



Ms. Doris Yeh
UNIVERSAL STANDARD SERVICE INC
266 WENHUA 2ND RD, SEC 1, 8TH FL-1
LIN KOU SHIANG
TAIPEI HSIEN
244 TAIWAN

Date: 05/05/2010
Subscriber: 820071001
PartySite:
File No: E216813
Project No: 10CA19845
PD No: 10018186
Type: R
PO Number: ASL10041234

Subject: Additional Copy of UL Certification Documents

This authorization is effective from the date of this Notice and only for products produced at the manufacturing location(s) specified on the current Authorization Page. Records in the Follow-Up Services Procedure covering the product are identified on the Addendum and attached.

Products that bear the UL Mark shall be identical to those that were evaluated by UL and found to comply with UL's requirements. If changes in construction are discovered, appropriate action will be taken for products not in compliance and continued use of the UL Mark may be withdrawn. UL may elect to withdraw use of the UL Mark if the Applicant or Manufacturer fails to comply with UL's requirements, including ongoing compliance of the product under UL's Follow-Up Services.

The contents of this Letter are intended solely for the use of UL, the Applicant and specified Manufacturers. The opinions and findings of UL represent its judgment given with due consideration to the limitations of practical operation in accordance with UL's objectives and purposes.

UL shall not incur any obligation or liability for any loss, expense or damages, including incidental, consequential or punitive damages, arising out of or in connection with the use or reliance upon the contents of this letter to anyone other than the Applicant as provided in the agreement between UL and Applicant. Any use or reference to UL's name or certification mark(s) by anyone other than the Applicant in accordance with the agreement is prohibited without the express written approval of UL.

This material is provided on behalf of Underwriters Laboratories Inc.(UL) or any authorized licensee of UL.

The following material resulting from the investigation under the above numbers is enclosed.

<u>Document</u>	<u>Volume</u>	<u>Report Reference</u>	<u>Status</u>	<u>Date</u>
Index	X3			
UL Test Report	X3	E216813-A45-UL-1	Amendment	05/05/10

Please file revised Authorizations, Indices, and General Inspection Instructions in place of material of like identity. New Test Reports should be filed immediately following the last Test Report. Amendments or Corrections should be filed immediately before the Test Report to which they relate. Re-issued Test Reports should be filed immediately before all material related to the Test Report that it replaces.

NOTE: Manufacturers receive only the following sub-sections of the Applicant's complete Test Report, where applicable: Cover Page, Specific Inspection Criteria (BA through BE), Specific Technical Criteria (through section CF), Critical Components table, and Enclosures containing image supplements. Manufacturers do not receive Test Report information related to standard clause compliance or testing results.

Please review this material and report any inaccuracies to PHONE: 886-2-55598168, FAX: 886-2-28907430, E-MAIL: customerservice.tw@tw.ul.com, referring to the above Project and/or PD Numbers.

This material is provided on behalf of Underwriters Laboratories Inc.(UL) or any authorized licensee of UL.

