



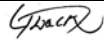


Test Report issued under the responsibility of:



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TEST REPORT IEC 60950-1 Information technology equipment – Safety – Part 1: General requirements	
Report Number	215109
Date of issue	September 20, 2012
Total number of pages	61 pages, see attachment 3 for list of attachments
CB Testing Laboratory	Nemko Shanghai Ltd. Phone: +86 21 5445 3132
Address	7 th Floor, Building 1, No.2007 Hongmei Road Xuhui District, Shanghai, China
Applicant's name	GlobTek, Inc.
Address	186 Veterans Dr. Northvale, NJ 07647, USA
Manufacturer's name	GlobTek, Inc.
Address	186 Veterans Dr. Northvale, NJ 07647, USA
Test specification:	
Standard	IEC 60950-1:2005 (Second Edition), Am 1: 2009
Test procedure	CB Scheme
Non-standard test method	N/A
Test Report Form No.	IEC60950_1B
Test Report Form(s) Originator	SGS Fimko Ltd
Master TRF	Dated 2010-04
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Test item description	SWITCHING POWER SUPPLY for building-in
Trade Mark	 GlobTek®, Inc.
Manufacturer	GlobTek, Inc.
Model/Type reference	GT-91125-15005
Ratings	Input: 5.25A Max., 42-60VDC
	Output: 30A, 5.4VDC

Testing procedure and testing location:		
<input checked="" type="checkbox"/>	CB Testing Laboratory:	Nemko Shanghai Ltd.
Testing location/ address		7 th Floor, Building 1, No.2007 Hongmei Road Xuhui District, Shanghai, China
<input type="checkbox"/>	Associated CB Laboratory:	
Testing location/ address		
Tested by (name + signature)		Lance Lei 
Approved by (name + signature)		Sam Geun Gwack 
<input type="checkbox"/>	Testing procedure: TMP	
Testing location/ address		
Tested by (name + signature)		
Approved by (name + signature)		
<input type="checkbox"/>	Testing procedure: WMT	
Testing location/ address		
Tested by (name + signature)		
Witnessed by (name + signature)		
Approved by (name + signature)		
<input type="checkbox"/>	Testing procedure: SMT	
Testing location/ address		
Tested by (name + signature)		
Approved by (name + signature)		
Supervised by (name + signature)		
<input type="checkbox"/>	Testing procedure: RMT	
Testing location/ address		
Tested by (name + signature)		
Approved by (name + signature)		
Supervised by (name + signature)		

List of Attachments (including a total number of pages in each attachment):

Attachment 1: Photos (5 pages)

Attachment 2: PCB layout (2 pages)

Attachment 3: European Group Differences and National Differences EN 60950 1:2006/A11:2009/A1:2010/A12:2011(17 pages).

Attachment 5: National Differences

Australia/ New Zealand (7 pages), Canada (5 pages), China (1 page), Israel (4 pages), Japan (12 pages), Korea (1 page), Singapore (6 pages), Ukraine (1 page), USA (5 pages).

Summary of testing:

Compliance with the EMC directive is necessary for achieving type certification. The appliance shall comply with the relevant EMC standards, depending on the equipment in question. In NO, compliance with standards for radio interference suppression is a part of Nemko's certification. In FI, DK and SE compliance is not necessary for achieving safety certification.

The equipment is a built-in switching power supply. Compliance shall be evaluated with the end-product.

2.6 Provisions for earthing and bonding

The equipment is a built-in switching power supply, provisions for earthing and bonding shall be re-evaluated with the end equipment. All tests conducted under the GND of input terminal earthed.

2.10.3 / 2.10.4 Transient overvoltage, Clearance and Creepage distance measurements

The equipment not connected to AC mains supply directly. But transient overvoltage 2500V assumed as the worst case.
The equipment used at elevations < 4000m. Required clearance is 1.29 times under IEC60664-1 considering sea level 4000m. The equipment complied with double/reinforced insulation between input and output circuit base on measured working voltage.

4.6 Openings in enclosures

The equipment is a built-in switching power supply, openings in enclosures shall be evaluated with the end equipment.

4.7 Resistance to fire

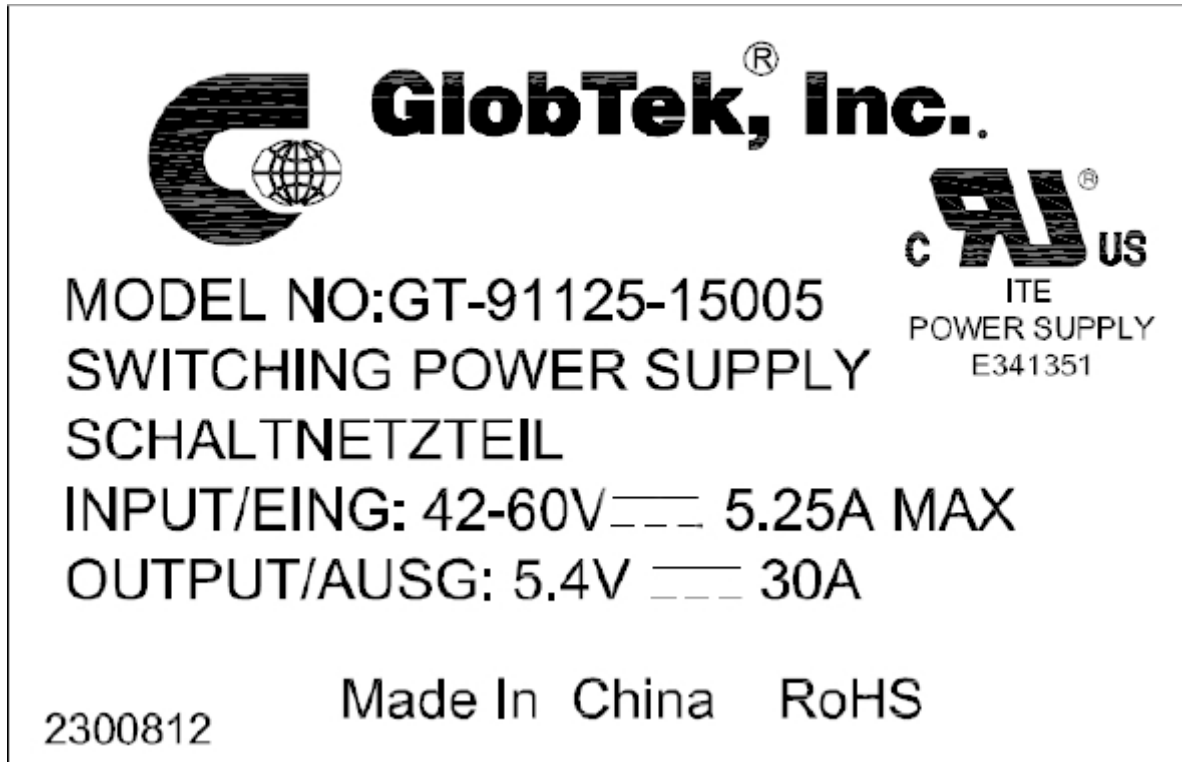
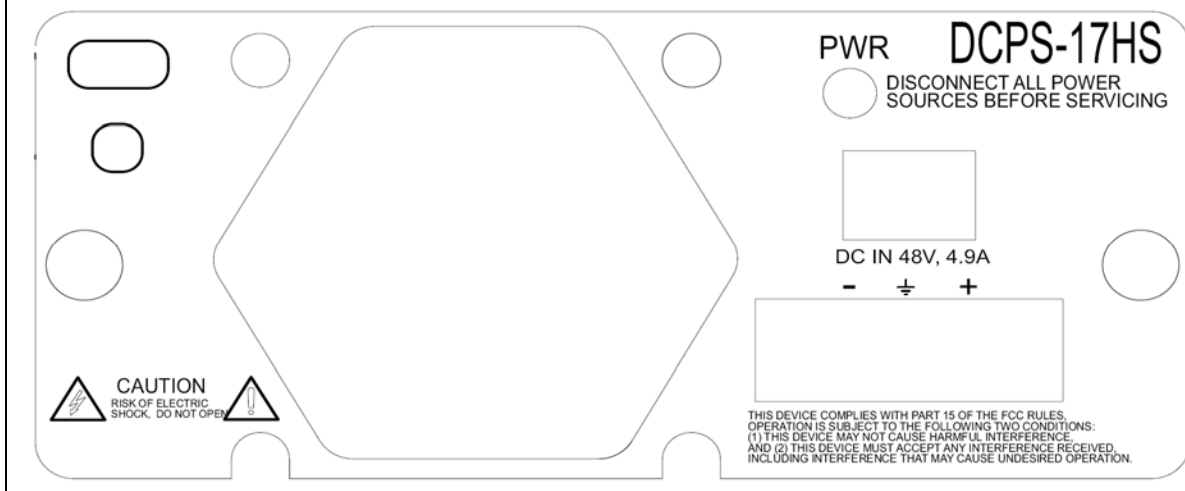
The equipment is a built-in switching power supply, fire enclosure shall be provided and evaluated with the end equipment.

Tests performed (name of test and test clause): 1.6.2; Input current 1.7.11; Durability test 2.2.2, 2.2.3; SELV reliability circuits 2.6.3.4; Resistance of earthing conductors and their terminations 2.9; Electrical insulation 2.10.2; Determination of working voltage 2.10.3, 2.10.4; Clearance and creepage distance measurements 2.10.5; Distance through insulation measurements 4.2; Mechanical strength 4.5.2; Temperature test 5.2; Electric strength 5.3; Abnormal operation and fault conditions Annex C	Testing location: Refer to page 2
Summary of compliance with National Differences List of countries addressed: All CENELEC members as listed in EN 60950-1:2006/A11:2009/A1:2010/A12:2011. CB members listed in the IECEE Online Bulletin included: Australia/ New Zealand, Canada, China, Israel, Japan, Korea, Singapore, Ukraine and USA which attached separate national deviation report in this report. At the time of issuing this report, not all countries are listed for IEC 60950-1:2005 (ed.2, Am1:2009). Therefore this report includes National differences to IEC 60950-1:2001(ed.1) and IEC 60950 3rd edition. <input checked="" type="checkbox"/> The product fulfils the requirements of IEC 60950-1:2005 (2nd Edition); Am1: 2009 and EN 60950-1:2006/A11:2009/A1:2010/A12:2011.	

Copy of marking plate

The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.

(Additional requirements for markings. See 1.7 NOTE)

**Input terminal label**

Test item particulars:	
Equipment mobility.....:	<input type="checkbox"/> movable <input type="checkbox"/> hand-held <input type="checkbox"/> transportable <input type="checkbox"/> stationary [X] for building-in <input type="checkbox"/> direct plug-in
Connection to the mains	<input type="checkbox"/> pluggable equipment <input type="checkbox"/> type A <input type="checkbox"/> type B <input type="checkbox"/> permanent connection <input type="checkbox"/> detachable power supply cord <input type="checkbox"/> non-detachable power supply cord [X] not directly connected to the mains
Operating condition.....:	[X] continuous <input type="checkbox"/> rated operating / resting time:
Access location	[X] operator accessible <input type="checkbox"/> restricted access location
Over voltage category (OVC)	<input type="checkbox"/> OVC I <input type="checkbox"/> OVC II <input type="checkbox"/> OVC III <input type="checkbox"/> OVC IV [X] other: 2500V peak assumed, see summary of testing
Mains supply tolerance (%) or absolute mains supply values	+20%, -15% assumed for the worst case.
Tested for IT power systems	<input type="checkbox"/> Yes [X] No
IT testing, phase-phase voltage (V)	N/A
Class of equipment	[X] Class I <input type="checkbox"/> Class II <input type="checkbox"/> Class III <input type="checkbox"/> Not classified
Considered current rating of protective device as part of the building installation (A)	16A (20A for Canada and USA)
Pollution degree (PD)	<input type="checkbox"/> PD 1 [X] PD 2 <input type="checkbox"/> PD 3
IP protection class	IPX0
Altitude during operation (m)	Up to 4000m
Altitude of test laboratory (m)	Up to 2000m
Mass of equipment (kg)	1.42kg Dimension (WxHxL): 193x 89x 212mm(excluding the output wires and connector)
Possible test case verdicts:	
- test case does not apply to the test object.....:	N/A (or N)
- test object does meet the requirement.....:	P (Pass)
- test object does not meet the requirement	F (Fail)
Testing:	
Date of receipt of test item.....:	July, 2012
Date(s) of performance of tests.....:	August-September, 2012
General remarks:	
<p>The test results presented in this report relate only to the object tested.</p> <p>This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.</p> <p>"(see Enclosure #)" refers to additional information appended to the report.</p> <p>"(see appended table)" refers to a table appended to the report.</p> <p>Throughout this report a <input type="checkbox"/> comma / <input checked="" type="checkbox"/> point is used as the decimal separator.</p>	

Manufacturer's Declaration per sub-clause 6.2.5 of IEC 60335-1:

The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided:

☒ Yes
☐ Not applicable

When differences exist; they shall be identified in the General product information section.

Name and address of factory (ies) : GlobTek, Inc.

186 Veterans Dr. Northvale, NJ 07647 USA.
GlobTek (Suzhou) Co., Ltd.
Building 4, No. 76, Jin Ling East Rd., Suzhou
Industrial Park, Suzhou, JiangSu 215021, China.

General product information:

The equipment GT-91125-15005 is a built-in switching power supply for using in general office equipment (end-equipment not specified).

Max. normal load condition: Output load to rated output.

Max. recommended operating ambient (T_{ma}): 50°C.

Circuit characteristics: The equipment not directly connected to AC mains supply and all circuits in the equipment considered as secondary circuits. The output of equipment is SELV circuit.

1.1.2 – Additional requirements:

Exposure to extreme temperatures, excessive dust, moisture or vibration; to flammable gases; to corrosive or explosive atmospheres:

This equipment is intended to operate in a "normal" environment (Offices and homes).

Electromedical equipment connected to the patient:

This equipment is not an electromedical equipment intended to be physically connected to a patient.

Equipment used in vehicles, ships or aircrafts, in tropical countries, or at elevations > 2000m:

This equipment is intended to operate in a "normal" environment (Offices and homes) and is intended to be operated under altitude up to 4000m, so the clearance is multiplied by the altitude correction factor (1.29, linear interpolation used), specified in IEC 60664-1.

Abbreviations used in the report:

- normal conditions	N.C.	- single fault conditions	S.F.C
- functional insulation	OP	- basic insulation	BI
- double insulation	DI	- supplementary insulation	SI
- between parts of opposite polarity	BOP	- reinforced insulation	RI

Indicate used abbreviations (if any)


IEC 60950-1/Am1			
Clause	Requirement + Test	Result - Remark	Verdict


1	GENERAL		P
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1.5	Components		P
1.5.1	General		P
	Comply with IEC 60950-1 or relevant component standard	(see appended tables 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 60950-1 and the relevant component standard.</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 60950-1.</p>	P
1.5.3	Thermal controls	Automatic reset thermal cut-outs approved.	P
1.5.4	Transformers	Transformers used are suitable for it's intended application and comply with relevant parts of this standard and particularly Annex C, see Annex C – Transformers.	P
1.5.5	Interconnecting cables	Built-in equipment. Shall evaluate in the end equipment.	N/A

IEC 60950-1/Am1			
Clause	Requirement + Test	Result - Remark	Verdict
1.5.6	Capacitors bridging insulation	<p>No primary circuit in this equipment. Circuits in this equipment considered as secondary circuits.</p> <p>X2(CX1, CX2, CX3) capacitors and E-Caps (C5,C6, C7) are used between two opposite polarity lines, Y2(CY1, CY2, CY3, CY4) Y1(CY5) capacitors are used between polarity lines and earth. Y1(CY6) capacitor are used bridging RI.</p> <p>X2, Y2, Y1 capacitors are certified according to IEC/EN60384-14.</p> <p>Refer to appended table 1.5.1 and circuits complies with 2.4 shall evaluate with the end-product.</p>	N/A
1.5.7	Resistors bridging insulation	See below.	P
1.5.7.1	Resistors bridging functional, basic or supplementary insulation	Resistors(R1,R1001) in series located after fuse FS1 bridging functional insulation of two opposite polarity lines.	P
1.5.7.2	Resistors bridging double or reinforced insulation between a.c. mains and other circuits	No such application.	N/A
1.5.7.3	Resistors bridging double or reinforced insulation between a.c. mains and antenna or coaxial cable	No such application.	N/A
1.5.8	Components in equipment for IT power systems	Equipment not connected to AC power distribution system.	N/A
1.5.9	Surge suppressors	Certified MOV1 located after fuse FS1 bridging two opposite polarity lines. See appended table 1.5.1.	P
1.5.9.1	General	See below.	P
1.5.9.2	Protection of VDRs	Fuse FS1 for protecting MOV1.	P
1.5.9.3	Bridging of functional insulation by a VDR		P
1.5.9.4	Bridging of basic insulation by a VDR	No such application.	N/A
1.5.9.5	Bridging of supplementary, double or reinforced insulation by a VDR	No such application.	N/A
1.6	Power interface		P

IEC 60950-1/Am1			
Clause	Requirement + Test	Result - Remark	Verdict
1.6.1	AC power distribution systems	Equipment not connected to AC power distribution system.	N/A
1.6.2	Input current	(see appended table 1.6.2)	P
1.6.3	Voltage limit of hand-held equipment	Built-in equipment.	N/A
1.6.4	Neutral conductor	Equipment not connected to AC power distribution system.	N/A

1.7	Marking and instructions		P
1.7.1	Power rating and identification markings		P
1.7.1.1	Power rating marking		P
	Multiple mains supply connections.....:	Single input voltage range.	N/A
	Rated voltage(s) or voltage range(s) (V)	42-60V	P
	Symbol for nature of supply, for d.c. only.....:	IEC 60417-1, symbol No. 5031, is used.	P
	Rated frequency or rated frequency range (Hz) ...:	DC input only.	N/A
	Rated current (mA or A)	5.25A MAX.	P
1.7.1.2	Identification markings		P
	Manufacturer's name or trade-mark or identification mark	 GlobTek®, Inc.	P
	Model identification or type reference	GT-91125-15005.	P
	Symbol for Class II equipment only		N/A
	Other markings and symbols	Additional markings do not give rise to misunderstanding.	P
1.7.2	Safety instructions and marking		P
1.7.2.1	General		P
1.7.2.2	Disconnect devices	Built-in equipment, compliance shall be evaluated in the end-product.	N/A
1.7.2.3	Overcurrent protective device	Built-in equipment, compliance shall be evaluated in the end-product.	N/A
1.7.2.4	IT power distribution systems	Equipment not connected to AC power distribution system.	N/A
1.7.2.5	Operator access with a tool	Built-in equipment, compliance shall be evaluated in the end-product.	N/A
1.2.7.6	Ozone		N/A
1.7.3	Short duty cycles	Continuous operation.	N/A
1.7.4	Supply voltage adjustment	Single voltage range.	N/A

IEC 60950-1/Am1			
Clause	Requirement + Test	Result - Remark	Verdict
	Methods and means of adjustment; reference to installation instructions		N/A
1.7.5	Power outlets on the equipment	No power outlets provided.	N/A
1.7.6	Fuse identification (marking, special fusing characteristics, cross-reference)	PCB-mount fuse marked: FS1 T8A/150VDC;	P
1.7.7	Wiring terminals	Input terminal block provided.	P
1.7.7.1	Protective earthing and bonding terminals	Protective bonding terminal marked  adjacent input terminal block.	P
1.7.7.2	Terminals for a.c. mains supply conductors	DC input.	N/A
1.7.7.3	Terminals for d.c. mains supply conductors	“+” and “-” marked adjacent input terminal block.	P
1.7.8	Controls and indicators	See below.	P
1.7.8.1	Identification, location and marking	The function of controls affecting safety is obvious regardless of language.	P
1.7.8.2	Colours	Indicating green LED used.	P
1.7.8.3	Symbols according to IEC 60417.....	“I” and “O” marked on the mains switch for indicating “ON” and “OFF” position on power supply.	P
1.7.8.4	Markings using figures		N/A
1.7.9	Isolation of multiple power sources	Single supply.	N/A
1.7.10	Thermostats and other regulating devices	No such regulating devices.	N/A
1.7.11	Durability	Marking is durable and legible. Tested by water followed with petroleum spirit.	P
1.7.12	Removable parts		N/A
1.7.13	Replaceable batteries	No battery.	N/A
	Language(s)		—
1.7.14	Equipment for restricted access locations	Built-in equipment, compliance shall be evaluated with the end-product.	N/A
2	PROTECTION FROM HAZARDS		P
2.1	Protection from electric shock and energy hazards		P
2.1.1	Protection in operator access areas	Built-in equipment, compliance shall be evaluated with the end-product.	N/A

IEC 60950-1/Am1			
Clause	Requirement + Test	Result - Remark	Verdict
2.1.1.1	Access to energized parts	Built-in equipment, compliance shall be evaluated with the end-product.	N/A
	Test by inspection		N/A
	Test with test finger (Figure 2A)		N/A
	Test with test pin (Figure 2B)		N/A
	Test with test probe (Figure 2C)		N/A
2.1.1.2	Battery compartments	No battery.	N/A
2.1.1.3	Access to ELV wiring	No ELV circuits.	N/A
	Working voltage (V _{peak} or V _{rms}); minimum distance through insulation (mm)		—
2.1.1.4	Access to hazardous voltage circuit wiring	Built-in equipment, compliance shall be evaluated with the end-product.	N/A
2.1.1.5	Energy hazards	Built-in equipment. Shall evaluate in the end equipment. (Reference test see appended tables 2.1.1.5)	N/A
2.1.1.6	Manual controls	No such controls.	N/A
2.1.1.7	Discharge of capacitors in equipment	Max. nominal input voltage 60VDC. No test considered necessary.	N/A
	Measured voltage (V); time-constant (s)		—
2.1.1.8	Energy hazards – d.c. mains supply	CX1(1μF); CX2, CX3(0.47μF); C5,C6,C7(1000μF) connected between two opposite polarity lines.	P
	a) Capacitor connected to the d.c. mains supply ..	Stored energy: $E=0.5 \times (1+0.47 \times 2 + 1000 \times 3) \times 60^2 \times 10^{-6} = 5.4 \text{ J} < 20 \text{ J}$ No hazardous energy level considered exists.	P
	b) Internal battery connected to the d.c. mains supply	No internal battery.	N/A
2.1.1.9	Audio amplifiers	No audio amplifier.	N/A
2.1.2	Protection in service access areas	Built-in equipment, compliance shall be evaluated with the end-product.	N/A

IEC 60950-1/Am1			
Clause	Requirement + Test	Result - Remark	Verdict

2.1.3	Protection in restricted access locations	Built-in equipment, compliance shall be evaluated with the end-product.	N/A
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2.2	SELV circuits		P
2.2.1	General requirements	(see appended table 2.2)	P
2.2.2	Voltages under normal conditions (V)		P
2.2.3	Voltages under fault conditions (V)		P
2.2.4	Connection of SELV circuits to other circuits	SELV connected to secondary hazardous voltage circuit in the equipment. SELV requirements can be met under both normal and fault condition. (See appended table 2.2 for details) Built-in equipment. For SELV circuit connected to other circuit outside the equipment, shall be evaluated in the end product.	N/A

2.3	TNV circuits		N/A
2.3.1	Limits	No TNV circuits.	N/A
	Type of TNV circuits.....		—
2.3.2	Separation from other circuits and from accessible parts		N/A
2.3.2.1	General requirements		N/A
2.3.2.2	Protection by basic insulation		N/A
2.3.2.3	Protection by earthing		N/A
2.3.2.4	Protection by other constructions		N/A
2.3.3	Separation from hazardous voltages		N/A
	Insulation employed		—
2.3.4	Connection of TNV circuits to other circuits		N/A
	Insulation employed		—
2.3.5	Test for operating voltages generated externally		N/A

2.4	Limited current circuits		N/A
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IEC 60950-1/Am1			
Clause	Requirement + Test	Result - Remark	Verdict
2.4.1	General requirements	Y1 capacitor CY6 bridging the RI. LCC shall be evaluated with the end-product.	N/A
2.4.2	Limit values		N/A
	Frequency (Hz)		—
	Measured current (mA)		—
	Measured voltage (V)		—
	Measured circuit capacitance (nF or μ F)		—
2.4.3	Connection of limited current circuits to other circuits		N/A
2.5	Limited power sources		N/A
	a) Inherently limited output		N/A
	b) Impedance limited output		N/A
	c) Regulating network limited output under normal operating and single fault condition		N/A
	d) Overcurrent protective device limited output		N/A
	Max. output voltage (V), max. output current (A), max. apparent power (VA)		—
	Current rating of overcurrent protective device (A) ..		—
	Use of integrated circuit (IC) current limiters		N/A
2.6	Provisions for earthing and bonding		P
2.6.1	Protective earthing	Built-in equipment. External metal chassis is reliably connected to protective earth. Provisions for protective earthing of the end-product shall be evaluated in the end-product.	P
2.6.2	Functional earthing	No function earthing in the equipment.	N/A
2.6.3	Protective earthing and protective bonding conductors	See below.	P
2.6.3.1	General		P
2.6.3.2	Size of protective earthing conductors	Built-in equipment, shall be evaluated with the end-product.	N/A

IEC 60950-1/Am1			
Clause	Requirement + Test	Result - Remark	Verdict
	Rated current (A), cross-sectional area (mm ²), AWG..... :		—
2.6.3.3	Size of protective bonding conductors	Refer to 2.6.3.4.	P
	Rated current (A), cross-sectional area (mm ²), AWG..... :		—
	Protective current rating (A), cross-sectional area (mm ²), AWG..... :		
2.6.3.4	Resistance of earthing conductors and their terminations; resistance (Ω), voltage drop (V), test current (A), duration (min)..... :	From the earth terminal of Input terminal block to chassis in another side: 9m Ω (40A/2min)	P
2.6.3.5	Colour of insulation	Protective bonding conductor insulated green/yellow.	P
2.6.4	Terminals	Built-in equipment, compliance shall be evaluated with the end-product.	N/A
2.6.4.1	General	See below.	N/A
2.6.4.2	Protective earthing and bonding terminals	Input terminal block provides screw-type earthing terminal for external earthing conductor. Screw-type bonding terminal provided in the equipment. Compliance shall be re-evaluated with the end-product.	N/A
	Rated current (A), type, nominal thread diameter (mm)..... :		—
2.6.4.3	Separation of the protective earthing conductor from protective bonding conductors	One protective bonding conductor provided in the equipment.	N/A
2.6.5	Integrity of protective earthing		N/A
2.6.5.1	Interconnection of equipment	Built-in equipment, compliance shall be evaluated with the end-product.	N/A
2.6.5.2	Components in protective earthing conductors and protective bonding conductors	No components in the protective bonding conductor. Compliance for protective earthing conductor shall be evaluated with the end-product.	N/A

IEC 60950-1/Am1			
Clause	Requirement + Test	Result - Remark	Verdict
2.6.5.3	Disconnection of protective earth	Compliance shall be re-evaluated with the end-product.	N/A
2.6.5.4	Parts that can be removed by an operator	Compliance shall be re-evaluated with the end-product.	N/A
2.6.5.5	Parts removed during servicing	Compliance shall be reevaluated with the end-product.	N/A
2.6.5.6	Corrosion resistance	No risk of corrosion. Compliance shall be reevaluated with the end-product.	N/A
2.6.5.7	Screws for protective bonding	No self-taping or spaced thread screw used for protective bonding.	N/A
2.6.5.8	Reliance on telecommunication network or cable distribution system	No TNV circuits.	N/A

2.7	Overcurrent and earth fault protection in primary circuits		N/A
2.7.1	Basic requirements	No primary circuit in the equipment. Circuits in the euqipment considered as secondary circuits.	N/A
	Instructions when protection relies on building installation		N/A
2.7.2	Faults not simulated in 5.3.7		N/A
2.7.3	Short-circuit backup protection		N/A
2.7.4	Number and location of protective devices :		N/A
2.7.5	Protection by several devices		N/A
2.7.6	Warning to service personnel :		N/A

2.8	Safety interlocks		N/A
2.8.1	General principles	No safety interlock.	N/A
2.8.2	Protection requirements		N/A
2.8.3	Inadvertent reactivation		N/A
2.8.4	Fail-safe operation		N/A
	Protection against extreme hazard		N/A
2.8.5	Moving parts		N/A

IEC 60950-1/Am1			
Clause	Requirement + Test	Result - Remark	Verdict
2.8.6	Overriding		N/A
2.8.7	Switches, relays and their related circuits		N/A
2.8.7.1	Separation distances for contact gaps and their related circuits (mm)		N/A
2.8.7.2	Overload test		N/A
2.8.7.3	Endurance test		N/A
2.8.7.4	Electric strength test		N/A
2.8.8	Mechanical actuators		N/A

