



EMC COMPLIANCE TEST REPORT

FOR

Industrial PC

MODEL: GENE-5310 (N)

REPORT NUMBER: 01E9736

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Prepared for

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

Prepared by

COMPLIANCE ENGINEERING SERVICES, INC.

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**FCC, VCCI, CISPR, CE
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EC-Declaration of Conformity

For the following equipment:

Industrial PC

(Product Name)

GENE-5310 (N)

(Model Designation / Trade name)

N/A

(Manufacturer Name)

AAEON Technology Inc.

(Manufacturer Address)

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

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



EN55024: 1998

IEC 61000-4-2: 1995 + A2: 2000; IEC 61000-4-3: 1995; IEC 61000-4-4: 1995;

IEC 61000-4-5: 1995; IEC 61000-4-6: 1996, 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)

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VERIFICATION OF COMPLIANCE

Equipment Under Test: Industrial PC
Trade Name: N/A
Model Number: GENE-5310 (N)
Agency Series: N/A
Applicant: **AAEON Technology Inc.**
 5F, No. 135, Lane 235, Pao Chiao Rd., Hsin-Tien City,
 Taipei, Taiwan, R. O. C.

Manufacturer: **AAEON Technology Inc.**
 5F, No. 135, Lane 235, Pao Chiao Rd., Hsin-Tien City,
 Taipei, Taiwan, R. O. C.

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: 2000, IEC 61000-4-3: 1995,
 IEC 61000-4-4: 1995, IEC 61000-4-5: 1995,
 IEC 61000-4-6: 1996, IEC 61000-4-11: 1994)

File Number: 01E9736
Date of test: August 28 ~ September 14, 2001
Deviation: N/A
Condition of Test Sample: Normal

The above equipment was tested by Compliance Engineering Services, Inc. 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: _____

Rick Yeo
RICK YEO / EMC MANAGER

GENERAL INFORMATION

Applicant: **AAEON Technology Inc.**
5F, No. 135, Lane 235, Pao Chiao Rd., Hsin-Tien City,
Taipei, Taiwan, R. O. C.

Contact Person: Jack Chao / Deputy Director

Manufacturer: **AAEON Technology Inc.**
5F, No. 135, Lane 235, Pao Chiao Rd., Hsin-Tien City,
Taipei, Taiwan, R. O. C.

File Number: 01E9736

Date of Test: August 28 ~ September 14, 2001

Equipment Under Test: Industrial PC

Model Number: GENE-5310 (N)

Agency Series: 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: 2000, IEC 61000-4-3: 1995,
IEC 61000-4-4: 1995, IEC 61000-4-5: 1995,
IEC 61000-4-6: 1996, 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: **Compliance Engineering Services, Inc.**
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 Winemc.Exe To Activate All Peripherals And Display “H” Pattern On Monitor Screen.
3. Run ReadWrite.Exe to Link EUT and Notebook PC.
4. Data Through the EUT and Transmit Between PC Systems and Notebook PC Via RJ45 Cable.

PRODUCT INFORMATION

Housing Type:	METAL
EUT Power Rating:	DC 12V / 5.0A / 60W from AC Adaptor
AC power during Test:	AC 230, 50Hz (From AC Adaptor)
AC Adaptor Manufacturer:	CHI
AC Adaptor Model Number:	CH-1205
AC Power Cord Type:	Un-shielded, 1.8m (Detachable)
DC Cable Type:	Un-Shielded, 0.7m (Non-Detachable) at AC Adaptor One ferrite core on the cable of DC Jack
OSC/Clock Frequencies :	X1, X3 = 14.318 MHz; Y1, Y4 = 25 MHz; Y3 = 24.576 MHz

I/O Port of EUT:

I/O PORT TYPES	Q'TY	TESTED WITH
1). USB Port	2	2
2). PS/2 Port	1	1
3). RJ45 Port	2	1
4). DB9 Port (Serial)	2	2
5). DB15 Port (VGA)	1	1
6). DB25 Port (Parallel)	1	1
7). Phone Jack	3	3
8). RCA (Video)	1	1
9). S-Video (Video)	1	1

Note: N/A

SUPPORT EQUIPMENT

Host Computer:

Equipment	Model#	Serial#	Trade Name
VGA Chipset	VT82C501	N/A	VIA
RAM (SDRAM 64MB PC100)	D4564163G5-A10-9JF	N/A	NEC
CPU	Tillamook 266MHz	N/A	INTEL
Chassis	AEC-6000	N/A	AAEON
Power Board	AEC-6000 Rev.A0.2	N/A	AAEON

External Peripheral Devices:

No	Equipment	Model #	Serial #	FCC ID	Trade Name	Data Cable	Power Cord
1.	USB Mouse	M-BB48	LZE93851294	DoC	Logitech	Un-Shielded, 1.8m	N/A
2.	USB Mouse	M-BB46	N/A	DoC	Logitech	Un-Shielded, 1.8m	N/A
3.	Mouse	M-S34	LZE02353706	DZL211029	Logitech	Un-Shielded, 1.8m	N/A
4.	Keyboard	6311-TW4C/6	N/A	DoC	ACER	Un-Shielded, 1.8m	N/A
5.	Ear. & Mic.	MSB-206	N/A	N/A	E.SENSE	Un-Shielded, 2.2m	N/A
6.	Player	HS-J35	N/A	N/A	AIWA	Un-Shielded, 0.8m	N/A
7.	Server PC	Valiant 6380iPID	SPL052980024	DoC	KDS	Un-Shielded, 30m (RJ45)	Unshielded, 1.8m
8.	Printer	2225C+	2927S50444	DSI6XU2225	HP	Shielded, 1.8m	Unshielded, 1.8m
9.	Modem	1414	N/A	IFAXDM1414	ACEEX	Shielded, 1.4m	Unshielded, 1.8m
10.	Modem	231AA	A25331083841	BFJ9D9308US	HAYES	Shielded, 1m	Unshielded, 1.8m
11.	Monitor	170MP	N/A	DoC	SAMSUNG	Shielded, 1.8m Two Ferrite Core Un-Shielded, 1.2m Un-Shielded, 1.5m	Unshielded, 1.8m A Ferrite Core

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 EQUIPMENT LIST (EMISSION)

Instrumentation: The following list contains equipment used at Compliance Engineering Services, Inc.. 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: #D

Equipment	Manuf.	Model No.	Serial No.	Cal Date	Due Date
EMI TEST DISPLAY	R&S	DSAI-D 804.8932.52	827832/001	11/05/00	11/05/01
EMI TEST RF UNIT	R&S	ESBI-RF/1005.4300.52	827832/003	11/05/00	11/05/01
AMPLIFIER	HP	8447D A	2727A05764	05/07/01	05/07/02
ANTENNA	SCHWARZBECK	VULB 9160	3104	05/17/01	05/17/02
CABLE	TIME MICROWAVE	LMR-400	N-TYPE02	07/09/01	07/09/02

Open Area Test Site: # E

Equipment	Manuf.	Model No.	Serial No.	Cal Date	Due Date
SPECTRUM ANALYZER	H.P.	8566B	2937A06102	06/06/01	06/06/02
SPECTRUM DISPLAY	H.P.	85662A	2848A18276	06/06/01	06/06/02
QUASI-PEAK DETECTOR	H.P.	85650A	2811A01439	06/07/01	06/07/02
AMPLIFIER	H.P.	8447D B	1644A02328	05/07/01	05/07/02
ANTENNA	EMCO	3142	1310	06/30/01	06/30/02
CABLE	TIME MICROWAVE	LMR-400	N-TYPE04	07/09/01	07/09/02

Conducted Area Test Site: # E

Equipment	Manuf.	Model No.	Serial No.	Cal Date	Due Date
TEST RECEIVER	R&S	ESHS20	840455/006	03/15/01	03/15/02
LISN	SOLAR	8012-50-R-24-BNC	8305114	07/23/01	07/23/02
LISN(EUT)	EMCO	3825/2	1435	01/10/01	01/10/02
ISN	FISHER CUSTOM	FCC-TLISN-T4	20065	04/23/01	04/23/02

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	06/15/2001	06/15/2002

For ESD test:

Manufacturer/Type	Model No.	Serial No.	Last Cal.	Cal. Due
EMV SYSTEM / ESD Generator	SESD 2000	812006	12/07/2000	12/07/2001

For Radiated Electromagnetic Field immunity Measurement:

Manufacturer/Type	Model No.	Serial No.	Last Cal.	Cal. Due
R&S / Signal Generator	SMY 02	DE13751	01/11/2001	01/11/2002
IFI / "E" Field sensor/ Light Modulator Transmitter	EFS-5	A066	07/02/2001	07/02/2002
IFI / Combination Amplifier	SMX100	2067-1196	06/28/2001	06/28/2002
IFI / Leveling Pre-Amplifier	LPA-5B	714-0695	05/01/2001	05/01/2002
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	10/30/2000	10/30/2001
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
Surger Generator KeyTek Instruments	E501	9502324	10/30/2000	10/30/2001
Telecom Lines Coupler DECOUPLER KeyTek Instruments	CM-TELCD	0104399	05/01/2001	05/01/2002
I/O Signal Line DECOUPLER KeyTek Instruments	CM-I/OCD	0103234	05/01/2001	05/01/2002

For CS test:

Manufacturer/Type	Model No.	Serial No.	Last Cal.	Cal. Due
R&S / Signal Generator	SMY 02	DE13751	01/11/2001	01/11/2002
IFI / Combination Amplifier	SMX100	2067-1196	06/28/2001	06/28/2002
IFI / Leveling Pre-Amplifier	LPA-5B	714-0695	05/01/2001	05/01/2002
FISCHER / Power Line Coupling Decoupling Network	FCC-801-M3-16A	99122	10/01/2000	10/01/2001
FISCHER / Bulk Current Injection Probe	F-120-9B	54	09/17/2000	09/17/2001
Narda / High Power Attenuator	769-6	02541	10/06/2000	10/06/2001

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	09/28/2000	09/28/2001
Extech Electronics / Frequency Converter	CFC-105	810390	No Calibration Required	No Calibration Required
BelMERIT / AC/DC Clamp Meter	DA 435	5A6 003019	10/11/2000	10/11/2001

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	09/16/2000	09/16/2001
FLUKE / 79 Series Ii Multimeter	79-II	66400869	01/10/2001	01/10/2002

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 DC 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 were scanned during the preliminary test:

Mode:

- 1. CRT Mode (Data No.: 9736E#40, 48; Date: 08/29/2001)**
- 2. TV Mode (Data No.: 9736E#56, 64; Date: 08/29/2001)**

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

Mode: 1.

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

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/m)	Limits (dBuV/m)	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

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

(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 DC power source from AC Adaptor (AC 230V/50Hz) to 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 were scanned during the preliminary test:

Mode:

- 1. CRT Mode (Data No. 9736D#3, 4; Date: 08/28/2001)**
- 2. TV Mode (Data No. 9736D#5, 6; Date: 09/14/2001)**

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

Mode: 1.

