

COVER PAGE FOR TEST REPORT

Test Item Description:	Industrial Computer
Model/Type Reference:	1) MIC-3082ADXXXXXXXX 2) MIC-3082ACXXXXXXXX 3) MIC-3082DCXXXXXXXX (Where the X can be any alphanumeric character or blank.)
Rating(s):	(1) 100 - 240 V ac, 50/60 Hz, 12 A -38 to -72 V dc, 22 A (2) 100 - 240 V ac, 50/60 Hz, 12 A (3) -38 to -72 V dc, 22 A
Standards:	IEC 60950-1:2001, First Edition
Applicant Name and Address:	ADVANTECH CO LTD 4TH FL 108-3 MING-CHUAN RD SHING-TIEN CITY TAIPEI HSIEN TAIWAN
Factory Location(s):	(1) ADVANTECH CO LTD 5TH FL 1 LANE 169 KANG-NING ST XI-ZHI TOWN TAIPEI HSIEN TAIWAN (2) ADVANTECH CO LTD 3RD FL 10 LANE 130 MING CHUAN RD HSIN-TIEN TAIPEI HSIEN 231 TAIWAN (3) SUPERIOR CO LTD TIENSONG AREA QINGXING TOWN DONGGUAN GUANGDONG CHINA (4) ADVANTECH CO LTD NO. 600 HAN-PU ROAD YU-SHAN KUN-SHAN JIANGSU CHINA (5) BEIJING YAN HUA XING YE ELECTRONIC SCIENCE & TECHNOLOGY CO., LTD. NO.7, 6TH STREET, SHANG DI ZONE, HAIDIAN DISTRICT, BEIJING, P.R. CHINA.
This Report includes the following parts, in addition to this cover page: <ol style="list-style-type: none">1. Specific Technical Criteria2. Clause Verdicts3. Critical Components4. Test Results5. National Differences6. Enclosures	
All applicable tests according to the above standard(s) have been carried out. Test results are valid only for the tested equipment. This Test Report can be reproduced only in whole. Amendments and corrections can be reproduced only with the original CB Test Report. Written permission from UL International Demko A/S is required if the test report is copied in part.	

TEST REPORT
IEC 60950-1, First Edition
Information technology equipment - Safety -
Part 1: General Requirements

Report Reference No: E180881-A45-CB-1

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Reviewed by (+ signature).....: Jakob Petersen

Approved by (+ signature): Jakob Petersen

Date of issue: 2004-06-29

CB Testing Laboratory: UL International Demko A/S

Address.....: Lyskaer 8, 2730, Herlev, Denmark

Testing location/procedure: CBTL [x] SMT [] TMP [] WMT []

Address.....: UL International Demko A/S, Lyskaer 8, 2730, Herlev, Denmark

Applicant's name: ADVANTECH CO LTD
 4TH FL

>Address.....: 108-3 MING-CHUAN RD
 SHING-TIEN CITY
 TAIPEI HSIEN TAIWAN

Test specification:

Standard: IEC 60950-1:2001, First Edition

Test procedure : CB Scheme

Non-standard test method: N/A

Test Report Form No.: IEC60950__1A

TRF originator: SGS Fimko Ltd

Master TRF: dated 2002-03

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Test item description: Industrial Computer

Trade Mark: ADVANTECH

Model/Type reference :
 1) MIC-3082ADXXXXXX
 2) MIC-3082ACXXXXXX
 3) MIC-3082DCXXXXXX
 (Where the X can be any alphanumeric character or blank.)

Manufacturer: SAME AS APPLICANT

Rating: (1) 100 - 240 V ac, 50/60 Hz, 12 A
 -38 to -72 V dc, 22 A
 (2) 100 - 240 V ac, 50/60 Hz, 12 A

(3) -38 to -72 V dc, 22 A
Marking Plate - Refer to Enclosure titled Miscellaneous for copy.

Particulars: test item vs. test requirements

Equipment mobility :	stationary
Operating condition :	continuous
Mains supply tolerance (%) :	+10%, -10%; DC Mains: +20%, -15%
Tested for IT power systems :	No
IT testing, phase-phase voltage (V) :	N/A
Class of equipment :	Class I (earthed)
Mass of equipment (kg) :	53
Protection against ingress of water :	IP X0

Possible test case verdicts:

- test case does not apply to the test object	: N / A
- test object does meet the requirement	: P(Pass)
- test object does not meet the requirement	: F(Fail)

General remarks:

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

The test results presented in this report relate only to the object tested.

This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.

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

"(see appended table)" refers to a table appended to the report.

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

General Product Information:**Report Summary**

All applicable tests according to the referenced standard(s) have been carried out.

Product Description

This industrial computer is provided with two internal, redundant, hot-swap capable power supplies. Each redundant power supply is provided with two appliance inlets for separate connection to Mains (AC Supply) or two Terminal Blocks for separate connection to DC Supply. The industrial computer is provided with a motherboard and CPU. The motherboard contains a lithium coin-cell battery and protection. Also provided are optional HDD drives. All components are housed in a metal enclosure. This product is considered suitable for rack mounting.

Units with DC power supplies are for installation in a Restricted Access Location, as defined by the U.S. National Electrical Code (NFPA-70). Instructions are provided for selection of external Listed DC circuit breaker, 35 A maximum rating and minimum 12 AWG copper wire to be used for connection to the DC terminal blocks.

Model Differences

All models are identical, except for model designations, redundant power supply and input ratings.

Models MIC-3082ADxxxxxx provided with one AC to DC redundant power supply and one DC to DC redundant power supply, there with two AC appliance inlets and two DC input terminal blocks.

Models MIC-3082ACxxxxxx provided with two AC to DC redundant power supplies, there with four AC appliance inlets.

Models MIC-3082DCxxxxxx provided with two DC to DC redundant power supplies, with a total of four DC input terminal blocks.

Additional Information

N/A

Technical Considerations

The product was submitted and tested for use at the maximum ambient temperature (T_{ma}) permitted by the manufacturer's specification of: 50°C

The means of connection to the mains supply is: Permanently connected (field wired) (DC Input), Pluggable A (AC Input)

The product is intended for use on the following power systems: TN (AC Input) or DC mains supply (DC Input)

The equipment disconnect device is considered to be: Appliance inlet (AC Input) External Breaker (DC Input)

The following circuit locations (with circuit/schematic designation) were investigated as a limited power source (LPS): COM1, VGA, Key board and Mouse ports.

The following are available from the Applicant upon request: Installation (Safety) Instructions / Manual

The power supply in this equipment was: Investigated to an earlier edition/amendment of IEC 60950. As part of the investigation of this product, the power supply and its test report were reviewed and found to comply with IEC 60950-1.

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

1	GENERAL		Pass
1.5	Components		Pass
1.5.1	General		Pass
	Comply with IEC 60950 or relevant component standard	See appended table 1.5.1.	Pass
1.5.2	Evaluation and testing of components	Components certified to IEC harmonized standard and checked for correct application. Components, for which no relevant IEC-Standard exist, have been tested under the conditions occurring in the equipment, using applicable parts of IEC 60950. Components not certified are used in accordance with their ratings and they comply with applicable parts of IEC 60950 and the relevant component Standard.	Pass
1.5.3	Thermal controls	No thermal control.	N/A
1.5.4	Transformers	Investigated as an element of power supply certification.	N/A
1.5.5	Interconnecting cables	Interconnecting cables comply with the relevant requirements of IEC 60950.	Pass
1.5.6	Capacitors in primary circuits	Investigated as an element of power supply certification.	Pass
1.5.7	Double insulation or reinforced insulation bridged by components		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		N/A

1.6	Power interface		Pass
1.6.1	AC power distribution systems	AC power distribution svstem	Pass

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

		are classify as TN.	
1.6.2	Input current	The steady state input current of the equipment does not exceed the rated current by more than 10% under maximum normal load. See appended table 1.6.2.	Pass
1.6.3	Voltage limit of hand-held equipment		N/A
1.6.4	Neutral conductor	Neutral is insulated from earth with basic insulation.	Pass

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

1.7	Marking and instructions		Pass
1.7.1	Power rating	Rating marking readily visible to operator see below for details.	Pass
	Rated voltage(s) or voltage range(s) (V)	See Cover Page.	Pass
	Symbol for nature of supply, for d.c. only	For Model MIC-3082DCxxxxxxx only.	Pass
	Rated frequency or rated frequency range (Hz).....	See Cover Page.	Pass
	Rated current (mA or A)	See Cover Page.	Pass
	Manufacturer's name or trademark or identification mark.....	ADVANTECH CO LTD /ADVANTECH	Pass
	Type/model or type reference	1) MIC-3082ADXXXXXXXXX 2) MIC-3082ACXXXXXXXXX 3) MIC-3082DCXXXXXXXXX (Where the X can be any alphanumeric character or blank.)	Pass
	Symbol for Class II equipment only.....	Class I equipment.	N/A
	Other symbols		N/A
	Certification marks.....	UL, C-UL.	Pass
1.7.2	Safety instructions	Operating/safety instructions made available to the user.	Pass
1.7.3	Short duty cycles	Equipment is designed for continuous operation.	N/A
1.7.4	Supply voltage adjustment	Equipment is auto-ranging.	N/A
1.7.5	Power outlets on the equipment.....	No standard power outlets are provided.	N/A
1.7.6	Fuse identification.....	Investigated as an element of power supply certification.	Pass
1.7.7	Wiring terminals		Pass
1.7.7.1	Protective earthing and bonding terminals.....	Earth terminal is marked with the standard earth symbol (60417-2-IEC-5019) near the terminal.	Pass
1.7.7.2	Terminal for a.c. mains supply conductors		N/A
1.7.7.3	Terminals for d.c. mains supply conductors	For Model MIC-3082DC and MIC-3082-ADxxxxxxx only.	Pass
1.7.8	Controls and indicators	See below.	Pass

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.7.8.1	Identification, location and marking	Function of controls affecting safety is obvious regardless of language.	Pass
1.7.8.2	Colours	Only functional indicators use color.	Pass
1.7.8.3	Symbols according to IEC 60417	Power switch is investigated as an element of power supply certification. Also, the stand-by switch provided in the equipment and marked with the correct symbol (60417-1-IEC-5010).	Pass
1.7.8.4	Markings using figures.....	Figures are not used for indicating different positions of controls.	Pass
1.7.9	Isolation of multiple power sources	Marking indicates which disconnect device fully isolates the equipment.	Pass
1.7.10	IT power distribution systems	Investigated for TN system.	N/A
1.7.11	Thermostats and other regulating devices		N/A
1.7.12	Language.....		-
1.7.13	Durability	The marking withstood the required test.	Pass
1.7.14	Removable parts	No removable part.	N/A
1.7.15	Replaceable batteries	Equipment is provided with a replaceable lithium battery. The statement is marking close to the battery or in the service manual.	Pass
	Language.....	Reviewed only English markings/instructions. May be provided in other languages upon request from the manufacturer.	-
1.7.16	Operator access with a tool	There is no hazard parts can be touched for operator access with a tool.	Pass
1.7.17	Equipment for restricted access locations.....	Installation instructions indicate use in a restricted access location for equipment with DC power supplies.	Pass

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
2	PROTECTION FROM HAZARDS		Pass
2.1	Protection from electric shock and energy hazards		Pass
2.1.1	Protection in operator access areas	As the installation guide specifies directions for the operator how to add additional memory cards or add-on cards inside the enclosure, the inside of this Industrial Computer is considered as operator accessible area. The construction of this metal enclosure prevents access, using test finger, test pin or test probe to any parts having only basic insulation to ELV or hazardous voltage.	Pass
2.1.1.1	Access to energized parts	See below.	Pass
	Test by inspection..... :	Operator cannot contact with any parts with only basic insulation to ELV or hazardous voltage.	Pass
	Test with test finger :	No access with test finger to any parts with only basic insulation to ELV or hazardous voltage.	Pass
	Test with test pin..... :	The test pin cannot touch hazardous voltage through any openings or seams of the whole enclosure.	Pass
	Test with test probe :	No TNV circuits.	Pass
2.1.1.2	Battery compartments :		N/A
2.1.1.3	Access to ELV wiring		N/A
	Working voltage (V); minimum distance (mm) through insulation :		-
2.1.1.4	Access to hazardous voltage circuit wiring		N/A
2.1.1.5	Energy hazards :		N/A
2.1.1.6	Manual controls	Equipment does not contain any knobs, handles, levers, or the like.	N/A
2.1.1.7	Discharge of capacitors in equipment		Pass

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

	Time-constant (s); measured voltage (V)..... :	Investigated as an element of power supply certification.	-
2.1.2	Protection in service access areas	Hazardous bare parts are guarded and unintentional contact with such parts is unlikely during servicing operations involving other parts of the equipment.	Pass
2.1.3	Protection in restricted access locations		Pass

2.2	SELV circuits		Pass
2.2.1	General requirements	42.4 VpK or 60 Vdc are not exceeded under normal operation or single fault condition.	Pass
2.2.2	Voltages under normal conditions (V)..... :	Between any SELV circuits 42.4 Vpk or 60 Vdc are not exceeded.	Pass
2.2.3	Voltages under fault conditions (V)..... :	Investigated as an element of power supply certification.	Pass
2.2.3.1	Separation by double insulation or reinforced insulation (method 1)	Investigated as an element of power supply certification.	Pass
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 are only connected to other secondary circuits. SELV circuits and all interconnected circuits separated from PRI by reinforced insulation.	Pass

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

2.3	TNV circuits		N/A
2.3.1	Limits		N/A
	Type of TNV circuits		-
2.3.2	Separation from other circuits and from accessible parts		N/A
	Insulation employed.....		-
2.3.3	Separation from hazardous voltages		N/A
	Insulation employed.....		-
2.3.4	Connection of TNV circuits to other circuits		N/A
	Insulation employed.....		-
2.3.5	Test for operating voltages generated externally		N/A

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

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
2.5	Limited power sources		Pass
	Inherently limited output		N/A
	Impedance limited output		N/A
	Overcurrent protective device limited output	Polyswitch is used in VGA, COM1, Key board and Mouse connectors. See appended table 1.5.1.	Pass
	Regulating network limited output under normal operating and single fault condition		N/A
	Regulating network limited output under normal operating conditions and overcurrent protective device limited output under single fault condition		N/A
	Output voltage (V), output current (A), apparent power (VA):..... :	Normal condition: - COM Pin 7: 5.10 V, 2.28 A, 8.93 VA; - Keyboard Pin3: 5.03 V, 2.38 A, 9.08 VA; - VGA Pin9: 5.01 V, 2.60 A, 9.25 VA.	-
	Current rating of overcurrent protective device (A):	See appended table 1.5.1.	-

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
2.6	Provisions for earthing and bonding		Pass
2.6.1	Protective earthing		Pass
2.6.2	Functional earthing	Secondary functional earthing is connected to protectively earthed conductive part that is separated from PRI by basic insulation.	Pass
2.6.3	Protective earthing and protective bonding conductors	Terminal Block (DC In) and appliance inlet (AC In) used.	Pass
2.6.3.1	General		Pass
2.6.3.2	Size of protective earthing conductors	No power cords provided. Instructions provided for correct selection.	N/A
	Rated current (A), cross-sectional area (mm2), AWG	AC Unit - min. 16 AWG, DC Unit - min. 12 AWG	-
2.6.3.3	Size of protective bonding conductors	Protective bonding conductors comply with Earthing Test. See 2.6.3.4.	Pass
	Rated current (A), cross-sectional area (mm2), AWG	Earthing Test. See 2.6.3.4.	-
2.6.3.4	Resistance (W) of earthing conductors and their terminations, test current (A)	Earth pin of AC Inlet to chasis: Vdrop=1.372V, 0.0320 Ohm (40 A); Vdrop=0.883V, 0.0286 Ohm (25 A). Earth pin of DC Terminal to chasis: Vdrop=1.340V, 0.0316 Ohm (40 A); Vdrop=0.854V, 0.0270 Ohm (25 A). Vdrop=0.380V, 0.0054 Ohm (70 A).	Pass
2.6.3.5	Colour of insulation.....	Green/yellow used only for protective earthing.	Pass
2.6.4	Terminals		Pass
2.6.4.1	General		Pass
2.6.4.2	Protective earthing and bonding terminals	The earth of the terminal block is considered as protective bonding terminal. (DC Input)	Pass

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Clause	Requirement + Test	Result - Remark	Verdict

	Rated current (A), type and nominal thread diameter (mm)	Earthing test, see 2.6.3.4.	-
2.6.4.3	Separation of the protective earthing conductor from protective bonding conductors	Appliance inlet and terminal block used.	Pass
2.6.5	Integrity of protective earthing	See below.	Pass
2.6.5.1	Interconnection of equipment	No interconnection of hazardous voltages.	N/A
2.6.5.2	Components in protective earthing conductors and protective bonding conductors	No switches or fuses in earthing conductors.	Pass
2.6.5.3	Disconnection of protective earth	Appliance inlet and terminal block provided.	Pass
2.6.5.4	Parts that can be removed by an operator	It is not possible to disconnect earth without disconnecting mains (AC In) and protective earth makes earlier and breaks later than the supply connectors. No other operator removable parts with safety critical earth connection.	Pass
2.6.5.5	Parts removed during servicing	Connections to protective earthing cannot be removed unless hazardous voltage is removed from the part simultaneously (AC In). Protective Earthing does not have to be disconnected for servicing other than for the removal of the part which they protect unless the relevant hazard is removed at the same time (DC In).	Pass
2.6.5.6	Corrosion resistance	All safety earthing connections in compliance with annex J.	Pass
2.6.5.7	Screws for protective bonding	Metal thickness at least twice the pitch of the screw.	Pass
2.6.5.8	Reliance on telecommunication network or cable distribution system	No TNV.	N/A

