

TEST REPORT

Report No. : RCO18CE060006-1

Applicant: WIRELESS-TEK TECHNOLOGY LIMITED

Address of Applicant: Room 402 4F, BiaoFan Technology Building, Bao' An Avenue, FuY ong Town, Bao' An district, ShenZhen GuangDong, China

EUT Name: POE ADAPTER
Brand Name: Wi-Tek

Model No.: WI-POE31-48V, WI-POE51-48V, WI-POE61-24V
WI-POE55- 48V-60W, WI-PE31E, WI-PE51E, WI-POC104
WI-SFP20-20KM, WI-SFP10SC-3KM, WI-SFP10LC-3KM
WI-SFP10SC-20KM, WI-SFP10LC-20KM, WI-SFP30-20KM

Test Model No.: WI-POE31-48V

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

Date of Test: April 20, 2020 To April 24, 2020

Date of Issue: April 25, 2020

Test Result : PASS

The CE mark as shown below can be used, under the responsibility of the manufacturer, after completion of an EC Declaration of Conformity and compliance with all relevant EC Directives.



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

Report reference No: RCO18CE060006-1
Testing Laboratory Name: Rader Certification UK Co., Ltd.
Address: 710, Jianguo Building, Zizhu 7th Road, Futian District, Shenzhen, China
Tested by (name and signature).....: Amy Peng 
Approved by (name and signature)...: Marsh Wu 
Date of issue: April 25, 2020
Total number of pages: 53 pages


Test specification

Standard: EN 60950-1:2006+A11:2009+A1:2010+A12:2011+A2:2013
Test Report Form(s) Originator SGS Fimko Ltd
Master TRF Dated 2013-07
Test Report Form No.: IEC60950_1E

Applicant's Name: WIRELESS-TEK TECHNOLOGY LIMITED
Address: Room 402 4F, BiaoFan Technology Building, Bao' An Avenue, FuY ong Town, Bao' An district, ShenZhen GuangDong, China
Manufacturer.....: WIRELESS-TEK TECHNOLOGY LIMITED
Address: Room 402 4F, BiaoFan Technology Building, Bao' An Avenue, FuY ong Town, Bao' An district, ShenZhen GuangDong, China

Test item description: POE ADAPTER
Trade Mark: Wi-Tek
Model/Type reference: WI-POE31-48V, WI-POE51-48V, WI-POE61-24V, WI-POE55-48V-60W, WI-PE31E, WI-PE51E, WI-POC104, WI-SFP20-20KM, WI-SFP10SC-3KM WI-SFP10LC-3KM WI-SFP10SC-20KM WI-SFP10LC-20KM WI-SFP30-20KM
Test Model: WI-POE31-48V
Ratings.....: Input : AC 230V, 0.13A, 30W, 50/60Hz
 Output :DC 48V, 0.5A



Test item particulars

Equipment mobility..... : movable hand-held transportable
 stationary for building-in direct plug-in

Connection to the mains : pluggable equipment type A type B
 permanent connection
 detachable power supply cord
 non-detachable power supply cord
 not directly connected to the mains
 considered in end system

Operating condition..... : continuous
 rated operating / resting time:

Access location : operator accessible
 restricted access location
 considered in end system

Over voltage category (OVC) : OVC I OVC II OVC III OVC IV
 other:

Mains supply tolerance (%) or absolute mains supply values : +/-10% according to manufacturer

Tested for IT power systems : Yes No

IT testing, phase-phase voltage (V) : N/A

Class of equipment : Class I Class II Class III
 Not classified

Considered current rating of protective device as part of the building installation (A) : 16 A

Pollution degree (PD) : PD 1 PD 2 PD 3

IP protection class : IP X0

Altitude during operation (m) : < 2000 m

Altitude of test laboratory (m) : Shenzhen < 2000 m

Mass of equipment (kg) : --

Possible test case verdicts:

- test case does not apply to the test object : N/A
- test object does meet the requirement : P (Pass)
- test object does not meet the requirement : F (Fail)

Testing

Date of receipt of test item : June 5, 2018

Date(s) of performance of tests..... : June 5, 2018 To June 13, 2018

Summary of testing:
Testing location:

Rader Certification UK Co., Ltd.
710, Jiangong Building, Zizhu 7th Road, Futian District, Shenzhen, China

Tests performed (name of test and test clause):

The sample(s) tested complies with the requirements of EN 60950-1
When determining the test conclusion, the Measurement Uncertainty of test has been considered.
Heating test (4.5):
T_{ma} = 40 °C (declared by manufacturer)
T_{amb} = 25.2 °C – 24.6 °C
K-type thermocouple used for temperature measurement.

Summary of compliance with National Differences

Compliance with the National requirements of CENELEC common modification.

General remarks:

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Copy of marking plate

Product Name: POE ADAPTER
Model no.: WI-POE31-48V ta=40°C
Input : AC 230V, 0.13A, 30W, 50/60Hz
Output :DC 48V, 0.5A
WIRELESS-TEK TECHNOLOGY LIMITED
Room 402 4F, BiaoFan Technology Building, Bao' An Avenue,
FuY ong Town, Bao' An district, ShenZhen GuangDong, China



S/N:XXXXXX Importer:XXXXXX Address:XXXXXX
Made In China

Remark:

The above label is draft of the artwork for marking plate pending approval by National Certification Bodies and they shall not be affixed to products prior to such approvals.



General product information:

POE ADAPTER, powered by mains, For indoor use only.

Instructions and equipment marking related to safety is applied in the language that is acceptable in the country in which the equipment is to be sold.

Model difference:

All models are identical except for model No. WI-POE31-48V After comparison, tests carried out on model WI-POE31-48V were considered representative.

