

**TEST REPORT****IEC 60950****Safety of information technology equipment**

Report reference No. .... : 30480937.001  
 Tested by ..... : Konstantin Samsonov  
 (printed name and signature)  
 Approved by ..... : Paul Catineau  
 (printed name and signature)



Date of issue ..... : 6 May 2004

This report is based on a blank test report that was prepared by FIMKO the TRF originator.

Testing Laboratory Name ..... : TUV Rheinland of North America, Inc.  
 Address ..... : 12 Commerce Road, Newtown, CT 06470  
 Testing location ..... : TUV Rheinland of North America, Inc.  
 12 Commerce Road, Newtown, CT 06470

Applicant's Name ..... : VCON Ltd.  
 Address ..... : 22 Maskit St., Hertzlia 46733, Israel

**Test specification**

Standard ..... : IEC 60950, 3<sup>rd</sup> Edition (1999), EN 60950:2000,  
 UL60950:2000, CAN/CSA C22.2 No 60950-00  
 Test procedure ..... : CB scheme, cTUVus  
 Procedure deviation ..... : Group, National: AR, AT, AU, BE, BR, CA, CH, CN, CZ, DE,  
 DK, ES, FI, FR, GB, HU, IE, IL, IT, JP, KR, MY, NL, NO, PL,  
 PT, RU, SE, SI, SK, SG, TR, UA, US, ZA  
 Non-standard test method ..... : N.A.

**Test Report Form**

Test Report Form No. .... : I950\_\_F/00-03  
 TRF originator ..... : FIMKO  
 Master TRF ..... : dated 00-02

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Test item description ..... : Video Conferencing System  
 Trademark ..... : VCON  
 Model and/or type reference ..... : HD3000  
 Manufacturer ..... : RH Electronics  
 Factory ..... : RH Electronics, Industrial area Har Yona POB 740, Upper  
 Nazareth 17000 Israel

Rating(s) ..... : +5V, 7A/ +12V, 3A

**Particulars: test item vs. test requirements**

Equipment mobility .....: movable  
 Operating condition .....: continuous  
 Mains supply tolerance (%) .....: +10%/-10%  
 Tested for IT power systems .....: N  
 IT testing, phase-phase voltage (V) : N  
 Class of equipment .....: Class III  
 Mass of equipment (kg).....: 3Kg  
 Protection against ingress of water .....: IPX0

**Test case verdicts**

Test case does not apply to the test object : N  
 Test item does meet the requirement .....: P  
 Test item does not meet the requirement .....: F

**Testing**

Date of receipt of test item .....: 19 Feb. 2004  
 Date(s) of performance of test .....: 31 March 2004

**General remarks**

"This report is not valid as a CB Test Report unless appended to a CB Test Certificate issued by a National Certification Body (NCB), in accordance with IEC 60730-2".

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

The test results presented in this report relate only to the item(s) tested.

"See remark #" refers to a remark appended to the report.

"See Annex #" refers to an annex appended to the report.

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

Copy of marking plate and summary of test results (information/comments):

 <p><b>HD3000 VCON</b>            P/N: HD3000MN S/N: 14110081            MODEL: HD3000 NTSC            产品名称/型号: HD3000 NTSC            DC INPUT: +5V,7A / +12V,3A ===            电源: +5V,7A / +12V,3A ===            Mac.Address No.:00.D0.E7.10.57.A7            This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:            (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.            This Class A digital apparatus complies with Canadian ICES-003.  <b>CAUTION: Intended for use in protected environment only.</b>  <b>CAUTION: Warranty void if opened.</b>            Made in Israel by VCON Ltd.</p>	 <p><b>HD3000 VCON</b>            P/N: HD3000MP S/N: 14110005            MODEL: HD3000 PAL            产品名称/型号: HD3000 PAL            DC INPUT: +5V,7A / +12V,3A ===            电源: +5V,7A / +12V,3A ===            Mac.Address No.:00.D0.E7.08.43.T8            This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:            (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.            This Class A digital apparatus complies with Canadian ICES-003.  <b>CAUTION: Intended for use in protected environment only.</b>  <b>CAUTION: Warranty void if opened.</b>            Made in Israel by VCON Ltd.</p>
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### Summary of test results (information/comments):

Videoconferencing System

Unit is a communication set-top appliance that operates over both IP and ISDN networks.

- Unit consists of a plastic enclosure with internal metallic shielding.
- Unit is for multimedia IP telephony applications.
- Unit includes Data interfaces, USB and VCR connectors. All regarded as SELV.
- Remote Control model RC-FIP for unit powered by two batteries 1.5V each one, Alkaline only. Suitable marking is provided
- Unit is class III and is provided with an external approved power supply, which does not have to be power limited, However, functional earthing may be provided by external power supply.

Unit tested for Ambient of up to 50°C.

The following group and/or national deviations were considered: AR(Argentina), AT(Austria), AU (Australia), BE(Belgium), BR(Brazil), CA(Canada), CH(Switzerland), CN(China), CZ(Czech Republic), DE(Germany), DK(Denmark), ES(Spain), FI(Finland), FR(France), GB(United Kingdom), HU(Hungary), IE(Ireland), IL(Israel), IT(Italy), JP(Japan), KR(Korea), MY (Malaysia), NL(Netherlands), NO(Norway), PL(Poland), PT(Portugal), RU(Russia), SE(Sweden), SI(Slovenia), SK(Slovakia), SG(Singapore), TR(Turkey), UA (Ukraine), US(United States), and ZA(South Africa).

Report history: 30480937.001 original document

Appendix:

1. Photos

IEC 60950			
Clause	Requirement - Test	Result	Verdict
1	GENERAL		P
1.5	Components		P
1.5.1	Comply with IEC 60950 or relevant component standard	Refer to table 1.5.1	P
1.5.2	Evaluation and testing of components	<p>Certified components are used in accordance with their ratings, certifications and they comply with applicable parts of this Standard.</p> <p>Components not certified are used in accordance with their ratings and they comply with applicable parts of IEC 60950 and the relevant component Standards.</p> <p>Components, for which no relevant IEC-Standard exists, have been tested under the conditions occurring in the equipment, using applicable parts of IEC 60950.</p>	P
	Dimensions (mm) of mains plug for direct plug-in	Not direct plug-in unit.	N
	Torque and pull test of mains plug for direct plug-in; torque (Nm); pull (N)	Not direct plug-in unit.	N
1.5.3	Thermal controls	There are no thermal controls affecting safety.	N
1.5.4	Transformers	Evaluated as part of approved DC/DC converter	P
1.5.5	Interconnecting cables	When provided as part of the unit, interconnecting cables comply with relevant requirements of the standard.	P
1.5.6	Capacitors in primary circuits	DC unit	N
1.5.7	Double or reinforced insulation bridged by components	DC unit	N
1.5.7.1	Bridging capacitors	Evaluated as part of approved components	N
1.5.7.2	Bridging resistors	Evaluated as part of approved components.	N
1.5.7.3	Accessible parts	No such parts	N
1.5.8	Components in equipment for IT power systems	DC unit	N

IEC 60950			
Clause	Requirement - Test	Result	Verdict
1.6	Power interface		P
1.6.1	AC power distribution systems	DC unit	N
1.6.2	Input current	The current deviation during the normal operating cycle did not exceed the rated current by more than 10%. Refer to Table1.6.	P
1.6.3	Voltage limit of hand-held equipment	The unit is not hand-held equipment.	N
1.6.4	Neutral conductor	There is no such neutral conductor	N

IEC 60950			
Clause	Requirement - Test	Result	Verdict
1.7	Marking and instructions		
1.7.1	Power rating	On rating label	P
	Rated voltage(s) or voltage range(s) (V)	+5V / +12V	P
	Symbol for nature of supply for d.c.	IEC 4175031	P
	Rated frequency or frequency range (Hz)	DC	N
	Rated current (A)	7A / 3A	P
	Manufacturer's name/Trademark	VCON	P
	Type/model	HD3000	P
	Symbol of Class II	Unit Class III	N
	Other symbols	No other symbols applied	N
	Certification marks	cTUVus, CE	P
1.7.2	Safety instructions	Operating instructions made available to the user. There are no special precautions.	P
1.7.3	Short duty cycles	Unit is intended for continuous operation.	N
1.7.4	Supply voltage adjustment	No voltage adjustment is required.	N
1.7.5	Power outlets on the equipment	There are no power outlets	N
1.7.6	Fuse identification	No replaceable fuses.	N
1.7.7	Wiring terminals		N
	Protective earthing and bonding terminals		N
1.7.7.2	Terminal for a.c. mains supply conductors	DC unit	N
1.7.8	Controls and indicators	Only functional indicators are used	P
1.7.8.1	Identification, location and marking	Switches are properly marked	P
1.7.8.2	Colours	Functional leds are provided (green, yellow)	N
1.7.8.3	Symbols according to IEC 60417	On off switch is marked with "I" "O"	P
1.7.8.4	Markings using figures	Markings using figures are not used	N
1.7.9	Isolation of multiple power sources	There is only one connection to power	N
1.7.10	IT power system	Not intended for use in IT power systems.	N
1.7.11	Thermostats and other regulating devices	No such devices	N

Report reference No.:  
 TRF No.: 1950\_\_\_F

TRF originator: FIMKO

IEC 60950			
Clause	Requirement - Test	Result	Verdict
1.7.12	Language		—
1.7.13	Durability	All markings are durable and legible	P
1.7.14	Removable parts	Markings are not placed on removable parts	P
1.7.15	Replaceable batteries	Alkaline batteries only in remote control.	P
	Language	English	—
1.7.16	Operator access with a tool	A tool is not necessary to gain access to an operator accessible area.	P
1.7.17	Equipment for restricted access locations	Unit is not intended for use in RAL	P

2	PROTECTION FROM HAZARDS		P
2.1	Protection from electric shock and energy hazards		P
2.1.1	Protection in OPERATOR access areas	Only SELV voltages accessible. Protection is provided by insulation and by guarding.	P
2.1.1.1	Access to energized parts	No access to energized parts	P
	Test by inspection	There is no access to hazardous parts. Operator has access to bare parts of SELV circuits.	P
	Test with test finger	No access to energized parts	P
	Test with test pin	The test pin was unable to contact bare hazardous voltage parts.	P
	Test with test probe	No TNV	N
2.1.1.2	Battery compartments	No TNV	N
2.1.1.3	Access to ELV wiring	No internal wiring at ELV.	N
	Working voltage (V); distance (mm) through insulation		—
2.1.1.4	Access to hazardous voltage circuit wiring	No internal wiring accessible to the user.	N
2.1.1.5	Energy hazards	There are no energy hazards in operator access area	P
2.1.1.6	Manual controls	No such components	N
2.1.1.7	Discharge of capacitors in the primary circuit	DC unit	N

IEC 60950			
Clause	Requirement - Test	Result	Verdict
	Time-constant (s); measured voltage (V)		—
2.1.2	Protection in service access areas	Unit has no requirements for Service Access Area. Installation and usage is for Operator Access Area.	N
2.1.3	Protection in restricted access locations	Unit is not intended for use in RAL	N
2.2	SELV circuits		P
2.2.1	General requirements	SELV circuits are safe during normal operation and under single fault.	P
2.2.2	Voltages under normal conditions (V)	All accessible voltages are less than 42.4 Vpk or 60 Vdc and are classified as SELV.	P
2.2.3	Voltages under fault conditions (V)	< 60 Vdc, SELV unit class III separation method relies on external DC source	P
2.2.3.1	Separation by double or reinforced insulation (method 1)		N
2.2.3.2	Separation by earthed screen (method 2)		N
2.2.3.3	Protection by earthing of the SELV circuit (method 3)		N
2.2.4	Connection of SELV circuits to other circuits	The SELV circuits are connected to SELV circuits.	N



IEC 60950			
Clause	Requirement - Test	Result	Verdict
2.3	TNV circuits		N
2.3.1	Limits	No TNV	N
	Type of TNV circuits		—
2.3.2	Separation from other circuits and from accessible parts	No TNV	N
	Insulation employed		—
2.3.3	Separation from hazardous voltages	No TNV	N
	Insulation employed		—
2.3.4	Connection of TNV circuits to other circuits	No TNV	N
	Insulation employed		—
2.3.5	Test for operating voltages generated externally	No TNV	N
2.4	Limited current circuits		N
2.4.1	General requirements	Equipment circuitry not evaluated for limited current circuit.	N
2.4.2	Limit values	Equipment circuitry not evaluated for limited current circuit.	N
	Frequency (Hz)		—
	Measured current (mA)		—
	Measured voltage (V)		—
	Measured capacitance ( $\mu$ F)		—
2.4.3	Connection of limited current circuits to other circuits	Equipment circuitry not evaluated for limited current circuit.	N
2.5	Limited power sources		P
	Inherently limited output		N
	Impedance limited output	Power to external video camera which is located outside fire enclosure is limited by PTC rated 1.5A and certified for EN60730-1	P
	Overcurrent protective device limited output	PTC for impedance limitation is used	N
	Regulating network limited output under normal operating and single fault condition	PTC for impedance limitation is used	N
	Regulating network limited output under normal operating conditions and overcurrent protective	PTC for impedance limitation is used	N

