APPLICATION FOR PPE TEST REPORT

On Behalf of

Prepared For	:	Shenzhen Siyoteam Technology Co., Ltd
Address	:	Room 2003B, SEG Plaza, Huaqiang North Road, Futian District, Shenzhen, PR. China
Product Name	:	DESKTOP CHARGER
Model	:	A8101
Prepared By	:	SHENZHEN POCE TECHNOLOGY CO., LTD.
Address	:	H Building, Hongfa Science And Technology Park, Tangtou, Shiyan, Bao'An District, Shenzhen, China
Test Date	:	Nov. 04, 2017 – Nov. 09, 2017
Date of Report	:	Nov. 09, 2017
Report No.	:	POCE17110603NRS

TEST REPORT

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

Report Reference No.	:	POCE17110603NRS
Tested by (name and signature)	:	Eva
Approved by (name and signature)	:	Machael Mo
Date of issue	:	Nov. 09, 2017

Testing Laboratory		Shenzhen POCE Technology Co., Ltd
Address	:	H Building, Hongfa Science And Technology Park, Tangtou, Shiyan, Bao'an District, Shenzhen, China

Applicant's name	:	Shenzhen Siyoteam Technology Co., Ltd
Address	:	Room 2003B, SEG Plaza, Huaqiang North Road, Futian District, Shenzhen, PR. China
Test standard	:	EN 60950-1:2006+A11:2009+A1:2010+A12:2011+A2:2013

Test item description	:	DESKTOP CHARGER
Trademark	:	N/A
Manufacturer	:	Shenzhen Siyoteam Technology Co., Ltd
Address	:	Room 2003B, SEG Plaza, Huaqiang North Road, Futian District, Shenzhen, PR. China
Model(s)	:	A8101
Rating(s)	:	Input: AC100-240V~, 50-60Hz, MAX 1100mA QC3.0 Output: 3.6V-6V⎓3A / 6V-9V⎓2A / 9V-12V⎓1.5A AUTO-ID Output: 5V⎓10A

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 ☐ built-in component, considered in end system
Operating condition ..... :	☒ continuous ☐ rated operating / resting time:
Access location ..... :	☒ operator accessible ☐ restricted access location
Over voltage category (OVC) ..... :	☐ OVC I ☒ OVC II ☐ OVC III ☐ OVC IV ☐ other
Mains supply tolerance (%) or absolute mains supply values ..... :	+10%, -10%
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 installlation (A) ..... :	16A(or 20A for US and CA)
Pollution degree (PD) ..... :	☐ PD 1 ☒ PD 2 ☐ PD 3
IP protection class ..... :	--
Altitude during operation (m) ..... :	Up to 10
Altitude of test laboratory (m) ..... :	Below 10
Mass of equipment (kg) ..... :	Approx. 0.2kg
Possible test case verdicts:	
- test case does not apply to the test object ..... :	N (Not apply)
- test object does meet the requirement ..... :	P (Pass)
- test object does not meet the requirement ..... :	F (Fail)
Testing ..... :	
Date of receipt of test item ..... :	Nov. 04, 2017
Date(s) of performance of tests ..... :	Nov. 04, 2017 – Nov. 09, 2017

General remarks:

The test results presented in this report relate only to the object tested.
This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.
"(See Enclosure #)" refers to additional information appended to the report.
"(See appended table)" refers to a table appended to the report.

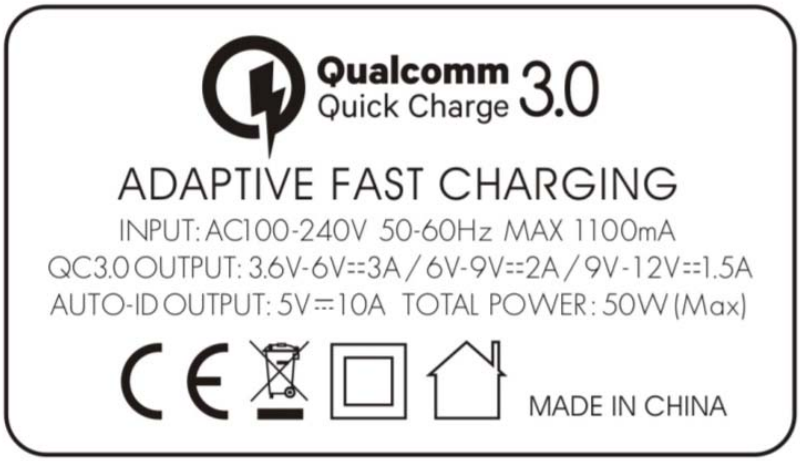
Note: This TRF includes EN Group Differences together with National Differences and Special National Conditions, if any. All Differences are located in the Appendix to the main body of this TRF.

Throughout this report a comma (point) is used as the decimal separator.

General product information:

1, The Maximum operating ambient is 40℃;

Copy of marking plate:



EN 60950-1			
Clause	Requirement	Remark	Result
1	GENERAL		--
1.5	Components		P
1.5.1	General	Components which were found to affect safety aspects comply with the requirements of this standard or with the safety aspects of the relevant IEC component standards. (see appended table1.5.1)	P
	Comply with IEC60950-1 or relevant component standard	(see appended table 1.5.1)	P
1.5.2	Evaluation and testing of components	Components which are certified according to IEC and/or national standards are used correctly within their ratings. Components not covered by IEC standards are tested under the conditions present in the equipment.	P
1.5.3	Thermal controls		N
1.5.4	Transformers	Transformers used are suitable for their intended application and comply with the relevant requirements of the standard and particularly Annex c.	P
1.5.5	Interconnecting cables		N
1.5.6	Capacitors bridging insulation	Y1 capacitors(CY1) according to IEC 60384-14	P
1.5.7	Resistors bridging insulation		--
1.5.7.1	Resistors bridging functional, basic or supplementary insulation	No such resistors	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	Not intended for IT power systems	N
1.5.9	Surge suppressors	No such component	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

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Clause	Requirement	Remark	Result
1.5.9.5	Bridging of supplementary, double or reinforced insulation by a VDR		N
1.6	Power interface		P
1.6.1	AC power distribution systems	TN, and IT for Norway.	P
1.6.2	Input current	(see appended table 1.6.2)	P
1.6.3	Voltage limit of hand-held equipment	The equipment is not hand-held.	N
1.6.4	Neutral conductor	Considering the neutral conductor was live conductor, the neutral conductor was insulated from the body with reinforced insulation throughout the equipment.	P
1.7	Marking and instructions		P
1.7.1	Power rating and identification markings		P
1.7.1.1	Power rating marking	See below	P
	Multiple mains supply connections.....:	Only one mains supply connections.	N
	Rated voltage(s) or voltage range(s) (V) ..... :	100-240V~	P
	Symbol for nature of supply, for d.c.only ..... :	The equipment is for a.c. supply	N
	Rated frequency or rated frequency range (Hz).... :	50-60Hz	P
	Rated current (mA or A) ..... :	1100mA	P
1.7.1.2	Identification markings	See below.	P
	Manufacturer's name or trade-mark or identification mark ..... :	Shenzhen Siyoteam Technology Co., Ltd	P
	Model identificationor type reference ..... :	A8101	P
	Symbol for Class II equipment only ..... :	Class II symbol (IEC 60417-1, symbol No. 5172) is applied to the label.	P
	Other markings and symbols ..... :	The additional marking does not give rise to misunderstandings.	P
1.7.2	Safety instructions and marking	Considered.	P
1.7.2.1	General		P
1.7.2.2	Disconnect devices		N
1.7.2.3	Overcurrent protective device	Pluggable equipment Type A.	N
1.7.2.4	IT power distribution systems		N
1.7.2.5	Operator access with a tool	All areas containing hazard(s) are inaccessible to the operator.	P

