



SHENZHEN ANTHY ELECTRONICS CO., LTD

CE LVD REPORT

Prepared For:	SHENZHEN ANTHY ELECTRONICS CO., LTD 4/F, Building E, Lian Chuang Industry Park, Tang Qian Village, Zhang Ge, Guanlan, Longhua New District, Shenzhen, China
Product Name:	AC ADAPTER
Main Test Model:	AE60
Additional Model:	AE60165M1L , AE60165MIL , AE60165M2
Prepared By:	Shenzhen BST Technology Co., Ltd. Building No.23-24, Zhiheng Industrial Park, Guankouer Road, Nantou, Nanshan District, Shenzhen, Guangdong, China
Test Date:	July 16, 2018 - July 26, 2018
Date of Report:	July 27, 2018
Report No.:	BST180611378202SR

**LVD Report****EN 60950-1****Information technology equipment - Safety -****Part 1: General requirements**

Testing laboratory	: Shenzhen BST Technology Co., Ltd.
Address	: Building No.23-24, Zhiheng Industrial Park, Guankouer Road, Nantou, Nanshan District, Shenzhen, Guangdong, China
Testing location	: Shenzhen BST Technology Co., Ltd.
Applicant	: SHENZHEN ANTHY ELECTRONICS CO., LTD
Address	: 4/F, Building E, Lian Chuang Industry Park, Tang Qian Village, Zhang Ge, Guanlan, Longhua New District, Shenzhen, China
Standard	: EN 60950-1:2006+A11:2009+A1:2010+A12:2011+A2:2013
Procedure deviation	: N/A.
Non-standard test method	: N/A.
Type of test object	: AC ADAPTER
Trademark	: N/A.
Model/type reference	: See page 1
Rating	: Input: AC100-240V~, 50/60Hz Max1.5A Output: DC16.5V---,3.65A
Manufacturer	: SHENZHEN ANTHY ELECTRONICS CO., LTD
Address	: 4/F, Building E, Lian Chuang Industry Park, Tang Qian Village, Zhang Ge, Guanlan, Longhua New District, Shenzhen, China
Test item particulars :	
Equipment mobility	: Direct Plug-in equipment
Operation condition	: Continuous
Class of equipment	: Class II
Protection against ingress of water ..	: N/A.

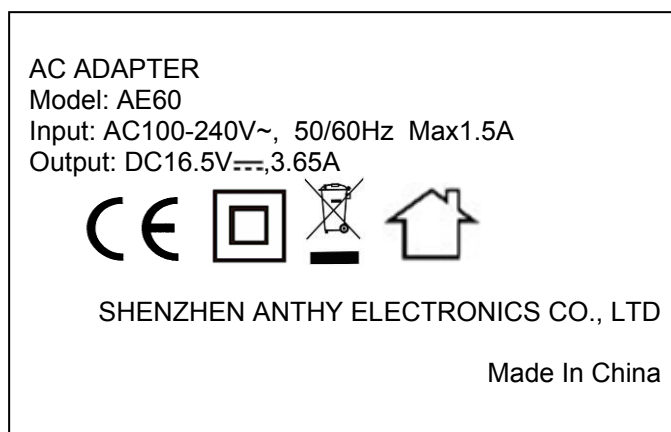
Possible test case verdicts :

test case does not apply to the test object	: N(.A.)
test object does meet the requirement	: P(ass)
test object does not meet the requirement	: F(ail)



General remarks: "(see remark #)" refers to a remark appended to the report. "(see appended table)" refers to a table appended to the report. Throughout this report a comma is used as the decimal separator. The test results presented in this report relate only to the object tested. This report shall not be reproduced except in full without the written approval of the testing laboratory.	Attached with: A. photo documentation Remark: 1. The series products have the same circuit diagram, PCB layout and functionality. The differences are the model name, All of the test conduct on model : AE60
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Artwork of Marking Label



Prepared by :

Engineer

Reviewer :

Approved & Authorized Signer :






EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1	GENERAL		P
1.5	Components		P
1.5.1	General		N
	Comply with IEC 60950-1 or relevant component standard		N
1.5.2	Evaluation and testing of components	Certified components are used in accordance with their ratings, certifications and they comply with applicable parts of this standard. Components not certified are used in accordance with their ratings and they comply with applicable parts of IEC 60950-1 and the relevant component standard. Components, for which no relevant IEC-standard exists, have been tested under the conditions occurring in the equipment, using applicable parts of IEC 60950-1.	P
1.5.3	Thermal controls	No thermal controls.	N
1.5.4	Transformers	Transformers used are suitable for their intended application and comply with the relevant requirements of the standard and particularly Annex C.	P
1.5.5	Interconnecting cables		N
1.5.6	Capacitors bridging insulation	See table 1.5.1	P
1.5.7	Resistors bridging insulation		N
1.5.7.1	Resistors bridging functional, basic or supplementary insulation		N
1.5.7.2	Resistors bridging double or reinforced insulation between a.c. mains and other circuits		N
1.5.7.3	Resistors bridging double or reinforced insulation between a.c. mains and antenna or coaxial cable	No resistors bridging double or reinforced insulation between a.c mains and antenna or coaxial cable.	N
1.5.8	Components in equipment for IT power systems	IT for Norway	P
1.5.9	Surge suppressors	No MOV	N



EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.5.9.1	General		N
1.5.9.2	Protection of VDRs		N
1.5.9.3	Bridging of functional insulation by a VDR		N
1.5.9.4	Bridging of basic insulation by a VDR		N
1.5.9.5	Bridging of supplementary, double or reinforced insulation by a VDR		N

1.6	Power interface		P
1.6.1	AC power distribution systems	TN power distribution system and IT for Norway	P
1.6.2	Input current	See table 1.6.2	P
1.6.3	Voltage limit of hand-held equipment	The equipment is not hand-held.	N
1.6.4	Neutral conductor		P

1.7	Marking and instructions		P
1.7.1	Power rating and identification markings	The required marking is located on the outside surface of the equipment.	P
1.7.1.1	Power rating marking		P
	Multiple mains supply connections.....:		N
	Rated voltage(s) or voltage range(s) (V)	100-240V~	P
	Symbol for nature of supply, for d.c. only		N
	Rated frequency or rated frequency range (Hz)	50/60Hz	P
	Rated current (mA or A)	Max.1.5A	P
1.7.1.2	Identification markings		P
	Manufacturer's name or trade-mark or identification mark	See page 2 for details.	P
	Model identification or type reference	See page 1	P
	Symbol for Class II equipment only	Class II Symbol  is applied to the label.	P
	Other markings and symbols	No other symbols	N
1.7.2	Safety instructions and marking	See the user manual	P
1.7.2.1	General		P
1.7.2.2	Disconnect devices	Power plug	P



EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.7.2.3	Overcurrent protective device	Fuse	P
1.7.2.4	IT power distribution systems		N
1.7.2.5	Operator access with a tool		N
1.2.7.6	Ozone		N
1.7.3	Short duty cycles		N
1.7.4	Supply voltage adjustment		N
	Methods and means of adjustment; reference to installation instructions		N
1.7.5	Power outlets on the equipment		N
1.7.6	Fuse identification (marking, special fusing characteristics, cross-reference)	See table 1.5.1	P
1.7.7	Wiring terminals		N
1.7.7.1	Protective earthing and bonding terminals	Class II equipment	N
1.7.7.2	Terminals for a.c. mains supply conductors		N
1.7.7.3	Terminals for d.c. mains supply conductors		N
1.7.8	Controls and indicators	No such parts	N
1.7.8.1	Identification, location and marking		N
1.7.8.2	Colours		N
1.7.8.3	Symbols according to IEC 60417	No such symbols	N
1.7.8.4	Markings using figures	No figures are used.	N
1.7.9	Isolation of multiple power sources		N
1.7.10	Thermostats and other regulating devices		N
1.7.11	Durability	The marking withstands required tests.	P
1.7.12	Removable parts	No removable parts	N
1.7.13	Replaceable batteries	No battery used	N
	Language(s)		
1.7.14	Equipment for restricted access locations	No such access location	N

