TÜV Rheinland
Product Safety GmbH
Am Grauen Stein D - 51105 Köln

TÜV Rheinland

Prüfbericht - Nr.: E 9663893 E01

Test Report No.

Auftraggeber: *Client:*	**Advantech Co., Ltd.** Fl. 4, No. 108-3, Ming-Chuan Rd., Shing-Tien, Taipei, Taiwan, R.O.C.
Gegenstand der Prüfung: *Test item:*	**Industrial Personal Computer**
Bezeichnung: *Identification:*	**IPC-610/250-14, IPC-610/350-14** **IPC-610P/250, IPC-610P/350**
Serien-Nr.: *Serial No.:*	Engineering sample w/o serial number
Wareneingangs-Nr.: *Receipt No.:*	N/A
Eingangsdatum: *Date of receipt:*	N/A
Prüfort: *Testing location:*	TÜV Rheinland Taiwan Ltd. 14F, No. 6, Min Chuan E. Rd., Sec. 3, Taipei, Taiwan, R.O.C.
Prüfgrundlage: *Test specification:*	**EN 60950:1992/A1:1993/A2:1993/A3:1995**
Prüfergebnis: *Test Result*	**Der vorstehend beschriebene Prüfgegenstand wurde geprüft und entspricht oben genannter Prüfgrundlage.** The a. m. test item passed.

geprüft/*tested by:*			**kontrolliert/***reviewed by*		
June 13, 1996	Max H. C. Lyou			David C. M. Lee	
Datum *Date*	**Name** *Name*	**Unterschrift** *Signature*	**Datum** *Date*	**Name** *Name*	**Unterschrift** *Signature*

Sonstiges/*Other Aspects:*

Per application letter dated 15.03.1996, project order: T9631167.
The complete test report includes the following documents:
- EN 60 950 report (42 pages)
- Questionnaire: acceptability of second- and manufacturer laboratories (2 pages)

Abkürzungen:		Abbreviations:	
OK, Pass	= entspricht Prüfgrundlage	OK, Pass	= passed
Fail	= entspricht nicht Prüfgrundlage	Fail	= failed
N/A	= nicht anwendbar	N/A	= not applicable

TEST REPORT

IEC 950

Safety of information technology equipment including electrical business equipment

Report reference No. ..... :	E 9663893 E01
Compiled by (+ signature) ..... :	Max H. C. Lyou .....
Approved by (+ signature) ..... :	David C. M. Lee .....
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 ..... :	Neutron Engineering Inc., 1Fl., No. 20, Alley 50, Lane 119, Dong Hwu Road, Nei Hwu, Taipei, Taiwan, R.O.C.
Applicant ..... :	ADVANTECH CO., LTD.
Address ..... :	4Fl., No. 108-3, Ming-Chuan Road, Shing-Tien, 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 ..... :	Test according to LVD
Procedure deviation ..... :	Germany
Non-standard test method ..... :	N.A.
Type of test object ..... :	Industrial Personal Computer
Trademark ..... :	ADVANTECH
Model/type reference ..... :	IPC-610/250-14, IPC-610/350-14, IPC-610P/250, IPC-610P/350
Manufacturer ..... :	ADVANTECH CO., LTD., 4Fl., No. 10 and 12, Lane 130, Ming-Chuan Road, Shing-Tien, Taipei, Taiwan, R.O.C.
Rating ..... :	AC 100-120/200-240V, 50/60Hz, 6/4A (for IPC-610/250-14, IPC-610P/250) 7/4.5A (for IPC-610/350-14, IPC-610P/350)

Test item particulars:

Equipment mobility.....: stationary

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).....: 19kg

Protection against ingress of water.....: IPX0

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 desk top personal computer for industrial use.

The internal building-in switching power supply is approved component. This SPS is enclosed by a metal enclosure and direct supplied from the wall outlet through the inlet inside SPS.

