

TEST REPORT

EN 60950-1

Information technology equipment – Safety – Part 1: General requirements

Report reference No.: SAFTR_171300-0

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Date of issue: 2017-08-21

Testing Laboratory Name: PRSLAB S.r.l. Unipersonale

Address: Via Campagna, 92 | 22020 Faloppio (CO) | Italy

Testing location: Via Campagna, 92 | 22020 Faloppio (CO) | Italy

Address: as above

Applicant's Name: RELOC S.R.L.

Address: Via Lodovico Borsari 23 – 43126 Parma – Italy

.....: Tel.: +39 0521 191 3460

Test specification

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

Test item description: Wi-Fi Pmod Adapter based on ATWINC15x0 module

Trademark



Manufacturer: RELOC S.r.l.

Model and/or type reference: PMOD.WM1A.ATWINC15X0

Lott number: A1725A05200502

Rating(s): 3.0 – 4.2 V === supplied from external source

Overall verdict: ☒ Appliance does comply the EN 60950-1

☐ Appliance does NOT comply the EN 60950-1

Release Control Record		
Test report Number	Reason of change	Date of Issue
SAFTR_171300-0	Original release	2017-08-21

General remarks

The test result presented in this report relate only to the object(s) tested.

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"(see Enclosure #)" refers to additional information appended to the report.

"(see appended table)" refers to a table appended to the report.

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

Equipment description

Wi-Fi Pmod Adapter based on ATWINC15x0 module

Marking:



Test item particulars	N/A		
Equipment mobility.....	<input type="checkbox"/> movable	<input type="checkbox"/> hand-held:	<input type="checkbox"/> transportable
	<input type="checkbox"/> Stationary	<input checked="" type="checkbox"/> for building-in	<input type="checkbox"/> direct plug-in
Class of equipment	<input type="checkbox"/> Class I:	<input type="checkbox"/> Class II:	
	<input checked="" type="checkbox"/> Class III:	<input type="checkbox"/> Not Classified:	
Connection to the mains	<input type="checkbox"/> pluggable equipment:		<input type="checkbox"/> Type A
			<input type="checkbox"/> Type B
	<input type="checkbox"/> permanent connection		
	<input type="checkbox"/> detachable power supply cord		
	<input type="checkbox"/> non-detachable power supply cord		
	<input checked="" type="checkbox"/> not connected to the mains		
Considered current rating (A)	-		
Operating condition.....	<input checked="" type="checkbox"/> continuous		
	<input type="checkbox"/> rated operating / resting time:		
Access location	<input checked="" type="checkbox"/> operator accessible		
	<input type="checkbox"/> restricted access location		
Over voltage category (OVC)	<input type="checkbox"/> OVC I	<input type="checkbox"/> OVC II	
	<input type="checkbox"/> OVC III	<input type="checkbox"/> OVC IV	
	<input checked="" type="checkbox"/> other: not connected to the mains		
Mains supply tolerance (%) or absolute mains supply values	-		
Tested for IT power systems	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
IT testing, phase-phase voltage (V)	-		
Pollution degree (PD)	<input type="checkbox"/> PD 1	<input checked="" type="checkbox"/> PD 2	<input type="checkbox"/> PD 3
IP protection class	IPX0		
Mass of equipment (kg)	<0,010kg		
Possible test case verdicts:			
- test case does not apply to the test object : N/A			
- test object does meet the requirement : P (Pass)			
- test object does not meet the requirement : F (Fail)			
Testing			
Date of receipt of test item : 2017-06			
Date(s) of performance of tests..... : 2017-07-05 to 2017-08-21			

EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
1	GENERAL		—
1.3.Z1	Exposure to excessive sound pressure		—
	<p>The apparatus shall be so designed and constructed as to present no danger when used for its intended purpose, either in normal operating conditions or under fault conditions, particularly providing protection against exposure to excessive sound pressures from headphones or earphones.</p> <p>NOTE Z1 A new method of measurement is described in EN 50332-1, Sound system equipment:</p> <p>Headphones and earphones associated with portable audio equipment - Maximum sound pressure level measurement methodology and limit considerations - Part 1: General method for “one package equipment”, and in EN 50332-2, Sound system equipment: Headphones and earphones associated with portable audio equipment - Maximum sound pressure level measurement methodology and limit considerations - Part 2: Guidelines to associate sets with headphones coming from different manufacturers.</p>		N/A
1.5	Components		—
1.5.1	General		P
	Where safety is involved, components shall comply with the requirements of this standard or, where specified in a requirements clause, with the safety aspects of the relevant IEC component standards.	(see appended table 1.5.1)	P
	Components and subassemblies that comply with IEC 62368-1 are acceptable as part of an equipment covered by this standard without further evaluation other than to give consideration to the appropriate use of the component or subassembly in the end-product.		N/A
	NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2002/95/EC		P
1.5.2	Evaluation and testing of components	Component used in accordance with their ratings	P
1.5.3	Thermal controls		N/A
1.5.4	Transformers		N/A
1.5.5	Interconnecting cables		N/A
1.5.6	Capacitors in primary circuits		N/A
1.5.7	Resistors bridging insulation		N/A
1.5.7.1	Resistors bridging functional, basic or supplementary insulation		P