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

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	-5.18	P	V

C.F.(Correction Factor)=Antenna Factor + Cable Loss + Attenuator(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

RADIATED EMISSION LIMIT

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

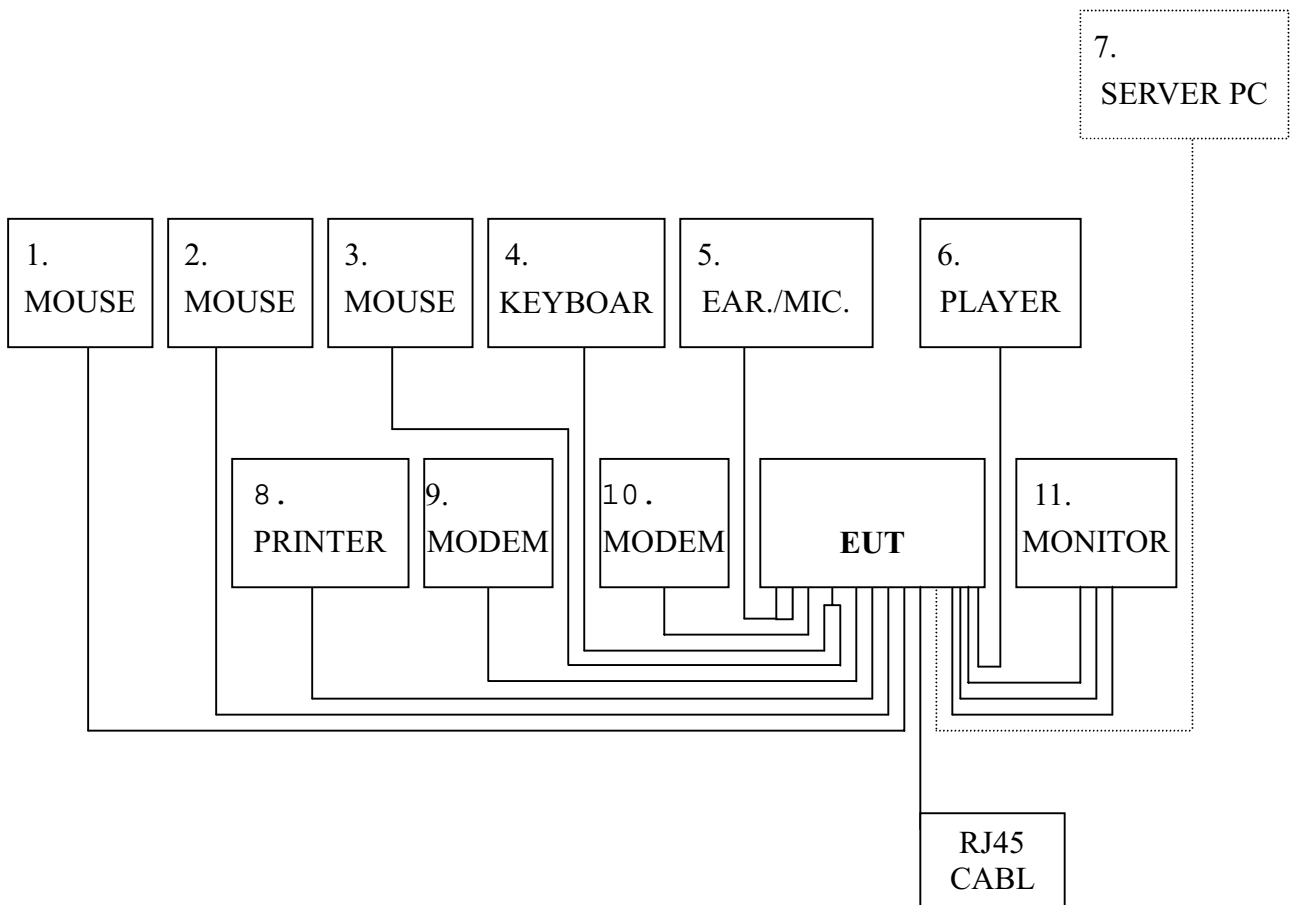
Note: The lower limit shall apply at the transition frequency.

BLOCK DIAGRAM OF TEST SETUP

System Diagram of Connections between EUT and Simulators

EUT: Industrial PC

Model Number: GENE-5310 (N)



SUMMARY DATA

(LINE CONDUCTED TEST)

Model Number: GENE-5310 (N)**Location:** Site # E**Tested by:** Bill Huang**Test Model:** Mode 1**Test Results:** Passed**Temperature:** 29°C**Humidity:** 63%RH

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

Six Highest Conducted Emission Readings							
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)
0.871	42.87	0.07	42.94	73.00	-30.06	P	L1
1.236	41.89	0.09	41.99	73.00	-31.01	P	L1
13.479	40.48	0.38	40.86	73.00	-32.14	P	L1
0.183	48.55	0.02	48.57	79.00	-30.43	P	L2
0.928	43.36	0.08	43.44	73.00	-29.56	P	L2
13.479	40.52	0.38	40.90	73.00	-32.10	P	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: GENE-5310 (N)**Location:** Site # D**Tested by:** James Liao**Polar:** Vertical / Horizontal- 10m**Test Mode:** Mode 1**Test Results:** Passed**Temperature:** 26°C**Humidity:** 78%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
114.333	45.93	-9.89	36.04	40.00	-3.96	P	V
119.700	40.77	-9.26	31.51	40.00	-8.49	P	V
147.078	43.26	-7.31	35.95	40.00	-4.05	P	V
300.678	49.53	-4.89	44.64	47.00	-2.36	P	V
146.983	41.00	-7.31	33.69	40.00	-6.31	P	H
277.633	45.85	-5.57	40.28	47.00	-6.72	P	H

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

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)

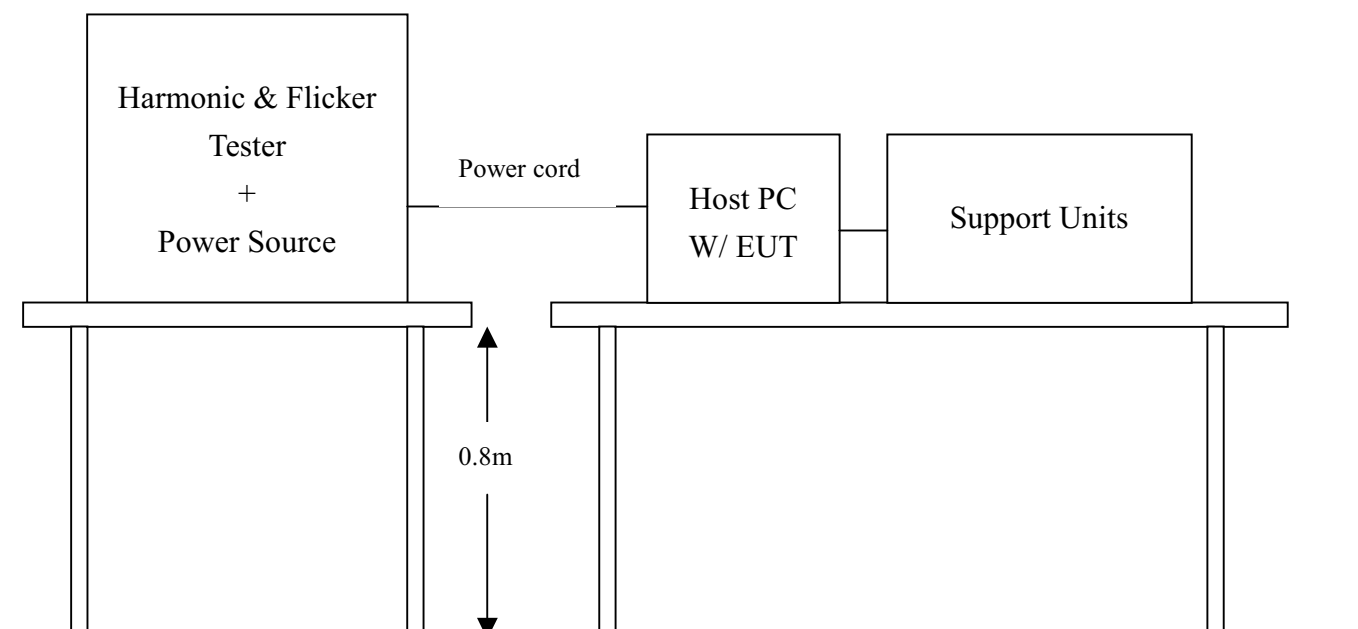
POWER HARMONICS MEASUREMENT

Port	: AC mains
Basic Standard	: EN 61000-3-2: 1995 + A1: 1998 + A2: 1998 + A14: 2000
Limits	: CLASS D
Tester	: Michael Hung
Temperature	: 23°C
Humidity	: 60 %

VOLTAGE FLUCTUATION/FLICKER MEASUREMENT

Port	: AC mains
Basic Standard	: EN 61000-3-3 : 1995
Limits	: Section 5 of EN 61000-3-3
Tester	: Michael Hung
Temperature	: 23°C
Humidity	: 60 %

Block Diagram of Test Setup:



Result:

Please see the attached test data.

Approved by: Rick Yeo
 Signature: Michael Hung Date: 8/30

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:
 HPTS 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: 0.093 A	
RMS Voltage: 229.8 V	RMS Current: 0.2 A	Real Power: 19.0 W
Frequency: 50.0 Hz	Peak Current: 1.0 A	Apparent Power: 49.2 VA
Voltage THD: 0.03%	Current THD: 89.61%	Power Factor: 0.386
Maximum Power: 19.0 W	Mean Power: 19.0 W	

Active Power Statistics:

100th Percentile: 19.0 W	99th Percentile: 19.0 W	95th Percentile: 19.0
90th Percentile: 19.0 W	50th Percentile: 19.0 W	

Total Number of Failures:

None

Total Number of Errors:

None

Pre-Test Source Voltage Harmonics Data:

Harmonic Number	Limit (%)	Limit (Volts)	Max (%)	Max (Volts)
Fund.			100.0	229.842
2	0.20	0.460	0.006	0.014
3	0.90	2.069	0.005	0.012
4	0.20	0.460	0.004	0.009
5	0.40	0.919	0.008	0.017
6	0.20	0.460	0.003	0.006
7	0.30	0.690	0.004	0.010
8	0.20	0.460	0.001	0.002
9	0.20	0.460	0.007	0.015
10	0.20	0.460	0.004	0.008
11	0.10	0.230	0.005	0.012
12	0.10	0.230	0.003	0.007
13	0.10	0.230	0.006	0.014
14	0.10	0.230	0.001	0.003
15	0.10	0.230	0.005	0.011
16	0.10	0.230	0.002	0.004
17	0.10	0.230	0.009	0.020
18	0.10	0.230	0.003	0.006
19	0.10	0.230	0.008	0.018
20	0.10	0.230	0.002	0.006
21	0.10	0.230	0.007	0.017
22	0.10	0.230	0.004	0.009
23	0.10	0.230	0.004	0.010
24	0.10	0.230	0.002	0.005
25	0.10	0.230	0.005	0.011
26	0.10	0.230	0.001	0.002
27	0.10	0.230	0.001	0.002
28	0.10	0.230	0.001	0.002
29	0.10	0.230	0.005	0.011
30	0.10	0.230	0.001	0.002
31	0.10	0.230	0.001	0.003
32	0.10	0.230	0.001	0.002
33	0.10	0.230	0.002	0.005
34	0.10	0.230	0.001	0.002
35	0.10	0.230	0.001	0.002
36	0.10	0.230	0.001	0.003
37	0.10	0.230	0.001	0.003
38	0.10	0.230	0.002	0.004
39	0.10	0.230	0.003	0.007
40	0.10	0.230	0.001	0.003

