IEC SYSTEM FOR CONFORMITY TESTING TO STANDARDS FOR SAFETY OF ELECTRICAL EQUIPMENT (IECEE) CB SCHEME

Ref. Certificate No.

CA/015/ITS

CB TEST CERTIFICATE

Issued by:	Intertek Testing Services NA Ltd.		
Registration date:	2005-06-28		
Product:	(Advanced Flexible Telecommunication) T1/E1/J1 Voice/data cards		
Applicant:	Sangoma Technologies Inc.	50 McIntosh Drive Suite No. 120 Markham, ON L3R 9T3	Canada
Manufacturer:	Sangoma Technologies Inc.	50 McIntosh Drive Suite No. 120 Markham, ON L3R 9T3	Canada
Factory:	Sangoma Technologies Inc.	50 McIntosh Drive Suite No. 120 Markham, ON L3R 9T3	Canada

Rating and principal characteristics:	5 Vdc, 800 mA, max.
Trade mark (if any):	Sangoma
Model/Type reference:	A101, A102, and A104
Additional information:	
Sample of product tested to be in conformity with IEC:	60950-1(ed.1)
Test Report Ref. No:	3077035

This CB Test Certificate is issued by the National Certification Body

Intertek Testing Services NA Ltd.
1829 32nd Avenue, Lachine Québec, Canada H8T 3J1

Signed by: Claude Pelland

Date of issue: 2005-06-28

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Entela CB Report No.	CB 3077035-001	Date of Issue: June 28, 2005	Edition No.	1

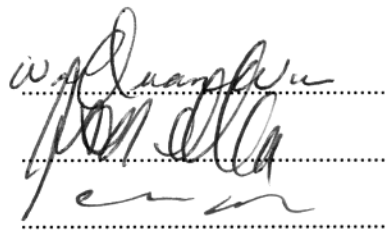
3033 Madison Ave. SE Grand Rapids, MI 49548 Ph: (616) 247-0515 Facsimile: (616) 574-9752
81 Kelfield St., Unit 7 Toronto, ON M9W 5A3 Ph: (416) 241-8427

TEST REPORT

IEC 60950-1 and/or EN 60950-1

Information technology equipment – Safety – Part 1: General requirements

Report reference No	3077035
Tested by (printed name and signature)	W.Q.Wu Senior Lab. Eng.
Reviewed by (printed name and signature)	Jason Galea Project Eng.
Approved by (printed name and signature)	Claude Pelland Intertek
Date of issue	June 28, 2005



Testing Laboratory Name	QPS Evaluation Services
Address	81 Kelfield St., Unit 8, Toronto, ON M9W 5A3, Canada
Testing location	CBTL X CCATL ☐ SMT ☐ TMP ☐
Address	Same as above
Applicant's Name	Sangoma Technologies Inc.
Address	50 McIntosh Drive, Suite No.120 , Markham, ON. L3R 9T3 Canada
Test specification	
Standard	IEC 60950-1:2001 (1st Edition) and/or EN 60950-1:2001
Test procedure	CB/CCA –scheme
Non-standard test method	
Test Report Form No.	IECEN60950_1B
TRF originator	SGS Fimko Ltd
Master TRF	dated 2003-03

Test item description	(Advanced Flexible Telecommunication) T1/E1/J1 Voice/data cards
Trademark	Sangoma
Manufacturer	SANGOMA Technologies
Model and/or type reference	A101, A102, and A104
Serial number	10202U0-01509; 10404U0-00644
Rating(s)	5VDC, 800mA, max.

Copy of marking plate

Summary of testing:

1.6.2 Input Current

2.10.3/2.10.4 Claerance and Creepage Distance

4.4 Mechanical Hazards.

4.3.1 Sharp Edges

4.2 Mechanical Strength.

4.5.1 Heating

5.1.6 Touch Current test

5.2 Electrical Strength test

5.3 Fault Condition Test

Particulars: test item vs. test requirements	
Equipment mobility ..... :	PCB for plug into PC. PCI slot
Operating condition..... :	continuous
Mains supply tolerance (%)..... :	N/A
Tested for IT power systems ..... :	N/A
IT testing, phase-phase voltage (V) ..... :	N/A
Class of equipment ..... :	Class III
Mass of equipment (kg) ..... :	0.09Kg
Protection against ingress of water ..... :	IPX0
Test case verdicts	
Test case does not apply to the test object :	N/A
Test item does meet the requirement ..... :	P(ass)
Test item does not meet the requirement ... :	F(ail)
Testing	
Date of receipt of test item ..... :	
Date(s) of performance of test ..... :	

General remarks

"This report is not valid as a CB Test Report unless appended by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02".

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

"(see Enclosure #)" refers to additional information appended to the report.
"(see appended table)" refers to a table appended to the report.

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

General product information:
Sangoma's A102, A104 AFT(Advanced Flexible Telecommunication) T1/E1 voice / data cards. All there are tailor-made to work with AsterisK™; The free Linux PBX software that is revolutionizing telecommunication over TDM (Time Division Multiplex) networks.

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
1	GENERAL		P
1.5	Components		P
1.5.1	General		P
	Comply with IEC 60950 or relevant component standard	(see appended table 1.5.1)	P
1.5.2	Evaluation and testing of components		P
1.5.3	Thermal controls	No thermal control	N/A
1.5.4	Transformers	Telecom. E1 Transformer	P
1.5.5	Interconnecting cables	Approved telecom. cable	P
1.5.6	Capacitors in primary circuits .....:	No primary circuit	N/A
1.5.7	Double insulation or reinforced insulation bridged by components	No primary circuit	N/A
1.5.7.1	General	No primary circuit	N/A
1.5.7.2	Bridging capacitors	No primary circuit	N/A
1.5.7.3	Bridging resistors	No primary circuit	N/A
1.5.7.4	Accessible parts	No primary circuit	N/A
1.5.8	Components in equipment for IT power systems	No primary circuit	N/A
1.6	Power interface	Power supplied by PC	N/A
1.6.1	AC power distribution systems	SELV on telecom. board	N/A
1.6.2	Input current	SELV DC current	N/A
1.6.3	Voltage limit of hand-held equipment	Telecom. Card only	N/A
1.6.4	Neutral conductor	No neutral conductor	N/A
1.7	Marking and instructions		P
1.7.1	Power rating		N/A
	Rated voltage(s) or voltage range(s) (V) .....:		N/A
	Symbol for nature of supply, for d.c. only.....:	From PC supply 5Vdc, 12Vdc	P
	Rated frequency or rated frequency range (Hz) ..:	DC only	N/A
	Rated current (mA or A) .....:	Total PC Current	N/A
	Manufacturer's name or trademark or identification mark .....:	Supply by PC Power supply	N/A
	Type/model or type reference .....:	Supply by PC Power supply	N/A
	Symbol for Class II equipment only .....:	Supply by PC Power supply	N/A
	Other symbols .....:	Supply by PC Power supply	N/A
	Certification marks .....:		N/A

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
1.7.2	Safety instructions	User manual	P
1.7.3	Short duty cycles	Continuous	N/A
1.7.4	Supply voltage adjustment ..... :	Not necessary	N/A
	Methods and means of adjustment; reference to installation instructions ..... :		N/A
1.7.5	Power outlets on the equipment ..... :		N/A
1.7.6	Fuse identification (marking, special fusing characteristics, cross-reference) ..... :	Fuses for telecom. Interface circuit	N/A
1.7.7	Wiring terminals	Telecom. connectors	P
1.7.7.1	Protective earthing and bonding terminals ..... :	Protective earthing by PC	N/A
1.7.7.2	Terminal for a.c. mains supply conductors		N/A
1.7.7.3	Terminals for d.c. mains supply conductors	PC PCI terminal	N/A
1.7.8	Controls and indicators	Signal LED indicators	N/A
1.7.8.1	Identification, location and marking ..... :		P
1.7.8.2	Colours ..... :		N/A
1.7.8.3	Symbols according to IEC 60417..... :		P
1.7.8.4	Markings using figures ..... :	No figures marking	N/A
1.7.9	Isolation of multiple power sources ..... :	No AC Source	N/A
1.7.10	IT power distribution systems	No AC Source	N/A
1.7.11	Thermostats and other regulating devices	No thermostat regulating device	N/A
1.7.12	Language(s) ..... :		—
1.7.13	Durability	Silver screen on PCB	N/A
1.7.14	Removable parts		N/A
1.7.15	Replaceable batteries		N/A
	Language(s)..... :		—
1.7.16	Operator access with a tool..... :	PC PCI slots	P
1.7.17	Equipment for restricted access locations ..... :		N/A

2	PROTECTION FROM HAZARDS		P
2.1	Protection from electric shock and energy hazards		P
2.1.1	Protection in operator access areas		P
2.1.1.1	Access to energized parts	TNV I circuit	P
	Test by inspection ..... :		P
	Test with test finger ..... :		P
	Test with test pin ..... :		P
	Test with test probe ..... :		P
2.1.1.2	Battery compartments ..... :	No Battery	N/A
2.1.1.3	Access to ELV wiring	No ELV circuit	N/A

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
	Working voltage (Vpeak or Vrms); minimum distance (mm) through insulation	TNV I circuit, as a secondary circuit	—
2.1.1.4	Access to hazardous voltage circuit wiring	TNV I circuit	N/A
2.1.1.5	Energy hazards ..... :	TNV I circuit	N/A
2.1.1.6	Manual controls	TNV I circuit	N/A
2.1.1.7	Discharge of capacitors in equipment	TNV I circuit	N/A
	Time-constant (s); measured voltage (V) ..... :		—
2.1.2	Protection in service access areas		N/A
2.1.3	Protection in restricted access locations		N/A

2.2	SELV circuits		P
2.2.1	General requirements		P
2.2.2	Voltages under normal conditions (V)..... :	3.3VDC, 5VDC, 12VDC	P
2.2.3	Voltages under fault conditions (V) ..... :	3.3VDC, 5VDC, 12VDC	P
2.2.3.1	Separation by double insulation or reinforced insulation (method 1)	PC Approved power supply	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 ..... :	Telecom. T1/E1 circuit	N/A

2.3	TNV circuits		P
2.3.1	Limits		P
	Type of TNV circuits..... :	TNV 1 circuit	—
2.3.2	Separation from other circuits and from accessible parts		P
	Insulation employed ..... :	Insulation telecom. transformer	—
2.3.3	Separation from hazardous voltages	No hazardous voltage in card	N/A
	Insulation employed ..... :		—
2.3.4	Connection of TNV circuits to other circuits		P
	Insulation employed ..... :	Insulation telecom. transformer	—
2.3.5	Test for operating voltages generated externally	No ringing signal, E1 signal only	N/A

2.4	Limited current circuits		N/A
2.4.1	General requirements	No limited current circuit	N/A
2.4.2	Limit values		N/A
	Frequency (Hz) ..... :		—
	Measured current (mA)..... :		—
	Measured voltage (V)..... :		—

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
	Measured capacitance (μF) ..... :		—
2.4.3	Connection of limited current circuits to other circuits	No limited current circuit	N/A

2.5	Limited power sources		P
	Inherently limited output		N/A
	Impedance limited output		N/A
	Overcurrent protective device limited output		N/A
	Regulating network limited output under normal operating and single fault condition		N/A
	Regulating network limited output under normal operating conditions and overcurrent protective device limited output under single fault condition	Limited power source from PC approved power supply	N/A
	Output voltage (V), output current (A), apparent power (VA) ..... :	Related by the approved power supply rating	—
	Current rating of overcurrent protective device (A)		—

2.6	Provisions for earthing and bonding		P
2.6.1	Protective earthing	Related by PC earthing	N/A
2.6.2	Functional earthing	Related by PC earthing	N/A
2.6.3	Protective earthing and protective bonding conductors	Related by PC earthing	N/A
2.6.3.1	General	Related by PC earthing	N/A
2.6.3.2	Size of protective earthing conductors	Related by PC earthing	N/A
	Rated current (A), cross-sectional area (mm^2), AWG ..... :		—
2.6.3.3	Size of protective bonding conductors		N/A
	Rated current (A), cross-sectional area (mm^2), AWG ..... :		—
2.6.3.4	Resistance (Ω) of earthing conductors and their terminations, test current (A)..... :	Related by PC earthing	N/A
2.6.3.5	Colour of insulation ..... :	Related by PC earthing	N/A
2.6.4	Terminals	Related by PC earthing	N/A
2.6.4.1	General	Related by PC earthing	N/A
2.6.4.2	Protective earthing and bonding terminals		N/A
	Rated current (A), type and nominal thread diameter (mm)..... :		—
2.6.4.3	Separation of the protective earthing conductor from protective bonding conductors		N/A
2.6.5	Integrity of protective earthing		N/A
2.6.5.1	Interconnection of equipment		N/A

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
2.6.5.2	Components in protective earthing conductors and protective bonding conductors		N/A
2.6.5.3	Disconnection of protective earth	Related by PC earthing	N/A
2.6.5.4	Parts that can be removed by an operator	Related by PC earthing	N/A
2.6.5.5	Parts removed during servicing	Related by PC earthing	N/A
2.6.5.6	Corrosion resistance	Related by PC earthing	N/A
2.6.5.7	Screws for protective bonding	Related by PC earthing	N/A
2.6.5.8	Reliance on telecommunication network or cable distribution system		N/A

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

2.8	Safety interlocks		N/A
2.8.1	General principles	No safety interlock	N/A
2.8.2	Protection requirements	No safety interlock	N/A
2.8.3	Inadvertent reactivation	No safety interlock	N/A
2.8.4	Fail-safe operation	No safety interlock	N/A
2.8.5	Moving parts	No safety interlock	N/A
2.8.6	Overriding	No safety interlock	N/A
2.8.7	Switches and relays	No safety interlock	N/A
2.8.7.1	Contact gaps (mm) .....:	No safety interlock	N/A
2.8.7.2	Overload test	No safety interlock	N/A
2.8.7.3	Endurance test		N/A
2.8.7.4	Electric strength test		N/A
2.8.8	Mechanical actuators		N/A

2.9	Electrical insulation		P
2.9.1	Properties of insulating materials		P
2.9.2	Humidity conditioning	92%, 30°C	P
	Humidity (%) .....:		—
	Temperature (°C) .....:		—

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
2.9.3	Grade of insulation	F7	P

2.10	Clearances, creepage distances and distances through insulation		P
2.10.1	General		P
2.10.2	Determination of working voltage	TNV 1	P
2.10.3	Clearances		P
2.10.3.1	General		P
2.10.3.2	Clearances in primary circuits	No primary circuit	N/A
2.10.3.3	Clearances in secondary circuits	TNV 1 to secondary circuit	P
2.10.3.4	Measurement of transient voltage levels	Using PC power supply	N/A
2.10.4	Creepage distances		P
	CTI tests .....:		—
2.10.5	Solid insulation		P
2.10.5.1	Minimum distance through insulation		P
2.10.5.2	Thin sheet material	No Thin sheet material	N/A
	Number of layers (pcs) .....:		—
	Electric strength test		—
2.10.5.3	Printed boards		P
	Distance through insulation		P
	Electric strength test for thin sheet insulating material	More layers Table 2M	—
	Number of layers (pcs) .....:	6 layers	P
2.10.5.4	Wound components	No wound compoenets	N/A
	Number of layers (pcs) .....:		N/A
	Two wires in contact inside wound component; angle between 45° and 90° .....:		N/A
2.10.6	Coated printed boards	No coated printed board	N/A
2.10.6.1	General	No coated printed board	N/A
2.10.6.2	Sample preparation and preliminary inspection	No coated printed board	N/A
2.10.6.3	Thermal cycling	No coated printed board	N/A
2.10.6.4	Thermal ageing (°C) .....:	No coated printed board	N/A
2.10.6.5	Electric strength test		—
2.10.6.6	Abrasion resistance test		N/A
	Electric strength test		—
2.10.7	Enclosed and sealed parts .....:	No enclosed and sealed parts	N/A
	Temperature $T_1=T_2 + T_{ma} - T_{amb} +10K$ (°C) .....:		N/A
2.10.8	Spacings filled by insulating compound .....:		N/A
	Electric strength test		—