IEC 60950			
Clause	Requirement - Test	Result	Verdict
	device limited output under single fault condition		
	Output voltage (V), output current (A), apparent power (VA)	V <sub>max</sub> =5V, I <sub>max</sub> = 1.5A, VA= 7.5	—
	Current rating of overcurrent protective device (A)	PTC for impedance limitation is used	—
2.6	Provisions for earthing and bonding		P
2.6.1	Protective earthing	Protective earthing not required. Only SELV circuits, class III	N
2.6.2	Functional earthing	Earthing may be provided through console connector or power supply connector for functional reasons only.	P
2.6.3	Protective earthing and protective bonding conductors	SELV input, class III	N
2.6.3.1	Size of protective earthing conductors	May be provided as part of optional external approved power supply. Not part of this investigation	N
	Rated current (A), cross-sectional area (mm <sup>2</sup> ), AWG		—
2.6.3.2	Size of protective bonding conductors	May be provided as part of optional external approved power supply. Not part of this investigation	N
	Rated current (A), cross-sectional area (mm <sup>2</sup> ), AWG		—
2.6.3.3	Rated current (A), type and nominal thread diameter (mm)	May be provided as part of optional external approved power supply. Not part of this investigation	N
	Resistance ( $\Omega$ ) of earthing conductors and their terminations, test current (A)		N
2.6.3.4	Colour of insulation		N
2.6.4	Terminals	Functional earthing	P
2.6.4.1	Protective earthing and bonding terminals	Not required for this unit	N
	Rated current (A), type and nominal thread diameter (mm)		—
2.6.4.2	Separation of the protective earthing conductor from protective bonding conductors	No separation	N
2.6.5	Integrity of protective earthing		N
2.6.5.1	Interconnection of equipment	Not interconnected equipment	N

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Clause	Requirement - Test	Result	Verdict
2.6.5.2	Components in protective earthing conductors and protective bonding conductors	No such parts	N
2.6.5.3	Disconnection of protective earth	No such parts	N
2.6.5.4	Parts that can be removed by an operator	No such parts	N
2.6.5.5	Parts removed during servicing	No such parts	N
2.6.5.6	Corrosion resistance	Only functional earthing provided	N
2.6.5.7	Screws for protective bonding	No such parts	N
2.6.5.8	Reliance on telecommunication network	Unit is not intended for connection to telecommunication network	N
2.7	Overcurrent and earth fault protection in primary circuits		N
2.7.1	Basic requirements	DC unit, class III	N
	Instructions when protection relies on building installation	DC unit, class III	N
2.7.2	Faults not covered in 5.3	DC unit, class III	N
2.7.3	Short-circuit backup protection	DC unit, class III	N
2.7.4	Number and location of protective devices	DC unit, class III	N
2.7.5	Protection by several devices	DC unit, class III	N
2.7.6	Warning to service personnel	DC unit, class III	N
2.8	Safety interlocks		N
2.8.1	General principles	No interlocks provided.	N
2.8.2	Protection requirements	No interlocks provided.	N
2.8.3	Inadvertent reactivation	No interlocks provided.	N
2.8.4	Fail-safe operation	No interlocks provided.	N
2.8.5	Interlocks with moving parts	No interlocks provided.	N
2.8.6	Overriding an interlock	No interlocks provided.	N
2.8.7	Switches and relays in interlock systems	No interlocks provided.	N
2.8.7.1	Contact gaps (mm)	No interlocks provided.	N
2.8.7.2	Overload test	No interlocks provided.	N
2.8.7.3	Endurance test	No interlocks provided.	N
2.8.7.4	Electric strength test (V)	No interlocks provided.	N
2.8.8	Mechanical actuators	No interlocks provided.	N

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Clause	Requirement - Test	Result	Verdict

2.9	Electrical insulation		P
2.9.1	Properties of insulating materials	No natural rubber, no asbestos, and no hygroscopic materials used as insulation.	P
2.9.2	Humidity conditioning	Not required	N
2.9.3	Requirements for insulation	Class III unit, insulation is not relied upon for safety	N
2.9.4	Insulation parameters	Taken into consideration.	P
2.9.5	Categories of insulation	Functional	P

IEC 60950			
Clause	Requirement - Test	Result	Verdict
2.10	Clearances, creepage distances and distances through insulation		P
2.10.1	General	There is no access through the plastic enclosure to any of the internal circuits	P
2.10.2	Determination of working voltage	SELV voltages	N
2.10.3	Clearances	No insulation is relied upon for Safety. Unit is only SELV, class III	N
2.10.3.1	General	DC unit	N
2.10.3.2	Clearances in primary circuit	DC unit	N
2.10.3.3	Clearances in secondary circuits	DC unit	N
2.10.3.4	Measurement of transient levels	DC unit	N
2.10.4	Creepage distances	No insulation is relied upon for Safety. Unit is only SELV, class III	N
	CTI tests		—
2.10.5	Solid insulation	No insulation is relied upon for Safety. Unit is SELV, class III	N
2.10.5.1	Minimum distance through insulation	No insulation is relied upon for Safety. Unit is SELV, class III	N
2.10.5.2	Thin sheet material	No insulation is relied upon for Safety. Unit is SELV, class III	N
	Number of layers (pcs)		—
	Electric strength test		—
2.10.5.3	Printed boards	No insulation is relied upon for Safety. Unit is SELV, class III	N
	Distance through insulation		N
	Electric strength test for thin sheet insulating material		—
	Number of layers (pcs)		N
2.10.5.4	Wound components	No insulation is relied upon for Safety. Unit is SELV, class III	N
	Number of layers (pcs)		N
	Two wires in contact inside component; angle between 45° and 90°		N
2.10.6	Coated printed boards	No insulation is relied upon for Safety. Unit is SELV, class III	N

IEC 60950			
Clause	Requirement - Test	Result	Verdict
2.10.6.1	General	No insulation is relied upon for Safety. Unit is SELV, class III	N
2.10.6.2	Sample preparation and preliminary inspection		N
2.10.6.3	Thermal cycling		N
2.10.6.4	Thermal ageing (°C)		N
2.10.6.5	Electric strength test		—
2.10.6.6	Abrasion resistance test		N
	Electric strength test		—
2.10.7	Enclosed and sealed parts	No hermetically or enclosed components used	N
	Temperature $T_1=T_2 = T_{mra} - T_{amb} +10K$ (°C)		N
2.10.8	Spacings filled by insulating compound	No components treated with insulation compound	N
	Electric strength test		—
2.10.9	Component external terminations	External terminations do not require spacing evaluation.	N
2.10.10	Insulation with varying dimensions	No such component	N
3	WIRING, CONNECTIONS AND SUPPLY		P
3.1	General		P
3.1.1	Current rating and overcurrent protection	All internal wiring is rated for the application and have adequate cross-sectional areas depending on the circuits.	P
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	P
3.1.3	Securing of internal wiring	All wiring is reliably routed or separated and secured.	P
3.1.4	Insulation of conductors	Insulation on internal conductors are considered to be of adequate quality and suitable for the application and the working voltages involved.	P
3.1.5	Beads and ceramic insulators	The unit does not have such components	N
3.1.6	Screws for electrical contact pressure	The unit does not have any screw-type connections for electrical	N

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Clause	Requirement - Test	Result	Verdict
		connections.	
3.1.7	Non-metallic materials in electrical connections	The unit does not have such components	N
3.1.8	Self-tapping and spaced thread screws	Self-tapping and spaced thread screws not used in this equipment	N
3.1.9	Termination of conductors	Unit not permanently connected or provided with non-detachable cord set.	N
	10 N pull test		N
3.1.10	Sleeving on wiring	Sleeving is not used as supplementary insulation	N
3.2	Connection to a.c. mains supplies		N
3.2.1	Means of connection	DC unit	N
3.2.2	Multiple supply connections	DC unit	N
3.2.3	Permanently connected equipment	DC unit	N
	Number of conductors, diameter (mm) of cable and conduits		—
3.2.4	Appliance inlets	DC unit	N
3.2.5	Power supply cords	DC unit	N
	Type		—
	Rated current (A), cross-sectional area (mm <sup>2</sup> ), AWG		—
3.2.6	Cord anchorages and strain relief	DC unit	N
	Mass of equipment (kg), pull (N)		—
	Longitudinal displacement (mm)		—
3.2.7	Protection against mechanical damage	DC unit	N
3.2.8	Cord guards	DC unit	N
	D (mm); test mass (g)		—
	Radius of curvature of cord (mm)		—
3.2.9	Supply wiring space	DC unit	N
3.3	Wiring terminals for connection of external conductors		N
3.3.1	Wiring terminals	DC unit power provided by input connector directly from external	N

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Clause	Requirement - Test	Result	Verdict
		power supply	
3.3.2	Connection of non-detachable power supply cords	DC unit power provided by input connector directly from external power supply	N
3.3.3	Screw terminals	Such terminals are not used	N
3.3.4	Rated current (A), cord/cable type, cross-sectional area (mm <sup>2</sup> )		N
3.3.5	Rated current (A), type and nominal thread diameter (mm)		N
3.3.6	Wiring terminals design		N
3.3.7	Grouping of wiring terminals		N
3.3.8	Stranded wire		N
3.4	Disconnection from the a.c. mains supply		N
3.4.1	General requirement	DC unit	N
3.4.2	Disconnect devices		N
3.4.3	Permanently connected equipment		N
3.4.4	Parts which remain energized		N
3.4.5	Switches in flexible cords		N
3.4.6	Single-phase equipment		N
3.4.7	Three-phase equipment		N
3.4.8	Switches as disconnect devices		N
3.4.9	Plugs as disconnect devices		N
3.4.10	Interconnected equipment		N
3.4.11	Multiple power sources		N
3.5	Interconnection of equipment		P
3.5.1	General requirements	Conformance to the requirements of 2.2 for SELV circuits	P
3.5.2	Types of interconnection circuits	Only SELV circuits	P
3.5.3	ELV circuits as interconnection circuits	No ELV circuits	N



IEC 60950			
Clause	Requirement - Test	Result	Verdict

4	PHYSICAL REQUIREMENTS		P
4.1	Stability		P
	Angle of 10°	Based on engineering judgement the unit cannot become a mechanical hazard under any foreseeable conditions.	P
	Test: force (N)	Unit not intended for floor standing	N

4.2	Mechanical strength		P
4.2.1	General	Mechanical construction does not effect safety	P
4.2.2	Steady force test, 10 N		P
4.2.3	Steady force test, 30 N	No such components	N
4.2.4	Steady force test, 250 N	No damage or access or effect of external enclosure	P
4.2.5	Impact test	No adverse effect	P
4.2.6	Drop test	Not subjected to this test	N
4.2.7	Stress relief	An internal metallic enclosure is provided. Test is waived based on engineering judgment.	N
4.2.8	Cathode ray tubes	The equipment has no CRTs	N
	Picture tube separately certified		N
4.2.9	High pressure lamps	No high pressure lamp is used	N
4.2.10	Wall or ceiling mounted equipment; force (N)	No wall or ceiling mounted equipment	N

4.3	Design and construction		P
4.3.1	Edges and corners	Edges and corners are adequately rounded and smoothed.	P
4.3.2	Handles and manual controls; force (N)	No handles or manual controls	N
4.3.3	Adjustable controls	No such controls	P
4.3.4	Securing of parts	All parts are properly secured	P
4.3.5	Connection of plugs and sockets	RJ connectors are clearly marked with (RS232, Ethernet)	P
4.3.6	Direct plug-in equipment	Unit is not direct plug-in type	N

IEC 60950			
Clause	Requirement - Test	Result	Verdict
	Torque (Nm)		—
4.3.7	Heating elements in earthed equipment	No such elements.	N
4.3.8	Batteries	Alkaline batteries only	N
4.3.9	Oil and grease	No oil and grease	N
4.3.10	Dust, powders, liquids and gases	No such components	N
4.3.11	Containers for liquids or gases	No such components	N
4.3.12	Flammable liquids	No such components	N
	Quantity of liquid (l)	No such components	N
	Flash point (°C)	No such components	N
4.3.13	Radiation; type of radiation	No radiation	N
	Equipment using lasers	Lasers are not used	N
4.4	Protection against hazardous moving parts		P
4.4.1	General	Fans are properly guarded	P
4.4.2	Protection in operator access areas	No access for operator to fans	P
4.4.3	Protection in restricted access locations	Unit not intended for RAL location installation	N
4.4.4	Protection in service access areas	Unintentional contact with hazardous moving parts is unlikely.	P
4.5	Thermal requirements		P
4.5.1	Temperature rises	Under normal load operation, temperatures do not exceed safe values. Refer to Table 4.5.	P
	Normal load condition per Annex L	Normal load defined as unit on bench, video conference is on and all interfaces are connected (TV, camera, Microphone, PC)	P
4.5.2	Resistance to abnormal heat	There are no thermoplastic parts on which parts at Hazardous Voltage are directly mounted other than approved parts.	N
4.6	Openings in enclosures		P
4.6.1	Top and side openings	Unit does not have top openings. Openings on rear side are compliant.	P

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Clause	Requirement - Test	Result	Verdict
	Dimensions (mm)	Unit has two sets of the openings on the rear side. <u>Set 1:</u> Hexagon shape openings for fan of diameter 3.3 mm, 43 openings total <u>Set 2</u> Square shape openings of diameter 3.3 mm, 69 openings total	—
4.6.2	Bottoms of fire enclosures	No openings in the bottom.	P
	Construction of the bottom		—
4.6.3	Doors or covers in fire enclosures	No such components	P
4.6.4	Openings in transportable equipment	Not regarded as transportable equipment	N
4.6.5	Adhesives for constructional purposes	No such components	N
	Conditioning temperature/time		—

