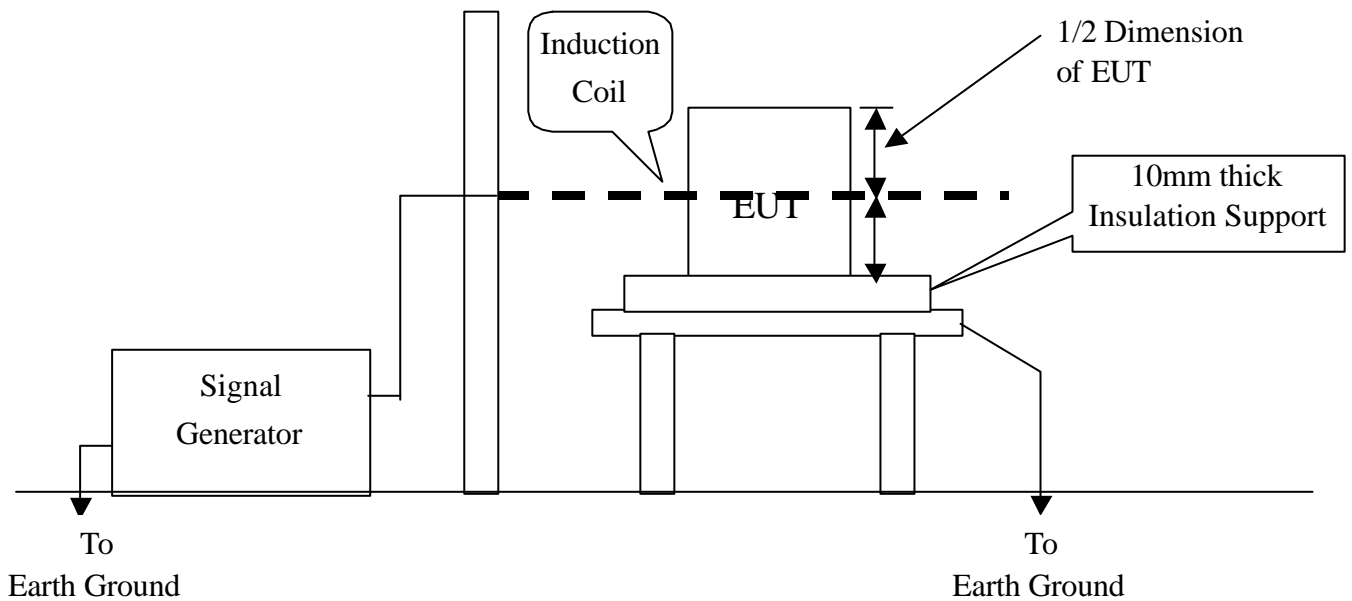
<input checked="" type="checkbox"/> PASS <input type="checkbox"/> FAILED
Observation: No any function degraded during the tests.

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

POWER FREQUENCY MAGNETIC FIELD IMMUNITY TEST

Port	: Enclosure
Basic Standard	: IEC 61000-4-8
Requirements	: 1 A/m
Performance Criteria	: A (Standard Required)
Temperature	: 20°C
Humidity	: 60%
Pressure	: 1010 mbar
Test By	: JOHN YEN

Block Diagram of Test Setup:



Test Procedure:

1. The EUT and support units were located on Ground Reference Plane with the interposition of a 0.1 m thickness insulation support.
2. Putting the induction coil on horizontal direction.(X direction)
3. A test program was loaded and executed in Windows mode.
4. The data was sent to the screen of EUT and filling the screen with upper case of “H” patterns.
5. The test program exercised related support units sequentially.
6. Repeating step 3 to 5 through the test.
7. Recording the test result as shown in following table.
8. Rotating the induction coil by 90⁰ (Y direction) then repeat step 3 to 7.
9. Rotating the induction coil by 90⁰ again (Z direction) then repeat step 3 to 7.

*. Test conditions:

Field Strength: 1A/m
Power Freq.: 50Hz
Orientation: X, Y, Z

Orientation	Field	Result (Pass/Fail)	Remark
X	1A	Pass	No any function degraded during the tests.
Y	1A	Pass	No any function degraded during the tests.
Z	1A	Pass	No any function degraded during the tests.

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.

<input checked="" type="checkbox"/> PASS <input type="checkbox"/> FAILED
Observation: No any function degraded during the tests.

**SECTION 9 IEC 61000-4-11
 (VOLTAGE DIPS, SHORT INTERRUPTIONS AND VOLTAGE VARIATIONS)**

VOLTAGE DIPS / SHORT INTERRUPTIONS

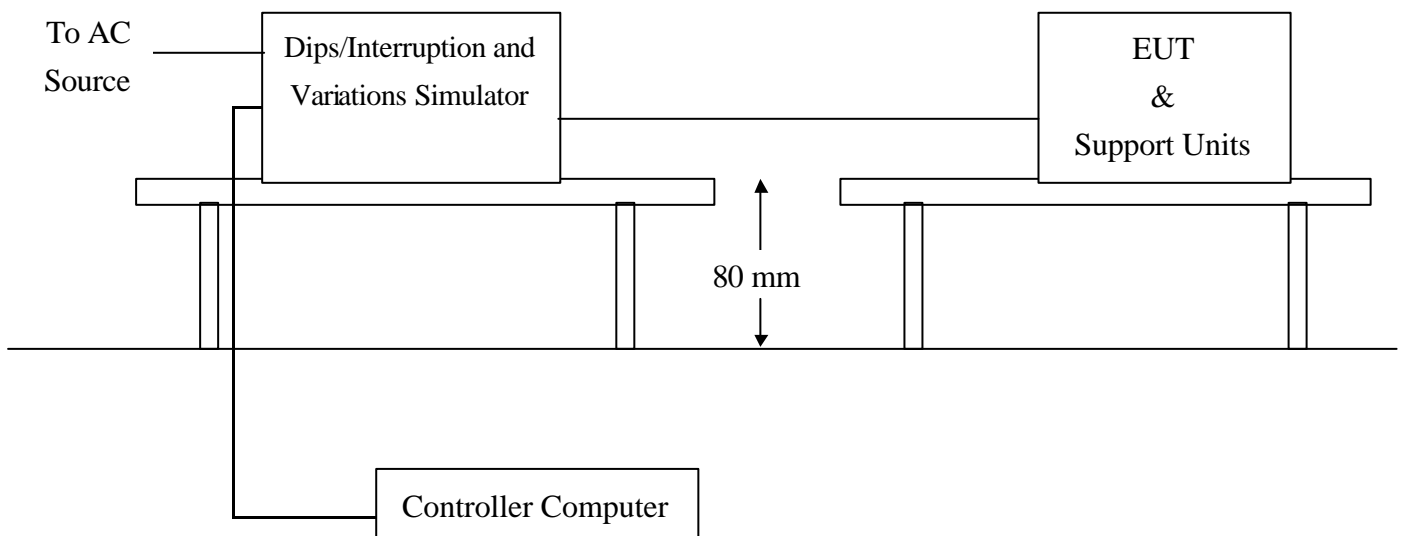
Port : AC mains
Basic Standard : IEC 61000-4-11 (1994)
Requirement : PHASE ANGLE 0, 45, 90, 135, 180, 225, 270, 315 degrees

Voltage Dips	Test Level	Reduction	Duration	Performance
	% U_T	(%)	(periods)	Criteria
	<5	>95	0.5	B
70	30	25	C	

Voltage Interceptions	Test Level	Reduction	Duration	Performance
	% U_T	(%)	(periods)	Criteria
<5	>95	250	C	

Test Interval : Min. 10 sec.
Temperature : 20⁰C
Humidity : 60%
Pressure : 1010 mbar
Test By : JOHN YEN

Block Diagram of Test Setup:



Test Procedure:

1. The EUT and support units were located on a wooden table, 0.8 m away from ground floor.
2. A test program was loaded and executed in Windows mode.
3. The data was displayed on the monitor and filling the screens.
4. The test program exercised related support units sequentially.
5. Setting the parameter of tests and then Perform the test software of test simulator.
6. Conditions changes to occur at 0 degree crossover point of the voltage waveform.
7. Repeating step 3 to 4 through the test.
8. Recording the test result in test record form.

Test conditions:

The duration with a sequence of three dips/interruptions with interval of 10s minimum (between each test events)

Voltage Dips:

Test Level % U _T	Reduction (%)	Duration (periods)	Observation	Meet Performance Criteria
0	100	0.5	Normal	A
70	30	25	Normal	A

Voltage Interruptions:

Test Level % U _T	Reduction (%)	Duration (periods)	Observation	Meet Performance Criteria
0	100	250	EUT shut down, But EUT can be auto recovered after Host PC restart.	C

Normal: No any functions degrade during and after the test.

