Amendment to Test Report

This Amendment is valid only together with the main Test Report

Report No. . ..... :	339807
Main Report No. . ..... :	335503
Date of issue ..... :	October 11, **2017**
Total number of pages ..... :	63 pages and refer to page 3
Name of Testing Laboratory preparing the Report ..... :	Nemko Taiwan
Applicant's Name ..... :	Dell Inc.
Address ..... :	One Dell Way, Round Rock, TX 78682, USA
Test specification	
Standard ..... :	IEC 60950-1:2005 (Second Edition) + Am 1:2009 + Am 2:2013
Test procedure ..... :	CB scheme
Non-standard test method ..... :	N/A

This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.

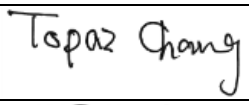
General disclaimer:

The test results presented in this report relate only to the object tested.
This report shall not be reproduced, except in full, without the written approval of the Issuing CB Testing Laboratory. The authenticity of this Test Report and its contents can be verified by contacting the NCB, responsible for this Test Report.

Test item description ..... :	Portable Computer
Trade Mark ..... :	DELL
Manufacturer ..... :	Same as applicant
Model/Type reference ..... :	P75F; P75F…; P35E; P35E…; **P89G; P89G…**; Inspiron 5570; Inspiron 5770; **Inspiron 5575; Inspiron 5775; Latitude 3490.....; Latitude 3590…….** (The dots "." in the model name can be 0 to 9, A to Z, a to z, - or blank for marketing use.)
Ratings..... :	2.31 A or 3.34 A, 19.5 Vdc, Cl. III

Correct date of issue due to typoRevised by Topaz Chang, date 2017-10-25. Topaz Chang

Nemko Rev. 2015-09

Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):			
☒	**CB Testing Laboratory:**	Nemko Taiwan	
Testing location/ address ..... :		5 Fl., No. 409, Sec.2, Tiding Blvd., Neihu, Taipei 114, Taiwan	
☐	**Associated CB Testing Laboratory:**		
Testing location/ address ..... :			
Tested by (name, function, signature):		Topaz Chang (Project Handler)	
Approved by (name, function, signature):		Roy Chou (Verificator)	
☐	**Testing procedure: CTF Stage 1:**		
Testing location/ address ..... :			
Tested by (name, function, signature)..... :			
Approved by (name, function, signature)... :			
☐	**Testing procedure: CTF Stage 2:**		
Testing location/ address ..... :			
Tested by (name + signature)..... :			
Witnessed by (name, function, signature) . :			
Approved by (name, function, signature)... :			
☐	**Testing procedure: CTF Stage 3:**		
☐	**Testing procedure: CTF Stage 4:**		
Testing location/ address ..... :			
Tested by (name, function, signature)..... :			
Witnessed by (name, function, signature) . :			
Approved by (name, function, signature)... :			
Supervised by (name, function, signature) :			

List of Attachments (including a total number of pages in each attachment):

1.Photos (15 pages)

Attachment UL/Demko IEC 60950-1 CB test certificate / report (DK-51535-A1-UL / E225846-A633-CB-1 issued on 2016-03-23) of Battery Pack and UL/Demko IEC 62133 CB test certificate / report (DK-51474-UL / BATT-4787301080-A-1 issued on 2016-01-21) of Battery Pack, LG CHEM, LTD. / type 33YDH

Attachment UL/Demko IEC 60950-1 CB test certificate / report (DK-51310-UL / E302660-A294-CB-1 issued on 2016-01-15) of Battery Pack and UL/Demko IEC 62133 CB test certificate / report (DK-51290-UL / BA-4787300741-A-1 issued on 2016-01-14) of Battery Pack, SAMSUNG SDI CO LTD / type 33YDH

Summary of testing:

Tests performed (name of test and test clause):

1.6	Power interface
1.7	Marking and instructions
2.5	Limited power sources
3.5	Interconnection of equipment
4.2	Mechanical strength
4.3	Design and condition
4.5	Thermal requirements
4.7	Resistance to fire
5.3	Abnormal operating and fault conditions
Annex B	MOTOR TESTS UNDER ABNORMAL CONDITIONS

Load conditions:
The unit is running white pattern on LCD display and adjustment of brightness is set to maximum. Running Burn-In test program with SSD, HDDs and ODD (read/write at 100%), CPU (performance at 100%); Sending/receiving data to all I/O port. USB3.0 ports, each one loaded to 0.9A; USB2.0 port loaded to 0.5A; USB3.1 type C port, loaded to 3A (15W). Speaker is at max. volume. The empty battery pack is charging at the same time.

Testing location: See page 2

Summary of compliance with National Differences

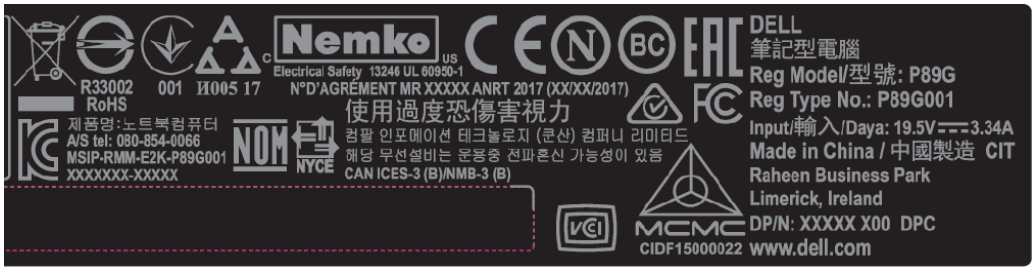
The modified products still complies with previously evaluated National Differences.
The product fulfils the requirements of IEC 60950-1:2005, IEC 60950-1:2005/AMD1:2009, IEC 60950-1:2005/AMD2:2013 and EN 60950-1: 2006 +A11: 2009+A1: 2010+A12: 2011+ A2: 2013.

All national differences listed in the IECEE Online CB Bulletin are covered by the Common Modifications, Special National Conditions, National Deviations, and the National Requirements noted above except for the countries which are documented in main test report.

The update concern is not effecting to national difference which listed in main test report.

Copy of marking plate:

The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.



Test item particulars ..... :	
Classification of installation and use..... :	Class III
Supply Connection..... :	Not directly connected to the mains
Possible test case verdicts:	
- test case does not apply to the test object ..... :	Not Applicable (N/A)
- test object does meet the requirement..... :	Pass (P)
- test object does not meet the requirement ..... :	Fail (F)
Testing ..... :	
Date of receipt of test item ..... :	September 01, 2017
Date(s) of performance of tests ..... :	September 01-29, 2017

General remarks:

The test results presented in this report relate only to the object tested.
This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.
"(see Enclosure #)" refers to additional information appended to the report.
"(see appended table)" refers to a table appended to the report.

Throughout this report a ☐ comma / ☒ point is used as the decimal separator.

Manufacturer's Declaration per sub-clause 4.2.5 of IECEE 02:

The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided.....:

☒ **Yes**

☐ **Not applicable**

When differences exist; they shall be identified in the General product information section.

Name and address of factory (ies) ..... :

1. Compal Electronics Technology (Kunshan) Co., Ltd.
   No. 25, Third Avenue, A Zone, Kunshan Comprehensive Free Trade Zone, Kunshan, Jiangsu, China
2. Compal Information (Kunshan) Co. Ltd.
   No. 15, Third Avenue, A Zone, Kunshan Comprehensive Free Trade Zone, Kunshan, Jiangsu, China
3. Compal Information Technology (Kunshan) Co., Ltd.
   No.58, First Avenue, A Zone, Kunshan Comprehensive Free Trade Zone, Kunshan, Jiangsu, China
4. Dell Computadores Do Brasil LTDA.
   Av. Emancipação, 5000 13184-654-Hortolândia-SP, Brazil
5. Compal Electronics (Chengdu) Co., Ltd.
   No. 88, Sec.1, ZongBao Avenue, Chengdu Hi-tech Comprehensive, Bonded Zone (Shuangliu), Shuangliu County, Chengdu City, SiChuan, China
6. Compal Digital Technology (Kunshan) Co., Ltd.
   No.9, Second Avenue, A Zone, Kunshan Comprehensive Free Trade Zone, Kunshan, Jiangsu, China
7. Compal Electronics (Chongqing) Co., Ltd.
   No. D01, Zone D, Air Port Section of LiangLu CunTan Free Trade Port Area, YuBei District, Chongqing, China
8. Compal Electronics Inc. Pingzhen plant
   3-4F., No.8-1 & No.8, Nandong Rd., Pingzhen Dist., Taoyuan City 324, Taiwan
9. Dell International Services India Private Limited
   Sriperumbudur Hi-Tech SEZ, SIPCOT Industrial Park, Sriperumbudur Phase-II Sunguvarchatram Post, Sirumangadu Village, Sriperumbudur Taluk, Kancheepuram, Tamil Nadu, 602106, India

General product information:

This Amendment shall always be enclosed with main Test Report, report/order no: 335503.

The changes concern the following:
- Add six new models "P89G; P89G…; Inspiron 5575; Inspiron 5775; Latitude 3490.....; Latitude 3590……".
- Add two alternative main boards (called MB C and MB D).
- Add alternative components, refer to bold text in the appended table 1.5.1 and below tablet for details.

Models difference:

Model name	P75F; P75F…; Inspiron 5570; **Inspiron 5575; *1)***		P35E; P35E…; Inspiron 5770; **Inspiron 5775 *1)***	
Input rating	2.31 A or 3.34 A 19.5 Vdc	3.34 A 19.5 Vdc	2.31 A or 3.34 A 19.5 Vdc	3.34 A 19.5 Vdc
Adapter power	45W or 65W ***2)***	65W	45W or 65W ***2)***	65W
MB board ***3)***	MB A **or MB C** (UMA)	MB B **or MB C** (DIS)	MB A **or MB C** (UMA)	MB B **or MB C** (DIS)
Panel size	15.6"		17.3"	
Enclosure type	A (with ODD) or B (without ODD)		C (with ODD)	
Weight (kg)	Max. 2.4		Max. 2.9	
Enclosure Dimensions	Enclosure A: 380 x 258 x 24.02 mm Enclosure B: 380 x 258 x 21.22 mm		415.4 x 279.2 x 29.4mm	
I/O port	Left side: HDMI x 1, RJ45 x 1, USB 3.0 x 2, Audio x 1 Right side **(Daughter Board 1 or 2):** SD card reader x1, USB 2.0 x 1	Left side: HDMI x 1, RJ45 x 1, USB 3.0 x 2, USB 3.1 type C x 1 Audio x 1 Right side: **(Daughter Board 1 or 2):** SD card reader x1, USB 2.0 x 1	Left side: HDMI x 1, RJ45 x 1, USB 3.0 x 2, Audio x 1 Right side: **(Daughter Board 1 or 2):** SD card reader x1, USB 2.0 x 1	Left side: HDMI x 1, RJ45 x 1, USB 3.0 x 2, USB 3.1 type C x 1 Audio x 1 Right side: **(Daughter Board 1 or 2):** SD card reader x1, USB 2.0 x 1

Model name	**P89G; P89G…; Latitude 3490..... *1)***		**P75F; P75F…; Latitude 3590……. *1)***	
Input rating	**3.34 A 19.5 Vdc**		**3.34 A 19.5 Vdc**	
Adapter power	**65W**		**65W**	
MB board ***4)***	**MB D (UMA)**	**MB D (DIS)**	**MB D (UMA)**	**MB D (DIS)**
Panel size	**14.0"**		**15.6"**	
Enclosure type	**D (without ODD)**		**E (without ODD)**	
Weight (kg)	**Max. 2.0**		**Max. 2.3**	
Enclosure Dimensions	**339 x 241.9 x 22.16 mm**		**380 x 258 x 25.5 mm**	
I/O port	**Left side:** **HDMI x 1, RJ45 x 1, USB 3.0 x 1, USB 3.1 type C x 1, Audio x 1** **Right side (Daughter Board 3, 4 and 5):** **SD card reader x1, USB 2.0 x 1, VGA x 1, SIM card x1 (optional)**			

1) All models are identical except model designation.
2) The equipment provided a software to detective the power consumption of power adapter when it to be inserted to portable computer, if higher power consumption of main board use with low current output power adapter that equipment will downgrade the system performance to prevent the power adapter overloading.
***3)* The main board MB C has two types: Discrete and UMA. The Discrete type is identical to the UMA type except for Graphic Chipset, I/O ports and input rating; where the UMA type is 2.31 A or 3.34 A and the Discrete type is 3.34A.**
***4)* The main board MB D has two types: Discrete and UMA. The Discrete type is identical to the UMA type except for Graphic Chipset.**

General product information:

Unless otherwise states, tests were conducted on model P89G, AC/DC adapter Delta type DA65NM111-00 and LG 56Wh battery pack type 33YDH.

Project history:		
Nemko Report/ Order No.:	Modification to the appliances:	Changes/ Modifications in clause(s):
335503	Main Report	
339807	- Add six new models "P89G; P89G…; Inspiron 5575; Inspiron 5775; Latitude 3490.....; Latitude 3590……". - Add two alternative main boards (called MB C and MB D). - Add alternative components.	1.5, 1.6, 1.7, 2.5, 3.5, 4.3, 4.5, 4.6, 5.3 and Annex B

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.5	**Components**		**P**
1.5.1	General	See below.	**P**
	Comply with IEC 60950-1 or relevant component standard	(see appended table 1.5.1)	**P**
1.5.2	Evaluation and testing of components	Certified components are used in accordance with their ratings, certifications and they comply with applicable parts of this standard. 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. Components, for which no relevant IEC-standard exists, have been tested under the conditions occurring in the equipment, using applicable parts of IEC 60950-1.	**P**
1.6	**Power interface**		**P**
1.6.2	Input current	(see appended table 1.6.2)	**P**
2.5	**Limited power sources**		**P**
	a) Inherently limited output	Audio, RJ45, VGA and SIM card ports are inherently limited, only for signal transmission.	**P**
	b) Impedance limited output	HDMI port limited by Polyswitch. (refer to appended table 2.5)	**P**
	c) Regulating network limited output under normal operating and single fault condition	- All USB ports are limited by power distribution switch. - SD card reader is regulating network limited, it can only insert the storage cards and covered by fire enclosure when such cards insert to the port. (refer to appended table 2.5)	**P**
	Use of integrated circuit (IC) current limiters	Integrated circuit (IC) current limiters used for protect all USB ports and complies with Annex CC. (refer to appended table 1.5.1)	**P**
	d) Overcurrent protective device limited output	No such parts used.	**N/A**
	Max. output voltage (V), max. output current (A), max. apparent power (VA)	See appended table 2.5.	**P**
	Current rating of overcurrent protective device (A) .:	No such parts used.	**N/A**

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
3.5	**Interconnection of equipment**		**P**
3.5.4	Data ports for additional equipment	Considered. Refer to Cl. 2.5.	**P**
4.3	**Design and construction**		**P**
4.3.8	Batteries	Refer to cl. 1.7.13 and appended table 4.3.8.	**P**
	- Overcharging of a rechargeable battery	Considered, refer to CB test report of battery pack and appended table 4.3.8.	**P**
	- Unintentional charging of a non-rechargeable battery	Considered, see appended table 4.3.8 for RTC battery.	**P**
	- Reverse charging of a rechargeable battery	Considered, battery pack is provided special shape connector for prevent reverse polarity or reverse charging.	**N/A**
	- Excessive discharging rate for any battery	Considered, refer to CB test report of battery pack and appended table 4.3.8.	**P**
4.5	**Thermal requirements**		**P**
4.5.2	Temperature tests	(see appended table 4.5)	**P**
	Normal load condition per Annex L	Rated load with continuous operation.	**P**
4.5.3	Temperature limits for materials	(see appended table 4.5)	**P**
4.5.4	Touch temperature limits	(see appended table 4.5)	**P**
4.6	**Openings in enclosures**		**P**
4.6.1	Top and side openings	Transportable equipment.	**N/A**
	Dimensions (mm)		**—**
4.6.2	Bottoms of fire enclosures	Transportable equipment.	**N/A**
	Construction of the bottomm, dimensions (mm) ..		**—**
4.6.3	Doors or covers in fire enclosures	No such parts.	**N/A**

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
4.6.4	Openings in transportable equipment	**Enclosure D:** Top, Front, Left sides: No openings. Rear side - Numerous rectangular openings, each max. 5.5 x 5.02mm; cover one area. (Baffled by CPU heatsink) Bottom side: - Numerous rectangular openings, each max. 5.5 x 7.82mm; cover one area. (Baffled by CPU heatsink) - Numerous rectangular openings, each max. 1.5 x 33.5mm baffled by internal plastic barrier which had numerous round openings max. 0.3 mm in diameter, fixed with mechanical secure; cover one area for DC fan. - Numerous rectangular openings, each max. 0.95 x 11.0 mm; cover two areas for speakers. **Enclosure E:** Top, Front, Left sides: No openings. Rear side - Numerous rectangular openings, each max. 9.0 x 6.69 mm; cover one area. (Baffled by CPU heatsink) - Numerous rectangular openings, each max. 0.95 x 6.69 mm; cover two areas. Bottom side: - Numerous rectangular openings, each max. 1.2 x 35.0 mm, baffled by internal plastic barrier which had numerous round openings max. 0.3 mm in diameter, fixed with mechanical secure; cover one area for DC fan. - Numerous elliptical openings, each max. 0.95 x 11.0 mm; cover two areas for speakers.	**P**
4.6.4.1	Constructional design measures	Refer to sub-clause 4.6.4.	**P**
	Dimensions (mm)		**—**

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
4.6.4.2	Evaluation measures for larger openings	**Enclosure D:** **Right side (for locked):** One rectangular opening max. 3.09 x 4.88 mm **Enclosure E:** **Right side (for locked):** One rectangular opening max. 3.1 x 4.9 mm Verified above openings by a 13 mm long/1 mm diameter of metal object to simulate bridging along a direct path between bare conductive parts, no hazards.	**P**
5.3	**Abnormal operating and fault conditions**		**P**
5.3.1	Protection against overload and abnormal operation	(see appended table 5.3)	**P**
5.3.2	Motors	Motors in certified DC fan, ODD, and HDD execpt DC fan, Delta / NS65C06-17G13. No excessive temperatures occur when DC fan motor is stalled.	**P**
5.3.3	Transformers	No isolating transformer in the equipment.	**N/A**
5.3.4	Functional insulation.....	Complies with c).	**P**
5.3.5	Electromechanical components	No electromechanical components in secondary circuits.	**N/A**
5.3.6	Audio amplifiers in ITE	(See appended table 5.3).	**P**
5.3.7	Simulation of faults	(See appended table 5.3).	**P**
5.3.8	Unattended equipment	No thermostats, temperature limiters or thermal cut-outs.	**N/A**
5.3.9	Compliance criteria for abnormal operating and fault conditions	Refer below:	**P**
5.3.9.1	During the tests	No fire or molten metal occurred and no deformation of enclosure during the tests.	**P**
5.3.9.2	After the tests	No fire or molten metal occurred and no deformation of enclosure during the tests.	**P**
B	**ANNEX B, MOTOR TESTS UNDER ABNORMAL CONDITIONS (see 4.7.2.2 and 5.3.2)**		**P**

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
B.1	General requirements	Motors in certified DC fan, ODD, and HDD execpt DC fan, Delta / NS65C06-17G13. The DC fan, Delta / NS65C06-17G13 is tested according to annex B and no excessive temperatures occur when fan motor is stalled.	**P**
	Position	Refer to table 1.5.1	**—**
	Manufacturer	Refer to table 1.5.1	**—**
	Type	Refer to table 1.5.1	**—**
	Rated values	Refer to table 1.5.1	**—**
B.7	Locked-rotor overload test for d.c. motors in secondary circuits	Refer to below:	**P**
B.7.1	General	Considered.	**P**
B.7.2	Test procedure	(See appended table 5.3)	**P**

