EN55024 / AS/NZS CISPR 24 / IMMUNITY
EN61000-3-2 / HARMONICS
EN61000-3-3 / VOLTAGE FLUCTUATIONS

TEST REPORT

of

Product Name

Notebook Personal Computer

Model

M230

Applied by:

MITAC Technology Corporation
4F, No.1, R&D Road 2,
Hsinchu Science-Based industrial Park, Hsinchu 300
Taiwan,R. O. C.

Test Performed by:

(NVLAP Lab. Code: 200234-0)
International Standards Laboratory

Hsichih LAB	(V) Lung-Tan LAB
NEMKO:ELA 113A NVLAP Lab. Code: 200234-0	NEMKO:ELA 113B NVLAP Lab. Code: 200234-0
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Contents of Report

1. General

1.1 Certification of Accuracy of Test Data

Standards:	Please refer to 2.2
Equipment Tested:	Notebook Personal Computer
Model:	M230
Applied by	MITAC Technology Corporation
Sample received Date:	2006/08/16
Final test Date :	2006/08/30
Test Site:	LT Test Site
Test Result:	**PASS**
Report Engineer:	Erin Duan
Test Engineer:	Benson Chen

Benson Chen

Approve & Signature

Eddy Hsiung

Eddy Hsiung/Director

Test results given in this report apply only to the specific sample(s) tested under stated test conditions. This report shall not be reproduced other than in full without the explicit written consent of ISL. This report totally contains 33 pages, including 1 cover page , 1 contents page, and 31 pages for the test description.

This test report accurately contains the test results of the above standards at the time of the test.
The results in this report apply only to the sample(s) tested.
This test report shall not be reproduced except in full, without the written approval of International Standards Laboratory.

2. Summary

2.1 Operation Environment

Power supply: AC 230 V / 50 Hz

2.2 Test Standards

The immunity tests which this report describes were conducted by an independent electromagnetic compatibility consultant, International Standards Laboratory in accordance with the

EN55024: 1998/A1: 2001/A2: 2003; AS/NZS CISPR 24: 2002: Information technology equipment-Immunity characteristics-Limits and methods of measurement.

Standard	Description	Results	Criteria
EN61000-4-2: 1995/A1: 1998/A2: 2001 AS/NZS 61000.4.2: 2002	Electrostatic Discharge	Pass	B
EN61000-4-3: 2002/A1: 2002 AS/NZS 61000.4.3: 1999	Radio-Frequency, Electromagnetic Field	Pass	A
EN61000-4-4: 1995/A1: 2001/A2: 2001 AS/NZS 61000.4.4: 1999	Electrical Fast Transient/Burst	Pass	B
EN61000-4-5: 1995/A1: 2001 AS/NZS 61000.4.5: 1999	Surge	Pass	B
EN61000-4-6: 1996/A1: 2001 AS/NZS 61000.4.6: 1999	Conductive Disturbance	Pass	A
EN61000-4-8: 1993/A1: 2001 AS/NZS 61000.4.8: 2002	Power Frequency Magnetic Field	Pass	A
EN61000-4-11: 1994/A1: 2001 AS/NZS 61000.4.11: 1999	Voltage Dips / Short Interruption and Voltage Variation		
	>95% in 10ms	Pass	B
	30% in 500ms	Pass	C
	>95% in 5000ms	Pass	C

Standard	Description	Results
EN61000-3-2: 2000 AS/NZS 61000.3.2: 2003	Limits for harmonics current emissions	Pass
EN61000-3-3: 1995/A1: 2001 AS/NZS 61000.3.3: 1998	Limits for voltage fluctuations and flicker in low-voltage supply systems.	Pass

2.3 Description of Support Equipment

SUPPORT UNIT 1

Description:	DELL Notebook Personal Computer
Model:	Latitude D400
Serial Number:	N/A
CPU:	Pentium M- 1.5GHz(FSB 400 MHz)
A/C Adapter Type:	HIPRO 65W(Model:HP-OQ065B83)3 Pins
Hard Disk Driver:	Toshiba (Model: MK4019GAX) 40 GB
MDC Modem:	Conexant (Model: RD01-D480)
VGA Connector:	One 15 Pins
Serial Connector:	One 9 Pins
RJ11 Connector:	One 2 Pins
RJ45 Connector:	One 8 Pins
USB Connector:	Two 4 Pins
1394 Connector:	One 4 Pins
Smart Card Slot:	One
PCMCIA Slot:	One
Earphone Port:	One
Microphone Port:	One
Power In Port:	One
Battery:	Sanyo 6-cell (Model: 6T087)
RAM:	Nanya DDR 256MB x 1
LCD Panel and Inverter:	Toshiba 12.1”XGA (Model: LTM12C505D)；RICOH KEIKI Inverter (Model: K3E19T5 0090)
Power Cord:	Non-shielded, Detachable

SUPPORT UNIT 2

Description:	24” LCD Monitor
Manufacturer :	DELL
Model Number:	2405FPW
Serial Number	N/A
Power Supply Type:	AC 100~240V 50~60Hz
DC Output Port:	one
VGA Port:	one
DVI Port:	one
Power In:	one
USB Port:	five
Video Port:	one
S-Video In:	one
Y/PB/PR Port:	one
CF Port:	one
SM Port:	one
MS Port:	one
SD/MMC Port:	one
FCC ID:	N/A
Power Cable:	Non-shielded, Detachable

SUPPORT UNIT 3

Description:	External HDD
Model:	F12-UF
Serial Number:	NA
Power Adaptor:	YHI(Model:YS-1015U12)
1394 Port:	one 6-Pins
USB:	one 4-Pins
Power In:	one
Power Cable:	Non-shielded, Detachable, (Can Dismantle)

SUPPORT UNIT 4

Description:	External HDD
Model:	F12-UF
Serial Number:	NA
Power Adaptor:	YHI(Model:YS-1015U12)
1394 Port:	one 6-Pins
USB:	one 4-Pins
Power In:	one
Power Cable:	Non-shielded, Detachable, (Can Dismantle)

SUPPORT UNIT 5

Description:	External HDD
Model:	F12-UF
Serial Number:	NA
Power Adaptor:	YHI(Model:YS-1015U12)
1394 Port:	one 6-Pins
USB:	one 4-Pins
Power In:	one
Power Cable:	Non-shielded, Detachable, (Can Dismantle)

SUPPORT UNIT 6

Description:	Aceex Modem (for serial interface port)
Model Number:	DM1414
Serial Number:	0301000558
Power Supply Type:	Linear, Power Adapter (AC to AC Xfmr, Wall Mounted Type)
Power Cord:	Nonshielded, Without Grounding Pin
FCC ID:	IFAXDM1414

SUPPORT UNIT 7

Description:	HP Printer (for parallel interface port)
Model Number:	C2642A
Serial Number:	TH84T1N3J3
Power Supply Type:	AC Adaptor (HP Model: C2175A)
Power Cord:	Non-shielded, Detachable
Data Cable:	Shielded, Detachable, With Metal Hood
FCC ID:	B94C2642X

