



<b>TEST REPORT</b> <b>EN 60950</b> <b>Safety of information technology equipment including electrical business equipment</b>	
Report Reference No. ....	: 8112306967
Compiled by (+ signature) .....	: MICHAEL TERMAN
Approved by (+ signature) .....	: ELI VAKNIN
Date of issue .....	: 4/07/2001
Contents .....	: 43 pages
This report is based on a blank test report that was prepared by KEMA using information obtained from the TRF originator (see below).	
Testing laboratory .....	: The Standards Institution of Israel
Address .....	: 42 Chaim Levanon St., Tel Aviv 69977, Israel
Testing location .....	: as above
Client:	
Name .....	: Synel Industries Ltd.
Address .....	: Yokneam Industrial Park, 2 Hamada St., POB 142, Yokneam 20692, Israel
Test specification	
Standard .....	: EN 60950:1992 + A1:1993 + A2:1993 + A3:1995 + A4:1997 + A11:1997
Test procedure .....	: N.A.
Procedure deviation .....	: N.A.
Non-standard test method .....	: N.A.
Test Report Form/blank test report	
Test Report Form No. ....	: I950__D/97-06
TRF originator. ....	: FIMKO
Master TRF .....	: reference No. I950 D, dated 97-02
Copyright reserved to the bodies participating in the Committee of Certification Bodies (CCB) and/or the bodies participating in the CENELEC Certification Agreement (CCA).	
Test item	
Description .....	: Local Access Controller
Trademark .....	: SYNEL
Model and/or type reference .....	: Access III
Manufacturer .....	: Synel Industries Ltd.
Rating(s) .....	: 12 Vdc, 1 A



Copy of marking plate





Particulars: test item vs. test requirements	
Equipment mobility .....	: Fixed
Operating condition .....	: Continuous
Tested for IT power systems.....: No	
IT testing, phase-phase voltage (V) .....	: --
Class of equipment .....	: Class III
Mass of equipment (kg) .....	: < 18 kg
Protection against ingress of water .....	: --
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)
"(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.	
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.	
<b><u>General remarks:</u></b>	
The equipment is intended to be supplied by an external SELV limited power source.	
All tests were performed on the Access III loaded with 2 Reader Units: PRX3 and PRX 40.	
<b><u>Attachment:</u></b>	
Appendix 1 – Schematic Diagrams (2 pages)	



EN 60950			
Clause	Requirement – Test	Result	Verdict

1	GENERAL		P
1.5	Components		P
1.5.1	Comply with IEC 950 or relevant component standard	Safety critical components comply with the relevant IEC standard (see appended table)	P
1.5.2	Evaluation and testing of components	Correct application	P
	Dimensions (mm) of mains plug for direct plug-in :	The equipment is not intended to be supported by pins in the wall socket-outlet	N
	Torque and pull test of mains plug for direct plug-in; torque (Nm); pull (N)		N
1.5.3	Transformers	No transformers	N
1.5.4	High voltage components (component; manufacturer; flammability) .....	No high voltage components	N
1.5.5	Interconnecting cables		N
1.5.6	Mains capacitors		N



EN 60950			
Clause	Requirement – Test	Result	Verdict

1.6	Power interface		P
1.6.1	Steady state input current	See appended table 1.6	P
	Current deviation during normal operating cycle		N
1.6.2	Voltage limit of hand-held equipment		N
1.6.3	Neutral conductor insulated from earth and body	Not intended to be connected to the mains	N
1.6.4	Components in equipment intended for IT power system	Not intended to be connected to the mains	N
1.6.5	Main supply tolerance (V) .....	12Vdc +/-10%	P



EN 60950			
Clause	Requirement – Test	Result	Verdict
1.7	Marking and instructions		P
1.7.1	Rated voltage (V) .....	12 Vdc	P
	Symbol of nature of supply for d.c. ....		P
	Rated frequency (Hz) .....		N
	Rated current (A) .....	1 A	P
	Manufacturer .....	Synel Industries Ltd.	P
	Trademark .....	Synel	P
	Type/model .....	Access III	P
	Symbol of Class II .....	The equipment is Class III	N
	Certification marks .....		N
1.7.2	Safety instructions	See Installation Manual	P
1.7.3	Short duty cycles	Continuous operation	N
1.7.4	Marking for voltage setting/frequency setting .....		N
1.7.5	Marking at power outlets .....	No power outlets	N
1.7.6	Marking at fuseholders .....	No fuses	N
1.7.7.1	Protective earthing terminals		N
1.7.7.2	Terminal for external primary power supply conductors	No terminals are provided	N
1.7.8.1	Identification and location of switches and controls .....	No safety related switches or controls	N
1.7.8.2	Colours of controls and indicators .....		N
1.7.8.3	Symbols according to IEC 417 .....		N
1.7.8.4	Figures used for marking .....		N
1.7.8.5	Location of markings and indications for switches and controls .....		N
1.7.9	Isolation of multiple power sources .....	Single connection to the power source	N



