	Test Report issued under the responsibility of: Nemko www.nemko.com

Amendment to Test Report

This Amendment is valid only together with the main Test Report

Report No .....:	**224779**
Main Report No .....:	175993
Date of issue .....:	December 12, 2012
Total number of pages .....:	14 pages and refer to page 3
Applicant's Name .....:	Quanta Computer Inc.
Address .....:	No. 188, Wen Hwa 2nd Road, Kuei Shan Hsiang, Tao Yuan Shien, 333, Taiwan
Test specification	
Standard.....:	IEC 60950-1:2005 (2nd Edition)
Test procedure .....:	CB scheme
Non-standard test method .....:	N/A

If this Test Report Form is used by non-IECEE members, the IECEE/IEC logo and the reference to the CB Scheme procedure shall be removed.

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.

Test item description .....:	Laptop Computer (OLPC)
Trade Mark .....:	OLPC
Manufacturer .....:	Quanta Computer Inc. No. 188, Wen Hwa 2nd Road, Kuei Shan Hsiang, Tao Yuan Shien, 333, Taiwan
Model/Type reference .....:	XO-1.5 HS; XO-1.75HS; **XO-4 HS; XO-4 HS Touch**
Ratings .....:	2A 12Vdc or 1.85A 13.5Vdc

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Testing procedure and testing location:			
☒	**CB Testing Laboratory:**	**Nemko Taiwan**	
Testing location/ address .....:		**5 Fl., No. 409, Sec. 2, Tiding Blvd., Neihu, Taipei 114, Taiwan**	
☐	**Associated CB Laboratory:**		
Testing location/ address .....:			
	Tested by (name + signature).....:	Vincent Lin	
	Approved by (name + signature)...:	Andy Lee	
☐	**Testing procedure: TMP**		
Testing location/ address .....:			
	Tested by (name + signature).....:		
	Approved by (name + signature)...:		
☐	**Testing procedure: WMT**		
Testing location/ address .....:			
	Tested by (name + signature).....:		
	Witnessed by (name + signature) .:		
	Approved by (name + signature)...:		
☐	**Testing procedure: SMT**		
Testing location/ address .....:			
	Tested by (name + signature).....:		
	Approved by (name + signature)...:		
	Supervised by (name + signature) :		
☐	**Testing procedure: RMT**		
Testing location/ address .....:			
	Tested by (name + signature).....:		
	Approved by (name + signature)...:		
	Supervised by (name + signature) :		

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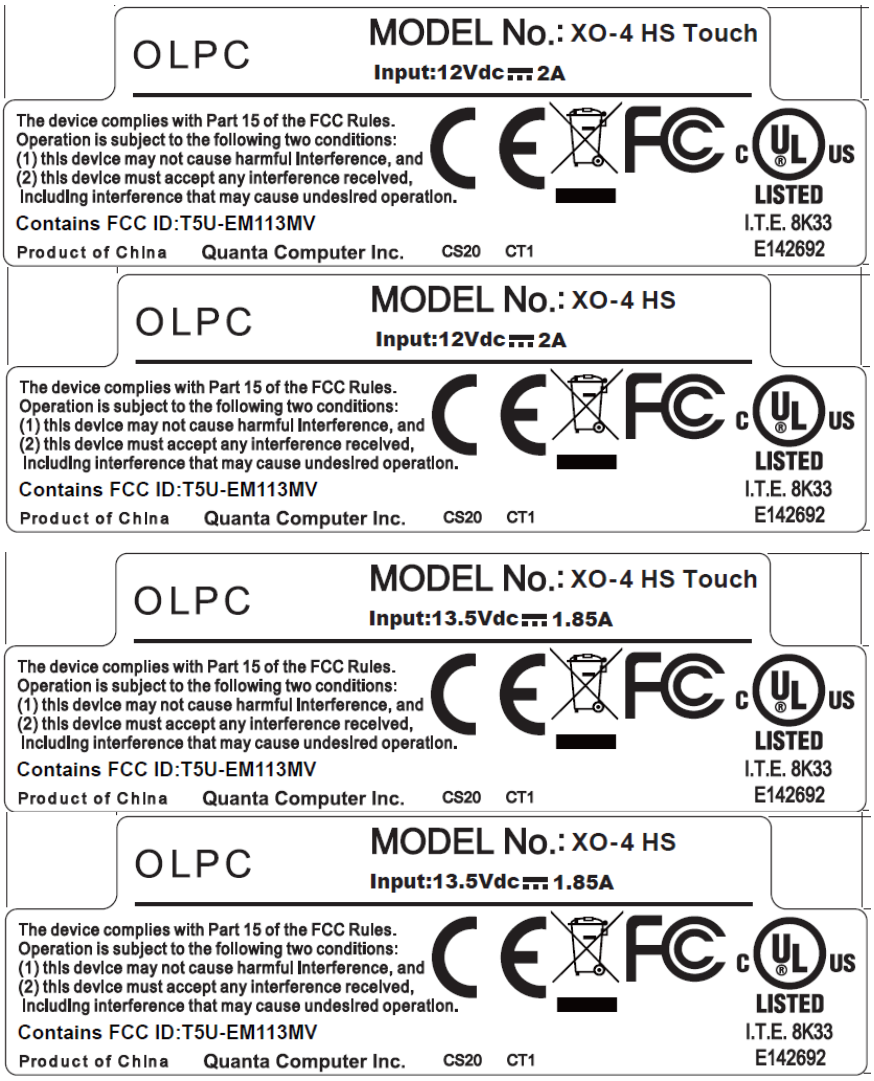
Copy of marking plate: "UL approval in process when report issued."