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
2.10.9	Component external terminations	No external termination	N/A
2.10.10	Insulation with varying dimensions		N/A

3	WIRING, CONNECTIONS AND SUPPLY		P
3.1	General		P
3.1.1	Current rating and overcurrent protection	TNV 1 protection	P
3.1.2	Protection against mechanical damage	Plug in PC PCI slot	P
3.1.3	Securing of internal wiring	No wiring	N/A
3.1.4	Insulation of conductors		N/A
3.1.5	Beads and ceramic insulators	No beads	N/A
3.1.6	Screws for electrical contact pressure	No screws for contacting	N/A
3.1.7	Insulating materials in electrical connections		P
3.1.8	Self-tapping and spaced thread screws	No self tapping screws	N/A
3.1.9	Termination of conductors	No termination of conductors	N/A
	10 N pull test		N/A
3.1.10	Sleeving on wiring	No sleeving	N/A

3.2	Connection to an a.c. mains supply or a d.c. mains supply		N/A
3.2.1	Means of connection .....:	No means connection	N/A
3.2.1.1	Connection to an a.c. mains supply	SELV circuit and TNV 1 only	N/A
3.2.1.2	Connection to a d.c. mains supply		N/A
3.2.2	Multiple supply connections	No multiple means supply	N/A
3.2.3	Permanently connected equipment		N/A
	Number of conductors, diameter (mm) of cable and conduits .....:		—
3.2.4	Appliance inlets	No AC inlet	N/A
3.2.5	Power supply cords		N/A
3.2.5.1	AC power supply cords	No AC power cord	N/A
	Type .....:		—
	Rated current (A), cross-sectional area (mm^2), AWG .....:		—
3.2.5.2	DC power supply cords	No DC Supply cord	N/A
3.2.6	Cord anchorages and strain relief	No DC Supply cord	N/A
	Mass of equipment (kg), pull (N) .....:	No DC Supply cord	—
	Longitudinal displacement (mm) .....:	No DC Supply cord	—
3.2.7	Protection against mechanical damage		N/A
3.2.8	Cord guards		N/A
	D (mm); test mass (g) .....:		—

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
	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	No means wiring terminals	N/A
3.3.2	Connection of non-detachable power supply cords	No means circuit	N/A
3.3.3	Screw terminals		N/A
3.3.4	Conductor sizes to be connected	No Wirings	N/A
	Rated current (A), cord/cable type, cross-sectional area (mm^2)..... :		—
3.3.5	Wiring terminal sizes	No means conductors	N/A
	Rated current (A), type and nominal thread diameter (mm) ..... :		—
3.3.6	Wiring terminals design	No means conductors	N/A
3.3.7	Grouping of wiring terminals	No means conductors	N/A
3.3.8	Stranded wire	No means conductors	N/A

3.4	Disconnection from the mains supply		N/A
3.4.1	General requirement	Disconnected by the PC switch	N/A
3.4.2	Disconnect devices	Disconnected by the PC switch	N/A
3.4.3	Permanently connected equipment		N/A
3.4.4	Parts which remain energized		N/A
3.4.5	Switches in flexible cords		N/A
3.4.6	Single-phase equipment and d.c. equipment	Disconnected by the PC switch	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	No multiple sources	N/A

3.5	Interconnection of equipment		P
3.5.1	General requirements		P
3.5.2	Types of interconnection circuits..... :	TNV 1	P
3.5.3	ELV circuits as interconnection circuits	No ELV circuit	N/A

4	PHYSICAL REQUIREMENTS		N/A
4.1	Stability	No a independence equipment	N/A
	Angle of 10°		N/A

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
	Test: force (N) ..... :		N/A

4.2	Mechanical strength		P
4.2.1	General	PCI Card only	P
4.2.2	Steady force test, 10 N		N/A
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
	Fall test		N/A
	Swing test		N/A
4.2.6	Drop test		P
4.2.7	Stress relief test	No strain relief	N/A
4.2.8	Cathode ray tubes	No CRT	N/A
	Picture tube separately certified..... :		N/A
4.2.9	High pressure lamps	No HP Lamps	N/A
4.2.10	Wall or ceiling mounted equipment; force (N) .... :	Not wall mounted	N/A

4.3	Design and construction		N/A
4.3.1	Edges and corners	PCB only	N/A
4.3.2	Handles and manual controls; force (N) .....:	No handle and manual control	N/A
4.3.3	Adjustable controls	No adjustable control	N/A
4.3.4	Securing of parts	Surface mounting components	N/A
4.3.5	Connection of plugs and sockets	No AC plug and socket	N/A
4.3.6	Direct plug-in equipment	Not a direct plug in equipment	N/A
	Dimensions (mm) of mains plug for direct plug-in ..... :		N/A
	Torque and pull test of mains plug for direct plug-in; torque (Nm); pull (N)..... :		N/A
4.3.7	Heating elements in earthed equipment	No heating elements	N/A
4.3.8	Batteries	No batteries	N/A
4.3.9	Oil and grease	No oil and grease	N/A
4.3.10	Dust, powders, liquids and gases		N/A
4.3.11	Containers for liquids or gases		N/A
4.3.12	Flammable liquids .....:	No flammable liquids	N/A
	Quantity of liquid (l) .....:		N/A
	Flash point (°C) .....:		N/A
4.3.13	Radiation; type of radiation .....:	No radiations	N/A
4.3.13.1	General		N/A

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
4.3.13.2	Ionizing radiation	No CRT	N/A
	Measured radiation (pA/kg) ..... :		—
	Measured high-voltage (kV) ..... :		—
	Measured focus voltage (kV) ..... :		—
	CRT markings ..... :		—
4.3.13.3	Effect of ultraviolet (UV) radiation on materials	No UV radiations	N/A
	Part, property, retention after test, flammability classification ..... :		N/A
4.3.13.4	Human exposure to ultraviolet (UV) radiation ..... :		N/A
4.3.13.5	Laser (including LEDs)	No laser LED	N/A
	Laser class ..... :		—
4.3.13.6	Other types ..... :		N/A

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

4.5	Thermal requirements		P
4.5.1	Maximum temperatures	(see appended table 4.5)	P
	Normal load condition per Annex L ..... :	Not a commercial equipment	N/A
4.5.2	Resistance to abnormal heat		P

4.6	Openings in enclosures		N/A
4.6.1	Top and side openings	PCI Card only	N/A
	Dimensions (mm) ..... :		—
4.6.2	Bottoms of fire enclosures		N/A
	Construction of the bottom ..... :		—
4.6.3	Doors or covers in fire enclosures		N/A
4.6.4	Openings in transportable equipment		N/A
4.6.5	Adhesives for constructional purposes		N/A
	Conditioning temperature (°C)/time (weeks)..... :		—

4.7	Resistance to fire	UR Approved PCB 94V-0	P
4.7.1	Reducing the risk of ignition and spread of flame		N/A
	Method 1, selection and application of components wiring and materials		N/A

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
	Method 2, application of all of simulated fault condition tests		N/A
4.7.2	Conditions for a fire enclosure	Not an enclosure	N/A
4.7.2.1	Parts requiring a fire enclosure	Not an enclosure	N/A
4.7.2.2	Parts not requiring a fire enclosure	Not an enclosure	N/A
4.7.3	Materials	UR Approved PCB 94V-0	N/A
4.7.3.1	General		N/A
4.7.3.2	Materials for fire enclosures	Not an enclosure	N/A
4.7.3.3	Materials for components and other parts outside fire enclosures	Not an enclosure	N/A
4.7.3.4	Materials for components and other parts inside fire enclosures	Not an enclosure	N/A
4.7.3.5	Materials for air filter assemblies	No filter	N/A
4.7.3.6	Materials used in high-voltage components	No high voltage	N/A

5	ELECTRICAL REQUIREMENTS AND SIMULATED ABNORMAL CONDITIONS		P
5.1	Touch current and protective conductor current	TNV 1	P
5.1.1	General	Overvoltage signal	P
5.1.2	Equipment under test (EUT)	TNV 1	P
5.1.3	Test circuit	Figure 5D	P
5.1.4	Application of measuring instrument	Simpson 228-2	P
5.1.5	Test procedure		P
5.1.6	Test measurements		P
	Test voltage (V) .....:		—
	Measured touch current (mA) .....:		—
	Max. allowed touch current (mA) .....:		—
	Measured protective conductor current (mA) .....:	N/A	—
	Max. allowed protective conductor current (mA).:	3.5mA,	—
5.1.7	Equipment with touch current exceeding 3.5 mA .....:		N/A
5.1.8	Touch currents to and from telecommunication networks and cable distribution systems and from telecommunication networks	No means circuit	N/A
5.1.8.1	Limitation of the touch current to a telecommunication network and a cable distribution system	No Ringing voltage, E1 signal only, considered overvoltage	P
	Test voltage (V) .....:	120Vrms	—
	Measured touch current (mA) .....:	A104: 0.015mA, A102: 0.01mA	—
	Max. allowed touch current (mA) .....:	0.25mA,	—

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
5.1.8.2	Summation of touch currents from telecommunication networks.....:		P

5.2	Electric strength		P
5.2.1	General	(see appended table 5.2)	P
5.2.2	Test procedure	(see appended table 5.2)	P

5.3	Abnormal operating and fault conditions		P
5.3.1	Protection against overload and abnormal operation	E1 Signal only	N/A
5.3.2	Motors	No motors	N/A
5.3.3	Transformers	Telecom. transformer	P
5.3.4	Functional insulation .....:	No functional insulation	N/A
5.3.5	Electromechanical components	No electromechanical parts	N/A
5.3.6	Simulation of faults		P
5.3.7	Unattended equipment	No thermal control	N/A
5.3.8	Compliance criteria for abnormal operating and fault conditions		P

6	CONNECTION TO TELECOMMUNICATION NETWORKS		P
6.1	Protection of telecommunication network service persons, and users of other equipment connected to the network, from hazards in the equipment		P
6.1.1	Protection from hazardous voltages		N/A
6.1.2	Separation of the telecommunication network from earth		P
6.1.2.1	Requirements	(see appended table 5.2)	P
	Test voltage (V) .....:		—
	Current in the test circuit (mA) .....:		—
6.1.2.2	Exclusions.....:	Not a permanent connection	N/A

6.2	Protection of equipment users from overvoltages on telecommunication networks		P
6.2.1	Separation requirements		P
6.2.2	Electric strength test procedure		P
6.2.2.1	Impulse test		N/A
6.2.2.2	Steady-state test	(see appended table 5.2)	P
6.2.2.3	Compliance criteria		P

6.3	Protection of the telecommunication wiring system from overheating		N/A
	Max. output current (A) .....:	Not a remote equipment	—
	Current limiting method.....:		—

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
7	CONNECTION TO CABLE DISTRIBUTION SYSTEMS		N/A
7.1	Protection of cable distribution system service persons, and users of other equipment connected to the system, from hazardous voltages in the equipment	Not a cable system	N/A
7.2	Protection of equipment users from overvoltages on the cable distribution system	Not a cable system	N/A
7.3	Insulation between primary circuits and cable distribution systems	Not a cable system	N/A
7.3.1	General		N/A
7.3.2	Voltage surge test		N/A
7.3.3	Impulse test		N/A
A	ANNEX A, TESTS FOR RESISTANCE TO HEAT AND FIRE		P
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 .....:	Approved PCI Card only	—
	Wall thickness (mm) .....:		—
A.1.2	Conditioning of samples; temperature (°C).....:	Approved PCI Card only	N/A
A.1.3	Mounting of samples.....:	Approved PCI Card only	N/A
A.1.4	Test flame (see IEC 60695-11-3)	Approved PCI Card only	N/A
	Flame A, B, C or D .....:		—
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).....:		—
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.2.2	Conditioning of samples	Approved PCI Card only	N/A
A.2.3	Mounting of samples .....:	Approved PCI Card only	N/A
A.2.4	Test flame (see IEC 60695-11-4)	Approved PCI Card only	N/A
	Flame A, B or C .....:		—
A.2.5	Test procedure		N/A
A.2.6	Compliance criteria		N/A
	Sample 1 burning time (s).....:		—

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
	Sample 2 burning time (s) ..... :		—
	Sample 3 burning time (s) ..... :		—
A.2.7	Alternative test acc. to IEC 60695-2-2, cl. 4 and 8	Approved PCI Card only	N/A
	Sample 1 burning time (s) ..... :		—
	Sample 2 burning time (s) ..... :		—
	Sample 3 burning time (s) ..... :		—
A.3	Hot flaming oil test (see 4.6.2)		N/A
A.3.1	Mounting of samples	Approved PCI Card only	N/A
A.3.2	Test procedure		N/A
A.3.3	Compliance criterion		N/A

B	ANNEX B, MOTOR TESTS UNDER ABNORMAL CONDITIONS (see 4.7.2.2 and 5.3.2)		N/A
B.1	General requirements	No motor	N/A
	Position ..... :	No motor	—
	Manufacturer ..... :	No motor	—
	Type ..... :	No motor	—
	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 d.c. motors in secondary circuits		N/A
B.7	Locked-rotor overload test for d.c. 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)		P
	Position ..... :	E1, T1, Transformar	—
	Manufacturer ..... :	HALO	—

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
	Type ..... :	SMD Type	—
	Rated values ..... :	E1/T1 Signal transformer	—
	Method of protection ..... :		—
C.1	Overload test	Dielectric strength tested	N/A
C.2	Insulation		N/A
	Protection from displacement of windings ..... :		N/A

D	ANNEX D, MEASURING INSTRUMENTS FOR TOUCH-CURRENT TESTS (see 5.1.4)		P
D.1	Measuring instrument	Simpson 228-2	P
D.2	Alternative measuring instrument		N/A

E	ANNEX E, TEMPERATURE RISE OF A WINDING (see 1.4.13)	N/A

F	ANNEX F, MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES (see 2.10)	P

G	ANNEX G, ALTERNATIVE METHOD FOR DETERMINING MINIMUM CLEARANCES		P
G.1	Summary of the procedure for determining minimum clearances	TNV 1 circuit	P
G.2	Determination of mains transient voltage (V)..... :		N/A
G.2.1	AC mains supply	No AC means	N/A
G.2.2	DC mains supply	No DC means	N/A
G.3	Determination of telecommunication network transient voltage (V)..... :	For telecom. port 1500Vac	P
G.4	Determination of required withstand voltage (V). :	For telecom. port 1000Vac	P
G.5	Measurement of transient levels (V) ..... :	For telecom. port 1500Vac	P
G.6	Determination of minimum clearances ..... :		P

H	ANNEX H, IONIZING RADIATION (see 4.3.13)	No ionizing	N/A

J	ANNEX J, TABLE OF ELECTROCHEMICAL POTENTIALS (see 2.6.5.6)		N/A
	Metal used ..... :	No electrochemical potential	—

