



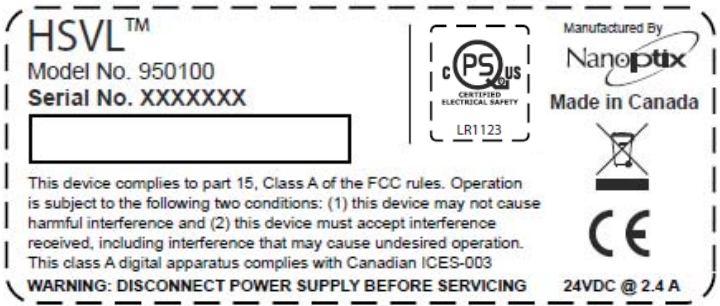


Test Report issued under the responsibility of:
QPS Evaluation Services Inc.
 81 Kelfield Street, Unit 8
 Toronto, Ontario
 Canada M9W 5A3



TEST REPORT	
IEC 60950-1: 2005 (2nd Edition) and/or EN 60950-1:2006 Information technology equipment – Safety – Part 1: General requirements	
Report Reference No.	CB1123-1
Date of issue	January 12, 2011
Total number of pages	40
CB/CCA Testing Laboratory	QPS Evaluation Services
Address	81 Kelfield Street, Unit 8, Toronto, Ontario, Canada M9W 5A3
Applicant's name	Nanoptix Inc.
Address	699 Champlain Street, Dieppe, New Brunswick E1A 1P6, Canada
Manufacturer's name	Nanoptix Inc.
Address	699 Champlain Street, Dieppe, New Brunswick E1A 1P6, Canada
Factory's name	Nanoptix Inc.
Address	699 Champlain Street, Dieppe, New Brunswick E1A 1P6, Canada
Test specification:	
Standard	<input checked="" type="checkbox"/> IEC 60950-1:2005 (2nd Edition) or <input type="checkbox"/> EN 60950-1:2006
Test procedure	CB
Non-standard test method	N/A
Test Report Form No.	IECEN60950_1C
Test Report Form(s) Originator	SGS Fimko Ltd
Master TRF	Dated 2007-06
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Test item description	Thermal Printer - Component
Trade Mark	
Manufacturer	Nanoptix Inc.
Model/Type reference	HSV L, Model No. 950100
Ratings	24Vdc, 2.4 Amps

Testing procedure and testing location:	
<input checked="" type="checkbox"/> CB/CCA Testing Laboratory:	QPS Evaluation Services Inc.
Testing location/ address	81 Kelfield Street, Unit 8, Toronto, Ontario, Canada M9W 5A3
<input type="checkbox"/> Associated CB Laboratory:	
Testing location/ address	
Tested by (name + signature)	Sridhar Das 
Approved by (+ signature)	Scott Airdrie 
<input type="checkbox"/> Testing procedure: TMP	
Tested by (name + signature)	
Approved by (+ signature)	
Testing location/ address	
<input type="checkbox"/> Testing procedure: WMT	
Tested by (name + signature)	
Witnessed by (+ signature)	
Approved by (+ signature)	
Testing location/ address	
<input type="checkbox"/> Testing procedure: SMT	
Tested by (name + signature)	
Approved by (+ signature)	
Supervised by (+ signature)	
Testing location/ address	
<input type="checkbox"/> Testing procedure: RMT	
Tested by (name + signature)	
Approved by (+ signature)	
Supervised by (+ signature)	
Testing location/ address	

Summary of testing:	
Tests performed (name of test and test clause): 1.6.2 Input Test 1.7.13 Durability of Marking Test 4.5.1 Temperature Rise Measurement 5.3 Abnormal Test	Testing location: QPS Evaluation Services 81 Kelfield Street, Unit 8 Toronto, Ontario Canada M9W 5A3
Summary of compliance with National Differences: CA and US, as per IECEE on-line database.	
<u>Copy of marking plate</u>	
<p>Note 1: This box to be replaced with a serialized barcode matching the serial number XXXXXXXX.</p>	
<p>Note 2: The serial number XXXXXXXX is printed in Arial, All Caps, Bold 8pt. Print actual numbers indicated on purchase order.</p>	

Test item particulars	Thermal Printer - Component
Equipment mobility	<input type="checkbox"/> movable <input type="checkbox"/> hand-held <input type="checkbox"/> transportable <input type="checkbox"/> stationary <input checked="" type="checkbox"/> for building-in <input type="checkbox"/> direct plug-in
Connection to the mains	<input type="checkbox"/> pluggable equipment <input type="checkbox"/> type A <input type="checkbox"/> type B <input type="checkbox"/> permanent connection <input type="checkbox"/> detachable power supply cord <input type="checkbox"/> non-detachable power supply cord <input checked="" type="checkbox"/> not directly connected to the mains
Operating condition	<input checked="" type="checkbox"/> continuous <input type="checkbox"/> rated operating / resting time:
Access location	<input type="checkbox"/> operator accessible <input checked="" type="checkbox"/> restricted access location
Over voltage category (OVC)	<input type="checkbox"/> OVC I <input checked="" type="checkbox"/> OVC II <input type="checkbox"/> OVC III <input type="checkbox"/> OVC IV <input checked="" type="checkbox"/> other: Not directly connected to mains
Mains supply tolerance (%) or absolute mains supply values	
Tested for IT power systems	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
IT testing, phase-phase voltage (V)	
Class of equipment	<input type="checkbox"/> Class I <input type="checkbox"/> Class II <input checked="" type="checkbox"/> Class III <input type="checkbox"/> Not classified
Considered current rating (A)	2.4 Amps
Pollution degree (PD)	<input type="checkbox"/> PD 1 <input checked="" type="checkbox"/> PD 2 <input type="checkbox"/> PD 3
IP protection class	IPX0
Altitude during operation (m)	0-2000
Altitude of test laboratory (m)	176
Mass of equipment (kg)	800 gm
Possible test case verdicts:	
- test case does not apply to the test object.....	N/A
- test object does meet the requirement	P (Pass)
- test object does not meet the requirement	F (Fail)
Testing	
Date of receipt of test item	Nov 15, 2011
Date(s) of performance of tests	January 5, 2011
General remarks:	
The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory. "(See Enclosure #)" refers to additional information appended to the report. "(See appended table)" refers to a table appended to the report.	
Note: This TRF includes EN Group Differences together with National Differences and Special National Conditions, if any. All Differences are located in the Appendix to the main body of this TRF.	
Throughout this report a point is used as the decimal separator.	

General product information:

The product, Thermal Printer, Model: 950100 is a component-type Thermal Printer powered by an approved external SELV Class 2/LPS Power Supply for integrating into an end-product within the scope of Information Technology Equipment.

Conditions of Acceptability

This component-type Thermal Printer, Model: 950100 shall be provided with an appropriate enclosure as part of the final/end-use product/application.

This component-type Thermal Printer, Model: 950100 is intended to be powered through cULus (E170507) certified Class 2 GlobTek Power Adapter, Model: GT-21126-6024.

The final acceptance of this component-type Thermal Printer, Model: 950100 (with external power adapter) shall be verified along with the end-use product as part of its national approval procedure.

This test report comprises 40 pages of CB Test Report, and the following Attachments:

Description	Content
Attachment 1 – National Differences	11 Pages
Attachment 2 – Photos	1 Pages


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

1	GENERAL		P
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1.5	Components		P
1.5.1	General		P
	Comply with IEC 60950-1 or relevant component standard	(see appended table 1.5.1)	P
1.5.2	Evaluation and testing of components		P
1.5.3	Thermal controls	Not employed with the EUT	N/A
1.5.4	Transformers	Not employed with the EUT	N/A
1.5.5	Interconnecting cables	Not employed with the EUT	N/A
1.5.6	Capacitors bridging insulation	Not employed with the EUT	N/A
1.5.7	Resistors bridging insulation	Not employed with the EUT	N/A
1.5.7.1	Resistors bridging functional, basic or supplementary insulation	Not employed with the EUT	N/A
1.5.7.2	Resistors bridging double or reinforced insulation between a.c. mains and other circuits	Not employed with the EUT	N/A
1.5.7.3	Resistors bridging double or reinforced insulation between a.c. mains and antenna or coaxial cable	Not employed with the EUT	N/A
1.5.8	Components in equipment for IT power systems	Not for such application	N/A
1.5.9	Surge suppressors	Not employed with the EUT	N/A
1.5.9.1	General	As noted above	N/A
1.5.9.2	Protection of VDRs	As noted above	N/A
1.5.9.3	Bridging of functional insulation by a VDR	As noted above	N/A
1.5.9.4	Bridging of basic insulation by a VDR	As noted above	N/A
1.5.9.5	Bridging of supplementary, double or reinforced insulation by a VDR	As noted above	N/A

1.6	Power interface		P
1.6.1	AC power distribution systems	No connected to AC mains	N/A
1.6.2	Input current	(see appended table 1.6.2)	P
1.6.3	Voltage limit of hand-held equipment	Not a hand-held equipment	N/A
1.6.4	Neutral conductor	No connected to AC mains	N/A

1.7	Marking and instructions		P
1.7.1	Power rating		P
	Rated voltage(s) or voltage range(s) (V)	24Vdc	P
	Symbol for nature of supply, for d.c. only	dc	P
	Rated frequency or rated frequency range (Hz)	No AC input	N/A

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Rated current (mA or A)	2.4A	P
	Manufacturer's name or trade-mark or identification mark		P
	Model identification or type reference	HSVL, Model No. 950100	P
	Symbol for Class II equipment only	Not a Class II equipment	N/A
	Other markings and symbols		N/A
1.7.2	Safety instructions and marking		P
1.7.2.1	General		P
1.7.2.2	Disconnect devices	EUT is not mains connected	N/A
1.7.2.3	Overcurrent protective device	EUT is not mains connected	N/A
1.7.2.4	IT power distribution systems	Not for use with IT power	N/A
1.7.2.5	Operator access with a tool	Component EUT – to be enclosed in final product	N/A
1.2.7.6	Ozone	Ozone is not involved	N/A
1.7.3	Short duty cycles	Not for short duty cycle	N/A
1.7.4	Supply voltage adjustment	24Vdc; no voltage adjustment	N/A
	Methods and means of adjustment; reference to installation instructions		N/A
1.7.5	Power outlets on the equipment	No power outlet	N/A
1.7.6	Fuse identification (marking, special fusing characteristics, cross-reference)	No fuse is employed	N/A
1.7.7	Wiring terminals	EUT is not mains connected	N/A
1.7.7.1	Protective earthing and bonding terminals	No protective earthing	N/A
1.7.7.2	Terminals for a.c. mains supply conductors	EUT is not mains connected	N/A
1.7.7.3	Terminals for d.c. mains supply conductors	EUT is not mains connected	N/A
1.7.8	Controls and indicators	None	N/A
1.7.8.1	Identification, location and marking		N/A
1.7.8.2	Colours		N/A
1.7.8.3	Symbols according to IEC 60417		N/A
1.7.8.4	Markings using figures		N/A
1.7.9	Isolation of multiple power sources	Single power source; 24Vdc	N/A
1.7.10	Thermostats and other regulating devices	Not employed with the EUT	N/A
1.7.11	Durability		P
1.7.12	Removable parts	No removable part	N/A
1.7.13	Replaceable batteries	Not employed with the EUT	N/A
	Language(s)	English only; other languages to be available, suitable for national certification(s)	—

