

Prüfbericht - Nr.: E 9763267E01

Test Report No.

Seite 1 von 42

Page 1 of 42

Auftraggeber: Advantech Co., Ltd.

Client: Fl. 4, No.108-3, Ming-Chuan Rd., Shing Tien City, Taipei, Taiwan, R.O.C.

Gegenstand der Prüfung: Industrial Personal Computer

Test item:

Bezeichnung: PPC-100T, PPC-100T+T/S
Identification: PPC-100M, PPC-100M+T/S

Serien-Nr.: Engineering sample
Serial No.: w/o serial number

Wareneingangs-Nr.: N/A
Receipt No.:

Eingangsdatum: N/A
Date of receipt:

Prüfort: TÜV Rheinland Taiwan Ltd.
Testing location: 14F, No. 6, Min Chuan E. Rd., Sec. 3, Taipei, Taiwan, R.O.C.

Prüfgrundlage: EN 60950:1992/A1:1993/A2:1993/A3:1995
Test specification:

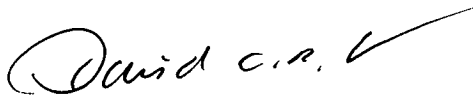
Prüfergebnis: Der vorstehend beschriebene Prüfgegenstand wurde geprüft und entspricht oben genannter Prüfgrundlage.
Test Result The a. m. test item passed.

geprüft/tested by:

10.04.1997 David C. M. Lee

kontrolliert/reviewed by

Max H. C. Lyou



Apr. 11. 1997



Datum Name Unterschrift
Date Name Signature

Datum Name Unterschrift
Date Name Signature

Sonstiges/Other Aspects:

Per application letter dated 03.10.1996, project order: T9632963.

The complete test report includes the following documents:

- EN 60 950 report (40 pages)
- Questionnaire: acceptability of second- and manufacturer laboratories (2 pages)

Abkürzungen: OK, Pass = entspricht Prüfgrundlage
Fail = entspricht nicht Prüfgrundlage
N/A = nicht anwendbar

Abbreviations: OK, Pass = passed
Fail = failed
N/A = not applicable

Dieser Prüfbericht bezieht sich nur auf den o.g. Prüfgegenstand und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens.
This test report relates to the a. m. test item. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any safety mark on this or similar products.

TEST REPORT

IEC 950

Safety of information technology equipment including electrical business equipment

Report reference No.	: E 9763267E01
Compiled by (+ signature)	: see cover sheet
Approved by (+ signature)	: see cover sheet
Date of issue	: see cover sheet
Testing laboratory	: TÜV Rheinland Taiwan Ltd.
Address	: 14F, No. 6, Min Chuan E. Rd., Sec. 3, Taipei 104, Taiwan, R.O.C.
Testing location	: ADT Corp. in Taipei, Taiwan, R.O.C.
Applicant	: Advantech Co., Ltd.
Address	: Fl. 4, No. 108-3, Ming-Chuuan Rd., Shing-Tien City, Taipei, Taiwan, R.O.C.
Standard	: IEC 950:1991 + A1:1992 + A2:1993 + A3:1995 EN 60 950:1992 + A1:1993 + A2:1993 + A3:1995
Test Report Form No.	: I950__C
TRF originator	: FIMKO
Master TRF	: reference No. I950 C, dated 95-10
Copyright blank test report	: the bodies participating in the Committee of Certification Bodies (CCB) and/or the CENELEC Certification Agreement (CCA). This report is based on a blank test report that was prepared by KEMA using information obtained from the TRF originator.
Test procedure	: TÜV Rheinland LVD testing program
Procedure deviation	: Germany
Non-standard test method	: N.A.
Type of test object	: Panel Industrial Personal Computer
Trademark	: ADVENTECH
Model/type reference	: PPC-100T, PPC-100T + T/S, PPC-100M, PPC-100M + T/S
Manufacturer	: Advantech Co., Ltd. Fl. 4, No. 108-3, Ming-Chuuan Rd., Shing-Tien City, Taipei, Taiwan, R.O.C.
Rating	: AC 100-240V, 50/60Hz, 1A

Test item particulars:

Equipment mobility..... : movable
 Operating condition..... : continuous
 Tested for IT power systems : No
 IT testing, phase-phase voltage (V) : TN system
 Class of equipment : Class I
 Mass of equipment (kg) : 2.7kg
 Protection against ingress of water : IP20

Possible test case verdicts:

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

General remarks:

"(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.

The test results presented in this report relate only to the object tested.

This report shall not be reproduced except in full without the written approval of the testing laboratory.

Comments:***Brief description of the test sample:***

The equipment is a LCD panel type personal computer for industrial use. The test sample were preproduction sample without serial numbers.

The internal building-in switching power supply is approved according to EN 60950.

There are no differences between all models except for type of LCD panel, option analog resistive touch screen and model designation. Therefore all tests were conducted by model PPC-100T + T/S to represent other similar models.

The type number of CPU board is PCM-4865.

Copy of the marking plate :

<p>Industrial Automation with PCs</p> <h1>ADVANTECH.</h1>		<p>Fl.4, No.108-3, Ming-Chung Rd. Shing-Tien City, Taipei, Taiwan, R.O.C. MADE IN TAIWAN</p>
<p>MODEL : PPC - 100T + T/S INPUT : 100 ~ 240 VAC, 1A 50/60HZ S/N :</p>	<p>FCC ID : This device complies with the requirements in part 15 of the FCC rule. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.</p> <p>Caution: For continued fire protection, replace only with 250V/F2A fuse of the specified type and rating. To prevent electric shock, Do not remove cover. No user serviceable parts inside. Refer servicing to qualified personnel.</p>	

CE

FUSE
T2A 250Vac

ADVANTECH

IEC 950			
Clause	Requirement – Test	Result - Remark	Verdict

1	GENERAL		P
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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 tables)	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		N
	Torque and pull test of mains plug for direct plug-in; torque (Nm); pull (N)		N
1.5.3	Transformers	Transformer used are suitable for their intended application and comply with the relevant requirements of the standard.	P
1.5.4	Flammability class of high voltage components (component; manufacturer; flammability)	No high voltage components.	N
1.5.5	Interconnecting cables	Interconnection cable for signal output to monitor and signal from keyboard is carrying only SELV voltages on an energy level below 240VA. → Except for the insulation material, there are no further requirements to the interconnection cable.	P
1.5.6	Capacitors	X-capacitor in approved SPS.	N