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Clause	Requirement	Remark	Result
1.2.7.6	Ozone	No ozone occur.	N
1.7.3	Short duty cycles	The equipment is intended for continuous operation	N
1.7.4	Supply voltage adjustment ..... :	No such device	N
	Methods and means of adjustment; reference to installation instructions ..... :		N
1.7.5	Power outlets on the equipment ..... :	No standard power outlet.	N
1.7.6	Fuse identification (marking, special fusing characteristics, cross-reference) ..... :		P
1.7.7	Wiring terminals		N
1.7.7.1	Protective earthing and bonding terminals ..... :	Class II equipment.	N
1.7.7.2	Terminals for a.c. mains supply conductors	The equipment is not permanently connected or provided with a non-detachable power supply cord.	N
1.7.7.3	Terminals for d.c. mains supply conductors	The equipment is not supplied from d.c mains.	N
1.7.8	Controls and indicators	Refer below.	N
1.7.8.1	Identification, location and marking ..... :	No control.	N
1.7.8.2	Colours ..... :	No indicators with colours where safety is involved.	N
1.7.8.3	Symbols according to IEC 60417 .....:	There are no switches in the equipment.	N
1.7.8.4	Markings using figures .....:	No control.	N
1.7.9	Isolation of multiple power sources .....:	Only one connection supplying hazardous voltagess and energy levels to the equipment.	N
1.7.10	Thermostats and other regulating devices .....:	No thermostats or other regulating devices	N
1.7.11	Durability	The marking withstands required tests.	P
1.7.12	Removable parts	No removable parts	N
1.7.13	Replaceable batteries .....:	No replaceable batteries in the equipment.	N
	Language(s) .....:		—
1.7.14	Equipment for restricted access locations.....:		N

2	PROTECTION FROM HAZARDS		--
2.1	Protection from electric shock and energy hazards		--
2.1.1	Protection in operator access areas	See below	P
2.1.1.1	Access to energized parts		P

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Clause	Requirement	Remark	Result
	Test by inspection ..... :	Can't access to hazards energized parts	P
	Test with test finger (Figure 2A) ..... :	Can't access to hazards energized parts	P
	Test with test pin (Figure 2B) ..... :	Can't access to hazards energized parts	P
	Test with test probe (Figure 2C) ..... :	No TNV circuit in the equipment.	N
2.1.1.2	Battery compartments	No battery compartments	N
2.1.1.3	Access to ELV wiring		N
	Working voltage (Vpeak or Vrms); minimum distance through insulation (mm)		—
2.1.1.4	Access to hazardous voltage circuit wiring	All accessible parts are separated from internal wiring at hazardous voltage by double or reinforced insulation, complying with 2.10.5 and 3.1.4.	P
2.1.1.5	Energy hazards ..... :	(see appended table 2.1.1.5)	P
2.1.1.6	Manual controls		N
2.1.1.7	Discharge of capacitors in equipment		N
	Measured voltage (V); time-constant (s) ..... :		—
2.1.1.8	Energy hazards – d.c. mains supply	Not connected to DC mains supply.	N
	a) Capacitor connected to the d.c. mains supply :		N
	b) Internal battery connected to the d.c. mains supply ..... :		N
2.1.1.9	Audio amplifiers ..... :	No audio amplifiers.	N
2.1.2	Protection in service access areas	Checked by inspection unintentional contact is nlikely during service operations.	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) ..... :	Within SELV limits. (See appended table 2.2)	P
2.2.3	Voltages under fault conditions (V) ..... :	Within SELV limits. (See appended table 2.2)	P
2.2.4	Connection of SELV circuits to other circuits .....:	SELV circuits are only connected to other SELV.	P
2.3	TNV circuits		N
2.3.1	Limits	No TNV circuits	N

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Clause	Requirement	Remark	Result
	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	Limited are not exceeded.	P
2.4.2	Limit values	(see appended table 2.4.2)	P
	Frequency (Hz)..... :		—
	Measured current (mA)..... :		—
	Measured voltage (V) ..... :		—
	Measured circuit capacitance (nF or μF)..... :	CY1: 1000pF	—
2.4.3	Connection of limited current circuits to other circuits	Under normal operating condition, no fault condition can cause higher current.	P
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	A regulating network limits the output in compliance with table 2B both under normal operating conditions and after any single fault.	P
	d) Overcurrent protective device limited output		N
	Max. output voltage (V), max. output current (A), max. apparent power (VA)..... :		—
	Current rating of overcurrent protective device (A) .:		—
	Use of integrated circuit (IC) current limiters		N
2.6	Provisions for earthing and bonding		N
2.6.1	Protective earthing	Class II equipment	N

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Clause	Requirement	Remark	Result
2.6.2	Functional earthing	No functional earthing.	N
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		---
2.6.4.1	General		---
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		--
2.7.1	Basic requirements	Protective device is integrated in the equipment, see also Sub-clause 5.3.	P
	Instructions when protection relies on building installation	Protective device is integrated in the equipment.	P
2.7.2	Faults not simulated in 5.3.7		N

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Clause	Requirement	Remark	Result
2.7.3	Short-circuit backup protection	Adequate protective device.	P
2.7.4	Number and location of protective devices ..... :	One fuse F1 located at line conductor	P
2.7.5	Protection by several devices		N
2.7.6	Warning to service personnel..... :		N
2.8	Safety interlocks		N
2.8.1	General principles	No saftey interlocks.	N
2.8.2	Protection requirements		N
2.8.3	Inadvertent reactivation		N
2.8.4	Fail-safe operation		N
2.8.5	Moving parts		N
2.8.6	Overriding		N
2.8.7	Switches and relays		N
2.8.7.1	Contact gaps (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	Natural rubber, asbestos or hygroscopic material are used as insulation. No driving belts or couplings used.	N
2.9.2	Humidity conditioning	Humidity treatment performed for 48h	P
	Relative humidity (%), temperature (°C) ..... :	Temperature: 30°C, RH: 93%	—
2.9.3	Grade of insulation	Insulation is considered to be functional, reinforced or double insulation.	P
2.9.4	Separation from hazardous voltages	See below	P
	Method(s) used ..... :	Method 1 is used.	—
2.10	Clearances, creepage distances and distances through insulation		P
2.10.1	General	See below	P
2.10.1.1	Frequency ..... :	Considered.	P
2.10.1.2	Pollution degrees ..... :	Pollution degree 2	P
2.10.1.3	Reduced values for functional insualtion	The functional insulation complied with clause 5.3.4.	P
2.10.1.4	Intervening unconnected conductive parts	Considered	P

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Clause	Requirement	Remark	Result
2.10.1.5	Insulation with varying dimensions	No such transfomer used.	N
2.10.1.6	Special separation requirements	Special separation is not used.	N
2.10.1.7	Insulation in circuits generating starting pulses	The circuit will not generate starting pulse	N
2.10.2	Determination of working voltage	(See appended table 2.10.2)	P
2.10.2.1	General		P
2.10.2.2	RMS working voltage	(See appended table 2.10.2)	P
2.10.2.3	Peak working voltage	(See appended table 2.10.2)	P
2.10.3	Clearances	(See appended table 2.10.3 and 2.10.4)	P
2.10.3.1	General	Refer below	P
2.10.3.2	Mains transient voltages	2500V peak	P
	a) AC mains supply ..... :	240V	—
	b) Earthed d.c. mains supplies ..... :		—
	c) Unearthed d.c. mains supplies ..... :		—
	d) Battery operation ..... :		—
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 ..... :	Considered	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 suplply		—
	For an a.c. mains supply ..... :		—
	For a d.c. mains supply ..... :		—
	b) Transients from a telecommunication network :		—
2.10.4	Creepage distances	See below.	P
2.10.4.1	General	Considered.	P
2.10.4.2	Material group and caomparative tracking index	See below	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	See below	P
2.10.5.1	General	Considered	P
2.10.5.2	Distances through insulation	See appended table 2.10.5	P

