APPLICATION FOR LOW VOLTAGE DIRECTIVE

On Behalf of

ECHEERS HK COMPANY LIMITED

bluetooth anti-lost

AT01

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

Prepared for :

Prepared By : **Shenzhen HTT Technology Co., Ltd.**

7F,Guangfu Building,Baoyuan Road,Xixiang,Baoan District,Shenzhen,Guangdong,China

Date of Test:	**Sep.16,2015 to Sep.23,2015**
Date of Report:	**Sep.23,2015**
Report Number:	**HTT150905061L**

TEST REPORT

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

Information technology equipment – Safety-

Part 1: General requirements

Report reference No ..... :	HTT150905061L
Tested by (+ signature)	Andy Zhang
Approved by (+ signature)	Kevin
Date of issue :	Sep.23,2015
Testing Laboratory Name ..... :	Shenzhen HTT Technology Co., Ltd.
Address ..... :	7F,Guangfu Building,Baoyuan Road,Xixiang,Baoan District,Shenzhen,Guangdong,China
Testing location ..... :	CBTL ☐ CCATL ☐ SMT ☐ TMP ☐
Address..... :	Same as above.
Applicant's Name ..... :	
Address ..... :	
Standard ..... :	EN 60950-1: 2006+A11: 2009+A1: 2010+A12:2011+A2:2013
Test procedure ..... :	LVD Approval
Procedure deviation ..... :	N/A
Non-standard test method ..... :	N/A
Test item Description..... :	bluetooth anti-lost
Manufacturer..... :	
address..... :	
Trademark..... :	N/A
Model and/or type reference..... :	AT01
Rating(s)	DC 3V by battery（220mAh）

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Test item particulars :	
Equipment mobility ..... :	Portable equipment
Operating condition ..... :	Continuous
Tested for IT power systems ..... :	N/A
IT testing, phase-phase voltage (V) ..... :	N/A
Class of equipment ..... :	Class III
Protection against ingress of water ..... :	IPX0
Test case verdicts:	
Test case does not apply to the test object..... :	N(/A.)
Test item does meet the requirement..... :	P(ass)
Test item does not meet the requirement..... :	F(ail)
Testing:	
Date of receipt of test item	Sep.16,2015
Date(s) of performance of test	Sep.16,2015to Sep.24,2015

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Model List:	
Test Model	AT01
Other Models	AT02、AT03、AT04、AT05、AT06、AT07、AT08、AT09、AT10、AT11、 AT12、AT13、AT14、AT15、AT16、AT17、AT18、AT19、AT20、AT21、 AT22、AT23、AT24、AT25、AT26、AT27、AT28、AT29、AT30
1.All tests are carried out on AT01	

Label

bluetooth anti-lost

Model: AT01

Rated: DC 3V

ECHEERS HK COMPANY LIMITED

Note:

1. The height of graphical symbols shall not be less than 5 mm;
2. The height of letters and numerals shall not be less than 2 mm;
3. The main rating label was attached in enclosure,

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General remarks: Clause number between brackets refer to clauses in EN 60950(IEC 60950) "(see remark #)" refers to a remark appended to the report. "(see appended table)" refers to a table appended to the report. Throughout this report a comma is used as the decimal separator. The test results presented in this report relate only to the object tested. This report shall not be reproduced except in full without the written approval of the testing laboratory. When determining the test conclusion, the Measurement Uncertainty of test has been considered. . Unless otherwise specified, test are made under normal conditions at an ambient temperature within the range of 15℃ to 35℃, RH45% to 75% and an air pressure of 860mbar of 1060mbar	Attachment with: 1) Equipment list 2) Photo documentation

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EN 60950-1			
Clause	Requirement – Test	Result - Remark	Verdict
1	GENERAL		
1.5	Components		**P**
1.5.1	General	See below.	**P**
	Comply with EN 60950 or relevant component standard	Components which were found to affect safety aspects comply with the requirements of this standard or with the safety aspects of the relevant IEC/EN component standards (see appended table 1.5.1).	**P**
1.5.2	Evaluation and testing of components	Components that are certified to IEC and /or national standards are used correctly within their ratings. Components not covered by IEC standards are tested under the conditions present in the equipment.	**P**
1.5.3	Thermal controls	No such components	**N/A**
1.5.4	Transformers	Transformer used are suitable for their intended applications and comply with relevant parts of this standard and particularly Annex C, see Annex C – Transformer.	**N/A**
1.5.5	Interconnecting cables	The interconnecting cables contain only SELV.	**P**
1.5.6	Capacitors in primary circuits .....:		**N/A**
1.5.7	Double insulation or reinforced insulation bridged by components		**N/A**
1.5.7.1	General	Refer below:	**—**
1.5.7.2	Bridging capacitors	.	**N/A**
1.5.7.3	Bridging resistors	No capacitors bridging double or reinforced insulation.	**N/A**
1.5.7.4	Accessible parts	Class III Equipment	**N/A**
1.5.8	Components in equipment for IT power systems	No components connected between line and earth.	**N/A**
1.5.9	Surge suppressors		**N/A**
1.5.9.1	General		**N/A**
1.5.9.2	Protection of VDRs		**N/A**
1.5.9.3	Bridging of functional insulation by a VDR		**N/A**
1.5.9.4	Bridging of basic insulation by a VDR		**N/A**

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EN 60950-1			
Clause	Requirement – Test	Result - Remark	Verdict
1.5.9.5	Bridging of supplementary, double or reinforced insulation by a VDR		**N/A**

1.6	Power interface		
1.6.1	AC power distribution systems	Class III Equipment	**N/A**
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/A**
1.6.4	Neutral conductor	Neutral is insulated from earth with basic insulation throughout the equipment.	**N/A**

1.7	Marking and instructions		**P**
1.7.1	Power rating	All relevant markings are provided on a label.	**P**
	Rated voltage(s) or voltage range(s) (V) .....:	3V⎓	**P**
	Symbol for nature of supply, for d.c. only.....:	⎓	**P**
	Rated frequency or rated frequency range (Hz) :		**N/A**
	Rated current (mA or A) .....:		**P**
	Manufacturer's name or trademark or identification mark .....:	See copy of marking plates for details.	**P**
	Type/model or type reference .....:		**P**
	Symbol for Class II equipment only	Class III equipment.	**N**
	Other symbols .....:	The additional marking does not give rise to misunderstandings.	**P**
	Certification marks .....:	See copy of marking plates for details.	**P**
1.7.2	Safety instructions	Safety instructions in English. Other languages will be provided when submitted for national approval.	**P**
1.7.3	Short duty cycles	The equipment is intended for continuous operation.	**N/A**
1.7.4	Supply voltage adjustment.....:	No voltage selector.	**N/A**
1.7.5	Power outlets on the equipment .....:	No standard power outlet.	**N/A**
1.7.6	Fuse identification .....:	Fuse markings near the fuse	**N/A**
1.7.7	Wiring terminals	Refer below:	**—**
1.7.7.1	Protective earthing and bonding terminals .....:	Appliance inlet, marking of the protective earthing terminal is not applicable.	**N/A**

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EN 60950-1			
Clause	Requirement – Test	Result - Remark	Verdict
1.7.7.2	Terminal for a.c. mains supply conductors	The equipment is not permanently connected or provided with a non-detachable power supply cord.	**N/A**
1.7.7.3	Terminals for d.c. mains supply conductors	The equipment is not permanently connected or provided with a non-detachable power supply cord.	**N/A**
1.7.8	Controls and indicators	Refer below:	**—**
1.7.8.1	Identification, location and marking .....:		**P**
1.7.8.2	Colours .....:		**P**
1.7.8.3	Symbols according to IEC 60417:	There are no switches in the equipment.	**N/A**
1.7.8.4	Markings using figures .....:	No controls.	**N/A**
1.7.9	Isolation of multiple power sources	Only one connection supplying hazardous voltages and energy levels to the equipment.	**N/A**
1.7.10	IT power distribution systems	Considered.	**N/A**
1.7.11	Thermostats and other regulating devices	No such components	**N/A**
1.7.12	Language .....:	Rating marking in English. User's manual was provided in English language, version in other languages will be provided applied for other national certificates.	—
1.7.13	Durability	The label was subjected to the permanence of marking test. The label was rubbed with cloth soaked with water for 15 s and then again for 15 s with the cloth soaked with petroleum spirit. After this test there was no damage to the label. The marking on the label did not fade. There was no curling or lifting of the label edge.	**P**
1.7.14	Removable parts	No removable parts.	**N/A**
1.7.15	Replaceable batteries	No batteries.	**N/A**
	Language .....:		—
1.7.16	Operator access with a tool.....:	All areas containing hazards are inaccessible to the operator.	**N/A**

