



APPLICATION FOR LOW VOLTAGE DIRECTIVE

On Behalf of

Shenzhen KCLY Electric Co.,Ltd

inverter

KOC600-7R5GT4

(Other models see list on page 4 of the report)

Prepared for : **Shenzhen KCLY Electric Co.,Ltd**
NO.8 East zone,Shangxueindustrialpark,Bantian,LonggangDistrict
Shenzhen,China

Prepared By : **Shenzhen HTT Technology Co., Ltd.**
7F, Guangfu Building, Baoyuan Road, Xixiang, Baoan District,
Shenzhen, Guangdong, China

Date of Test: **Sep.10,2015 to Sep.16,2015**

Date of Report: **Sep.16,2015**

Report Number: **HTT150905035LR**

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**Test Report****EN 60950-1:2006+A11:2009+A1:2010+A12:2011+A2:2013****Information technology equipment – Safety –****Part 1: General requirements**

Report reference No HTT150905035LR

Tested by (+ signature) Andy Zhang

Approved by (+ signature) Kevin

Date of issue Sep.16,2015



Testing Laboratory Name Shenzhen HTT Technology Co., Ltd.

Address 7F, Guangfu Building, Baoyuan Road, Xixiang, Baoan District,
Shenzhen, Guangdong, ChinaTesting location CBTL ☐ CCATL ☐ SMT ☐ TMP ☐

Address Same as above.

Applicant's Name Shenzhen KCLY Electric Co.,Ltd

Address NO.8 East zone, Shangxue industrial park,Bantian,LonggangDistrict
Shenzhen,China

Standard EN 60950-1:2006+A11:2009+A1:2010+A12:2011+A2:2013

Test procedure LVD Approval

Procedure deviation N/A.

Non-standard test method N/A.

Test item description inverter

Manufacturer name : Shenzhen KCLY Electric Co.,Ltd

Manufacturer address..... NO.8 East zone, Shangxue industrial park,Bantian,LonggangDistrict
Shenzhen,China

Trademark KCLY

Model and/or type reference KOC600-7R5GT4

Rating(s) Input:3PHAC 380V~ 50/60Hz ,5.8/10.5A

Output: 3PHAC 0-380V, 0-300Hz, 5.1/9A



Test item particulars :

Operating condition: Continuous

Tested for IT power systems: N/A

Protection against ingress of water: IPX0

Test case verdicts:

Test case does not apply to the test object.....: N(/A.)

Test item does meet the requirement.....: P(ass)

Test item does not meet the requirement.....: F(ail)

Testing:




Date of receipt of test item.....: Sep.10,2015

Date(s) of performance of test: Sep.10,2015 to Sep.16,2015

Model List

Model List:	
Rating	Input:3PHAC 380V~ 50/60Hz ,5.8/10.5A Output: 3PHAC 0-380V, 0-300Hz, 5.1/9A
Test Model	KOC600-7R5GT4
Other Models	KOC100-R75S2,KOC100-1R5S2,KOC100-R75T4,KOC100-1R5T4, KOC100-2R2T4,KOC600-075GT2,KOC600-055GT2,KOC600-045GT2, KOC600-037GT2,KOC600-3R7GT4,KOC600-400G/450PT4G, KOC600280G/315PT4G,KOC600200G/220PT4G,KOC600132G/160PT4, KOC600-075G/090PT4,KOC600-045G/055PT4,KOC600-030G/037PT4, KOC600-015G/018PT4,KOC600-7R5G/011PT4
1. All tests are carried out on KOC600-7R5GT4	

Label

<p>KCLY</p> <p>inverter</p> <p>Model: KOC600-7R5GT4</p> <p>Rated: Input:3PHAC 380V~ 50/60Hz ,5.8/10.5A</p> <p>Output: 3PHAC 0-380V, 0-300Hz, 5.1/9A</p> <p>    </p> <p>Shenzhen KCLY Electric Co.,Ltd</p>
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<p>General remarks:</p> <p>"(see remark #)" refers to a remark appended to the report.</p> <p>"(see appended table)" refers to a table appended to the report.</p> <p>Throughout this report a comma is used as the decimal separator.</p> <p>The test results presented in this report relate only to the object tested.</p> <p>This report shall not be reproduced except in full without the written approval of the testing laboratory.</p> <p>When determining the test conclusion, the Measurement Uncertainty of test has been considered.</p> <p>Unless otherwise specified, test are made under normal conditions at an ambient temperature within the range of 15°C to 35°C, RH45% to 75% and an air pressure of 860mbar of 1060mbar</p>	<p>Attachment with:</p> <ol style="list-style-type: none">1) Equipment list2) Photo documentation
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EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
1	GENERAL		
1.5	Components		P
1.5.1	General		P
	Comply with IEC 60950 or relevant component standard	Components, which were found to affect safety aspects comply with the requirements of this aspects of the relevant IEC component standards. (See appended table 1.5.1)	P
1.5.2	Evaluation and testing of components	Components, which are certified to IEC or national standards, are applied 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 provided	N/A
1.5.4	Transformers	(see appended table 5.2)	P
1.5.5	Interconnecting cables		N/A
1.5.6	Capacitors bridging insulation		N/A
1.5.7	Resistors bridging insulation	No bridging resistors.	N/A
1.5.7.1	Resistors bridging functional, basic or supplementary insulation		N/A
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		N/A
1.5.9	Surge suppressors		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



EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict

1.6	Power interface		
1.6.1	AC power distribution systems	Connection to TN power system	P
1.6.2	Input current	See label	P
1.6.3	Voltage limit of hand-held equipment	This appliance is not a hand-held equipment.	N/A
1.6.4	Neutral conductor	AC	P

1.7	Marking and instructions		
1.7.1	Power rating		P
	Rated voltage(s) or voltage range(s) (V):	See label	P
	Symbol for nature of supply, for d.c. only:	This is an AC Equipment	N/A
	Rated frequency or rated frequency range (Hz) :	See label	P
	Rated current (mA or A) :	See label	P
	Manufacturer's name or trade-mark or identification mark :	See label	P
	Model identification or type reference :	See label	P
	Symbol for Class II equipment only :		P
	Other markings and symbols :	CE Marking	P
	Use of graphical symbols		N/A
1.7.2	Safety instructions and marking		P
1.7.2.1	General		P
1.7.2.2	Disconnect devices		N/A
1.7.2.3	Overcurrent protective device		N/A
1.7.2.4	IT power distribution systems	TN power system	N/A
1.7.2.5	Operator access with a tool		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:		N/A
	Methods and means of adjustment; reference to installation instructions:		--
1.7.5	Power outlets on the equipment:	Using the insert row	N/A
1.7.6	Fuse identification (marking, special fusing characteristics, cross-reference):		P



EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
1.7.7	Wiring terminals	See below.	P
1.7.7.1	Protective earthing and bonding terminals :		N/A
1.7.7.2	Terminals for a.c. mains supply conductors		P
1.7.7.3	Terminals for d.c. mains supply conductors		N/A
1.7.8	Controls and indicators		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:		N/A
1.7.8.4	Markings using figures:		N/A
1.7.9	Isolation of multiple power sources:		N/A
1.7.10	Thermostats and other regulating devices:	No such components.	N/A
1.7.11	Durability		P
1.7.12	Removable parts		N/A
1.7.13	Replaceable batteries :		N/A
	Language(s) :	English	—
1.7.14	Equipment for restricted access locations:		N/A

