

## **COVER PAGE FOR TEST REPORT**

Product Category:	Information Technology Equipment Including Electrical Business Equipment
Product Category CCN:	NWGQ, NWGQ7
Test Procedure:	Listing
Product:	Notebook Computer (OLPC)
Model/Type Reference:	XO-1
Rating(s):	12 Vdc, 1.42 A

Standards:	UL 60950-1, 1st Edition, 2006-07-07 (Information Technology Equipment - Safety - Part 1: General Requirements) CSA C22.2 No. 60950-1-03, 1st Edition, 2006-07 (Information Technology Equipment - Safety - Part 1: General Requirements)
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Applicant Name and Address:	QUANTA COMPUTER INC 188 WEN-HWA 2ND RD KUEI SHAN HSIANG TAOYUAN HSIEN 333 TAIWAN
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This Report includes the following parts, in addition to this cover page:

1. Specific Inspection Criteria
2. Specific Technical Criteria
3. Clause Verdicts
4. Critical Components
5. Test Results
6. National Differences
7. Enclosures

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

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Test Report By:



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## SPECIFIC INSPECTION CRITERIA

BA1.0	<b>Special Instructions to UL Representative</b>
BA1.1	N/A


BB1.0	<b>Supporting Documentation</b>
BB1.1	<p>The following documents located at the beginning of this Procedure supplement the requirements of this Test Report:</p> <p>A. Authorization - The Authorization page may include additional Factory Identification Code markings.</p> <p>B. Generic Inspection Instructions -</p> <ol style="list-style-type: none"> <li>i. Part AC details important information which may be applicable to products covered by this Procedure. Products described in this Test Report must comply with any applicable items listed unless otherwise stated in the body of this Test Report.</li> <li>ii. Part AE details any requirements which may be applicable to all products covered by this Procedure. Products described in this Test Report must comply with any applicable items listed unless otherwise stated in the body of each Test Report.</li> <li>iii. Part AF details the requirements for the UL Certification Mark which is not controlled by the technical standard used to investigate these products. Products are permitted to bear only the Certification Mark(s) corresponding to the countries for which it is certified, as indicated in each Test Report.</li> </ol>

BC1.0	<b>Markings and instructions</b>	
BC1.1	The following markings and instructions are provided as indicated.	
BC1.2	All clause references are from UL 60950-1, 1st Edition, 2006-07-07 (Information Technology Equipment - Safety - Part 1: General Requirements).	
Standard Clause	Clause Title	Marking or Instruction Details
1.7.1	Power rating - Ratings	Ratings (voltage, frequency/dc, current)
	Power rating - Model	Model Number
	Power rating - Company identification	Listee's or Recognized company's name, Trade Name, Trademark or File Number
1.7.8.3	Symbols - Stand-by switch	"Stand-by" to be indicated by  (60417-2-IEC-5009)
1.7.15	Replaceable batteries	"CAUTION: Risk of Explosion if Battery is replaced by an Incorrect Type. Dispose of Used Batteries According to the Instructions."

BD1.0	<b>Production-Line Testing Requirements</b>						
BD1.1	Electric Strength Test Special Constructions - Refer to Generic Inspection Instructions, Part AC for further information.						
	Model	Component	Removable Parts	Test probe location	Test Potential		Test Time, s
	V rms		V dc				
	N/A						
BD1.2	Earthing Continuity Test Exemptions - This test is not required for the following models:						
BD1.3	Electric Strength Test Exemptions - This test is not required for the following models:						
BD1.4	Electric Strength Test Component Exemptions - The following solid-state components may disconnected from the remainder of the circuitry during the performance of this test:						

BE1.0	<b>Sample and Test Specifics for Follow-Up Tests at UL</b>					
BE1.1	Model	Component	Material	Test	Sample(s)	Test Specifics
	N/A					

## SPECIFIC TECHNICAL CRITERIA

<b>UL 60950-1, First Edition Information technology equipment - Safety- Part 1: General Requirements</b>	
Report Reference No .....	E142692-A138-UL-1
Compiled by .....	Kevin Hsu
Reviewed by .....	Leslies Shih
Date of issue .....	2007-11-06
Standards .....	UL 60950-1, 1st Edition, 2006-07-07 (Information Technology Equipment - Safety - Part 1: General Requirements) CSA C22.2 No. 60950-1-03, 1st Edition, 2006-07 (Information Technology Equipment - Safety - Part 1: General Requirements)
Test procedure .....	Listing
Non-standard test method .....	N/A
<b>Test item</b> description .....	Notebook Computer (OLPC)
Trademark .....	OLPC
	
Model and/or type reference .....	XO-1
Rating(s) .....	12 Vdc, 1.42 A

<b>Particulars: test item vs. test requirements</b>	
Equipment mobility .....	transportable
Operating condition .....	continuous
Mains supply tolerance (%) .....	No direct connection
Tested for IT power systems .....	No
IT testing, phase-phase voltage (V) .....	N/A
Class of equipment .....	Class III (supplied by SELV)
Mass of equipment (kg) .....	1.49 (max.)
Protection against ingress of water .....	IP 20

<b>Possible test case verdicts:</b>	
- test case does not apply to the test object .....	N / A
- test object does meet the requirement .....	Pass
- test object does not meet the requirement .....	Fail (acceptable only if a corresponding, less stringent national requirement is "Pass")

**General remarks:**

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

<b>GENERAL PRODUCT INFORMATION:</b>	
CA1.0	<b>Report Summary</b>
CA1.1	N/A
CB1.0	<b>Product Description</b>
CB1.1	<p>Electronic components are mounted on PWB, which is enclosed by plastic enclosure and accompanied with three USB ports, one Card Reader.</p> <p>The OLPC XO is a laptop computer system consisting of a (a) laptop computer, (b) direct-plug in power supply (power adapter) and (c) removable battery pack. The OLPC XO is intended for use as a child development tool primarily by children five years of age and older. In addition to IEC 60950-1, CSA/UL 60950-1 and EN 60950-1, applicable parts of ASTM F 963, 2007 Edition, Standard Consumer Safety Specification on Toy Safety, were applied to address use of the product by the intended user group.</p>
CC1.0	<b>Model Differences</b>
CC1.1	N/A
CD1.0	<b>Additional Information</b>
CD1.1	N/A
CE1.0	<b>Technical Considerations</b>
CE1.2	The product was submitted and tested for use at the maximum ambient temperature (T <sub>ma</sub> ) permitted by the manufacturer's specification of: 45°C
CE1.7	The product was investigated to the following additional standards: 1. EN 60950-1:2001 (which includes all European national differences, including those specified in this test report)., 2. UL Standard for Safety for Electric Toys, UL 696, Ninth Edition, Dated March 15, 1996, Revisions: This Standard contains revisions through and including June 12, 2006., 3. ASTM F963, 2007 Edition, Standard Consumer Safety Specification on Toy Safety.
CE1.9	The following circuit locations (with circuit/schematic designation) were investigated as a limited power source (LPS): All USB ports.
CE2.0	Technical Considerations - Engineering Considerations: The OLPC XO is a laptop computer system consisting of a (a) laptop computer, (b) direct-plug in power supply (power adapter) and (c) removable battery pack. The OLPC XO is intended for use as a child development tool primarily by children five years of age and older. In addition to IEC 60950-1, CSA/UL 60950-1 and EN 60950-1, applicable parts of ASTM F 963, 2007 Edition, Standard Consumer Safety Specification on Toy Safety, were applied to address use of the product by the intended user group.

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

1	<b>GENERAL</b>		Pass
1.5	Components		Pass
1.5.1	General		Pass
	Comply with IEC 60950 or relevant component standard	(see appended table 1.5.1)	Pass
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 exist, have been tested under the conditions occurring in the equipment, using applicable parts of IEC 60950-1.	Pass
1.5.3	Thermal controls		N/A
1.5.4	Transformers		N/A
1.5.5	Interconnecting cables	Interconnecting cables comply with the relevant requirements of this standard.	Pass
1.5.6	Capacitors in primary circuits .....		N/A
1.5.7	Double insulation or reinforced insulation bridged by components	Class III product.	N/A
1.5.7.1	General		N/A
1.5.7.2	Bridging capacitors		N/A
1.5.7.3	Bridging resistors		N/A
1.5.7.4	Accessible parts		N/A
1.5.8	Components in equipment for IT power systems		N/A

1.6	<b>Power interface</b>		Pass
1.6.1	AC power distribution systems		N/A



IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.6.2	Input current	(see appended table 1.6.2)	Pass
1.6.3	Voltage limit of hand-held equipment	The unit is not a hand-held equipment.	N/A
1.6.4	Neutral conductor	No AC mains direct connection.	N/A

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.7	<b>Marking and instructions</b>		Pass
1.7.1	Power rating	The unit did not provided with means for connection to mains.	Pass
	Rated voltage(s) or voltage range(s) (V) .....	Optional provided, 12 V dc	Pass
	Symbol for nature of supply, for d.c. only .....	IEC 60417 No. 5031 provided on marking label (Optional).	Pass
	Rated frequency or rated frequency range (Hz).....		N/A
	Rated current (mA or A) .....	Optional provided, 1.42 A	Pass
	Manufacturer's name or trademark or identification mark.....	Quanta computer Inc., or OLPC	Pass
	Type/model or type reference .....	Refer to the Model information at the beginning of this Test Report.	Pass
	Symbol for Class II equipment only .....		N/A
	Other symbols .....	Additional symbols may be provided when submitted for national Approval.	Pass
	Certification marks.....	UL, C-UL.	Pass
1.7.2	Safety instructions	Operating/safety instructions made available to the user.	Pass
1.7.3	Short duty cycles		N/A
1.7.4	Supply voltage adjustment .....	Equipment is designed for single voltage operation.	N/A
1.7.5	Power outlets on the equipment.....	No standard power outlets are provided.	N/A
1.7.6	Fuse identification.....		N/A
1.7.7	Wiring terminals		N/A
1.7.7.1	Protective earthing and bonding terminals .....		N/A
1.7.7.2	Terminal for a.c. mains supply conductors		N/A
1.7.7.3	Terminals for d.c. mains supply conductors		N/A
1.7.8	Controls and indicators		Pass
1.7.8.1	Identification, location and marking .....		N/A
1.7.8.2	Colours .....	Controls are only functional and clearly do not involve safety.	Pass

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.7.8.3	Symbols according to IEC 60417 .....	The stand-by switch is marked with the correct symbol according to 60417-1-IEC-5009.	Pass
1.7.8.4	Markings using figures.....	Figures are not used for indicating different positions of controls.	Pass
1.7.9	Isolation of multiple power sources .....		N/A
1.7.10	IT power distribution systems		N/A
1.7.11	Thermostats and other regulating devices		N/A
1.7.12	Language.....	May be provided in other languages upon request from the manufacturer. Reviewed only English markings/instructions.	-
1.7.13	Durability	All markings provided on UL Recognized Component labels suitable for surface they are applied upon and meet the durability test.	Pass
1.7.14	Removable parts	No marking is located on removable part(s).	Pass
1.7.15	Replaceable batteries	The required warning is in the service manual.	Pass
	Language.....	May be provided in other languages upon request from the manufacturer. Reviewed only English markings/instructions.	-
1.7.16	Operator access with a tool .....	No operator access areas require the use of a tool.	Pass
1.7.17	Equipment for restricted access locations .....		N/A

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

2	<b>PROTECTION FROM HAZARDS</b>		Pass
2.1	Protection from electric shock and energy hazards		Pass
2.1.1	Protection in operator access areas	All access bare parts are SELV and no bare TNV Circuit.	Pass
2.1.1.1	Access to energized parts	No OPERATOR access to energized parts	Pass
	Test by inspection..... :	The operator has access to bare parts of SELV CIRCUITS.	Pass
	Test with test finger..... :	The test finger was unable to contact bare hazardous parts, basic insulation, or ELV circuits.	Pass
	Test with test pin..... :	The test pin was unable to contact bare hazardous parts.	Pass
	Test with test probe ..... :		N/A
2.1.1.2	Battery compartments..... :		N/A
2.1.1.3	Access to ELV wiring		N/A
	Working voltage (V); minimum distance (mm) through insulation ..... :		-
2.1.1.4	Access to hazardous voltage circuit wiring		N/A
2.1.1.5	Energy hazards..... :	There are no hazardous energy levels in this product.	Pass
2.1.1.6	Manual controls		N/A
2.1.1.7	Discharge of capacitors in equipment		N/A
	Time-constant (s); measured voltage (V) ..... :		-
2.1.2	Protection in service access areas		N/A
2.1.3	Protection in restricted access locations		N/A

