

Test report

**IEC 60950-1 and/or EN 60950-1
Information technology equipment – Safety –
Part 1: General requirements**



R905.064.1

Kontron

Single Board Computer

JRex CE (ATX) (BQT3)

Customer:

Kontron
Embedded Modules GmbH
Brunnwiesenstrasse 16
94469 Deggendorf
(0991) 3 70 24-0
(0991) 3 70 24-16



The test result refers exclusively
to the model tested.

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Registration number: DAT-P-164/04

TEST REPORT IEC 60950-1 and/or EN 60950-1 Information technology equipment – Safety – Part 1: General requirements	
Report reference No	R905.064.1
Approved by (printed name and signature)	Carsten König Project Manager
Date of issue	2005-05-25
Testing Laboratory Name	KEMA Quality GmbH
Address	Gustav-Hertz-Straße 35, 94315 Straubing, Germany
Applicant's Name	Kontron Embedded Modules GmbH
Address	Brunnwiesenstrasse 16
.....	94469 Deggendorf, Germany
Test specification	
Standard.....	IEC 60950-1:2001 (1 st Edition) and/or EN 60950-1:2001
Test procedure	CB/CCA –scheme
Non-standard test method	
Test Report Form No.	IECEN60950_1B
TRF originator	SGS Fimko Ltd
Master TRF	dated 2003-03
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Test item description	Single Board Computer
Trademark	Kontron
Manufacturer	Kontron Embedded Modules GmbH
Model and/or type reference	JRex CE (ATX) (BQT3)
Serial number	none
Rating(s).....	5V DC +/- 5%, 3,3V DC +/- 5%

Copy of marking plate



Summary of testing:

The tested equipment fulfils the requirements of this standard.
Some clauses only can be checked in the end product.

Particulars: test item vs. test requirements

Equipment mobility	for building-in
Operating condition.....	continuous
Mains supply tolerance (%).....	Not directly connected to the mains, SELV supplied.
Tested for IT power systems	No
IT testing, phase-phase voltage (V)	- -
Class of equipment	Class III
Mass of equipment (kg)	0.230 kg, with memory module
Protection against ingress of water	No protection against ingress of water.

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	2005-05-13
Date(s) of performance of test	week 20, 2005

General remarks

"This report is not valid as a CB Test Report unless appended by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IEC 60950-1".

The test result presented in this report relate only to the object(s) tested.
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"(see Enclosure #)" refers to additional information appended to the report.
 "(see appended table)" refers to a table appended to the report.

Throughout this report a comma (point) is used as the decimal separator.

General product information:

The single board computer integrates the functionality of a motherboard with CPU, System-BIOS, memory, keyboard-controller, real time clock, COM-port, LPT1, Floppy- and Hard disk interface, USB and Ethernet access and onboard graphics adapter with LCD interface.

A power adapter is needed to supply the unit with SELV. This power adapter is not included in this test.

The single board computer can be installed by the Operator.

The JREX CE (ATX) single board computer is available as a 733 Mhz or a 400 MHz version.

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
1	GENERAL		P
1.5	Components		P
1.5.1	General		P
	Comply with IEC 60950 or relevant component standard	(see appended table 1.5.1)	P
1.5.2	Evaluation and testing of components	Certified components are used in accordance with their ratings, certifications and they comply with applicable parts of this standard.	P
1.5.3	Thermal controls	No thermal controls.	N/A
1.5.4	Transformers	No isolating transformer in the equipment.	N/A
1.5.5	Interconnecting cables	No interconnecting cables.	N/A
1.5.6	Capacitors in primary circuits		N/A
1.5.7	Double insulation or reinforced insulation bridged by components	No such components bridging double or reinforced insulation.	N/A
1.5.7.1	General		N/A
1.5.7.2	Bridging capacitors		N/A
1.5.7.3	Bridging resistors		N/A
1.5.7.4	Accessible parts		N/A
1.5.8	Components in equipment for IT power systems	Not directly connected to mains.	N/A
1.6	Power interface		N/A
1.6.1	AC power distribution systems	Class III unit. Power supply not included in test.	N/A
1.6.2	Input current		N/A
1.6.3	Voltage limit of hand-held equipment	The equipment is not hand-held.	N/A
1.6.4	Neutral conductor		N/A

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
1.7	Marking and instructions		P
1.7.1	Power rating	Description in user manual.	P
	Rated voltage(s) or voltage range(s) (V)	3,3 and 5 V DC	P
	Symbol for nature of supply, for d.c. only	“DC”	P
	Rated frequency or rated frequency range (Hz) :	DC equipment.	N/A
	Rated current (mA or A)	max. 4,0 A @ 5 V max. 1,5 A @ 3,3 V	P
	Manufacturer’s name or trademark or identification mark	Marking will be provided on the packaging: KONTRON	P
	Type/model or type reference	JRex CE 733 MHz (ATX) or JRex CE 400 MHz (ATX)	P
	Symbol for Class II equipment only	Class III	N/A
	Other symbols	There is no additional marking.	N/A
	Certification marks	No certification marks.	N/A
1.7.2	Safety instructions	Must be checked in the end product. See User’s Manual.	P
1.7.3	Short duty cycles	Equipment for continuous operation.	N/A
1.7.4	Supply voltage adjustment	No voltage selector.	N/A
	Methods and means of adjustment; reference to installation instructions		N/A
1.7.5	Power outlets on the equipment	No standard power outlet.	N/A
1.7.6	Fuse identification (marking, special fusing characteristics, cross-reference)		N/A
1.7.7	Wiring terminals	Not directly connected to the mains.	N/A
1.7.7.1	Protective earthing and bonding terminals		N/A
1.7.7.2	Terminal for a.c. mains supply conductors		N/A
1.7.7.3	Terminals for d.c. mains supply conductors		N/A
1.7.8	Controls and indicators	No controls and indicators.	N/A
1.7.8.1	Identification, location and marking	--	N/A
1.7.8.2	Colours	--	N/A
1.7.8.3	Symbols according to IEC 60417	--	N/A
1.7.8.4	Markings using figures	--	N/A
1.7.9	Isolation of multiple power sources	SELV supplied.	N/A
1.7.10	IT power distribution systems	Has to be considered in end product.	N/A

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
1.7.11	Thermostats and other regulating devices	No thermostats or other regulating devices.	N/A
1.7.12	Language(s)	English user manual provided.	—
1.7.13	Durability	The marking withstands required tests.	P
1.7.14	Removable parts	No removable parts.	P
1.7.15	Replaceable batteries	The lithium battery is placed in Operator access area. The required warning is in the operating manual.	P
	Language(s)	English, Danish, Finnish, Norwegian, Swedish and German.	—
1.7.16	Operator access with a tool	Has to be considered in end product.	N/A
1.7.17	Equipment for restricted access locations	Has to be considered in end product.	N/A

2	PROTECTION FROM HAZARDS		N/A
2.1	Protection from electric shock and energy hazards		N/A
2.1.1	Protection in operator access areas	SELV supplied, protection must be checked in the end product.	N/A
2.1.1.1	Access to energized parts	No ELV or hazardous voltages.	N/A
	Test by inspection		N/A
	Test with test finger		N/A
	Test with test pin		N/A
	Test with test probe		N/A
2.1.1.2	Battery compartments	No TNV circuits.	N/A
2.1.1.3	Access to ELV wiring	No internal wiring at ELV.	N/A
	Working voltage (V _{peak} or V _{rms}); minimum distance (mm) through insulation	Max. 5 V dc	—
2.1.1.4	Access to hazardous voltage circuit wiring	Protection must be checked in the end product.	N/A
2.1.1.5	Energy hazards	Must be considered for the end product.	N/A
2.1.1.6	Manual controls	No shafts of knobs etc. at ELV or hazardous voltage.	N/A
2.1.1.7	Discharge of capacitors in equipment	Not connected to primary circuit.	N/A

