



TEST REPORT IEC 60950-1 and/or EN 60950-1 Information technology equipment – Safety – Part 1: General requirements	
Report reference No	55S070277/CZ/MNG
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Approved by (printed name and signature)	Michelle Ng 
Date of issue	8 February, 2007
Testing Laboratory Name	TÜV SÜD PSB Corporation Pte Ltd
Address	1 Science Park Drive, Singapore 118221
Testing location	CBTL <input checked="" type="checkbox"/> CCATL <input type="checkbox"/> SMT <input type="checkbox"/> TMP <input type="checkbox"/>
Address	Same as above
Applicant's Name	Advantech Co., Ltd.
Address	No.1, Alley 20, Lane 26, Rueiguang Road, Neihu District, Taipei, Taiwan 114
Test specification	
Standard	IEC 60950-1:2001 (1 st Edition) and EN 60950-1:2001 + A11: 2004
Test procedure	CB/CCA –scheme
Non-standard test method	N.A.
Test Report Form No.	IECEN60950_1B
TRF originator	SGS Fimko Ltd
Master TRF	dated 2003-03
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Test item description	Industrial Computer
Trademark	ADVANTECH
Manufacturer	Advantech Co., Ltd.
Model and/or type reference	PVS-610XXXXXXXX, PVS-800XXXXXXXX, PVS-900XXXXXXXX (See Remark 2 on page 3 for definition of X)
Serial number	N.A.
Rating(s)	100-240Vac, 50/60Hz, 8-4A

Copy of marking plate

- See Appendix 6 to 8

Summary of testing:

- All test results were found satisfactory in accordance with IEC 60950-1:2001 / EN 60950-1:2001 + A11: 2004.

Particulars: test item vs. test requirements

Equipment mobility	Movable
Operating condition	Continuous
Mains supply tolerance (%).....	± 10%
Tested for IT power systems	Yes
IT testing, phase-phase voltage (V)	IT, 230V (for Norway)
Class of equipment	Class I
Mass of equipment (kg)	Max. 17.07 kg
Protection against ingress of water	IP20

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	15 January, 2007
Date(s) of performance of test	15 January, 2007 to 25 January, 2007

General remarks

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

The test result presented in this report relate only to the object(s) tested.
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.

Comments:

Remark 1: The following contents are included in this test report :

- Test Report page 1 to 66
- Appendix 1 to 9

Remark 2: Models: PVS-800XXXXXXXX, PVS-900XXXXXXXX are identical to Model: PVS-610XXXXXXXX, except for the model designation. The "X" in the model designation may be any alphanumeric characters or blank to indicate the volume of the hard disk, different customer and different market area. (Refer to Appendix 9 for the identity declaration letter)

Remark 3: National & Group Differences as listed in the CB Bulletin No. 110A (June 2006) have been checked. Countries listed in CB Bulletin No. 110A, dated June 2006 as follows: Australia (AU), Canada (CA), China (CN), Korea (KR) and United States (US).

Remark 4: All tests were conducted on Model: PVS-610 and it was the representative of other models.

General product information:

The Industrial Computer is equipped with a certified switching power supply and main boards enclosed in a metal chassis. All the USB and PS2 output of the EUT had been evaluated to comply with the Limited Power Source requirements. The maximum ambient temperature specified by manufacturer is 50 °C.

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
1	GENERAL		P
1.5	Components		P
1.5.1	General	See below.	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	Investigated in the approved power supply.	P
1.5.5	Interconnecting cables		N/A
1.5.6	Capacitors in primary circuits	Investigated in the approved power supply.	P
1.5.7	Double insulation or reinforced insulation bridged by components	Investigated in the approved power supply.	N/A
1.5.7.1	General		N/A
1.5.7.2	Bridging capacitors		N/A
1.5.7.3	Bridging resistors		N/A
1.5.7.4	Accessible parts		N/A
1.5.8	Components in equipment for IT power systems	Evaluated in the certification of power supply.	P
1.6	Power interface		P
1.6.1	AC power distribution systems	TN and IT power system.	P
1.6.2	Input current	(see appended table 1.6.2)	P
1.6.3	Voltage limit of hand-held equipment	Not hand-held equipment.	N/A
1.6.4	Neutral conductor	Investigated in the approved power supply.	P
1.7	Marking and instructions		P
1.7.1	Power rating	See below.	P
	Rated voltage(s) or voltage range(s) (V)	100-240Vac	P
	Symbol for nature of supply, for d.c. only.....	The equipment was supplied by AC.	N/A
	Rated frequency or rated frequency range (Hz) . .	50/60Hz	P
	Rated current (mA or A)	8-4A	P
	Manufacturer's name or trademark or identification mark	ADVANTECH	P

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
	Type/model or type reference	PVS-610XXXXXXXX, PVS-800XXXXXXXX, PVS-900XXXXXXXX (See Remark 2 on page 3 for definition of X)	P
	Symbol for Class II equipment only	Class I equipment.	N/A
	Other symbols		N/A
	Certification marks		N/A
1.7.2	Safety instructions	English Version.	P
1.7.3	Short duty cycles	Continuous operation.	N/A
1.7.4	Supply voltage adjustment	No voltage selector.	N/A
	Methods and means of adjustment; reference to installation instructions		N/A
1.7.5	Power outlets on the equipment	No power outlets on the equipment.	N/A
1.7.6	Fuse identification (marking, special fusing characteristics, cross-reference)	Evaluated in the approved power supply.	P
1.7.7	Wiring terminals	See below.	P
1.7.7.1	Protective earthing and bonding terminals	Evaluated in the approved power supply.	P
1.7.7.2	Terminal for a.c. mains supply conductors	Appliance inlet provided.	N/A
1.7.7.3	Terminals for d.c. mains supply conductors		N/A
1.7.8	Controls and indicators	See below.	P
1.7.8.1	Identification, location and marking	Investigated in the approved power supply.	P
1.7.8.2	Colours	No safety involved colour identification	N/A
1.7.8.3	Symbols according to IEC 60417	Mains switch marked with the symbols: 'I' for ON and 'O' for OFF provided by the approved power supply.	P
1.7.8.4	Markings using figures		N/A
1.7.9	Isolation of multiple power sources	No multiple power sources.	N/A
1.7.10	IT power distribution systems	Evaluated in the certification of power supply.	P
1.7.11	Thermostats and other regulating devices	No thermostats device.	N/A
1.7.12	Language(s)	Markings/instructions are to be in the language suitable for the country of use. Reviewed only English.	—
1.7.13	Durability		P
1.7.14	Removable parts	No required markings placed on removable parts.	P

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
1.7.15	Replaceable batteries	The marking was provided in the user manual.	P
	Language(s)..... :	English Version.	—
1.7.16	Operator access with a tool..... :	No operator access area, require a tool to gain access	N/A
1.7.17	Equipment for restricted access locations..... :	No restricted access location	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	Supplied by SELV.	P
2.1.1.1	Access to energized parts	The Industrial Computer is supplied from an approved power supply that provides only SELV.	P
	Test by inspection..... :	See below.	P
	Test with test finger..... :	The test finger was unable to contact bare hazardous parts.	P
	Test with test pin..... :	The test pin was unable to contact bare hazardous parts.	P
	Test with test probe..... :	No TNV circuit.	N/A
2.1.1.2	Battery compartments..... :	No battery compartments.	N/A
2.1.1.3	Access to ELV wiring	No ELV wiring	N/A
	Working voltage (V_{peak} or V_{rms}); minimum distance (mm) through insulation		—
2.1.1.4	Access to hazardous voltage circuit wiring	No hazardous voltage wiring in operator accessible area.	P
2.1.1.5	Energy hazards..... :	No energy hazard in operator access area.	P
2.1.1.6	Manual controls		N/A
2.1.1.7	Discharge of capacitors in equipment	Evaluation with acceptable result in the approved power supply.	P
	Time-constant (s); measured voltage (V)..... :		—
2.1.2	Protection in service access areas		N/A
2.1.3	Protection in restricted access locations	Not for used in restricted access location	N/A

2.2	SELV circuits		P
2.2.1	General requirements		P
2.2.2	Voltages under normal conditions (V)..... :	Between any SELV circuit, 42.4V peak or 60Vdc were not exceeded.	P

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
2.2.3	Voltages under fault conditions (V).....:	Single fault did not cause excessive voltage in accessible SELV circuit. Limits of 71V peak or 120Vdc were not exceeded within 0.2 seconds and limits of 42.4V peak or 60Vdc were not exceeded for longer than 0.2 seconds.	P
2.2.3.1	Separation by double insulation or reinforced insulation (method 1)	Evaluated in the approved power supply.	P
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.....:	SELV circuits connected to other SELV circuits.	P

2.3	TNV circuits		N/A
2.3.1	Limits	No TNV circuits.	N/A
	Type of TNV circuits		—
2.3.2	Separation from other circuits and from accessible parts		N/A
	Insulation employed.....:		—
2.3.3	Separation from hazardous voltages		N/A
	Insulation employed.....:		—
2.3.4	Connection of TNV circuits to other circuits		N/A
	Insulation employed.....:		—
2.3.5	Test for operating voltages generated externally		N/A

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

2.5	Limited power sources		P
	Inherently limited output	(See appended table 2.5)	P

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
	Impedance limited output		N/A
	Overcurrent protective device limited output		N/A
	Regulating network limited output under normal operating and single fault condition	The USB and PS2 outputs had been evaluated and found to comply with the Limited Power Source.	P
	Regulating network limited output under normal operating conditions and overcurrent protective device limited output under single fault condition		N/A
	Output voltage (V), output current (A), apparent power (VA)..... :	(See appended table 2.5)	—
	Current rating of overcurrent protective device (A)		—

2.6	Provisions for earthing and bonding		P
2.6.1	Protective earthing	Evaluated in the approved power supply.	P
2.6.2	Functional earthing	Evaluated in the approved power supply.	P
2.6.3	Protective earthing and protective bonding conductors		P
2.6.3.1	General	The power supply cord shall be provided during separated national approval.	N/A
2.6.3.2	Size of protective earthing conductors		P
	Rated current (A), cross-sectional area (mm ²), AWG..... :	Cross sectional area of 0.75 mm ² minimum.	
2.6.3.3	Size of protective bonding conductors		P
	Rated current (A), cross-sectional area (mm ²), AWG..... :	18 AWG internal wiring as bonding conductor.	—
2.6.3.4	Resistance (Ω) of earthing conductors and their terminations, test current (A)..... :	Resistance tested at 40A for the Power Supply as below: HG2-6400P: 0.016Ω	P
2.6.3.5	Colour of insulation..... :	Evaluated with the approved power supply.	P
2.6.4	Terminals	See below.	P
2.6.4.1	General	Detachable power cord used.	P
2.6.4.2	Protective earthing and bonding terminals	Appliance inlet used.	P
	Rated current (A), type and nominal thread diameter (mm)..... :	Appliance inlet used.	—
2.6.4.3	Separation of the protective earthing conductor from protective bonding conductors		P
2.6.5	Integrity of protective earthing		P
2.6.5.1	Interconnection of equipment	No interconnected 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	No switches or fuses in earthing conductors and protective bonding conductors.	P
2.6.5.3	Disconnection of protective earth	Appliance inlet used.	P
2.6.5.4	Parts that can be removed by an operator	No removable parts in protective earthing path.	P
2.6.5.5	Parts removed during servicing	Appliance inlet used.	P
2.6.5.6	Corrosion resistance	No risk of corrosion.	P
2.6.5.7	Screws for protective bonding		P
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		P
	Instructions when protection relies on building installation	The circuit breaker served as the backup protection.	P
2.7.2	Faults not covered in 5.3		P
2.7.3	Short-circuit backup protection	Building Installation.	P
2.7.4	Number and location of protective devices	Evaluated in the approved power supply.	P
2.7.5	Protection by several devices		N/A
2.7.6	Warning to service personnel		N/A

