



**SPORTON LAB.**

Certificate No: C7N2702

# CERTIFICATE

- **Equipment Under Test : COMPACT SIZE FLAT-PANEL  
INDUSTRIAL WORKSTATION**

**Model No. : AMB-611**

**Applicant : ACROSSER TECHNOLOGY CO., LTD.**

**10FL-16, No. 16, Lane 609, Chung-Shin Rd., Sec. 5,  
San Chung City, Taipei Hsien, Taiwan, R.O.C.**



**I HEREBY CERTIFY THAT:**

THE MEASUREMENTS SHOWN IN THIS TEST REPORT WERE MADE IN ACCORDANCE WITH THE PROCEDURES GIVEN IN **EUROPEAN COUNCIL DIRECTIVE 89/336/EEC**. THE EQUIPMENT WAS **PASSED** THE TEST PERFORMED ACCORDING TO

**EUROPEAN STANDARD EN 55022/A1 Class A, EN 61000-3-2 and EN 50082-1 ( IEC 801-2, IEC 801-3, IEC 801-4 ).**

THE TEST WAS CARRIED OUT ON **Dec. 06, 1997** AT **SPORTON INTERNATIONAL INC. LAB.**

*Lenore Chang* Dec. 10, 1997

**Lenore Chang  
President**



## CERTIFICATE OF COMPLIANCE

according to

**European Standard EN 61000-3-2:1995 and  
EN 50082-2:1991 ( IEC 801-2:1984, IEC 801-3:1984, IEC 801-4:1988 )**

EQUIPMENT : COMPACT SIZE FLAT-PANEL  
INDUSTRIAL WORKSTATION

MODEL NO. : AMB-611

APPLICANT : **ACROSSER TECHNOLOGY CO., LTD.**  
10FL-16, No. 16, Lane 609, Chung-Shin Rd., Sec. 5,  
San Chung City, Taipei Hsien, Taiwan, R.O.C.

### I HEREBY CERTIFY THAT :

The measurements shown in this test report were made in accordance with the procedures given in **EUROPEAN COUNCIL DIRECTIVE 89/336/EEC**. The equipment was **passed** the test performed according to **EUROPEAN STANDARD EN 61000-3-2:1995**, and **EN 50082-2:1991 ( IEC 801-2:1984, IEC 801-3:1984, IEC 801-4:1988 )**. The test was carried out on **Dec. 06, 1997** at **SPORTON INTERNATIONAL INC. LAB.**

  
Dec. 10, 1997

Lenore Chang  
President

### **SPORTON INTERNATIONAL INC.**

6F, No. 106, Hsin Tai Wu Rd., Sec. 1, Hsi Chih, Taipei Hsien, Taiwan, R.O.C.

## **CE HARMONICS and EMS TEST REPORT**

according to

**European Standard EN 61000-3-2:1995 and  
EN 50082-2:1991 ( IEC 801-2:1984, IEC 801-3:1984, IEC 801-4:1988 )**

**EQUIPMENT : COMPACT SIZE FLAT-PANEL  
INDUSTRIAL WORKSTATION**

**MODEL NO. : AMB-611**

**APPLICANT : ACROSSER TECHNOLOGY CO., LTD.  
10FL-16, No. 16, Lane 609, Chung-Shin Rd., Sec. 5,  
San Chung City, Taipei Hsien, Taiwan, R.O.C.**

- The test result refers exclusively to the test presented test model / sample.
- Without the written authorization of the test lab., the Test Report may not be copied.

### ***SPORTON INTERNATIONAL INC.***

*6F, No. 106, Hsin Tai Wu Rd., Sec. 1, Hsi Chih, Taipei Hsien, Taiwan, R.O.C.*

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***SPORTON International Inc.***

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PAGE NUMBER : 1 OF 30

ISSUED DATE : Dec. 08, 1997

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Scope of NVLAP Accreditation : IECISPR 22, FCC Method - 47 CFR Part 15 - Digital Devices, A5-3548

United States Department of Commerce  
National Institute of Standards and Technology

# NWLAB®

ISO/IEC GUIDE 25:1990  
ISO 9002:1987

## Certificate of Accreditation

**SPORTON INTERNATIONAL, INC.**  
TAIPEI HSIEN  
TAIWAN



is recognized under the National Voluntary Laboratory Accreditation Program for satisfactory compliance with criteria established in Title 15, Part 285 Code of Federal Regulations. These criteria encompass the requirements of ISO/IEC Guide 25 and the relevant requirements of ISO 9002 (ANSI/ASQC Q92-1987) as suppliers of calibration or test results. Accreditation is awarded for specific services, listed on the Scope of Accreditation for:

**ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS  
FCC**

December 31, 1997

Effective through

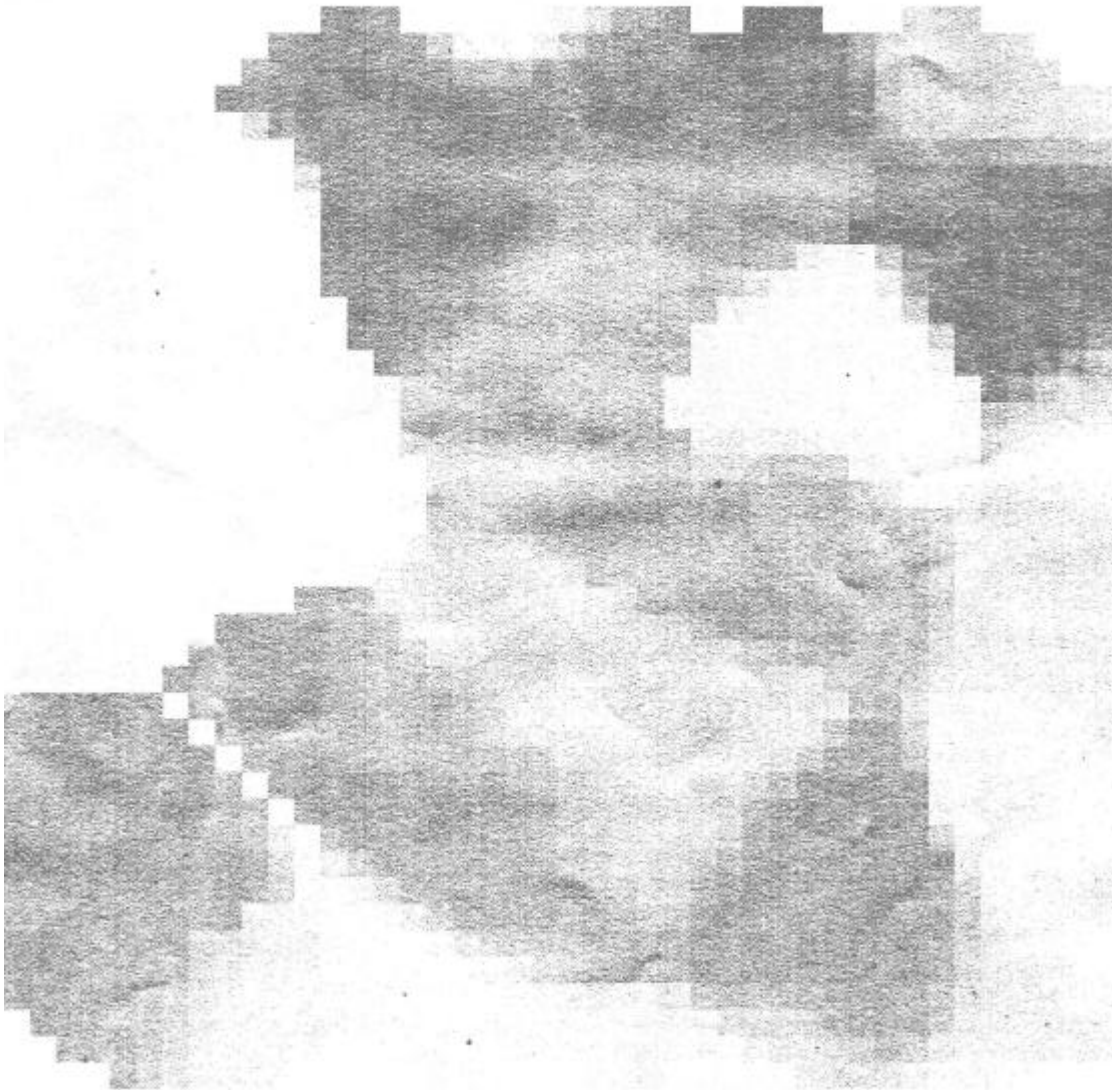
  
for the National Institute of Standards and Technology  
NVLAP Lab Code: 200079-0



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## 1. GENERAL DESCRIPTION OF EQUIPMENT UNDER TEST

### 1.1. APPLICANT : ACROSSER TECHNOLOGY CO., LTD.

10FL-16, No. 16, Lane 609, Chung-Shin Rd., Sec. 5,  
San Chung City, Taipei Hsien, Taiwan, R.O.C.