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

2.7	Overcurrent and earth fault protection in primary circuits		Pass
2.7.1	Basic requirements	Investigated as an element of power supply certification.	Pass
	Instructions when protection relies on building installation		N/A
2.7.2	Faults not covered in 5.3	Protection from faults not covered in 5.3 are provided by installation.	Pass
2.7.3	Short-circuit backup protection	The equipment is pluggable Type A (AC In). The building installation is considered as providing short-circuit backup protection (DC In).	Pass
2.7.4	Number and location of protective devices	One protective device in the "LIVE" phase.	Pass
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		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

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

2.9	Electrical insulation		Pass
2.9.1	Properties of insulating materials	Critical insulation investigated as an element of power supply certification.	Pass
2.9.2	Humidity conditioning		N/A
	Humidity (%)		-
	Temperature (°C).....		-
2.9.3	Grade of insulation		N/A

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
2.10	Clearances, creepage distances and distances through insulation		Pass
2.10.1	General		Pass
2.10.2	Determination of working voltage		N/A
2.10.3	Clearances	All critical clearance in PRI circuits are investigated as an element of power supply certification.	Pass
2.10.3.1	General		Pass
2.10.3.2	Clearances in primary circuit		N/A
2.10.3.3	Clearances in secondary circuits	See appended table 5.3.	Pass
2.10.3.4	Measurement of transient voltage levels		N/A
2.10.4	Creepage distances	All critical creepage distances in PRI circuits are investigated as an element of power supply certification.	Pass
	CTI tests	Material group IIIb; $100 \leq CTI < 175$.	-
2.10.5	Solid insulation	Investigated as an element of power supply certification.	N/A
2.10.5.1	Minimum distance through insulation	Investigated as an element of power supply certification.	N/A
2.10.5.2	Thin sheet material	Investigated as an element of power supply certification.	N/A
	Number of layers (pcs)		-
	Electric strength test		-
2.10.5.3	Printed boards	Non-SELV and Reinforced spacings investigated as an element of power supply certification.	N/A
	Distance through insulation		N/A
	Electric strength test for thin sheet insulating material	Investigated as an element of power supply certification.	-
	Number of layers (pcs)		N/A
2.10.5.4	Wound components	Investigated during separate certification of power supply.	N/A
	Number of layers (pcs)		N/A

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	Two wires in contact inside wound component; angle between 45° and 90°		N/A
2.10.6	Coated printed boards		N/A
2.10.6.1	General		N/A
2.10.6.2	Sample preparation and preliminary inspection		N/A
2.10.6.3	Thermal cycling		N/A
2.10.6.4	Thermal ageing (°C)		N/A
2.10.6.5	Electric strength test		-
2.10.6.6	Abrasion resistance test		N/A
	Electric strength test		-
2.10.7	Enclosed and sealed parts		N/A
	Temperature T1=T2 = Tma - Tamb +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

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Clause	Requirement + Test	Result - Remark	Verdict

3	WIRING, CONNECTIONS AND SUPPLY		Pass
3.1	General		Pass
3.1.1	Current rating and overcurrent protection	All wires/conductors possess adequate cross-sectional areas for their intended application and Internal wiring are adequately insulated.	Pass
3.1.2	Protection against mechanical damage	The wires are well routed away from sharp edges, etc. and are adequately fixed to prevent excessive strain on wire and terminals.	Pass
3.1.3	Securing of internal wiring	The wires are positioned in such a manner that prevents excessive strain, loosening of terminal connections and damage of conductor insulation.	Pass
3.1.4	Insulation of conductors		Pass
3.1.5	Beads and ceramic insulators		N/A
3.1.6	Screws for electrical contact pressure	All electrical screw connections are by metal screw with more than 2 threads into a metal plate.	Pass
3.1.7	Insulating materials in electrical connections		N/A
3.1.8	Self-tapping and spaced thread screws		N/A
3.1.9	Termination of conductors	All conductors are reliably secured.	Pass
	10 N pull test	All conductors are reliably secured.	N/A
3.1.10	Sleeving on wiring		N/A

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

3.2	Connection to an a.c. mains supply or a d.c. mains supply		Pass
3.2.1	Means of connection	Appliance Inlet (AC In) and Terminal Block (DC In) used.	Pass
3.2.1.1	Connection to an a.c. mains supply	Appliance inlet used.	Pass
3.2.1.2	Connection to a d.c. mains supply	Terminal block used.	Pass
3.2.2	Multiple supply connections	Supply plug connections are not interchangeable to prevent a hazard which could result from incorrect plugging. Each of the power supplies have two Appliance Inlets (AC In) for connection to Mains. Each of the power supplies (DC In) have two terminal blocks for connection to DC Mains.	Pass
3.2.3	Permanently connected equipment	DC input equipment is provided with terminals for connection to the DC mains. They are located such that they may be made after the unit is fixed to its support.	Pass
	Number of conductors, diameter (mm) of cable and conduits	Terminal block provided.	-
3.2.4	Appliance inlets	The appliance inlet (AC In) complies with IEC 60320. The power cord can be inserted without difficulties and does not support the unit.	Pass
3.2.5	Power supply cords	No power supply cord is provided. Instructions provided for correct selection.	Pass
3.2.5.1	AC power supply cords	No power supply cord is provided. Instructions provided for correct selection.	Pass
	Type	SPT-2, SVT, or SJT	-
	Rated current (A), cross-sectional area (mm ²), AWG	min. 16 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)		-

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

	Longitudinal displacement (mm)		-
3.2.7	Protection against mechanical damage	No parts under this unit likely to damage the power supply cord. No sharp edges.	N/A
3.2.8	Cord guards	Equipment does not use a non-detachable power supply cord.	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		Pass
3.3.1	Wiring terminals	Terminals with screws, nuts or equally effective devices are used (DC In).	Pass
3.3.2	Connection of non-detachable power supply cords		N/A
3.3.3	Screw terminals	Terminals investigated as an element of component certification.	N/A
3.3.4	Conductor sizes to be connected		N/A
	Rated current (A), cord/cable type, cross-sectional area (mm ²)		-
3.3.5	Wiring terminal sizes		N/A
	Rated current (A), type and nominal thread diameter (mm)		-
3.3.6	Wiring terminals design		N/A
3.3.7	Grouping of wiring terminals		N/A
3.3.8	Stranded wire		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

3.4	Disconnection from the mains supply		Pass
3.4.1	General requirement	The appliance inlet is considered to be the disconnect device. (AC In) A external Listed DC breaker specified for disconnection from DC mains power when terminal block provided. (DC In)	Pass
3.4.2	Disconnect devices	See 3.4.1.	Pass
3.4.3	Permanently connected equipment	Provided with Installation Instructions per 1.7.2 indicating protection to be part of building installation. For Models MIC-3082DCxxxxxxx and MIC-3082ADxxxxxxx only.	Pass
3.4.4	Parts which remain energized		N/A
3.4.5	Switches in flexible cords		N/A
3.4.6	Single-phase equipment and d.c. equipment	Disconnect device disconnects both poles simultaneously (DC In).	Pass
3.4.7	Three-phase equipment		N/A
3.4.8	Switches as disconnect devices	A switch is not considered the disconnect device.	N/A
3.4.9	Plugs as disconnect devices		N/A
3.4.10	Interconnected equipment		N/A
3.4.11	Multiple power sources		Pass

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

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Clause	Requirement + Test	Result - Remark	Verdict

4	PHYSICAL REQUIREMENTS		Pass
4.1	Stability		N/A
	Angle of 10°	Equipment is not floor-standing. Test was waived.	N/A
	Test: force (N)..... :		N/A

4.2	Mechanical strength		Pass
4.2.1	General	See below.	Pass
4.2.2	Steady force test, 10 N	Investigated as an element of power supply certification.	Pass
4.2.3	Steady force test, 30 N	No hazards as result of the 30 N test.	Pass
4.2.4	Steady force test, 250 N	No hazards as result of the 250 N test.	Pass
4.2.5	Impact test	Substantial steel enclosure.	Pass
	Fall test		Pass
	Swing test		N/A
4.2.6	Drop test		N/A
4.2.7	Stress relief test	Metal enclosure used.	N/A
4.2.8	Cathode ray tubes		N/A
	Picture tube separately certified :		N/A
4.2.9	High pressure lamps		N/A
4.2.10	Wall or ceiling mounted equipment; force (N) :		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
4.3	Design and construction		Pass
4.3.1	Edges and corners	All edges and corners judged to be sufficiently well rounded so as not to constitute a hazard.	Pass
4.3.2	Handles and manual controls; force (N)..... :	Investigated as an element of power supply certification.	Pass
4.3.3	Adjustable controls		N/A
4.3.4	Securing of parts	Electrical and mechanical connections can be expected to withstand usual mechanical stress. For the protection, solder pins, cable ties and heat shrink tubing are used.	Pass
4.3.5	Connection of plugs and sockets	No interchangeable plugs/ 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 element.	N/A
4.3.8	Batteries	RTC Li-battery is protected against charging current by multiple components Protected by Diode D1 and by Resistor R51(1K); also by Resistor R15 (1K) and by Diode D9. Provided with Ni-MH batteries, located on battery backup module, three cells in series, see table 1.5.1. Conducted with overcharging and rapid discharging tests for the battery backup module. See appended table 5.3.	Pass
4.3.9	Oil and grease	The insulation of the internal wiring is not exposed to oil, grease, etc.	N/A
4.3.10	Dust, powders, liquids and gases	Equipment does not produce dust or employ powders, liquids or gases.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict

4.3.11	Containers for liquids or gases		N/A
4.3.12	Flammable liquids..... :	Equipment does not use any flammable liquids.	N/A
	Quantity of liquid (l)..... :		N/A
	Flash point (°C)..... :		N/A
4.3.13	Radiation; type of radiation	Equipment does not generate ionizing radiation or contain flammable liquids or gases.	N/A
4.3.13.1	General		N/A
4.3.13.2	Ionizing radiation		N/A
	Measured radiation (pA/kg) :		-
	Measured high-voltage (kV) :		-
	Measured focus voltage (kV)..... :		-
	CRT markings..... :		-
4.3.13.3	Effect of ultraviolet (UV) radiation on materials		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)		N/A
	Laser class :		-
4.3.13.6	Other types :		N/A

4.4	Protection against hazardous moving parts		Pass
4.4.1	General	Equipment does not have any hazardous moving parts.	Pass
4.4.2	Protection in operator access areas	Fan guard used.	Pass
4.4.3	Protection in restricted access locations	Fan blades are provided with guards.	Pass
4.4.4	Protection in service access areas	Unintentional contact with hazardous moving parts by service personnel is unlikely.	Pass

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Clause	Requirement + Test	Result - Remark	Verdict

4.5	Thermal requirements		Pass
4.5.1	Maximum temperatures	See appended table 4.5.	Pass
	Normal load condition per Annex L :	Operated in the most unfavorable way of operation given in the operating instructions until steady conditions established.	Pass
4.5.2	Resistance to abnormal heat	Investigated as an element of power supply certification.	Pass

4.6	Openings in enclosures		Pass
4.6.1	Top and side openings	Foreign objects entering the enclosure will not contact bare parts at hazardous voltage or energy. (No hazardous parts within 5° projection).	Pass
	Dimensions (mm) :	See appended table 1.5.1.	-
4.6.2	Bottoms of fire enclosures	No bottom opening provided.	Pass
	Construction of the bottom :		-
4.6.3	Doors or covers in fire enclosures	Door covers are intended only for occasional use. Information regarding their proper removal and replacement is provided.	Pass
4.6.4	Openings in transportable equipment	Not transportable equipment.	N/A
4.6.5	Adhesives for constructional purposes		N/A
	Conditioning temperature (°C)/time (weeks) :		-

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Clause	Requirement + Test	Result - Remark	Verdict

4.7	Resistance to fire		Pass
4.7.1	Reducing the risk of ignition and spread of flame	Method 1: Selection and application of components and materials which minimize the possibility of ignition and spread of flame.	Pass
	Method 1, selection and application of components wiring and materials		Pass
	Method 2, application of all of simulated fault condition tests		N/A
4.7.2	Conditions for a fire enclosure		Pass
4.7.2.1	Parts requiring a fire enclosure	Fire enclosure covers all parts requiring a fire enclosure.	Pass
4.7.2.2	Parts not requiring a fire enclosure		Pass
4.7.3	Materials		Pass
4.7.3.1	General		Pass
4.7.3.2	Materials for fire enclosures	Fire enclosure is metal.	Pass
4.7.3.3	Materials for components and other parts outside fire enclosures	Connectors are made of materials of Class V-2 minimum.	Pass
4.7.3.4	Materials for components and other parts inside fire enclosures	All internal materials are rated V-2 or better or are mounted on a PWB rated V-1 or better	Pass
4.7.3.5	Materials for air filter assemblies		N/A
4.7.3.6	Materials used in high-voltage components		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

5	ELECTRICAL REQUIREMENTS AND SIMULATED ABNORMAL CONDITIONS		Pass
5.1	Touch current and protective conductor current		Pass
5.1.1	General		Pass
5.1.2	Equipment under test (EUT)		Pass
5.1.3	Test circuit		Pass
5.1.4	Application of measuring instrument	Using measuring instrument in annex D.	Pass
5.1.5	Test procedure	The touch current was measured from PRI to metal enclosure.	Pass
5.1.6	Test measurements	See below.	Pass
	Test voltage (V)	264 V ac / 60 Hz	-
	Measured touch current (mA).....	See below.	-
	Max. allowed touch current (mA).....	See below.	-
	Measured protective conductor current (mA).....	Max. 2.54 mA measured.	-
	Max. allowed protective conductor current (mA)...	3.5 mA	-
5.1.7	Equipment with touch current exceeding 3.5 mA..		N/A
5.1.8	Touch currents to and from telecommunication networks and cable distribution systems and from telecommunication networks		N/A
5.1.8.1	Limitation of the touch current to a telecommunication network and a cable distribution system		N/A
	Test voltage (V)		-
	Measured touch current (mA).....		-
	Max. allowed touch current (mA).....		-
5.1.8.2	Summation of touch currents from telecommunication networks		N/A

5.2	Electric strength		Pass
5.2.1	General	See appended table 5.2.	Pass
5.2.2	Test procedure		Pass

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Clause	Requirement + Test	Result - Remark	Verdict

5.3	Abnormal operating and fault conditions		Pass
5.3.1	Protection against overload and abnormal operation		Pass
5.3.2	Motors	See annex B. Investigated as an element of dc fans certification.	Pass
5.3.3	Transformers	See annex C. Investigated as an element of power supply certification.	Pass
5.3.4	Functional insulation..... :	Functional insulation complies with the requirements (a), (b), or (c). Functional insulation between the phases before the fuse complies with method (a).	Pass
5.3.5	Electromechanical components		N/A
5.3.6	Simulation of faults	- Blocked Ventilation Openings Test. - Fan Stalled Test. - Connector Overload Test. See appended table 5.3.	Pass
5.3.7	Unattended equipment		N/A
5.3.8	Compliance criteria for abnormal operating and fault conditions	No fire, emission of molten metal or deformation was noted during the tests.	Pass

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		N/A
	Test voltage (V) :		-
	Current in the test circuit (mA)..... :		-
6.1.2.2	Exclusions :		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

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
7.1	Protection of cable distribution system service persons, and users of other equipment connected to the system, from hazardous voltages in 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

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Clause	Requirement + Test	Result - Remark	Verdict

A	Annex A, TESTS FOR RESISTANCE TO HEAT AND FIRE		N/A
A.1	Flammability test for fire enclosures of movable equipment having a total mass exceeding 18 kg, and of stationary equipment (see 4.7.3.2)		N/A
A.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		N/A
A.1.5	Test procedure		N/A
A.1.6	Compliance criteria		N/A
	Sample 1 burning time (s) :		-
	Sample 2 burning time (s) :		-
	Sample 3 burning time (s) :		-

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Clause	Requirement + Test	Result - Remark	Verdict

A.2	Flammability test for fire enclosures of movable equipment having a total mass not exceeding 18 kg, and for material and components located inside fire enclosures (see 4.7.3.2 and 4.7.3.4)		N/A
A.2.1	Samples, material		-
	Wall thickness (mm)		-
A.2.2	Conditioning of samples		N/A
A.2.3	Mounting of samples		N/A
A.2.4	Test flame		N/A
A.2.5	Test procedure		N/A
A.2.6	Compliance criteria		N/A
	Sample 1 burning time (s)		-
	Sample 2 burning time (s)		-
	Sample 3 burning time (s)		-
A.2.7	Alternative test acc. to IEC 60695-2-2, cl. 4, 8		N/A
	Sample 1 burning time (s)		-
	Sample 2 burning time (s)		-
	Sample 3 burning time (s)		-

