



Test Report issued under the responsibility of:



TEST REPORT
IEC 60950-1
Information technology equipment – Safety –
Part 1: General requirements

Report Number..... : 140900434SHA-002
Date of issue..... : 2014/11/14
Total number of pages : 108

Applicant's name : GlobTek, Inc.
Address..... : 186 Veterans Dr. Northvale, NJ 07647 USA

Test specification:

Standard..... : IEC 60950-1:2005 (Second Edition) + Am 1:2009 + Am 2:2013
Test procedure : CB Scheme
Non-standard test method : N/A

Test Report Form No. : IEC60950_1F
Test Report Form(s) Originator : SGS Fimko Ltd
Master TRF : Dated 2014-02

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

General disclaimer:

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Test item description..... : ITE Power Supply
Trade Mark..... : GlobTek
Manufacturer : Same as applicant
Model/Type reference : GT*43007-***** (Refer to page 6 for details.)
Ratings : Input: 100-240V~, 50-60Hz, 1.5A;
Output: Refer to page 6 for details.

Testing procedure and testing location:		
<input checked="" type="checkbox"/>	CB Testing Laboratory:	
Testing location/ address.....:		Intertek Testing Services Shanghai Building No.86, 1198 Qinzhou Road (North), 200233 Shanghai, China
<input type="checkbox"/>	Associated CB Testing Laboratory:	
Testing location/ address.....:		
Tested by (name + signature).....:		Jason Gong <i>Jason Gong</i>
Approved by (name + signature).....:		Jamie Wu <i>Jamie Wu</i>
<input type="checkbox"/>	Testing procedure: TMP/CTF Stage 1:	
Testing location/ address.....:		
Tested by (name + signature).....:		
Approved by (name + signature).....:		
<input type="checkbox"/>	Testing procedure: WMT/CTF Stage 2:	
Testing location/ address.....:		
Tested by (name + signature).....:		
Witnessed by (name + signature).....:		
Approved by (name + signature).....:		
<input type="checkbox"/>	Testing procedure: SMT/CTF Stage 3 or 4:	
Testing location/ address.....:		
Tested by (name + signature).....:		
Witnessed by (name + signature).....:		
Approved by (name + signature).....:		
Supervised by (name + signature).....:		

<p>List of Attachments (including a total number of pages in each attachment): National difference: Page 54-102 Photos of EUT: Page 103-104 Schematics and PCB layout: Page 105-108</p>	
<p>Summary of testing:</p>	
<p>Tests performed (name of test and test clause): 1.6.2 Input test 1.7.11 Marking test 2.1.1.5 Energy hazards test 2.1.1.7 Stored Discharge on Capacitors Test 2.2.2 Voltage under normal conditions test 2.2.3 Voltage under fault conditions test 2.4 Limited current circuits 2.5 Limited power source test 2.9.2 Humidity test 2.10.2 Working voltage measurement 2.10.3/2.10.4 Clearances and creepage distances 2.10.5 Distance through insulation measurements 4.2.2 Mechanical strength - steady force test, 10 N 4.5.1 Temperature rise test 4.5.5 Ball pressure test of thermoplastic parts 5.1 Touch current & protective conductor current test 5.2 Electric strength test 5.3 Abnormal test</p>	<p>Testing location: Intertek Testing Services Shanghai Building No.86, 1198 Qinzhou Road (North), 200233 Shanghai, China</p>
<p>Summary of compliance with National Differences:</p>	
<p>List of countries addressed The test report covers group- and national differences for the CENELEC countries. The national differences for Singapore and Japan have been checked according to IEC 60950-1 1st ed. The national differences for China and Australia/New Zealand have been checked according to IEC 60950-1 2nd ed. The national difference for Korea has been checked according to IEC 60950-1 2nd ed. + A1. The national differences for USA and Canada have been checked according to IEC 60950-1 2nd ed. + A1 + A2. <input checked="" type="checkbox"/> The product fulfils the requirements of IEC 60950-1:2005 + A1:2009 + A2:2013 and EN 60950-1:2006 + A11:2009 + A1:2010 + A12:2011 + A2:2013.</p>	

Copy of marking plate (representative):

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.

Note:

The marking plates of the other models listed in this report are identical with below except model name and output parameter.

The below marking is complying with the minimum requirements required by the safety standard.

For the final production samples, the additional markings which do not give rise to misunderstanding may be added.



For Class I model



For Class II model



Test item particulars :	
Equipment mobility:	<input type="checkbox"/> movable <input type="checkbox"/> hand-held <input type="checkbox"/> transportable <input type="checkbox"/> stationary <input checked="" type="checkbox"/> 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 <input type="checkbox"/> not directly connected to the mains Final determination is needed in end product.
Operating condition:	<input checked="" type="checkbox"/> continuous <input type="checkbox"/> rated operating / resting time:
Access location	<input checked="" type="checkbox"/> operator accessible <input type="checkbox"/> restricted access location
Over voltage category (OVC)	<input type="checkbox"/> OVC I <input checked="" type="checkbox"/> OVC II <input type="checkbox"/> OVC III <input type="checkbox"/> OVC IV <input type="checkbox"/> other:
Mains supply tolerance (%) or absolute mains supply values	+/-10%
Tested for IT power systems	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
IT testing, phase-phase voltage (V)	
Class of equipment	<input checked="" type="checkbox"/> Class I or <input checked="" 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 or 20A
Pollution degree (PD)	<input type="checkbox"/> PD 1 <input checked="" type="checkbox"/> PD 2 <input type="checkbox"/> PD 3
IP protection class	IPX0
Altitude during operation (m)	<5000m
Altitude of test laboratory (m)	<50m
Mass of equipment (kg)	Approx. 0.12 kg
Possible test case verdicts:	
- test case does not apply to the test object	N/A
- test object does meet the requirement.....	P (Pass)
- test object does not meet the requirement.....	F (Fail)
Testing:	
Date of receipt of test item	2014-10-21
Date (s) of performance of tests	2014-10-21 ~ 2014-11-10
General remarks:	



"(See Enclosure #)" refers to additional information appended to the report.
 "(See appended table)" refers to a table appended to the report.
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Manufacturer's Declaration per sub-clause 4.2.5 of IEC60950-1:

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) : Factory 1
 GlobTek, Inc.
 186 Veterans Dr. Northvale, NJ 07647 USA
 Factory 2
 GlobTek (Suzhou) Co., Ltd
 Building 4, No. 76, Jin Ling East Rd., Suzhou
 Industrial Park, Suzhou, JiangSu 215021, China

General product information:

Product covered by this report is I.T.E. power supply module, which is open frame type for indoor use only. The installation and use for the insulation construction shall be finally determined in the end product.

Model similarity:
 GT*43007-****

The 1st "*" can be 'M' or '-' or 'H' for market identification and not related to safety.
 The 2nd "*" is A, B, or C and is related to PCB size: A= 2"x3", B=2"x4", C=3"x5". The different PCB sizes are only for installation purpose in end product with no safety spacing modification.
 The 3rd "*" denote the rated output wattage designation, which can be "01" to "60", with interval of 1.
 The 4th "*" denote the standard rated output voltage designation, which can be "05", "07", "09", "12", "15", "18", "24", "36" or "48". Each standard rated output voltage designation corresponds to a transformer model. Each transformer model is identical in insulation construction including clearance and creepage except number of turns per coil.
 The 5th "*" is optional deviation, subtracted from standard output voltage, which can be "-0.1" to "-11.9" with interval of 0.1, or blank to indicate no voltage different.
 The 4th and 5th asterisks together denote the output voltage with a range of 5-48 volts.
 The 6th "*" can be "-F" or "-FW". "-F" represents Class I model and "-FW" represents Class II model.

Model list:				
Model	Output Voltage	Max. output current	Max. output power	Transformer
GT*43007-**05*	5	6A	30W	TF024 (5-6.5Vdc) TF025 (6.6-8.9Vdc) TF026 (9-13Vdc) TF027 (13.1-17Vdc) TF028 (17.1-24.9Vdc) TF029 (25-34.9Vdc) TF032 (35-48Vdc)
GT*43007-**07**	5.1-7V	6A	30W	
GT*43007-**09**	7.1-9V	5A	45W	
GT*43007-**12**	9.1-12V	5.0A	45W	
GT*43007-**15**	12.1-15V	5.0A	60W	
GT*43007-**18**	15.1-18V	4.0A	60W	
GT*43007-**24**	18.1-24V	3.31A	60W	
GT*43007-**36**	24.1-36V	2.50A	60W	
GT*43007-**48**	36.1-48V	1.66A	60W	

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)
N/A

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1	GENERAL		
1.5	Components		
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	Components which are certified to IEC and/or national standards are used correctly within their ratings. Components not covered by IEC standards are tested under the conditions present in the equipment.	P
1.5.3	Thermal controls	No thermal controls.	N/A
1.5.4	Transformers	See Annex C – Transformer	P
1.5.5	Interconnecting cables	The output wiring is evaluated at the relevant parts of this report	P
1.5.6	Capacitors bridging insulation	Comply with IEC 60384-14	P
1.5.7	Resistors bridging insulation		P
1.5.7.1	Resistors bridging functional, basic or supplementary insulation	Only bridging functional is considered	P
1.5.7.2	Resistors bridging double or reinforced insulation between a.c. mains and other circuits		N/A
1.5.7.3	Resistors bridging double or reinforced insulation between a.c. mains and antenna or coaxial cable		N/A
1.5.8	Components in equipment for IT power systems		P
1.5.9	Surge suppressors	No such component.	N/A
1.5.9.1	General		N/A
1.5.9.2	Protection of VDRs		N/A
1.5.9.3	Bridging of functional insulation by a VDR		N/A
1.5.9.4	Bridging of basic insulation by a VDR		N/A
1.5.9.5	Bridging of supplementary, double or reinforced insulation by a VDR		N/A
1.6	Power interface		
1.6.1	AC power distribution systems	TN, TT or IT (only for Norway)	P
1.6.2	Input current	(see appended table 1.6.2)	P
1.6.3	Voltage limit of hand-held equipment	This equipment is not handheld equipment.	N/A
1.6.4	Neutral conductor	Basic insulation for rated voltage between earthed parts and primary phases.	P

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

1.7	Marking and instructions		
1.7.1	Power rating and identification markings		P
1.7.1.1	Power rating marking		P
	Multiple mains supply connections.....:		N/A
	Rated voltage(s) or voltage range(s) (V)	100-240Vac	P
	Symbol for nature of supply, for d.c. only	The equipment is for a.c. supply.	N/A
	Rated frequency or rated frequency range (Hz)	50-60Hz	P
	Rated current (mA or A)	1.5A	P
1.7.1.2	Identification markings		P
	Manufacturer's name or trade-mark or identification mark	(see copy of the marking plate)	P
	Model identification or type reference	(see copy of the marking plate)	P
	Symbol for Class II equipment only	Symbol IEC 60417-5172 (DB: 2003-02) is used for Class II model.	P
	Other markings and symbols	Additional symbols or marking do not give rise to misunderstanding.	P
1.7.1.3	Use of graphical symbols		P
1.7.2	Safety instructions and marking	The instruction contains information for operation, installation, servicing, transport, storage and technical data.	P
1.7.2.1	General		P
1.7.2.2	Disconnect devices	Final determination is needed in end product.	N/A
1.7.2.3	Overcurrent protective device		N/A
1.7.2.4	IT power distribution systems		P
1.7.2.5	Operator access with a tool	No need.	N/A
1.7.2.6	Ozone		N/A
1.7.3	Short duty cycles	Equipment is designed for continuous operation.	N/A
1.7.4	Supply voltage adjustment	No voltage/frequency setting.	N/A
	Methods and means of adjustment; reference to installation instructions		N/A
1.7.5	Power outlets on the equipment	No outlet provided.	N/A
1.7.6	Fuse identification (marking, special fusing characteristics, cross-reference)	The "F1" & "F2" and "T2A 250V" are marked adjacent to the main fuse.	P

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.7.7	Wiring terminals		P
1.7.7.1	Protective earthing and bonding terminals	Final determination is needed in end product.	N/A
1.7.7.2	Terminals for a.c. mains supply conductors		N/A
1.7.7.3	Terminals for d.c. mains supply conductors		N/A
1.7.8	Controls and indicators	No such device.	N/A
1.7.8.1	Identification, location and marking		N/A
1.7.8.2	Colours		N/A
1.7.8.3	Symbols according to IEC 60417.....	No such need.	N/A
1.7.8.4	Markings using figures	No figures used as marking	N/A
1.7.9	Isolation of multiple power sources	Only one power supply	N/A
1.7.10	Thermostats and other regulating devices	No such device within the EUT.	N/A
1.7.11	Durability	The label was subjected to the permanence of marking test. The label was rubbed with cloth for 15 s and then again for 15 s with the cloth soaked with HEXANE. After this test there was no damage to the label. The marking on the label did not fade. There was no curling or lifting of the label edge.	P
1.7.12	Removable parts	Marking is not placed on removable parts.	P
1.7.13	Replaceable batteries	No battery used.	N/A
	Language(s)		—
1.7.14	Equipment for restricted access locations.....	The EUT is not such type.	N/A

2	PROTECTION FROM HAZARDS		
2.1	Protection from electric shock and energy hazards		
2.1.1	Protection in operator access areas	Final determination is needed in end product.	N/A
2.1.1.1	Access to energized parts		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		N/A
2.1.1.3	Access to ELV wiring		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Working voltage (V _{peak} or V _{rms}); minimum distance through insulation (mm)		—
2.1.1.4	Access to hazardous voltage circuit wiring	No hazardous voltage circuit wiring.	N/A
2.1.1.5	Energy hazards	See table 2.1.1.5.	P
2.1.1.6	Manual controls	No such devices.	N/A
2.1.1.7	Discharge of capacitors in equipment		P
	Measured voltage (V); time-constant (s)	V _{37%V_r} =124.8V; τ=0.99 s R1B = R2B = 470kohm CX1 = 0.33 uF	—
2.1.1.8	Energy hazards – d.c. mains supply	Not direct connected to the d.c. mains	N/A
	a) Capacitor connected to the d.c. mains supply ..:		N/A
	b) Internal battery connected to the d.c. mains supply :		N/A
2.1.1.9	Audio amplifiers	No such audio amplifiers circuit provided.	N/A
2.1.2	Protection in service access areas		N/A
2.1.3	Protection in restricted access locations	The unit is not intended to be used in restricted locations.	N/A

