Test Report

for

Electromagnetic Interference

of

E.U.T.： ADSL Card
Trade Name： Kinpo Electronics, Inc.
Model Number： A300A
FCC ID： ESNA200A

Prepared for

Kinpo Electronics, Inc.
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Prepared by

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Verification of Compliance

Applicant : Kinpo Electronics, Inc.

Manufacturer : Kinpo Electronics, Inc.

EUT Description : ADSL Card

Model No. : A300A

Serial No. : N/A

Tested Power Supply : ± 12 Vdc, + 5 Vdc, + 3.3 Vdc powered from PC

Date of Final Test : Feb. 24, 2000

Measurement Procedures and Standards Used : ☑ CFR 47, Part 15

☑ ANSI C63.4:1992

Interocean EMC Technology Corp., tests the device described above and shown the maximum emission levels emanating from the device. This report applies to above tested sample only and Interocean EMC Technology Corp. is assumed full responsibility for the accuracy and completeness of these measurements. No Single part of this report may be reproduced without written permission from Interocean EMC Technology Corp..

Project Engineer: Jackal Date: Mar. 10, 2000

(Jackal Yang)

Checked: Tomy Date: Mar. 10, 2000

(Tomy Wu)

Approved : 2000 0310 1814 Date: Mar. 10, 2000

(Kent J.K. Hsu)

1 General Information

1.1 Description of Equipment Under Test

Equipment Under Test	**:**	ADSL Card
Model Number	**:**	A300A
FCC ID	**:**	ESNA200A
Type of Sample Tested	**:**	Pre-Production
Applicant	**:**	Kinpo Electronics, Inc. 1, Tsao Ti Wei, Wan Shun Tsun, Shen Keng Hsiang, Taipei Hsien, Taiwan 222, R.O.C.
Manufacturer	**:**	Cal-Comp Electronics (Thailand) Co., Ltd. 60 Moo 8, Sethakji Rd., Klong Maduea, Kratoom Bean, Samuthsakorn 74110 Thailand
Power Supply	**:**	±12 Vdc, +5 Vdc, +3.3 Vdc (Powered from PC)
Data Cable	**:**	N/A
Date of Receipt of Sample	**:**	Feb. 24, 2000
Date of Test	**:**	Feb. 24, 2000
Description of E.U.T.	**:**	

This ADSL card is one of network modem, through telephone company (for ADSL network configuration) simultaneous supports Voice, Video, Data, and Image. This modem supports Discrete Multiple-Tone (DMT) with full rate operation up to 8 Mbps downstream and up to 640 Kbps with 32 bits PCI interface.

The diffidence with ex-version (A200A) shown as following:

1. PCB re-layout that all components arranged in the same side.
2. Removed External. Phone Jack and Low Pass Filter.
3. Removed Power Management Circuit.

1.2 Tested Supporting System Detail

1.2.1	Personal Computer		
	Model Number	:	71XX
	Serial Number	:	TW8400235
	System Number	:	D6923A
	EMC Approved	:	FCC DoC, 檢磁 3872H010
	Manufacturer	:	Hewlett Packard
	ADSL(EUT)	:	**Kinpo Electronics, Inc.**
			M/N：A 300A, FCC ID：ESNA200A
	Telephone Line	:	Non-Shielded, Detachable, 2.0m
	(EUT link to Partner PC)		
	Power Cord	:	Non-Shielded, Detachable, 1.8m
1.2.2	Monitor		
	Model Number	:	CM814U
	Serial Number	:	G9H002735
	EMC Approved	:	FCC DoC, CE
	Manufacturer	:	HITACHI
	Data Cable	:	Shielded, Un-detachable, 1.2m
	Power Cord	:	Non-Shielded, Detachable, 1.5m
1.2.3	Keyboard		
	Model Number	:	SK-2501K
	Serial Number	:	MR80700543
	EMC Approved	:	FCC ID: GYUR38SK
	Manufacturer	:	Hewlett Packard
	Data Cable	:	Non-Shielded, Detachable, 1.2m
1.2.4	Printer		
	Model Number	:	EPL-5700L
	Serial Number	:	B5AZ000544
	EMC Approved	:	檢磁 3872A502
	Manufacturer	:	EPSON
	Data Cable	:	Shielded, Detachable, 1.5m
	Power Cord	:	Non-Shielded, Detachable, 1.5m
1.2.5	Modem		
	Model Number	:	Discovery 3314CX
	Serial Number	:	3240491132
	EMC Approved	:	N/A
	Manufacturer	:	DATATRONICS
	Data Cable	:	Shielded, Detachable, 1.6m
	Power Adapter	:	Amigo, Model AM-12830A
			Non-Shielded, Detachable, 1.9m