2.9	Electrical insulation		P
2.9.1	Properties of insulating materials	Natural rubber, asbestors or hygroscopic materials are not used.	P
2.9.2	Humidity conditioning	120h with the concurrence of manufacturer.	P
	Relative humidity (%), temperature (°C)	91%, 30°C.	—
2.9.3	Grade of insulation	Insulation is considered to be functional, basic, supplementary, reinforced or double insulation.	P
2.9.4	Separation from hazardous voltages	By double or reinforced insulation.	P
	Method(s) used	Method 1.	—

2.10	Clearances, creepage distances and distances through insulation		P
2.10.1	General	See below.	P
2.10.1.1	Frequency	Considered.	P
2.10.1.2	Pollution degrees	PD2.	P
2.10.1.3	Reduced values for functional insulation	Refer to clause 5.3.4.	P
2.10.1.4	Intervening unconnected conductive parts	Considered.	P
2.10.1.5	Insulation with varying dimensions	No such insulation.	N/A
2.10.1.6	Special separation requirements	Not used.	N/A
2.10.1.7	Insulation in circuits generating starting pulses	No such circuits.	N/A
2.10.2	Determination of working voltage	See below.	P
2.10.2.1	General	See below.	P
2.10.2.2	RMS working voltage	See appended table 2.10.2.	P
2.10.2.3	Peak working voltage	See appended table 2.10.2.	P
2.10.3	Clearances	See appended table 2.10.3 and 2.10.4	P

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Clause	Requirement + Test	Result - Remark	Verdict
2.10.3.1	General	See below.	P
2.10.3.2	Mains transient voltages	See below.	P
	a) AC mains supply	The equipment not directly connected to AC mains supply.	N/A
	b) Earthed d.c. mains supplies	Unearthed d.c. mains supply considered as worst case.	N/A
	c) Unearthed d.c. mains supplies	Unearthed d.c. mains supply considered as worst case. Transient voltage 2500V peak for AC mains supply considered for the d.c. mains supply.	P
	d) Battery operation		N/A
2.10.3.3	Clearances in primary circuits	No primary circuit in the equipment. Circuits in the equipment considered as secondary circuits.	N/A
2.10.3.4	Clearances in secondary circuits	(see appended table 2.10.3 and 2.10.4)	P
2.10.3.5	Clearances in circuits having starting pulses		N/A
2.10.3.6	Transients from a.c. mains supply		N/A
2.10.3.7	Transients from d.c. mains supply	2500V peak considered as worst case.	P
2.10.3.8	Transients from telecommunication networks and cable distribution systems	Not connected to telecommunication networks and cable distribution systems.	N/A
2.10.3.9	Measurement of transient voltage levels	Measurement not relevant.	N/A
	a) Transients from a mains supply		N/A
	For an a.c. mains supply		N/A
	For a d.c. mains supply		N/A
	b) Transients from a telecommunication network :	Not connected to telecommunication networks.	N/A
2.10.4	Creepage distances	See below.	P
2.10.4.1	General	See below.	P
2.10.4.2	Material group and comparative tracking index	See below.	P
	CTI tests	Material group IIIb is assumed to be used.	—

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Clause	Requirement + Test	Result - Remark	Verdict
2.10.4.3	Minimum creepage distances	(see appended table 2.10.3 and 2.10.4)	P
2.10.5	Solid insulation	See below.	P
2.10.5.1	General	See below.	P
2.10.5.2	Distances through insulation	(see appended table 2.10.5)	P
2.10.5.3	Insulating compound as solid insulation	Approved optocoupler used. See appended table 1.5.1.	P
2.10.5.4	Semiconductor devices	No such device.	N/A
2.10.5.5.	Cemented joints	No such construction.	N/A
2.10.5.6	Thin sheet material – General	Ref. annex C.	P
2.10.5.7	Separable thin sheet material	Reinforced insulation consists of min. two layers of insulation tape, each of which passes the electric strength test for reinforced insulation.	P
	Number of layers (pcs)..... :	Min two layers provided, tested with 1 layer.	—
2.10.5.8	Non-separable thin sheet material	Not used.	N/A
2.10.5.9	Thin sheet material – standard test procedure		N/A
	Electric strength test		—
2.10.5.10	Thin sheet material – alternative test procedure	Ref. annex C.	P
	Electric strength test	(see appended table 5.2)	—
2.10.5.11	Insulation in wound components	Not used.	N/A
2.10.5.12	Wire in wound components	Not used.	N/A
	Working voltage		N/A
	a) Basic insulation not under stress		N/A
	b) Basic, supplementary, reinforced insulation		N/A
	c) Compliance with Annex U		N/A
	Two wires in contact inside wound component; angle between 45° and 90°		N/A
2.10.5.13	Wire with solvent-based enamel in wound components	No wire with solvent-based enamel in wound components.	N/A
	Electric strength test		—
	Routine test		N/A
2.10.5.14	Additional insulation in wound components	No such insulation.	N/A
	Working voltage		N/A
	- Basic insulation not under stress		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- Supplementary, reinforced insulation		N/A
2.10.6	Construction of printed boards	See below.	P
2.10.6.1	Uncoated printed boards	(see appended table 2.10.3 and 2.10.4)	P
2.10.6.2	Coated printed boards	No coated PCB.	N/A
2.10.6.3	Insulation between conductors on the same inner surface of a printed board	No such parts.	N/A
2.10.6.4	Insulation between conductors on different layers of a printed board	No such parts.	N/A
	Distance through insulation	PCB doesn't serve as insulation barrier.	N/A
	Number of insulation layers (pcs)		N/A
2.10.7	Component external terminations	No coated PCB and components.	N/A
2.10.8	Tests on coated printed boards and coated components		N/A
2.10.8.1	Sample preparation and preliminary inspection		N/A
2.10.8.2	Thermal conditioning		N/A
2.10.8.3	Electric strength test		N/A
2.10.8.4	Abrasion resistance test		N/A
2.10.9	Thermal cycling	For optical isolators, see appended table 1.5.1.	P
2.10.10	Test for Pollution Degree 1 environment and insulating compound	For optical isolators, see appended table 1.5.1.	P
2.10.11	Tests for semiconductor devices and cemented joints		N/A
2.10.12	Enclosed and sealed parts		N/A

3	WIRING, CONNECTIONS AND SUPPLY		P
3.1	General		P
3.1.1	Current rating and overcurrent protection	Cross section area of internal wire and traces is sufficient for applied purpose.	P
3.1.2	Protection against mechanical damage	Wireways are smooth and free from edges. Wires are adequately fixed to prevent excessive strain on wire and terminals and avoiding damage to the insulation of the conductors.	P
3.1.3	Securing of internal wiring	Adequately fixed.	P

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Clause	Requirement + Test	Result - Remark	Verdict
3.1.4	Insulation of conductors	Insulation on internal conductors is considered to be of adequate quality and suitable for the application and the working voltage involved.	P
3.1.5	Beads and ceramic insulators	No beads and ceramic.	N/A
3.1.6	Screws for electrical contact pressure	Electrical screw connection is only connecting protective earth to chassis. Metal screws engage more than 2 threads. Screws made of insulating material are not used where electrical connections, including protective earth, are involved.	P
3.1.7	Insulating materials in electrical connections	No contact pressure through insulating material.	P
3.1.8	Self-tapping and spaced thread screws	Thread-cutting or space thread screws are not used for electrical connections.	N/A
3.1.9	Termination of conductors	Terminations cannot become displaced so that clearances and creepage distances can be reduced.	P
	10 N pull test		P
3.1.10	Sleeving on wiring	Heat shrinkable sleeveings tightened against the insulation of cooling fan conductor and indicating LED conductor.	P

3.2	Connection to a mains supply		N/A
3.2.1	Means of connection	Built-in equipment. Compliance shall be evaluated with the end-product.	N/A
3.2.1.1	Connection to an a.c. mains supply		N/A
3.2.1.2	Connection to a d.c. mains supply		N/A
3.2.2	Multiple supply connections		N/A
3.2.3	Permanently connected equipment		N/A
	Number of conductors, diameter of cable and conduits (mm)		—
3.2.4	Appliance inlets		N/A
3.2.5	Power supply cords		N/A
3.2.5.1	AC power supply cords		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Type		—
	Rated current (A), cross-sectional area (mm ²), AWG		—
3.2.5.2	DC power supply cords		N/A
3.2.6	Cord anchorages and strain relief		N/A
	Mass of equipment (kg), pull (N)		—
	Longitudinal displacement (mm)		—
3.2.7	Protection against mechanical damage		N/A
3.2.8	Cord guards		N/A
	Diameter or minor dimension D (mm); test mass (g)		—
	Radius of curvature of cord (mm)		—
3.2.9	Supply wiring space		N/A
3.3	Wiring terminals for connection of external conductors		N/A
3.3.1	Wiring terminals	Input terminal block provided. Compliance shall be evaluated with the end-product.	N/A
3.3.2	Connection of non-detachable power supply cords		N/A
3.3.3	Screw terminals		N/A
3.3.4	Conductor sizes to be connected		N/A
	Rated current (A), cord/cable type, cross-sectional area (mm ²)		—
3.3.5	Wiring terminal sizes		N/A
	Rated current (A), type, nominal thread diameter (mm)		—
3.3.6	Wiring terminal design		N/A
3.3.7	Grouping of wiring terminals		N/A
3.3.8	Stranded wire		N/A
3.4	Disconnection from the mains supply		N/A
3.4.1	General requirement	Built-in equipment. Compliance shall be evaluated with the end-product.	N/A
3.4.2	Disconnect devices		N/A
3.4.3	Permanently connected equipment		N/A
3.4.4	Parts which remain energized		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
3.4.5	Switches in flexible cords		N/A
3.4.6	Number of poles - single-phase and d.c. equipment		N/A
3.4.7	Number of poles - three-phase equipment		N/A
3.4.8	Switches as disconnect devices		N/A
3.4.9	Plugs as disconnect devices		N/A
3.4.10	Interconnected equipment		N/A
3.4.11	Multiple power sources		N/A

3.5	Interconnection of equipment		N/A
3.5.1	General requirements	Built-in equipment. Compliance shall be evaluated with the end-product.	N/A
3.5.2	Types of interconnection circuits		N/A
3.5.3	ELV circuits as interconnection circuits		N/A
3.5.4	Data ports for additional equipment		N/A

4	PHYSICAL REQUIREMENTS		P
4.1	Stability		N/A
	Angle of 10°	Built-in equipment. Compliance shall be evaluated with the end-product.	N/A
	Test force (N)		N/A

4.2	Mechanical strength		P
4.2.1	General		P
	Rack-mounted equipment.	Built-in equipment.	N/A
4.2.2	Steady force test, 10 N	No hazards.	P
4.2.3	Steady force test, 30 N	Built-in equipment. Compliance shall be evaluated with the end-product.	N/A
4.2.4	Steady force test, 250 N	Built-in equipment. Compliance shall be evaluated with the end-product.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
4.2.5	Impact test	Built-in equipment. Compliance shall be evaluated with the end-product.	N/A
	Fall test		N/A
	Swing test		N/A
4.2.6	Drop test; height (mm) :	Built-in equipment. Compliance shall be evaluated with the end-product.	N/A
4.2.7	Stress relief test	Built-in equipment. Compliance shall be evaluated with the end-product.	N/A
4.2.8	Cathode ray tubes	No CRT.	N/A
	Picture tube separately certified :		N/A
4.2.9	High pressure lamps	No such lamps.	N/A
4.2.10	Wall or ceiling mounted equipment; force (N) :	Built-in equipment.	N/A
4.2.11	Rotating solid media	No such parts.	N/A
	Test to cover on the door..... :		N/A

4.3	Design and construction		P
4.3.1	Edges and corners	Edges and corners are rounded and smooth.	P
4.3.2	Handles and manual controls; force (N) :	No such parts.	N/A
4.3.3	Adjustable controls	No such controls.	N/A
4.3.4	Securing of parts	No loosening of parts impairing creepage distances or clearances is likely to occur.	P
4.3.5	Connection by plugs and sockets	SELV connectors do not comply with IEC 60320 or IEC 60083.	N/A
4.3.6	Direct plug-in equipment	Not direct plug-in equipment.	N/A
	Torque :		—
	Compliance with the relevant mains plug standard :		N/A
4.3.7	Heating elements in earthed equipment	No such elements.	N/A
4.3.8	Batteries	No battery.	N/A
	- Overcharging of a rechargeable battery		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- Unintentional charging of a non-rechargeable battery		N/A
	- Reverse charging of a rechargeable battery		N/A
	- Excessive discharging rate for any battery		N/A
4.3.9	Oil and grease	No parts exposed to such substance.	N/A
4.3.10	Dust, powders, liquids and gases	Not producing such material.	N/A
4.3.11	Containers for liquids or gases	No such containers.	N/A
4.3.12	Flammable liquids	No flammable liquids.	N/A
	Quantity of liquid (l)		N/A
	Flash point (°C)		N/A
4.3.13	Radiation	No radiation.	N/A
4.3.13.1	General		N/A
4.3.13.2	Ionizing radiation		N/A
	Measured radiation (pA/kg)		—
	Measured high-voltage (kV)		—
	Measured focus voltage (kV)		—
	CRT markings		—
4.3.13.3	Effect of ultraviolet (UV) radiation on materials		N/A
	Part, property, retention after test, flammability classification		N/A
4.3.13.4	Human exposure to ultraviolet (UV) radiation		N/A
4.3.13.5	Lasers (including laser diodes) and LEDs		N/A
4.3.13.5.1	Lasers (including laser diodes)		N/A
	Laser class		—
4.3.13.5.2	Light emitting diodes (LEDs)	Indicating LED used.	N/A
4.3.13.6	Other types		N/A

4.4	Protection against hazardous moving parts		N/A
4.4.1	General	Built-in equipment, compliance shall be evaluated with the end-product.	N/A
4.4.2	Protection in operator access areas		N/A
	Household and home/office document/media shredders		N/A
4.4.3	Protection in restricted access locations		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
4.4.4	Protection in service access areas		N/A
4.4.5	Protection against moving fan blades		N/A
4.4.5.1	General		N/A
	Not considered to cause pain or injury. a).....:		N/A
	Is considered to cause pain, not injury. b)		N/A
	Considered to cause injury. c)		N/A
4.4.5.2	Protection for users		N/A
	Use of symbol or warning		N/A
4.4.5.3	Protection for service persons		N/A
	Use of symbol or warning		N/A

4.5	Thermal requirements		P
4.5.1	General		P
4.5.2	Temperature tests		P
	Normal load condition per Annex L	Annex L7(rated load: 5.4VDC, 30A)	—
4.5.3	Temperature limits for materials	(see appended table 4.5)	P
4.5.4	Touch temperature limits	Built-in equipment, compliance shall be evaluated with the end- product.	N/A
4.5.5	Resistance to abnormal heat		N/A

4.6	Openings in enclosures		N/A
4.6.1	Top and side openings	Built-in equipment, compliance shall be evaluated with the end- product.	N/A
	Dimensions (mm)		—
4.6.2	Bottoms of fire enclosures		N/A
	Construction of the bottom, dimensions (mm) ...:		—
4.6.3	Doors or covers in fire enclosures		N/A
4.6.4	Openings in transportable equipment		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
4.6.4.1	Constructional design measures		N/A
	Dimensions (mm) :		—
4.6.4.2	Evaluation measures for larger openings		N/A
4.6.4.3	Use of metallized parts		N/A
4.6.5	Adhesives for constructional purposes		N/A
	Conditioning temperature (°C), time (weeks) :		—
4.7	Resistance to fire		P
4.7.1	Reducing the risk of ignition and spread of flame	See below.	P
	Method 1, selection and application of components wiring and materials	Materials with required flammability class used. See appended table 1.5.1.	P
	Method 2, application of all of simulated fault condition tests		N/A
4.7.2	Conditions for a fire enclosure	Fire enclosure required to cover all parts. Built-in equipment, compliance shall be evaluated with the end-product.	N/A
4.7.2.1	Parts requiring a fire enclosure		N/A
4.7.2.2	Parts not requiring a fire enclosure		N/A
4.7.3	Materials		P
4.7.3.1	General	Components and materials have adequate flammability classification. See appended table 1.5.1.	P
4.7.3.2	Materials for fire enclosures	Built-in equipment, compliance shall be evaluated with the end-product.	N/A
4.7.3.3	Materials for components and other parts outside fire enclosures		N/A
4.7.3.4	Materials for components and other parts inside fire enclosures	Minimum V-2 material used.	P
4.7.3.5	Materials for air filter assemblies	No air filter assemblies.	N/A
4.7.3.6	Materials used in high-voltage components	No high voltage (>4 KV) components.	N/A
5	ELECTRICAL REQUIREMENTS AND SIMULATED ABNORMAL CONDITIONS		P
5.1	Touch current and protective conductor current		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.1.1	General	Touch current shall be evaluated with the end-product. The equipment intended to be supplied by only a DC mains supply and no TNV.	N/A
5.1.2	Configuration of equipment under test (EUT)		N/A
5.1.2.1	Single connection to an a.c. mains supply		N/A
5.1.2.2	Redundant multiple connections to an a.c. mains supply		N/A
5.1.2.3	Simultaneous multiple connections to an a.c. mains supply		N/A
5.1.3	Test circuit		N/A
5.1.4	Application of measuring instrument		N/A
5.1.5	Test procedure		N/A
5.1.6	Test measurements		N/A
	Supply voltage (V)		—
	Measured touch current (mA)		—
	Max. allowed touch current (mA)		—
	Measured protective conductor current (mA)		—
	Max. allowed protective conductor current (mA) ..		—
5.1.7	Equipment with touch current exceeding 3,5 mA		N/A
5.1.7.1	General		N/A
5.1.7.2	Simultaneous multiple connections to the supply		N/A
5.1.8	Touch currents to telecommunication networks and cable distribution systems and from telecommunication networks		N/A
5.1.8.1	Limitation of the touch current to a telecommunication network or to a cable distribution system		N/A
	Supply voltage (V)		—
	Measured touch current (mA)		—
	Max. allowed touch current (mA)		—
5.1.8.2	Summation of touch currents from telecommunication networks		N/A
	a) EUT with earthed telecommunication ports		N/A
	b) EUT whose telecommunication ports have no reference to protective earth		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

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

5.3	Abnormal operating and fault conditions		P
5.3.1	Protection against overload and abnormal operation	(see appended table 5.3)	P
5.3.2	Motors	Certified DC fan used. (see appended Annex B)	P
5.3.3	Transformers	(see appended Annex C)	P
5.3.4	Functional insulation	Complies with a) and c).	P
5.3.5	Electromechanical components	No such components.	N/A
5.3.6	Audio amplifiers in ITE	No audio amplifier.	N/A
5.3.7	Simulation of faults	(see appended table 5.3)	P
5.3.8	Unattended equipment	Thermal protector short-circuited. Tests for reference only. (see appended table 5.3)	N/A
5.3.9	Compliance criteria for abnormal operating and fault conditions	See below.	P
5.3.9.1	During the tests	No fire or molten metal occurred and no deformation of enclosure.	P
5.3.9.2	After the tests	No reduction of clearance and creepage distance. Electric strength test is made on basic and reinforced insulation.	P

6	CONNECTION TO TELECOMMUNICATION NETWORKS		N/A
6.1	Protection of telecommunication network service persons, and users of other equipment connected to the network, from hazards in the equipment		N/A
6.1.1	Protection from hazardous voltages		N/A
6.1.2	Separation of the telecommunication network from earth		N/A
6.1.2.1	Requirements	No TNV circuits.	N/A
	Supply voltage (V)		—
	Current in the test circuit (mA)		—
6.1.2.2	Exclusions		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

6.2	Protection of equipment users from overvoltages on telecommunication networks		N/A
6.2.1	Separation requirements	No TNV circuits.	N/A
6.2.2	Electric strength test procedure		N/A
6.2.2.1	Impulse test		N/A
6.2.2.2	Steady-state test		N/A
6.2.2.3	Compliance criteria		N/A

6.3	Protection of the telecommunication wiring system from overheating		N/A
	Max. output current (A)	No TNV circuits.	—
	Current limiting method		—

7	CONNECTION TO CABLE DISTRIBUTION SYSTEMS		N/A
7.1	General	No cable distribution system.	N/A
7.2	Protection of cable distribution system service persons, and users of other equipment connected to the system, from hazardous voltages in the equipment		N/A
7.3	Protection of equipment users from overvoltages on the cable distribution system		N/A
7.4	Insulation between primary circuits and cable distribution systems		N/A
7.4.1	General		N/A
7.4.2	Voltage surge test		N/A
7.4.3	Impulse test		N/A

A	ANNEX A, TESTS FOR RESISTANCE TO HEAT AND FIRE		N/A
A.1	Flammability test for fire enclosures of movable equipment having a total mass exceeding 18 kg, and of stationary equipment (see 4.7.3.2)		N/A
A.1.1	Samples		—
	Wall thickness (mm).....		—
A.1.2	Conditioning of samples; temperature (°C)		N/A
A.1.3	Mounting of samples		N/A
A.1.4	Test flame (see IEC 60695-11-3)		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Flame A, B, C or D		—
A.1.5	Test procedure		N/A
A.1.6	Compliance criteria		N/A
	Sample 1 burning time (s).....		—
	Sample 2 burning time (s).....		—
	Sample 3 burning time (s).....		—
A.2	Flammability test for fire enclosures of movable equipment having a total mass not exceeding 18 kg, and for material and components located inside fire enclosures (see 4.7.3.2 and 4.7.3.4)		N/A
A.2.1	Samples, material		—
	Wall thickness (mm).....		—
A.2.2	Conditioning of samples; temperature (°C)		N/A
A.2.3	Mounting of samples		N/A
A.2.4	Test flame (see IEC 60695-11-4)		N/A
	Flame A, B or C		—
A.2.5	Test procedure		N/A
A.2.6	Compliance criteria		N/A
	Sample 1 burning time (s).....		—
	Sample 2 burning time (s).....		—
	Sample 3 burning time (s).....		—
A.2.7	Alternative test acc. to IEC 60695-11-5, cl. 5 and 9		N/A
	Sample 1 burning time (s).....		—
	Sample 2 burning time (s).....		—
	Sample 3 burning time (s).....		—
A.3	Hot flaming oil test (see 4.6.2)		N/A
A.3.1	Mounting of samples		N/A
A.3.2	Test procedure		N/A
A.3.3	Compliance criterion		N/A
B	ANNEX B, MOTOR TESTS UNDER ABNORMAL CONDITIONS (see 4.7.2.2 and 5.3.2)		P
B.1	General requirements	Approved cooling fan used and tested with fan blocked. See appended table 5.3.	P
	Position	Fan motor in SELV circuits.	—

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Clause	Requirement + Test	Result - Remark	Verdict
	Manufacturer	See appended table 1.5.1.	—
	Type	See appended table 1.5.1.	—
	Rated values	See appended table 1.5.1.	—
B.2	Test conditions		N/A
B.3	Maximum temperatures		N/A
B.4	Running overload test		N/A
B.5	Locked-rotor overload test		N/A
	Test duration (days)		—
	Electric strength test: test voltage (V)		—
B.6	Running overload test for d.c. motors in secondary circuits		N/A
B.6.1	General		N/A
B.6.2	Test procedure		N/A
B.6.3	Alternative test procedure		N/A
B.6.4	Electric strength test; test voltage (V)		N/A
B.7	Locked-rotor overload test for d.c. motors in secondary circuits		N/A
B.7.1	General		N/A
B.7.2	Test procedure		N/A
B.7.3	Alternative test procedure		N/A
B.7.4	Electric strength test; test voltage (V)		N/A
B.8	Test for motors with capacitors		N/A
B.9	Test for three-phase motors		N/A
B.10	Test for series motors		N/A
	Operating voltage (V)		—

C	ANNEX C, TRANSFORMERS (see 1.5.4 and 5.3.3)		P
	Position	Pri.-sec.: T1	—
	Manufacturer	(See appended table 1.5.1)	—
	Type	(See appended table 1.5.1)	—
	Rated values	(See appended table 1.5.1)	—
	Method of protection	Inherent protection.	—
C.1	Overload test	(see appended table 5.3)	P
C.2	Insulation	(see appended tables 5.2 and C2)	P

IEC 60950-1/Am1			
Clause	Requirement + Test	Result - Remark	Verdict
	Protection from displacement of windings	Secured to the soldering pins with wrapping.	P
D	ANNEX D, MEASURING INSTRUMENTS FOR TOUCH-CURRENT TESTS (see 5.1.4)		N/A
D.1	Measuring instrument		N/A
D.2	Alternative measuring instrument		N/A
E	ANNEX E, TEMPERATURE RISE OF A WINDING (see 1.4.13)		N/A
F	ANNEX F, MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES (see 2.10 and Annex G)		P
G	ANNEX G, ALTERNATIVE METHOD FOR DETERMINING MINIMUM CLEARANCES		N/A
G.1	Clearances		N/A
G.1.1	General		N/A
G.1.2	Summary of the procedure for determining minimum clearances		N/A
G.2	Determination of mains transient voltage (V)		N/A
G.2.1	AC mains supply		N/A
G.2.2	Earthed d.c. mains supplies		N/A
G.2.3	Unearthed d.c. mains supplies		N/A
G.2.4	Battery operation		N/A
G.3	Determination of telecommunication network transient voltage (V)		N/A
G.4	Determination of required withstand voltage (V)		N/A
G.4.1	Mains transients and internal repetitive peaks		N/A
G.4.2	Transients from telecommunication networks		N/A
G.4.3	Combination of transients		N/A
G.4.4	Transients from cable distribution systems		N/A
G.5	Measurement of transient voltages (V)		N/A
	a) Transients from a mains supply		N/A
	For an a.c. mains supply		N/A
	For a d.c. mains supply		N/A
	b) Transients from a telecommunication network		N/A
G.6	Determination of minimum clearances		N/A

IEC 60950-1/Am1			
Clause	Requirement + Test	Result - Remark	Verdict

H	ANNEX H, IONIZING RADIATION (see 4.3.13)		N/A
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J	ANNEX J, TABLE OF ELECTROCHEMICAL POTENTIALS (see 2.6.5.6)		P
	Metal(s) used	See 2.6.5	—

K	ANNEX K, THERMAL CONTROLS (see 1.5.3 and 5.3.8)		P
K.1	Making and breaking capacity		P
K.2	Thermostat reliability; operating voltage (V)		N/A
K.3	Thermostat endurance test; operating voltage (V)		N/A
K.4	Temperature limiter endurance; operating voltage (V)		N/A
K.5	Thermal cut-out reliability		P
K.6	Stability of operation	(see appended table 5.3)	P

L	ANNEX L, NORMAL LOAD CONDITIONS FOR SOME TYPES OF ELECTRICAL BUSINESS EQUIPMENT (see 1.2.2.1 and 4.5.2)		P
L.1	Typewriters		N/A
L.2	Adding machines and cash registers		N/A
L.3	Erasers		N/A
L.4	Pencil sharpeners		N/A
L.5	Duplicators and copy machines		N/A
L.6	Motor-operated files		N/A
L.7	Other business equipment	Rated output.	P

M	ANNEX M, CRITERIA FOR TELEPHONE RINGING SIGNALS (see 2.3.1)		N/A
M.1	Introduction		N/A
M.2	Method A		N/A
M.3	Method B		N/A
M.3.1	Ringling signal		N/A
M.3.1.1	Frequency (Hz)		—
M.3.1.2	Voltage (V)		—
M.3.1.3	Cadence; time (s), voltage (V)		—
M.3.1.4	Single fault current (mA)		—

IEC 60950-1/Am1			
Clause	Requirement + Test	Result - Remark	Verdict
M.3.2	Tripping device and monitoring voltage		N/A
M.3.2.1	Conditions for use of a tripping device or a monitoring voltage		N/A
M.3.2.2	Tripping device		N/A
M.3.2.3	Monitoring voltage (V)		N/A
N	ANNEX N, IMPULSE TEST GENERATORS (see 1.5.7.2, 1.5.7.3, 2.10.3.9, 6.2.2.1, 7.3.2, 7.4.3 and Clause G.5)		N/A
N.1	ITU-T impulse test generators		N/A
N.2	IEC 60065 impulse test generator		N/A
P	ANNEX P, NORMATIVE REFERENCES		—
Q	ANNEX Q, Voltage dependent resistors (VDRs) (see 1.5.9.1)		N/A
	a) Preferred climatic categories	No primary circuits.	N/A
	b) Maximum continuous voltage		N/A
	c) Pulse current		N/A
R	ANNEX R, EXAMPLES OF REQUIREMENTS FOR QUALITY CONTROL PROGRAMMES		N/A
R.1	Minimum separation distances for unpopulated coated printed boards (see 2.10.6.2)		N/A
R.2	Reduced clearances (see 2.10.3)		N/A
S	ANNEX S, PROCEDURE FOR IMPULSE TESTING (see 6.2.2.3)		N/A
S.1	Test equipment		N/A
S.2	Test procedure		N/A
S.3	Examples of waveforms during impulse testing		N/A
T	ANNEX T, GUIDANCE ON PROTECTION AGAINST INGRESS OF WATER (see 1.1.2)		N/A
			—
U	ANNEX U, INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION (see 2.10.5.4)		N/A
			—

