COVER PAGE FOR TEST REPORT

Product Category:	Information Technology Equipment Including Electrical Business Equipment
Product Category CCN:	NWGQ, NWGQ7
Test Procedure:	Listing
Product:	Personal Computer
Model/Type Reference:	SPC-57XXXXX, SPC-64XXXXX, where X may be any alphanumeric character or blank.
Rating(s):	19 V dc, 1.0 A
Standards:	UL 60950-1:2003, First Edition CSA C22.2 No. 60950-1-03 1st Ed. April 1, 2003
Applicant Name and Address:	ADVANTECH CO LTD 4TH FL 108-3 MING-CHUAN RD SHING-TIEN CITY TAIPEI HSIEN TAIWAN

This Report includes the following parts, in addition to this cover page:

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

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

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Pursuant to the Corporate Services Agreement between UL International Services Limited and UL, UL hereby accepts and issues this Test Report.

Test Report By:

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Reviewed By:

Andy Tsai
Engineering Team Leader
UL International Services Limited

SPECIFIC INSPECTION CRITERIA

BA1.0	**Special Instructions to UL Representative**
BA1.1	N/A

BB1.0	**Supporting Documentation**
BB1.1	The following documents located at the beginning of this Procedure supplement the requirements of this Test Report: A. Authorization - The Authorization page may include additional Factory Identification Code markings. B. Generic Inspection Instructions - i. Part AC details important information which may be applicable to products covered by this Procedure. Products described in this Test Report must comply with any applicable items listed unless otherwise stated in the body of this Test Report. ii. Part AE details any requirements which may be applicable to all products covered by this Procedure. Products described in this Test Report must comply with any applicable items listed unless otherwise stated in the body of each Test Report. iii. Part AF details the requirements for the UL Certification Mark which is not controlled by the technical standard used to investigate these products. Products are permitted to bear only the Certification Mark(s) corresponding to the countries for which it is certified, as indicated in each Test Report.

BC1.0	**Markings and instructions**
BC1.1	The following markings and instructions are provided as indicated.
BC1.2	All clause references are from UL 60950-1:2003, First Edition.

Standard Clause	Clause Title	Marking or Instruction Details
1.5.5	Inter-connecting cables - External detachable	Listee's Name and Part number (Marking or Instruction)
1.7.1	Power rating - Company identification	Listee's or Recognized company's name, Trade Name, Trademark or File Number
	Power rating - Model	Model Number
1.7.8.3	Symbols - On/Off switch	All other controls to be marked with	symbol for "ON" (60417-2-IEC-5007) and ○ symbol for "OFF" (60417-2-IEC-5008)
1.7.15	Replaceable batteries	"CAUTION: Risk of Explosion if Battery is replaced by an Incorrect Type. Dispose of Used Batteries According to the Instructions."

BD1.0	**Production-Line Testing Requirements**	
BD1.1	Electric Strength Test Special Constructions - Refer to Generic Inspection Instructions, Part AC for further information.	
	Model / Component / Removable Parts / Test probe location / Test Potential V rms / Test Potential V dc / Test Time, s	
	N/A	
BD1.2	Earthing Continuity Test Exemptions - This test is not required for the following models:	Model PPC-S154xxx
BD1.3	Electric Strength Test Exemptions - This test is not required for the following models:	Model PPC-S154xxx
BD1.4	Electric Strength Test Component Exemptions - The following solid-state components may disconnected from the remainder of the circuitry during the performance of this test:	-

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

SPECIFIC TECHNICAL CRITERIA

UL 60950-1, First Edition Information technology equipment - Safety- Part 1: General Requirements	
Report Reference No.	E180881-A51-UL-1
Compiled by	Jong Lee
Reviewed by	Andy Tsai
Date of issue	2004-08-31
Standards	UL 60950-1:2003, First Edition CSA C22.2 No. 60950-1-03 1st Ed. April 1, 2003
Test procedure	Listing
Non-standard test method	N/A
Test item description	Personal Computer
Trademark	None
Model and/or type reference	SPC-57XXXXX, SPC-64XXXXX, where X may be any alphanumeric character or blank.
Rating(s)	19 V dc, 1.0 A

Particulars: test item vs. test requirements	
Equipment mobility	movable
Operating condition	continuous
Mains supply tolerance (%)	No direct connection
Tested for IT power systems	No
IT testing, phase-phase voltage (V)	N/A
Class of equipment	Class III (supplied by SELV)
Mass of equipment (kg)	1.38 kg for SPC-57XXXXX, 1.42 kg for SPC-64XXXXX
Protection against ingress of water	IP X0

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

General remarks:

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

GENERAL PRODUCT INFORMATION:	
CA1.0	**Report Summary**
CA1.1	N/A
CB1.0	**Product Description**
CB1.1	This computer device includes a mainboard, I/O connector, PCMCIA, RAM, LCD screen, electronics componets housed on PWB and mounted a metal enclosure, and is powered by a LPS Listed external power adapter providing SELV input voltage levels.
CC1.0	**Model Differences**
CC1.1	Model SPC-64XXXXX is similar to Model SPC-57XXXXX, except for model designation and LCD panel size.
CD1.0	**Additional Information**
CD1.1	N/A
CE1.0	**Technical Considerations**
CE1.2	The product was submitted and tested for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of: 50 degree C
CE1.5	The equipment disconnect device is considered to be: Power supply adapter
CE1.8	The following accessible locations (with circuit/schematic designation) are within a limited current circuit: DC/AC Inverter
CE1.9	The following circuit locations (with circuit/schematic designation) were investigated as a limited power source (LPS): USB connectors

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1	**GENERAL**		Pass
1.5	Components		Pass
1.5.1	General		Pass
	Comply with IEC 60950 or relevant component standard	(see appended table 1.5.1)	Pass
1.5.2	Evaluation and testing of components	Components certified to IEC harmonized standard and checked for correct application.	Pass
1.5.3	Thermal controls	There are no thermal controller used.	N/A
1.5.4	Transformers		N/A
1.5.5	Interconnecting cables	Interconnecting cables comply with the relevant requirements of this standard.	Pass
1.5.6	Capacitors in primary circuits .....:	Use certified power adapter	N/A
1.5.7	Double insulation or reinforced insulation bridged by components		N/A
1.5.7.1	General		N/A
1.5.7.2	Bridging capacitors		N/A
1.5.7.3	Bridging resistors		N/A
1.5.7.4	Accessible parts		N/A
1.5.8	Components in equipment for IT power systems		N/A
1.6	**Power interface**		Pass
1.6.1	AC power distribution systems		N/A
1.6.2	Input current	(see appended table 1.6.2) The steady state input current of the equipment did not exceed the RATED CURRENT by more than 10% under NORMAL LOAD.	Pass
1.6.3	Voltage limit of hand-held equipment	The unit is not hand-held equipment.	N/A
1.6.4	Neutral conductor		N/A

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.7	**Marking and instructions**		Pass
1.7.1	Power rating	No direct mains connection. Class III unit intended to be supplied by an external non-energy hazardous SELV power supply.	N/A
	Rated voltage(s) or voltage range(s) (V).....:	19 V d.c.	Pass
	Symbol for nature of supply, for d.c. only.....:	60417-2-IEC-5031 symbol marked.	Pass
	Rated frequency or rated frequency range (Hz) ....:	dc	N/A
	Rated current (mA or A) .....:	1.0 A	N/A
	Manufacturer's name or trademark or identification mark .....:	Advantech Co., Ltd./Advantech.	Pass
	Type/model or type reference.....:	SPC-57XXXXX, SPC-64XXXXX, where X may be any alphanumeric character or blank.	Pass
	Symbol for Class II equipment only .....:	Class III equipment.	N/A
	Other symbols.....:		N/A
	Certification marks .....:	UL, C-UL.	Pass
1.7.2	Safety instructions	Only English instructions reviewed. Other language version will be provided when submitted for national approval.	Pass
1.7.3	Short duty cycles	Equipment is designed for continuous operation.	N/A
1.7.4	Supply voltage adjustment .....:	No direct mains connection.	N/A
1.7.5	Power outlets on the equipment .....:	No standard power outlets are provided.	N/A
1.7.6	Fuse identification .....:		N/A
1.7.7	Wiring terminals	Class III equipment.	N/A
1.7.7.1	Protective earthing and bonding terminals.....:		N/A
1.7.7.2	Terminal for a.c. mains supply conductors		N/A
1.7.7.3	Terminals for d.c. mains supply conductors		N/A
1.7.8	Controls and indicators	No safety related switches or indicators.	N/A

