244
台灣 台北縣
林口鄉文化二路一段266號8樓之1
聯合全球驗證有限公司
UNIVERSAL STANDARD SERVICE INC

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

Date: 2011/09/16
Subscriber: 820071001
PartySite:
File No: E216813
Project No: 11CA43098
PD No: 11Q04812
Type: R
PO Number:

Subject: **Procedure And/Or Report Material**

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

Issue

Date	Vol	Sec	Pages	Revised Date
2011/01/26	X3	A51	Revised Proc/Rpt Section	

If there are illegible images in this package, legible images may be found online via MyHome@UL under My UL Reports/CDA

Please file revised pages and illustrations in place of material of like identity. New material should be filed in its proper numerical order.

NOTE: Follow-Up Service Procedure revisions DO NOT include Cover Pages, Test Records and Conclusion Pages. Report revisions DO NOT include Authorization Pages, Indices, Section General Pages and Appendixes.

Please review this material and report any inaccuracies to UL's Customer Service Professionals. Contact information for all of UL's global offices can be found at http://www.ul.com/global/eng/pages/corporate/contactus.

If you'd like to receive updated materials FASTER, UL offers electronic access and/or delivery of this material. For more details, contact UL's Customer Service Professionals as shown above.

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

TPI File

UL TEST REPORT AND PROCEDURE

Standard:	UL 60950-1, 2nd Edition, 2007-03-27 (Information Technology Equipment - Safety - Part 1: General Requirements) CSA C22.2 No. 60950-1-07, 2nd Edition, 2007-03 (Information Technology Equipment - Safety - Part 1: General Requirements)
Certification Type:	Listing
CCN:	NWGQ, NWGQ7 (Information Technology Equipment Including Electrical Business Equipment)
Product:	Mini PC
Model:	MPC-D1009, MP67-XXX, MP65-XXX (X=0-9, a-z, A-Z, - or blank)
Rating:	20 Vdc, 4.5 A
Applicant Name and Address:	AOPEN INC 68 RUIGUANG RD NEIHU DISTRICT TAIPEI 114 TAIWAN

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.

Prepared by: Stephen Huang
Underwriters Laboratories Inc.

Reviewed by: Stanley Chang
Underwriters Laboratories Inc.

Supporting Documentation

The following documents located at the beginning of this Procedure supplement the requirements of this Test Report:

A. Authorization - The Authorization page may include additional Factory Identification Code markings.

B. Generic Inspection Instructions -

i. Part AC details important information which may be applicable to products covered by this Procedure. Products described in this Test Report must comply with any applicable items listed unless otherwise stated in the body of this Test Report.

ii. Part AE details any requirements which may be applicable to all products covered by this Procedure. Products described in this Test Report must comply with any applicable items listed unless otherwise stated in the body of each Test Report.

iii. Part AF details the requirements for the UL Certification Mark which is not controlled by the technical standard used to investigate these products. Products are permitted to bear only the Certification Mark(s) corresponding to the countries for which it is certified, as indicated in each Test Report.

Product Description

Electrical components are mounted on PWB which is enclosed by Metal enclosure and accompanied with one HDD, one DVD-ROM, one Card reader(Optional), one earphone port, one microphone port, one line-in port, one RJ-45 port, one DVI port, one Display port ,five USB ports,and two USB 3.0 port .

Model Differences

Model MPC-D1009 is similar to Model MP67-XXX except for enclosure shape and model designation.

Model MP65-XXX is identical to Model MP67-XXX except for model designation.

Technical Considerations

- Equipment mobility : transportable
- Connection to the mains : No direct connection
- Operating condition : continuous
- Access location : operator accessible
- Over voltage category (OVC) : N/A
- Mains supply tolerance (%) or absolute mains supply values : No direct connection to the mains
- Tested for IT power systems : N/A
- IT testing, phase-phase voltage (V) : N/A
- Class of equipment : Class III (supplied by SELV)
- Considered current rating (A) : N/A (Supplied by adaptor)

- Pollution degree (PD) : PD 2
- IP protection class : IP X0
- Altitude of operation (m) : up to 2000
- Altitude of test laboratory (m) : up to 2000
- Mass of equipment (kg) : 1.4 kg
- The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of: 35
- The following circuit locations (with circuit/schematic designation) were investigated as a limited power source (LPS): USB port, DVI port, Display port, Card reader slot, Speaker port, Microphone port, Line port and RJ-45
- The following are available from the Applicant upon request: Installation (Safety) Instructions / Manual

Additional Information

For Project 11CA32590,
a). Revising the rating of Optical Disk Devices from 5 Vdc/ 1.5 A max. to 5 Vdc/ 1.6 A max.
b). Alternate photo of enclosure.

For project 11CA43098,
1. Alternate the layout of motherboard.
2. Adding model name MP65-XXX (X = 0-9, A-Z, a-z or blank).

Markings and instructions

Clause Title	Marking or Instruction Details
Inter-connecting cables - External detachable	Listee's Name and Part number (Marking or Instruction)
Power rating - Company identification	Listee's or Recognized company's name, Trade Name, Trademark or File Number
Power rating - Model	Model Number
Power rating - Ratings	Ratings (voltage, frequency/dc, current)

Symbols - Stand-by switch	"Stand-by" to be indicated by  (60417-2-IEC-5009)
Replaceable batteries	"CAUTION: Risk of Explosion if Battery is replaced by an Incorrect Type. Dispose of Used Batteries According to the Instructions."

Special Instructions to UL Representative

N/A

Production-Line Testing Requirements

Electric Strength Test Special Constructions - Refer to Generic Inspection Instructions, Part AC for further information.

Model	Component	Removable Parts	Test probe location	V rms	V dc	Test Time, s
N/A						

Earthing Continuity Test Exemptions - This test is not required for the following models:

Electric Strength Test Exemptions - This test is not required for the following models:

Electric Strength Test Component Exemptions - The following solid-state components may be disconnected from the remainder of the circuitry during the performance of this test:

