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Certificate of Compliance

Low Voltage Directive 73/23/EEC and the Amendment Directive 93/68/EEC

Certificate Number:99-1135

Manufacturer: Advantech Co., Ltd.
F4, No. 108-3, Ming-Chuan Road, Shing-Tien, City, Taipei, Taiwan, R.O.C.

Product :Computer

Model/Type : IPC610yyy-25Ryy-zzzzz

Electrical Rating: I/P: 115/230Vac, 50/60Hz, 6/3A

Other Specification:

Standards applied:EN 60 950:1992 + A1:1993 + A2:1993 + A3:1995 + A4:1997, +A11:1997

The tested samples of the above products are in conformity with the technical provisions of the Following European Directive -

- Low Voltage Directive 73/23/EEC and the Amendment Directive 93/68/EEC

Date Issued: December 7, 1999

Approve & Authorized Signer:

Sharon Chang

TEST REPORT

IEC 950

Safety of information technology equipment including electrical business equipment

Report reference No.:	99-1135
Compiled by (+ signature)..... :	Jeff L.H.Chang
Approved by (+ signature)..... :	Sharon Chang
Date of issue :	December 7, 1999
Testing laboratory :	Product Safety Engineering, Taiwan Branch
Address	6F-4, No. 11, Wu-Chuan 1st Rd., Wu Ku Ind District, Hsin Chuang, Taipei, Taiwan
Testing location :	PSE Inc. Taiwan, Hsin Chuang, Taipei, Taiwan, R.O.C.
Applicant :	Advantech Co., Ltd.
Address :	4F, No. 108-3, Ming-Chuan Road, Shing-Tien City, Taipei, Taiwan, R.O.C.
Standard ..... :	EN 60 950:1992 + A1:1993 + A2:1993 + A3:1995 +A4:1997 +A11:1997
Test Report Form No.	99-1135
TRF originator..... :	PSE Inc. Taiwan
Test procedure	Low Voltage Directive
Procedure deviation	EC
Type of test object	Computer
Trademark	Advantech
Model/type reference	IPC610yyy-25Ryy-zzzzz
Manufacturer..... :	Advantech Co., Ltd. 4F, No. 108-3, Ming-Chuan Road, Shing-Tien City, Taipei, Taiwan, R.O.C.
Rating..... :	I/P:AC 115/230Vac, 50/60Hz, 6/3A

Test item particulars:

Equipment mobility	for building-in
Operating condition	continuous
Tested for IT power systems	No
IT testing, phase-phase voltage (V).....	N.A.
Class of equipment	Class I
Mass of equipment (kg)	20.2 kg
Protection against ingress of water	IPXO

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 test result)" refers to a test 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:

This test-report includes the following documents:

- Test report - (30 pages)
- Photo - (3 pages)
- Test result – (11 pages)

The test samples is pre-production without serial number.

Copy of the marking plate:

National Deviation			
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	**P**
1.5.2	Evaluation and testing components	Components which are certified to IEC and /or national standards are used correctly within their ratings. Components not covered by IEC standards are tested under the conditions present in the equipment.	**P**
	Dimensions (mm) of mains plug for direct plug-in:	The equipment is not plug-in type	**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 and particularly Annex C. Power supply is TUV approved	**P**
1.5.4	Flammability class of high voltage components	There are no components operating at voltages greater or equal to 4KV.	**N**
1.5.5	Interconnecting cables	The interconnection cable from the switching power supply to the user accessible parts inside the computer enclosure is carrying only SELV voltages Except for the insulation material, there is no further requirements to the o/p interconnection cable.	**P**
1.5.6	X Capacitors	X2 capacitor according to IEC 384-14 with pulse test. The pulse test is further shown with the additional SEV approval, All X Cap. In the approved power supply, is consider	**P**

National Deviation			
Clause	**Requirement Test**	**Result - Remark**	**Verdict**

