0363

CE

EMC COMPLIANCE TEST REPORT

for

CPU Board

Trade Name : N/A
Model Number : SBC-800 (N)
Serial Number : N/A
Report Number : 010994-E
Date : November 2, 2001
Regulations : See below

Standards	Results (Pass/Fail)
EN 55022: 1994 + A1: 1995 + A2: 1997	PASS
EN 55011:1998	PASS
EN 61000-3-2: 1995 + A1: 1998 + A2: 1998 +A14: 2000	PASS
EN 61000-3-3: 1995	PASS
EN 55024: 1998(following EN 61000-6-2:1999 test level)	PASS
- IEC 61000-4-2: 1995 +A2: 2000 (EN 61000-4-2:1995)	PASS
- IEC 61000-4-3: 1995(EN 61000-4-3:1995)	PASS
- IEC 61000-4-4: 1995(EN 61000-4-4:1995)	PASS
- IEC 61000-4-5: 1995(EN 61000-4-5:1995)	PASS
- IEC 61000-4-6: 1996(EN 61000-4-6:1996)	PASS
- IEC 61000-4-8: 1993(EN 61000-4-8:1993)	PASS
- IEC 61000-4-11: 1994(EN 61000-4-11:1994)	PASS

Prepared for:

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

Prepared by:

ACCREDITED

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CE EC-Declaration of Conformity

For the following equipment:
CPU Board

(Product Name)
SBC-800 (N)

(Model Designation / Trade name)
AAEON Technology Inc.

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

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

- [V] EN 55022: 1994 + A1: 1995 + A2: 1997
- [V] EN 55011:1998
- [V] EN 61000-3-2: 1995 + A1: 1998 + A2: 1998 +A14: 2000
- [V] EN 61000-3-3: 1995
- [V] EN55024: 1998 (following EN61000-6-2:1999 test level)
  - IEC 61000-4-2: 1995 +A2: 2000(EN 61000-4-2:1995);
  - IEC 61000-4-3: 1995(EN 61000-4-3:1995);
  - IEC 61000-4-4: 1995(EN 61000-4-4:1995);
  - IEC 61000-4-5: 1995(EN 61000-4-5:1995);
  - IEC 61000-4-6: 1996(EN 61000-4-6:1996);
  - IEC 61000-4-8: 1993(EN 61000-4-8:1993);
  - IEC 61000-4-11:1994(EN 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:	CPU Board
Trade Name:	N/A
Model Number:	SBC-800 (N)
Serial Number:	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: 1994 + A1: 1995 + A2: 1997; EN 55011:1998 EN 61000-3-2: 1995 + A1: 1998 + A2: 1998 +A14: 2000 EN 61000-3-3: 1995 EN55024: 1998 (following EN61000-6-2:1999 test level) IEC 61000-4-2: 1995 +A2: 2000(EN 61000-4-2:1995); IEC 61000-4-3: 1995(EN 61000-4-3:1995); IEC 61000-4-4: 1995(EN 61000-4-4:1995); IEC 61000-4-5: 1995(EN 61000-4-5:1995); IEC 61000-4-6: 1996(EN 61000-4-6:1996); IEC 61000-4-8: 1993(EN 61000-4-8:1993); IEC 61000-4-11:1994(EN 61000-4-11:1994)
File Number:	010994-E
Date of test:	Oct. 31 ~ Nov. 2, 2001
Deviation:	N/A
Condition of Test Sample:	Normal

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

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

Approved by Authorized Signatory: Kurt Chen

Kurt Chen / Q.A. Manager

GENERAL INFORMATION

Applicant:	**AAEON Technology Inc.** 5F, No. 135, Lane 235, Pao Chiao Rd., Hsin-Tien City, Taipei, Taiwan, R.O.C.
Contact Person:	Milo Wang
Manufacturer:	**AAEON Technology Inc.** 5F, No. 135, Lane 235, Pao Chiao Rd., Hsin-Tien City, Taipei, Taiwan, R.O.C.
File Number:	010994-E
Date of Test:	Oct. 31 ~ Nov. 2, 2001
Equipment Under Test:	CPU Board
Model Number:	SBC-800 (N)
Serial Number:	N/A
Type of Test:	EMC Directive 89/336/EEC for CE Marking
Technical Standards:	EN 55022: 1994 + A1: 1995 + A2: 1997; EN 55011:1998 EN 61000-3-2: 1995 + A1: 1998 + A2: 1998 +A14: 2000 EN 61000-3-3: 1995 EN55024: 1998 (following EN61000-6-2:1999 test level) IEC 61000-4-2: 1995 +A2: 2000(EN 61000-4-2:1995); IEC 61000-4-3: 1995(EN 61000-4-3:1995); IEC 61000-4-4: 1995(EN 61000-4-4:1995); IEC 61000-4-5: 1995(EN 61000-4-5:1995); IEC 61000-4-6: 1996(EN 61000-4-6:1996); IEC 61000-4-8: 1993(EN 61000-4-8:1993); IEC 61000-4-11:1994(EN 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. 81-1, 210 Lane, Pa-de 2nd Road, Lu-Chu Hsiang Taoyuan, Taiwan, R. O. C.

SYSTEM DESCRIPTION

EUT Test Program:

1. EMI test program was loaded and executed under Windows environment.
2. The EMI test program sequentially exercised all I/O's of EUT.
3. A communicated software was loaded and executed to communicate between EUT and remote side.
4. The EUT sends to and receives message from remote side, and filling the screen of monitor with upper case of "H" patterns.
5. Repeat 2. to 4. Throughout the test.

PRODUCT INFORMATION

Housing Type:	Metal case		
EUT Power Rating:	115/230VAC, 60/50Hz, 8/5A		
AC Power during Test	230VAC/50Hz		
Power Supply Manufacturer:	Seventeam		
Power Supply Model Number:	ST-300BLV		
AC Power Cord Type:	Unshielded, 1.8m (Detachable) to Power Supply		
CPU Manufacture:	Intel	**Type:**	P 4 2GHz
OSC/Clock Frequencies:	100MHz		
Memory Capacity:		**Install:**	64MB
HDD Manufacturer:	Seagate	**Model:**	ST310210A 3.21
Chassis Manufacturer:	AAEVN Technology Inc.	**Model:**	ARC-6414
Backplane Manufacturer:	AAEVN Technology Inc.	**Model:**	BP-208SG-P3 Rev: A0.1
I/O Board Manufacturer:	On Board		
Sound Card Manufacturer:	On Board		
VGA Card Manufacturer:	On Board		

I/O Port of EUT

I/O PORT TYPES	Q'TY	TESTED WITH
1) Parallel Port	1	1
2) Serial Port	2	2
3) Video Port	1	1
4) PS/2 Keyboard/ Mouse Port	1	1
5) AT Keyboard Port	1	1
6) Microphone Port	1	1
7) Line-IN	1	1
8) SPEAKER-OUT	1	1
9) LAN Port	2	2
10) USB Port	4	4

SUPPORT EQUIPMENT

No.	Equipment	Model #	Serial #	FCC ID	Trade Name	Data Cable	Power Cord
1.	Monitor	CPD-G200	N/A	FCC Doc	SONY	Shielded, 1.8m With one Core	Unshielded, 1.8m
2.	Printer	2225C	2909S40149	DSI6XU2225	HP	Shielded, 1.8m	Unshielded, 1.8m
3.	Modem	2400	94-364-176268	DK467GSM24	Computer Peripherals	Shielded, 1.8m	Unshielded, 1.8m
4.	PS/2 Keyboard	SK-2800C	B1C790BCPJCN6L	GYUR79SK	Compaq	Shielded, 1.8m	N/A
5.	PS/2 Mouse	M-CAA43	LZA11750827	DoC	Logitech	Shielded, 1.8m	N/A
6.	Mouse	M-CAA43	LZA11752603	DoC	Logitech	Shielded, 1.8m	N/A
7.	USB Mouse	M-BB48	LZE93050159	FCC DoC	Logitech	Shielded, 1.8m	N/A
8.	USB Mouse	M-BB48	LZE93050164	FCC DoC	Logitech	Shielded, 1.8m	N/A
9.	USB Mouse	M-BB48	LZE93050165	FCC DoC	Logitech	Shielded, 1.8m	N/A
10.	USB Mouse	M-BB48	LZE1450642	FCC DoC	Logitech	Shielded, 1.8m	N/A
11.	AT Keyboard	5121	N/A	E5XKBM104MUC	BTC	Shielded, 1.8m	N/A
12.	Speaker	DS-207	N/A	N/A	N/A	UnShielded, 2.2m	N/A
13.	Walkman	RQ-L10	GB003969	N/A	Panasonic	Shielded, 2.3m	N/A
14.	Microphone	DM-510	N/A	N/A	KOKA	Shielded, 2.4m	N/A
15.	Notebook PC (Remote)	A380	N/A	N/A	FIC	LAN Cable Unshielded, 15m	AC I/P: Unshielded, 1.8m DC O/P: Unshielded, 1.8m With a core
16.	Notebook PC (Remote)	A360	N/A	N/A	FIC	LAN Cable Unshielded,15m	AC I/P: Unshielded, 1.8m DC O/P: Unshielded, 1.8m With a core

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

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

TEST FACILITY

Location: No. 81-1, 210 Lane, Pa-de 2nd Road, Lu-Chu Hsiang, Taoyuan, Taiwan, R. O. C.

