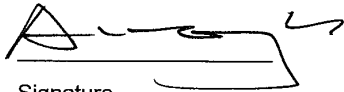





Test Report No.: LD901217L01	
Client	
Name :	ADVANTECH CO., LTD
Address :	No. 1 Alley 20, Lane 26, Rueiguang Road, Neihsu District Taipei 114, Taiwan, R.O.C.
Test Item :	Fire Wall Appliance
Identification :	FWA-2X0 (X can be 0-9, A-Z)
Testing laboratory	
Name :	Advance Data Technology Corporation
Address :	No. 46, Lane 504, Chung Hsiao Road, Lin Kou Hsiang, Taipei, R.O.C.
Test specification	
Standard :	EN 60 950:1992 + A1:1993 + A2:1993 + A3:1995 + A4:1996 + A11: 1997
Test Result :	The test item passed.
Tested By :	
 Signature <u>Angus Hsu</u> Name in block letters	<u>December 24, 2001</u> Date
Approved By:	
 Signature <u>Edward Chiueh</u> Name in block letters	<u>Dec 25, 2001</u> Date
Other Aspects:	
The completed test report includes the following documents:	
■ EN 60950 report (31 pages)	
The test report shall not be reproduced except in full, without written approval of the laboratory. This test report does not entitle to carry any safety mark on this or similar products.	



TEST REPORT	
EN 60950	
Safety of information technology equipment including electrical business equipment	
Report	
Reference No.	LD901016A10
Compiled by (+ signature)	See cover sheet
Approved by (+ signature)	See cover sheet
Date of issue	December 24, 2001
This report is based on a blank test report that was prepared by KEMA using information obtained from the TRF originator (see below).	
Testing laboratory	
Name	Advance Data Technology Corporation
Address	No. 46, Lane 504, Chung Hsiao Road, Lin Kou Hsiang, Taipei, Taiwan.
Testing location	Advance Data Technology Corporation
Address	No. 46, Lane 504, Chung Hsiao Road, Lin Kou Hsiang, Taipei, Taiwan.
Client	
Name	ADVANTECH CO., LTD
Address	No. 1 Alley 20, Lane 26, Rueiguang Road, Neihsu District Taipei 114, Taiwan, R.O.C.
Test specification	
Standard	EN 60 950:1992 + A1:1993 + A2:1993 + A3:1995 + A4:1996 +A11:1997
Test procedure	This Test Report is not valid as a CCA Test Report unless signed by a CCA Testing Laboratory and appended to a CCA Test Certificate.
Procedure deviation	N/A.
Non-standard test method	N/A.
Test Report Form/blank test report	
Test Report Form No.	60950__D/97-08
TRF originator	FIMKO
Master TRF	Reference No. 60950 D, dated 97-02
Copyright reserved to the bodies participating in the Committee of Certification Bodies (CCB) and/or the bodies participating in the CENELEC Certification Agreement (CCA).	
Test item	
Description	FIRE WALL APPLIANCE
Trademark	ADVANTECH
Model and/or type reference	FWA-2X0 (X can be 0-9, A-Z)
Manufacturer	ADVANTECH CO., LTD.
Rating(s)	+ 5 V dc, 6.0 A minimum. (Not required marked on nameplate marking)



Copy of marking plate

Your ePlatform Partner

ADVANTECH

MODEL NO:

- | | |
|----------------------------------|----------------------------------|
| <input type="checkbox"/> FWA-200 | <input type="checkbox"/> FWA-260 |
| <input type="checkbox"/> FWA-210 | <input type="checkbox"/> FWA-270 |
| <input type="checkbox"/> FWA-220 | <input type="checkbox"/> FWA-280 |
| <input type="checkbox"/> FWA-230 | <input type="checkbox"/> FWA-290 |
| <input type="checkbox"/> FWA-240 | |
| <input type="checkbox"/> FWA-250 | |

FCC

This device complies with the requirements in part 15 of the FCC rule: Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

警告使用者

這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

檢磁

**CAUTION !**

To prevent electric shock. Do not remove cover. No user serviceable parts inside. Refer servicing to qualified personnel.

ADVANTECH CO., LTD.
MADE IN TAIWAN

<http://www.advantech.com.tw>

**Particulars: test item vs. test requirements**

Equipment mobility: Moveable
 Operating condition: Continuous
 Tested for IT power systems.....: N/A
 IT testing, phase-phase voltage (V): N/A
 Class of equipment.....: Class III
 Mass of equipment (kg).....: 1.5 Kgs
 Protection against ingress of water.....: IPX0

Test case verdicts

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

Testing

Date of receipt of test item: December 18, 2001
 Date(s) of performance of test.....: December 20, 2001

General remarks

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

Brief description of the test equipment:

- 1) The equipment is a Class III Fire Wall Appliance with external certified power supply
- 2) Dimension: 225 by 170 by 39 mm.
- 4) Maximum operating Temperature: 40°C.