2	PROTECTION FROM HAZARDS		
2.1	Protection from electric shock and energy hazards		P
2.1.1	Protection in operator access areas		P
2.1.1.1	Access to energized parts		P
	Test by inspection:		P
	Test with test finger (Figure 2A):		P
	Test with test pin (Figure 2B) :		P
	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
	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 wiring in operator accessible area.	N/A
2.1.1.5	Energy hazards :	The energy does not exceed 400VA between any two points in output connectors. See appended table 2.1.1.5	P
2.1.1.6	Manual controls		N/A



EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
2.1.1.7	Discharge of capacitors in equipment		N/A
	Measured voltage (V); time-constant (s):		N/A
2.1.1.8	Energy hazards – d.c. mains supply		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 :	See cl. 2.1.1.1 See separate test report IEC/EN 60065	N/A
2.1.2	Protection in service access areas	No service access area.	N/A
2.1.3	Protection in restricted access locations	The unit is not limited to be used in restricted access locations	N/A

2.2	SELV circuits		
2.2.1	General requirements		P
2.2.2	Voltages under normal conditions (V) :		P
2.2.3	Voltages under fault conditions (V):		P
2.2.4	Connection of SELV circuits to other circuits:		P

2.3	TNV circuits		
2.3.1	Limits		N/A
	Type of TNV circuits:		—
2.3.2	Separation from other circuits and from accessible parts		N/A
2.3.2.1	General requirements		N/A
2.3.2.2	Protection by basic insulation		N/A
2.3.2.3	Protection by earthing		N/A
2.3.2.4	Protection by other constructions:		N/A
2.3.3	Separation from hazardous voltages		N/A
	Insulation employed:		—
2.3.4	Connection of TNV circuits to other circuits		N/A
	Insulation employed:		—
2.3.5	Test for operating voltages generated externally		N/A

2.4	Limited current circuits		
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EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
2.4.1	General requirements		P
2.4.2	Limit values	See table 2.4.2	P
	Frequency (Hz)	See table 2.4.2	—
	Measured current (Ma)	See table 2.4.2	—
	Measured voltage (V)	See table 2.4.2	—
	Measured circuit capacitance (Nf or μ F)		P
2.4.3	Connection of limited current circuits to other circuits		N/A

2.5	Limited power sources		
	a) Inherently limited output		N/A
	b) Impedance limited output		N/A
	c) Regulating network limited output under normal operating and single fault condition		P
	d) Overcurrent protective device limited output		N/A
	Max. output voltage (V), max. output current (A), max. apparent power (VA):	(See Table 5.2)	—
	Current rating of overcurrent protective device (A)		—
	Use of integrated circuit (IC) current limiters	(See Annex CC)	—

2.6	Provisions for earthing and bonding		
2.6.1	Protective earthing		N/A
2.6.2	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:		—
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



EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
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	No switch or overcurrent protective device in protective earthing or bonding conductor.	N/A
2.6.5.3	Disconnection of protective earth	It is not possible to disconnect earth without disconnecting input connector.	N/A
2.6.5.4	Parts that can be removed by an operator	Appliance terminal used.	N/A
2.6.5.5	Parts removed during servicing		N/A
2.6.5.6	Corrosion resistance	All safety earthing connections in compliance with annex J.	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		--
2.7.2	Faults not simulated in 5.3.7		P
2.7.3	Short-circuit backup protection		P
2.7.4	Number and location of protective devices:	One fuse resistor connected in series of circuit	P
2.7.5	Protection by several devices		N/A
2.7.6	Warning to service personnel:		N/A

2.8	Safety interlocks		N/A
2.8.1	General principles		N/A
2.8.2	Protection requirements		N/A



EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
2.8.3	Inadvertent reactivation		N/A
2.8.4	Fail-safe operation		N/A
2.8.5	Moving parts		N/A
2.8.6	Overriding		N/A
2.8.7	Switches and relays		N/A
2.8.7.1	Contact gaps (mm):		N/A
2.8.7.2	Overload test		N/A
2.8.7.3	Endurance test		N/A
2.8.7.4	Electric strength test	(see appended table 5.2)	N/A
2.8.8	Mechanical actuators		N/A

2.9	Electrical insulation		P
2.9.1	Properties of insulating materials	Suitable material according to their thermal electrical and mechanical properties.	P
2.9.2	Humidity conditioning	(see appended table 2.9.2)	P
	Relative humidity (%), temperature (°C):	30°C, 95%, 48h	—
2.9.3	Grade of insulation	The adequate levels 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:		—

2.10	Clearances, creepage distances and distances through insulation		P
2.10.1	General	See 2.10.3, 2.10.4	P
2.10.1.1	Frequency:		P
2.10.1.2	Pollution degrees:	Pollution Degree 2	P
2.10.1.3	Reduced values for functional insulation		N/A
2.10.1.4	Intervening unconnected conductive parts		N/A
2.10.1.5	Insulation with varying dimensions		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



EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
2.10.2.3	Peak working voltage		P
2.10.3	Clearances	(see appended table 2.10.3 and 2.10.4)	P
2.10.3.1	General		P
2.10.3.2	Mains transient voltages		P
	a) AC mains supply:		P
	b) Earthed d.c. mains supplies:		N/A
	c) Unearthed d.c. mains supplies:		N/A
	d) Battery operation:	No battery.	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		N/A
2.10.3.5	Clearances in circuits having starting pulses	(see appended table 2.10.3 and 2.10.4)	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 assumed to be used	—
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		P
2.10.5.3	Insulating compound as solid insulation		P
2.10.5.4	Semiconductor devices		P
2.10.5.5.	Cemented joints	(see appended table 2.10.3 and 2.10.4)	N/A



EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
2.10.5.6	Thin sheet material – General		N/A
2.10.5.7	Separable thin sheet material		N/A
	Number of layers (pcs):		—
2.10.5.8	Non-separable thin sheet material		N/A
2.10.5.9	Thin sheet material—standard test procedure		N/A
	Electric strength test		—
2.10.5.10	Thin sheet material—alternative test procedure		P
	Electric strength test		—
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:		P
	b) Basic, supplementary, reinforced insulation :		P
	c) Compliance with Annex U:		P
	Two wires in contact inside wound component; angle between 45° and 90°:		P
2.10.5.13	Wire with solvent-based enamel in wound components		N/A
	Electric strength test		—
	Routine test		N/A
2.10.5.14	Additional insulation in wound components		N/A
	Working voltage:		N/A
	- Basic insulation not under stress:		N/A
	- Supplementary, reinforced insulation:		N/A
2.10.6	Construction of printed boards		P
2.10.6.1	Uncoated printed boards	(see appended table 2.10.3 and 2.10.4)	P
2.10.6.2	Coated printed boards	(see appended table 2.10.3 and 2.10.4)	N/A
2.10.6.3	Insulation between conductors on the same inner surface of a printed board	(see appended table 2.10.3 and 2.10.4)	N/A
2.10.6.4	Insulation between conductors on different layers of a printed board		N/A
	Distance through insulation		N/A
	Number of insulation layers (pcs):		N/A
2.10.7	Component external terminations	(see appended table 2.10.3 and 2.10.4)	P



EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
2.10.8	Tests on coated printed boards and coated components		N/A
2.10.8.1	Sample preparation and preliminary inspection		N/A
2.10.8.2	Thermal conditioning		N/A
2.10.8.3	Electric strength test		N/A
2.10.8.4	Abrasion resistance test		N/A
2.10.9	Thermal cycling		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		N/A
2.10.12	Enclosed and sealed parts		N/A
3	WIRING, CONNECTIONS AND SUPPLY		P
3.1	General		N/A
3.1.1	Current rating and overcurrent protection		N/A
3.1.2	Protection against mechanical damage		N/A
3.1.3	Securing of internal wiring	Suitable securing	N/A
3.1.4	Insulation of conductors	(see appended table 5.2)	N/A
3.1.5	Beads and ceramic insulators	Not used.	N/A
3.1.6	Screws for electrical contact pressure	No screws used to provide electrical contact pressure.	N/A
3.1.7	Insulating materials in electrical connections	Not used.	N/A
3.1.8	Self-tapping and spaced thread screws		N/A
3.1.9	Termination of conductors	All conductors are reliable secured.	N/A
	10 N pull test	Break away or pivot on its terminal is unlikely.	N/A
3.1.10	Sleeving on wiring		N/A
3.2	Connection to a mains supply		P
3.2.1	Means of connection	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/A
3.2.2	Multiple supply connections		N/A
3.2.3	Permanently connected equipment		N/A



EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict

	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:		N/A
3.2.5.2	DC power supply cords		N/A
3.2.6	Cord anchorages and strain relief	(See appended table 3.2.6)	N/A
	Mass of equipment (kg), pull (N)		—
	Longitudinal displacement (mm)		—
3.2.7	Protection against mechanical damage		N/A
3.2.8	Cord guards		N/A
	Diameter or minor dimension D (mm); test mass (g) :		—
	Radius of curvature of cord (mm):		—
3.2.9	Supply wiring space		N/A

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

3.4	Disconnection from the mains supply		P
3.4.1	General requirement		P
3.4.2	Disconnect devices		P



EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
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	single -phase	N/A
3.4.7	Number of poles—three-phase equipment	three -phase equipment.	P
3.4.8	Switches as disconnect devices		N/A
3.4.9	Plugs as disconnect devices		P
3.4.10	Interconnected equipment		N/A
3.4.11	Multiple power sources		N/A

3.5	Interconnection of equipment		P
3.5.1	General requirements	SELV voltage connections for the output. Not compatible with connection for the input.	P
3.5.2	Types of interconnection circuits:	Only SELV circuit	P
3.5.3	ELV circuits as interconnection circuits		N/A
3.5.4	Data ports for additional equipment		P

4	PHYSICAL REQUIREMENTS		
4.1	Stability		
	Angle of 10°		N/A
	Test force (N):		N/A

4.2	Mechanical strength		P
4.2.1	General		P
	Rack-mounted equipment.	(see Annex DD)	N/A
4.2.2	Steady force test, 10 N	Internal components	P
4.2.3	Steady force test, 30 N		N/A
4.2.4	Steady force test, 250 N	Enclosure	P
4.2.5	Impact test		N/A
	Fall test		N/A
	Swing test		N/A
4.2.6	Drop test; height (mm):	1m	P
4.2.7	Stress relief test	See table 4.2.7	P
4.2.8	Cathode ray tubes		N/A



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Clause	Requirement – Test	Result – Remark	Verdict

	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		P
4.3.1	Edges and corners	Smooth	P
4.3.2	Handles and manual controls; force (N):	15	N/A
4.3.3	Adjustable controls	No adjustable controls.	N/A
4.3.4	Securing of parts		P
4.3.5	Connection by plugs and sockets		N/A
4.3.6	Direct plug-in equipment		P
	Torque :	≤0.25N.m	—
	Compliance with the relevant mains plug standard :		P
4.3.7	Heating elements in earthed equipment	No heating elements provided.	N/A
4.3.8	Batteries		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	Insulation in intended use not considered to be exposed to oil or grease.	N/A
4.3.10	Dust, powders, liquids and gases	Equipment in intended use not considered to be exposed to these substances.	N/A
4.3.11	Containers for liquids or gases	No container for liquids or gases provided.	N/A
4.3.12	Flammable liquids:	No flammable liquids provided.	N/A
	Quantity of liquid (l):		--
	Flash point (°C) :		--
4.3.13	Radiation		N/A
4.3.13.1	General		N/A
4.3.13.2	Ionizing radiation	Ionizing radiation.	N/A
	Measured radiation (Pa/kg):		—



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Clause	Requirement – Test	Result – Remark	Verdict
	Measured high-voltage (KV):		—
	Measured focus voltage (KV):		—
	CRT markings :		—
4.3.13.3	Effect of ultraviolet (UV) radiation on materials	UV radiation.	N/A
	Part, property, retention after test, flammability classification:		--
4.3.13.4	Human exposure to ultraviolet (UV) radiation:		N/A
4.3.13.5	Lasers (including 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		N/A
4.4.1	General		N/A
4.4.2	Protection in operator access areas:		N/A
	Household and home/office document/media shredders	(see Annex EE)	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		P
4.5.1	General		P
4.5.2	Temperature tests		P
	Normal load condition per Annex L:		—



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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		N/A
4.6.1	Top and side openings	Dangerous parts can not touch	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		P
4.7.1	Reducing the risk of ignition and spread of flame	Enclosure	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	(see appended table 5.3)	P
4.7.2	Conditions for a fire enclosure	Enclosure	P
4.7.2.1	Parts requiring a fire enclosure	Enclosure	P
4.7.2.2	Parts not requiring a fire enclosure		N/A
4.7.3	Materials	PC	P
4.7.3.1	General	PC Enclosure	P
4.7.3.2	Materials for fire enclosures		P
4.7.3.3	Materials for components and other parts outside fire enclosures		P
4.7.3.4	Materials for components and other parts inside fire enclosures		P
4.7.3.5	Materials for air filter assemblies	No air filter provided.	N/A



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Clause	Requirement – Test	Result – Remark	Verdict

4.7.3.6	Materials used in high-voltage components	No high voltage components provided.	N/A
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5	ELECTRICAL REQUIREMENTS AND SIMULATED ABNORMAL CONDITIONS		P
5.1	Touch current and protective conductor current		P
5.1.1	General	Touch current shall not be a risk of electrical shock	P
5.1.2	Configuration of equipment under test (EUT)		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		P
5.1.3	Test circuit		P
5.1.4	Application of measuring instrument	Equipment comply with Annex D.	P
5.1.5	Test procedure	The touch current was measured from primary to enclosure and primary to output.	P
5.1.6	Test measurements	See appended 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/A
5.1.7.1	General :		N/A
5.1.7.2	Simultaneous multiple connections to the supply		N/A
5.1.8	Touch currents to telecommunication networks and cable distribution systems and from telecommunication networks		N/A
5.1.8.1	Limitation of the touch current to a telecommunication network or to a cable distribution system		N/A
	Supply voltage (V):		—
	Measured touch current (Ma):		—
	Max. allowed touch current (Ma):		—



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Clause	Requirement – Test	Result – Remark	Verdict

5.1.8.2	Summation of touch currents from telecommunication networks		N/A
	a) EUT with earthed telecommunication ports :		N/A
	b) EUT whose telecommunication ports have no reference to protective earth		N/A

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

5.3	Abnormal operating and fault conditions		P
5.3.1	Protection against overload and abnormal operation	(see appended table 5.3)	P
5.3.2	Motors	Did not use	N/A
5.3.3	Transformers	(see appended Annex C)	P
5.3.4	Functional insulation :		P
5.3.5	Electromechanical components		N/A
5.3.6	Audio amplifiers in ITE:	See separate test report IEC/EN 60065	N/A
5.3.7	Simulation of faults		P
5.3.8	Unattended equipment		N/A
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/A
6.1	Protection of telecommunication network service persons, and users of other equipment connected to the network, from hazards in the equipment		N/A
6.1.1	Protection from hazardous voltages		N/A
6.1.2	Separation of the telecommunication network from earth		N/A
6.1.2.1	Requirements	(see appended table 5.2)	N/A
	Supply voltage (V):		—
	Current in the test circuit (Ma):		—
6.1.2.2	Exclusions:		N/A