Description: There are four 3/10m open area test sites and three line conducted labs 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).

Site Accreditation: Accredited by NEMKO (Authorization #: ELA 124) for EMC & A2LA (Certificate #: 824.01) for Emission

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.

Site # 3 & # 4 Line Conducted Test Site: At Shielding Room

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: # 4

Open Area Test Site # 4					
EQUIPMENT TYPE	**MFR**	**MODEL NUMBER**	**SERIAL NUMBER**	**LAST CAL.**	**CAL DUE.**
Spectrum Analyzer	ADVANTEST	R3132	91700456	02/21/2001	02/20/2002
EMI Test Receiver	R&S	ESVS10	846285/016	04/16/2001	04/15/2002
Precision Dipole	SCHWAZBECK	VHAP	998/999	05/17/2001	05/16/2002
Precision Dipole	SCHWAZBECK	UHAP	981/982	05/17/2001	05/16/2002
Bilog Antenna	CHASE	CBL 6112B	2462	01/16/2001	01/15/2002
Turn Table	Chance most	N/A	N/A	N.C.R	N.C.R
Antenna Tower	Chance most	N/A	N/A	N.C.R	N.C.R
Controller	Chance most	N/A	N/A	N.C.R	N.C.R
RF Switch	ANRITSU	MP59B	M51067	N.C.R	N.C.R
Site NSA	C&C Lab.	N/A	N/A	11/24/2000	11/23/2001

Conducted Emission Test Site:# 4

Conducted Emission Test Site # 4					
EQUIPMENT TYPE	**MFR**	**MODEL NUMBER**	**SERIAL NUMBER**	**LAST CAL.**	**CAL DUE.**
EMI Test Receiver	R&S	ESHS10	843743/015	12/15/2000	12/14/2001
LISN	R&S	ENV 4200	8303261016	11/18/2000	11/17/2001
LISN	EMCO	3825/2	9003/1382	02/08/2001	02/07/2002

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:

EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Harmonic & Flicker Tester	HAEFELY TRENCH	PHF555	080 419-25	10/12/2001	10/11/2002

For ESD test:

EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
ESD Generator	HAEFELY TRENCH	PESD 1600	H710203	09/01/2001	08/31/2002

For Radiated Electromagnetic Field immunity Measurement:

EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Signal Generator	Maconi	2022D	119246/003	08/20/2001	08/19/2002
Power Amplifier	M2S	A00181/ 1000	9801-112	N/A	N/A
Power Amplifier	M2S	AC8113/ 800-250A	9801-179	N/A	N/A
EM-Radiation Meter	Wandel & Goltormann	EMR-30	L-0013	03/16/2001	03/15/2002
Power Antenna	EMCO	93141	9712-1083	N/A	N/A

For Fast Transients/Burst test:

EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Fast Transients/Burst Generator	HAEFELY TRENCH	PEFT-JUNIOR	583 333-117	08/21/2001	08/20/2002
Clamp	HAEFELY TRENCH	093 506.1	080 421.13	N/A	N/A

For CS test:

EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Signal Generator	Maconi	2022D	119246/003	08/20/2001	08/19/2002
CDN	MEB	M3	3683	09/14/2001	09/13/2002
CDN	Lüthi	801-M3	1879	03/05/2001	03/04/2002
CDN	MEB	M2	A3002010	04/17/2001	04/16/2002
Power Amplifier	M2S	A00181/ 1000	9801-112	N/A	N/A
Clamp	MEB	KEMZ-801	13 602	N/A	N/A

For Surge Immunity test:

EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Surge Tester	HAEFELY TRENCH	PSUGER 4010	583 334-71	09/01/2001	08/31/2002
CDN	HAEFELY TRENCH	IP6.2	148342	03/22/2001	03/21/2002
CDN	HAEFELY TRENCH	DEC1A	148050	04/06/2001	04/05/2002

For Power Frequency Magnetic Field Immunity test:

Power Frequency Magnetic Field Immunity test (61000-4-8)					
EQUIPMENT TYPE	**MFR**	**MODEL NUMBER**	**SERIAL NUMBER**	**LAST CAL.**	**CAL DUE.**
Magnetic Field Tester	HAEFELY TRENCH	MAG 100.1	080 938-01	N/A	N/A

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

Voltage Dips/Short Interruption and Voltage Variation Immunity test (61000-4-11)					
EQUIPMENT TYPE	**MFR**	**MODEL NUMBER**	**SERIAL NUMBER**	**LAST CAL.**	**CAL DUE.**
Dips/Interruption and Variations Simulator	HAEFELY TRENCH	PLINE 1610	080 344-05	02/08/2001	02/07/2002

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 AC power through a Line Impedance Stabilization Network (LISN) which supplied power source 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(s):

   1. 1024 x 768 Resolution + LAN 1+ LAN 2
   2. 800 x 600 Resolution + LAN 1+ LAN 2
   3. 640 x 480 Resolution + LAN 1+ LAN 2

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	Q.P. Raw dBuV	Average Raw dBuV	Q.P. Limit dBuV	Average Limit dBuV	Q.P. Margin dB	Average Margin dB	Note
x.xx	45.2	-32.9-	66	56	-12.05	---	L1

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

LINE CONDUCTED EMISSION LIMIT (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 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 N/A 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(s):

1. **1024 x 768 Resolution + LAN 1+ LAN 2**
2. **800 x 600 Resolution + LAN 1+ LAN 2**
3. **640 x 480 Resolution + LAN 1+ LAN 2**

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 Q.P. reading is presented.

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

Data Sample:

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

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

RADIATED EMISSION LIMIT

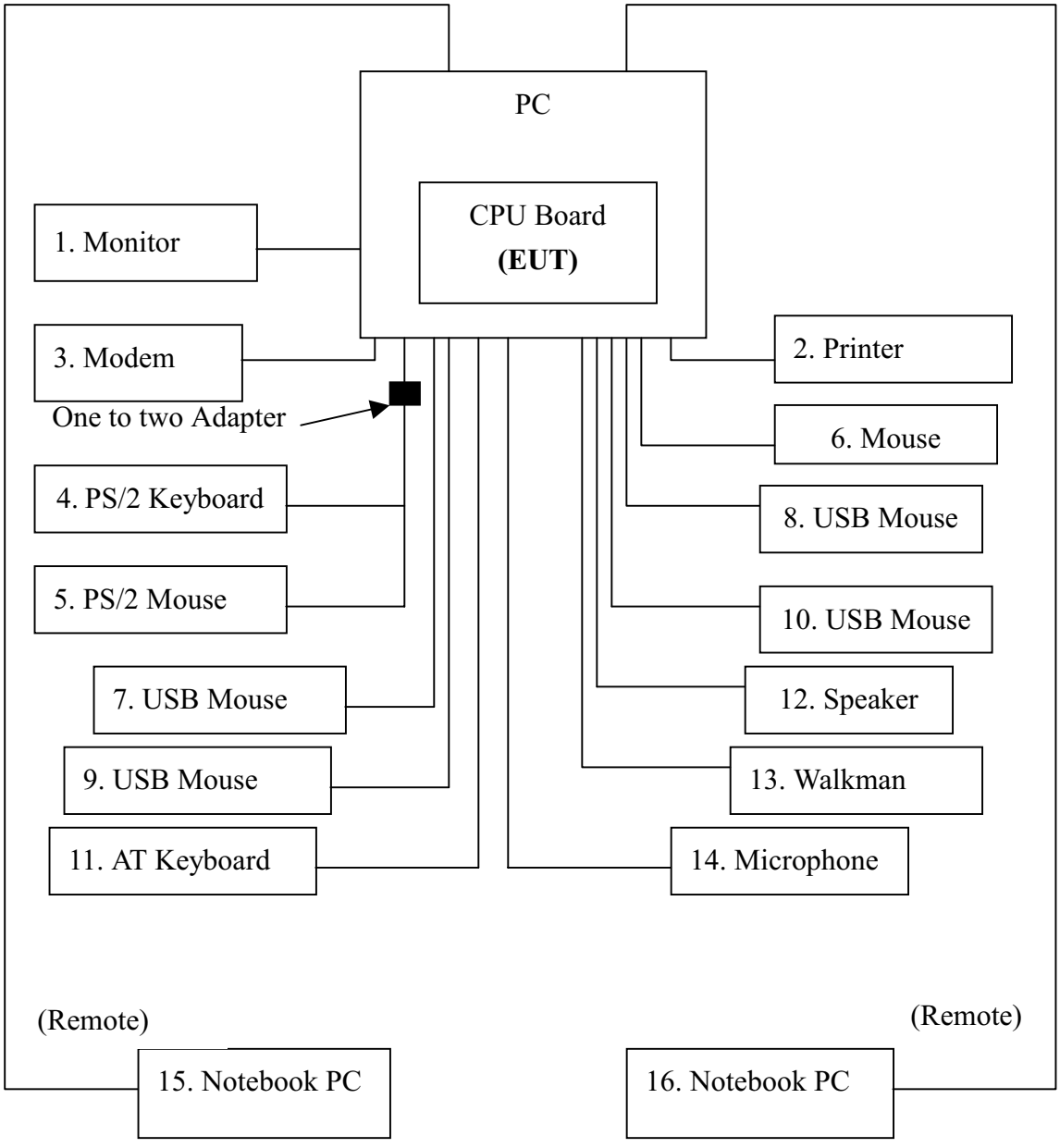
Frequency (MHz)	Distance (m)	Maximum Field Strength Limit (dBu V/m/ Q.P.)
30-230	10	30
230-1000	10	37