IEC 950			
Clause	Requirement – Test	Result - Remark	Verdict

1.6	Power interface		P
1.6.1	Steady state input current	Highest load according to 1.2.2.1 for this equipment is the HDD permanently access. (see appended table)	P
1.6.2	Rated voltage of hand-held equipment	This PC is not a hand-held equipment.	N
1.6.3	Neutral conductor insulated from earth	The neutral is not identified in the equipment. Basic insulation for rated voltage between earthed parts and primary phases.	P
1.6.4	Components connected between phase and earth in equipment intended for IT power system	Equipment was not applied for the IT power system.	N
1.6.5	Rated supply tolerance (V)	+ 6%, -10% Documentation specifies a rating of AC 100-240V at 50/60Hz. 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)	AC 100-240V	P
	Symbol of nature of supply for d.c.	AC source	N
	Rated frequency (Hz)	50/60Hz	P
	Rated current (A)	1A	P
	Manufacturer	Not shown	N
	Trademark	Adventech	P
	Type/model	PPC-100T, PPC-100T + T/S, PPC-100M, PPC-100M + T/S	P
	Symbol of Class II	Class I equipment.	N
	Certification marks		N
1.7.2	Safety instructions	The users manual contains information for operation, installation, servicing, transport, storage and technical data. The users	P

IEC 950			
Clause	Requirement – Test	Result - Remark	Verdict
		manual further contains instructions regarding the disconnect device which states that the socket outlet shall be near the equipment and easily accessible.	
1.7.3	Short duty cycles	Equipment is designed for continuous operation.	N
1.7.4	Marking for voltage setting/frequency setting .. :	No voltage setting	N
1.7.5	Marking at outlets	No outlet used	N
1.7.6	Marking at fuseholders	Fuse holder in approved SPS.	N
1.7.7.1	Protective earthing terminals	In approved SPS.	N
1.7.7.2	Terminal for external primary power supply conductors		N
1.7.8.1	Identification and location of switches and controls	The marking and indication of the power switch is located that indication of function is clearly.	P
1.7.8.2	Colours of controls and indicators		N
1.7.8.3	Symbols according to IEC 417	Marking for rocker type switch with symbol IEC 417, No. 5007-a and 5008-a (line and 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 above the switch.	P
1.7.9	Supply when more than one power supply	Only one supply from mains	N
1.7.10	Instructions for installation to IT power system	Equipment was not applied for IT power system	N
1.7.11	Instructions when protection relies on building installation	Pluggable equipment type A.	N
1.7.12	Marking when leakage current is more than 3,5 mA	Leakage current does not exceed 3.5mA	N
1.7.13	Marking at thermostats	No thermostats used.	N
1.7.14	Language of safety markings/instructions	Instruction and equipment marking provided in English.	P
	Language	English	
1.7.15	Durability and legibility	The label was subjected to the permanence of marking	P

IEC 950			
Clause	Requirement – Test	Result - Remark	Verdict
		test. The label was rubbed with cloth for 15 sec. and then again for 15 sec. with the cloth soaked with HEXANE. 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.	
1.7.16	Placing of markings	Rating plate on the rear side of the equipment.	P
1.7.17	Warning text for replaceable lithium batteries	Warning text against RTC Lithium battery.	P
	Language	English and German	
1.7.18	Operator access with a tool	No operator access area with a tool.	N

2	FUNDAMENTAL DESIGN REQUIREMENTS	P
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2.1	Protection against electric shock and energy hazards		P
2.1.2	Protection against operator contact	No access with test finger and test pin to any parts with only basic insulation to ELV or hazardous voltage. No any hazardous conductive parts could be accessible.	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	Unintentional contact in service access area	No maintenance work in operation mode necessary.	N
2.1.5	Energy hazard in operator access area	No energy hazard in operator area.	P

IEC 950			
Clause	Requirement – Test	Result - Remark	Verdict
2.1.6	Clearances behind conductive enclosures	No conductive enclosure.	N
2.1.7	Knobs, handles etc.	None at ELV or hazardous voltage.	N
2.1.8	Insulation of conductive handles, knobs etc.	No shafts or knobs etc. in the appliance.	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	see below	P
	Time-constant (s); measured voltage (V) :	measured = 0V < 1sec.	—

2.2	Insulation		P
2.2.1	Methods of insulation	Adequate electrical insulation provided.	P
2.2.2	Insulation materials	Natural rubber, asbestos or hygroscopic materials are not used	P
2.2.3	Humidity treatment	Humidity test: Started: 17.02.1997 Ended: 19.02.1997 Time elapsed: 48hours	P
	Humidity (%)	93% R.H.	—
	Temperature (°C)	25°C	—
2.2.4	Requirements for insulation	(see appended table)	P
2.2.5	Insulation parameters	Both parameters considered.	P
2.2.6	Categories of insulation	Correct insulation used as described in Table 0.1.	P
2.2.7	Determination of working voltages	Done in the approval of the SPS.	P
2.2.7.1	General rules for working voltages		P
2.2.7.2	Clearances in primary circuits		P
2.2.7.3	Clearances in secondary circuits		P
2.2.7.4	Creepage distances		P

IEC 950			
Clause	Requirement – Test	Result - Remark	Verdict
2.2.7.5	Electric strength tests		P
2.2.8	Double or reinforced insulation bridged by components	No bridging components.	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 :	See 2.3.2 and 2.3.3.	
2.3.2	Voltage (V) between any two parts of SELV circuit(s) and for Class I equipment between any part of SELV circuit and protective earthing terminal :	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 120VDC were not exceeded and SELV limits not for longer than 0.2 sec., see abnormal results 5.4.6.	
	Method used for separation :	Method 1	P
2.3.8	Construction of SELV circuits	IEC 83 and IEC 320 connectors are not used in SELV.	P
2.3.9	SELV circuits connected to other circuits	SELV circuits are not connected to other circuits.	N

