



No. 65, Ku Dai Keng St., Hsichih, Taipei 221, R.O. C.  
No. 120, Lane 180, San Ho Tsuen, Hsin Ho Rd. Lung-Tan Hsiang,  
Tao Yuan County 325, Taiwan, R.O.C.

Tel: 886-2-2646-2550 FAX: 886-2-26464641

Tel: 886-3-407-1718 FAX:886-3-407-1738

# Certificate

Product Name: USB Disk Module Test Report No.: 06HE096C ; 06HE096E  
 Model Number(s): UDM Issue Date: 2006/05/22  
 Responsible Party: **Apacer Technology Inc.**  
 Address: 9F, 100, Sec. 1, Hsin Tai Wu Rd., Hsichih,  
 Taipei Hsien 221,, Taiwan, R.O.C.  
 Contact Person: Michael Yang / Engineer

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*



(NVLAP Lab. Code: 200234-0)

**CE MARK TECHNICAL FILE**

**AS/NZS EMC CONSTRUCTION FILE**

of

**USB Disk Module**

Model

**UDM**

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. Block Diagram and Schematics
5. Users' manual

## Declaration of Conformity

Name of Responsible Party: Apacer Technology Inc.

Address of Responsible Party: 9F, 100, Sec. 1, Hsin Tai Wu Rd., Hsichih,  
Taipei Hsien 221,  
Taiwan, R.O.C.

Declares that product: USB Disk Module

Model: UDM

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

*We, Apacer Technology Inc., 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.*

-----  
Michael Yang / Engineer  
Apacer Technology Inc.

**Date: 2006/05/22**

### Declaration of Conformity

Name of Responsible Party: Apacer Technology Inc.

Address of Responsible Party: 9F, 100, Sec. 1, Hsin Tai Wu Rd., Hsichih,  
Taipei Hsien 221,  
Taiwan, R.O.C.

Declares that product: USB Disk Module

Model: UDM

Assembled by: Same as above

Address: Same as above

Conforms to the G-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, Apacer Technology Inc., 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.*

-----  
Michael Yang / Engineer  
Apacer Technology Inc.

**Date: 2006/05/22**

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

**TEST REPORT**

*of*

*Product Name*

**USB Disk Module**

*Model*

**UDM**

*Applied by:*

Apacer Technology Inc.  
9F, 100, Sec. 1, Hsin Tai Wu Rd., Hsichih,  
Taipei Hsien 221,  
Taiwan, R.O.C.

*Test Performed by:*

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

(V) Hsichih LAB	Lung-Tan LAB
NEMKO:ELA 113A NVLAP Lab. Code: 200234-0	NEMKO:ELA 113B NVLAP Lab. Code: 200234-0
No. 65, Ku Dai Keng St. Hsichih, Taipei Hsien 22117	No. 120, Lane 180, San Ho Tsuen, Hsin Ho Rd. Lung-Tan Hsiang, Tao Yuan County 325
Taiwan, R.O.C.	Taiwan, R.O.C
Tel:(02)2646-2550	Tel:(03)407-1718
Fax:(02)2646-4641	Fax:(03)407-1738