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
	Time-constant (s); measured voltage (V)	--	—
2.1.2	Protection in service access areas		N/A
2.1.3	Protection in restricted access locations		N/A
2.2	SELV circuits		P
2.2.1	General requirements	SELV limits are not exceeded under normal condition and after a single fault.	P
2.2.2	Voltages under normal conditions (V)	The voltage between any two conductors does not exceed 42.4 V peak or 60 V d.c.	P
2.2.3	Voltages under fault conditions (V)	In the event of a single fault, the voltage between any two conductors does not exceed 42.4 V peak or 60 V d.c.	P
2.2.3.1	Separation by double insulation or reinforced insulation (method 1)	Separation must be checked in the end product.	N/A
2.2.3.2	Separation by earthed screen (method 2)	Separation must be checked in the end product.	N/A
2.2.3.3	Protection by earthing of the SELV circuit (method 3)	Separation must be checked in the end product.	N/A
2.2.4	Connection of SELV circuits to other circuits	SELV circuits are only connected to other SELV circuits and protective earth.	P
2.3	TNV circuits		N/A
2.3.1	Limits	No TNV circuits in the equipment.	N/A
	Type of TNV circuits	--	—
2.3.2	Separation from other circuits and from accessible parts		N/A
	Insulation employed	--	—
2.3.3	Separation from hazardous voltages		N/A
	Insulation employed	--	—
2.3.4	Connection of TNV circuits to other circuits		N/A
	Insulation employed	--	—
2.3.5	Test for operating voltages generated externally		N/A

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict

2.4	Limited current circuits		N/A
2.4.1	General requirements	No limited current circuits.	N/A
2.4.2	Limit values		N/A
	Frequency (Hz)..... :	--	—
	Measured current (mA)..... :	--	—
	Measured voltage (V)..... :	--	—
	Measured capacitance (µF)..... :	--	—
2.4.3	Connection of limited current circuits to other circuits		N/A

2.5	Limited power sources		N/A
	Inherently limited output	No limited power source.	N/A
	Impedance limited output		N/A
	Overcurrent protective device limited output		N/A
	Regulating network limited output under normal operating and single fault condition		N/A
	Regulating network limited output under normal operating conditions and overcurrent protective device limited output under single fault condition		N/A
	Output voltage (V), output current (A), apparent power (VA)..... :	--	—
	Current rating of overcurrent protective device (A)	--	—

2.6	Provisions for earthing and bonding		N/A
2.6.1	Protective earthing	Has to be considered in end product.	N/A
2.6.2	Functional earthing		N/A
2.6.3	Protective earthing and protective bonding conductors		N/A
2.6.3.1	General		N/A
2.6.3.2	Size of protective earthing conductors		N/A
	Rated current (A), cross-sectional area (mm ²), AWG..... :	--	—
2.6.3.3	Size of protective bonding conductors		N/A
	Rated current (A), cross-sectional area (mm ²), AWG..... :	--	—
2.6.3.4	Resistance (Ω) of earthing conductors and their terminations, test current (A)..... :	--	N/A

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
2.6.3.5	Colour of insulation..... :	--	N/A
2.6.4	Terminals		N/A
2.6.4.1	General		N/A
2.6.4.2	Protective earthing and bonding terminals		N/A
	Rated current (A), type and nominal thread diameter (mm)..... :	--	—
2.6.4.3	Separation of the protective earthing conductor from protective bonding conductors		N/A
2.6.5	Integrity of protective earthing		N/A
2.6.5.1	Interconnection of equipment		N/A
2.6.5.2	Components in protective earthing conductors and protective bonding conductors		N/A
2.6.5.3	Disconnection of protective earth		N/A
2.6.5.4	Parts that can be removed by an operator		N/A
2.6.5.5	Parts removed during servicing		N/A
2.6.5.6	Corrosion resistance		N/A
2.6.5.7	Screws for protective bonding		N/A
2.6.5.8	Reliance on telecommunication network or cable distribution system		N/A

2.7	Overcurrent and earth fault protection in primary circuits		N/A
2.7.1	Basic requirements	Only SELV circuits.	N/A
	Instructions when protection relies on building installation		N/A
2.7.2	Faults not covered in 5.3		N/A
2.7.3	Short-circuit backup protection		N/A
2.7.4	Number and location of protective devices..... :	--	N/A
2.7.5	Protection by several devices		N/A
2.7.6	Warning to service personnel..... :	--	N/A

2.8	Safety interlocks		N/A
2.8.1	General principles	No safety interlocks	N/A
2.8.2	Protection requirements		N/A
2.8.3	Inadvertent reactivation		N/A
2.8.4	Fail-safe operation		N/A
2.8.5	Moving parts		N/A

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict

2.8.6	Overriding		N/A
2.8.7	Switches and relays		N/A
2.8.7.1	Contact gaps (mm):	--	N/A
2.8.7.2	Overload test		N/A
2.8.7.3	Endurance test		N/A
2.8.7.4	Electric strength test		N/A
2.8.8	Mechanical actuators		N/A

2.9	Electrical insulation		P
2.9.1	Properties of insulating materials	Neither natural rubber, materials containing asbestos nor hygroscopic materials are used as insulation. No driving belts or couplings used.	P
2.9.2	Humidity conditioning	No hygroscopic materials used.	N/A
	Humidity (%):	--	—
	Temperature (°C):	--	—
2.9.3	Grade of insulation	Insulation is considered to be functional, basic, supplementary, reinforced or double insulation.	P

2.10	Clearances, creepage distances and distances through insulation		
2.10.1	General	On the board there is only operational insulation. Distances need not to be measured in case of compliance with conditions of 5.3.	P
2.10.2	Determination of working voltage	Considered.	N/A
2.10.3	Clearances		P
2.10.3.1	General	Considered.	N/A
2.10.3.2	Clearances in primary circuits		N/A
2.10.3.3	Clearances in secondary circuits	Only functional insulation in secondary circuits, ref. 5.3.4.	P
2.10.3.4	Measurement of transient voltage levels	Measurement not relevant.	P
2.10.4	Creepage distances		N/A
	CTI tests:	Material Group unknown: Group IIIb (100 ≤ CTI < 175) used.	—

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
2.10.5	Solid insulation		N/A
2.10.5.1	Minimum distance through insulation	No such insulation.	N/A
2.10.5.2	Thin sheet material	No thin sheet insulation used.	N/A
	Number of layers (pcs)	--	—
	Electric strength test	--	—
2.10.5.3	Printed boards	PCB does not serve as insulation barrier.	N/A
	Distance through insulation	No such insulation.	N/A
	Electric strength test for thin sheet insulating material	--	—
	Number of layers (pcs)	--	N/A
2.10.5.4	Wound components		N/A
	Number of layers (pcs)	--	N/A
	Two wires in contact inside wound component; angle between 45° and 90°	--	N/A
2.10.6	Coated printed boards	No special coating in order to reduce distances.	N/A
2.10.6.1	General		N/A
2.10.6.2	Sample preparation and preliminary inspection		N/A
2.10.6.3	Thermal cycling		N/A
2.10.6.4	Thermal ageing (°C)	--	N/A
2.10.6.5	Electric strength test	--	—
2.10.6.6	Abrasion resistance test		N/A
	Electric strength test	--	—
2.10.7	Enclosed and sealed parts	No enclosed or hermetically sealed components.	N/A
	Temperature $T_1 = T_2 + T_{ma} - T_{amb} + 10K$ (°C).....	--	N/A
2.10.8	Spacings filled by insulating compound.....	No components treated/filled with insulation compound.	N/A
	Electric strength test	--	—
2.10.9	Component external terminations		N/A
2.10.10	Insulation with varying dimensions	No such transformer used.	N/A
3	WIRING, CONNECTIONS AND SUPPLY		P
3.1	General		P
3.1.1	Current rating and overcurrent protection		P

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict

3.1.2	Protection against mechanical damage		N/A
3.1.3	Securing of internal wiring		N/A
3.1.4	Insulation of conductors		N/A
3.1.5	Beads and ceramic insulators	No beads or similar ceramic insulators on conductors.	N/A
3.1.6	Screws for electrical contact pressure		N/A
3.1.7	Insulating materials in electrical connections		N/A
3.1.8	Self-tapping and spaced thread screws		N/A
3.1.9	Termination of conductors		N/A
	10 N pull test		N/A
3.1.10	Sleeving on wiring		N/A

3.2	Connection to an a.c. mains supply or a d.c. mains supply		N/A
3.2.1	Means of connection	Not directly connected to a mains supply. Has to be considered in end product.	N/A
3.2.1.1	Connection to an a.c. mains supply		N/A
3.2.1.2	Connection to a d.c. mains supply		N/A
3.2.2	Multiple supply connections		N/A
3.2.3	Permanently connected equipment		N/A
	Number of conductors, diameter (mm) of cable and conduits	--	—
3.2.4	Appliance inlets		N/A
3.2.5	Power supply cords		N/A
3.2.5.1	AC power supply cords		N/A
	Type	--	—
	Rated current (A), cross-sectional area (mm ²), AWG	--	—
3.2.5.2	DC power supply cords		N/A
3.2.6	Cord anchorages and strain relief		N/A
	Mass of equipment (kg), pull (N)	--	—
	Longitudinal displacement (mm)	--	—
3.2.7	Protection against mechanical damage		N/A
3.2.8	Cord guards		N/A
	D (mm); test mass (g)	--	—
	Radius of curvature of cord (mm).....	--	—