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.



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

Photos (2 pages)

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Summary of testing:	
Tests performed (name of test and test clause): 1.6 Power interface 4.3 Design and construction 4.5 Thermal requirements 5.3 Abnormal operating and fault conditions Operation condition: The unit is sending/receiving data to all I/O ports. Each USB port loaded to 0.5A. Speaker is adjusted to max. volume. Adjustment of brightness is set to maximum. The empty battery pack is charging at the same time.	**Testing location: see page 2**
Summary of compliance with National Differences The sample(s) tested compliance with the requirements of IEC 60950-1: 2005 2nd Edition and all CENELEC members as listed in EN 60950-1: 2006 2nd Edition, A11: 2009. 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.”	

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Possible test case verdicts:	
- test case does not apply to the test object.....:	N/A
- test object does meet the requirement.....:	P (Pass)
- test object does not meet the requirement .....:	F (Fail)
Testing.....:	
Date of receipt of test item.....:	November, 2012
Date(s) of performance of tests.....:	November - December, 2012

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 6.2.5 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.

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

1. Changshu Zhanyun Electronics Co., Ltd.
No 18, Qingdao Road, High-tech Industrial Park, Changshu Economic Development Zone, Changshu, Jiangsu Province, P.R., China

2. Tech-Full Computer (Changshu) Co., Ltd.
No. 8, Jinzhou Rd., High-Tech Industrial Park, Changshu Economic Development Zone, Changshu Jiangsu Province, 215500, P.R. China

3. Tech-Full Computer (Changshu) Co., Ltd.
No. 9, Chaoyang Road, High-tech Industrial Park, Changshu Economic Development Zone, Changshu, Jiangsu Province, 215500, P.R. China

4. Tech-Com (Shanghai) Computer Co., Ltd.
No.4, Lane 58,Sanzhuang Road, Songjiang Export Processing Zone, Shanghai, P.R. China

5. Tech-Com (Shanghai) Computer Co., Ltd.
No.6, Lane 58,Sanzhuang Road, Songjiang Export Processing Zone, Shanghai, P.R. China

6. Tech-Com (Shanghai) Computer Co., Ltd.
No.7, Lane 58,Sanzhuang Road, Songjiang Export Processing Zone, Shanghai, P.R. China

7. Tech-Giant (Shanghai) Computer Co., Ltd.
No.68,Rongjiang Road, Songjiang Export Processing Zone, Shanghai, China

8. Tech-Front (Shanghai) Computer Co., Ltd.
No. 2, Lane 58, Sanzhuang Road, Songjiang Export Processing Zone, Shanghai, P.R. China

9. Tech-Com (Shanghai) Computer Co. Ltd.
No. 68, Sanzhuang Road, Songjiang Export Processing Zone, Shanghai, P.R. China

10. Tech-Front (Chongqing) Computer Co., Ltd.
18#, Zongbao Road, Shapingba District, Chongqing, P.R., China

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General product information:

This Amendment shall always be enclosed with main Test Report, report/order no. 175993 and its amendments, report/order no. 187672 and 222283.

The changes concern the following:
- Add new models XO-4 HS and XO-4 HS Touch, which is identical to model XO-1.5 HS except model name.
- Add touch function board.
- Add one new main board C which is similar to main board B except CPU type, RTC battery circuit and battery pack charger circuit. The used component sources (RTC battery and power distribution switch) of main board C are same as main board B.

If nothing else stated, testing was conducted with main board C.