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

BLOCK DIAGRAM OF TEST SETUP

System Diagram of Connections between EUT and Simulators

EUT: CPU Board
Trade Name: N/A
Model Number: SBC-800 (N)
Power Cord: Unshielded, 1.8m



SUMMARY DATA

(LINE CONDUCTED TEST)

Model Number: SBC-800 (N) **Location:** Site # 4

Tested by: Lung Tasi

Test Mode: Mode 1

Test Results: Passed

Temperature: 25°C **Humidity:** 69%RH

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

FREQ MHz	Q.P. RAW dBuV	AVG RAW dBuV	Q.P. Limit dBuV	AVG Limit dBuV	Q.P. Margin dB	AVG Margin dB	NOTE
0.150	58.1	51.3	66.00	56.00	-7.9	-4.70	L1
0.214	57.3	50.7	63.05	53.05	-5.8	-2.35	L1
1.013	23.4	---	56.00	46.00	-32.6	---	L1
4.949	18.7	---	56.00	46.00	-37.3	---	L1
23.240	28.9	---	60.00	50.00	-31.1	---	L1
24.008	22.2	---	60.00	50.00	-37.8	---	L1
0.150	57.5	49.6	66.00	56.00	-8.5	-6.40	L2
0.214	57.5	50.7	63.05	53.05	-5.6	-2.35	L2
1.011	22.7	---	56.00	46.00	-33.3	---	L2
13.008	21.4	---	60.00	50.00	-38.6	---	L2
23.231	29.7	---	60.00	50.00	-30.3	---	L2
24.003	22.3	---	60.00	50.00	-37.7	---	L2

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

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

SUMMARY DATA
(RADIATED EMISSION TEST)

Model Number: SBC-800 (N) **Location:** Site # 4

Tested by: Allen Wang **Polar:** Vertical--10m

Test Mode: Mode 1 **Test Results:** Passed

Detector Function: Quasi-Peak

Temperature: 23°C **Humidity:**65%RH

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

Freq. (MHz)	Raw Data (dBuV/m)	Corr. Factor (dB)	Emiss. Level (dBuV/m)	Limits	Margin (dB)
33.24	9.0	17.8	26.8	30.0	-3.2
48.12	15.0	12.0	27.0	30.0	-3.0
80.80	18.8	8.2	27.0	30.0	-3.0
333.00	18.0	15.7	33.7	37.0	-3.3
500.27	13.3	20.7	34.0	37.0	-3.0
666.98	12.1	21.9	34.0	37.0	-3.0

SUMMARY DATA

(RADIATED EMISSION TEST)

Model Number: SBC-800 (N) **Location:** Site # 4

Tested by: Allen Wang **Polar:** Horizontal--10m

Test Mode: Mode 1 **Test Results:** Passed

Detector Function: Quasi-Peak

Temperature: 23°C **Humidity:**65%RH

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

Freq. (MHz)	Raw Data (dBuV/m)	Corr. Factor (dB)	Emiss. Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)
33.00	8.0	17.9	25.9	30.0	-4.1
80.59	18.5	8.2	26.7	30.0	-3.3
133.20	10.0	12.2	22.2	30.0	-7.8
500.12	10.9	20.7	31.6	37.0	-5.4
666.00	8.9	21.9	30.8	37.0	-6.2
666.59	12.0	21.9	33.9	37.0	-3.1

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

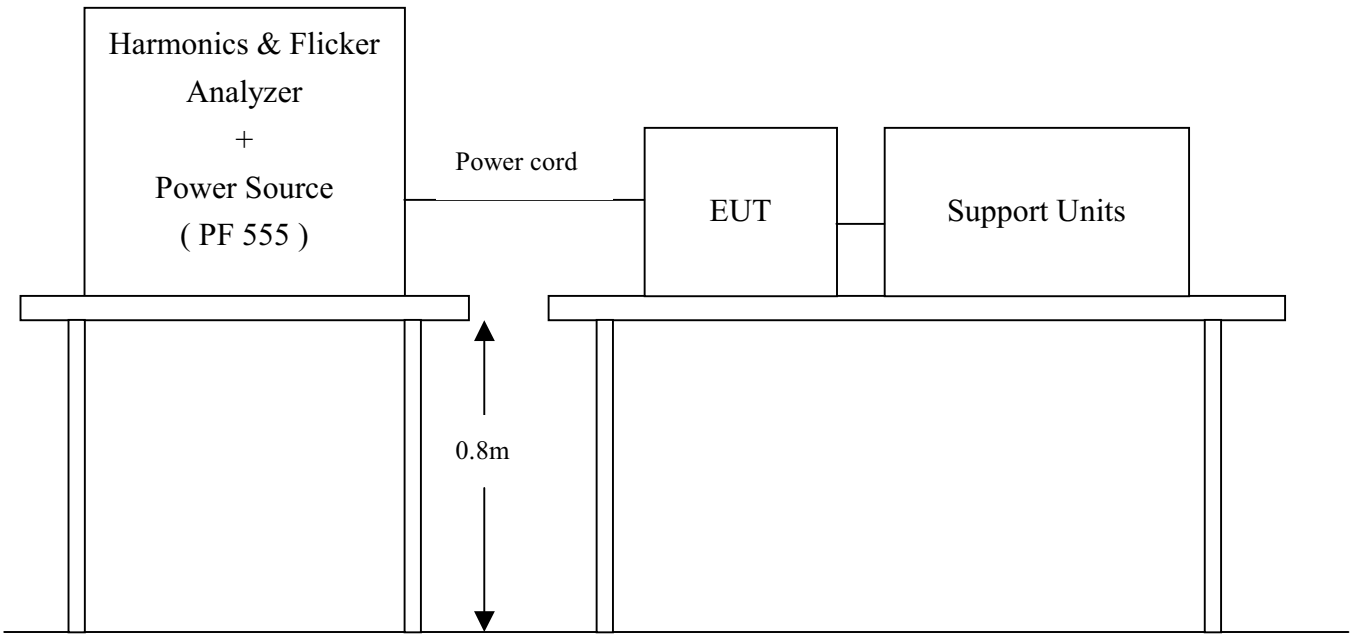
POWER HARMONICS MEASUREMENT

Port : AC mains
Basic Standard : EN 61000-3-2 (1995 + A1: 1998 + A2: 1998 + A14: 2000)
Limits : [V] CLASS A ; [ ] CLASS D
Tester : Lung Tsai
Temperature : 25°C
Humidity : 53%

VOLTAGE FLUCTUATION/FLICKER MEASUREMENT

Port : AC mains
Basic Standard : EN 61000-3-3 (1995)
Limits : §5 of EN 61000-3-3
Tester : Lung Tsai
Temperature : **25°C**
Humidity : **53%**

Block Diagram of Test Setup:



Result:

Please see the attached test data.