The differences between all models are:

Model	SPS	Male Board dimension
IPC-610/250-14	250W type	315.6mm x 175.0mm
IPC-610/350-14	350W type	315.6mm x 175.0mm
IPC-610P/250	250W type	315.6mm x 300.0mm
IPC-610P/350	350W type	315.6mm x 300.0mm

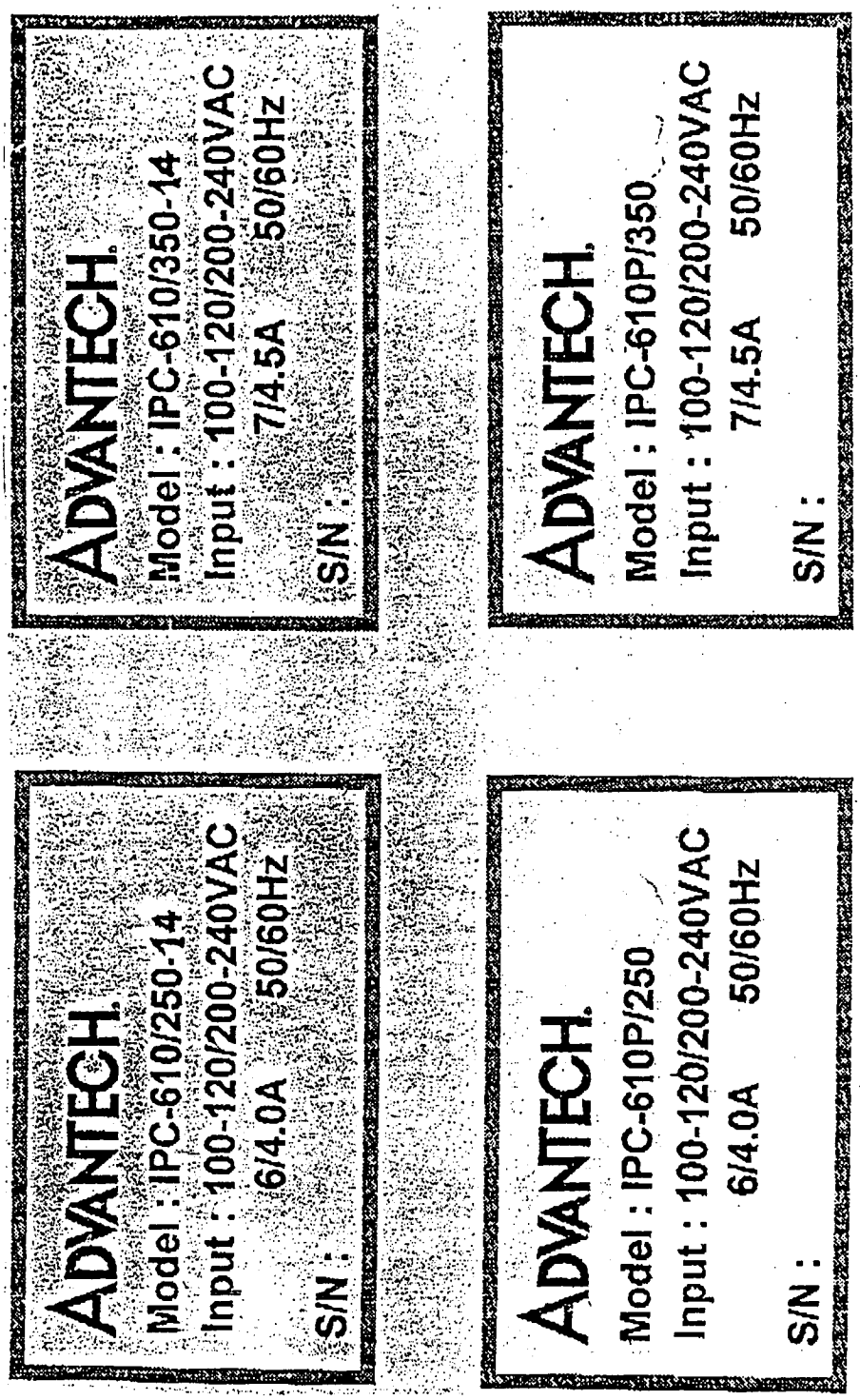
All of the above mentioned personal computer have a heavy-duty steel enclosure.

Specifications of the PC are:

CPU and speed	: Not limited
DRAM	: Not limited
FDD	: 1.4MB, 3.5"
HDD	: 3 half-height 5¼" drivers
Expansion Slot	: 14 ISA-bus, 10 full-size and 4 half-size
Operating Environment	: 0-50°C, 10-95% R.H.

Unless otherwise specified, all tests were performed on model IPC-610P/350 to represent the other similar models. The test sample were preproduction sample without serial numbers.