6.2	Protection of equipment users from overvoltages on telecommunication networks		N/A
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Clause	Requirement – Test	Result – Remark	Verdict

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

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

7	CONNECTION TO CABLE DISTRIBUTION SYSTEMS		N/A
7.1	General		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		P
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:	PVC Enclosure	—
	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
	Sample 1 burning time (s) :		—



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Clause	Requirement – Test	Result – Remark	Verdict
	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 :	Enclosure ,PVC	—
	Wall thickness (mm) :		—
A.2.2	Conditioning of samples; temperature (°C) :		—
A.2.3	Mounting of samples :		—
A.2.4	Test flame (see IEC 60695-11-4)		—
	Flame A, B or C :		—
A.2.5	Test procedure		P
A.2.6	Compliance criteria		P
	Sample 1 burning time (s) :	5s	—
	Sample 2 burning time (s) :	6s	—
	Sample 3 burning time (s) :	6s	—
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		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		P
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	T1	—
	Manufacturer	(See 1.5.4 and 5.3.3)	—
	Type	(See 1.5.4 and 5.3.3)	—
	Rated values		—
	Method of protection.....		—
C.1	Overload test	(see appended table 5.3)	P
C.2	Insulation	(see appended table 5.2)	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		P
E	ANNEX E, TEMPERATURE RISE OF A WINDING (see 1.4.13)		N/A



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Clause	Requirement – Test	Result – Remark	Verdict

F	ANNEX F, MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES (see 2.10 and Annex G)	P
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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)	--
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
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J	ANNEX J, TABLE OF ELECTROCHEMICAL POTENTIALS (see 2.6.5.6)	N/A
	Metal used	N/A

K	ANNEX K, THERMAL CONTROLS (see 1.5.3 and 5.3.8)	N/A
K.1	Making and breaking capacity	N/A



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Clause	Requirement – Test	Result – Remark	Verdict

K.2	Thermostat reliability; operating voltage (V)		N/A
K.3	Thermostat endurance test; operating voltage (V) :		N/A
K.4	Temperature limiter endurance; operating voltage (V)		N/A
K.5	Thermal cut-out reliability		N/A
K.6	Stability of operation	(see appended table 5.3)	N/A

L	ANNEX L, NORMAL LOAD CONDITIONS FOR SOME TYPES OF ELECTRICAL BUSINESS EQUIPMENT (see 1.2.2.1 and 4.5.2)		N/A
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		N/A

M	ANNEX M, CRITERIA FOR TELEPHONE RINGING SIGNALS (see 2.3.1)		N/A
M.1	Introduction		N/A
M.2	Method A		N/A
M.3	Method B		N/A
M.3.1	Ringing signal		N/A
M.3.1.1	Frequency (Hz)		—
M.3.1.2	Voltage (V)		—
M.3.1.3	Cadence; time (s), voltage (V)		—
M.3.1.4	Single fault current (Ma)		—
M.3.2	Tripping device and monitoring voltage		—
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



Clause	Requirement – Test	Result – Remark	Verdict
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P	ANNEX P, NORMATIVE REFERENCES		—
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Q	ANNEX Q, Voltage dependent resistors (VDRs) (see 1.5.9.1)		N/A
	a) Preferred climatic categories		N/A
	b) Maximum continuous voltage		N/A
	c) Pulse current		N/A

R	ANNEX R, EXAMPLES OF REQUIREMENTS FOR QUALITY CONTROL PROGRAMMES		N/A
R.1	Minimum separation distances for unpopulated coated printed boards (see 2.10.6.2)		N/A
R.2	Reduced clearances (see 2.10.3)		N/A

S	ANNEX S, PROCEDURE FOR IMPULSE TESTING (see 6.2.2.3)		N/A
S.1	Test equipment		N/A
S.2	Test procedure		N/A
S.3	Examples of waveforms during impulse testing		N/A

T	ANNEX T, GUIDANCE ON PROTECTION AGAINST INGRESS OF WATER (see 1.2)		N/A
		See separate test report	—

U	ANNEX U, INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION (see 2.10.5.4)		N/A
		See separate test report	—

V	ANNEX V, AC POWER DISTRIBUTION SYSTEMS (see 1.6.1)		N/A
V.1	Introduction		N/A
V.2	TN power distribution systems		N/A

W	ANNEX W, SUMMATION OF TOUCH CURRENTS		N/A
W.1	Touch current from electronic circuits		N/A
W.1.1	Floating circuits		N/A
W.1.2	Earthed circuits		N/A
W.2	Interconnection of several equipments		N/A
W.2.1	Isolation		N/A
W.2.2	Common return, isolated from earth		N/A
W.2.3	Common return, connected to protective earth		N/A



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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)		N/A
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AA	ANNEX AA, MANDREL TEST (see 2.10.5.8)		N/A
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BB	ANNEX BB, CHANGES IN THE SECOND EDITION		—
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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



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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



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Contents	<p>Add the following annexes:</p> <p>Annex ZA (normative) Normative references to international publications with their corresponding European publications</p> <p>Annex ZB (normative) Special national conditions</p>		P
General	<p>Delete all the “country” notes in the reference document (IEC 60950-1:2005) according to the following list:</p> <p>1.4.8 Note 2 1.5.1 Note 2 & 3 1.5.7.1 Note</p> <p>1.5.8 Note 2 1.5.9.4 Note 1.7.2.1 Note 4, 5 & 6</p> <p>2.2.3 Note 2.2.4 Note 2.3.2 Note</p> <p>2.3.2.1 Note 2 2.3.4 Note 2 2.6.3.3 Note 2 & 3</p> <p>2.7.1 Note 2.10.3.2 Note 2 2.10.5.13 Note 3</p> <p>3.2.1.1 Note 3.2.4 Note 3.2.5.1 Note 2</p> <p>4.3.6 Note 1 & 2 4.7 Note 4 4.7.2.2 Note</p> <p>4.7.3.1 Note 2 5.1.7.1 Note 3 & 4 5.3.7 Note 1</p> <p>6 Note 2 & 5 6.1.2.1 Note 2 6.1.2.2 Note</p> <p>6.2.2 Note 6.2.2.1 Note 2 6.2.2.2 Note</p> <p>7.1 Note 3 7.2 Note 7.3 Note 1 & 2</p> <p>G.2.1 Note 2 Annex H Note 2</p>		P
General (A1:2010)	<p>Delete all the “country” notes in the reference document (IEC 60950-1:2005/A1:2010) according to the following list:</p> <p>1.5.7.1 Note 6.1.2.1 Note 2</p> <p>6.2.2.1 Note 2 EE.3 Note</p>		P
1.3.Z1	<p>Add the following subclause:</p> <p>1.3.Z1 Exposure to excessive sound pressure</p> <p>The apparatus shall be so designed and constructed as to present no danger when used for its intended purpose, either in normal operating conditions or under fault conditions, particularly providing protection against exposure to excessive sound pressures from headphones or earphones.</p> <p>NOTE Z1 A new method of measurement is described in EN 50332-1, Sound system equipment: Headphones and earphones associated with portable audio equipment – Maximum sound pressure level measurement methodology and limit considerations – Part 1: General method for “one package equipment”, and in EN 50332-2, Sound system equipment: Headphones and earphones associated with portable audio equipment – Maximum sound pressure level measurement methodology and limit considerations – Part 2: Guidelines to associate sets with headphones coming from different manufacturers.</p>		N/A