A.3	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

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Clause	Requirement + Test	Result - Remark	Verdict

B	Annex B, MOTOR TESTS UNDER ABNORMAL CONDITIONS(see 4.7.2.2 and 5.3.2)		Pass
B.1	General requirements	UL certified DC fans used. See appended table 1.5.1.	Pass
	Position	UL certified DC fans used. See appended table 1.5.1.	-
	Manufacturer	UL certified DC fans used. See appended table 1.5.1.	-
	Type	UL certified DC fans used. See appended table 1.5.1.	-
	Rated values	UL certified DC fans used. See appended table 1.5.1.	-
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		Pass
B.7.1	Test procedure		N/A
B.7.2	Alternative test procedure; test time (h)		N/A
B.7.3	Electric strength test		N/A
B.8	Test for motors with capacitors		N/A
B.9	Test for three-phase motors		N/A
B.10	Test for series motors		N/A
	Operating voltage (V)		-

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Clause	Requirement + Test	Result - Remark	Verdict

C	Annex C, TRANSFORMERS (see 1.5.4 and 5.3.3)		Pass
	Position	Investigated as an element of power supply certification.	-
	Manufacturer	Investigated as an element of power supply certification.	-
	Type	Investigated as an element of power supply certification.	-
	Rated values	Investigated as an element of power supply certification.	-
	Method of protection	Investigated as an element of power supply certification.	-
C.1	Overload test		N/A
C.2	Insulation		N/A
	Protection from displacement of windings	Investigated as an element of power supply certification.	N/A

D	Annex D, MEASURING INSTRUMENTS FOR TOUCH-CURRENT TESTS		Pass
D.1	Measuring instrument		Pass
D.2	Alternative measuring instrument		N/A

E	Annex E, TEMPERATURE RISE OF A WINDING		N/A
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F	Annex F, MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES (see 2.10)		Pass
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Clause	Requirement + Test	Result - Remark	Verdict

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
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

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Clause	Requirement + Test	Result - Remark	Verdict

L	Annex L, NORMAL LOAD CONDITIONS FOR SOME TYPES OF ELECTRICAL BUSINESS EQUIPMENT (see 1.2.2.1 and 4.5.1)		Pass
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	Maximum rated load was considered worst case conditions.	Pass

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	Ringing 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

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Clause	Requirement + Test	Result - Remark	Verdict

P	Annex P, NORMATIVE REFERENCES		Pass
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Q	Annex Q, BIBLIOGRAPHY		Pass
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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
 :		-

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Clause	Requirement + Test	Result - Remark	Verdict

1.5.1	TABLE: list of critical components					Pass
object/part No.	manufacturer/ trademark	type/model	technical data	standard	mark(s) of conformity ¹⁾	
Enclosure	Various	Various	Metal, painted, overall approximately 530 by 340 by 440 mm. thickness 0.8 mm min.	--	--, --	
Front Openings (optional)	Various	Various	Near inlet or terminal block, several circle openings, each 3.3 mm diameter maximum cover area 135mm by 94.4 mm and each 3 mm diameter cover two area each 16.8 mm by 415 mm.	--	--, --	
Rear Openings	Various	Various	Provided with several circle openings, each 3.3 mm diameter maximum cover area 395 mm by 100 mm.	--	--, --	
AC to DC Redundant Power Supply (optional) (max. two provided)	Power Research Technology Co., Ltd.	PRA840RV	Four power modules provided, Class I, i/p: 100- 240Vac, 50/60Hz, 6.3A. o/p: +3.3Vdc/58A, +5Vdc/86A, - 5Vdc/2A, +12Vdc/30A, - 12Vdc/2A, +5Vsb/3A, +5V and +3.3V total power 430W max. total 840W	UL 60950 IEC 60950	UL, TUV CB Certificate No.: JPTUV-006101	

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Clause	Requirement + Test		Result - Remark		Verdict
DC to DC Redundant Power Supply (optional) (max. two provided.)	Power Research Technology Co., Ltd.	PRD840RV	Four power modules provided, Class I, i/p: -38Vdc to -72Vdc, 11A. o/p: +3.3Vdc/58A, +5Vdc/86A, -5Vdc/2A, +12Vdc/30A, -12Vdc/2A, +5Vsb/3A, +5V and +3.3V total power 430W max. total 840W	UL 60950 IEC 60950	UL, TUV CB Certificate No.: JPTUV-002921
Terminal block	Dinkle Enterprise Co. Ltd.	DT-55	Two provided, for each DC to DC redundant power supply, maximum four provided. Secured to front side of metal enclosure by screws. Rating 25A, 300V.	UL 1059	UL, --
Appliance Inlet/EMI Filter	Delta Electronics Inc.	10GENG3C-R	Two provided for each AC to DC redundant power supply, maximum four provided. Secured to metal enclosure by screws. Rating 10A, 250Vac, (X-Cap.: 0.1uF, Y-Cap.: 2x2200pF, Resistor: 1M ohms.)	VDE 0625-1	UL, VDE, UL
Alternate Appliance Inlet/EMI Filter	Delta Electronics Inc.	10GENG3E-R	Rating 10A, 250Vac, (X-Cap.: 0.1uF, Y-Cap.: 2x2200pF, Resistor: 1M ohms.)	VDE 0625-1	UL, VDE, UL
All PCBs	Various	Various	Min. V-1, min. 105°C	--	UL, --
System Fan box (3 provided) (Located near power supply)	Delta Electronics Inc.	FFB1212EHE-F00	12Vdc, 3A, 170.92 CFM	EN 60950	UL, TUV, UL

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Clause	Requirement + Test		Result - Remark		Verdict
System Fan box (3 provided) (Located near card slots)	Delta Electronics Inc.	BFB1212VH-F00	12Vdc, 1.88A, 35.31 CFM	EN 60950	UL, TUV, UL
Battery Backup module	Various	Various	Consists with following major components.	--	--, --
RTC Battery (BT1)	Rayovac Corp.	BR2335	3.0Vdc, 300mAh, Max. Abnormal Charging Current 5 mA. Reverse current protection by series circuit of diode D1 and resistor (R51, rated 1k ohms)	UL1642	UL, --
Polyswitch	Tyco Electronics Corp. Raychem Circuit Protection Div.	LTP190 (L19)	For Ni-MH batteries protection, rating 24V, 1.9 A.	UL1434	UL, --
Alternate Polyswitch	Tyco Electronics Corp. Raychem Circuit Protection Div.	SRP200 (200)	For Ni-MH batteries protection, rating 30V, 2.0 A.	UL1434	UL, --
Battery cells	Various	Various	Ni-MH type, three provided and in series, each cell rating 1.2V, 1450 mAh.	--	--, --
Connectors (optional)	Various	Various	Each module provided with one COM port, one LAN port. (SELV)	--	--, --
I/O module (Optional)	Various	Various	Consists with following major components.	--	--, --
PS/2 connector (keyboard/ mouse)	Various	Various	SELV, LPS	--	--, --
VGA Connector	Various	Various	SELV, LPS	--	--, --
Connectors (optional)	Various	Various	SELV. Each module provided with one COM port, two LAN ports.	--	--, --

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Poly-switches (FS1, FS2, FS3, FS4)	Tyco Electronics Corp. Raychem Circuit Protection Div.	SMD1812P110TG/S	1.10A, 6V	UL1434	UL, TUV
CPCI board module (optional)	Various	Various	The module maximum 20 can be provided. Consists with following major components.	--	--, --
RTC Battery (BT1)	Rayovac Corp.	BR2032	3?V, 195 mAh. Max. Abnormal Charging Current 4 mA. Reverse current protection by series circuit of diode D9 and resistor (R15, rated 1kohms	--	UL, --
HDD Drive (Optional)	Various	Various	5Vdc/1.0A max., 12Vdc/1.2A max.	UL60950, EN 60950	UL, TUV
Connectors (optional)	Various	Various	SELV. Each module provided with one COM port, one LAN port.	--	--, --
¹⁾ an asterisk indicates a mark which assures the agreed level of surveillance					

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

1.6.2	TABLE: electrical data (in normal conditions)						Pass
fuse #	I rated (A)	U (V)	P (W)	I (mA)	I fuse (mA)	condition/status	
F1	--	90V/ 50Hz	678	7590	--	Maximum normal load.	
F1	--	90V/60Hz	676	7540	--	Maximum normal load.	
F1	12	100V/50Hz	667	6700	--	Maximum normal load.	
F1	12	100V/60Hz	667	6690	--	Maximum normal load.	
F1	12	240V/50Hz	636	2671	--	Maximum normal load.	
F1	12	240V/60Hz	636	2680	--	Maximum normal load.	
F1	--	264V50Hz	631	2459	--	Maximum normal load.	
F1	--	264V/60Hz	631	2452	--	Maximum normal load.	
F1	22	38Vdc	669.4	17616	--	Maximum normal load.	
F1	22	72Vdc	652.9	9068	--	Maximum normal load.	
F1	--	32.3Vdc	681.53	21100	--	Maximum normal load.	
F1	--	86.4Vdc	673.9	7800	--	Maximum normal load.	
supplementary information:							
"Maximum normal load" was defined as follows: Equipment continuously crossed reading and writing data between HDD and working continuously.							

2.10.3 and 2.10.4	TABLE: clearance and creepage distance measurements						Pass
clearance cl and creepage distance dcr at/of:	Up (V)	U r.m.s. (V)	required cl (mm)	cl (mm)	required dcr (mm)	dcr (mm)	
--	--	--	--	--	--	--	
supplementary information:							
All critical clearance/creepage in PRI circuit are investigated as an element of power supply certification. All other circuits are SELV, only functional insulation required, passes per 5.3.4 - Method C.							

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)	
supplementary information:					

4.5	TABLE: temperature rise measurements						Pass
	test voltage (V)	See below	See below	-	-	-	—

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

	t1 (°C).....	--	-	-	-	-	—
	t2 (°C).....	--	-	-	-	-	—
maximum temperature T of part/at:	T (°C)						allowed Tmax (°C)
Test for model MIC-3082 Max. Normal load Location 1-4: DC Power Module, 5-8: AC Power Module, 9-11: Main Board, 12-13: Alarm Board.	I/P: 90Vac /38Vdc Duration time: 2 hrs 40 min. Measured under ambient /Computed per Tma.	I/P: 264Vac /72Vdc Duration time: 1 hr. Measured under ambient / Computed per Tma.	--	--	--	--	--
1. T1 coil (for top module)	44/68	41/65	--	--	--	--	110
2. T2 coil (for top module)	40/64	39/63	--	--	--	--	90
3. T1 coil (for bottom module)	41/65	41/65	--	--	--	--	110
4. T2 coil (for bottom module)	38/62	40/64	--	--	--	--	90
5. T1 coil (for top module)	41/65	39/63	--	--	--	--	110
6. T2 coil (for top module)	46/70	42/66	--	--	--	--	90
7. T1 coil (for bottom module)	50/74	41/65	--	--	--	--	110
8. T2 coil (for bottom module)	46/70	41/65	--	--	--	--	90
9. PCB near U16	55/79	41/65	--	--	--	--	105
10. PCB near U17	52/76	37/61	--	--	--	--	105
11. HDD Body	46/70	39/63	--	--	--	--	--
12. BT1 Body	48/72	40/64	--	--	--	--	100
13. PCB near U6	46/70	39/64	--	--	--	--	105
14. Outside Enclosure	41/65	37/61	--	--	--	--	70
Ambient air/Tma	26/50	26/50	--	--	--	--	--
Test for model MIC-3082 Max. Normal load Location 1-4: DC Power Module	I/P: 32.3Vdc Duration time: 2 hrs 20 min. Measured under ambient/Computed per Tma	I/P: 86.4Vdc Duration time: 1 hr 50 min. Measured under ambient/Computed per Tma	--	--	--	--	--
1. T1 coil (for bottom module)	48/70	48/71	--	--	--	--	110

IEC 60950-1						
Clause	Requirement + Test			Result - Remark		Verdict
2. T2 coil (for bottom module)	44/66	40/63	--	--	--	90
3. T1 coil (for top module)	54/76	46/69	--	--	--	110
4. T2 coil (for top module)	49/71	44/67	--	--	--	90
5. Ambient air/Tma	28/50	27/50	--	--	--	--
temperature T of winding:		R ₁ (Ω)	R ₂ (Ω)	T (°C)	allowed Tmax (°C)	insulation class
--		--	--	--	--	--
supplementary information:						
--						

4.5.2	TABLE: ball pressure test of thermoplastics			Pass
	allowed impression diameter (mm) :	2.0 mm		—
part		test temperature (°C)	impression diameter (mm)	
--		--	--	
supplementary information:				
Investigated as an element of power supply certification.				

4.7	TABLE: resistance to fire			Pass
part	manufacturer of material	type of material	thickness(mm)	flammability class
--	--	--	--	--
supplementary information:				
Certified components used with suitable flammability ratings.				

5.2	TABLE: electric strength tests, impulse tests and voltage surge tests		Pass
test voltage applied between:		test voltage (V) a.c./d.c.	breakdown Yes / No
Unit: PRI to SEC		DC 4242	No
Unit: PRI to Earth		DC 3231	No
supplementary information:			
--			

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

5.3	TABLE: fault condition tests					Pass
	ambient temperature (°C)				26	—
	model/type of power supply				See Table 1.5.1	—
	manufacturer of power supply				See Table 1.5.1	—
	rated markings of power supply				1 AC and 1 DC redundant power supply used for testing	—
component No.	fault	test voltage (V)	test time	fuse No.	fuse current (A)	result
Unit	Locked Fan	70Vdc, 240Vac	45 mins	--	2.68	Temp. was stable, T1 coil (for DC Power top module)= 51 degree C, T2 coil (for DC Power top module)= 41 degree C, T1 coil (for DC Power bottom module)= 43 degree C, T2 coil (for DC Power bottom module)= 39 degree C, T1 coil (for AC Power top module)= 42 degree C, T2 coil (for AC Power top module)= 47 degree C, T1 coil (for AC Power bottom module)= 50 degree C, T2 coil (for AC Power bottom module)= 47 degree C, NB, NC, NT
Unit	Blocked openings	70Vdc, 240Vac	1 hr	F1	2.66	Temp. was stable, T1 coil (for DC Power top module)= 52 degree C, T2 coil (for DC Power top module)= 38 degree C, T1 coil (for DC Power bottom module)= 44 degree C, T2 coil (for DC Power bottom module)= 38 degree C, T1 coil (for AC Power top module)= 45 degree C, T2 coil (for AC Power top module)= 44 degree C, T1 coil (for AC Power bottom module)= 48 degree C, T2 coil (for AC Power bottom module)= 46 degree C, NB, NC, NT

IEC 60950-1						
Clause	Requirement + Test			Result - Remark		Verdict
COM1 connector (Pin 3)	Overload	5.10	1 hr	--	1.233	NB, NC, NT
COM1 connector (Pin 4)	Overload	4.88	1 hr	--	1.642	NB, NC, NT
COM1 connector (Pin 7)	Overload	4.88	1 hr	--	1.668	NB, NC, NT
COM connector (Pin 3)	Overload	9.54	1 hr	--	13.52	NB, NC, NT
COM connector (Pin 4)	Overload	9.76	1 hr	--	13.40	NB, NC, NT
COM connector (Pin 7)	Overload	9.73	1 hr	--	16.48	NB, NC, NT
Key board/Mouse connector (Pin 3)	Overload	5.02	1 hr	--	1.655	NB, NC, NT
VGA connector (Pin 9)	Overload	5.011	1 hr	--	1.633	NB, NC, NT
Battery backup module, R2	Overcharging with component short	System supplied 264V, Battery backup unit supplied 5V	7hrs	--	--	Temperature was stable, cell body= 41 degree C, Ambient= 25 degree C NC, NT.
Battery backup module, D2	Overcharging with component short	System supplied 264V, Battery backup unit supplied 5V	7hrs	--	--	Temperature was stable, cell body= 43 degree C, Ambient= 24 degree C NC, NT.
Battery backup module, D3	Rapid discharging with component short	No supply for system.	3.5hrs	--	--	Temperature was stable, cell body= 46 degree C, Ambient= 26 degree C NC, NT.
supplementary information:						
Comments key: IP - Internal protection operated (list component) CD - Component damaged (list damaged components) NB - No indication of dielectric breakdown NC - Cheesecloth remained intact NT - Tissue paper remained intact						

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

Enclosure

National Differences

(Total 31 Pages including this Cover Page)

Argentina*
Australia / New Zealand
Austria**
Belgium**
Czech Republic*
Denmark
Finland
France*
Germany
Greece**
Group
Hungary*
Ireland*
Israel*
Korea
Malaysia*
Netherlands**
Norway
Poland*
Portugal*
Slovakia*
Slovenia*
Spain*
Sweden
Switzerland
USA / Canada
United Kingdom