Test condition:

Temperature : 25°C.
 Relative humidity: 60%
 Air pressure: 900 mbar.

The test sample was a pre-production sample without serial number.



EN 60950			
Clause	Requirement + Test	Result - Remark	Verdict
1	GENERAL		P
1.5	Components		P
1.5.1	Comply with IEC 60950 or relevant component standard	Components, which were found to affect safety aspects, are complied with the requirements of this standard or within the safety aspects of the relevant IEC component standards. (see appended table)	P
1.5.2	Evaluation and testing of components	Components which are certified to IEC and/or nation 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)	---	N
1.5.3	Transformers	Class III product, no transformer provided.	N
1.5.4	High voltage components (component; manufacturer; flammability)	No high voltage components used	N
1.5.5	Interconnecting cables	Interconnecting cable for Interconnection is carrying only SELV voltages on an energy level below 240 VA. Except for the insulation material, there is no further requirements to the o/p interconnection cable.	P
1.5.6	Mains capacitors	No X capacitor used.	N



EN 60950			
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 operation with connecting networks and data transferred . Result see appended table.	P
	Current deviation during normal operating cycle	< +10%	P
1.6.2	Voltage limit of hand-held equipment	The appliance equipment is not a hand-held equipment.	N
1.6.3	Neutral conductor insulated from earth and body	Class III product.	N
1.6.4	Components in equipment intended for IT power system	Equipment was not applied for the IT power system.	N
1.6.5	Mains supply tolerance (V)	Documentation specifies one rating 5 V dc, Relevant tests were done with 5 V dc.	N

1.7	Marking and instructions		P
1.7.1	Rated voltage (V)	Not required	N
	Symbol of nature of supply for d.c.	60417-2-IEC-5031	N
	Rated frequency (Hz)	--	N
	Rated current (A)	--	N
	Manufacturer	ADVANTECH CO., LTD.	P
	Trademark	ADVAVTECH	P
	Type/model	FWA-2X0 (X can be 0-9, A-Z)	P
	Symbol of Class II	Class III equipment	N
	Certification marks	CE	P
1.7.2	Safety instructions	The users manual contains information for operation, insulation servicing, transport, storage and technical data. the operation guide is provided to the user.	P
1.7.3	Short duty cycles	Equipment is designed for continuous operation.	N
1.7.4	Marking for voltage setting/frequency setting	No voltage setting.	N
1.7.5	Marking at power outlets	No power outlet.	N
1.7.6	Marking at fuseholders	Class III product, no fuse provided.	N



EN 60950			
Clause	Requirement + Test	Result - Remark	Verdict
1.7.7.1	Protective earthing terminals	Class III product.	N
1.7.7.2	Terminal for external primary power supply conductors	--	N
1.7.8.1	Identification and location of switches and controls :	No safety involve switch used.	N
1.7.8.2	Colours of controls and indicators	No safety involve indicator used..	N
1.7.8.3	Symbols according to IEC 60417	--	N
1.7.8.4	Figures used for marking	No indicators for different position.	N
1.7.8.5	Location of markings and indications for switches and controls	--	N
1.7.9	Isolation of multiple power sources	Class III product.	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	Class III product.	N
1.7.12	Marking when leakage current exceeds 3,5 mA	--	N
1.7.13	Indication at thermostats and regulating devices	No adjustable thermostates.	N
1.7.14	Language of safety markings/instructions	Safety warning test in English. Rating marking in English. Instructions and equipment marking related to safety shall be in a language which is acceptable in the country in which the equipment is to be installed.	P
	Language	English.	--
1.7.15	Durability and legibility	The label was subjected to the test for permanence of marking. The label was rubbed with cloth for 15 sec. And then rubbed by the cloth soaked with Naphtha for 15 sec. After this test there was no damage to the label. The marking on the label did not fade. There was no curling nor lifting on the label edge.	P
1.7.16	Removable parts	No removable parts	N



EN 60950			
Clause	Requirement + Test	Result - Remark	Verdict
1.7.17	Warning text for replaceable lithium batteries	Provided warning text as the following, close to the battery or in the service instructions.	P
	Language	---	---
1.7.18	Operator access with a tool	No operator access area with tool.	N
1.7.19	Equipment for restricted access locations	No restricted access location.	N