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EN 60950-1			
Clause	Requirement – Test	Result - Remark	Verdict
1.7.17	Equipment for restricted access locations .....:	Equipment not intended for installation in RAL.	**N/A**

2	PROTECTION FROM HAZARDS		
2.1	Protection from electric shock and energy hazards		**P**
2.1.1	Protection in operator access areas	Refer below:	**N/A**
2.1.1.1	Access to energized parts	Energized parts are not accessible.	**N/A**
	Test by inspection .....:	Complies.	**N/A**
	Test with test finger .....:	Complies.	**N/A**
	Test with test pin .....:	Complies.	**N/A**
	Test with test probe .....:	No TNV circuits provided.	**N/A**
2.1.1.2	Battery compartments .....:	No battery compartment.	**N/A**
2.1.1.3	Access to ELV wiring	No ELV wiring.	**N/A**
	Working voltage (V); minimum distance (mm) through insulation		**—**
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.	**N/A**
2.1.1.5	Energy hazards .....:	No energy hazard in operator access area. Checked by means of the test finger.	**N/A**
2.1.1.6	Manual controls	No shafts of knobs etc.	**N/A**
2.1.1.7	Discharge of capacitors in equipment		**N/A**
	Time-constant (s); measured voltage (V)..... :	See table 2.1.1.7	**N/A**
2.1.2	Protection in service access areas	Unintentional contact is unlikely during service operations.	**N/A**
2.1.3	Protection in restricted access locations	Equipment not intended for installation in RAL.	**N/A**

2.2	SELV circuits		**N/A**
2.2.1	General requirements	SELV limits are not exceeded under normal condition	**N/A**
2.2.2	Voltages under normal conditions (V) ..... :	Within SELV limits	**N/A**
2.2.3	Voltages under fault conditions (V):	Within SELV limits. (see appended table 2.2.3)	**N/A**

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EN 60950-1			
Clause	Requirement – Test	Result - Remark	Verdict
2.2.3.1	Separation by double insulation or reinforced insulation (method 1)	Method 1 used	**N/A**
2.2.3.2	Separation by earthed screen (method 2)	Method 1 used	**N/A**
2.2.3.3	Protection by earthing of the SELV circuit (method 3)	Method 1 used	**N/A**
2.2.4	Connection of SELV circuits to other circuits	SELV circuits are only connected to other SELV circuits and Limited current circuit.	**N/A**
2.3	TNV circuits		**N/A**
2.3.1	Limits	Refer below.	**N/A**
	Type of TNV circuits ..... :	No TNV circuits in the equipment.	—
2.3.2	Separation from other circuits and from accessible parts	No TNV circuits in the equipment.	**N/A**
	Insulation employed..... :		—
2.3.3	Separation from hazardous voltages	No TNV circuits in the equipment.	**N/A**
	Insulation employed..... :		—
2.3.4	Connection of TNV circuits to other circuits	No TNV circuits in the equipment.	**N/A**
	Insulation employed..... :		—
2.3.5	Test for operating voltages generated externally	No TNV circuits in the equipment.	**N/A**
2.4	Limited current circuits		**N/A**
2.4.1	General requirements	Limits are not exceeded.	**N/A**
2.4.2	Limit values	See table 2.4.2	**N/A**
	Frequency (Hz) ..... :	See table 2.4.2	**N/A**
	Measured current (mA)..... :	See table 2.4.2	**N/A**
	Measured voltage (V) ..... :	See table 2.4.2	**N/A**
	Measured capacitance (μF)	See table 2.4.2	**N/A**
2.4.3	Connection of limited current circuits to other circuits	See table 2.4.2	**N/A**
2.5	Limited power sources		**N/A**
	Inherently limited output		**N/A**
	Impedance limited output	See appended table 2.5	**N/A**
	Overcurrent protective device limited outpu		**N/A**

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EN 60950-1			
Clause	Requirement – Test	Result - Remark	Verdict
	Regulating network limited output under normal operating and single fault condition	See appended table 2.5	**N/A**
	Regulating network limited output under normal operating conditions and overcurrent protective device limited output under single fault condition		**N/A**
	Output voltage (V), output current (A), apparent power (VA)..... :	See appended table 2.5	**N/A**
	Current rating of overcurrent protective device (A)	See appended table 2.5	**N/A**
2.6	Provisions for earthing and bonding		**N/A**
2.6.1	Protective earthing	Accessible conductive parts are reliably connected to protective earth.	**N/A**
2.6.2	Functional earthing	Functional earthing is separated from hazardous voltages by reinforced insulation.	**N/A**
2.6.3	Protective earthing and protective bonding conductors	Refer below:	**—**
2.6.3.1	General	Refer below:	**—**
2.6.3.2	Size of protective earthing conductors	Power supply cord not provided with the equipment.	**N/A**
	Rated current (A), cross-sectional area (mm^2), AWG ..... :		**—**
2.6.3.3	Size of protective bonding conductors	Refer to 2.6.3.4	**—**
	Rated current (A), cross-sectional area (mm2), AWG ..... :	Refer to 2.6.3.4	**—**
2.6.3.4	Resistance (Ω) of earthing conductors and their terminations, test current (A)……:	See appended table 2.6.3.3	**N/A**
2.6.3.5	Colour of insulation		**N/A**
2.6.4	Terminals	Refer below:	**—**
2.6.4.1	General	Refer below:	**—**
2.6.4.2	Protective earthing and bonding terminals	Refer below:	**—**
	Rated current (A), type and nominal thread diameter (mm) .....:	The equipment is provided with an appliance inlet.	**N/A**
2.6.4.3	Separation of the protective earthing conductor from protective bonding conductors	The equipment is provided with an appliance inlet.	**N/A**
2.6.5	Integrity of protective earthing	Refer below:	**—**
2.6.5.1	Interconnection of equipment	No interconnection of equipment.	**N/A**

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EN 60950-1			
Clause	Requirement – Test	Result - Remark	Verdict
2.6.5.2	Components in protective earthing conductors and protective bonding conductors	There are no switches or overcurrent protective devices in the protective earthing / bonding conductors.	**N/A**
2.6.5.3	Disconnection of protective earth	It is not possible to disconnect protective earth without disconnecting mains; an appliance coupler wil be used as disconnect device.	**N/A**
2.6.5.4	Parts that can be removed by an operator	No operator removable parts with protective earth connection except supply cord.	**N/A**
2.6.5.5	Parts removed during servicing	Protective earthed parts cannot be removed in a way which impair safety.	**N/A**
2.6.5.6	Corrosion resistance	No risk of corrosion.	**N/A**
2.6.5.7	Screws for protective bonding	No screws.	**N/A**
2.6.5.8	Reliance on telecommunication network or cable distribution system	No TNV circuits in the equipment.	**N/A**

2.7	Overcurrent and earth fault protection in primary circuits		**N/A**
2.7.1	Basic requirements	Class II equipment	**N/A**
	Instructions when protection relies on building installation	Protective device is integrated in the equipment.	**N/A**
2.7.2	Faults not covered in 5.3	Considered.	**N/A**
2.7.3	Short-circuit backup protection	Adequate protective device.	**N/A**
2.7.4	Number and location of protective devices ..... :	Considered.	**N/A**
2.7.5	Protection by several devices	Only one protective device. See Sub-clause 2.7.4.	**N/A**
2.7.6	Warning to service personnel ..... :	After operation of the protective device, the equipment is still under voltage if it is connected to an IT-power distribution system. A warning is required for service personnel.	**N/A**

2.8	Safety interlocks		**N/A**
2.8.1	General principles		**N/A**
2.8.2	Protection requirements		**N/A**
2.8.3	Inadvertent reactivation		**N/A**
2.8.4	Fail-safe operation		**N/A**