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Clause	Requirement – Test	Result – Remark	Verdict
(A12:2011))	In EN 60950-1:2006/A12:2011 Delete the addition of 1.3.Z1 / EN 60950-1:2006 Delete the definition 1.2.3.Z1 / EN 60950-1:2006 /A1:2010		N/A
1.5.1	Add the following NOTE: NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2002/95/EC		N/A
1.7.2.1 (A1:2010)	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.		N/A
1.7.2.1 (A12:2011))	In EN 60950-1:2006/A12:2011 Delete NOTE Z1 and the addition for Portable Sound System. Add the following clause and annex to the existing standard and amendments.		N/A
	Zx Protection against excessive sound pressure from personal music players		N/A


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Clause	Requirement – Test	Result – Remark	Verdict
	<p>Zx.1 General</p> <p>This sub-clause specifies requirements for protection against excessive sound pressure from personal music players that are closely coupled to the ear. It also specifies requirements for earphones and headphones intended for use with personal music players.</p> <p>A personal music player is a portable equipment for personal use, that:</p> <ul style="list-style-type: none"> – is designed to allow the user to listen to recorded or broadcast sound or video; and – primarily uses headphones or earphones that can be worn in or on or around the ears; and – allows the user to walk around while in use. <p>NOTE 1 Examples are hand-held or body-worn portable CD players, MP3 audio players, mobile phones with MP3 type features, PDA's or similar equipment.</p> <p>A personal music player and earphones or headphones intended to be used with personal music players shall comply with the requirements of this sub-clause.</p> <p>The requirements in this sub-clause are valid for music or video mode only.</p> <p>The requirements do not apply:</p> <ul style="list-style-type: none"> – while the personal music player is connected to an external amplifier; or – while the headphones or earphones are not used. <p>NOTE 2 An external amplifier is an amplifier which is not part of the personal music player or the listening device, but which is intended to play the music as a standalone music player.</p> <p>The requirements do not apply to:</p> <ul style="list-style-type: none"> – hearing aid equipment and professional equipment; <p>NOTE 3 Professional equipment is equipment sold through special sales channels. All products sold through normal electronics stores are considered not to be professional equipment.</p>		N/A
	<ul style="list-style-type: none"> – 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>NOTE 4 This exemption has been allowed because this technology is falling out of use and it is expected that within a few years it will no longer exist. This exemption will not be extended to other technologies.</p> <p>For equipment which is clearly designed or intended for use by young children, the limits of EN 71-1 apply.</p>		N/A



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 $L_{\text{aeq,T}}$ is ≤ 85 Dba measured while playing the fixed “programme simulation noise” as described in EN 50332-1; and– a personal music player provided with an analogue electrical output socket for a listening device, where the electrical output is ≤ 27 Mv measured as described in EN 50332-2, while playing the fixed “programme simulation noise” as described in EN 50332-1. <p>NOTE 1 Wherever the term acoustic output is used in this clause, the 30 s A-weighted equivalent sound pressure level $L_{\text{aeq,T}}$ 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; <p>and</p> <ul style="list-style-type: none">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	$L_{\text{aeq,T}}$ is ≤ 85 Dba	N/A

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>		N/A

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> <ul style="list-style-type: none"> – the symbol of Figure 1 with a minimum height of 5 mm; and – the following wording, or similar: <p>“To prevent possible hearing damage, do not listen at high volume levels for long periods.”</p> <div data-bbox="494 683 761 943" data-label="Image">  </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>	See user manual.	N/A
	Zx.4 Requirements for listening devices (headphones and earphones)		N/A
	<p>Zx.4.1 Wired listening devices with analogue input</p> <p>With 94 DbA sound pressure output $L_{\text{aeq,T}}$, the input voltage of the fixed “programme simulation noise” described in EN 50332-2 shall be ≥ 75 mV.</p> <p>This requirement is applicable in any mode where the headphones can operate (active or passive), including any available setting (for example built-in volume level control).</p> <p>NOTE The values of 94 DbA – 75 mV correspond with 85DbA – 27 mV and 100 DbA – 150 mV.</p>		N/A

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 $L_{\text{aeq,T}}$ 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, eHTT.).</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:</p> <ul style="list-style-type: none"> – with any playing and transmitting device playing the fixed programme simulation noise described in EN 50332-1; and – respecting the wireless transmission standards, where an air interface standard exists that specifies the equivalent acoustic level; and – with volume and sound settings in the listening device (for example built-in volume level control, additional sound feature like equalization, eHTT.) set to the combination of positions that maximize the measured acoustic output for the abovementioned programme simulation noise, the acoustic output $L_{\text{aeq,T}}$ of the listening device shall be ≤ 100 Dba. <p>NOTE An example of a wireless listening device is a Bluetooth headphone.</p>		N/A
	<p>Zx.5 Measurement methods 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

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>		N/A								
	<p>c) it is permitted for PLUGGABLE EQUIPMENT TYPE B or PERMANENTLY CONNECTED EQUIPMENT, to rely on dedicated overcurrent and short-circuit protection in the building installation, provided that the means of protection, e.g. fuses or circuit breakers, is fully specified in the installation instructions.</p> <p>If reliance is placed on protection in the building installation, the installation instructions shall so state, except that for PLUGGABLE EQUIPMENT TYPE A the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet.</p>		N/A								
2.7.2	This subclause has been declared ‘void’.		---								
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> <table><tr><td>Up to and including 6 </td><td>0,75</td></tr><tr><td>^{a)} 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><tr><td> </td><td></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				N/A
Up to and including 6	0,75										
^{a)} Over 6 up to and including 10 (0,75) ^{b)}	1,0										
Over 10 up to and including 16 (1,0) ^{c)}	1,5										

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		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 μ Sv/h (0,1 Mr/h) (see NOTE). Account is taken of the background level. Replace the notes as follows: NOTE These values appear in Directive 96/29/Euratom. Delete NOTE 2.		N/A
Bibliography	Additional EN standards.		—
ZA	NORMATIVE REFERENCES TO INTERNATIONAL PUBLICATIONS WITH THEIR CORRESPONDING EUROPEAN PUBLICATIONS		—

ZB	SPECIAL NATIONAL CONDITIONS	N/A
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
1.5.7.1	In Finland, Norway and Sweden , resistors bridging BASIC INSULATION in CLASS I PLUGGABLE EQUIPMENT TYPE A must comply with the requirements in 1.5.7.2.	N/A
1.5.8	In Norway , due to the IT power system used (see annex V, Figure V.7), capacitors are required to be rated for the applicable line-to-line voltage (230 V).	N/A
1.5.9.4	In Finland, Norway and Sweden , the third dashed sentence is applicable only to equipment as defined in 6.1.2.2 of this annex.	N/A