* No National Differences Declared

** Only Group Differences

IEC 60950-1			
SubClause	Difference + Test	Result - Remark	Verdict

Australia / New Zealand - Differences to IEC 60950-1:2001, First Edition			
1.2.12.11	<p>POTENTIAL IGNITION SOURCE</p> <p>Possible fault which can starts a fire if the open-circuit voltage measured across an interruption or faulty contact exceeds a value of 50 V (peak) a.c. or d.c. and the product of the peak value of this voltage and the measured r.m.s. current under normal operating conditions exceeds 15VA.</p> <p>Such a faulty contact or interruption in an electrical connection includes those which may occur in conductive patterns on printed boards.</p> <p>Note 201: An electronic protection circuit may be used to prevent such a fault from becoming a POTENTIAL IGNITION SOURCE.</p>		N/A
1.5.1	Add to the first paragraph: "or the relevant Australian / New Zealand Standard".		Pass
1.5.2	Add to the first and third dashed items after the words "IEC Component Standard": "or the relevant Australian / New Zealand Standard".		Pass
1.6.1	Add: AC power distribution systems classified as TT or IT are not allowed		N/A
1.7.12	Add to the first paragraph: All safety instructions and safety markings shall be in English.		Pass

IEC 60950-1			
SubClause	Difference + Test	Result - Remark	Verdict
3.2.5	Substitute for Table 3B: Sizes of Conductors		N/A
	<div><div>Rated Current of Equipment (A)</div><div>Nominal cross-sectional area (mm²)</div></div>		
	0.2 <= 30.5*		
	3 <= 7.50.75		
	7.5 <= 10(0.75) 1.00		
	10 <= 16(1,0) 1.5		
	16 <= 252.5		
	25 <= 324		
	32 <= 406		
	40 <= 6310		
	63 <= 8016		
	80 <= 10025		
	100 <= 12535		
	125 <= 16050		
	160 <= 19070		
	190 <= 23095		
	230 <= 260120		
	260 <= 300150		
300 <= 340185			
340 <= 400240			
400 <= 460300			
* 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 mm² three-core supply flexible cords are not permitted; see Note 2 to Table 2.17 of AS/NZS 3191).			
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	For the purpose of this standard compliance with AS/NZS 2211.1 is deemed to be compliance with IEC60825.1		N/A
4.7	Add after the clause: For alternative resistance to fire tests, refer to Annex YY.		N/A

IEC 60950-1			
SubClause	Difference + Test	Result - Remark	Verdict
6.2.1	Replace item c) with: An SELV circuit, a TNV-2 circuit or a Limited Current Circuit provided for connection of other equipment. The requirement for separation applies whether or not this circuit is accessible.		N/A
6.2.2	Replace the first paragraph by: In Australia (not in New Zealand), compliance with 6.2.2 is checked by the tests of both 6.2.2.1 and 6.2.2.2.		N/A
6.2.2.1	<p>Replace 6.2.2.1 with: In Australia (not in New Zealand), the electrical separation is subjected to 10 impulses of alternating polarity, using the impulse test generator of Annex N for 10/700µs impulses. The interval between successive impulses is 60 s and the initial voltage, U_c is:</p> <p>- for 6.2.1a): 7.0 kV for hand-held telephones and for headsets; 2.5 kV for other equipment;</p> <p>for 6.2.1b) and 6.2.1c): 1.5 kV.</p> <p>NOTE 1 - The 7 kV impulse is to simulate lightning surges on typical rural and semi-rural network lines.</p> <p>NOTE 2 - The value of 2.5 kV for 6.2.1a) was chosen to ensure adequacy of the insulation concerned and does not necessarily simulate likely overvoltages.</p>		N/A
6.2.2.2	<p>Replace the first and second paragraphs of 6.2.2.2 with: In Australia (not New Zealand), the electrical separation is subjected to an electric strength test according to 5.2.2.</p> <p>The a.c. test voltage is:</p> <p>- for 6.2.1a) 3 kV - for 6.2.1b) and 6.2.1c) 1.5 kV</p> <p>NOTE 1 - Where there are capacitors across the insulation under test, it is recommended that d.c. test voltages are used.</p> <p>NOTE 2 - The 3 kV and 1.5 kV values have been determined considering the low frequency induced voltages from the power supply distribution system.</p>		N/A

IEC 60950-1			
SubClause	Difference + Test	Result - Remark	Verdict

Denmark - Differences to IEC 60950-1:2001, First Edition			
1.2.4.1	Certain types of Class I appliances (see sub-clause 3.2.1.1) may be provided with plug not establishing earthing continuity when inserted into Danish socket-outlets.		N/A
1.7.2	<p>Supply cords of Class I equipment, which is delivered without a plug, must be provided with a visible tag with the following text:</p> <p style="text-align: center;">"Vigtigt ! Lederen med grøn/gul isolation må kun tilsluttes en klemme mærket (IEC 417, No. 5019) eller (IEC 417, No. 5017)."</p> <p>If essential for the safety of the equipment, the tag must in addition be provided with a diagram, which shows the connection of the other conductors, or be provided with the following text: "For tilslutning af de øvrige ledere, se medfølgende installationsvejledning".</p>		N/A
1.7.5	Socket-outlets for providing power to other equipment shall be in accordance with the Heavy Current Regulations, Section 107-2-D1, Standard Sheet DK 1-3a, DK 1-5a or DK 1-7a, when used on Class I equipment. For stationary equipment, the socket-outlet shall be in accordance with Standard Sheet DK 1-1b or DK 1-5a.		N/A
1.7.5	Class II equipment shall not be fitted with socket-outlets for providing power to other equipment.		N/A

IEC 60950-1			
SubClause	Difference + Test	Result - Remark	Verdict
3.2.1.1	<p>Supply cord 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 contact or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a.</p> <p>If poly-phase equipment and single-phase equipment having a rated current exceeding 13 A is provided with a supply cord with a plug, this plug shall be in accordance with the Heavy Current Regulations, Section 107-2-D1 or EN 60309-2.</p>		N/A

IEC 60950-1			
SubClause	Difference + Test	Result - Remark	Verdict

Finland - Differences to IEC 60950-1:2001, First Edition			
1.7.2	Class I Pluggable Equipment Type A intended for connection to other equipment or a network shall, if safety relies on connection to protective earth or if surge suppressors are connected between the network terminals and accessible parts, have a marking stating that the equipment must be connected to an earthed mains socket-outlet. The marking text shall be: "Laite on liitettävä suojamaadoituskoskettimilla varustettuun pistorasiaan"		N/A

IEC 60950-1			
SubClause	Difference + Test	Result - Remark	Verdict
6.1.2.1	<p>Add the following text between the first and second paragraph:</p> <p>If this insulation is solid, including insulation forming part of a component, it shall at least consist of either</p> <ul style="list-style-type: none">- two layers of thin sheet material, each of which shall pass the electric strength test below, or- one layer having a distance through insulation of at least 0.4 mm, which shall pass the electric strength test below. <p>If this insulation forms part of a semiconductor component (e.g. an optocoupler), there is no distance through insulation requirement for the insulation consisting of an insulating compound completely filling the casing, so that clearances and creepage distances do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition:</p> <ul style="list-style-type: none">- passes the tests and inspection criteria of IEC 60950-1, 2.10.8 with an electric strength test of 1.5 kV multiplied by 1.6 (the electric strength test of 2.10.7 shall be performed using 1.5 kV), and- is subject to routing testing for electric strength during manufacturing, using a test voltage of 1.5 kV. <p>It is permitted to bridge this insulation with a capacitor complying with IEC 60384-14:1993, subclass Y2.</p> <p>A capacitor classified Y3 according to IEC 60384-14:1993, may bridge this insulation under the following conditions:</p> <ul style="list-style-type: none">- the insulation requirements are satisfied by having a capacitor classified Y3 as defined by IEC 60384-14, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in EN 60950-1, subclause 6.2.2.1;- the additional testing shall be performed on all the test specimens as described in IEC 60384-14;- the impulse test of 2,5 kV is to be performed before the endurance test in IEC 60384-14, in the sequence of tests as described in IEC 60384-14.		N/A

IEC 60950-1			
SubClause	Difference + Test	Result - Remark	Verdict
6.1.2.2	The exclusions are applicable for permanently connected equipment and pluggable equipment type B and equipment intended to be used in a restricted access location where equipotential bonding has been applied, e.g. in a telecommunication centre, and which has provision for a permanently connected protective earthing conductor and is provided with instructions for the installation of that conductor by a service person.		N/A
7.1	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

IEC 60950-1			
SubClause	Difference + Test	Result - Remark	Verdict

Germany - Differences to IEC 60950-1:2001, First Edition			
1.7.12	<p>(Gesetz uber technische Arbeitsmittel (Geratesicherheitsgesetz) [Law of technical labour equipment {Equipment safety law}], of 23rd October 1992, Article 3, 3rd paragraph, 2nd sentence, together with the "Allgemeine Verwaltungsvorschrift zur Durchfuehrung des Zweiten Abschnitts des Geratesicherheitsgesetzes" [General administrative regulation on the execution of the Second Section of the Equipment safety law], of 10th January 1996, article 2, the paragraph, item 2).</p> <p>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.</p> <p>NOTE: Of this requirement, rules for use even only by service personnel are not exempted.</p>		Pass

IEC 60950-1			
SubClause	Difference + Test	Result - Remark	Verdict
1.7.15	<p>(Regulation on protection against hazards by X-ray, of 8th January 1987, Article 5 [operation of X-ray emission source], clauses 1 to 4)</p> <p>a) A licence is required by those who operate an X-ray emission source.</p> <p>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</p> <ol style="list-style-type: none"> 1) the local dose rate at a distance of 0,1 m from the surface does not exceed 1 $\mu\text{Sv/h}$ and 2) it is adequately indicated on the X-ray emission source that <ol style="list-style-type: none"> i) X-rays are generated ii) the electron acceleration voltage must not exceed the maximum value stipulated by the manufacturer or importer. <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> <ol style="list-style-type: none"> 1) the X-ray emission source has been granted a type approval and 2) it is adequately indicated on the X-ray emission source that <ol style="list-style-type: none"> i) X-rays are generated ii) the device stipulated by the manufacturer or importer guarantees that the maximum permissible local dose rate in accordance with the type approval is not exceeded and iii) the electron acceleration voltage must not exceed the maximum value stipulated by the manufacturer or importer. <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> <ol style="list-style-type: none"> 1) the X-rays are generated only by intrinsically safe CRTs complying with Enclosure III, No. 6, 2) the values stipulated in accordance with Enclosure III, No. 6.2 are limited by technical measures and specified in the device and 3) it is adequately indicated on the X-ray emission source that the X-rays generated are adequately screened by the intrinsically safe CRT. 		N/A

IEC 60950-1			
SubClause	Difference + Test	Result - Remark	Verdict

Group - Differences to IEC 60950-1:2001, First Edition			
2.7.1	<p>Replace the subclause as follows:</p> <p>Basic requirements</p> <p>To protect against excessive current, short-circuits and earth faults in primary circuits, protective devices shall be included either as integral parts of the equipment or as parts of the building installation, subject to the following, a), b) and c):</p> <p>a) except as detailed in b) and c), protective 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>		Pass
2.7.2	Void		N/A
2.10.2	Replace 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.		N/A

IEC 60950-1																																																											
SubClause	Difference + Test	Result - Remark	Verdict																																																								
3.2.5	<p>Replace: "60245 IEC 53" by "H05 RR-F" "60227 IEC 52" by "H03 VV-F or H03 VVH2-F" "60227 IEC 53" by "H05 VV-F or H05 VVH2-F"</p> <p>In table 3B, replace the first four lines by the following: Up to and including 6 0.75 ¹ Over 6 up to and including 10 0.75 ² 1.0 Over 10 up to and including 16 1.0 ³ 1.5</p> <p>In the Conditions applicable to table 3B, delete the words "in some countries" in condition ¹. In Note 1, delete the second sentence.</p>		N/A																																																								
3.3.4	<p>In table 3D, delete the fourth line: conductor sizes for 10 to 13 A, and replace with the following: "Over 10 up to and including 16 1.5 to 2.5 1.5 to by 4"</p> <p>Delete the fifth line: conductor sizes for 13 to 16A.</p>		N/A																																																								
4.3.13.6	<p>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.</p>		N/A																																																								
General	<p>Delete all the "country" notes in the reference document according to the following list:</p> <table> <tr> <td>1.5.1</td><td>Note 2</td><td>1.5.8</td><td>Note 2</td></tr> <tr> <td>1.6.1</td><td>Note</td><td>1.7.2</td><td>Note 4</td></tr> <tr> <td>1.7.12</td><td>Note 2</td><td>2.1</td><td>Note</td></tr> <tr> <td>2.2.3</td><td>Note</td><td>2.2.4</td><td>Note</td></tr> <tr> <td>2.3.2</td><td>Note 2, 7, 8</td><td>2.3.3</td><td>Note 1, 2</td></tr> <tr> <td>2.3.4</td><td>Note 2,3</td><td>2.7.1</td><td>Note</td></tr> <tr> <td>2.10.3.1</td><td>Note 4</td><td>3.2.1.1</td><td>Note</td></tr> <tr> <td>3.2.3</td><td>Note 1, 2</td><td>3.2.5.1</td><td>Note 2</td></tr> <tr> <td>4.3.6</td><td>Note 1,2</td><td>4.7.2.2</td><td>Note</td></tr> <tr> <td>4.7.3.1</td><td>Note 2</td><td>6.1.2.1</td><td>Note</td></tr> <tr> <td>6.1.2.2</td><td>Note</td><td>6.2.2</td><td>Note</td></tr> <tr> <td>6.2.2.1</td><td>Note 2</td><td>6.2.2.2</td><td>Note</td></tr> <tr> <td>7</td><td>Note 4</td><td>7.1</td><td>Note</td></tr> <tr> <td>G2.1</td><td>Note 1, 2</td><td>H</td><td>Note 2</td></tr> </table>	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, 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	H	Note 2		N/A
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1.7.12	Note 2	2.1	Note																																																								
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G2.1	Note 1, 2	H	Note 2																																																								

IEC 60950-1			
SubClause	Difference + Test	Result - Remark	Verdict

H	Replace the last paragraph of this annex by: At any point 10 cm from the surface of the operator access area, the dose rate shall not exceed 1 μ Sv/h (0,1 mR/h) (see note). Account is taken of the background level. Replace the notes as follows: NOTE - These values appear in Directive 96/29/Euratom. Delete Note 2.		N/A
P	Replace the text of this annex by: See annex ZA		Pass
Q	Replace the title of IEC 61032 by "Protection of persons and equipment by enclosures - Probes for verification". Add the following notes for the standards indicated: IEC 60127 NOTE Harmonized as EN 60127 (Series) (not modified) IEC 60269-2-1 NOTE Harmonized as HD 630.2.1 S4:2000 (modified) IEC 60529 NOTE Harmonized as EN 60529:1991 (not modified) IEC 61032 NOTE Harmonized as EN 61032:1998 (not modified) IEC 61140 NOTE Harmonized as EN 61140:2001 (not modified) ITU-T Recommendation K.31 NOTE in Europe, the suggested document is EN 50083-1.		Pass

Korea - Differences to IEC 60950-1:2001, First Edition			
1.5.101	Addition: Plugs for the connection of the apparatus to the supply mains comply with the Korean requirement (KSC 8305).		N/A
7	Addition: EMC - The apparatus shall complies with the relevant CISPR standards.		N/A

IEC 60950-1			
SubClause	Difference + Test	Result - Remark	Verdict

Norway - Differences to IEC 60950-1:2001, First Edition			
1.5.8	Due to the IT power system used (see annex V, figure V.7), capacitors are required to be rated for the applicable phase-to-phase voltage (230 V).		N/A
1.7.2	Class I Pluggable Equipment Type A intended for connection to other equipment or a network shall, if safety relies on connection to protective earth or if surge suppressors are connected between the network terminals and accessible parts, have a marking stating that the equipment must be connected to an earthed mains socket-outlet. The marking text shall be: "Apparatet må tilkoples jordet stikkontakt"		N/A
2.2.4	Requirements according to this annex, 1.7.2 and 6.1.2.1 apply.		N/A
2.3.2	Requirements according to this annex, 6.1.2.1 apply.		N/A
2.3.3	Requirements according to this annex, 1.7.2 and 6.1.2.1 apply.		N/A
2.3.4	Requirements according to this annex, 1.7.2 and 6.1.2.1 apply.		N/A
2.10.3.1	Due to the IT power distribution system used (see annex V, figure V.7), the A.C. mains supply voltage is considered to be equal to the line-to-line voltage, and will remain at 230 V in case of a single earth fault.		N/A

IEC 60950-1			
SubClause	Difference + Test	Result - Remark	Verdict
6.1.2.1	<p>Add the following text between the first and second paragraph:</p> <p>If this insulation is solid, including insulation forming part of a component, it shall at least consist of either</p> <ul style="list-style-type: none"> - two layers of thin sheet material, each of which shall pass the electric strength test below, or - one layer having a distance through insulation of at least 0.4 mm, which shall pass the electric strength test below. <p>If this insulation forms part of a semiconductor component (e.g. an optocoupler), there is no distance through insulation requirement for the insulation consisting of an insulating compound completely filling the casing, so that clearances and creepage distances do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition:</p> <ul style="list-style-type: none"> - passes the tests and inspection criteria of IEC 60950-1, 2.10.8 with an electric strength test of 1.5 kV multiplied by 1.6 (the electric strength test of 2.10.7 shall be performed using 1.5 kV), and - is subject to routing testing for electric strength during manufacturing, using a test voltage of 1.5 kV. <p>It is permitted to bridge this insulation with a capacitor complying with IEC 60384-14:1993, subclass Y2.</p> <p>A capacitor classified Y3 according to IEC 60384-14:1993, may bridge this insulation under the following conditions:</p> <ul style="list-style-type: none"> - the insulation requirements are satisfied by having a capacitor classified Y3 as defined by IEC 60384-14, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in EN 60950-1, subclause 6.2.2.1; - the additional testing shall be performed on all the test specimens as described in IEC 60384-14; - the impulse test of 2,5 kV is to be performed before the endurance test in IEC 60384-14, in the sequence of tests as described in IEC 60384-14. 		N/A