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Clause	Requirement – Test	Result - Remark	Verdict
2.8.5	Moving parts		**N/A**
2.8.6	Overriding		**N/A**
2.8.7	Switches and relays		**N/A**
2.8.7.1	Contact gaps (mm)		**N/A**
2.8.7.2	Overload test		**N/A**
2.8.7.3	Endurance test		**N/A**
2.8.7.4	Electric strength test		**N/A**
2.8.8	Mechanical actuators		**N/A**
2.9	Electrical insulation		**N/A**
2.9.1	Properties of insulating materials	Neither natural rubber, materials containing asbestos nor hygroscopic materials are used as insulation. No driving belts or couplings used.	**N/A**
2.9.2	Humidity conditioning	Humidity treatment performed at 48 hr.	**—**
	Humidity (%)	91-95%	**—**
	Temperature (°C)	20-30°C	**—**
2.9.3	Grade of insulation	Insulation is considered to be functional, basic, supplementary and reinforced insulation.	**N/A**
2.10	Clearances, creepage distances and distances through insulation		**N/A**
2.10.1	General	Considered, see the following clauses:	**—**
2.10.2	Determination of working voltage	Considered. (see appended table 2.10.2)	**N/A**
2.10.3	Clearances	(see appended table 2.10.3 and 2.10.4)	**N/A**
2.10.3.1	General	Refer below:	**—**
2.10.3.2	Clearances in primary circuit	see appended table 2.10.3 and 2.10.4	**N/A**
2.10.3.3	Clearances in secondary circuits	Only functional insulation in secondary circuits, ref. 5.3.4.	**N/A**
2.10.3.4	Measurement of transient voltage levels	Measurement not relevant.	**N/A**
2.10.4	Creepage distances	(see appended table 2.10.3 and 2.10.4)	**N/A**
	CTI tests .....:	CTI rating for all material of minimum 100.	**—**

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EN 60950-1			
Clause	Requirement – Test	Result - Remark	Verdict
2.10.5	Solid insulation	Refer below:	**N/A**
2.10.5.1	Minimum distance through insulation	(see appended table 2.10.5)	**N/A**
2.10.5.2	Thin sheet material	Ref. Annex C and Sub-clause 2.10.5.1.	**N/A**
	Number of layers (pcs).....:		**—**
	Electric strength test	see appended table 5.3	**N/A**
2.10.5.3	Printed boards	PCB does not serve as insulation barrier.	**N/A**
	Distance through insulation		**N/A**
	Electric strength test for thin sheet insulating material		—
	Number of layers (pcs).....:		**N/A**
2.10.5.4	Wound components	No such components.	**N/A**
	Number of layers (pcs).....:		**—**
	Two wires in contact inside wound component; angle between 45° and 90° ..... :		**N/A**
2.10.6	Coated printed boards	No special coating in order to reduce distances.	**N/A**
2.10.6.1	General		**N/A**
2.10.6.2	Sample preparation and preliminary inspection		**N/A**
2.10.6.3	Thermal cycling		**N/A**
2.10.6.4	Thermal ageing (°C)..... :		**N/A**
2.10.6.5	Electric strength test		—
2.10.6.6	Abrasion resistance test		**N/A**
	Electric strength test		—
2.10.7	Enclosed and sealed parts..... :		**N/A**
	Temperature T_1=T_2 = T_{ma} – T_{amb} +10K (°C)..... :		**N/A**
2.10.8	Spacings filled by insulating compound..... :	For optocouplers, see appended table 1.5.1.	**N/A**
	Electric strength test		**—**
2.10.9	Component external terminations	See Sub-clauses 2.10.1 up to and including 2.10.4.	**N/A**
2.10.10	Insulation with varying dimensions	No such transformer used.	**N/A**

3	WIRING, CONNECTIONS AND SUPPLY		**P**
3.1	General		**P**
3.1.1	Current rating and overcurrent protection	Adequate cross sectional areas on internal wiring and interconnecting cables.	**P**

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EN 60950-1			
Clause	Requirement – Test	Result - Remark	Verdict
3.1.2	Protection against mechanical damage	Wireways are smooth and free from edges. Wires are adequately fixed to prevent excessive strain on wire and terminals and avoiding damage to the insulation of the conductors.	**P**
3.1.3	Securing of internal wiring	Internal wiring is secured against excessive strain, loosening of terminals and damage to the conductor insulation.	**P**
3.1.4	Insulation of conductors	Insulation on internal conductors is considered to be of adequate quality and suitable for the application and the working voltage involved.	**P**
3.1.5	Beads and ceramic insulators	No beads or similar ceramic insulators on conductors.	**N/A**
3.1.6	Screws for electrical contact pressure	No electric screw connection.	**N/A**
3.1.7	Insulating materials in electrical connections	No contact pressure through insulating material.	**N/A**
3.1.8	Self-tapping and spaced thread screws	Thread-cutting or space thread screws are not used for electrical connections.	**N/A**
3.1.9	Termination of conductors	Terminations cannot become displaced so that clearances and creepage distances can be reduced	**N/A**
	10 N pull test	Considered.	**N/A**
3.1.10	Sleeving on wiring	Sleeves can only be removed by breaking or cutting.	**N/A**

3.2	Connection to an a.c. mains supply or a d.c. mains supply		**N/A**
3.2.1	Means of connection ..... :	Refer below:	—
3.2.1.1	Connection to an a.c. mains supply	The equipment is provided with an appliance inlet	**N/A**
3.2.1.2	Connection to a d.c. mains supply	The equipment is not for connection to a d.c. mains supply.	**N/A**
3.2.2	Multiple supply connections	Only one supply connection.	**N/A**
3.2.3	Permanently connected equipment	The equipment is not intended for permanent connection to the mains.	**N/A**

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EN 60950-1			
Clause	Requirement – Test	Result - Remark	Verdict
	Number of conductors, diameter (mm) of cable and conduits ..... :		—
3.2.4	Appliance inlets	The appliance inlet complies with IEC 60320-1 and is properly placed to avoid hazards after insertion of the appliance coupler.	**N/A**
3.2.5	Power supply cords	Refer below:	**—**
3.2.5.1	AC power supply cords	Power supply cord is not provided with the equipment.	**N/A**
	Type ..... :		—
	Rated current (A), cross-sectional area (mm^2), AWG ..... :		—
3.2.5.2	DC power supply cords	Equipment is not connected to DC mains.	**N/A**
3.2.6	Cord anchorages and strain relief	Equipment provided with an appliance inlet.	**N/A**
	Mass of equipment (kg), pull (N) ..... :		—
	Longitudinal displacement (mm) ..... :		—
3.2.7	Protection against mechanical damage	Equipment provided with an appliance inlet.	**N/A**
3.2.8	Cord guards	Equipment provided with an appliance inlet.	**N/A**
	D (mm); test mass (g) ..... :		—
	Radius of curvature of cord (mm) ..... :		—
3.2.9	Supply wiring space	Equipment provided with an appliance inlet.	**N/A**

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

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Clause	Requirement – Test	Result - Remark	Verdict
3.3.8	Stranded wire		**N/A**
3.4	Disconnection from the mains supply		**N/A**
3.4.1	General requirement	Class III equipment	**N/A**
3.4.2	Disconnect devices	The appliance coupler will be acting as disconnect device.	**N/A**
3.4.3	Permanently connected equipment	Not permanently connected equipment.	**N/A**
3.4.4	Parts which remain energized	No parts remain energized after the disconnect device is pull out.	**N/A**
3.4.5	Switches in flexible cords	No cord set.	**N/A**
3.4.6	Single-phase equipment and d.c. equipment	The disconnect device disconnects both poles simultaneously.	**N/A**
3.4.7	Three-phase equipment	Single phase equipment.	**N/A**
3.4.8	Switches as disconnect devices	No switches provided.	**N/A**
3.4.9	Plugs as disconnect devices	The appliance coupler will be regarded as disconnect device, no warning is required.	**N/A**
3.4.10	Interconnected equipment	No interconnections using hazardous voltages.	**N/A**
3.4.11	Multiple power sources	One power source only.	**N/A**
3.5	Interconnection of equipment		**P**
3.5.1	General requirements	See below.	**P**
3.5.2	Types of interconnection circuits:	SELV circuit	**P**
3.5.3	ELV circuits as interconnection circuits	No ELV interconnections.	**N/A**
4	PHYSICAL REQUIREMENTS		**P**
4.1	Stability		**P**
	Angle of 10°	Unit does not overbalance at 10°.	**P**
	Test: force (N).....:		**N/A**
4.2	Mechanical strength		**P**
4.2.1	General	Complies with the requirement also after tests described below are applied	**P**
4.2.2	Steady force test, 10 N	No hazard, ref. comment in appended table 2.10.3, 2.10.4.	**P**

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Clause	Requirement – Test	Result - Remark	Verdict
4.2.3	Steady force test, 30 N	No hazard	**N/A**
4.2.4	Steady force test, 250 N	No hazard. The test is performed at all sides of enclosure.	**P**
4.2.5	Impact test		**—**
	Fall test	No hazard as result from the steel sphere fall test.	**P**
	Swing test	No hazard as result from the steel sphere swing test.	**N/A**
4.2.6	Drop test	No damage after 1m drop.	**N/A**
4.2.7	Stress relief test	Test is carried out at 70°C/7hrs. No risk of shrinkage or distortion on enclosures due to release of internal stresses.	**P**
4.2.8	Cathode ray tubes	No cathode ray tube.	**N/A**
	Picture tube separately certified ..... :	Ditto.	**N/A**
4.2.9	High pressure lamps	No high pressure lamp.	**N/A**
4.2.10	Wall or ceiling mounted equipment; force (N) ... :	Not wall or ceiling mounted equipment.	**N/A**