1.6	Power interface		P
1.6.1	Steady state input current	Max. Normal Load are mean Highest load according to 1.2.2.1 for this equipment is permanent access to the F.D.D,, H.D.D. and CD-ROM ***See page 1 of test result.***	P
1.6.2	Rated voltage of hand-held equipment	This appliance 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 115/230V at 50/60Hz. Relevant tests were done with the range of 103/254V at 50/60Hz.	P

1.7	Marking and instructions Marking		P
1.7.1	Rated voltage (V)	115/230Vac	P
	Rated current (A)	6/3	P
	Rated frequency (Hz)	50/60Hz	P
	Manufacturer	Advantech Co., Ltd.	P
	Trademark	N/A	P
	Type/model	IPC610yyy-25Ryy-zzzzz	P
	Symbol of Class II	Is not Class II equipment	N
	Certification marks	CE mark	P
1.7.2	Special precautions	The users manual contains information for operation, installation, servicing,	P
1.7.3	Short time/intermittent operation	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	P

National Deviation			
Clause	**Requirement Test**	**Result - Remark**	**Verdict**
		equipment.	
1.7.5	Marking at outlets .....:	No provided AC Outlet	N
1.7.6	Marking at fuse holders .....:		N
1.7.7	Terminal indications.....	Main earth connection for supply wining is marked on chassis by symbol IEC 417, No. 5019-a. This symbol is not used for other earth connection.	P
1.7.8.1	Clear indications of switches and controls .....:	The markings and indications of the power switch is located on the switch, so that indication of function is clear.	P
1.7.8.2	Colours of controls and indicators .....:	In front panel, Green for Power ON Yellow for Hard Disk operator Yellow for KB-LK	P
1.7.8.3	Symbols according to IEC 417 .....:	Marking for rocker type power switch according to IEC 60417, Nos. 5007-a and 5008-a (line and circle). Marking for push=push type power saving switch according to IEC 60417, No. 5009-a (stand-by)	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 power switch is located on the switch bottom.	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	Protection does not relies on the building installation	N
1.7.12	Marking when leakage current is more than 3,5 A	Leakage current does not exceed 3.5mA	N
1.7.13	Marking at thermostats	No thermostats.	N
1.7.14	Language of safety markings/instructions	Rating marking and users manual in English, safety warning text in German and English language..	P
	Language .....:	English and German. Other languages will be provided when submitted for the national	–

National Deviation			
Clause	**Requirement Test**	**Result - Remark**	**Verdict**
		approval.	
1.7.15	Durability and legibility	The label was subjected to the permanence of marking 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. ***See page 2 of test result.***	**P**
1.7.16	Placing of markings	No required markings placed on removable parts.	**P**
1.7.17	Warning text for replaceable lithium batteries	The following text is printed in the users manual *CAUTION*: Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions. *VORSICHT:* Explosionsgefahr bei Unsachgemäβem Austausch der Batterie. Ersatz nur durch denselben oder einen vom Hersteller empfohlenen ähnlichen Typ Entsorgung gebrauchter batterien nach Angaben des Herstellers.	**P**
	Language .....:	English and German. Other languages will be provided when submitted for the national approval	□
1.7.18	Operator access with a tool .....:	The computer is accessible by the user with a screwdriver (cross type). The switching power supply can only be opened with a different type of screwdriver	**P**

National Deviation			
Clause	**Requirement Test**	**Result - Remark**	**Verdict**

2	FUNDAMENTAL DESIGN REQUIREMENTS	P

2.1	Protection against electric shock and energy hazards		P
2.1.2	Protection against operator contact	No access with test finger to any parts with only basic insulation to ELV or hazardous voltage. The test pin can not touch hazardous voltage through any openings within the appliance.	P
2.1.3	Internal wiring at ELV	No ELV 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 are	Energy does not exceed 240VA between any two points in accessible parts of secondary circuitry. See appended table.	P
2.1.6	Clearances behind conductive enclosures	Referto 4.2.3 ***See page 3 of test result.***	P
2.1.7	Knobs, handles etc.	None at ELV or hazardous voltage	P
2.1.8	Insulation of conductive handles, knobs etc.	None at ELV or hazardous voltage.	P
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	No risk, see below	P
	Time-constant (s); measured voltage (V) .....:	Power supply is TUV approved.	¾