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

2.1	Protection against electric shock and energy hazards		P
2.1.1	Access to energized parts	No operator access to energized parts	N
2.1.2	Protection in operator access areas	Class III product (Supplied by SELV).	P
	Test by inspection	--	N
	Test with test finger	—	N
	Test with test pin	--	N
2.1.3.1	Insulation of internal wiring in an ELV circuit accessible to operator	No ELV wiring in operator accessible area.	N
	Working voltage (V); distance (mm) through insulation	—	N
2.1.3.2	Operator accessible insulation of internal wiring at hazardous voltage	No hazardous voltage wiring in operator accessible area.	N
2.1.4.1	Protection in service access areas	No maintenance work in operation mode is necessary.	N
2.1.4.2	Protection in restricted access locations	Not intended to be used in restricted access location.	N
2.1.5	Energy hazard in operator access area	No energy hazard in operator area	N
2.1.6	Clearances behind conductive enclosures	Supplied by SELV, no clearance needed	N
2.1.7	Shafts of manual controls	None at ELV or hazardous voltage	N
2.1.8	Isolation of manual controls	None at ELV or hazardous voltage	N



EN 60950			
Clause	Requirement + Test	Result - Remark	Verdict
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.	N
2.1.10	Risk of electric shock from stored charge on capacitors connected to mains circuit	Already evaluated on certified power supply	N

2.2	Insulation		N
2.2.1	Methods of insulation	Class III product (Supplied by SELV), no insulation needed.	N
2.2.2	Properties of insulating materials	--	N
2.2.3	Humidity treatment	--	N
	Humidity (%)	--	--
	Temperature (°C)	--	--
2.2.4	Requirements for insulation	--	N
2.2.5	Insulation parameters	--	N
2.2.6	Categories of insulation	--	N
2.2.7.1	General rules for working voltages	--	N
2.2.7.2	Clearances in primary circuits	--	N
2.2.7.3	Clearances in secondary circuits	--	N
2.2.7.4	Creepage distances	--	N
2.2.7.5	Electric strength tests	--	N
2.2.8.1	Bridging capacitors	--	N
2.2.8.2	Bridging resistors	--	N
2.2.8.3	Accessible parts	--	N

2.3	Safety extra-low voltage (SELV) circuits		P
2.3.1	Voltage (V) of SELV circuits under normal operating conditions and after a single fault	42.4V peak or 60 VDC are not exceeded in SELV circuit under normal operation or single fault condition.	--
2.3.2	Voltage (V) between any two conductors of SELV circuit(s) and for Class equipment between any conductor of SELV circuit and equipment protective earthing terminal under normal operating conditions	Only SELV circuit is accessible to the user. Between SELV circuits 42.4V peak or 60V DC are not exceeded.	P



EN 60950			
Clause	Requirement + Test	Result - Remark	Verdict
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 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 result 5.4.6 and 6.2.1.3	—
	Method used for separation	Supplied by SELV circuit	--
2.3.4	Additional constructional requirements	IEC 60083 and IEC 60320 connectors are not used in SELV circuits.	N
2.3.5	Connection of SELV circuits to other circuits	See 2.3.2 and 2.3.3. No direct connection between SELV and any primary circuit.	P
2.3.8	Construction of SELV circuits	---	---
2.3.9	SELV circuits connected to other circuits	---	---

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

2.5	Provisions for earthing:		N
2.5.1	Class I equipment	Class III product.	N
	Warning label for service personnel	--	N
2.5.2	Protective earthing in Class II equipment	--	N
2.5.3	Switches/fuses in earthing conductors	--	N
2.5.4	Assured earthing connection for Class equipment in systems comprising Class I and Class II equipment	Class III product	N



EN 60950			
Clause	Requirement + Test	Result - Remark	Verdict
2.5.5	Green/yellow insulation	--	N
2.5.6	Continuity of earth connections	--	N
2.5.7	Making and breaking of protective earthing connections	--	N
2.5.8	Disconnection protective earthing connections	--	N
2.5.9	Protective earthing terminals for fixed supply conductors or for non-detachable power supply cords	--	N
2.5.10	Corrosion resistance	--	N
2.5.11	Resistance (Ω) of protective earthing conductors $\leq 0,1 \Omega$	--	N
	Test current (A)	--	

2.6	Disconnection from primary power:		N
2.6.1	General requirements	--	N
2.6.2	Type of disconnect device	--	N
2.6.3	Disconnect device in permanently connected equipment	--	N
2.6.4	Parts of disconnect device which remain energized	--	N
2.6.5	Switches in flexible cords	--	N
2.6.6	Disconnection of both poles simultaneously in single-phase equipment	--	N
2.6.7	Disconnection of all phase conductors of supply in three-phase equipment	--	N
2.6.8	Marking of switch acting as disconnect device	--	N
2.6.9	Installation instructions if plug on power supply cord acts as disconnect device	--	N
	Language	--	
2.6.11	Interconnected equipment	--	N
2.6.12	Multiple power sources	--	N

