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# Certificate

Product Name: Notebook Personal Computer Test Report No.: 06LE121C ; 06LE121E  
Model Number(s): **A770;A790** Issue Date: 2006/10/30  
Responsible Party: **MITAC Technology Corporation**  
Address: 4F, No.1, R&D Road 2,  
Hsinchu Science-Based industrial Park, Hsinchu 300, Taiwan,R. O. C.  
Contact Person: Power Shaw

We, **International Standards Laboratory**, hereby certify that:

The device bearing the trade name and model specified above has been shown to comply with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in EUROPEAN COUNCIL DIRECTIVE 89/336/EEC. The device was passed the test performed according to :


EN55022: 1998/A1: 2000/A2: 2003; AS/NZS CISPR 22: 2004: Limits and methods of measurement of Radio Interference characteristics of Information Technology Equipment.

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

EN61000-4-2: 1995/A1: 1998/A2: 2001 AS/NZS 61000.4.2: 2002	EN61000-4-6: 1996/A1: 2001 AS/NZS 61000.4.6: 1999
EN61000-4-3: 2002/A1: 2002 AS/NZS 61000.4.3: 1999	EN61000-4-8: 1993/A1: 2001 AS/NZS 61000.4.8: 2002
EN61000-4-4: 1995/A1: 2001/A2: 2001 AS/NZS 61000.4.4: 1999	EN61000-4-11: 1994/A1: 2001 AS/NZS 61000.4.11: 1999
EN61000-4-5: 1995/A1: 2001 AS/NZS 61000.4.5: 1999	

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

I attest to the accuracy of data and all measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

  
Eddy Hsiung/Director



**CE MARK TECHNICAL FILE**

**AS/NZS EMC CONSTRUCTION FILE**

of

Product Name

**Notebook Personal Computer**

Model

**A770;A790**

Contains:

1. Declaration of Conformity
2. EN55022/CISPR 22, AS/NZS CISPR 22 EMI test report
3. EN55024, AS/NZS CISPR 24, EN61000-3-2 / AS/NZS 61000.3.2, and  
EN61000-3-3 / AS/NZS 61000.3.3  
test report
4. Certificate of EN60950-1
5. Block Diagram and Schematics
6. Users' manual

## Declaration of Conformity

Name of Responsible Party: MITAC Technology Corporation  
Address of Responsible Party: 4F, No.1, R&D Road 2,  
Hsinchu Science-Based industrial Park, Hsinchu 300  
Taiwan,R. O. C.  
Declares that product: Notebook Personal Computer  
Model: A770;A790  
Assembled by: Same as above  
Address: Same as above

Conforms to the EMC Directive 89/336/EEC as attested by conformity with the following harmonized standards:

EN55022: 1998/A1: 2000/A2: 2003; AS/NZS CISPR 22: 2004: Limits and methods of measurement of Radio Interference characteristics of Information Technology Equipment.

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

<to be continued>

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

Conforms to the Low Voltage Directive 73/23/EEC as attested by conformity with the following harmonized standard:

EN60950-1: 2001+A11: Safety of Information Technology Equipment Including electrical business equipment

*We, MITAC Technology Corporation, hereby declare that the equipment bearing the trade name and model number specified above was tested conforming to the applicable Rules under the most accurate measurement standards possible, and that all the necessary steps have been taken and are in force to assure that production units of the same equipment will continue to comply with the requirements.*

-----  
Power Shaw  
MITAC Technology Corporation

**Date: 2006/10/30**

### Declaration of Conformity

Name of Responsible Party: MITAC Technology Corporation  
Address of Responsible Party: 4F, No.1, R&D Road 2,  
Hsinchu Science-Based industrial Park, Hsinchu 300  
Taiwan,R. O. C.  
Declares that product: Notebook Personal Computer  
Model: A770;A790  
Assembled by: Same as above  
Address: Same as above

Conforms to the C-Tick Mark requirement as attested by conformity with the following standards:

EN55022: 1998/A1: 2000/A2: 2003; AS/NZS CISPR 22: 2004: Limits and methods of measurement of Radio Interference characteristics of Information Technology Equipment.

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

<to be continued>

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

*We, MITAC Technology Corporation, hereby declare that the equipment bearing the trade name and model number specified above was tested conforming to the applicable Rules under the most accurate measurement standards possible, and that all the necessary steps have been taken and are in force to assure that production units of the same equipment will continue to comply with the requirements.*

-----  
Power Shaw  
MITAC Technology Corporation

**Date: 2006/10/30**

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

**TEST REPORT**

*of*

*Product Name*

**Notebook Personal Computer**

*Model*

**A770;A790**

*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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**Report Number: ISL-06LE121E**