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict

3.2.9	Supply wiring space		N/A
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3.3	Wiring terminals for connection of external conductors		N/A
3.3.1	Wiring terminals	Not directly connected to a.c. mains supply.	N/A
3.3.2	Connection of non-detachable power supply cords		N/A
3.3.3	Screw terminals		N/A
3.3.4	Conductor sizes to be connected		N/A
	Rated current (A), cord/cable type, cross-sectional area (mm ²)..... :		—
3.3.5	Wiring terminal sizes		N/A
	Rated current (A), type and nominal thread diameter (mm) :		—
3.3.6	Wiring terminals design		N/A
3.3.7	Grouping of wiring terminals		N/A
3.3.8	Stranded wire		N/A

3.4	Disconnection from the mains supply		N/A
3.4.1	General requirement	Not directly connected to a.c. mains supply.	N/A
3.4.2	Disconnect devices		N/A
3.4.3	Permanently connected equipment		N/A
3.4.4	Parts which remain energized		N/A
3.4.5	Switches in flexible cords		N/A
3.4.6	Single-phase equipment and d.c. equipment		N/A
3.4.7	Three-phase equipment		N/A
3.4.8	Switches as disconnect devices		N/A
3.4.9	Plugs as disconnect devices		N/A
3.4.10	Interconnected equipment		N/A
3.4.11	Multiple power sources		N/A

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict

3.5	Interconnection of equipment		P
3.5.1	General requirements	Considered.	P
3.5.2	Types of interconnection circuits.....:	SELV circuit or limited current circuit.	P
3.5.3	ELV circuits as interconnection circuits	No ELV interconnections.	N/A

4	PHYSICAL REQUIREMENTS		
4.1	Stability		N/A
	Angle of 10°	Has to be considered in end product.	N/A
	Test: force (N).....:	--	N/A

4.2	Mechanical strength		N/A
4.2.1	General	Has to be considered in end product.	N/A
4.2.2	Steady force test, 10 N		N/A
4.2.3	Steady force test, 30 N	No internal enclosure.	N/A
4.2.4	Steady force test, 250 N	No external enclosure.	N/A
4.2.5	Impact test		N/A
	Fall test		N/A
	Swing test		N/A
4.2.6	Drop test	Drop test not applicable.	N/A
4.2.7	Stress relief test		N/A
4.2.8	Cathode ray tubes	CRT(s) not used in the equipment.	N/A
	Picture tube separately certified.....:	--	N/A
4.2.9	High pressure lamps	No high pressure lamps in the equipment.	N/A
4.2.10	Wall or ceiling mounted equipment; force (N)	Equipment for building-in.	N/A

4.3	Design and construction		P
4.3.1	Edges and corners		N/A
4.3.2	Handles and manual controls; force (N).....:	No knobs, grips, handles, lever etc.	N/A
4.3.3	Adjustable controls		N/A
4.3.4	Securing of parts		N/A

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
4.3.5	Connection of plugs and sockets	SELV connectors do not comply with IEC 60320 or IEC 60083.	P
4.3.6	Direct plug-in equipment		N/A
	Dimensions (mm) of mains plug for direct plug-in	--	N/A
	Torque and pull test of mains plug for direct plug-in; torque (Nm); pull (N).....	--	N/A
4.3.7	Heating elements in earthed equipment	No heating elements provided.	N/A
4.3.8	Batteries	UL approved battery used.	P
4.3.9	Oil and grease	Insulation is not exposed to oil, grease etc.	N/A
4.3.10	Dust, powders, liquids and gases	The equipment does not generate ionizing radiation or use a laser, and does not contain flammable liquids or gases.	N/A
4.3.11	Containers for liquids or gases	No containers for liquids or gases in the equipment.	N/A
4.3.12	Flammable liquids	--	N/A
	Quantity of liquid (l).....	--	N/A
	Flash point (°C)	--	N/A
4.3.13	Radiation; type of radiation	--	N/A
4.3.13.1	General	Unit does not produce radiation.	N/A
4.3.13.2	Ionizing radiation		N/A
	Measured radiation (pA/kg)	--	—
	Measured high-voltage (kV)	--	—
	Measured focus voltage (kV)	--	—
	CRT markings	--	—
4.3.13.3	Effect of ultraviolet (UV) radiation on materials	No UV radiation.	N/A
	Part, property, retention after test, flammability classification	--	N/A
4.3.13.4	Human exposure to ultraviolet (UV) radiation	--	N/A
4.3.13.5	Laser (including LEDs)	No Laser used.	N/A
	Laser class	--	—
4.3.13.6	Other types	--	N/A

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict

4.4	Protection against hazardous moving parts		N/A
4.4.1	General	No hazardous moving parts.	N/A
4.4.2	Protection in operator access areas		N/A
4.4.3	Protection in restricted access locations		N/A
4.4.4	Protection in service access areas		N/A

4.5	Thermal requirements		P
4.5.1	Maximum temperatures	(see appended table 4.5)	P
	Normal load condition per Annex L:	Running program 'Burn In Test'.	N/A
4.5.2	Resistance to abnormal heat	No thermoplastic parts carrying hazardous voltages.	N/A

4.6	Openings in enclosures		N/A
4.6.1	Top and side openings	Has to be considered in end product.	N/A
	Dimensions (mm):	--	—
4.6.2	Bottoms of fire enclosures	As above.	N/A
	Construction of the bottom.....:	--	—
4.6.3	Doors or covers in fire enclosures	As above.	N/A
4.6.4	Openings in transportable equipment	As above.	N/A
4.6.5	Adhesives for constructional purposes		N/A
	Conditioning temperature (°C)/time (weeks).....:	--	—

4.7	Resistance to fire		P
4.7.1	Reducing the risk of ignition and spread of flame	Method 1 is used.	P
	Method 1, selection and application of components wiring and materials	(see appended table 4.7)	P
	Method 2, application of all of simulated fault condition tests		N/A
4.7.2	Conditions for a fire enclosure	Has to be considered for the end product.	N/A
4.7.2.1	Parts requiring a fire enclosure		N/A
4.7.2.2	Parts not requiring a fire enclosure		N/A
4.7.3	Materials		P
4.7.3.1	General	Components and materials have adequate flammability classification.	P

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
4.7.3.2	Materials for fire enclosures	Equipment for building-in; has to be considered in the end product.	N/A
4.7.3.3	Materials for components and other parts outside fire enclosures		N/A
4.7.3.4	Materials for components and other parts inside fire enclosures		N/A
4.7.3.5	Materials for air filter assemblies	No air filters in the equipment.	N/A
4.7.3.6	Materials used in high-voltage components	No parts exceeding 4kV.	N/A

5	ELECTRICAL REQUIREMENTS AND SIMULATED ABNORMAL CONDITIONS		P
5.1	Touch current and protective conductor current		N/A
5.1.1	General	Has to be considered in end product.	N/A
5.1.2	Equipment under test (EUT)		N/A
5.1.3	Test circuit		N/A
5.1.4	Application of measuring instrument		N/A
5.1.5	Test procedure		N/A
5.1.6	Test measurements		N/A
	Test voltage (V)	--	—
	Measured touch current (mA)	--	—
	Max. allowed touch current (mA)	--	—
	Measured protective conductor current (mA)	--	—
	Max. allowed protective conductor current (mA) :	--	—
5.1.7	Equipment with touch current exceeding 3.5 mA	--	N/A
5.1.8	Touch currents to and from telecommunication networks and cable distribution systems and from telecommunication networks		N/A
5.1.8.1	Limitation of the touch current to a telecommunication network and a cable distribution system		N/A
	Test voltage (V)	--	—
	Measured touch current (mA)	--	—
	Max. allowed touch current (mA)	--	—
5.1.8.2	Summation of touch currents from telecommunication networks.....	--	N/A

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict

5.2	Electric strength		N/A
5.2.1	General	SELV is usually connected to ground, therefore no test was made between SELV and ground.	N/A
5.2.2	Test procedure		N/A

