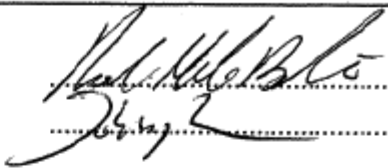


TEST REPORT IEC 60950 Safety of information technology equipment	
Report Reference No.	133468-01
Compiled by (+ signature)	Rasul M. Balacu 
Reviewed by (+ signature)	Johnny Jensen
Date of issue	October 21, 2002
This report is based on a blank test report that was prepared by FIMKO using information obtained from the TRF originator (see below). Total 35 Pages	
Testing laboratory name	UL International DEMKO A/S
Address	Lyskaer 8, DK-2730 Herlev, Denmark
Testing location	Lyskaer 8, DK-2730 Herlev, Denmark
Client name	Advantech Co., Ltd.
Address	No. 1 Alley 20, Lane 26, Rueiguang Road, Neihu District Taipei 114, Taiwan
Standard	IEC 60950, 3 rd Edition (1999)
Test procedure	CB Scheme
Procedure deviation	Argentina, Austria, Belgium, Brazil, Canada, China, Czech Republic, Denmark, Finland, France, Germany, Hungary, Ireland, Israel, Italy, Japan, Korea, Netherlands, Norway, Poland, Portugal, Russian, Singapore, Slovakia, Slovenia, South Africa, Spain, Sweden, Switzerland, Turkey, United Kingdom, USA, CENELEC
Non-standard test method	N/A
Test Report Form/blank test report	
Test Report Form No.	I950__F/00-03
TRF originator	FIMKO
Master TRF	dated 00-02
Copyright reserved to the bodies participating in the IECEE Schemes (CB and CB-FCS) and/or the bodies participating in the C.I.G (CCA-ENEC).	
Test item description	Industrial Computer
Trademark	Advantech
Model and/or type reference	MIC-3038XX-XXXXY, MIC-3056XX-XXXXY (where X, Y may be any alphanumeric character or blank)
Manufacturer	Same as Applicant
	Factory: Advantech Co., Ltd. F1.4, No.108-3, Ming-Chuan Road, Shing-Tien City, Taipei, Taiwan
Rating(s)	I/P: -48 Vdc, 11 A

Copy of marking plate:

INDUSTRIAL COMPUTER**MODEL: MIC-3038XX-XXXXY****RATING: -48 V ---, 11 A****THIS DEVICE COMPLES WITH PART 15 FCC RULES OPERATION****ISSUBJECT 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 OPERATOR.**

ADVANTECH CO., LTD.**INDUSTRIAL COMPUTER****MODEL: MIC-3056XX-XXXXY****RATING: -48 V ---, 11 A****THIS DEVICE COMPLES WITH PART 15 FCC RULES OPERATION****ISSUBJECT 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 OPERATOR.**

ADVANTECH CO., LTD.

Particulars: test item vs. test requirements

Equipment mobility.....: Movable
 Operating condition.....: Continuous
 Mains supply tolerance (%).....: N/A
 Tested for IT power systems.....: No
 IT testing, phase-phase voltage (V).....: N/A
 Class of equipment.....: Class III
 Mass of equipment (kg).....: 13.0 kg
 Protection against ingress of water.....: IP20

Possible test case verdicts:

- test case does not apply to the test object.....: N/A
- test object does meet the requirement.....: Pass
- test object does not meet the requirement.....: Fail

General remarks:

- "(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 point is used as the decimal separator.

The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.

This report is not valid as a CB Test Report unless appended to a CB Test Certificate issued by a NCB in accordance with IECEE 02.

General product information:

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 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 point is used as the decimal separator.

Brief description of the test equipment:

- The equipment is an Industrial Computer for general office use.
- The USB connector of the equipment was consider as a limited power source (subclause 2.5)
- The equipment was submitted and tested for use in a maximum Manufacturer's recommended ambient (Tmra) of 50°.
- The CPU was Model Pentium III, 700 MHz.
- Model MIC-3056XX-XXXXY is identical to Model MIC-3038X-XXXXY except for enclosure shape and model designation.

This report contains the following enclosures:

Enclosure 1	: National Deviation ¹⁾	Total 26 Pages
Enclosure 2	: Photographs.....	Total 7 Pages
Enclosure 3	: Circuit Diagram.....	Total 2 Pages

Note ¹⁾: Refer to CB Bulletin 103A, July, 2002

IEC 60950			
Clause	Requirement + Test	Result - Remark	Verdict

1	GENERAL		Pass
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1.5	Components		Pass
1.5.1	Comply with IEC60950 or relevant component standard	(see appended table 1.5.1)	Pass
1.5.2	Evaluation and testing of components	<p>Certified components are used in accordance with their ratings, certifications and they comply with applicable parts of this Standard.</p> <p>Components not certified are used in accordance with their ratings and they comply IEC 60950 and the relevant component Standard.</p> <p>Components, for which no relevant IEC Standard exist, have been tested under the condition occurring in the equipment, using applicable parts of IEC 60950.</p>	Pass
	Dimensions (mm) of mains plug for direct plug-in	Not direct plug-in equipment.	N/A
	Torque and pull test of mains plug for direct plug-in; torque (Nm); pull (N)	Not direct plug-in equipment.	N/A
1.5.3	Thermal controls	There are no thermal controls.	N/A
1.5.4	Transformers	There is no isolating transformer.	N/A
1.5.5	Interconnecting cables	Interconnecting cables comply with the relevant requirements of this standard.	Pass
1.5.6	Capacitors in primary circuits		N/A
1.5.7	Double or reinforced insulation bridged by components		N/A
1.5.7.1	Bridging capacitors		N/A
1.5.7.2	Bridging resistors		N/A
1.5.7.3	Accessible parts		N/A
1.5.8	Components in equipment for IT power systems		N/A

IEC 60950			
Clause	Requirement + Test	Result - Remark	Verdict

1.6	Power interface		Pass
1.6.1	AC power distribution systems	Supplied by SELV.	N/A
1.6.2	Input current	The steady state input current of the equipment did not exceed the RATED CURRENT by more than 10% under NORMAL LOAD. (see appended table 1.6.2)	Pass
1.6.3	Voltage limit of hand-held equipment	This appliance is not a hand-held equipment.	N/A
1.6.4	Neutral conductor		N/A

1.7	Marking and instructions		Pass
1.7.1	Power rating	Rating marking readily visible to operator see below for details.	Pass
	Rated voltage(s) or voltage range(s) (V)	-48 Vdc	Pass
	Symbol for nature of supply for d.c.		Pass
	Rated frequency or frequency range (Hz)		N/A
	Rated current (A)	11 A	Pass
	Manufacturer's name/Trademark	Advantech Co., Ltd. / Advantech	Pass
	Type/model	MIC-3038XX-XXXXY, MIC-3056XX-XXXXY (X, Y can be any alphanumeric character or blank)	Pass
	Symbol of Class II	Class III equipment.	N/A
	Other symbols	Additional symbols may be provided when submitted for National Approval.	N/A
	Certification marks	UL	Pass
1.7.2	Safety instructions	Safety instructions in English. Other languages will be provided when submitted for national approval.	Pass
1.7.3	Short duty cycles	Equipment is designed for continuous operation.	N/A
1.7.4	Supply voltage adjustment		N/A
1.7.5	Power outlets on the equipment	No outlet.	N/A
1.7.6	Fuse identification		N/A

IEC 60950			
Clause	Requirement + Test	Result - Remark	Verdict
1.7.7	Wiring terminals		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
1.7.8	Controls and indicators	See below.	Pass
1.7.8.1	Identification, location and marking	The marking and indication of the power switch is located on the switch so that indication of function is clear.	Pass
1.7.8.2	Colours	No indicators with colors.	N/A
1.7.8.3	Symbols according to IEC 60417	Marking for the switch according 60417-1-IEC-5007/5008.	Pass
1.7.8.4	Markings using figures	Figures are not used for indicating different positions of controls.	N/A
1.7.9	Isolation of multiple power sources		N/A
1.7.10	IT power system		N/A
1.7.11	Thermostats and other regulating devices	No adjustable thermostats.	N/A
1.7.12	Language	English	
1.7.13	Durability	The marking(s) withstood the required test.	Pass
1.7.14	Removable parts	Markings is not placed on removable parts	N/A
1.7.15	Replaceable batteries	The equipment contains replaceable lithium battery, ■ not user replaceable type: the following warning in user manual or service instructions marked with: CAUTION: CAUTION: Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to manufacturer instructions.	Pass
	Language	English	
1.7.16	Operator access with a tool.....	There is no hazard parts can be touched for operator access with a tool	Pass
1.7.17	Equipment for restricted access locations	No restricted access location	N/A

IEC 60950			
Clause	Requirement + Test	Result - Remark	Verdict

2	PROTECTION FROM HAZARDS		Pass
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2.1	Protection from electric shock and energy hazards Only SELV voltage circuits inside the unit → no electrical shock or energy hazards, see below.		Pass
2.1.1	Protection in OPERATOR access areas		Pass
2.1.1.1	Access to energized parts		N/A
	Test by inspection		N/A
	Test with test finger		N/A
	Test with test pin		N/A
	Test with test probe	No TNV circuits.	N/A
2.1.1.2	Battery compartments	No TNV circuits.	N/A
2.1.1.3	Access to ELV wiring	No ELV wiring in operator accessible area.	N/A
	Working voltage (V); distance (mm) through insulation		
2.1.1.4	Access to hazardous voltage circuit wiring	No internal wiring accessible to user.	N/A
2.1.1.5	Energy hazards	The unit output is not an energy hazard.	N/A
2.1.1.6	Manual controls	The equipment does not contain any knobs, handles, levers, or the like.	N/A
2.1.1.6	Manual controls		N/A
2.1.1.7	Discharge of capacitors in the primary circuit		N/A
	Time-constant (s); measured voltage (V)		
2.1.2	Protection in service access areas	No maintenance work in operation mode necessary.	N/A
2.1.3	Protection in restricted access locations	It is not intended to be used in restricted locations.	N/A

2.2	SELV circuits		Pass
2.2.1	General requirements	42.4V peak or 60VDC are not exceeded in SELV circuit under normal operation or single fault condition.	Pass
2.2.2	Voltages under normal conditions (V)	Between any SELV circuits 42.4V peak or 60VDC are not exceeded.	Pass

IEC 60950			
Clause	Requirement + Test	Result - Remark	Verdict

2.2.3	Voltages under fault conditions (V)	Single fault did not cause excessive voltage in accessible SELV circuits. Limits of 71V peak and 120VDC were not exceed and SELV limits not for longer than 0.2 seconds.	Pass
2.2.3.1	Separation by double or reinforced insulation (method 1)		N/A
2.2.3.2	Separation by earthed screen (method 2)		N/A
2.2.3.3	Protection by earthing of the SELV circuit (method 3)		N/A
2.2.4	Connection of SELV circuits to other circuits	See 2.2.2 and 2.2.3. No direct connection between SELV and any primary circuits.	N/A

2.3	TNV circuits		N/A
2.3.1	Limits		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

2.4	Limited current circuits		N/A
2.4.1	General requirements		N/A
2.4.2	Limit values		N/A
	Frequency (kHz)		
	Measured current (mA)		
	Measured voltage (V)		
	Measured capacitance (μ F)		
2.4.3	Connection of limited current circuits to other circuits		N/A

IEC 60950			
Clause	Requirement + Test	Result - Remark	Verdict

2.5	Limited power sources		Pass
	Inherently limited output	The USB output comply with table 2B under normal operation condition.	Pass
	Impedance limited output	Polyswitch used in the equipment. See Table 1.5.1 for Polyswitch specifications.	Pass
	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		N/A
2.6.2	Functional earthing		N/A
2.6.3	Protective earthing and protective bonding conductors		N/A
2.6.3.1	Size of protective earthing conductors		N/A
	Rated current (A), cross-sectional area (mm ²), AWG		—
2.6.3.2	Size of protective bonding conductors		N/A
	Rated current (A), cross-sectional area (mm ²), AWG		—
2.6.3.3	Rated current (A), type and nominal thread diameter (mm).....		N/A
	Resistance (Ω) of earthing conductors and their terminations, test current (A).....		N/A
2.6.3.4	Colour of insulation		N/A
2.6.4	Terminals		N/A
2.6.4.1	Protective earthing and bonding terminals		N/A
	Rated current (A), type and nominal thread diameter (mm).....		—

IEC 60950			
Clause	Requirement + Test	Result - Remark	Verdict

2.6.4.2	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		N/A

2.7	Overcurrent and earth fault protection in primary circuits		N/A
2.7.1	Basic requirements	No connected to primary circuit directly.	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	There are no interlock provided.	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	Interlocks with moving parts		N/A
2.8.6	Overriding an interlock		N/A
2.8.7	Switches and relays in interlock systems		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 (V)		N/A

IEC 60950			
Clause	Requirement + Test	Result - Remark	Verdict

2.8.8	Mechanical actuators		N/A
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2.9	Electrical insulation		Pass
2.9.1	Properties of insulating materials	Natural rubber, materials containing asbestos and hygroscopic materials are not used as insulation.	Pass
2.9.2	Humidity conditioning		N/A
2.9.3	Requirements for insulation		N/A
2.9.4	Insulation parameters	Both parameters were considered.	Pass
2.9.5	Categories of insulation	Functional.	Pass