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

2.2	<b>SELV circuits</b>		Pass
2.2.1	General requirements	Class III unit.	Pass
2.2.2	Voltages under normal conditions (V) .....	All accessible voltages are less than 42.4 Vp or 60 V dc and are classified as SELV.	Pass
2.2.3	Voltages under fault conditions (V).....		N/A
2.2.3.1	Separation by double insulation or reinforced insulation (method 1)		N/A
2.2.3.2	Separation by earthed screen (method 2)		N/A
2.2.3.3	Protection by earthing of the SELV circuit (method 3)		N/A
2.2.4	Connection of SELV circuits to other circuits.....	SELV circuits are only connected to other secondary circuits.	Pass

2.3	<b>TNV circuits</b>		N/A
2.3.1	Limits		N/A
	Type of TNV circuits .....		-
2.3.2	Separation from other circuits and from accessible parts		N/A
	Insulation employed.....		-
2.3.3	Separation from hazardous voltages		N/A
	Insulation employed.....		-
2.3.4	Connection of TNV circuits to other circuits		N/A
	Insulation employed.....		-
2.3.5	Test for operating voltages generated externally		N/A

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

2.4	<b>Limited current circuits</b>		N/A
2.4.1	General requirements		N/A
2.4.2	Limit values		N/A
	Frequency (Hz) .....		-
	Measured current (mA).....		-
	Measured voltage (V) .....		-
	Measured capacitance (mF) .....		-
2.4.3	Connection of limited current circuits to other circuits		N/A

2.5	<b>Limited power sources</b>		Pass
	Inherently limited output		N/A
	Impedance limited output		N/A
	Overcurrent protective device limited output		N/A
	Regulating network limited output under normal operating and single fault condition	See Table 1.5.1 for IC U56 specifications.	Pass
	Regulating network limited output under normal operating conditions and overcurrent protective device limited output under single fault condition		N/A
	Output voltage (V), output current (A), apparent power (VA):.....	The USB (CN4, CN5, CN7) outputs complied with the limited power source requirements 1. USB(CN4, CN5, CN7) three ports are used one IC U56 to protector. Max. Uoc = 4.9 V Max. Isc = 1.3 A Max. VA = 5.4VA  2. USB CN4 as representative connector, IC U56 (pin 2, 3 to pin 6,7 short) Max. Uoc = 4.94 V Max. Isc = 1.9 A Max. VA = 8.4VA	-
	Current rating of overcurrent protective device (A):	--	-

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

2.6	<b>Provisions for earthing and bonding</b>		N/A
2.6.1	Protective earthing	Class III unit.	N/A
2.6.2	Functional earthing		N/A
2.6.3	Protective earthing and protective bonding conductors		N/A
2.6.3.1	General		N/A
2.6.3.2	Size of protective earthing conductors		N/A
	Rated current (A), cross-sectional area (mm <sup>2</sup> ), AWG .....		-
2.6.3.3	Size of protective bonding conductors		N/A
	Rated current (A), cross-sectional area (mm <sup>2</sup> ), AWG .....		-
2.6.3.4	Resistance (Ohm) of earthing conductors and their terminations, test current (A) .....		N/A
2.6.3.5	Colour of insulation .....		N/A
2.6.4	Terminals		N/A
2.6.4.1	General		N/A
2.6.4.2	Protective earthing and bonding terminals		N/A
	Rated current (A), type and nominal thread diameter (mm) .....		-
2.6.4.3	Separation of the protective earthing conductor from protective bonding conductors		N/A
2.6.5	Integrity of protective earthing		N/A
2.6.5.1	Interconnection of equipment		N/A
2.6.5.2	Components in protective earthing conductors and protective bonding conductors		N/A
2.6.5.3	Disconnection of protective earth		N/A
2.6.5.4	Parts that can be removed by an operator		N/A
2.6.5.5	Parts removed during servicing		N/A
2.6.5.6	Corrosion resistance		N/A
2.6.5.7	Screws for protective bonding		N/A
2.6.5.8	Reliance on telecommunication network or cable distribution system		N/A

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

2.7	<b>Overcurrent and earth fault protection in primary circuits</b>		N/A
2.7.1	Basic requirements	Class III unit.	N/A
	Instructions when protection relies on building installation		N/A
2.7.2	Faults not covered in 5.3		N/A
2.7.3	Short-circuit backup protection		N/A
2.7.4	Number and location of protective devices..... :		N/A
2.7.5	Protection by several devices		N/A
2.7.6	Warning to service personnel ..... :		N/A

2.8	<b>Safety interlocks</b>		N/A
2.8.1	General principles	Class III unit.	N/A
2.8.2	Protection requirements		N/A
2.8.3	Inadvertent reactivation		N/A
2.8.4	Fail-safe operation		N/A
2.8.5	Moving parts		N/A
2.8.6	Overriding		N/A
2.8.7	Switches and relays		N/A
2.8.7.1	Contact gaps (mm) ..... :		N/A
2.8.7.2	Overload test		N/A
2.8.7.3	Endurance test		N/A
2.8.7.4	Electric strength test		N/A
2.8.8	Mechanical actuators		N/A



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

2.9	<b>Electrical insulation</b>		Pass
2.9.1	Properties of insulating materials	Natural rubber, materials containing asbestos and hygroscopic materials are not used as insulation.	Pass
2.9.2	Humidity conditioning		N/A
	Humidity (%) .....		-
	Temperature (°C).....		-
2.9.3	Grade of insulation	Functional insulation.	N/A

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

2.10	<b>Clearances, creepage distances and distances through insulation</b>		Pass
2.10.1	General	Pollution Degree 2 applicable.	Pass
2.10.2	Determination of working voltage	Evaluated during separate certification of the power supply.	N/A
2.10.3	Clearances	See below.	Pass
2.10.3.1	General	- FUNCTIONAL INSULATION complied with Sub-clause 5.3.4. (see appended table 2.10.3 and 2.10.3.4)	Pass
2.10.3.2	Clearances in primary circuit	Evaluated as part of power supply unit.	N/A
2.10.3.3	Clearances in secondary circuits	See 5.3.4 and appended tables 2.10.3 & 2.10.4 for details.	Pass
2.10.3.4	Measurement of transient voltage levels		N/A
2.10.4	Creepage distances	See appended table 2.10.3 & 2.10.4	Pass
	CTI tests..... :	Material group IIIb assumed; 100 <= CTI < 175.	-
2.10.5	Solid insulation		N/A
2.10.5.1	Minimum distance through insulation		N/A
2.10.5.2	Thin sheet material		N/A
	Number of layers (pcs) ..... :		-
	Electric strength test ..... :		-
2.10.5.3	Printed boards		N/A
	Distance through insulation		N/A
	Electric strength test for thin sheet insulating material ..... :		-
	Number of layers (pcs) ..... :		N/A
2.10.5.4	Wound components		N/A
	Number of layers (pcs) ..... :		N/A
	Two wires in contact inside wound component; angle between 45° and 90° ..... :		N/A
2.10.6	Coated printed boards		N/A

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

2.10.6.1	General		N/A
2.10.6.2	Sample preparation and preliminary inspection		N/A
2.10.6.3	Thermal cycling		N/A
2.10.6.4	Thermal ageing (°C) ..... :		N/A
2.10.6.5	Electric strength test ..... :		-
2.10.6.6	Abrasion resistance test		N/A
	Electric strength test ..... :		-
2.10.7	Enclosed and sealed parts ..... :		N/A
	Temperature T1=T2 = Tma - Tamb +10K (°C)..... :		N/A
2.10.8	Spacings filled by insulating compound..... :		N/A
	Electric strength test ..... :		-
2.10.9	Component external terminations		N/A
2.10.10	Insulation with varying dimensions		N/A

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

3	<b>WIRING, CONNECTIONS AND SUPPLY</b>		Pass
3.1	General		Pass
3.1.1	Current rating and overcurrent protection	All wires/conductors possess adequate cross-sectional areas for their intended application and Internal wiring are adequately insulated.	Pass
3.1.2	Protection against mechanical damage	The wires are routed away from sharp edges and parts which could damage insulation.	Pass
3.1.3	Securing of internal wiring	The wires are positioned in such a manner that prevents excessive strain, loosening of terminal connections and damage of conductor insulation	Pass
3.1.4	Insulation of conductors	The insulation of the individual conductors is suitable for the application and the working voltage. For the insulation material see 3.1.1.	Pass
3.1.5	Beads and ceramic insulators		N/A
3.1.6	Screws for electrical contact pressure		N/A
3.1.7	Insulating materials in electrical connections		N/A
3.1.8	Self-tapping and spaced thread screws		N/A
3.1.9	Termination of conductors		N/A
	10 N pull test		N/A
3.1.10	Sleeving on wiring		N/A

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

3.2	<b>Connection to an a.c. mains supply or a d.c. mains supply</b>		N/A
3.2.1	Means of connection	Class III unit.	N/A
3.2.1.1	Connection to an a.c. mains supply		N/A
3.2.1.2	Connection to a d.c. mains supply		N/A
3.2.2	Multiple supply connections		N/A
3.2.3	Permanently connected equipment		N/A
	Number of conductors, diameter (mm) of cable and conduits..... :		-
3.2.4	Appliance inlets		N/A
3.2.5	Power supply cords		N/A
3.2.5.1	AC power supply cords		N/A
	Type..... :		-
	Rated current (A), cross-sectional area (mm <sup>2</sup> ), AWG..... :		-
3.2.5.2	DC power supply cords		N/A
3.2.6	Cord anchorages and strain relief		N/A
	Mass of equipment (kg), pull (N)..... :		-
	Longitudinal displacement (mm)..... :		-
3.2.7	Protection against mechanical damage		N/A
3.2.8	Cord guards		N/A
	D (mm); test mass (g)..... :		-
	Radius of curvature of cord (mm)..... :		-
3.2.9	Supply wiring space		N/A

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

3.3	<b>Wiring terminals for connection of external conductors</b>		N/A
3.3.1	Wiring terminals	Class III product	N/A
3.3.2	Connection of non-detachable power supply cords		N/A
3.3.3	Screw terminals		N/A
3.3.4	Conductor sizes to be connected		N/A
	Rated current (A), cord/cable type, cross-sectional area (mm <sup>2</sup> ) .....		-
3.3.5	Wiring terminal sizes		N/A
	Rated current (A), type and nominal thread diameter (mm) .....		-
3.3.6	Wiring terminals design		N/A
3.3.7	Grouping of wiring terminals		N/A
3.3.8	Stranded wire		N/A

3.4	<b>Disconnection from the mains supply</b>		N/A
3.4.1	General requirement		N/A
3.4.2	Disconnect devices		N/A
3.4.3	Permanently connected equipment		N/A
3.4.4	Parts which remain energized		N/A
3.4.5	Switches in flexible cords		N/A
3.4.6	Single-phase equipment and d.c. equipment		N/A
3.4.7	Three-phase equipment		N/A
3.4.8	Switches as disconnect devices		N/A
3.4.9	Plugs as disconnect devices		N/A
3.4.10	Interconnected equipment		N/A
3.4.11	Multiple power sources		N/A

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

3.5	<b>Interconnection of equipment</b>		Pass
3.5.1	General requirements		Pass
3.5.2	Types of interconnection circuits .....	Interconnection circuits are SELV CIRCUITS.	Pass
3.5.3	ELV circuits as interconnection circuits		N/A

4	<b>PHYSICAL REQUIREMENTS</b>		Pass
4.1	Stability		N/A
	Angle of 10°	Based on construction, the test was deemed not necessary.	N/A
	Test: force (N) .....		N/A

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

4.2	<b>Mechanical strength</b>		N/A
4.2.1	General		N/A
4.2.2	Steady force test, 10 N		N/A
4.2.3	Steady force test, 30 N		N/A
4.2.4	Steady force test, 250 N		N/A
4.2.5	Impact test		N/A
	Fall test		N/A
	Swing test		N/A
4.2.6	Drop test	No hazardous parts or in the reduction of CREEPAGE DISTANCES or CLEARANCES within subject unit.	N/A
4.2.7	Stress relief test	No hazardous parts or in the reduction of CREEPAGE DISTANCES or CLEARANCES within subject unit.	N/A
4.2.8	Cathode ray tubes	The equipment does not have any CRT's	N/A
	Picture tube separately certified ..... :		N/A
4.2.9	High pressure lamps		N/A
4.2.10	Wall or ceiling mounted equipment; force (N) ..... :		N/A



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Clause	Requirement + Test	Result - Remark	Verdict