### 1.2. MANUFACTURER : Same as 1.1.

### 1.3. BASIC DESCRIPTION OF EQUIPMENT UNDER TEST

EQUIPMENT : COMPACT SIZE FLAT-PANEL INDUSTRIAL WORKSTATION  
MODEL NO. : AMB-611  
TRADE NAME : ACROSSER  
DATA CABLE : Shielded  
POWER SUPPLY TYPE : Switching  
POWER CORD : Non-shielded

### 1.4. FEATURE OF EQUIPMENT UNDER TEST

- ISA-Bus (PC / AT compatible).
- 19" Rack panel mounting.
- 10.4" color TFT LCD display, color STN\_DD LCD display.
- 200-watt auto-range switching power supply.
  - AC input voltage : 90 to 132V or 180 to 264V auto-range
  - Output voltages : +5V @25A +12V @5A  
-5V @2A -12V @2A
- 8-Solt Passive Backplane.
- Two sealed-membrane keypads : one with 59 data-entry keys and one with 20 function keys.
- External monitor connector.
- Disk drive housing : Two drive spaces for 3.5" FDD and HDD.

## 2. TEST CONFIGURATION OF EQUIPMENT UNDER TEST

### 2.1. TEST MANNER

- a. The DELL keyboard, HP monitor, HP printer, HP mouse, MIDASONIC mouse, and LIGTH SPEED modem were connected to the EUT for EMS test.

### 2.2. DESCRIPTION OF TEST SYSTEM

#### SUPPORT UNIT 1. --MONITOR (HP)

Model No. : D2807A  
Power Supply Type : Switching  
Power Cord : Non-shielded  
Data Cable : Shielded

#### SUPPORT UNIT 2. --KEYBOARD (DELL)

Model No. : AT101  
Data Cable : Shielded

#### SUPPORT UNIT 3. --PRINTER (HP)

Model No. : 2225C+  
Power Supply Type : Linear, AC adapter  
Power Cord : Non-shielded  
Data Cable : Shielded

#### SUPPORT UNIT 4. --MODEM (LIGTH SPEED)

Model No. : 1414S  
Data Cable : Shielded





SUPPORT UNIT 5. --MOUSE (HP)

Model No. : M-S34

Data Cable : Non-Shielded

SUPPORT UNIT 6. --MOUSE (MIDASONIC)

Model No. : 340861

Data Cable : Non-Shielded

### 3. TEST SOFTWARE

An executive program, FCC.EXE, which generates a complete line of continuously repeating " H " pattern is used as the test software.

The program was executed as follows :

- a. Turn on the power of all equipment.
- b. The PC reads the test program from the floppy disk drive and runs it.
- c. The PC sends " H " messages to the monitor, and the monitor displays " H " patterns on the screen.
- d. The PC sends " H " messages to the printer, then the printer prints them on the paper.
- e. The PC sends " H " messages to the modem.
- f. The PC sends " H " messages to the internal Hard Disk, and the Hard Disk reads and writes the message.
- g. Repeat the steps from b to f.

## 4. GENERAL INFORMATION OF TEST

### 4.1. TEST FACILITY

This test was carried out by SPORTON INTERNATIONAL INC.

Openarea Test Site Location : No. 30-1, Lin 6, Diing-Fwu Tsuen, Lin-Kou-Hsiang,  
Taipei Hsien, Taiwan, R.O.C.

TEL : 886-2-601-1640

FAX : 886-2-601-1695

### 4.2. STANDARD FOR METHODS OF MEASUREMENT

Harmonics Test : European Standard EN 60555-2.

Voltage fluctuations Test : European Standard EN 60555-3.

EMS Test ( ESD, RS and EFT ) : European Standard EN 50082-2.

### 4.3. TEST IN COMPLIANCE WITH

Harmonics Test : European Standard EN 60555-2.

Voltage fluctuations Test : European Standard EN 60555-3.

EMS Test ( ESD, RS and EFT ) : European Standard EN 50082-2.

( ESD : IEC 801-2, RS : IEC 801-3, EFT : IEC 801-4 )

### 4.4. FREQUENCY RANGE INVESTIGATED

a. Radio frequency electromagnetic field immunity test : from 27 MHz to 500 MHz

### 4.5. TEST DISTANCE

The test distance of radio frequency electromagnetic field immunity test from antenna to EUT is 3 M.



## 5. HARMONICS TEST

### 5.1. STANDARD

- Product Standard : EN 61000-3-2 ( 1995 )

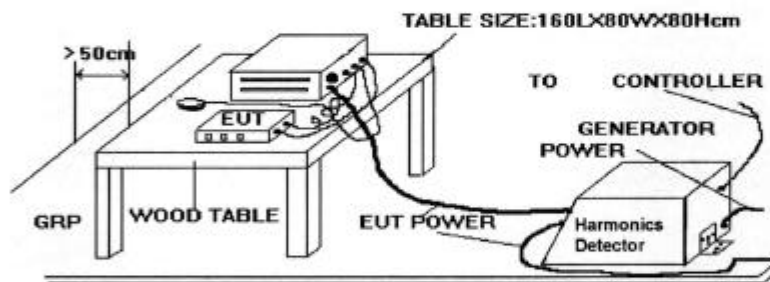
### 5.2. TEST PROCEDURE

The measured values of the harmonics components of the input current, including line current and neutral current, shall be compared with the limits given in Clause 4.