2.2 SELV circuits			
2.2.1	General requirements	SELV circuit does not exceed 42.4 V peak or 60 V dc under normal operation or single fault condition.	P
2.2.2	Voltages under normal conditions (V)	Between any SELV circuits 42.4V peak or 60V dc are not exceeded. (see appended table)	P
2.2.3	Voltages under fault conditions (V)	Limits of 71V peak and 120V DC were not exceed and SELV limits not for longer than 0.2 seconds. (see appended table)	P
2.2.4	Connection of SELV circuits to other circuits	SELV circuits are only connected to other SELV circuits.	P

2.3 TNV circuits			
2.3.1	Limits	No TNV circuits.	N/A
	Type of TNV circuits		—

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Clause	Requirement + Test	Result - Remark	Verdict

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		
2.4.1	General requirements		P
2.4.2	Limit values	0.7 mA	P
	Frequency (Hz).....	60Hz	—
	Measured current (mA)	0.204mA	—
	Measured voltage (V)	0.408V	—
	Measured circuit capacitance (nF or μF).....	CY1, CY2: 2200pF	—
2.4.3	Connection of limited current circuits to other circuits	Limited current circuits are only connected to other SELV circuits.	P

2.5	Limited power sources		
	a) Inherently limited output		P
	b) Impedance limited output		N/A
	c) Regulating network or IC current limiter, limits output under normal operating and single fault condition		N/A
	Use of integrated circuit (IC) current limiters		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) ..		—

2.6	Provisions for earthing and bonding		
2.6.1	Protective earthing	Final determination is needed in end product.	N/A
2.6.2	Functional earthing		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Use of symbol for functional earthing		N/A
2.6.3	Protective earthing and protective bonding conductors		N/A
2.6.3.1	General		N/A
2.6.3.2	Size of protective earthing conductors		N/A
	Rated current (A), cross-sectional area (mm ²), AWG		—
2.6.3.3	Size of protective bonding conductors		N/A
	Rated current (A), cross-sectional area (mm ²), AWG		—
	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)		N/A
2.6.3.5	Colour of insulation.....		N/A
2.6.4	Terminals		N/A
2.6.4.1	General		N/A
2.6.4.2	Protective earthing and bonding terminals		N/A
	Rated current (A), type, nominal thread diameter (mm)		—
2.6.4.3	Separation of the protective earthing conductor from protective bonding conductors		N/A
2.6.5	Integrity of protective earthing		N/A
2.6.5.1	Interconnection of equipment		N/A
2.6.5.2	Components in protective earthing conductors and protective bonding conductors		N/A
2.6.5.3	Disconnection of protective earth		N/A
2.6.5.4	Parts that can be removed by an operator		N/A
2.6.5.5	Parts removed during servicing		N/A
2.6.5.6	Corrosion resistance		N/A
2.6.5.7	Screws for protective bonding		N/A
2.6.5.8	Reliance on telecommunication network or cable distribution system		N/A
2.7	Overcurrent and earth fault protection in primary circuits		
2.7.1	Basic requirements		P
	Instructions when protection relies on building installation	Protected by certified fuse.	N/A
2.7.2	Faults not simulated in 5.3.7		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

2.7.3	Short-circuit backup protection	Building installation is considered as the short-circuit backup protection.	P
2.7.4	Number and location of protective devices	One or two current fuses (F1 & F2) are located in the Line pole of primary circuit.	P
2.7.5	Protection by several devices		N/A
2.7.6	Warning to service personnel.....	No service access area.	N/A

2.8	Safety interlocks		
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
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		
2.9.1	Properties of insulating materials	Natural rubber, asbestos or hygroscopic materials are not used.	N/A
2.9.2	Humidity conditioning	Humidity treatment performed for 120 h per client's request.	P
	Relative humidity (%), temperature (°C)	93%, 40°C	—
2.9.3	Grade of insulation	The adequate level of safety insulation is provided and maintained to comply with the requirements of this standard.	P
2.9.4	Separation from hazardous voltages		P
	Method(s) used	Method 1.	—

2.10	Clearances, creepage distances and distances through insulation		
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IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
2.10.1	General		P
2.10.1.1	Frequency	Not more than 30kHz	P
2.10.1.2	Pollution degrees	Pollution degree 2	P
2.10.1.3	Reduced values for functional insulation		P
2.10.1.4	Intervening unconnected conductive parts		P
2.10.1.5	Insulation with varying dimensions	No such transformer.	N/A
2.10.1.6	Special separation requirements		N/A
2.10.1.7	Insulation in circuits generating starting pulses		N/A
2.10.2	Determination of working voltage		P
2.10.2.1	General		P
2.10.2.2	RMS working voltage		P
2.10.2.3	Peak working voltage		P
2.10.3	Clearances		P
2.10.3.1	General		P
2.10.3.2	Mains transient voltages		P
	a) AC mains supply	100-240Vrms. Overvoltage Category II	P
	b) Earthed d.c. mains supplies		N/A
	c) Unearthed d.c. mains supplies		N/A
	d) Battery operation		N/A
2.10.3.3	Clearances in primary circuits	(see appended table 2.10.3 and 2.10.4)	P
2.10.3.4	Clearances in secondary circuits	Comply with clause 5.3.4 a)	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		N/A
2.10.3.8	Transients from telecommunication networks and cable distribution systems		N/A
2.10.3.9	Measurement of transient voltage levels		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
2.10.4	Creepage distances		P
2.10.4.1	General		P
2.10.4.2	Material group and comparative tracking index		P
	CTI tests	Material group IIIb is 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		P
2.10.5.1	General		P
2.10.5.2	Distances through insulation	(see appended table 2.10.5)	P
2.10.5.3	Insulating compound as solid insulation	No insulation compound.	N/A
2.10.5.4	Semiconductor devices	Approved optocoupler.	P
2.10.5.5.	Cemented joints		N/A
2.10.5.6	Thin sheet material – General	The thin sheet materials of polyester tape used in transformers.	P
2.10.5.7	Separable thin sheet material		P
	Number of layers (pcs)	(see appended table 2.10.5)	—
2.10.5.8	Non-separable thin sheet material	Triple-insulating winding	P
2.10.5.9	Thin sheet material – standard test procedure	See sub-clause 2.10.5.10	P
	Electric strength test		—
2.10.5.10	Thin sheet material – alternative test procedure		P
	Electric strength test	(see appended table 2.10.5)	—
2.10.5.11	Insulation in wound components	(see Annex U)	P
2.10.5.12	Wire in wound components	Approved triple insulation wire for T1 secondary winding	P
	Working voltage		N/A
	a) Basic insulation not under stress		N/A
	b) Basic, supplementary, reinforced insulation		N/A
	c) Compliance with Annex U	Approved triple insulated winding wire used.	P
	Two wires in contact inside wound component; angle between 45° and 90°	Additional insulation tape is used.	P
2.10.5.13	Wire with solvent-based enamel in wound components	No such device within the EUT	N/A
	Electric strength test		—
	Routine test		N/A
2.10.5.14	Additional insulation in wound components	Bobbin between the winding and core	P
	Working voltage	(see appended table 2.10.5)	P
	- Basic insulation not under stress		N/A
	- Supplementary, reinforced insulation	(see appended table 2.10.5)	P
2.10.6	Construction of printed boards		P

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Clause	Requirement + Test	Result - Remark	Verdict
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 printed board is used.	N/A
2.10.6.3	Insulation between conductors on the same inner surface of a printed board	Not multi-layer printed board.	N/A
2.10.6.4	Insulation between conductors on different layers of a printed board	No such printed board use.	N/A
	Distance through insulation		N/A
	Number of insulation layers (pcs).....:		N/A
2.10.7	Component external terminations		N/A
2.10.8	Tests on coated printed boards and coated components	No 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		N/A
2.10.10	Test for Pollution Degree 1 environment and insulating compound		N/A
2.10.11	Tests for semiconductor devices and cemented joints	Approved optocoupler (U1) (see also appended table 1.5.1)	P
2.10.12	Enclosed and sealed parts		N/A

3	WIRING, CONNECTIONS AND SUPPLY		
3.1	General		
3.1.1	Current rating and overcurrent protection	Final determination is needed in end product.	N/A
3.1.2	Protection against mechanical damage		N/A
3.1.3	Securing of internal wiring		N/A
3.1.4	Insulation of conductors		N/A
3.1.5	Beads and ceramic insulators		N/A
3.1.6	Screws for electrical contact pressure		N/A
3.1.7	Insulating materials in electrical connections		N/A
3.1.8	Self-tapping and spaced thread screws		N/A
3.1.9	Termination of conductors		N/A
	10 N pull test		N/A
3.1.10	Sleeving on wiring		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

3.2	Connection to a mains supply		
3.2.1	Means of connection	Final determination is needed in 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
	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		
3.3.1	Wiring terminals	Final determination is needed in 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

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Clause	Requirement + Test	Result - Remark	Verdict
3.3.7	Grouping of wiring terminals		N/A
3.3.8	Stranded wire		N/A
3.4	Disconnection from the mains supply		
3.4.1	General requirement	Final determination is needed in 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
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		
3.5.1	General requirements		P
3.5.2	Types of interconnection circuits	Interconnection circuits of SELV through the output connectors. No ELV interconnection circuits.	P
3.5.3	ELV circuits as interconnection circuits	No ELV interconnection circuits.	N/A
3.5.4	Data ports for additional equipment		N/A
4	PHYSICAL REQUIREMENTS		
4.1	Stability		
	Angle of 10°	The mass of EUT is less than 7 kg.	N/A
	Test force (N)	Not floor standing unit.	N/A
4.2	Mechanical strength		
4.2.1	General		P
	Rack-mounted equipment.		N/A
4.2.2	Steady force test, 10 N	10N applied to components. No hazard.	P
4.2.3	Steady force test, 30 N		N/A
4.2.4	Steady force test, 250 N		N/A
4.2.5	Impact test		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Fall test		N/A
	Swing test		N/A
4.2.6	Drop test; height (mm)		N/A
4.2.7	Stress relief test		N/A
4.2.8	Cathode ray tubes		N/A
	Picture tube separately certified		N/A
4.2.9	High pressure lamps		N/A
4.2.10	Wall or ceiling mounted equipment; force (N)		N/A

4.3	Design and construction		
4.3.1	Edges and corners	Edges and corners of PCB are rounded.	P
4.3.2	Handles and manual controls; force (N)		N/A
4.3.3	Adjustable controls		N/A
4.3.4	Securing of parts	Electrical and mechanical connections can be expected to withstand usual mechanical stress. For the protection, solder pins and heat shrinkable tubing are used.	P
4.3.5	Connection by plugs and sockets		N/A
4.3.6	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 heating elements.	N/A
4.3.8	Batteries	No lithium battery.	N/A
	- Overcharging of a rechargeable battery		N/A
	- 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		N/A
4.3.10	Dust, powders, liquids and gases		N/A
4.3.11	Containers for liquids or gases		N/A
4.3.12	Flammable liquids		N/A
	Quantity of liquid (l)		N/A
	Flash point (°C)		N/A
4.3.13	Radiation		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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)		N/A
4.3.13.6	Other types		N/A
4.4	Protection against hazardous moving parts		
4.4.1	General	No such parts used.	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
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		
4.5.1	General		P
4.5.2	Temperature tests		P
	Normal load condition per Annex L	L7	—

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Clause	Requirement + Test	Result - Remark	Verdict
4.5.3	Temperature limits for materials	(see appended table 4.5)	P
4.5.4	Touch temperature limits	(see appended table 4.5)	P
4.5.5	Resistance to abnormal heat :	(see appended table 4.5.5)	P

4.6	Openings in enclosures		
4.6.1	Top and side openings	Final determination is needed in 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
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		
4.7.1	Reducing the risk of ignition and spread of flame	Method 1 used.	P
	Method 1, selection and application of components wiring and materials	(see appended table 4.7)	P
	Method 2, application of all of simulated fault condition tests		N/A
4.7.2	Conditions for a fire enclosure	Required.	P
4.7.2.1	Parts requiring a fire enclosure		P
4.7.2.2	Parts not requiring a fire enclosure		N/A
4.7.3	Materials		P
4.7.3.1	General	Integrated circuits and small electrical parts mounted on a printed wiring board min. rated V-1.	P
4.7.3.2	Materials for fire enclosures	Final determination is needed in 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	Bobbin: V-0; PCB: V-1 min.	P

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Clause	Requirement + Test	Result - Remark	Verdict
4.7.3.5	Materials for air filter assemblies	No air filters assemblies.	N/A
4.7.3.6	Materials used in high-voltage components	No parts exceeding 4kV.	N/A

5	ELECTRICAL REQUIREMENTS AND SIMULATED ABNORMAL CONDITIONS		
5.1	Touch current and protective conductor current		P
5.1.1	General	(see appended Table 5.1)	P
5.1.2	Configuration of equipment under test (EUT)	Equipment designed for connection to only one power source.	P
5.1.2.1	Single connection to an a.c. mains supply		P
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	Test circuit as in figure 5A is used.	P
5.1.4	Application of measuring instrument	Measuring instrument as in annex D.1 is used.	P
5.1.5	Test procedure		P
5.1.6	Test measurements		P
	Supply voltage (V)	See appended table 5.1	—
	Measured touch current (mA)	See appended table 5.1	—
	Max. allowed touch current (mA)	See appended table 5.1	—
	Measured protective conductor current (mA)	See appended table 5.1	—
	Max. allowed protective conductor current (mA)...	See appended table 5.1	—
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	Not connected to a telecommunication network or a cable distribution system.	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

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Clause	Requirement + Test	Result - Remark	Verdict
	a) EUT with earthed telecommunication ports		N/A
	b) EUT whose telecommunication ports have no reference to protective earth		N/A

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

5.3	Abnormal operating and fault conditions		
5.3.1	Protection against overload and abnormal operation	(see appended table 5.3)	P
5.3.2	Motors	No motor.	N/A
5.3.3	Transformers	(see appended Annex C)	P
5.3.4	Functional insulation	Method a) & c). Short Circuit tests, result see appended table 5.3.	P
5.3.5	Electromechanical components	No electromechanical components.	N/A
5.3.6	Audio amplifiers in ITE	No such component.	N/A
5.3.7	Simulation of faults	(see appended table 5.3)	P
5.3.8	Unattended equipment	There are no thermostats and similar components within the EUT.	N/A
5.3.9	Compliance criteria for abnormal operating and fault conditions	No fire propagated beyond the equipment, no molten metal was emitted and the enclosures no deformed.	P
5.3.9.1	During the tests		P
5.3.9.2	After the tests	After test, the EUT still complies with relevant requirements of this standard.	P

6	CONNECTION TO TELECOMMUNICATION NETWORKS		
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		
6.2.1	Separation requirements		N/A
6.2.2	Electric strength test procedure		N/A
6.2.2.1	Impulse test		N/A
6.2.2.2	Steady-state test		N/A
6.2.2.3	Compliance criteria		N/A