2.2	Insulation		P
2.2.1	Methods of insulation	Insulation The insulation materials provided in the equipment with adequate thickness and adequate	P

National Deviation			
Clause	**Requirement Test**	**Result - Remark**	**Verdict**
		thickness and adequated creepage distance over their surface and clearance distance through air	
2.2.2	Insulation materials	Natural rubber, asbestos or hygroscopic materials are not used TUV approved power supply is considered.	P
2.2.3	Humidity treatment	Total 48H	P
	Humidity (%).....	95%	¾
	Temperature (°C) .....:	25°C	¾
2.2.4	Requirements for insulation	Please refer to 5.3, 2.9 and 5.1.	P
2.2.5	Insulation parameters	Both parameters were considered.	P
2.2.6	Categories of insulation	The adequate levels of safety insulation is provided and maintained to comply with the requirements of this standard.	P
2.2.7	Determination of working voltages	The rms and the peck voltage were measured on the switching power supply. The unit was connected to a 240V TN power system and secondary ground was maintained during TUV approved power supply is considered.	P

2.3	Safety extra-low voltage (SELV) circuits		P
2.3.2	Voltage (V) between any two parts of SELV circuit(s) and for Class equipment between any part of SELV circuit and protective earthing terminal .....:		P
2.3.3	Voltage (V) of SELV in the event of a single failure of basic or supplementary insulation or of a component .....:	Single fault did not cause excessive voltage in accessible SELV circuits. Limits of 71V peak and 120V DC were not exceed and SELV limits not for longer than 0.2 seconds. See abnormal results 5.4.6.	¾
	Method used for separation .....:	Method 1	P
2.3.8	Construction of SELV circuits	Ring terminals for PE	P

National Deviation			
Clause	**Requirement Test**	**Result - Remark**	**Verdict**
		connection are prevented from pivoting which could impair distances to hazardous parts by starwasher. In multiway connectors and other cable, ties prevent contact to hazardous parts in case of loosening of connection or conductor breakage. IEC 83 and IEC 320 connectors are not used in SELV.	
2.3.9	SELV circuits connected to other circuits	No direct connection between SELV and primary circuit.	N

2.4	Limited Current Circuit:		N
	Test voltage (V) .....:		¾
2.4.2	Measured current (mA) .....:		N
2.4.3	Measured capacitance (uF).....:		N
2.4.4	Measured charge (uC) .....:		N
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 earthed reliably.	P
2.5.2	Protective earthing in Class I equipment	Class I equipment	N
2.5.3	Switches/fuses in earthing conductors	No switches or fuses in earthing conductor.	N
2.5.4	Assured earthing connection for Class I equipment in systems comprising Class I and Class II equipment	This unit has its own earthing connection. Any other units connected via the interconnecting cable shall provide SELV only The equipment does not comprise class I and class II	N
2.5.5	Green/yellow insulation	Green/yellow wire from inlet to chassis. Green/Yellow wire to chassis reliable fixed with starwasher	P
2.5.6	Continuity of earth connections	It is not possible to disconnect earth without disconnection mains as an appliance inlet is used.	P

National Deviation			
Clause	**Requirement Test**	**Result - Remark**	**Verdict**
2.5.7	Making and breaking of protective earthing connections	Plug or inlet, earthing connected before and disconnected after hazardous voltage. No other operator removable parts.	**P**
2.5.8	Disconnection protective earthing connections	It is not necessary to disconnect earthing except for the removing of the earthed parts itself	**P**
2.5.9	Protective earthing terminals for fixed supply conductors or for non-detachable power supply cords	The equipment is provided with an appliance inlet	**P**
2.5.10	Risk of corrosion	All safety earthing connections in compliance with Annex J.	**P**
2.5.11	Earth connector resistance £ 0,1 Ω	≤ 0.1 Ω, see below	**P**
	Test current (A) .....:	***See page 4 of test result.***	¾