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/A**
4.3.3	Adjustable controls	No adjustable controls.	**N/A**
4.3.4	Securing of parts	Not applicable.	**N/A**
4.3.5	Connection of plugs and sockets	SELV connectors do not comply with IEC 60320-1 or IEC 60083.	**N/A**
4.3.6	Direct plug-in equipment	Not intended to plug directly into a wall socket-outlet.	**N/A**
	Dimensions (mm) of mains plug for direct plug-in ..... :		**N/A**
	Torque and pull test of mains plug for direct plug-in; torque (Nm); pull (N)..... :		**N/A**
4.3.7	Heating elements in earthed equipment	No heating elements provided.	**N/A**
4.3.8	Batteries	Battery Cell be approved by UL	**P**
4.3.9	Oil and grease	Insulation is not exposed to oil and grease etc.	**N/A**

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Clause	Requirement – Test	Result - Remark	Verdict
4.3.10	Dust, powders, liquids and gases	The equipment does not contain flammable liquids or gases.	**N/A**
4.3.11	Containers for liquids or gases	No containers for liquids or gases in the equipment.	**N/A**
4.3.12	Flammable liquids.....:	The equipment does not contain flammable liquid.	**N/A**
	Quantity of liquid (l).....:		**N/A**
	Flash point (°C).....:		**N/A**
4.3.13	Radiation; type of radiation .....:	See below.	**N/A**
4.3.13.1	General	No ionizing radiation or laser or flammable liquids presents.	**N/A**
4.3.13.2	Ionizing radiation	No radiation.	**N/A**
	Measured radiation (pA/kg) .....:		—
	Measured high-voltage (kV) .....:		—
	Measured focus voltage (kV) .....:		—
	CRT markings .....:		—
4.3.13.3	Effect of ultraviolet (UV) radiation on materials	No UV radiation.	**N/A**
	Part, property, retention after test, flammability classification .....:		**N/A**
4.3.13.4	Human exposure to ultraviolet (UV) radiation .....:	No UV radiation.	**N/A**
4.3.13.5	Laser (including LEDs)	LED is of diffusive type.	**N/A**
	Laser class .....:	See above.	**—**
4.3.13.6	Other types .....:	Not used.	**N/A**

4.4	Protection against hazardous moving parts		**N/A**
4.4.1	General	No moving parts.	**N/A**
4.4.2	Protection in operator access areas	No moving parts.	**N/A**
4.4.3	Protection in restricted access locations	Not intended for installation in RAL.	**N/A**
4.4.4	Protection in service access areas	Unintentional contact is not likely in service access areas.	**N/A**

4.5	Thermal requirements		**P**
4.5.1	Maximum temperatures	See appended table 4.5.1.	**P**
	Normal load condition per Annex L.....:	See 1.6.2.	**P**
4.5.2	Resistance to abnormal heat	No thermoplastic parts carrying hazardous voltages.	**N/A**

4.6	Openings in enclosures	**P**

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Clause	Requirement – Test	Result - Remark	Verdict
4.6.1	Top and side openings	No openings	**P**
	Dimensions (mm) ..... :		—
4.6.2	Bottoms of fire enclosures	No openings.	**P**
	Construction of the bottom ..... :		—
4.6.3	Doors or covers in fire enclosures	No doors or covers in fire enclosure.	**P**
4.6.4	Openings in transportable equipment	No openings	**P**
4.6.5	Adhesives for constructional purposes	No adhesives for constructional purposes.	**P**
	Conditioning temperature (°C)/time (weeks)..... :		—

4.7	Resistance to fire		**P**
4.7.1	Reducing the risk of ignition and spread of flame	Refer below:	**—**
	Method 1, selection and application of components wiring and materials	Method 1 is used.	**N/A**
	Method 2, application of all of simulated fault condition tests	Not applied for.	**N/A**
4.7.2	Conditions for a fire enclosure	Refer below:	**N/A**
4.7.2.1	Parts requiring a fire enclosure	The fire enclosure is required to cover all parts.	**N/A**
4.7.2.2	Parts not requiring a fire enclosure	The fire enclosure is required to cover all parts.	**N/A**
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	The fire enclosure is of V-1 material.	**P**
4.7.3.3	Materials for components and other parts outside fire enclosures	No parts outside the fire enclosure.	**N/A**
4.7.3.4	Materials for components and other parts inside fire enclosures	Other materials inside fire enclosure are minimum V-2 material.	**N/A**
4.7.3.5	Materials for air filter assemblies	No air filters in the equipment.	**N/A**
4.7.3.6	Materials used in high-voltage components	No high-voltage components.	**N/A**

5	ELECTRICAL REQUIREMENTS AND SIMULATED ABNORMAL CONDITIONS		**P**
5.1	Touch current and protective conductor current		**N/A**
5.1.1	General	Test conducted in accordance with 5.1.2 to 5.1.7.	**—**

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Clause	Requirement – Test	Result - Remark	Verdict
5.1.2	Equipment under test (EUT)	No interconnection of equipment or multiple power sources.	**N/A**
5.1.3	Test circuit	Tested for connection to IT power distribution system (also relevant for TN or TT power distribution system).	—
5.1.4	Application of measuring instrument	Measuring instrument D1 is used.	—
5.1.5	Test procedure	Considered.	—
5.1.6	Test measurements	Measuring instrument D1 is used.	—
	Test voltage (V) .....:		—
	Measured touch current (mA) .....:	(see appended table 5.1.6)	**N/A**
	Max. allowed touch current (mA) .....:		—
	Measured protective conductor current (mA) ....:		—
	Max. allowed protective conductor current (mA) :		—
5.1.7	Equipment with touch current exceeding 3.5 mA .....:		**N/A**
5.1.8	Touch currents to and from telecommunication networks and cable distribution systems and from telecommunication networks	Not connected to telecommunication networks.	**N/A**
5.1.8.1	Limitation of the touch current to a telecommunication network and a cable distribution system	No TNV.	**N/A**
	Test voltage (V) .....:		—
	Measured touch current (mA) .....:		—
	Max. allowed touch current (mA) .....:		—
5.1.8.2	Summation of touch currents from telecommunication networks .....:	Not connected to a telecommunication network.	—

5.2	Electric strength		**N/A**
5.2.1	General	(see appended table 5.2)	**N/A**
5.2.2	Test procedure	(see appended table 5.2)	**N/A**

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	No motors.	**N/A**
5.3.3	Transformers	See Annex C.	**N/A**
5.3.4	Functional insulation ..... :	Complies with a) and c).	**P**

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Clause	Requirement – Test	Result - Remark	Verdict
5.3.5	Electromechanical components	No electromechanical components in secondary circuits.	**N/A**
5.3.6	Simulation of faults	See the enclosed fault condition tests.	**P**
5.3.7	Unattended equipment	No thermostats, temperature limiters or thermal cut-outs	**N/A**
5.3.8	Compliance criteria for abnormal operating and fault conditions	No reduction of clearance and creepage distances. Electric strength test is made on double / reinforced insulation.	**P**

6	CONNECTION TO TELECOMMUNICATION NETWORKS.		**N/A**
6.1	Protection of telecommunication network service persons, and users of other equipment connected to the network, from hazards in the equipment		**N/A**
6.1.1	Protection from hazardous voltages		**N/A**
6.1.2	Separation of the telecommunication network from earth		**N/A**
6.1.2.1	Requirements		**N/A**
	Test voltage (V) .....:		—
	Current in the test circuit (mA) .....:		—
6.1.2.2	Exclusions.....:		**N/A**

6.2	Protection of equipment users from overvoltages on telecommunication networks		**N/A**
6.2.1	Separation requirements		**N/A**
6.2.2	Electric strength test procedure		**N/A**
6.2.2.1	Impulse test		**N/A**
6.2.2.2	Steady-state test		**N/A**
6.2.2.3	Compliance criteria		**N/A**

6.3	Protection of the telecommunication wiring system from overheating		**N/A**
	Max. output current (A).....:		—
	Current limiting method.....:		—
7	CONNECTION TO CABLE DISTRIBUTION SYSTEMS		**N/A**
7.1	Protection of cable distribution system service persons, and users of other equipment connected to the system, from hazardous voltages in the equipment		**N/A**
7.2	Protection of equipment users from overvoltages on the cable distribution system		**N/A**
7.3	Insulation between primary circuits and cable distribution systems		**N/A**

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Clause	Requirement – Test	Result - Remark	Verdict
7.3.1	General		**N/A**
7.3.2	Voltage surge test		**N/A**
7.3.3	Impulse test		**N/A**