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Clause	Requirement - Test	Result	Verdict
4.7	Resistance to fire		
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.	P
4.7.2	Conditions for a fire enclosure	Unit enclosure is fire enclosure except camera, which resides in power-limited circuit. Camera enclosure is rated min. UL 94-HB	P
4.7.2.1	Parts requiring a fire enclosure	Fire enclosure covers all parts except camera, which resides in power-limited circuit. Camera enclosure is rated min. UL 94-HB	P
4.7.2.2	Parts not requiring a fire enclosure	Fire enclosure covers all parts except camera, which resides in power-limited circuit. Camera enclosure is rated min. UL 94-HB	P
4.7.3	Materials		P
4.7.3.1	General	Enclosure, materials and other components so constructed and used that the propagation of fire is limited.	P
4.7.3.2	Materials for fire enclosures	Plastic of fire enclosure is rated min. UL 94-V1	P
4.7.3.3	Materials for components and other parts outside fire enclosures	Camera enclosure is rated UL94-V2. Camera resides outside of fire enclosure and power which is connected to camera was evaluated to comply with clause 2.5	P
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	P
4.7.3.5	Materials for air filter assemblies	No such components	N
4.7.3.6	Materials used in high-voltage components	No such components	N

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Clause	Requirement - Test	Result	Verdict

5	ELECTRICAL REQUIREMENTS AND SIMULATED ABNORMAL CONDITIONS		P
5.1	Touch current and protective conductor current		N
5.1.1	General	DC unit	N
5.1.2	Equipment under test (EUT)		N
5.1.3	Test circuit		N
5.1.4	Application of measuring instrument		N
5.1.5	Test procedure		N
5.1.6	Test measurements		N
	Test voltage (V)		—
	Measured current (mA)		—
	Maximum allowed current (mA)		—
5.1.7	Equipment with touch current exceeding 3.5 mA	Not such equipment	N
5.1.8	Touch currents to and from telecommunication networks	No TNV	N
5.1.8.1	Limitation of the touch current to a telecommunication network		N
	Test voltage (V)		—
	Measured current (mA)		—
	Maximum allowed current (mA)		—
5.1.8.2	Summation of touch currents from telecommunication networks		N

5.2	Electric strength		N
5.2.1	General	DC unit	N
5.2.2	Test procedure		N

5.3	Abnormal operating and fault conditions		P
5.3.1	Protection against overload and abnormal operation	See appended table 5.3.	P
5.3.2	Motors	Fan motors are certified.	P
5.3.3	Transformers	Evaluated as part of approved DC to DC converters	N
5.3.4	Functional insulation	SELV to SELV	P

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Clause	Requirement - Test	Result	Verdict
5.3.5	Electromechanical components	The equipment does not have any electromechanical components except fans.	N
5.3.6	Simulation of faults	Equipment tested with blocked ventilation openings and with fans disconnected. Refer to Table 5.3. No excessive temperatures recorded. No indication of dielectric breakdown.	P
5.3.7	Unattended equipment	The equipment does not have any thermostats, temperature limits, or thermal cut-outs which functioned during the Heating Test	N
5.3.8	Compliance criteria for abnormal operating and fault conditions	See table 5.3 for results. No fire, emission of molten metal or deformation was noted during the tests.	P

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Clause	Requirement - Test	Result	Verdict
6	CONNECTION TO TELECOMMUNICATION NETWORKS		N
6.1	Protection of telecommunication network service personnel, and users of other equipment connected to the network, from hazards in the equipment		N
6.1.1	Protection from hazardous voltages		N
6.1.2	Separation of the telecommunication network from earth		N
6.1.2.1	Requirements	No TNV	N
	Test voltage (V)		—
	Current in the test circuit (mA)		—
6.1.2.2	Exclusions		N
6.2	Protection of equipment users from overvoltages on telecommunication networks		N
6.2.1	Separation requirements	No TNV	N
6.2.2	Electric strength test procedure		N
6.2.2.1	Impulse test		N
6.2.2.2	Steady-state test		N
6.2.2.3	Compliance criteria		N
6.3	Protection of telecommunication wiring system from overheating	No TNV	N
	Maximum output current (A)		—
	Current limiting method		—

IEC 60950			
Clause	Requirement - Test	Result	Verdict
A	ANNEX A, TESTS FOR RESISTANCE TO HEAT AND FIRE		N
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.1.1	Samples, material	No such equipment	—
	Wall thickness (mm)		—
A.1.2	Conditioning of samples; temperature (°C)		N
A.1.3	Mounting of samples		N
A.1.4	Test flame		N
A.1.5	Test procedure		N
A.1.6	Compliance criteria		N
	Sample 1 burning time (s)		—
	Sample 2 burning time (s)		—
	Sample 3 burning time (s)		—
A.2	Flammability test for fire enclosures of movable equipment having a total mass not exceeding 18 kg, and for material and components located inside fire enclosures (see 4.7.3.2 and 4.7.3.4)		N
A.2.1	Samples, material	Fire enclosure is rated UL94-V0	—
	Wall thickness (mm)	1.5	—
A.2.6	Compliance criteria		N
	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
	Sample 1 burning time (s)		—
	Sample 2 burning time (s)		—
	Sample 3 burning time (s)		—
A.3	High current arcing ignition test (see 4.7.3.2)		N
A.3.1	Samples, material	Fire enclosure is rated UL94-V0	—
	Wall thickness (mm)	1.5	—
A.3.5	Compliance criteria		N
	Sample 1 number of arcs to ignition (pcs)		—
	Sample 2 number of arcs to ignition (pcs)		—



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Clause	Requirement - Test	Result	Verdict
	Sample 3 number of arcs to ignition (pcs)		—
	Sample 4 number of arcs to ignition (pcs)		—
	Sample 5 number of arcs to ignition (pcs)		—
A.4	Hot wire ignition test (see 4.7.3.2)		N
A.4.1	Samples, material	Fire enclosure is rated UL94-V0	—
	Wall thickness (mm)	1.5	—
A.4.5	Compliance criteria		N
	Sample 1 ignition time (s)		—
	Sample 2 ignition time (s)		—
	Sample 3 ignition time (s)		—
	Sample 4 ignition time (s)		—
	Sample 5 ignition time (s)		—
A.5	Hot flaming oil test (see 4.6.2)		N
A.6	Flammability tests for classifying materials V-0, V-1 or V-2		N
A.6.1	Samples, material	Only approved components used	—
	Wall thickness (mm)		—
A.6.5	Compliance criteria		N
A.6.6	Permitted retest		N
A.7	Flammability test for classifying foamed materials HF-1, HF-2 or HFB		N
A.7.1	Sample, material	No such components	—
	Wall thickness (mm)		—
A.7.4	Compliance criteria		N
A.7.5	Compliance criteria, HF-2		N
A.7.6	Compliance criteria, HF-1		N
A.7.7	Compliance criteria, HBF		N
A.7.8	Permitted retest, HF-1 or HF-2		N
A.7.9	Permitted retest, HBF		N
A.8	Flammability test for classifying materials HB		N
A.8.1	Samples, material	No such components	—
	Sample thickness (mm)		—
A.8.2	Conditioning of samples; temperature (°C)		N
A.8.4	Test procedure		N

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Clause	Requirement - Test	Result	Verdict
A.8.5	Compliance criteria		N
A.8.6	Permitted retest		N
A.9	Flammability test for classifying materials 5V		N
A.9.1	Samples, material	No such components	—
	Sample thickness (mm)		—
A.9.4	Test procedure, test bars		N
A.9.5	Test procedure, test plaques		N
A.9.6	Compliance criteria		N
A.9.7	Permitted retest		N
A.10	Stress relief conditioning (see 4.2.7)		N
	Temperature (°C)		—
B	ANNEX B, MOTOR TESTS UNDER ABNORMAL CONDITIONS (see 4.7.2.2 and 5.3.2)		N
B.1	General requirements	No motors other than approved DC fans	N
	Position		—
	Manufacturer:		—
	Type		—
	Rated values		—
B.2	Test conditions		N
B.3	Maximum temperatures		N
B.4	Running overload test		N
B.5	Locked-rotor overload test		N
	Test duration (days)		—
	Electric strength test: test voltage (V)		—
B.6	Running overload test for DC motors in secondary circuits		N
B.7	Locked-rotor overload test for DC motors in secondary circuits		N
B.7.1	Test procedure	See appended table 5.3	N
B.7.2	Alternative test procedure; test time (h)		N
B.7.3	Electric strength test	See appended table 5.2	N
B.8	Test for motors with capacitors	See appended table 5.3	N
B.9	Test for three-phase motors	See appended table 5.3	N

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Clause	Requirement - Test	Result	Verdict
B.10	Test for series motors		N
	Operating voltage (V)		—
C	ANNEX C, TRANSFORMERS (see 1.5.4 and 5.3.3)		N
	Position		—
	Manufacture:		—
	Type		—
	Rated values		—
	Method of protection		—
C.1	Overload test		N
C.2	Insulation		N
	Protection from displacement of windings		N
G	ANNEX G, ALTERNATIVE METHOD FOR DETERMINING MINIMUM CLEARANCES		N
G.1	Summary of the procedure for determining minimum clearances		N
G.2	Determination of mains transient voltage (V)		N
G.3	Determination of telecommunication network transient voltage (V)		N
G.4	Determination of required withstand voltage (V)		N
G.5	Measurement of transient levels (V)		N
G.6	Determination of minimum clearances		N
H	ANNEX H, IONIZING RADIATION (see 4.3.13)		N
	Ionizing radiation		N
	Measured radiation (mR/h)		—
	Measured high-voltage (kV)		—
	Measured focus voltage (kV)		—
	CRT markings		—
J	ANNEX J, TABLE OF ELECTROCHEMICAL POTENTIALS (see 2.6.5.6)		P
	Metal used	Inspection	—

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Clause	Requirement - Test	Result	Verdict
K	ANNEX K, THERMAL CONTROLS (see 1.5.3 and 5.3.7)		N
K.1	Making and breaking capacity		N
K.2	Thermostat reliability; operating voltage (V)		N
K.3	Thermostat endurance test; operating voltage (V)		N
K.4	Temperature limiter endurance; operating voltage (V)		N
K.5	Thermal cut-out reliability		N
K.6	Stability of operation	See appended table 5.3	N
M	ANNEX M, CRITERIA FOR TELEPHONE RINGING SIGNALS (see 2.3.1)		N
M.2	Method A		N
M.3	Method B		N
M.3.1	Ringing signal		N
M.3.1.1	Frequency (f)		—
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
M.3.2.1	Conditions for use of a tripping device or a monitoring voltage		N
M.3.2.2	Tripping device		N
M.3.2.3	Monitoring voltage (V)		N
U	ANNEX U, INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION (see 2.10.5.4)		N
	Separate test report		N

IEC 60950			
Clause	Requirement - Test	Result	Verdict

1.5.1	TABLE: list of critical components		P
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Object/Part No.	Manufacturer/ Trademark	Type/Model	Technical Data	Standard	Mark(S) of Conformity
External Power Supply (optional)	Power-Win Technology Corp. or equivalent	PW-060A-2YD	Input Rated: 100-240VAC, 2A, 50/60Hz  Output rated:  +5V, 7A  +12V, 3A	UL 60950 3 <sup>rd</sup> edition  IEC 60950 3Amd.	CSA  TUV
DC to DC converter (MOD1)	Austin Lynx	AXH010A0F	Input Rated:  3-5.5Vdc, 9.5A  Output Rated:  3.63Vdc, 10A	UL 60950 -1  EN 60950	UL Recognised  VDE
DC to DC converter (MOD2)	Austin Lynx	AXH010A0P	Input Rated:  3-5.5Vdc, 9.5A  Output Rated:  1.2Vdc, 10A	UL 60950 -1  EN 60950	UL Recognised  VDE
Fan	Y.S TECH or equivalent	FD40105B-2N	Input Rated:  5Vdc, 0.13A max.  CFM 5.5 min.	UL507	UL Recognised
Camera	Canon	VC-C4	Input Rated:  13Vdc, 1.1A, 12W		*Note
Fuse (F1)	Little Fuse or equivalent	R451063	Rated: 6.3A, 125V		UL Recognised
Fuse (F2)	Little Fuse or equivalent	R452500	Rated: 0.5A Slow Blow, 125V		UL Recognised
PTC (F3)	Schurter	PFMD.150.2	Rated: 1.5A, 15V	EN 60730-1	TUV
Audio Cables (CAB00024)	LIN SHIUNG ENTERPRISE CO LTD	Style: 2562	Type: AWM, VM-1, 28AWG min.	UL758	UL Recognised

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Clause	Requirement - Test		Result		Verdict
Object/Part No.	Manufacturer/ Trademark	Type/Model	Technical Data	Standard	Mark(S) of Conformity
(optional)	or equivalent		Rated: 80°Cmin, 300Vmin		
VCR Cable (CAB00025) (optional)	LIN SHIUNG ENTERPRISE CO LTD or equivalent	Style: 2562	Type: AWM, VM-1, 28AWG min. Rated: 80°Cmin, 300Vmin	UL758	UL Recognised
LAN Cable (optional)	EVERNEW WIRE & CABLE CO LTD or equivalent	Style: 2835	Type: AWM, 24AWG min. Rated: 60°Cmin, 30Vmin	UL758	UL Recognised
Single Composite Video Cable (CAB72010) (optional)	LIN SHIUNG ENTERPRISE CO LTD or equivalent	Style: 1354	Type: AWM, VM-1, 28AWG min. Rated: 80°Cmin, 30Vmin	UL758	UL Recognised
Single S Video Cable (CAB90051) (optional)	TA HSING INDUSTRIES LTD or equivalent	Style: 2464	Type: AWM, VW-15C, 26AWG min. Rated: 80°Cmin, 300Vmin	UL758	UL Recognised
PCB	Any	Any	Flame rated min: UL94-V1	UL94	UL Recognised
Enclosure	GE	Cycolac C6200	Flame rated min: UL94-V0 Thickness min. 1.5mm	UL94	UL Recognised
Camera enclosure	Teijin Chemicals Ltd.	LV-2225	Flame rated min:	UL94	UL Recognised

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Clause	Requirement - Test		Result		Verdict
Object/Part No.	Manufacturer/ Trademark	Type/Model	Technical Data	Standard	Mark(S) of Conformity
plastics			UL94-V2 Thickness min. 0.4mm		
IR Cover plastics (decorative)	ASAHI KASEI CHEMICALS CORP	FILA82	Flame rated min: UL94-HB Thickness min. 1.5mm	UL94	UL Recognised
Plastics of remote control enclosure	GE	Cycolac, C6200	Flame rated min: UL94-V0 Thickness min. 1.5mm	UL94	UL Recognised
LED Screen plastics	GE	Lexan Polycarbonate, LS	Flame rated min: UL94-HB Thickness min. 0.75mm	UL94	UL Recognised
Infra Red Led transmitter	Unity Opto Technology Co	MIE-534A4	Radiant Intensity IF=20mA		*Note
Note: Evaluated and tested for compliance in end use equipment listed in this report only.					