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.7.14	Equipment for restricted access locations	Component EUT – not for direct use in restricted access locations; to be enclosed in the final product / application	N/A
2	PROTECTION FROM HAZARDS		P
2.1	Protection from electric shock and energy hazards		P
2.1.1	Protection in operator access areas	Component EUT – to be appropriately enclosed in the final product / application	N/A
2.1.1.1	Access to energized parts	As noted above	N/A
	Test by inspection		N/A
	Test with test finger (Figure 2A)		N/A
	Test with test pin (Figure 2B)		N/A
	Test with test probe (Figure 2C)		N/A
2.1.1.2	Battery compartments	No battery is employed	N/A
2.1.1.3	Access to ELV wiring	Component EUT – to be appropriately enclosed in the final product / application	N/A
	Working voltage (V _{peak} or V _{rms}); minimum distance through insulation (mm)	24Vdc	—
2.1.1.4	Access to hazardous voltage circuit wiring	No hazardous voltage	N/A
2.1.1.5	Energy hazards	Component EUT – to be appropriately enclosed in the final product / application	N/A
2.1.1.6	Manual controls	No manual control	N/A
2.1.1.7	Discharge of capacitors in equipment	EUT is not mains connected	N/A
	Measured voltage (V); time-constant (s)		—
2.1.1.8	Energy hazards – d.c. mains supply	EUT is not mains connected	N/A
	a) Capacitor connected to the d.c. mains supply ..		N/A
	b) Internal battery connected to the d.c. mains supply		N/A
2.1.1.9	Audio amplifiers	No audio amp is involved	N/A
2.1.2	Protection in service access areas	Component EUT – to be appropriately enclosed in the final product / application	N/A
2.1.3	Protection in restricted access locations	EUT is not for direct use in restricted access location	N/A
2.2	SELV circuits		P
2.2.1	General requirements		P
2.2.2	Voltages under normal conditions (V)	24Vdc	P

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
2.2.3	Voltages under fault conditions (V)	24Vdc max	P
2.2.4	Connection of SELV circuits to other circuits		N/A
2.3	TNV circuits		N/A
2.3.1	Limits	EU is not for connetion to TNV ircuis	N/A
	Type of TNV circuits		—
2.3.2	Separation from other circuits and from accessible parts		N/A
2.3.2.1	General requirements		N/A
2.3.2.2	Protection by basic insulation		N/A
2.3.2.3	Protection by earthing		N/A
2.3.2.4	Protection by other constructions		N/A
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		
2.4	Limited current circuits		N/A
2.4.1	General requirements	Not a limited current circuit	N/A
2.4.2	Limit values		
	Frequency (Hz).....		—
	Measured current (mA)		—
	Measured voltage (V)		—
	Measured circuit capacitance (nF or μ F)		—
2.4.3	Connection of limited current circuits to other circuits		
2.5	Limited power sources		P
	a) Inherently limited output	EUT is to be powered thru a Class 2 Power Supply	P
	b) Impedance limited output	As noted above	N/A
	c) Regulating network limited output under normal operating and single fault condition	As noted above	N/A
	d) Overcurrent protective device limited output	As noted above	N/A
	Max. output voltage (V), max. output current (A), max. apparent power (VA)		—

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Current rating of overcurrent protective device (A) .:		—
2.6	Provisions for earthing and bonding		N/A
2.6.1	Protective earthing	EUT not protectively earthed; has no connection to mains	N/A
2.6.2	Functional earthing	As noted above	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 ²), AWG		—
2.6.3.3	Size of protective bonding conductors		N/A
	Rated current (A), cross-sectional area (mm ²), AWG		—
	Protective current rating (A), cross-sectional area (mm ²), AWG.....		—
2.6.3.4	Resistance of earthing conductors and their terminations; resistance (Ω), voltage drop (V), test current (A), duration (min).....		N/A
2.6.3.5	Colour of insulation		N/A
2.6.4	Terminals	EUT not protectively earthed; has no connection to mains	N/A
2.6.4.1	General		N/A
2.6.4.2	Protective earthing and bonding terminals		N/A
	Rated current (A), type, 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	EUT not protectively earthed; has no connection to mains	N/A
2.6.5.1	Interconnection of equipment		
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

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Clause	Requirement + Test	Result - Remark	Verdict

2.7	Overcurrent and earth fault protection in primary circuits		N/A
2.7.1	Basic requirements	EUT not protectively earthed; has no connection to mains	N/A
	Instructions when protection relies on building installation		N/A
2.7.2	Faults not simulated in 5.3.7		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	Safety interlocks		N/A
2.8.1	General principles	Safety interlock not employed	N/A
2.8.2	Protection requirements	Component EUT – to be appropriately enclosed in the final product / application	N/A
2.8.3	Inadvertent reactivation	As noted above	N/A
2.8.4	Fail-safe operation	As noted above	N/A
2.8.5	Moving parts	As noted above	N/A
2.8.6	Overriding	As noted above	N/A
2.8.7	Switches and relays	Not employed with the EUT	N/A
2.8.7.1	Contact gaps (mm)		N/A
2.8.7.2	Overload test	Conducted on motor	P
2.8.7.3	Endurance test		N/A
2.8.7.4	Electric strength test		N/A
2.8.8	Mechanical actuators		N/A

2.9	Electrical insulation		P
2.9.1	Properties of insulating materials	Only functional insulation	P
2.9.2	Humidity conditioning	Not required by Cl. 2.9.1, 2.10.8.3, 2.10.10 or 2.10.11; no hygroscopic material used	N/A
	Relative humidity (%), temperature (°C)		—
2.9.3	Grade of insulation	Only functional insulation	P
2.9.4	Separation from hazardous voltages	No hazardous voltage; only 24Vdc max	N/A
	Method(s) used		—

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
2.10	Clearances, creepage distances and distances through insulation		N/A
2.10.1	General	Only functional insulation; also Cl. 5.3.4(c) is not applicable since EUT is powered thru a Class 2 Power Supply at 24Vdc	N/A
2.10.1.1	Frequency		N/A
2.10.1.2	Pollution degrees	Pollution degree 2	P
2.10.1.3	Reduced values for functional insulation	Same as Clause 2.10.1	N/A
2.10.1.4	Intervening unconnected conductive parts		N/A
2.10.1.5	Insulation with varying dimensions		N/A
2.10.1.6	Special separation requirements		N/A
2.10.1.7	Insulation in circuits generating starting pulses		N/A
2.10.2	Determination of working voltage	24Vdc max	P
2.10.2.1	General		N/A
2.10.2.2	RMS working voltage		N/A
2.10.2.3	Peak working voltage		N/A
2.10.3	Clearances		N/A
2.10.3.1	General		N/A
2.10.3.2	Mains transient voltages	EUT is not mains connected	N/A
	a) AC mains supply		N/A
	b) Earthed d.c. mains supplies		N/A
	c) Unearthed d.c. mains supplies		N/A
	d) Battery operation	No battery is employed	N/A
2.10.3.3	Clearances in primary circuits	EUT is not mains connected	N/A
2.10.3.4	Clearances in secondary circuits	Same as Clause 2.10.1	N/A
2.10.3.5	Clearances in circuits having starting pulses	No starting pulse	N/A
2.10.3.6	Transients from a.c. mains supply	EUT is not mains connected	N/A
2.10.3.7	Transients from d.c. mains supply	EUT is not mains connected	N/A
2.10.3.8	Transients from telecommunication networks and cable distribution systems	EUT is not connected to telecommunication network or cable distribution system	N/A
2.10.3.9	Measurement of transient voltage levels	EUT is not mains connected	N/A
	a) Transients from a mains supply		N/A
	For an a.c. mains supply		N/A
	For a d.c. mains supply		N/A
	b) Transients from a telecommunication network :	EUT is not connected to telecommunication network	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
2.10.4	Creepage distances	Same as Clause 2.10.1	N/A
2.10.4.1	General		N/A
2.10.4.2	Material group and comparative tracking index		N/A
	CTI tests		—
2.10.4.3	Minimum creepage distances		N/A
2.10.5	Solid insulation	Same as Clause 2.10.1	N/A
2.10.5.1	General		N/A
2.10.5.2	Distances through insulation		N/A
2.10.5.3	Insulating compound as solid insulation		N/A
2.10.5.4	Semiconductor devices		N/A
2.10.5.5	Cemented joints		N/A
2.10.5.6	Thin sheet material – General		N/A
2.10.5.7	Separable thin sheet material		N/A
	Number of layers (pcs)		—
2.10.5.8	Non-separable thin sheet material		N/A
2.10.5.9	Thin sheet material – standard test procedure		N/A
	Electric strength test		—
2.10.5.10	Thin sheet material – alternative test procedure		N/A
	Electric strength test		—
2.10.5.11	Insulation in wound components		N/A
2.10.5.12	Wire in wound components		N/A
	Working voltage		N/A
	a) Basic insulation not under stress		N/A
	b) Basic, supplementary, reinforced insulation		N/A
	c) Compliance with Annex U		N/A
	Two wires in contact inside wound component; angle between 45° and 90°		N/A
2.10.5.13	Wire with solvent-based enamel in wound components		N/A
	Electric strength test		—
	Routine test		N/A
2.10.5.14	Additional insulation in wound components		N/A
	Working voltage		N/A
	- Basic insulation not under stress		N/A
	- Supplementary, reinforced insulation		N/A
2.10.6	Construction of printed boards	Same as Clause 2.10.1	N/A
2.10.6.1	Uncoated printed boards		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
2.10.6.2	Coated printed boards		N/A
2.10.6.3	Insulation between conductors on the same inner surface of a printed board		N/A
2.10.6.4	Insulation between conductors on different layers of a printed board		N/A
	Distance through insulation		N/A
	Number of insulation layers (pcs)..... :		N/A
2.10.7	Component external terminations	Same as Clause 2.10.1	N/A
2.10.8	Tests on coated printed boards and coated components	Same as Clause 2.10.1	N/A
2.10.8.1	Sample preparation and preliminary inspection		N/A
2.10.8.2	Thermal conditioning		N/A
2.10.8.3	Electric strength test		N/A
2.10.8.4	Abrasion resistance test		N/A
2.10.9	Thermal cycling	Same as Clause 2.10.1	N/A
2.10.10	Test for Pollution Degree 1 environment and insulating compound	Same as Clause 2.10.1	N/A
2.10.11	Tests for semiconductor devices and cemented joints	Same as Clause 2.10.1	N/A
2.10.12	Enclosed and sealed parts	Same as Clause 2.10.1	N/A
3	WIRING, CONNECTIONS AND SUPPLY		P
3.1	General		P
3.1.1	Current rating and overcurrent protection	EUT is powered thru a Class 2 Power Source at 24Vdc	P
3.1.2	Protection against mechanical damage	Component EUT – to be appropriately enclosed in the final product / application	N/A
3.1.3	Securing of internal wiring		P
3.1.4	Insulation of conductors		P
3.1.5	Beads and ceramic insulators	Not employed with the EUT	N/A
3.1.6	Screws for electrical contact pressure	Not employed with the EUT	N/A
3.1.7	Insulating materials in electrical connections		P
3.1.8	Self-tapping and spaced thread screws	Not employed with the EUT	N/A
3.1.9	Termination of conductors	Same as Clause 2.10.1	N/A
	10 N pull test		N/A
3.1.10	Sleeving on wiring	Not employed with the EUT	N/A

