

CETECOM ICT Services GmbH

Untertürkheimerstr. 6-10
D-66117 Saarbrücken
Phone : +49 (0)681 598 - 0 / Fax: - 9075
Laboratory for Product Safety
Phone : +49 (0)681 598 - 8513



Accredited testing laboratory



Deutsche
Akkreditierungsstelle
D-PL-12076-01-01

TEST REPORT	
IEC 60950-1: 2005 (2nd Edition)/A1:2009 and EN 60950-1: 2006/A11:2009/A1:2010/A12: 2011 Information technology equipment – Safety – Part 1: General requirements	
Report Reference No.	1-5812/13-01-02
Test Item	EA-GSM-Interface (Nano)
Test result	The test item passed!
Remark: This test report is electronically signed and valid without handwriting signature. For verification of the electronic signatures, the public keys can be requested at the testing laboratory.	
Tested by (printed name and signature)	Sébastien Scheidler
Approved by (printed name and signature)	Jürgen Sanetra
Date of issue	31.01.2013
Testing Laboratory	CETECOM ICT Services GmbH
Address	Untertürkheimerstr. 6-10 D-66117 Saarbrücken
Applicant's name	Leitronic AG
Address	Engelostr. 16 5621 Zufikon Switzerland
Manufacturer's name	Same as applicant
Address	
Test specification:	
Standard	<input checked="" type="checkbox"/> IEC 60950-1:2005 (2. Edition)/A1:2009 and <input checked="" type="checkbox"/> EN 60950-1:2006/A11:2009/A1:2010/A12:2011
Test procedure	CE, AA WC 34
Non-standard test method	N/A



Test Report Form No.	Modified IEC60950_1B
Test Report Form(s) Originator.....	SGS Fimko Ltd, modified by CETECOM
Master TRF	Dated 2010-04
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Test item description	GSM Gateway
Trade Mark.....	Leitronic
Manufacturer	Same as applicant
Model/Type reference	EA-GSM-Interface (Nano)
Ratings.....	230V, 50Hz, 63mA

Additional information:

The EUT was tested under the following conditions:

- Temperature in the range of 20 – 30°C unless otherwise specified
- A relevant humidity in the range of 35-75% r.H.
- An air pressure in range of 86kPa to 106kPa

Summary of testing:

The sample(s) tested complies with the requirements of IEC 60950-1:2005 (2. Edition)/A1:2009 and EN 60950-1: 2006/A11:2009/A1:2010/A12:2011. Compliance with National Differences, Special National Conditions, Annex ZB, and A – Deviations, Annex ZC are recorded at the end of this report.

Summary of compliance with National Differences:

The following group and/or national deviations were considered: AT, BE, CH, CS, CZ, DE, DK, ES, FI, FR, GB, GR, HU, IE, IT, NL, NO, PL, PT, RU, SE, SI, SK, TR, UA

Abbreviations used in this test report:

NC: Normal Condition	DC: Direct Current
OP: Operational insulation	PS: Power Supply
BI: Basic Insulation	SEC: Secondary circuit
DI: Double insulation	PRI: Primary circuit
AC: Alternating Current	PCB: Printed circuit board
PE: Protective earth	SC: Short Circuit
GND: Signal Ground	BAT: Battery
OC: Open Circuit	PoE: Power over Ethernet
PABX: Private Automatic Branch eXchange	

Country abbreviations used in this test report:

AE United Arab Emirates	AR Argentina	AT Austria
AU Australia	BE Belgium	BR Brazil
CA Canada	CH Switzerland	CN China
RS Serbia	CZ The Czech Republic	DE Germany
DK Denmark	ES Spain	EU European Union
FI Finland	FR France	GB United Kingdom
GR Greece	HU Hungary	IE Ireland
IL Israel	IT Italy	IN India
JP Japan	KR Rep. of Korea	MY Malaysia
NL Netherlands	NO Norway	NZ New Zealand
PL Poland	PT Portugal	RU Russian federation
SE Sweden	SG Singapore	SK Slovakia
SI Slovenia	TR Turkey	UA Ukraine
US United States of America	ZA South Africa	

Copies of marking plates:

LEITRONIC AG www.leitronic.ch

EA-GSM-Interface

Artikel-No: 100.0800

230V / 50Hz / I_{max}. 63mA



Version: siehe Leiterplatte

Serie-Nr: siehe Leiterplatte



**Achtung: Gerät unter 230VAC-Spannung
Öffnung nur durch Fachpersonal !**

Test item particulars	
Equipment mobility	Stationary
Connection to the mains	pluggable equipment type A non detachable power supply cord
Operating condition	continuous
Over voltage category (OVC)	II
Mains supply tolerance (%).....	± 10%
Tested for IT power systems	Yes (Norway only)
IT testing, phase-phase voltage (V)	230V
Class of equipment	I
Pollution degree (PD)	2
Rated atmospheric humidity	10 to 85% (Non Condensing)
Rated temperature range.....	5°C to + 35°C
Access location	operator accessible
Enclosure material	Plastic HB
PCB material	V-0
IP protection class	67
Mass of equipment (kg)	1.7
Altitude during operation (m)	≤ 2000
Safety classification of interfaces.....	PS mains: Hazardous All other: Earthed SELV
Insulation classification	PS mains – SEC: Basic
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	07.01.2013
Date(s) of performance of tests	07.01. – 29.01.2013
General remarks:	
<p>The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory. "(see Enclosure #)" refers to additional information appended to the report. "(see appended table)" refers to a table appended to the report.</p> <p>Throughout this report a <input type="checkbox"/> comma / <input checked="" type="checkbox"/> point is used as the decimal separator.</p>	
General product information:	
The EUT is a GSM Gateway	
The following Attachments are integral part of this test report:	
- Annex 1: Photo documentation	

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1	GENERAL		P
1.5	Components		P
1.5.1	General	See appended table 1.5.1	P
	Comply with IEC 60950 or relevant component standard		P
1.5.2	Evaluation and testing of components		P
1.5.3	Thermal controls	No thermal controls	N/A
1.5.4	Transformers		N/A
1.5.5	Interconnecting cables	No interconnecting cables	N/A
1.5.6	Capacitors bridging insulation	No such parts	N/A
1.5.7	Resistors bridging insulation	No such parts	N/A
1.5.7.1	Resistors bridging functional, basic or supplementary insulation		N/A
1.5.7.2	Resistors bridging double or reinforced insulation between AC mains and other circuits		N/A
1.5.7.3	Resistors bridging double or reinforced insulation between AC mains and antenna or coaxial cable		N/A
1.5.8	Components in equipment for IT power systems		P
1.5.9	Surge suppressors	No surge suppressors	N/A
1.5.9.1	General		N/A
1.5.9.2	Protection of VDRs		N/A
1.5.9.3	Bridging of functional insulation by a VDR		N/A
1.5.9.4	Bridging of basic insulation by a VDR		N/A
1.5.9.5	Bridging of supplementary, double or reinforced insulation by a VDR		N/A
1.6	Power interface		P
1.6.1	AC power distribution systems		P
1.6.2	Input current	See appended table 1.6.2	P
1.6.3	Voltage limit of hand-held equipment	Not hand held	N/A
1.6.4	Neutral conductor		P
1.7	Marking and instructions		P
1.7.1	Power rating and identification markings	See copy of marking plate	P
	 (ISO 3864, No. 5036)		N/A
	 (ISO 7000-0434)		N/A