2.4	Limited current circuits		P
	Test voltage (V) :	see below	
2.4.2	Measured current (mA) :	Secondary winding of DC-AC inverter for backlight circuit with voltage < 1200V (TFT LCD) and < 1000V (Mono LCD) The peak drop voltage was measured with a scope at a 2kΩ resistor. The max. measured voltages are listed below:	P

IEC 950			
Clause	Requirement – Test	Result - Remark	Verdict
		<p>- <u>For D/A inverter TDK type TAD143 (for TFT LCD):</u></p> <p>Measured at D/A inverter o/p pin → pin:</p> <p>* Normal conditions Up = 19.2V at 29kHz ⇒ 9.6mA (limit = 20.3mA)</p> <p>* LCD disconnected Up = 19.2V at 31.5KHz ⇒ 9.6mA (limit = 22.05mA)</p> <p>* Q1 pin C-E shorted Up = 2.4V at 120KHz ⇒ 1.2mA (limit = 70mA)</p> <p>- <u>For D/A inverter Yuntek type YN9101 (for Mono LCD):</u></p> <p>Measured at D/A inverter o/p pin → pin:</p> <p>* Normal conditions Up = 37.2V at 59kHz ⇒ 18.6mA (limit = 41.3mA)</p> <p>* LCD disconnected Up = 38V at 60.8KHz ⇒ 19mA (limit = 42.56mA)</p> <p>* Q1 pin C-E shorted Up = 56.8V at 63.9KHz ⇒ 28.4mA (limit = 44.73mA)</p>	
2.4.3	Measured capacitance (μF)	< 0.1μF	P
2.4.4	Measured charge (μC)	< 45μC	P
2.4.5	Measured energy (mJ)		N

2.5	Provisions for protective earthing		P
2.5.1	Reliable connection	Basic insulated conductive parts touchable in operator area are earthed reliable.	P
	Warning label for service personnel		N

IEC 950			
Clause	Requirement – Test	Result - Remark	Verdict
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 PC has its own earthing connection. Any other units connected via the interconnecting cable to the PC 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 certified inlet to chassis. The wire is fixed reliable to the chassis with screw and starwasher.	P
2.5.6	Continuity of earth connections	It is not possible to disconnect earth without disconnecting mains as a certified power cord is used.	P
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	Pluggable equipment, type A	P
2.5.10	Risk of corrosion	All safety earthing connections in compliance with Annex J.	P
2.5.11	Earth connector resistance $\leq 0,1 \Omega$	$\leq 0,1 \Omega$, see below	P
	Test current (A)	Measured with 25A from supply earthing terminal to: - chassis 10m Ω	

2.6	Primary power isolation		P
2.6.1	Disconnect device	The appliance inlet is considered to be the	P

IEC 950			
Clause	Requirement – Test	Result - Remark	Verdict
		disconnect device	
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	Protection of service personnel	When plug is disconnected no remaining parts with hazardous voltage in the equipment	P
2.6.5	Isolating switch in a flexible cord	No isolation switch provided.	N
2.6.6	Disconnection of both poles simultaneously for single-phase equipment	The appliance inlet disconnects both poles simultaneously.	P
2.6.7	Disconnection of all phases for three-phase equipment	Single phase	N
2.6.8	Marking of switch acting as disconnect device	See 1.7.8	P
2.6.9	Installation instructions if plug on power supply cord acts as disconnect device	See 1.7.2	P
	Language	English	
2.6.11	Disconnection of group of units	Interconnection to other devices by interconnection cable with SELV and signal level only.	N
2.6.12	Marking at each disconnect device	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 and for L to PE earth fault. Overcurrent protection is provided by the built-in device fuse in the approved SPS.	P
2.7.2	Protection against faults not covered in 5.4		N
2.7.3	Adequate breaking capacity	Pluggable equipment type A, the building installation is considered as providing short circuit protection	P

IEC 950			
Clause	Requirement – Test	Result - Remark	Verdict
2.7.4	Number and location	Overcurrent protection built-in fuse inside the approved SPS. Earth fault protection by fuse or circuit breaker in the phase of the building installation.	P
2.7.5	Protection by several devices	Only one fuse in phase or line (reversible plug).	N
2.7.6	Warning to service personnel	With for the German mains socket being of reversible type, hazardous voltage may be still present in the equipment after the internal fuse opens. However, as it is considered that the plug to the mains will be disconnected during service work, no markings were requested.	P

2.8	Need of safety interlock <i>No operator accessible areas which presents hazards in the meaning of this standard</i>		N
2.8.2	Design		N
2.8.3	Protection against inadvertent reactivation		N
2.8.4	Reliability		N
2.8.5	Override system		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)	240V	—
2.9.2	Clearances	(see appended table)	P
2.9.3	Creepage distances	(see appended table)	P
	CTI tests	CTI = 100	—
2.9.4.1	Distances through insulation	(see appended table)	P

IEC 950			
Clause	Requirement – Test	Result - Remark	Verdict
2.9.4.2	Thin sheet material	Inside approved SPS.	N
	Number of layers (pcs) :		N
	Electrical strength test: test voltage (V) :		N
2.9.4.3	Printed boards		N
	Distance (mm) 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	(see Annex U)	N
	Electric strength test at voltage (V) for accessible insulation of wire :		N
	Tests for additional thin film or other insulation		N
	Two wires in contact inside component; angle > 45°		N
	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	Internal creepage distances in hermetically sealed components	(see appended table 2.9.2. and 2.9.3)	N
2.9.7	Internal distances in potted components	(see appended table 2.9.4.1)	N
2.9.8	Spacings between external terminations of components	(see appended table 2.9.2 and 2.9.3)	N

2.10	Connection to other equipment		P
2.10.1	Connection of SELV and TNV circuits :	This unit is not considered for connection to TNV.	N
2.10.2	Type of interconnection circuits :	Interconnection circuits of SELV through the connector. No ELV interconnection circuits	P
2.10.3	Connection to host equipment	No ELV interconnection	N