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.

<input checked="" type="checkbox"/> PASS	<input type="checkbox"/> FAILED
---	--

APPENDIX 1

PHOTOGRAPHS OF TEST SETUP

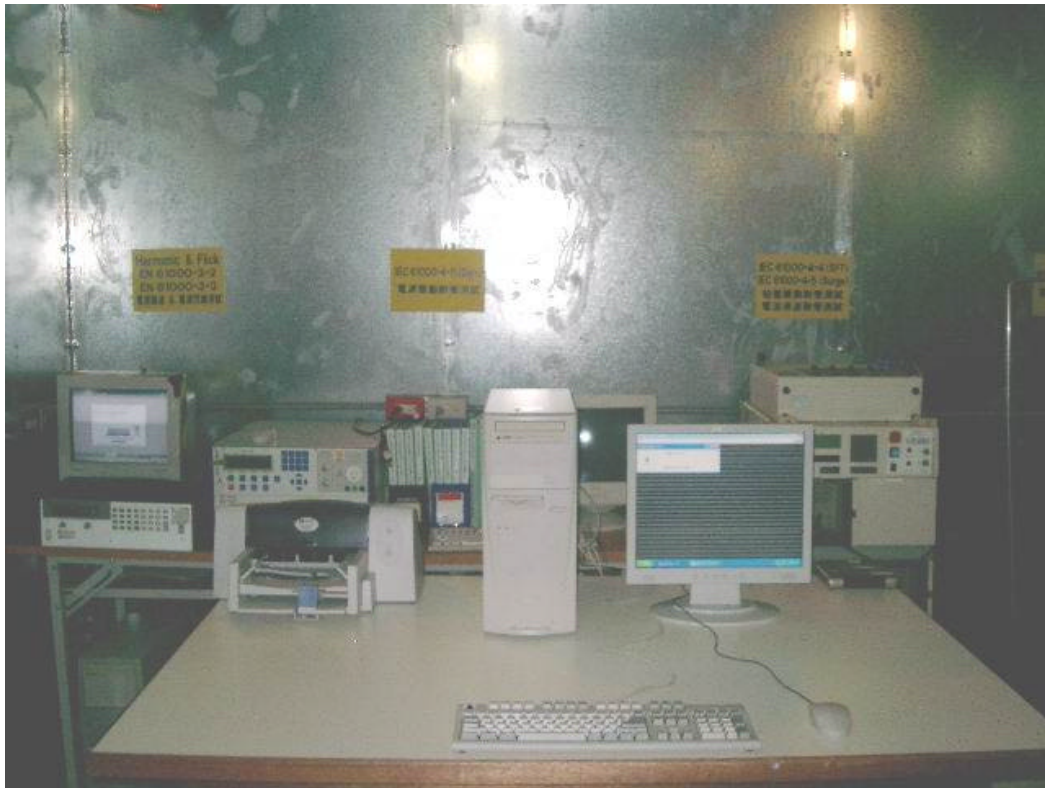
LINE CONDUCTED EMISSION TEST (EN 55022)



RADIATED EMISSION TEST (EN 55022)



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



ELECTROSTATIC DISCHARGE TEST (IEC 61000-4-2)



RADIATED ELECTROMAGNETIC FIELD (IEC 61000-4-3)

Front View



Back View



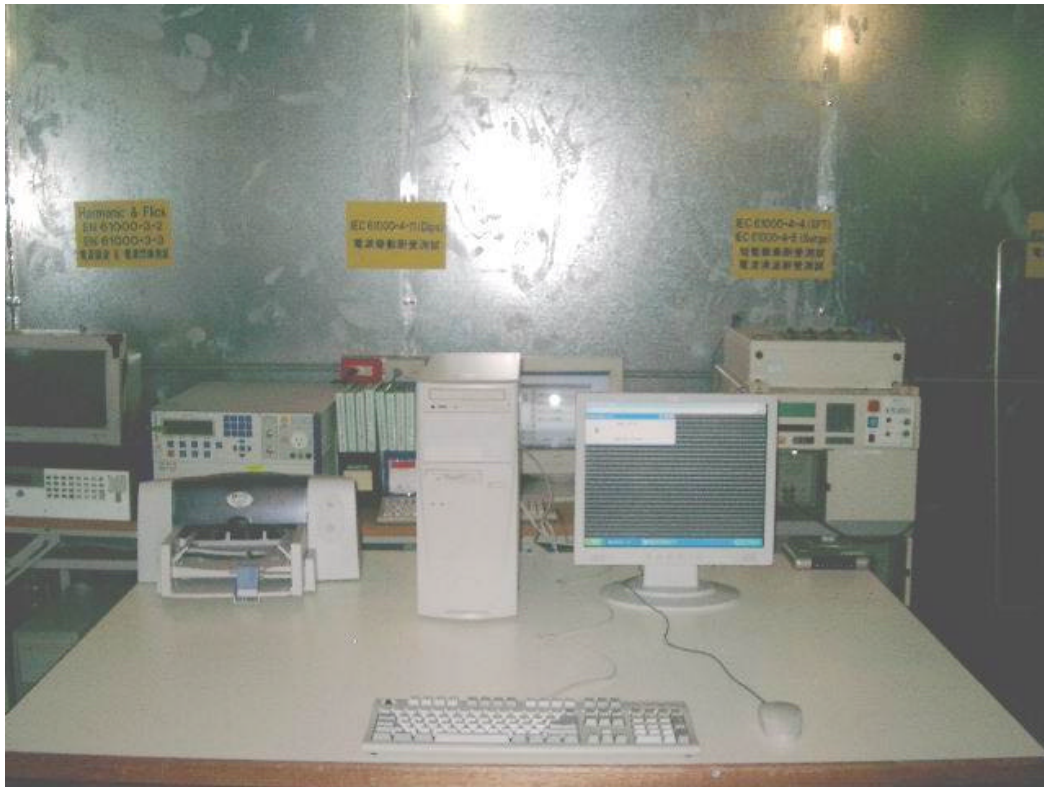
Left View



Right View



FAST TRANSIENTS/BURST TEST & SURGE IMMUNITY TEST (IEC 61000-4-4/5)



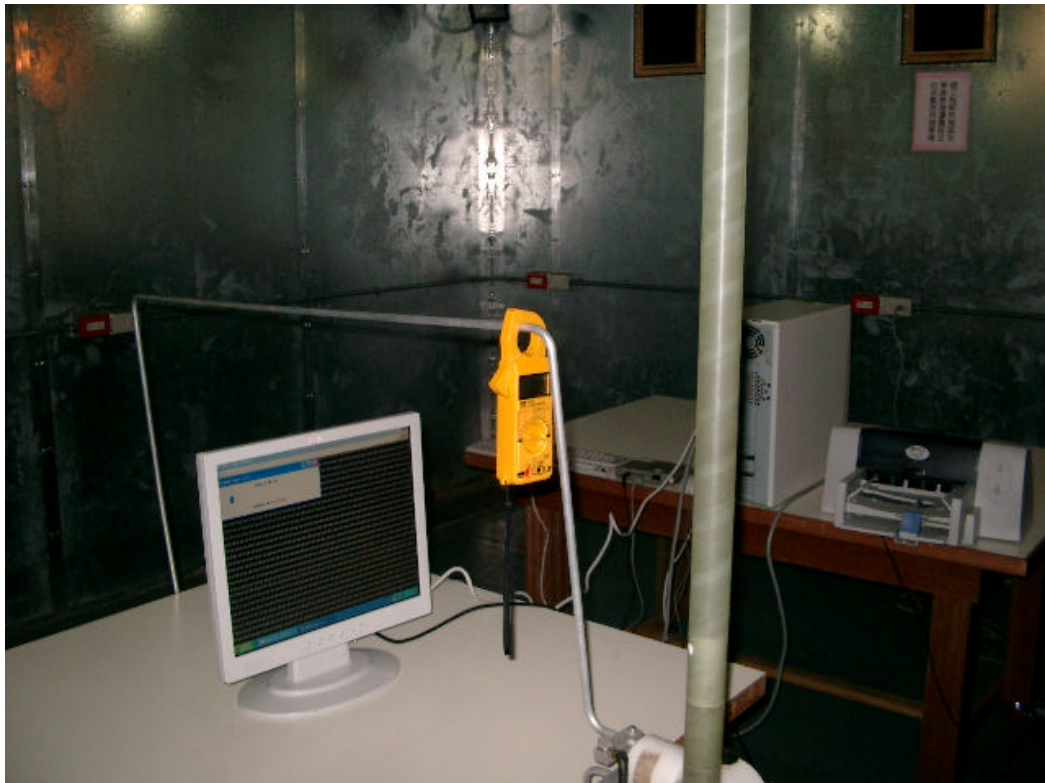
CONDUCTED DISTURBANCE, INDUCED BY RADIO-FREQUENCY FIELDS TEST (IEC 61000-4-6)