2.6	Primary power isolation		**P**
2.6.1	Disconnect device	Appliance inlet	**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 .....:	English	¾
2.6.11	Disconnection of group of units	Interconnection to other device by secondary output cable only.	**P**
2.6.12	Marking at each disconnect device	Only one supply connection provided.	**N**

National Deviation			
Clause	**Requirement Test**	**Result - Remark**	**Verdict**

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.	**P**
2.7.2	Protection against faults not covered in 5.4	The protection devices are well dimensioned and mounted.	**P**
2.7.3	Adequate breaking capacity .....:	Plugable equipment type A, the building installation is considered as providing short circuit protection.	**P**
2.7.4	Number and location .....:	Overcurrent protection by one built-in fuse in approved power supply.	**P**
2.7.5	Protection by several devices		**N**
2.7.6	Warning to service personnel	With reversible plug to the mains, hazardous voltage may be still presented 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 marking are required	**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 intent 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**

National Deviation			
Clause	**Requirement Test**	**Result - Remark**	**Verdict**
2.8.7	Protection against overstress		N

2.9	Clearances, creepage distances and distances through insulation *Power supply is TUV or LVD approved, is considered*		P
	Nominal voltage (V) .....:	AC 230V	¾
2.9.2	Clearances		P
2.9.3	Creepage distances		P
	CTI tests .....:	CTI rating for all materials of min. 100.	¾
2.9.4	Distances through insulation		P
2.9.5	Distances (mm) on coated printed boards .....:	No coated printed wiring boards.	N
2.9.6	Internal creepage distances in hermetically sealed components	No hermetically sealed components	N
2.9.7	Internal distances in potted components	Photo coupler is approved component. Other components not applied for.	P
2.9.8	Spacings between external terminations of components		P

2.10	Connection to other equipment		P
2.10.1	Connection of SELV and TNV circuits .....:	These power supply are not considered for connection to TNV.	N
2.10.2	Type of interconnection circuits .....:	Interconnection circuits of SELV through sec o/p cable. 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 .....:	Supply from the mains. The testing whether the o/p complies with the requirements of the limited power source should be conducted with the approval of the end system.	N

National Deviation			
Clause	**Requirement Test**	**Result - Remark**	**Verdict**

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 ℃, 300V. Internal wiring gauge is suitable for current intended to be carried. (see appended table 5.1)	**P**
3.1.2	Wireways	Wires do not touch sharp edges and heat sinks 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	The insulation of the individual conductors are suitable for the application and the working voltage. For the insulation materials see 3.1.1.	**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	Grounding terminal screw engages at least two complete threads.	**P**
3.1.9	Reliable electrical connections	All current carrying and safety earthing connections are metal to metal.	**P**
3.1.10	End of stranded conductor	No risk of stranded conductors coming loose.	**P**
3.1.11	Use of spaced thread screws/thread-cutting screws	No self tapping screws are used.	**P**

National Deviation			
Clause	**Requirement Test**	**Result - Remark**	**Verdict**

3.2	Connection to primary power		P
3.2.1	Type of connection .....:	Appliance inlet	P
3.2.2	Provision for permanent connection .....:	see clause 3.2.1	N
3.2.3	Appliance inlet	The appliance inlet complies with IEC60320. Whether the power cord can be inserted without difficulties and should be approved and does not support the unit.	P
3.2.4	Type and cross-sectional area (mm) of power supply cord .....:	No power supply card provided. However, the users manual states how to choose a suitable approved power supply card	N
3.2.5	Cord anchorage *see clause 3.2.1*		N
	Test: 25 times; 1 s; pull (N) .....:		¾
	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) .....:		¾
	Test: mass (g) .....:		¾
	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 *Unit with 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 .....:		¾
	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