1.5.1	TABLE: List of critical components	P

Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity[1)]
AC/DC adapter ***1)***	Chicony Power Technology Co., Ltd. (DELL)	HA45NM14Z (The Z in model name can be 0 to 9, for marketing purpose.)	I/P: 1.3A, 100-240Vac, 50-60Hz, Cl. I O/P: 2.31A, 19.5Vdc (altitude: 5000m)	IEC 60950-1 (ed.2); am1; am2, EN 60950-1: 2006+A11+A1+A12+A2, UL 60950-1	CB by N(NO81304), N, UL
	Delta Electronics, Inc. (DELL)	DA45NM14Z (Z=0-9 for marking purpose and no impact safety related critical components and construction)	I/P: 1.3A, 100-240Vac, 50-60Hz, Cl. I O/P: 2.31A, 19.5Vdc (altitude: 5000m)	IEC 60950-1 (ed.2); am1; am2, EN 60950-1: 2006+A11+A1+A12+A2, UL 60950-1	CB by UL/Demko (DK-39447-A1-UL), N, UL
	Shenzhen Huntkey Electric Co., Ltd. (DELL)	HK45NM14Z (The “Z” meaning various number which maybe 0-9, for market only.)	I/P: 1.3A, 100-240Vac, 50-60Hz, Cl. I O/P: 2.31A, 19.5Vdc (altitude: 5000m)	IEC 60950-1 (ed.2); am1; am2, EN 60950-1: 2006+A11+A1+A12+A2, UL 60950-1	CB by N (NO81353), UL
	Lite-On Technology Corporation (DELL)	LA45NM14Z (The "Z" in model name can be 0 to 9 for marketing purpose only.)	I/P: 1.3A, 100-240Vac, 50-60Hz, Cl. I O/P: 2.31A, 19.5Vdc (altitude: 5000m)	IEC 60950-1 (ed.2); am1; am2, EN 60950-1: 2006+A11+A1+A12+A2, UL 60950-1	CB by N (NO81747/M1), N, UL
	Flextronics Sales & Marketing (A-P) Ltd	FA45NM16Z (The "Z" in model name can be 0 ~ 9 for marketing purpose.)	I/P: 1.3A, 100-240Vac, 50-60Hz, Cl. I O/P: 2.31A, 19.5Vdc (altitude: 5000m)	IEC 60950-1 (ed.2); am1; am2, EN 60950-1: 2006+A11+A1+A12+A2, UL 60950-1	CB by N (NO91006), N, UL
	Acbel / DELL	AA65NM121	I/P: 1.7A 100-240V~ 50-60Hz, Cl. I with class II construction throughout. O/P: 3.34A, 19.5Vdc (altitude: 5000m)	IEC 60950-1: 2005+A1+A2, EN 60950-1: 2006 +A11 +A1 +A12+A2, UL60950-1	CB by Nemko (NO88505), N, UL
	Chicony / DELL	HA65NS5-00	I/P: 1.7A 100-240V~, 50-60Hz, Cl. I O/P: 3.34A, 19.5Vdc (altitude: 5000m)	IEC 60950-1: 2005+A1+A2, EN 60950-1: 2006 +A11 +A1 +A12+A2, UL60950-1	CB by Nemko (NO89677), N, UL

Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity[1)]
Alt. AC/DC adapter ***1)***	Delta / Dell Inc.	DA65NM111-00	I/P: 100-240Vac, 1.6A, 50-60Hz, Cl. I O/P: 3.34A, 19.5Vdc (altitude: 5000m)	IEC 60950-1: 2005+A1+A2, EN 60950-1: 2006 +A11 +A1 +A12+A2, UL60950-1	CB by UL/Demko (DK-45610-UL), N, UL
	Lite-On / Dell	LA65NS2-.. (The dots "." in the model name can be any alphanumeric character or blank or "-", for marketing use only.)	I/P: 1.6A 100-240V 50-60Hz, Cl. I O/P: 3.34A, 19.5Vdc (altitude: 5000m)	IEC 60950-1: 2005+A1+A2, EN 60950-1: 2006 +A11 +A1 +A12+A2, UL60950-1	CB by Nemko (NO82445) , N, UL
	Chicony / DELL	HA65NM13Z (The “Z” in model name can be 0 to 9, for marketing purpose)	I/P: 1.7A 100-240V~ 50-60Hz, Cl. I O/P: 3.34A, 19.5Vdc (altitude: 5000m)	IEC 60950-1: 2005+A1+A2, EN 60950-1: 2006 +A11 +A1 +A12+A2, UL60950-1	CB by Nemko (NO89817) , N, UL
	Lite-On / DELL	LA65NM13Z (The “Z” in model name can be 0 to 9, for marketing purpose)	I/P: 1.7A 100-240V~ 50-60Hz, Cl. I O/P: 3.34A, 19.5Vdc (altitude: 5000m)	IEC 60950-1: 2005+A1+A2, EN 60950-1: 2006 +A11 +A1 +A12+A2, UL60950-1	CB by Nemko (NO89362) , N, UL
Enclosure (for all parts)	COVESTRO DEUTSCHLAND AG [PC RESINS] (BAYER)	FR3021+ + - Material designations may be followed by a six digit numerical code denoting color.	V-0, min. 1.2 mm thick	UL 94	UL
	COVESTRO DEUTSCHLAND AG [PC RESINS] (BAYER)	FR3002+ + - Material designations may be followed by a six digit numerical code denoting color.	V-0, min. 1.0 mm thick	UL 94	UL
	COVESTRO DEUTSCHLAND AG [PC RESINS] (BAYER)	FR3021 GR + + - Material designations may be followed by a six digit numerical code denoting color.	V-0, min. 1.5mm thick	UL 94	UL
LCD panel ***1)***	AUO	B156XTN07.1	15.6“ TFT, glass type, min. 0.34 mm thick (with LED back-light module)	IEC 60950-1	See annex A.2
	Interchangeable	Interchangeable	15.6“ TFT, glass type, min. 0.34 mm thick (with LED back-light module)	IEC 60950-1	Tested in the equipment

Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity[1)]
LCD panel ***1)***	AUO	B173HAN01.0	17.3“ TFT, glass type, min. 0.34 mm thick (with LED back-light module)	IEC 60950-1	See annex A.2
	Interchangeable	Interchangeable	17.3“ TFT, glass type, min. 0.34 mm thick (with LED back-light module)	IEC 60950-1	Tested in the equipment
LCD panel ***1)***	**AUO**	**B140XTN02.E**	**14.0“ TFT, glass type, min. 0.34 mm thick (with LED back-light module)**	**IEC 60950-1**	**See annex A.2**
	Interchangeable	**Interchangeable**	**14.0“ TFT, glass type, min. 0.34 mm thick (with LED back-light module)**	**IEC 60950-1**	**Tested in the equipment**
HDD (optional)	Seagate	ST9 or 2.5 Series or ST with additional suffixes	5Vdc, 1.5A max.	IEC 60950-1, UL 60950-1	CB by UL, UL
	Toshiba	HDD1Fxxx	5Vdc or 3.3Vdc, 0.5A max.	IEC 60950-1, UL 60950-1	TUV RH, UL
	Interchangeable	Interchangeable	5Vdc, 1.5A max.; or 3.3Vdc, 0.5A max.	IEC 60950-1, UL 60950-1	Verified by Nemko or other certificate body, UL
SSD (optional)	INTEL CORP	SSDMA*, SSDMC*, SSDPE*, SSDPED*, SSDSA1*, SDSA2*, SSDSC1*,SSDSC2* , SSDSCI*, SSDSCJ*,SSDSCK* ,SSDSCMMW* where * can be optional letters or numbers used to identify features such as memory type, size (thickness, width) and identify details not critical to the compliance of the drive.	3.3Vdc; 5Vdc; and/ or 12 Vdc	IEC 60950-1, UL 60950-1	CB by UL, UL
Alt. SSD (optional)	Interchangeable	Interchangeable	3.3Vdc; 5Vdc; and/ or 12 Vdc	IEC 60950-1, UL 60950-1	Verified by Nemko or other certificate body, UL

Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity[1)]
ODD (optional)	Philips & Lite-On Digital Solutions Corporation	DU-xx5SHxxxxx DU-xx5Lxxxxxx (x is any alphanumeric character or blank)	Generic, 5Vdc, 2.8A max.; V-1 min. for bezel; Laser Class I product	IEC 60950-1, IEC 60825-1, UL 60950-1	CB by TUV Rh, UL
	Hitachi-LG Data Storage, Inc.	GU9**, DU9**, GUB**, DUB** (Where first symbol "**" can be any number from 0-9 and the second symbol "*" can be any alphanumeric character, denoting non safety related differences)	Generic, 5Vdc, 1.8A max.; V-1 min. for bezel; Laser Class I product	IEC 60950-1, IEC 60825-1, UL 60950-1	CB by Intertek Semko AB, UL
	Interchangeable	Interchangeable	Generic, 5Vdc, 2.8A max. Laser Class I product	IEC 60950-1, IEC 60825-1, UL 60950-1	Verified by Nemko or other certificate body, UL
DC fans	Forcecon	DFS531005MC0T	5Vdc, 0.5A max., min. 0.5CFM (sys.)	EN 60950-1: 2006+A11+A1+A12+A2, UL 507	TUV RH, UL
	Forcecon	DFS1503055P0T	5Vdc, 0.5A max., min. 0.5CFM (sys.)	EN 60950-1: 2006+A11+A1+A12+A2, UL 507	TUV RH, UL
	Forcecon	DFS150705590T	5Vdc, 0.5A max., min. 0.5CFM (sys.)	EN 60950-1: 2006+A11+A1+A12+A2, UL 507	TUV RH, UL
	Delta	NS65B08XXXXXXXXXXX (X stands for A-Z, 0-9, - or blank, for marketing purpose only)	5Vdc, 0.5A, min. 1.0CFM (sys.)	EN 60950-1: 2006+A11+A1+A12+A2, UL 507	TUV RH, UL
	Delta	NS65C02XXXXXXXXXXX (X stands for A-Z, 0-9, - or blank, for marketing purpose only)	5Vdc, 0.5A, min. 1.0CFM (sys.)	EN 60950-1: 2006+A11+A1+A12+A2, UL 507	TUV RH, UL

Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity[1)]
Alt. DC fans	ACT-RX Technology Corporation	FN0565-A1(c)L(e) (Marketing Code: (c) can be three alphanumeric codes combination of 000-999, aaa-zzz or AAA-ZZZ; (e) can be three alphanumeric codes, each alphanumeric of 0-9, a-z, A-Z or blank)	5Vdc, 0.45A, min. 0.8CFM (sys.)	EN 60950-1: 2006+A11+A1+A12+A2, UL 507	TUV SUD, UL
	Forcecon	**DFS1507057R0T**	**5Vdc, 0.5A max., min. 0.5CFM (sys.)**	**EN 60950-1: 2006+A11+A1+A12+A2, UL 507**	**TUV/RH, UL**
	Delta	**NS65C06-17G13**	**5Vdc, 0.5A, min. 0.5CFM (sys.)**	**IEC 60950-1**	**Tested in the equipment**
RTC Battery (Lithium)	Hitachi Maxell	CR2032	3Vdc, max. abnormal charging current 10mA	UL 1642	UL (MH12568)
	Panasonic	CR2032	3Vdc, max. abnormal charging current 10mA	UL 1642	UL (MH12210)
	FDK	CR2032	3Vdc, max. abnormal charging current 10mA	UL 1642	UL (MH13421)
	Varta	CR2032	3Vdc, max. abnormal charging current 10mA	UL 1642	UL (MH28845)
	Mitsubishi	CR2032	3Vdc, max. abnormal charging current 10mA	UL 1642	UL (MH15370)
	Double Best (DBV)	CR2032	3Vdc, max. abnormal charging current 10mA	UL 1642	UL (MH46388)
	VIC-DAWN Enterprise (KTS)	CR2032	3Vdc, max. abnormal charging current 10mA	UL 1642	UL (MH20550)
	JHIH HONG (JHT)	CR2032	3Vdc, max. abnormal charging current 10mA	UL 1642	UL (MH48406)
	Toshiba	CR2032	3Vdc, max. abnormal charging current 10mA	UL 1642	UL (MH12828)
	EVE ENERGY CO LTD	CR2032	3Vdc, max. abnormal charging current 10mA	UL 1642	UL (MH28717)

Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity[1)]
Alt. RTC Battery (Lithium)	GUANGDONG TIANQIU ELECTRONICS TECHNOLOGY CO LTD	CR2032	3Vdc, max. abnormal charging current 10mA	UL 1642	UL (MH48705)
Li-ion battery pack **(For all MBs used)**	SIMPLO TECHNOLOGY CO LTD (DELL)	WDX0R	11.4Vdc, 42Wh	IEC 60950-1 (ed2); am 1,am2 IEC 62133 (ed.2), UL 60950-1; 2nd, UL 2054	CB by UL (Demko), UL
	SAMSUNG SDI Co., LTD. (DELL)	WDX0R	11.4Vdc, 42Wh	IEC 60950-1 (ed.2); am1; am2, IEC 62133 (ed.2), UL 60950-1, UL 2054	CB by UL (Demko), UL
	LG CHEM, LTD. (DELL)	WDX0R	11.4Vdc, 42Wh	IEC 60950-1 (ed.2); am1; am2, IEC 62133 (ed.2), UL 60950-1, UL 2054	CB by UL (Demko), UL
	BYD Lithium Battery Co., Ltd (DELL)	WDX0R	11.4Vdc, 3500mAh	IEC 60950-1: 2005+A1+A2 IEC 62133: 2012, UL 60950-1, UL 2054	CB by TUV RH, UL
Li-ion battery pack (for MB D used only)	**LG CHEM, LTD. (DELL)**	**33YDH**	**15.2Vdc, 56Wh**	**IEC 60950-1 (ed.2); am1; am2, IEC 62133 (ed.2), UL 60950-1, UL 2054**	**CB by UL/Demko, UL**
	SAMSUNG SDI Co., LTD. (DELL)	**33YDH**	**15.2Vdc, 56Wh**	**IEC 60950-1 (ed.2); am1; am2, IEC 62133 (ed.2), UL 60950-1, UL 2054**	**CB by UL/Demko, UL**
PCB	Interchangeable	Interchangeable	V-1 min., 105°C min.	UL 796	UL
Speaker (two provided) (optional)	Interchangeable	Interchangeable	Each 4Ω min, 2W max.	IEC 60950-1	Tested in the equipment

Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity[1)]
Power Distribution Switch (for USB ports)	Anpec Electronics Corp	APL3510..I-TRG; APL3511.BI-TRG (The first dot "." in the model name APL3510..I-TRG can be A, B, C, D, E or F, represent output current/enable function. The second dot can be K, X or B to represent package code. The dot "." in the model name APLAPL3511.BI-TRG can be A, B, C or D to represent output current/enable function.)	0.3-2.0A, 2.7-5.5Vdc per output channel Cl. III. SELV	IEC 60950-1: 2005+A1+A2, UL 2367	CB by Nemko, UL
	Anpec Electronics Corp	APL3517..I-TRG (The first dot "." in the models name can be A, B or blank to represent enable function, the second dot can be A or B to represent package code.)	0.1A, 2.7-5.25Vdc per output channel Cl. III. SELV	IEC 60950-1: 2005+A1+A2, UL 2367	CB by Nemko, UL
	Anpec Electronics Corp	APL3517C..I-TRG (The first dot "." in the models name can be A, B or blank to represent enable function, the second dot can be A or B to represent package code.)	0.1A, 2.7-5.25Vdc per output channel Cl. III. SELV.	IEC 60950-1: 2005+A1+A2, UL 2367	CB by Nemko, UL
	Anpec Electronics Corp	APL3522xBI-TRG (x=A or B)	2.7-5.5Vdc; nominal output: 0-2.5A; Class III; SELV	IEC 60950-1 (ed.2);am1; am2, UL 2367	CB by TUV NORD, UL
	BCD Semiconductor (Taiwan) Company Limited (BCD)	AP2805...-. The first dot "." in the model name can be A to H. The second dot can be M or MM. The third dot can be TR or blank. The last dot can be G1 or blank. All dots for marketing purpose.	0.7-1.4A, 2.7-6.0Vdc Cl. III. SELV	IEC 60950-1: 2005+A1+A2, UL 2367	CB by Nemko, UL

Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity[1)]
Alt. Power Distribution Switch (for USB ports)	BCD Semiconductor (Taiwan) Company Limited (BCD)	AP2815...-. The first dot "." in the model name can be A, B, C or D. The second dot can be M or MM. The third dot can be TR or blank. The last dot can be G1 or blank. All dots for marketing purpose.	1.65-2.8A, 2.7-6.0Vdc Cl. III. SELV	IEC 60950-1: 2005+A1+A2, UL 2367	CB by Nemko, UL
	BCD Semiconductor (Taiwan) Company Limited (BCD)	AP2820…-. The first dot "." in the model name can be A, B, C, D, E, F, G, or H, the second dot can be M or MM, the third dot can be TR or blank, the last dot can be G1 or blank, for marketing purpose	2.2~3.2A, 2.7~5.5Vdc Cl. III. SELV	IEC 60950-1: 2005+A1+A2, UL 2367	CB by Nemko, UL
	BCD Semiconductor (Taiwan) Company Limited (BCD)	AP2822GxyTR-G1, AP2822HxyTR-G1	2.7 - 5.5 Vdc Output: 1 Output Continuous Rating: 2.0 A Output Current Limit: 3.2 A Ambient: -40 to 85°C	IEC 60950-1: 2005+A1+A2, UL 2367	CB by UL, UL
	Diodes	AP21xyz (The "x" in the model name can be any number from 4 to 9 (denoting active low or active high enable pin). "y" can be 1, 2, 5 or 6 (denoting channel switch type). "z" can be single or multiple alphanumeric characters, not affecting safety)	Rated input voltage: 2.7-5.5Vdc Current loimit (typical) 0.8-2.1A Recommended maximum continuous load current: 0.5-1.5A	IEC 60950-1: 2005+A1+A2	CB by Nemko, UL
	Diodes	AP22802 Series-, followed by A or B followed by W5 followed by -7	Input Voltage: 2.7 - 5.5 Vdc Output: 1 Output Continuous Rating: 2.0 A Output Current Limit: 3.2 A Ambient: -40 to 85°C	IEC 60950-1: 2005+A1+A2, UL2367	CB by UL (US), UL

Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity[1)]
Alt. Power Distribution Switch (for USB ports)	Diodes	AP22803AM8-13, AP22803BM8-13	Input Voltage: 2.7-5.5Vdc; Output Continuous Rating: 2.0 A; Output Current Limit: 2.9 A	IEC 60950-1(ed.2), IEC 60950-1(ed.2);am1, IEC 60950-1(ed.2);am2, UL 2367	CB by UL (US), UL
	Diodes	AP22804AM8-13, AP22804AW5-7, AP22804ASN-7, AP22804BM8-13, AP22804BW5-7, AP22804BSN-7	Input Voltage: 2.7-5.5Vdc; Output Continuous Rating: 2..5 A; Output Current Limit: 3.3 A	IEC 60950-1(ed.2), IEC 60950-1(ed.2);am1, IEC 60950-1(ed.2);am2, UL 2367	CB by UL (US), UL
	Diodes	AP22811AW5-7, AP22811BW5-7, AP22811AM8-13, AP22811BM8-13	Input Voltage: 2.7-5.5Vdc; Output Continuous Rating: 2.0 A; Output Current Limit: 3.2 A	IEC 60950-1(ed.2), IEC 60950-1(ed.2);am1, IEC 60950-1(ed.2);am2, UL 2367	CB by UL (US), UL
	Diodes	AP22812AW5-7, AP22812BW5-7, AP22812AM8-13, AP22812BM8-13	Input Voltage: 2.7-5.5Vdc; Output Continuous Rating: 2.0 A; Output Current Limit: 3.2 A	IEC 60950-1(ed.2), IEC 60950-1(ed.2);am1, IEC 60950-1(ed.2);am2, UL 2367	CB by UL (US), UL
	Diodes	AP22814AM8-13, AP22814AW5-7, AP22814ASN-7, AP22814BM8-13, AP22814BW5-7, AP22814BSN-7	Input Voltage: 2.7-5.5Vdc; Output Continuous Rating: 3.0 A; Output Current Limit: 3.8 A	IEC 60950-1(ed.2), IEC 60950-1(ed.2);am1, IEC 60950-1(ed.2);am2, UL 2367	CB by UL (US), UL
	Diodes	AP2301, AP2301A, AP2311, and AP2311A followed by FGE, M8, MP, S or SN Additional suffixes after the model number designate the type of integrated circuit package, integrated circuit lead types or other features that are considered not to affect the functionality of the device.	Input Voltage: 2.7 - 5.5Vdc Outputs: Output Continuous Rating: 2.0A Output Current Limit: 2.85A Ambient: -40 to 85°C	IEC 60950-1: 2005+A1+A2, UL 2367	CB by UL (US), UL

Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity[1)]
Alt. Power Distribution Switch (for USB ports)	Diodes	AP2330-followed by W, may be followed by additional letters and/or numbers., AP2331-followed by FJ, SA or W, may be followed by additional letters and/or numbers.	Input Voltage: 2.7 - 5.2 Vdc Output Continuous Rating: 0.2 A Output Current Limit: 0.5 A Ambient: -40 to 85°C	IEC 60950-1: 2005+A1+A2, UL 2367	CB by UL (US), UL
	Diodes	AP2337SA-7 -Additional suffixes after the model number designate the type of integrated circuit package, integrated circuit lead types or other features that are considered not to affect the functionality of the device.	Input Voltage: 2.7 - 5.5 Vdc Output Continuous Rating: 1.0 A Output Current Limit: 1.9 A Ambient: -40 to 85°C	IEC 60950-1: 2005+ A1+A2, UL 2367	CB by UL, UL
	Dongguan Cellwise Microelectronics Co Ltd	CW3042AAAD, CW3042AAAE, CW3046AAAQ	Input Voltage: 4.5 to 5.5 Vdc; Output Continuous Rating: Maximum 2.8 A; Current Limit Rating: Maximum 3.17 A	IEC 60950-1(ed.2), IEC 60950-1(ed.2);am1, IEC 60950-1(ed.2);am2, UL 2367	CB by UL (Demko), UL
	EXCELLIANCE MOS CORPORATION	EM5203AJ-20, EM5203AN-20, EM5203J-20, and EM5203N-20	Input Voltage: 2.5 to 5.5 Vdc Output Continuous Rating: 2A Output Current Limit: 4.0A Ambient: -40 to 85°C	IEC 60950-1: 2005+A1+A2, UL 2367	CB by UL, UL
	Global Mixed-mode Technology Inc.	G516AX1X2X3X4	Rated voltage: 2.7-20Vdc, Operational Current Rating per output: 3.0A max., Overcurrent Protection Current Rating per output: 4.0A max.	IEC 60950-1: 2005+A1+A2, UL 2367	CB by TUV RH, UL
	Global Mixed-mode Technology Inc.	G518AX2X3X4X5	Rated voltage: 2.7-5.5Vdc, Operational Current Rating per output: 3.0A max., Overcurrent Protection Current Rating per output: 4.0A max.	IEC 60950-1: 2005+A1+A2, UL 2367	CB by TUV RH, UL

Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity[1)]
Alt. Power Distribution Switch (for USB ports)	Global Mixed-mode Technology Inc.	G524AX1X2X3X4, G524BX1X2X3X4, G524CX1X2X3X4, G524DX1X2X3X4, G527X1X2X3X4, G3703R41U, G3704R41U, for other models and definition of variables, refer to the test report	Input Voltage = 2.7 - 5.5Vdc Output Continuous Rating: Max. 2.45A Output Current Limit: Max. 2.55 – 3.1A Ambient = -30 to 70°C	IEC 60950-1: 2005+A1+A2, UL 2367	CB by TUV RH, UL
	Global Mixed-mode Technology Inc.	G5250Q1T73U, G3703R41U, G3703R41D, G517ALX1X2X3X4, X1=1 or 2, X2=TP, TB, RB or U5, X3=1, 2 or 3, X4=U or D For other models and definition of variables, refer to the test roport. For model differences, refer to the test report	2.7-5.5Vdc, Operational Current Rating per output: max. 2.45A, Overcurrent Protection Current Rating per output: 2.55-3.1A	IEC 60950-1: 2005+A1+A2, UL 2367	CB by TUV RH, UL
	Global Mixed-mode Technology Inc.	G5250S1T11U, G525A1, G525A2, G526-1, G526-2, G528, G528A, G545A1, G545A2, G545B1, G545B2, G545C1, G545C2, G545D1, G545D2, G546A1, G546A2, G546A3, G546A4, G546B1, G546B2, G546B3, G546B4, G546C1, G546C2, G547I2, G547F2, G547F1 for more models see test report	DC 3.0 - 5.5 Vdc Output Continuous Rating: Max. 2.5 A Output Current Limit: Max. 3.0 A Cl.III	IEC 60950-1: 2005+A1+A2, UL 2367	CB by TUV RH, UL
	Nuvoton Technology Corp	NCT3521U, NCT3521U-2	Rated Input Voltage: 2.7-5.5 Vdc; Rated input current: 2A; Class III	IEC60950-1(ed.2);am1;am2, UL 2367	CB by TUV SUD, UL
	Nuvoton Technology Corp	NCT3955Y	Rated Input Voltage: 4.5-5.5Vdc; Input current: 2.5A; Class III	IEC60950-1(ed.2);am1;am2, UL 2367	CB by TUV SUD, UL

Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity[1)]
Alt. Power Distribution Switch (for USB ports)	ON Semiconductor	NCP380 followed by followed by H or L; followed by MU or SN; followed by 05, 10, 15, 20, 21 or AJ. (Additional suffixes after the model number designate the type of integrated circuit package, integrated circuit lead types or other features that are considered not to affect the functionality of the device.)	Input Voltage: - 2.5 Vdc to 5.5 Vdc Output Continuous Rating: NCP380xSN05AA T1G 0.5 NCP380xSN10AA T1G 1.0 NCP380xSNAJAA T1G 0.5 - 1.0 NCP380xMU05AA TBG 0.5 NCP380xMU10AA TBG 1.0 NCP380xMU15AA TBG 1.5 NCP380xMU20AA TBG 2.0 NCP380xMU21AA TBG 2.1 NCP380xMUAJAA TBG 0.5 - 2.1 Output Current Limit: NCP380xSN05AA T1G 0.7 NCP380xSN10AA T1G 1.4 NCP380xSNAJAA T1G 0.7 - 1.8 NCP380xMU05AA TBG 0.7 NCP380xMU10AA TBG 1.4 NCP380xMU15AA TBG 2.0 NCP380xMU20AA TBG 2.1 NCP380xMU21AA TBG 2.5 NCP380xMUAJAA TBG 0.7 - 2.5 Where x = L or H	IEC 60950-1(ed.2), IEC 60950-1(ed.2);am1, IEC 60950-1(ed.2);am2, UL 2367	CB by UL (US), UL

Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity[1)]
Alt. Power Distribution Switch (for USB ports)	ON Semiconductor	NCP383xMUAJ, (where x is H or L. Additional suffixes after the model number designature the type of intergrated circuit package, intergrated circuit lead types or other features that are considered not to affect the functionality of the device.)	Input Voltage: 2.7 - 5.5 Vdc Two Outputs: Output(s) Continuous Rating: 25°C: 2.5 A per Output (Maximum total not to exceed 4 A) 85°C: 2.0A per Output (Maximum total not to exceed 3 A) Output(s) Current Limit: 0.47 - 3.1 (adjustable) Ambient: -40 to 85°C	IEC 60950-1: 2005+A1+A2, UL 2367	CB by UL (US), UL
	ON Semiconductor	NCP382LD05, NCP382LD10, NCP382LD15, NCP382HD05, NCP382HD10, and NCP382HD15 f/b any 5 digits Additional suffixes after the model number designate the type of integrated circuit package, integrated circuit lead types or other features that are considered not to affect the functionality of the device.	Model NCP382HD15 and NCP382LD15 Input Voltage: 2.5 Vdc - 5.5 Vdc Two Outputs: Output(s) Continuous Rating: 1.5 A per channel OCP Current Limit: 2.0/channel Model NCP382HD05, NC382LD05: Input Voltage: 2.5 Vdc - 5.5 Vdc Two Outputs: Output(s) Continuous Rating: 0.5 A per channel OCP Current Limit: 0.7/channel Model NCP382HD10, NC382LD10: Input Voltage: 2.5 Vdc - 5.5 Vdc Two Outputs: Output(s) Continuous Rating: 1.0 A per channel OCP Current Limit: 1.4/channel	IEC 60950-1: 2005+A1+A2, UL 2367	CB by UL (US), UL

Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity[1)]
Alt. Power Distribution Switch (for USB ports)	Pericom Semiconductor Corp	PI5PD255xyZCEX where x is 6 or 7, y is blank or A, ZC is packaging type, E is Pb-free, and X is for tape/ reel or blank is for bulk packaging	Input Voltage: 2.5 - 5.5 Vdc Continuous Rating: 0.9 A to 3.6 A Current Limit: 1.5 A to 5.0 A Ambient: -40 to 85°C	IEC 60950-1 (ed.2); am1 ***2)***, UL 2367	CB by UL (US), UL
	PSE Technology Corp	PI5USB25xxyZHEz where xx is 44, 46, 47 or 48 and y is blank or A, ZH is packaging type, E is Pb-free, and z is blank for bulk packaging or X for tape and reel packaging.	Input Voltage: 4.5 - 5.5 Vdc Continuous Rating: 30 mA to 2.5 A Current Limit: 100 mA to 3.18 A Ambient: -40 to 85°C	IEC 60950-1: 2005+A1+A2	CB by UL (US)
	RichTek technology Cop.	RT9712.G. (The first "." can be A, B, C or D represent output current/enable function. The second dot can be S or F represent package type.	1.0-1.5 A, 2.7-5.5Vdc per output channel, SELV Cl. III	IEC 60950-1: 2005+A1+A2, UL 2367	CB by Nemko, UL
	RichTek technology Cop.	RT9715... (The first dot "." can be A, B, C, D, E, F, G, or H represent output current/EN function. The second dot can be P or G represent manufacturer process. The third dot can be B, BG,S, F, BR or QW represent package type.)	0.7-2.0 A, 2.7-5.5Vdc per output channel, SELV Cl. III	IEC 60950-1: 2005+A1+A2, UL 2367	CB by Nemko, UL
	RichTek technology Cop.	RT9731. (The dots "." in the model name can be 0 to 9, A to Z or blank for marketing purpose only)	0.38-2.2A, 2.5-5.5Vdc per output channel, Cl. III. SELV	IEC 60950-1: 2005+A1+A2, UL 2367	CB by Nemko, UL

Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity[1)]
Alt. Power Distribution Switch (for USB ports)	Richtek Technology Corp.	RT9742..G. (The first dot "." can be A to Z represent output current/ enable function. The second dot "." can be N or blank represent discharge function. The third dot "." can be J5F/ J5/ V represent package type.)	2.7V to 6V , 3A/2A/1.5A/1A	IEC 60950-1 (ed.2);am1; am2, UL 2367	CB by Nemko, UL
	SILEGO TECHNOLOGY	SLGC55544C, SLG55544, SLG55546, SLGC55544, SLGC55544B, SLGC55546 (maybe followed by V or VTR)	4.5-5.5Vdc, Continuous Current 0.2A to 2.5 A, Protective Current 0.3A to 3.17A	IEC 60950-1; 2005+ A1+A2	CB by UL, UL
	Silergy	SY6288xyyyyy (x=A,B,C,D,E; yyyyy=0-9, A-Z or blank)	I/P: DC 2.5-5.5V O/P: DC 5.5 max., 1.6A max. (x=A, B) DC 5.5 max., 3.7A max. (x=C,D,E)	IEC 60950-1: 2005+A1+A2, UL 2367	CB by TUV RH, UL

Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity[1)]
Alt. Power Distribution Switch (for USB ports)	Silergy	SY6861A, SY6863A, followed by 1 or 2, followed by AA or AC, followed by C SY6861B, SY6863B, followed by 1 or 2, followed by AB or AD, followed by C	Input Voltage: VIN= 2.5 to 5.5 Vdc Output Continuous Rating: 3.0A for Models SY6861A, followed by 1 or 2, followed by AA or AC, followed by C; SY6863A, followed by 1 or 2, followed by AA or AC, followed by C 0.1 to 3 A for SY6861B, followed by 1 or 2, followed by AB or AD, followed by C; SY6863B, followed by 1 or 2, followed by AB or AD, followed by C Current Limit Rating: 4.43A for Models SY6861A, followed by 1 or 2, followed by AA or AC, followed by C; SY6863A, followed by 1 or 2, followed by AA or AC, followed by C 0.3 to 5 A for SY6861B, followed by 1 or 2, followed by AB or AD, followed by C; SY6863B, followed by 1 or 2, followed by AB or AD, followed by C	IEC 60950-1; 2005+A1+A2, UL 2367	CB by UL (Demko), UL

Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity[1)]
Alt. Power Distribution Switch (for USB ports)	STMICROELECTRONICS	STCC2540	Input Voltage = 4.5 Vdc to 5.5 Vdc Minimum Current Rating = With Rilim = 96 kohms: Output Continuous Rating: 350 mA Output Current Limit: 650 mA Maximum Current Rating = With Rilim = 19.2 kohms: Output Continuous Rating: 2350 mA Output Current Limit: 2650 mA Ambient = -40 to 85°C	IEC 60950-1: 2005+A1+A2, UL 2367	CB by UL, UL
	Texas Instruments	SN1507044RVC, TPS25810, Additional suffixes after the model number designate the type of integrated circuit package, integrated circuit lead types, or other features that are considered not to affect the functionality of the device. Device will be marked P25810 representing models SN1507044RVC and TPS25810.	Input Voltage: IN1 - 4.5 Vdc to 6.5 Vdc IN2 - 5.5 Vdc to 6.5 Vdc Output Continuous Rating: OUT - 1.5 A to 3.0 A CC1 - 250 mA CC2 - 250 mA Output Current Limit: OUT - 1.82 A to 3.64 A CC1 - 410 mA CC2 - 410 mA Ambient: -40 to 25°C	IEC 60950-1: 2005+A1+A2, UL 2367	CB by UL (US), UL

Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity[1)]
Alt. Power Distribution Switch (for USB ports)	Texas Instruments	TPS2002C, TPS2003C, TPS2060C, TPS2062C, TPS2064C, TPS2066C Maybe followed by suffixes of numbers or letters, which denote the features that are not affecting the functionality and safety of the device.	Input Voltage: 4.5-5.5Vdc Number of Outputs: 2 Ambient: -40 to 85°C Output Continuous Rating per output: TPS2002C - 2A, TPS2003C - 2A TPS2060C - 1.5A, TPS2062C - 1A TPS2064C - 1.5A, TPS2066C - 1A Output Current Limit per output: TPS2002C - 3.7A, TPS2003C - 3.7A TPS2060C - 2.86A, TPS2062C - 1.85A TPS2064C - 2.86A, TPS2066C - 1.85A Packages: TPS2002C - SON-10 (DRC) TPS2003C - SON-10 (DRC) TPS2060C - MSOP-8 (DGN) TPS2064C - MSOP-8 (DGN) TPS2062C - MSOP-8 (DGN) and SOIC-8 (D) TPS2066C - MSOP-8 (DGN) and SOIC-8 (D)	IEC 60950-1 (ed.2); am1 ***2)***, UL 2367	CB by UL (US), UL

Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity[1)]
Alt. Power Distribution Switch (for USB ports)	Texas Instruments	TPS2000C, TPS2001C, TPS2041C, TPS2051C, TPS2069C, TPS2065C-2, TPS2065C, TPS2068C, TPS2069C-2, TPS2061C-, followed by DBV, DGK or DGN, may be followed by additional letters and numbers.	Input Voltage - 4.5 Vdc to 5.5 Vdc Output Continuous Rating: TPS2041C - 0.5 A TPS2051C - 0.5 A TPS2061C - 1.0 A TPS2065C - 1.0 A TPS2065C-2 - 1.0 A TPS2068C - 1.5 A TPS2069C - 1.5 A TPS2069C-2 - 1.5 A TPS2000C - 2,0 A TPS2001C - 2.0 A Output Current Limit: TPS2041C - 1.05 A TPS2051C - 1.05 A TPS2061C - 1.9 A TPS2065C - 1.9 A TPS2065C-2 - 1.96 A TPS2068C - 2.7 A TPS2069C - 2.7 A TPS2069C-2 - 2.86 A TPS2000C - 3.6 A TPS2001C - 3.6 A	IEC 60950-1:2005 (Second Edition); Am1:2009 + Am2:2013, UL 2367	CB by UL (US), UL
	Texas Instruments	TPS2543, TPS2544, TPS2545, TPS2546 Additional suffixes after the model number designate the type of integrated circuit package, integrated circuit lead types or other features that are considered not to affect the functionality of the device.	Input Voltage = 4.5 Vdc to 5.5 Vdc Output Continuous Rating: TPS2543, TPS2544, TPS2545, and TPS2546 = 2.5 A Output Current Limit: TPS2543, TPS2544, TPS2545, and TPS2546 = 3.1 A Ambient = -40 to 85°C	IEC 60950-1: 2005+A1+A2, UL 2367	CB by UL (US), UL
Alt. Power Distribution Switch (for USB ports)	Texas Instruments	TPS2552, TPS2552-1, TPS2553 and TPS2553-1	Input Voltage: 2.5Vdc to 6.5Vdc Output Continuous Rating: 1.5 A Output Current Limit: 1.7 A Ambient: -40 to 60°C	IEC 60950-1: 2005+A1+A2, UL 2367	CB by UL (US), UL

Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity[1)]
	Texas Instruments	TPS255X, where x is 6 or 7, may be followed by Q, followed by DRB, may be followed by R or T, may be followed by Q1.	Input Voltage: 2.5 Vdc - 6.5 Vdc Output Continuous Rating: 4.2 A Output Current Limit: 5 A	IEC 60950-1; 2005+ A1+A2, UL 2367	CB by UL, UL
	Texas Instruments	TPS2560A, TPS2561A, TPS256X, (where x is 0 or 1, maybe followed by Q, followed by DRC, maybe followed by R or T, maybe followed by Q1)	Input Voltage: 2.5Vdc - 6.5Vdc Output Continuous Rating: 2.6A Output Current Limit: 3.2A Ambient: -40 to 85°C	IEC 60950-1 (ed.2); am1; am2, UL 2367	CB by UL (US), UL
	Texas Instruments	TPS65982	Inputs: VIN_3V3= 3.3Vdc; PP_EXT= 4.5 - 22Vdc; PP_HV= 4.5 - 22Vdc; PP_5V0= 4.75 - 5.5Vdc; PP_CC1= 2.95 - 5.5Vdc; PP_CC2= 2.95 - 5.5Vdc Outputs: PP_ EXT = 4.5 - 22Vdc, 4.301A max; PP_HV= 4.5 - 22Vdc, 4.306A max; PP_5V0= 4.75 - 5.5Vdc, 3.69A max; PP_CC1 = 2.95 - 5.5Vdc, 0.9A max; PP_CC2 = 2.95 - 5.5Vdc, 0.9A max	IEC 60950-1; 2005+ A1+A2, UL 2367	CB by Nemko, UL

Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity[1)]
Alt. Power Distribution Switch (for USB ports)	Texas Instruments	TPS65982D, may be followed by other characters that do not impact the safety feature of the device.	Ratings: Input Voltage: Vin 3V3 - 2.85 - 3.45 VDC CC1 and CC2 - 2.95 - 5.5 VDC PP_EXT - 4 - 22 VDC PP_5V0 - 4.75 - 5.5 VDC VDDIO - 1.7 - 3.45 VDC Output Continuous Rating: 1. VBUS - 0.95 to 3.5 A with PP_EXT input 2. VBUS - 1 to 3 A with PP_5V0 input 3. CC1 and CC2 - 0.3 to 0.5 A Output Current Limit: 1. VBUS - 1.254 to 4.301 A with PP_EXT input 2. VBUS - 1.006 to 3.69 A with PP_5V0 input 3. CC1 and CC2 - 0.35 to 0.9 A	IEC 60950-1; 2005+A1+A2, UL 2367	CB by UL (US), UL
	uPI Semiconductor Corp.	uP7534yWYZ-XX (y = A, B, C, D, E, F, G, H, P, Q, R or S, WYZ = RA8, RU8, , SA8, S8, M5 or MA5, XX = 06, 10, 15 or 20)	DC 2.7-5.5V; 1.0-1.5A max. (XX=06) or 1.8-2.7A max. (XX=10), or 2.5-3.8A max. (XX=15) or 3.3-5.0A max. (XX=20); Class III	IEC 60950-1; 2005+ A1+A2, UL 2367	CB by TUV RH, UL
	uPI Semiconductor Corp.	uP7549xyyy-zz, uP9017abbb-zz, (x=P, Q, R, S, T, U; yyy=S8, M5, SA8, RA8, RU8, MA5, MC5, zz= 10, 15, 20, 25) (a=P, Q; bbb=MA3, MA5, MT5; zz=10, 15, 20, 25)	Input Voltage: DC 2.7-5.5V; Output Current limit (A): refer to the test report; Class III	IEC 60950-1; 2005+ A1+A2, UL 2367	CB by TUV RH, UL
Polyswitch (For HDMI port)	Littelfuse Inc.	0805L110ULXXYYYY (X,Y stands for A to Z, 0 to 9 or blank)	Max: 6 Vdc, Ih = 1.1 A, It = 1.8 A	IEC/EN60738-1, IEC/EN60738-1-1, IEC/EN60730-1, UL 1434	TUV RH, UL

Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity[1)]
Alt. Polyswitch (For HDMI port)	Littelfuse Inc.	1206L150THXXYYYY (X,Y stands for A to Z, 0 to 9 or blank)	Max: 8 Vdc, Ih = 1.5 A, It = 3 A	IEC/EN60738-1, IEC/EN60738-1-1, IEC/EN60730-1, UL 1434	TUV RH, UL
	Polytronics Technology Corp.	SPR-P110	Max: 6 Vdc, Ih = 1.1 A, It = 1.8 A	IEC/EN60738-1, IEC/EN60738-1-1, IEC/EN60730-1, UL 1434	TUV RH, UL
	Polytronics Technology Corp.	SMD1206P150T(+)T($) (+) May be followed by suffix S or F; ($) May be followed by symbol "-" and up to two alphanumeric characters denoting a resistance range or customer code, not related to construction or any other rating.	Max: 8 Vdc, Ih = 1.5 A, It = 3 A	IEC/EN60738-1, IEC/EN60738-1-1, IEC/EN60730-1, UL 1434	TUV RH, UL
	Polytronics Technology Corp.	SMD1812P110TF/16	V max:16 Vdc, Ih = 1.1 A, It = 1.95 A	IEC/EN60738-1, IEC/EN60738-1-1, IEC/EN60730-1, UL 1434	TUV RH, UL
	Polytronics Technology Corp.	SMD1812P050TF	V max:15 Vdc, Ih = 0.5 A, It = 1.0 A	IEC/EN60738-1, IEC/EN60738-1-1, IEC/EN60730-1, UL 1434	TUV RH, UL

Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity[1)]
Internal plastic barrier (on bottom side)	Chengdu Kanglongxin Plastic Co., Ltd.	KLX FRPC-1860, KLX FRPC-1860B, KLX FRPC-1860-83, KLX FRPC-1860-83B, KLX FRPC-1860-1, KLX FRPC-1860-NTC, KLX FRPC-1860B-NTC, KLX FRPC-1860B-3, KLX FRPC-1870B-K, KLX FRPC-1860B-HY, KLX FRPC-1860-HY, KLX FRPC-1860B-K, KLX FRPC-1860-K, KLX FRPC-1860W	V-0 or VTM-0, min. 0.125 mm thick	UL 94	UL
	Changzhou Bbetter Film Technologies Co., Ltd.	FRV17035	V-0 or VTM-0, min. 0.125 mm thick	UL 94	UL
	Sichuan Dongfang Insulating Material Co., Ltd.	DFR117, DFR117ECOA, DFR117ECOB, DFR117ECOC	V-0 or VTM-0, min. 0.125 mm thick	UL 94	UL
	Kunshan Dobesty Optoelectronic Materials Co., Ltd.	PC9821Bk, PC9841Bk , PC9832Bk , PC9842Bk , PC9842, PC9852Bk, PC9843Bk, PC9821W, PC9841W, PC9832W, PC9842W, PC9852W, PC9843W, PC98HDw, PC98CUb, PC98KJb, PC98MNb, PC98MGb	VTM-0, min. 0.125 mm thick	UL 94	UL

Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity[1)]
Alt. Internal plastic barrier (on bottom side)	Kunshan Dobesty Optoelectronic Materials Co., Ltd.	PC98, PC9821B/W, PC9841B/W, PC9832B/W, PC9842B/W, PC9852B/W, PC9843B/W, PC98HD, PC98CU, PC98HR, PC98KJ, PC98MN, PC98MG	V-0, min. 0.125 mm thick	UL 94	UL

Supplementary information:

[1)] Provided evidence ensures the agreed level of compliance. See OD-2039.
1) Refer to General Product Information for details.
2) Power distribution switch is certified according to UL 2367 and complied with Annex CC.3 test program 2 which is same requirement in IEC 60950-1:2005 +am1:2009 +am2:2013.

1.6.2	TABLE: Electrical data (in normal conditions)					P
U (V)	I (A)	Irated (A)	P (W)	Fuse #	Ifuse (A)	Condition/status
Test with model P75F Enclosure A						
Test with AC/DC adapter Delta type DA45NM140, Simplo 42Wh battery pack type WDX0R and MB C(UMA)						
19.5	1.08	2.31	21.06	--	--	Battery charging only
19.5	1.97	2.31	38.41	--	--	Normal load
Test with AC/DC adapter Delta type DA65NM111, Simplo 42Wh battery pack type WDX0R and MB C(UMA)						
19.5	1.07	3.34	20.86	--	--	Battery charging only
19.5	3.05	3.34	59.47	--	--	Normal load
Test with AC/DC adapter Delta type DA45NM140, SDI 42Wh battery pack type WDX0R and MB C(UMA)						
19.5	1.08	2.31	21.06	--	--	Battery charging only
19.5	1.96	2.31	38.22	--	--	Normal load
Test with AC/DC adapter Delta type DA65NM111, SDI 42Wh battery pack type WDX0R and MB C(UMA)						
19.5	1.07	3.34	20.86	--	--	Battery charging only
19.5	3.03	3.34	59.08	--	--	Normal load
Test with AC/DC adapter Delta type DA45NM140, LG 42Wh battery pack type WDX0R and MB C(UMA)						
19.5	1.07	2.31	20.86	--	--	Battery charging only
19.5	1.96	2.31	38.22	--	--	Normal load
Test with AC/DC adapter Delta type DA65NM111, LG 42Wh battery pack type WDX0R, MB C(UMA)						
19.5	1.06	3.34	20.67	--	--	Battery charging only
19.5	3.01	3.34	58.69	--	--	Normal load
Test with AC/DC adapter Delta type DA45NM140, BYD 3500mAh battery pack type WDX0R and MB C(UMA)						
19.5	1.08	2.31	21.06	--	--	Battery charging only
19.5	1.95	2.31	38.02	--	--	Normal load
Test with AC/DC adapter Delta type DA65NM111, BYD 3500mAh battery pack type WDX0R and MB C(UMA)						
19.5	1.07	3.34	20.86	--	--	Battery charging only
19.5	3.02	3.34	58.89	--	--	Normal load
Test with AC/DC adapter Delta type DA65NM111, Simplo 42Wh battery pack type WDX0R and MB C(DIS)						
U (V)	I (A)	Irated (A)	P (W)	Fuse #	Ifuse (A)	Condition/status

19.5	1.17	3.34	22.81	--	--	Battery charging only
19.5	3.19	3.34	62.20	--	--	Normal load
Test with AC/DC adapter Delta type DA65NM111, SDI 42Wh battery pack type WDX0R and MB C(DIS)						
19.5	1.16	3.34	22.62	--	--	Battery charging only
19.5	3.18	3.34	62.01	--	--	Normal load
Test with AC/DC adapter Delta type DA65NM111, LG 42Wh battery pack type WDX0R and MB C(DIS)						
19.5	1.13	3.34	22.03	--	--	Battery charging only
19.5	3.15	3.34	61.42	--	--	Normal load
Test with AC/DC adapter Delta type DA65NM111, BYD 3500mAh battery pack type WDX0R and MB C(DIS)						
19.5	1.15	3.34	22.42	--	--	Battery charging only
19.5	3.16	3.34	61.62	--	--	Normal load
Test with model P75F Enclosure B						
Test with AC/DC adapter Delta type DA45NM140, Simplo 42Wh battery pack type WDX0R and MB C(UMA)						
19.5	1.06	2.31	20.67	--	--	Battery charging only
19.5	1.87	2.31	36.46	--	--	Normal load
Test with AC/DC adapter Delta type DA65NM111, Simplo 42Wh battery pack type WDX0R and MB C(UMA)						
19.5	1.06	3.34	20.67	--	--	Battery charging only
19.5	2.98	3.34	58.11	--	--	Normal load
Test with AC/DC adapter Delta type DA45NM140, SDI 42Wh battery pack type WDX0R and MB C(UMA)						
19.5	1.07	2.31	20.86	--	--	Battery charging only
19.5	1.86	2.31	36.27	--	--	Normal load
Test with AC/DC adapter Delta type DA65NM111, SDI 42Wh battery pack type WDX0R and MB C(UMA)						
19.5	1.06	3.34	20.67	--	--	Battery charging only
19.5	2.97	3.34	57.91	--	--	Normal load
Test with AC/DC adapter Delta type DA45NM140, LG 42Wh battery pack type WDX0R and MB C(UMA)						
19.5	1.07	2.31	20.86	--	--	Battery charging only
19.5	1.84	2.31	35.88	--	--	Normal load
Test with AC/DC adapter Delta type DA65NM111, LG 42Wh battery pack type WDX0R and MB C (UMA)						
19.5	1.06	3.34	20.67	--	--	Battery charging only
19.5	2.94	3.34	57.33	--	--	Normal load
Test with AC/DC adapter Delta type DA45NM140, BYD 3500mAh battery pack type WDX0R and MB C (UMA)						
19.5	1.07	2.31	20.86	--	--	Battery charging only
19.5	1.84	2.31	35.88	--	--	Normal load
Test with AC/DC adapter Delta type DA65NM111, BYD 3500mAh battery pack type WDX0R and MB C(UMA)						
19.5	1.06	3.34	20.67	--	--	Battery charging only
19.5	2.95	3.34	57.52	--	--	Normal load
Test with AC/DC adapter Delta type DA65NM111, Simplo 42Wh battery pack type WDX0R and MB C(DIS)						
19.5	1.17	3.34	22.81	--	--	Battery charging only
19.5	3.09	3.34	60.25	--	--	Normal load
Test with AC/DC adapter Delta type DA65NM111, SDI 42Wh battery pack type WDX0R and MB C(DIS)						
19.5	1.16	3.34	22.62	--	--	Battery charging only
19.5	3.08	3.34	60.06	--	--	Normal load
U (V)	I (A)	Irated (A)	P (W)	Fuse #	Ifuse (A)	Condition/status
Test with AC/DC adapter Delta type DA65NM111, LG 42Wh battery pack type WDX0R and MB C(DIS)						

19.5	1.13	3.34	22.03	--	--	Battery charging only
19.5	3.04	3.34	59.28	--	--	Normal load
Test with AC/DC adapter Delta type DA65NM111, BYD 3500mAh battery pack type WDX0R and MB C(DIS)						
19.5	1.14	3.34	22.23	--	--	Battery charging only
19.5	3.06	3.34	59.67	--	--	Normal load
Test with model P35E Enclosure C only						
Test with AC/DC adapter Delta type DA45NM140, Simplo 42Wh battery pack type WDX0R and MB C(UMA)						
19.5	1.08	2.31	21.06	--	--	Battery charging only
19.5	2.07	2.31	40.36	--	--	Normal load
Test with AC/DC adapter Delta type DA65NM111, Simplo 42Wh battery pack type WDX0R and MB C(UMA)						
19.5	1.07	3.34	20.86	--	--	Battery charging only
19.5	3.15	3.34	61.42	--	--	Normal load
Test with AC/DC adapter Delta type DA45NM140, SDI 42Wh battery pack type WDX0R and MB C(UMA)						
19.5	1.08	2.31	21.06	--	--	Battery charging only
19.5	2.06	2.31	40.17	--	--	Normal load
Test with AC/DC adapter Delta type DA65NM111, SDI 42Wh battery pack type WDX0R and MB C(UMA)						
19.5	1.07	2.31	20.86	--	--	Battery charging only
19.5	3.14	3.34	61.23	--	--	Normal load
Test with AC/DC adapter Delta type DA45NM140, LG 42Wh battery pack type WDX0R and MB C(UMA)						
19.5	1.07	2.31	20.86	--	--	Battery charging only
19.5	2.03	2.31	39.58	--	--	Normal load
Test with AC/DC adapter Delta type DA65NM111, LG 42Wh battery pack type WDX0R and MB C(UMA)						
19.5	1.06	3.34	20.67	--	--	Battery charging only
19.5	3.12	3.34	60.84	--	--	Normal load
Test with AC/DC adapter Delta type DA45NM140, BYD 3500mAh battery pack type WDX0R and MB C(UMA)						
19.5	1.08	2.31	21.06	--	--	Battery charging only
19.5	2.04	2.31	39.78	--	--	Normal load
Test with AC/DC adapter Delta type DA65NM111, BYD 3500mAh battery pack type WDX0R and MB C(UMA)						
19.5	1.07	3.34	20.86	--	--	Battery charging only
19.5	3.13	3.34	61.03	--	--	Normal load
Test with AC/DC adapter Delta type DA65NM111, Simplo 42Wh battery pack type WDX0R and MB C(DIS)						
19.5	1.17	3.34	22.81	--	--	Battery charging only
19.5	3.29	3.34	64.15	--	--	Normal load
Test with AC/DC adapter Delta type DA65NM111, SDI 42Wh battery pack type WDX0R and MB C(DIS)						
19.5	1.16	3.34	22.62	--	--	Battery charging only
19.5	3.27	3.34	63.76	--	--	Normal load
Test with AC/DC adapter Delta type DA65NM111, LG 42Wh battery pack type WDX0R and MB C(DIS)						
19.5	1.13	3.34	22.03	--	--	Battery charging only
19.5	3.24	3.34	63.18	--	--	Normal load
Test with AC/DC adapter Delta type DA65NM111, BYD 3500mAh battery pack type WDX0R and MB C(DIS)						
19.5	1.15	3.34	22.42	--	--	Battery charging only
U (V)	I (A)	Irated (A)	P (W)	Fuse #	Ifuse (A)	Condition/status
19.5	3.26	3.34	63.57	--	--	Normal load

Test with model P89G Enclosure D						
Test with AC/DC adapter Delta type DA65NM111, Simplo 42Wh battery pack type WDX0R and MB D(UMA)						
19.5	1.27	3.34	24.76	--	--	Battery charging only
19.5	3.03	3.34	59.08	--	--	Normal load
Test with AC/DC adapter Delta type DA65NM111, SDI 42Wh battery pack type WDX0R and MB D(UMA)						
19.5	1.27	3.34	24.76	--	--	Battery charging only
19.5	3.01	3.34	58.69	--	--	Normal load
Test with AC/DC adapter Delta type DA65NM111, LG 42Wh battery pack type WDX0R and MB D(UMA)						
19.5	1.27	3.34	24.76	--	--	Battery charging only
19.5	3.01	3.34	58.69	--	--	Normal load
Test with AC/DC adapter Delta type DA65NM111, BYD 3500mAh battery pack type WDX0R and MB D(UMA)						
19.5	1.27	3.34	24.76	--	--	Battery charging only
19.5	3.01	3.34	58.89	--	--	Normal load
Test with AC/DC adapter Delta type DA65NM111, LG 56Wh battery pack type 33YDH and MB D(UMA)						
19.5	1.61	3.34	31.39	--	--	Battery charging only
19.5	3.08	3.34	60.06	--	--	Normal load
Test with AC/DC adapter Delta type DA65NM111, Samsung 56Wh battery pack type 33YDH and MB D(UMA)						
19.5	1.61	3.34	31.39	--	--	Battery charging only
19.5	3.06	3.34	59.67	--	--	Normal load
Test with AC/DC adapter Delta type DA65NM111, Simplo 42Wh battery pack type WDX0R and MB D(DIS)						
19.5	1.27	3.34	24.76	--	--	Battery charging only
19.5	3.13	3.34	61.03	--	--	Normal load
Test with AC/DC adapter Delta type DA65NM111, SDI 42Wh battery pack type WDX0R and MB D(DIS)						
19.5	1.26	3.34	24.57	--	--	Battery charging only
19.5	3.12	3.34	60.84	--	--	Normal load
Test with AC/DC adapter Delta type DA65NM111, LG 42Wh battery pack type WDX0R and MB D(DIS)						
19.5	1.23	3.34	23.98	--	--	Battery charging only
19.5	3.12	3.34	60.84	--	--	Normal load
Test with AC/DC adapter Delta type DA65NM111, BYD 3500mAh battery pack type WDX0R and MB D(DIS)						
19.5	1.25	3.34	24.37	--	--	Battery charging only
19.5	3.1	3.34	60.45	--	--	Normal load
Test with AC/DC adapter Delta type DA65NM111, LG 56Wh battery pack type WDX0R and MB D(DIS)						
19.5	1.61	3.34	31.39	--	--	Battery charging only
19.5	3.21	3.34	62.59	--	--	Normal load
Test with AC/DC adapter Delta type DA65NM111, Samsung 56Wh battery pack type WDX0R and MB D(DIS)						
19.5	1.61	3.34	31.39	--	--	Battery charging only
19.5	3.19	3.34	61.20	--	--	Normal load
Test with model P75F Enclosure E						
Test with AC/DC adapter Delta type DA65NM111, Simplo 42Wh battery pack type WDX0R and MB D(UMA)						
19.5	1.27	3.34	24.76	--	--	Battery charging only
19.5	3.09	3.34	60.25	--	--	Normal load
U (V)	I (A)	Irated (A)	P (W)	Fuse #	Ifuse (A)	Condition/status
Test with AC/DC adapter Delta type DA65NM111, SDI42Wh battery pack type WDX0R and MB D (UMA)						

19.5	1.27	3.34	24.76	--	--	Battery charging only
19.5	3.07	3.34	59.86	--	--	Normal load
Test with AC/DC adapter Delta type DA65NM111, LG 42Wh battery pack type WDX0R and MB D(UMA)						
19.5	1.26	3.34	24.57	--	--	Battery charging only
19.5	3.06	3.34	59.67	--	--	Normal load
Test with AC/DC adapter Delta type DA65NM111, BYD 3500mAh battery pack type WDX0R and MB D (UMA)						
19.5	1.27	3.34	24.76	--	--	Battery charging only
19.5	3.07	3.34	59.86	--	--	Normal load
Test with AC/DC adapter Delta type DA65NM111, LG 56Wh battery pack type 33YDH and MB D(UMA)						
19.5	1.61	3.34	31.39	--	--	Battery charging only
19.5	3.11	3.34	60.645	--	--	Normal load
Test with AC/DC adapter Delta type DA65NM111, Samsung 56Wh battery pack type 33YDH and MB D (UMA)						
19.5	1.61	3.34	31.39	--	--	Battery charging only
19.5	3.09	3.34	60.25	--	--	Normal load
Test with AC/DC adapter Delta type DA65NM111, Simplo 42Wh battery pack type WDX0R and MB D(DIS)						
19.5	1.17	3.34	22.81	--	--	Battery charging only
19.5	3.19	3.34	62.20	--	--	Normal load
Test with AC/DC adapter Delta type DA65NM111, SDI 42Wh battery pack type WDX0R and MB D(DIS)						
19.5	1.16	3.34	22.62	--	--	Battery charging only
19.5	3.18	3.34	62.01	--	--	Normal load
Test with AC/DC adapter Delta type DA65NM111, LG 42Wh battery pack type WDX0R and MB D(DIS)						
19.5	1.13	3.34	22.03	--	--	Battery charging only
19.5	3.14	3.34	61.23	--	--	Normal load
U (V)	I (A)	Irated (A)	P (W)	Fuse #	Ifuse (A)	Condition/status
Test with AC/DC adapter Delta type DA65NM111, BYD 3500mAh battery pack type WDX0R and MB D(DIS)						
19.5	1.14	3.34	22.23	--	--	Battery charging only
19.5	3.16	3.34	61.62	--	--	Normal load
Test with AC/DC adapter Delta type DA65NM111, LG 56Wh battery pack type WDX0R and MB D(DIS)						
19.5	1.61	3.34	31.39	--	--	Battery charging only
19.5	3.26	3.34	63.57	--	--	Normal load
Test with AC/DC adapter Delta type DA65NM111, Samsung 56Wh battery pack type WDX0R and MB D(DIS)						
19.5	1.61	3.34	31.39	--	--	Battery charging only
19.5	3.21	3.34	62.59	--	--	Normal load
supplementary information:						

2.5	TABLE: Limited power sources	P

Circuit output tested: See below. Tested according to table 2B.