IEC 60950-1			
SubClause	Difference + Test	Result - Remark	Verdict
6.1.2.2	The exclusions are applicable for permanently connected equipment and pluggable equipment type B and equipment intended to be used in a restricted access location where equipotential bonding has been applied, e.g. in a telecommunication centre, and which has provision for a permanently connected protective earthing conductor and is provided with instructions for the installation of that conductor by a service person.		N/A
7.1	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	Due to the IT power distribution system used (see annex V, figure V.7), the A.C. mains supply voltage is considered to be equal to the line-to-line voltage, and will remain at 230 V in case of a single earth fault.		N/A

IEC 60950-1			
SubClause	Difference + Test	Result - Remark	Verdict

Sweden - Differences to IEC 60950-1:2001, First Edition			
1.5.1	(Ordinance (1990:944)) Add NOTE: Switches containing mercury such as thermostats, relays and level controllers are not allowed.		N/A
1.7.2	Class I Pluggable Equipment Type A intended for connection to other equipment or a network shall, if safety relies on connection to protective earth or if surge suppressors are connected between the network terminals and accessible parts, have a marking stating that the equipment must be connected to an earthed mains socket-outlet. The marking text shall be: "Apparaten skall anslutas till jordat uttag"		N/A

IEC 60950-1			
SubClause	Difference + Test	Result - Remark	Verdict
6.1.2.1	<p>Add the following text between the first and second paragraph:</p> <p>If this insulation is solid, including insulation forming part of a component, it shall at least consist of either</p> <ul style="list-style-type: none"> - two layers of thin sheet material, each of which shall pass the electric strength test below, or - one layer having a distance through insulation of at least 0.4 mm, which shall pass the electric strength test below. <p>If this insulation forms part of a semiconductor component (e.g. an optocoupler), there is no distance through insulation requirement for the insulation consisting of an insulating compound completely filling the casing, so that clearances and creepage distances do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition:</p> <ul style="list-style-type: none"> - passes the tests and inspection criteria of IEC 60950-1, 2.10.8 with an electric strength test of 1.5 kV multiplied by 1.6 (the electric strength test of 2.10.7 shall be performed using 1.5 kV), and - is subject to routing testing for electric strength during manufacturing, using a test voltage of 1.5 kV. <p>It is permitted to bridge this insulation with a capacitor complying with IEC 60384-14:1993, subclass Y2.</p> <p>A capacitor classified Y3 according to IEC 60384-14:1993, may bridge this insulation under the following conditions:</p> <ul style="list-style-type: none"> - the insulation requirements are satisfied by having a capacitor classified Y3 as defined by IEC 60384-14, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in EN 60950-1, subclause 6.2.2.1; - the additional testing shall be performed on all the test specimens as described in IEC 60384-14; - the impulse test of 2,5 kV is to be performed before the endurance test in IEC 60384-14, in the sequence of tests as described in IEC 60384-14. 		N/A

IEC 60950-1			
SubClause	Difference + Test	Result - Remark	Verdict
6.1.2.2	The exclusions are applicable for permanently connected equipment and pluggable equipment type B and equipment intended to be used in a restricted access location where equipotential bonding has been applied, e.g. in a telecommunication centre, and which has provision for a permanently connected protective earthing conductor and is provided with instructions for the installation of that conductor by a service person.		N/A
7.1	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

IEC 60950-1			
SubClause	Difference + Test	Result - Remark	Verdict

Switzerland - Differences to IEC 60950-1:2001, First Edition			
1.5.1	Add NOTE: Switches containing mercury such as thermostats, relays and level controllers are not allowed.		N/A
1.7.15	Annex 4.10 of SR 814.013 (Ordinance on environmentally hazardous substances) applies for batteries.		Pass
3.2.1.1	<p>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</p> <p>SEV 6533-2.1991, Plug type 11, L+N 250 V, 10 A</p> <p>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 10 A. 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, 3P+N+PE 230/400 V, 16 A</p> <p>SEV 5933-2.1998, Plug type 21, L+N 250 V, 16 A</p> <p>SEV 5934-2.1998, Plug type 23, L+N+PE 250 V, 16 A</p>		N/A

IEC 60950-1			
SubClause	Difference + Test	Result - Remark	Verdict

USA / Canada - Differences to IEC 60950-1:2001, First Edition			
1.1	Equipment able to be installed in accordance with the National Electrical Code ANSI/NFPA 70 and the Canadian Electrical Code, Part1, and when applicable, the National Electrical Safety Code, IEEE C2.		Pass
1.1.1	Equipment able to be installed in accordance with ANSI/NFPA 75 and NEC Art. 645 unless intended for use outside of computer room and provided with such instructions.		Pass
1.1.2	Equipment in wire-line communication facilities serving high-voltage electric power stations operating at greater than 1kV are excluded.		N/A
1.1.2	Special requirements apply to equipment intended for use outdoors.		N/A
1.4.14	For Pluggable Equipment Type A, the protection in the installation is assumed to be 20 A.	For units with AC power supply.	Pass
1.5.1	All IEC standards for components identified in Annex P.1 replaced by the relevant requirements of CSA and UL component standards in Annex P.1.		Pass
1.5.1	All IEC standards for components identified in Annex P.2 alternatively satisfied by the relevant requirements of CSA and UL component standards in Annex P.2.		Pass
1.5.5	Interconnecting cables acceptable for the application regarding voltage, current, temperature, flammability, mechanical serviceability and the like.		Pass
1.5.5	For other than limited power and TNV circuits, the type of output circuit identified for output connector.		N/A
1.5.5	External cable assemblies that exceed 3.05 m in length to be types specified in the NEC and CEC.		N/A
1.5.5	Detachable external interconnecting cables 3.05 m or less in length and provided with equipment marked to identify the responsible organization and the designation for the cable.		N/A
1.5.5	Building wiring and cable for use in ducts, plenums and other air handling space subject to special requirements and excluded from scope.		N/A
1.5.5	Telephone line and extension cords and the like comply with UL 1863 and CSA C22.2 No. 233.		N/A

IEC 60950-1			
SubClause	Difference + Test	Result - Remark	Verdict
1.6.1.2	Equipment intended for connection to a d.c. power (mains) distribution system is subject to special circuit classification requirements (e.g., TNV-2)	TNV-2	Pass
1.6.1.2	Earthing of d.c. powered equipment provided.		N/A
1.7	Lamp replacement information indicated on lampholder in operator access area.		N/A
1.7.1	Special marking format for equipment intended for use on a supply system with an earthed neutral and more than one phase conductor.		N/A
1.7.1	Equipment voltage rating not higher than rating of the plug except under special conditions.		N/A
1.7.6	Special fuse replacement marking for operator accessible fuses.		N/A
1.7.7	Identification of terminal connection of the equipment earthing conductor.		Pass
1.7.7	Connectors and field wiring terminals for external Class 2 or Class 3 circuits provided with marking indicating minimum Class of wiring to be used.		N/A
1.7.7	Marking located adjacent to terminals and visible during wiring.		N/A
2.1.1	Screw shell of Edison-base lampholder tied to the neutral conductor.		N/A
2.1.1.1	Bare TNV conductive parts in the interior of equipment normally protected against contact by a cover intended for occasional removal are exempt provided instructions include directions for disconnection of TNV prior to removal of the cover.		N/A
2.3.1.b	Other telecommunication signaling systems (e.g., message waiting) than described in 2.3.1(b) are subject to M.4.		N/A
2.3.1.b	For TNV-2 and TNV-3 circuits with other than ringing signals and with voltages exceeding 42.4 Vp or 60 V d.c., the maximum current limit through a 2000 Ohm or greater resistor with loads disconnected is 7.1 mA peak or 30 mA d.c. under normal conditions.		N/A
2.3.1.b	Limits for measurements across 5000 ohm resistor in the event of a single fault are replaced after 200 ms with the limits of M.3.1.4.		N/A

IEC 60950-1			
SubClause	Difference + Test	Result - Remark	Verdict
2.3.2	Enamel coating on signal transformer winding wire allowed as an alternative to Basic insulation in specific telecommunication applications when subjected to special construction requirements and routine testing.		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.		N/A
2.5	Overcurrent protection device required for Class 2 and Class 3 limiting in accordance with the NEC, or for a Limited Power Source, not interchangeable with devices of higher ratings if operator replaceable.		N/A
2.6	Equipment having receptacles for output a.c. power connectors generated from an internal separately derived source have the earthed (grounded) circuit conductor suitably bonded to earth.		N/A
2.6.3.3	For Pluggable Equipment Type A, if neither a) or b) are applicable, the current rating of the circuit is taken as 20 A.		Pass
2.6.3.4	Capacity of connection between earthing terminal and parts required to be earthed subject to special conditions based on the current rating of the circuit.		N/A
2.6.3.4	Protective bonding conductors and their terminals of non-standard constructions (e.g. PWB traces) evaluated to limited short-circuit test of CSA C22.2 No.0.4.		N/A
2.6.4.1	Field wiring terminals for earthing conductors suitable for wire sizes (gauge) used in US and Canada.		Pass
2.7.1	Data for selection of special external branch circuit overcurrent devices marked on the equipment.	Instructions for selection of overcurrent protection (maximum 35 A Listed DC breaker) is provided in the manual and a manual reference marking is placed on the equipment.	Pass
2.7.1	Standard supply outlets protected by overcurrent device in accordance with the NEC, and CEC, Part 1.		N/A
2.7.1	Overcurrent protection for individual transformers that distribute power to other units over branch circuit wiring.		N/A

IEC 60950-1			
SubClause	Difference + Test	Result - Remark	Verdict
2.7.1	Additional requirements for overcurrent protection apply to equipment provided with panelboards.		N/A
2.7.1	Non-motor-operated equipment requiring special overcurrent protective device marked with device rating.		N/A
2.10.5.4	Multi-layer winding wire subject to UL component wire requirements in addition to 2.10.5.4 and Annex U.	Investigated as an element of power supply certification.	N/A
3.1.1	Permissible combinations of internal wiring/external cable sizes for overcurrent and short circuit protection.		Pass
3.1.1	All interconnecting cables protected against overcurrent and short circuit.		Pass
3.2	Wiring methods permit connection of equipment to primary power supply in accordance with the NEC and CEC, Part 1.		Pass
3.2.1	Permitted use for flexible cords and plugs.		Pass
3.2.1	Flexible cords provided with attachment plug rated 125% of equipment current rating.		Pass
3.2.1	Any Class II equipment provided with 15 or 20 A standard supply outlets, Edison-base lampholders or single pole disconnect device provided with a polarized type attachment plug.		N/A
3.2.1.2	Equipment intended for connection to DC mains supply power systems complies with special wiring requirements (e.g., no permanent connection to supply by flexible cord).		Pass
3.2.1.2	Equipment with one pole of the DC mains supply connected to both the equipment mains input terminal and the main protective earthing terminal provided with special instructions and construction provisions for earthing		N/A
3.2.1.2	Equipment with means for connecting supply to earthing electrode conductor has no switches or protective devices between supply connection and earthing electrode connection.		Pass
3.2.1.2	Special markings and instructions for equipment with provisions to connect earthed conductor of a DC supply circuit to earthing conductor at the equipment.		N/A

IEC 60950-1			
SubClause	Difference + Test	Result - Remark	Verdict
3.2.1.2	Special markings and instructions for equipment with earthed conductor of a DC supply circuit connected to the earthing conductor at the equipment.		N/A
3.2.1.2	Terminals and leads provided for permanent connection of DC powered equipment to supply marked to indicate polarity if reverse polarity may result in a hazard.		Pass
3.2.3	Permanently connected equipment has provision for connecting and securing a field wiring system (i.e. conduit, or leads etc.) per the NEC and CEC, Part 1.		Pass
3.2.3	Permanently connected equipment may have terminals or leads not smaller than No. 18 AWG (0.82 mm ²) and not less than 152 mm in length for connection of field installed wiring.		Pass
3.2.3	If supply wires exceed 60 °C, marking indicates use of 75 °C or 90 °C wiring for supply connection as appropriate.		N/A
3.2.3	Equipment compatible with suitable trade sizes of conduits and cables.		Pass
3.2.5	Length of power supply cord limited to between 1.5 and 4.5 m unless shorter length used when intended for a special installation.		Pass
3.2.5	Conductors in power supply cords sized according to NEC and CEC, Part I.		Pass
3.2.5	Power supply cords and cord sets incorporate flexible cords suitable for the particular application.		Pass
3.2.6	Strain relief provided for non-detachable interconnecting cables not supplied by a limited power source.		N/A
3.2.9	Adequate wire bending space and volume of field wiring compartment required to properly make the field connections.		N/A
3.2.9	Equipment intended solely for installation in Restricted Access Locations using low voltage d.c. systems may not need provision for connecting and securing a field wiring system. A method of securing wiring or instructions provided to ensure the wiring is protected from abuse.		N/A
3.3	Field wiring terminals provided for interconnection of units for other than LPS or Class 2 circuits also comply with 3.3.		N/A

IEC 60950-1			
SubClause	Difference + Test	Result - Remark	Verdict
3.3	Interconnection of units by LPS or Class 2 conductors may have field wiring connectors other than those specified in 3.3 if wiring is reliably separated.		N/A
3.3.1	Terminals for the connection of neutral conductor identified by a distinctive white marking or other equally effective means.		Pass
3.3.3	Wire binding screw terminal permitted for connection of No. 10 AWG (5.3 mm ²) or smaller conductor if provided with upturned lugs, cupped washer or equivalent retention.		N/A
3.3.4	Terminals accept wire sizes (gauge) used in the U.S. and Canada.		N/A
3.3.4	Terminals accept current-carrying conductors rated 125% of the equipment current rating.		N/A
3.3.6	Field wiring terminals marked to indicate the material(s) of the conductor appropriate for the terminals used.		N/A
3.3.6	Connection of an aluminum conductor not permitted to terminal for equipment earthing conductor.		N/A
3.3.6	Field wiring connections made through the use of suitable pressure connectors (including set screw type), solder lugs or splices to flexible leads.		N/A
3.4.2	Separate motor control device(s) required for cord-connected equipment rated more than 12 A, or with motor rated more than 1/3 hp or more than 120 V.		N/A
3.4.8	Vertically mounted disconnect devices oriented so up position of handle is "on".		N/A
3.4.11	For computer-room applications, equipment with battery systems capable of supplying 750 VA for 5 min require battery disconnect means.		N/A
4.2.8.1	Special opening restrictions for enclosures around CRTs with face dimension of 160 mm or more.		N/A
4.2.9	Compartment housing high-pressure lamp marked to indicate risk of explosion.		N/A
4.3.2	Loading test for equipment with handle(s) used to support more than 9 kg tested at four times the weight of the unit.		N/A
4.3.6	In addition to the IEC requirements, Direct Plug-in Equipment complies with UL 1310 or CSA 223 mechanical assembly requirements.		N/A

IEC 60950-1			
SubClause	Difference + Test	Result - Remark	Verdict
4.3.12	The maximum quantity of flammable liquid stored in equipment complies with ANSI/NFPA 30(Table NAE.6).		N/A
4.3.12	Equipment using replenishable liquids marked to indicate type of liquid to be used.		N/A
4.3.13.2	Equipment that produces x-radiation and does not comply with 4.3.12 under all conditions of servicing marked to indicate the presence of radiation where readily visible.		N/A
4.3.13.5	Requirements contained in the applicable national codes and regulations apply to lasers (21 CFR 1040 and REDR C1370).		N/A
4.7	Automated information storage equipment intended to contain more than 0.76 mm ³ of combustible media requires provision for automatic sprinklers or a gaseous agent extinguishing system.		N/A
4.7.3.1	Equipment for use in environmental air space other than ducts or plenums provided with metal enclosure or with non-metallic enclosure having adequate fire-resistance and low smoke producing characteristics. Low smoke-producing characteristics evaluated according to UL 2043. Equipment for installation in space used for environmental air as described in Sec. 300-22(c) of the NEC provided with instructions indicating suitability for installation in such locations.		N/A
4.7.3.1	Flame spread rating for external surface of combustible material with exposed area greater than 0.93 m ² or a single dimension greater than 1.8 m; 50 or less for computer room applications or 200 or less for other applications.		N/A
4.7.3.4	Wire marked "VW-1" or "FT-1" considered equivalent.		Pass
5.1.8.2	Special earthing provisions and instructions for equipment with high touch current due to telecommunication network connections.		N/A
5.1.8.3	Touch current due to ringing voltage for equipment containing telecommunication network leads.		N/A
5.3.6	Overloading of SELV connectors and printed wiring board receptacles accessible to the operator.		Pass
5.3.6	Tests interrupted by opening of a component repeated two additional times.		Pass