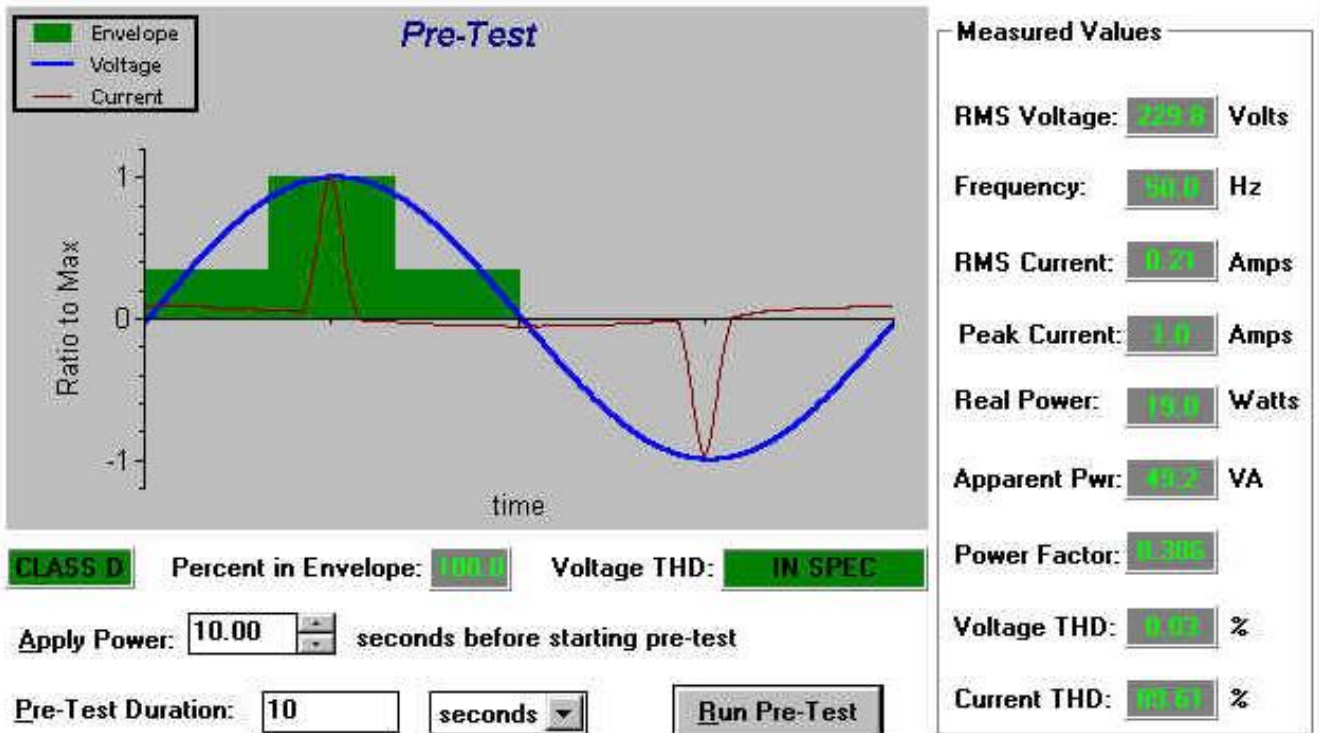
Final Test Data:

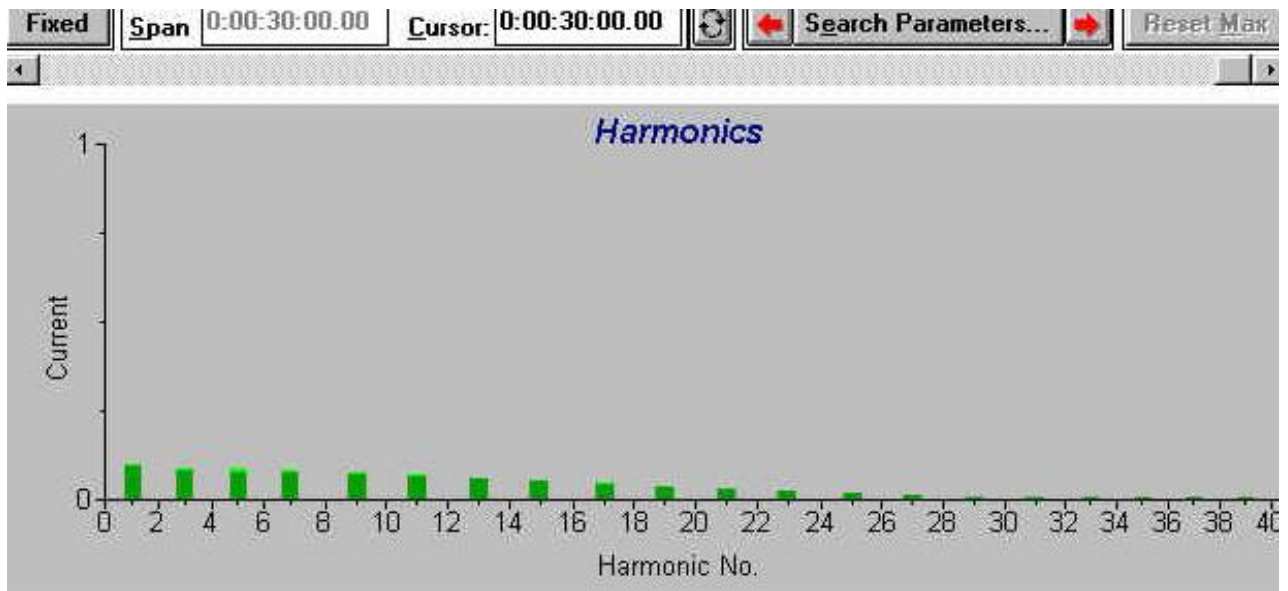
Harmonic Number	Standard Limit (A rms)	Maximum Value (A rms)	Maximum Value (% Limit)	Mean Value (A rms)	Mean Value (% Limit)	Standard Deviation (A rms)	Standard Deviation (% Limit)	Pass (P) or Fail (F)
Fund.		0.0997		0.0929		0.0003		
2		0.0016		0.0011		0.0002		
3	2.3000	0.0885	3.8	0.0815	3.5	0.0003	0.0	P
4		0.0015		0.0011		0.0001		
5	1.1400	0.0850	7.5	0.0785	6.9	0.0002	0.0	P
6		0.0012		0.0008		0.0001		
7	0.7700	0.0800	10.4	0.0743	9.6	0.0002	0.0	P
8		0.0009		0.0006		0.0001		
9	0.4000	0.0739	18.5	0.0691	17.3	0.0002	0.1	P
10		0.0008		0.0004		0.0001		
11	0.3300	0.0671	20.3	0.0631	19.1	0.0002	0.1	P
12		0.0008		0.0004		0.0001		
13	0.2100	0.0597	28.4	0.0567	27.0	0.0002	0.1	P
14		0.0008		0.0004		0.0001		
15	0.1500	0.0520	34.6	0.0498	33.2	0.0002	0.1	P
16		0.0007		0.0004		0.0001		
17	0.1324	0.0440	33.3	0.0428	32.3	0.0002	0.2	P
18		0.0007		0.0003		0.0001		
19	0.1184	0.0364	30.8	0.0357	30.2	0.0003	0.2	P
20		0.0005		0.0002		0.0001		
21	0.1071	0.0295	27.5	0.0287	26.8	0.0003	0.3	P
22		0.0005		0.0002		0.0001		
23	0.0978	0.0229	23.4	0.0221	22.6	0.0003	0.3	P
24		0.0005		0.0002		0.0001		
25	0.0900	0.0168	18.7	0.0161	17.9	0.0003	0.3	P
26		0.0006		0.0002		0.0001		
27	0.0833	0.0116	13.9	0.0108	13.0	0.0003	0.4	P
28		0.0006		0.0002		0.0001		
29	0.0776	0.0072	9.3	0.0066	8.5	0.0002	0.3	P
30		0.0006		0.0003		0.0001		
31	0.0726	0.0044	6.1	0.0040	5.5	0.0001	0.2	P
32		0.0006		0.0003		0.0001		
33	0.0682	0.0049	7.2	0.0039	5.7	0.0001	0.2	P
34		0.0005		0.0003		0.0001		
35	0.0643	0.0061	9.5	0.0050	7.8	0.0001	0.2	P
36		0.0005		0.0002		0.0001		
37	0.0608	0.0068	11.2	0.0060	9.9	0.0001	0.2	P
38		0.0005		0.0002		0.0001		
39	0.0577	0.0072	12.4	0.0065	11.3	0.0001	0.2	P
40		0.0005		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 or Fail
Fund.		0.0997							
2		0.0016		0	0	0	0	0	
3	2.3000	0.0885	3.8	0	0	0	0	0	P
4		0.0015		0	0	0	0	0	
5	1.1400	0.0850	7.5	0	0	0	0	0	P
6		0.0012		0	0	0	0	0	
7	0.7700	0.0800	10.4	0	0	0	0	0	P
8		0.0009		0	0	0	0	0	
9	0.4000	0.0739	18.5	0	0	0	0	0	P
10		0.0008		0	0	0	0	0	
11	0.3300	0.0671	20.3	0	0	0	0	0	P
12		0.0008		0	0	0	0	0	
13	0.2100	0.0597	28.4	0	0	0	0	0	P
14		0.0008		0	0	0	0	0	
15	0.1500	0.0520	34.6	0	0	0	0	0	P
16		0.0007		0	0	0	0	0	
17	0.1324	0.0440	33.3	0	0	0	0	0	P
18		0.0007		0	0	0	0	0	
19	0.1184	0.0364	30.8	0	0	0	0	0	P
20		0.0005		0	0	0	0	0	
21	0.1071	0.0295	27.5	0	0	0	0	0	P
22		0.0005		0	0	0	0	0	
23	0.0978	0.0229	23.4	0	0	0	0	0	P
24		0.0005		0	0	0	0	0	
25	0.0900	0.0168	18.7	0	0	0	0	0	P
26		0.0006		0	0	0	0	0	
27	0.0833	0.0116	13.9	0	0	0	0	0	P
28		0.0006		0	0	0	0	0	
29	0.0776	0.0072	9.3	0	0	0	0	0	P
30		0.0006		0	0	0	0	0	
31	0.0726	0.0044	6.1	0	0	0	0	0	P
32		0.0006		0	0	0	0	0	
33	0.0682	0.0049	7.2	0	0	0	0	0	P
34		0.0005		0	0	0	0	0	
35	0.0643	0.0061	9.5	0	0	0	0	0	P
36		0.0005		0	0	0	0	0	
37	0.0608	0.0068	11.2	0	0	0	0	0	P
38		0.0005		0	0	0	0	0	
39	0.0577	0.0072	12.4	0	0	0	0	0	P
40		0.0005		0	0	0	0	0	