1.2.6 Mouse

USB Port

Model Number	:	NSM-P02
Serial Number	:	01530
EMC Approved	:	FCC DoC, CE, 檢磁 3882A795
Manufacturer	:	EPSON
Data Cable	:	USB Connecter, Shielded, Un-detachable, 1.5m

PS2 Port

Model Number	:	M-S34
Serial Number	:	LZA81757340
EMC Approved	:	FCC ID: DZL211029
Manufacturer	:	LOGITECH
Data Cable	:	Shielded, Detachable, 1.8m

1.2.7 Joystick

Model Number	:	Wingman Digital
Serial Number	:	LZB85200040
EMC Approved	:	FCC ID: DZL211071, 檢磁 4862A006, CE
Manufacturer	:	LOGITECH
Data Cable	:	Non-Shielded, Detachable, 1.8m

1.2.8 Walkman

Model Number	:	WP45
Serial Number	:	N/A
EMC Approved	:	N/A
Manufacturer	:	FIRSTLINE
Data Cable	:	Non-Shielded, Detachable, 1.5m

1.2.9 Earphone

Model Number	:	HD-20
Serial Number	:	N/A
EMC Approved	:	N/A
Manufacturer	:	WHO SHENA
Data Cable	:	Non-Shielded, Detachable, 1.2m

Below List is Partner System for Measurement

1.2.10 Personal Computer (ITEX ADSL Development tool)

Main Board	:	ASUS, M/N P28, FCC DoC
CPU	:	Intel Pentium II 450MHz
S.P.S	:	Seventeam, M/N ST-250GL
CD-ROM	:	ASUS, M/N CD-5400/A, FCC DoC
VGA	:	Enn Yah, M/N ST-775A
SAM ADSL	:	ITEX
ATU-c Board	:	SAM ADSL Transceiver Unit Central
Power Cord	:	Non-Shielded, Detachable, 1.8m

1.2.11 Monitor

Model Number	:	TX-D7S36NM
Serial Number	:	FX8210005
EMC Approved	:	FCC DoC, CE
Manufacturer	:	MATSUSHLTA
Data Cable	:	Shielded, Un-detachable, 1.2m
Power Cord	:	Non-Shielded, Detachable, 1.5m

1.2.12 Keyboard

Model Number	:	6511-TW4C
Serial Number	:	N/A
EMC Approved	:	FCC DoC, 檢磁 4862A064
Manufacturer	:	Acer
Data Cable	:	Shielded, Detachable, 1.2m

1.2.13 PS2 Mouse

Model Number	:	M-S43
Serial Number	:	LZA9051119
EMC Approved	:	FCC ID: DZL211106
Manufacturer	:	LOGITECH
Data Cable	:	Shielded, Detachable, 1.8m

1.3 Test Facility

Site Description	:	OATS 1
Name of Firm	:	Interocean EMC Technology Corp.
Site Location	:	No.5-2, Lin 1, Tin-Fu Tsun, Lin-Kou Hsiang, Taipei County, Taiwan, R.O.C.
Site Filing	:	● Federal Communication Commissions – USA Registration No.: 96399 ● Voluntary Control Council for Interference by Information Technology Equipment (VCCI) – Japan Registration No. (Conducted Room): C-1094 Registration No. (OATS 1): R-1040 Registration No. (OATS 2): R-1041

1.3.1 Test Methodology

Both conducted and Radiated Emission Measurement was performed according to the procedures in ANSI C63.4: 1992. Radiated Emission Measurement was performed at 3 meters distance from antenna to EUT.