4.3	<b>Design and construction</b>		Pass
4.3.1	Edges and corners	All edges and corners are judged to be sufficiently well rounded so as not to constitute a hazard.	Pass
4.3.2	Handles and manual controls; force (N) .....	No hazardous parts or in the reduction of CREEPAGE DISTANCES or CLEARANCES within subject unit.	N/A
4.3.3	Adjustable controls	The equipment does not have a voltage selector.	N/A
4.3.4	Securing of parts	No loosening of parts impairing creepage distances or clearances over supplementary or reinforced insulation is likely to occur.	Pass
4.3.5	Connection of plugs and sockets		N/A
4.3.6	Direct plug-in equipment	Not direct plug-in equipment.	N/A
	Dimensions (mm) of mains plug for direct plug-in . :		N/A
	Torque and pull test of mains plug for direct plug-in; torque (Nm); pull (N) .....		N/A
4.3.7	Heating elements in earthed equipment		N/A
4.3.8	Batteries	Battery is protected against charging current by multiple components. See Critical Components List.  Rechargeable RTC battery, Type ML1220 is protected against abnormal charging current by shorted components Q33(Pin2-3) and R275(1K ohm). (See table 5.3 for detail)	Pass
4.3.9	Oil and grease		N/A
4.3.10	Dust, powders, liquids and gases		N/A
4.3.11	Containers for liquids or gases		N/A
4.3.12	Flammable liquids.....		N/A
	Quantity of liquid (l).....		N/A

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

	Flash point (°C)..... :		N/A
4.3.13	Radiation; type of radiation	The equipment does not generate ionizing radiation or contain flammable liquids or gases.	N/A
4.3.13.1	General		N/A
4.3.13.2	Ionizing radiation		N/A
	Measured radiation (pA/kg) ..... :		-
	Measured high-voltage (kV)..... :		-
	Measured focus voltage (kV) ..... :		-
	CRT markings..... :		-
4.3.13.3	Effect of ultraviolet (UV) radiation on materials		N/A
	Part, property, retention after test, flammability classification ..... :		N/A
4.3.13.4	Human exposure to ultraviolet (UV) radiation..... :		N/A
4.3.13.5	Laser (including LEDs)		N/A
	Laser class..... :		-
4.3.13.6	Other types ..... :		N/A

4.4	<b>Protection against hazardous moving parts</b>		N/A
4.4.1	General		N/A
4.4.2	Protection in operator access areas		N/A
4.4.3	Protection in restricted access locations		N/A
4.4.4	Protection in service access areas		N/A

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

4.5	<b>Thermal requirements</b>		Pass
4.5.1	Maximum temperatures	Operated in the most unfavorable way of operation given in the operating instructions until steady conditions established. (see appended table 4.5)	Pass
	Normal load condition per Annex L .....	Operated in the most unfavorable way of operation given in the operating instructions until steady conditions established.	Pass
4.5.2	Resistance to abnormal heat		N/A

4.6	<b>Openings in enclosures</b>		Pass
4.6.1	Top and side openings		Pass
	Dimensions (mm)..... :	No openings.	-
4.6.2	Bottoms of fire enclosures		Pass
	Construction of the bottom..... :	No openings.	-
4.6.3	Doors or covers in fire enclosures		N/A
4.6.4	Openings in transportable equipment		N/A
4.6.5	Adhesives for constructional purposes		N/A
	Conditioning temperature (°C)/time (weeks) .....		-

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

4.7	<b>Resistance to fire</b>		Pass
4.7.1	Reducing the risk of ignition and spread of flame	Method 1: Selection and application of components and materials which minimize the possibility of ignition and spread of flame.	Pass
	Method 1, selection and application of components wiring and materials		Pass
	Method 2, application of all of simulated fault condition tests		N/A
4.7.2	Conditions for a fire enclosure		Pass
4.7.2.1	Parts requiring a fire enclosure	A fire enclosure covers all parts.	Pass
4.7.2.2	Parts not requiring a fire enclosure		N/A
4.7.3	Materials		Pass
4.7.3.1	General	See below.	Pass
4.7.3.2	Materials for fire enclosures	Equipment is transportable with mass less than 18 kg. Fire enclosure material is V-1 minimum.	Pass
4.7.3.3	Materials for components and other parts outside fire enclosures	Fire enclosure covers all parts.	Pass
4.7.3.4	Materials for components and other parts inside fire enclosures	PWB are rated minimum V-1 and internal plastics are rated minimum V-2	Pass
4.7.3.5	Materials for air filter assemblies		N/A
4.7.3.6	Materials used in high-voltage components		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

5	<b>ELECTRICAL REQUIREMENTS AND SIMULATED ABNORMAL CONDITIONS</b>		Pass
5.1	Touch current and protective conductor current		N/A
5.1.1	General		N/A
5.1.2	Equipment under test (EUT)		N/A
5.1.3	Test circuit		N/A
5.1.4	Application of measuring instrument		N/A
5.1.5	Test procedure		N/A
5.1.6	Test measurements		N/A
	Test voltage (V) ..... :		-
	Measured touch current (mA) ..... :		-
	Max. allowed touch current (mA) ..... :		-
	Measured protective conductor current (mA) ..... :		-
	Max. allowed protective conductor current (mA) ... :		-
5.1.7	Equipment with touch current exceeding 3.5 mA .. :		N/A
5.1.8	Touch currents to and from telecommunication networks and cable distribution systems and from telecommunication networks	No telecommunication networks and cable distribution systems.	N/A
5.1.8.1	Limitation of the touch current to a telecommunication network and a cable distribution system		N/A
	Test voltage (V) ..... :		-
	Measured touch current (mA) ..... :		-
	Max. allowed touch current (mA) ..... :		-
5.1.8.2	Summation of touch currents from telecommunication networks ..... :		N/A

5.2	<b>Electric strength</b>		N/A
5.2.1	General		N/A
5.2.2	Test procedure		N/A

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

5.3	<b>Abnormal operating and fault conditions</b>		Pass
5.3.1	Protection against overload and abnormal operation		N/A
5.3.2	Motors		N/A
5.3.3	Transformers		N/A
5.3.4	Functional insulation .....	Functional insulation complies with the requirements (c).	Pass
5.3.5	Electromechanical components	The equipment does not have any electromechanical components in the secondary.	N/A
5.3.6	Simulation of faults	Connectors overloaded.	Pass
5.3.7	Unattended equipment		N/A
5.3.8	Compliance criteria for abnormal operating and fault conditions	No fire, emission of molten metal or deformation was noted during the tests.	Pass

6	<b>CONNECTION TO TELECOMMUNICATION NETWORKS</b>		N/A
6.1	Protection of telecommunication network service persons, and users of other equipment connected to the network, from hazards in the equipment		N/A
6.1.1	Protection from hazardous voltages		N/A
6.1.2	Separation of the telecommunication network from earth		N/A
6.1.2.1	Requirements		N/A
	Test voltage (V) .....		-
	Current in the test circuit (mA) .....		-
6.1.2.2	Exclusions.....		N/A

6.2	<b>Protection of equipment users from overvoltages on telecommunication networks</b>		N/A
6.2.1	Separation requirements		N/A
6.2.2	Electric strength test procedure		N/A
6.2.2.1	Impulse test		N/A
6.2.2.2	Steady-state test		N/A
6.2.2.3	Compliance criteria		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

6.3	<b>Protection of the telecommunication wiring system from overheating</b>		N/A
	Max. output current (A) .....		-
	Current limiting method.....		-

7	<b>CONNECTION TO CABLE DISTRIBUTION SYSTEMS</b>		N/A
7.1	Protection of cable distribution system service persons, and users of other equipment connected to the system, from hazardous voltages in the equipment		N/A
7.2	Protection of equipment users from overvoltages on the cable distribution system		N/A
7.3	Insulation between primary circuits and cable distribution systems		N/A
7.3.1	General		N/A
7.3.2	Voltage surge test		N/A
7.3.3	Impulse test		N/A

A	<b>Annex A, TESTS FOR RESISTANCE TO HEAT AND FIRE</b>		N/A
A.1	Flammability test for fire enclosures of movable equipment having a total mass exceeding 18 kg, and of stationary equipment (see 4.7.3.2)		N/A
A.1.1	Samples .....		-
	Wall thickness (mm) .....		-
A.1.2	Conditioning of samples; temperature (°C) .....		N/A
A.1.3	Mounting of samples.....		N/A
A.1.4	Test flame		N/A
A.1.5	Test procedure		N/A
A.1.6	Compliance criteria		N/A
	Sample 1 burning time (s).....		-
	Sample 2 burning time (s).....		-
	Sample 3 burning time (s).....		-

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Clause	Requirement + Test	Result - Remark	Verdict

A.2	<b>Flammability test for fire enclosures of movable equipment having a total mass not exceeding 18 kg, and for material and components located inside fire enclosures (see 4.7.3.2 and 4.7.3.4)</b>		N/A
A.2.1	Samples, material .....		-
	Wall thickness (mm) .....		-
A.2.2	Conditioning of samples		N/A
A.2.3	Mounting of samples		N/A
A.2.4	Test flame		N/A
A.2.5	Test procedure		N/A
A.2.6	Compliance criteria		N/A
	Sample 1 burning time (s).....		-
	Sample 2 burning time (s).....		-
	Sample 3 burning time (s).....		-
A.2.7	Alternative test acc. to IEC 60695-2-2, cl. 4, 8		N/A
	Sample 1 burning time (s).....		-
	Sample 2 burning time (s).....		-
	Sample 3 burning time (s).....		-

A.3	<b>Hot flaming oil test (see 4.6.2)</b>		N/A
A.3.1	Mounting of samples		N/A
A.3.2	Test procedure		N/A
A.3.3	Compliance criterion		N/A



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Clause	Requirement + Test	Result - Remark	Verdict

B	<b>Annex B, MOTOR TESTS UNDER ABNORMAL CONDITIONS(see 4.7.2.2 and 5.3.2)</b>		N/A
B.1	General requirements		N/A
	Position .....		-
	Manufacturer.....		-
	Type .....		-
	Rated values.....		-
B.2	Test conditions		N/A
B.3	Maximum temperatures		N/A
B.4	Running overload test		N/A
B.5	Locked-rotor overload test		N/A
	Test duration (days).....		-
	Electric strength test: test voltage (V).....		-
B.6	Running overload test for d.c. motors in secondary circuits		N/A
B.7	Locked-rotor overload test for d.c. motors in secondary circuits		N/A
B.7.1	Test procedure		N/A
B.7.2	Alternative test procedure; test time (h).....		N/A
B.7.3	Electric strength test		N/A
B.8	Test for motors with capacitors		N/A
B.9	Test for three-phase motors		N/A
B.10	Test for series motors		N/A
	Operating voltage (V).....		-

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Clause	Requirement + Test	Result - Remark	Verdict

C	<b>Annex C, TRANSFORMERS (see 1.5.4 and 5.3.3)</b>		N/A
	Position .....		-
	Manufacturer.....		-
	Type.....		-
	Rated values.....		-
	Method of protection .....		-
C.1	Overload test		N/A
C.2	Insulation		N/A
	Protection from displacement of windings.....		N/A

D	<b>Annex D, MEASURING INSTRUMENTS FOR TOUCH-CURRENT TESTS</b>		N/A
D.1	Measuring instrument		N/A
D.2	Alternative measuring instrument		N/A

E	<b>Annex E, TEMPERATURE RISE OF A WINDING</b>		N/A
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F	<b>Annex F, MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES (see 2.10)</b>		Pass
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Clause	Requirement + Test	Result - Remark	Verdict

<b>G</b>	<b>Annex G, ALTERNATIVE METHOD FOR DETERMINING MINIMUM CLEARANCES</b>		N/A
G.1	Summary of the procedure for determining minimum clearances		N/A
G.2	Determination of mains transient voltage (V)		N/A
G.2.1	AC mains supply		N/A
G.2.2	DC mains supply		N/A
G.3	Determination of telecommunication network transient voltage (V) :..... :		N/A
G.4	Determination of required withstand voltage (V) ... :		N/A
G.5	Measurement of transient levels (V)..... :		N/A
G.6	Determination of minimum clearances ..... :		N/A

<b>H</b>	<b>ANNEX H, IONIZING RADIATION (see 4.3.13)</b>		N/A
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<b>J</b>	<b>Annex J, TABLE OF ELECTROCHEMICAL POTENTIALS (see 2.6.5.6)</b>		N/A
	Metal used ..... :		-

<b>K</b>	<b>ANNEX K, THERMAL CONTROLS (see 1.5.3 and 5.3.7)</b>		N/A
K.1	Making and breaking capacity		N/A
K.2	Thermostat reliability; operating voltage (V) ..... :		N/A
K.3	Thermostat endurance test; operating voltage (V) :		N/A
K.4	Temperature limiter endurance; operating voltage (V) ..... :		N/A
K.5	Thermal cut-out reliability		N/A
K.6	Stability of operation		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