5.3	Abnormal operating and fault conditions		P
5.3.1	Protection against overload and abnormal operation		N/A
5.3.2	Motors	No motors in the equipment.	N/A
5.3.3	Transformers		N/A
5.3.4	Functional insulation	Complies with c)1)	P
5.3.5	Electromechanical components	No such components in secondary circuits.	N/A
5.3.6	Simulation of faults	No short circuit performed because components are mounted on V-0 material.	N/A
5.3.7	Unattended equipment	No thermostats, temperature limiters or thermal cut-outs.	N/A
5.3.8	Compliance criteria for abnormal operating and fault conditions	No short circuit performed because components are mounted on V-0 material.	N/A

6	CONNECTION TO TELECOMMUNICATION NETWORKS		N/A
6.1	Protection of telecommunication network service persons, and users of other equipment connected to the network, from hazards in the equipment		N/A
6.1.1	Protection from hazardous voltages		N/A
6.1.2	Separation of the telecommunication network from earth		N/A
6.1.2.1	Requirements	No TNV circuits in the equipment.	N/A
	Test voltage (V)	--	---
	Current in the test circuit (mA)	--	---
6.1.2.2	Exclusions	--	N/A

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict

6.2	Protection of equipment users from overvoltages on telecommunication networks		N/A
6.2.1	Separation requirements	No TNV circuits in the equipment.	N/A
6.2.2	Electric strength test procedure		N/A
6.2.2.1	Impulse test		N/A
6.2.2.2	Steady-state test		N/A
6.2.2.3	Compliance criteria		N/A

6.3	Protection of the telecommunication wiring system from overheating		N/A
	Max. output current (A).....:	--	—
	Current limiting method.....:	--	—

7	CONNECTION TO CABLE DISTRIBUTION SYSTEMS		N/A
7.1	Protection of cable distribution system service persons, and users of other equipment connected to the system, from hazardous voltages in the equipment	Has to be considered at the end product.	N/A
7.2	Protection of equipment users from overvoltages on the cable distribution system		N/A
7.3	Insulation between primary circuits and cable distribution systems		N/A
7.3.1	General		N/A
7.3.2	Voltage surge test		N/A
7.3.3	Impulse test		N/A

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
A	ANNEX A, TESTS FOR RESISTANCE TO HEAT AND FIRE		N/A
A.1	Flammability test for fire enclosures of movable equipment having a total mass exceeding 18 kg, and of stationary equipment (see 4.7.3.2)		N/A
A.2	Flammability test for fire enclosures of movable equipment having a total mass not exceeding 18 kg, and for material and components located inside fire enclosures (see 4.7.3.2 and 4.7.3.4)		N/A
A.3	Hot flaming oil test (see 4.6.2)	Used materials have adequate flame class according to UL94, no tests performed.	N/A
B	ANNEX B, MOTOR TESTS UNDER ABNORMAL CONDITIONS (see 4.7.2.2 and 5.3.2)		N/A
C	ANNEX C, TRANSFORMERS (see 1.5.4 and 5.3.3)		N/A
D	ANNEX D, MEASURING INSTRUMENTS FOR TOUCH-CURRENT TESTS (see 5.1.4)		N/A
E	ANNEX E, TEMPERATURE RISE OF A WINDING (see 1.4.13)		N/A
F	ANNEX F, MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES (see 2.10)		P
G	ANNEX G, ALTERNATIVE METHOD FOR DETERMINING MINIMUM CLEARANCES		N/A
H	ANNEX H, IONIZING RADIATION (see 4.3.13)		N/A
J	ANNEX J, TABLE OF ELECTROCHEMICAL POTENTIALS (see 2.6.5.6)		N/A
K	ANNEX K, THERMAL CONTROLS (see 1.5.3 and 5.3.7)		N/A
L	ANNEX L, NORMAL LOAD CONDITIONS FOR SOME TYPES OF ELECTRICAL BUSINESS EQUIPMENT (see 1.2.2.1 and 4.5.1)		P
L.1	Typewriters		N/A
L.2	Adding machines and cash registers		N/A
L.3	Erasers		N/A

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
L.4	Pencil sharpeners		N/A
L.5	Duplicators and copy machines		N/A
L.6	Motor-operated files		N/A
L.7	Other business equipment		P
M	ANNEX M, CRITERIA FOR TELEPHONE RINGING SIGNALS (see 2.3.1)		N/A
N	ANNEX N, IMPULSE TEST GENERATORS (see 2.10.3.4, 6.2.2.1, 7.3.2 and clause G.5)		N/A
P	ANNEX P, NORMATIVE REFERENCES		P
Q	ANNEX Q, BIBLIOGRAPHY		P
R	ANNEX R, EXAMPLES OF REQUIREMENTS FOR QUALITY CONTROL PROGRAMMES		N/A
S	ANNEX S, PROCEDURE FOR IMPULSE TESTING (see 6.2.2.3)		N/A
T	ANNEX T, GUIDANCE ON PROTECTION AGAINST INGRESS OF WATER (see 1.1.2)		N/A
U	ANNEX U, INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION (see 2.10.5.4)		N/A
V	ANNEX V, AC POWER DISTRIBUTION SYSTEMS (see 1.6.1)		N/A
W	ANNEX W, SUMMATION OF TOUCH CURRENTS		N/A
X	ANNEX X, MAXIMUM HEATING EFFECT IN TRANSFORMER TESTS (see clause C.1)		N/A
Y	ANNEX Y, ULTRAVIOLET LIGHT CONDITIONING TEST (see 4.3.13.3)		N/A

CENELEC COMMON MODIFICATIONS [C], SPECIAL NATIONAL CONDITIONS [S] AND A-DEVIATIONS (NATIONAL DEVIATIONS) [A] (EN 60950-1:2001, Annex ZB and Annex ZC)			P																														
General	C: Delete all the "country" notes in the reference document according to the following list: <table border="0"> <tr> <td>1.1.5 Note 2</td> <td>1.5.8 Note 2</td> <td>1.6.1 Note</td> </tr> <tr> <td>1.7.2 Note 4</td> <td>1.7.12 Note 2</td> <td>2.6 Note</td> </tr> <tr> <td>2.2.3 Note</td> <td>2.2.4 Note</td> <td>2.3.2 Note 2, 7, 8</td> </tr> <tr> <td>2.3.3 Note 1, 2</td> <td>2.3.4 Note 2,3</td> <td>2.7.1 Note</td> </tr> <tr> <td>2.10.3.1 Note 4</td> <td>3.2.1.1 Note</td> <td>3.2.3 Note 1, 2</td> </tr> <tr> <td>3.2.5.1 Note 2</td> <td>4.3.6 Note 1,2</td> <td>4.7.2.2 Note</td> </tr> <tr> <td>4.7.3.1 Note 2</td> <td>6.1.2.1 Note</td> <td>6.1.2.2 Note</td> </tr> <tr> <td>6.2.2 Note</td> <td>6.2.2.1 Note 2</td> <td>6.2.2.2 Note</td> </tr> <tr> <td>7 Note 4</td> <td>7.1 Note</td> <td></td> </tr> <tr> <td>G2.1 Note 1, 2</td> <td>Annex H Note 2</td> <td></td> </tr> </table>	1.1.5 Note 2	1.5.8 Note 2	1.6.1 Note	1.7.2 Note 4	1.7.12 Note 2	2.6 Note	2.2.3 Note	2.2.4 Note	2.3.2 Note 2, 7, 8	2.3.3 Note 1, 2	2.3.4 Note 2,3	2.7.1 Note	2.10.3.1 Note 4	3.2.1.1 Note	3.2.3 Note 1, 2	3.2.5.1 Note 2	4.3.6 Note 1,2	4.7.2.2 Note	4.7.3.1 Note 2	6.1.2.1 Note	6.1.2.2 Note	6.2.2 Note	6.2.2.1 Note 2	6.2.2.2 Note	7 Note 4	7.1 Note		G2.1 Note 1, 2	Annex H Note 2		Considered.	P
1.1.5 Note 2	1.5.8 Note 2	1.6.1 Note																															
1.7.2 Note 4	1.7.12 Note 2	2.6 Note																															
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2.3.3 Note 1, 2	2.3.4 Note 2,3	2.7.1 Note																															
2.10.3.1 Note 4	3.2.1.1 Note	3.2.3 Note 1, 2																															
3.2.5.1 Note 2	4.3.6 Note 1,2	4.7.2.2 Note																															
4.7.3.1 Note 2	6.1.2.1 Note	6.1.2.2 Note																															
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7 Note 4	7.1 Note																																
G2.1 Note 1, 2	Annex H Note 2																																
1.2.4.1	S (DK): Certain types of Class I appliances (see 3.2.1.1) may be provided with a plug not establishing earthing conditions when inserted into Danish socket-outlets.		N/A																														
1.5.1	A (SE, Ordinance 1990:944 and CH, Ordinance on environmentally hazardous substances SR 814.013, Annex 3.2, Mercury): Add NOTE – Switches containing mercury such as thermostats, relays and level controllers are not allowed.	There are no components containing mercury in the equipment.	P																														
1.5.8	S (NO): Due to the IT power system used (see annex V, Fig. V.7), capacitors are required to be rated for the applicable line-to-line voltage (230 V).	Considered.	N/A																														
1.7.2	S (FI, NO, SE): CLASS I PLUGGABLE EQUIPMENT TYPE A intended for connection to other equipment or a network shall, if safety relies on connection to protective earth or if surge suppressors are connected between the network terminals and accessible parts, have a marking stating that the equipment must be connected to an earthed mains socket-outlet. The marking text in the applicable countries shall be as follows:	Has to be considered in end product.	N/A																														
	FI: "Laite on liitettävä suojamaadoituskoskettimilla varustettuun pistorasiaan"	Has to be considered in end product.	N/A																														
	NO: "Apparatet må tilkoples jordet stikkontakt"	Has to be considered in end product.	N/A																														
	SE: "Apparaten skall anslutas till jordat uttag"	Has to be considered in end product.	N/A																														
	A (DK, Heavy Current Regulations): Supply cords of class I equipment, which is delivered without a plug, must be provided with a visible tag with the following text: Vigtigt! Lederen med grøn/gul isolation må kun tilsluttes en klemme mærket	Has to be considered in end product.	N/A																														