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.7.8.1	Identification, location and marking.....:	The function of controls affecting safety is obvious regardless of language.	Pass
1.7.8.2	Colours .....:		N/A
1.7.8.3	Symbols according to IEC 60417 .....:	The mains switch is marked with the symbols: "0" and "I" (60417-1-IEC-5007 and IEC-5008).	Pass
1.7.8.4	Markings using figures .....:	Figures are not used for indicating different positions of controls.	N/A
1.7.9	Isolation of multiple power sources.....:	Class III unit intended to be supplied by an external non-energy hazardous SELV power supply.	N/A
1.7.10	IT power distribution systems		N/A
1.7.11	Thermostats and other regulating devices	No thermostats or similar regulating devices.	N/A
1.7.12	Language.....:	Reviewed only English markings/instructions. May be provided in other languages upon request from the manufacturer.	-
1.7.13	Durability	The marking(s) withstood the required test.	Pass
1.7.14	Removable parts	No marking is located on (a) removable part(s).	Pass
1.7.15	Replaceable batteries	The lithium battery is not located in an Operator Access Area. Marking provided in manual.	Pass
	Language.....:	English.	-
1.7.16	Operator access with a tool.....:	No operator access areas require the use of a tool.	Pass
1.7.17	Equipment for restricted access locations.....:	Equipment not intended for installation in a RESTRICTED ACCESS LOCATION.	N/A

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
2	**PROTECTION FROM HAZARDS**		Pass
2.1	Protection from electric shock and energy hazards		Pass
2.1.1	Protection in operator access areas		Pass
2.1.1.1	Access to energized parts	No operator access to energized parts.	Pass
	Test by inspection .....:	No operator access to energized parts.	Pass
	Test with test finger .....:	The test finger was unable to contact bare hazardous parts, basic insulation, or ELV circuits.	Pass
	Test with test pin .....:	The test pin was unable to contact bare hazardous parts.	Pass
	Test with test probe .....:	No TNV present.	N/A
2.1.1.2	Battery compartments .....:	There is no access to bare conductive parts of TNV CIRCUITS within a dedicated battery compartment.	N/A
2.1.1.3	Access to ELV wiring	No internal wiring in an ELV circuits is accessible to the operator.	N/A
	Working voltage (V); minimum distance (mm) through insulation .....:		-
2.1.1.4	Access to hazardous voltage circuit wiring		N/A
2.1.1.5	Energy hazards .....:	No energy hazards in operator access area. The connectors on the equipment below 240VA.	Pass
2.1.1.6	Manual controls	The equipment does not contain any knobs, handles, levers, or the like.	N/A
2.1.1.7	Discharge of capacitors in equipment	Evaluated during power supply investigation.	N/A
	Time-constant (s); measured voltage (V) .....:		-
2.1.2	Protection in service access areas	No bare parts operating at HAZARDOUS VOLTAGES in a service access area.	Pass
2.1.3	Protection in restricted access locations	The unit is not intended to be used in restricted locations.	N/A

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
2.2	**SELV circuits**		Pass
2.2.1	General requirements	SELV levels are maintained after single fault condition. The unit is supplied by approved AC adapter. The SELV reliability were considered as an element of certify power adapter.	Pass
2.2.2	Voltages under normal conditions (V).....:	All accessible voltages are less than 42.4 Vp or 60 V dc and are classified as SELV.	Pass
2.2.3	Voltages under fault conditions (V).....:	Class III equipment.	N/A
2.2.3.1	Separation by double insulation or reinforced insulation (method 1)	Class III equipment.	N/A
2.2.3.2	Separation by earthed screen (method 2)		N/A
2.2.3.3	Protection by earthing of the SELV circuit (method 3)		N/A
2.2.4	Connection of SELV circuits to other circuits.....:	SELV connected to limited current circuit.	Pass
2.3	**TNV circuits**		N/A
2.3.1	Limits		N/A
	Type of TNV circuits.....:	No TNV circuits in unit.	-
2.3.2	Separation from other circuits and from accessible parts		N/A
	Insulation employed .....:		-
2.3.3	Separation from hazardous voltages		N/A
	Insulation employed .....:		-
2.3.4	Connection of TNV circuits to other circuits		N/A
	Insulation employed .....:		-
2.3.5	Test for operating voltages generated externally		N/A

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
2.4	**Limited current circuits**		Pass
2.4.1	General requirements		Pass
2.4.2	Limit values	70 mA peak	Pass
	Frequency (Hz) .....:	King core, HY1011: frequency 42.37 kHz in CN2 pin 1 to pin 2 , while normal. Max frequency 48.08 kHz in CN2 pin 2 to Earth, while R13 open.	-
	Measured current (mA) .....:	The steady-state current drawn through a non-inductive resistor did not exceed 70 mA peak.(for LCD Lamp Inverter) King core, HY1011: max. current 12.0 mA in CN2 pin 1 to pin 2 , while normal.	-
	Measured voltage (V).....:	King core, HY1011: max. voltage 24.0 V peak in CN2 pin 1 to pin 2 , while normal. The open circuit voltage: King core, HY1011: 1380 V peak in CN2 pin 1 to pin 2.	-
	Measured capacitance (mF).....:	Maximum normal circuit voltage less than 15 kV peak or dc. King core, HY1011: circuit capacitance is 0.01 nF, stored charge 0.0138 µC.	-
2.4.3	Connection of limited current circuits to other circuits	Limited current circuit meets the limits of 2.4.2 under normal conditions and under single component or insulation faults in interconnected circuits.	Pass

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
2.5	**Limited power sources**		Pass
	Inherently limited output	USB connectors complied with the requirements.	Pass
	Impedance limited output	See Table 1.5.1 for PTC specifications. Protects USB I/O connectors.	Pass
	Overcurrent protective device limited output		N/A
	Regulating network limited output under normal operating and single fault condition		N/A
	Regulating network limited output under normal operating conditions and overcurrent protective device limited output under single fault condition		N/A
	Output voltage (V), output current (A), apparent power (VA):.....:	USB connector: Max. 4.95 Vdc, 1.9 A, 7.39 VA measured.	-
	Current rating of overcurrent protective device (A):		-

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
2.6	**Provisions for earthing and bonding**		N/A
2.6.1	Protective earthing		N/A
2.6.2	Functional earthing		N/A
2.6.3	Protective earthing and protective bonding conductors		N/A
2.6.3.1	General		N/A
2.6.3.2	Size of protective earthing conductors		N/A
	Rated current (A), cross-sectional area (mm2), AWG.....:		-
2.6.3.3	Size of protective bonding conductors		N/A
	Rated current (A), cross-sectional area (mm2), AWG.....:		-
2.6.3.4	Resistance (W) of earthing conductors and their terminations, test current (A) .....:		N/A
2.6.3.5	Colour of insulation .....:		N/A
2.6.4	Terminals		N/A
2.6.4.1	General		N/A
2.6.4.2	Protective earthing and bonding terminals		N/A
	Rated current (A), type and nominal thread diameter (mm) .....:		-
2.6.4.3	Separation of the protective earthing conductor from protective bonding conductors		N/A
2.6.5	Integrity of protective earthing		N/A
2.6.5.1	Interconnection of equipment		N/A
2.6.5.2	Components in protective earthing conductors and protective bonding conductors		N/A
2.6.5.3	Disconnection of protective earth		N/A
2.6.5.4	Parts that can be removed by an operator		N/A
2.6.5.5	Parts removed during servicing		N/A
2.6.5.6	Corrosion resistance		N/A
2.6.5.7	Screws for protective bonding		N/A
2.6.5.8	Reliance on telecommunication network or cable distribution system		N/A

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
2.7	**Overcurrent and earth fault protection in primary circuits**		N/A
2.7.1	Basic requirements	The unit is supplied by SELV and does not connect to primary circuits directly.	N/A
	Instructions when protection relies on building installation		N/A
2.7.2	Faults not covered in 5.3		N/A
2.7.3	Short-circuit backup protection		N/A
2.7.4	Number and location of protective devices .....:		N/A
2.7.5	Protection by several devices		N/A
2.7.6	Warning to service personnel .....:		N/A
2.8	**Safety interlocks**		N/A
2.8.1	General principles	There are no interlock provided.	N/A
2.8.2	Protection requirements		N/A
2.8.3	Inadvertent reactivation		N/A
2.8.4	Fail-safe operation		N/A
2.8.5	Moving parts		N/A
2.8.6	Overriding		N/A
2.8.7	Switches and relays		N/A
2.8.7.1	Contact gaps (mm).....:		N/A
2.8.7.2	Overload test		N/A
2.8.7.3	Endurance test		N/A
2.8.7.4	Electric strength test		N/A
2.8.8	Mechanical actuators		N/A

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
2.9	**Electrical insulation**		Pass
2.9.1	Properties of insulating materials	Natural rubber, materials containing asbestos and hygroscopic materials are not used as insulation.	Pass
2.9.2	Humidity conditioning		N/A
	Humidity (%) .....:		-
	Temperature (°C) .....:		-
2.9.3	Grade of insulation		N/A