Version No.	Date	Description
00	June 13, 2018	Original
01	May 24, 2019	New report*

Remark:

*The differences between new report and original are model name, please refer to page1 and 5

EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1	GENERAL		P
1.5	Components		P
1.5.1	General		P
	Comply with IEC 60950-1 or relevant component standard	(see appended table 1.5.1)	P
1.5.2	Evaluation and testing of components		P
1.5.3	Thermal controls		N
1.5.4	Transformers		N
1.5.5	Interconnecting cables		P
1.5.6	Capacitors bridging insulation	Y capacitors used inside certified internal power supply were considered to comply with the requirements	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		N
1.5.8	Components in equipment for IT power systems		N
1.5.9	Surge suppressors		N
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		P
1.6.2	Input current	(see appended table 1.6.2)	P
1.6.3	Voltage limit of hand-held equipment		N
1.6.4	Neutral conductor		P

EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
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	See below	P
	Multiple mains supply connections.....:	Mains from AC source	N
	Rated voltage(s) or voltage range(s) (V)	230 V~	P
	Symbol for nature of supply, for d.c. only		N
	Rated frequency or rated frequency range (Hz) ...:	50/60 Hz	P
	Rated current (mA or A)	0.13 A	P
1.7.1.2	Identification markings		P
	Manufacturer's name or trade-mark or identification mark	See marking plate	P
	Model identification or type reference	See page 1	P
	Symbol for Class II equipment only		N
	Other markings and symbols	See marking plate	P
1.7.2	Safety instructions and marking		P
1.7.2.1	General		P
1.7.2.2	Disconnect devices	Appliance coupler	P
1.7.2.3	Overcurrent protective device		P
1.7.2.4	IT power distribution systems		N
1.7.2.5	Operator access with a tool		P
1.7.2.6	Ozone	The equipment does not produce Ozone.	N
1.7.3	Short duty cycles	The equipment is intended for continuous operation.	N
1.7.4	Supply voltage adjustment	No voltage selector.	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)		N
1.7.7	Wiring terminals		N
1.7.7.1	Protective earthing and bonding terminals		P
1.7.7.2	Terminals for a.c. mains supply conductors		P
1.7.7.3	Terminals for d.c. mains supply conductors		N
1.7.8	Controls and indicators		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		N
1.7.8.4	Markings using figures		N
1.7.9	Isolation of multiple power sources		N
1.7.10	Thermostats and other regulating devices		N

EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.7.11	Durability		P
1.7.12	Removable parts		N
1.7.13	Replaceable batteries		N
	Language(s)		—
1.7.14	Equipment for restricted access locations		N

2	PROTECTION FROM HAZARDS		P
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)	Hazardous parts not accessible	P
	Test with test pin (Figure 2B)	Hazardous parts not accessible	P
	Test with test probe (Figure 2C)		N
2.1.1.2	Battery compartments	No battery compartments	N
2.1.1.3	Access to ELV wiring	No ELV wiring in operator accessible area.	N
	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
2.1.1.5	Energy hazards	Certified power supply used	P
2.1.1.6	Manual controls		N
2.1.1.7	Discharge of capacitors in equipment	see below	P
	Measured voltage (V); time-constant (s).....	$V=50.2V_{Ac}, 0.77s$	—
2.1.1.8	Energy hazards – d.c. mains supply	Not connected to DC mains supply.	N
	a) Capacitor connected to the d.c. mains supply ..	Not such device	N
	b) Internal battery connected to the d.c. mains supply		N
2.1.1.9	Audio amplifiers		N
2.1.2	Protection in service access areas		P
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)	Less than 42.4V _{peak} or 60V _{dc}	P
2.2.3	Voltages under fault conditions (V)	Less than 42.4V _{peak} or 60V _{dc}	P
2.2.4	Connection of SELV circuits to other circuits	SELV circuits are only	P

EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
		connected to other SELV circuits.	
2.3	TNV circuits		N
2.3.1	Limits		N
	Type of TNV circuits		—
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		P
	Frequency (Hz).....	24KHz	—
	Measured current (mA)	5mA	—
	Measured voltage (V)	10V	—
	Measured circuit capacitance (nF or μ F)	2200pF	—
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		N
	d) Overcurrent protective device limited output		P
	Max. output voltage (V), max. output current (A), max. apparent power (VA)	DC49.1V, 0.8A, 39.2W	—
	Current rating of overcurrent protective device (A) ..		—
	Use of integrated circuit (IC) current limiters		N
2.6	Provisions for earthing and bonding		N
2.6.1	Protective earthing		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 (Ω), 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
2.7.1	Basic requirements		P
	Instructions when protection relies on building installation		N
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 protective device "F1" located in line	P
2.7.5	Protection by several devices		N

EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
2.7.6	Warning to service personnel.....:		N
2.8	Safety interlocks		N
2.8.1	General principles		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		P
2.9.2	Humidity conditioning		P
	Relative humidity (%), temperature (°C)	93 %RH, 25 °C, 48 h	—
2.9.3	Grade of insulation		P
2.9.4	Separation from hazardous voltages		N
	Method(s) used		—
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 Degree 2	P
2.10.1.3	Reduced values for functional insulation		P
2.10.1.4	Intervening unconnected conductive parts		P
2.10.1.5	Insulation with varying dimensions		P
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		P
2.10.2.1	General		P
2.10.2.2	RMS working voltage	(See appended table 2.10.3 and 2.10.4)	P
2.10.2.3	Peak working voltage	(See appended table 2.10.3 and 2.10.4)	P
2.10.3	Clearances		P

EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
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
	c) Unearthed d.c. mains supplies		N
	d) Battery operation		N
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
2.10.3.5	Clearances in circuits having starting pulses		N
2.10.3.6	Transients from a.c. mains supply	2500 V	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 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		N
2.10.5.2	Distances through insulation		N
2.10.5.3	Insulating compound as solid insulation		N
2.10.5.4	Semiconductor devices		N
2.10.5.5	Cemented joints		N
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		N
	Electric strength test		—
2.10.5.10	Thin sheet material – alternative test procedure		N
	Electric strength test		—
2.10.5.11	Insulation in wound components		N

EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
2.10.5.12	Wire in wound components		N
	Working voltage		N
	a) Basic insulation not under stress		N
	b) Basic, supplementary, reinforced insulation		N
	c) Compliance with Annex U		N
	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		—
	Routine test		N
2.10.5.14	Additional insulation in wound components		N
	Working voltage		N
	- Basic insulation not under stress		N
	- Supplementary, reinforced insulation		N
2.10.6	Construction of printed boards		P
2.10.6.1	Uncoated printed boards		P
2.10.6.2	Coated printed boards		P
2.10.6.3	Insulation between conductors on the same inner surface of a printed board		P
2.10.6.4	Insulation between conductors on different layers of a printed board		P
	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		N
3.1	General		N
3.1.1	Current rating and overcurrent protection		N

EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
3.1.2	Protection against mechanical damage		N
3.1.3	Securing of internal wiring		N
3.1.4	Insulation of conductors		N
3.1.5	Beads and ceramic insulators		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		N
	10 N pull test		N
3.1.10	Sleeving on wiring		N
3.2	Connection to a mains supply		P
3.2.1	Means of connection	Appliance coupler	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	Single main supply	N
3.2.3	Permanently connected equipment	The equipment is not intended for permanent connection to the mains.	N
	Number of conductors, diameter of cable and conduits (mm)		—
3.2.4	Appliance inlets	The appliance inlet complies with IEC/EN 60320-1	P
3.2.5	Power supply cords		P
3.2.5.1	AC power supply cords	Certified power supply cord is used	P
	Type	(see appended table 1.5.1)	—
	Rated current (A), cross-sectional area (mm ²), AWG	(see appended table 1.5.1)	—
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		P
3.2.8	Cord guards		N
	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

EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
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	Appliance coupler	P
3.4.3	Permanently connected equipment		N
3.4.4	Parts which remain energized		N
3.4.5	Switches in flexible cords	No such switches	N
3.4.6	Number of poles - single-phase and d.c. equipment		P
3.4.7	Number of poles - three-phase equipment	Single – phase equipment	N
3.4.8	Switches as disconnect devices		N
3.4.9	Plugs as disconnect devices		N
3.4.10	Interconnected equipment		N
3.4.11	Multiple power sources	Only one supply connection provided.	N
3.5	Interconnection of equipment		P
3.5.1	General requirements		P
3.5.2	Types of interconnection circuits	SELV circuit only	P
3.5.3	ELV circuits as interconnection circuits	No ELV circuit	N
3.5.4	Data ports for additional equipment		N
4	PHYSICAL REQUIREMENTS		P
4.1	Stability		P
	Angle of 10°		N
	Test force (N)		N
4.2	Mechanical strength		P
4.2.1	General		P
	Rack-mounted equipment.		N
4.2.2	Steady force test, 10 N		P
4.2.3	Steady force test, 30 N		N
4.2.4	Steady force test, 250 N	250 N applied on outer	P

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Clause	Requirement + Test	Result - Remark	Verdict

		enclosure, no hazards.	
4.2.5	Impact test		P
	Fall test		N
	Swing test		N
4.2.6	Drop test; height (mm)		N
4.2.7	Stress relief test		N
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	Round and smooth	P
4.3.2	Handles and manual controls; force (N)		N
4.3.3	Adjustable controls	No such control	N
4.3.4	Securing of parts		P
4.3.5	Connection by plugs and sockets		N
4.3.6	Direct plug-in equipment		N
	Torque		—
	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	No 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	No 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		—

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Clause	Requirement + Test	Result - Remark	Verdict
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		P
4.3.13.5.1	Lasers (including laser diodes)		N
	Laser class		—
4.3.13.5.2	Light emitting diodes (LEDs)		P
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 appended table 4.5)	P
	Normal load condition per Annex L		—
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		N
4.6	Openings in enclosures		N
4.6.1	Top and side openings		N
	Dimensions (mm)		—
4.6.2	Bottoms of fire enclosures		N
	Construction of the bottom, dimensions (mm) ...		—
4.6.3	Doors or covers in fire enclosures		N
4.6.4	Openings in transportable equipment		N

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Clause	Requirement + Test	Result - Remark	Verdict
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		P
	Method 1, selection and application of components wiring and materials	See appended table 1.5.1	P
	Method 2, application of all of simulated fault condition tests		N
4.7.2	Conditions for a fire enclosure		P
4.7.2.1	Parts requiring a fire enclosure	The fire enclosure is required to cover all parts.	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	Plastic enclosure used	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	V-0 PWB used	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		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
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		P
	Supply voltage (V)	264V	—
	Measured touch current (mA)		—
	Max. allowed touch current (mA)		—

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Clause	Requirement + Test	Result - Remark	Verdict
	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		N
	b) EUT whose telecommunication ports have no reference to protective earth		N
5.2	Electric strength		P
5.2.1	General	(see appended table 5.2)	P
5.2.2	Test procedure		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		P
5.3.3	Transformers		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		N
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

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Clause	Requirement + Test	Result - Remark	Verdict
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
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
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

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Clause	Requirement + Test	Result - Remark	Verdict
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
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)		P
B.1	General requirements		P
	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		P

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Clause	Requirement + Test	Result - Remark	Verdict
B.6.1	General		P
B.6.2	Test procedure		P
B.6.3	Alternative test procedure		P
B.6.4	Electric strength test; test voltage (V)		N
B.7	Locked-rotor overload test for d.c. motors in secondary circuits		P
B.7.1	General		P
B.7.2	Test procedure		P
B.7.3	Alternative test procedure		P
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
	Position:		—
	Manufacturer :	See table 1.5.1	—
	Type :	See table 1.5.1	—
	Rated values :	See table 1.5.1	—
	Method of protection	See table 1.5.1	—
C.1	Overload test		P
C.2	Insulation		N
	Protection from displacement of windings		N
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