EN 60950-1																											
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 suojamaadoituskoskettimilla varustettuun pistorasiaan »</p> <p>In Norway: “Apparatet må tilkoples jordet stikkontakt”</p> <p>In Sweden: “Apparaten skall anslutas till jordat uttag”</p>		N/A																								
1.7.5	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.		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.		N/A																								
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> <table border="0"> <tr> <td>SEV 6532-2.1991</td><td>Plug Type 15</td><td>3P+N+PE</td><td>250/400 V, 10 A</td></tr> <tr> <td>SEV 6533-2.1991</td><td>Plug Type 11</td><td>L+N</td><td>250 V, 10 A</td></tr> <tr> <td>SEV 6534-2.1991</td><td>Plug Type 12</td><td>L+N+PE</td><td>250 V, 10 A</td></tr> </table> <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> <table border="0"> <tr> <td>SEV 5932-2.1998</td><td>Plug Type 25</td><td>3L+N+PE</td><td>230/400 V, 16 A</td></tr> <tr> <td>SEV 5933-2.1998</td><td>Plug Type 21</td><td>L+N</td><td>250 V, 16 A</td></tr> <tr> <td>SEV 5934-2.1998</td><td>Plug Type 23</td><td>L+N+PE</td><td>250 V, 16 A</td></tr> </table>	SEV 6532-2.1991	Plug Type 15	3P+N+PE	250/400 V, 10 A	SEV 6533-2.1991	Plug Type 11	L+N	250 V, 10 A	SEV 6534-2.1991	Plug Type 12	L+N+PE	250 V, 10 A	SEV 5932-2.1998	Plug Type 25	3L+N+PE	230/400 V, 16 A	SEV 5933-2.1998	Plug Type 21	L+N	250 V, 16 A	SEV 5934-2.1998	Plug Type 23	L+N+PE	250 V, 16 A		N/A
SEV 6532-2.1991	Plug Type 15	3P+N+PE	250/400 V, 10 A																								
SEV 6533-2.1991	Plug Type 11	L+N	250 V, 10 A																								
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SEV 5932-2.1998	Plug Type 25	3L+N+PE	230/400 V, 16 A																								
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SEV 5934-2.1998	Plug Type 23	L+N+PE	250 V, 16 A																								

EN 60950-1			
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/A
3.2.1.1	<p>In Spain, supply cords of single-phase equipment having a rated current not exceeding 10 A shall be provided with a plug according to UNE 20315:1994.</p> <p>Supply cords of single-phase equipment having a rated current not exceeding 2,5 A shall be provided with a plug according to UNE-EN 50075:1993.</p> <p>CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules, shall be provided with a plug in accordance with standard UNE 20315:1994.</p> <p>If poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with UNE-EN 60309-2.</p>		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 eHTT. (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 AC Adapter, USB Wall Chargers for Domestic Use) Regulations 1997.</p>		N/A
3.2.4	In Switzerland , for requirements see 3.2.1.1 of this annex.		N/A
3.2.5.1	In the United Kingdom , a power supply cord with conductor of 1,25 mm ² is allowed for equipment with a rated current over 10 A and up to and including 13 A.		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



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<ul style="list-style-type: none">○ is intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, for example, in a telecommunication centre; and○ has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR; and○ is provided with instructions for the installation of that conductor by a SERVICE PERSON;• STATIONARY PLUGGABLE EQUIPMENT TYPE B;• STATIONARY PERMANENTLY CONNECTED EQUIPMENT.		N/A

EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
6.1.2.1	<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>If this insulation forms part of a semiconductor component (e.g. an optocoupler), there is no distance through insulation requirement for the insulation consisting of an insulating compound completely filling the casing, so that CLEARANCES and CREEPAGE DISTANCES do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition</p> <ul style="list-style-type: none"> - passes the tests and inspection criteria of 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. <p>It is permitted to bridge this insulation with a capacitor complying with EN 132400:1994, subclass Y2.</p> <p>A capacitor classified Y3 according to EN 132400:1994, 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 132400, which in addition to the Y3 testing, is tested with an impulse test of 2,5 Kv defined in IEC 60950-1:2005, 6.2.2.1; - the additional testing shall be performed on all the test specimens as described in EN 132400; - the impulse test of 2,5 Kv is to be performed before the endurance test in EN 132400, in the sequence of tests as described in EN 132400. 		N/A
6.1.2.2	<p>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.</p>		N/A
7.2	<p>In Finland, Norway and Sweden, for requirements see 6.1.2.1 and 6.1.2.2 of this annex.</p> <p>The term TELECOMMUNICATION NETWORK in 6.1.2 being replaced by the term CABLE DISTRIBUTION SYSTEM.</p>		N/A
7.3	<p>In Norway and Sweden, there are many buildings where the screen of the coaxial cable is normally not connected to the earth in the building installation.</p>		N/A
7.3	<p>In Norway, for installation conditions see EN 60728-11:2005.</p>		N/A
ZC	A-DEVIATIONS (informative)		N/A

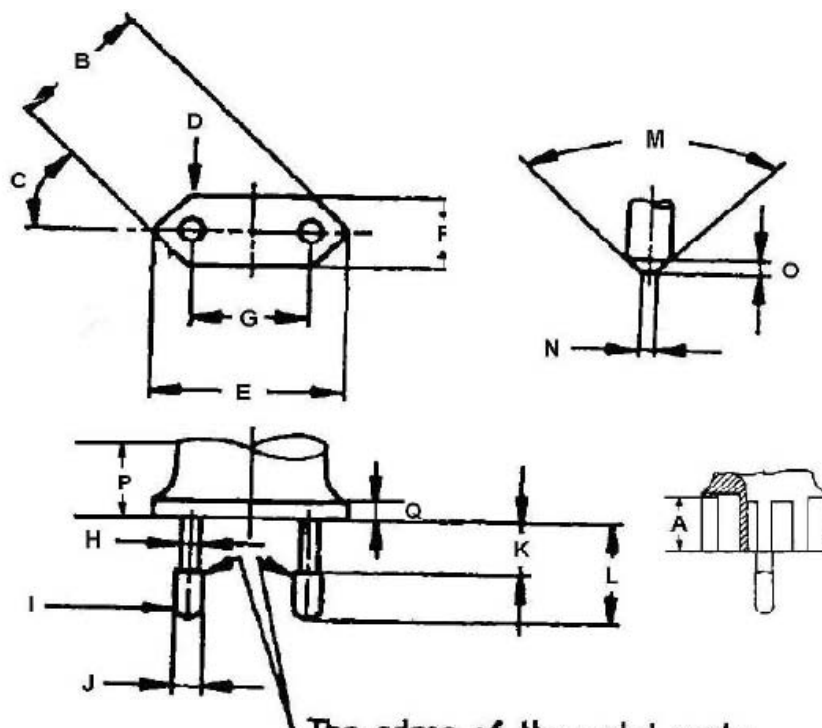
EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
1.5.1	Sweden (Ordinance 1990:944) Add the following: NOTE In Sweden, swiHTThes containing mercury are not permitted.		N/A
1.5.1	Switzerland (Ordinance on environmentally hazardous substances SR 814.081, Annex 1.7, Mercury – Annex 1.7 of SR 814.81 applies for mercury.) Add the following: NOTE In Switzerland, swiHTThes containing mercury such as thermostats, relays and level controllers are not allowed.		N/A
1.7.2.1	Denmark (Heavy Current Regulations) Supply cords of CLASS I EQUIPMENT, which is delivered without a plug, must be provided with a visible tag with the following text: <p style="text-align: center;">Vigtigt! Lederen med grøn/gul isolation må kun tilsluttes en klemme mærket  eller </p> If essential for the safety of the equipment, the tag must in addition be provided with a diagram, which shows the connection of the other conductors, or be provided with the following text: “For tilslutning af de øvrige ledere, se medfølgende installationsvejledning.”		N/A
1.7.2.1	Germany (Gesetz über technische Arbeitsmittel und Verbraucherprodukte (Geräte- und Produktsicherheitsgesetz – GPSG) [Law on technical labour equipment and consumer products], of 6 th January 2004, Section 2, Article 4, Clause (4), Item 2). If for the assurance of safety and health certain rules during use, amending or maintenance of a technical labour equipment or readymade consumer product are to be followed, a manual in German language has to be delivered when placing the product on the market. Of this requirement, rules for use even only by SERVICE PERSONS are not exempted.		N/A
1.7.5	Denmark (Heavy Current Regulations) With the exception of CLASS II EQUIPMENT provided with a socket outlet in accordance with the Heavy Current Regulations, Section 107-2-D1, Standard Sheet DK 1-4a, CLASS II EQUIPMENT shall not be fitted with socket-outlets for providing power to other equipment.		N/A
1.7.13	Switzerland (Ordinance on chemical hazardous risk reduction SR 814.81, Annex 2.15 Batteries) Annex 2.15 of SR 814.81 applies for batteries.		N/A
5.1.7.1	Denmark (Heavy Current Regulations, Chapter 707, clause 707.4) TOUCH CURRENT measurement results exceeding 3,5 Ma r.m.s. are permitted only for PERMANENTLY CONNECTED EQUIPMENT and PLUGGABLE EQUIPMENT TYPE B.		N/A