L	<b>Annex L, NORMAL LOAD CONDITIONS FOR SOME TYPES OF ELECTRICAL BUSINESS EQUIPMENT (see 1.2.2.1 and 4.5.1)</b>		Pass
L.1	Typewriters		N/A
L.2	Adding machines and cash registers		N/A
L.3	Erasers		N/A
L.4	Pencil sharpeners		N/A
L.5	Duplicators and copy machines		N/A
L.6	Motor-operated files		N/A
L.7	Other business equipment		Pass

M	<b>Annex M, CRITERIA FOR TELEPHONE RINGING SIGNALS (see 2.3.1)</b>		N/A
M.1	Introduction		N/A
M.2	Method A		N/A
M.3	Method B		N/A
M.3.1	Ringling signal		N/A
M.3.1.1	Frequency (Hz) .....		-
M.3.1.2	Voltage (V) .....		-
M.3.1.3	Cadence; time (s), voltage (V) .....		-
M.3.1.4	Single fault current (mA) .....		-
M.3.2	Tripping device and monitoring voltage .....		N/A
M.3.2.1	Conditions for use of a tripping device or a monitoring voltage		N/A
M.3.2.2	Tripping device		N/A
M.3.2.3	Monitoring voltage (V) .....		N/A

N	<b>Annex N, IMPULSE TEST GENERATORS (see 2.10.3.4, 6.2.2.1, 7.3.2 and clause G.5)</b>		N/A
N.1	ITU-T impulse test generators		N/A
N.2	IEC 60065 impulse test generator		N/A

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

P	<b>Annex P, NORMATIVE REFERENCES</b>		Pass
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Q	<b>Annex Q, BIBLIOGRAPHY</b>		Pass
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R	<b>Annex R, EXAMPLES OF REQUIREMENTS FOR QUALITY CONTROL PROGRAMMES</b>		N/A
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R.1	Minimum separation distances for unpopulated coated printed boards (see 2.10.6)		N/A
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R.2	Reduced clearances (see 2.10.3)		N/A
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S	<b>Annex S, PROCEDURE FOR IMPULSE TESTING (see 6.2.2.3)</b>		N/A
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S.1	Test equipment		N/A
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S.2	Test procedure		N/A
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S.3	Examples of waveforms during impulse testing		N/A
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T	<b>Annex T, GUIDANCE ON PROTECTION AGAINST INGRESS OF WATER (see 1.1.2)</b>		N/A
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U	<b>Annex U, INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION (see 2.10.5.4)</b>		N/A
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Clause	Requirement + Test	Result - Remark	Verdict

1.5.1	<b>TABLE: list of critical components</b>					Pass
Object/part No.	Manufacturer/ trademark	type/model	technical data	Product Category CCN(s)	Required Marks of Conformity	Supplement ID
01 Connectors and Receptacles (secondary ELV/SELV circuits)	--	Metal/Plastic	Copper alloy pins housed in bodies of plastic rated V-2 min.	QMFZ2, ECBT2, RTRT2	UL	
02 Insulating Tubing/Sleeving	Various	Various	FEP, PTFE, PVC, TFE, neoprene, polyimide or marked VW-1; 105 degree C, 300V.	UZFT2, YDPU2, YDTU2	UL	
03 Label	Various	Various	60 degree C if Max. surface temperature not specified	PGDQ2 or PGJ12	UL	7-03
04-01 Wiring, internal, secondary	Various	Various	FEP, PTFE, PVC, TFE, neoprene, polyimide or marked VW-1; min 30 V, 60 degree C, routed away from primary uninsulated live parts, and unless insulated for the highest voltage involved, from insulated primary circuit wiring	AVLV2	UL	
05 Internal Plastic Part Materials	Various	Various	Min. V-2	QMFZ2	UL	
06 Printed Wiring Board	Various	Various	V-1 min., rated min. 105 degree C	ZPMV2	UL	
07 Plastic Material of Flexible Printed Wiring	Various	Various	V-2 min. or VTM-2 min. when no components mounted on surface	QMFZ2 or QMTS2	UL	
08 Enclosure	GE Plastics Pacific	CY0156	V-0 or better, 1.5 mm min., 70 degree C, overall 231.0 x 244.0 x 32.8 (with LCD panel) or 231.0 x 244.0 x 22.0 (without LCD panel area)	QMFZ2	UL	3-06
09 Power Adaptor	PI Electronics (H.K.)	AD5953	INPUT: 100-240Vac 560mA	QQGQ	UL	

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Clause	Requirement + Test	Result - Remark	Verdict

	Ltd.		50/60Hz, OUTPUT: 12Vdc 1.417A.(Class II)			
09a Power Adaptor (Alternate)	Lite-On	PA-1150-05Q1	I/P: 100-240VAC, 0.5A, 50- 60HZ; O/P: 12V/1.42A(Class II)	QQGQ	UL	
09b Power Adaptor (Alternate)	Delta	ADP-17FB A	I/P: 100-240VAC, 0.8A, 50- 60HZ; O/P: 12V/1.42A(Class II)	QQGQ	UL	
10 Battery pack	BYD	CL1	6.5 V, 3,100 mAh (Li-ion)	NWGQ/7 BBFS	UL	
10a Battery pack (Alternate)	GP	NTA2488	6.0 V, 3,000 mAh (Ni-MH)	NWGQ/7 BBFS	UL	
11 Mother board (for model XO-1)	Quanta computer.	31CL1MB0060 Rev J	105 degree C	--	--	
11-1 Wireless LAN Card	Various	Various	3.3Vdc	--	--	
11-2 R.T.C. Battery	Hitachi Maxell Ltd.	ML1220	3V, 18 mAh rechargeable maximum abnormal charging current 10mA by multiple components Q33, D18 and R275 rated 1kohm	BBCV2	UL	
11-2a R.T.C. Battery (Alternate)	Matsushita Electric Industrial Co Ltd., Panasonic Corp Of North America.	ML1220	3V, 17 mAh rechargeable maximum abnormal charging current 10mA by multiple components Q33, D18 and R275 rated 1kohm	BBCV2	UL	
11-3. Protector IC U56 (for USB use)	RICHTEK	RT9703 series	2.0-5.5Vdc, 3.5A	--	--	
11-3 a Protector IC U56 (for USB use) (Alternate)	GMT	G5282 series	2.0-5.5Vdc, 1.0 A	--	--	
11-4 SELV connectors	Various	Various	three USB ports Connector	QMFZ2, ECBT2, RTRT2	UL	
12 Speakers	Various	Various	Rated 8 ohm, max. 1.0 Watt, max. two provided	--	--	3-12
13 Keyboard	Various	Various	Min. flame HB	QMFZ2	UL	
14 LCD panel	Various	Various	7.5" TFT-LCD type, LED	--	--	

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Clause	Requirement + Test	Result - Remark	Verdict

			backlight module.			
15 Printed wiring board, flexible	Various	Various	Min V-2 or VTM-2, 105 degree C	ZPMV2 ZPXK2	UL	



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Clause	Requirement + Test	Result - Remark	Verdict

1.6.2	TABLE: electrical data (in normal conditions)						Pass
fuse #	I rated (A)	U (V)	P (W)	I (mA)	I fuse (mA)	condition/status	
--	1.42	12Vdc	17.1	1420	1420	Maximum normal load with empty battery pack , A and D.	
--	1.42	12Vdc	17.2	1430	1430	Maximum normal load with empty battery pack , A and E.	
--	1.42	12Vdc	17.1	1420	1420	Maximum normal load with empty battery pack, B and D.	
--	1.42	12Vdc	17.1	1420	1420	Maximum normal load with empty battery pack , B and E.	
--	1.42	12Vdc	17.1	1420	1420	Maximum normal load with empty battery pack , C and D.	
--	1.42	12Vdc	17.1	1420	1420	Maximum normal load with empty battery pack , C and E.	
--	1.42	6.5Vdc	7.1	1090	1090	Maximum normal load with system discharge Battery pack power only D	
--	1.42	6 Vdc	6.9	1070	1070	Maximum normal load with system discharge Battery pack power only E	
supplementary information:							
Maximum Normal Load: The unit was installed fully discharged battery pack, playing software continuously, each USB ports load 2.5 W. Adaptor A. PI adaptor (Model AD5953LF) B. Delta adaptor (Model ADP-17FB A) C. Lite-on adaptor (Model PA-1150-05Q1) Battery pack model : D. BYD Battery Pack (Model CL1) E. GP Battery Pack (Model NTA2488)							

2.10.3 and 2.10.4	TABLE: clearance and creepage distance measurements						Pass
clearance cl and creepage distance dcr at/of:	Up (V)	U r.m.s. (V)	required cl (mm)	cl (mm)	required dcr (mm)	dcr (mm)	
--	--	--	--	-	--	--	
supplementary information:							
Only functional insulation required.							

2.10.5	TABLE: distance through insulation measurements				N/A
distance through insulation di at/of:	Up (V)	test voltage (V)	required di (mm)	di (mm)	
supplementary information:					

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Clause	Requirement + Test	Result - Remark	Verdict

--

4.5	<b>TABLE: temperature rise measurements</b>						Pass
	test voltage (V).....	See below	--	--	--	--	—
	t1 (°C).....	--	--	--	--	--	—
	t2 (°C).....	--	--	--	--	--	—
maximum temperature T of part/at:		T (°C)				allowed Tmax (°C)	
Normal Condition		Condition 1 (Original)	Condition 1 (Shift to 45)	Condition 2 (Original)	Condition 2 (Shift to 45)	--	--
1. Ambient		25	45	25	45	--	--
2. RTC battery		41	61	34	54	--	100
3. CPU near PWB		43	63	38	58	--	105
4. Enclosure inside, top section, near CPU		39	59	36	56	--	70
5. Outside enclosure, top section, near CPU		34	54	32	52	--	95
6. Outside enclosure, top section, front panel LCD		31	51	29	49	--	75
7. Outside enclosure, bottom section, near mouse control board		26	46	26	46	--	75
8. Outside enclosure, bottom surface, battery pack (BYD)		30	50	30	50	--	75
9. Outside enclosure, bottom surface, battery pack (GP)		27	47	29	49	--	75
10. Enclosure inside near T1 (Adaptor)		35	55	26	46	--	95
temperature T of winding:		R <sub>1</sub> (Ω)	R <sub>2</sub> (Ω)	T (°C)	allowed Tmax (°C)	insulation class	
--		--	--	--	--	--	
supplementary information:							
Test Condition 1: Maximum normal load 12 Vdc, Duration 15hrs.50mins. Test Condition 2: Discharge battery pack only, Duration 2hrs.50mins. Comments: The temperatures were measured under worst case normal mode defined in 1.2.2.1 load as described in 1.6.2 at voltages as described in 1.4.5. With max. ambient temperature specified as 45 degree C, the ore, the maximum temperature rise is calculated as follows: Components with: Max.temp.of 105 degree C(PWB) Max.temp.of 100 degree C(RTC)							
User accessible area:							

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

material is plastic 70 degree C (for Enclosure inside, top section, near CPU)  
 material is plastic 75 degree C (for Outside enclosure, top section, front panel LCD)  
 material is plastic 75 degree C (for Outside enclosure, bottom section, near mouse control board)  
 material is plastic 75 degree C (for Outside enclosure, bottom surface, battery pack (BYD)/ (GP))  
 material is plastic 95 degree C (for Enclosure inside near T1 (Adaptor))

4.5.2	TABLE: ball pressure test of thermoplastics			N/A
	allowed impression diameter (mm) .....			—
part	test temperature (°C)	impression diameter (mm)		
supplementary information:				

4.7	TABLE: resistance to fire				Pass
part	manufacturer of material	type of material	thickness(mm)	flammability class	
--	--	--	--	--	
supplementary information:					
Refer to Table 1.5.1 Critical component list.					