File		Volume	Page	Date:
E216813	Index	X3	1	05-May-10

Index

<u>Product Type</u>	<u>Model/Type Reference</u>	<u>Report Reference #</u>
LCD Monitor	Cxxx, where "x" may be any alphanumerical character or blank	E216813-A2-UL-1
Personal Computer	ZC3000DV	E216813-A11-UL-1
Notebook Computer	1558, 1559	E216813-A14-UL-1
Personal Computer	TZXXX-XX, where X can be 0-9, A-Z or blank.	E216813-A15-UL-1
External USB Optical Drive	EHW-5232U SL , DX-ECDRW200	E216813-A16-UL-1
Personal Computer	MZXXX-XX, where X can be 0-9, A-Z or blank	E216813-A17-UL-1
Laptop Computer (VS3)	1500+, 1500, 1550	E216813-A18-UL-1
Notebook Computer	2000, 3000	E216813-A20-UL-1
Mini PC	MP915-C, MP915-P, MP915-B, MP915-X and MP915-XR	E216813-A21-UL-1
Personal Computer	EZ65, EZ18, EX18, EY18, EX65, EY65, EX65XX-XX, EX66XX, EX9XX, EX8XX, EX4XX, EX7XX, EX9XX-X where X may be any alphanumeric character or blank.	E216813-A4-UL-2
PC	EB945 MCE, MCE3030, MCE3260	E216813-A23-UL-1
LCD Monitor	F29XX, where X can be 0-9, A-Z or blank.	E216813-A24-UL-1
Server	EPC945-m8	E216813-A25-UL-1
Personal Computer	EPC945GT-m8	E216813-A26-UL-1
19" TFT-LCD Monitor	F19XX (X=0-9, A-Z)	E216813-A28-UL-1
17" TFT-LCD Monitor	F17XX (X=0-9, A-Z)	E216813-A30-UL-1
17" TFT-LCD Monitor	F27XX, X can be 0-9, A-Z, AK17B, NCA-701, M0I17-BK	E216813-A19-UL-2
19 inch wide TFT LCD Monitor	AV19xxw, where the x can be 0-9 or A-Z.	E216813-A31-UL-1
20.1 inch wide TFT LCD Monitor	AV20XXw, where the X can be 0-9 or A-Z.	E216813-A32-UL-1
miniPC Duo	MP9x5-xxxxx, DE-945xxx, DE-915xxx, DE896-xxx, DE965-xxx, where x can be 0-9, A-Z or blank.	E216813-A27-UL-2
Personal Computer	Ex9xx, Ex9xx-xxx (x may be 0-9, A-Z or blank, for marketing purpose and no impact safety related critical components and constructions)	E216813-A29-UL-2
PC	MP45-xxx, MPC-D1001, DEX45xx, DE45-HG and DE45-PRO (x=0-9 or a-z or A-Z or blank), VS12661, VS12663	E216813-A33-UL-1
Personal Computer	LE300	E216813-A36-UL-1
PC	LE200, LE210	E216813-A38-UL-1

File		Volume	Page	Date:
E216813	Index	X3	2	05-May-10

Digital Signage Display	DSD42Y-S, FDSD-4200S, DSD42Y-SW, FDSD-4200SH, DSD42Y-SH	E216813-A39-UL-1
Digital Signage Display	DSD52Y-S, FDSD-5200SH	E216813-A40-UL-1
Personal computer	BB10	E216813-A41-UL-1
Personal computer "Futro S100"	TCS100, TCV800	E216813-A42-UL-1
Personal Computer	DE2700	E216813-A43-UL-1
LCD PC	WT19P-XX (X can be 0-9, a-z, A-Z or blank)	E216813-A44-UL-1
PC	Q9000, Q1510, MP55-XXX, MP57-XXX (X = 0-9, A-Z, a-z or blank)	E216813-A46-UL-1
PC	DE7000, GP7A-XXX (X can be 0-9, a-z, A-Z or blank)	E216813-A45-UL-1

COVER PAGE FOR TEST REPORT

Product Category:	Information Technology Equipment Including Electrical Business Equipment
Product Category CCN:	NWGQ, NWGQ7
Test Procedure:	Listing
Product:	PC
Model/Type Reference:	DE7000, GP7A-XXX (X can be 0-9, a-z, A-Z or blank)
Rating(s):	Optional, 20 Vdc, 4.5 A
Standards:	UL 60950-1, 1st Edition, 2007-10-31 (Information Technology Equipment - Safety - Part 1: General Requirements) CSA C22.2 No. 60950-1-03, 1st Edition, 2006-07 (Information Technology Equipment - Safety - Part 1: General Requirements)
Applicant Name and Address:	AOPEN INC 68 RUIGUANG RD NEIHU DISTRICT TAIPEI 114 TAIWAN
This Report includes the following parts, in addition to this cover page: 1. Specific Technical Criteria 2. Clause Verdicts 3. Critical Components 4. Test Results 5. Enclosures	

Issue Date: 2010-01-04
Amendment 1 2010-05-05

Page 2 of 2

Report Reference #

E216813-A45-UL-1

This is to certify that representative samples of the products covered by this Test Report have been investigated in accordance with the above referenced Standards. The products have been found to comply with the requirements covering the category and the products are judged to be eligible for Follow-Up Service under the indicated Test Procedure. The manufacturer is authorized to use the UL Mark on such products which comply with this Test Report and any other applicable requirements of Underwriters Laboratories Inc. ('UL') in accordance with the Follow-Up Service Agreement. Only those products which properly bear the UL Mark are considered as being covered by UL's Follow-Up Service under the indicated Test Procedure.