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

2.9	Electrical insulation		P
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IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
2.9.1	Properties of insulating materials	Natural rubber, asbestos or hygroscopic materials are not used.	P
2.9.2	Humidity conditioning	Performed for 120Hrs	P
	Humidity (%)	95% RH	—
	Temperature (°C)	40 °C	—
2.9.3	Grade of insulation	Evaluated during the power supply certification.	P

2.10	Clearances, creepage distances and distances through insulation		P
2.10.1	General	Evaluated during the power supply certification.	P
2.10.2	Determination of working voltage	Evaluated during the power supply certification.	P
2.10.3	Clearances	Evaluated during the power supply certification.	P
2.10.3.1	General		P
2.10.3.2	Clearances in primary circuits	Evaluated during the power supply certification.	P
2.10.3.3	Clearances in secondary circuits	Functional insulation.	P
2.10.3.4	Measurement of transient voltage levels		N/A
2.10.4	Creepage distances	Evaluated during the power supply certification.	P
	CTI tests		—
2.10.5	Solid insulation	Evaluated during the power supply certification.	P
2.10.5.1	Minimum distance through insulation		N/A
2.10.5.2	Thin sheet material	Evaluated during the power supply certification.	P
	Number of layers (pcs)		—
	Electric strength test		—
2.10.5.3	Printed boards		N/A
	Distance through insulation		N/A
	Electric strength test for thin sheet insulating material		—
	Number of layers (pcs)		N/A
2.10.5.4	Wound components		N/A
	Number of layers (pcs)		N/A
	Two wires in contact inside wound component; angle between 45° and 90°		N/A
2.10.6	Coated printed boards		N/A

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
2.10.6.1	General		N/A
2.10.6.2	Sample preparation and preliminary inspection		N/A
2.10.6.3	Thermal cycling		N/A
2.10.6.4	Thermal ageing (°C)		N/A
2.10.6.5	Electric strength test		—
2.10.6.6	Abrasion resistance test		N/A
	Electric strength test		—
2.10.7	Enclosed and sealed parts		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		—
2.10.9	Component external terminations		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	Adequate cross sectional areas on internal wiring.	P
3.1.2	Protection against mechanical damage	Smooth and free of sharp edges.	P
3.1.3	Securing of internal wiring	Wiring are reliably routed and secured where appropriate.	P
3.1.4	Insulation of conductors	Wire insulations are suitable for the application.	P
3.1.5	Beads and ceramic insulators	Not used.	N/A
3.1.6	Screws for electrical contact pressure		P
3.1.7	Insulating materials in electrical connections	No contact pressure through insulating materials.	P
3.1.8	Self-tapping and spaced thread screws	No space thread screws / thread-cutting screws used.	N/A
3.1.9	Termination of conductors		N/A
	10 N pull test		N/A
3.1.10	Sleeving on wiring		N/A

3.2	Connection to an a.c. mains supply or a d.c. mains supply		P
3.2.1	Means of connection	Appliance inlet provided.	P
3.2.1.1	Connection to an a.c. mains supply	Appliance inlet provided.	P
3.2.1.2	Connection to a d.c. mains supply		N/A

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
3.2.2	Multiple supply connections	Only one supply connection.	N/A
3.2.3	Permanently connected equipment	Not permanently connected.	N/A
	Number of conductors, diameter (mm) of cable and conduits		—
3.2.4	Appliance inlets	Appliance inlet complies with IEC 60320.	P
3.2.5	Power supply cords	Power supply cord not provided. A power supply cord suitable for the application and subject to country's national code and regulations is to be provided by the manufacturer; to be determined by the country's local certification body.	N/A
3.2.5.1	AC power supply cords		N/A
	Type		—
	Rated current (A), cross-sectional area (mm ²), AWG		—
3.2.5.2	DC power supply cords		N/A
3.2.6	Cord anchorages and strain relief		N/A
	Mass of equipment (kg), pull (N)		—
	Longitudinal displacement (mm)		—
3.2.7	Protection against mechanical damage		N/A
3.2.8	Cord guards		N/A
	D (mm); test mass (g)		—
	Radius of curvature of cord (mm)		—
3.2.9	Supply wiring space		N/A

3.3	Wiring terminals for connection of external conductors		N/A
3.3.1	Wiring terminals	Appliance inlet used.	N/A
3.3.2	Connection of non-detachable power supply cords	Appliance inlet used.	N/A
3.3.3	Screw terminals		N/A
3.3.4	Conductor sizes to be connected		N/A
	Rated current (A), cord/cable type, cross-sectional area (mm ²)		—
3.3.5	Wiring terminal sizes		N/A
	Rated current (A), type and nominal thread diameter (mm)		—
3.3.6	Wiring terminals design		N/A
3.3.7	Grouping of wiring terminals		N/A

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
3.3.8	Stranded wire		N/A

3.4	Disconnection from the mains supply		P
3.4.1	General requirement	Appliance inlet used.	P
3.4.2	Disconnect devices	Appliance inlet used.	P
3.4.3	Permanently connected equipment	Not a permanent connected equipment.	N/A
3.4.4	Parts which remain energized	No parts remain energized in the equipment when appliance coupler is disconnected.	P
3.4.5	Switches in flexible cords	Appliance inlet used.	N/A
3.4.6	Single-phase equipment and d.c. equipment	The appliance inlet disconnects both poles simultaneously.	P
3.4.7	Three-phase equipment	Single phase equipment.	N/A
3.4.8	Switches as disconnect devices	No switch served as the disconnect device.	N/A
3.4.9	Plugs as disconnect devices	The appliance inlet is regarded as the disconnect device, no marking is required.	N/A
3.4.10	Interconnected equipment	No interconnection of hazardous voltages.	N/A
3.4.11	Multiple power sources		N/A

3.5	Interconnection of equipment		P
3.5.1	General requirements	Considered.	P
3.5.2	Types of interconnection circuits	SELV circuits.	P
3.5.3	ELV circuits as interconnection circuits	No ELV interconnection.	N/A

4	PHYSICAL REQUIREMENTS		P
4.1	Stability		P
	Angle of 10°	Stable	P
	Test: force (N).....	Not floor standing unit.	N/A

4.2	Mechanical strength		P
4.2.1	General		P
4.2.2	Steady force test, 10 N	Components and parts withstood the steady force of 10 N.	P
4.2.3	Steady force test, 30 N	No cover or door provided.	N/A
4.2.4	Steady force test, 250 N	The enclosure withstood the test force of 250 N.	P

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
4.2.5	Impact test	The enclosure withstood the impact test.	P
	Fall test		P
	Swing test		N/A
4.2.6	Drop test		N/A
4.2.7	Stress relief test	No polymeric material served as the enclosure.	N/A
4.2.8	Cathode ray tubes	No CRT inside the equipment.	N/A
	Picture tube separately certified		N/A
4.2.9	High pressure lamps	No high pressure lamps	N/A
4.2.10	Wall or ceiling mounted equipment; force (N) ... :		N/A

4.3	Design and construction		P
4.3.1	Edges and corners	Edges are rounded.	P
4.3.2	Handles and manual controls; force (N)..... :	Force applied to each handle: 670 N.	P
4.3.3	Adjustable controls	No such devices.	N/A
4.3.4	Securing of parts	Evaluated in the approved power supply.	P
4.3.5	Connection of plugs and sockets		N/A
4.3.6	Direct plug-in equipment	Not 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	Battery is an approved component, performed test for RTC battery which is protected by a resistor (R324, 1Kohm) and a diode DD2. (see appended table 5.3)	P
4.3.9	Oil and grease	Insulation not exposed to oil or grease.	N/A
4.3.10	Dust, powders, liquids and gases	The equipment did not produce dust, powder, liquid, and gases.	N/A
4.3.11	Containers for liquids or gases	No liquid or gases inside the equipment.	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	See below.	P

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
4.3.13.1	General	Certified laser product used.	P
4.3.13.2	Ionizing radiation	No ionizing radiation inside the equipment.	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		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)		P
	Laser class	Certified Laser Class I product used.	—
4.3.13.6	Other types		N/A

4.4	Protection against hazardous moving parts		P
4.4.1	General	See below.	P
4.4.2	Protection in operator access areas	The fan was not accessible.	P
4.4.3	Protection in restricted access locations		N/A
4.4.4	Protection in service access areas	Unintentional contact is not possible.	P

4.5	Thermal requirements		P
4.5.1	Maximum temperatures	(see appended table 4.5)	P
	Normal load condition per Annex L		N/A
4.5.2	Resistance to abnormal heat		N/A

4.6	Openings in enclosures		P
4.6.1	Top and side openings	No top openings. No hazardous parts located within the area of 5 degree vertical projection from the side openings.	P

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
	Dimensions (mm)	<p>Front side openings: Provided numerous openings covered two areas of 135 by 68 mm and 107 by 92 mm, each one measured 19.8 by 3 mm.</p> <p>Rear side openings: 1) Provided numerous openings covered an area of 260 by 19.8 mm, each one measured 19.8 by 3 mm. 2) Consists of concentric metal rings, measured maximum 55.5 mm diameter, minimum 31.9 mm diameter.</p>	—
4.6.2	Bottoms of fire enclosures	No bottom openings.	P
	Construction of the bottom		—
4.6.3	Doors or covers in fire enclosures		N/A
4.6.4	Openings in transportable equipment	Not a transportable equipment.	N/A
4.6.5	Adhesives for constructional purposes		N/A
	Conditioning temperature (°C)/time (weeks)		—

4.7	Resistance to fire		P
4.7.1	Reducing the risk of ignition and spread of flame	Appropriate use of components and suitable construction. Components are mounted on PWB rated V-1 or better and enclosed in metal enclosure.	P
	Method 1, selection and application of components wiring and materials	(See appended table 1.5.1).	P
	Method 2, application of all of simulated fault condition tests		N/A
4.7.2	Conditions for a fire enclosure	The metal chassis served as the fire enclosure.	P
4.7.2.1	Parts requiring a fire enclosure	The metal chassis served as the fire enclosure.	P
4.7.2.2	Parts not requiring a fire enclosure		N/A

4.7.3	Materials		P
4.7.3.1	General	See critical component list.	P
4.7.3.2	Materials for fire enclosures	The metal chassis served as the fire enclosure.	P
4.7.3.3	Materials for components and other parts outside fire enclosures	Rated HB or better.	P

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
4.7.3.4	Materials for components and other parts inside fire enclosures	Rated V-2 or better.	P
4.7.3.5	Materials for air filter assemblies	Rated V-2 or HF-2.	P
4.7.3.6	Materials used in high-voltage components	No high-voltage components.	N/A