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Clause	Requirement	Remark	Result
2.10.5.3	Insulating compound as solid insulation	For optocouplers, see appended table 1.5.1.	P
2.10.5.4	Semiconductor devices	For optocouplers, see appended table 1.5.1.	P
2.10.5.5.	Cemented joints		N
2.10.5.6	Thin sheet material – General		P
2.10.5.7	Separable thin sheet material		P
	Number of layers (pcs) ..... :	Refer to Annex C and appended table 2.10.5	—
2.10.5.8	Non-separable thin sheet material	Not used.	N
2.10.5.9	Thin sheet material – standard test procedure	The sub-clause 2.10.5.10 is used.	N
	Electric strength test		—
2.10.5.10	Thin sheet material – alternative test procedure	(see appended table 2.10.5)	P
	Electric strength test	(see appended table 2.10.5)	—
2.10.5.11	Insulation in wound components	Not used insulation in wound components.	N
2.10.5.12	Wire in wound components		P
	Working voltage ..... :	(see appended table 2.10.2)	P
	a) Basic insulation not under stress ..... :		N
	b) Basic, supplemetary, reinforced insulation ..... :		N
	c) Compliance with Annex U ..... :	(See appended Table 1.5.1)	P
	Two wires in contact inside wound component; angle between 45° and 90° ..... :	Protection against mechanical stress is provided by insulation tube.	P
2.10.5.13	Wire with solvent-based enamel in wound components		N
	Electric strength test		—
	Routine test		—
2.10.5.14	Additional insulation in wound components	No used	N
	Working voltage ..... :		—
	- Basic insulation not under stress ..... :		—
	- Supplemetary, reinforced insulation ..... :		—
2.10.6	Construction of printed boards	See below.	P
2.10.6.1	Uncoated printed boards	(see appended table 2.10.3 and 2.10.4)	P
2.10.6.2	Coated printed boards	No special coating in order to reduce distances.	N
2.10.6.3	Insulation between conductors on the same inner surface of a printed board		N

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Clause	Requirement	Remark	Result
2.10.6.4	Insulation between conductors on different layers of a printed board		N
	Distance through insulation		N
	Number of insulation layers (pcs) ..... :		N
2.10.7	Component external terminations		N
2.10.8	Tests on coated printed boards and coated components	No special coating in order to reduce distance.	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	No special insulation in order to reduce distance.	N
2.10.10	Test for Pollution Degree 1 environment and insulating compound	The equipment is Pollution Degree 2	N
2.10.11	Tests for semiconductor devices and cemented joints	No such device used.	N
2.10.12	Enclosed and sealed parts	No such device used.	N
3	WIRING, CONNECTIONS AND SUPPLY		--
3.1	General		P
3.1.1	Current rating and overcurrent protection	Adequate cross sectional areas on internal wires.	P
3.1.2	Protection against mechanical damage	Wire do not touch sharp edges which could damage the insulation and cause hazard.	P
3.1.3	Securing of internal wiring		P
3.1.4	Insulation of conductors		P
3.1.5	Beads and ceramic insulators	No used	N
3.1.6	Screws for electrical contact pressure	No screw for electrical contact.	N
3.1.7	Insulating materials in electrical connections	No contact pressure through insulating material.	P
3.1.8	Self-tapping and spaced thread screws	Not used	N
3.1.9	Termination of conductors	Terminations cannot become displaced so that clearances and creepage distances can be reduced.	P
	10 N pull test	Conducted.	P
3.1.10	Sleeving on wiring		N
3.2	Connection to a mains supply		P
3.2.1	Means of connection	Refer below	P

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Clause	Requirement	Remark	Result
3.2.1.1	Connection to an a.c. mains supply		P
3.2.1.2	Connection to a d.c. mains supply	Not for connection to a d.c mains supply	N
3.2.2	Multiple supply connections	Only one supply connection.	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		N
3.2.5	Power supply cords	Refer below	N
3.2.5.1	AC power supply cords		N
	Type ..... :		—
	Rated current (A), cross-sectional area (mm^2), AWG ..... :		—
3.2.5.2	DC power supply cords	The equipment is not for connecting to d.c. mains.	N
3.2.6	Cord anchorages and strain relief		N
	Mass of equipment (kg), pull (N) ..... :		—
	Longitudinal displacement (mm) ..... :		—
3.2.7	Protection against mechanical damage		N
3.2.8	Cord guards		N
	Diameter or minor dimension D (mm); test mass (g) ..... :		—
	Radius of curvature of cord (mm)..... :		—
3.2.9	Supply wiring space		N
3.3	Wiring terminals for connection of external conductors		N
3.3.1	Wiring terminals		N
3.3.2	Connection of non-detachable power supply cords		N
3.3.3	Screw terminals		N
3.3.4	Conductor sizes to be connected		N
	Rated current (A), cord/cable type, cross-sectional area (mm^2)..... :		—
3.3.5	Wiring terminal sizes		N
	Rated current (A), type, nominal thread diameter (mm) ..... :		—
3.3.6	Wiring terminal design		N
3.3.7	Grouping of wiring terminals		N
3.3.8	Stranded wire		N

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Clause	Requirement	Remark	Result
3.4	Disconnection from the mains supply		P
3.4.1	General requirement	See below	P
3.4.2	Disconnect devices	The plug is used as disconnect device.	P
3.4.3	Permanently connected equipment	Not permanently connected equipment.	N
3.4.4	Parts which remain energized		N
3.4.5	Switches in flexible cords		N
3.4.6	Number of poles – single-phase and d.c. equipment	Disconnect both poles simultaneously	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		N
3.5	Interconnection of equipment		P
3.5.1	General requirements	Considered	P
3.5.2	Types of interconnection circuits ..... :	SELV circuit	P
3.5.3	ELV circuits as interconnection circuits	No ELV interconnection	N
3.5.4	Data ports for additional equipment		N
4	PHYSICAL REQUIREMENTS		--
4.1	Stability		N
	Angle of 10°	Mass < 7kg	N
	Test force (N) ..... :	The unit is not floor-standing	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		P
4.2.5	Impact test		N
	Fall test		N
	Swing test		N
4.2.6	Drop test; height (mm) ..... :	No hazard as result from the drop test at 1000mm height.	P
4.2.7	Stress relief test	Test is carried out at 82.3°C / 7hrs. No risk of shrinkage or distortion on enclosures due to release of internal stresses.	P

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Clause	Requirement	Remark	Result
4.2.8	Cathode ray tubes	CRT(s) not used in the equipment	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	All edges and corners are rounded and/or smoothed.	P
4.3.2	Handles and manual controls; force (N).....:	No knobs, grips, handles, lever etc.	N
4.3.3	Adjustable controls		N
4.3.4	Securing of parts	No loosening of parts impairing creepage distances or clearances is likely to occur.	P
4.3.5	Connection by plugs and sockets		P
4.3.6	Direct plug-in equipment		P
	Torque ..... :	<0.25Nm	—
	Compliance with the relevant mains plug standard ..... :		P
4.3.7	Heating elements in earthed equipment	No heating elements	N
4.3.8	Batteries	No batteries used.	N
	- Overcharging of a rechargeable battery		N
	- Unintentional charging of a non-rechargeable battery		N
	- Reverse charging of a rechargeable battery		N
	- Excessive discharging rate for any battery		N
4.3.9	Oil and grease		N
4.3.10	Dust, powders, liquids and gases		N
4.3.11	Containers for liquids or gases		N
4.3.12	Flammable liquids ..... :	The equipment does not contain flammable liquid	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	No ionizing radiation	N
	Measured radiation(pA/kg) ..... :		—
	Measured high-voltage (kV) ..... :		—

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Clause	Requirement	Remark	Result
	Measured focus voltage (kV)..... :		—
	CRT markings..... :		—
4.3.13.3	Effect of ultraviolet (UV) radiation on materials		N
	Part, property, retention after test, flammability classification ..... :		N
4.3.13.4	Human exposure to ultraviolet (UV) radiation ..... :		N
4.3.13.5	Lasers (including laser diodes) and LEDs		N
4.3.13.5.1	Lasers (including laser diodes)	No such equipment	N
	Laser class ..... :		—
4.3.13.5.2	Light emitting diodes (LEDs)		N
4.3.13.6	Other types ..... :		N
4.4	Protection against hazardous moving parts		N
4.4.1	General	No moving parts	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	See below	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 ..... :	(see appended table 4.5)	P
4.6	Openings in enclosures		N
4.6.1	Top and side openings	No openings	N