EN 61000-3-2 TEST REPORT 2001/10/31 07:51 PM

Unit: CPU Board

Model No.: SBC-800(N)

Remarks: Temp:25℃ Humidity:53%

Operator: LUNG TSAI

==========

TEST SETUP

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

Prog. Zo Enabled: YES Prog. Zo: 0.000

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

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

MAX WATTS:68.4W

TEST DATA

Result: PASS

Harmonic Current Results

Hn	AMPS	LO Limit	HI Limit	Result
0	0.000	0.000	0.000	PASS
1	0.298	NaN	NaN	PASS
2	0.005	1.080	1.080	PASS
3	0.276	2.300	2.300	PASS
4	0.005	0.430	0.430	PASS
5	0.257	1.140	1.140	PASS
6	0.004	0.300	0.300	PASS
7	0.231	0.770	0.770	PASS
8	0.003	0.230	0.230	PASS
9	0.200	0.400	0.400	PASS
10	0.002	0.184	0.184	PASS
11	0.166	0.330	0.330	PASS
12	0.002	0.153	0.153	PASS
13	0.134	0.210	0.210	PASS
14	0.001	0.131	0.131	PASS
15	0.102	0.150	0.150	PASS
16	0.001	0.115	0.115	PASS
17	0.072	0.132	0.132	PASS
18	0.001	0.102	0.102	PASS
19	0.046	0.118	0.118	PASS
20	0.001	0.092	0.092	PASS
21	0.026	0.107	0.107	PASS
22	0.001	0.084	0.084	PASS
23	0.012	0.098	0.098	PASS

24	0.001	0.077	0.077	PASS
25	0.012	0.090	0.090	PASS
26	0.001	0.071	0.071	PASS
27	0.015	0.083	0.083	PASS
28	0.001	0.066	0.066	PASS
29	0.016	0.078	0.078	PASS
30	0.000	0.061	0.061	PASS
31	0.014	0.073	0.073	PASS
32	0.000	0.058	0.058	PASS
33	0.012	0.068	0.068	PASS
34	0.000	0.054	0.054	PASS
35	0.009	0.064	0.064	PASS
36	0.000	0.051	0.051	PASS
37	0.006	0.061	0.061	PASS
38	0.000	0.048	0.048	PASS
39	0.005	0.058	0.058	PASS
40	0.000	0.046	0.046	PASS

END OF REPORT

EN 61000-3-3 TEST REPORT 2001/10/31 08:07 PM

Unit: CPU Board

Model No.: SBC-800(N) (Continue)

Remarks: Temp:25℃ Humidity:53%

Operator: LUNG TSAI

==========

TEST SETUP

Test Freq.:	50.00 Hz.	Test Voltage:	230.0 vac
Waveform :	SINE		
Test Time:	10.0 min.	Tshort:	10.0 min.

Prog. Zo Enabled: YES Prog. Zo: 0.000

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

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

TEST DATA

Result: PASS

	EUT Data	Limit	Result	Test Enabled
Pst max	0.001	1.00	PASS	true
Plt max	0.001	0.65	PASS	true
dc %	0.00	3.00	PASS	true
dmax %	0.00	4.00	PASS	true
d(t) sec.	0.00	0.20	PASS	true
	Power Source Data			
Source Pst max	0.020	0.400	PASS	true
% THD	0.03	3.00	PASS	true

END OF REPORT

EN 61000-3-3 TEST REPORT 2001/10/31 08:24 PM

Unit: CPU Board

Model No.: SBC-800(N) (Manual Switch)

Remarks: Temp:25℃ Humidity:53%

Operator: LUNG TSAI

==========

TEST SETUP

Test Freq.:	50.00 Hz.	Test Voltage:	230.0 vac
Waveform :	SINE		
Test Time:	10.0 min.	Tshort:	10.0 min.

Prog. Zo Enabled: YES Prog. Zo: 0.000

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

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

TEST DATA

Result: PASS

	EUT Data	Limit	Result	Test Enabled
Pst max	0.070	1.00	PASS	true
Plt max	0.070	0.65	PASS	true
dc %	0.00	3.00	PASS	true
dmax %	0.00	4.00	PASS	true
d(t) sec.	0.00	0.20	PASS	true
	Power Source Data			
Source Pst max	0.020	0.400	PASS	true
% THD	0.03	3.00	PASS	true

END OF REPORT

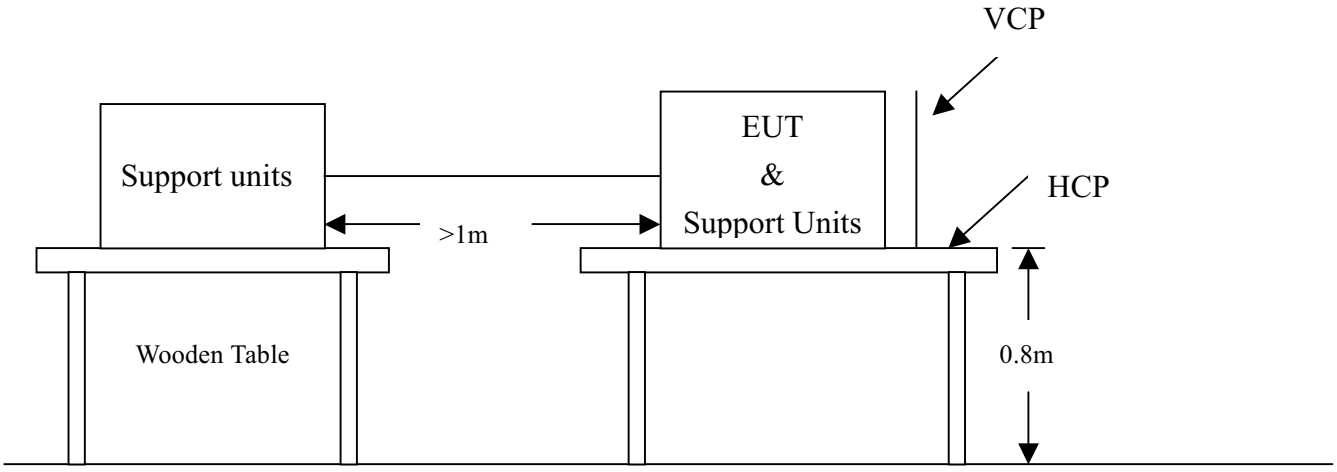
SECTION 3 IEC 61000-4-2 (ELECTROSTATIC DISCHARGE)

ELECTROSTATIC DISCHARGE (ESD) IMMUNITY TEST

Port	**:**	Enclosure
Basic Standard	**:**	IEC 61000-4-2
Test Level	**:**	± 8 kV (Air Discharge) ± 4 kV (Contact Discharge) ± 4 kV (Indirect Discharge)
Performance Criteria	**:**	B (Standard require)
Tester	**:**	Lung Tasi
Temperature/Humidity	**:**	25°C/53%

Block Diagram of Test Setup:

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



Ground Reference Plane

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 scroll 'H' test program was loaded and executed in Windows mode.
4. The EUT sent above message to EUT and related peripherals through the test.
5. Active the communication function if the EUT with such port(s).
6. 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.
7. 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.
8. The application of ESD to the contact of open connectors is not required.
9. Putting a mark on EUT to show tested points. The following test condition was followed during the tests.

Note: As per the A2 to IEC 61000-4-2, a bleed resistor cable is connected between the EUT and HCP during the test.

The electrostatic discharges were applied as follows:

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

**** The tested points to EUT, please refer to attached page.**
(Blue arrow mark for Contact Discharge and 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.

☑ ***PASS*** ☐ ***FAILED***
Observation: No any function degraded during the tests.