IEC 60950-1/Am1			
Clause	Requirement + Test	Result - Remark	Verdict
V	ANNEX V, AC POWER DISTRIBUTION SYSTEMS (see 1.6.1)		N/A
V.1	Introduction	Equipment not directly connected to AC mains supply.	N/A
V.2	TN power distribution systems		N/A
W	ANNEX W, SUMMATION OF TOUCH CURRENTS		N/A
W.1	Touch current from electronic circuits		N/A
W.1.1	Floating circuits		N/A
W.1.2	Earthed circuits		N/A
W.2	Interconnection of several equipments		N/A
W.2.1	Isolation		N/A
W.2.2	Common return, isolated from earth		N/A
W.2.3	Common return, connected to protective earth		N/A
X	ANNEX X, MAXIMUM HEATING EFFECT IN TRANSFORMER TESTS (see clause C.1)		P
X.1	Determination of maximum input current		P
X.2	Overload test procedure		P
Y	ANNEX Y, ULTRAVIOLET LIGHT CONDITIONING TEST (see 4.3.13.3)		N/A
Y.1	Test apparatus		N/A
Y.2	Mounting of test samples		N/A
Y.3	Carbon-arc light-exposure apparatus		N/A
Y.4	Xenon-arc light exposure apparatus		N/A
Z	ANNEX Z, OVERVOLTAGE CATEGORIES (see 2.10.3.2 and Clause G.2)		P
AA	ANNEX AA, MANDREL TEST (see 2.10.5.8)		N/A
BB	ANNEX BB, CHANGES IN THE SECOND EDITION		—
CC	ANNEX CC, Evaluation of integrated circuit (IC) current limiters		N/A
CC.1	General		N/A
CC.2	Test program 1.....		N/A
CC.3	Test program 2.....		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

DD	ANNEX DD, Requirements for the mounting means of rack-mounted equipment		N/A
DD.1	General		N/A
DD.2	Mechanical strength test, variable N.....:		N/A
DD.3	Mechanical strength test, 250N, including end stops.....:		N/A
DD.4	Compliance.....:		N/A

EE	ANNEX EE, Household and home/office document/media shredders		N/A
EE.1	General		N/A
EE.2	Markings and instructions		N/A
	Use of markings or symbols.....:		N/A
	Information of user instructions, maintenance and/or servicing instructions.....:		N/A
EE.3	Inadvertent reactivation test.....:		N/A
EE.4	Disconnection of power to hazardous moving parts:		N/A
	Use of markings or symbols.....:		N/A
EE.5	Protection against hazardous moving parts		N/A
	Test with test finger (Figure 2A):		N/A
	Test with wedge probe (Figure EE1 and EE2):		N/A

IEC 60950-1/Am1			
Clause	Requirement + Test	Result - Remark	Verdict

1.5.1	TABLE: List of critical components					P
Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity ¹⁾	
Metal enclosure	Various	Various	Min. thickness: 0.8mm	IEC/EN 60950-1	Tested in appliance	
Power switch	ZHEJIANG LECI ELECTRONICS CO LTD	RS601	Min. 10A, Min. 125Vac	IEC/EN 61058-1 UL 61058-1	VDE UL	
Alternative	ZHEJIANG CHUANGYE ELECTRONICS CO LTD	XW-601	Min. 10A, Min. 125Vac	IEC/EN 61058-1 UL 61058-1	TUV RH UL	
Input terminal block	Various	Various	Min. 6A, 300Vac, 3 pins	UL468E	UL	
PCB	Various	Various	Min. 94V-1, Min. 105°C	UL 796	UL	
Fuse (FS1)	SUN ELECTRIC CO	5H	T8A, 150VDC	IEC/EN 60127-1/- 2 UL 248-1	TUV RH UL	
Alternative	Walter	TSC	T8A, 250Vac	IEC/EN 60127-1/- 2 UL 248-1	VDE UL	
Alternative	Conquer	UDA-A	T8A, 250Vac	IEC/EN 60127-1/- 2 UL 248-1	TUV RH UL	
Transistor (Q1, Q4)	Various	Various	Min. 200V, 25A	IEC/EN 60950-1	Tested in appliance	
Thermal cut-out (TSW1)	JIANGSU CHANGSHENG	BR-B2D	AC250V T _{open} : 80°C	IEC/EN 60730-2- 2 IEC/EN 60691	VDE	
Alternative	CHWEN-DER	CD2KF	AC250V T _{open} : 80°C	IEC/EN 60730-2- 2 IEC/EN 60691	VDE	
Varistor (MOV1)	JOYIN CO LTD	10N471K 14N471K	300Vac	IEC/EN 61051-2 UL1449	VDE UL	
Alternative	Centra Science Corp.	CNR-14D101K	300Vac	IEC/EN 61051-2 UL1449	VDE UL	
Alternative	Thinking Electronic Industrial Co Ltd	TVR10471K TVR14471K	300Vac	IEC/EN 61051-2 UL1449	VDE UL	
Alternative	Brightking (Shenzhen) Co Ltd	10D471K 14D471K	300Vac	IEC/EN 61051-2 UL1449	VDE UL	

IEC 60950-1/Am1					
Clause	Requirement + Test			Result - Remark	Verdict
X-cap (CX1) (optional)	Cheng Tung Industrial Co., Ltd.	CTX	Max 1 μ F, Min 250Vac Min 100°C (Min X2)	IEC/EN 60384-14	VDE
Alternative	Winday Electronic Industrial Co Ltd	MPX	Max 1 μ F, Min 250Vac Min 100°C (Min X2)	IEC/EN 60384-14	VDE
Alternative	ULTRA TECH XIPHI ENTERPRISE CO LTD	HQX	Max 1 μ F, Min 250Vac Min 100°C (Min X2)	IEC/EN 60384-14	VDE
Alternative	Okaya Electric Industries Co. LTD	RE series	Max 1 μ F, Min 250Vac Min 100°C (Min X2)	IEC/EN 60384-14	VDE
Alternative	VISHAY Capacitors Belgium NV	F1772	Max 1 μ F, Min 250Vac Min 100°C (Min X2)	IEC/EN 60384-14	VDE
Alternative	Tenta Electric Industrial Co Ltd	MEX	Max 1 μ F, Min 250Vac Min 100°C (Min X2)	IEC/EN 60384-14	VDE
Alternative	DAIN ELECTRONICS CO LTD	MPX, NPX, MEX	Max 1 μ F, Min 250Vac Min 100°C (Min X2)	IEC/EN 60384-14	VDE
Alternative	Sinhua Electronics (Huzhou) Co. Ltd.	MPX	Max 1 μ F, Min 250Vac Min 100°C (Min X2)	IEC/EN 60384-14	VDE
Alternative	FOSHAN SHUNDE CHUANG GE ELECTRONIC INDUSTRIAL CO LTD	MKP-X2	Max 1 μ F, Min 250Vac Min 100°C (Min X2)	IEC/EN 60384-14	VDE
Alternative	SHUN DE DAHUA ELECTRIC CO LTD	HD	Max 1 μ F, Min 250Vac Min 100°C (Min X2)	IEC/EN 60384-14	VDE
X-cap (CX2, CX3) (optional)	Cheng Tung Industrial Co., Ltd.	CTX	Max 0.47 μ F, Min 250Vac Min 100°C (Min X2)	IEC/EN 60384-14	VDE

IEC 60950-1/Am1					
Clause	Requirement + Test		Result - Remark		Verdict
Alternative	Winday Electronic Industrial Co Ltd	MPX	Max 0.47 μ F, Min 250Vac Min 100°C (Min X2)	IEC/EN 60384-14	VDE
Alternative	ULTRA TECH XIPHI ENTERPRISE CO LTD	HQX	Max 0.47 μ F, Min 250Vac Min 100°C (Min X2)	IEC/EN 60384-14	VDE
Alternative	Okaya Electric Industries Co. LTD	RE series	Max 0.47 μ F, Min 250Vac Min 100°C (Min X2)	IEC/EN 60384-14	VDE
Alternative	VISHAY Capacitors Belgium NV	F1772	Max 0.47 μ F, Min 250Vac Min 100°C (Min X2)	IEC/EN 60384-14	VDE
Alternative	Tenta Electric Industrial Co Ltd	MEX	Max 0.47 μ F, Min 250Vac Min 100°C (Min X2)	IEC/EN 60384-14	VDE
Alternative	DAIN ELECTRONICS CO LTD	MPX, NPX, MEX	Max 0.47 μ F, Min 250Vac Min 100°C (Min X2)	IEC/EN 60384-14	VDE
Alternative	Sinhua Electronics (Huzhou) Co. Ltd.	MPX	Max 0.47 μ F, Min 250Vac Min 100°C (Min X2)	IEC/EN 60384-14	VDE
Alternative	FOSHAN SHUNDE CHUANG GE ELECTRONIC INDUSTRIAL CO LTD	MKP-X2	Max 0.47 μ F, Min 250Vac Min 100°C (Min X2)	IEC/EN 60384-14	VDE
Alternative	SHUN DE DAHUA ELECTRIC CO LTD	HD	Max 0.47 μ F, Min 250Vac Min 100°C (Min X2)	IEC/EN 60384-14	VDE
Y capacitors(CY1, CY2,CY3,CY4)	SUCCESS ELECTRONICS CO LTD	SE, SB	Max. 2200pF, Min. 250 V Min. 85°C (Min Y2)	IEC/EN 60384-14	VDE
Alternative	WELSON INDUSTRIAL CO LTD	WD	Max. 2200pF, Min. 250 V Min. 85°C (Min Y2)	IEC/EN 60384-14	VDE

IEC 60950-1/Am1					
Clause	Requirement + Test		Result - Remark		Verdict
Alternative	TDK-EPC CORP	CD	Max. 2200pF, Min. 250 V Min. 85°C (Min Y2)	IEC/EN 60384-14	VDE
Alternative	MURATA MFG CO LTD	KX	Max. 2200pF, Min. 250 V Min. 85°C (Min Y2)	IEC/EN 60384-14	VDE
Alternative	WALSIN TECHNOLOGY CORP	AH	Max. 2200pF, Min. 250 V Min. 85°C (Min Y2)	IEC/EN 60384-14	VDE
Alternative	HAOHUA ELECTRONIC	CT 7	Max. 2200pF, Min. 250 V Min. 85°C (Min Y2)	IEC/EN 60384-14	VDE
Alternative	JYA-NAY CO LTD	JN	Max. 2200pF, Min. 250 V Min. 85°C (Min Y2)	IEC/EN 60384-14	VDE
Alternative	Chyun Fuh Electronic Co Ltd	CE	Max. 2200pF, Min. 250 V Min. 85°C (Min Y2)	IEC/EN 60384-14	VDE
Alternative	Jyh Chung Electronic Co Ltd	JD	Max. 2200pF, Min. 250 V Min. 85°C (Min Y2)	IEC/EN 60384-14	VDE
Alternative	KunShan Wansheng Electronics Co Ltd	CT7	Max. 2200pF, Min. 250 V Min. 85°C (Min Y2)	IEC/EN 60384-14	VDE
Y capacitors (CY5)	SUCCESS ELECTRONICS CO LTD	SE, SB	Max. 4700pF, Min. 250 V Min. 85°C Y1	IEC/EN 60384-14	VDE
Alternative	WELSON INDUSTRIAL CO LTD	WD	Max. 4700pF, Min. 250 V Min. 85°C Y1	IEC/EN 60384-14	VDE
Alternative	TDK-EPC CORP	CD	Max. 4700pF, Min. 250 V Min. 85°C Y1	IEC/EN 60384-14	VDE

IEC 60950-1/Am1					
Clause	Requirement + Test		Result - Remark		Verdict
Alternative	MURATA MFG CO LTD	KX	Max. 4700pF, Min. 250 V Min. 85°C Y1	IEC/EN 60384-14	VDE
Alternative	WALSIN TECHNOLOGY CORP	AH	Max. 4700pF, Min. 250 V Min. 85°C Y1	IEC/EN 60384-14	VDE
Alternative	HAOHUA ELECTRONIC	CT7	Max. 4700pF, Min. 250 V Min. 85°C Y1	IEC/EN 60384-14	VDE
Alternative	JYA-NAY CO LTD	JN	Max. 4700pF, Min. 250 V Min. 85°C Y1	IEC/EN 60384-14	VDE
Alternative	Chyun Fuh Electronic Co Ltd	CE	Max. 4700pF, Min. 250 V Min. 85°C Y1	IEC/EN 60384-14	VDE
Alternative	Jyh Chung Electronic Co Ltd	JD	Max. 4700pF, Min. 250 V Min. 85°C Y1	IEC/EN 60384-14	VDE
Alternative	KunShan Wansheng Electronics Co Ltd	CT7	Max. 4700pF, Min. 250 V Min. 85°C Y1	IEC/EN 60384-14	VDE
Bridging capacitors(CY6)	SUCCESS ELECTRONICS CO LTD	SE, SB	Max. 4700pF, Min. 250 V Min. 85°C Y1	IEC/EN 60384-14	VDE
Alternative	WELSON INDUSTRIAL CO LTD	WD	Max. 4700pF, Min. 250 V Min. 85°C Y1	IEC/EN 60384-14	VDE
Alternative	TDK-EPC CORP	CD	Max. 4700pF, Min. 250 V Min. 85°C Y1	IEC/EN 60384-14	VDE
Alternative	MURATA MFG CO LTD	KX	Max. 4700pF, Min. 250 V Min. 85°C Y1	IEC/EN 60384-14	VDE

IEC 60950-1/Am1					
Clause	Requirement + Test		Result - Remark		Verdict
Alternative	WALSIN TECHNOLOGY CORP	AH	Max. 4700pF, Min. 250 V Min. 85°C Y1	IEC/EN 60384-14	VDE
Alternative	HAOHUA ELECTRONIC	CT 7	Max. 4700pF, Min. 250 V Min. 85°C Y1	IEC/EN 60384-14	VDE
Alternative	JYA-NAY CO LTD	JN	Max. 4700pF, Min. 250 V Min. 85°C Y1	IEC/EN 60384-14	VDE
Alternative	Chyun Fuh Electronic Co Ltd	CE	Max. 4700pF, Min. 250 V Min. 85°C Y1	IEC/EN 60384-14	VDE
Alternative	Jyh Chung Electronic Co Ltd	JD	Max. 4700pF, Min. 250 V Min. 85°C Y1	IEC/EN 60384-14	VDE
Alternative	KunShan Wansheng Electronics Co Ltd	CT7	Max. 4700pF, Min. 250 V Min. 85°C Y1	IEC/EN 60384-14	VDE
Bleeder Resistors (R1, R1001), after fuse	Various	Various	Max. 340kohm, 1/4W	IEC/EN 60950-1	Tested in appliance
E-Cap (C5, C6, C7)	Various	Various	Max 1000 uF, Min 100 V, 105 deg C.	IEC/EN 60950-1	Tested in appliance
Line filter (L1, L2) ²⁾ No bobbin	GlobTek/ ZhongTong/ BOAM/Sunycore	GT-91125-L1	Min.2.5mH Min.105°C.	IEC/EN 60950-1	Tested in appliance
Line filter (L100) ²⁾ No bobbin	GlobTek/ ZhongTong/ BOAM/Sunycore	GT-91125-L100	Min. 9.5uH Min.105°C.	IEC/EN 60950-1	Tested in appliance
Optocoupler (U2, U10)	Cosmo	K1010 KP1010	See appendix opto elec. Min 100°C	UL 1577 EN 60747-5-2 EN 60950-1	UL VDE S
Alternative	Everlight	EL817	See appendix opto elec. Min 100°C	UL 1577 EN 60747-5-2 EN 60950-1	UL VDE FI

IEC 60950-1/Am1					
Clause	Requirement + Test		Result - Remark		Verdict
Alternative	Bright LED	BPC-817B BPC-817MB BPC-817S	See appendix opto elec. Min 100°C	UL 1577 EN 60747-5-2 EN 60950-1	UL VDE S
Alternative	Lite-On.	LTV-817	See appendix opto elec. Min 100°C	UL 1577 EN 60747-5-2 EN 60950-1	UL VDE FI
Alternative	Toshiba	TLP721	See appendix opto elec. Min 100°C	UL 1577 EN 60747-5-2 EN 60950-1	UL VDE FI
Alternative	Fairchild	H11A817B H11A817C	See appendix opto elec. Min 100°C	UL 1577 EN 60747-5-2 EN 60950-1	UL VDE S
Optocoupler (U3)	Lite-on	MOC3022	See appendix opto elec. Min 100°C	UL 1577 EN 60747-5-2 EN 60950-1	UL VDE FI
Alternative	Fairchild	MOC3022M	See appendix opto elec. Min 100°C	UL 1577 EN 60747-5-2 EN 60950-1	UL VDE FI
-Description	Transformer T1				
Transformer T1 ³⁾	GlobTek/ ZhongTong/ BOAM/Sunycore	320- 01902501(R)	Class A	IEC/EN 60950-1 IEC/EN 60085	Tested in appliance
Bobbin	Changchun plastics co., ltd	T375J	V-0, 150°C Phenolic	UL 94	UL
Alternative	Sumitomo Bakelite Co., Ltd.	PM-9820	V-0, 150°C Phenolic	UL 94	UL
Alternative	HITACHI CHEMICAL CO LTD	CP-J-8800	V-0, 150°C Phenolic	UL 94	UL
Insulation tape	JINGJIANG JINGYI ADHESIVE PRODUCT CO LTD	JY25-A	130°C	UL 510	UL
Alternative	3M COMPANY ELECTRICAL MARKETS DIV (EMD)	1350T-1, 44#, 1350F, 1350-1	130°C	UL 510	UL
Alternative	Symbio Inc	35660Y	130°C	UL 510	UL
Alternative	Yahua	CT, PZ	130°C	UL 510	UL
Tube on the flyA wire and flyB wire	Various	Various	Min. 600V, 200°C, min. 0.4 mm thick , VW-1	UL 224	UL

IEC 60950-1/Am1					
Clause	Requirement + Test			Result - Remark	Verdict
Tubing on the DC fan and LED wiring	Various	Various	Min. 600V, 125°C, min. 0.4 mm thick , VW-1	UL 224	UL
Tubing on the resistor R100 and R101	Various	Various	Min. 600V, 105°C, min. 0.4 mm thick , VW-1	UL 224	UL
Protective earth bonding wire	Various	Various	Min. 600V, 18AWG, 105 deg C, VW-1	UL 758	UL
DC fan	Adda Corp	AD0812MB-A70GL	Rated 12 Vdc, max 0.15A, min 54.34CFM	IEC/EN 60950-1	TUV
Alternative	Sunonwealth	EE80251BX(Y)	Rated 12 Vdc, max 0.15A 55CFM	IEC/EN 60950-1	TUV
Alternative	NIDEC	T80T12MGA7 35624	Rated 12 Vdc, max 0.15A 34CFM	IEC/EN 60950-1	TUV
Supplementary information: 1) Provided evidence ensures the agreed level of compliance. See OD-CB2039. 2) The Line filter (L1, L2, L100) from manufacturers GlobTek/ ZhongTong/ BOAM/Sunycore have the identical construction. 3) The transformer from manufacturers GlobTek/ ZhongTong/ BOAM/Sunycore have the identical construction.					

IEC 60950-1/Am1			
Clause	Requirement + Test	Result - Remark	Verdict

1.5.1	TABLE: Opto Electronic Devices		P
Manufacturer : Cosmo/ Everlight/Bright LED/ Lite-On./ Toshiba/ Fairchild			
Type..... : K1010, KP1010/ EL817/ BPC-817B, BPC-817MB, BPC-817S/ LTV-817, MOC3022/TLP721/ H11A817B, H11A817C, MOC3022M			
Separately tested : VDE			
Bridging insulation..... : Reinforced insulation			
External creepage distance..... : 8mm,8mm/8.3mm/7.8mm,7.8mm,7.8mm/7.8mm, 7.8mm/8mm/>7mm,>7mm,>7mm			
Internal creepage distance..... : 5.3mm,5.3mm/4mm/5mm,5mm,5mm/5.2mm,5.2mm/>4mm/*			
Distance through insulation..... : 0.5mm,0.5mm/0.6mm/0.8mm/0.8mm, 0.8mm/>1mm>1mm, >1mm			
Tested under the following conditions..... :			
Input..... :			
Output..... :			
supplementary information			
* There is no any internal creepage distance. Thermal cycling test is performed.			

1.6.2	TABLE: Electrical data (in normal conditions)					P
U (V)	I (A)	Irated (A)	P (W)	Fuse #	Ifuse (A)	Condition/status
35.7	5.205	--	188.0	FS1	5.205	See general product information
42	4.596	5.25	197.8	FS1	4.596	See general product information
60	3.231	5.25	197.3	FS1	3.231	See general product information
72	2.783	--	200.1	FS1	2.783	See general product information
Supplementary information:						

2.1.1.5 c) 1)	TABLE: max. V, A, VA test				N/A
Voltage (rated) (V)	Current (rated) (A)	Voltage (max.) (V)	Current (max.) (A)	VA (max.) (VA)	
5.4	30	5.4	37	183.1	
supplementary information:					
Built-in equipment, test for reference only.					

IEC 60950-1/Am1			
Clause	Requirement + Test	Result - Remark	Verdict

2.1.1.5 c) 2)	TABLE: stored energy		N/A
Capacitance C (μF)	Voltage U (V)	Energy E (J)	
supplementary information:			

2.2	TABLE: evaluation of voltage limiting components in SELV circuits			P
Component (measured between)		max. voltage (V) (normal operation)		Voltage Limiting Components
		V peak	V d.c.	
Transformer T1 output pin 14-pin 10		20	--	--
Transformer T1 output pin 12-pin 10		20	--	--
Transformer T1 output flyA-pin 16		32.4	--	--
Transformer T1 output flyB-pin 16		50.8	--	--
Transformer T1 output flyB after diode D111 output - T1 output pin 116		--	36.4	D111

Fault test performed on voltage limiting components	Voltage measured (V) in SELV circuits (V peak or V d.c.)
D111 s-c	Equipment shut-down. Outputs down to 0V.
supplementary information:	

IEC 60950-1/Am1			
Clause	Requirement + Test	Result - Remark	Verdict

2.5	TABLE: limited power sources	N/A
------------	-------------------------------------	-----

Circuit output tested:				
Measured Uoc (V) with all load circuits disconnected:				
	I _{sc} (A)		VA	
	Meas.	Limit	Meas.	Limit
Normal condition				
Single fault:				
Single fault:				
Single fault:				
supplementary information:				
Sc=Short circuit, Oc=Open circuit				

2.10.2	Table: working voltage measurement	P
---------------	---	---

Location	RMS voltage (V)	Peak voltage (V)	Comments
T1, pin 1-pin 14	9.35	25.6	
T1, pin 1-pin 9	0.452	4.8	
T1, pin 1-pin 12	9.01	22.4	
T1, pin 1-fly A	13.5	37.6	
T1, pin 1-fly B	16.6	40.8	
T1, pin 1-pin 16	0.79	15.8	
T1, pin 2-pin 14	6.02	52.0	
T1, pin 2-pin 9	15.1	40.8	
T1, pin 2-pin 12	24.2	60.8	
T1, pin 2-fly A	29.0	62.4	
T1, pin 2-fly B	3.09	84.8	
T1, pin 2-pin 16	15.1	57.6	
T1, pin 4-pin 14	76.5	144	
T1, pin 4-pin 9	67.2	122	
T1, pin 4-pin 12	70.8	128	
T1, pin 4-fly A	67.1	108	
T1, pin 4-fly B	79.8	160	

IEC 60950-1/Am1			
Clause	Requirement + Test	Result - Remark	Verdict
T1, pin 4-pin 16	71.4	126	
T1, pin 5-pin 14	66.2	148	
T1, pin 5-pin 9	71.1	152	
T1, pin 5-pin 12	75.7	154	
T1, pin 5- fly A	79.3	162	
T1, pin 5- fly B	64	142	
T1, pin 5-pin 16	70.2	148	
T1, pin 8-pin 14	61.6	82.0	
T1, pin 8-pin 9	60.5	68.0	
T1, pin 8-pin 12	61.3	84.0	
T1, pin 8-fly A	62.1	100	
T1, pin 8-fly B	62.7	98	
T1, pin 8-pin 16	60.6	68	
Optocoupler U2 pri. pin3-sec. pin2	0.803	10	
Optocoupler U2 pri. pin3-sec. pin1	1.23	10	
Optocoupler U2 pri. pin4-sec. pin2	2.91	10	
Optocoupler U2 pri. pin4-sec. pin1	1.91	10	
Optocoupler U3 pri. pin4-sec. pin2	4.13	6	
Optocoupler U3 pri. pin4-sec. pin1	4.17	6.02	
Optocoupler U3 pri. pin6-sec. pin2	0.723	10	
Optocoupler U3 pri. pin6-sec. pin1	1.76	10	
Optocoupler U10 pri. pin4-sec. pin1	9.57	12	
Optocoupler U10 pri. pin4-sec. pin2	0.718	8	
Optocoupler U10 pri. pin3-sec. pin1	14	20	

IEC 60950-1/Am1			
Clause	Requirement + Test	Result - Remark	Verdict
Optocoupler U10 pri. pin3-sec. pin2	14.8	22	
CY6 primary pin to secondary pin	0.1	1.2	
supplementary information:			

IEC 60950-1/Am1						
Clause	Requirement + Test			Result - Remark		Verdict
2.10.3 and 2.10.4	TABLE: Clearance and creepage distance measurements					P
Clearance (cl) and creepage distance (cr) at/of/between:	U peak (V)	U r.m.s. (V)	Required cl (mm) ¹⁾	cl (mm)	Required cr (mm) ²⁾	cr (mm)
Functional:						
Vin+ to Vin- before fuse FS1	60	60	2.0	2.0	2.0	2.0
Before fuse FS1 to after fuse FS1	60	60	2.0	3.7	2.0	3.7
Basic						
Trace near L2 pin to GND	60	60	2.6	3.0	2.6	3.0
CY1 pin to GND trace	60	60	2.6	3.1	2.6	3.1
Primary pin of T1 (trace side) to bottom chassis	2.6	79.8	2.6	6.0	2.6	6.0
Metal heat sink of U5 to T1 core	162	79.8	2.6	5.1	2.6	5.1
Metal heat sink of Q4 to T1 core	162	79.8	2.6	7.3	2.6	7.3
C20 body to T1 core	162	79.8	2.6	5.1	2.6	5.1
Supplementary:						
T1 core to D100 body	162	79.8	2.6	3.3	2.6	3.3
T1 core to R100 body	162	79.8	2.6	3.0	2.6	3.0
T1 core to R101 body	162	79.8	2.6	3.0	2.6	3.0
Reinforced:						
TSW1 pin to T1 fly A pin (trace side)	162	79.8	5.2	5.2	5.2	8.0
TSW1 pin to T1 fly B pin (trace side)	162	79.8	5.2	5.2	5.2	6.5
U10 primary pin to secondary pin	60	60	5.2 ³⁾	7.0	5.2 ³⁾	8.0
U3 primary pin to secondary pin	60	60	5.2 ³⁾	7.0	5.2 ³⁾	8.0
CY6 primary pin to secondary pin	60	60	5.2 ³⁾	7.4	5.2 ³⁾	7.4
Trace of T1 pin 16 to trace of D20	162	79.8	5.2	18.5	5.2	18.5
R26 to T1 pin9	162	79.8	5.2	8.4	5.2	8.4

IEC 60950-1/Am1			
Clause	Requirement + Test	Result - Remark	Verdict

Supplementary information:

- 1) The equipment used at elevations < 4000m. Required clearance is 1.29 times under IEC60664-1 considering sea level 4000m.
- 2) Minimum clearance applied as the minimum creepage distance.
- 3) Applied highest working voltage as worst case.