K	ANNEX K, THERMAL CONTROLS (see 1.5.3 and 5.3.7)		N/A
K.1	Making and breaking capacity	No thermal control	N/A
K.2	Thermostat reliability; operating voltage (V)..... :		N/A

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
K.3	Thermostat endurance test; operating voltage (V) .....:	No thermostat	N/A
K.4	Temperature limiter endurance; operating voltage (V) .....:		N/A
K.5	Thermal cut-out reliability	No thermal cutout	N/A
K.6	Stability of operation		N/A

L	ANNEX L, NORMAL LOAD CONDITIONS FOR SOME TYPES OF ELECTRICAL BUSINESS EQUIPMENT (see 1.2.2.1 and 4.5.1)		N/A
L.1	Typewriters	Not a business equipment	N/A
L.2	Adding machines and cash registers	Not a business equipment	N/A
L.3	Erasers	Not a business equipment	N/A
L.4	Pencil sharpeners	Not a business equipment	N/A
L.5	Duplicators and copy machines	Not a business equipment	N/A
L.6	Motor-operated files	Not a business equipment	N/A
L.7	Other business equipment		N/A

M	ANNEX M, CRITERIA FOR TELEPHONE RINGING SIGNALS (see 2.3.1)		N/A
M.1	Introduction	TDM system no ringing signal	N/A
M.2	Method A		N/A
M.3	Method B		N/A
M.3.1	Ringing signal		N/A
M.3.1.1	Frequency (Hz) .....:	TDM system no ringing signal	—
M.3.1.2	Voltage (V) .....:	TDM system no ringing signal	—
M.3.1.3	Cadence; time (s), voltage (V) .....:	TDM system no ringing signal	—
M.3.1.4	Single fault current (mA) .....:	TDM system no ringing signal	—
M.3.2	Tripping device and monitoring voltage .....:	TDM system no ringing signal	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	No tripping device	N/A
M.3.2.3	Monitoring voltage (V).....:		N/A

N	ANNEX N, IMPULSE TEST GENERATORS (see 2.10.3.4, 6.2.2.1, 7.3.2 and clause G.5)		P
N.1	ITU-T impulse test generators		P
N.2	IEC 60065 impulse test generator		N/A

P	ANNEX P, NORMATIVE REFERENCES	P

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
Q	ANNEX Q, BIBLIOGRAPHY		P
R	ANNEX R, EXAMPLES OF REQUIREMENTS FOR QUALITY CONTROL PROGRAMMES		N/A
R.1	Minimum separation distances for unpopulated coated printed boards (see 2.10.6)	No reduce of spacing	N/A
R.2	Reduced clearances (see 2.10.3)		N/A
S	ANNEX S, PROCEDURE FOR IMPULSE TESTING (see 6.2.2.2)		N/A
S.1	Test equipment For Telecom. port	Applied Steady state test	N/A
S.2	Test procedure		N/A
S.3	Examples of waveforms during impulse testing		N/A
T	ANNEX T, GUIDANCE ON PROTECTION AGAINST INGRESS OF WATER (see 1.1.2)		N/A
		No ingress of water	—
U	ANNEX U, INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION (see 2.10.5.4)		N/A
		Approved E1 transformer	—
V	ANNEX V, AC POWER DISTRIBUTION SYSTEMS (see 1.6.1)		N/A
V.1	Introduction	No means supply	N/A
V.2	TN power distribution systems		N/A
W	ANNEX W, SUMMATION OF TOUCH CURRENTS		N/A
W.1	Touch current from electronic circuits	TDM E1 signal and SELV circuit	N/A
W.1.2	Earthed circuits		N/A
W.2	Interconnection of several equipments		N/A
W.2.1	Isolation		N/A
W.2.2	Common return, isolated from earth		N/A
W.2.3	Common return, connected to protective earth		N/A
X	ANNEX X, MAXIMUM HEATING EFFECT IN TRANSRORMER TESTS (see clause C.1)		N/A
X.1	Determination of maximum input current	Approved E1 signal transformer	N/A
X.2	Overload test procedure		N/A
Y	ANNEX Y, ULTRAVIOLET LIGHT CONDITIONING TEST (see 4.3.13.3)		N/A

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
Y.1	Test apparatus .....:		N/A
Y.2	Mounting of test samples .....:		N/A
Y.3	Carbon-arc light-exposure apparatus .....:		N/A
Y.4	Xenon-arc light exposure apparatus .....:		N/A

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

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
	following text: Vigtigt! Lederen med grøn/gul isolation må kun tilsluttes en klemme mærket ⏚ eller ⏚ If essential for the safety of the equipment, the tag must in addition be provided with a diagram which shows the connection of the other conductors, or be provided with the following text: "For tilslutning af de øvrige ledere, se medfølgende instalationsvejledning."		
1.7.5	S (DK): Socket-outlets for providing power to other equipment shall be in accordance with the Heavy Current Regulations, Section 107-2-D1, Standard Sheet DK 1-3a, DK 1-5a or DK 1-7a, when used on Class I equipment. For stationary equipment the socket-outlet shall be in accordance with Standard Sheet DK 1-1b or DK 1-5a.		N/A
1.7.5	A (DK, Heavy Current Regulations): CLASS II EQUIPMENT shall not be fitted with socket-outlets for providing power to other equipment.		N/A
1.7.12	A (DE, Gesetz über techische Arbeitsmittel (Gerätesicherheitsgesetz) [Law on technical labour equipment {Equipment safety law}], of 23rd October 1992, Article 3, 3rd paragraph, 2nd sentence, together with the "Allgemeine Verwaltungsvorschrift zur Durchführung des Zweiten Abschnitts des Gerätesicherheits-gesetzes" [General administrative regulation on the execution of the Second Section of the Equipment safety law], of 10th January 1996, article 2, 4th paragraph item 2): Directions for use with rules to prevent certain hazards for (among others) maintenance of the technical labour equipment, also for imported technical labour equipment shall be written in the German language. NOTE: Of this requirement, rules for use even only by service personnel are not exempted.		N/A
1.7.15	A (CH, Ordinance on environmentally hazardous substances SR 814.013): Annex 4.10 of SR 814.013 applies for batteries.		N/A
	A (DE, Regulation on protection against hazards by X-ray, of 8th January 1987, Article 5 [Operation of X-ray emission source], clauses 1 to 4): a) A licence is required by those who operate an X-ray emission source. b) A licence in accordance with Cl. 1 is not required by those who operate an X-ray emission source on which the electron acceleration voltage does not exceed 20 kV if		N/A

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
	1) the local dose rate at a distance of 0,1 m from the surface does not exceed 1 μSv/h and 2) it is adequately indicated on the X-ray emission source that i) X-rays are generated and ii) the electron acceleration voltage must not exceed the maximum value stipulated by the manufacturer or importer. c) A licence in accordance with Cl. 1 is also not required by persons who operate an X-ray emission source on which the electron acceleration voltage exceeds 20 kV if 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. d) Furthermore, a licence in accordance with Cl. 1 is also not required by persons who operate X-ray emission sources on which the electron acceleration voltage does not exceed 30 kV if 1) the X-rays are generated only by intrinsically safe 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.		
2.2.4	S (NO): Requirements according to this annex, 1.7.2 and 6.1.2.1 apply.		N/A
2.3.2	S (NO): Requirements according to this annex, 6.1.2.1 apply.		N/A
2.3.3 and 2.3.4	S (NO): Requirements according to this annex, 1.7.2 and 6.1.2.1 apply.		N/A

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
2.6.3.3	S (GB): The current rating of the circuit shall be taken as 13 A, not 16 A.		N/A
2.7.1	C: 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): a) except as detailed in b) and c), protective devices necessary to comply with the requirements of 5.3 shall be included as parts of the equipment; 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; c) it is permitted for PLUGGABLE EQUIPMENT TYPE B or PERMANENTLY CONNECTED EQUIPMENT, to rely on dedicated overcurrent and short-circuit protection in the building installation, provided that the means of protection, e.g. fuses or circuit breakers, is fully specified in the installation instructions. 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
	S (GB): To protect against excessive currents and short-circuits in the PRIMARY CIRCUIT OF DIRECT PLUG-IN EQUIPMENT, protective device shall be included as integral parts of the DIRECT PLUG-IN EQUIPMENT.		N/A
2.7.2	C: Void.		N/A
2.10.2	C: Replace in the first line "(see also 1.4.7)" by "(see also 1.4.8)".		N/A
2.10.3.1	S (NO): Due to the IT power distribution system used (see annex V, Fig. V.7), the A.C. MAINS SUPPLY voltage is considered to be equal to the line-to-line voltage and will remain at 230 V in case of a single earth fault		N/A

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
3.2.1.1	S (CH): Supply cords of equipment having a RATED CURRENT not exceeding 10 A shall be provided with a plug complying with SEV 1011 or IEC 60884-1 and one of the following dimension sheets: SEV 6532-2.1991, Plug type 15, 3P+N+PE 250/400 V, 10 A SEV 6533-2.1991, Plug type 11, L+N 250 V, 10 A SEV 6534-2.1991, Plug type 12, L+N+PE 250 V, 10 A In general, EN 60309 applies for plugs for currents exceeding 10A. However, a 16 A plug and socket-outlet system is being introduced in Switzerland, the plugs of which are according to the following dimension sheets, published in February 1998: SEV 5932-2.1998, Plug type 25, 3L+N+PE 230/400 V, 16 A SEV 5933-2.1998, Plug type 21, L+N 250 V, 16 A SEV 5934-2.1998, Plug type 23, L+N+PE 250 V, 16 A		N/A
	S (DK): Supply cords of single-phase equipment having a rated current not exceeding 13 A shall be provided with a plug according to the Heavy Current Regulations, Section 107-2-D1. 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. If ply-phase equipment and single-phase equipment having a RATED CURRENT exceeding 13 A is provided with a supply cord with a plug, this plug shall be in accordance with the Heavy Current Regulations, Section 107-2-D1 or EN 60309-2.		N/A
	S (ES): Supply cords of single-phase equipment having a rated current not exceeding 10 A shall be provided with a plug according to UNE 20315:1994. 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. CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules, shall be provided with a plug in accordance with standard UNE 20315:1994. If poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with UNE-EN 60309-2.		N/A
	S (GB): Apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS 1363 by means		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
	of that flexible cable or cord and plug, shall be fitted with a 'standard plug' in accordance with Statutory Instrument 1768:1994 – The Plugs and Socket etc. (Safety) Regulations 1994, unless exempted by those regulations. NOTE – 'Standard plug' is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.		
	S (IE): Apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to I.S. 411 by means of that flexible cable or cord and plug, shall be fitted with a 13 A plug in accordance with Statutory Instrument 525:1997 – National Standards Authority of Ireland (section 28) (13 A Plugs and Conversion Adaptors for Domestic Use) Regulations 1997.		N/A
3.2.3	C: Delete Note 1 and in Table 3A, delete the conduit sizes in parentheses.		N/A
3.2.5.1	C: Replace "60245 IEC 53" by "H05 RR-F"; "60227 IEC 52" by "H03 VV-F or H03 VVH2-F"; "60227 IEC 53" by "H05 VV-F or H05 VVH2-F2". In Table 3B, replace the first four lines by the following: Up to and including 6 0,75[1)] Over 6 up to and including 10 (0,75)[2)] 1,0 Over 10 up to and including 16 (1,0)[3)] 1,5 In the Conditions applicable to Table 3B delete the words "in some countries" in condition [1)]. In Note 1, applicable to Table 3B, delete the second sentence.		N/A
3.2.5.1	S (GB): A power supply cord with conductor of 1,25 mm^2 is allowed for equipment with a rated current over 10 A and up to and including 13 A.		N/A
3.3.4	C: In table 3D, delete the fourth line: conductor sizes for 10 to 13 A, and replace with the following: "Over 10 up to and including 16 | 1,5 to 2,5 | 1,5 to 4" Delete the fifth line: conductor sizes for 13 to 16 A.		N/A N/A N/A
3.3.4	S (GB): The range of conductor sizes of flexible cords to be accepted by terminals for equipment with A RATED CURRENT of over 10 A up to and including 13 A is: - 1,25 mm^2 to 1,5 mm^2 nominal cross-sectional area.		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
4.3.6	S (GB): The torque test is performed using a socket outlet complying with BS 1363 and the plug part OF DIRECT PLUG-IN EQUIPMENT shall be assessed to BS 1363: Part 1, 12.1, 12.2, 12.3, 12.9, 12.11, 12.12, 12.16 and 12.17, except that the test of 12.17 is performed at not less than 125 °C.		N/A
	S (IE): DIRECT PLUG-IN EQUIPMENT is known as plug similar devices. Such devices shall comply with Statutory Instrument 526:1997 – National Standards Authority of Ireland (Section 28) (Electrical plugs, plug similar devices and sockets for domestic use) Regulations, 1997.		N/A
4.3.13.6	C: Add the following note: NOTE Attention is drawn to 1999/519/EC: Council Recommendation on the limitation of exposure of the general public to electromagnetic fields 0 Hz to 300 GHz. Standards taking into account this recommendation are currently under development.		N/A
6.1.2.1	S (FI, NO, SE): 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 1,5 kV multiplied by 1,6 (the electric strength test of 2.10.7 shall be performed using 1,5 kV), and - is subject to ROUTINGE TESTING for electric strength during manufacturing, using a test voltage of 1,5 kV. It is permitted to bridge this insulation with a capacitor complying with EN 132400:1994, subclass Y2. A capacitor classified Y3 according to EN 132400:1994, may bridge this insulation under the following conditions:		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
	- the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 132400, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in EN 60950:2000, 6.2.2.1; - the additional testing shall be performed on all the test specimens as described in EN 132400; - the impulse test of 2,5 kV is to be performed before the endurance test in EN 132400, in the sequence of tests as described in EN 132400.		
6.1.2.2	S (FI, NO, SE): The exclusions are applicable for PERMANENTLY CONNECTED EQUIPMENT and PLUGGABLE EQUIPMENT TYPE B and equipment intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, e.g. in a telecommunication centre, and which has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR and is provided with instructions for the installation of that conductor by a service person.		N/A
7.1	S (FI, NO, SE): Requirements according to this annex, 6.1.2.1 and 6.1.2.2 apply with the term TELECOMMUNICATION NETWORK in 6.1.2 being replaced by the term CABLE DISTRIBUTION SYSTEM.		N/A
G.2.1	S (NO): Due to the IT power distribution system used (see annex V, Fig. V.7), the A.C. MAINS SUPPLY voltage is considered to be equal to the line-to-line voltage, and will remain at 230 V in case of a single earth fault.		N/A
Annex H	C: Replace the last paragraph of this annex by: At any point 10 cm from the surface of the operator access area, the dose rate shall not exceed 1 μSv/h (0,1 mR/h) (see note). Account is taken of the background level. Replace the notes as follows: NOTE These values appear in Directive 96/29/Euratom. Delete Note 2.		N/A
Annex P	C: Replace the text of this annex by: See annex ZA.		N/A
Annex Q	C: Replace the title of IEC 61032 by "Protection of persons and equipment by enclosures – Probes for verification". Add the following notes for the standards indicated: IEC 60127 NOTE Harmonized as EN 60127 (Series) (not modified) IEC 60269-2-1 NOTE Harmonized as HD 630.2.1 S4:2000 (modified) IEC 60529 NOTE Harmonized as EN 60529:1991 (not modified) IEC 61032 NOTE Harmonized as EN 61032:1998 (not modified) IEC 61140 NOTE Harmonized as EN 61140:2001 (not modified) ITU-T Recommendation K.31 NOTE in Europe, the suggested document is EN 50083-1.		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
Annex ZA	C: NORMATIVE REFERENCES TO INTERNATIONAL PUBLICATIONS WITH THEIR RELEVANT EUROPEAN PUBLICATIONS This European Standard incorporates, by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references, the latest edition of the publication referrd to applies (including amendments). NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.		N/A