The applicant is authorized to reproduce the referenced Test Report provided it is reproduced in its entirety.

Any information and documentation involving UL Mark services are provided on behalf of Underwriters Laboratories Inc. (UL) or any authorized licensee of UL.

Test Report By:



Jordano Wang
Project Engineer
Underwriters Laboratories Taiwan Co., Ltd.

Reviewed By:



Frank Liu
Section Manager
Underwriters Laboratories Taiwan Co., Ltd.

SPECIFIC TECHNICAL CRITERIA

UL 60950-1, First Edition Information technology equipment - Safety- Part 1: General Requirements	
Report Reference No	E216813-A45-UL-1
Compiled by	Jordano Wang
Reviewed by	Frank Liu
Date of issue	2010-01-04
Standards	UL 60950-1, 1st Edition, 2007-10-31 (Information Technology Equipment - Safety - Part 1: General Requirements) CSA C22.2 No. 60950-1-03, 1st Edition, 2006-07 (Information Technology Equipment - Safety - Part 1: General Requirements)
Test procedure	Listing
Non-standard test method	N/A
Test item description	PC
Trademark	None
Model and/or type reference	DE7000, GP7A-XXX (X can be 0-9, a-z, A-Z or blank)
Rating(s)	Optional, 20 Vdc, 4.5 A

Particulars: test item vs. test requirements

Equipment mobility	movable
Operating condition	continuous
Mains supply tolerance (%)	No direct connection
Tested for IT power systems	No
IT testing, phase-phase voltage (V)	N/A
Class of equipment	Class III (supplied by SELV)
Mass of equipment (kg)	1.6 Kg
Protection against ingress of water	IP X0

Possible test case verdicts:

- | | |
|---|--|
| - test case does not apply to the test object | N / A |
| - test object does meet the requirement | Pass |
| - test object does not meet the requirement | Fail (acceptable only if a corresponding, less stringent national requirement is "Pass") |

Issue Date: 2010-01-04
Amendment 1 2010-05-05

Page 2 of 9

Report Reference #

E216813-A45-UL-1

General remarks:

- "(see Enclosure #)" refers to additional information appended to the Test Report
- "(see appended table)" refers to a table appended to the Test Report
- Throughout the Test Report a point is used as the decimal separator

GENERAL PRODUCT INFORMATION:	
CA1.0	Report Summary
CA1.1	N/A
CB1.0	Product Description
CB1.1	Electrical components are mounted on PWB which is enclosed by plastic or metal enclosure and accompanied with DVD-ROM, one RJ45 port, one VGA port, six USB ports, one RS232 port, one earphone port, one microphone port, one central/bass port, one eSATA port, one HDMI port, one card reader.
CC1.0	Model Differences
CC1.1	- Models GP7A-XXX (X can be 0-9, a-z, A-Z or blank) are identical to each other except for model designation. - Model DE7000 are similar to GP7A-XXX (X can be 0-9, a-z, A-Z or blank) except for enclosure shape and model designation.
CD1.0	Additional Information
CD1.1	- E216813-A45-UL-1, Amendment 1 (10CA19845): 1). Adding R/C plastic enclosure material source; 2). Adding enclosure shape (metal); 3). Adding new model name DE7000 for new enclosure shape.
CE1.0	Technical Considerations
CE1.1	The following "D3" deviations from the Standard were applied for the purposes of US/Canada certification: Fault test exemption for LPS-supplied circuits (5.3.6)
CE1.2	The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of: 40
CE1.9	The following circuit locations (with circuit/schematic designation) were investigated as a limited power source (LPS): All USB ports
CE1.14	The following are available from the Applicant upon request: Installation (Safety) Instructions / Manual