2.10.5	TABLE: Distance through insulation measurements				P
Distance through insulation (DTI) at/of:	U peak (V)	U rms (V)	Test voltage (V)	Required DTI (mm)	DTI (mm)
Tubing on the DC fan and LED wiring	162	79.8	AC 1000V	0.4	Min.0.4
Tubing on secondary resistors R100 and R101	162	79.8	AC 1000V	0.4	Min.0.4
Supplementary information:					

IEC 60950-1/Am1									
Clause	Requirement + Test				Result - Remark				Verdict
4.3.8	TABLE: Batteries								N/A
The tests of 4.3.8 are applicable only when appropriate battery data is not available									
Is it possible to install the battery in a reverse polarity position?									
	Non-rechargeable batteries			Rechargeable batteries					
	Discharging		Un-intentional charging	Charging		Discharging		Reversed charging	
	Meas. current	Manuf. Specs.		Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.
Max. current during normal condition									
Max. current during fault condition									
Test results:									Verdict
- Chemical leaks									
- Explosion of the battery									
- Emission of flame or expulsion of molten metal									
- Electric strength tests of equipment after completion of tests									
Supplementary information:									

4.3.8	TABLE: Batteries	N/A
Battery category : (Lithium, NiMh, NiCad, Lithium Ion ...)		
Manufacturer :		
Type / model..... :		
Voltage :		
Capacity : mAh		
Tested and Certified by (incl. Ref. No.)..... :		
Circuit protection diagram:		

IEC 60950-1/Am1			
Clause	Requirement + Test	Result - Remark	Verdict

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MARKINGS AND INSTRUCTIONS (1.7.13)	
Location of replaceable battery	
Language(s)	
Close to the battery	
In the servicing instructions	
In the operating instructions	

IEC 60950-1/Am1							
Clause	Requirement + Test			Result - Remark			Verdict
4.5	TABLE: Thermal requirements						P
	Supply voltage (V)	35.7	72	—	—	—	—
	Ambient T _{min} (°C)	50	50	—	—	—	—
	Ambient T _{max} (°C)	50	50	—	—	—	—
Maximum measured temperature T of part/at::		T (°C)					Allowed T _{max} (°C)
Input terminal block		52.3	50.8	—	—	—	70
Switch body		52.1	50.8	—	—	—	85
MOV1 body		62.1	55.7	—	—	—	—
L1 winding		60.3	53.8	—	—	—	105
L2 winding		59.8	53.6	—	—	—	105
CX1 body		59.6	54.9	—	—	—	100
C6 body		55.7	53.9	—	—	—	105
CY1 body		58.3	53.8	—	—	—	85
CY2 body		57.9	53.6	—	—	—	85
CY3 body		54.8	51.6	—	—	—	85
CY4 body		53.7	52.7	—	—	—	85
CY6 body		51.5	50.3	—	—	—	85
T1 core		71.3	75.9	—	—	—	90*
T1 winding		67.4	69.8	—	—	—	90*
PCB near Q1		64.4	65.0	—	—	—	105
PCB near heatsink		68.8	65.4	—	—	—	105
PCB under T1		62.3	58.4	—	—	—	105
Heat shrinkable tube on FS1		72.4	58.4	—	—	—	105
U2 body		59.2	62.8	—	—	—	100
U3 body		59.8	62.0	—	—	—	100
U10 body		56.7	59.6	—	—	—	100
L100 winding		60.4	60.3	—	—	—	105
Output connector terminal		57.9	57.1	—	—	—	60
Supplementary information:							
Temperature T of winding:		t ₁ (°C)	R ₁ (Ω)	t ₂ (°C)	R ₂ (Ω)	T (°C)	Allowed T _{max} (°C)
—		—	—	—	—	—	—
—		—	—	—	—	—	—

IEC 60950-1/Am1			
Clause	Requirement + Test	Result - Remark	Verdict

Supplementary information:

*) The temperature of winding is determined by thermocouple. Temperature limit is decreased 10°C.

4.5.5	TABLE: Ball pressure test of thermoplastic parts			N/A
	Allowed impression diameter (mm)	≤ 2 mm		—
Part		Test temperature (°C)	Impression diameter (mm)	
Supplementary information:				

4.7	TABLE: Resistance to fire					N/A
Part	Manufacturer of material	Type of material	Thickness (mm)	Flammability class	Evidence	
Supplementary information:						

5.1	TABLE: touch current measurement			N/A
Measured between:	Measured (mA)	Limit (mA)	Comments/conditions	
supplementary information:				

IEC 60950-1/Am1			
Clause	Requirement + Test	Result - Remark	Verdict

5.2	TABLE: Electric strength tests, impulse tests and voltage surge tests			P
Test voltage applied between:		Voltage shape (AC, DC, impulse, surge)	Test voltage (V)	Breakdo wn Yes / No
Basic/supplementary:				
“+”/ “-” polarity input to GND		AC	1000	No
“+”/ “-” polarity input to Metal chassis		AC	1000	No
Transformer T1 input pin- core		AC	1000	No
Transformer T1 output pin- core		AC	1000	No
Reinforced:				
“+”/ “-” polarity input to output		AC	2000	No
Transformer T1 input pin – output pin		AC	2000	No
Insulation tape for T1(1 layer)		AC	2000	No
Supplementary information:				

IEC 60950-1/Am1						
Clause	Requirement + Test				Result - Remark	
5.3	TABLE: Fault condition tests					P
	Ambient temperature (°C)				23°C if not specified	—
	Power source for EUT: Manufacturer, model/type, output rating				--	—
Component No.	Fault	Supply voltage (V)	Test time	Fuse #	Fuse current (A)	Observation
MOSEFT Q4(pin G-D)	S-C	72VDC	<1s	FS1	1)	Fuse FS1 operated in 1 second. Q4 damaged. No hazards occurred.
MOSEFT Q4(pin G-S)	S-C	72VDC	10min	FS1	0	Equipment shut-down. No hazards occurred.
MOSEFT Q4(pin D-S)	S-C	72VDC	<1s	FS1	1)	Fuse FS1 operated in 1 second. No hazards occurred.
Transistor Q3 (Pin b-e)	S-C	72VDC	<1s	FS1	1)	Fuse FS1 operated in 1 second. No hazards occurred.
Transistor Q3 (Pin b-c)	S-C	72VDC	1h	FS1	2.8	Equipment working normally. No hazards occurred.
Transistor Q3 (Pin e-c)	S-C	72VDC	1h	FS1	2.8	Equipment working normally. No hazards occurred.
VRD D1	S-C	72VDC	<1s	FS1	1)	Fuse FS1 operated in 1 second. No hazards occurred.
U2 (pin 1-2),	S-C	72VDC	10min	FS1	0	Unit shut down, no hazards occurred.
U2 (pin 3-4)	S-C	72VDC	10min	FS1	0	Unit shut down, no hazards occurred.
U3 (pin 1-2)	S-C	72VDC	1h30min	FS1	2.8	Equipment working normally. No hazards occurred.
U3 (pin 3-4)	S-C	72VDC	10min	FS1	0	Unit shut down, no hazards occurred.
U10 (pin 1-2)	S-C	72VDC	1h30min	FS1	2.8	Equipment working normally. No hazards occurred.
U10 (pin 3-4)	S-C	72VDC	10min	FS1	0	Unit shut down, no hazards occurred.
D100	S-C	72VDC	10min	FS1	0	Unit shut down, no hazards occurred.
D101	S-C	72VDC	10min	FS1	0	Unit shut down, no hazards occurred.
D110	S-C	72VDC	10min	FS1	0	Unit shut down, no hazards occurred.

IEC 60950-1/Am1						
Clause	Requirement + Test				Result - Remark	Verdict
Output	S-C	72VDC	10min	FS1	0	Unit shut down, no hazards occurred.
Output	O-L	72VDC	1h30min	FS1	3.3	Test ambient temperature: 27.5°C. Unit shutdown by automatic reset thermal cut-out. Max. T1 winding is 84.2°C. No hazards occurred.
Cooling fan	blocked	72VDC	1h	FS1	2.74	Test ambient temperature: 27.8°C. Unit shutdown by automatic reset thermal cut-out. Max. T1 winding is 82.3°C. No hazards occurred.
Ventilation openings	blocked	72VDC	1h	FS1	2.79	Test ambient temperature: 27.8°C. Unit shutdown by automatic reset thermal cut-out. Max. T1 winding is 84.6°C. No hazards occurred.
Thermal cut-out TSW1	S-C	72VDC	1h	FS1	2.8A	Test ambient temperature: 29.5 °C. Max. T1 winding is 56.5 °C. No hazards occurred.
Polarity of input terminal block	Reversed	72VDC	<1s	FS1	1)	Fuse FS1 operated in 1 second and U5 damaged. No hazards occurred.
Supplementary information:						
1) Fuse current > fuse rating of which opened under test x 2.1 and repeated three times with other source of fuse and same result came out.						

IEC 60950-1/Am1							
Clause	Requirement + Test			Result - Remark			Verdict
C.2	TABLE: transformers						P
Loc.	Tested insulation	Working voltage peak / V (2.10.2)	Working voltage rms / V (2.10.2)	Required electric strength (5.2)	Required clearance / mm (2.10.3)	Required creepage distance / mm (2.10.4)	Required distance thr. insul. (2.10.5)
T1	Reinforced: Primary to secondary	162	79.8	AC2000 V	5.2 ²⁾	5.2 ³⁾	1)
T1	Basic: Primary to core	162	79.8	AC1000 V	2.6 ²⁾	2.6 ³⁾	1)
T1	Supplementary: core to secondary	162	79.8	AC1000 V	2.6 ²⁾	2.6 ³⁾	1)
Loc.	Tested insulation			Test voltage/ V	Measured clearance / mm	Measured creepage dist./ mm	Measured distance thr. insul. / mm; number of layers
T1	Reinforced: Primary to secondary			AC2000 V	6.0	6.0	2 or 3 layers
T1	Basic: Primary to core			AC1000 V	3.0	3.0	2 or 3 layers
T1	Supplementary: core to secondary			AC1000 V	3.0	3.0	2 or 3 layers
supplementary information:							
1)	2 or 3 layers / 0.4mm / Annex U						
2)	The equipment used at elevations < 4000m. Required clearance is 1.29 times under IEC60664-1 considering sea level 4000m.						
3)	Linear interpolation is used. Creepage distance shall not less than clearance.						

IEC 60950-1/Am1

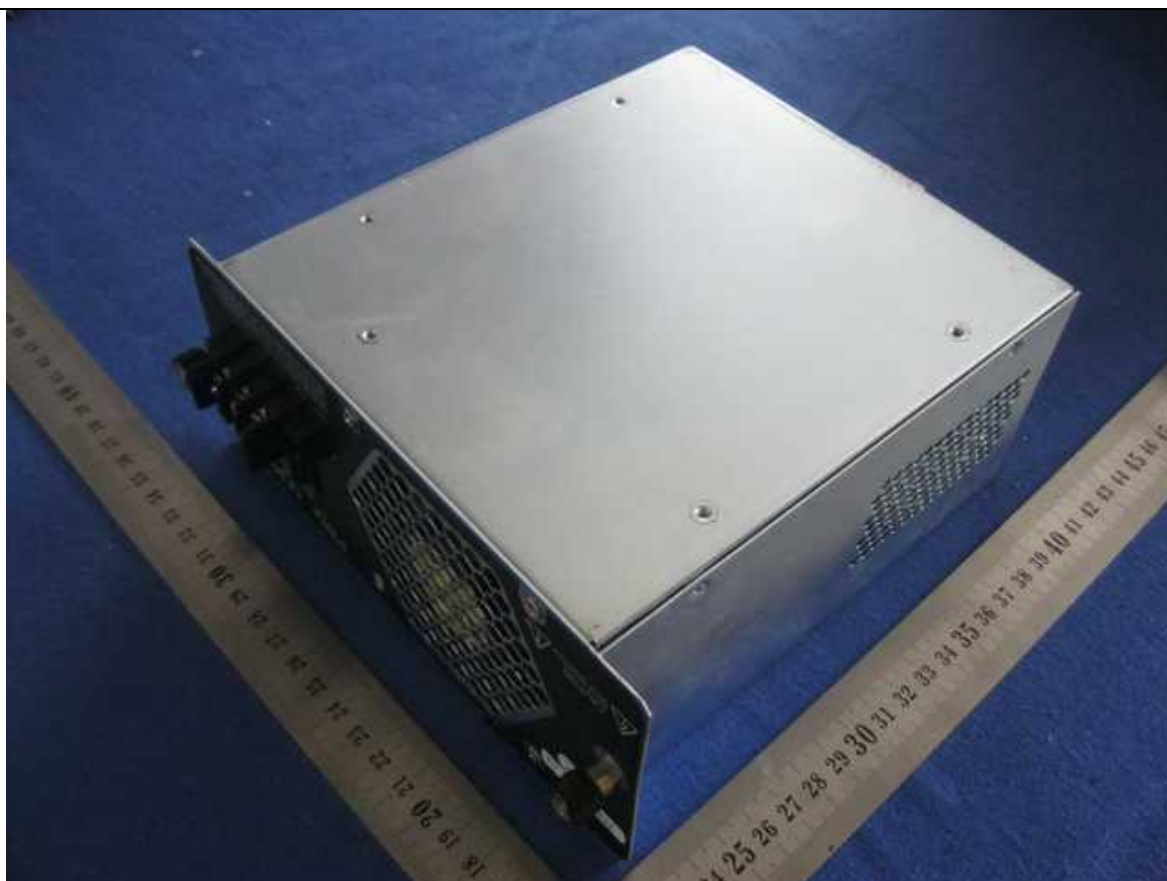
Clause	Requirement + Test	Result - Remark	Verdict
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C.2	TABLE: transformers	P
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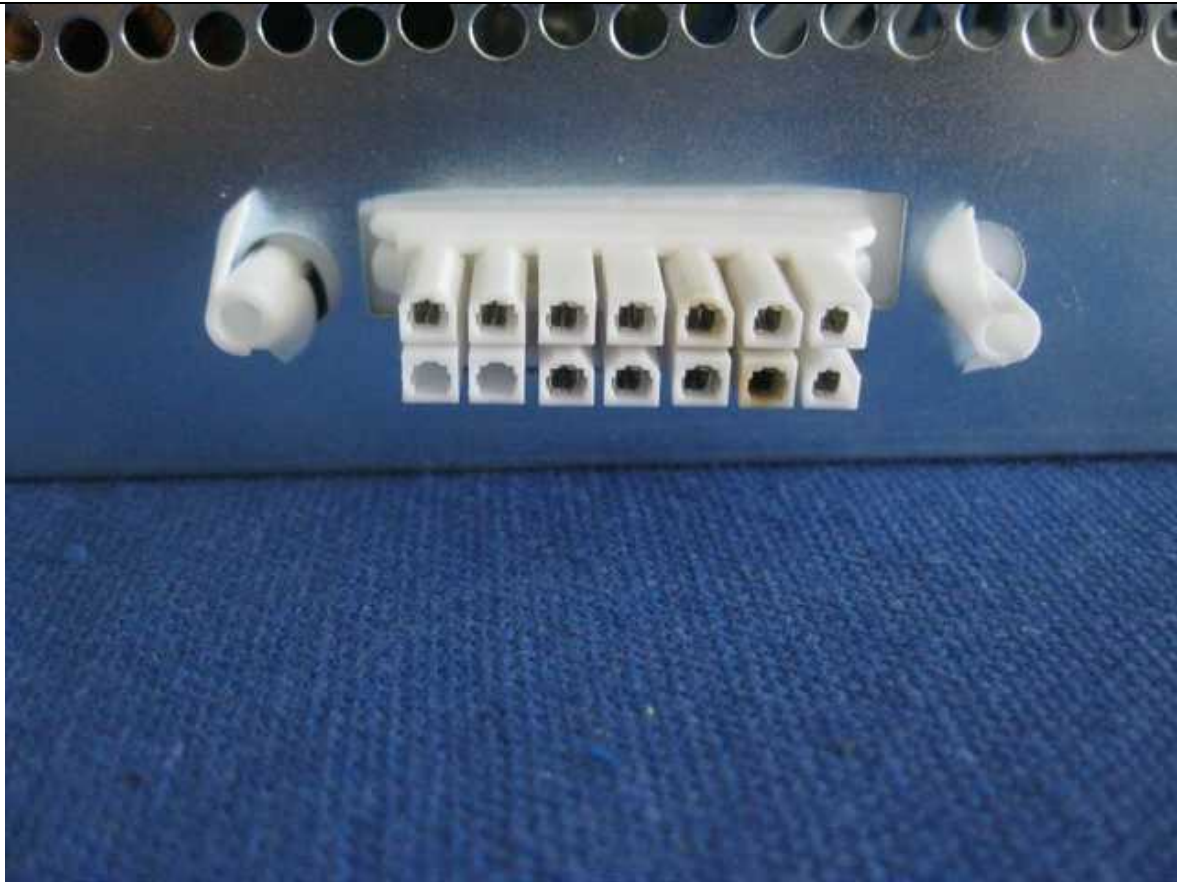
Transformer: T1(The transformer from manufacturers GlobTek/ ZhongTong/ BOAM/Sunycore have the identical construction)

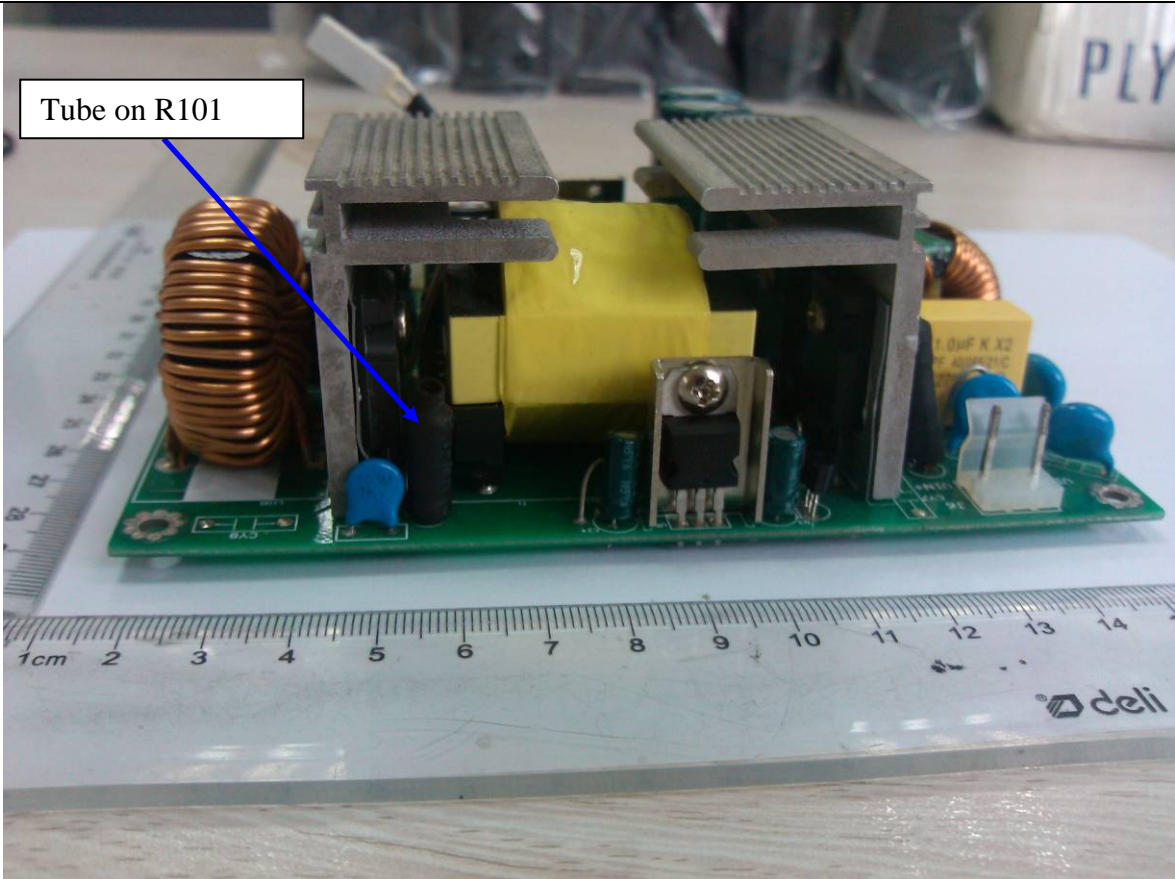
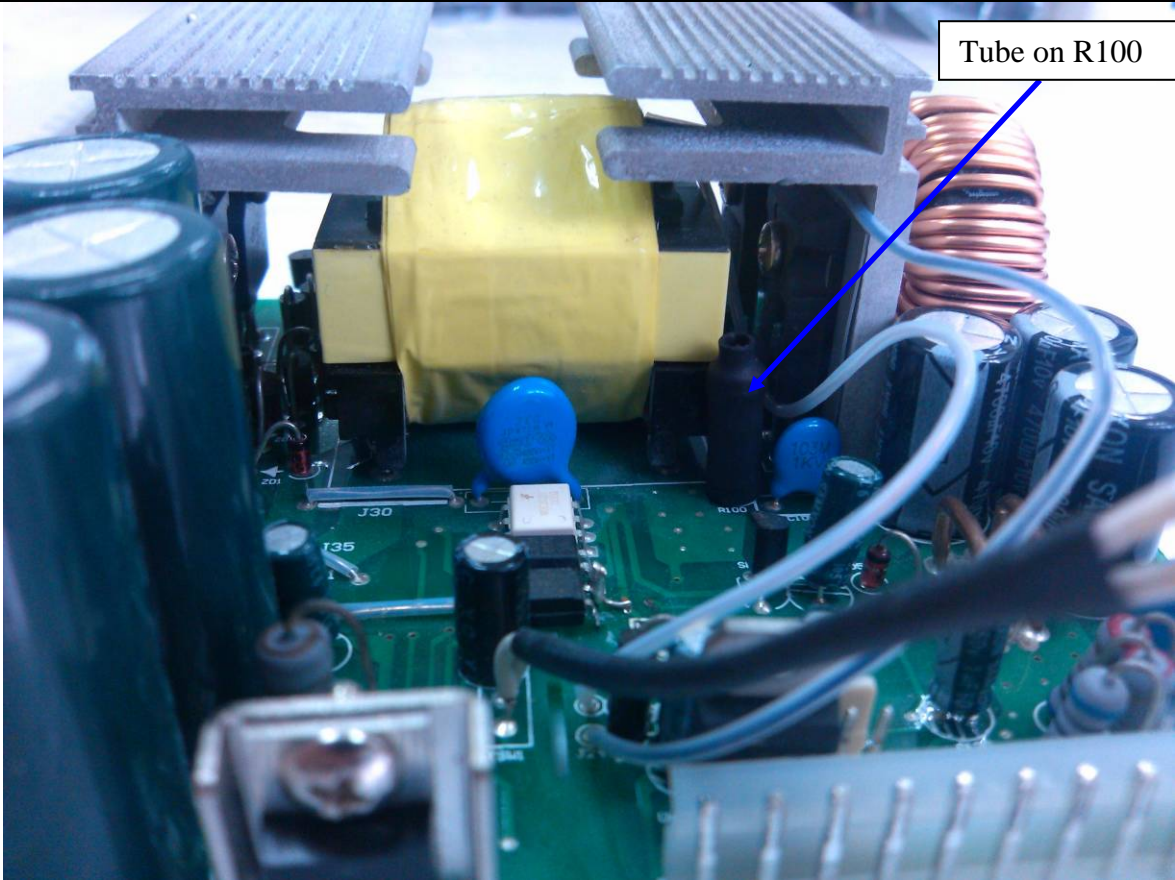
NO	TERMINAL		TURNS	WIRE	STRANDS	INSULATION MATERIAL	INSULATION LAYERS	MARGIN TAPE
	S	F						
N1	12,13	9,10,11	3	2UEW ϕ 0.25	22	PET 0.025		
N2	9,10,11	14,15	3	2UEW ϕ 0.25	22	PET 0.025	3	
E1	1		1.1	0.05*22W		PET 0.025	1	
N3	4	7, 8	12	2UEW ϕ 0.08	100	PET 0.025	1	
N4	7,8	5	12	2UEW ϕ 0.08	100	PET 0.025	1	
N5	4	7, 8	12	2UEW ϕ 0.08	100	PET 0.025	1	
N6	7,8	5	12	2UEW ϕ 0.08	100	PET 0.025	1	
E2	1		1.1	0.05*22W		PET 0.025	1	
N7	12,13	9,10,11	3	2UEW ϕ 0.25	22	PET 0.025		5.2*1 5.2*1
N8	9,10,11	14,15	3	2UEW ϕ 0.25	22	PET 0.025	3	5.2*1 5.2*1
N9	16	FLY S	5	2UEW ϕ 0.30	1			5.2*1 5.2*1
N10	FLY F	16	5	2UEW ϕ 0.30	1	PET 0.025	2	5.2*1 5.2*1
N11	1	2	5	2UEW ϕ 0.25	1	PET 0.025	2	5.2*1 5.2*1

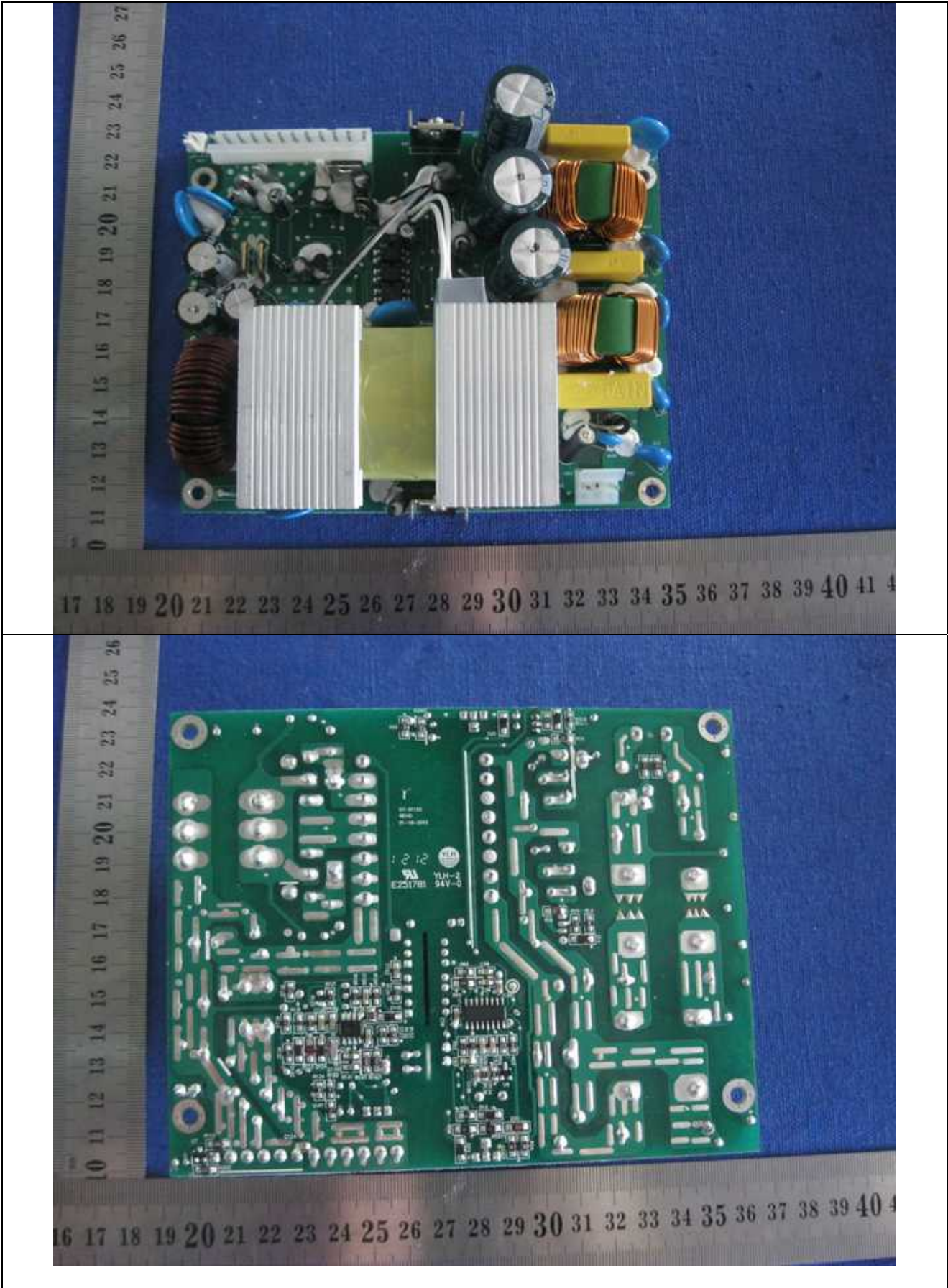
- Core fixed by insulation tape 2Ts.
- 先在线圈上包 2 圈 26mm 宽胶带，外屏蔽引线接 PIN1，1.1Ts。磁芯最后外包 2 圈 26mm 胶带。
- 覆铜箔边宽至少 5.2mm。