2.10	Clearances, creepage distances and distances through insulation All circuits are SELV. Only functional insulation has been required.		Pass
2.10.1	General	See below.	Pass
2.10.2	Determination of working voltage		N/A
2.10.3	Clearances		Pass
2.10.3.1	General		Pass
2.10.3.2	Clearances in primary circuit		N/A
2.10.3.3	Clearances in secondary circuits	(see appended table 2.10.3 and 2.10.4)	Pass
2.10.3.4	Measurement of transient levels	Considered	Pass
2.10.4	Creepage distances	(see appended table 2.10.3 and 2.10.4)	Pass
	CTI tests.....:	Assume material group III b: $100 \leq CTI < 175$	—
2.10.5	Solid insulation		N/A
2.10.5.1	Minimum distance through insulation		N/A
2.10.5.2	Thin sheet material		N/A
	Number of layers (pcs).....:		—
	Electric strength test		—
2.10.5.3	Printed boards	PWB is not used as reinforced or supplementary insulation.	N/A
	Distance through insulation		N/A
	Electric strength test for thin sheet insulating material		—
	Number of layers (pcs).....:		N/A

IEC 60950			
Clause	Requirement + Test	Result - Remark	Verdict
2.10.5.4	Wound components		N/A
	Number of layers (pcs).....:		N/A
	Two wires in contact inside component; angle between 45° and 90°		N/A
2.10.6	Coated printed boards	No coated printed wiring boards.	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 hermetically sealed or enclosed components used. (see appended table 1.5.1.)	N/A
	Temperature $T_1=T_2 = T_{nra} - T_{amb} + 10K$ (°C).....:		N/A
2.10.8	Spacings filled by insulating compound		N/A
	Electric strength test		—
2.10.9	Component external terminations		N/A
2.10.10	Insulation with varying dimensions		N/A

3	WIRING, CONNECTIONS AND SUPPLY		Pass
3.1	General		Pass
3.1.1	Current rating and overcurrent protection	All internal wiring used in the unit against overcurrent and short circuit by suitably rated protective devices.	Pass
3.1.2	Protection against mechanical damage	The wires are routed away from sharp edges and parts which could damage insulation.	Pass
3.1.3	Securing of internal wiring	The wires are positioned in such a manner that prevents excessive strain, loosening of terminal connections and damage of conductor insulation.	Pass

IEC 60950			
Clause	Requirement + Test	Result - Remark	Verdict

3.1.4	Insulation of conductors	Insulation on internal conductors is considered to be of adequate quality and suitable for the application and the working voltages involved. All internal wirings are UL Recognized and rated minimum 300 Vac.	Pass
3.1.5	Beads and ceramic insulators	The equipment does not have any beads or similar insulators.	N/A
3.1.6	Screws for electrical contact pressure	The equipment does not have any screw-type connections.	Pass
3.1.7	Non-metallic materials in electrical connections	No contact pressure through insulating material.	Pass
3.1.8	Self-tapping and spaced thread screws	Thread-cutting or space thread screws are not used for electrical connections.	N/A
3.1.9	Termination of conductors		N/A
	10 N pull test		N/A
3.1.10	Sleeving on wiring	Sleeving is not used as supplementary insulation.	N/A

3.2	Connection to a.c. mains supplies		N/A
3.2.1	Means of connection		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
	Type		
	Rated current (A), cross-sectional area (mm ²), AWG		
3.2.6	Cord anchorages and strain relief	No sharp edges.	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

IEC 60950			
Clause	Requirement + Test	Result - Remark	Verdict

	D (mm); test mass (g)		—
	Radius of curvature of cord (mm)		—
3.2.9	Supply wiring space		N/A

3.3	Wiring terminals for connection of external conductors		N/A
3.3.1	Wiring terminals		N/A
3.3.2	Connection of non-detachable power supply cords		N/A
3.3.3	Screw terminals		N/A
3.3.4	Rated current (A), cord/cable type, cross-sectional area (mm ²)		N/A
3.3.5	Rated current (A), type and nominal thread diameter (mm)		N/A
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 a.c. mains supply		N/A
3.4.1	General requirement		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		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

3.5	Interconnection of equipment		Pass
3.5.1	General requirements		Pass
3.5.2	Types of interconnection circuits	The power supply is considered for connection to SELV only.	Pass
3.5.3	ELV circuits as interconnection circuits	No ELV interconnection.	N/A

IEC 60950			
Clause	Requirement + Test	Result - Remark	Verdict

4	PHYSICAL REQUIREMENTS		Pass
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4.1	Stability		Pass
	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.	Pass
	Test: force (N)	Not floor standing	N/A

4.2	Mechanical strength		Pass
4.2.1	General	See below.	Pass
4.2.2	Steady force test, 10 N	10N were applied to components. No energy or other hazards.	Pass
4.2.3	Steady force test, 30 N		N/A
4.2.4	Steady force test, 250 N		N/A
4.2.5	Impact test		N/A
4.2.6	Drop test	Not hand-held equipment	N/A
4.2.7	Stress relief		N/A
4.2.8	Cathode ray tubes	No Cathode ray tubes	N/A
	Picture tube separately certified		N/A
4.2.9	High pressure lamps	No High pressure lamps	N/A
4.2.10	Wall or ceiling mounted equipment; force (N)	Not Wall mounted equipment	N/A

4.3	Design and construction		Pass
4.3.1	Edges and corners	All edges and corners judged to be sufficiently well rounded so as not to constitute a hazard.	Pass
4.3.2	Handles and manual controls; force (N)		N/A
4.3.3	Adjustable controls	No control device	N/A
4.3.4	Securing of parts	Electrical and mechanical connections can be expected to withstand usual mechanical stress. For the protection, solder pins, cable ties and heat shrunk tubing are used.	Pass

IEC 60950			
Clause	Requirement + Test	Result - Remark	Verdict

4.3.5	Connection of plugs and sockets	The equipment does not have any interchangeable plugs/sockets.	N/A
4.3.6	Direct plug-in equipment	Not direct plug-in equipment	N/A
	Torque (Nm).....:		
4.3.7	Heating elements in earthed equipment	No heating element.	N/A
4.3.8	Batteries	A device that prevent reverse polarity installation provided.	Pass
4.3.9	Oil and grease	No oil or grease.	N/A
4.3.10	Dust, powders, liquids and gases	Equipment in intended use not considered to be exposed to these.	Pass
4.3.11	Containers for liquids or gases	No containers for liquid or gases.	N/A
4.3.12	Flammable liquids	No flammable liquids in the equipment.	N/A
	Quantity of liquid (l)		N/A
	Flash point (°C)		N/A
4.3.13	Radiation; type of radiation	Evaluated as an element of component evaluation.	N/A
	Equipment using lasers		N/A

4.4	Protection against hazardous moving parts		Pass
4.4.1	General	Equipment does not have any hazardous moving parts.	Pass
4.4.2	Protection in operator access areas	Fan guard used.	Pass
4.4.3	Protection in restricted access locations	No hazardous moving part in restricted access areas.	N/A
4.4.4	Protection in service access areas		N/A

4.5	Thermal requirements		Pass
4.5.1	Temperature rises	(see appended table)	Pass
	Normal load condition per Annex L	Operated in the most unfavorable way of operation given in the operating instructions until steady conditions established.	Pass
4.5.2	Resistance to abnormal heat		N/A

IEC 60950			
Clause	Requirement + Test	Result - Remark	Verdict

4.6	Openings in enclosures		Pass
4.6.1	Top and side openings	Foreign objects entering the enclosure will not contact bare parts at hazardous voltage or energy (No hazardous parts within 5° projection).	Pass
	Dimensions (mm)	See appended table.	—
4.6.2	Bottoms of fire enclosures	No bottom opening provided.	N/A
	Construction of the bottom		—
4.6.3	Doors or covers in fire enclosures		N/A
4.6.4	Openings in transportable equipment	Not transportable equipment.	N/A
4.6.5	Adhesives for constructional purposes		N/A
	Conditioning temperature/time		—

4.7	Resistance to fire		Pass
4.7.1	Reducing the risk of ignition and spread of flame	Method 1: Selection and application of components and materials which minimize the possibility of ignition and spread of flame.	Pass
4.7.2	Conditions for a fire enclosure	With having the following components: <ul style="list-style-type: none"> - components in secondary (not supplied by LPS). - components having unenclosed arcing parts at hazardous voltage or energy level. - insulated wiring - semiconductor devices, transistors, diodes, integrated circuits. - resistors, capacitors, inductors. - the fire enclosure is required. 	Pass
4.7.2.1	Parts requiring a fire enclosure	See 4.7.2	Pass
4.7.2.2	Parts not requiring a fire enclosure		N/A
4.7.3	Materials		Pass
4.7.3.1	General	See below.	Pass
4.7.3.2	Materials for fire enclosures	The fire enclosure is metal.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
4.7.3.3	Materials for components and other parts outside fire enclosures	Decorative parts and parts outside of the fire enclosure are made of minimum HB material.	N/A
4.7.3.4	Materials for components and other parts inside fire enclosures	All internal materials are rated V-2 or better or are mounted on a PWB rated V-1 or better Internal wiring is UL Recognized, rated VW-1 or FT-1 See Table 1.5.1 for material information.	Pass
4.7.3.5	Materials for air filter assemblies	No air filter assemblies.	N/A
4.7.3.6	Materials used in high-voltage components	No high-voltage components.	N/A

5	ELECTRICAL REQUIREMENTS AND SIMULATED ABNORMAL CONDITIONS	N/A
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5.1	Touch current and protective conductor current		N/A
5.1.1	General		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 current (mA)		—
	Max. allowed 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	No TNV.	N/A
5.1.8.1	Limitation of the touch current to a telecommunication network	No TNV.	N/A
	Test voltage (V)		—
	Measured current (mA)		—
	Max. allowed current (mA)		—
5.1.8.2	Summation of touch currents from telecommunication networks.....	No TNV.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict

5.2	Electric strength		N/A
5.2.1	General	Class III equipment	N/A
5.2.2	Test procedure		N/A

5.3	Abnormal operating and fault conditions		Pass
5.3.1	Protection against overload and abnormal operation	See below.	Pass
5.3.2	Motors	Approval DC Fan used. All disk drive motors evaluated as part of component evaluation.	Pass
5.3.3	Transformers		N/A
5.3.4	Functional insulation	Functional insulation complies with the requirements (a), (b), or (c).	Pass
5.3.5	Electromechanical components	No electromechanical component other than motor provided.	N/A
5.3.6	Simulation of faults	Faults in primary and secondary components and Functional insulation were already considered during the approval of the power supply. Blocked ventilation openings test: Result see appended table. Fan stalled test: Result see appended table. Connector overload test: Result see appended table. See appended table for other details.	Pass
5.3.7	Unattended equipment	Not provided.	N/A
5.3.8	Compliance criteria for abnormal operating and fault conditions	No fire propagated beyond the equipment. No molten metal was emitted.	Pass

IEC 60950			
Clause	Requirement + Test	Result - Remark	Verdict

6	CONNECTION TO TELECOMMUNICATION NETWORKS		N/A
---	---	--	-----

6.1	Protection of telecommunication network service personnel, 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		N/A
	Test voltage (V)		
	Current in the test circuit (mA)		
6.1.2.2	Exclusions		N/A

6.2	Protection of equipment users from overvoltages on telecommunication networks		N/A
6.2.1	Separation requirements		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 telecommunication wiring system from overheating		N/A
	Max. output current (A)		
	Current limiting method		

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.1.1	Samples, material		
	Wall thickness (mm)		
A.1.2	Conditioning of samples; temperature (°C)		N/A
A.1.3	Mounting of samples		N/A
A.1.4	Test flame		N/A
A.1.5	Test procedure		N/A
A.1.6	Compliance criteria		N/A
	Sample 1 burning time (s)		
	Sample 2 burning time (s)		
	Sample 3 burning time (s)		

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Clause	Requirement + Test	Result - Remark	Verdict

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.2.1	Samples, material		—
	Wall thickness (mm)		—
A.2.6	Compliance criteria		N/A
	Sample 1 burning time (s)		—
	Sample 2 burning time (s)		—
	Sample 3 burning time (s)		—
A.2.7	Alternative test acc. To IEC 60695-2-2, cl. 4, 8		N/A
	Sample 1 burning time (s)		—
	Sample 2 burning time (s)		—
	Sample 3 burning time (s)		—
A.3	High current arcing ignition test (see 4.7.3.2)		N/A
A.3.1	Samples, material		—
	Wall thickness (mm)		—
A.3.5	Compliance criteria		N/A
	Sample 1 number of arcs to ignition (pcs)		—
	Sample 2 number of arcs to ignition (pcs)		—
	Sample 3 number of arcs to ignition (pcs)		—
	Sample 4 number of arcs to ignition (pcs)		—
	Sample 5 number of arcs to ignition (pcs)		—
A.4	Hot wire ignition test (see 4.7.3.2)		N/A
A.4.1	Samples, material		—
	Wall thickness (mm)		—
A.4.5	Compliance criteria		N/A
	Sample 1 ignition time (s)		—
	Sample 2 ignition time (s)		—
	Sample 3 ignition time (s)		—
	Sample 4 ignition time (s)		—
	Sample 5 ignition time (s)		—
A.5	Hot flaming oil test (see 4.6.2)		N/A
A.6	Flammability tests for classifying materials V-0, V-1 or V-2		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