Copy of the marking plate :



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 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 .....:	Appliance inlet used.	N
	Torque and pull test of mains plug for direct plug-in; torque (Nm); pull (N)	dto	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 FDD and 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 100-120/200-240V at 50/60Hz. Relevant tests were done with the range of 90-127.2V and 180-254V at 50/60Hz.	P

1.7	Marking and instructions		P
1.7.1	Rated voltage (V) .....:	AC 100-120/200-240V	P
	Symbol of nature of supply for d.c. .....:	AC source	N
	Rated frequency (Hz) .....:	50/60Hz	P
	Rated current (A) .....:	6/4A (for IPC-610/250-14, IPC-610P/250) 7/4.5A (for IPC-610/350-14, IPC-610P/350)	P
	Manufacturer .....:		N
	Trademark .....:	ADVANTECH	P
	Type/model .....:	IPC-610/250-14, IPC-610/350-14, IPC-610P/250, IPC-610P/350	P
	Symbol of Class II .....:	Class I equipment.	N
	Certification marks .....:		N

IEC 950			
Clause	Requirement – Test	Result - Remark	Verdict
1.7.2	Safety instructions	The users manual contains information for operation, installation, servicing, transport, storage and technical data..	P
1.7.3	Short duty cycles	Equipment is designed for continuous operation.	N
1.7.4	Marking for voltage setting/frequency setting .:	The voltage range need to be adjusted by a selector switch. The adjusted voltage is visible on the switch. No instruction is required on the equipment.	P
1.7.5	Marking at outlets .....:	Label adjacent to outlet which reads 115/230V~, 50Hz/60Hz, 2.0A/1.0A	P
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 .....:	The colours used for LED are indicating the following function: - green (function FDD) - red (power, function HDD and keyboard lock) As red is reserved according to IEC73 for warning function, the red LEDs are not complied. However, these LEDs are not involved with safety, therefore, it is acceptable.	P
1.7.8.3	Symbols according to IEC 417 .....:	Marking for see-saw switch with I and O.	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 on the switch	P

IEC 950			
Clause	Requirement – Test	Result - Remark	Verdict
		button.	
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 related to safety provided in English and German language.	P
	Language .....:	English and German	—
1.7.15	Durability and legibility	The label was subjected to the permanence of marking test. The label was rubbed with cloth for 15sec. and then again for 15sec. 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.	P
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	Lithium battery for real time clock in user accessible area is built inside IC and soldered onto PCB, therefore this is not exchangeable. → No marking requested.	P
	Language .....:		—
1.7.18	Operator access with a tool .....:	The inside of the personal computer is regarded to be operator access area. This area is accessible when enclosure of PC is be disassembled with a screwdriver. When the enclosure is disassembled, the earthed	P

IEC 950			
Clause	Requirement – Test	Result - Remark	Verdict
		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 warning sentence to discourage the user to access.	
2	FUNDAMENTAL DESIGN REQUIREMENTS		P
2.1	Protection against electric shock and energy hazards		P
2.1.2	Protection against operator contact	As the user's manual specifies directions for the operator how to add additional memory cards or add-on cards inside the enclosure, the inside of this PC is regarded to be operator access area. With the disassembled PC 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. The cable to the SPS external power switch is with reinforced insulation. The soldering points of the switch are covered with two layers tubing and prevented accessible by the operator.	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

IEC 950			
Clause	Requirement – Test	Result - Remark	Verdict
	Working voltage (V); distance (mm) through insulation .....:		N
2.1.3.2	Operator accessible insulation of internal wiring at hazardous voltage	(see appended table)	P
2.1.4	Unintentional contact in service access area	Hazardous voltage only in the inside of the SPS and the cable to power switch. At circuits of SPS is no service work in operation mode necessary.	P
2.1.5	Energy hazard in operator access area	No energy hazard for operator.	P
2.1.6	Clearances behind conductive enclosures	Refer to 4.2.3.	P
2.1.7	Knobs, handles etc.	None at ELV or hazardous voltage	N
2.1.8	Insulation of conductive handles, knobs etc.	See 2.5.1.	P
2.1.9	Conductive casings of capacitors	In approved SPS.	P
2.1.10	Risk of electric shock from stored charge on capacitors connected to mains circuit	X-capacitor in approved SPS.	P
	Time-constant (s); measured voltage (V) .....:		-----

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: 28.04.1996 Ended: 30.04.1996 Time elapsed: 48h	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	P