Project history:

Nemko Report/ Order No.:	Modification to the appliances:	Changes/ Modifications in clause(s):
175993	Main report	
187672	- Add one new model XO-1.75HS. - Add an alternative source of main board, power distribution switch and RTC battery. - Revised factory address. - Cancel two factories and add one new factory.	1.5, 1.6, 1.7, 2.5, 4.3, 4.5 and 5.3
222283	- Add an alternative source of power adapter. - Revise factory address.	1.5
224779	- Add new models XO-4 HS and XO-4 HS Touch. - Add touch function board. - Add one new main board C.	1.5, 1.6, 1.7, 4.3, 4.5 and 5.3

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IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.5	Components		**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**
1.6.1	AC power distribution systems	The equipment is regarded as Class III.	**—**
1.6.2	Input current	(see appended table 1.6.2)	**P**
1.7	Marking and instructions		**P**
1.7.1	Power rating	The required marking is located in the battery pack compartment of the equipment.	**P**
	Rated voltage(s) or voltage range(s) (V) ..... :	12Vdc or 13.5Vdc	**—**
	Symbol for nature of supply, for d.c. only ..... :	IEC 60417-1, symbol No. 5031, is used.	**P**
	Rated frequency or rated frequency range (Hz) ... :	DC supplied.	**—**
	Rated current (mA or A) ..... :	2A or 1.85A	**—**
	Manufacturer's name or trade-mark or identification mark ..... :	OLPC	**—**
	Model identification or type reference ..... :	XO-1.5 HS; XO-1.75HS; **XO-4 HS; XO-4 HS Touch**	**—**
	Symbol for Class II equipment only ..... :	The equipment is regarded as Class III.	**N/A**

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IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Other markings and symbols ..... :	The additional marking does not give rise to misunderstandings.	**P**
4.3	Design and construction		**P**
4.3.8	Batteries	Refer to below:	**P**
	- Overcharging of a rechargeable battery	Certified battery pack used, refer also to table 5.3.	**P**
	- Unintentional charging of a non-rechargeable battery	For RTC battery, refer to table 4.3.8.	**P**
	- Reverse charging of a rechargeable battery	Special shape connector provided for prevent reverse polarity or reverse charging.	**N/A**
	- Excessive discharging rate for any battery	Refer to separated battery pack CB test report in main test report.	**P**
4.5	Thermal requirements		**P**
4.5.1	General		**P**
4.5.2	Temperature tests	(see appended table 4.5)	**P**
	Normal load condition per Annex L ..... :		**—**
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**
4.5.5	Resistance to abnormal heat ..... :	No thermoplastic parts carrying hazardous voltages.	**N/A**
5.3	Abnormal operating and fault conditions		**P**
5.3.4	Functional insulation.....:	Complies with c).	**P**
5.3.6	Audio amplifiers in ITE .....:	Considered, the speaker is adjusted to max. volume during the test.	**P**
5.3.7	Simulation of faults	See the enclosed fault condition tests.	**P**
5.3.9	Compliance criteria for abnormal operating and fault conditions	Refer to below:	**P**

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IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
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	Class III equipment.	**N/A**

1.6.2	TABLE: Electrical data (in normal conditions)	P

U (V)	I (A)	Irated (A)	P (W)	Fuse #	Ifuse (A)	Condition/status
12	1.80	2.0	21.60	--	--	Normal load ***1)***
12	1.23	2.0	14.76	--	--	Battery charging only ***1)***
13.5	1.74	1.85	23.49	--	--	Normal load ***2)***
13.5	1.20	1.85	16.20	--	--	Battery charging only ***2)***
6.73	1.46	--	9.83	--	--	System off with empty battery pack charging mode. (Measure battery pack connector)
6.44	2.00	--	12.88	--	--	Maximum normal load supplied by battery pack discharging mode. (Measure battery pack connector)

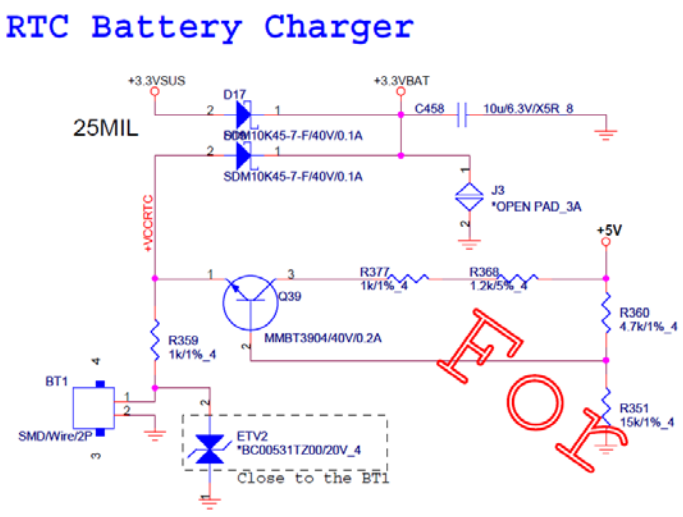
Supplementary information:

1) Tested with power adapter: Bestec / NA0241WAA
2) Tested with power adapter: Bestec / NA025SDFxy

4.3.8	TABLE: Batteries	P

Battery category ..... :	Lithium-ion for battery pack which is certified according to IEC 60950-1. For RTC battery (lithium), see below.
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.) ..... :	UL, see table 1.5.1 for details.