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
3.2	Connection to a mains supply		N/A
3.2.1	Means of connection	EUT is not mains connected	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 of cable and conduits (mm)		—
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 ²), 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
	Diameter or minor dimension D (mm); test mass (g)		—
	Radius of curvature of cord (mm)		—
3.2.9	Supply wiring space		N/A
3.3	Wiring terminals for connection of external conductors		N/A
3.3.1	Wiring terminals	EUT is not mains connected	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 ²)		—
3.3.5	Wiring terminal sizes		N/A
	Rated current (A), type, nominal thread diameter (mm)		—
3.3.6	Wiring terminal design		N/A
3.3.7	Grouping of wiring terminals		N/A
3.3.8	Stranded wire		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
3.4	Disconnection from the mains supply		N/A
3.4.1	General requirement	EUT is not mains connected	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	Number of poles - single-phase and d.c. equipment		N/A
3.4.7	Number of poles - 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
3.5	Interconnection of equipment		N/A
3.5.1	General requirements	Interconnection is not involved	N/A
3.5.2	Types of interconnection circuits		N/A
3.5.3	ELV circuits as interconnection circuits		N/A
3.5.4	Data ports for additional equipment		N/A
4	PHYSICAL REQUIREMENTS		N/A
4.1	Stability		N/A
	Angle of 10°	Component EUT – to be appropriately enclosed in the final product / application	N/A
	Test force (N)		N/A
4.2	Mechanical strength		N/A
4.2.1	General	Component EUT – to be appropriately enclosed in the final product / application	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; height (mm)		N/A
4.2.7	Stress relief test		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
4.2.8	Cathode ray tubes	EUT does not have any CRT	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)		
4.3	Design and construction		P
4.3.1	Edges and corners	Component EUT – to be appropriately enclosed in the final product / application	N/A
4.3.2	Handles and manual controls; force (N)	No handle etc.	N/A
4.3.3	Adjustable controls	No adjustable control	N/A
4.3.4	Securing of parts	All parts are held securely	P
4.3.5	Connection by plugs and sockets	No such connection	N/A
4.3.6	Direct plug-in equipment	Not a direct plug-in equipment	N/A
	Torque		—
	Compliance with the relevant mains plug standard		N/A
4.3.7	Heating elements in earthed equipment	No heating element is used	N/A
4.3.8	Batteries	No battery is employed	N/A
	- Overcharging of a rechargeable battery		N/A
	- Unintentional charging of a non-rechargeable battery		N/A
	- Reverse charging of a rechargeable battery		N/A
	- Excessive discharging rate for any battery		N/A
4.3.9	Oil and grease	Not associated with the EUT	N/A
4.3.10	Dust, powders, liquids and gases	Not associated with the EUT	N/A
4.3.11	Containers for liquids or gases	No such container employed	N/A
4.3.12	Flammable liquids		N/A
	Quantity of liquid (l)		N/A
	Flash point (°C)		N/A
4.3.13	Radiation	None associated with the EUT	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		—

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Clause	Requirement + Test	Result - Remark	Verdict
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)	No laser associated with EUT	N/A
	Laser class		—
4.3.13.6	Other types		N/A
4.4	Protection against hazardous moving parts		P
4.4.1	General	Component EUT – to be appropriately enclosed in the final product / application	P
4.4.2	Protection in operator access areas	As noted above	N/A
4.4.3	Protection in restricted access locations	Component EUT – not for direct use in restricted access	N/A
4.4.4	Protection in service access areas	Component EUT – to be appropriately enclosed in the final product / application	P
4.5	Thermal requirements		P
4.5.1	General		P
4.5.2	Temperature tests		P
	Normal load condition per Annex L		—
4.5.3	Temperature limits for materials	(see appended table 4.5)	P
4.5.4	Touch temperature limits	(see appended table 4.5)	P
4.5.5	Resistance to abnormal heat	(see appended table 4.5.5)	P
4.6	Openings in enclosures		N/A
4.6.1	Top and side openings	Component EUT – to be appropriately enclosed in the final product / application	N/A
	Dimensions (mm)		—
4.6.2	Bottoms of fire enclosures		N/A
	Construction of the bottom, dimensions (mm) ...		—
4.6.3	Doors or covers in fire enclosures		N/A
4.6.4	Openings in transportable equipment		N/A
4.6.4.1	Constructional design measures		N/A
	Dimensions (mm)		—
4.6.4.2	Evaluation measures for larger openings		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
4.6.4.3	Use of metallized parts		N/A
4.6.5	Adhesives for constructional purposes		N/A
	Conditioning temperature (°C), time (weeks)..... :		—
4.7	Resistance to fire		N/A
4.7.1	Reducing the risk of ignition and spread of flame	Component EUT – to be appropriately enclosed in the final product / application	N/A
	Method 1, selection and application of components wiring and materials		N/A
	Method 2, application of all of simulated fault condition tests		
4.7.2	Conditions for a fire enclosure		N/A
4.7.2.1	Parts requiring a fire enclosure		N/A
4.7.2.2	Parts not requiring a fire enclosure	As noed at Clause 4.7.1	N/A
4.7.3	Materials		N/A
4.7.3.1	General		N/A
4.7.3.2	Materials for fire enclosures		N/A
4.7.3.3	Materials for components and other parts outside fire enclosures		N/A
4.7.3.4	Materials for components and other parts inside fire enclosures		N/A
4.7.3.5	Materials for air filter assemblies		N/A
4.7.3.6	Materials used in high-voltage components		N/A
5	ELECTRICAL REQUIREMENTS AND SIMULATED ABNORMAL CONDITIONS		N/A
5.1	Touch current and protective conductor current		N/A
5.1.1	General	Component EUT, not proectively grounded – to be appropriately enclosed in the final product / application and not protectively earthed	N/A
5.1.2	Configuration of equipment under test (EUT)		N/A
5.1.2.1	Single connection to an a.c. mains supply		N/A
5.1.2.2	Redundant multiple connections to an a.c. mains supply		N/A
5.1.2.3	Simultaneous multiple connections to an a.c. mains supply		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

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Clause	Requirement + Test	Result - Remark	Verdict
5.1.6	Test measurements		N/A
	Supply 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
5.1.7.1	General		N/A
5.1.7.2	Simultaneous multiple connections to the supply		N/A
5.1.8	Touch currents to telecommunication networks and cable distribution systems and from telecommunication networks		N/A
5.1.8.1	Limitation of the touch current to a telecommunication network or to a cable distribution system		N/A
	Supply voltage (V)		—
	Measured touch current (mA)		—
	Max. allowed touch current (mA)		—
5.1.8.2	Summation of touch currents from telecommunication networks		N/A
	a) EUT with earthed telecommunication ports		N/A
	b) EUT whose telecommunication ports have no reference to protective earth		N/A
5.2	Electric strength		N/A
5.2.1	General	Component EUT, not protectively earthed and powered thru a Class 2 Power Supply – to be appropriately enclosed in the final product / application	N/A
5.2.2	Test procedure		N/A
5.3	Abnormal operating and fault conditions		P
5.3.1	Protection against overload and abnormal operation	(see appended table 5.3)	P
5.3.2	Motors	(see appended Annex B)	P
5.3.3	Transformers	Not employed with the EUT	N/A
5.3.4	Functional insulation.....	EUT is powered thru certified Class 2 Power Supply	N/A
5.3.5	Electromechanical components	No such componens	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.3.6	Audio amplifiers in ITE	Not employed with the EUT	N/A
5.3.7	Simulation of faults	Locked rotor of motor	P
5.3.8	Unattended equipment	EUT does not incorporate thermostat etc.	N/A
5.3.9	Compliance criteria for abnormal operating and fault conditions	Locked rotor of motor	P
5.3.9.1	During the tests	Locked rotor of motor	P
5.3.9.2	After the tests	Locked rotor of motor	P
6	CONNECTION TO TELECOMMUNICATION NETWORKS		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	EUT is not for connection to telecommunication network	N/A
	Supply voltage (V)		—
	Current in the test circuit (mA)		—
6.1.2.2	Exclusions		N/A
6.2	Protection of equipment users from overvoltages on telecommunication networks		N/A
6.2.1	Separation requirements	EUT is not for connection to telecommunication network	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
6.3	Protection of the telecommunication wiring system from overheating		N/A
	Max. output current (A)		—
	Current limiting method		—
7	CONNECTION TO CABLE DISTRIBUTION SYSTEMS		N/A
7.1	General	EUT is not for connection to cable distribution system	N/A
7.2	Protection of cable distribution system service persons, and users of other equipment connected to the system, from hazardous voltages in the equipment		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
7.3	Protection of equipment users from overvoltages on the cable distribution system		N/A
7.4	Insulation between primary circuits and cable distribution systems	EUT is not for connection to cable distribution system	N/A
7.4.1	General		N/A
7.4.2	Voltage surge test		N/A
7.4.3	Impulse test		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
A	ANNEX A, TESTS FOR RESISTANCE TO HEAT AND FIRE		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)	Component EUT – appropriate enclosure to be provided as par of final equipment / application	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 (see IEC 60695-11-3)		N/A
	Flame A, B, C or D		—
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).....		—
A.2	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)		N/A
A.2.1	Samples, material	Same as A1 above	—
	Wall thickness (mm)		—
A.2.2	Conditioning of samples; temperature (°C)		N/A
A.2.3	Mounting of samples		N/A
A.2.4	Test flame (see IEC 60695-11-4)		N/A
	Flame A, B or C		—
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 60695-11-5, cl. 5 and 9		N/A
	Sample 1 burning time (s).....		—
	Sample 2 burning time (s).....		—
	Sample 3 burning time (s).....		—
A.3	Hot flaming oil test (see 4.6.2)	Same as A1 above	N/A
A.3.1	Mounting of samples		N/A
A.3.2	Test procedure		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
A.3.3	Compliance criterion		N/A
B	ANNEX B, MOTOR TESTS UNDER ABNORMAL CONDITIONS (see 4.7.2.2 and 5.3.2)		P
B.1	General requirements	One DC Stepper Motor in the secondary, powered thru a certified Class 2 Power Supply	P
	Position	Normal	—
	Manufacturer	Seiko	—
	Type	Model: B420A	—
	Rated values	24Vdc, 0.50A	—
B.2	Test conditions	B.5 as noted below	P
B.3	Maximum temperatures	(see appended table 5.3)	P
B.4	Running overload test		N/A
B.5	Locked-rotor overload test		P
	Test duration (days)	Until steady-state conditions	—
	Electric strength test: test voltage (V)		—
B.6	Running overload test for d.c. motors in secondary circuits	EUT is powered thru certified Class 2 Power Supply	N/A
B.6.1	General		N/A
B.6.2	Test procedure		N/A
B.6.3	Alternative test procedure		N/A
B.6.4	Electric strength test; test voltage (V)		
B.7	Locked-rotor overload test for d.c. motors in secondary circuits		P
B.7.1	General		P
B.7.2	Test procedure		P
B.7.3	Alternative test procedure		N/A
B.7.4	Electric strength test; test voltage (V)	Motor operates at 24Vdc	N/A
B.8	Test for motors with capacitors	Motor does not have any cap	N/A
B.9	Test for three-phase motors	Not a three-phase motor	N/A
B.10	Test for series motors	Not a series motor	N/A
	Operating voltage (V)	24Vdc	—
C	ANNEX C, TRANSFORMERS (see 1.5.4 and 5.3.3)		N/A
	Position	No transformer is employed	—
	Manufacturer		—