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Clause	Requirement – Test	Result – Remark	Verdict
1.5.7.2	Resistors bridging double or reinforced insulation between a.c. mains and other circuits		N/A
1.5.7.3	Resistors bridging double or reinforced insulation between a.c. mains and antenna or coaxial cable		N/A
1.5.8	Components in equipment for IT power systems		N/A
1.5.9	Surge suppressors		N/A
1.5.9.1	General		P
1.5.9.2	Protection of VDRs		N/A
1.5.9.3	Bridging of functional insulation by a VDR		N/A
1.5.9.4	Bridging of basic insulation by a VDR		N/A
1.5.9.5	Bridging of supplementary, double or reinforced insulation by a VDR		N/A
1.6	Power interface		—
1.6.1	AC power distribution systems		N/A
1.6.2	Input current	(see appended table 1.6.2) Not connected to the mains	N/A
1.6.3	Voltage limit of hand-held equipment		N/A
1.6.4	Neutral conductor		N/A
1.7	Marking and instructions		—
1.7.1	Power rating	Class III EUT, not connected to the mains, ratings not required	P
	Rated voltage(s) or voltage range(s) (V)		N/A
	Symbol for nature of supply, for d.c. only.....		N/A
	Rated frequency or rated frequency range (Hz) :		N/A
	Rated current (mA or A)		N/A
	Manufacturer's name or trademark or identification mark	RELOC S.R.L.	P
	Model identification or type reference	PMOD.WM1A.ATWINC15X0	P
	Symbol for Class II equipment only		N/A
	Other markings and symbols		N/A
1.7.1.3	Use of graphical symbols		N/A
1.7.2	Safety instructions and marking		—
1.7.2.1	General	No safety relevant.	N/A
(A12.2011)	Protection against excessive sound pressure from personal music players		N/A
1.7.2.2	Disconnect devices	Not connected to the mains	N/A
1.7.2.3	Overcurrent protective device	Not connected to the mains	N/A
1.7.2.4	IT power distribution systems		N/A
1.7.2.5	Operator access with a tool		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
1.2.7.6	Ozone		N/A
1.7.3	Short duty cycles	For continuous operation	N/A
1.7.4	Supply voltage adjustment	No adjustment	N/A
	Methods and means of adjustment; reference to installation instructions		N/A
1.7.5	Power outlets on the equipment		N/A
1.7.6	Fuse identification (marking, special fusing characteristics, cross-reference)		N/A
1.7.7	Wiring terminals	Not connected to the mains	N/A
1.7.7.1	Protective earthing and bonding terminals		N/A
1.7.7.2	Terminal for a.c. mains supply conductors		N/A
1.7.7.3	Terminals for d.c. mains supply conductors		N/A
1.7.8	Controls and indicators	No controls nor indicator	N/A
1.7.8.1	Identification, location and marking		N/A
1.7.8.2	Colours		N/A
1.7.8.3	Symbols according to IEC 60417		N/A
1.7.8.4	Markings using figures		N/A
1.7.9	Isolation of multiple power sources		N/A
1.7.10	Thermostats and other regulating devices		N/A
1.7.11	Durability		P
1.7.12	Removable parts		N/A
1.7.13	Replaceable batteries		N/A
	Language(s)		—
1.7.14	Equipment for restricted access locations.....		N/A
2	PROTECTION FROM HAZARDS		—
2.1	Protection from electric shock and energy hazards		—
2.1.1	Protection in operator access areas		P
2.1.1.1	Access to energized parts	No such parts	P
	Test by inspection		P
	Test with test finger (Figure 2A).....		N/A
	Test with test pin (Figure 2B).....		N/A
	Test with test probe (Figure 2C).....		N/A
2.1.1.2	Battery compartments	Not accessible to the operator	N/A
2.1.1.3	Access to ELV wiring	No wiring at ELV	N/A
	Working voltage (V _{peak} or V _{rms}); minimum distance (mm) through insulation		—
2.1.1.4	Access to hazardous voltage circuit wiring	Not present	N/A
2.1.1.5	Energy hazards		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
2.1.1.6	Manual controls		N/A
2.1.1.7	Discharge of capacitors in equipment		N/A
	Measured voltage (V); time-constant (s)		—
2.1.1.8	Energy hazards – d.c. mains supply		N/A
	a) Capacitor connected to the d.c. mains supply ..:		N/A
	b) Internal battery connected to the d.c. mains supply		N/A
2.1.1.9	Audio amplifiers	No audio	N/A
2.1.2	Protection in service access areas		P
2.1.3	Protection in restricted access locations		N/A
2.2	SELV circuits		—
2.2.1	General requirements	Class III equipment	P
2.2.2	Voltages under normal conditions (V)	4,2V $\overline{\text{---}}$ max	P
2.2.3	Voltages under fault conditions (V)	4,2V $\overline{\text{---}}$ max	P
2.2.4	Connection of SELV circuits to other circuits	SELV to SELV	P
2.3	TNV circuits		—
2.3.1	Limits		N/A
	Type of TNV circuits		—
2.3.2	Separation from other circuits and from accessible parts		N/A
2.3.2.1	General requirements		N/A
2.3.2.2	Protection by basic insulation		N/A
2.3.2.3	Protection by earthing		N/A
2.3.2.4	Protection by other constructions		N/A
2.3.3	Separation from hazardous voltages		N/A
	Insulation employed		—
2.3.4	Connection of TNV circuits to other circuits		N/A
	Insulation employed		—
2.3.5	Test for operating voltages generated externally		N/A
2.4	Limited current circuits		—
2.4.1	General requirements		N/A
2.4.2	Limit values		N/A
	Frequency (Hz).....		—
	Measured current (mA)		—
	Measured voltage (V)		—
	Measured capacitance (μ F)		—
2.4.3	Connection of limited current circuits to other circuits		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
2.5	Limited power sources		—
	a) Inherently limited output		N/A
	b) Impedance limited output		N/A
	c) Regulating network limited output under normal operating and single fault condition		N/A
	d) Overcurrent protective device limited output		N/A
	Max. output voltage (V), max. output current (A), max. apparent power (VA)		N/A
	Current rating of overcurrent protective device (A)		N/A
2.6	Provisions for earthing and bonding		—
2.6.1	Protective earthing	Not connected to the earth	N/A
2.6.2	Functional earthing		N/A
2.6.3	Protective earthing and protective bonding conductors		N/A
2.6.3.1	General		N/A
2.6.3.2	Size of protective earthing conductors		N/A
	Rated current (A), cross-sectional area (mm ²), AWG		—
2.6.3.3	Size of protective bonding conductors		N/A
	Rated current (A), cross-sectional area (mm ²), AWG		—
	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/A
2.6.3.5	Colour of insulation.....		N/A
2.6.4	Terminals		N/A
2.6.4.1	General		N/A
2.6.4.2	Protective earthing and bonding terminals		N/A
	Rated current (A), type and nominal thread diameter (mm)		—
2.6.4.3	Separation of the protective earthing conductor from protective bonding conductors		N/A
2.6.5	Integrity of protective earthing		N/A
2.6.5.1	Interconnection of equipment		N/A
2.6.5.2	Components in protective earthing conductors and protective bonding conductors		N/A
2.6.5.3	Disconnection of protective earth		N/A
2.6.5.4	Parts that can be removed by an operator		N/A
2.6.5.5	Parts removed during servicing		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
2.6.5.6	Corrosion resistance		N/A
2.6.5.7	Screws for protective bonding		N/A
2.6.5.8	Reliance on telecommunication network or cable distribution system		N/A
2.7	Overcurrent and earth fault protection in primary circuits		—
2.7.1	Basic requirements		N/A
	Instructions when protection relies on building installation		N/A
2.7.2	Void		—
2.7.3	Short-circuit backup protection		N/A
2.7.4	Number and location of protective devices		N/A
2.7.5	Protection by several devices		N/A
2.7.6	Warning to service personnel.....:		N/A
2.8	Safety interlocks		—
2.8.1	General principles	No safety interlocks required	N/A
2.8.2	Protection requirements		N/A
2.8.3	Inadvertent reactivation		N/A
2.8.4	Fail-safe operation		N/A
2.8.5	Moving parts		N/A
2.8.6	Overriding		N/A
2.8.7	Switches and relays		N/A
2.8.7.1	Contact gaps (mm)		N/A
2.8.7.2	Overload test		N/A
2.8.7.3	Endurance test		N/A
2.8.7.4	Electric strength test		N/A
2.8.8	Mechanical actuators		N/A
2.9	Electrical insulation		—
2.9.1	Properties of insulating materials	Eut, neither natural rubber, materials containing asbestos no hygroscopic material are used as insulation	P
2.9.2	Humidity conditioning	Regarding clause 2.9.1, 2.10.6.5 and 2.10.7 treatment humidity not necessary	N/A
	Relative humidity (%), temperature (°C)		—
2.9.3	Grade of insulation	Functional	P
2.9.4	Separation from hazardous voltages	No hazardous voltages	N/A
	Method(s) used		—

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Clause	Requirement – Test	Result – Remark	Verdict
2.10	Clearances, creepage distances and distances through insulation		—
2.10.1	General	For Functional insulation creepage and clearances distances smaller than those specified in clause 2.10 are permitted subject to the requirements of clause 5.3.4 c	P
2.10.1.1	Frequency		N/A
2.10.1.2	Pollution degrees	Pollution Degree 2	P
2.10.1.3	Reduced values for functional insulation	For functional insulation creepage distances and clearances smaller than those specified in clause 2.10.3, 2.10.4 and Annex G are permitted if subject to the requirements of clause 5.3.4 b) or 5.3.4 c). PCB flammability class V-0	P
2.10.1.4	Intervening unconnected conductive parts	Unconnected conductive parts not present	N/A
2.10.1.5	Insulation with varying dimensions		N/A
2.10.1.6	Special separation requirements		N/A
2.10.1.7	Insulation in circuits generating starting pulses		N/A
2.10.2	Determination of working voltage	4,2V $\sqrt{2}$ max	P
2.10.2.1	General		P
2.10.2.2	RMS working voltage		P
2.10.2.3	Peak working voltage		P
2.10.3	Clearances	See also clause 2.10.1	P
2.10.3.1	General		P
2.10.3.2	Mains transient voltages		—
	a) AC mains supply		N/A
	b) Earthed d.c. mains supplies		N/A
	c) Unearthed d.c. mains supplies		N/A
	d) Battery operation		N/A
2.10.3.3	Clearances in primary circuits	(see appended table 2.10.3 and 2.10.4)	N/A
2.10.3.4	Clearances in secondary circuits	requirements of clause 5.3.4 a)	P
2.10.3.5	Clearances in circuits having starting pulses	(see appended table 2.10.3 and 2.10.4)	N/A
2.10.3.6	Transients from a.c. mains supply		N/A
2.10.3.7	Transients from d.c. mains supply	See 2.10.3.2 d)	N/A
2.10.3.8	Transients from telecommunication networks and cable distribution systems		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
2.10.3.9	Measurement of transient voltage levels		N/A
	a) Transients from a mains supply		N/A
	For an a.c. mains supply		N/A
	For a d.c. mains supply		N/A
	b) Transients from a telecommunication network :		N/A
2.10.4	Creepage distances	see clause 2.10.1.3	P
2.10.4.1	General		P
2.10.4.2	Material group and comparative tracking index		P
	CTI tests	Material group IIIa 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		N/A
2.10.5.1	General		—
2.10.5.2	Distances through insulation		N/A
2.10.5.3	Insulating compound as solid insulation		N/A
2.10.5.4	Semiconductor devices		N/A
2.10.5.5.	Cemented joints	(see appended table 2.10.3 and 2.10.4)	N/A
2.10.5.6	Thin sheet material – General		N/A
2.10.5.7	Separable thin sheet material		N/A
	Number of layers (pcs)		—
2.10.5.8	Non-separable thin sheet material		N/A
2.10.5.9	Thin sheet material – standard test procedure		N/A
	Electric strength test	(see appended table 2.10.5)	—
2.10.5.10	Thin sheet material – alternative test procedure		N/A
	Electric strength test	(see appended table 2.10.5)	—
2.10.5.11	Insulation in wound components		N/A
2.10.5.12	Wire in wound components		N/A
	Working voltage		N/A
	a) Basic insulation not under stress		N/A
	b) Basic, supplementary, reinforced insulation		N/A
	c) Compliance with Annex U		N/A
	Two wires in contact inside wound component; angle between 45° and 90°		N/A
2.10.5.13	Wire with solvent-based enamel in wound components		N/A
	Electric strength test	(see appended table 2.10.5)	—