	 eller  If essential for the safety of the equipment, the tag must in addition be provided with a diagram which shows the connection of the other conductors, or be provided with the following text: "For tilslutning af de øvrige ledere, se medfølgende instalationsvejledning."		
1.7.5	S (DK): Socket-outlets for providing power to other equipment shall be in accordance with the Heavy Current Regulations, Section 107-2-D1, Standard Sheet DK 1-3a, DK 1-5a or DK 1-7a, when used on Class I equipment. For stationary equipment the socket-outlet shall be in accordance with Standard Sheet DK 1-1b or DK 1-5a.	There are no socket outlets providing power to other appliances.	N/A
1.7.5	A (DK, Heavy Current Regulations): CLASS II EQUIPMENT shall not be fitted with socket-outlets for providing power to other equipment.	There are no socket outlets providing power to other appliances.	N/A
1.7.12	A (DE, Gesetz über technische Arbeitsmittel (Gerätesicherheitsgesetz) [Law on technical labour equipment {Equipment safety law}], of 23 rd October 1992, Article 3, 3 rd paragraph, 2 nd sentence, together with the "Allgemeine Verwaltungsvorschrift zur Durchführung des Zweiten Abschnitts des Gerätesicherheitsgesetzes" [General administrative regulation on the execution of the Second Section of the Equipment safety law], of 10 th January 1996, article 2, 4 th paragraph item 2): Directions for use with rules to prevent certain hazards for (among others) maintenance of the technical labour equipment, also for imported technical labour equipment shall be written in the German language. NOTE: Of this requirement, rules for use even only by service personnel are not exempted.	Directions for use with rules to prevent certain hazards are written in the German language.	P
1.7.15	A (CH, Ordinance on environmentally hazardous substances SR 814.013): Annex 4.10 of SR 814.013 applies for batteries.	There is no battery containing Cd or Hg in the equipment.	N/A
	A (DE, Regulation on protection against hazards by X-ray, of 8 th January 1987, Article 5 [Operation of X-ray emission source], clauses 1 to 4): a) A licence is required by those who operate an X-ray emission source. b) A licence in accordance with Cl. 1 is not required by those who operate an X-ray emission source on which the electron acceleration voltage does not exceed 20 kV if 1) the local dose rate at a distance of 0,1 m from the surface does not exceed 1 µSv/h and 2) it is adequately indicated on the X-ray emission source that	The unit does not emit X-ray radiation	N/A

	<p>i) X-rays are generated and</p> <p>ii) the electron acceleration voltage must not exceed the maximum value stipulated by the manufacturer or importer.</p> <p>c) A licence in accordance with Cl. 1 is also not required by persons who operate an X-ray emission source on which the electron acceleration voltage exceeds 20 kV if</p> <p>1) the X-ray emission source has been granted a type approval and</p> <p>2) it is adequately indicated on the X-ray emission source that</p> <p>i) X-rays are generated</p> <p>ii) the device stipulated by the manufacturer or importer guarantees that the maximum permissible local dose rate in accordance with the type approval is not exceeded and</p> <p>iii) the electron acceleration voltage must not exceed the maximum value stipulated by the manufacturer or importer.</p> <p>d) Furthermore, a licence in accordance with Cl. 1 is also not required by persons who operate X-ray emission sources on which the electron acceleration voltage does not exceed 30 kV if</p> <p>1) the X-rays are generated only by intrinsically safe CRTs complying with Enclosure III, No. 6,</p> <p>2) the values stipulated in accordance with Enclosure III, No. 6.2 are limited by technical measures and specified in the device and</p> <p>3) it is adequately indicated on the X-ray emission source that the X-rays generated are adequately screened by the intrinsically safe CRT.</p>		
2.2.4	S (NO): Requirements according to this annex, 1.7.2 and 6.1.2.1 apply.	No TNV circuits.	N/A
2.3.2	S (NO): Requirements according to this annex, 6.1.2.1 apply.	No TNV circuits.	N/A
2.3.3 and 2.3.4	S (NO): Requirements according to this annex, 1.7.2 and 6.1.2.1 apply.	No TNV circuits.	N/A
2.6.3.3	S (GB): The current rating of the circuit shall be taken as 13 A, not 16 A.	Considered.	N/A
2.7.1	<p>C: Replace the subclause as follows:</p> <p><i>Basic requirements</i></p> <p>To protect against excessive current, short-circuits and earth faults in PRIMARY CIRCUITS, protective devices shall be included either as integral parts of the equipment or as parts of the building installation, subject to the following, a), b) and c):</p> <p>a) except as detailed in b) and c), protective</p>	Has to be considered in end product.	N/A

	<p>devices necessary to comply with the requirements of 5.3 shall be included as parts of the equipment;</p> <p>b) for components in series with the mains input to the equipment such as the supply cord, appliance coupler, r.f.i. filter and switch, short-circuit and earth fault protection may be provided by protective devices in the building installation;</p> <p>c) it is permitted for 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 breakers, is fully specified in the installation instructions.</p> <p>If reliance is placed on protection in the building installation, the installation instructions shall so state, except that for PLUGGABLE EQUIPMENT TYPE A the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet.</p>		
	S (GB): To protect against excessive currents and short-circuits in the PRIMARY CIRCUIT OF DIRECT PLUG-IN EQUIPMENT, protective device shall be included as integral parts of the DIRECT PLUG-IN EQUIPMENT.	Not a direct plug-in equipment	N/A
2.7.2	C: Void.	Considered.	N/A
2.10.2	C: Replace in the first line "(see also 1.4.7)" by "(see also 1.4.8)".	Considered.	N/A
2.10.3.1	S (NO): Due to the IT power distribution system used (see annex V, Fig. V.7), the A.C. MAINS SUPPLY voltage is considered to be equal to the line-to-line voltage and will remain at 230 V in case of a single earth fault	Has to be considered in end product.	N/A
3.2.1.1	<p>S (CH): Supply cords of equipment having a RATED CURRENT not exceeding 10 A shall be provided with a plug complying with SEV 1011 or IEC 60884-1 and one of the following dimension sheets:</p> <p>SEV 6532-2.1991, Plug type 15, 3P+N+PE 250/400 V, 10 A SEV 6533-2.1991, Plug type 11, L+N 250 V, 10 A SEV 6534-2.1991, Plug type 12, L+N+PE 250 V, 10 A</p> <p>In general, EN 60309 applies for plugs for currents exceeding 10A. However, a 16 A plug and socket-outlet system is being introduced in Switzerland, the plugs of which are according to the following dimension sheets, published in February 1998:</p> <p>SEV 5932-2.1998, Plug type 25, 3L+N+PE 230/400 V, 16 A SEV 5933-2.1998, Plug type 21, L+N 250 V, 16 A SEV 5934-2.1998, Plug type 23, L+N+PE 250 V, 16 A</p>	Has to be considered in end product.	N/A