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Clause	Requirement + Test	Result - Remark	Verdict
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	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
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		N
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)		P
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		P

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Clause	Requirement + Test	Result - Remark	Verdict
M	ANNEX M, CRITERIA FOR TELEPHONE RINGING SIGNALS (see 2.3.1)		N
M.1	Introduction		N
M.2	Method A		N
M.3	Method B		N
M.3.1	Ringling 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		—
Q	ANNEX Q, Voltage dependent resistors (VDRs) (see 1.5.9.1)		P
	a) Preferred climatic categories		N
	b) Maximum continuous voltage		N
	c) Pulse current		N
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
T	ANNEX T, GUIDANCE ON PROTECTION AGAINST INGRESS OF WATER (see 1.1.2)		N
U	ANNEX U, INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED		N

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Clause	Requirement + Test	Result - Remark	Verdict
INSULATION (see 2.10.5.4)			
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)		N
X.1	Determination of maximum input current		N
X.2	Overload test procedure		N
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
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		N

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Clause	Requirement + Test	Result - Remark	Verdict
	stops.....:		
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

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Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT IEC 60950-1 EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES Information technology equipment – Safety – Part 1: General requirements	
Differences according to	EN 60950-1:2006/A11:2009/A1:2010/A12:2011/A2:2013
Attachment Form No.	EU_GD_IEC60950_1E_II
Attachment Originator.....	SGS Fimko Ltd
Master Attachment	Date 2014-02

EN 60950-1:2006/A11:2009/A1:2010/A12:2011/A2:2013 – CENELEC COMMON MODIFICATIONS																																																		
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: <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%;">1.4.8 Note 2</td> <td style="width: 25%;">1.5.1 Note 2 & 3</td> <td style="width: 25%;">1.5.7.1 Note</td> <td style="width: 25%;">1.7.2.1 Note 4, 5 & 6</td> </tr> <tr> <td>1.5.8 Note 2</td> <td>1.5.9.4 Note</td> <td>1.7.2.1 Note</td> <td>2.3.2 Note</td> </tr> <tr> <td>2.2.3 Note</td> <td>2.2.4 Note 2</td> <td>2.6.3.3 Note 2 & 3</td> <td></td> </tr> <tr> <td>2.3.2.1 Note 2</td> <td>2.3.4 Note 2</td> <td>2.10.5.13 Note 3</td> <td></td> </tr> <tr> <td>2.7.1 Note</td> <td>2.10.3.2 Note 2</td> <td>2.5.1 Note 2</td> <td></td> </tr> <tr> <td>3.2.1.1 Note</td> <td>3.2.4 Note 3.</td> <td>4.7.2.2 Note</td> <td></td> </tr> <tr> <td>4.3.6 Note 1 & 2</td> <td>4.7 Note 4</td> <td>5.3.7 Note 1</td> <td></td> </tr> <tr> <td>4.7.3.1 Note 2</td> <td>5.1.7.1 Note 3 & 4</td> <td>6.1.2.2 Note</td> <td></td> </tr> <tr> <td>6 Note 2 & 5</td> <td>6.1.2.1 Note 2</td> <td>6.2.2.2 Note</td> <td></td> </tr> <tr> <td>6.2.2 Note</td> <td>6.2.2.1 Note 2</td> <td>7.3 Note 1 & 2</td> <td></td> </tr> <tr> <td>7.1 Note 3</td> <td>7.2 Note</td> <td></td> <td></td> </tr> <tr> <td>G.2.1 Note 2</td> <td>Annex H Note 2</td> <td></td> <td></td> </tr> </table>	1.4.8 Note 2	1.5.1 Note 2 & 3	1.5.7.1 Note	1.7.2.1 Note 4, 5 & 6	1.5.8 Note 2	1.5.9.4 Note	1.7.2.1 Note	2.3.2 Note	2.2.3 Note	2.2.4 Note 2	2.6.3.3 Note 2 & 3		2.3.2.1 Note 2	2.3.4 Note 2	2.10.5.13 Note 3		2.7.1 Note	2.10.3.2 Note 2	2.5.1 Note 2		3.2.1.1 Note	3.2.4 Note 3.	4.7.2.2 Note		4.3.6 Note 1 & 2	4.7 Note 4	5.3.7 Note 1		4.7.3.1 Note 2	5.1.7.1 Note 3 & 4	6.1.2.2 Note		6 Note 2 & 5	6.1.2.1 Note 2	6.2.2.2 Note		6.2.2 Note	6.2.2.1 Note 2	7.3 Note 1 & 2		7.1 Note 3	7.2 Note			G.2.1 Note 2	Annex H Note 2			P
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7.1 Note 3	7.2 Note																																																	
G.2.1 Note 2	Annex H Note 2																																																	
General (A1:2010)	Delete all the “country” notes in the reference document (IEC 60950-1:2005/A1:2010) according to the following list: <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%;">1.5.7.1 Note</td> <td style="width: 25%;">6.1.2.1 Note 2</td> <td></td> <td></td> </tr> <tr> <td>6.2.2.1 Note 2</td> <td>EE.3 Note</td> <td></td> <td></td> </tr> </table>	1.5.7.1 Note	6.1.2.1 Note 2			6.2.2.1 Note 2	EE.3 Note			P																																								
1.5.7.1 Note	6.1.2.1 Note 2																																																	
6.2.2.1 Note 2	EE.3 Note																																																	

EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.3.Z1	Add the following subclause: 1.3.Z1 Exposure to excessive sound pressure The apparatus shall be so designed and constructed as to present no danger when used for its intended purpose, either in normal operating conditions or under fault conditions, particularly providing protection against exposure to excessive sound pressures from headphones or earphones. 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.	Deleted	N
(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		P
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
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
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
	Zx Protection against excessive sound pressure from personal music players		N

EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>Zx.1 General This sub-clause specifies requirements for protection against excessive sound pressure from personal music players that are closely coupled to the ear. It also specifies requirements for earphones and headphones intended for use with personal music players.</p> <p>A personal music player is a portable equipment <input type="checkbox"/> for personal use, that:</p> <ul style="list-style-type: none"> <input type="checkbox"/> <input type="checkbox"/> is designed to allow the user to listen to recorded or broadcast sound or video; and <input type="checkbox"/> <input type="checkbox"/> primarily uses headphones or earphones that can be worn in or on or around the ears; and <input type="checkbox"/> <input type="checkbox"/> 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"> <input type="checkbox"/> <input type="checkbox"/> while the personal music player is connected to an external amplifier; or <input type="checkbox"/> <input type="checkbox"/> 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"> <input type="checkbox"/> <input type="checkbox"/> 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
	<p><input type="checkbox"/> <input type="checkbox"/> 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 No safety provision is required for equipment that complies with the following:</p> <ul style="list-style-type: none"> <input type="checkbox"/> <input type="checkbox"/> equipment provided as a package (personal music player with its listening device), where the acoustic output $L_{Aeq,T}$ is ≤ 85 dBA measured while playing the fixed "programme simulation noise" as described in EN 50332-1; and <input type="checkbox"/> <input type="checkbox"/> a personal music player provided with an analogue electrical output socket for a listening device, where the electrical output is ≤ 27 mV measured as described in EN 50332-2, while playing the fixed "programme simulation noise" as described in EN 50332-1. <p>NOTE 1 Wherever the term acoustic output is used in this clause, the 30 s A-weighted equivalent sound pressure level $L_{Aeq,T}$ is meant. See also Zx.5 and Annex Zx.</p> <p>All other equipment shall:</p> <ul style="list-style-type: none"> a) protect the user from unintentional acoustic outputs exceeding those mentioned above; and b) have a standard acoustic output level not exceeding those mentioned above, and automatically return to an output level not exceeding those mentioned above when the power is switched off; and 		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. 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

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

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>		N
	<p>Zx.4.3 Wireless listening devices In wireless mode:</p> <ul style="list-style-type: none"> <input type="checkbox"/> <input type="checkbox"/> with any playing and transmitting device playing the fixed programme simulation noise described in EN 50332-1; and <input type="checkbox"/> <input type="checkbox"/> respecting the wireless transmission standards, where an air interface standard exists that specifies the equivalent acoustic level; and <input type="checkbox"/> <input type="checkbox"/> with volume and sound settings in the listening device (for example built-in volume level control, additional sound feature like equalization, etc.) set to the combination of positions that maximize the measured acoustic output for the abovementioned programme simulation noise, the acoustic output $L_{Aeq,T}$ of the listening device shall be ≤ 100 dBA. <p>NOTE An example of a wireless listening device is a Bluetooth headphone.</p>		N
	<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

EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
2.7.1	Replace the subclause as follows: Basic requirements 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): 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; 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
	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. 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.		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.		N
3.2.5.1	Replace "60245 IEC 53" by "H05 RR-F"; "60227 IEC 52" by "H03 VV-F or H03 VVH2-F"; "60227 IEC 53" by "H05 VV-F or H05 VVH2-F2". In Table 3B, replace the first four lines by the following: 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 In the conditions applicable to Table 3B delete the words "in some countries" in condition ^{a)} . In NOTE 1, applicable to Table 3B, delete the second sentence.		P

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
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
	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 µSv/h (0,1 mR/h) (see NOTE). Account is taken of the background level. Replace the notes as follows: NOTE These values appear in Directive 96/29/Euratom. Delete NOTE 2.		N
Bibliography	Additional EN standards.		—

ZA	NORMATIVE REFERENCES TO INTERNATIONAL PUBLICATIONS WITH THEIR CORRESPONDING EUROPEAN PUBLICATIONS	—
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ZB ANNEX (NORMATIVE) SPECIAL NATIONAL CONDITIONS (EN)			
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

ZB ANNEX (NORMATIVE) SPECIAL NATIONAL CONDITIONS (EN)			
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).		N
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

ZB ANNEX (NORMATIVE) SPECIAL NATIONAL CONDITIONS (EN)			
Clause	Requirement + Test	Result - Remark	Verdict
1.7.2.1	<p>In Finland, Norway and Sweden, CLASS I PLUGGABLE EQUIPMENT TYPE A intended for connection to other equipment or a network shall, if safety relies on connection to protective earth or if surge suppressors are connected between the network terminals and accessible parts, have a marking stating that the equipment must be connected to an earthed mains socket-outlet.</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

ZB ANNEX (NORMATIVE) SPECIAL NATIONAL CONDITIONS (EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>NOTE In Norway, due to regulation for installations of cable distribution systems, and in Sweden, a galvanic isolator shall provide electrical insulation below 5 MHz. The insulation shall withstand a dielectric strength of 1,5 kV r.m.s., 50 Hz or 60 Hz, for 1 min.</p> <p>Translation to Norwegian (the Swedish text will also be accepted in Norway):</p> <p>“Utstyr som er koplet til beskyttelsesjord via nettplugg og/eller via annet jordtilkøp utstyr – og er tilkøp et kabel-TV nett, kan forårsake brannfare. For å unngå dette skal det ved tilkøp av utstyret til kabel-TV nettet installeres en galvanisk isolator mellom utstyret og kabel-TV nettet.”</p> <p>Translation to Swedish:</p> <p>”Utrustning som är kopplad till skyddsjord via jordat vägguttag och/eller via annan utrustning och samtidigt är kopplad till kabel-TV nät kan i vissa fall medföra risk för brand. För att undvika detta skall vid anslutning av utrustningen till kabel-TV nät galvanisk isolator finnas mellan utrustningen och kabel-TV nätet.”</p>		N
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>		N
2.2.4	<p>In Norway, for requirements see 1.7.2.1, 6.1.2.1 and 6.1.2.2 of this annex.</p>		N
2.3.2	<p>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.</p>		N
2.3.4	<p>In Norway, for requirements see 1.7.2.1, 6.1.2.1 and 6.1.2.2 of this annex.</p>		N
2.6.3.3	<p>In the United Kingdom, the current rating of the circuit shall be taken as 13 A, not 16 A.</p>		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.		N
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
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