**POWER FREQUENCY MAGNETIC FIELD (IEC 61000-4-8)
IEC 61000-4-8 X**



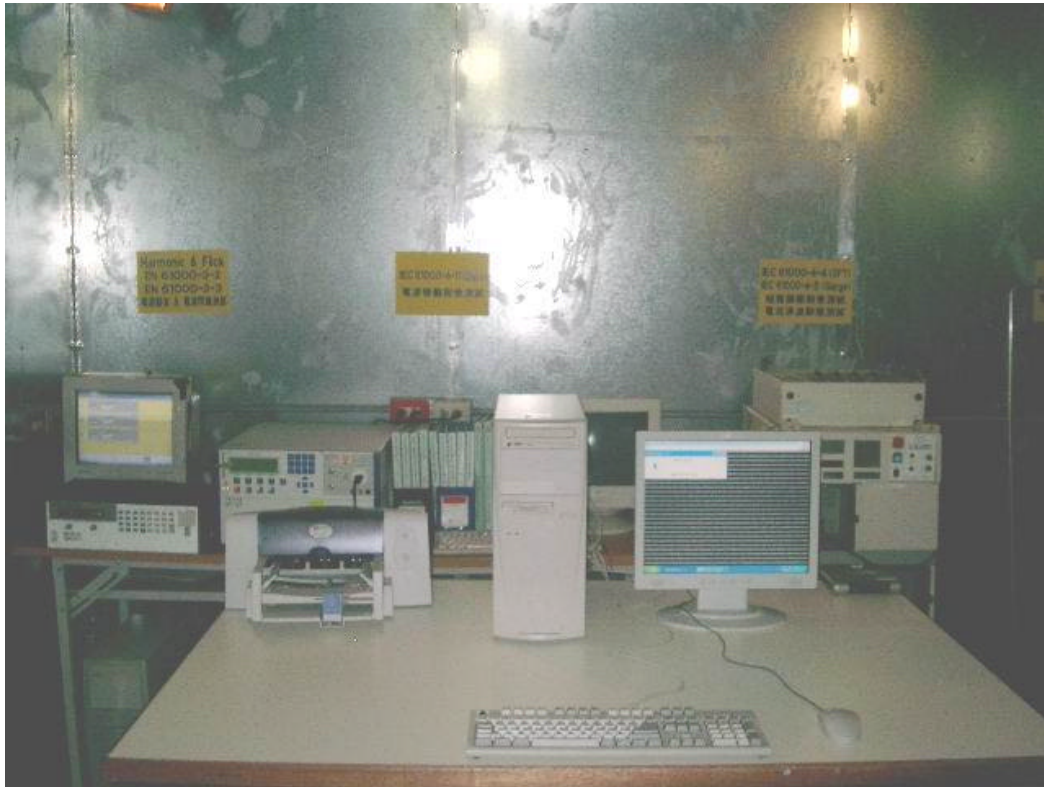
IEC 61000-4-8 Y



IEC 61000-4-8 Z



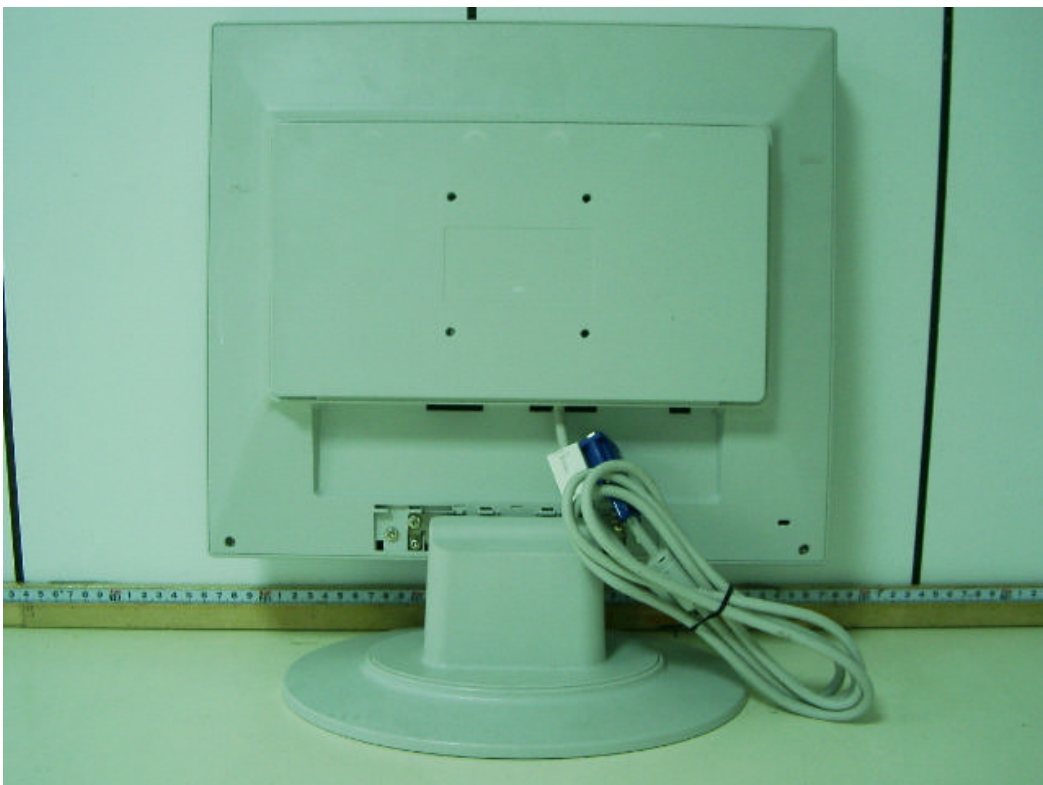
VOLTAGE DIPS / INTERRUPTION TEST (IEC 61000-4-11)

