

TRC

Certificate of Compliance

Training Research Co., Ltd.

hereby certifies that

EMC TEST

486 CPU Module W/LAN+VGA

Model No.: CPC-2245L, CPC-2520, CPC-2460, CPC-2245V, CPC-2245N

Made by

ADVANTECH CO., LTD.

Fl.2, No.108-3, Ming-Chuan Road, Shing-Tien City, Taipei, Taiwan

is fulfilled

EMI: EN 50081-1/1994→EN 55022/1997→EN 61000-3-2/1995→EN 61000-3-3/1995

EMS: EN50082-1/1994→IEC1000-4-2/1995, IEC 1000-4-3/1997, ENV 50204/1996,

IEC1000-4-4/1995, IEC 1000-4-5/1995, IEC 1000-4-6/1996,

IEC 1000-4-8/1994, IEC 1000-4-11/1996

Test Date: Sep. 28, 1999

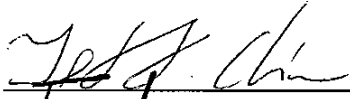
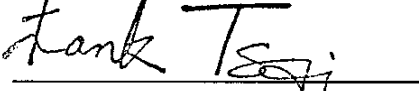
Certificate Registration No.: A55CE764

Oct. 13, 1999

Frank Tsai

General Manager, Frank Tsai

Training Research Co., Ltd. (NVLAP LAB CODE : 200174-0)

Report No.	A55CE764	
Specifications	EMC	
Applicant Address	Fl.2, No.108-3, Ming-Chuan Road, Shing-Tien City, Taipei, Taiwan	
Applicant	ADVANTECH CO., LTD.	
Items tested	486 CPU Module W/LAN+VGA	
Model No.	CPC-2245L, CPC-2520, CPC-2460, CPC-2245V, CPC-2245N (Sample # A55764)	
Results	Compliance (As detailed within this report)	
Sample received date	09/08/1999 (month / day / year)	
Prepared by		project engineer
Authorized by		General Manager (Frank Tsai)
Issue date	Oct. 13, 1999	(month / day / year)
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Tested by	Training Research Co., Ltd.	
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- (1) *This test report shall not be reproduced except in full, without written approval of TRC. And the test result contained within this report only relate to the sample submitted for testing.*
- (2) *This report must not be used by the client to claim product endorsement by NVLAP or any agency of U.S. Government.*
- (3) *This test report, measurements made by TRC are traceable to the NIST only Conducted and Radiated Method.*

★ NVLAP LAB CODE: 200174-0

Report No.: A55CE764, 486 CPU Module W/LAN+VGA, EMC

Test date: 09/28/99, Training Research Co., Ltd., TEL:886-2-26935155, Fax:886-2-26934440

Contents

Chapter 0 Emission and Susceptibility Standards	3
Chapter 1 Introduction	
Description of EUT	4
Configuration of Test Setup	5
List of Support Equipment	6
Chapter 2 Conducted Emission Test	
Test Condition and Setup	8
Conducted Test Placement	9
Chapter 3 Radiated Emission Test	
Test Condition and Setup	10
Radiated Test Placement	11
Chapter 4 Radio Frequency Immunity Test (RS test)	12
IEC 1000-4-3/ENV 50204 Photo of Test Set-Up	13
Chapter 5 Electrical Fast Transient/Burst Test (EFT test)	14
IEC 1000-4-4 Photo of Test Set-Up	15
Chapter 6 Electrostatic Discharges Immunity Test.....	16
IEC 1000-4-2 Photo of Test Set-Up	17
Chapter 7 Surge Immunity Test.....	18
IEC 1000-4-5 Photo of Test Set-Up	19
Chapter 8 Continuous Wave Voltage Immunity Test.....	20
IEC 1000-4-6 Photo of Test Set-Up	21
Chapter 9 Power Frequency Magnetic Field Immunity Test.....	22
IEC 1000-4-8 Photo of Test Set-Up	23
Chapter 10 Voltage DIP / Interruption Immunity Test.....	24
IEC 1000-4-11 Photo of Test Set-Up	25
Chapter 11 Harmonics Test.....	26
Chapter 12 Voltage Fluctuation and Flicker Test.....	27
 Appendix A:	
Conducted test result	28
Appendix B:	
Radiated test result	31
Appendix C:	
Photograph of EUT	33

Chapter 0 Emission and Susceptibility Standards

Emission Standards

Emission Standard	European Standard	International Standard
(X)	EN 50081-1/1994	
()	EN 50081-1/8.93	
()	EN 55014/4.93	CISPR 14: 1993
()	EN 55015/12.93	CISPR 15: 1992
()	EN 55011/91	CISPR 11: 1990
(X)	EN 55022/97	CISPR 22: 1997
(X)	EN 61000-3-2/1995	IEC 1000-3-2: 1995
(X)	EN 61000-3-3/1995	IEC 1000-3-3: 1994

Susceptibility Standards

Susceptibility Standard	European Standard	International Standard
(X)	EN 50082-1/1994	
()	EN 50082-1/1992	
()	EN 50082-2/1994	
()		IEC 801-2/1984
()		IEC 801-3/1984
()		IEC 801-4/1988
()		IEC 804-5
(X)	ENV 50140/50204:1993/1996	IEC 1000-4-3
(X)	EN 61000-4-2:1995	IEC 1000-4-2
(X)	EN 61000-4-4:1995	IEC 1000-4-4
(X)	ENV 50142:1995	IEC 1000-4-5
(X)	ENV 50141:1996	IEC 1000-4-6
(X)	EN 61000-4-8:1994	IEC 1000-4-8
(X)	EN 61000-4-11:1996	IEC 1000-4-11
()	EN 55014-2:1993	CISPR/F (Sec) 159
()		

Chapter 1 Introduction

Description of EUT:

The EUT is designed for use in the industrial environment. The CPU of EUT is STPC 166. It has one Ethernet connector, two RS-232 connectors, one keyboard connector and one VGA connector. For more information, please refer to the user's manual.

The differences around the models: CPC-2245L 16MB RAM without LAN, CPC-2245V 32MB RAM without LAN, CPC-2245N 16MB with LAN, CPC-2520 VGA/LCD Module, CPC-2460 half size card.

Connections of EUT:

- (1) Put the EUT into the ISA bus of the backplane that installed in a metal IPC case and screw it.
- (2) FDD jack of backplane connects with a 3.5' floppy disk.
- (3) HDD jack of backplane connects with a hard disk.
- (4) AT power port of backplane connects with the power supply.
- (5) Keyboard port of EUT connects with a keyboard.
- (6) The serial A port of EUT is connected with a serial mouse.
- (7) Ethernet connector is connected with a RJ-45 cable left terminated.
- (8) The serial B port of EUT is connected with an external modem.
- (9) The VGA connector of EUT is connected with a monitor.