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

IEC 950			
Clause	Requirement – Test	Result - Remark	Verdict

3	WIRING, CONNECTIONS AND SUPPLY		P
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3.1	General		P
3.1.1	Cross-sectional area of internal wiring/interconnecting cables	(see appended table 5.1)	P
	Protection of internal wiring and interconnecting cables	No 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	Internal wires with only basic isolation are routed so that they are not close to any live bare components. 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	(see appended table 5.3)	P
3.1.6	Wires coloured green/yellow only for protective earth connection	See 2.5.5.	P
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 soft soldered wires under	P

IEC 950			
Clause	Requirement – Test	Result - Remark	Verdict

		contact pressure.	
3.1.11	Use of spaced thread screws/thread-cutting screws	No self tapping screws are used.	P

3.2	Connection to primary power		P
3.2.1	Type of connection	Certified inlet.	P
	Design of product with more than one supply connection	Only one supply connection.	N
3.2.2	Provision for permanent connection	See clause 3.2.1	N
	Size (mm) of cables and conduits		N
3.2.3	Appliance inlet	The appliance inlet complies with IEC 320 and is located at the rear of the unit. The power cord can be inserted without difficulties and does not support the unit	P
3.2.4	Type and cross-sectional area (mm ²) of power supply cord	H05VV-F, 0.75mm ²	P
3.2.5	Cord anchorage	See clause 3.2.1.	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	See clause 3.2.1.	N
	D (mm)		—
	Test: mass (g)		—
	Radius of curvature of the cord ≤ 1,5 D		N
3.2.8	Supply wiring space		N

3.3	Wiring terminals for external power supply conductors <i>Unit uses 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

IEC 950			
Clause	Requirement – Test	Result - Remark	Verdict
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
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
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4.1	Stability and mechanical hazards		P
4.1.1	Stability tests		P
	Angle of 10°	This unit is intended to use on desk top and is of a stable mechanical construction and does not overbalance when tilted to an angle of 10° from its normal upright position.	P
	Test: force (N) :	Equipment is not a floorstanding unit.	N
4.1.2	Protection against personal injury	Fan, accessible at the rear panel is covered.	P
4.1.3	Warning and means provided for stopping the moving part :	No accessible 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
4.2.2	Internal enclosures 30 N ± 3 N; 5 s		N
4.2.3	External enclosures 250 N ± 10 N; 5 s	250N were applied to the outer enclosure. No energy or	P

IEC 950			
Clause	Requirement – Test	Result - Remark	Verdict

		other hazards	
4.2.4	Steel ball tests		P
	Fall test	500g steel sphere ball fall, from 1.3m height onto outer enclosure .	P
	Swing test	500g steel sphere ball as pendulum onto outer enclosure.	P
4.2.5	Drop test	The unit is not hand-held.	N
4.2.6	Heat test for enclosures of moulded or formed thermoplastic materials: 7 h; T (°C) :	After 7 hours at 70°C and cooling down to room temperature, no shrinkage , distortion or loosening any enclosure part was noticeable on the speaker. The test was done for all enclosure materials.	P
4.2.7	Compliance	No safety relevant damages.	P
4.2.8	Mechanical strength of cathode ray tubes	No CRT in PC.	N

4.3	Construction details		P
4.3.1	Changing of setting for different power supply voltages	Full range circuit	N
4.3.2	Adjustment of accessible control devices	None that would cause hazard	N
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		P
	Test: force (N) :	Power switch is secured to internal chassis by snap-fits. Test with 30N passed.	P
4.3.6	Driving belts/couplings shall not ensure electrical insulation	Not used for insulation.	N
4.3.7	Retaining of sleeves		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	P

IEC 950			
Clause	Requirement – Test	Result - Remark	Verdict
		are used.	
4.3.11	Resistance to oil and grease	Insulation not in contact with oil or grease.	N
4.3.12	Protection against harmful concentration of ionizing radiation, ultraviolet light, laser or flammable gases (for laser see IEC 825-1)	No ionizing radiation or flammable liquids presents.	N
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	< 1mm in width	P
	Dimensions (mm) :	numerous louvre openings with dimensions approx. 41mm * 0.8mm	—
4.3.16	Openings in the sides of enclosure	< 1mm in width or < 5mm in any direction	P
	Dimensions (mm) :	- numerous louvre openings at both sides with dimensions approx. 41mm * 0.8mm - numerous at rear with dimension approx. 3mm * 2mm.	—
4.3.17	Interchangeable plugs and sockets	In operator and service area, mismatching prevented by incompatible form or location.	P
4.3.18	Torque test for direct plug-in equipment <i>Not intended to plug directly to wall socket-outlet.</i>		N
	Additional torque (Nm) :		N
4.3.19	Protection against excessive pressure	The PC does not contain liquid	N
4.3.20	Protection of heating elements in Class I equipment	No heating elements.	N
4.3.21	Protection of lithium batteries <i>Non-rechargeable lithium battery used and soldered onto PCB.</i>		N
	Construction of protection circuit :		N
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		N

IEC 950			
Clause	Requirement – Test	Result - Remark	Verdict

	c) temperature (°C) over 8 h		
	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
4.4.2	Minimizing the risk of ignition	Electrical parts are not likely to ignite nearby materials. Parts not protected against overheating under fault conditions are mounted on PCB of V-1. Temperatures see 5.1	P
	Printed board: manufacturer; flammability	V-1 or better	P
4.4.3.2	Material and component: manufacturer; flammability	Internal components except small parts are V-2, HF-2 or better	P
4.4.3.4	Wiring harnesses: manufacturer; flammability ..	Isolation material consists of PVC.	P
4.4.3.5	Cord anchorage bushings: manufacturer; flammability	No cord anchorage bushings	N
4.4.3.6	Air filter assemblies: manufacturer; flammability	No air filter.	N
4.4.4	Enclosures and decorative parts: manufacturer; flammability	Protective enclosure with no decorative parts. Enclosure of this unit (moveable equipment, <18Kg) with flammability class V-0 min.	P
4.4.5.1	Components which require fire enclosure: manufacturer; flammability	With having the following components: - components with windings - wiring - semiconductor devices, transistors, diodes, integrated circuits - resistors, capacitors, inductors The fire enclosure is required	P
4.4.6	Fire enclosure construction	Protection against emission of flame, molten metal, flaming or glowing particles or drops by the fire	P