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	(direct current, IEC 60417, 417-IEC-5031-a)		N/A
	(single phase, IEC 60417, 417-IEC-5032-a) (230V): Power indication		N/A
	3 (three phase IEC 60417, 417-IEC-5032-a)		N/A
	3N (three phase with neutral, IEC 60417, 417-IEC-5032-a)		N/A
	(Class II equipment, IEC 60417, 417-IEC-5172-a): On the bottom		N/A
	(protection, IEC 60417, 417-IEC-5016-a)		N/A
	(connector, holder or core, IEC 60417, 417-IEC-5020-a)		N/A
	(protective earth, IEC 60417, 417-IEC-5019-a)		N/A
	(insulation transformers, IEC 60417, 417-IEC-5221)		N/A
	Short circuit protected transformer IEC 60417, 417-IEC-5220-a		N/A
	Indoor use only, IEC 60417, 417-IEC-5957		N/A
	Hot surface. IEC 60417-1-5041		N/A
1.7.1.1	Power rating marking		P
	Multiple mains supply connections		N/A
	Rated voltage(s) or voltage range(s) (V)		P
	Symbol for nature of supply, for DC only		N/A
	Rated frequency or rated frequency range (Hz) :		P
	Rated current (mA or A)		P
1.7.1.2	Identification markings		P
	Manufacturer's name or trade-mark or identification mark		P
	Model identification or type reference		P
	Symbol for Class II equipment only		N/A
	Other markings and symbols :	CE,	P
1.7.2	Safety instructions and marking	In user manual	P
1.7.2.1	General		P
1.7.2.2	Disconnect devices		P
1.7.2.3	Overcurrent protective device		N/A
1.7.2.4	IT power distribution systems		P

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.7.2.5	Operator access with a tool	No operator access with a tool	N/A
1.7.2.6	Ozone	No ozone	N/A
1.7.3	Short duty cycles	Continuous operation	N/A
1.7.4	Supply voltage adjustment	No supply voltage adjustment	N/A
	Methods and means of adjustment; reference to installation instructions		N/A
1.7.5	Power outlets on the equipment	No power outlets	N/A
1.7.6	Fuse identification (marking, special fusing characteristics, cross-reference)		P
1.7.7	Wiring terminals	No wiring terminals	N/A
1.7.7.1	Protective earthing and bonding terminals	No earthing and bonding	N/A
1.7.7.2	Terminals for AC mains supply conductors	No AC mains	N/A
1.7.7.3	Terminals for DC mains supply conductors	No DC mains	N/A
1.7.8	Controls and indicators	Not safety relevant	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
	for "ON" (60417-1-IEC-5007)		N/A
	○ for "OFF" (60417-1-IEC-5008)		N/A
	⓪ push-push (60417-1-IEC-5010)		N/A
	⓪ stand-by (60417-1-IEC-5009)		N/A
1.7.8.4	Markings using figures		N/A
1.7.9	Isolation of multiple power sources	One power source	N/A
1.7.10	Thermostats and other regulating devices	Not such devices	N/A
1.7.11	Durability	Name plate	P
1.7.12	Removable parts	Not on removable parts	P
1.7.13	Replaceable batteries	Replacement by incorrect type not possible	P
	Language(s)		—
1.7.14	Equipment for restricted access locations	EUT is for user access area	N/A
2	PROTECTION FROM HAZARDS		P
2.1	Protection from electric shock and energy hazards	SELV circuits only	P
2.1.1	Protection in operator access areas		P
2.1.1.1	Access to energized parts		P
	Test by inspection		P

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

	Test with test finger (Figure 2A)		P
	Test with test pin (Figure 2B)		P
	Test with test probe (Figure 2C)	No TNV circuits	N/A
2.1.1.2	Battery compartments	No TNV circuits	N/A
2.1.1.3	Access to ELV wiring	No ELV circuits	N/A
	Working voltage (V _{peak} or V _{rms}); minimum distance through insulation (mm)		—
2.1.1.4	Access to hazardous voltage circuit wiring	No access to hazardous voltage	P
2.1.1.5	Energy hazards	No energy hazards	N/A
2.1.1.6	Manual controls		N/A
2.1.1.7	Discharge of capacitors in equipment	No capacitor in primary circuit	N/A
	Measured voltage (V); time-constant (s).....		—
2.1.1.8	Energy hazards – DC mains supply		N/A
	a) Capacitor connected to the DC mains supply :		N/A
	b) Internal battery connected to the DC mains supply		N/A
2.1.1.9	Audio amplifiers	No audio amplifier	N/A
2.1.2	Protection in service access areas		N/A
2.1.3	Protection in restricted access locations		N/A

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

2.3	TNV circuits	No TNV circuits	N/A
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

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	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	No limited current circuits	N/A
2.4.1	General requirements		N/A
2.4.2	Limit values		N/A
	Frequency (Hz)		—
	Measured current (mA)		—
	Measured voltage (V).....		—
	Measured circuit capacitance (nF or μ F)		—
2.4.3	Connection of limited current circuits to other circuits		N/A
2.5	Limited power sources	See appended table 2.5	P
	a) Inherently limited output		P
	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).....		—
	Current rating of overcurrent protective device (A)		—
	Use of integrated circuit (IC) current limiters		N/A
2.6	Provisions for earthing and bonding		P
2.6.1	Protective earthing		P
2.6.2	Functional earthing		N/A
2.6.3	Protective earthing and protective bonding conductors		P
2.6.3.1	General		P
2.6.3.2	Size of protective earthing conductors		P
	Rated current (A), cross-sectional area (mm^2), AWG	<1A, 0.75 mm^2	—
2.6.3.3	Size of protective bonding conductors	No bonding connectors	N/A
	Rated current (A), cross-sectional area (mm^2), AWG		—

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

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	Color of insulation		P
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, 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		P
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		P
2.6.5.4	Parts that can be removed by an operator		N/A
2.6.5.5	Parts removed during servicing		N/A
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		P
2.7.1	Basic requirements		P
	Instructions when protection relies on building installation		P
2.7.2	Faults not simulated in 5.3.7		P
2.7.3	Short-circuit backup protection		P
2.7.4	Number and location of protective devices	1 in L line	P
2.7.5	Protection by several devices		N/A
2.7.6	Warning to service personnel		N/A

2.8	Safety interlocks	No 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

IEC/EN 60950-1			
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		P
2.9.1	Properties of insulating materials	Neither natural rubber, materials containing asbestos no hygroscopic material are used as insulation	P
2.9.2	Humidity conditioning		N/A
2.9.3	Grade of insulation	Basic insulation	P
2.9.4	Separation from hazardous voltages		P
	Method(s) used	e)	—

2.10	Clearances, creepage distances and distances through insulation		P
2.10.1	General		P
2.10.1.1	Frequency	50Hz	P
2.10.1.2	Pollution degrees	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 are permitted subject to the requirements of clause 5.3.4 c) See appended table 5.3	P
2.10.1.4	Intervening unconnected conductive parts		N/A
2.10.1.5	Insulation with varying dimensions		N/A
2.10.1.6	Special separation requirements		N/A
2.10.1.7	Insulation in circuits generating starting pulses		N/A
2.10.2	Determination of working voltage		P
2.10.2.1	General		P
2.10.2.2	RMS working voltage	242V	P