Test method:

During the measurement, the following modes were tested: VGA display resolution 640 x 480, 1024 x 768 and 1600 x 1200. The pretest was found out that the testing mode: "1600 x 1200" was the worst case.

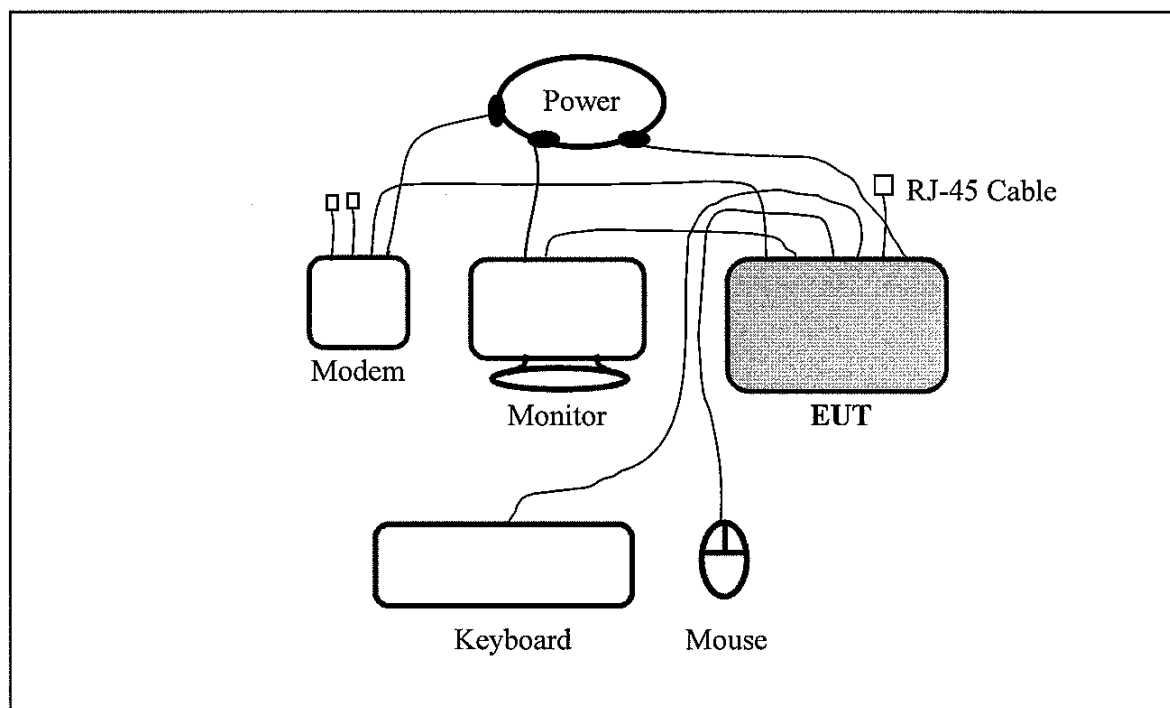
Pretest was found that the emission of operating mode is worse than standby mode. So, The final test is made at the operating mode.

While testing, the system board was operated by the software that applicant provides. The system sends " H " pattern to monitor and monitor display " H " pattern on screen. It also sends " H " pattern to two modems. This software will enable all functions.

The test placement as the photographs showed is the worst case emission placed. (If the emission is close to the ambient, the resolution BW and view resolution will be reduced and the data will be recorded by detection of maximum hold peak mode.)

The testing configuration of test setup is showing in the next page.

Configuration of test setup



Connections:

EUT:

- *Serial A port --- a combo mouse with 1.5m length data cable
 - *Serial B port --- via 76 cm long, shielded, RS-232 cable to an external modems.
 - *Keyboard port --- a Keyboards with 1m length data cable, with ferrite core.
 - *Monitor port --- a monitor with 0.7m long data cable, with ferrite core.
 - *RJ-45 jack --- via 1m long, non-shielded, no ferrite core, RJ-45 cable
left unterminated
- (Each port on PC is connected with suitable device)

List of support equipment:

Conducted (Radiated) test:

Monitor : CHUNTEX ELECTRONIC CO., LTD.

Model No. : 1792UA

Serial No. : 0S0-84300157

FCC ID : DBL1792UA

Power type : 230VAC, Switching

Power cord : Non-shielded, 3m long, no ferrite core

Data cable : Shielded, 1.8m long, with 2 ferrite cores

Modem : ACEEX

Model No. : XDM-9624

FCC ID : IFAXDM-9624

Power type : 230VAC / 9VAC, 1A

Power cord : Non – Shielded. 1.9m long, no ferrite core

Power cable : RS232, Shielded, 1.2m long, no ferrite core
RJ11C x 2, 7' long, non-shielded, no ferrite core

Keyboard : HP

Model No. : SK-2501K

Serial No. : MR80700789 (M990308909)

FCC ID : GYUR38SK

檢磁 : 3862A621

Power type : By PC

Data cable : Shielded, 1.73m long, with ferrite core

Mouse : HP

Model No. : M-S34

Serial No. : LZB90714106 (LZB90714122)

FCC ID : DZL211029

檢磁 : 4862A011

Power type : By PC

Power cord : Non-shielded, 1.88m long, No ferrite core

IPC Case : **Advantech**

Model No. : IPC-610

Serial No. : 95318341

H.D.D. : **Quantum**

Model No. : Fireball

Serial No. : 375907270759

Power type : By PC

Data cable : Non-shielded, 45cm long, with no ferrite core

F.D.D. : **TEAC**

Model No. : FD-235HF

Serial No. : 0794968

Power type : By PC

Data cable : Non-shielded, 45cm long, with no ferrite core

Backplane : **Advantech**

Model No. : PCA-6104NP2

Serial No. : 1906610401

Chapter 2 Conducted emission test

Test condition and setup:

All the equipment is placed and setup according to the EN 55022.

The EUT is assembled on a wooden table, which is 80 cm high, is placed 40 cm from the back-wall that is a vertical conducting plane. One LISN is for EUT, the other LISN is for support equipment. They are all placed on the conductive ground. The EUT's LISN connect a line switch box for selecting L1 or L2, then connect to a preamplifier and spectrum.

The spectrum scans from 150KHz to 30MHz. Conducted emission levels are detected at max. peak mode . But if the max. peak mode failed or over average limit, it will be measured by average detection mode.

While testing, there is the worst-emission plot printed at peak detection mode, and there are more than 6 highest emissions relative to limit recorded. The plot is kept as the original data, not included in test report.