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Clause	Requirement – Test	Result – Remark	Verdict
	Routine test		N/A
2.10.5.14	Additional insulation in wound components		N/A
	Working voltage		N/A
	- Basic insulation not under stress		N/A
	- Supplementary, reinforced insulation		N/A
2.10.6	Construction of printed boards		P
2.10.6.1	Uncoated printed boards	(see appended table 2.10.3 and 2.10.4)	P
2.10.6.2	Coated printed boards	(see appended table 2.10.3 and 2.10.4)	N/A
2.10.6.3	Insulation between conductors on the same inner surface of a printed board	(see appended table 2.10.3 and 2.10.4)	N/A
2.10.6.4	Insulation between conductors on different layers of a printed board		P
	Distance through insulation	(see appended table 2.10.5)	N/A
	Number of insulation layers (pcs).....	1 (1,6 mm)	N/A
2.10.7	Component external terminations	(see appended table 2.10.3 and 2.10.4)	N/A
2.10.8	Tests on coated printed boards and coated components		N/A
2.10.8.1	Sample preparation and preliminary inspection		N/A
2.10.8.2	Thermal conditioning		N/A
2.10.8.3	Electric strength test	(see appended table 5.2)	N/A
2.10.8.4	Abrasion resistance test		N/A
2.10.9	Thermal cycling		N/A
2.10.10	Test for Pollution Degree 1 environment and insulating compound	Test not required	N/A
2.10.11	Tests for semiconductor devices and cemented joints		N/A
2.10.12	Enclosed and sealed parts		N/A
3	WIRING, CONNECTIONS AND SUPPLY		—
3.1	General		---
3.1.1	Current rating and overcurrent protection	Incoming wiring aren't connected to primary circuits	N/A
3.1.2	Protection against mechanical damage	No movements nor mechanical stresses during normal use	N/A
3.1.3	Securing of internal wiring		N/A
3.1.4	Insulation of conductors		N/A
3.1.5	Beads and ceramic insulators	Not used	N/A
3.1.6	Screws for electrical contact pressure		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
3.1.7	Insulating materials in electrical connections		N/A
3.1.8	Self-tapping and spaced thread screws	Not used, no metallic parts	N/A
3.1.9	Termination of conductors		N/A
	10 N pull test		N/A
3.1.10	Sleeving on wiring		N/A
3.2	Connection to an a.c. mains supply or a d.c. mains supply		—
3.2.1	Means of connection		N/A
3.2.1.1	Connection to an a.c. mains supply		N/A
3.2.1.2	Connection to a d.c. mains supply		N/A
3.2.2	Multiple supply connections		N/A
3.2.3	Permanently connected equipment		N/A
	Number of conductors, diameter (mm) of cable and conduits	Cable not provided	—
3.2.4	Appliance inlets		N/A
3.2.5	Power supply cords		N/A
3.2.5.1	AC power supply cords		N/A
	Type.....		—
	Rated current (A), cross-sectional area (mm ²), AWG		—
3.2.5.2	DC power supply cords		N/A
3.2.6	Cord anchorages and strain relief		N/A
	Mass of equipment (kg), pull (N)		—
	Longitudinal displacement (mm)		—
3.2.7	Protection against mechanical damage		N/A
3.2.8	Cord guards		N/A
	Diameter or minor dimension D (mm); test mass (g)		—
	Radius of curvature of cord (mm).....		—
3.2.9	Supply wiring space		N/A
3.3	Wiring terminals for connection of external conductors		—
3.3.1	Wiring terminals		N/A
3.3.2	Connection of non-detachable power supply cords		N/A
3.3.3	Screw terminals	Not connected to the mains	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)		---

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Clause	Requirement – Test	Result – Remark	Verdict
3.3.6	Wiring terminals design		N/A
3.3.7	Grouping of wiring terminals		N/A
3.3.8	Stranded wire		N/A
3.4	Disconnection from the mains supply		—
3.4.1	General requirement	Not connected to the mains	N/A
3.4.2	Disconnect devices		N/A
3.4.3	Permanently connected equipment		N/A
3.4.4	Parts which remain energized		N/A
3.4.5	Switches in flexible cords		N/A
3.4.6	Number of poles - single-phase and d.c. equipment		N/A
3.4.7	Number of poles - three-phase equipment		N/A
3.4.8	Switches as disconnect devices		N/A
3.4.9	Plugs as disconnect devices		N/A
3.4.10	Interconnected equipment		N/A
3.4.11	Multiple power sources		N/A
3.5	Interconnection of equipment		—
3.5.1	General requirements		P
3.5.2	Types of interconnection circuits..... :	SELV circuits only	P
3.5.3	ELV circuits as interconnection circuits		N/A
3.5.4	Data ports for additional equipment		P
4	PHYSICAL REQUIREMENTS		—
4.1	Stability		N/A
	Angle of 10°		N/A
	Test: force (N) :		N/A
4.2	Mechanical strength		—
4.2.1	General		P
4.2.2	Steady force test, 10 N	No hazard inside; for building in equipment	N/A
4.2.3	Steady force test, 30 N		N/A
4.2.4	Steady force test, 250 N		N/A
4.2.5	Impact test		N/A
	Fall test		N/A
	Swing test		N/A
4.2.6	Drop test; height (mm) :		N/A
4.2.7	Stress relief test	no hazardous parts inside, for building in equipment.	N/A
4.2.8	Cathode ray tubes	No CRT in the equipment	N/A

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Clause	Requirement – Test	Result – Remark	Verdict
	Picture tube separately certified		N/A
4.2.9	High pressure lamps		N/A
4.2.10	Wall or ceiling mounted equipment; force (N)		N/A
4.3	Design and construction		—
4.3.1	General		P
4.3.1	Edges and corners	for building in equipment	N/A
4.3.2	Handles and manual controls; force (N)..... :	Not present	N/A
4.3.3	Adjustable controls	Not present	N/A
4.3.4	Securing of parts		N/A
4.3.5	Connection of plugs and sockets		N/A
4.3.6	Direct plug-in equipment		N/A
	Torque		N/A
	Compliance with the relevant mains plug standard:		N/A
4.3.7	Heating elements in earthed equipment		N/A
4.3.8	Batteries		N/A
	- Overcharging of a rechargeable battery		N/A
	- Unintentional charging of a non-rechargeable battery		N/A
	- Reverse charging of a rechargeable battery		N/A
	- Excessive discharging rate for any battery		N/A
4.3.9	Oil and grease	No exposure to oil or grease	N/A
4.3.10	Dust, powders, liquids and gases	Not produced	N/A
4.3.11	Containers for liquids or gases	No liquids nor gases	N/A
4.3.12	Flammable liquids	No flammable liquids	N/A
	Quantity of liquid (l)		N/A
	Flash point (°C)		N/A
4.3.13	Radiation		N/A
4.3.13.1	General		N/A
4.3.13.2	Ionizing radiation	No ionizing 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 ultraviolet (UV) radiation	N/A
	Part, property, retention after test, flammability classification		N/A
4.3.13.4	Human exposure to ultraviolet (UV) radiation	No ultraviolet (UV) radiation	N/A

