

IEC SYSTEM FOR CONFORMITY TESTING
AND CERTIFICATION OF ELECTRICAL
EQUIPMENT (IECEE)
CB SCHEME

SYSTÈME CEI D'ESSAIS DE CONFORMITÉ
ET DE CERTIFICATION DES ÉQUIPEMENTS
ÉLECTRIQUE (IECEE)
METHODE OC

CB TEST CERTIFICATE CERTIFICAT D'ESSAI OC

Product

Produit

Name and address of the applicant

Nom et adresse du demandeur

Name and address of the manufacturer

Nom et adresse du fabricant

Name and address of the factory

Nom et adresse de l'usine

Rating and principal characteristics

Valeurs nominales et caractéristiques principales

Trade mark (if any)

Marque de fabrique (si elle existe)

Model/type Ref.

Ref. de type

Additional information (if necessary)

Information complémentaire (si nécessaire)

A sample of the product was tested and found
to be in conformity with

*Un échantillon de ce produit a été essayé et a été
considéré conforme à la*

as shown in the Test Report Ref. No.

which form part of this certificate

*comme indiqué dans le Rapport d'essais numéro
de référence*

qui constitue une partie de ce certificat

This CB Test Certificate is issued by the National Certification Body

Ce Certificat d'essai OC est établi par l'Organisme National de Certification

PC Server

Quanta Computer Inc.
No. 188, Wen Hwa 2nd Rd.
KUEI SHAN HSIANG, TAO YUAN SHIEN, TAIWAN, R.O.C. 333

Quanta Computer Inc.
No. 188, Wen Hwa 2nd Rd.
KUEI SHAN HSIANG, TAO YUAN SHIEN, TAIWAN, R.O.C. 333

(See appendix for factories information)

Input Rating : AC 100-240V, 50-60Hz, 7A
Protection Class : I

Trademark of acer

Altos G300

PUBLICATION

EDITION

IEC 60950:1991 + A1 + A2 + A3 + A4
inclusive CENELEC Common Modifications
National differences see test report

12002495 001



TÜV Rheinland Japan Ltd.
3-19-5 Shin-Yokohama
222-0033 Japan

Date 24.05.2002

Signature

Herlitschke
Dipl.-Ing. W. Herlitschke

Appendix to CB Certificate JPTUV-004269
Report Number: 12002495 001

Name and address of the manufacturer

Quanta Computer Inc.
No. 188, Wen Hwa 2nd Rd.
Kuei Shan Hsiang, Tao Yuan Shien
Taiwan, R.O.C. 333

Name and address of the factory(ies)

Quanta Computer Inc.

No. 4, Wen Ming 1st Street
Kuei Shan Hsiang, Taoyuan Hsien
Taiwan, R.O.C. 333

Quanta Computer Inc.

No. 188, Wen Hwa 2nd Rd.
Kuei Shan Hsiang, Tao Yuan Shien
Taiwan, R.O.C. 333

Date: 24.05.2002


Dipl.-Ing. W. Herlitschke<http://www.jpn.tuv.com>**Yokohama Head Office**

Shin Yokohama Daini Center Bldg. 9F
3-19-5, Shin Yokohama
Kohoku-ku, Yokohama 222-0033, Japan

Tel. : (045) 470-1850
Fax : (045) 473-5221
e-mail: info@jpn.tuv.com

Yokohama Laboratory

Festo Building 5F
1-26-10, Hayabuchi, Tsuzuki-ku
Yokohama 224-0025, Japan

Tel. : (045) 592-1371
Fax : (045) 592-1374
e-mail: yoko-lab@jpn.tuv.com

TEST REPORT

IEC 9 50

Safety of information technology equipment

Report

Reference No.....: <12002495 001>

Compiled by (+ signature): M. Kera

Approved by (+ signature): P. Perschnig

Date of issue: 17 May, 2002

Contents: 70 pages

This report is based on a blank test report that was prepared by KEMA using information obtained from the TRF originator (see below).

Testing laboratory

Name.....: TÜV Rheinland Japan Ltd., Yokohama Laboratories

Address: Festo Bldg. 5F, 1-26-10 Hayabuchi, Tsuzuki-Ku,
Yokohama 224-0025, Japan

Testing location: TÜV Rheinland Japan Ltd., Yokohama Laboratories

Client

Name.....: Quanta Computer Inc.

Address: No. 188, Wen Hwa 2nd Rd., Kuei Shan Hsiang, Tao Yuan Shien,
Taiwan, R.O.C.

Test specification

Standard: IEC 60950:1991+A1:1992 + A2:1993 + A3:1995 + A4:1996
EN 60950:1992+A1:1993+A2:1993+A3:1995+A4:1997+A11:1997
EMKO-TSE(74-SEC)207/94, UL 1950, C22.2 No. 950, AS 3260,
GB 4943

Test procedure: CB-scheme

Procedure deviation: Australia, Austria, Belgium, Canada, China, The Czech Republic,
Denmark, Finland, France, Germany, Greece, Hungary, India,
Ireland, Israel, Italy, Japan, Rep. of Korea, The Netherlands,
Norway, Poland, Russian Fed., Singapore, Slovakia, Slovenia,
South Africa, Spain, Sweden, Switzerland, United Kingdom, USA

Non-standard test method: N.A.

Test Report Form/blank test report

Test Report Form No.: I950__D/97-06

TRF originator.....: FIMKO

Master TRF: reference No. I950 D, dated 97-02

Copyright reserved to the bodies participating in the Committee of Certification Bodies (CCB) and/or the bodies participating in the CENELEC Certification Agreement (CCA).

Test item

Description..... : PC Server
 Trademark..... : Trademark of acer
 Model and/or type reference : Altos G300
 Manufacturer..... : Same as client.
 Rating(s) : 100-240 Vac, 50-60Hz, 7A

Particulars: test item vs. test requirements

Equipment mobility..... : Movable equipment
 Operating condition : Continuous
 Tested for IT power systems : Yes
 IT testing, phase-phase voltage (V) : IT, 230V for Norway
 Class of equipment..... : Class I
 Mass of equipment (kg) : 16.5kg
 Protection against ingress of water..... : IPX0

Test case verdicts

Test case does not apply to the test object : N(.A.)
 Test item does meet the requirement..... : P(ass)
 Test item does not meet the requirement : F(ail)

Testing

Date of receipt of test item : Apr. 2002
 Date(s) of performance of test : May. 2002

General remarks

This test report shall not be reproduced except in full without the written approval of the testing laboratory.
 The test results presented in this report relate only to the item tested.
 "(see remark #)" refers to a remark appended to the report.
 "(see appended table)" refers to a table appended to the report.
 Throughout this report a point is used as the decimal separator.

Factories:

1. Quanta Computer Inc
No. 188, Wen Hwa 2nd Rd., Kuei Shan Hsiang, Taoyuan Hsien, Taiwan, R.O.C.
2. Quanta Computer Inc
No. 4, Wen Ming 1st St., Kuei Shan Hsiang, Taoyuan Hsien, Taiwan, R.O.C.

Comments:

Brief description of the test sample:

The equipment model Altos G300 is a PC Server for general office use.

Special features are:

- 1 FDD,
- 5 HDDs,
- 1 CD-ROM Drive,
- 1 motherboard with Intel Pentium 4 CPU,
- 2 USB ports.

The internal built-in Switching Power Supply (SPS) is approved component and CB Scheme tested, which is completely enclosed by a metal enclosure and direct supplied from the mains through the inlet inside SPS, for details, see appended table 1.5.1.

The test samples were pre-production sample without serial numbers.

Copy of the marking plate :

acer

PRODUCT NAME: Altos G300

MODEL NO : Altos G300

AC RATING :

~100-240V 50-60Hz 7 A

MFG. DATE: M 011018

FC Tested To Comply
With FCC Standards
FOR HOME OR OFFICE USE



CE **UL** US
LISTED 7K85
UL 1950
E142892

Made in Taiwan

IEC 950			
Clause	Requirement – Test	Result – Remark	Verdict

1	GENERAL		P
---	---------	--	---

1.5	Components		P
1.5.1	Comply with IEC 950 or relevant component standard	Components which were found to affect safety aspects comply with the requirements of this standard or within the safety aspects of the relevant IEC component standards. (see appended table)	P
1.5.2	Evaluation and testing components	Components which are certified to IEC and/or national standards are used correctly within their ratings. Components not covered by IEC standards are tested under the conditions present in the equipment.	P
	Dimensions (mm) of mains plug for direct plug-in	The equipment is not direct plug-in type.	N
	Torque and pull test of mains plug for direct plug-in; torque (Nm); pull (N)		N
1.5.3	Transformers	Transformer(s) used in approved SPS is (are) suitable for their intended application and comply with the relevant requirements of the standard.	N
1.5.4	High voltage components (component; manufacturer; flammability)	No high voltage components used.	N
1.5.5	Interconnecting cables	No interconnection cables.	P
1.5.6	Mains Capacitors	X-capacitor only used in approved SPS.	N

1.6	Power interface		P
-----	-----------------	--	---

IEC 950			
Clause	Requirement – Test	Result – Remark	Verdict
1.6.1	Steady state input current	Highest load according to 1.2.2.1 for this equipment is the HDD*5 permanently access and with dummy load +5V/13.63A, +12V/3.01A (SPS), +5V/1.4A (USB port) (see appended table)	P
	Current deviation during normal operating cycle	< +10%	P
1.6.2	Voltage limit of hand-held equipment	This appliance is not a hand-held equipment.	N
1.6.3	Neutral conductor insulated from earth and body	In approved SPS.	P
1.6.4	Components in equipment intended for IT power system	Phase to earth designed in according to phase-to-phase working voltage. The Y2 type capacitor in approved SPS used between phase-to-earth is rated according.	N
1.6.5	Mains supply tolerance (V)	+6%, -10% Documentation specifies a rating of AC 100-240V at 50-60Hz with +10% and -10% tolerance. Relevant tests were done with the range of 90-254V at 50-60Hz.	P

1.7	Marking and instructions		P
1.7.1	Rated voltage (V)	~100-240V	P
	Symbol of nature of supply for d.c.	Mains from AC source	N
	Rated frequency (Hz)	50-60Hz	P
	Rated current (A)	7A	P
	Manufacturer	Not shown	N
	Trademark	Trademark of acer	P
	Type/model	Altos G300	P
	Symbol of Class II	Class I equipment	N
	Certification marks	TUV GS mark, UL, cUL	N

IEC 950			
Clause	Requirement – Test	Result – Remark	Verdict
1.7.2	Safety instructions	<p>The users manual contains information for operation, installation, servicing, transport, storage and technical data.</p> <p>Marking for Laser Class 1 type CD-ROM Drive, as following:</p> <p>CLASS 1 LASER PRODUCT APPAREIL A LASER DE CLASSE 1 LASERSCHUTZKLASSE 1 PRODUKT</p>	P
1.7.3	Short duty cycles	Equipment is designed for continuous operation.	N
1.7.4	Marking for voltage setting/frequency setting ...:	No voltage/frequency setting.	N
1.7.5	Marking at power outlets	No outlet.	N
1.7.6	Marking at fuseholders	Fuse marking in approved SPS.	N
1.7.7.1	Protective earthing terminals	Appliance inlet used.	N
1.7.7.2	Terminal for external primary power supply conductors	No terminal.	N
1.7.8.1	Identification and location of switches and controls	No safety relevant switches and controls.	N
1.7.8.2	Colours of controls and indicators	No safety relevant indicators.	N
1.7.8.3	Symbols according to IEC 417	Marking for push-push type front panel functional switch according to IEC60417, No. 5009 (line half inside circle).	P
1.7.8.4	Figures used for marking	No indicators for different positions.	N
1.7.8.5	Location of markings and indications for switches and controls	The marking for the switch is located beside the switch knob.	P
1.7.9	Isolation of multiple power sources	Only one supply from the mains.	N
1.7.10	Instructions for installation to IT power system	For Norway compliance has to be evaluated during the national approval.	N
1.7.11	Instructions when protection relies on building installation	Connected to the mains by pluggable type A.	N
1.7.12	Marking when leakage current exceeds 3,5 mA	Leakage current does not exceed 3.5mA.	N

IEC 950			
Clause	Requirement – Test	Result – Remark	Verdict
1.7.13	Indication at thermostats and regulating devices	No adjustable thermostats.	N
1.7.14	Language of safety markings/instructions	Instruction related to safety provided in English and German and marking provided in English.	P
	Language	English, German	—
1.7.15	Durability and legibility	The label was subjected to the permanence of marking test. The label was rubbed with cloth soaked with water for 15 s and then again for 15 s with the cloth soaked with petroleum spirit. After this test there was no damage to the label. The marking on the label did not fade. There was no curling nor lifting of the label edge.	P
1.7.16	Removable parts	No marking placed on removable part.	P
1.7.17	Warning text for replaceable lithium batteries	Lithium battery for real time clock is exchangeable. Warning sentence printed into the manual and service instruction.	P
	Language	English, German	—
1.7.18	Operator access with a tool	The inside of the unit is regarded to be operator access area. This area is accessible when enclosure of unit is be disassembled with a screwdriver. When the enclosure is disassembled, the earthed metal enclosure of SPS is accessible. However, the SPS enclosure can be opened with the same screw driver as the screw head is in same construction. Therefore, the SPS provided with electric shock hazard symbol (ISO 3864, No. 5036) to discourage the user to access.	P
1.7.19	Equipment for restricted access locations	No restricted access location.	N