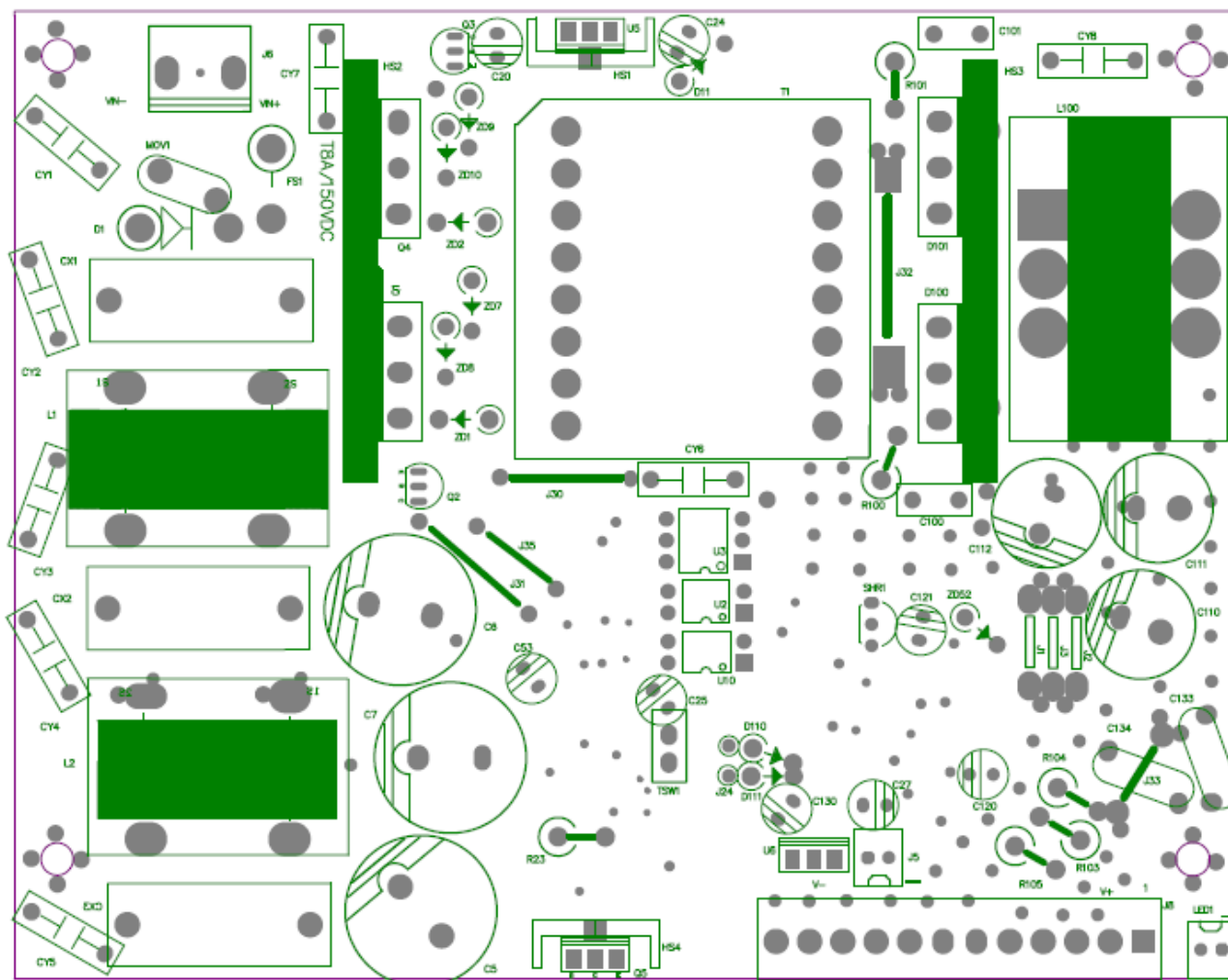


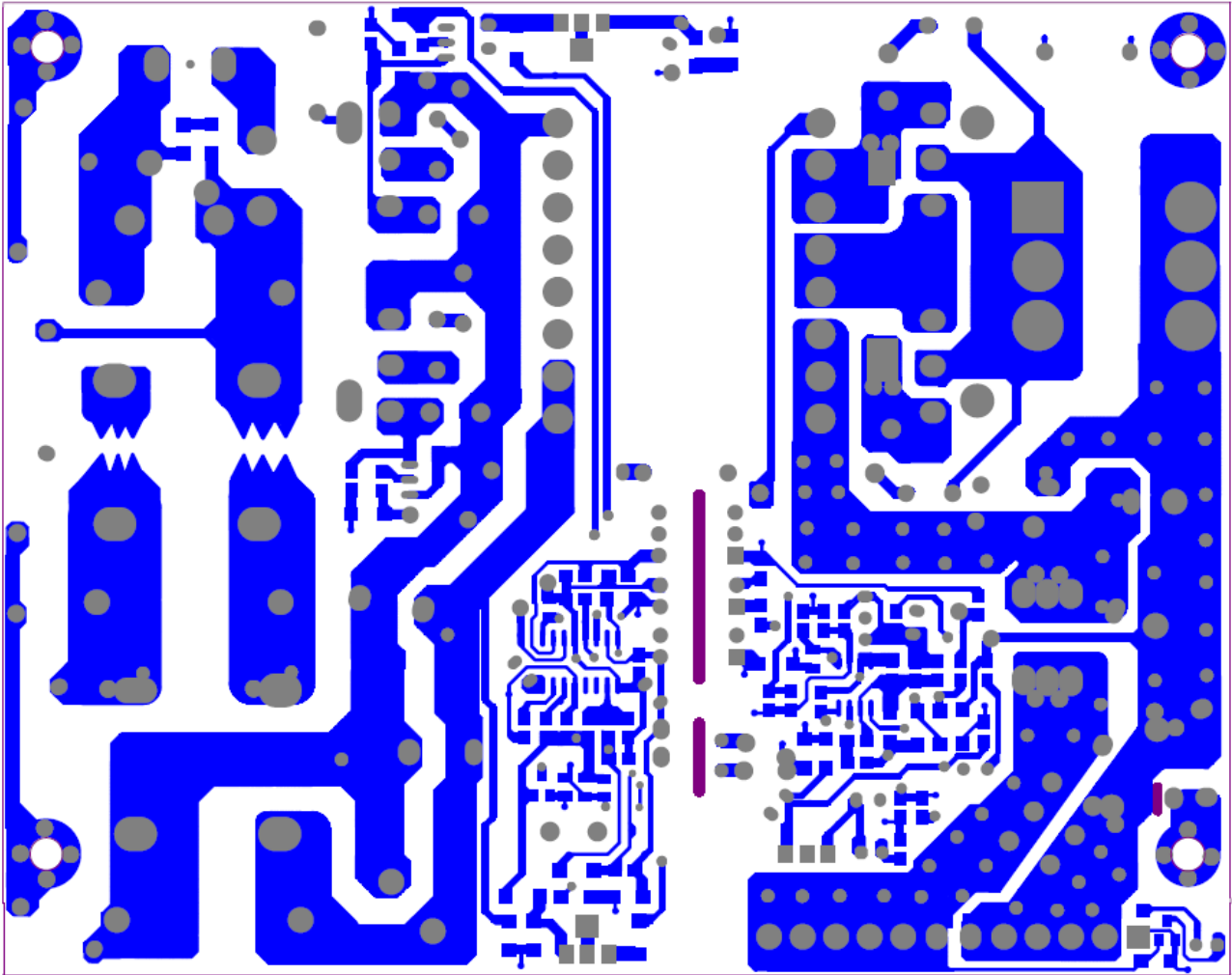












IEC60950_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

<p align="center">ATTACHMENT TO TEST REPORT IEC 60950-1 EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES Information technology equipment – Safety – Part 1: General requirements</p>			
Differences according to.....: EN 60950-1:2006/A11:2009/A1:2010/A12:2011			
Attachment Form No.....: EU_GD_IEC60950_1B_II			
Attachment Originator SGS Fimko Ltd			
Master Attachment Date 2011-08			
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EN 60950-1:2006/A11:2009/A1:2010/A12:2011 – CENELEC COMMON MODIFICATIONS

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)				
Clause	Requirement + Test			Verdict
Contents	Add the following annexes: Annex ZA (normative) Normative references to international publications with their corresponding European publications Annex ZB (normative) Special national conditions			P
General	Delete all the “country” notes in the reference document (IEC 60950-1:2005) according to the following list: 1.4.8 Note 2 1.5.1 Note 2 & 3 1.5.7.1 Note 1.5.8 Note 2 1.5.9.4 Note 1.7.2.1 Note 4, 5 & 6 2.2.3 Note 2.2.4 Note 2.3.2 Note 2.3.2.1 Note 2 2.3.4 Note 2 2.6.3.3 Note 2 & 3 2.7.1 Note 2.10.3.2 Note 2 2.10.5.13 Note 3 3.2.1.1 Note 3.2.4 Note 3. 2.5.1 Note 2 4.3.6 Note 1 & 2 4.7 Note 4 4.7.2.2 Note 4.7.3.1 Note 2 5.1.7.1 Note 3 & 4 5.3.7 Note 1 6 Note 2 & 5 6.1.2.1 Note 2 6.1.2.2 Note 6.2.2 Note 6.2.2.1 Note 2 6.2.2.2 Note 7.1 Note 3 7.2 Note 7.3 Note 1 & 2 G.2.1 Note 2 Annex H Note 2			P
General (A1:2010)	Delete all the “country” notes in the reference document (IEC 60950-1:2005/A1:2010) according to the following list: 1.5.7.1 Note 6.1.2.1 Note 2 6.2.2.1 Note 2 EE.3 Note			P

IEC60950_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
1.3.Z1	<p>Add the following subclause:</p> <p>1.3.Z1 Exposure to excessive sound pressure</p> <p>The apparatus shall be so designed and constructed as to present no danger when used for its intended purpose, either in normal operating conditions or under fault conditions, particularly providing protection against exposure to excessive sound pressures from headphones or earphones.</p> <p>NOTE Z1 A new method of measurement is described in EN 50332-1, Sound system equipment: Headphones and earphones associated with portable audio equipment - Maximum sound pressure level measurement methodology and limit considerations - Part 1: General method for "one package equipment", and in EN 50332-2, Sound system equipment: Headphones and earphones associated with portable audio equipment - Maximum sound pressure level measurement methodology and limit considerations - Part 2: Guidelines to associate sets with headphones coming from different manufacturers.</p>		N/A
(A12:2011)	<p>In EN 60950-1:2006/A12:2011</p> <p>Delete the addition of 1.3.Z1 / EN 60950-1:2006</p> <p>Delete the definition 1.2.3.Z1 / EN 60950-1:2006 /A1:2010</p>		P
1.5.1	<p>Add the following NOTE:</p> <p>NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2002/95/EC</p>		P
1.7.2.1 (A1:2010)	<p>In addition, for a PORTABLE SOUND SYSTEM, the instructions shall include a warning that excessive sound pressure from earphones and headphones can cause hearing loss.</p>		N/A
1.7.2.1 (A12.2011)	<p>In EN 60950-1:2006/A12:2011</p> <p>Delete NOTE Z1 and the addition for Portable Sound System.</p> <p>Add the following clause and annex to the existing standard and amendments.</p>		N/A
	Zx Protection against excessive sound pressure from personal music players		N/A

IEC60950_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>Zx.1 General</p> <p>This sub-clause specifies requirements for protection against excessive sound pressure from personal music players that are closely coupled to the ear. It also specifies requirements for earphones and headphones intended for use with personal music players.</p> <p>A personal music player is a portable equipment for personal use, that:</p> <ul style="list-style-type: none"> – is designed to allow the user to listen to recorded or broadcast sound or video; and – primarily uses headphones or earphones that can be worn in or on or around the ears; and – allows the user to walk around while in use. <p>NOTE 1 Examples are hand-held or body-worn portable CD players, MP3 audio players, mobile phones with MP3 type features, PDA's or similar equipment.</p> <p>A personal music player and earphones or headphones intended to be used with personal music players shall comply with the requirements of this sub-clause.</p> <p>The requirements in this sub-clause are valid for music or video mode only.</p> <p>The requirements do not apply:</p> <ul style="list-style-type: none"> – while the personal music player is connected to an external amplifier; or – while the headphones or earphones are not used. <p>NOTE 2 An external amplifier is an amplifier which is not part of the personal music player or the listening device, but which is intended to play the music as a standalone music player.</p> <p>The requirements do not apply to:</p> <ul style="list-style-type: none"> – hearing aid equipment and professional equipment; <p>NOTE 3 Professional equipment is equipment sold through special sales channels. All products sold through normal electronics stores are considered not to be professional equipment.</p>		N/A


IEC60950_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>– analogue personal music players (personal music players without any kind of digital processing of the sound signal) that are brought to the market before the end of 2015.</p> <p>NOTE 4 This exemption has been allowed because this technology is falling out of use and it is expected that within a few years it will no longer exist. This exemption will not be extended to other technologies.</p> <p>For equipment which is clearly designed or intended for use by young children, the limits of EN 71-1 apply.</p>		N/A
	<p>Zx.2 Equipment requirements</p> <p>No safety provision is required for equipment that complies with the following:</p> <ul style="list-style-type: none"> – equipment provided as a package (personal music player with its listening device), where the acoustic output $L_{Aeq,T}$ is ≤ 85 dBA measured while playing the fixed “programme simulation noise” as described in EN 50332-1; and – a personal music player provided with an analogue electrical output socket for a listening device, where the electrical output is ≤ 27 mV measured as described in EN 50332-2, while playing the fixed “programme simulation noise” as described in EN 50332-1. <p>NOTE 1 Wherever the term acoustic output is used in this clause, the 30 s A-weighted equivalent sound pressure level $L_{Aeq,T}$ is meant. See also Zx.5 and Annex Zx.</p> <p>All other equipment shall:</p> <ol style="list-style-type: none"> protect the user from unintentional acoustic outputs exceeding those mentioned above; and have a standard acoustic output level not exceeding those mentioned above, and automatically return to an output level not exceeding those mentioned above when the power is switched off; and 		N/A

IEC60950_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>c) provide a means to actively inform the user of the increased sound pressure when the equipment is operated with an acoustic output exceeding those mentioned above. Any means used shall be acknowledged by the user before activating a mode of operation which allows for an acoustic output exceeding those mentioned above. The acknowledgement does not need to be repeated more than once every 20 h of cumulative listening time; and</p> <p>NOTE 2 Examples of means include visual or audible signals. Action from the user is always required.</p> <p>NOTE 3 The 20 h listening time is the accumulative listening time, independent how often and how long the personal music player has been switched off.</p> <p>d) have a warning as specified in Zx.3; and</p> <p>e) not exceed the following:</p> <p>1) equipment provided as a package (player with its listening device), the acoustic output shall be ≤ 100 dBA measured while playing the fixed "programme simulation noise" described in EN 50332-1; and</p> <p>2) a personal music player provided with an analogue electrical output socket for a listening device, the electrical output shall be ≤ 150 mV measured as described in EN 50332-2, while playing the fixed "programme simulation noise" described in EN 50332-1.</p> <p>For music where the average sound pressure (long term $L_{Aeq,T}$) measured over the duration of the song is lower than the average produced by the programme simulation noise, the warning does not need to be given as long as the average sound pressure of the song is below the basic limit of 85 dBA. In this case T becomes the duration of the song.</p> <p>NOTE 4 Classical music typically has an average sound pressure (long term $L_{Aeq,T}$) which is much lower than the average programme simulation noise. Therefore, if the player is capable to analyse the song and compare it with the programme simulation noise, the warning does not need to be given as long as the average sound pressure of the song is below the basic limit of 85 dBA.</p> <p>For example, if the player is set with the programme simulation noise to 85 dBA, but the average music level of the song is only 65 dBA, there is no need to give a warning or ask an acknowledgement as long as the average sound level of the song is not above the basic limit of 85 dBA.</p>		N/A

IEC60950_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>Zx.3 Warning</p> <p>The warning shall be placed on the equipment, or on the packaging, or in the instruction manual and shall consist of the following:</p> <ul style="list-style-type: none"> – the symbol of Figure 1 with a minimum height of 5 mm; and – the following wording, or similar: <p>“To prevent possible hearing damage, do not listen at high volume levels for long periods.”</p>  <p>Figure 1 – Warning label (IEC 60417-6044)</p> <p>Alternatively, the entire warning may be given through the equipment display during use, when the user is asked to acknowledge activation of the higher level.</p>		N/A
	Zx.4 Requirements for listening devices (headphones and earphones)		N/A
	<p>Zx.4.1 Wired listening devices with analogue input</p> <p>With 94 dBA sound pressure output $L_{Aeq,T}$, the input voltage of the fixed “programme simulation noise” described in EN 50332-2 shall be ≥ 75 mV.</p> <p>This requirement is applicable in any mode where the headphones can operate (active or passive), including any available setting (for example built-in volume level control).</p> <p>NOTE The values of 94 dBA – 75 mV correspond with 85dBA – 27 mV and 100 dBA – 150 mV.</p>		N/A

IEC60950_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>Zx.4.2 Wired listening devices with digital input</p> <p>With any playing device playing the fixed “programme simulation noise” described in EN 50332-1 (and respecting the digital interface standards, where a digital interface standard exists that specifies the equivalent acoustic level), the acoustic output $L_{Aeq,T}$ of the listening device shall be ≤ 100 dBA.</p> <p>This requirement is applicable in any mode where the headphones can operate, including any available setting (for example built-in volume level control, additional sound feature like equalization, etc.).</p> <p>NOTE An example of a wired listening device with digital input is a USB headphone.</p>		N/A
	<p>Zx.4.3 Wireless listening devices</p> <p>In wireless mode:</p> <ul style="list-style-type: none"> – with any playing and transmitting device playing the fixed programme simulation noise described in EN 50332-1; and – respecting the wireless transmission standards, where an air interface standard exists that specifies the equivalent acoustic level; and – with volume and sound settings in the listening device (for example built-in volume level control, additional sound feature like equalization, etc.) set to the combination of positions that maximize the measured acoustic output for the abovementioned programme simulation noise, the acoustic output $L_{Aeq,T}$ of the listening device shall be ≤ 100 dBA. <p>NOTE An example of a wireless listening device is a Bluetooth headphone.</p>		N/A
	<p>Zx.5 Measurement methods</p> <p>Measurements shall be made in accordance with EN 50332-1 or EN 50332-2 as applicable. Unless stated otherwise, the time interval T shall be 30 s.</p> <p>NOTE Test method for wireless equipment provided without listening device should be defined.</p>		N/A

IEC60950_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
2.7.1	<p>Replace the subclause as follows:</p> <p>Basic requirements</p> <p>To protect against excessive current, short-circuits and earth faults in PRIMARY CIRCUITS, protective devices shall be included either as integral parts of the equipment or as parts of the building installation, subject to the following, a), b) and c):</p> <p>a) except as detailed in b) and c), protective devices necessary to comply with the requirements of 5.3 shall be included as parts of the equipment;</p> <p>b) for components in series with the mains input to the equipment such as the supply cord, appliance coupler, r.f.i. filter and switch, short-circuit and earth fault protection may be provided by protective devices in the building installation;</p>	<p>No primary circuit in the equipment.</p> <p>Circuits in the equipment considered as secondary circuits.</p>	N/A
	<p>c) it is permitted for PLUGGABLE EQUIPMENT TYPE B or PERMANENTLY CONNECTED EQUIPMENT, to rely on dedicated overcurrent and short-circuit protection in the building installation, provided that the means of protection, e.g. fuses or circuit breakers, is fully specified in the installation instructions.</p> <p>If reliance is placed on protection in the building installation, the installation instructions shall so state, except that for PLUGGABLE EQUIPMENT TYPE A the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet.</p>		N/A
2.7.2	This subclause has been declared 'void'.		P
3.2.3	Delete the NOTE in Table 3A, and delete also in this table the conduit sizes in parentheses.		N/A

IEC60950_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)									
Clause	Requirement + Test	Result - Remark	Verdict						
3.2.5.1	<p>Replace “60245 IEC 53” by “H05 RR-F”; “60227 IEC 52” by “H03 VV-F or H03 VVH2-F”; “60227 IEC 53” by “H05 VV-F or H05 VVH2-F2”.</p> <p>In Table 3B, replace the first four lines by the following:</p> <table><tr><td>Up to and including 6 </td><td>0,75 ^{a)} </td></tr><tr><td>Over 6 up to and including 10 </td><td>(0,75) ^{b)} 1,0 </td></tr><tr><td>Over 10 up to and including 16 </td><td>(1,0) ^{c)} 1,5 </td></tr></table> <p>In the conditions applicable to Table 3B delete the words “in some countries” in condition ^{a)}.</p> <p>In NOTE 1, applicable to Table 3B, delete the second sentence.</p>	Up to and including 6	0,75 ^{a)}	Over 6 up to and including 10	(0,75) ^{b)} 1,0	Over 10 up to and including 16	(1,0) ^{c)} 1,5	Built-in equipment.	N/A
Up to and including 6	0,75 ^{a)}								
Over 6 up to and including 10	(0,75) ^{b)} 1,0								
Over 10 up to and including 16	(1,0) ^{c)} 1,5								
3.3.4	<p>In Table 3D, delete the fourth line: conductor sizes for 10 to 13 A, and replace with the following:</p> <table><tr><td>Over 10 up to and including 16 </td><td>1,5 to 2,5 </td><td>1,5 to 4 </td></tr></table> <p>Delete the fifth line: conductor sizes for 13 to 16 A</p>	Over 10 up to and including 16	1,5 to 2,5	1,5 to 4	Built-in equipment.	N/A			
Over 10 up to and including 16	1,5 to 2,5	1,5 to 4							
4.3.13.6 (A1:2010)	<p>Replace the existing NOTE by the following:</p> <p>NOTE Z1 Attention is drawn to:</p> <p>1999/519/EC: Council Recommendation on the limitation of exposure of the general public to electromagnetic fields 0 Hz to 300 GHz, and</p> <p>2006/25/EC: Directive on the minimum health and safety requirements regarding the exposure of workers to risks arising from physical agents (artificial optical radiation).</p>		N/A						
	<p>Standards taking into account mentioned Recommendation and Directive which demonstrate compliance with the applicable EU Directive are indicated in the OJEC.</p>		N/A						
Annex H	<p>Replace the last paragraph of this annex by:</p> <p>At any point 10 cm from the surface of the OPERATOR ACCESS AREA, the dose rate shall not exceed 1 µSv/h (0,1 mR/h) (see NOTE). Account is taken of the background level.</p> <p>Replace the notes as follows:</p> <p>NOTE These values appear in Directive 96/29/Euratom.</p> <p>Delete NOTE 2.</p>	The unit does not emit X-ray radiation.	N/A						
Bibliography	Additional EN standards.		—						

ZA	NORMATIVE REFERENCES TO INTERNATIONAL PUBLICATIONS WITH THEIR CORRESPONDING EUROPEAN PUBLICATIONS	—
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IEC60950_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN)			
Clause	Requirement + Test	Result - Remark	Verdict
1.2.4.1	In Denmark , certain types of Class I appliances (see 3.2.1.1) may be provided with a plug not establishing earthing conditions when inserted into Danish socket-outlets.	No primary circuit in the equipment. Circuits in the equipment considered as secondary circuits.	N/A
1.2.13.14	In Norway and Sweden , for requirements see 1.7.2.1 and 7.3 of this annex.	No cable distribution system.	N/A
1.5.7.1	In Finland, Norway and Sweden , resistors bridging BASIC INSULATION in CLASS I PLUGGABLE EQUIPMENT TYPE A must comply with the requirements in 1.5.7.1. In addition when a single resistor is used, the resistor must withstand the resistor test in 1.5.7.2.	No such resistors.	N/A
1.5.8	In Norway , due to the IT power system used (see annex V, Figure V.7), capacitors are required to be rated for the applicable line-to-line voltage (230 V).	No primary circuit in the equipment. Circuits in the equipment considered as secondary circuits.	N/A
1.5.9.4	In Finland, Norway and Sweden , the third dashed sentence is applicable only to equipment as defined in 6.1.2.2 of this annex.	No TNV circuits.	N/A

ZB ANNEX (normative)			
SPECIAL NATIONAL CONDITIONS (EN)			
Clause	Requirement + Test	Result - Remark	Verdict
1.7.2.1	<p>In Finland, Norway and Sweden, CLASS I PLUGGABLE EQUIPMENT TYPE A intended for connection to other equipment or a network shall, if safety relies on connection to protective earth or if surge suppressors are connected between the network terminals and accessible parts, have a marking stating that the equipment must be connected to an earthed mains socket-outlet. The marking text in the applicable countries shall be as follows:</p> <p>In Finland: "Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan"</p> <p>In Norway: "Apparatet må tilkoples jordet stikkontakt"</p> <p>In Sweden: "Apparaten skall anslutas till jordat uttag"</p> <p>In Norway and Sweden, the screen of the cable distribution system is normally not earthed at the entrance of the building and there is normally no equipotential bonding system within the building. Therefore the protective earthing of the building installation need to be isolated from the screen of a cable distribution system.</p> <p>It is however accepted to provide the insulation external to the equipment by an adapter or an interconnection cable with galvanic isolator, which may be provided by e.g. a retailer.</p> <p>The user manual shall then have the following or similar information in Norwegian and Swedish language respectively, depending on in what country the equipment is intended to be used in:</p> <p>"Equipment connected to the protective earthing of the building installation through the mains connection or through other equipment with a connection to protective earthing – and to a cable distribution system using coaxial cable, may in some circumstances create a fire hazard. Connection to a cable distribution system has therefore to be provided through a device providing electrical isolation below a certain frequency range (galvanic isolator, see EN 60728-11)."</p>	<p>No primary circuit in this built-in equipment. Circuits in the equipment considered as secondary circuits. Compliance shall be evaluated with the end-product.</p> <p>Not intended to connect to cable distribution system.</p>	N/A

IEC60950_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>NOTE In Norway, due to regulation for installations of cable distribution systems, and in Sweden, a galvanic isolator shall provide electrical insulation below 5 MHz. The insulation shall withstand a dielectric strength of 1,5 kV r.m.s., 50 Hz or 60 Hz, for 1 min.</p> <p>Translation to Norwegian (the Swedish text will also be accepted in Norway):</p> <p>“Utstyr som er koplet til beskyttelsesjord via nettplugg og/eller via annet jordtilkoplet utstyr – og er tilkoplet et kabel-TV nett, kan forårsake brannfare. For å unngå dette skal det ved tilkopling av utstyret til kabel-TV nettet installeres en galvanisk isolator mellom utstyret og kabel- TV nettet.”</p> <p>Translation to Swedish:</p> <p>”Utrustning som är kopplad till skyddsjord via jordat vägguttag och/eller via annan utrustning och samtidigt är kopplad till kabel-TV nät kan i vissa fall medföra risk för brand. För att undvika detta skall vid anslutning av utrustningen till kabel-TV nät galvanisk isolator finnas mellan utrustningen och kabel-TV nätet.”</p>		N/A
1.7.5	<p>In Denmark, socket-outlets for providing power to other equipment shall be in accordance with the Heavy Current Regulations, Section 107-2-D1, Standard Sheet DK 1-3a, DK 1-5a or DK 1-7a, when used on Class I equipment. For STATIONARY EQUIPMENT the socket-outlet shall be in accordance with Standard Sheet DK 1-1b or DK 1-5a.</p> <p>For CLASS II EQUIPMENT the socket outlet shall be in accordance with Standard Sheet DKA 1-4a.</p>	No socket outlets.	N/A
2.2.4	In Norway , for requirements see 1.7.2.1, 6.1.2.1 and 6.1.2.2 of this annex.	No TNV circuits.	N/A
2.3.2	In Finland, Norway and Sweden there are additional requirements for the insulation. See 6.1.2.1 and 6.1.2.2 of this annex.	No TNV circuits.	N/A
2.3.4	In Norway , for requirements see 1.7.2.1, 6.1.2.1 and 6.1.2.2 of this annex.	No TNV circuits.	N/A
2.6.3.3	In the United Kingdom , the current rating of the circuit shall be taken as 13 A, not 16 A.	Considered.	P

IEC60950_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN)			
Clause	Requirement + Test	Result - Remark	Verdict
2.7.1	In the United Kingdom , to protect against excessive currents and short-circuits in the PRIMARY CIRCUIT of DIRECT PLUG-IN EQUIPMENT, tests according to 5.3 shall be conducted, using an external protective device rated 30 A or 32 A. If these tests fail, suitable protective devices shall be included as integral parts of the DIRECT PLUG-IN EQUIPMENT, so that the requirements of 5.3 are met.	Not direct plug-in equipment.	N/A
2.10.5.13	In Finland, Norway and Sweden , there are additional requirements for the insulation, see 6.1.2.1 and 6.1.2.2 of this annex.	No TNV circuits.	N/A
3.2.1.1	<p>In Switzerland, supply cords of equipment having a RATED CURRENT not exceeding 10 A shall be provided with a plug complying with SEV 1011 or IEC 60884-1 and one of the following dimension sheets:</p> <p>SEV 6532-2.1991 Plug Type 15 3P+N+PE 250/400 V, 10 A</p> <p>SEV 6533-2.1991 Plug Type 11 L+N 250 V, 10 A</p> <p>SEV 6534-2.1991 Plug Type 12 L+N+PE 250 V, 10 A</p> <p>In general, EN 60309 applies for plugs for currents exceeding 10 A. However, a 16 A plug and socket-outlet system is being introduced in Switzerland, the plugs of which are according to the following dimension sheets, published in February 1998:</p> <p>SEV 5932-2.1998: Plug Type 25 , 3L+N+PE 230/400 V, 16 A</p> <p>SEV 5933-2.1998: Plug Type 21, L+N, 250 V, 16A</p> <p>SEV 5934-2.1998: Plug Type 23, L+N+PE 250 V, 16 A</p>	<p>No primary circuit in this built-in equipment.</p> <p>Circuits in the equipment considered as secondary circuits.</p>	N/A