A.6.1	Samples, material		—
	Wall thickness (mm)		—
A.6.5	Compliance criteria		N/A
A.6.6	Permitted re-test		N/A
A.7	Flammability test for classifying foamed materials HF-1, HF-2 or HFB		N/A
A.7.1	Sample, material		—
	Wall thickness (mm)		—
A.7.4	Compliance criteria		N/A
A.7.5	Compliance criteria, HF-2		N/A
A.7.6	Compliance criteria, HF-1		N/A
A.7.7	Compliance criteria, HBF		N/A
A.7.8	Permitted re-test, HF-1 or HF-2		N/A
A.7.9	Permitted re-test, HBF		N/A
A.8	Flammability test for classifying materials HB		N/A
A.8.1	Samples, material		—
	Sample thickness (mm)		—
A.8.2	Conditioning of samples; temperature (°C).....		N/A
A.8.4	Test procedure		N/A
A.8.5	Compliance criteria		N/A
A.8.6	Permitted re-test		N/A
A.9	Flammability test for classifying materials 5V		N/A
A.9.1	Samples, material		—
	Sample thickness (mm)		—
A.9.4	Test procedure, test bars		N/A
A.9.5	Test procedure, test plaques		N/A
A.9.6	Compliance criteria		N/A
A.9.7	Permitted re-test		N/A
A.10	Stress relief conditioning (see 4.2.7)		N/A
	Temperature (°C)		—

B	ANNEX B, MOTOR TESTS UNDER ABNORMAL CONDITIONS (see 4.7.2.2 and 5.3.2)		N/A
B.1	General requirements		N/A
	Position		—

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Clause	Requirement + Test	Result - Remark	Verdict

	Manufacturer		
	Type		
	Rated values		
B.2	Test conditions		N/A
B.3	Maximum temperatures		N/A
B.4	Running overload test		N/A
B.5	Locked-rotor overload test		N/A
	Test duration (days)		
	Electric strength test: test voltage (V)		
B.6	Running overload test for DC motors in secondary circuits		N/A
B.7	Locked-rotor overload test for DC motors in secondary circuits		N/A
B.7.1	Test procedure		N/A
B.7.2	Alternative test procedure; test time (h)		N/A
B.7.3	Electric strength test		N/A
B.8	Test for motors with capacitors		N/A
B.9	Test for three-phase motors		N/A
B.10	Test for series motors		N/A
	Operating voltage (V)		

C	ANNEX C, TRANSFORMERS (see 1.5.4 and 5.3.3)		N/A
	Position		
	Manufacturer		
	Type		
	Rated values		
	Method of protection		
C.1	Overload test		N/A
C.2	Insulation		N/A
	Protection from displacement of windings		N/A

G	ANNEX G, ALTERNATIVE METHOD FOR DETERMINING MINIMUM CLEARANCES		N/A
G.1	Summary of the procedure for determining minimum clearances		N/A
G.2	Determination of mains transient voltage (V).....		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

G.3	Determination of telecommunication network transient voltage (V)		N/A
G.4	Determination of required withstand voltage (V) ..		N/A
G.5	Measurement of transient levels (V)		N/A
G.6	Determination of minimum clearances		N/A

H	ANNEX H, IONIZING RADIATION (see 4.3.13)		N/A
	Ionizing radiation		N/A
	Measured radiation (mR/h)		
	Measured high-voltage (kV)		
	Measured focus voltage (kV)		
	CRT markings		

J	ANNEX J, TABLE OF ELECTROCHEMICAL POTENTIALS (see 2.6.5.6)		N/A
	Metal used		

K	ANNEX K, THERMAL CONTROLS (see 1.5.3 and 5.3.7)		N/A
K.1	Making and breaking capacity		N/A
K.2	Thermostat reliability; operating voltage (V).....		N/A
K.3	Thermostat endurance test; operating voltage (V)		N/A
K.4	Temperature limiter endurance; operating voltage (V)		N/A
K.5	Thermal cut-out reliability		N/A
K.6	Stability of operation		N/A

M	ANNEX M, CRITERIA FOR TELEPHONE RINGING SIGNALS (see 2.3.1)		N/A
M.2	Method A		N/A
M.3	Method B		N/A
M.3.1	Ringling signal		N/A
M.3.1.1	Frequency (f).....		
M.3.1.2	Voltage (V)		
M.3.1.3	Cadence; time (s), voltage (V)		

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Clause	Requirement + Test	Result - Remark	Verdict

M.3.1.4	Single fault current (mA)		
M.3.2	Tripping device and monitoring voltage		N/A
M.3.2.1	Conditions for use of a tripping device or a monitoring voltage		N/A
M.3.2.2	Tripping device		N/A
M.3.2.3	Monitoring voltage (V)		N/A

U	ANNEX U, INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION (see 2.10.5.4)		N/A
	Separate test report		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

1.5.1	TABLE: list of critical components					Pass
object/part No.	manufacturer/ trademark	type/model	technical data	Standard	mark(s) of conformity ¹⁾	
1. PCB	Various	Various	V-1, min. 105°C	UL 796	UL	
2. Enclosure	--	--	Metal 1.0 mm thick minimum.	--	--	
3. Power Supply	Power Research Technology	PRD300RV	Input: -38 ~ -72 Vdc, Output: +12Vdc/11A, +5Vdc/30A, +3.3Vdc/22A, - 12Vdc/1.0A, - 5Vdc/1.0A, +5VSB/1.5A	EN 60950	TUV, NEMKO, UL, CB (Cert. No. JPTUV- 002921)	
4. Hard Disk (for Model MIC- 3038XX-XXXXY)	Various	Various	+5Vdc, 0.5A maximum.	EN 60950	TUV, UL	
	Various	Various	+5Vdc, 0.55A maximum.	EN 60950	TUV, UL	
5. CD-ROM Drive (Optional) (for Model MIC- 3056XX-XXXXY)	Various	Various	+5Vdc, 1.5A maximum.	EN 60950 EN 60825-1	TUV, UL	
6. RTC Battery	Tadiran	TL-5186	3.6Vdc, max. abnormal charging current 15mA	--	UL	
7. Polyswitch	Polytronics	SMD1812 series	5.2A	--	UL	
8. Rear Fan (for Model MIC- 3038XX-XXXXY)	Adda	AD0812UX- A76GL	+12Vdc, 0.3A	EN 60950	TUV, UL	
9. Left Fan (for Model MIC- 3038XX-XXXXY)	Delta	WFB1212H	+12Vdc, 0.45A	EN 60950	TUV, UL	
	Delta	AFB1512-F00	+12Vdc, 0.63A	EN 60950	TUV, UL	
15. DC Fan (three provided) (for Model MIC- 3056XX-XXXXY)	Delta	EFB0612HHA	+12Vdc, 0.25A	EN 60950	TUV, UL	
16. Terminal Block	Blockmaster Electronics	DT-55	300V, 25A	EN 60950	TUV, UL	

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Clause	Requirement + Test	Result - Remark	Verdict

1.6.2	TABLE: electrical data (in normal conditions)					Pass
fuse #	I rated (A)	U (V)	P (W)	I (mA)	I fuse (mA)	condition/status
Model: MIC-3038XX-XXXXY						
--	11.0	-48Vdc	414.7	8.64	--	Max. normal load
Model: MIC-3056XX-XXXXY						
--	11.0	-48Vdc	231.3	4.82	--	Max. normal load
supplementary information: Max. normal load was defined as follows: Unit continuously crossed reading and writing data between HDD, CD-ROM drive, FDD, each USB port load 2.5W and working continuously.						

2.5	TABLE: limited power source measurement					Pass
- A regulating network limits the output in compliance with Table 8, both under normal operating conditions and after any single fault in the regulating network (open-circuit or short-circuit)						
1. According to Table 8 under normal operating conditions						
Model: MIC-3038XX-XXXXY						
Output Voltage (Voc)			Output Current (Isc)		VA	
V ac	V dc	Measured	Max Allowed	Measured	Max Allowed	Measured
≤20	≤20	5.2	≤8.0	2.2	≤5 X Voc=26.0	8.78
Model: MIC-3056XX-XXXXY						
Output Voltage (Voc)			Output Current (Isc)		VA	
V ac	V dc	Measured	Max Allowed	Measured	Max Allowed	Measured
≤20	≤20	5.2	≤8.0	2.2	≤5 X Voc=26.0	8.78

2.10.3 and 2.10.4	TABLE: clearance and creepage distance measurements					Pass
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)
--	--	--	--	--	--	--
supplementary information: All circuits are SELV. Only functional insulation has been required.						

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Clause	Requirement + Test	Result - Remark	Verdict

4.5	TABLE: temperature rise measurements		Pass
	test voltage (V)	-48Vdc/2.0 hrs	
	t1 (°C)		
	t2 (°C)		
temperature rise dT of part/at:		dT (K)	Required dT (K)
Model: MIC-3038XX-XXXXY			
Ambient		26°C	--
Power 1			
T2 coil		38	55
T2 core		34	55
C8 body		28	35
L5 coil		39	55
PWB near D10 Heatsink		25	55
PWB near D7 Heatsink		35	55
Power 2			
T2 coil		37	55
T2 core		31	55
C8 body		19	35
L5 coil		39	55
PWB near D10 Heatsink		21	55
PWB near D7 Heatsink		35	55
Main board			
PWB near Q3		30	55
PWB near CPU		28	55
C51 body		24	35
U12 body		21	--
BT1 body		2	--
H.D.D body		3	--
Enclosure outside near power supply		14	20

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Clause	Requirement + Test	Result - Remark	Verdict

4.5	TABLE: temperature rise measurements (cont.)			Pass	
	test voltage (V)	-48Vdc/2.0 hrs		---	
	t1 (°C)			---	
	t2 (°C)			---	
temperature rise dT of part/at:		dT (K)	Required dT (K)		
Model: MIC-3056XX-XXXXY					
Ambient		26°C	--		
Power 1					
T2 coil		22	55		
T2 core		21	55		
C8 body		18	35		
L5 coil		23	55		
PWB near D10 Heatsink		19	55		
PWB near D7 Heatsink		19	55		
Power 2					
T2 coil		21	55		
T2 core		19	55		
C8 body		18	35		
L5 coil		21	55		
PWB near D10 Heatsink		16	55		
PWB near D7 Heatsink		18	55		
Main board					
PWB near Q3		25	55		
PWB near CPU		25	55		
C51 body		16	35		
U12 body		19	--		
BT1 body		2	--		
H.D.D body		12	--		
Enclosure outside near power supply		11	20		
Insulator	R ₁ (Ω)	R ₂ (Ω)	dT (K)	required dT (K)	insulation class

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Clause	Requirement + Test	Result - Remark	Verdict

4.5	TABLE: temperature rise measurements (cont.)	Pass
<p>comments:</p> <p>The temperatures were measured under worst case normal mode defined in 1.2.2.1 and described in 1.6.2 at voltages as described in 1.4.5</p> <p>Without specified ambient temperature in users manual, therefore the ambient temperature assumed as 50°C, the max. temperature rise is calculated as follows:</p> <p>Winding components:</p> <p>Components with:</p> <ul style="list-style-type: none"> - max. absolute temp. of 105°C (Electrolyte capacitor) → $dT_{max} = (105-50)K = 55 K$ - max. absolute temp. of 85°C → $dT_{max} = (85-50)K = 35 K$ - max. absolute temp. of 105°C (PWB) → $dT_{max} = (105-50)K = 55 K$ <p>User accessible area:</p> <p>Enclosure is metal (45K) → $dT_{max} = 45 - (50-25)K = 20 K$</p>		

4.6/4.6.1 & 4.6.2	TABLE: openings in enclosures	Pass
Location	size (mm)	comments
Model MIC-3038XX-XXXXY		
Left side	Each measured 5.9x5.98 mm, cover two areas, overall area 118.5 by 115.5 mm, 118.5 by 36 mm.	Foreign objects entering the enclosure will not contact bare parts at hazardous voltage or energy (No hazardous parts within 5° projection).
Right side	Each measured 9.8x3.4 mm, overall area 127 by 73.5 mm.	Foreign objects entering the enclosure will not contact bare parts at hazardous voltage or energy (No hazardous parts within 5° projection).
Rear side	Each measured 5.9x5.9 mm, overall area 73 by 73 mm.	Foreign objects entering the enclosure will not contact bare parts at hazardous voltage or energy (No hazardous parts within 5° projection).
Model MIC-3056XX-XXXXY		
Left side	Each measured 20x4.0 mm, Cover two areas, overall area 128 by 59 mm, 63 by 59 mm.	Foreign objects entering the enclosure will not contact bare parts at hazardous voltage or energy (No hazardous parts within 5° projection).
Right side	Each measured 20x2.0 mm, overall area 260 by 72 mm.	Foreign objects entering the enclosure will not contact bare parts at hazardous voltage or energy (No hazardous parts within 5° projection).