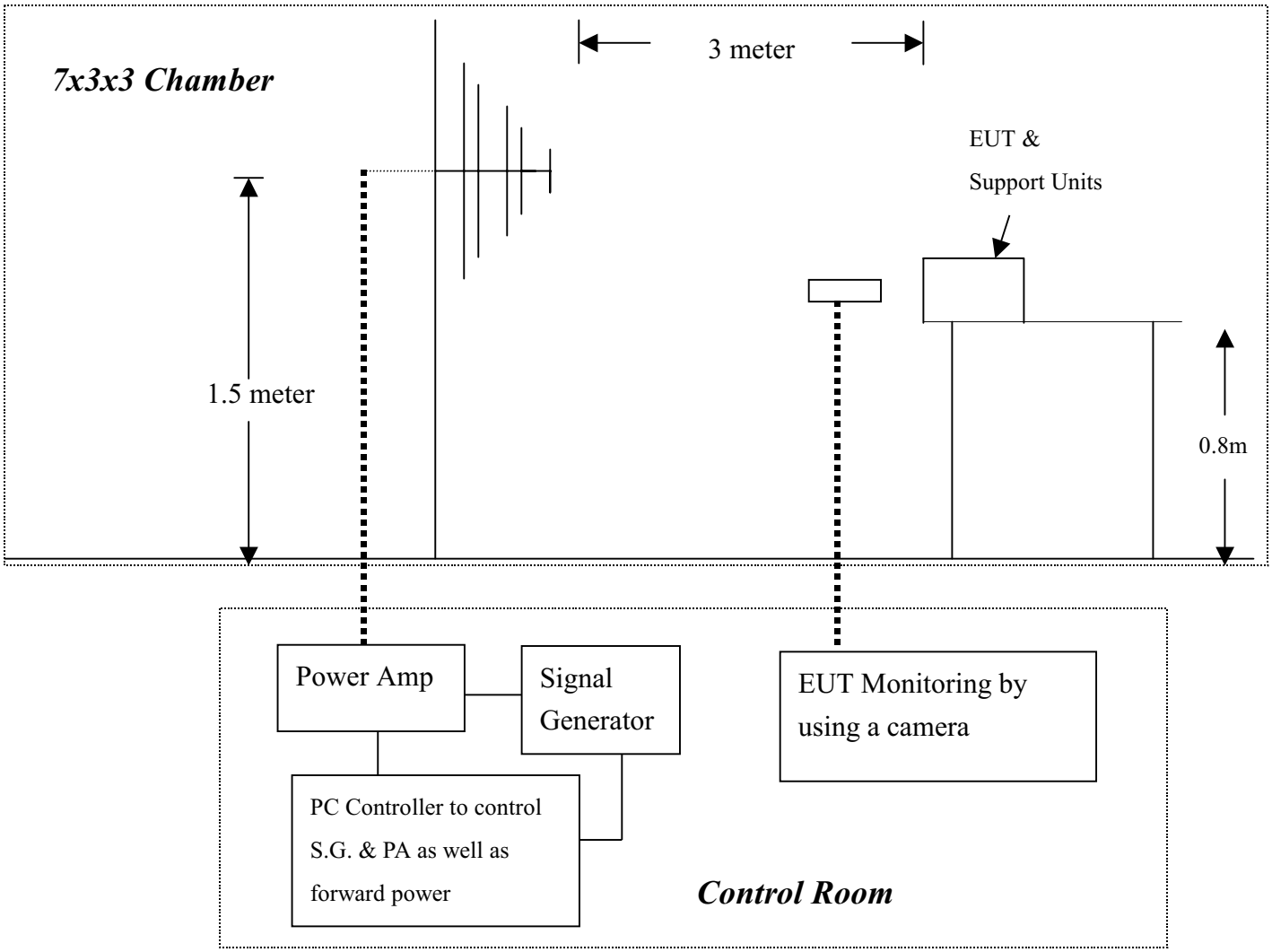
The Tested Points of EUT

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

RADIATED ELECTROMAGNETIC FIELD IMMUNITY TEST

Port : Enclosure
Basic Standard : IEC 61000-4-3
Requirements : 10 V/m, with 80% AM. 1kHz Modulation
Performance Criteria : A (Standard Required)
Tester : Lung Tasi
Temperature : 25°C
Humidity : 53%

Block Diagram of Test Setup:



Test Procedure:

1. The EUT was located at the edge of supporting table keep 3 meter away from transmitting antenna, it just the calibrated square area of field uniformity. The support units were located outside of the uniformity area, but the cable(s) connected with EUT were exposed to the calibrated field as per IEC 61000-4-3.
2. A scroll 'H' messages were displayed on part of screen of EUT and an enlarged 'H' characters were displayed on the other part of screen of EUT.
3. Adjusting the monitoring camera to monitor the 'H' message as clear as possible.
4. Setting the testing parameters of RS test software per IEC 61000-4-3.
5. Performing the test at each side of with specified level from 80MHz to 1000MHz at 1% steps.
6. Recording the test result in following table.
7. It is not necessary to perform test as per annex A of EN 55024:1998 if the EUT doesn't belong to TTE product.

IEC 61000-4-3 Test conditions:

Test level : 10V/m

Steps : 1 % of fundamental

Dwell Time : 3 sec

Range (MHz)	Field	Modulation	Polarity	Position (°)	Result (Pass/Fail)
80-1000	10V	Yes	H	Front	Pass
80-1000	10V	Yes	V	Front	Pass
80-1000	10V	Yes	H	Right	Pass
80-1000	10V	Yes	V	Right	Pass
80-1000	10V	Yes	H	Back	Pass
80-1000	10V	Yes	V	Back	Pass
80-1000	10V	Yes	H	Left	Pass
80-1000	10V	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.

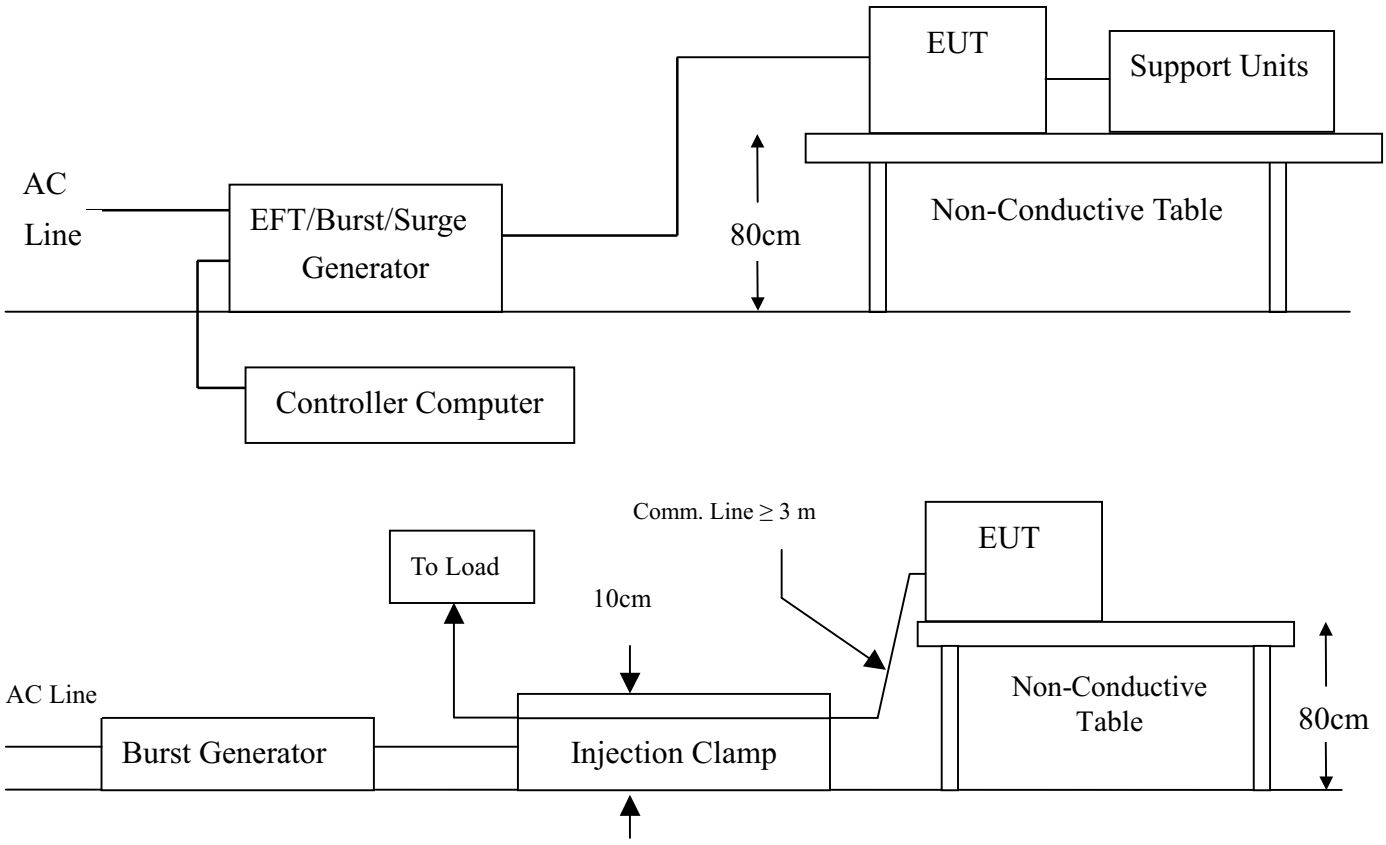
☑ ***PASS*** ☐ ***FAILED***
Observation: No any function degraded during the tests.

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

FAST TRANSIENTS/BURST IMMUNITY TEST

Port : On Power Supply Lines and Data Cable
Basic Standard : IEC 61000-4-4
Requirements : ±2kV for Power Supply Line
±1kV for Data Cable
Performance Criteria : B (Standard require)
Tester : Lung Tasi
Temperature : 25°C
Humidity : 53%

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 sent to and monitor (via EUT), filling the screens with upper case of "H" patterns.
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 : 3Hz

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

Performance & Result:

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

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

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

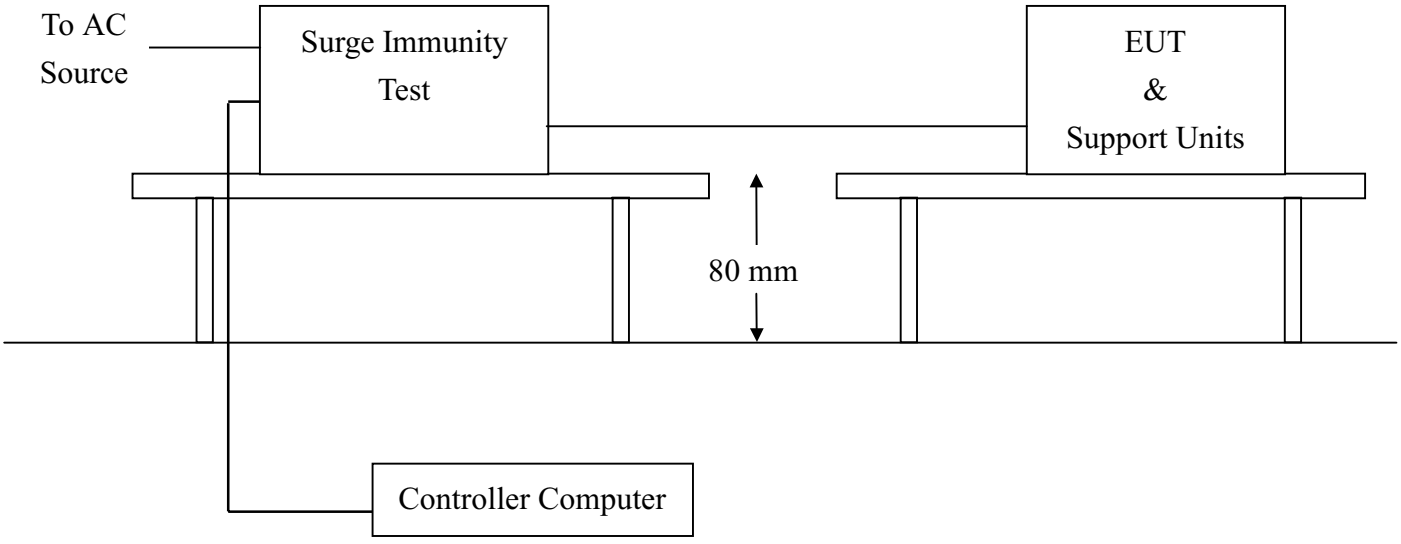
[V] ***PASS*** [ ] ***FAILED***
Observation: No any function degraded during the tests.