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

7	CONNECTION TO CABLE DISTRIBUTION SYSTEMS		
7.1	General	The equipment doesn't intend to be connected to 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
	Flame A, B, C or D		—
A.1.5	Test procedure		N/A
A.1.6	Compliance criteria		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

	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)		N/A
B.1	General requirements	No motor.	N/A
	Position		—
	Manufacturer		—
	Type		—
	Rated values		—
B.2	Test conditions		N/A
B.3	Maximum temperatures		N/A
B.4	Running overload test		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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	Soldered on PCB	—
	Manufacturer	See the table 1.5.1.	—
	Type	See the table 1.5.1.	—
	Rated values	Switching mode transformer.	—
	Method of protection	Protective circuits.	—
C.1	Overload test	(see appended table 5.3)	P
C.2	Insulation	(see appended table 5.3)	P
	Protection from displacement of windings	The end turns are reliably fixed by tape, the whole transformer varnished (See appended table 1.5.1)	P
D	ANNEX D, MEASURING INSTRUMENTS FOR TOUCH-CURRENT TESTS (see 5.1.4)		P
D.1	Measuring instrument		P
D.2	Alternative measuring instrument		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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
H	ANNEX H, IONIZING RADIATION (see 4.3.13)		N/A
J	ANNEX J, TABLE OF ELECTROCHEMICAL POTENTIALS (see 2.6.5.6)		N/A
	Metal(s) used		—
K	ANNEX K, THERMAL CONTROLS (see 1.5.3 and 5.3.8)		N/A
K.1	Making and breaking capacity		N/A
K.2	Thermostat reliability; operating voltage (V)		N/A

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

L	ANNEX L, NORMAL LOAD CONDITIONS FOR SOME TYPES OF ELECTRICAL BUSINESS EQUIPMENT (see 1.2.2.1 and 4.5.2)		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		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)		—
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		—
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IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
Q	ANNEX Q, Voltage dependent resistors (VDRs) (see 1.5.9.1)		N/A
	- Preferred climatic categories		N/A
	- Maximum continuous voltage		N/A
	- Combination pulse current		N/A
	Body of the VDR Test according to IEC60695-11-5.....		N/A
	Body of the VDR. Flammability class of material (min V-1).....		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)		P
		Approved triple insulated winding wire used.	—
V	ANNEX V, AC POWER DISTRIBUTION SYSTEMS (see 1.6.1)		P
V.1	Introduction		P
V.2	TN power distribution systems		P
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

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
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
CC.4	Test program 3.....		N/A
CC.5	Compliance.....		N/A
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

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

1.5.1	TABLE: List of critical components					P
Component/ Part No.	Manufacturer/ Trademark	Type No./model No./	Technical data	Standard No./, Edition	Mark(s) & Certificates of conformity ¹	
PCB material	PACIFIC WIN INDUSTRIAL LTD	PW-02 PW-03	Min. V-0, min 1.6 mm thickness, 130°C	IEC/EN 60950-1 UL 796	Tested with appliance UL E228070	
Alt.	YILIHUA	YLH-1 YLH-2	Min. V-0, min 1.6 mm thickness, 130°C	IEC/EN 60950-1 UL 796	Tested with appliance UL E251781	
Alt.	AREX	02V0 04V0	Min. V-0, min 1.6 mm thickness, 130°C	IEC/EN 60950-1 UL 796	Tested with appliance UL E186016	
Alt.	BRITE PLUS ELECTRONICS (SUZHOU) CO LTD	DKV0-3A DGV0-3A	Min. V-0, min 1.6 mm thickness, 130°C	IEC/EN 60950-1 UL 796	Tested with appliance UL E177671	
Alt.	SHENZHEN TONGCHUANGXIN ELECTRONICS CO LTD	TCX	Min. V-0, min 1.6 mm thickness, 130°C	IEC/EN 60950-1 UL 796	Tested with appliance UL E250336	
Alt.	Interchangeable	Interchangeable	Min. V-0, min 1.6 mm thickness, 130°C	IEC/EN 60950-1 UL 796	Tested with appliance UL Approved.	
Fuse (F1, F2) (F2 is optional.)	Conquer Electronics Co., Ltd.	MST	T 2 A, 250 V, Rated breaking capacity 100A	IEC/EN 60127-2 UL 248-1 UL 248-14	VDE 40017118 UL E82636	
Alt.	Ever Island Electric Co., Ltd. and Walter Electric	2010	T 2 A, 250 V, Rated breaking capacity 130A	IEC/EN 60127-2 UL 248-1 UL 248-14	VDE 40018781 UL E220181	
Alt.	Bel Fuse Ltd.	RST	T2A, 250V, Rated breaking capacity 100A	IEC/EN 60127-2 UL 248-1 UL 248-14	VDE 40011144 UL E20624	
Alt.	Das & Sons International Ltd.	385T series	T2A, 250V, Rated breaking capacity 35A	IEC/EN 60127-2 UL 248-1 UL 248-14	VDE 40008524 UL E205718	
Alt.	Shenzhen Lanson Electronics Co. Ltd.	SMT	T2A, 250V, Rated breaking capacity 35A	IEC/EN 60127-2 UL 248-1 UL 248-14	VDE 40012592 UL E221465	
Alt.	Walter Electronic Co. Ltd.	ICP series	T2A, 250V, Rated breaking capacity 50A	IEC/EN 60127-2 UL 248-1 UL 248-14	VDE 40012824 UL E56092	

IEC 60950-1					
Clause	Requirement + Test			Result - Remark	Verdict
Alt.	Zhongshan Lanbao Electrical Appliances Co., Ltd.	RTI-10 series	T2A, 250V, Rated breaking capacity 50A	IEC/EN 60127-2 UL 248-1 UL 248-14	VDE 40017009 UL E213695
Alt.	Sun Electric Co.	5T	T2A, 250V, Rated breaking capacity 100A	IEC/EN 60127-2 UL 248-1 UL 248-14	VDE 40027241 UL E166522
Alt.	Bel Fuse Ltd.	5ST	T2A, 250V, Rated breaking capacity 35A	IEC/EN 60127-2 UL 248-1 UL 248-14	VDE 40000507 UL E20624
Earthing wire for class I model	KUNSHAN NEW ZHICHENG ELECTRONICS TECHNOLOGIES CO LTD	1007, 1015	Min. 18AWG, min. 300Vac, min. 80°C	IEC/EN 60950-1 UL 758	Tested with appliance UL E237831
Alt.	SUZHOU YEMAO ELECTRONIC CO LTD	1007, 1015	Min. 18AWG, min. 300Vac, min. 80°C	IEC/EN 60950-1 UL 758	Tested with appliance UL E353532
Alt.	ZHUANG SHAN CHUAN ELECTRICAL PRODUCTS (KUNSHAN) CO LTD	1007, 1015	Min. 18AWG, min. 300Vac, min. 80°C	IEC/EN 60950-1 UL 758	Tested with appliance UL E333601
Alt.	GLOBTEK INC	1007, 1015	Min. 18AWG, min. 300Vac, min. 80°C	IEC/EN 60950-1 UL 758	Tested with appliance UL E464257
Alt.	Interchangeable	Interchangeable	Min. 18AWG, min. 300Vac, min. 80°C	IEC/EN 60950-1 UL 758	Tested with appliance UL approved
Heatsink (HS1)	Interchangeable	Interchangeable	Aluminum. Approximate overall dimension 60mm by 15mm, min.1.5mm thick, secured to PWB by soldering	IEC/EN 60950-1	Tested with appliance
Heatsink (HS2) (for 5-9V)	Interchangeable	Interchangeable	Aluminum. Approximate overall dimension 50mm by 22mm by 38mm, min.1.0mm thick, secured to PWB by soldering	IEC/EN 60950-1	Tested with appliance

IEC 60950-1					
Clause	Requirement + Test			Result - Remark	Verdict
Heatsink (HS2) (for 9.1-48V)	Interchangeable	Interchangeable	Aluminum. Approximate overall dimension 50mm by 6mm by 18mm, min.1.4mm thick, secured to PWB by soldering	--	Tested with appliance
Insulation tape provided on heatsink ¹	CHANG SHU LIANG YI TAPE INDUSTRY CO LTD	LY-XX	Min.130°C	IEC/EN 60950-1 UL 510	Tested with appliance UL E246820
Alt.	3M COMPANY	1350F-1 1350T-1	Min.130°C	IEC/EN 60950-1 UL 510	Tested with appliance UL E17385
Alt.	BONDTEC PACIFIC CO.,LTD	370S	Min.130°C	IEC/EN 60950-1 UL 510	Tested with appliance UL E175868
Alt.	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD	PZ series CT series WF series	Min.130°C	IEC/EN 60950-1 UL 510	Tested with appliance UL E165111
Alt.	JINGJIANG JINGYI	JY25-A	Min.130°C	IEC/EN 60950-1 UL 510	Tested with appliance UL E246950
Insulation tubing provided on heatsink or fuse or class I earth wire ¹	SHENZHEN WOER HEAT-SHRINKABLE MATERIAL CO LTD	RSFR RSFR-H RSFR-HPF	600V, 125°C	IEC/EN 60950-1 UL 224	Tested with appliance UL E203950
Alt.	QIFURUI ELECTRONICS CO	QFR-h	600V, 125°C	IEC/EN 60950-1 UL 224	Tested with appliance UL E225897
Alt.	DONGGUAN SALIPT CO LTD	SALIPT S-901-300 SALIPT S-901-600	Min. 300V, 125°C	IEC/EN 60950-1 UL 224	Tested with appliance UL E209436
Alt.	GUANGZHOU KAIHENG ENTERPRISE GROUP	K-2 (+) K-2 (CB)	Min. 300V, 125°C	IEC/EN 60950-1 UL 224	Tested with appliance UL E214175
Alt.	CHANGYUAN ELECTRONICS (SHENZHEN) CO LTD	CB-HFT	Min. 300V, 125°C	IEC/EN 60950-1 UL 224	Tested with appliance UL E180908

IEC 60950-1					
Clause	Requirement + Test			Result - Remark	Verdict
Alt.	SHENZHEN WOLIDA TRADING CO LTD	RSFR-H	600V, 125°C	IEC/EN 60950-1 UL 224	Tested with appliance E329530
Y-Capacitor (CY1, CY2) (optional)	SUCCESS ELECTRONICS CO LTD	SE SB	Type Y1, max. 2200pF, min. 250V, 125°C	IEC/EN 60384-14 UL 60384-14 UL 1414	VDE 40037221 VDE 40037211 UL E114280
Alt.	MURATA MFG CO LTD	KX	Type Y1, max. 2200pF, min. 250V, 125°C	IEC/EN 60384-14 UL 60384-14 UL 1414	VDE 40002831 UL E37921
Alt.	WALSIN TECHNOLOGY CORP	AH	Type Y1, max. 2200pF, min. 250V, 125°C	IEC/EN 60384-14 UL 60384-14 UL 1414	VDE 40001804 UL E146544
Alt.	JYA-NAY CO LTD	JN	Type Y1, max. 2200pF, min. 250V, 125°C	IEC/EN 60384-14 UL 60384-14 UL 1414	VDE 40001831 UL E201384
Alt.	HAOHUA ELECTRONIC CO	CT7	Type Y1, max. 2200pF, min. 250V, 125°C	IEC/EN 60384-14 UL 60384-14 UL 1414	VDE 40003902 UL E233106
Alt.	JERRO ELECTRONICS CORP	JX-series	Type Y1, max. 2200pF, min. 250V, 125°C	IEC/EN 60384-14 UL 60384-14 UL 1414	VDE 40032158 UL E333001
Alt.	TDK CORP	CD	Type Y1, max. 2200pF, min. 250V, 125°C	IEC/EN 60384-14 UL 60384-14 UL 1414	VDE 124321 UL E37861
Alt.	Hongzhi	Y	Type Y1, max. 2200pF, min. 250V, 125°C	IEC/EN 60384-14	VDE 40004354
Alt.	WELSON INDUSTRIAL CO LTD	WD	Type Y1, max. 2200pF, min. 250V, 125°C	IEC/EN 60384-14 UL 60384-14 UL 1414	VDE 115455 UL E104572
X Capacitor (CX1) (optional)	Cheng Tung	CTX	Max.0.33uF, 310V, 110°C, type X1 or X2	IEC/EN 60384-14 UL 60384-14 UL 1414	VDE 40022642 UL E193049
Alt.	Ultra Tech Xiphi Enterprise Co. Ltd.	HQX	Max.0.33uF, 275V, 100°C, type X2	IEC/EN 60384-14 UL 60384-14 UL 1414	VDE 40015608 UL E183780
Alt.	Dain Electronics Co., Ltd.	MPX, MEX and NPX	Max.0.33uF, 250V, 110°C, type X2	IEC/EN 60384-14 UL 60384-14 UL 1414	VDE 40018798 UL E147776
Alt.	Sinhua Electronics (Huzhou) Co., Ltd.	MPX	Max.0.33uF, 300V, 110°C, type X2	IEC/EN 60384-14 UL 60384-14 UL 1414	VDE 40014686 UL E237560
Alt.	Hongzhi Enterprises Ltd.	MPX	Max.0.33uF, 250V, 100°C, type X2	IEC/EN 60384-14 UL 60384-14 UL 1414	VDE 40023936 UL E192572

IEC 60950-1					
Clause	Requirement + Test			Result - Remark	Verdict
Alt.	Jiangsu Xinghua Huayu Co., Ltd.	MPX	Max.0.33uF, 250V, 100°C, type X2	IEC/EN 60384-14 UL 60384-14 UL 1414	VDE 40022417 UL E311166
Line filter (LF1) (optional)	GlobTek/HAOPUW EI/HEJIA/BOAM	LF019	Class B	IEC/EN 60950-1	Tested with appliance
Line filter (LF2) (optional)	GlobTek/HAOPUW EI/HEJIA/BOAM	LF018	Class B	IEC/EN 60950-1	Tested with appliance
Optocoupler (U2)	LITE-ON Technology Corporation	LTV-817	Ext. Cr: min. 8.01 mm; DTI: min. 0.6 mm; Thermal cycling test. Max. operating temp.: 115°C	IEC/EN 60950-1 UL 1577	VDE 40015248 UL E113898
Alt.	Everlight Electronics Co., Ltd.	EL817	Ext. Cr: min. 7.7 mm; DTI: min. 0.5 mm; Thermal cycling test. Max. operating temp.: 110°C	IEC/EN 60950-1 UL 1577	VDE 132249 UL E214129
Alt.	Bright Led Electronics Corp.	BPC-817 BPC-817M BPC-817S	Ext. Cr: min. 7.0 mm; DTI: min. 0.4 mm; Thermal cycling test. Max. operating temp.: 100°C	IEC/EN 60950-1 UL 1577	VDE 40007240 UL E236324
Alt.	Fairchild Semiconductor Pte. Ltd.	FOD817B	Ext. Cr: min. 7.8 mm; DTI: min. 0.6 mm; Thermal cycling test. Max. operating temp.: 115°C	IEC/EN 60950-1 UL 1577	VDE 40026857 UL E90700
Transformer (T1)	GlobTek/BOAM/HAOPUWEI	TF024 for 5-6.5V TF025 for 6.6-8.9V TF026 for 9-13V TF027 for 13.1-17V TF028 for 17.1-24.9V TF029 for 25-34.9V TF032 for 35-48V	Class B, with critical component listed below	IEC/EN 60950-1	Tested with appliance