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Clause	Requirement + Test	Result - Remark	Verdict

5.3	TABLE: fault condition tests						Pass
	ambient temperature (°C)	:	25°C				—
	model/type of power supply	:					—
	manufacturer of power supply	:					—
	rated markings of power supply	:					—
component No.	fault	test voltage (V)	test time	fuse No.	fuse current	result	
Model: MIC-3038XX-XXXXY							
Ventilation openings	Blocked	-48Vdc	3.0hrs	—	—	Normal operation, Temp. was stabled at Power 1 T2 coil 106°C, T2 core 102°C, Power 2 T2 coil 99°C, T2 core 93°C, no damaged, no hazards.	
Fan 1	Stalled	-48Vdc	2.0hrs	—	—	Normal operation, Temp. was stabled at Power 1 T2 coil 70°C, T2 core 65°C. Power 2 T2 coil 69°C, T2 core 62°C, no damaged, no hazards.	
Fan 2	Stalled	-48Vdc	2.0 hrs	—	—	Normal operation, Temp. was stabled at Power 1 T2 coil 84°C, T2 core 78°C. Power 2 T2 coil 75°C, T2 core 68°C, no damaged, no hazards.	
Model: MIC-3056XX-XXXXY							
Ventilation openings	Blocked	-48Vdc	3.5hrs	—	—	Normal operation, Temp. was stabled at power 1 T2 coil 74°C, T2 core 69°C. Power 2 T2 coil 78°C, T2 core 75°C, no damaged, no hazards.	
Fan 1	Stalled	-48Vdc	2.0hrs	—	—	Normal operation, Temp. was stabled at Power 1 T2 coil 60°C, T2 core 56°C. Power 2 T2 coil 53°C, T2 core 51°C, no damaged, no hazards.	
Fan 2	Stalled	-48Vdc	2.0hrs	—	—	Normal operation, Temp. was stabled at Power 1 T2 coil 53°C, T2 core 49°C. Power 2 T2 coil 54°C, T2 core 50°C, no damaged, no hazards.	
One power	Removed	-48Vdc	2.0 hrs	---	—	Normal operation, power 1 T2 coil 35°C, T2 core 35°C. Power 2 T2 coil 54°C, T2 core 48°C, no damaged, no hazards.	

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Clause	Requirement + Test	Result - Remark	Verdict

5.3.6	TABLE: Overload of operator accessible connector test (US Deviation)			Pass
Connector Pin #s	Open Circuit voltage(V)	Maximum Available Current (mA)	Length of Test	Comment
RJ-45 pin 1-8	0	--	--	Circuit measures 0 Volts.
USB pin1-3	0	--	--	Circuit measures 0 Volts.
USB pin 4	5.2	2.2	1hr	No indication of dielectric breakdown. Cheesecloth and tissue paper remained intact.
EGA pin 1, 2, 5, 6, 8, 9	0	--	--	Circuit measures 0 Volts.
EGA pin 3,4,7	9.33	0	1 sec	Circuit measure less than 12.5 mA.
VGA D-sub pin 1-6, 8-10, 15	0	--	--	Circuit measures 0 Volts.
VGA D-sub pin 7, 11, 14	5.07	0	1 sec	Circuit measure less than 12.5 mA.
VGA D-sub pin 12, 13	3.0	0	1 sec	Circuit measure less than 12.5 mA.
PS2 pin 1, 2, 6	5.15	0	1 sec	Circuit measure less than 12.5 mA.
PS2 pin 3-5	0	--	--	Circuit measures 0 Volts.

A.6.5	TABLE: flammability test for classifying materials V-0, V-1 or V-2		N/A
sample No. / ref.	afterflame time (s) t_1 or t_2	afterflame + afterglow (s) after 2nd flame application $t_2 + t_3$	
1/A			
2/A			
3/A			
4/A			
5/A			
6/B			
7/B			
8/B			
9/B			
10/B			

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Clause	Requirement + Test	Résultat - Remark	Verdict

A.6.6	TABLE: flammability re-test for classifying materials V-0, V-1 or V-2		N/A
sample No.	afterflame time (s) t_1 or t_2	afterflame + afterglow (s) after 2nd flame application $t_2 + t_3$	
11			
12			
13			
14			
15			

A.7.4, A.7.5, A.7.6 and A.7.7	TABLE: flammability test for classifying foam materials HF-1, HF-2 or HBF			N/A
sample No. / ref.	flame time (s)	glow time (s)	flaming/glowing distance from the end (mm)	comment (for A.7.7 burning rate mm/min)
1/A				
2/A				
3/A				
4/A				
5/A				
6/B				
7/B				
8/B				
9/B				
10/B				

A.7.8	TABLE: flammability re-test for classifying foam materials HF-1 or HF-2			N/A
sample No.	flame time (s)	glow time (s)	flaming/glowing distance from the end (mm)	comment
11				
12				
13				
14				
15				

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Clause	Requirement + Test	Result - Remark	Verdict

A.7.9	TABLE: flammability re-test for classifying foam materials HBF			N/A
sample No.	flame time (s)	glow time (s)	flaming/glowing distance from the end (mm)	comment (for A.7.7 burning rate mm/min)
11				
12				
13				
14				
15				

A.8.5	TABLE: flammability test for classifying materials HB		N/A
sample No.	flaming/glowing rate mm/min	flaming/glowing distance from reference mark (mm)	
1			
2			
3			

A.8.6	TABLE: flammability re-test for classifying materials HB		N/A
sample No.	flaming/glowing rate mm/min	flaming/glowing distance from reference mark (mm)	
4			
5			
6			

A.9.6	TABLE: flammability test for classifying materials 5V					N/A
sample	test bars		test plaques			
No./ref.	flaming + glowing time (s)	burning distance (mm)	position	flaming + glowing time (s)	burning distance (mm)	
1/A			A			
2/A			B			
3/A			C			
4/A			D			
5/A						
6/B			A			
7/B			B			
8/B			C			
9/B			D			
10/B						

A.9.7	TABLE: flammability re-test for classifying materials 5V					N/A
sample	test bars		test plaques			
No.	flaming + glowing time (s)	burning distance (mm)	position	flaming + glowing time (s)	burning distance (mm)	
11			A			
12			B			
13			C			
14			D			
15						
supplementary information:						

TRF No.: I950__F

TRF originator: FIMKO

**United Kingdom (GB)*
USA
CENELEC**

*** The country have no national deviation according to IEC 60950 3rd Edition.**

(Total 26 Pages including this Cover Page)

National Deviations to IEC 60950 Standard:IEC 60950, 3rd Edition (1999)Information technology equipment including electrical business equipment

Country	Remark	Group differ.	National differ.	National Standard
AR Argentina	R	-	-	
AT Austria		Yes	-	
BE Belgium		Yes	-	
BR Brazil	R	-	-	
CA Canada		-	Yes	CAN/CSA C22.2 No. 60950/UL 60950 Third Edition
CH Switzerland		Yes	-	EN 60950:2000
CN China		-	-	
CZ Czech Republic		Yes	-	
DE Germany		Yes	Yes	EN 60950:2000
DK Denmark		Yes	Yes	EN 60950:2000
ES Spain		Yes	Yes	EN 60950:2000
FI Finland		Yes	Yes	EN 60950
FR France		Yes	-	
GB United Kingdom		Yes	Yes	BS EN 60950:2000
HU Hungary		Yes	-	MSZ EN 60950
IE Ireland		Yes	-	
IL Israel		-	-	
IT Italy		Yes	-	
JP Japan		-	Yes	J60950 (H14)
KR Korea		-	Yes	K60950
NL The Netherlands		Yes	-	
NO Norway		Yes	Yes	NEK EN 60950
PL Poland	R	-	-	
PT Portugal		Yes	-	EN 60950:2000
RU Russia Federation	R	-	-	
SE Sweden		Yes	Yes	SS EN 60950, 6 th ed
SI Slovenia		Yes	-	
SK Slovakia		Yes		
SG Singapore		-	-	
TR Turkey		Yes	-	
US United States of America		-	Yes	UL 60950
ZA South Africa		-	-	SABS IEC 60950

IEC 60950			
Sub-Clause	Difference+ Test	Result - Remark	Verdict
(CA) Canadian Deviations IEC 60950 Third Edition			Pass
<p>General: Canada and the United States of America have adopted a single, bi-national standard, CAN/CSA C22.2 No. 60950/UL 60950, Third Edition, based on IEC 60950, Third Edition. This standard may be used for product certification immediately, however, the previous version of the standard may also be used until April 1, 2003.</p> <p><i>Note:</i> The previous version is CAN/CSA C22.2 No. 950-95/UL 1950-1997, Third Edition, based on IEC 60950, 2nd Edition including Amendments 1, 2, 3 and 4. Refer to the "IEC 60950, 2nd Edition + Amds 1, 2, 3 & 4, CA" section of this bulletin for the national differences in this version of the standard.</p> <p>The following is a summary of the key national differences from IEC 60950, 3rd Edition. The standard (CAN/CSA C22.2 No. 60950/UL 60950, Third Edition) should be consulted for further details on the national differences summarized below.</p> <p>SPECIAL NATIONAL CONDITIONS</p> <p>Those requirements are identified as Special National Conditions since they are directly related to the Canadian Electrical Code (CEC), Part 1 and the Canadian Building Code, which are referenced in legislation and which form the basis for the rules and practices followed in electrical and other building installations in Canada.</p> <p>Notes:</p> <ul style="list-style-type: none"> • "CEC" denotes Canadian Electrical Code • "NEC" denotes US National Electrical Code • Due to common Canadian and US national differences, products that are in compliances with Canadian national differences are also considered in compliance with the US national differences. 			Pass
1.1.1	All equipment design and installations are required to be in accordance with the Canadian Electrical Code (CEC), Part 1, CAN/CSA C22.1, and with National Electrical Code (NEC), ANSI/NFPA 70, and, unless marked or otherwise identified, the Standard for the Protection of Electronic Computer/Data-Processing Equipment, ANSI/NFPA 75.		Pass
1.5.5	<p>For lengths exceeding 3.05 m, external interconnecting flexible cord and cable assemblies are required to be a suitable cable type (e.g. DP, CL2) specified in the CEC/NEC.</p> <p>For lengths 3.05 m or less, external interconnecting flexible cord and cable assemblies which are not types specified in the CEC/NEC are required to have special construction features and identification markings.</p>		N/A

IEC 60950			
Sub-Clause	Difference+ Test	Result - Remark	Verdict
1.7.1	<p>Equipment for use on a.c. mains supply systems with a neutral and more than one phase conductor (e.g. 120/240V, 3-wire) require a special marking format for electrical ratings.</p> <p>A voltage rating that exceeds an attachment plug cap rating is only permitted if it does not exceed the extreme operating conditions in Table 2 of CAN/CSA C22.2 No. 235, and if it is part of a range that extends into the Table 2 "Normal Operating Conditions." Likewise, a voltage rating shall not be lower than specified, "Normal Operating Conditions," unless it is part of a range that extends into the "Normal Operating Conditions."</p>	Single phase equipment.	N/A
2.5	Where a fuse is used to provide Class 2, Limited Power Source, or TNV current limiting, it shall not be operator-accessible unless it is not interchangeable.		N/A
2.7.1	<p>Suitable CEC/NEC branch circuit protection is required for all standard supply outlets, receptacles and medium-base or smaller lampholders if the supply branch circuit protection is not suitable.</p> <p>Power distribution transformers distributing power at 100 volts or more, and rated 10 kVA or more, require transformer overcurrent protection.</p>		N/A
3.2	Wiring methods (terminals, leads, etc.) used for the connection of the equipment to the mains shall be in accordance with the CEC/NEC.		N/A
3.2.1	Power supply cords are required to have attachment plugs rated not less than 125 percent of the rated current of the equipment.		N/A
3.2.3	Permanent connection of equipment to the mains supply by a power supply cord is not permitted, except for certain equipment, such as ATMs.	Not permanent connection equipment.	N/A
3.2.5	<p>Power supply cords are required to be no longer than 4.5 m in length.</p> <p>Flexible power supply cords are required to be compatible with Tables 11 & 12 of the CEC, and Article 400 of the NEC.</p>		N/A
3.2.9	Permanently connected equipment is required to have a suitable wiring compartment and wire bending space.	Not permanent connection equipment.	N/A
3.3	Wiring terminals and associated spacings for field wiring connections shall comply with CAN/CSA C22.2 No. 0.	Not for field wiring.	N/A