2	PROTECTION FROM HAZARDS		P
2.1	Protection from electric shock and energy hazards		P
2.1.1	Protection in operator access areas	Refer below:	P
2.1.1.1	Access to energized parts	Cannot touch live part .	P
	Test by inspection	Complies	P
	Test with test finger (Figure 2A)	Complies	P



EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Test with test pin (Figure 2B)	Complies	P
	Test with test probe (Figure 2C)	No TNV circuit in the equipment.	N
2.1.1.2	Battery compartments	No TNV circuits in the equipment.	N
2.1.1.3	Access to ELV wiring		N
	Working voltage (V _{peak} or V _{rms}); minimum distance through insulation (mm)		
2.1.1.4	Access to hazardous voltage circuit wiring		N
2.1.1.5	Energy hazards	See table 2.1.1.5	P
2.1.1.6	Manual controls		N
2.1.1.7	Discharge of capacitors in equipment		N
	Measured voltage (V); time-constant (s).....		
2.1.1.8	Energy hazards – d.c. mains supply		N
	a) Capacitor connected to the d.c. mains supply ..		
	b) Internal battery connected to the d.c. mains supply		
2.1.1.9	Audio amplifiers		N
2.1.2	Protection in service access areas		N
2.1.3	Protection in restricted access locations		N
2.2	SELV circuits		P
2.2.1	General requirements		P
2.2.2	Voltages under normal conditions (V)	Between any conductor of the SELV circuits 42.4V peak or 60Vd.c. are not exceeded.	P
2.2.3	Voltages under fault conditions (V)	Single fault did not cause excessive voltage in accessible SELV circuits. Limits of 71V peak and 120Vd.c. were not exceeded and SELV limits not for longer than 0.2 seconds.	P
2.2.4	Connection of SELV circuits to other circuits		N
2.3	TNV circuits		N
2.3.1	Limits	No TNV circuits	N
	Type of TNV circuits		



EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
2.3.2	Separation from other circuits and from accessible parts		N
2.3.2.1	General requirements		N
2.3.2.2	Protection by basic insulation		N
2.3.2.3	Protection by earthing		N
2.3.2.4	Protection by other constructions		N
2.3.3	Separation from hazardous voltages		N
	Insulation employed		
2.3.4	Connection of TNV circuits to other circuits		N
	Insulation employed		
2.3.5	Test for operating voltages generated externally		N
2.4	Limited current circuits		P
2.4.1	General requirements		P
2.4.2	Limit values	See table 2.4.2	P
	Frequency (Hz).....		P
	Measured current (mA)		P
	Measured voltage (V)		P
	Measured circuit capacitance (nF or μ F)		P
2.4.3	Connection of limited current circuits to other circuits		N
2.5	Limited power sources		P
	a) Inherently limited output		N
	b) Impedance limited output		N
	c) Regulating network limited output under normal operating and single fault condition		P
	d) Overcurrent protective device limited output		N
	Max. output voltage (V), max. output current (A), max. apparent power (VA).....	See Table 2.5	
	Current rating of overcurrent protective device (A) ..		
	Use of integrated circuit (IC) current limiters		
2.6	Provisions for earthing and bonding		N
2.6.1	Protective earthing	Class II equipment	N
2.6.2	Functional earthing		N



EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
2.6.3	Protective earthing and protective bonding conductors		N
2.6.3.1	General		N
2.6.3.2	Size of protective earthing conductors		N
	Rated current (A), cross-sectional area (mm ²), AWG		
2.6.3.3	Size of protective bonding conductors		N
	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 (W), voltage drop (V), test current (A), duration (min)		N
2.6.3.5	Colour of insulation		N
2.6.4	Terminals		N
2.6.4.1	General		N
2.6.4.2	Protective earthing and bonding terminals		N
	Rated current (A), type, nominal thread diameter (mm)		
2.6.4.3	Separation of the protective earthing conductor from protective bonding conductors		N
2.6.5	Integrity of protective earthing		N
2.6.5.1	Interconnection of equipment		N
2.6.5.2	Components in protective earthing conductors and protective bonding conductors		N
2.6.5.3	Disconnection of protective earth		N
2.6.5.4	Parts that can be removed by an operator		N
2.6.5.5	Parts removed during servicing		N
2.6.5.6	Corrosion resistance		N
2.6.5.7	Screws for protective bonding		N
2.6.5.8	Reliance on telecommunication network or cable distribution system		N
2.7	Overcurrent and earth fault protection in primary circuits		P



EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
2.7.1	Basic requirements	The equipment relies on fuse or circuit breaker of the wall outlet protection of the building installation in regard to L to N short-circuits. A build-in fuse provided as overcurrent protection device (see 5.3)	P
	Instructions when protection relies on building installation		N
2.7.2	Faults not simulated in 5.3.7		N
2.7.3	Short-circuit backup protection		N
2.7.4	Number and location of protective devices	Over current protection by one built-in fuse.	P
2.7.5	Protection by several devices	Only one fuse provided.	N
2.7.6	Warning to service personnel	No service work necessary.	N

2.8	Safety interlocks		N
2.8.1	General principles	No such part	N
2.8.2	Protection requirements		N
2.8.3	Inadvertent reactivation		N
2.8.4	Fail-safe operation		N
	Protection against extreme hazard		N
2.8.5	Moving parts		N
2.8.6	Overriding		N
2.8.7	Switches, relays and their related circuits		N
2.8.7.1	Separation distances for contact gaps and their related circuits (mm)		N
2.8.7.2	Overload test		N
2.8.7.3	Endurance test		N
2.8.7.4	Electric strength test		N
2.8.8	Mechanical actuators		N

2.9	Electrical insulation		P
2.9.1	Properties of insulating materials	Neither natural rubber, Asbestos or hygroscopic materials are used.	P
2.9.2	Humidity conditioning	Humidity treatment performed for 48 h.	P



EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Relative humidity (%), temperature (°C)	93%R.H, 28°C	
2.9.3	Grade of insulation	double insulation and reinforced insulation	P
2.9.4	Separation from hazardous voltages	double insulation and reinforced insulation	P
	Method(s) used	Method 1	

2.10	Clearances, creepage distances and distances through insulation		P
2.10.1	General		P
2.10.1.1	Frequency		P
2.10.1.2	Pollution degrees	Pollution degrees 2	P
2.10.1.3	Reduced values for functional insulation		P
2.10.1.4	Intervening unconnected conductive parts		N
2.10.1.5	Insulation with varying dimensions		N
2.10.1.6	Special separation requirements		N
2.10.1.7	Insulation in circuits generating starting pulses		N
2.10.2	Determination of working voltage	The rms and the peak voltages were measured for the unit. The unit was connected to a 240V TN power system. The input neutral and secondary GND were connected during measurement Results see appended table 2.10.2.	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		N
	a) AC mains supply		N
	b) Earthed d.c. mains supplies		N
	c) Unearthed d.c. mains supplies		N
	d) Battery operation		N
2.10.3.3	Clearances in primary circuits		P
2.10.3.4	Clearances in secondary circuits		N
2.10.3.5	Clearances in circuits having starting pulses		N



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Clause	Requirement + Test	Result - Remark	Verdict
2.10.3.6	Transients from a.c. mains supply		P
2.10.3.7	Transients from d.c. mains supply		N
2.10.3.8	Transients from telecommunication networks and cable distribution systems		N
2.10.3.9	Measurement of transient voltage levels		N
	a) Transients from a mains supply		N
	For an a.c. mains supply		N
	For a d.c. mains supply		N
	b) Transients from a telecommunication network :		N
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 are assumed to be used	N
2.10.4.3	Minimum creepage distances		P
2.10.5	Solid insulation		P
2.10.5.1	General		P
2.10.5.2	Distances through insulation		P
2.10.5.3	Insulating compound as solid insulation		N
2.10.5.4	Semiconductor devices		P
2.10.5.5.	Cemented joints		P
2.10.5.6	Thin sheet material – General		N
2.10.5.7	Separable thin sheet material		N
	Number of layers (pcs).....		
2.10.5.8	Non-separable thin sheet material		N
2.10.5.9	Thin sheet material – standard test procedure		P
	Electric strength test		P
2.10.5.10	Thin sheet material – alternative test procedure		P
	Electric strength test		N
2.10.5.11	Insulation in wound components		P
2.10.5.12	Wire in wound components		P
	Working voltage		P
	a) Basic insulation not under stress		N
	b) Basic, supplementary, reinforced insulation		N



EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	c) Compliance with Annex U		P
	Two wires in contact inside wound component; angle between 45° and 90°		N
2.10.5.13	Wire with solvent-based enamel in wound components		N
	Electric strength test		N
	Routine test		
2.10.5.14	Additional insulation in wound components		P
	Working voltage		P
	- Basic insulation not under stress		N
	- Supplementary, reinforced insulation		P
2.10.6	Construction of printed boards		P
2.10.6.1	Uncoated printed boards		P
2.10.6.2	Coated printed boards		N
2.10.6.3	Insulation between conductors on the same inner surface of a printed board		N
2.10.6.4	Insulation between conductors on different layers of a printed board		N
	Distance through insulation		N
	Number of insulation layers (pcs)		N
2.10.7	Component external terminations		N
2.10.8	Tests on coated printed boards and coated components		N
2.10.8.1	Sample preparation and preliminary inspection		N
2.10.8.2	Thermal conditioning		N
2.10.8.3	Electric strength test		N
2.10.8.4	Abrasion resistance test		N
2.10.9	Thermal cycling		N
2.10.10	Test for Pollution Degree 1 environment and insulating compound		N
2.10.11	Tests for semiconductor devices and cemented joints		N
2.10.12	Enclosed and sealed parts		N
3	WIRING, CONNECTIONS AND SUPPLY		P



EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
3.1	General		P
3.1.1	Current rating and overcurrent protection		P
3.1.2	Protection against mechanical damage		P
3.1.3	Securing of internal wiring		P
3.1.4	Insulation of conductors	The insulation of the individual conductors is suitable for the application and the working voltage.	P
3.1.5	Beads and ceramic insulators	Not used	N
3.1.6	Screws for electrical contact pressure		N
3.1.7	Insulating materials in electrical connections		N
3.1.8	Self-tapping and spaced thread screws		N
3.1.9	Termination of conductors		P
	10 N pull test		P
3.1.10	Sleeving on wiring		N

3.2	Connection to a mains supply		P
3.2.1	Means of connection	Power Plug.	P
3.2.1.1	Connection to an a.c. mains supply		P
3.2.1.2	Connection to a d.c. mains supply		N
3.2.2	Multiple supply connections		N
3.2.3	Permanently connected equipment		N
	Number of conductors, diameter of cable and conduits (mm)		
3.2.4	Appliance inlets		N
3.2.5	Power supply cords		N
3.2.5.1	AC power supply cords		N
	Type		
	Rated current (A), cross-sectional area (mm ²), AWG		
3.2.5.2	DC power supply cords		N
3.2.6	Cord anchorages and strain relief		N
	Mass of equipment (kg), pull (N)		
	Longitudinal displacement (mm)		
3.2.7	Protection against mechanical damage		N
3.2.8	Cord guards		N



EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Diameter or minor dimension D (mm); test mass (g)		
	Radius of curvature of cord (mm)		
3.2.9	Supply wiring space		N

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

3.4	Disconnection from the mains supply		P
3.4.1	General requirement		P
3.4.2	Disconnect devices	Power Plug.	P
3.4.3	Permanently connected equipment		N
3.4.4	Parts which remain energized		N
3.4.5	Switches in flexible cords		N
3.4.6	Number of poles - single-phase and d.c. equipment		N
3.4.7	Number of poles - three-phase equipment		N
3.4.8	Switches as disconnect devices		N
3.4.9	Plugs as disconnect devices		P
3.4.10	Interconnected equipment		N
3.4.11	Multiple power sources		N

3.5	Interconnection of equipment		P
3.5.1	General requirements		P
3.5.2	Types of interconnection circuits		P



EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
3.5.3	ELV circuits as interconnection circuits		N
3.5.4	Data ports for additional equipment		N
4	PHYSICAL REQUIREMENTS		P
4.1	Stability		N
	Angle of 10		N
	Test force (N)		N
4.2	Mechanical strength		P
4.2.1	General	See below. After tests, unit complies with the requirements of sub-clauses 2.1.1 and 2.10.	P
	Rack-mounted equipment.		N
4.2.2	Steady force test, 10 N	10 N applied to all components other than enclosure.	P
4.2.3	Steady force test, 30 N		N
4.2.4	Steady force test, 250 N	250 N applied to outer enclosure. No energy or other hazards.	P
4.2.5	Impact test		N
	Fall test		N
	Swing test		N
4.2.6	Drop test; height (mm)	See table 4.2.6	P
4.2.7	Stress relief test	See table 4.2.7	P
4.2.8	Cathode ray tubes		N
	Picture tube separately certified		N
4.2.9	High pressure lamps		N
4.2.10	Wall or ceiling mounted equipment; force (N)		N
4.2.11	Rotating solid media		N
	Test to cover on the door.....		N
4.3	Design and construction		P
4.3.1	Edges and corners	Edges and corners of the enclosure are rounded.	P
4.3.2	Handles and manual controls; force (N)		N



EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
4.3.3	Adjustable controls		N
4.3.4	Securing of parts		N
4.3.5	Connection by plugs and sockets	Mismatch of connectors either not possible or does not result in any hazard.	P
4.3.6	Direct plug-in equipment	See below.	P
	Torque	0.14Nm.	P
	Compliance with the relevant mains plug standard		N
4.3.7	Heating elements in earthed equipment		N
4.3.8	Batteries		N
	- Overcharging of a rechargeable battery		N
	- Unintentional charging of a non-rechargeable battery		N
	- Reverse charging of a rechargeable battery		N
	- Excessive discharging rate for any battery		N
4.3.9	Oil and grease		N
4.3.10	Dust, powders, liquids and gases		N
4.3.11	Containers for liquids or gases		N
4.3.12	Flammable liquids		N
	Quantity of liquid (l)		N
	Flash point (C)		N
4.3.13	Radiation		N
4.3.13.1	General		N
4.3.13.2	Ionizing radiation		N
	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
	Part, property, retention after test, flammability classification		N
4.3.13.4	Human exposure to ultraviolet (UV) radiation		N
4.3.13.5	Lasers (including laser diodes) and LEDs		N
4.3.13.5.1	Lasers (including laser diodes)		N
	Laser class		



EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
4.3.13.5.2	Light emitting diodes (LEDs)		N
4.3.13.6	Other types		N

4.4	Protection against hazardous moving parts		N
4.4.1	General		N
4.4.2	Protection in operator access areas		N
	Household and home/office document/media shredders		N
4.4.3	Protection in restricted access locations		N
4.4.4	Protection in service access areas		N
4.4.5	Protection against moving fan blades		N
4.4.5.1	General		N
	Not considered to cause pain or injury. a).....:		N
	Is considered to cause pain, not injury. b)		N
	Considered to cause injury. c)		N
4.4.5.2	Protection for users		N
	Use of symbol or warning		N
4.4.5.3	Protection for service persons		N
	Use of symbol or warning		N

4.5	Thermal requirements		P
4.5.1	General		P
4.5.2	Temperature tests	See Table 4.5.2	P
	Normal load condition per Annex L		P
4.5.3	Temperature limits for materials		P
4.5.4	Touch temperature limits		P
4.5.5	Resistance to abnormal heat		P