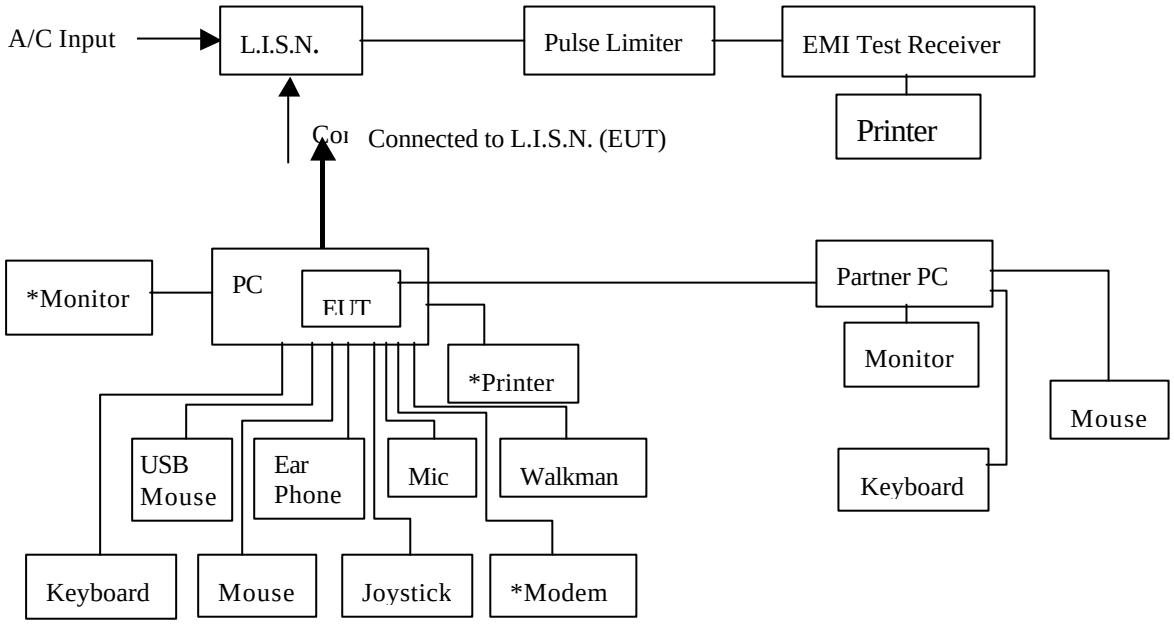
2 Power Line Conducted Emission Measurement

2.1 Instrument

Instrument	Manufacturer	Model	Serial No.	Last Calibration
EMI Test Receiver	Rohde & Schwarz	ESCS 30	830245/027	1999/08/30
L.I.S.N.	Schwarzbeck	NNLK8121	8121417	1999/09/15
L.I.S.N.	Rohde & Schwarz	ESH3-Z5	829996/016	1999/07/20
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	830836/026	1999/07/29
RF Cable	IETC	CBL04	N/A	1999/11/10

Note: All instrument upon which need to calibrated are with calibration period of 1 year.

2.2 Block Diagram of Test Configuration



The "*" marked peripheral that power cord was connected to another L.I.S.N.

2.3 Conducted Limit

FCC Part 15, Class B

Frequency (MHz)	Maximum RF Line Voltage	
	uV	dBuV
0.45 ~ 1.705	250	48.0
1.705 ~ 30	250	48.0

2.4 Instrument configuration

2.4.1 The EMI test receiver frequency range set from 450 KHz to 30 MHz.

2.4.2 The EMI test receiver bandwidth set at 9kHz.

2.4.3 The EMI test receiver detector set as Quasi-Peak (Q.P.).

2.5 Measured Mode

2.5.1 The test mode for preliminary test as following:

- Mode: Link Mode

2.6 Configuration of Measurement

2.6.1 The EUT was place on a non-conductive table whose total height equaled 80 cm.

2.6.2 The vertical conducting plane located 40 cm to the rear of the EUT.

2.6.3 The EUT powered from LISN which signal output to receiver, and the other peripherals was powered from another LISN which signal output was terminated by 50 ohms.

2.7 Configuration of EUT

2.7.1 Setup the EUT and simulators as shown section 2.2.

2.7.2 Turn on the power of all equipment.

2.7.3 The PC (EUT inside) and Partner PC running test programs “ITEX TEST”.

2.7.4 Running Explorer Down/ Up Stream data

2.7.5 Measured the Line phase and recorded the value.

2.7.6 Changed into Neutral phase, repeat the procedure as section 2.7.5.

2.8 Result

2.8.1 The final tested data shown on following page.

2.8.2 Measurement Uncertainty

Conducted Uncertainty Uc = ±2.26dB. The uncertainty is calculated in accordance with NAMAS document NIS 81.