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)
	±2kV (Line to Ground)
Performance Criteria	**:** B (Standard require)
Tester	**:** Lung Tasi
Temperature	**:** 25°C
Humidity	**:** 53%

Block Diagram of Test Setup:



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 scroll H test program was loaded and executed in Windows mode.
4.The PC sent above message to EUT and related peripherals through the test.
5. Selecting appropriate points of EUT for discharge and put a mark on EUT to show tested points.
6.The following test condition was followed during the tests.

Test conditions:
Voltage Waveform : 1.2/50 *u*s
Current Waveform : 8/20 *u*s
Polarity : Positive/Negative
Phase angle : 0^o, 90^o, 270^o
Number of Test : 5

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

☑ ***PASS*** ☐ ***FAILED***

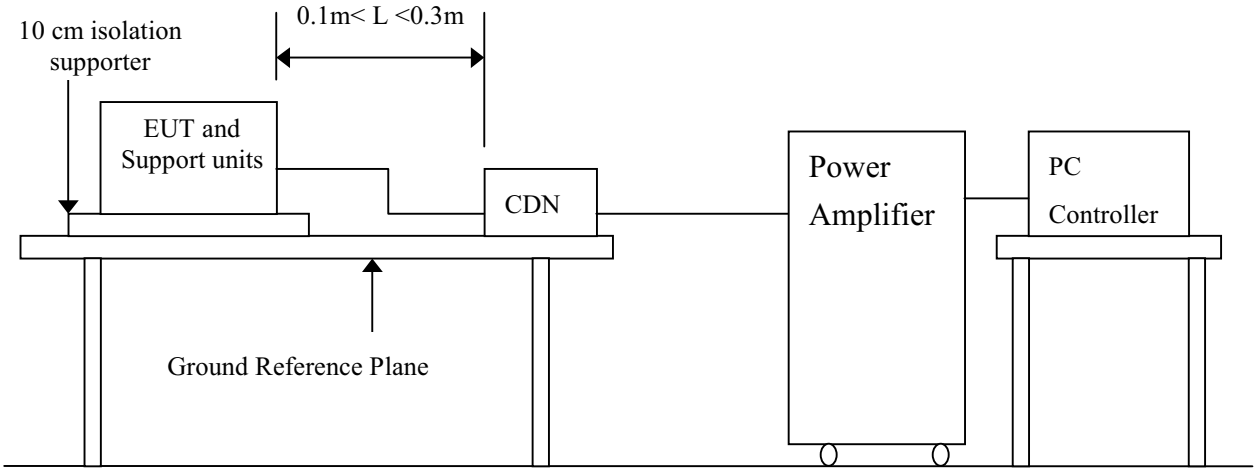
Observation: No any function degraded during the tests.

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

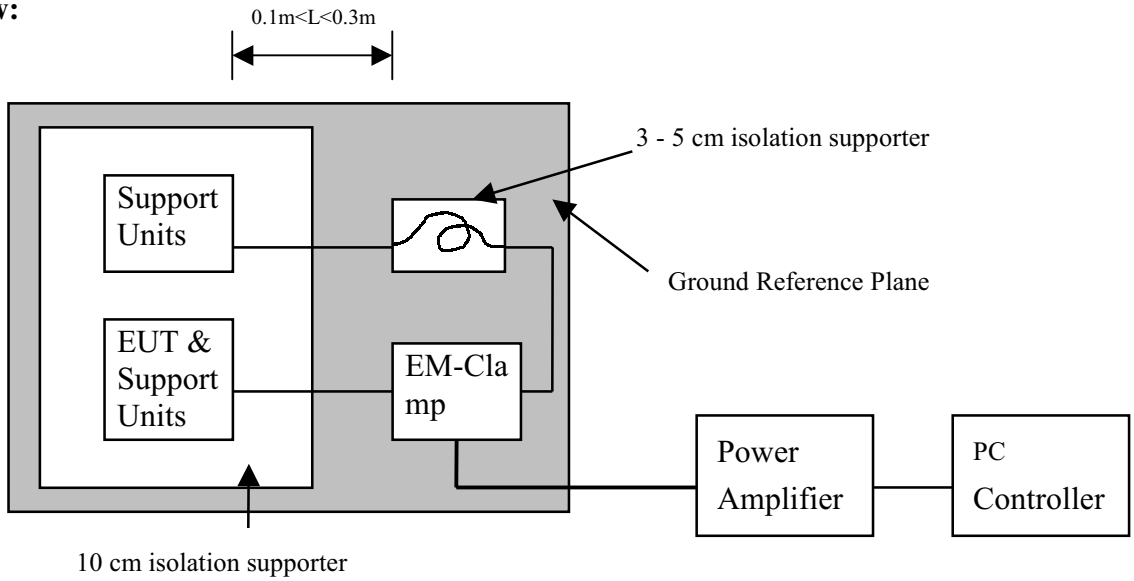
Port	**:** AC Port and Data Cable
Basic Standard	**:** IEC 61000-4-6
Requirements	**:** 10V with modulated
Injection Method	**:** CDN-M3 for Power Cord EM-Clamp for LAN Cable
Performance Criteria	**:** B (Standard require)
Tester	**:** Lung Tasi
Temperature	**:** 25°C
Humidity	**:** 53%

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. A 'H' messages were displayed on EUT.
3. Adjusting the monitoring camera to monitor the H message as clear as possible.
4. Setting the testing parameters of CS test software per IEC 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	10V	Yes	Pass

Performance & Result:

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

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

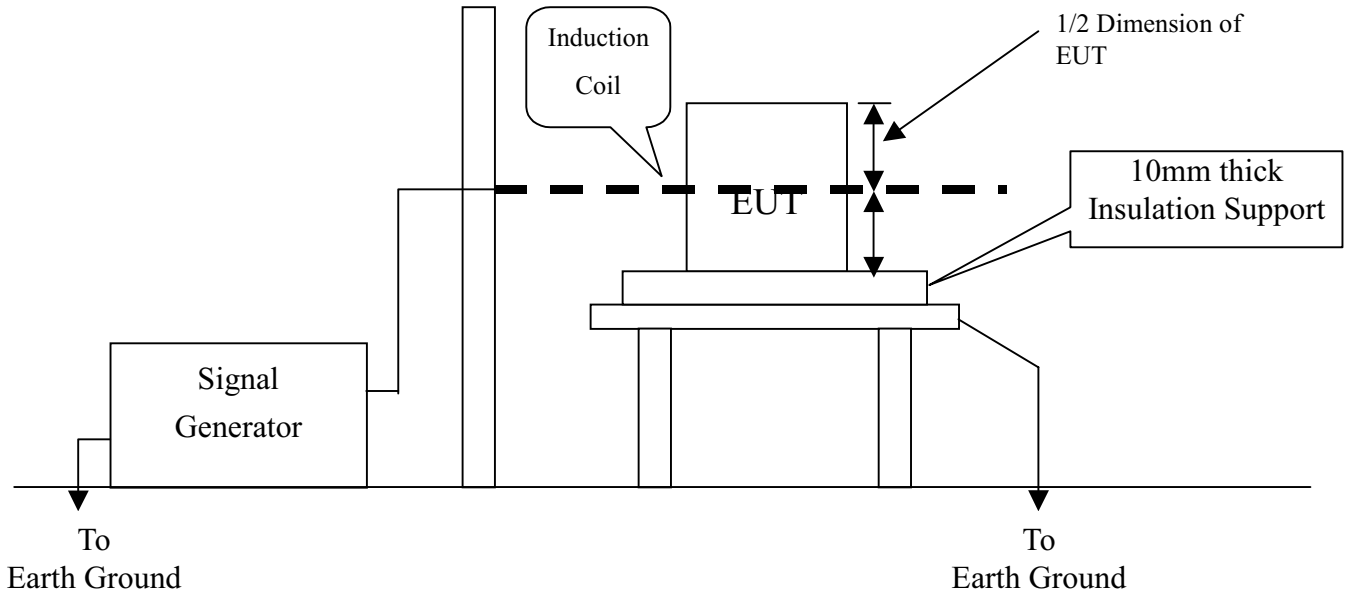
[ ] **Criteria C:** Temporary loss of function is allowed, provided the functions self-recoverable or can be restored by the operation of controls.