IEC 60950			
Sub-Clause	Difference+ Test	Result - Remark	Verdict
3.3.3	Wire binding screws are not permitted to attach conductors larger than 10 AWG (5.3 mm ²).		N/A
3.3.4	Terminals for permanent wiring, including protective earthing terminals are required to be suitable for Canadian/U.S. wire gauge sizes, rated 125 percent of the equipment rating, and specially marked when specified (1.7.7).		N/A
3.4.2	Motor control devices are required for cord-connected equipment with a motor if the equipment is rated more than 12 A, or if the motor has a nominal voltage rating greater than 120 V or is rated more than 1/3 hp (locked rotor current over 43 A).		N/A
3.4.8	Vertically-mounted disconnect switches and circuit breakers are required to have the "on" position indicated by the handle in the up position.		N/A
3.4.10	For computer room applications, equipment with battery systems capable of supplying 750 VA for five minutes are required to have a battery disconnect means that may be connected to the computer room remote power-off circuit.		N/A
4.3.12	The maximum quantity of flammable liquid stored in equipment is required to comply with NFPA 30.	There are no flammable liquid stored in equipment	N/A
4.3.13	Equipment with lasers is required to meet Code of Federal Regulations 21 CFR 1040 and /or Canadian Radiation Emitting Devices Act, REDR C 1370, as applicable.	Evaluated as an element of component evaluation.	N/A
4.7.1	For computer room applications, automated information storage systems with combustible media greater than 27 cubic feet are required to have a provision for connection of either automatic sprinklers or a gaseous agent extinguishing system with an extended discharge.		N/A
4.7.3.1	For computer room applications, enclosures with combustible material measuring greater than 0.9 m ² or a single dimension greater than 1.8 m, are required to have a flame spread rating of 50 or less. For other applications, enclosures with the same dimensions require a flame spread rating of 200 or less.		N/A
Annex H	Equipment that produces ionizing radiation is required to comply with Code of Federal Regulations, 21 CFR 1020 and/or Canadian Radiation Emitting Devices Act, REDR C1370, as applicable.	Not produce ionizing radiation.	N/A

IEC 60950			
Sub-Clause	Difference+ Test	Result - Remark	Verdict

OTHER DIFFERENCES:			Pass
The following key national differences are based on requirements other than national regulatory requirements. The bi-national standard (CAN/CSA C22.2 No. 60950/UL 60950, Third Edition) referenced above should be consulted for further details on the national differences summarized below.			
1.5.2	Components of equipment must be suitable for the application, and must comply with the requirements of the equipment standard and the applicable national (Canadian and/or U.S. component or material standards, as far as they may apply. The acceptance will be based on the following:	see appended table 1.5.1	Pass
(E)	A component Certified by a Canadian or U.S. National Certification Body (NCB) to a Canadian or U.S. component standard will be checked for correct application and use in accordance with its specified rating. Where necessary, it will also be subject to the applicable tests of the equipment standard.	see appended table 1.5.1	Pass
(F)	A component, which has a CB Test Certificate for compliance with a relevant IEC component standard, will be checked for correct application and use in accordance with its specified ratings. Where necessary, it will also be subject to the applicable tests of the equipment standard, and to the applicable tests of the Canadian and/or U.S. component or material standard, under the conditions occurring in the equipment.		N/A
(G)	A component, which has no approval as in (E) or (F) above or which is used not in accordance with its specified ratings, will be subject to the applicable tests of the equipment standard, and to the applicable tests of the Canadian and/or U.S. component or material standard, under the conditions occurring in the equipment.		N/A
(H)	Some components may require annual re-testing, which may be carried out by the manufacturer, CSA International or another laboratory.		N/A
2.3.1	For TNV-2 and TNV-3 circuits with other than ringing signals and with voltages exceeding 42.4 Vp or 60 Vd.c., the maximum acceptable current through a 2000 ohm resistor (or greater) connected across the voltage source with other loads disconnected is 7.1 mA peak or 30 mA d.c. under normal operating conditions.	No TNV circuits.	N/A
2.6.3.3	When subject to impedance testing, protective earthing and bonding are required to be tested to the additional test conditions that originate in CAN/CSA C22.2 No. 0.4.	Class III equipment.	N/A
4.2.8.1	Enclosures around CRT's having a diagonal dimension of 160 mm or more are required to reduce the risk of injury due to the implosion of the CRT.	No CRT.	N/A

IEC 60950			
Sub-Clause	Difference+ Test	Result - Remark	Verdict

4.3.2	Equipment with handles is required to comply with special loading tests.		N/A
5.1.8.1.1	Equipment intended to receive telecommunication ringing signals is required to comply with a special touch current measurement tests		N/A
6.2.1	Enamel coating on winding wire not considered electrical separation unless subject to special investigation.		N/A
6.4	Equipment intended for connection to telecommunication network outside plant cable is required to be protected against overvoltage from power line crosses in accordance with 6.4 and Annex NAC..		N/A
6.5	Equipment connected to a telecommunications network and supplied with an earphone intended to be held against, or in the ear is required to comply with special acoustic pressure tests.		N/A
M.2	Continuous ringing signals up to 16 mA only are permitted if the equipment is subject to special installation and performance restrictions.		N/A
Annex NAB	Equipment connected to centralized d.c. power systems is required to comply with special earthing, wiring, marking and insulation requirements in accordance with Annex NAB and 3.6.1.		N/A

IEC 60950			
Sub-Clause	Difference+ Test	Result - Remark	Verdict

(DE) German Deviations IEC 60950 Third Edition			N/A
1.7.12	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 German language. Note Of this requirement, rules for use even only by service personnel are not exempted.		N/A
Annex H (a)	a) A license is required by those who operate an X-ray emission source	No CRT.	N/A
Annex H (b)	b) A license in accordance with Clause 1 is not required by those who operate an X-ray emission source on which the electron acceleration voltage does not exceed 20 kV if : 1) The local dose rate at a distance of 0.1 m from the surface does not exceed 1 µS v/h and 2) it is adequately indicated on the X-ray emission source that i) X-rays are generated and ii) the electron acceleration voltage must not exceed the maximum value stipulated by the manufacturer or importer		N/A
Annex H (c)	c) A license in accordance with Clause 1 is also not required by persons who operate an X-ray emission source on which the electron acceleration voltage exceeds 20 kV if: 1) The X-ray emission source has been granted a type approval and 2) it is adequately indicated on the X-ray emission source that i) X-rays are generated, 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 iii) the electron acceleration voltage must not exceed the maximum value stipulated by the manufacturer or importer		N/A

IEC 60950			
Sub-Clause	Difference+ Test	Result - Remark	Verdict
Annex H (d)	<p>d) Furthermore, a license in accordance with Clause 1 is also not required by persons who operate X-ray emission source on which the electron acceleration voltage does not exceed 30 kV if:</p> <ol style="list-style-type: none"> 1) the X-rays are generated only intrinsically safety CRTs complying with Enclosure III, No. 6, 2) the values stipulated in accordance with Enclosure III, No. 6.2 are limited by technical measures and specified in the device and 3) it is adequately indicated on the X-ray emission source that the X-rays generated are adequately screened by the intrinsically safe CRT. 		N/A

(DK) Danish Deviations IEC 60950 Third Editio			N/A
1.2.4.1	In Denmark, certain types of Class I appliances (see sub-clause 3.2.1) may be provided with a plug not establishing earthing continuity when inserted into Danish socket-outlets.	Class III equipment.	N/A
1.5.1	<p>Denmark (Heavy Current Regulations)</p> <p>Supply cords of CLASS I EQUIPMENT, which is delivered without a plug, must be provide with a Visible tag with the following test:</p> <p>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 installationsvejledning".</p> <p>"Vigtigt ! Lederen med grøn/gul isolation må kun tilsluttes en klemme mærket (IEC 417, No. 5019) eller (IEC 417, No. 5017)."</p>	Class III equipment.	N/A
1.7.5	CLASS II EQUIPMENT shall not be fitted with socket-outlets for providing power to other equipment.		N/A
1.7.5	In Denmark, socket-outlets for providing power to other equipment shall be in accordance with the Heavy Current Regulations, 107-2-DI, Standard Sheet DK 1-3a, DK 1-5a or DK 1-7a, when used on Class I equipment.		N/A

IEC 60950			
Sub-Clause	Difference+ Test	Result - Remark	Verdict
3.2.1	<p>In Denmark, supply cords of single-phase equipment having a rated current not exceeding 10 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 10 A is provided with a supply cord with a plug, this plug shall be in accordance with the Heavy Current Regulations, Section 107-1-D1 or EN 60309-2.</p>		N/A

(ES) Spanish Deviations IEC 60950 Third Edition			N/A
	<p>In Spain, supply cords of single-phase equipment having a rated current not exceeding 10 A shall be provided with a plug according to UNE-EN 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 a supply cord with a plug, this plug shall be in accordance with UNE-EN-60309-2.</p> <p>If poly-phase equipment is provided with a supply with a supply cord with a plug, this shall be in accordance with UNE-EN 60309-2.</p>	Class III equipment.	N/A

(FI) Finnish Deviations IEC 60950 Third Edition			N/A
6.1.2.2	The exclusions are applicable for permanently connected equipment and pluggable equipment type B only.		N/A

IEC 60950			
Sub-Clause	Difference+ Test	Result - Remark	Verdict

(GB) UK Deviations IEC 60950 Third Edition			N/A
3.2.1	In the United Kingdom, 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 Sockets etc. (Safety) Regulations 1994, unless exempted by those regulations. NOTE: 'standard plug' is defined in SI 1768: 1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.		N/A
3.2.5	In the United Kingdom, 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.		N/A
3.3.4	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.		N/A
4.3.6	The torque test is performed using a socket outlet complying with BS 1363: and the plug part OF DIRECT PLUG-IN EQUIPMENT shall be BS 1363: Part 1, 12.1, 12.2, 12.3, 12.9, 12.11, 12.12, 12.16, expect that test of 12.17 is performed at not less than 125 °C.	Not Direct Plug-In equipment	N/A

IEC 60950			
Sub-Clause	Difference+ Test	Result - Remark	Verdict

(IE) Ireland Deviations IEC 60950 Third Edition			N/A
3.2.1	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 Statutory Instrument 526: 1997 – National Authority of Ireland (section 28) (13 A Plugs and Conversion Adaptors for Domestic Use) Regulations 1997.		N/A
4.3.6	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.		N/A

(JP) Japanese Deviations IEC 60950 Third Edition			Pass
1.2	Add the following terms. Equipment, Class 01 Material, VTM	Added.	Pass
1.2.4.101	<p>CLASS 01 EQUIPMENT: Equipment where protection against electronic shock is achieved by:</p> <ul style="list-style-type: none"> a) using BASIC INSULATION, and b) providing a means of connecting to the protective earthing conductor in the building wiring those conductive parts that are otherwise capable of assuming HAZARDOUS VOLTAGES if the BASIC INSULATION fails, and c) using a supply cord without earthing conductor and a plug without earthing wire although the equipment has externally an earth terminal or a lead wire for earthing. <p>Equipment provided with a cord set having a two-pin type plug with a lead wire for earthing is also regarded as Class 01.</p> <p>Note – Class 01 equipment may have a part constructed with Double Insulation or Reinforced Insulation as well as an operating part as SELV circuit.</p>	Class III equipment.	N/A

IEC 60950			
Sub-Clause	Difference+ Test	Result - Remark	Verdict
1.2.12.1	<p>FLAMMABILITY CLASSIFICATION OF MATERIALS: The recognition of the burning behavior of materials and their ability to extinguish if ignited. Materials are classified as in 1.2.12.2 to 1.2.12.9, and 1.2.12.101 when tested in accordance with annex A.</p> <p>Note1 – When applying the requirements in this standard, HF-1 CLASS FOAMED MATERIALS are regarded as better than those of CLASS HF-2, and HF-2 better than HBF.</p> <p>Note2 – Similarly, other MATERIALS, including rigid (engineering structural) foam of CLASSES 5V or V-0 are regarded as better than those of CLASS V-1, V-1 better than V-2, and V-2 better than HB.</p> <p>Note3 – Similarly, for thin MATERIALS, VTM-0 Class materials are regarded as better than those of VTM-1 Class, and VTM-1 better than VTM-2.</p>		N/A
1.2.12.101	<p>VTM CLASS MATERIAL: Thin MATERIALS fulfill the specified conditions during the test of clause A.101 applied for materials that the test and evaluation of clauses A.6 to A.10 is difficult to enforce. Materials are classified to three classifications as VTM-0, VTM-1 and VTM-2 according to the conditions after the removal of the test flame.</p>		N/A
1.7.101	<p>Marking for CLASS 01 EQUIPMENT</p> <p>For CLASS 01 EQUIPMENT, the following instruction shall be indicated on the visible place of the mains plug or the main body:</p> <p>"Provide an earthing connection"</p> <p>Moreover, for CLASS 01 EQUIPMENT, the following instruction shall be indicated on the visible place of the main body or written in the operating instructions:</p> <p>"Provide an earthing connection before the mains plug is connected to the mains. And, when disconnecting the earthing connection, be sure to disconnect after pulling out the mains plug from the mains."</p>		N/A
2.1.1.1	<p>Replace " IEC 60083" to " IEC 60083 or JIS C 8303" in 2.1.1.1b)</p>		N/A
2.6.3.1	<p>Add the following after 1st paragraph.</p> <p>This also applies to the conductor of lead wire for protective earthing of CLASS 01 EQUIPMENT.</p>		N/A