—	IEC 60050-151
—	IEC 60050-195
EN 60065:1998 + corr. June 1999	IEC 60065 (mod):1998
EN 60073:1996	IEC 60073:1996
HD 566 S1:1990	IEC 60085:1984
HD 214 S2:1980	IEC 60112:1979
HD 611.4.1.S1:1992	IEC 60216-4-1:1990
HD 21 [1)] Series	IEC 60227 (mod) Series
HD 22 [2)] Series	IEC 60245 (mod) Series
EN 60309 Series	IEC 60309 Series
EN 60317-43:1997	IEC 60317-43:1997
EN 60320 Series	IEC 60320 (mod) Series
HD 384.3 S2:1995	IEC 60364-3 (mod):1993
HD 384.4.41 S2:1996	IEC 60364-4-41 (mod):1992 [3)]
EN 132400:1994 [4)] + A2:1998 + A3:1998 + A4:2001	IEC 60384-14:1993
EN 60417-1	IEC 60417-1
HD 625.1 S1:1996 + corr. Nov. 1996	IEC 60664-1 (mod):1992
EN 60695-2-2:1994	IEC 60695-2-2:1991
EN 60695-2-11:2001	IEC 60695-2-11:2000
—	IEC 60695-2-20:1995
—	IEC 60695-10-2:1995
—	IEC 60695-11-3:2000
—	IEC 60695-11-4:2000
EN 60695-11-10:1999	IEC 60695-11-10:1999
EN 60695-11-20:1999	IEC 60695-11-20:1999
EN 60730-1:2000	IEC 60730-1:1999 (mod)
EN 60825-1:1994 + corr. Febr. 1995 + A11:1996 + corr. July 1997	IEC 60825-1:1993
EN 60825-2:2000	IEC 60825-2:2000
—	IEC 60825-9:1999
EN 60851-3:1996	IEC 60851-3:1996
EN 60851-5:1996	IEC 60825-5:1996
EN 60851-6:1996	IEC 60851-6:1996
—	IEC 60885-1:1987
EN 60990:1999	IEC 60990:1999
—	IEC 61058-1:2000
EN 61965:2001	IEC 61965:2000
EN ISO 178:1996	ISO 178:1993
EN ISO 179 Series	ISO 179 Series
EN ISO 180:2000	ISO 180:1993
—	ISO 261:1998
—	ISO 262:1998
EN ISO 527 Series	ISO 527 Series

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Clause	Requirement – Test	Result – Remark	Verdict
	—	ISO 386:1984	
	EN ISO 4892 Series	ISO 4892 Series	
	—	ISO 7000:1989	
	EN ISO 8256:1996	ISO 8256:1990	
	—	ISO 9772:1994	
	EN ISO 9773:1998	ISO 9773:1998	
	—	ITU-T:1988 Recommendation K.17	
	—	ITU-T:2000 Recommendation K.21	
	1) The HD 21 series is related to, but not directly equivalent with the IEC 60227 series 2) The HD 22 series is related to, but not directly equivalent with the IEC 60245 series 3) IEC 60364-4-41:1992 is superseded by IEC 60364-4-41:2001 4) EN 132400, Sectional Specification: Fixed capacitors for electromagnetic interference suppression and connection to the supply mains (Assessment level D), and its amendments are related to, but not directly equivalent to IEC 60384-14		

1.5.1	TABLE: list of critical components				
object/part No.	manufacturer/ trademark	type/model	technical data	standard	mark(s) of conformity[1])
Fuse	TeleLink	SMD F1250T	1.25A	UL60950	UR
Sidactor	Littlefuse	SMD P1800SC	170V_{DRM}	UL60950	UR
Sidactor	Littlefuse	SMD P0720SC	65V_{DRM}	UL60950	UR
RJ45 Connector	KYCON	C453	UL94V-0	UL1863	$_{c}UL_{US}$, CSA
Transformer	HALO	TG23-1505N1	1.5mH	UL1950	UR
Transformer	HALO	TG23-1505NX	1.5mH	UL1950	UR
PCB	Sangoma	2003; 2004	94V-0, 6 layers		UR
[1]) an asterisk indicates a mark which assures the agreed level of surveillance					

1.6.2	TABLE: electrical data (in normal conditions)				P
Test No.	Model No.	U (V)	I (mA)	P (W)	condition/status
1	A104	5VDC	557.0	1.92	B5 and B11 input
2	A102	5VDC	222.0	1.11	B5 and B11 input

2.10.3 and 2.10.4	TABLE: clearance and creepage distance measurements					P
clearance cl and creepage distance dcr at/of:	Up (V)	U r.m.s. (V)	required cl (mm)	cl (mm)	required dcr (mm)	dcr (mm)
A104 Telecom. Interface and shield GND	848	600	0.4	1.5	0.4	1.5
A102 Telecom. Interface and shield GND	848	600	0.4	0.9	0.4	0.9
Note: 600Vrms Telecom. Lne overvoltage.						

2.10.5	TABLE: distance through insulation measurements			P
distance through insulation di at/of:	Up (V)	test voltage (V)	required di (mm)	di (mm)
A104; A102 Telecom. and GND	848	600	0.4	>0.4

4.5	TABLE: maximum temperatures	Using Dell OPTIPLEX GX1computer PCI slots		P
	test voltage (V) .....:	125Vac, 60Hz	125Vac, Block vents	—
	t_{amb1} (°C) .....:	23	23	—
	t_{amb2} (°C) .....:	23	23	—

maximum temperature T of part/at::	T (°C)		allowed T_{max} (°C)
1. A102 Card IC U40 top	38	47	90
2. A102 Card Transformer T1 top	32	39	105
3. A102 Card Regulator U1	56	63	90
4. A102 Card Regulator U2	38	46	90
5. A102 Card Transformer T2 top	35	44	105
6. A104 Card Regulator U1	41	50	90
7. A104 Card Regulator U11	36	46	90
8. A104 Card Transformer T1 top	29	38	105
9. A104 Card IC U29	51	60	90
10. A104 Card PCB near edge connector	31	40	90
11. A104 Card RJ45	25	33	65
12. A104 Card PCI Connector	29	39	65

temperature T of winding:	R_1 (Ω)	R_2 (Ω)	T (°C)	allowed T_{max} (°C)	insulation class

4.5.2	TABLE: ball pressure test of thermoplastic parts	No AC means	N/A
	allowed impression diameter (mm) ..... :	≤ 2 mm	—

part	test temperature (°C)	impression diameter (mm)

4.7	TABLE: resistance to fire	PCI Card only	N/A

part	manufacturer of material	type of material	thickness (mm)	flammability class

5.2	TABLE: electric strength tests	P

test voltage applied between:	test voltage (V) d.c.	breakdown Yes / No
A102, J3, J4, Pin 1, 2 and Pin 4, 5	1414	No.
A102, J3, J4, Pin 1, 2 and secondary	1414	No.
A102, J3, J4, Pin 4, 5 and secondary	1414	No.
A102, J3 and J4	1414	No.
A104, J34-1, J34-2, J34-3, J34-4, Pin 1, 2 and Pin 4, 5	1414	No.
A104, J34-1, J34-2, J34-3, J34-4, Pin 1, 2 and secondary	1414	No.
A104, J34-1, J34-2, J34-3, J34-4, Pin 4, 5 and secondary	1414	No.
A104, J34-1 and J34-2	1414	No.
A104, J34-2 and J34-3	1414	No.
A104, J34-3 and J34-4	1414	No
A104, J34-4 and J34-1	1414	No.
A104, J34-4 and J34-2	1414	No.
A104, J34-3 and J34-1	1414	No.
supplementary information: Disconnected all grounded sidactors		

5.3	TABLE: fault condition tests		P
	ambient temperature (°C) ..... :	23	—
	model/type of power supply ..... :	External power supply	—
	manufacturer of power supply ..... :		—
	rated markings of power supply ..... :		—

component No.	fault	test voltage (V)	test time	Normal current A	Fault current A	Result
A104 U1	S/C output	5VDC	30 min.	0.540	4.1 to 1.0	Regulator U1 heated to 102°C max. temperature going down, no hazard
A102 U1	S/C output	5VDC	30 min.	0.222	1.8 to 0.77	Regulator U1 heated to 131°C max. temperature going down, no hazard

supplementary information

Enclosure No. 1

National differences according to the CB Bulletin No. 107A, May 2004

<table>
<tr><td colspan="4">IEC 60950-1 / EN 60950-1</td></tr>
<tr><td>Clause</td><td>Difference – Test</td><td>Result – Remark</td><td>Verdict</td></tr>
<tr><td colspan="4">AUSTRALIA-Differences to IEC 60950-1:2001</td></tr>
<tr><td colspan="4">Annex ZZ (normative)
Variations to IEC 60950-1:2001 for application in Australia and New Zealand</td></tr>
<tr><td colspan="4">ZZ.1 Introduction
This Annex sets out variations between this Standard and IEC 60950-1:2001. These variations indicate national variations for purposes of the IECEE CB Scheme and will be published in the IECEE CB Bulletin. These variations are indicated within the body of the Standard.
ZZ." Variations
The variations are as follows :</td></tr>
<tr><td>1.2</td><td>Between the definitions for 'Person, service' and 'Range, rated frequency' insert the following:
I ignition source 1.2.12.201</td><td></td><td>N/A</td></tr>
<tr><td>1.2.12.10</td><td>After the definition of 1.2.12.15, add the following:
1.2.12.201 potential ignition source: Possible fault which can start a fire if the open-circuit voltage measured across an interruption or faulty contact exceeds a value of 50 V (peak) a.c. or d.c. and the product of the peak value of this voltage and the measured r.m.s current under normal operating conditions exceeds 15 VA. Such a faulty contact or interruption in an electrical connection includes those which may occur in conductive patterns on printed boards.
NOTE 201 An electronic protection circuit may be used to prevent such a fault from becoming a POTENTIAL IGNITION SOURCE.
NOTE 202 This definition is from AS/NZS 60065:2003.</td><td></td><td>N/A</td></tr>
<tr><td>1.5.1</td><td>Add the following variation to the first paragraph:
" or the relevant Australian/ New Zeland Standard"</td><td></td><td>N/A</td></tr>
<tr><td>1.5.2</td><td>Add the following to the end of first and third dash items:
'or the relevant Australian/New Zealand Standard'.</td><td></td><td>N/A</td></tr>
<tr><td>2.1</td><td>Delete the Note.</td><td></td><td>N/A</td></tr>
<tr><td>3.2.3</td><td>Delete Note 2.</td><td></td><td>N/A</td></tr>
<tr><td>3.2.5.1</td><td>Modify Table 3B as follows:
Delete the first four rows and replace with
<table>
<tr><td rowspan="2">RATED CURRENT OF EQUIPMENT A</td><td colspan="2">Minimum conductor sizes</td></tr>
<tr><td>Nominal cross-sectional area mm^2</td><td>AWG or Kcmil (cross-sectional area in mm^2) See note 1</td></tr>
<tr><td>Over 0.2 up to and including 3</td><td>0,5 [1)]</td><td>18 (0,8)</td></tr>
</table></td><td></td><td>N/A</td></tr>
</table>

IEC 60950-1 / EN 60950-1			
Clause	Difference – Test	Result – Remark	Verdict
	Over 3 up to and including 7,5 — 0,75 — 16 (1,3)		
	Over 7,5 up to and including 10 — (0,75)[2] — 1,00 — 16 (1,3) Over 10 up to and including 16 — (1,0)[3] — 1,5 — 14 (2)		
	Replace footnote 1) with the following: [1] This nominal cross-sectional area is only allowed for Class II appliances if the length of the power supply cord, measured between the point where the cord, or cord guard, enters the appliance, and the entry to the plug does not exceed 2 m (0,5 mm^2 three-core supply flexible cords are not permitted; see AS/NZS 3191). Delete Note 1.		N/A
4.3.6	Replace paragraph three with: Equipment with a plug portion, suitable for insertion into a 10 A 3-pin flat-pin socket-outlet complying with AS/NZS 3112, shall comply with the requirements in AS/NZS 3112 for equipment with integral pins for insertion into socket-outlets.		N/A
4.3.13	After the third paragraph *insert* the following variation: NOTE: For the purpose of this standard compliance with AS/NZS 2211.1 is deemed to be compliance with the IEC 60825.1		N/A
4.3.13.5	Add the following to the end of the first paragraph: ', or AS/NZS 2211.1'.".		N/A
4.7	Add the following paragraph: For alternative tests refer to Clause 4.7.201.		N/A
4.7.201	Add the following after Clause 4.7.3.6. 4.7.201 Resistance to fire – Alternative tests 4.7.201.1 General Parts of non-metallic material shall be resistant to ignition and spread of fire. This requirement does not apply to decorative trims, knobs and other parts unlikely to be ignited or to propagate flames originating from inside the apparatus, or the following: Components that are contained in an enclosure having a flammability category of FV-0 according to AS/NZS 4695.707 and having openings only for the connecting wires filling the openings completely, and for ventilation not exceeding 1 mm in width regardless of length. The following parts which would contribute negligible fuel to a fire: small mechanical parts, the mass of which does not exceed 4 g, such as mounting parts, gears, cams, belts and bearings;		N/A

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Clause	Difference – Test	Result – Remark	Verdict
	small electrical components, such as capacitors with a volume not exceeding 1 750 mm^3, integrated circuits, transistors and optocoupler packages, if these components are mounted on material of flammability category FV-1, or better, according to AS/NZS 4695.707. NOTE In considering how to minimize propagation of fire and what 'small parts' are, account should be taken of the cumulative effect of small parts adjacent to each other for the possible effect of propagating fire from one part to another. Compliance shall be checked by the tests of 4.7.201.2, 4.7.201.3, 4.7.201.4 and 4.7.201.5. For the base material of printed boards, compliance shall be checked by the test of 4.7.201.5. The tests shall be carried out on parts of non-metallic material which have been removed from the apparatus. When the glow-wire test is carried out, the parts shall be placed in the same orientation as they would be in normal use. These tests are not carried out on internal wiring. 4.7.201.2 Testing of non-metallic materials Parts of non-metallic material shall be subject to the glow-wire test of AS/NZS 60695.2.11 which shall be carried out at 550°C. Parts for which the glow-wire test cannot be carried out, such as those made of soft or foamy material, shall meet the requirements specified in ISO 9772 for category FH-3 material. The glow-wire test shall be not carried out on parts of material classified at least FH-3 according to ISO 9772 provided that the sample tested was not thicker than the relevant part. 4.7.201.3 Testing of insulating materials Parts of insulating material supporting POTENTIAL IGNITION SOURCES shall be subject to the glow-wire test of AS/NZS 60695.2.11 which shall be carried out at 750°C.		