### 5.3. TEST EQUIPMENT SETTINGS :

- Line Voltage : 230V
- Line Frequency : 50Hz

### 5.4. TEST SETUP



**5.5. HARMONICS TEST**

- FINAL TEST RESULT : **PASS**
- Temperature : 20 °C
- Relative Humidity : 55% RH
- Test Date : Dec. 06, 1997

**5.5.1. TEST DATA OF HARMONICS**

Harmonic Number	Standard Limit (A rms)	Max. Span Values (A rms)	Harmonic Number	Standard Limit (A rms)	Max. Span Values (A rms)
1	Fund	0.1809	21	0.1070	0.0221
2	1.0800	0.0056	22	0.0840	0.0008
3	2.3000	0.1184	23	0.0980	0.0123
4	0.4300	0.0059	24	0.0770	0.0009
5	1.1400	0.1277	25	0.0900	0.0050
6	0.3000	0.0042	26	0.0710	0.0011
7	0.7700	0.1185	27	0.0830	0.0048
8	0.2300	0.0067	28	0.0660	0.0013
9	0.4000	0.1021	29	0.0780	0.0075
10	0.1840	0.0037	30	0.0610	0.0012
11	0.3300	0.0867	31	0.0730	0.0090
12	0.1530	0.0038	32	0.0580	0.0011
13	0.2100	0.0740	33	0.0680	0.0094
14	0.1310	0.0024	34	0.0540	0.0010
15	0.1500	0.0605	35	0.0640	0.0089
16	0.1150	0.0015	36	0.0510	0.0009
17	0.1320	0.0471	37	0.0610	0.0077
18	0.1020	0.0013	38	0.0480	0.0008
19	0.1180	0.0340	39	0.0580	0.0057
20	0.0920	0.0009	40	0.0460	0.0006

Test Engineer : C. W. Loe

5.6. PHOTOGRAPHS OF HARMONICS TEST

FRONT VIEW



REAR VIEW

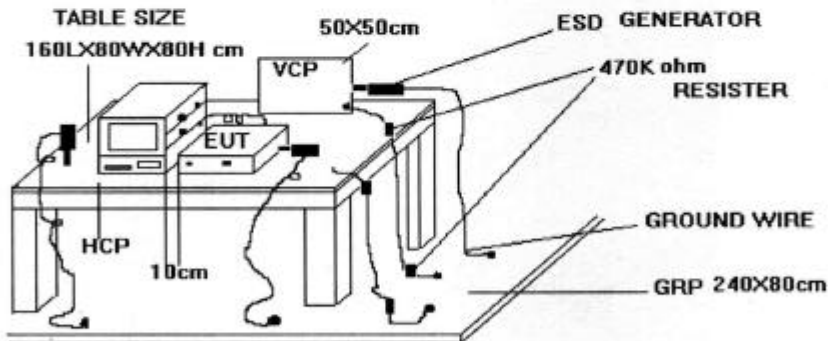


## 6. ELECTROSTATIC DISCHARGE IMMUNITY TEST (ESD)

### FINAL TEST RESULT : PASS

- Basic Standard : IEC 801-2( 1984 )
- Generic Standard : EN 50 082-2 ( 1991 )
- Performance Criteria : B
- Level : 3 for Air discharge,  
2 for Contact discharge
- Tested Voltage :  $\pm 2 / \pm 4 / \pm 8$  KV for Air discharge,  
 $\pm 2 / \pm 4$  KV for Contact discharge
- Temperature : 27°C
- Relative Humidity : 43%
- Test Date : Dec. 06, 1997

### 6.1. TEST SETUP





The test setup consists of the test generator, EUT and auxiliary instrumentation necessary to perform DIRECT and INDIRECT application of discharges to the EUT as applicable, in the follow manner :

- (a) CONTACT DISCHARGE to the conductive surfaces and to coupling plane;
- (b) AIR DISCHARGE at insulating surfaces.

The preferred test method is that of type tests performed in laboratories and the only accepted method of demonstrating conformance with this standard. The EUT was arranged as closely as possible to arrangement in final installed conditions.

## 6.2. TEST SETUP FOR TESTS PERFORMED IN LABORATORY

A ground reference plane was provided on the floor of the test site. It was a metallic sheet (copper or aluminum) of 0.25 mm ,minimum thickness; other metallic may be used but they shall have at least 0.65 mm thickness. In the SPORTON EMC LAB. we provided 1 mm thickness aluminum ground reference plane or 1 mm thickness stainless steel ground reference plane. The minimum size of the ground reference plane is 1 m x 1 m, the exact size depending on the dimensions of the EUT. It was connected to the protective grounding system.