Note: Measured Uoc (V) with all load circuits disconnected: See below

Components	Uoc (V)	I_{sc} (A)		VA	
		Meas.	Limit	Meas.	Limit
Tested with MB C					
USB 3.0 port (JUSB1) pin 1 – RTN	5.15	2.90	8.0	12.87	100
USB 3.0 port (JUSB1) pin 2~13 – RTN	0	0	8.0	0	100
USB 3.0 port (JUSB2) pin 1 – RTN	5.15	2.92	8.0	12.55	100
USB 3.0 port (JUSB2) pin 2~13 – RTN	0	0	8.0	0	100
USB Type C port (JUSBC1) pinA1-A3,A5-A8,A10,A12,B1-B3,B5-B8,B10,B12 - RTN	0	0	8.0	0	100
USB Type C port (JUSBC1) Pin A11 - RTN	0.23	0	8.0	0	100
USB Type C port (JUSBC1) Pin B11 - RTN	0.34	0	8.0	0	100
USB Type C port (JUSBC1) Pin A4 - RTN	5.16	3.70	8.0	16.87	100
USB Type C port (JUSBC1) Pin A9 – RTN	5.16	3.70	8.0	16.87	100
USB Type C port (JUSBC1) Pin B4 - RTN	5.16	3.70	8.0	16.87	100
USB Type C port (JUSBC1) Pin B9 – RTN	5.16	3.70	8.0	16.87	100
USB 2.0 port (JUSB3 daughter board) pin 1 – RTN	5.15	2.86	8.0	11.64	100
USB port (JUSB3 daughter board) pin 2~13 – RTN	0	0	8.0	0	100
HDMI port pin 1~14,17, 19 – RTN	0	0	8.0	0	100
HDMI port pin 15 – RTN	4.38	0	8.0	0	100
HDMI port pin 16 – RTN	4.38	0	8.0	0	100
HDMI port pin 18 – RTN	5.13	2.2	8.0	11.28	100

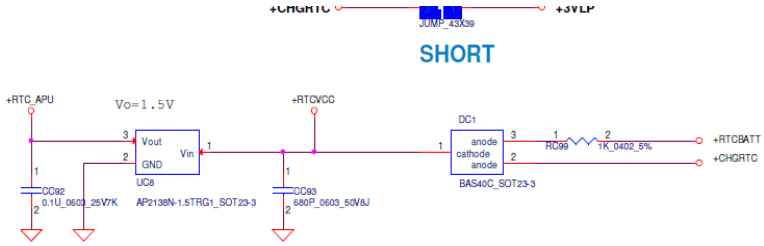
Components	Uoc (V)	I_{sc} (A)		VA	
		Meas.	Limit	Meas.	Limit
Card Reader port pin 1~3, 5~15 – RTN	0	0	8.0	0	100
Card Reader port pin 4, – RTN	3.3	0.8	8.0	2.38	100
Card Reader port pin 4, – RTN Fault: U1 pin 4 – pin 5 s-c	3.3	6.7	8.0	12.06	100
Audio port pin 1~7 – RTN	0	0	8.0	0	100
RJ45 port pin 1~12 – RTN	0	0	8.0	0	100
Tested with MB D					
USB 3.0 port (JUSB1) pin 1 – RTN	5.15	1.71	8.0	8.38	100
USB 3.0 port (JUSB1) pin 2~13 – RTN	0	0	8.0	0	100
USB Type C port (JUSBC1) pinA1-A3,A5-A8,A10,A12,B1-B3,B5-B8,B10,B12 - RTN	0	0	8.0	0	100
USB Type C port (JUSBC1) Pin A11 - RTN	0.23	0	8.0	0	100
USB Type C port (JUSBC1) Pin B11 - RTN	0.34	0	8.0	0	100
USB Type C port (JUSBC1) Pin A4 - RTN	5.16	3.70	8.0	16.87	100
USB Type C port (JUSBC1) Pin A9 – RTN	5.16	3.70	8.0	16.87	100
USB Type C port (JUSBC1) Pin B4 - RTN	5.16	3.70	8.0	16.87	100
USB Type C port (JUSBC1) Pin B9 – RTN	5.16	3.70	8.0	16.87	100
USB 2.0 port (JUSB3 daughter board) pin 1 – RTN	5.15	2.88	8.0	12.07	100
USB port (JUSB3 daughter board) pin 2~13 – RTN	0	0	8.0	0	100
HDMI port pin 1~14,17, 19 – RTN	0	0	8.0	0	100
HDMI port pin 15 – RTN	4.38	0	8.0	0	100
HDMI port pin 16 – RTN	4.38	0	8.0	0	100

Components	Uoc (V)	I_{sc} (A)		VA	
		Meas.	Limit	Meas.	Limit
HDMI port pin 18 – RTN	5.13	2.4	8.0	7.21	100
Card Reader port pin 1~3, 5~15 – RTN	0	0	8.0	0	100
Card Reader port pin 4, – RTN	3.3	0.8	8.0	2.38	100
Card Reader port pin 4, – RTN Fault: U1 pin 4 – pin 5 s-c	3.3	6.7	8.0	12.06	100
SIM card pin 1~18 – RTN	0	0	8.0	0	100
VGA port pin 12 – RTN	4.72	0	8.0	0	100
VGA port pin 15 – RTN	4.73	0	8.0	0	100
VGA port pin 9 – RTN	5.03	1.2	8.0	3.63	100
VGA port other pins – RTN	0	0	8.0	0	100
Audio port pin 1~7 – RTN	0	0	8.0	0	100
RJ45 port pin 1~12 – RTN	0	0	8.0	0	100
supplementary information:					
s-c=Short circuit, o-c=Open circuit					

4.3.8	TABLE: Batteries	P

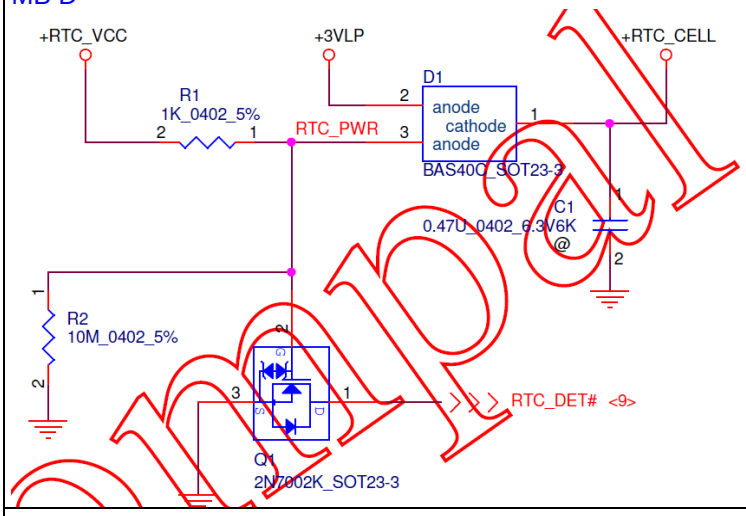
Battery category ..... :	For RTC battery (lithium), see below. For battery pack is IEC 60950-1 and IEC 62133 approved part, refer to appended table 5.3 for details.
Manufacturer ..... :	See table 1.5.1 for details.
Type / model ..... :	See table 1.5.1 for details.
Voltage ..... :	See table 1.5.1 for details.
Capacity ..... :	--
Tested and Certified by (incl. Ref. No.) ..... :	See table 1.5.1 for details.
Circuit protection diagram: See below.	

MB C



Max. charge current (during fault conditions):
Normal current: 0A
1. RC99 short circuit, I = 0 mA;
2. DC1 Pin 1-2 short circuit, I = 0 mA
3. DC1 Pin 1-3 short circuit, I = 3.0 mA
4. DC1 Pin 2-3 short circuit, I = 3.3 mA
Min. of max. abnormal charging current is 10mA.

MB D



Max. charge current (during fault conditions):
1. Normal current= 0A
2. R1 short circuit, I = 0 mA;
3. D1 Pin 1-2 short circuit, I = 0 mA
4. D1 Pin 1-3 short circuit, I = 3.0 mA
5. D1 Pin 2-3 short circuit, I = 3.3 mA
Min. of max. abnormal charging current is 10 mA.

MARKINGS AND INSTRUCTIONS (1.7.13)

Location of replaceable battery	In service access areas
Language(s) ..... :	Language(s): English
Close to the battery..... :	see sub clause 1.7.13
In the servicing instructions..... :	see sub clause 1.7.13
In the operating instructions ..... :	see sub clause 1.7.13

4.3.8	TABLE: Batteries	P
The tests of 4.3.8 are applicable only when appropriate battery data is not available	1) Appropriate battery data is available for real time clock battery. 2) All battery pack sources are approval.	P
Is it possible to install the battery in a reverse polarity position?	No	N/A

	Non-rechargeable batteries			Rechargeable batteries					
	Discharging		Un-intentional charging	Charging		Discharging		Reversed charging	
	Meas. current	Manuf. Specs.		Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.
Max. current during normal condition	--	--	***1)***	***3)***	***3)***	***3)***	***3)***	***2)***	***2)***
Max. current during fault condition	--	--	***1)***	***3)***	***3)***	***3)***	***3)***	***2)***	***2)***

1) Considered for real time clock (RTC) battery.
2) RTC battery and battery pack polarity can't be reversed according to the design of enclosure and connector.
3) Refer to battery pack test report and test in table 5.3.

Test results:		Verdict
- Chemical leaks	No chemical leaks affecting required insulation.	P
- Explosion of the battery	No explosion.	P
- Emission of flame or expulsion of molten metal	No emission of flame or expulsion of molten metal.	P
- Electric strength tests of equipment after completion of tests	Class III equipment.	N/A
Supplementary information:		

4.5	TABLE: Thermal requirements			P
	Supply voltage (V)	Normal load	Battery pack discharge	—
Maximum measured temperature T of part/at.....:		T (°C)		Allowed T_{max} (°C)
For model P75F, tested with AC/DC adapter Delta type DA65NM111-00, Simplo 42Wh battery pack type WDX0R, MB C(DIS), and Enclosure A				
Ambient		28.4	28.2	--
Heat sink near CPU		59.4	59.8	--
Heat sink near GPU		58.0	57.9	--
PCB near CPU		57.1	57.6	98.2
PCB near GPU		56.1	56.2	98.2
PCB near Choke		47.7	55.9	98.2
RTC Battery		32.3	32.3	--
RAM Module		57.9	57.9	--
HDD body		43.7	44.4	--
External side of plastic enclosure near battery pack connector		32.8	44.4	--
Internal bottom plastic enclosure near CPU		50.6	50.6	--
External bottom plastic enclosure near CPU		45.1	45.1	88.2
LCD Panel		30.1	30.1	73.2
Palm Rest		35.1	37.8	88.2
Internal bottom plastic enclosure near GPU		50.9	50.9	--
External bottom plastic enclosure near GPU		43.4	43.4	88.2
ODD Body		33.7	33.7	--
supplementary information:				
- Having a specified maximum ambient temperature of 35°C. The maximum allowed temperatures are calculated based upon a (minimum) test temperature of 28.2°C. Temp. Limit is adjusted according to cl. 1.4.12.3. If no limited stated, the test temp. Is for reference only. The air flow of each DC fan is 0.5 CFM.				

4.5	TABLE: Thermal requirements			P
	Supply voltage (V)	Normal load	Battery pack discharge	—
Maximum measured temperature T of part/at.....:		T (°C)		Allowed T_{max} (°C)
For model P75F, tested with AC/DC adapter Delta type DA65NM111-00, Simplo 42Wh battery pack type WDX0R, MB C(DIS), and Enclosure B				
Ambient		26.5	26.8	--
Heat sink near CPU		61.0	60.7	--
Heat sink near GPU		58.2	57.9	--
PCB near CPU		56.6	57.0	96.5
PCB near GPU		55.7	56.5	96.5
PCB near Choke		46.4	53.5	96.5
RTC Battery		30.8	31.6	--
RAM Module		55.9	56.8	--
HDD body		42.2	43.7	--
External side of plastic enclosure near battery pack connector		31.4	42.9	--
Internal bottom plastic enclosure near CPU		48.8	49.3	--
External bottom plastic enclosure near CPU		43.1	44.6	86.5
LCD Panel		28.2	28.6	71.5
Palm Rest		33.6	36.6	86.5
Internal bottom plastic enclosure near GPU		49.3	49.6	--
External bottom plastic enclosure near GPU		41.3	41.9	86.5
supplementary information:				
- Having a specified maximum ambient temperature of 35°C. The maximum allowed temperatures are calculated based upon a (minimum) test temperature of 26.5°C. Temp. Limit is adjusted according to cl. 1.4.12.3. If no limited stated, the test temp. Is for reference only. The air flow of each DC fan is 0.5 CFM.				

4.5	TABLE: Thermal requirements			P
	Supply voltage (V) ..... :	Normal load	Battery pack discharge	—
Maximum measured temperature T of part/at.....:		T (°C)		Allowed T_{max} (°C)
For model P35E, tested with AC/DC adapter Delta type DA65NM111-00, Simplo 42Wh battery pack type WDX0R, MB C(DIS), and Enclosure C				
Ambient		27.3	26.6	--
Heat sink near CPU		57.8	55.8	--
Heat sink near GPU		56.9	53.5	--
PCB near CPU		56.2	55.4	96.6
PCB near GPU		54.7	53.2	96.6
PCB near Choke		48.3	52.7	96.6
RTC Battery		27.8	27.8	--
RAM Module		52.9	53.8	--
HDD body		42.7	42.9	--
ODD Body		34.9	35.5	--
External side of plastic enclosure near battery pack connector		31.7	41.6	--
Internal bottom plastic enclosure near CPU		43.8	44.0	--
External bottom plastic enclosure near CPU		40.0	40.9	86.6
Internal bottom plastic enclosure near GPU		35.6	36.4	--
External bottom plastic enclosure near GPU		32.2	34.6	86.6
LCD Panel		27.5	28.1	71.6
Palm Rest		33.3	34.0	86.6
supplementary information:				
- Having a specified maximum ambient temperature of 35°C. The maximum allowed temperatures are calculated based upon a (minimum) test temperature of 26.6°C. Temp. Limit is adjusted according to cl. 1.4.12.3. If no limited stated, the test temp. Is for reference only. The air flow of each DC fan is 0.5 CFM.				

4.5	TABLE: Thermal requirements			P
	Supply voltage (V)	Normal load	Battery pack discharge	—
Maximum measured temperature T of part/at.....:		T (°C)		Allowed T_{max} (°C)
For model P89G, tested with AC/DC adapter Delta type DA65NM111-00, Simplo 42Wh battery pack type WDX0R, MB D(DIS), and Enclosure D				
Ambient		26.2	26.2	--
Heat sink near CPU		40.6	42.4	--
Heat sink near GPU		40.0	42.5	--
PCB near CPU		40.8	40.8	96.2
PCB near GPU		39.7	40.5	96.2
PCB near Choke		41.2	43.1	96.2
RTC Battery		26.9	28.9	--
RAM Module		42.0	41.9	--
HDD body		38.1	38.7	--
External side of plastic enclosure near battery pack connector		30.0	34.7	--
Internal bottom plastic enclosure near CPU		37.4	37.2	--
External bottom plastic enclosure near CPU		35.6	35.5	86.2
LCD Panel		30.0	30.1	71.2
Palm Rest		27.5	30.9	86.2
Internal bottom plastic enclosure near GPU		38.8	38.7	--
External bottom plastic enclosure near GPU		36.0	36.6	86.2
Thermal fin		39.0	40.1	--
supplementary information:				
- Having a specified maximum ambient temperature of 35°C. The maximum allowed temperatures are calculated based upon a (minimum) test temperature of 26.2°C. Temp. Limit is adjusted according to cl. 1.4.12.3. If no limited stated, the test temp. Is for reference only. The air flow of each DC fan is 0.5 CFM.				

4.5	TABLE: Thermal requirements			P
	Supply voltage (V)	Normal load	Battery pack discharge	—
Maximum measured temperature T of part/at.....:		T (°C)		Allowed T_{max} (°C)
For model P75F, tested with AC/DC adapter Delta type DA65NM111-00, Simplo 42Wh battery pack type WDX0R, MB D(DIS), and Enclosure E				
Ambient		25.6	25.6	--
Heat sink near CPU		45.8	45.8	--
Heat sink near GPU		41.0	41.0	--
PCB near CPU		41.0	41.0	95.6
PCB near GPU		44.1	44.1	95.6
PCB near Choke		43.6	43.6	95.6
RTC Battery		26.4	26.4	--
RAM Module		42.3	42.3	--
HDD		43.0	43.0	--
External side of plastic enclosure near battery pack connector		37.8	37.8	85.6
Internal bottom plastic enclosure near CPU		38.4	38.4	--
External bottom plastic enclosure near CPU		33.9	33.9	85.6
LCD Panel		27.4	27.4	70.6
Palm Rest		35.9	35.9	85.6
Internal bottom plastic enclosure near GPU		34.7	34.7	--
External bottom plastic enclosure near GPU		32.2	32.2	85.6
supplementary information:				
- Having a specified maximum ambient temperature of 35°C. The maximum allowed temperatures are calculated based upon a (minimum) test temperature of 25.6°C. Temp. Limit is adjusted according to cl. 1.4.12.3. If no limited stated, the test temp. Is for reference only. The air flow of each DC fan is 0.5 CFM.				

5.3	TABLE: Fault condition tests		P
	Ambient temperature (°C) ..... :	25°C, if nothing else specified	—
	Power source for EUT: Manufacturer, model/type, output rating ..... :	See General Product Information for details.	—

Component No.	Fault	Supply voltage (V)	Test time	Fuse #	Fuse current (A)	Observation
Speakers "+" to "-"	s-c	19.5	20 min.	--	--	Unit normal operated, no hazard.
DC fan (Delta / NS65C06-17G13)	Locked	5	7 hrs	--	--	Maximum temperature on motor body=34.1°C, ambient=26.1°C, no hazard.
Tested with model P75F						
Tested with MB C(DIS) and Enclosure A						
DC fan	Locked	19.5	4 hr	--	--	Unit normal operated. Max. temp. of Heatsink= 90.61°C, ambient= 27.8°C, no hazard.
Ventilation openings	Blocked	19.5	2 hr	--	--	Unit normal operated. Max. temp. of Heatsink = 81.5°C, ambient= 28.0°C, no hazard.
Tested with MB C(DIS) and Enclosure B						
DC fan	Locked	19.5	3.5 hr	--	--	Unit was shut down. Max. temp. of Heatsink= 88.0°C, ambient= 26.5°C, no hazard.
Ventilation openings	Blocked	19.5	3 hr	--	--	Unit normal operated. Max. temp. of Heatsink= 76.1°C, ambient= 26.7°C, no hazard.
Tested with MB D(DIS) and Enclosure E						
DC fan	Locked	19.5	2.5 hr	--	--	Unit normal operated. Max. temp. of Heatsink= 51.8°C, ambient= 26.2°C, no hazard.
Ventilation openings	Blocked	19.5	3 hr	--	--	Unit normal operated. Max. temp. of Heatsink = 66.3°C, ambient= 26.3°C, no hazard.
Tested with model P35E						
Tested with MB C(DIS) and Enclosure C						
DC fan	Locked	19.5		--	--	Unit normal operated. Max. temp. of Heatsink= 88.7°C, ambient= 26.5°C, no hazard.
Ventilation openings	Blocked	19.5		--	--	Unit normal operated. Max. temp. of Heatsink = 78.7°C, ambient= 26.1°C, no hazard.
Tested with model P89G						
Tested with MB D(DIS) and Enclosure D						
DC fan	Locked	19.5	3 hr	--	--	Unit normal operated. Max. temp. of Heatsink= 54.9°C, ambient= 25.9°C, no hazard.

Component No.	Fault	Supply voltage (V)	Test time	Fuse #	Fuse current (A)	Observation
Ventilation openings	Blocked	19.5	2.5 hr	--	--	Unit normal operated. Max. temp. of Heatsink = 45.7°C, ambient= 27.0°C, no hazard.
Tested with model P89G						
Tested with MB D(DIS) Enclosure D						
DC fan	Locked	19.5	3 hr	--	--	Unit normal operated. Max. temp. of Heatsink= 54.9°C, ambient= 25.9°C, no hazard.
Ventilation openings	Blocked	19.5	2.5 hr	--	--	Unit normal operated. Max. temp. of Heatsink = 45.7°C, ambient= 27.0°C, no hazard.
Tested with model P75F						
Charger circuit in MB C(UMA), test with Simplo 42Wh main battery pack, type WDX0R and Enclosure A						
Empty battery pack	Charge	19.5	7 hrs	--	--	Charging current= 1.64A. (limit current= 3.7A) No damaged, no hazard.
Full battery pack	Discharge	--	7 hrs	--	--	Discharge= 36.94W (limit current= 5.5A or 45W) No damaged, no hazard.
Charger circuit in MB C(UMA), test with SDI 42Wh main battery pack, type WDX0R and Enclosure A						
Empty battery pack	Charge	19.5	7 hrs	--	--	Charging current= 1.63A. (limit current= 3.58A) No damaged, no hazard.
Full battery pack	Discharge	--	7 hrs	--	--	Discharge= 3.62A (limit current= 5.4A) No damaged, no hazard.
Charger circuit in MB C(UMA), test with LG 42Wh main battery pack, type WDX0R and Enclosure A						
Empty battery pack	Charge	19.5	7 hrs	--	--	Charging current=1.62A. (limit current= 3.132A) No damaged, no hazard.
Full battery pack	Discharge	--	7 hrs	--	--	Discharge= 38.16W (limit current= 48.6W) No damaged, no hazard.
Charger circuit in MB C(UMA), test with BYD 3500mAh main battery pack, type WDX0R and Enclosure A						
Empty battery pack	Charge	19.5	7 hrs	--	--	Charging current=1.64A. (limit current= 3.684A) No damaged, no hazard.
Full battery pack	Discharge	--	7 hrs	--	--	Discharge= 3.61A (limit current= 4.4A) No damaged, no hazard.
Charger circuit in MB C(UMA), test with Simplo 42Wh main battery pack, type WDX0R and Enclosure B						
Empty battery pack	Charge	19.5	7 hrs	--	--	Charging current= 1.64A. (limit current= 3.7A) No damaged, no hazard.