**Issue Date: 2006/10/30**

HC LAB: NVLAP:200234-0; VCCI: R-341, C-354; NEMKO:ELA 113A; BSMI:SL2-IN-E-0037; SL2-R1-E-0037; TAF:1178; IC:IC4067

LT LAB: NVLAP:200234-0; VCCI: R-1435, C-1440; NEMKO:ELA 113B; BSMI:SL2-IN-E-0013; TAF:0997; IC:IC4164-1

T10-R1-20



## Contents of Report

1.	General.....	1
1.1	Certification of Accuracy of Test Data .....	1
2.	Summary .....	2
2.1	Operation Environment .....	2
2.2	Test Standards .....	2
2.3	Description of Support Equipment .....	3
2.4	Description of Equipment Under Test.....	9
3.	Electrostatic discharge (ESD) immunity .....	12
3.1	Electrostatic discharge (ESD) immunity test .....	12
4.	Radio-Frequency, Electromagnetic Field immunity.....	13
4.1	Radio-Frequency, Electromagnetic Field immunity test.....	13
5.	Electrical Fast transients/burst immunity .....	14
5.1	Electrical Fast transient/burst immunity test .....	14
6.	Surge Immunity .....	16
6.1	Surge immunity test.....	16
7.	Immunity to Conductive Disturbance.....	17
7.1	Immunity to Conductive Disturbance .....	17
8.	Power Frequency Magnetic Field immunity .....	18
8.1	Power Frequency Magnetic field immunity test .....	18
9.	Voltage Dips, Short Interruption and Voltage Variation immunity .....	19
9.1	Voltage Dips, Short Interruption and Voltage Variation immunity test .....	19
10.	Harmonics .....	20
10.1	Harmonics test.....	20
11.	Voltage Fluctuations .....	23
11.1	Voltage Fluctuations test.....	23
12.	Test Equipment List.....	25
12.1	Software for Controlling Spectrum/Receiver and Calculating Test Data.....	26
13.	Photographs .....	27
13.1	Photo of ESD measurement .....	27
13.2	Photo of RF Field Strength Susceptibility Measurement.....	27
13.3	Photo of Electrical Fast Transient/Burst measurement.....	28
13.4	Photo of Surge measurement.....	28
13.5	Photo of Conductive Measurement .....	29
13.6	Photo of Magnetic field measurement .....	29
13.7	Photo of Voltage Dips measurement.....	30
13.8	Photo of Harmonics and Voltage Fluctuations .....	30
13.9	Appendix: Photographs of EUT Please refer to the File of ISL-06LE121P .....	31





# 1. General

## 1.1 Certification of Accuracy of Test Data

**Standards:** Please refer to 2.2  
**Equipment Tested:** Notebook Personal Computer  
**Model:** A770;A790  
**Applied by** MITAC Technology Corporation  
**Sample received Date:** 2006/08/04  
**Final test Date :** 2006/10/23  
**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

**SUPPORT UNIT 12**

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)

### 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	Nonshielded, 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	Shielded, Detachable(with core)	RJ-45, Plastic Head
Monitor Data Cable	Monitor D-SUB Port to 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(for A790)	USB external hard disk to EUT 1394B Port	1.2M	Shielded, Un-detachable(with core)	Metal Head
1394 Data Cable(for A770)	USB external hard disk to EUT 1394 Port	1.8M	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:	A770;A790
Serial Number:	N/A
CPU:	Pentium processor,1.6GHZ or Intel YONAH,1.667GHZ
Adapter Type:	Auto Switching AC Adapter 100-240V,1.2A 50-60Hz EPS (Model: F10903-A)
Hard Disk Driver:	Toshiba (Model:MK6025GAX) 60G or Toshiba (Model:MK8032GAX) 80G or Toshiba (Model:MK8032GSX) 80G or Toshiba (Model:MK1234GSX) 120G or Toshiba (Model:MK1234GAX) 120G
DVD Dual:	Panasonic (Model:UJ-840) or Panasonic (Model:UJ-850) or MATSHITA(Model:UJDA770)
Modem Card:	Conexant (Model: RD02-D330)
Wireless LAN Card:	Intel(Model:WM3945ABG) (for A790) Intel(Model:WM3B2200BG) (for A770)
WCDMA card:	Novatel(Model:EU740)
Bluetooth Module:	Billionton(Model:GUBTCR42M)
USB Connector:	two 4 pin
RJ11 Connector:	one 2 pin
Serial Port:	one 9 pin
RJ45 Connector:	one 8 pin
Parallel Port:	one 25 pin
VGA Port:	one
Line out Port:	one
Line-in Port:	one
PCMCIA Slot:	two
DC IN Port:	one
1394 Port:	one(for A770)
1394B Port:	one(for A790)
Battery:	Mitac(Model: BP-LC2400/34-01S1), 11.1Vdc, 9600mAh
LCD:	Toshiba(Model: LTD141ECGA) or Toshiba(Model: LTD121EC5S)
DDR:	Maplin(Model:PC2-2700S-2533-1-Z) 512M*2 or Infineon(Model:PC2-4200S-444-11-A0) 512M*2
Power Cord:	Non-shielded, Detachable