Power Line Conducted Test Data

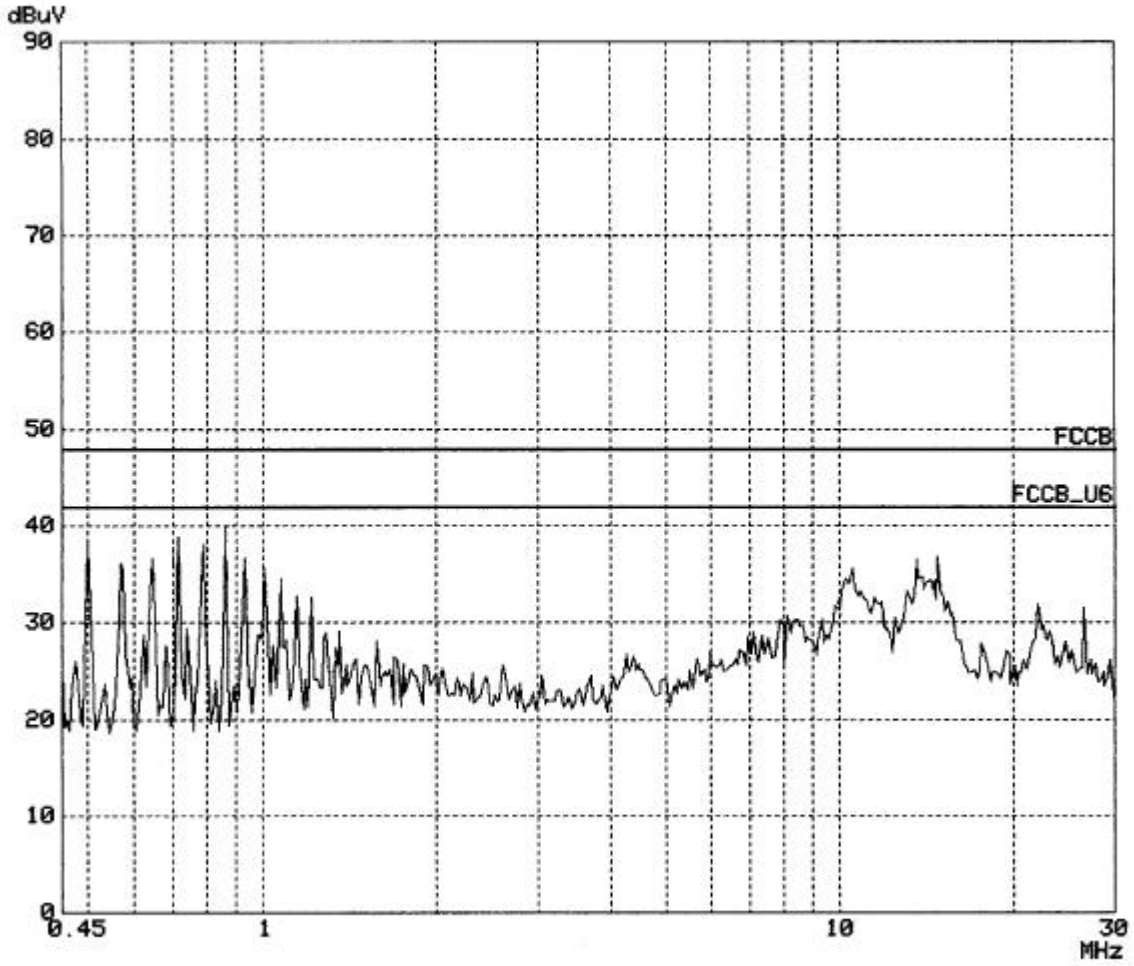
Date of Tested : Feb. 24, 2000 Power Line : Line

Temperature : 18℃ Humidity : 76%

Tested Mode : Link Mode

Frequency (MHz)	Factor (dB)	Reading (dBuV)		Measurement (dBuV)		Limits (dBuV)	
		Quasi-Peak	Average	Quasi-Peak	Average	Quasi-Peak	Average
0.715	0.7	36.2	--	36.9	--	48	--
0.784	0.7	36.4	--	37.1	--	48	--
0.860	0.7	37.4	--	38.1	--	48	--
10.450	0.5	30.9	--	31.4	--	48	--
14.745	0.7	33.7	--	34.4	--	48	--
22.120	0.7	26.6	--	27.3	--	48	--

Remark：
1. All readings are Quasi-Peak values.
2. Factor = Insertion Loss + Cable Loss
3. Measurement = Reading + Factor
4. "*" Means the emission level un-detectable.
5. "--" Means the emission level did not measured.