Sample and Test Specifics for Follow-Up Tests at UL

Model	Component	Material	Test	Sample(s)	Test Specifics
N/A					

TABLE: List of Critical Components

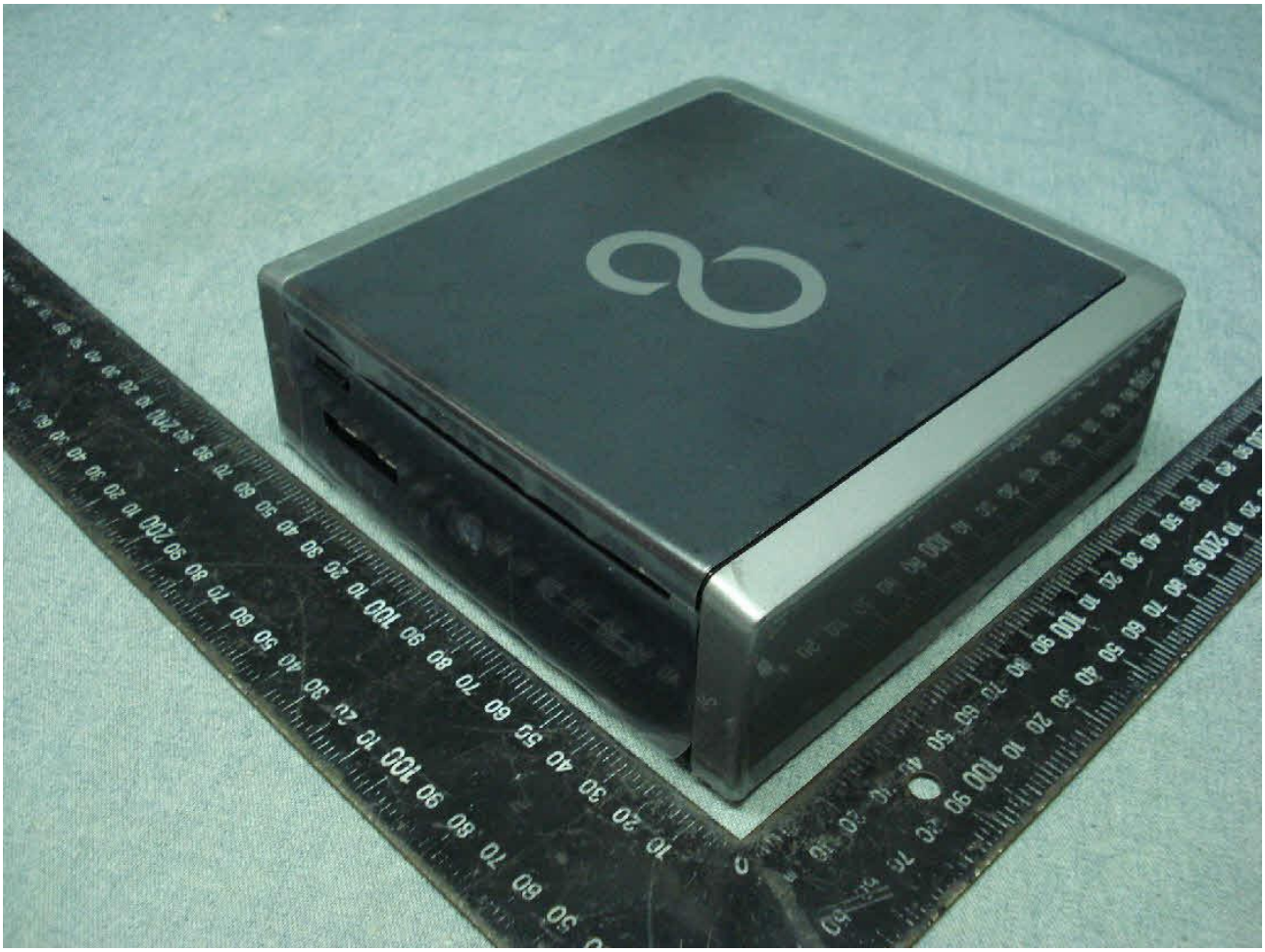
Object/part or Description	Manufacturer/ trademark	type/model	technical data	CCN	Marks of Conformity
01. Connectors and Receptacles (Secondary ELV/SELV circuit)	Various	Metal/Plastic	Copper alloy pins housed in bodies of plastic rated V-2 min.	QMFZ2, ECBT2, or RTRT2,	UL
02. Interconnecting Cable (optional)	Various	Various	Min. 60 degree C, 30V, max 3.05 m long, jacketed, suitable for external use. Marked VW-1 or FT-1 or better.	AVLV2 or DVPJ	UL
02a. Interconnecting Cable (optional) (Alternate)	Various	Various	Maximum 3.05 m long, suitable for external use, jacketed, type CMP, CMR, CMG, CM, CMX, CMUC, CMH. or marked FT4	DUZX	UL
03. Power supply cord (Optional) (For Class I)	Various	Various	Detachable, min. 1.5m, max. 4.5 m (14.76 ft.) long, 18AWG min. Type SVT or SJT or SPT-2 or NISPT-2 flexible cord, rated min. 125 V, if one end terminated in NEMA 5-15P; rated minimum 250 V, if one end terminated in NEMA 6-15P, the other end in an appliance coupler	(ZJCZ and RTRT and AXUT), or ELBZ	UL
03a. Power supply cord (optional) (Class II) (Alternate)	various	various	No. 18 AWG, Detachable, min. 1.5mm max. 4.5 m (14.76ft.) long, type SVT or SJT or SPT-2 or NISPT-2 flexible cord, rated min. if one end terminated in NEMA 1-15P;rated minimum if one end terminated in NEMA 2-15P	ELBZ or (ZJCZ and RTRT and AXUT)	UL
04. Internal Plastic Part Materials	Various	Various	Min. V-2	QMFZ2	UL
05. PWB	Various	Various	V-1 or better, Minimum 105 degree C	ZPMV2	UL
06. Adaptor	Delta Electronics Inc.	ADP-90CD BD	I/P: 100-240Vac, 50-60 Hz,1.5A O/P:20Vdc, 4.5A, Class I, 40 degree C.	QQGQ	UL
06a. Adaptor (Alternate)	Delta Electronics Inc.	ADP-90SB AD	I/P: 100-240Vac, 50-60 Hz,1.5A O/P:20Vdc, 4.5A, Class II 40 degree C.	QQGQ	UL
06b. Adaptor (Alternate)	Li Shin International Enterprise Corp.	0713C2090	I/P: 100-240Vac, 50-60 Hz,1.5A O/P:20Vdc, 4.5A, Class II 40 degree C.	QQGQ	UL
07. Label	Various	Various	50 degree C, if maximum suface temperature not	PGDQ2 or PGJI2	UL

Object/part or Description	Manufacturer/ trademark	type/model	technical data	CCN	Marks of Conformity
			specified.		
08. Main Enclosure	--	--	Metal (Aluminum), min. 0.8mm thick.	--	--
09. Enclosure for bottom	--	--	Metal (Steel), min. 0.8mm thick.	--	--
10. Decorative part (Located on top enclosure)	LG POLYCARBONATE LTD	PC1201(c)	V-2, min 1.6 mm thick.115 degree C.	QMFZ2	UL
10-01. Decorative part (Located on top enclosure)(alternate)	KINGFA SCI & TECH CO LTD	JH960 6(M)	V-0, min 1.5 mm thick.60 degree C.	QMFZ2	UL
11. Decorative part (Located on front cover)	KingFa Sci & Tech Co Ltd	JH820	V-2, min 1.6 mm thick.80 degree C.	QMFZ2	UL
11-01. Decorative part (Located on front cover)(alternate)	KINGFA SCI & TECH CO LTD	JH960 6(M)	V-0, min 1.5 mm thick.60 degree C.	QMFZ2	UL
12.Hard Disk Drive (optional)	Various	Various	Generic, 5Vdc, 1.5A max.	NWGQ2	UL
13.Optical Disk Devices (Optional)	Various	Various	Rated 5 Vdc, 1.6 A max. Laser class 1 product.	NWGQ2	UL
14. Mother Board	Aopen Inc.	i67QMx-DV	--	--	--
14-01. Polyswitch (F1 for display port port, F2 for DVI port)	Various	Various	6Vdc, Ih=1.5A, Isc=100A, Tmoa:85, CA=1(100),2,3,4	XGPU2	UL
14-02. Polyswitch (FB1 for USB port)	Various	Various	8Vdc, Ih=2.6A, Isc=100A, Tmoa:85, CA=1(105),2,3,4	XGPU2	UL
14-03. Polyswitch (FB3 for cardreader, FB4 for USB port)	Various	Various	8Vdc, Ih=0.75A, Isc=100A, Tmoa:85, CA=1(116),2,3,4	XGPU2	UL
14-04. Polyswitch (Front F1 for USB port)	Various	Various	6Vdc, Ih=2A, Isc=100A, Tmoa:85, CA=1(117),2,3,4	XGPU2	UL
14-05. RTC Battery (Lithium type)	Various	CR2032	3Vdc, maximum abnormal charging current 5mA, user replaceable against charging current by multiple components diode Q10 and resistor R54 rated 1Kohm.	BBCV2	UL

Object/part or Description	Manufacturer/ trademark	type/model	technical data	CCN	Marks of Conformity
14-06. PWB	various	various	V-1 min. 105 degree C	ZPMV2	UL
14-07. input/ Output connectors	--	--	Front side: USB 3.0 ports two provided, Rear side: one RJ-45 port, one DVI port, five USB 2.0 ports, one line in port, one speaker out port, one Microphone in port, one DC-In jack, and one Display port.	--	--
15. DC Fan	Adda Corp	AB6712HX-LBB	12Vdc, 0.35A, 8.980CFM	GPWV2	UL
16. Heatsink (For CPU)	--	--	Aluminum and copper, secure together, see Diagrams 4-04 for dimension details.	--	--
17. Wiring, internal, secondary (ELV/SELV Circuit)	Various	Various	FEP, PTFE, PVC, TFE, neoprene, polyimide or marked VW-1; min 30 V, 60 degree C	AVLV2	UL