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Clause	Requirement – Test	Result – Remark	Verdict
4.3.13.5	Laser (including LEDs)		N/A
	Laser class		—
4.3.13.6	Other types		N/A
4.3.13.6 (A1:2010)	1999/519/EC: Council Recommendation on the limitation of exposure of the general public to electromagnetic fields 0 Hz to 300 GHz, and 2006/25/EC: Directive on the minimum health and safety requirements regarding the exposure of workers to risks arising from physical agents (artificial optical radiation).		N/A
	Standards taking into account mentioned Recommendation and Directive which demonstrate compliance with the applicable EU Directive are indicated in the OJEC.		N/A
4.4	Protection against hazardous moving parts		—
4.4.1	General	Not present	N/A
4.4.2	Protection in operator access areas		N/A
4.4.3	Protection in restricted access locations		N/A
4.4.4	Protection in service access areas		N/A
4.5	Thermal requirements		—
4.5.1	General	(see appended table 4.5)	P
4.5.2	Temperature tests	According to clause 1.4.12.3	P
	Normal load condition per Annex L	L.7	P
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	No hazardous voltage inside	N/A
4.6	Openings in enclosures		—
4.6.1	Top and side openings		N/A
	Dimensions (mm)		—
4.6.2	Bottoms of fire enclosures		N/A
	Construction of the bottom		N/A
4.6.3	Doors or covers in fire enclosures		N/A
4.6.4	Openings in transportable equipment	No transportable equipment	N/A
4.6.4.1	Constructional design measures		N/A
	Dimensions (mm)		—
4.6.4.2	Evaluation measures for larger openings		N/A
4.6.4.3	Use of metallized parts	Not used	N/A
4.6.5	Adhesives for constructional purposes		N/A
	Conditioning temperature (°C)/time (weeks)		—

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Clause	Requirement – Test	Result – Remark	Verdict
4.7	Resistance to fire		—
4.7.1	Reducing the risk of ignition and spread of flame		P
	Method 1, selection and application of components wiring and materials		P
	Method 2, application of all of simulated fault condition tests		N/A
4.7.2	Conditions for a fire enclosure		—
4.7.2.1	Parts requiring a fire enclosure		N/A
4.7.2.2	Parts not requiring a fire enclosure	Method 2 used	P
4.7.3	Materials		—
4.7.3.1	General		P
4.7.3.2	Materials for fire enclosures		N/A
4.7.3.3	Materials for components and other parts outside fire enclosures	For building in equipment	N/A
4.7.3.4	Materials for components and other parts inside fire enclosures		N/A
4.7.3.5	Materials for air filter assemblies	No air filter	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		—
5.1	Touch current and protective conductor current		—
5.1.1	General		N/A
5.1.2	Configuration of equipment under test (EUT)		N/A
5.1.2.1	Single connection to an a.c. mains supply		N/A
5.1.2.2	Redundant multiple connections to an a.c. mains supply		N/A
5.1.2.3	Simultaneous multiple connections to an a.c. mains supply		N/A
5.1.3	Test circuit	Fig. 5A	N/A
5.1.4	Application of measuring instrument		N/A
5.1.5	Test procedure		N/A
5.1.6	Test measurements		N/A
	Supply voltage (V)		—
	Measured touch current (mA)		—
	Max. allowed touch current (mA)		—
	Measured protective conductor current (mA)	-	—
	Max. allowed protective conductor current (mA)...	-	—
5.1.7	Equipment with touch current exceeding 3.5mA...		N/A
5.1.7.1	General		N/A
5.1.7.2	Simultaneous multiple connections to the supply		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
5.1.8	Touch currents to and from telecommunication networks and cable distribution systems and from telecommunication networks		N/A
5.1.8.1	Limitation of the touch current to a telecommunication network and a cable distribution system		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		N/A
	a) EUT with earthed telecommunication ports		N/A
	b) EUT whose telecommunication ports have no reference to protective earth		N/A
5.2	Electric strength		—
5.2.1	General		N/A
5.2.2	Test procedure	(see appended table 5.2)	N/A
5.3	Abnormal operating and fault conditions		—
5.3.1	Protection against overload and abnormal operation		P
5.3.2	Motors		N/A
5.3.3	Transformers		N/A
5.3.4	Functional insulation.....	Method c) used	P
5.3.5	Electromechanical components		N/A
5.3.6	Audio amplifiers in ITE		N/A
5.3.7	Simulation of faults	(see appended table 5.3)	P
5.3.8	Unattended equipment		P
5.3.9	Compliance criteria for abnormal operating and fault conditions		P
5.3.9.1	During the tests		P
5.3.9.2	After the tests		P
6	CONNECTION TO TELECOMMUNICATION NETWORKS		—
6.1	Protection of telecommunication network service persons, and users of other equipment connected to the network, from hazards in the equipment		---
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
	Supply voltage (V)		—
	Current in the test circuit (mA)		—
6.1.2.2	Exclusions		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
6.2	Protection of equipment users from overvoltages on telecommunication networks		—
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		—
	Max. output current (A).....:		—
	Current limiting method		—
7	CONNECTION TO CABLE DISTRIBUTION SYSTEMS		—
7.1	General		N/A
7.2	Protection of cable distribution system service persons, and users of other equipment connected to the system, from hazardous voltages in the equipment	No cable distribution system	N/A
7.3	Protection of equipment users from overvoltages on the cable distribution system		N/A
7.4	Insulation between primary circuits and cable distribution systems		N/A
7.4.1	General		N/A
7.4.2	Voltage surge test		N/A
7.4.3	Impulse test		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
A	ANNEX A, TESTS FOR RESISTANCE TO HEAT AND FIRE		—
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		—
	Wall thickness (mm)		—
A.1.2	Conditioning of samples; temperature (°C)		N/A
A.1.3	Mounting of samples		N/A
A.1.4	Test flame (see IEC 60695-11-3)		N/A
	Flame A, B, C or D		—
A.1.5	Test procedure		N/A
A. 1.6	Compliance criteria		N/A
	Sample 1 burning time (s)		—
	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.....		—
	Wall thickness (mm)		—
A.2.2	Conditioning of samples; temperature (°C)		N/A
A.2.3	Mounting of samples		N/A
A.2.4	Test flame (see IEC 60695-11-4)		N/A
	Flame A, B or C		—
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 and 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
A.3.3	Compliance criterion		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
B	ANNEX B, MOTOR TESTS UNDER ABNORMAL CONDITIONS (see 4.7.2.2 and 5.3.2)		—
B.1	General requirements	No motors	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.6.1	General		N/A
B.6.2	Test procedure		N/A
B.6.3	Alternative test procedure		N/A
B.6.4	Electric strength test; test voltage (V)		N/A
B. 7	Locked-rotor overload test for d.c. motors in secondary circuits		N/A
B.7.1	General		N/A
B. 7.2	Test procedure		N/A
B.7.3	Alternative test procedure		N/A
B.7.4	Electric strength test; test voltage (V)		N/A
B.8	Test for motors with capacitors	(see appended table 5.3)	N/A
B.9	Test for three-phase motors	(see appended table 5.3)	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)		—
	Position		—
	Manufacturer		—
	Type		—
	Rated values		—
	Method of protection.....		—
C.1	Overload test		—
C.2	Insulation		—
	Protection from displacement of windings		—

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Clause	Requirement – Test	Result – Remark	Verdict
D	ANNEX D, MEASURING INSTRUMENTS FOR TOUCH-CURRENT TESTS (see 5.1.4)		—
D.1	Measuring instrument		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		—
G.1	Clearances		N/A
G.1.1	General		N/A
G.1.2	Summary of the procedure for determining minimum clearances		N/A
G.2	Determination of mains transient voltage (V)		N/A
G.2.1	AC mains supply.....		N/A
G.2.2	Earthed d.c. mains supplies		N/A
G.2.3	Unearthed d.c. mains supplies		N/A
G.2.4	Battery operation		N/A
G.3	Determination of telecommunication network transient voltage (V)		N/A
G.4	Determination of required withstand voltage (V) ..		N/A
G.4.1	Mains transients and internal repetitive peaks		N/A
G.4.2	Transients from telecommunication networks		N/A
G.4.3	Combination of transients		N/A
G.4.4	Transients from cable distribution systems		N/A
G.5	Measurement of transient levels (V)		N/A
	a) Transients from a mains supply		N/A
	For an a.c. mains supply		N/A
	For a d.c. mains supply		N/A
	b) Transients from a telecommunication network		N/A
G.6	Determination of minimum clearances.....		N/A
H	ANNEX H, IONIZING RADIATION (see 4.3.13)	No radiations	N/A
J	ANNEX J, TABLE OF ELECTROCHEMICAL POTENTIALS (see 2.6.5.6)		—
	Metal used		N/A
K	ANNEX K, THERMAL CONTROLS (see 1.5.3 and 5.3.7)		—
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