<table>
<tr><th colspan="4">IEC 60950-1 / EN 60950-1</th></tr>
<tr><th>Clause</th><th>Difference – Test</th><th>Result – Remark</th><th>Verdict</th></tr>
<tr><td></td><td>The test shall be also carried out on other parts of insulating material which are within a distance of 3mm of the connection.
NOTE Contacts in components such as switch contacts are considered to be connections.
For parts which withstand the glow-wire test but produce a flame, other parts above the connection within the envelope of a vertical cylinder having a diameter of 20 mm and a height of 50 mm shall be subjected to the needle-flame test. However, parts shielded by a barrier which meets the needle-flame test shall not be tested.
The needle-flame test shall be made in accordance with AS/NZS 4695.2.2 with the following modifications:</td><td></td><td>N/A</td></tr>
<tr><td></td><td><table><tr><th>Clause of AS/NZS 4695.2.2</th><th>Change</th></tr><tr><td>5 Severities</td><td>Replace the first sentence with:
The specimen shall be arranged so that the flame can be applied to a vertical or horizontal edge as shown in the examples of figure 1.</td></tr><tr><td>8 Test procedure</td><td>The first paragraph does not apply.
Addition:
If possible, the flame shall be applied at least 10 mm from a corner.</td></tr><tr><td>8.2</td><td>Replace with:
The test shall be made on one specimen. If the specimen does not withstand the test, the test may be repeated on two further specimens, both of which shall then withstand the test.</td></tr><tr><td>10 Evaluation of test results</td><td>Replace with:
The duration of burning (tb) shall not exceed 30 s. However, for printed circuit boards, it shall not exceed 15 s.</td></tr></table></td><td></td><td>N/A</td></tr>
<tr><td></td><td>The needle-flame test shall not be carried out on parts of material classified as V-0 or V-1 according to IEC 60695-11-10, provided that the sample tested was not thicker than the relevant part.
4.7.201.4 Testing in the event of non-extinguishing material If parts, other than enclosures, do not withstand the glow wire tests of 4.7.201.3, by failure to extinguish within 30 s after the removal of the glow-wire tip, the needle-flame test detailed in 4.7.201.3 shall be made on all parts of non-metallic material which are within a distance of 50 mm or which are likely to be impinged upon by flame during the tests of 4.7.201.3. Parts shielded by a separate barrier which meets the needle-flame test need not be tested.
NOTE 1 - If the enclosure does not withstand the glow-wire test the equipment is considered to</td><td></td><td>N/A</td></tr>
</table>

IEC 60950-1 / EN 60950-1			
Clause	Difference – Test	Result – Remark	Verdict
	have failed to meet the requirements of Clause 4.7.201 without the need for consequential testing. NOTE 2 - If other parts do not withstand the glow-wire test due to ignition of the tissue paper and if this indicates that burning or glowing particles can fall onto an external surface underneath the equipment, the equipment is considered to have failed to meet the requirements of Clause 4.7.201 without the need for consequential testing. NOTE 3 - Parts likely to be impinged upon by the flame are considered to be those within the envelope of a vertical cylinder having a radius of 10 mm and a height equal to the height of the flame, positioned above the point of the material supporting, in contact with, or in close proximity to, connections. 4.7.201.5 Testing of printed boards The base material of printed boards shall be subjected to the needle-flame test of Clause 4.7.201.3. The flame shall be applied to the edge of the board where the heat sink effect is lowest when the board is positioned as in normal use. The flame shall not be applied to an edge, consisting of broken perforations, unless the edge is less than 3 mm from a POTENTIAL IGNITION SOURCE. The test is not carried out if the — Printed board does not carry any POTENTIAL IGNITION SOURCE; Base material of printed boards, on which the available apparent power at a connection exceeds 15 VA operating at a voltage exceeding 50 V and equal or less than 400 V (peak) a.c. or d.c. under normal operating conditions, is of flammability category FV-1 or better according to AS/NZS 4695.707, or the printed boards are protected by an enclosure meeting the flammability category FV-0 according to AS/NZS 4695.707, or made of metal, having openings only for connecting wires which fill the openings completely; or Base material of printed boards, on which the available apparatus power at a connection exceeds 15 VA operating at a voltage exceeding 400 V (peak) a.c. or d.c. under normal operating conditions, and base material of printed boards supporting spark gaps which provides protection against overvoltages, is of flammability category FV-0 according to AS/NZS 4695.707 or the printed boards are contained in a metal enclosure, having openings only for connecting wires which fill the openings completely.		

IEC 60950-1 / EN 60950-1			
Clause	Difference – Test	Result – Remark	Verdict
	Compliance shall be determined using the smallest thickness of the material. NOTE – Available apparent power is the maximum apparent power which can be drawn from the supplying circuit through a resistive load whose value is chosen to maximize the apparent power for more than 2 min when the circuit supplied is disconnected.		
6.2.2	Add the symbol NZ in the right hand margin beside the first paragraph. Add the following after the first paragraph: In Australia (this variation does not apply in New Zealand), compliance with 6.2.2 shall be checked by the tests of both 6.2.2.1 and 6.2.2.2. Delete the note.		N/A
6.2.2.1	Add the symbol NZ in the right hand margin beside the first paragraph including Note 1. Delete Note 2 Add the following after the first paragraph: In Australia (this variation does not apply in New Zealand), the electrical separation is subjected to 10 impulses of alternating polarity, using the impulse test generator of annex N for 10/700µs impulses. The interval between successive impulses is 60 s and the initial voltage, Uc, is: for 6.2.1 a): 7,0 kV for hand-held telephones and for headsets and 2,5 kV for other equipment; and for 6.2.1 b) and 6.2.1 c):1,5 kV. NOTE 201 – The 7 kV impulse simulates lightning surges on typical rural and semi-rural network lines. NOTE 202 – The value of 2,5 kV for 6.2.1 a) was chosen to ensure the adequacy of the insulation concerned and does not necessarily simulate likely overvoltages.		N/A
6.2.2.2	Add the symbol NZ in the right hand margin beside the second paragraph. Delete the Note. Add the following after the second paragraph: In Australia (this variation does not apply in New Zealand), the a.c. test voltage is: for 6.2.1 a):3 kV; and for 6.2.1 b) and 6.2.1 c):1,5 kV. NOTE 201 – Where there are capacitors across the insulation under test, it is recommended that d.c. test voltages are used. NOTE 202 – The 3 kV and 1,5 kV values have been determined considering the low frequency induced voltages from the power supply distribution system.		N/A

IEC 60950-1 / EN 60950-1			
Clause	Difference – Test	Result – Remark	Verdict
Annex P	Add the following Normative References to Annex P: IEC 60065, Audio, Video and similar electronic apparatus—Safety requirements AS/NZS 3191, Approval and test specification—Electric flexible cords AS/NZS 3112, Approval and test specification—Plugs and socket-outlets AS/NZS 4695.707, Fire hazard testing of electrotechnical products—Methods of test for the determination of the flammability of solid electrical insulating materials when exposed to an igniting source		N/A
Index	Between the entries for 'polyimide insulating material' and 'powder' insert the following: potential ignition source 1.12.201, 4.7.201.3, 4.7.201.5		N/A

IEC 60950-1 / EN 60950-1			
Clause	Difference – Test	Result – Remark	Verdict
CHINA-Differences to IEC 60950, Third Edition (1999)			
1.	Supply tolerance Item 1.4.5 of IEC60950 stipulates the tolerance of rated voltage is +6% and –10%, while GB4943-2001 makes a specification of tolerance of +10% and –10%.		N/A
2.	Power rating marking Item 1.7.1 of IEC60950 does not specify concrete figures of markings for supply voltage and frequency, instead, descriptions are given by examples. But the examples do not include China's mains voltage. GB4943-2001 stipulates that: ·A single rated voltage shall be expressed as 220V ·When a rated voltage range is given, the range shall cover 220V ·When a variety of rated voltages or rated voltage ranges are given, one of them shall be 220V,and shall be set as 220V when dispatched from the factory ·Rated frequency or rated frequency range shall be 50Hz or include 50Hz ·If a unit is not provided with a means for direct connection to the AC mains supply, it need not be marked with any electrical rating		N/A
3.	plate and warning marking in Chinese Item 1.7.12 of GB4943-2001 stipulates: instructions and equipment markings related to safety shall be in standardized Chinese.		P

IEC 60950-1 / EN 60950-1			
Clause	Difference – Test	Result – Remark	Verdict
4.	Power supply plug According to China's particular standards for power supply plug, it is added in article 3.2.1 of GB4943-2001 that plug connecting equipment with AC mains supply shall be in accordance with requirements of GB1002		N/A

IEC 60950-1 / EN 60950-1			
Clause	Difference – Test	Result – Remark	Verdict
GERMANY- Differences to IEC 60950-1, First Edition (2001)			
1.7.12	(Gesetz über technische Arbeitsmittel (Gerätesicherheitsgesetz) [Law on technical labour equipment {Equipment safety law}], of 23rd October 1992, Article 3, 3rd paragraph, 2nd sentence, together with the "Allgemeine Verwaltungsvorschrift zur Durchführung des Zweiten Abschnitts des Gerätesicherheitsgesetzes" [General administrative regulation on the execution of the Second Section of the Equipment safety law], of 10th January 1996, article 2, 4th paragraph, item 2). Directions for use with rules to prevent certain hazards for (among others) maintenance of the technical labour equipment, also for imported technical labour equipment shall be written in the German language. NOTE Of this requirement, rules for use even only by service personnel are not exempted.		N/A
Annex H	(Regulation on protection against hazards by X-ray, of 8th January 1987, Article 5 [Operation of X-ray emission source], clauses 1 to 4) a) A license is required by those who operate an X-ray emission source. 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 µSv/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. 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		N/A

IEC 60950-1 / EN 60950-1			
Clause	Difference – Test	Result – Remark	Verdict
	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. d) Furthermore, a Incense in accordance with clause 1 is also not required by persons who operate X-ray emission sources on which the electron acceleration voltage does not exceed 30 kV if 1) the X-rays are generated only by intrinsically safe 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 generate are adequately screened by the intrinsically safe CRT.		

IEC 60950-1 / EN 60950-1			
Clause	Difference – Test	Result – Remark	Verdict
DENMARK- Differences to IEC 60950-1, First Edition (2001)			
1.2.4.1	In Denmark, certain types of Class I appliances (see 3.2.1.1) may be provided with a plug not establishing earthing conditions when inserted into Danish socket-outlets.		N/A
1.7.5	In Denmark, socket-outlets for providing power to other equipment shall be in accordance with the Heavy Current Regulations, Section 107-2-D1, Standard Sheet DK 1-3a, DK 1-5a or DK 1-7a, when used on Class I equipment. For STATIONARY EQUIPMENT the socket-outlet shall be in accordance with Standard Sheet DK 1-1b or DK 1-5a.		N/A
3.2.1.1	In Denmark, supply cords of single-phase equipment having a rated current not exceeding 13 A shall be provided with a plug according to the Heavy Current Regulations Section 107-2-D1. 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. If poly-phase equipment and single-phase equipment having a RATED CURRENT exceeding 13 A is provided with a supply cord with a plug, this plug shall be in accordance with the Heavy Current Regulations, Section 107-2-D1 or EN 60309-2.		N/A
1.7.2	Supply cords of CLASS I EQUIPMENT, which is delivered without a plug, must be provided with a visible tag with the following text: 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."		N/A
1.7.5	CLASS II EQUIPMENT shall not be fitted with socket-outlets for providing power to other equipment.		N/A

IEC 60950-1 / EN 60950-1			
Clause	Difference – Test	Result – Remark	Verdict
SPAIN- Differences to IEC 60950, Third Edition (1999)			
3.2.1	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 20315:1994 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 CLASS I EQUIPMENT provided with socket-outlets with earth contacts, or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules, shall be provided with a plug in accordance with standard UNE 20315:1994. If poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with UNE-EN 60309-2.		N/A

IEC 60950-1 / EN 60950-1			
Clause	Difference – Test	Result – Remark	Verdict
FINLAND- Differences to IEC 60950-1, First Edition (2001)			
1.7.2	In Finland, CLASS I PLUGGABLE EQUIPMENT TYPE A intended for connection to other equipment or a network shall, if safety relies on connection to protective earth or if surge suppressors are connected between the network terminals and accessible parts, have a marking stating that the equipment must be connected to an earthed mains socket-outlet. The marking text in the applicable countries shall be as follows: "Laite on liitettävä suojamaadoituskoskettimilla varustettuun pistorasiaan "		N/A

IEC 60950-1 / EN 60950-1			
Clause	Difference – Test	Result – Remark	Verdict
6.1.2.1	In Finland, 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 1,5 kV multiplied by 1,6 (the electric strength test of 2.10.7 shall be performed using 1,5 kV), and - is subject to ROUTINE TESTING for electric strength during manufacturing, using a test voltage of 1,5 kV. It is permitted to bridge this insulation with a capacitor complying with EN 132400:1994, subclass Y2. A capacitor classified Y3 according to EN 132400:1994, may bridge this insulation under the following conditions: - the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 132400, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in EN 60950:2000, 6.2.2.1; - the additional testing shall be performed on all the test specimens as described in EN 132400; - the impulse test of 2,5 kV is to be performed before the endurance test in EN 132400, in the sequence of tests as described in EN 132400.		N/A
6.1.2.2	In Finland, the exclusions are applicable for PERMANENTLY CONNECTED EQUIPMENT and PLUGGABLE EQUIPMENT TYPE B and equipment intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, e.g. in a telecommunication centre, and which has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR and is provided with instructions for the installation of that conductor by a service person.		N/A

IEC 60950-1 / EN 60950-1			
Clause	Difference – Test	Result – Remark	Verdict
KOREA- Differences to IEC 60950-1, First Edition (2001)			
1.5.101	Addition Plugs for the connection of the apparatus to the supply mains shall comply with the Korean requirement (KSC 8305 and 8305).		N/A
7 EMC	Addition The apparatus shall comply with the relevant CISPR standards		N/A

IEC 60950-1 / EN 60950-1			
Clause	Difference – Test	Result – Remark	Verdict
NORWAY- Differences to IEC 60950-1, First Edition (2001)			
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 network shall, if safety relies on connection to protective earth or if surge suppressors are connected between the network terminals and accessible parts, have a marking stating that the equipment must be connected to an earthed mains socket-outlet. The marking text in the applicable countries shall be as follows: "Apparatet må tilkoples jordet stikkontakt"		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-clauses 1.7.2 and 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 60950-1 / EN 60950-1			
Clause	Difference – Test	Result – Remark	Verdict
6.1.2.1	In Norway, 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 1,5 kV multiplied by 1,6 (the electric strength test of 2.10.7 shall be performed using 1,5 kV), and - is subject to ROUTINE TESTING for electric strength during manufacturing, using a test voltage of 1,5 kV. It is permitted to bridge this insulation with a capacitor complying with EN 132400:1994, subclass Y2. A capacitor classified Y3 according to EN 132400:1994, may bridge this insulation under the following conditions: - the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 132400, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in EN 60950:2000, 6.2.2.1; - the additional testing shall be performed on all the test specimens as described in EN 132400; - the impulse test of 2,5 kV is to be performed before the endurance test in EN 132400, in the sequence of tests as described in EN 132400.		N/A
6.1.2.2	In Norway, the exclusions are applicable for PERMANENTLY CONNECTED EQUIPMENT and PLUGGABLE EQUIPMENT TYPE B and equipment intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, e.g. in a telecommunication centre, and which has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR and is provided with instructions for the installation of that conductor by a service person.		P