A	ANNEX A, TESTS FOR RESISTANCE TO HEAT AND FIRE		**N/A**
A.1	Flammability test for fire enclosures of movable equipment having a total mass exceeding 18 kg, and of stationary equipment (see 4.7.3.2)		**N/A**
A.1.1	Samples ..... :	Equipment < 18kg.	—
	Wall thickness (mm) ..... :		—
A.1.2	Conditioning of samples; temperature (°C) ..... :		**N/A**
A.1.3	Mounting of samples..... :		**N/A**
A.1.4	Test flame		**N/A**
A.1.5	Test procedure		**N/A**
A.1.6	Compliance criteria		**N/A**
	Sample 1 burning time (s)..... :		**—**
	Sample 2 burning time (s)..... :		**—**
	Sample 3 burning time (s)..... :		**—**
A.2	Flammability test for fire enclosures of movable equipment having a total mass not exceeding 18 kg, and for material and components located inside fire enclosures (see 4.7.3.2 and 4.7.3.4)		**N/A**
A.2.1	Samples, material ..... :	All materials have suitable flame class, not testing required	—
	Wall thickness (mm) ..... :		—
A.2.2	Conditioning of samples		**N/A**
A.2.3	Mounting of samples		**N/A**
A.2.4	Test flame		**N/A**
A.2.5	Test procedure		**N/A**
A.2.6	Compliance criteria		**N/A**
	Sample 1 burning time (s)..... :		—
	Sample 2 burning time (s)..... :		—
	Sample 3 burning time (s)..... :		—
A.2.7	Alternative test acc. to IEC 60695-2-2, cl. 4, 8		**N/A**
	Sample 1 burning time (s)..... :		—
	Sample 2 burning time (s)..... :		—
	Sample 3 burning time (s)..... :		—
A.3	Hot flaming oil test (see 4.6.2)		**N/A**
A.3.1	Mounting of samples		**N/A**
A.3.2	Test procedure		**N/A**

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Clause	Requirement – Test	Result - Remark	Verdict
A.3.3	Compliance criterion		**N/A**

B	ANNEX B, MOTOR TESTS UNDER ABNORMAL CONDITIONS (see 4.7.2.2 and 5.3.2)		**N/A**
B.1	General requirements		**N/A**
	Position ..... :		—
	Manufacturer ..... :		—
	Type ..... :		—
	Rated values ..... :		—
B.2	Test conditions		**N/A**
B.3	Maximum temperatures		**N/A**
B.4	Running overload test		**N/A**
B.5	Locked-rotor overload test		**N/A**
	Test duration (days) :		**—**
	Electric strength test: test voltage (V) :		**—**
B.6	Running overload test for d.c. motors in secondary circuits		**N/A**
B.7	Locked-rotor overload test for d.c. motors in secondary circuits		**N/A**
B.7.1	Test procedure		**N/A**
B.7.2	Alternative test procedure; test time (h)..... :		**N/A**
B.7.3	Electric strength test		**N/A**
B.8	Test for motors with capacitors		**N/A**
B.9	Test for three-phase motors		**N/A**
B.10	Test for series motors		**N/A**
	Operating voltage (V) ..... :		—

C	ANNEX C, TRANSFORMERS (see 1.5.4 and 5.3.3)		**N/A**
	Position ..... :	Primary to SELV.	—
	Manufacturer ..... :	(see appended table 1.5.1)	—
	Type ..... :	(see appended table 1.5.1)	—
	Rated values ..... :	(see appended table 1.5.1)	—
	Method of protection ..... :	Inherent impedance.	—
C.1	Overload test	(see appended table 5.3)	**N/A**
C.2	Insulation	The reinforced insulation fulfil the requirement in Sub-clause 2.10 and relevant tests of Sub-clause 5.2.2.	**N/A**
	Protection from displacement of windings ..... :	(see appended table C.2)	**N/A**

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Clause	Requirement – Test	Result - Remark	Verdict
D	ANNEX D, MEASURING INSTRUMENTS FOR TOUCH-CURRENT TESTS		**N/A**
D.1	Measuring instrument	Figure D.1 used.	**N/A**
D.2	Alternative measuring instrument		**N/A**
E	ANNEX E, TEMPERATURE RISE OF A WINDING (see 1.4.13)		**N/A**
F	ANNEX F, MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES (see 2.10)		**N/A**
G	ANNEX G, ALTERNATIVE METHOD FOR DETERMINING MINIMUM CLEARANCES		**N/A**
G.1	Summary of the procedure for determining minimum clearances		**N/A**
G.2	Determination of mains transient voltage (V).....:		**N/A**
G.2.1	AC mains supply		**N/A**
G.2.2	DC mains supply		**N/A**
G.3	Determination of telecommunication network transient voltage (V) .....:		**N/A**
G.4	Determination of required withstand voltage (V).:		**N/A**
G.5	Measurement of transient levels (V) .....:		**N/A**
G.6	Determination of minimum clearances.....:		**N/A**
H	ANNEX H, IONIZING RADIATION (see 4.3.13)		**N/A**
J	ANNEX J, TABLE OF ELECTROCHEMICAL POTENTIALS (see 2.6.5.6)		**N/A**
	Metal used ..... :		—
K	ANNEX K, THERMAL CONTROLS (see 1.5.3 and 5.3.7)		**N/A**
K.1	Making and breaking capacity		**N/A**
K.2	Thermostat reliability; operating voltage (V) .....:		**N/A**
K.3	Thermostat endurance test; operating voltage (V) .....:		**N/A**
K.4	Temperature limiter endurance; operating voltage (V) .....:		**N/A**
K.5	Thermal cut-out reliability		**N/A**
K.6	Stability of operation		**N/A**
L	ANNEX L, NORMAL LOAD CONDITIONS FOR SOME TYPES OF ELECTRICAL BUSINESS EQUIPMENT (see 1.2.2.1 and 4.5.1)		**N/A**
L.1	Typewriters		**N/A**
L.2	Adding machines and cash registers		**N/A**
L.3	Erasers		**N/A**

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Clause	Requirement – Test	Result - Remark	Verdict
L.4	Pencil sharpeners		**N/A**
L.5	Duplicators and copy machines		**N/A**
L.6	Motor-operated files		**N/A**
L.7	Other business equipment		**N/A**
M	ANNEX M, CRITERIA FOR TELEPHONE RINGING SIGNALS (see 2.3.1)		**N/A**
M.1	Introduction		**N/A**
M.2	Method A		**N/A**
M.3	Method B		**N/A**
M.3.1	Ringing signal		**N/A**
M.3.1.1	Frequency (Hz) ..... :		—
M.3.1.2	Voltage (V) ..... :		—
M.3.1.3	Cadence; time (s), voltage (V) ..... :		—
M.3.1.4	Single fault current (mA) ..... :		—
M.3.2	Tripping device and monitoring voltage ..... :		**N/A**
M.3.2.1	Conditions for use of a tripping device or a monitoring voltage		**N/A**
M.3.2.2	Tripping device		**N/A**
M.3.2.3	Monitoring voltage (V) ..... :		**N/A**
N	ANNEX N, IMPULSE TEST GENERATORS (see 2.10.3.4, 6.2.2.1, 7.3.2 and clause G.5)		**N/A**
N.1	ITU-T impulse test generators		**N/A**
N.2	IEC 60065 impulse test generator		**N/A**
P	ANNEX P, NORMATIVE REFERENCES		**N/A**
Q	ANNEX Q, BIBLIOGRAPHY		**N/A**
R	ANNEX R, EXAMPLES OF REQUIREMENTS FOR QUALITY CONTROL PROGRAMMES		**N/A**
R.1	Minimum separation distances for unpopulated coated printed boards (see 2.10.6)		**N/A**
R.2	Reduced clearances (see 2.10.3)		**N/A**
S	ANNEX S, PROCEDURE FOR IMPULSE TESTING (see 6.2.2.3)		**N/A**
S.1	Test equipment		**N/A**
S.2	Test procedure		**N/A**
S.3	Examples of waveforms during impulse testing		**N/A**
T	ANNEX T, GUIDANCE ON PROTECTION AGAINST INGRESS OF WATER (see 1.1.2)		**N/A**