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
2.10.2.3	Peak working voltage	342V	P
2.10.3	Clearances		P
2.10.3.1	General		P
2.10.3.2	Mains transient voltages		P
	a) AC mains supply	2500V	P
	b) Earthed DC mains supplies		N/A
	c) Unearthed DC mains supplies		N/A
	d) Battery operation		N/A
2.10.3.3	Clearances in primary circuits		P
2.10.3.4	Clearances in secondary circuits		N/A
2.10.3.5	Clearances in circuits having starting pulses		N/A
2.10.3.6	Transients from AC mains supply	2500V	P
2.10.3.7	Transients from DC mains supply		N/A
2.10.3.8	Transients from telecommunication networks and cable distribution systems		N/A
2.10.3.9	Measurement of transient voltage levels		N/A
	a) Transients from a mains supply		N/A
	For an AC mains supply		N/A
	For a DC mains supply		N/A
	b) Transients from a telecommunication network..:		N/A
2.10.4	Creepage distances		P
2.10.4.1	General		P
2.10.4.2	Material group and comparative tracking index		P
	CTI tests	IIIa/IIIb	—
2.10.4.3	Minimum creepage distances		P
2.10.5	Solid insulation		N/A
2.10.5.1	General		N/A
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		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

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Electric strength test		—
2.10.5.10	Thin sheet material – alternative test procedure		N/A
	Electric strength test		—
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		—
	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		N/A
2.10.6.1	Uncoated printed boards		N/A
2.10.6.2	Coated printed boards		N/A
2.10.6.3	Insulation between conductors on the same inner surface of a printed board		N/A
2.10.6.4	Insulation between conductors on different layers of a printed board		N/A
	Distance through insulation		N/A
	Number of insulation layers (pcs)		N/A
2.10.7	Component external terminations		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		N/A
2.10.8.4	Abrasion resistance test		N/A
2.10.9	Thermal cycling		N/A
2.10.10	Test for Pollution Degree 1 environment and insulating compound		N/A

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

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	PCB wiring only	P
3.1	General		P
3.1.1	Current rating and overcurrent protection		P
3.1.2	Protection against mechanical damage		P
3.1.3	Securing of internal wiring		P
3.1.4	Insulation of conductors		P
3.1.5	Beads and ceramic insulators		N/A
3.1.6	Screws for electrical contact pressure		N/A
3.1.7	Insulating materials in electrical connections		N/A
3.1.8	Self-tapping and spaced thread screws		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 a mains supply		P
3.2.1	Means of connection		P
3.2.1.1	Connection to an AC mains supply		P
3.2.1.2	Connection to a DC mains supply		N/A
3.2.2	Multiple supply connections	No multiple supply connection	N/A
3.2.3	Permanently connected equipment	Not permanently connected	N/A
	Number of conductors, diameter of cable and conduits (mm)		—
3.2.4	Appliance inlets	No appliance inlet	N/A
3.2.5	Power supply cords	No power supply cord provided	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		P
	Mass of equipment (kg), pull (N)	1.7, 60N	—
	Longitudinal displacement (mm)		—
3.2.7	Protection against mechanical damage		P

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Clause	Requirement + Test	Result - Remark	Verdict

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	No terminals	N/A
3.3.1	Wiring terminals		N/A
3.3.2	Connection of non-detachable power supply cords		N/A
3.3.3	Screw terminals		N/A
3.3.4	Conductor sizes to be connected		N/A
	Rated current (A), cord/cable type, cross-sectional area (mm ²):		—
3.3.5	Wiring terminal sizes		N/A
	Rated current (A), type, nominal thread diameter (mm):		—
3.3.6	Wiring terminal design		N/A
3.3.7	Grouping of wiring terminals		N/A
3.3.8	Stranded wire		N/A

3.4	Disconnection from the mains supply		P
3.4.1	General requirement		P
3.4.2	Disconnect devices		P
3.4.3	Permanently connected equipment		N/A
3.4.4	Parts which remain energized		N/A
3.4.5	Switches in flexible cords		P
3.4.6	Number of poles - single-phase and DC equipment	2	P
3.4.7	Number of poles - three-phase equipment		N/A
3.4.8	Switches as disconnect devices	No switches	N/A
3.4.9	Plugs as disconnect devices		P
3.4.10	Interconnected equipment		N/A
3.4.11	Multiple power sources		N/A

3.5	Interconnection of equipment		P
3.5.1	General requirements		P
3.5.2	Types of interconnection circuits:	SELV	P

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Clause	Requirement + Test	Result - Remark	Verdict

3.5.3	ELV circuits as interconnection circuits	No ELV circuits	N/A
3.5.4	Data ports for additional equipment	No data ports	N/A

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


4.2	Mechanical strength		P
4.2.1	General		P
	Rack-mounted equipment.	Not rack mounted	N/A
4.2.2	Steady force test, 10 N	Internal components	P
4.2.3	Steady force test, 30 N	No cover	N/A
4.2.4	Steady force test, 250 N	Enclosure	P
4.2.5	Impact test		P
	Fall test		P
	Swing test		N/A
4.2.6	Drop test; height (mm)	750	P
4.2.7	Stress relief test		N/A
4.2.8	Cathode ray tubes	No cathode ray tubes	N/A
	Picture tube separately certified		N/A
4.2.9	High pressure lamps	No high pressure lamps	N/A
4.2.10	Wall or ceiling mounted equipment; force (N)	50N	P
4.2.11	Rotating solid media	No rotating solid media	N/A
	Test to cover on the door.....		N/A

4.3	Design and construction		P
4.3.1	Edges and corners	No sharp edges and corners	P
4.3.2	Handles and manual controls; force (N)	No handles and manual controls	N/A
4.3.3	Adjustable controls	No adjustable controls	N/A
4.3.4	Securing of parts	All parts secured	P
4.3.5	Connection by plugs and sockets	IEC 60083 and IEC 60320 connectors not in SELV-circuits	P
4.3.6	Direct plug-in equipment	No direct plug-in equipment	N/A

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	Compliance with the relevant mains plug standard		N/A
4.3.7	Heating elements in earthed equipment	No heating elements	N/A
4.3.8	Batteries	See appended table 4.3.8	P
	- Overcharging of a rechargeable battery		P
	- Unintentional charging of a non-rechargeable battery		N/A
	- Reverse charging of a rechargeable battery		N/A
	- Excessive discharging rate for any battery		P
4.3.9	Oil and grease	No exposure to oil or grease	N/A
4.3.10	Dust, powders, liquids and gases	No exposure to dust, powders, liquids and gases	N/A
4.3.11	Containers for liquids or gases	No containers for liquids or 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	No radiations	N/A
4.3.13.1	General		N/A
4.3.13.2	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		N/A
	Part, property, retention after test, flammability classification		N/A
4.3.13.4	Human exposure to ultraviolet (UV) radiation		N/A
4.3.13.5	Lasers (including laser diodes) and LEDs	No laser	N/A
4.3.13.5.1	Lasers (including laser diodes)		N/A
	Laser class		—
4.3.13.5.2	Light emitting diodes (LEDs)		N/A
4.3.13.6	Other types		N/A

4.4	Protection against hazardous moving parts	No moving parts	N/A
4.4.1	General		N/A
4.4.2	Protection in operator access areas		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Household and home/office document/media shredders		N/A
4.4.3	Protection in restricted access locations		N/A
4.4.4	Protection in service access areas		N/A
4.4.5	Protection against moving fan blades		N/A
4.4.5.1	General		N/A
	Not considered to cause pain or injury. a)		N/A
	Is considered to cause pain, not injury. b)		N/A
	Considered to cause injury. c)		N/A
4.4.5.2	Protection for users		N/A
	Use of symbol or warning (ISO 3864-2 )		N/A
	WARNING Hazardous moving parts Keep away from moving fan blades		N/A
4.4.5.3	Protection for service persons		N/A
	Use of symbol or warning		N/A