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Clause	Requirement	Remark	Result
	Dimensions (mm) ..... :		—
4.6.2	Bottoms of fire enclosures	No openings	N
	Construction of the bottomm, dimensions (mm) .. :		—
4.6.3	Doors or covers in fire enclosures	No doors or covers	N
4.6.4	Openings in transportable equipment	Not transportable equipment.	N
4.6.4.1	Constructional design measures		N
	Dimensions (mm) ..... :		—
4.6.4.2	Evaluation measures for larger openings		N
4.6.4.3	Use of metallized parts		N
4.6.5	Adhesives for constructional purposes	Not used 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	Method 1 used	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	Fire enclosure is provided	P
4.7.2.1	Parts requiring a fire enclosure	The fire enclosure is required to cover all part.	P
4.7.2.2	Parts not requiring a fire enclosure		N
4.7.3	Materials		P
4.7.3.1	General	Components and materials have adequate flammability classification. (see appended table 1.5.1.)	P
4.7.3.2	Materials for fire enclosures	Plastic enclosure: V-0	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	Min. V-2	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		--
5.1	Touch current and protective conductor current		P
5.1.1	General		P
5.1.2	Configuration of equipment under test (EUT)		--
5.1.2.1	Single connection to an a.c. mains supply		N

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Clause	Requirement	Remark	Result
5.1.2.2	Redundant multiple connections to an a.c. mains supply	No multiple power sources.	N
5.1.2.3	Simultaneous multiple connections to an a.c. mains supply	No multiple power sources.	N
5.1.3	Test circuit		P
5.1.4	Application of measuring instrument	Using measuring instrument in annex D.	P
5.1.5	Test procedure		P
5.1.6	Test measurements	See below	P
	Supply voltage (V) ..... :	264V, 60Hz	—
	Measured touch current (mA) ..... :	(See appended table 5.1)	—
	Max. Allowed touch current (mA) ..... :	(See appended table 5.1)	—
	Measured protective conductor current (mA) ..... :		—
	Max. Allowed protective conductor current (mA).. :		—
5.1.7	Equipment with touch current exceeding 3,5mA	The touch current does not exceed 3.5mA.	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	(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		N

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Clause	Requirement	Remark	Result
5.3.3	Transformers	(see appended Annex C and table 5.3)	P
5.3.4	Functional insulation ..... :	By short circuit	P
5.3.5	Electromechanical components	No electromechanical component.	N
5.3.6	Audio amplifiers in ITE ..... :	No audio amplifiers.	N
5.3.7	Simulation of faults	(See appended table 5.3.)	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
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

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Clause	Requirement	Remark	Result
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
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) ..... :		—

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Clause	Requirement	Remark	Result
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)		N
B.1	General requirements		N
	Position ..... :		—
	Manufacturer ..... :		—
	Type ..... :		—
	Rated values ..... :		—
B.2	Test conditions		N
B.3	Maximum temperatures		N
B.4	Running overload test		N
B.5	Locked-rotor overload test		N
	Test duration (days) ..... :		—
	Electric strength test: test voltage (V) ..... :		—
B.6	Running overload test for d.c. motors in secondary circuits		N
B.6.1	General		N
B.6.2	Test procedure		N
B.6.3	Alternative test procedure		N
B.6.4	Electric strength test; test voltage (V) ..... :		N
B.7	Locked-rotor overload test for d.c. motors in secondary circuits		N
B.7.1	General		N
B.7.2	Test procedure		N
B.7.3	Alternative test procedure		N
B.7.4	Electric strength test; test voltage (V) .....:		N
B.8	Test for motors with capacitors		N
B.9	Test for three-phase motors		N
B.10	Test for series motors		N
	Operating voltage (V) ..... :		—
C	ANNEX C, TRANSFORMERS (see 1.5.4 and 5.3.3)		P
	Position ..... :		—
	Manufacturer ..... :	See appended table 1.5.1.	—
	Type ..... :	See appended table 1.5.1.	—

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Clause	Requirement	Remark	Result
	Rated values ..... :	See appended table 1.5.1.	—
	Method of protection..... :	Inherent	—
C.1	Overload test	(see appended table 5.3)	P
C.2	Insulation		P
	Protection from displacement of windings..... :	By bobbin and insulation tape	P
D	ANNEX D, MEASURING INSTRUMENTS FOR TOUCH-CURRENT TESTS (see5.1.4)		P
D.1	Measuring instrument	Figure D.1 used.	P
D.2	Alternative measuring instrument	Measuring instrument D1 is used.	N
E	ANNEX E, TEMPERATURE RISE OF A WINDING (see 1.4.13)		N
F	ANNEX F, MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES (see2.10 and Annex G)		P
G	ANNEXG, ALTERNATIVE METHOD FOR DETERMINING MINIMUM CLEARANCES		N
G.1	Clearances		N
G.1.1	General		N
G.1.2	Summary of the procedure for determining minimum clearances		N
G.2	Determination of mains transient voltage (V)		N
G.2.1	AC mains supply ..... :		N
G.2.2	Earthed d.c. mains supplies ..... :		N
G.2.3	Unearthed d.c. mains supplies ..... :		N
G.2.4	Battery operation ..... :		N
G.3	Determination of telecommunication network transient voltage (V) ..... :		N
G.4	Determination of required withstand voltage (V)		N
G.4.1	Mains transients and internal repetitive peaks .... :		N
G.4.2	Transients from telecommunication networks ..... :		N
G.4.3	Combination of transients		N
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

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Clause	Requirement	Remark	Result
H	ANNEXH, IONIZING RADIATION (see 4.3.13)		N
J	ANNEXJ, TABLE OF ELECTROCHEMICAL POTENTIALS (see 2.6.5.6)		N
	Metal(s) used ..... :		—
K	ANNEXK, 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)		--
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
M	ANNEXM, 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	Ringing signal		N
M.3.1.1	Frequency (Hz) ..... :		—
M.3.1.2	Voltage (V) ..... :		—
M.3.1.3	Cadence; time (s), voltage (V) ..... :		—
M.3.1.4	Single fault current (mA) ..... :		—
M.3.2	Tripping device and monitoring voltage ..... :		N
M.3.2.1	Conditions for use of a tripping device or a monitoring voltage		N
M.3.2.2	Tripping device		N
M.3.2.3	Monitoring voltage (V) ..... :		N

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Clause	Requirement	Remark	Result
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 ClauseG.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)		N
	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 (see1.1.2)		N
U	ANNEXU, INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION (see 2.10.5.4)		P
V	ANNEXV, AC POWER DISTRIBUTION SYSTEMS (see 1.6.1)		P
V.1	Introduction	TN, TT	P
V.2	TN power distribution systems		P
W	ANNEXW, 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

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Clause	Requirement	Remark	Result
X	ANNEX X, MAXIMUM HEATING EFFECT IN TRANSFORMER TESTS (see clause C.1)		P
X.1	Determination of maximum input current		P
X.2	Overload test procedure		P
Y	ANNEX Y, ULTRAVIOLET LIGHT CONDITIONING TEST (see 4.3.13.3)		N
Y.1	Test apparatus ..... :		N
Y.2	Mounting of test samples ..... :		N
Y.3	Carbon-arc light-exposure apparatus ..... :		N
Y.4	Xenon-arc light exposure apparatus ..... :		N
Z	ANNEX Z, OVERVOLTAGE CATEGORIES (see 2.10.3.2 and Clause G.2)		P
AA	ANNEX AA, MANDREL TEST (see 2.10.5.8)		N
BB	ANNEX BB, CHANGES IN THE SECOND EDITION		—
CC	Annex CC, Evaluation of integrated circuit (IC) current limiters		N
CC.1	General		N
CC.2	Test program 1……..:		N
CC.3	Test program 2……..:		N
DD	ANNEX DD, Requirements for the mounting means of rack-mounted equipment		N
DD.1	General		N
DD.2	Mechanical strength test, variable N……....:		N
DD.3	Mechanical strength test, 250N, including end stops……:		N
DD.4	Compliance……:		N
EE	ANNEX EE, Household and home/office document/media shredders		N
EE.1	General		N
EE.2	Markings and instructions		N
	Use of markings or symbols……:		N
	Information of user instructions, maintenance and/or servicing instructions……:		N
EE.3	Inadvertent reactivation test……:		N
EE.4	Disconnection of power to hazardous moving parts:		N
	Use of markings or symbols……:		N
EE.5	Protection against hazardous moving parts		N
	Test with test finger (Figure 2A) ……...:		N