**Report Number: ISL-06HE096E**

**Issue Date: 2006/05/22**

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

**LT LAB:** NVLAP:200234-0;VCCI: R-1435,C-1440;NEMKO:ELA 113B;CNLA: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
2.3.1	Software for Controlling Support Unit .....	5
2.3.2	I/O Cable Condition of EUT and Support Units.....	6
2.4	Description of Equipment Under Test.....	7
3.	Electrostatic discharge (ESD) immunity.....	8
3.1	Electrostatic discharge (ESD) immunity test .....	8
4.	Radio-Frequency, Electromagnetic Field immunity.....	9
4.1	Radio-Frequency, Electromagnetic Field immunity test.....	9
5.	Electrical Fast transients/burst immunity .....	10
5.1	Electrical Fast transient/burst immunity test .....	10
6.	Surge Immunity.....	12
6.1	Surge immunity test.....	12
7.	Immunity to Conductive Disturbance .....	13
7.1	Immunity to Conductive Disturbance .....	13
8.	Power Frequency Magnetic Field immunity.....	14
8.1	Power Frequency Magnetic field immunity test .....	14
9.	Voltage Dips, Short Interruption and Voltage Variation immunity.....	15
9.1	Voltage Dips, Short Interruption and Voltage Variation immunity test.....	15
10.	Harmonics .....	16
10.1	Harmonics test.....	16
11.	Voltage Fluctuations.....	17
11.1	Voltage Fluctuations test.....	17
12.	Test Equipment List .....	19
12.1	Software for Controlling Spectrum/Receiver and Calculating Test Data.....	20
13.	Photographs .....	21
13.1	Photo of ESD measurement.....	21
13.2	Photo of RF Field Strength Susceptibility Measurement.....	21
13.3	Photo of Electrical Fast Transient/Burst measurement .....	22
13.4	Photo of Surge measurement .....	22
13.5	Photo of Conductive Measurement .....	23
13.6	Photo of Magnetic field measurement.....	23
13.7	Photo of Voltage Dips measurement .....	24
13.8	Photo of Harmonics and Voltage Fluctuations .....	24
13.9	Appendix: Photographs of EUT Please refer to the File of ISL-06HE096P.....	25

# 1. General

## 1.1 Certification of Accuracy of Test Data

**Standards:** Please refer to 2.2  
**Equipment Tested:** USB Disk Module  
**Model:** UDM  
**Applied by:** Apacer Technology Inc.  
**Sample received Date:** 2006/05/08  
**Final test Date :** 2006/05/15  
**Test Site:** HC Test Site  
**Test Result:** **PASS**  
**Report Engineer:** Lily L.C. Tseng  
**Test Engineer:**

  
\_\_\_\_\_  
Jason Tsai

Approve & Signature

  
-----  
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 27 pages, including 1 cover page , 1 contents page, and 25 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:	HP Printer (for parallel interface port)
Model Number:	C2642E
Serial Number:	N/A
Power Supply Type:	AC Adaptor (HP Model: C2175A)
Power Cord:	Non-shielded, Detachable
Data Cable:	Shielded, Detachable, With Metal Hood
FCC ID:	N/A

### Support Unit 2.

Description:	DELL Mouse
Model Number:	M-SAW34
Serial Number:	LZE24108086
Power Supply Type:	N/A
Power Cord:	N/A
FCC ID:	DZL211029

### Support Unit 3.

Description:	Aceex Modem (for serial interface port)
Model Number:	DM1414
Serial Number:	0301000557
Power Supply Type:	Linear, Power Adapter ( AC to AC Xfmr, Wall Mounted Type )
Power Cord:	Nonshielded, Without Grounding Pin
FCC ID:	IFAXDM1414

### Support Unit 4.

Description:	Acer Monitor
Model:	7377xe
Serial Number:	999027100501700055P644E1 P
Power Supply Type:	Switching
Power Cord:	Nonshielded, Detachable
FCC ID:	(Complied with FCC DOC)

## Support Unit 5.

Description:	DELL Keyboard
Model Number:	SK-8110
Serial Number:	MY-05N456-38843-2BK-3315
Power Supply Type:	N/A
Power Cord:	N/A
FCC ID:	(complied with FCC DOC)

## Support Unit 6.

Description:	Personal Computer
Condition:	Pre-Production
Model:	GATEWAY E-4300
Serial Number:	N/A
CPU:	Pentium(4)R 2.80GHz
Motherboard:	INTEL
Power Supply Type:	DELL (Model:H305P-00) S/N:OM8806-47890-5H0-0738
Hard Disk Driver:	Seagate (Model:ST340014AS) S/N:5MQ389QW
Floppy Drive:	TEAC (Model: FD-235HG) 1.44 MB S/N:AC73484
DVD/CD-RW Combo:	Samsung (Model:TS-H192C) S/N:M4296RAY981390
VGA Card:	onboard with
DIMM Memory:	DDR 400 256MB x 1
Front plan:	
USB Connector:	two 4-pin
1394 Connector:	two 6-pin
Microphone Port:	one
Headphone Port:	one
Back plan:	
USB Connector:	four 4-pin
1394 Connector:	one 6-pin
VGA Connector:	one 15-pin
Parallel Connector:	one 25-pin
Serial Port:	one 9-pin
LAN Port:	one 8-pins(10/100Mbps)
RJ-11 Connector:	two 4-pin
Microphone Port:	one
Speaker Port:	three
Line-in Port:	one
Digital out optical:	one

### 2.3.1 Software for Controlling Support Unit

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

- A. Read and write to the disk drives.
- B. Send H pattern to the parallel port device (Printer).
- C. Send H pattern to the serial port device (Modem).
- D. Send H pattern to the video port device (Monitor).
- E. Repeat the above steps.