EN 60950			
Clause	Requirement – Test	Result	Verdict
1.7.10	Instructions for installation to IT power system		N
1.7.11	Instructions when protection relies on building installation		N
1.7.12	Marking when leakage current exceeds 3,5 mA		N
1.7.13	Indication at thermostats and regulating devices	No thermostats	N
1.7.14	Language of safety markings/instructions		P
	Language ..... : English		--
1.7.15	Durability and legibility		P
1.7.16	Removable parts	The marking is not placed on the removable parts	P
1.7.17	Warning text for replaceable lithium batteries	No lithium batteries provided	N
	Language ..... :		--
1.7.18	Operator access with a tool ..... :	Operator access area does not require a tool to gain access	P
1.7.19	Equipment for restricted access locations ..... :		N



EN 60950			
Clause	Requirement – Test	Result	Verdict
2	PROTECTION FROM HAZARDS		P
2.1	Protection against electric shock and energy hazards		P
2.1.1	Access to energized parts	Operator access only to the SELV circuits and earthed parts	P
2.1.2	Protection in operator access areas		P
	Test by inspection .....	No ELV, or HAZ/V circuits accessible to the operator	P
	Test with test finger .....	No ELV, or HAZ/V circuits accessible to the operator	P
	Test with test pin .....	No ELV, or HAZ/V circuits accessible to the operator	P
2.1.3.1	Insulation of internal wiring in an ELV circuit accessible to operator	No ELV circuits are provided	N
	Working voltage (V); distance (mm) through insulation .....		N
2.1.3.2	Operator accessible insulation of internal wiring at hazardous voltage	No wiring at hazardous voltage	N
2.1.4.1	Protection in service access areas	Unintentional contact during service operations is unlikely	P
2.1.4.2	Protection in restricted access locations		N
2.1.5	Energy hazard in operator access area	No energy hazard in operator access area	P
2.1.6	Clearances behind conductive enclosures		P
2.1.7	Shafts of manual controls	No ELV or hazardous voltage parts provided	N
2.1.8	Isolation of manual controls	No hazardous voltage parts provided	N
2.1.9	Conductive casings of capacitors	No such capacitors	N
2.1.10	Risk of electric shock from stored charge on capacitors connected to mains circuit	Class III equipment	N
	Time-constant (s); measured voltage (V) .....		--



EN 60950			
Clause	Requirement – Test	Result	Verdict

2.2	Insulation		P
2.2.1	Methods of insulation	The equipment meets the requirements for clearance and creepage	P
2.2.2	Properties of insulating materials	No hygroscopic materials or natural rubber are used as insulation	P
2.2.3	Humidity treatment		P
	Humidity (%) .....	97	--
	Temperature (°C) .....	23	--
2.2.4	Requirements for insulation	(see appended table 2.9, 5.1 and 5.3)	P
2.2.5	Insulation parameters	Test voltages, creepage, clearance and distance through insulation were determined by reference to Table 5 and 6 and Figure 5A of the standard	P
2.2.6	Categories of insulation	Operational insulation	P
2.2.7.1	General rules for working voltages		P
2.2.7.2	Clearances in primary circuits	Class III equipment	N
2.2.7.3	Clearances in secondary circuits		P
2.2.7.4	Creepage distances		P
2.2.7.5	Electric strength tests	(see appended table 5.3)	N
2.2.8.1	Bridging capacitors .....		N
2.2.8.2	Bridging resistors		N
2.2.8.3	Accessible parts		N