IEC60950_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN)			
Clause	Requirement + Test	Result - Remark	Verdict
3.2.1.1	<p>In Denmark, supply cords of single-phase equipment having a rated current not exceeding 13 A shall be provided with a plug according to the Heavy Current Regulations, Section 107-2-D1.</p> <p>CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a.</p> <p>If poly-phase equipment and single-phase equipment having a RATED CURRENT exceeding 13 A is provided with a supply cord with a plug, this plug shall be in accordance with the Heavy Current Regulations, Section 107-2-D1 or EN 60309-2.</p>	<p>No primary circuit in this built-in equipment.</p> <p>Circuits in the equipment considered as secondary circuits.</p>	N/A
3.2.1.1	<p>In Spain, supply cords of single-phase equipment having a rated current not exceeding 10 A shall be provided with a plug according to UNE 20315:1994.</p> <p>Supply cords of single-phase equipment having a rated current not exceeding 2,5 A shall be provided with a plug according to UNE-EN 50075:1993.</p> <p>CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules, shall be provided with a plug in accordance with standard UNE 20315:1994.</p> <p>If poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with UNE-EN 60309-2.</p>	<p>No primary circuit in this built-in equipment.</p> <p>Circuits in the equipment considered as secondary circuits.</p>	N/A
3.2.1.1	<p>In the United Kingdom, apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS 1363 by means of that flexible cable or cord and plug, shall be fitted with a 'standard plug' in accordance with Statutory Instrument 1768:1994 - The Plugs and Sockets etc. (Safety) Regulations 1994, unless exempted by those regulations.</p> <p>NOTE 'Standard plug' is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.</p>	<p>No primary circuit in this built-in equipment.</p> <p>Circuits in the equipment considered as secondary circuits.</p>	N/A

IEC60950_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN)			
Clause	Requirement + Test	Result - Remark	Verdict
3.2.1.1	In Ireland , 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.	No primary circuit in this built-in equipment. Circuits in the equipment considered as secondary circuits.	N/A
3.2.4	In Switzerland , for requirements see 3.2.1.1 of this annex.		N/A
3.2.5.1	In the United Kingdom , a power supply cord with conductor of 1,25 mm ² is allowed for equipment with a rated current over 10 A and up to and including 13 A.	No primary circuit in this built-in equipment. Circuits in the equipment considered as secondary circuits.	N/A
3.3.4	In the United Kingdom , the range of conductor sizes of flexible cords to be accepted by terminals for equipment with a RATED CURRENT of over 10 A up to and including 13 A is: • 1,25 mm ² to 1,5 mm ² nominal cross-sectional area.	No primary circuit in this built-in equipment. Circuits in the equipment considered as secondary circuits.	N/A
4.3.6	In the United Kingdom , the torque test is performed using a socket outlet complying with BS 1363 part 1:1995, including Amendment 1:1997 and Amendment 2:2003 and the plug part of DIRECT PLUG-IN EQUIPMENT shall be assessed to BS 1363: Part 1, 12.1, 12.2, 12.3, 12.9, 12.11, 12.12, 12.13, 12.16 and 12.17, except that the test of 12.17 is performed at not less than 125 °C. Where the metal earth pin is replaced by an Insulated Shutter Opening Device (ISOD), the requirements of clauses 22.2 and 23 also apply.	Not direct plug-in equipment.	N/A
4.3.6	In Ireland , DIRECT PLUG-IN EQUIPMENT is known as plug similar devices. Such devices shall comply with Statutory Instrument 526:1997 - National Standards Authority of Ireland (Section 28) (Electrical plugs, plug similar devices and sockets for domestic use) Regulations, 1997.	Not direct plug-in equipment.	N/A

IEC60950_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN)			
Clause	Requirement + Test	Result - Remark	Verdict
5.1.7.1	<p>In Finland, Norway and Sweden TOUCH CURRENT measurement results exceeding 3,5 mA r.m.s. are permitted only for the following equipment:</p> <ul style="list-style-type: none"> • STATIONARY PLUGGABLE EQUIPMENT TYPE A that <ul style="list-style-type: none"> is intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, for example, in a telecommunication centre; and has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR; and is provided with instructions for the installation of that conductor by a SERVICE PERSON; • STATIONARY PLUGGABLE EQUIPMENT TYPE B; • STATIONARY PERMANENTLY CONNECTED EQUIPMENT. 	<p>No primary circuit in this built-in equipment.</p> <p>Circuits in the equipment considered as secondary circuits.</p> <p>Compliance shall be evaluated with the end-product.</p>	N/A
6.1.2.1 (A1:2010)	<p>In Finland, Norway and Sweden, add the following text between the first and second paragraph of the compliance clause:</p> <p>If this insulation is solid, including insulation forming part of a component, it shall at least consist of either</p> <ul style="list-style-type: none"> - two layers of thin sheet material, each of which shall pass the electric strength test below, or - one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below. <p>Alternatively for components, there is no distance through insulation requirements for the insulation consisting of an insulating compound completely filling the casing, so that CLEARANCES and CREEPAGE DISTANCES do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition</p> <ul style="list-style-type: none"> - passes the tests and inspection criteria of 2.10.11 with an electric strength test of 1,5 kV multiplied by 1,6 (the electric strength test of 2.10.10 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. 	No TNV circuits.	N/A

IEC60950_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>It is permitted to bridge this insulation with an optocoupler complying with 2.10.5.4 b).</p> <p>It is permitted to bridge this insulation with a capacitor complying with EN 60384-14:2005, subclass Y2.</p> <p>A capacitor classified Y3 according to EN 60384-14:2005, may bridge this insulation under the following conditions:</p> <ul style="list-style-type: none"> - the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 60384-14, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in EN 60950-1:2006, 6.2.2.1; - the additional testing shall be performed on all the test specimens as described in EN 60384-14; - the impulse test of 2,5 kV is to be performed before the endurance test in EN 60384-14, in the sequence of tests as described in EN 60384-14. 		
6.1.2.2	In Finland, Norway and Sweden , the exclusions are applicable for PERMANENTLY CONNECTED EQUIPMENT, PLUGGABLE EQUIPMENT TYPE B and equipment intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, e.g. in a telecommunication centre, and which has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR and is provided with instructions for the installation of that conductor by a SERVICE PERSON.		N/A
7.2	<p>In Finland, Norway and Sweden, for requirements see 6.1.2.1 and 6.1.2.2 of this annex.</p> <p>The term TELECOMMUNICATION NETWORK in 6.1.2 being replaced by the term CABLE DISTRIBUTION SYSTEM.</p>	No TNV circuits.	N/A
7.3	In Norway and Sweden , for requirements see 1.2.13.14 and 1.7.2.1 of this annex.		N/A
7.3	In Norway , for installation conditions see EN 60728-11:2005.		N/A

ATTACHMENT TO TEST REPORT IEC 60950-1 AUSTRALIAN / NEW ZEALAND DIFFERENCES

Differences according to: AS/NZS 60950.1 - 2011

IEC Standard.....: 60950-1(ed.2)

Last Modification: Date (2011-05-06)

Clause	Requirement + Test	Result - Remark	Verdict
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ZZ.1 Introduction

This Appendix sets out variations and additional requirements to cover issues which have not been addressed by the International Standard. These variations indicate national variations for purposes of the IECEE CB System and will be published in the IECEE CB Bulletin.

ZZ.2 Variations

The following variations apply to the source text.

1.2	<p><i>Insert</i> the following between 'person, service' and 'range, rated frequency':</p> <p>POTENTIAL IGNITION SOURCE 1.2.12</p>	Considered.	P
1.2.12.201	<p><i>Insert</i> a new Clause 1.2.12.201 after Clause 1.2.12.15 as follows:</p> <p>1.2.12.201 POTENTIAL IGNITION SOURCE: Possible fault which can start a fire if the open-circuit voltage measured across an interruption or faulty contact exceeds a value of 50 V (peak) a.c. or d.c. and the product of the peak value of this voltage and the measured r.m.s. current under normal operating conditions exceeds 15 VA.</p> <p>Such a faulty contact or interruption in an electrical connection includes those which may occur in CONDUCTIVE PATTERNS on PRINTED BOARDS.</p> <p>NOTE 201: An electronic protection circuit may be used to prevent such a fault from becoming a POTENTIAL IGNITION SOURCE.</p> <p>NOTE 202: This definition is from AS/NZS 60065:2003.</p>		P
1.5.1	<p>1. <i>Add</i> the following to the end of the first paragraph:</p> <p>‘or the relevant Australian/New Zealand Standard.’</p> <p>2. In NOTE 1, add the following after the word ‘standard’:</p> <p>‘or an Australian/New Zealand Standard’</p>	All critical components are IEC or UL certified.	P
1.5.2	<p><i>Add</i> the following to the end of first and third dash items:</p> <p>‘or the relevant Australian/New Zealand Standard’.</p>	All critical components are IEC or UL certified.	P

3.2.5.1	<p>Modify Table 3B as follows:</p> <p>1. <i>Delete</i> the first four rows and replace with the following:</p> <table><tr><th rowspan="3">RATED CURRENT of equipment A</th><th colspan="2">Minimum conductor sizes</th></tr><tr><th>Nominal cross-sectional area</th><th>AWG or kcmil [cross-sectional area in mm²] see Note 2</th></tr><tr><th>mm²</th><th></th></tr><tr><td>Over 0.2 up to and including 3</td><td>0,5 ^a</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 7.5 up to and including 10</td><td>(0,75) ^b</td><td>16 [1,3]</td></tr><tr><td>Over 10 up to and including 16</td><td>(1,0) ^c</td><td>14 [2]</td></tr></table> <p>2. <i>Delete</i> NOTE 1.</p> <p>3. <i>Delete</i> Footnote ^a and replace with the following:</p> <p>^a This nominal cross-sectional area is only allowed for Class II appliances if the length of the power supply cord, measured between the point where the cord, or cord guard, enters the appliance, and the entry to the plug does not exceed 2 m (0,5 mm2 three-core supply flexible cords are not permitted; see AS/NZS 3191).</p>	RATED CURRENT of equipment A	Minimum conductor sizes		Nominal cross-sectional area	AWG or kcmil [cross-sectional area in mm ²] see Note 2	mm ²		Over 0.2 up to and including 3	0,5 ^a	18 [0,8]	Over 3 up to and including 7.5	0,75	16 [1,3]	Over 7.5 up to and including 10	(0,75) ^b	16 [1,3]	Over 10 up to and including 16	(1,0) ^c	14 [2]	Building-in product and no power supply cord is provided. Must be considered in the end-product.	—
RATED CURRENT of equipment A	Minimum conductor sizes																					
	Nominal cross-sectional area		AWG or kcmil [cross-sectional area in mm ²] see Note 2																			
	mm ²																					
Over 0.2 up to and including 3	0,5 ^a	18 [0,8]																				
Over 3 up to and including 7.5	0,75	16 [1,3]																				
Over 7.5 up to and including 10	(0,75) ^b	16 [1,3]																				
Over 10 up to and including 16	(1,0) ^c	14 [2]																				
4.1.201	<p><i>Insert</i> a new Clause 4.1.201 after Clause 4.1 as follows:</p> <p>4.1.201 Display devices used for television purposes</p> <p>Display devices which may be used for television purposes, with a mass of 7 kg or more, shall comply with the requirements for stability and mechanical hazards, including the additional stability requirements for television receivers, specified in AS/NZS 60065.</p>		N/A																			
4.3.6	<p><i>Delete</i> the third paragraph and <i>replace</i> with the following:</p> <p><i>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.</i></p>		N/A																			
4.3.13.5	<p><i>Add</i> the following to the end of first paragraph: 'or AS/NZS 2211.1'.</p>	No Laser product used.	N/A																			
4.7	<p><i>Add</i> the following new paragraph to the end of the clause:</p> <p>‘For alternate tests refer to Clause 4.7.201.’</p>	Built-in equipment. Compliance shall be evaluated with the end-product.	N/A																			

4.7.201	<p><i>Insert a new Clause 4.7.201 after Clause 4.7.3.6 as follows:</i></p> <p>4.7.201 Resistance to fire – Alternative tests</p> <p>4.7.201.1 General</p> <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 and other parts unlikely 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 V-0 according to AS/NZS 60695.11.10 and having openings only for the connecting wires filling the openings completely, and for ventilation not exceeding 1mm 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"> - small mechanical parts, the mass of which does not exceed 4 g, such as mounting parts, gears, cams, belts and bearings; - small electrical components, such as capacitors with a volume not exceeding 1750mm³, integrated circuits, transistors and optocoupler packages, if these components are mounted on material of flammability category FV-1, or better, according to AS/NZS 60695.11.10. <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 shall be checked by the tests of 4.7.201.2, 4.7.201.3, 4.7.201.4 and 4.7.201.5</p> <p>For the base material of printed boards, compliance shall be checked by the test of 4.7.201.5.</p> <p>The tests shall be carried out on parts of non-metallic material which have been removed from the apparatus. When the glow-wire test is carried out, the parts shall be placed in the same orientation as they would be in normal use.</p> <p>These tests are not carried out on internal wiring.</p> <p>4.7.201.2 Testing of non-metallic materials</p> <p>Parts of non-metallic material shall be subject to the glow-wire test of AS/NZS 60695.2.11 which shall be carried out at 550°C.</p>	<p>Built-in equipment.</p> <p>Compliance shall be evaluated with the end-product.</p>	N/A
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4.7.201

Parts for which the glow-wire test cannot be carried out, such as those made of soft or foamy material, shall meet the requirements specified in ISO 9772 for category FH-3 material. The glow-wire test shall be not carried out on parts of material classified at least FH-3 according to ISO 9772 provided that the sample tested was not thicker than the relevant part.

4.7.201.3 Testing of insulating materials

Parts of insulating material supporting **POTENTIAL IGNITION SOURCES** shall be subject to the glow-wire test of AS/NZS 60695.2.11 which shall be carried out at 750°C

The test shall also be carried out on other parts of insulating material which are within a distance of 3 mm of the connection.

NOTE: Contacts in components such as switch contacts are considered to be connections.

For parts which withstand the glow-wire test but produce a flame, other parts above the connection within the envelope of a vertical cylinder having a diameter of 20 mm and a height of 50 mm shall be subjected to the needle-flame test. However, parts shielded by a barrier which meets the needle-flame test shall not be tested.

The needle-flame test shall be made in accordance with AS/NZS 60695.11.5 with the following modifications:

Clause of AS/NZS 60695.11.5	Change
9 Test procedure	
9.2 Application of needle flame	<p>Replace the first paragraph with:</p> <p>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. If possible the flame shall be applied at least 10 mm from a corner</p> <p>Replace the second paragraph with:</p> <p>The duration of application of the test flame shall be 30 s ±1 s.</p>
9.3 Number of test specimens	<p>Replace with:</p> <p>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 withstand the test.</p>
11 Evaluation of test results	<p>Replace with:</p> <p>The duration of burning (t_b) shall not exceed 30 s. However, for printed circuit boards, it shall not exceed 15 s.</p>

The needle-flame test shall not be carried out on parts of material classified as V-0 or V-1 according to AS/NZS 60695.11.10, provided that the sample tested was not thicker than the relevant part.

N/A

4.7.201	<p>4.7.201.4 Testing in the event of non-extinguishing material</p> <p>If parts, other than enclosures, do not withstand the glow wire tests of 4.7.201.3, by failure to extinguish within 30 s after the removal of the glowwire tip, the needle-flame test detailed in 4.7.201.3 shall be made on all parts of non-metallic material which are within a distance of 50 mm or which are likely to be impinged upon by flame during the tests of 4.7.201.3. Parts shielded by a separate barrier which meets the needle-flame test need not be tested.</p> <p>NOTE 1 If the enclosure does not withstand the glow-wire test the equipment is considered to have failed to meet the requirements of Clause 4.7.201 without the need for consequential testing.</p> <p>NOTE 2 If other parts do not withstand the glow-wire test due to ignition of the tissue paper and if this indicates that burning or glowing particles can fall onto an external surface underneath the equipment, the equipment is considered to have failed to meet the requirements of Clause 4.7.201 without the need for consequential testing.</p> <p>NOTE 3 Parts likely to be impinged upon by the flame are considered to be those within the envelope of a vertical cylinder having 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.</p> <p>4.7.201.5 Testing of printed boards</p> <p>The base material of printed boards shall be subjected to the needle-flame test of Clause 4.7.201.3. The flame shall be applied to the edge of the board where the heat sink effect is lowest when the board is positioned as in normal use. The flame shall not be applied to an edge, consisting of broken perforations, unless the edge is less than 3 mm from a POTENTIAL IGNITION SOURCE.</p> <p>The test is not carried out if the –</p> <ul style="list-style-type: none"> - Printed board does not carry any POTENTIAL IGNITION SOURCE; - Base material of printed boards, on which the available apparent power at a connection exceeds 15 VA operating at a voltage exceeding 50 V and equal or less than 400 V (peak) a.c. or d.c. under normal operating conditions, is of flammability category V-1 or better according to AS/NZS 60695.11.10, or the printed boards are protected by an enclosure meeting the flammability category V-0 according to AS/NZS 60695.11.10, or made of metal, having openings only for connecting wires which fill the openings completely; or 		N/A
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4.7.201	<p>- Base material of printed boards, on which the available apparatus power at a connection exceeds 15 VA operating at a voltage exceeding 400 V (peak) a.c. or d.c. under normal operating conditions, and base material of printed boards supporting spark gaps which provides protection against overvoltages, is of flammability category V-0 according to AS/NZS 60695.11.10 or the printed boards are contained in a metal enclosure, having openings only for connecting wires which fill the openings completely.</p> <p>Compliance shall be determined using the smallest thickness of the material.</p> <p>NOTE Available apparent power is the maximum apparent power which can be drawn from the supplying circuit through a resistive load whose value is chosen to maximise the apparent power from more than 2 min when the circuit supplied is disconnected.</p>		N/A
6.2.2	<p>For Australia only, <i>delete</i> the first paragraph and Note, and <i>replace</i> with the following:</p> <p>In Australia only, compliance with 6.2.2 shall be checked by the tests of both 6.2.2.1 and 6.2.2.2.</p>	No TNV circuitry.	N/A
6.2.2.1	<p>For Australia only, <i>delete</i> the first paragraph including the Notes, and <i>replace</i> with the following:</p> <p><i>In Australia only, the electrical separation is subjected to 10 impulses of alternating polarity, using the impulse test generator reference 1 of Table N.1. The interval between successive impulses is 60 s and the initial voltage, U_c, is:</i></p> <p><i>(i) for 6.2.1 a): 7.0 kV for hand-held telephones and for headsets and 2.5 kV for other equipment; and</i></p> <p><i>(ii) for 6.2.1 b) and 6.2.1 c): 1.5 kV.</i></p> <p>NOTE 201 The 7 kV impulse simulates lightning surges on typical rural and semi-rural network lines.</p> <p>NOTE 202 The 2.5 kV for 6.2.1 a) was chosen to ensure adequacy of the insulation concerned and does not necessarily simulate likely overvoltages.</p>	No TNV circuitry.	N/A
6.2.2.2	<p>For Australia only, <i>delete</i> the second paragraph including the Note, and <i>replace</i> with the following:</p> <p><i>In Australia only, the a.c. test voltage is:</i></p> <p><i>(i) for 6.2.1 a): 3 kV; and</i></p> <p><i>(ii) for 6.2.1 b) and 6.2.1 c): 1.5 kV.</i></p> <p>NOTE 201 Where there are capacitors across the insulation under test, it is recommended that d.c. test voltages are used.</p> <p>NOTE 202 The 3 kV and 1.5 kV values have been determined considering the low frequency induced voltages from the power supply distribution system.</p>	No TNV circuitry.	N/A

7.3	<p>Add the following before the first paragraph:</p> <p>Equipment providing functions that fall only within the scope of AS/NZS 60065 and that incorporate a PSTN interface, are not required to comply with this Clause where the only ports provided on the equipment, in addition to a coaxial cable connection and a PSTN interface, are audio or video ports and analogue or data ports not intended to be used for telecommunications purposes.</p>		N/A
Annex P	<p>Add the following Normative References:</p> <p>AS/NZS 3191, Electric flexible cords</p> <p>AS/NZS 3112, Approval and test specification—Plugs and socket-outlets</p>	Considered.	P
Index	<p>1. Insert the following between 'asbestos, not to be used as insulation' and 'attitude see orientation':</p> <p>AS/NZS 2211.1.....4.3.13.5</p> <p>AS/NZS 3112.....4.3.6</p> <p>AS/NZS 3191..... 3.2.5.1 (Table 3B)</p> <p>AS/NZS 60064.....4.1.201</p> <p>AS/NZS 60695.2.11..... 4.7.201.2, 4.7.201.3</p> <p>AS/NZS 60695.11.10..... 4.7.201.1, 4.7.201.5</p> <p>AS/NZS 60695.11.5.....4.7.201.3</p> <p>2. Insert the following between 'positive temperature coefficient (PTC) device' and 'powder':</p> <p>potential ignition source 1.2.201, 4.7.201.3, 4.7.201.5</p>	Considered.	—

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
National Differences for Canada			
Canada and the United States of America have adopted a single, bi-national standard, CAN/CSA C22.2 No. 60950-1/UL60950-1, Second Edition, which is based on IEC 60950-1, Second Edition. This bi-national standard should be consulted for further details on the national conditions and differences summarized below.			
SPECIAL NATIONAL CONDITIONS			
The following is a summary of the key national differences based on national regulatory requirements, such as the Canadian Electrical Code (CEC) Part I and the Canadian Building Code, which are referenced in legislation and which form the basis for the rules and practices followed in electrical and building installations.			
1.1.1	All equipment is to be designed to allow installation in accordance with the National Electrical Code (NEC), ANSI/NFPA 70, the Canadian Electrical Code (CEC), Part I, CAN/CSA C22.1, and when applicable, the National Electrical Safety Code, IEEE C2. Also, unless marked or otherwise identified, installation is allowed per the Standard for the Protection of Electronic Computer/Data Processing Equipment, ANSI/NFPA 75.	Built-in equipment. Must be considered in the end product.	—
1.4.14	For Pluggable Equipment Type A, the protection in the installation is assumed to be 20A.	This built-in equipment not connected to AC mains supply directly. Protective current 20A assumed for this built-in equipment.	N/A
1.5.5	For lengths exceeding 3.05 m, external interconnecting flexible cord and cable assemblies are required to be a suitable cable type (e.g., DP, CL2) specified in the CEC/NEC. For lengths 3.05 m or less, external interconnecting flexible cord and cable assemblies that are not types specified in the CEC are required to have special construction features and identification markings.	This built-in equipment not connected to AC mains supply directly. Compliance shall be evaluated with the end-product.	—
1.7.1	Equipment for use on a.c. mains supply systems with a neutral and more than one phase conductor (e.g. 120/240 V, 3-wire) require a special marking format for electrical ratings. A voltage rating that exceeds an attachment plug cap rating is only permitted if it does not exceed the extreme operating conditions in Table 2 of CAN/CSA C22.2 No. 235, and if it is part of a range that extends into the Table 2 "Normal Operating Conditions." Likewise, a voltage rating shall not be lower than the specified "Normal Operating Conditions," unless it is part of a range that extends into the "Normal Operating Conditions."	This built-in equipment not connected to AC mains supply directly.	N/A

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.7.7	Wiring terminals intended to supply Class 2 outputs in accordance with CEC Part 1 or NEC shall be marked with the voltage rating and "Class 2" or equivalent. Marking shall be located adjacent to the terminals and shall be visible during wiring.	No such terminal.	N/A
2.5	Where a fuse is used to provide Class 2, Limited Power Source, or TNV current limiting, it shall not be operator-accessible unless it is not interchangeable.	No such fuse.	N/A
2.6.3.3	The first column on Table 2D modified to require, "Smaller of the RATED CURRENT of the equipment or the PROTECTIVE CURRENT RATING of the circuit under consideration."		N/A
2.7.1	Suitable NEC/CEC branch circuit protection rated at the maximum circuit rating is required for all standard supply outlets and receptacles (such as supplied in power distribution units) if the supply branch circuit protection is not suitable. Power distribution transformers distributing power at 100 volts or more, and rated 10 kVA or more, require special transformer overcurrent protection.	No standard supply outlets, receptacles, lampholders or such transformers.	N/A
3.2	Wiring methods (terminals, leads, etc.) used for the connection of the equipment to the mains shall be in accordance with the NEC/CEC.	Built-in equipment. Must be considered in the end product.	—
3.2.1	Power supply cords are required to have attachment plugs rated not less than 125 percent of the rated current of the equipment.		—
3.2.1.2	Equipment connected to a centralized d.c. power system, and having one pole of the DC mains input terminal connected to the main protective earthing terminal in the equipment, is required to comply with special earthing, wiring, marking and installation instruction requirements.		—
3.2.3	Permanent connection of equipment to the mains supply by a power supply cord is not permitted, except for certain equipment, such as ATMs.		—
3.2.5	Power supply cords are required to be no longer than 4.5 m in length. Minimum cord length is required to be 1.5 m, with certain constructions such as external power supplies allowed to consider both input and output cord lengths into the requirement. Flexible power supply cords are required to be compatible with Article 400 of the NEC, and Tables 11 and 12 of the CEC.	This built-in equipment not connected to AC mains supply directly. Compliance shall be evaluated with the end-product.	—

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
3.2.9	Permanently connected equipment is required to have a suitable wiring compartment and wire bending space.		—
3.3	Wiring terminals and associated spacings for field wiring connections shall comply with CSA C22.2 No. 0.	Built-in equipment. Must be considered in the end product.	—
3.3.3	Wire binding screws are not permitted to attach conductors larger than 10 AWG (5.3 mm2).		—
3.3.4	Terminals for permanent wiring, including protective earthing terminals, are required to be suitable for Canadian/US wire gauge sizes, rated 125 percent of the equipment rating, and be specially marked when specified (1.7.7).		—
3.3.5	First column of Table 3E revised to require "Smaller of the RATED CURRENT of the equipment or the PROTECTIVE CURRENT RATING of the circuit under consideration."		—
3.4.2	Motor control devices are required for cord-connected equipment with a motor if the equipment is rated more than 12 A, or if the motor has a nominal voltage rating greater than 120 V, or is rated more than 1/3 hp (locked rotor current over 43 A).	No such motor.	N/A
3.4.8	Vertically-mounted disconnect switches and circuit breakers are required to have the "on" position indicated by the handle in the up position.		N/A
3.4.11	For computer room applications, equipment with battery systems capable of supplying 750 VA for five minutes are required to have a battery disconnect means that may be connected to the computer room remote power-off circuit.	No such battery.	N/A
4.3.12	The maximum quantity of flammable liquid stored in equipment is required to comply with NFPA 30.	No flammable liquids within the equipment.	N/A
4.3.13.5	Equipment with lasers is required to meet the Canadian Radiation Emitting Devices Act, REDR C1370 and/or Code of Federal Regulations 21 CFR 1040, as applicable.		N/A
4.7	For computer room applications, automated information storage systems with combustible media greater than 0.76 m3 (27 cu ft) are required to have a provision for connection of either automatic sprinklers or a gaseous agent extinguishing system with an extended discharge.	The equipment has no combustible area greater than 27 cubic feet.	N/A
4.7.3.1	For computer room applications, enclosures with combustible material measuring greater than 0.9 m2 (10 sq ft) or a single dimension greater than 1.8 m (6 ft) are required to have a flame spread rating of 50 or less. For other applications, enclosures with the same dimensions require a flame spread rating of 200 or less.	The equipment has no combustible material greater than 0.9m² or single dimension greater than 1.8m.	N/A