dBuV
90
80
70
60
50
40
30
20
10
0
FCCB
FCCB_U6
0.45
1
10
30
MHz

Power Line Conducted Test Data

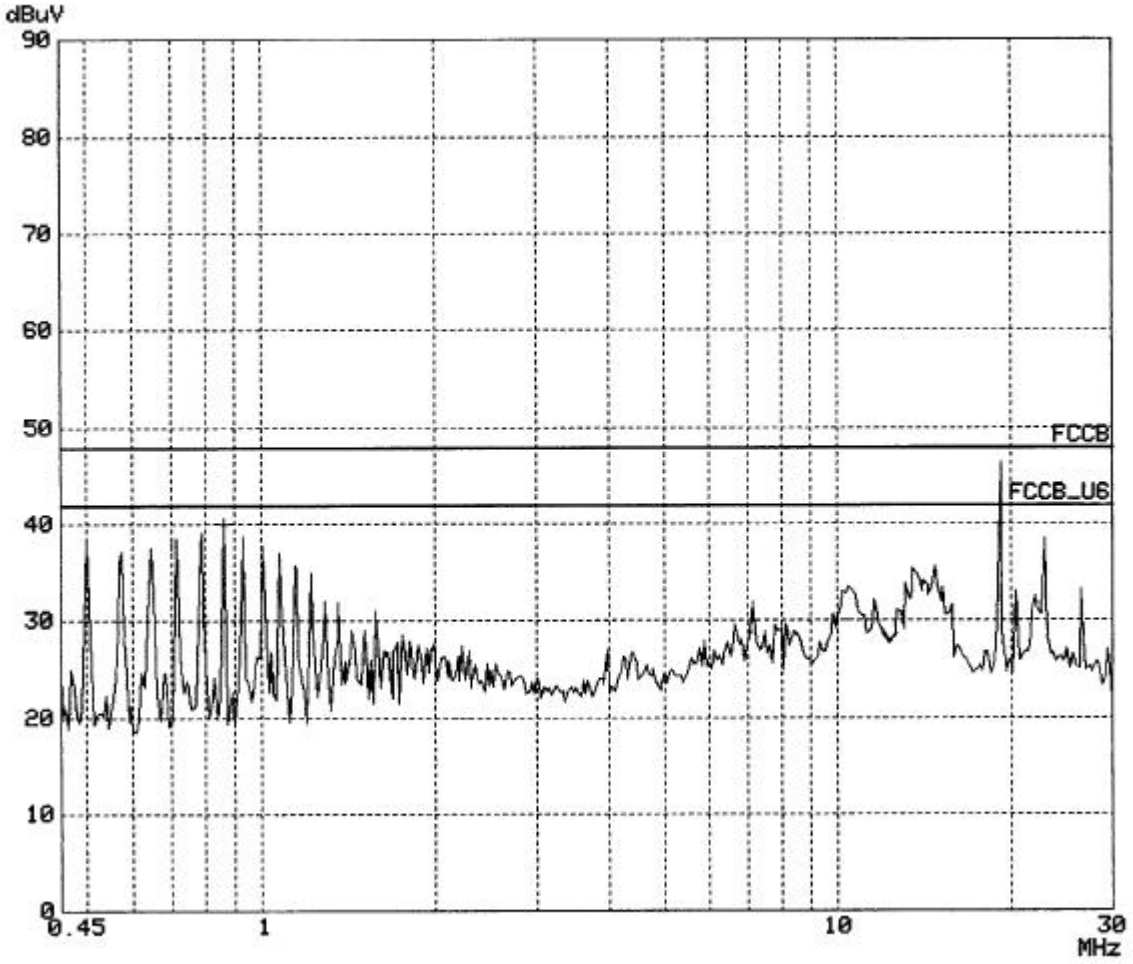
Date of Tested : Feb. 24, 2000 Power Line : Neutral

Temperature : 18℃ Humidity : 76%

Tested Mode : Link Mode

Frequency (MHz)	Factor (dB)	Reading (dBuV)		Measurement (dBuV)		Limits (dBuV)	
		Quasi-Peak	Average	Quasi-Peak	Average	Quasi-Peak	Average
0.715	0.7	36.8	--	37.5	--	48	--
0.784	0.7	37.2	--	37.9	--	48	--
0.860	0.7	38.7	--	39.4	--	48	--
10.450	0.5	29.5	--	30.1	--	48	--
14.745	0.7	31.3	--	32.0	--	48	--
18.526	0.7	37.9	--	38.6	--	48	--
19.245	0.7	42.0	--	42.7	--	48	--
22.235	0.7	34.9	--	35.6	--	48	--