IEC 950			
Clause	Requirement – Test	Result - Remark	Verdict
		enclosure. No bottom openings.	
4.4.7	Doors and covers	The fire enclosure contains an operator removal cover which intended only for occasional use. There are instructions provided for correct removal and installation within the user's manual.	P
4.4.8	Protection against spreading of flammable liquids	No flammable liquids in this unit.	N

5	THERMAL AND ELECTRICAL REQUIREMENTS	P
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5.1	Heating	P
	Heating tests	(see appended table) P

5.2	Earth leakage current <i>Part of the approval for the SPS.</i>	N
5.2.2	Leakage current	N
	Test voltage (V)	
	Measured current (mA)	
	Max. allowed current (mA)	3.5mA
5.2.4	Three-phase equipment	Single phase N
	Test voltage (V)	
	Measured current (mA)	
	Max. allowed current (mA)	
5.2.5	Equipment with earth leakage current exceeding 3,5 mA	< 3.5mA N
	Test voltage (V)	
	Measured current (mA)	
	Max. allowed current (mA)	
	Cross-sectional area (mm ²) of internal protective earthing conductor	

IEC 950			
Clause	Requirement – Test	Result - Remark	Verdict

	Warning label		N
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5.3	Electric strength		P
	Electric strength test	(see appended table)	P

5.4	Abnormal operating and fault conditions		P
5.4.2	Motors	<p>The cooling fan is provided with an internal overcurrent protection which interrupts the supply to the rotor if the max. current is exceeded. With the locked rotor, this protection turns in cycling mode in which the temp. is kept below the temp. under normal conditions.</p> <p>Other motors are used in the appliance which are certified HDD.</p> <p>(see appended table)</p>	P
5.4.3	Transformers	<p>The protection of the SPS and transformer are approved with the approval of the SPS.</p> <p>(see appended table)</p>	P
5.4.4	Compliance of operational insulation <i>Power supply is approved component, the over-current protection of the power supply ensures that there occur no hazard if there is short circuit in the SELV circuit.</i>		P
	Method used		P
5.4.5	Electromechanical components in secondary circuits	<p>No electromechanical components</p> <p>(see appended table)</p>	P
5.4.6	Other components and circuits	<p>Faults in primary and secondary components and operational insulation were already considered during the approval of the SPS.</p> <p>No other abnormal tests necessary.</p>	P

IEC 950			
Clause	Requirement – Test	Result - Remark	Verdict
		(see appended table)	
5.4.7	Test in any expected condition and foreseeable misuse	No hazard by operating buttons and controls not in accordance with the instructions. Vent. openings were covered and fan locked: T1 in SPS = 70°C at ambient of 20°C, no hazards	P
5.4.8	Unattended use of equipment having thermostats, temperature limiters etc.	None of these components are used. (see appended table)	N
5.4.9	Compliance	No fire propagated beyond the equipment. No molten metal was emitted. Electric strength test primary → SELV was passed. (see appended table)	P
5.4.10	Ball-pressure test of thermoplastic parts; impression shall not exceed 2 mm	None of them outside the approved SPS. (see appended table)	P

6	CONNECTION TO TELECOMMUNICATION NETWORKS	N
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6.2	TNV circuits and protection against electric shock <i>Equipment is not intended to be connected to TNV.</i>	N
6.2.1.1	Limits of the TNV circuits	N
6.2.1.1 a)	voltages (V) other than telephone ringing signals	N
6.2.1.1 b)	telephone ringing signals	N
6.2.1.1 c)	telegraph or teletypewriter signals	N
6.2.1.2	Insulation (mm) between TNV circuits and unearthed operator-accessible conductive parts :	N
	Insulation (mm) between TNV circuits and unearthed SELV circuits	N
	Voltage (V) in TNV circuit in the event of a	N

IEC 950			
Clause	Requirement – Test	Result - Remark	Verdict
	single insulation fault or component failure :		
6.2.1.3	Insulation (mm) between TNV circuit connected to an SELV circuit that has one pole connected to earth :		N
6.2.1.4	Insulation (mm) between TNV circuit and circuit at hazardous voltages :		N
	Method used :		N
6.2.1.5	Connection of TNV circuits to other circuits	(see appended table 5.4)	N
	TNV circuit supplied conductively from a secondary circuit :		N
6.2.2.1	Protection against contact with TNV circuits		N
6.2.2.2	Battery compartments		N

6.3	Protection of telecommunication network service personnel, and other users of 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
	Language of installation instructions :		N
6.3.3	Separation of telecommunication network from earth		N
	Insulation (mm) between TNV circuit and circuitry that may be earthed :		N

6.4	Protection of the equipment user from voltages on the telecommunication network		N
6.4.2.1	Impulse test: separation between telecommunication network conductors and:		N
6.4.2.1 a)	unearthed conductive parts/non-conductive parts of the equipment which are 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; 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 telecommunication network conductors and:		N
6.4.2.2 a)	unearthed conductive parts/non-conductive parts of the equipment which are held or touched during normal use; test at 1,5 kV		N

IEC 950			
Clause	Requirement – Test	Result - Remark	Verdict
6.4.2.2 b)	parts and circuitry that can be touched by the test finger; 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

A	ANNEX A, TESTS FOR RESISTANCE TO HEAT AND FIRE The plastic material of enclosure with flammability class V-1 or better.		P
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		P
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	Metal enclosure	

B	ANNEX B, MOTOR TESTS UNDER ABNORMAL CONDITIONS <i>See 5.4.2.</i>		N
	Position		
	Manufacturer		
	Type		
	Rated voltage (V) or current (A)		
B.2	Temperatures	(see appended table 5.4)	N
B.4	Running overload test		N
B.5	Locked-rotor overload test		N

IEC 950			
Clause	Requirement – Test	Result - Remark	Verdict
	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 capacitor		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 was tested with the approval of SPS.</i>		
	Position		—
	Manufacturer		—
	Type		—
	Rated values		—
	Temperatures	(see appended table 5.4)	N
C.1	Overload test		N
	Conventional transformer		N
C.2	Insulation		N
	Precautions		N
	Retaining of end turns of all windings		N
	Earthing test at 25 A		N
C.3	Electric strength test	(see appended table 5.3)	N