EN 60950			
Clause	Requirement – Test	Result	Verdict
2.3	Safety extra-low voltage (SELV) circuits	The equipment is Class III	P
2.3.1	Voltage (V) of SELV circuits under normal operating conditions and after a single fault .....	Not exceeding 60 Vdc or 42.4 Vpk	--
2.3.2	Voltage (V) between any two conductors of SELV circuit(s) and for Class I equipment between any conductor of SELV circuit and equipment protective earthing terminal under normal operating conditions .....	Not exceeding 60 Vdc or 42.4 Vpk	P
2.3.3	Voltage (V) of SELV in the event of a single failure of basic or supplementary insulation or of a component .....	Not exceeding 120 Vdc or 71 Vpk after 0.2 sec	--
	Method used for separation .....	Method 1. Reinforced insulation is provided by an external AC/DC adapter	P
2.3.4	Additional constructional requirements	Connectors are not compatible with those specified in IEC83 or IEC320	P
2.3.5	Connection of SELV circuits to other circuits	The SELV circuitry is not connected to other circuits	P
2.3.8	Construction of SELV circuits	The SELV circuit is adequately constructed in order to prevent reduction of distances and accidental shorting to hazardous voltages and improper use of connectors.	P
2.3.9	SELV circuits connected to other circuits	The SELV circuits are not connected to circuits other than SELV	P



EN 60950			
Clause	Requirement – Test	Result	Verdict

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



EN 60950			
Clause	Requirement – Test	Result	Verdict

2.5	Provisions for earthing	Class III equipment	N
2.5.1	Class I equipment		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 I equipment in systems comprising Class I and Class II equipment		N
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 ( $\Omega$ ) of protective earthing conductors < 0,1 $\Omega$		N
	Test current (A) .....		--



EN 60950			
Clause	Requirement – Test	Result	Verdict

2.6	Disconnection from primary power Not connected to the 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



EN 60950			
Clause	Requirement – Test	Result	Verdict

2.7	Overcurrent and earth fault protection in primary circuits Class III equipment		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
2.7.5	Protection by several devices		N
2.7.6	Warning to service personnel		N

2.8	Safety interlocks		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



EN 60950			
Clause	Requirement – Test	Result	Verdict

2.9	Clearances, creepage distances and distances through insulation		P
	Nominal voltage (V) .....	12 Vdc	--
	General		P
2.9.2	Clearances		P
2.9.2.1	Clearances in primary circuits	No primary circuits	N
2.9.2.2	Clearances in secondary circuits	(see appended table 2.9.3)	P
2.9.3	Creepage distances	(see appended table 2.9.3)	P
	CTI tests .....	None	--
2.9.4.1	Minimum distances through insulation	(see appended table 2.9.4)	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	(see appended table 2.9.4)	N
	Electric strength test at voltage for thin sheet insulating material	(see appended table 5.3)	N
	Number of layers (pcs) .....		N
2.9.4.4	Wound components without interleaved insulation	(see appended table 2.9.4 and 5.3 and Annex U)	N
	Number of layers (pcs) .....		N
	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	(see appended table 2.9.4)	N
	Routine testing for electric strength		N
2.9.6	Enclosed and sealed parts	(see appended table 5.3)	N
	Temperature T1 (°C) .....		N
	Humidity % .....		N



EN 60950

Clause	Requirement – Test	Result	Verdict
2.9.7	Spacings filled by insulating compound	(see appended table 2.9.4 and 5.3)	N
	Temperature T1 (°C) .....		N
	Humidity % .....		N
2.9.8	Component external terminations	(see appended table 2.9.2 and 2.9.3)	N
2.9.9	Insulation with varying dimensions	(see appended table 2.9.2 and 2.9.3 and 2.9.4)	N



EN 60950			
Clause	Requirement – Test	Result	Verdict

2.10	Interconnection of equipment		P
2.10.1	General requirements	SELV is only connected to SELV	P
2.10.2	Type of interconnection circuits .....	No ELV circuits provided	P
2.10.3	ELV circuits as interconnection circuits	No ELV circuits provided	N

2.11	Limited power source		P
	Use of limited power source .....	The equipment is supplied by certified external AC/DC adapter, which is a SELV limited power source.	P