5.2	TABLE: electric strength tests, impulse tests and voltage surge tests			N/A
test voltage applied between:	test voltage (V) a.c./d.c.	breakdown Yes / No		
supplementary information:				

5.3	TABLE: fault condition tests			Pass
	ambient temperature (°C) .....	25 degree C		—
	model/type of power supply .....	(see appended table 1.5.1)		—
	manufacturer of power supply .....	(see appended table 1.5.1)		—
	rated markings of power supply .....	(see appended table 1.5.1)		—

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

component No.	fault	test voltage (V)	test time	fuse No.	fuse current (A)	result
--	--	--	--	--	UL60950-1 Clause 4.3.8	Battery Overcharge/Discharge Tests
Q33 (pin 1-3) (Overcharging Test,)	Short	12Vdc	14 hrs 30mins.	--	--	PA, PB, PC, No hazard., Ambient =29 degree C. Enclosure inside = 29 degree C
D18 D-S (Rapid Discharging Test)	Short	--	14 hrs 30mins.	--	--	PA, PB, PC, No hazard., Ambient =29 degree C. Enclosure inside = 29 degree C
--	--	--	--	--	--	4.3.8 Lithium battery reverse current measurement test
RTC battery reverse current test	Normal	12Vdc	--	--	--	Charging current is 0 mA
RTC battery reverse current test D18	Short	12Vdc	--	--	--	Charging current is 0.56 mA
RTC battery reverse current test Q33 (pin1-3)	Short	12Vdc	--	--	--	Charging current is 0 mA
RTC battery reverse current test Q33 (pin1-2)	Short	12Vdc	--	--	--	Charging current is 0 mA
RTC battery reverse current test R275	Short	12Vdc	--	--	--	Charging current is 0 mA
--	--	--	--	--	--	5.3.6 Overload of operator accessible connector test:
USB1 (CN7) pin1	Overload	12Vdc	1hrs	--	--	NC,NT Open circuit voltage=4.9Vdc Maximum available current =1210mA

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

USB1 (CN7) pin2~4	Overload	12Vdc	--	--	--	B Open circuit voltage=0Vdc Maximum available current =0mA
USB2 (CN6) pin1	Overload	12Vdc	1hrs	--	--	NC, NT, Open circuit voltage=4.9Vdc Maximum available current =1220mA
USB2 (CN6) pin2-4	Overload	12Vdc	--	--	--	B, Open circuit voltage=0Vdc ,Maximum available current =0mA
USB3 (CN4) pin1	Overload	12Vdc	1hrs	--	--	NC, NT, Open circuit voltage=4.9Vdc, Maximum available current =1210mA
USB4(CN4 ) pin2-4	Overload	12Vdc	--	--	--	B, Open circuit voltage=0Vdc, Maximum available current =0mA

supplementary information:

Comments Key: (BATTERY OVERCHARGE/ DISCHARGE TESTS) PA = There was no cracking, rupturing or bursting of the battery jacket that could result in user contact with battery electrolyte, PB = There was no explosion of the battery that could result in a risk of injury to persons, PC = There was no emission of flame or expulsion of molten metal outside the battery-operated product (COMPONENT FAILURE TEST; ABNORMAL OPERATION TEST; TRANSFORMER ABNORMAL OPERATION TEST) IP - Internal protection operated (list component), CT - Constant temperatures were obtained, CD - Components damaged (list damaged components), NT - Tissue paper remained intact, NC - Cheesecloth remained intact, (OVERLOAD OF OPERATOR ACCESSIBLE CONNECTOR TEST) B - Circuit measures 0 Volts.

**Enclosure**  
**National Differences**

**USA / Canada**

IEC 60950-1			
SubClause	Difference + Test	Result - Remark	Verdict

<b>USA / Canada - Differences to IEC 60950-1:2001, First Edition</b>			
1.1	Equipment able to be installed in accordance with the National Electrical Code ANSI/NFPA 70 and the Canadian Electrical Code, Part1, and when applicable, the National Electrical Safety Code, IEEE C2.		Pass
1.1.1	Equipment able to be installed in accordance with ANSI/NFPA 75 and NEC Art. 645 unless intended for use outside of computer room and provided with such instructions.		Pass
1.1.2	Equipment in wire-line communication facilities serving high-voltage electric power stations operating at greater than 1kV are excluded.		N/A
1.1.2	Special requirements apply to equipment intended for use outdoors.		N/A
1.4.14	For Pluggable Equipment Type A, the protection in the installation is assumed to be 20 A.		N/A
1.5.1	All IEC standards for components identified in Annex P.1 replaced by the relevant requirements of CSA and UL component standards in Annex P.1.		Pass
1.5.1	All IEC standards for components identified in Annex P.2 alternatively satisfied by the relevant requirements of CSA and UL component standards in Annex P.2.		Pass
1.5.5	Interconnecting cables acceptable for the application regarding voltage, current, temperature, flammability, mechanical serviceability and the like.		Pass
1.5.5	For other than limited power and TNV circuits, the type of output circuit identified for output connector.		N/A
1.5.5	External cable assemblies that exceed 3.05 m in length to be types specified in the NEC and CEC.		N/A
1.5.5	Detachable external interconnecting cables 3.05 m or less in length and provided with equipment marked to identify the responsible organization and the designation for the cable.		N/A
1.5.5	Building wiring and cable for use in ducts, plenums and other air handling space subject to special requirements and excluded from scope.		N/A
1.5.5	Telephone line and extension cords and the like comply with UL 1863 and CSA C22.2 No. 233.		N/A
1.6.1.2	Equipment intended for connection to a d.c. power (mains) distribution system is subject to special		N/A

IEC 60950-1			
SubClause	Difference + Test	Result - Remark	Verdict
	circuit classification requirements (e.g., TNV-2)		
1.6.1.2	Earthing of d.c. powered equipment provided.		N/A
1.7	Lamp replacement information indicated on lampholder in operator access area.		N/A
1.7.1	Special marking format for equipment intended for use on a supply system with an earthed neutral and more than one phase conductor.		N/A
1.7.1	Equipment voltage rating not higher than rating of the plug except under special conditions.		N/A
1.7.6	Special fuse replacement marking for operator accessible fuses.		N/A
1.7.7	Identification of terminal connection of the equipment earthing conductor.		N/A
1.7.7	Connectors and field wiring terminals for external Class 2 or Class 3 circuits provided with marking indicating minimum Class of wiring to be used.		N/A
1.7.7	Marking located adjacent to terminals and visible during wiring.		N/A
2.1.1	Screw shell of Edison-base lampholder tied to the neutral conductor.		N/A
2.1.1.1	Bare TNV conductive parts in the interior of equipment normally protected against contact by a cover intended for occasional removal are exempt provided instructions include directions for disconnection of TNV prior to removal of the cover.		N/A
2.3.1.b	Other telecommunication signaling systems (e.g., message waiting) than described in 2.3.1(b) are subject to M.4.		N/A
2.3.1.b	For TNV-2 and TNV-3 circuits with other than ringing signals and with voltages exceeding 42.4 Vp or 60 V d.c., the maximum current limit through a 2000 Ohm or greater resistor with loads disconnected is 7.1 mA peak or 30 mA d.c. under normal conditions.		N/A
2.3.1.b	Limits for measurements across 5000 ohm resistor in the event of a single fault are replaced after 200 ms with the limits of M.3.1.4.		N/A
2.3.2	Enamel coating on signal transformer winding wire allowed as an alternative to Basic insulation in specific telecommunication applications when subjected to special construction requirements and routine testing.		N/A



IEC 60950-1			
SubClause	Difference + Test	Result - Remark	Verdict
2.3.2	In the event of a single fault, the limits of 2.2.3 apply to SELV circuits and accessible conductive parts.		N/A
2.5	Overcurrent protection device required for Class 2 and Class 3 limiting in accordance with the NEC, or for a Limited Power Source, not interchangeable with devices of higher ratings if operator replaceable.		N/A
2.6	Equipment having receptacles for output a.c. power connectors generated from an internal separately derived source have the earthed (grounded) circuit conductor suitably bonded to earth.		N/A
2.6.3.3	For Pluggable Equipment Type A, if neither a) or b) are applicable, the current rating of the circuit is taken as 20 A.		N/A
2.6.3.4	Capacity of connection between earthing terminal and parts required to be earthed subject to special conditions based on the current rating of the circuit.		N/A
2.6.3.4	Protective bonding conductors and their terminals of non-standard constructions (e.g. PWB traces) evaluated to limited short-circuit test of CSA C22.2 No.0.4.		N/A
2.6.4.1	Field wiring terminals for earthing conductors suitable for wire sizes (gauge) used in US and Canada.		N/A
2.7.1	Data for selection of special external branch circuit overcurrent devices marked on the equipment.		N/A
2.7.1	Standard supply outlets protected by overcurrent device in accordance with the NEC, and CEC, Part 1.		N/A
2.7.1	Overcurrent protection for individual transformers that distribute power to other units over branch circuit wiring.		N/A
2.7.1	Additional requirements for overcurrent protection apply to equipment provided with panelboards.		N/A
2.7.1	Non-motor-operated equipment requiring special overcurrent protective device marked with device rating.		N/A
2.10.5.4	Multi-layer winding wire subject to UL component wire requirements in addition to 2.10.5.4 and Annex U.		N/A
3.1.1	Permissible combinations of internal wiring/external		Pass

IEC 60950-1			
SubClause	Difference + Test	Result - Remark	Verdict
	cable sizes for overcurrent and short circuit protection.		
3.1.1	All interconnecting cables protected against overcurrent and short circuit.		Pass
3.2	Wiring methods permit connection of equipment to primary power supply in accordance with the NEC and CEC, Part 1.		N/A
3.2.1	Permitted use for flexible cords and plugs.		N/A
3.2.1	Flexible cords provided with attachment plug rated 125% of equipment current rating.		N/A
3.2.1	Any Class II equipment provided with 15 or 20 A standard supply outlets, Edison-base lampholders or single pole disconnect device provided with a polarized type attachment plug.		N/A
3.2.1.2	Equipment intended for connection to DC mains supply power systems complies with special wiring requirements (e.g., no permanent connection to supply by flexible cord).		N/A
3.2.1.2	Equipment with one pole of the DC mains supply connected to both the equipment mains input terminal and the main protective earthing terminal provided with special instructions and construction provisions for earthing		N/A
3.2.1.2	Equipment with means for connecting supply to earthing electrode conductor has no switches or protective devices between supply connection and earthing electrode connection.		N/A
3.2.1.2	Special markings and instructions for equipment with provisions to connect earthed conductor of a DC supply circuit to earthing conductor at the equipment.		N/A
3.2.1.2	Special markings and instructions for equipment with earthed conductor of a DC supply circuit connected to the earthing conductor at the equipment.		N/A
3.2.1.2	Terminals and leads provided for permanent connection of DC powered equipment to supply marked to indicate polarity if reverse polarity may result in a hazard.		N/A
3.2.3	Permanently connected equipment has provision for connecting and securing a field wiring system (i.e. conduit, or leads etc.) per the NEC and CEC.		N/A

IEC 60950-1			
SubClause	Difference + Test	Result - Remark	Verdict
	Part 1.		
3.2.3	Permanently connected equipment may have terminals or leads not smaller than No. 18 AWG (0.82 mm <sup>2</sup> ) and not less than 152 mm in length for connection of field installed wiring.		N/A
3.2.3	If supply wires exceed 60 °C, marking indicates use of 75 °C or 90 °C wiring for supply connection as appropriate.		N/A
3.2.3	Equipment compatible with suitable trade sizes of conduits and cables.		N/A
3.2.5	Length of power supply cord limited to between 1.5 and 4.5 m unless shorter length used when intended for a special installation.		N/A
3.2.5	Conductors in power supply cords sized according to NEC and CEC, Part I.		N/A
3.2.5	Power supply cords and cord sets incorporate flexible cords suitable for the particular application.		N/A
3.2.6	Strain relief provided for non-detachable interconnecting cables not supplied by a limited power source.		N/A
3.2.9	Adequate wire bending space and volume of field wiring compartment required to properly make the field connections.		N/A
3.2.9	Equipment intended solely for installation in Restricted Access Locations using low voltage d.c. systems may not need provision for connecting and securing a field wiring system. A method of securing wiring or instructions provided to ensure the wiring is protected from abuse.		N/A
3.3	Field wiring terminals provided for interconnection of units for other than LPS or Class 2 circuits also comply with 3.3.		N/A
3.3	Interconnection of units by LPS or Class 2 conductors may have field wiring connectors other than those specified in 3.3 if wiring is reliably separated.		N/A
3.3.1	Terminals for the connection of neutral conductor identified by a distinctive white marking or other equally effective means.		N/A
3.3.3	Wire binding screw terminal permitted for connection of No. 10 AWG (5.3 mm <sup>2</sup> ) or smaller conductor if provided with upturned lugs. cupped		N/A

IEC 60950-1			
SubClause	Difference + Test	Result - Remark	Verdict
	washer or equivalent retention.		
3.3.4	Terminals accept wire sizes (gauge) used in the U.S. and Canada.		N/A
3.3.4	Terminals accept current-carrying conductors rated 125% of the equipment current rating.		N/A
3.3.6	Field wiring terminals marked to indicate the material(s) of the conductor appropriate for the terminals used.		N/A
3.3.6	Connection of an aluminum conductor not permitted to terminal for equipment earthing conductor.		N/A
3.3.6	Field wiring connections made through the use of suitable pressure connectors (including set screw type), solder lugs or splices to flexible leads.		N/A
3.4.2	Separate motor control device(s) required for cord-connected equipment rated more than 12 A, or with motor rated more than 1/3 hp or more than 120 V.		N/A
3.4.8	Vertically mounted disconnect devices oriented so up position of handle is "on".		N/A
3.4.11	For computer-room applications, equipment with battery systems capable of supplying 750 VA for 5 min require battery disconnect means.		N/A
4.2.8.1	Special opening restrictions for enclosures around CRTs with face dimension of 160 mm or more.		N/A
4.2.9	Compartment housing high-pressure lamp marked to indicate risk of explosion.		N/A
4.3.2	Loading test for equipment with handle(s) used to support more than 9 kg tested at four times the weight of the unit.		N/A
4.3.6	In addition to the IEC requirements, Direct Plug-in Equipment complies with UL 1310 or CSA 223 mechanical assembly requirements.		N/A
4.3.12	The maximum quantity of flammable liquid stored in equipment complies with ANSI/NFPA 30(Table NAE.6).		N/A
4.3.12	Equipment using replenishable liquids marked to indicate type of liquid to be used.		N/A
4.3.13.2	Equipment that produces x-radiation and does not comply with 4.3.12 under all conditions of servicing marked to indicate the presence of radiation where readily visible.		N/A