[V] ***PASS*** [ ] ***FAILED***
Observation: No any function degraded during the tests.

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

Port : Enclosure
Basic Standard : IEC 61000-4-8
Requirements : 30 A/m
Performance Criteria : A (Standard Required)
Temperature : 25°C
Humidity : 53%
Tested by : Lung Tsai

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 90° (Y direction) then repeat step 3 to 7.

Rotating the induction coil by 90° again (Z direction) then repeat step 3 to 7.

*. Test conditions:
Field Strength: 30A/m
Power Freq.: 50Hz
Orientation: X, Y, Z

Orientation	Field	Result (Pass/Fail)	Remark
X	30A	Pass	
Y	30A	Pass	
Z	30A	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 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

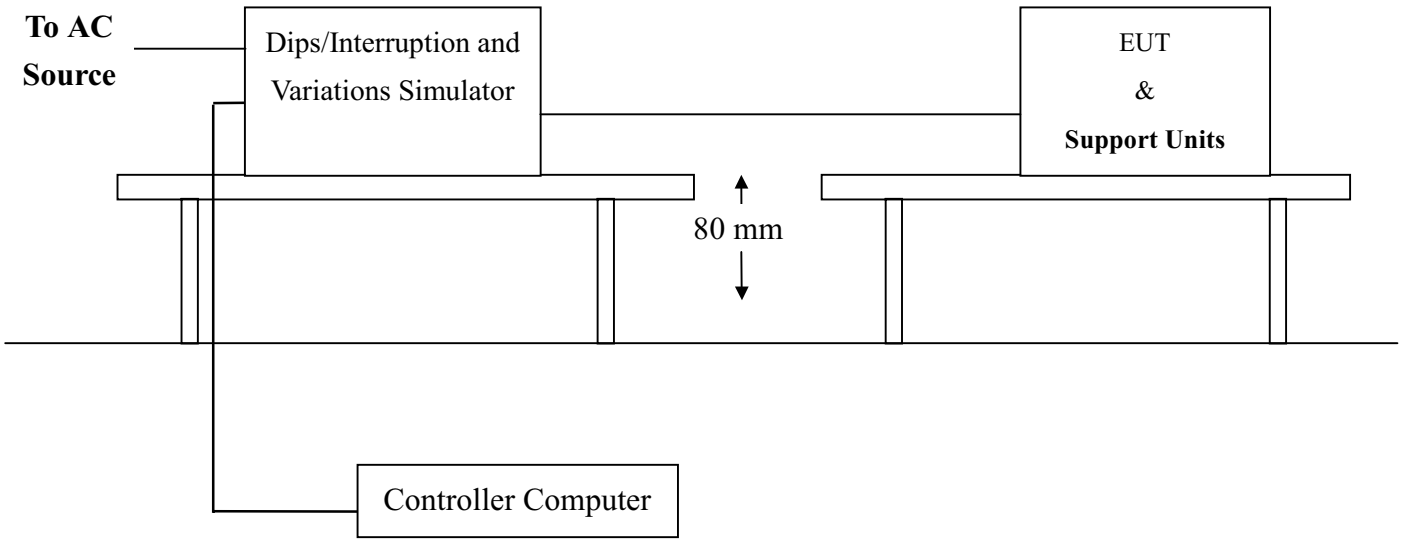
	Test Level % U_T	Reduction (%)	Duration	Performance Criteria
Voltage Dips (EN55024)	<5	>95	0.5(periods)	B
	70	30	25(periods)	C

	Test Level % U_T	Reduction (%)	Duration	Performance Criteria
Voltage Dips (EN61000-6-2)	70	30	10ms	B
	40	60	100 and 1000ms	C

	Test Level % U_T	Reduction (%)	Duration	Performance Criteria
Voltage Interceptions (EN55024) (EN61000-6-2)	<5	>95	250(periods) 5000ms	C

Test Interval: Min. 10 sec.
Tester: Lung Tasi
Temperature: 25°C
Humidity: 53%

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 test program exercised related support units sequentially.
4. Setting the parameter of tests and then executed the test software of test simulator.
5. Repeating step 3 to 4 through the test.
6. Recording the test result in test record form.

Test conditions:

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

Voltage Dips:

Test Level % U_T	Reduction (%)	Duration (periods)	Observation	Meet Performance Criteria
70	30	0.5(10ms)	Normal	A
40	60	5(100ms)	Normal	A
40	60	50(1000ms)	Normal	A

Voltage Interruptions:

Test Level % U_T	Reduction (%)	Duration (periods)	Observation	Meet Performance Criteria
0	95	250 (5000ms)	EUT shut down, but can be recovered by manual as the evens disappear.	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.

V	***PASS***
	FAILED

APPENDIX 1

PHOTOGRAPHS OF TEST SETUP

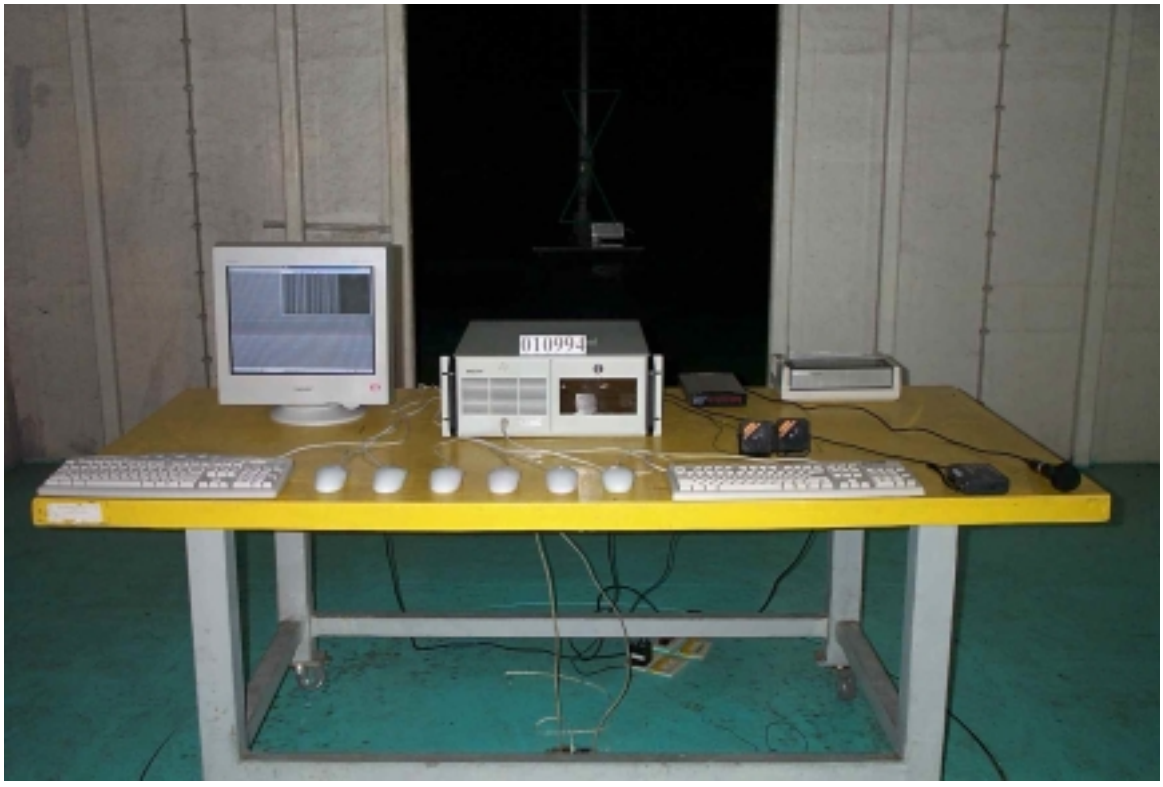
LINE CONDUCTED EMISSION TEST (EN55022)

Front View

Back View

RADIATED EMISSION TEST (EN55022)