IEC 60950-1			
SubClause	Difference + Test	Result - Remark	Verdict
5.3.8.1	Test interrupted by opening of wire or trace subject to certain conditions.		N/A
6	Specialized instructions provided for telephones that may be connected to a telecommunications network.		N/A
6	Marking identifying function of telecommunication type connectors not used for connection to a telecommunication network.		N/A
6.2.1	Special requirements for enameled wiring used as electrical separation provided between parts connected to telecommunication network and telecommunication circuitry intentionally isolated from network.		N/A
6.2.1	Digital line termination equipment (e.g., NCTE) subject to separation requirements.		N/A
6.3	Equipment remotely powered over telecommunication wiring systems provided with specialized markings adjacent to the connection.		N/A
6.3	Overcurrent protection incorporated into equipment to provide power over telecommunication wiring system not interchangeable with devices of higher ratings if operator replaceable.		N/A
6.4	Additional requirements for equipment intended for connection to a telecommunication network using cable subject to overvoltage from power line failures (Fig. 6C).		N/A
6.4	Where 26 AWG line cord required by Fig. 6C, either the cord is provided with the equipment or described in the safety instructions.		N/A
6.5	Acoustic pressure from an ear piece less than 136 dBA for short duration disturbances, and less than 125 dBA for handsets, 118 dBA for headsets, and 121 dBA for insert earphones, for long duration disturbances.		N/A
7	Equipment associated with the cable distribution system may need to be subjected to applicable parts of Chapter 8 of the NEC.		N/A
H	Ionizing radiation measurements made under single fault conditions in accordance with the requirements of the Code of Federal Regulations 21 CFR 1020 and the Canadian Radiation Emitting Devices Act, REDR C1370.		N/A

IEC 60950-1			
SubClause	Difference + Test	Result - Remark	Verdict

M.2	Continuous ringing signals evaluated to Method A subjected to special accessibility considerations.		N/A
M.4	Special requirements for message waiting and similar telecommunications signals.		N/A
NAC	Equipment intended for use with a generic secondary protector marked with suitable instructions.		N/A
NAC	Equipment intended for use with a specific primary or secondary protector marked with suitable instructions.		N/A

IEC 60950-1			
SubClause	Difference + Test	Result - Remark	Verdict

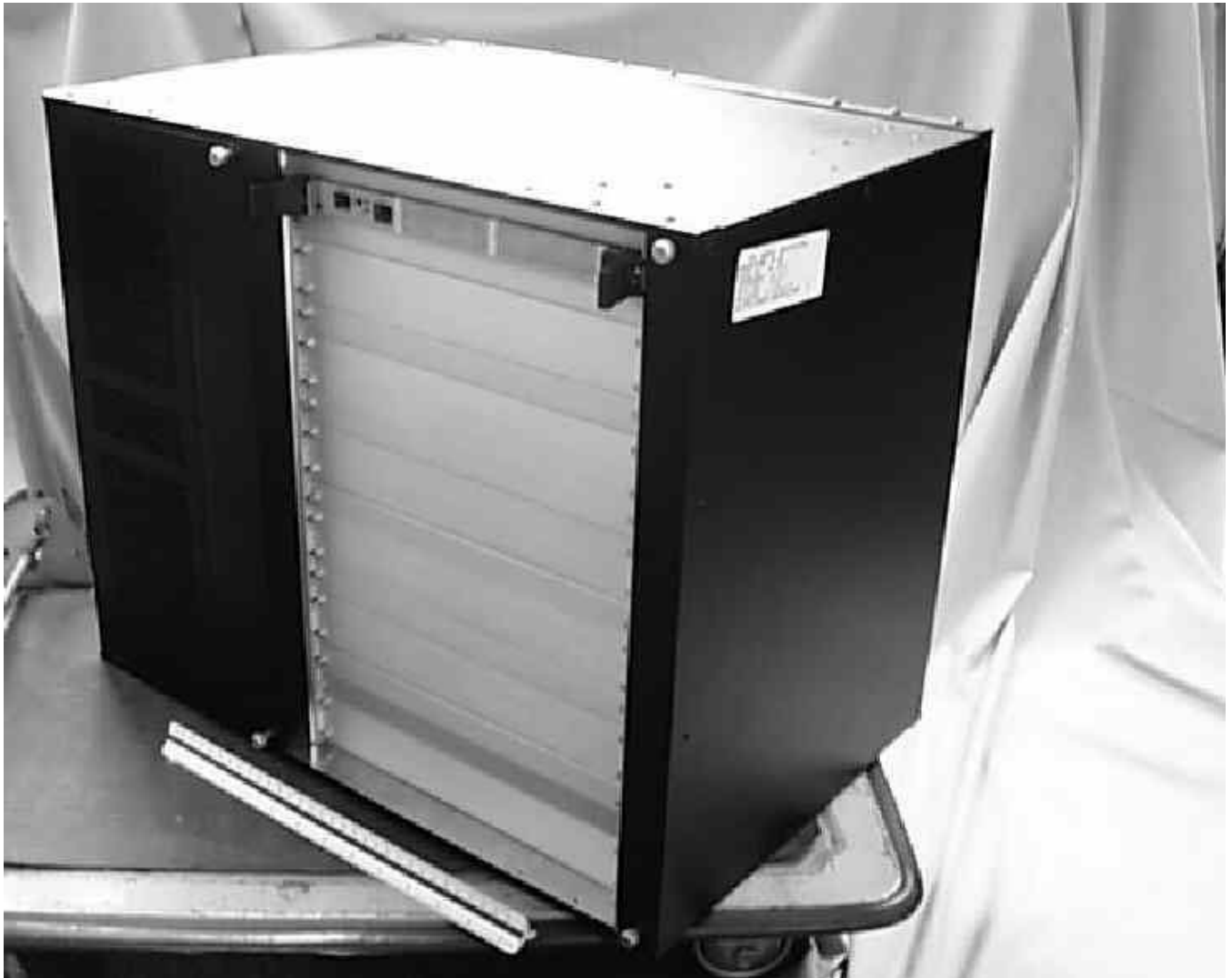
United Kingdom - Differences to IEC 60950-1:2001, First Edition			
2.6.3.3	The current rating of the circuit shall be taken as 13 A, not 16 A.		N/A
2.7.1	To protect against excessive currents and short-circuits in the primary circuit of direct plug-in equipment, protective device shall be included as integral parts of the direct plug-in equipment.		N/A
3.2.1.1	Apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS 1363 by means of that flexible cable or cord and plug, shall be fitted with a "standard plug" in accordance with Statutory Instrument 1786: 1994 - The Plugs and Sockets etc. (Safety) Regulations 1994, unless exempted by those regulations. NOTE: "Standard plug" is defined in SI 1786: 1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.		N/A
3.2.5.1	A power supply cord with conductor of 1.25 mm ² is allowed for equipment with a rated current over 10A and up to and including 13A.		N/A
3.3.4	The range of conductor sizes of flexible cords to be accepted by terminals for equipment with a rated current of over 10 A up to and including 13 A is 1.25 mm ² to 1.5 mm ² nominal cross-sectional area.		N/A
4.3.6	The torque test is performed using a socket outlet complying with BS 1363 and the plug part of Direct Plug-In Equipment shall be assessed to BS 1363: Part 1, 12.1, 12.2, 12.3, 12.9, 12.11, 12.12, 12.16 and 12.17, except that the test of 12.17 is performed at not less than 125 °C.		N/A

Enclosure**Photographs**

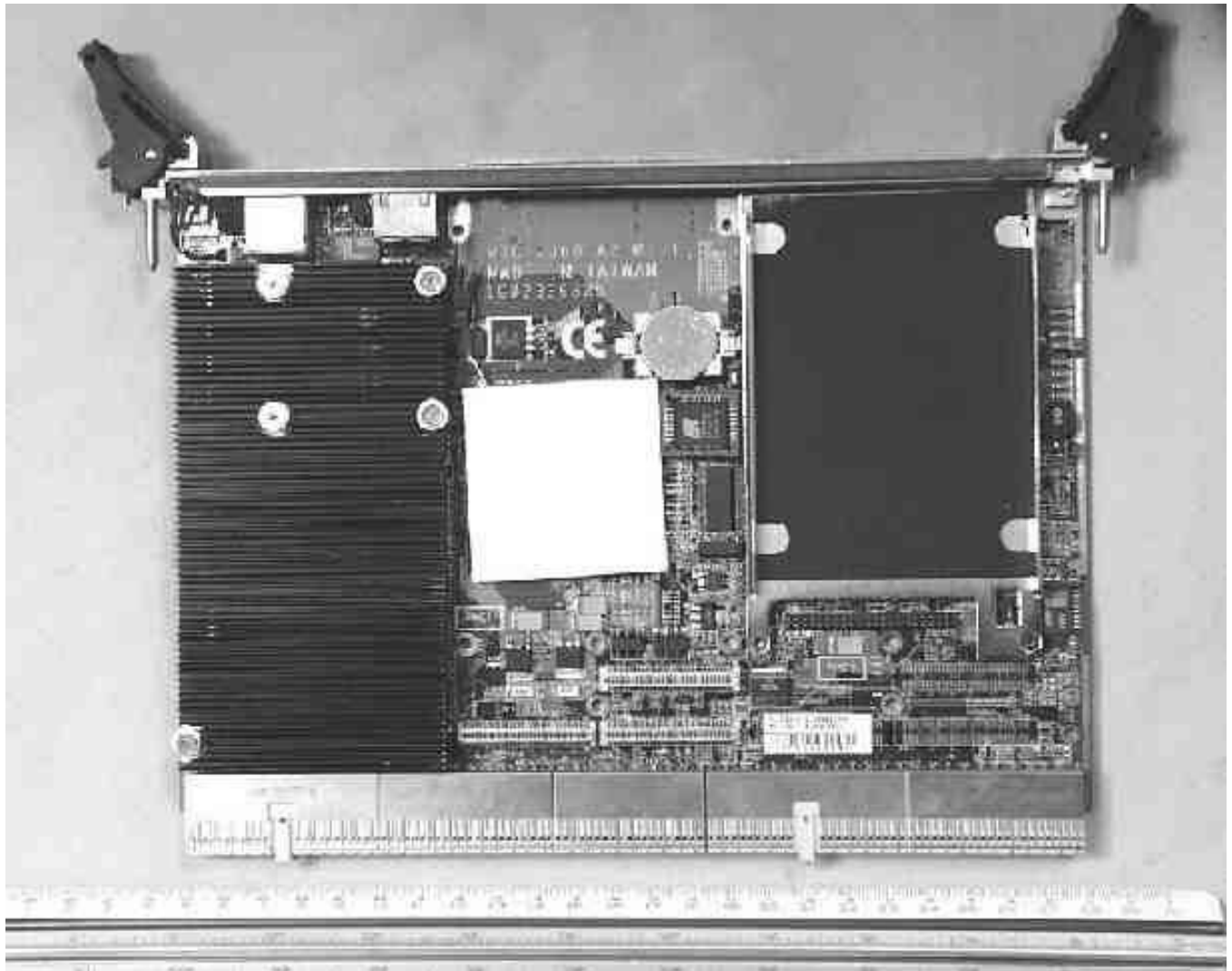
(Total 8 Pages including this Cover Page)

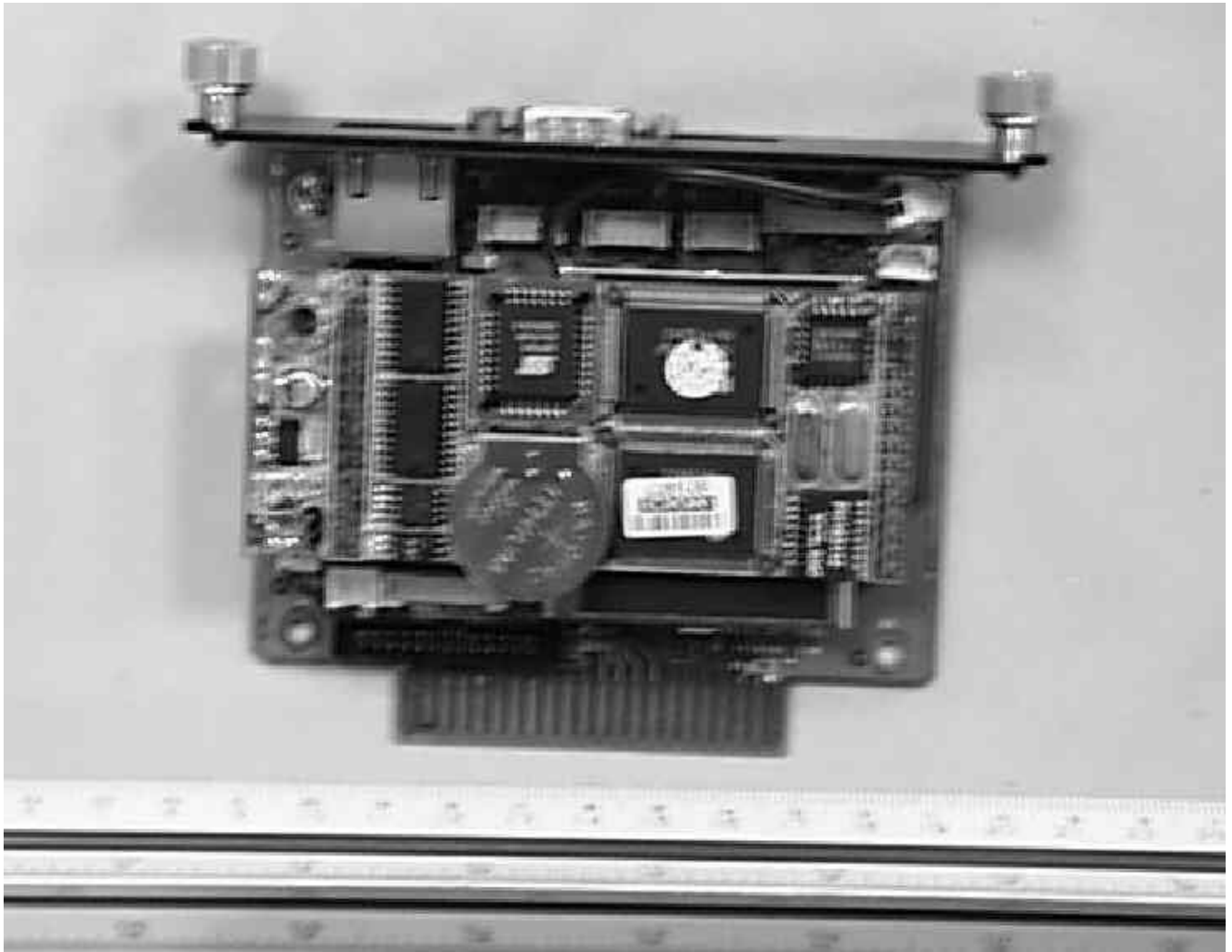
Supplement Id	Description
3-01	Overall front view of subject unit
3-02	Overall rear view of subject unit
3-03	interior view of subject unit
3-04	interior view of CPCI Board module
3-06	interior view of Battery Backup Module
3-07	interior view of I/O Module
3-08	Overall view