ZB ANNEX (NORMATIVE) SPECIAL NATIONAL CONDITIONS (EN)			
Clause	Requirement + Test	Result - Remark	Verdict
3.2.1.1	<p>In Denmark, supply cords of single-phase equipment having a rated current not exceeding 13 A shall be provided with a plug according to the Heavy Current Regulations, Section 107-2-D1.</p> <p>CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a.</p> <p>If poly-phase equipment and single-phase equipment having a RATED CURRENT exceeding 13 A is provided with a supply cord with a plug, this plug shall be in accordance with the Heavy Current Regulations, Section 107-2-D1 or EN 60309-2.</p>		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
3.2.1.1	<p>In the United Kingdom, apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS 1363 by means of that flexible cable or cord and plug, shall be fitted with a 'standard plug' in accordance with Statutory Instrument 1768:1994 - The Plugs and Sockets etc. (Safety) Regulations 1994, unless exempted by those regulations.</p> <p>NOTE 'Standard plug' is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.</p>		N

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

ZB ANNEX (NORMATIVE) SPECIAL NATIONAL CONDITIONS (EN)			
Clause	Requirement + Test	Result - Remark	Verdict
3.2.1.1	In Ireland , apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to I.S. 411 by means of that flexible cable or cord and plug, shall be fitted with a 13 A plug in accordance with Statutory Instrument 525:1997 - National Standards Authority of Ireland (section 28) (13 A Plugs and Conversion Adaptors for Domestic Use) Regulations 1997.		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: <ul style="list-style-type: none"> • 1,25 mm² to 1,5 mm² nominal cross-sectional area. 		N
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

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

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

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

ZB ANNEX (NORMATIVE) SPECIAL NATIONAL CONDITIONS (EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>It is permitted to bridge this insulation with an optocoupler complying with 2.10.5.4 b).</p> <p>It is permitted to bridge this insulation with a capacitor complying with EN 60384-14:2005, subclass Y2.</p> <p>A capacitor classified Y3 according to EN 60384-14:2005, may bridge this insulation under the following conditions:</p> <ul style="list-style-type: none"> - the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 60384-14, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in EN 60950-1:2006, 6.2.2.1; - the additional testing shall be performed on all the test specimens as described in EN 60384-14: - the impulse test of 2,5 kV is to be performed before the endurance test in EN 60384-14, in the sequence of tests as described in EN 60384-14. 		N
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
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
7.3	<p>In Norway and Sweden, for requirements see 1.2.13.14 and 1.7.2.1 of this annex.</p>		N
7.3	<p>In Norway, for installation conditions see EN 60728-11:2005.</p>		N

1.5.1 TABLE: List of critical components					P
Object/part No.	Manufacturer/ trademark	Type/mod el	Technical data	Standard (Edition / year)	Mark(s) of conformity ¹⁾
PCB	Shandong Jinbao Electronics Co Ltd	ZD-22F	V-0, 130°C	UL 94	UL
X-cap	Various	Various	0.1 uF, 275 VAC, 40/100/21/C, X2	IEC 60384-14: 2005 EN 60384-14: 2005	CE
Y-cap	Various	Various	AC 500 V, 2200 pF, 30/125/56/C, Y1	IEC 60384-14: 2005 EN 60384-14: 2005	CE
AC Inlet (CON1)	Zhejiang LECI Electronics Co., Ltd	DB-8-5	2.5A,250V	IEC/EN 62320	VDE 40032028
Fuse link (F1)	Littelfuse, Inc.	392	T1A 250V~, 3.6x 10mm	IEC/EN 60127-1, IEC/EN 60127-3	VDE 126983
Opto-coupler (U1)	Everlight Electronics Co., Ltd.	EL817	Int. cr≥7.6mm, Ext. cr≥7.6mm, Dti.≥0.4mm, 55/110/21	EN 60747-5-5	VDE 132249
Line Filter (L1)	ROCKWELL AUTOMATION KOREA LTD	22F-RF025-CS	Class B	EN 60950-1	UL E336788
-Winding	Various	Various	130°C	UL 1446	UL
Transformer (T1)	AB TRASFORMATORI SRL	TMUL-15A	Class B	IEC/EN 60950-1	Tested with equipment
- Bobbin	Chang Chun Plastics Co Ltd	T375J	V-0, 150°C, Min. thickness: 0.71mm	UL 94	UL
-Triple insulated wire	Dah Jin Technology Co.,Ltd	TLW-B	130°C	EN 60950-1	VDE
Bridge diode (U2)	Various	Various	Min. 1A, 600V	EN 60950-1	Tested with appliance
Ripple cap. (C2)	Various	Various	400V, 33uF, 105°C	EN 60950-1	Tested with appliance
Supply cord	New rise holdings limited	H05RR-F	2 X 0.75mm ²	VDE 0281-5	VDE
NTC thermistor (NTC1)	GUANGDONG SOUTH HONGMING ELECTRONIC SCIENCE & TECHNOLOGY CO LTD	5D-9	240V~, 3A,	UL 1434	UL E361907
Plastic enclosure	Sabic Innovative Plastics US L L C	FR60 (GG)	V-0, 125°C, Min. thickness 2.0mm,	UL 94	UL
White Silicone Glue	SHENZHEN SHENGKONGTAI SILICONE MATERIAL CO LTD	KD-8441R	V-0, 105°C	UL 94	UL E341043
Supplementary information:					