Test configuration:

configuration	Model	LCD	LAN speed	CPU	Adapter Type	Hard Disk	DVD Dual	Modem Card	Wireless LAN Card	Battery	DDR
1	A770	Toshiba (Model: LTD141E CGA)	100 Mbps	Pentium processor, 1.6GHZ	EPS (Model: F10903-A)	Toshiba (Model:MK8032GAX) 80G	Panasonic (Model:UJ-840)	Conexant (Model:RD02-D330)	N/A	MITAC (Model:BP-LC2400/34-01S1)	Maplin (Model:PC2-2700S-2533-1-Z)
2	A770	Toshiba (Model: LTD121E C5S)	100 Mbps	Pentium processor, 1.6GHZ	EPS (Model: F10903-A)	Toshiba (Model:MK8032GSX) 80G	Panasonic (Model:UJ-850)	Conexant (Model:RD02-D330)	N/A	MITAC (Model:BP-LC2400/34-01S1)	Maplin (Model:PC2-2700S-2533-1-Z)
3	A790	Toshiba (Model: LTD141E CGA)	1 Gbps	Intel YONAH, 1.667GHZ	EPS (Model: F10903-A)	Toshiba (Model:MK1234GSX) 120G	MATSHITA (Model:UJDA770)	Conexant (Model:RD02-D330)	Intel (Model:WM3945ABG)	MITAC (Model:BP-LC2400/34-01S1)	Infineon (Model:PC2-4200S-444-11-A0)
4	A790	Toshiba (Model: LTD121E C5S)	1 Gbps	Intel YONAH, 1.667GHZ	EPS (Model: F10903-A)	Toshiba (Model:MK1234GAX) 120G	Panasonic (Model:UJ-850)	Conexant (Model:RD02-D330)	Intel (Model:WM3945ABG)	MITAC (Model:BP-LC2400/34-01S1)	Infineon (Model:PC2-4200S-444-11-A0)
5	A790	Toshiba (Model: LTD141E CGA)	1 Gbps	Intel YONAH, 1.667GHZ	EPS (Model: F10903-A)	Toshiba (Model:MK6025GAX) 60G	MATSHITA (Model:UJDA770)	Conexant (Model:RD02-D330)	Intel (Model:WM3B2200BG)	MITAC (Model:BP-LC2400/34-01S1)	Infineon (Model:PC2-4200S-444-11-A0)

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	Model	LCD	LAN speed	CPU	Adapter Type	Hard Disk	DVD Dual	Modem Card	Wireless LAN Card	Battery	DDR
1	A790	Toshiba (Model: LTD141 ECGA)	1 Gbps	Intel YONAH, 1.667 GHZ	EPS (Model: F10903-A)	Toshiba (Model:MK1234GSX) 120G	MATSHITA (Model:UJDA770)	Conexant (Model:RD-02-D330)	Intel (Model:WM3945ABG)	MITAC (Model:BP-LC2400/34-01S1)	Infineon (Model:PC2-4200S-444-11-A0)
2	A770	Toshiba (Model: LTD141 ECGA)	100 Mbps	Pentium processor, 1.6GHZ	EPS (Model: F10903-A)	Toshiba (Model:MK8032GAX) 80G	Panasonic (Model:UJ-840)	Conexant (Model:RD-02-D330)	N/A	MITAC (Model:BP-LC2400/34-01S1)	Maplin (Model:PC2-2700S-2533-1-Z)

Differentiation :

Model	CPU	Bluetooth Module	1394 Port	Wireless LAN Card
A770	Pentium processor, 1.6GHZ	N/A	1394	Intel (Model:WM3B2200BG)
A790	Intel YONAH, 1.667GHZ	Billinton (Model:GUBTCR42M)	1394B	Intel (Model:WM3945ABG)

**EMI Noise Source:**

For A770:

PCMCIA Board Crystal: 24.576MHz(X2),24.576MHz(X1)

I/O board Crystal: 25MHz(X500)

Main board Crystal:14.318MHz(X1),16MHz(X2)

Clock Generator: U3

For A790:

PCMCIA Board Crystal:98.304MHz(X5)

Module Board Crystal:24MHz(X1),12MHz(X2)

Main Board Crystal:10MHz(X501),32.768KHz(X3),14.318MHz(X1)

I/O board Crystal:25MHz(X501)

Clock Generator:U2

**EMI Solution:**

1. Adding Core on Keyboard Signal cable (A5 FP 49.6\*3.25\*12\*K)( whether if photograph report enclosure page 9,14 getting red arrow 1 point show)
2. Adding Gasket on LAN Port and USB Port (whether if photograph report enclosure page 10 getting red arrow 2,3 point show)
3. Adding Gasket on PCMCIA Board(whether if photograph report enclosure page 10 getting red arrow 4 point show)
4. Adding Gasket on Line out Port and Line-in Port (whether if photograph report enclosure page 10 getting red arrow 5 point show)
5. Adding Gasket on Main board(whether if photograph report enclosure page 24 getting red arrow 6,7 point show)
6. Adding shielded tape on LCD Signal cable with LCD Panel Connector(whether if photograph report enclosure page 50 getting red arrow 8 point show)
7. Adding shielded tape on LCD Signal cable(whether if photograph report enclosure page 50 getting red arrow 9 point show)
8. Adding shielded tape on Inverter Signal cable(whether if photograph report enclosure page 50 getting red arrow 10 point show)
9. Adding shielded tape on Inverter Signal cable with case (whether if photograph report enclosure page 50 getting red arrow 11 point show)
10. Adding Gasket on HD Box (whether if photograph report enclosure page 63 getting red arrow 12,13 point show)
11. Adding core(K5B RH 14.2\*28.5\*8) on 1394B data cable (whether if photograph report enclosure page 84 getting red arrow 14,15 point show)
12. Adding Gasket on WCDMA antenna\*2 (whether if photograph report enclosure page 85,87 getting red arrow 16,17 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:	29degree C
Humidity:	41%