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
2.10	**Clearances, creepage distances and distances through insulation**		Pass
2.10.1	General	All circuits are SELV. Only functional insulation required.	Pass
2.10.2	Determination of working voltage		Pass
2.10.3	Clearances		Pass
2.10.3.1	General		Pass
2.10.3.2	Clearances in primary circuit		N/A
2.10.3.3	Clearances in secondary circuits	(see appended table 2.10.3 and 2.10.4)	Pass
2.10.3.4	Measurement of transient voltage levels		N/A
2.10.4	Creepage distances	(see appended table 2.10.3 and 2.10.4)	Pass
	CTI tests .....:	Material group IIIb; 100 <= CTI < 175.	-
2.10.5	Solid insulation		N/A
2.10.5.1	Minimum distance through insulation		N/A
2.10.5.2	Thin sheet material		N/A
	Number of layers (pcs) .....:		-
	Electric strength test.....:		-
2.10.5.3	Printed boards		N/A
	Distance through insulation		N/A
	Electric strength test for thin sheet insulating material.....:		-
	Number of layers (pcs) .....:		N/A
2.10.5.4	Wound components		N/A
	Number of layers (pcs) .....:		N/A
	Two wires in contact inside wound component; angle between 45° and 90° .....:		N/A
2.10.6	Coated printed boards		N/A
2.10.6.1	General		N/A
2.10.6.2	Sample preparation and preliminary inspection		N/A
2.10.6.3	Thermal cycling		N/A
2.10.6.4	Thermal ageing (°C).....:		N/A

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
2.10.6.5	Electric strength test.....:		-
2.10.6.6	Abrasion resistance test		N/A
	Electric strength test.....:		-
2.10.7	Enclosed and sealed parts .....:		N/A
	Temperature T1=T2 = Tma - Tamb +10K (°C).....:		N/A
2.10.8	Spacings filled by insulating compound .....:		N/A
	Electric strength test.....:		-
2.10.9	Component external terminations		N/A
2.10.10	Insulation with varying dimensions		N/A
3	**WIRING, CONNECTIONS AND SUPPLY**		Pass
3.1	General		Pass
3.1.1	Current rating and overcurrent protection		Pass
3.1.2	Protection against mechanical damage	The wires are routed away from sharp edges and parts which could damage insulation.	Pass
3.1.3	Securing of internal wiring	All wiring is reliably routed or separated and secured.	Pass
3.1.4	Insulation of conductors	Insulation on internal conductors are considered to be of adequate quality and suitable for the application and the working voltage involved.	Pass
3.1.5	Beads and ceramic insulators	Not used.	N/A
3.1.6	Screws for electrical contact pressure		Pass
3.1.7	Insulating materials in electrical connections		Pass
3.1.8	Self-tapping and spaced thread screws		Pass
3.1.9	Termination of conductors		N/A
	10 N pull test		N/A
3.1.10	Sleeving on wiring	Sleeving is not used as supplementary insulation.	N/A

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
3.2	**Connection to an a.c. mains supply or a d.c. mains supply**		N/A
3.2.1	Means of connection	The unit does not connected to mains directly.	N/A
3.2.1.1	Connection to an a.c. mains supply		N/A
3.2.1.2	Connection to a d.c. mains supply		N/A
3.2.2	Multiple supply connections		N/A
3.2.3	Permanently connected equipment		N/A
	Number of conductors, diameter (mm) of cable and conduits .....:		-
3.2.4	Appliance inlets		N/A
3.2.5	Power supply cords		N/A
3.2.5.1	AC power supply cords		N/A
	Type .....:		-
	Rated current (A), cross-sectional area (mm2), AWG.....:		-
3.2.5.2	DC power supply cords		N/A
3.2.6	Cord anchorages and strain relief		N/A
	Mass of equipment (kg), pull (N).....:		-
	Longitudinal displacement (mm).....:		-
3.2.7	Protection against mechanical damage		N/A
3.2.8	Cord guards		N/A
	D (mm); test mass (g) .....:		-
	Radius of curvature of cord (mm) .....:		-
3.2.9	Supply wiring space		N/A

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
3.3	**Wiring terminals for connection of external conductors**		N/A
3.3.1	Wiring terminals		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 (mm2) .....:		-
3.3.5	Wiring terminal sizes		N/A
	Rated current (A), type and nominal thread diameter (mm) .....:		-
3.3.6	Wiring terminals design		N/A
3.3.7	Grouping of wiring terminals		N/A
3.3.8	Stranded wire		N/A
3.4	**Disconnection from the mains supply**		N/A
3.4.1	General requirement		N/A
3.4.2	Disconnect devices		N/A
3.4.3	Permanently connected equipment		N/A
3.4.4	Parts which remain energized		N/A
3.4.5	Switches in flexible cords		N/A
3.4.6	Single-phase equipment and d.c. equipment		N/A
3.4.7	Three-phase equipment		N/A
3.4.8	Switches as disconnect devices		N/A
3.4.9	Plugs as disconnect devices		N/A
3.4.10	Interconnected equipment		N/A
3.4.11	Multiple power sources		N/A

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
3.5	**Interconnection of equipment**		Pass
3.5.1	General requirements		Pass
3.5.2	Types of interconnection circuits .....:	All connections to other equipment are SELV to SELV.	Pass
3.5.3	ELV circuits as interconnection circuits	No ELV circuits.	N/A
4	**PHYSICAL REQUIREMENTS**		Pass
4.1	Stability		N/A
	Angle of 10°		N/A
	Test: force (N).....:	Not floor standing.	N/A
4.2	**Mechanical strength**		N/A
4.2.1	General		N/A
4.2.2	Steady force test, 10 N		N/A
4.2.3	Steady force test, 30 N	The equipment does not have any internal enclosures.	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		N/A
4.2.7	Stress relief test		N/A
4.2.8	Cathode ray tubes	The equipment 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) .....:		N/A

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
4.3	**Design and construction**		Pass
4.3.1	Edges and corners	All edges and corners are judged to be sufficiently well rounded so as not to constitute a hazard.	Pass
4.3.2	Handles and manual controls; force (N).....:		N/A
4.3.3	Adjustable controls		N/A
4.3.4	Securing of parts		N/A
4.3.5	Connection of plugs and sockets		N/A
4.3.6	Direct plug-in equipment		N/A
	Dimensions (mm) of mains plug for direct plug-in .:	Not direct plug-in unit.	N/A
	Torque and pull test of mains plug for direct plug-in; torque (Nm); pull (N) .....:		N/A
4.3.7	Heating elements in earthed equipment		N/A
4.3.8	Batteries	Battery (RTC) is protected against charging current by multiple components. See Critical Components List.	Pass
4.3.9	Oil and grease		N/A
4.3.10	Dust, powders, liquids and gases		N/A
4.3.11	Containers for liquids or gases		N/A
4.3.12	Flammable liquids.....:	The equipment does not use any flammable liquids.	N/A
	Quantity of liquid (l) .....:		N/A
	Flash point (°C).....:		N/A
4.3.13	Radiation; type of radiation		N/A
4.3.13.1	General		N/A
4.3.13.2	Ionizing radiation		N/A
	Measured radiation (pA/kg) .....:		-
	Measured high-voltage (kV) .....:		-
	Measured focus voltage (kV).....:		-
	CRT markings.....:		-
4.3.13.3	Effect of ultraviolet (UV) radiation on materials		N/A

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Part, property, retention after test, flammability classification .....:		N/A
4.3.13.4	Human exposure to ultraviolet (UV) radiation.....:		N/A
4.3.13.5	Laser (including LEDs)		N/A
	Laser class .....:		-
4.3.13.6	Other types .....:		N/A
4.4	**Protection against hazardous moving parts**		N/A
4.4.1	General		N/A
4.4.2	Protection in operator access areas		N/A
4.4.3	Protection in restricted access locations		N/A
4.4.4	Protection in service access areas		N/A
4.5	**Thermal requirements**		Pass
4.5.1	Maximum temperatures	(see appended table 4.5) The equipment and its component parts did not attain excessive temperatures during normal operation.	Pass
	Normal load condition per Annex L.....:	Operated in the most unfavorable way of operation given in the operating instructions until steady conditions established.	Pass
4.5.2	Resistance to abnormal heat	No parts at hazardous voltage are directly mounted on thermoplastic parts.	Pass

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
4.6	**Openings in enclosures**		Pass
4.6.1	Top and side openings	Provided two openings of card reader, each opening measured 72.8 by 7.1 mm and 51.5 by 6.1 mm.	N/A
	Dimensions (mm) .....:		-
4.6.2	Bottoms of fire enclosures		N/A
	Construction of the bottom .....:		-
4.6.3	Doors or covers in fire enclosures		N/A
4.6.4	Openings in transportable equipment		N/A
4.6.5	Adhesives for constructional purposes		N/A
	Conditioning temperature (°C)/time (weeks) .....:		-