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Clause	Requirement – Test	Result – Remark	Verdict
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)		—
L.1	Typewriters		N/A
L.2	Adding machines and cash registers		N/A
L.3	Erasers		N/A
L.4	Pencil sharpeners		N/A
L.5	Duplicators and copy machines		N/A
L.6	Motor-operated files		N/A
L.7	Other business equipment		P
M	ANNEX M, CRITERIA FOR TELEPHONE RINGING SIGNALS (see 2.3.1)		—
M.1	Introduction	No TNV signals	N/A
M.2	Method A		N/A
M.3	Method B		N/A
M.3.1	Ringling 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.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, Voltage dependent resistors (VDRs) (see 1.5.9.1)		N/A
	a) Preferred climatic categories		N/A
	b) Maximum continuous voltage		N/A
	c) Pulse current		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
R	ANNEX R, EXAMPLES OF REQUIREMENTS FOR QUALITY CONTROL PROGRAMMES		—
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)		
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)		—
			—
U	ANNEX U, INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION (see 2.10.5.4)		—
			N/A
V	ANNEX V, AC POWER DISTRIBUTION SYSTEMS (see 1.6.1)		—
V.1	Introduction		N/A
V.2	TN power distribution systems		—
W	ANNEX W, SUMMATION OF TOUCH CURRENTS		—
W.1	Touch current from electronic circuits		—
W.1.1	Floating circuits		N/A
W.1.2	Earthed circuits		N/A
W.2	Interconnection of several equipments		—
W.2.1	Isolation		—
W.2.2	Common return, isolated from earth		—
W.2.3	Common return, connected to protective earth		—
X	ANNEX X, MAXIMUM HEATING EFFECT IN TRANSFORMER TESTS (see clause C.1)		—
X.1	Determination of maximum input current		—
X.2	Overload test procedure		—
Y	ANNEX Y, ULTRAVIOLET LIGHT CONDITIONING TEST (see 4.3.13.3)		—
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		—
ZB	SPECIAL NATIONAL CONDITIONS		

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Clause	Requirement – Test	Result – Remark	Verdict
1.2.4.1	In Denmark , certain types of Class I appliances (see 3.2.1.1) may be provided with a plug not establishing earthing conditions when inserted into Danish socket-outlets.		N/A
1.2.13.14	In Norway and Sweden , for requirements see 1.7.2.1 and 7.3 of this annex.		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 1.5.7.1. In addition when a single resistor is used, the resistor must withstand the resistor test in 1.5.7.2.		N/A
1.5.8	In Norway , due to the IT power system used (see annex V, Figure V.7), capacitors are required to be rated for the applicable line-to-line voltage (230 V).		N/A
1.5.9.4	In Finland, Norway and Sweden , the third dashed sentence is applicable only to equipment as defined in 6.1.2.2 of this annex.		N/A
1.7.2.1	<p>In Finland, Norway and Sweden, CLASS I PLUGGABLE EQUIPMENT TYPE A intended for connection to other equipment or a network shall, if safety relies on connection to protective earth or if surge suppressors are connected between the network terminals and accessible parts, have a marking stating that the equipment must be connected to an earthed mains socket-outlet.</p> <p>The marking text in the applicable countries shall be as follows:</p> <p>In Finland: "Laite on liitettävä suojamaadoituskoskettimilla varustettuun pistorasiaan"</p> <p>In Norway: "Apparatet må tilkoples jordet stikkontakt"</p> <p>In Sweden: "Apparaten skall anslutas till jordat uttag"</p> <p>In Norway and Sweden, the screen of the cable distribution system is normally not earthed at the entrance of the building and there is normally no equipotential bonding system within the building. Therefore the protective earthing of the building installation need to be isolated from the screen of a cable distribution system.</p> <p>It is however accepted to provide the insulation external to the equipment by an adaptor or an interconnection cable with galvanic isolator, which may be provided by e.g. a retailer.</p> <p>The user manual shall then have the following or similar information in Norwegian and Swedish language respectively, depending on in what country the equipment is intended to be used in:</p> <p>"Equipment connected to the protective earthing of the building installation through the mains connection or through other equipment with a connection to protective earthing – and to a cable distribution system using coaxial cable, may in some circumstances create a fire hazard. Connection to a cable distribution system has therefore to be provided through a device providing electrical isolation below a certain frequency range (galvanic isolator, see EN 60728-11)."</p> <p>NOTE In Norway, due to regulation for installations of cable distribution systems, and in Sweden, a galvanic isolator shall provide electrical insulation below 5 MHz. The insulation shall withstand a dielectric strength of 1,5 kV r.m.s., 50 Hz or 60 Hz, for 1 min.</p> <p>Translation to Norwegian (the Swedish text will also be accepted in Norway):</p> <p>"Utstyr som er koplet til beskyttelsesjord via nettplugg og/eller via annet jordtilkoplet utstyr – og er tilkoplet et kabel-TV nett, kan forårsake brannfare. For å unngå dette skal det ved tilkopling av utstyret til kabel-TV nettet installeres en galvanisk isolator mellom utstyret og kabel- TV nettet."</p> <p>Translation to Swedish:</p> <p>"Utrustning som är kopplad till skyddsjord via jordat vägguttag och/eller via annan utrustning och samtidigt är kopplad till kabel-TV nät kan i vissa fall medföra risk för brand. För att undvika detta skall vid anslutning av utrustningen till kabel-TV nät galvanisk isolator finnas mellan utrustningen och kabel-TV nätet."</p>		N/A
1.7.5	<p>In Denmark, socket-outlets for providing power to other equipment shall be in accordance with the Heavy Current Regulations, Section 107-2-D1, Standard Sheet DK 1-3a, DK 1-5a or DK 1-7a, when used on Class I equipment. For STATIONARY EQUIPMENT the socket-outlet shall be in accordance with Standard Sheet DK 1-1b or DK 1-5a.</p> <p>For class ii equipment the socket outlet shall be in accordance with Standard Sheet DKA 1-4a.</p>		N/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


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Clause	Requirement – Test	Result – Remark	Verdict																								
2.3.4	In Norway, for requirements see 1.7.2.1, 6.1.2.1 and 6.1.2.2 of this annex.		N/A																								
2.6.3.3	In the United Kingdom, the current rating of the circuit shall be taken as 13 A, not 16 A.		N/A																								
2.7.1	In the United Kingdom, to protect against excessive currents and short-circuits in the PRIMARY CIRCUIT of DIRECT PLUG-IN EQUIPMENT, tests according to 5.3 shall be conducted, using an external protective device rated 30 A or 32 A. If these tests fail, suitable protective devices shall be included as integral parts of the DIRECT PLUG-IN EQUIPMENT, so that the requirements of 5.3 are met.		N/A																								
2.10.5.13	In Finland, Norway and Sweden, there are additional requirements for the insulation, see 6.1.2.1 and 6.1.2.2 of this annex.		N/A																								
3.2.1.1	<p>In Switzerland, supply cords of equipment having a RATED CURRENT not exceeding 10 A shall be provided with a plug complying with SEV 1011 or IEC 60884-1 and one of the following dimension sheets:</p> <table border="0"> <tr> <td>SEV 6532-2.1991</td><td>Plug Type 15</td><td>3P+N+PE</td><td>250/400 V, 10 A</td></tr> <tr> <td>SEV 6533-2.1991</td><td>Plug Type 11</td><td>L+N</td><td>250 V, 10 A</td></tr> <tr> <td>SEV 6534-2.1991</td><td>Plug Type 12</td><td>L+N+PE</td><td>250 V, 10 A</td></tr> </table> <p>In general, EN 60309 applies for plugs for currents exceeding 10 A. However, a 16 A plug and socket-outlet system is being introduced in Switzerland, the plugs of which are according to the following dimension sheets, published in February 1998:</p> <table border="0"> <tr> <td>SEV 5932-2.1998</td><td>Plug Type 25</td><td>3L+N+PE</td><td>230/400 V, 16 A</td></tr> <tr> <td>SEV 5933-2.1998</td><td>Plug Type 21</td><td>L+N</td><td>250 V, 16 A</td></tr> <tr> <td>SEV 5934-2.1998</td><td>Plug Type 23</td><td>L+N+PE</td><td>250 V, 16 A</td></tr> </table>	SEV 6532-2.1991	Plug Type 15	3P+N+PE	250/400 V, 10 A	SEV 6533-2.1991	Plug Type 11	L+N	250 V, 10 A	SEV 6534-2.1991	Plug Type 12	L+N+PE	250 V, 10 A	SEV 5932-2.1998	Plug Type 25	3L+N+PE	230/400 V, 16 A	SEV 5933-2.1998	Plug Type 21	L+N	250 V, 16 A	SEV 5934-2.1998	Plug Type 23	L+N+PE	250 V, 16 A		N/A
SEV 6532-2.1991	Plug Type 15	3P+N+PE	250/400 V, 10 A																								
SEV 6533-2.1991	Plug Type 11	L+N	250 V, 10 A																								
SEV 6534-2.1991	Plug Type 12	L+N+PE	250 V, 10 A																								
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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																								
3.2.1.1	<p>In Denmark, supply cords of single-phase equipment having a rated current not exceeding 13 A shall be provided with a plug according to the Heavy Current Regulations, Section 107-2-D1. 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.</p>		N/A																								
3.2.1.1	<p>In Spain, supply cords of single-phase equipment having a rated current not exceeding 10 A shall be provided with a plug according to UNE 20315:1994. 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.</p>		N/A																								
3.2.1.1	<p>In the United Kingdom, apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS 1363 by means of that flexible cable or cord and plug, shall be fitted with a 'standard plug' in accordance with Statutory Instrument 1768:1994 - The Plugs and Sockets 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.</p>		N/A																								
3.2.1.1	<p>In Ireland, apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to I.S. 411 by means of that flexible cable or cord and plug, shall be fitted with a 13 A plug in accordance with Statutory Instrument 525:1997 - National Standards Authority of Ireland (section 28) (13 A Plugs and Conversion Adaptors for Domestic Use) Regulations 1997.</p>		N/A																								
3.2.4	In Switzerland , for requirements see 3.2.1.1 of this annex.		N/A																								
3.2.5.1	In the United Kingdom , a power supply cord with conductor of 1,25 mm ² is allowed for equipment with a rated current over 10 A and up to and including 13 A.		N/A																								

EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
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
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
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 P the electric strength test below, or - one layer having a distance through insulation of at least 0,4 mm, which shall P 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 Pes the electric strength test in accordance with the compliance clause below and in addition - Pes 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 EN 60950-1:2006, 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

EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
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
7.3	In Norway and Sweden , for requirements see 1.2.13.14 and 1.7.2.1 of this annex.		N/A
7.3	In Norway , for installation conditions see EN 60728-11:2005.		N/A
ZC	A-DEVIATIONS (informative)		
1.5.1	Sweden (Ordinance 1990:944) Add the following: NOTE In Sweden, switches containing mercury are not permitted.		delete
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: <div style="text-align: center;"> Vigtigt! Lederen med grøn/gul isolation må kun tilsluttes en klemme mærket  eller  </div> 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."		delete
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.		delete
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.		—

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.		delete
ZC	A-DEVIATIONS (informative)		
	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: <ul style="list-style-type: none"> • is designed to allow the user to listen to recorded or broadcast sound or video; and • primarily uses headphones or earphones that can be worn in or on or around the ears; and • allows the user to walk around while in use. 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.		N/A
	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: <ul style="list-style-type: none"> • while the personal music player is connected to an external amplifier; or • while the headphones or earphones are not used. 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: <ul style="list-style-type: none"> • 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		N/A

EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
	<p>because this technology is falling out of use and it is expected that within a few years it will no longer exist. This exemption will not be extended to other technologies.</p> <p>For equipment which is clearly designed or intended for use by young children, the limits of EN 71-1 apply.</p>		
	<p>Zx.2 Equipment requirements</p> <p>No safety provision is required for equipment that complies with the following:</p> <ul style="list-style-type: none"> • equipment provided as a package (personal music player with its listening device), where the acoustic output $L_{Aeq,T}$ is ≤ 85 dBA measured while playing the fixed “programme simulation noise” as described in EN 50332-1; and • <input type="checkbox"/> a personal music player provided with an analogue electrical output socket for a listening device, where the electrical output is ≤ 27 mV measured as described in EN 50332-2, while playing the fixed “programme simulation noise” as described in EN 50332-1. <p>NOTE 1 Wherever the term acoustic output is used in this clause, the 30 s A-weighted equivalent sound pressure level $L_{Aeq,T}$ is meant. See also Zx.5 and Annex Zx.</p> <p>All other equipment shall:</p> <p>a) protect the user from unintentional acoustic outputs exceeding those mentioned above; and</p> <p>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</p>		N/A
	<p>c) provide a means to actively inform the user of the increased sound pressure when the equipment is operated with an acoustic output exceeding those mentioned above. Any means used shall be acknowledged by the user before activating a mode of operation which allows for an acoustic output exceeding those mentioned above. The acknowledgement does not need to be repeated more than once every 20 h of cumulative listening time; and</p> <p>NOTE 2 Examples of means include visual or audible signals. Action from the user is always required.</p> <p>NOTE 3 The 20 h listening time is the accumulative listening time, independent how often and how long the personal music player has been switched off.</p> <p>d) have a warning as specified in Zx.3; and</p>		N/A

EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
	<p>e) not exceed the following:</p> <p>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</p> <p>2) a personal music player provided with an analogue electrical output socket for a listening device, the electrical output shall be ≤ 150 mV measured as described in EN 50332-2, while playing the fixed “programme simulation noise” described in EN 50332-1.</p> <p>For music where the average sound pressure (long term LAeq,T) measured over the duration of the song is lower than the average produced by the programme simulation noise, the warning does not need to be given as long as the average sound pressure of the song is below the basic limit of 85 dBA. In this case T becomes the duration of the song.</p> <p>NOTE 4 Classical music typically has an average sound pressure (long term LAeq,T) which is much lower than the average programme simulation noise. Therefore, if the player is capable to analyse the song and compare it with the programme simulation noise, the warning does not need to be given as long as the average sound pressure of the song is below the basic limit of 85 dBA.</p> <p>For example, if the player is set with the programme simulation noise to 85 dBA, but the average music level of the song is only 65 dBA, there is no need to give a warning or ask an acknowledgement as long as the average sound level of the song is not above the basic limit of 85 dBA.</p>		
	<p>Zx.3 Warning</p> <p>The warning shall be placed on the equipment, or on the packaging, or in the instruction manual and shall consist of the following:</p> <ul style="list-style-type: none"> the symbol of Figure 1 with a minimum height of 5mm; and the following wording, or similar: “To prevent possible hearing damage, do not listen at high volume levels for long periods.” 		N/A

EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
	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.		
	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 LAeq,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
	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 LAeq,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: <ul style="list-style-type: none"> • with any playing and transmitting device playing the fixed programme simulation noise described in EN 50332-1; and • respecting the wireless transmission standards, where an air interface standard exists that specifies the equivalent acoustic level; and • with volume and sound settings in the listening device (for example built-in volume level control, additional sound feature like equalization, etc.) set to the combination of positions that maximize the measured acoustic output for the abovementioned programme simulation noise, the acoustic output LAeq,T of the listening device shall be ≤ 100 dBA. NOTE An example of a wireless listening device is		N/A

EN 60950-1			
Clause	Requirement – Test	Result – Remark	Verdict
	a Bluetooth headphone.		
	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
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

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	Interchangeable	KW-15/17	FR4, 1.6mm, V-0, DS	UL94	CE	
1) An asterisk indicates a mark which assures the agreed level of surveillance						

1.6.2	TABLE: Electrical data (in normal conditions):					N/A
U (V)	I (mA)	I rated (A)	P (W)	Fuse #	I fuse (A)	Condition/status
Supplementary information: Not connected to the mains						

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)	
Functional:							
on pcb	4.2	4.2		(1)		(1)	
Basic/supplementary:							
-							
Reinforced:							
-							
Supplementary information:							
(1) For functional insulation cl. 5.3.4 c) used							

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

4.3.8	TABLE: Batteries								N/A
The tests of 4.3.8 are applicable only when appropriate battery data is not available						Not available		-	
Is it possible to install the battery in a reverse polarity position?						No		-	
	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.
	65mA	225mA	N/A	N/A	N/A	N/A	N/A	N/A	-
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)	3.3				—	
	Ambient T _{amb} (°C)	25				—	
	Ambient T _{max} (°C)		25			—	
Maximum measured temperature T of part/at::		T (°C)				Allowed T _{max} (°C) (*)	
		T _m	T	T _m	T		
PCB		(1)				130	
Supplementary information:							
According to clause 1.4.12, measured temperature has been reported to the T _{max} : T= T_m-T_{amb}+T_{max}.							
Supplementary information:							
(1) No relevant rise in temperature has been recorded.							
Temperature T of winding:	t ₁ (°C)	R ₁ (Ω)	t ₂ (°C)	R ₂ (Ω)	T (°C)	Allowed T _{max} (°C)	Insulation class