Remarks





Final Test Summary:

```

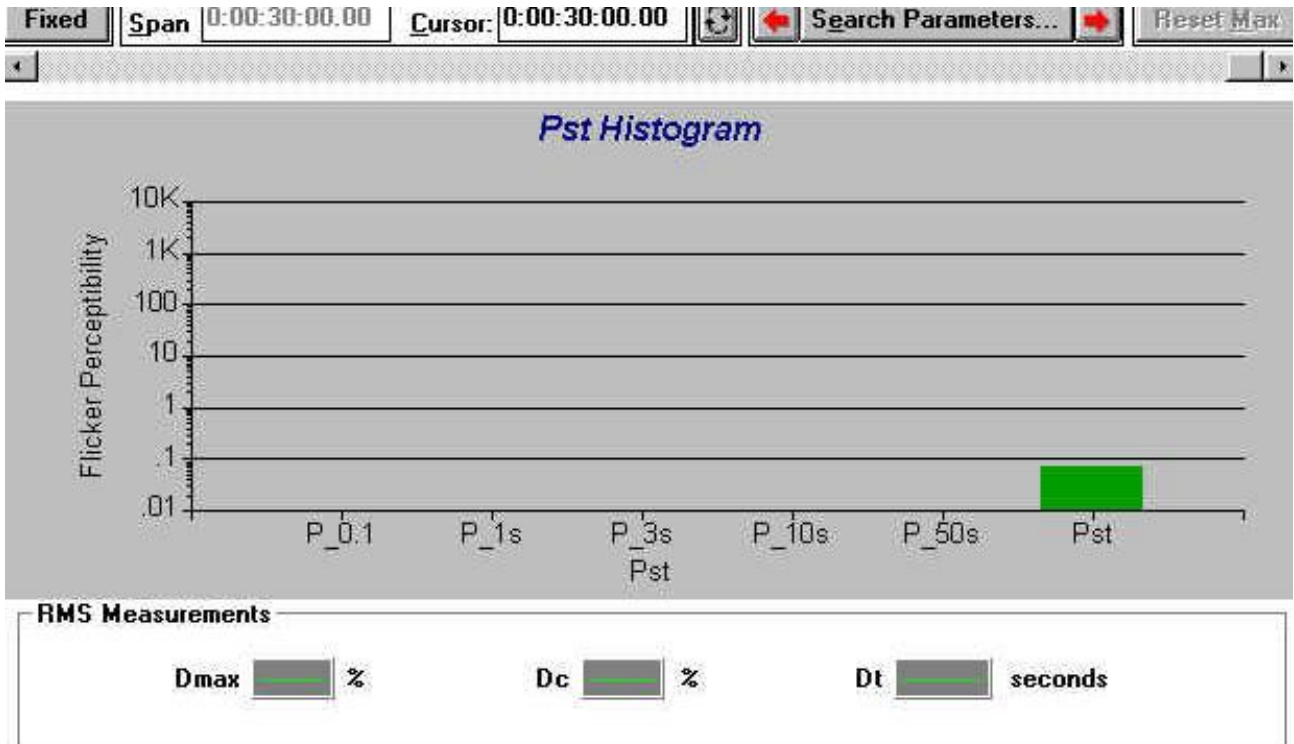
-----
Dmax: 0.0          Pst: 0.07          P_0.1: 0.01
Dc: 0.0           Plt: 0.07          P_1s: 0.01
Dt: 0.00          Plt Threshold: 0.65    P_3s: 0.01
                                   P_10s: 0.01
                                   P_50s: 0.01
    
```

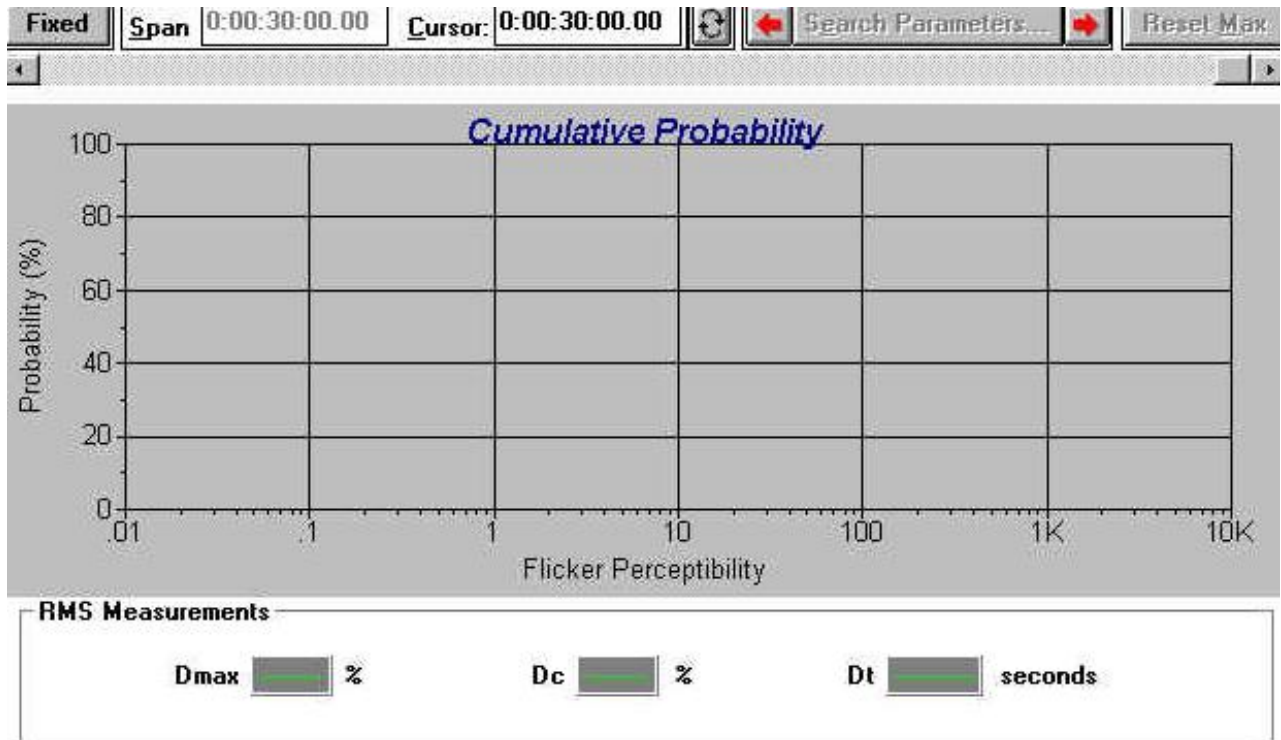
Final Test Data by Integration Period:

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



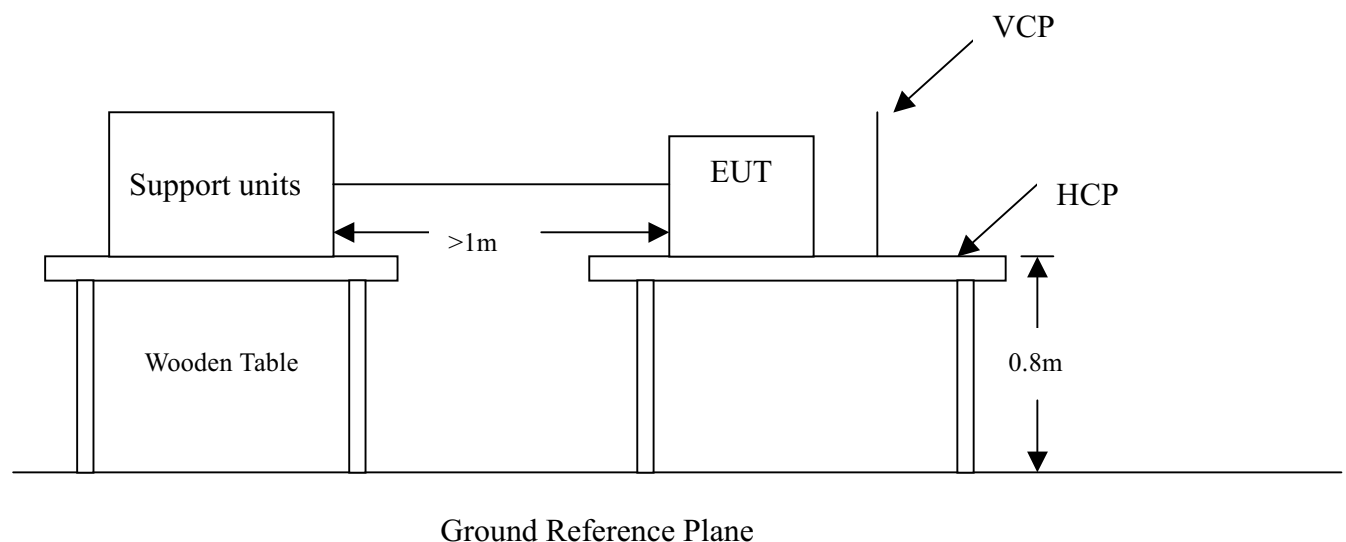


SECTION 3 IEC 61000-4-2 (ELECTROSTATIC DISCHARGE)**ELECTROSTATIC DISCHARGE (ESD) IMMUNITY TEST**

Port	: Enclosure
Basic Standard	: IEC 61000-4-2
Requirements	: $\pm 4\text{kV}$ (Contact Discharge) $\pm 4\text{kV}$ (Indirect Discharge) $\pm 8\text{kV}$ (Air Discharge)
Performance Criteria	: B (Standard require)
Tested by	: Michael Hung
Temperature/Humidity:	23°C / 60%

Block Diagram of Test Setup:

(The 470 k ohm resistors are installed per standard requirement)



Test Procedure:

1. The EUT was located 0.1 m minimum from all side of the HCP.
2. The support units were located 1 m minimum away from the 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.

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

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.

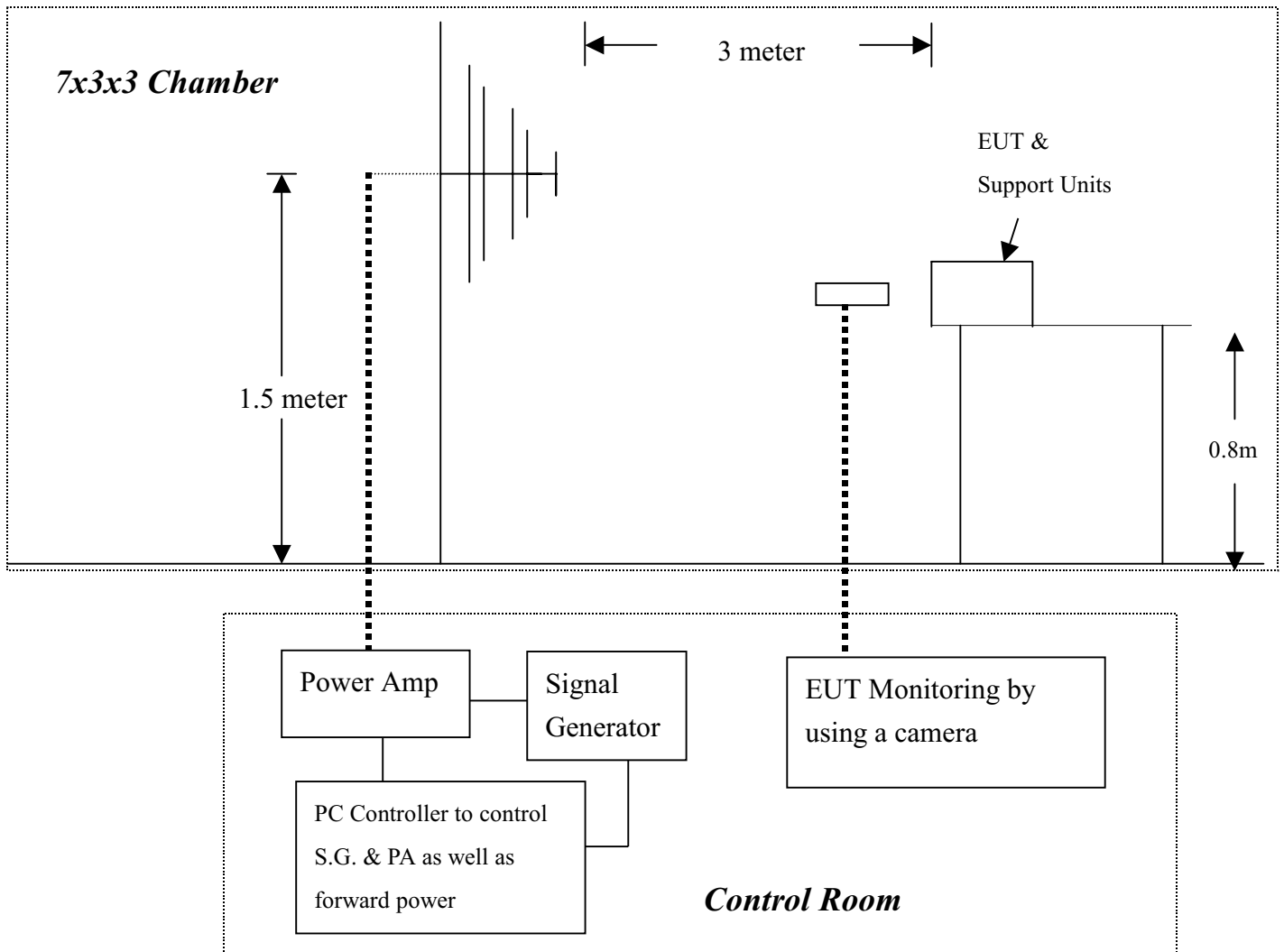
<input checked="" type="checkbox"/> PASS <input type="checkbox"/> FAILED
Observation: No any function degraded during the tests.