	Filename	Issued Date
Monitor	HH.bat	8/20/1991
Modem 1	Hm.bat	8/20/1991
Printer1	Wordpad.exe	11/11/1999

### 2.3.2 I/O Cable Condition of EUT and Support Units

Description	Path	Cable Length	Cable Type	Connector Type
AC Power Cord	110V (~240V) to EUT SPS	1.8M	Nonshielded, Detachable	Plastic Head
Keyboard Data Cable	Keyboard to PC Keyboard port	1.8M	Shielded, Undetachable	Metal Head
Monitor Data Cable	Monitor to PC VGA port	1.6M	Shielded, Un-detachable	Metal Head
Modem Data Cable	Modem to PC COM 1 port	1.5M	Shielded, Detachable	Metal Head
Mouse Data Cable	Mouse to PC Mouse port	1.8M	Shielded, Un-detachable	Metal Head
Printer Data Cable	Printer to PC Parallel port	1.5M	Shielded, Detachable	Metal Head

## 2.4 Description of Equipment Under Test

### EUT

Description:	USB Disk Module
Condition:	Pre-Production
Model:	UDM
Serial Number:	N/A
Power:	From Personal Computer USB Port Supply
USB 2.0 Connector:	one 9-pin

All types of memory capacity 256MB to 4GB have been tested. The worst data listed in this test report.

Configuration 1: memory capacity 2GB.

EMI Noise Source:

Crystal: 12MHz (Y1)

EMI Solution:

N/A

### 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:	21 degree C
Humidity:	60%

#### Selected Test Point

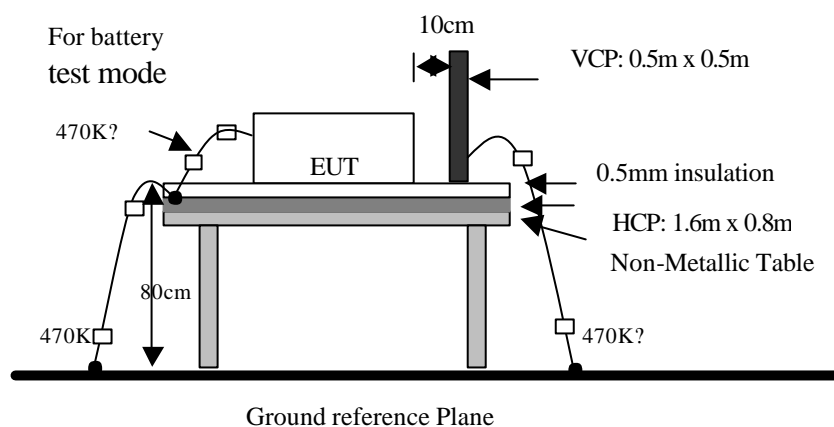
Air: discharges were applied to slots, aperture or insulating surfaces. 10 single air discharges were applied to each selected points.

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.

#### Test Setup

EUT is 1m from the wall and other metallic structure. When Battery test mode is needed, a cable with one 470K $\Omega$  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.**

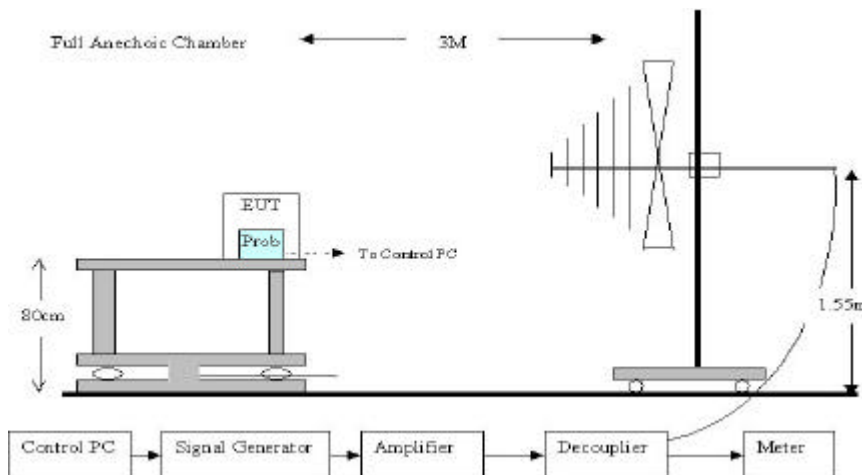
## 4. Radio-Frequency, Electromagnetic Field immunity