IEC 60950-1					
Clause	Requirement + Test			Result - Remark	Verdict
-Insulation system	GLOBTEK INC	GTX-130-TM	Class B	IEC/EN 60950-1 UL 1446	Tested with appliance UL E243347
-Alt.	SHAN DONG BOAM ELECTRIC CO LTD	BOAM-01	Class B	IEC/EN 60950-1 UL 1446	Tested with appliance UL E252329
-Alt.	WUXI HAOPUWEI ELECTRONICS CO LTD	ZT-130	Class B	IEC/EN 60950-1 UL 1446	Tested with appliance UL E315275
-Magnet wire (Primary)	PACIFIC ELECTRIC WIRE & CABLE (SHENZHEN) CO LTD	UEWN/U	130°C	IEC/EN 60950-1 UL 1446	Tested with appliance UL E201757
-Alt.	JUNG SHING WIRE CO LTD	UEW-4 UEY-2	130°C	IEC/EN 60950-1 UL 1446	Tested with appliance UL E174837
-Alt.	JIANGSU HONGLIU MAGNET WIRE TECHNOLOGY CO LTD	2UEW/130	130°C	IEC/EN 60950-1 UL 1446	Tested with appliance UL E335065
-Alt.	CHANGZHOU DAYANG WIRE & CABLE CO LTD	2UEW/130	130°C	IEC/EN 60950-1 UL 1446	Tested with appliance UL E158909
-Alt.	WUXI JUFENG COMPOUND LINE CO LTD	2UEWB	130°C	IEC/EN 60950-1 UL 1446	Tested with appliance UL E206882
-Alt.	JIANGSU DARTONG M & E CO LTD	UEW	130°C	IEC/EN 60950-1 UL 1446	Tested with appliance UL E237377
-Alt.	SHANDONG SAINT ELECTRIC CO LTD	UEW/130	130°C	IEC/EN 60950-1 UL 1446	Tested with appliance UL E194410
-Alt.	ZHEJIANG LANGLI ELECTRIC EQUIPMENTS CO LTD	UEW	130°C	IEC/EN 60950-1 UL 1446	Tested with appliance UL E222214
-Secondary wire of T1 (TIW)	GREAT LEOFロン INDUSTRIAL CO LTD	TRW (B)	Min.130°C	IEC/EN 60950-1 UL 2353	Tested with appliance UL E211989
-Alt.	COSMOLINK CO LTD	TIW-M	Min.130°C	IEC/EN 60950-1 UL 2353	Tested with appliance UL E213764

IEC 60950-1					
Clause	Requirement + Test			Result - Remark	Verdict
-Alt.	FURUKAWA ELECTRIC CO LTD	TEX-E	Min.130°C	IEC/EN 60950-1 UL 2353	Tested with appliance UL E206440
-Alt.	TOTOKU ELECTRIC CO LTD	TIW-2	Min.130°C	IEC/EN 60950-1 UL 2353	Tested with appliance UL E166483
-Alt.	E&B TECHNOLOGY CO LTD	E&B-XXXB E&B-XXXB-1	Min.130°C	IEC/EN 60950-1 UL 2353	Tested with appliance UL E315265
-Bobbin	CHANG CHUN PLASTICS CO LTD	T375J T375HF	V-0, 150°C, min thickness: 0.6mm	IEC/EN 60950-1 UL 94 UL 746 A/B/C/D	Tested with appliance UL E59481
-Alt.	SUMITOMO BAKELITE CO LTD	PM-9820	V-0, 150°C, min thickness: 0.6mm	IEC/EN 60950-1 UL 94 UL 746 A/B/C/D	Tested with appliance UL E41429
-Alt.	HITACHI CHEMICAL CO LTD	CP-J-8800	V-0, 150°C, min thickness: 0.6mm	IEC/EN 60950-1 UL 94 UL 746 A/B/C/D	Tested with appliance UL E42956
-Insulating tape	3M COMPANY ELECTRICAL MARKETS DIV (EMD)	1350F-1 1350T-1	130°C	IEC/EN 60950-1 UL 510	Tested with appliance UL E17385
-Alt.	BONDTEC PACIFIC CO LTD	370S	130°C	IEC/EN 60950-1 UL 510	Tested with appliance UL E175868
-Alt.	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD	PZ CT WF	130°C	IEC/EN 60950-1 UL 510	Tested with appliance UL E165111
-Alt.	JINGJIANG JINGYI ADHESIVE PRODUCT CO LTD	JY25-A	130°C	IEC/EN 60950-1 UL 510	Tested with appliance UL E246950
-Alt.	CHANG SHU LIANG YI TAPE INDUSTRY CO LTD	LY-XX	130°C	IEC/EN 60950-1 UL 510	Tested with appliance UL E246820
Connector (CON1)	JOINT TECH ELECTRONIC INDUSTRIAL CO LTD	A7920WV-2P	Min 250V	IEC/EN 60950-1 UL 1977	Tested with appliance UL E179987
Alt.	MOLEX INCORPORATED	41791 series	Min 250V	IEC/EN 60950-1 UL 1977	Tested with appliance UL E179987

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

Supplementary information:

1) 2 layers of insulating tape or 1 layer of min. 0.4 mm thickness insulating tube can be used alternatively for wrapping around heatsink.

1.5.1	TABLE: Opto Electronic Devices	P
Manufacturer	Lite-on / Everlight / Bright Led / Fairchild	
Type	LTV-817 / EL817 / BPC-817, BPC-817M, BPC-817S / FOD817B	
Separately tested	Certified by VDE, Nemko, Semko & UL	
Bridging insulation.....	Reinforced insulation	
External creepage distance	8.01/ 7.7/ 7.0 / 7.8	
Internal creepage distance.....	-*	
Distance through insulation.....	0.6/ 0.5/ 0.4/ 0.6	
Tested under the following conditions	R	
Input	-	
Output	-	
supplementary information		
* Compliance with thermal cycling test was checked on these parts.		

1.6.2	TABLE: Electrical data (in normal conditions)						P
U (V)	I (A)	Irated (A)	P (W)	Fuse #	Ifuse (A)	Condition/status	
Tested on model GTM43007-A3005-F							
264Vac	0.30	1.5	36.6	F1, F2	0.30	Normal operation with 5Vdc output, 6A.	
240Vac	0.32	1.5	36.4	F1, F2	0.32		
100Vac	0.68	1.5	36.5	F1, F2	0.68		
90Vac	0.77	1.5	36.8	F1, F2	0.77		
Tested on model: GTM43007-A4509-F							
264Vac	0.41	1.5	52.5	F1, F2	0.41	Normal operation with 9Vdc output, 5A.	
240Vac	0.46	1.5	52.5	F1, F2	0.46		
100Vac	0.95	1.5	53.1	F1, F2	0.95		
90Vac	1.07	1.5	53.6	F1, F2	1.07		
Tested on model: GTM43007-A6024-F							
264Vac	0.53	1.5	66.9	F1, F2	0.53	Normal operation with 24Vdc output, 2.5A.	
240Vac	0.57	1.5	66.6	F1, F2	0.57		
100Vac	1.22	1.5	68.0	F1, F2	1.22		
90Vac	1.41	1.5	68.9	F1, F2	1.41		

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

Tested on model: GTM43007-A6036-F						
264Vac	0.52	1.5	66.8	F1, F2	0.52	Normal operation with 36Vdc output, 1.66A.
240Vac	0.56	1.5	66.6	F1, F2	0.56	
100Vac	1.22	1.5	68.3	F1, F2	1.22	
90Vac	1.42	1.5	69.3	F1, F2	1.42	

Tested on model: GTM43007-A6048-F						
264Vac	0.53	1.5	68.4	F1, F2	0.53	Normal operation with 48Vdc output, 1.25A.
240Vac	0.57	1.5	68.3	F1, F2	0.57	
100Vac	1.21	1.5	68.4	F1, F2	1.21	
90Vac	1.40	1.5	69.1	F1, F2	1.40	

Supplementary information:
The measured input current at rated voltage shall be less than 110 % of rated current.

2.1.1.5 c) 1)	TABLE: max. V, A, VA test				P
Voltage (rated) (V)	Current (rated) (A)	Voltage (max.) (V)	Current (max.) (A)	VA (max.) (VA)	
Tested on model: GTM43007-A3005-F					
5.0	6.0	5.1	8.6	41.3	
Tested on model: GTM43007-A4509-F					
9.0	5.0	9.01	6.5	53.2	
Tested on model: GTM43007-A6024-F					
24.0	2.5	23.95	3.5	80.2	
Tested on model: GTM43007-A6036-F					
36.0	1.66	35.97	2.5	81.4	
Tested on model: GTM43007-A6048-F					
48.0	1.25	47.96	2.0	83.2	
Supplementary information:					
-					

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

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

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.		
Tested on model: GTM43007-A3005-F				
T1 Pin 5 to Pin 8	18	--	--	
Tested on model: GTM43007-A4509-F				
T1 Pin 5 to Pin 8	37	--	--	
Tested on model: GTM43007-A6024-F				
T1 Pin 5 to Pin 8	98	--	--	
T1 Pin 8 after D2 to pin 5	--	24	D4	
Tested on model: GTM43007-A6036-F				
T1 Pin 5 to Pin 8	139	--	--	
T1 Pin 8 after D2 to pin 5	--	36	D4	
Tested on model: GTM43007-A6048-F				
T1 Pin 5 to Pin 8	204	--	--	
T1 Pin 8 after D2 to pin 5	--	48	D4	
Fault test performed on voltage limiting components	Voltage measured (V) in SELV circuits (V peak or V d.c.)			
Tested on model: GTM43007-A6024-F				
D2 shorted	0 Vdc (shorted)			
ZD1 shorted	0 Vdc (shorted)			
R17 shorted	0 Vdc (shorted)			
Tested on model: GTM43007-A6036-F				
D2 shorted	0 Vdc (shorted)			
ZD1 shorted	0 Vdc (shorted)			
R17 shorted	0 Vdc (shorted)			
Tested on model: GTM43007-A6048-F				
D2 shorted	0 Vdc (shorted)			
ZD1 shorted	0 Vdc (shorted)			
R17 shorted	0 Vdc (shorted)			

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Clause	Requirement + Test	Result - Remark	Verdict

Supplementary information:
 Test voltage: 264 Vac, 60 Hz

2.5	TABLE: Limited power sources	P
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Model: GTM43007-A4509-F				
Circuit output tested: V (+) – V (-)				
Note: Measured Uoc (V) with all load circuits disconnected: 9.01 Vdc				
	I _{sc} (A)		VA	
	Meas.	Limit	Meas.	Limit
Normal condition	6.5	8.0	53.2	100
Single fault condition (R13 open)	6.5	8.0	53.2	100
Single fault condition (R21 open)	6.5	8.0	53.2	100
Single fault condition: See the note below	--	8.0	--	100

Model: GTM43007-A6024-F				
Circuit output tested: V (+) – V (-)				
Note: Measured Uoc (V) with all load circuits disconnected: 23.95 Vdc				
	I _{sc} (A)		VA	
	Meas.	Limit	Meas.	Limit
Normal condition	3.5	8.0	80.2	100
Single fault condition (R13 open)	3.5	8.0	80.2	100
Single fault condition (R21 open)	3.5	8.0	80.2	100
Single fault condition: See the note below	--	8.0	--	100

Model: GTM43007-A6036-F				
Circuit output tested: V (+) – V (-)				
Note: Measured Uoc (V) with all load circuits disconnected: 35.97 Vdc				
	I _{sc} (A)		VA	
	Meas.	Limit	Meas.	Limit
Normal condition	7.23	8.0	82.8	100
Single fault condition (R13 open)	7.23	8.0	82.8	100
Single fault condition (R21 open)	7.23	8.0	82.8	100
Single fault condition: See the note below	--	8.0	--	100

Model: GTM43007-A6048-F				
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Clause	Requirement + Test	Result - Remark	Verdict

Circuit output tested: V (+) – V (-)				
Note: Measured Uoc (V) with all load circuits disconnected: 47.96 Vdc				
	Isc (A)		VA	
	Meas.	Limit	Meas.	Limit
Normal condition	2.0	8.0	83.2	100
Single fault condition (R13 open)	2.0	8.0	83.2	100
Single fault condition (R21 open)	2.0	8.0	83.2	100
Single fault condition: See the note below	--	8.0	--	100
Supplementary information:				
<p>For all model, the other single fault conditions are relate to the below:</p> <p>Measured result shut down under the single fault condition of U1 (pin 1-2) short-circuited.</p> <p>Measured result shut down under the single fault condition of U1 (pin 3-4) short-circuited.</p> <p>Measured result shut down under the single fault condition of U1 (pin 1) opened-circuited.</p> <p>Measured result shut down under the single fault condition of U1 (pin 4) opened-circuited.</p> <p>Measured result shut down under the single fault condition of R28 short-circuited.</p> <p>Measured result shut down under the single fault condition of U3 short-circuited.</p> <p>Measured result shut down under the single fault condition of RS17 short-circuited.</p>				

2.10.2	Table: working voltage measurement			P
Location	RMS voltage (V)	Peak voltage (V)	Comments	
T1 pin 1 to 5	318	434	--	
T1 pin 2 to 5	319	464	--	
T1 pin 3 to 5	310	516	--	
T1 pin 4 to 5	309	445	--	
T1 pin 1 to 8	292	423	--	
T1 pin 2 to 8	298	381	--	
T1 pin 3 to 8	324	528	--	
T1 pin 4 to 8	283	544	--	
CY1 & CY2 Pri. to Sec.	194	336	--	
U2 pin 3 to pin 1	198	322	--	
U2 pin 3 to pin 2	197	323	--	
U2 pin 4 to pin 1	194	328	--	
U2 pin 4 to pin 2	196	335	--	
Supplementary information:				

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Clause	Requirement + Test	Result - Remark	Verdict

1. The maximum working voltage is measured when model GTM43007-A6048-F is chosen as EUT.
2. Test voltage: 240 Vac, 60 V
3. Bold texts indicate the highest Vrms and Vpeak