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EN 50075			
Clause	Requirement – Test	Result – Remark	Verdict
1	Plug portion		N/A
	CEE 7 Standard Sheet		N/A
	EN 50075		N/A
2	Dimensions		N/A
	Checking dimensions by measuring and by gSepes according to Standard sheet		N/A
	The edges of the metal-pins, Chamfered or rounded off?	Rounded-off	N/A
3	Protection against electric shock		N/A
a	Test finger (75N, 1 min in 35°C) or Applicable appliance standard		N/A
b	Single pole insertion. Checked with gSepe: Fig 4 or C19A or C19B (CEE 7)		N/A
c	Compression test 150 N, 5 min.		N/A
d	External parts made of insulating material		N/A
4	Construction		N/A
a	Test on pins which are not solid		N/A
b	Pins shall be locked against rotation 0.4 Nm 1 min.		N/A
c	Pins shall be adequately fixed in the body 1 min. Temperature 70°C 40 N for plugs ≤ 2.5 A 50 N for plugs > 2.5 A	40N	N/A
d	Pins of copper or copper alloy min 58% copper or equivalent	58% copper	N/A
e	Plug shall not impose undue strain on fixed socket-outlets, 0.25 Nm		N/A
f	Abrasion test on the insulating sleeves 20 000 movements		N/A
5	Resistance of insulating material to abnormal heat, to fire and to tracking		N/A
a	Compression test 1 h in 80°C		N/A
b	Glow-wire test 750°C		N/A
c	Resistance to tracking 175V (other than ordinary)		N/A

Clause	Requirement – Test	Result – Remark	Verdict
--------	--------------------	-----------------	---------



The edges of the metal parts shall be either chamfered or rounded off

Symbol	Requirement (mm)	Measured (mm)		Symbol	Requirement (mm)	Measured(mm)
A	≥16.5	>16.5		I	--	--
B	25.6-26.6	26.31		J	3.94-4.06	3.99
C	45°	--		K	10.0-11.0	10.31
D	R 5.0-6.0	5.58		L	18.5-19.5	18.95
E	34.6-36.0	35.41		M	≤90°	--
F	13.0-14.4	13.95		N	0.7-1.7	1.35
G	Engagement face 18.0-19.2	18.84		O	≤2.0	1.32
G	End of pins 17.0-18.0	17.71		P	≥18.0	18.93
H	Within 4mm from engagement face ≤4.0	3.99		Q	≥4.0	--
H	Above 4mm from engagement face ≤3.8	3.66				

1.5.1	TABLE: list of critical components					P
object/part No.	manufacturer/ trademark	type/model	technical data	standard	mark(s) of conformity ¹⁾	
Y-cap	Various	Various	250Vac	IEC/EN 60384-14	VDE 40004354	
Transformer (T1)	Various	Various	Class B	EN 60950-1	Test with appliance	
-- Bobbin	Various	Various	V-0, 130°C	UL94	E59481	
-- Pri. winding	Various	Various	130°C ,Class B, Φ=0.25mm	ANSI/UL 1446	E354216	
PCB	Various	Various	130 deg C, V-0	UL94,UL74 6	E325628	
(Alternative)	Various	Various	130 deg C, V-0	UL94,UL74 6	E323292	
(Alternative)	Various	Various	130 deg C, V-0	UL94,UL74 6	E250336	
(Alternative)	Various	Various	130 deg C, V-0	UL94,UL74 6	E228731	
Enclosure	Various	Various	94V-0, 85°C, min. thicknes:2.0mm	UL94	UL	
¹⁾ an asterisk indicates a mark which assures the agreed level of surveillance						

1.5.1	TABLE: Opto Electronic Devices	N/A
Manufacturer: Type : Separately tested : Bridging insulation : External creepage distance : Internal creepage distance : Distance through insulation : Tested under the following conditions : N/A Input : N/A Output : N/A		
supplementary information		

1.6.2	TABLE: electrical data test (in normal conditions)						P
fuse #	I rated (A)	U (V)	I (A)	P(W)	DC output voltage rated (V)	DC output current rated (A)	condition
F1	--	--	--	--	--	--	Under maximum normal load
	--	--	--	--	--	--	
	--	--	--	--	--	--	
	--	--	--	--	--	--	
Remark: The steady state input current [did] [did not] exceed the rated current at the rated voltage by more than 10 percent under maximum normal load.							

1.7.13	TABLE: durability of marking test			P
Location	Checked by	Time	Result	
External enclosure	Water	15s	No any curling and still legibility	
External enclosure	Petroleum spirit	15s	No any curling and still legibility	

2.1.1.5	TABLE: Hazardous energy measurement			P
Output	Voltage (Max.) (V)	Current (Max.) (A)	VA (Max.) (VA)	
V+ to V-	--	--	--	
Remark:				
Input: 1.1 times rate voltage				

2.1.1.7	TABLE: discharge test				N/A
Condition	calculated	calculated	T u →0V(s)	Comments	
Remark:					
Input:					

2.2.2& 2.2.3	TABLE: voltage measurement under normal and fault condition			P
Location	condition	Voltage measurement (V)	Comments	
Transformer secondary	Normal	--	Pass	
Remark: The voltage should not exceeds 42.4V peak and 60Vd.c , and moreover,71V peak and 120V dc(0.2s) in fault condition				
Input: Un				

2.4.2	TABLE: limited current circuit measurement					P
Location	Voltage (V)	Current (mA)	Freq. (kHz)	Limit (mA)	Comments	
Y-CAP	--	--	--	--		
Remark:						

2.5	TABLE: limited power source measurement			P
Condition	Output voltage (Uoc) (V)	Output current (Isc) (A)	Apparent power (S) (VA)	
Normal condition	--	--	--	
Abnormal condition	--	--	-	
Uoc: max output voltage, Isc: max. output current with any non-capacitive load, including a short circuit, measured 5s after application of the load, S(VA): max. output VA with any non-capacitive load, including a short circuit, measured 5s after application of the load				
Remark:				

2.6.3.3	TABLE: provisions for protective earthing		N/A
Location	Resistance measured(mΩ)	Comments	
Note:			

2.10.3 and 2.10.4	TABLE: clearance and creepage distance measurements					P
clearance cl and creepage distance dcr at/of:	Up (V)	U r.m.s. (V)	required cl (mm)	cl (mm)	required dcr (mm)	dcr (mm)
L to N	339	240	2	4.0	2.5	4.0
Different polarity of fuse	339	240	2	2.7	2.5	2.7
Pri. Wing to sec. of transformers	497	240	5	>5.0	4.8	>5.0
Pri. To sec.by PCB	550	242	5.2	6.2	4.8	6.2
Remark:						

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)
Enclosure	340	240	3000	0.4	2.0
Bobbin	350	242	3000	0.4	1.0
Supplementary information:					

3.2.6	TABLE: strain relief test				N/A
Mass(kg)	Pull force(N)	Duration	Times	Displaced ($\leq 2\text{mm}$)	
--	--	--	--	--	
Remark:					