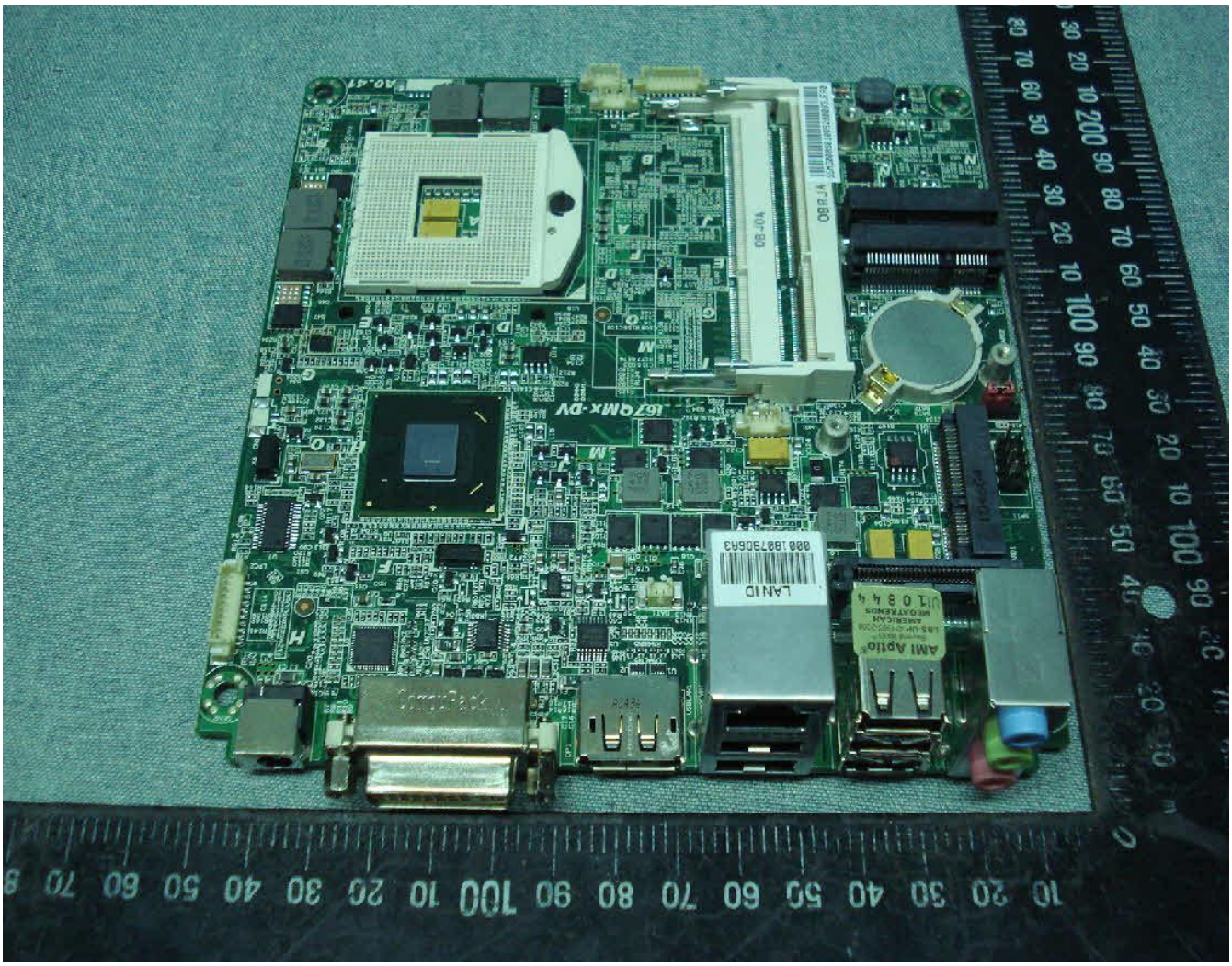
Enclosures

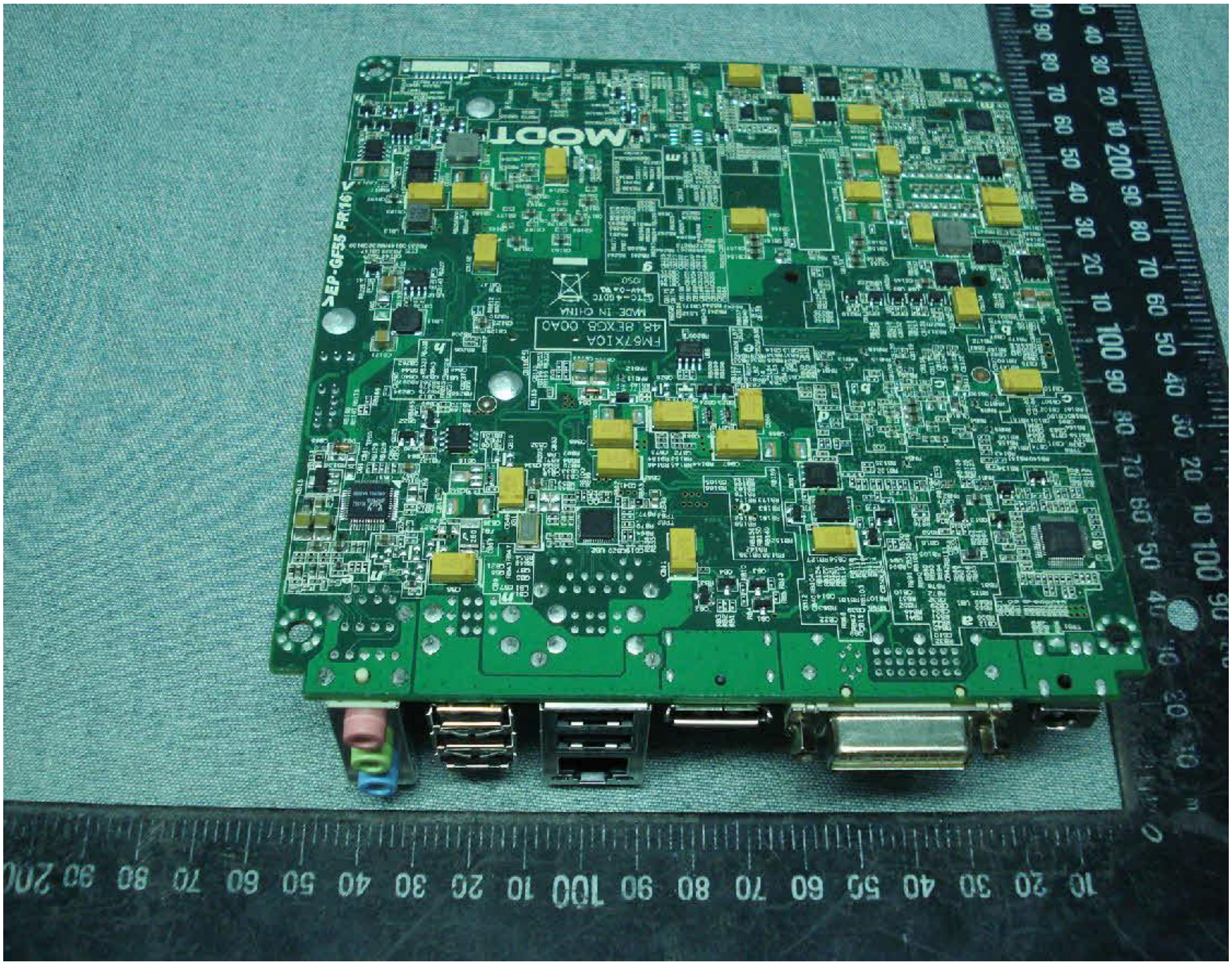
Type	Supplement Id	Description
Photographs	3-01	Top view (For Model MPC-D1009)
Photographs	3-02	Bottom view (For Model MPC-D1009)
Photographs	3-03	Front view For (For Model MPC-D1009)
Photographs	3-04	Rear view
Photographs	3-05	Mother board top view
Photographs	3-06	Mother board bottom view
Photographs	3-07	Inside view (1/2)
Photographs	3-08	Inside view (2/2)
Photographs	3-09	Front I/O port top view
Photographs	3-10	Front I/O port bottom view
Photographs	3-11	Internal view without heatsink
Photographs	3-12	Top view (For Model MP67-XXX)
Photographs	3-13	Front view (For Model MP67-XXX)
Photographs	3-14	Bottom view (For Model MP67-XXX)
Photographs	3-15	Front view (For Model MP67-XXX) (Alternate)
Photographs	3-16	Mother board top view (Alternate)
Photographs	3-17	Mother board bottom view (Alternate)
Diagrams	4-01	Enclosure drawing (Overall)
Diagrams	4-02	Front opening drawing
Diagrams	4-03	Rear opening drawing
Diagrams	4-04	Heatsink module drawing
Schematics + PWB		
Manuals	6-02	User Manual
Miscellaneous	7-01	Form Table