IEC 950			
Clause	Requirement – Test	Result – Remark	Verdict

2	PROTECTION FROM HAZARDS		P
---	-------------------------	--	---

2.1	Protection against electric shock and energy hazards		P
2.1.1	Access to energized parts	See below	P
2.1.2	Protection in operator access areas	As the user's manual specifies directions for the operator how to add components inside the enclosure, the inside of this unit is regarded to be operator access area. With the disassembled unit enclosure, the accessible SPS is covered with an earthed metal enclosure. The construction of this metal enclosure prevents the accessibility to any parts with only basic insulation to ELV or hazardous voltage with test pin or test finger.	P
	Test by inspection	dto	P
	Test with test finger	dto	P
	Test with test pin	dto	P
2.1.3.1	Insulation of internal wiring in an ELV circuit accessible to operator	No ELV wiring in operator accessible area.	N
	Working voltage (V); distance (mm) through insulation		N
2.1.3.2	Operator accessible insulation of internal wiring at hazardous voltage	No hazardous voltage wiring in operator accessible area.	N
2.1.4.1	Protection in service access areas	No maintenance work in operation mode necessary.	N
2.1.4.2	Protection in restricted access locations	It is not intended to be used in restricted locations	N
2.1.5	Energy hazard in operator access area	All user accessible connector are carrying only SELV.	P
2.1.6	Clearances behind conductive enclosures	Refer to 4.2.3.	P
2.1.7	Shafts of manual controls	None at ELV or hazardous voltage	N

IEC 950			
Clause	Requirement – Test	Result – Remark	Verdict
2.1.8	Isolation of manual controls	None at ELV or hazardous voltage	N
2.1.9	Conductive casings of capacitors	Casings of capacitors are considered as if directly connected to the respective circuitry. None at hazardous voltage accessible	P
2.1.10	Risk of electric shock from stored charge on capacitors connected to mains circuit	X-capacitor in approved SPS.	N
	Time-constant (s); measured voltage (V) :	< 1s	—

2.2	Insulation		P
2.2.1	Methods of insulation	The insulation materials provided in the equipment with adequate thickness and adequate creepage distance over their surface and clearance distance through air.	P
2.2.2	Properties of insulating materials	Natural rubber, asbestos or hygroscopic materials are not used	P
2.2.3	Humidity treatment	Total time elapsed: 120 hours	P
	Humidity (%)	93% R.H.	—
	Temperature (°C)	40°C	—
2.2.4	Requirements for insulation	Please refer to 5.3, 2.9 and 5.1.	P
2.2.5	Insulation parameters	Both parameters were considered.	P
2.2.6	Categories of insulation	The adequate levels of safety insulation is provided and maintained to comply with the requirements of this standard.	P
2.2.7	Determination of Working voltage	The rms and the peak voltages were measured on the approved building-in switching power supply.	N
2.2.7.1	General rules for working voltages	Considered	P
2.2.7.2	Clearances in primary circuits	In approved SPS.	N

IEC 950			
Clause	Requirement – Test	Result – Remark	Verdict
2.2.7.3	Clearances in secondary circuits	See sub-clause 5.4.4	N
2.2.7.4	Creepage distances	Considered.	P
2.2.7.5	Electric strength tests	Considered	P
2.2.8	Double or reinforced insulation bridged by components	No component bridged reinforced or double insulation outside the approved SPS.	N
2.2.8.1	Bridging capacitors		N
2.2.8.2	Bridging resistors		N
2.2.8.3	Accessible parts		N

2.3	Safety extra-low voltage (SELV) circuits		P
2.3.1	Voltage (V) of SELV circuits under normal operating conditions and after a single fault:	42.4V peak or 60VDC are not exceeded in SELV circuit under normal operation or single fault condition	—
2.3.2	Voltage (V) between any two conductors of SELV circuit(s) and for Class I equipment between any conductor of SELV circuit and equipment protective earthing terminal under normal operating conditions	Between any SELV circuits 42.4V peak or 60VDC are not exceeded	P
2.3.3	Voltage (V) of SELV in the event of a single failure of basic or supplementary insulation or of a component	Single fault did not cause excessive voltage in accessible SELV circuits. Limits of 71V peak and 120V DC were not exceed and SELV limits not for longer than 0.2 seconds, see abnormal results 5.4.6.	—
	Method used for separation	Method 1	P
2.3.4	Additional constructional requirements	In multiway connectors and cable ties prevent contact to hazardous parts in case of loosening of connection or conductor breakage. IEC 60083 and IEC 60320 connectors are not used in SELV.	P
2.3.5	Connection of SELV circuits to other circuits	See 2.3.2 and 2.3.3. No direct connection between SELV and any primary circuits.	N

IEC 950			
Clause	Requirement – Test	Result – Remark	Verdict
2.3.8	Construction of SELV circuits		N
2.3.9	SELV circuits connected to other circuits		N

2.4	Limited current circuits		N
2.4.2	Frequency (Hz)		—
	Measured current (mA)		N
2.4.3	Measured voltage (V)		—
	Measured capacitance (μ F)		N
2.4.4	Measured voltage (V)		—
	Measured charge (μ C)		N
2.4.5	Measured voltage (V)		—
	Measured energy (mJ)		N
2.4.6	Limited current circuit supplied from or connected to other circuits		N

2.5	Provisions for earthing		P
2.5.1	Class I equipment	Basic insulated conductive parts touchable in operator area earthed reliably.	P
	Warning label for service personnel		N
2.5.2	Protective earthing in Class II equipment	Class I equipment	N
2.5.3	Switches/fuses in earthing conductors	No switches or fuses in earthing conductor.	P
2.5.4	Assured earthing connection for Class I equipment in systems comprising Class I and Class II equipment	This unit has its own earthing connection. Any other units connected via the interconnecting cable to other unit shall provide SELV only. The equipment does not comprise class I and class II.	P
2.5.5	Green/yellow insulation	Green/yellow wire from inlet to chassis in the approved SPS.	N
2.5.6	Continuity of earth connections	It is not possible to disconnect earth without disconnecting mains as an appliance inlet is used.	P

IEC 950			
Clause	Requirement – Test	Result – Remark	Verdict
2.5.7	Making and breaking of protective earthing connections	Plug or inlet, earthing connected before and disconnected after hazardous voltage. No other operator removable parts.	P
2.5.8	Disconnection protective earthing connections	It is not necessary to disconnect earthing except for the removing of the earthed parts itself.	P
2.5.9	Protective earthing terminals for fixed supply conductors or for non-detachable power supply cords		N
2.5.10	Corrosion resistance	All safety earthing connections in compliance with Annex J.	P
2.5.11	Resistance (Ω) of protective earthing conductors $\leq 0.1 \Omega$	See appended table.	P
	Test current (A)		—

2.6	Disconnection from primary power		P
2.6.1	General requirements	The appliance inlet of the approved SPS is considered to be the disconnect device.	P
2.6.2	Type of disconnect device	Appliance inlet	P
2.6.3	Disconnect device in permanently connected equipment	Pluggable equipment type A.	N
2.6.4	Parts of disconnect device which remain energized	When plug or inlet is disconnected no remaining parts with hazardous voltage in the equipment.	P
2.6.5	Switches in flexible cords	No isolation switch provided.	N
2.6.6	Disconnection of both poles simultaneously for single-phase equipment	The plug or inlet disconnects both poles simultaneously.	P
2.6.7	Disconnection of all phase conductors of supply in three-phase equipment	Single phase	N
2.6.8	Marking of switch acting as disconnect device		N
2.6.9	Installation instructions if plug on power supply cord acts as disconnect device		N
	Language		—

IEC 950			
Clause	Requirement – Test	Result – Remark	Verdict
2.6.11	Interconnected equipment	Certified plug or inlet, earthing connected before phases are connected.	P
2.6.12	Multiple power sources	Only one supply connection provided.	N

2.7	Overcurrent and earth fault protection in primary circuits		P
2.7.1	Basic requirements	Equipment relies on 16A rated fuse or circuit breaker of the wall outlet installation protection of the building installation in regard to L to N short circuit. Overcurrent protection is provided by the built-in device fuse in SPS.	P
2.7.2	Protection against faults not covered in 5.4	The protection devices are well dimensioned and mounted.	P
2.7.3	Short-circuit backup protection	Pluggable equipment type A, the building installation is considered as providing short circuit backup protection	P
2.7.4	Number and location of protective devices	Overcurrent protection by one built-in fuse in approved SPS.	N
2.7.5	Protection by several devices	Only one fuse.	N
2.7.6	Warning to service personnel	With reversible type plug to the mains, hazardous voltage may be still presented in the SPS after the internal fuse opens. However, as it is considered that the plug to the mains will be disconnected during service work, no marking were requested.	P

2.8	Safety interlock <i>No operator accessible areas which presents hazards in the meaning of this standard.</i>		N
2.8.2	Design		N

IEC 950			
Clause	Requirement – Test	Result – Remark	Verdict
2.8.3	Protection against inadvertent reactivation		N
2.8.4	Reliability		N
2.8.5	Overriding an interlock		N
2.8.6.1	Contact gap (m):		N
2.8.6.2	Switch performing 50 cycles		N
2.8.6.3	Electric strength test: test voltage (V):		N
2.8.7	Protection against overstress		N

2.9	Clearances, creepage distances and distances through insulation		P
	Nominal voltage (V):	AC 100-240V	—
	General		P
2.9.2	Clearances	See below	P
2.9.2.1	Clearances in primary circuits	In approved SPS.	N
2.9.2.2	Clearances in secondary circuits	In compliance with 5.4.	N
2.9.3	Creepage distances	For creepage distances between primary and secondary considered in approved SPS. For creepage distances between PE and secondary in compliance with 5.4.	P
	CTI tests:		—
2.9.4.1	Minimum distances through insulation	In approved SPS.	N
2.9.4.2	Thin sheet material		N
	Number of layers (pcs):		N
	Electrical strength test: test voltage (V):		N
2.9.4.3	Printed boards	Not applied for	N
	Distance through insulation:		N
	Electric strength test at voltage (V) for thin sheet insulating material:		N
	Number of layers (pcs):		N
2.9.4.4	Wound components without interleaved insulation		N
	Number of layers (pcs):		N
	Two wires in contact inside component; angle between 45° and 90°		N

IEC 950			
Clause	Requirement – Test	Result – Remark	Verdict
	Routine testing for finished component		N
2.9.5	Distances (mm) on coated printed boards	No coated printed wiring boards.	N
	Routine testing for electric strength		N
2.9.6	Enclosed and sealed parts	No hermetically sealed components.	N
	Temperature T1 (°C)		N
	Humidity %		N
2.9.7	Spacings filled by insulating compound	Only applicable for component inside the approved SPS.	N
	Temperature T1 (°C)		N
	Humidity %		N
2.9.8	Component external terminations	Only applicable for component inside the approved SPS.	N
2.9.9	Insulation with varying dimensions	Insulation kept homogenous.	N

2.10	Interconnection of equipment		P
2.10.1	General requirements	See below.	P
2.10.2	Type of interconnection circuits	Interconnection circuits of SELV through the output connectors. No ELV interconnection circuits.	P
2.10.3	ELV circuits as interconnection circuits	No ELV interconnection.	N

2.11	Limited power source		N
	Use of limited power source	Supplied from the mains.	N

3	WIRING, CONNECTIONS AND SUPPLY		P
---	--------------------------------	--	----------

3.1	General		P
-----	---------	--	----------

IEC 950			
Clause	Requirement – Test	Result – Remark	Verdict
3.1.1	Cross-sectional area of internal wiring/interconnecting cables	All internal wires are UL recognized wiring that is PVC insulated, rated VW-1, min. 80°C, 300V. Internal wiring gauge is suitable for current intended to be carried.	P
	Protection of internal wiring and interconnecting cables	No internal wire for primary power distribution.	N
3.1.2	Wireways	Wires do not touch sharp edges and heatsinks which could damage the insulation and cause hazard.	P
3.1.3	Fixing of internal wiring	The wires are secured by solder pins and quick connect terminals so that a loosening of the terminal connection is unlikely.	P
3.1.4	Fixing of uninsulated conductors	Securely held on PCB. No hazard.	P
3.1.5	Insulation of internal wiring	The insulation of the individual conductors are suitable for the application and the working voltage. For the insulation material see 3.1.1.	P
3.1.6	Wires coloured green/yellow only for protective earth connection	See 2.5.5.	N
3.1.7	Fixing of beads and similar ceramic insulators	Not used.	N
3.1.8	Required electrical contact pressure	Electrical and earthing connections screwed two or more complete threads into metal. No screws of insulating material for electrical and earthing connections, or where supplementary or reinforced insulation could be impaired by a metal replacement.	P
3.1.9	Reliable electrical connections	All current carrying and safety earthing connections are metal to metal	P
3.1.10	End of stranded conductor	No risk of stranded conductors coming loose.	P
3.1.11	Use of spaced thread screws/thread-cutting screws	No self tapping screws are used.	P

IEC 950			
Clause	Requirement – Test	Result – Remark	Verdict

3.2	Connection to primary power		P
3.2.1	Type of connection	Appliance inlet.	P
	Design of product with more than one supply connection	Only one mains supply.	N
3.2.2	Provision for permanent connection	Not permanently connected.	N
	Size (mm) of cables and conduits		N
3.2.3	Appliance inlet	The appliance inlet in approved SPS complies with IEC 60320 and is located at the rear of the unit.	P
3.2.4	Type and cross-sectional area (mm ²) of power supply cord		N
3.2.5	Cord anchorage		N
	Test: 25 times; 1 s; pull (N)		—
	Longitudinal displacement ≤ 2 mm		N
3.2.6	Protection of power supply cord	No parts under this unit likely to damage the power supply cord. No sharp edges.	P
3.2.7	Cord guard		N
	D (mm)		—
	Test: mass (g)		—
	Radius of curvature of the cord $\leq 1,5$ D		N
3.2.8	Supply wiring space		N

3.3	Wiring terminals for external power supply conductors <i>Unit with detachable power supply cord, connected on appliance inlet.</i>		N
3.3.1	Terminals		N
3.3.2	Special non-detachable cord		N
	Type of connection		—
	Pull test at 5 N		N
3.3.3	Screws and nuts		N
3.3.4	Fixing of conductors		N
3.3.5	Connection of connectors		N
3.3.6	Size of terminals		N
	Nominal thread diameter (mm)		N

IEC 950			
Clause	Requirement – Test	Result – Remark	Verdict
3.3.7	Protection against damage of conductors		N
3.3.8	Terminal location		N
3.3.9	Test with 8 mm stranded wire		N
4	PHYSICAL REQUIREMENTS		P