2.7	Overcurrent and earth fault protection in primary circuits:		N
2.7.1	Basic requirements	--	N
2.7.2	Protection against faults not covered in 5.4	---	N
2.7.3	Short-circuit backup protection	--	N
2.7.4	Number and location of protective devices	--	N



EN 60950			
Clause	Requirement + Test	Result - Remark	Verdict
2.7.5	Protection by several devices	--	N
2.7.6	Warning to service personnel	--	N

2.8	Safety interlocks: 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	Overriding an interlock	---	N
2.8.6.1	Contact gap (mm)	---	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:		N
	Nominal voltage (V)	--	---
	General		N
2.9.2	Clearances	--	N
2.9.2.1	Clearances in primary circuits	--	N
2.9.2.2	Clearances in secondary circuits	--	N
2.9.3	Creepage distances	--	N
	CTI tests	--	---
2.9.4.1	Minimum distances through insulation	--	N
2.9.4.2	Thin sheet material	--	N
	Number of layers (pcs)	--	N
	Electrical strength test: test voltage (V)	--	N
2.9.4.3	Printed boards	--	N
	Distance through insulation	--	N
	Electric strength test at voltage for thin sheet insulating material	--	N
	Number of layers (pcs)	--	N
2.9.4.4	Wound components without interleaved insulation	--	N
	Number of layers (pcs)	--	N



EN 60950			
Clause	Requirement + Test	Result - Remark	Verdict
	Two wires in contact inside component; angle between 45° and 90°	--	N
	Routine testing for finished component	---	N
2.9.5	Distances on coated printed boards	-	N
	Routine testing for electric strength	---	N
2.9.6	Enclosed and sealed parts	--	N
	Temperature T1 (°C)	--	N
	Humidity %	--	N
2.9.7	Spacings filled by insulating compound	--	N
	Temperature T1 (°C)	--	N
	Humidity %	--	N
2.9.8	Component external terminations	--	N
2.9.9	Insulation with varying dimensions	--	N
2.10	Interconnection of equipment		P
2.10.1	General requirements	Only interconnection circuit of SELV through the connector, no ELV interconnection circuit.	P
2.10.2	Type of interconnection circuits	---	N
2.10.3	ELV circuits as interconnection circuits	---	N
2.11	Limited power source:		N
	Use of limited power source	Not applied for.	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 with PVC insulation, rated VW-1, min. 80 °C , 300 V. The cross sectional area of the internal wiring is suitable for its rated current.	P
	Protection of internal wiring and interconnecting cables	No internal wire for primary power distribution.	N



EN 60950			
Clause	Requirement + Test	Result - Remark	Verdict
3.1.2	Wire-ways	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	The insulation of the individual conductors are suitable for the application and the working voltage. For the insulation material see 3.1.1.	P
3.1.6	Wires coloured green/yellow only for protective earth connection	Class III product.	N
3.1.7	Fixing of beads and similar ceramic insulators	Not used.	N
3.1.8	Required electrical contact pressure	Electrical screw connection is not used.	N
3.1.9	Reliable electrical connections	No contact pressure through insulating material.	N
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 for electrical connection.	N
3.2	Connection to primary power:		P
3.2.1	Type of connection	Certified external power supply used.	P
	Design of product with more than one supply connection	Only one supply connection.	N
3.2.2	Provision for permanent connection	Not permanent connected equipment.	N
	Size (mm) of cables and conduits		N
3.2.3	Appliance inlet	—	N
3.2.4	Type and cross-sectional area (mm ²) of power supply cord	—	N
3.2.5	Cord anchorage		N



EN 60950			
Clause	Requirement + Test	Result - Remark	Verdict
	Test: 25 Times; 1 s; pull (N)	--	—
	Longitudinal displacement ≤ 2 m	--	N
3.2.6	Protection of power supply cord	--	N
3.2.7	Cord guard		N
	D (mm)	--	—
	Test: mass (g)	--	—
	Radius of curvature of the cord $\leq 1,5$	--	N
3.2.8	Supply wiring space	--	N

3.3	Wiring terminals for external power supply conductors		N
3.3.1	Terminals	No external power supply conductors.	N
3.3.2	Special non-detachable cord		N
	Type of connection	--	—
	Pull test at 5	--	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 m 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 degrees from its normal upright position.	P
	Test: force (N)	Not floor standing.	N
4.1.2	Protection against personal injury	No moving parts.	N