H	ANNEX H, IONIZING RADIATION		N
	Ionizing radiation		N
	Measured radiation		—
	Measured high-voltage (kV)		—
	Measured focus voltage (kV)		—

IEC 950			
Clause	Requirement – Test	Result - Remark	Verdict

	CRT markings		—
	Certified by		—
	Standard used		—

U	ANNEX U, INSULATED WINDING WIRES FOR USE AS MULTIPLE PLAYER INSULATION		N
U.1	Wire construction		N
	Number of spirally wrapped layers of polyimide tape		—
U.2	Conformance tests		N
	Temperature (°C); humidity (%)		—
U.2.1	Electric strength		N
	Test voltage (V)		—
U.2.2	Adherence and flexibility		N
	Electric strength test: test voltage (V); temperature (°C)		—
U.2.3	Heat shock		N
	Electric strength test: test voltage (V)		—
U.2.4	Retention of electric strength after bending		—
	Electric strength test: test voltage (V)		—
U.2.5	Resistance to abrasion		N
U.3	Production line test		N
	Routine testing for electric strength: test voltage (V)		—

1.5.1	TABLE: list of critical components					P
object/part No.	manufac-turer/trademark	type/model	technical data	standard	mark(s) of conformity ¹⁾	
Switching Power Supply	American Skynet	SNP-9551	i/p: AC 115V/230V, 50/60Hz, 1A/0.6A o/p: DC 5V/4.5A, 12V/2A, -12V/0.3A	IEC 950	TÜV	

IEC 950			
Clause	Requirement – Test	Result - Remark	Verdict

Power Plug	Longwell	LP-33, LP-34	10A, 250V	IEC 320	VDE
optional	I Sheng	SP-023, IS-011	10A, 250V	IEC 320	VDE
	Well Shin	WS-010	10A, 250V	IEC 320	VDE
	King Cord	KC-002	10A, 250V	IEC 320	VDE
	Chiao Lin	CL-105, CL-102	10A, 250V	IEC 320	VDE
Power Cord	Longwell	H05VV-F	3G, 0.75mm ²	VDE 0281	VDE
optional	I Sheng	H05VV-F	3G, 0.75mm ²	VDE 0281	VDE
	Da Tung	H05VV-F	3G, 0.75mm ²	VDE 0281	VDE
	Ta Hsing	H05VV-F	3G, 0.75mm ²	VDE 0281	VDE
	Walsin	H05VV-F	3G, 0.75mm ²	VDE 0281	VDE
	Yeh Yung	H05VV-F	3G, 0.75mm ²	VDE 0281	VDE
	One-Six	H05VV-F	3G, 0.75mm ²	VDE 0281	VDE
	Well Shin	H05VV-F	3G, 0.75mm ²	VDE 0281	VDE
	Tri Ace	H05VV-F	3G, 0.75mm ²	VDE 0281	VDE
	Standard	H05VV-F	3G, 0.75mm ²	VDE 0281	VDE
	Wonderful	H05VV-F	3G, 0.75mm ²	VDE 0281	VDE
Power Connector	Longwell	LS-13	10A, 250V	IEC 320	VDE
optional	I Sheng	IS-14	10A, 250V	IEC 320	VDE
	King Cord	KC-003	10A, 250V	IEC 320	VDE
	Chiao Lin	CL-105	10A, 250V	IEC 320	VDE
	Well Shin	WS-002A	10A, 250V	IEC 320	VDE
Power Switch	Firma J. u. J. Marquardt	1852...	4A, 250V	IEC 1058-1	VDE
Hard Disk Drive	Conner	CFS425A	--	IEC 950	TÜV
(optional)	Quantum	Go Drive series	--	IEC 950	TÜV
	Seagate	ST3XXXY	--	IEC 950	TÜV
	Seagate	ST-5XXXY	--	IEC 950	TÜV
	Hitachi	DK213/DK223	--	IEC 950	TÜV
	Maxtor	MXT-1240	--	IEC 950	TÜV
	Maxtor	MXT-340	--	IEC 950	TÜV
	Maxtor	MXT-540	--	IEC 950	TÜV
	Miniscribe	7XXXY	--	IEC 950	TÜV

IEC 950			
Clause	Requirement - Test	Result - Remark	Verdict

DC Fan	Sunonwealth	KD1206PHB2	DC 12V, 0.16A, 18.5CFM	IEC 950	VDE
Inlet with fuse holder	Taishing	ACR-313	AC 250V, 10A	IEC 320	VDE
Lithium RTC battery	Tadiran	TL-5186	3.6Vdc, 0.37Ah	--	UL
LCD Display	Sharp	Monochrome type, LM64P89			
	Toshiba	TFT type, LTM10C042			
D/A inverter (for TFT)	TDK	TAD143			
D/A inverter (for Mono)	Yuntek	YN9101			
D/A transformer (for Mono)	Yuntek	D0101	class 105°C		
D/A transformer (for TFT)	TDK	TAD143	class 105°C		

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

1.6	TABLE: electrical data (in normal conditions)					P
fuse #	I _{rated} (A)	U (V)	P (W)	I (A)	I _{fuse} (A)	condition/status
F1	--	90	29.1	0.52	0.52	Normal load
F1	1	100	29	0.48	0.48	dto
F1	1	240	29.1	0.27	0.27	dto
F1	--	254	29.3	0.25	0.25	dto

2.9.2 and 2.9.3	TABLE: clearance and creepage distance measurements					P
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)
Primary components (10N) - > secondary components (10N)	< 420	< 240	4.0	> 5.0	5.0	> 5.0

IEC 950						
Clause	Requirement – Test			Result - Remark		Verdict
Primary components (10N) - > PE	< 420	< 240	2.0	> 3.0	2.5	> 3.0
Note: Creepage distances and clearances between primary and secondary are all in approved switching power supply.						

2.9.4.1	TABLE: distance through insulation measurements				N
distance through insulation di at/of:	U r.m.s. (V)	test voltage (V)	required di (mm)	di (mm)	

5.1	TABLE: temperature rise measurements				P
	test voltage (V)	100V-10%, 240 + 6%			
	t1 (°C)				
	t2 (°C)				
temperature rise dT of part/at:	dT (K)		required dT (K)		
Room Ambient at	20°C/20°C		--		
T1 core (SPS)	28/32		40		
T1 coil (SPS)	29/33		40		
CPU	9/9		--		
HDD	9/6		--		
U13 body	10/10		--		
RTC battery	9/9		--		
enclosure	11/11		45		
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 (type T) method under worst case normal mode as described in 1.6.1 at voltages described in 1.6.5. Highest load according to 1.2.2.1 for this equipment is the CDROM, FDD, HDD permanently access.