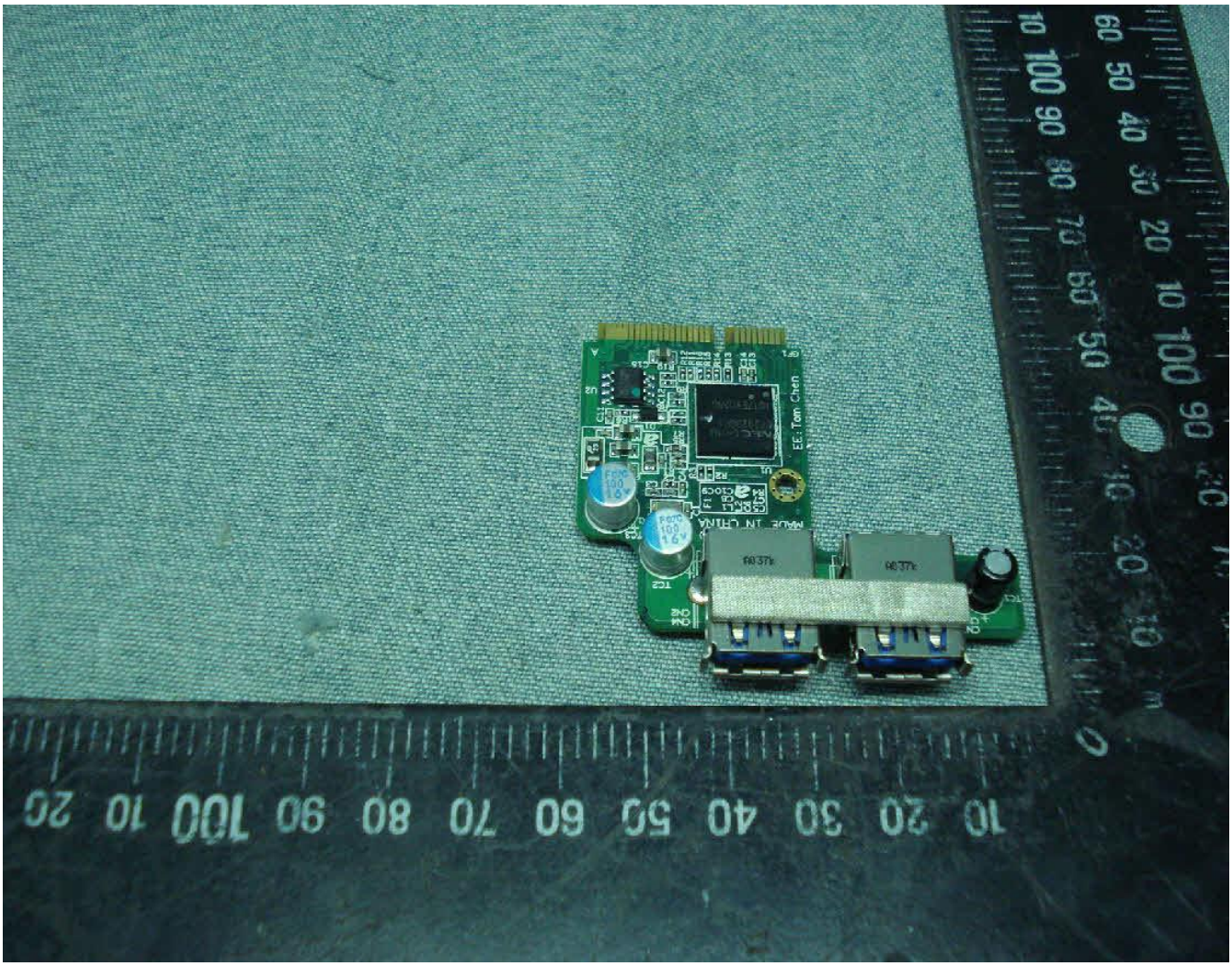

FUJITSU

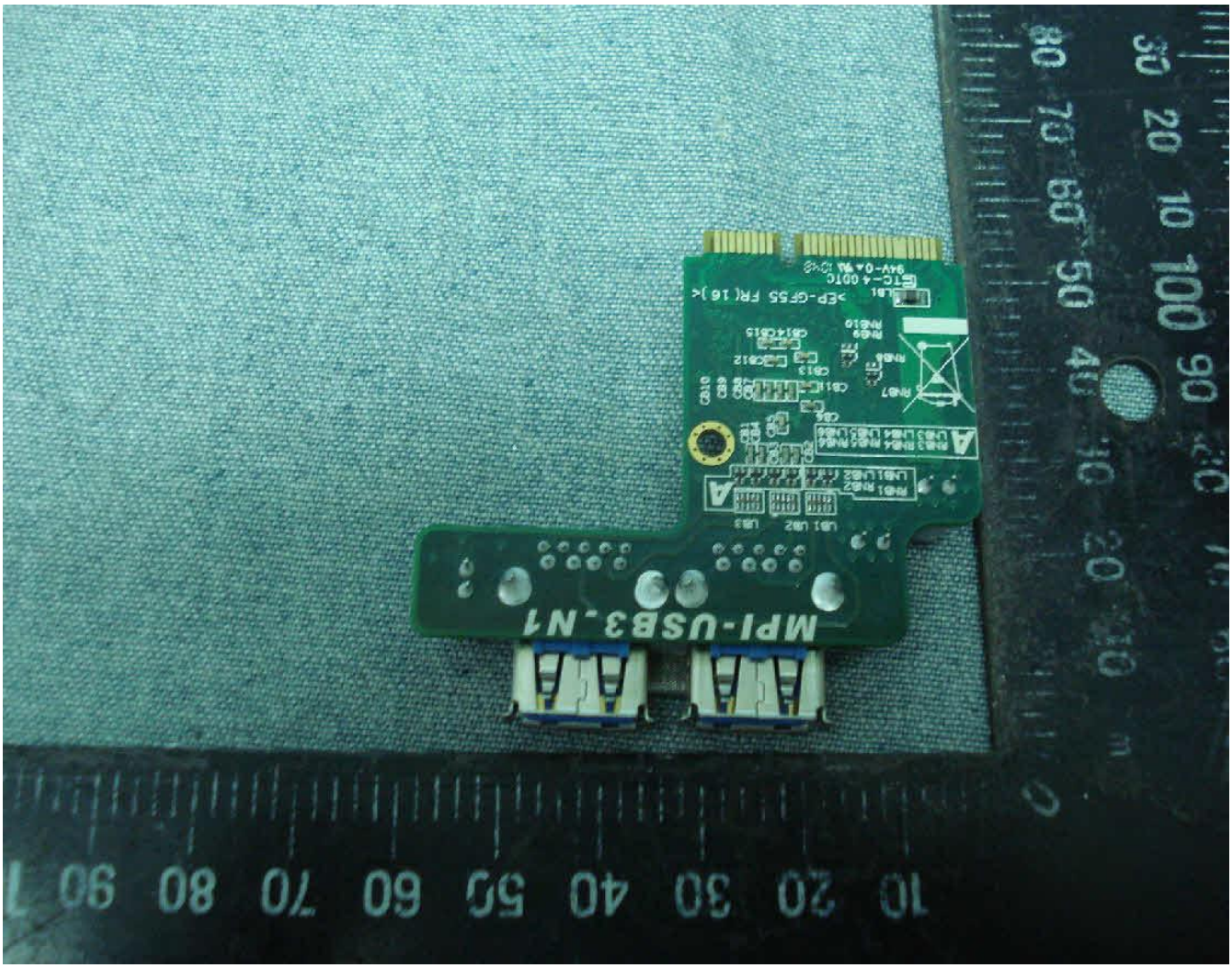

DVI-I

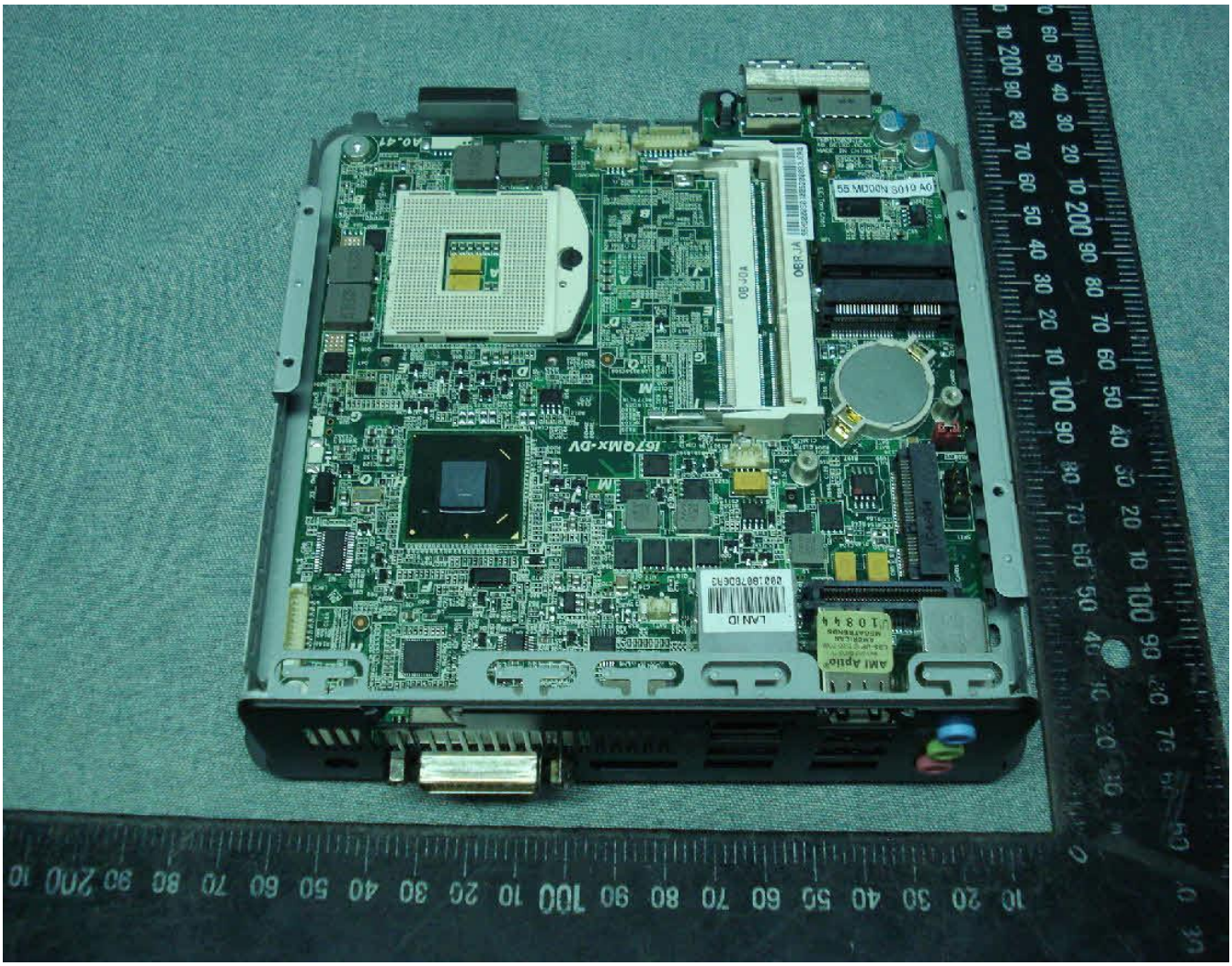

LAN1D
AMI Aptio

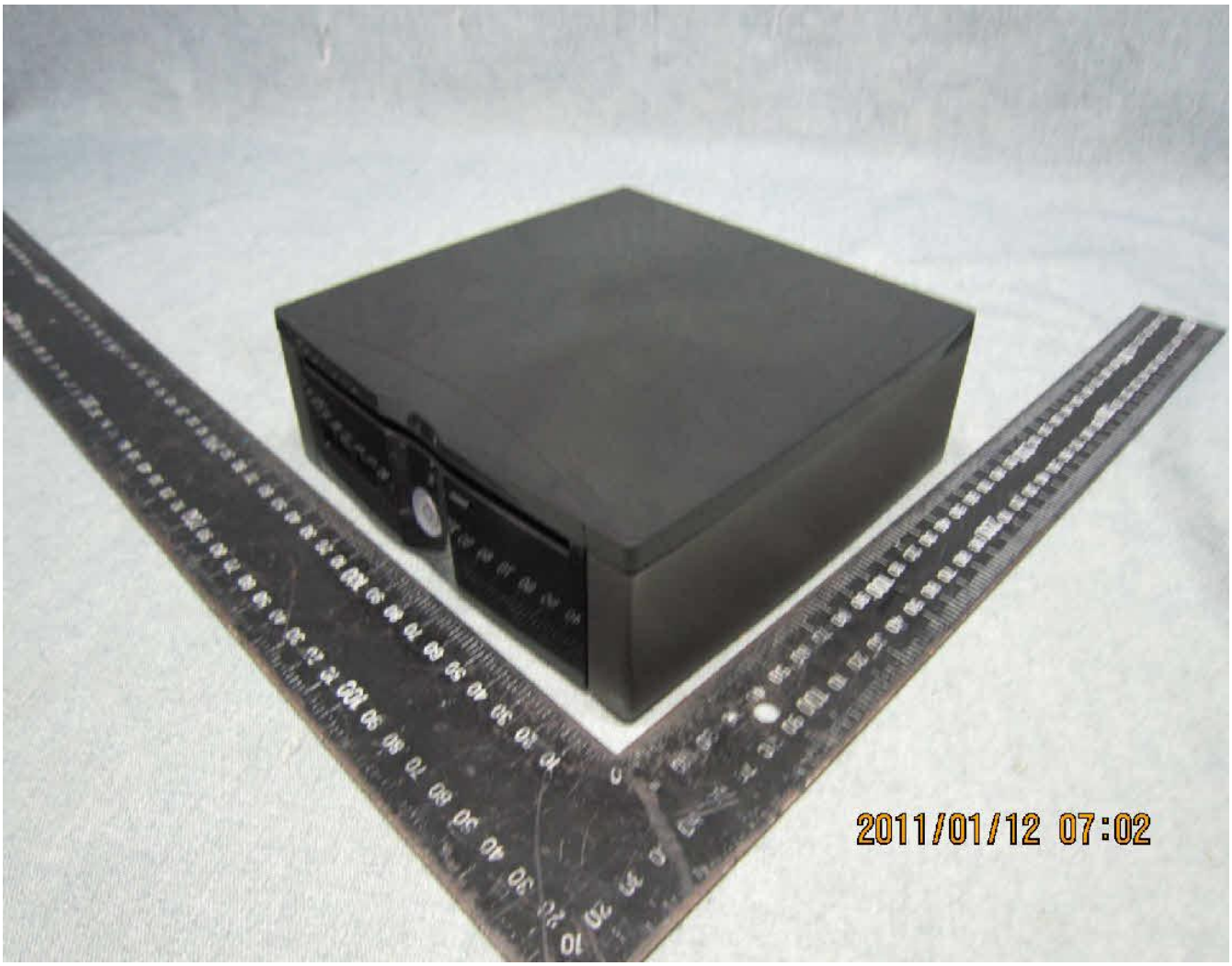



DVD Writer Model TS-T633
NOVEMBER 2009
建基科技(中山)財產標簽
1-8-E 05172


EE:Tom Chen
MADE IN CHINA