SECTION 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** : Michael Hung
- Temperature** : 23°C
- Humidity** : 60%
- 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**

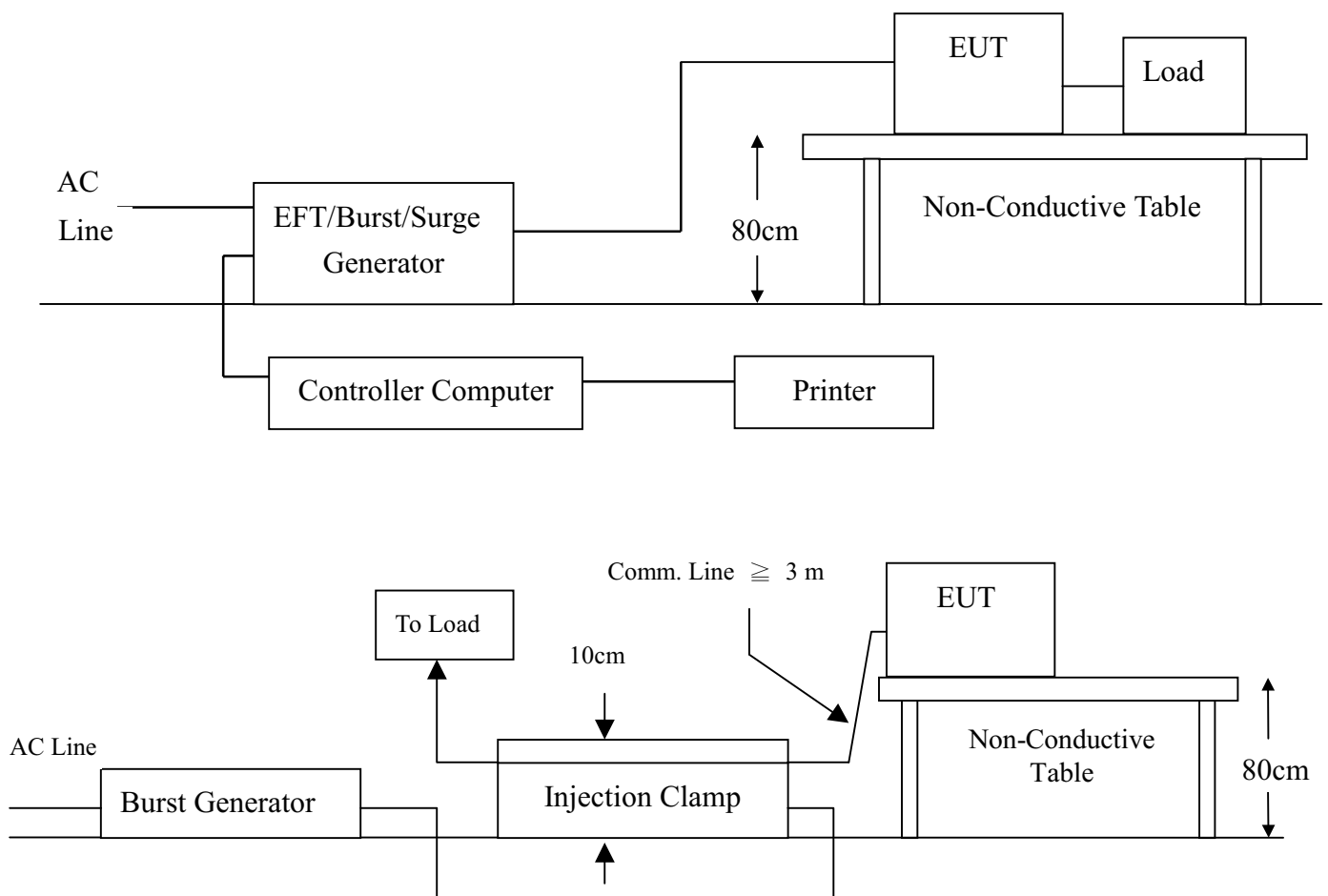
Observation: No any function degraded during the tests.

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

FAST TRANSIENTS/BURST IMMUNITY TEST

Port	: On Power Lines and Data Line
Basic Standard	: IEC 61000-4-4
Requirements	: ±1kV for Power Supply Lines ±0.5kV to Data Line
Performance Criteria	: B (Standard require)
Tested by	: Michael Hung
Temperature	: 23°C
Humidity	: 60%

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
L1+N	+/- 1	Direct	Pass
LAN Cable	+/- 0.5	Clamp	Pass

Performance & Result:

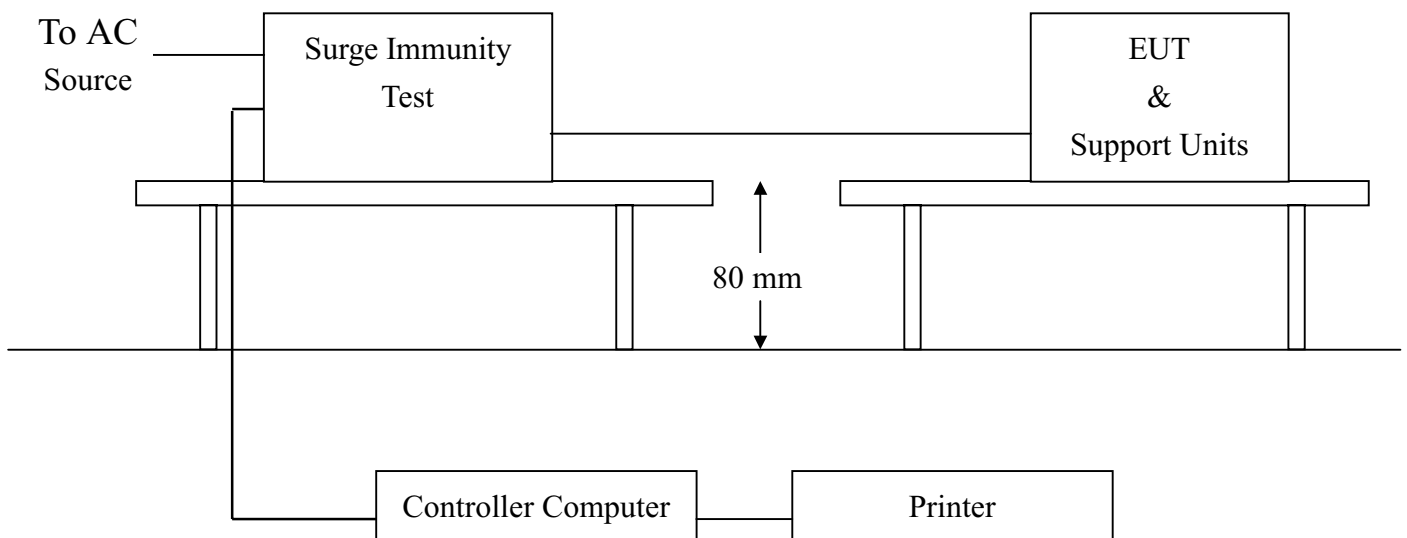
- Criteria A:** The apparatus continues to operate as intended. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases the performance level may be replaced by a permissible loss of performance.
- 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	:	Michael Hung
Temperature	:	23°C
Humidity	:	60%

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.

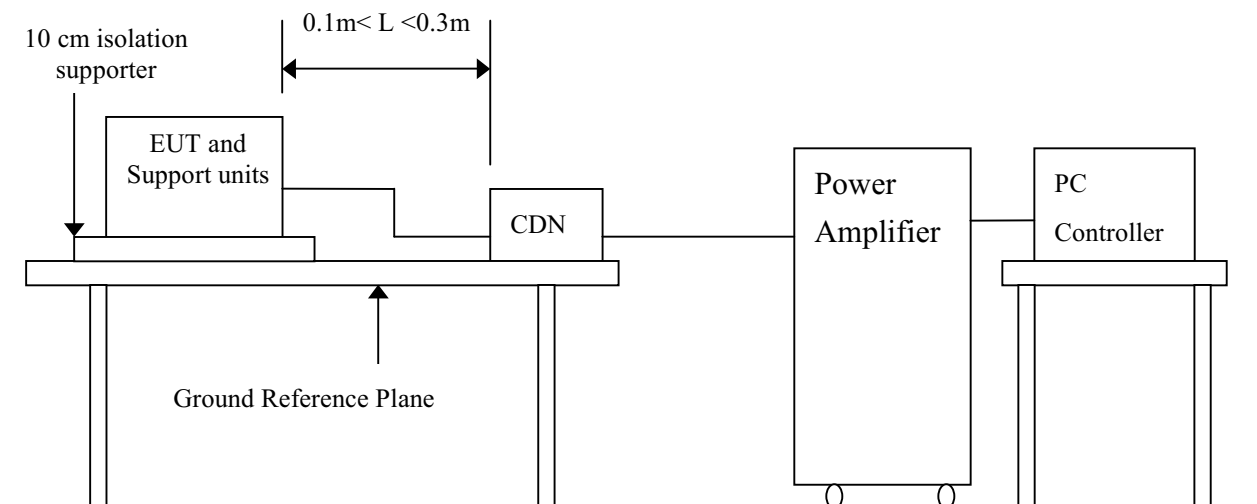
<input checked="" type="checkbox"/> PASS <input type="checkbox"/> FAILED
Observation: No any function degraded during the tests.