Front View



Back View

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

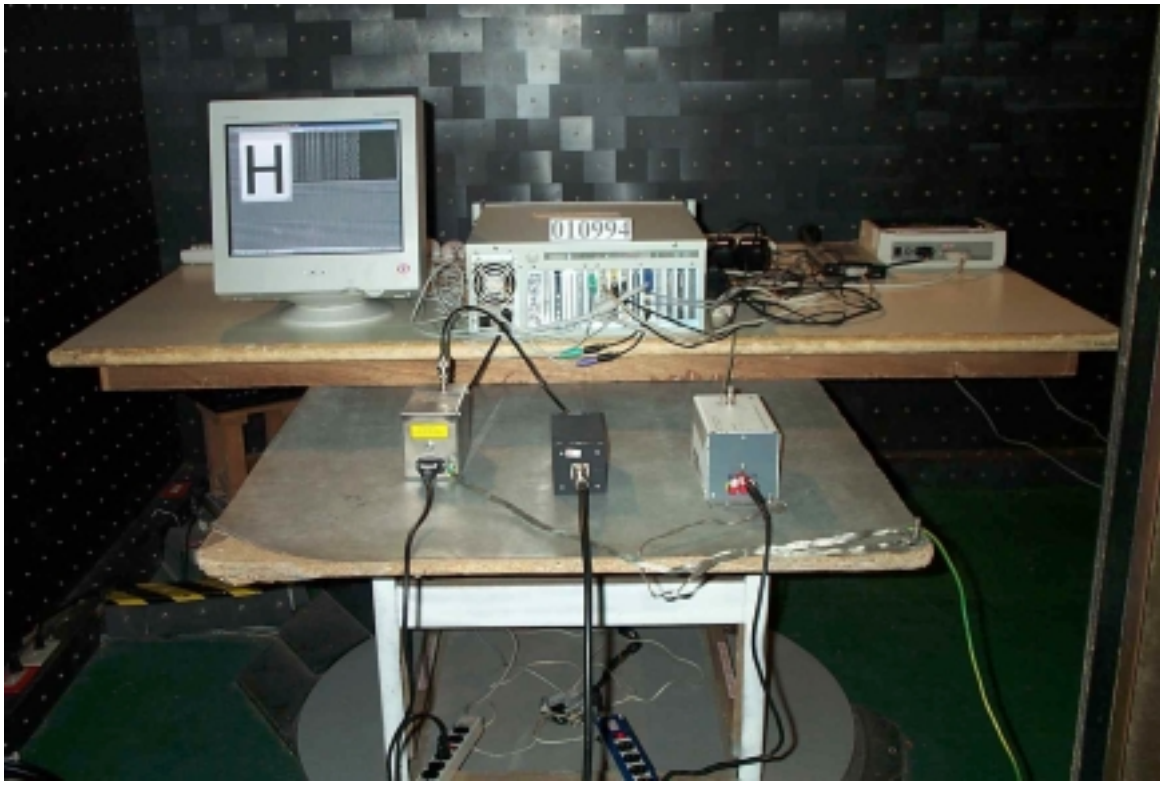
ELECTROSTATIC DISCHARGE TEST
(IEC 61000-4-2)

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

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

SURGE IMMUNITY TEST (IEC 61000-4-5)

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



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

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

APPENDIX 2

PHOTOGRAPHS OF EUT

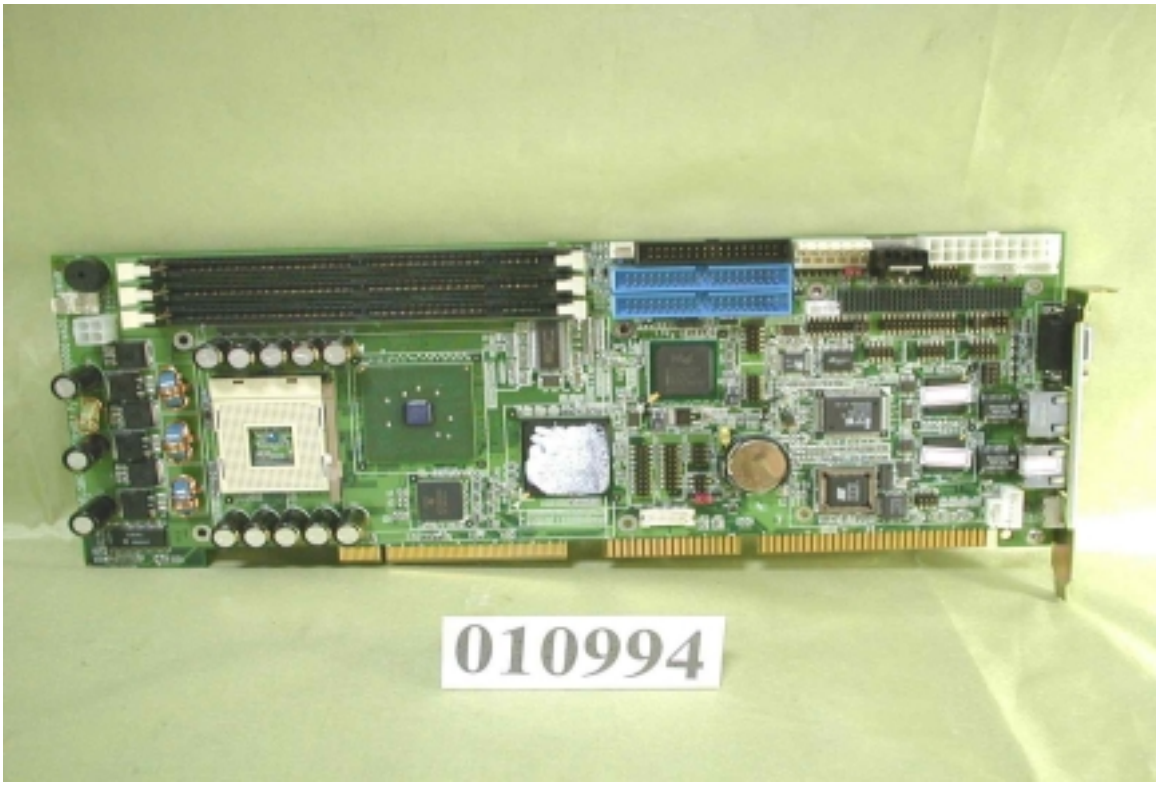
Front view of EUT

Back view of EUT

Open view of EUT

SBC-800 (N)

Front view of EUT

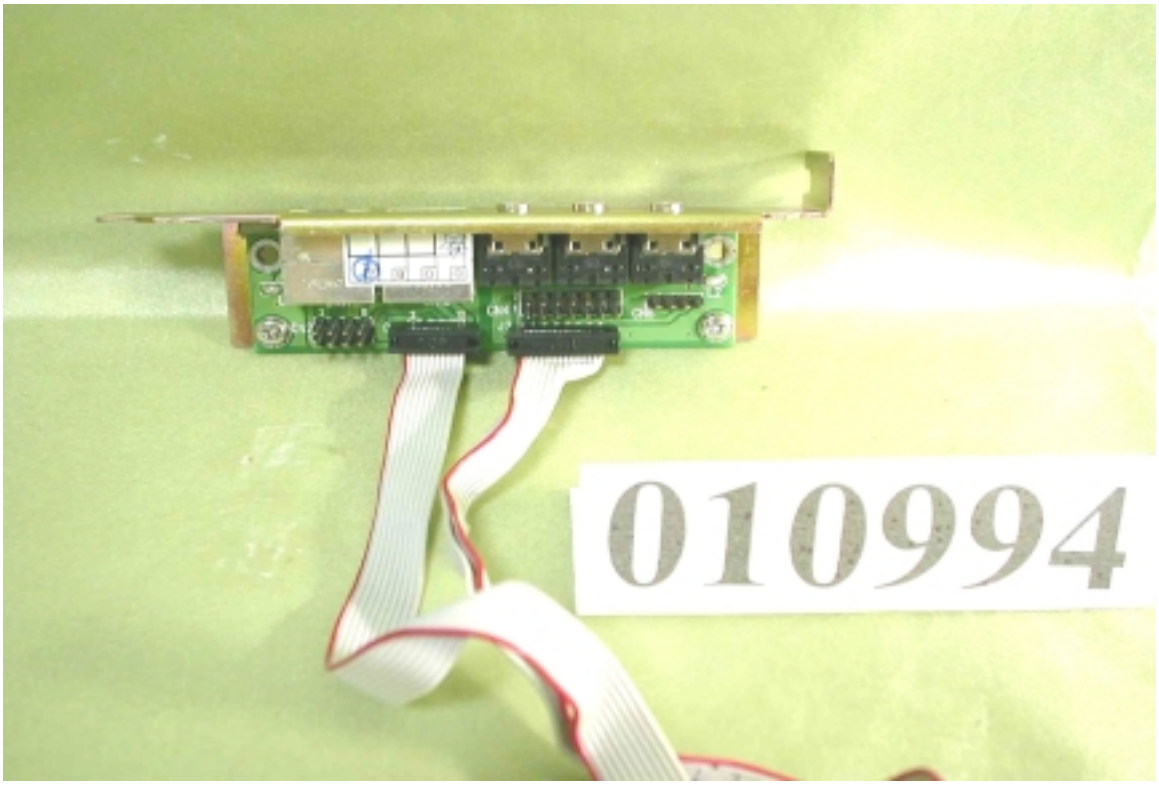


Back view of EUT

I/O Port of EUT

I/O Port of Sound Card

Front view of Sound Card



Back view of Sound Card