SUPPORT UNIT 8

Description:	ATA Microphone and HeadSet
Model Number:	1221K
Serial Number:	N/A
Power Supply Type:	N/A
Power Cord:	N/A
FCC ID:	N/A

SUPPORT UNIT 9

Description:	ATA Flash Card
Model Number:	VIKING 32MB
Serial Number:	N/A
Power Supply Type:	N/A
Power Cord:	N/A
FCC ID:	N/A (Comply with FCC DOC)

SUPPORT UNIT 10

Description：	Wireless LAN/Broadband/ISDN Router
Model：	914I
Serial Number：	N/A
AC-AC Adaptor：	OEM (Model: AA-091ABM) 2-pin
Power Cord：	Non-shielded, Detachable

SUPPORT UNIT 11

Description:	Bluetooth Access Point with Broadband Router
Model**:**	Billionton
FCC ID:	NLF-APBTCS1
Serial Number:	06042600001
AC-AC Adaptor:	SPEC LIN (Model: SL05A106-U) 2-pin
Power Cord：	Non-shielded, Detachable

2.3.1 Software for Controlling Support Unit

Test programs exercising various part of EUT were used. The programs were executed as follows:

1. Send H pattern to the displays.(Monitor).
2. Read and write data the EUT hard disk.
3. Read and write data the external hard disk through EUT USB port.
4. Read and write data the PCMCIA Card through PCMCIA Slot.
5. Send signal to the parallel port.(printer).
6. Send signal to the serial port.(Modem).
7. Send audio signal to the Microphone and HeadSet through Headphone Port.
8. Receive audio signal from Microphone and HeadSet through Microphone Port.
9. Play movie file from optic drive(DVD-ROM).
10. Receive and transmit package of EUT to the NB through LAN port.
11. Receive and transmit packet of EUT to wireless router through wireless LAN.
12. Receive and transmit signal of EUT to the NB through exchanger and modem port.
13. Receive and transmit signal of EUT to Bluetooth Access Point with Broadband Router.
14. Receive and transmit packet to EUT through WCDMA card.
15. Repeat the steps above.

	Filename	Issued Date
Monitor	EMITEST.EXE	5/1/1990
External Hard Disk Case	Winthrax.exe	5/21/1996
Optical Driver	Windows Media player.exe	2002/12/26
Hard Disk	Winthrax.exe	5/21/1996
Printer	EMITEST.EXE	5/1/1990
Modem	EMITEST.EXE	5/1/1990
Microphone and HeadSet	Windows Media player.exe	2002/12/26
LAN	Ping.exe	
Telephone	Hypertrm.exe	06/08/2000
Wireless LAN/Broadband/ISDN Router	Ping.exe	
Bluetooth Access Point with Broadband Router	Ping.exe	
PCMCIA Card	Winthrax.exe	5/21/1996
WCDMA card	Mobilink Network Connection Manager	3/15/2006

2.3.2 I/O Cable Condition of EUT and Support Units

Description	Path	Cable Length	Cable Type	Connector Type
AC Power Cable	110V (~240V) to EUT SPS	1.8M	Non-shielded, Detachable	Plastic Head
Telephone Data Cable	EUT RJ 11 to NB RJ 11 Port	33 feet	Non-shielded, Detachable	RJ-11, Plastic Head
LAN Data Cable	EUT LAN Port to NB LAN Port	33 feet	Non-shielded, Detachable	RJ-45, Plastic Head
Monitor Data Cable	Monitor to D-SUB Port EUT VGA Port	1.8M	Shielded, Detachable (with core)	Metal Head
Printer Data Cable	Printer to EUT parallel Port	1.8M	Shielded, Detachable	Metal Head
Audio Data Cable	Microphone and HeadSet to EUT Line In Port and Line Out Port	2.0M	Non-shielded, Un-Detachable	Plastic Head
USB Data Cable *2	USB external hard disk to EUT USB Port	1.8M	Shielded, Un-detachable	Metal Head
1394B Data Cable	USB external hard disk to EUT 1394B Port	1.2M	Shielded, Un-detachable	Metal Head
Modem Data Cable	Modem to EUT serial Port	1.8M	Shielded, Detachable	Metal Head

2.4 Description of Equipment Under Test

EUT

Description:	Notebook Personal Computer
Condition:	Pre-Production
Model:	M230
Serial Number:	N/A
CPU:	Intel YONAH,1.667GHZ
Adapter Type:	Auto Switching AC Adapter EPS (Model: F10903-A)
Hard Disk Driver:	Toshiba (Model:MK4032GSX) 40G or Toshiba (Model:MK8032GSX) 80G or Toshiba (Model:MK1234GSX) 120G
DVD Dual:	Panasonic (Model:UJ-840) or Panasonic (Model:UJ-850)
Modem Card:	ASKEY (Model: RD-02-D330)
Wireless LAN Card:	Intel(Model:WM3945ABG)
WCDMA card:	Novatel(Model:EU740)
Bluetooth Module:	Tecom(Model:BT3014)
USB Connector:	two 4 pin
RJ11 Connector:	one 2 pin
Serial Port:	one 9 pin
RJ45 Connector:	one 8 pin(10/100Mbps)
Parallel Port:	one 25 pin
VGA Connector:	one
Line out Port:	one
Line-in Port:	one
PCMCIA Slot:	two
DC IN Port:	one
1394B Port:	one
Battery:	MSL (Model: BP-LC2400/33-01SI)
LCD:	CHI MEI(Model:N150P5-L02 Rev C1) or Toshiba(Model: LTD141ECGA)
DDR:	Infineon(Model:PC2-4200S-444-11-AD) 512MB
Power Cord:	Non-shielded, Detachable

Test configuration:

configuration	LCD	LAN speed	CPU	Adapter Type	Hard Disk	DVD Dual	Modem Card	Wireless LAN Card	Battery	DDR
1	CHI MEI(Model:N150P5-L02 Rev C1)	100 Mbps	Intel YONAH, 1.667 GHZ	EPS (Model: F10903-A)	Toshiba (Model:MK1234GSX)	Panasonic (Model: UJ-850)	ASKEY (Model: RD-02-D330)	Intel (Model: WM3945ABG)	MSL (Model: BP-LC2400/33-01SI)	Infineon(Model:PC2-4200S-444-11-AD)
2	Toshiba(Model: LTD141ECGA)	100 Mbps	Intel YONAH, 1.667 GHZ	EPS (Model: F10903-A)	Toshiba (Model:MK1234GSX)	Panasonic (Model: UJ-840)	ASKEY (Model: RD-02-D330)	Intel(Model:WM3945ABG)	MSL (Model: BP-LC2400/33-01SI)	Infineon Model:PC2-4200S-444-11-AD)
3	CHI MEI(Model:N150P5-L02 Rev C1)	10 Mbps	Intel YONAH, 1.667 GHZ	EPS (Model: F10903-A)	Toshiba (Model:MK4032GSX)	Panasonic (Model: UJ-850)	ASKEY (Model: RD-02-D330)	Intel(Model:WM3945ABG)	MSL (Model: BP-LC2400/33-01SI)	Infineon(Model:PC2-4200S-444-11-AD)
4	Toshiba(Model: LTD141ECGA)	10 Mbps	Intel YONAH, 1.667 GHZ	EPS (Model: F10903-A)	Toshiba (Model:MK8032GSX)	Panasonic (Model: UJ-840)	ASKEY (Model: RD-02-D330)	Intel(Model:WM3945ABG)	MSL (Model: BP-LC2400/33-01SI)	Infineon(Model:PC2-4200S-444-11-AD)