IEC 60950-1			
SubClause	Difference + Test	Result - Remark	Verdict
4.3.13.5	Requirements contained in the applicable national codes and regulations apply to lasers (21 CFR 1040 and REDR C1370).		N/A
4.7	Automated information storage equipment intended to contain more than 0.76 m <sup>3</sup> of combustible media requires provision for automatic sprinklers or a gaseous agent extinguishing system.		N/A
4.7.3.1	Equipment for use in environmental air space other than ducts or plenums provided with metal enclosure or with non-metallic enclosure having adequate fire-resistance and low smoke producing characteristics. Low smoke-producing characteristics evaluated according to UL 2043. Equipment for installation in space used for environmental air as described in Sec. 300-22(c) of the NEC provided with instructions indicating suitability for installation in such locations.		N/A
4.7.3.1	Flame spread rating for external surface of combustible material with exposed area greater than 0.93 m <sup>2</sup> or a single dimension greater than 1.8 m; 50 or less for computer room applications or 200 or less for other applications.		N/A
4.7.3.4	Wire marked "VW-1" or "FT-1" considered equivalent.		Pass
5.1.8.2	Special earthing provisions and instructions for equipment with high touch current due to telecommunication network connections.		N/A
5.1.8.3	Touch current due to ringing voltage for equipment containing telecommunication network leads.		N/A
5.3.6	Overloading of SELV connectors and printed wiring board receptacles accessible to the operator.		Pass
5.3.6	Tests interrupted by opening of a component repeated two additional times.		N/A
5.3.8.1	Test interrupted by opening of wire or trace subject to certain conditions.		N/A
6	Specialized instructions provided for telephones that may be connected to a telecommunications network.		N/A
6	Marking identifying function of telecommunication type connectors not used for connection to a telecommunication network.		N/A
6.2.1	Special requirements for enameled wiring used as electrical separation provided between parts		N/A

IEC 60950-1			
SubClause	Difference + Test	Result - Remark	Verdict
	connected to telecommunication network and telecommunication circuitry intentionally isolated from network.		
6.2.1	Digital line termination equipment (e.g., NCTE) subject to separation requirements.		N/A
6.3	Equipment remotely powered over telecommunication wiring systems provided with specialized markings adjacent to the connection.		N/A
6.3	Overcurrent protection incorporated into equipment to provide power over telecommunication wiring system not interchangeable with devices of higher ratings if operator replaceable.		N/A
6.4	Additional requirements for equipment intended for connection to a telecommunication network using cable subject to overvoltage from power line failures (Fig. 6C).		N/A
6.4	Where 26 AWG line cord required by Fig. 6C, either the cord is provided with the equipment or described in the safety instructions.		N/A
6.5	Acoustic pressure from an ear piece less than 136 dBA for short duration disturbances, and less than 125 dBA for handsets, 118 dBA for headsets, and 121 dBA for insert earphones, for long duration disturbances.		N/A
7	Equipment associated with the cable distribution system may need to be subjected to applicable parts of Chapter 8 of the NEC.		N/A
H	Ionizing radiation measurements made under single fault conditions in accordance with the requirements of the Code of Federal Regulations 21 CFR 1020 and the Canadian Radiation Emitting Devices Act, REDR C1370.		N/A
M.2	Continuous ringing signals evaluated to Method A subjected to special accessibility considerations.		N/A
M.4	Special requirements for message waiting and similar telecommunications signals.		N/A
NAC	Equipment intended for use with a generic secondary protector marked with suitable instructions.		N/A
NAC	Equipment intended for use with a specific primary or secondary protector marked with suitable instructions.		N/A

IEC 60950-1			
SubClause	Difference + Test	Result - Remark	Verdict

NAF	Household/Home Office Document Shredders		N/A
NAF.1.7	Markings and instructions alert the user to key safety considerations related to use of shredders, including not intended to be used by children, avoid touching document feed opening, avoid clothes and hair entanglement, and avoid aerosol products.		N/A
NAF.2.8.3	Safety interlock cannot be inadvertently activated by the articulated accessibility probe (figure NAF.1).		N/A
NAF.3.4	Provided with an isolating switch complying with 3.4.2, including 3 mm contact gap, with appropriate markings associated with the switch.		N/A
NAF.4.4	Hazardous moving parts are not accessible to the user, as determined using the articulated accessibility probe (figure NAF.1) and the accessibility probe/wedge (figures NAF.2/NAF.3).		N/A

## Enclosure

### Photographs

Supplement Id	Description
3-06	NB top view
3-07	NB front open view
3-08	NB left side view
3-09	NB right side view
3-10	NB bottom view with battery pack A32-V2
3-12	NB bottom internal view
3-13	PCB top view
3-14	PCB bottom view



Photographs ID 3-06



Photographs ID 3-07



Photographs ID 3-08



Photographs ID 3-09



Photographs ID 3-10



Photographs ID 3-12



Photographs ID 3-13



Photographs ID 3-14

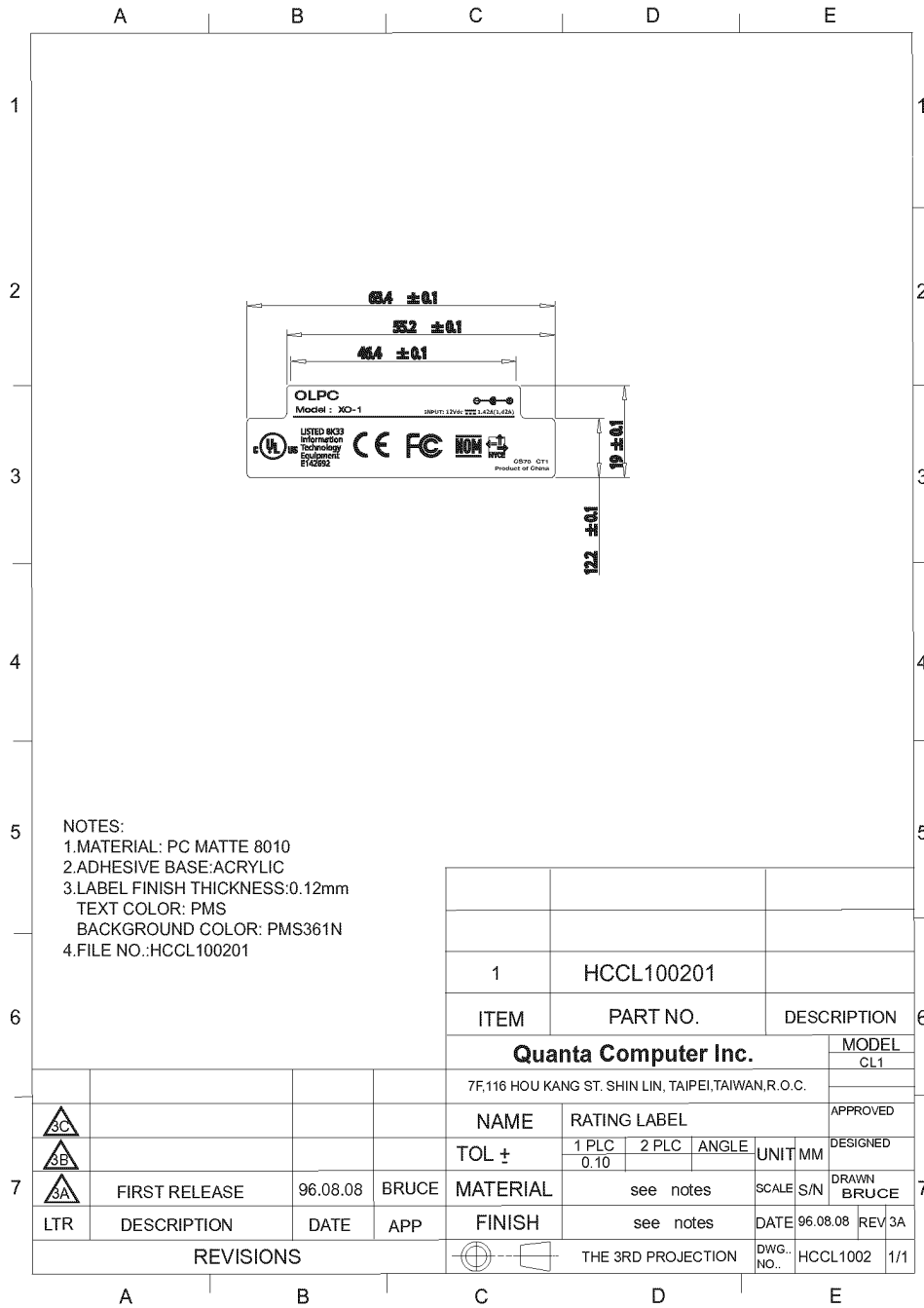




**Enclosure****Miscellaneous**

Supplement Id	Description
7-03	Label
7-04	Datasheets for UL 696
7-05	Datasheets ASTM F963

Misc ID 7-03



Misc ID 7-04

Project No. OLPC File NA Page 1  
 LABORATORY DATA PACKAGE Date 10-19-07

Number of pages in this package 7

TEST LOCATION:			
<input checked="" type="checkbox"/> UL or Affiliate	<input type="checkbox"/> WTDP	<input type="checkbox"/> CTDTP	<input type="checkbox"/> OTHER
Company Name UL			
Address NEK			

CLIENT INFORMATION	
Company Name	OLPC
Address	

AUDIT INFORMATION:			
Description of Tests	Per Standard No.	UL 696	Edition Ninth
Standard Title	Electric Toys	Rev Date	June 12, 2006
		ASTM F963	Edition 2007
<input checked="" type="checkbox"/> Tests Conducted by			
+	Steve Modlin	Steve Modlin	
	Printed name	Signature	
<input type="checkbox"/> UL Staff witnessing testing (WTDP only)			
Reviewed and accepted by qualified Project Handler			
	W. Alfred Fung	<i>W. Alfred Fung</i>	
	Printed Name	Signature	

TESTS TO BE CONDUCTED:			
Test No.	Done	Test Name	<input checked="" type="checkbox"/> Comments/Parameters <input type="checkbox"/> Tests Conducted by ++
		0.010 INCH WIRE ACCESSIBILITY TEST:	
		1/4 INCH ROD ACCESSIBILITY TEST:	
1	10-19-07	COATINGS AND PLATINGS:	Laptop and accessories
		PACKAGING FILM THICKNESS TEST:	
		ATTACHMENT PLUG TEST:	
		ENCLOSURE ABUSE TESTS:	
		HANDLES AND KNOBS ABUSE TESTS:	
		LEAKAGE CURRENT TEST:	
		HUMIDITY CONDITIONING TEST:	
		STRAIN RELIEF TESTS:	

ULS-00696-XNIZ-Datasheet-2001 Form Issued: 2002-12-18  
 Form Page 1 Form Revised: 2006-09-19  
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Misc ID 7-04

Project No. OLPC  
LABORATORY DATA PACKAGE

File NA

Page 2  
Date 10-19-07

TESTS TO BE CONDUCTED:			
Test No.	Done	Test Name	<input checked="" type="checkbox"/> Comments/Parameters <input type="checkbox"/> Tests Conducted by ++
		POWER INPUT TEST:	
		TEMPERATURE TEST:	
		DIELECTRIC VOLTAGE WITHSTAND TEST:	
		SWITCH OVERLOAD TEST:	
		ABNORMAL OPERATION TEST:	
		STEAM ENGINE TESTS:	
		STABILITY TEST:	
		PERMANENCE OF MARKING TEST:	

The test facility [ was ]  [ was not ] deemed to have the environment and capabilities necessary to perform the tests included in this data package. (WTDP Only)

Tests conducted in accordance with \_\_\_\_\_ that were considered representative of the same tests required by \_\_\_\_\_ are identified with dual paragraph/clause references in the title of each test on the individual datasheets. Where test names differ or additional test were conducted in accordance with \_\_\_\_\_, they are identified by the standard and paragraph/clause information enclosed by parenthesis.