IEC 60950-1 / EN 60950-1			
Clause	Difference – Test	Result – Remark	Verdict
7.1	In Norway, requirements according to this annex, 6.1.2.1 and 6.1.2.2 apply with the term TELECOMMUNICATION NETWORK in 6.1.2 being replaced by the term CABLE DISTRIBUTION SYSTEM.		N/A
G.2.1	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 60950-1 / EN 60950-1			
Clause	Difference – Test	Result – Remark	Verdict
SWEDEN- Differences to IEC 60950-1, First Edition (2001)			
1.5.1	The following is added: Sweden (Ordinance (1990:944) NOTE - In Sweden, switches containing mercury such as thermostats, relays and level controllers are not allowed.		N/A
1.7.2	The following text is added: NOTE - In Sweden, CLASS I PLUGGABLE EQUIPMENT TYPE A intended for connection to other equipment or a network shall, if safety relies on connection to protective earth or if surge suppressors are connected between the network terminals and accessible parts, have a marking stating that the equipment must be connected to an earthed mains socket-outlet. The marking text shall be in Swedish and as follows: "Apparaten skall anslutas till jordat uttag."		N/A
6.1.2.1	The following text is added: NOTE - In Sweden the following text is added between the first and second paragraph: In Sweden, 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 the accordance with the compliance clause below and in addition: - passes the test and inspection criteria of IEC 60950-1, 2.10.8 with an electric strength test of 1,5 kV multiplied by 1,6 (the electric strength test of IEC 60950-1, 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 1,5 kV. It is permitted to bridge this insulation with a capacitor complying with IEC 60384-14:1993, subclass Y2. A capacitor classified Y3 according to IEC 60384-14:1993, may bridge this insulation under		N/A

IEC 60950-1 / EN 60950-1			
Clause	Difference – Test	Result – Remark	Verdict
	the following conditions: The insulation requirements are satisfied by having a capacitor classified Y3 as defined by IEC 60384-14, which in addition to the Y3 testing, is tested with an Impulse test of 2,5kV defined in IEC 60950-1, subclause 6.2.2.1. The additional testing shall be performed on all the test specimens as described in IEC 60384 -14. The Impulse test of 2,5kV is to be performed before the Endurance Test in IEC 60384 -14 in the sequence of tests as described in IEC 60384-14.		
6.1.2.2	The following text is added: In Sweden the exclusions are applicable only for PERMANENTLY CONNECTED EQUIPMENT, PLUGGABLE EQUIPMENT TYPE B and equipment intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, e.g. in a telecommunication centre, and which has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR and is provided with instructions for the installation of that conductor by SERVICE PERSON.		N/A
7.1	In Sweden requirements according to the Swedish deviations to 6.1.2.1 and 6.1.2.2 apply. The term "TELECOMMUNICATION NETWORK" in 6.1.2 is replaced by "CABLE DISTRIBUTION SYSTEM".		N/A

IEC 60950-1 / EN 60950-1			
Clause	Difference – Test	Result – Remark	Verdict
US and CANADA- Differences to IEC 60950-1, First Edition (2001)			
Notes: "CEC" denotes Canadian Electrical Code. "NEC" denotes US National Electrical Code. Due to common Canadian and US national differences, products that are in compliance with the Canadian national differences are also considered in compliance with the US national differences.			
1.1.1	All equipment is to be designed to allow installation in accordance with the National Electrical Code (NEC), ANSI/NFPA 70, the Canadian Electrical Code (CEC), Part I, CAN/CSA C22.1, and when applicable, the National Electrical Safety Code, IEEE C2. Also, unless marked or otherwise identified, installation is allowed per the Standard for the Protection of Electronic Computer/Data-Processing Equipment, ANSI/NFPA 75.		P
1.4.14	For Pluggable Equipment Type A, the protection in the installation is assumed to be 20A.		N/A
1.5.5	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 NEC. For lengths 3,05 m or less, external interconnecting flexible cord and cable assemblies that are not types specified in the NEC are required to have special construction features and identification markings.		N/A
1.7.1	Equipment for use on a.c. mains 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. 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."		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.		P

IEC 60950-1 / EN 60950-1			
Clause	Difference – Test	Result – Remark	Verdict
2.7.1	Suitable NEC/CEC branch circuit protection rated at the maximum circuit rating 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/CEC.		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.		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, and Tables 11 and 12 of the CEC.		N/A
3.2.9	Permanently connected equipment is required to have a suitable wiring compartment and wire bending space.		N/A
3.3	Wiring terminals and associated spacings for field wiring connections shall comply with CSA C22.2 No. 0.		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 be 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.	Horizontal mounted	N/A

IEC 60950-1 / EN 60950-1			
Clause	Difference – Test	Result – Remark	Verdict
3.4.11	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.		N/A
4.3.13	Equipment with lasers is required to meet the Code of Federal Regulations 21 CFR 1040 (and the Canadian Radiation Emitting Devices Act, REDR C1370).		N/A
4.7	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 the Code of Federal Regulations, 21 CFR 1020 (and the Canadian Radiation Emitting Devices Act, REDR C1370).		N/A

IEC 60950-1 / EN 60950-1			
Clause	Difference – Test	Result – Remark	Verdict
OTHER DIFFERENCES The following key national differences are based on requirements other than national regulatory requirements.			
ADDITIONAL CANADIAN NATIONAL DEVIATIONS			
1.5.1	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: I) 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. J) 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. K) A component, which has no approval as in A) or B) 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. L) Some components may require annual re-testing, which may be carried out by the manufacturer, CSA International or another laboratory		P
2.3.1	For TNV-2 and TNV-3 circuits with other than ringing signals and with voltages exceeding 42,4 Vpeak 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.		N/A
2.3.2	In the event of a single fault, the limits of 2.2.3 apply to SELV Circuits and accessible conductive parts.		P

IEC 60950-1 / EN 60950-1			
Clause	Difference – Test	Result – Remark	Verdict
2.6.3.4	When subject to impedance testing, protective earthing and bonding are required to be subjected to the additional test conditions specified.		N/A
3.2.1.2	Equipment connected to a centralized d.c. power system, and having one pole of the DC mains input terminal connected to the main protective earthing terminal in the equipment, is required to comply with special earthing, wiring, marking and installation instruction requirements.		N/A
4.2.8.1	Enclosures around CRTs with a face diameter of 160 mm or more are required to reduce the risk of injury due to the implosion of the CRT.		N/A
4.3.2	Equipment with handles is required to comply with special loading tests.		N/A
5.1.8.3	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 16 mA only are permitted if the equipment is subjected to special installation and performance restrictions.		N/A

ADDITIONAL US NATIONAL DEVIATIONS			
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, battery packs (rechargeable type, used with transportable equipment), cathode ray tubes, circuit breakers, communication circuit accessories, connectors (used for current interruption of non-LPS circuits), 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, multi-layer transformer winding wire, tubing, wire connectors, and wire and cables.		P
2.3.1	For TNV-2 and TNV-3 circuits with other than ringing signals and with voltages exceeding 42,4 Vpeak 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.		N/A
2.3.2	In the event of a single fault, the limits of 2.2.3 apply to SELV Circuits and accessible conductive parts.		P
2.6.3.4	When subject to impedance testing, protective earthing and bonding are required to be subjected to the additional test conditions specified.		N/A
3.2.1.2	Equipment connected to a centralized d.c. power system, and having one pole of the DC mains input terminal connected to the main protective earthing terminal in the equipment, is required to comply with special earthing, wiring, marking and installation instruction requirements.		N/A
4.2.8.1	Enclosures around CRTs with a face diameter of 160 mm or more are required to reduce the risk of injury due to the implosion of the CRT.		N/A
4.3.2	Equipment with handles is required to comply with special loading tests.		N/A
5.1.8.3	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 overvoltages 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. M.2 Continuous ringing signals up to 16 mA only are permitted if the equipment is subjected to special installation and performance restrictions.		N/A

IEC 60950-1 / EN 60950-1			
Clause	Difference – Test	Result – Remark	Verdict
GROUP- Differences to IEC 60950-1, First Edition (2001)			
	Delete all the "country" notes in the reference document according to the following list: 1.5.1 Note 2, 1.5.8 Note 2, 1.6.1 Note, 1.7.2 Note 4, 1.7.12 Note 2, 2.1 Note, 2.2.3 Note, 2.2.4 Note, 2.3.2 Note 2, Note 7 & Note 8 2.3.3 Note 1 & Note 2, 2.3.4 Note 2 & Note 3, 2.7.1 Note, 2.10.3.1 Note 4, 3.2.1.1 Note, 3.2.3 Note 1 & Note 2, 3.2.5.1 Note 2, 4.3.6 Note 1 & Note 2, 4.7.2.2 Note, 4.7.3.1 Note 2, 6.1.2.1 Note, 6.1.2.2 Note, 6.2.2 Note, 6.2.2.1 Note 2, 6.2.2.2 Note, 7 Note 4, 7.1 Note, G2.1 Note 1 & Note 2, Annex H Note 2		N/A
2.7.1	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): a) except as detailed in b) and c), protective devices necessary to comply with the requirements of 5.3 shall be included as parts of the equipment; 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; c) it is permitted for PLUGGABLE EQUIPMENT TYPE B or PERMANENTLY CONNECTED EQUIPMENT, to rely on dedicated overcurrent and short-circuit protection in the building installation, provided that the means of protection, e.g. fuses or circuit breakers, is fully specified in the installation instructions. 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
2.10.2	Replace in the first line "(see also 1.4.7)" by "(see also 1.4.8)".		N/A

IEC 60950-1 / EN 60950-1			
Clause	Difference – Test	Result – Remark	Verdict
3.2.3	Delete Note 1 and in Table 3A, delete the conduit sizes in parentheses.		N/A
3.2.5.1	Replace "60245 IEC 530" by "HO5 RR-F" "60227 IEC 52" by 'HO3 W-F or H03 WH2-F" "60227 IEC 53" by "HOS W-F or H05 WH2-F2" In table 3B, replace the first four lines by the following: I Up to and including 6 I 0,75[1)] I I Over 6 up to and including 10 I (0,75)[2)] 1,0 I I Over 10 up to and including 16 I (1.0)[3)] 1,5 I In the Conditions applicable to table 3B delete the words "in some countries" in condition [1)]. In NOTE 1, applicable to table 3B, delete the second sentence.		N/A
3.3.4	In table 3D, delete the fourth line - conductor sizes for 10 to 13 A. and replace with the following: I Over 10 up to and including 16 I 1,5 to 2,5 I 1,5 to 4 I Delete the fifth line - conductor sizes for 13 to 16 A.		N/A
4.3.13.6	Add the following note: NOTE Attention is drawn to 1999/519/EC: Council Recommendation on the limitation of exposure of the general public to electromagnetic fields 0 Hz to 300 GHz. Standards taking into account this Recommendation are currently under development.		N/A
Annex H	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. Replace the notes as follows: NOTE These values appear in Directive 96/29/Eurat om. Delete Note 2.		N/A
Annex P	Replace the text of this annex by: See annex ZA.		N

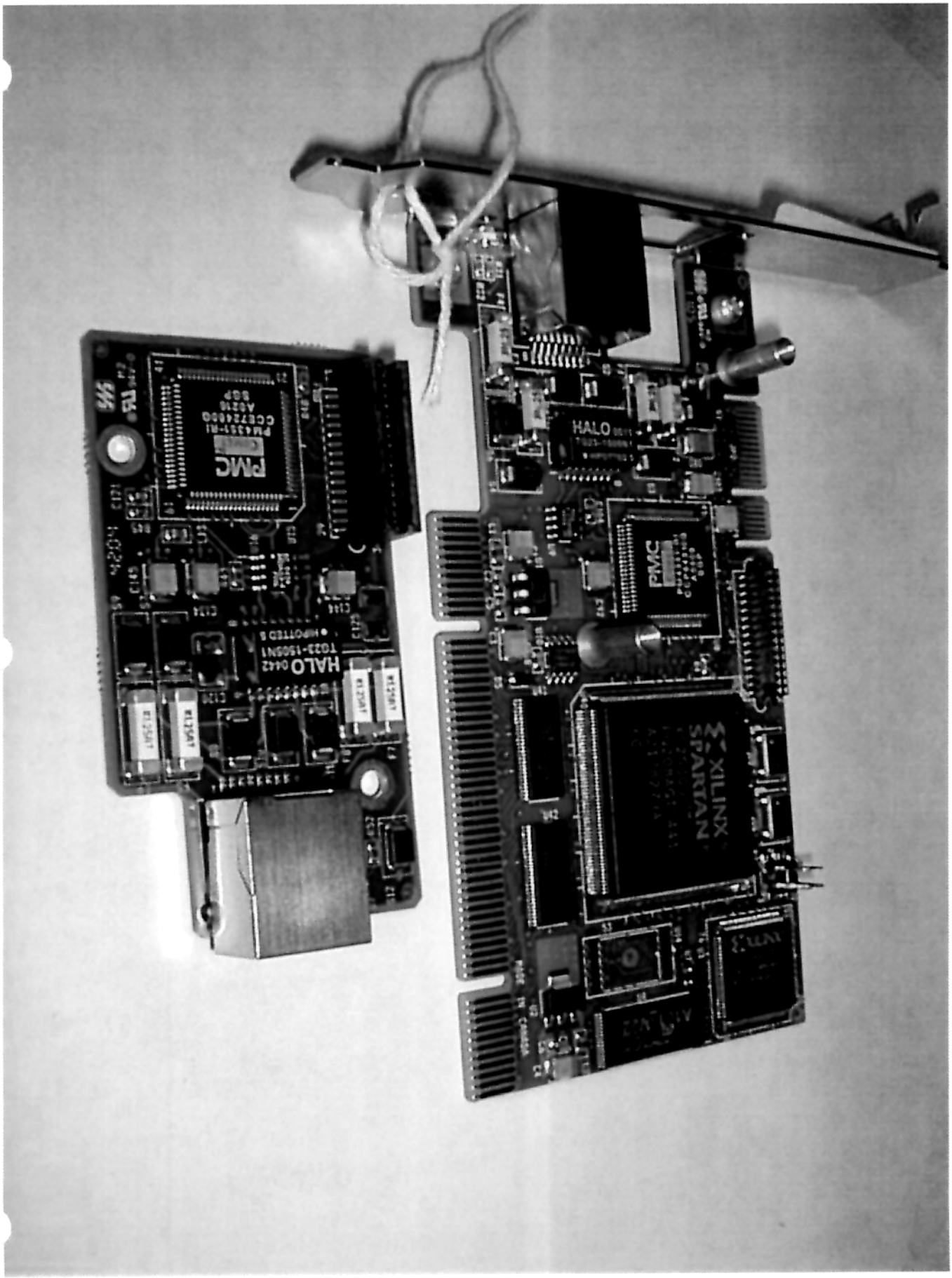
IEC 60950-1 / EN 60950-1			
Clause	Difference – Test	Result – Remark	Verdict
Annex Q	Replace the title of IEC 61032 by "Protection of persons and equipment by enclosures – Probes for verification". Add the following notes for the standards indicated: IEC 60127 NOTE Harmonized as EN 60127 (Series) (not modified). IEC 60269-2-1 NOTE Harmonized as HD 630.2.1 S4:2000 (modified). IEC 60529 NOTE Harmonized as EN 60529:1991 (not modified). IEC 61032 NOTE Harmonized as EN 61032:1998 (not modified). IEC 61140 NOTE Harmonized as EN 61140:2001 (not modified). ITU-T Recommendation K.31 NOTE In Europe, the suggested document is EN 50083-1.		N/A