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
4.7	**Resistance to fire**		Pass
4.7.1	Reducing the risk of ignition and spread of flame	Use of materials with the required flammability classes. See below.	Pass
	Method 1, selection and application of components wiring and materials	(see appended table 4.7)	Pass
	Method 2, application of all of simulated fault condition tests		N/A
4.7.2	Conditions for a fire enclosure	The unit is supplied by certified power adapter that comply with LPS. The fire enclosure does not required.	Pass
4.7.2.1	Parts requiring a fire enclosure		N/A
4.7.2.2	Parts not requiring a fire enclosure		Pass
4.7.3	Materials		Pass
4.7.3.1	General		Pass
4.7.3.2	Materials for fire enclosures		N/A
4.7.3.3	Materials for components and other parts outside fire enclosures	minimum HB material.	Pass
4.7.3.4	Materials for components and other parts inside fire enclosures	PWBs are rated min. V-1.	Pass
4.7.3.5	Materials for air filter assemblies	The equipment does not have any air filters.	N/A
4.7.3.6	Materials used in high-voltage components	No high-voltage components.	N/A

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
5	**ELECTRICAL REQUIREMENTS AND SIMULATED ABNORMAL CONDITIONS**		Pass
5.1	Touch current and protective conductor current		N/A
5.1.1	General	Secured by certified power adapter.	N/A
5.1.2	Equipment under test (EUT)		N/A
5.1.3	Test circuit		N/A
5.1.4	Application of measuring instrument		N/A
5.1.5	Test procedure		N/A
5.1.6	Test measurements		N/A
	Test voltage (V).....:		-
	Measured touch current (mA).....:		-
	Max. allowed touch current (mA).....:		-
	Measured protective conductor current (mA).....:		-
	Max. allowed protective conductor current (mA)...:		-
5.1.7	Equipment with touch current exceeding 3.5 mA..:		N/A
5.1.8	Touch currents to and from telecommunication networks and cable distribution systems and from telecommunication networks		N/A
5.1.8.1	Limitation of the touch current to a telecommunication network and a cable distribution system		N/A
	Test voltage (V).....:		-
	Measured touch current (mA).....:		-
	Max. allowed touch current (mA).....:		-
5.1.8.2	Summation of touch currents from telecommunication networks.....:		N/A

5.2	**Electric strength**		N/A
5.2.1	General		N/A
5.2.2	Test procedure		N/A

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.3	**Abnormal operating and fault conditions**		Pass
5.3.1	Protection against overload and abnormal operation	(see appended table 5.3)	Pass
5.3.2	Motors		N/A
5.3.3	Transformers		N/A
5.3.4	Functional insulation .....:	Functional insulation complies with the requirements (a), (b), or (c).	Pass
5.3.5	Electromechanical components	The equipment does not have any electromechanical components in the secondary.	N/A
5.3.6	Simulation of faults	(see appended table)	Pass
5.3.7	Unattended equipment		N/A
5.3.8	Compliance criteria for abnormal operating and fault conditions	(see appended table) No fire, emission of molten metal or deformation was noted during the tests.	Pass
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		N/A
	Test voltage (V).....:		-
	Current in the test circuit (mA).....:		-
6.1.2.2	Exclusions .....:		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
6.2	**Protection of equipment users from overvoltages on telecommunication networks**		N/A
6.2.1	Separation requirements		N/A
6.2.2	Electric strength test procedure		N/A
6.2.2.1	Impulse test		N/A
6.2.2.2	Steady-state test		N/A
6.2.2.3	Compliance criteria		N/A
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	Protection of cable distribution system service persons, and users of other equipment connected to the system, from hazardous voltages in the equipment		N/A
7.2	Protection of equipment users from overvoltages on the cable distribution system		N/A
7.3	Insulation between primary circuits and cable distribution systems		N/A
7.3.1	General		N/A
7.3.2	Voltage surge test		N/A
7.3.3	Impulse test		N/A

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

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

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Clause	Requirement + Test	Result - Remark	Verdict
A.2	**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 .....:		-
	Wall thickness (mm).....:		-
A.2.2	Conditioning of samples		N/A
A.2.3	Mounting of samples		N/A
A.2.4	Test flame		N/A
A.2.5	Test procedure		N/A
A.2.6	Compliance criteria		N/A
	Sample 1 burning time (s) .....:		-
	Sample 2 burning time (s) .....:		-
	Sample 3 burning time (s) .....:		-
A.2.7	Alternative test acc. to IEC 60695-2-2, cl. 4, 8		N/A
	Sample 1 burning time (s) .....:		-
	Sample 2 burning time (s) .....:		-
	Sample 3 burning time (s) .....:		-
A.3	**Hot flaming oil test (see 4.6.2)**		N/A
A.3.1	Mounting of samples		N/A
A.3.2	Test procedure		N/A
A.3.3	Compliance criterion		N/A

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
B	**Annex B, MOTOR TESTS UNDER ABNORMAL CONDITIONS(see 4.7.2.2 and 5.3.2)**		N/A
B.1	General requirements		N/A
	Position.....:		-
	Manufacturer.....:		-
	Type .....:		-
	Rated values.....:		-
B.2	Test conditions		N/A
B.3	Maximum temperatures		N/A
B.4	Running overload test		N/A
B.5	Locked-rotor overload test		N/A
	Test duration (days) .....:		-
	Electric strength test: test voltage (V) .....:		-
B.6	Running overload test for d.c. motors in secondary circuits		N/A
B.7	Locked-rotor overload test for d.c. motors in secondary circuits		N/A
B.7.1	Test procedure		N/A
B.7.2	Alternative test procedure; test time (h) .....:		N/A
B.7.3	Electric strength test		N/A
B.8	Test for motors with capacitors		N/A
B.9	Test for three-phase motors		N/A
B.10	Test for series motors		N/A
	Operating voltage (V) .....:		-

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
C	**Annex C, TRANSFORMERS (see 1.5.4 and 5.3.3)**		N/A
	Position.....:		-
	Manufacturer.....:		-
	Type .....:		-
	Rated values.....:		-
	Method of protection .....:		-
C.1	Overload test		N/A
C.2	Insulation		N/A
	Protection from displacement of windings.....:		N/A
D	**Annex D, MEASURING INSTRUMENTS FOR TOUCH-CURRENT TESTS**		N/A
D.1	Measuring instrument		N/A
D.2	Alternative measuring instrument		N/A
E	**Annex E, TEMPERATURE RISE OF A WINDING**		N/A
F	**Annex F, MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES (see 2.10)**		Pass

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Clause	Requirement + Test	Result - Remark	Verdict
G	**Annex G, ALTERNATIVE METHOD FOR DETERMINING MINIMUM CLEARANCES**		N/A
G.1	Summary of the procedure for determining minimum clearances		N/A
G.2	Determination of mains transient voltage (V)		N/A
G.2.1	AC mains supply		N/A
G.2.2	DC mains supply		N/A
G.3	Determination of telecommunication network transient voltage (V) : ..... :		N/A
G.4	Determination of required withstand voltage (V) ... :		N/A
G.5	Measurement of transient levels (V) ..... :		N/A
G.6	Determination of minimum clearances ..... :		N/A
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 used ..... :		-
K	**ANNEX K, THERMAL CONTROLS (see 1.5.3 and 5.3.7)**		N/A
K.1	Making and breaking capacity		N/A
K.2	Thermostat reliability; operating voltage (V) ..... :		N/A
K.3	Thermostat endurance test; operating voltage (V) :		N/A
K.4	Temperature limiter endurance; operating voltage (V) ..... :		N/A
K.5	Thermal cut-out reliability		N/A
K.6	Stability of operation		N/A

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
L	**Annex L, NORMAL LOAD CONDITIONS FOR SOME TYPES OF ELECTRICAL BUSINESS EQUIPMENT (see 1.2.2.1 and 4.5.1)**		N/A
L.1	Typewriters		N/A
L.2	Adding machines and cash registers		N/A
L.3	Erasers		N/A
L.4	Pencil sharpeners		N/A
L.5	Duplicators and copy machines		N/A
L.6	Motor-operated files		N/A
L.7	Other business equipment		N/A
M	**Annex M, CRITERIA FOR TELEPHONE RINGING SIGNALS (see 2.3.1)**		N/A
M.1	Introduction		N/A
M.2	Method A		N/A
M.3	Method B		N/A
M.3.1	Ringing signal		N/A
M.3.1.1	Frequency (Hz) .....:		-
M.3.1.2	Voltage (V).....:		-
M.3.1.3	Cadence; time (s), voltage (V) .....:		-
M.3.1.4	Single fault current (mA).....:		-
M.3.2	Tripping device and monitoring voltage .....:		N/A
M.3.2.1	Conditions for use of a tripping device or a monitoring voltage		N/A
M.3.2.2	Tripping device		N/A
M.3.2.3	Monitoring voltage (V) .....:		N/A
N	**Annex N, IMPULSE TEST GENERATORS (see 2.10.3.4, 6.2.2.1, 7.3.2 and clause G.5)**		N/A
N.1	ITU-T impulse test generators		N/A
N.2	IEC 60065 impulse test generator		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
P	**Annex P, NORMATIVE REFERENCES**		Pass
Q	**Annex Q, BIBLIOGRAPHY**		Pass
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)		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		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