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)	cl (mm)	Required cr (mm)	cr (mm)	
On PCB solder side:							
Line and Neutral before and after current fuse (F1)	340	240	2.3	3.2	2.4	3.2	
Two ends of the current fuse (F1) (F1)	340	240	2.3	3.0	2.4	3.0	
Primary and protective earthed parts(BI) (Class I model only)	340	240	3.0	3.8	3.0	4.2 ⁶	
Primary and secondary (two sides of U2) (RI)	340	240	6.0	7.0	6.0	7.0	
Primary and secondary (two sides of CY1 & CY2) (BI + SI)	340	240	3.0 + 3.0	4.5 + 4.5	3.0 + 3.0	5.0 + 5.0 ⁶	
Primary parts to secondary parts (Nearest points along PCB trace) (RI)	340	240	6.0	7.7	6.0	10.0 ⁶	
Primary heatsink to secondary circuit (RI) ⁵	340	240	6.0	10.0	6.0	10.0	
Primary circuit to secondary heatsink (RI) ⁵	340	240	6.0	10.0	6.0	10.0	
Transformer (T1):							
Primary side (including ferrite) to secondary pin-out (RI) ⁷	544	324	6.6	11.0	6.8	11.0	
Secondary component (C9) to core (RI) ⁷	544	324	6.6	10.0	6.8	10.0	

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Clause	Requirement + Test	Result - Remark	Verdict

<p>Supplementary information:</p> <ol style="list-style-type: none"> 1. FI: insulation; BI: Basic insulation; SI: Supplementary insulation; RI: Reinforced insulation. 2. With the equipment to be operated at 5000m above sea level max. the minimum clearances shall be multiplied by the factor 1.48. 3. A force of 10 N is applied to the internal components and 30 N is applied to the enclosure when measuring the distances. 4. The core of transformer (T1) is considered as primary winding, the TIW is used in secondary winding of transformer (T1). 5. 2 layers of insulating tape or 1 layer of min. 0.4 mm thickness insulating tube can be used alternatively for wrapping around heatsink. 6. There is a slot wide > 1 mm between these two parts. 7. The whole ferrite core is wrapped around 2 layers of insulating tape.
--

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)	
Optocoupler (U1) (RI)	340	240	3000 Vac	0.4	Min. 0.4	
Heat shrinkable tubing around the outer side of heatsink (RI)	340	240	3000 Vac	0.4	Min. 0.4	
Thin sheet material at/of:	U _p (V)	U rms (V)	Test voltage (V)	Required layer(s)	layer(s)	
Insulating tape around the outer side of heatsink (RI)	340	240	3000 Vac / 2 layers	3	3	
Insulating tape around the outer side of transformer (T1) (RI)	544	324	3000 Vac / 2 layers	3	3	

Supplementary information:

1. FI: insulation; BI: Basic insulation; SI: Supplementary insulation; RI: Reinforced insulation.
2. The core of transformer (T1) is considered as primary winding.

4.5	TABLE: Thermal requirements			P
Supply voltage (V)	90Vac	264Vac	—	
Ambient T _{min} (°C)	40	40	—	
Ambient T _{max} (°C)	40	40	—	
Maximum measured temperature T of part/at.....:	T (°C)		Allowed T _{max} (°C)	
LF1 winding	66.3	57.9	130	
CX1 body	59	55.5	100	

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Clause	Requirement + Test	Result - Remark	Verdict
C8 body		78.7 / 71.5	105
T1 winding		89.5 / 92.7	120
T1 core		86.7 / 90	130
PCB near Q1 (HS1)		76.7 / 74.8	130
PCB near Q2 (HS2)		81.6 / 79.1	130
U2		75 / 74.1	100
C9 body		74.5 / 75.6	105
Supplementary information: Max. Operation ambient is considered as 40 °C which declared by the manufacturer. Tested on model: GTM43007-A3005-F .			

4.5	TABLE: Thermal requirements			P
	Supply voltage (V)	90Vac	264Vac	—
	Ambient T _{min} (°C)	40	40	—
	Ambient T _{max} (°C)	40	40	—
	Maximum measured temperature T of part/at.....:	T (°C)		Allowed T _{max} (°C)
	LF1 winding	77.4	61.7	130
	CX1 body	65.1	60.9	100
	C8 body	87.3	77.7	105
	T1 winding	94.6	99.0	120
	T1 core	97.8	102.6	130
	PCB near Q1 (HS1)	94.8	81.3	130
	PCB near Q2 (HS2)	99.6	101.2	130
	U2	85.8	87.0	100
	C9 body	85	84.2	105
Supplementary information: Max. Operation ambient is considered as 40 °C which declared by the manufacturer. Tested on model: GTM43007-A4509-F				

4.5	TABLE: Thermal requirements			P
	Supply voltage (V)	90Vac	264Vac	—
	Ambient T _{min} (°C)	40	40	—

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Clause	Requirement + Test	Result - Remark	Verdict	
	Ambient T_{max} (°C)	40	40	—
	Maximum measured temperature T of part/at.....:	T (°C)		Allowed T_{max} (°C)
	LF1 winding	77.4	61.7	130
	CX1 body	65.1	60.9	100
	C8 body	87.3	77.7	105
	T1 winding	94.6	99.0	120
	T1 core	97.8	102.6	130
	PCB near Q1 (HS1)	94.8	81.3	130
	PCB near Q2 (HS2)	99.6	101.2	130
	U2	85.8	87.0	100
	C9 body	85	84.2	105
Supplementary information: Max. Operation ambient is considered as 40 °C which declared by the manufacturer. Tested on model: GTM43007-A6024-F				

4.5	TABLE: Thermal requirements			P
	Supply voltage (V)	90Vac	264Vac	—
	Ambient T_{min} (°C)	40	40	—
	Ambient T_{max} (°C)	40	40	—
	Maximum measured temperature T of part/at.....:	T (°C)		Allowed T_{max} (°C)
	LF1 winding	72.6	59.3	130
	CX1 body	68.9	56.4	100
	C8 body	91.9	74.3	105
	T1 winding	105.2	113.3	120
	T1 core	102.1	116.6	130
	PCB near Q1 (HS1)	106.8	83.6	130
	PCB near Q2 (HS2)	89.3	96.7	130
	U2	88.9	97.1	100
	C9 body	70.1	76.1	105

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Clause	Requirement + Test	Result - Remark	Verdict

Supplementary information:
 Max. Operation ambient is considered as 40 °C which declared by the manufacturer.
 Tested on model: **GTM43007-A6048-F**

4.5.5	TABLE: Ball pressure test of thermoplastic parts		P
	Allowed impression diameter (mm)	≤ 2 mm	—
Part		Test temperature (°C)	Impression diameter (mm)
Bobbin of Mains transformer			
T375J		125	1.2
T375HF		125	1.2
PM-9820		125	1.1
CP-J-8800		125	1.2
Supplementary information:			

4.7	TABLE: Resistance to fire				
Part	Manufacturer of material	Type of material	Thickness (mm)	Flammability class	Evidence
PCB material	See 1.5.1	See 1.5.1	Min. 1.6mm	Min. V-0	UL
Supplementary information:					

5.1	TABLE: touch current measurement			P
Measured between:	Measured (mA)	Limit (mA)	Comments/conditions	
L/N and secondary output	Max.0.17	0.25	--	
Supplementary information:				
1. Test voltage: 264 Vac, 60 Hz				
2. Y-capacitor(s) used in the equipment: CY1 & CY2: 2200 pF				

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 (Vrms)	Breakdown Yes / No	
RI: L/N and secondary circuits	AC	3000	No	
BI: L/N and earth	AC	1500	No	

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Clause	Requirement + Test	Result - Remark	Verdict

RI: Transformer: primary and secondary	AC	3000	No
RI: Transformer: secondary and core	AC	3000	No
FI: Line and Neutral after current fuse (FS1) opened	AC	1500	No

Supplementary information:
 1. FI: Functional insulation; BI: Basic insulation; SI: Supplementary insulation; RI: Reinforced insulation.
 2. The core of transformer (T1) is considered as primary winding.

5.3	TABLE: Fault condition tests						P
	Ambient temperature (°C)					25, if no else specified	—
	Power source for EUT: Manufacturer, model/type, output rating					See appended table 1.5.1	—
Component No.	Fault	Supply voltage (V)	Test time	Fuse #	Fuse current (A)	Observation	
Tested on model: GTM43007-A6048-F							
BD1	S	264	< 1 sec.	F1, F2	0.53→>4.2→0	Observation: Fuse (F1) opened. No hazards Damaged: - Temp: - Max. Voltage: -	
C8	S	264	< 1 sec.	F1, F2	0.53→>4.2→0	Observation: Fuse (F1) opened. No hazards Damaged: - Temp: - Max. Voltage: -	
Q1	S	264	10 mins	F1, F2	0.53→0.03	Observation: Unit shut down. No hazards. Damaged: - Temp: - Max. Voltage: -	
U2 Sec.	S	264	10 mins	F1, F2	0.53→0.03	Observation: Unit shut down. No hazards. Damaged: - Temp: - Max. Voltage: -	
U2 Pri.	S	264	10 mins	F1, F2	0.53→0.03	Observation: Unit shut down. No hazards. Damaged: - Temp: - Max. Voltage: -	

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Clause	Requirement + Test				Result - Remark	Verdict
U2 Sec.	O	264	10 mins	F1, F2	0.53→ 0.03	Observation: Unit shut down. No hazards. Damaged: - Temp: - Max. Voltage: -
U2 Pri.	O	264	10 mins	F1, F2	0.53→ 0.03	Observation: Unit shut down. No hazards. Damaged: - Temp: - Max. Voltage: -
D2	S	264	10 mins	F1, F2	0.53→ 0.03	Observation: Unit shut down. No hazards. Damaged: - Temp: - Max. Voltage: -
T1 pin 5 to pin 8	S	264	10 mins	F1, F2	0.53→ 0.03	Observation: Unit shut down. No hazards. Damaged: - Temp: - Max. Voltage: -
Output	O/L	264	6 hrs.	F1, F2	0.53→ 0.64	Total testing duration: 6 hours. While output overload to 2.0 A, No damage, no hazards. Damaged: Temp: T1 coil = 125.9°C, T1 core = 125.6°C, U2 Body = 94.4°C, Ambient = 25.3°C Max. Voltage: 47.96 Vdc
Tested on model: GTM43007-A6036-F						
Output	O/L	264	6 hrs.	F1, F2	0.52→ 0.50	Total testing duration: 6 hours. While output overload to 2.5 A, No damage, no hazards. Damaged: Temp: T1 coil = 119.4°C, T1 core = 119.0°C, U2 Body = 87.9°C, Ambient = 25.5°C Max. Voltage: 35.97 Vdc
Tested on model: GTM43007-A6024-F						
Output	O/L	264	6 hrs.	F1, F2	0.51→ 0.74	Total testing duration: 6 hours. While output overload to 3.5 A, No damage, no hazards. Damaged: Temp: T1 coil = 122.7°C, T1 core = 123.1°C, U2 Body = 90.1°C, Ambient = 31.0°C Max. Voltage: 23.95 Vdc
Tested on model: GTM43007-A4509-F						

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Clause	Requirement + Test	Result - Remark	Verdict

Output	O/L	264	6 hrs.	F1, F2	0.41→ 0.50	Total testing duration: 6 hours. While output overload to 6.5 A, No damage, no hazards. Damaged: Temp: T1 coil = 106.0°C, T1 core = 114.1°C, U2 Body = 94.9°C, Ambient = 25.5°C Max. Voltage: 9.1 Vdc
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Tested on model: GTM43007-A3005-F

Output	O/L	264	6 hrs.	F1, F2	0.30→ 0.40	Total testing duration: 6 hours. While output overload to 8.6 A, No damage, no hazards. Damaged: Temp: T1 coil = 94.0°C, T1 core = 90.4°C, U2 Body = 89.4°C, Ambient = 25.0°C Max. Voltage: 5.01 Vdc
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Supplementary information:

1. S: Short-circuited; O: Open-circuited; O/L: Overloaded; B: Blocked; L: Locked.
2. Observation: The observations during and after fault condition tests.
3. Damaged: Which component (components) damaged during the fault condition test.
4. Temp: The maximum temperature of transformer (T1) winding.
5. Max. Voltage: The maximum accessible voltage of DC output terminal during the fault condition test.
6. During fault condition where the fuse opened, the test was repeated ten times to ensure no hazard.
7. During fault condition where the fuse did not open, the test was repeated three times.
8. The electric strength test performed after fault condition test and see appended table 5.2 for detailed test conditions.

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)	
Secondary winding to core (RI)	RI	544	324	3000 Vac	6.6	6.8	--	
Primary winding to secondary winding (RI)	RI	544	324	3000 Vac	6.6	6.8	--	
Loc.	Tested insulation			Test voltage/ V	Measured clearance / mm	Measured creepage dist./ mm	Measured distance thr. insul. / mm; number of layers	
Insulating tape around the outer side of transformer (T1)	RI			3000 Vac / 2 layers	--	--	3	

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Primary traces to secondary traces on PCB solder side (RI)	RI	3000 Vac	7.7	10.0	--
Primary winding to secondary winding (RI)	RI	3000 Vac	11.0	11.0	--
Secondary winding to core (RI)	RI	3000 Vac	11.0	11.0	--

Supplementary information:

The core of transformer (T1) is considered as primary winding.

The secondary wires are triple insulated wire referring appended table 1.5.1 for details.

The distances are measured along the insulating tape around the core of T1. 2 layers of insulating tape are provided between the core of transformer (T1) and secondary winding / components.

Additionally tubing is provided to prevent mechanical stress in the ends of two different secondary windings.

All types of transformer from all manufacturers listed in table 1.5.1 are tested.

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Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT IEC 60950-1 EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES Information technology equipment – Safety – Part 1: General requirements			
Differences according to: EN 60950-1:2006/A11:2009/A1:2010/A12:2011/A2:2013			
Attachment Form No.: EU_GD_IEC60950_1E			
Attachment Originator: SGS Fimko Ltd			
Master Attachment: Date 2013-09			
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EN 60950-1:2006/A11:2009/A1:2010/A12:2011/A2:2013 – CENELEC COMMON MODIFICATIONS			


IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
	Clauses, subclauses, notes, tables and figures which are additional to those in IEC60950-1 and it's amendmets are prefixed "Z"		
Contents (A2:2013)	Add the following annexes: Annex ZA (normative) Normative references to international publications with their corresponding European publications Annex ZB (normative) Special national conditions Annex ZD (informative) IEC and CENELEC code designations for flexible cords		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
General (A2:2013)	Delete all the "country" notes in the reference document (IEC 60950-1:2005/A2:2013) according to the following list: 2.7.1 Note * 2.10.3.1 Note 2 6.2.2. Note * Note of secretary: Text of Common Modification remains unchanged.		P
1.1.1 (A1:2010)	Replace the text of NOTE 3 by the following. NOTE 3 The requirements of EN 60065 may also be used to meet safety requirements for multimedia equipment. See IEC Guide 112, Guide on the safety of multimedia equipment. For television sets EN 60065 applies.		N/A

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.3.Z1	<p>Add the following subclause:</p> <p>1.3.Z1 Exposure to excessive sound pressure 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>		N/A
1.5.1 (Added info*)	<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. New Directive 2011/65/11 *</p>		N/A
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			

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>Zx.1 General 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: 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> <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: while the personal music player is connected to an external amplifier; or while the headphones or earphones are not used.</p> <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: hearing aid equipment and professional equipment;</p> <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
	<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>		Cont.