EN 60950			
Clause	Requirement + Test	Result - Remark	Verdict
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
4.2.1	General	See below.	P
4.2.2	Internal enclosures 30 N \pm 3 N; 5 s	No internal enclosure.	N
4.2.3	External enclosures 250 N \pm 10 N; 5 s	--	N
4.2.4	Steel ball tests		N
	Fall test	--	N
	Swing test	--	N
4.2.5	Drop test	Not hand-held.	N
4.2.6	Heat test for enclosures of molded or formed thermoplastic materials: 7h; T (°C)	Metal enclosure used.	N
4.2.7	Compliance criteria	No safety relevant damages.	P
4.2.8	Mechanical strength of cathode ray tubes	--	N
4.3	Construction details		P
4.3.1	Changing of setting for different power supply voltages	Class III product.	N
4.3.2	Adjustment of accessible control devices	None that would cause hazard.	N
4.3.4	Prevention of dangerous concentration of dust, powder, liquid and gas	Equipment in intended use not considered to be exposed to these.	N
4.3.5	Fixing of knobs, grips, handles, levers		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	Sleevings on wiring reliable kept in position by cable ties or by the use of heatshrunk sleeving.	P



EN 60950			
Clause	Requirement + Test	Result - Remark	Verdict
4.3.9	Protection of loosening parts	Electrical and mechanical connections can be expected to withstand usual mechanical stress. For the protection, solder pins, cable ties and heatshrink tubing are used.	P
4.3.11	Resistance to oil and grease	Insulation not in contact with oil or grease.	N
4.3.12	Protection against harmful concentration of ionizing radiation, ultraviolet light, laser or flammable gases (for laser see IEC 60825-1)	---	N
4.3.13	Securing of screwed connections	No connection likely to be exposed to mechanical stress are provided in unit.	N
4.3.15	Openings in the top of enclosure	No opening provided on top of enclosure.	N
	Dimensions (mm)	---	---
4.3.16	Openings in the sides of enclosure	Provided numerous openings, see below.	P
	Dimensions (mm)	Side ventilation openings: Covered three areas on right sides, overall 31 by 30, 31 by 30 and 42.5 by 18 mm, opening 4.1 mm diameter maximum each. Covered one area on left side, overall 92 by 18.5 mm, opening 2.3 mm diameter maximum each. Rear ventilation openings: Covered one area, overall 154 by 28 mm, opening 4.1 mm diameter maximum each.	---
4.3.17	Interchangeable plugs and sockets	--	N
4.3.18	Torque test for direct plug-in equipment:		N
	Additional torque (Nm)	--	N
4.3.19	Protection against excessive pressure	The monitor 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		N



EN 60950			
Clause	Requirement + Test	Result - Remark	Verdict
	Construction of protection circuit	A diode series connection with 1 K Ω resistor.	P
4.3.22	Ageing of barrier/screen secured with adhesive		N
	Day 1: temperature (°C); time (weeks)	---	N
	Day 8/22/57: a) temperature (°C) for 1 b) temperature (°C) for 4 c) temperature (°C) over 8	---	N
	Day 9/23/58: a) relative humidity (%) for 72 b) temperature (°C) for 1 c) temperature (°C) for 4 d) temperature (°C) over 8	---	N
4.4	Resistance to fire		P
4.4.1	Methods of achieving resistance to fire	Use of materials with the required flammability classes.	P
4.4.2	Minimizing the risk of ignition	Electrical parts are not likely to ignite nearby materials. Parts not protected against overheating under fault conditions. Temperature see 5.1	P
	Printed board: manufacturer; type; flammability	See 1.5.1 appended table	P
4.4.3	Flammability of materials and components	See below	P
4.4.3.2	Material and component: manufacturer; type; flammability	Internal components except small parts are V-2, HF-2 or better.	P
4.4.3.3	Exemptions	Considered.	P
4.4.3.4	Wiring harnesses: manufacturer; flammability	Insulation 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; type; flammability	See appended table 1.5.1	P



EN 60950			
Clause	Requirement + Test	Result - Remark	Verdict
4.4.5	Conditions for fire enclosures	With having the following components: -components with windings -wiring -semiconductor devices, transistors, diodes, integrated circuits. -resistors, capacitors, inductors. - The fire enclosure is required.	P
4.4.5.1	Components requiring fire enclosure: manufacturer; flammability	See 4.4.5	P
4.4.5.2	Components not requiring fire enclosure	See 4.4.5.	P
4.4.6	Fire enclosure construction	See 4.4.5 The bottom enclosure material is metal. No bottom ventilation openings:	P
4.4.7	Doors or covers in fire enclosures	No door or cover.	N
4.4.8	Flammable liquids	No flammable liquids in this unit.	N
5	THERMAL AND ELECTRICAL REQUIREMENTS		P
5.1	Heating		P
	Heating tests	(see appended table)	P
5.2	Earth leakage current		N
5.2.1	General	Class III product	N
5.2.2	Leakage current	--	N
	Test voltage (V)	--	---
	Measured current (mA)	--	---
	Max. allowed current (mA)	--	---
5.2.3	Single-phase equipment	See 5.2.2	P
	Test voltage (V)	--	---
	Measured current (mA)	--	---
	Max. allowed current (mA)	--	---
5.2.4	Three-phase equipment	Single phase equipment.	N
	Test voltage (V)	--	---