#### Selected Test Point

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

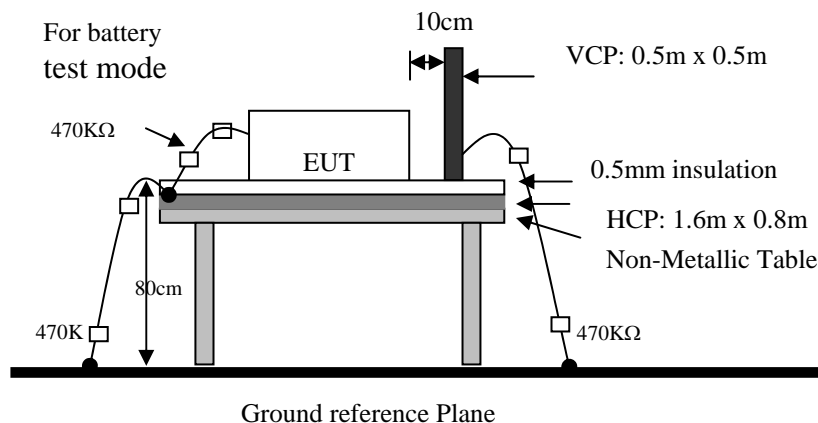
Contact: Total 200 points minimum were to the selected contact points.

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 93 to EUT 94 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 resistor 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.**

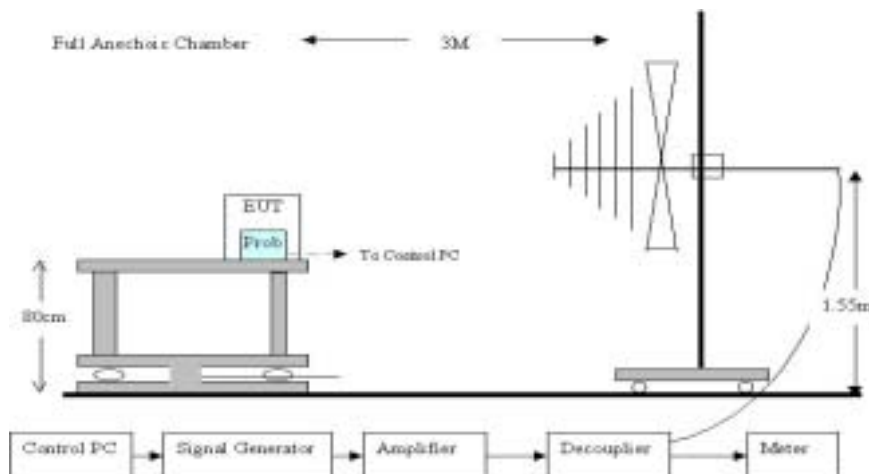
## 4. Radio-Frequency, Electromagnetic Field immunity

### 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:	3s
Polarization:	Vertical and Horizontal
EUT Azimuth Angle	<input checked="" type="checkbox"/> 0° <input checked="" type="checkbox"/> 90° <input checked="" type="checkbox"/> 180° <input checked="" type="checkbox"/> 270°
Criteria:	A
Test Procedure	refer to ISL QA T04-S017
Temperature:	22degree 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:	<b>AC Power Port:</b> +/- 1 kV <b>Telephone Jack, Twisted Pair LAN Port (I/O Cables):</b> +/- 0.5 kV
Rise Time:	5ns
Hold Time:	50ns
Repetition Frequency:	5KHz
Criteria:	B
Test Procedure	refer to ISL QA T04-S05
Temperature:	23 degree C
Humidity:	51%