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Clause	Requirement – Test	Result - Remark	Verdict
			—
U	ANNEX U, INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION (see 2.10.5.4)		**N/A**
		See appended table 1.5.1	—
V	ANNEX V, AC POWER DISTRIBUTION SYSTEMS (see 1.6.1)		**N/A**
V.1	Introduction	See below.	**N/A**
V.2	TN power distribution systems	Single-phase TN power system considered and used for testing.	**N/A**
V.3	TT power systems	Not considered.	**N/A**
V.4	IT power systems	Considered (for Norway).	**N/A**
W	ANNEX W, SUMMATION OF TOUCH CURRENTS		**N/A**
W.1	Touch current from electronic circuits		**N/A**
W.1.2	Earthed circuits		**N/A**
W.2	Interconnection of several equipments		**N/A**
W.2.1	Isolation		**N/A**
W.2.2	Common return, isolated from earth		**N/A**
W.2.3	Common return, connected to protective earth		**N/A**
X	ANNEX X, MAXIMUM HEATING EFFECT IN TRANSFORMER TESTS (see clause C.1)		**N/A**
X.1	Determination of maximum input current	See Annex C.1	**N/A**
X.2	Overload test procedure	Electronic protection mode is used.	**N/A**
Y	ANNEX Y, ULTRAVIOLET LIGHT CONDITIONING TEST (see 4.3.13.3)		**N/A**
Y.1	Test apparatus ..... :		**N/A**
Y.2	Mounting of test samples ..... :		**N/A**
Y.3	Carbon-arc light-exposure apparatus ..... :		**N/A**
Y.4	Xenon-arc light exposure apparatus ..... :		**N/A**
Z	**ANNEX Z, OVERVOLTAGE CATEGORIES (see 2.10.3.2 and Clause G.2)**		**N/A**
AA	**ANNEX AA, MANDREL TEST (see 2.10.5.8)**		**N/A**
BB	**ANNEX BB, CHANGES IN THE SECOND EDITION**		**N/A**
CC	**ANNEX CC, Evaluation of integrated circuit (IC) current limiters**		**N/A**

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Clause	Requirement – Test	Result - Remark	Verdict
CC.1	General		N/A
CC.2	Test program 1……..:		N/A
CC.3	Test program 2……..:		N/A

DD	**ANNEX DD, Requirements for the mounting means of rack-mounted equipment**		**N/A**
DD.1	General		N/A
DD.2	Mechanical strength test, variable N……..:		N/A
DD.3	Mechanical strength test, 250N, including end stops……:		N/A
DD.4	Compliance……:		N/A

EE	**ANNEX EE, Household and home/office document/media shredders**		**N/A**
EE.1	General		N/A
EE.2	Markings and instructions		N/A
	Use of markings or symbols……:		N/A
	Information of user instructions, maintenance and/or servicing instructions……:		N/A
EE.3	Inadvertent reactivation test……:		N/A
EE.4	Disconnection of power to hazardous moving parts:		N/A
	Use of markings or symbols……:		N/A
EE.5	Protection against hazardous moving parts		N/A
	Test with test finger (Figure 2A) ……:		N/A
	Test with wedge probe (Figure EE1 and EE2) ……:		N/A

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Clause	Requirement – Test	Result - Remark	Verdict

EN 60950-1:2006/A11:2009/A1:2010/A12:2011 – 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: 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	N/A
General (A1:2010)	Delete all the "country" notes in the reference document (IEC 60950-1:2005/A1:2010) according to the following list: 1.5.7.1 Note 6.1.2.1 Note 2 6.2.2.1 Note 2 EE.3 Note	N/A
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/A

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

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

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Clause	Requirement – Test	Result - Remark	Verdict
	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	$L_{Aeq,T}$ is ≤ 85 dBA	N/A

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Clause	Requirement – Test	Result - Remark	Verdict
	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/A

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Clause	Requirement – Test	Result - Remark	Verdict
	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.	See user manual.	N/A
	Zx.4 Requirements for listening devices (headphones and earphones)		N/A
	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/A

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

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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;		N/A
	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/A
2.7.2	This subclause has been declared 'void'.		---
3.2.3	Delete the NOTE in Table 3A, and delete also in this table the conduit sizes in parentheses.		N/A
3.2.5.1	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/A

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Clause	Requirement – Test	Result - Remark	Verdict
3.3.4	In Table 3D, delete the fourth line: conductor sizes for 10 to 13 A, and replace with the following: Over 10 up to and including 16 | 1,5 to 2,5 | 1,5 to 4 | Delete the fifth line: conductor sizes for 13 to 16 A		N/A
4.3.13.6 (A1:2010)	Replace the existing NOTE by the following: NOTE Z1 Attention is drawn to: 1999/519/EC: Council Recommendation on the limitation of exposure of the general public to electromagnetic fields 0 Hz to 300 GHz, and 2006/25/EC: Directive on the minimum health and safety requirements regarding the exposure of workers to risks arising from physical agents (artifical optical radiation).		N/A
	Standards taking into account mentioned Recommendation and Directive which demonstrate compliance with the applicable EU Directive are indicated in the OJEC.		N/A
Annex H	Replace the last paragraph of this annex by: At any point 10 cm from the surface of the OPERATOR ACCESS AREA, the dose rate shall not exceed 1 µSv/h (0,1 mR/h) (see NOTE). Account is taken of the background level. Replace the notes as follows: NOTE These values appear in Directive 96/29/Euratom. Delete NOTE 2.		N/A
Bibliography	Additional EN standards.		—

ZA	**NORMATIVE REFERENCES TO INTERNATIONAL PUBLICATIONS WITH THEIR CORRESPONDING EUROPEAN PUBLICATIONS**	—

ZB	**SPECIAL NATIONAL CONDITIONS**	**N/A**
1.2.4.1	In **Denmark**, certain types of Class I appliances (see 3.2.1.1) may be provided with a plug not establishing earthing conditions when inserted into Danish socket-outlets.	N/A
1.5.7.1	In **Finland**, **Norway** and **Sweden**, resistors bridging BASIC INSULATION in CLASS I PLUGGABLE EQUIPMENT TYPE A must comply with the requirements in 1.5.7.2.	N/A
1.5.8	In **Norway**, due to the IT power system used (see annex V, Figure V.7), capacitors are required to be rated for the applicable line-to-line voltage (230 V).	N/A

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Clause	Requirement – Test	Result - Remark	Verdict
1.5.9.4	In **Finland**, **Norway** and **Sweden**, the third dashed sentence is applicable only to equipment as defined in 6.1.2.2 of this annex.		N/A
1.7.2.1	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 suojamaadoituskoskettimilla varustettuun pistorasiaan" In Norway: “Apparatet må tilkoples jordet stikkontakt” In Sweden: “Apparaten skall anslutas till jordat uttag”		N/A
1.7.5	In **Denmark**, socket-outlets for providing power to other equipment shall be in accordance with the Heavy Current Regulations, Section 107-2-D1, Standard Sheet DK 1-3a, DK 1-5a or DK 1-7a, when used on Class I equipment. For STATIONARY EQUIPMENT the socket-outlet shall be in accordance with Standard Sheet DK 1-1b or DK 1-5a.		N/A
2.2.4	In **Norway**, for requirements see 1.7.2.1, 6.1.2.1 and 6.1.2.2 of this annex.		N/A
2.3.2	In **Finland**, **Norway** and **Sweden** there are additional requirements for the insulation. See 6.1.2.1 and 6.1.2.2 of this annex.		N/A
2.3.4	In **Norway**, for requirements see 1.7.2.1, 6.1.2.1 and 6.1.2.2 of this annex.		N/A
2.6.3.3	In the **United Kingdom**, the current rating of the circuit shall be taken as 13 A, not 16 A.		N/A
2.7.1	In the **United Kingdom**, to protect against excessive currents and short-circuits in the PRIMARY CIRCUIT of DIRECT PLUG-IN EQUIPMENT, tests according to 5.3 shall be conducted, using an external protective device rated 30 A or 32 A. If these tests fail, suitable protective devices shall be included as integral parts of the DIRECT PLUG-IN EQUIPMENT, so that the requirements of 5.3 are met.		N/A
2.10.5.13	In **Finland**, **Norway** and **Sweden**, there are additional requirements for the insulation, see 6.1.2.1 and 6.1.2.2 of this annex.		N/A
3.2.1.1	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 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, 16 A SEV 5934-2.1998 Plug Type 23 L+N+PE 250 V, 16 A		N/A

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Clause	Requirement – Test	Result - Remark	Verdict
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/A
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/A
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/A
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/A
3.2.4	In **Switzerland**, for requirements see 3.2.1.1 of this annex.		N/A
3.2.5.1	In the **United Kingdom**, a power supply cord with conductor of 1,25 mm2 is allowed for equipment with a rated current over 10 A and up to and including 13 A.		N/A
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/A