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Clause	Requirement + Test	Result - Remark	Verdict
	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	ANNEX D, MEASURING INSTRUMENTS FOR TOUCH-CURRENT TESTS (see 5.1.4)		N/A
D.1	Measuring instrument	Clause 5.1 is not applicable	N/A
D.2	Alternative measuring instrument		N/A
E	ANNEX E, TEMPERATURE RISE OF A WINDING (see 1.4.13)		N/A
F	ANNEX F, MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES (see 2.10 and Annex G)		N/A
G	ANNEX G, ALTERNATIVE METHOD FOR DETERMINING MINIMUM CLEARANCES		N/A
G.1	Clearances	Same as Clause 2.10.1	N/A
G.1.1	General		N/A
G.1.2	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	Earthed d.c. mains supplies		N/A
G.2.3	Unearthed d.c. mains supplies		N/A
G.2.4	Battery operation		N/A
G.3	Determination of telecommunication network transient voltage (V)		N/A
G.4	Determination of required withstand voltage (V)		N/A
G.4.1	Mains transients and internal repetitive peaks		N/A
G.4.2	Transients from telecommunication networks		N/A
G.4.3	Combination of transients		N/A
G.4.4	Transients from cable distribution systems		N/A
G.5	Measurement of transient voltages (V)		N/A
	a) Transients from a mains supply		N/A
	For an a.c. mains supply		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	For a d.c. mains supply		N/A
	b) Transients from a telecommunication network		N/A
G.6	Determination of minimum clearances		N/A
H	ANNEX H, IONIZING RADIATION (see 4.3.13)		N/A
J	ANNEX J, TABLE OF ELECTROCHEMICAL POTENTIALS (see 2.6.5.6)		N/A
	Metal(s) used	Clause 2.6.5 is not applicable	—
K	ANNEX K, THERMAL CONTROLS (see 1.5.3 and 5.3.8)		N/A
K.1	Making and breaking capacity	No thermal control employed	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
L	ANNEX L, NORMAL LOAD CONDITIONS FOR SOME TYPES OF ELECTRICAL BUSINESS EQUIPMENT (see 1.2.2.1 and 4.5.2)		P
L.1	Typewriters	EUT is not a typewriter	N/A
L.2	Adding machines and cash registers	EUT is not an adding m/c	N/A
L.3	Erasers	EUT is not an eraser	N/A
L.4	Pencil sharpeners	EUT is not a pencil sharpener	N/A
L.5	Duplicators and copy machines	EUT is not a dupliator	N/A
L.6	Motor-operated files	EUT is not a motor-operated file	N/A
L.7	Other business equipment	Operated with motor locked	P
M	ANNEX M, CRITERIA FOR TELEPHONE RINGING SIGNALS (see 2.3.1)		N/A
M.1	Introduction	Clause 2.3 is not applicable	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)		—

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Clause	Requirement + Test	Result - Remark	Verdict
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	ANNEX N, IMPULSE TEST GENERATORS (see 1.5.7.2, 1.5.7.3, 2.10.3.9, 6.2.2.1, 7.3.2, 7.4.3 and Clause G.5)		N/A
N.1	ITU-T impulse test generators		N/A
N.2	IEC 60065 impulse test generator		N/A
P	ANNEX P, NORMATIVE REFERENCES		—
Q	ANNEX Q, Voltage dependent resistors (VDRs) (see 1.5.9.1)		N/A
	a) Preferred climatic categories	VDR is not employed	N/A
	b) Maximum continuous voltage		N/A
	c) Pulse current		N/A
R	ANNEX R, EXAMPLES OF REQUIREMENTS FOR QUALITY CONTROL PROGRAMMES		N/A
R.1	Minimum separation distances for unpopulated coated printed boards (see 2.10.6.2)	EUT is not a programmer	N/A
R.2	Reduced clearances (see 2.10.3)		N/A
S	ANNEX S, PROCEDURE FOR IMPULSE TESTING (see 6.2.2.3)		N/A
S.1	Test equipment	Clause 6.2 is not applicable	N/A
S.2	Test procedure		N/A
S.3	Examples of waveforms during impulse testing		N/A
T	ANNEX T, GUIDANCE ON PROTECTION AGAINST INGRESS OF WATER (see 1.1.2)		N/A
			—
U	ANNEX U, INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION (see 2.10.5.4)		N/A
			—

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Clause	Requirement + Test	Result - Remark	Verdict
V	ANNEX V, AC POWER DISTRIBUTION SYSTEMS (see 1.6.1)		N/A
V.1	Introduction		N/A
V.2	TN power distribution systems		N/A
W	ANNEX W, SUMMATION OF TOUCH CURRENTS		N/A
W.1	Touch current from electronic circuits	Ungrounded EUT, operates on 24Vdc from certified Class 2 Power Supply	N/A
W.1.1	Floating circuits		N/A
W.1.2	Earthed circuits		N/A
W.2	Interconnection of several equipments		N/A
W.2.1	Isolation		N/A
W.2.2	Common return, isolated from earth		N/A
W.2.3	Common return, connected to protective earth		N/A
X	ANNEX X, MAXIMUM HEATING EFFECT IN TRANSFORMER TESTS (see clause C.1)		N/A
X.1	Determination of maximum input current	EUT has no transformer	N/A
X.2	Overload test procedure		N/A
Y	ANNEX Y, ULTRAVIOLET LIGHT CONDITIONING TEST (see 4.3.13.3)		N/A
Y.1	Test apparatus	Clasue 4.3.13 is not appliable	N/A
Y.2	Mounting of test samples		N/A
Y.3	Carbon-arc light-exposure apparatus		N/A
Y.4	Xenon-arc light exposure apparatus		N/A
Z	ANNEX Z, OVERVOLTAGE CATEGORIES (see 2.10.3.2 and Clause G.2)		N/A
AA	ANNEX AA, MANDREL TEST (see 2.10.5.8)		N/A
BB	ANNEX BB, CHANGES IN THE SECOND EDITION		—

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Clause	Requirement + Test	Result - Remark	Verdict

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Contents	Add the following annexes: Annex ZA (normative) Normative references to international publications with their corresponding European publications Annex ZB (normative) Special national conditions Annex ZC (informative) A-deviations		P
General	Delete all the "country" notes in the reference document according to the following list: 1.4.8 Note 2 1.5.1 Note 2 & 3 1.5.7.1 Note 1.5.8 Note 2 1.5.9.4 Note 1.7.2.1 Note 4, 5 & 6 2.2.3 Note 2.2.4 Note 2.3.2 Note 2.3.2.1 Note 2 2.3.4 Note 2 2.6.3.3 Note 2 & 3 2.7.1 Note 2.10.3.2 Note 2 2.10.5.13 Note 3 3.2.1.1 Note 3.2.4 Note 3. 4.3.6 Note 1 & 2 4.7 Note 4 4.7.2.2 Note 4.7.3.1 Note 2 5.1.7.1 Note 3 & 4 5.3.7 Note 1 6 Note 2 & 5 6.1.2.1 Note 2 6.1.2.2 Note 6.2.2 Note 6. 2.2.1 Note 2 6.2.2.2 Note 7.1 Note 3 7.2 Note 7.3 Note 1 & 2 G.2.1 Note 2 Annex H Note 2		P
1.3.Z1	Add the following subclause: 1.3.Z1 Exposure to excessive sound pressure The apparatus shall be so designed and constructed as to present no danger when used for its intended purpose, either in normal operating conditions or under fault conditions, particularly providing protection against exposure to excessive sound pressures from headphones or earphones. NOTE Z1 A new method of measurement is described in EN 50332-1, Sound system equipment: Headphones and earphones associated with portable audio equipment - Maximum sound pressure level measurement methodology and limit considerations - Part 1: General method for "one package equipment", and in EN 50332-2, Sound system equipment: Headphones and earphones associated with portable audio equipment - Maximum sound pressure level measurement methodology and limit considerations - Part 2: Guidelines to associate sets with headphones coming from different manufacturers.		P
1.5.1	Add the following NOTE: NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2002/95/EC		P
1.7.2.1	Add the following NOTE: NOTE Z1 In addition, the instructions shall include, as far as applicable, a warning that excessive sound pressure from earphones and headphones can cause hearing loss		P



IEC/EN 60950-1															
Clause	Requirement + Test	Result - Remark	Verdict												
2.7.1	<p>Replace the subclause as follows:</p> <p>Basic requirements</p> <p>To protect against excessive current, short-circuits and earth faults in PRIMARY CIRCUITS, protective devices shall be included either as integral parts of the equipment or as parts of the building installation, subject to the following, a), b) and c):</p> <p>a) except as detailed in b) and c), protective devices necessary to comply with the requirements of 5.3 shall be included as parts of the equipment;</p> <p>b) for components in series with the mains input to the equipment such as the supply cord, appliance coupler, r.f.i. filter and switch, short-circuit and earth fault protection may be provided by protective devices in the building installation;</p> <p>c) it is permitted for PLUGGABLE EQUIPMENT TYPE B or PERMANENTLY CONNECTED EQUIPMENT, to rely on dedicated overcurrent and short-circuit protection in the building installation, provided that the means of protection, e.g. fuses or circuit breakers, is fully specified in the installation instructions.</p> <p>If reliance is placed on protection in the building installation, the installation instructions shall so state, except that for PLUGGABLE EQUIPMENT TYPE A the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet.</p>		P												
2.7.2	This subclause has been declared 'void'.		P												
3.2.3	Delete the NOTE in Table 3A, and delete also in this table the conduit sizes in parentheses.		P												
3.2.5.1	<p>Replace "60245 IEC 53" by "H05 RR-F";</p> <p>"60227 IEC 52" by "H03 VV-F or H03 VVH2-F";</p> <p>"60227 IEC 53" by "H05 VV-F or H05 VVH2-F2".</p> <p>In Table 3B, replace the first four lines by the following:</p> <table border="1"> <tr> <td> Up to and including 6</td> <td></td> <td>0,75^{a)}</td> <td> </td> </tr> <tr> <td> Over 6 up to and including 10</td> <td>(0,75)^{b)}</td> <td>1,0</td> <td> </td> </tr> <tr> <td> Over 10 up to and including 16</td> <td>(1,0)^{c)}</td> <td>1,5</td> <td> </td> </tr> </table> <p>In the conditions applicable to Table 3B delete the words "in some countries" in condition^{a)}.</p> <p>In NOTE 1, applicable to Table 3B, delete the second sentence.</p>	Up to and including 6		0,75 ^{a)}		Over 6 up to and including 10	(0,75) ^{b)}	1,0		Over 10 up to and including 16	(1,0) ^{c)}	1,5			P
Up to and including 6		0,75 ^{a)}													
Over 6 up to and including 10	(0,75) ^{b)}	1,0													
Over 10 up to and including 16	(1,0) ^{c)}	1,5													
3.3.4	<p>In Table 3D, delete the fourth line: conductor sizes for 10 to 13 A, and replace with the following:</p> <table border="1"> <tr> <td> Over 10 up to and including 16</td> <td>1,5 to 2,5</td> <td>1,5 to 4</td> <td> </td> </tr> </table> <p>Delete the fifth line: conductor sizes for 13 to 16 A.</p>	Over 10 up to and including 16	1,5 to 2,5	1,5 to 4			P								
Over 10 up to and including 16	1,5 to 2,5	1,5 to 4													
4.3.13.6	<p>Add the following NOTE:</p> <p>NOTE Z1 Attention is drawn to 1999/519/EC: Council Recommendation on the limitation of exposure of the general public to electromagnetic fields 0 Hz to 300 GHz. Standards taking into account this Recommendation which demonstrate compliance with the applicable EU Directive are indicated in the OJEC.</p>		P												