EN 60950			
Clause	Requirement – Test	Result	Verdict

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

3.1	General		P
3.1.1	Cross-sectional area of internal wiring/interconnecting cables	(see appended table 5.1)	P
	Protection of internal wiring and interconnecting cables		P
3.1.2	Wireways		P
3.1.3	Fixing of internal wiring	Only printed wires are provided	N
3.1.4	Fixing of uninsulated conductors	No uninsulated conductors	N
3.1.5	Insulation of internal wiring	(see appended table 5.3)	N
3.1.6	Wires coloured green/yellow only for protective earth connection	Class III equipment	N
3.1.7	Fixing of beads and similar ceramic insulators	No such parts	N
3.1.8	Required electrical contact pressure		P
3.1.9	Reliable electrical connections	No contact pressure through insulation material	P
3.1.10	End of stranded conductor	No risk that stranded conductor became unfixed	P
3.1.11	Use of spaced thread screws/thread-cutting screws	Not used for electrical connections	P



EN 60950			
Clause	Requirement – Test	Result	Verdict

3.2	Connection to primary power	Class III equipment	N
3.2.1	Type of connection .....		N
	Design of product with more than one supply connection .....		N
3.2.2	Provision for permanent connection .....		N
	Size (mm) of cables and conduits .....		N
3.2.3	Appliance inlet		N
3.2.4	Type and cross-sectional area ( mm <sup>2</sup> ) of power supply cord .....		N
3.2.5	Cord anchorage		N
	Test: 25 times; 1 s; pull (N) .....		--
	Longitudinal displacement # 2 mm .....		N
3.2.6	Protection of power supply cord		N
3.2.7	Cord guard		N
	D (mm) .....		--
	Test: mass (g) .....		---
	Radius of curvature of the cord < 1,5 D		N
3.2.8	Supply wiring space		N



EN 60950			
Clause	Requirement – Test	Result	Verdict

3.3	Wiring terminals for external power supply conductors No terminals are provided		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



EN 60950			
Clause	Requirement – Test	Result	Verdict

4	PHYSICAL REQUIREMENTS		P
---	-----------------------	--	---

4.1	Stability and mechanical hazards		P
4.1.1	Stability tests	Fixed equipment	N
	Angle of 10°		N
	Test: force (N) .....		N
4.1.2	Protection against personal injury	No moving parts	N
4.1.3	Warning and means provided for stopping the moving part .....	No moving parts	N
4.1.4	Edges and corners	No sharp edges or corners	P
4.1.5	Enclosure of a high pressure lamp	No high pressure lamps	N



EN 60950			
Clause	Requirement – Test	Result	Verdict

4.2	Mechanical strength and stress relief		P
4.2.1	General		P
4.2.2	Internal enclosures 30 N " 3 N; 5 s	No operator accessible internal enclosures	N
4.2.3	External enclosures 250 N " 10 N; 5 s		P
4.2.4	Steel ball tests		P
	Fall test		P
	Swing test		P
4.2.5	Drop test		N
4.2.6	Heat test for enclosures of moulded or formed thermoplastic materials: 7 h; T (°C) .....	Metal enclosure	N
4.2.7	Compliance criteria		P
4.2.8	Mechanical strength of cathode ray tubes	No cathode ray tubes	N



EN 60950			
Clause	Requirement – Test	Result	Verdict
4.3	Construction details		P
4.3.1	Changing of setting for different power supply voltages		N
4.3.2	Adjustment of accessible control devices	No adjustment	N
4.3.4	Prevention of dangerous concentration of dust, powder, liquid and gas	The equipment does not use or produce such substances	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	No such parts	N
4.3.7	Retaining of sleeves	No sleeves are provided	N
4.3.9	Protection of loosening parts		P
4.3.11	Resistance to oil and grease	The equipment is not exposed to such substances	N
4.3.12	Protection against harmful concentration of ionizing radiation, ultraviolet light, laser or flammable gases (for laser see IEC 825-1)	No lasers	N
4.3.13	Securing of screwed connections	No screwed connections	N
4.3.15	Openings in the top of enclosure	No openings in the top	N
	Dimensions (mm) .....		--
4.3.16	Openings in the sides of enclosure	No openings in the top	N
	Dimensions (mm) .....		--
4.3.17	Interchangeable plugs and sockets	All connectors are marked in accordance with their functional use.	P
4.3.18	Torque test for direct plug-in equipment		N
	Additional torque (Nm) .....	The equipment is not intended to be supported by pins in the wall socket-outlet	N
4.3.19	Protection against excessive pressure	The equipment does not contain liquids	N