All types of LCD、LAN speed、CPU、Adapter Type、Hard Disk、DVD Dual、Modem Card、Wireless LAN Card、Battery、DDR with related components have been tested, only shown the worst data using the following configuration in this report.

configuration	LCD	LAN speed	CPU	Adapter Type	Hard Disk	DVD Dual	Modem Card	Wireless LAN Card	Battery	DDR
1	CHI MEI(Model:N150P5-L02 Rev C1)	100 Mbps	Intel YONAH,1.667GHZ	EPS (Model: F10903-A)	Toshiba (Model:MK1234GSX)	Panasonic (Model:UJ-850)	ASKEY (Model: RD-02-D330)	Intel(Model:WM3945ABG)	MSL (Model: BP-LC2400/33-01SI)	Infineon(Model:PC2-4200S-444-11-AD)

EMI Noise Source:
Crystal: 25MHz (X501),98.3MHz(X502), 10MHz (X503),14.318MHz (X504), 32.768KHz (X505),27MHz(X506),
Clock Generator: U523

EMI Solution:
1. Adding Spring*6 on main board(whether if photograph report enclosure page 4 getting red arrow 1,2,3,4,5,6 point show)
2. Adding Spring*3 on I/O Board(whether if photograph report enclosure page 7 getting red arrow 7,8,9 point show)
3. Adding Gasket on I/O Board(whether if photograph report enclosure page 7 getting red arrow 10 point show)
4. Adding Copper on main board(right side)(whether if photograph report enclosure page 7 getting red arrow 11 point show)
5. Adding shielded tape on LCD Signal cable(whether if photograph report enclosure page 17 getting red arrow 12 point show)
6. Adding shielded tape on case(whether if photograph report enclosure page 18 getting red arrow 16,17 point show)
7. Adding Gasket on case(whether if photograph report enclosure page 18 getting red arrow 14,15,18,19 point show)
8. Adding Copper on Panel board(whether if photograph report enclosure page 18 getting red arrow 13 point show)
9. Adding Copper on LCD Panel behind(whether if photograph report enclosure page 19 getting red arrow 21 point show)
10. Adding aluminum foil on LCD Panel behind (whether if photograph report enclosure page 19 getting red arrow 20 point show)
11. Adding core(K5B RH 14.2*28.5*8) on 1394B data cable (whether if photograph report enclosure page 35 getting red arrow 22,23 point show)

3. Electrostatic discharge (ESD) immunity

3.1 Electrostatic discharge (ESD) immunity test

Port:	Enclosure
Basic Standard:	EN61000-4-2/ AS/NZS 61000.4.2 (details referred to Sec 2.2)
Test Level:	Air +/- 2 kV, +/- 4 kV, +/- 8 kV Contact +/- 2 kV, +/- 4 kV
Criteria:	B
Test Procedure	refer to ISL QA T04-S03
Temperature:	24degree C
Humidity:	48%

Selected Test Point

Air: discharges were applied to slots, aperture or insulating surfaces. 10 single air discharges were applied to each selected points.

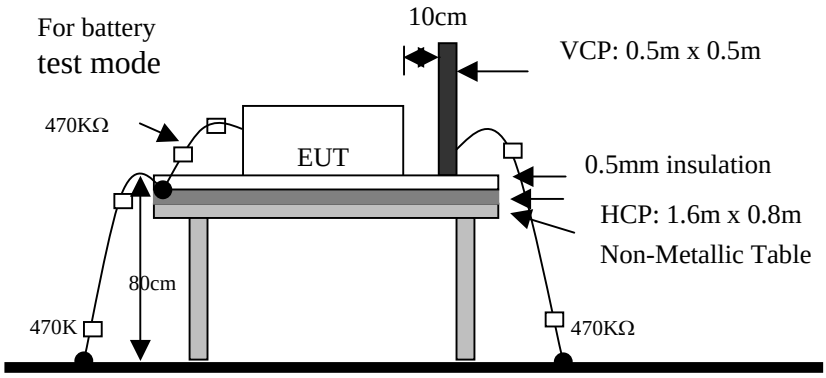
Contact: Total 200 points minimum were to the selected contact points.

Indirect Contact Points: 25 discharges were applied to center of one edge of VCP and each EUT side of HCP with 10 cm away from EUT.

For final test points, please refer to EUT 39 of "Appendix: Photographs of EUT".
Red arrow lines indicate the contact points, and blue arrow lines indicate the air points.

Test Setup

EUT is 1m from the wall and other metallic structure. When Battery test mode is needed, a cable with one 470KΩ resister at two rare ends is connected from metallic part of EUT and screwed to HCP.



Test Result

Performance of EUT complies with the given specification.

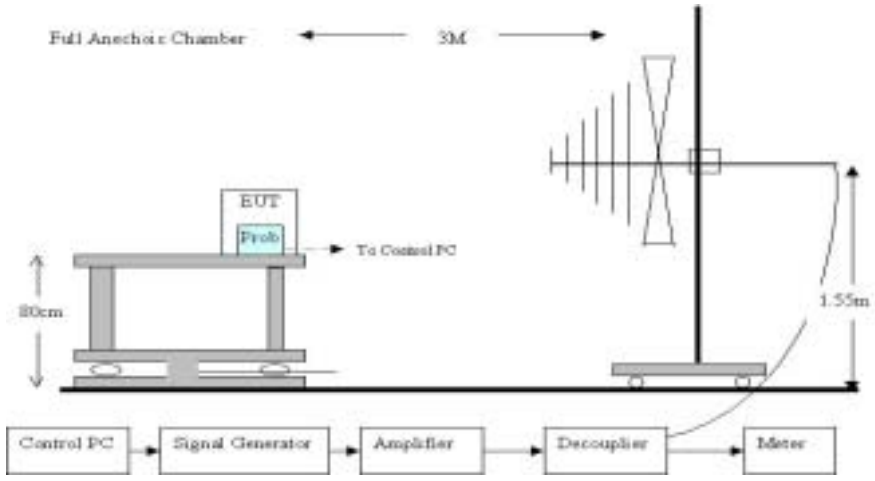
4. Radio-Frequency, Electromagnetic Field immunity

4.1 Radio-Frequency, Electromagnetic Field immunity test

Port:	Enclosure
Basic Standard:	EN61000-4-3/ AS/NZS 61000.4.3 (details referred to Sec 2.2)
Test Level::	3 V/m
Modulation:	AM 1KHz 80%
Frequency range:	80 MHz~1 GHz
Frequency Step:	1% of last step frequency
Dwell time:	800 ms
Polarization:	Vertical and Horizontal
EUT Azimuth Angle	☑ 0° ☑ 90° ☑ 180° ☑ 270°
Criteria:	A
Test Procedure	refer to ISL QA T04-S017
Temperature:	19degree C
Humidity:	52%

Test Setup

The field sensor is placed at one calibration grid point to check the intensity of the established fields on both polarizations. EUT is adjusted to have each side of EUT face coincident with the calibration plane. A CCD camera and speakers are used to monitor the condition of EUT for the performance judgment.