4.1	Stability and mechanical hazards		P
4.1.1	Stability tests		P
	Angle of 10°	This appliance is of a stable mechanical construction and does not overbalance when tilted to an angle of 10° from its normal upright position. (mounting feet attached)	P
	Test: force (N)	Equipment is not a floorstanding unit.	N
4.1.2	Protection against personal injury	No hazardous moving part	P
4.1.3	Warning and means provided for stopping the moving part	No hazardous moving parts.	N
4.1.4	Edges and corners	Edges and corners of the enclosure are rounded	P
4.1.5	Enclosure of a high pressure lamp	No lamp with cold pressure of 0.2MPa or hot pressure 0.4MPa.	N

4.2	Mechanical strength and stress relief		P
4.2.1	General		P
4.2.2	Internal enclosures 30 N ± 3 N; 5 s	30N force tested on internal enclosure (SPS).	P
4.2.3	External enclosures 250 N ± 10 N; 5 s	250N applied to outer enclosure.	P
4.2.4	Steel ball tests		P
	Fall test	500g steel sphere ball fall, from 1.3m height onto outer metal enclosure.	P
	Swing test	500g steel sphere ball as pendulum onto outer metal enclosure.	P

IEC 950			
Clause	Requirement – Test	Result – Remark	Verdict
4.2.5	Drop test		N
4.2.6	Heat test for enclosures of moulded or formed thermoplastic materials: 7 h; T (°C):	The building-in SPS with metal chassis, therefore there is no test required.	N
4.2.7	Compliance criteria	Complied.	P
4.2.8	Mechanical strength of cathode ray tubes	Unit does not employ a cathode ray tube.	N

4.3	Construction details		P
4.3.1	Changing of setting for different power supply voltages	Auto voltage range design.	N
4.3.2	Adjustment of accessible control devices	None that would cause hazard	P
4.3.4	Prevention of dangerous concentration of dust, powder, liquid and gas	Equipment in intended use not considered to be exposed to these.	N
4.3.5	Fixing of knobs, grips, handles, levers		N
	Test: force (N):		N
4.3.6	Driving belts/couplings shall not ensure electrical insulation	Not used for insulation.	N
4.3.7	Retaining of sleeves	No sleeving used.	N
4.3.9	Protection of loosening parts	Electrical and mechanical connections can be expected to withstand usual mechanical stress. For the protection, solder pins, cable ties and heatshrink tubing are used.	P
4.3.11	Resistance to oil and grease	Insulation not in contact with oil or grease.	N

IEC 950			
Clause	Requirement – Test	Result – Remark	Verdict
4.3.12	Protection against harmful concentration of ionizing radiation, ultraviolet light, laser or flammable gases (laser see IEC 825-1)	No ionizing radiation or flammable liquids presents. CD-ROM drive was approved component evaluated according to relevant standard for laser product (IEC 60 825-1 and EN 60 825-1). Therefore they comply with this clause without further tests. Laser Class 1 symbol printed on their labels and inside user's manuals. LEDs energy is far below the limit of LED Class 1.	P
4.3.13	Securing of screwed connections	No connection likely to be exposed to mechanical stress are provided in unit.	P
4.3.15	Openings in the top of enclosure	No openings.	P
	Dimensions (mm)		—
4.3.16	Openings in the sides of enclosure	No part at hazardous voltage in a 5° projection area.	P
	Dimensions (mm)	(see appended table)	—
4.3.17	Interchangeable plugs and sockets	In operator and service area, mismatch of connectors were prevented by incompatible form or location.	P
4.3.18	Torque test for direct plug-in equipment		N
	Additional torque (Nm)		N
4.3.19	Protection against excessive pressure		N
4.3.20	Protection of heating elements in Class I equipment	No heating elements.	N
4.3.21	Protection of lithium batteries		P
	Construction of protection circuit	Protected from reverse polarity installation by form of battery socket.	P
4.3.22	Ageing of barrier/screen secured with adhesive		N
	Day 1: temperature (°C); time (weeks)		N
	Day 8/22/57: a) temperature (°C) for 1 h b) temperature (°C) for 4 h c) temperature (°C) over 8 h		N

IEC 950			
Clause	Requirement – Test	Result – Remark	Verdict
	Day 9/23/58: a) relative humidity (%) for 72 h b) temperature (°C) for 1 h c) temperature (°C) for 4 h d) temperature (°C) over 8 h		N

4.4	Resistance to fire		P
4.4.1	Methods of achieving resistance to fire	Use of materials with the required flammability classes.	P
4.4.2	Minimizing the risk of ignition	Electrical parts are not likely to ignite nearby materials. Parts not protected against overheating under fault conditions. Temperatures see 5.1.	P
	Printed board: manufacturer; type; flammability :	See 1.5.1 appended table.	P
4.4.3	Flammability of materials and components	See below.	P
4.4.3.2	Material and component: manufacturer; type; flammability	Internal components except small parts are V-2, HF-2 or better.	P
4.4.3.3	Exemptions	Considered.	P
4.4.3.4	Wiring harnesses: manufacturer; flammability ..	Insulating material consists of PVC.	P
4.4.3.5	Cord anchorage bushings: manufacturer; flammability	No cord anchorage.	N
4.4.3.6	Air filter assemblies: manufacturer; flammability :	No air filter assemblies	N
4.4.4	Enclosures and decorative parts: manufacturer; flammability	Protective enclosure (metal) with decorative plastic panel. The plastic panel assumed as decorative part, therefore the flammability class HB of that plastic material was acceptable.	P
4.4.5	Conditions for fire enclosures	See 4.4.5.1	P

IEC 950			
Clause	Requirement – Test	Result – Remark	Verdict
4.4.5.1	Components which require fire enclosure: manufacturer; flammability	With having the following components: <ul style="list-style-type: none"> ■ components with windings ■ wiring ■ semiconductor devices, transistors, diodes, integrated circuits ■ resistors, capacitors, inductors the fire enclosure is required.	P
4.4.5.2	Components not requiring fire enclosure	See 4.4.5.1	N
4.4.6	Fire enclosure construction	Protection against emission of flame, molten metal, flaming or glowing particles or drops by the fire enclosure. Openings: There is no opening below any component at bottom of metal enclosure.	P
4.4.7	Doors and covers in fire enclosures	No door or cover within fire enclosure.	N
4.4.8	Flammable liquids	No flammable liquids in this unit.	N

5	THERMAL AND ELECTRICAL REQUIREMENTS	P
----------	--	----------

5.1	Heating	P
	Heating tests	(see appended table) P

5.2	Earth leakage current	P
5.2.1	General	The leakage current was measured from primary to ground. P
5.2.2	Leakage current	(see appended table) P
	Test voltage (V)	(see appended table) —
	Measured current (mA)	(see appended table) —

IEC 950			
Clause	Requirement – Test	Result – Remark	Verdict
	Max. allowed current (mA)	3.5mA	—
5.2.3	Single-phase equipment	See 5.2.2	P
	Test voltage (V)		—
	Measured current (mA)		—
	Max. allowed current (mA)		—
5.2.4	Three-phase equipment	Single phase equipment.	N
	Test voltage (V)		—
	Measured current (mA)		—
	Max. allowed current (mA)		—
5.2.5	Equipment with earth leakage current exceeding 3,5 mA	Leakage current does not exceed 3.5mA	N
	Test voltage (V)		—
	Measured current (mA)		—
	Max. allowed current (mA)		—
	Cross-sectional area (mm ²) of internal protective earthing conductor		—
	Warning label		N

5.3	Electric strength		P
5.3.1	General	<p>All tests voltages were applied for 1minute in the chamber after the humidity test of 2.2.3 and in warm conditions after the heating test of 5.1.</p> <p>No isolation breakdown was observed (results see appended tables).</p>	P
5.3.2	Test procedure	(see appended table)	P

5.4	Abnormal operating and fault conditions		P
5.4.2	Motors	<p>All DC fans are approved components.</p> <p>Other motor are used within certified appliances (HDD and CD-ROM).</p>	P

IEC 950			
Clause	Requirement – Test	Result – Remark	Verdict
5.4.3	Transformers	The protection of the SPS and the used transformers had been evaluated within the approval of the SPS.	P
5.4.4	Compliance of operational insulation <i>Power supply is approved component, the over-current protection of the power supply ensures that it occurs no hazard caused by the SPS if there is short circuit in the SELV circuit.</i>		P
	Method used	Method c) considered. No risk of fire due to: <ul style="list-style-type: none"> all components are mounted on PCB of flammability V-0. wiring is insulated by PVC No test had been performed.	P
5.4.5	Electromechanical components in secondary circuits	No electromechanical components.	N
5.4.6	Other components and circuits	Faults in primary and secondary components and operational insulation were already considered during the approval of the SPS. No other component fault test necessary.	N
5.4.7	Test in any expected condition and foreseeable misuse	Ventilation blocked and DC fan locked test: results see appended table, no hazards No hazard by operating buttons and controls not in accordance with the instructions.	P
5.4.8	Unattended use of equipment having thermostats, temperature limiters etc.	None of them are used.	N
5.4.9	Compliance	No fire propagated beyond the equipment. No molten metal was emitted. Electric strength test primary → SELV and primary → PE were passed.	P
5.4.10	Ball-pressure test of thermoplastic parts; impression shall not exceed 2 mm	None of them outside the approved power supply.	N

IEC 950			
Clause	Requirement – Test	Result – Remark	Verdict
6	CONNECTION TO TELECOMMUNICATION NETWORKS <i>Equipment is not intended be connected to TNV.</i>		N

6.1	General		N
6.2	TNV circuits		N
6.2.1.1	Limits of the TNV circuits		N
6.2.1.1 a)	TNV-1 circuits		N
6.2.1.1 b)	TNV-2 and TNV-3 circuits		N
6.2.1.2	Separation from other circuits and from accessible parts		N
	Voltage (V) in SELV circuits, TNV-1 circuits and accessible conductive parts in event of single insulation fault or component failure		N
6.2.1.3	Operating voltages generated externally		N
	Voltage (V) in SELV circuit, TNV-1 circuit or accessible conductive part		N
6.2.1.4	Separation from hazardous voltages		N
	Insulation between TNV circuit and circuit at hazardous voltage		N
	Method used		N
6.2.1.5	Connection of TNV circuits to other circuits		N
	TNV circuit supplied conductively from a secondary circuit		N
6.2.2.1	Protection against contact with bare conductive parts of TNV-2 and TNV-3 circuits		N
	Test with test finger		N
	Test with test probe		N
6.2.2.2	Battery compartments		N
	Marking next to door/on door		N

6.3	Protection of telecommunication network service personnel, and users of other equipment connected to the telecommunication network, from hazards in the equipment		N
6.3.1	Protection from hazardous voltages		N
6.3.2	Use of protective earthing		N

IEC 950			
Clause	Requirement – Test	Result – Remark	Verdict
	Language of installation instructions		N
6.3.3.1	Insulation between TNV circuit and parts or circuitry that may be earthed		N
6.3.3.2	Exclusions		N
6.3.4.1	Limitation of leakage current (mA) to telecommunication network		N
6.3.4.2	Summation of leakage currents from telecommunication network		N

6.4	Protection of the equipment user from voltages on the telecommunication network		N
6.4.1	Separation requirements		N
6.4.2	Test procedure		N
6.4.2.1	Impulse test: separation between TNV-1 circuits/TNV-3 circuits and:		N
6.4.2.1 a)	uneearthed conductive parts/non-conductive parts of the equipment expected to be held or touched during normal use; test at 2,5 kV		N
6.4.2.1 b)	parts and circuitry that can be touched by the test finger except contacts of connectors that cannot be touched by test probe; test at 1,5 kV		N
6.4.2.1 c)	circuitry which is provided for connection of other equipment; test at 1,5 kV		N
6.4.2.2	Electric strength test: separation between TNV-1 circuits/TNV-3 circuits and:		N
6.4.2.2 a)	uneearthed conductive parts/non-conductive parts of the equipment expected to be held or touched during normal use; test at 1,5 kV		N
6.4.2.2 b)	parts and circuitry that can be touched by the test finger except contacts of connectors that cannot be touched by test probe; test at 1,0 kV		N
6.4.2.2 c)	circuitry which is provided for connection of other equipment; test at 1,0 kV		N
6.4.2.3	Compliance criteria		N

6.5	Protection of telecommunication wiring system from overheating		N
	Maximum continuous output current (A)		N

IEC 950			
Clause	Requirement – Test	Result – Remark	Verdict
A	ANNEX A, TESTS FOR RESISTANCE TO HEAT AND FIRE		N
A.1	Flammability test for fire enclosures of moveable equipment having a total mass exceeding 18 kg, and of stationary equipment		N
A.2	Flammability test for fire enclosures of moveable equipment having a total mass not exceeding 18 kg, and for materials located within fire enclosures		N
A.3	High current arcing ignition test		N
A.3.6	Number of arcs		N
A.4	Hot wire ignition test		N
A.4.6	Ignition time (s)		N
A.5	Hot flaming oil test		N
A.6	Flammability test for classifying materials V-0, V-1 or V-2		N
A.7	Flammability test for classifying foamed materials HF-1, HF-2 or HBF		N
A.8	Flammability test for classifying materials HB		N
A.9	Flammability test for classifying materials 5V		N
A	Tested material		N
	Preconditioning: 7 days (168 h); temperature (°C)		—
	Mounting of samples during test		—
	Wall thickness		—
	Sample 1 burning time		N
	Sample 2 burning time		N
	Sample 3 burning time		N
	Material: compliance with the requirements		N
	Manufacturer of tested material		—
	Type of tested material		—
	Additional information		—

B	ANNEX B, MOTOR TESTS UNDER ABNORMAL CONDITIONS		N
	<i>Approved DC fan used for secondary circuit in approved SPS and system.</i>		
B.1	General requirements		N
	Position		—
	Manufacturer		—
	Type		—
	Rated voltage (V) or current (A)		—