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

Components with:

- max. absolute temp. of 105°C → dTmax = (105-50) K = 55K

Components with:

- max. absolute temp. of 85°C → dTmax = (85-50) K = 35K

User may be touchable area:

→ dTmax = 70 - (50-25) K = 45K

5.3	TABLE: electric strength measurements		P
test voltage applied between:		test voltage (V)	breakdown
primary and secondary		DC 4242V	No
primary and ground		DC 2121V	No

5.4	TABLE: fault condition tests							N
<i>Done in the approval of switching power supply. No other test item necessary.</i>								
	ambient temperature (°C)							
	model/type of power supply							
	manufacturer of power supply							
	rated markings of power supply							
No.	component No.	fault	test voltage (V)	test time	fuse No.	fuse current (A)	result	

IEC 950			
Clause	Requirement – Test	Result - Remark	Verdict

supplementary information

5.4.10	TABLE: ball pressure test of thermoplastics		N
	<i>Done in the approval of switching power supply. No other test item necessary.</i>		
	required impression diameter (mm) : ≤ 2 mm		—
part	test temperature (°C)	impression diameter (mm)	

National Deviation			
Clause	Requirement – Test	Result - Remark	Verdict

APPENDIX	EN 60950:1992 + A1:1993: + A2:1993 + A3:1995 TEST REPORT (IEC Publication 950 2nd edition, 1991 + Amd.1,1992 + Amd.2, 1993 + Amd.3, 1995) CENELEC common modification, Special National condition, Nation deviation and other information .	P
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EXPLANATION FOR ABBREVIATIONS			
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 = Pass, F = Fail, N = Not applicable. place in the column to the right.			
General F	(FI, NO, SE). The respective national approval mark is required on certified products.	Not applied for.	N
1.2.04.1 S	(DK). In Denmark certain types of Class I appliances(see § 3.2.1) may be provided with a plug not establishing earthing continuity when inserted into Danish socket-outlet.	Not applied for.	N
1.5.01 D	(SE). Add the following: NOTE: Switches containing mercury such as thermostats, relay and level controllers are not allowed.	Not applied for.	N
1.7.00 F	(SE). The following text shall be added to a separate power supply unit: "Endast för Kontorsmaskin".	Not applied for.	N
1.7.00 F	(DE). The following text shall be added to a separate power supply unit: "For IEC 950 only".	Equipment is not a separated power supply	N
1.7.02 S	(NO). 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 is must be connected to an earthed mains socket-outlet. NOTE: For requirements for equipment to be connected to a public telecommunication network: See 6.2.1.4. Text is: "Apparatet må Kun tilkoples jordet stikkontakt" or "Jordet stikkontakt skal benyttes når apparatet tilkoples datanett".	Not applied for.	N
1.7.02 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	Not applied for.	N

National Deviation			
Clause	Requirement – Test	Result - Remark	Verdict
	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".		
1.7.02 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"	Not applied for.	N
1.7.05 S	(DK). Socket-outlets for providing power to other appliances 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 appliances of Class I.	Not applied for.	N
1.7.05 D	(DK). Class II appliances shall not be fitted with socket-outlets for providing power to other appliances.	Not applied for.	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 applicable for PC.	N
1.7.17 F	(DK, NO, SE, FI). Warning texts for lithium batteries, see Appendix 2 in EMKO-TSE(74-SEC)207/94. Languages:	Not applied for.	N
1.7.17 D	(CH). Annex 4.10 of SR 814.013 (ordinance on environmentally hazardous substances) applies for batteries.	Not applied for.	N
1.7.18 D	(SE). Equipment provided with built-in batteries, not replaceable by the user, shall be marked with the recycling symbol if the batteries have a content of mercury or cadmium exceeding 0.025% by weight.	Not applied for.	N
2.3.06 S	(FR). Method 3 is not acceptable.	Not applied for.	N
2.3.07 C	Replace the text of this sub-clause by: Void.	Replaced	N

National Deviation			
Clause	Requirement – Test	Result - Remark	Verdict
2.3.09 S	(NO). Marking and insulation requirements according to this annex, subclauses 1.7.02 and 6.2.01.4 b) apply.	Not applied for.	N
2.5.02 S	(DK, NO) add after the first paragraph: " The above exception is not acceptable in Pluggable equipment type A "	Not applied for.	N
2.7.01 C	<p>Replace the text of this sub-clause by: Basic requirements: 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) and c):</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 based 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 outlet and Sub-clause 1.7.11 does not apply.</p>	Requirements are considered, see report IEC 950	P
2.7.02 C	Replace the text of this sub-clause by: Void.	Replaced	P
2.9.01 S	(NO). Due to the IT power systems used, the mains supply voltage is considered to be equal to the phase-to-phase voltage.	Not applied for.	N
3.2.01 S	(DK). Supply cords of single phase appliances having a rated current not exceeding 10 A shall be provided with a plug according to the	Not applied for.	N

National Deviation			
Clause	Requirement – Test	Result - Remark	Verdict

	following table:			
	Class		Plug	
			Section 107-2-D1 Standard Sheet.	
	I	Protection against indirect contact *)	DK 2-1a or DK 2-5a	
		Earthing connection not required	DK2-1a,DK2-5a, DKA2-1a, DKA2-1b,C 1b,C 2b,C 3b,C4	
	II		DK2-5a**),DKA 2-1a,DKA 2-1b,C 1b, C5, C6	
*)-Appliances fitted with a socket-outlet for providing power to other appliances. -Appliances covered by the general requirement for protection against indirectly contact in Section 10, clause 18.1. -Appliances which are mainly used in locations where protection against indirect contact is required, cf. Section 10, clause 17. **) The earthing contact not connected.				
	If poly-phase appliances and single phase appliances having a rated current exceeding 10A are provided with a supply cord with a plug, this plug shall be in accordance with the following table:		Not applied for.	N
	Class of equipment		Plug	
		The Heavy Current Regulations Section, 107-1-D1, Standard Sheet	The Heavy Current Regulations Section 117 Standard Sheet	
	I	DK 6-1a	II	
	II	DK 6-1a*)	II*)	
	III	-	IX	
*) The earthing contact not connected.				
3.2.01 S	(CH). Supply cords of equipment having a rated current not exceeding 10A shall be provided with a plug complying with SEV 1011 or IEC 884-1 and one of the following dimnson sheets <u>SEV 6532-2,1991</u> Plug type 15 3P+N+PE 250/400V, 10A <u>SEV 6533-2,1991</u> Plug type 11 L+N 250V, 10A <u>SEV 6534-2,1991</u> Plug type 12 L+N+PE		Not applied for.	N