Test Result

Performance of EUT complies with the given specification.

5. Electrical Fast transients/burst immunity

5.1 Electrical Fast transient/burst immunity test

Port:	AC mains; Telephone Jack,Twisted Pair LAN Port
Basic Standard:	EN61000-4-4/ AS/NZS 61000.4.4 (details referred to Sec 2.2)
Test Level:	**AC Power Port**: +/- 1 kV **Telephone Jack,Twisted Pair LAN Port** (I/O Cables): **+/- 0.5 kV**
Rise Time:	5ns
Hold Time:	50ns
Repetition Frequency:	5KHz
Criteria:	B
Test Procedure	refer to ISL QA T04-S05
Temperature:	24 degree C
Humidity:	48%

Test Procedure

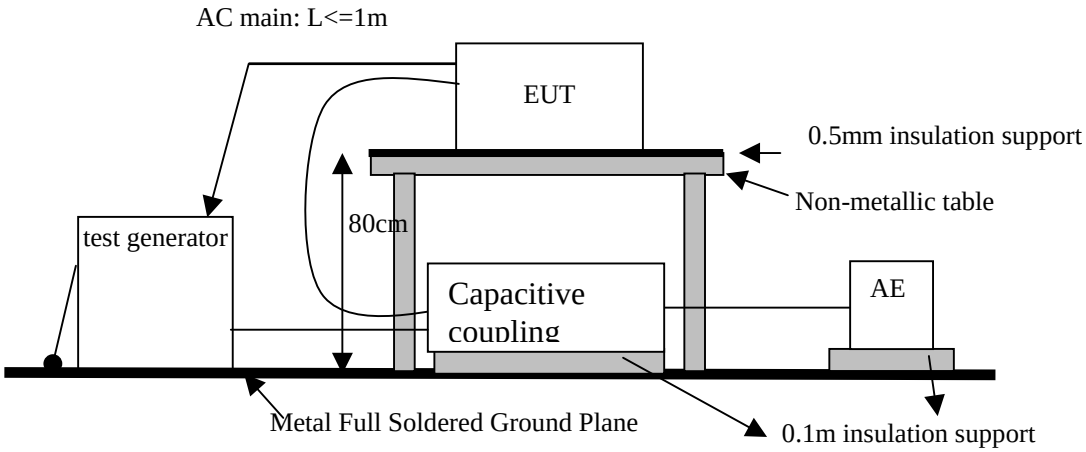
The EUT was setup on a nonconductive table 0.8 m above a reference ground plane.

Test Points	Polarity	Result	Comment
Line	+	N	60 sec
	-	N	60 sec
Neutral	+	N	60 sec
	-	N	60 sec
Ground	+	N	60 sec
	-	N	60 sec
Line to Neutral	+	N	60 sec
	-	N	60 sec
Line to Ground	+	N	60 sec
	-	N	60 sec
Neutral to Ground	+	N	60 sec
	-	N	60 sec
Line to Neutral to Ground	+	N	60 sec
	-	N	60 sec

Note: 'N' means normal, the EUT function is correct during the test.

Test Setup

EUT is at least 50cm from the conductive structure .



Test Result

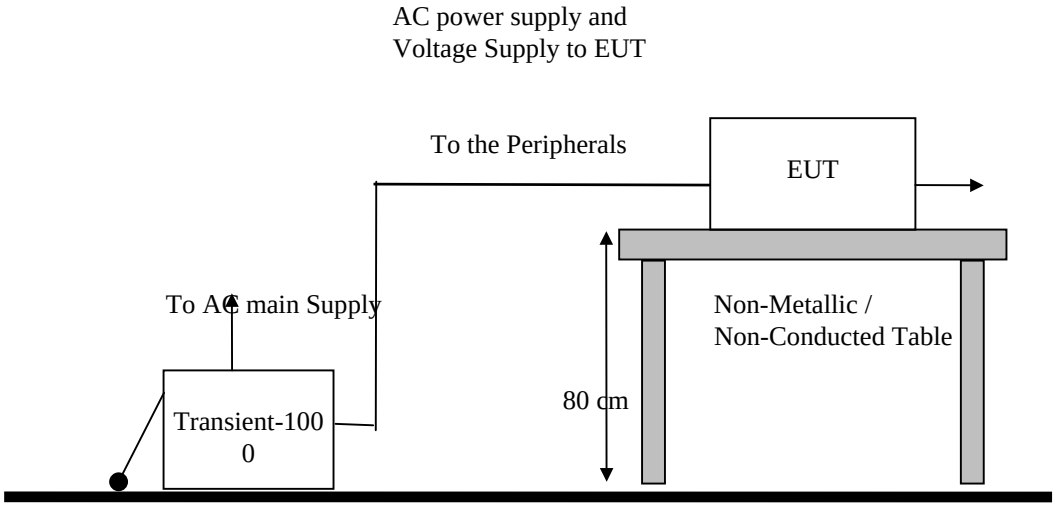
Performance of EUT complies with the given specification.

6. Surge Immunity

6.1 Surge immunity test

Port:	AC mains; Telephone Jack
Basic Standard:	EN61000-4-5/ AS/NZS 61000.4.5 (details referred to Sec 2.2)
Test Level:	**AC Power Port:** Line to Line: +/- 0.5 kV, +/- 1 kV Line to Earth: +/- 0.5 kV, +/- 1 kV, +/- 2kV **Telephone Jack,** (I/O cable)**:** Line to Ground: +/- 0.5 kV, +/- 1 kV
Rise Time:	1.2us
Hold Time:	50us
Repetition Rate:	60 second
Angle:	☑ 0° ☑ 90° ☑ 270°
Criteria:	B
Test Procedure	refer to ISL QA T04-S04
Temperature:	24degree C
Humidity:	48%

Test Setup



Metal Full Soldered Ground Plane

Test Result

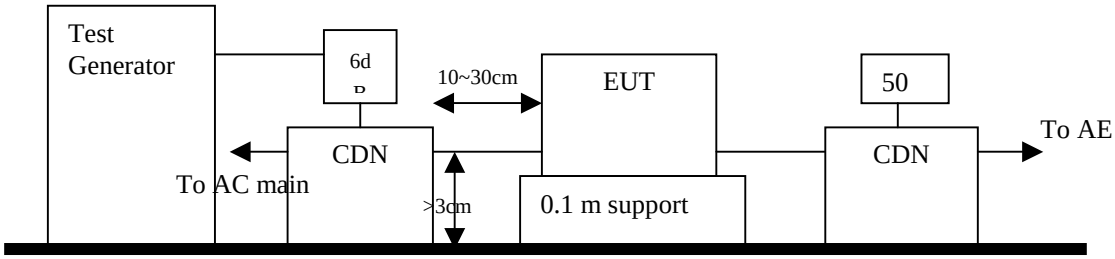
Performance of EUT complies with the given specification.