EN 60950			
Clause	Requirement – Test	Result	Verdict
4.3.20	Protection of heating elements in Class I equipment	No heating elements	N
4.3.21	Protection of lithium batteries	No batteries	N
	Construction of protection circuit .....		N
4.3.22	Ageing of barrier/screen secured with adhesive		N
	Day 1: temperature (°C); time (weeks) .....	No barriers or screen secured with adhesive	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



EN 60950			
Clause	Requirement – Test	Result	Verdict

4.4	Resistance to fire		P
4.4.1	Methods of achieving resistance to fire	Method 1	P
4.4.2	Minimizing the risk of ignition	Risk of ignitions is minimized	P
	Printed board: manufacturer; type; flammability ..	94V-0	P
4.4.3	Flammability of materials and components		P
4.4.3.2	Material and component: manufacturer; type; flammability .....	All internal materials are rated 94V-2 or better or are mounted on printing wiring boards rated 94V-1 or better	P
4.4.3.3	Exemptions .....		N
4.4.3.4	Wiring harnesses: manufacturer; flammability ....		N
4.4.3.5	Cord anchorage bushings: manufacturer; flammability .....		N
4.4.3.6	Air filter assemblies: manufacturer; flammability ..	No air filters	N
4.4.4	Enclosures and decorative parts: manufacturer; type; flammability .....	Metal enclosure	N
4.4.5	Conditions for fire enclosures		P
4.4.5.1	Components requiring fire enclosure: manufacturer; flammability .....		P
4.4.5.2	Components not requiring fire enclosure .....		N
4.4.6	Fire enclosure construction	Metal enclosure without openings	P
4.4.7	Doors or covers in fire enclosures	No such parts	N
4.4.8	Flammable liquids	Not used	N



EN 60950			
Clause	Requirement – Test	Result	Verdict

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

5.1	Heating		P
	Heating tests		P

5.2	Earth leakage current	Class III equipment	N
5.2.1	General		N
5.2.2	Leakage current		N
	Test voltage (V) .....		--
	Measured current (mA) .....		--
	Max. allowed current (mA) .....		--
5.2.3	Single-phase equipment		N
	Test voltage (V) .....		--
	Measured current (mA) .....		--
	Max. allowed current (mA) .....		--
5.2.4	Three-phase equipment		N
	Test voltage (V) .....		--
	Measured current (mA) .....		--
	Max. allowed current (mA) .....		--
5.2.5	Equipment with earth leakage current exceeding 3,5 mA		N
	Test voltage (V) .....		--
	Measured current (mA) .....		--
	Max. allowed current (mA) .....		--
	Cross-sectional area (mm <sup>5</sup> ) of internal protective earthing conductor .....		--
	Warning label		N



EN 60950			
Clause	Requirement – Test	Result	Verdict

5.3	Electric strength		N
5.3.1	General		N
5.3.2	Test procedure	(see appended table 5.3)	N

5.4	Abnormal operating and fault condition		N
5.4.2	Motors	(see appended table and Annex B)	N
5.4.3	Transformers	(see appended table and Annex C)	N
5.4.4	Compliance of operational insulation		N
	Method used .....	Method c)	N
5.4.5	Electromechanical components in secondary circuits	(see appended table)	N
5.4.6	Other components and circuits	(see appended table)	N
5.4.7	Test in any expected condition and foreseeable misuse	(see appended table)	N
5.4.8	Unattended use of equipment having thermostats, temperature limiters etc.	(see appended table)	N
5.4.9	Compliance	(see appended table)	N
5.4.10	Ball-pressure test of thermoplastic parts; impression shall not exceed 2 mm	(see appended table)	N



EN 60950			
Clause	Requirement – Test	Result	Verdict
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
6.2.1.2	Separation from other circuits and from accessible parts		N
	Voltage (V) in SELV circuits, TNV-1 circuits and accessible conductive parts in event of single insulation fault or component failure .....		N
6.2.1.3	Operating voltages generated externally		N
	Voltage (V) in SELV circuit, TNV-1 circuit or accessible conductive part .....		N
6.2.1.4	Separation from hazardous voltages .....		N
	Insulation between TNV circuit and circuit at hazardous voltage		N
	Method used .....		N
6.2.1.5	Connection of TNV circuits to other circuits	(see appended table 5.4)	N
	Insulation (mm) between TNV circuit supplied conductively from secondary circuit and hazardous voltage circuit .....		N
6.2.2.1	Protection against contact with bare conductive parts of TNV-2 and TNV-3 circuits		N
	Test with test finger		N
	Test with test probe		N
6.2.2.2	Battery compartments		N
	Marking next to door/on door		N