National Deviation			
Clause	Requirement – Test	Result - Remark	Verdict
	250V, 10A EN 60 309 applies for plugs for currents exceeding 10A		
3.2.01 S	(GB). Apparatus which is fitted with a flexible 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 1786:1994 - The Plugs and Sockets etc. (safety) Regulations 1994, unless exempted by those regulations.	Not applied for.	N
3.2.02 C	Delete the note and in table 10, delete the value in parentheses.	Deleted.	N
3.2.04 S	(GB). A power supply cord with conductor of 1.25 mm ² is allowed for equipment with rated current over 10 A and up to and including 13 A.	Not applied for.	N
3.2.04 C	Replace "245 IEC 53" by "H05 RR-F", "227 IEC 52" by "H03 VV-F or H03 VVH2-F" and "227 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. Over 10 up to and including 16 1.5 In the conditions applicable to table 11, delete the words "in some countries" 1). In the note delete the second sentence.	Replaced	P
3.3.05 S	(GB). The range of conductor sized of flexible cords to be accepted by terminals for equipment with a rated current of over 10 A and up to and including 13 A is: 1.25 mm ² to 1.5 mm ² nominal cross-sectional area.	Not applied for.	N
3.3.05 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
4.3.18 S	(GB). This test should be performed using an appropriate socketoutlet with a earthing contact.	Not applied for.	N
5.4.09 S	(NO). The electric strength test after the tests of 5.4.4, 5.4.5, 5.4.6, 5.4.7 and 5.4.8 includes testing of basic insulation in Class I equipment.	Not applied for.	N
6.1.00 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	Not applied for.	N

National Deviation			
Clause	Requirement – Test	Result - Remark	Verdict
	suppressor installed in the telecommunication network: approx. 245V.)		
6.2.01.2 C	-6.2.01.3.Add at the end of each sub-clause: This sub-clause only applies to TNV circuits normally operating in excess of the limits of SELV circuits.		N
6.2.01.4b S	(NO). 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.	Not applied for.	N
6.2.01.4b S	(FI). This method is only permitted for permanently connected equipment or for pluggable equipment type B.	Not applied for.	N
6.2.1.5 S	(NO). Requirements in 6.2.1.4, Note 2, apply	Not applied for.	N
6.3.3. S	(NO). 6.3.3 is applicable for pluggable equipment type A and B and for permanently connected equipment	Not applied for.	N
6.4.02.1 D	(AT). Equipment shall comply with $U_c = 2.0KV$ in cases b) and c).	Not applied for.	N
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 1æSv/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>	PC does not employ a CRT.	N

National Deviation			
Clause	Requirement – Test	Result - Remark	Verdict
	<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 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 measured and specified in the device and</p> <p>3) it is adequately indicated on the X-ray emission source that the X-ray generated are adequately screened by the intrinsically safe CRT.</p>		
Other information F	(NO). part of the safety testing, DK SE, FI not necessary for safety approval.) The equipment must comply with the EMC Directive. Compliance is assumed by providing a test report or the manufacturers declaration of conformity.	Not applied for.	N

Questionnaire: Acceptability of second- and manufacturer laboratories.

(This questionnaire has to be filled out in case the laboratory has no accreditation according EN 45 001/2)



Name of inspector: David C. M. Lee

Reference (report-no.): E 9763267E01

Questions (except of QSA 3.105.12):

1. Is there an evidence for the qualification of the staff who is are charge of testing?
Yes
2. Is the special competence of the staff sufficient for the testing purpose?
Yes
3. Is there a training program for the staff and the leading personal?
Yes
4. Is the laboratory equipped with all instruments for testing and measuring?
Yes
5. Are the test rooms applied with all equipment needed for testing and are these ready for operation?
Yes
6. Is the necessary cleanliness and neatness kept?
Yes
7. Is all equipment under regular maintenance and are the maintenance periods and extend defined in a written form?
Yes
8. Are all used test and measurement instruments registered?
Yes, see measurement equipment list.
 - File of all test and measurement instrument.
See measurement equipment list.
 - Which data is included in the file?
See measurement equipment list.
9. Are all test and measurement instruments calibrated and adjusted in a sufficient way?
Yes, see measurement equipment list.
 - Are periods for calibration and adjustment defined (lists, QA-support)?
See measurement equipment list.
 - Are adjustment and calibration recorded (marking of the equipment, registration in lists)?
See measurement equipment list.
 - Is the adjustment and calibration done with gauges equipment?
Yes



- Is it guaranteed that overstressed, wrong handled or defective equipment is put out of service, marked and if necessary stored at certain locations until repair?
Yes

- Is there a procedure to check the impact on previous tests caused by defective equipment?
Yes

- Are there instructions for the handling of defective measurement instruments? (measures also regarding the tested materials?)
Yes

- Are calibration and adjustment also handled by other institutions (equipment manufacturers)?
Yes, by ITRI or ETC.

10. Is the mother equipment only used for adjustment/calibration and is it stored sufficiently?
Yes

11. Does the test laboratory take part in comparison tests with other test laboratories in case there is no trace to a standard unit, in order to prove the accuracy of test results?
Yes

12. Were are mother equipment calibrated?
Yes

13. Which standard units and master equipment are provided in the test laboratory, is the traceability to national or international standard units guaranteed?
Yes

Place, date

Taipei, 25.03.1997

The inspector signature

Paid c.m. ✓