7. Immunity to Conductive Disturbance

7.1 Immunity to Conductive Disturbance

Port:	AC mains; Telephone Jack,Twisted Pair LAN Port
Basic Standard:	EN61000-4-6/ AS/NZS 61000.4.6 (details referred to Sec 2.2)
Test Level::	3 V
Modulation:	AM 1KHz 80%
Frequency range:	0.15 MHz - 80MHz
Frequency Step:	1% of last Frequency
Dwell time:	1000 ms
Criteria:	A
Test Procedure	refer to ISL QA T04-S08
Temperature:	22degree C
Humidity:	51%

Test Setup



Reference Ground Plane

Test Result

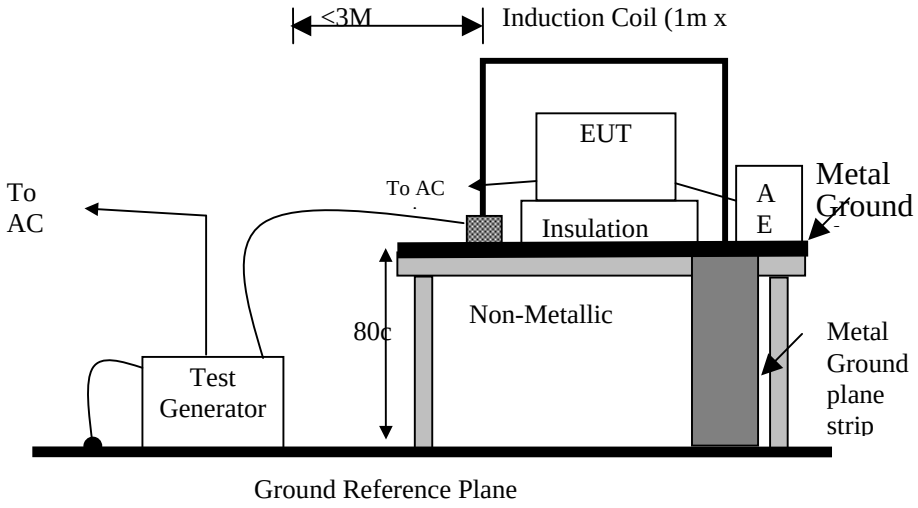
Performance of EUT complies with the given specification.

8. Power Frequency Magnetic Field immunity

8.1 Power Frequency Magnetic field immunity test

Port:	Enclosure
Basic Standard:	EN61000-4-8/ AS/NZS 61000.4.8 (details referred to Sec 2.2)
Test Level:	1A/m
Polarization:	X, Y, Z
Criteria:	A
Test Procedure	refer to ISL QA T04-S02
Temperature:	27degree C
Humidity:	43%

Test Setup



Test Result

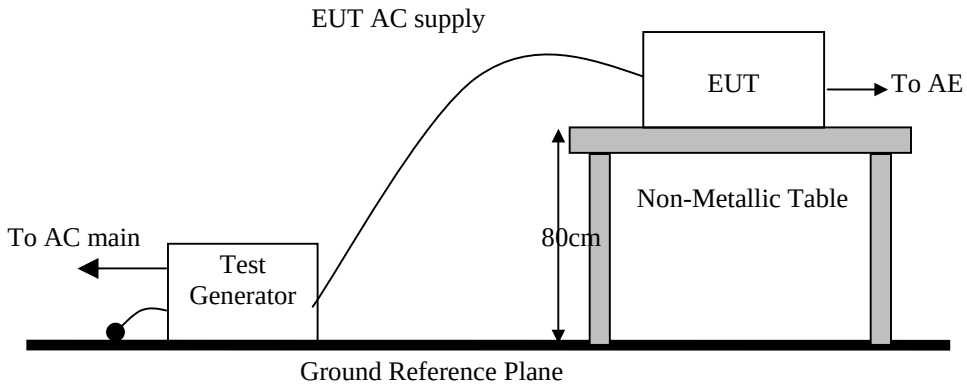
Performance of EUT complies with the given specification.

9. Voltage Dips, Short Interruption and Voltage Variation immunity

9.1 Voltage Dips, Short Interruption and Voltage Variation immunity test

Port:	AC mains
Basic Standard:	EN61000-4-11/ AS/NZS 61000.4.11 (details referred to Sec 2.2)
Test Level: Criteria:	>95% in 10ms B
Test Level: Criteria:	30% in 500ms C
Test Level: Criteria:	>95% in 5000ms C
Phase:	0°; 180°
Test intervals:	3 times with 10s each
Test Procedure	refer to ISL QA T04-S01
Temperature:	23degree C
Humidity:	54%

Test Setup



Test Result

Performance of EUT complies with the given specification.

10. Harmonics

10.1 Harmonics test

Port:	AC mains
Active Input Power:	>75W
Basic Standard:	EN61000-3-2/AS/NZS 61000.3.2 (details referred to Sec 2.2)
Test Duration:	2.5min
Class:	D
Test Procedure	refer to ISL QA T04-S43
Temperature:	26degree C
Humidity:	54%

Test Procedure

The EUT is supplied in series with shunts or current transformers from a source having the same nominal voltage and frequency as the rated supply voltage and frequency of the EUT. The EUT is configured to its rated current with additional resistive load when the testing is performed.

Equipment having more than one rated voltage shall be tested at the rated voltage producing the highest harmonics as compared with the limits.

Result

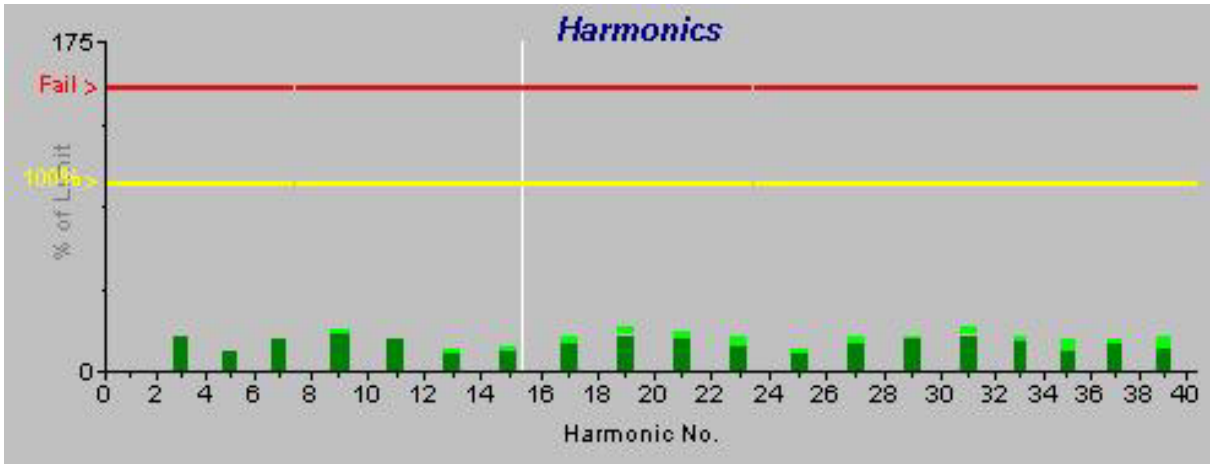
Performance of EUT complies with the given specification.

