



<p><b>TEST REPORT</b>  <b>IEC 60950-1</b>  <b>Information technology equipment – Safety</b>  <b>Part 1: General requirements</b></p>	
<p><b>Report Number</b>.....: SZES160700275101  <b>Date of issue</b>.....: 2016-07-28  <b>Total number of pages</b> ..... 42 Pages</p>	
<p><b>Applicant's name</b> .....: Shenzhen Zonsan Innovation Technology Co., Ltd.  <b>Address</b>.....: Building 11, Yicun Industrial Area, Buji, Longgang, Shenzhen, Guangdong, China</p>	
<p><b>Test specification:</b>  <b>Standard</b>.....: IEC 60950-1: 2005 (Second Edition) + Am 1: 2009 + Am 2: 2013  <b>Test procedure</b> .....: SGS-CSTC  <b>Non-standard test method</b> .....: N/A</p>	
<p><b>Test Report Form No.</b> .....: IEC60950_1F  <b>Test Report Form(s) Originator</b> ....: SGS Fimko Ltd  <b>Master TRF</b>.....: Dated 2014-02</p>	
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<b>Test item description</b> ..... :	Switching Mode Power Supply (direct plug-in type) (Product name: Smart Charger)
<b>Trade Mark</b> ..... :	
<b>Manufacturer</b> .....	Same as applicant
<b>Model/Type reference</b> .....	ZX-XXYY (XX = 2U or 3U; YY = 00 - 99, indicates the series number of the company and not safety related)
<b>Ratings</b> ..... :	Input: 100 V - 240 V; 50 Hz / 60 Hz; 0,5 A; Class II DC-Output: 5 V; 3,1 A (total)

**Testing procedure and testing location:**

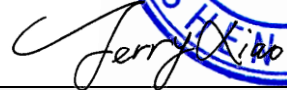
<input checked="" type="checkbox"/>	<b>CB Testing Laboratory:</b>	SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch
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<b>Testing location/ address</b> ..... :	No. 1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, Guangdong, China 518057
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<input type="checkbox"/>	<b>Associated CB Testing Laboratory:</b>	
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Testing location/ address .....	
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Tested by (name + signature) .....	Echo Wang	
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Approved by (name + signature) .....	Jerry Xiao	
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<input type="checkbox"/>	<b>Testing procedure: TMP/CTF Stage 1:</b>	
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Testing location/ address .....	
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Tested by (name + signature) .....		
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Approved by (name + signature) .....		
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<input type="checkbox"/>	<b>Testing procedure: WMT/CTF Stage 2:</b>	
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Testing location/ address .....	
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Tested by (name + signature) .....		
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Witnessed by (name + signature) .....		
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Approved by (name + signature) .....		
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<input type="checkbox"/>	<b>Testing procedure: SMT/CTF Stage 3 or 4:</b>	
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Testing location/ address .....	
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Tested by (name + signature) .....		
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Witnessed by (name + signature) .....		
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Approved by (name + signature) .....		
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Supervised by (name + signature)..... :		
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**List of Attachments (including a total number of pages in each attachment):**

Attachment 1: 7 pages of Photos;

Attachment 2: 4 pages of Test Results for EU Plug;

Attachment 3: 19 pages of EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES.

**Summary of testing:**

The sample(s) tested complies with the requirements of IEC 60950-1:2005 (2nd Edition) + Am 1:2009 + Am 2:2013.

When determining the test conclusion, the Measurement Uncertainty of test has been considered.

Model ZX-3U01 was selected for test as representative.

Heating test (4.5):

Ta = 40 degree C

Tamb = 24,4 - 25,1 degree C

Input voltage range: 90 V - 264 V (+/-10% voltage tolerance according to manufacturer)

Output: 5,0 V, 3,1 A (total)

(1A USB was loaded to 1 A, one of POWER IQ USB terminal was loaded to 2,1 A)

Tests were carried out at 264 V / 50 Hz and 90 V / 60 Hz.

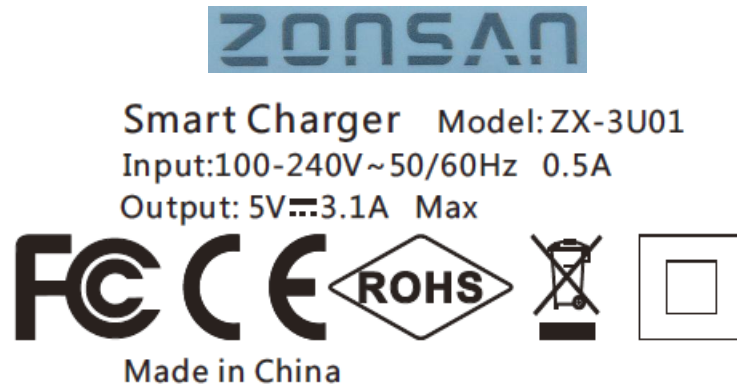
T-type thermocouple used for temperature measurement.

The EU plug portion was tested according to EN 50075: 1990.

<p><b>Tests performed (name of test and test clause):</b></p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> 1.6.2 Input test</li> <li><input checked="" type="checkbox"/> 1.7.11 Marking durability test</li> <li><input checked="" type="checkbox"/> 2.1.1.1 b) Finger Test</li> <li><input checked="" type="checkbox"/> 2.1.1.1 c) Pin Test</li> <li><input checked="" type="checkbox"/> 2.1.1.5 Determination of energy hazards</li> <li><input checked="" type="checkbox"/> 2.2 SELV circuits</li> <li><input checked="" type="checkbox"/> 2.4 Limited current circuits test</li> <li><input checked="" type="checkbox"/> 2.5 Limited power sources test</li> <li><input checked="" type="checkbox"/> 2.9.2 Humidity condition test</li> <li><input checked="" type="checkbox"/> 2.10.2 Determination of working voltage</li> <li><input checked="" type="checkbox"/> 2.10.3 &amp; 2.10.4 Clearance &amp; Creepage distances</li> <li><input checked="" type="checkbox"/> 2.10.5 Solid insulation measurement</li> <li><input checked="" type="checkbox"/> 4.2.2 Steady force test (10 N)</li> <li><input checked="" type="checkbox"/> 4.2.4 Steady force test (250 N)</li> <li><input checked="" type="checkbox"/> 4.2.6 Drop test</li> <li><input checked="" type="checkbox"/> 4.2.7 Stress relief test</li> <li><input checked="" type="checkbox"/> 4.3.6 Strain on socket outlet test</li> <li><input checked="" type="checkbox"/> 4.5.2 Normal heating test</li> <li><input checked="" type="checkbox"/> 4.5.5 Ball pressure test</li> <li><input checked="" type="checkbox"/> 5.1 Touch current and protective conductor current test</li> <li><input checked="" type="checkbox"/> 5.2 Electric strength test</li> <li><input checked="" type="checkbox"/> 5.3 Abnormal operating and fault conditions test</li> </ul>	<p><b>Testing location:</b></p> <p>--</p>
<p><b>Summary of compliance with National Differences:</b></p> <ol style="list-style-type: none"> <li>1. EU Group Differences (EN 60950-1: 2006 + A11: 2009 + A1: 2010 + A12:2011 + A2 : 2013);</li> <li>2. EU Special National Conditions: none</li> </ol> <p>The product fulfils the above requirements.</p>	

**Copy of marking plate:**

The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.

**Remark:**

1. The marking for other models are of the same pattern.
2. As declared by the applicant, the importer (and manufacturer, if it is different)'s name, registered trade name or registered trade mark and the postal address will be marked on the products before being place on the market. The contact details shall be in a language easily understood by end-users and market surveillance authorities.
3. Marking on the packaging or in a document accompanying the electrical equipment is only acceptable if it is not possible to place such markings on the product.

<b>Test item particulars</b> ..... :	
<b>Equipment mobility</b> .....:	<input checked="" type="checkbox"/> movable <input type="checkbox"/> hand-held <input type="checkbox"/> transportable <input type="checkbox"/> stationary <input type="checkbox"/> for building-in <input checked="" type="checkbox"/> direct plug-in
<b>Connection to the mains</b> .....:	<input checked="" type="checkbox"/> pluggable equipment <input checked="" 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 type="checkbox"/> not directly connected to the mains
<b>Operating condition</b> .....:	continuous
<b>Access location</b> .....:	<input checked="" type="checkbox"/> operator accessible <input type="checkbox"/> restricted access location
<b>Over voltage category (OVC)</b> .....:	<input type="checkbox"/> OVC I <input checked="" type="checkbox"/> OVC II <input type="checkbox"/> OVC III <input type="checkbox"/> OVC IV <input type="checkbox"/> other: _____
<b>Mains supply tolerance (%) or absolute mains supply values</b> .....:	<input checked="" type="checkbox"/> -10%, +10% (as client's request) <input type="checkbox"/> -10%, +6% <input type="checkbox"/> -15%, +20% <input type="checkbox"/> _____
<b>Tested for IT power systems</b> .....:	N/A
<b>IT testing, phase-phase voltage (V)</b> .....:	N/A
<b>Class of equipment</b> .....:	<input type="checkbox"/> Class I <input checked="" type="checkbox"/> Class II <input type="checkbox"/> Class III <input type="checkbox"/> Not classified
<b>Considered current rating of protective device as part of the building installation (A)</b> .....:	16 A
<b>Pollution degree (PD)</b> .....:	<input type="checkbox"/> PD 1 <input checked="" type="checkbox"/> PD 2 <input type="checkbox"/> PD 3
<b>IP protection class</b> .....:	IPX0
<b>Altitude during operation (m)</b> .....	< 2000 m
<b>Altitude of test laboratory (m)</b> .....	Max. 120 m
<b>Mass of equipment (kg)</b> .....:	0,058 kg
<b>Possible test case verdicts:</b>	
- 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)
<b>Testing</b> .....:	
<b>Date of receipt of test item</b> .....:	2016-07-14
<b>Date (s) of performance of tests</b> .....	2016-07-14 to 2016-07-26

**General remarks:**

"(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  comma /  point is used as the decimal separator.**

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**Manufacturer's Declaration per sub-clause 4.2.5 of IEC 60335-1:**

The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided..... :

Not applicable

**When differences exist; they shall be identified in the General product information section.**

**Name and address of factory (ies) .....** : Same as applicant

**General product information:**

1. The apparatus is a Class II switching mode power supply for IT and similar electrical appliances.
2. External enclosure is of plastic material, the enclosure was secured by ultrasonic welding. For indoor use only.
3. All models are identical except for model No. and Number of USB.

Model series	Variable	Range of variable	Content
ZX-XXYY	XX	3U or 2U	3U means unit with three USB terminals; 2U means unit with two USB terminals
	YY	00 - 99	The number of YY indicates the series number of the company

**Abbreviations used in the report:**

- |                                      |             |                            |              |
|--------------------------------------|-------------|----------------------------|--------------|
| - normal conditions                  | <b>N.C.</b> | - single fault conditions  | <b>S.F.C</b> |
| - functional insulation              | <b>OP</b>   | - basic insulation         | <b>BI</b>    |
| - double insulation                  | <b>DI</b>   | - supplementary insulation | <b>SI</b>    |
| - between parts of opposite polarity | <b>BOP</b>  | - reinforced insulation    | <b>RI</b>    |

**Indicate used abbreviations (if any)**

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
<b>1</b>	<b>GENERAL</b>		—
<b>1.5</b>	<b>Components</b>		—
1.5.1	General		P
	Comply with IEC 60950-1 or relevant component standard	(see appended tables 1.5.1)	P
1.5.2	Evaluation and testing of components	Components which were certified to IEC and/or national standards were used correctly within their ratings. Components not covered by any IEC standards were tested under the conditions present in the equipment.	P
1.5.3	Thermal controls		N/A
1.5.4	Transformers	Transformer complied with relevant standard requirements including requirements in Annex	P
1.5.5	Interconnecting cables		P
1.5.6	Capacitors bridging insulation	Between primary and secondary: Y1 capacitor (CY1) was used; (see appended tables 1.5.1)	P
1.5.7	Resistors bridging insulation		P
1.5.7.1	Resistors bridging functional, basic or supplementary insulation		P
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		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
<b>1.6</b>	<b>Power interface</b>		—
1.6.1	AC power distribution systems		P



IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.6.2	Input current	(see appended table 1.6.2)	P
1.6.3	Voltage limit of hand-held equipment		N/A
1.6.4	Neutral conductor		P

<b>1.7</b>	<b>Marking and instructions</b>		—
1.7.1	Power rating and identification markings		P
1.7.1.1	Power rating marking		P
	Multiple mains supply connections.....:		N/A
	Rated voltage(s) or voltage range(s) (V) .....	see page 2	P
	Symbol for nature of supply, for d.c. only.....:		N/A
	Rated frequency or rated frequency range (Hz) ...:	see page 2	P
	Rated current (mA or A) .....	see page 2	P
1.7.1.2	Identification markings		P
	Manufacturer's name or trade-mark or identification mark .....	see page 2	P
	Model identification or type reference .....	see page 2	P
	Symbol for Class II equipment only .....	Class II symbol used	P
	Other markings and symbols .....	see marking plate	P
1.7.1.3	Use of graphical symbols		P
1.7.2	Safety instructions and marking		P
1.7.2.1	General		P
1.7.2.2	Disconnect devices	Plug	N/A
1.7.2.3	Overcurrent protective device		N/A
1.7.2.4	IT power distribution systems		N/A
1.7.2.5	Operator access with a tool		N/A
1.7.2.6	Ozone		N/A
1.7.3	Short duty cycles		N/A
1.7.4	Supply voltage 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) .....	Fuse marking was provided: F1: T3,15A 250VAC	P
1.7.7	Wiring terminals		N/A
1.7.7.1	Protective earthing and bonding terminals .....		N/A
1.7.7.2	Terminals for a.c. mains supply conductors		N/A
1.7.7.3	Terminals for d.c. mains supply conductors		N/A

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
1.7.8	Controls and indicators		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

<b>2</b>	<b>PROTECTION FROM HAZARDS</b>		—
<b>2.1</b>	<b>Protection from electric shock and energy hazards</b>		—
2.1.1	Protection in operator access areas		P
2.1.1.1	Access to energized parts		P
	Test by inspection .....	no hazard	P
	Test with test finger (Figure 2A) .....	no hazard	P
	Test with test pin (Figure 2B) .....	no hazard	P
	Test with test probe (Figure 2C) .....		N/A
2.1.1.2	Battery compartments		N/A
2.1.1.3	Access to ELV wiring		N/A
	Working voltage ( $V_{peak}$ or $V_{rms}$ ); minimum distance through insulation (mm)		—
2.1.1.4	Access to hazardous voltage circuit wiring		N/A
2.1.1.5	Energy hazards .....	(see appended tables 2.1.1.5)	P
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 .....		N/A
2.1.2	Protection in service access areas		N/A

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
2.1.3	Protection in restricted access locations		N/A

<b>2.2</b>	<b>SELV circuits</b>		—
2.2.1	General requirements	(see appended table 2.2)	P
2.2.2	Voltages under normal conditions (V) .....	(see appended table 2.2)	P
2.2.3	Voltages under fault conditions (V) .....	(see appended table 2.2)	P
2.2.4	Connection of SELV circuits to other circuits .....	LCC, SELV	P

<b>2.3</b>	<b>TNV circuits</b>		—
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

<b>2.4</b>	<b>Limited current circuits</b>		—
2.4.1	General requirements		P
2.4.2	Limit values	Figure D.1 was used, and 0,7 mA peak is limit	P
	Frequency (Hz) .....	--	—
	Measured current (mA) .....	0,284 mA <sub>peak</sub>	—
	Measured voltage (V) .....	142 mV <sub>peak</sub>	—
	Measured circuit capacitance (nF or µF) .....	2200 pF	—
2.4.3	Connection of limited current circuits to other circuits	SELV	P
<b>2.5</b>	<b>Limited power sources</b>		—
	a) Inherently limited output		N/A
	b) Impedance limited output		N/A

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
	c) Regulating network or IC current limiter, limits output under normal operating and single fault condition	(see appended table 2.5)	P
	Use of integrated circuit (IC) current limiters		N/A
	d) Overcurrent protective device limited output		N/A
	Max. output voltage (V), max. output current (A), max. apparent power (VA) .....	(see appended table 2.5)	—
	Current rating of overcurrent protective device (A) ..		—