IEC 950			
Clause	Requirement – Test	Result – Remark	Verdict
B.2	Test conditions		N
B.3	Maximum temperatures		N
B.4	Running overload test		N
B.5	Locked-rotor overload test		N
	Test duration (days)		—
	Electric strength test: test voltage (V)		—
B.6	Running overload test for DC motor in secondary circuits		N
B.7	Locked-rotor overload test for DC motor in secondary circuits		N
B.7.2	Test time (h)		N
B.7.3	Test time (h)		N
B.8	Test for motors with capacitors		N
B.9	Test for three-phase motors		N
B.10	Test for series motors		N
	Test voltage (V)		—

C	ANNEX C, TRANSFORMERS		N
	<i>Transformer provided in approved SPS.</i>		
	Position		—
	Manufacturer		—
	Type		—
	Rated values		—
	Temperatures		N
	Thermal cut-out		N
C.1	Overload test		N
	Conventional transformer		N
C.2	Insulation		
	Precautions		N
	Retaining of end turns of all windings		N
	Earthing test at 25 A		N
C.3	Electric strength test		N

H	ANNEX H, IONIZING RADIATION		N
	Ionizing radiation		N

IEC 950			
Clause	Requirement – Test	Result – Remark	Verdict
	Measured radiation		—
	Measured high-voltage (kV)		—
	Measured focus voltage (kV)		—
	CRT markings		—
	Certified by		—
	Standard used		—

U	ANNEX U, INSULATED WINDING WIRES FOR USE AS MULTIPLE LAYER INSULATION		N
	See separate test report		N

IEC 950			
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	mark(s) of conformity ¹⁾	
PWB	Various	Various	V-0, 105°C	UL94	UL	
Lithium Battery	Hitach Maxell	CR2032	3V, 220mAh	--	UL	
Polyswitch	Polytronics Technology Corp.	SMD1812P110 TS	6 V dc, 1.1A	--	UL, VDE	
DC fan*2 (for System)	Sunonwealth	KD1208PKB1	12Vdc, 38.5CFM	IEC 60950	TUV, UL	
	Sunonwealth	KD1208PTB2	12Vdc, 39CFM	IEC 60950	TUV, UL	
DC fan (for CPU)	Enlight Corp.	ECD1270153B- 1F	12Vdc, 0.13A, 30.8CFM	IEC 60950	TUV, UL	
Switching Power Supply	Hipro Electronics Co.	HP-U300GF3	I/p: 100-240Vac, 7A, 60-50Hz O/p: 5V/30A, 12V/15A, 3.3V/28A, -12V/0.8A, -5V/0.3A 5Vsb/2.0A, Class I	IEC 60950	TUV, UL, CUL, CB (issued by Nemko)	
Hard Disk Drive * 5	Seagate	ST3XXXXYY	5/12Vdc, 1.0/1.0A max.	IEC 60950	TÜV, UL	
	Seagate	ST1XXXXYYX ST3XXXXYYX	5/12Vdc, 1.5/1.5A max.	IEC 60950	TÜV, UL	
	IBM	IC35L0nnYZD2 10-n	5/12Vdc, 1.5/1.5A max	IEC 60950	TÜV, UL	
CD-ROM	AOpen Inc	CD- 95X1E/X2X3X4	5/12Vdc, 0.9/1.5A. Laser Class 1	IEC 60950 IEC 60825-1	TÜV, UL	
FDD	Matsushita	JU-2XYA	5Vdc, 1A	IEC 60950	TÜV, UL, CSA	
Enclosure	--	--	Metal, min. 0.9 mm thick	--	--	

¹⁾ an asterisk indicates a mark which assures the agreed level of surveillance

IEC 950			
Clause	Requirement – Test	Result – Remark	Verdict

1.6	TABLE: electrical data (in normal conditions)					P
fuse #	I _{rated} (A)	U (V)	P (W)	I (A)	I _{fuse} (A)	condition/status
Fuse	7	100/50Hz	366	4.07	4.07	Load as described in 1.6.1
Fuse	7	100/60Hz	371	4.04	4.04	dto
Fuse	7	240/50Hz	349	1.72	1.72	dto
Fuse	7	240/60Hz	345	1.71	1.71	dto

2.1.10	TABLE: discharge test				N
Condition	τ calculated (s)	τ measured (s)	t _{u→0V} (s)	comments	
Overall capacity: In approved SPS					
Discharge resistor: In approved SPS					

2.5.11	TABLE: ground continue test			P
Location		Resistant measured (Ω)	Comments	
Inlet ground pin to metal enclosure		0.01	25A, 1min	
Inlet ground pin to metal enclosure		0.01	30A, 2mins	
Test current = 25A or 30A				

2.9.2 and 2.9.3	TABLE: clearance and creepage distance measurements						N
clearance cl and creepage distance dcr at/of:	U _p (V)	U r.m.s. (V)	required cl (mm)	cl (mm)	required dcr (mm)	dcr (mm)	
Note: Hazardous voltage only inside the approved SPS.							

IEC 950				
Clause	Requirement – Test		Result – Remark	Verdict
2.9.4.1	TABLE: distance through insulation measurements <i>Components in approved SPS.</i>			N
distance through insulation di at/of:		U r.m.s. (V)	test voltage (V)	required di (mm)
				di (mm)

4.3.15/16 & 4.4.6	Table: enclosure openings			P
Location	Size (mm)	Comments		
Top	None	No openings provided		
Bottom	max. 15x17	Numerous rectangular openings.		
Side	15.0x1.5	Numerous rectangular openings.		
Front	max. 35x18	Numerous rectangular openings.		
Rear	max. 50x5.0	DC fan guard openings		
	8x5	Numerous rectangular openings.		

5.1	TABLE: temperature rise measurements			P
	test voltage (V)	100V-10%	240V + 6%	—
	t1 (°C)			—
	t2 (°C)			—
temperature rise dT of part/at:		dT (K)	required dT (K)	
Switching Power Supply				
L11 coil		37	11	95
LF1 coil		35	8	85
LF2 coil		24	8	85
L1 coil		21	10	95
HS1		18	11	--
HS3		17	8	--
T1 coil		22	12	75
T1 core		18	13	75
T2 coil		13	14	75

IEC 950						
Clause	Requirement – Test			Result – Remark		Verdict
T2 core				12	14	75
HS2				16	14	--
HS4				33	18	--
L9 coil				52	29	70
L2 coil				34	13	70
L8 coil				26	22	70
PCB under TH1A				50	15	70
C8 body				16	10	50
Enclosure				11	7	35
System						
CPU heatsink				12	5	35
U5 heatsink				23	17	35
FDD				4	3	35
HDD1				15	6	35
HDD2				17	7	35
HDD3				6	4	35
HDD4				9	6	35
HDD5				6	4	35
CD-ROM				4	3	35
RTC battery				4	2	35
System enclosure				4	2	35
Room Ambient				24°C	25°C	--
The lowest temperature limits have been used.						
temperature rise dT of winding:			R ₁ (Ω)	R ₂ (Ω)	dT (K)	required dT (K)
						insulation class

IEC 950			
Clause	Requirement – Test	Result – Remark	Verdict

Comments:

The temperatures were measured by thermal couple method under worst case normal load as described in 1.6.1 at voltages described in 1.6.5.

With a specified ambient temperature of 35°C, the max. temperature rise is calculated as follows:

Winding components or components:

- class B → $dT_{max} = 95K - 10K - (35-25)K = 75K$

Winding components or components:

- max. temperature of 85°C → $dT_{max} = 85K - 35K = 50K$

- max. temperature of 105°C → $dT_{max} = 105K - 35K = 70K$

- max. temperature of 105°C → $dT_{max} = 110K - 35K = 75K$

- max. temperature of 120°C → $dT_{max} = 120K - 35K = 85K$

External surface of equipment or parts inside the equipment which may be touched:

- metal → $dT_{max} = 45K - (35-25)K = 35K$

The tests had been performed with two system DC fans each with airflow 38.5CFM.

5.2	TABLE: leakage current measurement			P
Condition	current L→PE (mA)	current N→PE (mA)	comments	
Switch On	0.54	0.48		
Switch Off	0.55	0.48		
Input voltage:	254V			
Input frequency:	60Hz			
Overall capacity:	In approved SPS			

5.3	TABLE: electric strength test			P
test voltage applied between:			test voltage (V)	breakdown
primary and secondary (for both models)			DC 4242	No
primary and enclosure (PE) (for both models)			DC 3471	No
Note: A complete unit after Heating, Humidity (93% RH, 40°C, 120 hrs) and abnormal Test				



IEC 950			
Clause	Requirement – Test	Result – Remark	Verdict

5.4	TABLE: fault condition tests						P
	ambient temperature (°C)				See below		—
	model/type of power supply				See table 1.5.1.		—
	manufacturer of power supply				See table 1.5.1.		—
	rated markings of power supply				See table 1.5.1.		—
No.	component No.	fault	test voltage (V)	test time	fuse No.	fuse current (A)	Result
01	Ventilation openings	Blocked	90	12.5 hrs	F1	--	No damaged, no hazards, the detail temperature as below: C8 body : 45°C T1 coil : 51°C T1 core : 47°C T2 coil : 42°C T2 core : 41°C L9 coil : 82°C TH1A near PCB : 79°C Hardisk#1 body : 43°C Hardisk#2 body : 47°C Enclosure of outside : 34°C Room Ambient : 31°C
02	Fan (for SPS)	Locked	90	7 hrs	F1	--	No damaged, no hazards, the detail temperature as below: C8 body : 47°C T1 coil : 85°C T1 core : 73°C T2 coil : 93°C T2 core : 90°C L9 coil : 146°C TH1A near PCB : 63°C Hardisk#1 body : 33°C Hardisk#2 body : 31°C Enclosure of outside : 36°C Room Ambient : 24°C

IEC 950							
Clause	Requirement – Test					Result – Remark	Verdict
03	Fan (for system rear side)	Locked	254	7 hrs	F1	--	No damaged, no hazards, the detail temperature as below: C8 body : 45°C T1 coil : 53°C T1 core : 49°C T2 coil : 44°C T2 core : 44°C L9 coil : 81°C TH1A near PCB : 56°C Hardisk#1 body : 50°C Hardisk#2 body : 49°C Enclosure of outside : 35°C Room Ambient : 27°C
04	Fan (for system front side)	Locked	254	7 hrs	F1	--	No damaged, no hazards, the detail temperature as below: C8 body : 40°C T1 coil : 47°C T1 core : 43°C T2 coil : 39°C T2 core : 38°C L9 coil : 77°C TH1A near PCB : 52°C Hardisk#1 body : 38°C Hardisk#2 body : 40°C Enclosure of outside : 32°C Room Ambient : 28.3°C

5.4.10	TABLE: ball pressure test of thermoplastics <i>Components in approved SPS.</i>			N
	required impression diameter (mm) : ≤ 2 mm			—
part		test temperature (°C)	impression diameter (mm)	

National Deviation			
Clause	Requirement – Test	Result – Remark	Verdict
APPENDIX	<p>EN 60950:1992 + A1:1993 + A2:1993 + A3:1995 + A4:1997 + A11:1997 TEST REPORT</p> <p>(IEC Publication 60950 2nd edition, 1991 + Amd.1, 1992 + Amd.2, 1993 + Amd.3, 1995 + Amd.4, 1996)</p> <p>CENELEC common modification, Special National condition, Nation deviation and other information according to CB Bulletin No. 101A, December 2001</p>		P
<p>EXPLANATION FOR ABBREVIATIONS</p> <p>C = CENELEC common modification, S = Special National condition, D = National deviation, F = Other information, AT = Austria, GB = Great Britain, CH = Switzerland, DE = Germany, DK = Denmark, FI = Finland, FR = France, NO = Norway, SE = Sweden.</p> <p>P = Pass, F = Fail, N = Not applicable. place in the column to the right.</p>			
1.2.4.1 S	(DK). Certain types of Class I appliances (see sub-clause 3.2.1) may be provided with a plug not establishing earthing continuity when inserted into Danish socket-outlets.	No power cord provided.	N
1.5.1 D	(SE). Add the following: NOTE: Switches containing mercury such as thermostats, relay and level controllers are not allowed.	No such switch.	N
1.6.4 S	(NO). Note 2: In Norway, due to the IT power system used, capacitors are required to be rated for the applicable phase-to-phase voltage (230V)	Considered, see report IEC 60950.	P
1.7.2 S	(NO). Note 4: In Norway, if separation between the mains and a communication system/network, other than public telecommunication networks, relies upon connection to safety earth, the equipment shall have a marking stating that it must be connected to an earthed mains socket-outlet. NOTE: For requirements to be connected to a public telecommunication network, see 6.2.1.4.	Must be evaluated during national approval.	N
1.7.2 S	(SE). If the separation between the mains and a SELV terminal relies upon connection to the safety earth, the apparatus shall have a marking stating that it must be connected to an earthed mains socket-outlet when a SELV circuit is connected to network passing both unearthed and earthed electrical environment. The marking text shall be in Swedish and as follows: "Apparaten skall anslutas till jordat uttag när den ansluts till ett nätverk".	Must be evaluated during national approval.	N

National Deviation			
Clause	Requirement – Test	Result – Remark	Verdict
1.7.2 D	(DK). Supply cords of Class I appliances, which are 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 appliance, 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".	No power cord provided.	N
1.7.2 C	Delete note 4.	Deleted	N
1.7.5 S	(DK). 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.	No socket outlet.	N
1.7.5 D	(DK). Class II appliances shall not be fitted with socket-outlets for providing power to other appliances.	Class I equipment.	N
1.7.14 D	(DE). Directions for use with rules to prevent certain hazards for (among others) maintenance of the technical labor equipment, also for imported technical labor equipment shall be written in German language. NOTE: Of this requirement, rules for use even only by service personnel are not exempted.	Not a technical labor equipment.	N
1.7.17 D	(CH). (Ordinance on environmentally hazardous substances SR 814.013) Annex 4.10 of SR 814.013 applies for batteries.	To be evaluated when submitted for national approval.	N
2.3.3 C	Delete Method 4 and the line in note 1 relating to this method	Deleted.	N
2.3.6 C	Delete the note.	Deleted.	N
2.3.5 S	(NO). In Norway, marking and insulation requirements according to subclause 1.7.2, Note 4, and 6.2.1.4, Note 2, apply.	No marking required.	N
2.3.6 S	(FR). Method 3 is not acceptable.	Method 3 is not used.	P
2.3.7 C	Replace the text of this sub-clause by: Void.	Replaced.	N
2.3.9 S	(NO). Marking and insulation requirements according to this annex, subclauses 1.7.02 and 6.2.01.4 b) apply.	No marking required.	N
2.5.2 S	(DK, NO) Add after the first paragraph: "The above exception is not acceptable in pluggable equipment type A "	Added, no exception applied.	N
2.5.2 C	Delete the note.	Deleted.	N