1.6	TABLE: electrical data (in normal conditions)	
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I rated (A)	U (V)	P (W)	I (A)	Hz	Condition/Status
3	12	9.6	0.80	dc	Max. normal load
7	5	17.7	3.54	dc	Max. normal load

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Clause	Requirement - Test	Result	Verdict

2.10.3 and 2.10.4	TABLE: clearance and creepage distance measurements		N
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clearance cl and creepage distance dcr at/of:	Up (V)	U r.m.s. (V)	required cl (mm)	cl (mm)	required dcr (mm)	dcr (mm)

Note: Evaluated as part of approved power supply

2.10.5	TABLE: distance through insulation measurements		N
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distance through insulation di at/of:	U r.m.s. (V)	test voltage (V)	required di (mm)	di (mm)



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Clause	Requirement - Test	Result	Verdict

4.5	TABLE: temperature rise measurements		P
	Test voltage (V)	5V; 12V	
	t1 (°C)		
	t2 (°C)	25.2	

Temperature rise dT of part/at:	dT (K)	Maximum dT (K)
C22 Electrolytic Capacitor (E.C 85 <sup>0</sup> C)	5.2	35 (85 – 50)
C59 Electrolytic Capacitor (E.C 85 <sup>0</sup> C)	7.1	35 (85 – 50)
T1 – Winding, DC/DC converter (MOD1)	7.6	40 (65 + 25 – 50)
T1 – Core, DC/DC converter (MOD1)	6.5	
PCB (near MOD1)	8.6	55 (105 – 50)
C176 Electrolytic Capacitor (E.C 85 <sup>0</sup> C)	11.4	35 (85 – 50)
PCB (near SC2)	15.6	55 (105 – 50)
T1 – Winding, DC/DC converter (MOD2)	25	40 (65 + 25 – 50)
T1 – Core, DC/DC converter (MOD2)	25.4	
C183 Electrolytic Capacitor (E.C 85 <sup>0</sup> C)	23.2	35 (85 – 50)
Enclosure (inside)	1.2	
L1 (Camera)	15.8	40 (65 + 25 – 50)
Enclosure (Camera)	14.1	
Capacitor (85°C):	85°C - 50°C = 35°C	
Winding:	65°C + 25°C - 50°C = 40°C	
PCB:	105°C - 50°C = 55°C	

4.5.2	TABLE: ball pressure tests of thermoplastic parts		N
	allowed impression diameter (mm).....:	≤ 2mm	-
part	test temperature (°C)	impression diameter (mm)	

IEC 60950			
Clause	Requirement - Test	Result	Verdict

5.2	TABLE: electric strength tests and impulse tests		N
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Test voltage applied between:	test voltage (V)	breakdown Yes/No

5.3	TABLE: fault condition tests		P
	Ambient temperature (°C)	22	-
	Model/type of power supply		-
	Manufacturer of power supply		-
	Rated markings of power supply	Input Rated: +5V, 7A / +12V, 3A	-

No.	Component No.	Fault	Test voltage (V)	Test time	Fuse No.	Fuse Current (A)	Result
1	Complete unit	Disconnected fans	100	3 hours and 10min	-	-	No hazard
2	RS232	Overload	5.57	1 hour	-	-	Maximum available current 22mA on pin2, no hazard
3	RS232	Overload	6.22	1 hour	-	-	Maximum available current 28mA on pin3, no hazard
4	RS232	Overload	5.57	1 hour	-	-	Maximum available current 22mA on pin8, no hazard
5	RS232	Overload	0	-	-	-	Pin 4,5,6,7 C-Circuit measures 0 Volts
5	XGA	Overload	0.667	-	-	-	Maximum available current 11mA on pin12, B (circuit measures less than 12.5 mA)
6	XGA	Overload	0.316	-	-	-	Maximum available current 6mA on pin13, B (circuit measures less than 12.5 mA)
8	J9	Overload	5.48	-	-	-	Maximum available current 18.49 mA on pin10, no hazard

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Clause	Requirement - Test			Result			Verdict
No.	Component No.	Fault	Test voltage (V)	Test time	Fuse No.	Fuse Current (A)	Result
	Camera connection						
9	J9 Camera connection	Overload	0	-	-	-	Pin 12, C-Circuit measures 0 Volts
10	Mic Jack	Overload	0	-	-	-	Pin 1, C-Circuit measures 0 Volts
supplementary information							

A.6.5	TABLE: flammability test for classifying materials V-0, V-1 or V-2		N
Sample No. / Reference	After flame time (s) $t_1$ or $t_2$	After flame + afterglow (s) after 2 <sup>nd</sup> flame application $t_2 + t_3$	
1/A			
2/A			
3/A			
4/A			
5/A			
6/B			
7/B			
8/B			
9/B			
10/B			
Supplementary information:			
Total after flame time (s) for any condition set $t_1 + t_2$ for five (5) specimens:			
Conditioning "A" designates 7 days at 70 °C ± 1 °C followed by 4 h minimum in calcium chloride desiccator.			
Conditioning "B" designates 48 h at 23 °C ± 2 °C and relative humidity between 45 % and 55 %.			

A.6.6	TABLE: flammability re-test for classifying materials V-0, V-1 or V-2		N
Sample No.	Afterflame time (s) $t_1$ or $t_2$	Afterflame + afterglow (s) after 2 <sup>nd</sup> flame	

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Clause	Requirement - Test	Result	Verdict
			application $t_2 + t_3$
11			
12			
13			
14			
15			
Supplementary information:			
Total afterflame time (s) for any condition set $t_1 + t_2$ for five (5) specimens:			

A.7.4, A.7.5, A.7.6 and A.7.7	TABLE: flammability test for classifying foam materials HF-1, HF-2 or HBF			N
Sample No. / reference	Flame time (s)	Glow time (s)	Flaming/glowing distance from the end (mm)	Comment (for A.7.7 burning rate mm/min)
1/A				
2/A				
3/A				
4/A				
5/A				
6/B				
7/B				
8/B				
9/B				
10/B				
Supplementary information:				
Conditioning "A" designates 7 days at 70 °C ± 1 °C followed by 4 h minimum in calcium chloride desiccator				
Conditioning "B" designates 48 h at 23 °C ± 2 °C and relative humidity between 45 % and 55 %				

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

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Clause	Requirement - Test	Result	Verdict
11			
12			
13			
14			
15			
Supplementary information:			

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

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

A.8.6	TABLE: flammability re-test for classifying materials HB		N
Sample No.	Flaming/glowing rate Mm/min	Flaming/glowing distance from reference mark (mm)	

Report reference No.:  
 TRF No.: I950\_\_F

TRF originator: FIMKO

IEC 60950			
Clause	Requirement - Test	Result	Verdict
4			
5			
6			
Supplementary information:			

A.9.6	TABLE: flammability test for classifying materials 5V				N
Sample	Test bars		Test plaques		
No./ref.	Flaming + glowing time (s)	Burning distance (mm)	Position	Flaming + glowing time (s)	Burning distance (mm)
1/A			A		
2/A			B		
3/A			C		
4/A			D		
5/A			—	—	—
6/B			A		
7/B			B		
8/B			C		
9/B			D		
10/B			—	—	—
Supplementary information:					
Conditioning "A" designates 7 days at 70 °C ± 1 °C followed by 4 h minimum in calcium chloride desiccator.					
Conditioning "B" designates 48 h at 23 °C ± 2 °C and relative humidity between 45 % and 55 %.					

IEC 60950					
Clause	Requirement - Test			Result	Verdict
A.9.7	TABLE: flammability re-test for classifying materials 5V				N
Sample	Test bars	Test plaques			
No.	Flaming + glowing time (s)	Burning distance (mm)	Position	Flaming + glowing time (s)	Burning distance (mm)
11			A		
12			B		
13			C		
14			D		
15					
Supplementary information:					

IEC 60950			
Clause	Requirement - Test	Result	Verdict

<b>Group differences/CENELEC Common Modifications</b>			P
AT=Austria, BE=Belgium, CH=Switzerland, CZ=Czech Republic, DE=Germany, DK=Denmark, ES=Spain, FI=Finland, FR=France, GB=United Kingdom, HU=Hungary, IE=Ireland, IT=Italy, NL=Netherlands, NO=Norway, PT=Portugal, SE=Sweden, SI=Slovenia, SK=Slovakia, TR=Turkey			
2.7.1	Replace the text of this sub-clause.	Replaced	P
2.7.2	Replace the text of this sub-clause by: Void.	Void	P
3.2.3	Delete the note 1 and in table 3A, delete the conduit sizes in parentheses.	Deleted	N
3.2.5	Replace items in Table 38. In Note 1, delete the second sentence	Deleted. Cord not part of this investigation	N
3.3.4	In Table 30, delete the fourth line and replace with: Over 10 up to and including 16; 1.5 to 2.5; 1.5 to 4 Delete the fifth line	Deleted and Replaced	N
4.3.13	Replace second paragraph by: For equipment using LED's or lasers, compliance is checked according to EN 60825-1	Replaced No laser	N
Annex H	Replace last paragraph by: At any point 10cm from the surface of the OPERATOR ACCESS AREA, the dose rate shall not exceed 1uSv/h (0.1 mR/h)	Replaced	N
Annex P	Replace the text of this Annex by: See Annex ZA	Replaced	N
Annex Q	Add the notes for the standards indicated	Added	N



IEC 60950			
Clause	Requirement - Test	Result	Verdict

National Difference CB Bulletin 105A

National modification for <b>Australia (AU)</b> forming the first edition of standard <b>AS/NZS 60950 Safety of information technology equipment + A1:2003</b> based on the full text of IEC 60950:1999 varied in the text as listed below (Annex ZZ) to take account of Australian/New Zealand conditions			-
TEST REPORT			
EXPLANATION FOR ABBREVIATIONS			
P=Pass, F=Fail, N=Not applicable. Placed in the column to the right.			
<b>Annex ZZ (of AS/NZS 60950)</b>			
ZZ.1	Introduction		-
	This Annex sets out variations between this standard (AS/NZS 60950) and IEC 60950:1999. These variations indicate national variations for purposes of the IECEE CB scheme and will be published in the IECEE CB Bulletin. These variations are indicated within the body of the Standard (AS/NZS 60950) by marginal bars		
ZZ.2	Variations		-
	The variations are as listed below:		
1.2	Between the definitions for “frequency, rated” and “insulation, basic” insert the following variation: “Ignition, source potential 1.2.12.11”	Added	P
1.2.12.10	After definition 1.2.12.10, add the following variation:  1.2.12.11 <b>POTENTIAL IGNITION SOURCE</b> Possible fault such as faulty contact or interruption in an electrical connection, including a conductive pattern on printed boards, which can start a fire if, under normal operating conditions, the open circuit voltage exceeds 50V (peak) a.c. or d.c. and the product of this open circuit voltage and the measured current through this possible fault exceeds 15VA	Added	P

IEC 60950			
Clause	Requirement - Test	Result	Verdict
1.2.12.1 1 (A1)	<p><i>Delete</i> the variation to Clause 1.2.12.10 and replace with -</p> <p>1.2.12.10 After definition 1.2.12.10, add the following:</p> <p>1.2.12.11 POTENTIAL IGNITION SOURCE: Possible fault which can start a fire if the open-circuit voltage measured across an interruption or faulty contact exceeds a value of 50 V (peak) a.c. or d.c. and the product of the peak value of this voltage and the measured r.m.s current under normal operating conditions exceeds 15 VA. Such a faulty contact or interruption in an electrical connection includes those which may occur in conductive patterns on printed boards.</p> <p>NOTE 201 An electronic protection circuit may be used to prevent such a fault from becoming a POTENTIAL IGNITION SOURCE.</p> <p>NOTE 202 This definition is identical to that used in IEC 60065:2001.</p>	Deleted ad replaced	P
1.5.1	<p>Add the following variation after the words “IEC component standard” in the first and third dash items:</p> <p>“ or the relevant Australian/New Zealand Standard.”</p>	Added. Refer to table 1.5.1	P
1.5.2	<p>Add the following variation to the first paragraph:</p> <p>“ or the relevant Australian/New Zealand Standard.”</p>	Added. UL, TUV or similar component applied.	P
1.6.1	<p>Add the following variation:</p> <p>“AC power distribution systems classified as TT or IT are not allowed.”</p>	<p>Added</p> <p>Dc unit</p>	N
1.7.12	<p>Add the following variation to the first paragraph:</p> <p>“All safety instructions and safety markings shall be in English.”</p>	Users manual in English	P