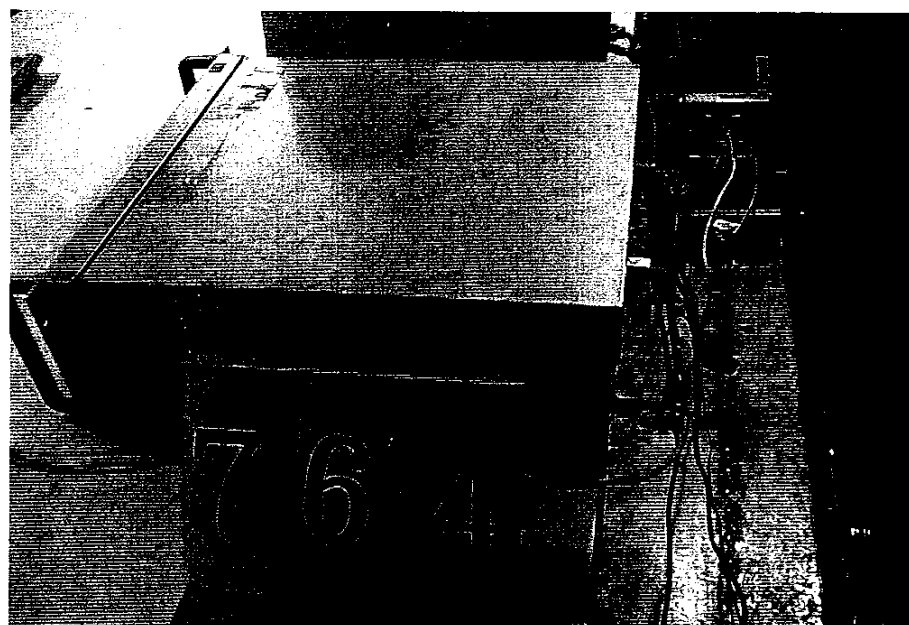
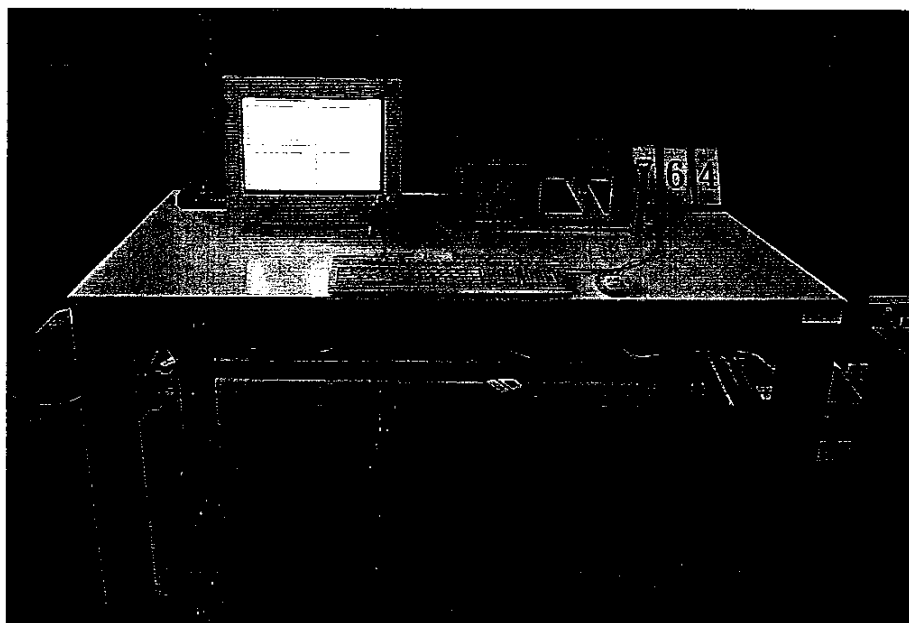
List of test Instrument :

Instrument Name	Model No.	Brand	Serial No.	<u>Calibration Date</u>	
				Last time	Next time
Spectrum analyzer	8591EM	H P	3619A00821	10/29/98	10/29/99
LISN (EUT)	3825/2	EMCO	9411-2284	05/20/99	05/20/00
LISN (Support E.)	3825/2	EMCO	9210-2007	05/20/99	05/20/00
Preamplifier	8447F	H P	2944A03706	05/20/99	05/20/00
Line switch box	AC1-003	TRC	-----	05/20/99	05/20/00
Line selector	AC1-002	TRC	-----	05/20/99	05/20/00

The level of confidence of 95% , the uncertainty of measurement of conducted emission is ± 2.4 dB .

Test Result: Pass (Appendix A)

Conducted Test Placement: (Photographs)



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Chapter 3 Radiated emission test

Test condition and setup:

Pretest: Prior to the final test (OATS test), the EUT is placed in a shielded enclosure, and scan from 30MHz to 1GHz. This is done to ensure the radiation is exactly emitted from the EUT.

Final test : Final radiation measurements is made on a **10 – meter**, open-field test site. The EUT is placed on a nonconductive table, which is 0.8m height, the top surface is 1.0 x 1.5 meter. All the placement is according to EN 55022.

The spectrum is examined from 30 MHz to 1000 MHz measured by HP spectrum.

The EMCO whole range Antenna is used to measure frequency from 30 MHz to 1GHz. The final test is used the spectrum analyzer.

Measure more than six top marked frequencies generated form pretest by computer step by step at each frequency. The EUT is rotated 360 degrees, and antenna is raised and lowered from 1 to 4 meters to find the maximum emission levels. The antenna is used with both horizontal and vertical polarization.

Appropriated preamplifier which is made by TRC is used for improving sensitivity and precautions is taken to avoid overloading .The spectrum analyzer's 6dB bandwidth is set to 120 K Hz , and the EUT is measured at quasi-peak mode.

If the emission is close to the frequency band of ambient, the data will be rechecked by the tester and the corrected data will be written in the test data sheet. If the emission is just within the ambient , the data from shielded room will be taken as the final data.

List of test Instrument :

Instrument Name	Model No.	Brand	Serial No.	<u>Calibration Date</u>	
				Last time	Next time
Spectrum analyzer	8591EM	H P	3710A01203	01/29/99	01/29/00
Spectrum analyzer	8568B	H P	3004A18617	05/18/99	05/18/00
Quasi-peak Adapter	85650A	H P	2521A00984	05/18/99	05/18/00
RF Pre-selector	85685A	H P	2947A01011	05/18/99	05/18/00
Antenna (30M-1.5G Hz)	VULB 9160	M.E.	3064	01/20/99	01/20/00
Open test side (Antenna, Amplify, cable calibrated together)				05/20/99	05/20/00