IEC 60950			
Sub-Clause	Difference+ Test	Result - Remark	Verdict
2.6.4.1	Replace 2 nd sentence in 1 st paragraph. For CLASS I EQUIPMENT with a DETACHABLE POWER SUPPLY CORD, the earthing terminal in appliance inlet is regarded as the main protective earthing terminal.	Class III equipment.	N/A
2.6.5.4	Replace 1 st sentence. Protective earthing of CLASS I EQUIPMENT shall make earlier and break later than the supply connections in each of the following:	Class III equipment.	N/A
2.6.101	Earthing of CLASS 01 EQUIPMENT Plugs with a lead wire for earthing shall not be used for equipment having a rated voltage exceeding 150V. For plugs with a lead wire for earthing, the lead wire shall not be earthed by a clip. CLASS 01 EQUIPMENT shall be provided with an earthing terminal or lead wire for earthing in the external where easily visible.		N/A
3.2.5	Delete 1) in Table 3B		N/A
4.2.8	Add the following informative remark after the last sentence: "IEC 61965 is also applicable instead of IEC 60065"	No Cathode Ray Tubes.	N/A
4.5.1	Add the following to suffix 5) as specified in "Conditions applicable to Table 4A, Parts 1 and 2" With regard to Table 4A, insulating materials complying with Japanese requirements (refer to Japanese differences for the current IEC 60335-1 (3 rd Edition) in CB Bulletin 101B) are also acceptable. Add a suffix 7) in "Conditions applicable to Table 4A, Parts 1 and 2". In the right column of Table 4A, Part1, add suffix 7) to "50" (K), corresponding to "-without T – marking " in the left column so as to become "50 7)". Add 7) to Table 4A, Part 2 as follows: 7) This value shall apply only to wiring or cords complying with relevant IEC standards. Others shall comply with Japanese requirements (refer to Japanese differences for the current IEC 60335-1 (3 rd Edition) in CB Bulletin 101B).	Added.	Pass
4.7.3.2	Add the following in 7 th paragraph. - for thin materials, e.g., flexible printed boards, etc., used inside equipment, be of FLAMMABILITY CLASS VTM-2 or better		N/A

IEC 60950			
Sub-Clause	Difference+ Test	Result - Remark	Verdict

5.1.6	Replace Table 5A			N/A
	Type of equipment	Terminal A of measuring instrument connected to:	Maximum TOUCH CURRENT mA r.m.s. ¹⁾	Maximum PROTECTIVE CONDUCTOR CURRENT
	ALL equipment	Accessible parts and circuits not connected to protective earth	0,25	-
	HAND-HELD	Equipment main protective earthing terminal (if any) CLASS I EQUIPMENT	0,75	-
	MOVABLE (other than HAND-HELD, but including TRANSPORTABLE EQUIPMENT		3,5	-
	STATIONARY, PLUGGABLE TYPE A		3,5	-
	ALL other STATIONARY EQUIPMENT		3,5	-
	- not subject to the conditions of 5.1.7		-	5 % of input current
	- subject to the conditions of 5.1.7	-	-	-
	HAND-HELD	Equipment main protective earthing terminal (if any)	0,5	-
	Others	CLASS II EQUIPMENT	1,0	-
¹⁾ If peak values of TOUCH-CURRENT are measured, the maximum values obtained by multiplying the r.m.s. values by 1,414.				
5.3.8.2	Replace 3 rd item as follows - BASIC INSULATION between the PRIMARY CIRCUIT and accessible conductive parts of CLASS I EQUIPMENT;		Class III equipment.	N/A
Annex A	Addition: Add the subclause A.101 with the title "Flammability tests for classifying materials VTM" and the following: Thin sheet materials shall comply with ISO 9773.			N/A
Annex G	Addition: Add the following to the Note for Table G.1. 2. In Japan, MAINS TRANSIENT VOLTAGE for equipment with a Nominal AC MAINS SUPPLY VOLTAGE of 100V is to be decided based on the column where Nominal AC MAINS SUPPLY VOLTAGE in Table G.1 is 150V.			N/A
Annex P	Addition: Add "IEC 61965:2000, Mechanical Safety for Cathode Ray Tubes."		No Cathode Ray Tubes.	N/A
Annex U	Replacement: Replace 2 nd paragraph. This annex covers to round winding wires having diameters between 0.05 mm and 5.00 mm.			N/A

IEC 60950															
Sub-Clause	Difference+ Test	Result - Remark	Verdict												
U.2.1 Electric strength	Replacement: The test sample is prepared according to IEC 60851-5 (1997), 4.4.1 (for twisted pairs). The sample is then subjected to the test of 5.2.2 if this standard, with a test voltage not less than twice the appropriate voltage in table 5B (see 5.2.2) of this standard. However, the minimum values shall be as follows: - for BASIC INSULATION or SUPPLEMENTARY INSULATION, 3000 V, or; - for REINFORCED INSULATION, 6000 V.		N/A												
U.2.2 Adherence and flexibility	Test 8 of IEC 60851-3:1996, 5.1.1, using the mandrel diameters of table U.1. The test sample is then examined in accordance with IEC60851-3:1996, 5.1.1.4, followed by the test of 5.2.2 of this standard expect applying the test between the wire and the mandrel. A test voltage shall not be less than twice the appropriate voltage in table 5B(see 5.2.2) of this standard. However, the minimum values shall be as follows: - for BASIC INSULATION or SUPPLEMENTARY INSULATION, 1500 V, or; - for REINFORCED INSULATION, 3000V. Table U.1 – Mandrel diameter <table><tr><td>Nominal Conductor diameter (mm)</td><td>Mandrel diameter (mm +/- 0.2mm)</td></tr><tr><td>0.05 – 0.34</td><td>4.0</td></tr><tr><td>0.35 – 0.49</td><td>6.0</td></tr><tr><td>0.50 – 0.74</td><td>8.0</td></tr><tr><td>0.75 – 2.49</td><td>10.0</td></tr><tr><td>2.50 – 5.00</td><td>4 times of the diameter of conductor</td></tr></table> 1) in compliance with IEC 60371-43 The tension to be applied to the wire during winding on the mandrel is calculated from the wire diameter to be equivalent to 118 MPa +/- 10% (118 N/square mm +/-10%).	Nominal Conductor diameter (mm)	Mandrel diameter (mm +/- 0.2mm)	0.05 – 0.34	4.0	0.35 – 0.49	6.0	0.50 – 0.74	8.0	0.75 – 2.49	10.0	2.50 – 5.00	4 times of the diameter of conductor		N/A
Nominal Conductor diameter (mm)	Mandrel diameter (mm +/- 0.2mm)														
0.05 – 0.34	4.0														
0.35 – 0.49	6.0														
0.50 – 0.74	8.0														
0.75 – 2.49	10.0														
2.50 – 5.00	4 times of the diameter of conductor														

IEC 60950			
Sub-Clause	Difference+ Test	Result - Remark	Verdict

(KR) Korean Deviations IEC 60950 Third Edition			N/A
	LIMITATIONS Voltage ratings As national supply voltage is subject to increased to 220 V, an appliance rated 220 V only is to be allowed to obtain type approval in Korea. Either an appliance rated 110V or 220 V/110 V is not allowed. When an appliance is supplied in Korea, it shall be set to and marked with 220 V. But free voltage appliance by SMPS (Switching Mode Power Supply) is allowed and it shall be marked with "100 - 220 V".	Class III equipment. Not directly connected to mains.	N/A
	Frequency Only appliances having supply frequency of 60 Hz or a frequency range including 60Hz are accepted. When an appliance is supplied in Korea, it shall be set to and marked with 60 Hz.		N/A
	Instructions Instruction manuals and appliance markings related to safety, including nameplate shall be in Korean or graphic symbols in IEC Publication 417.	The instruction manual in Korean will be provided when the equipment will be applied for the national approval.	N/A
	More details are available from IECEE-KR (c/o KAITECH) on request. DEVIATIONS		N/A
1.5.101	Addition Plugs for the connection of the apparatus to the supply mains shall comply with the Korean requirement (KSC 8305).		N/A
7	The apparatus shall comply with the relevant CISPR requirements.	It should be provided when national approval.	N/A

IEC 60950			
Sub-Clause	Difference+ Test	Result - Remark	Verdict

(NO) Norwegian Deviations IEC 60950 Third Edition			N/A
1.5.8	In Norway, due to the IT power system used (see annex V, figure V.7), capacitors are required to be rated for the applicable phase-to-phase voltage (230 V).		N/A
1.7.2	In Norway, CLASS I PLUGGABLE EQUIPMENT TYPE A intended for connection to other equipment or a communication network shall, K safety relies on connection to protective earth, require a marking stating that the equipment must be connected to an earthed mains socket-outlet.		N/A
2.2.4	In Norway, requirements according to this annex, sub-clauses 1.7.2 and 6.1.2.1 apply.		N/A
2.3.2	In Norway, requirements according to this annex, sub-clause 6.1.2.1 apply.		N/A
2.3.3	In Norway, requirements according to this annex, sub-clause 6.1.2.1 apply.		N/A
2.3.4	In Norway, requirements according to this annex, sub-clauses 1.7.2 and 6.1.2.1 apply.		N/A
2.10.3.1	In Norway, due to the IT power distribution system used (see annex V, figure 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.		N/A

IEC 60950			
Sub-Clause	Difference+ Test	Result - Remark	Verdict
6.1.2.1	<p>In Norway, 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 consists 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 1.5kV multiplied by 1.6 (the electric strength test of 2.10.7 shall be performed using 1.5 kV); and - is subject to ROUTINE TESTING for electric strength during manufacturing, using a test voltage of 1.5kV. <p>It is permitted to bridge this insulation with a capacitor complying with EN 132400:1994, subclass Y2.</p>		N/A
6.1.2.2	In Norway, the exclusions are applicable for PERMANENTLY CONNECTED EQUIPMENT and PLUGGABLE-EQUIPMENT TYPE B only.		N/A
Annex G.2	In Norway, due to the IT power distribution system used (see annex V, figure 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.		N/A

IEC 60950			
Sub-Clause	Difference+ Test	Result - Remark	Verdict

(SE) Swedish Deviations IEC 60950 Third Edition			N/A
1.5.1	Add the following: NOTE: In Sweden, switches containing mercury such as thermostats, relays and level controllers are not allowed.	There are no components containing Mercury in the equipment.	N/A
1.7.2	In Sweden, if the separation between the mains and a SELV terminal relies upon connection to the safety earth, the apparatus shall have a marking stating that it must be connected to an earthed mains socket-outlet. The marking shall be in Swedish and as follows: "Apparaten skall anslutas till jordat uttag, när den ansluts till ett nätverk".	Class III equipment.	N/A
6.1.2.1	In Sweden, add the following text between the first and second paragraph: If this insulation is solid, including insulation forming part of a component, it shall at least consist of either - 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. 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: - passes the tests and inspection criteria of 2.10.8 with an electric strength test of 1.5kV multiplied by 1.6 (the electric strength test of 2.10.7 shall be performed using 1.5 kV); and - is subject to ROUTINE TESTING for electric strength during manufacturing, using a test voltage of 1.5kV. It is permitted to bridge this insulation with a capacitor complying with EN 132400:1994, subclass Y2.		N/A
6.1.2.2	In Sweden, the exclusions are applicable to PERMANENTLY CONNECTED EQUIPMENT and PLUGGABLE EQUIPMENT TYPE B only.		N/A

IEC 60950			
Sub-Clause	Difference+ Test	Result - Remark	Verdict

(US) US Deviations IEC 60950 Third Edition			Pass
<p>The United States of America and Canada have adopted a single, bi-national standard, CAN/CSA C22.2 No. 60950/UL60950, Third Edition, based on IEC 60950, Third Edition.</p> <p>The following is a summary of the key national differences based on national regulatory requirements, such as the National Electrical Code (NEC), ANSI/NFPA 70-1999, which are referenced in legislation and which form the basis for the rules and practices followed in electrical and building installations. The bi-national standard referenced above should be consulted for further details on the national differences summarized below.</p>			Pass
1.1.1	All equipment is to be designed to allow installations in accordance with the National Electrical Code (NEC), ANSI/NFPA 70, and, unless marked or otherwise identified, the Standard for the Protection of Electronic Computer/Data-Processing Equipment, ANSI/NFPA 75.	Considered.	Pass
1.5.5	<p>For lengths exceeding 3.05m external interconnecting flexible cord and cable assemblies are required to be a suitable cable type (e.g. DP, CL2) specified in the NEC.</p> <p>For lengths 3.05m or less, external interconnecting flexible cord and cable assemblies which are not types specified in the NEC are required to have special construction features and identification markings.</p>		N/A
1.7.1	<p>Equipment for use on supply systems with a neutral and more than one phase conductor (e.g. 120/240 V, 3-wire) require a special marking format for electrical ratings.</p> <p>A voltage rating that exceeds an attachment plug cap rating is only permitted if it does not exceed the extreme operating conditions in Table 2 of CAN/CSA C22.2 No. 235, and if it is part of a range that extends into the Table 2 "Normal Operating Conditions." Likewise, a voltage rating shall not be lower than the specified "Normal Operating Conditions," unless it is part of a range that extends into the "Normal Operating Conditions."</p>		N/A
2.5	Where a fuse is used to provide Class 2, LPS (or TNV) current limiting, it shall not be operator accessible unless it is not interchangeable.		N/A