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
Annex H	Equipment that produces ionizing radiation is required to comply with the Canadian Radiation Emitting Devices Act, REDR C1370 and/or Code of Federal Regulations, 21 CFR 1020, as applicable.	The equipment does not produce ionizing radiation.	N/A
OTHER DIFFERENCES			
The following key national differences are based on requirements other than national regulatory requirements			
1.5.1	Some components and materials associated with the risk of fire, electric shock, or personal injury are required to have component or material ratings in accordance with the applicable national (Canadian and/or U.S.) component or material standard requirements. These components include: attachment plugs, battery packs (rechargeable type, used with transportable equipment), cathode ray tubes, circuit breakers, communication circuit accessories, connectors (used for current interruption of non-LPS circuits), cord sets and power supply cords, direct plug-in equipment, enclosures (outdoor), flexible cords and cables, fuses (branch circuit), fuseholders, ground-fault current interrupters, industrial control equipment, insulating tape, interconnecting cables, lampholders, limit controls, printed wiring, protectors for communications circuits, receptacles, solid state controls, supplementary protectors, switches (including interlock switches), thermal cutoffs, thermostats, (multi-layer) transformer winding wire, transient voltage surge suppressors, tubing, wire connectors, and wire and cables.	See safety component list.	P
1.6.1.2	A circuit for connection to the DC Mains Supply is classified as either a SELV Circuit, TNV-2 Circuit or Hazardous Voltage Circuit depending on the maximum operating voltage of the supply. This maximum operating voltage shall include consideration of the battery charging "float voltage" associated with the intended supply system, regardless of the marked power rating of the equipment.	Input: 42-60V DC	—
2.3.1	For TNV-2 and TNV-3 circuits with other than ringing signals and with voltages exceeding 42.4 V _{peak} or 60 V _{d.c.} , the maximum acceptable current through a 2000 ohm resistor (or greater) connected across the voltage source with other loads disconnected is 7.1 mA peak or 30 mA d.c. under normal operating conditions.	No TNV circuitry.	N/A

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
2.3.2.1	In the event of a single fault between TNV and SELV circuits, the limits of 2.2.3 apply to SELV Circuits and accessible conductive parts.		N/A
2.6.3.4	Protective bonding conductors of non-standard protective bonding constructions (e.g., printed circuit traces) may be subjected to the additional limited short circuit test conditions specified.		N/A
4.2.8.1	Enclosures around CRTs with a face diameter of 160 mm or more are required to reduce the risk of injury due to the implosion of the CRT.		N/A
4.3.2	Equipment with handles is required to comply with special loading tests.		N/A
5.1.8.3	Equipment intended to receive telecommunication ringing signals is required to comply with a special touch current measurement tests.		N/A
5.3.7	Internal (e.g., card cage) SELV circuit connectors and printed wiring board connectors that are accessible to the operator and that deliver power are to be overloaded. During abnormal operating testing, if a circuit is interrupted by the opening of a component, the test shall be repeated twice (three tests total) using new components as necessary.	Considered.	P
6.4	Equipment intended for connection to telecommunication network outside plant cable is required to be protected against overvoltage from power line crosses in accordance with 6.4 and Annex NAC.		N/A
Annex EE	Articulated accessibility probe (Fig EE.3) required for assessing accessibility to document/media shredders instead of the Figure 2A test finger.	Not document/media shredder.	N/A
M.2	Continuous ringing signals up to 16 mA only are permitted if the equipment is subjected to special installation and performance restrictions.		N/A
Annex NAD	Equipment connected to a telecommunication and cable distribution networks and supplied with an earphone intended to be held against, or in the ear is required to comply with special acoustic pressure requirements.		N/A

ATTACHMENT TO TEST REPORT IEC 60950-1 China DIFFERENCES

Differences according to: GB4943-2001


IEC Standard.....: 60950(ed.3)

Last Modification: Date (2010-06-23)

Clause	Requirement + Test	Result - Remark	Verdict
1.4.5	Supply voltage for tests If the equipment is intended for direct connection to an AC MAINS SUPPLY, the tolerances on RATED VOLTAGE shall be taken as +6 % and – 10 % in 1.4.5 of IEC60950(ed.3), but it shall be taken as +10 % and –10 % in 1.4.5 of GB4943-2001. The first dash paragraph“– the RATED VOLTAGE is 230 V single-phase or 400 V three-phase, in which case the tolerance shall be taken as +10 % and –10 % ” is deleted in GB4943-2001.	This built-in equipment not connected to AC mains supply directly.	N/A
1.7.1	There is no detailed requirement of RATED VOLTAGE specified in 1.7.1 of IEC 60950(ed.3), only some examples shown, but not conclude the mains supply voltage of China which is 220V. In GB 4943-2001, it is specified as following: The RATED VOLTAGE should be 220 V for single rated voltage, for RATED VOLTAGE RANGE, it should cover 220 V, for multiple RATED VOLTAGES, one of them should be 220V and set on 220V when manufactured. It is specified in 1.7.1 of IEC 60950(ed.3) that RATED FREQUENCY or RATED FREQUENCY RANGE should be marked; in 1.7.1 of GB4943-2001, it is required that the RATED FREQUENCY or RATED FREQUENCY RANGE should be marked and should be 50Hz or include 50Hz. NOTE1,NOTE2 and NOTE3: Markings of rating shall include or cover 220V/50Hz at least.	This built-in equipment not connected to AC mains supply directly.	N/A
1.7.12	Replaced by :Specification and markings related to safety shall be given in normative Chinese.	Must be considered before marketed in China.	—
3.2.1	After the first paragraph added flowing paragraph: Plugs connected to AC mains supply shall comply with GB1002.	This built-in equipment not connected to AC mains supply directly.	—

SI 60950 Part 1 (2009)			
Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT: NATIONAL DIFFERENCES – ISRAEL Test results according to Online CB BULLETIN (Last modified date of 2011-03-02)			
1.7	Marking and instructions The clause is applicable with the following additions: - Subclause 1.7.201 shall be added at the beginning of the clause as follows:		—
1.7.201	Marking in the Hebrew language The marking in the Hebrew language shall be in accordance with the Consumer Protection Order (Marking of goods), 1983. In addition to the marking required by clause 1.7.1, the following details shall be marked in the Hebrew language. The details shall be marked on the apparatus or on its package, or on a label properly attached to the apparatus or on the package, by bonding or sewing, in a manner that the label cannot be easily removed. 1. Name of the apparatus and its commercial designation; 2. Manufacturer's name and address. If the apparatus is imported, the importer's name and address; 3. Manufacturer's registered trademark, if any; 4. Name of the model and serial number, if any; 5. Country of manufacture.	Must be considered before marketing in Israel.	—
1.7.2	Safety instructions and Marking 1.7.2.1 General The following shall be added to the clause: All the instructions and warnings related to safety shall also be written in the Hebrew language.	Must be considered before marketing in Israel.	—
2.	Protection from Hazards The clause is applicable with the following additions:		—

SI 60950 Part 1 (2009)			
Clause	Requirement + Test	Result - Remark	Verdict
2.9.4	<p>Separation from hazardous voltages</p> <p>The following shall be added at the beginning of the clause :</p> <p>In Israel, according to the Electricity Law, 1954, and the Electricity Regulations (Earthing and means of protection against electricity of voltages up to 1,000V) 1991, seven means of protection against electrocution are permitted, as follows:</p> <p>1) TN-S - Network system earthing; TN-C-S - Network system earthing;</p> <p>2) TT - Network system earthing;</p> <p>3) IT - Network Insulation Terre;</p> <p>4) Isolated transformer;</p> <p>5) Safety extra low voltage (SELV or ELV) ;</p> <p>6) Residual current circuit breaker (30 ma $\approx I\Delta$);</p> <p>7) Reinforced insulation; Double insulation (class II) .</p> <p>Clause 2.201 shall be added at the end of the clause, as follows:</p>	<p>This built-in equipment not connected to AC mains supply directly.</p> <p>Compliance shall be evaluated with the end-product.</p>	N/A
2.201	<p>Prevention of electromagnetic interference</p> <p>- Prior to carrying out the tests in accordance with the clauses of this Standard, the compliance of the apparatus with the relevant requirements specified in the appropriate part of the Standard series, SI 961, shall be checked.</p> <p>The apparatus shall meet the requirements in the appropriate part of the Standard series.</p> <p>SI 961.</p> <p>- If there are components in the apparatus for the prevention of electromagnetic interference, these components shall not reduce the safety level of the apparatus as required by this Standard.</p>	<p>Must be considered before marketing in Israel.</p>	—
3.	<p>Wiring, connections and supply</p> <p>The clause is applicable with the following additions:</p>		—
3.2	Connection to a mains supply		—
3.2.1	Means of connection		—
3.2.1.1	<p>Connection to an a.c. mains supply</p> <p>After the note, the following note shall be added:</p> <p>Note:</p> <p>In Israel, the feed plug shall comply with the requirements of Israel Standard 51 32 Part I.</p>	<p>This built-in equipment not connected to AC mains supply directly.</p> <p>Compliance shall be evaluated with the end-product.</p>	—
3.2.1.2	<p>Connection to a d.c. mains supply</p> <p>At the end of the first paragraph, the following note shall be added:</p> <p>Note:</p> <p>At the time of issue of this Standard, there is no Israel Standard for connection accessories to d.c.</p>	<p>Considered.</p>	P

SI 60950 Part 1 (2009)			
Clause	Requirement + Test	Result - Remark	Verdict

ANNEX P	Normative references The annex is applicable with the following national deviations: - The following Israel Standards have been inserted in place of some of the International Standards specified in this annex of the Standard, as follows:			—
	The referenced International Standard	The substituted Israel Standard	Comments	
	IEC 60065: 2001	SI 250(A) - Safety requirements for mains operated electronic and related apparatus for household and similar general use	The Israel Standard, excluding national deviations in it, is identical to the Standard of the International Electrotechnical Commission, IEC 65:1985, including its amendments	
	IEC 60227 (all parts)	SI 473, all parts - Cables, cords and insulated conductors for nominal voltage up to 1000 volt	-	
	IEC 60309 (all parts)	SI 1109, all parts - Plugs, socket-outlets and couplers for industrial purposes	SI 1109, part I and part 2, excluding national deviations in them , are identical to the Standards of the International Electrotechnical Commission IEC 60309-1:1999 and IEC 60309-2:1999, respectively.	
	IEC 60317 (all parts)	SI 1067 Part I – Self-fluxing enamelled(B) round copper wires with high mechanical properties	The Israel Standard is identical to the Standard of the International Electrotechnical Commission IEC 317-1 (1980)	
		SI 1067 Part 2 – Self-fluxing enamelled(B) round copper wires	The Israel Standard is identical to the Standard of the International Electrotechnical Commission IEC 317-4 (1980)	
		SI 1067 Part 3 - Self-fluxing enamelled ^(B) round copper wires with a temperature index of 180°	The Israel Standard is identical to the Standard of the International Electrotechnical Commission IEC 317-8 (1980)	
	IEC 60320 (all parts)	SI 60320 Part 1 - Appliance couplers for household and similar general purposes: General requirements	The Israel Standard, excluding national deviations in it, is identical to the Standard of the International Electrotechnical Commission , IEC 60320-1 (2001)	
		SI 60320 Part 2.1 - Appliance couplers for household and similar general purposes: Sewing machine couplers	The Israel Standard, excluding national deviations in it, is identical to the Standard of the International Electrotechnical Commission , IEC 60320-2.1 (2000)	
	IEC 60320 (all parts)	SI 60320 Part 2.2 – Appliance couplers for household and similar general purposes: Interconnection couplers for household and similar equipment	The Israel Standard, excluding national deviations in it, is identical to the Standard of the International Electrotechnical Commission , IEC 60320-2.2 (1998)	
		SI 60320 Part 2.3 - Appliance couplers for household and similar general purposes: Interconnection couplers for household and similar equipment Appliance coupler for household and similar general purposes: Appliance coupler with a degree of protection higher than IPXO	The Israel Standard, excluding national deviations in it, is identical to the Standard of the International Electrotechnical Commission , IEC 60320-2.3 (1998)	

SI 60950 Part 1 (2009)				
Clause	Requirement + Test		Result - Remark	Verdict
ANNEX P	Continued			
	IEC 60730-1: 1999	SI 60730 Part] - Automatic electrical controls for household and similar use: General requirements	The Israel Standard, excluding national deviations in it, is identical to the Standard of the International Electrotechnical Commission , IEC 60730-1 (1999)	
	IEC 60825-1	SI 60825 Part I - Safety of laser products: Equipment classification, requirements and user's guide	The Israel Standard, excluding national deviations in it, is identical to the Standard of the International Electrotechnical Commission , IEC 60825-1 (2001).	
	IEC 60947-[: 2004	SI 60947 Part 1 - Low-voltage switchgear and controlgear: General rules	The Israel Standard, excluding national deviations in it, is identical to the Standard of the International Electrotechnical Commission , IEC 60947-[(1999)	
	IEC 61058-1: 2000	SI 61058 Part I – Switches for appliances: General requirements	The Israel Standard, excluding national deviations in it, is identical to the Standard of the International Electrotechnical Commission, IEC 61058-1 (2001)	
	ISO 3864 (all parts)	SI 3864 Part 1 -Graphical symbols – Safety colours and safety signs: Design principles for safety signs in workplaces and public areas	The Israel Standard, excluding national deviations in it, is identical to the Standard of the International Electrotechnical Commission IEC 3864-1 (2002)	
	Notes (A) This Standard will be replaced by SI 60065 - Audio, video and similar electronic apparatus – safety requirements - that excluding the national deviations indicated is identical to the Standard of the International Electrotechnical Commission IEC 60065 (2005). (B) Not relevant to the translation.			
	B. Add the following to the clause: Israel Standards SI 32 Part 1.1 - Plugs and socket-outlets for household and s imilar purposes : Plugs andsocket-outlets for single phase up to l6A - Genera l requirements SI 96 1, all parts - Electromagnetic compatibility Israel documents Electricity Law, 1954, its r egulations and revisions Kovetz Takanot 4465 dated 1983-02-24, Consumer Protection Order (Marking of goods), 1983			

IEC 60950-1 ATTACHMENT

Clause	Requirement + Test	Result - Remark	Verdict
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ATTACHMENT TO TEST REPORT IEC 60950-1 JAPAN NATIONAL DIFFERENCES

Information technology equipment – Safety – Part 1: General requirements

Differences according to.....: J60950-1(H22)

Attachment Form No.....: JP_ND_IEC60950_1A

Attachment Originator

Master Attachment: 2010-11

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National Differences - Japan

1.2.4.1	<p>Add the following new NOTE.</p> <p>NOTE Even if the equipment is designed as Class I, the equipment is regarded as Class 0I equipment when a 2-pin adaptor with an earthing lead wire or a cord set having a 2-pin plug with an earthing lead wire is provided or recommended.</p>	Built-in equipment, compliance shall be evaluated with the end product.	N/A
1.2.4.3A	<p>Add the following new clause.</p> <p>1.2.4.3A CLASS 0I EQUIPMENT</p> <p>Equipment having attachment plug without earthing blade, where protection against electric shock is achieved by:</p> <ul style="list-style-type: none"> - using BASIC INSULATION, and - providing externally an earth terminal or a lead wire for earthing in order to connect those conductive parts that might assume a HAZARDOUS VOLTAGES in the event of BASIC INSULATION fault to the PROTECTIVE EARTHING CONDUCTOR in the building wiring. <p>NOTE Class 0I equipment may have a part constructed with Double Insulation or Reinforced Insulation. circuit.</p> 	Built-in equipment, compliance shall be evaluated with the end product.	N/A

IEC 60950-1 ATTACHMENT

Clause	Requirement + Test	Result - Remark	Verdict
1.3.2	<p>Add the following notes after the first paragraph:</p> <p>NOTE 1 Transportable or similar equipment that is relocated frequently for intended usage should not be designed as Class I or Class 0I equipment unless it is intended to be installed by service personnel.</p> <p>NOTE 2 Considering wiring circumstance in Japan, equipment intended to be installed where the provision for earthing connection is unlikely should not be designed as Class I or Class 0I equipment unless it is intended to be installed by service personnel.</p>		N/A
1.5.1	<p>Replace the first paragraph with the following:</p> <p>Where safety is involved, components shall comply either with the requirements of this standard or with the safety aspects of the relevant JIS component standard or IEC component standards in case there is no applicable JIS component standard is available. However, in case a component that falls within the scope of the METI Ministerial ordinance (No. 85:1962) is properly used in accordance with its marked ratings, the requirements of 1.5.4, 2.8.7 and 3.2.5 apply, and in addition, a cord connector of power supply cord set matching with an appliance inlet specified in the standard sheets of IEC 60320-1, shall comply with relevant standard sheet of IEC 60320-1.</p> <p>Replace NOTE 1 with the following:</p> <p>NOTE 1 A JIS or an IEC component standard is considered relevant only if the component in question clearly falls within its scope.</p>	<p>All critical components are IEC, UL or CSA certified.</p>	P

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Clause	Requirement + Test	Result - Remark	Verdict
1.5.2	<p>Replace the first sentence in the first dashed paragraph with the following:</p> <ul style="list-style-type: none"> - a component that has been demonstrated to comply with a JIS component standard harmonized with the relevant IEC component standard, or where such JIS component standard is not available, a component that has been demonstrated to comply with the relevant IEC component standard shall be checked for correct application and use in accordance with its rating. <p>Add a NOTE after the first dashed paragraph as follows:</p> <p>NOTE 1 See 1.7.5A when Type C.14 appliance coupler rated 10 A per IEC 60320-1 is used with an equipment rated not more than 125 V and rated more than 10 A.</p> <p>Replace the first sentence in the third dashed paragraph as follows:</p> <ul style="list-style-type: none"> - where no relevant IEC component standard or JIS component standard harmonized with the relevant IEC component standard exists, or where components are used in circuits not in accordance with their specified rating, the components shall be tested under the conditions occurring in the equipment. 	All critical components are IEC, UL or CSA certified.	P
1.5.6	In this sub-clause, add "JIS C 5101-14:1998 or" before the reference number, IEC 60384-14:1993.		N/A
1.5.7.2	In this sub-clause, add "JIS C 5101-14:1998 or" before the reference number, IEC 60384-14:1993.		N/A
1.5.8	In the first paragraph, add "JIS C 5101-14:1998 or" before the reference number, IEC 60384-14:1993.		N/A
1.7.1	<p>Replace the fifth dashed paragraph with the following:</p> <ul style="list-style-type: none"> - manufacturer's or responsible company's name or trade-mark or identification mark; 		P
1.7.5	In the second paragraph, add "or JIS C 8303:2007" after the reference number, IEC/TR 60083:1997".		N/A

IEC 60950-1 ATTACHMENT

Clause	Requirement + Test	Result - Remark	Verdict
1.7.5A	<p>Add the following new clause after 1.7.5</p> <p>1.7.5A Appliance Couplers</p> <p>If an appliance coupler according to IEC 60320-1, C.14(rated current: 10 A) is used in equipment whose rated voltage is less than 125 V and the rated current is over 10 A, the following instruction or equivalent shall be described in the user instruction.</p> <p>“ Use only designated cord set attached in this equipment”</p>	No such part.	N/A
1.7.12	<p>Replace first sentence with the following:</p> <p>Instructions and equipment marking related to safety shall be in Japanese.</p>	Must be considered before marketed in Japan.	—
1.7.17A	<p>Add the following new clause after 1.7.17</p> <p>1.7.17A Marking for CLASS 0I EQUIPMENT</p> <p>For CLASS 0I EQUIPMENT, the following instruction shall be marked on the visible place of the mains plug or the main body:</p> <p>必ず接地接続を行って下さい “Provide an earthing connection”</p> <p>Moreover, for CLASS 0I EQUIPMENT, the following or equivalent instruction shall be indicated on the visible place of the main body or written in the operating instructions:</p> <p>接地接続は必ず、電源プラグを電源につなぐ前に行って下さい。又、接地接続を外す場合は、必ず電源プラグを電源から切り離してから行って下さい。 “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>	Built-in equipment, compliance shall be evaluated with the end product.	N/A
2.1.1.1	In item b) of this sub-clause, replace “IEC 60083” with “JIS C 8303:2007 or Article 1 of the Ministerial Ordinance (No. 85:1962)”		N/A
2.6.3.2	<p>Add the following after the first paragraph.</p> <p>This also applies to the conductor of lead wire for protective earthing of CLASS 0I EQUIPMENT.</p>		N/A

IEC 60950-1 ATTACHMENT

Clause	Requirement + Test	Result - Remark	Verdict
2.6.4.2	<p>Replace the first paragraph with the following.</p> <p>Equipment required to have protective earthing shall have a main protective earthing terminal. For equipment with a DETACHABLE POWER SUPPLY CORD, the earthing terminal in the appliance inlet is regarded as the main protective earthing terminal except for CLASS 0I EQUIPMENT providing separate main protective earthing terminal other than appliance inlet.</p>	<p>Input terminal block provided.</p> <p>Compliance shall be evaluated with the end-product.</p>	N/A
2.6.5.4	<p>Replace the first sentence with the following.</p> <p>Protective earthing connections of CLASS I EQUIPMENT shall make earlier and break later than the supply connections in each of the following:</p>	<p>Input terminal block provided.</p> <p>Compliance shall be evaluated with the end-product.</p>	N/A
2.6.5.8A	<p>Add the following new clause after 2.6.5.8</p> <p>2.6.5.8A Earthing of CLASS 0I EQUIPMENT Plugs with a lead wire for earthing shall not be used for equipment having a rated voltage exceeding 150 V. 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 a lead wire for earthing in the external location where easily visible.</p>	<p>Built-in equipment, compliance shall be evaluated with the end product.</p>	N/A
2.10.3.1	In this sub-clause, replace IEC 60664-1 with JIS C 0664:2003.	Considered.	P
2.10.3.2	In the second paragraph, replace IEC 60664-1 with JIS C 0664:2003.	Considered.	P
3.2.3	<p>Add the following after Table 3A:</p> <p>Table 3A applies when cables complying with JIS C 3662 or JIS C 3663 are used. In case of other cables, the cable entries shall be so designed that a conduit suitable for the cable used can be fitted.</p>	<p>Building-in product, must be considered in the end product.</p>	—

IEC 60950-1 ATTACHMENT

Clause	Requirement + Test	Result - Remark	Verdict
3.2.5.1	<p>Add the following to the last of first dashed paragraph.</p> <p>Or mains cords shall be of the sheathed type complying with Appendix 1 of Article 1 of the Ministerial Ordinance (No. 85:1962) on stipulating technical requirements for the Electrical Appliance.</p> <p>Add the following to the last of second dashed paragraph.</p> <p>Or mains cords shall be of the sheathed type complying with Appendix 1 of Article 1 of the Ministerial Ordinance (No. 85:1962) on stipulating technical requirements for the Electrical Appliance.</p> <p>Delete 1) in Table 3B.</p>	Building-in product, must be considered in the end product.	—
3.3.4	<p>Add the following note to Table 3D:</p> <p>NOTE For cables other than those complying with JIS C 3662 or JIS C 3663, terminals shall be suitable for the size of the intended cables.</p>	Building-in product, must be considered in the end product.	—
3.3.7	<p>Add the following after the first sentence:</p> <p>This requirement is not applicable to the external earthing terminal of Class 0I equipment.</p>		—
4.3.4	<p>Add the following after the first sentence:</p> <p>This requirement also applies to those connections in Class 0I equipment, where CLEARANCE or CREEPAGE DISTANCES over BASIC INSULATION would be reduced to less than the values specified in 2.10.</p>		N/A
4.3.13.5	<p>Replace the first paragraph with the following:</p> <p>Except as permitted below, equipment shall be classified and labelled according to JIS C 6802:2005, and JIS C 6803:2006 or IEC 60825-2:2000, as applicable.</p> <p>Replace IEC 60825-1 in the second and the last paragraph with JIS C 6802:2005.</p>		N/A


IEC 60950-1 ATTACHMENT

Clause	Requirement + Test	Result - Remark	Verdict																												
4.5	<p>Add the following NOTE to Table 4B, 3):</p> <p>NOTE: In case no data for the material is available, Appendix 4, 4. (1). b. 3 of the Interpretation on the Ministerial Ordinance stipulating Technical Specifications for Electrical Appliances (Commerce and Distribution Policy Group No. 3:2008/06/19) may apply.</p>		N/A																												
5.1.3	<p>Add a note after the first paragraph as follows:</p> <p>NOTE Attention should be drawn to that majority of three-phase power system in Japan is of delta connection, and therefore, in that case, the test is conducted using the test circuit from IEC 60990, figure 13.</p>		N/A																												
5.1.6	<p>Replace Table 5A as follows:</p> <table border="1"> <thead> <tr> <th>Type of equipment</th><th>Terminal A of measuring instrument connected to:</th><th>Maximum TOUCH CURRENT mA r.m.s. ¹⁾</th><th>Maximum PROTECTIVE CONDUCTOR CURRENT</th></tr> </thead> <tbody> <tr> <td>All equipment</td><td>Accessible parts and circuits not connected to protective earth</td><td>0,25</td><td>-</td></tr> <tr> <td>HAND-HELD</td><td rowspan="4">Equipment main protective earthing terminal (if any) CLASS I EQUIPMENT</td><td>0,75</td><td>-</td></tr> <tr> <td>MOVABLE (other than HAND-HELD, but including TRANSPORTABLE EQUIPMENT</td><td>3,5</td><td>-</td></tr> <tr> <td>STATIONARY, PLUGGABLE TYPE A</td><td>3,5</td><td>-</td></tr> <tr> <td>All other STATIONARY EQUIPMENT - not subject to the conditions of 5.1.7 - subject to the conditions of 5.1.7</td><td>3,5 -</td><td>- 5 % of input current</td></tr> <tr> <td>HAND-HELD</td><td rowspan="2">Equipment main protective earthing terminal (if any) CLASS 0I EQUIPMENT</td><td>0,5</td><td>-</td></tr> <tr> <td>Others</td><td>1,0</td><td>-</td></tr> </tbody> </table> <p>¹⁾ If peak values of TOUCH-CURRENT are measured, the maximum values obtained by multiplying the r.m.s. values by 1,414.</p>	Type of equipment	Terminal A of measuring instrument connected to:	Maximum TOUCH CURRENT mA r.m.s. ¹⁾	Maximum PROTECTIVE CONDUCTOR CURRENT	All equipment	Accessible parts and circuits not connected to protective earth	0,25	-	HAND-HELD	Equipment main protective earthing terminal (if any) CLASS I EQUIPMENT	0,75	-	MOVABLE (other than HAND-HELD, but including TRANSPORTABLE EQUIPMENT	3,5	-	STATIONARY, PLUGGABLE TYPE A	3,5	-	All other STATIONARY EQUIPMENT - not subject to the conditions of 5.1.7 - subject to the conditions of 5.1.7	3,5 -	- 5 % of input current	HAND-HELD	Equipment main protective earthing terminal (if any) CLASS 0I EQUIPMENT	0,5	-	Others	1,0	-		N/A
Type of equipment	Terminal A of measuring instrument connected to:	Maximum TOUCH CURRENT mA r.m.s. ¹⁾	Maximum PROTECTIVE CONDUCTOR CURRENT																												
All equipment	Accessible parts and circuits not connected to protective earth	0,25	-																												
HAND-HELD	Equipment main protective earthing terminal (if any) CLASS I EQUIPMENT	0,75	-																												
MOVABLE (other than HAND-HELD, but including TRANSPORTABLE EQUIPMENT		3,5	-																												
STATIONARY, PLUGGABLE TYPE A		3,5	-																												
All other STATIONARY EQUIPMENT - not subject to the conditions of 5.1.7 - subject to the conditions of 5.1.7		3,5 -	- 5 % of input current																												
HAND-HELD	Equipment main protective earthing terminal (if any) CLASS 0I EQUIPMENT	0,5	-																												
Others		1,0	-																												
6	Replace IEC 60664-1 in NOTE 4 with JIS C 0664.		N/A																												
7	Replace IEC 60664-1 in NOTE 3 with JIS C 0664:2003.		N/A																												

IEC 60950-1 ATTACHMENT

Clause	Requirement + Test	Result - Remark	Verdict
7.2	<p>Add the following after the paragraph:</p> <p>However, the separation requirements and tests of 6.2.1 a), b) and c) do not apply to a CABLE DISTRIBUTION SYSTEM if all of the following apply:</p> <ul style="list-style-type: none"> - the circuit under consideration is a TNV-1 CIRCUIT; and - the common or earthed side of the circuit is connected to the screen of the coaxial cable and to all accessible parts and circuits (SELV, accessible metal parts and LIMITED CURRENT CIRCUITS, if any); and - the screen of the coaxial cable is intended to be connected to earth in the building installation. 		N/A
W.1	<p>Replace the second and the third sentence in the first paragraph with the following:</p> <p>This distinction between earthed and unearthed (floating) circuit is not the same as between CLASS I EQUIPMENT, CLASS 0I EQUIPMENT and CLASS II EQUIPMENT. Floating circuits can exist in CLASS I EQUIPMENT or CLASS 0I EQUIPMENT and earthed circuits in CLASS II EQUIPMENT.</p>		N/A