4.5.5	TABLE: Ball pressure test of thermoplastic parts					N/A
	Allowed impression diameter (mm) :				2mm	—
Part					Test temperature (°C)	Impression diameter (mm)
Supplementary information:						

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

5.2	TABLE: Electric strength tests, impulse tests and voltage surge tests				P
Test voltage applied between:			Voltage shape (AC, DC, impulse, surge)	Test voltage (V)	Breakdown Yes / No
<i>Functional:</i>					
-					
<i>Basic/supplementary:</i>					
-					
<i>Reinforced:</i>					
-					
<i>Supplementary information:</i>					
Functional insulation: clause 5.3.4 c) applied					

Tab. C.1	TABLE: Transformer overload temperatures				N/A
	supply voltage				—
	ambient temperature °C				—
	test condition				—
Measuring location		measured temperature (°C)		max allowed temperature	remarks
Tab. E		Temperature rise of a winding			N/A
Delta T= (R2-R1)/R1			t1 = °C		t2 = °C
	R1 Ohm	R2 Ohm	Delta T °C	Required °C	Insulation class

5.3	TABLE: Fault condition tests					P
	Ambient temperature (°C)				25	—
	Power source for EUT: Manufacturer, model/type, output rating				3.3V $\overline{=}$	—
Component No.	Fault	Supply voltage (V)	Test time	Fuse #	Fuse current (A)	Observation
SMD components mounted on class V-0 boards	Any	3.3	-	-	-	No hazard, no risk of fire. Comply with the requirements of 4.7.3.1 (where is not practical to protect components against overheating under fault conditions, the components shall be mounted on material of Class V-1(Class V0 used) and such components shall be separated from material of a class lower than V-1 by at least 13mm of air).
Creepage distances for functional insulation on pcb	s.c.	3.3	60s	-	-	No hazard, no risk of fire. Comply with the requirements of 5.3.4.C.1 (Class V1 PCB required ; Class V0 used).
Clearance distances for functional insulation on pcb	s.c.	3.3	60s	-	-	No hazard, no risk of fire. Comply with the requirements of 5.3.4.C.1 (Class V1 PCB required ; Class V0 used).
Supplementary information:						

TESTING AND MEASURING EQUIPMENT

Cl.	Measurement / testing	item	Manufacturer	Model	serial number	PRS rif.	Used
1.6.2	Power input	SINGLE-PHASE DIGITAL WATTMETER	YOKOGAWA	WT210	91J710823	SAF.257	
		THREE-PHASE DIGITAL WATTMETER	YOKOGAWA	WT130	12B115654	SAF.193	
		SINGLE-PHASE DIGITAL WATTMETER	YOKOGAWA	WT110	27BV0607 F	SAF.188	
		SINGLE PHASE VARIABLE AUTOTRANSFORMER	BELOTTI VARIATORI	V 20NC/2	244301/302	SAF.086	
		SINGLE PHASE VARIABLE AUTOTRANSFORMER	BELOTTI VARIATORI	T 70NC/3	244303/305	SAF.088	
		DIGITAL MULTIMETER	FLUKE	287	96270113	SAF.253	X
1.4.12.1	Ambient temperature, humidity	TEMPERATURE RECORDER+ HUMIDITY PROBE	LOGIKA CONTROL/ELIWELL	CRS-1/EWHS	2011 19 00089/530000	SAF.286	X
2.9.2	Humidity preconditioning treatment	CLIMATIC CHAMBER	ANGELANTONI	HYGROS 1200	6327	SAF.076	
		HUMIDITY TEST CHAMBER	CRIOCABIN	GENESIS	-	SF.084	
		Iserver Temperature/humidity recorder	OMEGA	ITHX-SD	17150241	SAF.356	
2.1.1.1	Accessible parts	DIGITAL DYNANOMETER	SALTEC	500 N	9695	SAF.168	
		ARTICULATE TEST FINGER	A.T.S. GALBUSERA	01.01	—	SAF.001	
		RIGID TEST FINGER	A.T.S. GALBUSERA	N.01.02	0024/97	SAF.003	
1.7.1	Legibility of markings	LUXMETRO	RS	180-7133	L874466	SAF.167	X
1.7.11	Durability of markings	Distilled water	varius	-	-	-	X
		ethanol	ATS FARR	Cod. 9414812	-	-	X
		isopropyl alcohol	ATS FARR	Cod. 93099504	-	-	
		Timer	PROTOUCH	-	S70960006954 5	SAF.306	X
2.2	Accessible parts	Oscilloscope	TEKTRONIX	DPO2024B+FR EE DPO2BND	C031436	SAF.355	
		High voltage probe	TEKTRONIX	PHV 641 L	-	-	
		RLC meter	FLUKE	PM 6304	LO762002	SAF.325	
		Test pin	A.T.S. GALBUSERA	01.03	169/99	SAF.011	
		DIGITAL DYNANOMETER	SALTEC	500 N	9695	SAF.168	
2.4	Limitations voltage and energy	Oscilloscope	TEKTRONIX	DPO2024B+FR EE DPO2BND	C031436	SAF.355	
		RLC meter	FLUKE	PM 6304	LO762002	SAF.325	
2.5	Impedance and current-carrying capability	CE MULTITESTER	ELDES ELETTRONICA DESSY	ELD 9900	0697027	SAF.099	
5.1.6	Leakage currents	Line Leakage Tester 40A	ASSOCIATED RESEARCH	620L	9610437	SAF.357	
		Isolation transformer	OHMICRON	TT262	-	-	
		THREE PHASE VARIABLE AUTOTRANSFORMER	BELOTTI VARIATORI	T 70NC/3	244303/305	SAF.088	

Cl.	Measurement / testing	item	Manufacturer	Model	serial number	PRS rif.	Used
		SINGLE PHASE VARIABLE AUTOTRANSFORMER	BELOTTI VARIATORI	V 20NC/2	244301/302	SAF.086	
5.2	Dielectric strength	CE MULTITESTER	ELDES ELETTRONICA DESSY	ELD 9900	0697027	SAF.099	
4.5.5	Ball pressure test	BALL PRESSURE TEST	A.T.S. GALBUSERA	-	0030/97	SAF.009	
		OVEN	ARIETE	-	-	SAF.080	
2.10.3 2.10.4	Creepage distances and air clearances	Oscilloscope	TEKTRONIX	DPO2024B+FR EE DPO2BND	C031436	SAF.355	
		EYEGLOSS	SCALE LOUPE	M-1210	ASL12-2	SAF.170	
		Digital caliper	MITUTOYO CORPORATION	500-181U/CD-15CP	282113	SAF.140	
		Digital micrometer	MITUTOYO CORPORATION	293-561-30	9053255	SAF.141	
		spacing gauges	FACOM	804.AM	-	SAF.104	
		DIGITAL DYNANOMETER	SALTEC	500 N	9695	SAF.168	
		ARTICULATE TEST FINGER	A.T.S. GALBUSERA	01.01	—	SAF.001	
2.10.4.2	Material groups classification	TRACKING TEST	A.T.S. GALBUSERA	02-10	001947/97	SAF.018	
2.10.9	Thermal cycling	DRAUGHT-PROF-CHAMBRE	PRS	-	-	SAF.302	
3.2.6	Cord anchorage	DIGITAL DYNANOMETER	SALTEC	500 N	9695	SAF.168	
		CABLE TRACTION TESTS EQUIPMENT	A.T.S. GALBUSERA	05-08	001752/97	SAF.020	
		MASS FOR 10 N TRACTION TEST ON CABLE	A.T.S. GALBUSERA	—	009	SAF.052	
		MASS FOR 10N TRACTION TEST ON CABLE	A.T.S. GALBUSERA	—	010	SAF.059	
		MASS FOR 20 N TRACTION TEST ON CABLE	A.T.S. GALBUSERA	—	011	SAF.054	
		MASS FOR 40 N TRACTION TEST ON CABLE	A.T.S. GALBUSERA	—	012	SAF.055	
		CABLE TORQUE TEST EQUIPMENT	A.T.S. GALBUSERA	05-10	001753/97	SAF.021	
		DYNAMOMETRIC SCREWDRIVER-CABLE-TWIST	BETA UTENSILI	580/5F	7CV013557	SAF.093	
3.2.8	Cord guards	CABLE FLEXING TEST EQUIPMENT	A.T.S. GALBUSERA	20-09-A	001928/99	SAF.056	
		GONIOMETER	GONIOLEVEL	33226	-	SAF.279	
		CABLE TRACTION TESTS EQUIPMENT	A.T.S. GALBUSERA	05-08	001752/97	SAF.020	