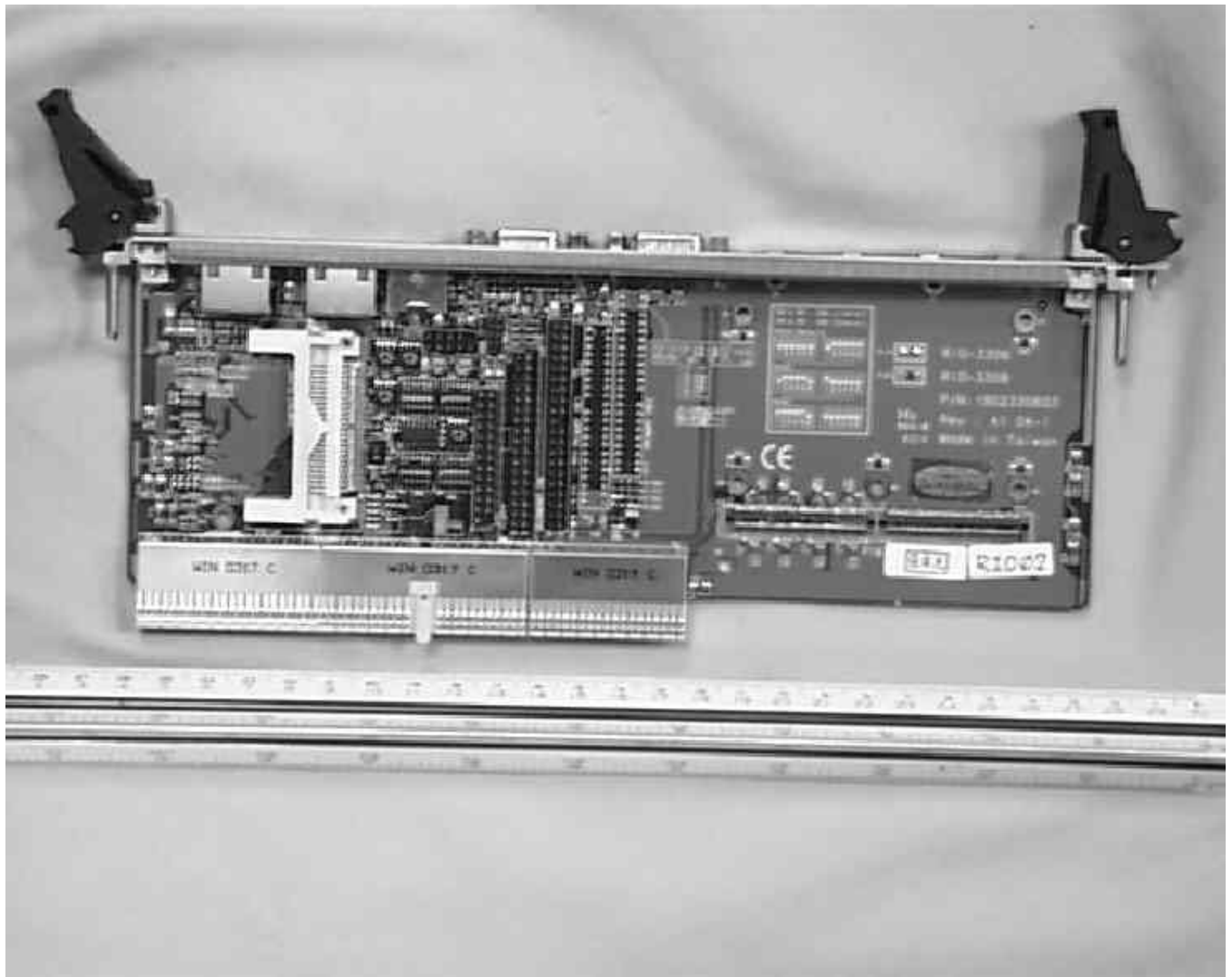


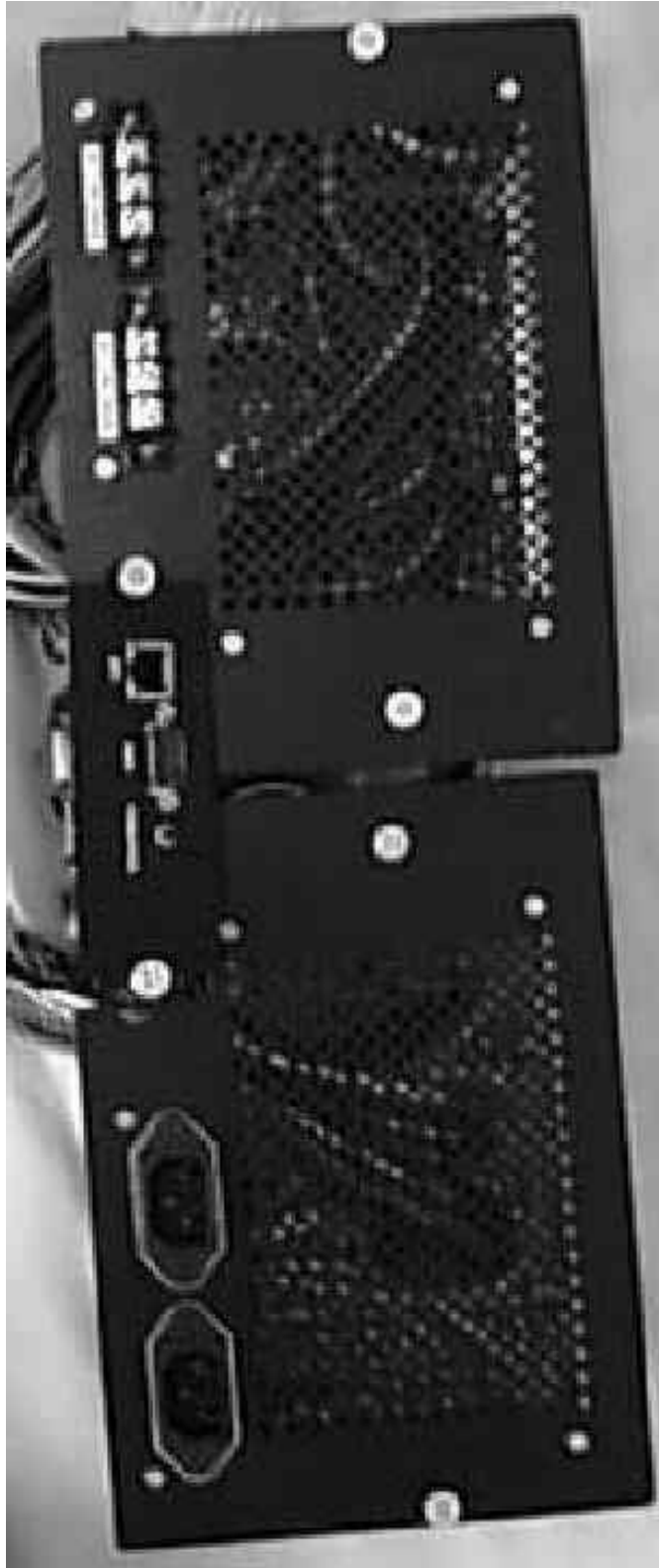








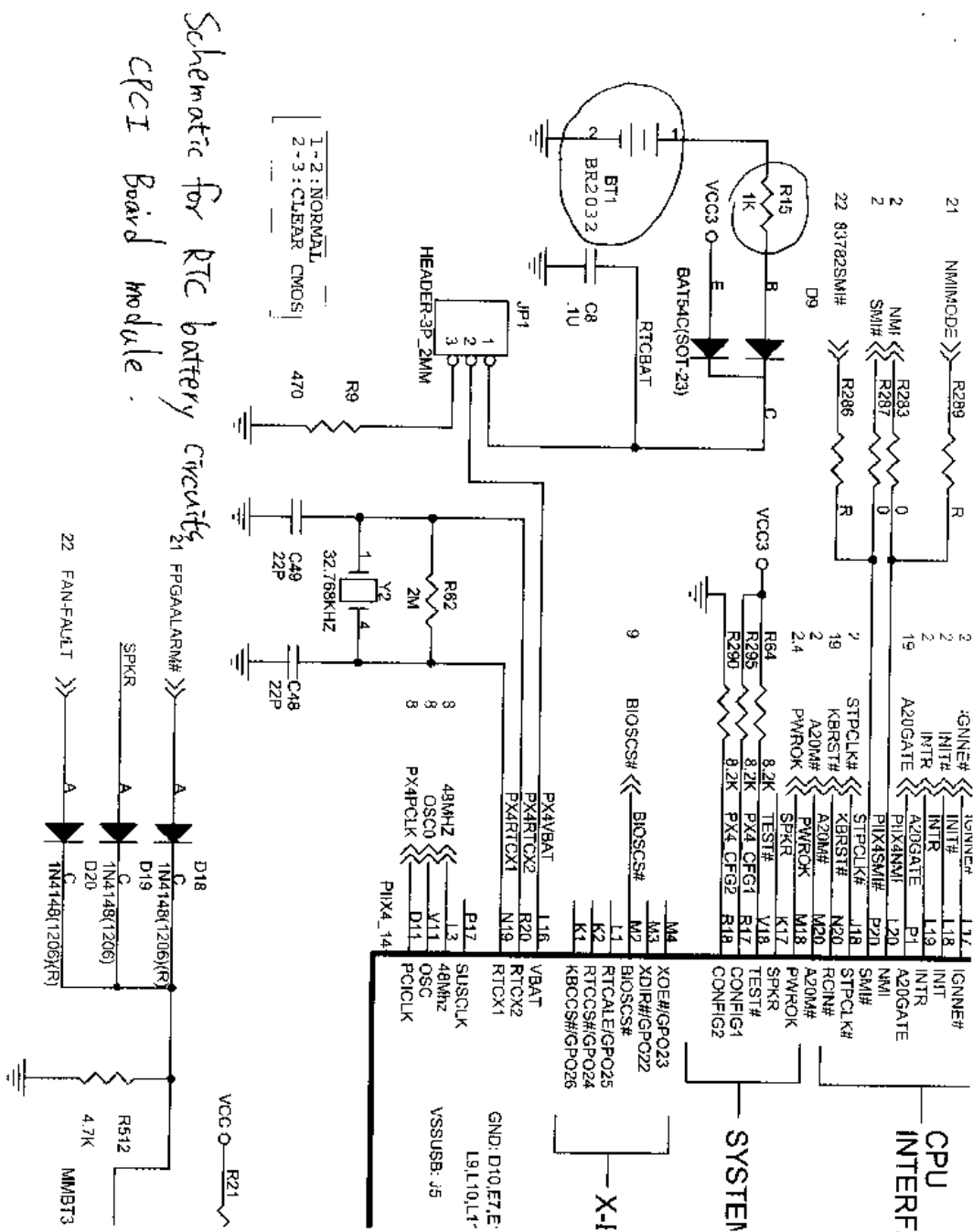


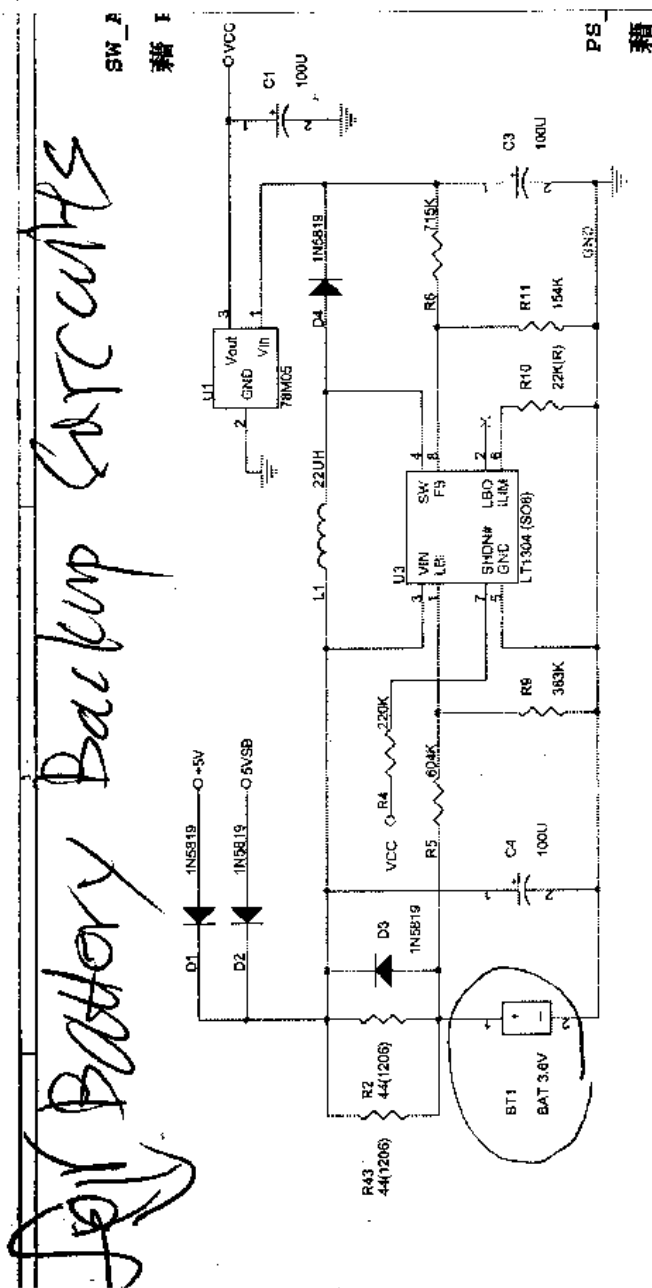


Enclosure
Schematics + PWB

(Total 7 Pages including this Cover Page)

Supplement Id	Description
5-02	RTC Battery Schematic
5-03	Ni-Mh Battery Backup Schematics
5-04	COM2, VGA and PS2 Modules Circuits