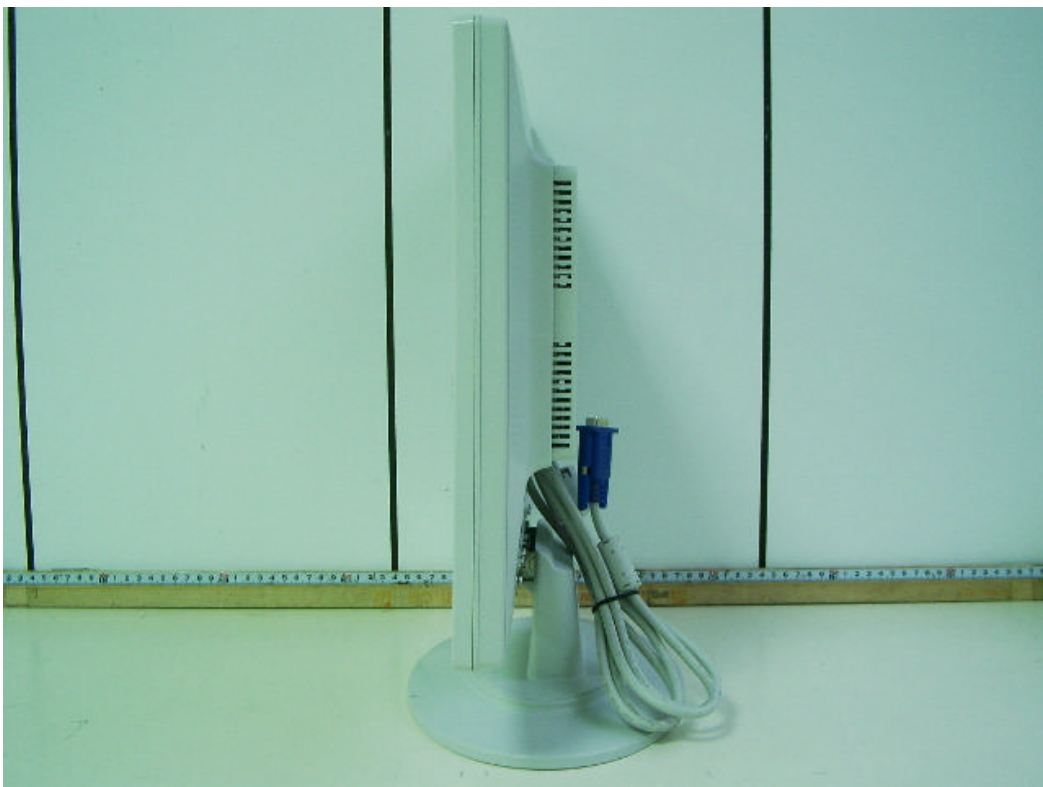
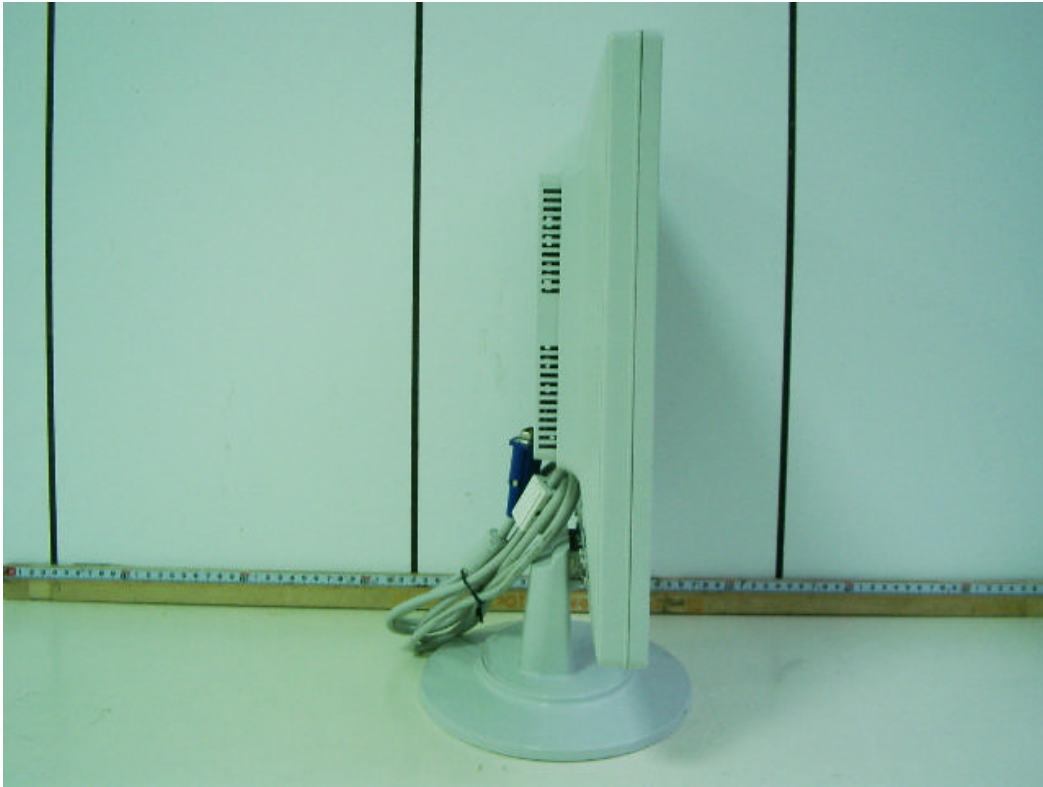


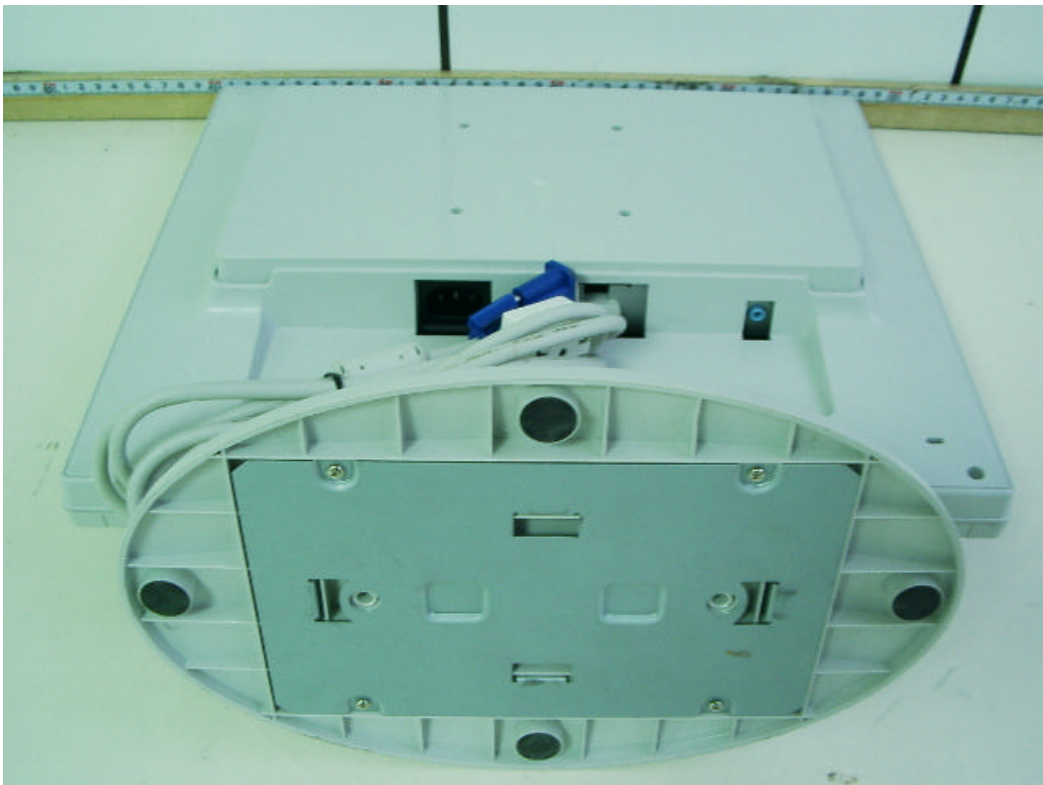
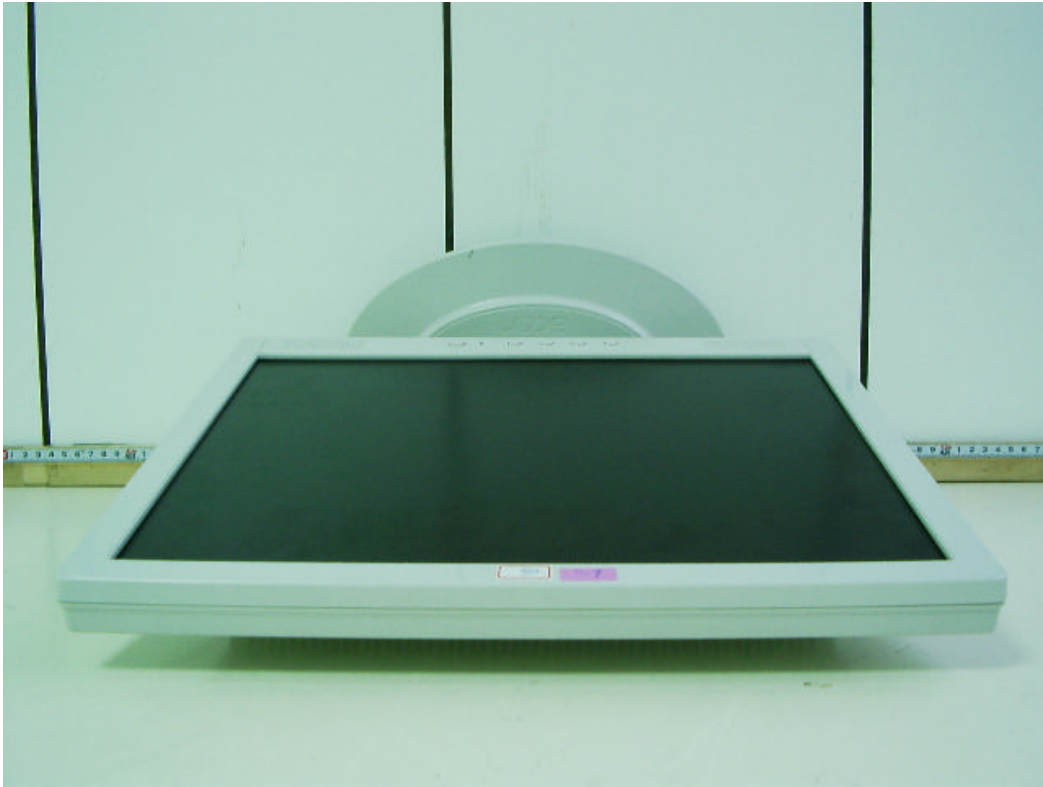
APPENDIX 2