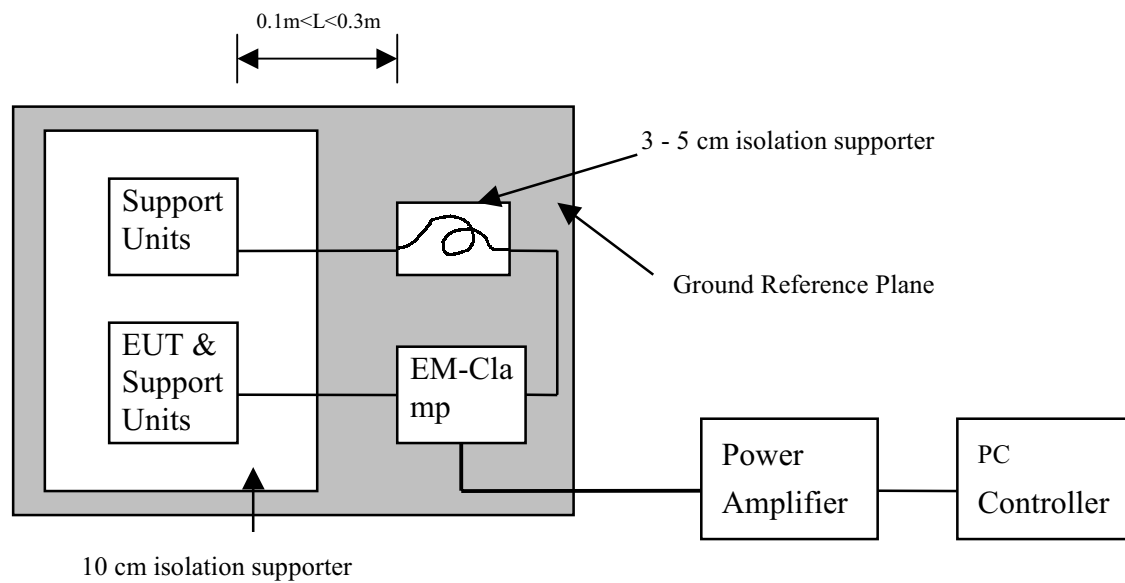
SECTION 7 IEC 61000-4-6 (CONDUCTED DISTURBANCE/INDUCED BY RADIO-FREQUENCY FIELD)

Port	: AC Port and Line Cable
Base Standard	: IEC 61000-4-6
Requirements	: 3 V with 80% AM. Modulation
Injection Method	: CDN for Power Cord Bulk Current Injection Probe for Line Cable
Deviation	:None
Performance Criteria	: A (Standard require)
Tester	: Michael Hung
Temperature	: 23°C
Humidity	: 60%
Note	: The EUT not have acoustic interfaces, the annex A of EN 55024 should not be applied.

Block Diagram of Test Setup:

Side view:



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.

PASS **FAILED**

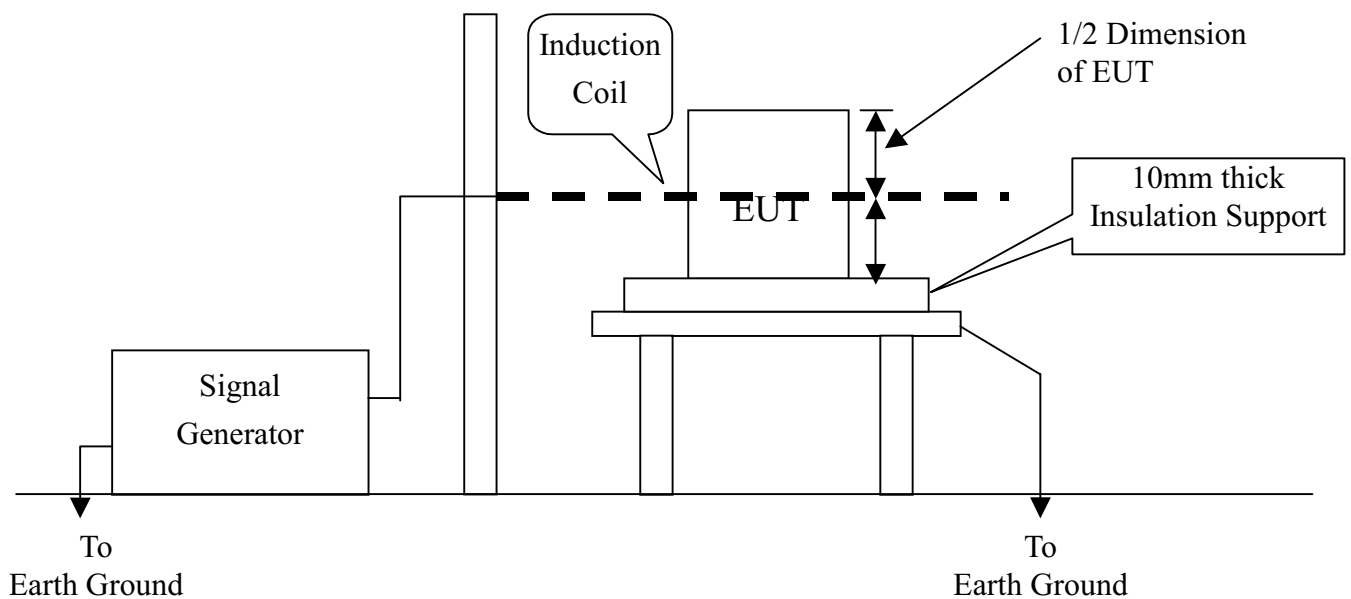
Observation: No any function degraded during the tests.

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)
Tester	: N/A
Temperature	: N/A
Humidity	: N/A

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 displayed on the screen of Monitor and filling the screen.
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 90° (Y direction) then repeat step 3 to 7.
9. Rotating the induction coil by 90° 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			
Y			
Z			

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: N/A(EUT Without any magnetic component)**

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

VOLTAGE DIPS / SHORT INTERRUPTIONS

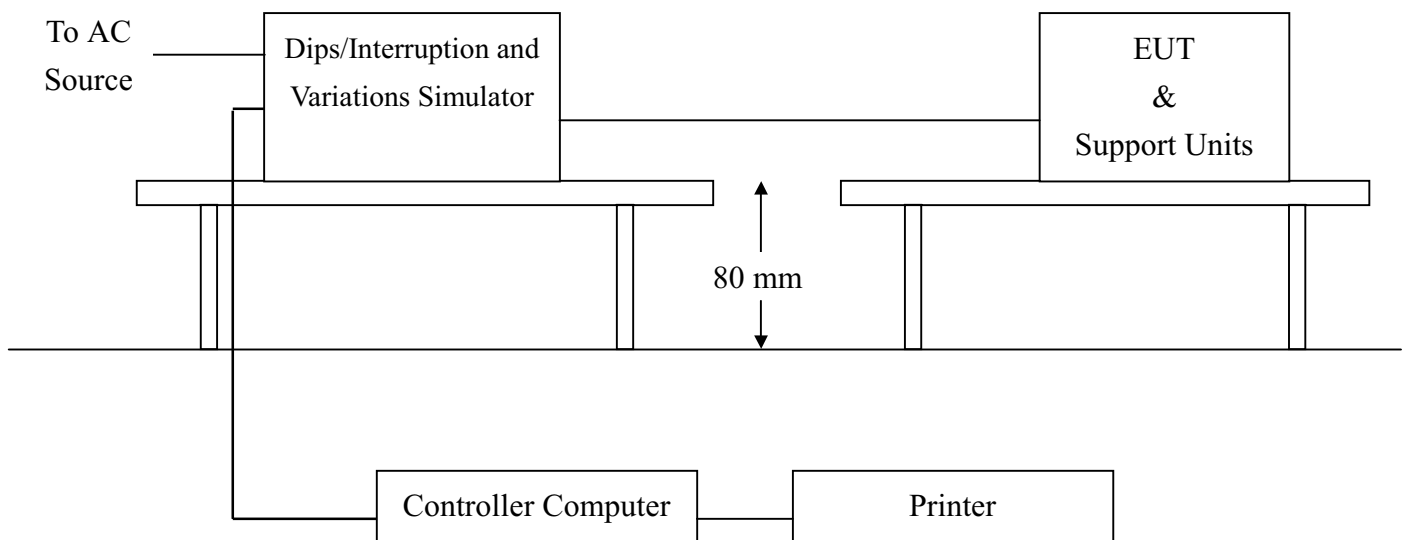
Port : AC mains
Basic Standard : IEC 61000-4-11 (1994)
Requirement : Phase angles 0, 45, 90, 135, 180, 225, 270, 315 degrees.

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

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

Test Interval : Min. 10 sec.
Tester : Michael Hung
Temperature : 23°C
Humidity : 60%

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 EUT restart.	B

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.

 PASS
 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)

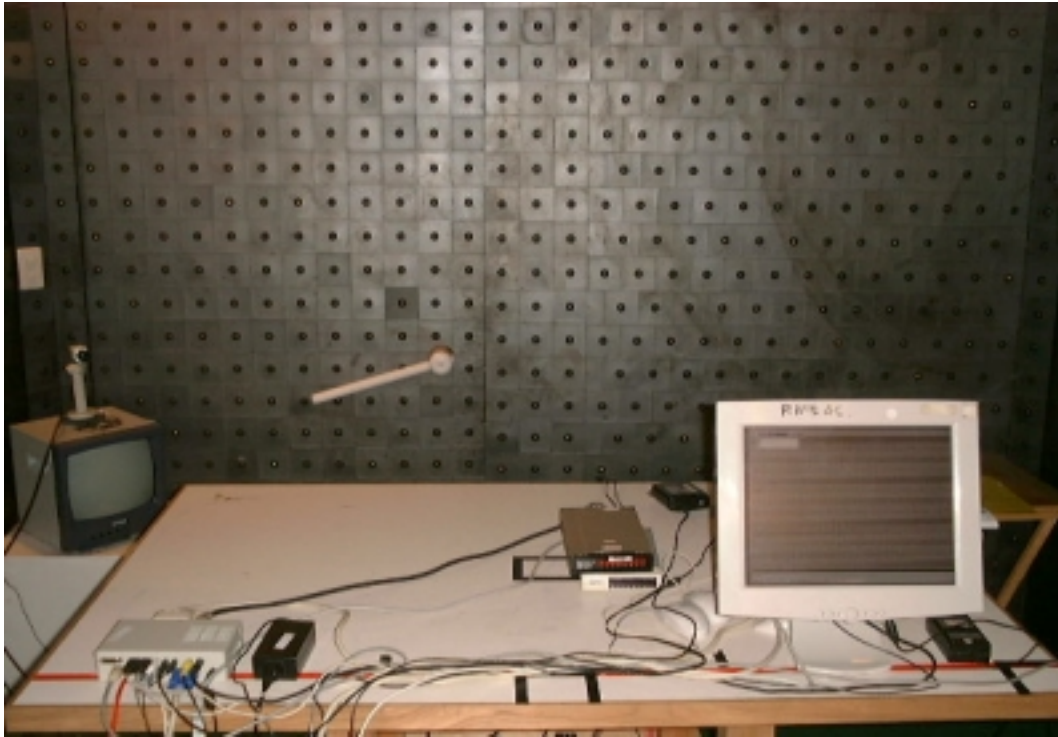


ELECTROSTATIC DISCHARGE TEST (IEC 61000-4-2)