IEC 60950			
Sub-Clause	Difference+ Test	Result - Remark	Verdict
2.7.1	Suitable NEC branch circuit protection is required for all standard supply outlets, receptacles and medium-base or smaller lampholders if the supply branch circuit protection is not suitable. Power distribution transformers distributing power at 100 volts or more, and rated 10 kVA or more, require transformer overcurrent protection..		N/A
3.2	Wiring methods (terminals, leads, etc.) used for the connection of the equipment to the mains shall be in accordance with the NEC.		N/A
3.2.1	Power supply cords are required to have attachment plugs rated not less than 125 percent of the rated current of the equipment.		N/A
3.2.3	Permanent connection of equipment to the mains by a power supply cord is not permitted.	Not permanent connection equipment.	N/A
3.2.5	Power supply cords are required to be no longer than 4.5 m in length. Flexible power supply cords are required to be compatible with Article 400 of the NEC..		N/A
3.2.8	Permanently connected equipment is required to have a suitable wiring compartment and wiring bending space.	Not permanent connection equipment.	N/A
3.3	Wiring terminals and associated spacings for field wiring connections shall comply with CSA C22.2 No. 0.	The unit does not suitable for field wiring.	N/A
3.3.3	Wire binding screws are not permitted to attach conductors larger than 10 AWG (5.3 mm ²).		N/A
3.3.4	Terminals for permanent wiring, including protective earthing terminals are required to be suitable for U.S./Canadian wire gauge sizes, rated 125 percent of the equipment rating, and specially marked when specified(1.7.7)		N/A
3.4.2	Motor control devices are required for cord-connected equipment with a motor (a) has a normal voltage rating greater than 120V, (b) is rated more than 12A, or (c) is rated more than 1/3 hp (locked rotor current over 43 A)		N/A
3.4.8	Vertically-mounted disconnect switches and circuit breakers are required to have the "on" position indicated by the handle in the up position.		N/A
3.4.10	For computer room applications, equipment with battery systems capable of supplying 750VA for five minutes are required to have a battery disconnect means that may be connected to the computer room remote power-off circuit.		N/A
4.3.12	The maximum quantity of flammable liquid stored in equipment is required to comply with NFPA 30.		N/A

IEC 60950			
Sub-Clause	Difference+ Test	Result - Remark	Verdict
4.3.13	Equipment with lasers is required to meet Code of Federal Regulations 21CFR 1040 and Canadian Radiation Emitting Devices Act, REDR C1370.	Evaluated as an element of component evaluation.	N/A
4.7.1	For computer room applications, automated information storage systems with combustible media greater than 27 cubic feet are required to have a provision for connection of either automatic sprinklers or a gaseous agent extinguishing system with an extended discharge.		N/A
4.7.3.1	For computer room applications, enclosures with combustible material measuring greater than 0.9 m ² , or a single dimension greater than 1.8 m, are required to have a flame spread rating of 50 or less. For other applications, enclosures with the same dimensions require a flame spread rating of 200 or less.		N/A
Annex H	Equipment that produces ionising radiations is required to comply with Code of Federal Regulations, 21 CFR 1020 and Canadian Radiation Emitting Devices Act, REDR C1370		N/A
The following key national differences are based on requirements other than national regulatory requirements. The bi-national standard referenced above should be consulted for further details on the national differences summarized below.			
1.5.1	Some components and materials associated with the risk of fire, electric shock, or personal injury are required to have component or material ratings in accordance with the applicable national (U.S. and Canadian) component or material requirements. These components include: attachment plugs, cathode ray tubes, circuit breakers, communication circuit accessories, cord sets and power supply cords, direct plug-in equipment, enclosures (outdoor), flexible cords and cables, fuses (branch circuit), fuseholders, ground-fault current interrupters, industrial control equipment, insulating tape, interconnecting cables, lampholders, limit controls, printed wiring, protectors for communications circuits, receptacles, solid state controls, supplementary protectors, surge suppressors, switches (including interlock switches), thermal cutoffs, thermostats, transformer winding wire, tubing, wire connectors, and wire and cables.		Pass
2.3.1	For TNV-2 and TNV-3 circuit with other than ringing signals and with voltages exceeding 42.4Vp or 60 Vdc, the maximum acceptable current through a 2000 ohm resistor (or greater) connected across the voltage source with other loads disconnected is 7.1 mA peak or 30mA d.c. under normal operating conditions .		N/A

IEC 60950			
Sub-Clause	Difference+ Test	Result - Remark	Verdict
2.6.3.3	When subject to impedance testing, protective earthing and bonding is to be tested subject per the specified test conditions that originate in CSA C22.2 No.0.4		Pass
4.2.8.1	Enclosure around CRTs with a face area of 160mm or more are required to reduce the risk of injury due to implosion of the CRT.	No CRT.	N/A
4.3.2	Equipment with handles is required to comply with special loading tests		N/A
5.1.8.1.1	Equipment intended to receive telecommunication ringing signals is required to comply with a special touch current measurement tests.		N/A
6.2.1	Enamel coating on winding wire not considered electrical separation unless subjected to special investigation.		N/A
6.4	Equipment intended for connection to telecommunication network outside plant cable is required to be protected against overvoltage from power line crosses in accordance with 6.4 and Annex NAC.		N/A
6.5	Equipment connected to a telecommunications network and supplied with an earphone intended to be held against, or in the ear is required to comply with special acoustic pressure tests.		N/A
M.2	Continuous ringing signals up to 16mA only are permitted if the Equipment is subjected to special installation and performance restrictions.		N/A
Annex NAB	Equipment connected to centralized d.c power systems is required to comply with special earthing, wiring, marking and insulation requirements in accordance with Annex NAB and 3.6.1		N/A

Group-Differences/CENELEC common Deviations IEC 60950 Third Edition			Pass
2.7.1	Replace the subclause as follows: Basic requirements 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):		N/A
(a)	a) Except as detailed in b) and c), protective devices necessary to comply with the requirements of subclause 6.3 shall be included as parts of the equipment.		N/A

IEC 60950			
Sub-Clause	Difference+ Test	Result - Remark	Verdict
(b)	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.		N/A
(c)	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 instruction. 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.		N/A
2.7.2	This subclause has been declared 'void'.		N/A
3.2.3	Delete the NOTE 1, and in table 3A delete the conduit sizes in parentheses.		N/A
3.2.5	Replace "60245 IEC 530" by "HO5 RR-F", "60227 IEC 52" by "HO3 W-F or HO3 WH2-F" "60227 IEC 53" by "HOS W-F or HO5 WH2-F2". In Table 3B, replace the first four lines by the following: <div style="margin-left: 40px;"> Up to and including 6 0.75¹⁾ Over 6 up to and including 10 (0.75)²⁾ 1.0 Over 10 up to and including 16 (1.0)³⁾ 1.5 </div> In the conditions applicable to table 3B, delete the words "in some countries" in condition 1). In Note 1, delete the second sentence.		N/A
3.3.4	In Table 30, delete the fourth line - conductor sizes for 10 to 13 A. and replace with the following: <div style="margin-left: 40px;"> Over 10 up to and including 16 1.5 to 2.5 1.5 to 4 </div> Delete the fifth line - conductor sizes for 13 to 16A.		N/A

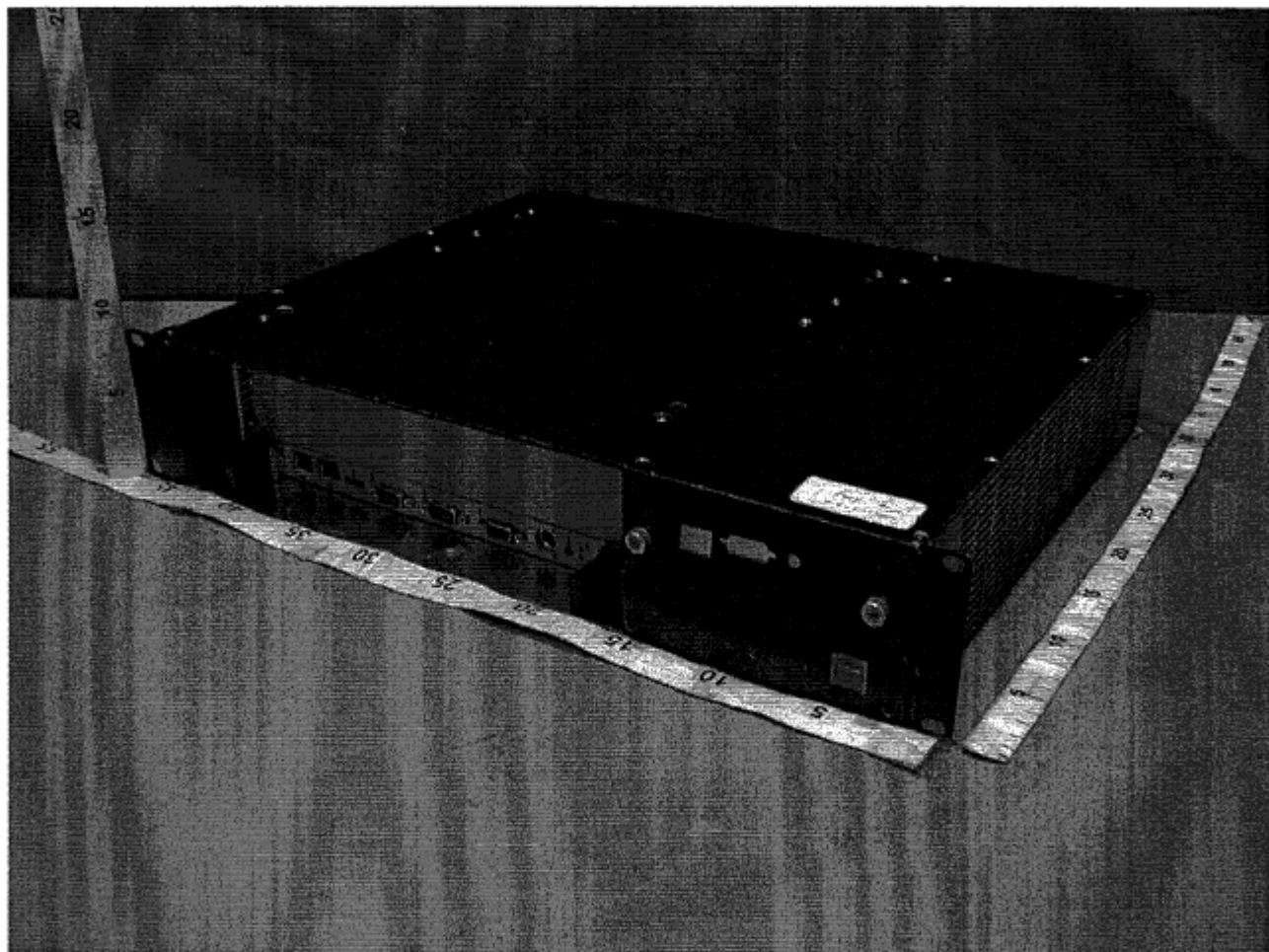
IEC 60950			
Sub-Clause	Difference+ Test	Result - Remark	Verdict
4.3.13	<p>Replace the second compliance paragraph by: For equipment using LEDs or lasers, compliance is checked according to EN 60825-1.</p> <p>NOTE 1 – if equipment falling within the scope of EN 60950 is inherently a class 1 laser product, i.e. it contains no embedded laser or LD of a higher class number, then a laser warning label or other laser warning statement is not required (see 1.1 of EN 60825-1).</p> <p>Renummer the NOTE below the third compliance paragraph 2S NOTE 2.</p>		N/A
Annex H	<p>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 μ Sv/h (0.1 mR/h) (see note). Account is taken of the background level.</p> <p>Replace the NOTE as follows: NOTE – These values appear in directive 96/29/Euratom.</p>		N/A
Annex P	<p>Replace the text of this annex by: See annex ZA</p>	Considered.	Pass
Annex Q	<p>Add the following notes for the standards indicated:</p> <p>IEC 60127 series NOTE: Harmonized as EN 60127 series (not modified)</p> <p>IEC 60529 NOTE: Harmonized as EN 60629:1991 (not modified)</p> <p>IEC 61032 NOTE: Harmonized as EN 61032:1998 (not modified)</p>		N/A