1.5.1	**TABLE: list of critical components**					Pass
Object/part No.	Manufacturer/ trademark	type/model	technical data	Product Category CCN(s)	Required Marks of Conformity	Supplement ID
01 Switching Power Supply	Various	Various	O/P: 19 Vdc, 1.0 A Min., complied with "LPS".	QQGQ	UL	
02. Enclosure	--	--	Metal, 0.8 mm thick min. overall 190 by 140 by 40 mm.	--	--	3-01
03. PWB	Various	Various	V-1 or better, 105°C	ZPMV2	UL	3-02
04. DC/AC Inverter	King Core Electronics Inc.	HY1011	I/P: 5.5 Vdc max., 0.8 A max. O/P: 440 Vrms, 6.5 mA max. See following item (04-X-X) for details.	--	--	3-03
04-1 Transformer (T1)	Yao Sheng Electronic Co., Ltd.	UI9.8 11.17 00	Class 105°C, overall 30.5 by 9.5 by 4.6 mm	--	--	4-01
04-1-1 Winding Wire	--	--	Enameled copper wire, 130 °C	OBMW2	UL	
04-1-2 Bobbin	--	--	V-0, 130 °C, overall 27.5 by 9.3 by 2.2 mm, 0.71 mm thick min.	QMFZ2	UL	
04-1-3 Core	--	--	Ferrite core, overall 23 by 9.4 by 3 mm	--	--	
04-1 Transformer (T1), alternate	Xtreme Technology Co., Ltd.	UI9.8 11.17 00	Class 105°C, overall 30.5 by 9.5 by 4.6 mm	--	--	4-01
04-1-1 Winding Wire	--	--	Enameled copper wire, 130 °C	OBMW2	UL	
04-1-2 Bobbin	--	--	V-0, 130 °C, overall 27.5 by 9.3 by 2.2 mm, 0.71 mm thick min.	QMFZ2	UL	
04-1-3 Core	--	--	Ferrite core, overall 23 by 9.4 by 3 mm	--	--	
04-2 Capacitor (C14)	--	--	10pF/3KV	--	--	
04-3 PWB of Inverter	Various	Various	V-1 or better, 105°C	ZPMV2	UL	5-01
05. Rechargeable RTC Battery (BT1)	Hitachi Maxell Ltd.	ML2032	3Vdc, 6.5mAh	BBCV2	UL	

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Clause	Requirement + Test	Result - Remark	Verdict

06. Polyswitch for USB port (FS1, FS2)	Polytronics Technology Corp.	SMD1206P050TS	6Vdc, Ih 0.5A, It 1A.	XGPU2	UL	
07. Internal wiring	--	--	Routed away from sharp edges, moving parts. FEP, PTFE, PVC, TFE, neoprene or surface marked VW-1	AVLV2	UL	
08. Label	--	--	40 °C if max. surface temperature not specified.	PGDQ2 PGJI2	UL	

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Clause	Requirement + Test	Result - Remark	Verdict

1.6.2	**TABLE: electrical data (in normal conditions)**						Pass
fuse #	I rated (A)	U (V)	P (W)	I (mA)	I fuse (mA)	condition/status	
--	1.0	19.0 V dc	11.8	620	--	Maximum normal load (Model: SPC-57XXXXX)	
--	1.0	19.0 V dc	12.3	645	--	Maximum normal load (Model: SPC-64XXXXX)	
supplementary information:							
"Maximum normal load" was defined as follows: Unit operated with screen full raster, maximum brightness and contrast; each USB port loaded 2.5W and worked continuously.							

2.10.3 and 2.10.4	**TABLE: clearance and creepage distance measurements**					Pass
clearance cl and creepage distance dcr at/of:	Up (V)	U r.m.s. (V)	required cl (mm)	cl (mm)	required dcr (mm)	dcr (mm)
-	-	-	-	-	-	-
supplementary information:						
Unit meets requirements for Functional Insulation per Clause 5.3.4, Method C.						

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

4.5	**TABLE: temperature rise measurements**						Pass
	test voltage (V).....	19 Vdc	--	--	--	--	—
	t1 (°C).....	--	--	--	--	--	—
	t2 (°C).....	--	--	--	--	--	—
maximum temperature T of part/at:	T (°C)						allowed Tmax (°C)
Normal Condition	Condition 1	--	--	--	--		--
Ambient	50 (24.7)	--	--	--	--		--
CN9 body	58.9 (33.6)	--	--	--	--		--

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Clause	Requirement + Test	Result - Remark	Verdict

FH1 body	60.0 (34.7)	--	--	--	--	--
PWB under U11	73.7 (48.4)	--	--	--	--	105
BT1 body	72.9 (47.6)	--	--	--	--	--
L5 body	77.7 (52.4)	--	--	--	--	95
PWB under U44	73.7 (48.4)	--	--	--	--	105
PWB under SCR1	73.2 (47.9)	--	--	--	--	105
T1 coil of DC/AC Inverter	77.4 (52.1)	--	--	--	--	95
T1 core of DC/AC Inverter	72.5 (47.2)	--	--	--	--	95
Panel body	61.6 (36.3)	--	--	--	--	--
Enclosure outside near DC/AC Inverter	60.7 (35.4)	--	--	--	--	70
temperature T of winding:		R_1 (Ω)	R_2 (Ω)	T (°C)	allowed Tmax (°C)	insulation class
-		-	-	-	-	-

supplementary information:

Conditions:

Test Condition 1: 19 V dc, Duration 2.6 hrs.

Comments:

The temperatures were measured by thermal couple method under worst case normal mode defined in 1.2.2.1 and described in 1.6.2, at voltages described in 1.4.5.

With a specified max. ambient temperature of 50 degree C, the max. temperature is calculated as follows:

Component with:
- Max. absolute temp. of 105 degree C (PWB), required Tmax. = 105 degree C
- Max. absolute temp. of 105 degree C (Windings), required Tmax. = 105-10 = 95 degree C

External or Internal metal surfaces of equipment which may be touched:
- Required Tmax. = 45K+25 = 70 degree C

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

supplementary information:

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Clause	Requirement + Test	Result - Remark	Verdict

4.7	**TABLE: resistance to fire**			Pass
part	manufacturer of material	type of material	thickness(mm)	flammability class
Printed Wiring Board	--	--	--	V-1, 105 degree C
supplementary information:				
Refer to Table 1.5.1 Critical component list.				

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

5.3	**TABLE: fault condition tests**						Pass
	ambient temperature (°C) ..... :				25°C		—
	model/type of power supply ..... :				---		—
	manufacturer of power supply..... :				---		—
	rated markings of power supply ..... :				---		—
component No.	fault	test voltage (V)	test time	fuse No.	fuse current (A)	result	
Ventilation openings	Blocked	19 V dc	3.1 hrs	--	0.645	NC, NT. No hazards.	
supplementary information:							
NC: Cheesecloth remained intact. NT: Tissue paper remained.							

Enclosure
National Differences

(Total 10 Pages including this Cover Page)

USA / Canada

* No National Differences Declared
** Only Group Differences

IEC 60950-1			
SubClause	Difference + Test	Result - Remark	Verdict
USA / Canada - Differences to IEC 60950-1:2001, First Edition			
1.1	Equipment able to be installed in accordance with the National Electrical Code ANSI/NFPA 70 and the Canadian Electrical Code, Part1, and when applicable, the National Electrical Safety Code, IEEE C2.		Pass
1.1.1	Equipment able to be installed in accordance with ANSI/NFPA 75 and NEC Art. 645 unless intended for use outside of computer room and provided with such instructions.		N/A
1.1.2	Equipment in wire-line communication facilities serving high-voltage electric power stations operating at greater than 1kV are excluded.		N/A
1.1.2	Special requirements apply to equipment intended for use outdoors.	Not for outdoor use.	N/A
1.4.14	For Pluggable Equipment Type A, the protection in the installation is assumed to be 20 A.		N/A
1.5.1	All IEC standards for components identified in Annex P.1 replaced by the relevant requirements of CSA and UL component standards in Annex P.1.		Pass
1.5.1	All IEC standards for components identified in Annex P.2 alternatively satisfied by the relevant requirements of CSA and UL component standards in Annex P.2.		Pass
1.5.5	Interconnecting cables acceptable for the application regarding voltage, current, temperature, flammability, mechanical serviceability and the like.		Pass
1.5.5	For other than limited power and TNV circuits, the type of output circuit identified for output connector.		N/A
1.5.5	External cable assemblies that exceed 3.05 m in length to be types specified in the NEC and CEC.		N/A
1.5.5	Detachable external interconnecting cables 3.05 m or less in length and provided with equipment marked to identify the responsible organization and the designation for the cable.		Pass
1.5.5	Building wiring and cable for use in ducts, plenums and other air handling space subject to special requirements and excluded from scope.		N/A
1.5.5	Telephone line and extension cords and the like comply with UL 1863 and CSA C22.2 No. 233.		N/A