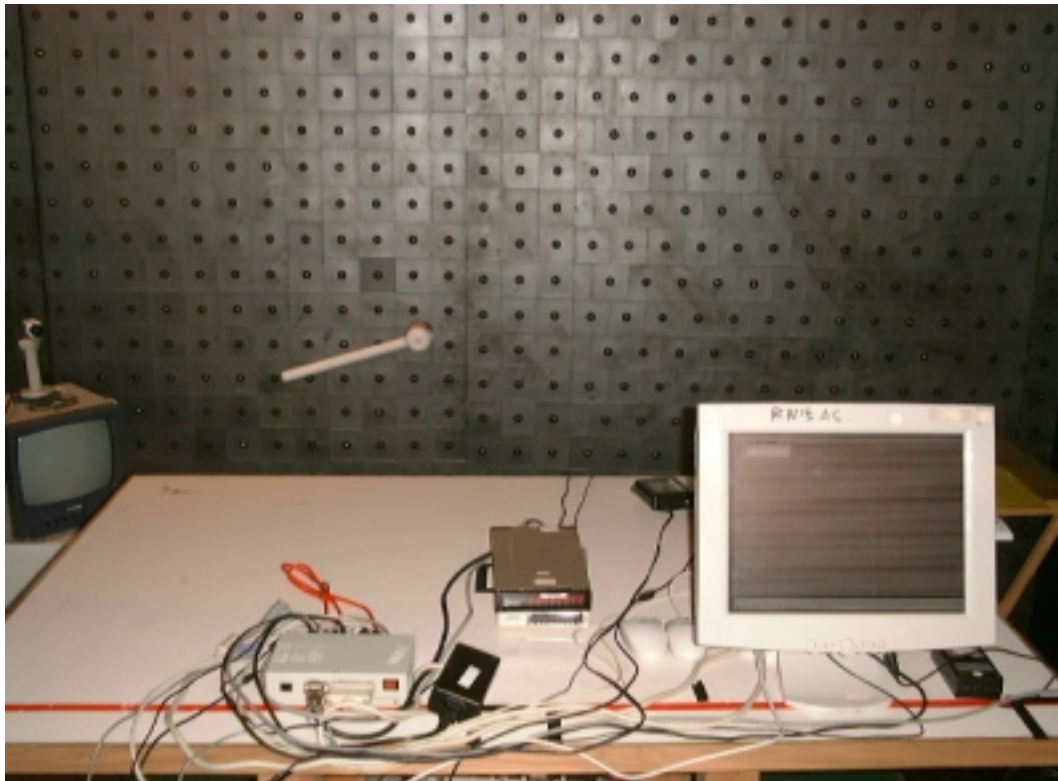


RADIATED ELECTROMAGNETIC FIELD (IEC 61000-4-3)

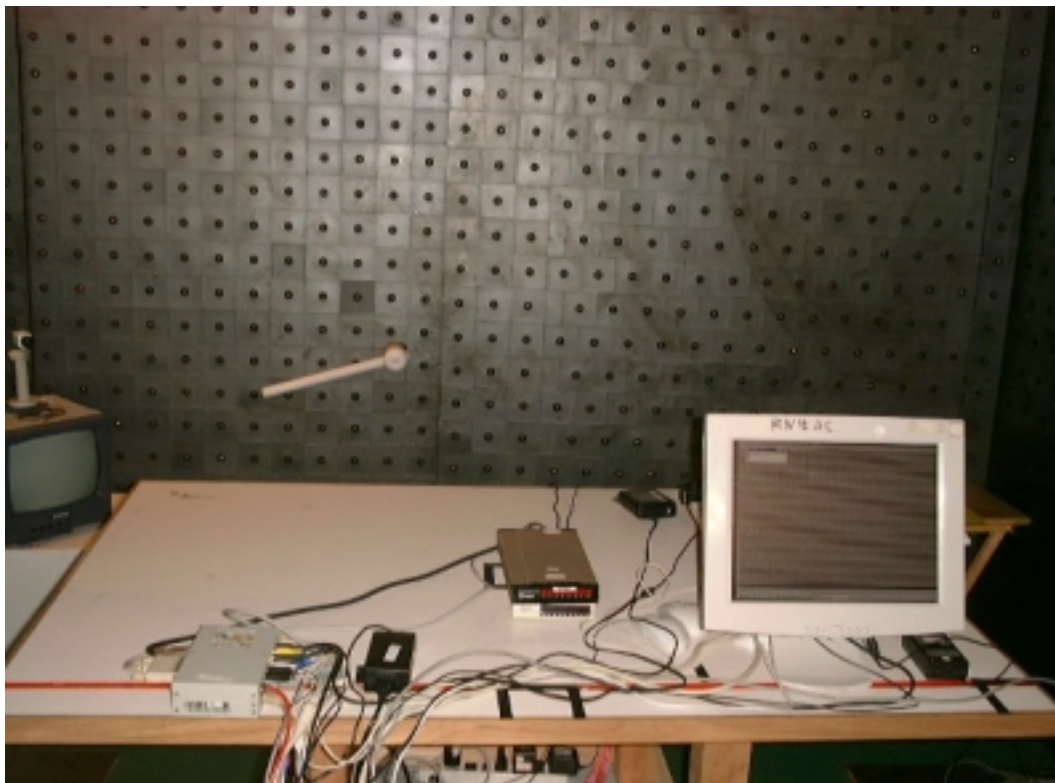
Front View



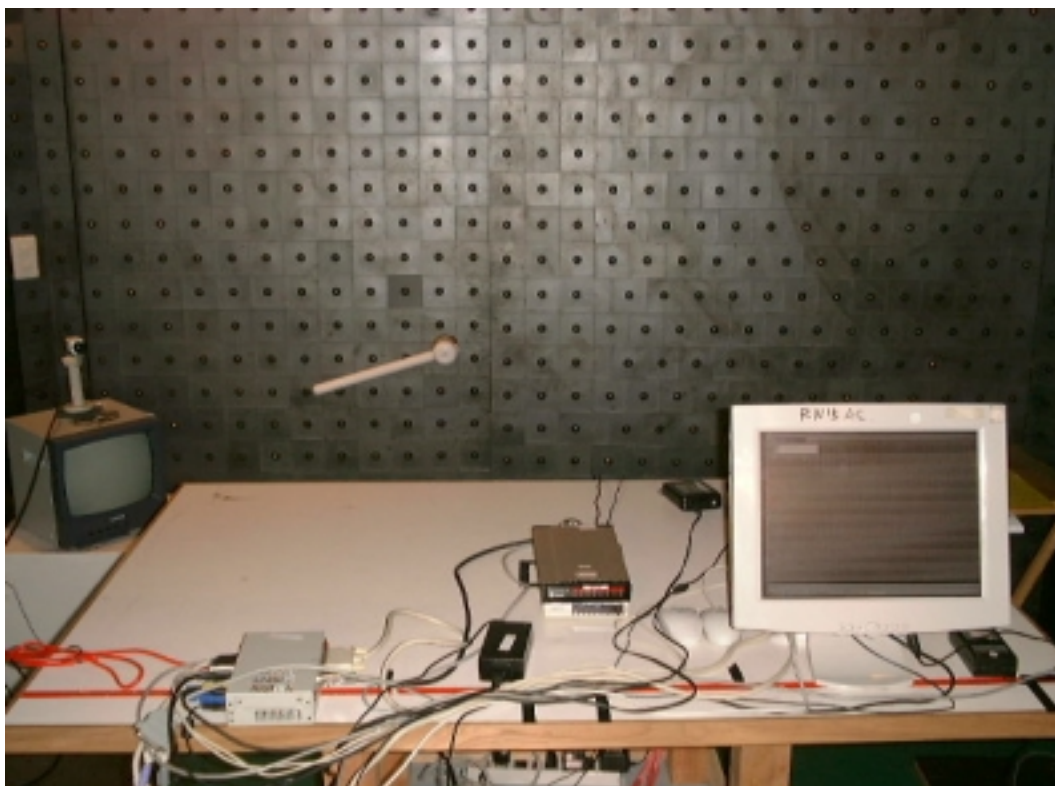
Back View



Right View



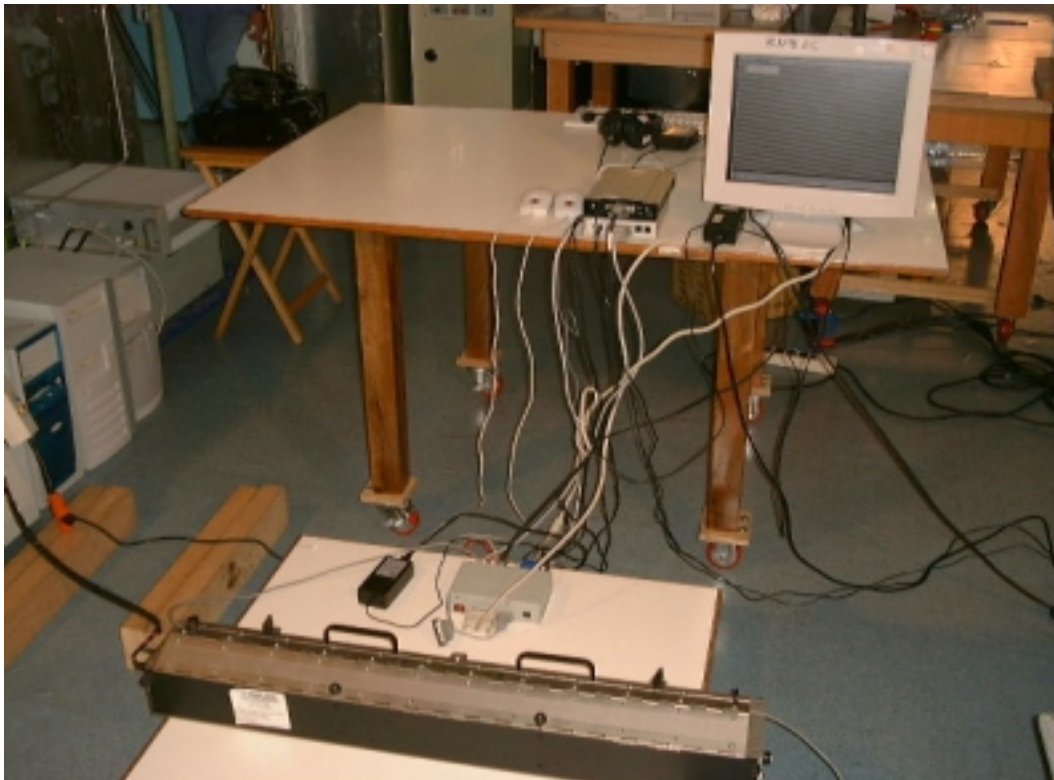
Left View



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



FAST TRANSIENTS/BURST TEST(IEC 61000-4-4 For I/O)



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



(IEC 61000-4-6 For I/O)