National Deviation			
Clause	Requirement – Test	Result – Remark	Verdict
2.7.1 C	<p>Replace the text of this sub-clause by: Basic requirements</p> <p>To protect against excess current, short-circuits and earth faults in primary circuits, protective devices shall be included either as integral parts of the equipment or as a part of the building installation, subject to all of the following a), b), c) and d):</p> <p>(a) Except as detailed in (b) and (c), protective devices necessary to comply with the requirements of Sub-clause 5.4 shall be included as integral 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, RFI filter and switch, short circuit and earth fault protection may be provided with protective devices in the installation.</p> <p>(c) It is permitted for equipment with rated current exceeding 16A, which is 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 breaker, is fully specified in the installation instruction</p> <p>(d) If reliance is placed on protection in the building installation, the installation instructions shall comply with Sub-clause 1.7.11 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 and 1.7.11 does not apply.</p>	Replaced.	N
2.7.2 C	Replace the text of this sub-clause by: Void.	Replaced.	N
2.8.4 C	Delete the note.	Deleted.	N
2.9.1 S	(NO). Note 3: In Norway, due to the IT power systems used, the mains supply voltage is considered to be equal to the phase-to-phase voltage.	Had been evaluated in approved.	N
2.9.4.2 C	<p>Amend the last line on page 117a as follows –</p> <p>Solvent-based enamel coating on winding wire is not considered to be insulation in thin sheet material.</p> <p>Add a new sentence below the text on page 117a as follows –</p> <p>Requirements for wound components are given in 2.9.4.4.</p>		N

National Deviation			
Clause	Requirement – Test	Result – Remark	Verdict
2.9.4.4 C	<p>Modify the title as follows –</p> <p>2.9.4.4 Wound components</p> <p>Replace the first paragraph and the two dashed paragraphs as follows –</p> <p>Unless one of the following situations applies, interleaved BASIC, SUPPLEMENTARY or REINFORCED INSULATION complying with 2.9.4.1 or 2.9.4.2 shall be provided between the windings.</p> <ul style="list-style-type: none"> - the insulation on the winding wire complies with 2.9.4.1; or - the winding wire complies with annex U; or - the insulation between the windings is provided for separation between ZNV circuits and other parts in compliance with 6.4.1. <p>Note – Examples of insulation of winding wire complying with annex U are polyamide and FEP.</p>		N
2.11 C	Delete notes 1, 2 and 3.	Deleted.	N
3.2.1 S	<p>(DK). Supply cords of single phase appliances having a rated current not exceeding 10A 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 10A is provided with a supply cord with a plug, this plug shall be in accordance with the Heavy Current Regulations Section 107-1-D1 or EN 60309-2.</p>	No power cord provided.	N
3.2.1 S	<p>(CH). Supply cords of equipment having a rated current not exceeding 10A shall be provided with a plug complying with SEV 1011 or IEC 60884-1 and one of the following dimension sheets</p> <p>SEV 6532-2,1991 Plug type 15 3P+N+PE 250/400V, 10A</p> <p>SEV 6533-2,1991 Plug type 11 L+N 250V, 10A</p> <p>SEV 6534-2,1991 Plug type 12 L+N+PE 250V, 10A</p> <p>EN 60 309 applies for plugs for currents exceeding 10A</p>	No power cord provided.	N

National Deviation			
Clause	Requirement – Test	Result – Remark	Verdict
3.2.1 S	(GB). Apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS1363 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.	No power cord provided.	N
3.2.2 C	Delete the note and in table 10, delete the values in parentheses.	Deleted.	N
3.2.4 S	(GB). A power supply cord with conductor of 1.25mm ² is allowed for equipment with rated current over 10A and up to and including 13A.	No power cord provided.	N
3.2.4 C	Replace "60245 IEC 53" by "H05 RR-F", "60227 IEC 52" by "H03 VV-F or H03 VVH2-F" and "60227 IEC 53" by "H05 VV-F or H05 VVH2-F". In table 11, replace the first four lines by the following: Up to and including 6 0.75 ¹⁾ Over 6 up to and including 10 1.0 (0.75) ²⁾ Over 10 up to and including 16 1.5 (1.0) ³⁾ In the conditions applicable to table 11, delete the words "in some countries" in condition 1). In the Note delete the second sentence.	Replaced.	N
3.3.5 C	In table 13, replace the fourth and the fifth lines by: Over 10 up to and including 16 1.5 to 2.5 1.5 to by 4	Replaced.	N
3.3.5 S	(GB). The range of conductor sizes of flexible cords to be accepted by terminals for equipment with a rated current of over 10A and up to and including 13A is: 1.25mm ² to 1.5mm ² nominal cross-sectional area.	No power cord provided.	N
4.3.18 S	(GB). This test should be performed using an appropriate socket-outlet with an earthing contact.	No direct plug-in equipment.	N
4.4.4 C	Delete note 2.	Deleted.	N
5.4.9 S	(NO). Note: In Norway, the electric strength test includes testing of basic insulation in Class I pluggable equipment type B and permanently connected equipment.	Considered.	N
6.1 S	(CH).Protective means in the equipment shall not prevent transient surge protection in the telecommunication network from operating properly (d.c. spark-over voltage of the surge suppressor installed in the telecommunication network: approx. 245V).	No TNV.	N

National Deviation			
Clause	Requirement – Test	Result – Remark	Verdict
6.2.1.2 C 6.2.1.3 C	Add at the end of the sub-clause: This sub-clause only applies to TNV circuits normally operating in excess of the limits of SELV circuits.	No TNV.	N
6.2.1.2 S	(SE). Supplementary insulation for a primary circuit is required between any TNV circuit and any circuit that has a connection to a protective earthing terminal. In Sweden, this requirement does not apply to permanently connected equipment or pluggable equipment Type B.	No TNV.	N
6.2.1.2 S	(NO). In Norway, supplementary insulation for a primary circuits is required between any TNV circuit and any circuit that has a connection to a protective earthing terminal. This requirement does not apply to permanently connected equipment or to pluggable equipment type B, installed in areas where equipotential bonding has been applied, e.g. a telecommunication Central Office.	No TNV.	N
6.2.1.4 C	Delete the notes.	No TNV.	N
6.2.1.4 S	(NO). Note 2: In Norway, method b) is not permitted. Insulation between parts conductively connected to the supply mains and parts connected to a public telecommunication network shall comply with the requirements for double or reinforced insulation.	No TNV.	N
6.2.1.4b) S	(FI). Method b) is permitted only for permanently connected equipment or for pluggable equipment Type B.	No TNV.	N
6.2.1.5 S	(NO). Note 2: In Norway, requirements according to 6.2.1.4, Note 2, apply	No TNV.	N
6.3.3. S	(NO). In Norway, 6.3.3 is applicable for pluggable equipment type A and B and for permanently connected equipment.	No TNV.	N
6.3.3.1 S	(SE). In Sweden, requirements according to this annex ZB, subclause 6.2.1.2 apply.	No TNV.	N
6.3.3.1 S	(NO). In Norway, requirements according to subclause 6.2.1.2, national difference, 6.2.1.4, Note 2, and 6.3.3.2, Note 1, applied.	No TNV.	N
6.3.3.2 S	(NO). Note 1: In Norway, exclusions are applicable for permanently connected equipment and pluggable equipment Type B only.	No TNV.	N
6.4.1 C	Delete note 2.	No TNV.	N
6.4.2.1 C	Delete note 2.	No TNV.	N
6.4.2.1 D	(AT). Equipment shall comply with $U_c = 2.0\text{kV}$ in cases b) and c).	No TNV.	N

National Deviation			
Clause	Requirement – Test	Result – Remark	Verdict
Annex H. D	<p>(DE)</p> <p>a) A license is required by those who operate an X-ray emission source.</p> <p>b) A license in accordance with clause 1 is not required by those who operate an X-ray emission source on which the electron acceleration voltage does not exceed 20 kV, if</p> <p>1) the local dose rate at a distance of 0.1m from the surface does not exceed 1μSv/h and</p> <p>2) it is adequately indicated on the X-ray emission source that</p> <p>i) X-rays are generated and</p> <p>ii) the electron acceleration voltage must not exceed the maximum value stipulated by the manufacturer or importer.</p> <p>c) A license in accordance with clause 1 is also not required by persons who operate an X-ray emission source on which the electron acceleration voltage exceeds 20 kV, if</p> <p>1) the X-ray emission source has been granted a type approval and</p> <p>2) it is adequately indicated on the X-ray emission source that</p> <p>i) X-ray are generated,</p> <p>ii) the device stipulated by the manufacturer or importer guarantees that the maximum permissible local dose rate in accordance with the type approval is not exceeded and</p> <p>iii) the electron acceleration voltage must not exceed the maximum value stipulated by the manufacturer or importer.</p> <p>d) Furthermore, a license in accordance with clause 1 is also not required by persons who operate X-ray emission sources on which the electron acceleration voltage does not exceed 30 kV, if</p> <p>1) the X-rays are generated only by intrinsically safety CRTs complying with Enclosure III, No.6,</p> <p>2) the values stipulated in accordance with Enclosure III, bi, 6.2 are limited by technical measures and specified in the device and</p> <p>3) it is adequately indicated on the X-ray emission source that the X-rays generated are adequately screened by the intrinsically safe CRT.</p>	No CRT.	N
Annex P C	<p>Replace the text of this annex by:</p> <p>See annex ZA.</p>	Replaced.	N

National Deviation			
Clause	Requirement – Test	Result – Remark	Verdict
Annex Q C	Add for IEC 60529: Note: Endorsed by EN 60529:1991 (not modified) Add for IEC 60707 Note: Endorsed by HD441:1983 (not modified) Add for IEC 61058-1: Note: Endorsed by EN 61058:1992 (not modified).	Added.	N

National Deviation			
Clause	Requirement – Test	Result – Remark	Verdict
APPENDIX	<p>EMKO-TSE(74-SEC)207/94 TO</p> <p>EN 60950:1992 + A1:1993 + A2:1993 + A3:1995 + A4:1997 + A11:1997</p> <p>TEST REPORT</p> <p>(IEC Publication 60950 2nd edition, 1991 + Amd.1, 1992 + Amd.2, 1993 + Amd.3, 1995 + Amd.4, 1996)</p> <p>Nordic Explanations, and other information not covered by Appendix EN 60950:1992, + A1:1993 + A2:1993 + A3:1995 + A4:1997 + A11:1997.</p>		P
<p>EXPLANATION FOR ABBREVIATIONS</p> <p>NF = Nordic Explanations and other information. DK = Denmark, FI = Finland, NO = Norway, SE = Sweden.</p> <p>P = Pass, F = Fail, N = Not applicable. Placed in the column to the right.</p>			
1.2.02.01 NF	(DK,FI,NO,SE). The heating test of separate power supplies of personal computers is carried out according to their rated output values marked on the power supplies.	Separated power supply unit heating test was performed according to the marked rating.	P
1.5.01 NF	(DK,FI,NO,SE). The following capacitors are accepted across the mains: 1) X1 capacitor which complies with Publication IEC 60 384-14. 2) X2 capacitor which complies with Publication IEC 60 384-14 and which has been subjected to a pulse test according to § 12.11.2, except the value of the voltage is reduced to 2.5 kV. 3) X2 capacitor which complies with Publication IEC 60 384-14 in case the endurance test of § 12.11.2 has been modified so that the resistor of 220Ω through which the voltage of 1000 V rms is applied to the capacitor under test, is short circuited. 4) Capacitor which complies with Publication HD 195 S6, § 14.2.	X-cap used only in approved SPS.	N
1.5.02 NF	(DK,FI,NO,SE). Transient protection components shall be installed in such a way that insulation for protection against electric shock will not be bridge. This means that transient protection components must not be connected to safety earthed parts in pluggable equipment or to other accessible parts.	No transient protection components connected to accessible parts.	P
	-3.2.3 (DK,FI,NO,SE). Interconnection couplers in accordance with EN 60 320-2-2 are accepted. Outlets of non-standard types are not accepted.	No outlet.	N
1.7.01 NF	-1st dash (DK). When supplied in Denmark the appliances shall be set to 230 V .	Included in the voltage range.	P
	-5th dash (DK). The equipment may instead be provided with a marking indicating name, trade-mark or identify of the responsible vendor.	See the copy of marking plate of IEC 60950 report.	P
2.1.04 NF	(DK,FI,NO,SE). For monitors, warning label is not required for repairing area, neither the partial shielding against contact although the voltage is > 42.4 V peak or > 60 V d.c.	Not a monitor.	N