EN 60950			
Clause	Requirement + Test	Result - Remark	Verdict
	Measured current (mA)	--	—
	Max. allowed current (mA)	--	—
5.2.5	Equipment with earth leakage current exceeding 3,5 mA	Class III product	N
	Test voltage (V)	--	—
	Measured current (mA)	--	—
	Max. allowed current (mA)	--	—
	Cross-sectional area (mm ²) of internal protective earthing conductor	--	—
	Warning label	--	N
5.3	Electric strength		N
5.3.1	General	--	N
5.3.2	Test procedure	--	N
5.4	Abnormal operating and fault conditions		N
5.4.2	Motors	--	N
5.4.3	Transformers	--	N
5.4.4	Compliance of operational insulation:		N
	Method used	Certified power supply used	--
5.4.5	Electromechanical components in secondary circuits	No electromechanical components.	N
5.4.6	Other components and circuits	--	N
5.4.7	Test in any expected condition and foreseeable misuse	--	N
5.4.8	Unattended use of equipment having thermostats, temperature limiters etc.	--	N
5.4.9	Compliance	--	N
5.4.10	Ball-pressure test of thermoplastic parts; impression shall not exceed 2 mm	--	N
6	CONNECTION TO TELECOMMUNICATION NETWORKS		N
6.1	General		N
6.2	TNV circuits		N
6.2.1.1	Limits of the TNV circuits	---	N
6.2.1.1 a)	TNV-1 circuits	---	N
6.2.1.1 b)	TNV-2 and TNV-3 circuits	---	N



EN 60950			
Clause	Requirement + Test	Result - Remark	Verdict
6.2.1.2	Separation from other circuits and from accessible parts	---	N
	Voltage (V) in SELV circuits, TNV-1 circuits and accessible conductive parts in event of single insulation fault or component failure	---	N
6.2.1.3	Operating voltages generated externally	---	N
	Voltage (V) in SELV circuit, TNV-1 circuit or accessible conductive part	---	---
6.2.1.4	Separation from hazardous voltages	---	N
	Insulation between TNV circuit and circuit at hazardous voltage	---	---
	Method used	---	---
6.2.1.5	Connection of TNV circuits to other circuits	---	N
	Insulation (mm) between TNV circuit supplied conductively from secondary circuit and hazardous voltage circuit	---	---
6.2.2.1	Protection against contact with bare conductive parts of TNV-2 and TNV-3 circuits	---	N
	Test with test finger	---	---
	Test with test probe	---	---
6.2.2.2	Battery compartments	---	N
	Marking next to door/on door	---	---
6.3	Protection of telecommunication network service personnel, and users of other equipment connected to the telecommunication network, from hazards in the equipment		N
6.3.1	Protection from hazardous voltages	---	N
6.3.2	Use of protective earthing		N
	Language of installation instructions	---	---
6.3.3.1	Insulation between TNV circuit and parts or circuitry that may be earthed	---	N
6.3.3.2	Exclusions	---	N
6.3.4.1	Limitation of leakage current (mA) to telecommunication network	---	N
6.3.4.2	Summation of leakage currents from telecommunication network	---	N
6.4	Protection of equipment users from voltages on the telecommunication networks		N
6.4.1	Separation requirements	---	N



EN 60950			
Clause	Requirement + Test	Result - Remark	Verdict
6.4.2	Test procedure	---	N
6.4.2.1	Impulse test: separation between TNV-1 circuits/TNV-3 circuits and:		N
6.4.2.1 a)	unearthed conductive parts/non-conductive parts of the equipment expected to be 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 except contacts of connectors that cannot be touched by test probe; 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 TNV-1 circuits/TNV-3 circuits and:		N
6.4.2.2 a)	unearthed conductive parts/non-conductive parts of the equipment expected to be 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 except contacts of connectors that cannot be touched by test probe; 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
6.5	Protection of telecommunication wiring system from overheating		N
	Maximum continuous output current (A)	---	---



EN 60950			
Clause	Requirement + Test	Result - Remark	Verdict

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

B	ANNEX , MOTOR TESTS UNDER ABNORMAL CONDITIONS		N
B.1	General requirements	---	N
	Position	---	---
	Manufacturer	---	---
	Type	---	---
	Rated voltage (V) or current (A)	---	---
B.2	Test conditions	---	N