	<p>S (DK): Supply cords of single-phase equipment having a rated current not exceeding 13 A shall be provided with a plug according to the Heavy Current Regulations, Section 107-2-D1.</p> <p>CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a.</p> <p>If poly-phase equipment and single-phase equipment having a RATED CURRENT exceeding 13 A is provided with a supply cord with a plug, this plug shall be in accordance with the Heavy Current Regulations, Section 107-2-D1 or EN 60309-2.</p>	<p>Has to be considered in end product.</p>	<p>N/A</p>
	<p>S (ES): Supply cords of single-phase equipment having a rated current not exceeding 10 A shall be provided with a plug according to UNE 20315:1994.</p> <p>Supply cords of single-phase equipment having a rated current not exceeding 2,5 A shall be provided with a plug according to UNE-EN 50075:1993.</p> <p>CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules, shall be provided with a plug in accordance with standard UNE 20315:1994.</p> <p>If poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with UNE-EN 60309-2.</p>	<p>Has to be considered in end product.</p>	<p>N/A</p>
	<p>S (GB): Apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS 1363 by means of that flexible cable or cord and plug, shall be fitted with a 'standard plug' in accordance with Statutory Instrument 1768:1994 – The Plugs and Socket etc. (Safety) Regulations 1994, unless exempted by those regulations.</p> <p>NOTE – 'Standard plug' is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.</p>	<p>Has to be considered in end product.</p>	<p>N/A</p>
	<p>S (IE): Apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to I.S. 411 by means of that flexible cable or cord and plug, shall be fitted with a 13 A plug in accordance with Statutory Instrument 525:1997 – National Standards Authority of Ireland (section 28) (13 A Plugs and Conversion Adaptors for Domestic</p>	<p>Has to be considered in end product.</p>	<p>N/A</p>

	Use) Regulations 1997.								
3.2.3	C: Delete Note 1 and in Table 3A, delete the conduit sizes in parentheses.	Considered.	N/A						
3.2.5.1	C: Replace "60245 IEC 53" by "H05 RR-F"; "60227 IEC 52" by "H03 VV-F or H03 VVH2-F"; "60227 IEC 53" by "H05 VV-F or H05 VVH2-F2". In Table 3B, replace the first four lines by the following: <table style="margin-left: 40px; border: none;"> <tr> <td>Up to and including 6</td> <td style="text-align: right;">0,75¹⁾</td> </tr> <tr> <td>Over 6 up to and including 10</td> <td style="text-align: right;">(0,75)²⁾ 1,0</td> </tr> <tr> <td>Over 10 up to and including 16</td> <td style="text-align: right;">(1,0)³⁾ 1,5</td> </tr> </table> In the Conditions applicable to Table 3B delete the words "in some countries" in condition ¹⁾ . In Note 1, applicable to Table 3B, delete the second sentence.	Up to and including 6	0,75 ¹⁾	Over 6 up to and including 10	(0,75) ²⁾ 1,0	Over 10 up to and including 16	(1,0) ³⁾ 1,5	Considered.	N/A
Up to and including 6	0,75 ¹⁾								
Over 6 up to and including 10	(0,75) ²⁾ 1,0								
Over 10 up to and including 16	(1,0) ³⁾ 1,5								
3.2.5.1	S (GB): A power supply cord with conductor of 1,25 mm ² is allowed for equipment with a rated current over 10 A and up to and including 13 A.	Has to be considered in end product.	N/A						
3.3.4	C: In table 3D, delete the fourth line: conductor sizes for 10 to 13 A, and replace with the following: "Over 10 up to and including 16 1,5 to 2,5 1,5 to 4" Delete the fifth line: conductor sizes for 13 to 16 A.	Considered.	N/A						
3.3.4	S (GB): The range of conductor sizes of flexible cords to be accepted by terminals for equipment with A RATED CURRENT of over 10 A up to and including 13 A is: - 1,25 mm ² to 1,5 mm ² nominal cross-sectional area.	Has to be considered in end product.	N/A						
4.3.6	S (GB): The torque test is performed using a socket outlet complying with BS 1363 and the plug part OF DIRECT PLUG-IN EQUIPMENT shall be assessed to BS 1363: Part 1, 12.1, 12.2, 12.3, 12.9, 12.11, 12.12, 12.16 and 12.17, except that the test of 12.17 is performed at not less than 125 °C.	Has to be considered in end product.	N/A						
	S (IE): DIRECT PLUG-IN EQUIPMENT is known as plug similar devices. Such devices shall comply with Statutory Instrument 526:1997 – National Standards Authority of Ireland (Section 28) (Electrical plugs, plug similar devices and sockets for domestic use) Regulations, 1997.	Not a direct plug-in equipment	N/A						
4.3.13.6	C: Add the following note: NOTE Attention is drawn to 1999/519/EC: Council Recommendation on the limitation of exposure of the general public to electromagnetic fields 0 Hz to 300 GHz. Standards taking into account this recommendation are currently under development.	Has to be considered in end product.	N/A						

<p>6.1.2.1</p>	<p>S (FI, NO, SE): Add the following text between the first and second paragraph:</p> <p>If this insulation is solid, including insulation forming part of a component, it shall at least consist of either</p> <ul style="list-style-type: none"> - two layers of thin sheet material, each of which shall pass the electric strength test below, or - one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below. <p>If this insulation forms part of a semiconductor component (e.g. an optocoupler), there is no distance through insulation requirement for the insulation consisting of an insulating compound completely filling the casing, so that CLEARANCES AND CREEPAGE DISTANCES do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition</p> <ul style="list-style-type: none"> - passes the tests and inspection criteria of 2.10.8 with an electric strength test of 1,5 kV multiplied by 1,6 (the electric strength test of 2.10.7 shall be performed using 1,5 kV), and - is subject to ROUTING TESTING for electric strength during manufacturing, using a test voltage of 1,5 kV. <p>It is permitted to bridge this insulation with a capacitor complying with EN 132400:1994, subclass Y2.</p> <p>A capacitor classified Y3 according to EN 132400:1994, may bridge this insulation under the following conditions:</p> <ul style="list-style-type: none"> - the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 132400, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in EN 60950:2000, 6.2.2.1; - the additional testing shall be performed on all the test specimens as described in EN 132400; - the impulse test of 2,5 kV is to be performed before the endurance test in EN 132400, in the sequence of tests as described in EN 132400. 	<p>No TNV circuits.</p>	<p>N/A</p>
<p>6.1.2.2</p>	<p>S (FI, NO, SE): The exclusions are applicable for PERMANENTLY CONNECTED EQUIPMENT and PLUGGABLE EQUIPMENT TYPE B and equipment intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, e.g. in a telecommunication centre, and which has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR and is provided with instructions for the installation of that</p>	<p>No TNV circuits.</p>	<p>N/A</p>

	conductor by a service person.		
7.1	S (FI, NO, SE): Requirements according to this annex, 6.1.2.1 and 6.1.2.2 apply with the term TELECOMMUNICATION NETWORK in 6.1.2 being replaced by the term CABLE DISTRIBUTION SYSTEM.	No TNV circuits.	N/A
G.2.1	S (NO): Due to the IT power distribution system used (see annex V, Fig. V.7), the A.C. MAINS SUPPLY voltage is considered to be equal to the line-to-line voltage, and will remain at 230 V in case of a single earth fault.	Has to be considered in end product.	N/A
Annex H	C: Replace the last paragraph of this annex by: At any point 10 cm from the surface of the operator access area, the dose rate shall not exceed 1 µSv/h (0,1 mR/h) (see note). Account is taken of the background level. Replace the notes as follows: NOTE These values appear in Directive 96/29/Euratom. Delete Note 2.	The unit does not emit X-ray radiation	N/A
Annex P	C: Replace the text of this annex by: See annex ZA.	Considered	P
Annex Q	C: Replace the title of IEC 61032 by "Protection of persons and equipment by enclosures – Probes for verification". Add the following notes for the standards indicated: IEC 60127 NOTE Harmonized as EN 60127 (Series) (not modified) IEC 60269-2-1 NOTE Harmonized as HD 630.2.1 S4:2000 (modified) IEC 60529 NOTE Harmonized as EN 60529:1991 (not modified) IEC 61032 NOTE Harmonized as EN 61032:1998 (not modified) IEC 61140 NOTE Harmonized as EN 61140:2001 (not modified) ITU-T Recommendation K.31 NOTE in Europe, the suggested document is EN 50083-1.		N/A
Annex ZA	C: NORMATIVE REFERENCES TO INTERNATIONAL PUBLICATIONS WITH THEIR RELEVANT EUROPEAN PUBLICATIONS This European Standard incorporates, by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references, the latest edition of the publication referred to applies (including amendments). NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies. — IEC 60050-151 — IEC 60050-195 EN 60065:1998 + corr. June 1999 IEC 60065 (mod):1998 EN 60073:1996 IEC 60073:1996 HD 566 S1:1990 IEC 60085:1984 HD 214 S2:1980 IEC 60112:1979		P