Circuit protection diagram:



Max. charge current (during fault conditions)	Normal, measured I = 3mA (limit=300mA); When R360 short circuit, measured I = 2mA (limit=300mA); When R368 short circuit, measured I = 3mA (limit=300mA); When Q39 (1-3) short circuit, measured I = 3mA (limit=300mA); When D19 short circuit, measured I = 3mA (limit=300mA); When R359 short circuit, measured I = 3mA (limit=300mA)

MARKINGS AND INSTRUCTIONS (1.7.2.1, 1.7.13)	
Location of replaceable battery	In service access areas
	Language(s): English
Close to the battery	No, see sub clause 1.7.13
In the servicing instructions	Yes, see sub clause 1.7.13
In the operating instructions	Yes, 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		Yes.	**P**
Is it possible to install the battery in a reverse polarity position?			**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	--	--	***2)***	--	--	--	--	***1)***	***1)***
Max. current during fault condition	--	--	***2)***	--	--	--	--	***1)***	***1)***

1) Battery polarity can't be reversed according to the design of enclosure and connector.
2) For RTC battery, refer to above table for details.

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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: maximum temperatures			**P**
	test voltage (V) :	13.5Vdc	Battery discharge	—

maximum temperature T of part/at:	T (°C)		allowed T_{max} (°C)
PCB near U19	44.9	40.5	80.9
PCB near U20	42.2	38.3	80.9
RTC battery	40.2	37.8	--
PCB near U17	39.9	37.5	80.9
Enclosure inside near U19	34.9	33.3	--
Enclosure outside near U19	30.8	29.5	50.9 ***)**
Battery Pack	30.9	29.5	
Palm rest	24.1	23.8	50.9 ***)**
Ambient	22.2	20.9	--

supplementary information:

Having a specified maximum ambient temperature of 45°C. The maximum allowed temperatures are calculated based upon a (minimum) test temperature of 20.9°C. Temp. limit is adjusted according to cl. 1.4.12.3. If no limit is stated, temperature is for reference only.
***)** Continuously held in normal use.

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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 .....:	Refer to general product information for details.	—

Component No.	Fault	Supply voltage (V)	Test time	Fuse #	Fuse current (A)	Observation
Speaker	s-c	13.5	10 min	--	--	Unit normal operation except speaker output shutdown, no hazard.
Charger circuit on main board C						
Normal	--	13.5	--	--	--	Charging current for battery pack: 1.46A. No hazard. (limit: 3100mA)
PQ56 pin 1 – 8	s-c	13.5	--	--	--	Charging current for battery pack: 1.46A. No hazard. (limit: 3100mA)
PQ51 pin 1 – 5	s-c	13.5	--	--	--	Charging current for battery pack: 0A. Unit shutdown, no hazard. (limit: 3100mA)
PR164	s-c	13.5	--	--	--	Charging current for battery pack: 2.62A. No hazard. (limit: 3100mA)
PQ58 pin 1 – 8	s-c	13.5	--	--	--	Charging current for battery pack: 0A. Unit shutdown, no hazard. (limit: 3100mA)
Supplementary information:						
s-c=short circuit, o-c=open circuit, o-l=overload						