#### Test Procedure

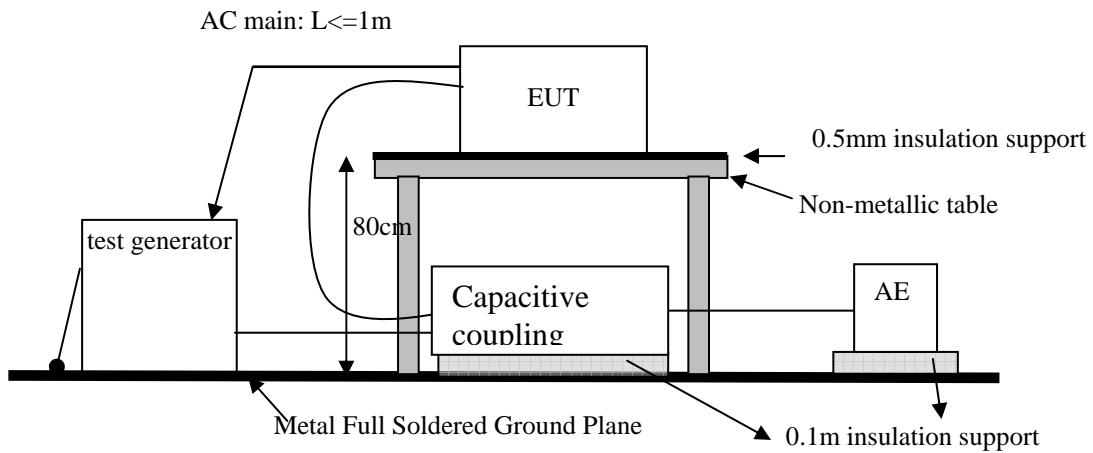
The EUT was setup on a nonconductive table 0.8 m above a reference ground plane.

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

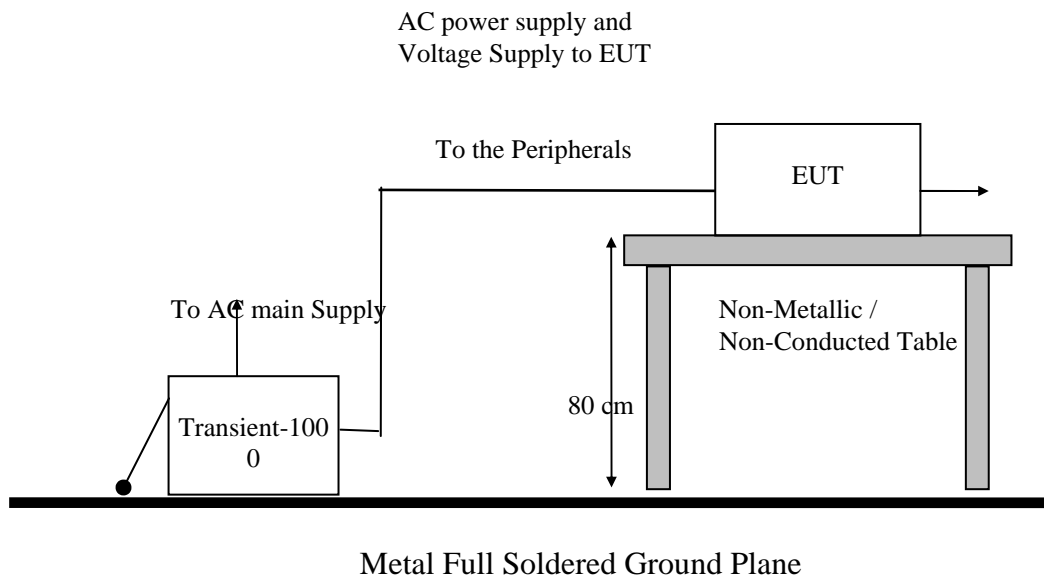
**Performance of EUT complies with the given specification.**

## 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:	<b>AC Power Port:</b> Line to Line: +/- 0.5 kV, +/- 1 kV Line to Earth: +/- 0.5 kV, +/- 1 kV, +/- 2kV <b>Telephone Jack (I/O cable):</b> Line to Ground: +/- 0.5 kV, +/- 1 kV
Rise Time:	1.2us
Hold Time:	50us
Repetition Rate:	60 second
Angle:	<input checked="" type="checkbox"/> 0° <input checked="" type="checkbox"/> 90° <input checked="" type="checkbox"/> 270°
Criteria:	B
Test Procedure	refer to ISL QA T04-S04
Temperature:	23degree C
Humidity:	51%