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
Annex H	<p>Replace the last paragraph of this annex by:</p> <p>At any point 10 cm from the surface of the OPERATOR ACCESS AREA, the dose rate shall not exceed 1 μSv/h (0,1 mR/h) (see NOTE). Account is taken of the background level.</p> <p>Replace the notes as follows:</p> <p>NOTE These values appear in Directive 96/29/Euratom.</p> <p>Delete NOTE 2.</p>		P
Bibliography	Additional EN standards.		—
ZA	NORMATIVE REFERENCES TO INTERNATIONAL PUBLICATIONS WITH THEIR CORRESPONDING EUROPEAN PUBLICATIONS		—
ZB	SPECIAL NATIONAL CONDITIONS		P
1.2.4.1	In Denmark , certain types of Class I appliances (see 3.2.1.1) may be provided with a plug not establishing earthing conditions when inserted into Danish socket-outlets.		N/A
1.5.7.1	In Finland, Norway and Sweden , resistors bridging BASIC INSULATION in CLASS I PLUGGABLE EQUIPMENT TYPE A must comply with the requirements in 1.5.7.2.		N/A
1.5.8	In Norway , due to the IT power system used (see annex V, Figure V.7), capacitors are required to be rated for the applicable line-to-line voltage (230 V).		N/A
1.5.9.4	In Finland, Norway and Sweden , the third dashed sentence is applicable only to equipment as defined in 6.1.2.2 of this annex.		N/A
1.7.2.1	<p>In Finland, Norway and Sweden, CLASS I PLUGGABLE EQUIPMENT TYPE A intended for connection to other equipment or a network shall, if safety relies on connection to protective earth or if surge suppressors are connected between the network terminals and accessible parts, have a marking stating that the equipment must be connected to an earthed mains socket-outlet.</p> <p>The marking text in the applicable countries shall be as follows:</p> <p>In Finland: "Laite on liitettävä suojamaadoituskoskettimilla varustettuun pistorasiaan"</p> <p>In Norway: "Apparatet må tilkoples jordet stikkontakt"</p> <p>In Sweden: "Apparaten skall anslutas till jordat uttag"</p>		N/A
1.7.5	In Denmark , socket-outlets for providing power to other equipment shall be in accordance with the Heavy Current Regulations, Section 107-2-D1, Standard Sheet DK 1-3a, DK 1-5a or DK 1-7a, when used on Class I equipment. For STATIONARY EQUIPMENT the socket-outlet shall be in accordance with Standard Sheet DK 1-1b or DK 1-5a.		N/A
2.2.4	In Norway , for requirements see 1.7.2.1, 6.1.2.1 and 6.1.2.2 of this annex.		N/A
2.3.2	In Finland, Norway and Sweden there are additional requirements for the insulation. See 6.1.2.1 and 6.1.2.2 of this annex.		N/A
2.3.4	In Norway , for requirements see 1.7.2.1, 6.1.2.1 and 6.1.2.2 of this annex.		N/A

IEC/EN 60950-1																											
Clause	Requirement + Test	Result - Remark	Verdict																								
2.6.3.3	In the United Kingdom , the current rating of the circuit shall be taken as 13 A, not 16 A.		N/A																								
2.7.1	In the United Kingdom , to protect against excessive currents and short-circuits in the PRIMARY CIRCUIT of DIRECT PLUG-IN EQUIPMENT, tests according to 5.3 shall be conducted, using an external protective device rated 30 A or 32 A. If these tests fail, suitable protective devices shall be included as integral parts of the DIRECT PLUG-IN EQUIPMENT, so that the requirements of 5.3 are met.		N/A																								
2.10.5.13	In Finland, Norway and Sweden , there are additional requirements for the insulation, see 6.1.2.1 and 6.1.2.2 of this annex.		N/A																								
3.2.1.1	<p>In Switzerland, supply cords of equipment having a RATED CURRENT not exceeding 10 A shall be provided with a plug complying with SEV 1011 or IEC 60884-1 and one of the following dimension sheets:</p> <table border="0"> <tr> <td>SEV 6532-2.1991</td> <td>Plug Type 15</td> <td>3P+N+PE</td> <td>250/400 V, 10 A</td> </tr> <tr> <td>SEV 6533-2.1991</td> <td>Plug Type 11</td> <td>L+N</td> <td>250 V, 10 A</td> </tr> <tr> <td>SEV 6534-2.1991</td> <td>Plug Type 12</td> <td>L+N+PE</td> <td>250 V, 10 A</td> </tr> </table> <p>In general, EN 60309 applies for plugs for currents exceeding 10 A. However, a 16 A plug and socket-outlet system is being introduced in Switzerland, the plugs of which are according to the following dimension sheets, published in February 1998:</p> <table border="0"> <tr> <td>SEV 5932-2.1998</td> <td>Plug Type 25</td> <td>3L+N+PE</td> <td>230/400 V, 16 A</td> </tr> <tr> <td>SEV 5933-2.1998</td> <td>Plug Type 21</td> <td>L+N</td> <td>250 V, 16 A</td> </tr> <tr> <td>SEV 5934-2.1998</td> <td>Plug Type 23</td> <td>L+N+PE</td> <td>250 V, 16 A</td> </tr> </table>	SEV 6532-2.1991	Plug Type 15	3P+N+PE	250/400 V, 10 A	SEV 6533-2.1991	Plug Type 11	L+N	250 V, 10 A	SEV 6534-2.1991	Plug Type 12	L+N+PE	250 V, 10 A	SEV 5932-2.1998	Plug Type 25	3L+N+PE	230/400 V, 16 A	SEV 5933-2.1998	Plug Type 21	L+N	250 V, 16 A	SEV 5934-2.1998	Plug Type 23	L+N+PE	250 V, 16 A		N/A
SEV 6532-2.1991	Plug Type 15	3P+N+PE	250/400 V, 10 A																								
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SEV 5934-2.1998	Plug Type 23	L+N+PE	250 V, 16 A																								
3.2.1.1	<p>In Denmark, supply cords of single-phase equipment having a rated current not exceeding 13 A shall be provided with a plug according to the Heavy Current Regulations, Section 107-2-D1.</p> <p>CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a.</p> <p>If poly-phase equipment and single-phase equipment having a RATED CURRENT exceeding 13 A is provided with a supply cord with a plug, this plug shall be in accordance with the Heavy Current Regulations, Section 107-2-D1 or EN 60309-2.</p>		N/A																								
3.2.1.1	<p>In Spain, supply cords of single-phase equipment having a rated current not exceeding 10 A shall be provided with a plug according to UNE 20315:1994.</p> <p>Supply cords of single-phase equipment having a rated current not exceeding 2,5 A shall be provided with a plug according to UNE-EN 50075:1993.</p> <p>CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules, shall be provided with a plug in accordance with standard UNE 20315:1994.</p> <p>If poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with UNE-EN 60309-2.</p>		N/A																								

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
3.2.1.1	In the United Kingdom , apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS 1363 by means of that flexible cable or cord and plug, shall be fitted with a 'standard plug' in accordance with Statutory Instrument 1768:1994 - The Plugs and Sockets etc. (Safety) Regulations 1994, unless exempted by those regulations. NOTE 'Standard plug' is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.		N/A
3.2.1.1	In Ireland , apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to I.S. 411 by means of that flexible cable or cord and plug, shall be fitted with a 13 A plug in accordance with Statutory Instrument 525:1997 - National Standards Authority of Ireland (section 28) (13 A Plugs and Conversion Adaptors for Domestic Use) Regulations 1997.		N/A
3.2.4	In Switzerland , for requirements see 3.2.1.1 of this annex.		N/A
3.2.5.1	In the United Kingdom , a power supply cord with conductor of 1,25 mm ² is allowed for equipment with a rated current over 10 A and up to and including 13 A.		N/A
3.3.4	In the United Kingdom , the range of conductor sizes of flexible cords to be accepted by terminals for equipment with a RATED CURRENT of over 10 A up to and including 13 A is: • 1,25 mm ² to 1,5 mm ² nominal cross-sectional area.		N/A
4.3.6	In the United Kingdom , the torque test is performed using a socket outlet complying with BS 1363 part 1:1995, including Amendment 1:1997 and Amendment 2:2003 and the plug part of DIRECT PLUG-IN EQUIPMENT shall be assessed to BS 1363: Part 1, 12.1, 12.2, 12.3, 12.9, 12.11, 12.12, 12.13, 12.16 and 12.17, except that the test of 12.17 is performed at not less than 125 °C. Where the metal earth pin is replaced by an Insulated Shutter Opening Device (ISOD), the requirements of clauses 22.2 and 23 also apply.		N/A
4.3.6	In Ireland , DIRECT PLUG-IN EQUIPMENT is known as plug similar devices. Such devices shall comply with Statutory Instrument 526:1997 - National Standards Authority of Ireland (Section 28) (Electrical plugs, plug similar devices and sockets for domestic use) Regulations, 1997.		N/A
5.1.7.1	In Finland, Norway and Sweden TOUCH CURRENT measurement results exceeding 3,5 mA r.m.s. are permitted only for the following equipment: • STATIONARY PLUGGABLE EQUIPMENT TYPE A that <ul style="list-style-type: none"> ○ is intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, for example, in a telecommunication centre; and ○ has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR; and ○ is provided with instructions for the installation of that conductor by a SERVICE PERSON; • STATIONARY PLUGGABLE EQUIPMENT TYPE B; • STATIONARY PERMANENTLY CONNECTED EQUIPMENT.		N/A