IEC 950			
Clause	Requirement – Test	Result - Remark	Verdict
		SPS.	
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
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 nor 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		N
	Test voltage (V) .....:		----
2.4.2	Measured current (mA) .....:		N
2.4.3	Measured capacitance (μF) .....:		N

IEC 950			
Clause	Requirement – Test	Result - Remark	Verdict
2.4.4	Measured charge (μC) .....:		N
2.4.5	Measured energy (mJ) .....:		N
2.5	Provisions for protective earthing		P
2.5.1	Reliable connection	Reliable safety ground connection in the approved SPS.	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 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 inlet to chassis in the approved SPS.	P
2.5.6	Continuity of earth connections	Green/yellow wire from inlet to chassis in the approved SPS.	P
2.5.7	Making and breaking of protective earthing connections	Plug or inlet, earthing connected before and disconnected after hazardous voltage. No hazards.	P
2.5.8	Disconnection protective earthing connections	Hazardous voltage will be disconnected simultaneously with disconnection of the ground connection (when SPS is going to be removed).	P
2.5.9	Protective earthing terminals for fixed supply conductors or for non-detachable power supply cords	Power cord with receptacle.	P
2.5.10	Risk of corrosion	Inside approved SPS.	P
2.5.11	Earth connector resistance ≤ 0,1 Ω	Done in the approval of the SPS and from the earth screw. Test current 25A	P
	Test current (A) .....:	chassis 4mΩ	—

IEC 950			
Clause	Requirement – Test	Result - Remark	Verdict
		metal case of VGA output connector 5mΩ	

2.6	Primary power isolation		P
2.6.1	Disconnect device	The appliance inlet 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	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 .....:	German and 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	P

IEC 950			
Clause	Requirement – Test	Result - Remark	Verdict
		approved SPS.	
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
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 *No operator accessible areas which presents hazards in the meaning of this standard*		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	—

IEC 950			
Clause	Requirement – Test	Result - Remark	Verdict
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
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	P

IEC 950			
Clause	Requirement – Test	Result - Remark	Verdict
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
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. (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	P

IEC 950			
Clause	Requirement – Test	Result - Remark	Verdict
		electrical and earthing connections, or where supplementary or reinforced insulation could be impaired by a metal replacement.	
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 contact pressure.	P
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 and plug on the power cord.	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 .....:	The power supply cord is a H05VV-F, 3G, 0.75mm^2 type certified components	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

IEC 950			
Clause	Requirement – Test	Result - Remark	Verdict
3.2.8	Supply wiring space		N
3.3	Wiring terminals for external power supply conductors *Unit uses detachable power supply cord, connected on appliance inlet.*		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
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 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 of SPS, accessible at the rear panel is covered by metal grid and front cover.	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	P

IEC 950			
Clause	Requirement – Test	Result - Remark	Verdict
		enclosure are rounded	
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	30N force tested on internal enclosure (SPS).	P
4.2.3	External enclosures 250 N ± 10 N; 5 s	250N were applied to the outer enclosure. No energy or other hazards	P
4.2.4	Steel ball tests *Hazardous voltages are contained in the approved SPS and in the cable to the power switch. As the SPS is complete enclosed by an earthed metal enclosure which meets the requirements of 2.1.2 and the cable is reinforced isolated, no hazardous parts would be accessible with damaged PC´s enclosure. The steel sphere fall test and swung test are therefore not considered to be necessary for the PC enclosure.*		P
	Fall test	see above	P
	Swing test	see above	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) .....:	Hazardous voltages are contained in the approved SPS and in the cable to the power switch. As the SPS is complete enclosed by an earthed metal enclosure which meets the requirements of 2.1.2, the oven test is not considered to be necessary.	P
4.2.7	Compliance		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	Voltage range switchable by user accessible selector switch, wrongly adjustment was tested under approval of SPS.	P
4.3.2	Adjustment of accessible control devices	None that would cause	N

IEC 950			
Clause	Requirement – Test	Result - Remark	Verdict
		hazard	
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	Sleeving of cable to power switch on wiring reliable kept in position.	P
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 heatshrunk tubing are used.	P
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.	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 in the top of the enclosure	P
	Dimensions (mm) .....:		-----
4.3.16	Openings in the sides of enclosure	No parts at hazardous voltage within 5 degrees projectary area of opening	P
	Dimensions (mm) .....:	- 10 provided at rear, each measured approx. 3mm by 19.5mm - 26 provided at rear, each measured approx. 3mm by 13.5mm - numerous openings for DC fan at front and for SPS fan	-----
4.3.17	Interchangeable plugs and sockets	In operator and service area, mismating prevented by incompatible form or	P