EN 60950			
Clause	Requirement + Test	Result - Remark	Verdict
B.3	Maximum 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 capacitors	---	N
B.9	Test for three-phase motors	---	N
B.10	Test for series motors	---	N
	Test voltage (V)	---	---
C	ANNEX , TRANSFORMERS		N
	Position	---	---
	Manufacturer	---	---
	Type	---	---
	Rated values	---	---
	Temperatures	---	N
	Thermal cut-out	---	N
C.1	Overload test	---	N
	Conventional transformer	---	N
C.2	Insulation		N
	Precautions	---	N
	Retaining of end turns of all windings	Dto	N
	Earthing test at 25 A	---	N
C.3	Electric strength test	Certified external power supply used.	N
C.2	Safety isolation transformer (Located on approved power supply)		N
	Construction details: Certified power supply used (UMEC, Model UP03010E-05P. Power Add, Model PPS50A-10 (71B)).		
	Manufacturer	---	



EN 60950			
Clause	Requirement + Test	Result - Remark	Verdict

	Type	--	
	Recurring peak value	--	
	Required clearance for reinforced insulation	--	
	Effective voltage rms	--	
	Required creepage for reinforced insulation	--	
	Measured min. creepage	--	
	Location		
	Primary-Secondary	--	
	Primary-Core	--	
	Secondary-Core	--	
	Construction:		
	Pin numbers	--	
	Primary	--	
	Secondary	--	
	Bobbin material	--	
	Thickness	--	
	Electrical strength test With AC 3000V after humidity treatment	--	

H	ANNEX H , IONIZING RADIATION		N
	Ionizing radiation		N
	Measured radiation	---	---
	Measured high-voltage (kV)	---	---
	CRT markings	---	---
	Certified by	---	---
	Standard used	---	---
U	ANNEX , INSULATED WINDING WIRES FOR USE AS MULTIPLE LAYER INSULATION		N
	See separate test report	---	N



EN 60950			
Clause	Requirement + Test	Result - Remark	Verdict

1.5.1	TABLE: list of critical components					P
object/part No.	manufacturer/ trademark	type/model	technical data	Standard	mark(s) of conformity ¹⁾	
1. Power Plug	Various	Various	250 V, 10 A	VDE0620 IEC60320	VDE	
2. Power Cable	Various	H05VV-F	3G 0.75m mm ²	VDE 0281	VDE	
3. Power Connector	Various	Various	250 V, 10 A	VDE0620 IEC60320	VDE	
4. Power Supply	UMEC	UP0301E-05P	Input: 100-240 V ~, 47-63 Hz, 0.7 A. Output: +5 Vdc/6 A.	EN60950	UL, TUV, CSA	
5. Power Supply	Power Add	PPS50A-10(71B)	Input: 100-240 V ~, 47-63 Hz, 2.0 A. Output: +5 Vdc/8 A.	EN60950	UL, TUV	
6. PCB	Various	Various	V-1 min. 105°C	UL94	UL	
7. Enclosure Material	---	Metal	1.0 mm thick minimum.	---	---	
8. DC Fans	Delta	AFB03505HA	5 V dc, 0.21 A,	EN60950	UL, CSA, VDE	
9. Hard Disk	Various	Various	5V dc, 0.5 A maximum.	EN60950	UL, TUV	
10 LI-Ion Battery	Toshiba	CR2032	3 V dc	--	UL	



EN 60950			
Clause	Requirement + Test	Result - Remark	Verdict

1.6	TABLE: electrical data (in normal conditions)					P
fuse #	Irated (A)	U (V)	P (W)	I (A)	Ifuse (A)	condition/status
F1	6.0	5.0	21.0	4.2	4.2	Maximum Normal Load

5.1	TABLE: temperature rise measurements		P
	test voltage (V)	5 V dc max. normal load/ fan 1 locked / fan 2 locked / ventilation openings blocked.	—
	t1 (°C)	---	—
	t2 (°C)	---	—
Temperature rise dT of part/at:		dT (K)	Required dT (K)
Room Ambient		22°C/24°C/23°C/24°C	--
Q2 body		17/18/19/37	65
Coil 3 body		16/22/21/38	65
U17 body		12/16/16/33	65
U26 body		15/20/18/38	65
U16 body		35/40/38/55	65
U13 body		14/19/16/38	65
HDD body		9/13/11/29	—
RTC battery body		9/13/13/33	65
Enclosure inside near top of U16		4/5/5/19	--
Enclosure outside near top of U16		3/4/4/16	45
Comments:			
The temperatures were measured by thermal couple (type T) method under worst case normal mode as described in 1.6.1 at voltage described in 1.6.5. The worst case normal mode is defined with max. ambient temperature specified as 40°C, therefore, the maximum temperature rise is calculated as follows:			
Winding components:			
1. PWB: dTmax = 105K-40K = 65K			
2. Coil: dTmax = 105K-40K = 65K			