### 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:	800 ms
Polarization:	Vertical and Horizontal
EUT Azimuth Angle	∠ 0? ∠ 90? ∠ 180? ∠ 270?
Criteria:	A
Test Procedure	refer to ISL QA T04-S017
Temperature:	23degree C
Humidity:	58%

#### 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;
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 (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:	21 degree C
Humidity:	60%

#### Test Procedure

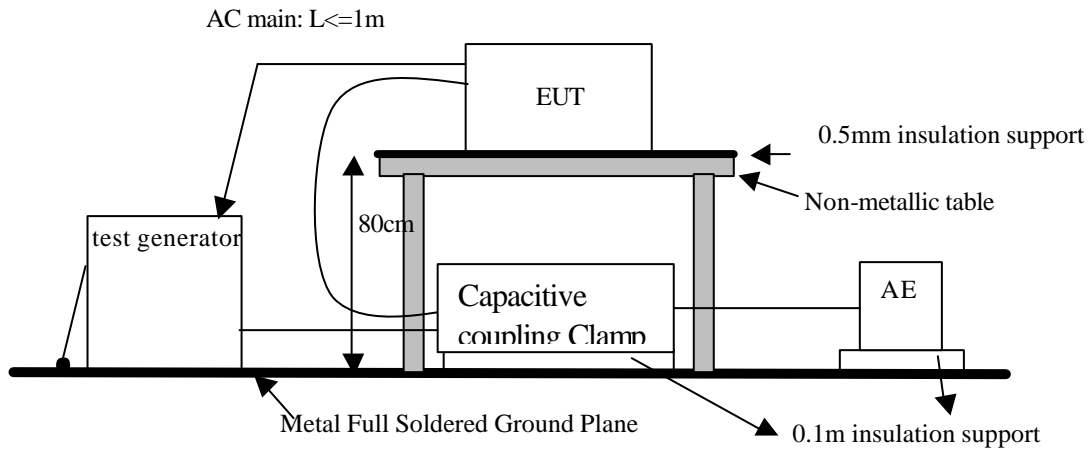
The EUT was setup on a nonconductive table 0.8 m above a reference ground plane.

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

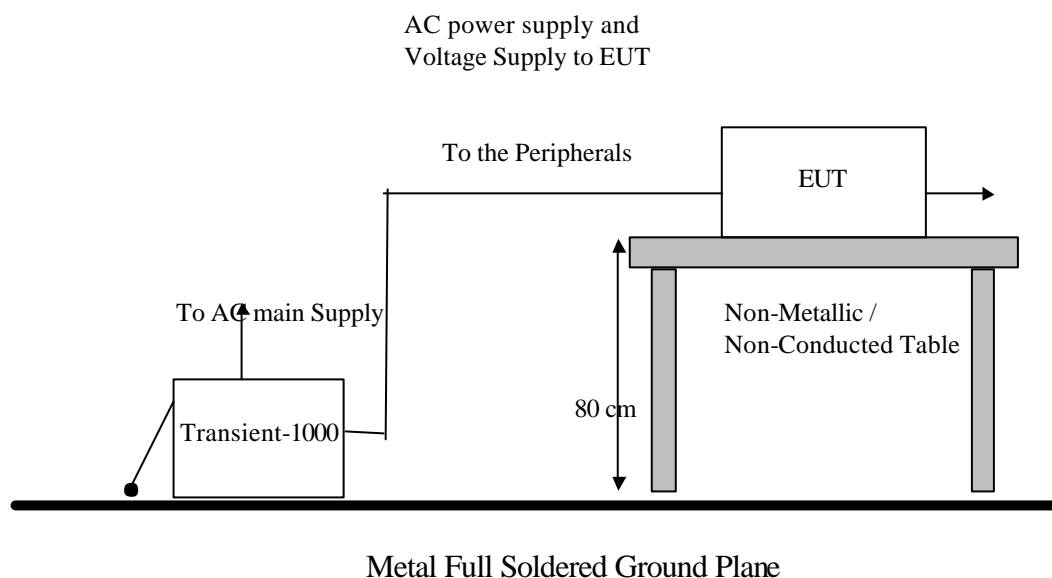
Performance of EUT complies with the given specification.