IEC 60950-1 / EN 60950-1			
Clause	Difference – Test	Result – Remark	Verdict
Annex ZA	**Normative references to international publications with their relevant European publications** This European Standard incorporates, by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references, the latest edition of the publication referred to applies (including amendments). NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.		—

Publication	Year	Title	EN/HD	Year	
IEC 60050-151	-	International Electrotechnical Vocabulary Part 151: Electrical and magnetic devices	-	-	—
IEC 60050-195	-	Part 195: Earthing and protection against electric shock	-	-	—
IEC 60065 (mod)	1998	Audio, video and similar electronic apparatus –Safety requirements	EN 60065 + corr. June	1998 1999	—
IEC 60073	1996	Basic and safety principles for man-machine interface, marking and identification – Coding principles for indication devices and actuators	EN 60073	1996	—
IEC 60085	1984	Thermal evaluation and classification of electrical insulation	HD 566 S1	1990	—
IEC 60112	1979	Method for determining the comparative and the proof tracking indices of solid insulating materials under moist conditions	HD 214 S2	1980	—
IEC 60216-4-1	1990	Guide for the determination of thermal endurance properties of electrical insulating materials –Part 4: Ageing ovens - Section 1: Single-chamber ovens	HD 611.4.1.S1	1992	—
IEC 60227 (mod)	Series	Polyvinyl chloride insulated cables of rated voltages up to and including 450/750V	HD 21 [1)]	Series	—
IEC 60245 (mod)	Series	Rubber insulated cables of rated voltages up to and including 450/750V	HD 22 [2)]	Series	—
IEC 60309	Series	Plugs, socket-outlets and couplers for industrial purposes	EN 60309	Series	—
EC 60317-43	1997	Specifications for particular types of winding wires Part 43: Aromatic polyimide tape wrapped round copper wire, class 240	EN 60317-43	1997	—
IEC 60320 (mod)	Series	Appliance couplers for household and similar general purposes	EN 60320	Series	—
IEC 60364-3 (mod)	1993	Electrical installations of buildings –Part 3: Assessment of general characteristics	HD 384.3 S2	1995	—
IEC 60364-4-41 (mod)	1992 [3)]	Part 4: Protection for safety –Chapter 41: Protection against electric shock	HD 384.4.41 S2	1996	—
IEC 60384-14	1993	Fixed capacitors for use in electronic equipment –Part 14: Sectional specification: Fixed capacitors for electromagnetic interference suppression and connection to the supply mains	EN 132400 [4)] + A2 + A3 + A4	1994 1998 1998 2001	—
IEC 60417-1	-	Graphical symbols for use on equipment Part 1: Overview and application	EN 60417-1	-	—

IEC 60950-1 / EN 60950-1						
Clause	Difference – Test			Result – Remark		Verdict
	IEC 60664-1 (mod)	1992	Insulation coordination for equipment within low-voltage systems - Part 1: Principles, requirements and tests	HD 625.1 S1 + corr. November	1996 1996	—
	IEC 60695-2-2	1991	Fire hazard testing - Part 2: Test methods - Section 2: Needle- flame test	EN 60695-2-2	1994	—
	IEC 60695-2-11	2000	Part 2-11: Glowing/hot-wire based test methods - Glow-wire flammability test method for end-products	EN 60695-2-11	2001	—
	IEC 60695-2-20	1995	Part 2: Glowing/hot-wire based test methods Section 20: Hot- wire coil ignitability test on materials	-	-	—
	IEC 60695-10-2	1995	Part 10-2: Guidance and test methods for the minimization of the effects of abnormal heat on electrotechnical products involved in fires - Method for testing products made from non - metallic materials for resistance to heat using the ball pressure test.	-	-	—
	IEC 60695-11-3	2000	Part 11-3: Test flames - 500 W flames: Apparatus and confirmational test methods	-	-	—
	IEC 60695-11-4	2000	Part 11-4: Test flames - 50 W flames: Apparatus and confirmational test methods	-	-	—
	IEC 60695-11-10	1999	Part 11-10: Test flames - 50 W horizontal and vertical flame test methods	EN 60695-11-10	1999	—
	IEC 60695-11-20	1999	Part 11-20: Test flames - 500 W flame test methods	EN 60695-11-20	1999	—
	IEC 60730-1 (mod)	1999	Automatic electrical controls for household and similar use – Part 1: General requirements	EN 60730-1	2000	—
	IEC 60825-1	1993	Safety of laser products –Part 1: Equipment classification, requirements and user's guide	EN 60825-1 + corr. Febr. + A11 + corr. July	1994 1995 1996 1997	—
	IEC 60825-2	2000	Part 2: Safety of optical fibre communication systems	EN 60825-2	2000	—
	IEC 60825-9	1999	Part 9: Compilation of maximum permissible exposure to incoherent optical radiation	-	-	—
	IEC 60851-3	1996	Winding wires - Test methods - Part 3: Mechanical properties	EN 60851-3	1996	—
	IEC 60851-5	1996	Part 5: Electrical properties	EN 60851-5	1996	—
	IEC 60851-6	1996	Part 6: Thermal properties	EN 60851-6	1996	—
	IEC 60885-1	1987	Electrical test methods for electric cables - Part 1: Electrical tests for cables, cords and wires for voltages up to and including 450/750 V	-	-	—
	IEC 60990	1999	Methods of measurement of touch current and protective conductor current	EN 60990	1999	—
	IEC 61058-1	2000	Switches for appliances - Part 1: General requirements	-	-	—
	IEC 61965	2000	Mechanical safety of caray tubes	EN 61965	2001	—
	ISO 178	1993	Plastics - Determination of flexural properties	EN ISO 178	1996	—
	ISO 179	Series	Plastics - Determination of Charpy impact Strength	EN ISO 179	Series	—
	ISO 180	1993	Plastics - Determination of Izod impact strength	EN ISO 180	2000	—
	ISO 261	1998	ISO general-purpose metric screw threads - General plan	-	-	—

IEC 60950-1 / EN 60950-1						
Clause	Difference – Test			Result – Remark		Verdict
	ISO 262	1998	ISO general-purpose metric screw threads - Selected sizes for screws, bolts and nuts	-	-	—
	ISO 527	Series	Plastics - Determination of tensile properties	EN ISO 527	Series	—
	ISO 3864	1984	Safety colors and safety signs	-	-	—
	ISO 4892	Series	Plastics - Methods of exposure to laboratory light sources	EN ISO 4892	Series	—
	ISO 7000	1989	Graphical symbols for use on equipment - Index and synopsis	-	-	—
	ISO 8256	1990	Plastics - Determination of tensile-impact strength	EN ISO 8256	1996	—
	ISO 9772	1994	Cellular plastics - Determination of horizontal burning characteristics of small specimens subjected to a small flame	-	-	—
	ISO 9773	1998	Plastics - Determination of burning behavior of thin flexible vertical specimens in contact with a small-flame ignition source	EN ISO 9773	1998	—
	ITU-T Recommandation K.17	1988	Tests on power-fed repeaters using solid-state devices in order to check the arrangements for protection from external interference	-	-	—
	ITU-T Recommandation K.21	2000	Resistibility of telecommunication equipment installed in customer's premises to overvoltages and overcurrents	-	-	—
	1) The HD 21 series is related to, but not directly equivalent with the IEC 60227 series. 2) The HD 22 series is related to, but not directly equivalent with the IEC 60245 series. 3) IEC 60364-4-41:1992 is superseded by IEC 60364-4-41:2001. 4) EN 132400, *Sectional Specification: Fixed capacitors for electromagnetic interference suppression and connection to the supply mains (Assessment level D)*, and its amendments are related to, but not directly equivalent to IEC 60384-14.					—



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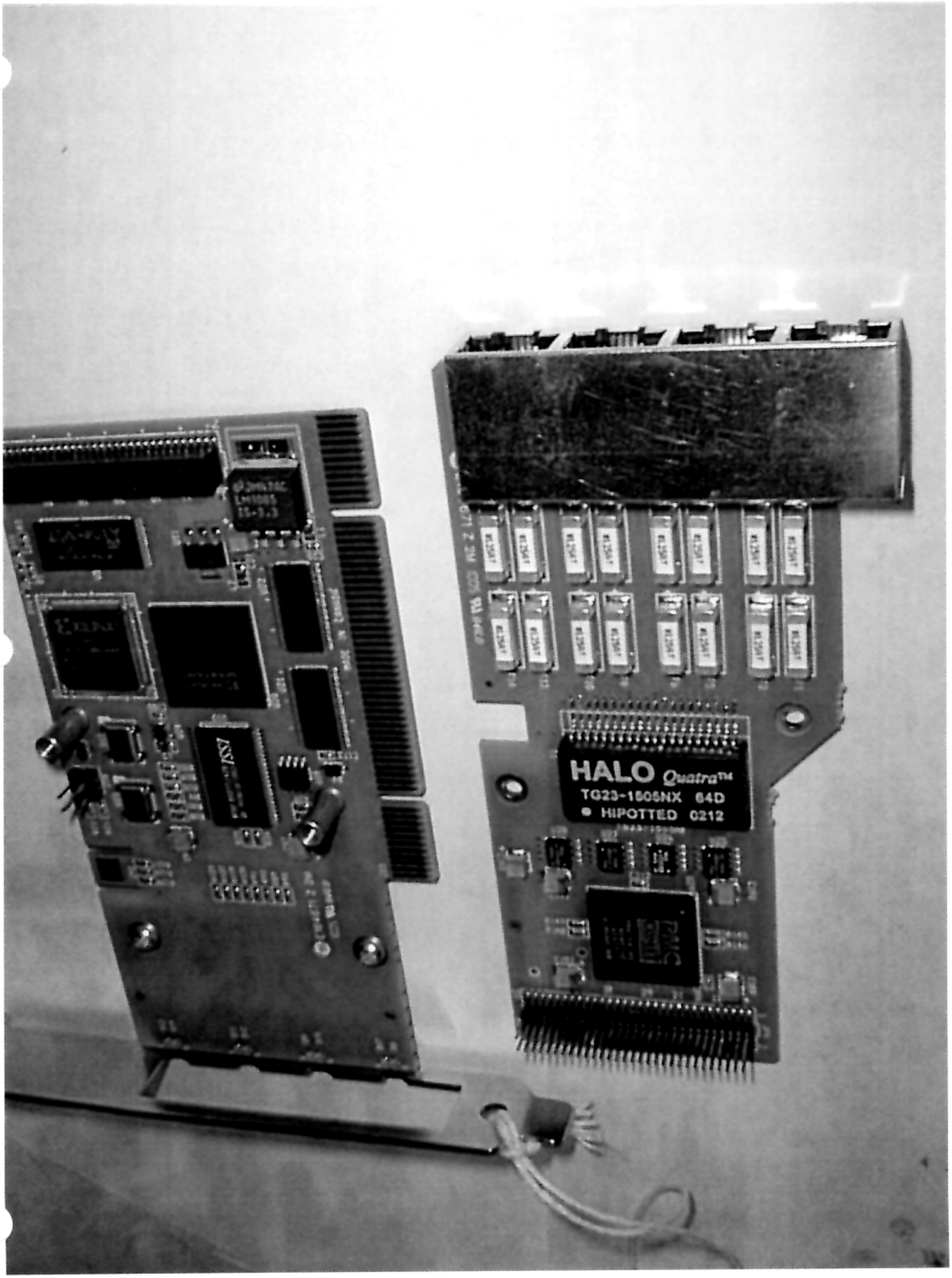

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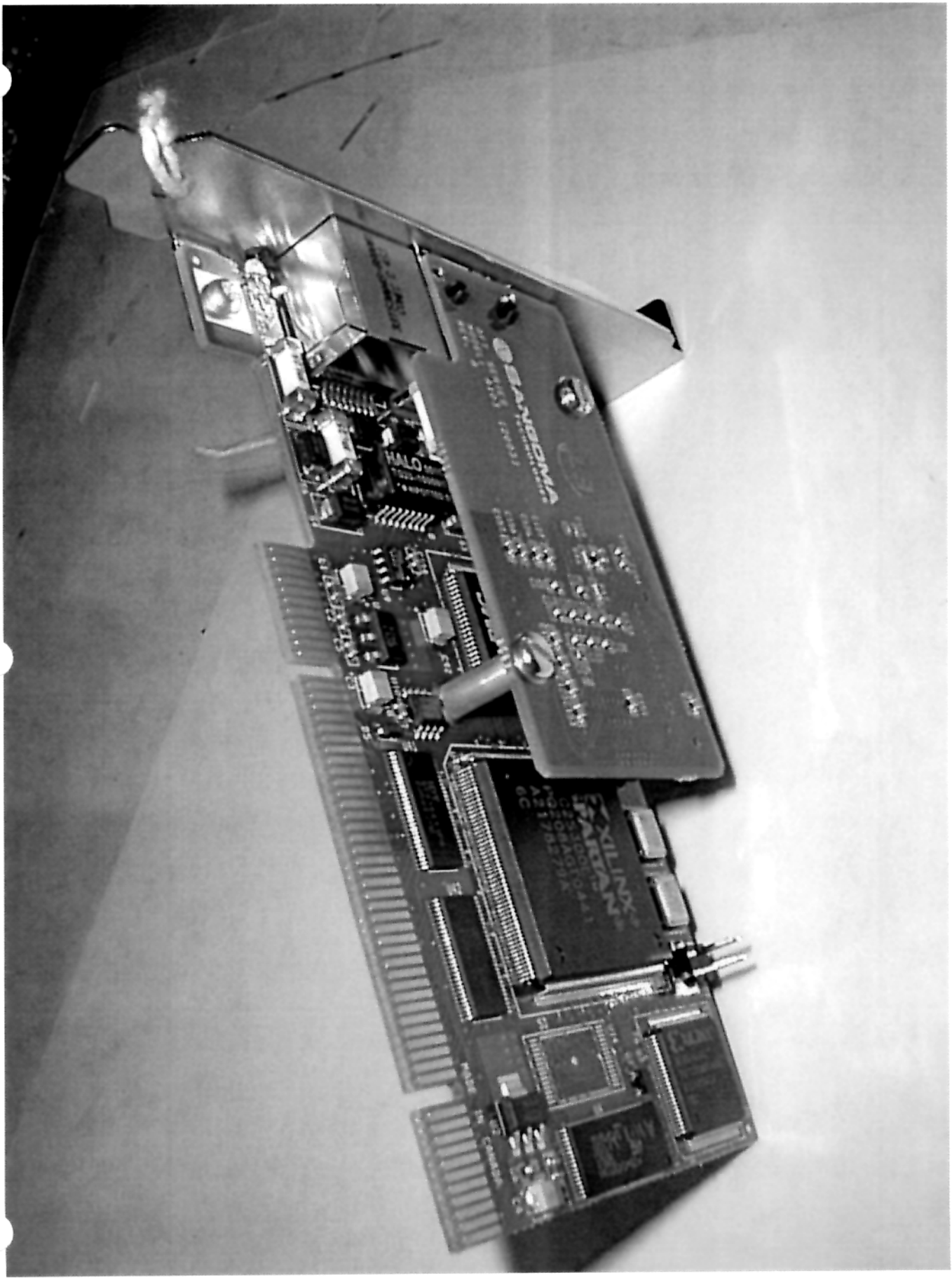