IEC 950			
Clause	Requirement – Test	Result - Remark	Verdict
		location.	
4.3.18	Torque test for direct plug-in equipment *Not intended to plug directly to wall socket-outlet.*		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 *Lithium battery built inside the real time clock. No short circuit or any reverse polarity installation considered to be happen.*		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 c) temperature (°C) over 8 h .....:		N
	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 .....:	Parts are not protected against overheating under fault conditions are mounted on PCB of V-1.	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

IEC 950			
Clause	Requirement – Test	Result - Remark	Verdict
4.4.3.5	Cord anchorage bushings: manufacturer; flammability .....:	No cord anchorage bushings	N
4.4.3.6	Air filter assemblies: manufacturer; flammability .....:	Air filter outside the fire enclosure with the flammability class HB.	P
4.4.4	Enclosures and decorative parts: manufacturer; flammability .....:	For the unit, stationary and > 18kg, fire enclosure is required.	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 enclosure (metal enclosure). No opening in the bottom of the enclosure.	P
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
5.1	Heating		P
	Heating tests	(see appended table)	P

IEC 950			
Clause	Requirement – Test	Result - Remark	Verdict
5.2	Earth leakage current		P
5.2.2	Leakage current	The leakage current was measured from primary to chassis.	P
	Test voltage (V) .....:	AC 254V, 60Hz	—
	Measured current (mA) .....:	Switch on off L→PE 0.82mA 0.35mA N→PE 0.80mA 0.35mA	—
	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 (mm²) of internal protective earthing conductor .....:		—
	Warning label		N
5.3	Electric strength		P
	Electric strength test	(see appended table)	P
5.4	Abnormal operating and fault conditions		P
5.4.2	Motors	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

IEC 950			
Clause	Requirement – Test	Result - Remark	Verdict
		Other motors are used in the appliance which are certified HDD and FDD. (see appended table)	
5.4.3	Transformers	The protection of the SPS and transformer are approved with the approval of the SPS. (see appended table)	P
5.4.4	Compliance of operational insulation *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.*		P
	Method used .....:		P
5.4.5	Electromechanical components in secondary circuits	No electromechanical components (see appended table)	P
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 abnormal tests necessary. (see appended table)	P
5.4.7	Test in any expected condition and foreseeable misuse	No hazard by operating buttons and controls not in accordance with the instructions. No hazard resulted from front or rear cooling fan locked condition.	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 were 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.	N

IEC 950			
Clause	Requirement – Test	Result - Remark	Verdict
		(see appended table)	
6	CONNECTION TO TELECOMMUNICATION NETWORKS		N
6.2	TNV circuits and protection against electric shock *Equipment is not intended to be connected to TNV.*		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 single insulation fault or component failure ....:		N
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

IEC 950			
Clause	Requirement – Test	Result - Remark	Verdict
	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
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		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	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

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Clause	Requirement – Test	Result - Remark	Verdict
	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 *See 5.4.2.*		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
	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 *Transformer was tested with the approval of SPS.*		N
	Position .....:		—
	Manufacturer .....:		----
	Type .....:		—
	Rated values .....:		----
	Temperatures	(see appended table 5.4)	N

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Clause	Requirement – Test	Result - Remark	Verdict
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) .....:		—
	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) .....:		—

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Clause	Requirement – Test	Result - Remark	Verdict
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])
Power Plug	Longwell	LP-33, LP-34, LP-34A	10A, 250V	IEC 320	VDE
	I Sheng	SP-023, SP-022	10A, 250V	IEC 320	VDE
	Well Shin	WS-010	10A, 250V	IEC 320	VDE
Power Cord	Longwell	H05VV-F	3G, 0.75mm²	VDE 0281	VDE
	I Sheng	H05VV-F	3G, 0.75mm²	VDE 0281	VDE
	Well Shin	H05VV-F	3G, 0.75mm²	VDE 0281	VDE
Power Connector	Longwell	IS-13	10A, 250V	IEC 320	VDE
	I Sheng	LS-14	10A, 250V	IEC 320	VDE
	Well Shin	WS-002	10A, 250V	IEC 320	VDE
Switching Power Supply (for IPC-610/350-14 & IPC-610P/350)	Sea Sonic	SSH-350G	i/p: AC 100-120/200-240V, 50/60Hz, 8/5.2A; o/p: DC 5V/35A, 12V/14.2A, -5V/0.3A, -12V/0.3A, AC 100-120/200-240V, 1A max.	IEC 950	TÜV
Switching Power Supply (for IPC-610/250-14 & IPC-610P/250)	Sea Sonic	SSH-250G	i/p: AC 100-120/200-240V, 50/60Hz, 6/4A; o/p: DC 5V/25A, 12V/10A, -5V/0.3A, -12V/0.3A, AC 100-120/200-240V, 1A max.	IEC 950	TÜV, UL, CSA
Power Switch	Firma J. u. J.	1852...	4A, 250V;	IEC 1058	VDE, S, N, D, FI, KEMA,