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

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

IEC 60950-1			
SubClause	Difference + Test	Result - Remark	Verdict
2.10.5.4	Multi-layer winding wire subject to UL component wire requirements in addition to 2.10.5.4 and Annex U.		N/A
3.1.1	Permissible combinations of internal wiring/external cable sizes for overcurrent and short circuit protection.		N/A
3.1.1	All interconnecting cables protected against overcurrent and short circuit.		Pass
3.2	Wiring methods permit connection of equipment to primary power supply in accordance with the NEC and CEC, Part 1.		N/A
3.2.1	Permitted use for flexible cords and plugs.		N/A
3.2.1	Flexible cords provided with attachment plug rated 125% of equipment current rating.		N/A
3.2.1	Any Class II equipment provided with 15 or 20 A standard supply outlets, Edison-base lampholders or single pole disconnect device provided with a polarized type attachment plug.		N/A
3.2.1.2	Equipment intended for connection to DC mains supply power systems complies with special wiring requirements (e.g., no permanent connection to supply by flexible cord).		N/A
3.2.1.2	Equipment with one pole of the DC mains supply connected to both the equipment mains input terminal and the main protective earthing terminal provided with special instructions and construction provisions for earthing		N/A
3.2.1.2	Equipment with means for connecting supply to earthing electrode conductor has no switches or protective devices between supply connection and earthing electrode connection.		N/A
3.2.1.2	Special markings and instructions for equipment with provisions to connect earthed conductor of a DC supply circuit to earthing conductor at the equipment.		N/A
3.2.1.2	Special markings and instructions for equipment with earthed conductor of a DC supply circuit connected to the earthing conductor at the equipment.		N/A

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SubClause	Difference + Test	Result - Remark	Verdict
3.2.1.2	Terminals and leads provided for permanent connection of DC powered equipment to supply marked to indicate polarity if reverse polarity may result in a hazard.		N/A
3.2.3	Permanently connected equipment has provision for connecting and securing a field wiring system (i.e. conduit, or leads etc.) per the NEC and CEC, Part 1.		N/A
3.2.3	Permanently connected equipment may have terminals or leads not smaller than No. 18 AWG (0.82 mm^2) and not less than 152 mm in length for connection of field installed wiring.		N/A
3.2.3	If supply wires exceed 60 °C, marking indicates use of 75 °C or 90 °C wiring for supply connection as appropriate.		N/A
3.2.3	Equipment compatible with suitable trade sizes of conduits and cables.		N/A
3.2.5	Length of power supply cord limited to between 1.5 and 4.5 m unless shorter length used when intended for a special installation.		N/A
3.2.5	Conductors in power supply cords sized according to NEC and CEC, Part I.		N/A
3.2.5	Power supply cords and cord sets incorporate flexible cords suitable for the particular application.		N/A
3.2.6	Strain relief provided for non-detachable interconnecting cables not supplied by a limited power source.		N/A
3.2.9	Adequate wire bending space and volume of field wiring compartment required to properly make the field connections.		N/A
3.2.9	Equipment intended solely for installation in Restricted Access Locations using low voltage d.c. systems may not need provision for connecting and securing a field wiring system. A method of securing wiring or instructions provided to ensure the wiring is protected from abuse.		N/A
3.3	Field wiring terminals provided for interconnection of units for other then LPS or Class 2 circuits also comply with 3.3.		N/A
3.3	Interconnection of units by LPS or Class 2 conductors may have field wiring connectors other than those specified in 3.3 if wiring is reliably separated.		N/A

IEC 60950-1			
SubClause	Difference + Test	Result - Remark	Verdict
3.3.1	Terminals for the connection of neutral conductor identified by a distinctive white marking or other equally effective means.		N/A
3.3.3	Wire binding screw terminal permitted for connection of No. 10 AWG (5.3 mm²) or smaller conductor if provided with upturned lugs, cupped washer or equivalent retention.		N/A
3.3.4	Terminals accept wire sizes (gauge) used in the U.S. and Canada.		N/A
3.3.4	Terminals accept current-carrying conductors rated 125% of the equipment current rating.		N/A
3.3.6	Field wiring terminals marked to indicate the material(s) of the conductor appropriate for the terminals used.		N/A
3.3.6	Connection of an aluminum conductor not permitted to terminal for equipment earthing conductor.		N/A
3.3.6	Field wiring connections made through the use of suitable pressure connectors (including set screw type), solder lugs or splices to flexible leads.		N/A
3.4.2	Separate motor control device(s) required for cord-connected equipment rated more than 12 A, or with motor rated more than 1/3 hp or more than 120 V.		N/A
3.4.8	Vertically mounted disconnect devices oriented so up position of handle is "on".		N/A
3.4.11	For computer-room applications, equipment with battery systems capable of supplying 750 VA for 5 min require battery disconnect means.		N/A
4.2.8.1	Special opening restrictions for enclosures around CRTs with face dimension of 160 mm or more.	No CRT.	N/A
4.2.9	Compartment housing high-pressure lamp marked to indicate risk of explosion.		N/A
4.3.2	Loading test for equipment with handle(s) used to support more than 9 kg tested at four times the weight of the unit.		N/A
4.3.6	In addition to the IEC requirements, Direct Plug-in Equipment complies with UL 1310 or CSA 223 mechanical assembly requirements.		N/A
4.3.12	The maximum quantity of flammable liquid stored in equipment complies with ANSI/NFPA 30(Table NAE.6).		N/A

IEC 60950-1			
SubClause	Difference + Test	Result - Remark	Verdict
4.3.12	Equipment using replenishable liquids marked to indicate type of liquid to be used.		N/A
4.3.13.2	Equipment that produces x-radiation and does not comply with 4.3.12 under all conditions of servicing marked to indicate the presence of radiation where readily visible.		N/A
4.3.13.5	Requirements contained in the applicable national codes and regulations apply to lasers (21 CFR 1040 and REDR C1370).	Not produces x-radiation.	N/A
4.7	Automated information storage equipment intended to contain more than 0.76 mm^3 of combustible media requires provision for automatic sprinklers or a gaseous agent extinguishing system.		N/A
4.7.3.1	Equipment for use in environmental air space other than ducts or plenums provided with metal enclosure or with non-metallic enclosure having adequate fire-resistance and low smoke producing characteristics. Low smoke-producing characteristics evaluated according to UL 2043. Equipment for installation in space used for environmental air as described in Sec. 300-22(c) of the NEC provided with instructions indicating suitability for installation in such locations.		N/A
4.7.3.1	Flame spread rating for external surface of combustible material with exposed area greater than 0.93 m^2 or a single dimension greater than 1.8 m; 50 or less for computer room applications or 200 or less for other applications.		N/A
4.7.3.4	Wire marked "VW-1" or "FT-1" considered equivalent.		Pass
5.1.8.2	Special earthing provisions and instructions for equipment with high touch current due to telecommunication network connections.		N/A
5.1.8.3	Touch current due to ringing voltage for equipment containing telecommunication network leads.		N/A
5.3.6	Overloading of SELV connectors and printed wiring board receptacles accessible to the operator.		N/A
5.3.6	Tests interrupted by opening of a component repeated two additional times.		N/A
5.3.8.1	Test interrupted by opening of wire or trace subject to certain conditions.		N/A