PHOTOGRAPHS OF EUT

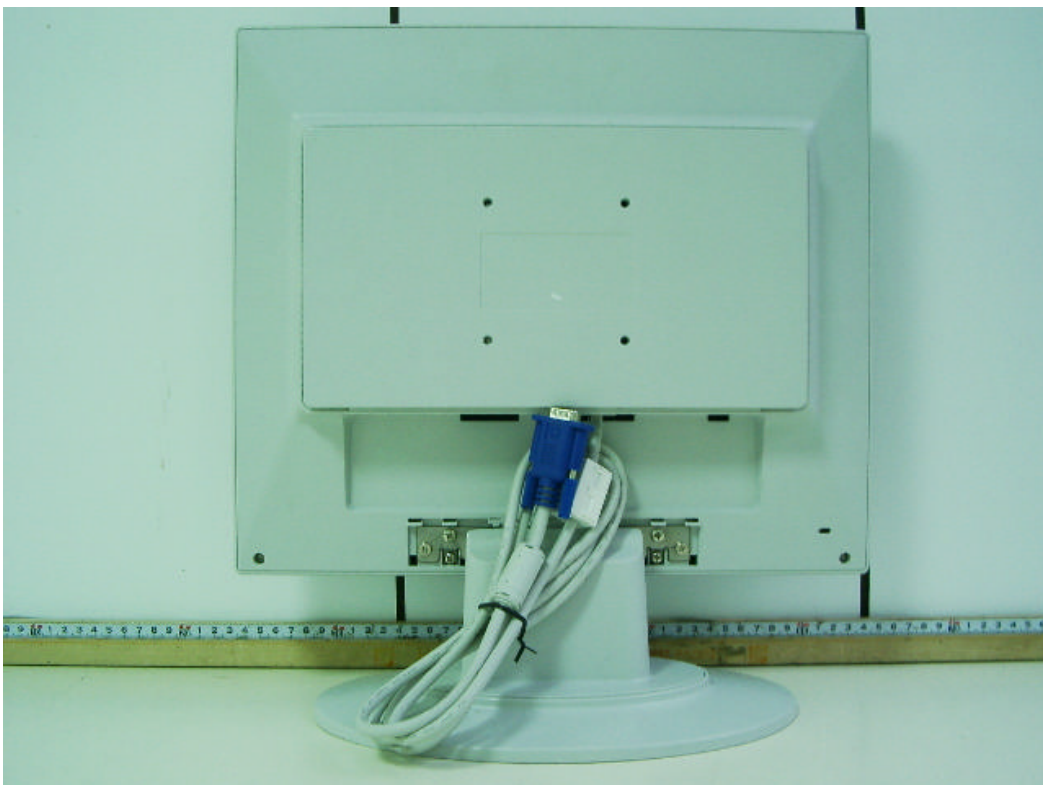
Panel: QDI (With Speaker)

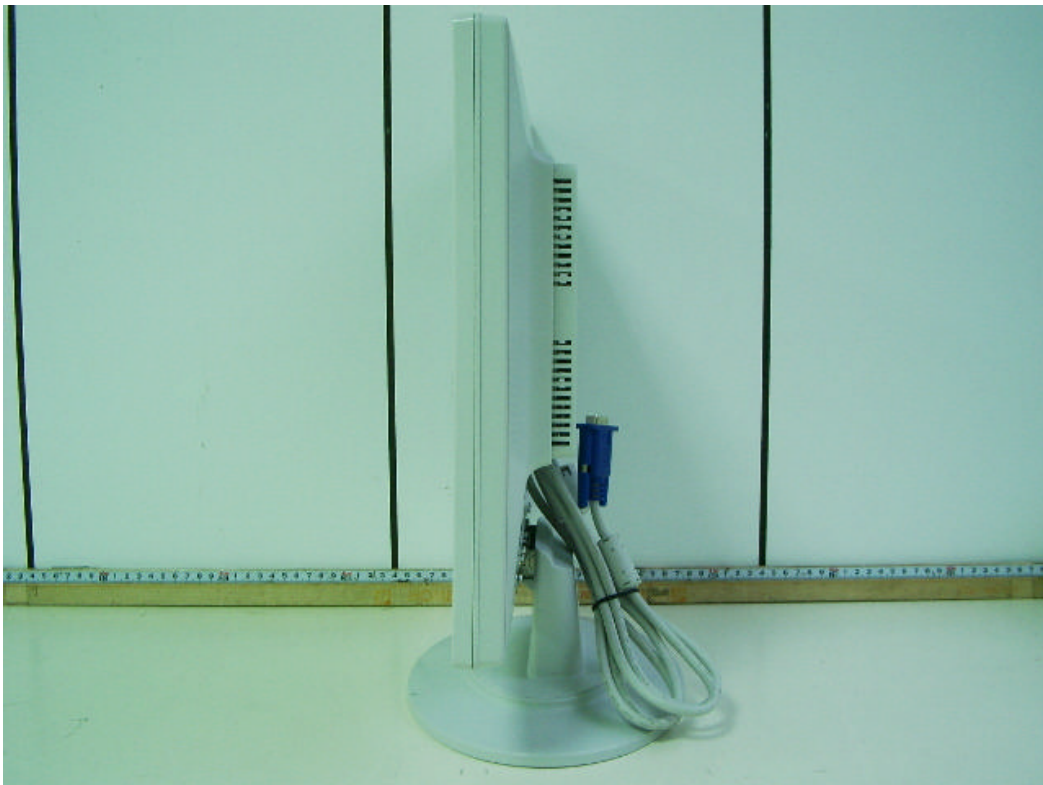
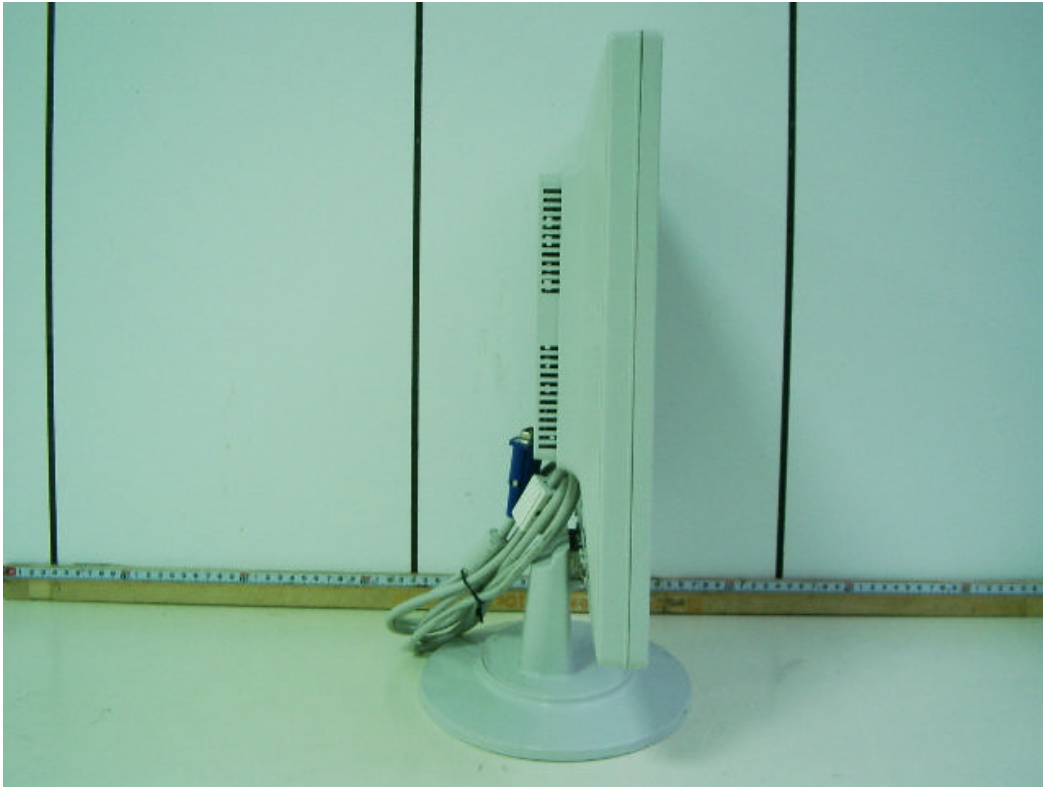