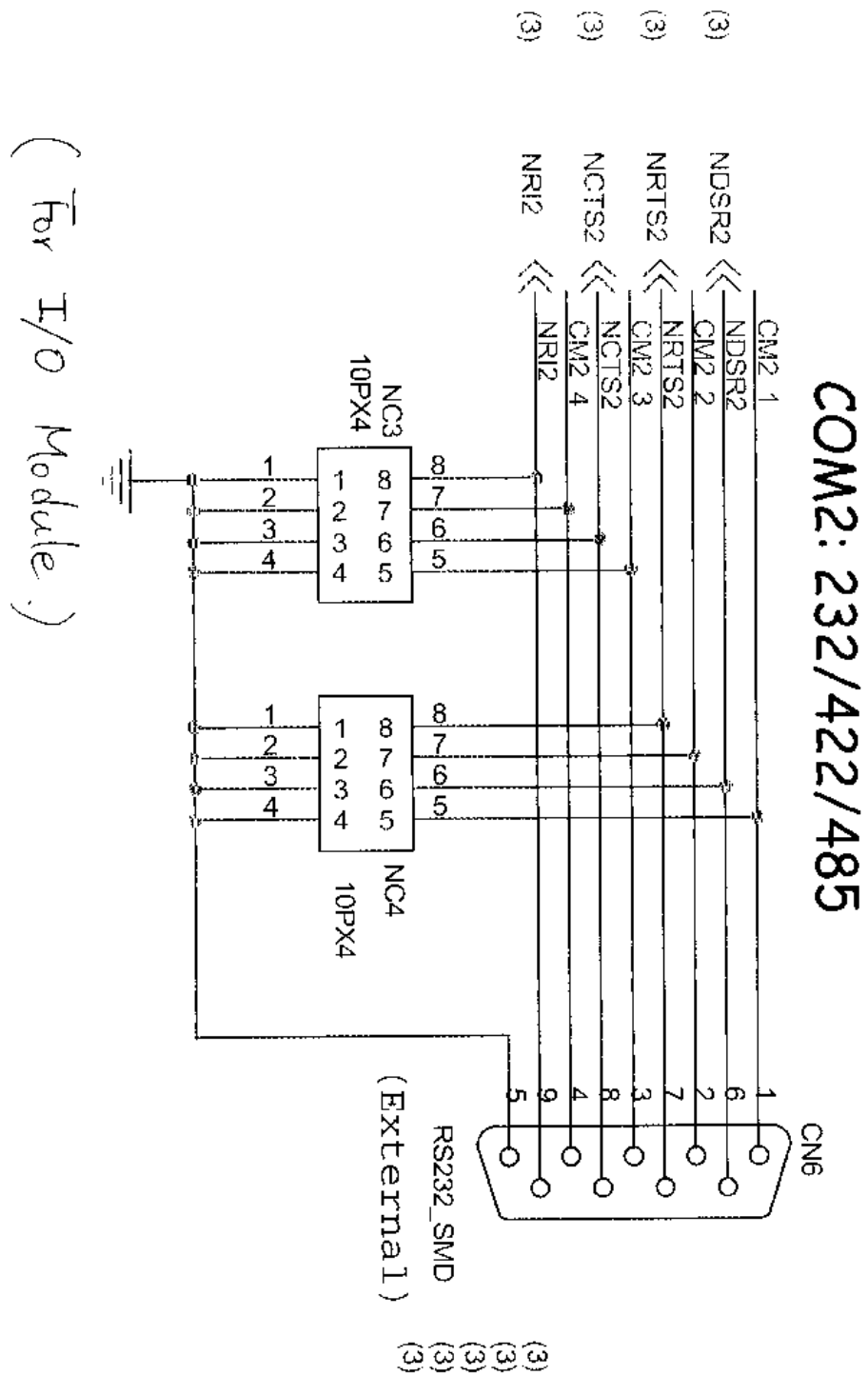


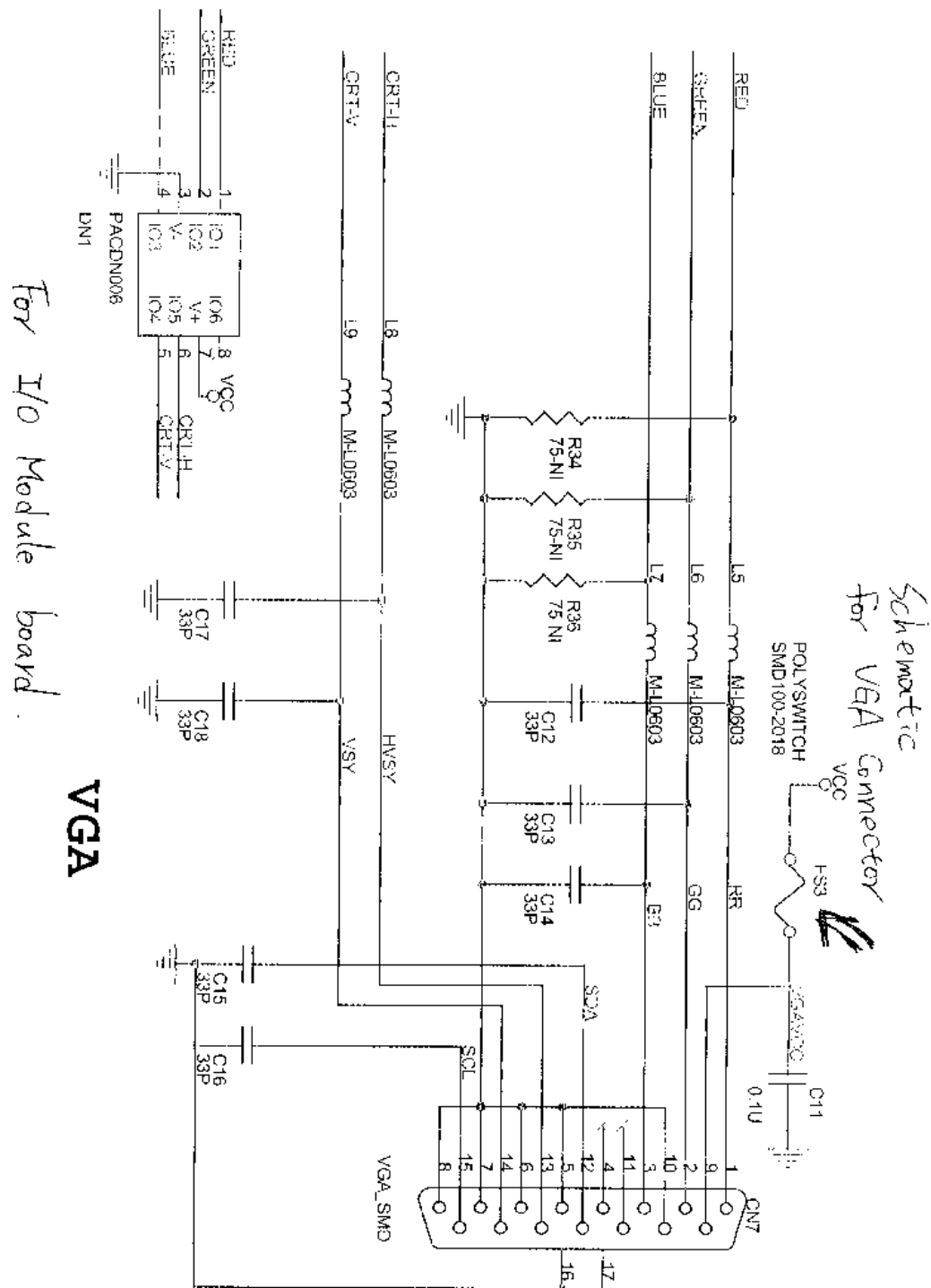


Working Power

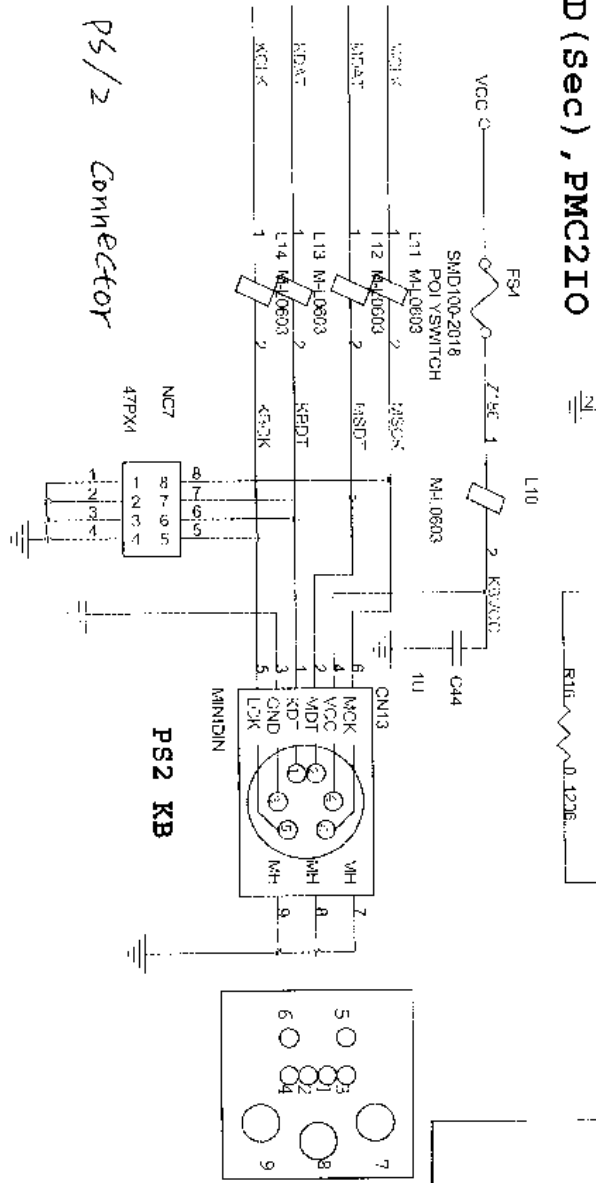
for Battery Backup Module board.

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J5: LAN, PS2, HDD (Sec), PMC2IO LAN LED



Enclosure**Miscellaneous**

(Total 4 Pages including this Cover Page)

Supplement Id	Description
7-01	Label for AC/DC Input
7-02	Label for AC Input
7-03	Label for DC Input

AC/DC

ADVANTECH**MADE IN TAIWAN**<http://www.advantech.com>**Model No: MIC-3082ADXXXXXXXXX****Input: AC 100-240Vac, 50/60Hz, 12A****DC — 38~72Vdc, 22A****FCC****T1**

*This device complies with Part 15 of the FCC Rules.
Operation is subject to the following two conditions:
(1) this device must not cause harmful interference, and
(2) this device must accept any interference received,
including interference that may cause undesired
operation.*

CAUTION!!

To prevent shock. Do not remove cover. No user
serviceable parts inside. Refer servicing to qualified
personnel.

AC

ADVANTECH**MADE IN TAIWAN****<http://www.advantech.com>****Model No: MIC-3082ACXXXXXXXX****Input: AC 100-240Vac, 50/60Hz, 12A****FCC****T1**

*This device complies with Part 15 of the FCC Rules.
Operation is subject to the following two conditions:
(1) this device must not cause harmful interference, and
(2) this device must accept any interference received,
including interference that may cause undesired
operation.*

CAUTION!!

To prevent shock. Do not remove cover. No user
serviceable parts inside. Refer servicing to qualified
personnel.

DC

ADVANTECH**MADE IN TAIWAN****<http://www.advantech.com>****Model No: MIC-3082DCXXXXXXXX****Input: DC — — 38~72Vdc, 22A****FCC****T1**

*This device complies with Part 15 of the FCC Rules.
Operation is subject to the following two conditions:
(1) this device must not cause harmful interference, and
(2) this device must accept any interference received,
including interference that may cause undesired
operation.*

CAUTION!!

To prevent shock. Do not remove cover. No user serviceable parts inside. Refer servicing to qualified personnel.

Enclosure**Licenses**

(Total 5 Pages including this Cover Page)

Supplement Id	Description
8-01	AC/DC Power Supply CB Certificates

**INTERNATIONAL ELECTROTECHNICAL
COMMISSION (IEC)
COMMISSION ELECTROTECHNIQUE
INTERNATIONALE (CEI)**

Ref. Certif. No.

JFTUV-002921

**IEC SYSTEM FOR CONFORMITY TESTING
AND CERTIFICATION OF ELECTRICAL
EQUIPMENT (IECEE)
CB SCHEME**

**SYSTÈME CEI D'ESSAIS DE CONFORMITÉ
ET DE CERTIFICATION DES ÉQUIPEMENTS
ÉLECTRIQUE (IECEE)
MÉTHODE OC**

CB TEST CERTIFICATE CERTIFICAT D'ESSAI OC

Product
Produit

Name and address of the applicant
Nom et adresse du demandeur

Name and address of the manufacturer
Nom et adresse du fabricant

Name and address of the factory
Nom et adresse de l'usine

Rating and principal characteristics
Valeurs nominales et caractéristiques principales

Trade mark (if any)
Marque de fabrique (si elle existe)

Model/type Ref.
Ref. de type

Additional information (if necessary)
Information complémentaire (si nécessaire)

A sample of the product was tested and found
to be in conformity with
Un échantillon de ce produit a été essayé et a été
considéré conforme à la

as shown in the Test Report Ref. No.
which form part of this certificate
comme indiqué dans le Rapport d'essais numéro
de référence
qui constitue une partie de ce certificat

This CB Test Certificate is issued by the National Certification Body
Ce Certificat d'essai OC est établi par l'Organisme National de Certification

Switching Power Supply

Power Research Technology Co., Ltd.
2FL, No. 3, Chung-Sin St.
SHUOH-LIN TOWN, TAIPEI HSIEN 238, TAIWAN, R.O.C.

Power Research Technology Co., Ltd.
2FL, No. 3, Chung-Sin St.
SHUOH-LIN TOWN, TAIPEI HSIEN 238, TAIWAN, R.O.C.

Power Research Technology Co., Ltd.
2FL, No. 3, Chung-Sin St.
SHUOH-LIN TOWN, TAIPEI HSIEN 238, TAIWAN, R.O.C.

Input rating : DC 3A to 72V
Input current : refer to the test report
Output rating : refer to the test report
Protection class : I
PRT

PRDab-zz, PSDxy-zz
a, b, x, y, z = refer to the test report

For differences between the models, refer to the test
report.

PUBLICATION

EDITION

IEC 60950:1991 + A1 + A2 + A3 + A4
Inclusive CENELEC Common Modifications
National differences see test report

02150789 001



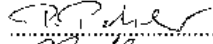
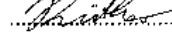
TUV Rheinland Japan Ltd.
3-18-3 Shinjuku-ku
200-0033 Japan




Date: 2004-06-29

Signature

Dr. Ing. M. Hentschmann

Issue 1999-09

TEST REPORT	
IEC 60950	
Safety of information technology equipment	
Report reference No.	02160789 001
Compiled by (+ signature)	P. Petschning 
Approved by (+ signature)	C. Rüther 
Date of issue	May 15, 2001
Testing laboratory	TÜV Rheinland Japan Ltd., Yokohama Laboratories
Address	Festo Bldg. 5F, 1-28-10 Hayabuchi, Tsuzuki-Ku, Yokohama 224-0025, Japan
Testing location	TÜV Rheinland Japan Ltd., Yokohama Laboratories
Applicant	Power Research Technology Co., Ltd.
Address	2Fl. No. 3, Chung-Sin St., Shuuh-Lin Town, Taipei Hsien, Taiwan, R.O.C.
Standard	IEC 60950:1991 + A1:1992 + A2:1993 + A3:1995 + A4:1996 EN 80960:1992 + A1:1993 + A2:1993 + A3:1995 + A4:1997 + A11:1997 EMKO-TSE(74-SEC)207/94, UL 1950, C22.2 No. 950 3 rd edition, AS 3260
Test Report Form No.	1950_D/97-06
TRF originator	FIMKO
Master TRF	reference No. 1950_D, dated 9/-02
Copyright blank test report	the bodies participating in the Committee of Certification Bodies (CCB) and/or the CENELEC Certification Agreement (CCA). This report is based on a blank test report that was prepared by KEMA using information obtained from the TRF originator.
Test procedure	CB Scheme
Procedure deviation	Australia, Austria, Belgium, Canada, China, The Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, India, Ireland, Israel, Italy, Japan, Rep. of Korea, The Netherlands, Norway, Poland, Russian Fed., Singapore, Slovakia, Slovenia, South Africa, Spain, Sweden, Switzerland, United Kingdom, USA
Non-standard test method	N.A.
This report is not valid as a CB Test Report unless appended to a CB Test Certificate issued by a NCB, in accordance with IEC 60950-2	
Type of test object	Switching Power Supply
Trademark	PRT
Model/type reference	PRDab-zz, PSDxy-zz (a= 170, 230, 300, 560, 840; b= SV, SH, RV, RH, MV, MH; x= 170, 230, 300; y= C, U, D, E, G, H, S, R, M; z= 0-9, A-Z or blank) See page 2 for details and exceptions, if no zz is used the ~- also will be omitted.
Manufacturer	Same as applicant
Factory	Same as applicant
Rating	i/p and o/p see page 2

		Ref. Certif. No. JPTUV-006101	
IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST CERTIFICATES FOR ELECTRICAL EQUIPMENT IECB ET C.B. SCHEME		SYSTEME D'ACCEPTATION MUTUELLE DE CERTIFICATS D'ESSAIS DES EQUIPEMENTS ELECTRIQUES METHODE IEC	
CB TEST CERTIFICATE CERTIFICAT D'ESSAI OC			
Product Produit	Switching Power Supply		
Name and address of the applicant Nom et adresse du demandeur	Power Research Technology Co., Ltd. 2Fl., No. 3, Chung-Sin St. Shuoh-Lin Town, Taipei Hsien 238 Taiwan		
Name and address of the manufacturer Nom et adresse du fabricant	Power Research Technology Co., Ltd. 2Fl., No. 3, Chung-Sin St. Shuoh-Lin Town, Taipei Hsien 238 Taiwan		
Name and address of the factory Nom et adresse de l'usine	Power Research Technology Co., Ltd. 2Fl., No. 3, Chung-Sin St. Shuoh-Lin Town, Taipei Hsien 238 Taiwan		
Rating and principal characteristics Valeurs nominales et caractéristiques principales	Input Rating: AC 100-120/200-240V or 100-240V, 50/60Hz 4.0/2.0A or 4.0A (for PRA170b-22), refer to the test report Output Rating: refer to the test report Protection Class: I		
Trade mark (if any) Marque de fabrique (si elle existe)	1) PRT 2) XP 3) TOP		
Model/type Ref. Ref. de type	1) PRAab-xx, PSAxy-xx 2) TPR300P5ATX-xx, TPRxP6ATX 3) R9350PM RMV DA PN, R9350PM RVF DA PN For definitions refer to the test report		
Additional information (if necessary) Information complémentaire (si nécessaire)	For differences between the models, refer to the test report		
A sample of the product was tested and found to be in conformity with Un échantillon de ce produit a été essayé et a été considéré conforme à la	PUBLICATION EDITION IEC 60950:1999 Includes CENELEC Common Modifications National differences see test report		
As shown in the Test Report Ref. No. which forms part of this Certificate Comme indiqué dans le Rapport d'essais numéro de référence qui constitue une partie de ce Certificat	12005241 001		
This CB Test Certificate is issued by the National Certification Body Ce Certificat d'essai OC est établi par l'Organisme National de Certification			
 TÜV Rheinland Berlin Brandenburg		TÜV Rheinland Japan Ltd. Shin Yokohama Daiichi Center Bldg. 3-19-5, Shin Yokohama, Kohoku-ku Yokohama 222-0033 Japan Phone: +81 45 470-1850 Fax: +81 45 473-5221 Mail: info@jpn.tuv.com Web: www.tuv.com	
Date: 06.05.2003	Signature:		 Dipl.-Ing. R. Keller

TEST REPORT	
IEC 60950	
Safety of information technology equipment	
Report reference No	<12005241 001>
Compiled by (+ signature)	E. Otsuka <i>E. Otsuka</i>
Approved by (+ signature)	P. Petschnig <i>P. Petschnig</i>
Date of issue	April 29, 2003
Contents	115 pages
Testing laboratory	TÜV Rheinland Japan Ltd., Yokohama Laboratory
Address	Festo Bldg. 5F, 1-26-10 Hayabuchi, Tsuzuki-Ku, Yokohama 224-0025, Japan
Testing location	As above
Applicant	Power Research Technology Co., Ltd.
Address	2FL, No. 3, Chung-Sin St., Shuuh-Lin Town, Taipei Hsien, Taiwan
Standard	IEC 60950:1999 EN 60950:2000 CAN/CSA C22.2 No. 60950/UL 60950 third edition, J60950 (H14), K60950, UL 60950
Test procedure	CB Scheme
Procedure deviation	Argentina, Australia (see note on page 3), Austria, Belgium, Brazil, Canada, China, Czech Republic, Denmark, Finland, France, Germany, Hungary, Ireland, Israel, Italy, Japan, Korea, The Netherlands, Norway, Poland, Portugal, Russian Federation, Singapore, Slovakia, Slovenia, South Africa, Spain, Sweden, Switzerland, Turkey, United Kingdom, United States
Non-standard test method	N.A.
Test Report Form No.	I950 _E/99-08
TRF originator	FIMKO
Master TRF	dated 99-08
Copyright reserved to the bodies participating in the IECEE CB and/or the bodies participating in the CENELEC Certification Agreement (CCA). This report is based on a blank test report that was prepared by FIMKO using information obtained from the TRF originator.	
Type of test object	Switching Power Supply
Trademark	1) PRT 2) XP 3) TOP
Model and/or type reference	1) PRAab-zz, PSAxy-zz (a=170, 230, 300, 350, 560, 650, 840, 1000; b= SV, SH, RV, RH, MV, MH; x= 170, 230, 300, 350; y= C, U, D, E, G, H, S, R, M; z= 0-9, A-Z or blank) if no zz is used the "-" also will be omitted. 2) TPR300P6ATX-xx (xx=0-9, A-Z or blank), TPRxP6ATX (x=170, 230) 3) R6350PM RMF DA PN, R6350PM RVF DA PN
Manufacturer	Same as applicant
Factory	Same as applicant
Rating(s)	See on pages 6 and 7