HD 611.4.1.S1:1992	IEC 60216-4-1:1990
HD 21 ¹⁾ Series	IEC 60227 (mod) Series
HD 22 ²⁾ Series	IEC 60245 (mod) Series
EN 60309 Series	IEC 60309 Series
EN 60317-43:1997	IEC 60317-43:1997
EN 60320 Series	IEC 60320 (mod) Series
HD 384.3 S2:1995	IEC 60364-3 (mod):1993
HD 384.4.41 S2:1996	IEC 60364-4-41 (mod):1992 ³⁾
EN 132400:1994 ⁴⁾ + A2:1998 + A3:1998 + A4:2001	IEC 60384-14:1993
EN 60417-1	IEC 60417-1
HD 625.1 S1:1996 + corr. Nov. 1996	IEC 60664-1 (mod):1992
EN 60695-2-2:1994	IEC 60695-2-2:1991
EN 60695-2-11:2001	IEC 60695-2-11:2000
—	IEC 60695-2-20:1995
—	IEC 60695-10-2:1995
—	IEC 60695-11-3:2000
—	IEC 60695-11-4:2000
EN 60695-11-10:1999	IEC 60695-11-10:1999
EN 60695-11-20:1999	IEC 60695-11-20:1999
EN 60730-1:2000	IEC 60730-1:1999 (mod)
EN 60825-1:1994 + corr. Febr. 1995 + A11:1996 + corr. July 1997	IEC 60825-1:1993
EN 60825-2:2000	IEC 60825-2:2000
—	IEC 60825-9:1999
EN 60851-3:1996	IEC 60851-3:1996
EN 60851-5:1996	IEC 60825-5:1996
EN 60851-6:1996	IEC 60851-6:1996
—	IEC 60885-1:1987
EN 60990:1999	IEC 60990:1999
—	IEC 61058-1:2000
EN 61965:2001	IEC 61965:2000
EN ISO 178:1996	ISO 178:1993
EN ISO 179 Series	ISO 179 Series
EN ISO 180:2000	ISO 180:1993
—	ISO 261:1998
—	ISO 262:1998
EN ISO 527 Series	ISO 527 Series
—	ISO 386:1984
EN ISO 4892 Series	ISO 4892 Series
—	ISO 7000:1989
EN ISO 8256:1996	ISO 8256:1990
—	ISO 9772:1994
EN ISO 9773:1998	ISO 9773:1998
—	ITU-T:1988 Recommendation K.17
—	ITU-T:2000 Recommendation K.21
<p>1) The HD 21 series is related to, but not directly equivalent with the IEC 60227 series 2) The HD 22 series is related to, but not directly equivalent with the IEC 60245 series 3) IEC 60364-4-41:1992 is superseded by IEC 60364-4-41:2001 4) EN 132400, Sectional Specification: Fixed capacitors for electromagnetic interference suppression and connection to the supply mains (Assessment level D), and its amendments are related to, but not directly equivalent to IEC 60384-14</p>	

1.5.1	TABLE: list of critical components					P
object/part No.	manufacturer/ trademark	type/model	technical data	standard	mark(s) of conformity ¹⁾	
PC Board	Various	- -	94V-0	UL 94	2)	
Connectors						
Memory Socket	FOXCONN	DIMM socket	94 V-0	UL 94	3)	
JFLEX Socket	Molex	Micro-Miniature Board-to-Board plug	94 V-0	UL 94	3)	
Display	Molex	SMD flex cable connector	94 V-0	UL 94	3)	
VGA	SUYIN	DSUB Connector 15pin female	94 V-0	UL 94	3)	
HDD, Printer	SUYIN	4-Wall Header Superslim	94 V-0	UL 94	3)	
Compact Flash Socket	3M	CF Card Header	94 V-0	UL 94	3)	
FDD	Molex	MOLEX FFC/FPC connector	94 V-0	UL 94	3)	
Serial	SUYIN	DSUB Connector 9pin	94 V-0	UL 94	3)	
Power ATX	FOXCONN	Header, ATX power	94 V-0	UL 94	3)	
Battery	Varta	CR2032	3V, 5mA abnormal		UL MH128845	
¹⁾ an asterisk indicates a mark which assures the agreed level of surveillance						
²⁾ PCB-material meets at least flammability class 94V-0 in accordance with manufacturers specification						
³⁾ used plastic materials declared as 94V-0 in accordance with manufacturers specification						
Usage of other components or materials is possible if they have the same flammability class and/or the same ratings as the above listed one.						

1.6.2	TABLE: electrical data (in normal conditions)	N/A
2.10.3 and 2.10.4	TABLE: clearance and creepage distance measurements	N/A
2.10.5	TABLE: distance through insulation measurements	N/A
4.5	TABLE: maximum temperatures	N/A
4.5.2	TABLE: ball pressure test of thermoplastic parts	N/A
4.7	TABLE: resistance to fire	N/A
5.2	TABLE: electric strength tests, impulse tests and voltage surge tests	N/A
5.3	TABLE: fault condition tests	N/A