## 6. Surge Immunity

### 6.1 Surge immunity test

Port:	AC mains
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
Rise Time:	1.2us
Hold Time:	50us
Repetition Rate:	30 second
Angle:	↻ 0? ↻ 90? ↻ 270?
Criteria:	B
Test Procedure	refer to ISL QA T04-S04
Temperature:	21degree C
Humidity:	60%

#### Test Setup



#### Test Result

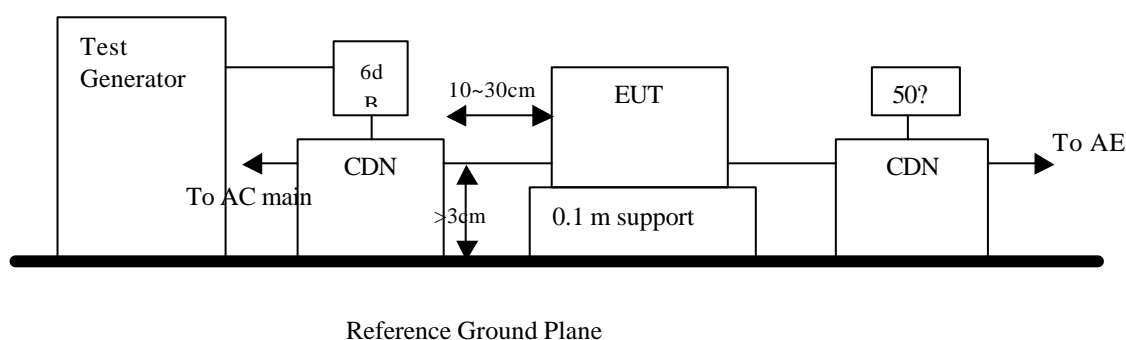
**Performance of EUT complies with the given specification.**

## 7. Immunity to Conductive Disturbance

### 7.1 Immunity to Conductive Disturbance

Port:	AC mains;
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:	21 degree C
Humidity:	60%

#### Test Setup



#### Test Result

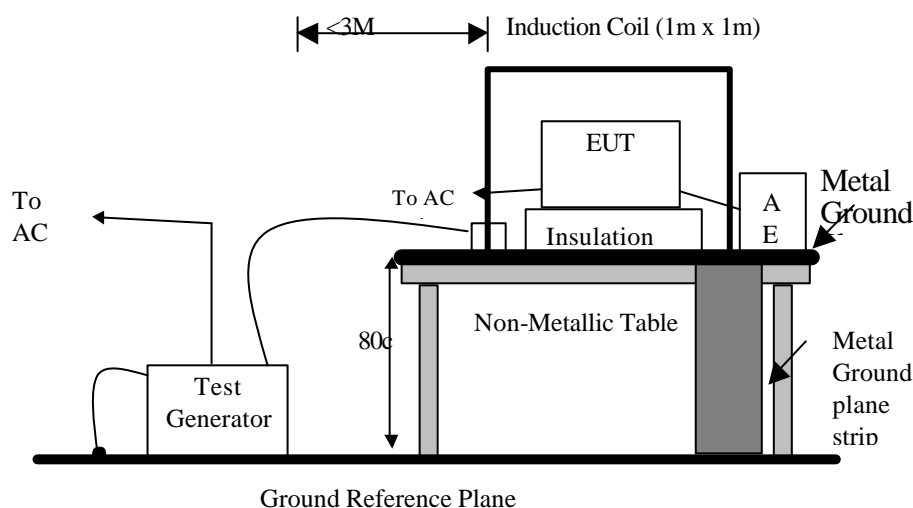
**Performance of EUT complies with the given specification.**