ENCLOSURE No. 2

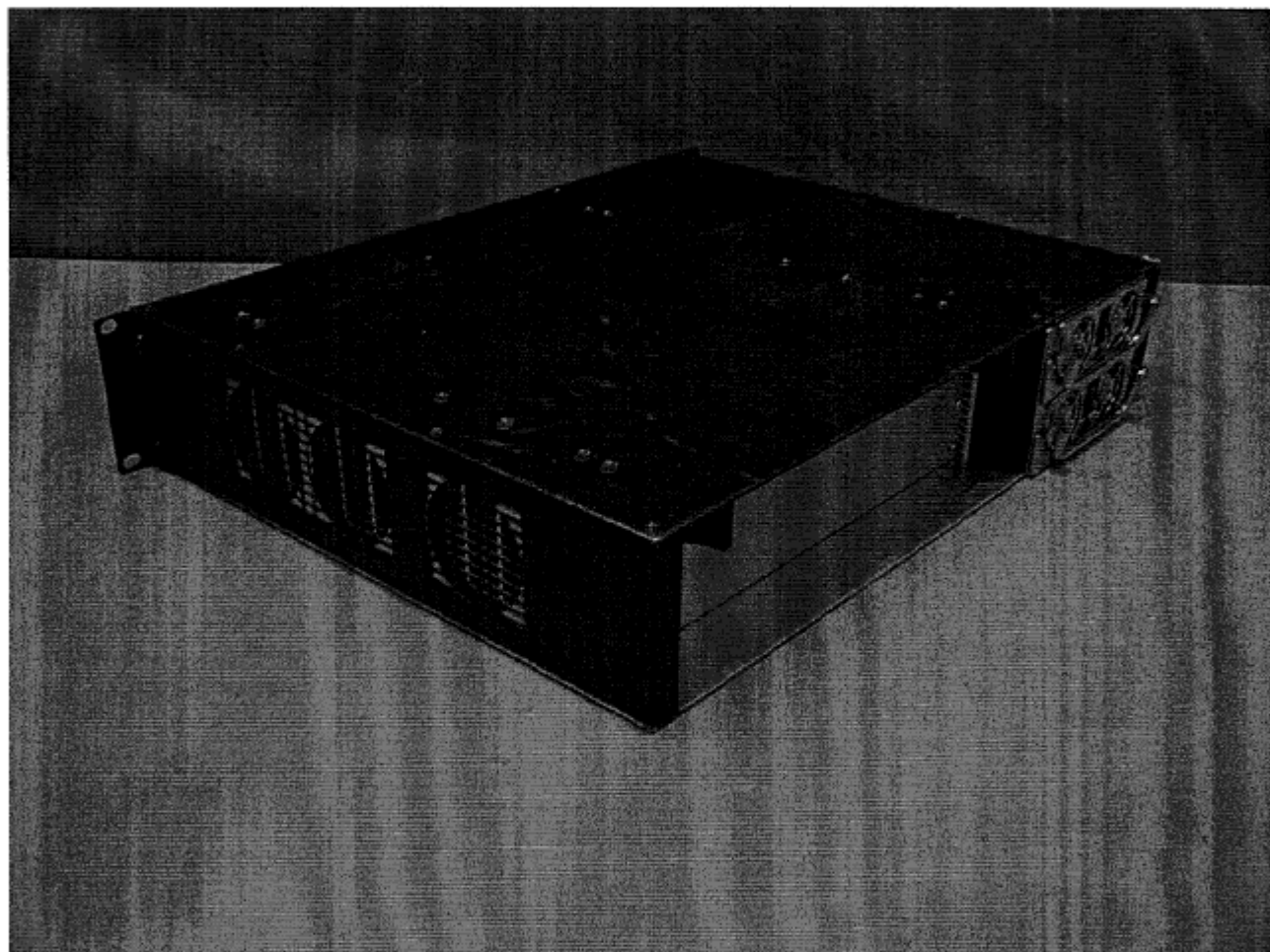
Photographs

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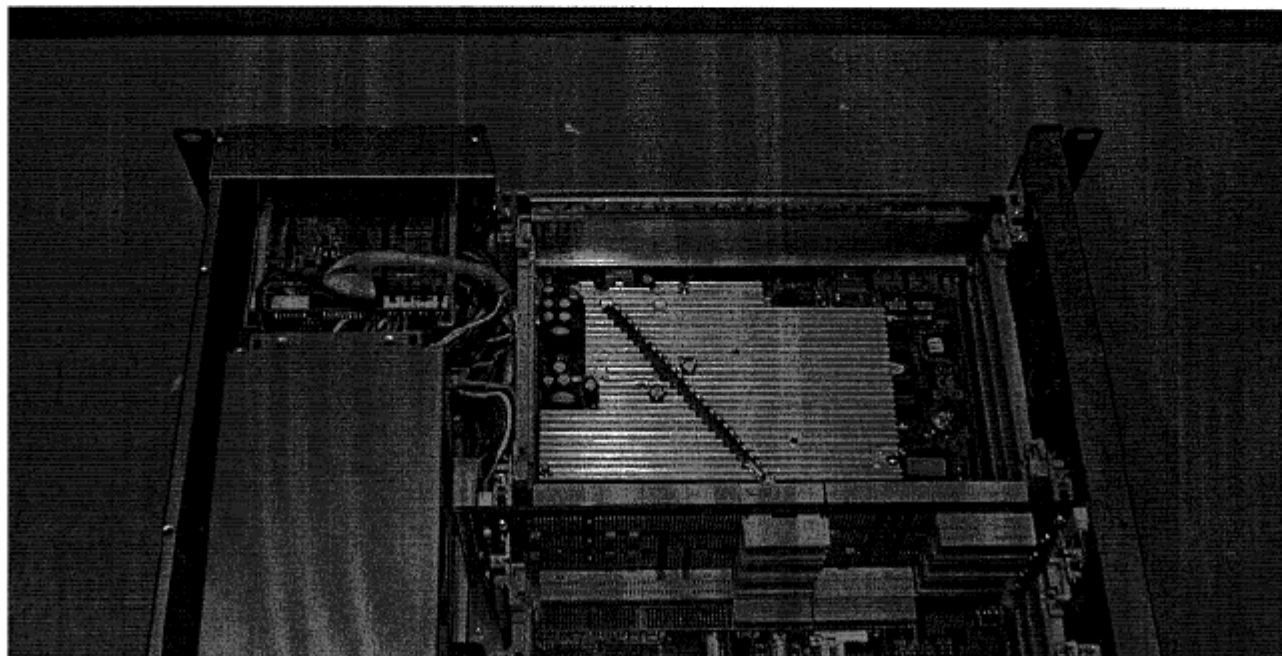
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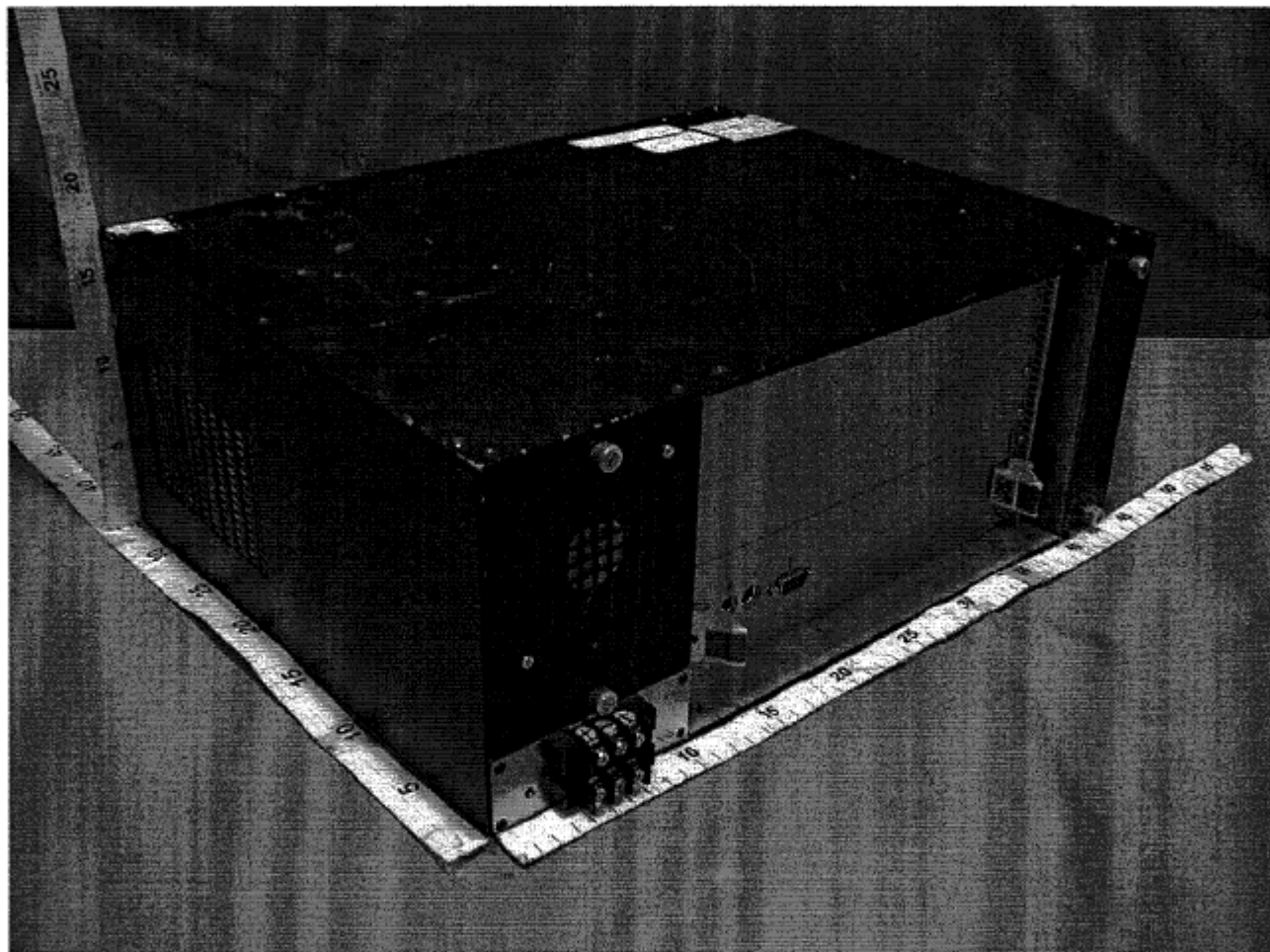
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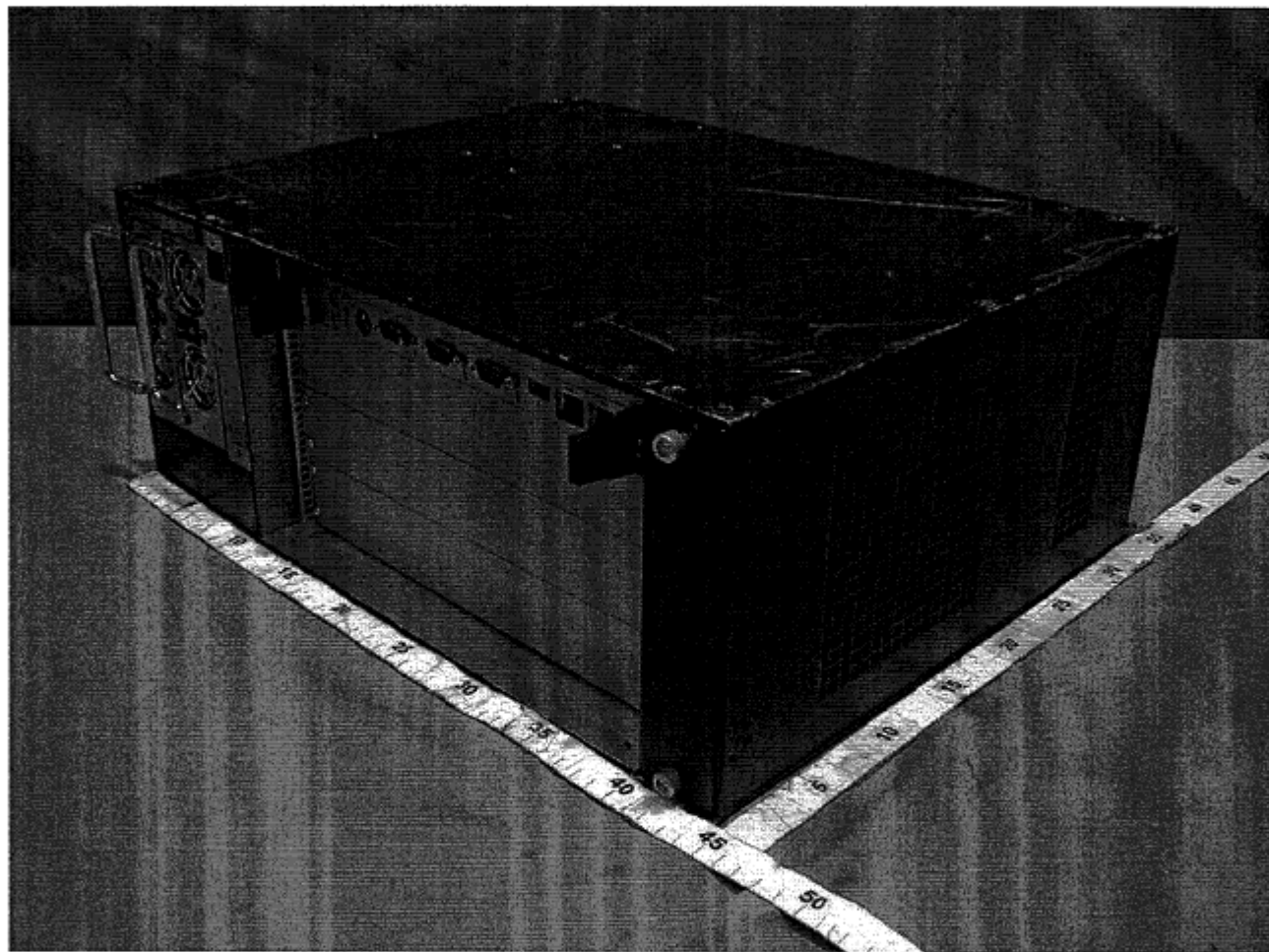
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Model MIC-3038XX-XXXXY



Model MIC-3038XX-XXXXY



Model MIC-3038XX-XXXXY