National Deviation				
Clause	Requirement – Test		Result – Remark	Verdict
2.5.11 NF	(DK,FI,NO,SE). Due to installation fuses of 16A, the earth resistance shall always be controlled at 25 A.		Earthing test conducted at 25A, see IEC 60950 report.	P
2.6.06 NF	(DK,FI,NO,SE). The plug is regarded to be a disconnect device and therefore a single pole mains switch is acceptable (TC 74-WG 8's recommendation).		Appliance inlet is considered as disconnect device.	N
2.6.11 NF	(DK,FI,NO). The warning label on an appliance with two or several supply connections shall be in the official language of the country in question.		Only one supply from the mains.	N
	(DK,FI,NO). UPS-appliances can be fitted with a signal lamp instead of a warning label, under the condition that the function and location of the signal lamp is correct. Audible signal is not acceptable as warning.		Equipment is not a UPS.	N
2.7.03 NF	(DK,FI,NO,SE). A single-pole protective device is acceptable.		Only one fuse on live phase.	P
2.9.01 NF	(DK,FI,NO,SE). Pollution Degree 3 is considered applicable for the following equipment which is within the scope of this standard: Document Shredder Machines.		Equipment is not a shredding machine	N
4.2.07 NF	(DK,FI,NO,SE). If there are visible cracks on the apparatus after the mechanical strength test, the apparatus is not rejected, if it still complies with the other requirements of subclause 4.2.7.		No visible crack.	N
4.4.04 NF	(DK,FI). Fire enclosure is required if the available power exceeds the values of a limited power source. The limited power source shall incorporate an isolating transformer and shall comply with the following: * The open-circuit voltage shall not exceed 42.4 V peak or d.c. and shall not generate voltages above the value and * The current which may be drawn for more than two minutes at any load, including short-circuit, shall not exceed 0.2 A.		Supplied from the mains.	N
	(NO). A fire enclosure is not required in spots of the equipment where the available power does not exceeded 50 VA and the available voltage 42.4 V (peak) or 60 V d.c.		Supplied from the mains.	N
5.4.06 NF	(DK,FI,NO,SE). Faults need not to be carried out in circuits which are supplied by an isolating transformer and which comply with the following: * The open-circuit voltage shall not exceed 42.4 V peak or d.c. and shall not generate voltages above the value and * The current which may be drawn for more than two minutes at any load, including short-circuit, shall not exceed 0.2 A.		Supplied from the mains.	N

National Deviation			
Clause	Requirement – Test	Result – Remark	Verdict
APPENDIX	China National Differences according to CB Bulletin, No. 101A, December 2001 REPORT (IEC Publication 60950 2nd edition, 1991 + Amd.1, 1992 + Amd.2, 1993 + Amd.3, 1995 + Amd.4, 1996)		P
EXPLANATION FOR ABBREVIATIONS			
P = Pass, F = Fail, N = Not applicable. Placed in the column to the right.			
1.4.5, 1.6.5	The minimum supply tolerance is –10%, + 6%; GB4943 sub-clause 1.4.5 and 1.6.5: The minimum supply tolerance is –10%, + 10% according to Chinese situation.	See IEC 60950 test report.	P
	IEC standard for plug is IEC 60083. The Chinese National standard for Plugs is GB1002-1996, which is not equivalent with IEC60083.	No plug.	N

National Deviation			
Clause	Requirement – Test	Result – Remark	Verdict
APPENDIX	Japanese National Differences according to CB Bulletin No. 101A, December 2001 REPORT (IEC Publication 60950 : 1991 + A1 + A2 + A3 + A4)		P
EXPLANATION FOR ABBREVIATIONS P = Pass, F = Fail, N = Not applicable. Placed in the column to the right.			
2.9.2.1	Delete entire column headed by [Nominal mains supply voltage ≤150V (Transient rating 1500V)] in Table 3. Delete > 150V from column headed by “Nominal mains supply voltage > 150V, ≤300V (Transient rating 2500V)” in Table 3.	Clearance distance from column 2 taken (≤300V)	P
2.9.2.2	Delete entire column headed by “Nominal mains supply voltage ≤150V (Maximum transient in secondary circuit 800V see condition 6)” in Table 5	Clearance distance from column 2 taken (≤300V)	P
2.9.4.4	Replacement: The following shall replace the entire existing paragraphs: Title: Wounded components BASIC, SUPPLEMENTARY, DOUBLE or REINFORCED INSULATION is permitted in a wounded component using one of the following a), b), or c) constructions or the wounded component must use interleaved insulation which complies with 2.9.4.1 or 2.9.4.2: a) the winding wire is insulated with insulation complying with 2.9.4.1 other than solution based type enamel coatings. b) the winding wire is insulated with extruded multi-layers or wrapped layers of tape (each layer can be tested for electric strength) which complies with 2.9.4.1 and complies with annex U. c) the winding wire is insulated with extruded multi-layers or wrapped layers of tape (test can be only performed on finished winding wire) and complies with annex U.	Different Japanese standard text considered.	N

National Deviation			
Clause	Requirement – Test	Result – Remark	Verdict
	<p>Note 1 – see also 6.4.1.</p> <p>As to c), the number of constructional layers applied to the conductor to determine the grade of insulation of the winding wire shall not be less than as follows:</p> <ul style="list-style-type: none"> - if BASIC INSULATION is required, a minimum of two layers or one extruded layer - if SUPPLEMENTARY INSULATION is required, a minimum of two layers or two extruded layers - if REINFORCED INSULATION is required, a minimum of three layers or three extruded layers <p>As to b) and c), in case the CREEPAGE DISTANCES between wrapped layers of tape are less than Table 6 under Pollution degree 1, the distance between layers must be reliably cement together with insulation compound complying with 2.9.7 and with the test voltage in annex U.2 (Type tests) increased to 1.6 times.</p> <p>Note 2 – In case one layer of material is wrapped 50% or more, it is considered as two layers</p> <p>Where two insulated wires or one bare wire and one insulated wire are contacted inside the component and cross each other at an angle between 45° and 90°, physical separation shall be provided, for example in the form of insulating sleeving or sheet material, or by applying two times of the specified insulating layer(s), to relieve mechanical stress at the crossover point.</p> <p>The finished component shall pass ROUTINE TESTING for electric strength using the value of test voltage in 5.3.</p> <p>Compliance is checked by visual inspection and measurement, and as specified in annex U. However, the tests are not repeated if the material data sheets confirm compliance with annex U.</p>		
5.1	<p>Addition:</p> <p>Add the following to 5) as specified in Conditions applicable to table 16, parts 1 and 2</p> <p>With regards to 1), insulating materials complying with Japanese requirement (Refer to Japanese difference for current IEC 60335-1 (3rd Edition) in CB Bulletin 94B), can be taken of data for that material to determine the appropriate maximum temperature rise.</p>	For other than those complied with IEC standards, refer to added condition 8) below.	P

National		Deviation											
Clause	Requirement – Test	Result – Remark	Verdict										
Annex U	<p>Replacement:</p> <p>ANNEX U (normative)</p> <p>Insulated winding wires for use without interleaved insulation (see 2.9.4.4)</p> <p>This annex specifies winding wire whose insulation may be used to provide BASIC, SUPPLEMENTARY or REINFORCED INSULATION in wound components without interleaved insulation.</p> <p>This annex applies to round winding wire whose diameter is between 0.2mm and 1.00mm. With regard to other size, refer to IEC 60851.</p>	Replaced.	N										
	<p>U.1 Wire construction</p> <p>If the wire is insulated with two or more spirally wrapped layers of tape, the overlap of layers shall be adequate to ensure continued overlap during manufacture of the wound component. In order to maintain the overlap of layers, wire insulation layer of wrapped layers of tape must be adequately secured.</p>		N										
	<p>U.2 Type tests</p> <p>Unless it specifies, the wire shall pass the following six TYPE TESTS U.2.1 to U.2.4, carried out at a temperature between 15°C and 35°C and a relative humidity between 45% and 75%. Refer to the IEC 60851 first edition.</p>		N										
	<p>U.2.1 Electric strength</p> <p>Test 13 of IEC 60851-5 (1988), 4.3.1 (test for twisted wire pairs), with a test voltage 2 times of appropriate voltage in Table 18 of this standard or 6kVr.m.s. whichever is the greater.</p>		N										
	<p>U.2.2 Adherence and flexibility</p> <p>Test 8 of IEC 60851-3, with a test voltage not less than the appropriate voltage in Table 18 of this standard or 3kVr.m.s. whichever is the greater.</p> <p>Table U.2.2.2 – Mandrel</p> <table> <tr> <td>Nominal diameter of conductor (mm)</td> <td>Mandrel diameter (mm±0.2mm)</td> </tr> <tr> <td>0.20 – 0.34</td> <td>4.0</td> </tr> <tr> <td>0.35 – 0.49</td> <td>6.0</td> </tr> <tr> <td>0.50 – 0.74</td> <td>8.0</td> </tr> <tr> <td>0.75 – 1.00</td> <td>10.0</td> </tr> </table> <p>The tension of winding wire while wire is wrapped around the mandrel, should be calculated so that it is equivalent to 118MPa±10% (118N/mm²±10%) from winding wire radial.</p>	Nominal diameter of conductor (mm)	Mandrel diameter (mm±0.2mm)	0.20 – 0.34	4.0	0.35 – 0.49	6.0	0.50 – 0.74	8.0	0.75 – 1.00	10.0		N
Nominal diameter of conductor (mm)	Mandrel diameter (mm±0.2mm)												
0.20 – 0.34	4.0												
0.35 – 0.49	6.0												
0.50 – 0.74	8.0												
0.75 – 1.00	10.0												

National Deviation																								
Clause	Requirement – Test				Result – Remark	Verdict																		
	<p>U.2.3 Heat shock</p> <p>Test 9 of IEC 60851-6, 3.1 and IEC 60851-3, 5.1.1.1, with a test voltage not less than the appropriate voltage in Table 18 of this standard or 3kVr.m.s. whichever is the greater.</p> <p>The temperature of oven is specified in the following Table U.2.3.</p> <p>Table U.2.2 shows and explains required mandrel diameter and tension.</p> <p>Test must be performed at room ambient after taking out from oven.</p> <p>Table U.2.3 – Oven Temperature</p> <table><tr><td>Class</td><td>A</td><td>E</td><td>B</td><td>F</td><td>H</td></tr><tr><td></td><td>(105)</td><td>(120)</td><td>(130)</td><td>(155)</td><td>(180)</td></tr><tr><td>Oven Temp.</td><td>200</td><td>215</td><td>225</td><td>240</td><td>260</td></tr></table> <p>(°C±2°C)</p>				Class	A	E	B	F	H		(105)	(120)	(130)	(155)	(180)	Oven Temp.	200	215	225	240	260		N
Class	A	E	B	F	H																			
	(105)	(120)	(130)	(155)	(180)																			
Oven Temp.	200	215	225	240	260																			
	<p>U.2.4 Retention of electric strength after bending</p> <p>Test 13 of IEC 60851-5 (1988), 4.6.1 c, with a test voltage not less than the appropriate voltage in Table 18 of this standard or 3kVr.m.s. whichever is the greater.</p> <p>Table U.2.2 shows and explains required mandrel diameter and tension.</p>					N																		
	<p>U.3 Routine test</p> <p>Winding wire is subjected to electric strength test during the production in accordance with U.3.1 and U.3.2 by wire manufacturer.</p>					N																		
	<p>U.3.1 Full-length test</p> <p>Winding wire is subjected to electric strength test during the production for full wire length, with a test voltage not less than the appropriate voltage in Table 18 of this standard or 3kVr.m.s. or 4.2kV peak minimum.</p>					N																		
	<p>U.3.2 Audit test</p> <p>Test must be carried out according to IEC 60851-5 (1988) for twisted wire pairs. Electric strength test, with a test voltage 2 times of appropriate voltage in Table 18 of this standard or 6kVr.m.s. or 8.4kV peak minimum.</p>					N																		

National Deviation			
Clause	Requirement – Test	Result – Remark	Verdict
APPENDIX	Korean National Differences according to CB Bulletin, No. 101A, December 2001 REPORT (IEC Publication 60950 2nd edition, 1991 + Amd.1, 1992 + Amd.2, 1993 + Amd.3, 1995 + Amd.4, 1996)		P
EXPLANATION FOR ABBREVIATIONS			
P=Pass, F=Fail, N=Not applicable. Placed in the column to the right.			
General	LIMITATIONS - Voltage ratings As national supply voltage is subject to be increased to 220V, an appliance rated 220V is to be allowed to obtain type approval in Korea. Either an appliance rated 110V or 220/110V is not allowed. When an appliance is supplied in Korea, it shall be set to and marked with 220V. But free voltage appliance by SMPS (Switching Mode Power Supply) is allowed and it shall be marked with "100-220V".	Rated 100-240V	P
General	LIMITATIONS – Frequency Only appliances having supply frequency of 60Hz or a frequency range including 60Hz are accepted. When an appliance is supplied in Korea, it shall be set to and marked with 60Hz.	Frequencies of 50-60Hz.	P
General	LIMITATIONS - Instruction Instruction manuals and appliance markings related to safety, including nameplate shall be in Korean or graphical symbols in IEC Publication 60417.	Instruction manual will be in Korean.	N
1.5.101	Addition: Plugs for the connection of the apparatus to the supply mains shall comply with the Korean requirements (KSC 8305).	No power plug provided.	N
7	Addition: Radio frequency interference The apparatus shall comply with the relevant CISPR requirements.	The CISPR requirements have to be considered with the end product.	N

National Deviation			
Clause	Requirement – Test	Result – Remark	Verdict
APPENDIX	Singapore National Differences according to CB Bulletin, No. 101, December 2001 REPORT (IEC Publication 60950 2nd edition, 1991 + Amd.1, 1992 + Amd.2, 1993 + Amd.3, 1995 + Amd.4, 1996)		P
EXPLANATION FOR ABBREVIATIONS P = Pass, F = Fail, N = Not applicable. Placed in the column to the right.			
General	IT Power Systems are not allowed in the Republic of Singapore and all clauses related to IT Power Systems are not applicable.	The unit is not applied for IT Power System.	P
2.2.3	(a) After the first paragraph, insert the following: Conditions described in IEC Publication 60068-2-3: Test Ca: Damp Heat, Steady State (temperature: $40 \pm 2^{\circ}\text{C}$, relative humidity: 90% to 95%) shall apply to insulation to be used under tropical conditions. The duration of the humidity conditioning is 5 days (120h) under tropical conditions. (b) At the end of the last paragraph, insert the following note: NOTE: The additional requirement on humidity conditioning is drawn from Clause 10.2 of IEC 60065:1985.	See IEC 60950 report.	P