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Clause	Requirement – Test	Result - Remark	Verdict

	Marquardt		10A/125-250V		ÖVE, SEV, IMQ; UL, CSA
DC Fan	SYMTEK	AD1212HB-A71	12Vdc, 0.34A, 61.9CFM	--	--
	Delta	WFB1212H	12Vdc, 0.45A, 86.5CFM	--	VDE, UL, CSA
	Nidec	D12H-12PLH	12Vdc, 0.&(A, 2.0CMM	--	--
Pico Fuse	Littelfuse	251	2A, 125V	--	UL
	Littelfuse	252	2A, 125V	--	UL
	Cooper	MCR	2A, 125V	--	UL
	Bel Fuse	MQ	2A, 125V	--	UL
Air Filter	Bridgestone	HR	rated HB	--	UL
Hard Disk Drive	Conner	CFS	--	IEC 950	TÜV
(optional)	Quantum	Go Drive series	--	IEC 950	TÜV
	Seagate	ST3XXXYY	--	IEC 950	TÜV
	Seagate	ST-5XXXY	--	IEC 950	TÜV
	Maxtor	7XXXXY	--	IEC 950	TÜV
	Maxtor	MXT-1240	--	IEC 950	TÜV
	Maxtor	MXT-340	--	IEC 950	TÜV
	Maxtor	MXT-540	--	IEC 950	TÜV
	Miniscribe	7XXXYY	--	IEC 950	TÜV
Floppy Disk Drive	TEAC	FD 55 series	--	IEC 950	TÜV
(optional)	TEAC	FD-235XX	--	IEC 950	TÜV
Real Time Clock with built in Lithium Battery	ODIN	DEC12C887	--	--	--
	Dallas	DS12887	--	--	--

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

1.6	TABLE: electrical data (in normal conditions)					P
fuse #	Irated (A)	U (V)	P (W)	I (A)	Ifuse (A)	condition/status
--	7	90	78+180	1.28+2	1.28	Model IPC-610/350-14 at rated load

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--	7	100	78+200	1.19+2	1.19	dto
--	7	120	78+240	1.05+2	1.05	dto
--	4.5	200	78+200	0.65+1	0.65	dto
--	4.5	240	80.3+240	0.587+1	0.587	dto
--	4.5	254	81.9+254	0.568+1	0.568	dto
--	6	90	66.4+180	1.1+2	1.1	Model IPC-610/250-14 at rated load
--	6	100	66.4+200	1.02+2	1.02	dto
--	6	120	68+240	0.91+2	0.91	dto
--	4	200	69.7+200	0.566+1	0.566	dto
--	4	240	71.6+240	0.519+1	0.519	dto
--	4	254	72.5+254	0.503+1	0.503	dto

2.9.2 and 2.9.3	TABLE: clearance and creepage distance measurements					P
clearance cl and creepage distance dcr at/of:	Up (V)	U r.m.s. (V)	required cl (mm)	cl (mm)	required dcr (mm)	dcr (mm)
Solder pin at power switch → user accessible surface	<420	250	4.0	>5.0	5.0	>5.0

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			P
distance through insulation di at/of:	U r.m.s. (V)	test voltage (V)	required di (mm)	di (mm)
Wall thickness of plastic cap on power switch (reinforced insulation)	250	3000	0.4	0.5

Note: All others are In approved switching power supply.