The EUT was arranged and connected according to its functional requirements. A distance of 1m minimum was provided between the EUT and the wall of the lab. and any other metallic structure. In cases where this length exceeds the length necessary to apply the discharges to the selected points, the excess length shall , where possible, be placed non-inductively off the ground reference plane and shall not come closer than 0.2m to other conductive parts in the test setup.

Where the EUT is installed on a metal table, the table was connected to the reference plane via a cable with a 470k ohm resister located at each end, to prevent a build-up of charge. The test setup was consist a wooden table, 0.8m high, standing on the ground reference plane. A HCP, 1.6 m x 0.8 m, was placed on the table. The EUT and cables was isolated from the HCP by an insulating support 0.5 mm thick. The VCP size, 0.5 m x 0.5 m.

**6.3. ESD TEST PROCEDURE**

- a. In the case of air discharge testing the climatic conditions shall be within the following ranges:
  - ambient temperature : 15 °C to 35 °C;
  - relative humidity : 30 % to 60 %;
  - atmospheric pressure : 68 KPa (680 mbar) to 106 KPa (1060 mbar).
- b. Test programs and software shall be chosen so as to exercise all normal modes of operation of the EUT. The use of special exercising software is encouraged, but permitted only where it can be shown that the EUT is being comprehensively exercised.
- c. The test voltage shall be increased from the minimum to the selected test severity level, in order to determine any threshold of failure. The final severity level should not exceed the product specification value in order to avoid damage to the equipment.
- d. The test shall be performed with single discharges. On preselected points at least ten single discharges ( in the most sensitive polarity) shall be applied.
- e. For the time interval between successive single discharges an initial value of one second is recommended. Longer intervals may be necessary to determine whether a system failure has occurred.
- f. In the case of contact discharges, the tip of the discharge electrode shall touch the EUT before the discharge switch is operated.
- g. In the case of painted surface covering a conducting substrate, the following procedure shall be adopted :
  - If the coating is not declared to be an insulating coating by the equipment manufacturer, then the pointed tip of the generator shall penetrate the coating so as to make contact with the conducting substrate.
  - Coating declared as insulating by the manufacturer shall only be submitted to the air discharge.
  - The contact discharge test shall not be applied to such surfaces.
- h. In the case of air discharges, the round discharge tip of the discharge electrode shall be approached as fast as possible (without causing mechanical damage) to touch the EUT . After each discharge, the ESD generator (discharge electrode) shall be removed from the EUT. The generator is then retriggered for a new single discharge. This procedure shall be repeated until the discharges are completed. In the case of an air discharge test, the discharge switch, which is used for contact discharge, shall be closed.

**6.4. TEST SEVERITY LEVELS**

**6.4.1. Contact discharge**

Level	Test Voltage (KV) of Contact discharge
1	±2
2	±4
3	±6
4	±8
X	Specified

Remark : "X" is an open level.

**6.4.2. Air discharge**

Level	Test Voltage (KV) of Air Discharge
1	±2
2	±4
3	±8
4	±15
X	Specified

Remark : "X" is an open level.

**6.5. TEST POINTS****6.5.1. TEST RESULT OF AIR DISCHARGE**

TEST POINT	VOLTAGE	TESTED NO.	OBSERVATION	RESULT
FDD	$\pm 2 / \pm 4 / \pm 8$ KV	BY 10	NORMAL	PASS
LED	$\pm 2 / \pm 4 / \pm 8$ KV	BY 10	NORMAL	PASS
BRIGHTNESS VARIABLE RESISTER	$\pm 2 / \pm 4 / \pm 8$ KV	BY 10	NORMAL	PASS
PANEL	$\pm 2 / \pm 4 / \pm 8$ KV	BY 10	NORMAL	PASS
CASE	$\pm 2 / \pm 4 / \pm 8$ KV	BY 10	NORMAL	PASS
CRT	$\pm 2 / \pm 4 / \pm 8$ KV	BY 10	NORMAL	PASS
SCREW	$\pm 2 / \pm 4 / \pm 8$ KV	BY 10	NORMAL	PASS
EXTERNAL KEYBOARD PORT	$\pm 2 / \pm 4 / \pm 8$ KV	BY 10	NORMAL	PASS
INTERNAL KEYBOARD PORT	$\pm 2 / \pm 4 / \pm 8$ KV	BY 10	NORMAL	PASS
RS232 PORT	$\pm 2 / \pm 4 / \pm 8$ KV	BY 10	NORMAL	PASS
MOUSE CONNECTOR	$\pm 2 / \pm 4 / \pm 8$ KV	BY 10	NORMAL	PASS
MODEM CONNECTOR	$\pm 2 / \pm 4 / \pm 8$ KV	BY 10	NORMAL	PASS
PRINTER CONNECTOR	$\pm 2 / \pm 4 / \pm 8$ KV	BY 10	NORMAL	PASS
VGA CONNECTOR	$\pm 2 / \pm 4 / \pm 8$ KV	BY 10	NORMAL	PASS
FAN	$\pm 2 / \pm 4 / \pm 8$ KV	BY 10	NORMAL	PASS
AC SOCKET	$\pm 2 / \pm 4 / \pm 8$ KV	BY 10	NORMAL	PASS