<b>2.6</b>	<b>Provisions for earthing and bonding</b>		—
2.6.1	Protective earthing		N/A
2.6.2	Functional earthing		N/A
	Use of symbol for 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 <sup>2</sup> ), AWG .....		—
2.6.3.3	Size of protective bonding conductors		N/A
	Rated current (A), cross-sectional area (mm <sup>2</sup> ), AWG .....		—
	Protective current rating (A), cross-sectional area (mm <sup>2</sup> ), 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, 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

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Clause	Requirement + Test	Result - Remark	Verdict
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		—
2.7.1	Basic requirements		P
	Instructions when protection relies on building installation		N/A
2.7.2	Faults not simulated in 5.3.7		P
2.7.3	Short-circuit backup protection	Fuse (F1) used	P
2.7.4	Number and location of protective devices .....	F1 used in live phase (L side on PCB)	P
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		N/A
2.8.2	Protection requirements		N/A
2.8.3	Inadvertent reactivation		N/A
2.8.4	Fail-safe operation		N/A
	Protection against extreme hazard		N/A
2.8.5	Moving parts		N/A
2.8.6	Overriding		N/A
2.8.7	Switches, relays and their related circuits		N/A
2.8.7.1	Separation distances for contact gaps and their related circuits (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		P
2.9.2	Humidity conditioning		P
	Relative humidity (%), temperature (°C) .....	95 % R.H., 120 h, 40 degree C	—

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
2.9.3	Grade of insulation	functional, basic, reinforced	P
2.9.4	Separation from hazardous voltages		P
	Method(s) used .....	(method 1)	—

<b>2.10</b>	<b>Clearances, creepage distances and distances through insulation</b>		—
2.10.1	General		P
2.10.1.1	Frequency .....	Considered	P
2.10.1.2	Pollution degrees .....	PD2	P
2.10.1.3	Reduced values for functional insulation	functional insulation comply with 5.3.4 c)	N/A
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	(see appended table 2.10.2)	P
2.10.2.1	General		P
2.10.2.2	RMS working voltage	(see appended table 2.10.2)	P
2.10.2.3	Peak working voltage	(see appended table 2.10.2)	P
2.10.3	Clearances		P
2.10.3.1	General		P
2.10.3.2	Mains transient voltages		P
	a) AC mains supply .....	Overvoltage category II, Mains transient voltages: 2500 Vpeak	P
	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)	P
2.10.3.4	Clearances in secondary circuits	See 5.3.4	P
2.10.3.5	Clearances in circuits having starting pulses		N/A
2.10.3.6	Transients from a.c. mains supply .....	2500 Vpeak	P
2.10.3.7	Transients from d.c. 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 a.c. mains supply .....		N/A
	For a d.c. mains supply .....		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	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..... :	Material group IIIb is assumed to be used	—
2.10.4.3	Minimum creepage distances		P
2.10.5	Solid insulation		P
2.10.5.1	General		P
2.10.5.2	Distances through insulation	(see appended table 2.10.5)	P
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	Between pri.-sec. of T1	P
2.10.5.7	Separable thin sheet material	T1: Ferrite core-sec. components	P
	Number of layers (pcs)..... :	2 layers of insulating tape	—
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		—
2.10.5.10	Thin sheet material – alternative test procedure		P
	Electric strength test	(see appended table 2.10.5)	—
2.10.5.11	Insulation in wound components		P
2.10.5.12	Wire in wound components		P
	Working voltage ..... :	(see appended table 2.10.2)	P
	a) Basic insulation not under stress ..... :		N/A
	b) Basic, supplementary, reinforced insulation ..... :		N/A
	c) Compliance with Annex U ..... :	Certified triple insulated wire used as sec. winding See appended table 1.5.1	P
	Two wires in contact inside wound component; angle between 45° and 90°..... :	Insulation tube used as physical separation	P
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		P

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Clause	Requirement + Test	Result - Remark	Verdict
	Working voltage .....	(see appended table 2.10.2)	P
	- Basic insulation not under stress .....	(see appended table 2.10.5)	P
	- 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		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
2.10.11	Tests for semiconductor devices and cemented joints		N/A
2.10.12	Enclosed and sealed parts		N/A

<b>3</b>	<b>WIRING, CONNECTIONS AND SUPPLY</b>		—
<b>3.1</b>	<b>General</b>		—
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	(see appended table 5.2)	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



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Clause	Requirement + Test	Result - Remark	Verdict
3.1.9	Termination of conductors	One end of metal strips is connected to the conductor of plug portion; the other end is connected to PWB; The resilience of metal strips of L/N ensures the contact pressure.	P
	10 N pull test	Components are adequately fixed	P
3.1.10	Sleeving on wiring		N/A

<b>3.2</b>	<b>Connection to a mains supply</b>		—
3.2.1	Means of connection		P
3.2.1.1	Connection to an a.c. mains supply	Plug of direct plug-in unit	P
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 of cable and conduits (mm) .....		—
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 <sup>2</sup> ), 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

<b>3.3</b>	<b>Wiring terminals for connection of external conductors</b>		—
3.3.1	Wiring terminals		N/A
3.3.2	Connection of non-detachable power supply cords		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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 <sup>2</sup> ) .....		—
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

<b>3.4</b>	<b>Disconnection from the mains supply</b>		—
3.4.1	General requirement		P
3.4.2	Disconnect devices	Plug of direct plug-in unit	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		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	Plug of direct plug-in unit	N/A
3.4.10	Interconnected equipment		N/A
3.4.11	Multiple power sources		N/A

<b>3.5</b>	<b>Interconnection of equipment</b>		—
3.5.1	General requirements		P
3.5.2	Types of interconnection circuits .....	SELV	P
3.5.3	ELV circuits as interconnection circuits		N/A
3.5.4	Data ports for additional equipment		N/A

<b>4</b>	<b>PHYSICAL REQUIREMENTS</b>		—
<b>4.1</b>	<b>Stability</b>		—
	Angle of 10°		N/A
	Test force (N) .....		N/A

<b>4.2</b>	<b>Mechanical strength</b>		—
4.2.1	General		P

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Clause	Requirement + Test	Result - Remark	Verdict
	Rack-mounted equipment.		N/A
4.2.2	Steady force test, 10 N		P
4.2.3	Steady force test, 30 N		N/A
4.2.4	Steady force test, 250 N		P
4.2.5	Impact test		N/A
	Fall test		N/A
	Swing test		N/A
4.2.6	Drop test; height (mm) .....	1000 mm	P
4.2.7	Stress relief test	95 °C	P
4.2.8	Cathode ray tubes		N/A
	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

<b>4.3</b>	<b>Design and construction</b>		—
4.3.1	Edges and corners		P
4.3.2	Handles and manual controls; force (N) .....		N/A
4.3.3	Adjustable controls		N/A
4.3.4	Securing of parts		N/A
4.3.5	Connection by plugs and sockets		N/A
4.3.6	Direct plug-in equipment		P
	Torque .....	<0,1 Nm	—
	Compliance with the relevant mains plug standard .....	see summary of testing	P
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		N/A
4.3.10	Dust, powders, liquids and gases		N/A
4.3.11	Containers for liquids or gases		N/A
4.3.12	Flammable liquids .....		N/A
	Quantity of liquid (l) .....		N/A
	Flash point (°C) .....		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
4.3.13	Radiation		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		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

<b>4.4</b>	<b>Protection against hazardous moving parts</b>		—
4.4.1	General		N/A
4.4.2	Protection in operator access areas .....		N/A
	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 .....		N/A
4.4.5.3	Protection for service persons		N/A
	Use of symbol or warning .....		N/A

<b>4.5</b>	<b>Thermal requirements</b>		—
4.5.1	General		P
4.5.2	Temperature tests		P

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Clause	Requirement + Test	Result - Remark	Verdict
	Normal load condition per Annex L .....	Electronic load was used	—
4.5.3	Temperature limits for materials	(see appended table 4.5)	P
4.5.4	Touch temperature limits	(see appended table 4.5)	P
4.5.5	Resistance to abnormal heat .....	(see appended table 4.5.5)	P

<b>4.6</b>	<b>Openings in enclosures</b>		—
4.6.1	Top and side openings		P
	Dimensions (mm) .....	Opening for output port at side	—
4.6.2	Bottoms of fire enclosures		P
	Construction of the bottom, dimensions (mm) ..	Opening for output port at side	—
4.6.3	Doors or covers in fire enclosures		N/A
4.6.4	Openings in 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		N/A
4.6.5	Adhesives for constructional purposes		N/A
	Conditioning temperature (°C), time (weeks).....		—

<b>4.7</b>	<b>Resistance to fire</b>		—
4.7.1	Reducing the risk of ignition and spread of flame		P
	Method 1, selection and application of components wiring and materials	(see appended table 4.7)	P
	Method 2, application of all of simulated fault condition tests		N/A
4.7.2	Conditions for a fire enclosure		P
4.7.2.1	Parts requiring a fire enclosure		P
4.7.2.2	Parts not requiring a fire enclosure		N/A
4.7.3	Materials		P
4.7.3.1	General		P
4.7.3.2	Materials for fire enclosures	V-0 enclosure used	P
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	V-1 or better PWB used	P
4.7.3.5	Materials for air filter assemblies		N/A
4.7.3.6	Materials used in high-voltage components		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
<b>5</b>	<b>ELECTRICAL REQUIREMENTS AND SIMULATED ABNORMAL CONDITIONS</b>		—
<b>5.1</b>	<b>Touch current and protective conductor current</b>		—
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 a.c. mains supply		P
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		P
5.1.4	Application of measuring instrument		P
5.1.5	Test procedure		P
5.1.6	Test measurements		P
	Supply voltage (V) .....	see table 5.1	—
	Measured touch current (mA) .....	see table 5.1	—
	Max. allowed touch current (mA) .....	see table 5.1	—
	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		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
<b>5.2</b>	<b>Electric strength</b>		—
5.2.1	General	(see appended table 5.2)	P
5.2.2	Test procedure		P

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Clause	Requirement + Test	Result - Remark	Verdict
<b>5.3</b>	<b>Abnormal operating and fault conditions</b>		—
5.3.1	Protection against overload and abnormal operation	(see appended table 5.3)	P
5.3.2	Motors		N/A
5.3.3	Transformers	(see appended Annex C)	P
5.3.4	Functional insulation .....	a), c)	P
5.3.5	Electromechanical components		N/A
5.3.6	Audio amplifiers in ITE .....		N/A
5.3.7	Simulation of faults		P
5.3.8	Unattended equipment		N/A
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
<b>6</b>	<b>CONNECTION TO TELECOMMUNICATION NETWORKS</b>		—
<b>6.1</b>	<b>Protection of telecommunication network service persons, and users of other equipment connected to the network, from hazards in the equipment</b>		—
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
<b>6.2</b>	<b>Protection of equipment users from overvoltages on telecommunication networks</b>		—
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
<b>6.3</b>	<b>Protection of the telecommunication wiring system from overheating</b>		—
	Max. output current (A) .....		—
	Current limiting method .....		—

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Clause	Requirement + Test	Result - Remark	Verdict
<b>7</b>	<b>CONNECTION TO CABLE DISTRIBUTION SYSTEMS</b>		—
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
7.4.2	Voltage surge test		N/A
7.4.3	Impulse test		N/A

<b>A</b>	<b>ANNEX A, TESTS FOR RESISTANCE TO HEAT AND FIRE</b>		—
<b>A.1</b>	<b>Flammability test for fire enclosures of movable equipment having a total mass exceeding 18 kg, and of stationary equipment (see 4.7.3.2)</b>		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) .....		—
<b>A.2</b>	<b>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)</b>		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



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Clause	Requirement + Test	Result - Remark	Verdict
	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) .....		—
	Sample 3 burning time (s) .....		—
<b>A.3</b>	<b>Hot flaming oil test (see 4.6.2)</b>		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>B</b>	<b>ANNEX B, MOTOR TESTS UNDER ABNORMAL CONDITIONS(see 4.7.2.2 and 5.3.2)</b>		—
<b>B.1</b>	<b>General requirements</b>		N/A
	Position .....		—
	Manufacturer .....		—
	Type .....		—
	Rated values .....		—
<b>B.2</b>	<b>Test conditions</b>		N/A
<b>B.3</b>	<b>Maximum temperatures</b>		N/A
<b>B.4</b>	<b>Running overload test</b>		N/A
<b>B.5</b>	<b>Locked-rotor overload test</b>		N/A
	Test duration (days) .....		—
	Electric strength test: test voltage (V) .....		—
<b>B.6</b>	<b>Running overload test for d.c. motors in secondary circuits</b>		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>B.7</b>	<b>Locked-rotor overload test for d.c. motors in secondary circuits</b>		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

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Clause	Requirement + Test	Result - Remark	Verdict
<b>B.8</b>	<b>Test for motors with capacitors</b>		N/A
<b>B.9</b>	<b>Test for three-phase motors</b>		N/A
<b>B.10</b>	<b>Test for series motors</b>		N/A
	Operating voltage (V) .....		—

<b>C</b>	<b>ANNEX C, TRANSFORMERS (see 1.5.4 and 5.3.3)</b>		—
	Position .....	T1 bridging pri. - sec	—
	Manufacturer .....	(see appended table 1.5.1)	—
	Type .....	(see appended table 1.5.1)	—
	Rated values .....	Class B	—
	Method of protection .....	Fuse in the circuit	—
<b>C.1</b>	<b>Overload test</b>	(see appended table 5.3)	P
<b>C.2</b>	<b>Insulation</b>	(see appended tables 5.2 and C2)	P
	Protection from displacement of windings .....	Sec. triple insulated winding wire, insulating tape and bobbin	P

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

<b>E</b>	<b>ANNEX E, TEMPERATURE RISE OF A WINDING (see 1.4.13)</b>		N/A
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<b>F</b>	<b>ANNEX F, MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES (see 2.10 and Annex G)</b>		P
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<b>G</b>	<b>ANNEX G, ALTERNATIVE METHOD FOR DETERMINING MINIMUM CLEARANCES</b>		—
<b>G.1</b>	<b>Clearances</b>		N/A
G.1.1	General		N/A
G.1.2	Summary of the procedure for determining minimum clearances		N/A
<b>G.2</b>	<b>Determination of mains transient voltage (V)</b>		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

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Clause	Requirement + Test	Result - Remark	Verdict
<b>G.3</b>	<b>Determination of telecommunication network transient voltage (V) .....</b>		N/A
<b>G.4</b>	<b>Determination of required withstand voltage (V)</b>		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
<b>G.5</b>	<b>Measurement of transient voltages (V)</b>		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
<b>G.6</b>	<b>Determination of minimum clearances .....</b>		N/A
<b>H</b>	<b>ANNEX H, IONIZING RADIATION (see 4.3.13)</b>		N/A
<b>J</b>	<b>ANNEX J, TABLE OF ELECTROCHEMICAL POTENTIALS (see 2.6.5.6)</b>		N/A
	Metal(s) used .....		—
<b>K</b>	<b>ANNEX K, THERMAL CONTROLS (see 1.5.3 and 5.3.8)</b>		—
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
<b>L</b>	<b>ANNEX L, NORMAL LOAD CONDITIONS FOR SOME TYPES OF ELECTRICAL BUSINESS EQUIPMENT (see 1.2.2.1 and 4.5.2)</b>		—
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

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Clause	Requirement + Test	Result - Remark	Verdict
<b>M</b>	<b>ANNEX M, CRITERIA FOR TELEPHONE RINGING SIGNALS (see 2.3.1)</b>		—
M.1	Introduction		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
<b>N</b>	<b>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)</b>		—
N.1	ITU-T impulse test generators		N/A
N.2	IEC 60065 impulse test generator		N/A
<b>P</b>	<b>ANNEX P, NORMATIVE REFERENCES</b>		P
<b>Q</b>	<b>ANNEX Q, Voltage dependent resistors (VDRs) (see 1.5.9.1)</b>		—
	- Preferred climatic categories .....		N/A
	- Maximum continuous voltage .....		N/A
	- Combination pulse current .....		N/A
	Body of the VDR Test according to IEC60695-11-5.....		N/A
	Body of the VDR. Flammability class of material ( min V-1).....		N/A
<b>R</b>	<b>ANNEX R, EXAMPLES OF REQUIREMENTS FOR QUALITY CONTROL PROGRAMMES</b>		—
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