National Deviation			
Clause	Requirement – Test	Result – Remark	Verdict
APPENDIX	Israel National Differences according to CB Bulletin, No. 101A, December 2001 REPORT (IEC Publication 60950 2nd edition, 1991 + Amd.1, 1992 + Amd.2, 1993 + Amd.3, 1995 + Amd.4, 1996)		P
EXPLANATION FOR ABBREVIATIONS P = Pass, F = Fail, N = Not applicable. Placed in the column to the right.			
1.2.12.1	TN Power Distribution: The mains system in Israel is TN-S or TN-C or TN-C-S.	Considered.	P
1.7	Marking and Instructions: The package of the equipment shall be marked in Hebrew, and shall include: (a) The name of the manufacturer (b) The country of production (c) The year of production (d) The name and the address of the importer (e) The marking shall be on a rectangular label (of at least 50mm X 24mm) (f) The letters height should be at least 2mm (g) The color of the label shall be in contrast to the color of the package.	Shall be evaluated in national mark approval.	N
1.7.14	Language: All instructions and warnings concerning safety should be in the Hebrew language	Shall be evaluated in national mark approval.	N
2.101	EMC: The equipment shall comply with SI 961 part 6 (CISPR 22 + 24)	Shall be provided and evaluated in national mark approval.	N
3.2.2	Permanently connected equipment: Additional note below table 10: In Israel the diameter of the conduit shall comply with the Electricity Law.		N

National Deviation			
Clause	Requirement – Test	Result – Remark	Verdict
APPENDIX	Australian National Differences according to CB Bulletin No. 101A, December 2001 (AS/NZS 3260-1993) REPORT (IEC Publication 60950 2 nd edition, 1991 + Amd.1, 1992 + Amd.2, 1993 + Amd.3, 1995 + Amd.4, 1996)		P
EXPLANATION FOR ABBREVIATIONS P=Pass, F=Fail, N=Not applicable. Placed in the column to the right.			
1.2.12.2	Add: "TT power systems are not permitted in Australia or New Zealand."	Added.	N
1.2.12.3	Add: "IT power systems are not permitted in Australia or New Zealand." Note: Australia and New Zealand principally use multiple-earthed neutral (MEN) systems but allow TN-C for installations using metal-sheathed cables.	Added.	N
1.5.1	Add to paragraph 1: "or the other relevant Australian or New Zealand Standard."	Added.	P
1.5.2	Add to the first and third dashed items after the words "IEC component standard": "or the other relevant Australian or New Zealand Standard."	Added.	P
1.7.14	Add to paragraph 1: "In Australia and New Zealand all safety instructions shall be in English."	User manual is in English.	P
2	Add after clause 2: "For the limit of direct current from a.c. appliances, refer to AS/NZS Appendix 3."	See Appendix 3.	N
3.2.2	Substitute for table 10: "For sizes of cables and conduits in Australia, refer to AS 3000."	No power cord provided.	N
3.2.4	Substitute for table 11: "For sizes of conductors in power supply cords use following Table 11: Table 11 Sizes of conductors in power supply cords Rated current (A) Cross-section area (mm ²) > 0.2 ≤ 3 0.5 * > 3 ≤ 7.5 0.75 > 7.5 ≤ 10 1 > 10 ≤ 16 1.5 > 16 ≤ 25 2.5 > 25 ≤ 32 4 > 32 ≤ 40 6 > 40 ≤ 63 10 * This nominal cross-section area is only allowed for class II appliances if the length of the power supply cord, measured between the point where the cord, or cord guard, enters the appliance, and the entry to the plug, does not exceed 2m (0.5mm ² three-core supply flexible cords are not permitted; see Note 2 to table 2.17 of AS/NZS 3191).	No power cord provided.	N
4.4.1	For the Australian alternative resistance to fire test, refer to Appendix 2."	Not applied for Appendix 2.	N

National Deviation			
Clause	Requirement – Test	Result – Remark	Verdict
6.4.2	Replace the first paragraph by: "In Australia, compliance with 6.4.1 is checked by both the test of 6.4.2.1 and 6.4.2.2". Delete the fourth paragraph 'The choice of tests....manufacturer'.	No TNV	N
6.4.2.1	Replace Clause 6.4.2.1 by: <i>Impulse test</i> The electrical separation is subjected to ten impulses of alternating polarity, using the impulse test generator of Annex N. The interval between successive impulses is 60s and the initial voltage U_0 is: - in case (a) of 6.4.1, 7kV for hand-held telephones and for handsets; and 2.5kV for other equipment; and - in case (b) and (c) 1.5kV. Notes: 1 The seven kV impulse is to simulate measured lighting surges in typical Australian rural and semi rural network lines. 2 The value of 2.5kV has been chosen primarily to ensure adequacy of the insulation concerned, but not necessarily to simulate likely overvoltages.	No TNV	N
6.4.2.2	Replace Clause 6.4.2.2 by: <i>Electric strength test</i> The electrical separation is subjected for 60s to a substantially sinusoidal voltage having a frequency of 50Hz or 60Hz, or to a d.c. voltage equal to the peak value of the prescribed a.c. voltage. The a.c. test voltage is: - in case (a) of 6.4.1 3kV - in case (b) and (c) 1.5kV. The voltage is gradually raised from zero to the prescribed voltage and then held at that value for 60s. NOTE: 1. Where there are capacitors across the insulation under test, it is recommended that d.c. test voltages are used. 2. The 3 kV and 1.5kV values have been determined considering the low frequency induced voltages from the power supply distribution system.	No TNV	N
Annex A	Add. after Annex title: Alternative resistance to fire test-determination if ignitability and combustion propagation	Not applied for this Appendix	N
Appendix 2	Add. Appendix ALTERNATE RESISTANCE TO FIRE TEST DETERMINATION OF IGNITABILITY AND COMBUSTION PROPAGATION	Not applied for this Appendix	N
X2.0	GENERAL This test is an alternative to the testes in Annex A to allow approval of equipment which has inadequate documentation to verify having been tested to Annex A.		N

National Deviation			
Clause	Requirement – Test	Result – Remark	Verdict
X2.1	SOLID INSULATION MATERIALS AND NON-METALLIC ENCLOSURES		N
X2.1.1	<p>GENERAL REQUIREMENTS Parts of non metallic material shall be resistant to ignition and spread of fire.</p> <p>This requirement does not apply to decorative trims, knobs wiring insulation and other parts not likely to be ignited or to propagate flames from inside the equipment.</p> <p>Compliance is checked by the tests of Clauses X2.1.2, X2.1.3 and X2.1.4 as applicable and if necessary by the test of X2.2</p>		N
X2.1.2	<p>NON-METALLIC MATERIAL</p> <p>Relevant parts of non-metallic material are subjected to the glow-wire test of AS/NZS 3350.1, the test being made at a temperature of 550°C.</p> <p>The 550°C glow-wire test need not be carried out on parts which are made of material classified as FH 3-40 mm/min or better according to IEC 60707. The sample of material submitted to the test of IEC 60707 shall be thicker than the relevant part.</p> <p>Insulating material of winding bobbins and formers are subject to the glow-wire test of AS/NZS 3350.1, the test being made a temperature of 650°C.</p> <p>Base material of printed circuit boards with any coating or encapsulation to the needle-flame test of AS/NZS 3350.1, however, flames shall have extinguished with 15s of removal of the test flame. The flame shall be applied to an edge of the board having the lowest heat sink effect, with the board orientated in its normal position of use and at a point, if possible, not less than 10mm from a corner.</p> <p>The needle-flame test is not carried out on base material which is made of material classified as FV-0 according to IEC 60707. The sample of material submitted to the test of IEC 60707 shall be no thicker than that of the relevant printed circuit board.</p> <p>Notes:</p> <ol style="list-style-type: none"> 1. The test is not carried out on printed circuit boards contained in a metal enclosure that prevents flames or burning droplets from escaping. 2. If the printed circuit board is tested with components mounted and a component ignites during the test, this would not constitute a failure of the printed circuit board material unless it is ignited by the component. 		N

National Deviation			
Clause	Requirement – Test	Result – Remark	Verdict
X2.1.3	<p>ATTENDED EQUIPMENT</p> <p>For equipment which is operated while attended, parts of insulating material supporting, in contact with or in close proximity to current carrying connections, other than those in SELV circuits are subject to the glow-wire test AS/NZS 3350.1, the test being made at a temperature of 650°C. However parts of insulating material supporting, in contact with or in close proximity to screw connections which carry a current exceeding 0.5A during normal operation and which are likely to be made or remade during installation, user maintenance or when replacing a supply cord assembled with the appliance by Type X attachment, are subject to the glow-wire test AS/NZS 3350.1, the test being made at a temperature of 750°C.</p> <p>Notes:</p> <ol style="list-style-type: none"> 1. The test is not carried out on parts supporting welded connections. 2. 'In close proximity' is considered to be a distance not exceeding 3mm. 		N

National Deviation			
Clause	Requirement – Test	Result – Remark	Verdict
X2.1.4	<p>UNATTENDED EQUIPMENT</p> <p>For equipment which is operated while unattended, parts of insulating material supporting, in contact with or in close proximity to current carrying connections, other than those in SELV circuits are subject to the glow-wire test AS/NZS 3350.1, the test being made at a temperature of 750°C. However parts of insulating material supporting, in contact with or in close proximity to screw connections which carry a current exceeding 0.5A during normal operation and which are likely to be made or remade during installation, user maintenance or when replacing a supply cord assembled with the appliance by Type X attachment, are subject to the glow-wire test AS/NZS 3350.1, the test being made at a temperature of 850°C.</p> <p>Notes:</p> <ol style="list-style-type: none"> 1. The test is not carried out on parts supporting welded connections. 2. 'In close proximity' is considered to be a distance not exceeding 3mm. <p>During the application of glow-wire, the height and duration of flames are measured.</p> <p>In addition, for parts which withstand the glow-wire test but which flame during the application of the glow-wire, the surrounding parts are subject to the needle-flame test of AS/NZS 3350.1 for the measured duration of the flame after or 30s, whichever is the least if -</p> <ol style="list-style-type: none"> a) They are positioned within a distance equal to the height of the flame; and b) they are likely to be impinged upon by the flame <p>However, surrounding parts shielded by a separate barrier which meets the needle-flame test are not tested.</p> <p>The needle-flame test is not carried out on parts which are made of material classified as FV-0 or FV-1 according to IEC 60707. The sample of material submitted to the test of IEC 60707 shall be no thicker than the relevant part.</p> <p>Note: Parts likely to be impinged upon by the flame are considered to be those within the envelope of a vertical cylinder having a radius of 10mm and a height equal to the height of flame, positioned above the point of the material supporting, in contact with or in close proximity to connections.</p>		N

National Deviation			
Clause	Requirement – Test	Result – Remark	Verdict
X2.2	<p>ADDITIONAL TEST REQUIREMENTS</p> <p>If parts, other than enclosures, do not withstand the test of clauses X2.1.3 or X2.1.4, by failure to extinguish within 30s after removal of the glow wire tip, the needle-flame test of AS/NZS 3350.1 is made on all parts of non-metallic material which are within a distance of 50mm or which are likely to be impinged upon by flame during the test of clauses X2.1.3 or X2.1.4. Parts shielded by a separate barrier which meets the flame-needle test are not tested.</p> <p>Notes:</p> <ol style="list-style-type: none"> 1. If the enclosure does not withstand the glow-wire test the appliance is considered to have failed to meet the requirement of Appendix 2 without the need for consequential testing. 2. If other parts do not withstand the glow-wire test due to ignition of the tissue paper and if this indicates that burning or glowing particles can fall onto an external surface underneath the appliance, the appliance is considered to have failed to meet the requirement of Appendix 2 without the need for consequential testing. 3. Parts likely to be impinged upon by the flame are considered to be those within the envelope of a vertical cylinder having a radius of 10mm and a height equal to the height of the flame, positioned above the point of the material supporting, in contact with or in close proximity to connections. <p>The needle-flame test need not be carried out on parts which are made of classified as FV-0 or FV-1 according to IEC 60707. The sample of material submitted to the test of IEC 60707 shall be no thicker than the relevant part.</p>		N
Appendix 3	<p>Add Appendix:</p> <p>D.C. COMPONENTS FROM A.C. EQUIPMENT</p> <p>Equipment shall be designed so that in normal use the value of any direct current in the equipment neutral will not contribute unduly to the failure of the installation earth electrode by corrosion.</p> <p>Any device such as isolating transformer intended to prevent direct current in the supply shall be an integral part of the equipment.</p> <p>Compliance is checked by inspection and by operating the equipment</p> <ol style="list-style-type: none"> (a) at the rated voltage under the conditions specified in Clause 5.1; (b) on a supply free from any d.c. component; and (c) in the maximum d.c. producing mode, if any, but not exceeding normal load; <p>and measuring the d.c. component in the supply neutral caused by the equipment as described below.</p>	No D.C. current under normal operation condition	P

National Deviation			
Clause	Requirement – Test	Result – Remark	Verdict
	<p>If it is evident from the design of the equipment that there will be no d.c. component, e.g. equipment provided with a full-wave mains power supply or a mains isolating transformer, this test is not conducted.</p> <p>The permissible direct current in the equipment neutral shall not exceed</p> <p>(i) for equipment considered as operating continuously 5 mA; or</p> <p>(ii) for other than continuously operated equipment where t is the assessed daily average operating time, in hours$(5 \times 24)/t$ mA</p> <p>For equipment which is not continuously operated but includes a component or a device which is continuously energized, e.g. stand-by control or remote switching device, the summation of the product of the direct current from the control device over 24h and the direct current from the equipment for its assessed daily average operating time in hours shall not exceed 120mAh per day.</p> <p>The maximum value of direct current permitted in the neutral is 1.44A which could be applicable to equipment with an assessed average daily operating time of 5 min. or less.</p> <p>Notes:</p> <ol style="list-style-type: none"> 1. When determining the assessed daily average operating time the approvals authority may accept evidence supplied by the manufacturer. 2. The d.c. peak value due to transient starting effects is ignored. <p>The measuring system used to measure any direct current produced shall have a sufficiently high normal (series) mode rejection ratio, by the use of a low pass filter if necessary, to ensure that an overall uncertainty of less than 10% can be achieved.</p>		