5	ELECTRICAL REQUIREMENTS AND SIMULATED ABNORMAL CONDITIONS		P
5.1	Touch current and protective conductor current		P
5.1.1	General		P
5.1.2	Equipment under test (EUT)		N/A
5.1.3	Test circuit		P
5.1.4	Application of measuring instrument	Measuring circuit in Annex D.1 used.	P
5.1.5	Test procedure		P
5.1.6	Test measurements		P
	Test voltage (V)	264V	—
	Measured touch current (mA)	Max. 0.95 mA for Power Supply: HG2-6400P.	—
	Max. allowed touch current (mA)	3.5 mA r.m.s	—
	Measured protective conductor current (mA)	Max. 0.95 mA for Power Supply: HG2-6400P.	—
	Max. allowed protective conductor current (mA) :	3.5 mA r.m.s	—
5.1.7	Equipment with touch current exceeding 3.5mA :		N/A
5.1.8	Touch currents to and from telecommunication networks and cable distribution systems and from telecommunication networks	No TNV circuit.	N/A
5.1.8.1	Limitation of the touch current to a telecommunication network and a cable distribution system		N/A
	Test voltage (V)		—
	Measured touch current (mA)		—
	Max. allowed touch current (mA)		—
5.1.8.2	Summation of touch currents from telecommunication networks		N/A

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
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IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
5.3.1	Protection against overload and abnormal operation	(see appended table 5.3)	P
5.3.2	Motors	Evaluated during the fan certification.	P
5.3.3	Transformers	Evaluated during the power supply certification. (see appended Annex C)	P
5.3.4	Functional insulation	Method c) used.	P
5.3.5	Electromechanical components	No electromechanical components.	N/A
5.3.6	Simulation of faults		P
5.3.7	Unattended equipment	Thermostats, temperature limiters and thermal cut-offs are not used.	N/A
5.3.8	Compliance criteria for abnormal operating and fault conditions		P

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

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

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

7	CONNECTION TO CABLE DISTRIBUTION SYSTEMS		N/A
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IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
7.1	Protection of cable distribution system service persons, and users of other equipment connected to the system, from hazardous voltages in the equipment	No cable distribution systems inside the equipment.	N/A
7.2	Protection of equipment users from overvoltages on the cable distribution system		N/A
7.3	Insulation between primary circuits and cable distribution systems		N/A
7.3.1	General		N/A
7.3.2	Voltage surge test		N/A
7.3.3	Impulse test		N/A

A	ANNEX A, TESTS FOR RESISTANCE TO HEAT AND FIRE		N/A
A.1	Flammability test for fire enclosures of movable equipment having a total mass exceeding 18 kg, and of stationary equipment (see 4.7.3.2)		N/A
A.1.1	Samples..... :		—
	Wall thickness (mm)..... :		—
A.1.2	Conditioning of samples; temperature (°C) :		N/A
A.1.3	Mounting of samples :		N/A
A.1.4	Test flame (see IEC 60695-11-3)		N/A
	Flame A, B, C or D :		N/A
A.1.5	Test procedure		N/A
A.1.6	Compliance criteria		—
	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		N/A
A.2.3	Mounting of samples :		N/A
A.2.4	Test flame (see IEC 60695-11-4)		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) :		—
	Sample 2 burning time (s) :		—

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
	Sample 3 burning time (s)		—
A.2.7	Alternative test acc. to IEC 60695-2-2, cl. 4 and 8		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		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)		P
B.1	General requirements	Certified fan used.	P
	Position		—
	Manufacturer	(See appended table)	—
	Type	(See appended table)	—
	Rated values	(See appended table)	—
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		P
B.7.1	Test procedure	Certified fan used.	P
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	Evaluated during the power supply certification.	—
	Manufacturer	(See appended table 1.5.1)	—

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
	Type		—
	Rated values		—
	Method of protection		—
C.1	Overload test		P
C.2	Insulation	Evaluated during the power supply certification.	P
	Protection from displacement of windings	Evaluated during the power supply certification.	P

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

E	ANNEX E, TEMPERATURE RISE OF A WINDING (see 1.4.13)		N/A
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F	ANNEX F, MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES (see 2.10)		N/A
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G	ANNEX G, ALTERNATIVE METHOD FOR DETERMINING MINIMUM CLEARANCES		N/A
G.1	Summary of the procedure for determining minimum clearances		N/A
G.2	Determination of mains transient voltage (V)		N/A
G.2.1	AC mains supply		N/A
G.2.2	DC mains supply		N/A
G.3	Determination of telecommunication network transient voltage (V).....		N/A
G.4	Determination of required withstand voltage (V) ..		N/A
G.5	Measurement of transient levels (V).....		N/A
G.6	Determination of minimum clearances		N/A

H	ANNEX H, IONIZING RADIATION (see 4.3.13)		N/A
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J	ANNEX J, TABLE OF ELECTROCHEMICAL POTENTIALS (see 2.6.5.6)		N/A
	Metal used		—

K	ANNEX K, THERMAL CONTROLS (see 1.5.3 and 5.3.7)		N/A
K.1	Making and breaking capacity		N/A

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
K.2	Thermostat reliability; operating voltage (V)		N/A
K.3	Thermostat endurance test; operating voltage (V)		N/A
K.4	Temperature limiter endurance; operating voltage (V)		N/A
K.5	Thermal cut-out reliability		N/A
K.6	Stability of operation		N/A

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		N/A
L.2	Adding machines and cash registers		N/A
L.3	Erasers		N/A
L.4	Pencil sharpeners		N/A
L.5	Duplicators and copy machines		N/A
L.6	Motor-operated files		N/A
L.7	Other business equipment		N/A

M	ANNEX M, CRITERIA FOR TELEPHONE RINGING SIGNALS (see 2.3.1)		N/A
M.1	Introduction		N/A
M.2	Method A		N/A
M.3	Method B		N/A
M.3.1	Ringling signal		N/A
M.3.1.1	Frequency (Hz)		—
M.3.1.2	Voltage (V)		—
M.3.1.3	Cadence; time (s), voltage (V)		—
M.3.1.4	Single fault current (mA).....		—
M.3.2	Tripping device and monitoring voltage		N/A
M.3.2.1	Conditions for use of a tripping device or a monitoring voltage		N/A
M.3.2.2	Tripping device		N/A
M.3.2.3	Monitoring voltage (V).....		N/A



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

P	ANNEX P, NORMATIVE REFERENCES		N/A
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IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
Q	ANNEX Q, BIBLIOGRAPHY		N/A
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)		N/A
R.2	Reduced clearances (see 2.10.3)		N/A
S	ANNEX S, PROCEDURE FOR IMPULSE TESTING (see 6.2.2.3)		N/A
S.1	Test equipment		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
			—
U	ANNEX U, INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION (see 2.10.5.4)		N/A
			—
V	ANNEX V, AC POWER DISTRIBUTION SYSTEMS (see 1.6.1)		N/A
V.1	Introduction		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		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 TRANSFORMER TESTS (see clause C.1)		N/A
X.1	Determination of maximum input current		N/A
X.2	Overload test procedure		N/A

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
Y	ANNEX Y, ULTRAVIOLET LIGHT CONDITIONING TEST (see 4.3.13.3)		N/A
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

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
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.	Appliance inlet.	N/A
1.5.1	A (SE, Ordinance 1990:944 and CH, Ordinance on environmentally hazardous substances SR 814.013, Annex 3.2, Mercury): Add NOTE – Switches containing mercury such as thermostats, relays and level controllers are not allowed.	There are no components containing mercury in the equipment.	P
1.5.8	S (NO): Due to the IT power system used (see annex V, Fig. V.7), capacitors are required to be rated for the applicable line-to-line voltage (230 V).	Evaluated in the certification of power supply.	P
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: "Laitte 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 following text: Vigtigt! Lederen med grøn/gul isolation må kun tilsluttes en klemme mærket		N/A

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
	 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.	No socket-outlets.	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.	Class I equipment.	N/A
1.7.12	A (DE, Gesetz über technische Arbeitsmittel (Gerätesicherheitsgesetz) [Law on technical labour equipment {Equipment safety law}], of 23 rd October 1992, Article 3, 3 rd paragraph, 2 nd sentence, together with the "Allgemeine Verwaltungsvorschrift zur Durchführung des Zweiten Abschnitts des Gerätesicherheitsgesetzes" [General administrative regulation on the execution of the Second Section of the Equipment safety law], of 10 th January 1996, article 2, 4 th paragraph item 2): Directions for use with rules to prevent certain hazards for (among others) maintenance of the technical labour equipment, also for imported technical labour equipment shall be written in the German language. NOTE: Of this requirement, rules for use even only by service personnel are not exempted.	German manual and instructions are to be provided to the user during national approval.	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 8 th January 1987, Article 5 [Operation of X-ray emission source], clauses 1 to 4): a) A licence is required by those who operate an X-ray emission source. b) A licence in accordance with Cl. 1 is not required by those who operate an X-ray emission source on which the electron acceleration voltage does not exceed 20 kV if 1) the local dose rate at a distance of 0,1 m from the surface does not exceed 1 µSv/h and 2) it is adequately indicated on the X-ray	This national difference has been deleted under EN 60950-1:2001/A11:2004.	N/A

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
	<p>emission source that</p> <p>i) X-rays are generated and</p> <p>ii) the electron acceleration voltage must not exceed the maximum value stipulated by the manufacturer or importer.</p> <p>c) A licence in accordance with Cl. 1 is also not required by persons who operate an X-ray emission source on which the electron acceleration voltage exceeds 20 kV if</p> <p>1) the X-ray emission source has been granted a type approval and</p> <p>2) it is adequately indicated on the X-ray emission source that</p> <p>i) X-rays are generated</p> <p>ii) the device stipulated by the manufacturer or importer guarantees that the maximum permissible local dose rate in accordance with the type approval is not exceeded and</p> <p>iii) the electron acceleration voltage must not exceed the maximum value stipulated by the manufacturer or importer.</p> <p>d) Furthermore, a licence in accordance with Cl. 1 is also not required by persons who operate X-ray emission sources on which the electron acceleration voltage does not exceed 30 kV if</p> <p>1) the X-rays are generated only by intrinsically safe CRTs complying with Enclosure III, No. 6,</p> <p>2) the values stipulated in accordance with Enclosure III, No. 6.2 are limited by technical measures and specified in the device and</p> <p>3) it is adequately indicated on the X-ray emission source that the X-rays generated are adequately screened by the intrinsically safe CRT.</p>		
2.2.4	S (NO): Requirements according to this annex, 1.7.2 and 6.1.2.1 apply.		N/A
2.3.2	S (NO): Requirements according to this annex, 6.1.2.1 apply.	No TNV circuit.	N/A
2.3.3 and 2.3.4	S (NO): Requirements according to this annex, 1.7.2 and 6.1.2.1 apply.	No TNV circuit.	N/A
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	<p>C: Replace the subclause as follows:</p> <p><i>Basic requirements</i></p> <p>To protect against excessive current, short-circuits and earth faults in PRIMARY CIRCUITS, protective devices shall be included either as integral parts of the equipment or as parts of the building installation, subject to the following, a), b)</p>		N/A