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

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6.1.2.1	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. If this insulation forms part of a semiconductor component (e.g. an optocoupler), there is no distance through insulation requirement for the insulation consisting of an insulating compound completely filling the casing, so that CLEARANCES and CREEPAGE DISTANCES do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition - 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. It is permitted to bridge this insulation with a capacitor complying with EN 132400:1994, subclass Y2. A capacitor classified Y3 according to EN 132400:1994, may bridge this insulation under the following conditions: - the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 132400, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in IEC 60950-1:2005, 6.2.2.1; - the additional testing shall be performed on all the test specimens as described in EN 132400; - the impulse test of 2,5 kV is to be performed before the endurance test in EN 132400, in the sequence of tests as described in EN 132400.		N/A
6.1.2.2	In **Finland**, **Norway** and **Sweden**, the exclusions are applicable for PERMANENTLY CONNECTED EQUIPMENT, PLUGGABLE EQUIPMENT TYPE B and equipment intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, e.g. in a telecommunication centre, and which has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR and is provided with instructions for the installation of that conductor by a SERVICE PERSON.		N/A
7.2	In **Finland**, **Norway** and **Sweden**, for requirements see 6.1.2.1 and 6.1.2.2 of this annex. The term TELECOMMUNICATION NETWORK in 6.1.2 being replaced by the term CABLE DISTRIBUTION SYSTEM.		N/A

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7.3	In **Norway** and **Sweden**, there are many buildings where the screen of the coaxial cable is normally not connected to the earth in the building installation.		N/A
7.3	In **Norway**, for installation conditions see EN 60728-11:2005.		N/A

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

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EN 60950-1			
Clause	Requirement – Test	Result - Remark	Verdict
5.1.7.1	**Denmark** (Heavy Current Regulations, Chapter 707, clause 707.4) TOUCH CURRENT measurement results exceeding 3,5 mA r.m.s. are permitted only for PERMANENTLY CONNECTED EQUIPMENT and PLUGGABLE EQUIPMENT TYPE B.		N/A

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1.5.1	TABLE: list of critical components				P
object/part No.	manufacturer/ trademark	type/model	technical data	standard	mark(s) of conformity[1])
PCB	--	--	V-0, 130℃	UL796	UL
Enclosure	--	--	V-0, 105℃	UL94	UL
Battery	--	--	3V,220mAh	EN60950-1	Tested with appliance
Internal wire	--	--	80℃,	UL 758	UL
[1]) an asterisk indicates a mark which assures the agreed level of surveillance					

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1.6.2	TABLE: electrical data test(in normal conditions)					P
fuse #	I rated (A)	U (V)	P (W)	I (A)	Battery Voltage(V)	condition/status
	--	3	--	--	3	Under Discharger Mode
Remark: The steady state input current ~~[did]~~ [did not] exceed the rated current at the rated voltage by more than 10 percent under maximum normal load.						

2.1.1.5	TABLE: energy hazard test				N/A
Voltage (rated) (V)	Current (rated) (A)	Voltage (max) (V)	Current (max.) (A)	VA (max.) (VA)	

2.1.1.7	TABLE : discharge test				N/A
Condition	τ(s)	τmeasured (s)	tu → 0v (s)	comments	
Note(s): Test voltage: Overall capacity: Discharge resistor:					

2.2.2	TABLE: Hazardous voltage measurement			N/A
Connector	Location	Max. Voltage		Voltage limitation component
		Vpeak	Vd.c	
		--		

2.2.3	TABLE: SELV voltage measurement		N/A
Location	Voltage (V)	Comments	

2.4.2	TABLE: limited current circuit measurement					N/A
Location	Voltage (V)	Current (mA)	Freq. (Hz)	Limit (mA)	Comments	
Charging Pod output + to -						
Charging Pod output + to GND						
Charging Pod output + to GND						
Output measured with an 2kΩ resistor as load.						

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2.5	TABLE: limited power source measurement		N/A
	Limits	Measured	Verdict
According to Table 2B (normal condition)			
current (in A)	--	--	--
apparent power (in VA)	--	--	--
According to Table 2C (Abnormal condition)			
current (in A)`	--	--	--
apparent power (in VA)	--	--	--
Note(s):			

2.6.3.3	TABLE : ground continue test	N/A
Location	Resistance measured (mΩ)	

2.10.2	TABLE : working voltage measurement		N/A
Location	RMS Voltage (V)	--	Comments
Input voltage:			

2.10.3 and 2.10.4	TABLE: clearance and creepage distance measurements					N/A
clearance cl and creepage distance dcr at/of:	Up (V)	--	required cl (mm)	cl (mm)	required dcr (mm)	dcr (mm)
Note:						

2.10.5	TABLE: distance through insulation measurements			N/A
distance through insulation di at/of:	U r.m.s. (V)	test voltage (V)	required di (mm)	di (mm)
Note:				

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4.3.8	TABLE: Batteries	P

Battery category ..... :	Lithium. The battery Cell is certified according to UL 1642, see below.
Manufacturer ..... :	--
Type / model ..... :	--
Voltage ..... :	--
Capacity ..... :	--
Tested and Certified by (incl. Ref. No.)..... :	UL

MARKINGS AND INSTRUCTIONS (1.7.12, 1.7.15)	
Location of replaceable battery	Can't be replaceable by user.
Language(s):	English
Close to the battery	
In the servicing instructions	Yes
In the operating instructions	Yes

4.3.8	TABLE: Batteries	P

The tests of 4.3.8 are applicable only when appropriate battery data is not available	Appropriate battery data is available.
Is it possible to install the battery in a reverse polarity position?	No
Temperature	Measured temperature: Ref. 4.5

	Non-rechargeable batteries			Rechargeable batteries					
	Discharging		Unintentional charging	Charging		Discharging		Reversed charging	
	Meas. current	Manuf. spec.		Meas. current	Manuf. spec.	Meas. current	Manuf. spec.	Meas. current	Manuf. spec.
Max current during normal conditions	--	--	--	0.030	0.036	0.032	0.036	1)	1)
Max current during fault conditions	--	--	--	0.03	0.036	0.030	0.036	1)	1)
supplementary information:									
1)--Refer to table 5.3 for test results. 2) Battery polarity can't be reversed according to the design of enclosure and connector.									

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Test results:	Appropriate battery data is available.	Verdict
- Chemical leaks	No chemical leaks affecting required insulation.	**P**
- Explosion of the battery	No explosion	**P**
- Emission of flame or expulsion of molten metal	No emission of flame or expulsion of molten metal.	**P**
- Electric strength test of equipment after completion of tests	Class III equipment	**N**
supplementary information:		

4.5.1	TABLE: temperature rise measurements			**P**
	test voltage (V)	--		—
	t1 (°C)	26.4		—
	t2 (°C)	26.4		—
rise T of part/at:		T (°C)		allowed T (°C)
Test Mode		Discharger	Charger	--
PCB		49.6	49.7	105
Body of Battery		46.3	49.6	--
C1 body		47.5	47.9	105
Enclosure inside		34.3	38.0	--
Enclosure outside		31.7	34.1	95
Ambient		25.7	23.4	--

Note:

The temperatures were measured under worst case normal mode defined in 1.2.2.1 and as described in sub-clause 1.6.2 and at voltages as described above.

With a specified ambient temperature of 26.4°C.

4.5.2	TABLE: ball pressure test of thermoplastic parts *(Phonolic bobbin material used in Transformer are accepted without testing)*		**N/A**
	allowed impression diameter (mm) ..... :	≤ 2 mm	—
Part		test temperature (°C)	impression diameter (mm)

5.1.6	TABLE: Touch current measurement				**N/A**
Condition	L- terminal A (mA)	N-terminal A (mA)	Limit (mA)	Comments	

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Input voltage:
Input frequency:
Overall capacity:

5.2	TABLE: electric strength tests, impulse tests and voltage surge tests		N/A
test voltage applied between:		test voltage (V) a.c. / d.c.	breakdown Yes / No
supplementary information			
Note:			

5.3	TABLE: fault condition tests		P
	ambient temperature (°C) ..... :	26.7°C	—
	model/type of power supply ..... :	See the first page	—
	manufacturer of power supply ..... :	See the first page	—
	rated markings of power supply ..... :	See the first page	—

com-ponent No.	fault	test voltage (V)	test time	fuse No.	fuse cur-rent (A)	result
Battery discharge Output "+" _ "-"	s-c	3 Vdc	2 hr 15 min	--	--	Fully discharged, max. temp. measured on cell=60.2°C, PCB=56.3°C, no hazards.
Battery overcharge	--	5.0 Vdc	7hr	--	--	Unit shut down, Battery temperation: 39.6°C, Ambient: 25.7°C no components damaged, no hazards
supplementary information						
1) s-c = short circuit; o-c = open circuit; o-l = overload.						