IEC 60950-1 ATTACHMENT

Clause	Requirement + Test	Result - Remark	Verdict
Annex JA	<p>Add a new annex JA with the following contents.</p> <p style="text-align: center;">Annex JA (normative) Document shredding machines</p> <p>Document shredding machines shall also comply with the requirements of this annex except those of STATIONARY EQUIPMENT used by connecting directly to an AC MAINS SUPPLY of three-phase 200V or more.</p> <p>JA.1 Markings and instructions The symbol  (JIS S 0101:2000, 6.2.4) and the following precautions for use shall be marked on readily visible part adjacent to document feed opening. The marking shall be clearly legible, permanent, and easily discernible;</p> <ul style="list-style-type: none"> - that use by an infants/children may cause a hazard of injury etc.; - that a hand can be drawn into the mechanical section for shredding when touching the document-slot; - that clothing can be drawn into the mechanical section for shredding when touching the document-slot; - that hairs can be drawn into the mechanical section for shredding when touching the document-slot; - in case of equipment incorporating a commutator motor, that equipment may catch fire or explode by spraying of flammable gas. <p>JA.2 Inadvertent reactivation Any safety interlock that can be operated by means of the test finger, Figure JA.1, is considered to be likely to cause inadvertent reactivation of the hazard.</p> <p>Compliance is checked by inspection and, where necessary, by a test with the test finger, Figure JA.1</p> <p>JA.3 Disconnection from the mains supply Document shredding machines shall incorporate an isolating switch complying with sub-clause 3.4.2 as the device disconnecting the power of hazardous moving parts. For this switch, two-position (single-use) switch or multi-position (multifunction) switch (e.g., slide switch) may be used.</p>	Not such equipment.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
Annex JA	<p>If two-position switch, the positions for "ON" and "OFF" shall be indicated in accordance with sub-clause 1.7.8. If multi-position switch, the position for "OFF" shall be indicated in accordance with sub-clause 1.7.8 and other positions shall be indicated with proper terms or symbols.</p> <p>Compliance is checked by inspection</p> <p>JA.4 Protection against hazardous moving parts Any warning shall not be used instead of the structure for preventing access to hazardous moving parts. Document shredding machines shall comply with the following requirements.</p> <p>Insert the test finger, Figure JA.1, into all openings in MECHANICAL ENCLOSURES without applying appreciable force. It shall not be possible to touch hazardous moving parts with the test finger. This consideration applies to all sides of MECHANICAL ENCLOSURES when the equipment is mounted as intended. Before testing with the test finger, remove the parts detachable without a tool.</p> <p>Insert the wedge-probe, Figure JA.2, into the document-slot. And, against all directions of openings, if straight-cutting type, a force of 45 N shall apply to the probe, and 90 N if cross-cutting type. In this case, the weight of the probe is to be factored into the overall applied force. Before testing with the wedge-probe, remove the parts detachable without a tool. It shall not be possible to touch any hazardous moving parts, including the shredding roller or the mechanical section for shedding, with the probe.</p>		N/A

Clause	Requirement + Test	Result - Remark	Verdict
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N/A



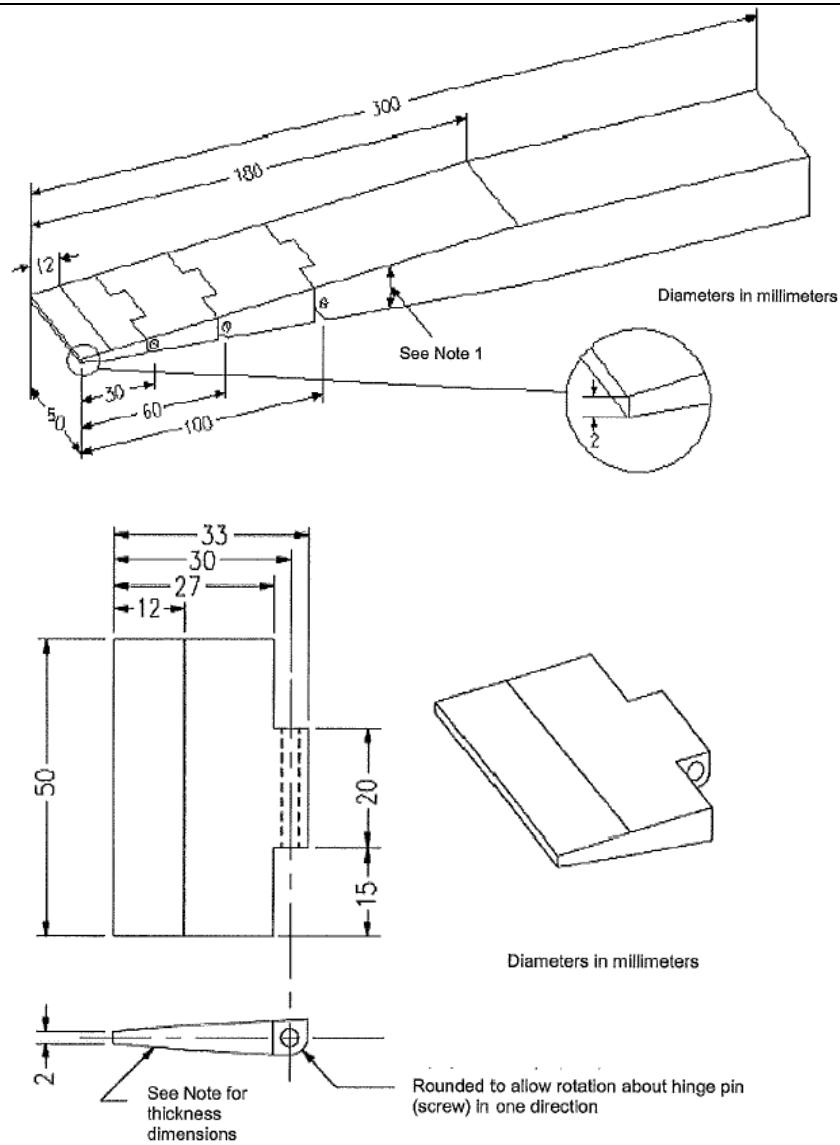
Figure JA.1 Test finger

IEC 60950-1 ATTACHMENT

Clause	Requirement + Test	Result - Remark	Verdict
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Annex JA

N/A



Details of the tip of wedge

Distance from the tip (mm)	Thickness of probe (mm)
0	2
12	4
180	24

NOTE 1 The thickness of the probe varies linearly, with slope changes at the respective points shown in the table.

NOTE2 The allowable dimensional tolerance of the probe is +/- 0.127 mm.

Figure JA.2 Wedge-probe

ATTACHMENT TO TEST REPORT IEC 60950-1 KOREAN DIFFERENCES

Differences according to: K 60950-1			
IEC Standard: 60950-1(ed.2);am1			
Last Modification: Date (2012-05-31)			
Clause	Requirement + Test	Result - Remark	Verdict
1.5.101	Plugs for the connection of the apparatus to the supply mains shall comply with the Korean requirement (KSC 8305).	Building-in product, must be considered in the end product.	—
8	EMC The apparatus shall comply with the relevant CISPR standards	Compliance with EMC must be considered when marketed in Korea.	—

ATTACHMENT TO TEST REPORT IEC 60950-1 Singapore DIFFERENCES

Differences according to: Singapore: Consumer Protection Information Booklet, 2012 Edition, (Ver. 4.2).

IEC Standard: 60950-1(ed.1)

Last Modification: Date (2012-03-29)

No	Item	Requirement + Test	Result - Remark	Verdict
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The following is the national differences in accordance with safety authority website www.spring.gov.sg, ref. Singapore Consumer Protection (Safety Requirements) - Information booklet - chapter 7 (page 22 - 25). Based on information by Singapore NCB – PSB Corp.

7 SAFETY AUTHORITY'S REQUIREMENTS

The Safety Authority monitors the safety of the controlled goods sold in Singapore by investigating all complaints, incidents and accidents reported to the authority. Experiences gained are translated into the Safety Authority's Requirements. These requirements are to be fulfilled in addition to the applicable safety standards.

Applicable to all products

1	Test certificate / Test report	Test certificate / Test report more than three (3) years old shall be rejected.	Compliance shall be considered when equipment marketed Singapore.	N/A
2	Controlled Goods incorporated with additional function	The additional function must be tested to its applicable safety standard.		P

Applicable to all electrical products

3	All appliances	All appliances must be tested to 230 VAC.	This built-in equipment not connected to AC mains supply directly. Compliance shall be evaluated with the end-product.	N/A
4	Voltage selector (voltage mismatch test)	Appliance fitted with voltage selector shall be tested as follows: Connect appliance to 230 VAC mains with voltage selector switch to settings not suitable for operation at 230 VAC.	No voltage selector. This built-in equipment not connected to AC mains supply directly. Compliance shall be evaluated with the end-product.	N/A
5	Tropical condition test	All appliances (with tropical test requirements in applicable Standards) shall comply with the tropical condition test as stated in the relevant IEC Standards.	Complied with requirement, refer to main test report.	P

6	Class I appliances (3-pin mains plug)	All Class I appliances must be fitted with 3-pin mains plugs complied with SS 145/SS 472 that are registered with the Safety Authority.	This built-in equipment not connected to AC mains supply directly. Compliance shall be evaluated with the end-product.	N/A
7	Class II appliances (mains plug)	a) All Class II appliances must be fitted with 2-pin mains plug (Appendix W) complied with IEC 83: 1975 (Standard C5, Version II) or EN 50075: 1991. b) Class II appliances that are fitted with 3-pin mains plugs must use plugs that are complied with SS 145 and registered with the Safety Authority.	Class I equipment.	—
8	Appliances rated ≥ 3 kW or connected to fixed wiring	Electric appliance ≥ 3 kW must be connected to fixed wiring. All connection to fixed wiring must be in accordance with Code of Practice CP5.	The rated power is less than 3kW.	N/A
9	Detachable power cord set (consists of mains plug, mains cord and appliance connector)	Detachable power cord set must be listed in the test report critical component list.	This built-in equipment not connected to AC mains supply directly. Compliance shall be evaluated with the end-product.	—
10	Circuit diagrams	Circuit diagrams must be indicated with component's values for products tested to IEC 60065 and IEC 60950.	Must be evaluated when market to Singapore	—
11	Circuit diagrams of electronic modules in electrical appliances	Circuit diagrams of the electronic modules in the electrical appliances must be provided.		N/A
12	Controlled goods likely to be treated as toy by children	Controlled goods, having an enclosure, which is shaped and decorated so that it is likely to be treated as a toy by children, shall not be accepted for certification and registration.	The equipment is not treated as toy by children.	N/A
Applicable to electric airpot				
13	Reboil switch	No part of the reboil switch is allowed to protrude into the water pot, even if it is located above the maximum water level mark.		N/A
Applicable to AC adaptor				

14	3-pin AC adaptor (Appendix V)	Test report showing that the 3-pin complied with sub-clauses 12.1 & 12.3 of SS 246 must be submitted.	This built-in equipment not connected to AC mains supply directly. Compliance shall be evaluated with the end-product.	—
15	2-pin AC adaptor (Appendix V)	The 2-pin (Appendix T) shall comply with EN 50075	This built-in equipment not connected to AC mains supply directly. Compliance shall be evaluated with the end-product.	—
16	Detachable power supply cord set not supplied by Registered Supplier	Registered Supplier who is not supplying the detachable power supply cord set together with the AC Adaptor must provide written instruction to its customer on the type of approved detachable power cord set to use.	This built-in equipment not connected to AC mains supply directly. Compliance shall be evaluated with the end-product.	—
Applicable to computer products				
17	CD/DVD ROM (used in personal computer)	Test certificate showing that CD/DVD ROM has complied with IEC 825 must be provided.	The equipment does not consist of CD/DVD ROM.	N/A
18	Modem Card (used in personal computer)	Modem card incorporated in the personal computer must be tested at set level (sub-clauses 5.1 & 6 of IEC 60950) or at component level.	The equipment does not consist of Modem Card.	N/A
Applicable to ceiling fan and cycle fan				
19	Ceiling fan and cycle fan	a) These appliances must be tested to sub-clauses 5.7 and 5.8 of SS 360: 1992. b) Installation instruction must mention the 3 expansion bolts for fastening the main suspension, safety cord, expansion bolt with hook for fastening safety cord and mounting plate. (Appendix Q) c) Drawing (Appendix P) to show that the wires within the motor shaft are not stressed must be provided.	Not such equipment.	N/A
Applicable to portable/wall socket-outlet and portable cable reel				

20	Portable/wall socket-outlet and portable cable reel	<p>a) If residual current device (RCD) is incorporated, its tripping current must be less than 30mA and operating time must be less than 0.1 second and testing to sub-clauses 9.9.2.1, 9.9.2.2, 9.9.2.3 and 9.16 of SS 97: Part 1: 2000 are required.</p> <p>b) The shutters screening the current-carrying socket contacts shall not be opened by the insertion of any corresponding SINGLE pin of the plug into any current-carrying socket aperture.</p>	Not such equipment.	N/A
21	Wall switched socketoutlet (2 x single socketoutlet)	Single socket-outlet with 2-gang faceplate/frame must be fulfilled with the test requirements as 2-gang socket-outlet.		N/A
22	Remote controlled portable/wall portable socket-outlet	Remote controlled portable/wall socket-outlet shall not be allowed for registration.		N/A
Applicable to roaster				
23	Roaster	A metal ring (Appendix U) must be provided to prevent the roaster from falling off in case the glass bowl shattered.	Not such equipment.	N/A
Applicable to gas appliances				
24	Test pressure of town gas for gas appliances	All gas appliances must be tested to 20 mbar for town gas.	Not such equipment.	N/A
25	Specifications of LPG and Town Gas	All gas appliances must be tested to the specifications stated on Appendix X.		N/A
26	Gas appliances tested to EN 30-1-1: 1998	Testing to sub-clause 6.1.6 (Temperature of the LPG cylinder and its compartment) and sub-clause 6.2.1 (Ignition, cross-lighting and flame stability) must be carried out.		N/A
27	Flame failure device (FFD) incorporated in gas appliances	<p>a) Test report showing that the FFD complied with EN 126: 1995 or EN 125: 1991 for gas appliance tested to EN 30-1-1 or AG 204: 1984 for gas appliance tested to AG 101 at component level must be provided.</p> <p>b) Testing to sub-clause 6.1.3 of EN 30-1-1 or sub-clause 3.6.13 of AG 101 at set level must be carried out.</p>		N/A

28	Distance between burner and injector	The distance (Appendix R) between bottom of burner ring and tip of the injector must not be too far apart such that the flame may be heating part of the burner instead of the cooking appliance.		N/A
29	Gas oven	It is compulsory for all gas ovens to be fitted with flame failure device.		N/A
30	Glass viewing door for gas hob and gas oven	Test report showing that the glass of the viewing door complied with BS 3193: 1993 (Specification for Thermally Toughened Glass Panels for use in domestic appliances) must be provided.		N/A
31	Toughened glass gas hob	a) A brochure, entitled "Toughened Glass – A Shattering Experience?" must be included for each toughened glass gas hob put up for sale. (Order for the brochure can be placed with the Safety Authority) b) Additional testing and compliance with sub-clauses 2.1.14, 2.1.15, 2.1.17, 2.10.15, 2.11.2.2 & 5.7.5 of AG 101 are required for toughened glass gas hob tested to EN 30-1-1: 1998.		N/A
32	Gasket for elbow joint of gas cooker	Installation instruction must mention about the fixing of gasket for the elbow joint, if applicable. (Appendix S)		N/A
33	Glass-ceramic gas hob (simulated gas explosion test)	The gas hob must be subject to 'simulated gas explosion' test. The hob is filled with an explosive mixture of gas and detonated with a source of ignition.		N/A
Applicable to Residual Current Circuit Breaker (RCCB)				
34	RCCB	Registration of RCCB is limited to 30 mA sensitivity and the operating time must be less than 0.1 second. Electronic RCCB will not be accepted for registration.		N/A
Applicable to electric instantaneous and storage water heater				
35	Instantaneous electric water heater and mains pressure electric storage water heater	Heating elements used must not be of the "bare-element" type.		N/A
36	Water heater incorporated with residual current device(RCD)	Testing to sub-clauses 9.9.2.1, 9.9.2.2, 9.9.2.3 and 9.16 of SS 97: Part 1: 2000 are required.		N/A

Applicable to multiway adaptor				
37	Multiway adaptor with 3-pin socket-outlets or combination of 3-pin and 2-pin socketoutlets	<p>a) The socket contacts of the adaptor shall only accept 13A 3-pin mains plug complying with SS 145 and/or 2.5A 2-pin mains plug complying with EN 50075.</p> <p>b) The shutters screening the current-carrying socket contacts shall not be opened by the insertion of any corresponding SINGLE pin of the plug into any current-carrying socket aperture.</p> <p>c) A barrier or other acceptable means shall be provided on the engagement surface of the 2.5A 2-pin socket-outlet of the adaptor to PREVENT entry of any types of 2-pin mains plugs except those complying with EN 50075. (note: shutters cannot be regarded as barriers)</p> <p>d) Adaptor incorporates with switch would require additional test to sub-clauses 13.11, 17.1.3 and 18.1.3 of SS 145: Part 2: 1997.</p>		N/A
Applicable to plasma/LCD display monitor				
38	Plasma/LCD display monitor with TV tuner	Plasma/LCD display monitor tested to IEC 60950 would require additional test to clauses 9 (related to antenna only), 10.1, 10.2, 10.3 and 12.5 of IEC 60065.	No such equipment.	N/A
Applicable to table lamp / standing lamp				
39	Child appealing table lamp/standing lamp	Child appealing table/standing lamp will not be allowed for registration unless it is powered by an AC Adaptor. Only the AC Adaptor would need registration.	No such equipment.	N/A
Applicable to hot/warm & cold water dispenser				
40	Hot/warm & cold water dispenser	Hot/warm water dispenser shall be tested IEC 60335-2-21. Testing to IEC 60335-2-24 shall be required if the water dispenser is incorporated with compressor for dispensing cold water.	No such equipment.	N/A

ATTACHMENT TO TEST REPORT IEC 60950-1 Ukraine DIFFERENCES

Differences according to: DSTU 4113-2001

IEC Standard.....: 60950(ed.3)

Last Modification: Date (2007-05-29)

Clause	Requirement + Test	Result - Remark	Verdict
1.4.5	In Ukraine the NOMINAL VOLTAGE is 220 V for monophase or 380 V for three-phase supply.	This built-in equipment not connected to AC mains supply directly. Compliance shall be evaluated with the end-product.	N/A
1.5.8	In Ukraine the components connected between phase and earthing or between phase and neutral terminal shall be calculated for the voltage between phases.	This built-in equipment not connected to AC mains supply directly. Compliance shall be evaluated with the end-product.	N/A
1.7.2	In Ukraine for the APPARATUS of I CLASS the necessity of its obligatory earthing shall be indicated in the manuals.	Built-in equipment. Compliance shall be evaluated with the end-product.	N/A
2.3.3	In Ukraine the method b) is not used.	Considered.	N/A
6.2.2	In Ukraine the both tests in 6.2.2.1 and 6.2.2.2 are applied.	No TNV.	N/A
6.2.2.1	In Ukraine in 6.2.1 a) is used $U_c = 3.5 \text{ kV}$.	No TNV.	N/A
6.2.2.2	In Ukraine in 6.2.1 a) is used 3.0 kV for telephones and headsets and 2.5 kV for other equipment and in 6.2.1 b) and c) is used 1.5 kV.	No TNV.	N/A
Annex N	In Ukraine in 6.2.1 a) is used 3.0 kV for telephones and headsets and 2.5 kV for other equipment, and in 6.2.1 b) and c) is used 1.5 kV.	No TNV.	N/A

USA - Differences to IEC 60950-1:2005, Second Edition			
SPECIAL NATIONAL CONDITIONS BASED ON REGULATIONS			
1.1.1	All equipment is to be designed to allow installation in accordance with the National Electrical Code (NEC), ANSI/NFPA 70, the Canadian Electrical Code (CEC), Part I, CAN/CSA C22.1, and when applicable, the National Electrical Safety Code, IEEE C2. Also, unless marked or otherwise identified, installation is allowed per the Standard for the Protection of Electronic Computer/Data-Processing Equipment, ANSI/NFPA 75.	This built-in equipment not connected to AC mains supply directly. Compliance shall be evaluated with the end-product.	—
1.4.14	For Pluggable Equipment Type A, the protection in the installation is assumed to be 20 A.	This built-in equipment not connected to AC mains supply directly. Protective current 20A assumed for this built-in equipment.	P
1.5.5	For lengths exceeding 3.05 m, external interconnecting flexible cord and cable assemblies are required to be a suitable cable type (e.g., DP, CL2) specified in the NEC. For lengths 3.05 m or less, external interconnecting flexible cord and cable assemblies that are not types specified in the NEC are required to have special construction features and identification markings.	This built-in equipment not connected to AC mains supply directly. Compliance shall be evaluated with the end-product.	—
1.7.1	Equipment for use on a.c. mains supply systems with a neutral and more than one phase conductor (e.g. 120/240 V, 3-wire) require a special marking format for electrical ratings. A voltage rating that exceeds an attachment plug cap rating is only permitted if it does not exceed the extreme operating conditions in Table 2 of CAN/CSA C22.2 No. 235, and if it is part of a range that extends into the Table 2 "Normal Operating Conditions." Likewise, a voltage rating shall not be lower than the specified "Normal Operating Conditions," unless it is part of a range that extends into the "Normal Operating Conditions."	This built-in equipment not connected to AC mains supply directly.	N/A
1.7.7	Wiring terminals intended to supply Class 2 outputs in accordance with the NEC or CEC Part 1 shall be marked with the voltage rating and "Class 2" or equivalent. The marking shall be located adjacent to the terminals and shall be visible during wiring.	No such terminal.	N/A
2.5	Where a fuse is used to provide Class 2, Limited Power Source, or TNV current limiting, it shall not be operator accessible unless it is not interchangeable.	No such fuse.	N/A
2.6.3.3	The first column on Table 2D modified to require, "Smaller of the RATED CURRENT of the equipment or the PROTECTIVE CURRENT		N/A

	RATING of the circuit under consideration.”		
2.7.1	Suitable NEC/CEC branch circuit protection rated at the maximum circuit rating is required for all standard supply outlets and receptacles (such as supplied in power distribution units) if the supply branch circuit protection is not suitable. Power distribution transformers distributing power at 100 volts or more, and rated 10 kVA or more, require special transformer overcurrent protection.	No special external branch circuit overcurrent devices provided. No such transformer.	N/A
3.2	Wiring methods (terminals, leads, etc.) used for the connection of the equipment to the mains shall be in accordance with the NEC/CEC.	Built-in equipment. Compliance shall be evaluated with the end-product.	—
3.2.1	Power supply cords are required to have attachment plugs rated not less than 125 percent of the rated current of the equipment.		—
3.2.1.2	Equipment connected to a centralized d.c. power system, and having one pole of the DC mains input terminal connected to the main protective earthing terminal in the equipment, is required to comply with special earthing, wiring, marking and installation instruction requirements.		—
3.2.3	Permanent connection of equipment to the mains supply by a power supply cord is not permitted, except for certain equipment, such as ATMs.		—
3.2.5	Power supply cords are required to be no longer than 4.5 m in length. Minimum cord length is required to be 1.5 m, with certain constructions such as external power supplies allowed to consider both input and output cord lengths into the requirement. Flexible power supply cords are required to be compatible with Article 400 of the NEC, and Tables 11 and 12 of the CEC.		—
3.2.9	Permanently connected equipment is required to have a suitable wiring compartment and wire bending space.		—
3.3	Wiring terminals and associated spacings for field wiring connections shall comply with CSA C22.2 No. 0.	Built-in equipment. Compliance shall be evaluated with the end-product.	—
3.3.3	Wire binding screws are not permitted to attach conductors larger than 10 AWG (5.3 mm ²).		—
3.3.4	Terminals for permanent wiring, including protective earthing terminals, are required to be suitable for U.S./Canadian wire gauge sizes, rated 125 percent of the equipment rating, and be specially marked when specified (1.7.7).		—
3.3.5	First column of Table 3E revised to require “Smaller of the RATED CURRENT of the equipment or the PROTECTIVE CURRENT RATING of the circuit under consideration.”		—

3.4.2	Motor control devices are required for cord-connected equipment with a motor if the equipment is rated more than 12 A, or if the motor has a nominal voltage rating greater than 120 V, or is rated more than 1/3 hp (locked rotor current over 43 A).	No such motor.	N/A
3.4.8	Vertically-mounted disconnect switches and circuit breakers are required to have the "on" position indicated by the handle in the up position.		N/A
3.4.11	For computer room applications, equipment with battery systems capable of supplying 750 VA for five minutes are required to have a battery disconnect means that may be connected to the computer room remote power-off circuit.	No such battery.	N/A
4.3.12	The maximum quantity of flammable liquid stored in equipment is required to comply with NFPA30.	No flammable liquids within the equipment.	N/A
4.3.13.5	Equipment with lasers is required to meet the U.S. Code of Federal Regulations 21 CFR 1040 (and the Canadian Radiation Emitting Devices Act, REDR C1370).		N/A
4.7	For computer room applications, automated information storage systems with combustible media greater than 0.76 m ³ (27 cu ft) are required to have a provision for connection of either automatic sprinklers or a gaseous agent extinguishing system with an extended discharge.	The equipment has no combustible area greater than 27 cubic feet.	N/A
4.7.3.1	For computer room applications, enclosures with combustible material measuring greater than 0.9 m ² (10 sq ft) or a single dimension greater than 1.8 m (6 ft) are required to have a flame spread rating of 50 or less. For other applications, enclosures with the same dimensions require a flame spread rating of 200 or less.	The equipment has no combustible material greater than 0.9m ² or single dimension greater than 1.8m.	N/A
Annex H	Equipment that produces ionizing radiation is required to comply with the U.S. Code of Federal Regulations, 21 CFR 1020 (and the Canadian Radiation Emitting Devices Act, REDR C1370).	No ionizing radiation	N/A

OTHER NATIONAL DIFFERENCES			
1.5.1	Some components and materials associated with the risk of fire, electric shock, or personal injury are required to have component or material ratings in accordance with the applicable national (U.S. and Canadian) component or material requirements. These components include: attachment plugs, battery packs (rechargeable type, used with transportable equipment), cathode ray tubes, circuit breakers, communication circuit accessories, connectors (used for current interruption of non-LPS circuits), cord sets and power supply cords, direct plug-in equipment, electrochemical capacitor modules (energy storage modules with ultracapacitors), enclosures (outdoor), flexible cords and cables, fuses (branch circuit), fuseholders, ground-fault current interrupters, industrial control equipment, insulating tape, interconnecting cables, lampholders, limit controls, printed wiring, protectors for communications circuits, receptacles, solid state controls, supplementary protectors, switches (including interlock switches), thermal cutoffs, thermostats, (multi-layer) transformer winding wire, surge protective devices, tubing, vehicle battery adapters, wire connectors, and wire and cables.	All critical components are IEC or UL certified.	P
1.6.1.2	A circuit for connection to the DC Mains Supply is classified as a SELV Circuit, a TNV-2 Circuit or a Hazardous Voltage Circuit depending on the maximum operating voltage of the supply. This maximum operating voltage shall include consideration of the battery charging "float voltage" associated with the intended supply system, regardless of the marked power rating of the equipment.	Considered.	P
2.3.1	For TNV-2 and TNV-3 circuits with other than ringing signals and with voltages exceeding 42.4 V _{peak} or 60 V _{d.c.} , the maximum acceptable current through a 2000 ohm resistor (or greater) connected across the voltage source with other loads disconnected is 7.1 mA peak or 30 mA d.c. under normal operating conditions.	No TNV.	N/A
2.3.2.1	In the event of a single fault between TNV and SELV circuits, the limits of 2.2.3 apply to SELV Circuits and accessible conductive parts.		N/A
2.6.3.4	Protective bonding conductors of non-standard protective bonding constructions (e.g., printed circuit traces) may be subjected to the additional limited short circuit test conditions specified.		N/A
4.2.8.1	Enclosures around CRTs with a face diameter of 160 mm or more are required to reduce the risk of injury due to the implosion of the CRT.	No CRT.	N/A

4.3.2	Equipment with handles is required to comply with special loading tests.		N/A
5.1.8.3	Equipment intended to receive telecommunication ringing signals is required to comply with a special touch current measurement tests.		N/A
5.3.7	Internal (e.g., card cage) SELV circuit connectors and printed wiring board connectors that are accessible to the operator and that deliver power are to be overloaded. During abnormal operating testing, if a circuit is interrupted by the opening of a component, the test shall be repeated twice (three tests total) using new components as necessary.	Considered.	P
6.4	Equipment intended for connection to telecommunication network outside plant cable is required to be protected against overvoltage from power line crosses in accordance with 6.4 and Annex NAC.		N/A
Annex EE	UL articulated accessibility probe (Fig EE.3) required for assessing accessibility to document/media shredders instead of the Figure 2A test finger.	Not document/media shredder.	N/A
Annex M.2	Continuous ringing signals up to 16 mA only are permitted if the equipment is subjected to special installation and performance restrictions.		N/A
Annex NAD	Equipment connected to a telecommunication and cable distribution networks and supplied with an earphone intended to be held against, or in the ear is required to comply with special acoustic pressure requirements.		N/A