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.5.1	Comply with IEC 60950 or relevant component standard	(See appended table 1.5.1)	Pass
1.5.2	Evaluation and testing of components	Components certified to IEC harmonized standard and checked for correct application. Components, for which no relevant IEC-Standard exist, have been tested under the conditions occurring in the equipment, using applicable parts of IEC 60950-1. Components not certified are used in accordance with their ratings and they comply with applicable parts of IEC 60950-1 and the relevant component Standard.	Pass
4.2.10	Wall or ceiling mounted equipment; force (N) :	Mounting means withstands 50N minimum.	Pass
4.6.1	Top and side openings	Openings do not exceed 5 mm in any dimension.	Pass
5.3.1	Protection against overload and abnormal operation	(See appended table 5.3)	Pass

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

1.5.1	TABLE: list of critical components					Pass
Object/part No.	Manufacturer/ trademark	type/model	technical data	Product Category CCN(s)	Required Marks of Conformity	Supplement ID
01. Plastic Enclosure	Dow Chemical Pacific Ltd	XQ83619	Min V-1, min 2.5 mm, 80 degree C, dimension see Enclosure-Diagram 4-01 for details.	QMFZ2	UL	4-01
01a. Plastic Enclosure (Alternate)	Bayer Material Science Ltd	FR 3008	Min. V-1, min. 2.5 mm, 80 degree C, dimension see Enclosure-Diagram 4-01 for detail.	QMFZ2	UL	4-01
01b. Metal Enclosure (Alternate) (only for model DE7000)	--	--	Min. 0.81 mm of thickness., see enclosure ID 4-04 for detail.	--	--	4-04
02. Metal Chassis	--	--	Min 0.82 mm thickness, dimension see Enclosure-Diagram 4-02 for details.	--	--	4-02
03. Power Supply	Delta Electronics Inc	ADP-90CD-BD	I/P: 100-240 Vac, 50-60 Hz, 1.5 A. O/P: 20 Vdc, 4.5 A.	QQGQ	UL	
04. Hard Disk Drive (Optional)	Various	Various	2.5", Generic, 5 Vdc / 1.5 A max. or 12 Vdc / 1.5 A max.	NWGQ2	UL	
05. Mother Board	Aopen Inc.	nMCP7ALPx-HD	--	--	--	
05-01. Polyswitch (F2 for USB port)	Various	Various	6 Vdc, Ih=2 A, Isc=100 A, Tmoa:85, CA=1(102),2,3	XGPU2	UL	
05-02. Polyswitch (FB2 for USB port)	Various	Various	6 Vdc, Ih=1.5 A, Isc=100 A, Tmoa:85, CA=1(100),2,3	XGPU2	UL	
05-03. RTC Battery (Lithium type)	Various	Various	3Vdc, Max Abnormal Charging Current 5 mA min, non-charge type, user replaceable, against charging current by	BBCV2	UL	

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

			components: diode (Q29) and 1 K ohm resistor (R209).			
06. DC Fan	Adda Corp	AB0712HB-UB3	12 Vdc, 0.3 A, (7.10 CFM)	GPWV2	UL	
07. Heat sink	--	--	Copper, dimension see Enclosure-Diagram 4-03 for details.	--	--	4-03
08. PWB	Various	Various	V-1 or better, Min 105 degree C	ZPMV2	UL	
09. Connectors and Receptacles (secondary ELV/SELV circuits)	Various	Various	Metal/plastics, Copper alloy pins housed in bodies of plastic rated V-2 min.	DUXR2 or RTRT2 or ECBT2 or QMFZ2	UL	
10. Interconnecting Cable (Optional) (Detachable)	Various	Various	Rated min 30 V, min 60 degree C, max 3.05 m long, jacketed, VW-1 or FT-1.	AVLV2 or DVPJ	UL	
10A. Interconnecting Cable (Optional) (Detachable) (Alternate)	Various	Various	Max 3.05 m long, jacketed, type CMP, CMR, CMG, CM, CMX, CMUC CMH or FT4.	DUZX	UL	
11. Power supply cord (Optional) (For Class I power)	Various	Various	Detachable, limited between 1.5 and 4.5 m long, 18 AWG, type SVT or SJT or SPT-2 flexible cord. Min 125 Vac, one end with NEMA 5-15P or min 250 Vac, one end with NEMA 6-15P, the other end in an appliance coupler (with cord-connected body, grounding type, suitable for cord size, rating not less than that of attachment plug)	(ZJCZ and RTRT and AXUT), or ELBZ	UL	
12. Internal Plastic Part/Materials	Various	Various	Rated min V-2	QMFZ2	UL	
13. DVD ROM	Various	Various	Laser Class 1 or Class I. Rated	NWGQ2	UL	