Test Equipment- See "TEST EQUIPMENT INFORMATION"  
Samples - See "TEST SAMPLE IDENTIFICATION"

Instructions -  
+ - When all tests are conducted by one person, printed name and signature can be inserted here instead of including printed name and signature on each page containing data. Must indicate number of pages in the data package.  
++ - When test conducted by more than one person, printed name and signature of person conducting the test can be inserted next to the test name instead of including printed name and signature on each page containing data. Must indicate number of pages in the data package.

Special Instructions -

Unless specified otherwise in the individual Methods, the tests shall be conducted under the following ambient conditions. Confirmation of these conditions shall be recorded at the time the test is conducted.

Ambient Temperature, C     N/A     Relative Humidity, %     N/A     Barometric Pressure, mBar     N/A    

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Form Page 2

Form Issued: 2002-12-18  
Form Revised: 2006-09-19

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Misc ID 7-04

Project No. OLPC File NA Page 3  
 Tested by: \_\_\_\_\_ Date \_\_\_\_\_  
 Printed Name Signature

TEST EQUIPMENT INFORMATION

Inst. ID No.	Instrument Type	Test Number +, Test Title or Conditioning	Function /Range	Last Cal. Date	Next Cal. Date

+ - If Test Number is used, the Test Number must be identified on the data sheet pages or on the Data Sheet Package cover page.

The following additional information is required when using client's or rented equipment, or when a UL ID Number for an instrument number is not used. The Inst. ID No. below corresponds to the Inst. ID No. above.

Inst. ID No.	Make/Model/Serial Number/Asset No.

The M&TE used for tests [ have ] [ do not have ] minimum required accuracy and range/functions, and [ were ] [ were not ] calibrated to assure these levels.

[ ] Test equipment information is recorded on UL's Laboratory Project Management (LPM)/Laboratory Equipment Management (LEM) database. (This statement may be selected only if datasheets are completed electronically at a UL facility)

Misc ID 7-04

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 Tested by: \_\_\_\_\_ Date \_\_\_\_\_  
Printed Name Signature

TEST SAMPLE IDENTIFICATION:

The table below is provided to provide correlation of sample numbers to specific product related information. Refer to this table when a test identifies a test sample by "Sample No." only.

Sample Card No.	Date Received	[x] Test No.	Sample No.	Manufacturer, Product Identification and Ratings
954029-001	8-28-07	1	1	Laptop Computer, Battery, Power Supply
959690-001	9-13-07			(2) Batteries, (2) Sets of Labels, Sylva Industries, Ltd.
956629-001	9-5-07			(1) Battery, Shanghai BYD Co. Ltd.
934828-001	7-5-07			(1) Battery, (Unidentified purple bar bode label) - GP
959838-001	9-13-07			(4) Adaptors (Power Supplies), Delta Electronics, Inc.
961240-001	9-18-07			(7) Adaptors (Power Supplies), PI Electronics, Ltd.
FedEx Pkg				(3) Labels "OLPC XO-1" & (3) Labels "Attention"
FedEx Pkg				(24) Adaptor Labels
DHL Pkg				(1) Battery, (Unidentified white bar bode label) - GP

+ - If Test Number is used, the Test Number or Numbers the sample was used in must be identified on the data sheet pages or on the Data Sheet Package cover page.

[ ] Sampling Procedure -

Misc ID 7-04

Project No. OLPC File NA Page 5  
 Tested by: \_\_\_\_\_ Date \_\_\_\_\_  
Printed Name Signature

COATINGS AND PLATINGS: Section 7

METHOD

The accessible liquid coating materials (such as paint, enamel, lacquer, ink, and the like) applied to a toy were evaluated for lead, antimony, arsenic, barium, cadmium, chromium, mercury, or selenium. A liquid coating material is considered to be accessible if it can be contacted by persons before or after compliance with the performance requirements described in Abuse Tests

RESULTS

The surface coatings [exceeded] [did not exceed] total levels of Pb (600 ppm), and did (not) exceed soluble levels of the following elements:

Pb (90 mg/kg), As (25 mg/kg), Sb (60mg/kg), Ba (500 mg/k), Cd (75 mg/kg), Cr (60 mg/kg), Hg (60 mg/kg) or Se (500 mg/kg)

as specified in paragraph 4.3.5 of the Consumer Safety Specification on Toy Safety, ASTM F963.

Notes:

1. The requirements for a liquid coating material do not apply to ink applied to a container or packing material.
2. From ASTM F963 - 4.3.5.1 The regulation prohibits the use of paints or similar surface-coating materials that contain lead or lead compounds and in which the lead content (calculated as lead metal [Pb]) is in excess of 0.06 % (600 ppm) of the weight of the total nonvolatile content of the paint or the weight of the dried paint film.
3. From ASTM F963 - Table 1 - the total Maximum Soluble Migrated Element in ppm (mg/kg):

Antimony, (Sb)	Arsenic, (As)	Barium, (Ba)	Cadmium, (Cd)	Chromium, (Cr)	Lead, (Pb)	Mercury, (Hg)	Selenium, (Se)
60	25	1000	75	60	90	60	500

RESULTS -

\*\*\* NO TOXICOLOGY TESTING IS NEEDED. See explanations below. \*\*\*

## Misc ID 7-04

Project No. OLPC File NA Page 6  
Tested by: \_\_\_\_\_ Date \_\_\_\_\_  
Printed Name Signature

+ Sample preparation for the Laptop, battery and power supply involves scraping the various colors on the machine to remove the paint/ink. However, there appears to be no surface coatings on the laptop for any of the colors. All colors appear to be embedded into the plastic and are therefore considered not to be surface coatings, therefore testing is not necessary.

++ Sample preparation for labels involves scraping the labels to remove the paint/ink. If the amount of sample scraped is less than 10 mg then testing is not performed. Also, if the paint is unable to be scraped off due to a coating over the paints then testing is not performed. In the case of the labels for this project, there is a clear coating over the ink/paint on the labels and after attempting to scrape the samples the paint could not be scraped off and in one case 10 mg of sample could not be obtained, therefore testing is not necessary.

The areas scraped (color) are as follows:

## Laptop -

- Body (White)
- Body Edges (Green)
- The "X" on the Body Top (Orange)
- The "Circle/Dot" on the Body Top (Yellow)
- The Key Pad (Green)
- The Key Pad Lettering (Black)
- The Edges around the Screen (White)
- The "Mouse" area by the Key Pad (White)
- Label "Bar Code/SN" inside the Battery Compartment (Black & White)
- Label "C-Test Sample" inside the Battery Compartment (Black & White)

## AC Adaptor -

- The AC Adaptor Body (Green)
- The Barcode Label attached to the Cord (Black)
- The Label on the AC Adaptor Body (Green, Black, White)

## Battery Pack -

- Body (White)
- Labels "OLPC XO-1" & "Attention" (Black & White)
- Label "Bar Code & S/N" (Yellow & Black)

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Form Revised: 2006-09-19

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Project No. OLPC File NA Page 7  
Tested by: \_\_\_\_\_ Date \_\_\_\_\_  
Printed Name Signature

END OF DATASHEET PACKAGE. THIS PAGE INTENTIONALLY LEFT BLANK

Misc ID 7-05

Project No. 07NB48870  
LABORATORY DATA PACKAGE



File XXXX

Page 1  
Date 2007-10-2

Number of pages in this package 17

TEST LOCATION:			
<input checked="" type="checkbox"/>	UL or Affiliate	<input type="checkbox"/>	WTDP
<input type="checkbox"/>		<input type="checkbox"/>	CTDP
<input type="checkbox"/>		<input type="checkbox"/>	OTHER
Company Name ULC - Vancouver, LES			
Address			

CLIENT INFORMATION	
Company Name	OLPC
Address	XXXX

AUDIT INFORMATION:			
Description of Tests	Per Standard No.	ASTM F963	Edition 2007
<input checked="" type="checkbox"/> Tests Conducted by	W. Alfred Fung		
	Printed name	Signature	
<input type="checkbox"/> UL Staff witnessing testing (WTDP only)		Printed name	Signature
Reviewed and accepted by qualified Project Handler	W. Alfred Fung		
	Printed Name	Signature	

TESTS TO BE CONDUCTED:			
Test No.	Done	Test Name	<input type="checkbox"/> Comments/Parameters <input type="checkbox"/> Tests Conducted by ++
		MATERIAL QUALITY / HAZARDOUS SUBSTANCES	
1		FLAMMABILITY - COMPLETE PRODUCTS	
		FLAMMABILITY - REMOVABLE FABRICS	
		TOXICOLOGY - SURFACE COATINGS	
		TOXICOLOGY - STUFFING MATERIALS	
		ELECTRIC/THERMAL ENERGY	
		IMPULSIVE NOISES	
2		ABUSE TESTS	
3		IMPACT TESTS	
4		COMPONENT TORQUE TEST	
5		COMPONENT TENSION TEST	
		SEAM TENSION TEST	

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Form Issued: 2000-03-11  
Form Revised: 2005-06-02

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LABORATORY DATA PACKAGE

File XXXX

Page 2  
Date 2007-10-2

TESTS TO BE CONDUCTED:			
Test No.	Done	Test Name	<input type="checkbox"/> Comments/Parameters <input type="checkbox"/> Tests Conducted by ++
6		COMPRESSION TEST	
7		PACKAGING FILM	
		CORDS AND ELASTICS	
		WHEELS, TIRES OR AXLES	
		FOLDING MECHANISMS	
		SIMULATED PROTECTIVE DEVICES	
8		BATTERY OPERATED TOYS	

The test facility  was  was not  deemed to have the environment and capabilities necessary to perform the tests included in this data package. (WTDP Only)

Tests conducted in accordance with \_\_\_\_\_ that were considered representative of the same tests required by \_\_\_\_\_ are identified with dual paragraph/clause references in the title of each test on the individual datasheets. Where test names differ or additional test were conducted in accordance with \_\_\_\_\_, they are identified by the standard and paragraph/clause information enclosed by parenthesis.

Test Equipment- See "TEST EQUIPMENT INFORMATION"  
Samples - See "TEST SAMPLE IDENTIFICATION"

Instructions -  
+ - When all tests are conducted by one person, printed name and signature can be inserted here instead of including printed name and signature on each page containing data. Must indicate number of pages in the data package.  
++ - When test conducted by more than one person, printed name and signature of person conducting the test can be inserted next to the test name instead of including printed name and signature on each page containing data. Must indicate number of pages in the data package.

Special Instructions -

Unless specified otherwise in the individual Methods, the tests shall be conducted under the following ambient conditions. Confirmation of these conditions shall be recorded at the time the test is conducted.

Ambient Temperature, C          N/A      Relative Humidity, %          N/A      Barometric Pressure, mBar          N/A

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Form Page 2

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Printed Name Signature

TEST EQUIPMENT INFORMATION

Inst. ID No.	Instrument Type	Test Number +, Test Title or Conditioning	Function /Range	Last Cal. Date	Next Cal. Date

+ - If Test Number is used, the Test Number must be identified on the data sheet pages or on the Data Sheet Package cover page.

The following additional information is required when using client's or rented equipment, or when a UL ID Number for an instrument number is not used. The Inst. ID No. below corresponds to the Inst. ID No. above.

Inst. ID No.	Make/Model/Serial Number/Asset No.

The M&TE used for tests [ have ] [ do not have ] minimum required accuracy and range/functions, and [ were ] [ were not ] calibrated to assure these levels.

Test equipment information is recorded on UL's Laboratory Project Management (LPM)/Laboratory Equipment Management (LEM) database. (This statement may be selected only if datasheets are completed electronically at a UL facility)



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Tested by: \_\_\_\_\_ Date \_\_\_\_\_  
Printed Name Signature

**I** Sampling Procedure -

Misc ID 7-05

Project No. 07NB48870 File XXXX Page 6  
 Tested by: \_\_\_\_\_ Date \_\_\_\_\_  
 Printed Name Signature

FLAMMABILITY - COMPLETE PRODUCTS

METHOD

Per Section 4.2 and Title 16 CFR 1500.3(c)(6)(vi), complete products were subjected to the Title 16 CFR 1500.44 Flame Test.

RESULTS

Date: 2007-10-05  
 The test shall be conducted under the following ambient conditions.

Ambient Temperature, C 20-30 Relative Humidity, % 20-70 Barometric Pressure, mBar N/A

Lab Ambient:

Ambient Temperature, C 24 Relative Humidity, % 34 Barometric Pressure, mBar -

1500.44 Flame Test

Model/ Sample #	Ignite Point	Unburned Length (mm)	Burned Length (mm)	Burn Time (Second)	Burn Rate (mm/Sec)
11	Left side antenna end, antenna open	290	30	60	0.5
11	Main housing, right side antenna end, entenna close	310	-	-	-
11	Handle corner at foot	310	-	-	-

For complete products, the burn rate did ~~not~~ exceed 2.5 mm/sec.