4.5	Thermal requirements	See appended table 4.5	P
4.5.1	General		P
4.5.2	Temperature tests		P
	Normal load condition per Annex L	7	—
4.5.3	Temperature limits for materials		P
4.5.4	Touch temperature limits		P
4.5.5	Resistance to abnormal heat	No hazardous parts	N/A

4.6	Openings in enclosures		P
4.6.1	Top and side openings		P
	Dimensions (mm)	No openings	—
4.6.2	Bottoms of fire enclosures	No fire enclosure	N/A
	Construction of the bottom, dimensions (mm)		—
4.6.3	Doors or covers in fire enclosures	No fire enclosure	N/A
4.6.4	Openings in transportable equipment	No openings	P
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 metalized parts		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

4.6.5	Adhesives for constructional purposes	No adhesives for constructional purposes	N/A
	Conditioning temperature (°C), time (weeks)		—

4.7	Resistance to fire		P
4.7.1	Reducing the risk of ignition and spread of flame		P
	Method 1, selection and application of components wiring and materials		N/A
	Method 2, application of all of simulated fault condition tests	See appended table 5.3	P
4.7.2	Conditions for a fire enclosure	No fire enclosure	N/A
4.7.2.1	Parts requiring a fire enclosure		N/A
4.7.2.2	Parts not requiring a fire enclosure	Method 2 conducted	P
4.7.3	Materials	See appended table 1.5.1	P
4.7.3.1	General		P
4.7.3.2	Materials for fire enclosures	No fire enclosure	N/A
4.7.3.3	Materials for components and other parts outside fire enclosures		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 assemblies	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		P
5.1.1	General	See appended table 5.1	P
5.1.2	Configuration of equipment under test (EUT)		P
5.1.2.1	Single connection to an AC mains supply		P
5.1.2.2	Redundant multiple connections to an AC mains supply		N/A
5.1.2.3	Simultaneous multiple connections to an AC mains supply		N/A
5.1.3	Test circuit		P
5.1.4	Application of measuring instrument		P
5.1.5	Test procedure		P
5.1.6	Test measurements		P
	Supply voltage (V)		—

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	Measured touch current (mA)		—
	Max. allowed touch current (mA)		—
	Measured protective conductor current (mA)		—
	Max. allowed protective conductor current (mA) ...		—
5.1.7	Equipment with touch current exceeding 3,5 mA		N/A
5.1.7.1	General		N/A
5.1.7.2	Simultaneous multiple connections to the supply		N/A
5.1.8	Touch currents to telecommunication networks and cable distribution systems and from telecommunication networks	No connection to telecommunication networks	N/A
5.1.8.1	Limitation of the touch current to a telecommunication network or to a cable distribution system		N/A
	Supply voltage (V)		—
	Measured touch current (mA)		—
	Max. allowed touch current (mA)		—
5.1.8.2	Summation of touch currents from telecommunication networks		N/A
	a) EUT with earthed telecommunication ports		N/A
	b) EUT whose telecommunication ports have no reference to protective earth		N/A

5.2	Electric strength		P
5.2.1	General	See appended table 5.2	P
5.2.2	Test procedure		P

5.3	Abnormal operating and fault conditions	See appended table 5.3	P
5.3.1	Protection against overload and abnormal operation		P
5.3.2	Motors	No motor	N/A
5.3.3	Transformers		N/A
5.3.4	Functional insulation	Can be short circuit	P
5.3.5	Electromechanical components	No electromechanical components	N/A
5.3.6	Audio amplifiers in ITE	No audio amplifier	N/A
5.3.7	Simulation of faults		P
5.3.8	Unattended equipment	Not such equipment	N/A
5.3.9	Compliance criteria for abnormal operating and fault conditions		P
5.3.9.1	During the tests		P

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5.3.9.2	After the tests		P
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6	CONNECTION TO TELECOMMUNICATION NETWORKS	No 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
	Supply voltage (V)		—
	Current in the test circuit (mA)		—
6.1.2.2	Exclusions		N/A

6.2	Protection of equipment users from overvoltages on telecommunication networks		N/A
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
			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	No connection to cable distribution systems	N/A
7.1	General		N/A
7.2	Protection of cable distribution system service persons, and users of other equipment connected to the system, from hazardous voltages in the equipment		N/A
7.3	Protection of equipment users from overvoltages on the cable distribution system		N/A
7.4	Insulation between primary circuits and cable distribution systems		N/A
7.4.1	General		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
7.4.2	Voltage surge test		N/A
7.4.3	Impulse test		N/A

A	ANNEX A, TESTS FOR RESISTANCE TO HEAT AND FIRE		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		—
	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 60695-11-5, cl. 5 and 9		N/A
	Sample 1 burning time (s).....		—
	Sample 2 burning time (s).....		—

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Clause	Requirement + Test	Result - Remark	Verdict
	Sample 3 burning time (s).....:		—
A.3	Hot flaming oil test (see 4.6.2)		N/A
A.3.1	Mounting of samples		N/A
A.3.2	Test procedure		N/A
A.3.3	Compliance criterion		N/A
B	ANNEX B, MOTOR TESTS UNDER ABNORMAL CONDITIONS (see 4.7.2.2 and 5.3.2)		N/A
B.1	General requirements		N/A
	Position		—
	Manufacturer		—
	Type		—
	Rated values		—
B.2	Test conditions		N/A
B.3	Maximum temperatures		N/A
B.4	Running overload test		N/A
B.5	Locked-rotor overload test		N/A
	Test duration (days)		—
	Electric strength test: test voltage (V)		—
B.6	Running overload test for DC 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 DC motors in secondary circuits		N/A
B.7.1	General		N/A
B.7.2	Test procedure		N/A
B.7.3	Alternative test procedure		N/A
B.7.4	Electric strength test; test voltage (V)		N/A
B.8	Test for motors with capacitors		N/A
B.9	Test for three-phase motors		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

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Clause	Requirement + Test	Result - Remark	Verdict

	Position		—
	Manufacturer		—
	Type		—
	Rated values		—
	Method of protection		—
C.1	Overload test		N/A
C.2	Insulation		N/A
	Protection from displacement of windings		N/A

D	ANNEX D, MEASURING INSTRUMENTS FOR TOUCH-CURRENT TESTS (see 5.1.4)		P
D.1	Measuring instrument	In use	P
D.2	Alternative measuring instrument		N/A

E	ANNEX E, TEMPERATURE RISE OF A WINDING (see 1.4.13)		N/A
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F	ANNEX F, MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES (see 2.10 and Annex G)		N/A
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G	ANNEX G, ALTERNATIVE METHOD FOR DETERMINING MINIMUM CLEARANCES		N/A
G.1	Clearances		N/A
G.1.1	General		N/A
G.1.2	Summary of the procedure for determining minimum clearances		N/A
G.2	Determination of mains transient voltage (V)		N/A
G.2.1	AC mains supply		N/A
G.2.2	Earthed DC mains supplies		N/A
G.2.3	Unearthed DC 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