National Deviation			
Clause	**Requirement Test**	**Result - Remark**	**Verdict**
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 of a stable mechanical construction and does not overbalance when tilted to an angle of 10° C from its normal upright position. ***See page 5 of test result***	P
	Test: force (N) .....:	Not floor standing	N
4.1.2	Protection against personal injury	No moving parts.	P
4.1.3	Warning and means provided for stopping the moving part .....:	No 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 of 0.4Mpa	N

4.2	Mechanical strength and stress relief		P
4.2.2	Internal enclosures 30 N ± 3 N; 5s	30N applied to the enclosure of the switching power supply. No energy or other hazards.	P
4.2.3	External enclosures 250 N ± 10 N; 5s	250N applied to outer enclosure.. No energy or other hazards. ***See page 3 of test result***	P
4.2.4	Steel ball tests		P
	Fall test	***See page 6 of test result.***	P
	Swing test	Not applicable	N

National Deviation			
Clause	**Requirement Test**	**Result - Remark**	**Verdict**
4.2.5	Drop test	Not applicable	N
4.2.6	Heat test for enclosures of moulded or formed thermoplastic materials: 7 h: T (°C) .....:	Metal enclosure	N
4.2.8	Mechanical strength of cathode ray tubes	Unit does not employ a cathode ray tube	N
4.3	Construction details		P
4.3.1	Changing of setting for different power supply voltages	By Selector switch	P
4.3.2	Adjustment of accessible control devices		P
4.3.4	Prevention of dangerous concentration of dust, powder, liquid and gas	Equipment in intended use not considered to be exposed to these.	N
4.3.5	Fixing of knobs, grips, handles, levers		P
	Test: force (N) .....:		P
4.3.6	Driving belts/couplings shall not ensure electrical insulation	Not used for insulation.	N
4.3.7	Retaining of sleeves	Sleevings on wiring reliable kept in position by cable ties or by the use of heatshrunk sleeving.	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 use.	P
4.3.10	Protection of supplementary and reinforced insulation	Supplementary and reinforced insulation were not likely to be impared by deposition of dust and dirt.	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)	The equipment does not generate ionizing radiation and does not contain any flammable liquids or gases.	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	No provided vent at top side	P
	Dimensions (mm) .....:		¾

National Deviation			
Clause	**Requirement Test**	**Result - Remark**	**Verdict**
4.3.16	Openings in the sides of enclosure		P
	Dimensions (mm) .....:		¾
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		N
	Additional torque (Nm) .....:		N
4.3.19	Protection against excessive pressure	The computer does not contain liquid.	N
4.3.20	Protection of heating elements in Class equipment	No heating elements.	N
4.3.21	Protection of lithium batteries		P
	Construction of protection circuit .....:		P

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. Temperatures see 5.1	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 .....:	Insulating 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 assemblies	N
4.4.4	Enclosures and decorative parts: manufacturer; flammability .....:	Protective metal enclosure with decorative plastic front bezel rated HB or better.	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	P
4.4.6	Fire enclosure construction	See 4.4.5.1.	P

National Deviation			
Clause	**Requirement Test**	**Result - Remark**	**Verdict**
4.4.7	Doors and covers		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 page 7 of test result.***	P
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	¾
	Measured current (mA) .....:	***See page 8 of test result.***	¾
	Max. allowed current (mA) .....:	3.5mA	¾
5.3	Electric strength		P
	Electric strength test	All tests voltages were applied for 1minute in the chamber after the humidity test of 2.3.2 and in warm conditions after the heating test of 5.1. No isolation breakdown was observed ***See page 9 of test result.***	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 prtection turns in cycling mode in which the temp. is kept below the temp. under normal conditions.	N
5.4.3	Transformers	The power supply is TUV	P