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
	<p>and c):</p> <p>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;</p> <p>b) for components in series with the mains input to the equipment such as the supply cord, appliance coupler, r.f.i. filter and switch, short-circuit and earth fault protection may be provided by protective devices in the building installation;</p> <p>c) it is permitted for PLUGGABLE EQUIPMENT TYPE B or PERMANENTLY CONNECTED EQUIPMENT, to rely on dedicated overcurrent and short-circuit protection in the building installation, provided that the means of protection, e.g. fuses or circuit breakers, is fully specified in the installation instructions.</p> <p>If reliance is placed on protection in the building installation, the installation instructions shall so state, except that for PLUGGABLE EQUIPMENT TYPE A the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet.</p>		
	S (GB): To protect against excessive currents and short-circuits in the PRIMARY CIRCUIT OF DIRECT PLUG-IN EQUIPMENT, protective device shall be included as integral parts of the DIRECT PLUG-IN EQUIPMENT.		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	Evaluated in the certification of power supply.	P

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
3.2.1.1	<p>S (CH): Supply cords of equipment having a RATED CURRENT not exceeding 10 A shall be provided with a plug complying with SEV 1011 or IEC 60884-1 and one of the following dimension sheets:</p> <p>SEV 6532-2.1991, Plug type 15, 3P+N+PE 250/400 V, 10 A SEV 6533-2.1991, Plug type 11, L+N 250 V, 10 A SEV 6534-2.1991, Plug type 12, L+N+PE 250 V, 10 A</p> <p>In general, EN 60309 applies for plugs for currents exceeding 10A. However, a 16 A plug and socket-outlet system is being introduced in Switzerland, the plugs of which are according to the following dimension sheets, published in February 1998:</p> <p>SEV 5932-2.1998, Plug type 25, 3L+N+PE 230/400 V, 16 A SEV 5933-2.1998, Plug type 21, L+N 250 V, 16 A SEV 5934-2.1998, Plug type 23, L+N+PE 250 V, 16 A</p>	A plug, separately certified according to the Swiss requirement is to be used when supplied to Switzerland.	N/A
	<p>S (DK): Supply cords of single-phase equipment having a rated current not exceeding 13 A shall be provided with a plug according to the Heavy Current Regulations, Section 107-2-D1.</p> <p>CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a.</p> <p>If 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.</p>	A plug, separately certified according to the Danish requirement is to be used when supplied to Denmark.	N/A
	<p>S (ES): Supply cords of single-phase equipment having a rated current not exceeding 10 A shall be provided with a plug according to UNE 20315:1994.</p> <p>Supply cords of single-phase equipment having a rated current not exceeding 2,5 A shall be provided with a plug according to UNE-EN 50075:1993.</p> <p>CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules, shall be provided with a plug in accordance with standard UNE 20315:1994.</p> <p>If poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with UNE-EN 60309-2.</p>	A plug, separately certified according to the Spanish requirement is to be used when supplied to Spain.	N/A
	<p>S (GB): Apparatus which is fitted with a flexible cable or cord and is designed to be connected to</p>	A plug, separately certified according to the British	N/A

IEC 60950-1 / EN 60950-1									
Clause	Requirement – Test	Result – Remark	Verdict						
	<p>a mains socket conforming to BS 1363 by means of that flexible cable or cord and plug, shall be fitted with a 'standard plug' in accordance with Statutory Instrument 1768:1994 – The Plugs and Socket etc. (Safety) Regulations 1994, unless exempted by those regulations.</p> <p>NOTE – 'Standard plug' is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.</p>	requirement is to be used when supplied to United Kingdom.							
	<p>S (IE): Apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to I.S. 411 by means of that flexible cable or cord and plug, shall be fitted with a 13 A plug in accordance with Statutory Instrument 525:1997 – National Standards Authority of Ireland (section 28) (13 A Plugs and Conversion Adaptors for Domestic Use) Regulations 1997.</p>	A plug, separately certified according to the Irish requirement is to be used when supplied to Ireland.	N/A						
3.2.3	C: Delete Note 1 and in Table 3A, delete the conduit sizes in parentheses.	Deleted. (not permanently connected equipment)	N/A						
3.2.5.1	<p>C: Replace</p> <p>"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".</p> <p>In Table 3B, replace the first four lines by the following:</p> <table style="margin-left: 40px;"> <tr> <td>Up to and including 6</td> <td style="text-align: right;">0,75¹⁾</td> </tr> <tr> <td>Over 6 up to and including 10</td> <td style="text-align: right;">(0,75)²⁾ 1,0</td> </tr> <tr> <td>Over 10 up to and including 16</td> <td style="text-align: right;">(1,0)³⁾ 1,5</td> </tr> </table> <p>In the Conditions applicable to Table 3B delete the words "in some countries" in condition ¹⁾.</p> <p>In Note 1, applicable to Table 3B, delete the second sentence.</p>	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	Replaced.	N/A
Up to and including 6	0,75 ¹⁾								
Over 6 up to and including 10	(0,75) ²⁾ 1,0								
Over 10 up to and including 16	(1,0) ³⁾ 1,5								
3.2.5.1	S (GB): A power supply cord with conductor of 1,25 mm ² is allowed for equipment with a rated current over 10 A and up to and including 13 A.		N/A						
3.3.4	<p>C: In table 3D, delete the fourth line: conductor sizes for 10 to 13 A, and replace with the following:</p> <p>"Over 10 up to and including 16 1,5 to 2,5 1,5 to 4"</p> <p>Delete the fifth line: conductor sizes for 13 to 16 A.</p>		N/A						
3.3.4	<p>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:</p> <p>- 1,25 mm² to 1,5 mm² nominal cross-sectional area.</p>		N/A						

IEC 60950-1 / EN 60950-1			
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.	Not direct plug-in equipment.	N/A
	S (IE): DIRECT PLUG-IN EQUIPMENT is known as plug similar devices. Such devices shall comply with Statutory Instrument 526:1997 – National Standards Authority of Ireland (Section 28) (Electrical plugs, plug similar devices and sockets for domestic use) Regulations, 1997.	Not direct plug-in equipment.	N/A
4.3.13.6	C: Add the following note: NOTE Attention is drawn to 1999/519/EC: Council Recommendation on the limitation of exposure of the general public to electromagnetic fields 0 Hz to 300 GHz. Standards taking into account this recommendation are currently under development.	Added.	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 ROUTING 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:	No TNV circuits.	N/A

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Clause	Requirement – Test	Result – Remark	Verdict
	<ul style="list-style-type: none"> - the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 132400, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in EN 60950:2000, 6.2.2.1; - the additional testing shall be performed on all the test specimens as described in EN 132400; - the impulse test of 2,5 kV is to be performed before the endurance test in EN 132400, in the sequence of tests as described in EN 132400. 		
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.	No TNV circuits.	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.	Evaluated in the certification of power supply.	P
Annex H	<p>C: Replace the last paragraph of this annex by:</p> <p>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.</p> <p>Replace the notes as follows:</p> <p>NOTE These values appear in Directive 96/29/Euratom.</p> <p>Delete Note 2.</p>	The unit does not emit X-ray radiation.	N/A
Annex P	C: Replace the text of this annex by: See annex ZA.	Replaced.	P
Annex Q	<p>C: Replace the title of IEC 61032 by "Protection of persons and equipment by enclosures – Probes for verification".</p> <p>Add the following notes for the standards indicated:</p> <p>IEC 60127 NOTE Harmonized as EN 60127 (Series) (not modified)</p> <p>IEC 60269-2-1 NOTE Harmonized as HD 630.2.1 S4:2000 (modified)</p> <p>IEC 60529 NOTE Harmonized as EN 60529:1991 (not modified)</p> <p>IEC 61032 NOTE Harmonized as EN 61032:1998 (not modified)</p> <p>IEC 61140 NOTE Harmonized as EN 61140:2001 (not modified)</p> <p>ITU-T Recommendation K.31</p> <p>NOTE in Europe, the suggested document is EN 50083-1.</p>		P

IEC 60950-1 / EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
Annex ZA	<p>C: NORMATIVE REFERENCES TO INTERNATIONAL PUBLICATIONS WITH THEIR RELEVANT EUROPEAN PUBLICATIONS</p> <p>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).</p> <p>NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.</p>		P
	—	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⁾	IEC 60384-14:1993	
	+ A2:1998 + A3:1998 + A4:2001		
	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	

IEC 60950-1 / EN 60950-1			
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					P
object/part No.	manufacturer/ trademark	type/model	technical data	standard	mark(s) of conformity ¹⁾	
Switching Power Supply	Zippy Technology Corp. / EMACS	HG2-6400P	I/P: 100-240 Vac, 63-47Hz, 8-4A, Class I O/P: +5V/35A, +3.3V/0-28A, +12V/30A, +5Vsb/0-2A, -5V/0-0.5A, -12V/0-0.8A, +3.3V & +5V total max. 45A. Max. output is 400W	UL 60950-1: 2003 IEC 60950-1: 2001	TUV/R (CB Ref. Certificate No.: JPTUV-014937)	
Hard Disk Drive (Optional)	Western Digital	WD800	5/12Vdc, 1.5/1.5A	UL 60950-1 IEC 60950-1	UL, TUV	
-Alternate Use-	Various	Various	5/12Vdc, 1.5/1.5A max.	UL 60950-1 IEC 60950-1	UL, TUV	
Optical Drive Device (Optional)	Asus	DRW-1608P3S	5/12Vdc, 1.6/1.0A, Class 1 Laser Product, bezel rated V-1 min.	UL 60950-1 IEC 60950-1 IEC 60825-1	UL, TUV	
-Alternate Use-	Various	Various	5/12Vdc, 1.6/1.0A max., Class 1 Laser Product, bezel rated V-1 min.	UL 60950-1 IEC 60950-1 IEC 60825-1	UL, CB type tested with CB certificate & report	
RTC Battery	Spectrum Brands Inc.	BR2032	3Vdc, 300mAh Lithium battery, max. abnormal charging current 5mA	UL 1642	UL	
Polyswitch for PS2 and USB Port	Tyco Electronics Corp.	miniSMDC110	8Vdc, 1.1A	UL 1434 EN 60730-1	UL, TUV	
-Alternate Use-	Polytronics Technology Corp.	SMD1812P110T S/TF	6Vdc, 1.1A	UL 1434 EN 60730-1	UL, TUV	
CPU Fan	Delta Electronics Inc.	AFB0712HHB	12Vdc, 0.45A max., 28.92CFM	UL 507 EN 60950-1	UL, VDE	
System Fan	Adda Corp.	AD1212HB-A71GL	12Vdc, 0.37A., 88.71CFM	UL 507 EN 60950-1	UL, TUV	

object/part No.	manufacturer/ trademark	type/model	technical data	standard	mark(s) of conformity ¹⁾
PWB	Vertec Technology Co., Ltd.	M05V0	V-0, 105°C	UL 796 (Harmonized with IEC 60707 & IEC 60695- 11-10)	UL
-Alternate Use-	Various	Various	V-1 min, 105°C	UL 796 (Harmonized with IEC 60707 & IEC 60695- 11-10)	UL
Enclosure	Various	Various	Metal material, overall 480 by 430 by 175 mm, 1.3 mm thick min.	-	-

¹⁾ an asterisk indicates a mark which assures the agreed level of surveillance

1.6.2		TABLE: electrical data (in normal conditions)					P
fuse #	Irated (A)	U (V)	P (W)	I (mA)	Ifuse (mA)	condition/status	
Power Supply: HG2-6400P							
F1	--	90V/50 Hz	185.5	2070	2070	* Max. Normal Load.	
F1	--	90V/60 Hz	185.8	2067	2067	* Max. Normal Load.	
F1	8	100V/50 Hz	184.8	1855	1855	* Max. Normal Load.	
F1	8	100V/60 Hz	184.8	1852	1852	* Max. Normal Load.	
F1	4	240V/50 Hz	177.5	760	760	* Max. Normal Load.	
F1	4	240V/60 Hz	177.5	765	765	* Max. Normal Load.	
F1	--	254V/50 Hz	177.5	721	721	* Max. Normal Load.	
F1	--	254V/60 Hz	177.6	726	726	* Max. Normal Load.	
F1	--	264V/50 Hz	177.3	695	695	* Max. Normal Load.	
F1	--	264V/60 Hz	177.4	701	701	* Max. Normal Load.	
Note:							
1. *The Maximum normal load is defined as: The EUT crossed reading and writing data between HDD and ODD, each USB loaded 2.5W and worked continuously.							