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Clause	Requirement + Test	Result - Remark	Verdict
<b>S</b>	<b>ANNEX S, PROCEDURE FOR IMPULSE TESTING (see 6.2.2.3)</b>		—
S.1	Test equipment		N/A
S.2	Test procedure		N/A
S.3	Examples of waveforms during impulse testing		N/A
<b>T</b>	<b>ANNEX T, GUIDANCE ON PROTECTION AGAINST INGRESS OF WATER (see 1.1.2)</b>		N/A
			—
<b>U</b>	<b>ANNEX U, INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION (see 2.10.5.4)</b>		P
		Approved TIW	—
<b>V</b>	<b>ANNEX V, AC POWER DISTRIBUTION SYSTEMS (see 1.6.1)</b>		—
V.1	Introduction		P
V.2	TN power distribution systems		P
<b>W</b>	<b>ANNEX W, SUMMATION OF TOUCH CURRENTS</b>		—
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
<b>X</b>	<b>ANNEX X, MAXIMUM HEATING EFFECT IN TRANSFORMER TESTS (see clause C.1)</b>		—
X.1	Determination of maximum input current		N/A
X.2	Overload test procedure		N/A
<b>Y</b>	<b>ANNEX Y, ULTRAVIOLET LIGHT CONDITIONING TEST (see 4.3.13.3)</b>		—
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

<b>IEC 60950-1</b>			
<b>Clause</b>	<b>Requirement + Test</b>	<b>Result - Remark</b>	<b>Verdict</b>
<b>Z</b>	<b>ANNEX Z, OVERVOLTAGE CATEGORIES (see 2.10.3.2 and Clause G.2)</b>		<b>P</b>
<b>AA</b>	<b>ANNEX AA, MANDREL TEST (see 2.10.5.8)</b>		<b>N/A</b>
<b>BB</b>	<b>ANNEX BB, CHANGES IN THE SECOND EDITION</b>		<b>N/A</b>
<b>CC</b>	<b>ANNEX CC, Evaluation of integrated circuit (IC) current limiters</b>		<b>—</b>
CC.1	General		N/A
CC.2	Test program 1.....:		N/A
CC.3	Test program 2.....:		N/A
CC.4	Test program 3.....:		N/A
CC.5	Compliance.....:		N/A
<b>DD</b>	<b>ANNEX DD, Requirements for the mounting means of rack-mounted equipment</b>		<b>—</b>
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
<b>EE</b>	<b>ANNEX EE, Household and home/office document/media shredders</b>		<b>—</b>
EE.1	General		N/A
EE.2	Markings and instructions		N/A
	Use of markings or symbols.....:		N/A
	Information of user instructions, maintenance and/or servicing instructions.....:		N/A
EE.3	Inadvertent reactivation test.....:		N/A
EE.4	Disconnection of power to hazardous moving parts:		N/A
	Use of markings or symbols.....:		N/A
EE.5	Protection against hazardous moving parts		N/A
	Test with test finger (Figure 2A) .....		N/A
	Test with wedge probe (Figure EE1 and EE2) .....		N/A

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Clause	Requirement + Test			Result - Remark	Verdict
<b>1.5.1</b>	<b>TABLE: List of critical components</b>				<b>P</b>
Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity <sup>1</sup> )
Enclosure and EU pin bridge	SABIC POLYPROPYL EN ES B V	940(f1)	PC, V-0, Min. thickness: 2,2 mm	--	UL (E45329)
Fuse (F1)	Dongguan Hongda Electronic Technology Co., Ltd.	2009	T3,15AL, 250 V	IEC 60127-1: 2006 EN 60127-1: 2006 IEC 60127-3: 1988 + A2 EN 60127-3: 1996 + A2	VDE (40028260)
Y-Cap. (CY1)	JYA-NAY Co., Ltd.	JN	AC 400 V, 2200 pF, 25/125/21/C, Y1	IEC 60384-14: 2005 EN 60384-14: 2005	TÜV Rheinland (R 50232059)
Alt.	Jyh Chung Electronic Co., Ltd.	JD	AC 400 V, 2200 pF, 40/125/21/C, Y1	IEC 60384-14: 2005 EN 60384-14: 2005	VDE (137027)
Transformer (T1)	Luotian DARTH Feng Electronics Co., Ltd.	ZX-3U01	Class B. See table C.2	Annex C	Tested with appliance
--Bobbin	CHANG CHUN PLASTICS CO LTD	T375J	PMC, V-0, 150 °C, min. thickness: 0,7 mm	UL 746D	UL (E59481)
--Primary winding	TONGLING NONFERROUS COPPER CROWN ELECTRICAL CO LTD	UEW	Polyurethane, 130 °C	--	UL (E217937)
--Secondary winding (TIW)	SHENZHEN KAIZHONG HEDONG NEW MATERIAL CO LTD	TIW-B	Class B, triple insulated wire, 130°C, reinforced insulation	--	UL (E357240) VDE (40038861)
--Insulating tape	DONGGUAN LING FREE HARDWARE PLASTICS PRODUCT CO LTD	KD312#	Polyethylene, 200 °C	--	UL (E322369)

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Clause	Requirement + Test			Result - Remark	Verdict
--Tube	DONGGUAN LING FREE HARDWARE PLASTICS PRODUCT CO LTD	"LING FREE PTFE TUBE"	PTFE, 200 °C	--	UL (E352366)
PWB	Interchangeable	Interchangeable	V-1 or batter, 130 °C, min. thickness: 1,2 mm	--	UL

**Supplementary information:**

<sup>1)</sup> Provided evidence ensures the agreed level of compliance. See OD-CB2039.

1.5.1	TABLE: Opto Electronic Devices	N/A
Manufacturer .....	:	--
Type .....	:	--
Separately tested .....	:	--
Bridging insulation .....	:	--
External creepage distance .....	:	--
Internal creepage distance .....	:	--
Distance through insulation .....	:	--
Tested under the following conditions .....	:	--
Input .....	:	--
Output .....	:	--
supplementary information		
--		



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Clause	Requirement + Test				Result - Remark	Verdict
<b>1.6.2</b>	<b>TABLE: Electrical data (in normal conditions)</b>					<b>P</b>
U (V)	I (A)	I <sub>rated</sub> (A)	P (W)	Fuse #	I <sub>fuse</sub> (A)	Condition/status
90V/50Hz	0,369	--	18,9	F1	0,369	Load at 3,1 A
<b>90V/60Hz</b>	<b>0,371</b>	--	<b>18,8</b>	<b>F1</b>	<b>0,371</b>	<b>Ditto</b>
100V/50Hz	0,337	0,5	18,7	F1	0,337	Ditto
100V/60Hz	0,343	0,5	18,7	F1	0,343	Ditto
240V/50Hz	0,165	0,5	18,4	F1	0,165	Ditto
240V/60Hz	0,174	0,5	18,4	F1	0,174	Ditto
<b>264V/50Hz</b>	<b>0,159</b>	--	<b>18,5</b>	<b>F1</b>	<b>0,159</b>	<b>Ditto</b>
264V/60Hz	0,166	--	18,5	F1	0,166	Ditto
Supplementary information: --						

<b>2.1.1.5 c) 1)</b>	<b>TABLE: max. V, A, VA test</b>				<b>P</b>
Voltage (rated) (V)	Current (rated) (A)	Voltage (max.) (V)	Current (max.) (A)	VA (max.) (VA)	
5,0	3,1	5,21	3,48	17,3	
Supplementary information:					
--					

<b>2.1.1.5 c) 2)</b>	<b>TABLE: stored energy</b>		<b>P</b>
Capacitance C (μF)	Voltage U (V)	Energy E (J)	
3000	5,21	0,041	
Supplementary information:			
--			

<b>2.2</b>	<b>TABLE: evaluation of voltage limiting components in SELV circuits</b>		<b>P</b>
Component (measured between)	max. voltage (V) (normal operation)		Voltage Limiting Components
	V peak	V d.c.	
Transformer ( T1 ) output	30,0	--	--
Fault test performed on voltage limiting components	Voltage measured (V) in SELV circuits (V peak or V d.c.)		
--	--		
Supplementary information:			
--			

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Clause	Requirement + Test			Result - Remark		Verdict
<b>2.5</b>	<b>TABLE: Limited power sources</b>					<b>P</b>
Circuit output tested:						
Note: Measured Uoc (V) with all load circuits disconnected:						
Components	Test condition (Single fault)	Uoc (V)	I <sub>sc</sub> (A)		VA	
			Meas.	Limit	Meas.	Limit
Output terminal	Overload	5,21	3,49	8,0	17,3	100
Output terminal	Sc R8	0	0	8,0	0	100
supplementary information:						
Sc=Short circuit, Oc=Open circuit						

<b>2.10.2</b>	<b>Table: working voltage measurement</b>				<b>P</b>
Location	RMS voltage (V)	Peak voltage (V)	Comments		
CY1 Pri. to Sec.	219	360	--		
T1 Pin 5 to Pin 7	219	357	--		
T1 Pin 5 to Pin 6	212	369	--		
T1 Pin 3 to Pin 7	<b>259</b>	<b>492</b>	<b>Max. Vrms &amp; Max. Vpeak</b>		
T1 Pin 3 to Pin 6	249	483	--		
T1 Pin 2 to Pin 7	218	<b>399</b>	--		
T1 Pin 2 to Pin 6	220	375	--		
T1 Pin 1 to Pin 7	218	354	--		
T1 Pin 1 to Pin 6	219	358	--		
Supplementary information:					
--					

<b>2.10.3 and 2.10.4</b>	<b>TABLE: Clearance and creepage distance measurements</b>						<b>P</b>
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:							
--	--	--	--	--	--	--	
Basic/supplementary:							
Two ends of F1 on PWB	< 420	< 250	2,0	3,0	2,5	3,0	
Line to neutral (before F1)	< 420	< 250	2,0	3,8	2,5	3,8	
Reinforced:							
Primary component to accessible enclosure	< 420	< 250	4,0	5,6	5,0	5,6	

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Clause	Requirement + Test			Result - Remark		Verdict
Primary to secondary (Through PCB)	< 420	< 250	4,0	5,0	5,0	5,0
CY1 primary to secondary on PWB	< 420	< 250	4,0	6,7	5,0	6,7
T1, Primary winding to secondary winding on PWB	492	259	4,2	5,2	5,2	5,7
T1, Primary winding to secondary winding on body	492	259	4,2	5,8	5,2	5,8
T1, core to secondary winding on body	492	259	4,2	5,8	5,2	5,8
T1, core to sec. component C11	492	259	4,2	5,4	5,2	7,5
Supplementary information: --						

2.10.5	TABLE: Distance through insulation measurements					P
Distance through insulation (DTI) at/of:	U peak (V)	U rms (V)	Test voltage (V)	Required DTI (mm)	DTI (mm)	
Bobbin of Transformer	492	259	3000	0,4	0,7	
Sec. winding (TIW)	492	259	3000	3 layers	3 layers	
One layer of insulation between TIW and other winding	492	259	1740	--	2 layers	
Enclosure	339	240	3000	0,4	2,2	
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								--	--
Is it possible to install the battery in a reverse polarity position?								--	--
	Non-rechargeable batteries			Rechargeable batteries					
	Discharging		Un-intentional charging	Charging		Discharging		Reversed charging	
	Meas. current	Manuf. Specs.		Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.

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Clause	Requirement + Test								Result - Remark	Verdict
Max. current during normal condition	--	--	--	--	--	--	--	--	--	
Max. current during fault condition	--	--	--	--	--	--	--	--	--	
Test results:									Verdict	
- Chemical leaks						--			--	
- Explosion of the battery						--			--	
- Emission of flame or expulsion of molten metal						--			--	
- Electric strength tests of equipment after completion of tests						--			--	
Supplementary information:										

4.3.8	TABLE: Batteries	N/A
Battery category.....	--	
Manufacturer.....	--	
Type / model.....	--	
Voltage.....	--	
Capacity.....	--	
Tested and Certified by (incl. Ref. No.).....	--	
Circuit protection diagram:		
--		

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Clause	Requirement + Test	Result - Remark	Verdict

MARKINGS AND INSTRUCTIONS (1.7.13)	
Location of replaceable battery	--
Language(s) .....	--
Close to the battery .....	--
In the servicing instructions .....	--
In the operating instructions .....	--

4.5	TABLE: Thermal requirements						P	
	Supply voltage (V) .....	90 V	264 V				—	
	Ambient Tmin (°C) .....	24,4	24,7				—	
	Ambient Tmax (°C) .....	24,8	25,1				—	
	Maximum measured temperature T of part/at .....	T (°C)				Allowed T (°C) Tma = 40 °C		
	Surface of E-cap. (C1)	66,0	62,2			90		
	Surface of Y-cap. (CY1)	62,9	59,7			110		
	Winding of transformer (Switch mode)T1	85,0	80,0			95		
	Ferrite core of transformer T1	78,8	73,8			Ref.		
	PWB (near DB1)	72,4	68,7			115		
	PWB (near U1)	98,5	102,5			115		
	PWB (near D6)	82,7	81,7			115		
	Enclosure inside (near Top)	69,2	65,2			Ref.		
	Enclosure inside (near side)	65,4	62,1			Ref.		
	Non-metallic enclosure surface (Top, near T1)	50,3	49,0			80		
	Non-metallic enclosure surface (Side, near T1)	52,5	50,2			80		
	Non-metallic enclosure surface (Front, near T1)	55,7	56,6			80		
	Non-metallic enclosure surface (Bottom, near pin)	33,7	33,0			80		
Supplementary information:--								
	Temperature T of winding:	t1 (°C)	R1 (Ω)	t2 (°C)	R2 (Ω)	T (°C)	Allowed Tmax (°C)	Insulation class
	--	--	--	--	--	--	--	B
Supplementary information:								
<i>Remark:</i>								
<i>For components with temperature marking, allowed T = Tmax + Tamb - Tma (Tma = 40 °C, Tamb=25 °C)</i>								

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Clause	Requirement + Test	Result - Remark	Verdict
<b>4.5.5</b>	<b>TABLE: Ball pressure test of thermoplastic parts</b>		<b>P</b>
	Allowed impression diameter (mm) .....	≤ 2 mm	—
Part	Test temperature (°C)	Impression diameter (mm)	
Pin bridge	125	1,2	
Supplementary information: --			

4.7 TABLE: Resistance to fire						P
Part	Manufacturer of material	Type of material	Thickness (mm)	Flammability class	Evidence	
Enclosure	*	*	*	*	*	
Bobbin	*	*	*	*	*	
PWB	*	*	*	*	*	
Supplementary information: *- See table 1.5.1 for details.						