6.5.2. TEST RESULT OF CONTACT DISCHARGE

POLARITY	VOLTAGE	TESTED NO.	OBSERVATION	RESULT
HORIZONTAL(AT FRONT)	$\pm 2 / \pm 4$ KV	BY 10	NORMAL	PASS
HORIZONTAL (AT LEFT)	$\pm 2 / \pm 4$ KV	BY 10	NORMAL	PASS
HORIZONTAL (AT RIGHT)	$\pm 2 / \pm 4$ KV	BY 10	NORMAL	PASS
HORIZONTAL (AT REAR)	$\pm 2 / \pm 4$ KV	BY 10	NORMAL	PASS
VERTICAL (AT FRONT)	$\pm 2 / \pm 4$ KV	BY 10	NORMAL	PASS
VERTICAL (AT LEFT)	$\pm 2 / \pm 4$ KV	BY 10	NORMAL	PASS
VERTICAL (AT RIGHT)	$\pm 2 / \pm 4$ KV	BY 10	NORMAL	PASS
VERTICAL (AT REAR)	$\pm 2 / \pm 4$ KV	BY 10	NORMAL	PASS

Test Engineer : C. W. Leo



6.6. PHOTOGRAPHS OF ELECTROSTATIC DISCHARGE IMMUNITY TEST

FRONT VIEW



REAR VIEW

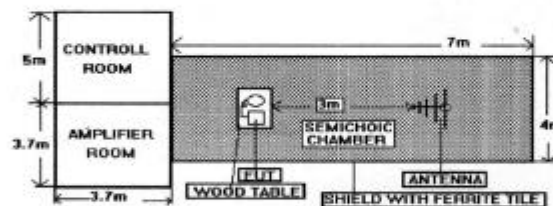


**7. RADIO FREQUENCY ELECTROMAGNETIC FIELD IMMUNITY TEST (RS)**

**FINAL TEST RESULT : PASS**

- Basic Standard : IEC 801-3 ( 1984 )
- Generic Standard : EN 50 082-2 ( 1991 )
- Performance Criteria : A
- Level : 3
- Frequency Range : 27 to 500 MHz
- Field Strength : 10 V/m ( Unmodulated )
- Temperature : 27 ° C
- Relative Humidity : 43%
- Test Date : Dec. 06, 1997

**7.1. TEST SETUP**



**NOTE : The SPORTON 7m x 4m x 4m semicoic chamber is compliance with the sixteen points uniform field requirement as stated in IEC 1000-4-3 Section 6.2**

The procedure defined in this part requires the generation of electromagnetic fields within which the test sample is placed and its operation observed. To generate fields that are useful for simulation of actual (field) conditions may require significant antenna drive power and the resultant high field strength levels. To comply with local regulations and to prevent biological hazards to the testing personnel, it is recommended that these tests be carried out in a shielded enclosure or semicoic chamber.





## 7.2. TEST PROCEDURE

- a. The equipment to be tested is placed in the center of the enclosure on a wooden table. The equipment is then connected to power and signal leads according to pertinent installation instructions.
- b. The bilog antenna which is enabling the complete frequency range of 27 MHz to 500 MHz is placed 3m away from the equipment. The required field strength is determined by placing the field strength meter(s) on top of or directly alongside the equipment under test and monitoring the field strength meter via a remote field strength indicator outside the enclosure while adjusting the continuous-wave to the applicable antennae.
- c. The test is normally performed with the antenna facing the most sensitive side of the EUT. The polarization of the field generated by the biconical antenna necessitates testing each position twice, once with the antenna positioned vertically and again with the antenna positioned horizontally. The circular polarization of the field from the log-spiral antenna makes a change of position of the antenna unnecessary.
- d. At each of the above conditions, the frequency range is swept from 27 MHz to 500 MHz, pausing to adjust the R.F. signal level or to switch oscillators and antenna. The rate of sweep is in the order of  $1.5 * 10^{-3}$  decades/s. The sensitive frequencies or frequencies of dominant interest may be discretely analyzed.