EN 60950			
Clause	Requirement – Test	Result	Verdict
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 .....		N
6.3.3.1	Insulation between TNV circuit and parts or circuitry that may be earthed	(see appended table 5.3)	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



EN 60950			
Clause	Requirement – Test	Result	Verdict

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

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



EN 60950			
Clause	Requirement – Test	Result	Verdict

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



EN 60950			
Clause	Requirement – Test	Result	Verdict

B	ANNEX B, 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
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		--
B.7	Locked-rotor overload test for DC motor in secondary circuits		--
B.7.2	Test time (h) .....		--
B.7.3	Test time (h) .....		--
B.8	Test for motors with capacitors		--
B.9	Test for three-phase motors		--
B.10	Test for series motors		--
	Test voltage (V) .....		--



EN 60950			
Clause	Requirement – Test	Result	Verdict

C	ANNEX C, TRANSFORMERS		N
	Position .....		--
	Manufacturer .....		--
	Type .....		--
	Rated values .....		--
	Temperatures	(see appended table 5.4)	N
	Thermal cut-out	(see appended table 5.1)	N
C.1	Overload test		N
	Conventional transformer		N
C.2	Insulation		N
	Precautions .....		N
	Retaining of end turns of all windings		N
	Earthing test at 25 A		N
C.3	Electric strength test	(see appended table 5.3)	N



EN 60950			
Clause	Requirement – Test	Result	Verdict

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
	See separate test report		N



EN 60950			
Clause	Requirement – Test	Result	Verdict

1.5.1	TABLE: list of critical components					P
object/part No.	manufac-turer/trademark	type/model	technical data	standard	mark(s) or declaration of conformity	
Input connector	Kycon	KLD-SMT-0202-A	24 Vdc, 3.5 A, 94V-0		UL, CE, CSA	
Terminal block	WAGO	236	300 V, 10 A		UL, VDE	
Connector RJ	Neltron	95001-XCPC	Housing 94V-0		UL	
Connector RJ	Amphenol	RJHS series	125 Vac, 1.5 A Housing 94V-0		UL	
PCB	Any		94V-0, 105°C	UL94	UL	



EN 60950			
Clause	Requirement – Test	Result	Verdict

1.6	TABLE: electrical data (in normal conditions)					P
fuse #	I <sub>rated</sub> (A)	U (V)	P (W)	I (mA)	I <sub>fuse</sub> (mA)	condition/status
--	1	10.8	1.93	179	--	Normal conditions
--	1	12.0	2.16	180	--	Normal conditions
--	1	13.2	2.55	193	--	Normal conditions



EN 60950			
Clause	Requirement – Test	Result	Verdict

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)
--	--	--	--	--	--	--
See single fault condition testing in table 5.4						

2.9.4.1	TABLE: distance through insulation measurements				N
distance through insulation di at/of:	U r.m.s. (V)	Test voltage (V)	required di (mm)	di (mm)	
--	--	--	--	--	
Not required for operation insulation					



EN 60950			
Clause	Requirement – Test	Result	Verdict

5.1	TABLE: temperature rise measurements		P
	test voltage (V) .....	10.8 V DC and 13.2 V DC	--
	t1 (°C) .....	23	--
	t2 (°C) .....	23	--
temperature rise dT of part/at:		dT (K)	
		10.8 V dc	13.2 V dc
		required dT (K)	
Front enclosure (metal)		5.8	6.3
Power-in connector		10.0	11.6
Connector P4		7.5	7.9
Capacitor C1		15.6	20.1
PCB near U15		18.2	24.5
All temperatures were measured by thermocouple method.			



EN 60950			
Clause	Requirement – Test	Result	Verdict

5.3	TABLE: electric strength measurements		N
test voltage applied between:		test voltage (V)	breakdown
--		--	--
Primary to SELV provided by an external AC/DC adapter			

5.4	TABLE: fault condition tests						P
ambient temperature (°C) .....		23				--	
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
1	Diode bridge D18	shorted	12Vdc	30 min	--	--	Protection of AC/DC adapter operated. No hazard.
2	Capacitor C38	shorted	12Vdc	30 min	--	--	Protection of AC/DC adapter operated. No hazard.