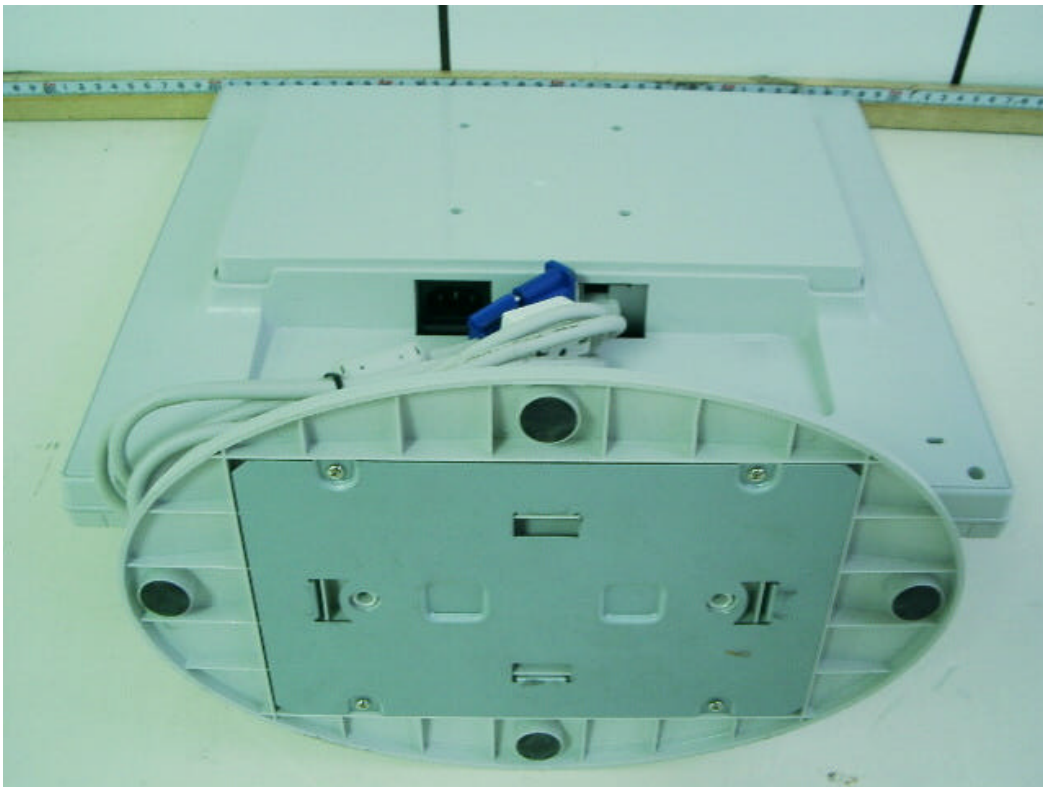
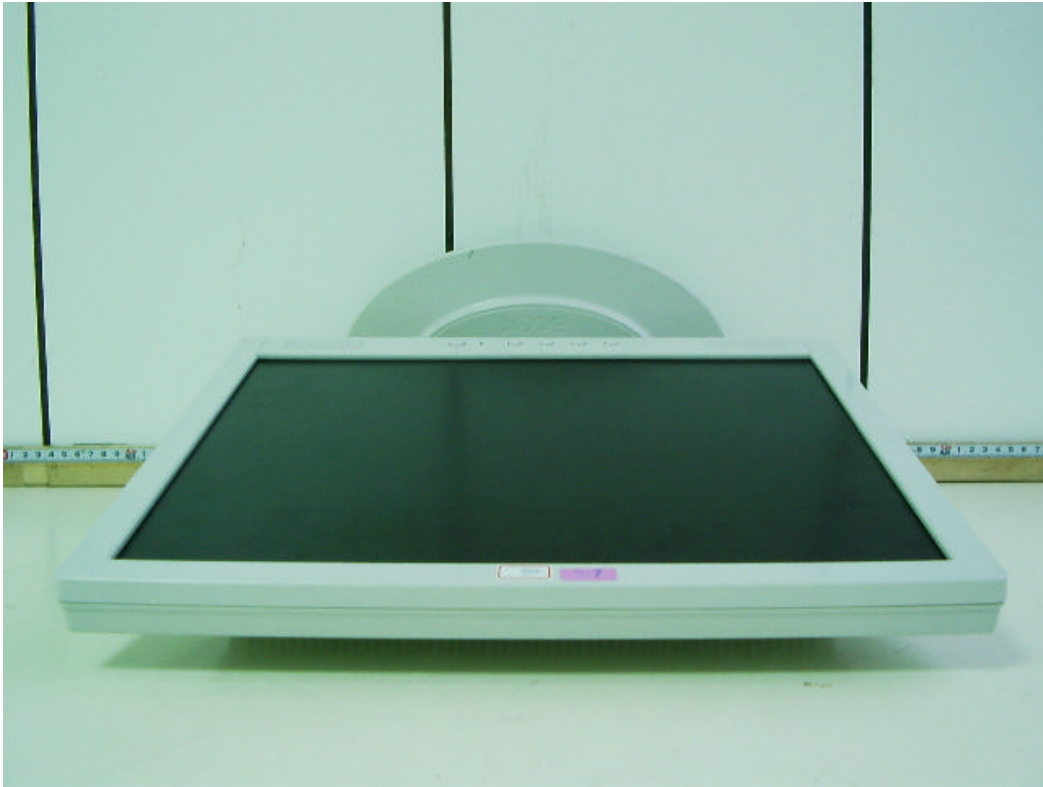




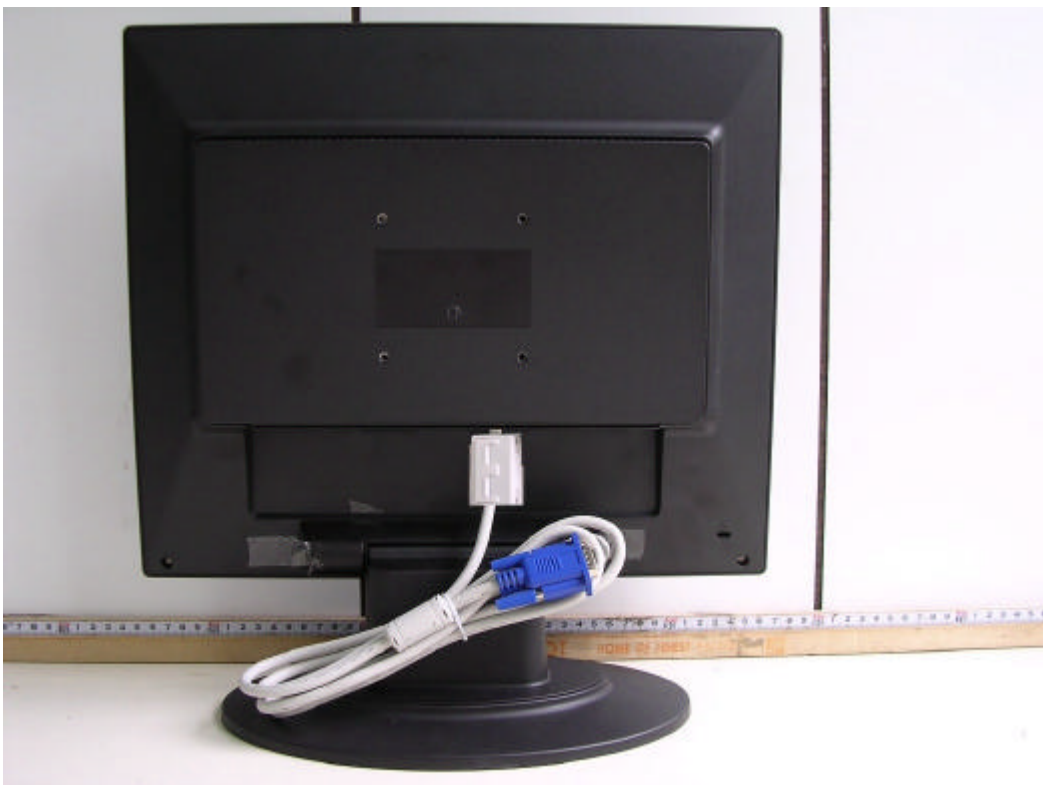
Panel: LG (Without Speaker)