IEC 60950			
Clause	Requirement - Test	Result	Verdict

3.2.5	<p>Replacement for Table 3B with the following variation:</p> <p style="text-align: center;">Table 3B Sizes of conductors</p> <table border="1" data-bbox="407 474 1321 1136"> <thead> <tr> <th rowspan="2">RATED CURRENT OF EQUIPMENT A</th> <th colspan="2">Minimum conductor sizes</th> </tr> <tr> <th>Nominal cross-sectional area mm<sup>2</sup></th> <th>AWG or kcmil (cross-sectional area in mm<sup>2</sup>) see note 1</th> </tr> </thead> <tbody> <tr><td>Over 0.2 up to and including 3</td><td>0,5 <sup>1)</sup></td><td>18 [0,8]</td></tr> <tr><td>Over 3 up to and including 7.5</td><td>0,75</td><td>16 [1,3]</td></tr> <tr><td>Over 6 up to and including 10</td><td>(0,75) 1,00</td><td>16 [1,3]</td></tr> <tr><td>Over 10 up to and including 16</td><td>(1,0 ) 1,5</td><td>14 [2]</td></tr> <tr><td>Over 16 up to and including 25</td><td>2,5</td><td>12 [3]</td></tr> <tr><td>Over 25 up to and including 32</td><td>4</td><td>10 [5]</td></tr> <tr><td>Over 32 up to and including 40</td><td>6</td><td>8 [8]</td></tr> <tr><td>Over 40 up to and including 63</td><td>10</td><td>6 [13]</td></tr> <tr><td>Over 63 up to and including 80</td><td>16</td><td>4 [21]</td></tr> <tr><td>Over 80 up to and including 100</td><td>25</td><td>2 [33]</td></tr> <tr><td>Over 100 up to and including 125</td><td>35</td><td>1 [42]</td></tr> <tr><td>Over 125 up to and including 160</td><td>50</td><td>0 [53]</td></tr> <tr><td>Over 160 up to and including 190</td><td>70</td><td>000 [85]</td></tr> <tr><td>Over 190 up to and including 230</td><td>95</td><td>0000 [107]</td></tr> <tr><td>Over 230 up to and including 260</td><td>120</td><td>250 kcmil [126]</td></tr> <tr><td>Over 260 up to and including 300</td><td>150</td><td>300 kcmil [152]</td></tr> <tr><td>Over 300 up to and including 340</td><td>185</td><td>400 kcmil [202]</td></tr> <tr><td>Over 340 up to and including 400</td><td>240</td><td>500 kcmil [253]</td></tr> <tr><td>Over 400 up to and including 460</td><td>300</td><td>600 kcmil [304]</td></tr> </tbody> </table> <p><sup>1)</sup> This nominal cross-sectional area is only allowed for Class II appliances if the length of the power supply cord, measured between the point where the cord, or cord guard, enters the appliance, and the entry to the plug does not exceed 2 m (0.5 mm<sup>2</sup> three-core supply flexible cords are not permitted; see Note 2 to Table 2.17 of AS/NZS 3191).</p> <p>NOTE 1 – AWG and kcmil sizes are provided for information only. The associated cross-sectional areas, in square brackets, have been rounded to show significant figures only. AWG refers to the American Wire Gage and the term "cmil" refers to circular mils where one circular mil is equal to the area of a circle having a diameter of one mil (one thousandth of an inch). These items are commonly used to designate wire sizes in North America.</p>	RATED CURRENT OF EQUIPMENT A	Minimum conductor sizes		Nominal cross-sectional area mm <sup>2</sup>	AWG or kcmil (cross-sectional area in mm <sup>2</sup> ) see note 1	Over 0.2 up to and including 3	0,5 <sup>1)</sup>	18 [0,8]	Over 3 up to and including 7.5	0,75	16 [1,3]	Over 6 up to and including 10	(0,75) 1,00	16 [1,3]	Over 10 up to and including 16	(1,0 ) 1,5	14 [2]	Over 16 up to and including 25	2,5	12 [3]	Over 25 up to and including 32	4	10 [5]	Over 32 up to and including 40	6	8 [8]	Over 40 up to and including 63	10	6 [13]	Over 63 up to and including 80	16	4 [21]	Over 80 up to and including 100	25	2 [33]	Over 100 up to and including 125	35	1 [42]	Over 125 up to and including 160	50	0 [53]	Over 160 up to and including 190	70	000 [85]	Over 190 up to and including 230	95	0000 [107]	Over 230 up to and including 260	120	250 kcmil [126]	Over 260 up to and including 300	150	300 kcmil [152]	Over 300 up to and including 340	185	400 kcmil [202]	Over 340 up to and including 400	240	500 kcmil [253]	Over 400 up to and including 460	300	600 kcmil [304]	N
RATED CURRENT OF EQUIPMENT A	Minimum conductor sizes																																																															
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4.3.6 (A1)	<p>Delete the variation to the third paragraph of Clause 4.3.6 and replace with the following:</p> <p>4.3.6 Replace paragraph three with: Equipment with a plug portion, suitable for insertion into a 10 A 3-pin flat-pin socket-outlet complying with AS/NZS 3112, shall comply with the requirements in AS/NZS 3112 for equipment with integral pins for insertion into socket-outlets.</p>	<p>Replaced</p> <p>Not direct-plug-in equipment.</p>	N																																																													

IEC 60950			
Clause	Requirement - Test	Result	Verdict
4.3.13	After the third paragraph insert the following variation:  NOTE: For the purpose of this standard compliance with AS/NZS 2211.1 is deemed to be in compliance with IEC 60825-1	No radiation	N
4.7	Add after clause 4.7 the following variation:  For alternative tests refer to Annex YY	No alternative tests applied.	N
6.2.1 (A1)	<i>Place</i> a marginal bar on the left hand side of item c).		-
	Add the following new variation: 6.2.1 Delete item c) and replace with the following:  c) 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.	No TNV	N
6.2.2	Replace the first paragraph with the following variation: "In Australia (this variation does not apply in New Zealand), compliance with 6.2.2 is checked by the tests of both 6.2.2.1 and 6.2.2.2".	Equipment not intended to be connected to TNV.	N
6.2.2.1	Replace Clause 6.2.2.1 with the following variation:  In Australia (this variation does not apply in New Zealand) the electrical separation is subjected to 10 impulses of alternating polarity, using the impulse test generator of annex N for 10/700µs impulses. The interval between successive impulses is 60s and the initial voltage, $U_c$ is:  - for 6.2.1a): 7kV for hand-held telephones and for headsets; and 2.5kV for other equipment; and  - for 6.2.1b) and 6.2.1c): 1.5kV.  Notes:  1 The 7 kV impulse is to simulate lighting surges on typical rural and semi-rural network lines.  2 The value of 2.5kV for 6.2.1a) was chosen to ensure adequacy of the insulation concerned, and does not necessarily simulate likely overvoltages.	No TNV.	N



IEC 60950			
Clause	Requirement - Test	Result	Verdict
Annex P	<p>Replace the marginally barred normative references with the following:</p> <p>AS 1852.151-1988, International Electrotechnical Vocabulary – Part 151: Electrical and magnetic devices (identical to IEC 60050-151)</p> <p>AS/NZS 60065:2000, Safety requirements for mains operated electronic and related apparatus for household and similar general use</p> <p>AS 2768-1985, Electrical insulating materials-Evaluation and classification based on thermal endurance</p> <p>AS/NZS 4695.112:1996, Fire hazard testing of electrotechnical products part 112: Method for determining the comparative and the proof tracking indices of solid insulating materials under moist conditions (identical to IEC 60112:1979)</p> <p>AS/NZS 3109.1:1996, Approval and test specification – Appliance couplers for household and similar general purposes Part 1: General requirements</p> <p>AS/NZS 4695.2.11:1996, Fire hazard testing of electrotechnical products, part 2.11: Test methods – Glow wire end-product test and guidance</p> <p>AS/NZS 4695.2.2:1996, Fire hazard testing of electrotechnical products, part 10.2: Test methods – Needle-flame test</p> <p>AS/NZS 4695.10.2:1997, Fire hazard testing of electrotechnical products, part 10.2: Guidance and test methods for the minimization of the effects of abnormal heat on electrotechnical products involved in fires – Method for testing products made from non-metallic materials for resistance to heat using the ball pressure test (identical to IEC 60695-10-2:1995)</p> <p>AS/NZS 2211.1:1997, Laser safety, Part 1: Equipment classification, requirements and user's guide</p> <p>Note: For the purpose of this standard compliance with AS/NZS 2211.1 is deemed to be in compliance with IEC 60825-1</p> <p>AS1721-1985, General purpose metric screw threads</p>		P
Annex Q	<p>Replace the marginally barred informative references with the following:</p> <p>AS 2005.21.1-1990, Low voltage fuses – Fuses with enclosed fuse-links Part 21.1: Supplementary requirements for fuses for use by authorized persons (Fuses mainly for industrial application) Standardized fuse systems – Fuses with fuse-links with blade contacts</p> <p>AS 3859-1991, Effects of currents passing through the human body (identical to IEC60479-1: 1984)</p> <p>AS 1939-1990, Degrees of protection provided by enclosures for electrical equipment (IP code) (identical to IEC 60529:1989)</p>		P

IEC 60950			
Clause	Requirement - Test	Result	Verdict
Annex YY normative	Add Appendix	RESISTANCE TO FIRE	N
YY.1	<p>Parts of non-metallic material shall be resistant to ignition and spread of fire.</p> <p>This requirement does not apply to decorative trims, knobs wiring insulation and other parts not likely to be ignited or to propagate flames from inside the apparatus, or the following:</p> <p>(a) Components that are contained in an enclosure having a flammability category of FV-0 according to AS/NZS 4695.707 and having openings only for the connecting wires filling the openings completely, and for ventilation not exceeding 1 mm in width regardless of length.</p> <p>(b) The following parts which would contribute negligible fuel to a fire:</p> <ul style="list-style-type: none"> <li>- small mechanical parts, the mass of which does not exceed 4g, such as mounting parts, gears, cams, belts and bearings;</li> <li>- small electric components, such as capacitors with a volume not exceeding 1750mm<sup>3</sup>, integrated circuits, transistors and optocoupler packages, if these components are mounted on material of flammability category FV-1 or better according to AS/NZS 4695.707</li> </ul> <p>NOTE: In considering how to minimize propagation of fire and what "small parts" are, account should be taken of the cumulative effect of small parts adjacent to each other for the possible effect of propagating fire from one part to another.</p> <p>Compliance is checked by tests of YY.1.1 and YY.1.2</p>	Not applied	N

IEC 60950			
Clause	Requirement - Test	Result	Verdict
YY.1 continued	<p>For the base material of printed boards, compliance is checked by the test of YY.1.3.</p> <p>These tests are carried out on parts of non-metallic material, which have been removed from the apparatus. When the glow wire test is carried out, they are placed in the same orientation, as they would be in normal use.</p> <p>These tests are not carried out on internal wiring.</p>	Not applied.	N
YY.1.1	<p><b>NON-METALLIC MATERIAL</b></p> <p>Parts of non-metallic material are subject to the glow-wire test of AS/NZS 4695.2.11, which is carried out at 550°C.</p> <p>Parts, for which the glow-wire test cannot be carried out, such as those made of soft or foamy material, shall meet the requirements specified in ISO 9772 for category FH-3 material. The glow-wire test is not carried out on parts of material classified at least FH-3 according to ISO 9772 provided that the sample tested was not thicker than the relevant part.</p>	Not applied.	N
YY1.2 (A1)	<p>Parts of insulating material supporting POTENTIAL IGNITION SOURCES shall be subject to the glow-wire test of AS/NZS 4695.2.11 which shall be carried out at 750°C.</p> <p>The test shall be also carried out on other parts of insulating material which are within a distance of 3mm of the connection.</p> <p>NOTE - Contacts in components such as switch contacts are considered to be connections.</p> <p>For parts which withstand the glow-wire test but produce a flame, other parts above the connection within the envelope of a vertical cylinder having a diameter of 20 mm and a height of 50 mm shall be subjected to the needle-flame test. However, parts shielded by a barrier which meets the needle-flame test shall not be tested.</p> <p>The needle-flame test shall be made in accordance with AS/NZS 4695.2.2 with the following modifications:</p> <p><b>5 Severities</b></p> <p><i>Replace with:</i></p> <p><i>The duration of application of the test flame is 30 ± 1s</i></p>	Not applied.	N



IEC 60950			
Clause	Requirement - Test	Result	Verdict
YY1.2 continued	<p><b>8 Test procedure</b></p> <p>8.2 <i>Replace the first sentence with: The specimen shall be arranged so that the flame can be applied to a vertical or horizontal edge as shown in the examples of figure 1.</i></p> <p>8.4 <i>The first paragraph does not apply.</i></p> <p><i>Addition: If possible, the flame is applied at least 10mm from a corner.</i></p> <p>8.5 <i>Replace with: The test shall be made on one specimen. If the specimen does not withstand the test, the test may be repeated on two further specimens, both of which shall then withstand the test.</i></p> <p><b>10 Evaluation of test results</b></p> <p><i>The duration of burning (tb) shall not exceed 30s. However, for printed circuit boards, it shall not exceed 15s.</i></p> <p>The needle-flame test shall not be carried out on parts of material classified as V-0 or V-1 according to IEC 60695-11-10, provided that the sample tested was not thicker than the relevant part.</p>	Not applied.	N
YY.1.3	<p>If parts, other than enclosures, do not withstand the glow-wire test of YY.1.2, by failure to extinguish within 30 s after removal of the glow wire tip, the needle-flame test as detailed in YY.1.2 is made on all parts of non-metallic material which are within a distance of 50mm or which are likely to be impinged upon by flame during the test of YY.1.2. Parts shielded by a separate barrier which meets the needle-flame test are not tested. NOTES:</p> <ol style="list-style-type: none"> <li>1 If the enclosure does not withstand the glow-wire test the equipment is considered to have failed to meet the requirement of Annex YY without the need for consequential testing.</li> <li>2 If other parts do not withstand the glow-wire test due to ignition of the tissue paper and if this indicates that burning or glowing particles can fall onto an external surface underneath the equipment, the equipment is considered to have failed to meet the requirement of Annex YY without the need for consequential testing.</li> </ol>	Not applied.	N