5.1 TABLE: touch current measurement				P
Measured between:	Measured (mA)	Limit (mA)	Comments/conditions	
L/N to output terminal	0,016	0,25	Normal condition	
L/N to enclosure	0,122	0,25	Normal condition	
supplementary information:				
Test Voltage: 264 V, 60 Hz				

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	
Functional:				
L to N of plug without F1	AC	1500	No	
Basic/supplementary:				
--	--	--	--	
Reinforced:				
L/N of plug and output terminal	AC	3000	No	
L/N of plug and enclosure	AC	3000	No	
One layer insulation tape of transformer T1	AC	1740	No	
Transformer T1 core & secondary winding	AC	3000	No	
Transformer T1 primary winding & secondary winding	AC	3000	No	
Supplementary information: --				

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Clause	Requirement + Test				Result - Remark	Verdict
<b>5.3</b>	<b>TABLE: Fault condition tests</b>					<b>P</b>
	Ambient temperature (°C) .....				24,4 - 24,7 °C	—
	Power source for EUT: Manufacturer, model/type, output rating .....				--	—
Component No.	Fault	Supply voltage (V)	Test time	Fuse #	Fuse current (A)	Observation
Output terminal	Overload	90	1 h 57 min	F1	0,387 → 0 ↔ 0,034	When output current rised to 3,35 A for attaining steady conditions and unit shut down when added 5% output current, no component damage, no hazard.  Pn = 20,8 → 0 ↔ 0,8 W Iout = 3,35 → 0 ↔ 2,16 A, Pout = 16,6 → 0 W Winding of transformer (Switch mode) T1 = 88,2 °C
Output terminal	Overload	264	1 h 49 min	F1	0,167 → 0	When output current rised to 3,42 A, EUT steady conditions attained and EUT shut down when added 5% output current, no component damage, no hazard.  Pn = 20,3 → 0 W Iout = 3,42 → 0 A, Pout = 17,2 → 0 W Winding of transformer (Switch mode) T1 = 84,2 °C
USB terminal	s-c	264	< 1 s	F1	0,017 ↔ 0,019	EUT shut down immediately, no component damage, no hazard.
D6	s-c	264	< 1 s	F1	0 ↔ 0,1	EUT shut down immediately, no component damage, no hazard.
U1	s-c pin 8/4	90	< 1 s	F1	0	Fuse F1 opened and components U1, R8 damaged immediately. No hazard.
U1	s-c pin 8/4	264	< 1 s	F1	0	Fuse F1 opened and components U1, R8 damaged immediately. No hazard.
R8	s-c	264	< 1 s	F1	0	EUT shut down and component U1 damaged immediately, no component damage, no hazard.
C1	s-c	90	< 1 s	F1	0	Fuse F1 opened immediately. No hazard.
C1	s-c	264	< 1 s	F1	0	Fuse F1 opened immediately. No hazard.
DB1	s-c pin 3/2	90	< 1 s	F1	0	Fuse F1 opened immediately. No hazard.
DB1	s-c pin 3/2	264	< 1 s	F1	0	Fuse F1 opened immediately. No hazard.

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Clause	Requirement + Test					Result - Remark	Verdict
DB1	s-c pin 3/4	90	< 1 s	F1	0	Fuse F1 opened immediately. No hazard.	
DB1	s-c pin 3/4	264	< 1 s	F1	0	Fuse F1 opened immediately. No hazard.	
Supplementary information: Dielectric strength test between primary and secondary circuit: AC 3000 V / 1 min: Pass							



IEC 60950-1							
Clause	Requirement + Test			Result - Remark			Verdict
<b>C.2</b>	<b>TABLE: transformers</b>						<b>P</b>
Loc.	Tested insulation	Working voltage peak / V (2.10.2)	Working voltage rms / V (2.10.2)	Required electric strength (5.2)	Required clearance / mm (2.10.3)	Required creepage distance / mm (2.10.4)	Required distance thr. insul. (2.10.5)
T1 output	Reinforce insulation	492	259	AC 3000 V	4,2	5,2	0,4
Loc.	Tested insulation			Test voltage/ V	Measured clearance / mm	Measured creepage dist./ mm	Measured distance thr. insul. / mm; number of layers
Pri. to sec.	Reinforced insulation			AC3000V	5,8	5,8	--
Ferrite core to sec.	Reinforced insulation			AC3000V	5,8	5,8	--
Bobbin	--			--	--	--	0,7
Supplementary information:							
--							

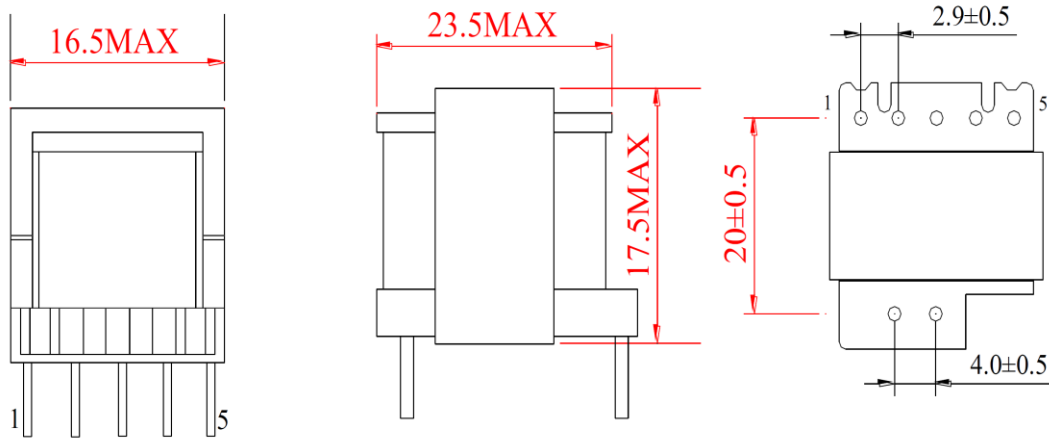
## IEC 60950-1

Clause	Requirement + Test	Result - Remark	Verdict
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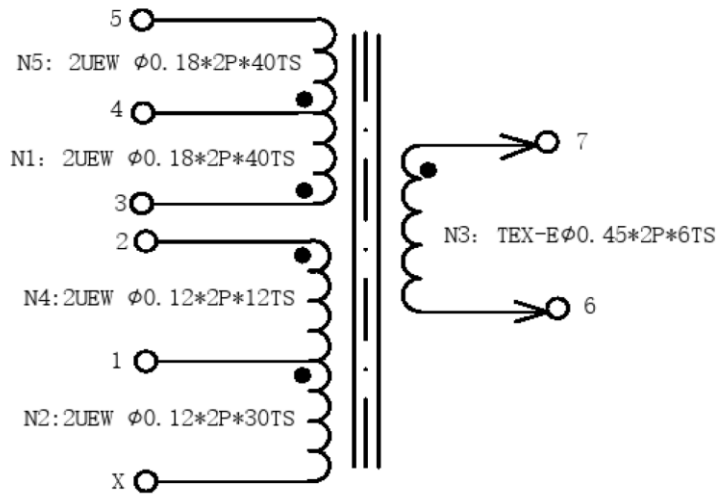
<b>C.2</b>	<b>TABLE: transformers</b>		<b>P</b>
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Transformer

2:MECHANICAL DIMENSION (UNIT:mm)



SCHEMATIC:



WINDING LIST

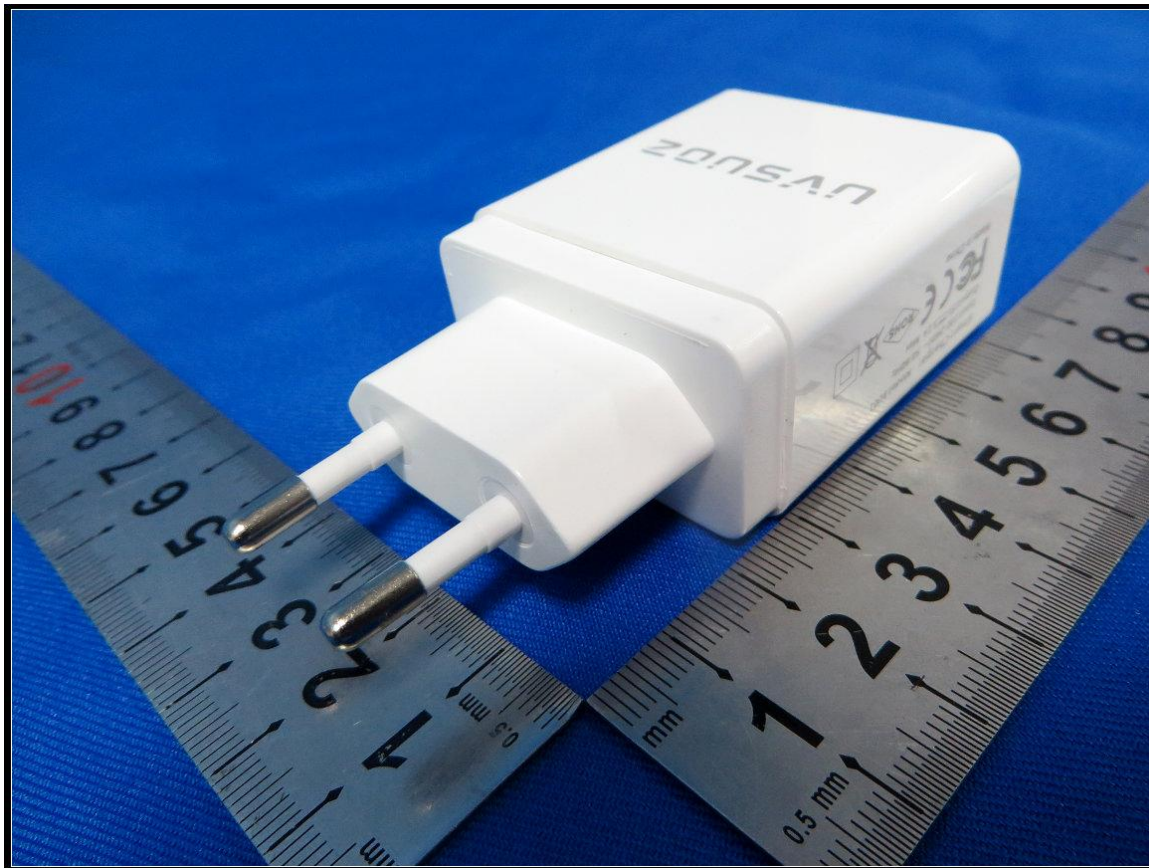
NO: 序号	PIN 起头	PIN 尾头	TURNS 圈数	INDUCTANCE 线径	TYPE 类型	绕线方向	TAPE LAYERS 胶带层数	WindingMethod 绕线方法	
N1	3	4	40	0.18*2P	2UEW-F	顺时针	2	密绕	
N2	1	/	30	0.12*2P	2UEW-F	顺时针	2	密绕	
N3	7	6	6	0.45*2P	TWX-E	顺时针	2	密绕	
N4	2	1	12	0.12*2P	2UEW-F	顺时针	2	密绕	
N5	4	5	40	0.18*2P	2UEW-F	顺时针	3	密绕	

--- End of Report ---

**Attachment 1 Photo documentation**

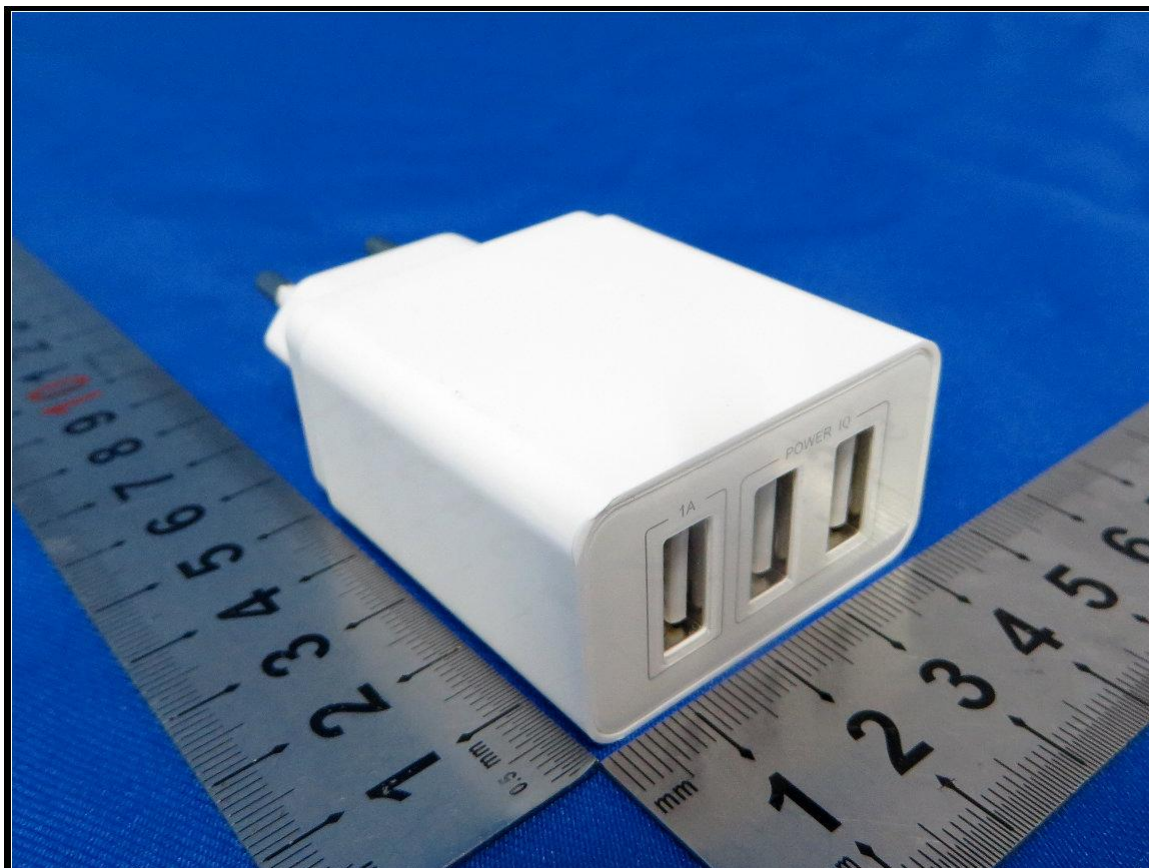
Whole unit (for all models)

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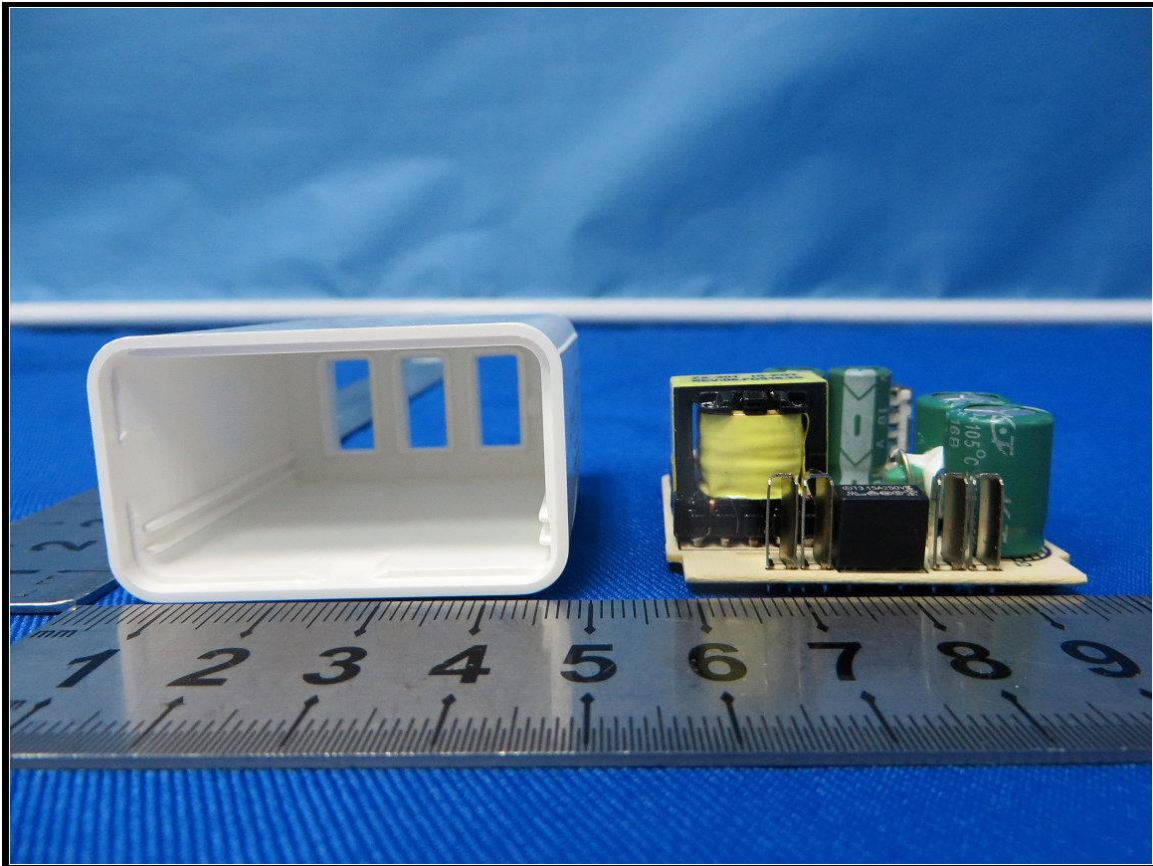
For 3 USB terminals