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>Zx.2 Equipment requirements No safety provision is required for equipment that complies with the following: 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> <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> <p>a) protect the user from unintentional acoustic outputs exceeding those mentioned above; and b) 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</p>		N/A

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
Cont.	<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> <ol style="list-style-type: none"> 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 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>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>		--

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>Zx.3 Warning The warning shall be placed on the equipment, or on the packaging, or in the instruction manual and shall consist of the following: the symbol of Figure 1 with a minimum height of 5 mm; and the following wording, or similar: “To prevent possible hearing damage, do not listen at high volume levels for long periods.”</p> <div style="text-align: center;">  </div> <p style="text-align: center;">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)		
	<p>Zx.4.1 Wired listening devices with analogue input 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. 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). NOTE The values of 94 dBA – 75 mV correspond with 85dBA – 27 mV and 100 dBA – 150 mV.</p>		N/A

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>Zx.4.2 Wired listening devices with digital input 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 In wireless mode: 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> <p>NOTE An example of a wireless listening device is a Bluetooth headphone.</p>		N/A
	<p>Zx.5 Measurement methods 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

IEC 60950-1			
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
Cont.	<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>		--
2.7.2	This subclause has been declared 'void'.		N/A
3.2.3	Delete the NOTE in Table 3A, and delete also in this table the conduit sizes in parentheses.		N/A
3.2.5.1	<p>Replace "60245 IEC 53" by "H05 RR-F";</p> <p>"60227 IEC 52" by "H03 VV-F or H03 VVH2-F";</p> <p>"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> <p>Up to and including 6 0,75 ^{a)} </p> <p>Over 6 up to and including 10 (0,75) ^{b)} 1,0 </p> <p>Over 10 up to and including 16 (1,0) ^{c)} 1,5 </p> <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>		N/A
3.2.5.1 (A2:2013)	NOTE Z1 The harmonised code designations corresponding to the IEC cord types are given in Annex ZD		N/A

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
3.3.4	In Table 3D, delete the fourth line: conductor sizes for 10 to 13 A, and replace with the following: Over 10 up to and including 16 1,5 to 2,5 1,5 to 4 Delete the fifth line: conductor sizes for 13 to 16 A		N/A
4.3.13.6 (A1:2010)	Replace the existing NOTE by the following: NOTE Z1 Attention is drawn to: 1999/519/EC: Council Recommendation on the limitation of exposure of the general public to electromagnetic fields 0 Hz to 300 GHz, and 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).		N/A
	Standards taking into account mentioned Recommendation and Directive which demonstrate compliance with the applicable EU Directive are indicated in the OJEC.		N/A
Annex H	Replace the last paragraph of this annex by: At any point 10 cm from the surface of the OPERATOR ACCESS AREA, the dose rate shall not exceed 1 µSv/h (0,1 mR/h) (see NOTE). Account is taken of the background level. Replace the notes as follows: NOTE These values appear in Directive 96/29/Euratom. Delete NOTE 2.		N/A
Bibliography	Additional EN standards.		—

ZA	NORMATIVE REFERENCES TO INTERNATIONAL PUBLICATIONS WITH THEIR CORRESPONDING EUROPEAN PUBLICATIONS	—
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ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN)			
1.2.4.1	In Denmark , certain types of Class I appliances (see 3.2.1.1) may be provided with a plug not establishing earthing conditions when inserted into Danish socket-outlets.		N/A
1.2.13.14 (A11:2009)	In Norway and Sweden , for requirements see 1.7.2.1 and 7.3 of this annex.		N/A
1.5.7.1 (A11:2009)	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.		N/A

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
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).		P
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.		N/A
1.7.2.1 1.7.2.1 (A11:2009)	<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.</p> <p>The marking text in the applicable countries shall be as follows: In Finland: "Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan" In Norway: "Apparatet må tilkoples jordet stikkontakt" 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: "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>It shall be checked for proper certificate of these countries' certification before products are sold in the market.</p>	N/A

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
Cont.	<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>		--
1.7.2.1 (A2:2013)	<p>In Denmark, 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.</p> <p>The marking text in Denmark shall be as follows: In Denmark: “Apparatets stikprop skal tilsluttes en stikkontakt med jord, som giver forbindelse til stikproppens jord.”</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>		N/A
1.7.5 (A11:2009)	<p>For CLASS II EQUIPMENT the socket outlet shall be in accordance with Standard Sheet DKA 1-4a.</p>		

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.7.5 (A2:2013)	<p>In Denmark, socket-outlets for providing power to other equipment shall be in accordance with the DS 60884-2-D1:2011.</p> <p>For class I equipment the following Standard Sheets are applicable: DK 1-3a, DK 1-1c, DK 1-1d, DK 1-5a or DK 1-7a, with the exception for STATIONARY EQUIPMENT where the socket-outlets shall be in accordance with Standard Sheet DK 1-1b, DK 1-1c, DK 1-1d or DK 1-5a.</p> <p>Socket outlets intended for providing power to Class II apparatus with a rated current of 2,5 A shall be in accordance with DS 60884-2-D1 standard sheet DKA 1-4a. Other current rating socket outlets shall be in compliance with by DS 60884-2-D1 Standard Sheet DKA 1-3a or DKA 1-3b.</p> <p>Justification the Heavy Current Regulations, 6c</p>		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.		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.		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.		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.		P
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.		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.		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>		N/A

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
Cont.	<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, 16 A</p> <p>SEV 5934-2.1998: Plug Type 23, L+N+PE 250 V, 16 A</p>		--
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>		N/A
3.2.1.1 (A2:2013)	<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 DS 60884-2-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 a single-phase equipment having a RATED CURRENT exceeding 13 A or if a poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with the standard sheets DK 6-1a in DS 60884-2-D1 or EN 60309-2.</p> <p>Justification the Heavy Current Regulations, 6c</p>		N/A

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
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>		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>		N/A
3.2.1.1	<p>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.</p>		N/A
3.2.4	<p>In Switzerland, for requirements see 3.2.1.1 of this annex.</p>		N/A
3.2.5.1	<p>In the United Kingdom, a power supply cord with conductor of 1,25 mm² is allowed for equipment with a rated current over 10 A and up to and including 13 A.</p>		N/A
3.3.4	<p>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:</p> <ul style="list-style-type: none"> • 1,25 mm² to 1,5 mm² nominal cross-sectional area. 		N/A

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
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.		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.		N/A
5.1.7.1	In Finland, Norway and Sweden TOUCH CURRENT measurement results exceeding 3,5 mA r.m.s. are permitted only for the following equipment: <ul style="list-style-type: none"> • STATIONARY PLUGGABLE EQUIPMENT TYPE A that 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. 		N/A

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
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. 		N/A
Cont.	<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. 		--

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
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	In Finland, Norway and Sweden , for requirements see 6.1.2.1 and 6.1.2.2 of this annex. The term TELECOMMUNICATION NETWORK in 6.1.2 being replaced by the term CABLE DISTRIBUTION SYSTEM.		N/A
7.3 (A11:2009)	In Norway and Sweden , for requirements see 1.2.13.14 and 1.7.2.1 of this annex.		N/A

**Annex ZD
(informative)**

IEC and CENELEC code designations for flexible cords

Type of flexible cord	Code designations	
	IEC	CENELEC
PVC insulated cords		
Flat twin tinsel cord	60227 IEC 41	H03VH-Y
Light polyvinyl chloride sheathed flexible cord	60227 IEC 52	H03VV-F H03VVH2-F
Ordinary polyvinyl chloride sheathed flexible cord	60277 IEC 53	H05VV-F H05VVH2-F
Rubber insulated cords		
Braided cord	60245 IEC 51	H03RT-F
Ordinary tough rubber sheathed flexible cord	60245 IEC 53	H05RR-F
Ordinary polychloroprene sheathed flexible cord	60245 IEC 57	H05RN-F
Heavy polychloroprene sheathed flexible cord	60245 IEC 66	H07RN-F
Cords having high flexibility		
Rubber insulated and sheathed cord	60245 IEC 86	H03RR-H
Rubber insulated, crosslinked PVC sheathed cord	60245 IEC 87	H03RV4-H
Crosslinked PVC insulated and sheathed cord	60245 IEC 88	H03V4V4-H

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

APPENDIX	National differences for Singapore	IEC 60950-1, 1st edition	—
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The following is the national differences in accordance with safety authority website www.safety.org.sg/ , ref. Singapore Consumer Protection (Safety Requirements) - Information booklet - chapter 7 (page 23 - 26). 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 electrical products

No	Item	Requirement	Result - Remark	Verdict
2	Controlled Goods incorporated with additional function	The additional function must be tested to its applicable safety standard.		P
3	All appliances	All appliances must be tested to 230 VAC.	The voltage range includes 230Vac.	P
4	Voltage selector (voltage mis-match 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.	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.		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.		N/A
7	Class II appliances (mains plug)	a) All Class II appliances must be fitted with 2-pin mains plug (Appendix T) complied with EN 50075. 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.		N/A
8	Appliances rated \geq 3 kW or connected to fixed wiring	Electric appliance \geq 3kW must be connected to fixed wiring. All connection to fixed wiring must be in accordance with Code of Practice CP5.	Not exceed 3kW.	N/A

IEC 60950-1				
Clause	Requirement + Test	Result - Remark	Verdict	
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.		N/A
10	Circuit diagrams	Circuit diagrams must be indicated with component's values for products tested to IEC 60065 and IEC 60950-1.		P
11	Circuit diagrams of electronic modules in electrical appliances	Circuit diagrams of the electronic modules in the electrical appliances must be provided.		P
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.		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.		N/A
15	2-pin AC adaptor (Appendix V)	The 2-pin (Appendix T) shall comply with EN 50075		N/A
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.		N/A
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.		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 60950-1) or at component level.		N/A
Applicable to plasma/LCD display monitor				
37	Plasma/LCD display monitor with TV tuner	Plasma/LCD display monitor tested to IEC 60950-1 would require additional test to clauses 9 (related to antenna only), 10.1, 10.2, 10.3 and 12.5 of IEC 60065.		N/A

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


APPENDIX	National differences for Japan	IEC 60950-1, 1 st edition	—
1.2.4.1	Add the following new notes. Note: Even if the equipment is designed as Class I, the equipment is regarded as Class 0I equipment when 2-pin adaptor with earthing lead wire or cord set having 2-pin plug with earthing lead wire is provided or recommended.		N/A
1.2.4.3A	Add the following new clause. 1.2.4.3A CLASS 0I EQUIPMENT Equipment having attachment plug without earthing blade, where protection against electric shock is achieved by: - 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. NOTE – Class 0I equipment may have a part constructed with Double Insulation or Reinforced Insulation circuit.		N/A
1.3.2	Add the following notes after first paragraph: Note 1 Transportable or similar equipment that are 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. 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.		N/A

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.5.1	<p>Replace the first paragraph with the follows: Where safety is involved, components shall comply either with the requirements of this standard, 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, a component that falls within the scope of METI Ministerial ordinance No. 85 is properly used in accordance with its marked ratings, requirements of 1.5.4, 2.8.7 and 3.2.5 apply, and in addition, a cord connector of power supply cord set mating with appliance inlet complying with the standard sheet of IEC 60320-1, shall comply with relevant standard sheet of IEC 60320-1.</p> <p>Replace Note 1 with the following: 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
1.5.2	<p>Replace 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: 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 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. 		P
1.7.1	<p>Replace 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

IEC 60950-1			
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 Coupler</p> <p>If appliance coupler according to IEC60320-1, C.14(rated current: 10A)is used in equipment whose rated voltage is less than 125V and rated current is over 10A, the following instruction or equivalent shall be described in the user instruction.</p> <p>“Use only designated cord set attached in this equipment”</p>	It shall be checked for proper certificate of these countries' certification before products are sold in the market.	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>	It shall be checked for proper certificate of these countries' certification before products are sold in the market.	N/A
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>“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>“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>		N/A
2.6.3.2	<p>Add the following after 1st paragraph.</p> <p>This also applies to the conductor of lead wire for protective earthing of CLASS 0I EQUIPMENT.</p>		N/A
2.6.4.2	<p>Replace 1st paragraph with the following.</p> <p>Equipment required to have protective earthing shall have a main protective earthing terminal.</p> <p>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>		N/A
2.6.5.4	<p>Replace 1st 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

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
2.6.5.8A	<p>Add the following new clause. after 2.6.5.8A</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 150V.</p> <p>For plugs with a lead wire for earthing, the lead wire shall not be earthed by a clip.</p> <p>CLASS 0I EQUIPMENT shall be provided with an earthing terminal or lead wire for earthing in the external location where easily visible.</p>		N/A
3.2.3	<p>Add the following after Table 3A:</p> <p>Table 3A applies when cables complying JIS C 3662 or JIS C 3663 are used. In case of other cables, cable entries shall be so designed that a conduit suitable for the cable used can be fitted.</p>		N/A
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 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 on stipulating technical requirements for the Electrical Appliance..</p> <p>Delete 1) in Table 3B.</p>		N/A
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>		N/A
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>		N/A
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