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 Tested by: \_\_\_\_\_ Date \_\_\_\_\_  
 Printed Name Signature

ABUSE TESTS

METHOD

Per Section 8.6, each toy was subjected to the appropriate Abuse Test(s) listed below as required for the toy type and age grade, followed by visual inspection for Small Parts, Sharp Edges, Sharp Points, Projections or other Hazards.

SMALL PARTS Per Section 4.6 - Before and after the applicable Use and Abuse Tests, the toy and any detached parts or components of the toy were evaluated for small parts with the small parts cylinder (Fig 7).

SHARP EDGES Per Section 4.7 - Before and after the applicable Use and Abuse Tests, the toy and any detached parts or components of the toy were evaluated for sharp edges with the sharp edge tester (Fig 8).

SHARP POINTS Per Section 4.8 - Before and after the applicable Use and Abuse Tests the toy and any detached parts or components of the toy were evaluated for sharp points with the sharp point tester (Fig 9).

PROJECTIONS Per Section 4.9 - Before and after the applicable Use and Abuse Tests, the toy and any detached parts or components of toys which contain rigid projections were evaluated for puncture hazards.

RESULTS

Lab Ambient:

Ambient Temperature, C 23 Relative Humidity, % 35 Barometric Pressure, mBar -

Toy Model/ Sample #	Required Abuse Tests	Small Parts	Sharp Edges	Sharp Points	Projection Points
9	DR, IM	No	No	No	No
12	TO,CT,CO	No	No	No	No

There were ~~no~~ small parts, sharp edges, sharp points, projections or other hazards before and after the Abuse Tests. See each individual test for details.

Abuse Test Codes - DR = Drop, TI = Tip, TU = Tumble, IM = Impact, TO = Torque, CT = Component Tension, ST = Seam Tension, CO = Compression

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 Tested by: \_\_\_\_\_ Date \_\_\_\_\_  
 Printed Name Signature

IMPACT TEST

METHOD

Per Sec 8.7, each toy was subjected to each of the appropriate type impact test(s), then subjected to a visual exam for hazards per Section 4.6, 4.7, 4.8, 4.9 or any other hazard.

Drop - Per Sec 8.7.1 toys less than ~~(3)~~ (4) ~~(10)~~ lbs were dropped ~~(10)~~ (4) times in a random orientation from ~~(4.5)~~ (3.0) ft onto a 2.5" thick concrete floor covered with 1/8" type IV tile. The toy was allowed to come to rest before inspection.

RESULTS

Date: 2007-10-05  
 Lab Ambient:

Ambient Temperature, C 23 Relative Humidity, % 31 Barometric Pressure, mBar -

Toy Model/ Sample #	Required Abuse Tests	Small Parts	Sharp Edges	Sharp Points	Projection Points
9 (first drop)	Left side antenna, antenna open	No	No	No	No
9 (second drop)	Right side antenna corner, antenna close	No	No	No	No
9 (third drop)	Handle	No	No	No	No
9 (fourth drop)	Screen & keyboard open face	No	No	No	No

There were ~~no~~ hazards per Section 4.6, 4.7, 4.8, 4.9 or any other hazard.

Note: After third drop the top handle cover came over from the laptop, no hazard was found.

Tip Over - Per Sec 8.7.2 (10), large bulky toys with (projected area > 400 in<sup>2</sup>) ~~or (volume > 3 ft<sup>3</sup>) were tipped over 3 times in the worst orientation onto a 2.5" concrete floor covered with 1/8" type IV tile. The toy was allowed to come to rest before inspection~~

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 Tested by: \_\_\_\_\_ Date \_\_\_\_\_  
 Printed Name Signature

RESULTS

<del>Toy Model/ Sample #</del>	<del>Required Abuse Tests</del>	<del>Small Parts</del>	<del>Sharp Edges</del>	<del>Sharp Points</del>	<del>Projection Points</del>
------------------------------------	---	----------------------------	----------------------------	-----------------------------	----------------------------------

~~There were (no) hazards per Section 4.6, 4.7, 4.8, 4.9 or any other hazard.~~

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 Tested by: \_\_\_\_\_ Date \_\_\_\_\_  
Printed Name Signature

COMPONENT TORQUE TEST

METHOD

Per Sec 8.8, toys with component capable of being grasped by the thumb and forefinger or teeth was subjected to a torque of ~~(2) (3) (4)~~ inlb in clockwise and counterclockwise directions applied within 5 sec to 180 degrees or the specified value (except for screws), and held for an additional 10 sec. After the torque application, the toy was then subjected to a visual exam for hazards per Section 4.6, 4.7, 4.8, 4.9 or any other hazard.

RESULTS

Date: 2007-10-04  
 Lab Ambient:

Ambient Temperature, C 24 Relative Humidity, % 33 Barometric Pressure, mBar -

Toy <del>Model</del> Sample #	Required Abuse Tests	Small Parts	Sharp Edges	Sharp Points	Projection Points
12	Antenna, right	No	No	No	No

There were ~~no~~ hazards per Section 4.6, 4.7, 4.8, 4.9 or any other hazard.

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 Tested by: \_\_\_\_\_ Date \_\_\_\_\_  
Printed Name Signature

COMPONENT TENSION TEST

METHOD

Per Sec 8.9, toys with components capable of being grasped by the thumb and forefinger or teeth was subjected to a tensile load of ~~(10)~~ (15) lbf applied perpendicular to the components securement within 5 sec. and held for an additional 10 sec. After the tensile load application, the toy was then subjected to a visual exam for hazards per Section 4.6, 4.7, 4.8, 4.9 or any other hazard.

RESULTS

Date: 2007-10-04  
 Lab Ambient:

Ambient Temperature, C	23	Relative Humidity, %	33	Barometric Pressure, mBar	-
------------------------	----	----------------------	----	---------------------------	---

Toy <del>Model</del> Sample #	Required Abuse Tests	Small Parts	Sharp Edges	Sharp Points	Projection Points
12	Antenna, left	No	No	No	No

There were ~~no~~ hazards per Section 4.6, 4.7, 4.8, 4.9 or any other hazard.

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 Tested by: \_\_\_\_\_ Date \_\_\_\_\_  
 Printed Name Signature

COMPRESSION TEST

METHOD

Per Section 8.10, parts which are accessible to the user, but not to the Impact Test, were subject to a compression load of ~~(20) (25)~~ (30) lbf applied perpendicular to the part with a weight scale using a 1.125" od, 0.375" thick rigid metal disk with a 1/32" radius edge within 5 sec and held for and additional 10 sec. After the compression load application, the toy was then subjected to a visual exam for hazards per Section 4.6, 4.7, 4.8, 4.9 or any other hazard.

RESULTS

Date: 2007-10-04  
 Lab Ambient:

Ambient Temperature, C	22	Relative Humidity, %	34	Barometric Pressure, mBar	-
Toy Model/ Sample #	Required Abuse Tests	Small Parts	Sharp Edges	Sharp Points	Projection Points
12	Touch pad	No	No	No	No
12	Keyboard pad	No	No	No	No

There were ~~no~~ hazards per Section 4.6, 4.7, 4.8, 4.9 or any other hazard.

Misc ID 7-05

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 Tested by: \_\_\_\_\_ Date \_\_\_\_\_  
 Printed Name Signature

PACKAGING FILM ASTM F963 - Sections 4.12, 8.22

METHOD

A measuring device (dial-type thickness gage or equivalent) capable of measuring thickness to an accuracy of 4 µm was used. Measurements were taken at 10 equidistant points across the diagonal of any 3.94 by 3.94-in. (100 by 100-mm) area of the film. For plastic bags, the sample was prepared by cutting the sides, without stretching, into two single sheets.

RESULTS

Date: 2007-10-05  
 Lab Ambient:

Ambient Temperature, C 24 Relative Humidity, % 31 Barometric Pressure, mBar -

	Sample 13	Sample 14
	Bag size 345 x 150 mm	Bag size 335 x 275 mm
	Thickness (mm)	Thickness (mm)
1	0.051	0.056
2	0.050	0.056
3	0.048	0.055
4	0.050	0.056
5	0.049	0.055
6	0.048	0.055
7	0.049	0.054
8	0.050	0.053
9	0.052	0.053
10	0.051	0.053
Average thickness	0.0498	0.0546
Minimum thickness	0.048	0.053

The average thickness of the ten measurements ~~【were】~~ **【were not】** less than 0.00150 inch (0.03810 mm).

**【None】** ~~【Some】~~ of the measurements were below the 0.00125 inch (0.03175 mm) minimum thickness.

\*\*\*\*\*

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Form Issued: 2000-03-11  
 Form Revised: 2005-06-02

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Project No. 07NB48870 File XXXX Page 15  
 Tested by: \_\_\_\_\_ Date \_\_\_\_\_  
Printed Name Signature

BATTERY OPERATED TOYS

METHOD

Per Section 4.27, toys or components of toys which contain batteries were evaluated for potential electric shock, thermal hazards, toxicity, fire, explosion or other hazards associated with batteries in normal and reasonable foreseeable use before and after Use and Abuse Tests.

RESULTS

Date: 2007-10-04/05  
 Lab Ambient:

Ambient		Relative		Barometric	
Temperature, C	22	Humidity, %	37	Pressure, mBar	-

~~The battery compartment was (not) marked to show the battery type, rating and the correct position and did (not) allow for the escape of emitted gases.~~  
 Battery is special made for OLPC.

~~The max measured voltage between two accessible points was (not) greater than 24 V dc, and the only point of contact was (not) at the battery terminals.~~  
 Point of contact is not accessible.

There was ~~(no)~~ adequate protection (by physical or electrical design) to prevent charging rechargeable batteries in the wring position (polarity).

There was ~~(no)~~ access of batteries without the use of tools (coin or common tools) for toys intended for children < 36 months.

There was ~~(no)~~ accesses of batteries without the use of tools (coin or common tools) for toys intended for children < 36 months before/after Abuse Tests.





Misc ID 7-05

Project No. 07NB48870 File XXXX Page 17  
Tested by: \_\_\_\_\_ Date \_\_\_\_\_  
Printed Name Signature

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**Enclosure**

**Test Record**

Description
Test Record 1
CRD
Datasheets UL60950-1-1
Datasheets UL60950-1-2

## Test Record No. 1

-The manufacturer submitted a sample representing production of representative production samples of Notebook Computer (OLPC), Model XO-1. -The results of this investigation, including construction review and testing, indicate that the products evaluated comply with the applicable requirements in the U.S. and Canadian (Bi-National) Standard for Safety of Information Technology Equipment, CAN/CSA-C22.2 No. 60950-1-03, First Edition, including revisions through revision date July 7, 2006, UL 60950-1, First Edition, including revisions through revision date October 31, 2007. -The following tests conducted in accordance with UL60950-1, 1st Edition, Revised Date October 31, 2007, Information Technology Equipment-Safety-Part 1: General Requirements were considered representative of the same tests required by Canadian Standards, CNA/CSA-C22.2 No.60950-1-03, 1st Edition, Revised Date July 7, 2006, Information Technology Equipment-Safety-Part 1: General Requirements. - All IEC/EN/UL60950-1 tests were conducted by Underwriters Laboratories Taiwan Co., Ltd. - This product was evaluated to "COATINGS AND PLATINGS", in accordance with the Standard for Standard for Safety for Electric Toys for UL 696, Ninth Edition, Dated March 15, 1996, Revisions: This Standard contains revisions through and including June 12, 2006. - This product was evaluated to "FLAMMABILITY - COMPLETE PRODUCTS", "ABUSE TESTS", "Abusive Overcharge Test", "IMPACT TESTS", "COMPONENT TORQUE TEST", "COMPONENT TENSION TEST", "COMPRESSION TEST", "PACKAGING FILM" and "BATTERY OPERATED TOYS" in accordance with the Standard for Standard Consumer Safety Specification on Toy Safety for ASTM F963, 2007 Edition. - All UL 696 and ASTM F963 tests were conducted by Underwriters Laboratories of Canada (ULC) -Unless otherwise indicated, all tests were conducted on Model XO-1. -Test results reported relate only to the items tested.

The following tests were conducted:

Test	Testing Location/Comments
End Product Reference Page	
General Guidelines	
Input: Single-Phase (1.6.2)	
Limited Power Source Measurements (2.5)	
Battery Overcharge/Discharge (4.3.8)	
Lithium Battery Reverse Current Measurement (4.3.8)	
Heating (4.5.1, 1.4.12, 1.4.13)	
Overload of Operator Accessible Connector (5.3.6)	

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