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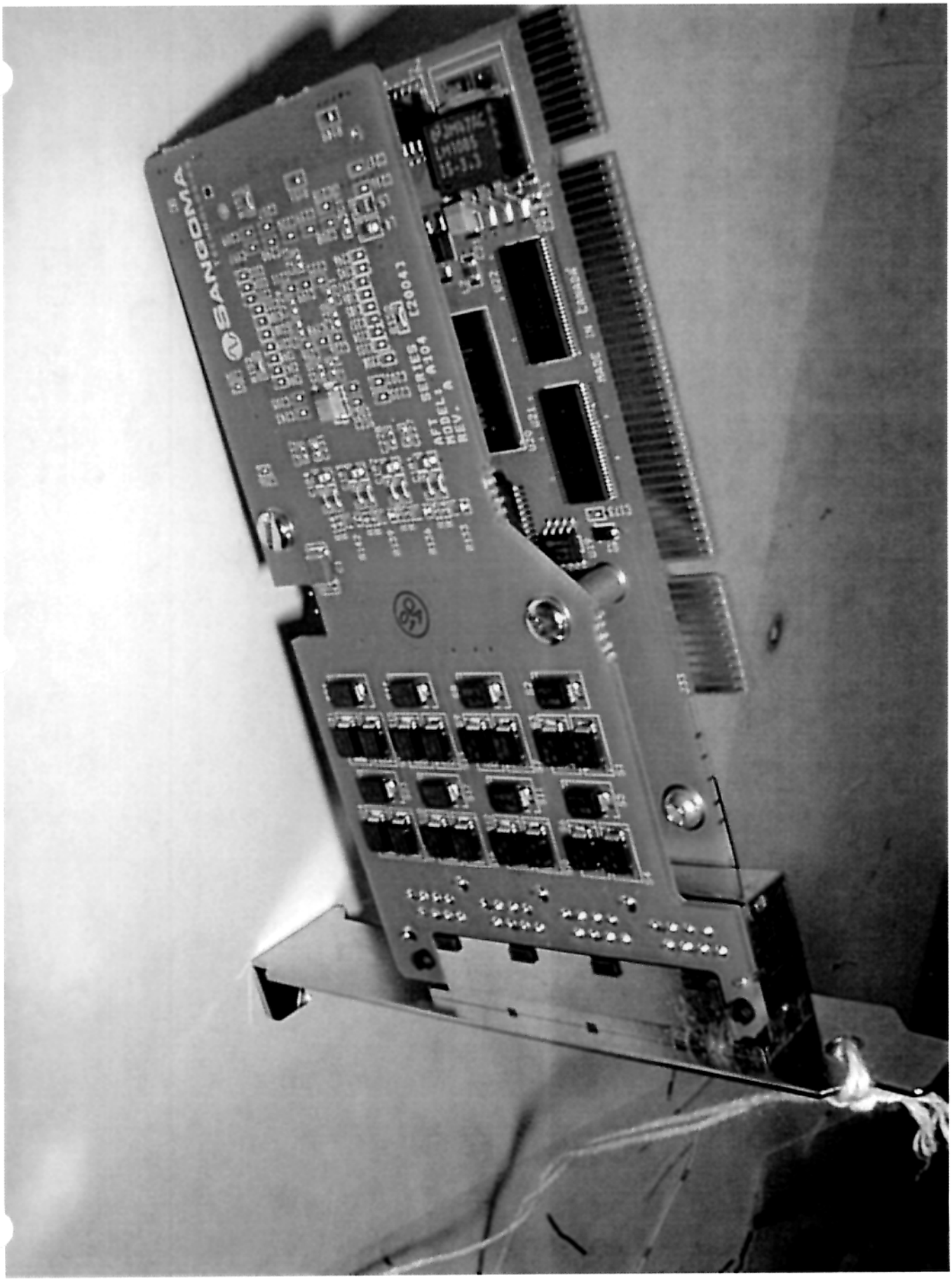

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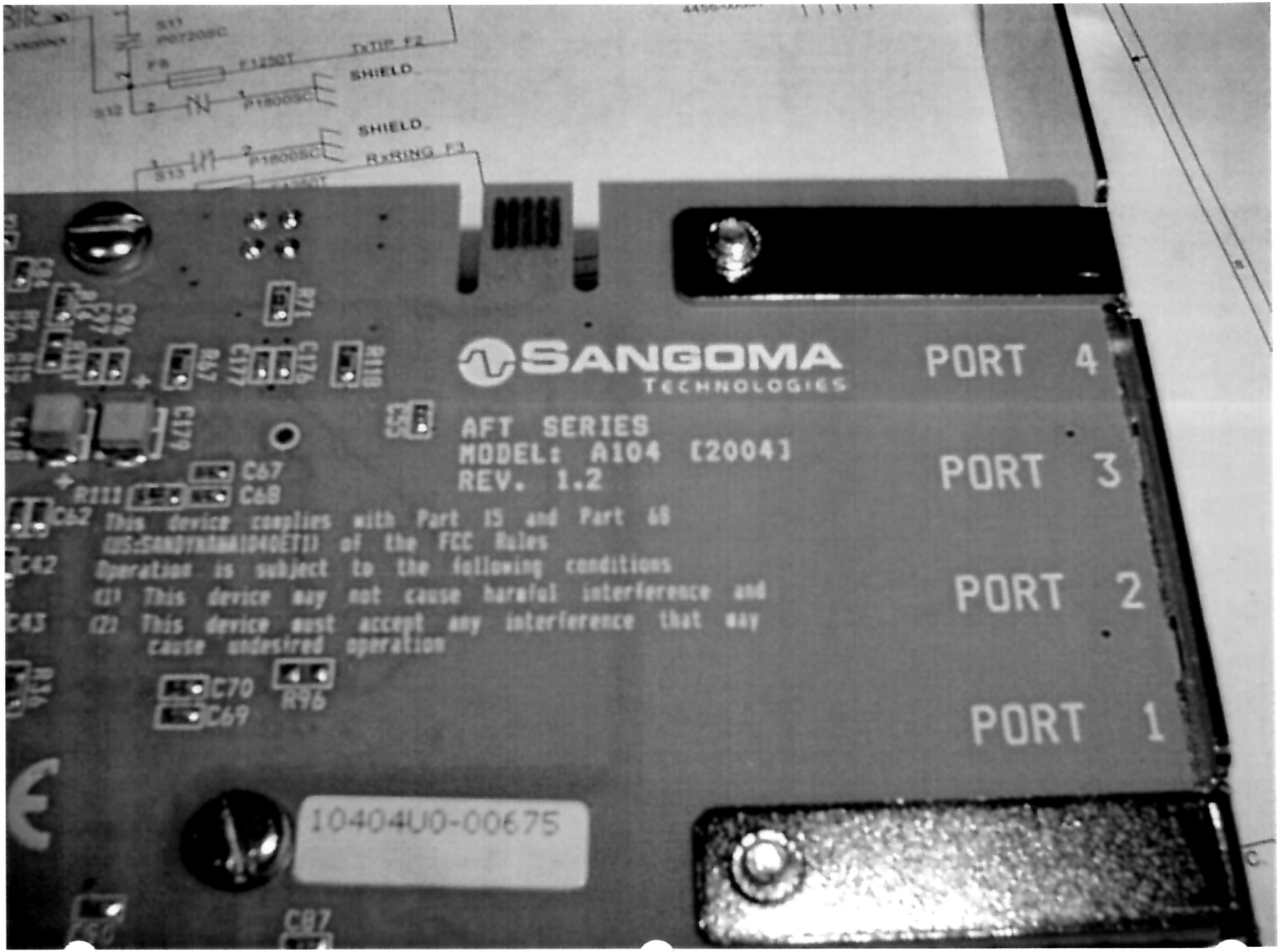

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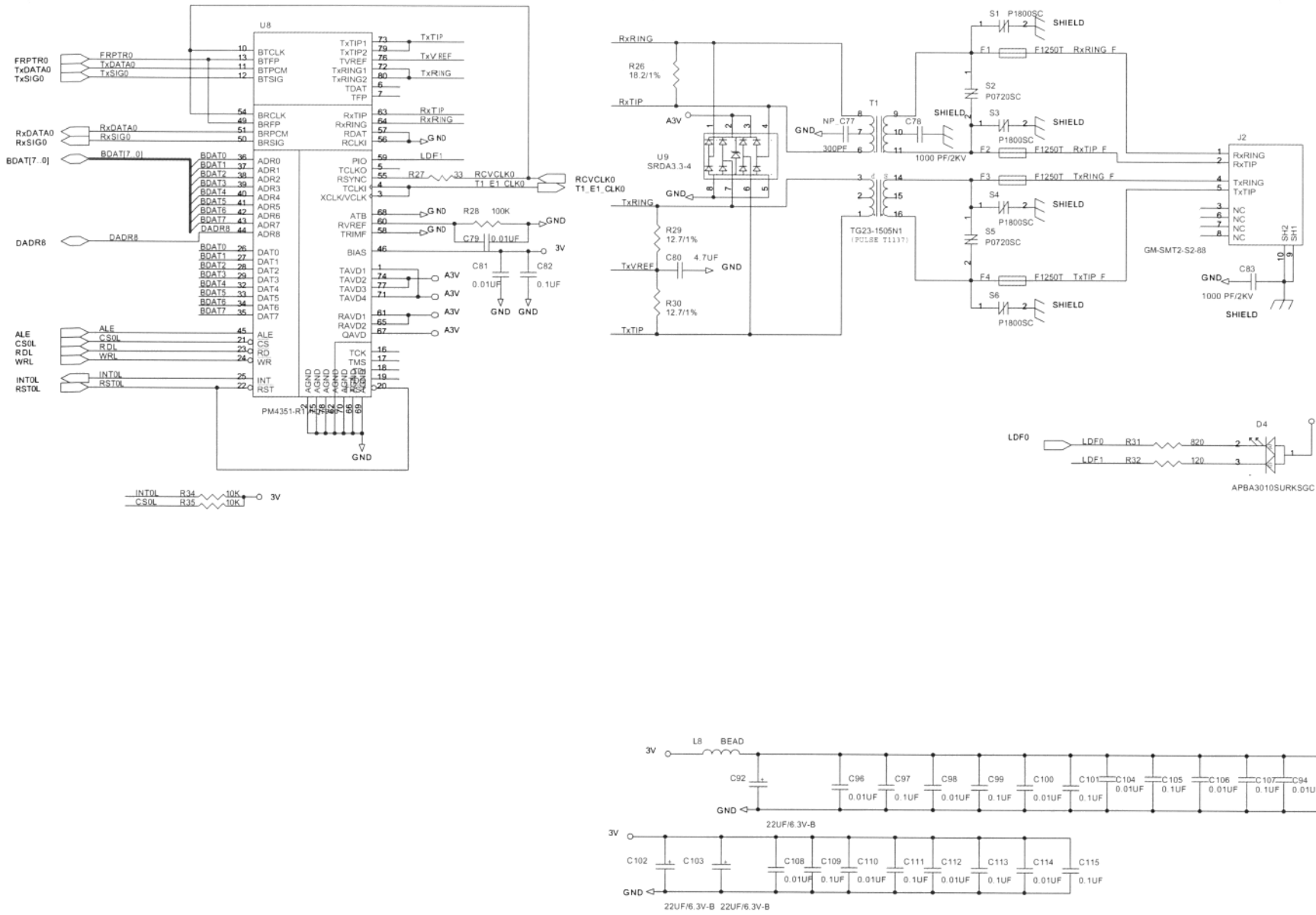

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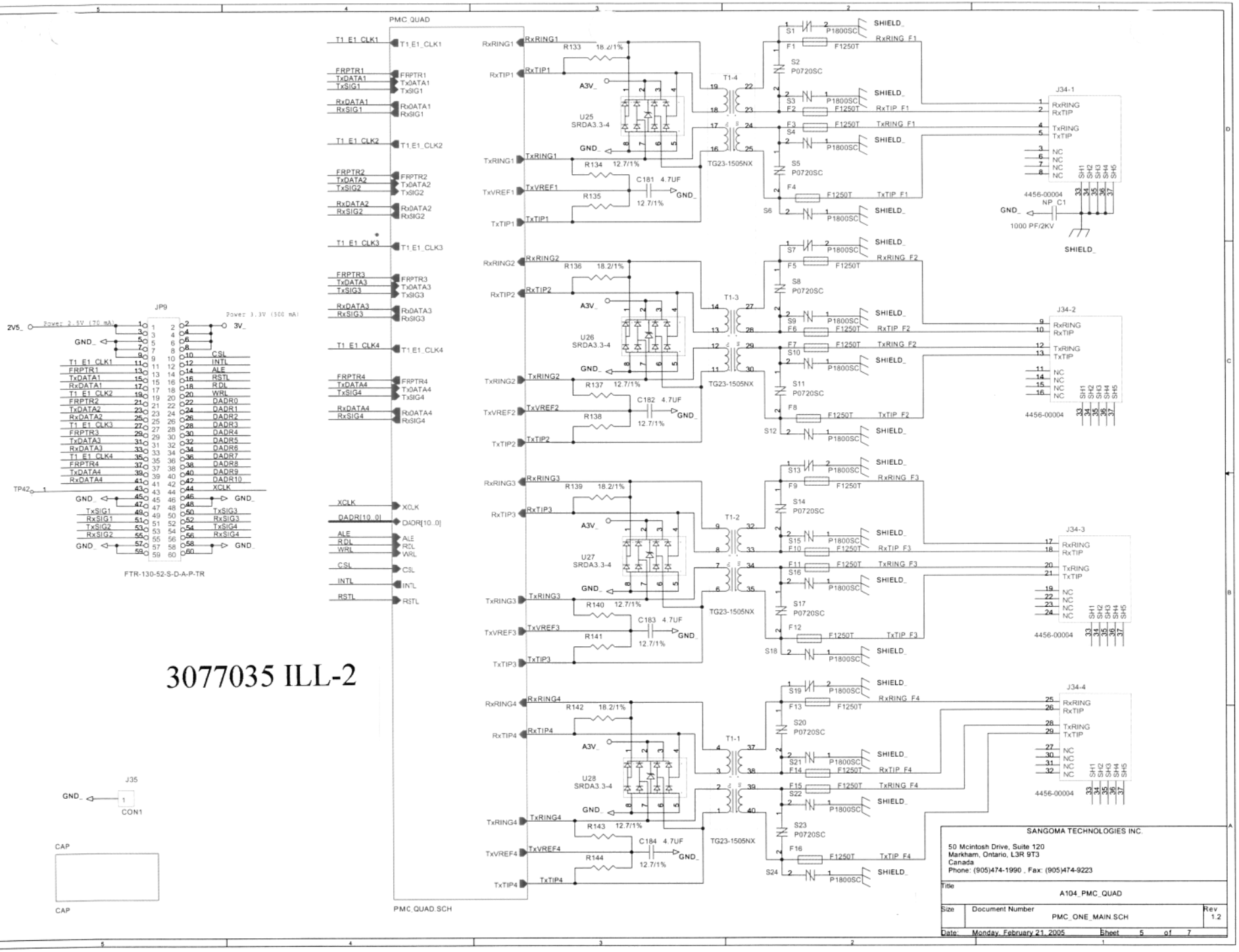

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