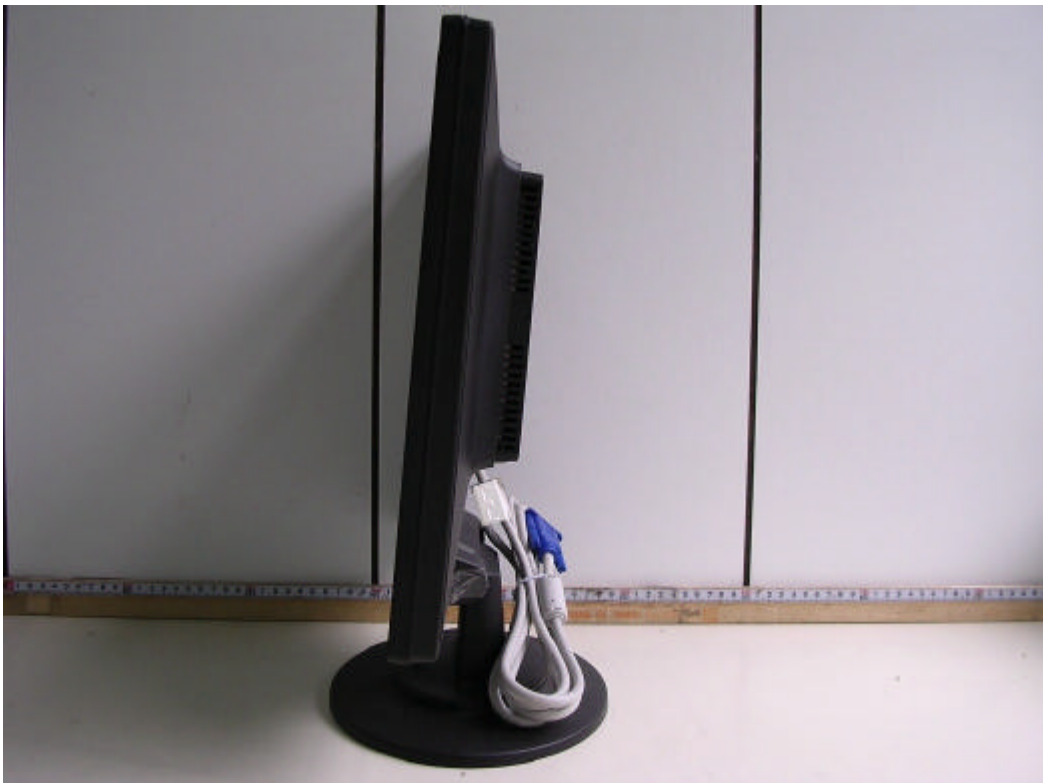


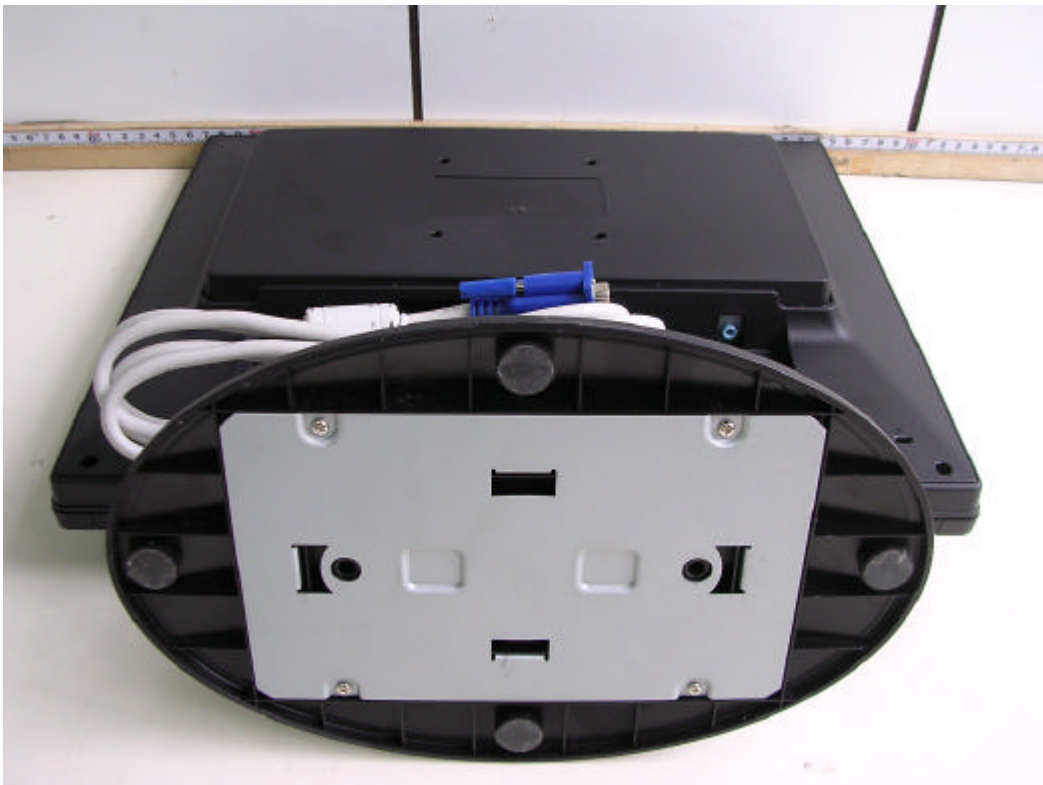




Panel: QDI /Black / With Speaker





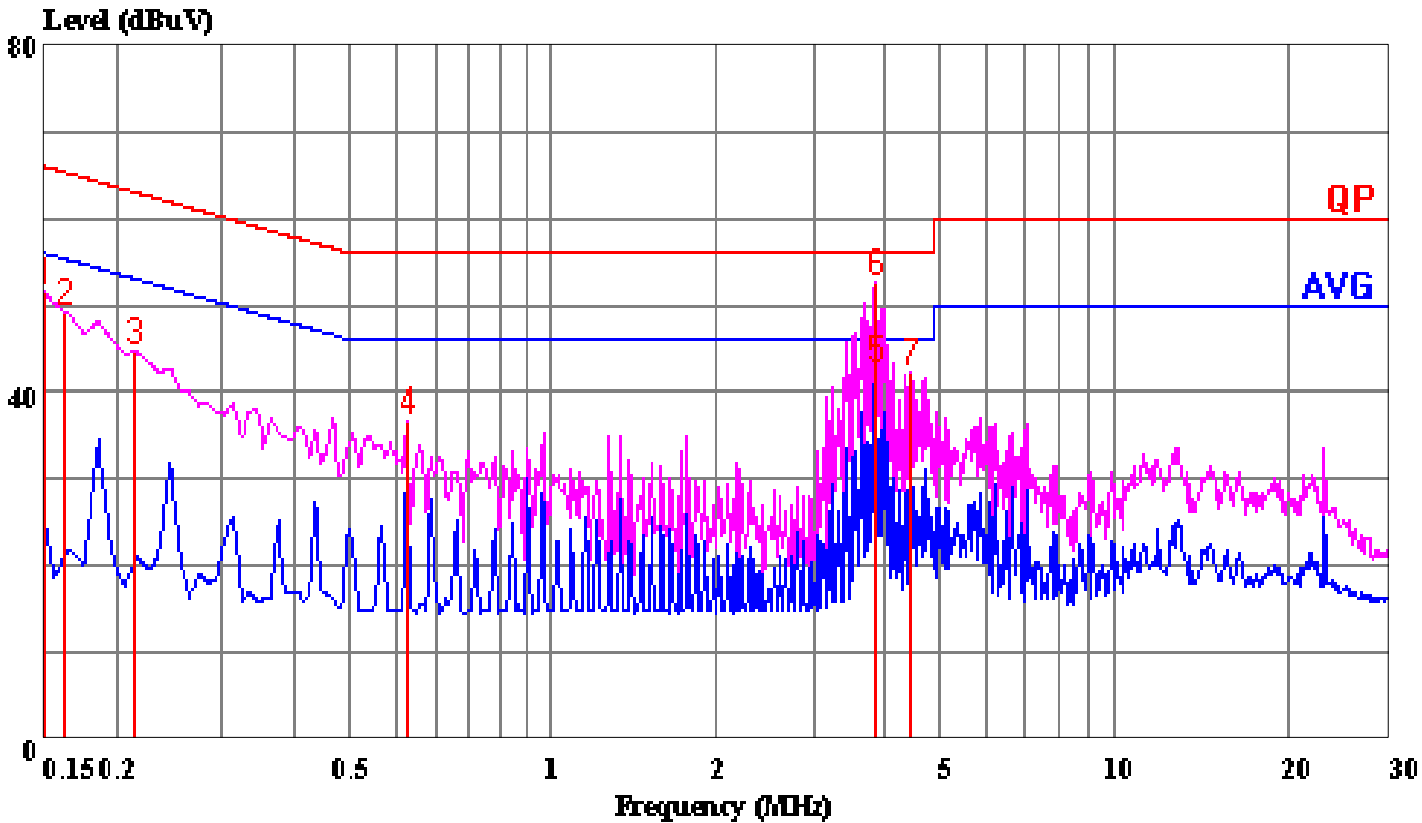


APPENDIX 3

CONDUCTED EMISSION PLOT RADIATED EMISSION DATA

Data#: 147 File#: 1077c.emi

Date: 2003-05-31 Time: 19:28:46



(Conducted)