1.6.2 TABLE: Electrical data (in normal conditions)						P
U (V~)	I (A)	I _{rated} (A)	P (W)	Fuse #	I _{fuse} (A)	Condition/status
230 V/ 50 Hz	0.1	0.13	23	F1	0.1	Maximum normal load.
Supplementary information:						

2.10.3 and 2.10.4 TABLE: Clearance and creepage distance measurements							P
Clearance (cl) and creepage distance (cr) at/of/between:	U peak (V)	U r.m.s. (V)	Required cl (mm)	cl (mm)	Required cr (mm)	cr (mm)	
Basic:							
L and N (B)	420	240	2.0	8.5	2.5	8.5	
Separation of fuse link (F1)	420	240	2.0	5.5	2.5	5.5	
Reinforced:							
Primary winding to secondary winding through transformer (T1)	480	240	4.2	8.0	5.0	8.0	
Core to secondary winding through transformer (T1)	480	240	4.2	8.0	5.0	8.0	
Primary to accessible parts	420	240	4.0	6.0	5.0	6.0	
Separation of Y Cap on PCB	420	240	2.0	3.5	2.5	3.5	
Reinforced: Certified built-in power supply was used and considered.							
Supplementary information: Test at 10 N for internal parts: OK.							

2.10.5 TABLE: Distance through insulation measurements					N
Distance through insulation (DTI) at/of:	U peak (V)	U rms (V)	Test voltage (V AC)	Required DTI (mm)	DTI (mm)
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Supplementary information:					

4.3.8	TABLE: Batteries								N
The tests of 4.3.8 are applicable only when appropriate battery data is not available									N
Is it possible to install the battery in a reverse polarity position?									N
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									N
- Explosion of the battery									N
- Emission of flame or expulsion of molten metal									N
- Electric strength tests of equipment after completion of tests									N
Supplementary information:									

4.5	TABLE: Thermal requirements						P
Supply voltage (V~)	230 V/ 50 Hz						—
Ambient T _{min} (°C)	24.6						—
Ambient T _{max} (°C)	24.8						—
Maximum measured temperature T of part/at::	T (°C)					Allowed T _{max} (°C)	
AC Inlet	42.3					125	
CY1 body	59.2					125	
CX(C1) body	59.3					110	
L1 body	56.2					110	
PCB near BD1	53.3					130	
PCB near IC1	64.2					130	
PCB near D8	56.7					130	
C2 body	57.5					105	
NTC body	55.2					125	
T1 winding	79.2					110	

T1 core	78.6					110	
PCB near T1	69.2					130	
Supplementary information:							
Temperature T of winding:	t ₁ (°C)	R ₁ (Ω)	t ₂ (°C)	R ₂ (Ω)	T (°C)	Allowed T _{max} (°C)	Insulation class
--	--	--	--	--	--	--	--
Supplementary information:							

4.5.5	TABLE: Ball pressure test of thermoplastic parts					P
	Allowed impression diameter (mm): ≤ 2 mm					—
Part	Test temperature (°C)			Impression diameter (mm)		
Plastic enclosure	125			1		
Supplementary information:						

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

5.2	TABLE: Electric strength tests, impulse tests and voltage surge tests			P
Test voltage applied between:	Voltage shape (AC, DC, impulse, surge)	Test voltage (V)	Breakdown Yes / No	
L to N	AC	1500	No	
L/N of plug and output terminal	AC	3000	No	
L/N of plug and enclosure with metal foil	AC	3000	No	
Transformer T1 Primary winding to Secondary winding	AC	3000	No	
Transformer T1 Core to Secondary winding	AC	3000	No	
Supplementary information:				

5.3	TABLE: Fault condition tests					P
	Ambient temperature (°C): 27.1 – 28.9		—			
	Power source for EUT: Manufacturer, model/type, output rating: --		—			
Component No.	Fault	Supply voltage (V)	Test time	Fuse #	Fuse current(A)	Observation
C2	S-C	230	1s	F1	0	Unit shutdown immediately, No hazard.
D8	S-C	230	1s	F1	0	Unit shutdown immediately, No hazard.