2.5		TABLE: limited power source measurements					P
output tested	measured		single fault condition	measured value (maximum)			
	from	to		Uoc	Isc	VA	
USB 1	V+	V-	-	5.1	1.6	2.136	
USB 2	V+	V-	-	5.1	1.6	2.136	
USB 3	V+	V-	-	5.1	1.6	2.128	
USB 4	V+	V-	-	5.1	1.6	2.128	
PS2 (Keyboard)	V+	V-	-	5.1	1.6	1.976	
PS2 (Mouse)	V+	V-	-	5.1	1.6	1.976	
Note:							

2.10.3 and 2.10.4		TABLE: clearance and creepage distance measurements					N/A
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)
-		-	-	-	-	-	-
Note: No further evaluation has been conducted, as the power supply is CB approved.							

2.10.5	TABLE: distance through insulation measurements			N/A
distance through insulation di at/of:	Up (V)	test voltage (V)	required di (mm)	di (mm)
-	-	-	-	-
Note: No further evaluation has been conducted, as the power supply is CB approved.				

4.5	TABLE: maximum temperatures		P
	test voltage (V)	90V/60Hz, 264V/50Hz	—
	t _{amb1} (°C)	-	—
	t _{amb2} (°C)	-	—
maximum temperature T of part/at::	T (°C)		allowed T _{max} (°C)
Power Supply: HG2-6400P			
Test Voltage: 90V/60Hz	Measured	Normalized	-
Ambient	22	50	-
Power board			
AC inlet	38	66	-
LF1 coil	44	72	105
LD1 coil	45	73	105
LF2 coil	40	68	105
C2 body	42	70	85
C1 body	44	72	85
C3 body	40	68	85
PWB under BD1	50	78	105
T2 coil	38	66	105
C42 body	33	61	85
T3 coil	42	70	110
T3 core	43	71	110
T4 coil	36	64	110
T4 core	36	64	110
U7 body	37	65	-
U8 body	36	64	-
L7 coil	37	65	105
L8 coil	37	65	105
L4 coil	39	67	105
C17 body	38	66	85
Main board			
PWB under CPU	41	69	105

PWB under U22	42	70	105
PWB under U30	36	64	105
RTC body	32	60	-
HDD body	35	63	-
CD-ROM body	29	57	-
Enclosure outside	30	58	70
Test Voltage: 264V/50Hz	Measured	Normalized	-
Ambient	23	50	-
Power board			
AC inlet	38	65	-
LF1 coil	42	69	105
LD1 coil	42	69	105
LF2 coil	39	66	105
C2 body	39	66	85
C1 body	43	70	85
C3 body	39	66	85
PWB under BD1	46	73	105
T2 coil	38	65	105
C42 body	33	60	85
T3 coil	42	69	110
T3 core	43	70	110
T4 coil	37	64	110
T4 core	37	64	110
U7 body	37	64	-
U8 body	36	63	-
L7 coil	37	64	105
L8 coil	37	64	105
L4 coil	39	66	105
C17 body	38	65	85
Main board			
PWB under CPU	42	69	105
PWB under U22	42	69	105
PWB under U30	37	64	105
RTC body	33	60	-
HDD body	35	62	-
CD-ROM body	30	57	-
Enclosure outside	30	57	70

Note:					
1. With maximum ambient temperature specified 50 °C.					
2. Components with:					
- max. absolute temp. of Class B wiring → Tmax = (120-10) = 110 °C					
- max. absolute temp. of Inductor wiring → Tmax = 105 °C					
- max. absolute temp. of Capacitor → Tmax = 85 °C					
- max. absolute temp. of PWB → Tmax = 105 °C					
- max. absolute temp. of External Accessible Metal Parts → Tmax = 70 °C					
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			N/A
	allowed impression diameter (mm)	-		—
part		test temperature (°C)	impression diameter (mm)	
-		-	-	

4.7	TABLE: resistance to fire				N/A
part	manufacturer of material	type of material	thickness (mm)	flammability class	
-	-	-	-	-	

5.2	TABLE: electric strength tests, impulse tests and voltage surge tests			P
test voltage applied between:		test voltage (V) a.c. / d.c.	breakdown Yes / No	
Power Supply: HG2-6400P				
Primary to SELV connectors		DC 4242	No	
Primary to earthing enclosure		DC 3100	No	
Note:				

5.3	TABLE: fault condition tests					P
	ambient temperature (°C)	:	-			—
	model/type of power supply	:	see appended table 1.5.1			—
	manufacturer of power supply	:	see appended table 1.5.1			—
	rated markings of power supply	:	see appended table 1.5.1			—
component No.	fault	test voltage (V)	test time	fuse No.	fuse current (A)	Result
Power Supply: HG2-6400P						
Ventilation openings	Blocked	240V	6.2 hrs	F1	-	No hazard. After 1.6 hrs unit shutdown. Temperature data on: T3 coil: 111 °C T3 core: 111 °C T4 coil: 109 °C T4 core: 109 °C Ambient: 22 °C
System fan	Stalled	240V	2.4 hrs	F1	0.76	No hazard. Unit operated normally. Temperature data on: T3 coil: 49 °C T3 core: 49 °C T4 coil : 44 °C T4 core: 44 °C Ambient: 22 °C
Power fan	Stalled	240V	3.5 hrs	F1	0.74	No hazard. Unit operated normally. Temperature data on: T3 coil: 85 °C T3 core: 83 °C T4 coil : 61 °C T4 core: 59 °C Ambient: 22 °C
CPU fan	Stalled	240V	3.5 hrs	F1	-	No hazard. After 0.3 hrs unit shutdown. Temperature data on: T3 coil: 47 °C T3 core: 47 °C T4 coil: 43 °C T4 core: 43 °C Ambient: 22 °C

National Differences			
Clause	Requirement – Test	Result	Verdict

component No.	fault	test voltage (V)	test time	fuse No.	fuse current (A)	Result
DD2 Pin 1 - 2	Short	240V	1 min.	F1	-	No hazard. For RTC battery, measured abnormal reverse current is 3.3 mA, less than the limitation of 5 mA.
DD2 Pin 1 - 3	Short	240V	1 min.	F1	-	No hazard. For RTC battery, measured abnormal reverse current is 3.0 mA, less than the limitation of 5 mA.

National Differences			
Clause	Requirement – Test	Result	Verdict
3.2.5.1	Modify Table 3B as follows: Delete the first four rows and replace with		N/A
	RATED CURRENT OF EQUIPMENT A	Minimum conductor sizes	
		Nominal Cross-sectional area mm ²	AWG or kcmil (cross-sectional area in mm ²) see note 2
	Over 0.2 up to and including 3 Over 3 up to and including 7.5 Over 6 up to and including 10 Over 10 up to and including 16	0.5 ¹⁾ 0.75 (0.75) 1.00 (1.0) 1.5	18 [0.8] 16 [1.3] 16 [1.3] 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.			
4.3.6	Replace the third paragraph: 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
4.3.13.5	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 outside the apparatus, or the followings:		N/A

National Differences			
Clause	Requirement – Test	Result	Verdict
4.7.201 – cont'd –	<p>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 the length</p> <p>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; small electrical components, such as capacitors with a volume not exceeding 1 750 mm³, integrated circuits, transistors and optocoupler packages, if these components are mounted on material of flammability category FV-1 or better accordingly to AS/NZS 4695.707</p> <p>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.</p> <p>Compliance is checked by tests of 4.7.201.2, 4.7.201.3, 4.7.201.4 and 4.7.201.5.</p> <p>For the base material of printed boards, compliance is checked by the test of 4.7.201.5.</p> <p>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, they are placed in the same orientation as they would be in normal use. These test are not carried out on internal wiring.</p>		N/A
	<p>4.7.201.2 Testing on non-metallic materials</p> <p>Parts of non-metallic material are subjected to glow wire test of AS/NZS 4695.2.11, which is carried out at 550°C.</p> <p>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 is not carried out on parts of material classified at least FH-3 according to IOS 9772 provided that the sample tested was not thicker than the revelant part.</p>		N/A

National Differences				
Clause	Requirement – Test	Result	Verdict	
4.7.201 – con't –	4.7.201.3 Testing of insulating materials		N/A	
	Parts for insulating material supporting POTENTIAL IGNITION SOURCES shall be subjected to the glow-wire test of AS/NZS 4695.2.11, which shall be carried out at 750°C.			
	The test shall be also carried out on other parts of insulating material which are within a distance of 3 mm 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 needleflame test shall be made in accordance with AS/NZS 4695.2.2 with the following modifications:			
	Clause of AS/NZS 4695.2.2	Change		
	5 Severities	Replace with: The duration of application of the test flame shall be 30 s ± 1 s.		
8 Test procedure				
8.2	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.			
8.4	The first paragraph does not apply. <i>Addition:</i> If possible, the flame shall be applied at least 10 mm from a corner.			
8.5	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.			
10 Evaluation of test results	Replace with: The duration of burning (t_b) shall not exceed 30s. However, for printed circuit boards, it shall not exceed 15 s.			