EN 60950			
Clause	Requirement + Test	Result - Remark	Verdict

5.4	TABLE: fault condition tests						
	ambient temperature (°C)					25 °C, if no else specified	--
	model/type of power supply					UMEC/UP0301E-05P	--
	manufacturer of power supply					Power Add/PPS50A-10 (71B)	--
	rated markings of power supply					See table 1.5.1	--
No.	component No.	fault	test voltage (V)	test time	fuse No.	fuse current (A)	result
01	Ventilation openings	Blocked	5 V dc	3.0 hrs	--	--	Temperature of coil 3 = 62 °C no hazard.
02	Fan 1	Locked	5 V dc	2.0 hrs	--	--	Temperature of coil 3 = 44 °C no hazard.
03	Fan 2	Locked	5 V dc	2.0 hrs	--	--	Temperature of coil 3 = 46 °C no hazard.
06	Diode BAT54C	Short	5 V dc	1 sec	--	--	Abnormal reversed charge current 3.01 mA < 10 mA.
07	R377	Short	5 V dc	1 sec	--	--	Abnormal reversed charge current 0.0 mA.



EN 60950			
Clause	Requirement + Test	Result - Remark	Verdict

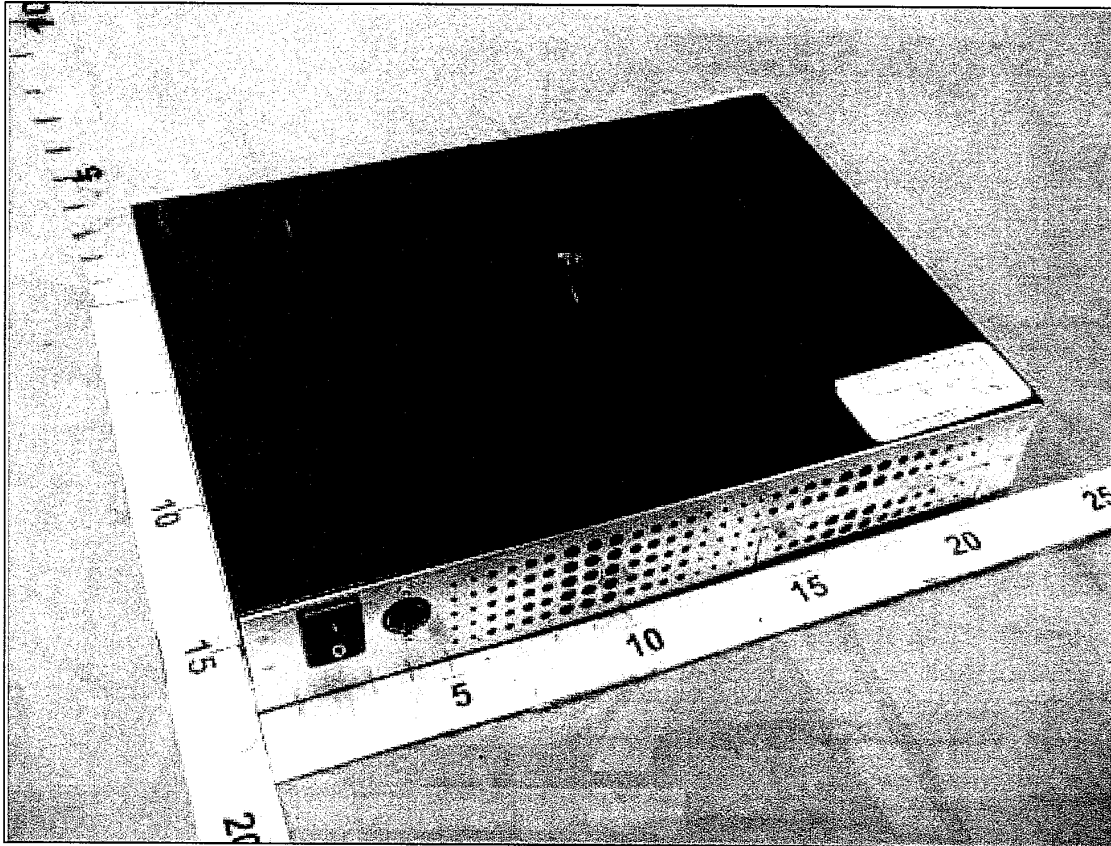
Appendix Photos – Front Enclosure





EN 60950			
Clause	Requirement + Test	Result - Remark	Verdict

Appendix Photos – Rear Enclosure





EN 60950			
Clause	Requirement + Test	Result - Remark	Verdict

Appendix Photos – Interior construction