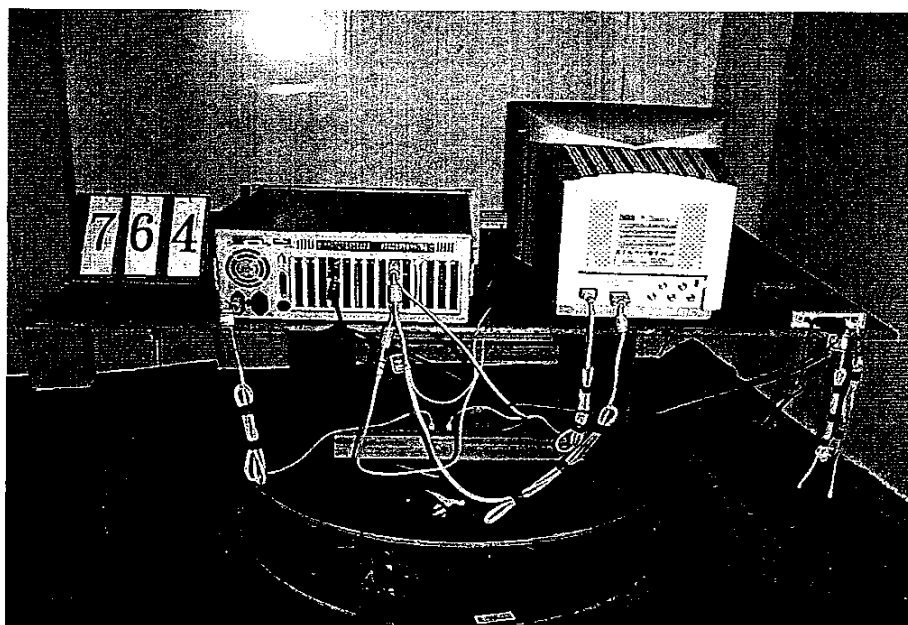
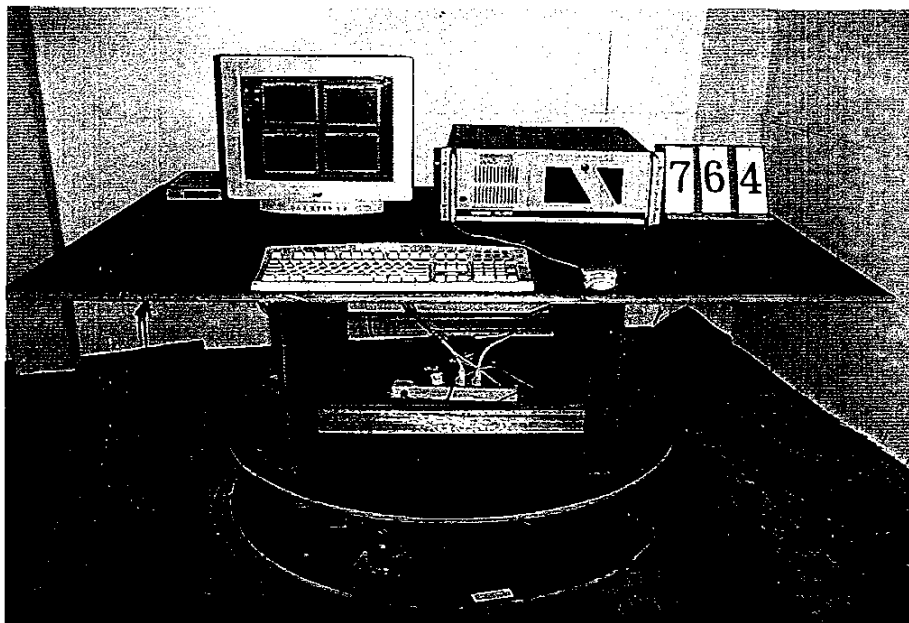
The level of confidence of 95% , the uncertainty of measurement of radiated emission is ± 4.96 dB .

Test Result: Pass (Appendix B)

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Radiated Test Placement: (Photographs)



Report No.: A55CE764, 486 CPU Module W/LAN+VGA, EMC

Test date: 09/28/99, Training Research Co., Ltd., TEL:886-2-26935155, Fax:886-2-26934440

Chapter 4 Radio Frequency Immunity Test (RS)

Test information:

Test setup: GTEM Cell (According to IEC 1000-4-3 / ENV 50204)

Test Frequency: ☒ 80 ~ 1000 MHz
 ☐ 27 ~ 500 MHz Without Modulation

Modulation: ☐ FM%
 ☒ 80% AM Modulation with 1KHz
 ☒ 900 MHz \pm 5 MHz with PM 200 Hz and 50% duty cycle

Step size: ☒ \leq 1% step size

Sweep time: ☒ 2.5 Second

Field strength: ☐ 1V/m ☐ 3V/m ☒ 10V/m

Test mode: Ref. Test method of Chapter 1

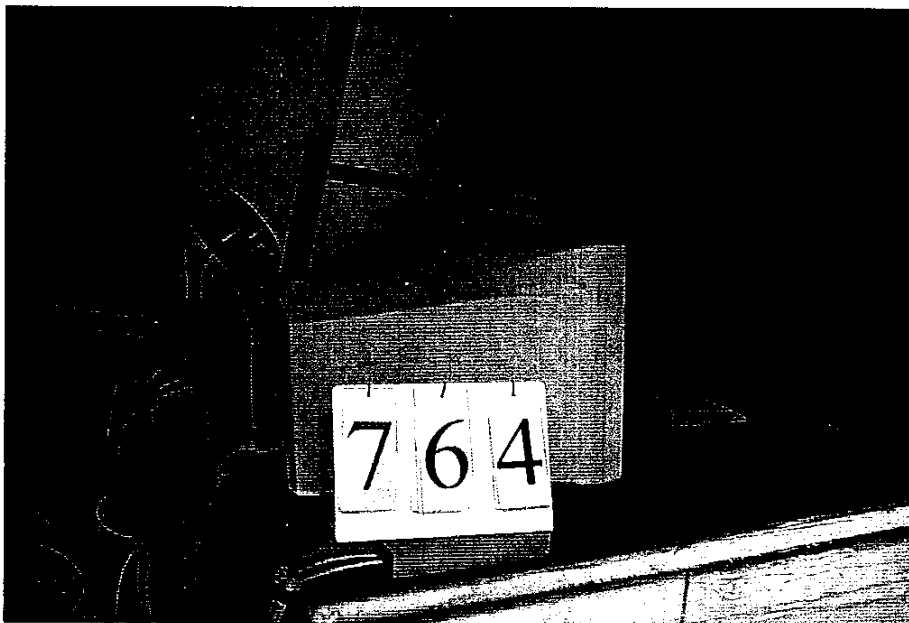
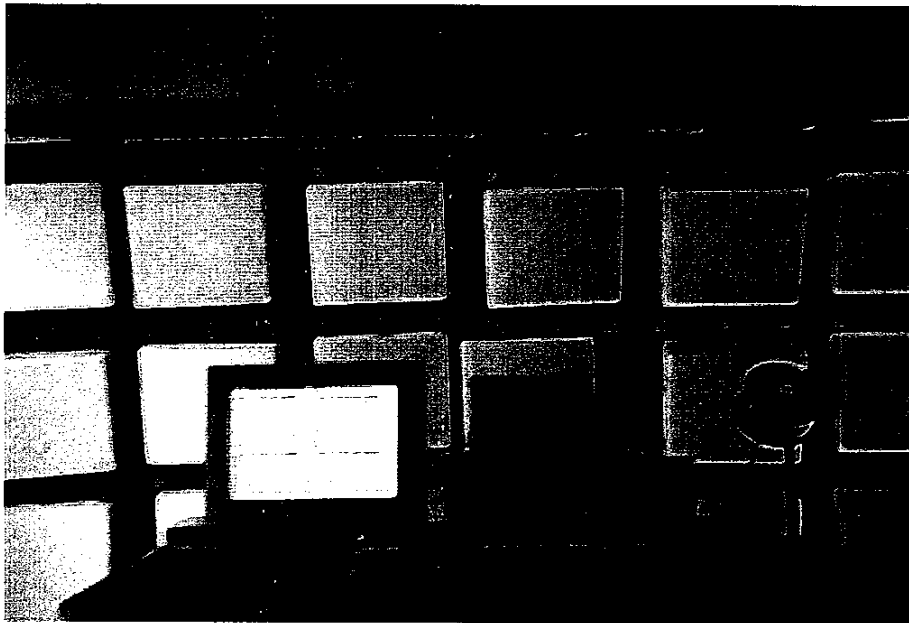
Test instruments:

Name	Model Number	Serial Number	Selected
EMCO GTEM	5317	9411-1123	X
EMCO Probe	7122	9406-1194	X
EMCO METERING UNIT	7122	9406-1194	X
EMCO data interface	7110	9410-1273	X
HP Personal Computer	D3178A	3438S00486	X
HP Signal Generator	8657B	2928U00286	X
IFI Wideband Amplifier	SMX50	467-0795	X

Comment:

Performance Criteria: ☒ A ☐ B ☐ C

IEC 1000-4-3/ ENV 50204 PHOTO OF TEST SET-UP



Chapter 5 Electric Fast Transient/Burst Requirements Test

Test information:

Test setup: According to IEC 1000-4-4

Test Voltage: DC Power line () 0.5 KV, 5 KH

AC Power line (X) 2 KV, 5 KHz

Signal & Control line () 0.5 KV, 5 KHz

() 1 KV, 5 KHz

Polarity: (X) Positive (X) Negative

Test Duration: (X) 1 minute () 3 minutes

Connected lines: () Power line shielded (X) Power line non-shielded

() Signal & Control line non-shielded () Signal & Control line shielded

Test mode: Ref. Test method of Chapter 1.

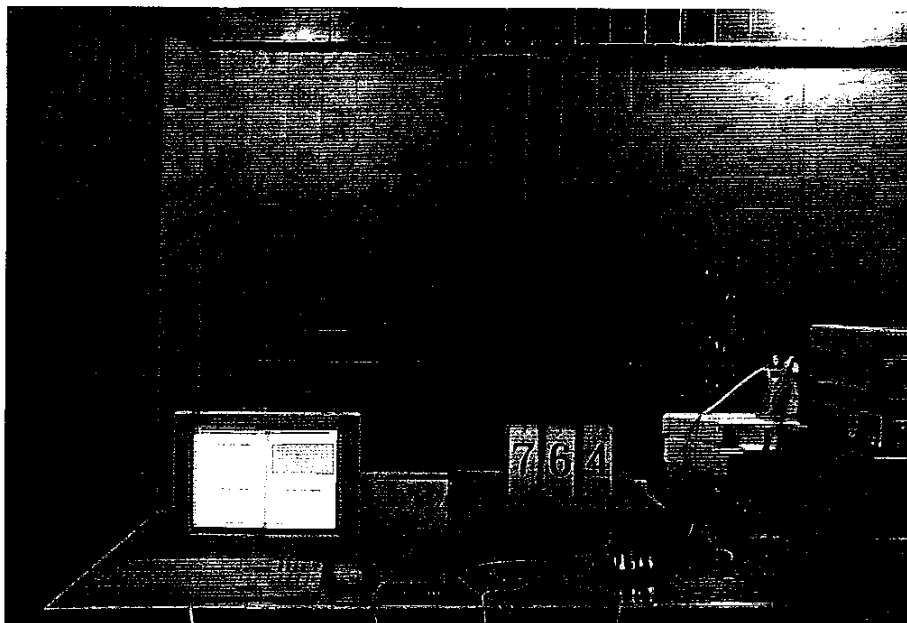
Test instrument:

Name	Model Number	Serial Number	Selected
Best Plus BURST ESD SURGE TRANSIENTS	Best Plus V6.2	199749-019SC	X

Comment:

Performance Criteria: () A (X) B () C

IEC 1000-4-4 PHOTO OF TEST SET-UP



Report No.: A55CE764, 486 CPU Module W/LAN+VGA, EMC

Test date: 09/28/99, Training Research Co., Ltd., TEL:886-2-26935155, Fax:886-2-26934440

Chapter 6 Electrostatic Discharges Immunity Test

Test information:

Test setup: According to IEC 1000-4-2

Test Voltage: (X) 8KV contact discharge

(X) 15KV air discharge

Indirect Discharges: (X) HCP

(X) VCP

Polarity: (X) positive (X) negative

Test mode: Ref. Test method of Chapter 1

Test points: Each port of EUT, Case and Screw.

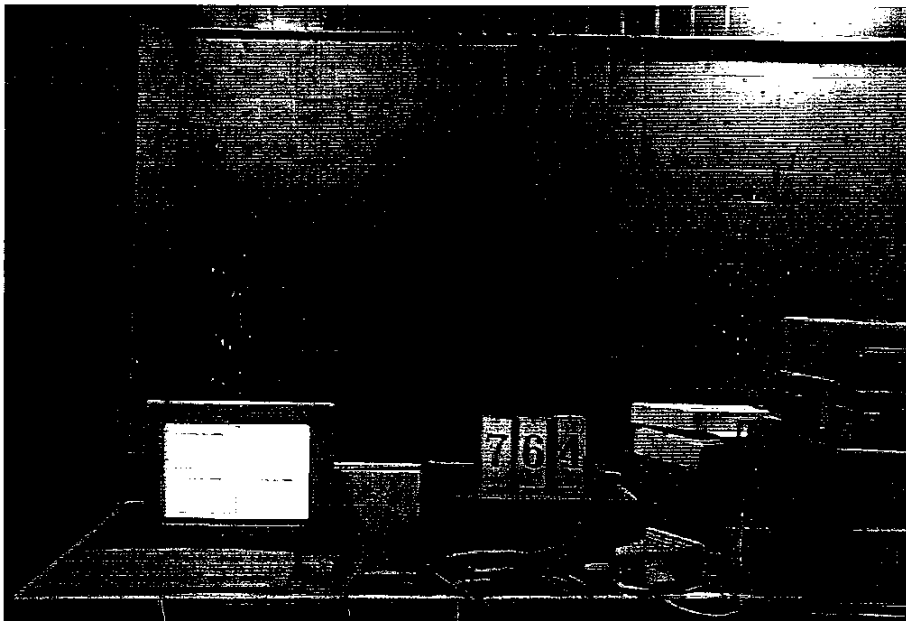
Test instruments:

Name	Model Number	Serial Number	Selected
Best Plus BURST ESD SURGE TRANSIENTS	Best Plus V6.2	199749-019SC	X

Comment:

Performance Criteria: () A (X) B () C

IEC 1000-4-2 PHOTO OF TEST SET-UP



Report No.: A55CE764, 486 CPU Module W/LAN+VGA, EMC

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Chapter 7 Surge Immunity Test

Test information:

Test setup: According to IEC 1000-4-5

Test Voltage: DC Power line () 0.5 KV

AC Power line (X) 2 KV

Control line () 0.5 KV

Signal () 2 KV

Time : (X) 1.2/50 μ s (8/20 μ s)

Polarity: (X) Positive (X) Negative

Connected lines: () Power line shielded (X) Power line non-shielded

() Signal & Control line non-shielded () Signal & Control line shielded

Test mode: Ref. Test method of Chapter 1.

Test instrument:

Name	Model Number	Serial Number	Selected
BEST EMC Test Instrument	BEST EMC V2.3 (-8, -9)	199918-006SC	X
Induction Coil	INA 701 BEST	199922-001SC	X

Comment:

Performance Criteria: () A (X) B () C

IEC 1000-4-5 PHOTO OF TEST SET-UP



Report No.: A55CE764, 486 CPU Module W/LAN+VGA, EMC

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Chapter 8 Continuous Wave Voltage Immunity Test

Test information:

Test setup: According to EN 61000-4-6

Test Frequency: ☒ 0.15 ~ 80MHz

Modulation: ☐ FM %
 ☒ 80% AM Modulation with 1KHz
 ☐ 900 MHz \pm 5 MHz with PM 200 Hz and 50% duty cycle

Step size: ☒ \leq 1% step size

Field strength: ☐ 1V/m ☐ 3V/m ☒ 10V/m

Test mode: Ref. Test method of Chapter 1

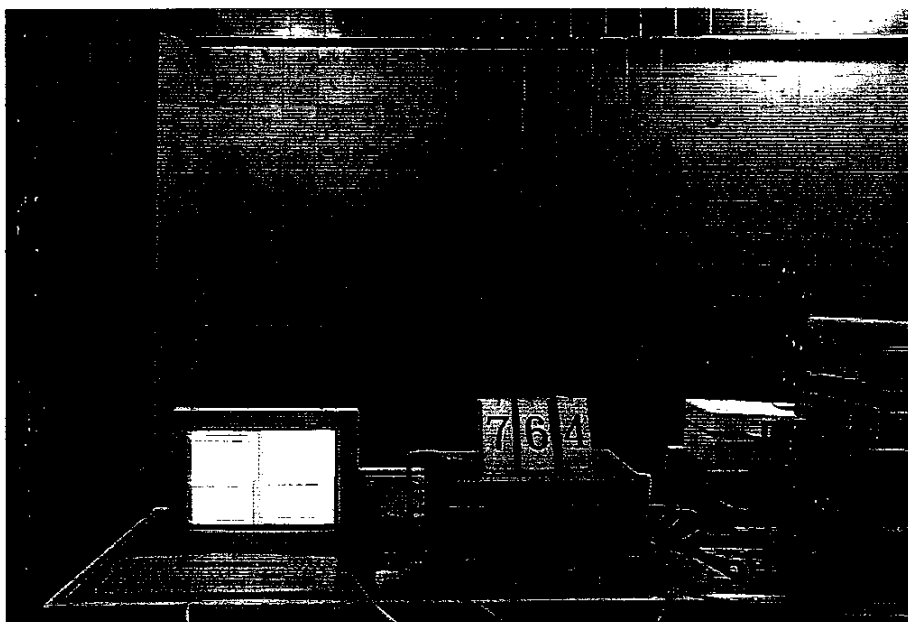
Test instruments:

Name	Model Number	Serial Number	Selected
Signal Generator	HP 8648A	3531	X
Amplifier	ComTest	Switch sub-system	X
CDN	3pin	N/A	X

Comment:

Performance Criteria: ☒ A ☐ B ☐ C

IEC 1000-4-6 PHOTO OF TEST SET-UP



Chapter 9 Power Frequency Magnetic Field Immunity Test

Test information:

Test setup: According to IEC 1000-4-8

Test method : (X) Continuous () Short duration

Magnetic Field Strength: (X) 3A/m

Frequency: 50Hz

polarization: (X) X polarization (X) Y polarization (X) Z polarization

Test mode: Ref. Test method of Chapter 1

Test Duration: (X) 30 seconds () 1~3 seconds

Connected lines: () Power line shielded (X) Power line non-shielded
(X) Signal & Control line non-shielded () Signal & Control line shielded

** Power Frequency Magnetic Field in the horizontal and vertical polarity.**

Test instruments:

Name	Model Number	Serial Number	Selected
BEST EMC Test Instrument	BEST EMC V2.3 (-8, -9)	199918-006SC	X
Induction Coil	INA 701 BEST	199922-001SC	X

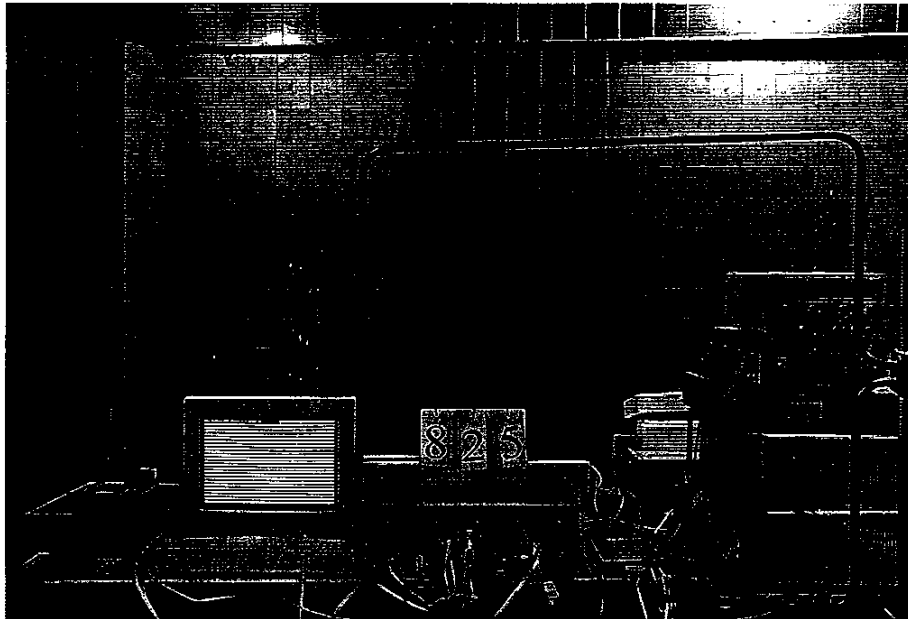
Comment:

Performance Criteria: (X) A () B () C

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Test date: 09/28/99, Training Research Co., Ltd., TEL:886-2-26935155, Fax:886-2-26934440

IEC 1000-4-8 PHOTO OF TEST SET-UP



Chapter 10 Voltage DIP / Interruption Test

Test information:

Test setup: According to IEC 1000-4-11

Voltage Reduction / Time: (X) > 95% , 5s
 (X) 30%, 10ms
 (X) 60%, 100ms

Test mode: Ref. Test method of Chapter 1

Test instruments:

Name	Model Number	Serial Number	Selected
BEST EMC Test Instrument	BEST EMC V2.3 (-8, -9)	199918-006SC	X
Induction Coil	INA 701 BEST	199922-001SC	X

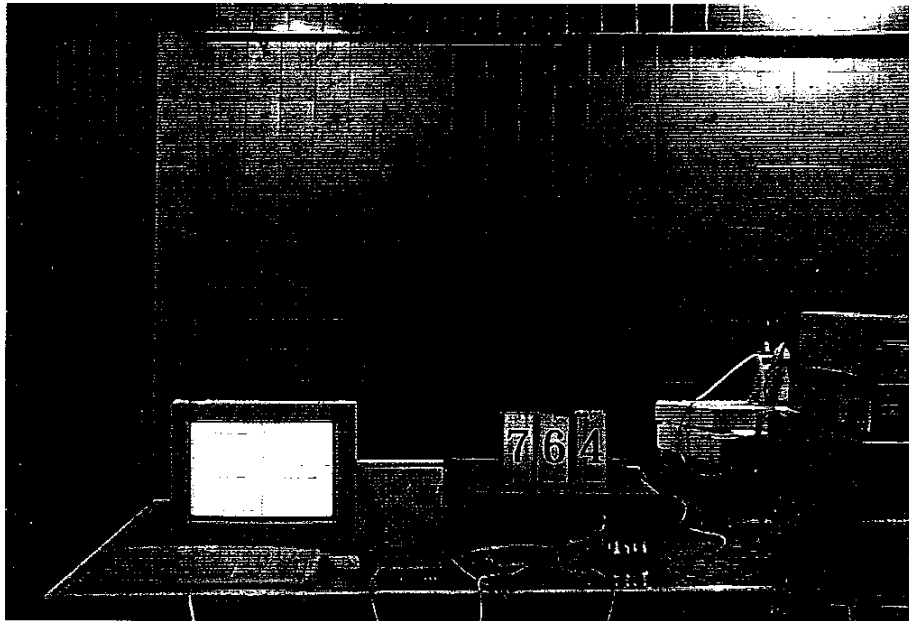
Comment:

Performance Criteria:	(1) >95% →	() A	() B	(X) C
	(2) 30% →	() A	(X) B	() C
	(3) 60% →	() A	(X) B	() C

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IEC 1000-4-11 PHOTO OF TEST SET-UP



Chapter 11 Harmonics Test

Test information:

Test setup: According to EN 61000-2-2

Test Item: Quasi – stationary & Fluctuating Current Harmonics Test.

Test mode: Ref. Test method of Chapter 1

Test instrument:

Name	Model Number	Serial Number	Selected
Harmonic/Flicker Test System	HP 6842A	3531A-00102	×

Test Equipment Settings:	Quasi-stationary Current Harmonics Test	Fluctuating Current Harmonics Test
Line Voltage	230VAC	230VAC
Line Frequency	50Hz	50Hz
Device Class	D	D
Test Limit Overrides	None	None
Total Number of Failures:	None	None
Total Number of Errors:	None	None

Test Result: PASS

Chapter 12 Voltage Fluctuation and Flicker Test

Test information:

Test setup: According to EN 61000-2-3

Test mode: Ref. Test method of Chapter 1

Test instrument:

Name	Model Number	Serial Number	Selected
Harmonic/Flicker Test System	HP 6842A	3531A-00102	×

Test Equipment Settings:	
Line Voltage	230VAC
Line Frequency	50Hz
Test Limit Overrides	None
Total Number of Failures:	Pst: (0), Plt: (0)
	Dc: (0), Dmax (0), Dt (0)
Total Number of Errors:	None

Test Result: PASS

Appendix A**Conducted Emission Test Result: (VGA Display Resolution 640 x 480)**

Testing room : Temperature : 23 ° C Humidity : 43 % RH

Line 1

Frequency (KHz)	READING AMPLITUDE			LIMIT		Margin (dB)
	Peak (dB μ V/m)	Quasi-Peak (dB μ V/m)	Average (dB μ V/m)	Quasi-Peak (dB μ V/m)	Average (dB μ V/m)	
152.00	44.43	***. **	***. **	79.00	66.00	-21.57
165.00	43.18	***. **	***. **	79.00	66.00	-22.82
174.00	42.60	***. **	***. **	79.00	66.00	-23.40
188.00	44.72	***. **	***. **	79.00	66.00	-21.28
308.00	42.05	***. **	***. **	79.00	66.00	-23.95
620.00	36.83	***. **	***. **	73.00	60.00	-23.17
868.00	37.05	***. **	***. **	73.00	60.00	-22.95
1120.00	37.36	***. **	***. **	73.00	60.00	-22.64
1365.00	36.91	***. **	***. **	73.00	60.00	-23.09
1612.00	36.25	***. **	***. **	73.00	60.00	-23.75

Line 2

Frequency (KHz)	READING AMPLITUDE			LIMIT		Margin (dB)
	Peak (dB μ V/m)	Quasi-Peak (dB μ V/m)	Average (dB μ V/m)	Quasi-Peak (dB μ V/m)	Average (dB μ V/m)	
151.00	44.90	***. **	***. **	79.00	66.00	-21.10
155.00	44.16	***. **	***. **	79.00	66.00	-21.84
161.00	43.52	***. **	***. **	79.00	66.00	-22.48
179.00	42.39	***. **	***. **	79.00	66.00	-23.61
185.00	43.41	***. **	***. **	79.00	66.00	-22.59
189.00	43.59	***. **	***. **	79.00	66.00	-22.41
308.00	43.25	***. **	***. **	79.00	66.00	-22.75
620.00	36.78	***. **	***. **	73.00	60.00	-23.22
1120.00	36.39	***. **	***. **	73.00	60.00	-23.61
1365.00	36.35	***. **	***. **	73.00	60.00	-23.65

* The reading amplitudes are all under average limit.