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



APPENDIX 2

PHOTOGRAPHS OF EUT







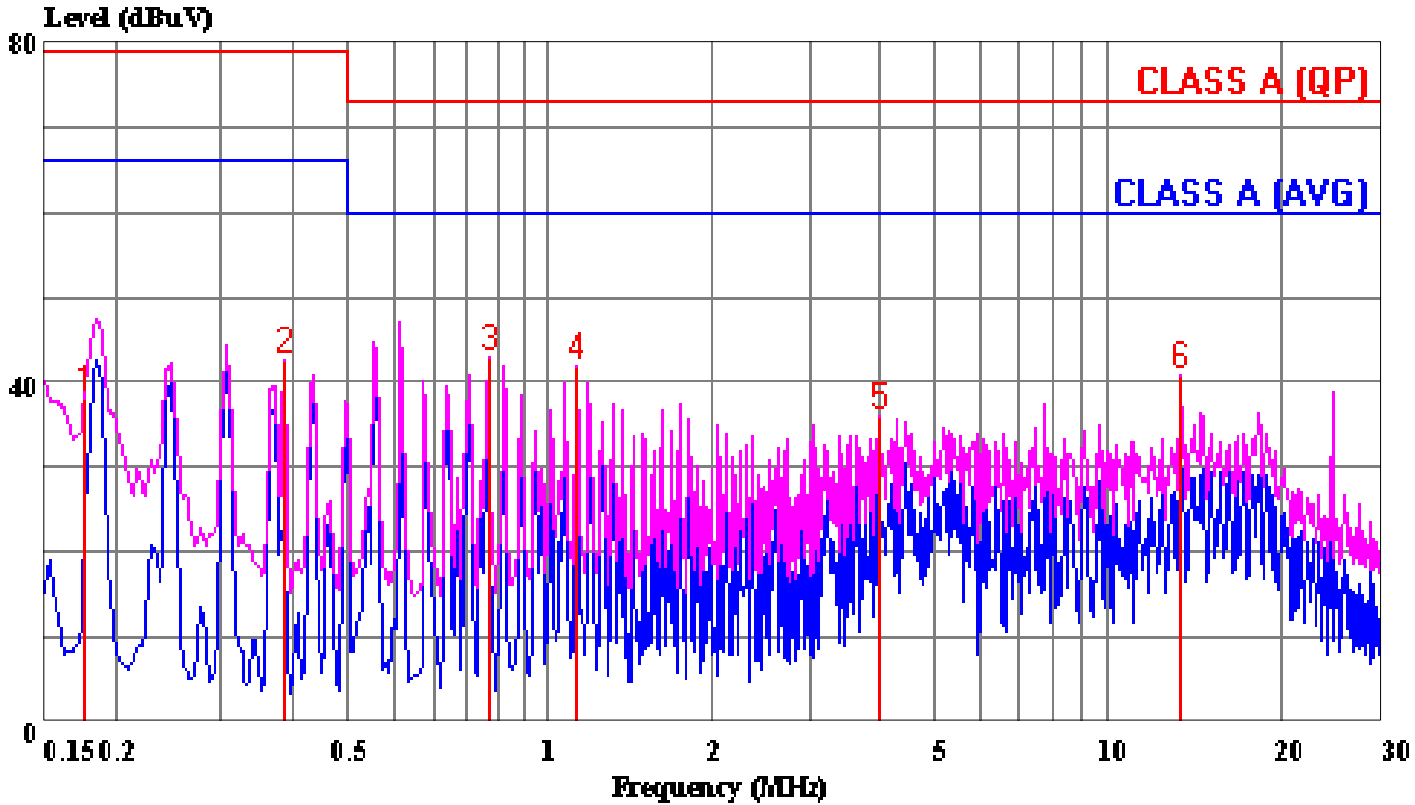


APPENDIX 3

CONDUCTED EMISSION PLOT RADIATED EMISSION DATA

Data#: 67 File#: 9736e.emi

Date: 2001-08-29 Time: 11:52:21



(CES Conducted)

Trace: 39 40

Ref Trace:

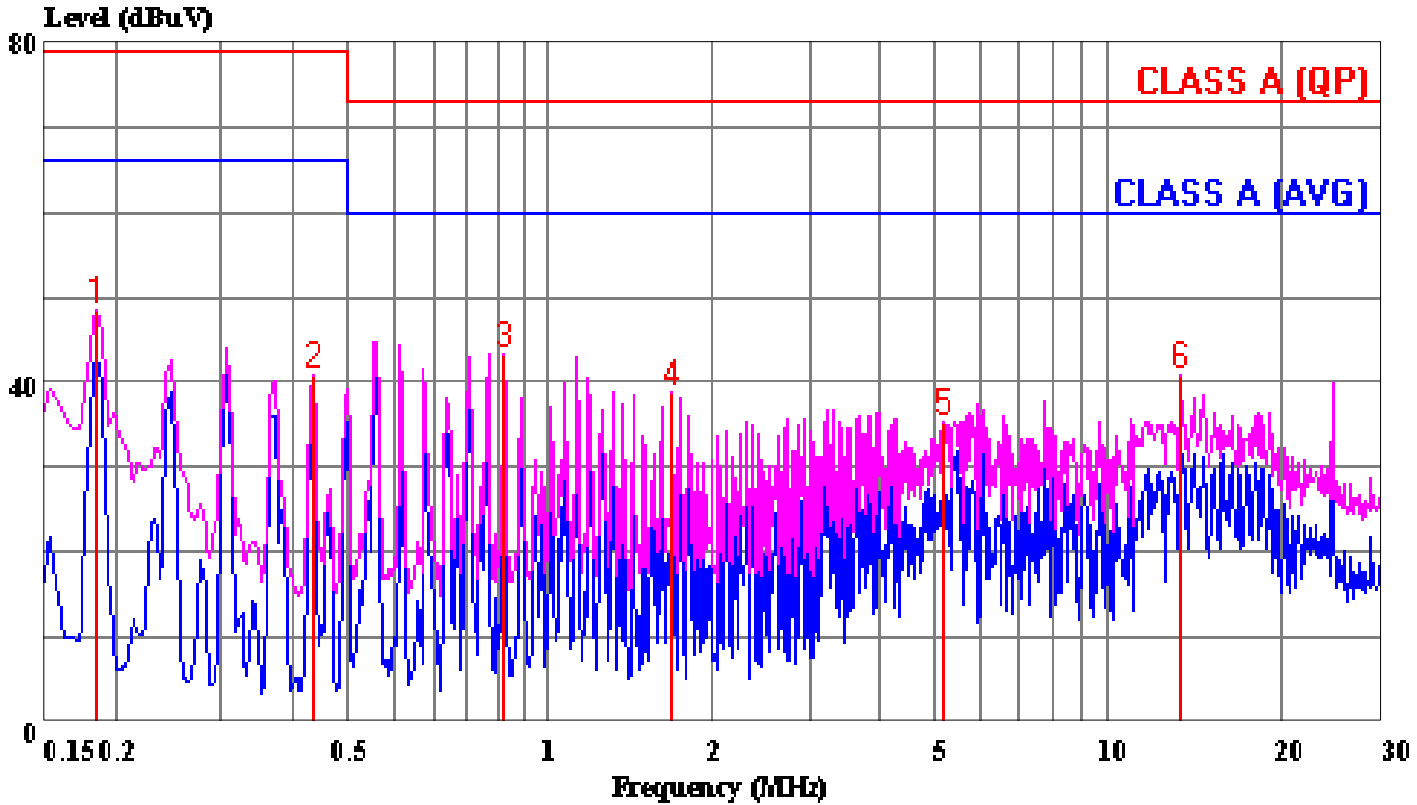
Condition: LINE
Report No. : 01E9736
Test Engr. : BILL HUANG
Company : AAEON Technology Inc.
EUT : GENE-5310 (N)
Test Config : EUT/ALL PERIPHERALS
Type of Test: EN55022 CLASS A
Mode of Op. : CRT MODE

Page: 1

	Read Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	
1	0.176	38.12	0.02	38.14	79.00	-40.86	Peak
2	0.389	42.51	0.05	42.56	79.00	-36.44	Peak
3	0.871	42.87	0.07	42.94	73.00	-30.06	Peak
4	1.236	41.89	0.09	41.99	73.00	-31.01	Peak
5	4.092	35.67	0.23	35.90	73.00	-37.10	Peak
6	13.479	40.48	0.38	40.86	73.00	-32.14	Peak

Data#: 68 File#: 9736e.emi

Date: 2001-08-29 Time: 11:53:06



(CES Conducted)

Trace: 47 48

Ref Trace:

Condition: NEUTRAL
Report No. : 01E9736
Test Engr. : BILL HUANG
Company : AAEON Technology Inc.
EUT : GENE-5310 (N)
Test Config : EUT/ALL PERIPHERALS
Type of Test: EN55022 CLASS A
Mode of Op. : CRT MODE

Page: 1

	Read Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	
1	0.183	48.55	0.02	48.57	79.00	-30.43	Peak
2	0.433	40.65	0.05	40.70	79.00	-38.30	Peak
3	0.928	43.36	0.08	43.44	73.00	-29.56	Peak
4	1.800	38.55	0.12	38.67	73.00	-34.33	Peak
5	5.277	35.20	0.28	35.48	73.00	-37.52	Peak
6	13.479	40.52	0.38	40.90	73.00	-32.10	Peak



Data#: 3 File#: 9736d.emi
CCS D-Site

Date: 2001-08-28 Time: 13:52:15

Condition: VERTICAL
Report No. : 01E9736
Test Engr. : JAMES LIAO
Company : AAEON Technology Inc.
EUT : GENE-5310 (N)
Test Config : EUT/ALL PERIPHERALS
Type of Test: EN55022 CLASS A
Mode of Op. : CRT MODE

Page: 1

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	47.989	39.48	-9.51	29.97	40.00	-10.04	Peak
2	86.322	36.51	-12.73	23.78	40.00	-16.22	Peak
3	114.333	45.93	-9.89	36.04	40.00	-3.96	Peak
4	119.700	40.77	-9.26	31.51	40.00	-8.49	Peak
5	147.078	43.26	-7.31	35.95	40.00	-4.05	Peak
6	199.244	41.41	-9.95	31.46	40.00	-8.54	Peak
7	228.622	34.78	-8.26	26.52	40.00	-13.48	Peak
8	244.978	42.12	-6.97	35.15	47.00	-11.85	Peak
9	277.656	42.45	-5.57	36.88	47.00	-10.12	Peak
10	300.678	49.53	-4.89	44.64	47.00	-2.36	Peak
11	342.978	39.38	-3.99	35.39	47.00	-11.61	Peak
12	501.133	37.57	-1.00	36.57	47.00	-10.43	Peak
13	601.389	30.39	1.50	31.89	47.00	-15.11	Peak
14	701.656	34.58	2.83	37.41	47.00	-9.59	Peak

Data#: 4 File#: 9736d.emi
CCS D-Site

Date: 2001-08-28 Time: 14:28:30

Condition: HORIZONTAL
Report No. : 01E9736
Test Engr. : JAMES LIAO
Company : AAEON Technology Inc.
EUT : GENE-5310 (N)
Test Config : EUT/ALL PERIPHERALS
Type of Test: EN55022 CLASS A
Mode of Op. : CRT MODE

Page: 1

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	48.022	29.52	-9.51	20.01	40.00	-20.00	Peak
2	114.328	39.30	-9.89	29.41	40.00	-10.59	Peak
3	146.983	41.00	-7.31	33.69	40.00	-6.31	Peak
4	200.450	41.41	-10.01	31.41	40.00	-8.60	Peak
5	228.600	34.88	-8.26	26.62	40.00	-13.38	Peak
6	277.633	45.85	-5.57	40.28	47.00	-6.72	Peak
7	300.683	35.31	-4.89	30.42	47.00	-16.58	Peak
8	342.967	35.21	-3.99	31.22	47.00	-15.78	Peak
9	501.172	34.27	-1.00	33.27	47.00	-13.73	Peak
10	601.411	33.94	1.50	35.44	47.00	-11.56	Peak
11	701.628	33.26	2.83	36.09	47.00	-10.91	Peak