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G.4.4	Transients from cable distribution systems		N/A
G.5	Measurement of transient voltages (V)		N/A
	a) Transients from a mains supply		N/A
	For an AC mains supply		N/A
	For a DC mains supply		N/A
	b) Transients from a telecommunication network		N/A
G.6	Determination of minimum clearances		N/A
H	ANNEX H, IONIZING RADIATION (see 4.3.13)		N/A
J	ANNEX J, TABLE OF ELECTROCHEMICAL POTENTIALS (see 2.6.5.6)		N/A
	Metal(s) used		N/A
K	Annex K, THERMAL CONTROLS (see 1.5.3 and 5.3.8)		N/A
K.1	Making and breaking capacity		N/A
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 4.5.2)		P
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)		N/A
M.1	Introduction		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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 1.5.7.2, 1.5.7.3, 2.10.3.9, 6.2.2.1, 7.3.2, 7.4.3 and Clause G.5)		N/A
N.1	ITU-T impulse test generators		N/A
N.2	IEC 60065 impulse test generator		N/A
P	ANNEX P, NORMATIVE REFERENCES		—
Q	ANNEX Q, Voltage dependent resistors (VDRs) (see 1.5.9.1)		N/A
	a) Preferred climatic categories		N/A
	b) Maximum continuous voltage		N/A
	c) Pulse current		N/A
R	ANNEX R, EXAMPLES OF REQUIREMENTS FOR QUALITY CONTROL PROGRAMMES		N/A
R.1	Minimum separation distances for unpopulated coated printed boards (see 2.10.6.2)		N/A
R.2	Reduced clearances (see 2.10.3)		N/A
S	ANNEX S, PROCEDURE FOR IMPULSE TESTING (see 6.2.2.3)		N/A
S.1	Test equipment		N/A
S.2	Test procedure		N/A
S.3	Examples of waveforms during impulse testing		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
T	ANNEX T, GUIDANCE ON PROTECTION AGAINST INGRESS OF WATER (see 1.1.2)		N/A
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)		N/A
V.1	Introduction		N/A
V.2	TN power distribution systems		N/A
W	ANNEX W, SUMMATION OF TOUCH CURRENTS		N/A
W.1	Touch current from electronic circuits		N/A
W.1.1	Floating circuits		N/A
W.1.2	Earthed circuits		N/A
W.2	Interconnection of several equipments		N/A
W.2.1	Isolation		N/A
W.2.2	Common return, isolated from earth		N/A
W.2.3	Common return, connected to protective earth		N/A
X	ANNEX X, MAXIMUM HEATING EFFECT IN TRANSFORMER TESTS (see clause C.1)		N/A
X.1	Determination of maximum input current		N/A
X.2	Overload test procedure		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

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BB	ANNEX BB, CHANGES IN THE SECOND EDITION		N/A
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CC	ANNEX CC, Evaluation of integrated circuit (IC) current limiters	Not such devices	N/A
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	No 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	No 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

Zx.	Protection against excessive sound pressure from personal music players		N/A
Zx.1	General		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	This subclause 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		N/A
	A personal music player is a portable equipment for personal use, that		N/A
	- is designed to allow the user to listen to recorded or broadcast sound or video, and		N/A
	- primarily uses headphones or earphones that can be worn in or on or around the ears, and		N/A
	- allows the user to walk around while in use.		N/A
	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 subclause.		N/A
	The requirements in this subclause are valid for music or video mode only.		N/A
	The requirements do not apply		N/A
	- while the player is connected to an external amplifier, or		N/A
	- while the headphones or earphones are not connected		N/A
	NOTE 2 An external amplifier is an amplifier which is not part of the player or the listening device, but which is intended to play the music as a standalone music player.		—
	The requirements do not apply to		N/A
	- hearing aid equipment and professional equipment		N/A
	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.		—
	- analogue personal music players (players without any kind of digital processing of the sound signal) that are brought to the market before the end of 2015.		N/A
	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 (80 dBA, 21 mV)		N/A

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
Zx.2	Equipment requirements		N/A
	No safety provision is required for equipment that complies with the following:		N/A
	- equipment provided as a package (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	See appended table Zx.2a	N/A
	- equipment provided with an analogue electrical output socket for a listening device, where the electrical output is ≤ 27 mV measured while playing the fixed "programme simulation noise" as described in EN 50332-2.	See appended table Zx.2b	N/A
	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:		N/A
	- protect the user from unintentional acoustic outputs exceeding those mentioned above; and		N/A
	- have a standard acoustic output level not exceeding those mentioned above, and automatically return to an output level not exceeding those mentioned above when the power is switched off; and		N/A
	- 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		N/A
	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 PMP has been switched off.		—
	- have a warning as specified in Zx.3; and		N/A
	- not exceed the following:		N/A
	- 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	See appended table Zx.2a	N/A

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	- equipment provided with an analogue electrical output socket for a listening device, the electrical output shall be ≤ 150 mV measured while playing the fixed "programme simulation noise" described in EN 50332-2.	See appended table Zx.2b	N/A
	For music where the average sound pressure (long term $L_{Aeq,T}$) measured over the duration of 84 the song is lower than the average produced by the programme simulation noise, the warning 85 does not need to be given as long as the average sound pressure of the song is below the 86 basic limit of 85 dBA. In this case T becomes the duration of the song		N/A
	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.		—
Zx.3	Warning		N/A
	The warning shall be placed on the equipment, or on the packaging, or in the instruction manual and shall consist of the following:	on the equipment/ on the packaging/ in the instruction manual	N/A
	the symbol of Figure 1 with a minimum height of 5 mm, and the following wording, or similar:		N/A
	To prevent possible hearing damage, do not listen at high volume levels for long periods.		N/A
		See photo documentation	N/A
	Alternatively, the warning may be given through the equipment display during use, when the user is asked to acknowledge activation of the higher level.		N/A
Zx.4	Requirements for listening devices (headphones and earphones)		N/A
Zx.4.1	Wired listening devices with analogue input		N/A
	With 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.	See appended table Zx.2b	
	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).		N/A

IEC/EN 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	NOTE The values of 94 dBA – 75 mV correspond with 85dBA – 27 mV and 100 dBA – 150 mV.		—
Zx.4.2	Wired listening devices with digital input		N/A
	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.	See appended table Zx.2a	N/A
	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.).		N/A
	NOTE An example of a wired listening device with digital input is a USB headphone		—
Zx.4.3	Wireless listening devices		N/A
	In wireless mode		N/A
	- with any playing and transmitting device playing the fixed programme simulation noise described in EN 50332-2, and	See appended table Zx.2b	N/A
	- respecting the wireless transmission standards, where an air interface standard exists that specifies the equivalent acoustic level, and		N/A
	- with volume and sound settings in the receiving 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 above-mentioned programme simulation noise,		N/A
	the acoustic output $L_{Aeq,T}$ of the listening device shall be ≤ 100 dBA		N/A
	NOTE An example of a wireless listening device is a Bluetooth headphone		—
Zx.5	Measurement methods		N/A
	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.		N/A
	NOTE Test method for wireless equipment provided without listening device is to be defined		—
Zx	Significance of $L_{Aeq,T}$ in EN 50332-1 and additional information		—

EN 60950-1:2006/A11:2009/A1:2010/A12:2011 – CENELEC COMMON MODIFICATIONS			
Clause	Requirement + Test	Result - Remark	Verdict
	IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)		
Contents	Add the following annexes: Annex ZA (normative) Normative references to international publications with their corresponding European publications Annex ZB (normative) Special national conditions		N/A
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, 4.7.3.1 Note 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 (A12:2011)	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.	Void. See Annex Zx	—
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