**7.3. TEST SEVERITY LEVELS**

Frequency Band : 27 MHz to 500 MHz

Level	Test field strength (V/m)
1	1
2	3
3	10
X	Specified

Remark : "X" is an open class.

Test Engineer : *C. W. Lee*

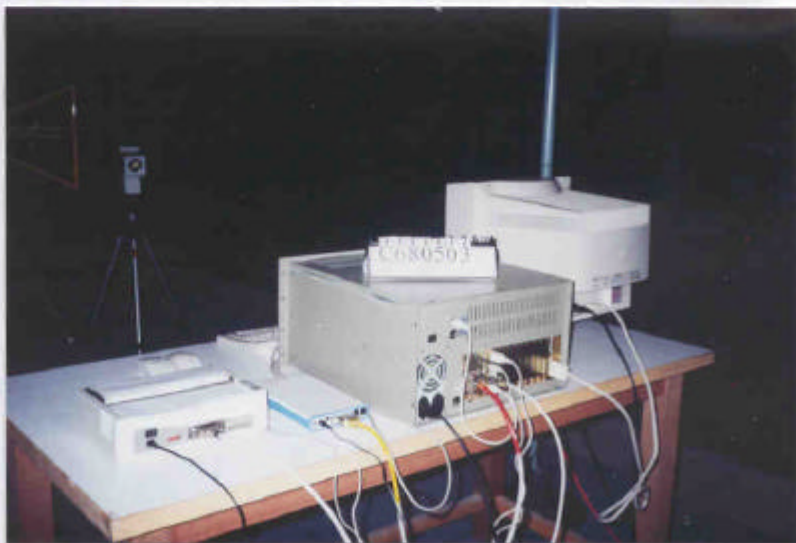


7.4. PHOTO OF RADIO FREQUENCY ELECTROMAGNETIC FIELD IMMUNITY TEST

FRONT VIEW



REAR VIEW

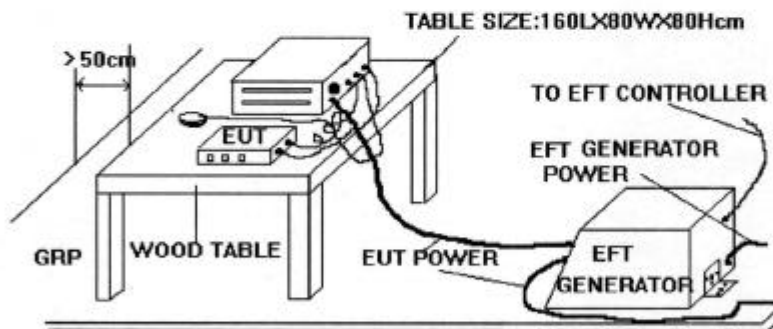


## 8. ELECTRICAL FAST TRANSIENT/BURST IMMUNITY TEST (EFT/BURST)

### FINAL TEST RESULT : PASS

- Basic Standard : IEC 801-4 ( 1988 )
- Generic Standard : EN 50 082-2 ( 1991 )
- Performance Criteria : B
- Level : on Power Supply -- 3  
on I/O signal, data and control line -- N/A
- Test Voltage : on Power Supply --  $\pm 0.5 / 1.0 / 2.0KV$   
on I/O signal, data and control line -- N/A
- Temperature : 27° C
- Relative Humidity : 43 %
- Test Date : Dec. 06,1997

### 8.1. TEST SETUP



The EUT was placed on a ground reference plane and was insulated from it by an insulating support about 0.1m thick. If the EUT is table-top equipment, it was located approximately 0.8m above the GRP.. The GRP. was a metallic sheet (copper or aluminum) of 0.25 mm ,minimum thickness; other metallic may be used but they shall have at least 0.65 mm thickness. It shall project beyond the EUT by at least 0.1m on all sides and connected to the protective earth. In the SPORTON EMC LAB. we provided 1 mm thickness aluminum ground reference plane or 1 mm thickness stainless steel ground reference plane. The minimum size of the ground reference plane is 1 m x 1 m, the exact size depending on the dimensions of the EUT. It was connected to the protective grounding system. The EUT was arranged and connected according to its functional requirements. The minimum distance between the EUT and other conductive structures, except the GRP. beneath the EUT, was more than 0.5 m. Using the coupling clamp, the minimum distance between the coupling plates and all other conductive structures, except the GRP. beneath the EUT, was more than 0.5 m. The length of the signal and power lines between the coupling device and the EUT was 1m or less.

## 8.2. TEST ON POWER LINE

- a. The EFT/B-generator was located on the GRP.. The length from the EFT/B-generator to the EUT as not exceed 1 m.
- b. The EFT/B-generator provides the ability to apply the test voltage in a non-symmetrical condition to the power supply input terminals of the EUT.