## 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:	21 degree C
Humidity:	60%

#### Test Setup



#### Test Result

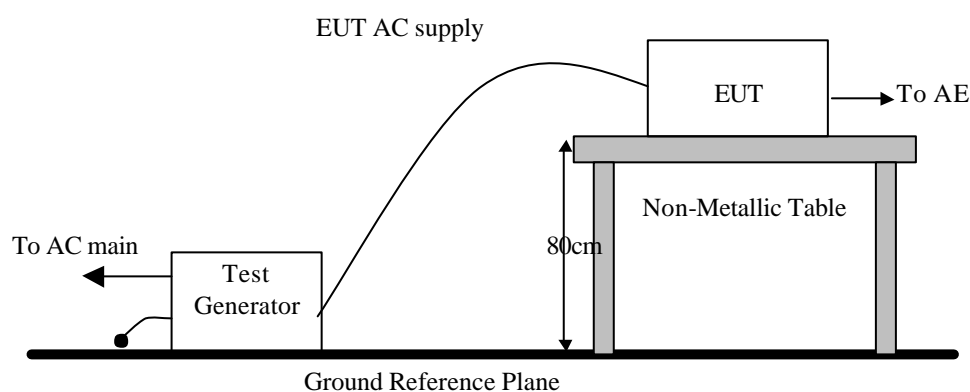
**Performance of EUT complies with the given specification.**

## 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:	21 degree C
Humidity:	60%

#### 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:	21degree C
Humidity:	60%

#### 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

**Active input power under 75W, no limit apply, declare compliance**

## 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:	21 degree C
Humidity:	60%

#### 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

**Chroma**

ANALYZER 6630

2006.05.15 14:33:26

# Extreme Flicker-I M1

Note:

Numerical Reference Impedance

U: 229.5 V I: 0.3084 A f: 49.997 Hz PF: 0.770

EVALUATION:-----

Type of observation period		Short	Long	Limit
Observation time	Tp :	10	120 min	
Maximum relative voltage change	dmax:		0.00 %	4
Max rel steady state voltage change	dc :		0.00 %	3.3
Duration of d(t) > 3.3 %	t :		0.00 s	0.2
Short term flicker severity	Pst :		0.00	1.00
Long term flicker severity	Plt :	---	0.00	0.65

Based on 12 (12) short term cycles

Next measure

Extreme time graph

Change to histogram

Write to disk

Select module

PASSED

Measurement completed



Appl: 3:-3-3

(1311\_00)