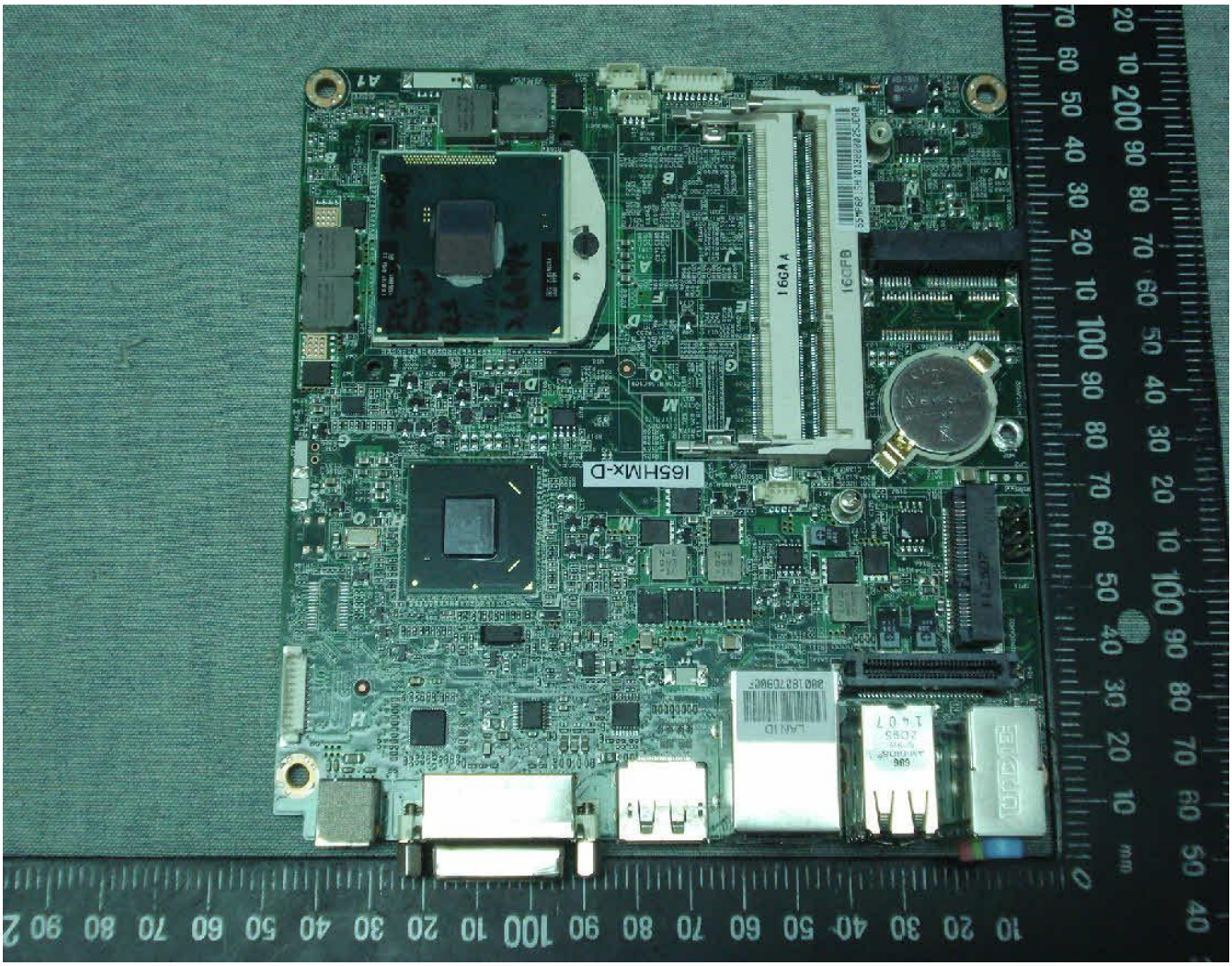

MPI-USB3.N1

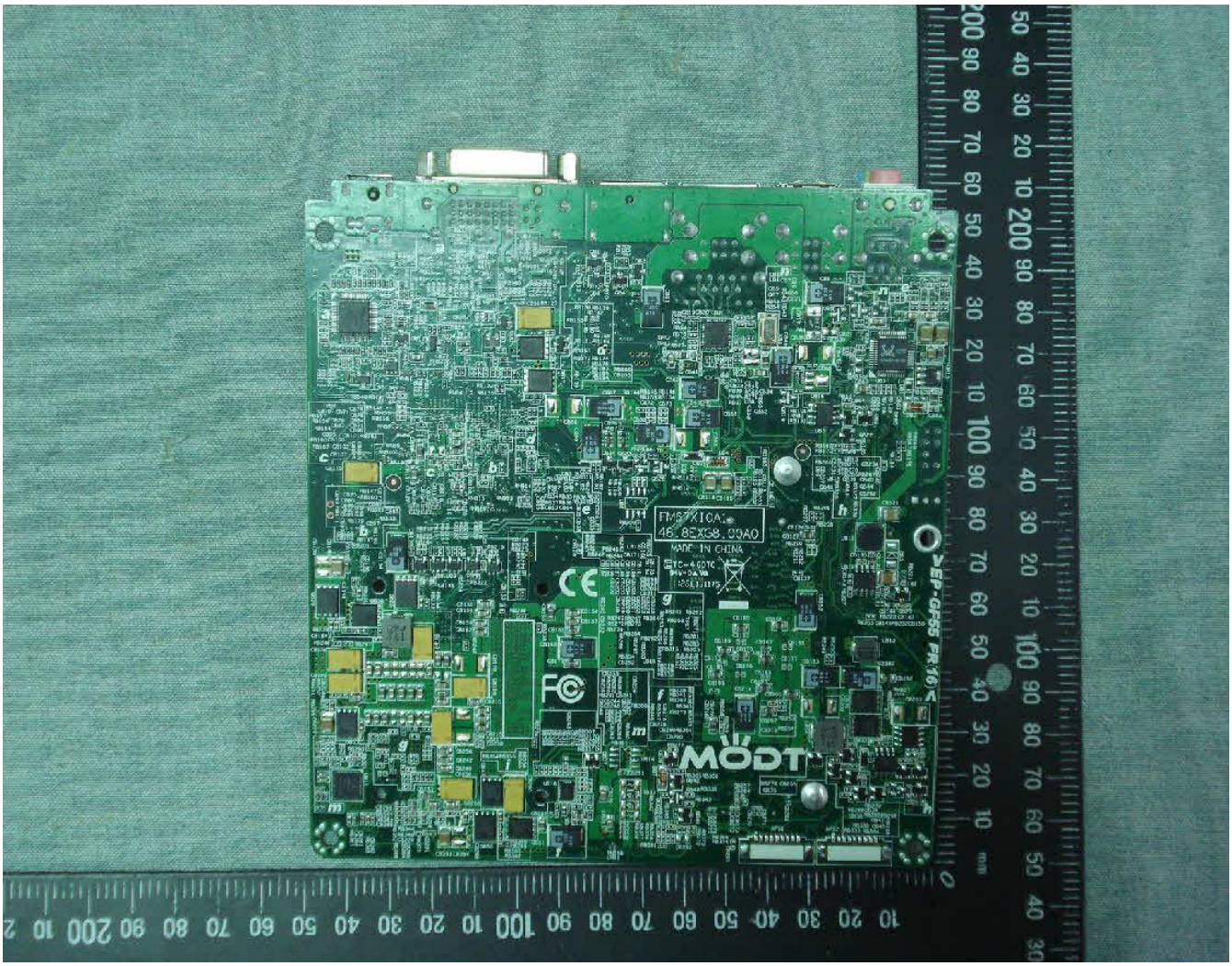

I57QMx-DV
LAN ID
AMI Aptio

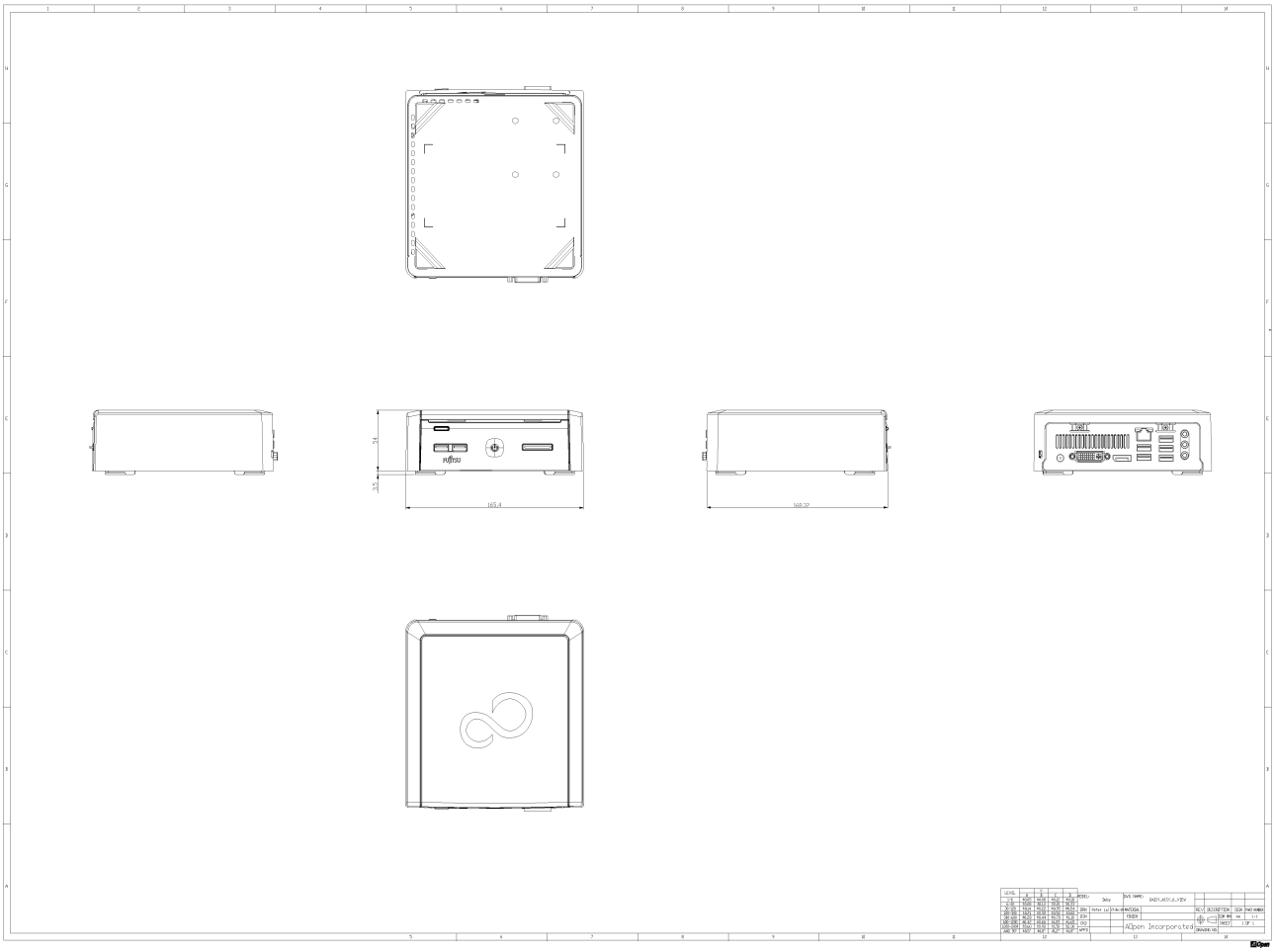

2011/01/12 07:02

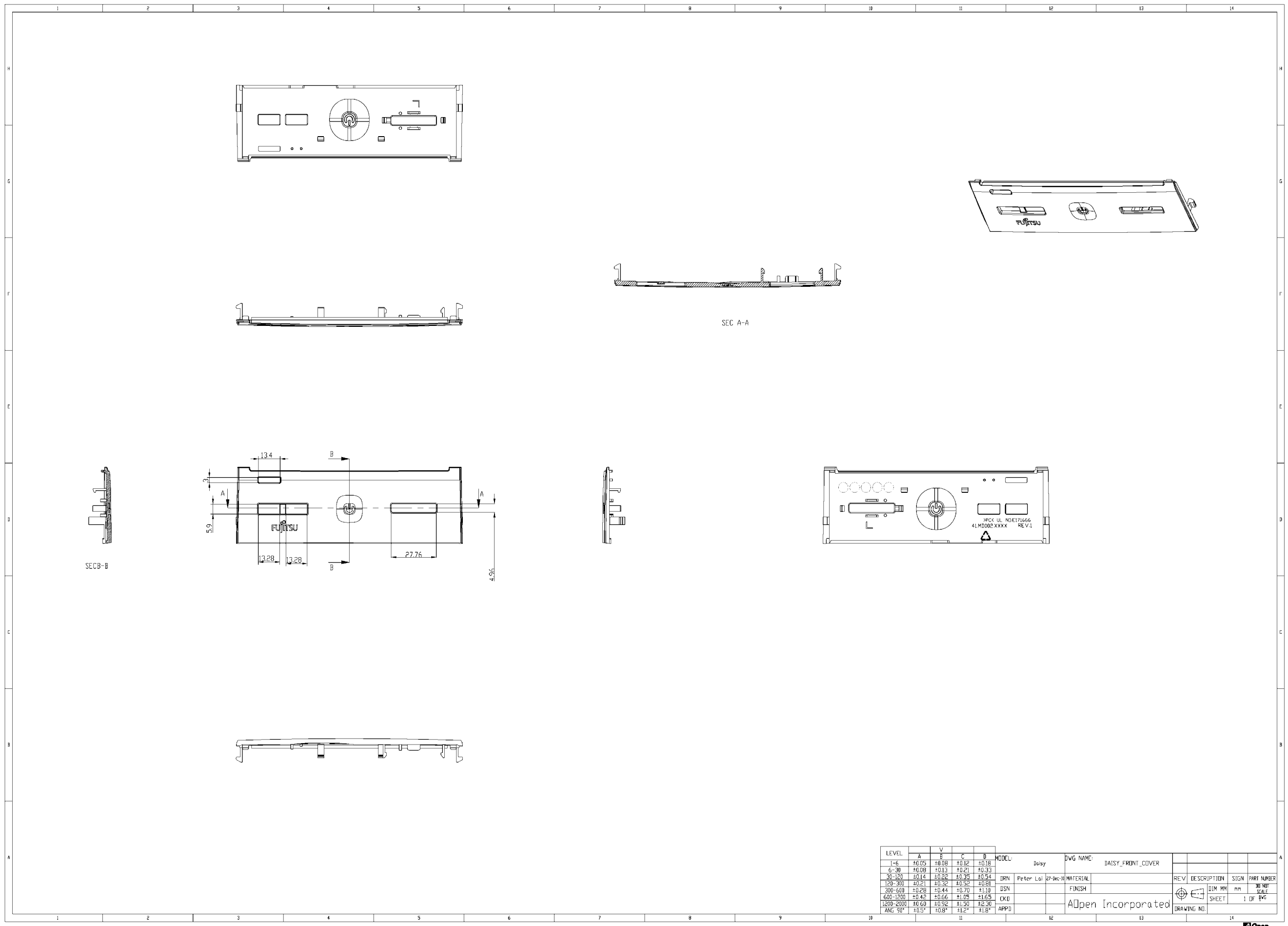

2011/01/12 07:03

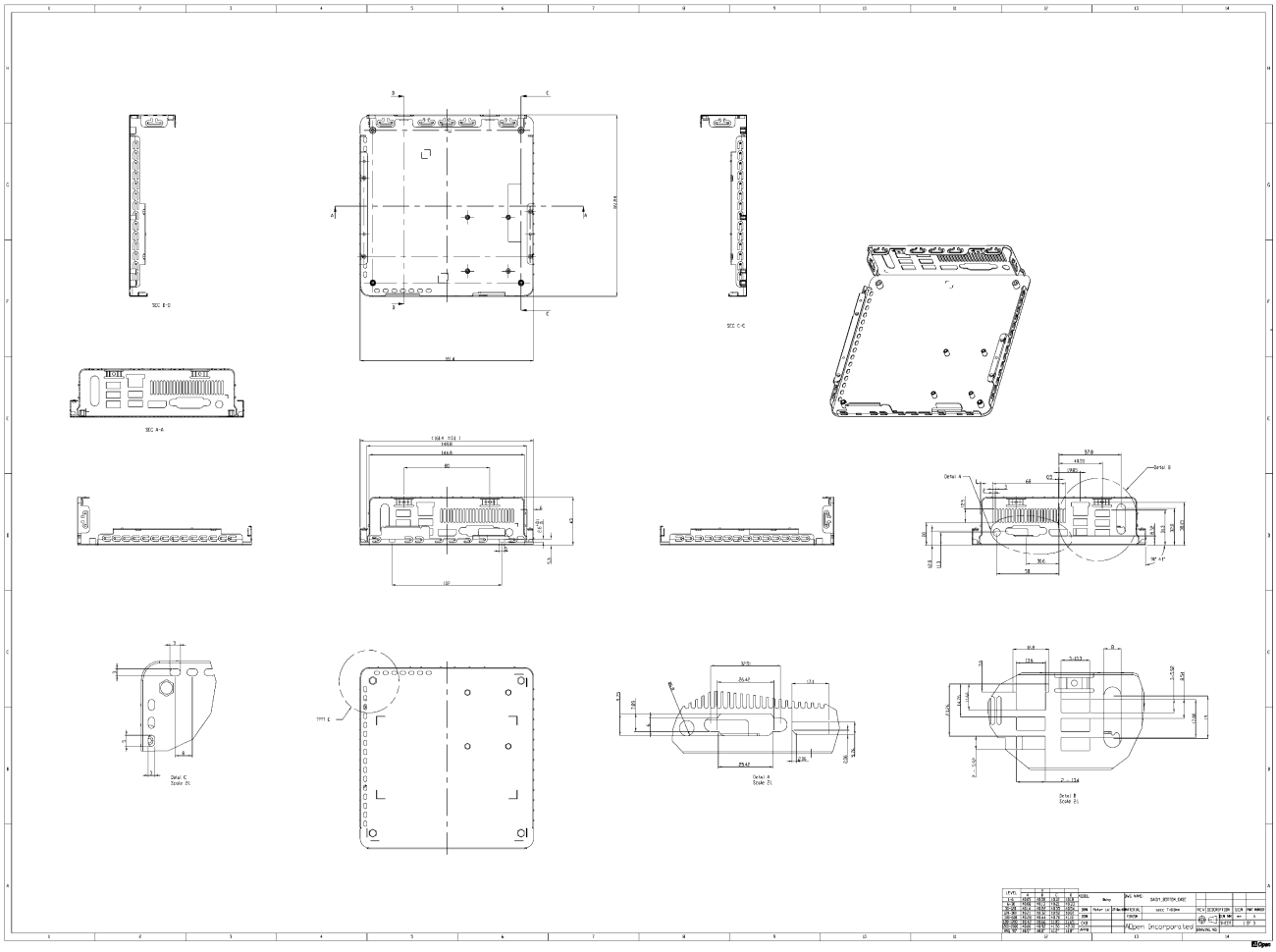

2011/01/12 07:02


165HMx-D