---

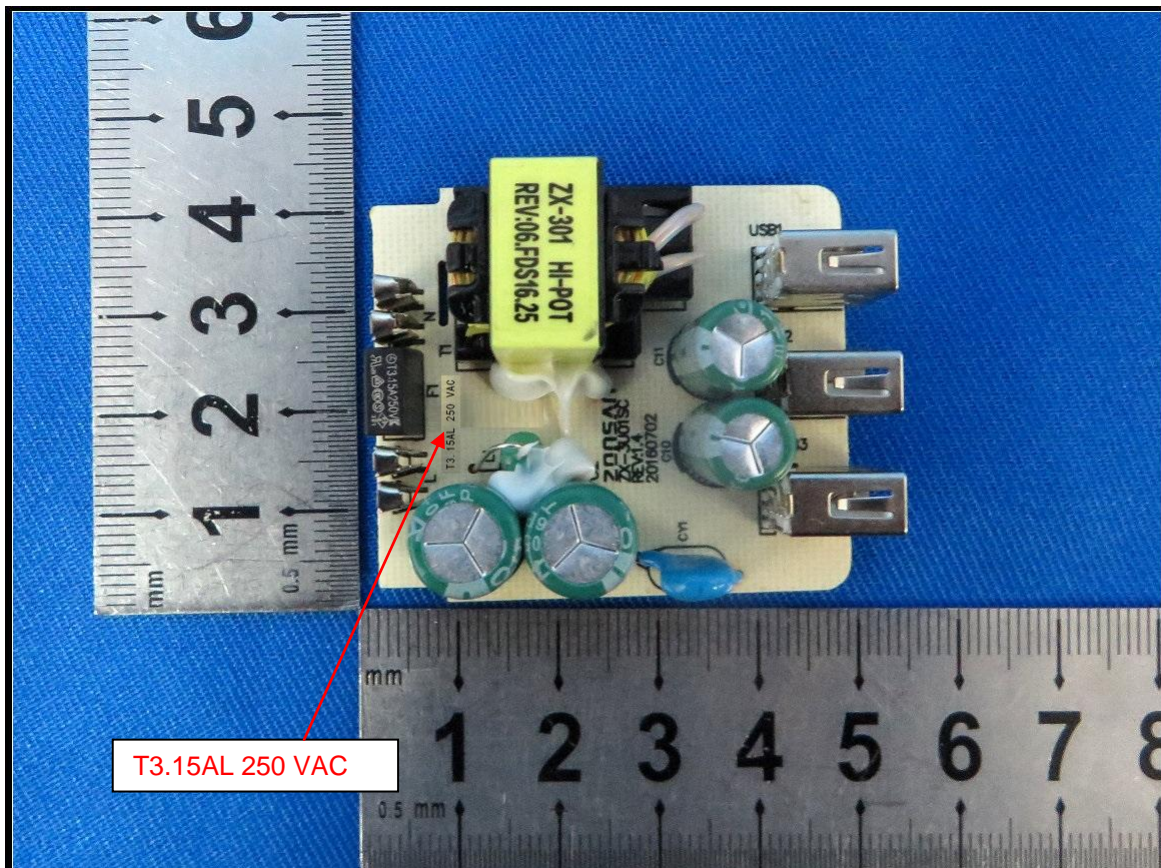


**Attachment 1 Photo documentation**

Internal view (for 3 USB terminals)

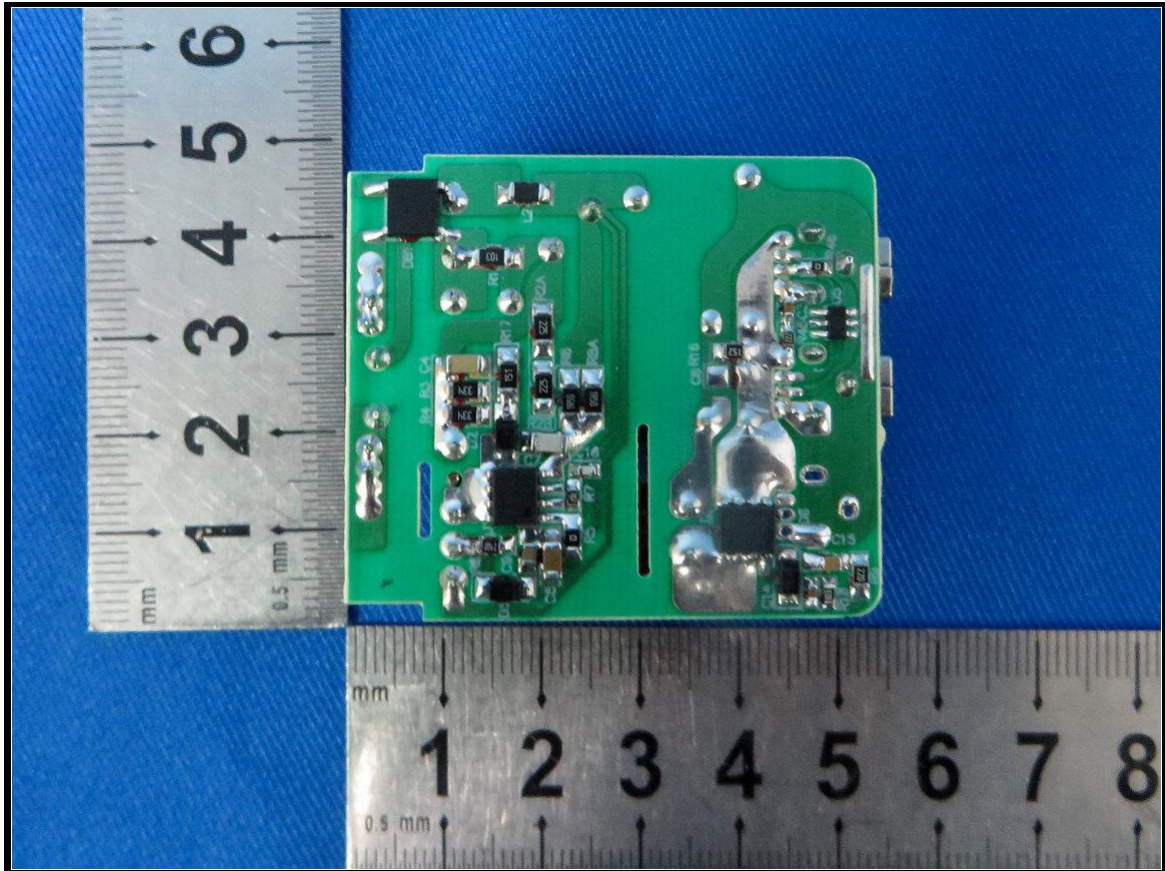


PWB (for 3 USB terminals)



**Attachment 1 Photo documentation**

PWB (for 3 USB terminals)

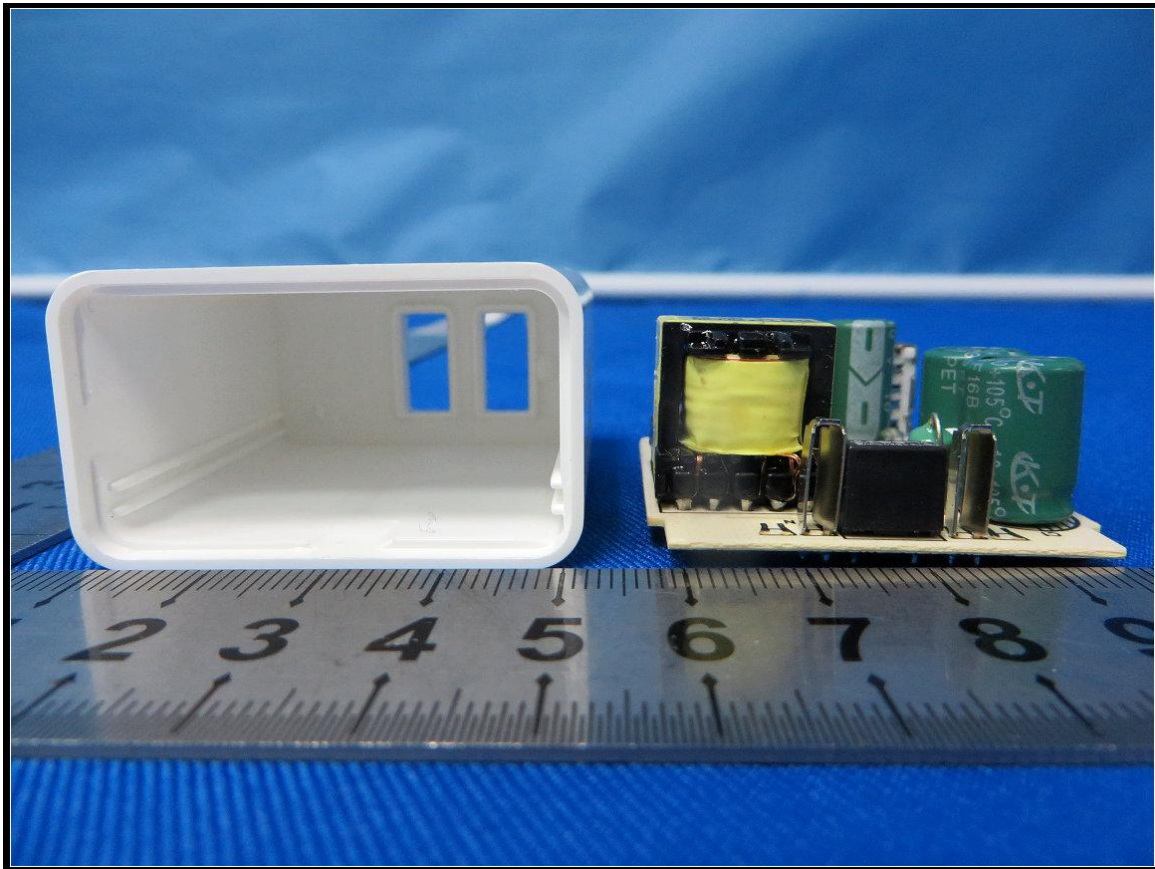


For 2 USB terminals

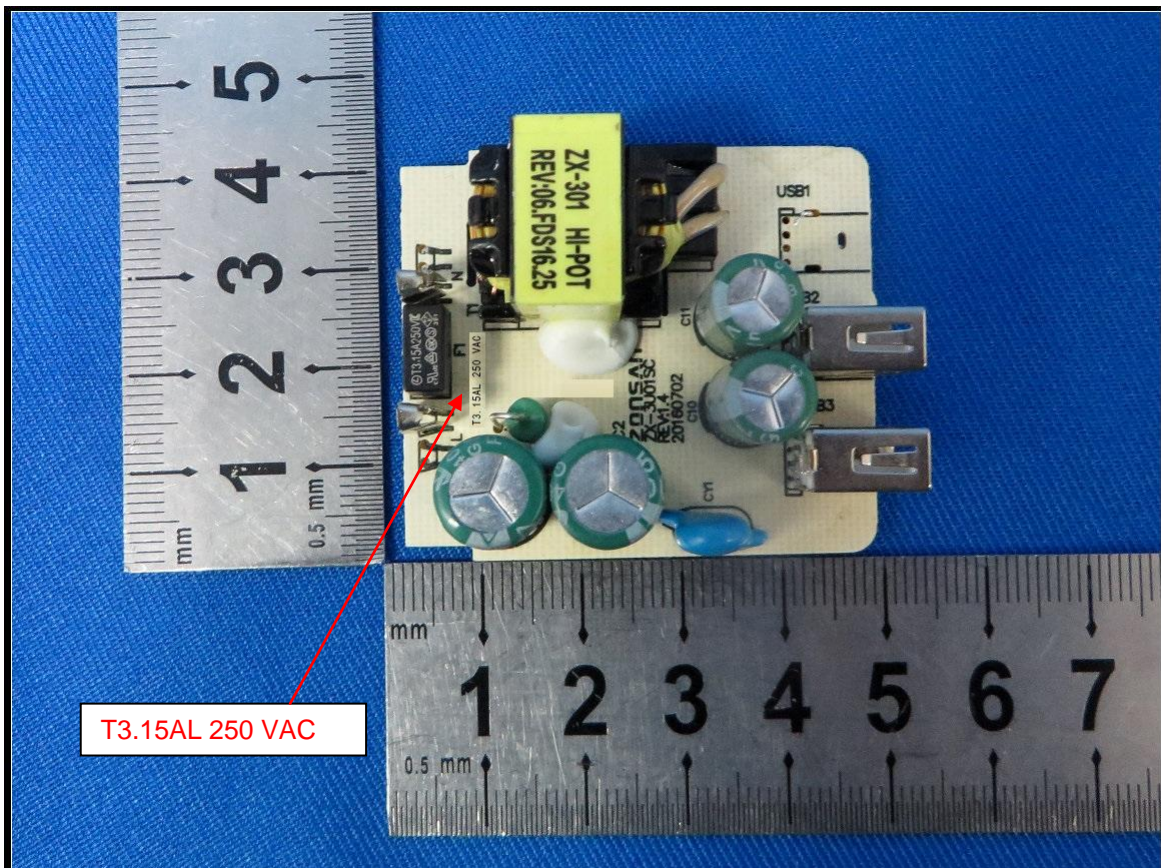


Attachment 1 Photo documentation

Internal view (for 2 USB terminals)