Remark：
1. All readings are Quasi-Peak values.
2. Factor = Insertion Loss + Cable Loss
3. Measurement = Reading + Factor
4. "*" Means the emission level un-detectable.
5. "--" Means the emission level did not measured.


dBuV
90
80
70
60
50
40
30
20
10
0
FCCB
FCCB_U6
0.45
1
10
30
MHz

3 Radiated Emission Measurement

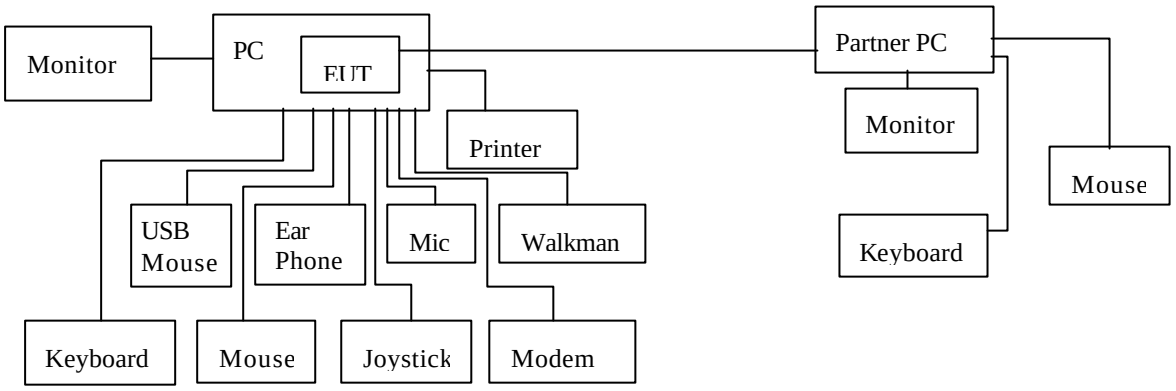
3.1 Instrument

OATS 1

Instrument	Manufacturer	Model	Serial No.	Last Calibration
EMI Test Receiver	Rohde & Schwarz	ESI 07	830154/002	1999/08/17
Antenna	Schaffner	CBL6112B	2610	1999/06/28
Pre-Amplifier	Schaffner	CPA9231A	3351	1999/10/11
RF Cable	IETC	CBL01	N/A	1999/10/11

Note: All instrument upon which need to calibrated are with calibration period of 1 year.

3.2 Block Diagram of Test Configuration



3.3 Radiated Limit

FCC Part 15, Class B

Frequency (MHz)	Distance	Field Strength (uV/m)	Quasi-Peak (dBuV/m)
30 ~ 88	3	100	40.00
88 ~ 216	3	150	43.52
216 ~ 960	3	200	46.02
960 above	3	500	53.98

3.4 Instrument configuration

3.4.1 The EMI test receiver frequency range set from 30 MHz to 1000 MHz.

3.4.2 The EMI test receiver bandwidth set at 120 kHz.

3.4.3 The EMI test receiver detector set as Quasi-Peak (Q.P.).

3.5 Measured Mode

3.5.1 The test mode for preliminary test as following:

- Mode: Link Mode

3.6 Configuration of Measurement

3.6.1 The EUT was place on a non-conductive table whose total height equaled 80cm. The turntable can rotate 360 degree to determine the position of the maximum emission level.

3.6.2 EUT was set 3 meters away from the receiving antenna that was mounted on a non-conductive mast. The antenna can move up and down between 1 to 4 meters to find out the maximum emission level.

3.7 Configuration of EUT

3.7.1 Setup the EUT and simulators as shown section 3.2.

3.7.2 Turn on the power of all equipment.

3.7.3 The PC (EUT inside) and Partner PC running test programs “ITEX TEST”.

3.7.4 Running Explorer Down/ Up Stream data

3.7.5 Measured the horizontal polarization and recorded the value.

3.7.6 Changed into vertical polarization, repeat the procedure as section 3.7.5.

3.8 Result

3.8.1 The final tested data shown on following page.

3.8.2 Measurement Uncertainty

Radiated Uncertainty Uc = ±4dB. The uncertainty is calculated in accordance with NAMAS document NIS 81.