Cl.	Measurement / testing	item	Manufacturer	Model	serial number	PRS rif.	Used
		MASS FOR 10 N TRACTION TEST ON CABLE	A.T.S. GALBUSERA	—	009	SAF.052	
		MASS FOR 10N TRACTION TEST ON CABLE	A.T.S. GALBUSERA	—	010	SAF.059	
		MASS FOR 20 N TRACTION TEST ON CABLE	A.T.S. GALBUSERA	—	011	SAF.054	
		MASS FOR 40 N TRACTION TEST ON CABLE	A.T.S. GALBUSERA	—	012	SAF.055	
4.1	Instability hazards	STABILITY TEST EQUIPMENT	A.T.S. GALBUSERA	02.12	00-1922/99	SAF.048	
		GONIOMETER	GONIOLEVEL	33226	-	SAF.279	
		DIGITAL DYNANOMETER	SALTEC	500 N	9695	SAF.168	
1.7.2.1 (A12.201 1)	Audible acoustic energy	Sound level meter	DELTA OHM	HD9019K1	2606976510	SAF.097	
4.5	Excessive temperatures	Draught-proof enclosure (25°C)	HEATING ROOM	PRS	—	SAF.302	X
		TEMPERATURE RECORDER	YOKOGAWA	DR 130	47JE0365	SAF.190	X
		THERMOCOUPLE "K TYPE"	TERSID	K/K-28-KK	-		X
		VOLTAGE EQUILIZER	SHANDY	RTG 30	030242	SAF.174	
		SINGLE PHASE VARIABLE AUTOTRANSFORMER	BELOTTI VARIATORI	V 20NC/2	244301/302	SAF.086	
		THREE PHASE VARIABLE AUTOTRANSFORMER	BELOTTI VARIATORI	T 70NC/3	244303/305	SAF.088	
		SINGLE-PHASE DIGITAL WATTMETER	YOKOGAWA	WT210	91J710823	SAF.257	
		SINGLE-PHASE DIGITAL WATTMETER	YOKOGAWA	WT110	27BV0607 F	SAF.188	
		THREE-PHASE DIGITAL WATTMETER	YOKOGAWA	WT130	12B115654	SAF.193	
		MICROHMMETER	AOIP	OM 21	515273G7	SAF.078	
		TEST CORNER 40x40x40cm	PRS	-	-	-	
		Timer	PROTOUCH	-	S70960006954 5	SAF.306	
		CE MULTITESTER	ELDES ELETTRONICA DESSY	ELD 9900	0697027	SAF.099	
4.3.10	Spillage	graduated cylinder	PRS	-	-	-	
		ELECTRONIC SCALE	DINI ARGEO	KD/TRS+TMN30	27246+27184	SAF.273	
1.1.2	Ingress of water or particulate matter	see IEC 60529 list	See separate list	-	-	-	
2.10.8.1	Cleaning and disinfection	see above	-	-	-	-	

Cl.	Measurement / testing	item	Manufacturer	Model	serial number	PRS rif.	Used
5.3	Hazardous situations and fault conditions	See above	-	-	-	-	
4.2	Mechanical strength	DIGITAL DYNANOMETER	SALTEC	500 N	9695	SAF.168	
		circular plane surface	ATS GALBUSERA	-	-	-	
		STEEL SPHERE	SKF	V	-	-	
		40 mm step	PRS	-	-	-	
		hardwood board	PRS	-	-	-	
		hardwood doorframe (40 mm)	PRS	-	-	-	
		OVEN	HERAEUS	UT 6200 ST.	97105114	SAF.077	
2.8.8	Actuating parts of controls	DIGITAL DYNANOMETER	SALTEC	500 N	9695	SAF.168	
		Spanner	TORQUE WRENCH	HAZET-WERK	6280-1CT/6260420018	SAF.124	
		Spanner	TORQUE WRENCH	TOHNICHI	900QL-N	SAF.266	
		Spanner	TORQUE WRENCH	HAZET-WERK	6291-1CT/6260420002	SAF.125	
		Timer	PROTOUCH	-	S709600069545	SAF.306	
3.2.8	Cord-connected hand-held and foot-operated control devices	DIGITAL DYNANOMETER	SALTEC	500 N	9695	SAF.168	
		30 mm diameter test tool	ATS GALBUSERA	-	-	-	
		Timer	PROTOUCH	-	S709600069545	SAF.306	
5.3.3	Transformers	MICROHMMETER	AOIP	OM 21	515273G7	SAF.078	
		TEMPERATURE RECORDER	YOKOGAWA	DR 130	47JE0365	SAF.190	
		TEMPERATURE RECORDER	YOKOGAWA	DR 130	47JE0366	SAF.191	
		Thermocouples	THERMOCOUPLE "K TYPE"	TERSID	K/K-28-KK	SAF.191	
		DIGITAL MULTIMETER	FLUKE	287	96270113	SAF.253	X
		Resistive load	various	-	-	-	

TEST	EXTENDED UNCERTAINTY Coverage factor (K=2) normal distribution – confidence level 95%
Input power	3,6 W
Residual energy (voltage)	0,712 V
Residual energy (charge)	0,063 μ F
Mechanical resistance (enclosure - hammer)	1,612 N
Mechanical resistance (enclosure - sphere)	6,13 g
Mechanical resistance (cable anchorage)	24,02 μ m
Mechanical resistance (stability)	2,008 °
Leakage current	4,4 μ A
Dielectric strength (ac)	0,071 kV
Dielectric strength (dc)	0,079 kV
Resistance to heat (ball pressure)	0,175 mm
Resistance to heat (oven)	1,948 °C
Resistance to fire	9,577 °C
Clearances, creepage distances (monocle)	7,69 μ m
Clearances, creepage distances (gauge meter)	33,3 μ m
Clearances, creepage distances (micrometer)	8,48 μ m
Heating (thermocouple)	1,769 °C
Heating (resistance)	0,985 m Ω

FIGURE 1 -

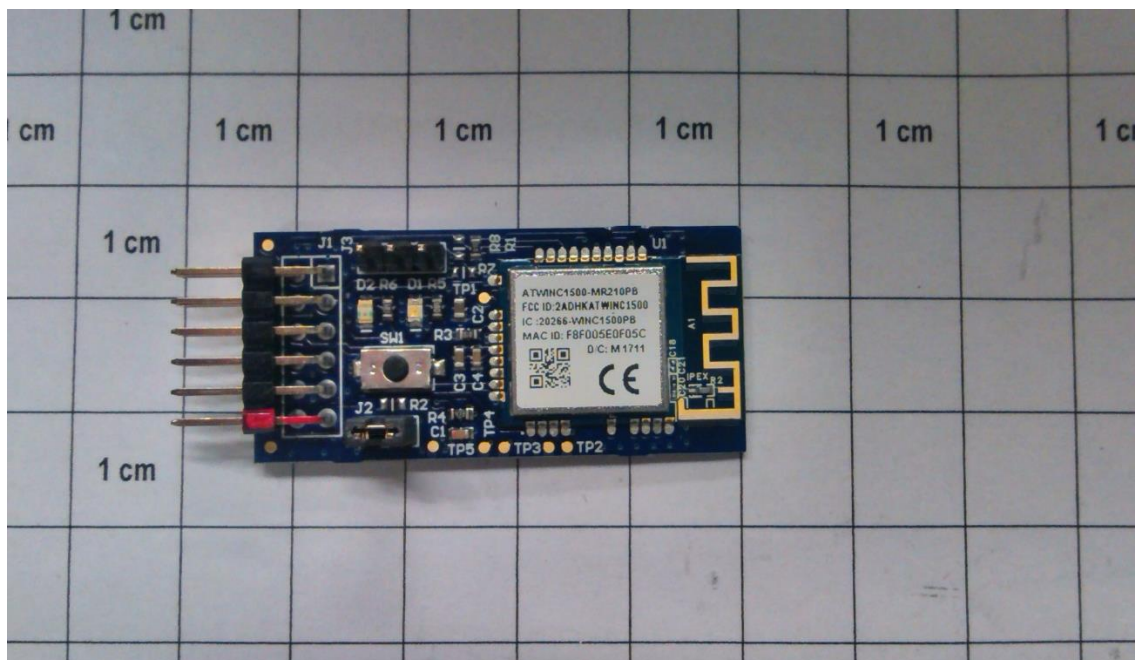


FIGURE 2 -