5.4.10	TABLE: ball pressure test of thermoplastics		N
required impression diameter (mm) .....		< 2 mm	C
part		test temperature (°C)	impression diameter (mm)
--		--	--



Test instruments

SII Ref.No.	Instrument Type	Manufacturer	Model	Expire Calibration date	SII Location
4875	Power Analyzer	Avpower	PA2200	08/01	Telem. Lab
4028	Power Analyzer	Avpower	PA2200	04/02	Telem. Lab
4033	Dielectric Analyzer	VITREK	944i	08/01	Telem. Lab
4876	Electrical Safety Tester	Sefelec	SMG 5000	08/01	Telem. Lab
4612	Leakage Current Tester IEC 60950	SII	--	07/02	Telem. Lab
3725	Earth resistance meter	R.B	RS 21	08/01	Telem. Lab
4498	Digital Storage Oscilloscope	PHILIPS	PM3375	03/02	Telem. Lab
3390	DVM + thermocouple module	FLUKE	77 + 80TK	08/01	Telem. Lab
4650	AC/DC Clamp Meter	APPA	36	02/02	Telem. Lab
4651	Dual Display Multimeter	FLUKE	45	01/02	Telem. Lab
5047	True RMS Multimeter	Fluke	87 III	12/01	Telem. Lab
5048	True RMS Multimeter	Fluke	87 III	12/01	Telem. Lab
52654	Jointed test finger	PTL	P 10.04	12/01	Telem. Lab
52655	Test prob Telcom	SII	--	12/01	Telem. Lab
52839	Test prob 250N	PTL	P10.64	03/02	Telem. Lab
52746	Test gauge	PTL	L25.84	12/01	Telem. Lab
52748	Test gauge	PTL	L25.84	01/02	Telem. Lab
52697	Digital Caliper	Mitutoyo	CD-	04/02	Telem. Lab
52656	Steel ball for Impact test	SII	--	12/01	Telem. Lab
53821	Test pin	SII	--	12/01	Telem. Lab
50883	Thermo-Hygrograph	Supco	CR4-KTH	11/01	Telem. Lab
53929	Industrial Scopemeter with	Fluke	DM7540063	12/01	Telem. Lab
53989	AC Current Probe	Fluke	80I-110s		
53930	Industrial Scopemeter	Fluke	DM7540064	04/02	Telem. Lab
53990	AC Current Probe	Fluke	80I-110s		
5004	Data Acquisition/Switch Unit with Thermocouples Type J	Agilent	34970A S/N US37030301	05/02	Telem. Lab
53937	20-Channel Armature Multiplexer		34901A S/N US37242809		
5003	Data Acquisition/Switch Unit with Thermocouples Type J	Agilent	34970A S/N US37028438	05/02	Telem. Lab
53935	20-Channel Armature Multiplexer		34901A S/N US37242807		
5005	Data Acquisition/Switch Unit with Thermocouples Type J	Agilent	34970A S/N US37030252	06/02	Telem. Lab
53936	20-Channel Armature Multiplexer		34901A S/N US37242808		
5002	Data Acquisition/Switch Unit with Thermocouples Type J	Agilent	34970A S/N US37030311	05/02	Telem. Lab
53934	20-Channel Armature Multiplexer		34901A S/N US37242806		
51754	Rigid test finger	PTL	P10.38	09/01	Elec. Lab
53820	Ball Pressure Test Instrument	PTL	P10.02	11/01	Telem. Lab
51749	Impact Hammer	PTL	F22.50	01/02	Elec. Lab
1462	Humidity Cabinet	Heraeus Votsch	VM 08/500	03/02	Elec. Lab
53801	Thermopile head	Ophir Optronics	2A-SH	06/02	Telem. Lab
53802	Piroelectrical Head	Ophir Optronics	PE10-SH	06/02	Telem. Lab
53803	Photodiode Head with UV Filter	Ophir Optronics	PD300-UV-SH	06/02	Telem. Lab
53804	Photodiode Head	Ophir Optronics	F300A-SH	06/02	Telem. Lab
53805	Laser Power/Energy Monitor	Ophir Optronics	Nova Display	06/02	Telem. Lab
4695	Immunity Test System	Keytek	EMC PRO	09/01	Telem. Lab EMC div.

Fig. 1 Access III - front/top view.





Fig. 2 Access III - rear/bottom view



Fig. 3 Access III - internal view