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Clause	Requirement	Remark	Result
	Test with wedge probe (Figure EE1 and EE2) …….:		N

NATIONAL DIFFERENCES			
Clause	Requirement	Remark	Result

ATTACHMENT TO TEST REPORT IEC 60950-1
EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES

Information technology equipment – Safety –

PART 1: GENERAL REQUIREMENTS

Differences according to ..... :	EN 60950-1:2006/A11:2009/A1:2010/A12:2011/A2:2013
Attachment Form No. ..... :	EU_GD_IEC60950_1E
Attachment Originator..... :	SGS Fimko Ltd
Master Attachment..... :	Date 2013-09

EN 60950-1:2006/A11:2009/A1:2010/A12:2011/A2:2013 – CENELEC COMMON MODIFICATIONS

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)		
	Clauses, subclauses, notes, tables and figures which are additional to those in IEC60950-1 and it´s amendmets are prefixed "Z"	--
Contents (A2:2013)	Add the following annexes: Annex ZA (normative) Normative references to international publications with their corresponding European publications Annex ZB (normative) Special national conditions Annex ZD (informative) IEC and CENELEC code designations for flexible cords	--
General	Delete all the "country" notes in the reference document (IEC 60950-1:2005) according to the following list: 1.4.8 Note 2; 1.5.1 Note 2 & 3; 1.5.7.1 Note 1.5.8 Note 2; 1.5.9.4 Note; 1.7.2.1 Note 4, 5 & 6 2.2.3 Note; 2.2.4 Note; 2.3.2 Note 2.3.2.1 Note 2; 2.3.4 Note 2; 2.6.3.3 Note 2 & 3 2.7.1 Note; 2.10.3.2 Note 2; 2.10.5.13 Note 3 3.2.1.1 Note; 3.2.4 Note 3.; 2.5.1 Note 2 4.3.6 Note 1 & 2; 4.7 Note 4; 4.7.2.2 Note 4.7.3.1Note 2; 5.1.7.1 Note 3 & 4; 5.3.7 Note 1 6 Note 2 & 5; 6.1.2.1 Note 2; 6.1.2.2 Note 6.2.2 Note; 6.2.2.1 Note 2; 6.2.2.2 Note 7.1 Note 3; 7.2 Note; 7.3 Note 1 & 2 G.2.1 Note 2; Annex H Note 2	--
General (A1:2010)	Delete all the "country" notes in the reference document (IEC 60950-1:2005/A1:2010) according to the following list: 1.5.7.1 Note; 6.1.2.1 Note 2 6.2.2.1 Note 2; EE.3 Note	--
General (A2:2013)	Delete all the "country" notes in the reference document (IEC 60950-1:2005/A2:2013) according to the following list: 2.7.1 Note *; 2.10.3.1 Note 2 6.2.2. Note * Note of secretary: Text of Common Modification remains unchanged.	--

NATIONAL DIFFERENCES			
Clause	Requirement	Remark	Result

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
1.1.1 (A1:2010)	**Replace** the text of NOTE 3 by the following. NOTE 3 The requirements of EN 60065 may also be used to meet safety requirements for multimedia equipment. See IEC Guide 112, Guide on the safety of multimedia equipment. For television sets EN 60065 applies.		--
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.		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		N
1.5.1 (Added info*)	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. New Directive 2011/65/11 *		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

NATIONAL DIFFERENCES			
Clause	Requirement	Remark	Result
	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. A personal music player is a portable equipment for personal use, that: - is designed to allow the user to listen to recorded or broadcast sound or video; and - primarily uses headphones or earphones that can be worn in or on or around the ears; and - allows the user to walk around while in use. 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. 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. The requirements in this sub-clause are valid for music or video mode only. The requirements do not apply: - while the personal music player is connected to an external amplifier; or - while the headphones or earphones are not used. 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. The requirements do not apply to: - hearing aid equipment and professional equipment; 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.		N
	- 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. 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. For equipment which is clearly designed or intended for use by young children, the limits of EN 71-1 apply.		N

NATIONAL DIFFERENCES			
Clause	Requirement	Remark	Result
	Zx.2 Equipment requirements No safety provision is required for equipment that complies with the following: equipment provided as a package (personal music player with its listening device), where the acoustic output $L_{Aeq,T}$ is ≤ 85 dBA measured while playing the fixed "programme simulation noise" as described in EN 50332-1; and a personal music player provided with an analogue electrical output socket for a listening device, where the electrical output is ≤ 27 mV measured as described in EN 50332-2, while playing the fixed "programme simulation noise" as described in EN 50332-1. 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. All other equipment shall: 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

NATIONAL DIFFERENCES			
Clause	Requirement	Remark	Result
	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 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. d) have a warning as specified in Zx.3; and e) not exceed the following: 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. 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. 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. 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.		N

NATIONAL DIFFERENCES			
Clause	Requirement	Remark	Result
	Zx.3 Warning The warning shall be placed on the equipment, or on the packaging, or in the instruction manual and shall consist of the following: the symbol of Figure 1 with a minimum height of 5 mm; and the following wording, or similar: "To prevent possible hearing damage, do not listen at high volume levels for long periods."  **Figure 1 – Warning label (IEC 60417-6044)** 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.		N
	Zx.4 Requirements for listening devices (headphones and earphones)		N
	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.		N
	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. 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.). NOTE An example of a wired listening device with digital input is a USB headphone.		N

NATIONAL DIFFERENCES			
Clause	Requirement	Remark	Result
	Zx.4.3 Wireless listening devices In wireless mode: with any playing and transmitting device playing the fixed programme simulation noise described in EN 50332-1; and respecting the wireless transmission standards, where an air interface standard exists that specifies the equivalent acoustic level; and with volume and sound settings in the listening device (for example built-in volume level control, additional sound feature like equalization, etc.) set to the combination of positions that maximize the measured acoustic output for the abovementioned programme simulation noise, the acoustic output $L_{Aeq,T}$ of the listening device shall be ≤ 100 dBA. NOTE An example of a wireless listening device is a Bluetooth headphone.		N
	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. NOTE Test method for wireless equipment provided without listening device should be defined.		N
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;		N

NATIONAL DIFFERENCES			
Clause	Requirement	Remark	Result
	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.		
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.		N
3.2.5.1 (A2:2013)	NOTE Z1 The harmonised code designations corresponding to the IEC cord types are given in Annex ZD		N
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 (artifical optical radiation).		N
	Standards taking into account mentioned Recommendation and Directive which demonstrate compliance with the applicable EU Directive are indicated in the OJEC.		--

NATIONAL DIFFERENCES			
Clause	Requirement	Remark	Result
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**		—

ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN)			
1.2.4.1	In **Denmark**, certain types of Class I appliances (see 3.2.1.1) may be provided with a plug not establishing earthing conditions when inserted into Danish socket-outlets.		N
1.2.13.14 (A11:2009)	In **Norway** and **Sweden**, for requirements see 1.7.2.1 and 7.3 of this annex.		N
1.5.7.1 (A11:2009)	In **Finland, Norway** and **Sweden**, resistors bridging BASIC INSULATION in CLASS I PLUGGABLE EQUIPMENT TYPE A must comply with the requirements in 1.5.7.1. In addition when a single resistor is used, the resistor must withstand the resistor test in 1.5.7.2.		N
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

NATIONAL DIFFERENCES			
Clause	Requirement	Remark	Result
1.7.2.1	In **Finland**, **Norway** and **Sweden**, CLASS I PLUGGABLE EQUIPMENT TYPE A intended for connection to other equipment or a network shall, if safety relies on connection to protective earth or if surge suppressors are connected between the network terminals and accessible parts, have a marking stating that the equipment must be connected to an earthed mains socket-outlet. The marking text in the applicable countries shall be as follows: In Finland: "Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan" In Norway: “Apparatet må tilkoples jordet stikkontakt” In Sweden: “Apparaten skall anslutas till jordat uttag”		N
1.7.2.1 (A11:2009)	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. 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. The user manual shall then have the following or similar information in Norwegian and Swedish language respectively, depending on in what country the equipment is intended to be used in: “Equipment connected to the protective earthing of the building installation through the mains connection or through other equipment with a connection to protective earthing – and to a cable distribution system using coaxial cable, may in some circumstances create a fire hazard. Connection to a cable distribution system has therefore to be provided through a device providing electrical isolation below a certain frequency range (galvanic isolator, see EN 60728-11).”		