Test Data

Test Results:

Test Results Limit Parameters within +/-10 percent: Yes
Maximum Power : 75.4 W
Fundamental Current : 0.337 A
Power Factor : 0.966
Partial Odd Harmonic Current from Limits : 0.03
Measured Partial Odd Harmonic Current : 0.01

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.		0.3366		0.3322		0.0021		
2		0.0025		0.0018		0.0003		
3	0.2568	0.0489	19.0	0.0481	18.7	0.0003	0.1	P
4		0.0020		0.0014		0.0002		
5	0.1435	0.0160	11.2	0.0156	10.9	0.0002	0.1	P
6		0.0014		0.0009		0.0002		
7	0.0755	0.0130	17.3	0.0125	16.5	0.0001	0.2	P
8		0.0010		0.0007		0.0001		
9	0.0378	0.0085	22.5	0.0080	21.3	0.0002	0.4	P
10		0.0009		0.0006		0.0001		
11	0.0264	0.0047	17.7	0.0042	16.0	0.0002	0.6	P
12		0.0008		0.0004		0.0001		
13	0.0224	0.0027	12.1	0.0023	10.2	0.0001	0.6	P
14		0.0009		0.0005		0.0001		
15	0.0194	0.0026	13.6	0.0022	11.2	0.0002	0.8	P
16		0.0008		0.0004		0.0001		
17	0.0171	0.0031	18.0	0.0027	15.8	0.0001	0.8	P
18		0.0006		0.0004		0.0001		
19	0.0153	0.0036	23.4	0.0032	20.7	0.0002	1.1	P
20		0.0006		0.0003		0.0001		
21	0.0138	0.0029	20.9	0.0025	18.3	0.0001	0.9	P
22		0.0005		0.0002		0.0001		
23	0.0126	0.0023	18.6	0.0020	15.8	0.0001	1.0	P
24		0.0005		0.0002		0.0001		
25	0.0116	0.0014	11.7	0.0010	8.2	0.0001	1.1	P
26		0.0005		0.0003		0.0001		
27	0.0108	0.0020	18.6	0.0016	15.2	0.0001	1.2	P
28		0.0005		0.0003		0.0001		
29	0.0100	0.0018	18.2	0.0016	15.6	0.0001	0.8	P
30		0.0003		0.0001		0.0001		
31	0.0094	0.0022	23.0	0.0019	20.2	0.0001	0.8	P
32		0.0003		0.0001		0.0001		
33	0.0088	0.0016	18.7	0.0014	16.4	0.0001	0.8	P
34		0.0004		0.0002		0.0001		
35	0.0083	0.0014	17.4	0.0012	14.3	0.0001	1.2	P
36		0.0004		0.0002		0.0001		
37	0.0079	0.0014	17.2	0.0009	11.5	0.0001	1.5	P
38		0.0004		0.0002		0.0001		
39	0.0075	0.0014	19.1	0.0012	16.0	0.0001	1.3	P
40		0.0003		0.0001		0.0001		


Harmonics
175
Fail >
100% >
% of Limit
0
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40
Harmonic No.

11. Voltage Fluctuations

11.1 Voltage Fluctuations test

Port:	AC mains
Basic Standard:	EN61000-3-3/AS/ AS/NZS 61000.3.3 (details referred to Sec 2.2)
Test Procedure	refer to ISL QA T04-S44
Observation period:	For Pst 10min
	For Plt 2 hours
Temperature:	26degree C
Humidity:	54%

Test Procedure

The EUT is supplied in series with reference impedance from a power source with the voltage and frequency as the nominal supply voltage and frequency of the EUT.

Result

Performance of EUT complies with the given specification.

Test Data

Observation period: short time (10 min)
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

Observation period: long time (2 hours)
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

12. Test Equipment List

Location	Equipment Name	Brand	Model	S/N	Last Cal. Date	Next Cal. Date
EN61K-3-2/3	DC Burn-In Load -3	D-RAM	DBS-2100	2100-9002	N/A	N/A
EN61K-3-2/3	Harmonic/Flicker Test System	HP	6842A	3531A00133	12/09/2005	12/09/2006
EN61K-4-2	Digital Hygro-Thermometer 4-2 02	MicroLife	HT-2126G	4-2 02	11/30/2004	11/30/2006
EN61K-4-2	ESD Gun	Schaffner	NSG 435	5193	04/25/2006	04/25/2007
EN61K-4-3	BILOG Antenna 06	Schaffner	CBL6112B	2754	N/A	N/A
EN61K-4-3	Amplifier 80Mz~1GHz 250W	AR	250W1000A	312494	N/A	N/A
EN61K-4-3	Amplifier 800MHz~3.0GHz 60W	AR	60S1G3	312762	N/A	N/A
EN61K-4-3	Broadband coupler 10K~220Mhz	Amplifier Research	DC2500	19810	N/A	N/A
EN61K-4-3	Broadband Coupler 80M~1GHz	Amplifier Research	DC6180	20364	N/A	N/A
EN61K-4-3	Broadband Couplier 1~4GHz	Werlatone	C5291	6516	N/A	N/A
EN61K-4-3	Coaxial Cable Chmb 04-3M-2	Belden	RG-8/U	Chmb 04-3M-2	N/A	N/A
EN61K-4-3	Signal Generator 03	Anritsu	MG3642A	6200162550	02/14/2006	02/14/2007
EN61K-4-4	EFT Simulator	NoiseKen	FNS-103L	5079H00006	10/20/2005	10/20/2006
EN61K-4-5	CDN Surge Kit 02	EMC-PARTNER	CDNKIT1000T; DN-T1; DN-T2; CN-T1; CN-T2	CDNKIT1000-18	11/01/2005	11/01/2007
EN61K-4-5	Transient-1000 02	EMC Partner	Transient-1000	TRA1000-179	11/01/2005	11/01/2006
EN61K-4-6	150-50-CDN ADAPTER KIT 01	FCC Inc.	FCC-801-150-50-CDN	02109&02110	N/A	N/A
EN61K-4-6	150-50-CDN ADAPTER KIT 02	FCC Inc.	FCC-801-150-50-CDN	02111&02112	N/A	N/A
EN61K-4-6	CDN M2+M3 02	Frankonia	M2+M3	A2011024	08/12/2006	08/12/2007
EN61K-4-6	CDN T2 04	FCC Inc.	FCC-801-T2	02067	06/22/2006	06/22/2007
EN61K-4-6	CDN T4 03	FCC Inc.	FCC-801-T4	02068	06/22/2006	06/22/2007
EN61K-4-6	Coaxial Cable 4-6 02-1			4-6 02-1	N/A	N/A
EN61K-4-6	Coaxial Cable 4-6 02-2			4-6 02-2	N/A	N/A
EN61K-4-6	Conducted Immunity Test System	Frankonia	CIT-10/75	102C3119	12/05/2005	12/05/2006
EN61K-4-6	EM-Clamp	Schaffner	KEMZ-801	19215	N/A	N/A
EN61K-4-6	Universal CDN KAL Kit 02	Frankonia	KAL	n/a	N/A	N/A
EN61K-4-8	Clamp Meter 4-8 02	Prova	11	01340731	03/15/2006	03/15/2007
EN61K-4-8	Magnetic Field Immunity Loop	FCC	F-1000-4-8-L-1M	01037	N/A	N/A
EN61K-4-8	Magnetic Field Test Generator	FCC	F-1000-4-8-G-125A	01038	N/A	N/A
EN61K-4-11	Voltage Dip Simulator	NoiseKen	VDS-220B	5079D00005	10/20/2005	10/20/2006