EN 60950-1:2006/A11:2009/A1:2010/A12:2011 – CENELEC COMMON MODIFICATIONS			
Clause	Requirement + Test	Result - Remark	Verdict
1.7.2.1 (A1:2010) (A12:2011)	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.	Void (A12:2011). See Annex Zx	—
2.7.1	<p>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):</p> <p>a) except as detailed in b) and c), protective devices necessary to comply with the requirements of 5.3 shall be included as parts of the equipment;</p> <p>b) for components in series with the mains input to the equipment such as the supply cord, appliance coupler, r.f.i. filter and switch, short-circuit and earth fault protection may be provided by protective devices in the building installation;</p>		P
	<p>c) it is permitted for PLUGGABLE EQUIPMENT TYPE B or PERMANENTLY CONNECTED EQUIPMENT, to rely on dedicated overcurrent and short-circuit protection in the building installation, provided that the means of protection, e.g. fuses or circuit breakers, is fully specified in the installation instructions.</p> <p>If reliance is placed on protection in the building installation, the installation instructions shall so state, except that for PLUGGABLE EQUIPMENT TYPE A the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet.</p>		P
2.7.2	This subclause has been declared 'void'.		N/A
3.2.3	Delete the NOTE in Table 3A, and delete also in this table the conduit sizes in parentheses.		N/A
3.2.5.1	<p>Replace "60245 IEC 53" by "H05 RR-F"; "60227 IEC 52" by "H03 VV-F or H03 VVH2-F"; "60227 IEC 53" by "H05 VV-F or H05 VVH2-F2".</p> <p>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 </p> <p>In the conditions applicable to Table 3B delete the words "in some countries" in condition^{a)}.</p> <p>In NOTE 1, applicable to Table 3B, delete the second sentence.</p>		P

EN 60950-1:2006/A11:2009/A1:2010/A12:2011 – CENELEC COMMON MODIFICATIONS			
Clause	Requirement + Test	Result - Remark	Verdict
3.3.4	In Table 3D, delete the fourth line: conductor sizes for 10 to 13 A, and replace with the following: Over 10 up to and including 16 1,5 to 2,5 1,5 to 4 Delete the fifth line: conductor sizes for 13 to 16 A		N/A
4.3.13.6 (A1:2010)	Replace the existing NOTE by the following: NOTE Z1 Attention is drawn to: 1999/519/EC: Council Recommendation on the limitation of exposure of the general public to electromagnetic fields 0 Hz to 300 GHz, and 2006/25/EC: Directive on the minimum health and safety requirements regarding the exposure of workers to risks arising from physical agents (artificial optical radiation).		P
	Standards taking into account mentioned Recommendation and Directive which demonstrate compliance with the applicable EU Directive are indicated in the OJEC.		N/A
Annex H	Replace the last paragraph of this annex by: At any point 10 cm from the surface of the OPERATOR ACCESS AREA, the dose rate shall not exceed 1 μ Sv/h (0,1 mR/h) (see NOTE). Account is taken of the background level. Replace the notes as follows: NOTE These values appear in Directive 96/29/Euratom. Delete NOTE 2.		N/A
Bibliography	Additional EN standards.		—

ZA	NORMATIVE REFERENCES TO INTERNATIONAL PUBLICATIONS WITH THEIR CORRESPONDING EUROPEAN PUBLICATIONS	—
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ZB	ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN)		
1.2.4.1	In Denmark , certain types of Class I appliances (see 3.2.1.1) may be provided with a plug not establishing earthing conditions when inserted into Danish socket-outlets.		N/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

EN 60950-1:2006/A11:2009/A1:2010/A12:2011 – CENELEC COMMON MODIFICATIONS			
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	<p>In Finland, Norway and Sweden, CLASS I PLUGGABLE EQUIPMENT TYPE A intended for connection to other equipment or a network shall, if safety relies on connection to protective earth or if surge suppressors are connected between the network terminals and accessible parts, have a marking stating that the equipment must be connected to an earthed mains socket-outlet.</p> <p>The marking text in the applicable countries shall be as follows:</p> <p>In Finland: "Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan"</p> <p>In Norway: "Apparatet må tilkoples jordet stikkontakt"</p> <p>In Sweden: "Apparaten skall anslutas till jordat uttag"</p> <p>In Norway and Sweden, the screen of the cable distribution system is normally not earthed at the entrance of the building and there is normally no equipotential bonding system within the building. Therefore the protective earthing of the building installation need to be isolated from the screen of a cable distribution system.</p> <p>It is however accepted to provide the insulation external to the equipment by an adapter or an interconnection cable with galvanic isolator, which may be provided by e.g. a retailer.</p> <p>The user manual shall then have the following or similar information in Norwegian and Swedish language respectively, depending on in what country the equipment is intended to be used in:</p> <p>"Equipment connected to the protective earthing of the building installation through the mains connection or through other equipment with a connection to protective earthing – and to a cable distribution system using coaxial cable, may in some circumstances create a fire hazard. Connection to a cable distribution system has therefore to be provided through a device providing electrical isolation below a certain frequency range (galvanic isolator, see EN 60728-11)."</p>		N/A
	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.		N/A

EN 60950-1:2006/A11:2009/A1:2010/A12:2011 – CENELEC COMMON MODIFICATIONS			
Clause	Requirement + Test	Result - Remark	Verdict
	<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 jordtilkoplede utstyr – og er tilkoplede 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	<p>In Norway, for requirements see 1.7.2.1, 6.1.2.1 and 6.1.2.2 of this annex.</p>		P
2.3.2	<p>In Finland, Norway and Sweden there are additional requirements for the insulation. See 6.1.2.1 and 6.1.2.2 of this annex.</p>		N/A
2.3.4	<p>In Norway, for requirements see 1.7.2.1, 6.1.2.1 and 6.1.2.2 of this annex.</p>		N/A
2.6.3.3	<p>In the United Kingdom, the current rating of the circuit shall be taken as 13 A, not 16 A.</p>		P
2.7.1	<p>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.</p>		N/A
2.10.5.13	<p>In Finland, Norway and Sweden, there are additional requirements for the insulation, see 6.1.2.1 and 6.1.2.2 of this annex.</p>		N/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> <p>SEV 6532-2.1991 Plug Type 15 3P+N+PE 250/400 V, 10 A</p>		N/A

EN 60950-1:2006/A11:2009/A1:2010/A12:2011 – CENELEC COMMON MODIFICATIONS			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>SEV 6533-2.1991 Plug Type 11 L+N 250 V, 10 A</p> <p>SEV 6534-2.1991 Plug Type 12 L+N+PE 250 V, 10 A</p> <p>In general, EN 60309 applies for plugs for currents exceeding 10 A. However, a 16 A plug and socket-outlet system is being introduced in Switzerland, the plugs of which are according to the following dimension sheets, published in February 1998:</p> <p>SEV 5932-2.1998: Plug Type 25 , 3L+N+PE 230/400 V, 16 A</p> <p>SEV 5933-2.1998: Plug Type 21, L+N, 250 V, 16A</p> <p>SEV 5934-2.1998: Plug Type 23, L+N+PE 250 V, 16 A</p>		N/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.</p> <p>CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a.</p> <p>If poly-phase equipment and single-phase equipment having a RATED CURRENT exceeding 13 A is provided with a supply cord with a plug, this plug shall be in accordance with the Heavy Current Regulations, Section 107-2-D1 or EN 60309-2.</p>		N/A
3.2.1.1	<p>In Spain, supply cords of single-phase equipment having a rated current not exceeding 10 A shall be provided with a plug according to UNE 20315:1994.</p> <p>Supply cords of single-phase equipment having a rated current not exceeding 2,5 A shall be provided with a plug according to UNE-EN 50075:1993.</p> <p>CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules, shall be provided with a plug in accordance with standard UNE 20315:1994.</p> <p>If poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with UNE-EN 60309-2.</p>		N/A