National Differences			
Clause	Requirement – Test	Result	Verdict
4.7.201 – con't –	<p>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.</p> <p>4.7.201.4 Testing in the event of non-extinguishing material.</p> <p>If parts, other than enclosure, 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, are not tested.</p> <p>NOTE 1 – If the enclosure does not withstand the glow-wire test, the equipment is considered to have failed to meet the requirement of Clause 4.7.201 without the need for consequential testing.</p> <p>NOTE 2 – If the enclosure does 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 requirement of Clause 4.7.201 without the need for consequential testing.</p> <p>NOTE 3 - Parts likely to be impinged upon by the flame are considered to be those within the envelope of a vertical cylinder having the 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.</p>		N/A

National Differences			
Clause	Requirement – Test	Result	Verdict
4.7.201 – con't –	<p>4.7.201.5 Testing of printed boards</p> <p>The base material of printed boards shall be subjected to needle-flame test of Clause 4.7.201.3 The flame is 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.</p> <p>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 apparent 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 sparks 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. Compliance is determined using the smallest thickness of the material.</p> <p>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 maximise the apparent power for more than 2 min when the circuit supplied is disconnected.</p>		N/A
6.2.2	<p>Add the symbol NZ in the right hand margin beside the first paragraph.</p> <p>Add the following after the first paragraph: In Australia (this variation does not apply in New Zealand), compliance with 6.2.2 is checked by the tests of both 6.2.2.1 and 6.2.2.2.</p> <p>Delete the note.</p>	No TNV circuit.	N/A

National Differences			
Clause	Requirement – Test	Result	Verdict
6.2.2.1	<p>Add the symbol NZ in the right hand margin beside the first paragraph including Note 1.</p> <p>Delete Note 2</p> <p>Add the following after the first paragraph:</p> <p>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 10/700us impulses. The interval between successive impulses is 60 s and initial voltage, U_c, is:</p> <p>- for 6.2.1a): 7.0kV for hand-held telephones and for headsets and 2.5 kV for other equipment; and - for 6.2.1b) and 6.2.1c): 1.5kV.</p> <p>NOTE 201 – The 7 kV impulse simulates lightning surges on typical rural and semi-rural network lines.</p> <p>NOTE 202 – The 2.5 kV impulse for 6.2.1a) was chosen to ensure adequacy of the insulation concerned and does not necessarily simulate likely overvoltages.</p>	No TNV circuit.	N/A
6.2.2.2	<p>Add the symbol NZ in the right hand margin beside the second paragraph</p> <p>Delete the Note</p> <p>Add the following after the second paragraph:</p> <p>In Australia (this variation does not apply in New Zealand), the a.c. test voltage is:</p> <p>- for 6.2.1a) : 3 kV; and - for 6.2.1b) and 6.2.1c) : 1.5kV.</p> <p>NOTE 201- Where there are capacitors across the insulation under test, it is recommended that d.c. test voltages are used.</p> <p>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.</p>	No TNV circuit.	N/A

National Differences			
Clause	Requirement – Test	Result	Verdict
Annex P	<p>Add the following Normative References to Annex P:</p> <p>IEC 60065, Audio, Video and similar electronic apparatus – Safety requirements</p> <p>AS/NZS 3191, Approved and test specification – Electric flexible cords</p> <p>AS/NZS 3112, Approved and test specification – Plugs and socket-outlets</p> <p>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</p>		N/A
Index	<p>Between the entries for 'polyimide insulating material' and 'powder' insert the following:</p> <p>Potential ignition source 1.12.201, 4.7.201.3, 4.7.201.5</p>		

National Differences			
Clause	Requirement – Test	Result	Verdict
APPENDIX	National difference : CANADA (CA) IEC 60950-1: 2001 (CB Bulletin No. 110A , June 2006)		P
EXPLANATION FOR ABBREVIATIONS P= Pass, F = Fail, NA = Not Applicable. Place in the column to the right			
Canada and United States of America have adopted to a single, bi-national standard, CAN/CSA C22.2 No. 60950-1/UL60950-1, First Edition, based on IEC 60950-1, First Edition. Effective April 1, 2003, this standard may be used for product certification immediately, however, the previous version of the standard may also be used until April 1, 2005.			
Note: The previous version is CAN/CSA C22.2 No. 60950-00/UL 60950 Third Edition, based on IEC 60950, 3 rd Edition. Refer to the "IEC 60950, 3 rd Edition, CA" section of this CB Bulletin for the national differences in this version of the standard.			
The bi-national standard should be consulted for further details on the Special National Conditions and Other Differences summarized below.			
Special National Condition			
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 1, 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	Considered.	P
1.5.5	For lengths exceeding 3.05m, external interconnecting flexible cord and cable assemblies are required to be a suitable cable type (e.g DP,CL2) specified in the NEC. For lengths 3.05m or less, external interconnecting flexible cord and cable assemblies which are not types specified in the NEC are required to have special construction features and identification markings.		N/A
1.7.1	Equipment for use on supply systems with a neutral and more than one phase conductor (e.g. 120/240V, 3-wire) require a special marking format for electrical rating: 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	Single phase.	N/A

National Differences			
Clause	Requirement – Test	Result	Verdict
	Operating Conditions” unless it is part of a range that extends not the “Normal Operating Conditions”.		
2.5	Where a fuse is used to provide Class 2, Limited Power Source, or TNV current Limiting, it shall not be operator accessible unless it is not interchangeable		N/A
2.7.1	Suitable NEC/CEC branch circuit protection is required for all standard supply outlets 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 10kVA 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.	Appliance inlet used.	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.	Power cord certified accordingly to the Canadian requirements is to be used when supplied to Canada.	N/A
3.2.3	Permanent connection of equipment to the mains supply by a power supply cord is not permitted, except for certain equipment, such as ATMs.	Not permanently connected.	N/A
3.2.5	Power supply cords are required to be no longer than 4.5m in length. Flexible power supply cords are required to be compatible with Tables 11 & 12 of the NEC, and Tables 11 and 12 of the CEC.	Power cord certified accordingly to the Canadian requirements is to be used when supplied to Canada.	N/A
3.2.9	Permanently connected equipment is required to have a suitable wiring compartment and wiring bending space.	Not permanently connected.	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 (5.3mm ²)	No wire binding screws.	N/A
3.3.4	Terminals for permanent wiring, including protective earthing terminals are required to be suitable for Canada/U.S. wire gauge sizes, rated 125 percent of the equipment rating, and specially marked when specified (1.7.7).	No terminals for permanent wiring.	N/A
3.4.2	Motor control devices are required for cord-connected equipment with a motor if the equipment is rated more than 12A, or if the motor has a nominal voltage rating greater than 120V or is rated more than 1/3 hp (locked rotor current over 43 A)		N/A

National Differences			
Clause	Requirement – Test	Result	Verdict
3.4.8	Vertically-mounted disconnect switches and circuit breakers are required to have the “on” position indicated by the handle in the up position.		N/A
3.4.11	For computer room applications, equipment with a battery system 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 meet NFPA 30.	No flammable liquid.	N/A
4.3.13	Equipment with lasers is required to meet Code of Federal Regulations 21CFR 1040 (and the Canadian Radiation Emitting Devices Act, REDR C1370).	Approved laser products used.	P
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, enclosure with combustible material 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 produce ionizing radiation is required to comply with Code of Federal Regulations, 21 CFR 1020 (and the Canadian Radiation Emitting Devices Act, REDR C1370).		N/A
Other Differences			
The following national differences are based on requirements other than national regulatory requirements. The bi-national standard (CAN/CSA C22.2 No. 60950-1 / UL 60950-1, First Edition) referenced above should be consulted for further details on the national differences summarized below)			
1.5.1	<p>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.) components or material standards, as far as they may apply.</p> <p>The acceptance will be based on the following:</p> <p>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 subjected to the applicable tests of the equipment standard.</p>	See component list clause 1.5.2.	P

National Differences			
Clause	Requirement – Test	Result	Verdict
	<p>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 subjected to the application tests of the equipment standard, and to the applicable tests of the Canadian and U.S. component standard, under the conditions occurring in the equipment.</p> <p>K) A component which has no approval as in A) or B) above or which is used not in accordance its specified ratings, will be subjected to the applicable tests of the equipment standard, and to the applicable tests of the Canadian or U.S. component standard, under the conditions occurring in the equipment.</p> <p>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 circuit with other than ringing signals and with voltages exceeding 42.4 Vp or 60 Vd.c., the maximum acceptable current through a 2000 ohm resistor (or greater) connected across the voltage source with other loads disconnect is 7.1 mA peak or 30 mA d.c. under normal operating conditions.	No TNV circuit.	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.	No TNV circuit.	N/A
2.6.3.3	When subject to impedance testing, protective earthing and bonding are required to be tested to the additional test conditions specified.	Considered.	P
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 CRT's having a diagonal dimension of 160 mm or more are required to reduce the risk of injury due to the implosion of the CRT.	No CRT.	N/A
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.	No TNV circuit.	N/A

National Differences			
Clause	Requirement – Test	Result	Verdict
6.2.1	Enamel coating on winding wire not considered electrical separation unless subject to special investigation.		N/A
6.4	Equipment intended for connection to telecommunication network outside plant cable is required to be protected against overvoltage from power line crosses in accordance with 6.4 and Annex NAC.	No TNV circuit.	N/A
6.5	Equipment connected to a telecommunication network and supplied with an earphone intended to be held against, or in the ear is required to comply with special acoustic pressure tests.	No TNV circuit.	N/A
M.2	Continuous ringing signals up to 16 mA only are permitted if the equipment is subject to special installation and performance restrictions		N/A

National Differences			
Clause	Requirement – Test	Result	Verdict
APPENDIX	National difference : CHINA (CN) IEC 60950 3 rd Edition : 1999 (CB Bulletin No. 110A, June 2006)		P
EXPLANATION FOR ABBREVIATIONS P= Pass, F = Fail, N/A = Not Applicable. Place in the column to the right			
1.4.5	second paragraph replaced by: If the equipment is intended for direct connection to an AC MAINS SUPPLY, the tolerances on RATED VOLTAGE shall be taken as +10 % and –10 %,unless:	Considered.	P
1.7.1	fifth paragraph replaced by:When single rated voltage is given, it should be marked 220 V; when a rating range is given, the voltage range shall have a hyphen (-) between the minimum and maximum RATED VOLTAGES and should cover 220 V; When multiple RATED VOLTAGES or RATED VOLTAGE RANGES are given, they shall be separated by a solidus (/) and one of them must be 220 V and also factory default setting should be 220 V. RATED FREQUENCY or RATED FREQUENCY RANGE should be 50Hz or cover 50Hz, unless the equipment is designed for d.c. only;	Considered.	P
1.7.12	replaced by: Instructions and equipment marking related to safety shall be written in simplified Chinese in which the equipment is to be installed.	Instructions and equipment markings in standardized Chinese is to be provided when supplied to China.	N/A
3.2.1	Add at the end of the first paragraph: Plugs of apparatus which are intended for the connection of the mains supply should comply with requirements of GB1002	A plug, separately certified according to the China requirements is to be used when supplied to China.	N/A

National Differences			
Clause	Requirement – Test	Result	Verdict
APPENDIX	National difference : Korea (KR) IEC 60950-1: 2001 (CB Bulletin No. 110A , June 2006)		N/A
EXPLANATION FOR ABBREVIATIONS P= Pass, F = Fail, NA = Not Applicable. Place in the column to the right			
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).	A plug, separately certified according to the Korean requirements is to be used when supplied to Korea.	N/A
7	Addition EMC The apparatus shall comply with the relevant CISPR standards.	Separate EMC report is to be provided by submitter.	N/A

National Differences			
Clause	Requirement – Test	Result	Verdict
APPENDIX	National difference : UNITED STATES (US) IEC 60950-1: 2001 (CB Bulletin No. 110A , June 2006)		P
EXPLANATION FOR ABBREVIATIONS P= Pass, F = Fail, NA = Not Applicable. Place in the column to the right			
The United States of America and Canada have adopted to a single, bi-national standard, CAN/CSA C22.2 No. 60950-1/UL60950-1, First Edition, based on IEC 60950-1, First Edition.			
This bi-national standard should be consulted for further details on the national differences summarized below.			
Special National Conditions			
The following is a summary of the key national differences based on national requirements, such as the National Electrical Code (NEC), ANSI/NFPA 70-2002, which are referenced in legislation and which form the basis for the rules and practices followed in electrical and building installations			
1.1.1	All equipment is to be designed to allow installations in accordance with the National Electrical Code (NEC) , ANSI/NFPA 70, the Canadian Electrical Code (CEC), Part1, 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.	Considered.	P
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 which 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 supply systems with a neutral and more than one phase conductor (e.g. 120/240V, 3-wire) require a special marking format for electrical rating. 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 not the “Normal Operating Conditions”.	Single phase.	P