Thermograph view
normal operating without enclosure



Top view J Rex CE 733 MHz

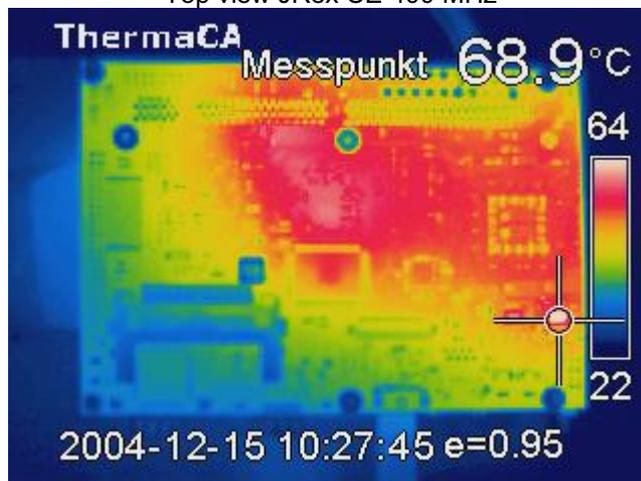


Bottom view J Rex CE 733 MHz

Thermograph view

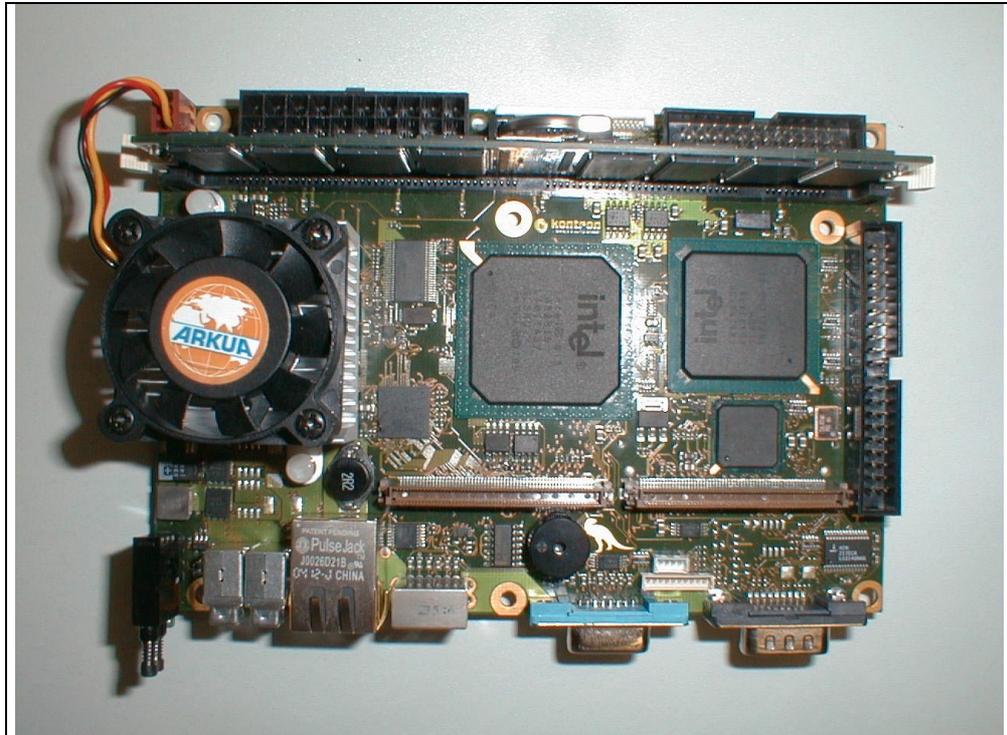


Top view J Rex CE 400 MHz



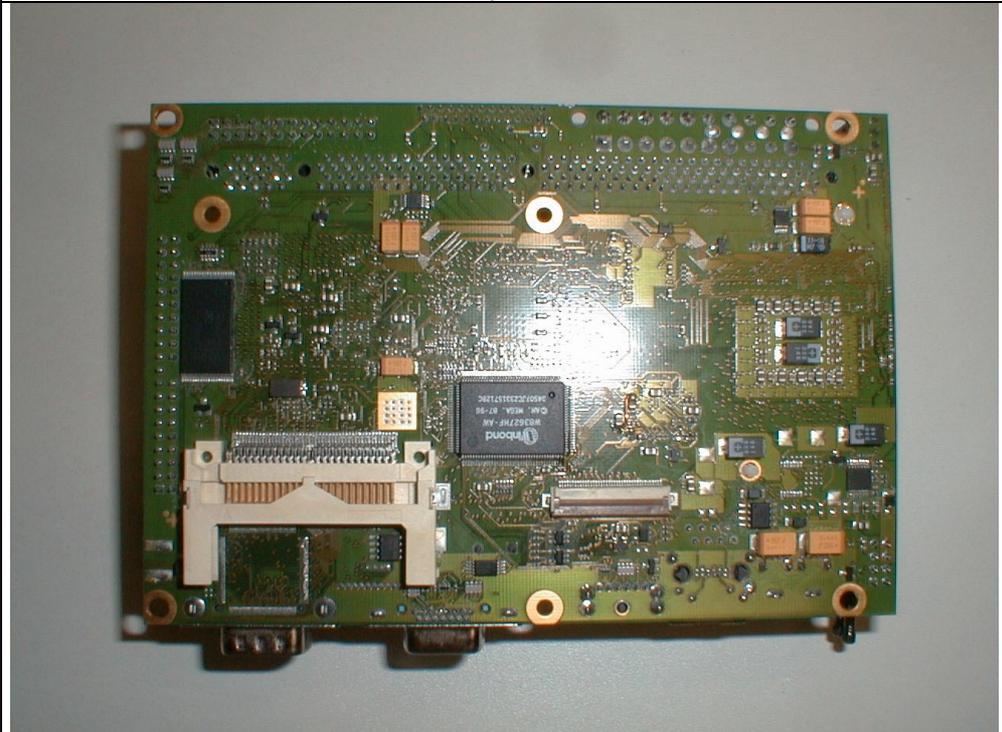
Bottom view J Rex CE 400 MHz

Photo report



Picture 1

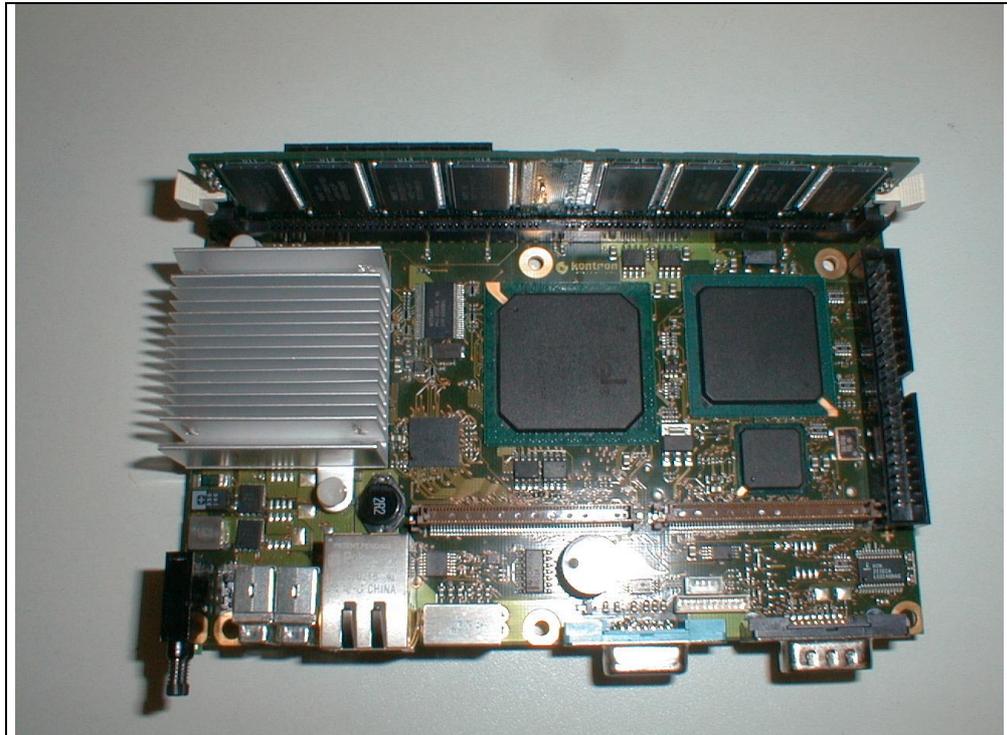
top view JReX CE 733 MHz



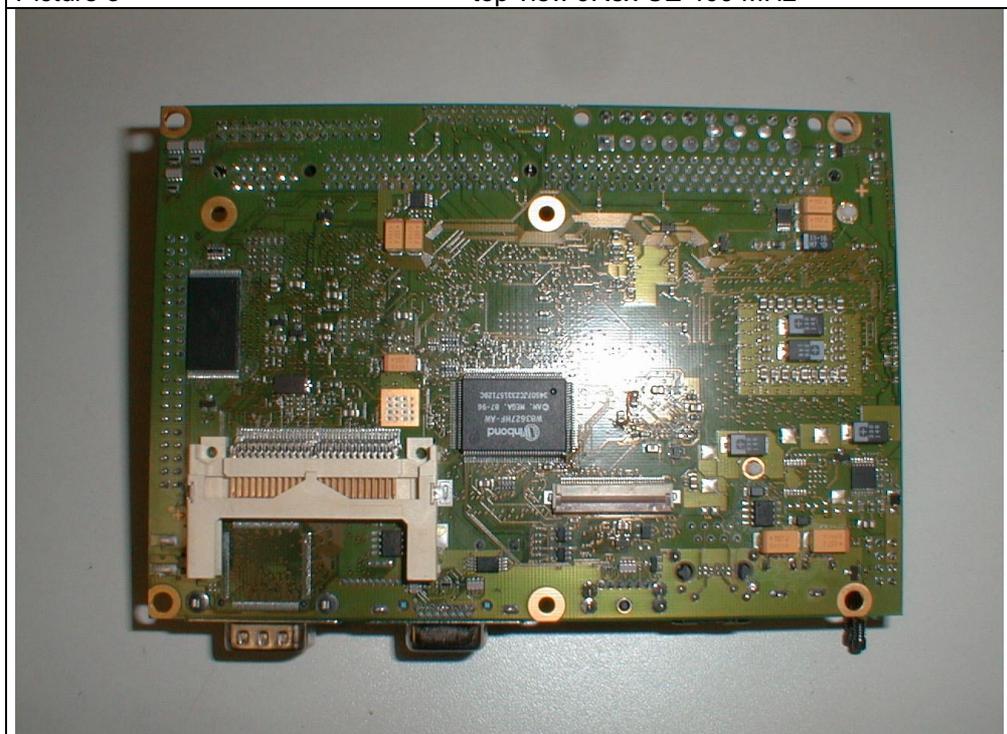
Picture 2

bottom view JReX CE 733 MHz

Photo report



Picture 3 top view JReX CE 400 MHz



Picture 4 bottom view JReX CE 400 MHz