12.1 Software for Controlling Spectrum/Receiver and Calculating Test Data

Test Item	Filename	Version
EN61000-3-2	IEC1000.EXE	1.0F
EN61000-3-3	IEC1000.EXE	1.0F
EN61000-4-3	Tile.Exe	2.0.P
EN61000-4-6	EN61000-4-6 Application Software	1.13.e
EN61000-4-2	N/A	2.0
EN61000-4-4	N/A	2.0
EN61000-4-5	Tracs.Exe	2.0
EN61000-4-8	N/A	
EN61000-4-11	N/A	

13. Photographs

13.1 Photo of ESD measurement

13.2 Photo of RF Field Strength Susceptibility Measurement

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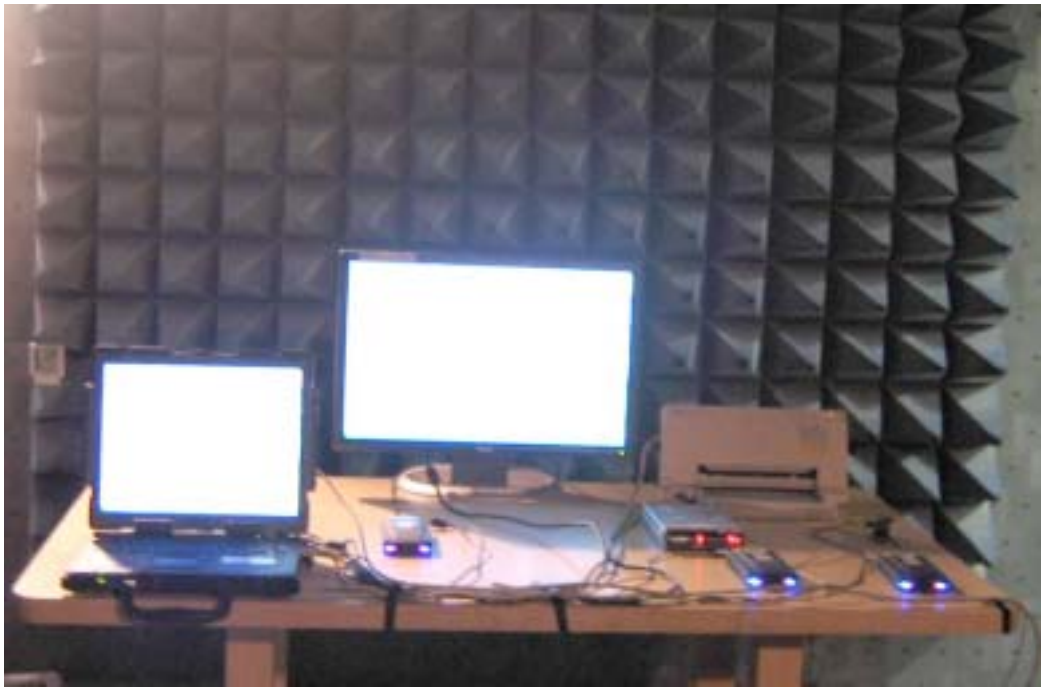
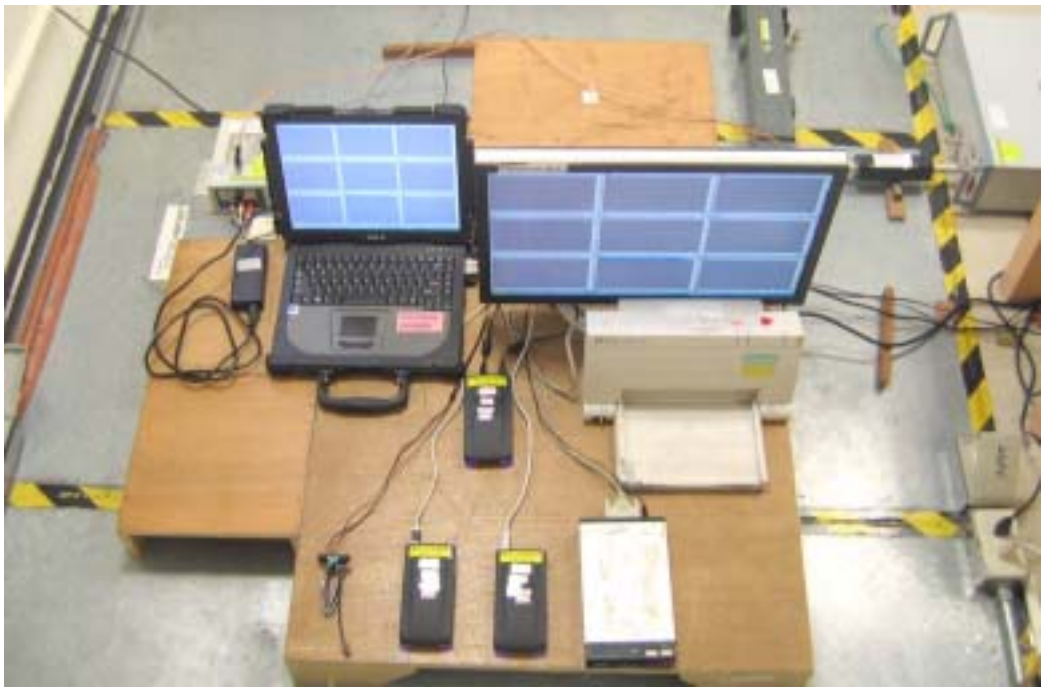