MADE IN CHINA
MODT

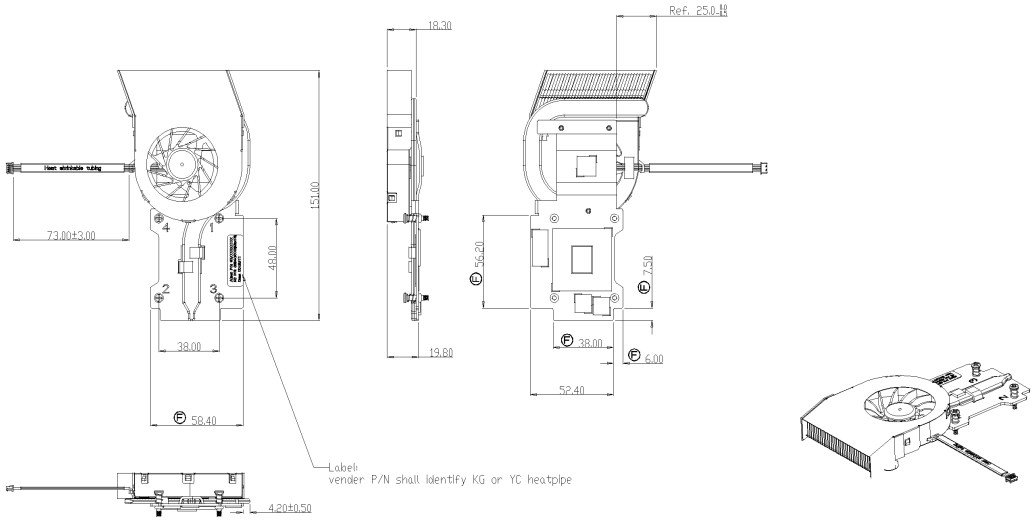

FUJITSU
165.4
148.39


SEC A-A
SECB-B
13.4
5.9
13.28
13.28
27.76
4.96
FUJITSU
LEVEL
V
A
B
C
D
1-6 ±0.05 ±0.08 ±0.12 ±0.18
6-30 ±0.08 ±0.13 ±0.21 ±0.33
30-120 ±0.14 ±0.22 ±0.35 ±0.54
120-300 ±0.21 ±0.32 ±0.52 ±0.81
300-600 ±0.28 ±0.44 ±0.70 ±1.10
600-1200 ±0.42 ±0.66 ±1.05 ±1.65
1200-2000 ±0.60 ±0.92 ±1.50 ±2.30
ANG 90° ±0.5° ±0.8° ±1.2° ±1.8°
MODEL: Daisy
DWG NAME: DAISY_FRONT_COVER
DRN Peter Lai 27-Dec-10
DSN
CKD
APPD
MATERIAL
FINISH
AOpen Incorporated
REV DESCRIPTION SIGN PART NUMBER
DIM MM mm
DO NOT SCALE DWG
SHEET 1 OF 1
DRAWING NO.
AOpen