EN 60950-1:2006/A11:2009/A1:2010/A12:2011 – CENELEC COMMON MODIFICATIONS			
Clause	Requirement + Test	Result - Remark	Verdict
3.2.1.1	<p>In the United Kingdom, apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS 1363 by means of that flexible cable or cord and plug, shall be fitted with a 'standard plug' in accordance with Statutory Instrument 1768:1994 - The Plugs and Sockets etc. (Safety) Regulations 1994, unless exempted by those regulations.</p> <p>NOTE 'Standard plug' is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.</p>		N/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	<p>In Switzerland, for requirements see 3.2.1.1 of this annex.</p>		N/A
3.2.5.1	<p>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.</p>		N/A
3.3.4	<p>In the United Kingdom, the range of conductor sizes of flexible cords to be accepted by terminals for equipment with a RATED CURRENT of over 10 A up to and including 13 A is:</p> <ul style="list-style-type: none"> • 1,25 mm² to 1,5 mm² nominal cross-sectional area. 		N/A
4.3.6	<p>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.</p>		N/A
4.3.6	<p>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.</p>		N/A

EN 60950-1:2006/A11:2009/A1:2010/A12:2011 – CENELEC COMMON MODIFICATIONS			
Clause	Requirement + Test	Result - Remark	Verdict
5.1.7.1	<p>In Finland, Norway and Sweden TOUCH CURRENT measurement results exceeding 3,5 mA r.m.s. are permitted only for the following equipment:</p> <ul style="list-style-type: none"> • STATIONARY PLUGGABLE EQUIPMENT TYPE A that <ul style="list-style-type: none"> is intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, for example, in a telecommunication centre; and has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR; and is provided with instructions for the installation of that conductor by a SERVICE PERSON; • STATIONARY PLUGGABLE EQUIPMENT TYPE B; • STATIONARY PERMANENTLY CONNECTED EQUIPMENT. 		N/A
6.1.2.1 (A1:2010)	<p>In Finland, Norway and Sweden, add the following text between the first and second paragraph of the compliance clause:</p> <p>If this insulation is solid, including insulation forming part of a component, it shall at least consist of either</p> <ul style="list-style-type: none"> - two layers of thin sheet material, each of which shall pass the electric strength test below, or - one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below. <p>Alternatively for components, there is no distance through insulation requirements for the insulation consisting of an insulating compound completely filling the casing, so that CLEARANCES and CREEPAGE DISTANCES do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition</p> <ul style="list-style-type: none"> - passes the tests and inspection criteria of 2.10.11 with an electric strength test of 1,5 kV multiplied by 1,6 (the electric strength test of 2.10.10 shall be performed using 1,5 kV), and - is subject to ROUTINE TESTING for electric strength during manufacturing, using a test voltage of 1,5 kV. 		N/A

EN 60950-1:2006/A11:2009/A1:2010/A12:2011 – CENELEC COMMON MODIFICATIONS			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>It is permitted to bridge this insulation with an optocoupler complying with 2.10.5.4 b).</p> <p>It is permitted to bridge this insulation with a capacitor complying with EN 60384-14:2005, subclass Y2.</p> <p>A capacitor classified Y3 according to EN 60384-14:2005, may bridge this insulation under the following conditions:</p> <ul style="list-style-type: none"> - the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 60384-14, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in EN 60950-1:2006, 6.2.2.1; - the additional testing shall be performed on all the test specimens as described in EN 60384-14; - the impulse test of 2,5 kV is to be performed before the endurance test in EN 60384-14, in the sequence of tests as described in EN 60384-14. 		N/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
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)		P
1.5.1	<p>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:</p> <p>NOTE In Switzerland, switches containing mercury such as thermostats, relays and level controllers are not allowed.</p>		P

EN 60950-1:2006/A11:2009/A1:2010/A12:2011 – CENELEC COMMON MODIFICATIONS			
Clause	Requirement + Test	Result - Remark	Verdict
1.7.2.1	<p>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).</p> <p>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.</p> <p>Of this requirement, rules for use even only by SERVICE PERSONS are not exempted.</p>		N/A
1.7.13	<p>Switzerland (Ordinance on chemical hazardous risk reduction SR 814.81, Annex 2.15 Batteries) Annex 2.15 of SR 814.81 applies for batteries.</p>		P

1.5.1	TABLE: List of critical components					P
Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity ¹⁾	
TR1	Myrra	44267	In: 230V, 50/60Hz Out: 12V, 10VA Reinforced insulation Class B	IEC61558-1 IEC61558-2-6 IEC60950-1	CB (DE1- 51524) VDE (84543)	
F1	ESKA	520.500	250V, 63mA	UL248	UL (E163905)	
F2	ESKA	520.500	250V, 6.3A	UL248	UL (E163905)	
Enclosure	Fibox	5814007	UL94HB	See appended table 4.7.3.1	--	
PCB	Various	Various	V-0	--	--	
BAT	LIFTRONIC	52.412.12	12VDC, 1.3Ah	EN60950-1	Tested in application	
Supplementary information:						
1) An asterisk indicates a mark which assures the agreed level of surveillance						

1.6.2	TABLE: Electrical DC data (in normal conditions)				P
Ratings	I (mA)	U (V)	P (W)	Condition/status	
--	106.9	12.21	1.30	Stand by	
	207.5	11.07	2.29	Call established	
	291.1	10.60	3.08	Charging empty BAT	
Supplementary information:					

1.6.2	TABLE: electrical data (in normal conditions)						P
Rated (A)	U (V)	f[Hz]	I (mA)	P (W)	S[VA]	condition/status	
0.063	207	50	26.5	2.59	--	Stand by	
	230	50	35.2	3.43	--		
	253	50	49.3	4.74	--		
supplementary information							

1.6.2	TABLE: electrical data (in normal conditions)						P
Irated (A)	U (V)	f[Hz]	I (mA)	P (W)	S[VA]	condition/status	
0.063	207	50	32.3	4.15	--	normal use	
	230	50	38.4	4.68	--		
	253	50	50.1	5.4	--		
supplementary information							

1.6.2	TABLE: electrical data (in normal conditions)						P
Irated (A)	U (V)	f[Hz]	I (mA)	P (W)	S[VA]	condition/status	
0.063	207	50	38.5	5.71	--	Charging empty BAT	
	230	50	47.7	7.46	--		
	253	50	55.1	7.86	--		
supplementary information							

2.5/3.5.4	TABLE: limited power source					P
	Output of: BAT					—
	Operation voltage: 12VDC					
	Limits of table 2B					
Op. Mode:	U[V]	I[A]	S[VA]	Limit		
Normal:						
Open circuit	11.66	0	0	≤ 8A , ≤ 30V , ≤ 100VA		
Load	10.86	1.0	10.91			
Load	10.2	2.0	20.45			
Load	9.4	3.0	28.23			
Load	7.34	4.0	29.36			
Load	0.43	4.158	1.78			
Short circuit	0.1	112Ap	11.2			
supplementary information						

2.5/3.5.4	TABLE: limited power source				P
	Output of: X5 Operation voltage: 253VAC Limits of table 2B .				—
Op. Mode:	U[V]	I[A]	S[VA]	Limit	
Normal:					
Open circuit	36.3	0	0	≤ 4.13A , ≤ 60V , ≤ 100VA	
Load	0.03	0.034	0.00		
Short circuit	0	0	0		
supplementary information					

2.10.2	TABLE: Working voltage			P
Voltage between:	Peak voltage [V]:	RMS voltage [V]:	Comments:	
TR1	342	242		
supplementary information				