Issue Date: 2010-01-04
 Amendment 1 2010-05-05

Page 7 of 9

Report Reference #

E216813-A45-UL-1

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

			5 Vdc, 1.5 A.			
14. Internal Wiring (Secondary ELV/SELV)	Various	Various	FEP, PTFE, PVC, TFE, neoprene, polyimide or VW-1 or FT-1, min 30 V, 60 degree C.	AVLV2	UL	
15. Insulating Tubing/Sleeving	Various	Various	FEP, PTFE, PVC, TFE, neoprene, polyimide or VW-1; min 300 V, 105 degree C.	UZFT2 or YDPU2 or YDTU2	UL	
16. Label	Various	Various	Min 55 degree C, if max surface temperature not specified.	PGDQ2 or PGJI2	UL	
17. Wall Mounting Means (Optional)	--	--	Metal. See Enclosure 4-05 for dimension detail.	--	--	4-05

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

4.5	TABLE: temperature rise measurements						Pass
	test voltage (V).....	See below	See below	See below	See below	--	—
	t1 (°C).....	--	--	--	--	--	—
	t2 (°C).....	--	--	--	--	--	—
maximum temperature T of part/at:		T (°C)					allowed Tmax (°C)
Normal Condition (Original)		Condition 1 (Original)	Condition 1 (Shift to 40)	Condition 2 (Original)	Condition 2 (Shift to 40)	--	--
E216813-A45-UL-1, Amendment 1 (10CA19845) (For model DE7000)		--	--	--	--	--	--
Normal Condition		20Vdc (Horizontal), Duration 2 hr 7 min (Original)	20Vdc (Horizontal), Duration 2 hr 7 min (Shift to 40)	20Vdc wall mount (front panel to left), Duration 1 hr 54 min (Original)	20Vdc wall mount (front panel to left), Duration 1 hr 54 min (Shift to 40)	--	--
1.Ambient		25.7	40.0	26.6	40.0	--	--
2.PWB near CPU		58.7	73.0	57.9	71.3	--	105
3.PWB near U10		60.5	74.8	60.1	73.5	--	105
4.RTC body		30.9	45.2	32.2	45.6	--	100
5.F2 body		44.0	58.3	44.8	58.2	--	85
6.Rear metal enclosure opening behind the fan module		49.6	63.9	48.8	62.2	--	70
temperature T of winding:			R ₁ (Ω)	R ₂ (Ω)	T (°C)	allowed Tmax (°C)	insulation class
supplementary information:							
-- The temperatures were measured by thermal couple under worst case normal mode defined in 1.2.2.1 and described in 1.6.2 at voltages as described in 1.4.5. -- With maximum ambient temperature specified as 40 degree C, therefore, the maximum temperature is as follows: -- Conditions: Test Condition 1: 20Vdc (Horizontal), Duration 2 hr 6 min. Test Condition 2: 20Vdc (Vertical, RS232 down), Duration 1 hr 15 min.							

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

5.3	TABLE: fault condition tests					Pass
	ambient temperature (°C) :				25 degree C, if not specified.	—
	model/type of power supply :				--	—
	manufacturer of power supply :				--	—
	rated markings of power supply :				--	—
component No.	fault	test voltage (V)	test time	fuse No.	fuse current (A)	result
--	--	--	--	--	--	E216813-A45-UL-1, Amendment 1 (10CA19845) (For model DE7000)
--	--	--	--	--	5.3.1-5.3.8.2	Abnormal operation test
CPU Fan	Stalled	20Vdc	1hr 34min	--	--	NC,NT, unit shutdown, no hazards, no damage, Ambient:23.3 degree C Max. temp:120 degree C at PWB near U10
Openings	Blocked	20Vdc	2hr 48min	--	--	NC,NT, unit normal operating, no hazards, no damage, Ambient:24.9 degree C Max. temp:108.7 degree C at F2 body
supplementary information:						