## 8.3. TEST ON COMMUNICATION LINES

- a. The coupling clamp is composed of a clamp unit for housing the cable (length more than 3 m), and was placed on the GRP..
- b. The coupling clamp provides the ability of coupling the fast transient/bursts to the cable under test.



#### 8.4. TEST PROCEDURE

- a. In order to minimize the effect of environmental parameters on test results, the climatic conditions when test is carrying out shall comply with the following requirements :
  - ambient temperature : 15°C to 35°C;
  - relative humidity : 45% to 75%;
  - atmospheric pressure : 68 KPa (680 mbar) to 106 KPa (1060 mbar).
- b. In order to minimize the effect of environmental parameters on test results, the electromagnetic environment of the laboratory shall not influence the test results.
- c. The variety and diversity of equipment and systems to be tested make it difficult to establish general criteria for the evaluation of the effects of fast transients/bursts on equipment and systems.
- d. The test results may be classified on the basic of the operating conditions and the functional specification of the equipment under test, according to the following performance criteria :
  - Normal performance within the specification limits.
  - Temporary degradation or loss of function or performance which is selfrecoverable.
  - Temporary degradation or loss of function or performance which requires operator intervention or system reset.
  - Degradation or loss of function which is not recoverable due to damage of equipment (components).



### 8.5. TEST SEVERITY LEVELS

The following test severity levels are recommended for the fast transient/burst test :

Open circuit output test voltage $\pm 10\%$		
Level	On Power Supply	On I/O signal, data and control line
1	0.5 KV	0.25 KV
2	1.0 KV	0.50 KV
3	2.0 KV	1.00 KV
4	4.0 KV	2.00 KV
X	Specified	Specified

Remark : " X " is an open level. The level is subject to negotiation between the user and the manufacturer or is specified by the manufacturer.

Test Engineer : *C. W. Lee*



**8.6. PHOTO OF ELECTRICAL FAST TRANSIENT/BURST IMMUNITY TEST**

FRONT VIEW



REAR VIEW



**9. LIST OF MEASURING EQUIPMENT USED**

Instrument	Manufacturer	Model	Characteristics	Calibration Date	Used for
ESD Simulator	KEYTEK	MZ-15/EC	0 KV - 25 KV	Sep. 10, 1997	ESD
OMNI-Tip	KEYTEK	TPC-2	0 KV - 15 KV	Jul. 24, 1997	ESD
Amplifier	AR	100W 1000M3	80 MHz - 1 GHz	N/A	RS
Isotropic Field Probe	AR	FP3000A	10 KHz - 1 GHz	Jun. 20, 1997	RS
IEEE-488 Interface	AR	CP3000	N/A	N/A	RS
System Interface	EMC Automation	200	HP-IB INTERFACE	N/A	RS
Power Meter	EMC Automation	438A	100 KHz -4.2 GHz	N/A	RS
Video Camera controller	EMC Automation	VCC-01	N/A	N/A	RS
Signal Generator	HP	8648A	100 KHz - 1 GHz	Sep. 11, 1997	RS
Signal Generator	R&S	SMX	100 KHz - 1 GHz	Sep. 11, 1997	RS
Antenna	CHASE	CBL6121A	26 MHz - 1 GHz	Jun. 13, 1997	RS
Amplifier	AR	75W 75A220	25MHz - 300MHz	Jun. 15, 1997	RS
EFT Generator	KEYTEK	CE-40	0 KV - 4.4 KV	July 10, 1997	EFT
Harmonic/Flicker Test System	HP	6843A	4800VA 90A / 48A PEAK	Nov. 15, 1997	Harmonics, Flicker

## 10. DECLARATION OF CONFORMITY AND THE CE MARK

There are three possible procedures pertaining to the declaration of conformity :

### 10.1. Conformity testing and declaration of conformity by the manufacturer or his authorized representative established within the Community or by an importer.

- Article 10 (1) of the EMC Directive,
- § 3 (1) no. 2a of the EMC Act.

### 10.2. Declaration of conformity issued by the manufacturer or his authorized representative established within the Community or by an importer following testing of the product and issued of an *EC certificate of conformity by a competent body.*

- Article 10 (2) of the EMC Directive,
- § 3 (1) no. 2b of the EMC Act.

### 10.3. Declaration of conformity issued by the manufacturer or his authorized representative established within the Community or by an importer following *testing and certification of the product by a notified body.*

- Article 10 (5) of the EMC Directive,
- § 3 (1) no. 2b of the EMC Act (radio transmitting installations).

### 10.4. Specimen For The CE Marking Of Electrical / Electronical Equipment

The components of the CE marking shall have substantially the same vertical dimension, which may not be less than 5 mm.