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
6.1.2.1	<p>In Finland, Norway and Sweden, add the following text between the first and second paragraph of the compliance clause:</p> <p>If this insulation is solid, including insulation forming part of a component, it shall at least consist of either</p> <ul style="list-style-type: none"> - two layers of thin sheet material, each of which shall pass the electric strength test below, or - one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below. <p>If this insulation forms part of a semiconductor component (e.g. an optocoupler), there is no distance through insulation requirement for the insulation consisting of an insulating compound completely filling the casing, so that CLEARANCES and CREEPAGE DISTANCES do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition</p> <ul style="list-style-type: none"> - passes the tests and inspection criteria of 2.10.11 with an electric strength test of 1,5 kV multiplied by 1,6 (the electric strength test of 2.10.10 shall be performed using 1,5 kV), and - is subject to ROUTINE TESTING for electric strength during manufacturing, using a test voltage of 1,5 kV. <p>It is permitted to bridge this insulation with a capacitor complying with EN 132400:1994, subclass Y2.</p> <p>A capacitor classified Y3 according to EN 132400:1994, may bridge this insulation under the following conditions:</p> <ul style="list-style-type: none"> - the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 132400, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in EN 60950-1:2006, 6.2.2.1; - the additional testing shall be performed on all the test specimens as described in EN 132400; - the impulse test of 2,5 kV is to be performed before the endurance test in EN 132400, in the sequence of tests as described in EN 132400. 		N/A
6.1.2.2	<p>In Finland, Norway and Sweden, the exclusions are applicable for PERMANENTLY CONNECTED EQUIPMENT, PLUGGABLE EQUIPMENT TYPE B and equipment intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, e.g. in a telecommunication centre, and which has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR and is provided with instructions for the installation of that conductor by a SERVICE PERSON.</p>		N/A
7.2	<p>In Finland, Norway and Sweden, for requirements see 6.1.2.1 and 6.1.2.2 of this annex.</p> <p>The term TELECOMMUNICATION NETWORK in 6.1.2 being replaced by the term CABLE DISTRIBUTION SYSTEM.</p>		N/A
7.3	<p>In Norway and Sweden, there are many buildings where the screen of the coaxial cable is normally not connected to the earth in the building installation.</p>		N/A
7.3	<p>In Norway, for installation conditions see EN 60728-11:2005.</p>		N/A
ZC	A-DEVIATIONS (informative)		N/A

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.5.1	Sweden (Ordinance 1990:944) Add the following: NOTE In Sweden, switches containing mercury are not permitted.		N/A
1.5.1	Switzerland (Ordinance on environmentally hazardous substances SR 814.081, Annex 1.7, Mercury - Annex 1.7 of SR 814.81 applies for mercury.) Add the following: NOTE In Switzerland, switches containing mercury such as thermostats, relays and level controllers are not allowed.		N/A
1.7.2.1	Denmark (Heavy Current Regulations) Supply cords of CLASS I EQUIPMENT, which is delivered without a plug, must be provided with a visible tag with the following text: Vigtigt! Lederen med grøn/gul isolation må kun tilsluttes en klemme mærket  eller  If essential for the safety of the equipment, the tag must in addition be provided with a diagram, which shows the connection of the other conductors, or be provided with the following text: "For tilslutning af de øvrige ledere, se medfølgende installationsvejledning."		N/A
1.7.2.1	Germany (Gesetz über technische Arbeitsmittel und Verbraucherprodukte (Geräte- und Produktsicherheitsgesetz – GPSG) [Law on technical labour equipment and consumer products], of 6th January 2004, Section 2, Article 4, Clause (4), Item 2). If for the assurance of safety and health certain rules during use, amending or maintenance of a technical labour equipment or readymade consumer product are to be followed, a manual in German language has to be delivered when placing the product on the market. Of this requirement, rules for use even only by SERVICE PERSONS are not exempted.		N/A
1.7.5	Denmark (Heavy Current Regulations) With the exception of CLASS II EQUIPMENT provided with a socket outlet in accordance with the Heavy Current Regulations, Section 107-2-D1, Standard Sheet DK 1-4a, CLASS II EQUIPMENT shall not be fitted with socket-outlets for providing power to other equipment.		N/A
1.7.13	Switzerland (Ordinance on chemical hazardous risk reduction SR 814.81, Annex 2.15 Batteries) Annex 2.15 of SR 814.81 applies for batteries.		N/A
5.1.7.1	Denmark (Heavy Current Regulations, Chapter 707, clause 707.4) TOUCH CURRENT measurement results exceeding 3,5 mA r.m.s. are permitted only for PERMANENTLY CONNECTED EQUIPMENT and PLUGGABLE EQUIPMENT TYPE B.		N/A

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

1.5.1	TABLE: List of critical components					P
Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity ¹⁾	
Printer Assembly	Seiko	CAP9347E- S640-E	24Vdc, 1.25A	IEC 60950-1	Evaluated along with the EUT	
DC Sepper Motor	Seiko	B420A	24Vdc, 0.50A	IE 60950-1	Evaluated along with the EUT	
¹⁾ An asterisk indicates a mark which assures the agreed level of surveillance						
Supplementary information:						

1.6.2	TABLE: Electrical data (in normal conditions)						P
U (V)	I (A)	Irated (A)	P (W)	Fuse #	Ifuse (A)	Condition/status	
24Vdc	2.4A	2.4A	---	---	---	Normal operation	
Supplementary information:							

2.10.3 and 2.10.4	TABLE: Clearance and creepage distance measurements						N/A
Clearance (cl) and creepage distance (cr) at/of/between:	U peak (V)	U r.m.s. (V)	Required cl (mm)	cl (mm)	Required cr (mm)	cr (mm)	
Functional:							
Basic/supplementary:							
Reinforced:							
Supplementary information: Same as Clause 2.10.1							

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

2.10.5	TABLE: Distance through insulation measurements					N/A
Distance through insulation (DTI) at/of:	U peak (V)	U rms (V)	Test voltage (V)	Required DTI (mm)	DTI (mm)	

Supplementary information: Same as Clause 2.10.1

4.3.8	TABLE: Batteries								N/A
The tests of 4.3.8 are applicable only when appropriate battery data is not available									
Is it possible to install the battery in a reverse polarity position?									
	Non-rechargeable batteries			Rechargeable batteries					
	Discharging		Un-intentional charging	Charging		Discharging		Reversed charging	
	Meas. current	Manuf. Specs.		Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.
Max. current during normal condition									
Max. current during fault condition									
Test results:									
- Chemical leaks									
- Explosion of the battery									
- Emission of flame or expulsion of molten metal									
- Electric strength tests of equipment after completion of tests									
Supplementary information: No battery is employed									

IEC/EN 60950-1							
Clause	Requirement + Test	Result - Remark					Verdict
4.5	TABLE: Thermal requirements						P
	Supply voltage (V)	24Vdc					—
	Ambient T _{min} (°C)	23					—
	Ambient T _{max} (°C)	24					—
Maximum measured temperature T of part/at:		T (°C)					Allowed T _{max} (°C)
Motor enclosure, near pulley		56.9					90
Motor enclosure, at rear		51.3					90
Printer, rear enclosure		38.7					90
Supplementary information:							
Temperature T of winding:		t ₁ (°C)	R ₁ (Ω)	t ₂ (°C)	R ₂ (Ω)	T (°C)	Allowed T _{max} (°C)
Supplementary information: See Table 5.3							

4.5.5	TABLE: Ball pressure test of thermoplastic parts						N/A
	Allowed impression diameter (mm)	≤ 2 mm					—
Part				Test temperature (°C)		Impression diameter (mm)	
Supplementary information: No such part							

4.7	TABLE: Resistance to fire					N/A
Part		Manufacturer of material	Type of material	Thickness (mm)	Flammability class	Evidence
Supplementary information: Component EUT – to be appropriately enclosed in the final product / application						

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.2	TABLE: Electric strength tests, impulse tests and voltage surge tests		N/A
Test voltage applied between:		Voltage shape (AC, DC, impulse, surge)	Test voltage (V) Breakdown Yes / No
Functional:			
Basic/supplementary:			
Reinforced:			
Supplementary information: Component EUT, not protectively earthed and powered thru a Class 2 Power Supply – to be appropriately enclosed in the final product / application			

5.3	TABLE: Fault condition tests: Loked-rotor overload test					P
	Ambient temperature (°C)		23		—	
	Power source for EUT: Manufacturer, model/type, output rating		24Vdc thru certified Class 2 Power Supply		—	
Component No.	Fault	Supply voltage (V)	Test time	Fuse #	Fuse current (A)	Observation
Motor enclosure	Locked-rotor overload test	24Vdc	5 min	---	----	No overheating or component failure; equipment continued to function normally after the test
Printer	Locked-rotor overload test	24Vdc	5 h	---	----	No overheating or component failure; equipment continued to function normally after the test
Supplementary information: The motor was wrapped with a tissue paper between 12 g/m ² and 30 g/m ² covered softwood surface and covered with a single layer of cheesecloth of bleached cotton cloth approximately 40 g/m ² ; Unit continues to operate normally						

List of test equipment used:

Clause	Measurement / testing	Testing / measuring equipment / material used	Range used	Calibration date
1.6.2	Current	Power Analyzer	A	Mar 7, 2011/12
4.5 & 5.3	Temperature	Data Logger	°C., Type J	Sep 9, 2011/12

Report Number CB1123-1
Model 950100

IEC 60950-1 2nd Edition
National differences according to the On-line CB
Bulletin database updated 15 Sep, 2011

CA (Canada)
US (United States of America)

Report Number CB1123-1

Model 950100

Canada - Differences to IEC 60950-1:2005, Second Edition (Modified 2008-07-31)			P
Canada and the United States of America have adopted a single, bi-national standard, CAN/CSA C22.2 No. 60950-1/UL60950-1, Second Edition, which is based on IEC 60950-1, Second Edition. This bi-national standard should be consulted for further details on the national conditions and differences summarized below.			
SPECIAL NATIONAL CONDITIONS			
The following is a summary of the key national differences based on national regulatory requirements, such as the Canadian Electrical Code (CEC) Part I and the Canadian Building Code, which are referenced in legislation and which form the basis for the rules and practices followed in electrical and building installations.			
1.1.1	All equipment is to be designed to allow installation in accordance with the National Electrical Code (NEC), ANSI/NFPA 70, the Canadian Electrical Code (CEC), Part I, CAN/CSA C22.1, and when applicable, the National Electrical Safety Code, IEEE C2. Also, unless marked or otherwise identified, installation is allowed per the Standard for the Protection of Electronic Computer/Data-Processing Equipment, ANSI/NFPA 75.	EUT – Component, ungrounded and not directly connened to mains; to be powered thru a certified Class 2 Power Supply at 24Vdc and appropriately enclosed in the final product / application	N/A
1.4.14	For Pluggable Equipment Type A, the protection in the installation is assumed to be 20A..... :	Not a pluggable equipment; as noted above	P
1.5.5	For lengths exceeding 3.05 m, external interconnecting flexible cord and cable assemblies are required to be a suitable cable type (e.g., DP, CL2) specified in the CEC/NEC. :	Noted; EUT has no such interconnecting cable	N/A
	For lengths 3.05 m or less, external interconnecting flexible cord and cable assemblies that are not types specified in the CEC/NEC are required to have special construction features and identification markings.		N/A
1.7.1	Equipment for use on a.c. mains supply systems with a neutral and more than one phase conductor (e.g. 120/240 V, 3-wire) require a special marking format for electrical ratings.	Noted; same as Clause 1.1.1	N/A
	A voltage rating that exceeds an attachment plug cap rating is only permitted if it does not exceed the extreme operating conditions in Table 2 of CAN/CSA C22.2 No. 235, and if it is part of a range that extends into the Table 2 "Normal Operating Conditions." Likewise, a voltage rating shall not be lower than the specified "Normal Operating Conditions," unless it is part of a range that extends into the "Normal Operating Conditions."		N/A
1.7.7	Wiring terminals intended to supply Class 2 outputs in accordance with CEC Part 1 or NEC shall be marked with the voltage rating and "Class 2" or equivalent. Marking shall be located adjacent to the terminals and shall be visible during wiring.	Noted; EUT has no such Class 2 output	N/A