4.6	Openings in enclosures		N
4.6.1	Top and side openings		N
	Dimensions (mm)		
4.6.2	Bottoms of fire enclosures		N



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Clause	Requirement + Test	Result - Remark	Verdict
	Construction of the bottommm, dimensions (mm) ...:		
4.6.3	Doors or covers in fire enclosures		N
4.6.4	Openings in transportable equipment		N
4.6.4.1	Constructional design measures		N
	Dimensions (mm):		
4.6.4.2	Evaluation measures for larger openings		N
4.6.4.3	Use of metallized parts		N
4.6.5	Adhesives for constructional purposes		N
	Conditioning temperature (C), time (weeks).....:		
4.7	Resistance to fire		P
4.7.1	Reducing the risk of ignition and spread of flame	Electrical parts not likely to ignite nearby materials and the fire enclosures used	P
	Method 1, selection and application of components wiring and materials		P
	Method 2, application of all of simulated fault condition tests		N
4.7.2	Conditions for a fire enclosure	Compliance with the fault conditions of 5.3	P
4.7.2.1	Parts requiring a fire enclosure		P
4.7.2.2	Parts not requiring a fire enclosure		N
4.7.3	Materials		P
4.7.3.1	General		P
4.7.3.2	Materials for fire enclosures		P
4.7.3.3	Materials for components and other parts outside fire enclosures		N
4.7.3.4	Materials for components and other parts inside fire enclosures		P
4.7.3.5	Materials for air filter assemblies		N
4.7.3.6	Materials used in high-voltage components		N
5	ELECTRICAL REQUIREMENTS AND SIMULATED ABNORMAL CONDITIONS		P
5.1	Touch current and protective conductor current		P
5.1.1	General	See sub-clauses 5.1.2 to 5.1.6.	P
5.1.2	Configuration of equipment under test (EUT)	EUT has only one mains connection.	P



EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.1.2.1	Single connection to an a.c. mains supply	EUT has only one mains connection.	P
5.1.2.2	Redundant multiple connections to an a.c. mains supply		N
5.1.2.3	Simultaneous multiple connections to an a.c. mains supply		N
5.1.3	Test circuit		P
5.1.4	Application of measuring instrument		P
5.1.5	Test procedure		P
5.1.6	Test measurements	See Table 5.1.6	P
	Supply voltage (V)		
	Measured touch current (mA)		
	Max. allowed touch current (mA)		
	Measured protective conductor current (mA)		
	Max. allowed protective conductor current (mA)....		
5.1.7	Equipment with touch current exceeding 3,5 mA		N
5.1.7.1	General		N
5.1.7.2	Simultaneous multiple connections to the supply		N
5.1.8	Touch currents to telecommunication networks and cable distribution systems and from telecommunication networks		N
5.1.8.1	Limitation of the touch current to a telecommunication network or to a cable distribution system		N
	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) EUT with earthed telecommunication ports		
	b) EUT whose telecommunication ports have no reference to protective earth		
5.2	Electric strength		P
5.2.1	General		P
5.2.2	Test procedure	See Table 5.2.2	P



EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.3	Abnormal operating and fault conditions		P
5.3.1	Protection against overload and abnormal operation	See below.	P
5.3.2	Motors	No motors.	N
5.3.3	Transformers	See table 5.3	P
5.3.4	Functional insulation.....:		P
5.3.5	Electromechanical components	No electromechanical component provided.	N
5.3.6	Audio amplifiers in ITE:		N
5.3.7	Simulation of faults		P
5.3.8	Unattended equipment	No fire propagated beyond the equipment. No molten metal was emitted. Electric strength test primary → SELV, primary → enclosure were passed.	P
5.3.9	Compliance criteria for abnormal operating and fault conditions		P
5.3.9.1	During the tests		P
5.3.9.2	After the tests		P
6	CONNECTION TO TELECOMMUNICATION NETWORKS		N
6.1	Protection of telecommunication network service persons, and users of other equipment connected to the network, from hazards in the equipment		N
6.1.1	Protection from hazardous voltages		N
6.1.2	Separation of the telecommunication network from earth		N
6.1.2.1	Requirements		N
	Supply voltage (V):		
	Current in the test circuit (mA):		
6.1.2.2	Exclusions:		N
6.2	Protection of equipment users from overvoltages on telecommunication networks		N
6.2.1	Separation requirements		N
6.2.2	Electric strength test procedure		N
6.2.2.1	Impulse test		N
6.2.2.2	Steady-state test		N
6.2.2.3	Compliance criteria		N



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Clause	Requirement + Test	Result - Remark	Verdict
6.3	Protection of the telecommunication wiring system from overheating		N
	Max. output current (A)		
	Current limiting method		
7	CONNECTION TO CABLE DISTRIBUTION SYSTEMS		N
7.1	General		N
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
7.3	Protection of equipment users from overvoltages on the cable distribution system		N
7.4	Insulation between primary circuits and cable distribution systems		N
7.4.1	General		N
7.4.2	Voltage surge test		N
7.4.3	Impulse test		N



EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
A	ANNEX A, TESTS FOR RESISTANCE TO HEAT AND FIRE		N
A.1	Flammability test for fire enclosures of movable equipment having a total mass exceeding 18 kg, and of stationary equipment (see 4.7.3.2)		N
A.1.1	Samples		
	Wall thickness (mm).....		
A.1.2	Conditioning of samples; temperature (C)		N
A.1.3	Mounting of samples		N
A.1.4	Test flame (see IEC 60695-11-3)		N
	Flame A, B, C or D		
A.1.5	Test procedure		N
A.1.6	Compliance criteria		N
	Sample 1 burning time (s).....		
	Sample 2 burning time (s).....		
	Sample 3 burning time (s).....		
A.2	Flammability test for fire enclosures of movable equipment having a total mass not exceeding 18 kg, and for material and components located inside fire enclosures (see 4.7.3.2 and 4.7.3.4)		N
A.2.1	Samples, material		
	Wall thickness (mm).....		
A.2.2	Conditioning of samples; temperature (°C)		N
A.2.3	Mounting of samples		N
A.2.4	Test flame (see IEC 60695-11-4)		N
	Flame A, B or C		
A.2.5	Test procedure		N
A.2.6	Compliance criteria		N
	Sample 1 burning time (s).....		
	Sample 2 burning time (s).....		
	Sample 3 burning time (s).....		
A.2.7	Alternative test acc. to IEC 60695-11-5, cl. 5 and 9		N
	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



EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
A.3.1	Mounting of samples		N
A.3.2	Test procedure		N
A.3.3	Compliance criterion		N
B	ANNEX B, MOTOR TESTS UNDER ABNORMAL CONDITIONS (see 4.7.2.2 and 5.3.2)		N
B.1	General requirements		N
	Position		
	Manufacturer		
	Type		
	Rated values		
B.2	Test conditions		N
B.3	Maximum temperatures		N
B.4	Running overload test		N
B.5	Locked-rotor overload test		N
	Test duration (days)		
	Electric strength test: test voltage (V)		
B.6	Running overload test for d.c. motors in secondary circuits		N
B.6.1	General		N
B.6.2	Test procedure		N
B.6.3	Alternative test procedure		N
B.6.4	Electric strength test; test voltage (V)		N
B.7	Locked-rotor overload test for d.c. motors in secondary circuits		N
B.7.1	General		N
B.7.2	Test procedure		N
B.7.3	Alternative test procedure		N
B.7.4	Electric strength test; test voltage (V)		N
B.8	Test for motors with capacitors		N
B.9	Test for three-phase motors		N
B.10	Test for series motors		N
	Operating voltage (V)		
C	ANNEX C, TRANSFORMERS (see 1.5.4 and 5.3.3)		P



EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Position	T1	
	Manufacturer		
	Type		
	Rated values	Class B	
	Method of protection		
C.1	Overload test		P
C.2	Insulation		P
	Protection from displacement of windings		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
E	ANNEX E, TEMPERATURE RISE OF A WINDING (see 1.4.13)		N
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
G.1	Clearances		N
G.1.1	General		N
G.1.2	Summary of the procedure for determining minimum clearances		N
G.2	Determination of mains transient voltage (V)		N
G.2.1	AC mains supply		N
G.2.2	Earthed d.c. mains supplies		N
G.2.3	Unearthed d.c. mains supplies		N
G.2.4	Battery operation		N
G.3	Determination of telecommunication network transient voltage (V)		N
G.4	Determination of required withstand voltage (V)		N
G.4.1	Mains transients and internal repetitive peaks		N
G.4.2	Transients from telecommunication networks		N
G.4.3	Combination of transients		N



EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
G.4.4	Transients from cable distribution systems		N
G.5	Measurement of transient voltages (V)		N
	a) Transients from a mains supply		N
	For an a.c. mains supply		N
	For a d.c. mains supply		N
	b) Transients from a telecommunication network		N
G.6	Determination of minimum clearances		N
H	ANNEX H, IONIZING RADIATION (see 4.3.13)		N
J	ANNEX J, TABLE OF ELECTROCHEMICAL POTENTIALS (see 2.6.5.6)		N
	Metal(s) used		
K	ANNEX K, THERMAL CONTROLS (see 1.5.3 and 5.3.8)		N
K.1	Making and breaking capacity		N
K.2	Thermostat reliability; operating voltage (V)		N
K.3	Thermostat endurance test; operating voltage (V)		N
K.4	Temperature limiter endurance; operating voltage (V)		N
K.5	Thermal cut-out reliability		N
K.6	Stability of operation		N
L	ANNEX L, NORMAL LOAD CONDITIONS FOR SOME TYPES OF ELECTRICAL BUSINESS EQUIPMENT (see 1.2.2.1 and 4.5.2)		N
L.1	Typewriters		N
L.2	Adding machines and cash registers		N
L.3	Erasers		N
L.4	Pencil sharpeners		N
L.5	Duplicators and copy machines		N
L.6	Motor-operated files		N
L.7	Other business equipment		N
M	ANNEX M, CRITERIA FOR TELEPHONE RINGING SIGNALS (see 2.3.1)		N
M.1	Introduction		N



EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
M.2	Method A		N
M.3	Method B		N
M.3.1	Ringing signal		N
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
M.3.2.1	Conditions for use of a tripping device or a monitoring voltage		N
M.3.2.2	Tripping device		N
M.3.2.3	Monitoring voltage (V)		N
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
N.1	ITU-T impulse test generators		N
N.2	IEC 60065 impulse test generator		N
P	ANNEX P, NORMATIVE REFERENCES		N
Q	ANNEX Q, Voltage dependent resistors (VDRs) (see 1.5.9.1)		N
	a) Preferred climatic categories		
	b) Maximum continuous voltage		
	c) Pulse current		
R	ANNEX R, EXAMPLES OF REQUIREMENTS FOR QUALITY CONTROL PROGRAMMES		N
R.1	Minimum separation distances for unpopulated coated printed boards (see 2.10.6.2)		N
R.2	Reduced clearances (see 2.10.3)		N
S	ANNEX S, PROCEDURE FOR IMPULSE TESTING (see 6.2.2.3)		N
S.1	Test equipment		N
S.2	Test procedure		N
S.3	Examples of waveforms during impulse testing		N



EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
T	ANNEX T, GUIDANCE ON PROTECTION AGAINST INGRESS OF WATER (see 1.1.2)		N
	Protection against ingress of water		
U	ANNEX U, INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION (see 2.10.5.4)		N
V	ANNEX V, AC POWER DISTRIBUTION SYSTEMS (see 1.6.1)		N
V.1	Introduction		N
V.2	TN power distribution systems		N
W	ANNEX W, SUMMATION OF TOUCH CURRENTS		N
W.1	Touch current from electronic circuits		N
W.1.1	Floating circuits		N
W.1.2	Earthed circuits		N
W.2	Interconnection of several equipments		N
W.2.1	Isolation		N
W.2.2	Common return, isolated from earth		N
W.2.3	Common return, connected to protective earth		N
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
Y.1	Test apparatus		N
Y.2	Mounting of test samples		N
Y.3	Carbon-arc light-exposure apparatus		N
Y.4	Xenon-arc light exposure apparatus		N
Z	ANNEX Z, OVERVOLTAGE CATEGORIES (see 2.10.3.2 and Clause G.2)		N



EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
AA	ANNEX AA, MANDREL TEST (see 2.10.5.8)		N
BB	ANNEX BB, CHANGES IN THE SECOND EDITION		N
CC	ANNEX CC, Evaluation of integrated circuit (IC) current limiters		N
CC.1	General		N
CC.2	Test program 1.....:		N
CC.3	Test program 2.....:		N
DD	ANNEX DD, Requirements for the mounting means of rack-mounted equipment		N
DD.1	General		N
DD.2	Mechanical strength test, variable N.....:		N
DD.3	Mechanical strength test, 250N, including end stops.....:		N
DD.4	Compliance.....:		N
EE	ANNEX EE, Household and home/office document/media shredders		N
EE.1	General		N
EE.2	Markings and instructions		N
	Use of markings or symbols.....:		N
	Information of user instructions, maintenance and/or servicing instructions.....:		N
EE.3	Inadvertent reactivation test.....:		N
EE.4	Disconnection of power to hazardous moving parts:		N
	Use of markings or symbols.....:		N
EE.5	Protection against hazardous moving parts		N
	Test with test finger (Figure 2A):		N
	Test with wedge probe (Figure EE1 and EE2):		N



EN 60950-1			
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

Attachment Form No. : EU_GD_IEC60950_1C_II

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EN 60950-1:2006/A11:2009/A1:2010/A12:2011 – CENELEC COMMON MODIFICATIONS

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



EN 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</p> <p>The apparatus shall be so designed and constructed as to present no danger when used for its intended purpose, either in normal operating conditions or under fault conditions, particularly providing protection against exposure to excessive sound pressures from headphones or earphones.</p> <p>NOTE Z1 A new method of measurement is described in EN 50332-1, Sound system equipment: Headphones and earphones associated with portable audio equipment - Maximum sound pressure level measurement methodology and limit considerations - Part 1: General method for "one package equipment", and in EN 50332-2, Sound system equipment: Headphones and earphones associated with portable audio equipment - Maximum sound pressure level measurement methodology and limit considerations - Part 2: Guidelines to associate sets with headphones coming from different manufacturers.</p>	Not such equipment.	N
(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>	Deleted.	N
1.5.1	<p>Add the following NOTE:</p> <p>NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2002/95/EC</p>	Added.	P
1.7.2.1 (A1:2010)	<p>In addition, for a PORTABLE SOUND SYSTEM, the instructions shall include a warning that excessive sound pressure from earphones and headphones can cause hearing loss.</p>	Added.	N
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>	Replaced.	N
	Zx Protection against excessive sound pressure from personal music players		N




EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>Zx.1 General</p> <p>This sub-clause specifies requirements for protection against excessive sound pressure from personal music players that are closely coupled to the ear. It also specifies requirements for earphones and headphones intended for use with personal music players.</p> <p>A personal music player is a portable equipment for personal use, that:</p> <ul style="list-style-type: none"> is designed to allow the user to listen to recorded or broadcast sound or video; and primarily uses headphones or earphones that can be worn in or on or around the ears; and allows the user to walk around while in use. <p>NOTE 1 Examples are hand-held or body-worn portable CD players, MP3 audio players, mobile phones with MP3 type features, PDA's or similar equipment.</p> <p>A personal music player and earphones or headphones intended to be used with personal music players shall comply with the requirements of this sub-clause.</p> <p>The requirements in this sub-clause are valid for music or video mode only.</p> <p>The requirements do not apply:</p> <ul style="list-style-type: none"> while the personal music player is connected to an external amplifier; or while the headphones or earphones are not used. <p>NOTE 2 An external amplifier is an amplifier which is not part of the personal music player or the listening device, but which is intended to play the music as a standalone music player.</p> <p>The requirements do not apply to:</p> <ul style="list-style-type: none"> hearing aid equipment and professional equipment; <p>NOTE 3 Professional equipment is equipment sold through special sales channels. All products sold through normal electronics stores are considered not to be professional equipment.</p>	Not such equipment.	N
	<p>analogue personal music players (personal music players without any kind of digital processing of the sound signal) that are brought to the market before the end of 2015.</p> <p>NOTE 4 This exemption has been allowed because this technology is falling out of use and it is expected that within a few years it will no longer exist. This exemption will not be extended to other technologies.</p> <p>For equipment which is clearly designed or intended for use by young children, the limits of EN 71-1 apply.</p>		N



EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>Zx.2 Equipment requirements</p> <p>No safety provision is required for equipment that complies with the following:</p> <ul style="list-style-type: none">equipment provided as a package (personal music player with its listening device), where the acoustic output $L_{Aeq,T}$ is ≤ 85 dBA measured while playing the fixed "programme simulation noise" as described in EN 50332-1; anda personal music player provided with an analogue electrical output socket for a listening device, where the electrical output is ≤ 27 mV measured as described in EN 50332-2, while playing the fixed "programme simulation noise" as described in EN 50332-1. <p>NOTE 1 Wherever the term acoustic output is used in this clause, the 30 s A-weighted equivalent sound pressure level $L_{Aeq,T}$ is meant. See also Zx.5 and Annex Zx.</p> <p>All other equipment shall:</p> <ul style="list-style-type: none">a) protect the user from unintentional acoustic outputs exceeding those mentioned above; andb) 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	Not such equipment.	N



EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>c) provide a means to actively inform the user of the increased sound pressure when the equipment is operated with an acoustic output exceeding those mentioned above. Any means used shall be acknowledged by the user before activating a mode of operation which allows for an acoustic output exceeding those mentioned above. The acknowledgement does not need to be repeated more than once every 20 h of cumulative listening time; and</p> <p>NOTE 2 Examples of means include visual or audible signals. Action from the user is always required.</p> <p>NOTE 3 The 20 h listening time is the accumulative listening time, independent how often and how long the personal music player has been switched off.</p> <p>d) have a warning as specified in Zx.3; and</p> <p>e) not exceed the following:</p> <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>	Not such equipment.	N

EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>Zx.3 Warning</p> <p>The warning shall be placed on the equipment, or on the packaging, or in the instruction manual and shall consist of the following:</p> <p style="padding-left: 40px;">the symbol of Figure 1 with a minimum height of 5 mm; and</p> <p style="padding-left: 40px;">the following wording, or similar:</p> <p>“To prevent possible hearing damage, do not listen at high volume levels for long periods.”</p> <div style="text-align: center;">  </div> <p>Figure 1 – Warning label (IEC 60417-6044)</p> <p>Alternatively, the entire warning may be given through the equipment display during use, when the user is asked to acknowledge activation of the higher level.</p>	Not such equipment.	N
	Zx.4 Requirements for listening devices (headphones and earphones)		N
	<p>Zx.4.1 Wired listening devices with analogue input</p> <p>With 94 dBA sound pressure output LAeq,T, the input voltage of the fixed “programme simulation noise” described in EN 50332-2 shall be ≥ 75 mV.</p> <p>This requirement is applicable in any mode where the headphones can operate (active or passive), including any available setting (for example built-in volume level control).</p> <p>NOTE The values of 94 dBA – 75 mV correspond with 85dBA – 27 mV and 100 dBA – 150 mV.</p>	Not such equipment.	N



EN 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>	Not such equipment.	N
	<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>	Not such equipment.	N
	<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>	Not such equipment.	N



EN 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>	Replaced.	P						
	<p>c) it is permitted for PLUGGABLE EQUIPMENT TYPE B or PERMANENTLY CONNECTED EQUIPMENT, to rely on dedicated overcurrent and short-circuit protection in the building installation, provided that the means of protection, e.g. fuses or circuit breakers, is fully specified in the installation instructions.</p> <p>If reliance is placed on protection in the building installation, the installation instructions shall so state, except that for PLUGGABLE EQUIPMENT TYPE A the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet.</p>		N						
2.7.2	This subclause has been declared 'void'.		N						
3.2.3	Delete the NOTE in Table 3A, and delete also in this table the conduit sizes in parentheses.	Deleted.	N						
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> <table><tr><td>Up to and including 6 </td><td>0,75 ^{a)} </td></tr><tr><td>Over 6 up to and including 10 (0,75) ^{b)}</td><td>1,0 </td></tr><tr><td>Over 10 up to and including 16 (1,0) ^{c)}</td><td>1,5 </td></tr></table> <p>In the conditions applicable to Table 3B delete the words "in some countries" in condition ^{a)}.</p> <p>In NOTE 1, applicable to Table 3B, delete the second sentence.</p>	Up to and including 6	0,75 ^{a)}	Over 6 up to and including 10 (0,75) ^{b)}	1,0	Over 10 up to and including 16 (1,0) ^{c)}	1,5	Replaced.	N
Up to and including 6	0,75 ^{a)}								
Over 6 up to and including 10 (0,75) ^{b)}	1,0								
Over 10 up to and including 16 (1,0) ^{c)}	1,5								



EN 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	Deleted.	N
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).	Added.	N
	Standards taking into account mentioned Recommendation and Directive which demonstrate compliance with the applicable EU Directive are indicated in the OJEC.		N
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 μ Sv/h (0,1 mR/h) (see NOTE). Account is taken of the background level. Replace the notes as follows: NOTE These values appear in Directive 96/29/Euratom. Delete NOTE 2.	Replaced.	N
Bibliography	Additional EN standards.		

ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN)			
Clause	Requirement + Test	Result - Remark	Verdict
1.2.4.1	In Denmark , certain types of Class I appliances (see 3.2.1.1) may be provided with a plug not establishing earthing conditions when inserted into Danish socket-outlets.		N
1.2.13.14	In Norway and Sweden , for requirements see 1.7.2.1 and 7.3 of this annex.		N
1.5.7.1	In Finland , Norway and Sweden , resistors bridging BASIC INSULATION in CLASS I PLUGGABLE EQUIPMENT TYPE A must comply with the requirements in 1.5.7.1. In addition when a single resistor is used, the resistor must withstand the resistor test in 1.5.7.2.		N



EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
<i>ZB ANNEX (normative)</i> <i>SPECIAL NATIONAL CONDITIONS (EN)</i>			
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



EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
<p align="center">ZB ANNEX (normative)</p> <p align="center">SPECIAL NATIONAL CONDITIONS (EN)</p>			
Clause	Requirement + Test	Result - Remark	Verdict
1.7.2.1	<p>In Finland, Norway and Sweden, CLASS I PLUGGABLE EQUIPMENT TYPE A intended for connection to other equipment or a network shall, if safety relies on connection to protective earth or if surge suppressors are connected between the network terminals and accessible parts, have a marking stating that the equipment must be connected to an earthed mains socket-outlet.</p> <p>The marking text in the applicable countries shall be as follows:</p> <p>In Finland: "Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan"</p> <p>In Norway: "Apparatet må tilkoples jordet stikkontakt"</p> <p>In Sweden: "Apparaten skall anslutas till jordat uttag"</p> <p>In Norway and Sweden, the screen of the cable distribution system is normally not earthed at the entrance of the building and there is normally no equipotential bonding system within the building. Therefore the protective earthing of the building installation need to be isolated from the screen of a cable distribution system.</p> <p>It is however accepted to provide the insulation external to the equipment by an adapter or an interconnection cable with galvanic isolator, which may be provided by e.g. a retailer.</p> <p>The user manual shall then have the following or similar information in Norwegian and Swedish language respectively, depending on in what country the equipment is intended to be used in:</p> <p>"Equipment connected to the protective earthing of the building installation through the mains connection or through other equipment with a connection to protective earthing – and to a cable distribution system using coaxial cable, may in some circumstances create a fire hazard. Connection to a cable distribution system has therefore to be provided through a device providing electrical isolation below a certain frequency range (galvanic isolator, see EN 60728-11)."</p>		N



EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
<p align="center">ZB ANNEX (normative)</p> <p align="center">SPECIAL NATIONAL CONDITIONS (EN)</p>			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>NOTE In Norway, due to regulation for installations of cable distribution systems, and in Sweden, a galvanic isolator shall provide electrical insulation below 5 MHz. The insulation shall withstand a dielectric strength of 1,5 kV r.m.s., 50 Hz or 60 Hz, for 1 min.</p> <p>Translation to Norwegian (the Swedish text will also be accepted in Norway):</p> <p>“Utstyr som er koplet til beskyttelsesjord via nettplugg og/eller via annet jordtilkoplet utstyr – og er tilkoplet et kabel-TV nett, kan forårsake brannfare. For å unngå dette skal det ved tilkopling av utstyret til kabel-TV nettet installeres en galvanisk isolator mellom utstyret og kabel- TV nettet.”</p> <p>Translation to Swedish:</p> <p>”Utrustning som är kopplad till skyddsjord via jordat vägguttag och/eller via annan utrustning och samtidigt är kopplad till kabel-TV nät kan i vissa fall medföra risk för brand. För att undvika detta skall vid anslutning av utrustningen till kabel-TV nät galvanisk isolator finnas mellan utrustningen och kabel-TV nätet.”</p>		
1.7.5	<p>In Denmark, socket-outlets for providing power to other equipment shall be in accordance with the Heavy Current Regulations, Section 107-2-D1, Standard Sheet DK 1-3a, DK 1-5a or DK 1-7a, when used on Class I equipment. For STATIONARY EQUIPMENT the socket-outlet shall be in accordance with Standard Sheet DK 1-1b or DK 1-5a.</p> <p>For CLASS II EQUIPMENT the socket outlet shall be in accordance with Standard Sheet DKA 1-4a.</p>	No socket-outlet provided.	N
2.2.4	In Norway , for requirements see 1.7.2.1, 6.1.2.1 and 6.1.2.2 of this annex.	No TNV.	N
2.3.2	In Finland, Norway and Sweden there are additional requirements for the insulation. See 6.1.2.1 and 6.1.2.2 of this annex.	No TNV.	N
2.3.4	In Norway , for requirements see 1.7.2.1, 6.1.2.1 and 6.1.2.2 of this annex.	No TNV.	N
2.6.3.3	In the United Kingdom , the current rating of the circuit shall be taken as 13 A, not 16 A.		N



EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN)			
Clause	Requirement + Test	Result - Remark	Verdict
2.7.1	In the United Kingdom , to protect against excessive currents and short-circuits in the PRIMARY CIRCUIT of DIRECT PLUG-IN EQUIPMENT, tests according to 5.3 shall be conducted, using an external protective device rated 30 A or 32 A. If these tests fail, suitable protective devices shall be included as integral parts of the DIRECT PLUG-IN EQUIPMENT, so that the requirements of 5.3 are met.		P
2.10.5.13	In Finland, Norway and Sweden , there are additional requirements for the insulation, see 6.1.2.1 and 6.1.2.2 of this annex.	No TNV	N
3.2.1.1	<p>In Switzerland, supply cords of equipment having a RATED CURRENT not exceeding 10 A shall be provided with a plug complying with SEV 1011 or IEC 60884-1 and one of the following dimension sheets:</p> <p>SEV 6532-2.1991 Plug Type 15 3P+N+PE 250/400 V, 10 A</p> <p>SEV 6533-2.1991 Plug Type 11 L+N 250 V, 10 A</p> <p>SEV 6534-2.1991 Plug Type 12 L+N+PE 250 V, 10 A</p> <p>In general, EN 60309 applies for plugs for currents exceeding 10 A. However, a 16 A plug and socket-outlet system is being introduced in Switzerland, the plugs of which are according to the following dimension sheets, published in February 1998:</p> <p>SEV 5932-2.1998: Plug Type 25, 3L+N+PE 230/400 V, 16 A</p> <p>SEV 5933-2.1998: Plug Type 21, L+N, 250 V, 16A</p> <p>SEV 5934-2.1998: Plug Type 23, L+N+PE 250 V, 16 A</p>		N



EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
<i>ZB ANNEX (normative)</i> <i>SPECIAL NATIONAL CONDITIONS (EN)</i>			
Clause	Requirement + Test	Result - Remark	Verdict
3.2.1.1	<p>In Denmark, supply cords of single-phase equipment having a rated current not exceeding 13 A shall be provided with a plug according to the Heavy Current Regulations, Section 107-2-D1.</p> <p>CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a.</p> <p>If poly-phase equipment and single-phase equipment having a RATED CURRENT exceeding 13 A is provided with a supply cord with a plug, this plug shall be in accordance with the Heavy Current Regulations, Section 107-2-D1 or EN 60309-2.</p>		N
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



EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
<i>ZB ANNEX (normative)</i> <i>SPECIAL NATIONAL CONDITIONS (EN)</i>			
Clause	Requirement + Test	Result - Remark	Verdict
3.2.1.1	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. NOTE 'Standard plug' is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.		N
3.2.1.1	In Ireland , apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to I.S. 411 by means of that flexible cable or cord and plug, shall be fitted with a 13 A plug in accordance with Statutory Instrument 525:1997 - National Standards Authority of Ireland (section 28) (13 A Plugs and Conversion Adaptors for Domestic Use) Regulations 1997.		N
3.2.4	In Switzerland , for requirements see 3.2.1.1 of this annex.		N
3.2.5.1	In the United Kingdom , a power supply cord with conductor of 1,25 mm ² is allowed for equipment with a rated current over 10 A and up to and including 13 A.		N
3.3.4	In the United Kingdom , the range of conductor sizes of flexible cords to be accepted by terminals for equipment with a RATED CURRENT of over 10 A up to and including 13 A is: • 1,25 mm ² to 1,5 mm ² nominal cross-sectional area.		N



EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
<i>ZB ANNEX (normative)</i> <i>SPECIAL NATIONAL CONDITIONS (EN)</i>			
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
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
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.	Not exceed 3.5mA.	N



EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
<i>ZB ANNEX (normative)</i> <i>SPECIAL NATIONAL CONDITIONS (EN)</i>			
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.	No TNV	N



EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
<p align="center">ZB ANNEX (normative)</p> <p align="center">SPECIAL NATIONAL CONDITIONS (EN)</p>			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>It is permitted to bridge this insulation with an optocoupler complying with 2.10.5.4 b).</p> <p>It is permitted to bridge this insulation with a capacitor complying with EN 60384-14:2005, subclass Y2.</p> <p>A capacitor classified Y3 according to EN 60384-14:2005, may bridge this insulation under the following conditions:</p> <ul style="list-style-type: none"> - the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 60384-14, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in EN 60950-1:2006, 6.2.2.1; - the additional testing shall be performed on all the test specimens as described in EN 60384-14; - the impulse test of 2,5 kV is to be performed before the endurance test in EN 60384-14, in the sequence of tests as described in EN 60384-14. 		N
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.	No TNV	N
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.	Not connected to cable distribution system.	N
7.3	In Norway and Sweden , for requirements see 1.2.13.14 and 1.7.2.1 of this annex.	Not connected to cable distribution system.	N
7.3	In Norway , for installation conditions see EN 60728-11:2005.	Not connected to cable distribution system	N



1.6.2		TABLE: Electrical Data (In Normal Conditions)					P
fuse #	I _{rated} (A)	U (V)	F(Hz)	P (W)	I (A)	I _{fuse} (A)	condition/status
F1	--	90	50	45.2	1.11	1.11	Maximum normal load
F1	--	90	60	45.4	1.10	1.10	Maximum normal load
	1.5	100	50	50.1	1.22	1.22	Maximum normal load
	1.5	100	60	50.2	1.24	1.24	Maximum normal load
	1.5	240	50	57.8	1.40	1.40	Maximum normal load
F1	1.5	240	60	58.2	1.40	1.40	Maximum normal load
	--	264	50	62.1	1.45	1.45	Maximum normal load
	--	264	60	62.2	1.47	1.47	Maximum normal load
Supplementary information:							
Load with rated value.							

1.7.11	TABLE: durability of marking test			P
Location		Checked by	Time	Result
Adhesive sticker label		Water	15s	No any curling and still legibility
Adhesive sticker label		Petroleum spirit	15s	No any curling and still legibility
Supplementary information:				
The above measurements are the maximum values(max.V and max.A not obtained at the same time)				

2.1.1.5 c1)	TABLE:max.V,A,VA test				P
Voltage(rated) (V)	Current(rated) (A)	Voltage(max.) (V)	Current(max.) (A)	VA(max.) (VA)	
12	1.5	12.2	1.7	21.8	
Supplementary information:					
The above measurements are the maximum values(max.V and max.A not obtained at the same time)					

2.2	TABLE: evaluation of voltage limiting component in SELV circuits			P
Component(measured between)	Max.voltage(V) (normal operation)		Voltage Limiting Components	
	V peak	V d.c		



T1 pinA to B	25.8	--	--
After D2	--	16.4	--
Fault test performed on voltage limiting components		Voltage measured(V) in SELV circuits (V peak or V d.c.)	
D2 S-C		0	
Supplementary information:s-c=short circuit.			