Component No.	Fault	Supply voltage (V)	Test time	Fuse #	Fuse current (A)	Observation
Full battery pack	Discharge	--	7 hrs	--	--	Discharge= 37.94W (limit current= 5.5A or 45W) No damaged, no hazard.
Charger circuit in MB C(UMA), test with SDI 42Wh main battery pack, type WDX0R and Enclosure B						
Empty battery pack	Charge	19.5	7 hrs	--	--	Charging current= 1.64A. (limit current= 3.58A) No damaged, no hazard.
Full battery pack	Discharge	--	7 hrs	--	--	Discharge= 3.52A (limit current= 5.4A) No damaged, no hazard.
Charger circuit in MB C(UMA), test with LG 42Wh main battery pack, type WDX0R and Enclosure B						
Empty battery pack	Charge	19.5	7 hrs	--	--	Charging current=1.63A. (limit current= 3.132A) No damaged, no hazard.
Full battery pack	Discharge	--	7 hrs	--	--	Discharge= 37.16W (limit current= 48.6W) No damaged, no hazard.
Charger circuit in MB C(UMA), test with BYD 3500mAh main battery pack, type WDX0R and Enclosure B						
Empty battery pack	Charge	19.5	7 hrs	--	--	Charging current=1.61A. (limit current= 3.132A) No damaged, no hazard.
Full battery pack	Discharge	--	7 hrs	--	--	Discharge= 3.51A (limit current= 4.4A) No damaged, no hazard.
Charger circuit in MB C(DIS), test with Simplo 42Wh main battery pack, type WDX0R and Enclosure A						
Empty battery pack	Charge	19.5	7 hrs	--	--	Charging current= 1.73A. (limit current= 3.7A) No damaged, no hazard.
Full battery pack	Discharge	--	7 hrs	--	--	Discharge= 40.39W (limit current= 5.5A or 45W) No damaged, no hazard.
Charger circuit in MB C(DIS), test with SDI 42Wh main battery pack, type WDX0R and Enclosure A						
Empty battery pack	Charge	19.5	7 hrs	--	--	Charging current= 1.72A. (limit current= 3.58A) No damaged, no hazard.
Full battery pack	Discharge	--	7 hrs	--	--	Discharge= 3.73A (limit current= 5.4A) No damaged, no hazard.
Charger circuit in MB C(DIS), test with LG 42Wh main battery pack, type WDX0R and Enclosure A						
Empty battery pack	Charge	19.5	7 hrs	--	--	Charging current=1.72A. (limit current= 3.132A) No damaged, no hazard.
Full battery pack	Discharge	--	7 hrs	--	--	Discharge= 39.80W (limit current= 48.6W) No damaged, no hazard.
Charger circuit in MB C(DIS), test with BYD 3500mAh main battery pack, type WDX0R and Enclosure A						

Component No.	Fault	Supply voltage (V)	Test time	Fuse #	Fuse current (A)	Observation
Empty battery pack	Charge	19.5	7 hrs	--	--	Charging current= 1.71A. (limit current= 3.7A) No damaged, no hazard.
Full battery pack	Discharge	--	7 hrs	--	--	Discharge= 3.73A (limit current= 4.4A) No damaged, no hazard.
Charger circuit in MB C(DIS), test with Simplo 42Wh main battery pack, type WDX0R and Enclosure B						
Empty battery pack	Charge	19.5	7 hrs	--	--	Charging current= 1.74A. (limit current= 3.7A) No damaged, no hazard.
Full battery pack	Discharge	--	7 hrs	--	--	Discharge= 39.39W (limit current= 5.5A or 45W) No damaged, no hazard.
Charger circuit in MB C(DIS), test with SDI 42Wh main battery pack, type WDX0R and Enclosure B						
Empty battery pack	Charge	19.5	7 hrs	--	--	Charging current= 1.73A. (limit current= 3.58A) No damaged, no hazard.
Full battery pack	Discharge	--	7 hrs	--	--	Discharge= 3.63A (limit current= 5.4A) No damaged, no hazard.
Charger circuit in MB C(DIS), test with LG 42Wh main battery pack, type WDX0R and Enclosure B						
Empty battery pack	Charge	19.5	7 hrs	--	--	Charging current=1.72A. (limit current= 3.132A) No damaged, no hazard.
Full battery pack	Discharge	--	7 hrs	--	--	Discharge= 38.80W (limit current= 48.6W) No damaged, no hazard.
Charger circuit in MB C(DIS), test with BYD 3500mAh main battery pack, type WDX0R and Enclosure B						
Empty battery pack	Charge	19.5	7 hrs	--	--	Charging current= 1.71A. (limit current= 3.7A) No damaged, no hazard.
Full battery pack	Discharge	--	7 hrs	--	--	Discharge= 3.63A (limit current= 4.4A) No damaged, no hazard.
Charger circuit in MB D(UMA), test with Simplo 42Wh main battery pack, type WDX0R						
Empty battery pack	Charge	19.5	7 hrs	--	--	Charging current= 1.64A. (limit current= 3.7A) No damaged, no hazard.
Full battery pack	Discharge	--	7 hrs	--	--	Discharge= 39.87W (limit current= 5.5A or 45W) No damaged, no hazard.
Charger circuit in MB D(UMA), test with SDI 42Wh main battery pack, type WDX0R						
Empty battery pack	Charge	19.5	7 hrs	--	--	Charging current= 1.63A. (limit current= 3.58A) No damaged, no hazard.

Component No.	Fault	Supply voltage (V)	Test time	Fuse #	Fuse current (A)	Observation
Full battery pack	Discharge	--	7 hrs	--	--	Discharge= 3.64A (limit current= 5.4A) No damaged, no hazard.
Charger circuit in MB DUMA), test with LG 42Wh main battery pack, type WDX0R						
Empty battery pack	Charge	19.5	7 hrs	--	--	Charging current=1.60A. (limit current= 3.132A) No damaged, no hazard.
Full battery pack	Discharge	--	7 hrs	--	--	Discharge= 38.54W (limit current= 48.6W) No damaged, no hazard.
Charger circuit in MB D(UMA), test with BYD 3500mAh main battery pack, type WDX0R						
Empty battery pack	Charge	19.5	7 hrs	--	--	Charging current=1.61A. (limit current= 3.684A) No damaged, no hazard.
Full battery pack	Discharge	--	7 hrs	--	--	Discharge= 3.63A (limit current= 4.4A) No damaged, no hazard.
Charger circuit in MB D(UMA), test with LG 56Wh main battery pack, type 33YDH						
Empty battery pack	Charge	19.5	7 hrs	--	--	Charging current=1.92A. (limit current= 3.132A) No damaged, no hazard.
Full battery pack	Discharge	--	7 hrs	--	--	Discharge= 43.53W (limit current= 64.8W) No damaged, no hazard.
Charger circuit in MB D(UMA), test with Samsung 56Wh main battery pack, type 33YDH						
Empty battery pack	Charge	19.5	7 hrs	--	--	Charging current=1.81A. (limit current= 3.58A) No damaged, no hazard.
Full battery pack	Discharge	--	7 hrs	--	--	Discharge= 2.99A (limit current= 5.4A) No damaged, no hazard.
Charger circuit in MB D(DIS), test with Simplo 42Wh main battery pack, type WDX0R						
Empty battery pack	Charge	19.5	7 hrs	--	--	Charging current= 1.72A. (limit current= 3.7A) No damaged, no hazard.
Full battery pack	Discharge	--	7 hrs	--	--	Discharge= 42.80W (limit current= 5.5A or 45W) No damaged, no hazard.
Charger circuit in MB D(DIS), test with SDI 42Wh main battery pack, type WDX0R						
Empty battery pack	Charge	19.5	7 hrs	--	--	Charging current= 1.70A. (limit current= 3.58A) No damaged, no hazard.
Full battery pack	Discharge	--	7 hrs	--	--	Discharge= 3.97A (limit current= 5.4A) No damaged, no hazard.
Charger circuit in MB D(DIS), test with LG 42Wh main battery pack, type WDX0R						

Component No.	Fault	Supply voltage (V)	Test time	Fuse #	Fuse current (A)	Observation
Empty battery pack	Charge	19.5	7 hrs	--	--	Charging current=1.71A. (limit current= 3.132A) No damaged, no hazard.
Full battery pack	Discharge	--	7 hrs	--	--	Discharge= 42.98W (limit current= 48.6W) No damaged, no hazard.
Charger circuit in MB D(DIS), test with BYD 3500mAh main battery pack, type WDX0R						
Empty battery pack	Charge	19.5	7 hrs	--	--	Charging current= 1.71A. (limit current= 3.7A) No damaged, no hazard.
Full battery pack	Discharge	--	7 hrs	--	--	Discharge= 3.93A (limit current= 4.4A) No damaged, no hazard.
Charger circuit in MB D(DIS), test with LG 56Wh main battery pack, type 33YDH						
Empty battery pack	Charge	19.5	7 hrs	--	--	Charging current=1.92A. (limit current= 3.132A) No damaged, no hazard.
Full battery pack	Discharge	--	7 hrs	--	--	Discharge= 52.21W (limit current= 64.8W) No damaged, no hazard.
Charger circuit in MB D(DIS), test with Samsung 56Wh main battery pack, type 33YDH						
Empty battery pack	Charge	19.5	7 hrs	--	--	Charging current= 1.89A. (limit current= 3.58A) No damaged, no hazard.
Full battery pack	Discharge	--	7 hrs	--	--	Discharge= 3.78A (limit current= 5.4A) No damaged, no hazard.
Tested with model P35E						
Charger circuit in MB C(UMA), test with Simplo 42Wh main battery pack, type WDX0R						
Empty battery pack	Charge	19.5	7 hrs	--	--	Charging current= 1.64A. (limit current= 3.7A) No damaged, no hazard.
Full battery pack	Discharge	--	7 hrs	--	--	Discharge= 40.87W (limit current= 5.5A or 45W) No damaged, no hazard.
Charger circuit in MB C(UMA), test with SDI 42Wh main battery pack, type WDX0R						
Empty battery pack	Charge	19.5	7 hrs	--	--	Charging current= 1.63A. (limit current= 3.58A) No damaged, no hazard.
Full battery pack	Discharge	--	7 hrs	--	--	Discharge= 3.74A (limit current= 5.4A) No damaged, no hazard.
Charger circuit in MB C(UMA), test with LG 42Wh main battery pack, type WDX0R						
Empty battery pack	Charge	19.5	7 hrs	--	--	Charging current=1.60A. (limit current= 3.132A) No damaged, no hazard.

Component No.	Fault	Supply voltage (V)	Test time	Fuse #	Fuse current (A)	Observation
Full battery pack	Discharge	--	7 hrs	--	--	Discharge= 40.54W (limit current= 48.6W) No damaged, no hazard.
Charger circuit in MB C(UMA), test with BYD 3500mAh main battery pack, type WDX0R						
Empty battery pack	Charge	19.5	7 hrs	--	--	Charging current=1.61A. (limit current= 3.684A) No damaged, no hazard.
Full battery pack	Discharge	--	7 hrs	--	--	Discharge= 3.73A (limit current= 4.4A) No damaged, no hazard.
Charger circuit in MB C(DIS), test with Simplo 42Wh main battery pack, type WDX0R						
Empty battery pack	Charge	19.5	7 hrs	--	--	Charging current= 1.72A. (limit current= 3.7A) No damaged, no hazard.
Full battery pack	Discharge	--	7 hrs	--	--	Discharge= 41.80W (limit current= 5.5A or 45W) No damaged, no hazard.
Charger circuit in MB C(DIS), test with SDI 42Wh main battery pack, type WDX0R						
Empty battery pack	Charge	19.5	7 hrs	--	--	Charging current= 1.70A. (limit current= 3.58A) No damaged, no hazard.
Full battery pack	Discharge	--	7 hrs	--	--	Discharge= 3.79A (limit current= 5.4A) No damaged, no hazard.
Charger circuit in MB C(DIS), test with LG 42Wh main battery pack, type WDX0R						
Empty battery pack	Charge	19.5	7 hrs	--	--	Charging current=1.71A. (limit current= 3.132A) No damaged, no hazard.
Full battery pack	Discharge	--	7 hrs	--	--	Discharge= 40.98W (limit current= 48.6W) No damaged, no hazard.
Charger circuit in MB C(DIS), test with BYD 3500mAh main battery pack, type WDX0R						
Empty battery pack	Charge	19.5	7 hrs	--	--	Charging current= 1.71A. (limit current= 3.7A) No damaged, no hazard.
Full battery pack	Discharge	--	7 hrs	--	--	Discharge= 3.77A (limit current= 4.4A) No damaged, no hazard.
Tested with model P89G						
Charger circuit in MB D(UMA), test with Simplo 42Wh main battery pack, type WDX0R and Enclosure D						
Empty battery pack	Charge	19.5	7 hrs	--	--	Charging current= 1.64A. (limit current= 3.7A) No damaged, no hazard.
Full battery pack	Discharge	--	7 hrs	--	--	Discharge= 39.14W (limit current= 5.5A or 45W) No damaged, no hazard.

Component No.	Fault	Supply voltage (V)	Test time	Fuse #	Fuse current (A)	Observation
Charger circuit in MB D(UMA), test with SDI 42Wh main battery pack, type WDX0R and Enclosure D						
Empty battery pack	Charge	19.5	7 hrs	--	--	Charging current= 1.63A. (limit current= 3.58A) No damaged, no hazard.
Full battery pack	Discharge	--	7 hrs	--	--	Discharge= 3.58A (limit current= 5.4A) No damaged, no hazard.
Charger circuit in MB D(UMA), test with LG 42Wh main battery pack, type WDX0R and Enclosure D						
Empty battery pack	Charge	19.5	7 hrs	--	--	Charging current=1.62A. (limit current= 3.132A) No damaged, no hazard.
Full battery pack	Discharge	--	7 hrs	--	--	Discharge= 38.66W (limit current= 48.6W) No damaged, no hazard.
Charger circuit in MB D(UMA), test with BYD 3500mAh main battery pack, type WDX0R and Enclosure D						
Empty battery pack	Charge	19.5	7 hrs	--	--	Charging current=1.64A. (limit current= 3.684A) No damaged, no hazard.
Full battery pack	Discharge	--	7 hrs	--	--	Discharge= 3.56A (limit current= 4.4A) No damaged, no hazard.
Charger circuit in MB D(UMA), test with LG 56Wh main battery pack, type 33YDH and Enclosure D						
Empty battery pack	Charge	19.5	7 hrs	--	--	Charging current= 1.84A. (limit current= 3.132A) No damaged, no hazard.
Full battery pack	Discharge	--	7 hrs	--	--	Discharge= 41.34W (limit current= 64.8W) No damaged, no hazard.
Charger circuit in MB C(UMA), test with Samsung 56Wh main battery pack, type 33YDH and Enclosure D						
Empty battery pack	Charge	19.5	7 hrs	--	--	Charging current= 1.89A. (limit current= 3.58A) No damaged, no hazard.
Full battery pack	Discharge	--	7 hrs	--	--	Discharge= 2.92A (limit current= 5.4A) No damaged, no hazard.
Charger circuit in MB D(DIS), test with Simplo 42Wh main battery pack, type WDX0R and Enclosure D						
Empty battery pack	Charge	19.5	7 hrs	--	--	Charging current= 1.73A. (limit current= 3.7A) No damaged, no hazard.
Full battery pack	Discharge	--	7 hrs	--	--	Discharge= 42.39W (limit current= 5.5A or 45W) No damaged, no hazard.
Charger circuit in MB D(DIS), test with SDI 42Wh main battery pack, type WDX0R and Enclosure D						
Empty battery pack	Charge	19.5	7 hrs	--	--	Charging current= 1.72A. (limit current= 3.58A) No damaged, no hazard.

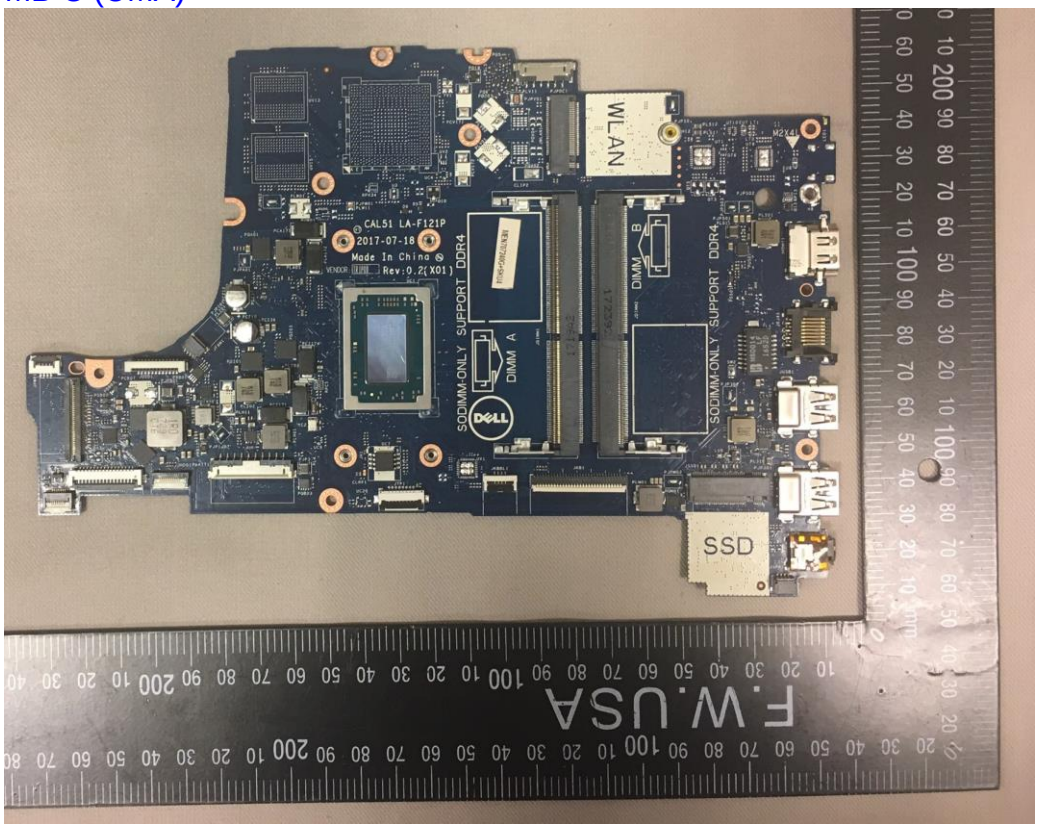
Component No.	Fault	Supply voltage (V)	Test time	Fuse #	Fuse current (A)	Observation
Full battery pack	Discharge	--	7 hrs	--	--	Discharge= 3.88A (limit current= 5.4A) No damaged, no hazard.
Charger circuit in MB D(DIS), test with LG 42Wh main battery pack, type WDX0R and Enclosure D						
Empty battery pack	Charge	19.5	7 hrs	--	--	Charging current=1.72A. (limit current= 3.132A) No damaged, no hazard.
Full battery pack	Discharge	--	7 hrs	--	--	Discharge= 41.80W (limit current= 48.6W) No damaged, no hazard.
Charger circuit in MB D(DIS), test with BYD 3500mAh main battery pack, type WDX0R and Enclosure D						
Empty battery pack	Charge	19.5	7 hrs	--	--	Charging current= 1.71A. (limit current= 3.7A) No damaged, no hazard.
Full battery pack	Discharge	--	7 hrs	--	--	Discharge= 3.89A (limit current= 4.4A) No damaged, no hazard.
Charger circuit in MB D(DIS), test with LG 56Wh main battery pack, type 33YDH and Enclosure D						
Empty battery pack	Charge	19.5	7 hrs	--	--	Charging current=1.92A. (limit current= 3.132A) No damaged, no hazard.
Full battery pack	Discharge	--	7 hrs	--	--	Discharge= 52.01W (limit current= 64.8W) No damaged, no hazard.
Charger circuit in MB D(DIS), test with Samsung 56Wh main battery pack, type 33YDH and Enclosure D						
Empty battery pack	Charge	19.5	7 hrs	--	--	Charging current= 1.89A. (limit current= 3.58A) No damaged, no hazard.
Full battery pack	Discharge	--	7 hrs	--	--	Discharge= 3.72A (limit current= 5.4A) No damaged, no hazard.
Tested with MB C ***1)***						
PQ3 pin 1 – 5	s-c	19.5	7 hr	--	--	Charging current to battery is dropped to 0A. No hazard. (Test with full charged battery pack)
PQ4 pin 1 – 5	s-c	19.5	7 hr	--	--	Charging current to battery is dropped to 0A. No hazard. (Test with full charged battery pack)
PRB01 pin 1 – 4	s-c	19.5	7 hr	--	--	Charging current to battery is dropped to 0A. No hazard. (Test with full charged battery pack)
PLB11	s-c	19.5	7 hr	--	--	Charging current to battery is dropped to 0A. No hazard. (Test with full charged battery pack)