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2.5	Where a fuse is used to provide Class 2, Limited Power Source, or TNV current limiting, it shall not be operator-accessible unless it is not interchangeable.	Noted; EUT does not provide any source of power	N/A
2.7.1	Suitable NEC/CEC branch circuit protection rated at the maximum circuit rating is required for all standard supply outlets and receptacles (such as supplied in power distribution units) if the supply branch circuit protection is not suitable. Power distribution transformers distributing power at 100 volts or more, and rated 10 kVA or more, require special transformer overcurrent protection.	Noted; EUT does not provide any power outlet	N/A
3.2	Wiring methods (terminals, leads, etc.) used for the connection of the equipment to the mains shall be in accordance with the NEC/CEC.	Noted; same as Clause 1.1.1	N/A
3.2.1	Power supply cords are required to have attachment plugs rated not less than 125 percent of the rated current of the equipment.	Noted; same as Clause 1.1.1	N/A
3.2.1.2	Equipment connected to a centralized d.c. power system, and having one pole of the DC mains input terminal connected to the main protective earthing terminal in the equipment, is required to comply with special earthing, wiring, marking and installation instruction requirements.	Noted; same as Clause 1.1.1	N/A
3.2.3	Permanent connection of equipment to the mains supply by a power supply cord is not permitted, except for certain equipment, such as ATMs.	Noted; same as Clause 1.1.1	N/A
3.2.5	Power supply cords are required to be no longer than 4.5 m in length. Flexible power supply cords are required to be compatible with Tables 11 and 12 of the CEC and Article 400 of the NEC.	Noted; same as Clause 1.1.1	N/A
3.2.9	Permanently connected equipment is required to have a suitable wiring compartment and wire bending space.	Noted; same as Clause 1.1.1	N/A
3.3	Wiring terminals and associated spacings for field wiring connections shall comply with CSA C22.2 No. 0.	Noted; same as Clause 1.1.1	N/A
3.3.3	Wire binding screws are not permitted to attach conductors larger than 10 AWG (5.3 mm ²).	Noted; same as Clause 1.1.1	N/A
3.3.4	Terminals for permanent wiring, including protective earthing terminals, are required to be suitable for Canadian/US wire gauge sizes, rated 125 percent of the equipment rating, and be specially marked when specified (1.7.7).	Noted; same as Clause 1.1.1	N/A
3.4.2	Motor control devices are required for cord-connected equipment with a motor if the equipment is rated more than 12 A, or if the motor has a nominal voltage rating greater than 120 V, or is rated more than 1/3 hp (locked rotor current over 43 A).	Component EUT is rated 24Vd, 2.4A	N/A

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3.4.8	Vertically-mounted disconnect switches and circuit breakers are required to have the "on" position indicated by the handle in the up position.	Noted; Component EUT has no disconnect switch	N/A
3.4.11	For computer room applications, equipment with battery systems capable of supplying 750 VA for five minutes are required to have a battery disconnect means that may be connected to the computer room remote power-off circuit.	Noted; Component EUT has no battery (system)	N/A
	Battery system: When power-off is activated:		N/A
4.3.12	The maximum quantity of flammable liquid stored in equipment is required to comply with NFPA 30.	Noted; no flammable liquid is associated with the EUT	N/A
	Flammable liquid material:..... Flash point: Boiling point: Container material: Storage container size:.....		N/A
4.3.13.5	Equipment with lasers is required to meet the Canadian Radiation Emitting Devices Act, REDR C1370 and/or Code of Federal Regulations 21 CFR 1040, as applicable.	Noted; no laser is associated with the EUT	N/A
4.7	For computer room applications, automated information storage systems with combustible media greater than 0.76 m3 (27 cu ft) are required to have a provision for connection of either automatic sprinklers or a gaseous agent extinguishing system with an extended discharge.	Noted; same as Clause 1.1.1 – not for such application	N/A
4.7.3.1	For computer room applications, enclosures with combustible material measuring greater than 0.9 m2 (10 sq ft) or a single dimension greater than 1.8 m (6 ft) are required to have a flame spread rating of 50 or less. For other applications, enclosures with the same dimensions require a flame spread rating of 200 or less.		N/A
Annex H	Equipment that produces ionizing radiation is required to comply with the Canadian Radiation Emitting Devices Act, REDR C1370 and/or Code of Federal Regulations, 21 CFR 1020, as applicable.	Noted; no radiation is associated with the EUT	N/A

OTHER DIFFERENCES

The following key national differences are based on requirements other than national regulatory requirements.


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1.5.1	Some components and materials associated with the risk of fire, electric shock, or personal injury are required to have component or material ratings in accordance with the applicable national (Canadian and/or U.S.) component or material standard requirements. These components include: attachment plugs, battery packs (rechargeable type, used with transportable equipment), cathode ray tubes, circuit breakers, communication circuit accessories, connectors (used for current interruption of non-LPS circuits), cord sets and power supply cords, direct plug-in equipment, enclosures (outdoor), flexible cords and cables, fuses (branch circuit), fuseholders, ground-fault current interrupters, industrial control equipment, insulating tape, interconnecting cables, lampholders, limit controls, printed wiring, protectors for communications circuits, receptacles, solid state controls, supplementary protectors, switches (including interlock switches), thermal cutoffs, thermostats, (multi-layer) transformer winding wire, transient voltage surge suppressors, tubing, wire connectors, and wire and cables.	Noted; same as Clause 1.1.1	N/A
1.6.1.2	A circuit for connection to the DC Mains Supply is classified as either a SELV Circuit, TNV-2 Circuit or Hazardous Voltage Circuit depending on the maximum operating voltage of the supply. This maximum operating voltage shall include consideration of the battery charging “float voltage” associated with the intended supply system, regardless of the marked power rating of the equipment.		—
2.3.1	For TNV-2 and TNV-3 circuits with other than ringing signals and with voltages exceeding 42.4 V _{peak} or 60 V _{d.c.} , the maximum acceptable current through a 2000 ohm resistor (or greater) connected across the voltage source with other loads disconnected is 7.1 mA peak or 30 mA d.c. under normal operating conditions.	Noted; no TNV circuit is associated with the EUT	N/A
2.3.2.1	In the event of a single fault between TNV and SELV circuits, SELV Circuits and accessible conductive parts comply with the North American limits of 2.2.3.	As noted above	N/A
2.6.3.4	Protective bonding conductors of non-standard protective bonding constructions (e.g., printed circuit traces) subjected to the additional limited short circuit test conditions specified, if required.	Noted; EUT is not protectively bonded	N/A
4.2.8.1	Enclosures around CRTs with a face diameter of 160 mm or more are provided with suitable enclosure to reduce the risk of injury due to the implosion of the CRT.	Noted; no CRT is associated with the EUT	N/A
	Projected area of opening : Minor dimension of projected area :		—

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4.2.11	For equipment intended for mounting on racks and provided with slide/rails allowing the equipment to slide away from the rack for installation, service and maintenance, additional construction, performance and marking requirements are applicable to determine the adequacy of the slide/rails.	Noted; EUT is not intended for mounting on racks	N/A
4.3.2	Equipment with handles is required to comply with special loading tests.	Noted; EUT has no handle	N/A
5.1.8.3	Equipment intended to receive telecommunication ringing signals is required to comply with a special touch current measurement tests.	Noted; EUT is not intended to receive telecommunication signals	N/A
	Ringing ports provided: Simulation provided to: Measured total touch current :		—
5.3.7	Internal (e.g., card cage) SELV circuit connectors and printed wiring board connectors that are accessible to the operator and that deliver power are to be overloaded. During abnormal operating testing, if a circuit is interrupted by the opening of a component, the test shall be repeated twice (three tests total) using new components as necessary.	Noted; same as Clause 1.1.1	N/A
6.4	Equipment intended for connection to telecommunication network outside plant cable is required to be protected against overvoltage from power line crosses in accordance with 6.4 and Annex NAC.	Noted; EUT is not intended for connection to telecommunication network	N/A
M.2	Continuous ringing signals up to 16 mA only are permitted if the equipment is subjected to special installation and performance restrictions.	Noted; no ringing signal is associated with the EUT	N/A
Annex NAD	Equipment connected to a telecommunication and cable distribution networks and supplied with an earphone intended to be held against, or in the ear is required to comply with special acoustic pressure requirements.	Noted; EUT is not intended for connection to telecommunication or cable distribution network	N/A
Annex NAF	Document (paper) shredders likely to be used in a home or home office (Pluggable Equipment Type A plug configuration) are required to comply with additional requirements, including markings/instructions, protection against inadvertent reactivation of a safety interlock, disconnection from the mains supply (via provision of an isolating switch), and protection against operator access (accessibility determined via new accessibility probe & probe/wedge).	Noted; EUT is not a paper shredder	N/A
Annex NAF Household/home office Document shredders			N/A
NAF1.7	Markings and Instructions	Noted; EUT is not a paper or document shredder	N/A

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NAF 1.7.15	Symbols alerting the user to the following considerations are provided adjacent to the document feed opening. These symbols are explained in the instructions:		N/A
	Product is not intended for use by children (product is not a toy) :		N/A
	Avoid touching the document feed opening with hands :		N/A
	Avoid clothing touching the document feed opening		N/A
	Keep aerosol products away (applicable for product with brush motor only) :		N/A
	The  (ISO 7000-0434) symbol to alert user to important operating, maintenance and/or servicing instructions and the explanation of above symbols		N/A
	Marking is permanent, comprehensible and easily discernible on the equipment.		N/A
NAF 2.8.3	Safety interlock can not be activated by articulated accessibility probe (NAF.1)	Noted; EUT has no safety interlock	N/A
NAF 3.4	Isolation switch complying with 3.4.2 is provided to disconnect power to hazardous moving parts	Noted; EUT has no isolation switch	N/A
	On/off marking is provided for two position switch :		N/A
	Off marking for multi-position switch :		N/A
NAF 4.4	Protection against hazardous moving parts	Noted; same as Clause 1.1.1	N/A
	Accessibility probe (Fig NAF.1) is inserted without force into each opening and did not contact hazardous moving parts		N/A
	Operator accessible guards are removed and Accessibility wedge is inserted into each opening according without contacting mechanical hazards:		—
	Strip-cut (45N):		N/A
	Cross-cut (90N)		N/A