#### Test Setup



#### Test Result

**Performance of EUT complies with the given specification.**

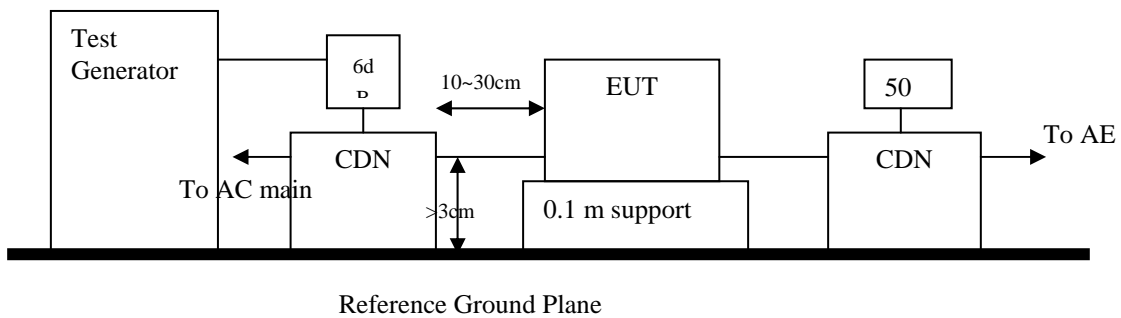


## 7. Immunity to Conductive Disturbance

### 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:	24degree C
Humidity:	52%

#### Test Setup



#### Test Result

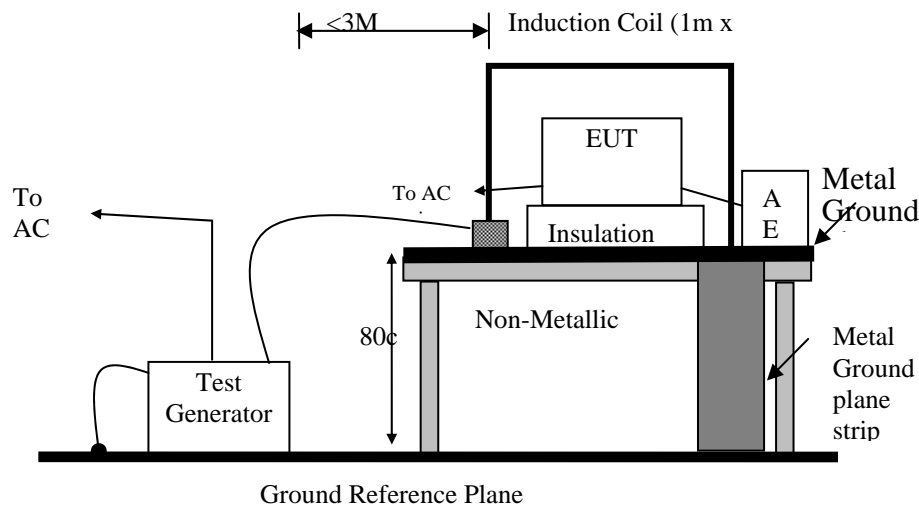
**Performance of EUT complies with the given specification.**

## 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:	23degree C
Humidity:	51%

#### Test Setup



#### Test Result

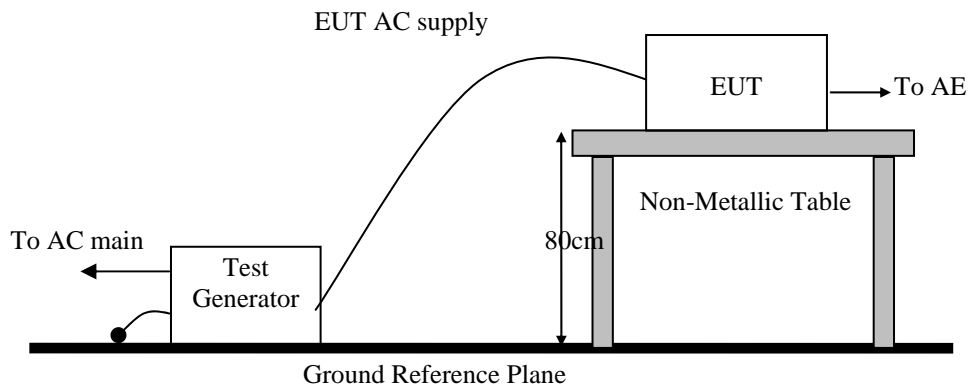
**Performance of EUT complies with the given specification.**

## 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:	>95% in 10ms
Criteria:	B
Test Level:	30% in 500ms
Criteria:	C
Test Level:	>95% in 5000ms
Criteria:	C
Phase:	0°; 180°
Test intervals:	3 times with 10s each
Test Procedure	refer to ISL QA T04-S01
Temperature:	23degree C
Humidity:	52%

#### 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:	24degree C
Humidity:	52%

#### **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.**



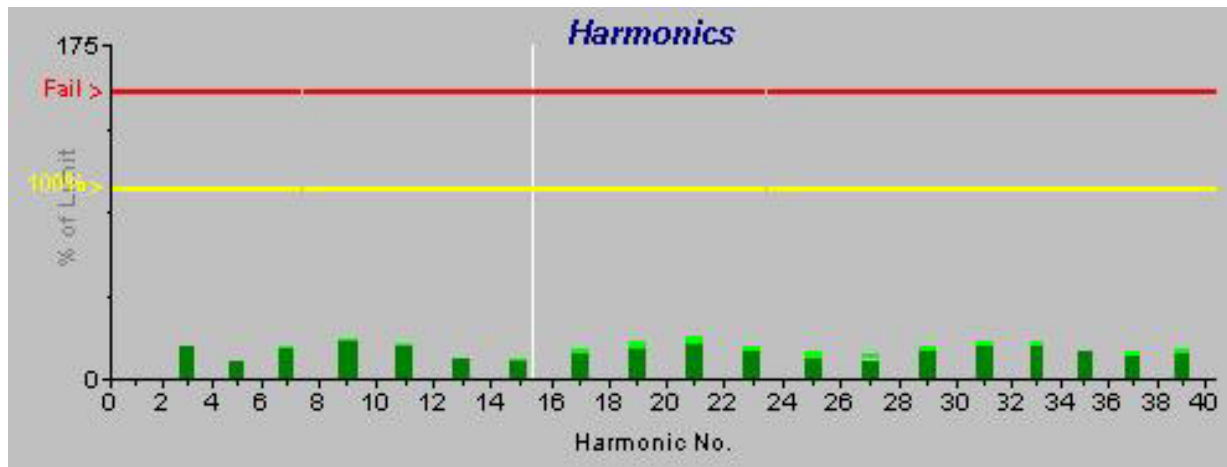
**Test Data**

Test Results:

-----

Test Results Limit Parameters within +/-10 percent: Yes  
 Maximum Power : 79.1 W  
 Fundamental Current : 0.352 A  
 Power Factor : 0.969  
 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)
<b>Fund.</b>		<b>0.3524</b>		<b>0.3364</b>		<b>0.0024</b>		
2		0.0023		0.0016		0.0002		
3	0.2667	0.0462	17.3	0.0452	16.9	0.0002	0.1	P
4		0.0020		0.0012		0.0002		
5	0.1490	0.0159	10.6	0.0155	10.4	0.0001	0.1	P
6		0.0014		0.0008		0.0002		
7	0.0784	0.0133	16.9	0.0129	16.4	0.0001	0.2	P
8		0.0010		0.0006		0.0001		
9	0.0392	0.0084	21.3	0.0080	20.3	0.0001	0.3	P
10		0.0008		0.0005		0.0001		
11	0.0275	0.0050	18.1	0.0046	16.7	0.0001	0.4	P
12		0.0008		0.0005		0.0001		
13	0.0232	0.0027	11.7	0.0024	10.2	0.0001	0.6	P
14		0.0008		0.0004		0.0001		
15	0.0201	0.0022	10.8	0.0018	8.8	0.0001	0.7	P
16		0.0008		0.0004		0.0001		
17	0.0178	0.0030	16.7	0.0026	14.4	0.0001	0.8	P
18		0.0007		0.0004		0.0001		
19	0.0159	0.0033	20.8	0.0029	18.2	0.0002	1.0	P
20		0.0007		0.0003		0.0001		
21	0.0144	0.0032	22.0	0.0029	19.9	0.0001	0.8	P
22		0.0005		0.0003		0.0001		
23	0.0131	0.0022	17.0	0.0019	14.6	0.0001	0.9	P
24		0.0005		0.0003		0.0001		
25	0.0121	0.0017	14.2	0.0014	11.5	0.0001	0.7	P
26		0.0005		0.0003		0.0001		
27	0.0112	0.0015	13.0	0.0012	10.8	0.0001	0.7	P
28		0.0005		0.0003		0.0001		
29	0.0104	0.0018	17.6	0.0016	15.7	0.0001	0.8	P
30		0.0003		0.0002		0.0001		
31	0.0097	0.0019	20.0	0.0017	17.8	0.0001	0.7	P
32		0.0004		0.0001		0.0001		
33	0.0092	0.0019	20.2	0.0016	17.9	0.0001	0.8	P
34		0.0004		0.0002		0.0001		
35	0.0086	0.0014	15.8	0.0011	13.1	0.0001	0.9	P
36		0.0004		0.0002		0.0001		
37	0.0082	0.0012	15.0	0.0010	12.6	0.0001	0.7	P
38		0.0003		0.0002		0.0001		
39	0.0077	0.0012	15.9	0.0010	13.0	0.0001	0.9	P
40		0.0003		0.0002		0.0001		



## 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:	24degree C
Humidity:	52%

#### **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 Coupler 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	TRANSIENT 2000	EMC-PARTNER	TRANSIENT 2000	831	04/08/2006	04/08/2007
EN61K-4-5	CDN-UTP8	EMC-PARTNER	CDN-UTP8	017	04/08/2006	04/08/2007
EN61K-4-5	SURGE-TESTER	EMC Partner	SURGE-TESTER	MIG0603IN3	04/08/2006	04/08/2007
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	08/25/2006	08/25/2007
EN61K-4-6	CDN T2 04	FCC Inc.	FCC-801-T2	02067	07/15/2006	07/15/2007
EN61K-4-6	CDN T4 03	FCC Inc.	FCC-801-T4	02068	07/15/2006	07/15/2007
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 and UP Simulator	NoiseKen	VDS-2002	VDS0640162	08/25/2006	08/25/2007