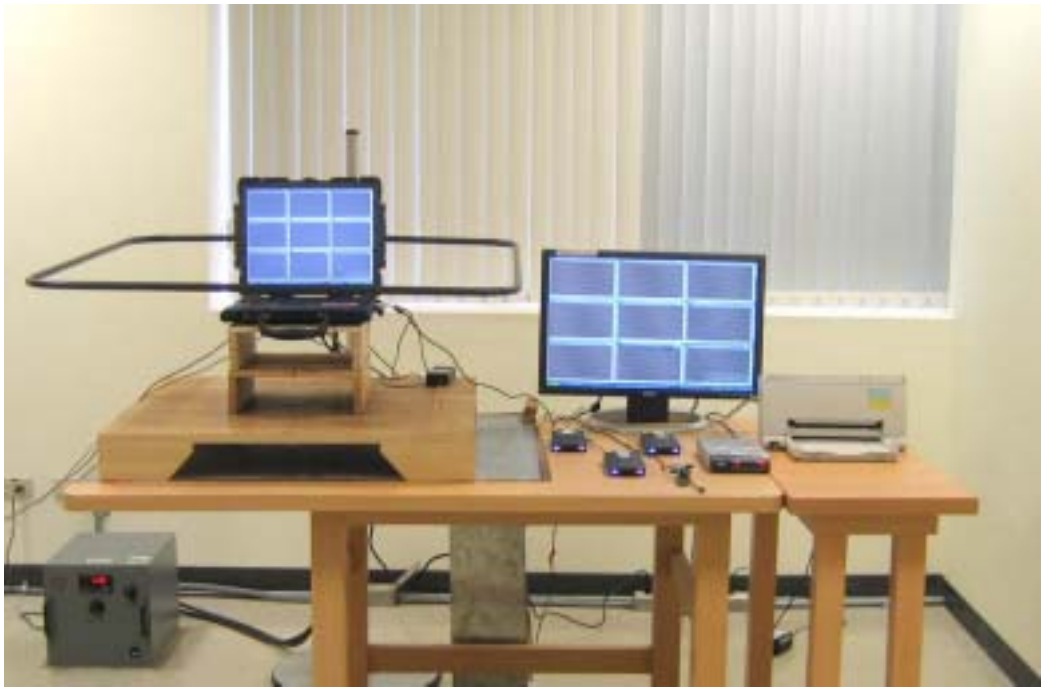
13.3 Photo of Electrical Fast Transient/Burst measurement

13.4 Photo of Surge measurement

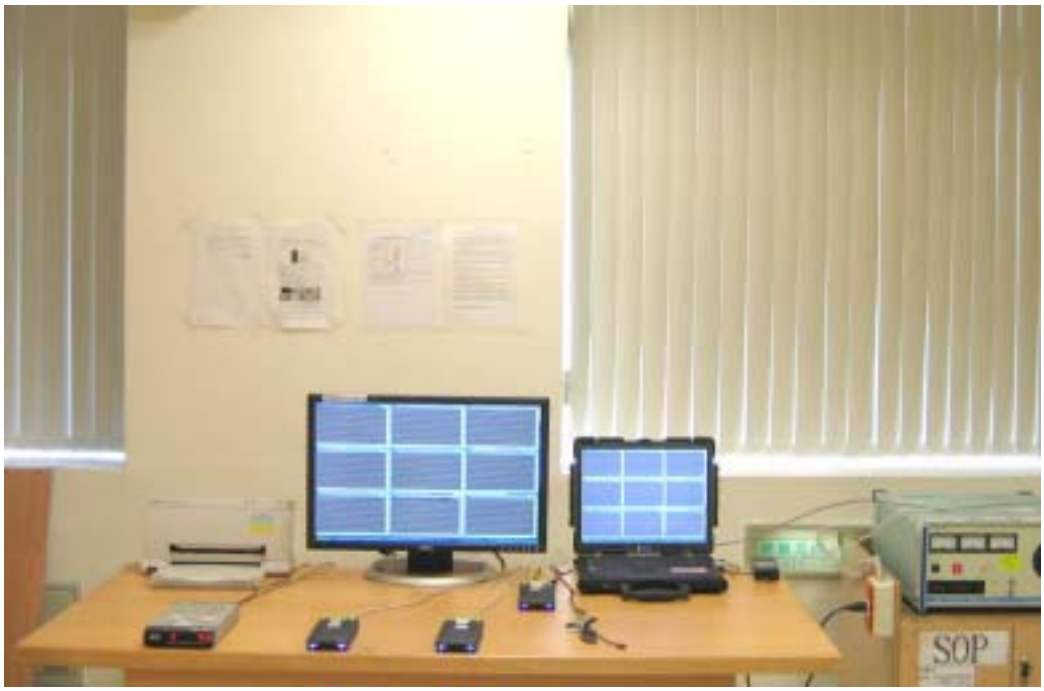
13.5 Photo of Conductive Measurement



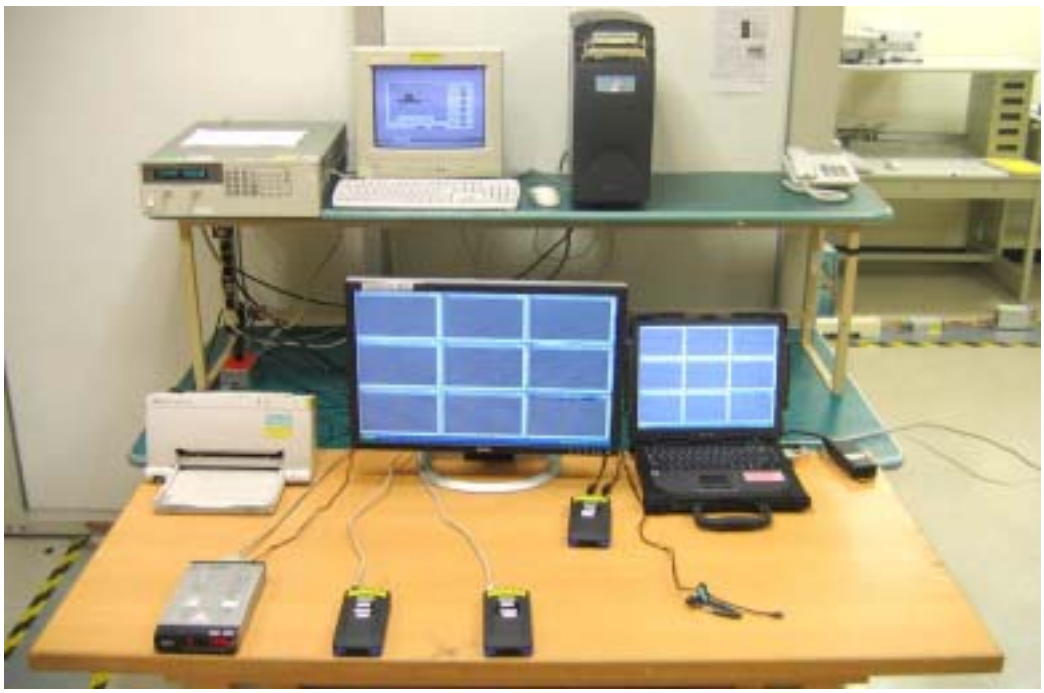
13.6 Photo of Magnetic field measurement



13.7 Photo of Voltage Dips measurement



13.8 Photo of Harmonics and Voltage Fluctuations



13.9 Appendix: Photographs of EUT

Please refer to the File of **ISL-*06LE120*P**