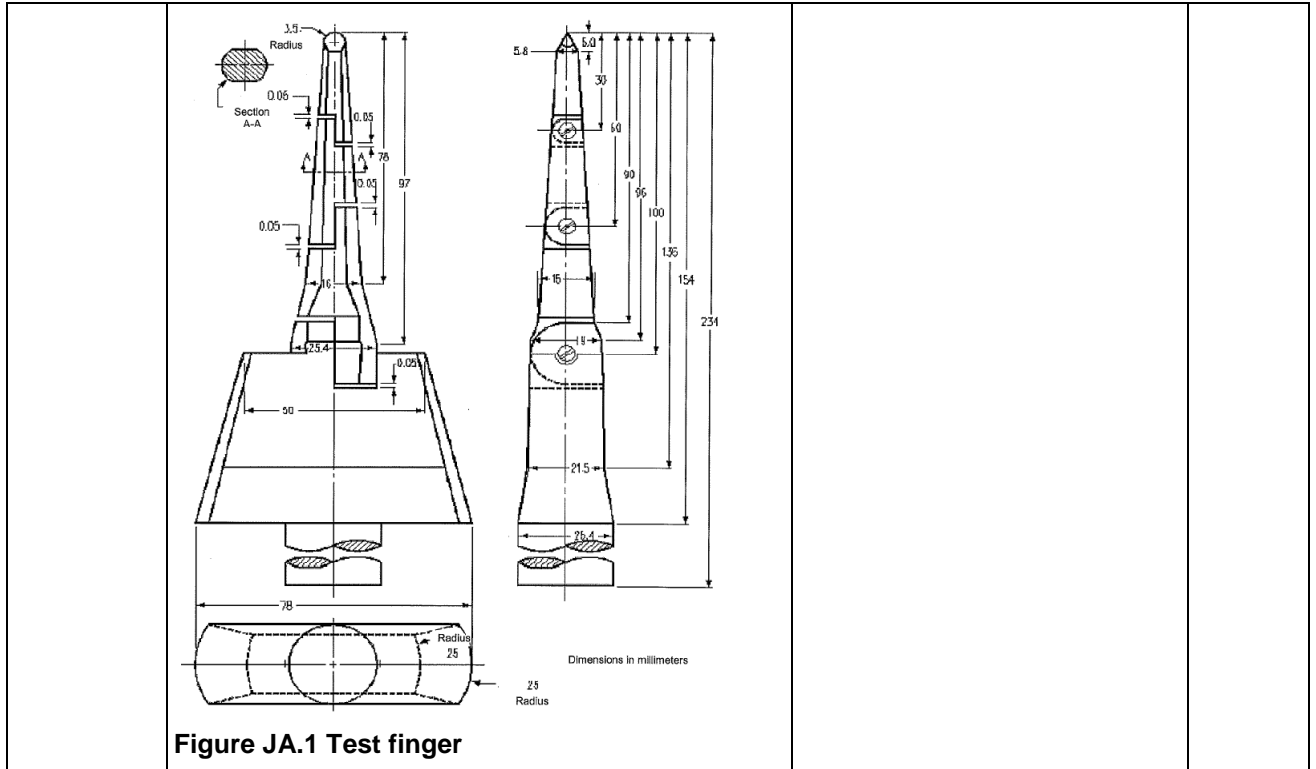
IEC 60950-1																															
Clause	Requirement + Test	Result - Remark	Verdict																												
5.1.3	Add a note after the first paragraph as follows: Note – Attention should be drawn to that majority of three-phase power system in Japan is of delta connection, and therefore, in that case, test is conducted using the test circuit from IEC 60990, figure 13.		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>ALL equipment 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>-</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	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	-	HAND-HELD	Equipment main protective earthing terminal (if any) CLASS 0I EQUIPMENT	0,5	-	Others	1.0	-		P
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Others		1.0	-																												
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																												

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
W.1	<p>Replace second and third sentence in the first paragraph with the following: 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
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</p> <p>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</p> <p>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>		N/A

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>JA.3 Disconnection from the mains supply</p> <p>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> <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</p> <p>Any warning shall not be used instead of the structure for preventing access to hazardous moving parts.</p> <p>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

IEC 60950-1

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

The drawing shows a wedge-shaped probe with a total length of 300 mm. Key dimensions include a thickness of 12 mm at the tip, a width of 50 mm at the base, and a tapering section with a diameter of 20 mm. A circular detail shows a cross-section with a diameter of 12 mm. A side view shows a thickness of 2 mm at the tip and a rounded end with a diameter of 20 mm. A note indicates the probe is rounded to allow rotation about a hinge pin (screw) in one direction.

(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.
 Note 2 - The allowable dimensional tolerance of the probe is +/- 0.127 mm.

Figure JA.2 Wedge-probe



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

APPENDIX	National differences for China	IEC 60950-1, 2nd edition	—
1.1.2	<p>GB 4943.1-2011 applies to equipment for use at altitudes not exceeding 5000m above sea level, primarily in regions with moderate or tropical climates.</p> <p>Amend the third dashed paragraph of 1.1.2 as: —equipment intended to be used in vehicles, on board ships or aircraft, at altitudes greater than 5000m;</p>	Altitude: 5000 m	N/A
1.4.5	<p>After the third paragraph, add a paragraph: If the equipment is intended for direct connection to an AC mains supply, the tolerances on RATED VOLTAGE shall be taken as +10%,-10% unless a wider tolerance is declared by the manufacturer. The first dash paragraph "-the RATED VOLTAGE is 230V single -phase or 400V three-phase, in which case the tolerance shall be taken as +10% and -10%" of IEC 60950-1:2005 is deleted in GB 4943.1-2011</p>		P
1.4.12.1	<p>Tma in clause 1.4.12.1 amended as: Tma: is the maximum ambient temperature permitted by the manufacturer's specification, or 35 °C, whichever is greater.</p> <p>Add note 1: For equipment not to be operated at tropical climatic conditions, Tma: is the maximum ambient temperature permitted by the manufacturer's specification, or 25 °C, whichever is greater.</p> <p>Add note 2: For equipment is to be operated at 2000m-5000m above sea leave, its temperature test conditions and temperature limits are under consideration.</p>		P
1.5. 2	<p>Add a note behind the first break off section in Clause 1.5.2: A component used shall comply with related requirements corresponding altitude of 5000m.</p>		N/A
1.7	<p>Add one paragraph before the last paragraph: The required marking and instruction should be given in normative Chinese unless otherwise specified.</p>	It shall be checked for proper certificate of these countries' certification before products are sold in the market.	N/A

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.7.1	<p>Based on the AC mains supply of China, the RATED VOLTAGE should be 220V (single phase) or 380V (three-phases) for single rated voltage, for RATED VOLTAGE RANGE, it should cover 220V or 380V (three-phases), for multiple RATED VOLTAGES, one of them should be 220V or 380V (three-phases) and set on 220V or 380V (three-phases) when manufactured.</p> <p>And the RATED FREQUENCY or RATED FREQUENCY RANGE should be 50Hz or include 50Hz.</p>		P
1.7.2.1	<p>Add requirements of warning for equipment intended to be used at altitudes not exceeding 2000m or at non-tropical climate regions:</p> <p>For equipment intended to be used at altitude not exceeding 2000m, a warning label containing the following or a similar appropriate wording, or a symbol as in annex DD shall fixed to the equipment at readily visible place.</p> <p>"Only used at altitude not exceeding 2000m."</p>  <p>For equipment intended to be used in not-tropical climate regions, a warning label containing the following or a similar appropriate wording, or a symbol as in annex DD shall fixed to the equipment at readily visible place.</p> <p>"Only used in not-tropical climate regions."</p>  <p>If only the symbol used, the explanation of the symbol shall be contained in the instruction manual.</p> <p>The above statements shall be given in a language acceptable to the regions where the apparatus is intended to be used.</p>	<p>Altitude: 5000 m. Tropical climate condition.</p>	N/A
2.7.1	<p>Amended the first paragraph as:</p> <p>Protection in PRIMARY CIRCUITS against overcurrent short-circuits and earth faults shall be provided as an integral part of the equipment except special provisions. And the protective device shall meet the requirement of Clause 5.3.</p> <p>Delete note of Clause 2.7.1.</p>		P

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
2.9.2	<p>First section of Clause 2.9.2 amended as two sections:</p> <p>Where required by 2.9.1, 2.10.8.3, 2.10.10 or 2.10.11, humidity conditioning is conducted for 120 h in a cabinet or room containing air with ambient temperature 40 ± 2 °C and a relative humidity of (93 ± 3) %. During this conditioning the component or subassembly is not energized.</p> <p>For equipment not to be operated at tropical climatic conditions, Where required by 2.9.1, 2.10.8.3, 2.10.10 or 2.10.11, humidity conditioning is conducted for 48 h in a cabinet or room containing air with a relative humidity of (93 ± 3) %. The temperature of the air, at all places where samples can be located, is maintained within 2 °C of any convenient value between 20 °C and 30 °C such that condensation does not occur.</p> <p>Due to pretreatment of equipment operated at high altitude area is humidity conditioning withstand hot shock, specific requirements are to be considered.</p> <p>Add note: For equipment to be operated at 2000 m - 5000m above sea level, assessment and requirement of humidity conditioning for Insulation material properties are considered.</p>		P
2.10.3.1	<p>Amend the third paragraph of Clause 2.10.3.1 to be:</p> <p>These requirements apply for equipment to be operated up to 2000 m above sea level. For equipment to be operated at more than 2000 m above sea level and up to 5000m above sea level, the minimum CLEARANCE shall be multiplied by the factor 1.48 corresponding altitude of 5000m given in Table A.2 of IEC 60664-1. For equipment to be operated at more than 5000 m above sea level, the minimum CLEARANCE shall be multiplied by the factor given in Table A.2 of IEC 60664-1. Linear interpolation is permitted between the nearest two points in Table A.2. The calculated minimum CLEARANCE using this multiplication factor shall be rounded up to the next higher 0.1 mm increment.</p>	Altitude: 5000 m.	P
2.10.3.3& 2.10.3.4	Add "(applicable for altitude up to 2000m)" in header of Table 2K, 2L and 2M.		N/A

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
2.10.3.4	Add a new section above Table 2K and in Clause 2.10.3.4: Minimum CLEARANCES determined by above rules apply for equipment to be operated up to 2000m above sea level. For equipment to be operated at 2000 m - 5000m above sea level, the minimum CLEARANCE shall be multiplied by the factor 1.48 corresponding altitude of 5000m given in Table A.2 of GB/T16935.1 (IEC 60664-1) . For equipment to be operated at more than 5000 m above sea level, the minimum CLEARANCE shall be multiplied by the factor given in Table A.2 of GB/T16935.1.	Altitude: 5000 m.	P
3.2.1.1	Add a paragraph before the last paragraph: Plugs connected to AC mains supply shall comply with GB 1002 or GB 1003 or GB/T 11918 as applicable.		N/A
4.2.8	Clause 4.2.8 cathode ray tubes quoted Clause 18 of GB8898-2011. Delete note of Clause 4.2.8.		N/A
Annex E	Last section of Annex E amended as: For comparison of winding temperatures determined by the resistance method of this annex with the temperature limits of Table 4B, 35 °C shall be added to the calculated temperature rise. And add note: for equipment not to be operated at tropical climatic conditions, 25 °C shall be added to the calculated temperature rise to compare with the temperature of Table 4B.		P
Annex G.6	Change the second section of Clause G.6 to be: For equipment to be operated at 2000 m - 5000m above sea level, the minimum CLEARANCE shall be multiplied by the factor 1.48 corresponding altitude of 5000m given in Table A.2 of GB/T16935.1. For equipment to be operated at more than 5000 m above sea level, the minimum CLEARANCE shall be multiplied by the factor given in Table A.2 of IEC 60664-1. Linear interpolation is permitted between the nearest two points in Table A.2. The calculated minimum CLEARANCE using this multiplication factor shall be rounded up to the next higher 0,1 mm increment.		P
Annex BB (informative)	Amended as : The differences between Chinese national standards GB 4943.1-2011 and GB 4943-2001.		N/A

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
Annex DD (normative)	<p>Added annex DD: Instructions for the new safety warning labels.</p> <p>DD.1 Altitude warning label</p>  <p>Meaning of the label: Evaluation for apparatus only based on altitude not exceeding 2000m, therefore it's the only operating condition applied for the equipment .There may be some potential safety hazard if the equipment is used at altitude above 2000m.</p> <p>DD.2 Climate warning label</p>  <p>Meaning of the label: Evaluation for apparatus only based on temperate climate condition, therefor it's the only operating condition applied for the equipment .There may be some potential safety hazard if the equipment is used in tropical climate region.</p>		N/A
Annex EE (informative)	<p>Added annex EE:</p> <p>Illustration relative to safety explanation in normative Chinese, Tibetan, Mongolian, Zhuang Language and Uighu.</p>	It shall be checked for proper certificate of these countries' certification before products are sold in the market.	N/A
Other amendments	<p>In accordance with the relevant CTL decisions and the amendments of IEC 60950-1, the specific requirements or mistakes in IEC standard are corrected or editorially modified in this part, Including clause 1.7, 2.1.1.7, 2.9.2, Table 2H, Figure 2H, F.8, F.9, M.3 and Annex U.</p>		P

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
Quoting standards and reference documents	<p>The principles of quoting and referring to other standards in Annex P and reference documents of IEC 60950-1 are as follows:</p> <p>If the date of the reference document is given, only that edition applies, excluding any subsequent corrigenda and amendments. However, parties to agreements based on this part are encouraged to investigate the possibility of applying the most recent editions of the reference documents. For undated references, the latest edition of the referenced document applies, including any corrigenda and amendments.</p> <p>For the usage of international standards in Chinese national standards and industry standards is various, in the aim of achieving easy operation and based on the requirements of GB/T 1.1 and GB/T 20000.2, when quoting an entire international standard in the normative quoting files and reference documents of Annex P of this part, the principles of quotation are as follows:</p> <ul style="list-style-type: none"> - If there is no national standard or industry standard corresponding to the international standard, then the international standard is quoted; - If there is national standard or industry standard corresponding to the international standard, then either the national or industry standard is quoted; - If the date of the national standard or industry standard is not given, the latest edition of the standard applies; - The national standard or industry standard number, corresponding international standard number and the consistency level code should be identified in parentheses behind the listed national standard or industry standard. <p>When quoting several chapters or clauses of the international standard, the principles of quotation are as follows:</p> <ul style="list-style-type: none"> - If there is no national standard or industry standard corresponding to the international standard, then the international standard is quoted; - If there is national standard or industry standard corresponding to the international standard, then either the national or industry standard is quoted. 		P
	<p>Meanwhile, in order to retain the relevant information on international standards, informative annex CC is increased, which gives the table about the comparison of the normative quoting files and reference documents in IEC 60950-1:2005 and GB 4943.1-2011.</p>		P