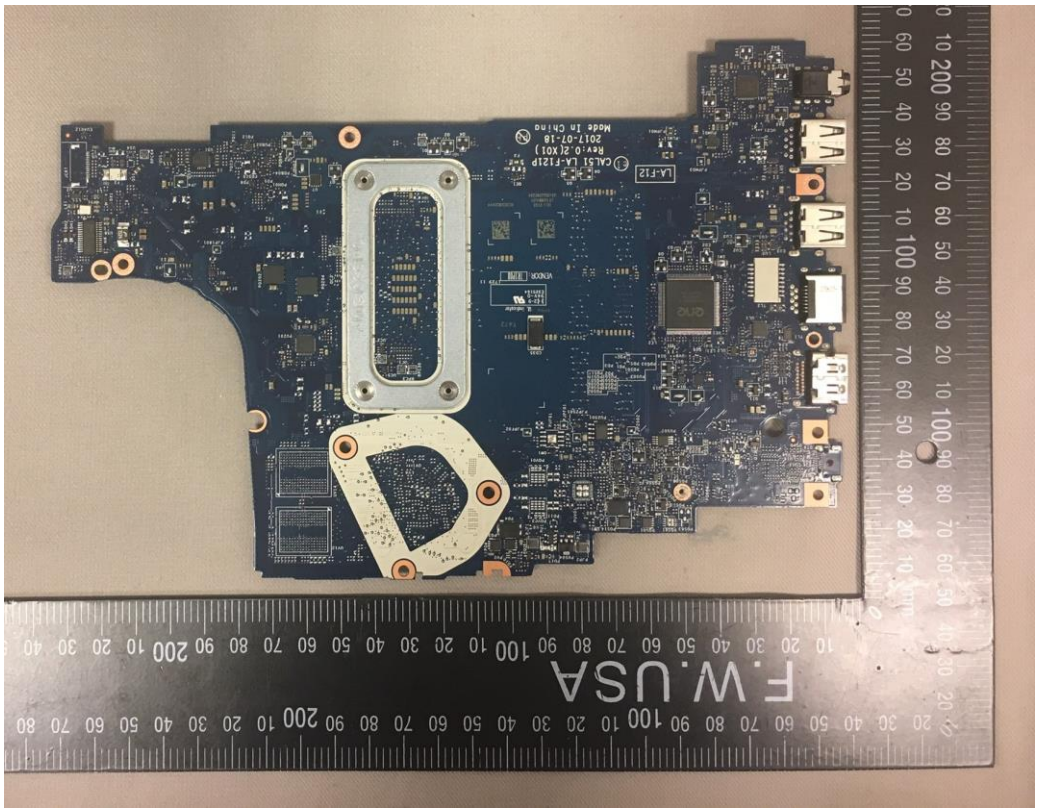
Component No.	Fault	Supply voltage (V)	Test time	Fuse #	Fuse current (A)	Observation
PQB01 pin 1 – 5	s-c	19.5	7 hr	--	--	Charging current to battery is dropped to 0A. No hazard. (Test with full charged battery pack)
PQB01 pin 1 – 5	s-c	19.5	7 hr	--	--	Charging current to battery is dropped to 0A. No hazard. (Test with full charged battery pack)
PLB01	s-c	19.5	7 hr	--	--	Charging current to battery is dropped to 0A. No hazard. (Test with full charged battery pack)
PRB02 pin 1 – 4	s-c	19.5	7 hr	--	--	Charging current to battery is dropped to 0A. No hazard. (Test with full charged battery pack)
PRB12 pin 1 – 4	s-c	19.5	7 hr	--	--	Charging current to battery is dropped to 0A. No hazard. (Test with full charged battery pack)
PQB03 pin 1 – 5	s-c	19.5	7 hr	--	--	Charging current to battery is dropped to 0A. No hazard. (Test with full charged battery pack)
Tested with MB D ***1)***						
PQ3 pin 1 – 5	s-c	19.5	7 hr	--	--	Charging current to battery is dropped to 0A. No hazard. (Test with full charged battery pack)
PQ4 pin 1 – 5	s-c	19.5	7 hr	--	--	Charging current to battery is dropped to 0A. No hazard. (Test with full charged battery pack)
PRB01 pin 1 – 4	s-c	19.5	7 hr	--	--	Charging current to battery is dropped to 0A. No hazard. (Test with full charged battery pack)
PLB11	s-c	19.5	7 hr	--	--	Charging current to battery is dropped to 0A. No hazard. (Test with full charged battery pack)
PQB01 pin 1 – 5	s-c	19.5	7 hr	--	--	Charging current to battery is dropped to 0A. No hazard. (Test with full charged battery pack)
PQB01 pin 1 – 5	s-c	19.5	7 hr	--	--	Charging current to battery is dropped to 0A. No hazard. (Test with full charged battery pack)

Component No.	Fault	Supply voltage (V)	Test time	Fuse #	Fuse current (A)	Observation
PLB01	s-c	19.5	7 hr	--	--	Charging current to battery is dropped to 0A. No hazard. (Test with full charged battery pack)
PRB02 pin 1 – 4	s-c	19.5	7 hr	--	--	Charging current to battery is dropped to 0A. No hazard. (Test with full charged battery pack)
PRB12 pin 1 – 4	s-c	19.5	7 hr	--	--	Charging current to battery is dropped to 0A. No hazard. (Test with full charged battery pack)
PQB03 pin 1 – 5	s-c	19.5	7 hr	--	--	Charging current to battery is dropped to 0A. No hazard. (Test with full charged battery pack)
Tested with MB C data port						
HDMI port pin 1~14,17, 19 – RTN	o-l	19.5	20 min	--	--	Max. available current is 0A (0V), no hazard.
HDMI port pin 15 – RTN	o-l	19.5	20 min	--	--	Max. available current is 0A (4.84V), no hazard.
HDMI port pin 16 – RTN	o-l	19.5	20 min	--	--	Max. available current is 0A (4.84V), no hazard.
HDMI port pin 18 – RTN	o-l	19.5	1 hr	--	--	Max. available current is 2.4A (5.14V), no hazard.
Card Reader port pin 1~3, 5~15 – RTN	o-l	19.5	20 min	--	--	Max. available current is 0A (0V), no hazard.
Card Reader port pin 4, – RTN	o-l	19.5	20 min	--	--	Max. available current is 0.8A (3.3V), no hazard.
Audio port pin 1~7, – RTN	o-l	19.5	20 min	--	--	Max. available current is 0A (0V), no hazard.
RJ45 port pin 1~12 – RTN	o-l	19.5	20 min	--	--	Max. available current is 0A (0V), no hazard.
Tested with MB D data port						
HDMI port pin 1~14,17, 19 – RTN	o-l	19.5	20 min	--	--	Max. available current is 0A (0V), no hazard.
HDMI port pin 15 – RTN	o-l	19.5	20 min	--	--	Max. available current is 0A (4.82V), no hazard.
HDMI port pin 16 – RTN	o-l	19.5	20 min	--	--	Max. available current is 0A (4.82V), no hazard.
HDMI port pin 18 – RTN	o-l	19.5	1 hr	--	--	Max. available current is 2.19A (5.17V), no hazard.

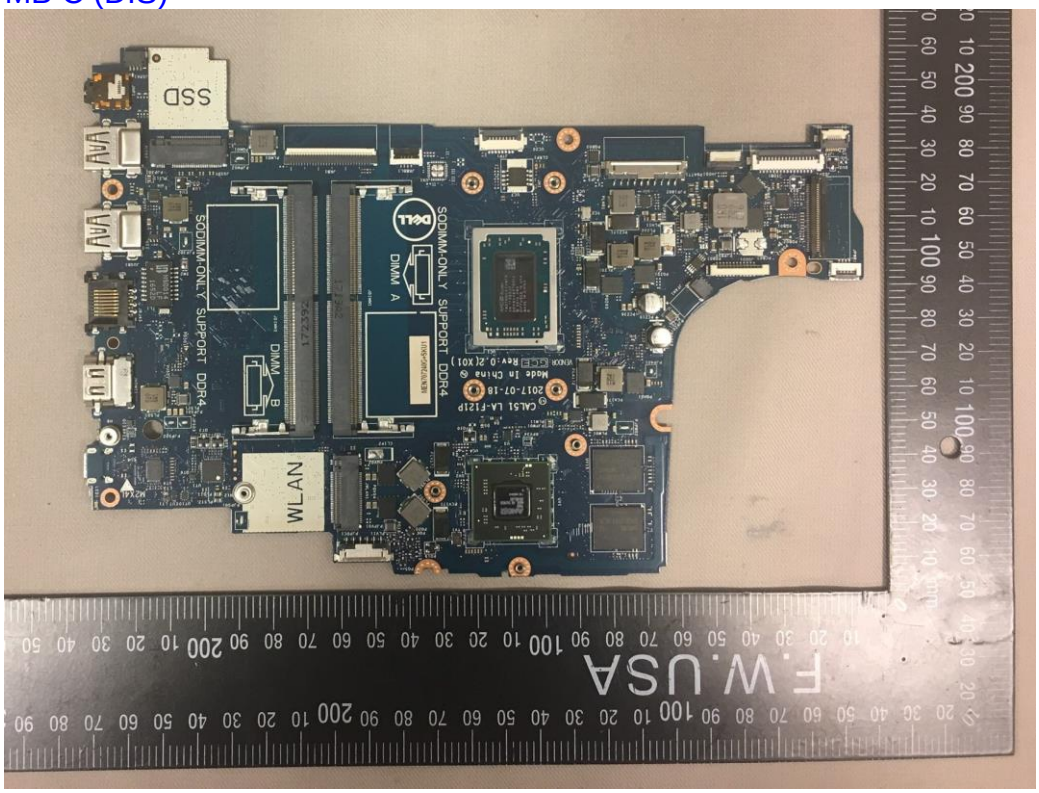
Component No.	Fault	Supply voltage (V)	Test time	Fuse #	Fuse current (A)	Observation
Card Reader port pin 1~3, 5~15 – RTN	o-l	19.5	20 min	--	--	Max. available current is 0A (0V), no hazard.
Card Reader port pin 4, – RTN	o-l	19.5	20 min	--	--	Max. available current is 0.8A (3.3V), no hazard.
Audio port pin 1~7, – RTN	o-l	19.5	20 min	--	--	Max. available current is 0A (0V), no hazard.
RJ45 port pin 1~12 – RTN	o-l	19.5	20 min	--	--	Max. available current is 0A (0V), no hazard.
SIM port pin 1~18 - RTN	o-l	19.5	20 min	--	--	Max. available current is 0A (0V), no hazard.
Supplementary information: s-c=Short circuit, o-c=Open circuit, o-l=Overload						
1) Same test result for all battery pack sources.						

MB C (UMA)


WLAN
SSD
SODIMM-ONLY SUPPORT DDR4
SODIMM-ONLY SUPPORT DDR4
CAL51 LA-F121P
2017-07-18
Made In China
Rev:0.2(X01)
F.W.USA


F.W.USA

MB C (DIS)


SSD
WLAN
SODIMM ONLY SUPPORT DDR4
DMM A
DMM B
CAL51 LA-F121P
2017-07-18
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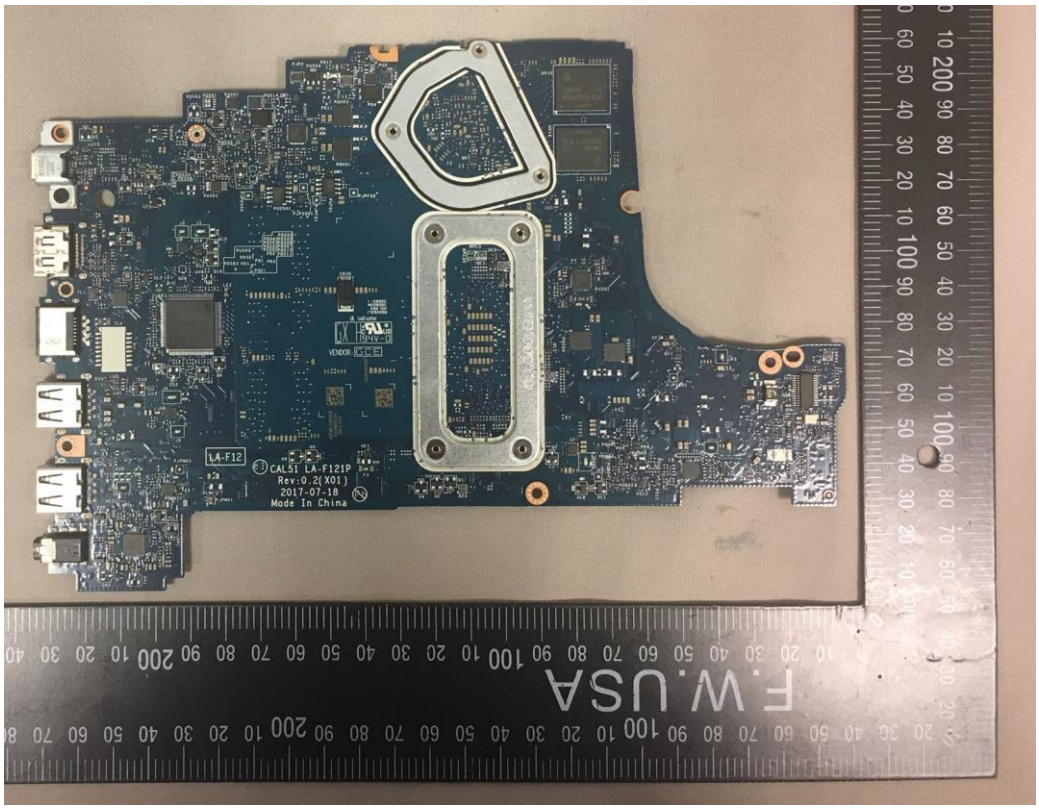
LA-F12
CAL51 LA-F121P
Rev:0.2(X01)
2017-07-18
Made In China
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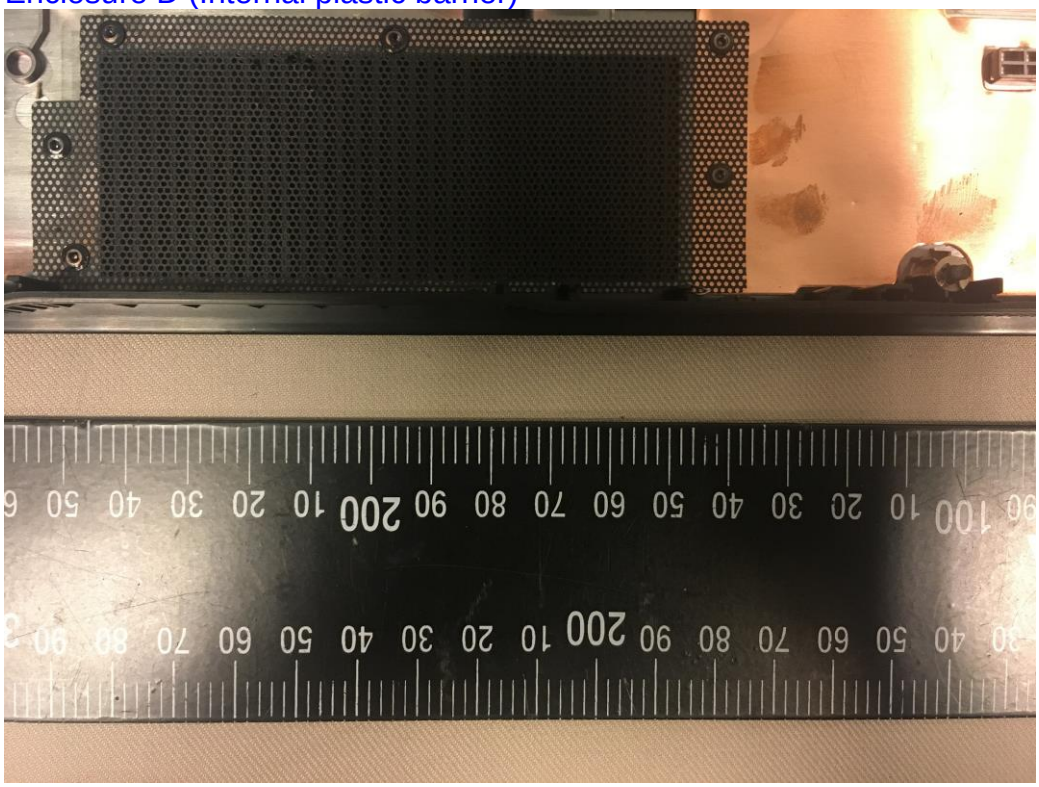
Enclosure D

Enclosure D

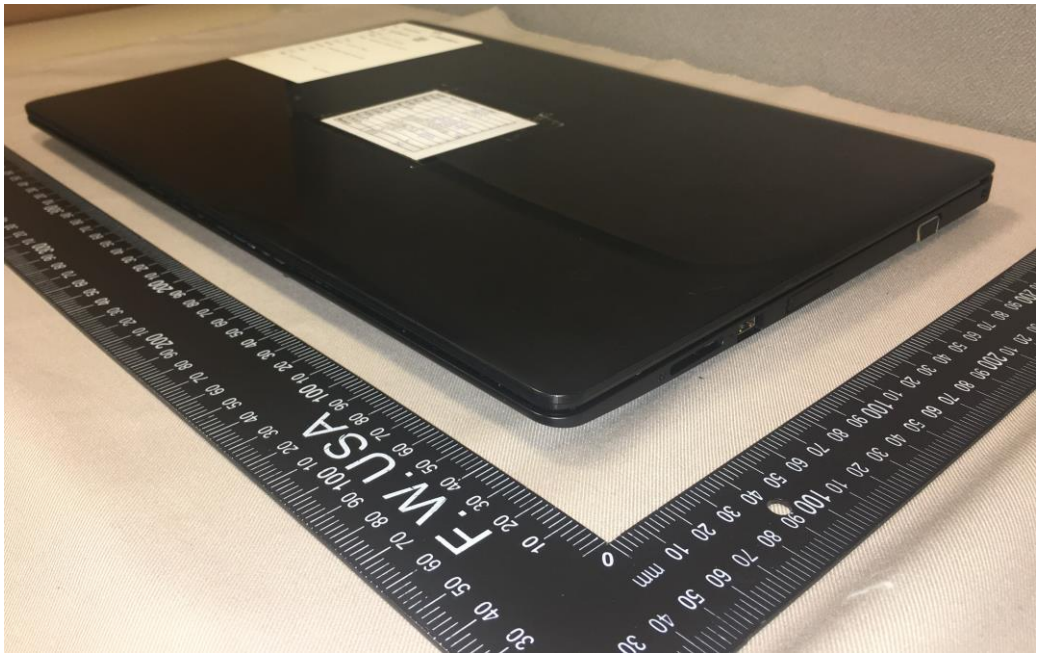
Enclosure D (Internal plastic barrier)



Enclosure D (inside view) with MB D (UMA)

Enclosure D (inside view) with MB D (UMA)