Radiated Emission Measurement Data

Date of Tested : Feb. 24, 2000 Polarization : Horizontal
Temperature : 14℃ Humidity : 81%
Tested Mode : Link Mode

Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)
53.0	6.7	1.4	9.4	17.5	40.0	22.5
66.0	6.6	1.5	26.5	34.6	40.0	5.4
114.0	6.1	1.6	18.0	25.7	43.5	17.8
157.0	13.2	2.2	10.0	25.4	43.5	18.1
171.0	11.2	2.6	6.4	20.2	43.5	23.3
181.0	11.0	2.7	10.5	24.2	43.5	19.3
200.0	10.4	2.8	13.5	27.7	43.5	15.8
224.0	8.9	3.0	11.0	22.9	46.0	23.1
286.0	10.5	3.2	13.4	23.9	46.0	22.1
357.0	12.9	3.6	6.5	23.0	46.0	23.0
459.0	14.9	4.2	8.9	28.0	46.0	18.0
494.0	17.7	4.8	10.8	33.3	46.0	12.7
529.0	19.9	5.0	7.8	32.7	46.0	13.3

Remark：1. All readings are Quasi-Peak values.

2. The worst emission was detected at 66 MHz with corrected signal level of 34.6dBuV/m (limit is 40dBuV/m) when the antenna was at horizontal polarization and was at 4 m high and the turntable was at 175 ° .
3. 0 ° was the table front facing the antenna. Degree is calculated from 0 ° clockwise facing the antenna.

Radiated Emission Measurement Data

Date of Tested : Feb. 24, 2000 Polarization : Vertical
Temperature : 14℃ Humidity : 81%
Tested Mode : Link Mode

Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)
79.5	5.9	1.8	9.2	16.9	40.0	23.1
133.8	11.3	2.4	4.1	17.8	43.5	25.7
157.3	8.6	2.6	6.5	17.7	43.5	25.8
222.0	8.6	3.1	14.4	26.7	46.0	19.3
240.1	9.2	3.3	12.2	24.7	46.0	21.3
329.3	13.7	4.0	11.2	28.9	46.0	17.1
358.0	14.7	4.2	6.2	25.1	46.0	20.9
409.2	16.0	4.6	11.4	28.0	46.0	18.0
415.2	16.3	4.6	11.0	27.9	46.0	18.1
459.3	15.7	4.8	13.4	33.9	46.0	12.1
494.6	16.3	5.0	6.6	27.9	46.0	18.1
521.1	16.9	5.2	4.1	26.2	46.0	19.8
565.3	17.1	5.4	5.7	28.2	46.0	17.8

Remark：1. All readings are Quasi-Peak values.

2. The worst emission was detected at 329.3 MHz with corrected signal level of 28.9dBuV/m (limit is 46dBuV/m) when the antenna was at horizontal polarization and was at 1.35 m high and the turntable was at 180 ° .
3. 0 ° was the table front facing the antenna. Degree is calculated from 0 ° clockwise facing the antenna.

4 Photographs of Measurement

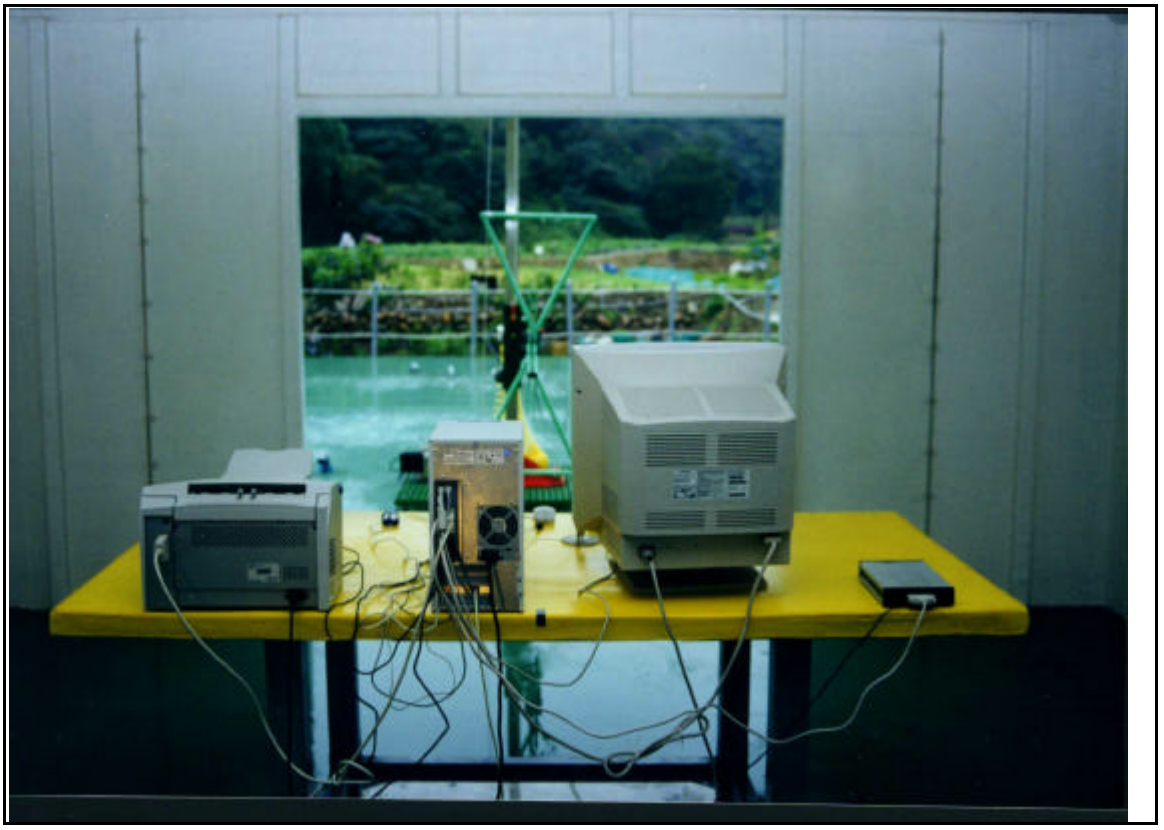
4.1 Power Line Conducted Emission Measurement