NATIONAL DIFFERENCES			
Clause	Requirement	Remark	Result
	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. Translation to Norwegian (the Swedish text will also be accepted in Norway): "Utstyr som er koplet til beskyttelsesjord via nettplugg og/eller via annet jordtilkoplet utstyr – og er tilkoplet et kabel-TV nett, kan forårsake brannfare. For å unngå dette skal det ved tilkopling av utstyret til kabel-TV nettet installeres en galvanisk isolator mellom utstyret og kabel- TV nettet." Translation to Swedish: "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."		N
1.7.2.1 (A2:2013)	In **Denmark**, CLASS I PLUGGABLE EQUIPMENT TYPE A intended for connection to other equipment or a network shall, if safety relies on connection to protective earth or if surge suppressors are connected between the network terminals and accessible parts, have a marking stating that the equipment must be connected to an earthed mains socket-outlet. The marking text in **Denmark** shall be as follows: In **Denmark**: "Apparatets stikprop skal tilsluttes en stikkontakt med jord, som giver forbindelse til stikproppens jord."		N
1.7.5 1.7.5 (A11:2009)	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. For **CLASS II EQUIPMENT** the socket outlet shall be in accordance with Standard Sheet DKA 1-4a.		N

NATIONAL DIFFERENCES			
Clause	Requirement	Remark	Result
1.7.5 (A2:2013)	In **Denmark**, socket-outlets for providing power to other equipment shall be in accordance with the DS 60884-2-D1:2011. For class I equipment the following Standard Sheets are applicable: DK 1-3a, DK 1-1c, DK 1-1d, DK 1-5a or DK 1-7a, with the exception for STATIONARY EQUIPMENT where the socket-outlets shall be in accordance with Standard Sheet DK 1-1b, DK 1-1c, DK 1-1d or DK 1-5a. Socket outlets intended for providing power to Class II apparatus with a rated current of 2,5 A shall be in accordance with DS 60884-2-D1 standard sheet DKA 1-4a. Other current rating socket outlets shall be in compliance with by DS 60884-2-D1 Standard Sheet DKA 1-3a or DKA 1-3b. Justification the Heavy Current Regulations, 6c		N
2.2.4	In **Norway**, for requirements see 1.7.2.1, 6.1.2.1 and 6.1.2.2 of this annex.		N
2.3.2	In **Finland**, **Norway** and **Sweden** there are additional requirements for the insulation. See 6.1.2.1 and 6.1.2.2 of this annex.		N
2.3.4	In **Norway**, for requirements see 1.7.2.1, 6.1.2.1 and 6.1.2.2 of this annex.		N
2.6.3.3	In the **United Kingdom**, the current rating of the circuit shall be taken as 13 A, not 16 A.		N
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	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: SEV 6532-2.1991 Plug Type 15 3P+N+PE 250/400 V, 10 A		N

NATIONAL DIFFERENCES			
Clause	Requirement	Remark	Result
	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 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: 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, 16A SEV 5934-2.1998: Plug Type 23, L+N+PE 250 V, 16 A		
3.2.1.1	In **Denmark**, supply cords of single-phase equipment having a rated current not exceeding13 A shall be provided with a plug according to the Heavy Current Regulations, Section 107-2-D1. 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. 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.		N
3.2.1.1 (A2:2013)	In **Denmark**, supply cords of single-phase equipment having a rated current not exceeding 13 A shall be provided with a plug according to DS 60884-2-D1. 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. If a single-phase equipment having a RATED CURRENT exceeding 13 A or if a poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with the standard sheets DK 6-1a in DS 60884-2-D1 or EN 60309-2. Justification the Heavy Current Regulations, 6c		N

NATIONAL DIFFERENCES			
Clause	Requirement	Remark	Result
3.2.1.1	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. 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. 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. If poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with UNE-EN 60309-2.		N
3.2.1.1	In the **United Kingdom**, apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS 1363 by means of that flexible cable or cord and plug, shall be fitted with a 'standard plug' in accordance with Statutory Instrument 1768:1994 - The Plugs and Sockets etc. (Safety) Regulations 1994, unless exempted by those regulations. NOTE 'Standard plug' is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.		N
3.2.1.1	In **Ireland**, apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to I.S. 411 by means of that flexible cable or cord and plug, shall be fitted with a 13 A plug in accordance with Statutory Instrument 525:1997 - National Standards Authority of Ireland (section 28) (13 A Plugs and Conversion Adaptors for Domestic Use) Regulations 1997.		N
3.2.4	In **Switzerland**, for requirements see 3.2.1.1 of this annex.		N
3.2.5.1	In the **United Kingdom**, a power supply cord with conductor of 1,25 mm2 is allowed for equipment with a rated current over 10 A and up to and including 13 A.		N
3.3.4	In the **United Kingdom**, the range of conductor sizes of flexible cords to be accepted by terminals for equipment with a RATED CURRENT of over 10 A up to and including 13 A is: • 1,25 mm^2 to 1,5 mm^2 nominal cross-sectional area.		N

NATIONAL DIFFERENCES			
Clause	Requirement	Remark	Result
4.3.6	In the **United Kingdom**, the torque test is performed using a socket outlet complying with BS 1363 part 1:1995, including Amendment 1:1997 and Amendment 2:2003 and the plug part of DIRECT PLUG-IN EQUIPMENT shall be assessed to BS 1363: Part 1, 12.1, 12.2, 12.3, 12.9, 12.11, 12.12, 12.13, 12.16 and 12.17, except that the test of 12.17 is performed at not less than 125 °C. Where the metal earth pin is replaced by an Insulated Shutter Opening Device (ISOD), the requirements of clauses 22.2 and 23 also apply.		N
4.3.6	In **Ireland**, DIRECT PLUG-IN EQUIPMENT is known as plug similar devices. Such devices shall comply with Statutory Instrument 526:1997 - National Standards Authority of Ireland (Section 28) (Electrical plugs, plug similar devices and sockets for domestic use) Regulations, 1997.		N
5.1.7.1	In **Finland**, **Norway** and **Sweden** TOUCH CURRENT measurement results exceeding 3,5 mA r.m.s. are permitted only for the following equipment: • STATIONARY PLUGGABLE EQUIPMENT TYPE A that is intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, for example, in a telecommunication centre; and has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR; and is provided with instructions for the installation of that conductor by a SERVICE PERSON; • STATIONARY PLUGGABLE EQUIPMENT TYPE B; • STATIONARY PERMANENTLY CONNECTED EQUIPMENT.		N

NATIONAL DIFFERENCES			
Clause	Requirement	Remark	Result
6.1.2.1 (A1:2010)	In **Finland**, **Norway** and **Sweden**, add the following text between the first and second paragraph of the compliance clause: If this insulation is solid, including insulation forming part of a component, it shall at least consist of either - 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. 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 - 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
	It is permitted to bridge this insulation with an optocoupler complying with 2.10.5.4 b). It is permitted to bridge this insulation with a capacitor complying with EN 60384-14:2005, subclass Y2. A capacitor classified Y3 according to EN 60384-14:2005, may bridge this insulation under the following conditions: - 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

NATIONAL DIFFERENCES			
Clause	Requirement	Remark	Result
6.1.2.2	In **Finland**, **Norway** and **Sweden**, the exclusions are applicable for PERMANENTLY CONNECTED EQUIPMENT, PLUGGABLE EQUIPMENT TYPE B and equipment intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, e.g. in a telecommunication centre, and which has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR and is provided with instructions for the installation of that conductor by a SERVICE PERSON.		N
7.2	In **Finland**, **Norway** and **Sweden**, for requirements see 6.1.2.1 and 6.1.2.2 of this annex. The term TELECOMMUNICATION NETWORK in 6.1.2 being replaced by the term CABLE DISTRIBUTION SYSTEM.		N
7.3	In **Norway** and **Sweden**, for requirements see 1.2.13.14 and 1.7.2.1 of this annex.		N
7.3 (A11:2009)	In **Norway**, for installation conditions see EN 60728-11:2005.		N