Conducted Emission Test Result: (VGA Display Resolution 1024 x 768)**Line 1**

Frequency (KHz)	READING AMPLITUDE			LIMIT		Margin (dB)
	Peak (dB μ V/m)	Quasi-Peak (dB μ V/m)	Average (dB μ V/m)	Quasi-Peak (dB μ V/m)	Average (dB μ V/m)	
154.00	44.40	***. **	***. **	79.00	66.00	-21.60
185.00	43.21	***. **	***. **	79.00	66.00	-22.79
191.00	42.07	***. **	***. **	79.00	66.00	-23.93
310.00	44.08	***. **	***. **	79.00	66.00	-21.92
620.00	37.42	***. **	***. **	73.00	60.00	-22.58
868.00	36.96	***. **	***. **	73.00	60.00	-23.04
1120.00	37.21	***. **	***. **	73.00	60.00	-22.79
1365.00	36.88	***. **	***. **	73.00	60.00	-23.12
1612.00	36.37	***. **	***. **	73.00	60.00	-23.63
1858.00	36.12	***. **	***. **	73.00	60.00	-23.88

Line 2

Frequency (KHz)	READING AMPLITUDE			LIMIT		Margin (dB)
	Peak (dB μ V/m)	Quasi-Peak (dB μ V/m)	Average (dB μ V/m)	Quasi-Peak (dB μ V/m)	Average (dB μ V/m)	
151.00	44.88	***. **	***. **	79.00	66.00	-21.12
156.00	43.56	***. **	***. **	79.00	66.00	-22.44
161.00	43.54	***. **	***. **	79.00	66.00	-22.46
186.00	43.30	***. **	***. **	79.00	66.00	-22.70
310.00	46.18	***. **	***. **	79.00	66.00	-19.82
620.00	36.67	***. **	***. **	73.00	60.00	-29.33
868.00	36.40	***. **	***. **	73.00	60.00	-29.60
1120.00	36.60	***. **	***. **	73.00	60.00	-23.40
1365.00	36.10	***. **	***. **	73.00	60.00	-23.90
1612.00	35.26	***. **	***. **	73.00	60.00	-24.74

* The reading amplitudes are all under average limit.

Conducted Emission Test Result: (VGA Display Resolution 1600 x 1200)**Line 1**

Frequency (KHz)	READING AMPLITUDE			LIMIT		Margin (dB)
	Peak (dB μ V/m)	Quasi-Peak (dB μ V/m)	Average (dB μ V/m)	Quasi-Peak (dB μ V/m)	Average (dB μ V/m)	
154.00	43.74	***. **	***. **	79.00	66.00	-22.26
158.00	43.55	***. **	***. **	79.00	66.00	-22.45
166.00	42.67	***. **	***. **	79.00	66.00	-23.33
181.00	44.18	***. **	***. **	79.00	66.00	-21.82
310.00	44.47	***. **	***. **	79.00	66.00	-21.53
620.00	36.55	***. **	***. **	73.00	60.00	-23.45
868.00	36.80	***. **	***. **	73.00	60.00	-23.20
1120.00	37.04	***. **	***. **	73.00	60.00	-22.96
1365.00	36.56	***. **	***. **	73.00	60.00	-23.44
1612.00	35.94	***. **	***. **	73.00	60.00	-24.06

Line 2

Frequency (KHz)	READING AMPLITUDE			LIMIT		Margin (dB)
	Peak (dB μ V/m)	Quasi-Peak (dB μ V/m)	Average (dB μ V/m)	Quasi-Peak (dB μ V/m)	Average (dB μ V/m)	
154.00	44.25	***. **	***. **	79.00	66.00	-21.75
158.00	42.52	***. **	***. **	79.00	66.00	-23.48
164.00	42.39	***. **	***. **	79.00	66.00	-23.61
167.00	42.41	***. **	***. **	79.00	66.00	-23.59
185.00	45.01	***. **	***. **	79.00	66.00	-20.99
310.00	43.49	***. **	***. **	79.00	66.00	-22.51
620.00	36.13	***. **	***. **	73.00	60.00	-23.87
868.00	36.29	***. **	***. **	73.00	60.00	-23.71
1120.00	36.44	***. **	***. **	73.00	60.00	-23.56
1365.00	36.08	***. **	***. **	73.00	60.00	-23.92

* The reading amplitudes are all under average limit.

Appendix B

Radiated Emission Test Result : (Horizontal --- VGA Display Resolution 1600 x 1200)

Test Conditions:

Testing room : Temperature : 27 ° C Humidity : 68 % RH
 Testing site : Temperature : 32 ° C Humidity : 81 % RH

Frequency	Reading Amplitude	Ant. Height	Table	Correction Factors	Corrected Amplitude	Class A Limit	Margin
MHz	dBμV	m	degree	dB/m	dBμV/m	dBμV/m	dB

214.770	45.90	4.00	70	-13.48	32.42	40.00	-7.58
229.090	39.10	4.00	246	-12.58	26.52	40.00	-13.48
272.050	31.20	2.57	40	-10.27	20.93	47.00	-26.07
286.370	32.60	4.00	103	-9.40	23.20	47.00	-23.80
350.000	42.60	2.57	22	-7.55	35.05	47.00	-11.95
470.840	27.00	1.00	226	-3.31	23.69	47.00	-23.31
486.850	36.00	4.00	36	-3.22	32.78	47.00	-14.22

Note:

1. Margin = Amplitude - limit, *if margin is minus means under limit.*
2. Corrected Amplitude = Reading Amplitude + Correction Factors
3. Correction factor = Antenna factor + (Cable Loss - Amplitude gain)
 (For example : 30MHz correction factor = 15.5 + (-15.26) = 0.24 dB/m)

Radiated Emission Test Result : (Vertical --- VGA Display Resolution 1600 x 1200)

Frequency	Reading Amplitude	Ant. Height	Table	Correction Factors	Corrected Amplitude	Class A limit	Margin
MHz	dBμV	m	degree	dB/m	dBμV/m	dBμV/m	dB

35.330	49.90	1.00	190	-14.95	34.95	40.00	-5.05
42.960	47.70	1.00	200	-14.00	33.70	40.00	-6.30
50.120	42.70	1.00	218	-13.83	28.87	40.00	-11.13
64.430	38.90	2.57	213	-14.65	24.25	40.00	-15.75
150.000	31.80	1.00	20	-10.56	21.24	40.00	-18.76
214.770	43.90	1.00	37	-13.48	30.42	40.00	-9.58
264.100	34.80	1.00	11	-10.83	23.97	47.00	-23.03
272.050	35.30	1.00	40	-10.27	25.03	47.00	-21.97
286.370	35.90	1.00	170	-9.40	26.50	47.00	-20.50

Appendix C

Photographs of EUT