Enclosure **Photographs**

Supplement Id	Description
3-01	Overall View - 1
3-02	Overall View - 2
3-03	Overall View - 3
3-04	Overall View - 4
3-05	Internal View - 1
3-06	Internal View - 2
3-07	Main board - 1
3-08	Main board - 2
3-09	Main board - 3
3-10	CPU Fan module - (1/2)
3-11	CPU Fan module - (2/2)
3-12	Enclosure Shape B - Overall View (1/2)
3-13	Enclosure Shape B - Overall View (2/2)
3-14	Enclosure Shape B - Internal View

Photographs ID 3-12



Photographs ID 3-13



Photographs ID 3-14



Issue Date: 2010-01-04
Amendment 1 2010-05-05

Page 1 of 3

Report Reference #

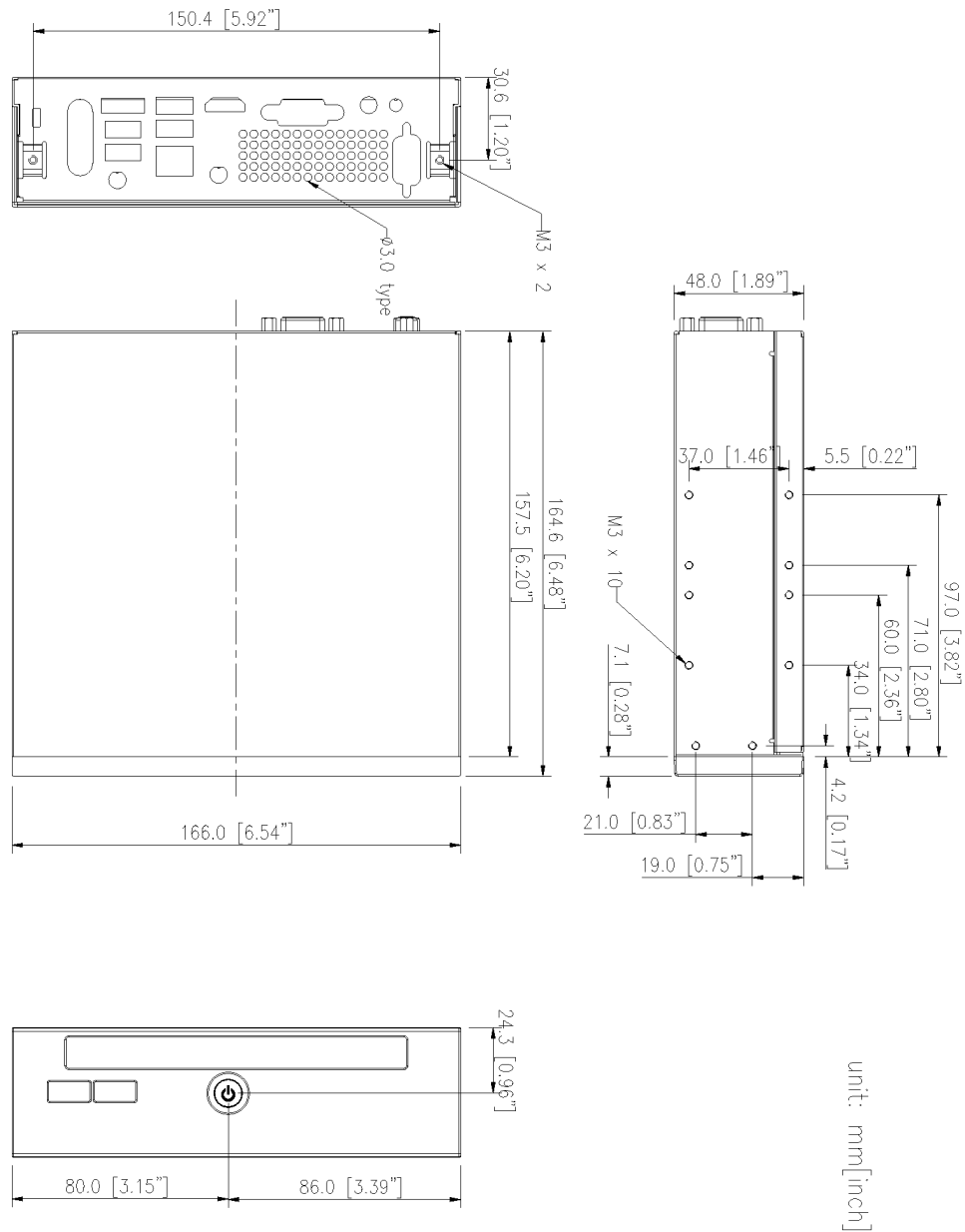
E216813-A45-UL-1

Enclosure

Diagrams

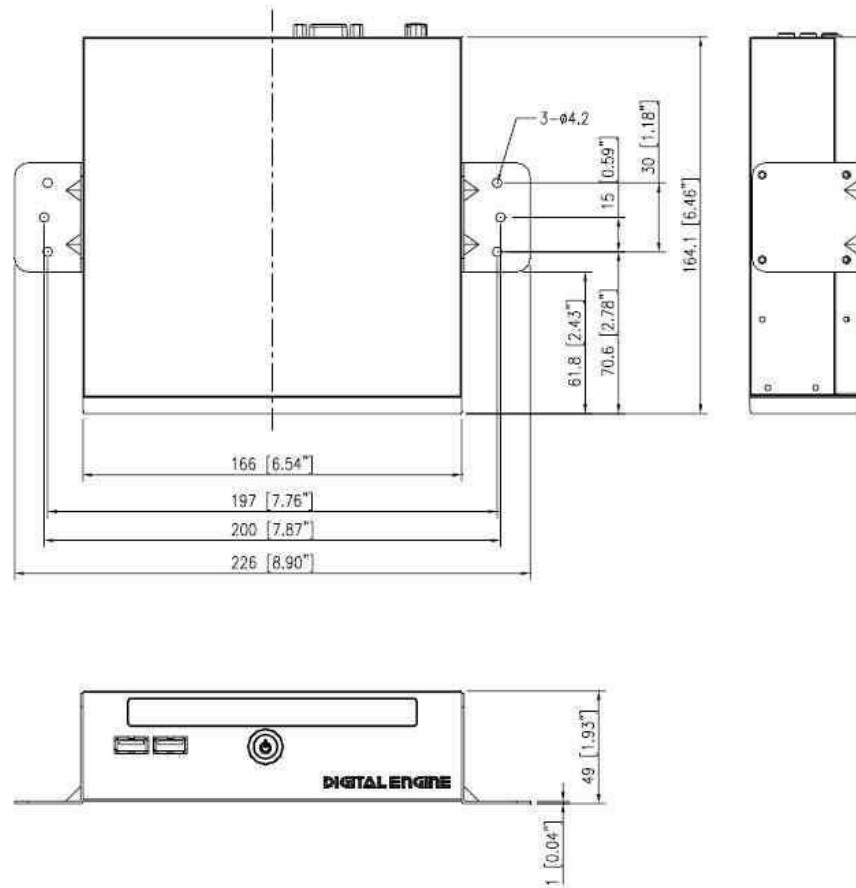
Supplement Id	Description
4-01	Plastic Enclosure
4-02	Metal Chassis
4-03	CPU Fan module
4-04	Alt - Metal Enclosure Drawing
4-05	Wall Mounting Means Drawing

Diagrams ID 4-04



Diagrams ID 4-05

B-3 Dimension of L type Holder. (unit: mm)



Issue Date: 2010-01-04
Amendment 1 2010-05-05

Page 1 of 4

Report Reference #

E216813-A45-UL-1

Enclosure
Manuals

Supplement Id	Description
6-01	Manual
6-02	Wall mount instruction in User Manual

Manuals ID 6-02

B. LH01 L type Holder(Include 2 piece holder and 8 FPH M3 screws)

B-1

L type Holder is a versatile holder, you can screw it on any place you want.



B-2

You can put on the L type Holder on 2 sides, and screw it tightly.