### 12.1 Software for Controlling Spectrum/Receiver and Calculating Test Data

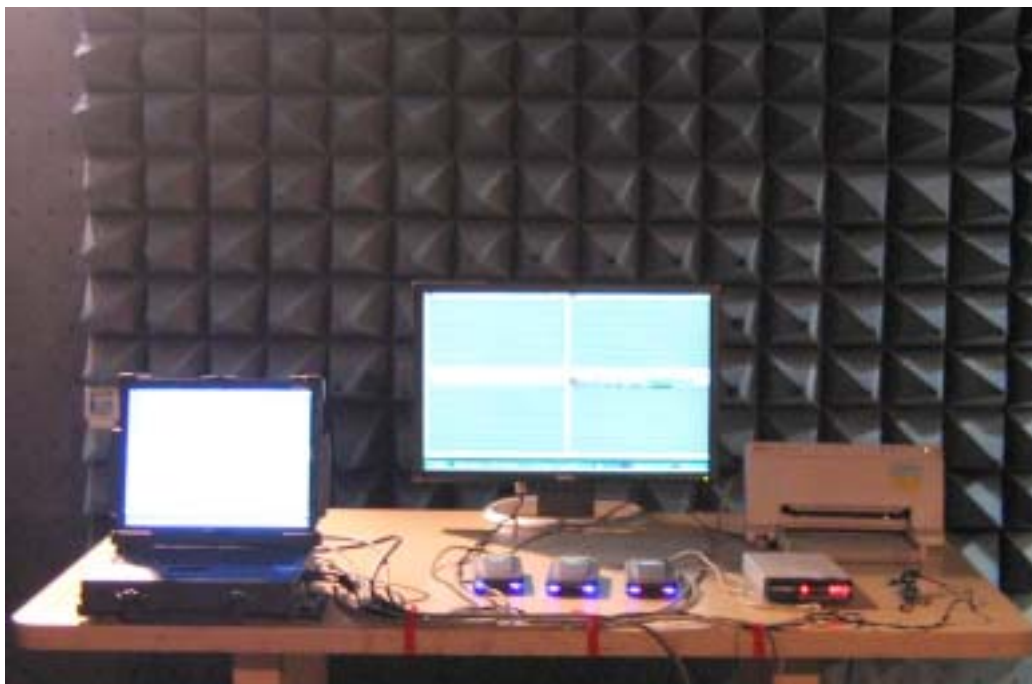
Test Item	Filename	Version
EN61000-3-2	IEC1000.EXE	1.0F
EN61000-3-3	IEC1000.EXE	1.0F
EN61000-4-3	Tile.Exe	2.0.P
EN61000-4-6	EN61000-4-6 Application Software	1.13.e
EN61000-4-2	N/A	2.0
EN61000-4-4	N/A	2.0
EN61000-4-5	Tracs.Exe	2.0
EN61000-4-8	N/A	
EN61000-4-11	N/A	

### 13. Photographs

#### 13.1 Photo of ESD measurement



#### 13.2 Photo of RF Field Strength Susceptibility Measurement



### 13.3 Photo of Electrical Fast Transient/Burst measurement



### 13.4 Photo of Surge measurement



### 13.5 Photo of Conductive Measurement



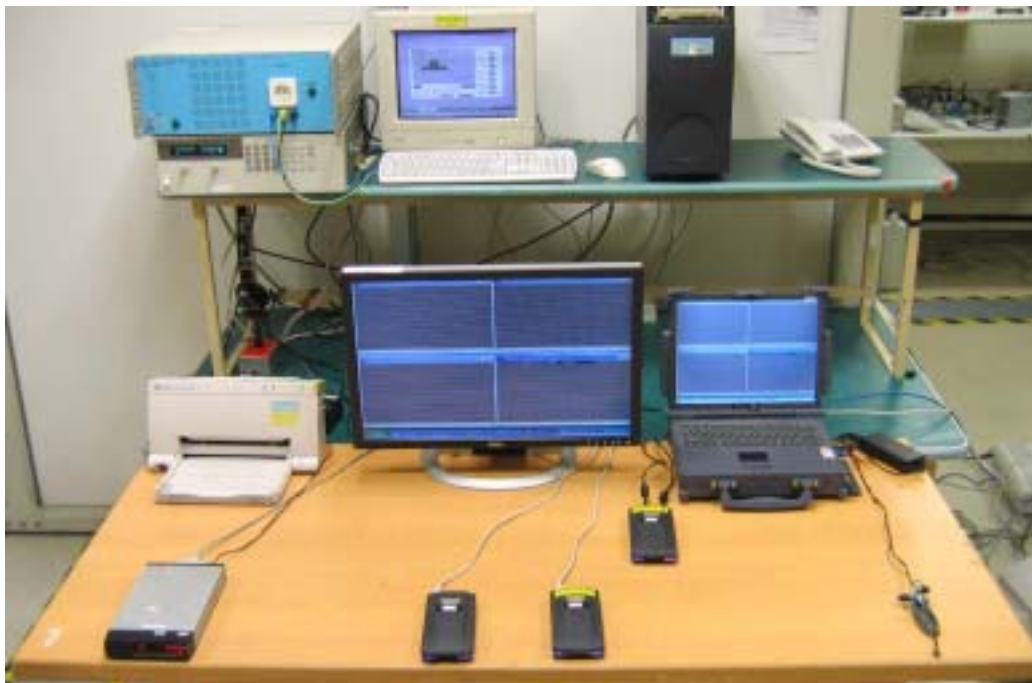
### 13.6 Photo of Magnetic field measurement



### 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-06LE121P**