IEC 60950			
Clause	Requirement - Test	Result	Verdict
YY.1.3	3 Parts likely to be impinged upon by the flame are considered to be those within the envelope of a vertical cylinder having a radius of 10 mm and a height equal to the height of the flame, positioned above the point of the material supporting, in contact with or in close proximity to connections.	Not applied.	N

IEC 60950			
Clause	Requirement - Test	Result	Verdict
YY.2	<p>The base material of printed boards is subjected to the needle-flame test of clause YY.1.2. The flame is applied to the edge of the board where the heat sink effect is lowest when the board is positioned as in normal use. The flame shall not be applied to an edge, consisting of broken perforations, unless the edge is less than 3mm from a POTENTIAL IGNITION SOURCE.</p> <p>The test is not carried out if the –</p> <ul style="list-style-type: none"> <li>- Printed board does not carry any POTENTIAL IGNITION SOURCE</li> <li>- Base material of printed boards, on which the available apparent power at a connection exceeds 15VA operating at a voltage exceeding 50V and equal or less than 400V (peak) a.c. or d.c. under normal operating conditions, is of flammability category FV-1 or better according to AS/NZS 4695.707, or the printed boards are protected by an enclosure meeting the flammability category FV-0 according to AS/NZS 4695.707, or made of metal, having openings only for connecting wires which fill the openings completely; or</li> <li>- Base material of printed boards, on which the available apparent power at a connection exceeds 15VA operating at a voltage exceeding 400V (peak) a.c. or d.c. under normal operating conditions, and base material of printed boards supporting spark gaps which provides protection against overvoltages, is of flammability category FV-0 according to AS/NZS 4695.707, or the printed boards are contained in a metal, having openings only for connecting wires which fill the openings completely.</li> </ul> <p>Compliance is determined using the smallest thickness of the material.</p> <p>Note: Available apparent power is the maximum apparent power which can be drawn from the supplying circuit through a resistive load whose value is chosen to maximize the apparent power for more than 2 min when the circuit supplied is disconnected.</p>	Not applied.	N

IEC 60950			
Clause	Requirement - Test	Result	Verdict
National Differences for <b>Canada (CA) and USA (US)</b> ; CAN/CSA C22.2 No. 60950/UL60950 Third Edition			P
1.1	Equipment able to be installed in accordance with the National Electrical Code ANSI/NFPA 70 and the Canadian Electrical Code, Part 1	In accordance with the National Electrical Code (NEC) and the Canadian Electrical Code (CEC) part 1 CAN/CSA C22.1, ANSI/NFPA 70, and unless marked or otherwise identified, the Standard for Electronic Computer/Data-Processing Equipment, ANSI/NFPA 75	P
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	Complies with ANSI/NFPA 75 and NEC Art. 645	P
1.1.2	Equipment in wire-line communication facilities serving high-voltage electric power stations operating at greater than 1kV are excluded	No such equipment	N
	Special requirements apply to equipment intended for use outdoors	No such parts	N
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	UL and CSA acceptance considered	P
	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	UL and CSA acceptance considered	P
1.5.5	Interconnecting cables acceptable for the application regarding voltage, current, temperature, flammability, mechanical serviceability and the like	Refer to list of critical components	P
	External cable assemblies which exceed 3.05m in length to be types specified in the NEC and CEC	Refer to list of critical components	P
	Detachable external interconnecting cables 3.05m or less in length and provided with equipment marked to identify the responsible organization and the designation for the cable	Refer to list of critical components	P
	Building wiring and cable for use in ducts, plenums and other air handling space subject to special requirements and excluded from scope	No such components	N

IEC 60950			
Clause	Requirement - Test	Result	Verdict
	Telephone line and extension cords and the like comply with UL 1863 and CSA C22.2 No. 233	No such components	N
	For other than limited power and TNV circuits, the type of output circuit identified for output connector	No such components	N
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	Unit is not 3 phase	N
	Equipment voltage rating not higher than rating of the plug except under special conditions	Unit is not 3 phase	N
1.7.2	Wiring terminals supplying Class 2 outputs marked with voltage rating and "Class 2" or equivalent	No such terminals	N
1.7.6	Special fuse replacement marking for operator accessible fuses	No such components	N
	Lamp replacement information indicated on lampholder in operator access area	No such components	N
1.7.7	Identification of terminal connection of the equipment earthing conductor	No such components	N
2.1.1	Screw shell of Edison-base lampholder tied to the neutral conductor	No such components	N
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	No TNV circuits	N
2.3.1.b	Other telecommunication signaling systems (e.g., message waiting) than described in 2.3.1(b) are subject to M.4	No TNV circuits	N
	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 the 2000 Ohm resistor with loads disconnected is 7.1 mA peak or 30 mA d.c. under normal conditions	No TNV circuits	N
	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	No TNV circuits	N
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	No TNV connection	N

IEC 60950			
Clause	Requirement - Test	Result	Verdict
2.5	Overcurrent protection device required for Class 2 and Class 3 limiting in accordance with the NEC, or the Limited Power Source definition, not interchangeable with devices of higher ratings if operator replaceable	See table 5.3. Camera is located in power limited circuit. PTC is not interchangeable	P
	VA for limited power source measured after 60 s of operation	Outputs are not evaluated as limited power source	N
2.6	Protective earthing terms applied per CEC, Part 1, Sec. 0 and NEC Art. 100	Applied per CEC, Part 1, Sec. 0 and NEC Art. 100	P
	Units having receptacles for output a.c. power connectors which are generated from an internal separately derived source have the grounded circuit conductor suitably bonded to earth	No power outlets	N
2.6.3.3	Capacity of connection between earthing terminal and parts required to be earthed subject to special conditions based on the current rating of the circuit	Standard construction used	N
	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.4	PCB layout not relied upon for earthing	N
2.6.4.1	Field wiring terminals for earthing conductors must be suitable for wire sizes (gauge) used in US and Canada	No such components	N
2.7.1	Standard supply outlets protected by overcurrent device in accordance with the NEC, and CEC, Part 1	No outlets	N
	Non-motor-operated equipment requiring special overcurrent protective device marked with device rating	No such equipment	N
	Data for selection of special external branch circuit overcurrent devices marked on the appliance	External branch not defined	N
	Overcurrent protection for individual transformers that distribute power to other units over branch circuit wiring	No such connections	N
	Additional requirements for overcurrent protection apply to equipment provided with panelboards	No such equipment	N
2.10.5.4	Multi-layer winding wire subject to UL wire requirements in addition to 2.10.5.4 and Annex U	DC unit	N

IEC 60950			
Clause	Requirement - Test	Result	Verdict
3.1.1	Permissible combinations of internal wiring/ external cable sizes for overcurrent and short circuit protection	DC unit	N
	All interconnecting cables protected against overcurrent and short circuit	DC unit	N
3.2	Wiring methods permit connection of equipment to primary power supply in accordance with the NEC and CEC, Part 1	DC unit	N
3.2.1	Permitted use for flexible cords and plugs	Unit employs DC inlet	N
	Flexible cords provided with attachment plug rated 125% of equipment current rating	SELV input	N
	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	No Class II equipment	N
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	Unit not permanently connected or provided with non-detachable cord set	N
	Equipment compatible with suitable trade sizes of conduits and cables	Unit not permanently connected or provided with non-detachable cord set	N
	Permanently connected equipment may have terminals or leads not smaller than No. 18 AWG (0.82 mm <sup>2</sup> ) and not less than 152 mm in length for connection of field installed wiring	Unit not permanently connected or provided with non-detachable cord set	N
	If supply wires exceed 60 °C, marking indicates use of 75 °C or 90 °C wiring for supply connection as appropriate	Unit not permanently connected or provided with non-detachable cord set	N
	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 must be provided to ensure the wiring is protected from abuse	Unit not permanently connected or provided with non-detachable cord set	N
3.2.5	Length of power supply cord 1.5 to 4.5 m unless shorter length used when intended for a special installation	Detachable cord is not part of safety investigation	N
	Conductors in power supply cords sized according to NEC and CEC, Part I	Power supply cord is not part of safety investigation	N

IEC 60950			
Clause	Requirement - Test	Result	Verdict
	Power supply cords and cord sets incorporate flexible cords suitable for the particular application	No such components	N
3.2.6	Strain relief provided for non-detachable interconnecting cables not supplied by a limited power source	Detachable interconnecting cables	N
3.2.9	Adequate wire bending space and volume of field wiring compartment to properly make the field connections	No field wiring connections	N
3.3	Field wiring terminals provided for interconnection of units for other than LPS or Class 2 circuits also comply with 3.3	No field wiring terminals	N
	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	No field wiring terminals	N
3.3.1	Terminals for the connection of neutral conductor identified by a distinctive white marking or other equally effective means	No such terminals	N
3.3.3	Wire binding screw terminal permitted for connection of No. 10 AWG (5.3 mm <sup>2</sup> ) or smaller conductor if provided with upturned lugs, cupped washer or equivalent retention	No such screws	N
3.3.4	Terminals suitable to accept wire sizes (gauge) used in the U.S. and Canada	No terminals	N
	Terminals accept current-carrying conductors rated 125% of the equipment current rating	No terminals	N
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	No field wiring terminals	N
	Field wiring terminals marked to indicate the material(s) of the conductor appropriate for the terminals used	No terminals	N
	Connection of an aluminum conductor not permitted to terminal for equipment earthing conductor	No terminals	N
3.3.8	Connectors and field wiring terminals involving external Class 2 or Class 3 circuits provided with marking indicating minimum Class of wiring to be used	No field wiring terminals	N
	Marking located adjacent to terminals and visible during wiring	No field wiring terminals	N

Report reference No.:  
 TRF No.: 1950\_\_\_F

TRF originator: FIMKO



IEC 60950			
Clause	Requirement - Test	Result	Verdict
3.4.2	Separate motor control device(s) required for cord-connected equipment rated more than 12 A, or if the motor has a nominal voltage rating greater than 120 V, or is rated more than 1/3 hp (locked rotor current over 43 A)	No such device	N
3.4.8	Vertically mounted disconnect devices, oriented so up position of handle is "on"	No primary switches	N
3.4.10	For computer-room applications, equipment with battery systems capable of supplying 750 VA for 5 min require battery disconnect means	No such battery system	N
3.6	Connections to a centralized DC power system comply with requirements for branch circuits in Sub-clause 3.2	Not connected to centralized D.C. power system	N
	Earthing of d.c. powered equipment provided	Not connected to centralized D.C. power system	N
	Overcurrent and earth fault protection in accordance with 2.7 either provided in equipment or as part of building installation	Not connected to centralized D.C. power system	N
	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	Not connected to centralized D.C. power system	N
	Equipment with earthed terminal (terminal for the grounded conductor) of power source connected to frame of the unit provided with special instructions and provision for earthing	Not connected to centralized D.C. power system	N
	Equipment with means for connecting supply to earthing electrode conductor has no switches or protective devices between supply connection and earthing electrode connection	Not connected to centralized D.C. power system	N
	Special markings and instructions for equipment with provisions to connect earthed conductor of a DC supply circuit to earthing conductor at the equipment	Not connected to centralized D.C. power system	N
	Special markings and instructions for equipment with earthed conductor of a DC supply circuit connected to the earthing conductor at the equipment	Not connected to centralized D.C. power system	N
4.2.8.1	Special opening restrictions for enclosures around CRTs with face dimension of 160 mm or more	No CRT	N

IEC 60950			
Clause	Requirement - Test	Result	Verdict
4.2.9	Compartment housing high-pressure lamp marked to indicate risk of explosion	No high-pressure lamp	N
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	No handles	N
4.3.6	In addition to the IEC requirements, Direct Plug-in Equipment comply with UL 1310 or CSA 223 mechanical assembly requirements	No such components	N
4.3.12	The maximum quantity of flammable liquid stored in equipment comply with ANSI/NFPA 30 (Table NAE. 7)	No liquids	N
	Equipment using replenish able liquids marked to indicate type of liquid to be used	No liquids	N
4.3.13	Equipment which 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	Equipment does not produces x-radiation	N
	Requirements contained in the applicable national codes and regulations apply to lasers (21 CFR 1040 and REDR C1370)	No lasers	N
4.7.1	Automated information storage equipment intended to contain more than 0.76 mm <sup>3</sup> of combustible media requires provision for automatic sprinklers or a gaseous agent extinguishing system	Not automated information storage equipment	N
4.7.3	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	Not intended to be used in environmental air space	N
	Low smoke-producing characteristics evaluated according to UL 2043	No smoke	N
	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	Not intended to be used in environmental air space	N
4.7.3.1	Flame spread rating for external surface of combustible material with exposed area greater than 0.93 m <sup>2</sup> or a single dimension greater than 1.8 m; 50 or less for computer room applications or 200 or less for other applications	Fire enclosure decorative plastics - metallic	N