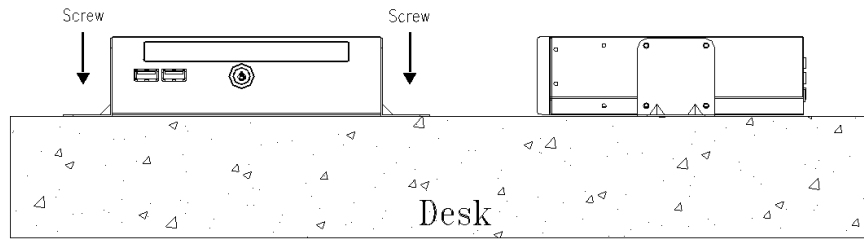


Manuals ID 6-02

B-4 LH01 Installation Guide

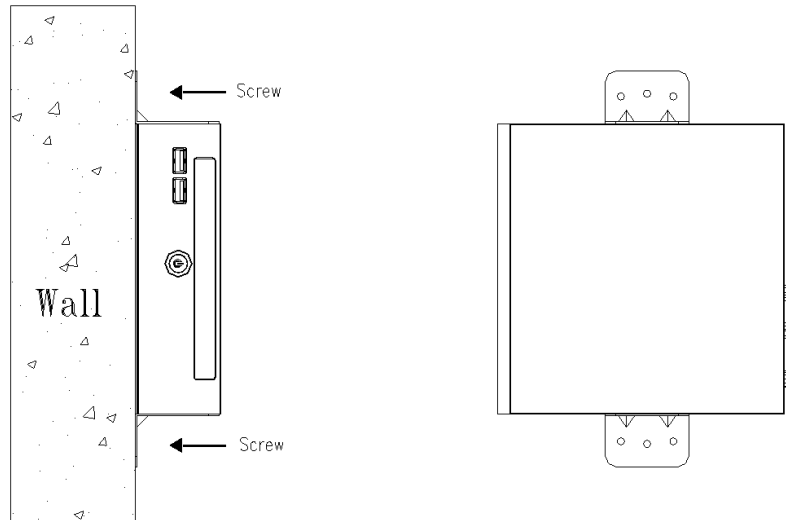
In order to get the better thermal flow effect and safety when install DE7000 please follow the direction as below diagram.

On Desk top



Manuals ID 6-02

On Wall



Issue Date: 2010-01-04
Amendment 1 2010-05-05

Page 1 of 2

Report Reference #

E216813-A45-UL-1

Enclosure
Test Record

Description
Test Record 1
CRD
Data Sheet
Test Record 2
CRD
Datasheet

Test Record No. 2

- The manufacturer submitted representative production samples of PC, Model DE7000, GP7A-XXX (X can be 0-9, a-z, A-Z or blank) employing the alternate following items:

- 1). R/C plastic enclosure material source;
- 2). enclosure shape (metal);
- 3). new model name DE7000 for new enclosure shape.

- CAP-EA: Unless otherwise noted in the above list of tests, all tests were conducted by Universal Standard Service Inc., located at Lin Kou, Taipei, Taiwan under the CAP-EA program.

- Only limited tests were performed for this amendment due to testing previously performed on the subject unit.

- The results of this investigation indicate that the products evaluated comply with the applicable requirements in the U.S. and Canadian (Bi-National) Standard for Information Technology Equipment - Safety - Part 1: General Requirements, CAN/CSA-C22.2 No. 60950-1-03 * UL 60950-1, First Edition, including revisions through revision date October 31, 2007. Any information and documentation involving UL Mark services are provided on behalf of Underwriters Laboratories Inc. (UL) or any authorized licensee of UL.

- The following tests conducted in accordance with UL60950-1, 1st Edition, Revised Date October 31, 2007, Information Technology Equipment-Safety-Part 1: General Requirements were considered representative of the same tests required by Canadian Standards, CAN/CSA-C22.2 No.60950-1-03, 1st Edition, Revised Date July 7, 2006, Information Technology Equipment-Safety-Part 1: General Requirements.

The following tests were conducted:

Test	Testing Location/Comments
End Product Reference Page	
General Guidelines	
Loading (4.2.10)	
Heating (4.5.1, 1.4.12, 1.4.13)	
Abnormal Operation (5.3.1 - 5.3.8.2)	

Test results are valid only for the tested equipment. These tests are considered representative of the products covered by this Test Report. The test methods and results of the above tests have been reviewed and found to be in accordance with the requirements in the Standard(s) referenced at the beginning of this Test Report.