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

APPENDIX	National differences for Australia and New Zealand IEC 60950-1, 2nd edition		
	ANNEX ZZ (normative) Variations to IEC 60950-1, ED.2.0 (2005) for application in Australia and New Zealand		
ZZ1	Introduction This Annex 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 Scheme and will be published in the IECEE CB Bulletin.		-
ZZ2	Variations The following variations apply to the source text:		-
1.2	Between the definitions for 'Person, service' and 'Range, rated frequency' insert the following: POTENTIAL IGNITION SOURCE 1.2.12		P
1.2.12.201	Insert a new Clause 1.2.12.201 after Clause 1.2.12.15 as follows: 1.2.12.201 POTENTIAL IGNITION SOURCE: Possible fault which can start a fire if the open-circuit voltage measured across an interruption or faulty contact exceeds a value of 50 V (peak) a.c. or d.c. and the product of the peak value of this voltage and the measured r.m.s current under normal operating conditions exceeds 15 VA. Such a faulty contact or interruption in an electrical connection includes those which may occur in CONDUCTIVE PATTERNS on PRINTED BOARDS. NOTE 201 An electronic protection circuit may be used to prevent such a fault from becoming a POTENTIAL IGNITION SOURCE. NOTE 202 This definition is from AS/NZS 60065:2003.		P
1.5.1	Add the following to the end of first paragraph: "or the relevant Australian/New Zealand Standard". In NOTE 1, add the following after the word "standard": "or an Australian/New Zealand Standard".		P
1.5.2.	Add the following to the end of first and third dash items: "or the relevant Australian/New Zealand Standard".		P

IEC 60950-1																				
Clause	Requirement + Test	Result - Remark	Verdict																	
3.2.5.1	<p><i>Modify</i> Table 3B as follows: <i>Delete</i> the first four rows and replace with the following:</p> <table border="1"> <thead> <tr> <th rowspan="2">RATED CURRENT of equipment A</th> <th colspan="2">Minimum conductor sizes</th> </tr> <tr> <th>Nominal cross-sectional area mm²</th> <th>AWG or kcmil [cross-sectional area in mm²] see Note 2</th> </tr> </thead> <tbody> <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)} 1,00</td> <td>16 [1,3]</td> </tr> <tr> <td>Over 10 up to and including 16</td> <td>(1,0)^{c)} 1,5</td> <td>14 [2]</td> </tr> </tbody> </table> <p><i>Delete</i> NOTE 1. <i>Replace</i> footnote ^{a)} with the following: ¹⁾ This nominal cross-sectional area is only allowed for Class II appliances if the length of the power supply cord, measured between the point where the cord, or cord guard, enters the appliance, and the entry to the plug does not exceed 2 m (0.5 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 mm ²	AWG or kcmil [cross-sectional area in mm ²] see Note 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)} 1,00	16 [1,3]	Over 10 up to and including 16	(1,0) ^{c)} 1,5	14 [2]		N/A
RATED CURRENT of equipment A	Minimum conductor sizes																			
	Nominal cross-sectional area mm ²	AWG or kcmil [cross-sectional area in mm ²] see Note 2																		
Over 0.2 up to and including 3	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)} 1,00	16 [1,3]																		
Over 10 up to and including 16	(1,0) ^{c)} 1,5	14 [2]																		
4.1.201	<p><i>Insert</i> a new Clause 4.1.201 after Clause 4.1 as follows: 4.1.201 Display devices used for television purposes 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 replace with the following: Equipment with a plug portion, suitable for insertion into a 10 A 3-pin flat-pin socket-outlet complying with AS/NZS 3112 shall comply with the requirements in AS/NZS 3112 for equipment with integral pins for insertion into socket-outlets.</p>		N/A																	
4.3.13.5	<p><i>Add</i> the following to the end of the first paragraph: “, or AS/NZS 2211.1”.</p>		N/A																	
4.7	<p><i>Add</i> the following new paragraph to the end of the clause: “For alternate tests refer to Clause 4.7.201.”</p>		P																	

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
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 1 mm in width regardless of length.</p> <p>(b) The following parts which would contribute negligible fuel to a fire:</p> <ul style="list-style-type: none"> - small mechanical parts, the mass of which does not exceed 4 g, such as mounting parts, gears, cams, belts and bearings; - small electrical components, such as capacitors with a volume not exceeding 1,750 mm³, integrated circuits, transistors and optocoupler packages, if these components are mounted on material of flammability category V-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>The equipment complies with the requirements of IEC 60950-1. Alternative test methods are not considered.</p>	N/A

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
Cont.	<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>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.</p> <p>4.7.201.3 Testing of insulating materials</p> <p>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.</p> <p>The test shall be also carried out on other parts of insulating material which are within a distance of 3 mm of the connection.</p> <p>NOTE Contacts in components such as switch contacts are considered to be connections.</p> <p>For parts which withstand the glow-wire test but produce a flame, other parts above the connection within the envelope of a vertical cylinder having a diameter of 20 mm and a height of 50 mm shall be subjected to the needle-flame test. However, parts shielded by a barrier which meets the needle-flame test shall not be tested.</p> <p>The needle-flame test shall be made in accordance with AS/NZS 60695.11.5 with the following modifications:</p>		N/A

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
Cont.	Clause of AS/NZS 60695.11.5	Change	N/A
	9 Test procedure		
	9.2 Application of needle-flame	<p><i>Replace</i> the first paragraph with: The specimen shall be arranged so that the flame can be applied to a vertical or horizontal edge as shown in the examples of figure 1. If possible the flame shall be applied at least 10 mm from a corner</p> <p><i>Replace</i> the first paragraph with: The duration of application of the test flame shall be 30 s ±1 s.</p>	
	9.3 Number of test specimens	<p><i>Replace</i> with: The test shall be made on one specimen. If the specimen does not withstand the test, the test may be repeated on two further specimens, both of which shall withstand the test.</p>	
11 Evaluation of test results	<p><i>Replace</i> with: The duration of burning (t_b) shall not exceed 30 s. However, for printed circuit boards, it shall not exceed 15 s.</p>		
<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.</p> <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 glow-wire tip, the needle-flame test detailed in 4.7.201.3 shall be made on all parts of non-metallic material which are within a distance of 50 mm or which are likely to be impinged upon by flame during the tests of 4.7.201.3. Parts shielded by a separate barrier which meets the needle-flame test need not be tested.</p>			

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
Cont.	<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 - 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. 		N/A

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	<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 for 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>		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>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:</p> <p>(i) for 6.2.1 a): 7.0 kV for hand-held telephones and for headsets and 2.5 kV for other equipment; and</p> <p>(ii) for 6.2.1 b) and 6.2.1 c): 1.5 kV.</p> <p>NOTE 201 – The 7 kV impulse simulates lightning surges on typical rural and semi-rural network lines.</p> <p>NOTE 202 – The value of 2.5 kV for 6.2.1 a) was chosen to ensure the adequacy of the insulation concerned and does not necessarily simulate likely overvoltages.</p>		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>In Australia only, the a.c. test voltage is:</p> <p>(i) for 6.2.1 a): 3 kV; and</p> <p>(ii) for 6.2.1 b) and 6.2.1 c): 1.5 kV.</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>		N/A
7.3	<p><i>Add</i> 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><i>Add</i> 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>		--

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
Index	<p><i>Insert the following between "asbestos, not be used as insulation" and "attitude see orientation":</i></p> <p>AS/NZS 2211.1 4.3.13.5 AS/NZS 3112 4.3.6 AS/NZS 3191 3.2.5.1 (Table 3B) AS/NZS 60064 4.1.201 AS/NZS 60695.2.11 4.7.201.2, 4.7.201.3 AS/NZS 60695.11.10 4.7.201.1, 4.7.201.5 AS/NZS 60695.11.5 4.7.201.3</p> <p><i>Insert the following between "positive temperature coefficient (PTC) device" and 'powder':</i> potential ignition source 1.2.201, 4.7.201.3, 4.7.201.5</p>		--

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

APPENDIX	National differences for Korea IEC 60950-1, 2nd edition; Am 1:2009		—
1.5.101	Plugs for the connection of the apparatus to the supply mains shall comply with the Korean requirement (KSC 8305).	To be evaluated when submitted for the national approval.	—
8	EMC The apparatus shall comply with the relevant CISPR standards.	To be evaluated when submitted for the national approval.	—

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

ATTACHMENT TO TEST REPORT IEC 60950-1 with A1: 2009 and A2:2013 U.S.A. NATIONAL DIFFERENCES Information technology equipment – Safety – Part 1: General requirements	
Differences according to	UL 60950-1-07(Second Edition) + A1: 2011 + A2: 2014
Attachment Form No.	US_ND_IEC60950_1F
Attachment Originator.....	UL
Master Attachment	Date 2014-07
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Note: 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	
1.1.1	All equipment is designed as to allow installation in accordance with the National Electrical Code (NEC), ANSI/NFPA 70, Canadian Electrical Code (CEC), Part I, CAN/CSA C22.1, and if applicable, the National Electrical Safety Code, IEEE C2	P
	Also, unless marked or otherwise identified, installation is allowed per the Standard for the Protection of Electronic Computer/Data-Processing Equipment, ANSI/NFPA 75	P
1.1.2	Baby monitors are required to additionally comply with ASTM F2951, Consumer Safety Specification for Baby Monitors	N/A
1.4.14	For Pluggable Equipment Type A, the protection in the installation is assumed to be 20A	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	N/A
	For lengths 3.05 m or less, external interconnecting flexible cord and cable assemblies that are not types specified in the NEC are required to have special construction features and identification markings	N/A
1.7.1	Equipment for use on a.c. mains supply systems with a neutral and more than one phase conductor (e.g. 120/240 V, 3-wire) require a special marking format for electrical ratings	N/A

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	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		P
	- if it is part of a range that extends into the Table 2 "Normal Operating Conditions"		P
	Likewise, a voltage rating is not to be lower than the specified "Normal Operating Conditions," unless it is part of a range that extends into the "Normal Operating Conditions"		P
1.7.7	Wiring terminals intended to supply Class 2 outputs in accordance with NEC or CEC Part 1 or NEC are marked with the voltage rating and "Class 2" or equivalent		N/A
	- Marking is located adjacent to the terminals		N/A
	- Marking is visible during wiring		N/A
2.5	Fuse providing Class 2, Limited Power Source, or TNV current limiting is not operator-accessible unless it is not interchangeable		N/A
2.6	Equipment with isolated ground (earthing) receptacles is in compliance with NEC 250.146(D) and CEC 10-112 and 10-906(8)		N/A
2.7.1	Suitable NEC/CEC branch circuit protection rated at the maximum circuit rating is provided for all standard supply outlets and receptacles (such as supplied in power distribution units) if the supply branch circuit protection is not suitable.		P
	Power distribution transformers distributing power at 100 volts or more, and rated 10 kVA or more, provided with special transformer overcurrent protection		N/A
3.2	Wiring methods (terminals, leads, etc.) used for the connection of the equipment to the mains is in accordance with the NEC/CEC		N/A
3.2.1	Attachment plugs of power supply cords are rated not less than 125 percent of the rated current of the equipment		N/A
3.2.1.2	Equipment connected to a centralized d.c. power system, and having one pole of the DC mains input terminal connected to the main protective earthing terminal in the equipment comply with special earthing, wiring, marking and installation instruction requirements		N/A
3.2.3	Permanent connection of equipment to the mains supply by a power supply cord is not permitted, except for certain equipment, such as ATMs		N/A

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
3.2.5	Power supply cords are no longer than 4.5 m in length		N/A
	Minimum cord length is 1.5 m, with certain constructions such as external power supplies allowed to consider both input and output cord lengths into the requirement		N/A
	Flexible power supply cords are compatible with Article 400 of the NEC, and Tables 11 and 12 of the CEC		N/A
3.2.9	Permanently connected equipment has a suitable wiring compartment and wire bending space		N/A
3.3	Wiring terminals and associated spacings for field wiring connections comply with CSA C22.2 No. 0		N/A
3.3.3	Wire binding screws are not attached with conductors larger than 10 AWG (5.3 mm ²)		N/A
3.3.4	Terminals for permanent wiring, including protective earthing terminals, are suitable for Canadian/US wire gauge sizes, are		N/A
	- rated 125 per cent of the equipment rating, and		N/A
	- are specially marked when specified (1.7.7)		N/A
3.3.5	Revise first column of Table 3E to "Smaller of the rated current of the equipment or the protective current rating of the circuit under consideration"		N/A
3.4.2	Motor control devices are provided for cord-connected equipment with a motor if the equipment is rated more than 12 A,		N/A
	- or if the motor has a nominal voltage rating greater than 120 V		N/A
	- or is rated more than 1/3 hp (locked rotor current over 43 A)		N/A
3.4.8	Vertically-mounted disconnect switches and circuit breakers 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 have a battery disconnect means that may be connected to the computer room remote power-off circuit		N/A
4.3.12	The maximum quantity of flammable liquid stored in equipment complies with NFPA 30		N/A
4.3.13.5.1	Equipment with lasers meets the U.S. Code of Federal Regulations 21 CFR 1040 (and the Canadian Radiation Emitting Devices Act, REDR C1370).		N/A

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
4.7	For computer room applications, automated information storage systems with combustibile media greater than 0.76 m ³ (27 cu ft) have a provision for connection of either automatic sprinklers or a gaseous agent extinguishing system with an extended discharge		N/A
4.7.3.1	For computer room applications, enclosures with combustibile material measuring greater than 0.9m ² (10 sq ft) or a single dimension greater than 1.8 m (6 ft) have a flame spread rating of 50 or less		N/A
	For other applications, enclosures with the same dimensions require a flame spread rating of 200 or less		N/A
4.7.3.1	Non-metallic enclosures of equipment for use in spaces used for environmental air (plenums) are required to comply with UL 2043		N/A
Annex H	Equipment that produces ionizing radiation complies with U.S. Code of Federal Regulations, 21 CFR 1020 (and the Canadian Radiation Emitting Devices Act, REDR C1370)		N/A
	Other National Differences		
1.5.1	Some components and materials associated with the risk of fire, electric shock, or personal injury 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 backup systems, battery packs, 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 cut-offs, thermostats, (multi-layer) transformer winding wire, surge protective devices, tubing, vehicle battery adapters, wire connectors, and wire and cables		P
1.6.1.2	A circuit for connection to the DC Mains Supply is classified as a SELV Circuit, TNV-2 Circuit or Hazardous Voltage Circuit depending on the maximum operating voltage of the supply		N/A

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	This maximum operating voltage includes consideration of the battery charging “float voltage” associated with the intended supply system, regardless of the marked power rating of the equipment		N/A
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		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
2.6.2	Equipment with functional earthing marked with the functional earthing symbol (IEC 60417-6092)		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 reduce the risk of injury due to the implosion of the CRT		N/A
4.3.2	Equipment with handles complies with special loading tests		N/A
4.3.8	Battery packs for both portable and stationary applications comply with special component requirements		N/A
5.1.8.3	Equipment intended to receive telecommunication ringing signals 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 overloaded		P
	During abnormal operating testing, if a circuit is interrupted by the opening of a component, the test is repeated twice (three tests total) using new components as necessary		P
6.4	Equipment intended for connection to telecommunication network outside plant cable is 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) is used for assessing accessibility to document/media shredders instead of the Figure 2A test finger		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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 comply with special acoustic pressure requirements		N/A