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

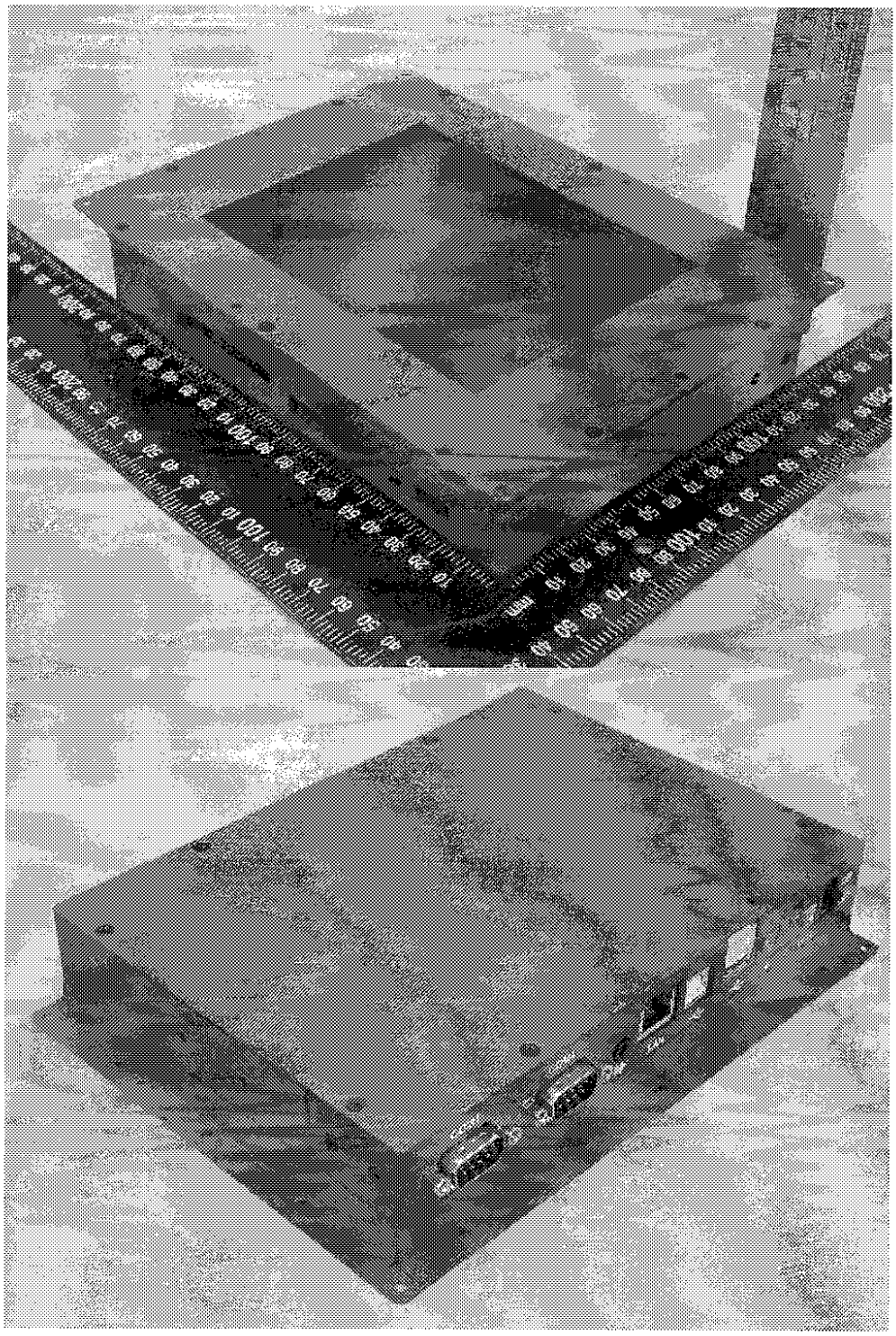
IEC 60950-1			
SubClause	Difference + Test	Result - Remark	Verdict
M.4	Special requirements for message waiting and similar telecommunications signals.		N/A
NAC	Equipment intended for use with a generic secondary protector marked with suitable instructions.		N/A
NAC	Equipment intended for use with a specific primary or secondary protector marked with suitable instructions.		N/A