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USA - Differences to IEC 60950-1:2005, Second Edition (Modified 2007-08-08)			P
UL60950-1, Second Edition SPECIAL NATIONAL CONDITIONS BASED ON FEDERAL REGULATIONS			
1.1.1	All equipment is to be designed to allow installation in accordance with the National Electrical Code (NEC), ANSI/NFPA 70, and when applicable, the National Electrical Safety Code, IEEE C2. Also, unless marked or otherwise identified, installation is allowed per the Standard for the Protection of Electronic Computer/Data-Processing Equipment, ANSI/NFPA 75.	EUT – Component, ungrounded and not directly connened to mains; to be powered thru a certified Class 2 Power Supply at 24Vdc and appropriately enclosed in the final product / application	N/A
1.4.14	For Pluggable Equipment Type A, the protection in the installation is assumed to be 20 A.	Noted; same as Clause 1.1.1	N/A
1.5.5	For lengths exceeding 3.05 m, external interconnecting flexible cord and cable assemblies are required to be a suitable cable type specified in the NEC. For lengths 3.05 m or less, external interconnecting flexible cord and cable assemblies that are not types specified in the NEC are required to have special construction features and identification markings.	Noted; EUT has no such interconnecting cable	N/A
1.7.1	Equipment for use on a.c. mains supply systems with a neutral and more than one phase conductor (e.g. 120/240 V, 3-wire) require a special marking format for electrical ratings.	Noted; same as Clause 1.1.1	N/A
2.5	Where a fuse is used to provide Class 2, Limited Power Source, or TNV current limiting, it shall not be operator-accessible unless it is not interchangeable.	Noted; EUT does not provide any power)output)	N/A
2.7.1	Suitable NEC branch circuit protection rated at the maximum circuit rating is required for all standard supply outlets and receptacles (such as supplied in power distribution units) if the supply branch circuit protection is not suitable. Power distribution transformers distributing power at 100 volts or more, and rated 10 kVA or more, require special transformer overcurrent protection.	Noted; unit has no supply outlet or receptacles	N/A
3.2	Wiring methods (terminals, leads, etc.) used for the connection of the equipment to the mains shall be in accordance with the NEC.	Noted; same as Clause 1.1.1	N/A
3.2.1	Power supply cords are required to have attachment plugs rated not less than 125 percent of the rated current of the equipment.		N/A
3.2.1.2	Equipment connected to a centralized d.c. power system, and having one pole of the DC mains input terminal connected to the main protective earthing terminal in the equipment, is required to comply with special earthing, wiring, marking and installation		N/A

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	instruction requirements.		
3.2.3	Permanent connection of equipment to the mains supply by a power supply cord is not permitted, except for certain equipment, such as ATMs.		N/A
3.2.5	Power supply cords are required to be no longer than 4.5 m in length and minimum length shall be 1.5 m. Flexible power supply cords are required to be compatible with Article 400 of the NEC.		N/A
3.2.9	Permanently connected equipment must have a suitable wiring compartment and wire bending space.		N/A
3.3.3	Wire binding screws are not permitted to attach conductors larger than 10 AWG (5.3 mm ²).	Noted; no wire binding screw is used with the EUT	N/A
3.3.4	Terminals for permanent wiring, including protective earthing terminals, must be suitable for U.S wire gauge sizes, rated 125 percent of the equipment rating, and be specially marked when specified (1.7.7).	Noted; same as Clause 1.1.1	N/A
3.4.2	Motor control devices are required for cord-connected equipment with a motor if the equipment is rated more than 12 A, or if the motor has a nominal voltage rating greater than 120 V, or is rated more than 1/3 hp (locked rotor current over 43 A).	Noted; same as Clause 1.1.1	N/A
3.4.8	Vertically-mounted disconnect switches and circuit breakers are required to have the "on" position indicated by the handle in the up position.	Noted; EUT has no disconnect switches or circuit breakers	N/A
4.3.12	The max. quantity of flammable liquid stored in equipment per ANSI/NFPA 30 (Table NAE.6)	Noted; no flammable liquid is associated with the EUT	N/A
4.3.13.5	Equipment with lasers is required to meet the Code of Federal Regulations 21 CFR 1040.	Noted; no laser is associated with the EUT	N/A
4.7	For computer room applications, automated information storage systems with combustible media greater than 0.76 m ³ (27 cu ft) are required to have a provision for connection of either automatic sprinklers or a gaseous agent extinguishing system with an extended discharge.	Noted; EUT is not for such application	N/A
4.7.3.1	For computer room applications, enclosures with combustible material measuring greater than 0.9 m ² (10 sq ft) or a single dimension greater than 1.8 m (6 ft) are required to have a flame spread rating of 50 or less. For other applications, enclosures with the same dimensions require a flame spread rating of 200 or less.		N/A
H	Equipment that produces ionizing radiation must comply with Federal Regulations, 21 CFR 1020	Noted; no ionizing radiation is associated with the EUT	N/A
OTHER NATIONAL DIFFERENCES			

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1.5.1	Some components and materials associated with the risk of fire, electric shock, or personal injury are required to have component or material ratings in accordance with the applicable national (U.S. and Canadian) component or material requirements. These components include: attachment plugs, battery packs (rechargeable type, used with transportable equipment), cathode ray tubes, circuit breakers, communication circuit accessories, connectors (used for current interruption of non-LPS circuits), cord sets and power supply cords, direct plug-in equipment, enclosures (outdoor), flexible cords and cables, fuses (branch circuit), fuseholders, ground-fault current interrupters, industrial control equipment, insulating tape, interconnecting cables, lampholders, limit controls, printed wiring, protectors for communications circuits, receptacles, solid state controls, supplementary protectors, switches (including interlock switches), thermal cutoffs, thermostats, (multi-layer) transformer winding wire, transient voltage surge suppressors, tubing, wire connectors, and wire and cables.	EUT does not employ any such component	N/A
1.6.1.2	A circuit for connection to the DC Mains Supply is classified as either a SELV Circuit, TNV-2 Circuit or Hazardous Voltage Circuit depending on the maximum operating voltage of the supply. This maximum operating voltage it to include consideration of the battery charging “float voltage” associated with the intended supply system, regardless of the marked power rating of the equipment.	Noted; same as Clause 1.1.1	N/A
2.3.1	For TNV-2 and TNV-3 circuits with other than ringing signals and with voltages exceeding 42.4 V _{peak} or 60 V _{d.c.} , the max. acceptable current through a 2000 ohm resistor (or greater) connected across the voltage source with other loads disconnected is 7.1 mA peak or 30 mA d.c. under normal operating conditions.	Noted; EUT is not for connection to TNV circuit	N/A
2.3.2.1	In the event of a single fault between TNV and SELV circuits, the limits of 2.2.3 apply to SELV Circuits and accessible conductive parts.	Noted; EUT is not for connection to TNV circuit	N/A
2.6.3.4	Protective bonding conductors of non-standard protective bonding constructions (e.g., printed circuit traces) may be subjected to the additional limited short circuit test conditions specified.	Noted; same as Clause 1.1.1	N/A
4.2.8.1	Enclosures around CRTs with a face diameter of 160 mm or more are required to reduce the risk of injury due to the implosion of the CRT.	Noted; no CRT is associated with the EUT	N/A
4.2.11	For equipment intended for mounting on racks and provided with slide/rails allowing the equipment to	Noted; EUT is not for intended for mounting on racks	N/A

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	slide away from the rack for installation, service and maintenance, additional construction, performance and marking requirements are applicable to determine the adequacy of the slide/rails.		
4.3.2	Equipment with handles is required to comply with special loading tests.	Noted; EUT has no handle	N/A
5.1.8.3	Equipment intended to receive telecommunication ringing signals is required to comply with a special touch current measurement tests.	Noted; no telecommunication signal is associated with the EUT	N/A
5.3.7	Internal (e.g., card cage) SELV circuit connectors and printed wiring board connectors that are accessible to the operator and that deliver power are to be overloaded. During abnormal operating testing, if a circuit is interrupted by the opening of a component, the test shall be repeated twice (three tests total) using new components as necessary.	Noted; same as Clause 1.1.1	N/A
6.4	Equipment intended for connection to telecommunication network outside plant cable is required to be protected against overvoltage from power line crosses in accordance with 6.4 and Annex NAC.	Noted; EUT is not connected to telecommunication network	N/A
M.2	Continuous ringing signals up to 16 mA only are permitted if the equipment is subjected to special installation and performance restrictions.	Noted; ringing signal is not associated with the EUT	N/A
Annex NAD	Equipment connected to a telecommunication and cable distribution networks and supplied with an earphone intended to be held against, or in the ear is required to comply with special acoustic pressure requirements.	Noted; EUT is not connected to telecommunication or cable distribution network	N/A
Annex NAF	Document (paper) shredders likely to be used in a home or home office (Pluggable Equipment Type A plug configuration) are required to comply with additional requirements, including markings/instructions, protection against inadvertent reactivation of a safety interlock, disconnection from the mains supply (via provision of an isolating switch), and protection against operator access (accessibility determined via new accessibility probe & probe/wedge).	Noted; EUT is not a document (paper) shredder	N/A

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Photo 1: Side and Top View

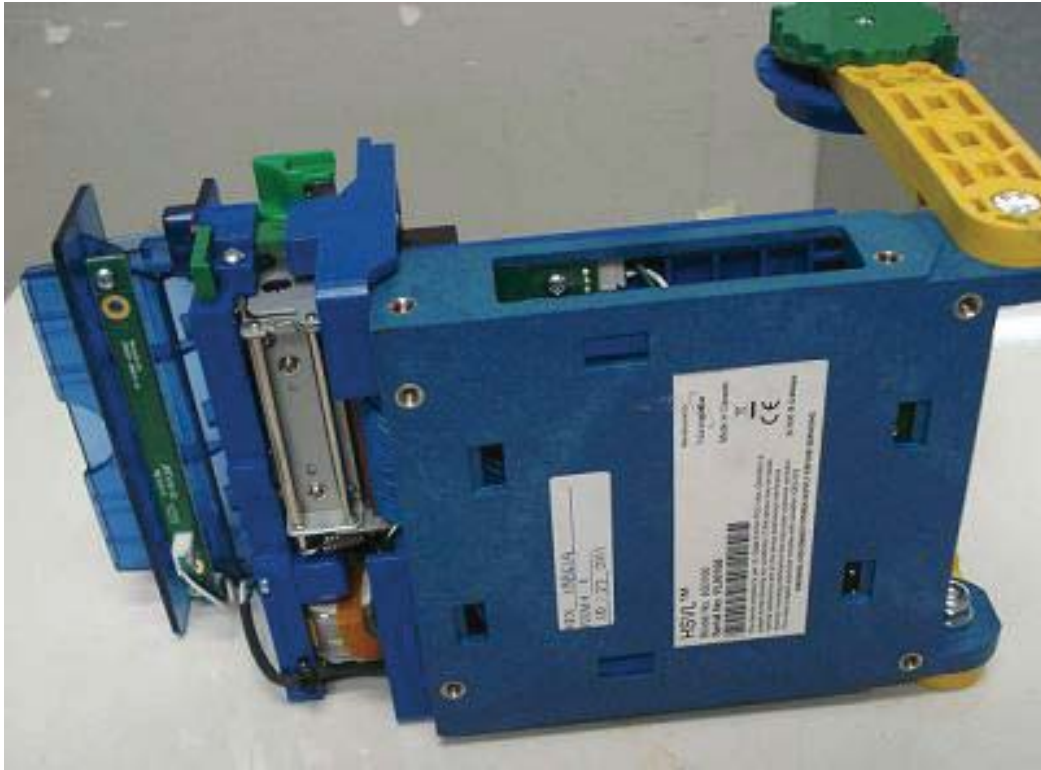


Photo 2: Side and Bottom View