## 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 02	D-RAM	DBS-2100	2100-910027	N/A	N/A
EN61K-3-2/3	Power Analyzer 02	Chroma	6630	1068	04/27/2005	04/27/2006
EN61K-4	Thermo -Hygro Meter -4		HD-36	ISL-C-004	11/30/2004	11/30/2006
EN61K-4-2	ESD Mouse	Precision	ESD Mouse	ESD 101-214	N/A	N/A
EN61K-4-2,4,5,8,11	Test Generator -4	PRECISION	TRA1H01B	TRA1000-126	08/03/2005	08/03/2006
EN61K-4-3	BILOG Antenna 06	Schaffner	CBL6112B	2754	N/A	N/A
EN61K-4-3	Amplifier 800Mhz~2Ghz	SCD	ALP589	P000164-001	N/A	N/A
EN61K-4-3	Amplifier 80M~1Ghz	AR	100W1000M1	15387	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 02	HP	8648B	3642U01040	04/21/2005	04/21/2007
EN61K-4-4	Digital Oscilloscope	Tektronix	TDS 684A	B010761	N/A	N/A
EN61K-4-4	EFT Clamp	Precision	1604242	CNEFT1000-103	N/A	N/A
EN61K-4-5	CDN-Kit -4	Precision	1604243	CDNKIT1000-32	N/A	N/A
EN61K-4-5	CDN Surge Kit 01	EMC-PARTNER	CDNKIT1000T; DN-T1; DN-T2; 4 CN-T1; CN-T2	CDNKIT1000-2	08/06/2003	08/06/2006
EN61K-4-6	6dB Attenuator	Weinschel Corp	33-6-34	BC5975	N/A	N/A
EN61K-4-6	Amplifier 4-6	Amplifier Research	150A100	1-1-R-02157	N/A	N/A
EN61K-4-6	Attenator 6dB 4-6	BIRO	100-A-FFN-06	0123	N/A	N/A
EN61K-4-6	CDN M2+M3	Frankonia	M2+M3	A3011016	06/07/2005	06/07/2006
EN61K-4-6	CDN T2 01	Frankonia	T2	A3010003	06/07/2005	06/07/2006
EN61K-4-6	CDN T4 01	FCC Inc.	FCC-801-T4	9721	06/07/2005	06/07/2006
EN61K-4-6	Coaxial Cable 4-6 01-1	Harbour Industries	M17/128-RG400	4-6 01-1	N/A	N/A
EN61K-4-6	Coaxial Cable 4-6 01-2	Harbour Industries	M17/128-RG400	4-6 01-2	N/A	N/A
EN61K-4-6	Coaxial Cable 4-6 01-3	Harbour Industries	M17/128-RG400	4-6 01-3	N/A	N/A
EN61K-4-6	KAL-AD RJ45S	BIRO			N/A	N/A
EN61K-4-6	KAL-AD T2	BIRO			N/A	N/A
EN61K-4-6	Passive Impedance Adaptor 4-6	FCC	FCC-801-150-50-CDN	9758;9759	N/A	N/A
EN61K-4-6, CISPR 13, Antenn	Signal Generator 01	HP	8656B	2635A04675	08/15/2005	08/15/2006
EN61K-4-8	Clamp Meter 4-8	TES	3090	990900322	06/27/2005	06/27/2006
EN61K-4-8	Magnetic Field Antenna	Precision	TRAIZ44B	MF1000-23	N/A	N/A

### 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



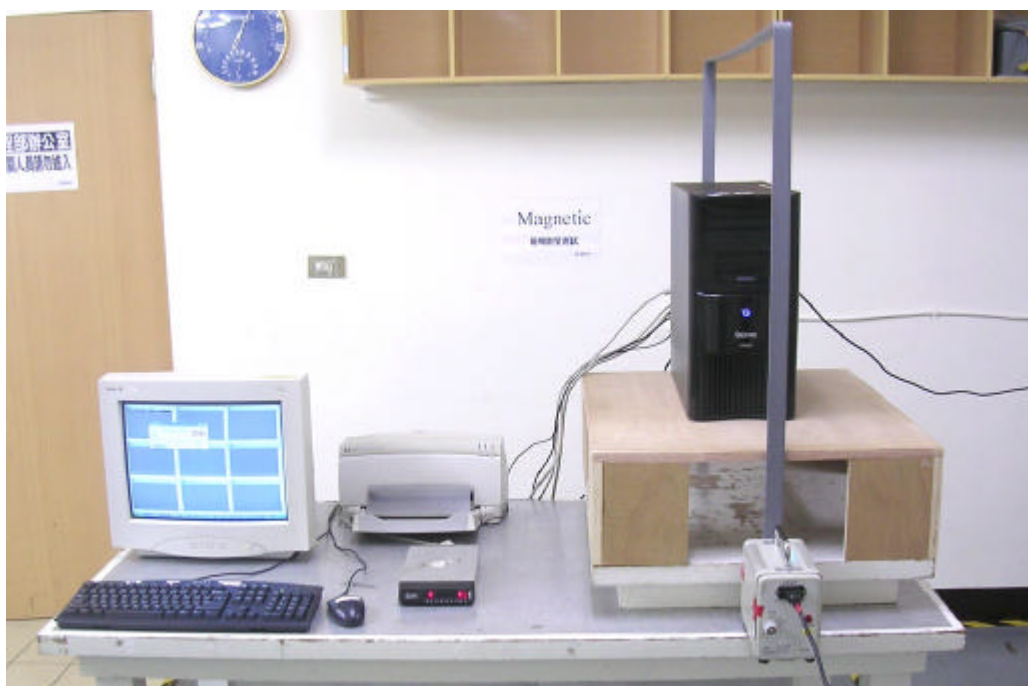
### 13.4 Photo of Surge measurement



### 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-06HE096P**