Revision	History
A	Initial design

Note:
1. Tolerance refer to listed table unless otherwise specified; unspecified dimensions must refer to 2D or 3D drawing.
2. Ⓕ Important dimension; need measure 32 pcs to create CPK values(CPK>1.33



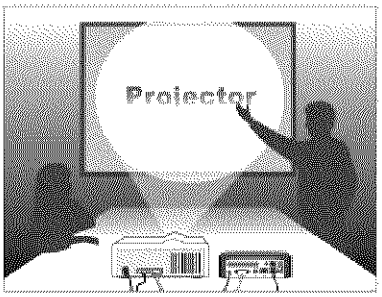
LEVEL	A	B	C	D
1-6	±0.05	±0.08	±0.12	±0.18
6-30	±0.08	±0.13	±0.21	±0.33
30-120	±0.14	±0.22	±0.35	±0.54
120-300	±0.21	±0.32	±0.52	±0.81
300-600	±0.28	±0.44	±0.70	±1.10
600-1200	±0.42	±0.66	±1.05	±1.65
1200-2000	±0.60	±0.92	±1.50	±2.30
ANG 90°	±0.5°	±0.8°	±1.2°	±1.8°

MODEL:	Daisy		DWG NAME:	ASSEMBLY			
					A		
DRN	Ken Lo	16-Sep-10	MATERIAL	metal + plastic	REV	DESCRIPTION	PART NUMBER
DSN	Ken Lo	16-Sep-10	FINISH			DIM MM mm	DO NOT SCALE DWG
CKD			AOpen Incorporated			SHEET	1 OF 1
APPD						DRAWING NO.	

AOpen

Office Scenario

You can connect the system in a business conference room to a projector in order to make presentations.



Mobility Scenario

Because the system comes in very compact size, you can carry it from your home to the office, or to a business meeting conveniently in a hand bag.

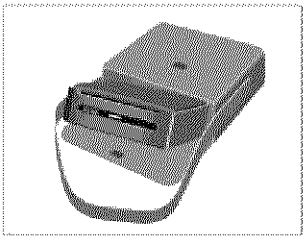


Table 2.5	Limited Power Source Measurements					Pass
Output	Measured		Single Fault	Maximum		
Tested	From	To	Condition	U_{oc}	I_{sc}	VA 60 s
USB1(Back, Right-up)	Pin1	GND	Normal	5.09Vdc	4.4A	14.61 (3.32Vx4.4A)
USB1(Back, Right-up)	Pin2-4	GND	Normal	0	0	0
USB1(Back, Right-middle)	Pin1	GND	Normal	5.09Vdc	4.3A	15.22 (3.54Vx4.3A)
USB1(Back, Right-middle)	Pin2-4	GND	Normal	0	0	0
USB1(Back, Right-down)	Pin1	GND	Normal	5.09Vdc	4.4A	15.22 (3.56Vx 4.4A)
USB1(Back, Right-down)	Pin2-4	GND	Normal	0	0	0
USBLAN1(Back,Left-up)	Pin1	GND	Normal	5.09Vdc	4.4A	15.75 (3.58Vx4.4A)
USBLAN1(Back,Left-up)	Pin2-4	GND	Normal	0	0	0
USBLAN1(Back,Left-down)	Pin1	GND	Normal	5.09Vdc	4.4A	15.48 (3.52Vx4.4A)
USBLAN1(Back,Left-down)	Pin2-4	GND	Normal	0	0	0
CN2(Front, Right)	Pin1	GND	Normal	5.09Vdc	3.0A	11.85 (3.95Vx3.0

						A)
CN2(Front, Right)	Pin2-9	GND	Normal	0	0	0
CN1(Front, Left)	Pin1	GND	Normal	5.09Vdc	2.9A	11.34 (3.91Vx2.9A)
CN1(Front, Left)	Pin2-9	GND	Normal	0	0	0
Display port	Pin20	GND	Normal	3.46Vdc	2.5A	5.3(2.12Vx2.5A)
Display port	Pin1-19	GND	Normal	0	0	0
DVI1	Pin 6,7	GND	Normal	4.34Vdc	0	0
DVI1	Pin 14	GND	Normal	4.48Vdc	0	0
DVI1	Pin 1-5,8-13,15-19,20-24	GND	Normal	0	0	0
DVI1	Pin C4	GND	Normal	2.27Vdc	0	0
DVI1	Pin C1-C3, C5	GND	Normal	0	0	0
J1(cardreader)	Pin1	GND	Normal	3.46 Vdc	1.6A	3.65(2.28Vx1.6A)
J1(cardreader)	Pin3	GND	Normal	3.20 Vdc	0	0
J1(cardreader)	Pin 2,4-9	GND	Normal	0	0	0
Speaker port	Pin1,2	GND	Normal	0	0	0
Microphone port	Pin1,2	GND	Normal	0	0	0
Line in poer	Pin1,2	GND	Normal	0	0	0
RJ-45 port	Pin1~8	GND	Normal	0	0	--
Note(s): PTC for DISPLAY F1 and DVI F2,rating: Vmax= 6 V, Ih= 1.5 A PTC for USB FB1 and,rating: Vmax= 8 V, Ih= 2.6 A PTC for USB FB4 and FB3 for cardreader ,rating: Vmax= 8 V, Ih= 0.75 A PTC for USB Front F1 and,rating: Vmax= 6 V, Ih= 2 A						

Test Record No. 1

- The manufacturer submitted representative production sample of Mini PC, Models MPC-D1009, MP67-XXX (X=0-9, a-z, A-Z, - or blank).

- Tests were conducted by Universal Standard Services Inc, located in Taipei, Taiwan under TPTDP program.

- Test results reported relate only to the items tested.

The following tests were conducted:

Test	Testing Location/Comments
End Product Reference Page	
General Guidelines	
Input: Single-Phase (1.6.2)	
Limited Power Source Measurements (2.5)	
Steady Force (4.2.1 - 4.2.4)	
Drop (4.2.6, 4.2.1)	
Lithium Battery Reverse Current Measurement (4.3.8)	
Heating (4.5.1, 1.4.12, 1.4.13)	
Abnormal Operation (5.3.1 - 5.3.9)	

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.

The following supplements are provided as a part of this Test Record. NOTE: These supplements are only available to the Applicant via the CDA system.

Type	Supplement Id	Description
Attachment	2-01	CRD
Datasheet	2-02	Datasheet

Test Record No. 2

- No tests was deemed necessary due to revising the rating of Optical Disk Devices from 5 Vdc/ 1.5 A max. to 5 Vdc/ 1.6 A max and engineering judgment that the alternate do not impact the safety of the product.

Test Record No. 3

- No tests was deemed necessary due to alternate photo of enclosure only.

Test Record No. 4

- The manufacturer submitted representative production sample of Mini PC, Models MPC-D1009, MP67-XXX, MP65-XXX (X=0-9, a-z, A-Z, - or blank) employing the alternate layout of motherboard and adding model name MP65-XXX (X = 0-9, A-Z, a-z or blank).

- CAP: Unless otherwise noted in the above list of tests, all tests were conducted by Universal Standard Service, Inc under the CAP program.

- Unless otherwise indicated, all tests were conducted on Model MPC-D1009.

- Tests performed on Model MPC-D1009 were considered to be representative of Models MP67-XXX, MP65-XXX.

- Only limited tests were performed on Model MPC-D1009 employing the alternate layout of motherboard.and adding model name MP65-XXX (X = 0-9, A-Z, a-z or blank).

The following tests were conducted:

Test	Testing Location/Comments
End Product Reference Page	
General Guidelines	
Input: Single-Phase (1.6.2)	
Heating (4.5.1, 1.4.12, 1.4.13)	
Abnormal Operation (5.3.1 - 5.3.9)	

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.

The following supplements are provided as a part of this Test Record. NOTE: These supplements are only available to the Applicant via the CDA system.

Type	Supplement Id	Description
Attachment	2-03	CRD
Datasheet	2-04	Datasheet