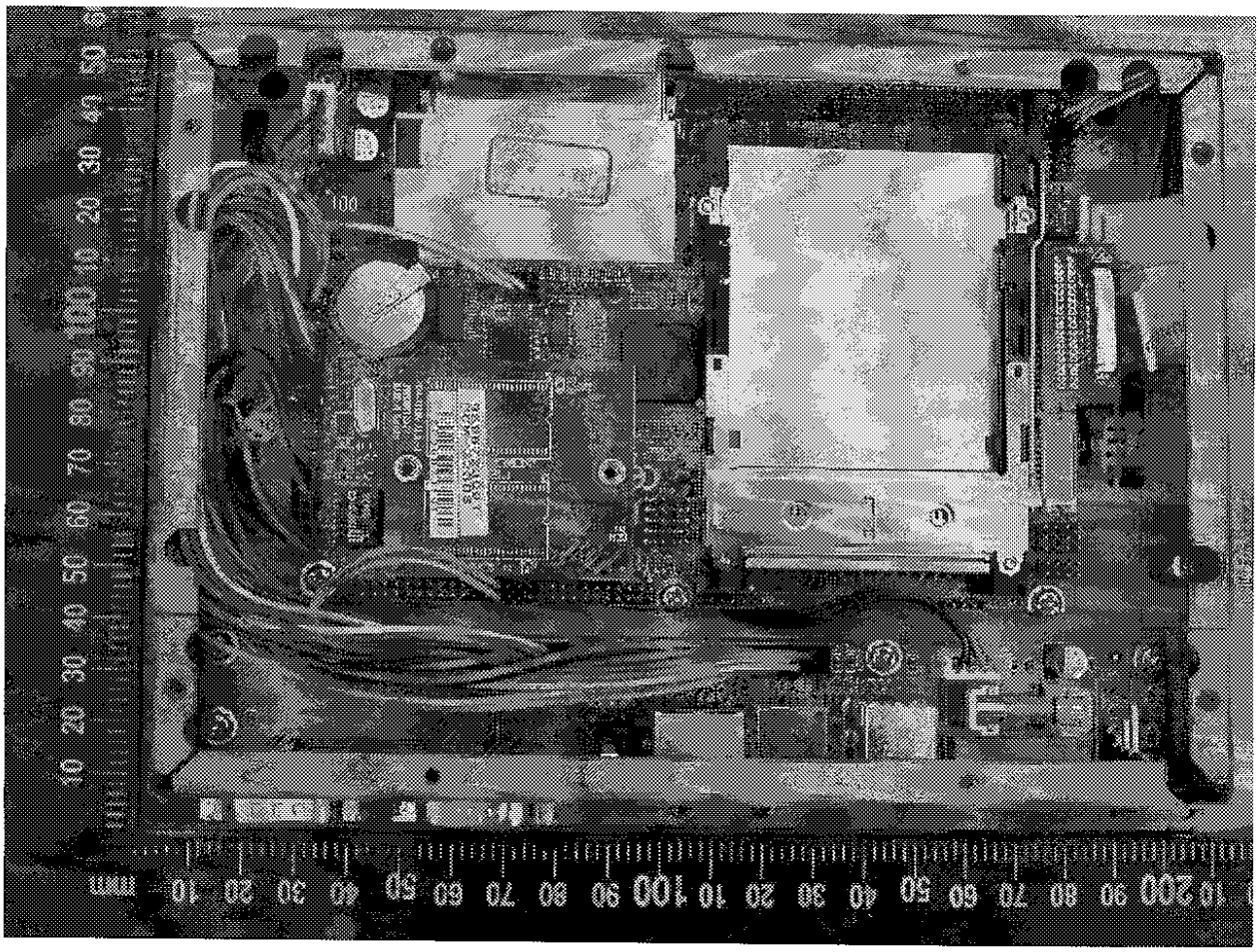
Enclosure

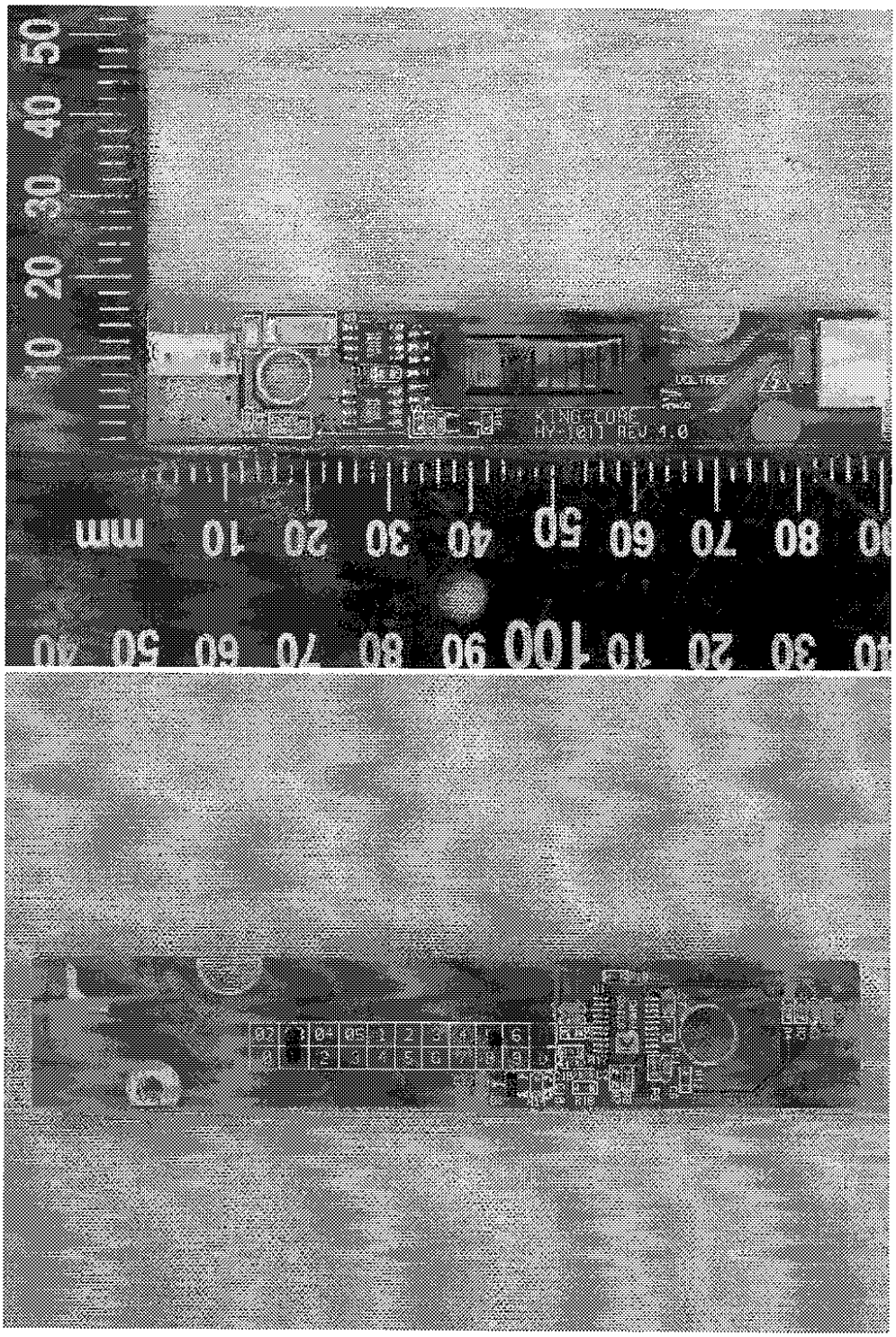
Photographs

(Total 4 Pages including this Cover Page)

Supplement Id	Description
3-01	Overall view
3-02	Internal view
3-03	Inverter overall view







Enclosure

Diagrams

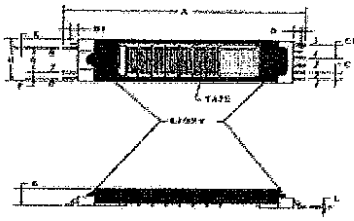
(Total 2 Pages including this Cover Page)

Supplement Id	Description
4-01	Inverter Transformer

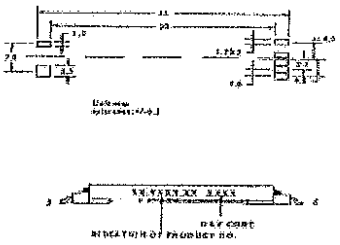
Title	Transformer Specification			Date	2004/5/24
Model	HY1011	Revision	4.0	Part No.	INV-01140-0102

CUSTOMER NO		TYPE		REV. NO	
DISCRIPTION		DATE		PAGINATION	

MECHANICAL DIMENSION:



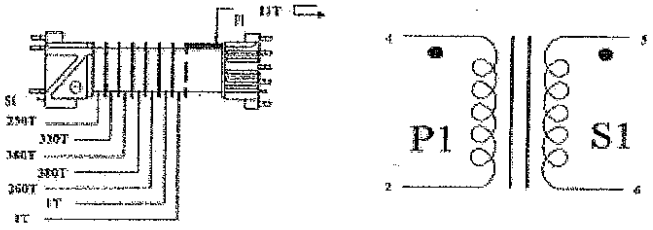
PCB PATTERN:



MECHANICAL TEST REPORT

SPEC.	MEASUREMENT VALUE									
	1	2	3	4	5	6	7	8	9	10
A : 32.3±0.3/0.2	32.3	32.5	32.6	32.3	32.1	32.25	32	32.2	32.5	32.1
B : 5 MAX	4.77	4.8	4.85	4.8	4.83	4.83	4.8	4.81	4.79	4.82
C : 1.6±0.2	1.62	1.68	1.62	1.62	1.64	1.65	1.62	1.68	1.60	1.64
C1 : 3.3±0.2	3.31	3.32	3.33	3.33	3.31	3.31	3.34	3.31	3.35	3.36
D : 1.0±0.2	0.99	0.98	0.98	0.99	0.97	0.98	0.99	0.98	1.01	1.02
E : 6.1±0.2	6.15	6.15	6.18	6.12	6.16	6.17	6.18	6.19	6.21	6.21
F : 1.45±0.2	1.46	1.48	1.51	1.52	1.51	1.52	1.48	1.49	1.51	1.52
H : 10 MAX	9.85	9.87	9.78	9.85	9.85	9.89	9.89	9.89	9.85	9.88
K : 0.5±0.2	0.51	0.52	0.55	0.58	0.59	0.54	0.51	0.56	0.59	0.58
L : 0.3±0.2	0.31	0.32	0.33	0.35	0.34	0.34	0.35	0.36	0.34	0.37

THE WIRE COIL OF PART



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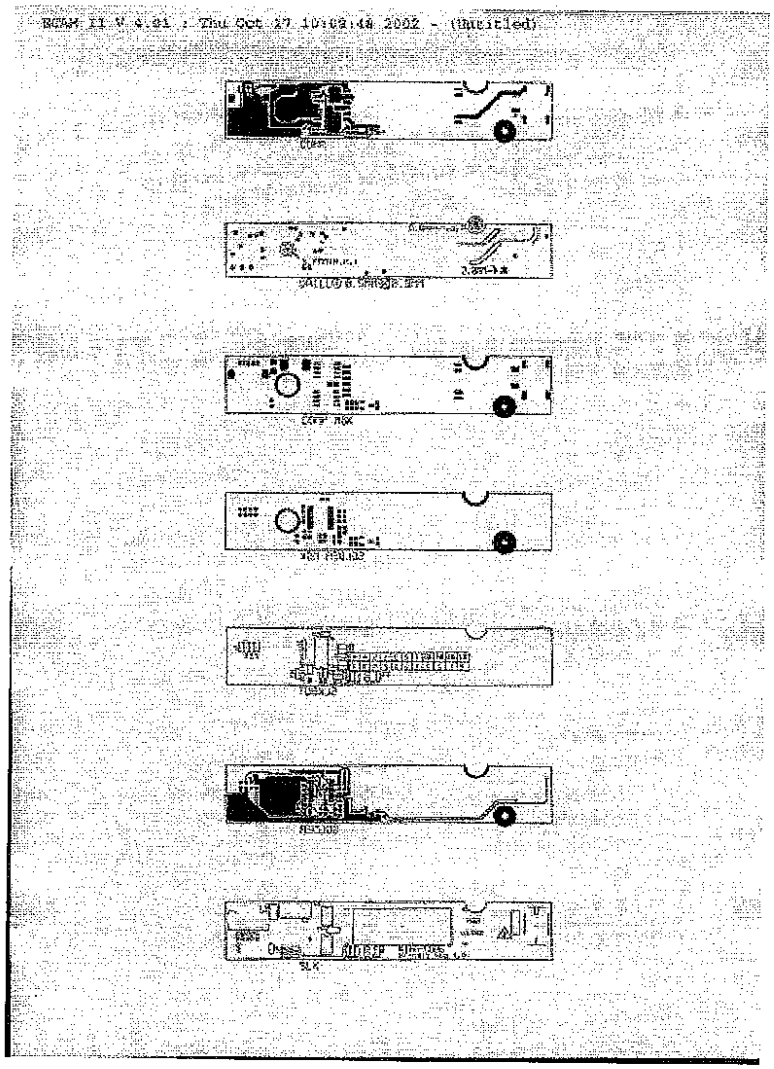
Enclosure

Schematics + PWB

(Total 2 Pages including this Cover Page)

Supplement Id	Description
5-01	Inverter PWB layout

Title	PCB ARTWORK			Date	2004/5/24
Model	HY1011	Revision	4.0	Part No.	INV-01140-0102



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Enclosure

Test Record

(Total 2 Pages including this Cover Page)

Supplement Id	Description
-	Test Record 1

Test Record No. 1

The manufacturer submitted representative production samples of Personal Computer, Models SPC-57XXXXX, SPC-64XXXXX. Tests performed on Model SPC-64XXXXX were considered to be representative of Model SPC-57XXXXX. Tests were conducted by Advance Data Technology Corp. Taoyuan, Taiwan, under CAP. Tests noted by the initials "UL" were witnessed by UL staff member.

The following tests were conducted:

Test	Comments
End Product Reference Page	
General Guidelines	
Input: Single-Phase (1.6.2)	
Limited Current Circuit Measurement (2.4.1, 2.4.2)	"UL"
Limited Power Source Measurements (2.5)	"UL"
Lithium Battery Reverse Current Measurement (4.3.8)	
Heating (4.5.1, 1.4.12, 1.4.13)	
Abnormal Operation (5.3.1 - 5.3.8.2)	"UL"

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