IEC 60950			
Clause	Requirement - Test	Result	Verdict
4.7.3.4	Wire marked "VW-1" or "FT-1" considered equivalent	VW-1 or FT-1 may be used	P
5.1.8.1.1	Touch current due to ringing voltage for equipment containing telecommunication network leads	No TNV circuits	N
5.1.8.2	When multiple ports receive ringing voltage, simulated ringing applied to 3 % if ports in excess of 3	No ringing voltage. No TNV	N
	Special earthing provisions and instructions for equipment with high touch current due to telecommunication network connections		N
5.3.6	Overloading of SELV connectors and printed wiring board receptacles accessible to the operator	Refer to table 5.3	P
	Tests interrupted by opening of a component repeated two additional times	No such condition	N
5.3.8.1	Test interrupted by opening of wire or trace continued by shorting gap	No such condition	N
6	Specialized instructions, as appropriate, provided for equipment which may be connected to a telecommunications network	Not connected to a telecommunication network	N
	Marking identifying function of telecommunication type connectors not used for connection to a telecommunication network		N
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	Not connected to a telecommunication network	N
	Digital line termination equipment (e.g., NCTE) subject to separation requirements.		N
6.3	Equipment remotely powered over telecommunication wiring systems provided with specialized markings adjacent to the connection	Not connected to a telecommunication network	N
	Overcurrent protection incorporated into equipment to provide power over telecommunication wiring system not interchangeable with devices of higher ratings if operator replaceable		N

IEC 60950			
Clause	Requirement - Test	Result	Verdict
6.4	Additional requirements for equipment intended for connection to a telecommunication network using cable subject to overvoltage from power line failures (Fig. 6C)	Not connected to a telecommunication network	N
	Where 26 AWG line cord required by Fig. 6C, either the cord is provided with the equipment or described in the safety instructions		N
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	Not ear piece	N
Annex H	Ionizing radiation measurements are 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	Not Ionizing radiation equipment	N
Annex M.2	Continuous ringing signals evaluated to Method A subjected to special accessibility considerations	No telephone ringing and other signals	N
Annex M.4	Special requirements for message waiting and similar telecommunications signals	No ringing voltage	N
Annex NAB	Equipment intended for connection to centralized d.c. power systems is required to comply with special earthing, wiring, and supply voltage tolerance requirements	Not connected to centralized D.C. power systems	N
Annex NAC	Equipment intended for use with a generic secondary protector shall be marked with suitable instructions	No TNV	N
Annex NAC	Equipment intended for use with a specific primary or secondary protector shall be marked with suitable instructions	No TNV	N

IEC 60950			
Clause	Requirement - Test	Result	Verdict

National Differences for <b>China (CN)</b>			P
1	Supply tolerance Item 1.4.5 of IEC60950 stipulates the tolerance of rated voltage is +6% and -10%, while GB4943-2001 makes a specification of tolerance of +10% and -10%	5V and 12 VDC input	N
2	Power rating marking Item 1.7.1 of IEC60950 does not specify concrete figures of markings for supply voltage and frequency, instead, descriptions are given by examples. But the examples do not include China's mains voltage. GB4943-2001 stipulates that: - A single rated voltage shall be expressed as 220V - When a rated voltage range is given, the range shall cover 220V - When a variety of rated voltages or rated voltage ranges are given, one of them shall be 220V, and shall be set as 220V when dispatched from the factory - Rated frequency or rated frequency range shall be 50Hz or include 50Hz - If a unit is not provided with a means for direct connection to the AC mains supply, it need not be marked with any electrical rating	Rated: 5V, 7A and 12V, 3A Dc	N
3	Plate and warning marking in Chinese Item 1.7.12 of GB4943-2001 stipulates: instructions and equipment markings related to safety shall be in standardized Chinese.	No safety related marking	N
4	Power supply plug According to China's particular standards for power supply plug, it is added in article 3.2.1 of GB4943-2001 that plug connecting equipment with AC mains supply shall be in accordance with requirements of GB1002	External power supply	N

IEC 60950			
Clause	Requirement - Test	Result	Verdict

National Differences for <b>Denmark (DK)</b> ; EN 60950:2000			P
1.2.4.1	Certain types of Class I appliances (see sub-clause 3.2.1) may be provided with a plug not establishing earthing continuity when inserted into Danish socket-outlets	Unit is class III	N
1.5.1 and 1.7.2	Supply cords of Class I equipment, which is delivered without a plug, must be provided with a visible tag with the following text:  "Vigtigt ! Lederen med grøn/gul isolation må kun tilsluttes en klemme mærket	Unit is class III	N
1.7.5 (a)	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	Unit is class III	N
1.7.5 (b)	Class II equipment shall not be fitted with socket-outlets for providing power to other equipment	Unit is class III	N
3.2.1	Supply cord of single-phase equipment having a rated current not exceeding 10 A shall be provided with a plug according to the Heavy Current Regulations, Section 107-2-D1.  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.  If poly-phase equipment and single-phase equipment having a rated current exceeding 10 A is provided with a supply cord with a plug, this plug shall be in accordance with the Heavy Current Regulations, Section 107-1-D1 or EN 60309-2	Unit is class III	N

National Differences for <b>Finland (FI)</b> ; EN 60950:2000			P
6.1.2.2	The exclusions are applicable for PERMANENTLY CONNECTED EQUIPMENT and PLUGGABLE-EQUIPMENT TYPE B only.	No such equipment	N

IEC 60950			
Clause	Requirement - Test	Result	Verdict
National Differences for <b>Korea (KR)</b> ; K60950			P
General	When an appliance is supplied in Korea, it shall be set to and marked with 220V.	External power supply.	N
General	When an appliance is supplied in Korea, it shall be set to and marked with 60Hz.	D.C.	N
1.5.101	Addition – Plugs for the connection of the apparatus to the supply shall comply with the Korean requirement (KSC 8305 and 8305)	External power supply	N
7	Addition – EMC, The apparatus shall comply with the relevant CISPR standards	Manufacture shall verify compliance with EMC Korean requirements.	P

National Differences for <b>Germany (DE)</b> ; EN 60950:2000			P
1.7.12	Directions for use with rules to prevent certain hazards for (among others) maintenance of the technical labour equipment, also for imported technical labour equipment shall be written in the German language. NOTE: Of this requirement, rules for use even only by service personnel are not exempted	No unique safety instructions are required	N
Annex H (a)	a) A license is required by those who operate an X-ray emission source	No such parts	N
Annex H (b)	b) A license in accordance with Clause 1 is not required by those who operate an X-ray emission source on which the electron acceleration voltage does not exceed 20 kV if:  1) The local dose rate at a distance of 0.1 m from the surface does not exceed 1 µSv/h and  2) it is adequately indicated on the X-ray emission source that  i) X-rays are generated and  ii) the electron acceleration voltage must not exceed the maximum value stipulated by the manufacturer or importer	No such components	N

IEC 60950			
Clause	Requirement - Test	Result	Verdict
Annex H (c)	<p>c) A license in accordance with Clause 1 is also not required by persons who operate an X-ray emission source on which the electron acceleration voltage exceeds 20 kV if:</p> <p>1) The X-ray emission source has been granted a type approval and</p> <p>2) it is adequately indicated on the X-ray emission source that</p> <p style="padding-left: 20px;">i) X-rays are generated,</p> <p style="padding-left: 20px;">ii) the device stipulated by the manufacturer or importer guarantees that the maximum permissible local dose rate in accordance with the type approval is not exceeded and</p> <p style="padding-left: 20px;">iii) the electron acceleration voltage does not exceed the maximum value stipulated by the manufacturer or importer</p>	No such components	N
Annex H (d)	<p>d) Furthermore, a license in accordance with Clause 1 is also not required by persons who operate X-ray emission source on which the electron acceleration voltage does not exceed 30 kV if:</p> <p>1) the X-rays are generated only intrinsically safety CRTs complying with Enclosure III, No. 6</p> <p>2) the values stipulated in accordance with Enclosure III, No. 6.2 are limited by technical measured and specified in the device and</p> <p>3) it is adequately indicated on the X-ray emission source that the X-rays generated are adequately screened by the intrinsically safe CRT</p>	No such components	N



IEC 60950			
Clause	Requirement - Test	Result	Verdict
National Differences for <b>Ireland (IE)</b> ; EN 60950:2000			P
3.2.1	Apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to I.S. 411 by means of that flexible cable or cord and plug, shall be fitted with a 13 A plug in accordance with Statutory Instrument 525:1997 – National Standards Authority of Ireland (Section 28) (13 A Plugs and Conversion Adaptors for Domestic Use) Regulations, 1997	External power supply. Unit is class III.	N
4.3.6	Direct plug-in equipment comply with Statutory Instrument 526:1997 – National Standards Authority of Ireland (Section 28) (Electrical plugs, plug similar devices and sockets for domestic use) Regulations, 1997	Unit is not direct plug-in type	N

National Differences for <b>Japan (JP)</b> ; J 60950 (H14)			P
1.2	<b>Addition:</b> Add the following terms. Equipment, Class 0I 1.2.4.101 Material, VTM 1.2.12.101	Noted	Added
1.2.4.101	<b>Addition:</b> CLASS 0I EQUIPMENT: Equipment where protection against electric shock is achieved by: a) using BASIC INSULATION, and b) providing a means of connecting to the protective earthing conductor in the building wiring those conductive parts that are otherwise capable of assuming HAZARDOUS VOLTAGES if the BASIC INSULATION fails, and c) using a supply cord without earthing conductor and a plug without earthing wire although the equipment has externally an earth terminal or a lead wire for earthing. Equipment provided with a cord set having a two-pin type plug with a lead wire for earthing is also regarded as Class 0I. NOTE – Class 0I equipment may have a part constructed with Double Insulation or Reinforced Insulation as well as an operating part as SELV circuit.	Added. Not Class I equipment	N
1.2.12.1	<b>Replacement:</b> FLAMMABILITY CLASSIFICATION OF	Not tested according to Annex A	N

IEC 60950			
Clause	Requirement - Test	Result	Verdict
	<p><b>MATERIALS:</b> The recognition of the burning behavior of materials and their ability to extinguish if ignited. Materials are classified as in 1.2.12.2 to 1.2.12.9, and 1.2.12.101 when tested in accordance with annex A.</p> <p><b>NOTE 1 -</b> When applying the requirements in this standard, HF-1 CLASS FOAMED MATERIALS are regarded as better than those of CLASS HF-2, and HF-2 better than HBF.</p> <p><b>NOTE 2 -</b> Similarly, other MATERIALS, including rigid (engineering structural) foam of CLASSES 5V or V-0 are regarded as better than those of CLASS V-1, V-1 better than V-2, and V-2 better than HB.</p> <p><b>NOTE 3 -</b> Similarly, for thin MATERIALS, VTM-0 Class materials are regarded as better than those of VTM-1 Class, and VTM-1 better than VTM-2.</p>		
1.2.12.1 01	<p><b>Addition:</b> VTM CLASS MATERIAL: Thin MATERIALS fulfill the specified conditions during the test of clause A.101 applied for materials that the test and evaluation of clauses A.6 to A.10 is difficult to enforce. Materials are classified to three classifications as VTM-0, VTM-1 and VTM-2 according to the conditions after the removal of the test flame.</p>	Not tested according to Annex A	N
1.7.101	<p><b>Addition:</b> Marking for CLASS 0I EQUIPMENT For CLASS 0I EQUIPMENT, the following instruction shall be indicated on the visible place of the mains plug or the main body: "Provide an earthing connection" Moreover, for CLASS 0I EQUIPMENT, the following instruction shall be indicated on the visible place of the main body or written in the operating instructions: "Provide an earthing connection before the mains plug is connected to the mains. And, when disconnecting the earthing connection, be sure to disconnect after pulling out the mains plug from the mains."</p>	Not Class 01 equipment	N
2.1.1.1	<p><b>Replacement:</b> Replace "IEC 60083" to "IEC 60083 or JIS C 8303" in 2.1.1.1 b).</p>	Replaced. Not part of this investigation	N
2.6.3.1	<p><b>Addition:</b> Add the following after 1st paragraph. This also applies to the conductor of lead wire for</p>	Class III equipment	N

IEC 60950			
Clause	Requirement - Test	Result	Verdict
	protective earthing of CLASS 0I EQUIPMENT.		
2.6.4.1	<b>Replacement:</b> Replace 2nd sentence in 1st paragraph. For CLASS I EQUIPMENT with a DETACHABLE POWER SUPPLY CORD, the earthing terminal in the appliance inlet is regarded as the main protective earthing terminal.	Not Class I equipment	N
2.6.5.4	<b>Replacement:</b> Replace 1st sentence. Protective earthing connections of CLASS I EQUIPMENT shall make earlier and break later than the supply connections in each of the following:	Not Class I equipment	N
2.6.101	<b>Addition:</b> Earthing of CLASS 0I EQUIPMENT Plugs with a lead wire for earthing shall not be used for equipment having a rated voltage exceeding 150V. For plugs with a lead wire for earthing, the lead wire shall not be earthed by a clip. CLASS 0I EQUIPMENT shall be provided with an earthing terminal or lead wire for earthing in the external where easily visible.	Class III	N
3.2.5	Delete 1) in Table 3B.	Not used	Deleted
4.2.8	<b>Addition:</b> Add the following informative remark after the last sentence. Remark - IEC 61965 is also applicable instead of IEC 60065.	No CRT's	N
4.5.1	<b>Addition:</b> Add the following to suffix 5) as specified in "Conditions applicable to Table 4A, Parts 1 and 2". With regard to Table 4A, insulating materials complying with Japanese requirements (refer to Japanese differences for the current IEC 60335-1 (3rd Edition) in CB Bulletin 101B) are also acceptable. Add a suffix 7) in "Conditions applicable to Table 4A, Parts 1 and 2". In the right column of Table 4A, Part 1, add suffix 7) to "50" (K), corresponding to "- without T - marking" in the left column so as to become "50 7)". Add 7) to Table 4A, Part 2 as follows. 7) This value shall apply only to wiring or cords complying with relevant IEC standards. Others	Cord not part of this investigation.	P