National Differences			
Clause	Requirement – Test	Result	Verdict
2.5	Where a fuse is used to provide Class 2, LPS or (TNV) current limiting, it shall not be operator-accessible unless it is not interchangeable.		N/A
2.7.1	Suitable NEC/CEC branch circuit protection is required for all standard supply outlets, receptacles and medium-base or smaller lampholders if the supply branch-circuit protection is not suitable. Power distribution transformers distributing power at 100 volts or more, and rated 10kVA 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.	Appliance inlet used.	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.	Power supply cord certified accordingly to the United States requirements is to be used when supplied to United States.	N/A
3.2.3	Permanent connection of equipment to the mains supply by a power supply cord is not permitted, except for certain equipment, such as ATMs	Not permanently connected unit.	N/A
3.2.5	Power supply cords are required to be not longer than 4.5m 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.	Power supply cord certified accordingly to the United States requirements is to be used when supplied to United States.	N/A
3.2.9	Permanently connected equipment is required to have a suitable wiring compartment and wiring bending space.	No wire binding screws.	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 supply conductors larger than 10 AWG (5.3mm ²)		N/A
3.3.4	Terminals for permanent wiring, including protective earthing terminals are required to be suitable for U.S./Canada wire gauge sizes, rated 125 percent of the equipment rating, and specially marked when specified (1.7.7).		N/A
3.4.2	Motor control devices are required for cord-connected equipment with a motor if the motor (a) has a nominal voltage rating greater than 120 V, (b) is rated more than 12A, or (c) is rated more than 1/3 hp (locked rotor current over 43 A)		N/A
3.4.8	Vertically-mounted disconnect switches and circuit breakers are required to have the “on” position indicated by the handle in the up position.		N/A

National Differences			
Clause	Requirement – Test	Result	Verdict
3.4.11	For computer room applications, equipment with battery system 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 meet NFPA 30.	No flammable liquid.	N/A
4.3.13	Equipment with lasers is required to meet Code of Federal Regulations 21CFR 1040 and Canadian Radiation Emitting Devices Act, REDR C1370.	Approved laser products used.	P
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, enclosure with combustible material 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 produce ionizing radiation is required to comply with Code of Federal Regulations, 21 CFR 1020 and Canadian Radiation Emitting Devices Act, REDR C1370).		N/A
Other Differences			
The following key national differences are based on requirements other than national regulatory requirements.			
1.5.1	Some components and materials associated with the risk of fire, electric shock, or personal injury are required to have component or material ratings in accordance with the applicable national (U.S. and Canadian) component or material requirements. These components include: Attachment plugs, cathode ray tubes, circuit breakers, communication circuit accessories, cord sets and power supply cords, direct plug-in equipment, enclosures (outdoor), flexible cords and cables, fuses (branch circuit), fuseholders, ground-fault current interrupters, industrial control equipment, insulating tape, interconnecting cables, lampholders, limit controls, printed wiring, protectors for communication circuits, receptacles, solid state controls, supplementary protectors, surge suppressors, switches (including interlock switches), thermal cutoffs, thermostats, transformer winding wire, tubing, wire connectors, and wire and cables.	See component list clause 1.5.2.	P
2.3.1	For TNV-2 and TNV-3 circuit with other than	No TNV circuit.	N/A

National Differences			
Clause	Requirement – Test	Result	Verdict
	ringing signals and with voltages exceeding 42.4 Vp or 60 Vd.c., the maximum acceptable current through a 2000 ohm resistor (or greater) connected across the voltage source with other loads disconnect is 7.1 mA peak or 30 mA d.c. under normal operating conditions.		
2.3.2	In the event of a single fault, the limits of 2.2.3 apply to SELV Circuits and accessible conductive parts.		N/A
2.6.3.4	When subject to impedance testing, protective earthing and bonding are required to be tested to the additional test conditions specified.		P
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 CRT's having a diagonal dimension of 160 mm or more are required to reduce the risk of injury due to the implosion of the CRT.	No CRT.	N/A
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 subject to special investigation.	No TNV circuit.	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.	No TNV circuit.	N/A
6.5	Equipment connected to a telecommunication network and supplied with an earphone intended to be held against, or in the ear is required to comply with special acoustic pressure tests.	No TNV circuit.	N/A

National Differences							
Clause	Requirement – Test					Result	Verdict
APPENDIX	<u>GROUP DIFFERENCES</u> IEC 60950-1: 2001 (CB Bulletin No. 110A , June 2006)						P
EXPLANATION FOR ABBREVIATIONS P= Pass, F = Fail, NA = Not Applicable. Place in the column to the right							
	Delete all the "country" notes in the reference document according to the following list:					Deleted.	N/A
	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			
2.7.1	Replace the subclause as follows: Basic requirements To protect against excessive current, short circuits and earth faults in PRIMARY CIRCUITS, protective devices shall be included either as integral parts of the equipment or as part 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 subclause 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, provided that the means of protection, e.g. fuses or circuit breakers, is fully specified in the installation instruction.						P

National Differences												
Clause	Requirement – Test	Result	Verdict									
	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.											
2.7.2	This subclause has been declared 'void'		P									
2.10.2	Replace in the first line "(see also 1.4.7)" by "(see also 1.4.8)".		N/A									
3.2.3	Delete NOTE 1, and in table 3A delete the conduit sizes in parentheses.	Deleted. (not permanently connected equipment)	N/A									
3.2.5.1	<p>Replace "60245 IEC 530" by "H05 RR-F" "60227 IEC 52" by H03 VV-F or H03 VVH2-F" "60227 IEC 53" by "H05VV-F of H05VVH2-F2"</p> <p>In table 3B, replace the first four lines by the following:</p> <table border="1" data-bbox="418 940 980 1087"> <tbody> <tr> <td>Up to and including 6</td> <td></td> <td>0.75¹⁾</td> </tr> <tr> <td>Over 6 up to and including 10</td> <td>(0.75)²⁾</td> <td>1.0</td> </tr> <tr> <td>Over 10 up to and including 16</td> <td>(1.0)³⁾</td> <td>1.5</td> </tr> </tbody> </table> <p>In the conditions applicable to Table 3B, delete the words "in some countries" in Condition ¹.</p> <p>In NOTE 1, delete the second sentence.</p>	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	Replaced.	N/A
Up to and including 6		0.75 ¹⁾										
Over 6 up to and including 10	(0.75) ²⁾	1.0										
Over 10 up to and including 16	(1.0) ³⁾	1.5										
3.3.4	<p>In table 3D, delete the fourth line – conductor sizes for 10 to 13A. and replace with the following:</p> <p>! Over 10 up to and including 16 ! 1.5 to 2.5 ! 1.5 to 4 !</p> <p>Delete the fifth line – conductor sizes for 13 to 16A.</p>	Deleted.	N/A									
4.3.13.6	<p>Add the following note:</p> <p>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.</p>	Added.	N/A									
Annex H	<p>Replace the last paragraph of this annex by:</p> <p>At any point 10 cm from the surface of the OPERATOR ACCESS AREA, the dose rate shall not exceed 1µSv/h (0.1mR/h) (see note). Account is taken of the background level.</p> <p>Replace the NOTE as follows:</p> <p>NOTE – These values appear in directive</p>	Replaced.	N/A									

National Differences			
Clause	Requirement – Test	Result	Verdict
	96/29/Euratom. Delete Note 2.		
Annex P	Replace the text of this annex by: See annex ZA.	Replaced.	P
Annex Q	<p>Replace the title of IEC 61032 by “Protection of persons and equipment by enclosures – Probes for verification”.</p> <p>Add the following notes for the standards indicated:</p> <p>IEC 60127 NOTE: Harmonized as EN 60127 (series) (not modified).</p> <p>IEC 60269-2-1 NOTE: Harmonized as HD 630.2.1 S4:2000 (modified).</p> <p>IEC 60529 NOTE: Harmonized as EN 60629: 1991 (not modified)</p> <p>IEC 61032 NOTE: Harmonized as EN 61032: 1998 (not modified)</p> <p>IEC 61140 NOTE: Harmonized as EN 61140:2001 (not modified).</p> <p>ITU-T Recommendation K.31 NOTE: In Europe, the suggested document is EN 50083-1.</p>	Added.	P
Annex ZA	<p>Normative references to international publications with their relevant European publications</p> <p>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 updated references,</p>	Noted.	P

National Differences				
Clause	Requirement – Test	Result	Verdict	
Annex ZA – cont'd –	the latest edition of the publication referred to applies (including amendments).			
	NOTE: When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.			
	—	IEC 60050-151		
	—	IEC 60050-195		
	EN 60065:1998 + corr. June 1999	IEC 60065 (mod):1998		
	EN 60073:1996	IEC 60073:1996		
	HD 566 S1:1990	IEC 60085:1984		
	HD 214 S2:1980	IEC 60112:1979		
	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			

National Differences			
Clause	Requirement – Test	Result	Verdict
Annex ZA – cont'd –	EN 60851-6:1996	IEC 60851-6:1996	
	—	IEC 60885-1:1987	
	EN 60990:1999	IEC 60990:1999	
	—	IEC 61058-1:2000	
	EN 61965:2001	IEC 61965:2000	
	EN ISO 178:1996	ISO 178:1993	
	EN ISO 179 Series	ISO 179 Series	
	EN ISO 180:2000	ISO 180:1993	
	—	ISO 261:1998	
	—	ISO 262:1998	
	EN ISO 527 Series	ISO 527 Series	
	—	ISO 386:1984	
	EN ISO 4892 Series	ISO 4892 Series	
	—	ISO 7000:1989	
	EN ISO 8256:1996	ISO 8256:1990	
	—	ISO 9772:1994	
	EN ISO 9773:1998	ISO 9773:1998	
	—	ITU-T:1988 Recommendation K.17	
	—	ITU-T:2000 Recommendation K.21	
		<p>1) The HD 21 series is related to, but not directly equivalent with the IEC 60227 series</p> <p>2) The HD 22 series is related to, but not directly equivalent with the IEC 60245 series</p> <p>3) IEC 60364-4-41:1992 is superseded by IEC 60364-4-41:2001</p> <p>4) EN 132400, Sectional Specification: Fixed capacitors for electromagnetic interference suppression and</p>	

Appendix 1
External views of Industrial Computer
Model: PVS-610



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Appendix 2
External views of Industrial Computer
Model: PVS-610