Enclosure E



Enclosure E

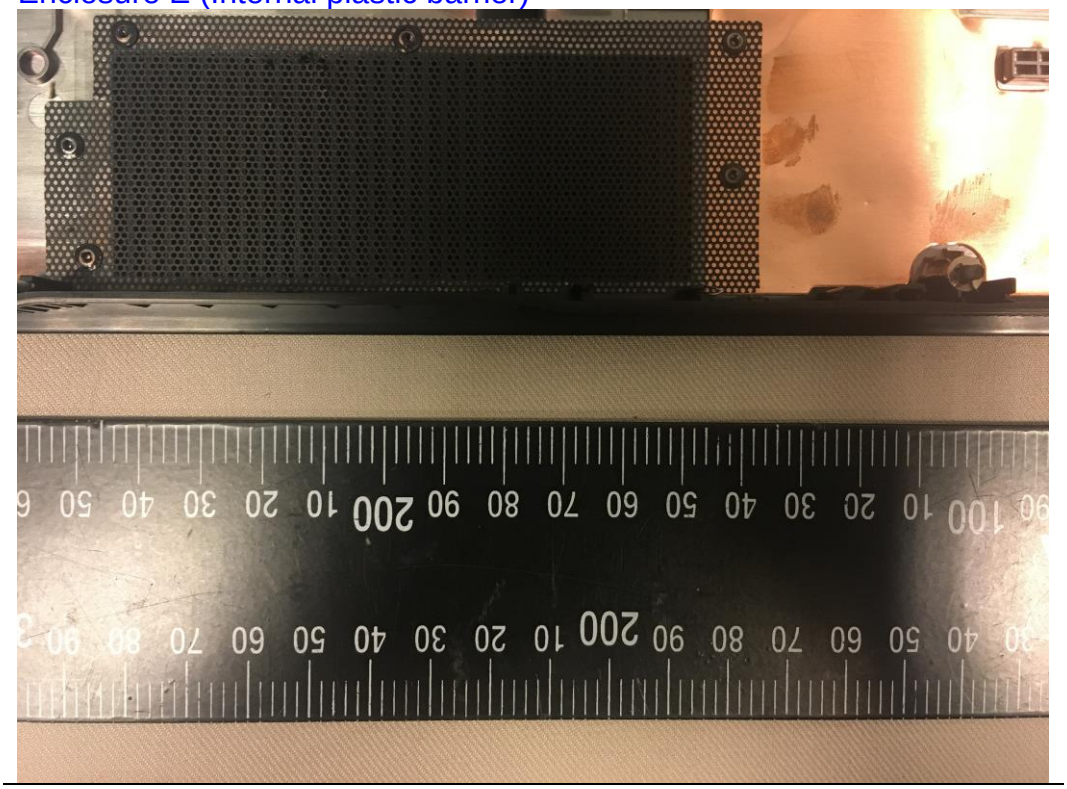

F.W.USA


This machine is for DELL internal use only.
This machine has not been tested for compliance with FCC radio frequency emission standards.
This machine is not, and may not be, offered for sale or lease, or sold, or leased.
Latitude 3590
F.W.USA

Enclosure E

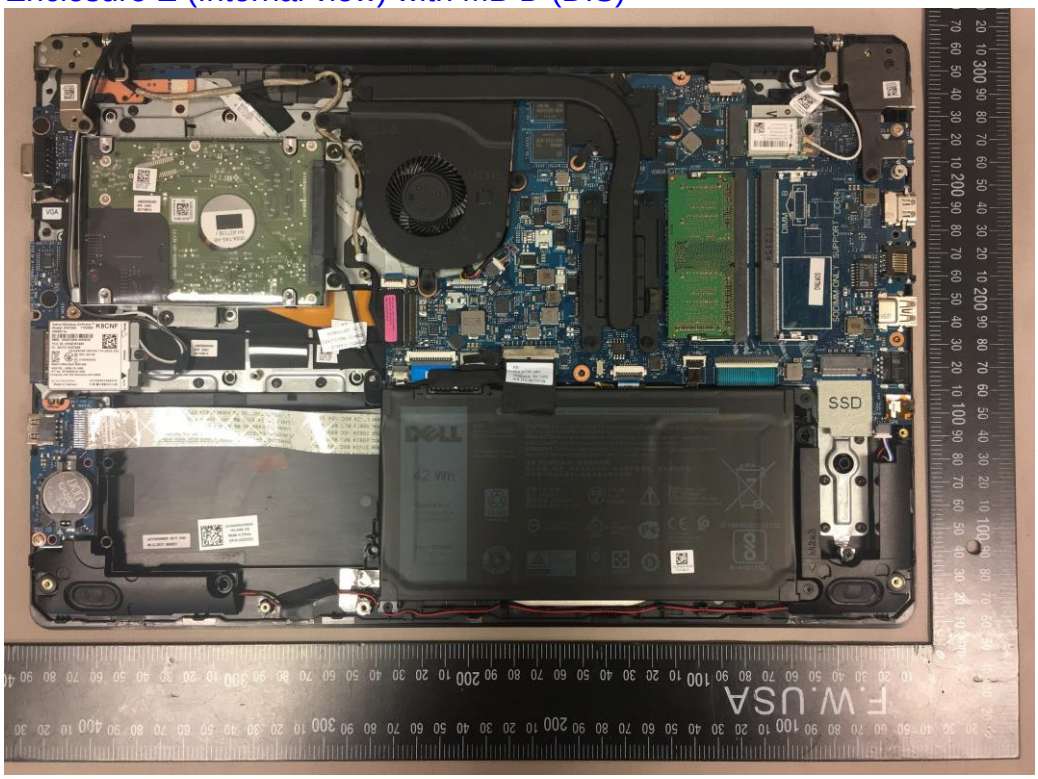
Enclosure E rear side

Enclosure E (Internal plastic barrier)

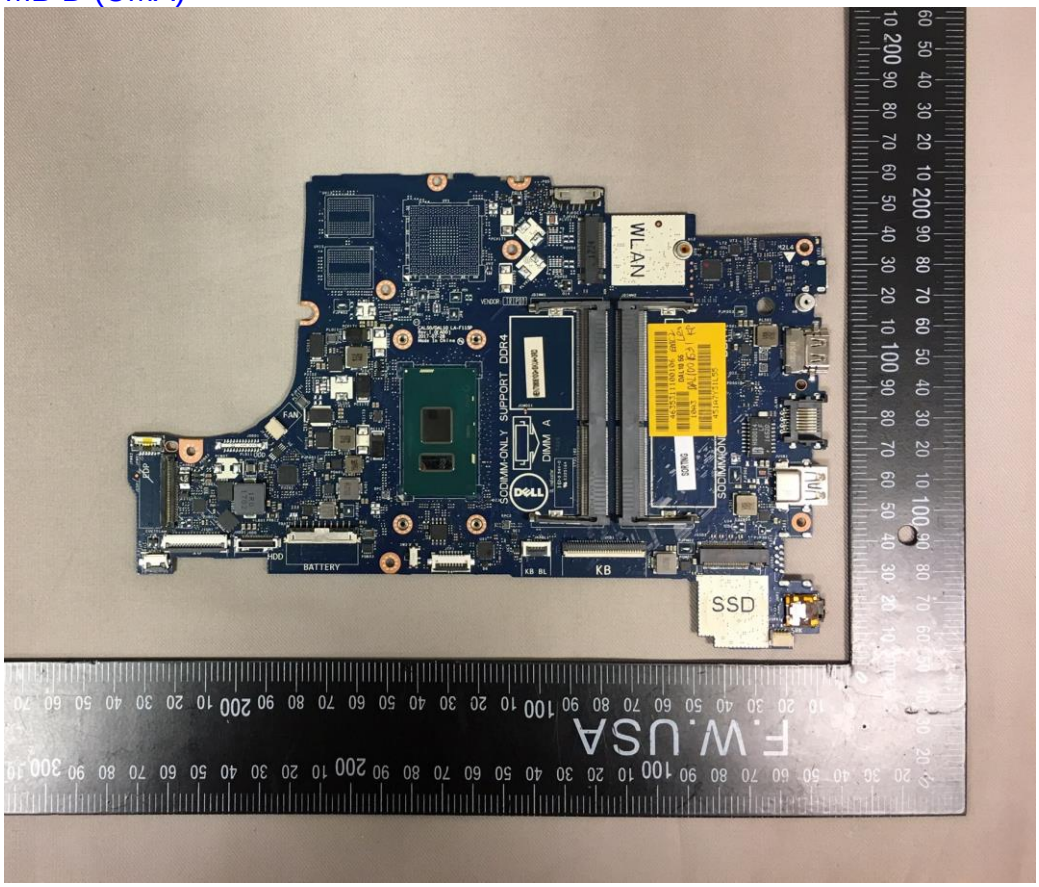


Enclosure E (Internal view) with MB D (UMA)

Enclosure E (Internal view) with MB D (DIS)



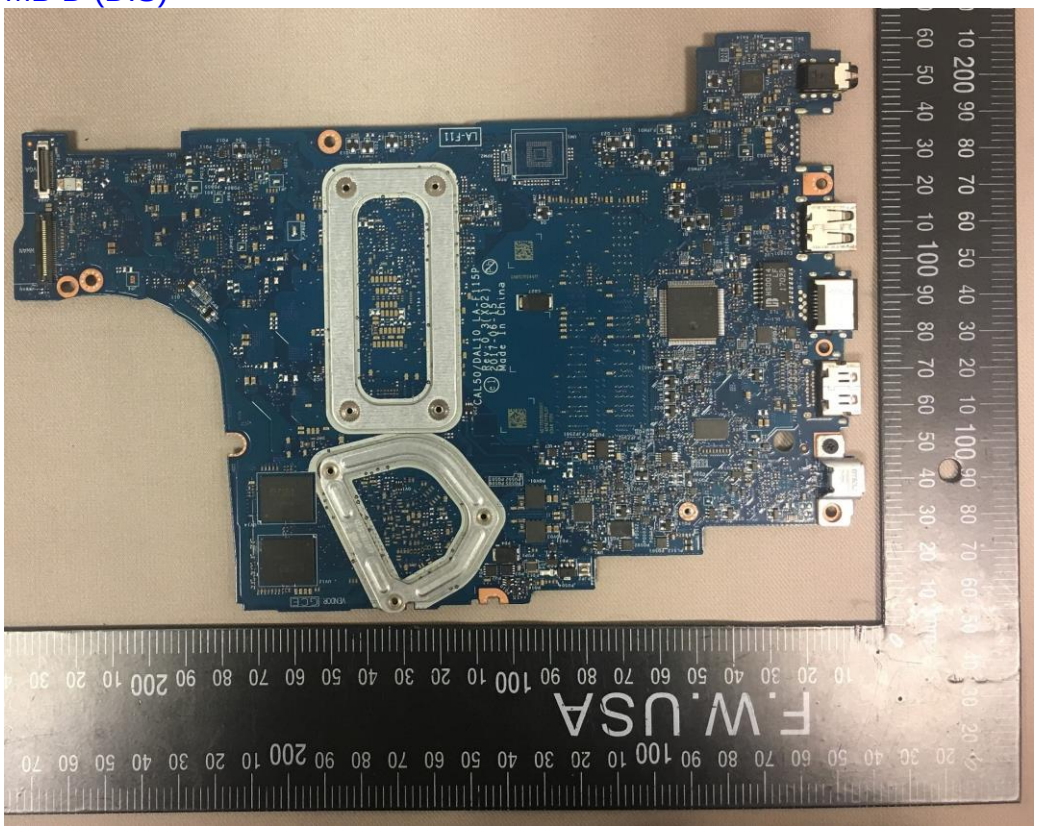
MB D (UMA)



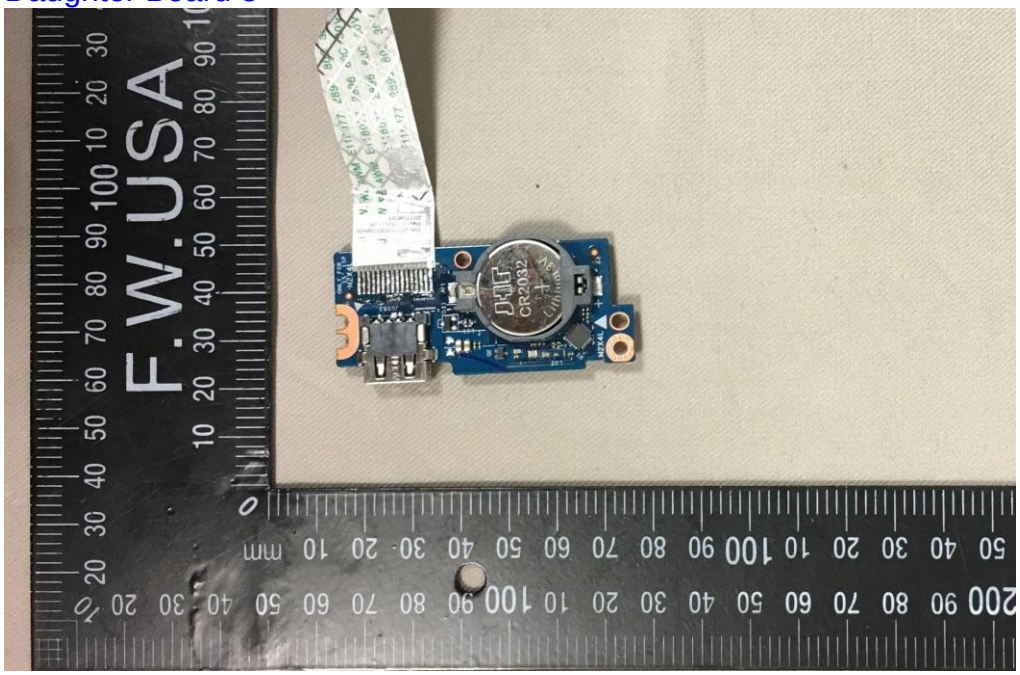
MB D (UMA)

MB D (DIS)

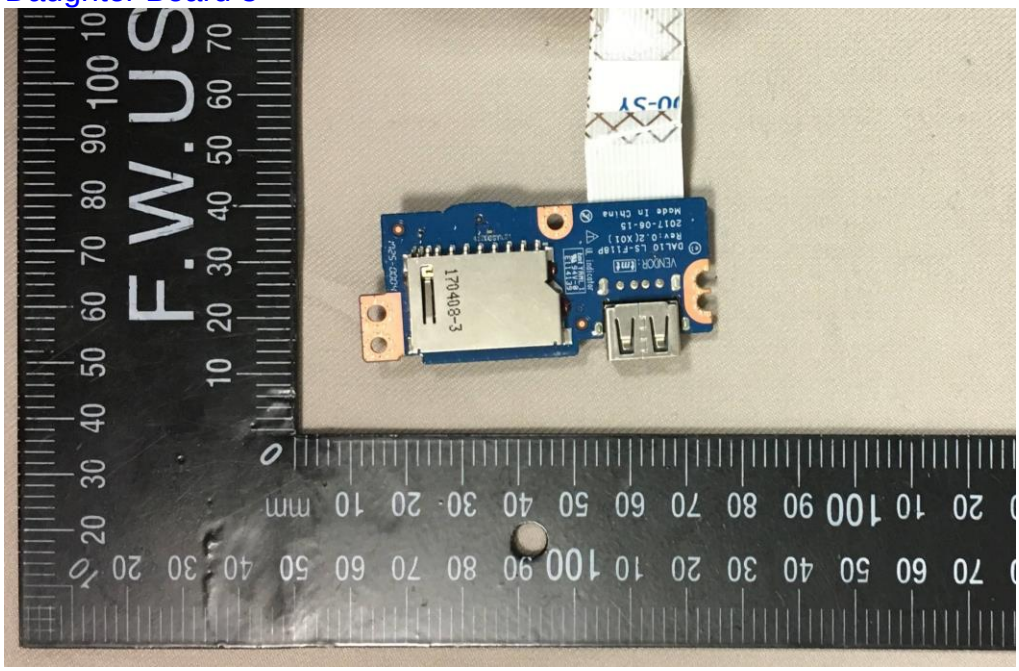
MB D (DIS)



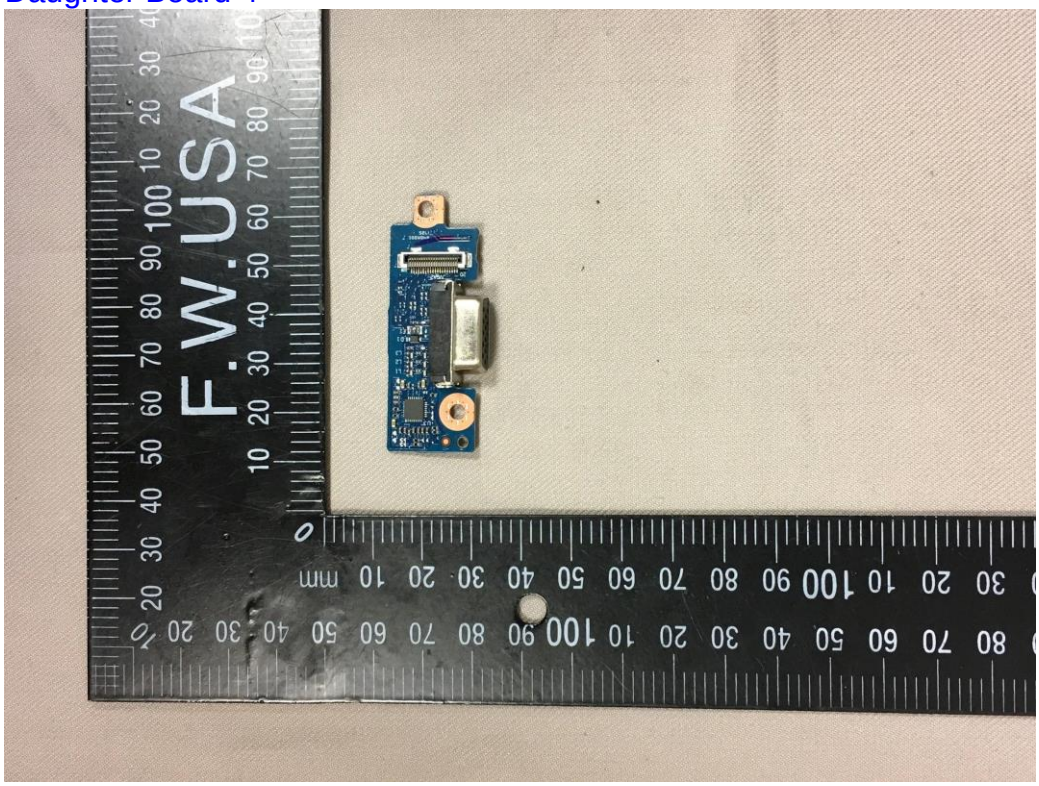
Daughter Board 3



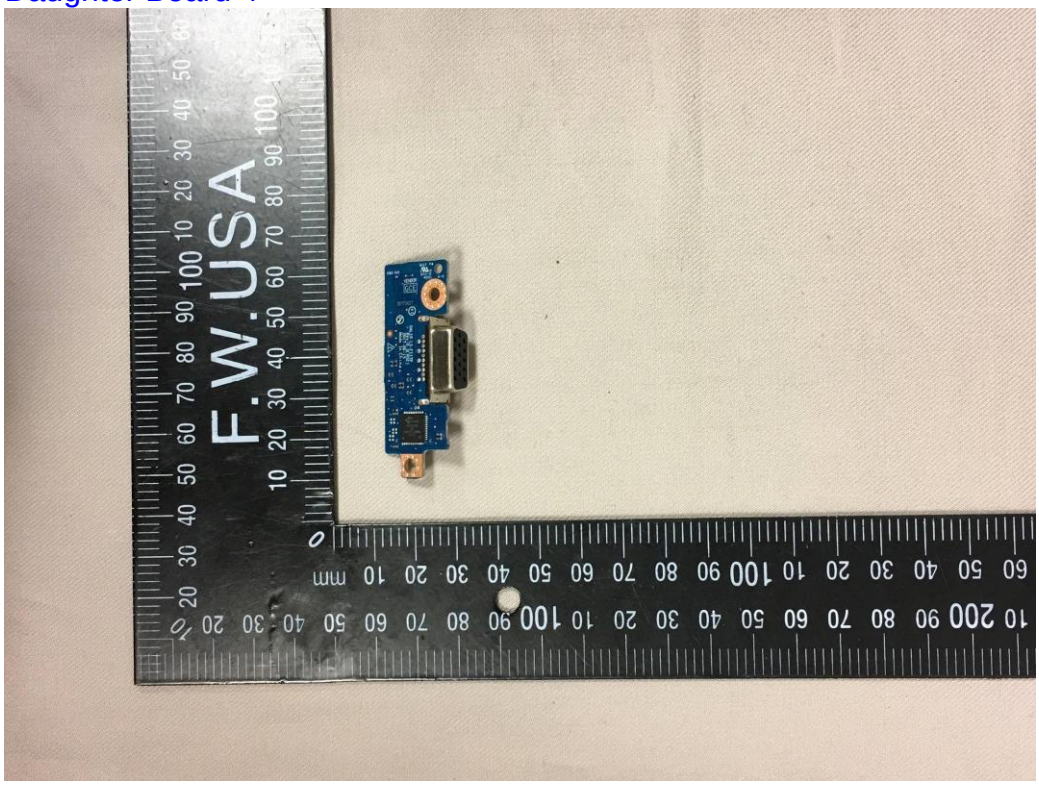
Daughter Board 3



Daughter Board 4



Daughter Board 4



Daughter Board 5