Front View

Rear View

4.2 Radiated Emission Measurement

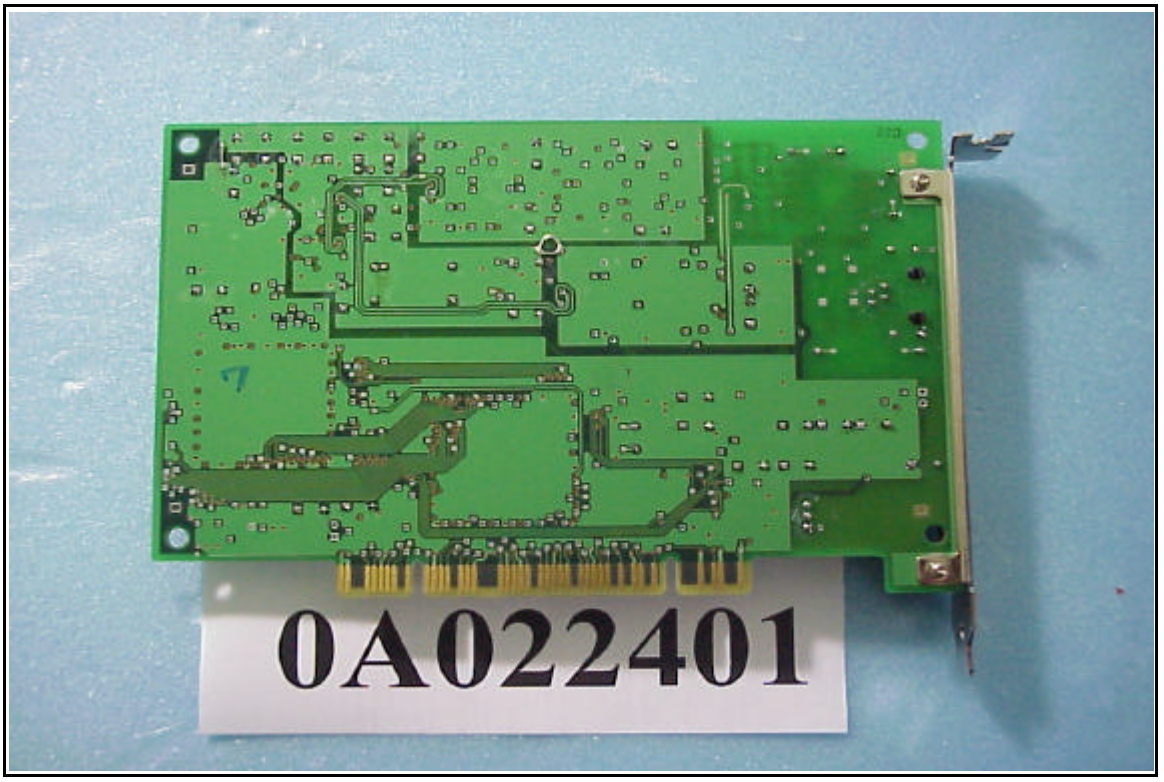
Front View



Rear View

5 Photographs of EUT Inside

Component Side



Solder Side

Phone Jack