Trace: 143 144

Ref Trace:

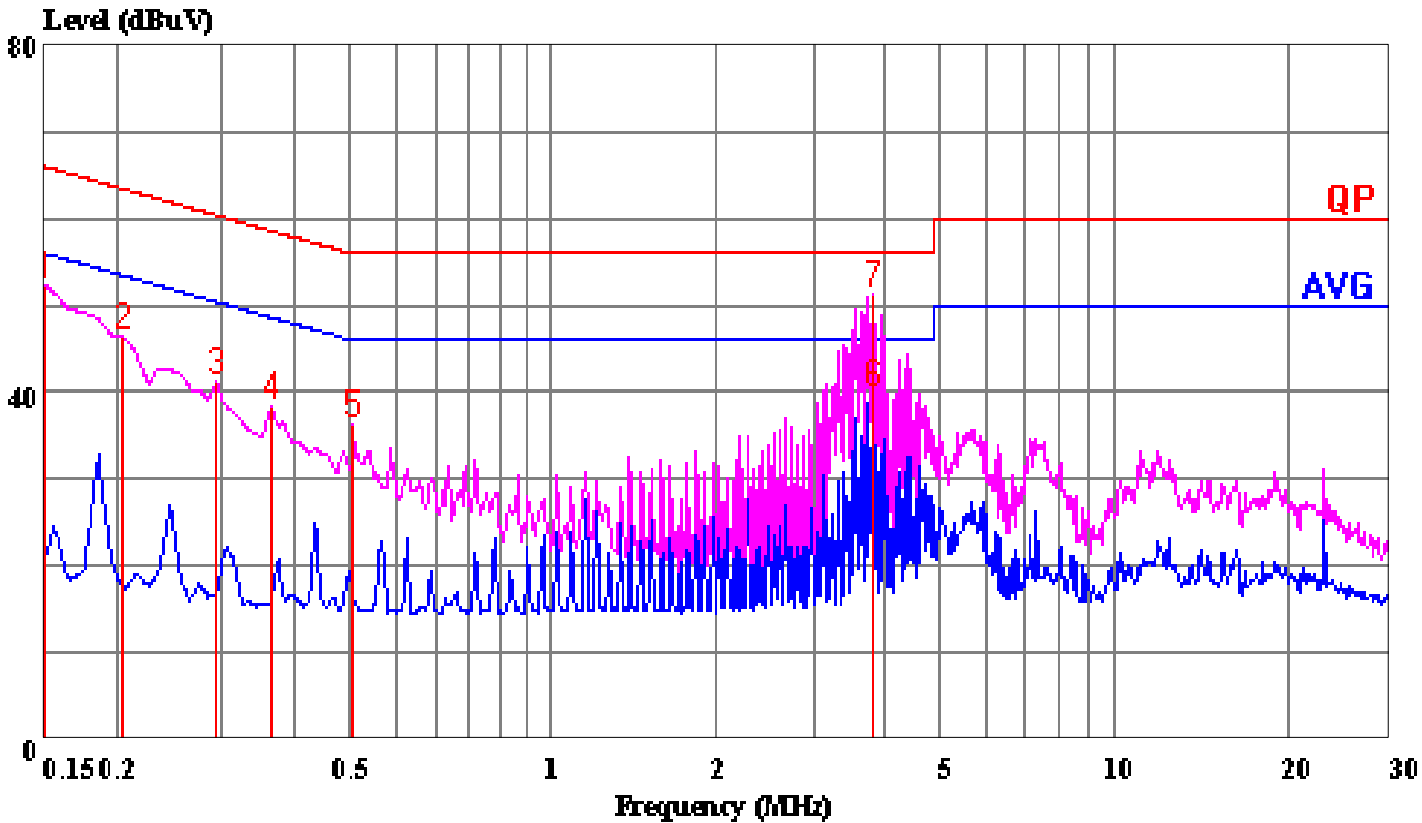
Condition: LINE
Report No. : 03E1077
Test Engr. : JOHN YEN
Company : Quanta Computer Inc.
EUT : AL1712xx
Test Config : EUT / ALL PERIPHERALS
Type of Test: EN 55022 CLASS B
Mode of Op. : LG(Wtihout Speaker)/LI SHIN/1280X1024,VF=75Hz/WORST

Page: 1

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	
1	0.150	51.30	0.24	51.54	66.00	-14.46	Peak
2	0.162	49.11	0.22	49.32	65.34	-16.02	Peak
3	0.215	44.46	0.16	44.62	63.01	-18.39	Peak
4	0.627	36.58	0.17	36.75	56.00	-19.25	Peak
5	3.964	42.51	0.25	42.76	46.00	-3.24	Average
6	3.964	52.29	0.25	52.54	56.00	-3.46	Peak
7	4.549	42.02	0.27	42.29	56.00	-13.71	Peak

Data#: 158 File#: 1077c.emi

Date: 2003-05-31 Time: 19:34:56



(Conducted)

Trace: 154 155

Ref Trace:

Condition: NEUTRAL
Report No. : 03E1077
Test Engr. : JOHN YEN
Company : Quanta Computer Inc.
EUT : AL1712xx
Test Config : EUT / ALL PERIPHERALS
Type of Test: EN 55022 CLASS B
Mode of Op. : LG(Wtihout Speaker)/LI SHIN/1280X1024, VF=75Hz/WORST

Page: 1

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	
1	0.150	52.14	0.14	52.28	66.00	-13.72	Peak
2	0.204	46.12	0.15	46.27	63.45	-17.18	Peak
3	0.296	40.95	0.17	41.12	60.37	-19.25	Peak
4	0.365	38.13	0.17	38.30	58.61	-20.31	Peak
5	0.505	36.16	0.17	36.33	56.00	-19.67	Peak
6	3.901	39.47	0.25	39.72	46.00	-6.28	Average
7	3.901	51.03	0.25	51.28	56.00	-4.72	Peak

Data#: 19 File#: 1077e.EMI
Compliance E-Site

Date: 2003-05-30 Time: 17:18:00

Condition: VERTICAL /10m
Report No. : 03E1077
Test Engr. : JOHN YEN
Company : Quanta Computer Inc.
EUT : AL1712xx
Test Config : ALL/PERIPIIERALS
Type of Test: EN 55022 CLASS B
Mode of Op. : QDI(Wtih Speaker)/LI SHIN/1280X1024,VF=75Hz/WORST

Page: 1

	Freq	Read		Level	Limit	Over	Remark
		Level	Factor				
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	55.987	34.37	-10.57	23.80	30.00	-6.20	Peak
2	68.412	35.63	-13.59	22.04	30.00	-7.96	Peak
3	110.015	34.19	-10.18	24.01	30.00	-5.99	Peak
4	160.874	32.29	-9.88	22.41	30.00	-7.59	Peak
5	296.000	39.58	-6.36	33.22	37.00	-3.78	Peak
6	312.000	39.00	-5.98	33.02	37.00	-3.98	Peak

Data#: 20 File#: 1077e.EMI
Compliance E-Site

Date: 2003-05-30 Time: 17:20:04

Condition: HORIZONTAL /10m
Report No. : 03E1077
Test Engr. : JOHN YEN
Company : Quanta Computer Inc.
EUT : AL1712xx
Test Config : ALL/PERIPIIERALS
Type of Test: EN 55022 CLASS B
Mode of Op. : QDI(Wtih Speaker)/LI SHIN/1280X1024,VF=75Hz/WORST

Page: 1

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	113.089	34.50	-9.99	24.51	30.00	-5.49	Peak
2	300.001	40.23	-6.25	33.98	37.00	-3.02	Peak
3	313.220	39.40	-5.96	33.44	37.00	-3.56	QP
4	335.089	37.97	-5.43	32.54	37.00	-4.46	Peak
5	758.601	30.67	1.56	32.23	37.00	-4.77	Peak
6	786.444	30.95	2.07	33.02	37.00	-3.98	QP