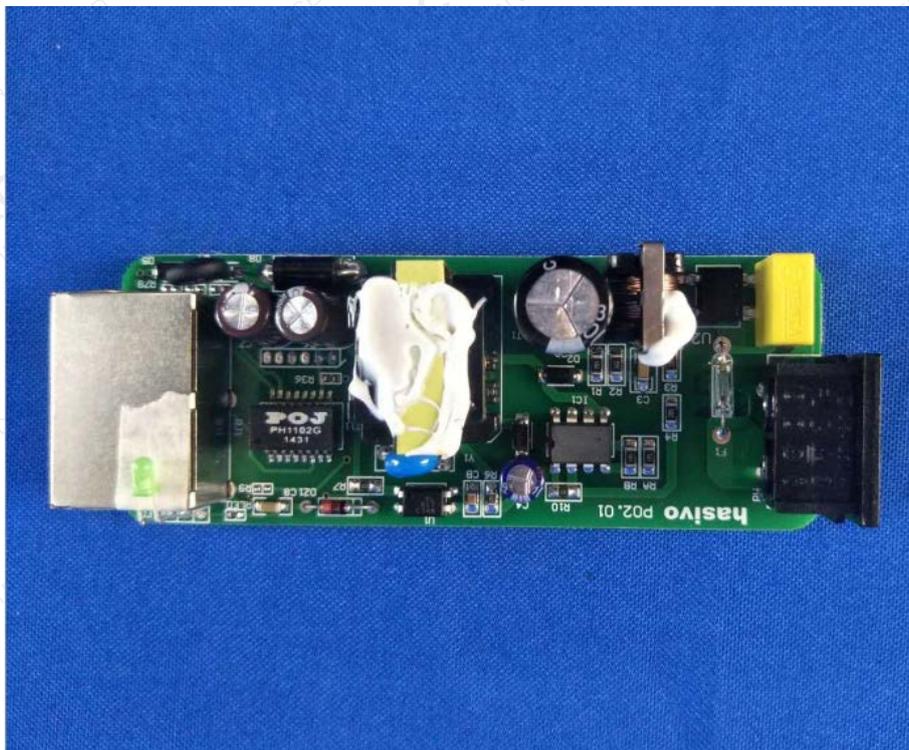
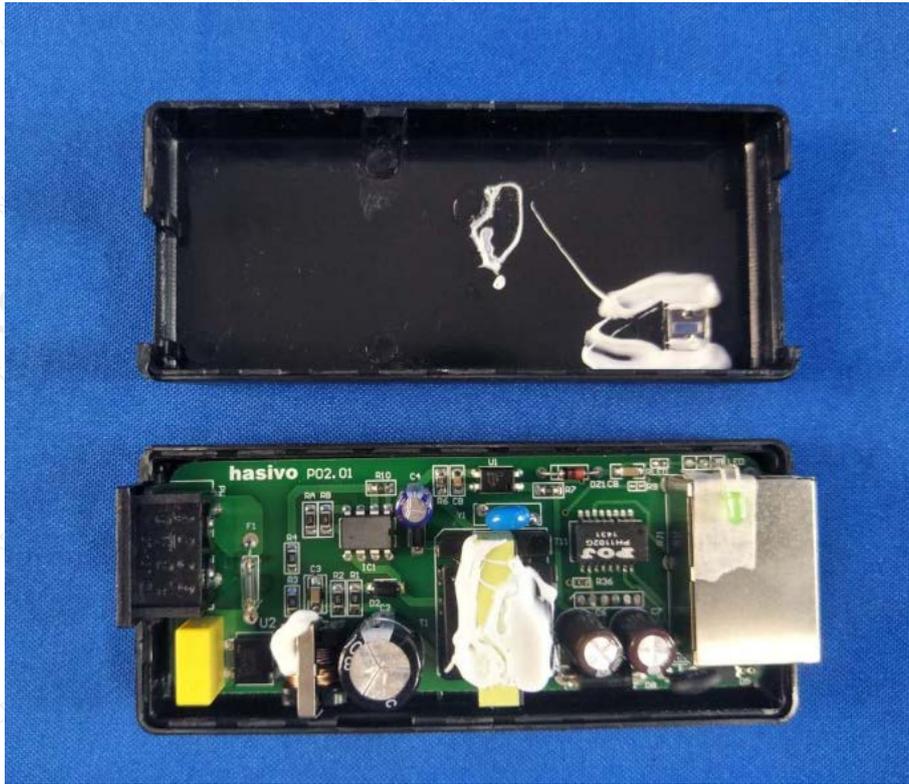
BD1 Pin1-3	S-C	230	1s	F1	0	Fusible resistor (F1) opened, BD1 damaged, no hazards
BD1 Pin2-4	S-C	230	1s	F1	0	Fusible resistor (F1) opened, BD1 damaged, no hazards
IC1 Pin1-3	S-C	230	1s	F1	0	Fusible resistor (F1) opened, BD1 damaged, no hazards
C4	S-C	230	1s	F1	0	EUT shutdown immediately, no damage, no hazard
R10	S-C	230	1s	F1	0	EUT shutdown immediately, no damage, no hazard
Output terminal	S-C	230	1s	F1	0	EUT shutdown immediately, no damage, no hazard
Output terminal	O-L	230	2h30mins	F1	0	EUT Shell temperature rise, no damage, no hazard
Supplementary information:						
Electric strength test L/N of plug and metal enclosure (earthing): 2120 Vdc, 1min: OK.						

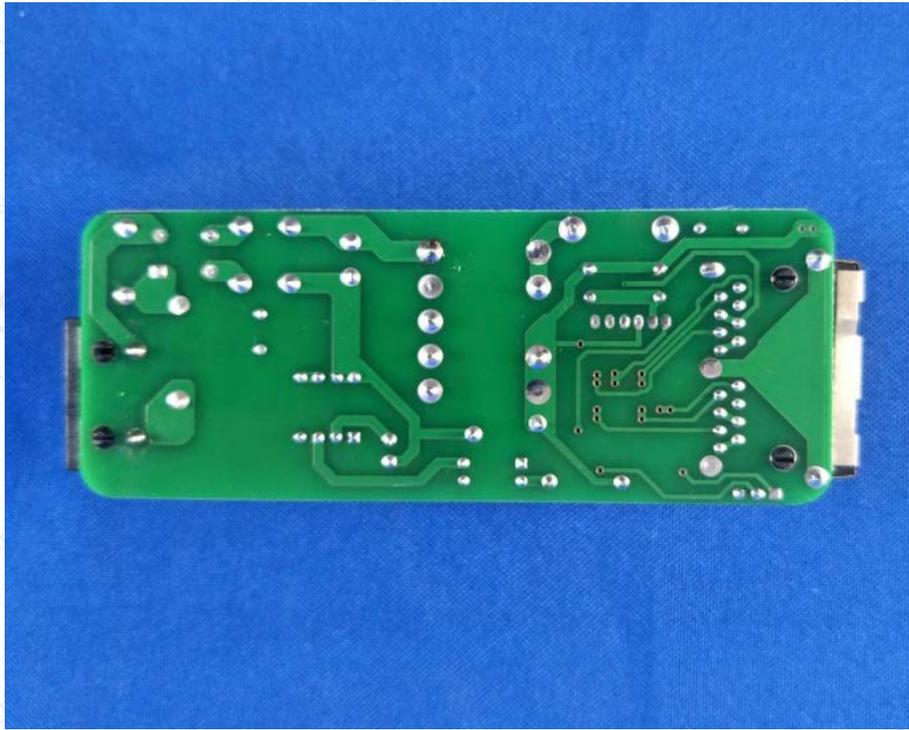
Photographs of the EUT











Reference to the test report NO. RCO18CE060006

(RCO authenticate the photo on original report only)

*** End of Report ***