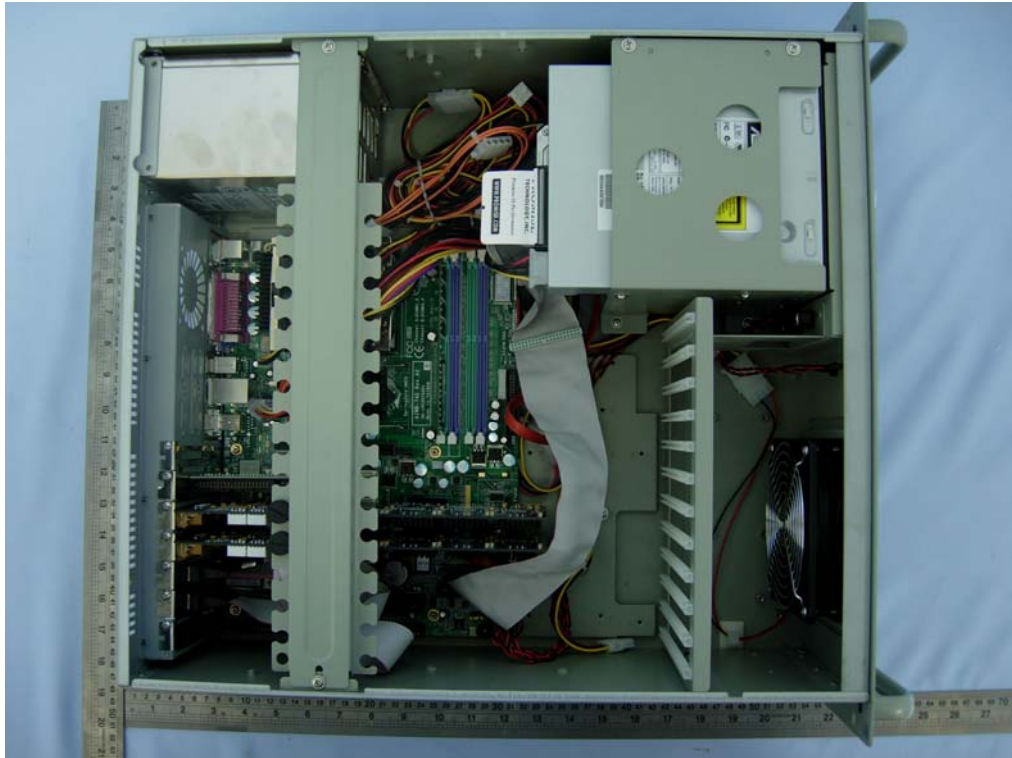


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Appendix 3
Internal views of Industrial Computer
Model: PVS-610

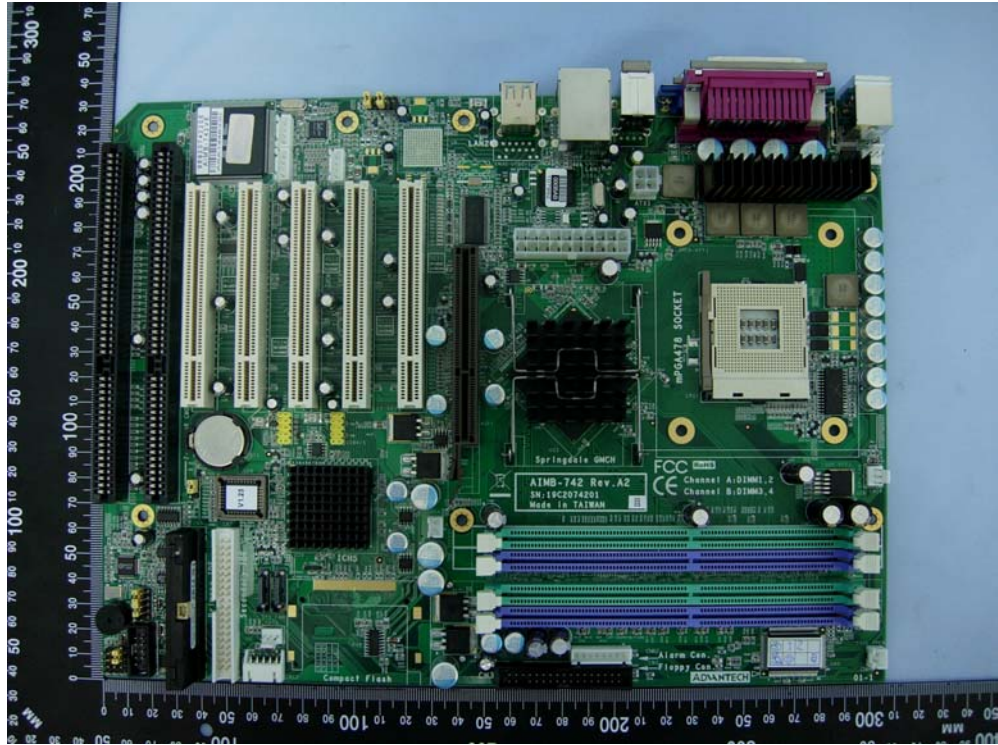


55S070277

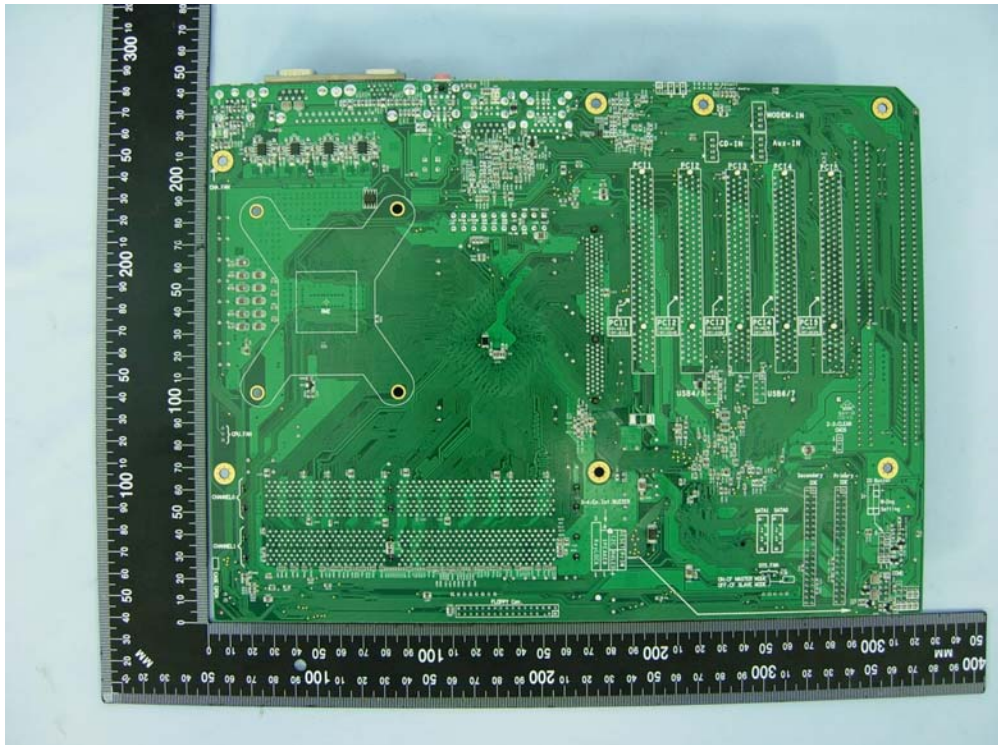


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Appendix 4
PWB views of main board used in Industrial Computer
Model: PVS-610



55S070277




55S070277

Appendix 5
Power Supply (EMACS, Model: HG2-6400P) used in Industrial Computer
Model: PVS-610



55S070277

Appendix 6
Product marking of Industrial Computer
Models: PVS-610XXXXXXXX

ADVANTECH	ADVANTECH Co., Ltd 研華股份有限公司 研華股份有限公司
http://www.advantech.com	
Industrial Computer/微型计算机 Model No: PVS-610XXXXXXXX 型號(型号) Part No: 料號(料号) Input: 100-240Vac,50/60Hz, 8-4A 輸入(输入) Factory:T1	<i>This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.</i> CAUTION!! To prevent shock. Do not remove cover.No user serviceable parts inside. Refer servicing to qualified personnel. 警告使用者 這是甲類測試產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。 声明 为此 A 级产品，在生活环境中，该产品可能会造成无线电干扰，在这种情况下，可能需要用户对其干扰采取切实可行的措施。
S/N	  
MADE IN TAIWAN 台灣製造(台湾制造)	

55S070277

Appendix 7

Product marking of Industrial Computer
Model: PVS-800XXXXXXXXX

 http://www.advantech.com	ADVANTECH Co., Ltd 研華股份有限公司 研华股份有限公司
Industrial Computer/微型计算机 Model No: PVS-800XXXXXXXXX 型號(型号) Part No: 料號(料号) Input: 100-240Vac,50/60Hz, 8-4A 輸入(输入) Factory:T1	<p><i>This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions:</i> <i>(1) this device may not cause harmful interference, and</i> <i>(2) this device must accept any interference received, including interference that may cause undesired operation.</i></p> <p>CAUTION!! To prevent shock. Do not remove cover.No user serviceable parts inside. Refer servicing to qualified personnel.</p> <p>警告使用者 這是甲類測試產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。</p> <p>声明 为此 A 級產品，在生活環境中，該產品可能會造成無線電干擾，在這種情況下，可能需要用戶對其干擾採取切實可行的措施。</p> 
S/N	
MADE IN TAIWAN 台灣製造(台灣製造)	

55S070277

Appendix 8

Product marking of Industrial Computer
Model: PVS-900XXXXXXXX

ADVANTECH	ADVANTECH Co., Ltd 研華股份有限公司 研華股份有限公司
http://www.advantech.com	
Industrial Computer/微型计算机	<i>This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.</i>
Model No: PVS-900XXXXXXXX 型號(型号)	CAUTION!! To prevent shock. Do not remove cover.No user serviceable parts inside. Refer servicing to qualified personnel.
Part No: 料號(料号)	警告使用者 這是甲類測試產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。
Input: 100-240Vac,50/60Hz, 8-4A 輸入(输入)	声明 为此 A 級產品，在生活環境中，該產品可能會造成無線電子干擾，在這種情況下，可能需要用戶對其干擾採取切實可行的措施。
Factory: T1	
<div style="border: 1px solid black; padding: 5px; text-align: center;">S/N</div>	
MADE IN TAIWAN 台灣製造(台湾制造)	

55S070277

Appendix 9

Letter of Declaration by "Advantech Co., Ltd."

----- 1 page as per attached -----



ADVANTECH

研華股份有限公司

Advantech Co., Ltd.

台北市內湖區瑞光路 26 巷 20 弄 1 號

No.1, Alley 20, Lane 26, Rueiguang Road

Neihu District, Taipei 114, Taiwan, R.O.C.

Tel: 886-2-2792-7818 Fax: 886-2-2794-7305

WWW.advantech.com.tw

To whom it may concern:

We, **Advantech Co., Ltd.**, declared that the "X" in models no.:
PVS-610XXXXXXXX, PVS-800XXXXXXXX, PVS-900XXXXXXXX could be
define as any alphanumeric characters or blank to indicate the volume of the
hard disk, different customer and different market area.

Models: PVS-800XXXXXXXX, PVS-900XXXXXXXX are identical to Model:
PVS-610XXXXXXXX except for model designation.

And the structure is **identical** between the entire model no. The difference will
not affect the part of safety.

Sincerely,



黄女莉 Lily Huang

QA Lab Safety Engineer

Tel. 886-2-2792-7818 Ext.: 7552

address: www.advantech.com.tw

e-mail: lily.huang@advantech.com.tw