National Deviation			
Clause	**Requirement Test**	**Result - Remark**	**Verdict**
		approved, is considered	
5.4.4	Compliance of operational insulation		**P**
	Method used .....:	Short Circuit tests The power supply is TUV approved, is considered	**P**
5.4.5	Electromechanical components in secondary circuits	No electromechanical components.	**N**
5.4.6	Other components and circuits	The power supply is protected by the following means: -Overcurrent fuse -OCP protection for Q1,Q2 Power supply is TUV approved, is considered	**P**
5.4.7	Test in any expected condition and foreseeable misuse	The enclosure openings has been covered completely and the fan has bee locked. No excessive temp. were ovserved. After test the electric strength test was conducted. No isolation break down was noted. ***See page 10,11 of test result.***	**P**
5.4.8	Unattended use of equipment having thermostats, temperature limiters etc.	None of them are used.	**N**
5.4.9	Compliance	No fire propagated beyond the equipment. No molten metal was emitted. Electric strength test primary → SELV was passed.	**P**
5.4.10	Ball-pressure test of thermoplastic parts; impression shall not exceed 2 mm		**P**

6	CONNECTION TO TELECOMMUNICATION NETWORKS		**N**

6.2	TNV circuits and protection against electric shock *Equipment is not considered 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**

National Deviation			
Clause	**Requirement Test**	**Result - Remark**	**Verdict**
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		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 V		N
6.4.2.1 b)	parts and circuitry that can be touched by the test finger; test at 1,5 V		N
6.4.2.1 c)	circuitry which is provided for connection of other equipment; test at 1,5 V		N
6.4.2.2	Electric strength test: separation between telecommunication network conductors		N

National Deviation			
Clause	**Requirement Test**	**Result - Remark**	**Verdict**
	and:		
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 V		N
6.4.2.2 b)	parts and circuitry that can be touched by the test finger; test at 1,0 V		N
6.4.2.2 c)	circuitry which is provided for connection of other equipment; test at 1,0 V		N
6.4.2.3	Compliance criteria		N

A	ANNEX , TESTS FOR RESISTANCE TO HEAT AND FIRE		N
A.1	Flammability test for fire enclosures of moveable equipment having a total mass exceeding 18Kg, and of stationary equipment		N
A.2	Flammability test for fire enclosures of moveable equipment having a total mass not exceeding 18Kg, and for materials located within fire enclosures		N
A	Tested material		N
	Preconditioning: 7 days (168 h); temperature (℃) .....:		¾
	Mounting of samples during test .....:		¾
	Wall thickness .....:		¾
	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 .....:		¾
	Type of tested material .....:		¾
	Additional information .....:		¾

B	ANNEX , MOTOR TESTS UNDER ABNORMAL CONDITIONS *See 5.4.2.*		N
	Position .....:		¾
	Manufacturer .....:		¾
	Type .....:		¾
	Rated voltage (V) or current (A) .....:		¾
B.2	Temperatures	(see appended table 5.4)	N

National Deviation			
Clause	**Requirement Test**	**Result - Remark**	**Verdict**
B.4	Running overload test		N
B.5	Locked-rotor overload test		N
	Test duration (days) .....:		¾
	Electric strength test: test voltage (V) .....:		¾
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) .....:		¾

	ANNEX , TRANSFORMERS The power supply is TUV, UL and LVD approved, is considered		P
	Position .....:		¾
	Manufacturer .....:		¾
	Type .....:.....:		¾
	Rated values .....:		¾
	Temperatures		P
C.1	Overload test		P
	Conventional transformer		N
C.2	Insulation		P
	Precautions .....:	(see transformer construction check next page)	P
	Retaining of end turns of all windings	Dto	P
	Earthing test at 25A	Dto	P
C.3	Electric strength test	(see 5.3)	N

C.2	Safety isolation transformer	P
	Construction details:	
Transformer		

National Deviation			
Clause	**Requirement Test**	**Result - Remark**	**Verdict**

Mfr.:		
Recurring peak voltage		
Required clearance for reinforced insulation (from table 3 and 4)		
Effective voltage rms		
Required creepage for rainforced insulation (from table 6)		
Measured min. creepages		
Location	Inside (mm)	outside (mm)
prim-sec	5.0	>5.0
prim-core	2.5	>2.5
sec-core	2.5	>2.5
prim-prim	%	%
Measured min. clearances		
Location	Inside (mm)	Outside (mm)
prim-sec	4.2	>4.2
prim-core	2.1	>2.1
sec-core	2.1	>2.1
prim-prim	%	%
Construction:		
Pin numbers		
Prim.		
Sec.		
Bobbin		
Material		
Thickness	>0.8mm	
Electric strength test		
With AC 3000V after humidity treatment		