4.2.4	TABLE: steady force test ,250N				P
Test part	Push force(N)	Duration	Result	Breakdown (Y/N)	
Top	250	5s	No damage	N	
Side	250	5s	No damage	N	
Bottom	250	5s	No damage	N	
Remark:					

4.2.5	TABLE: impact test			N/A
Test part	method	Result	Breakdown (Y/N)	

4.2.6	TABLE: drop test			P
Test part	Height (m)	Result		
Top	1.0	No damage		
Side	1.0	No damage		
Bottom	1.0	No damage		

4.2.7	TABLE: stress relief test			P
Temperature (°C)	Duration	Result		
70	7H	No soften		

4.3.6	TABLE:DIRECT PLUG-IN EQUIPMENT-MOMENT TEST		P
Torque （N.m）		0.025	
Remark: limit≤0.25N.m			

4.5.1	TABLE: temperature rise measurements			P
	t1 (°C).....:	See below		—
	t2 (°C).....:	See below		—
temperature rise Dt of part/at:		380V 50Hz	required Tmax (°C)	
		Temperature(°C)		
T1 winding		82.8	110	
T1 core		79.1	110	
PCB under T1		72.4	130	
PCB under DB		72.3	130	
C3		60.8	105	
CY1		60.3	125	

Enclosure inside above T1	60.9	95
Enclosure inside under T1	52.6	95
Enclosure outside above T1	51.3	95
Enclosure outside under T1	43.5	95
Ambient	26.3	--

4.5.5	TABLE: ball pressure test of thermoplastics			P
	required impression diameter (mm) :	Limit ≤ 2 mm		--
	part	test temperature (°C)	impression diameter (mm)	
	Plug holder	125	1.4	
	Bobbin	125	0.8	

5.1	ANNEX D – TOUCH CURRENT TEST (THREE-PHASE)					P
Terminal A (SwiHTTh “s”) of Measuring Instrument Connected to:	SwiHTTh “e” Position	Test voltage (V)	Touch Current (Ma r.m.s.)			
			Polarity P1/Primary SwiHTTh Condition			
			Normal/On	Normal/Off	Reverse/On	Reverse/Off
Output terminal	closed	380V	0.10	--	0.11	--
Enclosure with metal foil	closed	380V	0.05	--	0.06	--

5.2	TABLE: Electric strength tests, impulse tests and voltage surge tests			P
Test voltage applied between: From/To		Voltage shape (AC, DC, impulse, surge)	Test voltage (V)	Breakdown Yes / No
Live parts to Output		AC	3000	No
Live parts to enclosure cover with metal foil		AC	3000	No
Transformer primary to secondary		AC	3000	No
Transformer core to secondary		AC	3000	No
One layer film tape		AC	3000	No

5.3.1, 5.3.4, 5.3.7	TABLE: component failure tests					P
	Ambient temperature (°C) :			26.8		
Component No.	Fault	Supply voltage(V)	Test time	Fuse current (A)	Observation	
D3	SC	380V/50Hz	1s	--	Unit shut down, recoverable no hazards	
L1	SC	380V/50Hz	15min		no components damage, no hazards	



DB1	SC	380V/50Hz	1s	--	Unit shut down, FR opened immediately, no hazards
EC1	SC	380V/50Hz	1s	--	Unit shut down, FR opened immediately, no hazards
T1(1-2)	SC	380V/50Hz	10Mins	--	Unit shut down, no components damage, no hazards
T1(4-3)	SC	380V/50Hz	10Mins	--	Unit shut down, no components damage, no hazards
T1(6-5)	SC	380V/50Hz	10Mins	--	Unit shut down, no components damage, no hazards
Output V+ to Output V-	SC	380V/50Hz	10Mins	--	Unit shut down, no components damage, no hazards
Output V+ to Output V-	Overload	380V/50Hz	4hr45mins	--	The Output Current: 2.1A, The maximum Temperature were: T1 core=110°C, T1 coil =116°C, Ambient=25°C
Supplementary information: After fault condition, all output voltage comply with SELV requirement;					



ANNEX AA: Equipment list

Code	Name	Model/Type	S/N	Calibrated date	Next Calibration Date	Manufacture
HTT-001	Digital Multimeter	34401A	MY47043456	2015.02.19	2016.02.18	agilent
HTT-004	Push/pull gauge	NK-500	2Q10060932	2015.02.19	2016.02.18	
HTT-005	Electronic weight	DSI-861	198692	2015.02.19	2016.02.18	shangdeli
HTT-006	Insulation resistance tester	CS2676CX	1107032-009	2015.02.19	2016.02.18	changshen
HTT-007	Earthing resistance tester	YD2668-4B	4B-2307	2015.02.19	2016.02.18	Yangzi
HTT-008	HI-pot/Insulation tester	CS2672C	1108006-002	2015.02.19	2016.02.18	changshen
HTT-010	AC Voltage Regulator	TDGC2J		2015.02.19	2016.02.18	SAKO
HTT-013	AC power source	HPA-3110	3513	2015.02.19	2016.02.18	Henqiang
HTT-014	Temperature/Humidity chamber	SDJ-80L	SDJ-80J	2015.02.19	2016.02.18	Shenzhen hongjian
HTT-015	Electric oven	HK45AS	F11011008	2015.02.19	2016.02.18	Guangzhou KENTON
HTT-017	AC digital power meter	PF9901	YG100731N11070075	2015.02.19	2016.02.18	Yuanfang
HTT-022	Leakage current tester	228	10-866030	2015.02.19	2016.02.18	simpson
HTT-023	Oscilloscope	TDS1012C-SC	C013300	2015.02.19	2016.02.18	tektronix
HTT-024	Tape measure	DK-2041		2015.02.19	2016.02.18	Proskit
HTT-025	Stop watch	TA-228		2015.02.19	2016.02.18	KTJ
HTT-026	Data acquisition/swiTh unit	34970A	MY44057668	2015.02.19	2016.02.18	Agilent
HTT-027	Temperature/humidity meter	VC230		2015.02.19	2016.02.18	ViCTOR
HTT-028	Torque drive	3RTD	435850B	2015.02.19	2016.02.18	TOHNICHI
HTT-033	Test finger	ZLT-I02	I021203	2015.02.19	2016.02.18	Guangzhou zhilitong
HTT-034	Test pin	ZLT-I09	I091201	2015.02.19	2016.02.18	Guangzhou zhilitong
HTT-038	Test apparatus of the mains plug	ZLT-LJ2	LJ011202	2015.02.19	2016.02.18	Guangzhou zhilitong



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HTT-039	Ball pressure apparatus	ZLT-QY1	Q011202	2015.02.19	2016.02.18	Guangzhou zhilitong
HTT-040	Impact hammer	ZLT-CJ1	LJ011206	2015.02.19	2016.02.18	Guangzhou zhilitong
HTT-041	Impact hammer	ZLT-CJ1	LJ011205	2015.02.19	2016.02.18	Guangzhou zhilitong
HTT-042	Caliper rule	CD-6 " CSX	500-196-20	2015.02.19	2016.02.18	MITUTOYO
HTT-044	Glow wire tester	ZRS-2	12121304	2015.02.19	2016.02.18	Guangzhou Xinna
HTT-045	Needle flame tester	ZY-2	12121311	2015.02.19	2016.02.18	Guangzhou Xinna
HTT-107	"Van der Hoofden" test head	EMF827	R21SW	2015.02.19	2016.02.18	Shenzhen HLKS
HTT-107-a	Measurement receiver	EMF827-a	R21SW	2015.02.19	2016.02.18	Shenzhen HLKS

ANNEX BB: Photo-documentation

Photo 1



Photo 2



Photo 3



Photo 4



End of Test Report