1.5.1	TABLE: List of critical components			P
Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Mark(s) of conformity1)
Enclosure	Various	Various	Min. V-0, 130°C	UL
PCB	Various	Various	V-0 130℃	UL
Fuse（F1）	Various	T3.15A250 V	3.15A, 250 V	VDE,UL
NTC	various	5D-9	/	VDE
Y Capacitor	Various	JNC	MAX 1000PF, 400V	UL
Transformer (T1)	Interchangeable	12V/400W HJ	Class B	Test in appliance
-Bobbin Material	Chang Chun Plastics Co Ltd	T735J	150 ℃, minimum thickness 0.75mm.	UL E59481
-Triple insulated wire	Furukawa Electric Co.,Ltd	TEX-E	130℃	UL E206440
- Magnet wire	Guangdong Hengbaochang Electrical Technology Co Ltd	2UEW	130°C	UL
- Tubing	GREAT HOLDING INDUSTRIAL CO LTD	TFL	200℃	UL E156256
- Margin tape	Jingjiang Yahua Pressure Sensitive Glue Co Ltd	PZ, WF,CT	130℃	UL E165111

1.6.2	TABLE: Electrical data (in normal conditions)					P
Fuse #	Irated (A)	U (V)	P (W)	I (A)	Ifuse (A)	Condition/status
F1	--	90/50	62.7	0.697	0.697	EUT loading 5V, 10A
F1	--	90/60	62.4	0.693	0.693	Ditto
F1	1.1	100/50	61.2	0.612	0.612	Ditto
F1	1.1	100/60	61.3	0.613	0.613	Ditto
F1	1.1	240/50	61.7	0.257	0.257	Ditto
F1	1.1	240/60	61.5	0.256	0.256	Ditto
F1	--	264/50	62.3	0.236	0.236	Ditto
F1	--	264/60	62.4	0.236	0.236	Ditto
Supplementary information:						

2.1.1.5	**TABLE: max. V, A, VA test**			P
Voltage (rated) (V)	Current (rated) (A)	Voltage (max.) (V)	Current (max.) (A)	VA (max.) (VA)
5	10	5.12	11.2	57.34

supplementary information:

2.2	TABLE: evaluation of voltage limiting components in SELV circuits		P
Component (measured between)	max. voltage (V) (normal operation)		Voltage Limiting Components
	V peak	V d.c.	
T1 A to B	12.2	--	N/A
After U7	--	5.52	U7
Fault test performed on voltage limiting components	Voltage measured (V) in SELV circuits (V peak or V d.c.)		
U7(S-C)	0V*)		

supplementary information:
Vin=264Vac, 60Hz.
*) Output shut down.

2.4.2	TABLE: limited current circuit measurement			P
Location	Voltage (V)	Current (mA)	Freq. (KHz)	Limit (mA)
CY1	--	0.05	--	0.7
supplementary information:				

2.5	TABLE: limited power sources				P
Circuit output tested:					
Measured Uoc (V) with all load circuits disconnected:					
	I_{sc} (A)		VA		
	Meas.	Limit	Meas.	Limit	
Normal condition Uoc=5.12V	11.2	⩽ 8.0 A	57.34	⩽ 100 VA	
supplementary information:					

2.10.2	Table: working voltage measurement			P
Location		RMS voltage (V)	Peak voltage (V)	Comments
T1	Pin 1-A	259	416	
	Pin 1- B	260	424	
	Pin 2- A	260	496	
	Pin 2- B	258	444	
	Pin 3- A	**267**	**512**	**Max. RMS voltage & Peak voltage**

	Pin 3- B	256	488	
	Pin 5- A	231	376	
	Pin 5- B	232	424	
CY1	Pri. and Sec.	238	412	
Supplementary information:				
Vin = 240Vac 60Hz				

2.10.3 and 2.10.4	TABLE: Clearance and creepage distance measurements					P
Clearance (cl) and creepage distance (cr) at/of/between:	U peak (V)	U r.m.s. (V)	Required cl (mm)	cl (mm)	Required cr (mm)	cr (mm)
Line and Neutral before fuse	420	250	2.0	3.0	2.5	3.0
Two poles of fuse	420	250	2.0	3.1	2.5	3.1
T1 Primary to secondary on PCB	512	267	4.4	6.8	5.4	6.8
T1 core to secondary	512	267	4.4	7.4	5.4	8.8
Primary to secondary under CY1	412	238	4.0	6.5	5.0	7.8
Supplementary information:						

2.10.5	TABLE: Distance through insulation measurments				P
Distance through insulation	U peak (V)	U rms (V)	Test voltage (V)	Required DTI (mm)	DTI (mm)
Plastic enclosure	420	240	3000	0.4	2.5
2 layers insulation tape outside of T1(tested one layer)	420	240	3000	2 layers	2 layers
Supplementary information:					

4.3.8	TABLE: Batteries	N
The tests of 4.3.8 are applicable only when appropriate battery data is not available	--	--
Is it possible to install the battery in a reverse polarity position?	--	--

	Non-rechargeable batteries			Rechargeable batteries					
	Discharging		Un-intentional charging	Charging		Discharging		Reversed charging	
	Meas. Current	Manuf. Specs.		Meas. Current	Manuf. Specs.	Meas. Current	Manuf. Specs.	Meas. Current	Manuf. Specs.
Max. current during normal condition	—	—	—	—	—	—	—	—	—
Max. current during fault condition	—	—	—	—	—	—	—	—	—

Test results:		Verdict
- Chemical leaks	—	—
- Explosion of the battery	—	—
- Emission of flame or expulsion of molten metal	—	—
- Electric strength tests of equipment after completion of tests	—	—
Supplementary information:		

4.5	TABLE: Thermal requirements					P
	Supply voltage (V).....	90V/60Hz *1)**	90V/60Hz *2)**	264V/50Hz *1)**	264V/50Hz *2)**	—
Maximum measured temperature T of part/at:		T (°C)				Allowed T_{max} (°C)
PCB near T1		105.8	106.7	107.8	107.9	130
C1		92.6	92.1	82.9	81.6	105
CY1		97.9	98.5	98.6	98.7	125
T1 winding		102.7	100.7	98.4	97.9	110
T1 core		98.1	99.9	95.2	95.0	110
Enclosure inside near T1(Top)		70.7	76.2	72.9	74.7	Ref.
Enclosure inside near T1(Bottom)		65.6	71.3	66.5	72.9	Ref.
Enclosure outside near T1(Top)		68.1	72.7	70.4	71.4	95
Enclosure outside near T1(Bottom)		63.7	69.5	64.8	70.2	95
Ambient		40.0	40.0	40.0	40.0	--

Temperature T of winding:	t_1 (°C)	R_1 (Ω)	t_2 (°C)	R_2 (Ω)	T (°C)	Allowed T_{max} (°C)	Insulation class
—	—	—	—	—	—	—	B

Supplementary information:

*1)** represent horizontal;
*2)** represent vertical;

4.5.5	TABLE: Ball pressure test of thermoplastic parts		P
	Allowed impression diameter (mm) .....:	≤2mm	—

Part	Test temperature (°C)	Impression diameter (mm)
Transformer bobbin	125	0.62
Enclosure	125	0.79
Supplementary information:		

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

Supplementary information: See list of critical components for details

5.1	**TABLE: touch current measurement**			P
Measured between:	L→terminal (mA)	N→terminal (mA)	Limit (mA)	Comments/conditions
Plastic enclosure	0.05	0.05	0.25	Normal load condition
Output terminal	0.07	0.07	0.25	Load/No load condition
Note(s): Supply voltage: 264V/50Hz.				