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Photos

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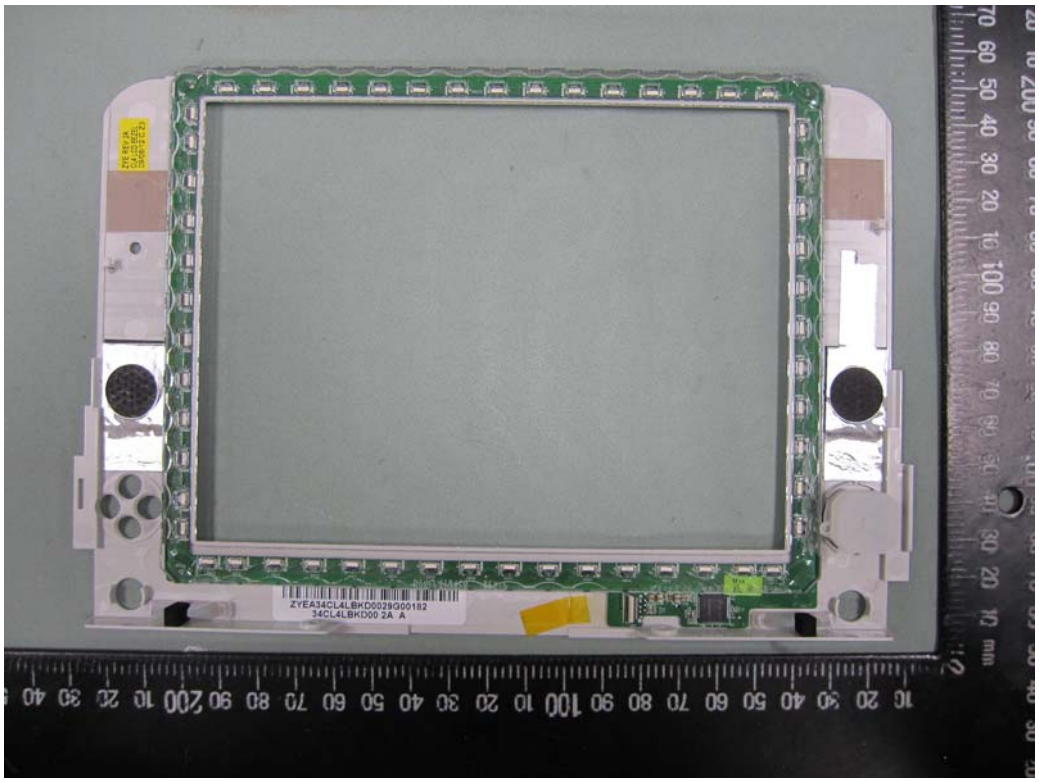
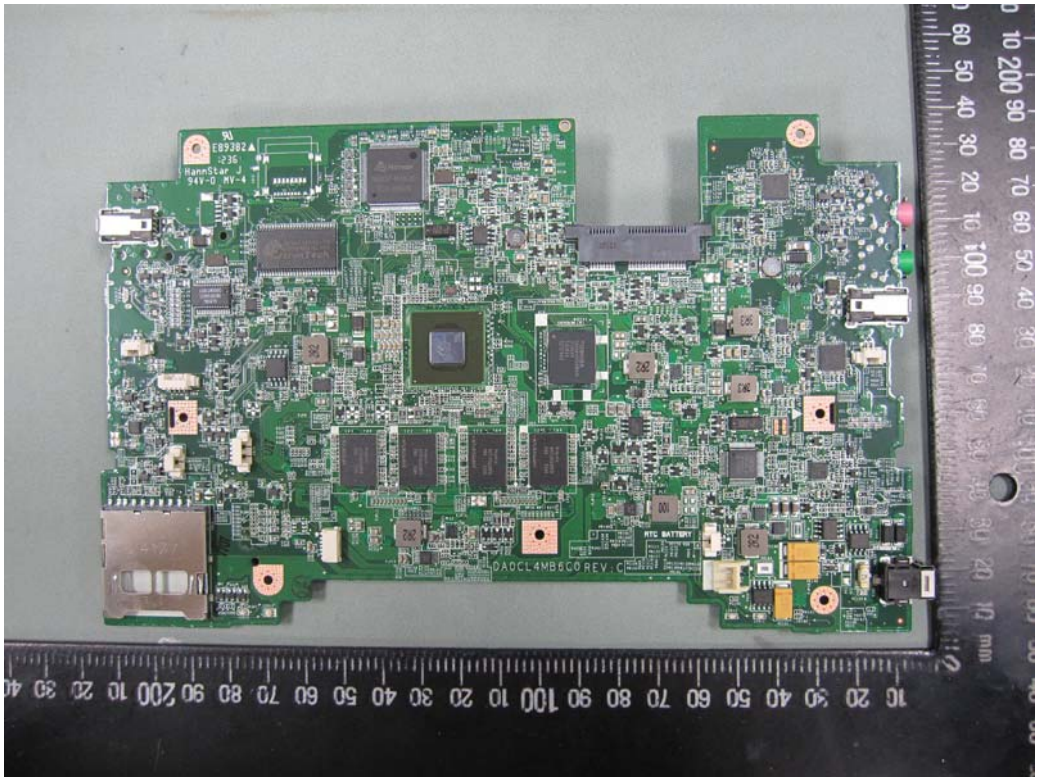
Touch function board



Main board C



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Main board C