2.4.2	TABLE: Limited Current Circuits Test			P
Location	Voltage (V)	Freq. (Hz)	Current (mA)	Limit (mA)
CY1	264	67.5	37.7	47.2
Supplementary information:				
1)2Kohm resistor is connected between output “-“and earth				

2.5	TABLE: Limited power sources				P
Circuit output tested:					
Measured Uoc(V) with all load circuits Disconnected:					
Components	Isc(A)		VA		
	Meas.	Limit	Meas.	Limit	
Normal	2.3	8	28.0	100	
D2 S-C	0	8	0	100	
Supplementary information:					

2.9.2	Humidity Condition Test		P
Test condition: 26°C, 93%, 48hrs			
Test voltage applied between:		Test voltage (V)	Breakdown
L to N(Fuse open)		AC 1500	No
T1 Pri-Sec		AC 3000	No
Input to output		AC 3000	No
Input to enclosure		AC 3000	No
BI: Basic insulation SI: Supplementary insulation RI: Reinforced insulation; FI: Functional Insulation			
Humidity Chamber: ; Stop watch: ; Withstanding Voltage Tester:			



2.10.2	TABLE: working voltage measurement			P
Location		RMS voltage(V)	Peak voltage(V)	Comments
T1 pin 1 to pin A		211	362	--
T1 pin 2 to pin A		215	357	--
T1 pin 3 to pin A		238	378	--
T1 pin 4 to pin A		212	365	--
T1 pin 1 to pin B		210	364	--
T1 pin 2 to pin B		213	360	--
T1 pin 3 to pin B		250	397	Max.RMS, Max.Peak
T1 pin 4 to pin B		214	366	--
CY1		216	369	--
Supplementary information:				
The highest measured working voltages in transformer are indicated with bold character. Vin=240Vac.60Hz				

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)	Measured cl (mm)	Required cr (mm)	Measured cr (mm)	
L to N	420	240	2.0	3.0	2.5	3.0	
Fuse	420	240	2.0	3.1	2.5	3.1	
CY1 Pri-Sec on PCB	369	216	4.0	6.5	4.8	6.5	
T1 Pri-Sec on PCB	397	250	4.5	6.5	5.0	6.5	
Functional:							
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)	
--	--	--	--	--	--	--	
Basic/supplementary:							
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)	
--	--	--	--	--	--	--	
Reinforced:							
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)	
--	--	--	--	--	--	--	
Supplementary information:							
No flash over or insulation breakdown after test.							

2.10.5	TABLE: distance through insulation measurements	P
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distance through insulation di at/of:	Up (V)	test voltage (V)	required di (mm)	di (mm)
Bobbin	397	3000Vac	0.4	1.5
Supplementary information: No flash over or insulation breakdown after test.				

4.2.6	Drop Test	Height: 1000mm	P
Impact Area	Drop Times	Drop No.	Observation
Front enclosure	3	--	intact
Bottom enclosure	3	--	Intact

4.2.7	Stress Relief Test			P
Location		Temperature(°C)	Times	Observation
Enclosure		75°C	7 hours	No hazard

Pass: If any cracks or damages occur which do not change the normal shape or allow reduction of protection against electric shock then they are disregarded. Otherwise the pass verdict will be established by the Project Engineer.



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

4.5.1	TABLE: Temperature Rise Measurements			P
Location		Test voltage (V)		Allowed Temperature(°C)
		90V/60Hz Temperature(°C)	264V/50Hz Temperature(°C)	
Power plug inside		53.1	51.0	125
Power plug outside		52.0	47.8	95
Internal wire		50.3	50.2	105
C1		70.2	68.1	105
T1 winding		92.8	90.2	110
T1 bobbin		90.1	88.0	110
PCB near T1		77.4	85.5	130
CY1		77.6	76.2	125
C3		65.7	63.7	105
Enclosure near T1 inside		64.8	62.6	125



Enclosure near T1 outside	61.5	59.3	95
Ambient	25.0	25.1	--
Comments: <p>The temperatures were measured by thermal couple (type K) method under worst case normal mode defined in 1.2.2.1 load as described in 1.6.2 at voltage described in 1.4.5. The worst case at normal mode is defined with max load of the adaptor.</p> <p>With max. ambient temperature specified as 25 C, therefore, the maximum temperature rise is calculated as follows:</p> <p>Winding components:</p> <p>0- winding of 110°C (Class B or better)</p> <p>Components with:</p>			

4.5.5	TABLE: ball pressure test of thermoplastic parts		P
allowed impression diameter (mm):		2.0	--
Part	test temperature (*XC)	impression diameter (mm)	
PCB	125	0.6	
Enclosure	125	0.9	
Bobbin	125	0.7	
supplementary information:			
--			

5.1.6	Table: touch current measurement			P
Measured between:	Measured (mA)	Limit (mA)	Comments	
Live – Output	0.035	0.25	“e” – C; P1 – N; Pri S. – On	
Neutral –Output	0.035	0.25	“e” – C; P1 – R; Pri S. – On	
Live –Output	0.005	0.25	“e” – C; P1 – N; Pri S. – Off	
Neutral –Output	0.005	0.25	“e” – C; P1 – R; Pri S. – Off	
Live – Enclosure (with metal foil)	0.010	0.25	“e” – C; P1 – N; Pri S. – On	
Neutral – Enclosure (with metal foil)	0.010	0.25	“e” – C; P1 – R; Pri S. – On	
Live – Enclosure (with metal foil)	0.005	0.25	“e” – C; P1 – N; Pri S. – Off	
Neutral – Enclosure (with metal foil)	0.005	0.25	“e” – C; P1 – R; Pri S. – Off	
supplementary information:				
Note(s):				
Supply voltage: 264V/60Hz				



5.2	TABLE: Electric strength tests, impulse tests and voltage surge tests		P
Test voltage applied between:		Test voltage (V)	Breakdown
L to N(Fuse open)		AC 1500	No
T1 Pri-Sec		AC 3000	No
Input to output		AC 3000	No
Input to enclosure		AC 3000	No
Supplementary information:			
BI : Basic insulation SI : Supplementary insulation RI : Reinforced insulation; FI : Functional Insulation Withstanding Voltage Tester:			

5.3	TABLE: Fault Condition Tests						P
--	Ambient temperature (°C)				25°C, if not otherwise stated		--
	Power source for EUT: Manufacturer, model/type, output rating				Refer to page 2.		--
No.	Component No.	Fault	Test Voltage (V)	Test Time	Fuse No.	Fuse Current (A)	Result
1	C1	S-C	240	1s	F1	0	Fuse open, No hazard.
2	DB1 Pin1-3	S-C	240	1s	F1	0	Fuse open, No hazard.
3	T1 pin1-2	S-C	240	10mins	F1	0.011	Unit shut down immediately. Recoverable. No hazard.
4	T1 Pin3-4	S-C	240	10mins	F1	0.014	Unit shut down immediately. Recoverable. No hazard.
5	T1 PinA-B	S-C	240	10mins	F1	0.011	Unit shut down immediately. Recoverable. No hazard.
6	C3	S-C	240	10mins	F1	0.013	Unit shut down immediately. Recoverable. No hazard.
7	Output	S-C	240	10mins	F1	0.012	Unit shut down immediately. Recoverable.



8	Output	O-L	240	10.5hours	F1	0.15-0.19- 0.22-0.24-0	No hazard. After test, T1 winding: 99.9℃, T1 Bobbin: 97.5℃, Ambient: 25.0℃; No hazard.
Supplementary information							
Fault: S-C=short circuit, O-L =overload, B-L = blocked, O-C =open circuit.							
Note: for fuse-opened conditions, same results came out for all sources of fuse. If fuse not open have repeat test three times.							



ANNEX A:

Photo-documentation

Photo 1 General Appearance of the EUT



Photo 2 General Appearance of the EUT



Photo 3 General Appearance of the EUT



Photo 4 General Appearance of the EUT



End of the report