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ANNEX AA: Equipment list

Code	Name	Model/Type	S/N	Calibrated date	Next Calibration Date	Manufacture
HTT-001	Digital Multimeter	34401A	MY47043456	2015.02.20	2016.02.19	agilent
HTT-004	Push/pull gSepe	NK-500	2Q10060932	2015.02.20	2016.02.19	
HTT-005	Electronic weight	DSI-861	198692	2015.02.20	2016.02.19	shangdeli
HTT-006	Insulation resistance tester	CS2676CX	1107032-009	2015.02.20	2016.02.19	changshen
HTT-007	Earthing resistance tester	YD2668-4B	4B-2307	2015.02.20	2016.02.19	Yangzi
HTT-008	HI-pot/Insulation tester	CS2672C	1108006-002	2015.02.20	2016.02.19	changshen
HTT-010	AC Voltage Regulator	TDGC2J		2015.02.20	2016.02.19	SAKO
HTT-013	AC power source	HPA-3110	3513	2015.02.20	2016.02.19	Henqiang
HTT-014	Temperature/Humidity chamber	SDJ-80L	SDJ-80J	2015.02.20	2016.02.19	Shenzhen hongjian
HTT-015	Electric oven	HK45AS	F11011008	2015.02.20	2016.02.19	Guangzhou KENTON
HTT-017	AC digital power meter	PF9901	YG100731N11 070075	2015.02.20	2016.02.19	Yuanfang
HTT-019	DC electronic load	IT8512	002002506670 001002	2015.02.20	2016.02.19	ITECH
HTT-022	Leakage current tester	228	10-866030	2015.02.20	2016.02.19	simpson
HTT-023	Oscilloscope	TDS1012C-SC	C013300	2015.02.21	2016.02.20	tektronix
HTT-024	Tape measure	DK-2041		2015.02.23	2016.02.22	Proskit
HTT-025	Stop watch	TA-228		2015.02.21	2016.02.20	KTJ
HTT-026	Data acquisition/switch unit	34970A	MY44057668	2015.02.24	2016.02.23	Agilent
HTT-027	Temperature/humidity meter	VC230		2015.02.21	2016.02.20	ViCTOR
HTT-028	Torque drive	3RTD	435850B	2015.05.14	2016.05.13	TOHNICHI
HTT-030	Impact hammer	ZLT-CJ1	C011207	2015.02.21	2016.02.20	Guangzhou zhilitong
HTT-031	Inclined plane	ZLT-WD1	W011201	2015.02.20	2016.02.19	Guangzhou zhilitong
HTT-033	Test finger	ZLT-I02	I021203	2015.02.23	2016.02.22	Guangzhou zhilitong
HTT-034	Test pin	ZLT-I09	I091201	2015.02.21	2016.02.20	Guangzhou zhilitong
HTT-038	Test apparatus of the mains plug	ZLT-LJ2	LJ011202	2015.02.21	2016.02.20	Guangzhou zhilitong
HTT-039	Ball pressure apparatus	ZLT-QY1	Q011202	2015.02.21	2016.02.20	Guangzhou zhilitong
HTT-042	Caliper rule	CD-6” CSX	500-196-20	2015.02.21	2016.02.20	MITUTOYO
HTT-044	Glow wire tester	ZRS-2	12121304	2015.02.21	2016.02.20	Guangzhou Xinna
HTT-045	Needle flame tester	ZY-2	12121311	2015.02.21	2016.02.20	Guangzhou Xinna

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Appendix 2
Photo documentation

Photo 1

Photo 2

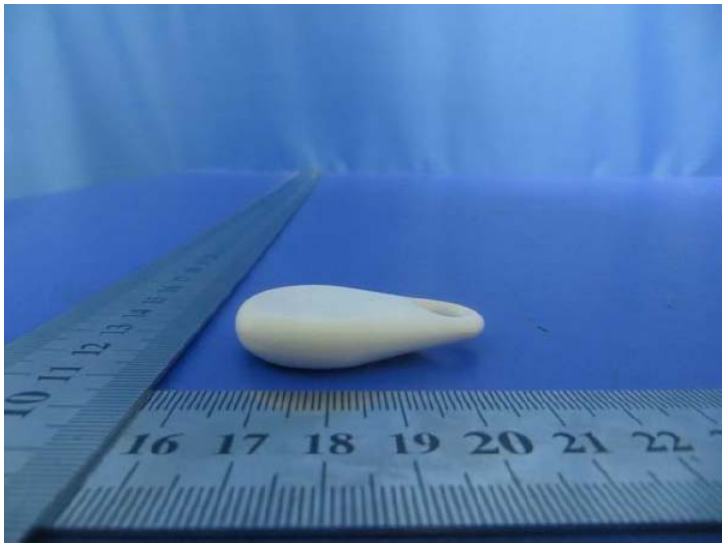

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Photo 3

Photo 4

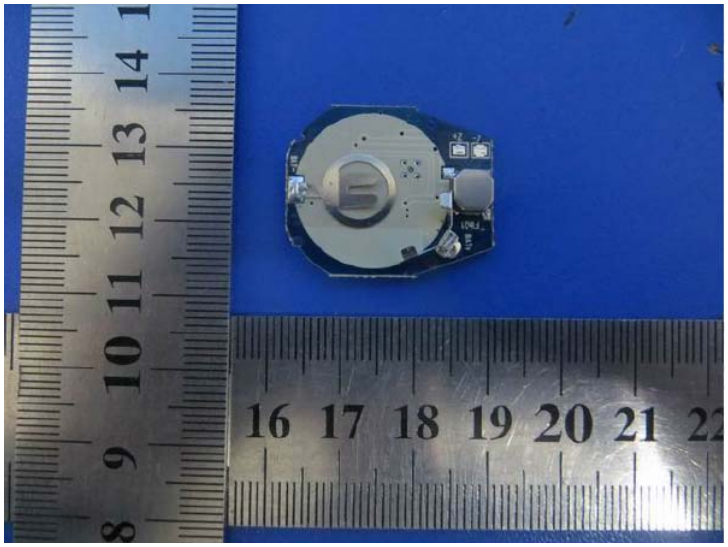

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Photo 5

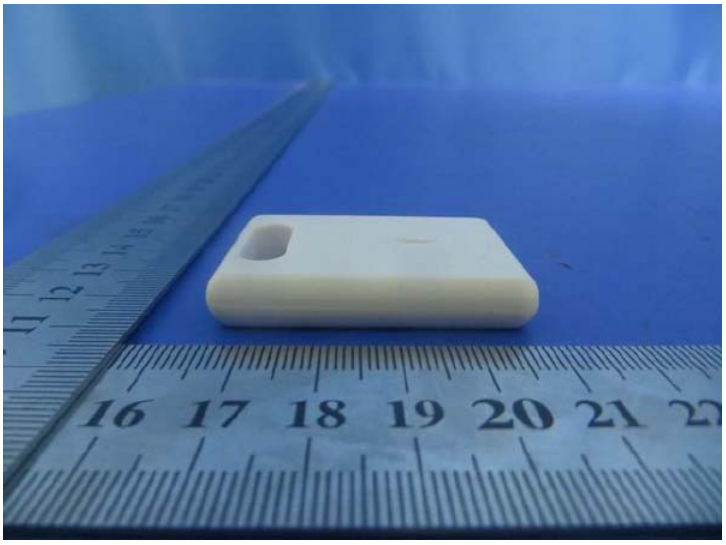
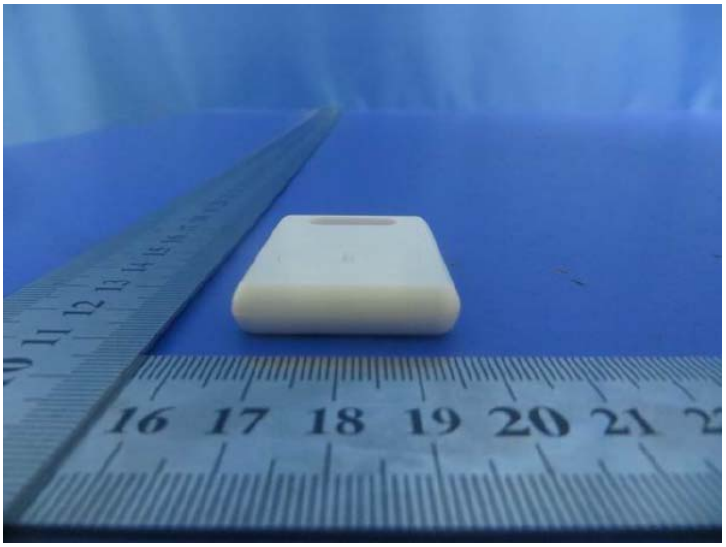


Photo 6



*****End of Test Report*****

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