National Deviation			
Clause	Requirement – Test	Result – Remark	Verdict
APPENDIX	<p>Canadian National Differences according to CB Bulletin No. 101A, December 2001</p> <p>(IEC Publication 60950 2nd edition, 1991 + Amd.1, 1992 + Amd.2, 1993 + Amd.3, 1995 + Amd.4, 1996)</p>		P
EXPLANATION FOR ABBREVIATIONS P=Pass, F=Fail, N=Not applicable. Placed in the column to the right.			
Special National Conditions			
1.1.1	All equipment installations are required to be in accordance with the Canadian Electrical Code (CEC). Part 1, CAN/CSA C22.1, and with National Electrical Code (NEC), ANSI/NFPA 70, and, unless marked or otherwise identified, the Standard for the Protection of Electronic Computer/Data-Processing Equipment, ANSI/NFPA 75.	Complies.	P
1.7.1	<p>Equipment for use on 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.</p> <p>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 extended into the Table 2 "Normal Operating Conditions." Likewise, a voltage rating shall not be lower than specified "Normal Operating Condition," unless it is part of a range that extends into the "Normal Operating Conditions."</p>	Single phase.	N
2.5.9	Terminals for permanent wiring are required to be suitable for U.S./Canadian wire gauge sizes and be rated 125 percent of the equipment rating.		N
2.5.11	When subject to impedance testing, protective earthing and bonding are required to be tested to the additional test conditions that originate in CAN/CSA C22.2 No. 0.4.	Considered, see IEC 60950 report.	P
2.6.2	Motor control devices are required for cord-connected equipment with a motor if the motor (a) has a nominal voltage rating greater than 120V, (b) in rated more than 12 A, or (c) is rated more than 1/3 hp (locked rotor current over 43 A).	Not motor control device.	N
2.6.8	Vertically-mounted disconnect switches and circuit breakers are required to have the "on" position indicated by the handle in the up position.	No vertically mounted disconnect switch or circuit breaker.	N
2.6.11	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.		N

National Deviation			
Clause	Requirement – Test	Result – Remark	Verdict
2.7.1	<p>Suitable NEC/CEC branch circuit protection is required for all standard supply outlets and medium-base or smaller lampholders if the supply branch circuit protection is not suitable.</p> <p>Power distribution transformers distributing power at 100 volts or more, and rated 10KVA or more, required transformer overcurrent protection.</p> <p>Panelboards provided as part of information technology equipment are required to have suitable overcurrent protection.</p>	No power outlet.	N
2.7.6	Fuses provided in the earthed circuit conductor (neutral) are only permitted for equipment rated 125V, 15A.	No fuse in neutral or earth conductors.	N
2.11	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.		N
3.1.12	When subject to impedance testing, protective earthing and bonding are required to be tested to the additional test conditions that originate in CAN/CSA C22.2 No. 0.4.		N
3.2	Wiring methods (terminals, leads, etc.) used for the connection of the equipment to the mains shall be in accordance with the CEC/NEC.		N
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.	No power cord provided.	N
3.2.2	Permanent connection of equipment to the mains by a power supply cord is not permitted. except for certain equipment,such as ATMs.	No power cord provided.	N
3.2.4	<p>Power supply cords are required to be not longer than 4.5 m in length.</p> <p>Flexible power supply cords are required to be compatible with article 400 of the NEC</p>	No power cord provided.	N
3.2.8	Permanently connected equipment is required to have a suitable wiring compartment and wiring bending space.	No power cord provided.	N
3.3	Wiring terminals and associated spacings for field wiring connections shall comply with CAN/CSA No. 0.	No wire binding screws used.	N
3.3.3	Wiring binding screws are not permitted to attach conductors larger than 10 AWG (5.3mm ²).	No wire binding screws used.	N
4.3.12	Equipment with lasers is required to meet Code of Federal Regulations 21 CFR 1040 and Canadian Radiation Emitting Devices Act, REDR C1370, as applicable.	Compiled.	P

National Deviation			
Clause	Requirement – Test	Result – Remark	Verdict
4.4.1	For computer room application, automated information storage systems with combustible media greater than 27 cubic feet are required to have a provision for connection of either automatic sprinklers or a gaseous agent extinguishing system with an extended discharge.		N
4.4.4	For computer room applications, enclosures with combustible material measuring greater than 0.9 m ² or a single dimension greater than 1.8 m, are required to have 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
4.4.8	The maximum quantity of flammable liquid stored in equipment is required to meet NFPA 30.	No liquid.	N
Annex H	Equipment that produces ionizing radiation is required to comply with Code of Federal Regulations, 21 CFR 1020 and/or Canadian Radiation Emitting Devices Act, REDR C1370, as applicable.		N
Other Differences			
1.5.1	<p>Components of equipment must be suitable for the application, and must comply with the requirements of the equipment standard and the Canadian or U.S. components standards, as far as they may apply.</p> <p>The acceptance will be based on the following:</p> <p>A) A component certified by a Canadian or U.S. NCB to a Canadian or U.S. component standard will be checked for correct application and use in accordance with its specified rating. Where necessary, it will also be subjected to the applicable tests of the equipment standard.</p> <p>B) A component which has a CB Test Certificate for compliance with a relevant IEC component standard will be checked for correct application and use in accordance with its specified ratings. Where necessary, it will also be subjected to the applicable tests of the equipment standard, and to the applicable tests of the Canadian and U.S. component standard, under the conditions occurring in the equipment.</p>	Components are UL or CSA approved, see component list 1.5.1.	P

National Deviation			
Clause	Requirement – Test	Result – Remark	Verdict
	<p>C) A component which has no approval as in A) or B) above or which is used not in accordance its specified ratings, will be subjected to the applicable tests of the equipment standard, and to the applicable tests of the Canadian or U.S. component standard, under the conditions occurring in the equipment.</p> <p>D) Some components may require annual re-testing which may be carried out by the manufacturer, CSA or another laboratory.</p>		
3.4	Equipment connected to a centralized d.c. power system is required to meet special earthing wiring and marking requirements.		N
4.1.6	Wall and ceiling mounted equipment is required to comply with special loading tests.		N
4.1.7	Equipment with handles is required to comply with special loading tests.		N
4.2.9	Enclosures around C.R.T.'s having a diagonal dimension of 160 mm or more are required to reduce the risk of injury due to the implosion of the CRT.	No CRT.	N
6.2.1.1	Under normal operating conditions, the maximum acceptable TNN-2 and TNV-3 circuit levels for other than ringing signals are: $(U_{ac}/42.4 + U_{dc}/60) < = 1$.	No TNV.	N
6.2.2.2	Access restrictions to TNV-2 and TNV-3 circuits in battery compartment also apply to TNV-1 circuits.	No TNV.	N
6.3.4.3	Equipment intended to receive telecommunication ringing signals is required to comply with special leakage current measurement tests.	No TNV.	N
6.4.1	Enamel coating on winding wire not considered electrical separation unless subject to special investigation.	No TNV.	N
6.4.3	Equipment connected to a telecommunications network and supplied with an earphone intended to be held against the ear is required to comply with special acoustic pressure tests.	No TNV.	N
6.5	Where a fuse is used to provide current limiting, it shall not be operator-accessible unless it is not interchangeable.	No TNV.	N
6.6	Equipment intended for connection to telecommunication network outside plant cable is required to be protected against overvoltage from power line crosses.	No TNV.	N
M.2	Continuous ringing signals up to 16 mA only are permitted if subject to special installation and performance restrictions.	No TNV.	N

National Deviation			
Clause	Requirement – Test	Result – Remark	Verdict
APPENDIX	US National Differences according to CB Bulletin No. 101A, December 2001 for IEC 60950 (1991) 2nd Edition, Amendment No.1 (1992), Amendment No. 2 (1993), Amendment No. 3 (1995) and Amendment No. 4 (1996)		P
EXPLANATION FOR ABBREVIATIONS			
P = Pass, F = Fail, N = Not applicable. Placed in the column to the right.			
The following national differences are based on national regulatory requirements.			
1.1.1	All equipment installations are required to be in accordance with the National Electrical Code (NEC), ANSI/NFPA 70, and unless marked or otherwise identified, the Standard for the Protection Electronic Computer/Data-Processing Equipment, ANSI/NFPA 75.	Considered.	P
1.7.1	Equipment for use on supply systems with a neutral and more than one phase conductor (e.g. 120/240V, 3-wire) require a special marking format for electrical rating. 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".	Single phase.	N
2.5.9	Terminals for permanent wiring are required to be suitable for U.S./Canadian wire gauge sizes and be rated 125 percent of the equipment rating.		N
2.5.11	The capacity of the connection between the earthing terminal and parts required to be earthed is required to comply with CAN/CSA C22.2 No. 0.4.		N
2.6.2	Motor control devices are required for cord-connected equipment with a motor if the motor (a) has a nominal voltage rating greater than 120V, (b) is rated more than 12A, or (c) is rated more than 1/3 hp (locked rotor current over 43A).	Not motor control device.	N
2.6.8	Vertically mounted disconnect switches and circuit breakers are required to have the "on" position indicated by the handle in the "up" position.	Not vertically mounted disconnect switch or circuit breaker.	N
2.6.11	For computer room applications, equipment with battery systems capable of supplying 750VA for five minutes are required to have a battery disconnect means that may be connected to the computer room remote power-off circuit.	No such battery.	N

National Deviation			
Clause	Requirement – Test	Result – Remark	Verdict
2.7.1	<p>Suitable NEC/CEC branch circuit protection is required for all standard supply outlets and medium-base or smaller lampholders if the supply branch circuit protection is not suitable.</p> <p>Power distribution transformers distributing power at 100 volts or more, and rated 10kVA or more, require transformer overcurrent protection.</p> <p>Panelboards provided as part of information technology equipment are required to have suitable overcurrent protection.</p>		N
2.7.6	Fuses provided in the earthed circuit conductor (neutral) are only permitted for equipment rated 125V, 15A.	No fuse in earthing conductor.	N
2.11	Where a fuse is used to provide current limiting, it shall not be operator-accessible unless it is not interchangeable.		N
3.1.12	<p>For lengths exceeding 3.05m, external interconnecting flexible cord and cable assemblies are required to be a suitable cable type (e.g. DP, CL2) described in the NEC.</p> <p>For length 3.05m or less, external interconnecting flexible cord and cable assemblies which are not types specified in the NEC are required to have special construction features and identical markings.</p>	No power cord provided.	N
3.2	Wiring methods (terminals, leads, etc.) used for the connection of the equipment to the mains shall be in accordance with the NEC		N
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
3.2.2	Permanent connection of equipment to the mains by a power supply cord is not permitted.		N
3.2.4	<p>Power supply cords are required to be no longer than 4.5m in length.</p> <p>Flexible power supply cords are required to be compatible with Article 400 of the NEC and Table 12 of the CEC.</p>		N
3.2.8	Permanently connected equipment is required to have a suitable wiring compartment and wiring bending space.		N
3.3	Wiring terminals and associated spacings for field wiring connections shall comply with CSA C22.2 No. 0.		N
3.3.3	Wire binding screws are not permitted to attach supply conductors larger than 10 AWG (5.3mm ²).		N

National Deviation			
Clause	Requirement – Test	Result – Remark	Verdict
4.3.12	Equipment with lasers is required to meet Code of Federal Regulations 21CFR 1040 and Canadian Radiation Emitting Devices Act, REDR C1370.	Compiled.	P
4.4.1	For computer room applications, automated information storage systems with combustible media greater than 27 cubic feet are required to have a provision for connection of either automatic sprinklers or a gaseous agent extinguishing system with an extended discharge.		N
4.4.4	For computer room applications, enclosures with combustible material measuring greater than 0.93mm ² or having a single dimension greater than 1.8m 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
4.4.8	The maximum quantity of flammable liquid stored in equipment is required to meet NFPA 30.	No liquid.	N
The following national differences are based on requirements other than national regulatory requirements.			
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, cathode ray tubes, circuit breakers, communication circuit accessories, cord sets and power supply cords, enclosures (outdoor), flexible cords and cables, fuses, fuseholders, ground-fault current interrupters, industrial control equipment, insulating tape, lampholders, limit controls, printed wiring, protectors for communication circuits, receptacles, solid state controls, supplementary protectors, surge suppressors, switches, thermal cutoffs, thermostats, tubing, wire connectors, and wire and cables.	Components are UL approved, see component list 1.5.1.	P
3.4	Equipment connected to a centralized d.c. power system is required to meet special earthing, wiring and marking requirements.		N
4.1.6	Wall and ceiling mounted equipment is required to comply with special loading tests.		N
4.1.7	Equipment with handles is required to comply with special loading tests.		N
4.2.9	Enclosures around CRT's with a face area of 160mm or more are required to reduce the risk of injury due to the implosion of the CRT.	No CRT.	N

National Deviation			
Clause	Requirement – Test	Result – Remark	Verdict
6.2.1.1	The maximum acceptable TNV circuit levels for other than ringing signals are: normal condition- $(U_{ac}/42.4 + U_{dc}/42.4 \leq 1 \text{ for } U_{dc} \leq 21.2$ $(U_{ac}/32.8 + U_{dc}/60) \leq 1 \text{ for } U_{dc} > 21.2$ abnormal conditions- $(U_{ac}/70.7 + U_{dc}/120) \leq 1$	No TNV.	N
6.2.2.2	Access restrictions to TNV-2 and TNV-3 circuits in battery compartments also apply to TNV-1 circuits.	No TNV.	N
6.3.4.3	Equipment intended to receive telecommunication ringing signals is required to comply with special leakage current measurement test.	No TNV.	N
6.4.1	Enamel coating on winding wire are not considered electrical separation unless subjected to special investigation.	No TNV.	N
6.4.3	Equipment connected to a telecommunication network and supplied with an earphone intended to be held against the ear is required to comply with special acoustic pressure tests.	No TNV.	N
6.5	Equipment intended to provide power over the telecommunication wiring system is required to limit output current to values which will not damage the telecommunication wiring system.	No TNV.	N
6.6	Equipment intended for connection to telecommunication network outside plant cable is required to be protected against overvoltage.	No TNV.	N
M.2	Continuous ringing signals up to 16mA only are permitted if subjected to special installation and performance restriction.	No TNV.	N