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Clause	Requirement – Test	Result - Remark	Verdict

5.1	TABLE: temperature rise measurements		P
	test voltage (V) .....:	90V/254V	—
	t1 (°C) .....:		—
	t2 (°C) .....:		—

temperature rise dT of part/at:	dT (K)	required dT (K)
On model IPC-610/250-14:		
Transformer coil	5.2 / 5.8	40
L2 coil	9.6 / 12.1	40
heat sink of Q1, Q2	4.9 / 7.0	--
L1 coil	5.1 / 5.6	40
FDD	5.1 / 5.2	20
metal chassis	2.4 / 2.7	20
CPU	25.5 / 25.6	45
SPS chassis	3.1 / 3.3	20
HDD	4.6 / 4.5	20
room ambient	18.7°C/18.4°C	--
On model IPC-610/350-14:		
Transformer coil	4.0 / 4.5	40
L2 coil	8.3 / 10.3	40
heat sink of Q1, Q2	4.6 / 5.9	--
L1 coil	5.0 / 5.6	40
FDD	5.2 / 5.3	20
metal chassis	1.9 / 1.9	20
CPU	22.8 / 22.6	45
SPS chassis	2.5 / 2.6	20
HDD	4.6 / 4.5	20
room ambient	19.0°C/19.6°C	--

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.

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

Winding components:

- class A → dTmax = 75K - 10K - (50-25)K = 40K

Components with:

- max. absolute temp. of 105°C → dTmax = (105-50) K = 55K
- max. absolute temp. of 85°C → dTmax = (85-50) K = 35K

Parts inside the equipment which maybe touched with:

- max. temp. rise of 70K → dTmax = 70K - (50-25)K = 45K
- max. temp. rise of 45K → dTmax = 45K - (50-25)K = 20K

While testing, the system's DC fan used is SYMTEK type AD1212HB-A71, rated air flow rate is 61.9CFM..

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

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Clause	Requirement – Test	Result - Remark	Verdict

5.4	TABLE: fault condition tests *Done in the approval of switching power supply. No other test item necessary.*		N
	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

supplementary information

5.4.10	TABLE: ball pressure test of thermoplastics *Done in the approval of switching power supply. No other test item necessary.*		N
	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

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 stating that it must be connected to	Not applied for.	N

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Clause	Requirement – Test	Result - Remark	Verdict
	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 mä 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 applied for.	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

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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	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 ether as integral parts of the equipment or as a part of the building installation, subject to all of the following a), b) and c): (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. (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. (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 (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.	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	Not applied for.	N

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Clause	Requirement – Test	Result - Remark	Verdict

shall be provided with a plug according to the 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 dimnsion sheets

SEV 6532-2,1991 Plug type 15 3P+N+PE

250/400V, 10A

SEV 6533-2,1991 Plug type 11 L+N

Not applied for. — N

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Clause	Requirement – Test	Result - Remark	Verdict
	250V, 10A SEV 6534-2,1991 Plug type 12 L+N+PE 250V, 10A EN 60 309 applies for plugs for currents exceeding 10A		
3.2.01 S	(GB). Apparatus which is fitted with aflexible 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 Statury 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.	P
3.2.04 S	(GB). A power supply cord with conductor of 1.25 mm² 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 mm² to 1.5 mm² 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 applied for.	N

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Clause	Requirement – Test	Result - Remark	Verdict
	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.)		
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 Uc = 2.0KV in cases b) and c).	Not applied for.	N
Annex H. D	(DE) a) A license is required by those who operate an X-ray emission source. 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 1) The local dose rate at a distance of 0.1m from the surface does not exceed 1æSv/h and 2) it is adequately indicated on the X-ray emission source that i) X-rays are generated and ii) The electron acceleration voltage must not exceed the maximum value stipulated by the manufacturer or importer. 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	Unit does not employ a CRT.	N

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Clause	Requirement – Test	Result - Remark	Verdict
	1) the X-ray emission source has been granted a type approval and 2) it is adequately indicated on the X-ray emission source that i) X-ray are generated ii) the device stipulated by the manufacturer or importer guarantees that the maximum permissible local does rate in accordance with the type approval is not exceeded and iii) the electron acceleration voltage must not exceed the maximum value stipulated by the manufacturer or importer. 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 1) The X-rays are generated only intrinsically safety CRTs complying with Enclosure III, No.6, 2) The values stipulated in accordance with Enclosure III, bi, 6.2 are limited by technical measured and specified in the device and 3) it is adequately indicated on the X-ray emission source that the X-ray generated are adequately screened by the intrinsically safe CRT.		
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**