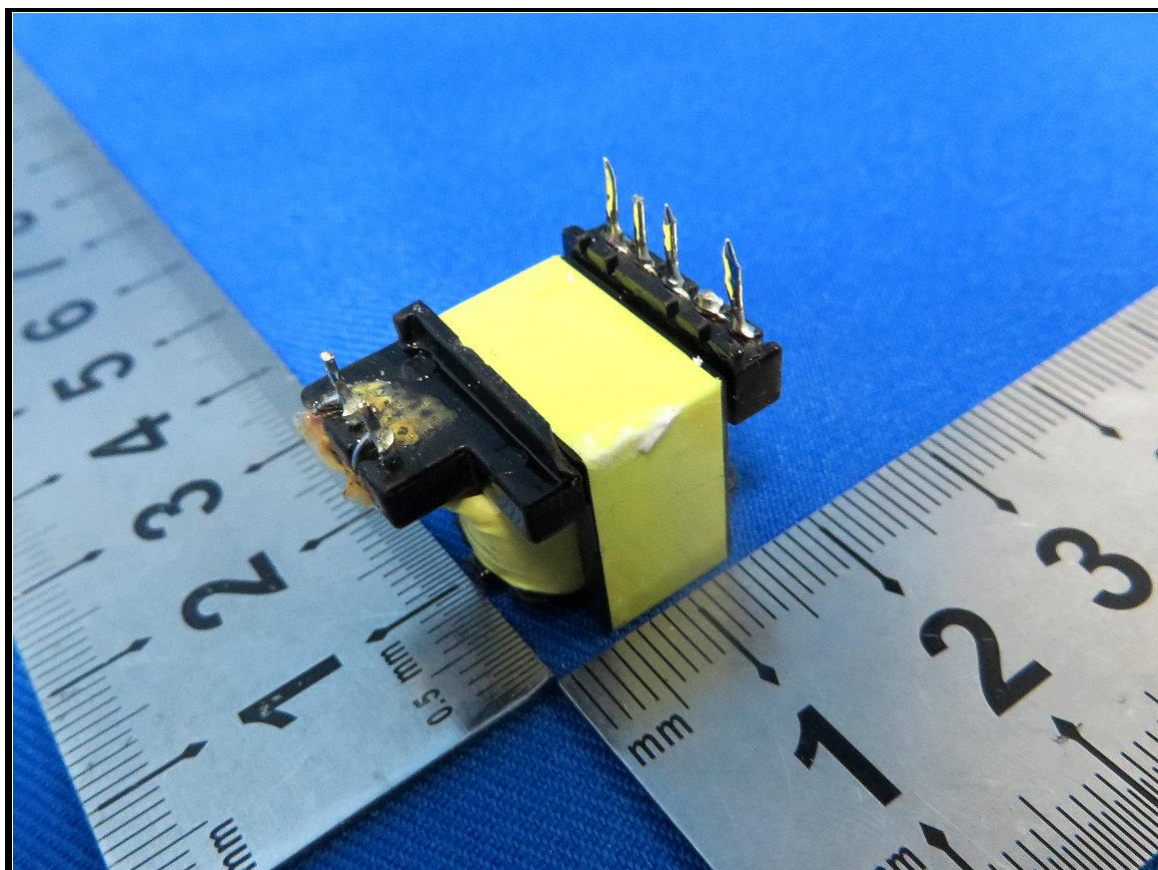
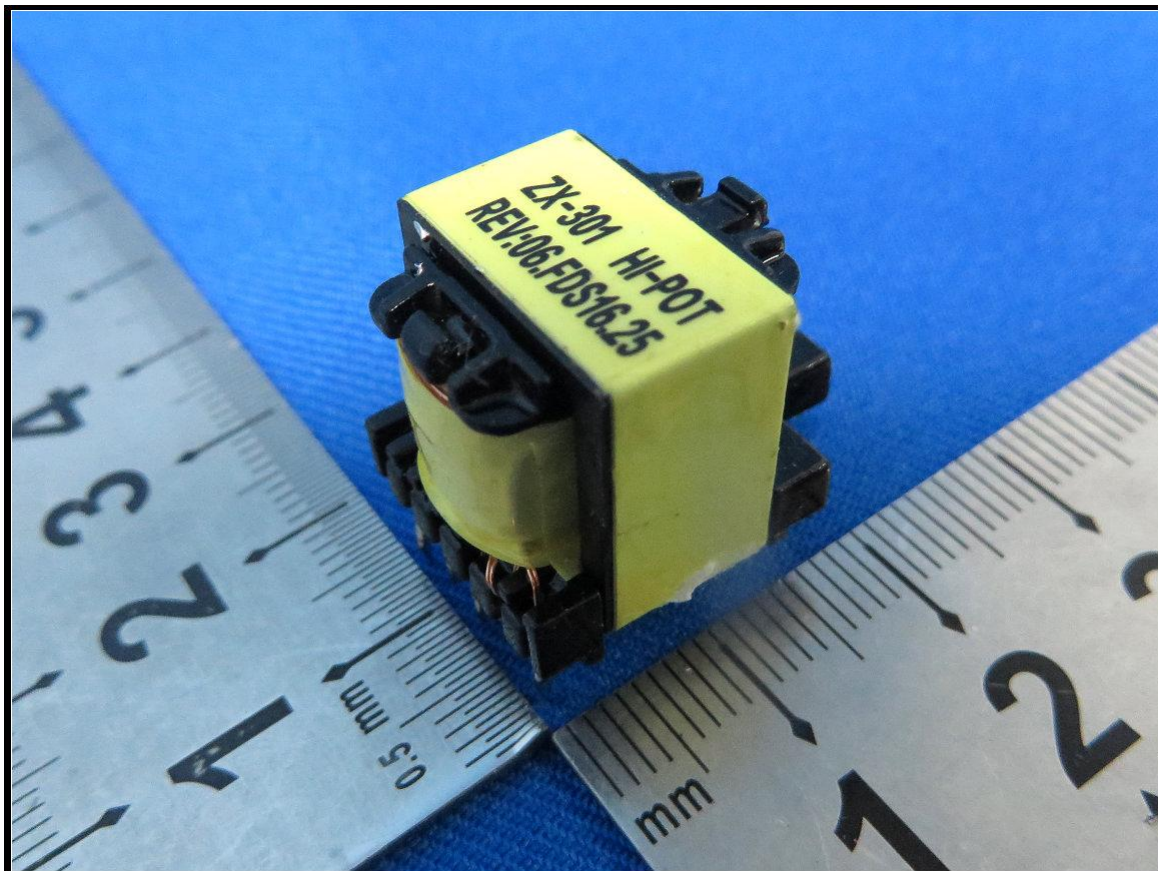
PWB (for 2 USB terminals)



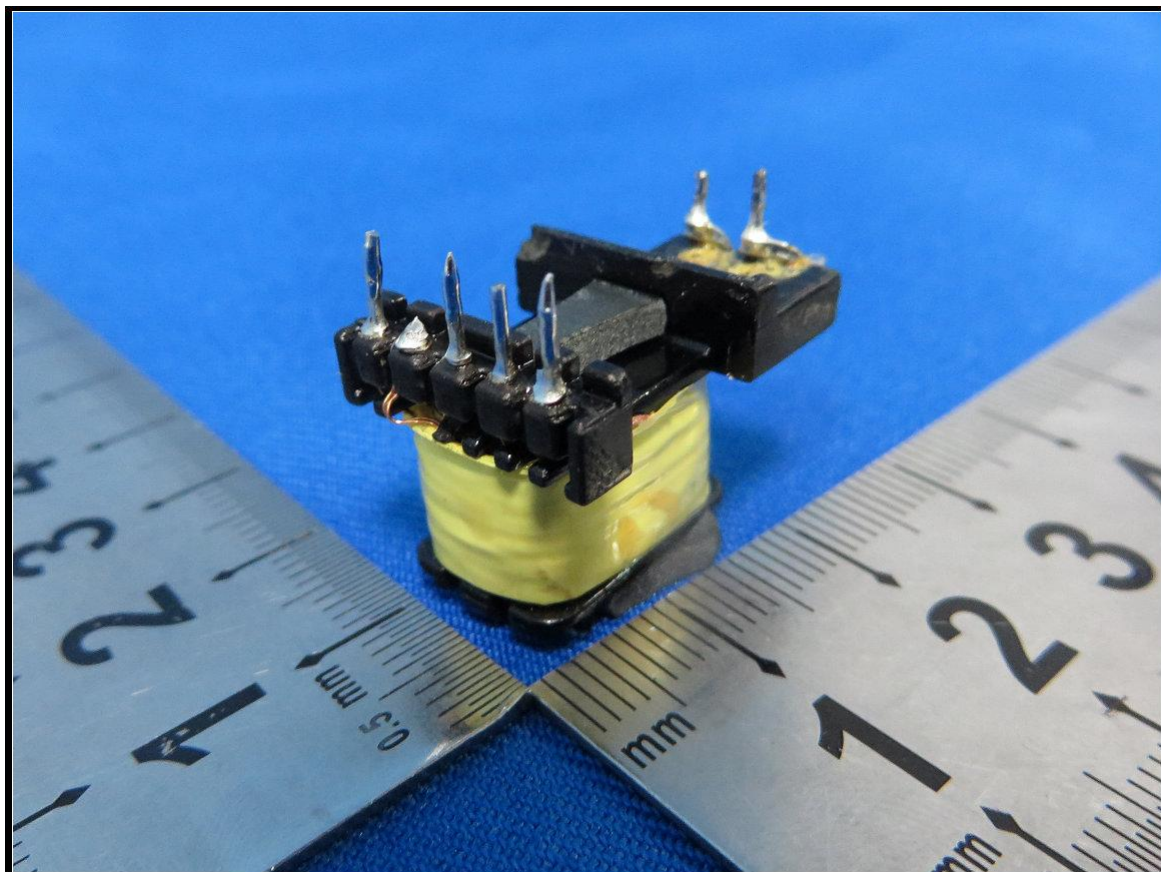
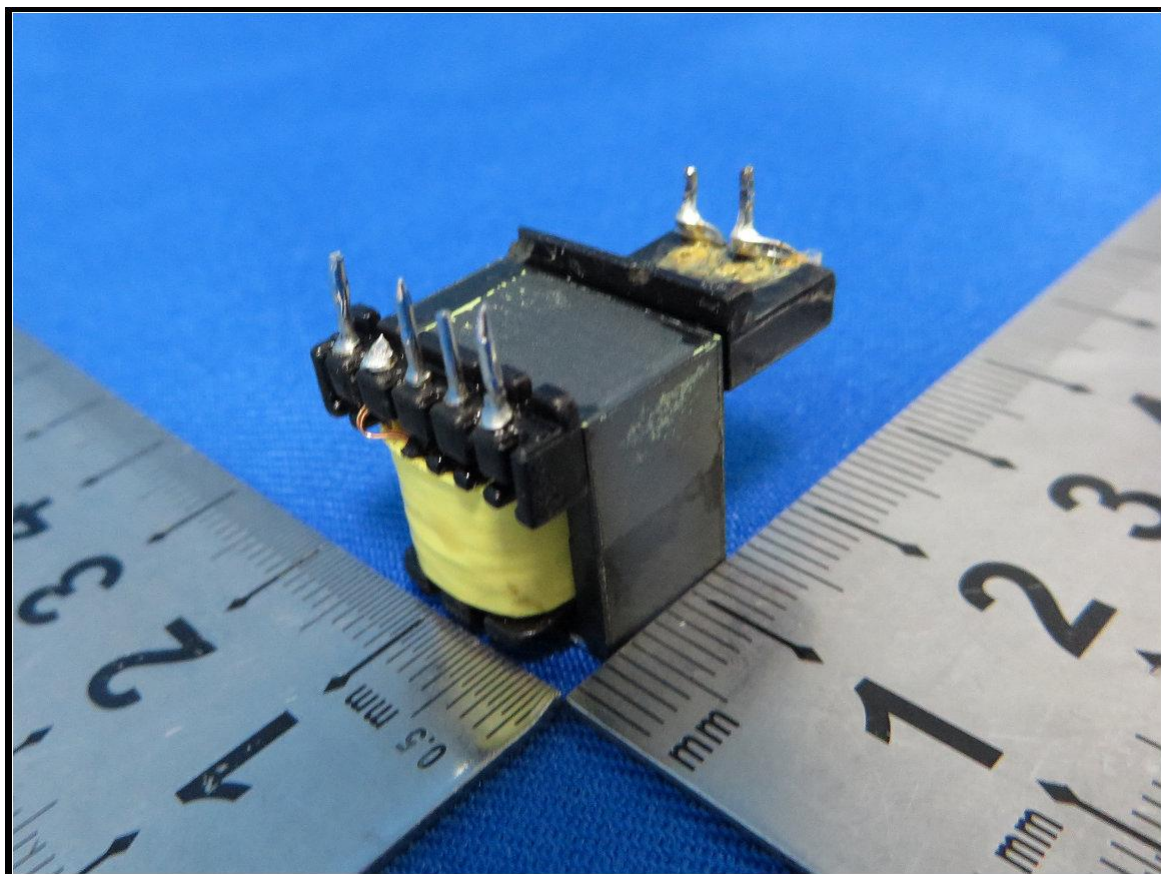
Attachment 1 Photo documentation

Transformer (for all models)

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Attachment 1 Photo documentation

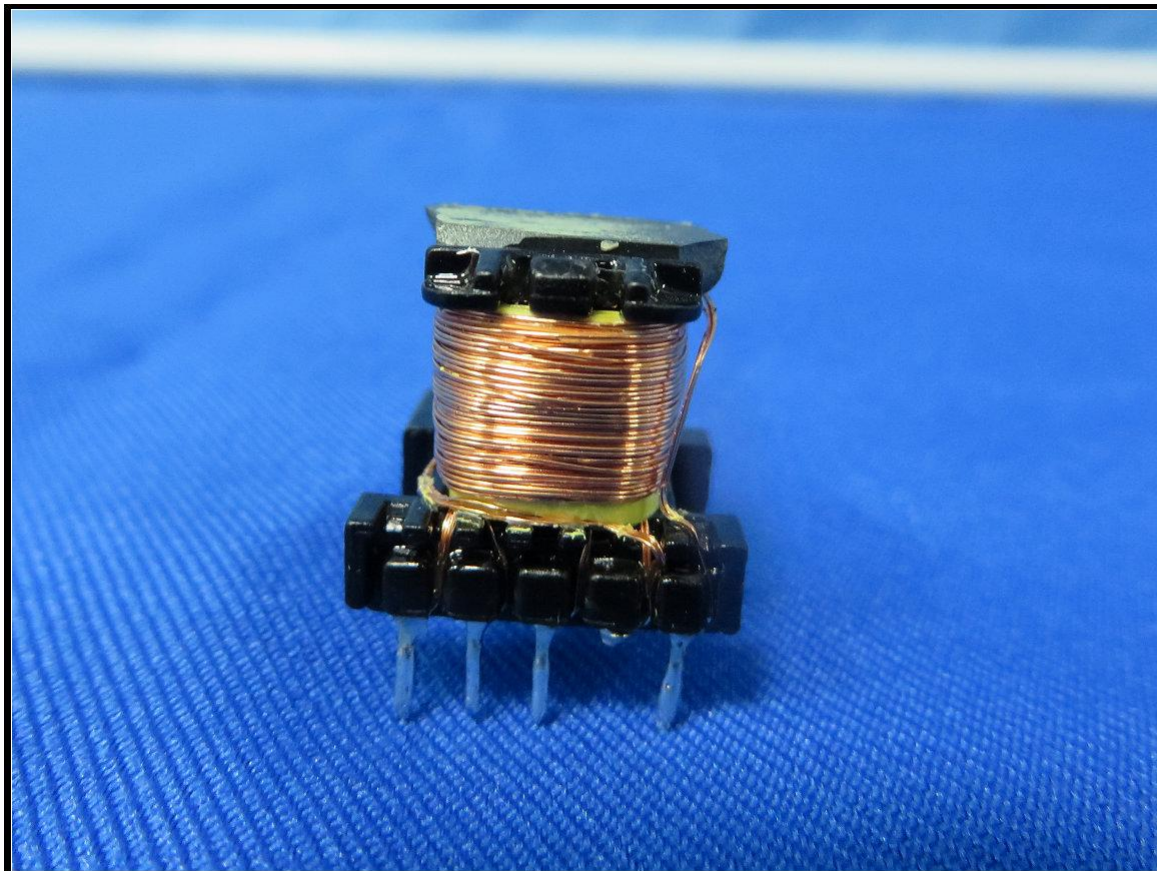




**Attachment 1 Photo documentation**

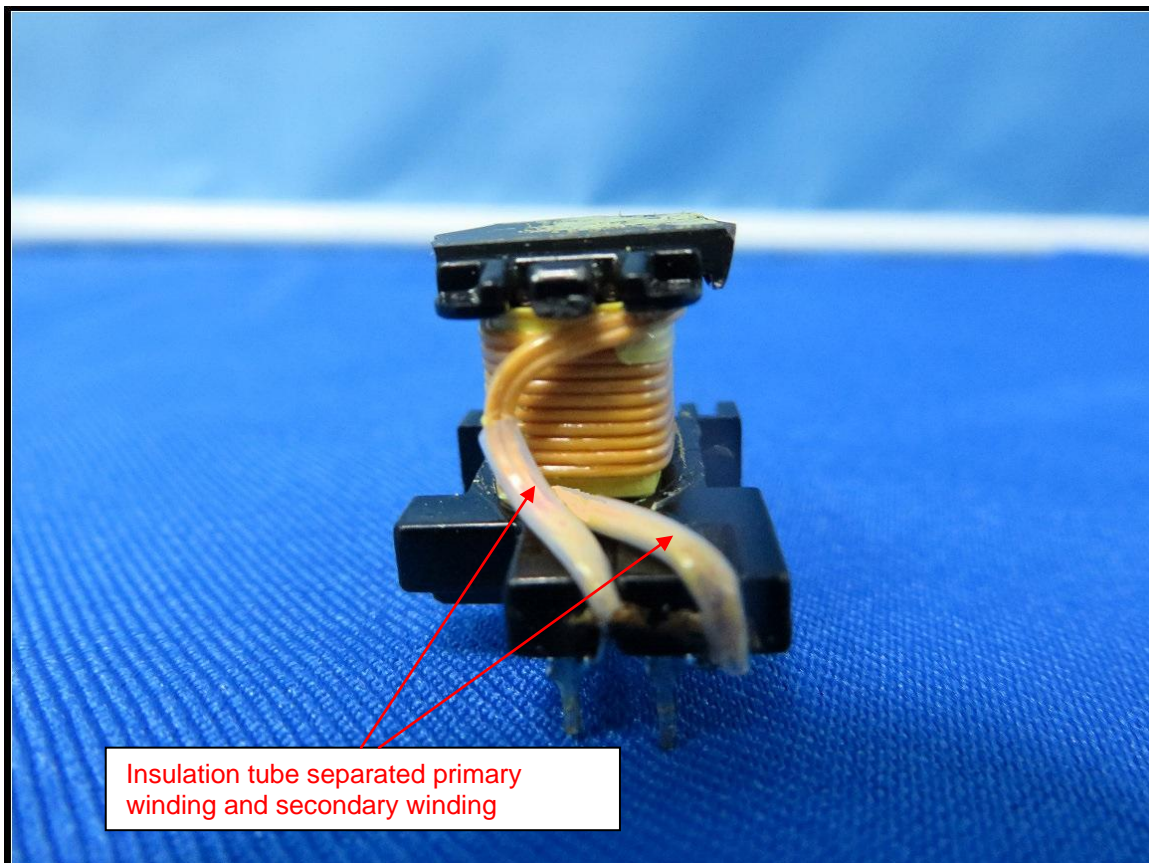
Primary winding

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Secondary winding

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### Attachment 2 Test Results for EU Plug