IEC 60950			
Clause	Requirement - Test	Result	Verdict
	shall comply with Japanese requirements (refer to Japanese differences for the current IEC 60335-1 (3rd Edition) in CB Bulletin 101B).		
4.7.3.2	<b>Addition:</b> Add the following in 7th paragraph. - for thin materials, e.g., flexible printed boards, etc., used inside equipment, be of FLAMMABILITY CLASS VTM-2 or better.	Approved materials	P
5.1.6	<b>Replacement:</b> Replace Table 5A.	Does not exceed limits	P
5.3.8.2	<b>Replacement:</b> Replace 3rd Item as follows. - BASIC INSULATION between the PRIMARY CIRCUIT and accessible conductive parts of CLASS I or 0I EQUIPMENT;	Not Class I equipment	P
Annex A A	<b>Addition:</b> Add the subclause <b>A.101</b> with the title "Flammability tests for classifying materials VTM" and the following: Thin sheet materials shall comply with ISO 9773.	None	N
Annex G	<b>Addition:</b> Add the following to the Note for Table G.1. 2. In Japan, MAINS TRANSIENT VOLTAGE for equipment with a Nominal AC MAINS SUPPLY VOLTAGE of 100V is to be decided based on the column where Nominal AC MAINS SUPPLY VOLTAGE in Table G.1 is 150V.	External approved power supply	N
Annex P	<b>Addition:</b> Add "IEC 61965:2000, Mechanical Safety for Cathode Ray Tubes".	No CRT's	N
Annex U	<b>Replacement:</b> Replace 2nd paragraph. This annex covers to round winding wires having diameters between 0.05 mm and 5.00 mm.	None	N
U.2.1	<b>Replacement:</b> <b>Electric strength</b> The test sample is prepared according to IEC 60851-5:1997, 4.4.1 (for a twisted pair). The sample is then subjected to the test of 5.2.2 of this standard, with a test voltage not less than twice the appropriate voltage in table 5B (see 5.2.2) of this standard. However, the minimum values shall be as follows: - for BASIC INSULATION or SUPPLEMENTARY INSULATION, 3000 V, or; - for REINFORCED INSULATION, 6000 V.	None	N
U.2.2	<b>Replacement:</b>	None	N

IEC 60950			
Clause	Requirement - Test	Result	Verdict
	<b>Flexibility and adherence</b> Test 8 of IEC 60851-3:1996, 5.1.1, using the mandrel diameters of table U.1. The test sample is then examined in accordance with IEC 60851-3:1996, 5.1.1.4, followed by the test of 5.2.2 of this standard except applying the test voltage between the wire and the mandrel. A test voltage shall not be less than twice the appropriate voltage in table 5B (see 5.2.2) of this standard. However, the minimum values shall be as follows: - for BASIC INSULATION or SUPPLEMENTARY INSULATION, 1500 V, or; - for REINFORCED INSULATION, 3000 V.		
Table U.1	<b>Replacement: Mandrel diameter</b> The tension to be applied to the wire during winding on the mandrel is calculated from the wire diameter to be equivalent to 118 Mpa $\pm$ 10 % (118 N/mm <sup>2</sup> $\pm$ 10 %).	None	N

National Differences for <b>Norway (NO)</b> ; NEK EN 60950			P
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)	Not intended for IT power systems.	N
1.7.2	CLASS I PLUGGABLE EQUIPMENT TYPE A intended for connection to other equipment or a communication network where safety relies on connection to protective earth, require a marking stating that the equipment must be connected to an earthed mains socket-outlet	Not Class I equipment. No telecom circuits	N
2.2.4	Requirements according to sub-clauses 1.7.2 and 6.1.2.1 apply for this clause	SELV to SELV	P
2.3.2	Requirements according to sub-clause 6.1.2.1 apply for this clause	No TNV circuits	N
2.3.3	Requirements according to sub-clause 6.1.2.1 apply for this clause	No TNV circuits	N
2.3.4	Requirements according to sub-clauses 1.7.2 and 6.1.2.1 apply for this clause	No TNV circuit	N

IEC 60950			
Clause	Requirement - Test	Result	Verdict
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	Not intended for IT power systems.	N
6.1.2.1	Note 2. Add the following text between the first and second paragraph:  If this insulation is solid, including Insulation forming part of a component, it shall at least consist of either - two layers of thin sheet material, each of which shall pass the electric strength test below, or - one layer having a distance through insulation of at least 0.4 mm, which shall pass the electric strength test below	No TNV circuits	N
	If this insulation forms part of a semiconductor component e.g. an optocoupler, there is no distance through insulation requirement for the insulation consisting of an insulating compound completely filling the casing, so that CLEARANCES and CREEPAGE DISTANCES do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition: - passes the tests and inspection criteria of 2.10.8 with an electric strength test of 1.5 kV multiplied by 1.6 (the electric strength test of 2.10.7 shall be performed using 1.5 kV): and - is subject to ROUTINE TESTING for electric strength during manufacturing, using a test voltage of 1.5 kV		N
	It is permitted to bridge this insulation with a capacitor complying with EN 132400:1994, subclass Y2		N
6.1.2.2	The exclusions are applicable for PERMANENTLY CONNECTED EQUIPMENT and PLUGGABLE-EQUIPMENT TYPE B only	No such equipment, No TNV	N
Annex G.2	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	Unit not intended for IT power systems	N

IEC 60950			
Clause	Requirement - Test	Result	Verdict

National Differences for <b>Singapore (SG)</b> ; SS 337:2001			P
2.9.2	After the first paragraph insert the following: Under tropical conditions, the duration of the humidity conditioning is 5 days (120h) at a temperature (t) of 40°C ± 2°C with relative humidity of 90% to 95%.	Unit is not intended for installation in tropical conditions	N
2.10.6.5	Delete "(48h)"	Noted	Deleted
3.2.8	Replace "23°C ± 2°C" by "27°C ± 2°C"	Replace	N

National Differences for <b>Sweden (SE)</b> ; SS EN 60950, 6 <sup>th</sup> Edition			P
1.5.1	Add the following: NOTE: Switches containing mercury such as thermostats, relays and level controllers are not allowed	No such components	N
1.7.2	If the separation between the mains and a SELV terminal relies upon connection to safety earth, the apparatus shall have a marking stating that it must be connected to an earthed mains socket-outlet. The marking text shall be in Swedish and as follows: "Apparaten skall anslutas till jordat uttag när den ansluts till ett nätverk"	External power supply	N
6.1.2.1	Note 1. Add the following text between the first and second paragraph: If this insulation is solid, including Insulation forming part of a component, it shall at least consist of either - two layers of thin sheet material, each of which shall pass the electric strength test below, or - one layer having a distance through insulation of at least 0.4 mm, which shall pass the electric strength test below	Added	N

IEC 60950			
Clause	Requirement - Test	Result	Verdict

National Differences for <b>Spain (ES)</b> ; EN 60950:2000			P
3.2.1	<p>Supply cords of single-phase equipment having a rated current not exceeding:</p> <ul style="list-style-type: none"> <li>- 2.5 A shall be provided with a plug according to UNE EN 50075:1993</li> <li>- 10 A shall be provided with a plug according to UNE 20315:1994</li> </ul> <p>CLASS I EQUIPMENT provided with socket-outlets with earth contacts, or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules, shall be provided with a plug in accordance with UNE 20315:1994</p> <p>If poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with the UNE-EN 60309-2</p>	Class III unit	N

National Differences for <b>Switzerland (CH)</b> ; EN 60950:2000			P
1.5.1	<p>Add the following:</p> <p>NOTE: Switches containing mercury such as thermostats, relays and level controllers are not allowed</p>	None provided	P
1.7.15	Annex 4.10 of SR 814.013 (Ordinance on environmentally hazardous substances) applies for batteries	Alkaline batteries in remote control	N
3.2.1	<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 884-1 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>EN 60309 applies for plugs for currents exceeding 10 A</p>	Class III unit	N



IEC 60950			
Clause	Requirement - Test	Result	Verdict
6.1	Protective means in the equipment shall not prevent transient surge protection in the telecommunication network from operating properly (d.c. spark-over voltage of the surge suppressor installed in the telecommunication network: approx. 245 V)	No TNV	N

National Differences for the <b>United Kingdom (GB)</b> ; BS EN 60950:2000			P
3.2.1	Apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to 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	Class III unit	N
3.2.5	A power supply cord with conductor of 1.25 mm <sup>2</sup> is allowed for equipment with a rated current over 10A and up to and including 13A	Class III unit	N
3.3.4	The range of conductor sizes of flexible cords to be accepted by terminals for equipment with a rated current of over 10A up to and including 13A is: 1.25 mm <sup>2</sup> to 1.5 mm <sup>2</sup> nominal cross-sectional area	Class III unit	N
4.3.6	This test should be performed using an appropriate socket outlet with an earthing contact	Unit is not direct plug-in type	N

IEC 60950			
Clause	Requirement - Test	Result	Verdict

## Appendix:

### 1, Photos

Figure 1 – HD3000 – Front view



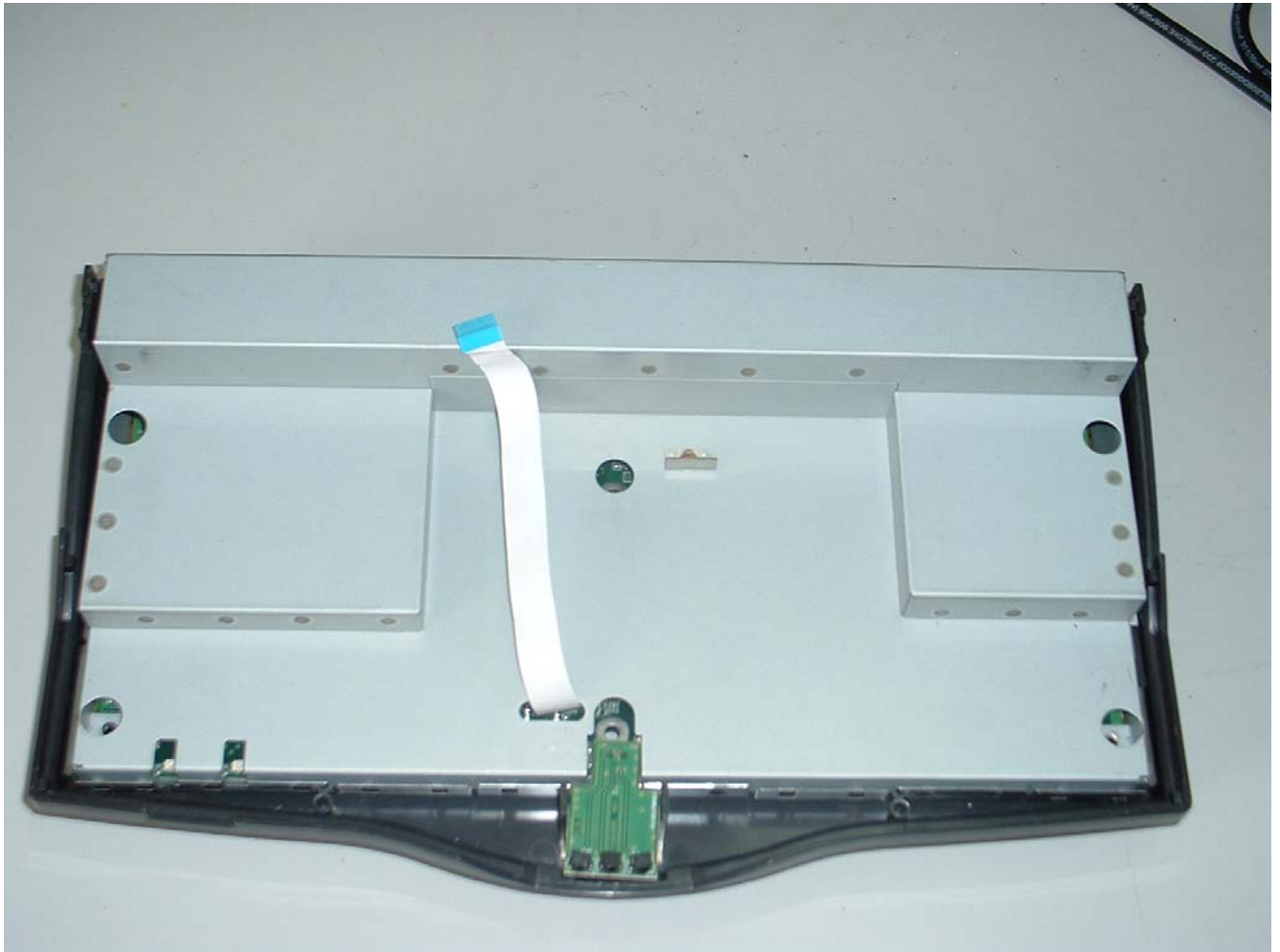
IEC 60950			
Clause	Requirement - Test	Result	Verdict

**Figure 2 – HD3000 Open enclosure**



IEC 60950			
Clause	Requirement - Test	Result	Verdict

**Figure 3 – HD3000 –Inner enclosure**



IEC 60950			
Clause	Requirement - Test	Result	Verdict

**Figure 4 – HD3000 – Rear view**



IEC 60950			
Clause	Requirement - Test	Result	Verdict

**Figure 5 – HD3000 – Remote control**



**End of Test Report**