National Deviation			
Clause	**Requirement Test**	**Result - Remark**	**Verdict**

Result	Pass

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])
Enclosure (Steel)	-------	------	Steel	-------	--------
PCB	-------	------	94V-1 or better, min. 105°C	UL94	UL
Power switch	-------	------	Min. 10A, 250V	IEC328	VDE
Floppy Disk Driver Optional	------	------	5V, 1A max.	EN60950	TUV, UL, CSA
Hard Disk Driver Optional Max. provided Four	------	------	5V, 1A max.	EN60950	TUV, UL, CSA
Lithium Battey	-----	------	3V, 0.2A		UL
CD-ROM Optional	-----	------	Max. 5V/1.5A Max. 12V/1.5A	En 60950, EN60825-1	TUV, UL, CSA
DC Fan Three provided	Delta	WFB1212H-F00	12Vdc, 0.36A, 79.5CFM	UL1950	UL
	AVC	F1238B12H	12Vdc, 0.2~0.5A, 65.8CFM~140.74CFM	UL1950	UL
	Adda	AD1212HB-A70GL	12Vdc, 0.37A, 88CFM	UL1950	UL
Poly switch for keyboard & mouse	Raychem	MiniSMDC110	1.1A, 6A	EN60730	TUV
Power supply	Skynwr	ADT-R232	IP=115/230Vac, 50/60Hz, 6/3A OP=5V/20A, +12V/10A, -5V/0.5A, -12V/0.5A	EN60950	TUV

National Deviation			
Clause	**Requirement Test**	**Result - Remark**	**Verdict**

APPENDIX	EN 60950:1992+A1:1993:+A2:1993 + A3:1995 + A4:1997 TEST REPORT (IEC Publication 950 2nd edition, 1991+Amd.1,1992+Amd.2, 1993 + Amd.3, 1995 +Amd. 4, 1997) 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 for Kontorsmaskin".	No applied for	**N**
1.7.00 F	(DE). The following text shall be added to a separate power supply unit: For IEC 950 only".	Not required.	**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: pparatet må Kun tilkoples jordet stikkontakt" or ordet stikkontakt skal benyttes napparatet tilkoples datanett".	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	AC socket outlet is in compliance.	**P**

National Deviation			
Clause	**Requirement Test**	**Result - Remark**	**Verdict**
	Sheet DK 1-3a, DK 1-5a or DK 1-7a when used on appliances of Class I.		
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 power supply adaptor.	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.	Method 1 was	P
2.3.07 C	Replace the text of this sub-clause by: Void.	Replaced	N
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 "	Class I equipment	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	Requirements are considered, see report IEC 950	P

National Deviation			
Clause	**Requirement Test**	**Result - Remark**	**Verdict**
	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.		
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.	Mains voltage as reference voltage	**P**
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 following table:	No power cord	**N**
	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**

National Deviation			
Clause	**Requirement Test**	**Result - Remark**	**Verdict**
	Class of equipment: I, II, III Plug: The Heavy Current Regulations Section, 107-1-D1, Standard Sheet: DK 6-1a, DK 6-1a*), - Plug: The Heavy Current Regulations Section 117 Standard Sheet: II, II*), 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 250V, 10A SEV 6534-2,1991 Plug type 12 L+N+PE 250V, 10A EN 60 309 applies for plugs for currents exceeding 10A	Not applied for	N
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 tandard" 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.	No power supply cord provided	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.	No power supply cord provided	N

National Deviation			
Clause	**Requirement Test**	**Result - Remark**	**Verdict**
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".	No power cord provided	**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 suppressor installed in the telecommunication network: approx. 245V.)	Not applied for	**N**
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.	No TNV	**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**
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.	Building in unit, should be approved with the final system.	**N**