5.2	TABLE: Electric strength tests and impulse tests	P
Test voltage applied between:	Test voltage (Vac)	Breakdown Yes / No
Live – Neutral (disconnected fuse)	1500	No
L/N to plastic enclosure	3000	No
L/N to output terminal	3000	No
Transformer primary pin to secondary pin	3000	No
Transformer secondary to core	3000	No
1 layers of insulation tape(for each type)	3000	No
Note:		

5.3	TABLE: Fault condition tests		P
	Ambient temperature (°C) .....:	25.1	—
	Power source for EUT: Manufacturer, model/type, output rating .....:	Refer to page 2	—

Component No.	Fault	Supply voltage (V)	Test time	Fuse #	Fuse current (A)	Observation
BD1 Pin(1-2)	s-c	264	1 s	F1	0	F1 opened instantly. No hazard.
C1	s-c	264	1 s	F1	0	F1 opened instantly. No hazard.
T1 Pin(1-2)	s-c	264	1 s	F1	0	F1 ,U1 damaged instantly. No hazard.
T1 Pin(3-4)	s-c	264	10mins	F1	0.05	Unit shut down immediately. Recoverable when fault removed. No damaged. No hazard.

T1 Pin(A-B)	s-c	264	10mins	F1	0.033	Unit shut down immediately. Recoverable when fault removed. No damaged. No hazard.
U1 Pin(3-4)	s-c	264	1 s	F1	0	F1 opened instantly. No hazard.
Output terminal	s-c	264	10mins	F1	0.006	Unit shut down immediately. Recoverable when fault removed. No damaged. No hazard.
Output terminal	o-l	264	7hours	F1	0.172→ 0.178→ 0.182	Unit shut down, when loading 11.2A. No damaged, no hazard, Recoverable when the fault removed. Max. temp: T1 coil: 116.3°C T1 core: 112.5°C Enclosure outside (Top):74.0℃ Enclosure outside (Bottom): 76.8℃ Ambient: 24.2℃
Supplementary information: S-C=short circuit; O-L=overload; O-C=open circuit.						

ANNEX A: Photo-documentation

PHOTO OF SAMPLE

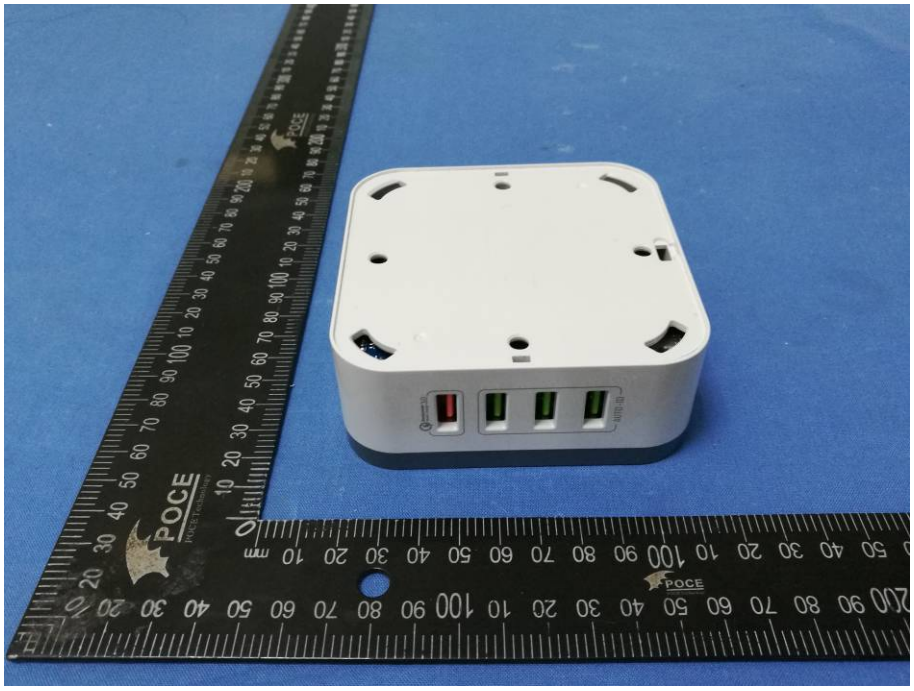
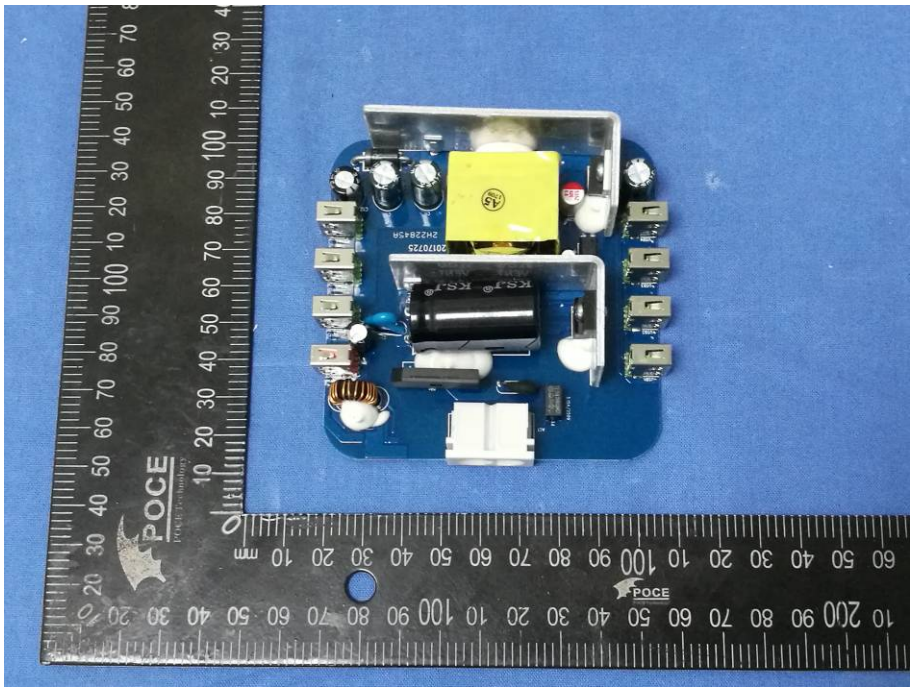
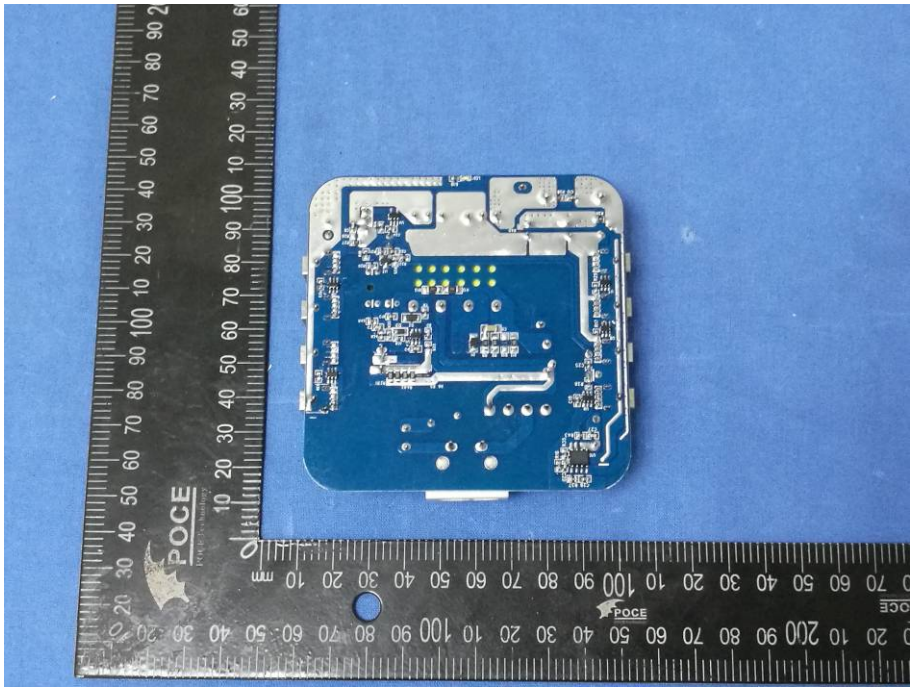
Photo 1	
Photo 2	

Photo 3	
Photo 4	

------ End of Report ---