#### Plug portion test results for direct plug-in equipment according to EN 50075

Clause	Requirement test	Result- remark	Verdict
<b>5</b>	<b>RATING</b>		
	The product shall be rated $\leq 2,5$ A and $\leq 250$ V a.c.		P
<b>6</b>	<b>MARKING</b>		
	Marking requirement shall be checked by the product standard		—
<b>7</b>	<b>DIMENSIONS</b>		
	Plugs comply with standard sheet 1		P
	Compliance is checked by measurement	See appended table	P
	Compliance checked by means of the gauges in figure 1 (optional) and figure 2		P
<b>8</b>	<b>PROTECTION AGAINST ELECTRIC SHOCK</b>		
8.1	Live parts shall not be accessible		P
	Checked by test finger		P
	No deformation or no live part accessible during the additional test: $(75^{+3})$ N through the tip of a straight unjointed test finger for $(60^{+5})$ s at ambient temperature $(35\pm 2)$ °C	75 N, 35 °C	P
8.2	No possibility to make connection between a pin of the plug and a live socket contact of a socket-outlet while the other pin is accessible		P
	Compliance is checked by means of the gauge in figure 4: no contact between the gauge and the engagement face of the plug for 1 min (at $35\text{ °C}\pm 2$ °C for thermoplastic material)	The gauge did not come into contact with the engagement face of the plug.	P
8.3	External parts of plugs, with the exception of the pins, shall be of insulating material		P
<b>9</b>	<b>CONSTRUCTION</b>		
9.1	Non-rewirable requirements are not applicable to the direct plug-in equipment		—
9.2	This clause is not applicable to the direct plug-in equipment		—
9.3	Pins shall be solid and have adequate mechanical strength	See tests of clause 13	P
9.4	Pins shall be locked against rotation and adequately fixed into the body of the plug	See tests of 13.1 and 13.4	P
9.5	Connection requirements are not applicable to the direct plug-in equipment		—

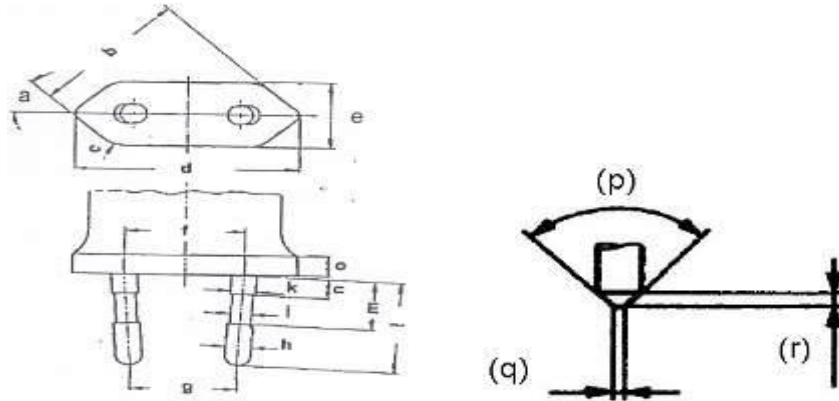
### Attachment 2 Test Results for EU Plug

Clause	Requirement test	Result- remark	Verdict
9.6	The equipment shall easily be withdrawn by hand from a socket-outlet		P
<b>10</b>	<b>RESISTANCE TO HUMIDITY</b>		
	Humidity treatment shall be checked by the product standard		—
<b>11</b>	<b>INSULATION RESISTANCE AND ELECTRIC STRENGTH</b>		
	Insulation resistance and electric strength shall be checked by the product standard		—
<b>12</b>	<b>FLEXIBLE CORDS AND THEIR CONNECTION</b>		
	Flexible cords and their connection requirements are not applicable to the direct plug-in equipment		—
<b>13</b>	<b>MECHANICAL STRENGTH</b>		
13.1	Pressure between 2 flat surfaces on the plug (150 N for 5 min)		P
	15 minutes after removal of the force, no deformation would result in undue alteration of those dimensions which ensure safety		P
13.2	Subjected to tumbling barrel; number of falls	: Direct plug-in equipment, 56,5 g, 50 falls	P
	After the test, no part shall become detached or loosened		P
	After the test, the pins shall not become so deformed that the plug cannot be introduced into the gauge of figure 2 and also fails to comply with clause 7 and 8.2		P
	After the tumbling barrel test, the pins shall not turn when applying a torque of 0,4 Nm, first in one direction and then in opposite direction		P
13.3	Insulating sleeves: 20000 movements, (4 <sub>-0,1</sub> ) N (apparatus shown in Figure 9)		P
	After the test		P
	- the sleeve shall show no damage		P
	- the sleeve shall not have punctured or rucked up		P
	- the sleeve shall satisfy electric strength test		P
13.4	(40 <sup>+1</sup> ) N applied for (60 <sup>+5</sup> ) s on each pin in turn, at (70 ± 2) °C, after the plug has been placed for (60 <sup>+5</sup> ) min	40 N, 70 °C	P
	Displacement ≤ 1 mm when the plug has cooled down	The displacement is 0,3 mm max.	P

### Attachment 2 Test Results for EU Plug

Clause	Requirement test	Result- remark	Verdict
<b>14</b>	<b>RESISTANCE TO HEAT AND TO AGEING</b>		
14.1	Plugs shall be sufficiently resistant to heat		P
14.1.1	Stress relief test shall be checked by the product standard		—
14.1.2	A force of (20 <sup>+1</sup> ) N applied by means of an apparatus shown in figure 10 at (80 ± 2) °C	20 N, 80 °C	P
	After (60 <sup>+5</sup> ) min, the jaws are removed and the plugs shall show no damage		P
14.2	This ageing test is not applicable to direct plug-in equipment		—
<b>15</b>	<b>CURRENT-CARRYING PARTS AND CONNECTIONS</b>		
15.1	This clause is not applicable to the direct plug-in equipment		—
15.2	This clause is not applicable to the direct plug-in equipment		—
15.3	Current-carrying parts shall be either of:		P
	- copper		N/A
	- an alloy containing at least 58% copper for parts made from rolled sheet (in cold condition) or at least 50% copper for other parts		P
	- other metals having a mechanical strength, an electrical conductivity and a resistance to corrosion adequate for their intended use		N/A
	Current-carrying parts which may be subjected to mechanical wear, shall not be made of steel provided with an electroplated coating		N/A
<b>16</b>	<b>CREEPAGE DISTANCES, CLEARANCES AND DISTANCES THROUGH INSULATION</b>		
	Creepage distances, clearances and distances through insulation shall be checked by the product standard		—
<b>17</b>	<b>RESISTANCE OF INSULATING MATERIAL TO ABNORMAL HEAT AND TO FIRE</b>		
	Glow-wire test	See appended table	P
	The test made on one plug, 2 further plugs tested in case of doubt		N/A

### Attachment 2 Test Results for EU Plug



7	TABLE: Dimensional measurement					P
Locations	Size (mm)	Tolerance (mm)	Measured (for both pins, if applicable) (mm)			
			Sample No.: 1	Sample No.: 2	Sample No.: 3	
a	45°	--	Pass	Pass	Pass	
b	26,1	± 0,5	26,58	26,60	26,58	
c	R 5	+ 1	Pass	Pass	Pass	
d	35,3	± 0,7	35,95	35,97	35,92	
e	13,7	± 0,7	14,30	14,30	14,28	
f	18 – 19,2	--	18,31	18,35	18,32	
g	17 – 18	--	17,57	17,65	17,64	
h	Ø4	± 0,06	3,97 / 3,97	3,97 / 3,97	3,97 / 3,97	
i	Ø3,8	max.	3,38 / 3,38	3,38 / 3,36	3,38 / 3,36	
k	Ø4	max.	3,80 / 3,82	3,80 / 3,86	3,80 / 3,83	
l	19	± 0,5	18,60 / 18,60	18,62 / 18,70	18,62 / 18,60	
m	10	+ 1	10,22 / 10,24	10,28 / 10,29	10,25 / 10,28	
n	4	max.	3,64 / 3,68	3,63 / 3,72	3,62 / 3,68	
o	18,0	min.	18,0	18,0	18,0	
Alternative chamfered pins used? (No)					--	
p	90°	max.	--	--	--	
q	Ø1,2	± 0,5	--	--	--	
r	2	max.	--	--	--	

17	TABLE: glow-wire test				P
part	test temperature (°C)	Type of material	technical data of material	observation	
Plastic material retaining live parts	750	940(f1)	PC, V-0	No flame	
Enclosure	650	940(f1)	PC, V-0	No flame	

\*\*\*\*\*End of Attachment 2\*\*\*\*\*

IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

**Attachment 3 EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES**

<p><b>ATTACHMENT TO TEST REPORT IEC 60950-1</b>  <b>EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES</b>          Information technology equipment – Safety –          Part 1: General requirements</p>	
<b>Differences according to.....:</b>	EN 60950-1:2006/A11:2009/A1:2010/A12:2011/A2:2013
<b>Attachment Form No.....:</b>	EU_GD_IEC60950_1F
<b>Attachment Originator .....</b>	SGS Fimko Ltd
<b>Master Attachment.....:</b>	Date 2014-02
<p><b>Copyright © 2014 IEC System for Conformity Testing and Certification of Electrical Equipment (IECEE), Geneva, Switzerland. All rights reserved.</b></p>	

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

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

IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
General (A2:2013)	Delete all the "country" notes in the reference document (IEC 60950-1:2005/A2:2013) according to the following list: 2.7.1 Note *                      2.10.3.1 Note 2 6.2.2. Note * Note of secretary: Text of Common Modification remains unchanged.		P
1.1.1 (A1:2010)	<b>Replace</b> the text of NOTE 3 by the following. NOTE 3 The requirements of EN 60065 may also be used to meet safety requirements for multimedia equipment. See IEC Guide 112, Guide on the safety of multimedia equipment. For television sets EN 60065 applies.		N/A
1.3.Z1	Add the following subclause: 1.3.Z1 Exposure to excessive sound pressure The apparatus shall be so designed and constructed as to present no danger when used for its intended purpose, either in normal operating conditions or under fault conditions, particularly providing protection against exposure to excessive sound pressures from headphones or earphones. NOTE Z1 A new method of measurement is described in EN 50332-1, Sound system equipment: Headphones and earphones associated with portable audio equipment - Maximum sound pressure level measurement methodology and limit considerations - Part 1: General method for "one package equipment", and in EN 50332-2, Sound system equipment: Headphones and earphones associated with portable audio equipment - Maximum sound pressure level measurement methodology and limit considerations - Part 2: Guidelines to associate sets with headphones coming from different manufacturers.	No sound pressure output port	N/A
(A12:2011)	In EN 60950-1:2006/A12:2011 Delete the addition of 1.3.Z1 / EN 60950-1:2006 Delete the definition 1.2.3.Z1 / EN 60950-1:2006 /A1:2010		N/A
1.5.1  (Added info*)	Add the following NOTE: NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2002/95/EC. New Directive 2011/65/11 *		N/A
1.7.2.1 (A1:2010)	In addition, for a PORTABLE SOUND SYSTEM, the instructions shall include a warning that excessive sound pressure from earphones and headphones can cause hearing loss.		N/A
1.7.2.1 (A12:2011)	In EN 60950-1:2006/A12:2011 Delete NOTE Z1 and the addition for Portable Sound System. Add the following clause and annex to the existing standard and amendments.		N/A

IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	<b>Zx Protection against excessive sound pressure from personal music players</b>		N/A
	<p><b>Zx.1 General</b></p> <p>This sub-clause specifies requirements for protection against excessive sound pressure from personal music players that are closely coupled to the ear. It also specifies requirements for earphones and headphones intended for use with personal music players.</p> <p>A personal music player is a portable equipment for personal use, that:</p> <ul style="list-style-type: none"> <li>– is designed to allow the user to listen to recorded or broadcast sound or video; and</li> <li>– primarily uses headphones or earphones that can be worn in or on or around the ears; and</li> <li>– allows the user to walk around while in use.</li> </ul> <p>NOTE 1 Examples are hand-held or body-worn portable CD players, MP3 audio players, mobile phones with MP3 type features, PDA's or similar equipment.</p> <p>A personal music player and earphones or headphones intended to be used with personal music players shall comply with the requirements of this sub-clause.</p> <p>The requirements in this sub-clause are valid for music or video mode only.</p> <p>The requirements do not apply:</p> <ul style="list-style-type: none"> <li>– while the personal music player is connected to an external amplifier; or</li> <li>– while the headphones or earphones are not used.</li> </ul> <p>NOTE 2 An external amplifier is an amplifier which is not part of the personal music player or the listening device, but which is intended to play the music as a standalone music player.</p> <p>The requirements do not apply to:</p> <ul style="list-style-type: none"> <li>– hearing aid equipment and professional equipment;</li> </ul> <p>NOTE 3 Professional equipment is equipment sold through special sales channels. All products sold through normal electronics stores are considered not to be professional equipment.</p>		N/A




IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>– analogue personal music players (personal music players without any kind of digital processing of the sound signal) that are brought to the market before the end of 2015.</p> <p>NOTE 4 This exemption has been allowed because this technology is falling out of use and it is expected that within a few years it will no longer exist. This exemption will not be extended to other technologies.</p> <p>For equipment which is clearly designed or intended for use by young children, the limits of EN 71-1 apply.</p>		N/A
	<p><b>Zx.2 Equipment requirements</b></p> <p>No safety provision is required for equipment that complies with the following:</p> <ul style="list-style-type: none"> <li>– equipment provided as a package (personal music player with its listening device), where the acoustic output <math>L_{Aeq,T}</math> is <math>\leq 85</math> dBA measured while playing the fixed “programme simulation noise” as described in EN 50332-1; and</li> <li>– a personal music player provided with an analogue electrical output socket for a listening device, where the electrical output is <math>\leq 27</math> mV measured as described in EN 50332-2, while playing the fixed “programme simulation noise” as described in EN 50332-1.</li> </ul> <p>NOTE 1 Wherever the term acoustic output is used in this clause, the 30 s A-weighted equivalent sound pressure level <math>L_{Aeq,T}</math> is meant. See also Zx.5 and Annex Zx.</p> <p>All other equipment shall:</p> <ol style="list-style-type: none"> <li>a) protect the user from unintentional acoustic outputs exceeding those mentioned above; and</li> <li>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</li> </ol>		N/A

IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>c) provide a means to actively inform the user of the increased sound pressure when the equipment is operated with an acoustic output exceeding those mentioned above. Any means used shall be acknowledged by the user before activating a mode of operation which allows for an acoustic output exceeding those mentioned above. The acknowledgement does not need to be repeated more than once every 20 h of cumulative listening time; and</p> <p>NOTE 2 Examples of means include visual or audible signals. Action from the user is always required.</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> <p>e) not exceed the following:</p> <ol style="list-style-type: none"> <li>1) equipment provided as a package (player with its listening device), the acoustic output shall be <math>\leq 100</math> dBA measured while playing the fixed "programme simulation noise" described in EN 50332-1; and</li> <li>2) a personal music player provided with an analogue electrical output socket for a listening device, the electrical output shall be <math>\leq 150</math> mV measured as described in EN 50332-2, while playing the fixed "programme simulation noise" described in EN 50332-1.</li> </ol> <p>For music where the average sound pressure (long term <math>L_{Aeq,T}</math>) 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 <math>L_{Aeq,T}</math>) which is much lower than the average programme simulation noise. Therefore, if the player is capable to analyse the song and compare it with the programme simulation noise, the warning does not need to be given as long as the average sound pressure of the song is below the basic limit of 85 dBA.</p> <p>For example, if the player is set with the programme simulation noise to 85 dBA, but the average music level of the song is only 65 dBA, there is no need to give a warning or ask an acknowledgement as long as the average sound level of the song is not above the basic limit of 85 dBA.</p>		N/A

IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	<p><b>Zx.3 Warning</b></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"> <li>– the symbol of Figure 1 with a minimum height of 5 mm; and</li> <li>– the following wording, or similar:</li> </ul> <p>“To prevent possible hearing damage, do not listen at high volume levels for long periods.”</p> <div style="text-align: center;">  </div> <p><b>Figure 1 – Warning label (IEC 60417-6044)</b></p> <p>Alternatively, the entire warning may be given through the equipment display during use, when the user is asked to acknowledge activation of the higher level.</p>		N/A
	<p><b>Zx.4 Requirements for listening devices (headphones and earphones)</b></p>		N/A
	<p><b>Zx.4.1 Wired listening devices with analogue input</b></p> <p>With 94 dBA sound pressure output <math>L_{Aeq,T}</math>, the input voltage of the fixed “programme simulation noise” described in EN 50332-2 shall be <math>\geq 75</math> mV.</p> <p>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).</p> <p>NOTE The values of 94 dBA – 75 mV correspond with 85dBA – 27 mV and 100 dBA – 150 mV.</p>		N/A

IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	<p><b>Zx.4.2 Wired listening devices with digital input</b></p> <p>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 <math>L_{Aeq,T}</math> of the listening device shall be <math>\leq 100</math> dBA.</p> <p>This requirement is applicable in any mode where the headphones can operate, including any available setting (for example built-in volume level control, additional sound feature like equalization, etc.).</p> <p>NOTE An example of a wired listening device with digital input is a USB headphone.</p>		N/A
	<p><b>Zx.4.3 Wireless listening devices</b></p> <p>In wireless mode:</p> <ul style="list-style-type: none"> <li>– with any playing and transmitting device playing the fixed programme simulation noise described in EN 50332-1; and</li> <li>– respecting the wireless transmission standards, where an air interface standard exists that specifies the equivalent acoustic level; and</li> <li>– 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 <math>L_{Aeq,T}</math> of the listening device shall be <math>\leq 100</math> dBA.</li> </ul> <p>NOTE An example of a wireless listening device is a Bluetooth headphone.</p>		N/A
	<p><b>Zx.5 Measurement methods</b></p> <p>Measurements shall be made in accordance with EN 50332-1 or EN 50332-2 as applicable. Unless stated otherwise, the time interval T shall be 30 s.</p> <p>NOTE Test method for wireless equipment provided without listening device should be defined.</p>		N/A

IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

**IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)**

Clause	Requirement + Test	Result - Remark	Verdict						
2.7.1	<p>Replace the subclause as follows:</p> <p>Basic requirements</p> <p>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>		N/A						
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";</p> <p>"60227 IEC 52" by "H03 VV-F or H03 VVH2-F";</p> <p>"60227 IEC 53" by "H05 VV-F or H05 VVH2-F2".</p> <p>In Table 3B, replace the first four lines by the following:</p> <table border="0"> <tr> <td>Up to and including 6  </td> <td>0,75<sup>a)</sup>  </td> </tr> <tr> <td>Over 6 up to and including 10   (0,75)<sup>b)</sup></td> <td>1,0  </td> </tr> <tr> <td>Over 10 up to and including 16   (1,0)<sup>c)</sup></td> <td>1,5  </td> </tr> </table> <p>In the conditions applicable to Table 3B delete the words "in some countries" in condition<sup>a)</sup>.</p> <p>In NOTE 1, applicable to Table 3B, delete the second sentence.</p>	Up to and including 6	0,75 <sup>a)</sup>	Over 6 up to and including 10   (0,75) <sup>b)</sup>	1,0	Over 10 up to and including 16   (1,0) <sup>c)</sup>	1,5		N/A
Up to and including 6	0,75 <sup>a)</sup>								
Over 6 up to and including 10   (0,75) <sup>b)</sup>	1,0								
Over 10 up to and including 16   (1,0) <sup>c)</sup>	1,5								

IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
3.2.5.1 (A2:2013)	NOTE Z1 The harmonised code designations corresponding to the IEC cord types are given in Annex ZD		N/A
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).		N/A
	Standards taking into account mentioned Recommendation and Directive which demonstrate compliance with the applicable EU Directive are indicated in the OJEC.		N/A
Annex H	Replace the last paragraph of this annex by: At any point 10 cm from the surface of the OPERATOR ACCESS AREA, the dose rate shall not exceed 1 µSv/h (0,1 mR/h) (see NOTE). Account is taken of the background level. Replace the notes as follows: NOTE These values appear in Directive 96/29/Euratom. Delete NOTE 2.		N/A
Bibliography	Additional EN standards.		—

<b>ZA</b>	<b>NORMATIVE REFERENCES TO INTERNATIONAL PUBLICATIONS WITH THEIR CORRESPONDING EUROPEAN PUBLICATIONS</b>	—
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ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN)			
Clause	Requirement + Test	Result - Remark	Verdict
1.2.4.1	In <b>Denmark</b> , 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 (A11:2009)	In <b>Norway</b> and <b>Sweden</b> , for requirements see 1.7.2.1 and 7.3 of this annex.		N/A

IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

<b>ZB ANNEX (normative)</b> <b>SPECIAL NATIONAL CONDITIONS (EN)</b>			
Clause	Requirement + Test	Result - Remark	Verdict
1.5.7.1 (A11:2009)	In <b>Finland, Norway and Sweden</b> , 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 <b>Norway</b> , 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 <b>Finland, Norway and Sweden</b> , the third dashed sentence is applicable only to equipment as defined in 6.1.2.2 of this annex.		N/A

IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

<b>ZB ANNEX (normative)</b> <b>SPECIAL NATIONAL CONDITIONS (EN)</b>			
Clause	Requirement + Test	Result - Remark	Verdict
1.7.2.1	<p>In <b>Finland, Norway and Sweden</b>, 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 <b>Finland</b>: "Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan"</p> <p>In <b>Norway</b>: "Apparatet må tilkoples jordet stikkontakt"</p> <p>In <b>Sweden</b>: "Apparaten skall anslutas till jordat uttag"</p>		N/A
1.7.2.1 (A11:2009)	<p>In <b>Norway and Sweden</b>, 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>		



IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

<b>ZB ANNEX (normative)</b> <b>SPECIAL NATIONAL CONDITIONS (EN)</b>			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>NOTE In Norway, due to regulation for installations of cable distribution systems, and in Sweden, a galvanic isolator shall provide electrical insulation below 5 MHz. The insulation shall withstand a dielectric strength of 1,5 kV r.m.s., 50 Hz or 60 Hz, for 1 min.</p> <p>Translation to Norwegian (the Swedish text will also be accepted in Norway):            "Utstyr som er koplet til beskyttelsesjord via nettplugg og/eller via annet jordtilkoplet utstyr – og er tilkoplet et kabel-TV nett, kan forårsake brannfare. For å unngå dette skal det ved tilkopling av utstyret til kabel-TV nettet installeres en galvanisk isolator mellom utstyret og kabel- TV nettet."            Translation to Swedish:            "Utrustning som är kopplad till skyddsjord via jordat vägguttag och/eller via annan utrustning och samtidigt är kopplad till kabel-TV nät kan i vissa fall medföra risk för brand. För att undvika detta skall vid anslutning av utrustningen till kabel-TV nät galvanisk isolator finnas mellan utrustningen och kabel-TV nätet."</p>		N/A
1.7.2.1 (A2:2013)	<p>In <b>Denmark</b>, 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 <b>Denmark</b> shall be as follows:            In <b>Denmark</b>: "Apparatets stikprop skal tilsluttes en stikkontakt med jord, som giver forbindelse til stikproppens jord."</p>		N/A
1.7.5  1.7.5 (A11:2009)	<p>In <b>Denmark</b>, 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 <b>CLASS II EQUIPMENT</b> the socket outlet shall be in accordance with Standard Sheet DKA 1-4a.</p>		N/A

IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

<b>ZB ANNEX (normative)</b> <b>SPECIAL NATIONAL CONDITIONS (EN)</b>			
Clause	Requirement + Test	Result - Remark	Verdict
1.7.5 (A2:2013)	<p>In <b>Denmark</b>, socket-outlets for providing power to other equipment shall be in accordance with the DS 60884-2-D1:2011.</p> <p>For class I equipment the following Standard Sheets are applicable: DK 1-3a, DK 1-1c, DK 1-1d, DK 1-5a or DK 1-7a, with the exception for STATIONARY EQUIPMENT where the socket-outlets shall be in accordance with Standard Sheet DK 1-1b, DK 1-1c, DK 1-1d or DK 1-5a.</p> <p>Socket outlets intended for providing power to Class II apparatus with a rated current of 2,5 A shall be in accordance with DS 60884-2-D1 standard sheet DKA 1-4a. Other current rating socket outlets shall be in compliance with by DS 60884-2-D1 Standard Sheet DKA 1-3a or DKA 1-3b.</p> <p>Justification the Heavy Current Regulations, 6c</p>		N/A
2.2.4	In <b>Norway</b> , 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 <b>Finland, Norway and Sweden</b> there are additional requirements for the insulation. See 6.1.2.1 and 6.1.2.2 of this annex.		N/A
2.3.4	In <b>Norway</b> , 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 <b>United Kingdom</b> , the current rating of the circuit shall be taken as 13 A, not 16 A.		N/A
2.7.1	In the <b>United Kingdom</b> , 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 <b>Finland, Norway and Sweden</b> , 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 <b>Switzerland</b>, 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

IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

<b>ZB ANNEX (normative)</b> <b>SPECIAL NATIONAL CONDITIONS (EN)</b>			
Clause	Requirement + Test	Result - Remark	Verdict
	SEV 6533-2.1991 Plug Type 11 L+N 250 V, 10 A SEV 6534-2.1991 Plug Type 12 L+N+PE 250 V, 10 A  In general, EN 60309 applies for plugs for currents exceeding 10 A. However, a 16 A plug and socket-outlet system is being introduced in Switzerland, the plugs of which are according to the following dimension sheets, published in February 1998: SEV 5932-2.1998: Plug Type 25 , 3L+N+PE 230/400 V, 16 A  SEV 5933-2.1998: Plug Type 21, L+N, 250 V, 16A  SEV 5934-2.1998: Plug Type 23, L+N+PE 250 V, 16 A		N/A
3.2.1.1	In <b>Denmark</b> , 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.		N/A

IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

<b>ZB ANNEX (normative)</b> <b>SPECIAL NATIONAL CONDITIONS (EN)</b>			
Clause	Requirement + Test	Result - Remark	Verdict
3.2.1.1 (A2:2013)	<p>In <b>Denmark</b>, supply cords of single-phase equipment having a rated current not exceeding 13 A shall be provided with a plug according to DS 60884-2-D1.</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 a single-phase equipment having a RATED CURRENT exceeding 13 A or if a poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with the standard sheets DK 6-1a in DS 60884-2-D1 or EN 60309-2.</p> <p>Justification the Heavy Current Regulations, 6c</p>		N/A
3.2.1.1	<p>In <b>Spain</b>, 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
3.2.1.1	<p>In the <b>United Kingdom</b>, 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

IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

<b>ZB ANNEX (normative)</b> <b>SPECIAL NATIONAL CONDITIONS (EN)</b>			
Clause	Requirement + Test	Result - Remark	Verdict
3.2.1.1	In <b>Ireland</b> , apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to I.S. 411 by means of that flexible cable or cord and plug, shall be fitted with a 13 A plug in accordance with Statutory Instrument 525:1997 - National Standards Authority of Ireland (section 28) (13 A Plugs and Conversion Adaptors for Domestic Use) Regulations 1997.		N/A
3.2.4	In <b>Switzerland</b> , for requirements see 3.2.1.1 of this annex.		N/A
3.2.5.1	In the <b>United Kingdom</b> , a power supply cord with conductor of 1,25 mm <sup>2</sup> is allowed for equipment with a rated current over 10 A and up to and including 13 A.		N/A
3.3.4	In the <b>United Kingdom</b> , the range of conductor sizes of flexible cords to be accepted by terminals for equipment with a RATED CURRENT of over 10 A up to and including 13 A is: <ul style="list-style-type: none"> <li>• 1,25 mm<sup>2</sup> to 1,5 mm<sup>2</sup> nominal cross-sectional area.</li> </ul>		N/A
4.3.6	In the <b>United Kingdom</b> , 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 <b>Ireland</b> , 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

IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

<b>ZB ANNEX (normative)</b> <b>SPECIAL NATIONAL CONDITIONS (EN)</b>			
Clause	Requirement + Test	Result - Remark	Verdict
5.1.7.1	<p>In <b>Finland, Norway and Sweden</b> 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"> <li>• STATIONARY PLUGGABLE EQUIPMENT TYPE A that <ul style="list-style-type: none"> <li>is intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, for example, in a telecommunication centre; and</li> <li>has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR; and</li> <li>is provided with instructions for the installation of that conductor by a SERVICE PERSON;</li> </ul> </li> <li>• STATIONARY PLUGGABLE EQUIPMENT TYPE B;</li> <li>• STATIONARY PERMANENTLY CONNECTED EQUIPMENT.</li> </ul>		N/A
6.1.2.1 (A1:2010)	<p>In <b>Finland, Norway and Sweden</b>, 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"> <li>- two layers of thin sheet material, each of which shall pass the electric strength test below, or</li> <li>- one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below.</li> </ul> <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"> <li>- 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</li> <li>- is subject to ROUTINE TESTING for electric strength during manufacturing, using a test voltage of 1,5 kV.</li> </ul>		N/A

IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

<b>ZB ANNEX (normative)</b> <b>SPECIAL NATIONAL CONDITIONS (EN)</b>			
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"> <li>- 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;</li> <li>- the additional testing shall be performed on all the test specimens as described in EN 60384-14:</li> <li>- 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.</li> </ul>		N/A
6.1.2.2	<p>In <b>Finland, Norway</b> and <b>Sweden</b>, the exclusions are applicable for PERMANENTLY CONNECTED EQUIPMENT, PLUGGABLE EQUIPMENT TYPE B and equipment intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, e.g. in a telecommunication centre, and which has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR and is provided with instructions for the installation of that conductor by a SERVICE PERSON.</p>		N/A
7.2	<p>In <b>Finland, Norway</b> and <b>Sweden</b>, for requirements see 6.1.2.1 and 6.1.2.2 of this annex.</p> <p>The term TELECOMMUNICATION NETWORK in 6.1.2 being replaced by the term CABLE DISTRIBUTION SYSTEM.</p>		N/A
7.3 (A11:2009)	<p>In <b>Norway</b> and <b>Sweden</b>, for requirements see 1.2.13.14 and 1.7.2.1 of this annex.</p>		N/A

IEC60950_1F - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

**Annex ZD  
(informative)**

**IEC and CENELEC code designations for flexible cords**

Type of flexible cord	Code designations	
	IEC	CENELEC
<b>PVC insulated cords</b>		
Flat twin tinsel cord	60227 IEC 41	H03VH-Y
Light polyvinyl chloride sheathed flexible cord	60227 IEC 52	H03VV-F H03VVH2-F
Ordinary polyvinyl chloride sheathed flexible cord	60277 IEC 53	H05VV-F H05VVH2-F
<b>Rubber insulated cords</b>		
Braided cord	60245 IEC 51	H03RT-F
Ordinary tough rubber sheathed flexible cord	60245 IEC 53	H05RR-F
Ordinary polychloroprene sheathed flexible cord	60245 IEC 57	H05RN-F
Heavy polychloroprene sheathed flexible cord	60245 IEC 66	H07RN-F
<b>Cords having high flexibility</b>		
Rubber insulated and sheathed cord	60245 IEC 86	H03RR-H
Rubber insulated, crosslinked PVC sheathed cord	60245 IEC 87	H03RV4-H
Crosslinked PVC insulated and sheathed cord	60245 IEC 88	H03V4V4-H

\*\*\*\*\*End of Attachment 3\*\*\*\*\*