2.10.3/4	TABLE: Clearance and creepage distance measurements						P
clearance cl and creepage distance dcr between:	insulation	Up (V)	U r.m.s. (V)	required cl (mm)	cl (mm)	required dcr (mm)	dcr (mm)
PRI - SEC	R	342	242	4.0	7.65	5.0	7.65
PRI - PE	B	342	242	2.0	4.37	2.5	4.37
REL2: Bobbin - Contact	B	342	242	2.0	5.77	2.5	5.77
supplementary information							
R = Reinforced insulation F = Functional insulation B = Basic insulation							

2.10.4.2	TABLE: Test of CTI similar to IEC 60112 (comparative tracking index)		N/A
Test:	Test point:	After test:	
supplementary information			

4.3.8	TABLE: Batteries				P
	Battery type	Lead acid		—	
	Manufacturer	LIFTRONIC		—	
	Type /model	52.412.12		—	
	Voltage	12V		—	
	Capacity	1.3Ah		—	
	Ambient temperature measurement	23°C		—	
	Rated operation ambient temperature	-15°C to 40°C		—	
	Max. abnormal charging voltage	15VDC		—	
	Max. abnormal charging current	390mA		—	
	Max. ambient temperature	40°C		—	
	Max. normal discharge current	0.78A		—	
	Max. normal discharge pulse current	--		—	
	Overvoltage protection	U12		—	
	Overcurrent protection	R60, R68, T5, T17		—	
	Replaceability	Technician		—	
General:					Result
Is the battery cell tested according to IEC 62133 or UL 1642?			<input type="checkbox"/> Yes	<input type="checkbox"/> No	N/A
Is it possible to install the battery in a reverse polarity position?			<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	P
Is the PTC certificate according to IEC 60730-1, clauses 15, 17, J15 and J17?			<input type="checkbox"/> Yes	<input type="checkbox"/> No	N/A
Marking according to 1.7.12, 1.7.15?			<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	P
Safety instructions in service instructions?			<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	P
Safety instructions in user instructions?			<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	P
<i>Normal charging 7h:</i>					
Measured max. cell current:		Measured. max. cell voltage:	Limit cell current:	Limit cell voltage:	—
291mA		12.0V	390mA	15V	P
<i>Normal discharging:</i>					
Measured max. cell current :		Measured. min. cell voltage:	Limit cell current:	Limit cell voltage:	—
207.5mA		11.07V	780mA	--	P
<i>Single fault charging 7h:</i>					
Fault:	Measured max. cell current:	Measured max. cell voltage:	Limit cell current:	Limit cell voltage:	—
U12 (SC)	300mA	13.3V	390mA	15V	P
<i>Single fault discharging:</i>					
Fault:	Measured max. cell current:	Measured min. cell voltage:	Limit cell current:	Limit cell voltage:	—
Pole (SC)	112Ap	0.1V	--	--	
supplementary information					

4.3.8	TABLE: Batteries	P
Compliance criteria: No chemical leaks. No explosion of the battery. No emission of flame or expulsion of molten metal.		
Abbreviations: (SC) = Short Circuit, (OC) = Open Circuit BMC = Battery management circuit XX = Name of the relevant component		

4.5	TABLE: Maximum temperatures							P
	EUT	EA-GSM-Interface						—
	Tamb. measurement (°C)	23.3						—
	Rated ambient temperature :	5°C to +35°C						—
	Operation mode.....	A: Normal use, 207VAC B: Normal use, 230VAC C: Normal use, 253VAC D: Normal use, BAT						—
Sensor No.:	maximum temperature T of part/at:	A T (°C)	B T (°C)	C T (°C)	D T (°C)	E T (°C)	F T (°C)	allowed T _{max} (°C)
1	TR1	41.1	44.2	48.2	27.2			108 ³⁾
2	C41	35.6	37.3	38.1	30.1			93 ²⁾
3	C17	32.5	33.5	34.2	29.4			93 ²⁾
4	GSM Modem	37.9	37.9	38.1	38.0			--
5	PCB	36.0	37.3	37.8	33.4			83 ¹⁾
6	Ambiant inside	27.6	28.3	28.5	26.0			--
7	Enclosure	28.3	28.9	29.1	25.8			83 ¹⁾
8	BAT	--	--	--	25.9			83 ¹⁾
Supplementary information:								
Limit correction:								
1) Plastic: 95°C – 35°C + 23°C = 83°C								
2) Capacitor/PCB: 105°C – 35°C + 23°C = 93°C								
3) TR1 (Class B): 120°C – 35°C + 23°C -10K = 98°C								

4.7.3.1	TABLE: Flammability test for classifying HB material			P
	Glow wire test according to IEC 60695-2-11			
sample	Test temperature	Result		Flame
Enclosure	550°C	No flame		No
supplementary information:				

5.1	TABLE: Touch current and protective conductor current			P
After 5.3	Fault condition tests			P
	Measurement point.....	Antenna Plug		—
	Limit (mA)	0.25		—
	U[V]:	f[Hz]:	L[mA]:	N[mA]:
	253	50	0.02	0.02
supplementary information				

5.2	TABLE: Electric strength tests, impulse tests and voltage surge tests			P
After 4.5	Temperature test			P
After 5.3	Fault condition tests			P
After Annex B	Motor test			N/A
After Annex C	Transformer overload test			N/A
Test voltage applied between:		Voltage shape (AC, DC, impulse, surge)	Test voltage (V)	Breakdown Yes / No
PRI-SEC		AC	1500	No
supplementary information				

5.3	TABLE: Fault condition tests				P
	Ambient temperature (°C)		25.0		—
	Power source for EUT		--		—
	Manufacturer, model/type, output rating		--		—
Component No.	Fault	Supply voltage (V)	Test time	Current ¹⁾ (A)	Observation
C48	(SC)	253VAC	10min	0.063	No fire, no abnormal temperatures
C56	(SC)	253VAC	10min	0.077	No fire, no abnormal temperatures
C43	(SC)	253VAC	10min	0.049	No fire, no abnormal temperatures
C58	(SC)	253VAC	10min	0.050	No fire, no abnormal temperatures
C51	(SC)	253VAC	10min	0.120	No fire, no abnormal temperatures Fuse F1 cut the circuit immediately
supplementary information					
1) Primary current (SC) Short circuit (OC) Open circuit (OL) Over load (WP) Wrong Polarity installation					

List of test equipment			
Number	Equipment	Calibration	
		Yes/No	Next
SAF-0029	Electronic load	N	---
SAF-0032	Withstand voltage & IR tester	Y	19.12.13
SAF-0033	Line leakage tester	Y	10.04.13
SAF-0035	Test finger	Y	05.02.13
SAF-0036	Push & pull dynamometer lin.	Y	23.01.13
SAF-0037	Push & pull dynamometer lin.	Y	23.01.13
SAF-0038	Test finger with dyn.met. lin.	Y	17.10.13
SAF-0092	Glow Wire Test Apparatus	Y	18.12.13
SAF-0099	Multimeter	Y	08.05.13
SAF-0100	Multimeter	Y	27.03.13
SAF-0101	Temperature recorder	Y	01.03.13
SAF-0107	Multimeter	Y	28.03.13
SAF-0108	Multimeter	Y	28.03.13
SAF-0112	Thermocouples	N	---
SAF-0181	AC-Power-Analyzer	Y	01.08.13
SAF-0215	TH-Meter	Y	03.04.13
SAF-0239	Digitizing oscilloscope	Y	13.03.13
SAF-0254	AC/DC current probe	Y	14.03.13
SAF-5178	AC power source, program.	N	---

Annex 1: Photo documentation

